

N.J. Periodical

# New Jersey *Outdoors*

May 1969

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DEPARTMENT



# Programs and Progress

## *Annual Message from the Commissioner of Conservation and Economic Development*

Robert A. Roe  
Commissioner

**Major efforts** of this Department continue to focus on the concept of environmental renewal. During the past fiscal year attention centered on the "Skylands" area, with plans taking shape for implementation of a Conservation Environmental Renewal Program for some 150 square miles along the state's northern border.

The same concept is involved in another program initiated through the Conservation Department's Division of Fish and Game. A comprehensive inventory of the estuaries along the New Jersey coast is being undertaken. Thorough understanding of the estuarine ecology will be of immense benefit in preserving their environmental values. The quality of estuarine resources affects not only fish and wildlife, but also the natural attractions on which our vast 2 to 5 billion dollar resort industry depends. Fortunately, many acres of coastal wetlands have been preserved through state and federal acquisition under Green Acres and earlier programs. The vision which inspired this program will ease the task of conservation of this part of our environment.

Far greater knowledge is needed of the resources of the sea itself, through increased oceanographic and biological research. An important step in this direction was the convening of New Jersey's "Fishermen's Forum" arranged by the Fish and Game Council and staff members.

The principle of multiple-use of our natural resources was demonstrated by the highly-successful opening of Round Valley Reservoir to fishing. Continued recreational development on state lands and waters will go hand in hand with efforts to extend the pioneering Green Acres Program and to implement "Blue Acres" providing additional clean water and outdoor recreation.

Fish and Wildlife resources are an integral factor in conservation environmental renewal. Cooperation of the Fish and Game Council and Division staff in the overall program and the devoted attention to their specific responsibility have made an outstanding contribution to recreation and conservation for New Jersey citizens.





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# New Jersey Outdoors

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### Cover—"Killdeer"—W. D. Rodgers, Jr.

Killdeer are common, noisy "shorebirds" of the pastures and plowed fields, rather than the seashore. As most outdoorsmen know, the killdeer derives its name from its insistent call. For more about the killdeer see page 16.

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# Creating More Fishing Waters

By R. W. Eschmeyer  
Formerly Sport Fishing Institute

If there is a big demand for a farm crop, that demand can be met partly by increasing the yield per acre through fertilizing, use of better seed, better cultivation, or by some other method or combination of methods. However, if the demand is great, it can be met mainly by putting more acres into the production of this particular crop.

In areas where fishing waters are few, we can help the fishing somewhat by managing these limited waters as wisely as possible. But, on even the best-managed waters, the production of fish is limited. The answer to heavy fishing demand, in areas with few fishing waters, is a simple one. The demand can be met properly by putting more acres into fishing waters. Fortunately, this fish conservation "tool" is getting more and more use.

The only alternative to creating more water would be to stock the limited water heavily and repeatedly with catchable-size fish. While undoubtedly effective, it is a method which would be financially impracticable for warmwater species; and, it would be highly costly for trout.

The new waters fall into three major groups: farm ponds, public

fishing lakes, and reservoirs built mainly for purposes other than fishing. Getting access to existing waters, too, can be regarded as a part of the "creating-more-fishing-water" program. The several kinds of waters will be discussed separately.

## The Farm Pond

So far as we know, there is no exact information on the number of fish-producing farm ponds in the United States. The best estimate seems to be that this number now exceeds a million, and probably approaches two million.

Any one of these ponds supports only a limited amount of fishing, but the fishing potential on the ponds collectively, is immense.

If we had only a million ponds, averaging a half-acre in size, and they were managed to yield a hundred pounds of fish per acre to the angler, the catch would add up to 50 million pounds of fish.

If each pond provided only ten days of angling recreation, it would add up to one fishing day for each sixteen people in the United States.

A single pond may seem insignificant from the standpoint of na-

## **. . . Fishing Waters**

tional fishing, but the ponds, collectively, can and do contribute very decidedly to our angling.

There are still many problems; some ponds aren't built properly, some aren't managed intelligently, some are unproductive because of poor watershed management. But, these limitations are gradually being overcome by research and education.

Some farm pond advocates put heavy stress on the pond as a source of meat for the farmer. If our own rural background was typical, this argument has limitations. After a hard day of physical work, the farmer may enjoy catching fish, but cleaning them is another matter. There was a time when this created no problem—when men caught the fish and the women folk cleaned them—but that day seems to be past. Chances are that the average farmer will take care of his meat problem by butchering a cow or hog at intervals.

The big future for the farm fish pond, as we see it, lies in its furnishing a cash income, by allowing others to fish the pond, for a fee. This will be true particularly during periods of low income from the regular farm products. The pond, admittedly, wouldn't be a big source of income, but such income would be an added value, with stock watering, recreation for the farmer's family, etc., as the major values.

### **The Club Pond**

Many sportsmen's clubs have built fishing lakes, usually for use by club

members. These are excellent projects. As a rule, they are bigger than farm ponds, though the problems are similar. The tendency is to expect too much from these ponds. An annual take of 100 pounds per acre would be well above average, because club ponds tend to be built on relatively unproductive (less costly) lands. For a club with a hundred members, this would represent one pound per member per acre per year. Of course, the pond could provide an endless amount of badly needed relaxation, even though the yield in "meat" is limited.

### **Public Fishing Lakes**

A number of states are now using some of their fishing license and Dingell-Johnson (federal aid) money to build public fishing lakes, usually ranging in size from fifty to several hundred acres. A survey made by the Sport Fishing Institute showed that some 163 such lakes had been built in the preceding five years, and that 70 more, averaging 120 acres, were under construction or in advanced planning stages.

One conservation department has demonstrated what can be expected from such a program by keeping a record on its state-built fishing waters. In one year the state's eleven such waters (total acreage 591) attracted 100,183 fishermen (fisherman-days), and yielded 357,714 fish, weighing 99,871 pounds. This averaged out to 170 fisherman-days and 605 fish weighing 169 pounds for each acre of water. These lakes are located in areas with insufficient fishing water, are fertilized, and are located in water-



sheds where they are relatively free from erosion.

In a number of states the lake-building programs should have high priority. Of course, they will have continued good fishing only if properly managed. Since we still don't know, in many areas, what constitutes proper management, it's essential that a good, down-to-earth fact-finding program accompany the lake building projects.

One item merits special consideration. There is a tendency to suggest

poorly. In water, as on land, the amount of nutrient materials available largely determines the potential carrying capacity.

### Big Reservoirs

Here we have a controversial subject, mainly because of the tendency to be all for or all against dams. Some have been highly beneficial to fishing; some have been harmful. You can't generalize on the effect of dams on fishing; each dam or potential reservoir must be considered separately,



building lakes on relatively unproductive land, because of the higher cost of land in productive watersheds. Despite the lower initial cost, this is a poor practice to follow. A study of two state-built lakes, similar in size and construction, showed that one draining productive soil had an excellent fish yield. The other, in a nearby but unproductive watershed, did very

along with the present or proposed operation program for that particular body of water.

For example, dams built for other purposes have greatly increased the fishing in the South, from Texas and Oklahoma to the Carolinas. They have been detrimental to fishing in other areas, particularly in the Northwest. Here, construction of high dams

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threatens extinction of important anadromous species of salmon and trout.

In the Tennessee Valley, after impoundment, fishing increased 45 to 50-fold on storage waters and 10 to 15-fold on the mainstream. This sur-

impoundment days. Too, in a normal year, operations do not prevent the development of a fair-sized crop of fish. Major drawdown is in winter, when it interferes little with fish populations. At spawning time the reservoirs are filling, with water levels generally rising slowly. Erosion is lim-



vey was made some years ago; on some waters the fishing intensity has increased rather decidedly since that time. For example, fishing in the TVA tailwaters below the mainstream dams has been rising steadily. Daily counts for one fiscal year showed 966,334 man-days of fishing immediately below nine mainstream dams. This was nearly three times a former yearly estimate of 339,000.

Because of the dam-building program, fishing in parts of the South is much more extensive, and more successful, than it was twenty years ago. The improvement was by accident, not by design. It happens that here good fishing waters were few in pre-

ited enough so that the waters are not too muddy over long periods of time for good fish production. In waters where insects are few, good production is possible, nevertheless, because the main food chain (for desired species) is microscopic food to shad to crappie and black bass or white bass.

