

ANNUAL REPORT
OF THE
NEW JERSEY BOARD OF FISH
AND
GAME COMMISSIONERS



FOR THE
Fiscal Year Commencing July 1, 1929
And Ending June 30, 1930

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, 1929, to June 30, 1930.

Very respectfully,

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

Commissioners.

**List of Fish and Game Commissioners Holding Office
at the Date of This Report
June 30, 1930**

| | |
|--|-------------|
| H. J. BURLINGTON, <i>President</i> | Montvale |
| CHARLES F. HUNTER, <i>Vice-President</i> | Palisade |
| HARRY M. ARMSTRONG, <i>Treasurer</i> | Jersey City |
| ALEXANDER H. PHILLIPS | Princeton |
| GEORGE C. WARREN, JR. | Summit |
| LEWIS SPINKS | Jersey City |
| JAMES R. HENSLER | Toms River |
| BENJAMIN W. COOPER | Moorestown |
| GEORGE S. MCCARTY | Newfield |

WALTER H. FELL, *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., *Protector* Long Branch
 CUDNEY, HARRY E., *Assistant Protector* Hackettstown
 DAVISON, ARTHUR, *Assistant Protector* Belmar
 KELLEY, THOMAS, *Assistant Protector* Jersey City
 MATHIS, HOWARD Z., *Assistant Protector* Collingswood

BAILEY, JOHN B. Washington
 BAKER, EDWIN Haleyville
 BAKLEY, ALFRED F. Andover
 BERNIUS, HENRY F. Madison
 BROOKE, GEORGE B. Blackwood
 CARSON, ROY R. Medford
 COX, JOHN F. Washington
 CROWLEY, HAROLD M. Tuckerton
 DACKERMANN, FRED H. Elizabeth
 EGGERT, JOSEPH S. Perth Amboy
 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. Mendham
 LYELL, M. HOWARD Freehold
 MILLER, JOHN C. Absecon
 MIZELL, CHATHAM Elmer
 NOLAN, THOMAS F. Trenton
 PAUL, GEORGE R. Bernardsville
 PHIFER, GEORGE W. Millville
 ROACH, ALBERT A. Butler
 RUTH, ALBERT J. Woodcliff Lake
 SAXTON, DANA J. (*Commenced July 1, 1930*) Manahawkin
 SMALL, WILLIAM H. Teaneck
 STEEL, WILLIAM Cape May Court House
 TRELOAR, JAMES H., JR. Franklin
 WILLIAMS, ROY H. Pompton Lakes

GENERAL

PROGRESS STATEMENT

The following shows the 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> |
|---------------|------------------|----------------|--------------|----------------|
| 1928-29 | 18,337 | 14,921 | ..... | ..... |
| 1929-30 | 22,709 | 14,900 | 720 | 80 |

32,350 eggs were furnished to sportsmen and farmers throughout the State, the total value of which was over \$8,000.

The market value of game distributed during the fiscal year 1929-30 as shown above would be \$98,375.57.

Included in the distribution of game were 4,935 pheasants purchased at a cost to the Commission of.....\$16,174.50
 and 14,900 rabbits.....17,875.07
 and 720 quail..... 2,100.00

We also purchased for a new strain of blood and propagation purposes and sent them to the Farms, 1,239 pheasants at a cost of..... 3,990.00

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>Sun- fish</i> | <i>Other Fish</i> |
|---------------|--------------------------|---------------------------|-------------|-----------------------------|---------------------|----------------------|-----------------------|
| 1929-30 | *446,882 | 203,300 | 181,000 | 113,800,000 | 3,094,000 | 391,950 | 1,725,500 |
| 1928-29 | 423,505 | 300,600 | 285,300 | 104,800,000 | 2,688,000 | 377,250 | 756,175 |

*Seventy-five per cent of the above trout were from 8 to 12 inches long and a great many 14 to 16 inches are included in the above number. We are concentrating on supplying more of the larger fish every year, as we find this to give satisfactory results to the angler.

The market value of fish distributed during the fiscal year 1929-30 as shown above would be \$186,106.26.

The total commercial value of game, fish and eggs released to the sportsmen during the past fiscal year was approximately \$300,000. In other words, the Commission is furnishing the sportsmen as much value in fish and game as the total receipts from hunting and fishing licenses, which were \$301,000 during that year.

**CENSUS OF FISH, GAME AND VERMIN TAKEN IN 1925, 1926
AS COMPARED WITH 1927, 1928**

| | 1925, 1926 | 1927, 1928 |
|-------------------|------------|------------|
| ✓ Pheasants | 135,237 | 175,207 |
| ✓ Rabbits | 889,377 | 937,085 |
| ✓ Grouse | 21,949 | 14,931 |
| ✓ Quail | 129,391 | 134,727 |
| ✓ Woodcock | 20,383 | 18,881 |
| ✓ Geese | 11,613 | 11,989 |
| ✓ Ducks | 143,935 | 128,363 |
| ✓ Trout | 391,261 | 494,535 |
| ✓ Bass | 197,845 | 200,206 |
| ✓ Pickerel | 312,487 | 373,932 |
| ✓ Cats | 22,720 | 20,815 |
| ✓ Weasels | 7,324 | 11,597 |
| ✓ Foxes | 1,697 | 1,972 |
| ✓ Deer | 2,939 | 3,205 |

The estimated value in dollars and cents of the game and fish reported taken above in 1927, 1928 is \$2,300,000. This does not include fish and game taken by the farmer or property owner on his ground, who does not require a license.

In addition to the vermin killed listed above, we have instituted, through our wardens, a special vermin campaign and during the last fiscal year the following vermin were killed by our wardens.

| | |
|---------------|-----|
| Cats | 435 |
| Hawks | 137 |
| Weasels | 26 |
| Crows | 157 |
| Foxes | 19 |
| Dogs | 8 |
| Skunks | 6 |

LICENSES ISSUED

| | |
|-----------|---|
| 1928..... | 195,152 (including Special woodcock licenses) |
| 1929..... | 202,040 (including Special woodcock licenses) |

**PROSECUTIONS FOR VIOLATION OF THE
FISH AND GAME LAWS**

| | |
|------------|------|
| 1928 | 948 |
| 1929 | 968 |
| 1930 | 1355 |

It might be interesting to note the following table showing the progress made by the Commission for the past ten years on a basis of a five-year period.

GAME DISTRIBUTION

| | Pheasants | Rabbits | Hungarian Partridge | Quail | Deer | Turkeys |
|------------|-----------|---------|---------------------|-------|-------|---------|
| 1920 | 4,619 | 155 | ..... | ..... | 2 | 36 |
| 1925 | 16,826 | 9,265 | 160 | 113 | ..... | 6 |
| 1930 | 22,703 | 14,900 | ..... | 720 | ..... | 80 |

FISH DISTRIBUTION

| | Trout Over 6" | Trout Under 6" | Bass | Yellow Perch Fry | Shad Fry | Sun-fish | Other Fish |
|------------|---------------|----------------|---------|------------------|-----------|----------|------------|
| 1920 | 43,090 | 756,120 | 36,300 | 27,500,000 | ..... | ..... | 32 |
| 1925 | 269,160 | 1,008,200 | 214,307 | 58,000,000 | ..... | 125,050 | 7,695 |
| 1930 | 446,882 | 203,300 | 131,000 | 113,800,000 | 3,094,000 | 391,950 | 1,725,500 |

EXPENDED BY SPORTSMEN

It is conservatively estimated that the sportsmen of New Jersey spend upwards of five million dollars per year in the State for firearms, ammunition, fishing tackle, transportation, guides, boats, etc.. This is no small resource to the State and should be taken into consideration when the sportsmen want legislation to protect their interests.

INCREASED LICENSE FEE

The peak of what can be done with the amount of money available under the present license fees has about been reached. With an increased license fee the output of fish and game could be doubled, and fishing and hunting grounds could be acquired, which is absolutely necessary if good hunting and fishing is to be continued in New Jersey. We are gradually losing some of our best hunting and fishing grounds to private clubs and individuals.

TEN THOUGHTS

- Report violations.
- Kill predatory cats.
- Feed birds in winter.
- Be sure before you shoot.
- Respect property owners' rights.
- Wet hands before gently releasing under-sized fish.
- Smallest cost of your equipment is the license fee.
- Do not toss lighted tobacco from your car.
- The Commission is with you in wanting better sport.
- Smile, because your State still has fine hunting and fishing.

THE BOARD'S REVENUES

The New Jersey Board of Fish and Game Commissioners does not cost the tax payers a penny. All expenses are paid from the Board's receipts and its commissioners serve without salary. Despite iterations of the facts respecting our revenues, there is still some misunderstanding regarding them. If one still believes that the Board receives and spends its revenues at will, he is referred to Chapter 263, Laws of New Jersey, 1929, page 511, where in the annual appropriation bill there is set forth itemized appropriations to the Board, to be paid out of the receipts of the Board. These items, before appropriation by the Legislature, are investigated in detail by the Governor's Budget Commission, and also by the Joint Appropriation Committee of the Legislature. This system has been established for many years, and it must be remembered that all moneys are paid into the State Treasury monthly, and that the hunting and fishing license money, the great bulk of our receipts, is sent direct to the State Treasury by the County Clerks. Only minor license receipts, fines, commercial fishing licenses, etc., come into the hands of the Board's Treasurer, who remits monthly, according to law, to the State Treasurer. This latter system is necessary for proper auditing of claims. Moneys can only be withdrawn from the State Treasury in the same manner as for any other Department of the State.

The Board not only enforces the fish and game laws but generously stocks practically all fresh waters of the State open to the public holding licenses, with brook trout, brown trout, lock leven trout, rainbow trout, small and large mouth bass, catfish, bluegill sunfish, sunfish and perch from the Hackettstown Hatchery, and with other fresh water fish obtained from reservoirs, canals, etc., besides hatching immense numbers of shad and perch at the Hancocks Bridge Hatchery; we also stock every part of the State with thousands of pheasants raised at the Rockport and Forked River Game Farms, and from time to time liberate purchased pheasants, quail and Hungarian partridge, stock the State with thousands of fine cotton tail rabbits purchased each year in Missouri, and carry on a campaign against vermin.

The one idea of the Board is more game and better shooting and more fish and better fishing, now, and for future generations, and the main pleasure of the Commissioners in their administration is that the great army of hunters and fishermen have fully appreciated what has been done for them and have given us their loyal support almost to a man.

NEW JERSEY VS. MAINE

We are glad to say that the newspaper press of the State has been of great assistance in our work. In a June issue of the Trenton Times under the heading of "Fishing in New Jersey" the writer sensed an idea very near to the Commission as follows:

"The releases were in fresh waters, and anglers will be afforded sport

and benefit not only this year but for years to come; and not the least benefit will be the luring of them into the open air and sunshine.

"Probably the best feature of it all has been the fact that the sportsmen have practically paid the whole bill, by their license fees. Usually the expense of anything for the benefit of the public comes out of the taxpayers as a body, and they also pay to the members of a commission substantial salaries.

"Vacation time is here, and it seems probable that in a few years the angler will not be obliged to go to Maine for recreation, but will be able to find it at home."

WE LEAD IN PHEASANTS

The American Game Protective Association made a survey of the pheasant raising industry of the United States in 1929, and it showed that New Jersey leads with 16,936 reared and 6,659 purchased. In the number reared we excel New York, Ohio and Washington. While Oregon reared 17,883, that State did not secure any by purchase. Twenty-three States operated game farms in 1929 and the total of reared in 1929 in 17 States was 133,017, and the total purchased 40,988.

With the enactment of the new tariff law the duty heretofore imposed on imported game birds is no longer in effect and they will now be imported free of tariff.

In pheasant eggs distributed from State game farms, New Jersey ranks second, being only excelled by New York State.

ORGANIZATION

At the annual meeting, President, H. J. Burlington, Montvale; Vice President Dr. Charles F. Hunter, Palisade; were reelected to succeed themselves, and H. M. Armstrong, Jersey City, was elected to succeed Lewis Spinks, Jersey City, as Treasurer, beginning January 1, 1930.

The Board unanimously passed a resolution regretting the retirement of Commissioner Spinks as Treasurer, Mr. Spinks having served since October 10, 1922. The resolution recited that the Commissioner had been a most efficient, conscientious and accurate officer, who had unselfishly given his time and energy to the Board, for which he had the Board's gratitude and appreciation.

The records showed that Commissioner George C. Warren, Jr., had been reappointed by the Governor as Commissioner to succeed himself for a term of five years, commencing November 25, 1929, and expiring November 25, 1934.

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.

On March 11th a resolution was adopted by the Board congratulating

President H. J. Burlington on his reappointment as Commissioner by Governor Morgan F. Larson to succeed himself on the expiration of his present term, November 25, 1930. Mr. Burlington qualified first as a member April 12, 1921, and he has been acting President and President of the Board since November 25, 1922. The resolution stated that the Board "views his return to the Board as a fine tribute to his services to the State."

LESS HUNTING AND FISHING AREAS

At this writing the job printing establishments of the State will soon be unwittingly arrayed against the average hunter and fisherman in the printing of "No Trespass" signs for property owners. Some printing concerns, watching tendencies, advertise in the newspaper that they sell these notices, and there is a demand for such.

Each year more and more land is withdrawn from the public, and the situation is greatly changed from twenty years ago when there were great stretches for the public for hunting and fishing. Land companies are taking up the lakes of the State in the promotion of the selling of property, and they advertise that the fishing in the lakes will be restricted to lot owners. Thousands of properties have been sold on these conditions. Clubs in all parts of the State have been formed, and are forming, for the purchase and leasing of farms on which only members can hunt. With the multiplicity of game farms, eggs for hatching and game can readily be purchased and wealthy persons will purchase game for their own shooting.

In the past ten years our production of fish and game has thoroughly stocked the State and some of the farmers, knowing the minds of the average sportsman have seized upon the opportunity to post their lands and charge for hunting and fishing permits on their lands where fish and game have centered. We are powerless to prevent the posting, and can only refrain from again stocking such lands. The farmer who posts his land, now rich with game put out by the Board, is not likely to go to the expense of or trouble to purchase game for annual restocking, and with the game shot out or fished out, even those who had special privileges will soon be deprived of such sporting areas. Then, considerable land has been withdrawn because some sportsmen have failed to recognize the owner's rights and have destroyed his property.

However, the farmer expects us to protect the wild life on his posted land under the laws of the State. It is true that his property until it is hunted or fished out will serve as a refuge and place where game can breed and increase, but what good will this increase be if there is a continuation of posting on adjoining lands where the general public cannot hunt or fish. Nowhere is this posting condition more clearly emphasized than in South Jersey. Ask the hunters where they can hunt for water wild fowl on the wonderful stretches of Barnegat Bay. The answer is that nearly every good gunning point is taken up by a private club.

"CLEVERLY" ARRANGED PLAN

As an instance of what is going on, we quote from the Paterson News account of the meeting of the Wayne Township Rod and Gun Club:

"A comprehensive plan of club control of hunting areas has been cleverly arranged by securing the cooperation of the farmer and other owners of large tracts of land, who having been annoyed for many years by the migratory hunter trespassing on his property during the hunting season, were quite ready to lease the hunting privileges on their lands to the club.

"These leases will only remain in force during the time provided for legalized hunting and in every case the club will post the land which will be open only to the members of the Wayne Township Rod and Gun Club and such others as the by-laws adopted at last night's meeting permit."

A COMPARISON

We noted in the California Fish and Game Commission's publication that property owners in that State are tightening down on hunters, and that "twice as much acreage is now closed to hunters in and adjacent to Ventura County as there was five years ago."

If this situation is an important problem in a State of the great area of California, with its 155,652 square miles, more than twenty times the number of square miles in New Jersey, which has 7,514 square miles, how much more important is the problem in our own State? Another way to visualize the comparison of the size of New Jersey and California is to take a map of the United States and note that roughly the coast line of California about equals that of the coast line from Boston, Massachusetts, to Savannah, Georgia.

Outdoor life in these days is desired by nearly everyone, and this is shown to some extent by the fact that the Conservation and Development Commission report that 10,000 persons visit the State forests in a year to hunt, fish, camp and picnic, and that 27,000 days were given to such recreation.

WILL FARMS AND HATCHERIES BE SCRAPPED?

The New Jersey Fish and Game Conservation League in a statement says that we are headed straight for the foreign system in which the right to hunt and fish was denied to all save what we might call the wealthy or leisured class.

Moreover, a move is on foot for the passage of a law prohibiting a person entering the lands of another without written consent.

With a reduction in the sale of licenses to hunt and fish, there is necessarily less revenue for the Board. The present receipts barely cover the administration and production of fish and game. With the growth of

restricted lands and waters, thereby affecting the Board's income, the scrapping of our game farms and hatchery becomes a possibility.

THE REMEDY

Hunting and fishing, it must be remembered, is a distinct financial asset to the State. Excluding the economic value of insectivorous birds, the money returned to the State from our wild life is about \$5,000,000 per year, based on the market value of game and fish killed, and returns for licenses and money expended by sportsmen for equipment. This excludes game killed by the farmers, who with their families, can hunt on their own lands without a license, and also the fur industry.

Of the \$5,000,000 annually spent by the sportsmen only \$250,000 is expended for the replenishment and protection of the game of the State. This ratio is too great and the sportsmen realize that if there is to be hunting and fishing in future years for themselves and their offspring, they must put more money into restocking and protection and provide shooting and fishing areas where they can hunt and fish without trespassing on private grounds. Ignorance of hunting, fishing and trapping conditions is threatening to force New Jersey into the background as a developer of these great outdoor sports.

We will again urge the passage of a bill to increase the hunting and fishing license fees to provide for public fishing and shooting grounds, which will largely meet the alarming condition of so much land and water being withdrawn from the public.

Every sportsmen's organization in the State favors this measure. Not one sound argument has been advanced against the increase. The bill will not increase taxes in any form; the sportsman foots the bill and he is glad and willing to do it. The only factor that has kept what fish and game we have at present is the interest of the sportsmen and the money which they pay.

