

May/June 1976

# New Jersey OUTDOORS







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NEW JERSEY OUTDOORS is the bi-monthly magazine of the Department of Environmental Protection of New Jersey. This publication is dedicated to the wise management and conservation of our natural resources and to foster a greater appreciation of the outdoors.

(Note: Costs of publishing the magazine not covered by subscriptions are met primarily from the Fish and Game License Fund, administered in the Department of Environmental Protection by the Division of Fish, Game, and Shellfisheries, and from general revenues available to the Department of Environmental Protection.)

Second-class postage is paid at Trenton, N.J. and additional mailing offices. Subscriptions are \$3.00 per year and three years for \$8.00 payable by check or money order to New Jersey Outdoors Mailing Office, P.O. Box 1809, Trenton, N.J. 08625. Change of address should be reported to the above address. Send old and new addresses and the zip code numbers. The Post Office will not forward copies unless forwarding postage is provided by the subscriber. Allow six weeks for change of address to take effect. Unsolicited material is sent to the magazine at the risk of the sender. Permission granted to reprint with credit to New Jersey Outdoors. Publication office is Rm 702, Labor and Industry Building, John Fitch Way Plaza, Trenton, N.J. 08625.

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# from the editor



## Bicentennial Year . . . a look back and a long look ahead

This bicentennial year should be a time to celebrate, a time to count our blessings—and they are many. But also a time to pause and take stock—to assess how far we've come and how we got here. And maybe to work out a better way to go for the next 200 years.

Over the last few years a chilling reality has become evident to most of us, that we live in a land of scarcity, not of plenty. And it has been shocking. I grew up on western pictures, and hero horsemen riding across endless prairies and over majestic mountains . . . searching for new adventures along a frontier that seemed limitless. The frontier was long gone but I grew up, like many others of my generation, with that "frontier mentality" that America was the land of plenty. Plenty of land, natural resources, wildlife, sparkling streams—you name it, we got it. Or is it, we *had* it?

I'm always reading things that disturb me, or even alarm me. One thing I have read is the '76 Environmental Quality Index published in the National Wildlife Federation magazine, *National Wildlife*. And like most of the news you get from your smiling, pompadoured TV newsmen, it was mostly bad news.

The Environmental Quality Index for wildlife is down again. A total of 44 birds, 28 reptiles, 26 mollusks, 6 amphibians, and 2 fish are under study as possibly endangered.

Also, almost 24,000 species of plants may make the endangered list. The major threat to all wildlife is habitat loss—not enough space to live. Some 50 years ago that wise and witty humorist, Will Rogers, was supposed to have said, "Buy land, they ain't making any more." Not only "ain't they making any more," but we are destroying wildlife habitat by converting acres and acres to urban uses. About 1.2 million acres were converted last year in this country. In the small, already overcrowded state of New Jersey we lose more than 10,000 acres per year to development. Gone forever for wildlife. And in south Jersey, we have lost more than 20 percent of our wetlands and estuaries to development. In fact New Jersey, between the years of 1954 and 1968, lost about 12 percent of the estuarine (coastal) zone to some form of urbanization.

And why are these wetlands and estuaries so important? They support plant life, wildlife, and man; provide nurseries for many fish species; aid in the natural purification of our water supply; and provide us with scenic and recreational areas.

One bright spot is that there are more deer today than at any other time in our recorded history; also

more wild turkeys. Fifty years of game management has paid off. In New Jersey, our Wildlife Management Bureau is managing a deer herd that totals about 100,000 in the fall. This is a singular achievement in our small, crowded state when compared to the small, almost nonexistent herd recorded at the turn of the century.

The Environmental Quality Index tells us our air is cleaner; sulphur dioxide levels are down, but rural air pollution is high. High smog concentrations have been measured in rural areas more than 50 miles from urban areas in the eastern section of our country. A National Academy of Science study reports that auto emissions may be responsible for the deaths of 4,000 Americans yearly, and for four million sick days. EPA Deputy Administrator John Quarles says, "Pollution kills—it is as simple as that."

The bar chart depicting the Environmental Quality Index for minerals reminds one of the downhill slope of the giant slalom at Innsbruck. *New Jersey Outdoors* covered this aspect in the January/February 1976 issue which featured an article by Herschel H. Hutsinpiiler titled, "How Much Energy Do We Have Left?" According to the Environmental Quality Index, although recycling conserves energy supplies and minerals as well, only about seven percent of consumer and commercial waste is recycled.

The Environmental Quality Index for Soil—down again. The United States is losing 3.5 billion tons of soil each year to erosion. More than 50 million acres of land have been lost to development in the past 20 years. And the intensive use of fertilizers and pesticides may result in soil pollution in the future.

The Environmental Quality Index for Timber held steady although there is much controversy on how our public forest resources should be managed. The goal of multiple use of our forests remains elusive because priorities are being assigned to timber production.

Water quality is also down again, although some progress was made in 1975. But nonpoint sources of water pollution are increasing: farm runoff of fertilizers and pesticides, urban runoff, and acids from mining and oil field operations may contribute as much as 50 percent of the nation's water pollution. Drinking water has been found to contain organic chemicals, heavy metals, asbestos, viruses, chloroform, etc.—new pollutants never before detected or treated.

Recently, New York state officials warned con-

sumers not to eat striped bass taken from the Hudson or salmon taken from Lake Ontario. The fish contained dangerously high levels of PCBs (polychlorinated biphenyls) which are highly toxic and not biodegradable. At present, there is no known process for removing PCBs from the water yet, two general electric plants have EPA permits allowing them to discharge 30 pounds of PCBs into the Hudson daily. A recent report in the *New York Fish and Game Journal*, Volume 23, January 1976 states that PCBs were "consistently found" in selected waterfowl tissues of greater scaup, white-winged scoter, and bufflehead.

In a speech at the National Conference on PCBs held November 19-21 in Chicago, Nathaniel P. Reed, Assistant Secretary of the Interior for Fish and Wildlife and Parks said: "I am shocked by the pervasiveness of PCBs; they are literally everywhere. And I am troubled by the exceedingly high levels found in fish from all our drainage systems, and I do not mean just the Hudson and the entire Great Lakes system, but the Merrimack and Connecticut rivers of the Atlantic Coast, the Mississippi, Missouri, and Ohio rivers of the Midwest, the Columbia River system in the Northwest, the Sacramento in the West, the Rio Grande River and other Gulf Coast streams, and even the Yukon in Alaska!"

Last, but probably the most important, the Environmental Quality Index for living spaces was down again. More and more people; more haphazard growth. Where are we going? Where do we want to go? World population reached four billion in 1975. Living space and resources are finite. Some national and regional leaders are aware of the need for planning in the form of a comprehensive land use bill for a start. Seventeen states have enacted land-use bills and ten other states have bills pending. In New Jersey, several land-use proposals are being studied by legislative committees. Other landmark New Jersey legislation in this broad area includes the Coastal Area Facility Review Act (CAFRA), the Water Quality Improvement Act, the Pesticides Control Act, the Clean Ocean Act, and the Wetlands Act.

In order to get legislative action, local grass-roots involvement is necessary. You, the public, must apply constant and concerted pressure to your elected representatives. Because if you don't, special-interest groups will—and then the legislation that comes out favors this or that special group rather than all of us. So get involved today because it's your heritage they're foolin' with.

New Jersey State Library





*This 14+ inch brown is typical of what a productive trout stream under proper management can produce in three years.*

## A Stream for

### **BOB SOLDWEDEL**

Senior Fisheries Biologist

To the vast majority of anglers, trout fishing is a two month affair and as soon as the hatchery trucks cease to roll, come the end of May, the waders are put back in moth balls. The small minority of anglers that stick it out would probably like to keep it that way, because they have a good thing going for them. They have good reason to fear, for their good thing could not stand up to the type of angling pressure that goes on in April and May. You see when a trout is caught in April, it's of little consequence for it will be replaced the next time the hatchery truck comes by. In effect what the hatchery program is doing is recreating a virgin stream condition once a week. I doubt if anyone ever thought of the Rahway River as a virgin but when she gets hit with a restocking of innocent, unfished-for trout, it's the same as backpacking into the High Sierras (as far as the innocence of the trout goes). Now when a trout is caught in June, that's the end of the ballgame; it's gone, fini.

So each time a trout is taken, the fishing in that stream is one trout poorer.

This year in a modest attempt to stretch the effect of the stocked trout a little longer, the bag limit after May 30 has been reduced from six to four fish. This regulation will only affect those waters that are capable of supporting trout year-round, for on waters such as the Rahway River high temperatures and low dissolved oxygen concentrations have combined to send each and every trout, that had not been taken by a fisherman, to that big trout stream in the sky by this time. About 185 miles of streams and some 60 lakes, all of which are presently stocked with trout, fall in the same category as the Rahway River; i.e. Non-trout, and in these waters we want every trout we put in, taken out by a fisherman.

Year round trout fisheries exist, or at least the potential for such does, on over 350 miles of stocked streams and in ten major impoundments. It is on these waters that we have the opportunity for applying management techniques to spread out the angling over the full course of the year. Cutting the creel limit after May 30 was one ap-

proach. This allows the relatively rapid exploitation of the fishery while it is being replenished on a weekly basis and still affords some measure of insurance for the prolongment of the fishery afforded by the final stocking.

Another approach toward establishing a year-round trout fishery is to delete trout stocking entirely and base the program on the stream's natural capacity for producing trout. Without the super-saturation stocking of catchable-sized trout there is no urgency to get them "while they're hot" because the program relies on trout that have been there all along.

Because of the limited nature and the relative vulnerability of the natural trout resource, restrictive regulations are very important if the native trout population is to be maintained at an attractive level. It is a lot easier to get a chance at (not necessarily catch) a trout in a stream situation as opposed to a fish in a lake. Virtually every cubic inch of water in a stream is accessible to the worm, fly or spinner while the lake environment has the added dimension of depth. Also, as with the situation following the final release of





Photos by the author

*Stream trout populations are censused seasonally by electro-fishing.*

# All Seasons

trout on the regular trout-stocked waters, what's there is "IT" and once "IT" is removed "IT's" gone. This is especially critical in the native trout situation because it will take at least two and more often three years to replace a ten-inch trout.

Three restrictions are most often used to control exploitation. One is the creel limit which can be reduced all the way down to a "no-kill" situation. Then there is a size limit which can be set at a great enough length so that the protection of at least a portion of the breeders is insured. Both of these restrictions, to be effective, depend upon the survival of caught and released trout, so along with them usually goes a restriction on tackle which abolishes those methods usually found fatal to hooked trout. This normally includes all forms of live bait and limits angling to fly-fishing only. Limited entry is another means of control, but we have found that it is not necessary to spell this out in the laws because it generally results as a by-product of restriction on tackle and the abolishment of the stocking program.

The quality of the fishery that will

be produced is dependent upon the quality of the stream. All the restrictive regulations in the world are not going to make the lower Passaic River a quality trout stream. But when given a stream of suitable water quality and physical dimensions, especially in terms of "cover", these regulations, when conscientiously adhered to, will (not "can") produce a standing crop that equals and often surpasses that which is artificially created by stocking and one which is present in the stream all of the time, not just during April and May. Plus, there is the bonus of the "mystique" of the native trout, which is generally felt to be stronger, smarter, tastier, and prettier than the hatchery product. As it has developed, this trait of the native trout's superior intelligence is one of the basic problems of the program—but I'm getting ahead of myself.

The stream selected as the program's "trial balloon" was Mulhockaway Creek, in Hunterdon County. Mulhockaway Creek is one of the major tributaries of Spruce Run Reservoir and prior to its reclamation in the Fall of 1963 had been a historic producer

of native brown trout (although the brown is a native European, we consider it a naturalized citizen once it reproduces in our streams). Fish population surveys and trout tagging studies conducted to develop a trout management program for Spruce Run Reservoir and its drainage, recognized Mulhockaway Creek's potential for the native trout management tactic. The most exciting development was the fall spawning run of big browns from the reservoir into the creek.

The program went into effect on Mulhockaway Creek in the Spring of 1974. Angler utilization and the status of the fish population were (and are being) closely monitored. The results, which were basically predictable based on the findings of similar projects in other States, have now started to take an interesting and unpredicted turn.

In the years following the resumption of the stocking of brown trout in the Spruce Run Reservoir drainage, the browns once again established a naturally reproducing population. What was happening in Mulhockaway Creek was that come April the yearling wild browns were averaging about the

*(Continued on page 30)*





# Weakfish in Delaware Bay

BY J. I. MERRITT

You've hear the story about the fisherman who died and went to a place where he caught fish on every cast. "This is unbelievable!" he said after five minutes of fishing. "This is heaven," he said after 10 minutes. "This is hell," he said after 15. It was.

Fishing, lest we forget, is a sport. That means a challenge is supposedly involved, and where's the challenge of fishing that is so easy the rankest novice can fill a barrel with fish in an hour?

Which brings us to Delaware Bay in spring. If you haven't heard about it, May on the lower Delaware is the time and place for what could be the "best" saltwater fishing on the East Coast. Almost as good as Hatteras in November.

I say "best" advisedly, meaning "easiest." There may not be much challenge to catching five-to-seven-pound weakfish on every cast until your arm is ready to fall off from playing them, but it's fun, at least once in a while. That's the bay in May.

Put yourself in this picture: the sun setting over a fleet of boats stretching from end to end on the horizon. A few of them are party and charter boats, but most are small private craft, the "mosquito fleet." Across the water you hear the whoops and yells of fishermen hauling in fish after fish. Like everyone else, you're anchored, and the outgoing tide—always fierce in Delaware Bay—sweeps by your boat like a river in flood, roiling and churning. The fish lie deep, and to get your bucktail down to them you have to cast it upstream and let it drift back, sinking, in the current. You reel in slack until you feel the inevitable hit. Your drag screams, you keep reeling. Finally, not one but three weakfish appear at the surface—one at the end of your line and two others which have followed him (more likely "her," actually) to the surface. You bring your

PHOTOGRAPHS SUPPLIED BY AUTHOR

fish aboard, cast upstream again, and repeat. Again and again. The bay in May.

The weakfish spawning run in Delaware Bay usually lasts from mid May to mid June. During that time it's almost always possible to catch fish, although the height of the run may only last 10 days or so. Like bluefish and many other saltwater species, weakfish go through cycles. A one-day catch of more than 200,000 pounds was recorded in 1881, and there are still a few old salts around who recall how good it was at the turn of the century in South Jersey. Old timers talk about the great weakfishing of the early 1930s, too, but many feel there have never been so many weakfish—and so



many LARGE weakfish—in New Jersey waters as in the last few years. Obviously, we are at the top of a cycle. There is some fact and a lot of theory as to how we got there and how long we will stay.

Cape May fishing columnist Lou Rodia thinks there may be a link between today's crop of weakies and the limitations imposed on commercial netting in Albermarle and Currituck sounds, North Carolina, in the 1960s. The fishermen had been taking large numbers of juvenile weakfish in their nets and thereby killing off future brood stocks, according to Rodia. After the netting was restricted, the weakfishing in New Jersey improved dramatically—presumably because more young fish were surviving and eventually spawning in northern waters. Many fishermen expect the present boom to go bust once this generation of big weakfish dies off. But Rodia notes that, according to marine biologists, 1970-72 were exceptionally good spawning years in Delaware Bay, which should provide a future stock of weakfish to match the current super breed.

Whatever happens to it in the future, the weakfish today is a prime source of enjoyment for New Jersey anglers. Unfortunately, many fishermen have thoughtlessly wasted literally tons of weakfish in a mindless obsession with catching as many as possible. Weakfish are a delicate fish that spoil quickly, and anglers should come prepared with coolers and ice if they're going to stay out long or travel any distance after fishing. They should also decide how many fish they can reasonably expect to keep for themselves or give away, and once that limit is reached they should return any fish to the water. "There have been reports of fish being dumped," says Rodia. "There was one story about two guys who stayed out all night and filled the back of a pickup truck with weakfish and had no idea what they were going to do with them." Of course, the fish spoiled.

