NEW JERSEY Outdoors

$4.25

Spring 1992

Cultivating Community in Urban Gardens • Discover Jersey's Bass Bonanza
Get Ready to Go Camping • Rabies: What You Should Know
Environmental Shopping: Don't Buy Into Empty Promises

GEORGE M. ARONSON

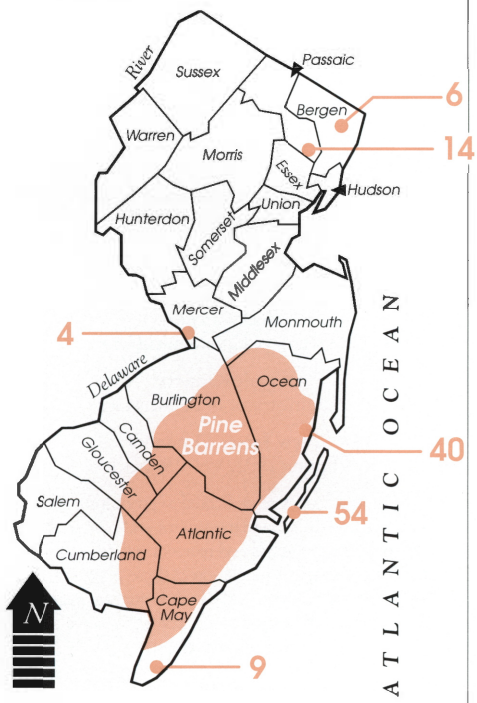
The flooded forest floor of the Great Swamp National Wildlife Refuge in Morris and Somerset counties comes alive with bursts of vibrant green color in the spring.

New Jersey Outdoors *is printed with soy ink on recycled paper.*

Table of Contents

Story Locator

(Page numbers indicated)



Departments

2 Editorials
3 Mailbox
4 Gardens
6 Volunteers
8 Inside DEPE
9 Profile
10 Afield
12 Research
14 Cityscape
48 Marketplace
51 Roundup
56 Explorer
58 Outings
60 Events
63 Bookshelf
64 Wildlife in New Jersey

Covers

Front: Fallen azalea blossoms cover the ground in Somerset County on a morning in May.
Photo from Tom Till's "New Jersey: Images of Wildness," published by Westcliffe Publishers, Inc., 1991
Back: *Photo by George M. Aronson*

Features

15 **Rabies in Wildlife: Know How to Protect Yourself**
by Dr. Douglas E. Roscoe
Outdoor enthusiasts should be aware of the warning signs of this dangerous disease and how it is transmitted.

18 **Keep Your Eye on Trap, Skeet and Sporting Clays**
by Russ Wilson
A growing number of target-shooters prefer a leisurely round of these sports to the thrill of the hunt.

22 **Environmental Shopping: It's Not Easy Buying Green**
by Greg Johnson
Many products claim to be environmentally friendly, but you can't always believe what you read on their labels.

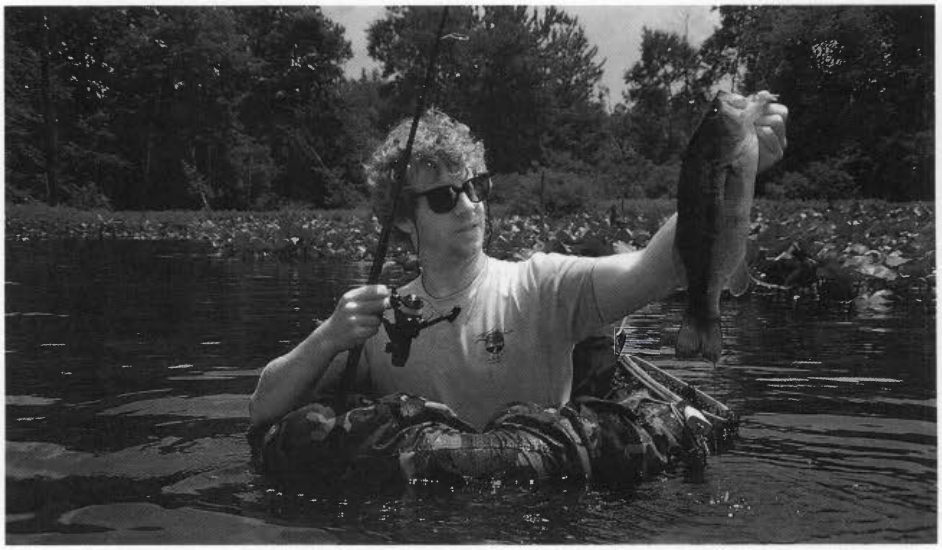
26 **Looking for Big Bass? Think Small**
by Russ Wilson
Bigger's not always better when you're searching for bass-fishing hot spots in the Garden State.

36 **A 100-Year Watch on Wildlife**
by Mimi Dunne
Protecting and managing wildlife in this small, urbanized state has been a great challenge for the Division of Fish, Game and Wildlife.

40 **Sounds of the Pines: A Little Saturday Night Music**
by Tom McDonough
Musicians gather at Albert Hall in Waretown every week for concerts that preserve the musical culture of the Pinelands.

44 **Get Ready to Go Camping**
by Jill Barnes
Looking for an affordable family vacation this year? For many, camping is the only way to go. Find out how to get started.

Little-known ponds and lakes are often the best places to find big bass.
See story on page 26.



PETE McLAIN

Editorials

Jim Florio
Governor

From the Governor

At a time when New Jersey and the country have been forced to battle the effects of the national recession, I'm pleased that in 1991, we were still able to lead the way in fighting back against pollution and its enormous costs.

For years, common sense would tell us that the less pollution we created in manufacturing consumer goods, the less there would be to clean up later. But common sense did not always prevail and, as a result, New Jersey constantly strove to find the balance between its industrial needs and the need to keep our future clean and green.

It wasn't always easy. For many years, the argument was always framed around the question, "Do you want jobs *or* a clean environment?" Today, we realize that you can't have one without the other.

Last summer, we achieved the best balance possible with the Pollution Prevention Act. This landmark legislation is today regarded as a national model, and was the result of many years of study and negotiations between our industries, our environmental activists and the state Department of Environmental Protection and Energy.

While it's an ambitious program, the bottom line is that industries in New Jersey will reduce the amount of hazardous substances they use and produce in the manufacture of their products. Through the development of pollution prevention plans, and allowing DEPE to issue facility-wide permits, industries will wade through less red tape and focus their attention on creating products that require fewer hazardous materials.

This is not an attempt to micro-manage industry. Rather, it will ensure that our children and grandchildren will someday inherit a New Jersey that is clean and green. That goal is best achieved when people have a clear vision about the right thing to do. In this case, it was the realization that if you can stop pollution at the source, you won't have to spend millions of dollars cleaning it up.

Scott Weiner
Commissioner

From the Commissioner

The Department of Environmental Protection's Division of Fish, Game and Wildlife continues to meet the challenge of managing and conserving wildlife resources in the nation's most densely populated state.

As **New Jersey Outdoors** commemorates the 100th year of state wildlife management efforts, New Jersey's commitment to fish and wildlife is stronger than ever, thanks to dedicated staff at DEPE and support from sportsmen and women and all New Jerseyans who love the outdoors.

Wildlife can be a barometer of overall environmental quality. If an area is a suitable home for a variety of animals, chances are good that the air and water are clean. In recent years, with help from Fish, Game and Wildlife staff, threatened and endangered species such as rare bald eagles, peregrine falcons, ospreys and black bears have started to reestablish homes in New Jersey — clear evidence that New Jersey's environment is improving.

Last year, I joined Governor Florio at Washington Crossing State Park for the opening of trout season. As I tried my luck at the Delaware and Raritan Canal, I looked toward the nearby Delaware River and saw a different group fishing for shad — another species that recently returned to its traditional home. I began to fully appreciate how many people enjoy New Jersey's outdoors and how these activities benefit the state's economy and enhance our quality of life.

Fish, Game and Wildlife monitors populations of fish and other wildlife and last year submitted regulations that Governor Florio signed to prevent depletion of striped bass in the Atlantic. The division administers a variety of education programs, such as Project Wild and Aquatic Wild, which teach schoolchildren the value of natural resources and the importance of preservation. There are also various hunting and fishing education and information efforts, including Hunt Smart, begun in 1991 to remind sportsmen and women of hunting safety and ethics.

The Division of Fish, Game and Wildlife helps New Jerseyans learn to enjoy the state's resources to the fullest. So I want to congratulate the division on its 100th birthday. But the best way to celebrate this achievement is for New Jerseyans to go outdoors and enjoy our state's abundant wildlife, to perhaps spend a day in the woods or find a stream or spot in the surf, cast for a fish and catch some memories.

State of New Jersey
Jim Florio
Governor

Department of Environmental Protection and Energy

Scott Weiner
Commissioner

Becky Taylor
Director of Communications

Wendy Kaczerski
Administrator of Publications

New Jersey Outdoors
Spring 1992, Vol. 19, No.1

This publication is dedicated to promoting and encouraging the wise management and conservation of our natural, cultural and recreational resources by fostering a greater appreciation of those resources, and providing our residents with the information necessary to help the Department protect, preserve and enhance them.

Editor
Hope Gruzlovic

Art Director
Dilip Kane

Designer
Paul J. Kraml

Assistant Designer
Marvin B. Ross

Assistant to the Editor
Sandra Pearson

Circulation, Promotions, Finance
Dawn Blauth

New Jersey Outdoors (USPS 380-520) is a subscriber-supported magazine published by the New Jersey Department of Environmental Protection and Energy on a quarterly basis (Spring, February; Summer, May; Fall, August; Winter, November). Second-class postage is paid at Trenton, N.J., and additional mailing offices. Subscriptions are $10.00 for one year, $18.00 for two years, and $25.00 for three years payable by check or money order to: **New Jersey Outdoors**, NJDEPE, Bureau of Revenue, CN 417, Trenton, N.J. 08625-0417. Single or back issues, if available, cost $4.25. **New Jersey Outdoors** welcomes photographs and articles but will not be responsible for loss or damage. No part of the contents of this magazine may be reproduced by any means without the consent of **New Jersey Outdoors**. Telephone: Circulation (609) 777-1025; Editorial: (609) 292-2477; Subscriptions: 1-800-645-0038.

POSTMASTER: Send address changes to Editorial Office, **New Jersey Outdoors**, NJDEPE, CN 402, Trenton, N.J. 08625-0402. 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 eight weeks for new subscriptions and change of address to take effect.

The views and opinions of authors do not necessarily represent the opinion or policies of the Department of Environmental Protection and Energy or the State of New Jersey.

Mailbox

Another Look at Organic Farming

Please allow me to respond to "Farming the Organic Way," which appeared in your Fall 1991 issue. I have to object to it because it omits any reference to the position of Rutgers-Cook College, the State Department of Agriculture and representatives of farmers' organizations. We believe the article perpetuates the false notion that agriculture in New Jersey "degrades our environment and water supplies."

I am not aware of any opposition by New Jersey farmers to organic farming. There is, of course, some skepticism about its feasibility on a commercial scale, but most farmers respect the ability of those proprietors to carve out a niche in the marketplace. What we do mind is publicity surrounding the topic of organic farming that somehow implies that traditional farming is somehow unclean and unhealthy for the environment.

The leadership of the Agricultural Experiment Station is well into a set of policies that will direct farming practices in the state toward something known as "low-imput farming," or "sustainable agriculture." It would have been far more revealing to your readership to know that mainstream agriculture in New Jersey is in the vanguard of this trend and, in fact, has attempted many of these practices already.

Peter J. Furey, secretary/administrator
New Jersey Farm Bureau

Editor's Note: It's well worth pointing out that farmers are some of the most environmentally aware citizens in the state. Control of water quality through agricultural programs to properly manage pesticide and fertilizer usage, and the prevention of soil erosion are among their efforts. Also noteworthy is that more and more farmers are being called on to help take the lead on other environmental issues, such as through the application of composted sludge and leaves on farmlands.

New Jersey Outdoors welcomes letters to the editor. Please include your name, address and daytime telephone number. Our address is NJO, NJDEPE, CN 402, Trenton 08625-0402. We reserve the right to edit letters for length and clarity.

We Want Your Views on New Jersey Outdoors

It's been a year since **New Jersey Outdoors** returned in its new format, and we'd like to know what you think of it. Please take a few minutes to complete the survey on page 49. Your responses will help us provide more of the kinds of articles you enjoy.

Fish of a Lifetime

While on vacation, an acquaintance showed me a copy of your Fall 1991 article on striped bass. I was pleasantly surprised to see as the lead photo a picture of me, my son and a 46-pound, 8-ounce striped bass that I caught on November 26, 1988.

There is a story that goes with this picture, known only to friends and close relatives, which has something to do with making sure the camera is loaded. Fortunately, there was another person present that day and, being somewhat more proficient than I with a camera, Pete McLain was able to capture on film what I did not.

I knew that somewhere this photo existed and that it was only a matter of time before one day I would open up a magazine or book and see my picture with a fish of a lifetime.

Andy Ciok
Bayonne

Abandoned Ship? Look Again

I doubt very much if the boat shown on the back cover of the Fall 1991 issue was an "abandoned" ship. Looking at the clearly defined waterline and recent paint job, and a bowline and other line appearing to be in good shape, leads me to conclude that the boat shown was probably a typical fishing dory in active use, and not an abandoned ship.

Chester Apy
Little Silver

Editor's Note: You're right. Though children did play in abandoned ships on beaches in the early 1900s, that wasn't one of them. It might have been a life-saving ship, however. Incidentally, our cover photo for that issue showed a member of the U.S. Life-Saving Service. We've since discovered that the medal he was wearing in that picture was awarded for his part in the heroic rescue of several shipwrecked sailors. For the story behind that cover, see page 54.

'Salt and Pepper' Crabs

Do the little black round things that resemble poppyseeds in a crab harm you if you eat them? What causes them? I have found them in crabs while in Virginia and Maryland, only after the crabs have been cooked.

Reynolds Smith Sr.
Berlin

Editor's Note: Those specks are encysted, single-celled parasites called Nosema michaelis, commonly referred to as "Salt and Pepper Disease," according to biologists with the Division of Fish, Game and Wildlife. Nosema usually kills the crab within 15 to 29 days after infection occurs, but like most parasites in shellfish is harmless when eaten.

New Toll-Free Number

New Jersey Outdoors now has a toll-free number for subscription information. The number to call is: **1 (800) 645-0038.**

Turning Eyesores into Gardens

Kuenia Girau of Trenton used to hop over the fence at the Children's Garden on Perry Street when she was only 4 years old to tend to peaches, tomatoes, strawberries, lettuce and the assorted flowers that she and other youngsters grew there.

Last year, at age 8, she won the first award for Children's Gardener of the Year from Isles, Inc., a community organization that sponsors 66 such community gardening projects in the city for both adults and children who want to grow their own vegetables and flowers.

During the 1991 growing season, the organization's community vegetable gardens yielded more than $100,000 worth of produce. This produce, which included more than 5,000 pounds of tomatoes alone, fed more than 400 families. And because the concentration of buildings in a city promotes heat retention, Trenton's community gardeners could take advantage of a growing season that was a full month longer than their suburban counterparts.

But aside from the vegetables and flowers, the children and adults who take part in these projects are cultivating a sense of community, according to Sharon Lezberg, coordinator of Isles' Community Gardening Program.

Community gardening brings people together and boosts confidence — so much so that many groups brought together by gardens have gone on to form community watch programs, housing improvement projects and, in one instance, a basketball league, Lezberg says. Often, the garden replaces the town square of earlier generations, becoming a place where neighbors meet and talk, and where old and young can come together. And gardeners can see a fairly immediate return on their investment of time and money in their harvest, or in the case of ornamental gardens, in the beautification of their neighborhood.

The children's garden projects also acquaint young city dwellers with nature, generally in short supply in an urban environment. In fact, the Children's Garden on Perry Street is maintained by Isles itself as an outdoor education center. School groups and other groups of children may visit, see and learn about growing plants and sample some vegetables or herbs that they have picked themselves.

"We learn where food comes from, how flowers grow and how to help the environment," says Kuenia Girau. "It's a special place for me and my friends."

Isles, Inc., began in 1981 when a group of Princeton University students decided to put into practice ideals they were learning in their courses. The philosophy of the organization was that "local self-reliance is the only way to go," says Martin Johnson, one of those first students and executive director of Isles today.

The original focus of the organization was to help community members improve housing and living conditions, but that was expanded early on when the organization found itself responding to a request to help turn a vacant lot into a garden. The project was so successful that Isles applied for and received a grant from the Geraldine R. Dodge Foundation to start a community gardening program.

The program has flourished, with some of the organization's established gardens having to keep waiting lists of those who want plots. To start a new garden, Isles requires the involvement of at least four individuals from different families within a community. The vacant city lot, or perhaps a section of a park that the prospective gardeners wish to use, must also be within the community. Isles will examine the site for suitability and have the soil tested for problems or imbalances. Lead and other heavy metals, a frequent problem in city lots, often require the digging out of some existing soil and backfilling to create raised beds with good soil of sufficient depth to avoid contamination of garden plants.

Isles will obtain permission to use the site, set up a new garden group's first meetings and workdays, and help prepare the site, using leaf compost and wood chips supplied by the city. Gardeners, however, are responsible for the day-to-day

A farmer and horses from the Howell Living History Farm plow the Garden of Three Points.

Some Newark residents grow enough vegetables for a year. Here, seedlings are given away.

Gardens Crop Up in Other Cities

Successful community gardening programs have taken root in other urban areas of New Jersey.

In Camden, a private, nonprofit organization called Camden City Garden Club, Inc., and the Camden Redevelopment Agency jointly run a program that handles more than 70 projects. The program now has a waiting list due to the number of new groups that want to start gardens each year.

"These community gardens give the city an excellent opportunity to clean up an unused property and make it productive," says Camden Mayor Aaron Thompson. "It also gives activity to senior citizens and others."

Camden's program gets many people into the act. Students at the vocational-technical school grow seedlings for distribution to the community gardens as part of their course work. Another 15 schools or community groups have been provided with grow labs, complete with grow lamps, to allow study of plants indoors. Curriculum guides and other assistance also are provided.

The public can see the results of the Camden community gardening program at a daylong Harvest Festival on September 27, which features plenty of events for children and adults.

Rutgers Urban Gardening is one of the biggest community gardening programs in the country, with 1,106 projects in Newark, East Orange, West Orange, Orange and Irvington. A total of 5,579 people worked to produce the equivalent of $765,000 worth of food last year.

The basic aim of the program, financed and staffed primarily by Rutgers University, is to improve the nutrition of urban dwellers. Director I. C. Patel notes that some of the gardeners grow all of the vegetables for their entire families for the entire year. In fact, gardeners can produce fresh vegetables, herbs and fruits during a growing season of at least eight months. Gardeners start with the planting of peas around February 15 and end with the harvesting of cold-weather crops such as cabbage and collard greens, which occasionally have lasted even into December. The Rutgers program has its staff members seek out potential empty lots and recruit community members to adopt the lots from the city, rather than waiting to be approached from the community.

The primary goal of community gardening projects sponsored by the Greater Newark Conservancy is beautification of neighborhoods, although participants may choose to raise some vegetables in the vacant lots transformed into gardens. The conservancy requires participation by an entire block. Community members may choose to plant ornamentals in window boxes and barrels or to make a garden out of a vacant lot. The conservancy sells barrels and boxes at cost, and provides most other materials free. Block organizations may take advantage of workshops on such topics as planting and weeding. The urban gardeners may also get assistance from garden clubs in accomplishing beautification projects.

work associated with their own areas.

Although startup and maintenance costs can be kept fairly low, gardeners with both beginning gardens and established ones must seek institutional sponsors who will help out financially. The sponsors range from local churches and businesses to groups from outside Trenton. Some sponsors give part or all of their assistance through donations of tools, plants and seeds. Howell Living History Farm in Hopewell sends two horses, one plow and one farmer each spring to plow the largest community garden, the Garden of Three Points, located on Chestnut Avenue.

Kuenia Girau was shy in describing for a visitor what she liked best about the Children's Garden, so Lezberg suggested a whole list of choices for her.

"Do you like working in the dirt?" Lezberg asked. "Do you like finding worms, finding ladybugs? Do you like seeing the flowers grow?"

Kuenia thought for a moment and then answered firmly: "Seeing the plants grow, instead of die."

For more information, contact Isles at (609) 393-7153.

By Priscilla E. Hayes, a freelance writer who lives in Robbinsville

Kids Against Pollution: Group Heard Around the World

When Nick Byrne, a teacher at the Tenakill School in Closter, Bergen County, gave his fifth-grade students a homework assignment on First Amendment rights four years ago, he had no idea that it would it result in a youth environmental organization with worldwide impact.

Byrne had asked his students to analyze the media over the weekend and choose an issue on which they would like to exercise their right of free speech. That weekend, the newspapers were full of stories on beach pollution. When the youngsters returned to class, they wanted to do something about the problem, but were uncertain how to get started. Finally, they decided to write to their state legislators.

"They asked me if I thought that would make a difference, and I said probably not," recalls Byrne, whose students reminded him he had said that exercising their right of free speech could bring about change. "So I asked them, 'Do you think you'd make a bigger impact if one person screamed or if a thousand people screamed?' "

It was then that the 19 students decided to form a club, Kids Against Pollution (KAP), and to encourage other students to join. They decided on a logo and a motto — "Save the Earth, not just for us, but for future generations" — and began conducting research into pollution and writing letters to try to do something about it.

Since then, Kids Against Pollution has grown to more than 1,000 chapters, with members throughout the United States and in several foreign countries as well.

TAB SEAMAN

Students Kara Cummings (left) and Sandra Cupo helped persuade Closter school officials to buy recycled paper.

"We really had no idea we would get this big," says Meg Chandler, now a tenth-grader at Demarest High School where she helped start a KAP chapter. "It just started gaining momentum and we started picking up more people."

These new members also wrote letters to newspapers, magazines, television stations and government officials, expressing concern over

environmental problems. As they gained attention in the media for their accomplishments, more kids wrote to KAP to find out how they could start their own chapters and make a difference, too.

"That's probably one of the most exciting things: getting letters and getting to read how kids in other parts of the country feel, and knowing we're not the only ones," says eighth-grader Rich Luzzi.

Nationally, KAP members organized a chapter-wide, letter-writing campaign to McDonald's that helped result in the fast-food company's decision to eliminate polystyrene packaging. In Utah, a KAP chapter was instrumental in getting a toxic dump closed down, while in Costa Rica, another of its groups is trying to save rain forests. A chapter in Poughkeepsie, N.Y., won a grant and produced a video to educate other kids about pollution.

Locally, KAP was able to persuade the Closter school system to switch to recycled paper and to ban the use of plastic foam products. A hospital that launched promotional balloons began using a special gas that limits the distance the balloons float because of KAP's concern for marine animals that can ingest the hazardous latex.

Byrne attributes the youngsters' success to the fact that they do their homework and are well-informed on an issue before they set about to press for change. When urging the school district to buy recycled paper, the Closter chapter was prepared with figures on the district's annual paper costs and estimates from recycling companies on how much more it would cost to switch to recycled paper. The students also had backup plans for raising the difference if the district balked.

"They've done a super job," says Assemblyman John E. Rooney, R-Bergen, who has supported the group since its inception. "They gave a presentation in front of the state Assembly and they were great. The level of understanding that they were at was absolutely unbelievable."

Although each chapter is encouraged to pursue problems unique to their area, the chapters work together to fight common causes. A newsletter is sent out one or two times a year to keep members aware of KAP happenings. The Closter group also sponsors an annual Environmental Rights Day in May.

"One of our strongest assets is our ability to network, through schools and through different kids," says Chandler. "In that way, if somebody has managed to solve an environmental problem or at least get some attention drawn to it in one area of the country, then somebody else can look at it and draw from that experience to solve a similar problem in their area. It really combines the knowledge and power of a lot of people."

The bill would guarantee that all citizens "are entitled, by law, to clean air, land and water."

The youths are using that networking ability in one of their current projects, an effort to persuade Congress and the state Legislature to pass a proposed Environmental Bill of Rights as amendments to the U.S. and New Jersey constitutions. The bill would guarantee that all citizens "are entitled, by law, to clean air, land and water." The bill also would provide for at least a month of environmental education each year for children in every grade.

KAP has earned many honors, including a national "Take Pride in America" award for community involvement in 1989. IBM and *U.S. News & World Report* awarded the Tenakill School an $85,000 computer system in 1990 through the "To Give & Learn" program that recognized KAP's school-based community service efforts.

Chandler was one of 400 youngsters selected from around the world to travel to Holland in the summer of 1990 to meet with 10 Nobel laureates to discuss ways to reduce pollution. Luzzi has conducted peer workshops in Arizona and spoken on pollution issues before the Environmental Protection Agency and Library of Congress in Washington.

Although being a member of KAP can be demanding, the youngsters say they stick with it because they believe in what they're doing.

"It's like committing yourself to anything," says Chandler. "Sometimes you feel like the sacrifices are too great, but that's usually just temporary. In the long run, you're happy that you've made the sacrifices because you see what you've done."

For more information, write to: Kids Against Pollution, P.O. Box 775, Closter, N.J. 07624. Schools interested in starting their own chapters should enclose a $6 membership fee to cover expenses.

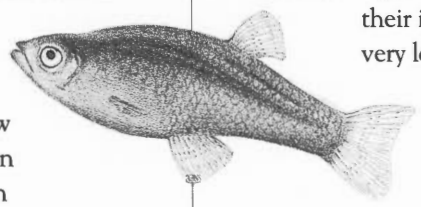
By James Grubic, a Rutgers University journalism intern for the Department of Environmental Protection and Energy

Fish Put Bite on Mosquitoes

A truck pulls up to a county stormwater facility and two workers step out. Standing at the edge of the detention basin, they scoop out a sample. Within the dipper wriggle hundreds of segmented, worm-like creatures. The basin is teeming with mosquito larvae, one of the aquatic stages of the insect's life cycle before its emergence as a bloodsucking adult.

Mosquitoes: the word conjures up thoughts of ruined picnics, sleepless nights spent swatting at the annoying insects and, more seriously, the threat of disease. Spraying, fogging and the digging of ditches and ponds to manage marshes and swamps where mosquitoes breed are all techniques that have been employed to control these pests. But at this stormwater facility, there are no sprays, no shovels and no chemicals — not even any equipment to be used. Instead, the workers walk back to the truck to retrieve some "helpers" that will control existing and future mosquito populations naturally. They won't affect the water and they won't alter the site in any way — they're fish.