It would seem that 200,000 citizens of New Jersey should have more to say about their sport and should be allowed to spend money for it through an increased license fee. This fee does not affect thousands of farmers who take fish and game on their own property, as they require no license.

The bill which we introduced in 1930 provided as follows:

Residents' Hunting and Fishing licenses, \$3.00, issuance fee 25 cents, and 90 cents of each license fee for the "Public Shooting and Fishing Grounds Fund."

Nonresidents' and Aliens' Hunting and Fishing licenses, \$12.00, issuance fee 50 cents, and \$1.80 of each license fee for "Public Shooting and Fishing Grounds Fund."

Nonresidents' and Aliens' Fishing licenses, \$6.00, issuance fee 50 cents, and 90 cents of each fee for "Public Shooting and Fishing Grounds Fund."

Such a measure after passing the Assembly failed to pass the Senate this year, as was the case on the bill on the same subject last year.

There appeared an erroneous idea that the money would largely be set aside to build islands in Barnegat Bay. Persons got confused in the matter because a separate bill had been introduced last year, with no increase in the license fees, to meet the demand for public gunning points, the expense to come out of the Board's ordinary funds. Further study of the matter of building islands has shown that at best they would not accommodate many persons.

The bill for the increased fees would benefit thousands and thousands in all parts of the State, and the sportsmen of the State may confidently feel that any increase in the Board's income will be wisely used for the benefit of the greatest number. The measure was strongly indorsed by the New Jersey Fish and Game Conservation League, composed of clubs in all parts of the State, and other clubs, and also the New Jersey Audubon Bulletin, which stated that "even the wholly altruistic conservationist can approve this bill heartily. The sanctuaries are directly in the interest of wild life conservation."

MOST ATTRACTIVE OF ALL STATES

New Jersey can easily be made in a short time the most attractive of all States for the hunters, fishermen and lovers of outdoors. To do this the sportsmen must have control of property set aside for their use: streams, lakes and hunting areas to be obtained through purchase or lease. Properties can be secured and turned into lakes of 25 acres each, to be surrounded by a sanctuary of 100 acres, which if planted for feed, will give the sportsmen of each county a place for fishing, the breeding of game of all kinds, and a place to hunt on and where they can run their dogs. Such units, it is estimated, can be formed for not over \$10,000. each. This is no visionary scheme, but can be easily accomplished by increased license fees, and if the Fish and Game Commission get this increase, a part of each hunting and fishing license fee will put a lake in each county every year.

The quail supply in South Jersey can also be readily increased. Pens built for 50 pairs of quail in each county, which can be under the care of a county warden, will produce all the bob-whites necessary. The quail raising can be conducted at one of the units.

EVERY COUNTY INTERESTED

Every county of the State must be vitally interested in the situation. There may be some sections of the State where its residents feel secure as to future hunting places, but sooner or later these places are likely to be taken up by individuals and clubs, and if land values increase in the next quarter of a century as they have in the past twenty-five years, the cost of such lands will run into prohibitive figures.

Thousands of acres of waste land and swamps can be purchased on which now taxes are not collectible, and it will be seen that no values of moment will be withdrawn from taxation; and besides there are large areas in both North and South not desirable for farms or residences which may now be secured at moderate prices.

WHAT THE SPORTSMEN HAVE DONE

Licensed hunters and fishermen have increased 50,000 the past few years and each year they pay their own way, ask for no money from the State, have made the State equal to any for all around hunting and fishing, have presented to the State fish hatcheries and game farms, and relieved the State funds from protecting birds necessary to agriculture.

No real resident sportsmen who looks to the present and near future refuses to support the increase. The excess over the present cost is only a few gallons of gasoline, a carton of cigarettes, a half of a golf course fee, or a movie or two.

It must be noted that the increase in fees will only affect the pocket-book of the hunter and fisherman, and they and future generations will receive in dividends a value many fold over the extra cost, besides preserving the great heritage of wild life which nature has bestowed.

OIL POLLUTION LOSSES

The Board wrote to the State's representatives in Congress approving of the passage of H. R. 10625, a bill for further legislation against the discharge of oil into coastal navigable waters. The passage of the bill would prove of value to this State in its fishing, hunting and recreational conditions. It is understood that the bill sets up no new principle, but is intended to strengthen present laws, and does not infringe on State rights. It is held that there is a vast economic loss through oil pollutants in the destructions of food plants for ducks, geese, swans, and that the present and future national supply of clams, oysters, crabs, lobsters is impaired and threatened; further that the artificial propagation of fish, an industry as practicable as agriculture, is restricted. Oil, unlike sewage and some factory wastes, is not dilutable in water, and its films kill plants and animals, and further by enveloping other dangerous pollutants or dust causes them to sink and destroy feeding grounds of water life, thereby continually limiting areas which were provided by nature for production of fish.

The Board gave its support to U. S. Senate Concurrent Resolution No. 23, which was passed by that body, providing for the official designation and observance of American Conservation Week in the first week of April of each year, which resolution was prepared by Harry G. Vavra, President of Educational Conservation Society, Woodside, L. I.

BURNING OF BOAT

The Board purchased a tunnel stern garvey for the use of the wardens in looking after violators on Barnegat Bay in the vicinity of Manhawkkin. This boat was taken from its moorings during the night of February 12th or early on the 13th. It drifted up a thoroughfare about three quarters of a mile and burned. The engine was broken and the boat and engine were a total loss with the exception of the shaft and propeller. Our

wardens, Prosecutor of Pleas and the State Police conducted investigations, and the Board offered a reward of \$500, for apprehension of those who destroyed the boat.

The Board immediately put another boat in service at the point, and an extra watch was kept, as the destruction of the garvey was undoubtedly caused by violators. It is a fact that the violators in the vicinity took fright at the prompt action of the Board, and the area was soon cleaner of violators than it had ever been.

After an investigation by the Prosecutor's office of Ocean County, Nathan Cramer, aged 29, and Holmes Russell, aged 19, of Barnegat, were arrested and held for arson to await the action of the Grand Jury, and Nelson Soper, of Barnegat, was held as a witness.

Indictments were found but a few hours before the trial, fixed for May 16th, Soper, the State's principal witness of the crime, committed suicide, and the trial could not proceed with the evidence at hand. Arrangements had been made by our Board for Assistant Attorney General Robert Peacock to assist the County Prosecutor in the case.

RECEIPTS AND EXPENDITURES

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

| Receipts | |
|--|--------------|
| Hunters' and Anglers' Licenses, County Clerks' Checks to State Treasurer, Chapter 152, Laws 1914 | \$297,499.05 |
| Board's checks to State Treasurer: | |
| Chapter 125, Laws of 1922 (Woodcock) | 3,976.00 |
| Chapter 320, Laws 1915 (Juvenile) | 202.00 |
| | \$301,677.05 |
| Other Licenses: | |
| Food Fish | \$2,250.00 |
| Menhaden | 1,925.00 |
| Pounds | 5,870.00 |
| Breeder's | 2,165.00 |
| | \$12,210.00 |
| Fines and Penalties: | |
| Chapter 247, Laws 1911 | \$34,072.19 |
| Chapter 96, Laws 1922 (trespass) | 741.00 |
| | \$34,813.19 |
| Farms and Hatchery Sales | \$1,999.78 |
| Sundries | 1,449.14 |
| | \$3,448.92 |
| | 50,472.11 |
| | \$352,149.16 |

Expenditures

| | |
|---|--------------|
| Personal Administration, Commissioners | \$1,191.76 |
| Wardens' Salaries | 74,607.50 |
| Wardens' Expenses, including stocking | 18,171.79 |
| Office Expenses | 12,386.90 |
| Publicity and Assistant to Treasurer | 1,180.00 |
| Printing, Stationery, etc. (office furniture—typewriters) | 10,105.74 |
| Legal Expenses (court costs and services) | 1,123.09 |
| Salaries for Crew of Cruiser | 5,862.50 |
| Maintenance of Cruiser | 4,188.67 |
| Gasoline and Oil for Autos, Boats, Farm and Hatchery | 10,561.92 |
| Tires and Tubes for Autos and Trucks | 2,046.64 |
| Maintenance, Autos and Boats | 4,737.60 |
| Purchase of Autos and Boats | 6,374.44 |
| Postage, Telephone, Telegraph and Insurance | 3,726.26 |
| Maintenance Forked River Farm, Salaries, etc. | 25,431.28 |
| Equipment Forked River Farm | 1,060.57 |
| Additions and Improvements, Forked River Farm | 188.60 |
| Maintenance, Rockport Farm, Salaries, etc. | 25,551.21 |
| Equipment Rockport Farm | 354.13 |
| Extra Help, Rockport Farm | 192.00 |
| Additions and Improvements, Rockport Farm | 922.76 |
| Maintenance, Fish Hatchery, Salaries, etc. | 68,553.93 |
| Equipment, Fish Hatchery | 3,170.25 |
| Extra Help, Fish Hatchery | 14,066.34 |
| Additions and Improvements, Fish Hatchery | 494.01 |
| Maintenance, Shad Hatchery | 1,220.07 |
| Purchase of Game and Fish from Outside Sources | 50,861.54 |
| Miscellaneous Expenses | 2,845.39 |
| | <hr/> |
| | \$351,176.89 |
| Bills Outstanding | \$7,329.09 |

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 \$301,677.05.

There were 1988 woodcock licenses issued at \$2.00 each, making total receipts therefrom \$3,976.00.

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 \$1,925.00. For the calendar year ending December 31, 1929, there were 34 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 \$2,250.00, there being 45 licenses issued.

For the fiscal year there were issued 433 breeders' licenses at \$5.00 each, total \$2,165.00, 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 \$34,072.19.

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 \$5,870.00. For the calendar year ending December 31, 1929, there were 127 licenses granted, 108 for the Atlantic Ocean and 19 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, and when accompanied by the holder of regular license above the age of 21 years, there were 202 licenses for the fiscal year, the receipts being \$202.00.

Under the law prohibiting aliens to be possessed of firearms 21 guns were confiscated.

CARS AND BOATS

We are operating 8 trucks and 29 Ford cars, 10 Chevrolet cars and 2 Buick cars. During the year we bought 13 new Ford cars, 12 of which were replacements. A new Ford car and a new Chevrolet truck were purchased for the Hatchery.

We also operated 11 power boats, one of which was new, 10 row boats and two canoes.

WARDENS' SERVICE

Otis C. Small, appointed warden for Atlantic County October 14, 1913, died August 24, 1929.

William B. Loder, appointed warden for Atlantic County August 7, 1905, died March 30, 1930.

The following appointments of wardens were made:

George E. Groves for Atlantic County
 George B. Brooke for Camden County
 Lewis Larson for Hunterdon County
 Roy H. Williams for Passaic County
 Alfred F. Bakley for Sussex County
 Wilfred B. Potts for Ocean County
 Albert A. Roach for Burlington County
 John C. Miller for Atlantic County
 Raymond L. Jacobus for Morris County
 Dana J. Saxton for Ocean County

The services of Wardens Creely, Böbera, Mottram and Potts were discontinued.

Lawrence Jones served as temporary warden for Burlington County from September 15, 1929 to April 15, 1930, and Rudolph Ridgway served as temporary warden for Ocean County from October 1, 1929, to April 15, 1930.

John H. Cramer, Captain of the States' cruiser died March 24, 1930, having served the State as Captain since March 3, 1918.

Joseph K. Mathis Jr. was appointed March 15, to succeed Captain Cramer.

Warden Thomas Murrow, Camden County, resigned September 30, 1929; Warden John J. Park, Hunterdon County, resigned November 20, 1929; Warden Christopher Ashworth was transferred from Sussex County to Morris County, but resigned May 15th, prior to the transfer; Warden Treloar was transferred to Sussex County, and Warden Bernius was transferred to Morris County.

At the beginning of the year the supervision of wardens by four assistant protectors instead of two went into effect, and with excellent results. The wardens became more active and efficient in all their duties, stocking with fish and game, supervision of license agencies, prompt collection of penalties, patrolling, and care of cars. An increased number of arrests for violations followed. We believe that our warden service is now superior to any time in the past. The warden who does his duty as it should be done has nothing to fear.

There has been some criticism of some of the regular wardens receiving a portion of the court costs imposed by magistrates upon convicted defendants. We informed them that when they make arrests and take the defendants to court, they are only doing their duty as regular paid wardens and are not entitled to any part of the costs. Our wardens were also instructed that when they bring a case before a magistrate it should be seen that no costs should be charged other than those allowed in Chapter 62, P. L. 1922.

PROSECUTIONS

During the fiscal year ending June 30, 1930, there were 1,355 prosecutions, which resulted in 1,346 convictions and only 9 acquittals, which is approximately a percentage of 99½ per cent of convictions.

In 125 cases by reason of youth, old age, extreme poverty or other extenuating circumstances sentence was suspended on payment of costs; 71 cases were appealed to the Common Pleas Court; 54 hunters' and anglers' licenses were revoked, and 15 offenders were committed to the county jail for periods of ten to 90 days in default of the payment of the penalty imposed. Twenty-one guns were confiscated from aliens. In three cases where licenses were revoked it was upon the second conviction, and these persons are not entitled to any license for a period of two years.

The number of prosecutions for the past fiscal year was the greatest in the history of the Fish and Game Commission, being 199 in excess of the year 1926 during which year 1,156 arrests were made.

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

| | |
|---|-----|
| Fishing, no license | 134 |
| Hunting, no license | 128 |
| Dog running at large | 111 |
| Firearms in woods | 76 |
| Sunday gunning | 78 |
| Procuring wrong license | 73 |
| Hunting, close season | 68 |
| Hunting after sunset | 60 |
| Illegal deer hunting | 58 |
| Illegal possession of game | 56 |
| Illegal missile | 48 |
| Alien firearms | 38 |
| Illegal possession of fish | 37 |
| Illegal possession of birds | 35 |
| Possession of short fish | 36 |
| Killing game illegally | 35 |
| Automatic gun | 32 |
| Illegal net fishing | 30 |
| Illegal possession deer | 23 |
| Hunting on Game Refuge | 22 |
| Hunting in snow | 17 |
| Possession hen pheasant | 16 |
| Selling short fish | 14 |
| Illegal duck hunting | 11 |
| Trapping, no license | 10 |
| Possession short lobsters | 9 |
| Excess bag limit | 9 |
| Hunting by auto light | 9 |
| Hunting, no woodcock license | 9 |
| Illegal fishing | 8 |
| Spearing fish | 7 |
| Mutilating game | 7 |
| Shooting hen pheasant | 7 |
| Altering and loaning license | 6 |
| Shooting from auto | 5 |
| Using artificial bait | 4 |
| Possession artificial bait | 3 |
| Possession buckshot | 3 |
| Fishing at night | 3 |
| Selling short lobsters | 2 |
| Refusing to show license | 2 |
| Taking crabs with more than 10 bait | 2 |
| Giving false information | 2 |
| Hunting duck with motor boat | 2 |
| Polluting waters | 2 |
| Stealing traps | 1 |
| Failure to report fox | 1 |
| Using beam trawl, no license | 1 |
| Selling game | 1 |
| Using poison bait | 1 |
| Hunting with void license | 1 |
| Shooting in squirrel's nest | 1 |
| Drawing water | 1 |

1,355

WARDENS' ARRESTS

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

| | |
|---|----------|
| District in charge of Assistant Protector Kelley | 443½ |
| District in charge of Assistant Protector Mathis | 381½ |
| District in charge of Assistant Protector Davison | 370 |
| District in charge of Assistant Protector Cudney | 141 |
| Prosecutions by deputies and troopers | 19 |
| | 1,355 |
| Graham, John W. | 185 |
| Small, W. H. | 105½ |
| Evernham, Jas. H. | 74 5-6 |
| Carson, Roy | 71 |
| Hugg, John | 68½ |
| Nolan, Thos. | 68 |
| Lyell, M. Howard | 51 |
| Ruth, Albert | 49 |
| Hall, F. J. | 46¾ |
| Mizell, Chatham | 43¾ |
| Groves, George | 40¾ |
| Lawrence, Harry | 36 5-6 |
| Paul, George R. | 35 11-15 |
| Williams, Roy H. | 35 |
| Dackermann, Fred H. | 30.1-15 |
| Ridgeway, Rudolph | 26½ |
| Davison, Arthur | 25 5-6 |
| Treloar, Jas. | 25 2-5 |
| Hill, Charles C. | 25 2-5 |
| Jones, Lawrence | 25 |
| Bernius, Henry | 23 |
| Hall, G. I. | 20¾ |
| Loder, Wm. B. | 19½ |
| Baker, Edwin | 18 |
| Eggert, Jos. S. | 17¾ |
| Park, John J. | 17 |
| Crowley, Harold | 17 |
| Cudney, Harry E. | 15 11-15 |
| Phifer, George | 15½ |
| Brooke, George | 15 |
| Ashworth, Christopher | 13 |
| Larson, Lewis | 11 2-5 |
| Cox, John | 9 2-5 |
| Murrow, Thos. | 9 |
| Steel, William | 8 5-6 |
| Bobera, Michael | 7½ |
| Kelley, Thos. | 6 2-5 |
| Miller, John C. | 6 |
| Bailey, John | 5 11-15 |
| Bakley, Alfred | 5½ |
| Roach, Albert | 3½ |
| Mottram, Frank | 1 9-10 |
| Deputies | 16 |
| Troopers | 3 |
| | 1,355 |

SOME LARGE PENALTIES

Some of the larger penalties imposed, with the number of violators, follow:

Lobster Law: 2 persons, \$400; 2 persons, \$200; 3 persons, \$260; 4 persons, \$500 each. For the 30 cases of illegal net fishing, 6 persons paid \$180; 15 persons, \$100 each. Illegal deer hunting: 2 persons, \$700; 3 persons, \$620; 1 person, \$200; 56 persons, \$100 each. Killing song birds: One person killing 88 song birds, \$400. Illegal possession of wood ducks: 1 person, \$300. Operating beam trawl without license: 1 person, \$1,000. Selling under-sized blue fish: 7 persons, \$460; 2 persons, \$100 each. Pollutions: 2 persons, \$200 each.