The weakfish is a member of the croaker family, characterized by the male's ability to "croak" by working its strong abdominal muscles against its air bladder—a rapid drumming sound familiar to many fishermen (the female weakfish is silent). Shallow bays like the lower Delaware are ideal spawning areas. They usually spawn at night, and their buoyant eggs hatch out between 36 and 40 hours later. Weakfish fry may be four to six inches long after six months. They mature at age 2 or 3, when they have reached a length between 10 and 13 inches. An 18-inch weakfish may be 6 years old and a 30-inch specimen, 12. The largest weakfish ever caught weighed 17 pounds 8 ounces and came from the Mullica River.

If you ask most fishermen how the weakfish got its name, they'll tell you it's because the fish has a weak mouth that is alleged to tear if the hook is pulled too quickly. However, fishing author George Reiger has researched the question and come up with several alternative answers. According to Reiger,\* it was once suggested that "weakfish" was a corruption of "wheatfish," referring to the harvest months when weakies are plentiful along the beaches. The explanation which perhaps makes the most sense, however, links "weakfish" with the Dutch name for the species, "weekvis." New York was once a Dutch colony, remember, and at least in this writer's experience I have never known a weakfish mouth to tear.

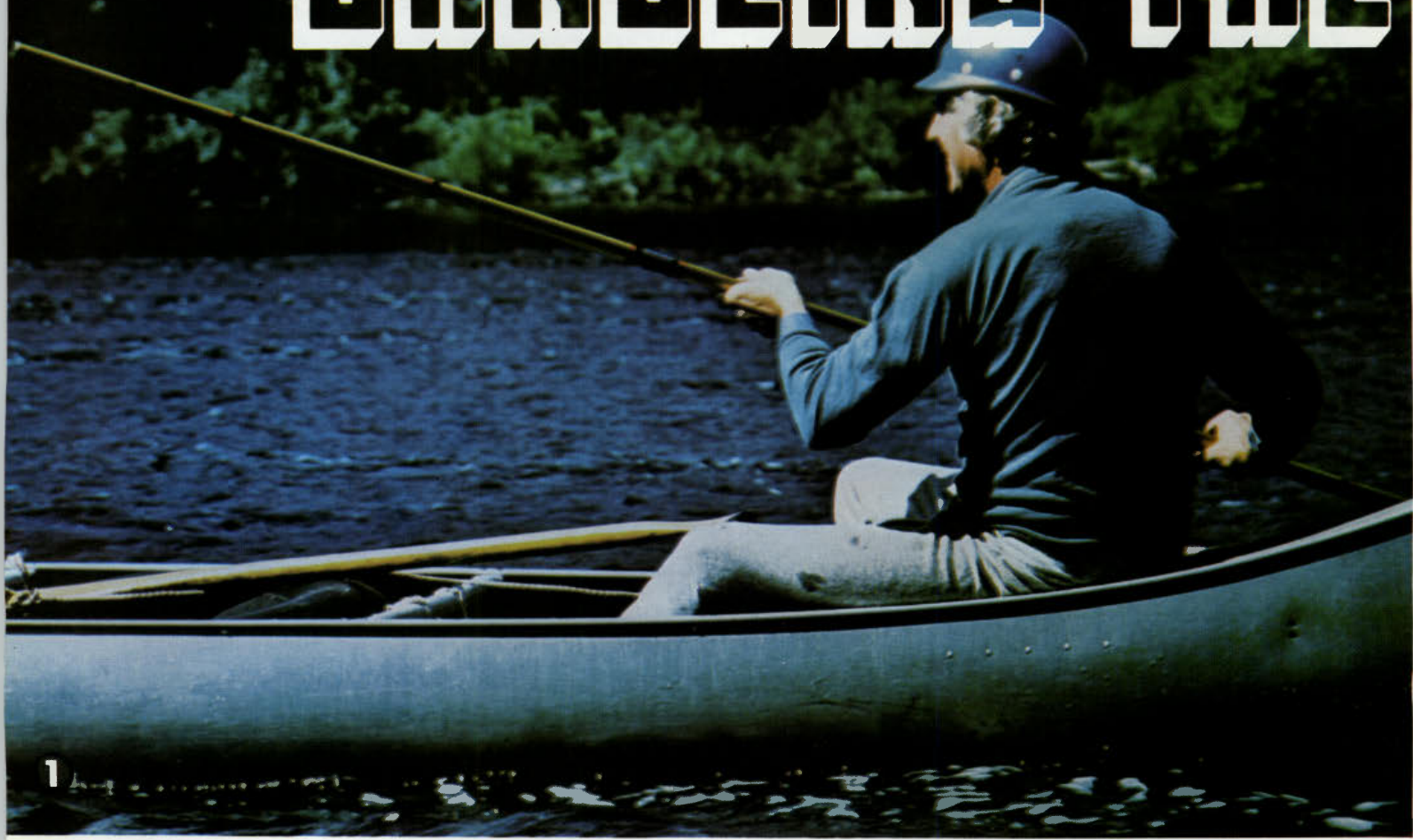
Weakfish can be caught on a variety of baits and lures, but in the spring a simple bucktail jig (with or without a strip of squid attached) seems to work as well as anything. But then, in the bay in May you could probably catch them on a bare hook. Take a drive down to Cape May and see for yourself. It may be "hell," but it's fun. □

\* Profiles in Saltwater Angling, *Prentice Hall*, 1973—a book every serious ocean angler should read.





# CANOEING THE





# DELAWARE

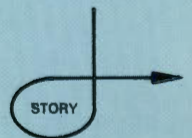


- ① Dan Lime poling
- ② David, Leslie and Linda swimming ashore
- ③ Dave Fleming (bow) and Dan Lime Jr. paddling
- ④ Chowtime—author's wife with Leslie Straut and Dave Fleming



**BY JOHN KUSER**

PHOTOS BY AUTHOR





**B**iggest and best of New Jersey's canoe waters is the Delaware River, which forms our state's western boundary from High Point to Delaware Bay. The Delaware is many times wider than the Batsto, Wading, Rancocas, and most of our other canoeable waterways; this relative openness means greater freedom from biting insects during the summer. Another point in the Delaware's favor is its rapids. Although most of the whitewater, such as Mongaup, Hawk's Nest, Sparrowbush, and Skinner's Falls, lies just north of New Jersey, you'll find good rapids between Dingman's Ferry and Bushkill, Pa. I well remember a half-canoe-ful of water that my fishing partner, Bob Rogers, and I once shipped in a sharp haystack just downstream from the Water Gap. The river's only real problem is the occasional stiff southerly headwind that blows in midsummer, causing choppy waters and demanding hard paddling, especially for younger fry.

The Delaware's popularity as a canoeing stream has skyrocketed in recent years. When I first canoed it, perhaps 20 years ago, you didn't see many people on the river; but now on a summer weekend you'll see dozens of canoes along every mile. Canoes manned by paddlers and by polers, plus rafts, kayaks, and swimmers, all share the upper stretches of the river from Milford to Belvidere, and there's plenty of river for them all. Public and private landings abound along with canoe rentals, lots of good swimming stretches, sandy beaches, and beautiful green islands just made for lunch stops. A set of river maps published by the Delaware River Basin Commission shows the location of landings; depth of the channel; and location of riffles, rapids, and pools over a distance of 200 miles from Hancock, N.Y., to the beginning of tidewater at Trenton, N.J. Sets of these maps are available from the Commission, 25 State Police Drive, West Trenton, at \$2 per set; they may also be obtained at various canoe rentals and landings along the river.

One of my favorite stretches of the Delaware is the 11-mile section from Dingman's Ferry to Bushkill, Pennsylvania. This takes about three hours to paddle, plus however long you take to swim, eat lunch, and float through the rapids in your lifejacket. We usually make it in five or six hours. You should start early enough to get to Dingman's a bit before 10 o'clock, unload your canoes, and drive a car downriver to your takeout point, leave it, and return in another car to the canoes. By 10:30 you're on the river, mostly paddling if the weather is cool and probably mostly swimming if it's hot. Around 12:00 you haul out on Shapnack Island for lunch, then continue your downriver trek for about a mile, to a Class IV rapids where the channel runs straight along the left bank about 20 feet offshore from a steep rock ledge which abounds in marine fossils. You paddle down through

the swift waters to the pool below, beach your canoes, and walk back up the rocky bank to the beginning of the rapids. There you don lifejackets and sneakers and wade out to midriver, or as far as you can get before the current sweeps you off your feet; then you float feetfirst through the "haystacks" down to the canoes. A fun variant of this is to sit in a big truck innertube, and spin around and round as you go down through the rapids until you're dizzy, then stop spinning instantly by lowering your feet into the water.

Beyond the first rapids are some good swimming areas, where the river runs deep and wide. Then three miles further downstream another rapids starts with a left bend and ends with a right bend, with the current swinging out away from the left bank. This spot is always fun to float when new swimmers are along. As the neophytes go swirling by, carried farther and farther out as they go, we throw a long rope to the younger ones and haul them in. Then we wave merrily to their more grown-up brothers and sisters and wish them a happy landing in Philadelphia. As they realize what is happening, they swim full speed for the left bank, but generally miss their target and end up a couple of hundred yards downstream, to their chagrin and the onlookers' delight. After this fun is over, we paddle and swim another two or three miles to the public landing at Dingman's Ferry, where a big stone wall and boat ramp mark journey's end.

The Delaware abounds in good day-trip stretches like the one just described. Along the upper New Jersey-Pennsylvania border there are four good ones: Milford to Dingman's Ferry (river map section E, mile 247 to mile 239); Dingman's to Bushkill (section F, mile 239 to mile 228); Bushkill to Delaware Water Gap, where you go around Wallpack Bend—an especially scenic stretch in the fall (sections F and G, mile 228 to mile 211); and Delaware Water Gap to Belvidere (section G, mile 211 to mile 198). Or if you're a whitewater canoer coming down from Barryville, New York and you want to camp out overnight, you can stop just below Dingman's Ferry and spend the night at Bernie's Campground (telephone 717-828-2266). Then you go on to Delaware Water Gap on the second day. If you don't have your own canoe or canoes, you can rent them from Kittatinny Canoe in Dingman's Ferry. Kittatinny rents 400 canoes—rental charges run \$10 to \$12 per day, they pick you up at your downriver takeout point, and they're usually booked solid on weekends, so you'd better call them for reservations (717-828-2700). They also operate an expert aluminum canoe repair shop.

The whole upper Delaware abounds with good paddling and swimming waters, and if you're a fisherman you may catch smallmouths, pickerel, rock bass, sunnies, and shad (in season). Come and paddle with us! □



# PLACES TO FISH IN NEW JERSEY

BY HIL ZICH, *Assistant Fisheries Biologist*

Much of the enjoyment from fishing comes from finding that particular place that best meets an individual's requirements. Some people like to fish alone while others like to have people near, some fish competitively while others enjoy the opportunity for contemplation, some like lakes or ponds while others like streams, some like to fish for trout while others prefer bass, pickerel, or panfish. The information provided herein is intended to help you find your particular fishing spot, or, if you wish, to provide you with a variety of state-

controlled public fishing waters so you may employ them as you wish in pursuit of the sport.

The list includes 4,155 acres of warm-water lakes and ponds, 9,068 acres of two-story lakes where trout as well as warm-water species are available throughout the year, 182 miles of warm-water streams and rivers, 84 miles of trout streams, 73 miles of estuarine coast where salt-water fishes are available, and marinas with access to marine waters for boats. So pick up your fishing gear and let's go.



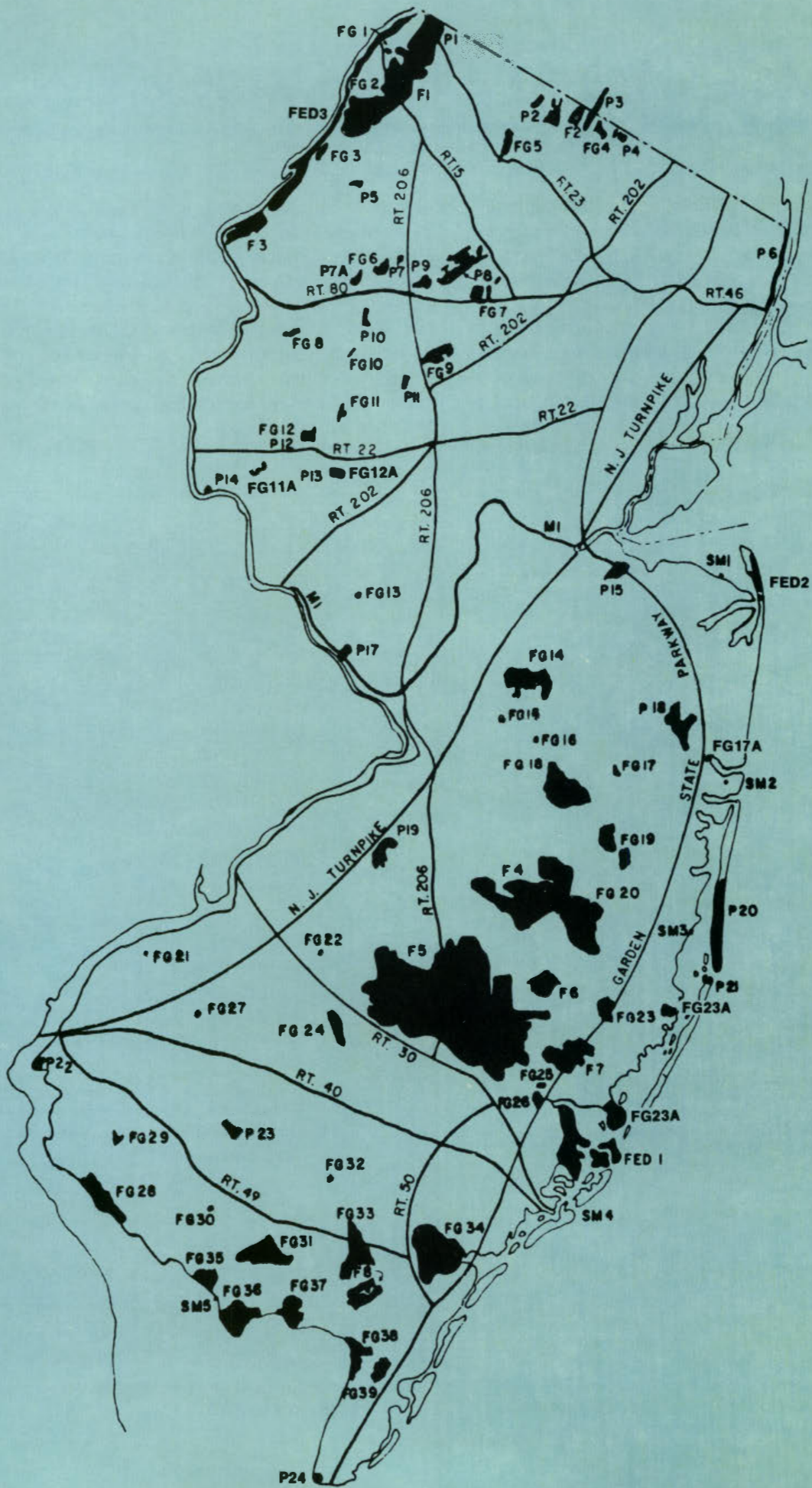
Fisherman Jimmy Nicollni (right), assisted by his twin brother, Nicky, holds their 13 lb. 3 oz., 39-1/2 inch fluke. The Nicollni family are year-round residents of Brant Beach.



Steve Keim holds 61 lb. 4 oz. striped bass he caught off Sea Bright on 11/22/75.









# PLACES TO FISH IN NEW JERSEY

## Key to Table Designations

Y - Yes

N - No

Z - Present but not on State lands or not State operated.

\* - Abundant during spring stocking season.

a/ - Picnicking is allowed in some areas where facilities are not provided, consult local area superintendent.

b/ - Boat launching is allowed in some areas where facilities are not provided, consult local area superintendent.

c - Walleye pike present.

d/ - Trout "No Kill" regulation in force.

e/ - Regulations or facilities may fluctuate seasonally, consult compendium of Fish or Game Laws, the Area Manager, or the local Superintendent for Parks and Forest Areas.

f - 10.0 Horsepower maximum.

g - Electric outboard motors only.

h/ - Consult stocking list for portions of canal stocked with trout.

