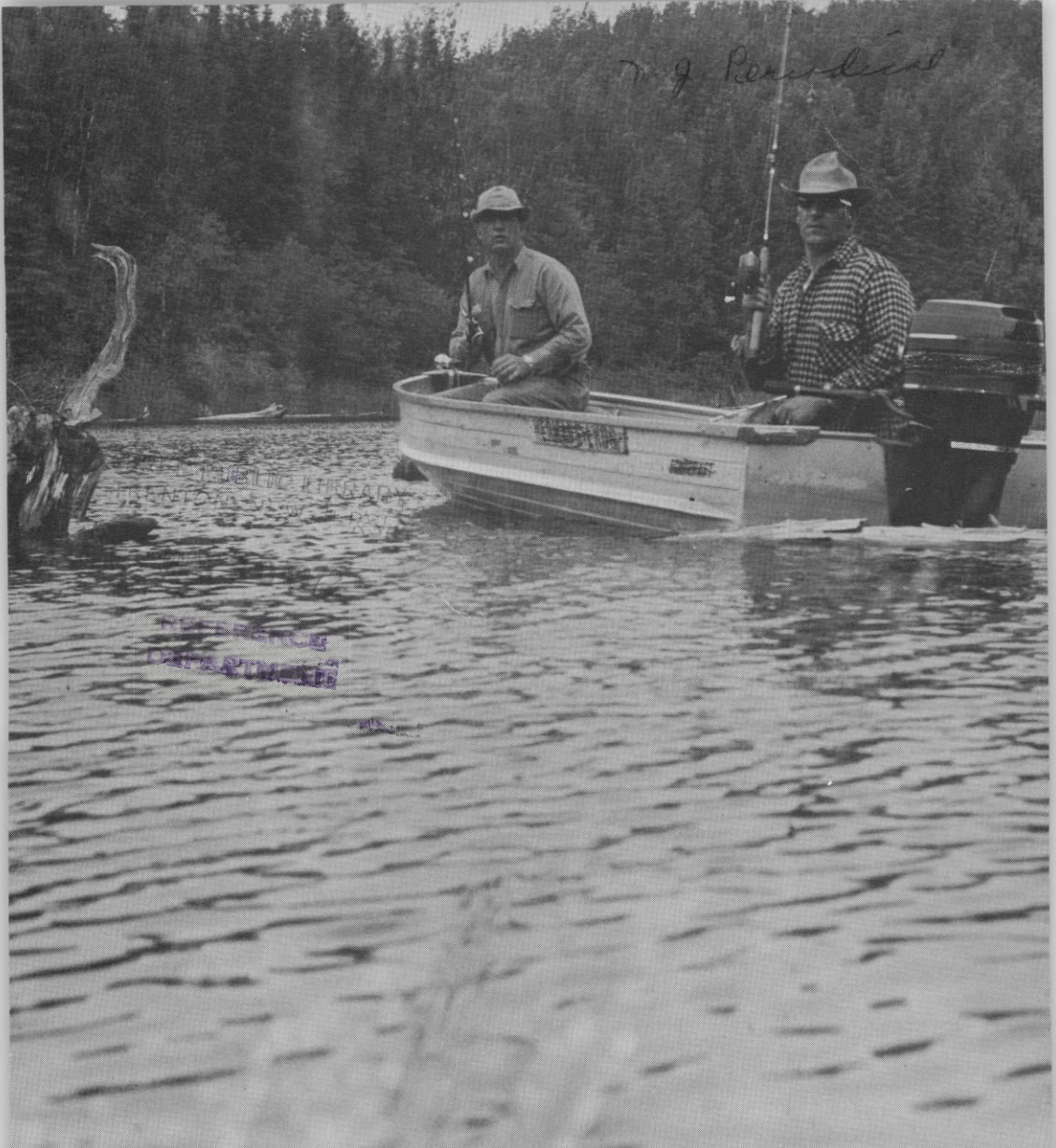


W. J. Perkowski



New Jersey *Outdoors*

June, 1972

The Sportsmen's Contribution

By Paul D. McLain
Federal Aid Coordinator

The pendulum of conservation of our natural resources seems to have swung back and forth during the relatively short history of our country. The early 1900's saw exploitation of our natural resources as the rule. Great grass plains were plowed under, creating gigantic dust bowls, wildlife was slaughtered, and the habitat destroyed, resulting in vast numbers and even whole populations being eliminated. Our mines were mined out, our forests cut over, and waterways destroyed, all in the interest of a young and expansive civilization.