Despite the constant increase in numbers of reservoirs, insufficient fact-finding effort goes into these waters. Research might well point the way to improved fishing in some reservoirs which now provide poor angling.

Usually, the success of a reservoir for fishing hinges on the condition and fertility of the watershed. If the



silt is kept on the land, and out of the water, the chances for having good fishing are greatly increased. Muddy waters don't provide good fish crops.

Where dams are installed and operated for hydro-power, flood control, or irrigation, the over-all management program should give proper consideration to the fishing interest. We know of few instances where such consideration is given. This may be due partly to our lack of knowledge regarding proper reservoir management from a fish production standpoint.

### Public Access

In effect, we are creating more fishing water when we provide access to waters which already exist. A number of states are now giving high priority to the problem of providing public access. This problem will increase as the population grows, and as land values rise.

An owner who might allow limited public use, might install "no trespass" signs when that use increases considerably. Unfortunately, in any sizeable group of anglers, we can expect a small number of them to have little regard for private property. These are the ones who clutter up the landscape with cans, paper containers, and other debris.

The alternative to free access is the buying or leasing of land and water by the state. It's a costly program in areas of high land values, but it will be even more costly as the population increases.

Some water supply reservoirs are open to public fishing, others are not. San Diego's water supply lakes have been fished for over twenty years, with no indication that the fishing was harmful in any way to the drinking water. The city has regularly charged a small daily fee, which pays for enforcement of the sanitary regulations imposed.

Where water supply lakes are closed to fishing, as many of them are, the cause can generally be regarded merely as stubbornness on the part of the officials. They don't want to be bothered with public fishing. On municipal water supplies, sportsmen can demand that fishing be permitted, with sanitary regulations strictly enforced, and with the charging of a fee, if need be, to pay for the enforcement.

### In General

Some fishing waters are constantly being lost to the public by drainage, diversion of water, siltation, pollution, and posting. But, others are being created. A number of states now have much more fishing water than they had a few decades ago because of the extensive farm pond and public fishing lake building programs. In some areas, too, fishing has been increased through the building of reservoirs used mainly for other purposes, and through public access programs.

In the face of constantly increasing angling pressure, the "providing-more-fishing-water" program is an extremely important one. #

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*A strike! Reel in that ten-pound litter. No angler wants to end a day of fishing with an empty basket and a pile of trash collected from a streambed. Won't you help keep the streams and lakes beautiful?*

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# As It Was

## for the Passenger Pigeon

This glance back into history gives us some insight on the now-extinct passenger pigeon that existed in almost unbelievable numbers in New Jersey about 100 years ago. The notes are based on a manuscript edited by Jacob H. Studer in the late 1800's and loaned to us by Arthur Downer.

**The Passenger Pigeon**, or, as it is commonly called, the "Wild Pigeon," are the gypsies among birds. They are everywhere and nowhere. From Hudson's Bay down to the Gulf of Mexico, and from the Rocky Mountains to the eastern coast, and in all the State of North America, is found the Passenger Pigeon—at no time in equal numbers, generally more in number in the Eastern and Middle than in the Northern and Southern States.

Audubon and, before him, Wilson relate the most wonderful stories concerning the numbers of these Pigeons during their wanderings. We quote from Audubon as follows:

"Their great power of flight enables them to survey and pass over an astonishing extent of country in a very short time. Thus, Pigeons have been killed in the neighborhood of New York with their crops full of rice, which they must have collected in the fields of Georgia and Carolina; these districts being the nearest in which they could possibly have procured a supply of food. As their power of digestion is so great; that they will decompose food entirely in twelve hours, they must, in this case, have traveled between three and four hundred miles in six hours, which shows their speed to be, at an average, about one mile in a minute. A velocity such as



this, would enable one of these birds, were it so inclined, to visit the European continent in less than three days."

"In the autumn of 1813, I left my house at Henderson, on the banks of the Ohio, on my way to Louisville. In passing over the barrens, a few miles beyond Hardinsburgh, I observed the Pigeons flying from northeast to southwest in greater numbers than I thought I had ever seen them before. I traveled on, and still met more the farther I proceeded. The air was literally filled with Pigeons. The light of the noonday was obscured as by an eclipse. The dung fell in spots not unlike melting flakes of snow; and the continued buzz of the wings had a tendency to lull my senses to repose.

"Before sunset I reached Louisville, distant from Hardinsburgh fifty-five miles. The Pigeons were still passing in undiminished numbers, and continued to do so for three days in succession. The people were all in arms. The banks of the Ohio were crowded with men and boys, incessantly shooting at the pilgrims, which there flew lower as they passed the river. Multitudes were thus destroyed. For a week or more, the population fed on no other flesh than that of Pigeons. The atmosphere was, during this time, strongly impregnated with the peculiar odor which emanates from the species."

In estimating the number of these mighty flocks, and the food consumed by them daily, he adds: "Let us take a column of one mile in breadth, which is far below the average size, and suppose it passing over us at the

rate of one mile per minute. This will give us a parallelogram of 180 miles by one, covering 180 square miles; and allowing two Pigeons to the square yard, we have one billion one hundred and fifteen millions one hundred and thirty-six thousand Pigeons in one flock; and as every Pigeon consumes daily fully half a pint, the quantity required to feed such a flock, must be eight millions seven hundred and twelve thousand bushels per day."

"Let us now, kind reader, inspect their place of nightly rendezvous. It was, as is always the case, in a portion of the forest where the trees were of great magnitude, and where there was little underwood. I rode through it upward of forty miles, and, crossing it at different parts, found its average breadth to be rather more than three miles. Few Pigeons were to be seen before sunset; but a great number of persons, with horses and wagons, guns and ammunition, had already established encampments on the border. Two farmers from the vicinity of Russellville, distant more than a hundred miles, had driven upward of three hundred hogs, to be fattened on the Pigeons which were to be slaughtered. Here and there, the people employed in plucking and salting what had already been procured, were seen sitting in the midst of large piles of these birds. The dung lay several inches deep, covering the whole extent of the roosting-place, like a bed of snow. Many trees, two feet in diameter, I observed were broken off at no great distance from the ground; and the branches of many of the largest and tallest had given way as if the forest had been swept by a tornado. Every-

### **. . . Passenger Pigeon**

thing proved to me that the number of birds resorting to this part of the forest, must be immense beyond conception. As the period of their arrival approached, their foes anxiously prepared to seize them. Some were furnished with iron pots containing sulphur, others with torches of pine-knots, many with poles, and the rest with guns. The sun was lost to our view, yet not a Pigeon had arrived. Everything was ready, and all eyes were gazing on the clear sky, which appeared in glimpses amidst the tall trees. Suddenly there burst forth a general cry of "Here they come!" The noise which they made, though yet distant, reminded me of a hard gale at sea, passing through the rigging of a close-reefed vessel. As the birds arrived and passed over me, I felt a current of air that surprised me. Thousands were soon knocked down by polemen. The current of birds, however, still kept increasing. The fires were lighted, and a most magnificent, as well as a wonderful and terrifying sight, presented itself. The Pigeons coming in by thousands alighted everywhere and above another, until solid masses, as large as hogsheads, were formed on every tree, in all directions. Here and there the perches gave way under the weight with a crash, and falling to the ground, destroyed hundreds of the birds beneath, forcing down the dense roar of confusion. I found it quite useless to speak, or even to shout, to those persons who were nearest me. The reports, even, of the nearest guns were seldom heard; and I knew of the firing only

by seeing the shooters reloading. No one dared venture within the line of devastation; the hogs had been penned up in due time, the picking up of the dead and wounded birds being left for the next morning's employment. The Pigeons were constantly coming, and it was past midnight before I perceived a decrease in the number of those arrived. The uproar continued, however, the whole night; and as I was anxious to know to what distance the sound reached, I sent off a man, accustomed to preambulate the forest, who, returning two hours afterward, informed me he had heard it distinctly when three miles from the spot. Toward the approach of day, the noise rather subsided; but long ere objects were at all distinguishable, the Pigeons began to move off in a direction quite different from that in which they had arrived the evening before; and at sunrise, all that were able to fly had disappeared. The howlings of the wolves now reached our ears; and the foxes, lynxes, cougars, bears, raccoons, opossums, and polecats were seen sneaking off the spot, whilst Eagles and Hawks of different species, accompanied by a crowd of Vultures, came to supplant them and enjoy their share of the spoil. It was then that the authors of all this devastation began their entry among the dead, the dying, and the mangled. The Pigeons were picked up and piled in heaps, until each had as many as he could possibly dispose of, when the hogs were let loose to feed on the remainder."