Gambusia affinis, or the mosquito fish, is commonly known around the world as a "biological control agent" for the tiny insects. It has been used in New Jersey on a somewhat limited basis for years. When located in the kinds of places only mosquitoes love — shallow, stagnant, putrid and polluted water — this fish thrives on a diet of growing mosquito larvae. In most freshwater areas in which *Gambusia* is introduced, there will be no need to use conventional insecticides ever again.



Several counties in New Jersey have raised their own populations of *Gambusia* in local ponds for years. Mosquito commissions in Burlington, Cape May and Middlesex counties have constructed facilities that temporarily hold the fish until they are needed. But the process requires more expertise and expense than some other counties can afford.

The State Mosquito Control Commission has enlisted Division of Fish, Game and Wildlife fisheries biologists to raise *Gambusia affinis* at the state fish hatchery in Hackettstown, Warren County. So far, more than half the counties in the state with mosquito commissions have expressed an interest in receiving the fish.

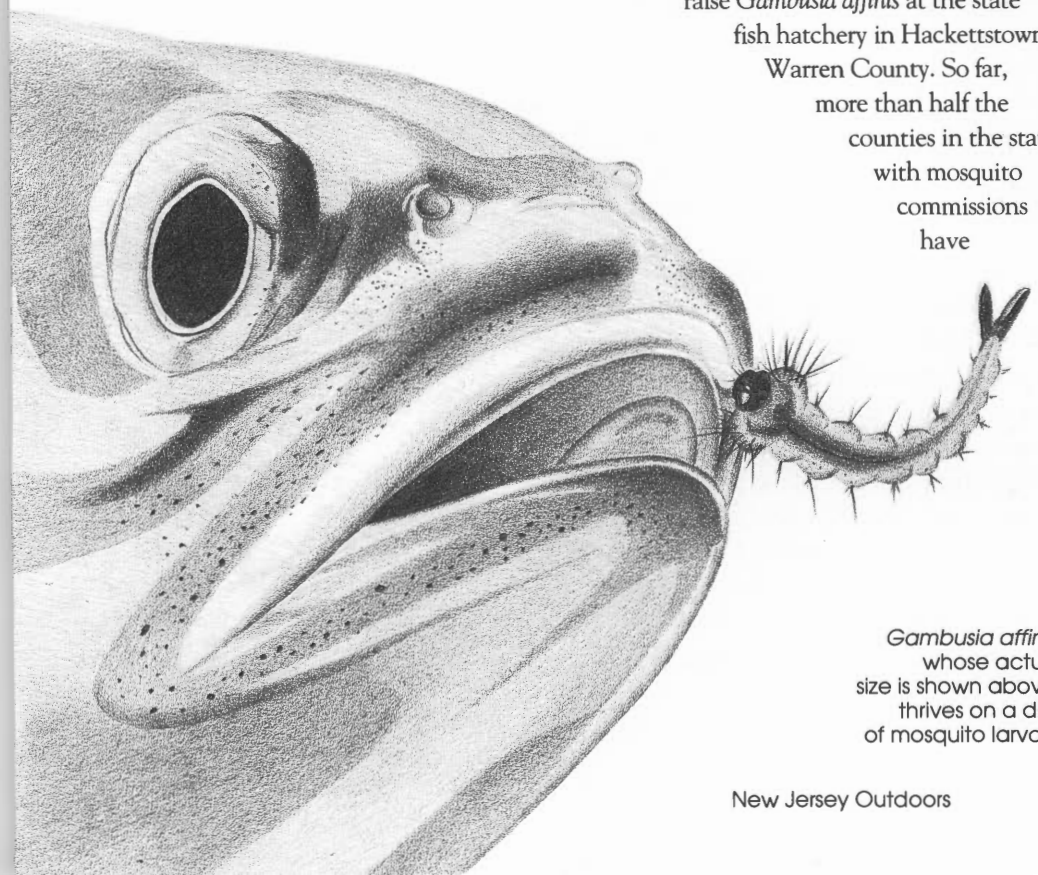
The use of fish to control mosquitoes is not new. For decades, native populations of the salt marsh killifish, *Fundulus*, have been encouraged to enter mosquito-breeding areas and eat mosquito larvae. Freshwater mosquito fish aren't new, either. *Gambusia* have been used in this state as early as 1907. In this half-century, control commissions as far north as Morris, Bergen and Warren counties have used these fish as population control agents.

The down side to using these fish is their inability to stay around very long to establish themselves permanently. Subject to cold temperatures, predation by most other pond residents and a short life span of two to three years, these fish usually require a frequent restocking before they become permanent residents of a freshwater community. The problems of fish diseases and competition with existing fish populations are being studied by researchers. However, sound mosquito control strategy is based on the premise that *Gambusia* aren't required in waters where permanent fish populations exist. And the likelihood that some of these mosquito fish will "sneak through" to disturb a sensitive ecosystem is low. *Gambusia's* reputation as a voracious feeder on mosquito larvae usually isn't displayed upon the rest of nature.

The expanded use of the mosquito fish won't end the use of traditional methods of mosquito control. Any professional application of integrated pest management requires the use of many different strategies, including insecticides and source reduction. *Gambusia* alone can't control all species of mosquitoes. Yet when accompanied by other control techniques, it can become a valuable tool in building a mosquito-free environment for both man and wildlife.

By Robert B. Kent, a principal biologist with the Division of Fish, Game and Wildlife

ILLUSTRATIONS BY MARVIN ROSS



Gambusia affinis, whose actual size is shown above, thrives on a diet of mosquito larvae.

Caretaker Keeps Light Burning

As a boy, Edwin Mace Hewitt watched fishing boats unload huge catches at a dock in North Wildwood, then a fishing village known as Anglesea. Born in that village in 1917, he saw rum-runners more stealthily unload their illegal goods during Prohibition. Occasionally, he would spot whales feeding in the ocean. He even ice-skated on the frozen sea during severe winters.

He did all this in the shadow of Hereford Inlet Lighthouse, where his great-uncle had served as keeper for four decades.

Although service in the Navy and a career as a funeral director in Philadelphia took him away for about 40 years, he cherished his childhood memories of the shore. So when he retired in 1982 and was approached by the North Wildwood Lighthouse Commission to maintain the lighthouse, he gladly took on the job as keeper of the historical landmark.

"This is definitely the high point of my 74 years on this earth," he says today.

The lighthouse was built by the U.S. Army Corps of Engineers in 1874 at a cost of $25,000. Located between Great Egg Harbor and the Delaware Bay, its purpose was to nurture the whaling, fishing and shipping industries, whose wooden-hull fishing and cargo boats often met with disaster in that area because of strong currents and shifting sandbars. They found a safe haven at Hereford Inlet.

Hewitt's great-uncle, Freeling Hewitt, was appointed by President Ulysses S. Grant as Hereford Inlet's third lighthouse keeper, serving in that post from 1878 to 1917.

Operation of the lighthouse then was drastically different from today, says Edwin Hewitt. The light, a Fresnel lamp made in France in 1822, stood 57-1/2 feet above sea level and was visible from a distance of 13 nautical miles.

Fueled by whale oil, the light was tethered to a small weight by a chain, which ran through the ceiling and into the keeper's bedroom. As the oil level dropped, the chain would lower the weight to the floor. The thud of the weight onto the floor awoke Hewitt's great-uncle four times a night for 40 years, signaling him to rewind the gears.

But with the advent of television, ship-to-shore communications and steel hulls, lighthouses began to play a lesser role in maritime life, Hewitt says. Faced with the high cost of maintaining the outdated structure, the federal government in 1964 darkened the lighthouse at Hereford Inlet, and it remained closed for more than 20 years.

The federal government gave the lighthouse to the state in the late 1970s, and the state turned over stewardship of the lighthouse to North Wildwood in 1982, says Hewitt. He began refurbishing it immediately, refinishing the floors, repairing furniture, building a new porch and gazebo, painting and converting one of the rooms into a gift shop. The lighthouse, equipped with a new electric lamp, was back in operation by 1986. Hewitt keeps the lighthouse open from April through December.

He spends much of his time gathering old photos for display in the lighthouse. A cartoonist in his twenties, he also paints seascapes that are on display there.

"My favorite subject is the sea," says Hewitt, whose ancestors included many whalers. "I love the moods of the sea, and I love the sea because it can't be conquered. Man can pollute it, but he can't conquer it."

Hewitt says that Hereford Inlet Lighthouse is unique among New Jersey's 19 lighthouses, 12 of which are operational, because it's a live-in structure. It includes three bedrooms and five fireplaces.

The lighthouse, listed in the National Register of Historic Places, is visited by about 7,000 people each summer. It is maintained by individual donations and currently houses North Wildwood's Department of Tourism.

Hewitt has welcomed congressmen, mayors and sea captains to the lighthouse, but says it's not that kind of recognition that drives his efforts.

"My work is all due to wanting to keep the lighthouse and the memories of my ancestors intact," he says.

For more information on the lighthouse, call (609) 522-4520.

By Joan P. Capuzzi, a freelance writer who lives in Rosemont, Pa.

Edwin Hewitt admires the electric lamp atop Hereford Inlet Lighthouse.

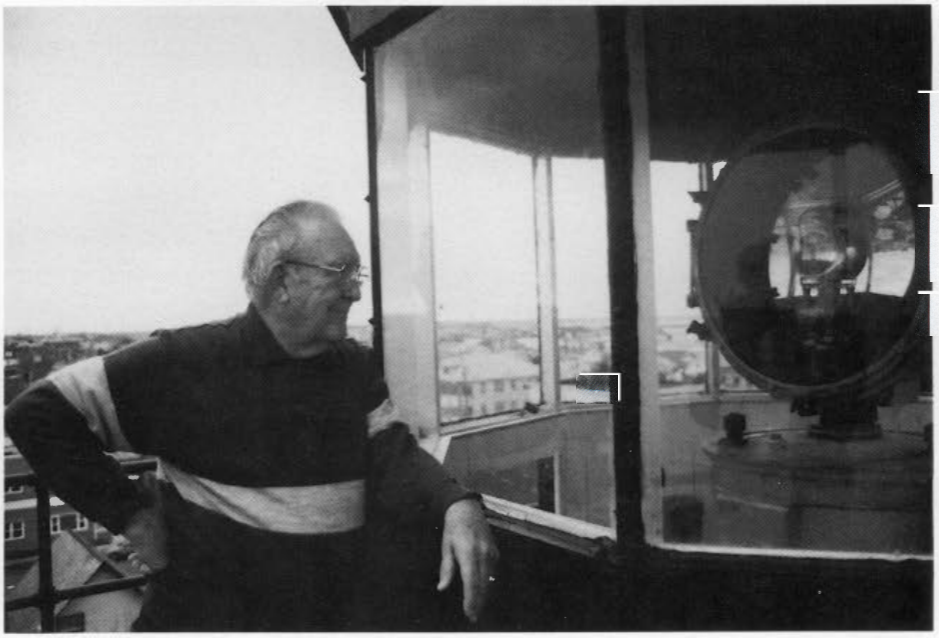


PHOTO BY AUTHOR

A River Over Time

I grew up in a small, asphalt-shingled house in Perth Amboy, a short block up from the mouth of the Raritan River. It was the 1940s and the country was involved in World War II, but life for me and my boyhood friends seemed peacefully detached, as though safely immunized from our nation's struggles.

War was for the older guys, the ones who smoked cigarettes and drove black Ford coupes with raccoon tails flying from their antennas, who went dancing on weekends with girlfriends on their arms. We were only "spuds," and not much good for anything but playing.

Most of our joy in those days was centered on the river. If you look down at it today as you make your way across the Edison Bridge or the Garden State Parkway span, it's hard to believe that the murky water, appearing almost stagnant from above, could ever have sustained life of any kind. But in the 1940s, schools of bluefish thrashed by along the pilings where the river meets the bay and touches the Amboys and the western tip of Staten Island. Whether from the dock just east of the old Victory Bridge near the Welin Davit lifeboat yard, or farther down river toward the bay, the small hungry blues would blitz the shoreline, ravaging the frenzied silversides.

Working with great concentration and enthusiasm, we yanked in dozens of "snappers" with long cane poles and red-and-white bobbers. Thrilled with our catch, we raced home, carrying the fish in shiny metal buckets. Our mothers garnished them in greased broiling pans with sliced tomatoes and onions from our gardens and slid them into waiting ovens. Entire families feasted on the firm, fresh catch of the day taken from the river flowing just outside our doors.

At times, we maneuvered a leaky rowboat with at least one oarlock missing around the pilings near the mammoth armory building. There, we filled baskets with sweet blue-claw

Water rushes over boulders in the South Branch of the Raritan River.

PHOTOS BY J. J. RAIA

crabs, easing a long-handled net under them and quickly yanking up. Mussels, clams, fluke, flounder, eels — even an occasional striped bass — flourished in the Raritan River.

The river was our main focus. Rarely did a day go by when in some way we were not involved with it. We sailed in it and we swam in it. We water-skied around oil tankers. When it froze over, we even ice-skated on it, and during one exceptionally cold winter, were able to cross nearly to South Amboy.

Today, I'm still involved with rivers. I've paddled a 1908 Old Town canoe on most of the waters that flow within the state's borders from the Wading in the Pine Barrens to the Paulins Kill in the Kittatinny Mountains up north. I've been on many others in Maine and Vermont. A lifelong interest in fly-fishing has put me in waders in some of the most pristine settings on some of the country's most famous trout streams. Because New Jersey is so heavily populated, it would be difficult for our streams to rival the legendary Catskill waters just north in New York, or a particular favorite of mine that winds like a sparkling necklace through the Green Mountains of southern Vermont.

There are some that do, though, and one coincidentally is the same river that flowed past my house in Perth Amboy 45 years ago; the same one we parked next to in New Brunswick with our dates from Douglass College; the same one where, while in high school, we spent weekends trout fishing at High Bridge. By some ecological miracle and through the efforts and determination of concerned residents, conservation groups and responsible legislators, the South Branch of the Raritan in much of Morris and Hunterdon counties — by official counts of native brook, brown and rainbow trout — could be classified as a "blue-ribbon" wild trout stream.

Even today, less than a half-hour from my door, I can be standing in the riffles of the glistening South Branch and return to a world I discovered years ago. The only sound is the lapping of the stream's rush against the head and shoulders of an exposed boulder, or the lush, smooth hiss of fast water moving over a bed of gravel. Ribbon and garter snakes peek out curiously from the safety of the crevices between rocks along the shoreline and stare motionlessly, invisible unless you make a conscious effort to put them into focus. White-tailed deer pick their way through the alders at the water's edge, hesitate, and then step into the stream where they stand knee-deep and drink. They look back at me, 100 feet upstream, fly rod in hand, and seem only mildly concerned by my invasion of their privacy.

An angler can get lost in time standing in the riffles of the pristine, fast-flowing South Branch of the Raritan River.

Farther along, an eastern box turtle pokes its head out of its mosaic shield and surveys a world that includes pintail ducks, frogs, a red fox, a raccoon, a skunk, red-winged blackbirds and a great blue heron. On a good day, the variety of wildlife is astounding — all in some way connected to and sustained by the bloodstream, the clean, fast-flowing South Branch.

Rivers are many things to many people. Travel the back roads in our rural counties in the summer and you'll find many young people involved with the rivers that flow through them, riding the currents in giant truck tubes and canoes, skipping flat stones across the surface or fishing. Their thick, nautical ropes dangle from the sturdy lower branches of ageless trees from which the more adventurous swing out and "cannonball" into the cold, deep pools below.

For me, another opening day is right around the corner. I'll need to tie some new flies and get my tackle ready. My old friend the South Branch is waiting.

By Ray Passacantando, a freelance writer who lives in Whippany

Working for the Survival of Endangered Species

Buy land and you'll protect wildlife. That's been the philosophy of many conservationists, now and in the past. But even as land was being preserved 30 years ago, alarming numbers of our state's wildlife species were heading for extinction.

Contaminants from pesticides and industrial waste were harming most of the state's raptor populations, including bald eagles, peregrine falcons and ospreys. The growing beach tourism trade was decimating beach-nesting birds such as the piping plover, least tern and black skimmer. Legal and illegal collectors of marketable snakes left several species, such as the corn and pine snakes, on the verge of extinction.

The problem: for some species, saving land from development was not enough. Recognizing this, the Division of Fish, Game and Wildlife in 1973 established its Endangered and Nongame Species Program, charging it with protecting and restoring threatened and endangered species. Since then, researchers have worked to save more than 100 species that either faced extinction or were fast on their way to extinction. They can claim a number of successes.

One is the restoration of the bald eagle to the shore of the Delaware Bay. With more than 20 pairs at the start of the 1950s, the species had been reduced to one pair by 1970. After a decade of research and management efforts, the eagle nesting population is up to five pairs and climbing.

The program also restored the peregrine falcon, a bird that actually was lost in the state, and the osprey, which hung precariously on the brink of statewide extinction for many years. Kathy Clark, a biologist with the program who has studied the contamination of ospreys and peregrine falcons for the past five years, believes that the crisis of the '60s and '70s that led to the loss of a great number of animal populations is not over, at least in New Jersey. She has found high levels of contaminants in these species, enough to cause another decline if conditions were right. New Jersey's Endangered and Nongame Species Program leads other states in the study of this problem, which may play a major role in the long-term survival of several endangered and threatened species.

Many species often are isolated into small populations scattered wherever habitat is appropriate. Each population helps others to survive by exchanging individuals. But when populations become isolated by roads and habitat destruction and fall in number, they go extinct and stay that way whether habitat is protected or not. As more and more small, isolated populations are lost, the entire population becomes threatened and can lead to a statewide or even species extinction.

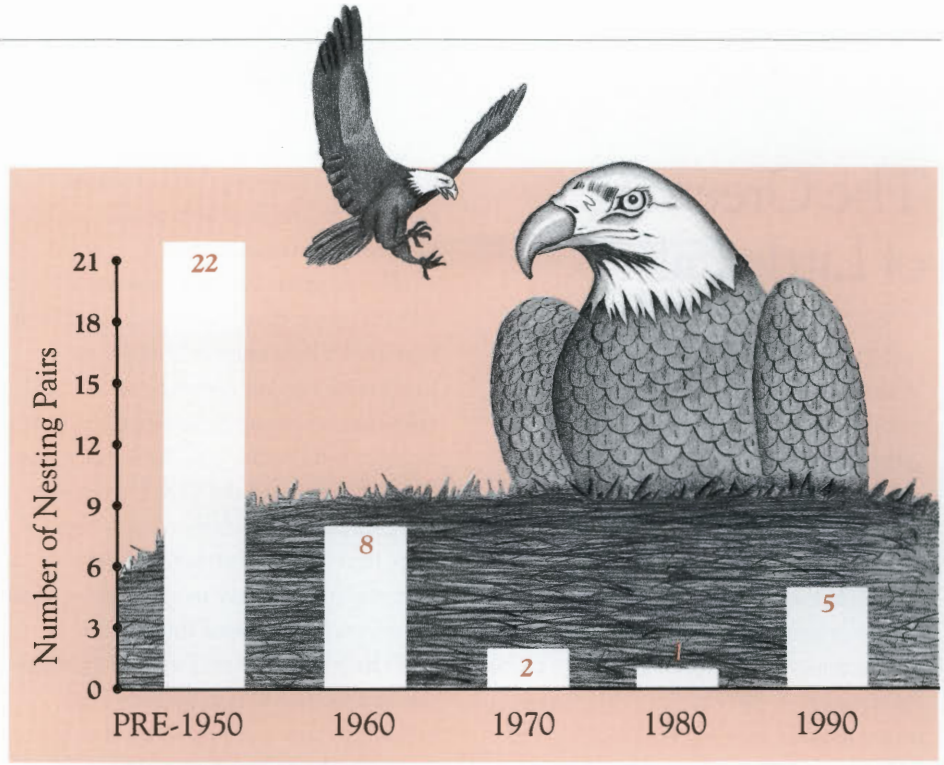
This is happening right now to the endangered woodrat, a small rodent that

Woodrats have come close to statewide extinction.

lives in mostly public land along the Palisades in northeastern New Jersey. Jim Sciascia, a principal zoologist with the program, has studied the woodrat for the past five years and watched it come as close to statewide extinction as any animal in New Jersey. In the past few decades, the animal has been lost from New York and is declining in Pennsylvania and a number of other states, and no one is sure why. Sciascia believes it may be a combination of factors, including food availability, disease and isolation. But the Endangered and Nongame Species Program is keeping a close eye on the population through surveys and research.

As Sciascia's work points out, owning land doesn't always solve the problem. But even when buying land is the best alternative to protect a rare species, the Endangered and Nongame Species Program plays a major role. In 1986, the program assumed responsibility for protecting migratory shorebirds along the Delaware Bayshore. The goal of the project was to spend more than $1 million on buying land critical to shorebirds. When biologists started the project, their understanding was weak. They knew the birds used the beaches to feed on horseshoe crabs, and the first idea was to purchase whatever beaches were available. But after four years of study, biologists found the birds not only use beach habitats, but the salt marshes as well, often moving from one habitat to another several times in a day. They also found that some species actually use marshes more than beaches, while others prefer beaches. They now will develop a sensible acquisition priority list that will best satisfy the needs of migrating shorebirds and make the best use of the available funds.

In the end, protecting habitat will be a major tool in the protection of the shorebirds as it is for most rare, endangered and threatened species. Fortunately, protecting land is the goal of many conservation agencies. But the Endangered and Nongame Species Program is unique because its goal is to protect rare, endangered and threatened species. Sometimes this means protecting land, but usually it takes a lot more, and the program fills the gap. Biologists must choose the species most in need of attention, study them to determine their problems, develop solutions to their problems and conduct management that puts those solutions into action. Their research is the first line of defense for New Jersey's rare animal species, and often the last line of defense.



The bald eagle is making a comeback in New Jersey.

By Lawrence Niles, principal zoologist for the Division of Fish, Game and Wildlife's Endangered and Nongame Species Program

How You Can Help

The Endangered and Nongame Species Program is funded almost entirely from the Wildlife Tax Check-Off on the state income tax form. No state tax revenues are appropriated for the protection and management of New Jersey's endangered and nongame wildlife. To support this program, check off line 45B on your state income tax form. You can make a direct contribution by completing the coupon below and sending it with a check or money order payable to:

Endangered and Nongame Species Program
Box 383, RD 1
Hampton, N.J. 08827
(908) 735-8975

If you do not already receive the program's quarterly newsletter, *Nongame News*, you will automatically be placed on the mailing list to receive a free subscription.

Enclosed is my contribution of $ _____

Name _____

Address _____

City _____

State _____ *Zip* _____

Phone (____) _____

Do you currently receive ***Nongame News****?*

❑ *Yes* ❑ *No*

Spring '92 NJO

The Greening of Little Falls

Little Falls Township detoured traffic around the center of its downtown area one day last July as hundreds of residents gathered to mark the arrival of some welcome newcomers: 27 freshly planted trees lining a half-mile of the township's concentrated central business district.

While the addition of 27 trees might not be cause for such celebration in other towns, it was an occasion of note for Little Falls, which in 1989 began a program to revive its once-bustling business district.

Little Falls Township's downtown is rich in history, thanks in large part to a nearby brownstone quarry that helped give the area many prosperous years. But eventually the quarry closed, hurting downtown businesses that suffered further as malls built along major highways lured shoppers away.

The trees that once lined the streets of the business district were slowly removed and never replaced. Benches disappeared. At one time, businesses set out large wooden barrels in front of their shops, and Girl Scouts and other groups planted flowers in them. But the barrels decayed and eventually were left empty.

Little Falls witnessed an almost "invisible decline" in its central business district, according to Helene Baumann, executive director of Main Street Little Falls, Inc., a program that combines historic preservation with retailing advice for downtown merchants.

The program last year received a $43,000 grant from the New Jersey Urban Forestry Demonstration Project, an innovative natural resource and reforestation program developed by U.S. Senator Bill Bradley, the New Jersey State Forest Service and the U.S. Department of Agriculture's Forest Service. If successful, New Jersey's demonstration project eventually could serve as a model for urban forestry programs around the country.

"The goal of the project is to illustrate the significance of natural resources, including trees, wildlife, water and open spaces, as they contribute to the quality of life in urban areas," says Olin D. White Jr., state forester for the Department of Environmental Protection and Energy, which is administering the project.

The grant funded the planting of 27 thornless honey locust and whitehouse callery pear trees. The trees were selected, in part, because they will tolerate pollution, since 20,000 cars pass through the center of town every day. They also will absorb flood water, which is important since Little Falls lies in a flood plain.

Baumann says that efforts to beautify the downtown area and educate building owners about the importance of maintaining the new trees already are having a positive effect.

"Business owners have begun to restore their storefronts, remove ragged awnings and restore window flashings and doorways," she says. "This will improve business and promote the continuing movement toward refurbishing the town."

The Little Falls program is one of five urban forestry demonstration projects in the state, made possible by $270,000 in federal funds. The others target:

- ❑ Newark, where trees will be planted in a vest-pocket park and two housing complexes to improve the environmental quality of the neighborhood.
- ❑ East Orange, where the tree-planting project will involve three city parks and several adjacent streets. Trees will be provided to shade picnic and children's play areas.
- ❑ Trenton, where the goal is to create a school-based reforestation effort with participation from the neighborhood. Plans call for an environmental education center and a school yard "laboratory" of trees, shrubs and plants, and efforts to educate teachers, students and neighbors about the importance of natural resources in an inner-city environment.
- ❑ Metuchen, where trees and shrubbery will be planted to improve the look of the industrial area as drivers enter the city along Route 27, the main thoroughfare.

For further information on the Urban Forestry Demonstration Project, call the Department of Environmental Protection and Energy's Division of Parks and Forestry at (609) 292-2532.

By Michael D'Errico, state coordinator of DEPE's Community Forestry Program

Honey locusts were planted throughout the Little Falls business district, including outside the old Eagle Hotel building. Shown are current and eight-year projected sizes.