LEGISLATION

The new laws for 1930 will be found in the back of the report.

In January the Board received a delegation of farmers and fruit growers from South Jersey, among them being Edward Crabbe, Judge James E. Otis and N. B. Frazier, who complained of the damage done to their crops by deer. There were exhibited numerous branches of trees which had been eaten by deer. The claim was set up that in some localities large farming interests, such as raising huckleberries, cranberries and produce, were sufferers to the extent of many thousand dollars annually.

Already the Board recognized the menace to the farmers from deer, which had resulted in a law giving the farmer or an authorized agent the right to kill deer found trespassing on land under cultivation, and ground under cultivation was construed in the law as pasture fields seeded with cultivated grass or land on which planted crops were growing.

The delegation contended that the present law was not broad enough inasmuch as the limitation was to land under cultivation, when it was known that in a night deer would move from uncultivated to cultivated land and do great damage, unless a watchman was continually employed.

Another delegation headed by Edward B. Bowker of Ocean City, and representing The Plains Hunting Club, called at the office, and protested against the killing of deer when the season was not in, and stated that the damage reported done was not as serious as at first it might seem; that if damage was being done, the present law was adequate. When informed by President Burlington of the provisions of a bill favored by the Board, they seemed satisfied and promised to cooperate with the Board in reporting violations of the deer act.

The Legislature passed a less restrictive law, which was approved by the Board, providing for the killing on land "a portion of which was under cultivation;" the killing to be done only following a written permit from the owner or lessee, countersigned by the Board of Fish and Game Commissioners. No doe deer shall be killed during the open season for deer, the carcasses of the deer shall belong to the Board, and the killing of any deer to be officially reported within forty-eight hours.

Conference: During the session of the Legislature, the Board held a conference with members of the New Jersey Fish and Game Conservation League, the Audubon Society and the Izaak Walton League, respecting the introduction of bills and pending legislation.

Census of Kill: We have found that many holders of hunting and fishing licenses are neglectful in reporting, when they obtain a new license, the number and kind of game taken by them the preceding year, which information is tabulated and serves as a basis for a close estimation of the value of fish and game taken. The Board intends to prepare a measure making it mandatory on the part of the licensee and the clerk issuing a license to obtain from the applicant of a license the amount of his bag for the previous year.

A Fish Food Supply: The Board is in favor of a law to provide for the possession and sale of pike, pickerel or pike-perch, sometimes called wall-eyed pike, during our closed season, if the fish were not taken from our waters and were legally taken outside of the State. It appears that these fish are shipped to the New York market in large quantities during our closed season, where their possession and sale are permitted, and that by reason of our law against possession our people are deprived of an important food supply.

Raccoon Season: A bill which failed was to open the raccoon season October 25th instead of October 1st, the suggestion being made that at the later date the fur of the animal would be in better condition. While there seems merit in this, yet it must be remembered that raccoon are chiefly hunted for sport, and in the fall persons are anxious to hunt. In a way the early season serves to appease many hunters until the regular season opens later.

VERMIN CONTROL

Powell Case: Responsive to a notice of the Workmen's Compensation Bureau that Lawrence Powell, a deputy warden, brought claim for benefits under the law, the Secretary gave testimony at a hearing of the case in Camden, the Board being represented by Grover C. Richman, counsel designated in the case by the Attorney General. It appears that the basis of Mr. Powell's claim was that while acting as a deputy warden he was injured by being shot in the head by a person he claimed he sought to put under arrest for violation of the law. The Board's preliminary answer, prepared by the Attorney General, was to the effect that Mr. Powell was not an employee of the Board, and therefore the Board was not liable for compensation. The law allowing a fee to deputies had been repealed. It would appear that Mr. Powell was under the impression that such law was still in existence, and later through his counsel filed with the Workmen's Compensation Bureau a discontinuance of his suit. The Board has given him employment as a vermin exterminator and to construct cat traps to be sent to our wardens.

Old Menace to Birds: These cat traps will be built in accordance with specifications put out by the U. S. Department of Agriculture, and that Department will on application furnish the specifications for traps to those interested. It is believed that cats destroy more song birds, ground nesting game birds and small game animals than any other agency, and their reduction is a real conservation action. The family house cat is a killer if he does not get meat in the home; he should be kept in at night. A bell around a cat's neck would give warnings to birds. The principle of the necessity of killing cats has been recognized for several years in a State law which permits the holder of a valid hunting and fishing license, salaried warden or police officer to humanely destroy cats found killing, hunting or possessing protected birds or animals.

If every hunter would kill one cat according to law, there would surely be an increase in game. Every wild or half-starved cat should be killed.

Vermin Expert: The services of Rev. Noel J. Allen, vermin control expert, who conducted a vermin control campaign for three months last year, was continued during September, October and November. Generally his plan was to deliver lectures in schools and before societies, actual destruction of crows and ground vermin in the fields and woods, and to give instructions to wardens in vermin control.

Vermin Killed: Reports to Protector Stratton of predatory animals killed by the wardens follow: 435 cats, 137 hawks, 26 weasels, 157 crows, 19 foxes, 8 dogs, 6 skunks. In addition there was a total of 571 predatory animals destroyed at the game farms together with approximately 5,000 rats.

Foxes: There were 1,238 foxes reported killed by hunters in this State in the fiscal year of 1929-30, and 836 in the previous year.

FIGHTING DIVERSION OF DELAWARE RIVER WATER

The Board is greatly interested in the suit of the State brought in the U. S. Courts to prevent the State of New York from impounding for the latter's use the head waters of the Delaware River in the State of New York, New Jersey contending that the project would endanger water power, sanitation, navigation, fishing and the oyster industry. We furnished the State's Attorney General with a record of shad catch statistics obtained from the Board's reports available. Protector J. M. Stratton, and Charles O. Hayford, Superintendent of Fish Hatchery, conferred with the Attorney General in the matter of securing testimony for the hearing in the case.

WE APPROVED LARGE TRACT PURCHASE

After conference with former Senator T. Gilbert Borton, Land Agent, and Charles P. Wilbur, Forester, for the Conservation and Development Commission, the Board approved of the effort of the Conservation Commission to have inserted in the appropriation bill an item of \$225,000 to

acquire the Hanover Tract Farms, of about 22,000 acres, for forest purpose, which adjoined the Lebanon State Forest of 8,400 acres, on the ground that it would provide an additional area for public hunting and fishing, which are permitted in the State forests. The Legislature did not act on this bill.

FEDERAL HATCHERY FOR NEW JERSEY

We have been informed by Henry O'Malley, U. S. Fish Commissioner, that probably four years hence a New Jersey Federal Hatchery will be established at a cost of \$75,000 for hatching of bass and pond fish, approximately 1,000,000 of each annually. If the site will permit the propagation of trout in conjunction with this work it will be considered more advantageous, and consideration will also be given to establishing the hatchery as a base for shad propagation in season. The Bureau will undoubtedly call on the Board in the matter of the site.

The Federal authorization requires no funds be expended until a State has accorded the Commissioner entire freedom in conducting the work without reference to any existing State laws. If the Board cannot grant this it will be necessary to secure a special act of the Legislature in order to meet the requirements of the authorization. The Bureau will be glad to receive recommendations from any source for a possible site.

MOVING PICTURES AVAILABLE

The Commission is now able to furnish standard size moving pictures, showing hunting and fishing activities in New Jersey, for the free use of sportsmen's clubs and other organizations, as well as for free exhibition in many moving picture theatres. These films, which have required a year for completion in order to show seasonable work at the game farms and fish hatcheries, are available for distribution upon application to the commission or to wardens. The sets picture the development of game fish from the egg stage to four pounders at the State Fish Hatchery at Hackettstown; thrilling fishing experience in New Jersey waters; the work of rearing game and game birds at Forked River and Rockport and New Jersey hunters in the field.

Other films, of equally interesting and kindred subjects, made up for the popular 16 mm. projectors, also are available and can be obtained through the same sources.

Newspaper and magazine articles during the year have kept the outdoor sport-loving public in close touch with the seasonable hunting and fishing opportunities of the Garden State. Talks by commissioners and other representatives of the department have featured civic and sports clubs' meetings in many parts of the State.

Exhibitions of live fish and game have been popular attractions at the Trenton Inter-State and at numerous county fairs.

DIRIGIBLES SCARE WATER FOWL

Following our complaint that dirigibles from the Naval Air Station at Lakehurst were passing low over Barnegat Bay and practically driving ducks, geese and brant from the bay, the Commander of the station issued orders that dirigibles flying from west or east should travel over the bridge and dirigibles going north and south must keep outside of the coast line or travel over land.

MISCELLANEOUS

The Board made an aquarium display at the meeting of the United States Fisheries Association which was held at Atlantic City in September, and the Association informed us later that it was an outstanding feature of the meeting.

The Board gave permission to the Department of Conservation and Development for the capture of three deer for the State Museum. The deer were mounted and are shown with a representation of their natural habitat. The exhibit has attracted much attention.

At the March meeting of the Board a recess of five minutes was taken out of respect to the memory of former President and Chief Justice William Howard Taft, whose funeral was being held.

GAME

GAME DISTRIBUTION

The total game distribution for the year was as follows: 22,709 pheasants, 13,316 liberated from our Farms, 4,258 hatched by the public from eggs, and 200 from the DuPont Game Farm, and 4,935 purchased from dealers; 14,900 rabbits, 120 quail and 80 wild turkeys.

The shipment of cotton tail rabbits from Missouri came in excellent condition, well fed and watered, and on their release they showed no ill effects of the long journey. They were released in December and January under the best conditions which have prevailed for years, as there was practically no snow on the ground.

We acknowledge with appreciation the donation to the State of 1,725 pheasant eggs and 150 duck eggs by the Estate of Colonel A. R. Kuser, which eggs were distributed by our wardens in several counties.

Eighty wild turkeys raised at the Rockport Game Farm were liberated on what is known as the Newark Water Shed, comprising a part of Passaic and Sussex Counties. The property is now posted and privately patrolled and it is hoped that the birds will multiply under this protection together with that of a closed season until 1932.

GAME CONDITIONS IN 1929

Protector J. M. Stratton sent a questionnaire to the wardens respecting game conditions for the following game: Rabbits, squirrels, ringnecked pheasants, quail, ruffed grouse or native partridge, ducks, geese, brant, rail and mud hen, woodcock and raccoon, the questions being as follows:

Supply at beginning of season.

Increase or decrease in killed over last year.

Amount left over.

We also requested the estimated number of Hungarian partridges and wild turkey.

There were 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 and in Warren, Sussex, Morris, Passaic and Bergen Counties until 1930.

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, 54 Hungarian partridge; Monmouth, 10 Hungarian partridge; Passaic, 10-20 Hungarian partridge and 70-80 wild turkey; Somerset County, 350 Hungarian partridge; Warren, 400-500 Hungarian partridge.

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

Bergen County. Wardens Small and Ruth. Rabbits—Good supply, increase in killed, thinned out. Squirrels—Fair supply, increase in killed, small number left. Pheasants—Good supply, increase in killed, small number left. Quail—Poor supply. Ruffed Grouse—Good supply. Ducks—Fair supply, decrease in killed, small number left. Geese—Poor supply, decrease in killed, small number left. Brant—None. Rails—Fair supply, slight decrease in killed, thinned out. Woodcock—Good supply, increase in killed, thinned out. Raccoon—Fair supply, usual number killed, small number left.

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

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

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

Cumberland County. Wardens Phifer and Baker. Rabbits—Good supply, increase in killed, small amount left. Squirrels—Good supply, increase in

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

Essex County. Warden F. J. Hall. Rabbits and Squirrels—Good supply, increase in killed, large number left. Pheasants—Fair supply, decrease in killed, small number left. Quail—None. Ruffed Grouse—None. Ducks—Good supply, increase in killed, large number left. Geese and Brant—None. Rails—Poor supply, decrease in killed, thinned out. Woodcock—Good supply, increase in killed, more than ever left. Raccoon—Poor supply, decrease in killed, thinned out.

Gloucester County. Warden Graham. Rabbits—Good supply, increase in killed, thinned out. Squirrels—Fair supply, increase in killed, thinned out. Pheasants—Poor supply, no increase in killed, thinned out. Quail—Fair supply, decrease in killed, small number left. Ducks—Good supply, increase in killed, more than ever left. Rails—Good supply, increase in killed, large number left. Woodcock—Fair supply, increase in killed, large number left. Raccoon—Poor supply, decrease in killed, thinned out.

Hudson County. Assistant Protector Kelley. Rabbits—Fair supply, decrease in killed, thinned out. Pheasants—Poor supply, decrease in killed, thinned out. Ducks—Fair supply, no increase in killed. Rails—Fair supply, no increase in killed. Woodcock—Good supply, increase in killed. Squirrels, Quail, Ruffed Grouse and Raccoon—None. Geese and Brant—Not any killed.

Hunterdon County. Warden Larson. Rabbits—Good supply, increase in killed, large number left. Squirrels—Fair supply, increase in killed, small number left. Pheasants—Good supply, increase in killed, small number left. Ducks, Geese, Brant and Rails—Poor supply. Woodcock—Poor supply. Raccoon—Good supply, increase in killed, small number left.

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

Middlesex County. Wardens Hugg and Eggert. Rabbits and Pheasants—Good supply, increase in killed, thinned out. Squirrels—Fair supply, increase in killed, thinned out. Quail—Fair supply, decrease in killed, thinned out. Ducks—Fair supply, decrease in killed. Geese, Brant and Rails—None. Woodcock—Good supply, increase in killed. Raccoon—Fair supply, decrease in killed.

Monmouth County. Assistant Protector Davison and Warden Lyell. Rabbits and Squirrels—Good supply, increase in killed, large number left. Pheasants—Fair supply, decrease in killed, small number left. Quail—Good supply, increase in killed, large number left. Ruffed Grouse—Fair supply. Ducks—Poor supply, increase in killed. Geese—Poor supply. Brant—None. Rails—Good supply, increase in killed, thinned out. Woodcock—Good supply, increase in killed, large number left. Raccoon—Good supply, increase in killed, large number left.

Morris County. Warden Lawrence. Rabbits, Squirrels and Pheasants—Good supply, increase in killed, large number left. Quail—Poor supply. Ruffed Grouse—Fair supply. Ducks, Geese, Brant and Rails—Poor supply, decrease in killed, small number left. Woodcock—Good supply, increase in killed, large number left. Raccoon—Good supply, increase in killed, large number left.

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

Passaic County. Warden Treloar. Rabbits—Good supply, increase in killed, thinned out. Squirrels—Good supply, no decrease in killed, thinned out. Pheasants—Good supply, slight increase in killed, thinned out. Ruffed Grouse—Fair supply, slight increase in number. Woodcock—Good supply, increase in killed.

Salem County. Wardens Mizell and G. I. Hall. Rabbits, Squirrels and Quail—Good supply, increase in killed, small number left. Pheasants—Good supply, increase in killed, large number left. Ruffed Grouse—Poor supply, increase in killed, small number left. Ducks—Good supply, increase in killed, large number left. Geese and Brant—Poor supply, decrease in killed, 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, large number left.

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

Sussex County. Wardens Ashworth and Bernius. Rabbits—Fair supply, increase in killed, thinned out. Squirrels—Poor supply, decrease in killed,

thinned out. Pheasants—Fair supply, decrease in killed, thinned out. Ducks—Poor supply, decrease in killed, small number left. Geese, Brant and Rails—None. Woodcock—Poor supply, decrease in killed, small number left. Raccoon—Fair supply, decrease in killed, small number left.

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. Quail and Ruffed Grouse—Poor supply. Ducks—Fair supply, decrease in killed, small number. Geese—Poor supply, decrease in killed. Woodcock—Fair supply, decrease in killed. Raccoon—Good supply, increase in killed, large number left.

Warren County. Assistant Protector Cudney and Warden Cox. Rabbits—Good supply, increase in killed, more than ever left. Squirrels and Pheasants—Good supply, increase in killed, large amount left. Quail—Good supply. Ruffed Grouse—Good supply. Ducks—Poor supply, decrease in killed, small number left. Geese, Brant and Rails—None. Woodcock—Poor supply, decrease in killed, thinned out. Raccoon—Good supply, increase in killed, more than ever left.

FORKED RIVER AND ROCKPORT GAME FARMS

Duncan Dunn, Game Farms Superintendent, in his 18th annual report for the fiscal year ending June 30th, 1930, says:

Forked River Farm. Repaired and disinfected equipment; seeded all the breeding and holding pens with grass seed; did general farm work; cut 15 loads of cedar brush and carted it to the breeding pens; carted about 500 loads of gravel and graveled the road from the State Highway into the main farm buildings; carted 35 tons of lime; painted in the Superintendent's house; repaired rearing fences which had been broken down by sleet storm; did the usual line of work in caring for and rearing game, liberating same and packing eggs for distribution; assisted the Rev. N. J. Allen, vermin expert, for several days in setting traps and did other work in vermin control, and spent several days fighting forest fires this spring.

We built a new brooder house 8' x 10', a new fence 475 feet long and 100 feet wide around a chicken house, made 250 new bottom boards, repaired and built new fences around the rearing field which had been burned, and built two new feed shacks 10' x 12', and three new feed bins which had been destroyed during the forest fire.

We harvested 18 loads of hay and six loads of oats.

There were 35 owls, 40 hawks, 75 crows, 32 opossum, two weasels, 12 skunks, 50 cats, six foxes and approximately 2,500 rats killed during the year.

