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# New Jersey *Outdoors*

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**June 1969**

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# The Council and Division

## Annual Message from the Fish and Game Council

By George H. McCloskey  
Acting Chairman

**D**uring the past fiscal year, despite increased pollution and shrinking land areas, over 24,000 additional residents of New Jersey purchased fishing licenses and over 10,000 additional sportsmen enjoyed the pleasure of hunting. Land and water purchased with license monies, as well as Green Acres acquisitions assigned to the Division by the Commissioner of Conservation and Economic Development, are managed primarily for the use of hunting and fishing sportsmen. However, an increasingly large segment of the population takes advantage of the opportunity to enjoy the outdoors and nature by hiking, driving, camping, horseback riding, bird watching, picnicking, skiing, ice skating, and practicing nature photography in these areas. An indication of public use of the Fish and Wildlife Management Areas is obtained from the traffic counter installed at the Colliers Mills Tract.

Special emphasis has been placed on the study of fish and waterfowl which use marsh and estuary areas. Among the species studied were fluke, shad, striped bass, menhaden, clapper rail, and black duck. The effect of various pesticides on marsh ecology and the control of water levels to lessen mosquito breeding were studied.

The need for a thorough estuarine inventory has long been recognized. The Council approved this project which was made possible by Federal Aid to Commercial Fisheries, a program which former Councilman David H. Hart did much to initiate. The study will include fish population sampling in major estuaries, a census of all recreational utilization, and analysis of physical-chemical characteristics of estuarine waters.

Other projects which have been approved include: construction of flood control dams on the Assunpink Tract in Monmouth County; construction of a boat ramp on Dennis Creek in Cape May County; and a planning study for the complete rebuilding of the fish hatchery at Hackettstown, Warren County.

All Division activities are financed through the sale of hunting and fishing licenses. Numerous services are provided the general public in addition to usage of wildlife management areas, game farms, and the Charles O. Hayford Fish Hatchery at no cost.

Since 1961, income has increased only 6 percent, while operational expenses have increased 16 percent. The fund has remained healthy only through the judicious efforts of the Council and the Director. For example, recognizing that stocking of wildlife management areas is a "put and take" operation, the Council legalized the taking of hen pheasants on these areas for 1968. This results in considerable savings at the game farms, since fewer breeders need be held over and fewer eggs incubated to provide equal or greater pheasant hunting opportunities for licensed sportsmen. #

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# New Jersey *Outdoors*

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### Cover—"New Record White Marlin"

The white marlin pictured on the cover of this issue is a new state record for the species. The 123-pound fish was caught by Merrill P. Arden east of Ambrose Light last September 3. For more information see page 22.

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# Weighted Flies for Spinning

One of the deadliest fish-taking combinations to come on the scene since the advent of worms is the strange marriage of artificial flies and modern spinning gear.

While the tackle involved offers diverse approaches to angling, the combo of weighted streamer flies and spinning gear capitalizes on the best features of each method.

Weighted streamers, forerunners of popular leadhead jigs, have the ability to sink fast to bottom feeding areas, plus the heft necessary to haul out a monofilament line.

Spinning gear, in the hands of the average angler, delivers more accuracy with less effort, so that anyone who has either spinning or spincasting equipment can cash in on the proven effectiveness of this form of fly fishing.

All that's necessary is to match lure weights with lines, determined by the species sought. Bass naturally require bigger and huskier tackle; bluegills something more delicate; trout gear somewhat intermediate.

Fishing with these flies is a matter of making the lure emulate the action of the bait it is supposed to imitate. The woolly worm, a close relative of the streamer clan, merely creeps; the multi-hued patterns with flowing manes job and dip along like minnows or other bait fish.

For do-it-yourselfers, weighted streamers are fun to fashion during the interlude between seasons. They're easy to make, even if one hasn't been exposed to fly tying.

Weight is applied by several means. Lead wire is simple to handle; just wrap enough around the hook's shank to provide the desired weight, and finish off the body to suit. Lead can be poured around the shank and then painted to function as the body, or extra lead can be moulded on the side of the shank opposite the barb to make it ride upright.

The weighted fly merits consideration, and its "ways" with fish are no longer the "exclusives" of fly fishermen.

By the way, remember that on the stretches of water open to fly-fishing only these rules, among others, apply. No bait or lures of any kind may be used except artificial flies, which are expressly limited to dry flies, wet flies, bucktails, nymphs, and streamers. Expressly prohibited are metal, plastic, or wooden lures, plugs, spinners, and flies with spinners attached, or any multiple-hooked device. In the Musconetcong no-kill area only barbless hooks may be used. Also expressly prohibited are spinning reels or any type of angling whereby a fly is cast directly from the reel. Consult the Compendium of New Jersey Fish Laws for further details. #

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*In Greenwood Lake, bow and arrow fishing for carp, suckers, herring, bullheads, and eels by properly licensed fishermen is permitted. #*

# Weather Vane of Opulence

**The more luxuries** this Nation demands under the pseudonym of high living standards, the further it retreats from the realities of sound resource husbandry. The weather vane of continued opulence and social unrest indicates that the United States could end up on skid row with a buzzard as the national bird. Rugged individualism for good or bad has given way to group action which has a jarring impact on society when motivated by all-consuming selfish interests.

Tiresome as it may be to some people there is urgent justification in reiterating the issues which become more complex and retreat from solution for lack of public conscience.

The battles periodically waged between the giants of labor and industry over higher wages, greater security and fringe benefits indicates an appalling indifference for the resources and the materials which make these economic disruptions possible. Both sides have become ambitious to the point of avarice, ruthless to the point of lawlessness, scornful of the rights of others and the nation as a whole, and for the resources.

In their greed for power and economic advantage there is nothing in their negotiations which contemplates a reduction of the vast pollution load their combined activities subject our water systems to. There is no study

or referral as to how long our mineral resources can stand the drain. When our lakes and rivers have reached a point where they can no longer support human or industrial life and our minerals must be bought or begged from foreign countries, our standards of living will reflect the decline.

For the past few years the ruin of Lake Erie due to the callous indifference of big industry, big labor, and big cities has made headlines. While this ruin is now accepted as a near accomplished fact, it only receives a shrug of public apathy. Now the same issues have been brought to light on the southern part of Lake Michigan. Facts reveal that years of industrial and municipal vagrancy has created a like situation of such magnitude that some predict there is no solution. And only in recent months have perimeter states bestirred themselves to talk over the situation. Definitive action will no doubt be forced to creep along the tortured road of seminars, committees, and watered-down legislative paralysis.

Soon the spotlight will be on the last and largest of the Great Lakes, Superior. It is now being polluted on its North Shore in Minnesota by 60,000 tons of ground rock which are washed every day into the lake. This ground rock is changing the wa-

### . . . *Weather Vane*

ter composition, and spreading like the tenacles of perdition over large areas of the lake bottom. It is getting into the water systems of neighboring cities and can well destroy fish spawning areas.

These incidences of vast and sinful destruction are the result of the American economic system at its worst, which seemingly industry, labor, government, and a great many people would rather not discuss. But all are involved, all are responsible. And when government, supposedly representing all people, attempts to halt or reduce these abuses, the cry goes up that it will destroy the sacred economy, reduce wages, curtail business, and lastly, that werewolf of panic, that people will be denied their luxuries, their gadgets, and their gimmicks.

Eventually something may have to be curtailed. Irrespective of all the recreational clamor, the time may come when the United States has so demolished its stockpiles of natural reserves which now make all these cherished living standards possible, that there will be much less to work with.

But we always hear those whimpering voices asking how and who is going to pay for resource rehabilitation. A short time ago this space was given to commenting on the billions of dollars spent for spectator sports and how many of these foibles are directly and indirectly sponsored by government spending. At the same time the same government will not find the money or the moral strength to stamp out these cesspools of pollution which

eventually lead to human decay.

In recent months there has been much to-do and up-sweep regarding bill-boards, road beautification, and littering, but when the showdown comes the Congress and the state governments are reluctant to foot the bill. The standard answer is that other needs are more pressing. Human vanity, however, still finds money for billions of dollars spent on cosmetics and other forms of human indulgences whose lasting benefits are very questionable. The esthetic values of our civilization might better be served by trading false eyelashes for roadside tree planting, lipstick for erosion and pollution control, rouge for the elimination of junk yards. A tidy sum could be found here in this area without gouging the taxpayer.

Or let us examine the toy business, astronomical in size, with Christmas every day at the dime store instead of once a year. Why not take some of this money spent on an endless array of playthings which often end in the trash can and teach our children some of the basic values of the out-of-doors.

Then there is the matter of moon shots, whose costs are as expansive as the horizons they are aimed at. I would rather see future generations safeguarded by good resource husbandry on this earth, than hope of discovering new and fruitful landfalls on another planet.

All this whining that we cannot find money for resource survival and the relation of resources to human dignity as a self-indictment of avarice, hypocrisy, and predation, so shameful as to tear the mask of human dignity

from the face of our vaunted civilization.

Our democratic freedoms are in great part the result of a vast and original supply of natural resources found on this continent, but our present social philosophies take none of these blessings into consideration. Too many resources have led to a life of

ease, idleness, and lack of objectives. The majority of people who have succeeded have had to figuratively run a little hungry to promote their future security. Our epicurean tastes have rendered us impotent to face up to some brutal realities which may eventually engulf us.