Just prior to the Teddy Roosevelt era restrictive legislation and some thought were first applied to preserving some of our natural areas. Hunting and fishing seasons were established, and sportsmen

were taxed to provide the money for enforcement, management, and acquisition of lands to insure that there would be both fish and game for the future.

Over the years, the financial burden of protecting and maintaining our wildlife populations has fallen on the shoulders of the sportsmen through hunting and fishing licenses. The migratory bird stamp tax for the duck hunter provides money for enforcement, research, land acquisition, and refuges. The Pitman-Robertson and Dingell-Johnson excise taxes were levied on arms and ammunition and fishing equipment to provide money for the states to conduct research, management, land acquisition, and development programs to increase wildlife populations. Sportsmen's

Continued on page 14



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New Jersey Outdoors is published monthly by the New Jersey Division of Fish, Game, and Shell Fisheries of the Department of Environmental Protection in the interest of the natural resources of fisheries and wildlife and the betterment of hunting and fishing in New Jersey.

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The Berkshire Tract 16

Berkshire Tract Map Inside Back Cover

Cover—"June Boom"—Kiekhaefer

When a big one hits on the surface and immediately explodes, what fisherman would not sit there in the boat with his mouth open? Right about now fishing in New Jersey is tops for many of our favorite fresh water and salt water species. For information on one of the many excellent New Jersey fishing waters open to the public see the article and map concerning Spruce Run Reservoir starting on page seven in this issue.

Vol. 22, No. 12

June, 1972

Publication Office: Room 702, Labor Building, John
Fitch Way Plaza, Trenton, N. J. 08625

Mailing Address: P. O. Box 1809, Trenton, N. J. 08625

Editor: R. Adams

Second-class postage paid Trenton, N. J. 08608, and additional mailing office.

Subscription: \$3.00 a year, by check or money order, payable to New Jersey Outdoors. Cash is forwarded at senders risk. No stamps please.

Change of address: Should be reported directly to the Editor. Send both old and new address. The Post Office will not forward copies unless forwarding postage is provided by subscriber. Copies not delivered through failure to send change of address six weeks in advance cannot be replaced.

All unsolicited material is sent to the magazine at the risk of the sender.

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Estuaries and Fish

By Paul E. Hamer, *Principal Fisheries Biologist*

Bureau of Fisheries Management

Estuaries are generally thought of as tidal bays and river mouths. There are many more technical definitions, most of which would more or less coincide with the above. But, if we define an estuary in terms of salinity or species distribution, a large part of the northwestern North Atlantic Ocean qualifies. Those who know how rich our bays, tidal rivers, and the northwestern Atlantic Ocean are might be tempted to coin their own all inclusive definition: estuaries are where the fish are. In this part of the world it is difficult to consider the inlet, where the enclosed waters meet the open sea, as the outer limit of the estuary because so many fish are found from the tidal rivers, throughout the bays and out on the Continental Shelf.

A large percentage of the fish that are of importance to man are estuarine dependent, meaning that at some stage of their life history estuaries fulfill some vital need. The percentage quoted usually exceeds 60 percent and is sometimes considerably higher. With our present meager knowledge of fish life histories, it is difficult to arrive at anything more than a crude

estimate, and this accounts for the discrepancy in the figures quoted. But the more we learn about fish life histories, the more evident the



Author Paul Hamer at work

importance of estuaries becomes. In sharp contrast to this is the fact that few species which are directly used by man spend their entire life in the estuary.

What kind of vital need does

← *Many fish important to man are estuarine dependent*

. . . Estuaries

the estuary supply? It differs with species but let us go through the general life history of a fish and cite some examples.

Spawning

Among the fish that spawn in our bays and the brackish portion of our rivers, we find the winter flounder, blowfish, black drum, and weakfish. The younger age classes of scup seem to spawn in our larger bays but the older fish seem to spawn in the ocean, near shore. Some species of sharks and rays produce their living offspring in our bays.