Rockport Farm. In the general line of work it was about the same as at Forked River. We seeded 30 acres of land with oats and grass seed,

gathered about 50 loads of stones in our breeding pens and carted them on the road; painted and papered in the Superintendent's house and tenant houses; put new floors in three rooms in the Martinis house and new floor in one room at the Krueger house; planted 500 trees around the farm; painted all the barns and buildings around the main house; cut 12 loads of cedar brush and carted it to the breeding pens; assisted the Rev. N. J. Allen, vermin expert, in setting traps and did other work in vermin control.

We built new fences around two of our rearing fields; dug a trench 400 feet long and 4 feet deep and laid pipe in same to take water to one of the pens, dug a large cesspool at the Martinis house, and dug a drain about 100 feet long from cesspool to house and laid 4-inch pipe in same; built 50 new rearing coops and 100 new bottom boards.

We harvested 22 loads of hay and 10 loads of oats.

There were two owls, 33 hawks, 40 cats, 100 crows, 30 weasels, six skunks, eight foxes and about 2,500 rats killed during the year.

Exhibits were made at Flemington Fair, Pitman Grove, Asbury Park Poultry Show, Branchville Fair, Salem County Fair, and Trenton Fair.

During the year the following eggs were set, hatched and distributed in the State:

| | | | |
|-------------------------------------|---------------|--------------------------|---------------|
| Eggs set at Forked River Farm | 16,700 | Young birds hatched | 11,400 |
| Eggs set at Rockport Farm | 15,000 | Young birds hatched | 10,000 |
| | <u>31,700</u> | | <u>21,400</u> |

Eggs distributed throughout the State:

| | |
|------------------------------|---------------|
| From Forked River Farm | 18,150 |
| From Rockport Farm | 14,200 |
| | <u>32,350</u> |

The Pheasant record is as follows:

Forked River Farm—

| | |
|---|---------------|
| Breeding birds on hand June 30, 1929 | 1,452 |
| Mature birds raised | 6,008 |
| Birds purchased and cared for | 500 |
| Estimated number of young birds on hand June 30, 1930 | 9,000 |
| | <u>16,960</u> |

Rockport Farm—

| | |
|---|---------------|
| Breeding birds on hand June 30, 1929 | 949 |
| Mature birds raised | 6,108 |
| Birds purchased and cared for | 723 |
| Estimated number of young birds on hand June 30, 1930 | 9,000 |
| | <u>16,780</u> |

| | |
|---|-------|
| Forked River Farm— | |
| Birds liberated | 6,008 |
| Purchased birds liberated | 500 |
| Breeding birds on hand June 30, 1930 | 1,238 |
| Estimated number of young birds on hand June 30, 1930 | 9,000 |
| Farm birds died and escaped | 146 |
| Purchased birds died | 68 |

16,960

| | |
|---|-------|
| Rockport Farm— | |
| Birds liberated | 6,108 |
| Purchased birds liberated | 700 |
| Estimated number of young birds on hand June 30, 1930 | 9,000 |
| Breeding birds on hand June 30, 1930 | 972 |

16,780

In addition to the above there were liberated from the Rockport Game Farm 80 wild turkeys.

FEEDING BIRDS

The past winter was very mild with little snow in any part of the State except for a few days, and at no time did the birds suffer. In many counties there was not sufficient snow to make the feeding of quail and pheasants necessary.

In some counties the wardens purchased a small quantity of feed, and sportsmen and farmers donated grain and assisted the wardens in locating and feeding the birds.

The following is a list of the counties where birds were located and fed, and it was not necessary to feed in the other counties:

| County | Quail | | Ringneck Pheasants Birds | Hungarian Partridges | |
|------------------|--------|-------|--------------------------------|-------------------------|-------|
| | Coveys | Birds | | Coveys | Birds |
| Bergen | | | 60 | | |
| Burlington | 9 | 54 | | 8 | 48 |
| Cumberland | 54 | 378 | | | |
| Sussex | 4 | 50 | 123 | | |
| Hunterdon | | | 60 | | |
| Mercer | 7 | 35 | 385 | | |
| Morris | | | 223 | | |
| Ocean | 16 | 191 | | | |
| Salem | 91 | 476 | 196 | | |
| Somerset | 5 | 53 | 980 | 22 | 207 |
| Warren | 27 | 582 | 295 | 16 | 281 |
| | 213 | 1819 | 2322 | 46 | 536 |

Every spring we receive requests for male birds and the applicants state that there are many females but no males, but by the reports received from counties where a large number of ring neck pheasants were located this winter, the sexes appear to be divided in a larger proportion of males than is kept at the Game Farms for breeding purposes, which is about five to six females to one male, as the following will show:

In Mercer County, Warden Nolan reports that he located pheasants in 32 places and there were 89 males and 296 females.

Warden Lawrence found pheasants in ten places in Morris County, and there were 35 males and 188 females.

In Warren County, Warden Cox reports 67 males and 220 females, and they were found in 44 different places.

Hungarian partridges were found only in Burlington, Somerset and Warren Counties.

There were no wild turkeys reported from any part of the State except those recently liberated from the Game Farm on the Newark Water Shed.

DEER SEASON

During the deer season, consisting of five days, December 17th to 21st, both dates inclusive, there were 1,331 buck deer legally killed and reported, and 69 does and fawns or bucks with horns less than three inches long were found dead in the woods or confiscated from hunters by wardens. This is 84 below the legal kill in 1928 and 459 below the kill in 1927.

Weather conditions for deer hunting during the past season were poor. There were dense fogs for the first three days, and while there were apparently the usual number of hunters, yet the unusual wet condition of the woods and bushes caused most of them to return to camp or home. Many hunting parties only made one drive a day.

Additional wardens were sent to the deer woods and they were alert as to violations. There were 43 persons convicted for killing or having in possession does or bucks with short horns or hunting with illegal missiles, and a penalty of \$100 was imposed in each case.

Under the old deer law 10 deer were killed while trespassing and under the new law of 1930, 26 deer were killed.

| County | Deer Killed | Does and Deer with short horns found dead |
|------------------|----------------|---|
| | | |
| Bergen | 35 | 11 |
| Burlington | 448 | 27 |
| Camden | 6 | |
| Cape May | 2 | |
| Cumberland | 64 | 1 |
| Essex | 22 | |
| Gloucester | 4 | |
| Hudson | 0 | |
| Hunterdon | 3 | |
| Mercer | 3 | |
| Middlesex | 0 | |
| Monmouth | 17 | |
| Morris | 106 | 5 |
| Ocean | 327 | 17 |
| Passaic | 31 | |
| Salem | 0 | |
| Somerset | 23 | 1 |
| Sussex | 70 | 4 |
| Union | 0 | |
| Warren | 45 | 3 |
| | 1,331 | 69 |

HUNTING ACCIDENTS

There were three fatal accidents during the deer season, and eight persons were injured by shots fired by unknown persons.

During the upland game season, four deaths resulted from accidents, two self-inflicted and two by others. Fourteen non-fatal accidents were reported, four self-inflicted and ten by others.

FOREST FIRES

Extensive forest fires prevailed in May in several parts of the State, particularly in South Jersey, which were destructive to eggs, birds, rabbits and deer. It was certain that the pheasants and other birds which escaped would not breed again, but there were good chances of rabbits and deer reproducing. A serious factor was the loss of food supply and covers. Deer have their young in May and June. Later reports showed that many deer and rabbits driven out by fire returned to the burned area to feed on new vegetation which had sprouted. Eight deer driven out by the fire were killed by automobiles. The vicinity of Pasadena, a good deer country, escaped the fire and on Sunday, May 4, one observer counted 32 deer in that region. While a number of deer were driven out of the woods and escaped, many were burned by rushing in the back fires.

From January 1 to September 16, 1930, the fires were more extensive than any ever recorded by the Conservation and Development Commission since complete records have been kept, and figures furnished by that Commission are as follows: Total loss, \$3,000,000.

Division A—From New York boundary to Raritan River, 26,178 acres.

Six years average 6,040 acres.

Division B—From Raritan River to Mullica River, 171,370 acres. Six years average 23,529 acres.

Division C—From Mullica River to Cape May, 62,751 acres. Six years average, 15,751 acres.

At the Forked River Farm, we lost, due to the fire, six small buildings, 20 quail coops, two small pens and 100 feet of a covered pen, some feed and implements and 20 loads of wood. No game was destroyed at the farm and the employees did valiant service in saving the main buildings with the assistance of the fire companies of Island Heights and Seaside Heights.

The fisherman as well as the hunter must also be alive to the menace of forest fires. The burning of forests and the lessening of forest land has a direct relation to fish life in depleting the natural constant and uniform supply of water. In time of floods, following heavy rains and spring thaws, fish are driven away by muddy and polluted water from surrounding territory, and where land is denuded of vegetation the streams suffer their natural supply of water during dry periods. Heavy floods and low water are seldom found where a stream through its entire length runs through a wooded section.

Owners of land who can look into the future could do much in drainage of farms; leaving natural growth in places where best suited to arrest

or check erosion and in ceasing unnecessarily to burn or clear lands in geographical sections which form a water shed.

While the destruction of forests works great property devastation, it must also be remembered that the upland game birds nest on the ground, which is true of the shore birds and ducks, except the wood duck.

For many years our publications have carried the following: "Every forest fire destroys a game cover. Be sure not to cause any." While all fires are not caused by hunters and fishermen, yet some have been started by them, and the hunters and fishermen of the State could help not a little in their club and social connections in stressing the importance of the saving from fire our woods and fields.

Would it not be a good idea for every fish and game club at every meeting to have its members, before they relate their prowess or failures, to repeat in chorus something like this:

"Every forest fire destroys a game cover—wiping out shelter and food, therefore, we will urge farmers that spring burning cannot be done early enough to avoid the destruction of nests, that burning of fields be done in the fall and we will urge campers, smokers, tourists, automobilists, picnickers and others to be careful not to cause fire. There is no insurance against forests and game destroyed by fire, and it takes from 30 to 50 years for a forest to reproduce itself. I will do all I can to protect the home of wild life just as I protect my own home."

Forest fires in 1930 caused a \$3,000,000 loss. The annual average loss for six years is \$916,000.

PHEASANT RAISING INDUSTRY

In 1924, calendar year, there were 177 licenses issued to raise pheasants, mallard, black and wood ducks, Canada geese, ruffed grouse, rabbits, squirrels, quail, raccoon and deer in a wholly enclosed preserve; in 1925, 202; in 1926, 255; in 1927, 278; in 1928, 311; and in 1929, 364, which shows that the number more than doubled within six years. Most of these licenses are issued to persons for the raising of pheasants, and while many of them only have a few birds, yet several licensees have gone extensively into the business, and we have engaged to buy several thousands of pheasants for next year's distribution from four of them.

While licensees may at any time kill and sell their game for food when properly tagged, yet these permits do not apply to a person who desires to maintain an area where he and his friends may hunt the above mentioned game the year around. The game must be kept in a wholly enclosed preserve and such is construed to mean a preserve enclosed so game cannot escape and mingle with the game of the State. When birds are reared in a field they must be confined in such wholly enclosed preserve when able to fly. For quadrupeds a wholly enclosed preserve is construed to mean a fence at least eight feet high around the boundary to prevent the escape of the quadrupeds. Game previously released from confinement cannot be killed under the law. No license is required for the keeping of pheasants other than English ringnecked or Mongolian.

Sportsmen's associations could do much to add to the pheasant supply if they would follow the plan adopted during the year by the John James Audubon Chapter, of Camden County, Izaak Walton League of America. One of its members permitted the Chapter to use a 35-acre tract with pheasant enclosures, rent free for a period of five years for the purpose of raising pheasants, the expense to be met by private subscriptions. A breeder's license was taken out, and it is the intention to liberate the birds in the shooting season. The previous year the Chapter liberated 104 pheasants, and it is hoped that this year 500 can be liberated.

Each year the Board sends out thousands of pheasant eggs to persons who will hatch the same and liberate the birds at the age of seven weeks on unposted land open to all licensed hunters. The liberation is made under the supervision of a warden, who will furnish eggs at the proper time on proper application to him. The pheasants thus raised cannot be kept in captivity longer than the time for liberation. Instructions for raising pheasants are sent with each allotment of eggs.

PHEASANT SITUATION

Experience has shown that complaints concerning damage by pheasants occur chiefly in areas where the pheasants are not hunted over during the season by reason of posted property.

There is no doubt but what the pheasants vastly benefit the farmer more than any harm they can possibly do by destroying insects which injure crops, eating obnoxious weed seeds, controlling field mice and moles and feeding on Japanese beetles, one of the most serious insect pests in the East. Large estates on which there is farming welcome the pheasant because of their destruction of insects.

Examination of stomachs of pheasants in the case of damage alleged to have been done by them to tomatoes showed that no vegetation was found, but on the other hand there were numerous grubs and insects, and the damage had been done by crickets.

It has been found practical that pheasants will not come around where there are dogs, and we are informed that at a very small cost crow repellent when mixed with corn will discourage crows and other birds from digging the corn. Very few birds eat potato bugs, but pheasants consume them in large quantities. Farmers who spread soaked corn about the edges of their fields have found that this kept crows and blackbirds from the fields. Blank cartridges may be shot to scare the pheasants, and scarecrows have been found effective.

In Minnesota a survey showed that during the warm summer months of the year, pheasants examined showed that food taken consisted of 85 per cent animal life, most of which was insects, worms and larvae, and birds killed in corn fields in the spring months during a three-year period showed an average of 14 cut worms to five kernels of corn. In that State it was found that crows had pulled up corn at daybreak leaving within an hour or so when the pheasants would come in and the average farmer would not be out in the field in time to see the crows and would therefore

blame the damage on pheasants; also that the cutting off of small grain stalks was done by rabbits at night.

W. L. McAtee, of the U. S. Biological Survey, says that it is very unlikely that pheasants will kill adult quail, and that probably they would eat quail eggs or small chicks if an opportunity presented itself, but these are practically always under the protection of their parents which would seem sufficient protection.

It is believed to be absurd to claim that pheasants will kill adult rabbits. While they may take young rabbits in the nesting season, so do chickens and turkeys. At the nesting season the pheasant largely lives on insects. The supply of rabbits is in no manner threatened by the increase in pheasants.

RAISING QUAIL

The Board gave an order to W. R. Coleman, quail breeder, Richmond, Va., for 600 quail.

Quail raising in captivity has not been successful in the past by the average person. Where they have been raised the work has been highly specialized. In 1921 we experimented in quail raising at the Forked River Game Farm, but the breeding was discontinued as the expense and results did not justify the work. In three years several hundred birds were brought to maturity. The Board intends to take up the work again at the farm, as quite some progress it is reported has been made as to overcoming disease and other unfavorable conditions.

Mr. George S. McCarty, of Newfield, a member of the Board, is, with the assistance of the Board, making a study of quail raising. He has given considerable practical attention to the subject for several years past.

In the matter of quail production, much can be done by natural methods by sportsmen and farmers and boys and girls. Cats, sharp-shinned hawks and foxes should be eliminated, and cover and food supplied in the winter and spring. Grassy swamps, weedy and bushy fence rows and thickets make a refuge, as do grapevines, evergreen, locust trees and other plants. There should be one such refuge for every forty acres. Feeding in severe weather may be accomplished by hanging ears of corn under the grape vines, but out of the reach of rabbits. One such refuge could undoubtedly be created on every farm.

FIELD TRIALS

The Board has adopted a policy not to grant permits to clubs for field trials during May, June and July in order to protect nesting birds.

U. S. MIGRATORY LAWS

The U. S. Department of Agriculture gave notice of a regulation effective in 1930 reducing the Federal bag limit on ducks from 25 to 15 and on geese from 8 to 4, but permitting the possession at any one time of 30 ducks

and 8 geese. Our Legislature did not amend the New Jersey existing law to conform to the Federal limit. It appeared to the Commission that the regulation permitting the possession of 30 ducks in one day would nullify among violators our daily bag of 25 and mean the killing of 30 ducks in a day, as a warden rarely sees a hunter kill his ducks. The Board gave notice of the Federal changes in its publications, but our wardens have only authority to enforce the State regulations, and in this case the State law as to the possession of 25 ducks in one day will be recognized by the Federal authorities, as they recognize any greater protection given by States.

A special committee on Wild Life Resources, consisting of Senators Walcott, Hawes, Pittman, McNary and Norbeck, has been appointed from the United States Senate to investigate all matters pertaining to the replacement and conservation of wild life, and our Board has given the Committee information on the situation in this State. The Committee take the view that the Senate's action in their appointment is the broadest and most comprehensive yet taken to conserve the wild life of the nation.

NEW MENACE TO RABBITS AND BIRDS

"A rabbit is killed for every mile of road and highway every year," according to the American Game Protective Association reporting of a cursory survey of the United States. Each State has an average of forty to sixty thousand miles of public highways, which would bring the mortality to millions. It would be well for automobile drivers to be on the lookout for rabbits and birds and swerve their cars if possible. The lights blind the animals. The Minnesota Game Conservationists have made a special appeal for automobilists not to run over the grouse in that section, which prize game bird only propagates itself in the wild.

The automobile is also blamed for a scarcity of nesting material for birds, which in the day of horses, made generous use of hair from horses' tails in making their nests. These birds now search for string and other material for their domiciles.

FISH

The stocking done by the Board provided excellent fishing of all kinds in most places.

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

There was a total distribution of 119,918,613 fish by the State as follows:

| | |
|---|-------------|
| From the State Fish Hatchery at Hackettstown | 93,198,632 |
| From State Shad Hatchery, shad fry, yellow and white perch fry | 26,594,000 |
| From Delaware and Raritan Canal, Oak Ridge Reservoir, Boonton Reservoir and other sources | 125,981 |
| | 119,918,613 |

The increase of fish hatched at the Hancocks Bridge Hatchery and planted over last year was 2,100,000 yellow perch, 1,000,000 white perch and 406,000 shad.

The Bureau of Fisheries, Washington, D. C., distributed in the State during the year ending June 30th, 1930, fish as follows:

Catfish, 400; Rainbow trout, 1,500; Brook trout, 10,520; Large mouth bass, 12,562; Sunfish, 2,090; Yellow perch, 128.