Rabies in Wildlife:

Know How to Protect Yourself

DIVISION OF FISH, GAME AND WILDLIFE

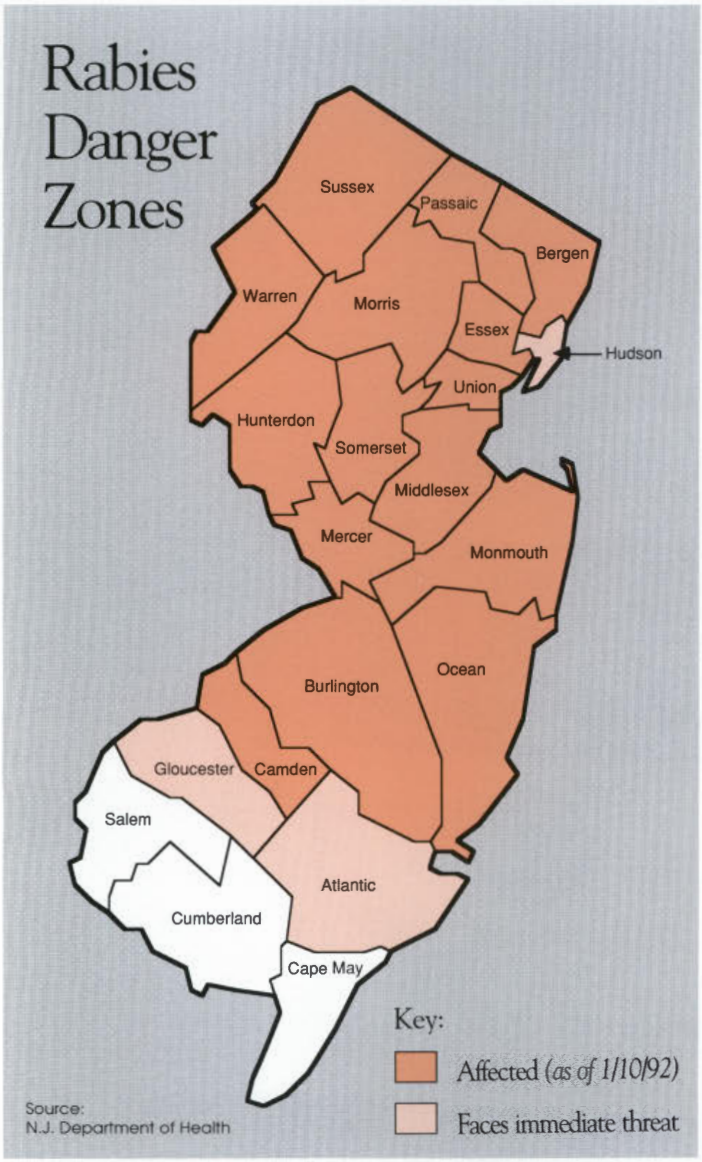
A raccoon finds itself trapped as part of a state study on the spread of rabies.

By Dr. Douglas E. Roscoe

A driver in Warren County spotted a raccoon that was frothing at the mouth on the side of the road one morning in the fall of 1989. As he slowed to get a better look, the raccoon tried to attack the car. The animal subsequently was caught and was found to have rabies, the first such case in New Jersey in 40 years.

Since then, the disease has spread to 14 of the state's 21 counties, a fact that holds special significance for hunters and other outdoor enthusiasts.

Knowing the warning signs of rabies in wildlife and how the



disease is transmitted can help ensure your safety when enjoying the outdoors.

Rabies is caused by a virus transmitted primarily through bites from infected mammals. There are different strains of the rabies virus. The one of current concern in New Jersey is transmitted mostly by raccoons. Spillover of rabies from raccoons has affected skunks, woodchucks, foxes, deer, opossums, a beaver and a black bear. Birds have not been found to transmit the disease. Of the 1,407 cases of rabies reported between 1989 and November 1991, 1,176 have been in raccoons, according to the New Jersey Department of Health.

Deer hunters in particular have expressed concern over the discovery of a few rabid deer. But to put this finding in perspective, it should be noted that no one is known to have contracted rabies from deer, even though millions of deer are handled by hunters and their families annually. If any wild animal is behaving normally at the time it is shot, rabies should not be a concern.

Rabid behavior may include a lack of fear, aggressiveness, paralysis (particularly in the animal's hindquarters), an inability to stand or walk normally, alert nervousness or disorientation. Any animal unable to stand may make walking or running movements while lying on its side. Excessive salivation also may occur.

Daylight activity of normally nocturnal animals such as raccoons may or may not be a sign of illness. They should not be randomly destroyed out of suspicion alone.

No human has contracted rabies from the raccoon rabies outbreak in the mid-Atlantic states, even though many have been exposed. People may be exposed to the virus through bites or by getting saliva in open cuts. They also may be exposed by getting saliva on their hands and then putting their fingers in their mouths or rubbing their eyes. The rabies virus is not carried or transmitted in the blood of infected animals.

If you're bitten by a wild animal, you should attempt to kill it without further exposing yourself to bites and without damaging the animal's brain, since it will be needed for testing by the New Jersey Department of Health Rabies Laboratory. The bite should be thoroughly washed with soap and water. You should contact your physician, local health department and the New Jersey Department of Health immediately for medical advice, which may include receiving the new, highly effective, relatively painless series of vaccinations.

Raccoon rabies spreads mostly during January through March and again in September.

Since there is no established rabies incubation period for wild animals, quarantine is not an acceptable method for diagnosing rabies in wildlife. The approved method involves euthanasia and examination of the brain. The Department of Health tests wildlife for two reasons. When the animal has bitten someone or their pet, the outcome of the test dictates the course of medical treatment. The testing also is used for surveillance. Mapping the location of every positive-testing animal monitors the prevalence of the virus.

Trappers, hunters, fur buyers and wildlife rehabilitators who handle the most frequently infected game species should consult their physician about obtaining a pre-exposure rabies vaccination. All dogs, cats and livestock should have rabies vaccinations as well. Rabies vaccines for domestic animals cannot be relied on to protect wild animals.

Experiments have shown that the rabies virus dies within 10 minutes in saliva on the surface of an animal's fur. Sunlight and drying rapidly kill the virus. A carcass found in the woods or on a

roadway may or may not harbor live rabies virus in its saliva, salivary glands, brain or spinal cord. It depends on how long the animal has been dead and what the air temperature has been. To be safe, don't handle it. If you must handle it for disposal or testing, use rubber gloves or place your hands inside a plastic garbage bag and, holding the animal, turn the bag inside out.

Thorough cooking kills a wide variety of bacteria and viruses, including the rabies virus. Potential exposure to infections by all microbes is more likely from handling the carcass or raw meat than from eating cooked meat. Hunters and trappers are advised to wear rubber gloves when field dressing, skinning, butchering and preparing meat from wild game. This not only prevents the meat handler from being exposed to bacteria and viruses, but also limits contamination of the meat by the handler. Meat near wounds should be trimmed and discarded. Hands should be washed with soap and water before and after handling meat.

Raccoon rabies spreads mostly during periods of greatest raccoon movement. This occurs in January through March during the breeding season and in September when the young begin to move more and family groups break up. The spread of raccoon rabies follows river systems since they provide the best raccoon habitat. Suburban environments with ever-present sources of food, in the form of household trash, and den sites, such as uncapped chimneys and outbuildings, support high raccoon populations.

When rabies first enters a raccoon population, a large percentage of the population may die. After approximately four years, the population grows to a point where another major die-off occurs. Rabies and canine distemper are two major diseases that periodically remove surplus raccoons from a population. In addition, hunting and trapping provide recreation and simultaneously remove some of these surplus animals that otherwise would be vulnerable to disease.

An oral rabies vaccine is being tested as part of a wildlife rabies control program conducted jointly by the Division of Fish, Game and Wildlife's Health Project; the Wistar Institute, a biomedical research center in Philadelphia; and volunteer trappers. Results of studies they have carried out in Cape May and Ocean counties will pave the way for the first national field trials to measure the effectiveness of the V-RG oral rabies vaccine.

If you've killed a sick wild animal that has not bitten anyone and, therefore, has not been reported or submitted to the New Jersey Department of Health, please notify the nearest division field office. The Wildlife Health Project will decide if an examination is needed.

For more information, contact the New Jersey Division of Fish, Game and Wildlife's Health Project at (908) 735-8793, or your local health department.

Dr. Douglas E. Roscoe is the leader of the Division of Fish, Game and Wildlife's Health Project.

BRECK P. KENT

Suburban environments, with food sources such as household trash, tend to attract raccoons.

Keep Your Eye on Trap, Skeet and Sporting Clays

PHOTO BY AUTHOR

Clay "birds" are the targets in rounds of trap, skeet and sporting clays.

By Russ Wilson

Out of the corner of my eye, I spotted them, a pair of "birds" zipping out from beneath the low-hanging branches of a pine tree on a direct path that would take them straight out in front of me at a distance of about 20 yards.

That was optimum range for my trusty 12-gauge, over-and-under shotgun, I thought as I tracked the front bird, pushing the front bead past the fast-moving bird and squeezing the trigger. Nothing happened. The sound of the 12-gauge ringing in my ears, I watched as the bird continued on its merry way. Quickly regaining my composure, I drew a bead on the second bird, again tracking its flight. As the barrel swung past the fast-departing target, I touched off a second load of number-eight shot. Much to my surprise, that bird, too, vanished into a maze of trees before dropping to the ground some 50 yards away.

Having used a shotgun for the better part of 40 years while hunting for ringneck pheasant, bobwhite quail, ducks, geese, ruffed grouse, cottontail rabbit, woodcock, wild turkey and whitetailed deer, I couldn't believe I had accompished a double miss, something that does not happen very often.

What kind of bird is it that can make a veteran shooter look, and worse yet feel, like a rank amateur? On this day, it was a brightly colored, bowl-shaped clay disk measuring about four inches in diameter, or in terms a bird hunter can more easily understand, a target that's about

the same size as a mature bobwhite quail.

The activity was the newest shooting sport to hit the United States in more than 100 years — a round of sporting clays. As the name implies, the object of sporting clays is to provide the participant shots at targets closely resembling those one encounters while hunting.

The loss of public land that's open to hunting and a growing interest among Americans who enjoy target-shooting have spawned a new breed of hunter, one who prefers a leisurely round of sporting clays, trap or skeet shooting to the thrill of the hunt.

Unlike trap and skeet, where the shooter is allowed to mount, or shoulder, the gun before the target is released, in sporting clays the shooter stands at the ready with his gun at waist-height, in a normal hunting position, until the target comes into view.

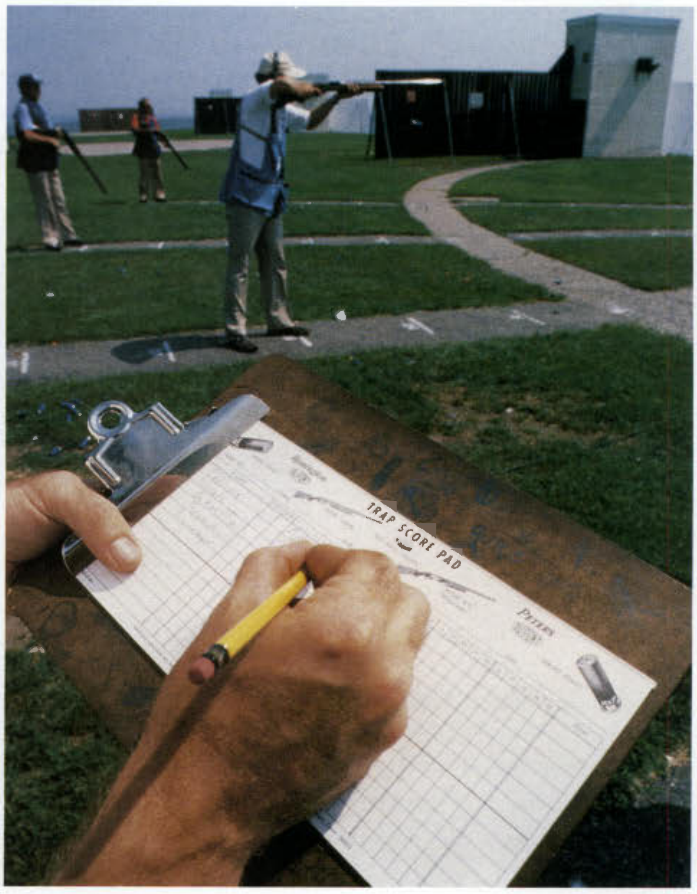
A typical sporting clays course is laid out in a natural surrounding and will normally have between five and 10 stations, with shooters moving from one station to the next to complete the course. A round usually consists of 50 or 100 targets. At any station, targets may be thrown as singles; simultaneous pairs; following pairs, with one target right after the other; or report pairs, where the second target is launched at the sound of the gun being fired at the first.

To further challenge shooters, target size may vary from the standard trap/skeet clay bird to a smaller midi or mini target, or a flat, disk-shaped "battue" target.

Most sporting clays courses make use of natural features such as woods and ponds to create a realistic setting for each type of shot. And each station presents the shooter with a different type of shot.

At the "grouse" station, for example, the shooter might face flushing birds that zip in and out of trees, crossing in front of him or flying out from the trees at an angle. At a "decoying duck" station, incoming targets may float toward the shooter or fly straight up to present the most difficult target, even for the accomplished wing shooter.

There's even a special "rabbit" target that is thrown on end from a hidden trap house so it will skitter and bounce across the ground, simulating the movement of a frightened cottontail that's zipping through the cover.



NATIONAL SHOOTING SPORTS FOUNDATION

A range manager records the score of a skeet shooter.

Sporting clays hasn't yet gotten the recognition it so rightfully deserves, and the number of places where shotgun-shooting enthusiasts can enjoy this challenging game is very limited. But as demand for better facilities grows, so will the number of public and private shooting clubs having a sporting clays course.

It will not happen overnight. Because a lot of acreage and a considerable amount of money are required to build a world-class sporting clays course, one providing all the ingredients of a natural field hunt, shooting club owners are reluctant to gamble with capital that might bring a better return if invested elsewhere.

Although a round of sporting clays will appeal to bird hunters wanting to sharpen their shooting eyes, it isn't the ideal way to introduce a wife, son or daughter to the fun of target-shooting with a shotgun. More appropriate for the family is a round of trap or skeet.

Trap is the most popular shotgun-shooting sport in the United States, with some 55,000 active shooters who shoot an estimated 82.5 million targets per year. These figures do not include the many thousands of shotgun-shooting enthusiasts who participate on an occasional basis.

Trap is the ideal sport for the youngster or first-time shooter since he or she can take the time to practice at each station until learning the basics of gun handling and swinging on the target, and eventually gain the confidence to hit the fast-moving clay birds with some degree of regularity.

There are three basic types of trapshooting: the 16-yard event, the handicap and doubles. In the

16-yard event, which is the best way to start a newcomer, the shooter stands 16 yards in back of the trap house. The trap operator launches a target that will fly from 48 to 52 yards and at varying angles of up to 45 degrees to the left or right of the shooter.

According to Dave Howery of the National Shooting Sports Foundation, in the 16-yard event, most targets are hit at a distance of 36 yards from the shooter. In handicap trap, a game that I do not recommend for anyone new to the sport, the distance from the shooter to the trap house increases to between 17 and 27 yards. More accomplished shooters stand a greater distance behind the trap house than competitors having less expertise.

When shooting doubles, the standard distance from the trap house to the shooting station is 16 yards. But because both birds are released simultaneously and can fly at angles of up to 35 degrees to the left or right of the shooter, the degree of difficulty in hitting a target is increased considerably.

The typical shotgun used in trapshooting is a 12-gauge with a full or improved-modified choke and a ventilated rib barrel measuring 30 to 32 inches in length. Although many of the nation's top-ranked trapshooters favor pricey over-and-under shotguns, inexpensive single-barrel, autoloader and pump models also are common.

In regulation trap, there are five stations, each set at an equal distance, but at a slightly different angle in back of the trap house. The shooter moves from each station, taking five shots at each until completing a round of 25 targets.

Although registered competition trapshooters often break 100 or more targets without a miss, newcomers to the sport should be more than satisfied if they are fortunate enough to break half of the 25 targets.

NATIONAL SHOOTING SPORTS FOUNDATION

An instructor shows a beginner the correct way to handle and shoot a shotgun.

Skeet is slightly more difficult to master because the shooter must hit fast-moving targets thrown from two "houses" while shooting from a series of eight different stations that form a semi-circle between the two buildings. A typical round of skeet, as in trap, consists of 25 targets.

In theory, a round of skeet is supposed to provide the shooter with the kind of incoming, crossing or straightaway shots one normally finds when bird hunting. But unlike a true hunting situation where the bird has the element of surprise, in skeet the shooter knows which house the bird will be coming from and the direction it will fly, and can shoulder the shotgun prior to calling for the target.

Skeet shooters can use whatever gauge shotgun they desire. This can be a major consideration when planning a round of trap or skeet shooting that includes the family. Some women and young children, for example, may not be comfortable shooting a 12-gauge, which weighs six or seven pounds and carries quite a kick. In this particular instance, a lightweight 20-gauge over-and-under, pump or autoloader may be the better choice.

Russ Wilson is a freelance writer who lives in Neptune.

Try Your Aim at These Shooting Ranges

At the present time, West Creek Sporting Clays at 520 Station Island Road, Eldora 08270, is the only sporting clays range in New Jersey that's open to the public.

Range owner George Campbell has an organized setup. In addition to a total of 36 field stations (not all in use at the same time), he recently installed a five-stand course that's made to order for the older or handicapped shooter who cannot do a lot of walking.

Campbell also has a trap field and skeet range and can provide shooting instruction for those new to shooting or just seeking advice from an expert.

The Beretta Gun Club has one of the finest sporting clays courses in the East at their club headquarters on Good Luck Road in Glenn Dale, Maryland. Other sporting clays ranges located within a reasonable drive of central New Jersey include:

❑ The Ommelanden Range, Route 9, New Castle, Del. 19720

❑ The Calverton Shooting Range, 395 Nugent Drive, Calverton, N.Y. 11933

❑ The Sandanona Sporting Club, Sharon Turnpike 44A, Millhurst, N.Y. 12545

❑ The Green Hills Sportsmen's Club, Route 10, Morgantown, Pa. 19540.

The National Shooting Sports Foundation, 555 Danbury Road, Wilton, Conn. 06897, publishes a complete listing of shooting facilities and clubs throughout the United States that are open to the public. To find a club where you can shoot trap or skeet, send $2 for the organization's Directory of Public Shooting Ranges. Listed are more than 900 clubs nationwide.

Most shooting facilities that are open to the public also will have available shells of the proper gauge loaded with shot that's the correct size for trap or skeet. They also will provide gun rentals, safety instruction and, if needed, instruct a first-timer on how to shoot a shotgun.

There are numerous shooting clubs in New Jersey offering trap or skeet shooting ranges, or both. Most are open to members as well as the general public.

A few worth checking out include:

❑ The Central Jersey Rifle and Pistol Club, P.O. Box 710, Stump Tavern Road, Jackson 08527

❑ The Chapel Hill Gun Club (trap only), RD #1-Box 502A Janes Chapel Road, Oxford 07863

❑ The Fox Ridge Range, Clove Road, Wantage 07461

❑ The Monmouth County Rifle and Pistol Club (trap only), Allaire Airport, Route 34, Wall Township 07719

❑ The Mullica Hill Rifle and Pistol Club (trap only), 111 Ward Avenue, Aububon 08106

❑ The Old Tappan Sportsmen's Fish and Game (skeet only), Old Tappan Road, Westwood 07674

❑ The Union Trap and Skeet Range, Union City Parks Department, Elizabeth 07207

❑ The United Sportsmen's Association of North America, Elmer Greenville Road, Elmer 08080.

Those wanting to obtain more information on trapshooting can write: David Bopp, c/o The Amateur Trapshooting Association, P.O. Box 246, Vandalia, Ohio 45377.

Those wanting to learn more about skeet shooting can write: Mike Hampton, c/o The National Skeet Shooting Association, P.O. Box 680007, San Antonio, Texas 78268.

There are two governing bodies for sporting clays in the United States. To find out more about this exciting game, contact Bob Davis of the United States Sporting Clays Association, 50 Briar Hollow, Suite 490 East, Houston, Texas 77027, or write to Mike Hampton, c/o The National Sporting Clays Association, P.O. Box 680007, San Antonio, Texas 78268.

A trapshooter fires at a target.

NATIONAL SHOOTING SPORTS FOUNDATION

Environmental Shopping:
It's Not Easy Buying Green

By Greg Johnson

Take a walk down the aisle of any supermarket. One product claims to be "eco-sensitive" while another promises to be "enviro-friendly." But there are a number of products whose environmental benefits fall far short of what is advertised. This practice has become known as green consumer fraud.

The recent surge in green products began in 1990 with the 20th anniversary of Earth Day. A groundswell of environmental awareness swept the country, fueled by the reality that in the 20 years since the first Earth Day, the health of the environment had continued to decline. The reaction was overwhelming and certainly not lost on the business community. Products seemed to become biodegradable overnight. However, some companies seemed to overlook the fact that to be truly biodegradable, an item must decompose and be absorbed by the environment.

Plastic trash bags were among the first products whose advertising proclaimed a benefit to the environment. However, the fact that the bags broke down into smaller pieces made them no more biodegradable than a glass bottle that shatters into smaller fragments. Recently, a major manufacturer of trash bags was charged by the Federal Trade Commission with failing to prove its claims that the bags decomposed when thrown away. The FTC determined that the conditions needed for proper decomposition — exposure to air, sunlight and water — do not normally exist in a landfill. An agreement reached with the company called for rewording the advertising copy. It now states that the bags will break down, but won't decompose in landfills.

"Ozone-safe" products also had their day of reckoning with the truth-in-advertising law. When the use of chlorofluorocarbons (CFCs) as aerosol propellents was found to be harmful to the earth's protective layer of stratospheric ozone, some companies reformulated their products to remove the CFCs. Touted as "environmentally safe" or "ozone safe," some of these products contained other propellents and ingredients that increased the amount of a different kind of ozone — ground-level ozone — thereby contributing to urban smog and air pollution. One New Jersey company agreed to pay a total of $50,000 to 10 states for misrepresenting the environmental benefits of certain household and cosmetic products that could contribute to ground-level ozone.

Green Labeling Efforts Under Way

How do you decide which products are friendly to the environment? If only there were a system that coded or labeled those items worth buying. Well, there soon may be. Two private firms now are competing to certify green products.

Green Seal operates out of Palo Alto, California, headed by Denis Hayes, the moving force

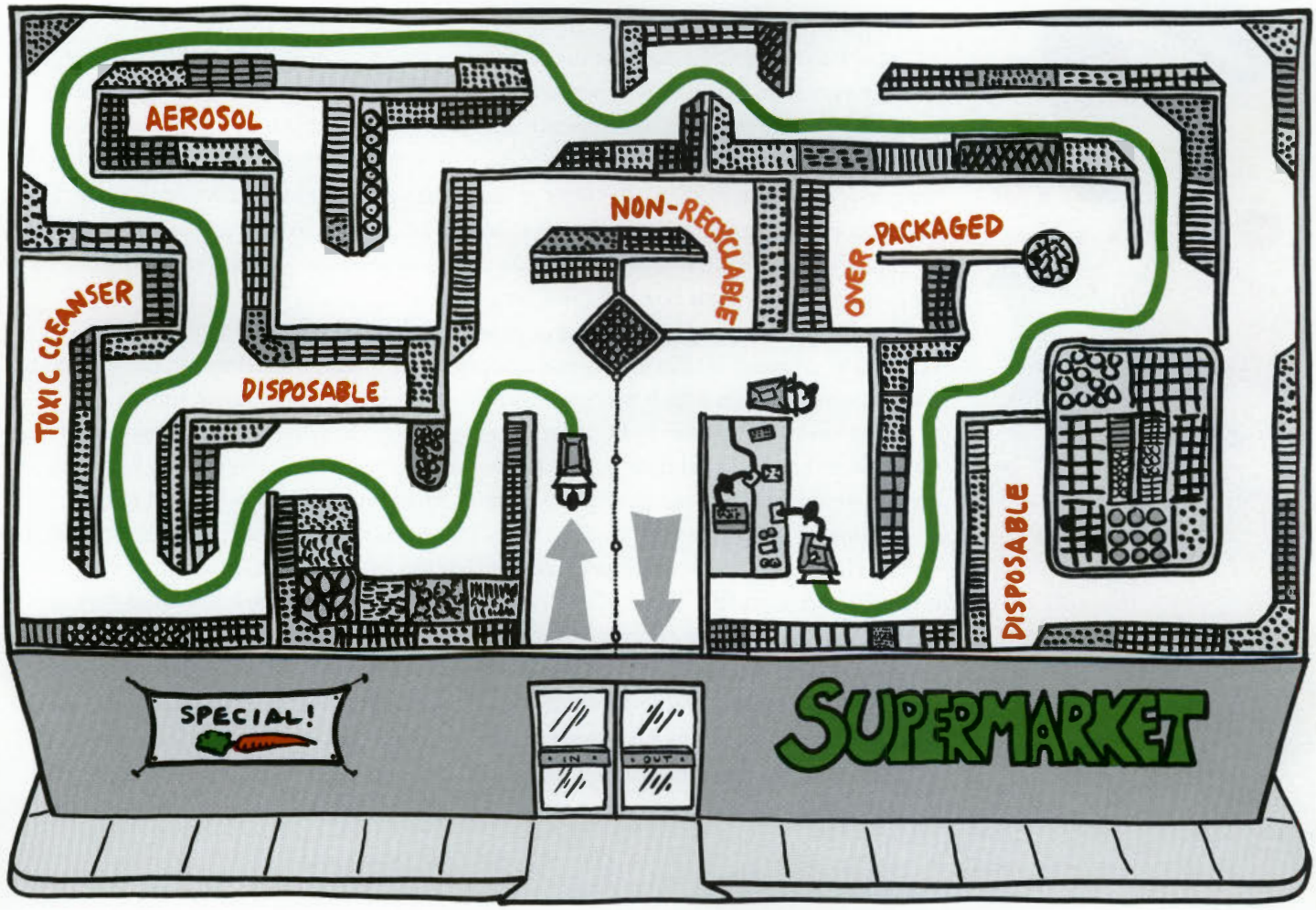
behind the 1970 and 1990 Earth Days. Green Seal has enlisted Underwriters Laboratories as its testing facility. The other firm, Green Cross, is based in Oakland, California. A division of Scientific Certification Systems, Green Cross has certified pesticide-free produce on the West Coast since 1984. Green Cross is advised by the Good Housekeeping Institute and boasts more than 400 product certifications. It wants to issue a broader certification that would include environmental factors other than biodegradability.