ERNEST SWIFT

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## Public Relations and Conservation Education

Demand for outdoor education continued to increase during the past fiscal year. Teacher workshops and leader training were emphasized. These programs, together with camp sessions for students totalled 66, attended by nearly 2,000 persons. At 3 camporees, about 800 scouts and scouters attended 9 wildlife presentations. The major effort was the State School of Conservation. Analysis of this project indicated exceptional interest by future teachers.

Programs involving talks, slides, and movies were given to 107 organizations, with attendance approximating 4,400. The concept of wise use of natural resources was emphasized in these presentations. Radio work included 15-minute tapes on hunting, fishing, and National Wildlife Week, circulated by the Department's Public Information Office, as well as preparation and occasional reading of the weekly summer fishing report.

Exhibits were prepared and manned at the State Fair, 6 County Fairs, and 6 shows. The theme treated year-round recreational fishing and hunting opportunities. Licenses, *New Jersey Outdoors* subscriptions, and other literature were available. Valuable assistance was rendered by conservation officers.

Information and Education personnel attended 78 meetings, hearings, and conventions of various types and duration. Especially valuable were interstate conferences of the American Association for Conservation Information and the Outdoor Writers Association of America.

Written work included monthly publication of *New Jersey Outdoors*, 162 news releases, editing and handling of printing of the Annual Report and Fish and Game Compendiums, initiation of a monthly newsletter for Division personnel, various speech notes, and cooperation with various writers and publications.

Photographic work included pictures for *New Jersey Outdoors*, the Skylands project, slide programs, exhibits, many requests from publications and agencies, and wildlife management projects.

In addition to exhibit construction, the Hackettstown shop built signs, prepared wildlife charts, cared for exhibit animals, and handled the Governor's entry in the Calaveras County, Calif., Frog Jumping Jubilee. #



# As It Was

## for the Heath Hen

This glance back into history gives us some insight on the now extinct heath hen that was considered to be the "chief game bird" in New Jersey over 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 Prairie Hen** (Heath Hen) was once common throughout the Eastern States, particularly in localities destitute of much moisture and thinly covered with trees or shrubbery. A few are still found on Martha's Island, around New York, and in New Jersey, and Pennsylvania. Like the Indian, they are from year to year crowded farther and still farther into the West, and if the wholesale destruction of the last few years is continued, will ultimately become very rare. They are at present found in great abundance all along the fertile prairies of the United States, almost to the foothills of the Rocky Mountains, in Illinois, Iowa, Minnesota, Missouri, Kansas, Nebraska, and Texas. (Actually the prairie chicken, is a relative of the extinct heath hen.) They delight in broad open champagnes, where they congregate in flocks of several hundred, and feed

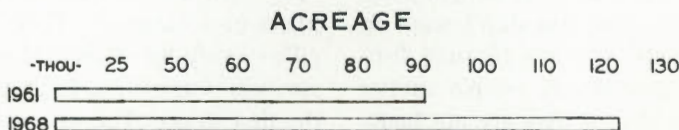
upon orthoptera, green herbage, and in the winter do serious damage in nipping the buds of fruit and other trees. If allowed to flourish, they would prove the most effectual check to the grasshopper ravages in our Western States. As soon as the winter is broken, usually in March or April, they commence pairing. Some favored locality is selected, where the males are accustomed to meet for the purpose of testing their respective superiority. With tails outspread and inclining forward to meet their expanded neck-feathers, and with wings distended and grating against the ground, they strut backward and forward with the utmost pomposity, nursing and increasing their wrath, and giving utterance to a series of loud, muffled boomings. This peculiar noise is accomplished through the inflation of two small orange-colored, bladder-like receptacles on each side

of the neck. Drawing in the air until these bags become fully inflated, the bird lowers its head, and gives out, in distinct succession, a series of booming sounds resembling the beating of a muffled drum, and, on still clear mornings, capable of being heard more than a mile. When the females congregate in response to this call, a furious battle ensues among the male belligerents. Rising into the air after the manner of game-cocks, they strike at each other with the utmost fury, sometimes several joining in a miscellaneous scrimmage, until the weaker ones are forced to retire and the stronger utterly exhausted. After the pairing, a coarse nest, rudely constructed of leaves and grass, is formed, hid away in the open plain, or at the foot of some small bush. From eight to ten eggs are laid, varying in size, the largest about 1.80 to 1.25, of a very light green ground, sometimes unmarked, sometimes spotted with fine, brown markings. The female incubates from eighteen to twenty days, and when the young are hatched, their entire care devolves

upon the female. Ever on the alert, if her young charge is threatened, she gives a low cluck as a signal of danger, when the brood instantly take to their wings, flying a short distance, then dropping to the ground and remaining perfectly still, making it almost impossible to discover them. After the danger is over, a second signal relieves them. But one brood is raised during the season; if through any misfortunes the first laying is destroyed, the female seeks out her mate, builds another nest, lays a new complement of eggs, and tries her fortune a second time. Their flight is strong, regular, tolerably swift, and sometimes extended. They rise from the ground with a whirring sound, and if they discover a sportsman, go with the utmost speed, and then suddenly drop into the grass. They feed mostly at the beginning and close of day, using the mid-day for the purpose of a dust bath, when they lay and prune their feathers. The flesh is dark, having a gamy flavor, and, where not too common, is considered a great treat. #

### The Green Acres Program

Since 1962, the Green Acres Program had added substantially to Fish and Wildlife Management Areas previously bought with license funds. The following graph illustrates the increase in these lands, adding both to the Fish and Game Division's management responsibility and to the acreage open to outdoor recreation compatible with Fish and Wildlife Management. Lists of these areas, and descriptive guides to many are available from the Division. #



# Make the Best of the Fish You Catch

**Some fish**, such as pan-sized trout, are just about ready for the pan when first caught. About all they need is dressing out, no scaling, or even removal of fins, tails or heads. But, other fish, such as largemouth bass, often do require a little special treatment for best results at the dinner table.

The care of fish from the time they are caught until they're sizzling on the platter may determine whether they make a delicious meal or a mess the cat wouldn't eat. Most fish are good eating if cared for properly. In a few cases the meat actually is of poor quality and flavor because of some elements in the fish's environment—this we can't remedy by utmost care in cleaning. But we can use methods in these operations that have proved successful in the past. This brings up a point that should be noted: the suggestion and procedures that follow in this article are certainly not the only correct methods; however, they are ones which have been used for some time with good success.

If possible, a fish should be kept alive from the time it is caught until it is cleaned, and you don't want to clean fish until you are through fishing. It is a relatively simple matter to keep fish alive if they are not badly

injured and a good metal snapstringer is used. A fish which has a wire or rope jammed through one gill opening, and is kept that way for any length of time, will soon die. The gills are very easily damaged and are vital to the life of a fish. So use the snap-stringers and clamp the fish through both the upper and lower jaws, but **don't** clamp the mouth tightly shut. The only reason for recommending that the snap be placed through both lips is this: if the mouth is held open continuously, the fish will die. Also don't ever drag a fish along the side of the boat when moving from place to place with the outboard. It is much better to have the fish flop in the bottom of the boat for a time than to let him trail helplessly along side.

Don't try to keep fish alive in a bucket of water. So if you don't have a live box in your boat and you can't string them on a snap-type stringer and leave them in the shade, it would be much better to follow the next best procedure. That is, kill the fish with several sharp blows between the eyes with the handle of a knife or pliers or a hammer. Then remove the gills—every bit of them, because when spoilage starts in a fish, the gills are the first to go. The viscera can be re-

moved by slitting the belly. **Wipe** the body cavity dry with grass or paper but **don't** wash the fish **now!** Water will only hasten spoilage and the fish is already clean enough for the moment. It's always a good idea to place some fresh grass or ferns in the body cavity to let air circulate freely. Be careful, however, not to let the flesh get too dry. This will happen unless the fish is put in the coolest shade available and covered with a cloth or grasses. Just remove the gills and entrails and keep the fish as cool as possible. The flesh should stay fresh all day. Of course the better method is to keep the fish alive until you are ready to clean it. By the way, a freshly killed fish is much more easily cleaned than is one that has been dead all day.

Now, after we get the mess home (and sometimes it looks like a mess) after a hard day of fishing) then what? Well, one of the accepted procedures if you can get away with it is to smile sweetly and hand the flopping bunch of critters to the wife and walk nonchalantly away. This leads to interesting results, and may help raise the divorce rate in the country. But a more serious result is the stuff that may come to the table under the name of fish! So why not clean them yourself and even kibitz in the cooking of them??

To make the statement that **all** fish could be skinned rather than scaled is carrying it just a bit too far. So let's say most fish should be skinned for best results in cooking and eating. Skinning is preferable (almost mandatory in many cases) for several reasons. (1) Much of the distasteful "muddy" flavor is locked in the skin

and no amount of scaling and scrubbing will remove it. (2) Skinning makes filleting much easier which in turn eliminates the bones and the sour taste of the belly meat. (3) The whole operation is less messy and just as quick once you get on to it.