BASS—NETTING WATERS

The Board will endeavor next October to test out a new source of supply for bass for stocking our streams and ponds. It is believed that a large number of black bass can readily be netted from streams in South Jersey, which formerly had been netted for carp. We now obtain a considerable number of bass by netting private reservoirs, the canals and gate holes of ponds to which tide water flows.

During the year we netted and obtained a large number of bass, pickerel, crappie, yellow perch and sunfish from Boonton Reservoir, Gebhard's Pond, Oak Ridge Reservoir, Delaware and Raritan Canal, Cohansey River below dam at Bridgeton, Headwaters of Maurice River, and Lumis Mill Pond.

A letter was sent to each warden directing that when fish are planted in the lakes and streams of a county that notice of such planting should at once be given publicity in the newspapers.

HACKETTSTOWN HATCHERY

Charles O. Hayford, Superintendent of the Fish Hatchery at Hackettstown and in charge of the Shad Hatchery at Hancocks Bridge, in his eighteenth annual report for the fiscal year ending June 30, 1930, says: The output of the Hackettstown Hatchery for the past fiscal year is shown by the following table:

| | Inches | Raised July 1, 1929, to June 30, 1930 | Disposed of | Estimated Number On Hand |
|---|--------|---|----------------|--------------------------------|
| Brook Trout | 2-3 | 61,100 | 61,100 | |
| " | 3-4 | 156,000 | 6,000 | 150,000 |
| " | 6-7 | 9,850 | 9,850 | |
| " | 7-9 | 9,265 | 9,265 | |
| " | 8-10 | 14,920 | 14,920 | |
| " | 8-12 | 13,650 | 13,650 | |
| " | 10-14 | 800 | 800 | |
| " | 12-14 | 2,067 | 2,067 | |
| Brown Trout | 2 | 16,200 | 16,200 | |
| " | 2-3 | 570,000 | 120,000 | 450,000 |
| " | 4-6 | 10,000 | | 10,000 |
| " | 6-8 | 50,000 | | 50,000 |
| " | 7-9 | 96,635 | 96,635 | |
| " | 8-10 | 10,000 | | 10,000 |
| " | 8-12 | 43,600 | 43,600 | |
| " | 9-12 | 20,000 | 20,000 | |
| " | 10-12 | 25,000 | 25,000 | |
| " | 12-18 | 1,750 | 1,750 | |
| Loch Leven Trout | 6-9 | 13,800 | 13,800 | |
| Rainbow Trout | 2 | 500,000 | | 500,000 |
| " | 4-6 | 140,000 | | 140,000 |
| " | 6-8 | 30,000 | | 30,000 |
| " | 7-9 | 110,695 | 110,695 | |
| " | 8-10 | 13,500 | 5,500 | 8,000 |
| " | 9-11 | 34,350 | 34,350 | |
| " | 9-12 | 10,000 | 10,000 | |
| " | 10-12 | 25,000 | 25,000 | |
| " | 10-14 | 10,000 | 10,000 | |
| Small Mouth Bass | 1 | 41,000 | 1,000 | 40,000 |
| " | 3 | 3,000 | 3,000 | |
| " | 3-4 | 5,000 | 5,000 | |
| Large Mouth Bass | 1 | 255,000 | 5,000 | 250,000 |
| " | 2-3 | 111,400 | 111,400 | |
| " | 3-4 | 5,250 | 5,250 | |
| " | 4-6 | 350 | 350 | |
| Catfish | 1 | 10,000 | | 10,000 |
| " | 3 | 24,500 | 24,500 | |
| Bluegill Sunfish | fry | 200,000 | | 200,000 |
| " | 1-2 | 391,600 | 391,600 | |
| " | 4 | 200 | 200 | |
| " | 6-8 | 125 | 125 | |
| " | 8-10 | 25 | 25 | |
| Yellow Perch | fry | 92,000,000 | 92,000,000 | |
| Black Spotted Trout | | 500 | 500 | |
| Miscellaneous | | 500 | 500 | |
| | | 95,046,632 | 93,198,632 | 1,848,000 |
| Output from Hancocks Bridge Hatchery, Salem County— | | | | |
| Yellow Perch, fry | | 21,800,000 | 21,800,000 | |
| White Perch, fry | | 1,700,000 | 1,700,000 | |
| Shad, fry | | 3,094,000 | 3,094,000 | |
| | | 26,594,000 | 26,594,000 | |
| Total from both Hatcheries | | 121,640,632 | 119,792,632 | 1,848,000 |

In addition to the above:
Various fish netted in State Reservoirs 125,981

Total distribution 119,918,613

In addition there were 45,000 fertilized shad eggs disposed of at the Hancocks Bridge Hatchery.

A list of the stocking done by the Board showing number, species, and water will be found in succeeding pages.

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 | |
|---------------------|---------|----------------------|---------|
| 1925-26 | 251,680 | 1925-26 | 872,810 |
| 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 |

1,702,189

2,256,210

| Bass Fingerlings | | Yellow Perch Fry | |
|------------------|---------|------------------|-------------|
| 1925-26 | 145,500 | 1925-26 | 65,600,000 |
| 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 |

850,850

455,525,000

| Bluegill Sunfish Fing. | | Catfish Fing. | |
|------------------------|---------|---------------|--------|
| 1925-26 | 217,900 | 1925-26 | 86,600 |
| 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 |

1,982,125

234,200

There was a total distribution of 119,918,613 fish by the State, as follows:
From the State Fish Hatchery at Hackettstown 93,198,632
From the State Shad Hatchery (including perch) 26,594,000
From Boonton and Orange Reservoirs, and other private sources 125,981

119,918,613

Shad Work. The Shad work at Hancocks Bridge was very satisfactory as shown by the four years' operation:

| | |
|---------|---------------|
| 1926-27 | 40,000 Fry |
| 1927-28 | 1,120,000 Fry |
| 1928-29 | 2,688,000 Fry |
| 1929-30 | 3,094,000 Fry |

New Work. During the year we ditched the upper end of the new rearing station in order to get a better drainage from the many small supply springs. This has given us clearer water and less silt.

We have dug and built concrete dams in three of the six new dirt ponds, three to four feet deep, fifteen feet wide, and one hundred fifty to two hundred feet long. These six new ponds when completed, will give us twenty-one ponds in our new station, with a capacity of 200,000 to 250,000 eight to ten-inch trout. These six ponds with two new loading ponds will complete the building operations in the new plant.

In 1920 we started selective breeding. Each year the growth has increased and the mortality decreased to such an extent that we are now taking all of our brown and brook trout eggs. On account of this selective breeding we require two and one-half million eggs instead of five million, which amounts to a saving of from five to six thousand dollars annually.

Last November when we began taking spawn we paired up eighty-six yearling and one hundred twenty-eight two-year-old trout. The eggs from each pair were numbered and kept separately. Many interesting things were noted, and a further check should enable us to eliminate heavy losses from the green to eyed stage of brook trout eggs. Our loss of brown trout eggs is less than 5 per cent from time of spawning to hatching.

Pond Fish Culture. Due to such a vast network of improved roads, making it possible for the whole family to reach most any point in New Jersey by automobile in a short time, our ponds and lakes should receive heavy stocking of larger-sized fish if we are to keep the public interested in our work.

I have every reason to believe from the success we have had in propagating bass, bream, catfish and perch, by conducting our pond fish culture on as large a scale as we do our trout work, the lake and pond fishing can be greatly improved. With this new system of pond culture, from 6,000 to 10,000 two to four-inch fingerling bass can be produced per acre of water with very little artificial feeding.

Proposed New Work. Supply Reservoir No. 1 should be thoroughly cleaned and divided in half. This reservoir, on account of eighteen years continuous use, has accumulated a sediment of from two to four feet of black muck. During extremely hot weather the purging is detrimental to the young bass.

It would cost approximately \$4,000 to put this reservoir in proper shape and build an absolutely water-tight dam.

We should have \$2,000 to build a new dam at the lower end of the hatchery by the slate quarry. This would give us an additional eight-inch pipe of water now going to waste.

We should have \$3,500 to grade, clean and seed banks and set out shrubbery at the new rearing station.

Shad. I would recommend that the Shad Hatchery be continued in operation in South Jersey. Practically all of the eggs are collected on the Maurice River below Millville in Cumberland County.

South Jersey offers many possibilities in fish culture, and I would recommend that a careful survey be made with the idea of locating a rearing station for bass, perch, bream, crappie and catfish. This station could be operated very economically.

Exhibits. We made exhibits of fish at the Trenton and Sussex County fairs and at a meeting of the United States Fisheries Association at Atlantic City.

During the past few years there has been an increasing demand for more and larger trout for stocking purposes. In States like our own with improved roads parallel to or crossing our best trout streams, practically every stream is from two to three hours run from any section.

It is a well known fact that trout held under artificial conditions are subject to many diseases. Some of them are due to external parasites infesting various parts of the body such as the gills and fins. In order to keep the plant under control it requires a daily microscopic examination of the fish.

During the past fiscal year there were several outbreaks of diseases caused by the following parasites: Gyrodactylus, Chilodon, Cyclochaeta, and Ichthyophthirius. These are largely controlled by dipping the affected fish in one of several solutions designed for the purpose.

There are other diseases, however, caused by organisms living within the body, such as Bacterium trutta occurring in the blood and Octomitus salmonis inhabiting the digestive organs. These internal parasites cannot be reached by the solutions just mentioned.

It seems to be the opinion among the leading fish culturists that the surest method of control lies in preventive measures, either in the prevention of infection or in developing a resistance in the trout through selective breeding feeding. If the fish are to be healthy and strong they must have a suitable diet.

We are greatly indebted to Dr. H. S. Davis, U. S. Pathologist, for his book, "Care and Diseases of Trout."

TROUT CONDITIONS IN 1930

Reports from wardens showing gratifying conditions in fishing for trout in 1930 follow:

Assistant Protector Cudney, Warren County: This, perhaps, has been the most satisfactory season that we have had. While the catch has not been so heavy at times, it has been consistent from the start. The amateurs, as a whole, have not been as satisfied due to the fact that many more brown trout were planted this year than usual. This can be explained probably because the brooks and rainbows are much more free in taking the lures. I was out along the streams at daylight on the opening day and it looked almost like a carnival. I stood at one point within the limits of Hackettstown where I could see about 200 feet and counted thirty-nine fishermen. This condition existed in many parts of the State. Hundreds of fishermen had their limit before 9 o'clock in the morning. The fishing has continued steadily up until the present time. Some nights it looked almost like the opening day in a few of our streams.

I have several instances in mind of different parties that come from a distance and claim that North Jersey fishing is the best in the East. One party from Atlantic City has been up three or four times, and one time had twenty fishermen with him. These are men that have been converted into trout fishing from deep-sea fishing. One man from Long Branch who heretofore spent his entire vacation in the Poconos has given that up because he claims the fishing is much better in Hackettstown.

Assistant Protector Davison, Monmouth County: Trout fishing in Monmouth County was very good this year. We had the usual large number of fishermen during the first two weeks, the number gradually diminishing until May 20th, when very few men were found on the streams.

From June 1st to the end of the season we meet the real trout fishermen, and they are few indeed, but these are the men who most often take the limit and the large fish.

There were many instances where the bag limit was taken and the fishermen generally were pleased. About the usual interest was taken and there should be a good supply left over, as our streams are being stocked this week (June 17th) with large fish.

Rainbow trout as large as shad were taken from the Manasquan River between Squankum and Allaire. Brook trout from Wemrock were very large this year. The large brook trout planted in Shark River brook last December have not been caught, as yet.

Warden Small, Bergen County: Evidence of intense interest in trout angling is supplied by fact that scores of fishermen parked and slept in their cars on night of April 14-15 at their favorite trouting places. At one place on Saddle River upward of 200 fans shouldered each other for room to fish at daylight on April 15th. Good catches recorded throughout season. Satisfaction general among anglers with quality, quantity and variety of fish stocked. "Rainbow and native for the novice, and brown for the technician," is a frequent comment. The wily and evasive browns will hold the interest of the trouters till close of season but only a small number is likely to survive that period.

Warden Hugg, Middlesex County: On account of the unusual weather conditions that have prevailed throughout the season, the catches of trout have been small to the individual although there have been more fishermen out than in former years. At Wigwam and Bonhamtown ponds a large number caught their limit before nine in the morning of the first day. The fishermen seemed to have better success in the ponds than in the brooks. In the Manalapan brook there were several of the larger trout caught; one brown that weighed three and three-quarters pounds; this fish was no doubt one stocked a year or longer before. Several of our brooks were very poor fishing on account of the low water most of the time.

Warden Larson, Hunterdon County: The trout fishing in Hunterdon County has been very good. There have been more fishermen than ever. Better catches and larger fish from reports of the fishermen, that I spoke to. Some fished and caught the limit and were more than pleased with the size of the fish that they had taken. Sunday, July 20th, there were a number of trout fishermen—at least a hundred—and most of them had caught fish. There is a good supply of fish in the streams and will be at the close of the season.

Warden Graham, Gloucester County: The first day of the trout season I counted 86 cars at Big and Little Lebanon streams. At the head of Mantua Creek there were eleven cars and several fishermen got the bag limit. There was more interest this year in trout fishing than any year. The fishing continued late in the season. There were cars there from Atlantic City and Wildwood, and a number of cars from Pennsylvania. The fishermen that I talked to at the beginning of the season were well pleased. I think there will be only a small supply of fish left over.

Warden Treloar, Sussex County: I have never stocked more and nicer fish than I did for the present season. I found the brooks in fair shape and in my patrols along the Wanaque earlier in the season I found the trout fishermen pretty well pleased with the size and distribution. Later, in Sussex County it was rather a common occurrence to find a number of fishermen with nice strings and many with the limit pretty much throughout the season. I particularly noticed that the sportsmen took a keener interest in the stocking than ever before.

Warden Lawrence, Morris County: The people were very enthusiastic and the streams were lined with fishermen every day. A great many fishermen have told me that they had never found the streams so well stocked with adult fish as they had found them this year, which speaks well of the Hatchery. There were a great many who caught their limit several times, and the majority of the fishermen were very well satisfied.

Warden F. J. Hall, Essex County: The general interest in trout fishing this season seemingly has exceeded that of former years. In a number of instances the daily bag limit has been secured. The fishermen in general are well pleased. The supply at the close of the season will not be very good on account of so many fish having been caught.

PATROL OF WATERS

The Atlantic Ocean, Sandy Hook and Raritan Bay, Barnegat Bay 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.

In June the cruiser made its headquarters in Cape May County, and the wardens in two bank skiffs patrolled Delaware Bay to see that the act of 1930, prohibiting the use of drifting gill nets before June 15th was obeyed, the object of the act being intended to protect the weak fish which come into the Bay to spawn. Special attention was given to Great Bay, where there had been reports of violations of the laws affecting this bay, but no violations were found.

CARP PERMITS

The taking of carp in the waters in the Salem County section constitutes an important industry, and the carp is regarded as one of their best commercial fish. In the tidal waters of Delaware River and Bay between New Jersey and Delaware they are chiefly taken with nets set approximately parallel with the shore from September 1st to May 31st, and they may otherwise be taken with seines in season.

There are numerous fresh water streams in that section entering into tidal waters, and the carp enter these streams to spawn. Under section 40, the Board is authorized to issue permits to persons to take carp and suckers in such streams with a hauling seine. Numerous permits had been issued in the past, but the advisability of issuing such was questioned by a petition presented to the Board from Salem County requesting that none be issued for a period of five years, the claim being made that to allow the use of nets where the fish are spawning is a blow at conserving and building up the industry, and it was also claimed that when the carp

are taken in nets game fish are also illegally taken, the latter being due to the fact that the wardens are not able at all times to supervise the netting. About the same time another petition from Salem County urged the granting of such permits, as such fishing allowed a number of persons to make a livelihood and preserve the game fish in the waters. In view of the conflict, the Board authorized an investigation of conditions and as to whether legislation was needed in the matter. No permits for Salem County were issued in 1930. It was believed that more persons opposed the permits than were in favor of them.

In March the Board fixed a fee of \$25.00 for each carp permit to be issued, the fee to be partial compensation for the time of supervision of the netting required from the wardens. The Board, however, is averse to granting permits for nets in waters stocked by the State.

DELAWARE RIVER

Protector James M. Stratton prepared statistics of the shad fishing industry in the Delaware River, Delaware Bay and their tributaries, from reports received from the wardens in counties where persons were engaged in shad fishing commercially.

The report includes only the men engaged in the business and the boats and nets operating from the New Jersey side of the Delaware River and Bay and their tributaries in the State.

A reference to the tabulation will show a marked decrease in the number of shad caught and the amount realized for the sale of fish, as compared with the year 1929.

In Hunterdon County only three fisheries were operated, one at Stockton and two at Lambertville. Hauling seines two hundred fathoms in length are used, as no gill nets are permitted above Trenton Falls.

Three fisheries were operated in Mercer County, one each at Titusville, Wilburtha and Trenton. The type of nets used was hauling seines, fifty to one hundred seventy-five fathoms in length.

There were nine drifting gill nets and two hauling seines used in Burlington County. The length of gill nets was one hundred fifty fathoms. Row boats were used in their operation.

Only two small drifting gill nets were used in Camden County.

In Salem County drifting gill nets five hundred fifty fathoms long and motor boats were used.

The report from Cumberland County shows that thirty drifting gill nets, each two hundred fifty fathoms long or longer, operated in the Delaware Bay, with motor boats, caught 13,500 shad, and twenty-six staked gill nets twenty-five fathoms in length operated within one-half mile of the shore in the Delaware Bay caught 2,000 shad, whereas twenty-six drifting gill nets, thirty fathoms in length, operated with rowboats in the Maurice River, caught 16,000 shad, and eleven hauling seines, fifty fathoms long also used in the Maurice River, caught 6,600 shad, showing that there were 23,500 shad caught in Maurice River and only 16,300 in the Delaware Bay by Cumberland County fishermen.