Juvenile Nursery

The fish mentioned above as spawning in the estuary also utilize the area as a nursery ground as juveniles. In addition to these,

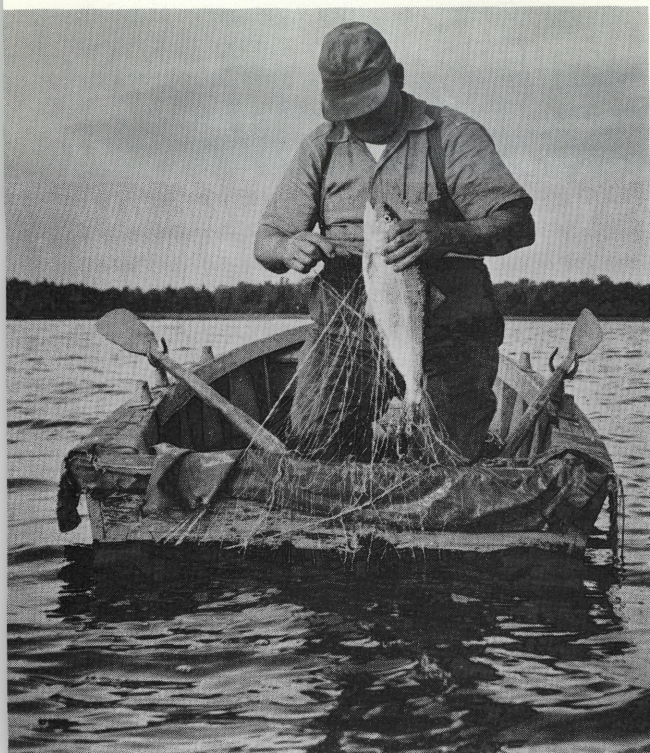
there are other species which spawn outside the estuary whose young make their way to the estuary and utilize it as a nursery area. Among these are fish which spawn in the river above the area that would be necessarily considered estuarine such as the striped bass and river herrings. Another group spawns in the ocean, sometimes a considerable distance from the mouth of any estuary, but their young nevertheless make their way into an estuary to spend an important period of their lives. Fluke, croakers, menhaden, sea bass, sea herring, and pollack are found in this group, at least to some extent.

Feeding

Adults of a number of species such as fluke, bluefish, striped bass, blowfish, sharks and rays, menhaden, sea herring, croakers, and



Various species of fish use estuaries for spawning purposes, others use estuaries as nursery areas, while some fish may enter estuaries primarily to feed



Some fish that are found frequently, or occasionally, in estuaries may be important both as commercial and sport fish, such as shad

spot enter estuaries to feed seasonally.

From the above we can conclude that the estuary is not terribly important as a spawning area. Its greatest importance, in terms of species which are of importance to man, is as a nursery area. Parts of the estuary offer relative safety from predators, but probably the most important contribution of the estuary is in terms of food. Young fish require an abundance of the right kinds of food in order to develop, and the estuary produces prodigious quantities.

The story has been told and retold many times. Sunlight, the source of all energy, penetrates the

shallow waters. Nutrients are carried into the estuary from uplands by rivers and also into the estuary from the ocean by tides, and are trapped in quantities unknown in either the fresh waters or the ocean. Plants, including microscopic phytoplankton, algae and marsh grasses are produced in quantities that rival or exceed the quantities that can be produced on farmland, form the basis of a food chain which includes bacteria, microscopic animals or zooplankton, and larger forms such as shrimp, worms, molluscs, and forage fishes. There is not only an abundance of food but also a great variety. Something to suit every taste!

. . . Estuaries

Most of the fish which spend their entire life in the estuary are in the forage fish category—those which are eaten by larger fish. They include the silversides or spearing, hogchokers, killifish, and many others. When sampling the fish populations of estuaries, these are invariably the most abundant species found. Along with grass shrimp and various smaller crustaceans and the marine worms of several species, they make up the bulk of the food which the predatory fish feed on in an estuary.