Now this sounds fabulous, but we will not dispute its truth, although it



is not in accordance with our observations. We have in our rambles through the United States frequently met even with very large flocks, but they certainly did not reach to one-quarter the number mentioned by Audubon. Several roosts were visited at different places, but they fell considerably short of the above account, although persons with whom we conversed at these roosts fully corroborated Audubon. The immense numbers of Wild Pigeons that flew over my head toward the roost would appear almost incredible to those who have never observed it. As regards the rapidity of the flight of the Passenger Pigeons, we relate an incident that occurred in the spring of 1849, in New York city. About two dozen Wild Pigeons, who had their crops filled with rice, were shot by me, and they certainly had only early that morning fed in the rice-fields of Carolina. It was about 10:30 A.M. when they were shot, but they appeared tired, and did not show their usual shyness.

Dr. Geo. W. Hill, of Ashland, Ohio, in one of his contributions, "Recollections of Pioneer Life," to the Cincinnati Commercial, relates the following incident about the Wild Pigeon, the particulars for which were furnished by William A. Adams, Esq.:

"Several species of birds, formerly very numerous in this State, are becoming less abundant. The Wild Pigeon once seen in countless millions, is not so numerous as during the period of the beech-nuts. Mr. Adams, in 1806, witnessed at Marietta, Ohio, a flight of pigeons so remarkable that the school children were dismissed to

see the wonderful sight. They were actually so numerous as to obscure the light of the sun like a cloud. This continued for some time. The sand-bar at the foot of the island above Marietta contained about fifty acres of land. Far above the island the birds checked their flight, and began to descend upon the bar in a dense mass. The descent, at a distance, appeared like an inverted cone, or an enormous water-spout, as an old sailor describes it. The birds apparently came down to the bar for water and sand. They crowded the shore and dipped their beaks into the water, and took to the air again, and continued their flight. The whole town turned out to witness the novel spectacle, and many persons hastened to the sand-bar, and large numbers of the birds were killed with sticks. Their crops were supplied with small gravel and sand. Their roosts were equally strange. They came together from all quarters in such numbers that it was dangerous for man or animal to venture beneath their roost. The noise of their wings, their fluttering, and the cracking of timber beneath their weight, kept up a constant roar, not unlike the sound of battle at a distance. There is a tract of land in the northwest part of Muskingum County, formerly called "Dennison's Plains," rich and rolling, but destitute of timber. There was full proof that the timber on that land had once been a pigeon-roost, and had been broken down and destroyed by the weight of the pigeons. This was confirmed by some Indians who were on the land about 1813. . . ."



## Lampers and Lamperns

Lamprey eels are sort of a missing link  
in the world of fishes

One of the most frequently asked questions, especially from trout anglers who fish the Big Flat Brook, is, "Are lamprey eels bad for trout?" Well now, the answer lies fairly clearly in this discussion of the nature and ways of the lamprey eels.

In the study of ichthyology we have some specialized workers known as taxonomists whose task it is to work out the keys to classification whereby fisheries workers may identify one fish from another. In preparing these keys the last developed fish is included first and subsequent fishes are listed as they show more and more development. Consequently the first fish or fishlike animal (since many workers do not consider these animals fishes) to come under our scrutiny is the lam-

prey which many of you good readers have never seen.

This fish is most important to students of vertebrate comparative anatomy because it is the second in line of development of the vertebrates or those animals with a spinal column. (The first in line is a small creature known as a lancelet, *Amphioxus*, which lives in the sea.)

There are several species of lampreys occurring in and around the United States in both fresh water and salt water. The sea lamprey (*Pteromyzon marinus*) ordinarily lives in the Atlantic Ocean. But, some landlocked specimens of this species have just about taken over the Great Lakes and to such an extent the fisheries of these lakes were endangered until



relatively effective control measures were discovered. Besides the sea lamprey we have six other species occurring in fresh water. Three of the lampreys are considered parasitic and three are non-parasitic.

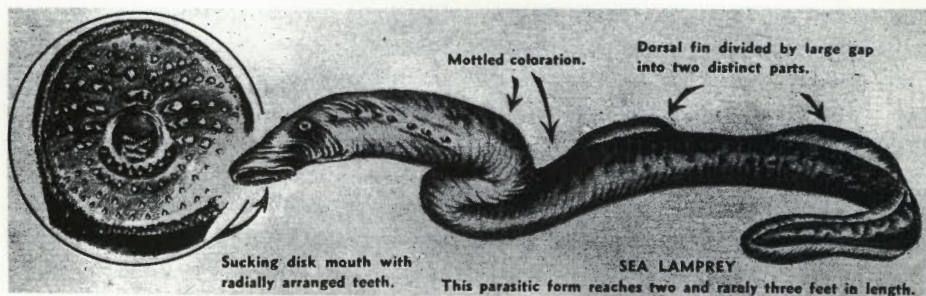
After metamorphosis the life of the lampreys follows one of two courses. In one type of life-cycle, obviously the most primitive, the transformed lampreys retain a functional alimentary system and develop strong, sharp teeth. They feed in a semi-parasitic fashion on other fishes, and continue to live and grow, usually in the sea, or in lakes and larger streams. Having existed thus for an unknown period of time, they re-ascend the smaller streams in spring migration, spawn, die, and thus complete their life cycle.

The lampreys of the contrasting, life-history type entirely cease their feeding and growth after metamorphosis, which takes place in late sum-

mer or even fragmented. In this degenerate adult condition they continue to live, however, for a period of more than four but not less than eleven months, unless prematurely destroyed. Having thus passed the winter, they spawn the following spring (March to June); then die, as do the parasitic forms.

After lampreys are hatched they are known as ammocoetes, which is the larval stage. They then go through a period of metamorphosis, which is the period an individual passes after leaving the egg and before attaining sexual maturity, and finally their adult stage. Lampreys can live for several years but as soon as they spawn once, they die.

The non-parasitic forms are of no particular harm, but the parasitic forms can do tremendous damage as was pointed out about the sea lamprey. The mouth is fashioned like a suction cup, the insides of which are



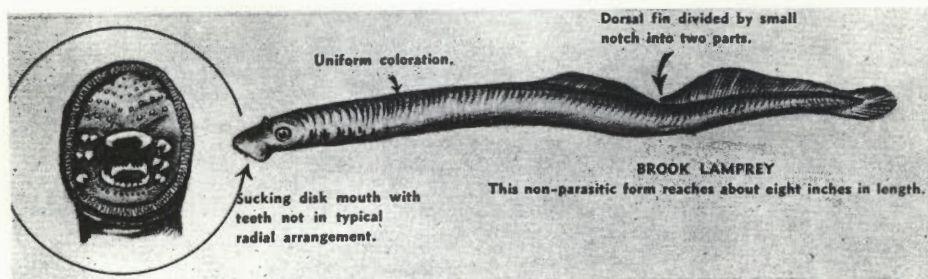
mer or early fall (August to October). An entire period or element in the life-cycle is thus eliminated. The alimentary system rapidly degenerates into a non-functional condition. The teeth are reduced in size and particularly in sharpness, and in extreme cases variously decreased in number,

armed with rows upon rows of sharp teeth. Parasitic lampreys fasten onto a host fish with their sucktorial mouth and then with their teeth rasp through the host, eating the muscle tissue and drinking its blood. The host fishes do not always die, but if they don't they are left in bad shape. Fortunately,

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the lampreys mainly attack the sucker fishes, such as carp and buffalo, more than they do other fishes but no particular species is immune from their depredation. In the Great Lakes re-

mouth of the lamprey is beset with many rows of sharp, horny teeth which are used to rasp away the flesh of his prey. Their skeleton is entirely cartilaginous, consisting only of a skull and backbone. The lampreys have seven gill openings along



gion, dams are being constructed to stop their spread, and electro-gear and chemicals are used to control their numbers.

