

NJB

# NEW JERSEY Outdoors

\$4.25

Summer 1994



Protecting Canoeists on the Delaware • Explore the Maurice River  
Ride the Wind • Discover Barnegat Bay Crafts • Practice Hunting Skills  
Learn About Pine Barren Snakes • Tour Skylands Botanical Gardens

Sunrise at the  
boardwalk in  
Avon-by-the-Sea.

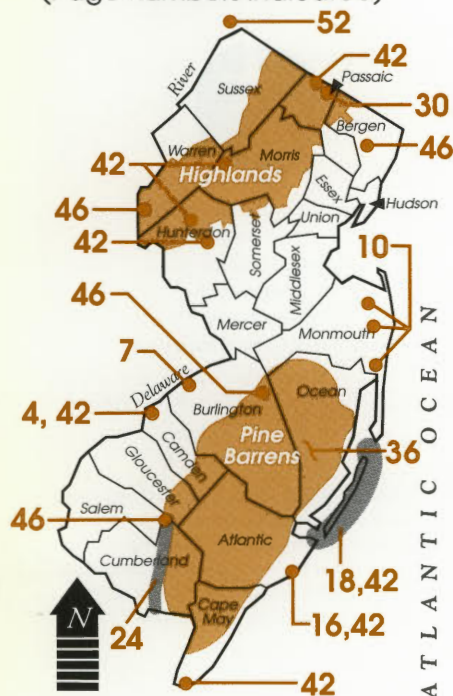


MICHAEL S. MILLER

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MICHAEL BAYTOFF



Christine Todd Whitman, Governor

## Message from the Governor

As the weather gets warmer, many thoughts turn to the great summer getaway. Garden State residents need not look any further than their own backyards. For those who love and respect the great outdoors, New Jersey has it all.

Not only do we have beautiful, world-class beaches along 127 miles of the Jersey Shore, but we have many other treasures. New Jersey is home to 36 state parks, 11 state forests, four recreation areas and 23 state historic sites. These jewels offer such outdoor activities as hiking, biking, camping, swimming, boating, bird watching, sightseeing and fishing to name just a few.

And other states have nothing on New Jersey when it comes to history. Here you can walk in the footsteps of such great Americans as George Washington, Thomas Edison, Molly Pitcher and Walt Whitman.

New Jersey is also home to 800 species of wildlife, a fantastic array of fish, birds, animals, reptiles and amphibians. You can explore their world in the state's many wildlife management areas.

No wonder tourism is the second largest industry in New Jersey, bringing in \$18 billion a year and adding \$2 billion to our state treasury.

So why not lace up your hiking boots and venture down the Appalachian Trail? Or grab your binoculars and head out to the Delaware Bay to see the Northern Hemisphere's second largest concentration of migrating birds? Or sail a boat along New Jersey's lakes, reservoirs, streams or rivers? Or take a walk through history and relive the battles of the Revolutionary War?

Take advantage of New Jersey's tremendous outdoor opportunities and its great natural and historic resources. You'll gain a new respect for the Garden State and the environment. And you'll learn that there truly is no place like home.



Robert C. Shinn, Jr., Commissioner

## Message from the Commissioner

One of my best days as Commissioner of the Department of Environmental Protection and Energy was spent on a Kittatinny mountainside with a bear sow and her three cubs.

These black bears were part of the annual bear tagging in New Jersey, which is used to identify critical bear habitat, determine bear populations and learn more about the animals' movements and ranges. The Division of Fish, Game and Wildlife project, which began 13 years ago, has helped track a success story.

In 1971, there were only 30 bears left in New Jersey. Today, the program has tagged 337 bears, including the three cubs I encountered.

But bears need a sizable habitat to survive in this state on a long term basis. Male bears can roam up to 60 miles from home during mating season while females will generally range from 10 to 15 miles from their dens. Our ability to maintain bear in New Jersey is contingent on our ability to maintain the forests and swamps they need to survive. That is why land preservation is one of my top priorities.

Bears are also a good barometer of the health and well-being of other wildlife with which we share the Garden State. If bears are prospering, it can be an important indicator that such species as bobcats, white-tailed deer, coyotes, hawks and owls are doing well.

As I held a six-pound bear cub tucked in my jacket and realized it may soon grow to more than 200 pounds, I was struck by the fact that there could be an animal as large, as powerful and as unique as the black bear making its home in our state. Their presence is a privilege here, and we need to do all we can to ensure that they will continue to make New Jersey their home.

State of New Jersey  
Christine Todd Whitman  
Governor



Department of Environmental Protection  
and Energy

Robert C. Shinn, Jr.  
Commissioner

Becky Taylor  
Director of Communications

Roger Shatzkin  
Acting Administrator, Office of Publications

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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  
Beth Kuhles

Art Director  
Dilip Kane

Design and Production  
Paul J. Kraml

Circulation  
Sandra Pearson

Finance  
Tonia Y. Brown

Administration  
Dawn Blauth

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# Mailbox

## Morris Canal Memories

I would like to pay tribute to Michael Aaron Rockland for his outstanding article on the Morris Canal ("Mountain Sailors: In Search of the Morris Canal," NJO, Winter 1994). Although I have read numerous books and articles over the years on the Morris Canal, never has someone so accurately portrayed the feeling I get as I wander along the old towpath.

In addition to providing accurate, readable text, Mr. Rockland has touched the very heart of this "haunting" unique New Jersey activity. Likewise, my hats off to *New Jersey Outdoors* for allotting such space for his article and for the supplement aimed at our younger readers. In providing such an article, you encourage those who may not know much of the local history to get out, see it and enjoy it.

Our state is rich in these hands-on relics of our past, allowing us to combine enjoyable outdoor activities with a respect for our history.

James R. Alden  
Madison

Michael A. Rockland's lovely article on the Morris Canal "Mountain Sailors" vividly evoked memories of my childhood beside the Delaware and Raritan Canal in Kingston. We are very lucky in that our canal has been preserved as a water-carrying body, unlike the major part of the Morris Canal. It still enchants and refreshes a huge number of area residents with its timeless ambiance.

However, I would bet that the "turtles sunning themselves on its banks" are not box turtles, which are strictly terrestrial and sylvan, but rather the equally enchanting painted turtles, so omnipresent in most New Jersey waterways.