Food for Thought

It is interesting to contemplate the successive waves of predatory fish that pass through an estuary in a year and the quantity of food they must consume. First, to appear are the winter flounders, which feed largely on worms, molluscs, and tiny crustaceans, followed by the stripers which take worms, shrimp, or fish. Then come the weakfish, fluke, bluefish, and many others. For each pound of weight that these predators gain while feeding in the estuary, they consume about ten pounds of food. If the food were largely forage fish, about ten pounds of zooplankton were consumed to produce each pound of forage fish.

A Million Fish

Anglers fishing in the Mullica-Great Bay Estuary in one year took home at least a million fish. How much food this estuary had to

produce in order to support the fish populations which yielded this catch would certainly be of great interest, but unfortunately, it is unattainable with our present knowledge. But we can make some guesses. For each fish that was caught, probably ten (more or less) entered the area without being caught.

This is a conservative estimate based on the numbers of tagged fish that we usually get back in one year. An estimate of a pound per fish would be conservative, considering the fact that a large proportion of them were blowfish and white perch which were probably a little under a pound, but there were also fair numbers of bluefish, fluke, and striped bass that would average well over a pound each.

Putting these estimates together gives us a total of **ten million pounds** of predators in the estuary for a given period of time. We do not know how much weight they gained, so we can not guess at the amount of food they consumed, but if each of them had only one square meal, it would certainly amount to an impressive total! #

This article is based on a paper originally prepared for *The Sportsmen's Newsletter*, the publication of the New Jersey State Federation of Sportsmen's Clubs, a statewide organization of clubs and associate members, and an affiliate of the National Wildlife Federation.

Spruce Run Reservoir

Hunterdon County

Spruce Run Reservoir was constructed under the supervision of the Division of Water Policy and Supply primarily to provide the water necessary to maintain established minimum flows in the Raritan River. Construction was completed during the summer of 1963 but the reservoir did not fill until late in 1964.

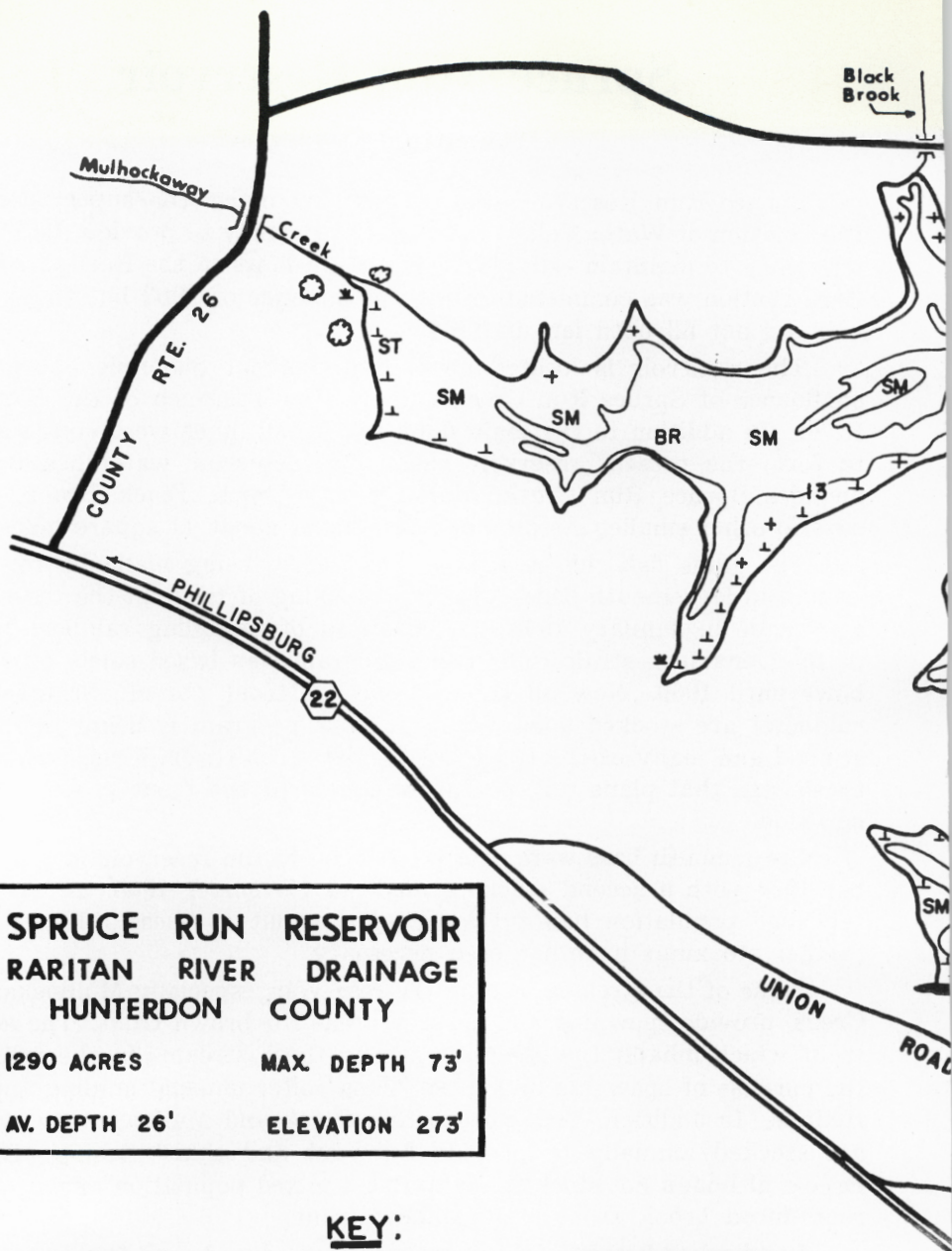
The reservoir is located near Clinton about one mile above the confluence of Spruce Run Creek and the South Branch of the Raritan River. In addition to the main dam, two small dikes were constructed to form the present reservoir basin. The reservoir watershed which includes Spruce Run Creek, Mulhockaway Creek, Black Brook, and several other smaller streams has an area of about 41 square miles.