It is widely known that the sea lamprey has become a serious menace to the commercial fishing industry of the Great Lakes. Because this fact has received so much publicity throughout the country, many sportsmen have identified the lampreys they find in their favorite fishing hole to be the sea lamprey and erroneously conclude that their fishing will soon be ruined. Though our native type is parasitic, it offers little danger to fish.

Many common names are given the lamprey. Examples of this are such names as "lamperns", "lampers", "lamper eels", and the most common, simply "eels." Some fishermen use the term "blood sucker."

Lampreys can easily be distinguished from the eel by the lack of appendages (paired fins) and the presence of a round suctorial mouth. The

each side of the body just posterior to the head. All species migrate to the headwaters of streams or rivers to spawn in the spring. Sea lampreys have been known to exceed 20 inches in length while our native lampreys rarely exceed 12 inches.

The spawning habits of all the lampreys are nearly identical. The males generally precede the females in the migration to the headwaters or tributaries of streams and rivers. They select the nesting site on a gravelly bottom under a moderate flow of water. The nest is made by moving stones to the margin of an area about two feet in diameter. The lampreys cling to the upstream marginal stones during the actual spawning activities so their bodies are directly over the nests. The pair become tightly entwined in this position and between 20 to 40 eggs are laid and fertilized at a time. At this point the adults begin moving stones from one part of the nest to another, stirring up



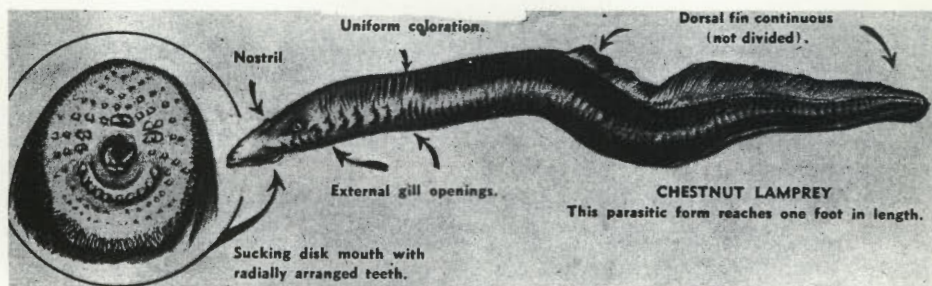
sand which settles on the layer of eggs. The procedure is then repeated again and again until a total of some 40,000 eggs have been deposited. The spawning period lasts about four days and the eggs hatch in from one to three weeks, depending on the water temperature. When the young hatch, they drift downstream with the current until they become lodged in the mud of some calm pool. These worm like, toothless, blind, larvae burrow in the bottom of mixed sand and muck, coming out at night to feed on the organic ooze which is strained through the hoodlike mouth. The larval stages last from three to five years. After transformation to the adult stage, the parasitic forms prey on the blood and flesh of fish until they are

*zon castaneus*). Of these only one, the chestnut lamprey, is parasitic.

The American brook lamprey spawns very soon after transformation and the digestive tract becomes degenerate in the adult stage. Consequently the adult does not take food of any kind. This form is entirely harmless to fish.

The chestnut lamprey is definitely parasitic and has been found clinging to bass and bluegills. The relatively sluggish fishes such as suckers, etc., or those otherwise diseased and in poor health are more subject to attack than the more alert and better protected spiny rayed species.

Some people believe that lampreys feed on eggs of fishes, worms and decaying matter. This belief apparently

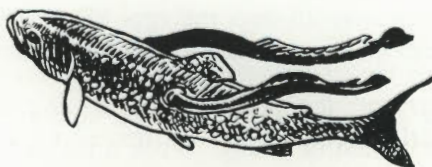


sexually mature. Spawning then takes place, after which they soon die to complete the life cycle.

Two lampreys which inhabit our waters are the American brook lamprey (*Entosphenus lamottenii*) and the chestnut lamprey (*Ichthyomyo-*

is untrue as stomachs of all lampreys investigated were void of any material other than blood and flesh.

The lamprey is used by man for food and bait. Most lampreys in this country are pickled and put in tins. Pickled lampreys are of fine flavor. #





## The Killdeer

**T**HE KILLDEER IS ONE of the most common and widely distributed shorebirds in North America. Its summer range extends from coast to coast and from the Canadian Arctic south to central Mexico. In winter it remains in much of this territory until snow and ice cover its feeding grounds and force a retreat to warmer climates.

In New Jersey, the killdeer is a common breeding species in every county in the state wherever suitable nesting habitat occurs. Unlike other members of the plover family, its activities are not restricted to beaches and shorelines but include pastures and cultivated fields several miles from the nearest water.

The killdeer is a medium-sized plover, readily distinguished from other shorebirds by two prominent black bands across a white breast and by a rufous patch on the rump and tail. The common name is derived from its distinctive alarm call, "kildee," which it utters at the first sign of danger and continues to repeat until the intruder has passed.

Gravelly areas, plowed fields, and sandbars are favorite locations for killdeers to nest. A slight depression is selected as a nest site and four protectively marked eggs are laid. No attempt is made to add nesting material although a few pebbles or wood chips are scattered in and about the nest to provide camouflage. In approximately 25 days the eggs hatch and the precocial chicks immediately follow their parents to safe feeding areas along the nearest shoreline.

Like many other ground-nesting birds, the killdeer often feigns injury to decoy an enemy from its nest or young. When a fox or cat prowls nearby, the



bird runs screaming from its nest, with one wing held high and the other flailing the ground. This broken-wing act usually succeeds in attracting the attention of the predator, which pursues in anticipation of an easy meal. However, when the invader has been lured far from the nest, the "injured" killdeer suddenly gets well and flies out of danger.

When a grazing animal approaches the nest, the tactics are entirely different. The killdeer straddles the nest with outspread wings and scolds vigorously. If this act fails, the bird may even run or fly into the face of the horse or cow to startle and frighten it away.

The diet of the killdeer is composed almost entirely of animal matter, with beetles, grasshoppers, weevils, and other insects and invertebrates constituting over 97 percent of the food consumed. These food preferences have established the killdeer as one of the farmer's best allies in his constant battle with farm pests.

Adapted from the Oregon State Game Commission Bulletin.  
C. E. Kebbe

## **When Is The Best Time To Go Fishing?**

In the interest of compiling information on this subject, fishing experts asked this question of dozens of anglers. And, as might be expected from people as independent as fishermen—got a dozen different answers.

One Delaware River shad angler answered, "when there's a run on." This made sense, as shad are in the river only at certain times of the year, and unless a man just wants to exercise his casting arm, he logically should fish when there are fish to be taken.

A largemouth bass fisherman religiously fished the moon phases and said he always caught his best fish during the dark of the moon. Other anglers preferred night fishing regardless of the moon's phase. Hopatcong jig fishermen, for instance, discovered that the larger bass in their lake are nocturnal feeders during the summer. A South Branch trout fisherman with a similar opinion said the big brownies always feed at night.

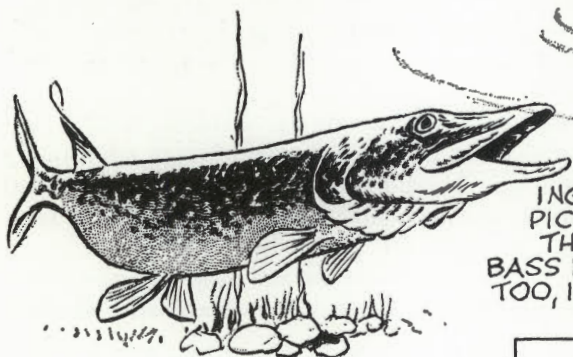
Many anglers keep a close eye on the barometer and try to be out on the water when the glass is rising. Other anglers paid more attention to the thermometer than they did a barometer. These men spent a lot of time sampling the water temperature and did their fishing when it was just right for the species of fish they were trying to catch.