Now, we can go one step further and ask why steak or fillet the fish? In many instances, particularly with small bass and panfish, filleting is not practical, and we will get to that later, but with medium sized fish, the filleting method is by far the quickest, cleanest, and gives the best results in clean, boneless meat. And it's all good meat. One of the usual objections to this method is that some of the meat is lost or wasted. Well, you do lose meat, particularly around the abdominal region, but it is certainly not wasted because it is this meat that has the bad taste which makes the rest of the flesh unpalatable. And if you are careful you waste very little. Notice the backbone of the fish after the fillets have been removed; there's not much flesh there and what is there is full of bones. If the fish is too small to steak or fillet, go ahead and skin it; but merely cut off the head and tail, **pull out** the dorsal and anal fins, remove the entrails and fry it whole or split down the middle.

After the fillets have been removed from the fish (or the smaller fish have been cleaned), wash them thoroughly in cold, fresh water. Don't scrape the meat, merely wash it well. If the meat is to be cooked at once, no further preliminaries are necessary. However, if freezing is contemplated, or the meat is to be kept for a few days, dry the flesh thoroughly as possible

### ***. . . Make the Best***

with paper toweling or cloth. If the meat is to go into a deep-freeze, merely wrap it in waxed paper and label it as to species, date, or other data desired, and freeze it rapidly. The meat may be kept several days in the cooler section of the refrigerator but should be wrapped tightly or the meat will dry out. Some cooks prefer to soak the meat in saltwater solution for a few hours prior to cooking, but unless the flesh is old or questionable in quality, this is not necessary.

The cooking of fish is something that must be learned by experience and it is certainly difficult to explain the best procedures. A few pointers should be noted, however. First, cook all fish thoroughly. This doesn't mean

to burn it or dry it up to unpalatable chunks, but make sure large pieces are cooked all the way through. Second, and this follows closely with the first suggestion, keep the meat fairly moist while cooking. The borderline between dried out fish and that which is watery and falling apart is very narrow and here's where experience is necessary to get what you want. Third, keep the methods of cooking simple—especially at first. Plain old frying is hard to beat when plenty of grease is available. Broiling the fillets breaks up the monotony, but there again caution should be taken not to let the flesh dry out excessively.

So, there you have it. Make the best of all the fish you catch, because this certainly is a part of good conservation. #

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## **Who Benefits from Fish and Game**

Many citizens of New Jersey in addition to license-buying sportsmen benefit from the Division of Fish and Game program. Examples include: Protection, habitat conservation and improvement, and research benefitting songbirds and other wildlife species, both migratory and nonmigratory, besides game animals.

Outdoor recreation and aesthetic enjoyment of wildlife management areas by nature lovers, hikers, picnickers, boaters, educational groups, et cetera, without charge. Organized activities, such as camping, are now subject to modest fee.

Sightseeing at the State Fish Hatchery and Game Farms, including group tours. Hatchery visitors exceed 100,000 annually.

Water pollution research and enforcement contributing to health and many forms of recreation.

Hunter safety training and enforcement of laws to insure proper handling of weapons, protecting the public safety.

Conservation information and education efforts providing enjoyment as well as knowledge of the outdoors.

Healthy, free recreation for fishermen under age 14.

Control of predacious and nuisance animals, protecting crops, livestock, and shrubbery. #

## Quiet Comeback

Most waterfowl have long since left us, headed North—to the deltas, the prairie potholes, the tundra—for the nesting season. Most, but not all. One species remains behind from one end of New Jersey to the other and from coast to coast—excepting only the treeless Great Plains and the South-west—as well as from the Gulf to the Canadian border, nesting along tree-bordered streams and in timbered backwaters, bayous, and swamps. This is the wood duck.

Of the 48 varieties of waterfowl that frequent North America, the “woody” is the only major species whose year-around range is confined almost entirely within U. S. borders. He’s truly an “All-American.”

The “woody” has other claims to fame. The drake, gleaming in iridescent green, bronze, violet, purple and chestnut, offset by black and white, is easily the most beautiful of North American waterfowl.

Even his feeding habits are unusual. Unlike most of his waddling cousins, woody is a nimble mover on land, gleaning the floor of streamside woods for fruits, acorns, and nuts. His powerful gizzard can pulverize the toughest hickory-nut shells.

The hen wood duck disdains nesting on the ground. She sets up house-keeping in tree holes and cavities, more like a woodpecker than a duck. Her flying approach and entrance to

a tree-hole hardly larger than herself must be seen to be believed.

And what happens when the youngsters, only a day or two old, leave the nest cavity, perhaps 30-40 feet above the ground? They put their faith in Momma, as all good young’uns should. When she calls from the ground below the tree, her babes pop out into space obediently (no one’s gotten close enough to see if they close their eyes). Their stubby wings are useless at this age, but downfeathers buoy up their tiny bodies, and injuries in the long drop are rare.

We came close to losing this unique, All-American duck. The best of the woodies’ range was the river-bottom country; the very area first and most heavily settled by man. Tasty and available—young and old—the year around, wood ducks were prime targets for market hunters in the days before effective hunting regulations. Equally or perhaps more important, drainage and logging destroyed much of their nesting habitat.

By the early 1900’s the wood duck was judged extinct, or nearly so, over most of its range. From time to time it has been given complete protection. But protective regulations alone, while safeguarding the remaining birds, could not increase their numbers. True restoration came only with the creation of federal and state ref-

## . . . Quiet Comeback

uge and management areas, preserving and improving nesting habitat, and with the widespread erection of man-made nest boxes, replacing lost hollow trees.

So successful was this work that the wood duck rejoined the list of waterfowl open to hunting in 1941. In the last few years this bird—once nearly extinct—has numbered among the top two-three species in the waterfowl harvest of the Atlantic and Mississippi flyways. The moral is clear: unrestricted hunting combined with habitat destruction can spell doom for a game species, and protection from

hunting, by itself, can do little but save the remnants. But habitat restoration and management (mostly paid for directly or indirectly by the hunter) can rebuild a population and enable sustained hunting harvests under wise regulations.

It's been a quiet comeback. This spectacular recovery has received so little fanfare that many people still consider the wood duck in danger. When woody was in trouble the news was shouted from the housetops, and rightly so. But let's give equal acclaim to the magnificent job of restoration—and credit to the many agencies and individuals responsible. #

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### Farm Game Habitat Restoration Project

The Farm Game Habitat Restoration Project, of the Division of Fish and Game's Bureau of Wildlife Management, during the past fiscal year continued its cooperation with landowners, sportsmen's clubs, and the U.S. and New Jersey Department of Agriculture, furnishing material assistance and technical advice to improve wildlife habitat. While technical advice is provided for all areas, material assistance is furnished only for areas open for public hunting. In recent years, increasing effort has been devoted to state-owned areas. Cooperation continued with various federal installations in the state in the operation of wildlife management programs.

Herbaceous plantings on 346 acres used materials as follows:

fertilizer	60 tons	burnet grass	670 lbs.
food patch mixtures	1,600 lbs.	soybeans	106 bu.
Lespedeza sericea	260 lbs.	wheat	27 bu.
Lespedeza bicolor	35 lbs.	oats	20 bu.
birdsfoot trefoil	70 lbs.	buckwheat	12 bu.
pasture mixtures	100 lbs.	rye seed	167 bu.
		corn	1 bu.

In addition, 8,560 pounds of seed and 240,700 tree and shrub seedlings were distributed for planting by cooperators.

Other management programs were as follows:

2,000 feet of hedgerow management	7 acres cleared
10 acres of woodland slashings	33 acres disked
23 acres mowed	200 acres top dressed with fertilizer

The "Hunting by Registration" at Lakehurst Naval Air Station and special hunts at Earle Naval Depot were supervised. #

# Farm Woodlots

## Boon to Wildlife

By Clark G. Webster

Time was when a small woodlot was absolutely essential to a farm operation. It meant fencing, rough lumber for construction, and fuel for heat and cooking. Many of those needs are now being met in more modern ways. But woodlots, properly managed, can still be a source of income and pleasure to any farm family.

The landowner in New Jersey with an eye to the future will nurture his woodlands. The outlook is for an increased need for wood products, and not all the merchantable timber is being produced in forests. Small woodland tracts contribute substantially to the national timber harvest, and they offer multiple values when properly handled.

The most common mistake in the use of farm woodlands is permitting grazing by livestock. Cattle and timber production don't go together. Little is gained in the form of pasture and much is lost from the standpoint of tree reproduction and use by wildlife. Practically all farmers will be ahead economically if they fence their woodlots and manage such areas for a future wood crop. If loafing shade is needed for cattle, a small portion can be left outside the fence.

Bearing in mind the interest of the average farmer in wildlife, woodlot management and game management go hand in hand. A protected woods has the understory of shrubs, vines,

and young trees that spell home-sweet-home to a variety of critters of sporting interest. First off, the cottontail is a common resident of ungrazed woodlands. But when cattle come in the bunnies go out. They need cover and a pastured woods doesn't have it. The same for grouse, pheasants, and quail. The coppice growth of protected woodlots provides good cover for these game birds as well as yielding a food crop in the form of berries and fruits. As for songbirds, there's just no comparison in what you'll find in grazed as compared with ungrazed woodlots. Some species of birds are almost confined to a shrub-type environment, and a protected woods will have ten times the number and variety that you'll find in a unit trampled by cows.

Tree squirrels, of course, are tied to woodland habitat. In most areas they will build leaf nests for makeshift shelter. But in rough weather and for rearing their young, tree hollows make for better survival. Leaving one or two den trees per acre is good squirrel management. And even if it is a minor departure from intensive forest management the pay off, come autumn, makes it worth-while. It will mean better squirrel hunting, the farm boys' delight. And as for yearling squirrels in the frying pan—well, there just isn't anything to come close.