Heidi Hesslein  
Princeton

## Discovering the Outdoors

Dear New Jersey Outdoors,  
One day I came to my Dad, hoping he could give me a little information on a report I was writing. The title was "Living and Working in Harmony with Nature." I had never opened one of your issues until my Dad showed me it. The articles are very interesting and helped me so much. I am planning on reading every upcoming issue. Hopefully I will get it before my Dad!

Thank you  
Melissa Smith, 13  
Palmira

## One-Room Schools Revisited

The article on one-room schools (NJO, Spring 1993) was particularly interesting to me. I realize there were many one-room schools in New Jersey, but I thought you might be interested in my story.

There were three schoolhouses on Woodward Road from Route 33 east of Manalapan to where it crosses Route 9 north of the Old Tennent Church in Manalapan Township, Ocean County.

My father, two uncles and I all attended Vanderveer School near Route 33. My mother taught at the Tennent School before she married and my uncle, Carl R. Woodward, taught at the Woodward School in 1909 to 1910 to earn money to attend Rutgers Univer-

sity. I attended my first three years of school at Vanderveer before it was closed and torn down.

The Tennent School building is still standing and has been a private residence for years. I don't know what happened to the Lafayette School, but the area is now a big development.

Woodward Road was named in honor of my father, Howard R. Woodward, a farmer and Manalapan Township committee chairman who was well-known for his civic and church activities. My uncle Carl Woodward, former president of the University of Rhode Island, has done extensive historical research and writing on Manalapan Township and Monmouth County, including information on one-room schools and early farming which were contained in James A. Brown's *Manalapan in Three Centuries* published by the Township of Manalapan.

*New Jersey Outdoors* is enjoyable reading, informative and has beautiful photography. Keep up the good work.

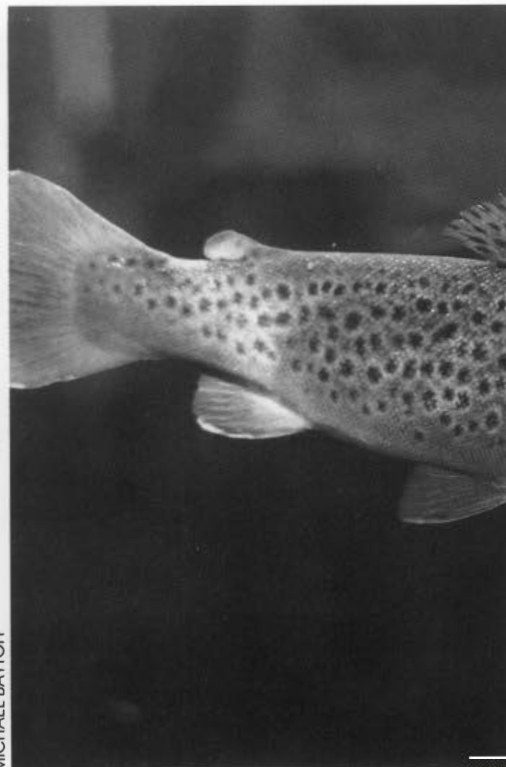
Edith Woodward Haviland  
Port Republic

**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.

MICHAEL BAYTOFF



MICHAEL BAYTOFF



## Aquatic Life's Diversity Brought to the Delaware Waterfront in Camden

Have you ever walked along New Jersey's beautiful, cream-colored sand beaches, gazed upon the blue and majestic ocean, and just wondered about what lurks there? Or ventured into the Pine Barrens, walking or canoeing along a cedar creek, and absorbed the magic of the area? Or strolled along a lush rocky stream with birds chirping, and the sound of rushing water filling the air?

Now the mystery and magic of those natural wonders can be found in one special place — the Thomas H. Kean New Jersey State Aquarium on the Delaware River waterfront in Camden.

The aquarium is the culmination of a dream by the late Bill Donaldson, former president of the Philadelphia Zoo, who wanted to showcase the rich natural history of New Jersey. To make this aquarium different from others, Donaldson wanted to feature species

indigenous to New Jersey, including those which migrate through the state and swim in the ocean off the coastline.

Even though Donaldson died before his dream was fulfilled, his legacy lives on in the aquarium that opened in 1991 — a microcosm of the Garden State and its hidden watery treasures.

### Trout and Seals

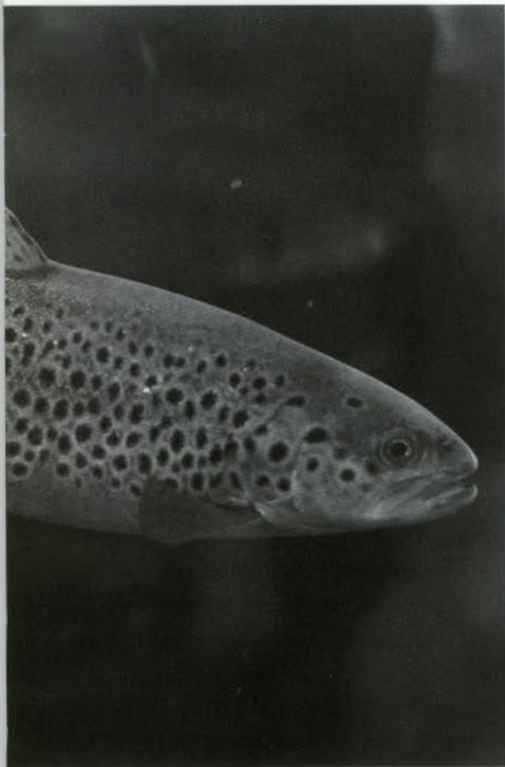
Upon entering the grounds of the aquarium, a visitor is introduced to the diversity of the state through saltwater and freshwater displays. A rocky trout stream, which features brook, brown and rainbow trout, brings you eye level with these beautiful creatures, which swim slowly through the clear and constant flow of water along with other native species.