Trout fishermen universally did most of their fishing when a hatch was on, but preferred the action at either dawn or dusk. Crappie fishermen fished when the fish were on the beds, in lakes trout fishermen had a preference for late spring, walleye fishermen liked the first part of June, and pickerel addicts seemed to favor spring as the weed beds formed.

Perhaps the best answer came from a country doctor who kept his fishing tackle in the trunk of his car at all times. When asked the question, he thought a moment, and then he said "whenever a man's got a spare minute."

# Fur, Fin <sup>and</sup> Campfire

By JACK SORDS



FOR A REAL SPORTING WAY OF FISHING FOR PICKEREL, TRY CATCHING THEM WITH FLY ROD BASS BUGS. IT'S EFFECTIVE, TOO, IN MOST AREAS



FAVORITE FOODS OF THE PICKEREL ARE MINNOWS AND OTHER SMALL FISH; WORMS, FROGS AND INSECTS



— BUT BEING VORACIOUS FEEDERS, THEY'LL GO FOR ARTIFICIAL AS WELL AS NATURAL BAIT. A FINE TROLLING LURE IS A STREAMER-SPINNER COMBINATION

WITH THE AID OF A FLASHLIGHT, FROGS ARE EASIER TO CATCH AT NIGHT



SHINE THE LIGHT INTO FROG'S EYES FROM THE FRONT. THEN CAREFULLY MOVE THE OTHER HAND TO ITS BACK AND GRAB. AVOID PASSING YOUR HAND BETWEEN THE LIGHT AND THE FROG OR HE WILL JUMP

*Don't mark the trail around your campsite with food remnants and used cartons. You can take it with you! Carry a litterbag with you.*

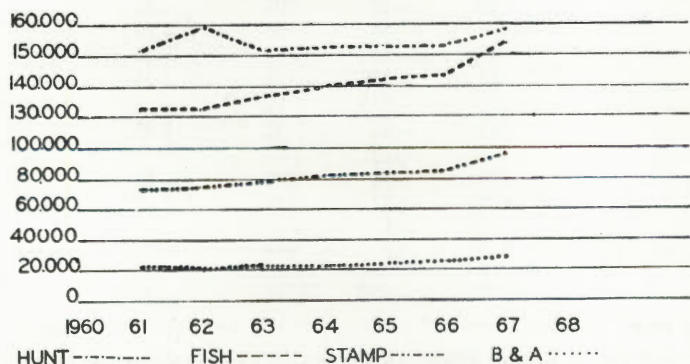


## Who Pays For Fish And Game In New Jersey

The general public pays NOTHING for the state's fish and wildlife program, administered by the Division of Fish and Game. New Jersey hunters and anglers pay virtually the entire bill through their purchase of licenses, the source of roughly 90 percent of the Division's income. The rest comes from fines for conservation law violations, commercial fishing and game breeding licenses, a portion of boat registration fees, *New Jersey Outdoors* subscriptions, fees for special use of wildlife management areas, and federal aid. The federal aid money is largely obtained from sportsmen through dedication of the excise taxes on hunting and fishing gear. At the time many excise taxes were removed, organized sportsmen and sportinggoods manufacturers petitioned Congress to retain these as support for wildlife research and development programs. The adjoining graph shows the trend in major license sales and revenue since current fees were established. Fees are as follows:

Resident Firearm Hunting and Trapping .....	\$ 5.15
Resident Bow and Arrow .....	\$ 5.15
Resident Fishing .....	\$ 4.15
Resident Trout Stamp .....	\$ 2.00
Non-Resident Firearm .....	\$15.15
Non-Resident Fishing .....	\$ 7.15
Non-Resident Bow .....	\$15.15
Non-Resident Trout .....	\$ 5.00
Non-Resident 3-day Fishing .....	\$ 3.65
Non-Resident 1-day Hunting (licensed preserves).....	\$ 2.15
Resident Family Fishing—parents .....	\$ 8.15
Family Fishing—each child .....	\$ 1.15
Woodcock Stamp .....	\$ 3.00
Juvenile Hunting (10-13) .....	\$ 1.00

LICENSES



## Report on Deer Harvest

New Jersey deer hunters bagged over 8,600 whitetails during 1968 seasons, according to preliminary figures. A final report will be made after Wildlife Biologist Robert Lund has made a thorough examination of all report cards. The total of 8,646 deer includes 5,039 from the firearm season, December 9-14, 2,109 from the special permit season, December 21, and 1,498 from the bow and arrow season, October 5-November 7.

The firearm total may increase slightly, with late report cards delayed in the mail. The figure is 630 below last year's firearm season, although it is the 14th consecutive season in which the harvest exceeded 5,000.

The drop from 1967 is attributed largely to highly unfavorable weather on the first and last days of the season, when the turnout of hunters is usually heaviest. Opening day was bitterly cold, and few nimrods stayed out long or penetrated very far into the woods; a soaking rain on Saturday had a similar effect.

Substantial decreases were noted in Ocean, Morris, and Burlington counties; slight increases occurred in Cape May, Sussex, Salem, Cumberland, Bergen, and Warren. Nearly all these deer were antlered bucks, although a few does were taken in the "hunter's choice" area in the northeastern corner of the state.

The Special Permit season was held in nine counties, with permit holders

### HARVEST OF DEER DURING 1968 SEASONS

County	Firearm	Change*	Permit	Change*	Bow	Change*
Atlantic	398	-73	4**		146	+25
Bergen	44	+7			2	-3
Burlington	357	-114			171	+6
Camden	40	-1			17	+2
Cape May	126	+37			32	+4
Cumberland	235	+9			81	+38
Essex	12	-20			0	-3
Gloucester	38	-7			10	-1
Hunterdon	849	-69	671	-89	319	-1
Mercer	160	-20	201	-51	71	-12
Middlesex	75	-24	50	+28	25	-5
Monmouth	98	-37	77	-47	41	-18
Morris	421	-136	176	-20	133	+1
Ocean	316	-145	30**		88	+8
Passaic	125	-56	93	+49	15	-2
Salem	102	+12			32	+1
Somerset	255	-28	229	-32	86	-27
Sussex	638	+27	131	-42	74	-7
Union	1	+1			0	-1
Warren	749	+7	557	+283	154	+37
	5,039	-630	2,109	-37**	1,498	+42

\* Change from 1967.

\*\* Permit harvest on limited areas in Atlantic and Ocean counties not comparable.



allowed one deer of either sex. Of the 2,109 deer bagged, 34 were taken on two national defense installations in otherwise closed counties. In 1967, 2,112 deer were bagged in the same nine counties, and 706 in counties where the special hunt was not held this year.

Figures for this season are complete, as all deer had to be taken to a checking station. Comparisons at present can be made on a checking station rather than actual county basis. The final report will show the actual county where the deer was shot and include a breakdown by sex.

Checking stations in Warren and Passaic counties more than doubled over last year, and Middlesex nearly doubled. All others dropped, most notably Monmouth, Hunterdon, and Mercer County stations. The Warren County increase reflects not only an increase in permits but also an abundance of deer.

The bow and arrow harvest of 1,498 is a new record for this season, as previously announced. The grand total of 8,646 is 1,297 below last year's banner season; eliminating areas where the special permit season was not held this year, the differential is 625.

This harvest indicates the continued success of the Division's management efforts in maintaining New Jersey's valuable deer resource at a level providing many hours of recreational and aesthetic enjoyment for Garden State citizens.

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## The Drummer Bird

Most everyone living in the country in New Jersey has had the pleasure of hearing a ruffed grouse drum in spring. Newcomers may have heard it and thought it was the neighbor having a hard time getting his pump motor started. Although drumming can occur any time during the year, it is normally part of a ritual the male performs during the mating season. Many people argue that the grouse makes this noise by beating his wings on a log. It is actually produced by the bird's wings beating against the air.

The activities of mating grouse in spring and early summer normally fall into three phases: strutting, gentle, and fighting. As early as March the males begin to show signs of aggressiveness by strutting about with spread tail and ruff, and as the season progresses, hissing and violent head shaking are added to the strutting performance. Occasionally they may select a high point and drum. At this stage of the game the female seems somewhat bored by it all and tries to keep out of his way.