The game fish this reservoir is currently being managed for are trout and largemouth bass. The first stocking of trout in the reservoir was made in January 1964 and consisted of fingerling rainbow trout of the Donaldson strain. The trout program was based solely on rainbows until 1969. Now all three species of trout (brook, brown, and rainbow) are stocked annually. The trout program is being carefully studied and many of the trout are tagged. It is through the return of these tags that plans for the future course of the trout program will be made.

Largemouth bass were first introduced to the reservoir in September 1964 with a second stocking made in November 1965. A well established population has developed as a result of these releases and further stockings have not been necessary.

Some of the streams feeding the reservoir, especially Mulhockaway Creek, provide spawning and nursery areas for brown trout. The adult trout which inhabit the reservoir ascend these streams in the fall for the purpose of spawning and these "runs" offer unusual angling opportunities. In addition, both Spruce Run Creek and Mulhockaway Creek are stocked annually to provide for "put and take" fishing. Black Brook, although not stocked, maintains a mixed population of naturally reproduced brook trout and rainbow trout.

Landlocked herring (alewives) were introduced as a forage species and subsequently have become well established. These provide an excellent food source for the game species. Northern pike have also been introduced on a limited trial basis. Both the bluegill and pumpkinseed (sunfish) are abundant. Their growth rate is good, and they provide excellent fishing. The brown bullhead is extremely abundant.



SPRUCE RUN RESERVOIR
RARITAN RIVER DRAINAGE
HUNTERDON COUNTY
 1290 ACRES MAX. DEPTH 73'
 AV. DEPTH 26' ELEVATION 273'

KEY:

VEGETATION

- + ATTACHED SUBMERGENTS
- ⊥ WADERS AND EMERGENTS
- ☼ TREES
- ⋈ SWAMP

BOTTOM TYPES

- BO - BOULDER
- BR - BED ROCK OR LEDGE
- C - CLAY
- SM - NATIVE SOIL AND PLANT MATERIAL
- ST -
- SP -

AN SYCKEL ROAD

Spruce Run Creek

BUTZVILLE - JCT 46

BOAT LAUNCHING

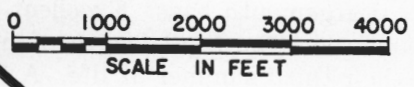
31



COUNTY RTE. 513

Raritan River

Branch



South

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NEW YORK

TRENTON

SP

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Limit of Public Use

Restricted

3

. . . Spruce Run Reservoir

Existing facilities include a boat launching area (fee \$1.00), a boat storage area (fee \$20.00 per season), camping grounds, and a fishing pier. Further construction is underway on bathing, camping, and picnicking facilities which should be available in the near future. Boats are limited to a maximum length of 18 feet and outboards to 10 H. P.