Gray and harbor seals, which live off the coast, greet you face to face from another ingenious 170,000 gallon

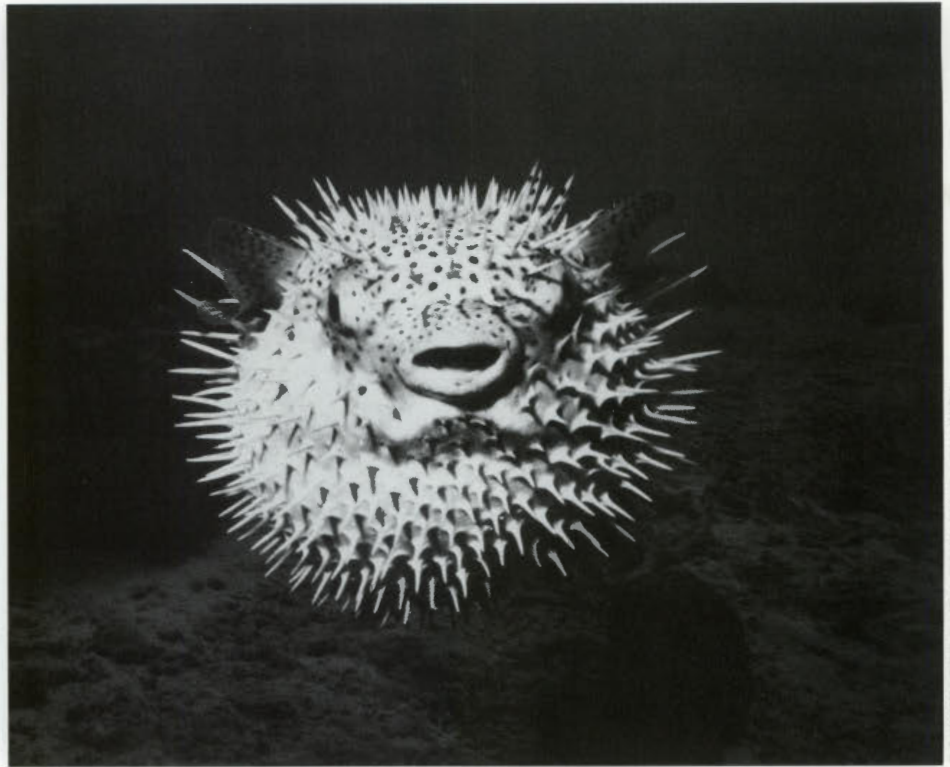
saltwater tank. Through the glass, you can watch them frolic, make faces or chase food. You can also observe the seals from above the tank as they are fed by aquarium staff.

Inside the aquarium building, there is lots to see. The Touch Tank provides a close encounter with creatures of the ocean, allowing you to pet sharks, smooth dogfish and skates that swim freely in the tank. An aquarist is also on hand to provide information on the species found in this very special display.

Many of the aquarium exhibits give you hands-on experience with species found in New Jersey or in nearby states. You can see, touch, smell and hear many of the animals, providing a deeper understanding of each species. At the Rocky Tidal Pool, a replica of the coastline from New York to Maine, you can touch mollusks, clams and starfish as the tide rolls in and out. Many displays provide a glimpse behind everyday landscapes in New Jersey, exposing species you could not normally see on a hike through the woods, a stroll



When you visit the New Jersey State Aquarium, the things you imagined when you walked the sandy beach, canoed the Pine Barrens or strolled along the stream suddenly come to life.



COURTESY OF THE NEW JERSEY STATE AQUARIUM



COURTESY OF THE NEW JERSEY STATE AQUARIUM

The state aquarium (far left) is located on the Delaware River in Camden across from Philadelphia. A brook trout (left) greets visitors at the entrance to the aquarium. This balloonfish (top), which puffs up into a thorny ball when threatened, is part of the Dangers of the Deep exhibit. Gunther, a gray seal (bottom), gets his teeth brushed by a trainer.



Sharks and skates (above) were among the species captured off the New Jersey coast for use in the aquarium.

on the beach or a ride in a boat.

The centerpiece of the aquarium is the Open Ocean Tank exhibit. Here huge acrylic windows — including one 18 feet high, 24 feet wide and more than a foot thick — separate the public from 760,000 gallons of saltwater and a plethora of fish that make their home in the deep. At four viewing stations, you'll find sharks, giant rays, striped bass, flounder, jacks, sea bass and other species common in this area.

For years prior to the opening of the aquarium, staff biologists and personnel teamed up with volunteers and anglers to net, hook and trap sharks and other fish. They journeyed out to sea, along the Delaware Bay, inside coastal bays and inlets and through other waterways in the state.

So when you visit the New Jersey State Aquarium, the things you imagined when you walked the sandy beach, canoed the Pine Barrens or strolled along the stream suddenly come to life. Here you can discover more species in one area that are native to New Jersey than one might encounter in a lifetime in the wild. It is well worth the journey.

The Thomas H. Kean New Jersey State Aquarium is located in Camden just south of the Ben Franklin Bridge. It is open daily except for Thanksgiving, Christmas and New Year's Day. From March 1 through Oct. 31, the hours are 9:30 a.m. to 5:30 p.m., with special extended hours on Sunday from April 1 through Labor Day. From Nov. 1 to Feb. 28, the hours are 10 a.m. to 5 p.m. Admission is \$9 for adults, \$6 for children 2 to 11 years old, and \$7.50 for older students with school identification and for senior citizens. Membership and group rates are also available.

For more information, call the aquarium at (609) 365-3300.

*by Michael Baytoff, a freelance writer and photographer who lives in Flemington*

## Profile

### Preserving Open Land for Future Generations

Amid the great industrial and residential sprawl of Burlington County, there are stretches of land that have remained untouched. In fact, at least one tract is as bountiful as it was when New Jersey was still a British colony.

Eleven generations of the Taylor family have lived on the River Side Homestead Farm on the Delaware River in Cinnaminson since it was first settled by the family in 1720. Today's Taylors — Sylvia, Harold and Suzanne — have the same love for the parcel that their ancestors did — in fact, they are doing all they can to stay in touch with the

environment of yesteryear and to preserve it for generations to come.

One look at the land explains the family's efforts to keep it pristine. All 120 acres burst with nature's creations. Part of the property has been used for farming for centuries, but where the neatness of the farmland ends is where the perplexity of untouched nature begins.

Trees such as oak, birch, maple, pine and dozens of others are interspersed with blackberry, blueberry and sweet pepper bushes with some grape vines, ivy, garlic and mustard grass thrown in the mix. It's no wonder almost 200 species of birds have been sighted on the property, including owls, ducks, gulls, crows and warblers as well as the endangered red-shouldered hawk and the bald eagle. For those who love nature's beauty, the Taylor farm is an oasis in the midst of development.