1 - Campers only.

1 - Abundant

2 - Present

3 - Rare

4 - Absent

Fish & Game Water or Access Points (FG)	FACILITIES										FISH SPECIES										
	Surface Acreage or Mileage	Bank Fishing	Boat Launch b/	Boat Livery	Outboards Permitted	Bathing	Picnicking a/	Cabins	Campsites	Trout	LM Bass	SM Bass	Pickereel	Catfish	Yellow Perch	White Perch	Suckers	Carp	Sunfish	Tidal Species	Saltwater Species
<b>FG1</b> Hainesville F. & W. Mgt. Area																					
Hainesville Pond	37	Y	N	N	N	N	N	N	N	3	1	4	2	2	3	4	1	4	1		
Little Flat Brook	0.25	Y	N	N	N	N	N	N	N	2*	3	4	2	2	3	4	1	4	1		
<b>FG2</b> Flatbrook - Roy F. & W. Mgt. Area																					
Big & Little Flat Brooks e/	5.6	Y	N	N	N	N	N	N	Y	1	3	3	2	2	3	4	1	4	1		
<b>FG3</b> Walpack F. & W. Mgt. Area																					
Big Flat Brook e/	2.1	Y	N	N	N	N	N	N	N	2*	3	2	2	2	3	4	1	3	1		
<b>FG4</b> Wanaque F. & W. Mgt. Area																					
Wanaque River	1.6	Y	N	N	N	N	N	N	N	2*	2	4	2	2	3	4	1	3	1		
<b>FG5</b> Hamburg Mountain F. & W. Mgt. Area																					
Black River Creek Tribs.	5.4	Y	N	N	N	N	N	N	N	2	3	4	3	2	4	4	2	4	2		
<b>FG6</b> Whittingham F. & W. Mgt. Area																					
Pequest River	1.6	Y	N	N	N	N	N	N	N	2	3	3	2	2	3	4	2	4	2		
<b>FG7</b> Berkshire Valley F. & W. Mgt. Area																					
Rockaway River	2.0	Y	N	N	N	N	N	N	N	2*	3	3	2	2	3	4	1	3	1		
<b>FG8</b> Pequest F. & W. Mgt. Area																					
Pequest River	2.8	Y	N	N	N	N	N	N	N	2*	3	2	3	2	3	3	1	4	2		
<b>FG9</b> Black River F. & W. Mgt. Area																					
Black River	2.5	Y	N	N	N	Yg	N	N	N	3	2	4	2	2	2	4	2	4	2		
Ryans Pond	1	Y	N	N	N	N	N	N	N	4	2	4	2	2	4	4	4	4	2		
Atwater Pond	1.8	Y	N	N	N	N	N	N	N	4	2	4	3	2	3	4	4	4	2		
Lillian Lake	5	Y	N	N	N	N	N	N	N	4	2	4	2	2	2	4	4	3	2		
<b>FG10</b> Musconetcong River d/	1.0	Y	N	N	N	N	N	Z	N	2*	3	3	3	3	4	4	1	4	1		
<b>FG11</b> Ken Lockwood Gorge F. & W. Mgt. Area																					
So. Br. Raritan River e/	2.3	Y	N	N	N	N	N	N	N	2*	4	2	4	4	4	3	2	4	1		
<b>FG11A</b> Capoolong	2.1	Y	N	N	N	N	N	N	N	2*	4	3	4	3	4	4	2	4	3		
<b>FG12</b> Clinton F. & W. Mgt. Area																					
Black Brook	0.25	Y	N	N	N	N	N	N	N	1	4	4	4	4	4	4	3	4	4		
Spruce Run Reservoir	3.2	Y	N	N	N	N	N	N	N	1	1	4	3	2	3	4	1	4	1		
<b>FG12A</b> Round Valley Reservoir	2350	Y	Y	Y	N	Yf	N	N	N	1	2	2	4	1	3	2	3	4	1		
<b>FG13</b> Amwell Lake	11	Y	Y	N	N	Yg	N	N	N	3*	1	4	4	1	4	4	3	4	1		
<b>FG14</b> Assunpink F. & W. Mgt. Area																					
Assunpink Creek	2.0	Y	N	N	N	N	N	N	N	3	2	4	2	2	3	4	2	2	2		
Rising Sun Lake	38	Y	Y	Y	N	Yg	N	N	N	4	2	4	4	4	4	4	4	4	3		
Stone Tavern Lake	52	Y	Y	Y	N	Yg	N	N	N	4	2	4	4	3	4	4	4	4	2		
Assunpink Lake	225	Y	Y	Y	N	Yg	N	N	N	4	2	4	2	2	4	4	4	4	2		
<b>FG15</b> Imlaystown Lake	27	Y	N	N	Z	Yg	N	N	N	4	2	4	2	2	2	4	4	2	2		
<b>FG16</b> Prospertown Lake	80	Y	Y	N	N	N	Y	N	N	3*	2	4	2	1	2	4	4	4	1		
<b>FG17</b> Quail Farm																					
Toms River	0.5	Y	N	N	N	N	N	N	N	3*	3	4	2	2	3	3	2	4	2		
Butterfly Bogs (3)	18	Y	N	N	N	Yg	N	N	N	4	4	4	2	2	2	4	4	4	3		
<b>FG17A</b> Manasquan F. & W. Mgt. Area																					
Manasquan River	1.5	Y	Z	Z	Z	Y	N	N	N	2	3	4	3	2	2	2	2	4	2	Y	
<b>FG18</b> Collier's Mill F. & W. Mgt. Area																					
Collier's Mill Pond	17	Y	Y	N	N	Yg	N	Y	N	Y	4	2	4	2	2	2	4	2	4	1	
Turn Mill Pond	100	Y	Y	Y	N	Yg	N	Y	N	Y	4	2	4	2	2	2	4	2	4		
Upper Shannoc Pond	7	Y	Y	N	N	Yg	N	N	N	4	4	4	1	2	4	4	4	4	3		
Lower Shannoc Pond	8	Y	Y	N	N	Yg	N	N	N	4	4	4	1	2	4	4	4	4	3		
Success Lake	40	Y	Y	N	N	Yg	N	N	N	4	4	4	2	2	4	4	4	4	2		
Kennedy Pond	11	Y	Y	N	N	Yg	N	N	N	4	4	4	2	3	4	4	4	4	3		
<b>FG19</b> Whiting F. & W. Mgt. Area																					
Bauer Pond	10	Y	N	N	N	Yg	N	N	N	Ye/	4	4	4	2	4	4	4	4	3		
<b>FG20</b> Greenwood Forest F. & W. Mgt. Area																					
Howardsville Imps. (3)	30	Y	N	N	N	Yg	N	N	N	Y	4	4	4	2	2	2	4	4	3		
<b>FG21</b> Logan Pond	3.5	Y	N	N	N	Yg	N	N	N	N	4	2	4	2	2	2	2	4	2	1	
<b>FG22</b> Rowands Pond	5	Y	Y	N	N	Yg	N	N	N	3*	2	4	2	2	2	3	3	3	2		
<b>FG23</b> Stafford Forge F. & W. Mgt. Area																					
Reservoir	68	Y	Y	N	N	Yg	N	N	N	N	4	4	4	2	2	4	4	4	3		
Pond #1	48	Y	Y	N	N	Yg	N	N	N	N	4	4	4	1	1	4	4	4	3		
Pond #2	22	Y	Y	N	N	Yg	N	N	N	N	4	4	4	1	1	4	4	4	3		
Main Lake	73	Y	Y	N	N	Yg	N	N	N	N	4	4	4	1	1	4	4	4	3		
Goose Pond	3	Y	Y	N	N	Yg	N	N	N	N	4	4	2	2	4	4	4	4	3		
<b>FG23A</b> Manahawkin F. & W. Mgt. Area																					
Impoundment #1	45	Y	N	N	N	Yg	N	N	N	N	4	2	4	3	3	4	3	4	3		
Impoundment #2	35	Y	N	N	N	Yg	N	N	N	N	4	2	4	3	3	4	3	4	3	Y	
Tidal Impoundments (4)	91	Y	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-		
<b>FG24</b> Winslow F. & W. Mgt. Area																					
Great Egg Harbor River	4.6	Y	Y	N	N	Y	N	N	N	N	4	4	4	2	2	4	3	2	4	2	
Cedar Pond	11	Y	Y	N	N	Yg	N	N	N	N	4	2	4	4	4	4	4	2	1		
Oak Pond	12	Y	Y	N	N	Yg	N	N	N	N	4	2	4	4	4	4	4	4	1		
<b>FG25</b> Swan Bay F. & W. Mgt. Area																					
Mullica River & Turtle Creek	3.5	Y	Y	N	N	Y	N	N	N	N					1					Y	



Fish & Game Water or Access Points (FG)		FACILITIES										FISH SPECIES												
		Surface Acreage or Mileage	Bank Fishing	Boat Launch b/	Boat Livory	Outboards Permitted	Bathing	Picnicking a/	Cabins	Campsites	Trout	LM Bass	SM Bass	Pickereel	Catfish	Yellow Perch	White Perch	Suckers	Carp	Sunfish	Tidal Species	Saltwater Species		
FG25A	Great Bay Blvd., Great Bay	9.0	Y	Z	Z	Z	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y		
FG26	Port Republic F. & W. Mgt. Area Mullica River	2.1	Y	N	N	N	Y	N	N	N	N	N	N	N	3*	1	4	2	2	2	2	1	Y	
FG27	Harrisonville Lake	30	Y	Y	Y	N	Yg	N	N	N	N	N	N	N	3*	1	4	2	2	2	2	1	1	
FG28	Mad Horse F. & W. Mgt. Area Malportis & Mad Horse Creeks Delaware Bay	3.0	Y	Y	Y	N	Y	N	N	N	N	N	N	N	N	N	1					Y		
FG29	Maskells Mills Lake	5.8	Y	N	N	N	Yg	N	N	N	N	N	N	N	4	2	4	2	2	2	2	3	2	
FG30	Clarks Pond	20	Y	N	N	N	Yg	N	N	N	N	N	N	N	4	2	4	2	2	2	2	4	2	
FG31	Edward Bevans (Formerly Millville F. & W. Mgt. Area) Buckshutem Creek & Tribs. Shaws Mill Pond	43	Y	Y	N	N	Yg	N	N	N	N	N	N	N	4	2	4	2	2	2	2	2	4	2
FG31A	Cedarville Pond F. & W. Mgt. Area	6.0	Y	N	N	N	N	N	N	N	N	N	N	N	4	3	4	2	2	2	4	2	3	
FG32	Menantico Sand Ponds	30	Y	Y	N	N	Yg	N	N	N	N	N	N	N	3*	2	4	2	2	4	4	2	2	
FG33	Peaslee F. & W. Mgt. Area Tuckahoe River April Bogs (3)	18	Y	N	N	N	N	N	N	N	N	N	N	N	4	2	4	2	2	4	4	4	2	
FG33	Lester G. MacNamara (Formerly Tuckahoe Mgt. Area) Tuckahoe River Tuckahoe Lake	62	Y	Y	N	N	Yg	N	N	N	N	N	N	N	4	2	4	2	2	2	2	2	2	
FG34	Atlantic Cty. Imp. #1 #2 #3 Cape May Cty. Imp. #1 #2 #3	7.0	Y	N	N	N	N	N	N	N	N	N	N	N	4	4	4	2	2	2	2	2	4	3
FG34	Fortesque F. & W. Mgt. Area Delaware Bay	3	Y	Y	N	N	Yg	N	N	N	N	N	N	N	4	4	4	2	2	3	3	4	4	
FG34	Egg Is. - Berry Town F. & W. Mgt. Area Delaware Bay	6.0	Y	Y	Y	N	Y	N	N	N	N	N	N	N	4	4	4	2	2	2	1	2	4	
FG34	Delaware Bay	10	Y	Y	N	N	Yg	N	N	N	N	N	N	N	4	2	4	3	2	2	3	4	4	
FG34	Delaware Bay	104	Y	Y	N	N	Yg	N	N	N	N	N	N	N	4	4	4	2	2	2	2	4	4	
FG34	Delaware Bay	243	Y	Y	N	N	Yg	N	N	N	N	N	N	N	4	3	4	2	2	2	2	4	4	
FG34	Delaware Bay	284	Y	Y	N	N	Yg	N	N	N	N	N	N	N	4	2	4	2	2	2	2	4	4	
FG34	Delaware Bay	42	Y	Y	N	N	Yg	N	N	N	N	N	N	N	4	3	4	3	2	3	3	4	4	
FG34	Delaware Bay	220	Y	Y	N	N	Yg	N	N	N	N	N	N	N	4	1	4	4	1	3	3	4	4	
FG34	Delaware Bay	75	Y	Y	N	N	Yg	N	N	N	N	N	N	N	4	4	4	3	2	1	1	4	4	
FG35	Delaware Bay	3.0	Y	Z	Z	Z	Y	N	N	N	N	N	N	N							1		Y	
FG36	Delaware Bay	9.0	Y	Z	Z	Z	Y	N	N	N	N	N	N	N							1		Y	
FG37	Heliserville F. & W. Mgt. Area Maurice River Cumberland Cty. Imp. #1 #2 #3	2.9	Y	Y	Z	Z	Y	N	N	N	N	N	N	N	4	4	4	4	2	4	2	4	1	
FG37	Delaware Bay	68	Y	Y	N	N	Yg	N	N	N	N	N	N	N	4	4	4	2	4	2	4	1	4	
FG37	Delaware Bay	61	Y	Y	N	N	Yg	N	N	N	N	N	N	N	4	4	4	2	4	2	4	1	4	
FG37	Delaware Bay	113	Y	Y	N	N	Yg	N	N	N	N	N	N	N	4	4	4	4	2	4	2	4	1	
FG38	Dennis Ck. F. & W. Mgt. Area Dennis Creek & Tribs. Delaware Bay	5.5	Y	Y	Y	N	Y	N	N	N	N	N	N	N							1		Y	
FG39	Beaver Swamp F. & W. Mgt. Area Clint Mill Pond	3.0	Y	N	N	N	Y	N	N	N	N	N	N	N									Y	
FG39	Delaware Bay	6	Y	N	N	N	Yg	N	N	N	N	N	N	N	4	4	4	2	2	3	3	4	4	