The immediate margin of the lake is approximately 10 percent forest and 80 percent open fields. The remaining 10 percent is comprised of the two dikes, the dam, and the spillway.

Location:

Approximately two miles north of Clinton along Route 31.

Physical Features:

Area:	1290 acres.	Maximum depth:	73 feet.
Elevation:	273 feet.	Mean depth:	26 feet.

Chemical Features:

Oxygen: sufficient to a depth of at least 20 feet at all times of year.
pH: Alkaline.

Biological Features:

Vegetation: primarily limited to the shallow coves.

Water Color: clear, except during the summer months when a green tint develops due to algae production.

Fish and Fishing:

Brown trout: Very good, May through November. Survival has been exceptional by New Jersey standards and many holdovers, three pounders and up, are taken each year. Large concentrations of browns have been gathering off the mouths of the creeks during the summer and these fish have been readily available to anglers.

Rainbow trout: Good, April through June following stockings. A few holdover fish are taken.

Largemouth bass: Excellent. Growth rate is good by New Jersey standards. The legal length of nine inches is normally reached early in their third summer of life. A fair number of four- to six-pound fish are taken each year.

Northern pike: A few large individuals are reported each year, but their continued availability is questionable inasmuch as further stocking of the species is doubtful.

Sunfish: Excellent. Abundant with an above average growth rate.

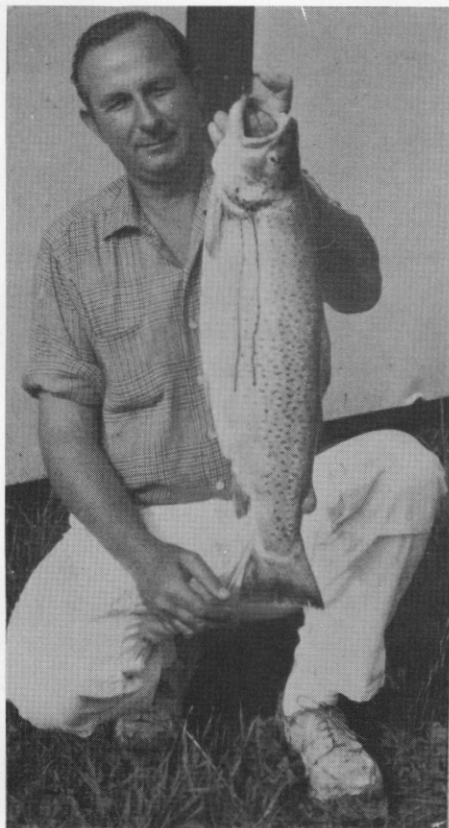
Brown bullhead: Good. Extremely abundant.

The 23 species of fish present are as follows:

Brook trout
Brown trout
Rainbow trout
Largemouth bass
Northern pike
Redfin pickerel
Bluegill
Pumpkinseed
Redbreast sunfish
Rock bass
Golden shiner
Spottail shiner

Common shiner
Fathead minnow
White sucker
E. creek chubsucker
Brown bullhead
Yellow perch
White perch
Alewife
Johnny darter
American eel
Sea lamprey

Robert W. Stewart *and*
Robert H. Soldwedel,
Bureau of Fisheries Management



Truly a Trophy

Brown Trout

Caught June 1971 at Round Valley Reservoir by Hank Kowalczyk of Somerville.

Weight—7 pounds, 12 ounces.

Length—25½ inches.

Girth—about 15 or 16 inches.

Caught from boat on fly rod baited with herring in about 20-foot depth. Time it took to land was about 25 minutes. Netted by Bob Korosec, of Manville, who also caught a 7-pound, 6-ounce brown. Fish was entered at Effinger Sporting Goods, Bound Brook.