"Just the open space, the plants and

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Amid the great industrial and residential sprawl of Burlington County, there are stretches of land that have remained untouched.

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A pond reflects the beauty of the area at the Taylor Wildlife Preserve.



LARRY MILLER, OFFICE OF NATURAL LANDS MANAGEMENT

LARRY MILLER, OFFICE OF NATURAL LANDS MANAGEMENT



animals, just to walk outdoors — that's why I love this land," says the family matriarch, 78-year-old Sylvia Taylor.

Part of the Taylor Farm was opened to the public in 1975 when 89 acres were donated to the New Jersey Natural Lands Trust. Known as the Taylor Wildlife Preserve, the conservation easement stipulates that the land will never be developed. At the same time, the Taylors retain ownership of the property and get a tax break.

The family also has received a New Jersey Open Lands Management grant of more than \$4,000 from the state to make the preserve more accessible to hikers and bird watchers. Funding from the grant will be used for trail signs and trail maintenance.

"Conservation easements, such as the Taylors have granted the New Jersey Natural Lands Trust, provide a simple method of land protection, while retaining private ownership," says Martin Rapp of the New Jersey Natural Lands Trust. "The trust monitors other easements in Hunterdon, Atlantic and Sussex counties."

The Taylors, led by Joseph Taylor Sr. who died in 1991, say it was the need to preserve open space and wetlands for generations to come that guided their decisions.

"Basically, until the land is developed, it is going to be wanted by developers," said Sylvia's 54-year old son, Harold, a professor of physics at Stockton State College, who also operates the farm. "Development is a threat which needs to meet resistance if some wildlife habitat and environmentally significant wetlands are to be preserved."

Harold Taylor commends the state Department of Environmental Protection and Energy for its efforts to preserve the environment in its vast park system. But unlike many manicured parks, the farm has something special to offer.

"The parks are nice and beautiful, but are developed and managed to be so," he says. "On the easement, you see things as they look when left on their own. Life just grows here; we let it be."

The Taylors also support other local environmental efforts. They have an

LESLIE DICOLA, NATURAL LANDS TRUST



agreement with the township of Cinnaminson which composts leaves on their property. In addition, the New Jersey American Water Company has an easement to use their road to gain access to a pumping station on neighboring property, a "more passive use of the land than a housing development," says Suzanne Taylor, Harold's wife.

## An Organic Farm

While much of the property has been set aside as a natural area, farming still remains the chief activity on the land. From peas in May to pumpkins in October, the farm operates a "pick-your-own" business for fresh fruits and vegetables.

When asked what makes the farm so important to the community, Harold Taylor responds, "You have to have food to eat, clean water to drink and clean air to breath. It's that simple."

Harold Taylor splits his time between teaching physics and running the farm. In fact, physics runs in the family, and his 52-year old brother, Joseph, a professor at Princeton University, won the

1993 Nobel Prize for Physics. For Harold Taylor, the combination of farming and physics is perfect.

"Each is a nice change of pace from the other, and one would be less fun without the other," Harold Taylor says. "In a lot of ways doing the two jobs leaves much time to thinking and evaluating problems which come up in one while actually doing the other."

For the past 30 years, the Taylor produce has been grown organically without chemical fertilizers or pesticides, the legacy of Joseph Taylor Sr. It is yet another example of the family's efforts to protect the environment.

"The switch (to organic farming 30 years ago) is saving the land, and we are very happy with the results," says Sylvia. "It's a challenge, though, to produce unblemished apples when we don't use chemical pesticides."

Other crops grown on the farm include tomatoes, peppers, eggplants, pumpkins, blackberries and pears.

The Taylors also share their bounty with others. They rent six acres of their land — in plots ranging from 15 feet by 30 feet to 120 feet by 120 feet — to residents of the community or surrounding cities who may not have access to a garden.

"We feel that we like to eat fresh vegetables, and we like to do the work in preparing them. A lot of people live in areas where the land for that is not available," says Suzanne Taylor.

For Harold Taylor, the farm has been a labor of love.

"Every day of every year is something different," Harold says. "Interesting and exciting things happen all the time. The earth is actually evolving before us."

The Taylor Wildlife Preserve is located on Taylors Lane in Cinnaminson off Route 130. To learn more about other Natural Lands Trust easements or land holdings in the state, call (609) 984-1339.

*by Eric Gonzalez, a journalism intern from Trenton State College*

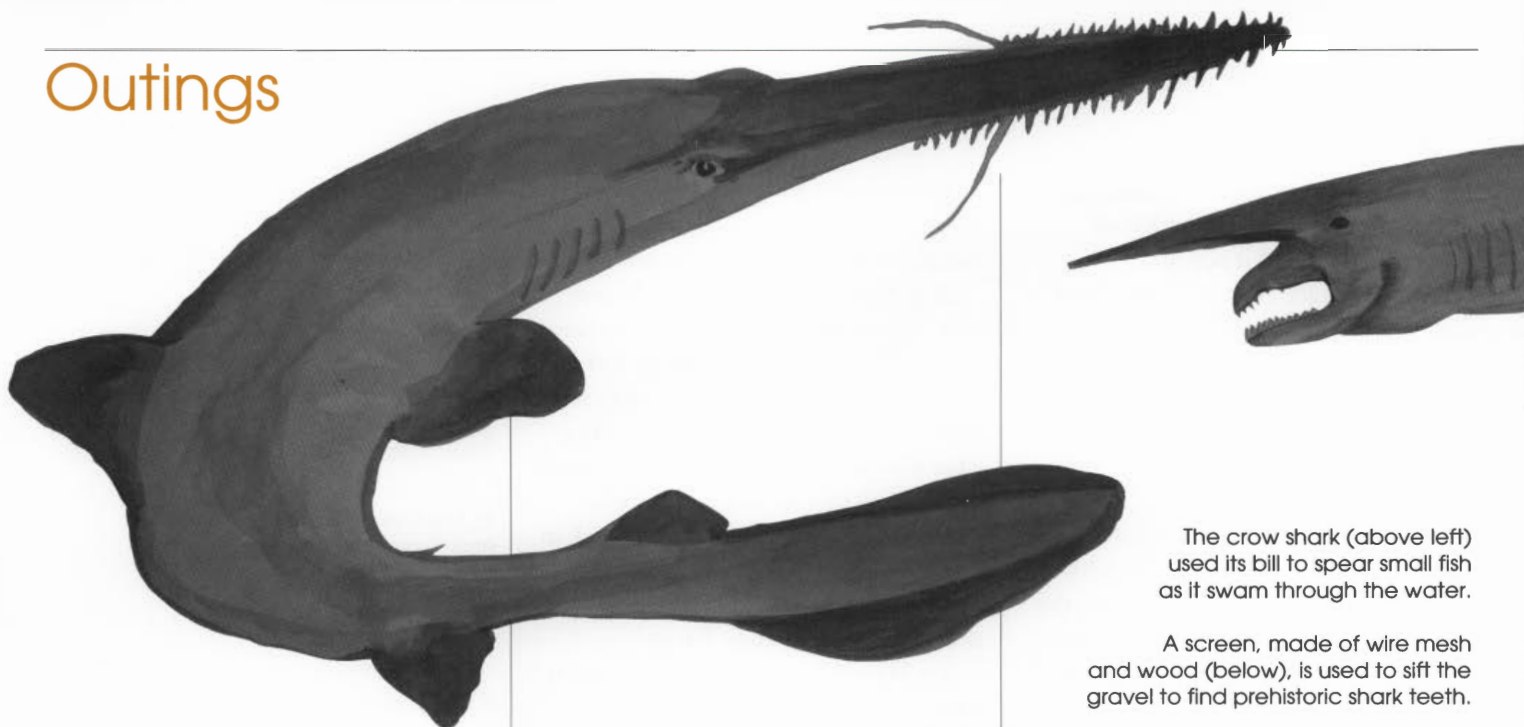
A path leads to the pond (far left).