If you don't have a farm woodlot,

### . . . Farm Woodlots

maybe you should have one. Slopes that are inclined to wash with pasturing are best converted to woodland. And various inducements are available which make tree planting attractive economically. The state has foresters standing by to provide technical assistance.

All in all, a managed timber stand is a good bet for most any farm. It's a way of disposing effectively of problems that appear on steep, gully-susceptible land. It adds variety to an otherwise monotonous landscape, and offers a place of relaxation and sport. And over the long pull it will represent a source of income which took little or no effort to produce. #

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## Hunting and Fishing Opportunities

New Jersey, despite its small area, offers abundant fish and wildlife resources available to sportsmen. There are over 120,000 acres of land administered by the Division of Fish and Game, managed to provide ample food and cover for wildlife; these tracts include choice streams and prime fishing lakes, all open to licensed anglers. In addition, over 160,000 acres of State Forest and suitable portions of State Parks are open to hunting and fishing. Many private landowners welcome hunters and anglers who practice courtesy and safety. Excellent salt water fishing is found along 240 miles of coast and bay.

Stocking of game birds supplements native populations on Fish and Wildlife Management Areas and other open lands. Over 750 miles of stream and 65 lakes open to public fishing are stocked with trout, and warm water fish are stocked where biologically desirable.

Seasons are set by the Fish and Game Council with the aim of providing maximum sporting opportunities consistent with maintenance of renewable fish and wildlife resources. Fishing is open virtually year-round except for short closed periods for trout and striped bass. The following estimates of the 1967-68 wildlife harvest by hunters indicates the availability of major game species.

1,456	deer, bow and arrow
5,669	deer, firearm season
2,818	deer, special permit season
319,670	rabbits
287,410	pheasants
160,925	squirrel
109,690	quail
79,680	ducks
43,750	grouse
23,460	brant
5,995	clapper rail

# Hatchery Innovations

Inspected  
by the Fish and Game Council

By Hunt Fischer

Photographs by Pennsylvania Fish Commission

**Seeking the best means** to renovate New Jersey fish rearing facilities, now over 50 years old, the Fish and Game Council devoted its December meeting to a trip to central Pennsylvania. There they inspected the Keystone State's Experimental Fish Culture Station at Benner Springs and the new federal trout hatchery at Tylersville.

After a five-hour bus ride, the Council and staff were greeted by Pennsylvania Fish Commission representatives at a restaurant in State College. During a brief luncheon, Keystone State Director Robert Bielo expressed his Commission's willingness to experiment with new ideas to meet today's problems. New Jersey Director Lester G. MacNamara responded that the Garden State is seeking such new ideas, and he expects much of what the Council sees on the visit to be reflected in New Jersey. Director Bielo introduced staff members and noted the Commission's public relations consciousness, exemplified by fish-oriented key rings and place mats.

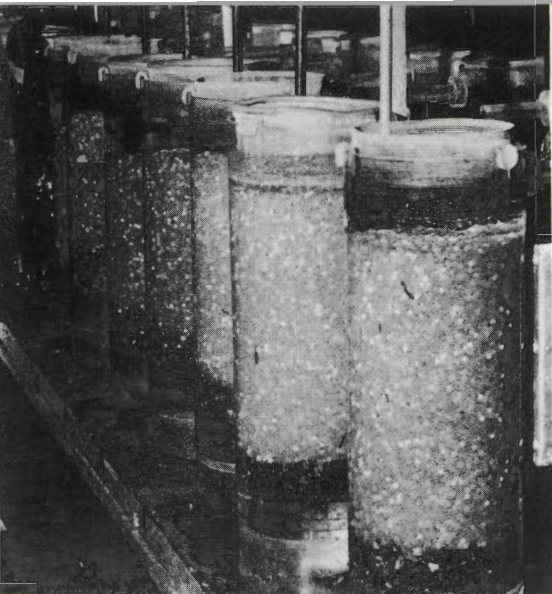
At Benner Springs, Pennsylvania Research Chief Keen Buss and Engineer Edward Miller showed slides of

experimental operations. He feels that facilities that are less than the best run to greater expense. Some of the experiments involve early spawning, light control to induce spawning activity, and the use of air instead of hand pressure to strip eggs from fish. Attention is also given to diet, genetics, warm water fish, and mechanical feeding and sorting. Most experiments are aimed at saving time and space.

Water quality, coupled with proper aeration and flow, is the factor he emphasized especially. There should be rapid changeover of water, and aerators should be placed so that a pool has no "dead" spots.

A tour of laboratory facilities followed, covering studies of fish pathology, diseases, and genetics, as well as water chemistry and pollution. While Benner Springs is primarily a research station, it is also a functioning hatchery, producing half a million trout annually. Inspection of the hatching and nursery areas illustrated some of the most successful innovations.

Use of vertical jars and barrels, rather than horizontal troughs is an area which Chief Buss has pursued

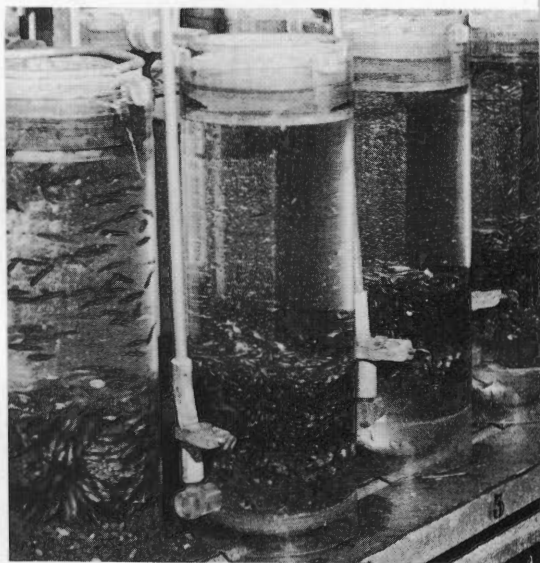


*A battery of egg hatching jars, above*

## . . . Hatchery Innovations

### At Benner Springs

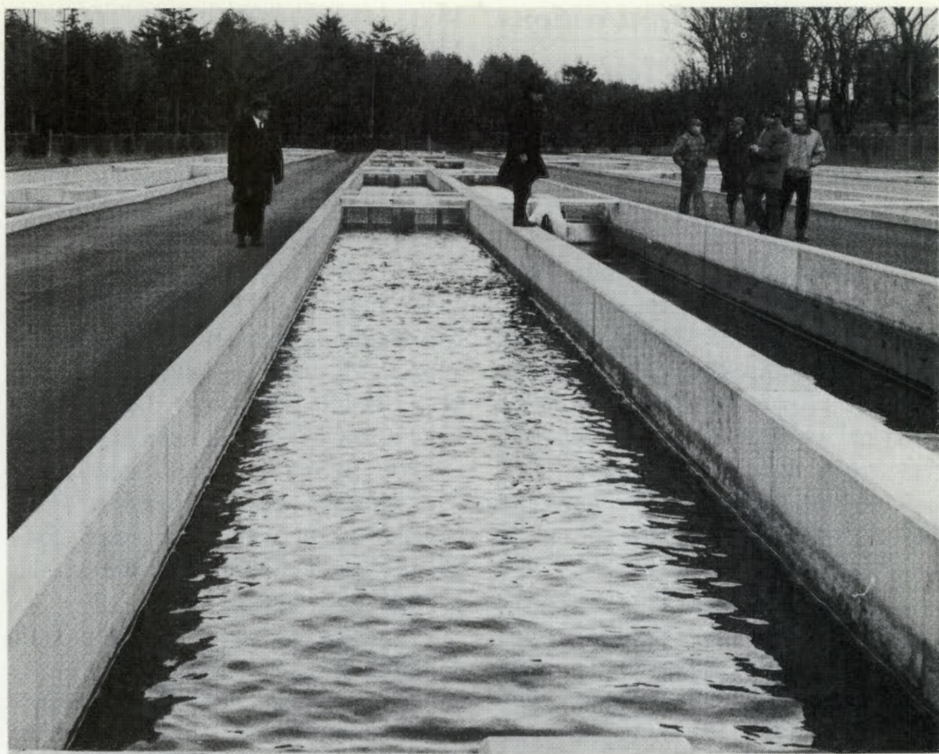
*Newly hatched fry in the jars, below*



*Dramatic proof of the importance of water quality and flow is the survival of the trout in this crowded jar. Fish in left jar are normal size for this amount of space*



*In foreground are barrels successfully used for rearing fingerlings. The huge "silo" is being tested, carrying 21,000 trout to the adult stage*



*Water moves rapidly through these shallow concrete raceways at Tylersville National Fish Hatchery*



*The nursery troughs at Tylersville, with timed, mechanical feeders*

### . . . Hatchery Innovations

extensively. Jar storage of trout eggs for hatching is becoming widely accepted; several batteries of hatching jars have been installed at New Jersey's Charles O. Hayford State Fish Hatchery in Hackettstown.

At Benner Springs, the same principle has been extended to the nursery stage, using jars for rearing fry and barrels for fingerlings. Ten barrels occupy the space of a pair of troughs. Time spent in feeding and picking dead eggs is also materially reduced.