Also, during the season a few taken from 3- to 5-pound class; many in 2-pound class, including rainbows. #

Clam Transplant

By Chris Riley, Shell Fisheries Consultant

A program has been initiated for transplanting clams from a moderately polluted area to clean waters where in a period of 30 to 60 days the clams purify themselves and are ready for market.

This is regarded as a pilot program and its early success indicates a possibility of expansion to other areas of a similar nature. The clams are harvested, under a special permit, by persons, from the waters of Lakes Bay in Atlantic County and transplanted to their respective leased grounds in Great Bay of the same county. In order to insure against any of these clams getting to the market, the clam digger must unload his day's catch on a state boat which carries it to the leased grounds, where they are unloaded on the individual lots. Each of these operations is under the strictest surveillance by the personnel of the Bureau of Marine Enforcement.

The leased areas are divided into three sections—clams harvested in one month are placed in Section A. and cannot be removed for a minimum of 30 days and then only if tests indicate they are pure. The next month, clams are placed in Section B., etc.

During a two-month period, (August and September) 10,000 bushels of clams were transplanted, with a market value of \$150,000. #

Clammers digging clams, from polluted waters of Lakes Bay, for transport to the clean waters of Great Bay





Division of Fish, Game, and Shell Fisheries vessel with load of clams from Lakes Bay waters heading for Great Bay clamming grounds



Clammers dumping the transplanted clams on the beds in the clean waters of the Great Bay grounds

. . . Contribution

Continued from Inside Front Cover

clubs are constantly raising money for wildlife plantings, stocking, and other programs for the betterment of their sport. Ducks Unlimited and many lesser known conservation groups contribute generously to benefit wildlife.

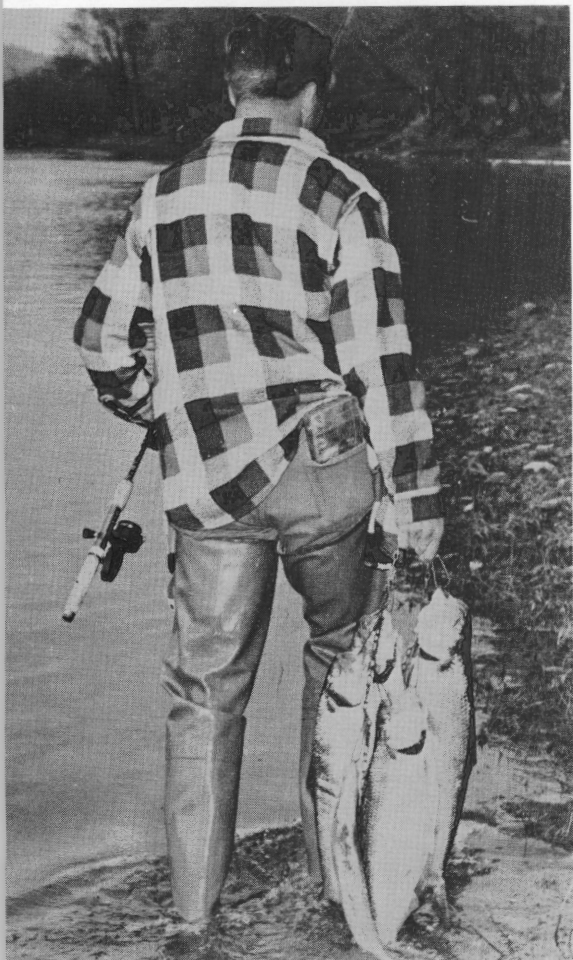
Yet today a great hue and cry to stop hunting and even curtail fishing is going up from the people who have contributed little if anything over the years to support

wildlife populations. It is presently in vogue to be against the harvest of wildlife and even the management of some of our other natural resources. Many people want things left strictly as they presently exist. These are the preservationists.

It is ironic that the very people who have carried the burden of wildlife management for so long, when no one else knew or cared, must now come under the verbal guns of those who view wildlife through Bambi-colored glasses. It is truly unfortunate that television and movies have personalized our wildlife and given the public the impression that things are always rosy out of doors when man stays home. This simply is not the case.