Senator Frank Lautenberg (D-N.J.) is cosponsoring a bill that would charge the federal Environmental Protection Agency with defining environmental terms and setting standards. If approved, it wouldn't be a first. Germany has awarded a "Blue Angel" seal to thousands of products for more than 10 years, while Canada and Japan also have explored initiating government-controlled programs.

In November 1989, the attorneys general of nine states formed a task force to study the trend in green marketing. Later joined by two other states, the task force issued "The Green Report" in November 1990. Though the report was seen as a first step toward developing a uniform national policy of non-deceptive environmental advertising, some of the specific recommendations were criticized. In May 1991, the same states issued "The Green Report II," a follow-up document that addressed the criticisms of the first report. The report tightened the definitions of several environmental terms in the hope of resolving the confusion and misuse that currently exist.

The Environmental Protection Agency also is working on guidelines for the use of the

Consumers can find their way through the shopping maze by knowing which types of products can be environmentally harmful.



> "I believe consumers are being misled."
>
> — Consumer Affairs Commissioner Emma N. Byrne

MARVIN ROSS

terms "recycle" and "recyclable" and the recycling emblem, which it plans to recommend to the Federal Trade Commission.

In New Jersey, the agency responsible for monitoring environmental claims on products is the state Division of Consumer Affairs, which between 1989 and 1990 witnessed a doubling of green marketing claims, with products labeled as environmentally "friendly" or "safe."

"I believe consumers are being misled by this kind of labeling," says Consumer Affairs Commissioner Emma N. Byrne. "There is not common national language for what these concepts mean."

"Environmentally safe" socks, "botanically correct" shampoo and "nuclear-free" light bulbs are among the products that have found their way into New Jersey stores, she says.

The Division of Consumer Affairs recently sent letters to more than three dozen companies that market their products with environmental claims, asking them for verification. The companies will be held accountable for false claims under the state Consumer Fraud Act, which states that ads or marketing must be truthful, accurate and able to be supported by evidence.

Consumers who feel they have been misled into buying a product, by either its packaging or advertising, are urged to contact the Division of Consumer Affairs at (201) 648-3622.

Green-Minded Shoppers Enthusiastic, But Confused

Many markets have witnessed a marked rise in green consumer awareness in recent years and now encourage it through the use of informative brochures and by urging shoppers to reuse grocery bags. Some stores give up to a four-cent credit for each bag a shopper brings back. Others offer products that appeal to environmental shoppers.

"We offer products under the 'Enviro-Quest' line, manufactured by a New Jersey-based company," says Don Rellstab, manager of the Pennington Market in Mercer County. The line includes products such as paper towels, toilet and facial tissue, dinner napkins and lawn bags.

"Three years ago, we sold one to two cases of these products a week," says Rellstab. "Now, we move anywhere from 10 to 15 cases per week."

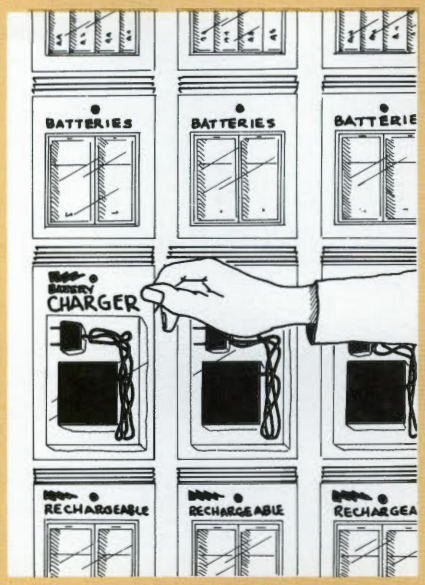
The market is assisted in its choice of products by the New Jersey Environmental Federation. Through its Environmental Shoppers Campaign, the federation has worked to educate consumers on which items are harmful or beneficial to the environment.

In the fall of 1991, a survey by a New York consulting firm found that 83 percent of the respondents had changed their buying habits due to environmental concerns. Sixty-one percent said they would not purchase a product if they thought it was harmful to the environment. That appears to be good news. However, if a consumer purchases an item that is advertised as recyclable and later finds out that the local recycling program won't accept it, it winds up in a landfill. This is why it is important for consumers to know what they are buying and what they are throwing away.

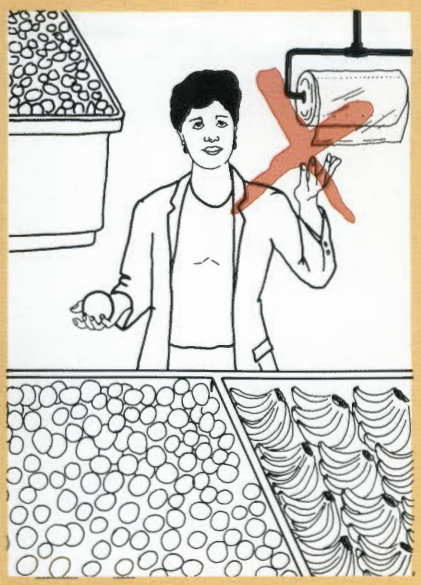
Thoroughly confused? Government has yet to approve a product-certification system that will satisfy both environmentalists and manufacturers. Meanwhile, consumers are reading labels as never before. As long as you have the item in hand, check to see if the product is made from recycled materials and is recyclable. Know what items your recycling program accepts. Look for products that feature less packaging. Try putting our landfills on a diet.

Greg Johnson works in the Department of Environmental Protection and Energy's Publications Office.

Buy in bulk whenever possible.



Buy rechargeable batteries and a battery charger.



Don't take a bag for just one or two items.

How to Be an Environmentally Smart Shopper

Be "green-minded" before you ever reach the market.

❑ Plan ahead. Is the trip really necessary? Try to combine several trips into one. Don't shop on impulse.

❑ Car pool. Shop with a friend.

❑ Reuse store bags or take a canvas or mesh bag of your own.

Once you get to the store, keep these tips in mind:

❑ Buy in bulk. This saves packaging and money, and means fewer trips to the store. Be careful, however, when buying perishables in bulk. Don't risk spoilage.

❑ Buy products in containers that are recyclable in your community. Keep up-to-date on what can be recycled.

❑ Avoid items that are over-packaged. Many products, including toothpaste and deodorant, are packaged only to provide advertising or because they stack better on shelves.

❑ Avoid throwaways and disposables. Stay away from one-use items that wind up in landfills. Buy products that will last.

❑ Aerosols can be environmentally unfriendly. Purchase pump sprays whenever possible.

❑ Some household cleansers are caustic and toxic. Baking soda will suffice in many instances.

❑ Buy rechargeable batteries and a battery recharger. If you use non-rechargeables, take them to a recycling center instead of throwing them away.

❑ Choose compact fluorescent light bulbs over incandescent ones. Though initially more expensive, they are more cost-effective in the long run. They will use less energy and last much longer.

❑ Don't ask for a bag for just one or two items.

An environmental shopper should be an environmental consumer at home as well. Follow these tips:

❑ Give products a second chance. Don't throw away items such as furniture, clothing, toys, books and appliances that can be used by other people.

❑ Give products a new life. Among other uses, plastic plates can become plant dishes, margarine tubs can hold nails and coffee cans can hold pencils.

❑ Compost. Place fruit and vegetable scraps in a compost pile with leaves and grass clippings. You will be rewarded with rich compost in a few months, as long as you follow some simple rules of maintenance. Call the Department of Environmental Protection and Energy at 530-8593 for more information.

❑ Go beyond the curb by contacting your local recycling coordinator to see if other items that are not picked up at curbside can be dropped off at other locations. Some areas have enlisted local businesses as used-battery receiving centers.

Looking for Big Bass?

Think Small

PETE McLAIN

By Russ Wilson

Many freshwater anglers have a serious case of tunnel vision when it comes to largemouth bass fishing in the Garden State. Bass specialists, especially those who aren't willing to investigate the state's potential, consider Spruce Run Reservoir, Round Valley Reservoir, Greenwood Lake, Lake Hopatcong, Assunpink and other highly publicized lakes and reservoirs as the only places where it is possible to catch bragging-sized bucketmouths.

Such is not the case. Many lesser-known lakes, ponds and impoundments offer equally rewarding bass fishing. But in spite of easy access and a year-round largemouth fishery that is second to none, these waters receive little attention.

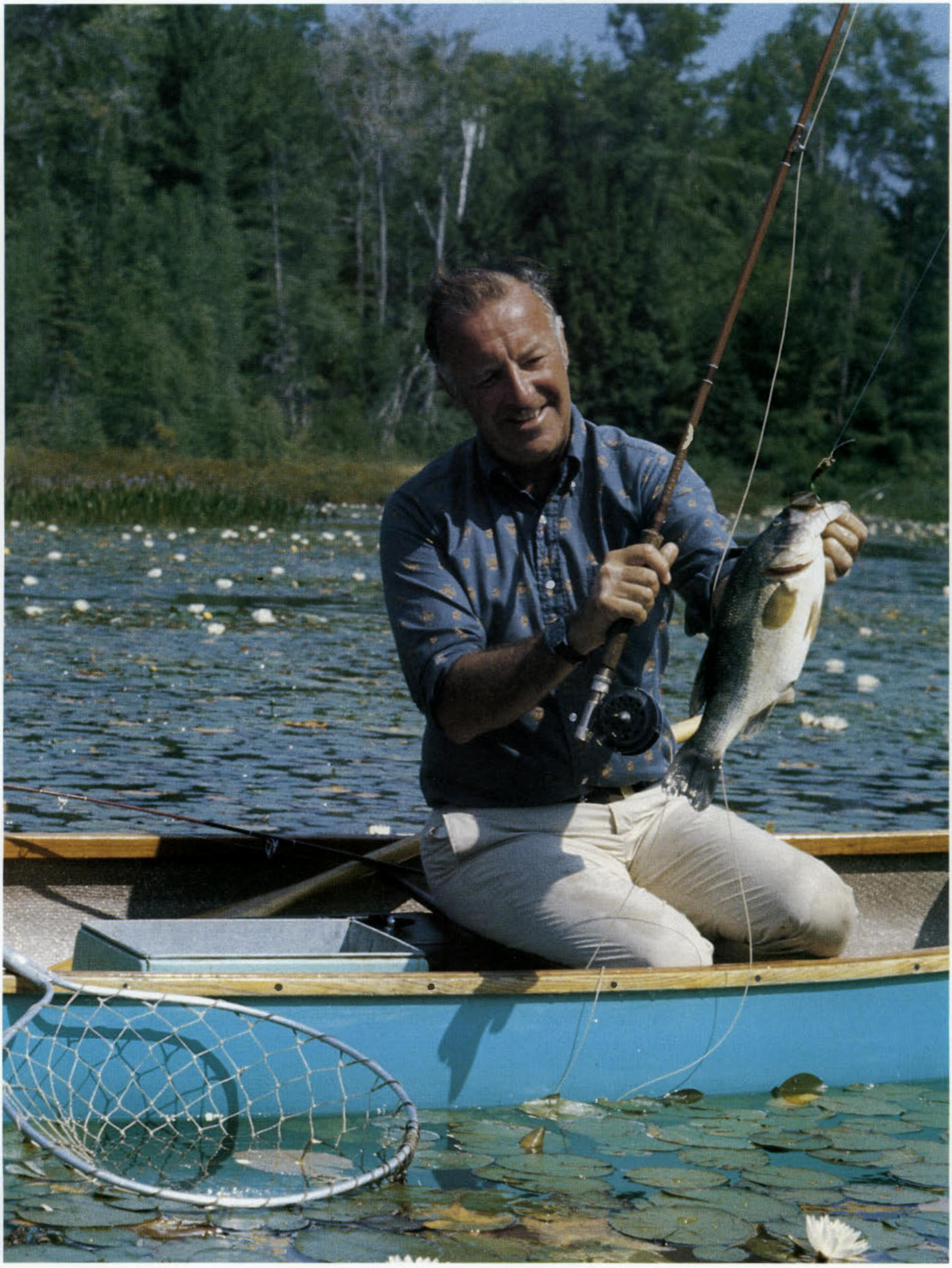
There are many reasons why so many otherwise savvy bass anglers fail to capitalize on this under-utilized bonanza. For openers, most of these little-known hot spots are small, some no larger than 10 or 20 acres. Due to special regulations regarding the use of outboard engines, and a lack of adequate boat-launch facilities, these bass havens often go begging for attention.

What this means to the bass fisherman who is willing to adjust his thinking is more solitude and better fishing. There are plenty of good-sized largemouths to be had when probing a small farm pond or inner-city lake.

Being a success at this game requires a different approach. Instead of using a $20,000 bass boat that will top out at 50 miles per hour, the angler planning to cash in on a day of small-pond

Many small ponds and lakes yield good-sized bass (above).

Smaller waters (right) often offer more solitude and better fishing.



PETE McLAIN

PETE McLAIN

A tube and a small lake in the Pinelands provide for a laid-back style of bass fishing.

bass fishing must be content to do it from a lightweight johnboat or similar-style car-topper.

Obviously, this is a laid-back style of fishing, one that many sportsmen and women find extremely relaxing and just as rewarding as the brand that's practiced on larger lakes by anglers equipped with thousands of dollars in tackle and high-priced bass boats.

The New Jersey state record largemouth, a 10-pound, 14-ounce brute, was caught from the Menantico Sand Ponds in Millville, Cumberland County. The sand ponds are a part of the state-owned Menantico Wildlife Management Area and comprise only 62 acres. That's proof that small-pond bass can, and do, grow to respectable sizes.

Scattered throughout the state are hundreds of similar lakes and ponds, each capable of providing an equally exciting opportunity. Unfortunately, far too many anglers fail to take the time to explore the good bass fishing on tap in these off-the-beaten-path waters.

Bob Soldwedel, acting chief of the New Jersey Division of Fish, Game and Wildlife's Bureau of Freshwater Fisheries, tells of a seining, or netting, program he and other division personnel undertook a couple of years back when the dam at Prospertown Lake, a state-owned, 80-acre impoundment in the Hornerstown section of Ocean County, was undergoing repair.

The water level of the lake had been lowered to facilitate speedy repair of the dam. In the process, says Soldwedel, most of the fish inhabiting the lake were packed into a small, less than one-acre area.

Soldwedel took it upon himself to seine the lake and relocate the bass into a more suitable environment. Although many Garden State bass fishermen were aware of Prospertown Lake's bass-fishing potential, few realized it held largemouth in excess of 10 pounds.

Soldwedel's seining efforts produced a total of 40 bass exceeding five pounds and several topping 10 pounds. Along with the lunker largemouth, some 390 legal-sized bass and thousands of perch, crappie and sunfish were removed from Prospertown and relocated into surrounding lakes and ponds.

I've enjoyed some of my most memorable days and also caught the largest bass while probing lakes and ponds that most fishermen would not think of trying. Records kept over a 30-year period reveal many exceptional catches taken from little-known ponds, municipal reservoirs and lakes situated in the heart of a bustling city.

A couple of years back, I had a call from a dyed-in-the-wool bass pro who had just returned from his first trip to a small lake in

Ocean County. Gary Caputi of Bricktown, no stranger to fancy bass boats and tournament fishing, had just landed a 7-1/2 pound largemouth. As Caputi tells the story, he had passed the lake hundreds of times on his way to Greenwood Lake in Sussex County, but hadn't given it a second glance.

This particular day, however, it was cold and raining. Rather than drive two hours in the rain, he elected to try Lake Shenandoah, a 100-acre lake in Ocean County Park. Using an electric motor to push his 16-foot bass boat, and working the weed beds with a plastic worm and leadhead jig, Caputi caught the biggest bass of his life and at the same time discovered the peaceful surroundings and solitude that make this kind of bass fishing so rewarding.

As a rule, small-pond bass fishing gets off to an early start. By mid-April, roe-laden females are on the beds and males are grouped nearby, waiting to fertilize the eggs.

It is a time of plenty, with spinnerbaits, leadheads, plastic worms, subsurface swimming plugs, jig and pig combinations and natural bait providing fast-paced action.

If casting an artificial lure seems a bit too much work, stop at a local bait and tackle shop and purchase two dozen live shiners and a container of night crawlers. They generally will get results.

Half the fun of small-pond bass fishing is locating these out-of-the-way waters. You can, of course, drive the back roads, but a better solution is to purchase a road map of each county and use it to pinpoint secondary roads leading to top-notch fishing the crowds miss. The Hagstrom Company markets county maps found in most stationery stores and office supply outlets.

The Department of Environmental Protection and Energy, through its Division of Fish, Game and Wildlife, publishes a brochure, *Places to Fish*, which is packed with helpful information. It includes the town and county where each of the lakes and ponds is located, any special regulations that apply and a rundown of the various species that can be caught.

To obtain a copy of this free brochure, send a double-stamped (58 cents), self-addressed, business-sized envelope to: New Jersey Division of Fish, Game and Wildlife, Information and Education Unit, CN 400, Trenton 08625-0400.

Another excellent source of information is the *New Jersey Lake Survey Fishing Maps Guide*. Published by New Jersey Sportsmen's Guides, P.O. Box 100, Somerdale 08083, the guide retails for $8.95 plus $1.55 postage.

Russ Wilson is a freelance writer who lives in Neptune.

Don't Overlook These Bass-Fishing Hot Spots

❑ **Harrisonville Lake, Gloucester County:** Considered one of the best bass lakes in the county, Harrisonville covers just 30 surface acres. The lake is owned by the state and carries the highest rating (number one) for its exceptional largemouth fishery. Car-top and trailer boats are allowed and there are launch facilities available. Only electric motors may be used.

❑ **Lake Mercer, Mercer County:** This 275-acre lake is part of the Mercer County Park system and is located in West Windsor Township. It is a real sleeper, producing numerous largemouths in the 3- to 6-pound class annually. The state gives Lake Mercer a number-one rating for its excellent largemouth fishery. There is excellent fishing from shore or boat. Launch facilities are available for trailer or car-top boats, but only electric motors are allowed.

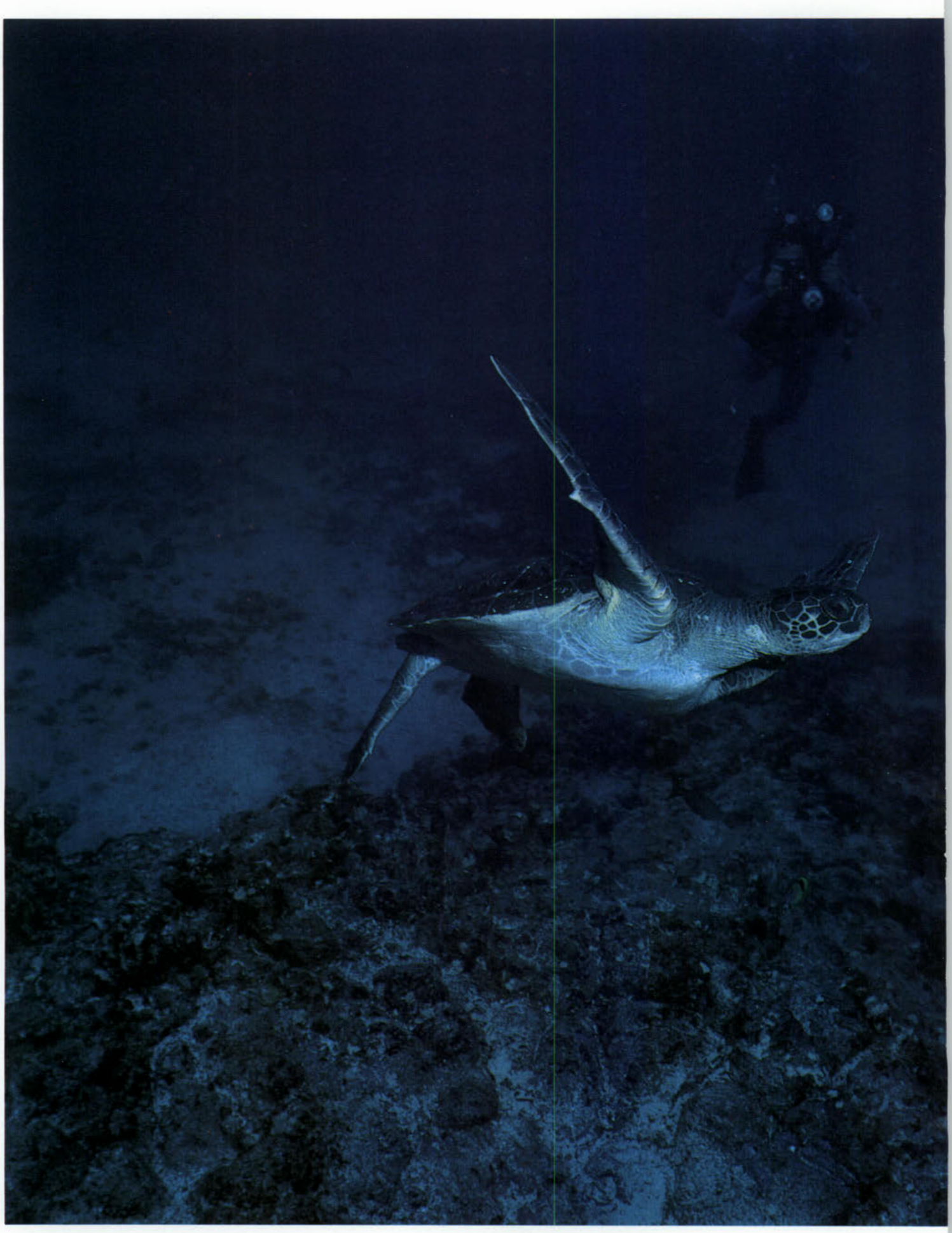
❑ **Farrington Lake, Middlesex County:** This is the largest lake in Middlesex County, covering some 290 surface acres. Located in Milltown, it is owned jointly by the county and private individuals. It has been known to produce good catches during early spring and in October and November when waters begin to cool. Shore fishing is permitted, but public access is limited.

Car-top boats powered by electric motors only can be carried to the lake. At the present time, there are no public facilities for trailer boats.

❑ **Swartswood Lake, Sussex County:** This 494-acre, state-owned lake is a favorite among Garden State bass fishermen. As with many state-owned waters, trailer and car-top boats here are restricted to electric motors only.

The lake has a number-two rating for its largemouth fishing, but many anglers, especially those who fish early or late in the day, say it is one of the most consistent producers in the northern part of the state.

These are but a few of the best bass-fishing spots in New Jersey. *Places to Fish* lists more than 100 others, each offering equally rewarding opportunity for bass enthusiasts willing to go that extra mile if it means having a day of fun.



The green sea turtle (*Chelonia mydas mydas*) is one of only a few species of sea turtles not yet extinct. This great ocean-dwelling reptile has been known to travel more than 500 miles in a month, feeding primarily on jellyfish. It is believed to return to its original birth site to lay eggs somewhere between 30 and 50 years later. Though the one in this photograph weighs about 200 pounds, some green sea turtles can reach twice that weight.

Exploring New Jersey's Underwater Frontier

Photos and text by William W. Hartley

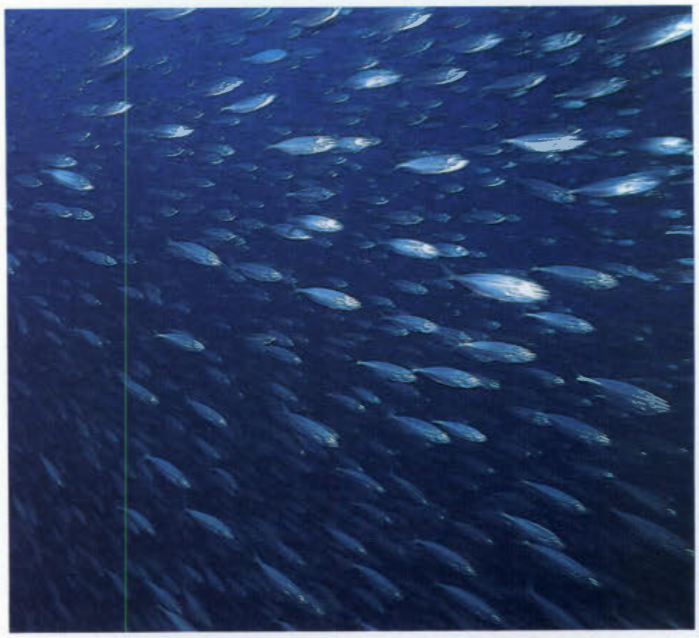
New Jersey's coastal waters are highly prolific. If you penetrate the aquatic membrane of the ocean, you enter into a nutrient-rich sea teaming with life. The entire water column, from the surface to the first few inches of sand, offers incredible opportunities to witness magnificent creatures. Some are so small they're visible only with a microscope, while others dwarf man. All are living, working and feeding together within Mother Nature's balance.