State Parks or Forests Water or Access Points (P) (F)		FACILITIES										FISH SPECIES											
		Surface Acreage or Mileage	Bank Fishing	Boat Launch b/	Boat Livory	Outboards Permitted	Bathing	Picnicking a/	Cabins	Campsites	Trout	LM Bass	SM Bass	Pickereel	Catfish	Yellow Perch	White Perch	Suckers	Carp	Sunfish	Tidal Species	Saltwater Species	
P1	High Point Big Flat Brook Lake Marcia Steenykill Lake Saw Mill Lake	3.0	Y	N	N	N	N	N	N	N	N	2*	3	3	3	3	3	4	2	4	2		
P2	Wawayanda Wawayanda Creek Wawayanda Lake Laurel Pond	19	Y	N	N	N	N	Y	Y	N	N	4	3	3	4	2	2	4	4	4	2		
P2	Wawayanda Wawayanda Lake	30	Y	Y	N	N	Yg	N	N	Y	N	4	3	2	4	2	4	4	4	4	2		
P2	Wawayanda Wawayanda Lake	20	Y	Y	N	N	Yg	Y	Y	N	Y	3*	2	4	4	3	4	4	4	4	2		
P3	Greenwood Lake	2.0	Y	N	N	N	N	N	N	N	N	2	4	4	4	3	4	4	2	4	3		
P4	Ringwood Ringwood River Wanaque River Shepherd Lake Bear Swamp Pond e/ Green Turtle Pond Sallys Pond Mill Pond Glassmere Ponds (3) Gatun Pond Brushwood Pond Weyble Pond	255	Y	Y	N	N	Yg	N	N	N	N	2*	2	3	2	2	2	3	2	4	2		
P4	Ringwood Ringwood River	5	Y	N	N	N	N	N	N	N	4	2	4	3	2	3	3	3	4	2			
P4	Ringwood Ringwood River	1920	Y	Z	Z	Z	Y	Z	Z	Z	N	2*	1	2	1	1	2	2	3	4	1		
P4	Ringwood Ringwood River	1.0	Y	N	N	N	N	N	N	N	N	3*	3	4	2	2	3	3	1	4	2		
P4	Ringwood Wanaque River	3.4	Y	N	N	N	N	N	N	N	N	2*	2	4	2	2	3	3	1	3	1		
P4	Ringwood Shepherd Lake	74	Y	Y	Y	Y	Yg	Y	Y	N	N	3*	2	4	2	2	2	3	3	4	2		
P4	Ringwood Bear Swamp Pond e/	56	Y	N	N	N	Yg	N	N	N	N	4	2	4	2	2	3	3	4	4	2		
P4	Ringwood Green Turtle Pond	40	Y	Y	N	N	Yg	N	N	N	N	4	2	4	4	2	2	3	4	4	2		
P4	Ringwood Sallys Pond	11	Y	N	N	N	N	N	N	N	N	4	2	3	3	2	3	3	2	4	2		
P4	Ringwood Mill Pond	1	Y	N	N	N	N	N	N	N	N	4	2	3	3	2	3	3	3	4	2		
P4	Ringwood Glassmere Ponds (3)	2.5	Y	N	N	N	N	N	N	N	N	4	3	2	2	2	2	3	4	4	1		
P4	Ringwood Gatun Pond	1	Y	N	N	N	N	N	N	N	N	4	4	2	3	1	2	3	4	4	1		
P4	Ringwood Brushwood Pond	4.0	Y	Y	N	N	Yg	N	N	N	N	4	4	2	3	1	2	3	4	4	1		
P4	Ringwood Weyble Pond	4.0	Y	Y	N	N	Yg	N	N	N	N	4	4	2	2	1	2	3	4	4	1		
P5	Swartswood Big Swartswood Lake Little Swartswood Lake Spring Lake	494	Y	Y	Y	Y	Yg	Y	Y	N	Y	2*	2	2	2	2	2	2	2	3	1		
P5	Swartswood Big Swartswood Lake	75	Y	Y	N	N	Yg	N	N	N	N	4	2	3	2	2	2	2	4	4	1		
P5	Swartswood Little Swartswood Lake	11	Y	N	N	N	N	N	N	N	N	4	2	4	3	2	3	3	3	2	2		
P6	Palisades Interstate Hudson River	10.0	Y	Y	Y	N	Y	N	Y	N	N											Y	
P7	Cranberry Lake	179	Y	Y	Z	Z	Y	N	N	N	N	3*	2	3	2	1	2	1	2	4	1		
P7A	Allamuchy - Deer Park Pond	40	Y	Y	N	Y	Yg	N	N	N	N	4	2	4	2	2	2	4	4	4	2		
P8	Lake Hopatcong	2685	Y	Z	Z	Z	Y	Y	Y	Z	N	2*	2	3	1	1	1	1	2	3	1		
P9	Lake Musconetcong	329	Y	Y	Z	Z	Y	N	N	N	N	3*	1	3	1	2	1	1	2	3	1		



	State Parks or Forests Water or Access Points (P) (F)	FACILITIES										FISH SPECIES											
		Surface Acreage or Mileage	Bank Fishing	Boat Launch b/ Carp	Ramp	Boat Livery	Outboards Permitted	Bathing	Picnicking a/ Cabins	Campsites	Trout	LM Bass	SM Bass	Pickeral	Catfish	Yellow Perch	White Perch	Suckers	Carp	Sunfish	Tidal Species	Saltwater Species	
P10	Stevens-Saxton Falls Saxton Falls Lake Musconetcong River	60 0.75	Y Y	Y N	N N	Z N	Yg N	N Y	Z Y	N N	N Y	2* 2*	2 3	2 3	2 3	1 3	2 3	1 1	4 4	1 1			
P11	Hacklebarney Black River Trout Brook Rhinehart Brook	0.66 0.33 0.25	Y Y Y	N N N	N N N	N N N	N N N	Y N N	N N N	N N N	N N N	2* 2 2	3 4 4	3 4 4	3 4 4	3 4 4	3 4 3	2 3 4	4 4 3	2 4 3			
P12	Spruce Run Reservoir	1290	Y	Y	Y	N	Yf	N	N	N	N	N	1	3	3	1	3	3	1	4	1		
P13	Round Valley Reservoir	2350	Y	Y	Y	N	Yf	N	N	N	N	Y	1	2	2	4	1	3	2	3	4	1	
P14	Bulls Island Delaware River Delaware-Raritan Canal	0.8 1.25	Y Y	Y Y	Y N	N N	Y N	N N	Y N	N N	Y N	3 3*	2 2	3 3	3 1	2 2	3 3	1 1	1 1	2 2			
P15	Cheesequake Cheesequake Creek Hooks Creek Lake	0.75 10	Y Y	N N	N N	N N	Y N	N Y	N Y	N N	N N	N Y	4 4	4 4	4 4	4 4	1 1	4 4	4 4	4 4		Y	
P17	Washington Crossing Delaware River Delaware-Raritan Canal	0.5 0.5	Y Y	Y Y	N N	N Z	Y N	N Y	Y N	N N	N N	4 3*	2 2	4 3	2 2	1 1	2c 2	3 3	1 1	2 2	1 1		
P18	Allaire Manasquan River Mingamahome Brook	1.0 0.25	Y Y	N N	N N	N N	Y N	N N	Y N	N N	N N	2* 2*	3 4	4 4	4 4	3 4	3 4	3 4	1 1	4 4	3 3		
P19	Rancocas Rancocas Creek Branches	3.5	Y	Y	N	N	Y	N	N	N	N	4	3	4	2	1	3	2	2	2	2		
P20	Island Beach e/ Atlantic Ocean	9.5	Y	Z	Z	Z	Y	Y	Y	N	N											Y	
P21	Barnegat Light e/ Inlet & Atlantic Ocean	0.5	Y	Z	Z	Z	Y	Y	Y	N	N											Y	
P22	Fort Mott Delaware River	0.45	Y	N	N	N	Y	N	Y	N	N											Y	
P23	Parvin Muddy Run Parvin Lake Thundergust Lake	1.4 95 14	Y Y Y	Y N Y	Y N Y	Yg Yg Yg	N Y Y	N Y Y	N N Y	N N N	N Y N	4 4 4	2 2 2	4 4 4	2 2 2	2 2 3	2 2 4	2 2 4	2 2 4	2 2 1			
P24	Cape May Point Stokes	0.5	Y	N	N	N	N	N	N	N	N											Y	
F1	Big Flat Brook & Tribs. e/ Lake Ocquittunk e/ Stony Lake e/	20.0 8 16	Y Y Y	N N N	N N N	N Yg Yg	N Y Y	Y Y Y	Y Y Y	Y Y Y	Y Y Y	2* 3* 2*	3 2 3	3 4 3	3 2 3	3 4 4	4 4 4	2 2 4	4 4 4	3 2 3			
F2	A. S. Hewitt Green Brook Surprise Lake West Pond	1.7 20 5	Y Y Y	N N N	N N N	N N N	N N N	N N N	N N N	N N N	N N N	2 Not Documented	4 4	4 3	3 4	4 4	4 4	2 2	4 4	4 4			
F3	Worthington Delaware River Dunnfield Creek Columbia Lake Sunfish Pond e/	6.0 3.5 55 41	Y Y Y Y	N N N N	Y N N N	Y N Yg N	N N N N	Y N N N	Y N N N	Y N N N	3 1 3 4	3 4 2 4	2 3 4 4	4 3 2 4	3 4 1 4	4c 4 2 4	4 4 3 4	1 4 3 4	2 3 1 4	2 3 1 4			
F4	Lebanon Rancocas Creek Tribs. Pakim Pond	7.0 5	Y Y	N Y	N N	N Yg	N Y	N Y	N Y	N Y	N Y	4 4	4 4	4 4	2 2	3 4	4 4	2 2	4 4	3 2			
F5	Wharton Mullica River Wading River Batsio River Atsion Lake e/ Harrisville Lake e/ Batsto Lake	23.0 13.0 9.0 62 40 40	Y Y Y Y Y Y	Y N N N N N	Y N N N N N	Y N N Yg Yg Yg	N Y Y Y Y N	Y N Y Y Y N	Y N Y Y Y N	Y N Y Y Y N	4 4 4 4 4 4	3 4 4 4 4 4	4 4 2 2 2 2	3 2 4 4 4 4	3 2 4 4 4 4	2 4 2 4 4 4	1 4 4 4 4 4	3 4 4 4 4 4	3 3 4 3 4 3				
F6	Penn Oswego River Lake Oswego	4.0 92	Y Y	N Y	N N	N Yg	N Y	N Y	N N	N N	N N	4 4	4 4	4 4	2 2	2 4	4 4	2 2	4 4	3 2			
F7	Bass River Lake Absegami	63	Y	Y	N	N	Yg	Y	Y	Y	Y	4	4	4	2	2	4	4	2	4	2		
F8	Belleplain Savages Run East Creek Lake Lake Nummy	1.6 62 26	Y Y Y	N N N	N N N	N Yg Yg	N Y Y	N N Y	N N Y	N N Y	N N Y	4 4 4	3 4 4	4 1 3	1 1 3	1 3 4	4 4 4	4 4 4	4 4 4	2 2 2			
<b>State Marinas (SM)</b>																						Y	
SM1	Leonardo		N	Z	Z	Z	Y	N	N	N	N											Y	
SM2	Point Pleasant		N	Z	Z	Z	Y	N	N	N	N											Y	
SM3	Forked River		N	Z	Z	Z	Y	N	N	N	N											Y	
SM4	Atlantic City		N	Z	Z	Z	Y	N	N	N	N											Y	
SM5	Fortesque		N	Z	Z	Z	Y	N	N	N	N											Y	
<b>Miscellaneous (M)</b>																							
M1	Delaware-Raritan Canal h/	60.0	Y	Y	N	Z	N	N	N	N	N	3*	2	3	2	1	2c	3	1	2	1		
<b>Federal (FED)</b>																						Y	
FED1	Brigantine National Refuge e/		Y	Y	Y	Z	Y	N	N	N	N											Y	
FED2	Sandy Hook Unit e/ Sandy Hook Bay Atlantic Ocean	1.5 6.0	Y Y	Z Z	Z Z	Z Z	Y Y	N Y	N Y	N N	N N											Y	
FED3	Delaware Water Gap National Recreational Area e/ Delaware River Van Campens Brook Big Flat Brook Watergate Ponds	17.0 6.0 15.0 5	Y Y Y Y	Y+Z N N N	Y+Z N N N	Z N N N	Y N N N	N N N N	N N N N	N N N N	N N N N	2 2* 2* 4	2 4 3 2	2 4 3 2	3 3 3 2	2 3 4 2	3 4 4 4	2 2 4 4	2 4 1 3	2 4 4 3	2 2 4 2		





*A female diamondback searching for a nesting site.*

PHOTOS BY AUTHOR

**\$25 per egg!**

**That's the penalty for possessing an egg of New Jersey's diamondback terrapin. Once nearly extinct, it is one of the world's most unusual turtles.**

**BY ROGER WOODS** *Stockton State College, Pomona, N.J.*

Every year, from early June to mid-July, thousands of gargoyle-like creatures creep silently out of the muck and brine of the salt marshes fringing New Jersey's coasts to participate in an annual ritual that far antedates recorded history. These innocuous invaders of our shores are female northern diamondback terrapins (known to scientists as *Malaclemys terrapin terrapin*) coming onto dry land to lay their eggs. Rarely seen except on these occasions, diamondbacks lead a life which, until recently, has largely remained a mystery. Research during the past several years by scientists from Stockton State College, the South Jersey Wetlands Institute, and Rutgers University has, however, started to unravel some of the secrets of diamondback life history.

To the casual observer, diamondbacks look quite like any of the many other aquatic turtles that populate much of the world's temperate and tropical regions. But diamondbacks are unusual for a number of reasons. In

the first place, they occupy a unique habitat, being restricted to salt marshes. (There is a turtle found in parts of New Guinea and northern Australia, known as *Carettochelys*, which lives to some extent in brackish waters. There are also a few typically fresh water species—snapping, mud, and painted turtles—that occasionally transgress the fringes of salt marshes along the Atlantic coast but these are not predominantly salt marsh turtles. These types may sometimes be found along the inland periphery of salt marshes, but usually only when there is an influx of fresh waters from heavy rains or spring melt-offs of snow.) Diamondbacks are, therefore, the only turtles in the world that live exclusively in salt marshes. They rarely ascend rivers, and then never at great distances, and although they may occasionally be found on the ocean side of coastal barrier beaches, they are not true marine turtles.

Their range is also rather extraor-

inary. It extends in a very narrow strip, usually not more than three or four miles wide, from Buzzards Bay, Massachusetts, all the way down the Atlantic coast, around peninsular Florida, along the Gulf coast and down through Texas. The range probably extends some undetermined distance into Mexico, but no one really knows how far. Thus diamondbacks have a range several thousand miles long but never more than a few miles wide.

Another unique aspect of diamondbacks is their succulence. They are reputed to be the best-tasting turtles in the world. In colonial times they were very abundant, reasonably easy to catch, and therefore very cheap. They provided the staple diet for slaves on many of the tidewater plantations of Virginia and Maryland. In fact, records indicate that the slaves got so tired of their diamondback diet that they went on a hunger strike until they were promised something else to eat be-



sides terrapins. Time and tastes changed, however, and for a period beginning in the late 1800's and extending into the early 1900's, epicures considered diamondbacks to be the ultimate treat for cultured palates. Pound for pound, diamondbacks were unquestionably the most expensive meat in the world. A wholesaler was supposed to have sold a dozen terrapins (whose shells normally do not exceed 8 inches in length) for \$125—and remember that a dollar then was worth considerably more than a dollar now. Not surprisingly, the premium prices for diamondbacks resulted in their being hunted intensively. As a result, populations of terrapins from salt marshes along the Delaware and Chesapeake Bays (which were considered by gourmets to be the tastiest variety) were ravaged. The demand for northern diamondbacks was so great, in fact, that at one time it seemed as if this subspecies might be on the verge of extinction owing to over hunting by man.

Two circumstances intervened, however, to prevent the total extirpation of terrapins. One was the advent of prohibition. The universal recipe for cooking diamondbacks was evidently to simmer them in large quantities of sherry, and the sudden unavailability of this vital ingredient no doubt dulled

the enthusiasm of many gourmets for this greatest of all delicacies. Another factor was the onset of the great depression. People were no longer willing to squander large sums of money on a dozen small terrapins that would barely suffice as a single helping for a couple of diners (and not very hungry ones at that!). These two factors combined to produce a rather sudden release of predation pressure on beleaguered terrapin populations and allowed them a chance to recover. Recovery, however, has been a slow process. Twenty-five and more years ago, when I was a kid coming down to the south Jersey shore with my family for summer vacations, diamondbacks were so scarce that they were hardly (if ever) seen. Now, happily, it appears that our terrapin populations, at least along some parts of the Jersey coast, may have increased to a level approximating that of their original abundance.

Diamondbacks present difficulties for study because most of their activities occur in the water; hence much still remains to be learned about their natural history. In or out of the water, terrapins are extremely shy and when approached they dive under the water and swim away. Occasionally, on sunny days at low tides, they may be observed basking on exposed mud banks of the marshes. But aside from this, terrapins

in New Jersey are generally only seen in the early summer when they emerge to lay eggs, and these are, of course, all females.

Nesting takes place both during the day and at night. This is still another aspect in which diamondbacks are unique, as other kinds of turtles lay their eggs at one time or the other, but never both. The peak of nesting activities generally coincides with high tides. A terrapin nest is ordinarily about 4-5 inches deep and usually contains 8-10 eggs. The incubation period for the eggs, at least in the northern part of their range, seems to be somewhere between 60 and 90 days, depending largely upon variability in weather conditions. Hatchlings thus emerge in the late summer and early fall. Sometimes eggs laid late in the season apparently do not hatch until the following spring. Turtle eggs are not like bird eggs; they are longer and more oblong and instead of having a brittle shell, theirs is soft and flexible.