A dramatic example was shown of the overriding importance of water quality and flow. Trout were left in a jar, with good flow and aeration, to the adult stage. As they grew, they became packed in vertical position, but there was no mortality until a trout's head grew out of water; when this occurred, the remaining fish grew rapidly to fill the space.

The newest experiment is use of a huge fibreglass silo-like drum to rear fish to adulthood. Modified from a standard container for storing chemicals, it measures 16 feet in height and 7 feet in diameter. It holds 72 cubic feet of water and carries 21,000 trout, equivalent to an acre of ponds. Water flows from bottom to top at a rate of 220 gallons per minute. Windows at various levels permit observation of fish. Pellets are fed from the top, sinking slowly through the silo; the amount

of feed is calculated by weighing samples of fish. It is possible to light and feed the fish over 24 hours. During its few months of operation, the trout have fared well. However, Chief Buss indicated that the forthcoming renovation of rearing ponds will follow modernized horizontal design.

The latest in horizontal design was typified by the Tylersville installation. The shallow concrete raceways have a capacity of producing 400,000 trout a year. Feeding is done mechanically from a truck. Two men can handle the facility, except for fish distribution. The nursery building utilizes deep troughs, again with good water flow. Timed, automatic feeders are at the head of each trough.

The long ride back to Trenton, with a supper break, was filled with discussion of what the Council had seen. Although the trip ran from 7 A.M. to 11 P.M., plus travel home, all members felt it was well worthwhile.

Chief Buss was invited to the March Council meeting in Hackettstown, at which he showed slides of other modern hatcheries he has inspected on the west coast and elsewhere and made recommendations for the innovations which can be undertaken right away in New Jersey. Further suggestions will be included in long range plans when funds become available for complete modernization to improve the number and quality of trout for Garden State anglers. #

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*In the Delaware River between New Jersey and Pennsylvania, spears (not mechanically propelled) and longbows may be used to take eels, carp, suckers, shad, herring, and bullheads by properly licensed fishermen, except within 50 rods (825 feet) of an eel weir.*

## For More Game — Think Small

Whether for “home consumption” or as a means of supplementing farm income, wildlife is a valued part of the rural scene. But many species have not fared well in the face of big farming with big fields, big equipment, and big cleanup. Many landowners would like to improve the lot of pheasants, rabbits, and quail, but they are stymied by the same bigness in thinking. Many farmers look upon game management as involving a major redesign of their fields, and they despair that big farming and game can go together.

It's generally true that the best conditions for upland game are found on lands that duplicate patch farming conditions of 50 years ago. But that doesn't mean that improvements are out of reach on modern-day farms that feature bigness and uniformity. Game management can be a lot of little things as well as a major overhaul of land use and practices.

Line fences, access roads, drainage-ways, and field borders are part of the farm landscape—large or small. How these are handled can make a notable difference in conditions for wildlife. If you're a big-field farmer looking for low-cost, even no-cost, ways of jazzing up the game supply, take a fresh look at these peripheral sites.

If it has been your practice to mow such idle areas, consider this: mowing costs time and money and in most cases serves no good purpose. Very few weeds are controlled by regular cutting, but the removal of such linear strips of cover can mean the difference between having a covey of quail on the site and not having one.

A brushy fenceline is of no liability to farming and cutting it out won't add a nickel to farm revenue. But letting it stand can make a field habitable to pheasants and rabbits where otherwise they couldn't survive.

If you have firebug tendencies, remember that scorched earth and game crops don't go together. Brush piled in a fence corner will afford good game cover for years. And a grown-up ditch bank can serve multiple needs of nesting and protective cover for a variety of farm game.

All in all, good game management can be thinking small and acting shiftless. Improving the farm for wildlife involves a lot of little things and mostly they are things better left undone. #

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*The Division of Fish and Game has a new film titled “White-tailed Deer” which should be of prime interest to New Jersey sportsmen, farmers, and landowners. The 40-minute, full-color sound film, produced by a private foundation, covers various aspects of deer management. Sportsmen's clubs, and other interested organizations, may arrange for group viewings, for gatherings of at least 50 persons, by contacting William E. Peterman, Supervisor of Public Relations at the Trenton office of the Division. (Please allow four to six weeks time between your request and your program date. In addition to your preferred date, kindly suggest an alternate date.)* #

# The White — winged Scoter

## Species:

*Melanitta fusca*

## General Characteristics:

The white-winged scoters are large sea-ducks, 20-23 inches long, the males are black with large, white wing patches, and a small white spot under the eye. The females are somewhat smaller, brown instead of black, with white wing patches. Found in the ocean, and occasionally in the inlets and mouths of several bays. Usually in flocks of from 20 to 50, but in winter often rafting up into large flocks numbering in the thousands.

## Range:

Breeds in the Prairie Provinces of Canada, northward into the Northwest Territories. Winters along the Pacific and Atlantic coasts, and in the Great Lakes. Found in New Jersey in our larger bays, but mostly in the Atlantic Ocean. Huge numbers migrate along the coast from late September into December on the southward migration and northward from March into May. Most years many thousands overwinter in the Atlantic Ocean from Barnegat Inlet to Cape May, and some in the Delaware Bay. Occasionally thousands of these birds are killed when oil is spilled in Delaware Bay or the ocean.

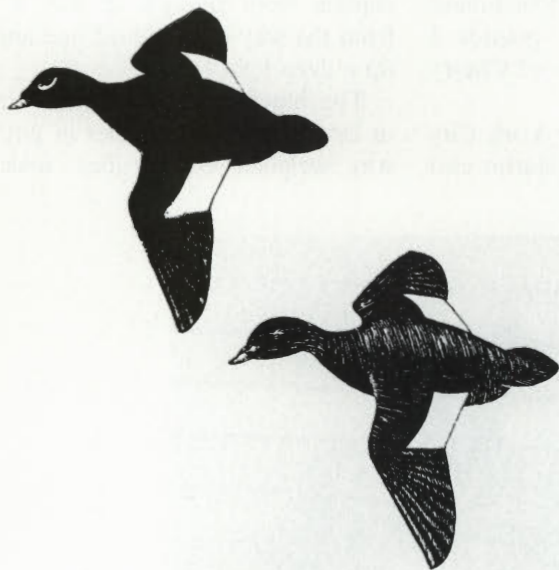
## Life History:

The nesting season begins in the interior of Canada about the middle to end of June, when 9-14 eggs are laid in a nest made in a hollow depression, lined with sticks, leaves and rubbish. Down is also plucked from the breast of the female and used for warmth. The nest is located on dry land, often quite some distance from water. The food of the white-wing is largely taken from the animal kingdom; molluscs, especially clams, oysters and mussels; crustaceans, some insects and fish. Apparently some eelgrass and pondweed is also eaten. The diet of the scoter is quite different during the nesting season, when the bird is on dry land, in the interior of the continent, as compared with the winter season, when most are on the open ocean, seldom, if ever, on land from September until May. During the time they are in the Garden State waters, they apparently feed during the day and rest offshore during the night.

## Hunting:

We see the "coot", as they are sometimes called, as they migrate south from late September into December, along the coast. Huge numbers can be seen during a good day when the birds are moving. These birds are fairly good game birds, being strong fliers, and in New Jersey, usually only hunted in the ocean from a small boat, so that, while the flight is low,

only a few feet over the water, and direct, the speed of the bird, combined with the pitching and rolling of the boat, make "coot" hunting a very interesting sport. During the fall, the scoters are hunted from New England south to New Jersey, but in lessening numbers the farther south the birds get. The whitewing is the largest of the three scoters, the hardest to kill, and probably the least desirable for the table. While "coots" are not as good to eat as some of the other waterfowl, they are, nevertheless, good fare when properly prepared. Because the hunting season is long (usually September 25 to January 10) and the bag limit



*White-winged scoters.  
The male, upper, is  
black and the female,  
lower, is brown. Both  
have white wing  
patches*

is fairly generous (7 per day), "coot" shooting offers a challenge to New Jersey waterfowl hunters who are good boatmen and willing to try something different. During almost any day when a small boat can be used in the ocean from October to December, this type of hunting can be obtained. No guide is necessary, no land needs to be owned or rented, no permission obtained. A string or two of plastic bottles painted black, set on a single line will lure the birds near enough for a passing shot, and the birds will frequently decoy and alight to such crude stools. Homemade floating silhouettes or shadows work even better, and of course, full-bodied decoys which are oversized are the best. #

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*The shoreline looks lovely from the middle of the lake when you're on a boat. It's not quite so nice for the people on shore. They have a view of the leftovers carelessly tossed overboard by boaters. Please join the Keep America Beautiful movement—keep waterways clean.*

## Two New Record Fish

New state records have been established for two of New Jersey's most prized salt water game fish, bluefish and white marlin.

Sigmund Gruszkowski of Irvington caught a 22-pound, 11-ounce bluefish while fishing the 17 Fathom area off Highlands last October 16. This breaks the previous record of 21 pounds 2 ounces set by Charles Lane of Cherry Hill in 1967.

Merril P. Arden of New York City caught a 123-pound white marlin east

caught his "slammer" blue. He had switched from bait to a "seadevle" spoon because dogfish were stealing the bait, and had caught a bonito and had several strikes with the lure. He tried a deeper cast and was reeling in when the huge fish hit. He and the captain both thought it was a tuna from the way it peeled off line and put up a deep fight.