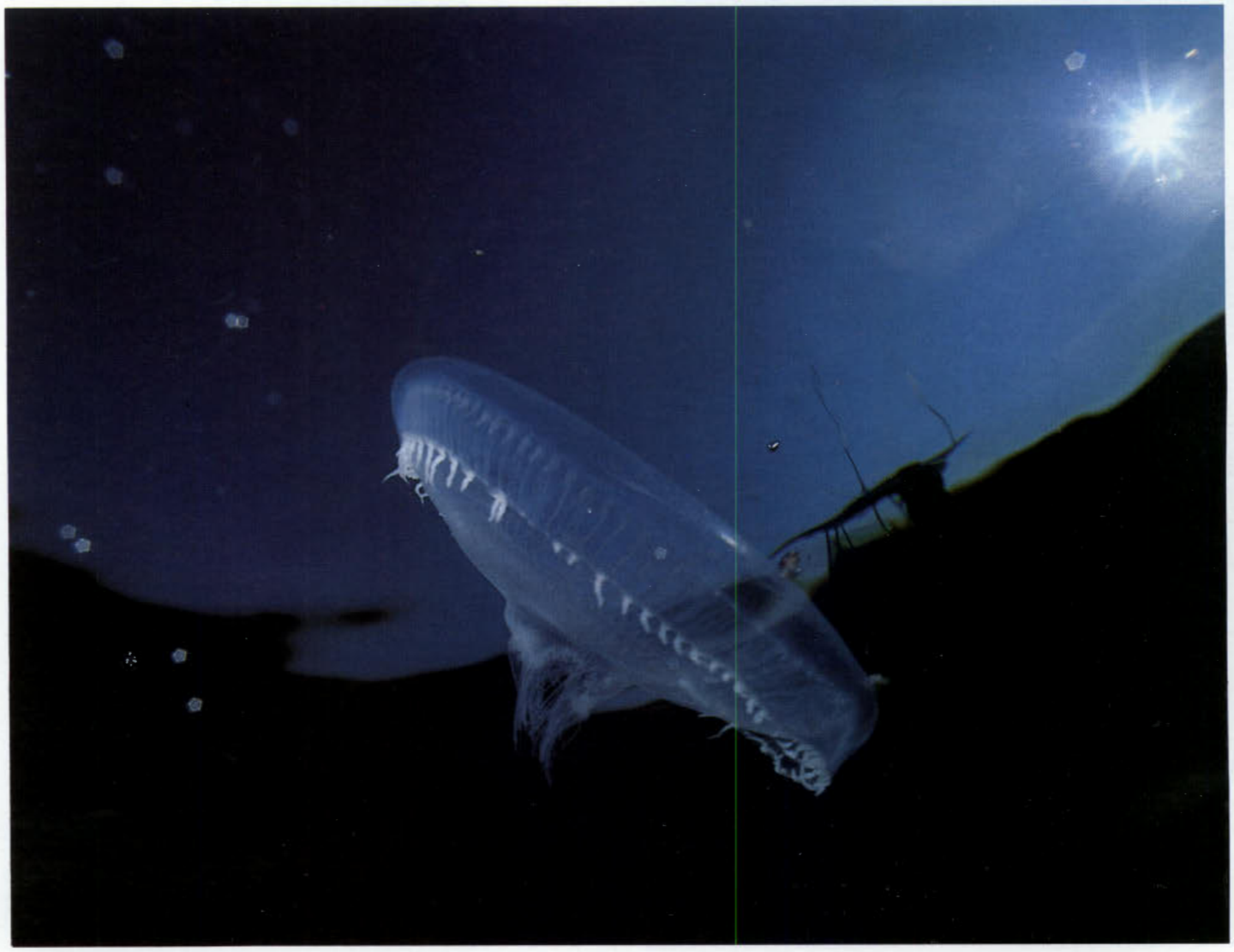
Although the diversity of species is limited, the population numbers are great. New Jersey's ocean floor is a desert of ever-shifting sands, offering little in the form of habitat by itself. The ocean-dwelling species swim freely throughout the biogeographical regions, feeding on small bait fish, while territorial species search for an oasis created by sunken ships or sand drifts.

The ocean, with an ever-changing beauty created by its perpetual motion, offers man his last frontier on earth.

Turning, twisting and darting in perfect rhythm, these plankton-eating silversides (at right), or bait fish, find protection from larger species by schooling in great numbers.

The moon jelly (*Aurelia aurita*) is less venomous than other jellyfish found in the New Jersey area. It feeds on small plankton, which are caught on the sticky mucous band located on its underside. The angle of this shot, taken at a depth of 4 feet and pointed upward, shows a boat on the surface.





The Mola mola, or ocean sunfish, is one of the world's largest bony fish. The one in this photograph is about 8 feet from top to bottom, but others will grow as large as 12 feet. Often spotted by sports fishermen, the Mola mola will break the surface in its search for jellyfish that hang in the upper reaches.

A garden of polyps extends from New Jersey's only hard coral (*Astrangia danae*). Hard coral is a living, breathing entity comprised of hundreds to millions of small individual polyps. Each polyp's tentacles sway in the current, awaiting plankton, which are caught and pulled into the mouth located at the center of the polyp. Each polyp excretes a calcareous external skeleton that connects with others, forming the building blocks of hard coral.

This frilled sea anemone (*Metridium senile*) has attached itself to a bed of blue mussels. Its small tentacles, which contain a stinging poison, sway in the current, awaiting plankton or small fish. Once its prey is stunned, the anemone is able to gain a strong grip and pull the prey into its mouth. Just above the anemone is an Asteriid Sea Star (*Asterias vulgaris*), or starfish, feeding on blue mussels. The starfish has a five-part radial body form and tiny tube-like feet on its underside for feeding and locomotion. It has the ability to travel about one mile a week.

Riding on the warm currents of a mid-summer gulf stream, sea horses (*Hippocampus erectus*, at right) migrate to the Jersey shore, entering the back bays and estuaries. This fairy tale species survives on its ability to blend in with its surroundings while feeding on zooplankton, fish larvae and tiny crustaceans.

A 100-Year Watch on WILDLIFE

By Mimi Dunne

DIVISION OF FISH, GAME AND WILDLIFE

In the 1950s, there were no limits on striped bass. Current regulations are designed to conserve this valuable species.

The New Jersey Division of Fish, Game and Wildlife marks its 100th anniversary this year, and though it has grown in size and range of responsibilities, it continues its original mission to protect and manage the state's wildlife for the benefit of all residents. And in a small, urbanized state, that mission has been a great challenge.

The Board of Fish and Game Commissioners was established in 1870 with two members, but the first salaried Fish and Game protector — George Riley of Newark — wasn't hired until 1892.

"The division's come a long way since 1901 when there were 25 volunteer deputies and an assistant protector in addition to the Fish and Game protector," says division Director Bob McDowell. "We now have 42 conservation officers — at least one in every county — and seven in the marine region."

The division also employs 67 biologists who specialize in freshwater and marine fisheries, wildlife and land management, nongame and endangered species, information and education, environmental reviews, planning and administration.

"Since wildlife is a public resource, it's vital that it be managed by professionals who have the interests of all of our citizens and the wildlife in mind," says McDowell.

In the early 1900s, New Jersey's population density was similar to present-day Maryland or upstate New York, with 420 people per square mile. More people made their living from the land than today, and a greater proportion of the population hunted and fished. In 1920, there were nearly 150,000 licensed hunters and anglers. With the laws that existed then, it was difficult to conserve wildlife.

In the 1920s, a hunting license cost only $1.50. Then and today, sportsmen's dollars fueled wildlife conservation work.

JOSEPHINE BLASER

More than 10,000 people visited the state in 1929 to hunt, fish, camp and picnic, and 27,000 man-days of recreation were enjoyed. Hunting and fishing added $5 million to the state's economy in 1929. The license fee was increased to $3 in 1930 to fund the purchase of land and the raising of game birds and fish at the state's hatchery and game farms.

Game Farms Provide Bounty of Birds

The Forked River Game Farm opened in 1910 and raised turkeys, mallard ducks, chickens, geese and pheasants in its early days. It was the third state farm in the country to raise pheasants after their introduction into the United States from Asia. New Jersey led the nation in production of pheasants in 1929, with more than 16,000 raised and more than 6,000 purchased. Game farms at Freehold, Mount Holly, Holmansville, High Point and Rockport also opened in the 1920s and 1930s. Of these, only the Forked River and Rockport farms still exist.

The Rockport Game Farm was operated from its construction until recently by three generations of the same family. Duncan Dunn helped build the Rockport and Forked River game farms with the help of his son-in-law, Robert Buntain. Robert Buntain ran the operation at Rockport before turning it over to his son, Duncan Buntain. And Duncan Buntain oversaw the game farm for 45 years until his retirement last year.

But his farm certainly was a more advanced operation than his grandfather's and father's, he recalls.

"When they first started, they used to rent set hens for a dollar apiece from farmers, and put the pheasant eggs under the chickens," he says. "They'd put 21 eggs under each of 5,000 chickens. In 1933, they switched to the incubators."

Today, 35,000 pheasants are raised at Rockport and 20,000 purchased from the Department of Corrections-operated Forked River Game Farm. Forked River also raises 15,000 quail for stocking statewide.

At the same time that game farms were created, the fish hatchery in Hackettstown opened. Its first superintendent was Charles O. Hayford, for whom the hatchery later was named. He raised crops there as well as fish. Part of the maintenance included hauling ice for refrigeration during the warm months. In 1922, workers hauled 400 tons of ice. The fish hatchery was one of the largest in the country, producing trout that

Today, there are more than 150,000 deer in New Jersey.

was stocked throughout New Jersey for more than 70 years. But the raising of trout was discontinued there because of the need for a larger and better-quality water supply. Since 1982, the high-tech Pequest Trout Hatchery and Natural Resource Education Center has produced the state's trout — more than 600,000 annually — while the Charles O. Hayford Fish Hatchery has expanded its warmwater fish operations.

Violators Paid High Price

Though the types of fish and game violations haven't changed drastically in 100 years, their magnitude of importance has. Individual deer violation fines in 1991 were roughly the same as they were at the turn of the century. But in 1922, a deer violation costing $100 represented a man's salary for three or four months. One violator was reported to have been fined $500 for five illegal deer. In that same year, a new 28-foot, gasoline-powered boat cost $1,100. Violators who defaulted on payments served 10 to 90 days in the county jail.

Fish and Game protectors were some of the earliest and staunchest defenders of clean water. That work continues today. In 1991, conservation officers issued 301 notices of violations to water polluters and the division collected $226,725 in fines. Game protectors in the early 1900s spent many hours patrolling the marine areas for violators, and numerous shellfish violations were documented.

Artificial reef construction began as early as 1926 with the sinking of hulks of old vessels along the coast. Today, the reef program consists of more than 200 reef units on eight sites spread from Sandy Hook to Cape May.

Saltwater fisheries managers were especially concerned about weakfish in the early 1900s, and proposed the establishment of a marine biological laboratory, which eventually opened in 1964 as the Nacote Creek Research Station in Atlantic County. A saltwater license was first proposed in 1931 to develop the laboratory, fund law enforcement and operate hatcheries for striped bass and fluke.

The division in the early 1900s worked to restore low white-tailed deer populations in the Pinelands and elsewhere in the state. Deer were restocked from the Warren County Game Preserve and relocated from Michigan and Pennsylvania. Many years of closed seasons, bucks-only laws and regeneration of habitat resulted in deer reaching carrying capacity in the Pinelands by 1935 and in North Jersey by the late 1950s. Today, there are more than 150,000 deer in New Jersey, supporting 1.4 million man-days of hunting recreation.

The purchase of land for public hunting and fishing became a priority as early as 1920 and continues today. The Fish and Game Commissioners were involved in land donations to the state — the Van Nest Tract in Mercer County, the Norvin Green and Hewitt properties in Passaic County and the Kuser Tract in Sussex County — but the first land purchase from license fees didn't take place until 1932. That purchase was a 135-acre parcel of land in Sussex County, now known as Flatbrook-Roy, and was the first to be included in the wildlife management area system. Today, there are 206,000 acres in 75 wildlife management areas scattered throughout the state, half of which have been acquired through license monies. Public hunting and fishing are still priorities, but other types of compatible recreation, such as hiking, birding and canoeing, are welcomed on the areas.

The division has long recognized the importance of

HERB SEGARS

New Jersey's artificial reef program consists of more than 200 reef units on eight sites.

providing information to the public. In 1950, it started *New Jersey Outdoors* magazine. The division also has had an active information and education program since the 1960s for teachers and students.

Management Takes on New Perspectives

Attitudes affecting wildlife management have changed over the years as knowledge has been gained. It was commonplace in the 1920s for game-farm and hatchery managers to kill "vermin." Hawks, crows and foxes were destroyed over the years in an effort to protect game-farm wildlife. But this was halted after biologists realized that other factors, such as habitat, had more of a limiting effect on the wildlife numbers than the predators did.

It was routine in the 1920s and 1930s for game protectors to feed pheasants and quail in the winter, especially when a snow crust would prevent access to grain. Feeding deer was seen as a way to help an overpopulated herd survive a rough winter. But biologists now realize that it's not possible to indefinitely support a population that has grown too large for its habitat. Some agent, such as disease or automobiles, eventually will bring the numbers under control. Recreational hunting helps to control these populations.

As the fledgling field of wildlife science has matured over the years, an ecological perspective now rules management decisions. Vermin control is gone. Game birds and fish still are stocked, but not rabbits, ducks and turkeys. Instead, reintroduction of wild stock and habitat manipulation are viewed as the ways to restore wildlife populations in trouble. Eastern wild turkeys, ospreys and peregrine falcons have been restored to the state. Bald eagles are on their way back. Habitat protection has helped restore American shad to the Delaware River and black bears to the northern part of New Jersey.

With the advent of Earth Day in 1972, the division began interacting with new groups with different ideas about how or why wildlife should be managed. Greater interest was shown in nongame and endangered species. A section within the division was established in 1973 to research and manage the 400-plus species for which no hunting or fishing seasons exist. A lack of funding precluded management for all but the most critically endangered, though research continues on a wide variety of species.

Wildlife Watchers Optimistic

Hunting and fishing today add tremendous revenues to the state's economy from tourism and equipment expenditures. In 1985, more than $2 billion was spent on fishing and hunting in New Jersey. In that same year, more than 22 million man-days of recreation were enjoyed pursuing wildlife in the state.

New Jerseyans enjoy a unique diversity of wildlife and habitats. Our history of wildlife management is rich and we have reason to be optimistic about the future of wildlife in the Garden State. Volunteerism for wildlife has never been better. There are more than 1,000 dedicated conservationists who volunteer their time as deputy conservation officers, hunter education instructors and wildlife conservation corps members. This groundswell of interest in all environmental matters should benefit wildlife.

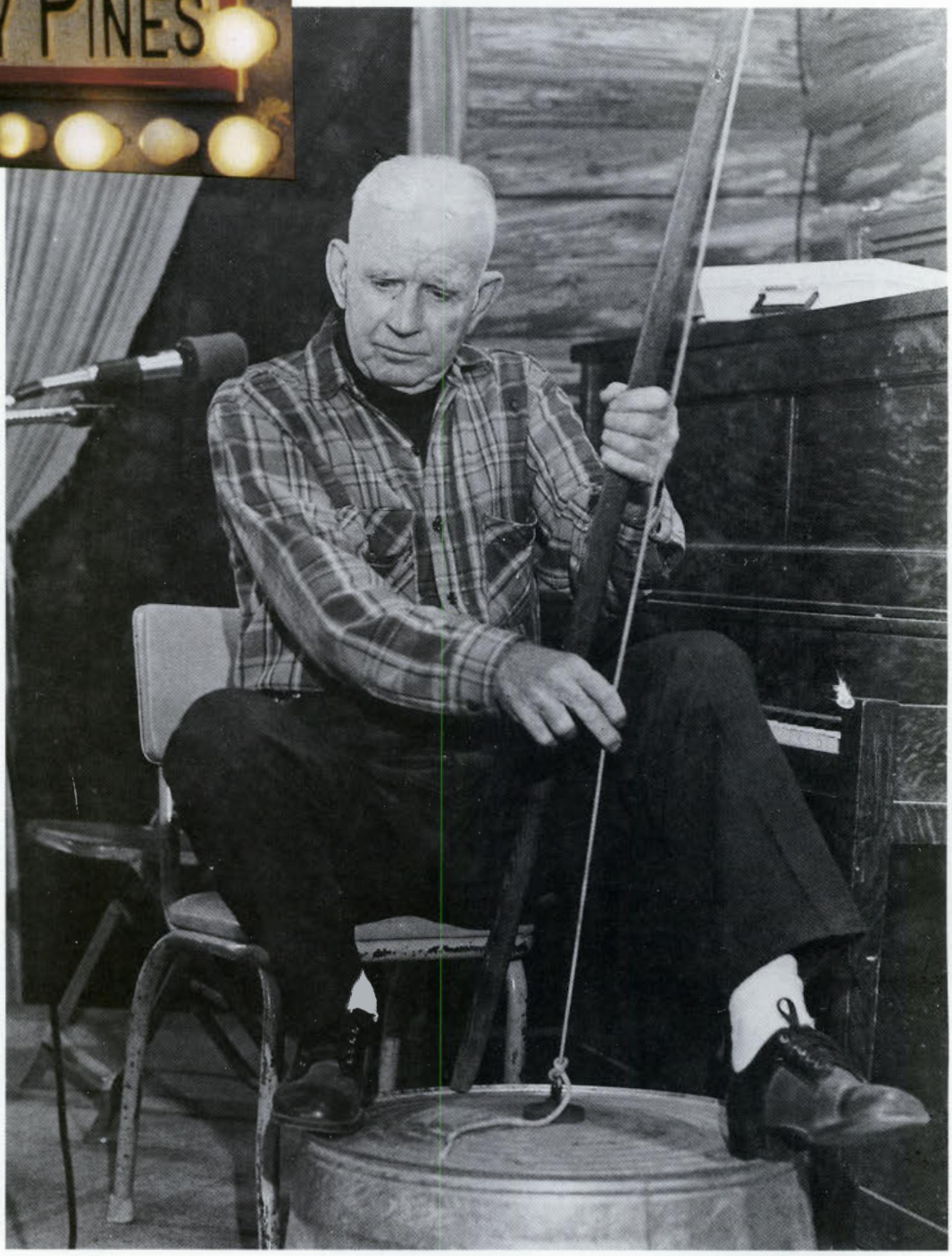
Funding of wildlife programs is likely to remain an issue; sportsmen's dollars are limited and public participation in the tax check-off for nongame and endangered species is declining. Habitat alteration remains the greatest threat to New Jersey's wildlife, though global problems of ozone depletion, rain forest destruction and warming undoubtedly will take their toll. The future of wildlife conservation will depend on the collective actions of each one of us as we confront these issues.

Mimi Dunne has been a senior wildlife biologist with the Division of Fish, Game and Wildlife for most of the last decade.

JOSEPHINE BLASER

New Jersey had only a few black bears in the early 1900s. Today, there are 250 to 300.

A Little Saturday Night Music



Joe Albert plays the washtub bass shortly after the opening of Albert Hall.

By Tom McDonough

It's Saturday night and homespun music fills the low, cinder-block building behind Monari and Son's Auto Body. In the audience, people are clapping their hands and tapping their feet. On a stage made of red cedar that resembles a log cabin, a guitar player, banjo player, a woman on a washtub bass and a man playing the spoons sing:

"I got my education
Out behind the barn.
I'm not fooling, no siree.
Passed each examination out behind the barn,
But it almost made a wreck out of me."

If you close your eyes, you might think you're in West Virginia or Tennessee, but this rollicking good time is happening in Waretown, Ocean County, just off Route 9 at Albert Hall.

For more than three decades, New Jersey's rural musical traditions have been kept alive at Albert Hall. How can the most urban, densely populated state in the country have a rural music tradition? The Pinelands, which stretches from Monmouth County south to Cape May County, has long been a hinterland in the Garden State. It was thought of as just sand and scrub pine, ignored by the farming economies of the 18th and 19th centuries and developers in the 20th century. In fact, some of the Pinelands didn't get electricity until the 1950s. This isolation forced the people there to find ways of entertaining themselves, and out of that evolved a strong musical tradition.

"What Albert Hall tries to do is promote and preserve the Pinelands culture and music and to give musicians a place to play," says Linda Rouse, president of the Pinelands Cultural Society, which is in charge of the hall.

The music played at Albert Hall is much like the music you hear in most rural areas, particularly on the Eastern seaboard. It can be old-time, bluegrass, folk or country music. It can be the same song as the one from North Carolina or Florida with only a slight variation. Where it first originated always touches off an argument. The music moved up and down the coast over the years, some of it traced to survivors of shipwrecks, explains Rouse.

"We've picked up songs like 'Spanish Fandango' that way," she says. "It was passed through generations and became part of our culture."

The themes give the music of the Pinelands its own characteristics. Like all rural peoples, the folks of the Pinelands wrote their music about the things they knew — the scrub pine forest, local legends, the sand, the ocean and the bay.

For example, there is the "Crawdad Song," and another entitled "The Jersey Devil." There are ones called "Whaling Along the Jersey Shore," "The Piney's Lament" and "Proud to be a Piney." Then there's "The Pine Barrens Song," which goes like this:

"I left a place where I was born many years ago,
'cause times were hard and work was scarce,
I had no choice but go.
But I've been back there many a time in my memory,
Of all the places that I've seen, it's there I'd rather be."

Albert Hall traces its roots to a hunting lodge in the Pines in the 1950s. Joe and George Albert, brothers who worked as hunting guides, owned the lodge, which had one room with bunks, another with a potbellied stove and a kitchen with a hand pump for water.

"A fellow named Sam Hunt brought his mandolin up there and found out George played the fiddle. Joe picked up playing the washtub bass," explains Gladys Eayre, one of the original Pine Coners, a group formed by the Albert Brothers, Hunt, Eayre and Janice Sherwood. Over the years, the Pine Coners have not only played Albert Hall, but Wolftrap and the Smithsonian Folkways Festival in Washington.

Not long after Hunt and the Albert brothers started playing together, the news spread by word-of-mouth that good music could be heard at the cabin on Saturday nights, and people started to come out. Other musicians began to find their way there, too.

The cabin became known as the "Homeplace," and by the 1960s, a Saturday night would draw a crowd numbering some three or four hundred people. There always was a pot of coffee on the stove, and women would bring fresh-baked

pies and cakes. Old-timers claim that in the summer, with the cabin's windows wide open, the music was so good that deer and other wild animals wandered out of the forest to listen.

"The folk movement of the '60s really escalated the interest in the Homeplace," says Rouse. "Pretty soon, everybody was up there. It was crazy. People were playing on the porch, the roof and from behind trees. You could hardly move out there."

Then George Albert died, and Joe, still living in the cabin, had an increasingly difficult time handling the crowds. He finally ended the Saturday night jamborees.

> "It seems country music grows in popularity when things get tight."
>
> —Linda Rouse
> President of the Pinelands Cultural Society

Those who had made it a regular habit missed it, especially the musicians.

"A group of them got together and decided to do something about it," says Rouse. "Merce Ridgway started a cooperative private venture, which rented space here in the Waretown Auction. On Saturday nights, they held a show. It was basically an open stage — whoever showed up and wanted to play was welcomed."

They named the place Albert Hall in honor of Joe and George. In 1974, this venture was turned into a nonprofit educational organization — The Pinelands Cultural Society — which today maintains the hall and presents the weekly Saturday night program, "Sounds of the Jersey Pines."

Since then, the society has expanded the use of Albert Hall to include other projects. It runs a craft shop where it sells local artists' homemade items, such as guitars, handcrafted belt buckles, string ties, jewelry and Western and straw hats, as well as books on the Pinelands and New Jersey.

The society also records and distributes cassettes that feature local musicians.

"It's a low-cost way for these people to record," says Rouse. The society's newest cassette, "My Pine Barrens Home," is scheduled to come out later this year.

The Pinelands Cultural Society also is conducting an oral story-telling project to collect and save the old tales and legends of the Pinelands. Oral tradition artists, such as Chief Listens to the Whippoorwill, appear on its stage to tell the legends and folklore of the Lenni Lenape and Delaware Indians.

Albert Hall's reputation as a no-frills Grand Ole Opry has attracted musicians from all over the United States and around the world. "We had a group called 'Tablecloth Country' from Japan," says Rouse. "We've also had groups from Canada, West Germany, New Zealand and Sweden." From time to time, Albert Hall presents other types of music, too, such as Renaissance, Polish folk and Celtic.

Albert Hall hosts festivals every year. The first is the Mid-Winter Festival, held the last Sunday in February. Then there is the Pine Barrens Festival the first week of June.

"This has always been indoors, but this year we're moving it outdoors. And we'll be adding dancing, crafts and storytellers in addition to the music," says Rouse.

For the first time, in November, Albert Hall will present the Homeplace Reunion Festival, which will try to bring together many of the artists who have played there over the years.

With its admission price of $3 for adults and 75 cents for children under 12, Albert Hall continues to pack them in every Saturday night. Rouse says she has seen an increase in young people and young musicians at the shows.

"It seems country music grows in popularity when things get tight," she says. "People go back to the comfort of their roots and the feeling of home, rather than go to a disco."

Because of Albert Hall's continued popularity, the society is looking for a new home for it.

"We're currently in negotiations with our landlord, who will build something for us," says Rouse, who expects the new hall to seat about 500 people, twice the current hall's capacity.

Albert Hall is open every Saturday night, rain or shine. "We've only missed four shows on account of weather in the last eight or nine years," says Rouse. "Just when you think it's too bad for anyone to come, there's somebody at the door."

Musicians are welcome to bring instruments and play or swap songs in the pickin' rooms.

On this particular night, every seat is taken by 10 o'clock and the crowd spills into the back of the hall and out the door. Like the Homeplace, the coffee is brewing and there is fresh-baked pastry. The musicians do their 20 minutes on stage. Hands keep clapping, feet keep tapping.

"Once you get the itch, you can't get rid of it," Rouse says as she works the sound system.

Or maybe Pete Curry, a local musician who's been playing the hall for years, says it best in a song:

"So come on down to Waretown
And you will find me there.
Just turn left at the sign,
Leave your troubles behind,
Come early, and we'll save you a chair."

"The Sounds of the Jersey Pines" is presented every Saturday, from 8 p.m. until midnight (doors open at 7 p.m.). Discounts are available for groups of 10 or more with advance reservations. To get to Albert Hall, take the Garden State Parkway to Exit 74. At the stop sign, turn left onto Lacey Road and continue to the intersection with Route 9. At that light, make a right onto Route 9 and continue to the Waretown Plaza.

Tom McDonough is a freelance writer who lives in North Bergen.

"John and Rusty," John Malayter (right) and Rusty St. Laurent, are regulars at Albert Hall.

PHOTO BY AUTHOR

Get Ready to Go Camping

By Jill Barnes

It was the perfect spot — a shady area next to a lake. We could see sailboats and motorboats cruising beyond the shoreline, some of their occupants fishing, some just enjoying the sun and warm breezes. The best part of it all was that this wasn't an exotic, faraway place. It was the campground at Spruce Run Reservoir in Hunterdon County.

Whether it's in our own Garden State or along the banks of the Yellowstone River, camping can provide fun and relaxation for a price most cost-conscious families of the 1990s can afford. Spring is the traditional time to get things ready for warm weather camping, although a number of families camp year-round.

There are many ways to camp — using everything from tents to big motor homes. One of the best ways to determine what would fit both your lifestyle and pocketbook is to attend one of the many camping shows that feature recreational vehicles. These shows usually have a big selection of all types of campers and tents at good prices. We bought our pop-up camper this way. A pop-up, or fold-down, camper is one that pops up and out to provide a good-sized living space, and then compactly folds down for easy towing. The recreational vehicle show we attended had many different models and brands of pop-ups. We were able to inspect each one for the features we thought were important — sleeping quarters, kitchen area, storage,

PETE McLAIN

A tent offers this camper a room with a spectacular view.

ease of assembly and cost. Another option is renting a rig to see how it suits your needs.