Diamondbacks have a rather interesting life cycle. They are active only in the late spring, summer, and early fall, during which time they are spread more or less uniformly throughout the waters of the salt marsh. But, sometime between the middle of November and the end of December, their activities cease and they hibernate for the duration of the winter. Few diamondbacks remain out in the bays of the marsh through the coldest months of the year; most will instead congregate in the marsh creeks, which afford better

*(Continued on page 26)*

*Highway sign on causeway crossing salt marshes between Stone Harbor and Cape May Court House, N.J. A freshly run-over diamondback terrapin can be seen in the middle distance to the left of the sign.*

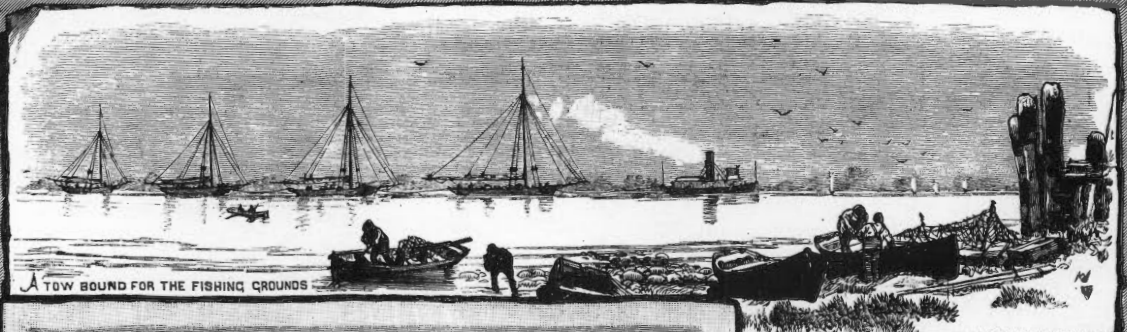


*A female diamondback in the process of covering up her nest hole. This picture is primarily intended as an illustration of a shell that has been slashed by a boat propellor.*





A  
PAGE  
OUT  
OF  
THE  
PAST



A TOW BOUND FOR THE FISHING GROUNDS



GILL-NET FISHING



A POP CORN LUNCH



MOUCH OR STURGEON



SHORE FISHING

NEW JERSEY.—OFFICIAL INSPECTION OF THE SHAD FISHERIES OF THE DELAWARE, APRIL 28TH.  
FROM SKETCHES BY JOSEPH BECKER.—SEE PAGE 207.





# Environmental News

PHOTOS BY JOE KLEIM



**INDIAN KING TAVERN.** Within the walls of this mid-eighteenth century building (originally called "Creighton House" or "The Olde Tavern"), the Council of Safety for New Jersey organized on March 18, 1777, and later met to hold trials for Tory sympathizers. The New Jersey Legislature met here twice in 1777; the bill was passed substituting the word "State" for "Colony" in all state papers, and the Great Seal of New Jersey was authorized. (The interior of this bicen-related site has been freshly painted and the furniture renovated; exterior painting will be completed by the summer.) Located at 233 Kings Highway East in Haddonfield, Camden County. Open Monday, Tuesday, Thursday, Friday and Saturday from 10 a.m.-noon, 1 p.m.-5 p.m. Closed Wednesdays, Thanksgiving, Christmas and New Year's days. Admission charge. This historic site is administered by DEP.

## To prevent overfishing:

### **NEW SEA CLAM REGULATIONS PROTECT RESOURCE/INDUSTRY**

New Jersey's \$10 million-a-year sea clamming industry, in danger because the sea clam resource has been dwindling as the result of overfishing, received help from DEP in the form of new regulations designed to prevent such over-exploitation.

The regulations implemented on March 2 delineate an "off limits" zone extending from Beach Haven Inlet to Crow Shoal #5 buoy off Cape May Point, a distance of 44 miles. The zone extends from the beach to approximately two miles offshore between Beach Haven Inlet and Absecon Inlet, and one mile offshore for the remainder of the zone southward. (Most of the smaller clams can be found in this general area.) The rules limit inshore clamming to the hours between sunrise and 4 p.m. In addition, they mandate the closure of all state sea clam waters (those within 3-mile limit) between May 1 and November 30, when weather permits small clambers to go out into federal waters.

Other provisions include: No dredge on any boat in New Jersey waters may utilize

(continued on page 16D)

## For Pollution and 1,500 Ruddy Ducks

### **COMPANIES PAY \$20,000 FOR OIL SPILL DAMAGE**

In an out of court settlement on February 23, the state, through DEP, agreed to accept payment of \$20,000 for damage to the environment (including water pollution and the loss of 1,500 ruddy ducks) because of oil spilled into the Delaware River. The spill occurred as a result of the collision between the tanker "Athos" and the vessel "S.S. Notre Dame Victory" in the Delaware near Paulsboro on February 19, 1974.

Payment has been made by the Mobil Oil Corporation and Mobil Oil Francaise (owner of the oil); the United States Trust Company, Ecological Shipping Corporation and the S.S. Notre Dame Victory (vessel which rammed the "Athos"). Neither defendant admitted responsibility for the oil spill or the resulting damage to the environment, and none was affixed. The case was handled for DEP by Deputy Attorney General Jonathan Weiner. The "Order to pay and dismissal" was filed in Superior Court, Chancery Division, Gloucester County, on March 1. □

## Excerpts from testimony

### **BARDIN CALLS FOR LAND USE CONTROLS IN VICINITY OF NUCLEAR POWER PLANTS**

Environmental Commissioner David J. Bardin on March 10 told the New Jersey Senate Committee on Energy and the Environment that "the time has come for state and local government to initiate practical land-use controls around nuclear power plants."

In his testimony Bardin said nuclear plants will reduce New Jersey's reliance on fossil-fueled plants and help minimize the air pollution in the state from sulfur-containing oil and coal. "This trade-off is accompanied by other risks related to radiation associated with nuclear power," Bardin said. But he added that in contrast to many other recent technological developments, "nuclear power is probably the most carefully scrutinized regulated technology in the United States today."

Bardin used the beehive as a rough analogy: "It's useful and pretty safe. But bees can sting. A stinging swarm can kill. So the beekeeper takes precautions and the rest of us keep our distances. We don't put the kids' sandbox or the swimming pool up against the hive. That's common sense."

The commissioner noted that the federal Nuclear Regulatory Commission (NRC) has a policy of limiting the human population near nuclear facilities, but said that while the policy has been in effect since the earliest days of the power program, it has yet to be implemented effectively after a nuclear power plant has been licensed by the federal agency.

"We can and should minimize the human exposure to the risk of harm from a major nuclear accident," Bardin said, "by enforcing population density goals and other measures." He called for compatible land use near present and future nuclear plants. Certain industrial operation, for example, might prove compatible, Bardin noted.

DEP is conducting an in-depth study of potential hazards and land use requirements. The study headed by Dr. Glenn Paulson, assistant commissioner for science, will enlist the help of municipal and county officials and lay the groundwork for a full review later by all interested parties.

(Continued on page 16D)



## To meet federal requirements:

### SHELLFISH WATERS RECLASSIFIED

On February 20, 5,150 acres of ocean waters in the vicinity of Great Egg Harbor Inlet and Hereford Inlet were closed to shellfish harvesting due to initial DEP classification of these waters to meet federal food and drug administration requirements. The department emphasized that the changes in regulations do not represent changes in water quality, but merely the first time these waters have been classified by DEP for shellfishing. The waters still meet bacterial criteria for safe bathing areas.

The new classification brings to 90,800 the number of ocean acres closed to shellfishing because of pollution. Within New Jersey's 3-mile jurisdiction there are 139,600 ocean acres that remain open to harvest. In the bay areas of the state, embracing 392,812 acres, 75,000 acres are closed and 279,995 acres are still open to shellfishing; 28,193 of these acres are restricted to special projects and 9,620 are open on a seasonal basis.

Other changes adopted in the state's Shellfish Growing Water Classifications include: About 500 acres of the Mullica River, used mainly for seed oysters; downgraded from approved to condemned; 93 acres in Great Egg Harbor Bay reclassified from fully approved to seasonally approved; 1,164 acres in the Dennis Creek section of Delaware Bay and 100 acres of Fishing Creek in Cumberland County changed from approved to condemned; and, 3,900 acres of Delaware Bay modified to give a two-month longer seasonal harvest during the peak November-December period.

Copies of the regulations are available from DEP's Division of Water Resources, Shellfish Control Section, Box 2809, Trenton 08625. □

### DEP HOLDS PUBLIC HEARING ON SULFUR-IN-FUEL AMENDMENTS

The department held a public hearing on April 19 to consider the temporary burning of higher sulfur fuel by major industrial and power generating plants in Salem, Cumberland and Cape May counties, pending outcome of long-range regional studies being carried out by DEP and the federal Environmental Protection Agency (EPA).

Interim relaxation of the sulfur-in-fuel requirement was announced on March 12 at Governor Byrne's direction. At that time DEP said studies indicate that federal and state air quality standards (primary and secondary) will continue to be maintained and air quality will not deteriorate significantly; and, that the implementation of the rule will allow the use of cheaper fuel by local industry in South Jersey.

Permanent revisions in air pollution regulations for all of South Jersey will follow after careful consideration of the results of the regionwide studies made by DEP and EPA. The studies should be completed this summer. □

### DEP REVISES SEWERAGE PROJECT PRIORITY LIST

In mid March the department reassigned \$165 million in federal sewer grant funds from 39 projects unready for construction to 61 projects which were ready to go. The reallocation of funds to those projects which have completed their planning and engineering and submitted final plans and specifications came as a result of DEP's quarterly progress review of the program. The reallocation continues DEP's basic priority of funding sewer needs in urban areas.

As of March 19, New Jersey had 33 projects under construction, costing \$857 million. The department intends to maintain the pollution control momentum to provide a more healthful environment and create more construction jobs. DEP expects commitment of all of the \$1.3 billion in federal funds allocated to New Jersey before the end of the year. The water pollution control program is the largest public works program currently underway in the state.

Copies of the revised list are available upon request from Fred Yaple, Division of Water Resources, Public Wastewater Facilities Element, Box 2809, Trenton 08625. □

### 800 construction jobs

#### CUMBERLAND COUNTY CLEAN WATER PROJECT APPROVED

State approval of the Cumberland County Sewerage Authority's \$15 million sewer grant application to upgrade the Bridgeton wastewater treatment facility was announced by Governor Byrne on March 11. The project will upgrade the existing primary sewage treatment plant to a secondary regional facility serving the City of Bridgeton and parts of Upper Deerfield Township.

"This project will do much to clean up pollution in the Cohansey River," Byrne said, "and will create 800 construction jobs in a county where the unemployment rate is at 20 percent." Byrne commented that this "is another example of action in which environmentalists and those primarily concerned with our lagging economy are natural allies." □

### STATE SWIMMING AREAS TO OPEN

Bathing areas in all but one of the 14 state-owned inland recreation areas will open on May 29. (The exception is Atsion Lake in Wharton State Forest which will remain closed because a new day use area is in construction.) The swim season will begin at the oceanfront park (Island Beach) on June 19. All are served by lifeguards who had to pass a difficult series of performance tests given at the various facilities and who participate in a summer-long organized program of physical conditioning and water safety instruction. For a listing of state recreation areas and the facilities offered at each, write to DEP's Bureau of Parks, Box 1409, Trenton 08625, and ask for a copy of the "Year 'round Guide to New Jersey's State Parks, Forests and Historic Sites." □

### Re: Construction projects: HISTORICAL REVIEW FUNCTION TRANSFERRED

In mid February, DEP consolidated historical and archaeological review with other aspects of the overall environmental evaluation of construction projects. The intent of the action is to provide timely reviews of construction projects in accordance with federal law. The responsibility for this function was shifted from DEP's Historic Sites Section to the Office of Environmental Review (OER), which is headed by Lawrence Schmidt.

David N. Poinsett, supervisor of Historic Sites since 1969, has been reassigned to OER and will conduct these historic and cultural resource reviews, which are one segment of the entire environmental review process.

The Historic Sites Section will continue to guide the operation of the state's historic sites, the state historic preservation plan and survey; to process nominations to the state and national registers of historic places; and to administer federal historic preservation grants. Charles Tichy is acting supervisor. □

## CAFRA UPHELD IN COURT

**A decision rendered on February 19 in the Appellate Division of the Superior Court of New Jersey affirmed the state's authority to establish and enforce land-use regulations for the state's coastal areas. The decision upheld the constitutionality of the Coastal Area Facility Review Act (CAFRA) of 1973, which was designed to preserve the state's coastal resources. CAFRA is administered by DEP.**

*Background of the case:* Toms River Affiliates wanted to sell a 9.5-acre waterfront site in Toms River, Ocean County, to Lehigh Construction Company. Lehigh applied for a permit to build a 10-story, 220 unit condominium on the site. The permit was denied July 10, 1974 by Environmental Commissioner David J. Bardin who maintained in a written opinion that the building represented "an abrupt intrusion to existing land-use practices and policies in the Toms River Region of the coastal area." Lehigh appealed to the Coastal Area Review Board which upheld the commissioner's decision on January 3, 1974.

The appeal from the "determination of the Commissioner of Environmental Protection and the Coastal Area Review Board" was

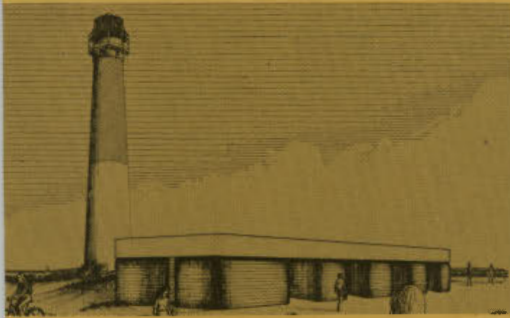
filed by Toms River Affiliates and the Lehigh Construction Company. The appeal focused upon "the constitutional validity" of CAFRA and the "propriety of the denial of a permit thereunder" by the state commissioner of Environmental Protection. The case was argued before Judges John F. Lynch, Samuel A. Larner and Herbert Horn on January 13, 1976, and decided in favor of the state on February 19. Deputy Attorney General Mrs. Erminie L. Conley handled the case for the state.

Subsequent to the Appellate Division's decision, the appellants filed a "Notice of Petition for Certification" in the Supreme Court of New Jersey. The petition is presently pending before that court. □



# PAST, PRESENT, AND NEAR FUTURE—a pictorial progress report on DEP's program to update sanitary facilities in state parks and forests.

Researched and Compiled by Edi Joseph



## NEW BATH HOUSE AT BARNEGAT.

The architect's rendering of the new bath house at Barnegat Light House state park will become reality in time for the summer season. The new facility, which replaces a very old one, will contain public toilets, changing rooms and showers, and a first aid room.



## THE GOOD OLD DAYS?

The old-fashioned toilet facilities at High Point State Park (this one at the foot of the monument) are being converted to modern flush toilets using water saver fixtures, and the building is being completely renovated.



## MODERN FACILITY.

Believe it or not, the building shown in a late March progress photo, is the same facility at High Point well along in renovation. All new toilet facilities and conversions designed in the program provide for those among us who are handicapped. One extra-wide water closet booth with side rails is provided in the men's section, and one in the women's. Ramp entrances are being built.



## CAMPER'S DELIGHT.

A hot shower and clean clothes are easy to come by in the modern laundry shower facilities built by DEP in state parks and forests. The building above is located at Bass River State Forest. Others are in Belle Plain and Lebanon state forests, and in Allaire, Cheesequake, Parvin and Swartswood state parks.

## PLANNING TO VACATION IN NEW JERSEY'S STATE PARKS THIS SUMMER?—here's timely information on basic fees, sanitary facilities and swim area opening dates.

### USER FEES INCREASED TO KEEP PARKS OPEN

The revised state park user fees that became effective on April 1 were adopted so that quality service could be maintained to the public in the face of the recommended budget cutback and higher operating costs. The alternative was to substantially curtail operation of the parks this summer.