The bluefish measured 42¾ inches in length and 20½ inches in girth. It was weighed on certified scales at



*Sigmund Gruszkowski with his prize bluefish*

of Ambrose Light on September 3. This exceeds the previous high of 116 pounds caught by Stanley Davenport of Newfoundland, N.J., in 1956.

Angler Gruszkowski was fishing for tuna aboard the "Misstake II", captained by Whitey Morenz, when he

Highlands Marina. Angler Gruszkowski was using 30-pound-test monofilament on a spinning outfit.

The marlin was caught about 35 miles east southeast of Ambrose Light aboard the Liz Boat III captained by Jack Marler. Angler Arden was using

30-pound test monofilament and a "ballyhoo" lure.

The first scales used were a flat type which could not carry the full weight of the huge billfish. Since it was 8 feet long and 38 inches around, several observers felt sure it weighed more than the 94 pounds shown. Angler Arden sent the trophy to taxidermist Mark Brennan of Ocean City, Md. for mounting. There it was re-weighed on certified scales which showed 123 pounds after several days, a period during which fish normally lose weight.

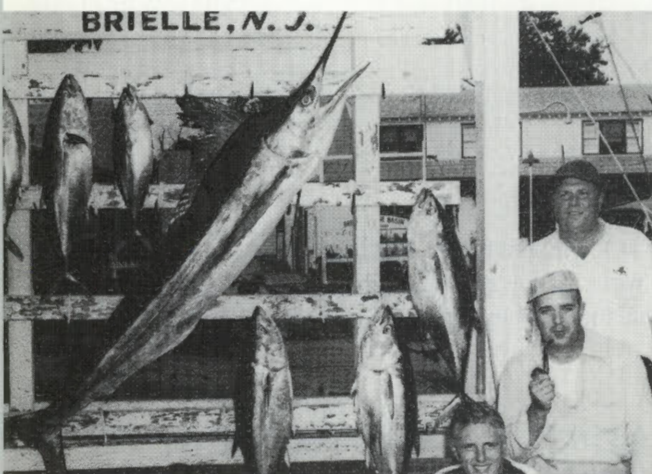
Both fish were submitted to the Information and Education Section of the Division of Fish and Game, which granted them official recognition after completion of verification forms. Both anglers will receive certificates. Another outstanding catch will be included with future listings of state records in *New Jersey Outdoors*. This is a 52-pound, 12-ounce cod caught on July 19 by Miss Rosemary Sackiewicz of Haddon Heights off Brigantine.

This cod has been recognized as the world women's record for 50-pound

test line by the International Game Fish Association, official keepers of world salt water records. She was actually using 32-pound test line, but the I.G.F.A. includes all line in the 31-50 range in the one category.

Although New Jersey state records are limited to the all-tackle category, any I.G.F.A. line test records caught in New Jersey are listed along with the state records. The state and world all-tackle top cod is an 81-pounder taken by Joseph Chesla of Manville in 1967, one of five (unofficially six) world record fish caught in New Jersey.

State records are still being sought for unlisted species, including mackerel, porgy, kingfish, whiting, winter flounder, shad, and white catfish. To date only one entry, a 3-pound, 2-ounce winter flounder, has been received. A four-pound flounder has been reported but not verified. Official record fish entry forms may be obtained from any Division of Fish and Game conservation officer or the Division of Fish and Game, Box 1809, Trenton 08625. #



*The former state record white marlin, caught in 1956 by Stanley Davenport, the angler nearest the right of the fish in this photograph*

Photograph by Edw. A. Schekler

# Black Walnut

(*Juglans nigra*)

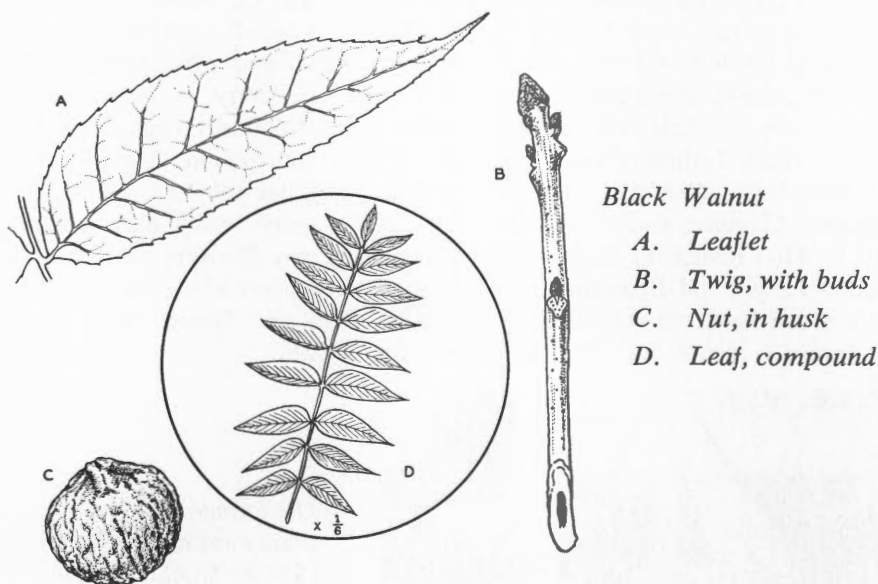
Black walnut thrives on deep, rich, moist soils. It requires plenty of light; therefore, it is often found growing along fence-rows, in open fields, and in farm yards. It has a taproot.

## Range:

Western Massachusetts, New York, southern Michigan, Wisconsin, Minnesota, southeastern South Dakota, south to eastern Texas, and east through northern Louisiana, central Georgia, and South Carolina. This tree has been planted widely but not extensively.

## Leaves:

Alternate and compound, consisting of 13 to 23 leaflets that are nearly



*Black Walnut*

- A. Leaflet
- B. Twig, with buds
- C. Nut, in husk
- D. Leaf, compound

sessile. (See figures A and D.) The finely serrated leaflets are 3 to 4 inches long and 1 to 1½ inches wide. They are dark green and smooth on top and dull green and hairy on the bottom. Occasionally the terminal leaflet fails to develop fully.

## Twigs:

Orange brown to dark brown and rugged. Leaf scars are large and heart-shaped. A twig, when cut longitudinally, reveals a light-brown, chambered

pith. (See figure B.) It has a blunt-pointed, hairy, terminal bud about  $\frac{1}{3}$  of an inch long and tiny lateral buds about half as large. The bark is brown to nearly black. As the tree becomes older, the bark becomes deeply furrowed.

#### **Flowers:**

Male and female flowers occur on the same tree as catkins and spikes. They appear in early spring about the time the leaves are half grown. The male flowers develop from buds formed the previous year. Female flowers are borne on new growth.

#### **Fruit:**

A round nut, 1 to 2 inches in diameter, occurs singly or in clusters of 2's and 3's. The nut is surrounded by a yellowish-green husk. Inside of the corrugated nut is an edible, fleshy, oily kernel. (See figure C.)

#### **Uses:**

Black walnut is a large tree, generally ranging from 70 to 90 feet tall and 2 to 3 feet in diameter. Many trees larger than this have been reported. Black walnut is a very valuable timber tree. The heartwood is light to dark brown. The sapwood is nearly white. Walnut is used for fine furniture, veneer, trim, and paneling, and it has always been in good demand for gun stocks. The fruit of the nut is used for food, and the husk is used for making dye. #

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

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## **Stream Tricks**

When casting streams where swift currents and large boulders make fish-holding locations virtually unreachable, a flat chunk of wood can be used to "raft" a lure or bait right into the desired spot. A slight jerk can dump the fish-getter under banks, behind rocks and in other areas normally inaccessible.

This piggyback form of presenting a lure can employ other vehicles. Paper cups containing the bait and just enough water to provide upright balance will work. A short length of tree limb with the bark sliced to act as a clip similarly transports the line, but be sure the cut is on the upstream end and opens toward you. Even a slab of ice will tote a bait when waters are still fringed with it.

As a word of caution, these floating devices can't be used with lightweight lures. Lines that drag in the water build up strong resistance and may pull baits off the float prematurely.

These unorthodox approaches may stretch the imagination, but they're a means to an end you might not ordinarily attain. #

# Council Highlights

## **March Meeting**

The regular monthly meeting of the Fish and Game Council was held at the Charles O. Hayford Fish Hatchery in Hackettstown on March 11. The following Council members were present: Acting Chairman McCloskey, Councilmen Alampi, Allocca, Marron, Reid, Richardson, Schollenberger, Space, Toth, and Totten. In addition to the Division personnel present, the following persons attended the session: James Stabile, Randle Faunce, Charles Webber, Joseph Briel, Earl Stults, Roy Stults, Edward Cunningham, Howard Brant, James Campbell, and Elmer Mayberry.

## **Financial Report**

Director MacNamara reviewed the financial statements and reports of license sales and advised that final figures for 1968 were not yet available because some license accounts were delinquent or tardy and had not been closed for the year. Figures on a calendar year basis were satisfactory; on a fiscal year basis, hunting showed a decline but this probably would be picked up later in the year. Under the Hunters' and Anglers' License Fund, increases in expenditures were balanced by increases in income and our fiscal condition should remain stable for the rest of the year. The Public Hunting and Fishing Grounds Fund continues in a satisfactory condition.