REPORT OF SHAD CAUGHT IN THE DELAWARE RIVER AND BAY

| County | Boats and Nets | | Men Engaged | | Number of Shad Caught | | Value of Shad Caught | | Value of Boats and Nets | |
|----------------|----------------|------|-------------|------|-----------------------|--------|----------------------|----------|-------------------------|----------|
| | 1929 | 1930 | 1929 | 1930 | 1929 | 1930 | 1929 | 1930 | 1929 | 1930 |
| Cumberland .. | 52 | 67 | 99 | 162 | 43,100 | 39,800 | \$39,500 | \$35,100 | \$17,120 | \$28,445 |
| Salem | 33 | 26 | 66 | 52 | 34,239 | 20,441 | 36,620 | 13,822 | 31,350 | 20,800 |
| Camden | 4 | 2 | 8 | 4 | 1,000 | 50 | 800 | 50 | 290 | 250 |
| Burlington .. | 19 | 11 | 41 | 29 | 5,496 | 458 | 5,496 | 458 | 1,990 | 1,345 |
| Mercer | 10 | 6 | 42 | 26 | 7,168 | 660 | 6,154 | 1,385 | 2,005 | 1,575 |
| Hunterdon ... | 13 | 4 | 25 | 16 | 4,850 | 665 | 5,951 | 1,170 | 1,200 | 550 |
| Increase | 131 | 116 | 281 | 289 | 95,853 | 62,074 | \$94,521 | \$51,985 | \$53,955 | \$52,965 |
| Decrease | 15 | | | 8 | 33,779 | | \$42,536 | | \$990 | |

In addition 26 staked nets 25 fathoms long, and nine motor boats were used in the Delaware Bay.

POUNDS SUMMARY

Following is a summary of the pound fisheries report for the calendar year ending December 31, 1929:

| | |
|---|--------------|
| Approximate value of all pounds | \$854,726.23 |
| Proceeds derived from sale of fish | 1,032,501.62 |
| Number of pounds of fish caught and disposed of | 26,887,554 |

Licenses issued:

| | |
|----------------------------------|-------|
| Atlantic Ocean | 108 |
| Sandy Hook and Raritan Bay | 19 |
| | <hr/> |
| | 127 |

| | |
|---------------------------------|-----|
| Number of pounds operated | 127 |
| Number of men employed | 487 |

POLLUTIONS

We are vitally interested in the purity of water where fish are planted, and on file at the Hatchery is detailed data respecting our waters. Every effort is made to prevent pollutions, and in this we are materially assisted by the State Board of Health, which has very effective laws which are easily enforced. The work of that Board in compelling the installation of sewage treatment plants is of great aid in our work. During the year that Board approved of sewage treatment plants as follows: Far Hills, Ventnor and Margate, joint plant; Hillsdale; Cedar Grove; South Plainfield; Medford Lake, Medford Lake Corporation; Ewing Township, State Normal School; Somerset Hills, United States Veterans' Hospital.

There are now in the State 349 sewage and trade waste treatment plants, and 16 creamery and dairy waste treatment plants.

During the year we obtained convictions in two pollution cases; the penalty being \$200 each.

SHORE FISHERIES NOT ENDANGERED

As noted in our last report the U. S. Bureau of Fisheries is conducting studies commenced in 1927 of the shore fisheries of the Middle Atlantic States. The centre of abundance of the important food and game fishes of the region is New Jersey. This survey when completed is expected to settle questions of spawning and locations of spawning. We quoted Lewis Radcliffe, Acting U. S. Commissioner of Fisheries, respecting the agitation for prohibition of commercial fishing, who said: "It must be realized that such action would destroy a great source of revenue and prohibit the utilization of a great food resource."

By these studies it is expected to discover what means should be employed to keep in adjustment the productive capacity of the sea and the strain due to fishing so as to insure continuation of an undiminished resource.

As to the progress of the work for New York and New Jersey we quote from a statement of Albert K. Brown, Acting Commissioner, U. S. Bureau of Fisheries, under date of June 21, 1930.

"An outstanding result of these investigations is the adducing of evidence supporting the view that the recent decline in the local abundance of various shore fishes on Long Island and New Jersey coast are in all probability due to natural rather than to artificial causes. Mr. Robert A. Nesbit, Aquatic Biologist, and his assistants have with painstaking care compiled a great mass of statistical records obtained from many sources in order to study the course of the commercial fisheries, which is, after all, the best source of information concerning the real abundance in the sea of any species of fish. To these records he has applied scientific methods of analysis showing as well as possible the real trend of the fishery. A surprising development of this study is that the commercial fishery draws upon only a small portion of the total stock of squeteague or weakfish, the greater part of which in most years and most seasons is somewhere beyond the reach of man.

"The age and the rate of growth and the age composition of the fish taken in the commercial fishery have also been worked out by scientific methods. Through a widespread 'census' he has discovered that fish of certain ages predominate in the catch and that this is due to the occurrence of unusually successful spawning in certain years. So far as we know at present, a fortunate combination of the factors favoring survival of the young occurs by chance at infrequent intervals, but when an abundant spawning does occur, the resulting year class of fish dominates the fishery and produces increased yields. If spawning fails for several years, a corresponding decline in real abundance occurs.

"The laws of reproduction that govern the weakfish appear to govern the abundance of the other shore fishes, although little is known of the bluefish or the flounder at the present time.

"According to our observations, the present activities of the commercial or sports fisheries are not endangering the shore fishes of the Middle Atlantic section, for variations in abundance seem at present to be controlled by natural forces, nor is there any likelihood that the undertaking of artificial propagation would materially augment the supply.

"It is extremely important, however, that final judgment upon the matter be withheld until additional studies have been made and especially until a thoroughly reliable system of fishery statistics sufficiently detailed and extensive to give a true picture of the fish in the sea be adopted by the States."

FISH AND GAME LEGISLATION IN 1930

Chapter 22. Approved March 24th. Permits the taking of codfish in Delaware Bay from November 15th to March 1st, with trawl lines or set lines with three or more hooks attached.

Chapter 39. Approved March 24th. Permits owners, lessees or authorized agents to kill deer on their lands if a portion is under cultivation, with a written permit signed by the owner or lessee of the land and also by the Board of Fish and Game Commissioners, but no doe deer shall be killed during the deer season.

Chapter 77. Approved April 9th. Removes white and yellow perch from the list of game fishes in the Delaware River and Bay and tidal tributaries between New Jersey and Delaware, and classes them as food fish, thus permitting them to be taken with hook and line at all times of the year the same as in inland fresh waters. This only applies below Birch Creek and Marcus Hook. Does not apply to Delaware River between New Jersey and Pennsylvania or to the tributaries between Trenton Falls and Birch Creek.

Chapter 87. Approved April 14th. Permits gill nets with mesh not smaller than three inches, said nets not exceeding twenty-five fathoms in length, to be staked below Hope Creek, in Delaware Bay, within one half mile of the shore.

Chapter 196. Approved April 18th. Amends the act relating to Delaware River and Bay and tributaries between the States of New Jersey and Delaware where the tide ebbs and flows, by prohibiting hauling seines fifty fathoms long with two and one-quarter inch mesh and drifting gill nets fifty fathoms long with three and one-half inch mesh, to take food fish in the Delaware Bay, except from June 15th to December 31st. The former act permitted this type of nets to be used in the Delaware Bay from March 1st to December 31st. The object of the amendment is to protect the weakfish which come in the Delaware Bay to spawn.

SUPPLEMENT TO 1928-1929 REPORT

Income

Balance as per last printed report\$100,044.55

Expenditures

Chapter 257, Laws of 1928, paid after June 30, 1929, on requisitions for 1928-1929 10,157.75
 Adjustment11
 To Balance 89,886.69
 \$100,044.55

REPORT FOR 1929-1930

Income

Balance July 1, 1929 \$89,886.69
 Less Adjustment 1,031.48

Hunters' and Anglers' Licenses:

Chapter 152, Laws 1914 (Regular)
 Chapter 320, Laws 1915 (Juvenile)
 Chapter 125, Laws 1922 (Woodcock)\$301,677.05

Chapter 153, Laws 1918:

Menhaden Licenses \$1,925.00
 Food Fish Licenses 2,250.00
 Pound Licenses 5,870.00
 Breeders' Licenses 2,165.00
 Deputy Fees 340.00
 Carp Permits 100.00
 Sales, Farms and Hatchery 1,999.78
 Sundries 1,009.14
 Trespass Cases 741.00
 Returned Check 67.50

Chapter 147, Laws 1911 (Fines) 16,467.42
 34,072.19 352,216.66
 \$441,071.87

Expenditures

Chapter 263, Laws 1929 328,085.64
 Requisitions outstanding \$30,420.34
 Account Balance 82,565.89 112,986.23
 \$441,071.87
 Account Balance June 30, 1930 82,565.89

STOCKING OF NEW JERSEY WATERS

By the New Jersey Board of Fish and Game Commissioners
For the Fiscal Year Ending June 30, 1930

Total Number of Fish Planted from All Sources—119,918,613

KEY TO ABBREVIATIONS

| Fish | Fish |
|-----------------------------|--------------------------|
| Bt. Brook Trout | Pic. Pickerel |
| Brnt. Brown Trout | S. Sunfish |
| Rt. Rainbow Trout | B. Baitfish |
| Lt. Loch Leven Trout | Cr. Crappie |
| Lmb. Large Mouth Bass | Wper. White Perch |
| Smb. Small Mouth Bass | Yper. Yellow Perch |
| Bs. Bluegill Sunfish | Shad. Shad |
| C. Catfish | Misc. Miscellaneous |
| Les. Longeared Sunfish | |

Size

| | |
|----------|-------------|
| fg. | fingerlings |
| f. | fry |
| a. | adults |

ATLANTIC COUNTY

(Great Egg Harbor System)

Egg Harbor River—Penny Pot—4,900 Bsf, 600 Lmbfg.
Lenape Lake—Mays Landing—1,200 Lmbfg, 4,000 Bsf.
Mare Run—Near Mays Landing—600,000 Yperf.
Union Creek—Near Egg Harbor—1,200,000 Yperf.

(Mullica River System)

Hammonton Lake—Hammonton—800 Lmbfg, 4,000 Bsf, 500 Rta, 600,000 Yperf.

BERGEN COUNTY

(Hackensack River System)

Closter Brook—Closter—150 Bta, 150 Rta, 380 Brnta, 200,000 Yperf.
Cooper's Pond—Northvale—200,000 Yperf.
Demarest Brook—Demarest—125 Rta, 500 Brnta.
Demarest Lake—Demarest—100 Bta, 165 Rta, 100 Brnta.
Dyers Pond—Northvale—150 Brnta.
Gardners Pond—Little Ferry—500 Rta.
Hackensack River—Oradell—1,100 Rta, 1,975 Brnta, 3,600 Brntfg, 500 Lta, 100 Bta.

Hackensack Lake—Hackensack—400,000 Yperf.
Lenox Park Lake—Englewood—11 Lmba, 9 Cra, 12 Pica, 500 Misc.
Musquasink Creek—Westwood—600 Rta.
Pascack Creek—Woodcliff Lake—3,725 Rta, 600 Lta, 725 Bta, 3,220 Brnta.
West Pascack Creek—Woodcliff Lake—50 Bta.
Tellers Brook—Riverdale—100 Bta.
Tenekill Creek—Closter—885 Rta, 100 Bta, 305 Brnta, 200,000 Yperf.
Washington Spring Brook—Cherry Hill—1,050 Rta, 900 Bta, 1,085 Brnta, 200,000 Yperf.
West Washington Spring Brook—Spring Valley—300 Rta, 100 Brnta, 200,000 Yperf.
Willow Lake—Little Ferry—700 Bta, 1,250 Rta, 1,125 Brnta, 200,000 Yperf.

(Pascack Creek System)

Bear Creek—Woodcliff Lake—200 Bta.
Electric Lake—Montvale—400,000 Yperf, 775 Misc.
Montvale Brook—Montvale—75 Bta.

(Passaic River System)

Saddle River—Saddle River—425 Bta, 4,175 Rta, 600 Lta, 2,575 Brnta, 2,700 Brntfg.
Sawmill Brook—Saddle River—900 Brntfg.
Valentine Brook—Hawthorne—500 Rta.
Van Zaun Lake—No. Hackensack—100 Bta, 275 Rta, 225 Brnta.

(Saddle River System)

Sprout Brook—Arcola—200 Bta, 155 Brnta.

BURLINGTON COUNTY

(Delaware River System)

Bread and Cheese Run—Tabernacle—1,000 Rta, 3,000 Bsf, 100 Bsa, 2,000 Cfg.
Sylvan Lake—Burlington—1,000 Rta, 400,000 Yperf, 300 Bta, 1,600 Lmbfg, 2,000 Bsf, 100 Lmba, 400 Pera, 200 Sa, 1,000 Brnta.

(Mullica River System)

Atsion Lake—Atsion—400 Lmbfg.
Batsto Lake—Batsto—4,000 Bsf.

(Rancocas Creek System)

Birmingham Lake—Birmingham—400 Lmbfg.
Brown's Mills Lake—Brown's Mills—500 Brnta.
Cedar Lake—Ayerstown—200,000 Yperf.
Hunter's Lodge Lake—Brown's Mills—200,000 Yperf.
Jones Mill Pond—Cookstown—250 Brnta.
Little Lake—Brown's Mills—200 Lmbfg.
Durands Lake—Mt. Holly—200,000 Yperf, 400 Lmbfg, 1,000 Bsf, 100 Pera, 100 Sa.
Lake in the Wood—Brown's Mills—200 Lmbfg.
Medford Creek—Medford—200,000 Yperf, 200 Lmbfg.
Mirror Lake—Brown's Mills—400,000 Yperf, 200 Lmbfg, 100 Cra, 200 Sa.
Norcross Lake—Pemberton—600 Lmbfg, 1,000 Bsf.
Little Pine Lake—Brown's Mills—200,000 Yperf.
Rancocas Lake—Rancocas—200 Lmbfg, 2,000 Bsf.
Smithville Lake—Smithville—200,000 Yperf, 600 Lmbfg, 2,000 Bsf, 100 Lmba, 100 Cra.
Tomlinson's Mill Lake—Marlton—2,000 Bsf, 100 Bsa, 1,500 Cfg.

Vincentown Lake—Vincentown—200,000 Yperf, 600 Lmbfg, 1,000 Bsf, 150 Bsa, 1,500 Cfg, 500 Brnta.
Wildfowl Lake—Brown's Mills—200 Lmbfg.

(Wading River System)

Chatsworth Lake—Chatsworth—400 Lmbfg, 250 Brnta.
Cotoxen Lake—Kirby's Mills—200 Lmbfg, 500 Brnta.

CAMDEN COUNTY

(Delaware River System)

Blackwood Lake—Blackwood—400 Lmbfg, 35 Lmba, 25 Pera, 25 Cra.
Crystal Lake—Westmont—200 Lmbfg, 30 Lmba, 200 Pera, 50 Cra.
Evans Lake—Haddonfield—400 Lmbfg, 2,000 Bsf, 200,000 Yperf.
Grenloch Lake—Grenloch—400 Lmbfg, 400,000 Yperf.
Haddon Lake—Mt. Ephraim—400 Lmbfg, 200,000 Yperf.
Hopkins Lake—Haddonfield—400 Lmbfg, 2,000 Bsf, 200,000 Yperf.
Kirkwood Lake—Kirkwood—2,000 Lmbfg.
Lakeside Lake—Kirkwood—200,000 Yperf.
Laurel Lake—Laurel Springs—200 Lmbfg, 60 Lmba, 100 Pera, 50 Cra.
Little Lake—Gibbsboro—400 Lmbfg.
Lukas Lake—Gibbsboro—200,000 Yperf.
Morgan Lake—Blackwood—200,000 Yperf.
Mountwell Stream or Coopers Brook—Haddonfield—500 Brnta.

(Mullica River System)

Atco Lake—Atco—400 Lmbfg.

(Timber Creek System)

Back Run—Berlin—340 Rta.
Bottomley Lake—Clementon—400 Lmbfg, 200,000 Yperf.
Bridgeview Lake—Gibbsboro—200 Lmbfg, 2,000 Bsf.
Cheeseman Run—Laurel Springs—50 Rta.
Clementon Lake—Clementon—400 Lmbfg.
Gardner Lake—Laurel Springs—200,000 Yperf.
Lakeview Lake—Gibbsboro—200 Lmbfg.
Big Lebanon Run—Turnersville—100 Bta, 1,550 Brnta, 1,250 Rta
Overbrook Lake—Atco—200,000 Yperf.
Pillings Lake—Clementon—50 Lmba, 175 Pera, 75 Cra.
Rattlesnake Run—Turnersville—100 Rta.
Silver Lake—Clementon—400 Lmbfg, 200,000 Yperf.
Trout Run—Near Clementon—260 Rta.

CAPE MAY COUNTY

Cape May Pond—Cape May—400 Lmbfg.
County Almshouse Pond—Cape May Court House—400 Lmbfg, 2,000 Bsf, 400,000 Yperf.
Dennisville Pond—Dennisville—2,000 Bsf, 800 Lmbfg.
East Creek Lake—Eldora—400 Lmbfg, 2,000 Bsf, 400,000 Yperf.
Lilly Lake—Cape May Point—400 Lmbfg.
Ludlam's Lake—Dennisville—400,000 Yperf.
Rio Grande Pond—Rio Grande—2,000 Bsf, 400,000 Yperf, 800 Lmbfg.

CUMBERLAND COUNTY

(Cohansey Creek System)

Beal's Lake—Bridgeton—400 Lmbfg.