Sylvia Taylor, (left) the family matriarch, chats with a visitor outside her home.

A footbridge (below) with benches overlooks the marsh area at the preserve.



LARRY MILLER, OFFICE OF NATURAL LANDS MANAGEMENT



The crow shark (above left) used its bill to spear small fish as it swam through the water.

A screen, made of wire mesh and wood (below), is used to sift the gravel to find prehistoric shark teeth.

## Prospecting for Prehistoric Shark Teeth

Imagine holding in the palm of your hand an original tooth from a creature that swam millions of years ago over what today is Monmouth County.

You can step back in time to a prehistoric era in an interesting weekend activity in Central New Jersey that can be enjoyed by the entire family at minimal expense. Hidden in the stream beds of several rivers are the teeth from shark species that have been extinct for millions of years.

Before humans roamed the earth, the Atlantic Ocean was once further inland, almost covering the current state capital of Trenton. Sharks ranging in size from six to 50 feet swam in the waters over New Jersey, eating plankton and fish along the way.

Teeth from species like goblin shark and crow shark, which have been extinct for more than 50 million years, can still be found today in many central and south Jersey locations. Streams in Monmouth County yield the majority of the teeth, some as old as 65 million years.

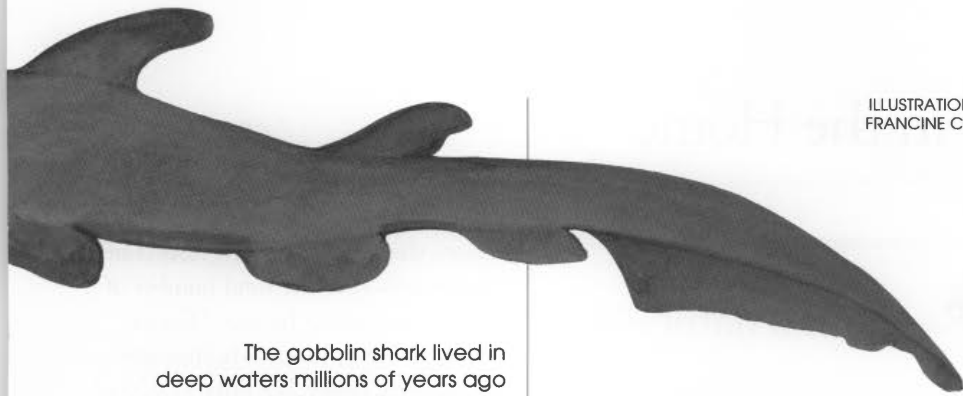


DON KAMIENSKI

The Big Brook area in upper Monmouth County has yielded teeth from eight species of shark, while along the Manasquan River to the south, 15 varieties of shark dentures have been found. At Shark River in central Monmouth County, a total of 16 different types of shark teeth have been found buried in the sandy bottom. The color of the shark teeth found at each location tends to be somewhat different be-

cause of the mineral content of the soil and streambed.

To gain access to these streams, get a copy of any road map of Monmouth County (e.g. Hagstrom's), which details the streets and roads that cross over the waterways. Permission may also be needed from private landowners adjacent to the creeks to dig in the streambeds, but in many cases, public access is readily available.



ILLUSTRATIONS BY  
FRANCINE CURTO

The goblin shark lived in deep waters millions of years ago over what is now New Jersey.

These prehistoric shark teeth (below), believed to be 45 million years old, were found in Monmouth County. They include (top row, l. to r.): white shark, sand tiger, white shark; (middle row, l. to r.) mako shark, crow shark, white shark; and (bottom row, l. to r.) goblin shark, cretolamna shark

Prior to your initial hunt for shark teeth, you should build a gravel sifting screen out of a 1/4-inch wire mesh nailed to a wood frame measuring 18 by 24 inches. If several members of the family expect to participate, two or three simple screens should be built, allowing people to work in pairs.

In addition to the sifting screens, other items needed include a long-handle shovel with a sharp point to dig in the gravel of the streambed, rubber boots for wading in the water, a container for collecting teeth and bug repellent.