## **Federal Waterfowl Regulations**

A letter of Feb. 11, 1969, from the Bureau of Sport Fisheries and Wildlife, setting forth proposed changes in the basic federal waterfowl regulations, was read by the Director. By motion of Councilman Allocca, seconded by Councilman Marron, and passed, the Council accepted the proposed changes as contained in said letter.

## **1970 Farmers Week**

Participation in the 1970 Farmers Week was discussed and it was decided that the type of program we presented before the agriculturists in 1965 had been favorably received and was highly acceptable. At that time, former Fish and Game Councilman Frank J. Valgenti, Jr., representing the sportsmen, and several Division employees, representing the Division of Fish and Game, presented talks to the assemblage. Councilman Marron made a motion that we follow the same guidelines that we used in 1965 and that some type of an exhibit, in cooperation with the Federation, be presented. The motion was seconded by Councilman Allocca and passed.

## **Muskrat Trapping Season**

The Council considered a request for an extension of the muskrat trapping season. Councilman Alampi stated that the conditions of the current trapping

season had been favorable for the trappers and he made a motion that we not extend the muskrat season this year. The motion was seconded by Councilman Richardson and passed. Director MacNamara noted that recommendations from our field men were against any extension of the season, and that a letter had been received from the New Jersey Trappers Association requesting that the season not be extended.

### **Fishermen's Forum Successful**

Commendations were extended to the committee who arranged the program and planned the Fishermen's Forum held in Atlantic City on February 15. Everyone felt the affair had been a real success, even though the quarters were not quite adequate for the number in attendance. It was agreed that plans should be made for next year's forum, allowing for greater participation of sport fishing interests. In this connection, Councilman Richardson advised that he recently saw an excellent film on trout which he would like to have included on next year's program. The film is available through the Federal Bureau of Outdoor Recreation and a request to reserve it for February, 1970 must be sent in immediately.

Councilman Allocca make a motion that the next Fishermen's Forum be held on Saturday, February 14, 1970. Motion was seconded by Councilman Richardson and passed. The Director was to make application for the film for our use on February 14, 1970. The early setting of the forum date will allow the committee plenty of time to arrange next year's program.

### **Union County Trout Stocking**

A letter from the Cranford Rod and Gun Club, requesting that the Council reconsider its decision to make a 10 percent reduction in the number of fish stocked in Union County, was read. Attention was called to the fact that this reduction does not apply only to Union County but is standard throughout the state. This reduction was being made to provide more fish for in-season stocking and also to allow time for the fish at the hatchery to attain more growth. Director MacNamara was to advise the Cranford Rod and Gun Club in this regard.

### **Wanaque and Skylands Stocking**

The Council gave consideration to stocking a newly-acquired stretch of the Wanaque River and ponds in the Skylands area. Joseph Truncer, Director of the Division of Parks, Forestry, and Recreation, advised by memorandum of March 7 that this additional section of the Wanaque would be open to fishing this year, as well as several additional ponds at Skylands. His Division would cooperate with the Division of Fish and Game in regard to necessary posting of the river prior to stocking and in furnishing our personnel with keys to locked barriers that control access to the Wehran Tract. The question was raised as to whether we had fish available for this additional stocking, and Chief Hayford

## **. . . Council Highlights**

advised that fish would be on hand for this project which would provide three more miles of fishing area on the Wanaque.

Councilman Marron made a motion that the Council go along with this stocking providing it did not alter in any way our present stocking program as far as fish raised at the hatchery, and size (small, medium, and large) were concerned. The motion was seconded by Councilman Alampi and passed. The Director, Chief Hayford, and the Fisheries Committee were to work out the details.

### **Cape May Artificial Reefs**

A copy of a letter from the Corps of Engineers to John S. Needles, City Manager of Cape May, was brought to the attention of the Council members for their information. The City of Cape May is interested in establishing artificial reefs in the Atlantic Ocean to improve the sport fishing potential and would use discarded railroad barges for this purpose. The Corps of Engineers explained the procedure and provisions that must be complied with before such a project could be initiated.

### **More on Artificial Reefs**

In connection with artificial reefs, Councilman Richardson stated that the Federal Marine Laboratory at Sandy Hook had been approached to establish reefs consisting of old tires placed on a shaft and filled with concrete. The question was raised concerning the jurisdiction, if any, of the Division of Fish and Game and the authority and prerogatives of the Department of Conservation and Economic Development in such matters. Councilman Allocca offered to endeavor to secure additional information about this project.

### **A Bill to Limit Trapping**

The Council, by motion of Councilman Marron, seconded by Councilman Allocca, and passed, went on record in opposition to Senate Bill 403 which would prohibit trapping in first and second class counties. They directed that a letter be sent to the appropriate chairman of each branch of the legislature, advising of the Council's opposition to this bill in its present form.

### **Operation of Snowmobiles**

Councilman McCloskey brought up the subject of allowing snowmobiles to be used on the old railroad bed on the Black River Tract, which was acquired under the Green Acres program. Use of these machines by the public is increasing greatly, and it was agreed that, before next winter, all our tracts should be reviewed with the intent of setting up guidelines and provisions for operating snowmobiles on those areas where it would be feasible.

### Presentation of Fish Rearing Methods

With the arrival of Keen Buss and Edward Miller of the Pennsylvania Fish Commission, who had been invited by the Council to come to New Jersey and present comments and slides of modern fish hatcheries they had visited throughout the United States, the Council adjourned for lunch. Following lunch, Mr. Buss and Mr. Miller gave an interesting portrayal and showed approximately 80 slides of various types and phases of fish rearing operations throughout the country. The Council thanked Mr. Buss and Mr. Miller for coming to New Jersey and for their fine presentation of the information gathered through Pennsylvania's survey of hatcheries.

### Bill Regarding Transport of Fish

Director MacNamara called the Council's attention to a bill pending before Congress, known as the Moss Bill and co-sponsored by Senator Harrison Williams of New Jersey, which was brought about as the result of the presence of whirling disease. This bill could have an effect on the transportation of fish between states, as well as other aspects of fish handling, and it should be of special interest to the Council and the Division. #

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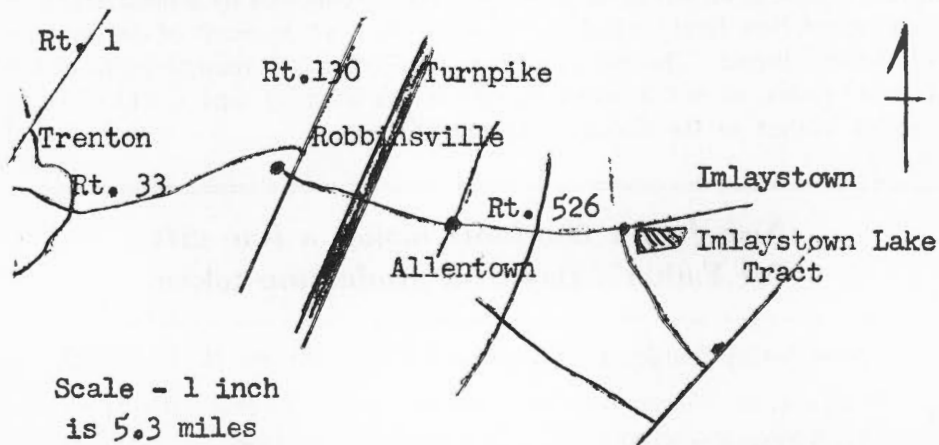
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# Imlaystown Lake Tract

The Imlaystown Lake Fish and Wildlife Management Area consists of 30 acres. This tract is located in Monmouth County, approximately 4 miles east of Allentown in the town of Imlaystown.

Fishing is primarily for largemouth bass, pickerel, perch, and sunfish.

To reach Imlaystown Lake from Trenton, take Route 33 east out of Trenton to Robbinsville. In Robbinsville take Route 526 and proceed to Imlaystown. The lake is located on the south side of town. #



## How Much Water in an Inch of Rain?

An inch of rain falling evenly on one acre of ground is equivalent to about 27,154 gallons of water, according to hydrologists of the U.S. Geological Survey.

Here's how it's determined: One inch of rain falling evenly over one acre (43,560 square feet) of ground would amount to a total of 6,272,640 cubic inches of water. This is equivalent to 3,630 cubic feet of water. A cubic foot of water weighs about 62.4 pounds. Therefore, the weight of a uniform fall of one inch of rain over one acre would be about 226,615 pounds, or 113¼ short tons. The weight of one U.S. gallon of pure water is about 8.3 pounds. Consequently, a rainfall of one inch over one acre would mean about 27,154 gallons.