Then there comes a brief period, lasting several days, when the male seems subdued. His whole attitude is the epitome of gentleness, moving about as though in a trance. At this time the female becomes interested in the male and is inclined to lead him about, oftentimes singing. Not long thereafter the male's attitude changes once more. He again begins to strut and gradually, as his interest in the female wanes, he develops a strong fighting mood, ready to take on all comers. This is the period during which the female is laying and incubating her eggs.

#

# Try the Unusual

Sometimes it pays to throw away the "book" when fishing and try the unconventional. Imagination and a willingness to experiment when fish won't bite often produces results when all the proven methods fail.

Breaking the so-called rules when they are unworkable is the mark of a wise and usually successful angler. And, although such things may seem strange or comical, they may be well worth the small effort it takes to give them a try.

A tree is a good example. Usually its overhanging branches are a problem, and frequently you'll find a limb that's been decorated with glittering ornaments by erring casters. Yet, this same limb can be a blessing in disguise.

Using strong line, try casting a fly or bug over the branch and permit it to dance lightly on the surface directly below. It sometimes proves just the thing to excite a reluctant battler. Landing a fish hooked in this manner is more a matter of power than finesse, and you may lose more than you land, but it will work on occasion.

Another device calls for the use of two lures instead of one. Tandem fly-fishing for trout is common and extremely effective, yet frequently overlooked. Link two flies together with leader material, one behind the other about four inches. This same idea works with plugs or flies and plugs or bait in combinations. There's no end of interesting fish teasers that can be concocted, and often they're just the answer.

These are just two deviations that can be tried but the list is limited only by imagination. Who knows, maybe you'll find a "sure thing" that leads to a full stringer. #

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## The Bureau of Wildlife Management

The Bureau of Wildlife Management is responsible for managing the state's wildlife resources and recommending to the Fish and Game Council regulations for harvesting the surplus crop of wild game. The research, management, and propagation units work together in providing information, land development, management of game species, and rearing pheasants and quail for stocking on lands open to public recreation.

The Bureau administers over 122,000 acres of wildlife management areas throughout the state. Although the primary object is improvement of wildlife habitat to provide greater hunting opportunity for New Jersey sportsmen, development plans and field work are being accelerated to provide multiple-use public recreation.

Bureau personnel cooperate regularly with state and federal agencies, including the Soil Conservation Service, New Jersey Agricultural Experiment Station, the State Department of Health, state and county mosquito commissions, 4-H Programs, and others. #



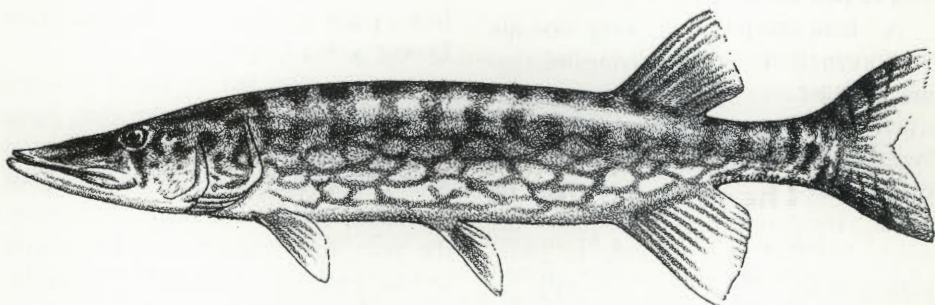
# The Pickerel

Despite the fact that the chain pickerel is one of the most popular game fishes in New Jersey, fisheries biologists still know less about its management than about most other game species. Fisheries workers will admit that present rules and regulations concerning the management and harvest of this fish are based for the most part on guess work.

There are two species of pickerel in New Jersey: the common chain pickerel, or pike, found throughout the state, and the small grass pickerel. Another member of the family, the

ponds, with mud bottoms, it also seems to do well in deep, cold ponds where vegetation is scarce.

Pickerel are carnivores. Even the fingerlings live chiefly on insects, crustaceans, and small fish. In an interesting experiment, in which a large number of one-inch long minnows were placed in a trough with two young pickerel, the two hungry little fellows ate 128 minnows the first day, 132 the second, and 150 the third. In the meantime, they grew about one inch in length in 48 hours. It is thus not difficult to imagine that a pickerel



*The pickerel is a slim, cleancut fish*

northern pike, is occasionally caught in Lake Wawayanda and other waters. Main interest is expressed in the chain pickerel.

Briefly, here is what we know about chain pickerel. This fish is not as finicky about water temperatures as are many other fish. It will even thrive in water as warm as 90° F. Although it prefers shallow, weedy

will consume a considerable quantity of food during a lifetime.

Adult pickerel feed day or night, summer and winter, on fish, snakes, crustaceans, and other creatures. Their usual method is to lie motionless in submerged brush or vegetation, and when their prey comes by they will lunge out, usually seizing the prey crosswise. As the victim struggles, the

## **. . . The Pickerel**

pickerel swims slowly about gradually maneuvering the prey until it is head first in the mouth.

It is believed that they live an average of about three or four years, although some may live as long as eight or nine years.

Feeding habits are as follows. Shortly after the ice goes out, when water temperatures are about 47°F., individual females may be attended by several males. All swim about as a group, with an occasional fight occurring between the males. As breeding starts, each male moves in line with the female. At emissions of the eggs and milt, the males slap the female with their tails and then all dart forward, which tends to distribute the eggs over a wide area. This may take place every three to five minutes.

A two-pound female may contain 30,000 eggs. The sticky strings of eggs are laid in swampy or marshy areas where there is considerable submerged vegetation. The eggs take six to twelve days to hatch, depending on water temperatures. Although the newly hatched fry are able to swim almost immediately, they generally lie on their sides on the bottom of the pond during the day and rise toward the surface at night and attach themselves to debris. The yolk sac is ab-

sorbed in about six to eight days when feeding commences. From that time on the pickerel will eat a tremendous amount of food and grow rapidly.

By the end of June the young pickerel will average about 1½ inches in size and about 4 inches by the end of September. Some mature when they are one year old while others are still immature in their third year. By the fourth year all have probably reached spawning age. In some lakes the pickerel spawn before they are 12 inches long, but in areas where growing conditions are good they may not spawn until they are about 14 inches in length. Their rate of growth will depend considerably on the fertility of the water in which they are living.

The current New Jersey state record pickerel is a 9-pound, 3-ounce fish caught by Frank McGovern from Lower Aetna Lake in 1957.

Anglers who fail to catch pickerel in mid-summer often claim that these fish are growing new teeth and have sore gums. Since pickerel have about the same number of teeth throughout the year, their canine teeth constantly in the process of being replaced by newly developing teeth, the fisherman had better change his excuse to the fact there is so much other food available at that time of year. #

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*During the past fiscal year the Warmwater Fisheries Research Unit continued studies on eight waters in an effort to develop management practices for varying lake types, with more definite results (favorable and otherwise) noted. Most successful results were in Spruce Run Reservoir, where largemouth bass growth was excellent, and Round Valley Reservoir, where smallmouth bass showed exceptional growth. Channel catfish studies centered on attempts to analyze the failure of the species to reproduce in lakes. Tag returns demonstrate good survival of fish stocked since 1963.* #





## *Courtship of the Woodcock*

The first two weeks of May is a good time to hear woodcock performing their courtship flight and song. This unique demonstration starts as soon as these birds return from the south, reaches a peak toward the end of April, and after May 15 declines rapidly. Many people in the country have this "show" going on almost next to them without being aware of it. For about 40 minutes after sunset and again shortly before dawn from open fields or pastures, generally adjacent to alder thickets, woodcock throughout the state are now carrying on their courtships. The male soars spirally to a height of two or three hundred feet, and then descends earthward by a series of fast zig-zag swoops accompanied by successive outbursts of liquid, gushing song which ends abruptly near the ground. The courtship flight also has a whistling sound made by currents of air through the three notched outer primary feathers of each wing. The time for each flight is usually slightly less than one minute. On the ground the woodcock then gives a harsh, nasal peent, somewhat resembling that of a nighthawk. These courtship activities are thoroughly described in Pettingill's "The American Woodcock", and a later publication by Mendall and Aldous titled "The Ecology and Management of the American Woodcock" presents a wealth of additional knowledge on this interesting game bird.