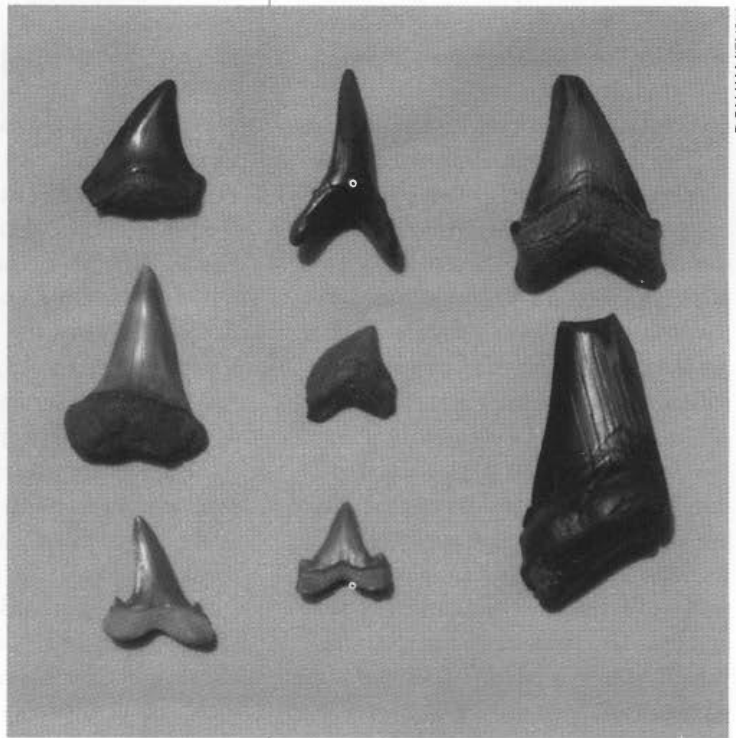
Usually the best time to find shark teeth is a day or two after a moderate rain when the water has washed some of the stream silt away. Often, shark teeth can be found just lying on the gravel bars that dot the stream. However, most shark teeth are found by sifting through the creek gravel. There is some manual effort involved here, but not much. Use the flowing water to float away most dirt and mud deposits.

To the untrained eye, a shark tooth lying in a sifting screen among pebbles of different sizes and colors may be difficult to spot. Most teeth will come to some sort of a point, and some have the pennant shape of a sail. Teeth range in color from gray to brown to tan. A day in the right location can yield a dozen or more of these prehistoric prizes.

After returning home from a prospecting trip, wash the shark teeth in a solution of warm water and dish-washing liquid. This will help remove most of the grime. Once dried, a thin coat of mineral oil will put a shine on the teeth so that they can be mounted in a display box. At this point, your shark teeth collection has started.

Collecting and trading prehistoric shark teeth is an inexpensive and enjoyable hobby which could prove interesting to all members of a family regardless of age. There are several books on the market which help to identify shark teeth in terms of their original owners. Several organizations involved in fossil collecting can also help with identification of teeth and provide tips on where and how to prospect. These include the New Jersey Paleontological

Sharks ranging in size from six to 50 feet swam in the waters over New Jersey, eating plankton and fish along the way.



DON KAMIENSKI

Society, P.O. Box 1000, Hewitt, NJ 07421; the Delaware Paleontological Society, Continental Station, P.O. Box 40235, Philadelphia, Pa. 19106-5235; and the New York Paleontological Society, P.O. Box 287, Planetarium Station, 127 W. 83rd St., New York, NY 10024.

by Don Kamienski, an outdoors writer and author who lives in Roebling

# The Invisible Danger in the Home

In 1992, a couple bought a home in the rolling countryside of Monmouth County after relocating from Minnesota. They had never before heard of radon, but it suddenly hit them right between the eyes.

A real estate agent suggested they test for the deadly gas. And in this cozy home, they found dangerous levels of cancer-causing radon.

But this couple was lucky. A mitigation system was installed in the house at a minimal cost, bringing the radon to safe levels. The couple are now new parents, and they have the security of knowing that their baby will not grow up in a home where a major health hazard exists.

This couple's real estate agent knew enough to inform them about radon. And now the state Department of Environmental Protection and Energy (DEPE) is working to ensure that other real estate professionals and the public are aware of this life-threatening gas.

Radon is a naturally occurring radioactive gas formed by decaying uranium that is found in soils everywhere. It is odorless, colorless, and tasteless and can enter buildings through cracks in the foundation, uncovered sump pumps, wall and floor joints and other openings, and become concentrated in the structure. Exposure to indoor radon gas is the second leading cause of lung cancer in the state and may contribute to several hundred deaths in New Jersey each year.

Radon can be detected and measured by a simple short-term test. There are also a number of very effective and low cost methods for reducing radon levels and preventing its entry into homes.

The problem of elevated indoor radon gas levels has been most commonly associated with the northwestern portion of the state, where the Reading Prong geological formation contains high levels of uranium. However, in re-

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Radon is a naturally occurring radioactive gas formed by decaying uranium that is found in soils everywhere. It is odorless, colorless, and tasteless.

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cent years, it has become apparent that the problem is more widespread. The DEPE's New Jersey Radon Program has found test results above four picocuries per liter of air — the level at which action is recommended by the federal government — in more than 5 percent of the homes tested in northern, central and southwestern New Jersey. A picocurie measures the amount of radiation released by the disintegration of radioactive atoms.

And although work has been done to identify areas with potentially high levels, there are no means available to predict for individual homes. Therefore, the state recommends that every home owner conduct an initial short-term test for radon.

Most radon testing — about 75 percent — is done at the time of a real estate transaction, according to records maintained by the DEPE. But despite the dangers of radon, most people are not opting for a radon test when buying their homes, says Bob Stern, chief of the DEPE's Bureau of Environmental Radiation.

"Even though we see this trend to test for radon during a real estate trans-

action, the number of such tests is small in comparison to the total number of single home sales," he says. "For example, in 1992, 123,000 homes were sold in New Jersey, but only 32,600 of them were tested for radon."

One reason, according to a survey by the Gallup Organization of home buyers and their real estate teams (real estate agents, attorneys and mortgage lenders), is that not enough radon information is getting out to the public at the time of real estate sales.

To help raise awareness of the radon problem for the real estate professions and the public, several groups such as the New Jersey Association of Realtors (NJAR), the New Jersey State Bar Association (NJSBA) and the Mortgage Bankers Association of New Jersey (MBANJ) volunteered to work with the DEPE Radon Program to develop informational materials on radon. They have been joined by participants from the United States Environmental Protection Agency (EPA), the New Jersey Public Interest Research Group (NJPIRG) and the American Association of Radon Scientists and Technologists (AARST).