Cost is always a consideration, although many camping families find their rigs pay for themselves over the years. For example, a mid-priced pop-up costs around $4,000. That may seem like a lot for a glorified tent on wheels. But the price of a motel room, $50 and up, is a lot more than a campsite, which costs anywhere from $6 and up, depending on the amenities.

Our family can vouch for the economic savings. We took our camper cross-country from our home in North Jersey to Seattle and back, more than 7,000 miles in all. We never spent more than $18 a night for a campsite, and it was a great way to see the United States. And there's something about waking up to the sound of birds singing or the smell of marshmallows cooking over a campfire that a motel room lacks.

There are many other types of camping rigs from which to choose: all sizes of tents, pickup campers, hard-sided trailers and motor homes. What you buy depends on your specific needs, travel plans and budget. When you finally decide what's right for you, there are certain pieces of equipment to consider. Cooking and sleeping are your two top priorities.

Try not to overpack with too many pots and pans. For those who really rough it, a grill, an iron skillet, a coffee pot and foil are plenty. The only problem here is getting your campfire to stay an even temperature. Don't try cooking on a new fire; let it burn for a while first. Pots also tend to accumulate black soot from the open fire, which takes a little more time to wash. The foil can be used to cook vegetables in the fire. A simple propane or gas camping stove eliminates the soot problem when cooking other food, but isn't nearly as adventurous.

Even the simplest trailers usually have an indoor kitchen, but some people prefer a propane or liquid gas stove for outdoor cooking on hot days. It's also nice to sit outside on a crisp morning and smell the coffee brewing. Spring is a good time to check your cooking tanks. Don't get stuck in a beautiful spot, far from the nearest store, with no fuel for cooking.

The pots you use need not be expensive. I bought most of mine in a five-and-dime store, so when they get too black, I replace them. Also, keep away from breakable glass cups and dishes; hard plastic is better. And although paper plates may seem easier, remember that in remote (and sometimes not so remote) camping areas, you must take out all your garbage. It piles up quickly.

If you're tent camping, remember to bring an extra tarpaulin and some stout line to make a cover for your picnic table and cooking area. It's good both for shade from the hot sun or protection from rain.

Next, pick the right sleeping bags, keeping in mind that you'll spend more time sleeping in your tent or trailer than you will doing anything else. Many children's slumber bags are meant for inside use only and shouldn't be used for chilly spring nights. It's better to have too much sleeping bag than not enough. Pack an old wool blanket, too, just in case. If you're sleeping on the ground, a foam mattress an inch or two thick is preferable to an inflatable mattress, which usually goes flat by morning.

Always keep a clean camping area free of food debris, and never take food into a tent. Wild animals will invade your serene spot, especially at night if they smell food. Although no food was around, we've had raccoons try to open a big trunk with our supplies. And once, for no apparent reason, a family of skunks walked through our camp at Stokes State Forest. While animals are a part of camping, don't encourage their presence by feeding them.

Keeping food fresh during your trip is another consideration. Most of the bigger campers have refrigerators that run on both propane and electric. If that's the case, now is the time to make sure yours is working. Those with tents, and many with pop-ups and truck campers, have to make do with coolers. We have a small cooler built inside our pop-up, plus we carry a big portable cooler for additional food storage. We find that the best way to keep things fresh is to use block ice. It melts slower than cubes and can be purchased at most camp and food stores along the way.

Potable water is available at most campgrounds in some form. Generally, you can hook your camper hose directly to a faucet. More rustic spots don't have water hookups at the campsite, but do offer water pumps at centrally located areas. For remote areas, personal five-gallon water containers are ideal. We also have a sink-like water container for washing. Spring is a perfect time to check your containers, water hoses and connectors for leaks and cracks. Also, inspect hoses and belts of the tow vehicle as well.

Good campers start out with checklists of things to bring along on every trip. These lists commonly include flashlights, toilet paper (for remote camping), lanterns, matches, blankets, sleeping bags, a first-aid kit, bug repellent, sunscreen, towels, soap, a sewing kit, garbage bags, folding chairs (for sitting outside), fresh batteries and whatever personal items make you happy. A radio is important for current weather conditions.

Your tent should be checked after a winter of storage. If you have the space, set it up in the back yard. Spray it with water, checking for leaks and tears. Leaks can be taken care of with a good water repellent and tears with a patch kit. A new tent also should be inspected. Don't assume the manufacturer included all the needed poles and stakes. Set it up, spray it with a fine mist of water and allow it to dry. The moisture will penetrate the seams and swell the fibers to make it more water repellent.

How you use your camper and what features you like will influence your purchase. We love fishing, so a pop-up or a truck camper is ideal. You can get close to the lake or river without worrying about parking a big trailer. Camping and fishing go hand-in-hand. Fishing provides some tasty meals that are the ultimate in fresh, and it keeps the kids busy.

Although camping has a carefree, do-as-you-please air about it, it's still a good idea to have a general idea where you want to stop both during the day and at night. Remember, any type of camping requires some time for setup, so don't expect to stop and drop off to sleep immediately. If you have a specific destination in mind, write the various tourism departments, chambers of commerce and fish and game wardens for information. They provide tons of materials, including maps.

If you're traveling at peak vacation times, you may want to call ahead for a reserved campsite. It's also handy to have a camping directory like those sold by Trailer Life or Rand McNally, which are available at most bookstores. The directories are the size of a phone book and provide information on campgrounds around the country. Some of our most interesting stops were found in these books.

Now that you know the basics, air out those tents and campers, check those lists and get on out there. New Jersey has plenty of camping opportunities for you and your family to enjoy.

Camping can provide fun for the entire family at an affordable price.

PETE McLAIN

Jill Barnes is a freelance writer who lives in Fair Lawn.

Planning Key to Camping With Kids

How am I going to keep them busy? What happens if it rains? How am I going to keep them clean? Will we survive in small quarters for a week or more?

These are questions parents contemplate when taking children camping. With preparation and a little patience, camping can be enjoyable for the entire family. Our family, including a 4-year-old, once survived a five-week, cross-country trip in a pop-up trailer. It just takes a willingness to go with the flow.

Those new to camping should start with an overnight or two-day trip before trying an extended camping vacation. We took trips to Spruce Run State Park, Stokes State Forest and Swartswood State Park to whet our camping appetites. These short trips help parents know what little things to bring next time. It may not have seemed important when you packed, but having your child's special blanket or stuffed animal along may make them feel more secure in an unknown place.

Also, overnighters give parents a realistic idea of how much to expect from a child. Although you may enjoy fishing for hours, a child's tolerance may be only 15 minutes. While you may hold up through a five-mile hike, a child might be more interested in the surrounding trails. Gear much of the activities to them.

On longer trips, let your kids help out with the initial planning. Show them the maps, take them food shopping and let them help pack a few special toys. The more interest you show in them before you leave, the more interest they'll have along the way.

PHOTO BY AUTHOR

"Pretend" camping or short trips can help prepare kids for the real thing.

Remember, camping isn't just sitting around a campfire in one particular place. Camping affords families an opportunity to see new sights. Long car trips with a child can be difficult. Frequent bathroom stops and general stretching are needed. Bring cassette tapes and players (with earphones), car bingo, and coloring and activity books for longer car rides, rainy days and quiet times in the camper. Visit local attractions. See how people live in other parts of the state or around the country. Keep a notebook handy to review your experiences around the campfire or later when you get home. Going over places you've visited while camping can replace that tired old bedtime story.

If you are on a timetable, be flexible. Things never get done quite as quickly when kids are around, and pushing them along too fast is frustrating for both parent and child.

Don't worry too much about them getting dirty, either. Most campgrounds have showers. Rain can be miserable, but it's not half as bad if you have dry clothes stashed someplace. Always have a spare pair of your child's shoes readily available. Puddles and ponds, not surprisingly, produce wet feet. If you're by a lake, try fishing for bluegills. Simple tackle and a worm are all that's needed.

Don't underestimate your child's ability to eat both at camp and in the car. Bring plenty of snacks and drinks. Packing them for both the car and camp also saves time and money.

And above all, give them room to explore and discover what they like best about camping. Don't force your ideas on them, and they might come up with a few new ones for you.

For a free brochure on places to camp in New Jersey state parks and forests, write to the New Jersey Division of Parks and Forestry, CN 404, Trenton, N.J. 08625-0404, or call (609) 292-2797.

Marketplace

We are proud to offer you these quality products featuring the threatened great blue heron as part of our logo. It was inspired by the need to preserve New Jersey's outdoors and the endangered and threatened wildlife that inhabit it. Show your concern for the environment and support **New Jersey Outdoors.**

Order Form

	QUANTITY	SIZE	COLOR	TOTAL PRICE
Sweatshirt with embroidered logo White Hanes Beefy, made in USA, 85% cotton/15% acrylic, reverse knit fleece. Available in adult sizes small, medium, large and extra large **$31.95**			White	
T-shirt with screen-imprinted logo White Hanes Beefy, made in USA, 100% cotton. Available in adult sizes small (children's large), medium, large and extra large **$10.95**			White	
Canvas and mesh carry-all with screen-imprinted logo Durable, all-purpose, white tote bag with canvas hand straps for the beach, a picnic, shopping or just about anything **$9.95**		N/A	White	
Mug with screen-imprinted logo 11oz. ceramic mug, available in white or sand **$7.95**		N/A		
Hat with embroidered logo White, 100% cotton twill, adjustable strap at back **$12.95**		N/A	White	
Fanny pack with screen-imprinted logo 100% nylon, main pouch and front pocket, adjustable strap with clasp, 5" high x 9" wide x 3.5" deep, available in white, gray, navy and light blue **$10.95**		N/A		
Binder with screen-imprinted logo on cover and spine for storing 12 issues (3 years) of **New Jersey Outdoors.** A great way to preserve and organize your magazines for future reference **$10.95**		N/A	White	

Send Merchandise to This Address:

Name _____

Address _____ *(No P.O. Boxes)*

City _____ State _____ Zip _____

Phone ( ) _____

Send order form to: **New Jersey Outdoors,**
DEPE Bureau of Revenue, CN 417, Trenton, NJ 08625-0417

Shipping & Handling

Order up to $10.00 ... Add $3.50
$10.01-$15.00 ..... Add $3.95
$15.01-$25.00 ..... Add $4.95
$25.01-$35.00 ..... Add $5.75
$35.01-$50.00 ..... Add $6.75
Orders over $50.00 .. Add $7.50

Allow 3-4 weeks for delivery

SPRING '92

Total Merchandise	
Shipping & Handling	
TOTAL AMOUNT DUE	

Make check or money order payable to:
New Jersey Outdoors

A Subscription to New Jersey Outdoors Makes a Great Gift That Lasts All Year Long!

SURVEY SURVEY SURVEY SURVEY

A year ago, we revamped **New Jersey Outdoors** based in large part on your responses to a survey similar to this one. Now we'd like to know what you think of it.

At right is a list of the departments and features that appear on a regular basis in the magazine. Topics for the feature stories that ran in the past year are indicated in parentheses. Please circle the appropriate responses to indicate whether you read the department or feature and whether it interests you. Additional comments are welcome in the space provided. To help us get a better idea of who our readers are and what other stories you'd like to see, please complete the additional questions on the next page.

When you've completed the survey, cut along the dotted line, fold along the dashed lines, seal the trifold with tape and drop it in the mail. We'll pay the postage.

Thanks for helping to make **New Jersey Outdoors** an even better magazine.

CUT ALONG DOTTED LINE

Department/Feature	Do You Read It?		Level of Interest *low* *high*
Gardens	Yes	No	1 2 3 4 5
Comments:			
Volunteers	Yes	No	1 2 3 4 5
Comments:			
DEPE Program	Yes	No	1 2 3 4 5
Comments:			
Profile	Yes	No	1 2 3 4 5
Comments:			
Afield	Yes	No	1 2 3 4 5
Comments:			
Research	Yes	No	1 2 3 4 5
Comments:			
Cityscape	Yes	No	1 2 3 4 5
Comments:			
Roundup	Yes	No	1 2 3 4 5
Comments:			
Explorer	Yes	No	1 2 3 4 5
Comments:			
Outings	Yes	No	1 2 3 4 5
Comments:			
Events	Yes	No	1 2 3 4 5
Comments:			
Bookshelf	Yes	No	1 2 3 4 5
Comments:			
Wildlife Profile with accompanying painting	Yes	No	1 2 3 4 5
Comments:			
Wildlife Feature *(The importance of leaving wildlife alone, the wildlife of West Bear Swamp, wildlife tracker Tom Brown and New Jersey's prehistoric sea monster)*	Yes	No	1 2 3 4 5
Comments:			
Fishing Feature *(Shad, saltwater fishing, fall trout fishing and artificial lures)*	Yes	No	1 2 3 4 5
Comments:			
Hunting Feature *(Ethics, the Black River Wildlife Management Area, hunter education and pheasant hunting)*	Yes	No	1 2 3 4 5
Comments:			
Photo Essay *(Spring sights, Green Acres acquisitions, hand-painted vintage photos of the Jersey shore and winter scenes)*	Yes	No	1 2 3 4 5
Comments:			
Cultural/Historical Feature *(Bridgeton's revitalization, Fort Mott, New Jersey's first map and New Jersey's strange place names)*	Yes	No	1 2 3 4 5
Comments:			

Continued on other side

Getting Ready to Go Feature Yes No 1 2 3 4 5
(Boating, biking, hiking and cross-country skiing)

Comments: _____

Environmental Protection Feature Yes No 1 2 3 4 5
(The importance of saving wetlands, the Green Acres Program, beneficial uses of sludge and the State Plan for development)

Comments: _____

Global Feature Yes No 1 2 3 4 5
(Conservation/Earth Day, migration, striped bass and ozone)

Comments: _____

Which topics would you like to see featured in New Jersey Outdoors articles? _____

_____

How long have you been subscribing to New Jersey Outdoors?

less than a year 1 - 2 years 3 - 5 years 6 - 10 years more than 10 years

(FOLD THIS FLAP DOWN FIRST)

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS MAIL PERMIT NO. 206 TRENTON, N.J.

POSTAGE WILL BE PAID BY

New Jersey Outdoors
N.J. Department of Environmental Protection and Energy
CN 402
Trenton, NJ 08625-9979

(FOLD THIS FLAP DOWN LAST)

CUT ALONG DOTTED LINE

If you haven't already completed the survey that begins on the previous page, please take a few minutes to do so. Your responses will help us plan future issues that feature the kinds of topics that interest you.

How did you learn about New Jersey Outdoors? _____

Number of people in household including yourself _____

Other than yourself, how many people read your copy of New Jersey Outdoors? _____

What are their ages? _____

Circle the responses that pertain to you.

What is your age? under 18 18 - 29 30 - 40 41 - 50 51 - 60 61 or older

What is your educational background? didn't complete high school
high school graduate attended college college graduate post-graduate degree

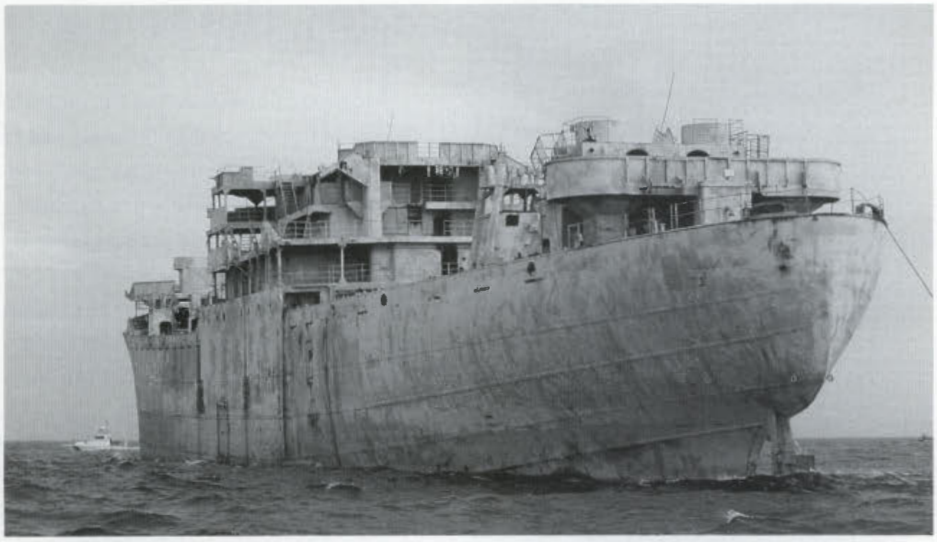
Sex: female male

Annual household income:
less than $25,000 $25,000 to $40,000 $41,000 to $60,000 over $60,000

(TAPE HERE)

SURVEY SURVEY SURVEY SURVEY SURVEY SURVEY SURVEY SURVEY SURVEY

USS Algol Sunk as Artificial Reef



HERB SEGARS

The *USS Algol* is shown moments before it sinks off the New Jersey coast.

For many years, the oceans have been abused as a dumping ground for all of the waste that easily sank out of sight and out of mind. In recent years, this refuse has come back to haunt us in the form of closed beaches and polluted water. Some of our leftovers, however, serve a useful purpose on the ocean floor as artificial reefs.

Such is the case with the *USS Algol*, a 460-foot, World War II attack cargo transport ship that was sunk 16 miles offshore from the Manasquan and Shark river inlets on November 20. That ship is now part of New Jersey's artificial reef system, which is situated from Sandy Hook to Cape May and makes that area one of the world's largest manufactured offshore breeding grounds for marine life.

The construction materials consist of concrete rubble, stone and car and truck tires. More than 50 sunken vessels rest on top of these reefs, including tankers, tugboats, freighters, barges and commercial fishing boats. All ships are cleaned of floatables and potential pollutants. Large holes cut in the sides initially help sink the boat and later serve as points of entry for fish and scuba divers.

Once in place, the artificial reefs are quickly covered with marine growth and provide habitat for a wide variety of sea creatures. And that's certainly good news for New Jersey's $600 million-a-year recreational fishing industry.

Weekend Wildlife Workshops

If you're interested in wildlife, you may want to mark May 15, 16 and 17 and June 5, 6, and 7 on your calendar. On those dates, the Division of Fish, Game and Wildlife will hold Weekend Wildlife Workshops.

Designed for educators, they are open to any interested members of the public. College credit is available. The first workshop will be held at the Wetlands Institute in Stone Harbor, Cape May County. The focus will be on wildlife found in marine and estuary environments. The second workshop will be held at the New Jersey School of Conservation in Stokes State Forest, Sussex County. Topics will focus on the wildlife of upland and freshwater environments.

Evening programs and field trips will be offered, and the majority of the sessions will be held outdoors. Topical literature will be available. Call (609) 748-2031 for additional information and possible schedule changes.

Schedule a Visit to the New Aquarium

The Thomas H. Kean New Jersey State Aquarium, which boasts the second-largest open ocean tank in the country, was scheduled at press time to open on February 29.

The new aquarium in Camden focuses on the waters and wetlands of New Jersey and the animals and habitats of the mid-Atlantic region. The 120,000-square-foot building sits on the east bank of the Delaware River, directly across from Philadelphia.

The open ocean tank, at 760,000 gallons, is so large it is capable of supporting several exhibit areas that include views of a sunken shipwreck and the edge of the continental shelf. Special touch-tanks allow the curious to feel the texture of small sharks, rays, starfish and other harmless animals. The aquarium is surrounded by 35,000 feet of outdoor exhibits that feature an 80-foot rushing trout stream and a 170,000-gallon seal pool, both of which can be viewed year-round.

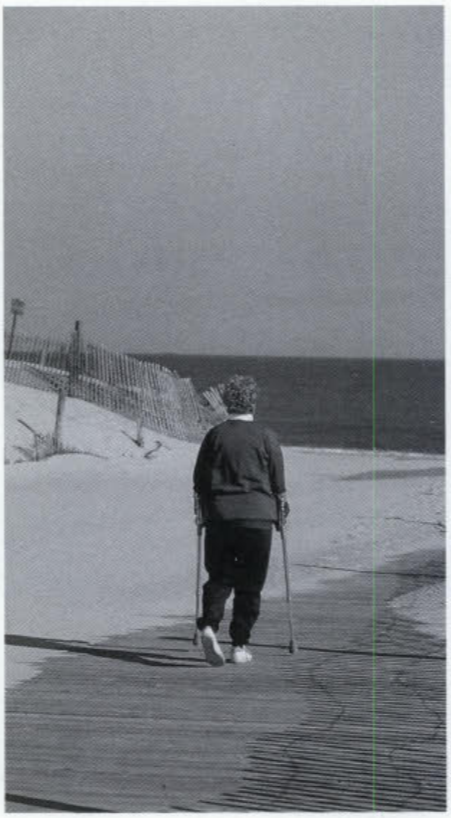
Construction of the aquarium began in 1987, financed by a state legislative appropriation and overseen by the New Jersey Sports and Exposition Authority. The aquarium will be managed by the New Jersey Academy for Aquatic Sciences and is seen as the cornerstone of Camden's revival.

Memberships are available and volunteer workers are welcome. Admission is $8.50 for adults; $7 for senior citizens and students with identification; $5.50 for children ages 2 to 11; and free for children under 2. Group rates are available. For more information on the aquarium and its programs, call (609) 365-3300.

Beach Access Guide for the Disabled Available

Access to the Jersey shore can be a frustrating experience for the disabled. Last summer, the Department of Environmental Protection and Energy compiled *An Inventory of Access to the New Jersey Shore for People with Disabilities*. The guide provides information on which sites are outfitted with suitable bathhouses, walkways to the water's edge, bathrooms and parking. It lists telephone numbers for each site and suggests calling ahead for up-to-date information, such as after storms that could have caused ramp damage.

The guide is offered free to the public and can be obtained by writing to: Beach Access Guide, NJDEPE, CN 402, 501 East State Street, Trenton 08625-0402, or by calling (609) 292-3541.



HERB SEGARS

Environary

Confused about the meaning of some environmental terms? Following are definitions of a few common ones:

Dioxin — A highly toxic compound often generated as a byproduct of certain manufacturing and industrial processes, such as the bleaching of paper to make it white.

Eutrophication —The aging process of a lake, estuary or bay that is accelerated by increased amounts of compounds such as nitrogen and phosphorus. The body of water becomes choked with an abundance of plant life as it evolves into a bog or marsh. Though this is a natural occurrence, the improper disposal of wastewater can speed up the process.

Food Chain —A succession of organisms in which each member uses the next lower member as a food source. Humans generally are considered to be at the top of the food chain.

Nation's Largest Recycling Plant Opens in Jersey

The opening of Atlantic County's recycling center in September was an important step in helping New Jersey achieve its goal of recycling 60 percent of its waste by 1995. At 58,500 square feet, the $7 million facility in Egg Harbor Township ranks as the largest recycling plant in the country.

The center is capable of receiving 318 tons of trash a day that are sorted as paper, plastics, glass, aluminum and steel. The new center allows the county to add household batteries, white and clear plastic bags, and steel cans, such as those used for soup, vegetables and pet food, to its list of recyclable items.

Remember Forest-Fire Safety This Spring

Most people assume that the greatest danger of forest fires occurs during dry, hot summer months when campgrounds are full and summer lightning strikes. However, New Jersey's highest rate of forest fires is between mid-March and mid-May when the relative humidity is lowest, the spring winds kick up and the sun easily passes through bare trees to dry out the leaves that fell last fall.

Last year, these conditions, along with human carelessness, combined to give New Jersey its highest rate of forest fires in the past 10 years. A total of 1,913 fires charred 4,257 acres. This reversed a five-year downward trend and was due to extremely dry conditions.

Because humans are responsible for most forest fires, they also are responsible for preventing them. Practice fire prevention by making sure that all campfires are extinguished, all cigarette butts are disposed of properly and matches are kept away from children.

To report a forest fire, dial "O" for the operator and say, "I want to report a forest fire." You will be connected to the nearest firewarden.

NJO Earns 'Smokey'

New Jersey Outdoors recently received the bronze Smokey Bear Award for its continuing public education efforts on the dangers of fire in state forests.

The national honor is one of three presented annually by the U.S. Department of Agriculture's Forest Service, the National Association of State Foresters and the National Advertising Council. The magazine was nominated for a series of articles and two public education campaigns on forest fire prevention during the 1980s.

Trout Fishing, Wild Turkey Hunting in Store

More than 250,000 New Jerseyans have April 11 to look forward to as the traditional starting date for the spring fishing season. During the two weeks prior to that date, the Division of Fish, Game and Wildlife will stock many of the state's lakes, ponds, rivers and streams with 600,000 brook, brown and rainbow trout.

The major waterways to be stocked include: the Black, Manasquan, Musconetcong, Paulins Kill, Pequest, Ramapo, Rockaway, Tom's, Walkill and Wanaque rivers, the Pohatcong Creek, the Big Flat Brook, and the North and South branches of the Metedeconk and Raritan rivers.

One of Hunterdon County's most popular fishing spots will be improved, thanks to an $8,000 grant from the Department of Environmental Protection and Energy's Open Lands Management program. The grant will assist the New Jersey Conservation Foundation in developing trails and parking at a 4.4-acre site in Tewksbury Township along the South Branch of the Raritan River. The agreement with the foundation ensures public access to the river and provides for maintenance.

Open Lands Management grants have been available to the public since 1985 and have been used throughout the state to provide hiking and horseback-riding trails, picnic and nature study areas, boating access, swimming and fishing areas, and handicapped access to nature areas. For more information on the program, call (609) 984-1339.

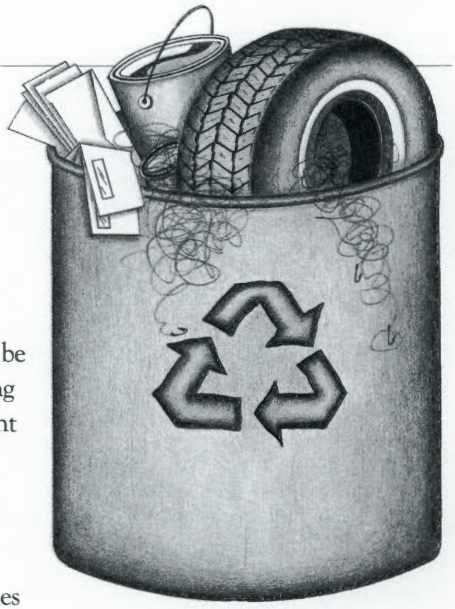
Hunters should take note of the following spring 1992 season dates and bag limits:

Woodcock — March 14 to September 19, no limit

Wild Turkey — April 20 to 25, April 27 to May 2 and May 4 to 9, 11 to 15 and 18 to 22.