The woodcock's food consists mainly of earthworms, interspersed with some insects, seeds, and berries. The female is generally larger than the male. Usually, but not always, the nest is built near water; generally in open, second-growth stands of timber with hardwoods predominating. There are generally four eggs (sometimes three or five) to a nest. There are no authentic data to show that more than one brood is raised in any one summer. The incubation period lasts about 20 to 21 days.

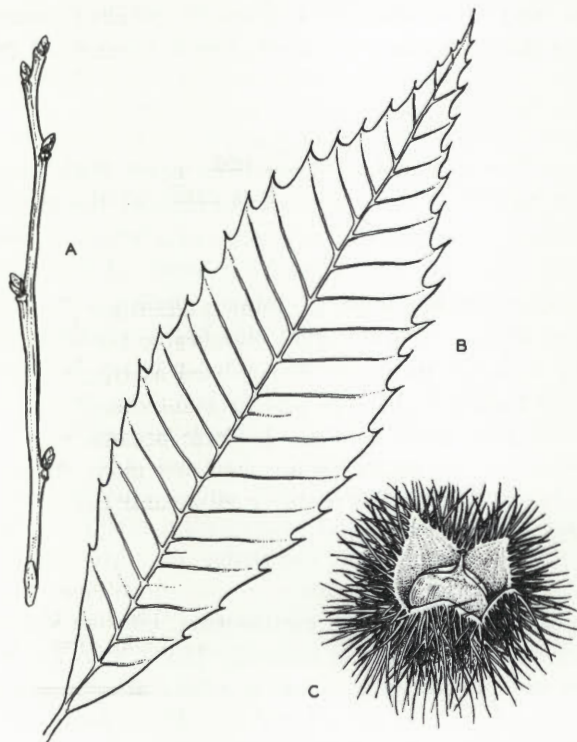
In September they start to migrate southward, travelling largely at night and seldom more than 50 feet from the ground. The bulk of the birds pass through New Jersey in October and November. Locally raised birds often remain in the same cover late into autumn. Mendall reports two birds, hatched from the same nest, which were banded in May. Both were taken the last week in October by gunners from the same cover, within several hundred yards of where banded. Migration is leisurely—about 28 miles a day, even slower in fall. They winter in Maryland and Virginia, south to Florida, west to east Texas.

#

# American Chestnut

(*Castanea dentata*)

The American chestnut is only a memory in the minds of many persons in this country; to the younger generation it is only a tale. This valuable tree covered extensive areas in the United States before it was attacked by chestnut blight. Now only scattered areas can boast of live American chestnut trees.



## American Chestnut

- A. Twig, with buds
- B. Leaf
- C. Bur, with nuts

This is true only because many old stumps continue to sprout. However, most of the sprouts are attacked by chestnut blight before they reach a useful size.

This tree grows on a variety of soils from mountain top to good bottom-land. It will not tolerate wet land.

### Range:

Southern New England, New York, the Ohio Valley, and south through the Appalachian Mountains to northern Georgia and Alabama.

### Leaves:

The leaves are simple, alternate, 6 to 9 inches long, oblong-lanceolate,



sharp-pointed, with bristle-tipped teeth. (See figure B.) The leaf is somewhat leathery in texture, dark green on top, and a paler green on the bottom.

**Twigs:**

Zigzag in appearance, with blunt-pointed angular buds. The twig is stout, greenish to reddish brown, swollen at the nodes, and covered with raised white lenticels. (See figure A.) It has a star-shaped pith.

**Flowers:**

Flowers appear in June and July. Male flowers are in spikelike crowded clusters, and the female flowers grow in a small cluster surrounded by a whorl of bracts.

**Fruit:**

A bur covered with numerous prickly unbranched spines that enclose two to three nuts. (See figure C.) The chestnut is easily identified by its characteristic fruit.

**Uses:**

This was one of our most valuable trees, reaching a diameter of 3 to 4 feet and a height of 60 to 80 feet. The wood is very durable for fence posts and poles. It was easy to work; therefore, it was used as trim for housing. The wood is high in tannin, and it was an important source of tannic acid. Chestnut rails were a common sight on the farm because the wood was easy to split. In general the lumber was useful for many purposes.

Dead chestnut wood is still available in small quantities, but it is gradually disappearing from the market. #

—Austin N. Lentz, *Extension Specialist in Farm Forestry*  
*Rutgers—The State University*  
*Drawings by Aline Hansens*

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## The Division of Fish and Game

The Division of Fish and Game, one of seven Divisions in The Department of Conservation and Economic Development, is charged with managing the state's Fish and Wildlife resources. Its functions are divided among sections (two with Bureau status) under the supervision of a Director who is responsible to the Commissioner of the Department and the non-salaried Fish and Game Council. The 11-member Council includes six representatives of the State Federation of Sportsmen's Clubs, three designees of the State Agricultural Convention, and two commercial fishermen. The Division now employs 194 persons, compared to 183 in 1961, an increase accounted for by management of 30,000 additional acres of land. #

# Council Highlights

## February Meeting

The regular monthly meeting of the Fish and Game Council was held in Trenton on February 11. In addition to the Council members and Division personnel present, Joseph Briel attended the session.

## Fisheries Management

Robert A. Hayford, Chief of the Bureau of Fisheries, called attention to activities of personnel of the the Nacote Creek Marine Research Station who conducted two fathometer surveys in the Mullica River that indicated good concentrations of striped bass. Another activity of the Research Station was the preparation of a status report on the summer flounder stock of the Middle Atlantic Bight. This report was prepared for submission at the Northeast Fish and Wildlife Conference. Work conducted under the Estuarine Project produced data which indicates that warm water is apparently what attracts fish to the Collins Cove perch hole in the Mullica River. The fish come as close to the warm water as they can without entering the deoxygenated bottom water. Most fish are caught between 10 and 20 feet from the surface. A total of 515 anglers were interviewed at Collins Cove and they had expended 1,387 man/hours of effort and had caught 11,523 white perch at the time of interview.

## Public Relations

Copies of the new pamphlet explaining the programs and necessary costs of the Division were presented by William E. Peterman, Supervisor of Public Relations. These brochures were to be distributed at the next shows in which we were to participate, namely, Cherry Hill and Egg Harbor.

## Law Enforcement

A report on activities of the Law Enforcement Unit was presented by John C. O'Dowd, District Conservation Officer. Enforcement personnel performed 2,465 inspections of licenses, guns, and bags, issued 16 warnings and made 211 prosecutions. Signs designating trout waters had been received and the men were engaged in distributing and posting them. Meetings of personnel in the Northern and Southern Districts were held and defensive driving was stressed in the northern sector. A proposal suggested by the officers and receiving their consideration is the establishment of a committee of three to investigate each accident that might occur to determine whether it would have been avoidable. The committee would rotate after each investigation and every officer would participate.

## Coastal Patrol

Newman Mathis, Chief of the Coastal Patrol, reported that dragging activities along the coast had been light. Haul seining activity increased on



the Great Egg Harbor River and these nets were checked for size, length, proper license, and legal catch. A heavy population of white perch had been present in Mullica River where a great deal of ice fishing had been taking place. Good catches of cod were taken by sport fishermen in the Atlantic Ocean. Officers issued two summonses to non-residents for angling without a license and the defendants pleaded guilty and paid a penalty of \$20 each. Two summonses were issued for boating violations and these were pending as well as a summons issued for a deer hunting violation. One summons was issued for a deer violation and the defendant paid \$110 fine and costs.

### **Wildlife Management**

The snow of February 10 caused concern at the State Game Farms, according to George N. Alpaugh, Chief of the Bureau of Wildlife Management. Through the hard efforts of farm personnel, the wet snow was removed from the tops of pens to prevent their collapsing. In regard to the Game Farms, Mr. Alpaugh reported that a meeting was held with representatives of one of the major feed companies and personnel of Rutgers University, the Division of Purchase and Property, and the Division of Fish and Game to prepare new specifications for a nutritious game farm feed to develop more interest on the part of companies in bidding on the product.

Personnel operating under our deer project were to carry out the aerial deer census in North Jersey. The snow made conditions optimum for conducting this survey by helicopter and a very complete count should have resulted.