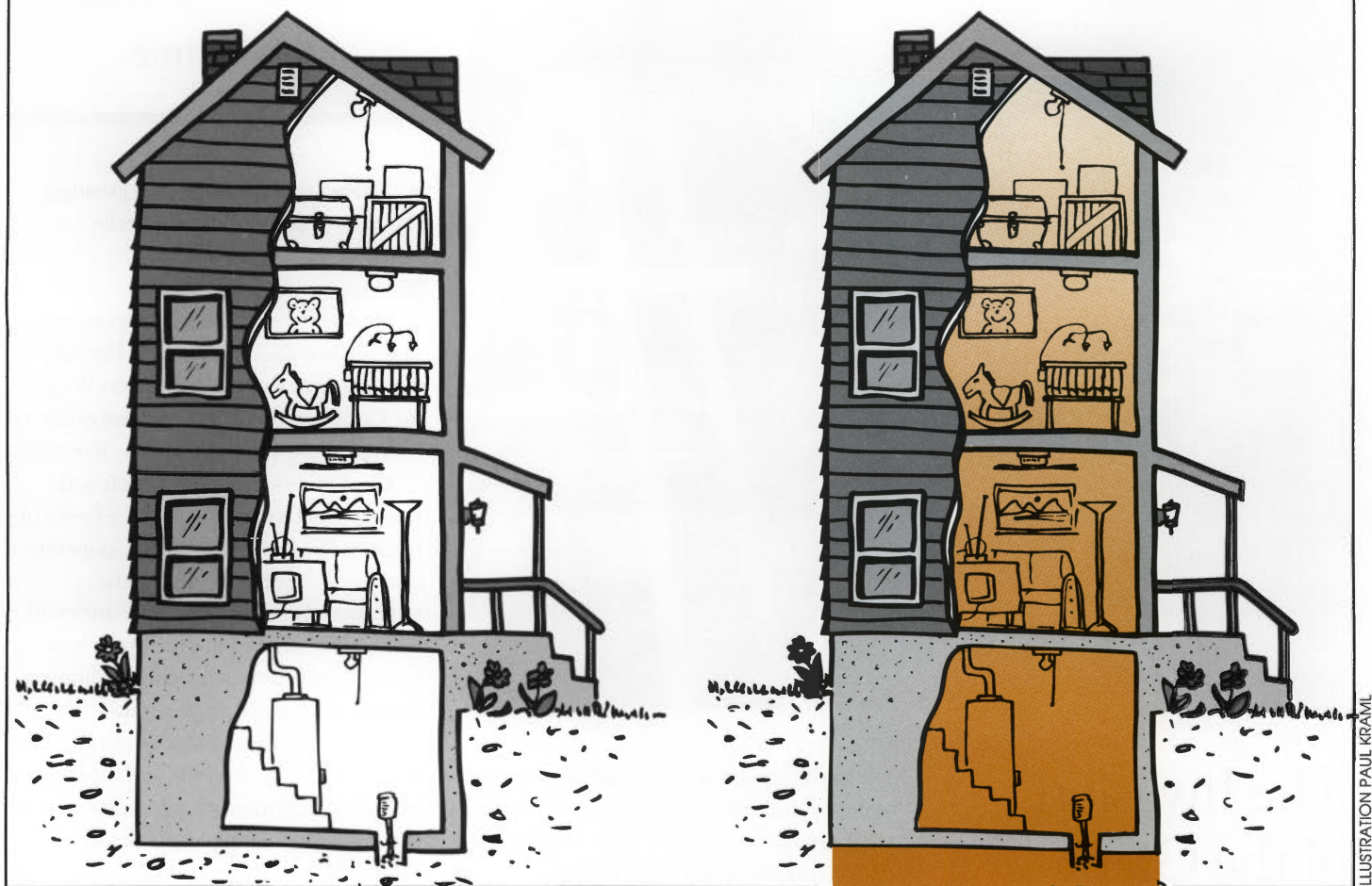
The first assignment on the group's agenda is the development of a one-page fact sheet on radon, which could alert prospective home buyers and sellers to the dangers of the gas and possible solutions. This fact sheet could be distributed by realtors and obtained through NJAR or the New Jersey Real Estate Commission. It could also be made available to attorneys for home sales conducted without a real estate agent.

"This information will be very useful because many of the environmental questions that the association receives are about radon," says Greg DeLozier, state legislative director for NJAR.

In addition to targeting the public,

This is what you see  
when a house has radon  
flowing through it.

This is what you'd see  
flowing through a house  
if radon were visible.



the working group also hopes to raise awareness among the members of the professions through educational and informational activities. A radon disclosure and contingency clause is also being drafted that could be included in contracts for home sales or leases.

"A priority for attorneys is to see that their clients have a contract that addresses all the pertinent issues — including radon — where appropriate," says Michael A. Casale, a consultant of the Real Property, Probate and Trust Law Section at the NJSBA.

Drew Kodjak, an environmental attorney for NJPIRG, would like to see tenants protected as well.

"Renters are just as apt to be exposed to elevated levels of radon as home owners and are equally deserving of protection from this health hazard," Kodjak says. "Therefore, lease agreements should also address the issue of radon testing and reduction."

If New Jersey is successful in its radon campaign, it could serve as a model for other states.

"Radon is a national problem which

all states must find a means to address," says Larainne Koehler, Radon Program Coordinator for the Radiation Branch at the EPA's Region II office in New York. "New Jersey's real estate working group could easily serve as a model for other states. The EPA is watching the work that is being accomplished here."

*by Barbara Sergeant, Jeanne Denes and Rick Rauch of the DEPE's Bureau of Environmental Radiation*



PHOTOS COURTESY OF MINNIE ZACCARIA

## The Invasion of the Giant Veggies

Minnie Zaccaria of Long Branch poses with the 1993 Great Tomato Weighing Contest winner — a nearly four and a half pound siamese twin specimen.

In the harvest season, vegetable stories often sound like “fish stories,” tall tales that are hard to believe. Take the story of Bill Krausse and his 1989 tomato.

Krausse, a North Brunswick backyard gardener, grew a tomato five years ago that was so large he had to cut one slice in quarters just to make a piece small enough to fit on a regular-sized slice of bread.

The tomato weighed five pounds.

Maybe you have a neighbor like Krausse, and you are tired of looking across the fence at giant vegetables that make your own produce seem puny. The experts — those who study horticulture and those who produce the whoppers in their own yards — say all that is needed is attention to the basics, with a few twists, and a lot of time.

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All that is needed is attention to the basics, with a few twists, and a lot of time.