The new charges will increase income from approximately \$1.5 to \$2.9 million. State park users were paying 26 cents of

every dollar for operating and maintenance costs: The new fee schedule raises this to 46 cents of every dollar.

The basic fee schedule changes are as follows:

1. **Entrance fee (head charge)**—has been removed for passengers in motor vehicles to encourage park patrons to car pool with neighbors and friends.
2. **Parking fee**—has been raised from \$1

per vehicle to a fee schedule of \$2, \$3, \$4, or \$5 for all-day parking depending on the park and facilities and amenities provided. (This should encourage car pooling.)

For example, a family of five visiting Island Beach for a day between Memorial Day and Labor Day will now pay a flat fee of \$5 (parking only, no head charge, no bath house charge). Previously, the charges would have been \$3.50 (\$1 for parking, 25¢ per passenger admission and 25¢ per person for use of bath house). In the off-season, the family will now pay a reduced flat fee of \$2, a slight reduction from the previous rate. (A driver with no passengers will also pay the \$5 in-season parking fee instead of the previous charges totaling \$1.50; and the \$2 off-season fee.)

3. **Camping fees**—have been increased an average of \$1.50 per campsite per night. This increase makes state fees comparable with those in the private sector.

For example, a campsite with flush toilet facilities available will now cost \$5 per night. Previously, the charge was \$3.50.

4. **Cabin rentals**—have been increased approximately 50 percent.

As an added incentive for public transit, any regularly scheduled bus service will be allowed free entry and turn-around in the parks; discharged passengers will be allowed in free. (Last summer there were no scheduled bus services into any state park.)

The new 1976 all-day auto parking fees and changeover dates issued on March 8 are given below.

Starting in April, the daily parking fee at Island Beach will be \$2 until Memorial Day weekend (again after Labor Day).

Starting in April, Allaire parking fees will be \$2 per car daily until Memorial Day weekend (and again in September and October).

Starting in May, a \$2 parking fee will be imposed weekends only at all areas listed in the table below until Memorial Day weekend (and again in September and October).

Starting Memorial Day weekend, a \$2 parking fee will be imposed at Batsto on weekends only and the same fee will later be imposed at Washington Crossing (once toll facilities are installed); there will be no fees for evening outdoor theatre parking.

From Memorial Day weekend through Labor Day weekend the following parking fees will be charged daily at the areas listed below:

Allaire .....	\$3	Lebanon .....	\$3
Barnegat .....		Parvin .....	\$4
Lighthouse .....	\$4	Ringwood Skylands	
Bass River .....	\$4	(combined) .....	\$4
Belleplain .....	\$4	Shepherd Lake ....	\$4
Cheesequake .....	\$3	Spruce Run .....	\$5
High Point .....	\$4	Stokes (Stony	
Hopatcong .....	\$4	Lake) .....	\$3
Island Beach .....	\$5	Swartswood .....	\$4

The Ringwood-Skylands fee covers parking at both areas in turn and does not apply for evening activities. All other areas will not have auto parking fees. □





### 'Bicen' event:

#### OPERATION SAIL '76

Sailing vessels from nations around the world will assemble off Sandy Hook in New Jersey on July 3, and on the morning of Independence Day, July 4, will sail into New York Harbor in a multi-national salute to our country's 200th "birthday." The huge ships will sail in parade line under the Verrazano Bridge to the George Washington Bridge, turn around and return to berth in New York or New Jersey. Plans call for a fleet of modern naval vessels to be anchored in the harbor for the occasion; and it is expected that thousands of pleasure boats will congregate in New Jersey and New York waters to see the spectacle. Whether viewed from shore or boatdeck, Operation Sail '76 promises to be "a sight to behold and remember." □

#### HISTORIC SITES CLOSED WEDNESDAYS

Museums at Historic Sites are open daily 10 a.m.-12 p.m., and 1 p.m.-5 p.m., Sundays 2 p.m.-5 p.m., and are closed on Wednesdays, Thanksgiving, Christmas and New Years days. (Until this year, the sites were closed on Mondays.) □

#### ARE YOU ELIGIBLE?

**FREE PARK PASSES:** New Jersey residents, age 65 or over, may obtain a **Senior Citizen Pass** entitling them to free admission and free parking by presenting proof of age and social security card at any state park or forest field office, or historic site. Other fees are not covered by the passes. This program began in 1971.

Under authorization of a law enacted in 1975, any resident of New Jersey who is totally disabled may obtain a **Totally Disabled Persons Pass** entitling them to the same privileges as the Senior Citizen Pass. Applications are available from the N.J. Bureau of Parks, P.O. Box 1420, Trenton 08625, or at any state park or forest field office, or historic site. Both of the above programs are administered by DEP's Division of Parks and Forestry. □

**FREE CLAMMING AND OYSTERING LICENSES:** New Jersey residents, age 62 or older, are eligible for free clamming and oystering licenses. (One license is issued for both activities.) Applications are available from the DEP Division of Fish, Game and Shellfisheries, Box 1809, Trenton 08625. □

#### Auto emissions testing:

- 1) QUESTIONS AND ANSWERS PAMPHLET
- 2) PHASE I SUMMARY AND REPORT

The most often asked questions about the state's motor vehicle emissions inspection/maintenance program have been answered in a handy-sized pamphlet available by request from DEP's Division of Environmental Quality, Box 2809, Trenton 08625.

Those interested in fuller information about the program should request the "Phase I Summary and Report" from the division at the address above. □

#### EPILOGUE: TRENTON WATER CRISIS

Trenton area residents collectively "breathed a sigh of relief" on March 7. On that day the Trenton filtration plant returned to full capacity for the first time since the September water crisis. On March 8 DEP lifted the ban on car washing and lawn sprinkling which had been in effect since the filtration plant breakdown on Labor Day weekend (1975). □

#### BOAT REGISTRATION

Boaters are reminded that boat registrations and operator's licenses are now processed by the Division of Motor Vehicles (DMV). The documents can be secured at any of the 55 Motor Vehicle Agencies in the state, or by mailing the forms to DMV in Trenton.

Approximately 115,000 boats are registered in New Jersey. U.S. Coast Guard studies estimate there is one non-registered craft (nonpowered sailboats, rowboats, canoes, etc.) for every registered boat, or an estimated total of 38,000 additional boats in the state. An estimated half-million people will engage in some form of boating this season, and about 25,000 out-of-state boats will pass through New Jersey waters. □

#### SOLID WASTE MANAGEMENT AND RESOURCE RECOVERY

Legislation creating the mechanism for comprehensive solid waste planning was signed into law on February 23, 1976. The law (c. 326, P.L. 1975) requires each county or designated district to develop and formulate a solid waste management plan pursuant to rules and regulations to be promulgated by DEP. The individual plans will involve the use of both sanitary landfills and resource recovery programs for the disposal and use of solid and liquid waste. The plans of the various counties and districts taken together will formulate a statewide solid waste management program. □

#### WOODCHUCK SEASON OPEN

The New Jersey woodchuck hunting season opened on March 27 and will continue until September 18. For details, sportsmen should consult the current compendium of New Jersey game laws available from license agents. □

#### Urban projects given priority:

#### PUTTING PARKS WHERE THE PEOPLE ARE

Park projects in urban communities and urban counties have been allocated the bulk of Green Acres money from the initial appropriation from the 1974 bond issue. This is in keeping with DEP's pledge to "put the parks where the people are."

As of March 15, DEP had approved 50 Green Acres grants for local land acquisition for development of park sites. Of the 50 projects, 27 are located in urban centers of the state. In terms of money, \$17.4 million was allocated for the 50 projects with \$14.7 million of the total assigned to urban areas—close to 85 percent of the grant money.

In the state program during the same period, nine land acquisition or park site development projects were approved. Five of these are in urban counties. Of the \$18.7 million allocated for the nine projects, \$15.9 million went to urban counties—more than 85 percent of the total amount. □

(continued from page 16A)

#### BARDIN CALLS FOR LAND USE CONTROLS

Pending completion of this report, said Bardin, DEP will not approve the construction of residential development or other heavily occupied facilities in the proximity of either the Oyster Creek nuclear plant in Ocean County or those at Artificial Island in Salem County. The action is taken under the state's Coastal Area Facilities Act (CAFRA).

Bardin said DEP also is studying the NRC's proposal on the clustering of nuclear plants as a means of reducing land use impacts. But he said DEP has advised the NRC that Ocean County seems a poor place for such clusters. He said DEP would determine at a future date whether the concept has a place elsewhere in New Jersey. □

(Continued from page 16A)

#### NEW SEA CLAM REGULATIONS

more than one manifold (a waterjet for loosening the sea bottom), and no knife or manifold may exceed 60 inches in length; DEP will issue no new sea clam licenses for the calendar year 1976 (there are currently 48 boats licensed); Licensees must provide a monthly report to the director of the Division of Fish, Game and Shellfisheries specifying the amount of sea clams harvested and where and when they were taken; and, initially, a one-and-a-half cent (1½¢) fee levied on each bushel of clams landed in New Jersey to help defray the cost of surveillance, enforcement, and administration of the regulations.

**NOTE:** Emergency sea clam regulations were adopted by DEP on January 1. Because there was no prior notice or opportunity for industry comment, DEP said the rules would be revised or ratified in light of written comments submitted within 30 days. Also, a public hearing was held in Atlantic City on February 3 so that the various sectors of the industry could comment both on the new rules and the general condition of the industry. (The amended regulations given in the foregoing paragraphs include changes stemming directly from those comments.) □



# NEW JERSEY'S ENDANGERED WILDLIFE NEED YOUR HELP

BY PETE McLAIN

Governor Brendan Byrne was presented with the first endangered species window decal by Commissioner David J. Bardin of the Department of Environmental Protection on Monday, March 15th when the Governor signed a proclamation designating National Wildlife Week.

The window decals were originated by the Endangered and Nongame Species Project in DEP's Division of Fish, Game and Shellfisheries to help raise funds to support endangered species management in New Jersey. Because of the present budget crisis, the Endangered Species Project may not be adequately funded in 1976-77 and project personnel hope that the public will support endangered species programs in New Jersey by purchasing the endangered species vinyl window decals for \$5.00 each.

The funds raised this year by the sale of the decal will be used to support the osprey management program where osprey eggs are brought up from Maryland and transplanted into New Jersey osprey nests which have a history of infertile eggs. During the past two years, 25 ospreys have hatched and fledged in New Jersey nests, mostly on Barnegat Bay, as a result of the Maryland transplant.

The New Jersey endangered species program was

responsible for the fledging of three peregrine falcons, the first in 20 years, in 1975. Research and management is also being conducted on the bog turtle, tiger and blue-spotted salamander, the bald eagle and the Cooper's hawk, all endangered species in New Jersey.

The endangered species project was primarily responsible for the plotting, mapping and development of the state acquisition program for the 550 acre Higbee Beach Tract in Cape May County and also developing a model backyard bird demonstration area in central New Jersey.

The Endangered Species decal features an osprey against the blue sky. (See color photograph of decal on inside of back cover.) New Jersey citizens displaying this decal on their car window indicate that they are aware of the endangered wildlife species in New Jersey and that they have contributed to their management.

The endangered species decal may be obtained by writing: Endangered Species Project of the Division of Fish, Game and Shellfisheries, Department of Environmental Protection, Box 1809, Trenton, N.J. 08625. Please send a check or money order for \$5.00 payable to the State of New Jersey. □



**DEP COMMISSIONER  
DAVID J. BARDIN  
PRESENTS FIRST EN-  
DANGERED SPECIES  
WINDOW DECAL TO  
GOVERNOR BRENDAN  
T. BYRNE.**

**Standing Left to Right: Richard  
Ryan, Chairman of Non-Game  
Council, Director Russell A.  
Cookingham, and Al Toth,  
Chairman of Fish and Game  
Council.**





*Chipmunks, in particular, will take up residence in an old stone wall or rock pile*

# backyard wildlife

BY JOAN GALLI

Take a minute, go to the window and look critically at your backyard, schoolyard, or the open space around your office, or apartment complex. Does it appear dreary and uninhabited? Are you tired of looking at the rear end of your neighbor's garage, which hides from his view but not yours, ten years accumulation of discarded swings, old lawn chairs, bicycle parts and assorted trash?

Now, close your eyes and imagine instead a fragrant evergreen hedge of hemlock and pine, which hides the trash, accented by the bright red berries of holly and bayberry which do triple duty by providing food and cover for wildlife while serving as an effective natural fence for keeping out the neighbors' unwelcome kids, dogs, and cats. The efforts you make to transform your view will be rewarded by an increase in wildlife use. At the very least, jays, sparrows, starlings, mockingbirds, and squirrels will appreciate your efforts.

You can start today to encourage wildlife. Spring and early fall are the best times to plant trees and shrubs. However, your winter hours can be well spent

in stocking bird feeders, constructing nest boxes, and planning summertime activities to enhance your backyard sanctuary.

The first step in creating a successful backyard refuge is careful planning. All wildlife requires four essentials: food, water, cover for protection from the elements and predators, and space in which to establish a breeding territory and raise young. For best results, add to these four requirements the maxim that "variety is the spice of life" and incorporate a diversity of plants like tree, shrub, vine, flower, grass, and ground cover into your plan.

Start by assessing the value of plants already in your yard. A large number of plants commonly used in landscaping (red cedar, pine, dogwood) rank high as beneficial wildlife food and cover plants. Consider a plant's appearance all year round. The unattractive grapevine hedge, bare of leaves in winter, serves as an ideal summer perch for the bold mockingbird while providing cover for timid quail, food for flickers, cardinals and an occasional fox.

To best visualize your plan and avoid the common mistake of crowding plants, be sure to set your plan



on paper. Following a few basic landscape principles will make your yard attractive to both humans and wildlife. Design your plantings in clumps combining deciduous and evergreen trees as a background for shrubs and such seed producing flowers as marigolds and zinnias. Bordering your property with a hedge of evergreen shrubs will provide travel lanes and cover for a wide variety of wildlife. Here are some practical suggestions for your consideration when designing your backyard sanctuary:

**FOOD:** Diversity is the key to success. Consider plants such as dogwoods, hawthornes, crabapples, cherries, viburnums, and honeysuckles that bear fruit and berries and double as attractive landscape subjects. Large trees, such as oaks, maple, tulip and birch will attract seed eaters. Plantain, dock, thistle, goldenrod, and wild grasses are excellent wild bird food and provide a good excuse for not mowing the lawn. If you cannot abide a weedy lawn, an attractive alternative is to let garden flowers such as asters, poppies, and sunflowers go to seed after blooming. Also, resist the urge to clean up your garden plot as wildlife will enjoy the leftovers.

It may be several years before new plants will provide adequate food and shelter. During these early years and the lean winter months, a well stocked feeding station will guarantee a variety of wildlife visitors.

**SHELTER:** Is best provided by a thick stand of coniferous evergreens. Hemlock and pines are excellent particularly if you avoid pruning and trimming.

PHOTOS BY AUTHOR



*A thicket of honeysuckle, cat briar, rose and even poison ivy is an excellent food source and cover area for wildlife.*

A tangled thicket or "wild jungle" of honeysuckle, rose, and greenbriar, also provides protection from predators and foul weather. Rock piles, brush piles, and rock walls will provide homes for chipmunks, rabbits and some birds.

**NESTING AREAS:** Many food and cover plants, particularly the thorny species like hawthorn, bayberry, and holly, are good nesting plants. Natural nest sites can be supplemented by man-made nesting boxes. A shelf under the eaves for robins is a good project for urban areas.

**WATER:** Is the final component of a successful refuge. As long as it is kept clean and filled, a simple bird bath or even an upside down garbage can lid will provide ample water. The container should be shallow, however, with gradually sloping sides.

Keeping the following two thoughts in mind will also help insure your success as a wildlife gardener:

1. Healthy plants require good care. Proper watering, fertilizer, good drainage, and composting soil are important.
2. Resist the urge to rake every leaf and mow every blade of grass, birds especially like a messy corner.

All these changes take time. So, start with the basics first. Then let your observation and experiences guide you to the additional needs of the refuge such as:

1. A patch of bare earth as a scratching and dusting area.
2. A pool for frogs and fish
3. A flower garden designed especially for hummingbirds and butterflies
4. A cultivated patch of blueberries, raspberries, currants, etc. to be shared by all
5. An arbor for climbing vines, morning glories and the like

The list is endless. Experiment a little and be sure to share your ideas with friends.