Cedar Lake—Cedarville—1,000 Bsf.
Cedarville Lake—Near Millville—200 Lmbfg.
Clark's Lake—Bridgeton—200 Lmbfg, 1,000 Bsf, 400,000 Yperf.
Crystal Lake—Cedarville—1 Lmba, 5,000 Sa, 600 Misc.
East Lake—Bridgeton—200,000 Yperf.
Elmer Lake—Bridgeton—200 Lmbfg, 2,000 Bsf, 200,000 Yperf.
Irvin Ave. Stream—Bridgeton—100 Brnta.
Tumbling Dam Lake—Bridgeton—200 Lmbfg, 2,600 Bsf, 50 Brnta, 200,000 Yperf, 52 Lmba, 870 Pera, 285,000 Wperf, 80 Pica, 3 Cra, 83 Sa.

(Maurice River System)

Cumberland Pond—Near Millville—200 Lmbfg, 2,000 Bsf, 400,000 Yperf.
Frie's Pond—Near Millville—200,000 Yperf.
Laurel Lake—Near Millville—800 Lmbfg, 2,000 Bsf, 50 Brnta, 600,000 Yperf.
Leaming Lake—Near Millville—200 Lmbfg, 2,000 Bsf.
Little Mill Lake—Millville—800 Lmbfg, 2,000 Bsf, 400,000 Yperf.
Manantico Stream—East Vineland—200,000 Yperf.
Union Lake—Millville—800 Lmbfg, 2,600 Bsf, 50 Brnta, 400,000 Yperf, 153 Lmba, 497 Pera, 150 Cra, 500 Sa, 5 Pica.

ESSEX COUNTY

(Passaic River System)

Branch Brook Park Lake—Branch Brook Park—400,000 Yperf.
Notch Brook—Essex Park—1,550 Rta, 150 Bta.
Passaic River—Swinefield—63 Lmba, 5 Cra, 35 Pica, 1,875 Misc.
Weequahic Park Lake—Newark—800,000 Yperf, 95 Lmba, 16 Cra, 18 Pica, 3,150 Misc.

(Rahway River System)

So. Mt. Reservation—Bloomfield—2,425 Rta, 100 Bta, 2,425 Brnta.

GLOUCESTER COUNTY

(Delaware River System)

Leslie's Lake—Mt. Royal—200 Lmbfg.
White Sluice Ditch—Gibbstown—400 Lmbfg.

(Mantua Creek System)

Alcyon Lake—Pitman—1,000 Lmbfg, 2,000 Bsf, 400,000 Yperf.
Edw. Alcyon Lake—300 Rta.
Mantua Creek—Pitman—200 Brnta, 200 Rta.

(Maurice River System)

Iona Lake—Iona—400 Lmbfg, 1,000,000 Yperf.
Kandle Creek—Franklinville—150 Brnta, 250 Bta.
Malaga Lake—Clayton—400 Lmbfg, 1,000,000 Yperf.

(Raccoon Creek System)

Mullica Hill Lake—Mullica Hill—880 Lmbfg, 2,000 Bsf, 400,000 Yperf, 75 Lmba, 150 Pera, 100 Cra.

(Timber Creek System)

Almonesson Lake—Almonesson—1,000 Lmbfg, 2,000 Bsf, 400,000 Yperf, 100 Lmba, 150 Pera, 100 Cra.
Beal's Lake—Woodbury—200 Lmbfg.
Little Lebanon Run—Near Turnersville—150 Brnta, 250 Bta.
Turnersville Lake—Turnersville—2,000 Bsf.

HUDSON COUNTY

Hudson County Park Lake—Jersey City—500 Rta.
Woodcliff Lake—No. Bergen—500 Brnta.

HUNTERDON COUNTY

(Delaware River System)

Everittstown Brook—Everittstown—600 Rta.
Lacatang Creek—Stockton—550 Rta.
Little York Brook—Little York—300 Rta, 600 Brnta.
Musconetcong River—Penwell to Asbury—3,850 Brnta, 600 Lta, 2,250 Rta, 200 Bta.
Trib. Musconetcong River—Mountainville—3,000 Btfg.
Sergeantsville Brook—Sergeantsville—500 Brnta.
Spring Mills Brook—Spring Mills—300 Rta.
Wichecheoke Run—Sergeantsville—600 Rta.

(Musconetcong River System)

Beaty's Brook—Penwell—4,900 Brntfg, 700 Rta, 1,000 Btfg, 500 Brnta, 150 Bta.
Dairy Run—Changewater—600 Brntfg, 1,000 Btfg.
Point Mt. Creek—Anderson—600 Brntfg, 1,000 Btfg.

(Raritan River System)

Beaver Brook—Clinton—250 Rta, 255 Brnta, 1,800 Brntfg, 150 Bta.
Cakeapoulin Creek—Pittstown—650 Rta.
Clinton Lake—Clinton—1,000 Ca.
Cushetunk Lake—White House—6,000 Bsfg, 1,200,000 Yperf, 30 Lmba, 13 Pica, 900 Misc, 1,000 Ca, 1,000 Pera, 225 Cra.
Frog Hollow Brook—Califon—1,800 Brntfg, 1,000 Btfg, 100 Rta.
Nishisakawick Creek—Frenchtown—600 Rta.
Philhower Brook—Califon—1,800 Brntfg, 1,000 Btfg.
No. Br. Raritan River—White House—250 Rta, 750 Brnta.
So. Br. Raritan River—Middle Valley to High Bridge—1,200 Lta, 1,350 Bta, 8,450 Rta, 12,015 Brnta.
Trib. So. Br. Raritan River—1,800 Brntfg.
Spruce Run—Glen Gardner—2,650 Brnta, 500 Bta, 600 Lta, 2,550 Rta.
Solitude Lake—High Bridge—6,000 Bsfg, 1,200,000 Yperf.
Sutton Brook—Burnt Mills—1,000 Btfg.
Tetertown Brook—Califon—1,000 Btfg.

(Rockaway River System)

Burrell Brook—Mountainville—150 Brnta.
Cold or Skillman Brook—New Germantown—1,000 Btfg.
Guienna Hollow Brook—Mountainville—200 Brnta, 150 Bta, 100 Rta.
Hoover's Brook—Lebanon—500 Rta, 500 Brnta.
Reed Brook—New Germantown—1,800 Brntfg.
Rockaway River—White House—500 Rta, 500 Brnta.
No. Br. Rockaway River—New Germantown to White House—2,400 Brnta, 600 Bta, 500 Lta, 4,150 Rta.
So. Br. Rockaway River—Lebanon to White House—1,400 Rta, 2,010 Brnta, 250 Bta.
Trib. So. Br. Rockaway River—1,000 Btfg.
Tietz Run—Mountainville—150 Brnta, 1,800 Brntfg.

(Spruce Run System)

Hawk Brook—Clinton—200 Brnta.
Pattenburg Brook—Van Syckles—250 Bta.
Rocky Run—Glen Gardner—2,700 Brntfg.
Sanitarium Brook—Glen Gardner—2,700 Brntfg.

MERCER COUNTY

(Assanpink Creek System)

Lawrence Pond—Lawrence Station—400,000 Yperf.

(Crosswicks Creek System)

Gropp's Lake—Maple Shade—1,200 Lmbfg, 400,000 Yperf.

(Delaware River System)

Groveville Pond—Groveville—800 Lmbfg.
Hillwood Lake—Ewingville—2,000 Bsfg.
Whiteheads Pond—Hamilton Square—400,000 Yperf.

(Millstone River System)

Amos Bond Quarry—Near Hopewell—400 Lmbfg.
Carnegie Lake—Princeton—800 Lmbfg, 2,000 Bsfg, 800,000 Yperf.
Etra Lake—Etra—400 Lmbfg.
Hunts Lake—Rosedale—400 Lmbfg.
Peddie Lake—Hightstown—400 Lmbfg.
Stoney Brook—Pennington—1,100 Rta, 1,000 Brnta, 50 Lmba, 250 Pera, 200 Cra, 250 Sa.

(Miry Run System)

Hutchinson's Pond—Robbinsville—800 Lmbfg, 400,000 Yperf.
Reeds Mill Pond—Mercerville—400 Lmbfg.
Shabbyconk Creek—Ewing Township—800 Lmbfg, 800,000 Yperf, 50 Lmba, 250 Pera, 200 Cra, 250 Sa.

MIDDLESEX COUNTY

(Lawrence River System)

Milltown Lake—Milltown—400 Bsfg.
Oakey Brook—Franklin Park—300 Rta.

(Manalapan River System)

Bloomfield Lake—Old Bridge—200 Lmbfg.
Helmetta Pond—Helmetta—300 Bsfg.
Hunn's Pond—Spottswood—200 Rta.
Jamesburg Lake—Jamesburg—800 Lmbfg, 1,000 Bsfg, 400,000 Yperf, 75 Lmba, 100 Pera, 25 Cra.
Manalapan River—Jamesburg—550 Rta, 1,000 Brnta.
Matchaponix Brook—Old Bridge—300 Rta.
Spottswood Lake—Spottswood—400 Bsfg.
Wigwam Brook—Jamesburg—300 Rta.

(Millstone River System)

Brainard Lake—Cranbury—200 Lmbfg, 300 Bsfg, 400,000 Yperf.
Plainsboro Lake—Plainsboro—400 Lmbfg, 300 Bsfg.

(Rahway River System)

Sage or Sucker Brook—Metuchen—600 Rta.

(Raritan River System)

So. Amboy Water Works—So. Amboy—200 Lmbfg.
Bonhampton Lake—Bonhampton—800 Lmbfg, 300 Rta, 700 Brnta, 600,000 Yperf, 2,000 Bsf, 100 Bta.
Farrington Lake—Near New Brunswick—800 Lmbfg, 1,000 Bsf, 400,000 Yperf, 256 Lmba, 250 Pera, 202 Cra, 7 Pica, 2,000 Misc.
Lawrence Brook—New Brunswick—300 Rta.
Mill Brook—Bonhampton—1,300 Rta.
New Brunswick Reservoir—New Brunswick—200 Rta.
Nixon's Pond—Nixon—1,000 Bsf, 250 Brnta, 400,000 Yperf, 200 Lmbfg.
Sayresville Pond—Sayresville—300 Bsf.
Weston's Mill Lake—New Brunswick—800 Lmbfg, 1,000 Bsf, 400,000 Yperf.

(South River System)

Genese Lake—Near Old Bridge—400 Lmbfg.
Hiram's Pond—Spottswood—50 Bta, 100 Rta, 100 Brnta.
Savanassa Lake—50 Bta, 100 Rta, 100 Brnta.

MONMOUTH COUNTY

(Atlantic Ocean System)

Como Lake—Como—200 Lmbfg, 200,000 Yperf.
Deal Lake—Allenhurst—400 Lmbfg, 200,000 Yperf.
Manasquan River—Ardena—250 Rta, 500 Brnta.
Nut Swamp Brook—Red Bank—100 Rta.
Old Mill Pond—Villa Park—400 Lmbfg, 150 Rta.
Osborne's Pond—Bailey's Corner—200 Lmbfg, 125 Rta.
Spring Lake—Spring Lake—200 Lmbfg, 200,000 Yperf.
Stillwell's Lake—Villa Park—200,000 Yperf.
Takanasee Lake—Long Branch—200 Lmbfg, 200,000 Yperf.

(Delaware River System)

Allentown or Connine Lake—Allentown—400 Lmbfg, 1,000 Bsf, 200 Rta, 100 Brnta.
Doctor's Creek—Red Valley to Allentown—100 Rta, 300 Brnta.

(Doctor's Creek System)

Imlaystown Lake—Imlaystown—400 Lmbfg, 1,600 Bsf, 200 Rta, 100 Brnta.

(Manalapan River System)

Black Mill's Lake—Milhurst—1,000 Bsf.
Englishtown Pond—Englishtown—400 Lmbfg, 1,000 Bsf.
Freehold or Topenemus Lake—Freehold—800 Lmbfg, 1,000 Bsf, 400 Rta, 400,000 Yperf.
Orr's River—So. of Englishtown—250 Brnta.
Topenemus Brook—Englishtown—350 Bta.

(Millstone River System)

Perrineville Lake—Perrineville—1,600 Bsf.

(Raritan River System)

Lefferts Lake—Matawan—800,000 Yperf.
Manalapan River—Milhurst—800 Rta, 1,750 Brnta.
Matawan Lake—Matawan—400 Lmbfg, 400,000 Yperf, 200 Lmba, 500 Pera, 200 Cra, 500 Sa.
Milhurst Lake—Milhurst—800 Lmbfg, 400,000 Yperf, 200 Lmba, 250 Pera, 200 Cra.
Pine Brook—Tinton Falls—100 Rta.
Wemrock Brook—Englishtown—350 Bta.

(Shark River System)

Hurley's Pond—Glendola—200 Lmbfg, 375 Rta.
Shark River—Belmar—612 Bta, 500 Brnta.

(Swimming River System)

Big Brook—Marlboro—350 Rta.
Hockhocks River—Tinton Falls—200 Bta.
Lewis Brook—Tinton Falls—200 Rta.
Marlboro Brook—Marlboro—200 Rta.
Snyder's Brook—Colts Neck—200 Rta.
Tintern Manor Lake—Lincroft—600 Lmbfg, 400,000 Yperf, 100 Lmba, 175 Pera, 25 Cra.
Willow Brook—Holmdel—400 Rta.

MORRIS COUNTY

(Delaware River System)

Electric Brook—Schooley's Mt.—250 Bta, 450 Brnta.
Goods Brook—Near Hackettstown—1,000 Brntfg.
Gulick's Brook—Schooley's Mt.—300 Bta, 250 Rta, 5,000 Brntfg.
Musconetcong Lake—Netcong—3,200,000 Yperf, 2,630 Misc, 9,875 Lmbfg, 21,500 Bsf, 1,000 Cfg, 1,027 Pica, 45 Lmba, 1 Cra, 170 Rta.
Musconetcong River—Near Hackettstown—125 Bta, 3,200 Brnta, 1,850 Rta.
Schooley's Mt. Brook—Schooley's Mt.—6,000 Brntfg, 570 Rta, 65 Bta, 565 Brnta.
Smith's Pond—Waterloo—600,000 Yperf.
Stephensburg Brook—Stephensburg—1,000 Brntfg.
Weldon Brook—Hurdstown—550 Rta, 550 Brnta, 250 Bta.

(Passaic River System)

Be Baut Pond—Sterling—11 Lmba, 2 Cra, 5 Pica.
Beaver Brook—Rockaway—1,350 Rta, 300 Bta, 650 Brnta.
Connett Brook—Brookside—300 Rta, 375 Brnta.
Dismal Brook—Brookside—125 Brnta.
Fayzan Lake—Taylortown—71 Lmba, 5 Cra, 2 Pica, 1,255 Misc.
Morris Plains Brook—Morris Plains—600 Rta, 250 Brnta.
Rockaway River—Rockaway—5450 Rta, 650 Bta, 7,300 Brnta, 4,500 Brntfg.
Stony Brook—Taylortown—1,800 Brntfg, 250 Bta.
Telemok Park Lake—Hibernia—11 Lmba, 9 Cra, 11 Pica, 700 Misc.
Washington Valley Brook—Morristown to Mendham—5,100 Rta, 700 Bta, 2,525 Brnta.

(Raritan River System)

Berry Brook—Near Parker—900 Brntfg.
Black River—Milltown to Pottersville—1,200 Lta, 10,010 Brnta, 850 Bta, 5,350 Rta.
Trib. Black River—2,700 Brntfg.
Pierson's Brook—Near Parker—500 Brnta.
Pitney Brook—Hacklebarney—1,800 Brntfg.
So. Br. Raritan River—Budd Lake to Middle Valley—2,275 Bta, 5,300 Rta, 11,866 Brnta, 1,800 Brntfg.

(No. Br. Raritan River System)

Burnett Brook—Ralston—600 Lta, 1,550 Bta, 1,650 Rta, 2,250 Brnta.
Indian Brook—Ralston—500 Bta, 2,200 Rta, 2,775 Brnta.
Trib. Indian Brook—1,500 Btfg.
Peapack Brook—Chester to Gladstone—2,250 Rta, 250 Bta, 250 Brnta.

(So. Br. Raritan River System)

Budd Lake Brook—Budd Lake—2,000 Brnta, 2,650 Bta, 800 Rta.
Trib. Budd Lake Brook—6,000 Btfg, 4,500 Brntfg.
Budd Lake—Budd Lake—600 Lmbfg, 19,000 Bsf, 1,000 Cfg, 2,400,000 Yperf,
250 Pera, 569 Pica, 40 Lmba, 2 Cra.
Devine's Spring Brook—Near Flanders—1,800 Brntfg.
Drakes Brook—Flanders—900 Rta, 200 Bta.
Flanders Brook—Flanders—300 Bta, 875 Brnta.
Turkey Brook—Mt. Olive—900 Brntfg.

(Rockaway River System)

Arrowhead Lake—Denville—480 Rta, 20 Brnta, 1,400 Lmbfg, 4,000 Bsf,
1,000 Cfg, 800,000 Yperf.
Cedar Lake—Denville—800 Lmbfg, 3,000 Bsf, 800,000 Yperf, 3,000 Misc.
Cook's Lake—Denville—3,000 Bsf, 400,000 Yperf, 21 Lmba, 5 Pica,
600 Misc.
Cozy Lake—Longwood—400,000 Yperf
Crooked Brook—Montville—500 Rta.
Estling Lake—Denville—600,000 Yperf, 14 Lmba, 320 Misc.
Green Pond—New Foundland—7,000 Bsf, 2,000,000 Yperf, 250 Pera,
258 Pica, 900 B, 61 Lmba, 1,375 Misc.
Lake Hopatcong—Lake Hopatcong—2,800 Lmbfg, 12,000 Bsf, 51 Lmba,
16 Cra, 8,000,000 Yperf, 34 Pica, 3,000 Misc.
Hopewell Brook—Hopewell—400 Bta, 200 Brnta.
Indian Lake—Denville—800,000 Yperf, 1,400 Lmbfg, 4,000 Bsf, 1,000 Cfg.
Longwood Lake—Longwood—800,000 Yperf, 1,200 Misc.
Mill Brook—Dover—750 Rta, 250 Brnta.
Moosepack Pond—Oak Ridge—400,000 Yperf, 40 Lmba, 3 Pica, 950 Misc.
Parsippany River—Parsippany—300 Rta.
Rainbow Lake—Denville—600,000 Yperf, 1,400 Lmbfg, 4,000 Bsf, 1,000 Cfg.
Rock Ridge Lake—Denville—400,000 Yperf.
Shongum Brook—Dover—500 Rta, 250 Brnta.
Stickle's Brook—Rockaway—350 Bta, 1,000 Rta, 800 Brnta.