Chief Alpaugh referred to the posting of land which has been very prevalent in northern New Jersey and stated that posting is now becoming very apparent in Burlington County where 27 farms have been removed from our stocking list of open lands.

In response to an inquiry concerning the large number of food patches being installed on the Greenwood Forest Tract, Mr. Alpaugh explained that this is a long-term project and that tracts are developed along the basic premise of wildlife management, namely, to provide food and cover to increase wildlife populations. This is the primary reason for installing food patches. Further than this, the Greenwood Forest Tract is a planned area and the projects carried out are the development of this plan. Soil maps of the tract have been prepared and the food patches are installed where the soil is best. Another purpose of these food lanes is for fire protection.

### **The Trout Tour**

The Council discussed the traditional Opening Day Trout Tour, and by motion of Councilman Marron, seconded by Councilman Alampi and passed, gave their approval to conducting the tour and breakfast, as has been done in the past, commencing in Hackettstown and proceeding to the Guard Lock at Saxton Falls, then on to other streams. The route of the tour was to be arranged, taking into consideration that many of the participants wish to do

## **. . . Council Highlights**

some fishing, and the itinerary was to be prepared and mailed with the invitations so that those who might not be able to participate in the entire tour could join the group at any point enroute.

### **Appropriations Committee**

The Council directed that the chairmen of the legislative Appropriations Committees be invited to attend the Council's meeting on March 11 in Hackettstown when representatives of the Pennsylvania Fish Commission were expected to show slides of modern fish hatcheries throughout the country.

### **Hunting Seasons**

For the benefit of the public present, Chairman McCloskey announced that opening dates for the 1969 seasons have been tentatively set as follows: October 4, Bow and Arrow; November 8, Small Game; December 8-13, Deer.

### **Sussex Fox Bounty**

Councilman Space reported that the Sussex County Board of Freeholders decided, with the benefit of facts presented to them by Councilman Marron and himself, to dispense with their fox bounty program. #

New Jersey Outdoors, P. O. Box 1809, Trenton, N. J. 08625

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From: .....



## Guide to the

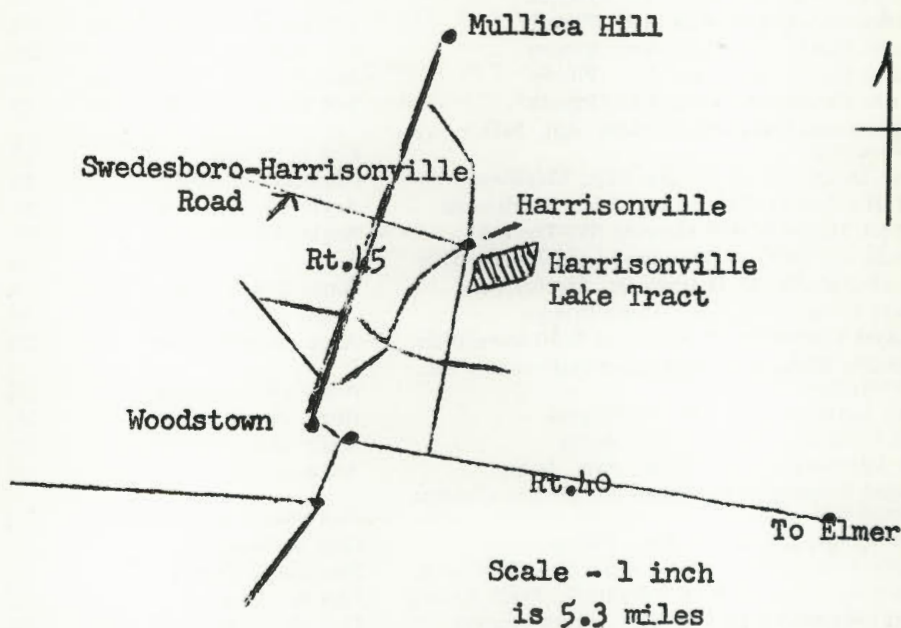
# Harrisonville Lake Tract

The Harrisonville Lake Fish and Wildlife Management Area is located in Gloucester County and comprises about 37 acres.

This lake is stocked with trout in the spring. Other fish in the lake include largemouth bass, pickerel, sunfish, catfish, and white and yellow perch.

To reach the Harrisonville Lake Tract from Woodstown, take Route 45 north, approximately 4 miles to the intersection of the Swedesboro-Harrisonville Road. Turn right and proceed to the town of Harrisonville. The lake is just south of town.

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*The information sheets on state-owned Fish and Wildlife Management Areas (the old Public Hunting and Fishing Grounds), which were available from the Division of Fish and Game are no longer obtainable since the supply has been exhausted. However, the Bureau of Wildlife Management is preparing a new series of Fish and Wildlife Management Area fact sheets and maps that will be offered to sportsmen by the Division in the near future. #*

# Violators Roundup

<i>Name</i>	<i>Offense</i>	<i>Penalty</i>
Howard Prinz, 308 Cooper St., Westmont	Fish no license	20.
Howard Prinz, 308 Cooper St., Westmont	Angle closed waters	20.
Sandra Carroll, 1821 County Club Dr., Cherry Hill	Fail to exhibit license	20.
Barry Rambler, 304 Nature Dr., Cherry Hill	Fail to exhibit license	20.
Charles Morgan, 157 Bay Harbor Blvd., Bricktown	Gun on Sunday	20.
Robert Gorton, 176 Cornell Rd., Audubon	Angle closed waters	20.
James Mitchell, Tomlin Station Rd., Mickleton	Fish no license	20.
William G. Wright, Center Square, Swedesboro	Sell undersize striped bass	20.
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William G. Wright, Center Square, Swedesboro	Sell undersize striped bass	20.
John Wheaton, R.D. #2, Bridgeton	Sell undersize striped bass	20.
Charles Cohill, 230 West Ave., Pitman	Sell undersize striped bass	20.
Charles Cohill, 230 West Ave., Pitman	Sell undersize striped bass	20.
Charles Cohill, 230 West Ave., Pitman	Sell undersize striped bass	20.
Charles Cohill, 230 West Ave., Pitman	Sell undersize striped bass	20.
Charles Cohill, 230 West Ave., Pitman	Sell undersize striped bass	20.
Jerry Sanger, Oakwood Gardens, Apt. 50D, Woodbury	Fish no license	20.
Harry Swain, Jr., 49 Bayden Pky., Maplewood	Angle closed waters	20.
Neil Hutchinson, 216 Hilton Ave., Maplewood	Angle closed waters	20.
Herbert Marinari, 490 Genesee St., Trenton	Angle closed waters	20.
Donald Edwards, 46 Buttonwood St., Lambertville	Angle closed waters	20.
Russell Pedrick, 40 Delevan St., Lambertville	Angle closed waters	20.
Albert Fisher, Broad St., Three Bridges	Angle closed waters	20.
Michael Yannerello, 75 So. Main St., Lambertville	Angle closed waters	20.
Granville Middleton, Pennington-Harbourton Rd., Pennington	Angle closed waters	20.
Larry Laverson, Box 295, Flemington	Angle closed waters	20.
Jack Laverson, Box 295, Flemington	Angle closed waters	20.
Ted Mitornowski, 63 Willow Ave., Iselin	Angle closed waters	20.
Edward Simmons, 131 Linden St., Bradley Gardens, Somerville	Fish closed waters	20.
John Young, 296 Grove Ave., Edison	Gun on Sunday	20.
Wesley Jones, 106 Remseon Ave., New Brunswick	Fish closed waters	20.
Alexander Truskevitch, 377 Smith St., Perth Amboy	Fish no license	20.
Harry Molett, 14 Harbor Terr., Perth Amboy	Fish closed waters	20.
Victor Davenport, 615 Hamburg Turnpike, Pompton Lakes	Fail to display tag	5.
William Shaw, 49 Baltusrol Rd., Summit	Angle closed waters	20.
Robert Sherman, 89 Kendall Dr., Ringwood	Angle closed waters	20.
Paul Verhulst, 71 Bluefield Ave., Harrington Park	Fish no license	20.
Edward Nunnally, 247 Passaic St., Hackensack	Fish no license	20.
Floyd Droton, 75 No. 3rd St., Paterson	Fish no license	20.

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