Do not hesitate to seek the advice of your local nurseryman, county agricultural agent, or soil conservation specialist. The local library is also an invaluable aid. Dozens of books and articles have been written about creating and improving wildlife habitat. Many of the works are entertaining and educational narratives of the authors' experiences with their own backyard sanctuaries. For a free listing of books and articles on the subject, write Backyard Wildlife, N.J. Division of Fish, Game and Shellfisheries, P.O. Box 1809, Trenton, New Jersey 08625. □

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This article was extracted from a book in preparation titled "Endangered and Non-game Wildlife of New Jersey." This book is being prepared by the Endangered and Non-game Species project in DEP's Division of Fish, Game and Shellfisheries.

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# AND HOW WAS IT back in the good old days...

A nostalgic look at some long ago yesterdays of a New Jersey landscape that was greener, less crowded, and slower moving (judging by the looks of some of the autos pictured)

The New Jersey Fish and Game Commission pictures (circa 1920's, early 1930's) were provided by Billy Barr.



INTERNATIONAL NEWS PHOTO AND CAPTION FROM 1935

## SMART SET GOES A-GUNNING FOR HUNT BREAKFAST

Warren Grove, N.J. ... a group of metropolitan socialites helped usher in the open season for deer in N.J., today (Dec. 17, 1935), by joining in a hunt, under the watchful eye of game commissioner Harry Armstrong, after a day of high adventure they brought back with them one buck to supply venison steaks for the hunt breakfast at the Hotel Lombardy on Sunday morning (Dec. 22), that will benefit The Big Brothers Movement. Here is one of the fair Dianias, waiting for a deer to show himself. She is Miss Betty Benjamin, daughter of Mrs. H. I. Foster.

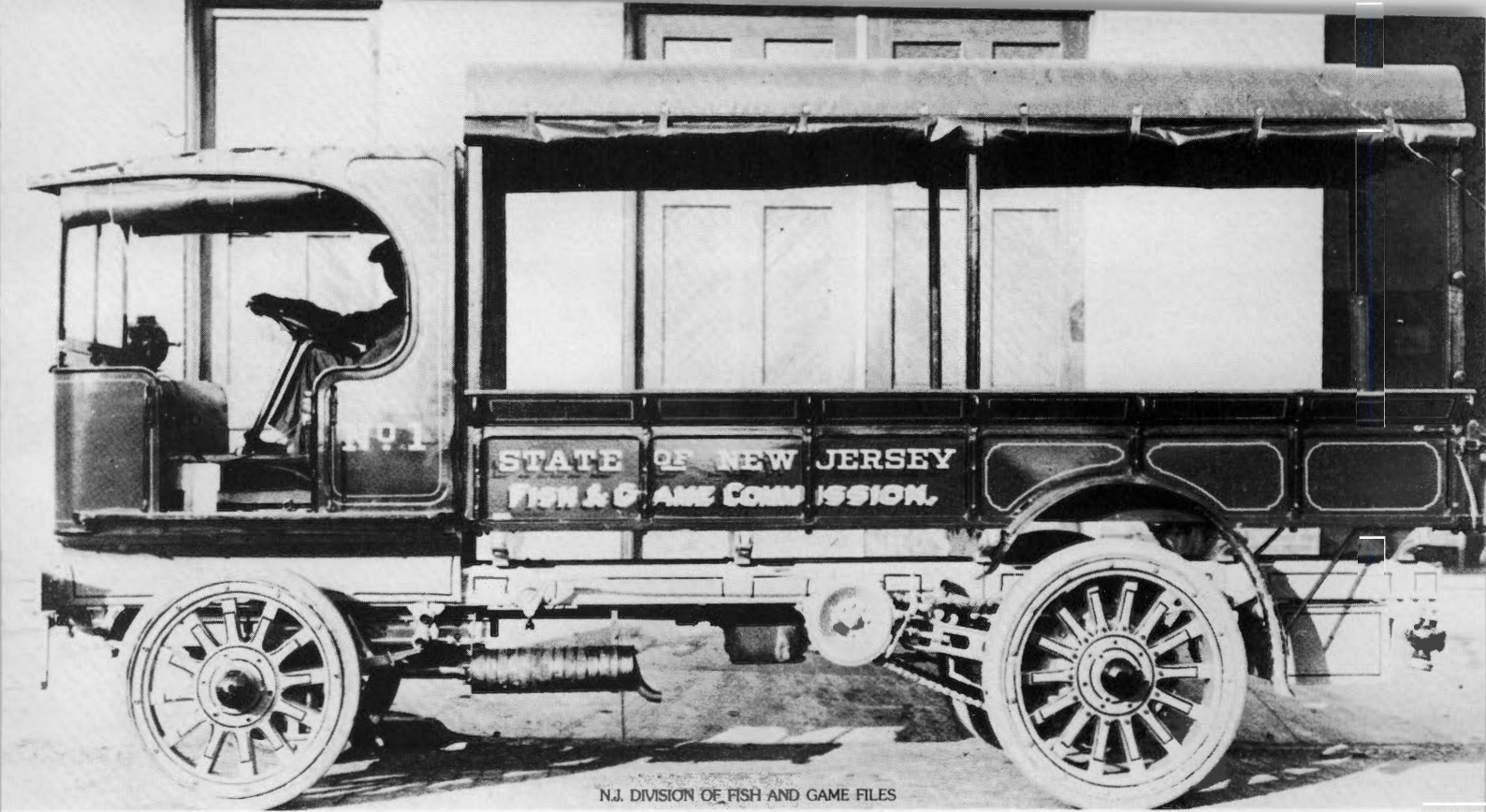


Loading pheasants in crates at Rockport Game Farm, prior to small game season, (about 1935).



Commissioner Armstrong and unknown CO during a 1936 hunt.





N.J. DIVISION OF FISH AND GAME FILES

*An early Fish & Game Commission vehicle. Note the hard tires, chain drive and lantern tail light.*



*A weakfish catch by two old timers in the 1920's*



*N.J. Fisheries biologists at work in the early 1920's*



*Commissioner Armstrong and CO J. Howard Ferry examining some N.J. lobsters.*





**A blanket of Violets found in a meadow is a certain indicator that winter is gone for this year.**



**The Coltsfoot resembles the dandelion. It shows its flower before leaves appear.**



**Among the most beautiful of the early spring wild-flowers is the Bloodroot. A close inspection of the sap from this plant's root gives a ready explanation for its descriptive name.**



**Found in dark shady areas the shape of the Hepatica's leaf led early people to believe it cured liver ailments. Also known as the Liver Leaf.**





Few flowers are as beautiful as the Trillium and few smell as bad. They come in many color variations but the white pictured here is the most common.



A brilliant splash of yellow in a wet area will often lead the photographer to the Marsh Marigold.

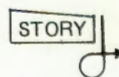
# Hunting The Wildflower

BY

DUANE ROBERT PIERSON

PHOTOS BY AUTHOR

*In imitation of  
the changing seasons,  
we also change  
our hobbies  
and interests;  
and in doing so,  
we discover new  
multicolored faces  
of Nature.*





Where once this author languished until autumn when he could take to the woods with firearm, he now greets with even more ardor the spring. It is this season when he now ventures forth with camera.

It is docile game the camera lens seeks but excitement of discovery and the rewards that remain sometimes exceed those of the autumn hunt. This spring quarry is the wildflower.

Neophytes may find it difficult to understand the thrill of discovering a not too common species or of finding an exemplary example in perfect setting. Most satisfying, is the thought that without damaging the object of our search through woods and fields, it can be preserved on film and admired for ages to come.

The variety is considerable but we will look at a few of the earliest wildflowers available to either photographer or spectator.

### **First Color**

The flash of color is always rather startling after months of winter browns and grays. Spotting the first spring flower enralls one with the expectation of more to come.

What are some of these brilliantly hued flowers that so audaciously proclaim spring? The best known is the Common Blue Violet. This small flower has been favored by poets, warriors and prophets. Mohammed preferred it to all other flowers, while it became the family emblem of the Bonapartes. There are perhaps twenty species of the blue violet native to the Northeastern States. Many species proliferate in New Jersey's shady woodlands.

### **Liver Ailments?**

One flower you are likely to discover in March, even beneath the snow. This is *Hepatica* or Liverleaf. It is difficult to believe that such a frail delicate thing thrives while its seemingly heartier brethren await the warmth and ease of summer. Often we see the blue, white, or pinkish sepals before the leaves have yet developed as if they hurried to be the first blooms of the year.

The *Hepatica*'s little buds appear to be still wearing furs, giving an illusion that they are prepared for more wintry weather. Like most of our earliest flowers they are usually found in woody areas but occasionally on sunny hillsides.

*Hepatica* is from the Greek word for liver. The shape of the leaf could possibly suggest that organ. In folk medicine it was long believed that Nature indicated by some likeness in shape, the application intended for medicine derived from the plant. Thus, *Hepatica* was long considered a remedy for "liver complaints."

### **Coltsfoot**

Upon first sighting it looks like a not too healthy dandelion blossom. Closer examination shows we do not have a dandelion but a bright yellow flower that is among the first to catch the sunlight. It is the *Coltsfoot*.

*Coltsfoot* is somewhat of a problem to photograph for it provides no background except that of dead leaves. Its own leaves do not appear until its flowers ride away on the wind as fluffy seeds. When the leaves do appear around the red scaled stalk they are shaped as an imprint from a colt's hoof. Thus the name.

As is the case with so many of our wildflowers, *Coltsfoot* is an alien brought here by early colonists. It was once thought to be a staple in herbal medicine. Its particular recommendation was for coughs and shortness of breath.

### **Mayflowers?**

Another of our early arrivals is the *Trailing Arbutus*. Its pink clusters can be found in April in a most unlikely place, under the dead leaves of the past year. You can locate this plant in evergreen woods with light sandy soil.

The *Trailing Arbutus*, sometimes called *Ground Laurel*, and one of several flowers to receive in certain regions the designation of *Mayflower*, has suffered much from collectors desiring to transplant its beauty and fragrance. In most Eastern states it is now on the protected species list.

A claim is sometimes made for the *Trailing Arbutus*, or most appropriately in this instance, the *Mayflower*, to become our national flower. Supposedly this flower was common in the area of Plymouth, Massachusetts and was the first sign of beauty and spring to greet the Pilgrims after that first hard winter. The brave little blossoms, struggling for life against the harsh elements, were said to inspire our forefathers, that long ago spring, with a message of hope and courage.

### **Beautiful But Offensive**

A flower made for photographs is the *Trillium*. It has a disagreeable odor and wilts soon after picking but it is beautiful in its shady setting.

A whorl of three leaves, three sepals, and a flower of three petals gives the *Trillium* its name. The *Red Trillium* is called the "wake-robin" or "the wake-robin's trinity sign." *White Trilliums* are also common in New Jersey woodlands.

### **Happy Expectations**

Our abused environment displays much today that is dark and gray and cannot be attributed to winter. As we spot these sparks of color this spring, perhaps we can once again feel hope. We can also, with camera, capture some of this beauty to enjoy throughout the year.

Regardless, in not too many days, each of us who wander the local woods will brighten as we are surprised by that first spring flower. A few days after the first find we will arise one morning and it will be as if a night chariot has traveled the dark sky scattering, over wood and field, stars of white, blue, pink, and yellow. And like the lyric in that old song—"Spring is here." □





**A back-pack, motor driven sprayer in operation.**

# pesticide applicator certification

**BY RON TURNER**

Office of Pesticide Control

Photos supplied by the author

In October of 1972, the Congress of the United States passed a law that would affect thousands of pesticide applicators in every state and territory. The 1972 act, entitled the Federal Environmental Pesticide Control Act, modified an existing law, the Federal Insecticide, Fungicide and Rodenticide Act, or FIFRA for short.

Until amended, FIFRA's primary requirement was the registration of all pesticide products marketed on an inter-state basis with the United States Environmental Protection Agency. The current amendments have changed even this requirement somewhat. This federal registration will now also be required of every pesticide product offered only on an intra-state basis. However, one of the most important changes is the new classification of the registrations.

## **Classification**

Under the new law, the EPA must begin to classify all pesticides as either "General" or "Restricted" use materials. Generally, restricted use pesticides will be those that offer an exceptional environmental hazard or have an acute human toxicity and require high level of competency and knowledge by the applicator to be applied safely. Less hazardous, and more common, pesticides will be classified for general use.

The real purpose of this classification is to permit more direct control and regulation of the use of these potentially dangerous restricted use pesticides. This goal is to be accomplished by requiring the "certifica-

tion" of the applicators of these materials according to an EPA approved state plan. Under this state plan, only those individuals who have been certified through a testing program will be permitted to purchase and use, or supervise the use of restricted pesticides.

In New Jersey, the Office of Pesticide Control has been designated by Governor Byrne as the lead agency for the development and implementation of such a plan.

## **State Plan Submitted**

Our own state plan has already been submitted and conditionally accepted by EPA. In brief, this is how certification will work for the almost 20,000 restricted pesticide applicators in our state. It must be remembered that supervisory personnel *only* are required to be certified and registered, although anyone may do so if they wish.

First, applicators will be separated into two groups, Private and Commercial. Basically, a Private applicator will be a certified applicator who uses or supervises the use of a restricted pesticide to grow an agricultural commodity on his own land, while a Commercial applicator will be one who uses or supervises the use of *any* pesticide, not just restricted ones. Some examples of a Private applicator would be a corn farmer, a fruit grower, and a nursery or greenhouse operator, while Commercial applicators would be individuals involved in structural and termite pest control, professional landscape maintenance, or aerial application.

*(Continued on page 32)*



(Continued from page 15)

**\$25. per egg!**



**Juvenile diamondbacks, both about two months old. The one on the left has normal markings while the one on the right is a real rarity—a partial albino.**

protection from winter temperatures and winds than do the exposed, shallow waters of the bays. Within these creeks, dormant diamondbacks can be found either as isolated individuals or in small groups. The preponderance seem to hibernate individually. Several different hibernating techniques are used: 1) simply resting on the creek bottom under water; 2) burial in the mud of creek banks; and 3) taking refuge beneath undercut banks. The mode of hibernation adopted by a given individual apparently does not depend on either age or sex. Diamondbacks are the only turtles in the world known to be capable of hibernating in more than one way.

Terrapins vary greatly in appearance, even within a single local population. Both color and markings may differ from one individual to the next. Some specimens may have entirely black shells with a head of similar color, whereas others may have considerably lighter shells (especially the bottom part, or plastron) and spotted, striped, or nearly white head markings. Such enormous range in patterns of colors is a very unusual feature; most turtle species are very uniform in these respects. One quite extraordinary feature of diamondbacks is their strong sexual dimorphism. Males and females look quite different from one another, most obviously with respect to adult size. Females grow to be roughly fifty per cent bigger than males of comparable

age. An average male will have a shell length of 4½-5 inches, whereas a good-sized female's shell may reach 6 to 7 inches in length and will weigh nearly twice as much as her male counterpart. Some females with shells exceeding 8 inches in length have been reported, but such size is unusual. Other more subtle differences exist between males and females. Males have much longer, thicker tails than do females; they also tend to have proportionately much narrower heads; and in lateral view, the shells of females are relatively deeper from top to bottom.

Terrapin diets seem to include a preponderance of small molluscs and crustaceans. Vegetation also appears to form a significant part of a diamondback's diet. But much remains to be learned about terrapin feeding habits. We do not know how their diet may vary from season to season, from one end of their range to the other, or even perhaps between the sexes. Investigations of this problem are currently under way.

When they are young and small, diamondbacks seem to be on nearly everyone's menu. Tracks of hatchlings leading away from nest holes often terminate abruptly where bird tracks have converged with them—obvious instances of predation by shore birds such as terns, sandpipers, and sea gulls. Fish crows have apparently even developed the ability to discover buried terrapin eggs that are incubating, which they then dig up and consume. Small mammals—rats, foxes, muskrats, skunks, opossums, and raccoons—have similar abilities. Several different species of sea gulls have also recently been observed preying on semi-adult or adult diamondbacks by grabbing them out of the water and then dropping them on hard surfaces in an attempt to break open the shells, much in the same manner as they crack open large marine snails. There is even a specimen in the collections of Harvard University's Museum of Comparative Zoology which was removed from the stomach of a shark. Mostly, however, it is the very young diamondbacks that are subject to intensive predation.