All of the above fishing and hunting activities require a license. Some, such as trout fishing, require a special stamp. For information on licenses, call (609) 292-1438.

Ideas From the Recycling Bin



Paint —Why throw away paint that might be put to good use? The Warren County Recycling Center accepts old paint, blends it into different shades and gives it away for free. The "reformulated" paint is perfect for basements, attics or as a base coat.

Fishing line — Berkley Inc. of Spirit Lake, Iowa, is a fishing gear manufacturer that recycles fishing line. Its program has been so successful that 600,000 miles of fishing line have already been recycled through the use of 10,000 drop-off boxes. The fishing line is transformed into camping-lantern handles, boat-motor propellers and handles for fishing reels. The company has more than 30 collection bins in stores throughout New Jersey. To find the bin nearest you, call 1 (800) 237-5539.

Envelopes — The plastic windows and glue in envelopes have been a problem for recyclers because they gum up their machines. Marcal Paper Mills of Elmwood Park, Bergen County, is able to screen out these items and turn the paper into tissue products. The company has been accepting non-deliverable mail from 30 post offices in the New York metropolitan area that otherwise would wind up in the waste stream.

Tires — The New Jersey Department of Transportation has used a mixture of concrete and ground rubber from old tires to repave a section of Interstate 95 in Mercer County. A new grinding process allows the paving to proceed without special equipment. The mixture, initially being used on the road's shoulders, has so far kept 1,100 tires from winding up in a landfill.

Follow-Up

Eastern States Move to Reduce Tailpipe Emissions

New Jersey, 10 other East Coast states and the District of Columbia have decided to adopt the California program of reduced tailpipe emissions to help combat ground-level ozone (NJO Winter 1992). The more rigorous standards will affect more than one-third of the automobiles bought annually in the nation.

The program, also known as the Low-Emission Vehicle plan, requires automakers to slice hydrocarbon emissions, on average, to a level 75 percent lower than the standard set by the federal Clean Air Act. Ultimately, the plan is to incorporate a certain percentage of zero-emission vehicles, such as electric vehicles, into the program. Motor vehicles account for more than 50 percent of the hydrocarbons that help form ground-level ozone or smog and up to 80 percent of the state's carbon monoxide emissions.

The move is especially important for New Jersey, since the federal Environmental Protection Agency has designated most of the state as "severe" for ozone non-attainment.

The Northeastern states also have agreed to proceed with federally required standards for reformulated gasoline, which is designed to reduce smog-forming emissions. Although the Clean Air Act mandates these standards only for areas that exceed acceptable ozone levels, the Northeastern states have agreed to require them throughout the region.

Shore Cleanup Lasts All Year Long

Operation Clean Shores, a program in which inmates scour the state's beaches for wood, plastic and other floatables, has been granted year-round status.

The program, a collaborative effort between the Department of Environmental Protection and Energy and the Department of Corrections, was initiated following the summer of 1988, which saw a record number of beach closings. Through the collection of floatables from the state's northern beaches, Operation Clean Shores has been able to keep this refuse from drifting farther south.

Last summer, inmates collected 8.5 million pounds of floatables, including construction debris, wooden logs, tires and medical waste. Thirty-eight miles of shoreline, between the George Washington Bridge and Sandy Hook, were covered.

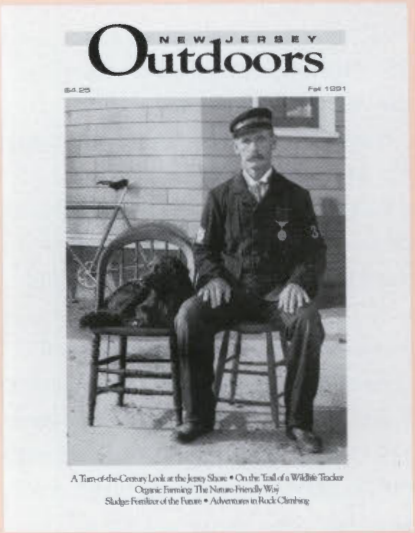
Inmates collected 8.5 million pounds of floatables from New Jersey beaches last summer.

The program previously was conducted from April through October. The expansion to year-round status will enable the program to widen its scope of operations to include the banks of the Delaware River and internal estuaries.

Follow-Up

The Story Behind the Cover

When we published a vintage photograph of a member of the U.S. Life-Saving Service on the cover of **New Jersey Outdoors** *last fall, we didn't know the identity of the somber-looking subject or why he was posing for the picture. Since then, however, we've discovered the story behind the photograph — the story of how Caleb V. Conklin earned the medal shown on his jacket by aiding in the heroic rescue of a crew of shipwrecked sailors.*



Conklin was born in April 1861 and had six children, according to a 1900 Census report. U.S. Life-Saving records and his grandson, Jim Mathews of Cedar Run, Ocean County, confirm that Conklin was a member of the Long Beach Life-Saving Station and that he helped launch the boat that saved the sailors. The rescue is detailed here.

On January 20, 1903, the barkentine *Abiel Abbott* was stranded and "went to pieces" on the outer edge of Ship Bottom Bar off the New Jersey coast, according to an annual report of the U.S. Life-Saving Service on file in the New Jersey State Museum in Trenton. The *Abbott*, heavily loaded with a cargo of salt and carrying a crew of nine men, was bound from Turks Island, West Indies, to New York City when a storm struck. At about 4 p.m., the captain noted a lighthouse, which he mistakenly believed was Barnegat, but probably was Absecon. As a result, he steered a course that carried him ashore. Shortly after 8 p.m., the ship slid onto the bar, where it held fast.

Its distress signals were spotted on shore by the life-saving patrol at the Ship Bottom Station. Several times, the crew fired projectiles with life-saving lines attached, hoping to be able to pull the ship in. The shipwrecked sailors, however, were confined to one end of the sinking vessel and failed to reach the lines.

Meanwhile, life-saving crews arrived from the Long Beach and Harvey Cedars stations, but it was getting dark and the sea was so turbulent that a rescue before daylight seemed impossible. The sailors, however, were reassured by the sight of the fires of the life-savers burning on the beach, and hoped that their heaving and straining ship would hold together until daylight. But around 4 a.m., the mainmast came crashing down, hitting the other two masts, which finally fell an hour later,

Enjoy a Hike in the Gap

Though the Appalachian Trail is New Jersey's most famous hiking path, there are other trails within the Delaware Water Gap National Recreation Area that offer scenic views along with a wilderness experience.

For those less inclined to hike up a mountain, there are sites of historical interest as well as easily accessible natural areas. The National Park Service is in the process of mapping all the trails that traverse the recreation area and plans to offer a comprehensive trail guide in the future. Until then, Randy Turner, the area's chief of visitor services, suggests checking in at one of the area's information centers.

In New Jersey, stop at the Kittatinny Point Visitor Center where a brochure, *Delaware Water Gap: Selected Hiking Trails*, is available along with an official map and guide. To get to the visitor center, take the Millbrook-Flatbrookville exit off Interstate 80 — the last exit in New Jersey. The center is open from 9 a.m. to 4:30 p.m. on Saturday and Sunday until mid-April. After that, the center will be open daily from 9 a.m. to 5 p.m. through October. The phone number at the Kittatinny center is (908) 496-4458.

GREG JOHNSON

Sunfish Pond is one of the many scenic spots in the Delaware Water Gap National Recreation Area.

Roundup by Greg Johnson of DEPE's Office of Publications

according to the report, which relates what happened aboard ship:

"When the mainmast fell one of the crew, Timothy Brandt, stripped to his undergarments and jumped overboard, against the protests of his shipmates, with the intent of swimming ashore. They stated that his mind seemed to have been unbalanced by the strain they had suffered, and that he paid no heed whatever to their advice. He was never seen again.

"Eight men were still alive under the lee of the spanker, and when the mizzen gave way all were thrown into the water. The masts, however, were held to the hull by rigging, and five men managed to struggle back on board, where they clung as well as they could to the top of the cabin. The mate and the cook, who were not able to regain the wreck, soon drowned. Seaman Henry Carter succeeded in grasping the end of the spanker gaff, which hung in the water, but it is believed he must have been injured in some way, and although he called for a rope with which to make himself secure, his shipmates could not help him, and he was soon swept away. Five now remained desperately clinging to the top of the cabin, praying for daylight."

At dawn, the surfmen on the beach detected a faint outcry at sea and instantly jumped for the rescue boat. Broken planks and timbers filled the surf, dimming chances of a safe launch. Nevertheless, one crew quickly manned the boat while the others took their places in the water, one crew on each side holding the boat and keeping the wreckage as clear as possible. When an opening appeared, the surfboat shot out, although it was difficult for anyone to believe it would get through. The report quotes Henry S. Jones, identified as a wrecking master:

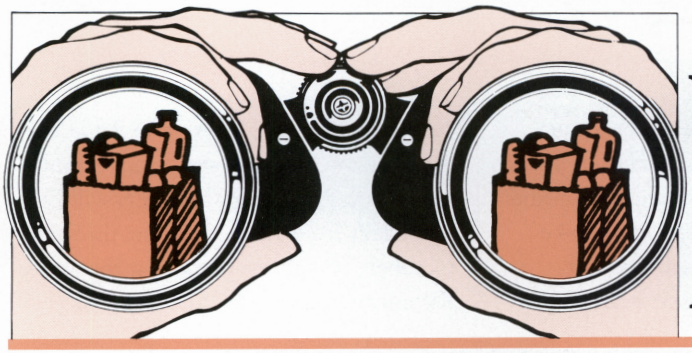
"When the boat was launched I thought the chances were ninety-nine in a hundred that it would be smashed. It was a most dangerous time, and I certainly expected to see the lifeboat destroyed."

The surfboat reached the bar and spotted the five stranded sailors, but couldn't reach them because the wreckage formed a barrier around the ship. Finally, the life-savers had to give up and return to the beach in their battered boat.

They had just returned when the stranded ship's cabin top was wrenched adrift and began to move toward shore. Again, the surfmen set out in their boat, this time reaching the sailors and bringing them ashore. One of the rescued sailors died soon after of a head injury.

The report quotes the ship's captain, Israel B. Hawkins, who was described as nearly paralyzed by the ice-cold water by the time he was rescued:

"With the mass of wreckage in the water being tossed in all directions, I do not see how the life-savers launched the boat at all, but they did, and even then they could not get to us. Finally, when the cabin top broke adrift, they launched their boat again when no man could have expected it. I did not think it possible for them to get to us, but somehow they did, and got us ashore, and I think it a miracle that I am alive to tell this tale. No men could have done more than the life-savers did."



Explorer

What It Means to Be Green

People of all ages are concerned with the quality of the Earth's air, land and water. We know that about one-third of the waste (or trash) that we produce is made up of packaging material. We also know that certain products we use can pollute our air, land and water. As consumers (people who purchase things), we can reduce our own waste and pollution by purchasing products that are **green.**

Green is a term used to describe a product that a company advertises as being "friendly to the environment"; that is, the product, its packaging or how the product was made will cause as little harm as possible to the Earth.

Keeping this in mind, read the story below and answer the questions that follow. Then do the activity on the next page. For more hints, read the story, "Environmental Shopping: It's Not Easy Buying Green," on page 22.

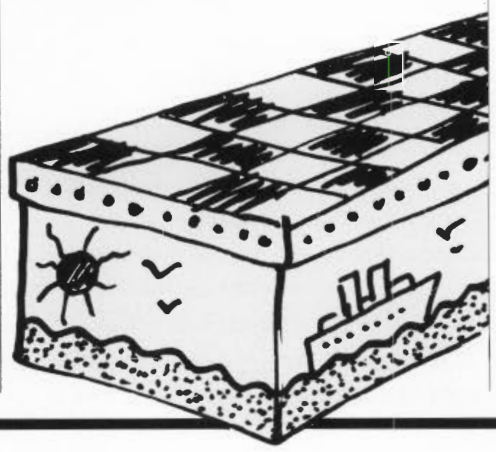
Billy Bargain's Boxes

Billy Bargain loved to paint. He discovered how much he enjoyed it when his art teacher at school brought in empty shoe boxes. She asked the students to paint the outside of the boxes and take them home to be used to store things. Billy decorated his box with pictures of mountains, rivers, animals and children. It was beautiful and his parents loved it. Even his relatives asked him for some.

Soon, Billy was busy painting coffee cans, oatmeal containers and other items from the trash. He brought home paint and brushes from school. Every Saturday, he spread old newspapers out on a table and painted. He decorated his boxes with ribbon and scraps of material from around the house. He even saved magazines and used their pictures as ideas for his paintings. Relatives and friends helped Billy by saving empty containers. As each box was finished, he personally would deliver it by foot or bicycle.

As Billy Bargain's boxes became more popular, he felt that his paintings were too good to be on trash. He charged $2.00 per box and used the money to purchase new plastic containers, along with better paint and brushes. He bought strips of ribbon and yards of cloth and a special spray to coat his paint so that it would not chip. Billy even wrapped his finished boxes in tissue and wrapping paper. He and his mom delivered them by car because he was too busy to drop them off himself. He sold them at school to teachers and some of his friends.

One day, Billy was asked to attend a meeting of his school's environmental club. Because he loved nature so much, he was happy to attend. The club offered to promote his boxes under one condition: that Billy make them as **green**, or as "environmentally friendly," as possible.



Can You Help Billy?

What changes could Billy Bargain make? Make your own list and compare them with the suggestions listed below.

- ❑ Use containers taken from the trash instead of new ones.
- ❑ Use old scraps of ribbon and material.
- ❑ Have students save containers and scraps from home.
- ❑ Research the types of paint that would be safe for the environment and not chip or need a special coating.
- ❑ Have students deliver the boxes by foot or bicycle.
- ❑ Do not wrap the boxes; if necessary, use reused or recycled paper.
- ❑ Donate part or all of the profits to the club or to another environmental group.

We Would Like to See Your Ideas, Explorers!

Billy was asked to make a poster to advertise his **green** boxes so that other students and teachers will want to buy them. What would your advertisement look like? Draw your ad with a black marking pen on an 8-1/2" x 11" piece of paper. We will print the two best advertisements in the **Explorer** section of a future issue of **New Jersey Outdoors**. Send it to:

New Jersey Outdoors
Explorer Section
CN 402
Trenton, N.J. 08625-0402

To Buy or Not to Buy

Explorers: You are going to the store for your family and have a choice of the products shown at right. Using the **Green** Shopping Hints listed below, choose the **green** item for each of the products. The answers are in the box at bottom right.

Green Shopping Hints

Read labels and know what you're buying. If you have any questions about a product, call the manufacturer.

Reduce Waste and Pollution!

- ❑ Buy products with the least amount of packaging.
- ❑ Avoid packaging made with two or three layers of materials.
- ❑ Buy in bulk quantities — a large number of the same item — if you know that you will use it all.
- ❑ Buy products that can be reused and are not disposable.

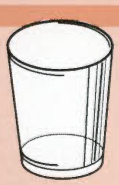
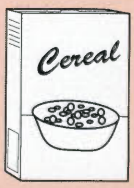
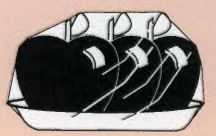
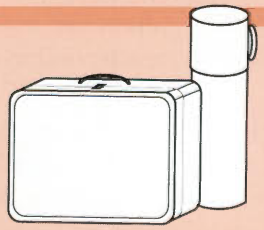
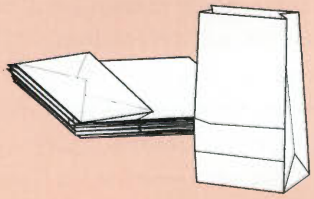
Reuse!

- ❑ Reuse packaging containers and wrappers for other purposes instead of discarding them.
- ❑ Give toys or clothes to someone else to use rather than throw them away.

Recycle!

- ❑ Buy items whose packages can be recycled where you live.
- ❑ Buy items whose packages are made from recycled materials.

Explorer by Tanya Oznowich, an educator in the Department of Environmental Protection and Energy's Office of Environmental Education

	Item A	Item B
Product #1:	Large glass juice container 	One-serve juice cartons 
Product #2:	Disposable pen 	Refillable cartridge pen 
Product #3:	Bathroom drinking glass 	Individual paper cups 
Product #4:	Little cereal boxes 	Cereal box (recycled cardboard) 
Product #5:	Three apples 	Three apples, packaged 
Product #6:	Lunch box/thermos 	Package of brown bags 

Answers: 1-A, 2-B, 3-A, 4-B, 5-A, 6-A

ILLUSTRATIONS BY DENISE BECK

A fisherman mingles with rush-hour commuters at Penn Station in Newark.

Not Your Ordinary Fishing Line

Taking the train to where one wants to fish is as old as railroading itself. It makes sense, since railroads follow rivers, crossing them on creaky wooden trestles. Hemingway's Nick Adams swung off the train at Seney on his way to "The Big Two-Hearted River."

While such travel was most common in the early 1900s, New Jersey today has an extensive commuter system that still allows easy access by train or bus to quality fishing spots.

Catch the 7:37 a.m. train out of Hoboken and ride the Gladstone Line to Far Hills. There's a stretch of the North Branch of the Raritan River just in back of the fairgrounds that runs for a little less than a mile and has been known to hold trout in the spring. This is small water, tailor-made for an angler with an ultra-light fly or spinning rig.

Or hook a ride on the Raritan Valley Line, departing Newark, and ride it to the end of the line. That'll leave you in High Bridge, a quarter-mile from the South Branch of the Raritan River. The stream is downhill from the station. Your best bet is to walk down Route 513 toward Clinton. In 10 minutes, you'll hit the river. You can fish from there to about a half-mile upstream at Union Forge Park.

The Trans-Bridge Lines' express bus between the Port Authority in New York City and Allentown, Pa., stops at Clinton Point, three-quarters of a mile from a pool on the South Branch that seems to yield more big trout than any other. It'll take less than 15 minutes to walk along Route 173 to the quaint center of Clinton.

In the midst of the town is the confluence of Spruce Run and the South Branch of the Raritan. Impounded by a mill dam, the lake holds trout and bass and some huge carp. Water spills over the dam, rolling across the apron and into a long, deep pool that always holds fish. Downstream are five or six miles of good, fishable water. Next to the creek is Ed Oliver's Orvis shop. Oliver will keep you in flies like Adams, sulfurs and tricos.

The Trans-Bridge express also stops in Easton, Pa. Walk down to the Delaware River. There's shad in the spring and smallmouth in the summer, as well as native trout in Bushkill Creek, a half-mile up the Delaware from where the Lehigh River comes in.

You can pick up the Trans-Bridge express in Newark, but only at the airport's three terminals — A, B and C. You can get there by taking a bus to Newark's Penn Station and catching the Airlink shuttle at the station to the airport.

The Gay Nineties was the golden age of the excursion train. On Saturdays, big steam engines sat panting in the Lackawanna Station in Hoboken as ladies in starched dresses, children scrubbed ruddy-clean and men in dark coats, white shirts, fresh collars and ties boarded the cars. He carried the picnic hamper, she

carried the quilt on which they'd sit and the oldest boy carried his father's rod and, if he were lucky, one of his own.

You might have found Thomas Edison in one of the first-class cars. But the rest of the train carried folks like you and me, looking for a day in the country, fresh air and trees, a place of grass and flowers where kids could run and a spot where a pickerel or bass or even a trout might take the bait.

Looking for a vignette of a century past? You still can take the train from Hoboken to Lake Hopatcong, rent a boat and spend the day fishing on one of North Jersey's best-stocked lakes.

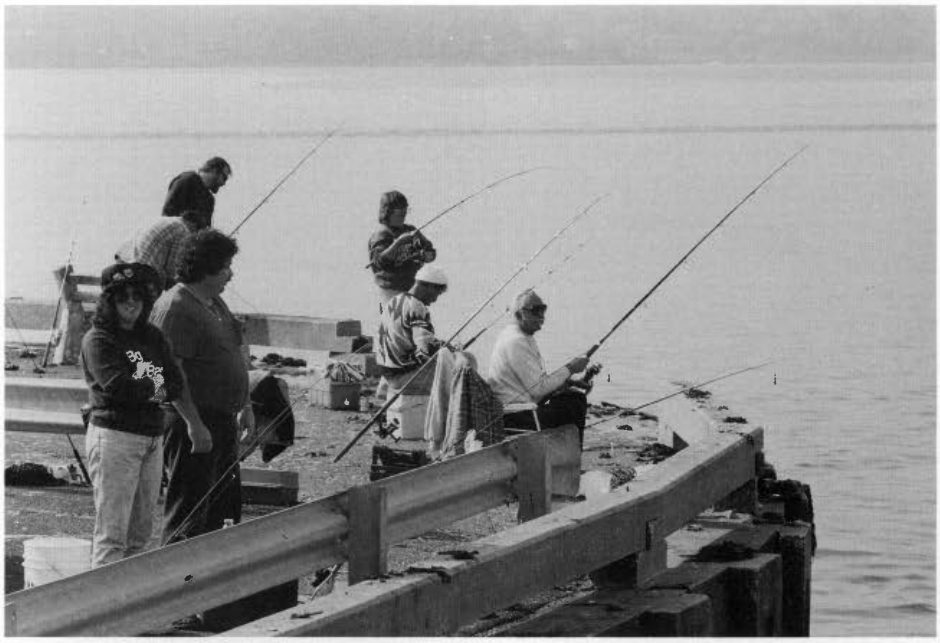
"In the spring, anybody can catch a fish," says Roger Steiger, owner of Lake's End Marina, which is in Landing, NJ Transit's Lake Hopatcong station.

In the spring, you'll find rainbow and brown trout, and as the weather warms, crappie, large and smallmouth bass, pickerel and bait-stealing bluegills as big as your palm. Steiger sells bait and tackle, and for $30 he'll rent you a rowboat with a 4.5 horsepower motor and a tank of fuel. He calls this his "fisherman's special," but the deal is good only on weekdays. That's just as well. The lake is less crowded and there is bus, but no train service on weekends.

Is saltwater fishing in your blood? Catch NJ Transit's North Jersey Coast Line train to Bay Head. There's no rush. It leaves Newark a little after 11 a.m. Ride it to Belmar, read the sports pages on the way and have a sandwich.

At quarter to one, you're in Belmar. Walk across the highway and board a party boat. At 1:30 p.m., the ship moves down the channel toward open water — and ling, whiting or blackfish. There'll be fish in the bucket tonight. And you didn't have to drive any farther than the nearest NJ Transit station or connecting bus stop.

Sound far-fetched? Not according to Doug Seigel, who runs Fisherman's Den at Belmar Marina. "A lot of guys come in on the train. They bring a rod, a burlap bag or a cooler, sometimes rain gear." Most take the half-day party boats, leaving at 1:30 p.m. and returning at about 5:30 p.m., or they fish for flounder off the bulkhead.



PHOTOS BY AUTHOR

Belmar offers good fishing and is easily accessible by train and bus.

You might consider making a weekend of it. Take the train down the night before, stay at the Sea Flower Bed & Breakfast or the New Irvington Hotel, and go out on a 7:30 a.m., three-quarter day trip. A coupon from NJ Transit will knock $2 off your boat fee during the week and 10 percent off lodging.

The high density of population in northern New Jersey demands a more extensive mass transit system than is found in the southern portion of the state. But there are several places to fish in South Jersey served by bus or train.

Live in the Camden-Cherry Hill area? NJ Transit's bus No. 317 leaves that area around 10 a.m. and will drop you off at the Belmar train station in time to catch a half-day party boat. The same bus also serves Point Pleasant, where you'll find some of the best bulkhead fishing in the state.

Atlantic City is reached by train from the Camden area via PATCO. A cab or bus can take you up to the state marina near the inlet.

NJ Transit buses No. 313 and No. 315 tie the Camden area with Cape May. Leave Camden at 9:45 a.m., arriving in Avalon at 11:30 a.m. At the end of 21st Street is the Avalon Anchorage marina, which will rent you a boat and motor for $30 for a half-day. If you need tackle, they'll rent that to you as well.

The run up the bay to Townsend's Inlet takes less than 15 minutes. Around the bridge there, you'll find flounder, blackfish, blues and weakfish. You'll also see ospreys, herons, glossy ibis and gulls by the thousands.

The same bus that runs from Camden to Belmar, the No. 317, also stops at Browns Mills. A 15-minute walk from the shopping center at the bus stop puts you at Mirror Lake and the Rancocas River, both worth exploring.

There's a certain convenience in mass transit. If you're like me, you'll rush to catch the bus, but once aboard, your eyelids will droop and you'll snooze. Let the driver worry about keeping to the schedule and fighting any traffic. You're dreaming of the fishing. And that's what it's all about.

Bus and train schedules are subject to change. For up-to-date information, contact NJ Transit at 1 (800) 772-3606.

By John Ross, a freelance writer from East Stroudsburg, Pa.