(Whippany River System)

Burnham Park Lake—Morristown—1,845 Misc, 1,400 Lmbfg, 3,000 Bsf.
McAlpine Brook—Malapardis—300 Rta.
Pochantas Lake—Morristown—800 Lmbfg, 3,000 Bsf, 600 Rta, 400,000
Yperf, 2,500 Misc, 500 Brnta.
Spring Brook Country Club Lake—Morristown—250 Brnta.

OCEAN COUNTY

Cold Brook—Waretown—500 Brnta.
Crazy Brook—Lakewood—250 Brnta.
Forked River Lake—Forked River—800 Lmbfg, 400,000 Yperf.
Haystack Brook—Squankum—250 Brnta.
Jackson Mills Lake—Jackson Mills—800 Lmbfg, 2,000 Bsf, 400,000 Yperf,
100 Lmba, 250 Pera, 50 Cra, 250 Sa, 250 Brnta.
Lakewood Little Lake—Lakewood—800 Lmbfg.
Manahawkin Lake—Manahawkin—400,000 Yperf.
New Egypt Lake—New Egypt—800 Lmbfg, 2,000 Bsf, 100 Lmba, 250 Pera,
50 Cra, 250 Sa, 250 Brnta.
Tuckerton Lake—Tuckerton—400,000 Yperf.
Will's Mills Lake—Will's Mills—400,000 Yperf.

PASSAIC COUNTY

(Greenwood Lake System)

Belcher's Creek—West Milford—750 Rta.

Cooley Brook—Greenwood Lake—1,000 Btfg, 100 Bta, 500 Brnta, 550 Rta.
West Milford Brook—West Milford—300 Rta, 1,000 Btfg.

(Passaic River System)

Burnt Meadow Brook—Denmark—1,000 Btfg.
Preakness Brook—Preakness—1,050 Rta, 250 Brnta.
Wanaque River—Greenwood Lake—1,200 Lta, 850 Bta, 4,075 Rta, 8,350
Brnta.

(Pequannock River System)

Kampfe Lake—Near Butler—20 Lmba, 1 Cra, 12 Pica, 400 Misc.

(Pompton River System)

Packanack Lake—Wayne—1,000 Lmbfg, 6,000 Bsf, 1,000 Cfg.
Pequannock River—Charlottsburg—1,180 Brnta, 500 Rta, 250 Bta.
Trib. Pequannock River—1,800 Brntfg.

(Ramapo River System)

Pompton Lake—Pompton—2,000 Lmbfg, 12,000 Bsf, 2,500 Cfg, 2,000,000
Yperf, 107 Lmba, 975 Pera, 69 Pica, 2 Cra, 1,700 Misc.

(Wanaque River System)

Cyclone Brook—Hewitt—1,800 Brntfg, 1,000 Btfg.
Greenwood Lake—Greenwood Lake—3,600 Lmbfg, 12,000 Bsf, 2,500 Cfg,
2,000,000 Yperf, 250 Pera, 250 Pica, 900 B.
Iosca Lake—Midvale—400 Lmbfg, 3,000 Bsf, 1,000 Cfg.

SALEM COUNTY

(Alloway Creek System)

Ballinger's Mill Lake—Aldine—1,000 Bsf, 200 Lmbfg, 400,000 Yperf.
Camp Roosevelt Lake—Aldine—400 Lmbfg, 400,000 Yperf, 283,000 Wperf.
Cobbs Lake—Alloway—400 Lmbfg, 2,000 Bsf.
Diamond Lake—Alloway—1,200 Lmbfg, 2,000 Bsf, 400,000 Yperf, 140,000
Shadf, 283,000 Wperf.
Dilk's Lake—Alloway—400,000 Yperf, 283,000 Wperf.
Hazelhurst Stream—Alloway—250 Brnta.
Sycamore Lake—Alloway—400,000 Yperf.
Watson Lake—Aldine—200 Lmbfg.

(Delaware River System)

Old Creek—Hancock's Bridge—400,000 Yperf.

(Maurice River System)

Centreton Lake—Centreton—200 Lmbfg, 2,000 Bsf, 600,000 Yperf.
Elmer Lake—Elmer—200 Lmbfg, 2,000 Bsf, 600,000 Yperf, 150 Lmba,
250 Pera, 150 Cra, 500 Sa.
Maurice River—Millville—2,954,000 Shadf.
Rainbow Lake—Near Norma—400 Lmbfg, 1,000 Bsf, 600,000 Yperf.
Union Grove Lake—Near Centreton—400 Lmbfg, 2,000 Bsf, 600,000 Yperf.
Willow Grove Lake—Willow Grove—400 Lmbfg.

(Salem River System)

Avis Lake—Woodstown—600 Lmbfg, 2,000 Bsf.
Davis Lake—Salem—200 Lmbfg, 400,000 Yperf.
Ester's Pond—Salem—400,000 Yperf, 200 Lmbfg.
Kamp Kainey Lake—Richmontown—400,000 Yperf.
Mannington Lake—Mannington—400,000 Yperf.
Memorial Lake—Woodstown—400 Lmbfg, 400,000 Yperf, 283,000 Wperf.
Pioneer Lake—Salem—200 Lmbfg.
Richmontown Lake—Richmontown—283,000 Wperf.
Woodstown Lake—Woodstown—600 Lmbfg, 2,000 Bsf.
Quinton Lake—Quinton—200 Lmbfg.

SOMERSET COUNTY
(Millstone River System)

Clark's Brook—Franklin Park—450 Rta.
Hamil or Ten Mile Run—Griggstown—450 Rta.

(Passaic River System)

Indian Graves Brook—Bernardsville—275 Bta, 600 Rta, 200 Brnta.
Somerset Inn Brook—Bernardsville—1,100 Rta, 1,175 Brnta, 325 Bta.
Trib. Somerset Inn Brook—1,500 Btfg.

(Raritan River System)

Black River—Pottersville—725 Brnta, 50 Rta.
Bound Brook Reservoir—Bound Brook—500 Brnta.
Middle Brook—Bound Brook—550 Rta, 450 Brnta.
Millstone River—Griggstown—100 Lmba, 2,000 Sa.
Peapack Brook—Gladstone—1,800 Brntfg, 200 Brnta.
Peapack Pond—Peapack—1,200,000 Wperf.
Peters Brook—Somerville—1,000 Sa.
No. Br. Raritan River—Far Hills—3,350 Rta, 225 Bta, 6,229 Brnta, 80 Lmba.
Trib. No. Br. Raritan River—1,500 Btfg.
So. Br. Raritan River—Neshanic—80 Lmba, 50 Pera.

SUSSEX COUNTY

(Delaware River System)

Big Flat Brook—Between Club and Flatbrookville—2,775 Bta, 500 Black Spottedta, 8,125 Rta, 600 Lta, 11,413 Brnta.
Little Flat Brook—Layton—1,100 Bta, 1,250 Rta, 500 Brnta.
Mill Brook—Montague Township—1,000 Btfg.
Millville or Shimers—Millville—500 Rta, 250 Brnta.
Paulinskill River—Lafayette to Stillwater—600 Lta, 8,625 Brnta, 4,400 Rta, 200 Bta.
Trib. Paulinskill River—18,000 Brntfg.
Pequest River—Brighton to Springdale—4,800 Rta, 1,500 Bta, 1,300 Brnta, 1,000 Btfg.

(Big Flat Brook System)

Snook Brook—Near Culvers—1,800 Brntfg.
Snooktown Brook—Tuttles Corner—900 Brntfg.
Stokes Reservation—Tuttles Corner—350 Bta, 1,000 Btfg.
Tuttles Corner Brook—Tuttles Corner—300 Rta, 250 Brnta, 1,000 Btfg.

(Hudson River System)

Wallkill River—Sparta to Franklin—3,550 Rta, 3,575 Brnta, 450 Bta.
Trib. Wallkill River—9,000 Brntfg.

(Musconetcong River System)

Cranberry Lake—Cranberry—3,275 Lmbfg, 21,500 Bsf, 1,000 Cfg, 600,000 Yperf, 1,000 Misc, 48 Lmba, 20 Pica.

(Paulinskill River System)

Beaver Lake—Two Bridges—5,000 Bsf, 800,000 Yperf.
Culvers Lake Brook—Culvers—2,700 Brntfg, 300 Rta.
Culvers Lake—Culvers—1,200 Smbfg, 17,600 Bsf, 1,000 Cfg, 78 Lmba, 3,200,000 Yperf, 9 Cra, 28 Pica, 1,800 Misc.
Fairview Lake—Near Hardwick—1,200 Lmbfg, 6,000 Bsf, 1,000,000 Yperf.
Kamp Coles Lake—Stockholm—1,000 Misc.
Kemah Lake—Branchville—49 Lmba, 952 Pera, 102 Pica.
Lake Owassa—Near Culvers—3,700 Lmbfg, 12,600 Bsf, 1,000 Cfg, 60 Lmba, 3,200,000 Yperf, 25 Pica, 1,800 Misc.
Quicks Pond—No. of Swartswood—800 Lmbfg, 6,000 Bsf, 1,600,000 Yperf.
Ross Brook—Stockholm—2,000 Btfg.
Roy Brook—Stillwater—3,600 Brntfg.

Big Swartswood Lake—Swartswood—3,000,000 Yperf, 93 Lmba, 220 Pera, 3,200 Lmbfg, 174 Pica, 12,600 Bsf, 1,305 Misc.
Little Swartswood Lake—Swartswood—800 Lmbfg, 1,400,000 Yperf.

(Pequest River System)

Goodales Lake—Andover—27 Lmba, 5 Cra, 22 Pica, 2,900 Misc.
Iliff Lake—Near Andover—800,000 Yperf.
Lenape Lake—Andover—800 Smbfg, 400,000 Yperf.
New Wawayanda Lake—Andover Jc.—2,000 Lmbfg, 300 Bsf, 1,400,000 Yperf.

Panther Lake—Andover—800 Lmbfg, 2,000 Bsf.

(Pochuck Creek System)

Doublekill—Vernon—500 Rta, 500 Brnta.

(Rockaway River System)

Bear Pond—Lake Hopatcong—2,000 Lmbfg, 4,000 Bsf, 1,600,000 Yperf.
Lake Hopatcong—Lake Hopatcong—6,400 Lmbfg, 20,000 Bsf, 16,000,000 Yperf, 1,000 Smbfg.

(Wallkill River System)

Beaver Run Brook—Beaver Run—350 Rta.
Black or Pochuck Creek—McAfee—1,650 Rta, 1,000 Bta, 250 Brnta, 4,000 Btfg.
Black Brook—Franklin—450 Rta, 600 Bta, 1,200 Brnta.
Grinnell Lake—Monroe—1,400 Lmbfg, 96 Lmba, 800,000 Yperf, 10 Cra, 25 Pica, 2,000 Misc.
Glove Brook—Sussex—1,750 Brnta, 1,100 Rta, 4,000 Btfg, 100 Bta.
Hawthorne Lake—Ogdensburg—40 Lmba, 100 Pera, 4 Cra, 3 Pica.
Mohawk Lake—Sparta—1,000 Lmbfg.
Papakating River—Sussex—1,100 Rta, 1,150 Brnta, 100 Bta.
Sparta Jc. Brook—Sparta—550 Rta, 2,000 Btfg, 800 Brnta.
Trib. Sparta Jc. Brook—9,000 Brntfg.

UNION COUNTY

(Passaic River System)

Passaic River—Berkeley Heights—900 Misc.

(Rahway River System)

Ash Brook—Ashbrook—730 Rta.
Baltusrol Golf Course—Short Hills—110 Brnta.
Echo Lake—Mountainville—2,000 Bsf, 1,525 Misc.
McGilvery's Lake—Linden—1,025 Misc.
Normahaggin Brook—Cranford—2,000 Bsf, 625 Rta, 800,000 Yperf, 25 Bta, 325 Brnta.
Rahway River Park Lake—Rahway—2,000 Bsf.
Rahway River—Rahway—1,728 Rta, 1,975 Brnta, 25 Bta.
Reformatory Lake—Rahway—600 Rta.
Surprise Lake—Summit—2,000 Bsf, 19 Lmba, 12 Pica, 1,200 Misc.

(Raritan River System)

Cedar Brook Lake—Plainfield—2,000 Bsf, 635 Rta, 400,000 Yperf, 300 Brnta.
Green Brook—Scotch Plains—616 Rta, 175 Brnta.
Seeley's Pond—Scotch Plains—2,000 Bsf, 1,016 Rta, 1,125 Brnta, 400,000 Yperf, 650 Misc, 50 Bta.

WARREN COUNTY

(Delaware River System)

Buckhorn Creek—Roxburg—300 Rta, 900 Btfg, 200 Bta, 450 Brnta.
Delaware River—Belvidere to New York State Line—3,950 Lmbfg, 5000 Smbfg.

Dunfield Creek—Dunfield—400 Bta, 400 Rta, 300 Brnta.
 Lomison's Glen Brook—Summerfield—300 Rta, 900 Btfg, 250 Brnta.
 Lopatcong Creek—Above Phillipsburg—600 Rta, 900 Btfg, 200 Bta,
 400 Brnta.
 Mt. Bethel Brook—Mt. Bethel—200 Bta.
 Musconetcong River—Waterloo to Penwell—12,627 Brnta, 1,000 Lta, 3,170
 Bta, 10,770 Rta.
 Paulinskill River—Stillwater to Paulina—2,400 Lta, 8,415 Brnta, 1,850 Bta,
 6,650 Rta.
 Trib. Paulinskill River—1,800 Brntfg.
 Pequest River—Townsbury to Belvidere—7,005 Bta, 50 Brnta, 17,105 Rta
 Pequest Springs—900 Btfg.
 Pohatcong Creek—Mt. Bethel—500 Bta, 1,450 Rta, 1,350 Brnta.
 Pophandusing Brook—Belvidere—250 Rta.
 Silver Lake—Hope—1,200 Lmbfg, 6,000 Bsfg, 750 Cfg, 1,800,000 Yperf.
 Van Campens Brook—Millbrook—1,100 Lta, 2,350 Brntfg, 500 Rta.

(Musconetcong River System)

Andersontown Brook—Andersontown—900 Btfg.
 Guard Lock—Near Hackettstown—3,000 Lmbfg, 6,000 Bsfg, 1,500 Cfg,
 1,500 Btfg, 2,800,000 Yperf, 163 Lmba, 525 Pera, 11 Cra, 118 Pica.
 Hance Brook—Beattystown—2,400 Brntfg, 900 Btfg.
 Hatchery Pools—Hackettstown—35,000 B, 91 Lmba, 100 Pera, 6 Pica,
 6,000 Misc.
 Saxon Falls—Near Hackettstown—60 Lmba, 5 Pica, 900 Misc.
 Springtown Run—Port Colden—600 Brntfg, 1,500 Btfg.
 Van Atta Run—Penwell—1,500 Brntfg.

(Paulinskill River System)

Blairs Springs—Blairstown—1,600 Brntfg.
 Blairs Creek or Slabtown—Blairstown—2,000 Brntfg, 700 Rta, 600 Brnta,
 900 Btfg, 400 Bta.
 Catfish Pond—Blairstown—1,200 Lmbfg.
 Cedar Lake—Blairstown—400 Lmbfg, 600,000 Yperf.
 Columbia Dam—Columbia—1,600 Lmbfg, 6,000 Bsfg, 1,200,000 Yperf.
 Brands Brook—Columbia—900 Btfg, 125 Bta, 100 Rta.
 Gougers Spring—Marksboro—900 Btfg.
 Halsey Lake—Columbia—600,000 Yperf, 150 Rta, 3,000 Bsfg, 500 Misc.
 Jacksonburg Brook—Jacksonburg—800 Rta, 765 Brnta, 1,100 Bta,
 7,200 Brntfg.
 Kalarma Brook—Kalarma—1,200 Brntfg.
 Sand Pond—Blairstown—400 Lmbfg.
 Sharps Spring—Blairstown—900 Btfg.
 Susquehanna Lake—Blairstown—1,200 Lmbfg, 600,000 Yperf.
 White Lake—Marksboro—1,000 Smbfg, 6,000 Bsfg, 750 Cfg, 600,000 Yperf.
 White Lake Brook—Marksboro—1,350 Brntfg.

(Pequest River System)

Bacon Run Brook—Petersburg—800 Bta, 1,500 Btfg.
 Bear Brook—Long Bridge—650 Bta, 1,875 Rta.
 Beaver Brook—Hope—110 Brnta, 500 Lta, 6,350 Rta, 800 Bta.
 Buckaloo Swamp Brook—Mt. Herman—250 Rta.
 Furnace Brook—Oxford—200 Bta, 900 Btfg.
 Mt. Lake—Near Buttzville—2,000 Lmbfg, 6,000 Bsfg, 1,500 Cfg,
 1,800,000 Yperf.
 Trout Brook—Near Shilo—1,500 Btfg.
 Yards Creek—Hainesburg—900 Btfg.

(Pohatcong Creek System)

Mill Brook—Broadway—3,000 Brntfg, 1,500 Btfg, 500 Rta, 500 Brnta.
 Roaring Rock Brook—Brass Castle—250 Rta, 900 Btfg.