But human activities pose by far the greatest threat to the existence of diamondbacks. As noted earlier, terrapins do seem to have recovered, at least partially, from what was unquestionably a severe depletion in their

numbers early in this century, largely brought about by unrestricted hunting. Of the several states having legislation designed to protect diamondbacks, New Jersey has perhaps the most stringent laws (see box) which have, no doubt, significantly contributed to the survival of this interesting and inoffensive creature. Nonetheless, adult diamondbacks have relatively recently been encountering a series of new kinds of problems for which protection cannot be legislated. The first of these, and probably the most important, is simply the destruction of their habitat by land filling and the construction of bulkheads in salt marshes. The more "developed" the salt marshes become, the less room there is for the terrapins and, as for any other animals, overcrowding leads to food shortages, which in turn necessarily produce decreases in population size. New Jersey's recently enacted wetlands laws may therefore ultimately prove to have been crucial to the survival of diamondbacks in our state. Another relatively recent hazard, causing both severe injury and mortality, is the population explosion of motorboats on the inland waterways of marshes. Specimens that have had their shells slashed by propellers seem to be turning up with increasing frequency in recent years. But the most serious danger of all is motor vehicles. During the laying season, female diamondbacks crawl up onto the banks of causeways crossing the salt marshes in great numbers. Often they wander across the roads in search of a nesting site, only to be run over by thoughtless or inattentive motorists. The long-term effects of these new threats to the survival of diamondbacks cannot yet be accurately assessed.

**NEW JERSEY'S PROTECTIVE LEGISLATION PERTAINING TO DIAMONDBACK TERRAPINS.**

- Closed season for terrapins from April 1st to November 1st; \$20 fine for each terrapin taken in the closed season.
- Terrapins may not be taken by means of net, trap, seine, etc.; \$50 fine for violation.
- No terrapin may be captured with a plastron length of less than four inches; \$25 fine for violation.
- No terrapin eggs may be taken; fine of \$25 per egg.



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*now we know where the wild goose goes*

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# wild goose chase

BY JOAN GALLI

I am sure that all of us have been involved in a proverbial "wild goose chase." At some point, we have spent time in pursuit of objects that are evasive and downright hard to find. For participants in Brigantine National Wildlife Refuge's annual goose "roundup," the object is the real thing — hundreds of wild geese.

The purpose of the roundup is to catch as many of the Refuge's resident Canada geese as possible. The adult geese are banded and released while the juvenile birds are shipped to various state and federal refuges to establish new resident flocks. Relocating the young is one method employed by refuge biologists to avoid overpopulation by the geese which remain year round on the refuge enjoying the good life.

The roundup, held the third week in June when the adult geese are molting and cannot fly, has become a tradition for geese and refuge personnel alike. Gaylord Inman, refuge manager, feels that many of the geese anticipate the roundup and will lead their broods to secluded areas not included in the roundup.

A goose roundup may sound like fun, but veteran

participants will tell you that it is hard, dirty work. The drive starts at sunrise as federal and state wildlife biologists and invited guests stationed around the perimeter of the refuge's freshwater impoundment begin to herd the geese toward a V-shaped wire enclosure located on the impoundment's upland edge. While the water is only ankle deep, the impoundment is laced with unseen ditches filled shoulder-deep with mud.

The officially recommended method for crossing such ditches is to "back stroke" across. Needless to say old clothes and sneakers are the uniform of the day and wearing life preservers is recommended. No participant I know has ever completed a roundup without a mud bath.

As the circle of drivers closes in, the geese hide in the tall grass to evade the trap. Coordination is necessary to avoid a gap in the circle through which the elusive geese could escape to open water.

Last year's count of trapped geese exceeded 600, a sure sign that at least one "wild goose chase" was successful. □

Photos by the author



Swimming the last ditch helps clean off the accumulated mud.



Adult geese being herded into enclosure prior to banding and release on the refuge.



# Fur Auction

Central Jersey Fur Takers Chapter 14

BY BOB BYRNE

On January 18 and March 21 the Central New Jersey Chapter of the Fur Takers of America held its 3rd and 4th 1976 Fur Auctions at the Cassville Fire House in Jackson Township, Ocean County. During the course of these auctions a total of 10,888 pelts were sold for more than \$75,365. All of the pelts were taken in New Jersey during the past trapping season.

Muskrats were the most important furbearer offered for sale. More than half of the total money generated was from this animal species. Other pelts auctioned included raccoons, red fox, grey fox, opossum, skunks, and mink. The animals that were trapped and sold represented the annual surplus in that animal population. None of these animal populations is threatened by harvesting this surplus.

Enthusiasm ran high because of the greater demand for raw furs this year than years past. The demand was reflected in the high prices that the pelts brought. Ken Bagala, the chapter President, said, "The trend back to real furs is encouraging

because they not only look and wear better, but are also renewable whereas the fake furs are produced from petroleum, which we all know is in short supply."

A cross-section of the several hundred people in attendance revealed people from all walks of life. Several successful husband-wife trapping teams were at hand to watch their furs being sold. The money received from the fur sales was used as welcome and important supplement to the family income. Several individuals stated that the money would be used to buy food for the family during a period of economic crisis, due to layoffs. Another successful trapper used the money to further his education at Middlesex County College.

All in all the auction was a complete success in that it brought the harvester and processor into the marketplace for an exchange that benefits both parties. Trapping represents an important use of our furbearer animal populations as well as an economic plus to those who participate.

PHOTOS BY HARRY GROSCH



Looking over skins, L. to R., Ken Bagala, Jill Grover, Rutgers University Ecology student, Joe Penkala, New Jersey Fish, Game, and Shellfisheries representative, and Joe Papai, C.J.F.T. Chapter 14, Chairman.



Central Jersey furtakers chapter 14, President Ken Bagala, looking at harvested coon skins. Money he derives from his fur sales are used to put him through Middlesex County College.





*Calvin Hill  
auctioneer*



**Husband and wife trapping team. Fred and Sue Gimbel, of Toms River, look over fox skins they will sell at auction. Profits will be used for food money due to layoffs from construction job during winter.**



**Carol Diore, a beautician from Central Jersey, displays some of her harvested fur to treasurer, Harry Hurley.**



# A Stream for

(Continued from page 3)

same size as the stocked trout and it was virtually impossible to distinguish between the two. The vast majority of the yearling browns were taken along with hatchery fish, as a result of the heavy fishing pressure that the trout stocking program attracted. The fish population surveys showed that very few of the native browns made it to their second year, and the native trout population never really did develop to its full potential.

The fish population surveys conducted on Mulhockaway Creek in October, 1974 attested to the effectiveness of the imposition of the regulatory restrictions in building up the native trout population. Not only did this check find the usual complement of yearling browns, but also a number of two year old native browns ranging in size from 10.0 to 10.9 and averaging 10.5 inches. All of these two year olds exceeded the 12" size limit in 1975. The number of pounds of wild brown trout, per mile of stream, increased from 4.7 in 1974, to 35.1 in 1975 (figures based on comparative Spring surveys). On a seasonal basis, in 1975 this "pounds of trout per mile" figure was 63.8 in July and 87.2 in November. These figures are more of a result of the stream's location, than its productivity. In July, the waters of Spruce Run Reservoir become quite inhospitable to trout, and those that are left from the Spring stockings move up the creek seeking relief. The dramatic increase recorded in November is as a result of the infusion of exceptionally large browns (browns up to 8 pounds have been taken during the Fall surveys) from Spruce Run Reservoir that ascend the stream each Fall to spawn. The poundage figure for the Spring survey is made up entirely of naturally reproduced browns and compares favorably with the productivity figures for some of the nation's most noted trout



*Typical Mulhockaway Creek wild yearling brown trout*

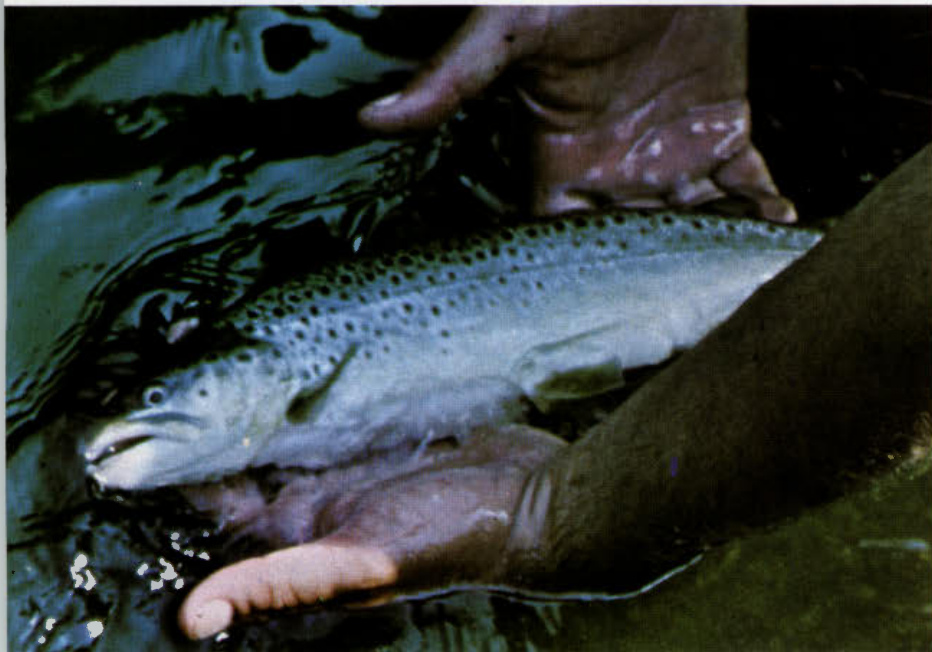
streams.

Incidentally, it was the presence of the large, reservoir browns that set the stage for the 12" size limit as opposed to a "no-kill" situation. We figured that a five plus pound brownie is such a rare treat for the average angler that he might like to keep it for a trophy. Also the removal of this big trout will not hurt the stream's productivity. The vast majority of the big browns were originally part of the reservoir stocking program and as long as we stock the reservoir, we'll have these big trout. Natural reproduction in the upper drainage is sufficient to populate the entire creek to its full capacity, so we won't miss anything on that count either.

The electrofishing survey conducted in November, 1975 was televised by NBC News. Although I was quite optimistic about the number and sizes of the browns we'd find for the cameras, there was no 100 percent assurance that we wouldn't fall flat on our face. While the cameras rolled, the crew shocked the first 600 foot stretch of stream and it looked like my worst fears were going to be realized, as only one brown over 12 inches was taken. Then we hit the "Big Bend" pool and the water exploded with big browns. A total of 7 browns greater than 15 inches, and up to 19 inches, were taken from this one pool alone. The end result was a fine bit of TV footage and 74 calls from NBC's viewers asking for



# All Seasons



*All trout taken during the survey are returned to the stream. We know he's there. Can you catch him? So far the data answer "No!"*

directions to the stream. It was interesting to note that while a local coon-hunter, running his hounds in the area at night had spotted "trout stacked in the stream like cordwood" when he shone his spotlight on the stream, these trout totally escaped the observation of nearly every angler that fished these waters. Indeed, there was much sharp criticism of the program for its supposed failure to produce trout. These "skunked" anglers found it a lot more desirable and "face-saving" to blame their lack of success on a lack of fish, rather than on their lack of skill. The electrofishing results continue to expose these conceited attitudes for what they are . . . excuses, excuses, excuses. The facts are that the trout are always

there; Winter, Spring, Summer or Fall. And they are there in numbers that match those found in stocked streams, of similar size, during April and May, while surpassing them for the remainder of the year.

In 1974, a total of 472 anglers tried their luck in Mulhockaway Creek as compared to 1,458 in a similarly sized stretch of Spruce Run Creek which was stocked and not subjected to restrictive regulations. However at Spruce Run Creek over 80 percent of the utilization occurred during April and May (while stocking was in progress) and greater utilization occurred at Mulhockaway Creek from September through November. In 1975, utilization of Mulhockaway Creek increased almost 50

percent (a total of 663 anglers being recorded). This initial drop-off of utilization following the imposition of special regulations and the subsequent increase in the following year is in line with findings from similar studies conducted in other states.

Angler success at Mulhockaway Creek has been pathetic. The yearling native browns which were only too eager to grab a worm or salmon egg, proved to be nearly totally indifferent to a bit of feathers. As the browns matured they became warier than a bonefish on a crystal clear Bahama sand flat and just as difficult to approach. This native intelligence of the wild brown is obvious in a glance at the catch rate for the effort of the Mulhockaway Creek anglers. In 1974 it was a pitiful 0.22 trout/hour and it got even worse in 1975 when it hit an embarrassing 0.17 trout/hour (The catch rate on the stocked trout in Spruce Run Creek was 0.49 trout/hour). These figures translated say that it took the average angler about six hours to catch a trout, of any size. What's even worse is that the catch rate dwindled despite an increase in the number of trout available. Is the IQ of the trout higher than the IQ of the trout fisherman?

Now the question is "Will the poor success experienced by the anglers that fished the creek in 1975, make them forsake it in 1976"? It doesn't seem possible that another trout could be squeezed in the creek, so it would have to be considered at its natural holding capacity. It also seems unlikely that the trout will get stupider, so the fisherman is going to have to get smarter. The challenge is there. How many are willing to accept it? This year's results should complete the story. It's all up to the fishermen. We can provide the trout, but we can't put them on the hook. □



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## PESTICIDE APPLICATOR CERTIFICATION

As the program is now proposed, it will not be fully implemented until October 1, 1977.

Present state regulations already restrict or prohibit the sale and use of approximately 102 active pesticide compounds. Applicators wishing to use any or all of these ingredients must register with the Office of Pesticide Control annually. Likewise, dealers must also register annually or before making any restricted pesticide sales. At this time there is no certification, i.e. determination of competency, required to obtain an applicator's registration and no fees or charges.

However, these current registrations expire on September 30 of this year and may not be renewed unless the registrant has been officially certified by our office. The procedure of certification is more difficult for Commercial type applicators than for Private applicators.

### "CORE" Certification

Each group will be required to successfully complete the same fifty, multiple choice "CORE" exam which tests their knowledge of basic environmental, safety, and application techniques. This "CORE" certification is a prerequisite for registration on or after October 1, 1976. For the Private applicator, this is possibly the only written exam he may have to take, although it is probable that some additional training and/or testing may be required after October 1976.

Under the current Federal standards, which the state must follow, Commercial applicators must take an additional, more specific, Category exam for each of the categories in which they will operate. There are ten federal Commercial categories; several others will be added under state regulations, separated by the type of area to be treated and the pests to be controlled. Examples of these categories are "Aquatic Pest Control", "Public Health Pest Control" and "Right-of-Way Pest Control." These Commercial category exams, as



A large mist blower in operation mounted on a flat bed truck for road side spraying.

well as any additional Private certification requirements, will constitute full certification and will be required for registration by October 1, 1977.

The Department realizes the impact this program may have upon our farmers, growers and other groups who may not have taken an exam since applying for their driver's license, therefore, to assist these individuals, the Department has entered into an agreement with the Rutgers University Cooperative Extension Service. The Extension Service has agreed to offer, through their County Agricultural Agents, training sessions and materials designed to present and teach the knowledge needed to become a New Jersey certified pesticide applicator. At the conclusion of the last day of the training sessions, our staff is present to administer the "CORE" exam to the trainees.

Present estimates are for almost 20,000 people to be involved in this program before its completion. Anyone interested in further information may call the Office of Pesticide Control at (609) 292-5890. □

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### FRONT COVER

*Pine Barrens Tree Frog (female) — photographed by J. Albert Starkey*

### BACK COVER

*A spring scene along a country road — photographed by David A. Bast with a 4 x 5 camera.*





ACTUAL SIZE AND COLOR

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