Who actually has the greater equity in maintaining high wildlife populations than the sportsman? He requires rather large numbers of both fish and game to provide his recreation and it is only logical that he is going to protect his resource to insure that it is perpetuated. No logical sportsman is going to try to shoot every last rabbit or catch every fish as he knows the need for brood stock for the future. If the truth were known, it has been the sportsmen and not the preservationists who have de-

The fees from fishing licenses and Federal Aid to Fisheries monies have over the many years provided the funds for pollution abatement, law enforcement, and fishery management programs necessary to provide this Delaware River angler with his string of shad



New Jersey Outdoors



The hunter, while condemned by some groups, has provided the millions of dollars from his hunting license and the Federal Aid excise tax on arms and ammunition to support wildlife management, development, enforcement, and land acquisition to ensure a constant supply of wildlife for recreational use

manded legislation for species endangered or in short supply.

People who oppose hunting are sincere in their feelings and are certainly entitled to their views. However, they should be aware of the basic biological facts of life. You cannot stockpile wildlife populations like cordwood. Only so many can live, and the surplus will die. Properly controlled hunting is a manner of skimming off this surplus.

The state game departments have trained biologists capable of evaluating the wildlife populations and recommending the proper har-

vest. These men would not willingly recommend regulations which might endanger the very commodity that keeps them in business.

It is time now that the anti-hunting public appreciate the contribution and long-time interest of the sportsmen in our fish and wildlife conservation efforts. They should remember that the millions of dollars which have built the refuges, research stations, and paid the salary of enforcement personnel, have come from the pockets of the very people they are now condemning. #

Berkshire Valley Tract

Morris County

The Berkshire Valley Fish and Wildlife Management Area, located northwest of Dover in Morris County, is one of the better upland game areas in this section of the state.

The tract was purchased in February 1940, with money from hunting and fishing license fees. Sixty-six acres were purchased through the Green Acres Program and assigned to the Division. Today the area contains 1,206 acres of woodland and fields. It is managed for upland game, deer, waterfowl, and fishing.

Office

The tract is administered through the Black River tract office located on North Road, Route 513, Chester.

Parking

Licensed hunters and fishermen are welcome to use the area during the season. Off the road parking is permitted in most areas. Sportsmen are asked not to park in fields or on cultivated areas.

Upland Game

The area is managed under a continuous habitat improvement program. The principal native species are pheasants, cottontail rabbits, squirrel, and grouse. Additional pheasants are stocked through the Division's program of pre-season and in-season stocking.

Deer

Deer are not abundant; however, a few animals are harvested annually. Bow and shotgun hunters are welcome to use the area.

Waterfowl

Waterfowl hunting is limited to the early portion of the season, with wood ducks, mallards, and black ducks being the principal species. Occasionally Canada geese are harvested in the area.

Fishing

Fishing opportunities are good in the area. The Rockaway River flows through a portion of the tract. Trout are stocked at regular intervals during the spring portion of the trout season.

This area is being maintained by the Division for the licensed sportsmen of the state, although many citizens make use of it for other forms of outdoor recreation. Its program is financed by hunting and fishing license money of the sportsmen.

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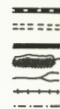
Morris County

**BERKSHIRE
FISH & WILDLIFE
MANAGEMENT AREA**

SCALE:  MILE

SYMBOLS

ROAD (IMPROVED)
ROAD (UNIMPROVED)
TRACT BOUNDARY
POND
STREAM
RAILROAD
POWER LINE



TO HOPATCONG

BERKSHIRE
VALLEY

MT ARLINGTON

BERKSHIRE
VALLEY
ROAD

Rt. 15

TO DOVER

DUNLAP
POND

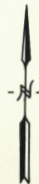
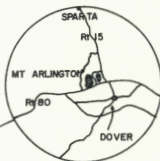
STEPHENS
BROOK

ROCK
MAY

BAKER MILL
POND

Rt. 80

RIVER



**TAKE THEM
WITH YOU!**



BY SHARING YOUR OUTDOOR
TRIPS WITH YOUR SONS AND
DAUGHTERS ~
YOU NOT ONLY GIVE THEM
HEALTHY RECREATION ~
YOU CAN ALSO BEGIN
THEIR APPRECIATION OF
OUR NATURAL RESOURCES ~
A NATIONAL WEALTH
THAT WILL REQUIRE
EVEN WISER USE
IN THE FUTURE.

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