Events

March

13-15 ATLANTIC CITY RECREATIONAL VEHICLE AND SPORTS SHOW Dealers from a number of states will attend. Sponsored by McLaughlin Associates. **Hours:** Friday, noon to 9 p.m.; Saturday, 11 a.m. to 9 p.m.; Sunday, 11 a.m. to 6 p.m. **Admission:** $6 for adults, $4 for seniors, and children under 12 free. **Phone:** 1 (800) 332-3976 **Location:** Atlantic City Convention Hall, Atlantic City

14, 21 POOR MAN'S PELAGIC TRIP Take a trip aboard the Cape May Ferry in search of sea birds. Sea ducks, red-throated loons, Bonaparte's gulls, horned grebe, gannets and black-legged kittiwakes should be spotted. Dress warmly and bring binoculars. Preregistration required. **Hours:** 7:30 a.m. to 11 a.m. **Admission:** $8 for members, $10 for nonmembers (ferry is additional $8 per person) **Phone:** (609) 884-2736 **Location:** Cape May Bird Observatory, Cape May Point

15 MAPLE-SUGARING OPEN HOUSE FOR FAMILIES See both past and present methods for making maple syrup and taste the difference between the real thing and the kind you buy in stores. **Hours:** 1 p.m. to 4 p.m. **Admission:** $2 per person **Phone:** (201) 835-2160 **Location:** Weis Ecology Center, 150 Snake Den Rd., Ringwood

21-22 OUTDOOR QUEST '92 Attend a gathering of outdoor enthusiasts featuring nationally known speakers, films, a large marketplace and representatives from outdoor organizations, publications and schools. If you're into camping, hiking, water sports, cycling or climbing, this convention is for you. Sponsored by Sun Canyon Promotions. **Hours:** Saturday, 10 a.m. to 8 p.m.; Sunday, 10 a.m. to 7 p.m. **Admission:** $10 pre-admission or $12 at door; children under 13 admitted at half price; under 5 free **Phone:** (914) 968-7571 **Location:** Holiday Inn Jetport, next to Newark International Airport, Elizabeth. Mail pre-admission fee to: Judy Okun, 491 Riverdale Ave., Room 2E, Yonkers N.Y. 10705

21 GARDENING WITH DEER Learn how to grow plants that deer won't eat. Sponsored by the Morris County Parks Commission. **Hours:** 2 p.m. **Admission:** Free **Phone:** (201) 635-6629 **Location:** Great Swamp Outdoor Education Center, 247 Southern Blvd., Chatham

22 TRAILSIDE MINERAL CLUB SHOW See demonstrations and hear talks about minerals. There will be mineral and fossil sales and a children's touch table. **Hours:** 1 p.m. to 5 p.m. **Admission:** Donation suggested **Phone:** (908) 789-3670 **Location:** Trailside Nature and Science Center, Coles Ave. and New Providence Rd., Mountainside

22 MOMS, POPS & TOTS SPRING FOR A WALK View the coming of spring with a morning stroll on the environmental center's nature trail with a staff naturalist. For children ages 3 to 5 accompanied by an adult. In-person, preregistration required. **Hours:** 10 a.m. **Admission:** $2 per child **Phone:** (201) 891-5571 **Location:** James A. McFaul Environmental Center, Crescent Ave., Wyckoff

28 "WHAT'S SO SPECIAL ABOUT THE PINE BARRENS?" Karl Anderson, director of the Rancocas Nature Center and a Pinelands expert, will give this lecture sponsored by the New Jersey Audubon Society and the Somerset County Park Commission. **Hours:** 7:30 p.m. **Admission:** Free **Phone:** (908) 766-2489 **Location:** Environmental Education Center, 190 Lord Stirling Rd., Basking Ridge

April

3-11 WILDLIFE ART SHOW AND SALE Paintings and sculptures of wildlife will be featured. Sponsored by the Flat Rock Brook Nature Center. **Hours:** 10 a.m. to 4 p.m. **Admission:** Free **Phone:** (201) 567-1265 **Location:** Flat Rock Brook Nature Center, 443 Van Nostrand Ave., Englewood

3 "PAST YOUR BEDTIME" Children discover sights and sounds in the woods on this night hike. **Hours:** 8 p.m. to 9:30 p.m. **Admission:** Call **Phone:** (908) 946-9694 **Location:** Kateri Environmental Education Center, Conover Rd., Wickatunk

5 WILDLIFE SUNDAY A day of activities features displays, demonstrations, workshops on New Jersey wildlife, live animals and children's crafts. **Hours:** 1 p.m. to 5 p.m. **Admission:** Donation suggested **Phone:** (908) 789-3670 **Location:** Trailside Nature and Science Center, Coles Ave. and New Providence Rd., Mountainside

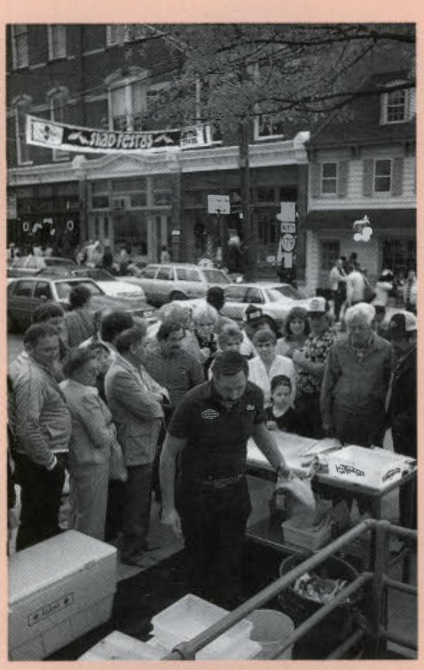
11 6TH ANNUAL SHAD FESTIVAL Features fishing contests, races and games, shad cooking tips, a puppet show and more. Sponsored by the Palisades Interstate Park Commission. **Hours:** 8 a.m. to 3 p.m. **Admission:** $3 parking **Phone:** (201) 768-1360 **Location:** Ross Dock picnic area, Fort Lee

11 FILM: "SHOREBIRDS" An examination of the spectacular coincidence of shorebird migration along the Delaware Bay and horseshoe crab spawning. **Hours:** 2 p.m. **Admission:** Free **Phone:** (201) 891-5571 **Location:** James A. McFaul Environmental Center, Crescent Ave., Wyckoff

11 EGG-O-RAMA An egg hunt with games, relay races and more. **Hours:** 1:30 p.m. to 2:30 p.m. **Admission:** Call **Phone:** (908) 946-9694 **Location:** Kateri Environmental Education Center, Conover Rd., Wickatunk

12 "PESTICIDES IN THE HOME" Carmen Valentin of the Department of Environmental Protection and Energy's Pesticide Control Program will give this lecture on how to identify and properly use different types of pesticides. Sponsored by the Bergen County Department of Parks. **Hours:** 2 p.m. **Admission:** Free **Phone:** (201) 891-5571 **Location:** James A. McFaul Environmental Center, Crescent Ave., Wyckoff

Lambertville to Host Annual Shad Festival



WALTER CHOROSZEWSKI

A crowd watches shad being prepared for cooking.

Lambertville, Hunterdon County, will celebrate the American shad's yearly spawning run up the Delaware River during the 11th Annual Shad Festival on April 25 and 26.

Visitors can watch shad catching and hauling demonstrations, hear folk music, tour arts and crafts exhibitions and enjoy a variety of other entertainment.

Riverside shad dinners that feature the innovative shad recipes of local restaurants as well as a variety of other foods will be offered on Sunday.

The event will take place from 12:30 p.m. to 6 p.m. each day in the center of town, which can be reached via Route 29. Parking is available five blocks away for a $5 fee. For more information, call (609) 397-0055.

18 MOMS, POPS & TOTS "EGGSPLORE" EGGS Make your own colored eggs while learning about the kinds of animals that lay eggs. For children ages 3 to 5 accompanied by an adult. In-person, preregistration is required. **Hours:** 2 p.m. **Admission:** $2 per child **Phone:** (201) 891-5571 **Location:** James A. McFaul Environmental Center, Crescent Ave., Wyckoff

21 FILM: "TALES OF NEW JERSEY" This film traces various aspects of New Jersey's history and folklore, including the Lenni Lenape Indians, Verrazano's sail up the Jersey coast and the Battle of Trenton. **Hours:** 2 p.m. **Admission:** Free **Phone:** (201) 891-5571 **Location:** James A. McFaul Environmental Center, Crescent Ave., Wyckoff

25, 26 20th ANNUAL GEM, MINERAL & JEWELRY SHOW This year's show will feature lectures and demonstrations on treasure hunting. Sponsored by the New Jersey Earth Science Association. **Hours:** Saturday, 9 a.m. to 6 p.m.; Sunday, 10 a.m. to 5 p.m. **Admission:** $4 for adults, $1 for children **Phone:** (201) 539-5116 evenings **Location:** William Paterson College Recreation Center, 300 Pompton Ave., Wayne

26 EARTH DAY A day of ecological fun for the whole family. Games, crafts, displays and information will be available. **Hours:** 1 p.m. to 4 p.m. **Admission:** Free **Phone:** (201) 635-6629 **Location:** Great Swamp Outdoor Education Center, 247 Southern Blvd., Chatham

26 THE GREAT AMERICAN COUNTRY FAIR Enjoy antiques, crafts, folk art, quilts, baskets, wreaths, American foods and country music. **Hours:** 10 a.m. to 5 p.m. **Admission:** $2 for adults, children free **Phone:** (201) 384-0010 **Location:** Ramapo College Field, Rte. 202, Mahwah

26 WATERCOLOR PAINTING DEMONSTRATIONS Award-winning freelance artist Richard Van Tieghem shows how he creates paintings with landscape and nature-related themes. Sponsored by the Bergen County Department of Parks. **Hours:** 2 p.m. **Admission:** Free **Phone:** (201) 891-5571 **Location:** James A. McFaul Environmental Center, Crescent Ave., Wyckoff

29 DRINKING-WATER QUALITY SYMPOSIUM Experts detail current research on protecting the quality of New Jersey's drinking-water supplies. **Hours:** 9 a.m. **Admission:** Call **Phone:** (609) 984-6071 to register **Location:** New Jersey State Museum Auditorium, 205 W. State St., Trenton

May

2 DRESSAGE SHOW This fund-raising event for S.P.U.R. (Special People United to Ride) is sponsored by the Monmouth County Park System. **Hours:** 8 a.m. to 4 p.m. **Admission:** Free **Phone:** (908) 842-4000 **Location:** East Freehold Showgrounds, Kozloski Rd., East Freehold

2 FOR GARDENERS This day is devoted to the interests of the home gardener. Free advice from horticultural experts will be available. Sponsored by the Monmouth County Park System. **Hours:** 9 a.m. to 4 p.m. **Admission:** Free **Phone:** (908) 671-6050 **Location:** Deep Cut Park, 352 Red Hill Rd., Middletown

2 MAYFAIR CELEBRATION Join in an afternoon of family fun. Singing, face-painting, dancing around the maypole, making ice cream and a wildflower walk are only a few of the activities. **Hours:** 1:30 p.m. to 4 p.m. **Admission:** Call **Phone:** (908) 946-9694 **Location:** Kateri Environmental Education Center, Conover Rd., Wickatunk

2 HAWKS OF NEW JERSEY Bird rehabilitator Giselle Smisko will give this slide presentation and discussion about the hawks of New Jersey. Find out how to identify them, where they live and what to do if you find an injured one. **Hours:** 2 p.m. **Admission:** Free **Phone:** (201) 635-6629 **Location:** Great Swamp Outdoor Education Center, 247 Southern Blvd., Chatham

2, 3 KITE DAY Celebrate spring with your family by flying a kite. Bring your own, make one at the farm or purchase one from the wide selection available. There will be plenty of farm animals to visit and lots of food. **Hours:** 10 a.m. to 5 p.m. **Admission:** $3, children under 3 free **Phone:** (609) 924-2310 **Location:** Terhune Orchards, 330 Cold Soil Rd., Princeton

3 WALKING TOUR OF VICTORIAN HO-HO-KUS This tour of historic Ho-Ho-Kus will reveal what life was like there in the mid- to late-19th century. Investigate places that were familiar to residents who lived there, including the site of Sylvan Lake. Must be in good physical condition for walk. Reservations required. **Hours:** 1 p.m. to 3 p.m. **Admission:** $8 for adults, $4 for children (includes refreshments) **Phone:** (201) 445-8311 **Location:** The Hermitage, 335 North Franklin Turnpike, Ho-Ho-Kus

9 23rd ANNUAL MANASQUAN RIVER CANOE RACE Competition areas include solo canoe and kayak races and men's, women's, mixed, family and senior tandem races. The contests begin at the iron bridge on the golf course. **Hours:** 8 a.m. **Admission:** Participants should call **Phone:** (908) 842-4000 **Location:** Howell Park, Howell

9, 10 12th ANNUAL WILDLIFE CARVING AND ART SHOW AND SALE More than 50 artists, most of them from New Jersey, will display their creations and some will give live demonstrations. All paintings, sculptures and carvings will be of wild plants and animals found in North America. **Hours:** 10 a.m. to 6 p.m. **Admission:** Free **Phone:** (908) 766-2489 **Location:** Environmental Education Center, 190 Lord Stirling Rd., Basking Ridge

16 FULL-MOON WALK Adults can discover the sights and sounds in the woods on this evening walk. **Hours:** 8:30 p.m. to 10 p.m. **Admission:** Call **Phone:** (908) 946-9694 **Location:** Kateri Environmental Education Center, Conover Rd., Wickatunk

17 GARDEN FAIR The day's activities will include gardening displays, plant sales and workshops. Sponsored by the Union County Master Gardeners. **Hours:** 1 p.m. to 5 p.m. **Admission:** Free **Phone:** (908) 789-3670 **Location:** Trailside Nature and Science Center, Coles Ave. and New Providence Rd., Mountainside

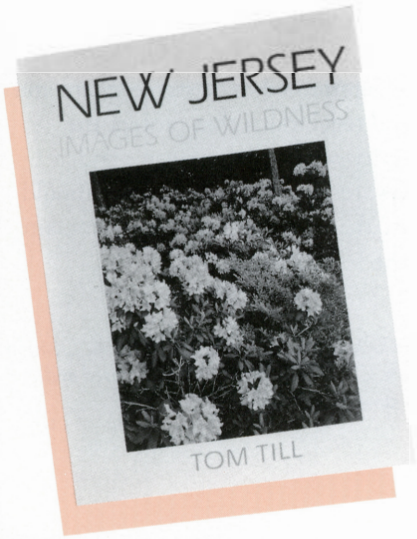
17 THOMPSON PARK DAY A full day of family activities, including an arts and crafts sale, pony and wagon rides, entertainment, kids games and races, food, snake shows and more. **Hours:** 11 a.m. to 5 p.m. **Admission:** Free **Phone:** (908) 842-4000 **Location:** Thompson Park, Newman Springs Rd., Lincroft

23-25 OCEAN FEST '92 Celebrate Cape May County's maritime heritage. **Hours:** 10 a.m. to 4 p.m. **Admission:** Call **Phone:** (609) 898-2300 **Location:** Historic Cold Spring Village, Cold Spring

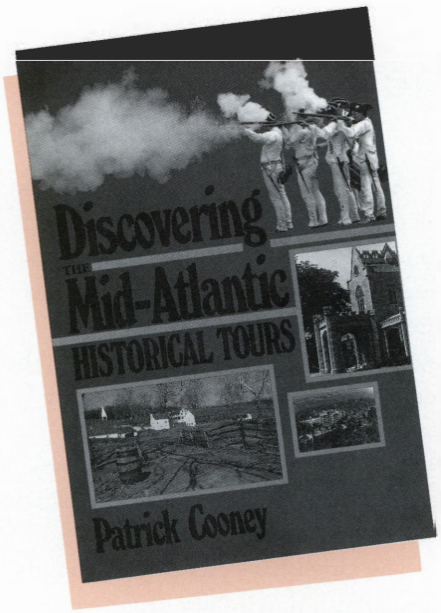
30, 31 BRIDGETON MUSIC & HERITAGE FESTIVAL Celebrate 500 years of American music. There will be arts and crafts, international foods and open houses at various historical sites. **Hours:** 11 a.m. to 8 p.m. **Admission:** Free **Phone:** (609) 451-9208 **Location:** City of Bridgeton Park and downtown Bridgeton

Bookshelf

New Jersey, Images of Wildness, by Tom Till, published by Westcliffe Publishers, is a collection of 103 full-color photographs of the Garden State. Natural wonders are captured on film from as far north as Bergen County to as far south as Cape May, including spectacular vistas from the Great Swamp National Wildlife Refuge, Stokes State Forest and Wharton State Forest. *Cost is $25. Available at bookstores. For more information, call: 1 (800) 523-3692. Note: In addition, the* ***1992 New Jersey Scenic Wall Calendar****, which features 14 of Tom Till's best photographs, is available for $9.95.*



Guide to New Jersey Parks, Forests and Natural Areas, by Michael P. Brown, published by Rutgers University Press, is a comprehensive guide that reveals where to camp, hike, boat, swim and fish in New Jersey. It describes more than 250 parks, forests and natural areas in the state and lists what each has to offer visitors. The book includes detailed directions and information on hours, fees, seasons and special programs. Special attention is paid to activities that families can enjoy together. *Cost is $37 (hardcover) or $14.95 (paperback). Available at bookstores. For more information, call: 1 (800) 446-9323.*



New Jersey's Wildlife, A Checklist of Birds, Mammals, Reptiles and Amphibians, published by the New Jersey Department of Environmental Protection and Energy, itemizes nearly 500 species of vertebrate wildlife found in New Jersey. Animals are listed by common name, scientific name and status as a species in the Garden State. *A free copy is available by sending a No. 10 self-addressed, stamped envelope to: New Jersey Division of Fish, Game and Wildlife, CN 400, Trenton 08625-0400.*

Pinelands Guide ... Recreational Opportunities, Historic Sites, Nature Centers, and Field Trips is a 40-page booklet that briefly describes places to visit and things to do in the Pinelands. It lists areas where visitors can tour a historic village, view birds and wildlife, hunt and fish, walk on a nature trail and more.

Pinelands Speakers Organization Directory is a convenient guide for both program leaders and teachers alike. It contains specific information on how to directly contact a number of speakers who are knowledgeable on a wide range of Pinelands topics.

The above two publications may be obtained at no charge by writing to: Public Programs Office, New Jersey Pinelands Commission, P.O. Box 7, New Lisbon 08064, or by calling (609) 894-9342.

Discovering the Mid-Atlantic: Historical Tours, by Patrick Cooney, published by Rutgers University Press, traces the history of important sites throughout the mid-Atlantic region from the time it was first settled by the Dutch through the Kennedy years. Important developments in politics, art, literature, architecture, transportation and industry are described. The book also contains maps and directions to all of the sites examined. *Cost is $40 (hardcover) or $15 (paperback). Available at bookstores. For more information, call: 1(800) 446-9323.*

Henderson's Guide to Freshwater & Saltwater State Game Fish Records, Spring 1992 edition, published by Outdoor Statistical Resources, lists fishing records and regulations of all 50 states. *Cost is $23 per issue or $40 for a two-issue subscription. Available by calling (404) 549-0934, or by a sending check or money order to: Alan Henderson, OSR Publishing, P.O. Box 670, Hull, GA 30646.*

Geologic Map Series 91-2 **Bedrock Geologic Map of the Green Pond Mountain Region From Dover to Greenwood Lake, New Jersey** Emphasizing structural geology, the map details this 30-mile northeast-southwest trending belt of Paleozoic sedimentary rocks in the Green Pond Mountain Region. It contains cross sections showing structure to the base of the Paleozoic units and stereographic projections that feature small-fault analysis. *Cost is $10. Orders should be mailed to the Department of Environmental Protection and Energy, Map and Publication Sales, Bureau of Revenue, CN 417, Trenton 08625-0417. Please make checks payable to "Treasurer, State of New Jersey."*

The Belted Kingfisher

The belted kingfisher, or *Ceryle alcyon*, is the only member of the kingfisher family found north of Mexico and southern Texas. It ranges throughout most of the United States and Canada and can be found wherever there is water. During the winter, its range is much the same, but is limited by its need of ice-free water for fishing.

The belted kingfisher is easily recognized by its disproportionately large head, ragged double crest and long, heron-like bill. These characteristics, combined with its small body and short tail, give the bird a top-heavy look. The female kingfisher actually is more colorful than the male, which is unusual among North American birds. Both sexes are blue-gray on the head and back, with a gray band across the breast that separates the white throat and belly. The female has an additional, chestnut-colored breast band and flank.

Throughout most of the year, kingfishers are solitary birds. During the nesting season, however, both partners share the duties of nest construction and caring for the young. Kingfishers generally nest in burrows that the pair excavates in a bank along a stream or lake. They seem to prefer sandy soils over heavier clay soils, probably for easier digging. They dig burrows horizontally into the bank by using their bills like spades, and kick the dirt out behind them with their feet. Nest construction can take anywhere from a few days to three weeks. The burrows range in length from about three to six feet, but have been known to reach 15 feet. At the end of the tunnel, kingfishers fashion a larger nesting chamber, which may be lined with grass and the regurgitated pellets of undigestible prey.

A typical kingfisher clutch contains six or seven eggs that are laid in late June or early July. The eggs require just over three weeks to hatch. During this time, the parents share the duties of incubating the eggs. After hatching, the female does most of the brooding, or caring for the young, with the male taking an occasional turn. Sometimes the male will excavate a separate burrow that he uses for roosting at night.

The kingfisher's diet consists mainly of small fish that it must capture near the surface of the water. Its hollow bones contain numerous air sacs. These sacs and the air trapped in its feathers make the bird extremely buoyant in water. To overcome this, the kingfisher either hovers or dives from a perch high over the water, letting momentum carry it beneath the surface.

In addition to fish, kingfishers consume tadpoles, crayfish, insects and even an occasional young bird or mouse. Kingfishers swallow their prey whole and then regurgitate any undigestible matter, such as bones and scales.

During brood rearing, adults will bring small fish to the burrow and feed them head-first to the young so the birds don't choke on the dorsal spines. As the young develop and become too big for the nesting chamber, they will move out of the burrow and onto a nearby limb. For the next several days the adults will teach the young to fish.

To do this, an adult kingfisher will capture a fish and fly to a nearby perch. There, it will beat the fish on a branch until the fish becomes sluggish. The adult then will drop the fish into the water near the young birds, allowing them to dive for the easy prey. During this teaching process, adults also have been observed dropping sticks into the water for the young to retrieve.

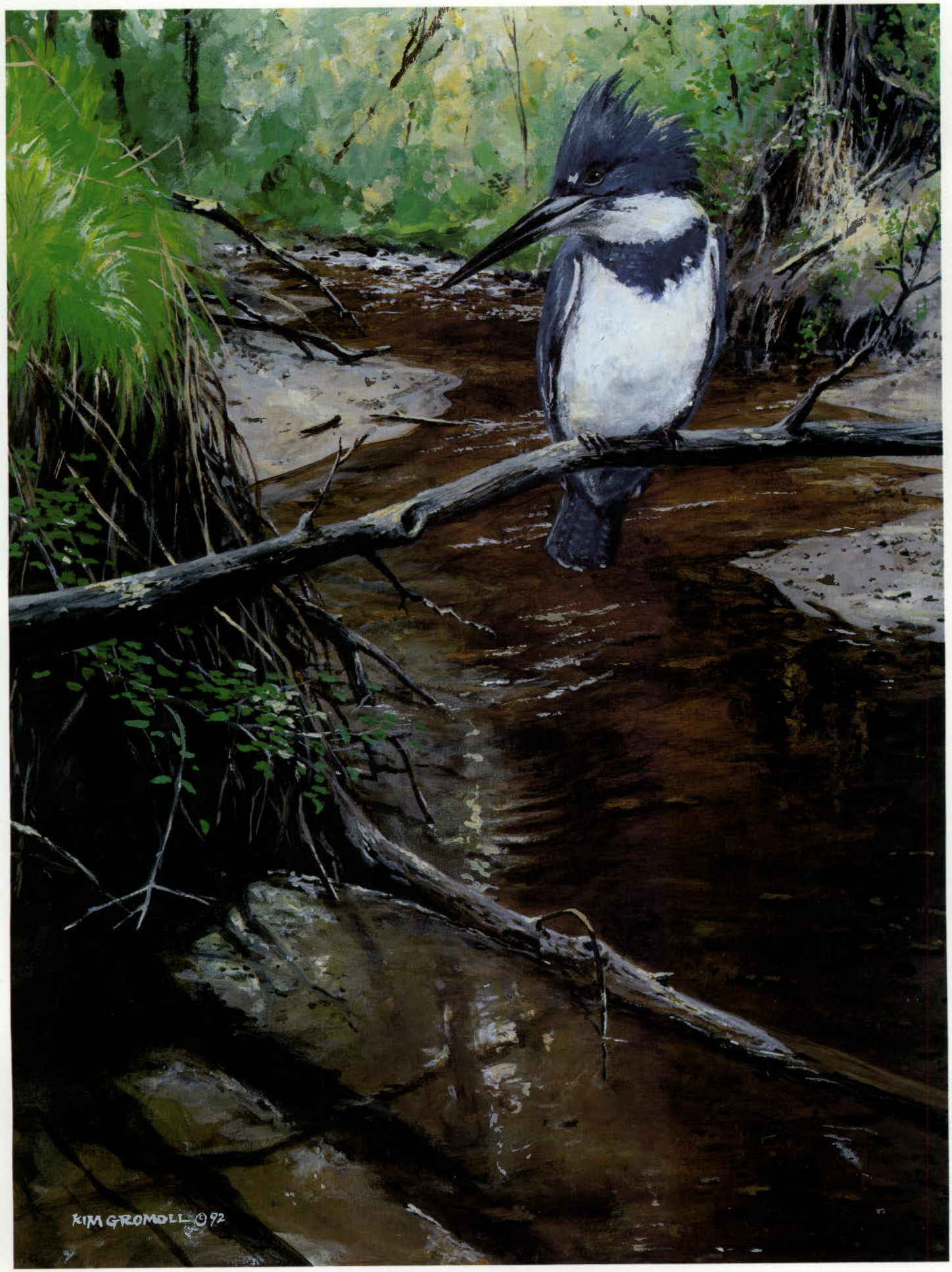
Kingfishers raise only one clutch each year. After the young fledge — or take their first flights — they are forced out of the adult's feeding territory.

In New Jersey, the belted kingfisher is quite common along lake shores, streams, rivers and coastal waterways. During a recent review of the status of New Jersey's nongame wildlife, the breeding, migrating and wintering populations of the belted kingfisher were determined to be stable. State and federal regulations that protect the integrity of our lakes, streams and freshwater and coastal wetlands should assure that suitable habitat will remain for the belted kingfisher.

By Mike Valent, a senior zoologist for the Division of Fish, Game and Wildlife's Endangered and Nongame Species Program

Beginning with this issue, **New Jersey Outdoors** will feature in this section the work of the many talented area wildlife artists who have expressed interest in having their artwork appear in this section. **New Jersey Outdoors** thanks Carol Decker, whose paintings have helped make the Wildlife Profile so popular with our readers.

Anyone wishing to purchase the original artwork shown on the opposite page should contact Kim Gromoll at 7 Westwood Court, Newtown, Pa. 18940; (215) 579-1026.



ACRYLIC PAINTING BY KIM GROMOLL

Blooming beach plums carpet the dunes at Island Beach State Park in Ocean County.

In Next Season's Issue

Protecting Our Shores • The Economics of Fishing
Landscape to Conserve Water
Get Ready to Go Scuba Diving