Of this total, about 25 percent would run off immediately; about 15 percent would be evaporated; about 40 percent would be taken up by surface soils; and about 20 percent would filter down into sub-surface, water-bearing rocks (aquifers). These percentage figures can vary considerably, depending upon many factors such as rate of rainfall, topography, soil condition, humidity, density of vegetation, and extent of urbanization. #

# Violators Roundup

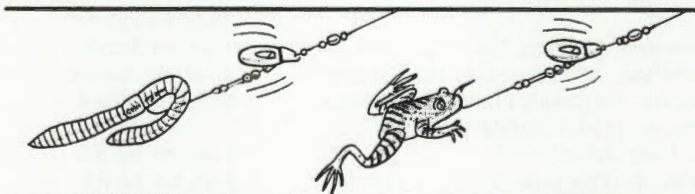
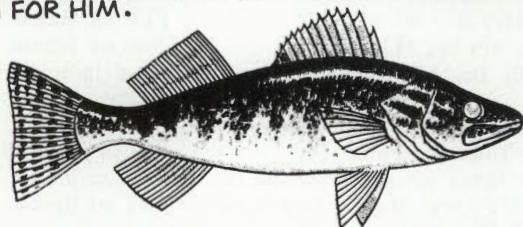
<i>Name</i>	<i>Offense</i>	<i>Penalty</i>
Robert Garrity, 50 Christopher St., Ramsey	Fish closed waters	20.
Robert Romano, 17 N. Red Bank Ave., Woodbury	Fish no license	20.
Walter Murray, 945 Linden St., Camden	Fish no license	20.
Henry Tomkiel, 41 Woodlawn Ave., Somerville	Fish no license	20.
Frank Bujalski, 7 Walter Street, Somerville	Fish no license	20.
Jesse Walls, 287 Kaign Ave., Camden	Fish no license	20.
Richard Schmuerte, 4 Moller St., Tenafly	Fish no license	20.
Richard McCann, 32 Marion Ave., Cliffside Park	Fish no license	20.
Joseph Dunay, 77 Fleet St., Jersey City	Fish no license	20.
John Zidek, 38 Neston St., Franklin	Hunt w/aid of lights	50.
Leo Osgood, P.O. Box 218, Mizpah	Fish no license	20.
Joseph Cardo, 18 Hempstead Road, Trenton	Fish no license	20.
Thomas Hillman, 237 Darcy St., Trenton	Fish no license	20.
Marvin Ledford, 217 Garden St., Mt. Holly	Fish no license	20.
Jack Roy Duvall, Route 2, Box 98, Troutville, Virginia	Fish no license	20.
Morris Fitzpatrick, Reeves St., Whitesboro	Fish no license	20.
Ran Janney, 153 Shoustown Rd., Corsopolis, Pa.	Fish no license	20.
Robert Marr, 3407 N. Hurley St., Philadelphia, Pa.	Fish no license	20.
Bernard Jennings, 250 Pine St., Glenolden, Pa.	Fish no license	20.
Myron Mooney, Foundry St., 7F, Millville	Fish no license	20.
Kenneth Allen, 238 S. 4th St., Millville	Fish no license	20.
Kenneth Day, 23 Holly Dr., Vincentown	False information on license appl.	20.
David Spruel, Jr., 351 Elbo Lane, Moorestown	Fish no license	20.
Philip Sampson, 2100 Tioga St., Phila., Pa.	Fail to exhibit license	20.
Michael Pepino, 5313 Royal Avenue, Pennsauken	Fish no license	20.
Rudolph Henderson, 531 Kings Hwy., Moorestown	Fish no license	20.
Joseph Catopano, 387 Greenmount Ave., Cliffside Park	Fish no license	20.
Kenneth Donelson, 29 West Main St., Columbus	Gun on Sunday	20.
Kenneth Donelson, 29 West Main St., Columbus	Hunt no license	20.
John W. Durkin, 50 Covell Pl., West Caldwell	Fish no license	20.
Kenneth Grieses, 1560 Lakeside Dr., Wantagh, Long Island, N.Y.	Fish no license	20.
Richard Field, 47 Overlook Terr., Woodbridge	Fish no license	20.
Ronald Pieffer, 103 Prospect St., Edison	Fish closed waters	20.
Ronald Pieffer, 103 Prospect St., Edison	Illegal poss. fish in closed waters	20.
Charles Carlucci, 32 Coolidge Ave., Fords	Fish no license	20.
Edward Goble, Smith St., Newton	Illegal firearm	20.
John Sharkey, 45 Chelsea Ave., Newark	Fish closed waters	20.
Douglas Hodgson, 337 Vose Ave., South Orange	Fish no license	20.
Rance Walker, 1123 Morris Ave., Pt. Pleasant	Loaded gun in auto	20.
James Hendershot, 10 Hicks Ave., Newton	Hunt no license	20.
Ernest Goble, Jr., Rt. 517, R.D. #1 - Andover	Fish closed waters	20.
Michael Hazuda, 153 Howe Ave., Passaic	Hunt no license	20.
Harry Taggart, 74 Woodstone Ave., Rockaway	Fish no license	20.
Willie Davis, 1102 Mt. Ephraim Ave., Camden	Undersize Oswego bass	20.
Sanford Smaniotto, 14 S. 3rd St., Vineland	Fish no license	20.

## . . . Violators Roundup

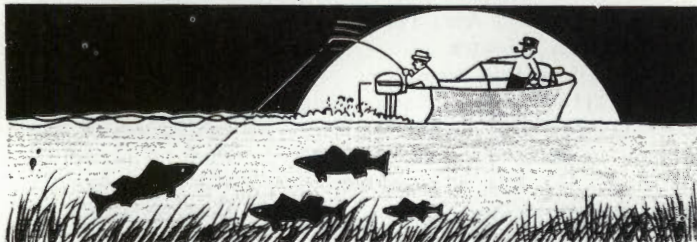
<i>Name</i>	<i>Offense</i>	<i>Penalty</i>
Warren Jund, 662 Prospect Ave., Fairview	Fish no license	20.
Joseph Piegaro, 63 Columbia Ave., Newark	Fish no license	20.
Joseph Barton, Main St., Fairton	Poss. female crab w/egg pouch (5)	100.
Kenneth Rathyon, 733 Route 23, Wayne	Fish closed waters	20.
Joseph McCauley, 97 Clubhouse Rd., RFD, Butler	Fish no license	20.
James Edwards, Rt. 23, Newfoundland	Angle closed waters	20.
Donald Rankin, 183 Delmor Ave., Glen Rock	Hunt no license	20.
Peter Clark, 11 McCann St., Franklin	Gun on Sunday	20.
Harrison Lootman, 334 5th Terr., Egg Harbor City	Fish no license	20.
Frederick Hanson, R.D. #2, Central Ave., Washington	Fish closed waters	20.
Frank J. Dieter, 675 N. 13th St., Easton, Pa.	Fish no license	20.

## The WALLEYE

HE'S CALLED A WALLEYED PIKE, PICKEREL, JACKFISH, OR JACK SALMON, GOOD CATCHING AND GOOD EATING. HE'S A NIGHT FEEDER. SPRING AND FALL ARE BEST TIMES TO FISH FOR HIM.



IF TROLLING, LET BOAT GO AS SLOW AS POSSIBLE. LET THE LURE BOUNCE OFF THE BOTTOM. SOME USE SPINNERS WITH NIGHT CRAWLERS, OR SMALL FROGS.



IF YOU CATCH ONE, STOP, FOR THERE ARE PROBABLY MORE IN THE SAME AREA.

## Marine Fisheries Research and Development Section

Completion of the Delaware Bay menhaden investigations, the beginning of the estuarine inventory, and progress in established research projects marked the past fiscal year's activities.

The Federal Aid to Sport Fisheries project tagged 1,200 summer flounder (fluke) off Cape May in summer 1967. Returns totaled 18 percent with 29 percent from the 1966 Sandy Hook tagging. Catch sampling found very few fluke under 14 inches, indicating a low recruitment rate and doubtful prospects for significantly improved fishing.

Internal tags were applied to 475 young and yearling striped bass in the lower Delaware. A more visible tag may be needed for better return. Winter conditions were excellent for continued foul-hooking studies. The maximum temperature at which bass were foul-hooked was 39.5°F. Correlation between water and air temperature changes was noted. Atlantic City weather records show the normal period of sub-40° temperature in mid-December through mid-March.

Eggs and/or larvae of 32 fish species were identified in weekly sampling at two inlets. Most abundant was the bay anchovy, an important forage species, although the American eel occurred in more collections. The scianid family (includes kingfish, weakfish, and croaker) favored Corson's Inlet; labrids (tautog and cunner) favored Manasquan Inlet. Young fluke occurred at both.

Two Federal Aids to Commercial Fisheries projects were underway during the year. Results of the Delaware Bay menhaden fishery investigation were similar to last year's. Catches sampled contained 97.98 percent menhaden by number, 99.59 percent by weight. Small sport fish amounted to 0.25 percent, butterfish 0.05 percent, trash fish 0.10 percent by weight. Large hauls contained fewer non-menhaden than small ones. A publication on the life history of the menhaden, history of the fishery, and study results is in preparation.

An inventory of major estuarine systems was begun, with key positions filled, equipment ordered, and field work initiated.

The Federal Aid to Anadromous Fisheries Project tagged 618 shad during the spring, with 95 (15 percent) returned. No tagged fish were recovered above the Delaware River pollution block, and more were recaptured outside the Delaware River-Bay system than within it. Returns have come from the Hudson River, the Connecticut River, the St. John River in New Brunswick, Canada, and the Miramichi River in Quebec.

Personnel served on the Hudson River Fisheries Investigation Technical Committee and several committees of the Atlantic States Marine Fisheries Commission. Four talks were presented and 25 special meetings attended. #

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*Any species of fish, except brook, brown, or rainbow trout, landlocked salmon, largemouth or smallmouth bass, pickerel, and northern or walleyed pike, may be taken at any time by use of a longbow and arrow with line attached, by the holder of a proper fishing license.*

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