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There are a few basics for growing the prize-winners. They include:

### ■ Proper Soil

“It was the soil; I always stress that,” says Minnie Zaccaria of Long Branch, who has won the Great Tomato Weighing Contest — one of the largest events of its kind in the United States — five times.

Gardeners should have their soil tested, says Barbara Bromley, a horticulturist at the Mercer County Cooperative Extension Agency. She says the extension agencies in each county will test soil for about \$8. Gardeners receive an analysis of their dirt and recommendations on how to improve it.

With the proper balance of minerals, water-draining materials and organic matter (green manure, peat moss and/or compost should make up 5 percent of the total soil), Bromley says, “the plants just jump out of the ground.”

“I throw all of my grass clippings in the garden,” say Krausse, who also won the tomato contest in 1980 with a four-pounder. He also says he places his bird feeder over the garden in the winter so the birds fertilize it automatically.

Dr. Stephen Reiners, a vegetable specialist at Rutgers University’s Cooperative Extension, recommends digging deep and fertilizing well when planting.

“Prepare the hole as if you were digging a hole for a tree,” he says.

In addition, fertilize the plants every week at twice the usual rate by using

solid fertilizer dug into the soil or by spraying it with a soluble product, Reiners adds. To minimize the potential for creating pollution that can occur when fertilizer runs off with rain or stormwater, make sure that fertilizer is applied properly.

### ■ Proper Watering

Zaccaria gives her plants plenty of water — one half gallon each per day if the soil is dry — and keeps the plants mulched to hold in the moisture. She counts water, along with good soil, sun and food as her four factors for success.

To help conserve water, gardeners should group vegetables species in zones according to their water needs and water each zone appropriately. Use spot watering, soaker hoses and trickle or mist water systems only on the areas of highest need.

Watering is best done in the morning before the heat of the day evaporates moisture. Avoid watering on windy days as much of the water will evaporate before it even gets to the plants. A rain collection barrel can also be used to minimize the garden's effect on the environment.

### ■ A Sunny Spot

"Like real estate, it's location, location, location," says Bromley, who recommends eight hours a day of full sun for best results.

Reiners also says foil on a nearby fence or wall could increase the light.

### ■ A Large Variety

Select plants that are known to bear larger fruits.

Zaccaria cross-breeds plants to produce seeds, while Krausse uses seeds collected from a long line of plants in his family.

Reiners says green peppers, squash and other vegetables all have certain varieties know to produce larger fruit.

### ■ Generous Spacing

It is also important to give plants room to grow and breathe.

To get a prize-winner, Reiners recommends doubling the normal distance between plants.

### ■ Competition Control

Fewer is often better when it comes to growing monster vegetables.

Zaccaria reduces her tomato plant to one or two stems each, then picks off smaller flowers. By the end of the season, her favorite plants have only one fruit each, a strategy Bromley says works well with most vegetable plants.

### ■ Control Pests and Disease

Insects and disease can kill or damage vegetables before they even get started. Reiners says to watch for symptoms and treat the infestation, preferably by using natural pesticides. Bacteria like *Bacillus thuringiensis* (Bt) can be used to control caterpillars, and Rotenone helps kills a wide variety of insects. In addition, some insects can be beneficial in a garden, including ladybugs, lacewing larvae and small wasps which kill aphids, caterpillars and other pests.

Perhaps the biggest surprise is not that home gardeners can produce mammoth vegetables in New Jersey, but that there is no magic involved — just time and attention to detail.

Krausse says one secret is what others refer to as "a green thumb," but it is really getting close to nature to "just understand when the plant needs something."

Zaccaria says others think she has good luck, not realizing the hours she spends outside in the summer caring for her prize plants.

"Your garden is a lot more forgiving for smaller vegetables," says Bromley.

*by Ellen Dean Wilson, a freelance writer who lives in Trenton*

## The Great Tomato Weigh-Off

One of the most famous vegetable contests in the country started as a way to sell more vodka.

Joe Heimbold, sales manager for a liquor distributor, began the Great Tomato Weighing Contest in 1978 because of the association of vodka and tomato juice for Bloody Marys.

Now retired, Heimbold still runs the contest with one of the largest prize money and most fame of any similar contest — \$1,000 to the winner and \$4,000 total in prizes. The 1993 winning tomato weighed almost four and a half pounds.

On the last Saturday of August, there are 50 weighing stations open statewide from 9 to 11 a.m. Most are sponsored by garden shops, with each local winner pocketing \$25 before traveling to the state finals.

Heimbold, of Monmouth County, says most tomato winners in recent years have been about four pounds. The seeds from the first-place winners are extracted and sold under the label, "Champs of New Jersey."

The contest, open only to New Jersey residents, will be held Aug. 27 this year, with the final judging held at Seaview Square Mall in Ocean Township.

For more information, contact Joe Heimbold at (908) 229-2395.



These tomatoes on the vine grew to more than four pounds.

## Treasure Hunting Beneath the Sand

As the sun rose behind the ocean, with puffy white clouds filling out the sky, it looked like a perfect day to enjoy my favorite sport. So, I grabbed my metal detector and hit the beach at Atlantic City.

It was 6:30 a.m., and I was the only person on the beach. By noon, there would be thousands. I began my treasure hunt at the water's edge. I heard a weak crackle in my earphones — probably some old ship nails. When I heard another weak signal, I was tempted to pass it by, but something told me to stop.

I started digging, deeper than usual, and then it came into view — a perfectly preserved World War II dog tag. Wiping away the crusty sand, I could easily read the name, Donald Kenny, a United States Navy serial number, a C (for Catholic,) AB (blood type) and the date 1942.

My thoughts turned to Donald Kenny. Did he survive? Was he alive?

A few days later, I wrote to the U.S. government for information on this WWII sailor. The letter I received back said he was from Ohio, last known address in Parma. Scanning the phone book, I found the address and dialed the number.

I was greeted by a woman, and when I told her the story of the dog tag, she was touched. Donald was her husband, and they were married in 1942. They spent their honeymoon in Atlantic City when Donald was home on leave, but sadly enough he was killed three years later when a Japanese plane struck his ship off the coast of Okinawa.

I sent the widow the dog tag the next day. Although this treasure was worth little in dollars and cents, it was the most valuable thing I have ever found with my detector.

### Pirate Treasures

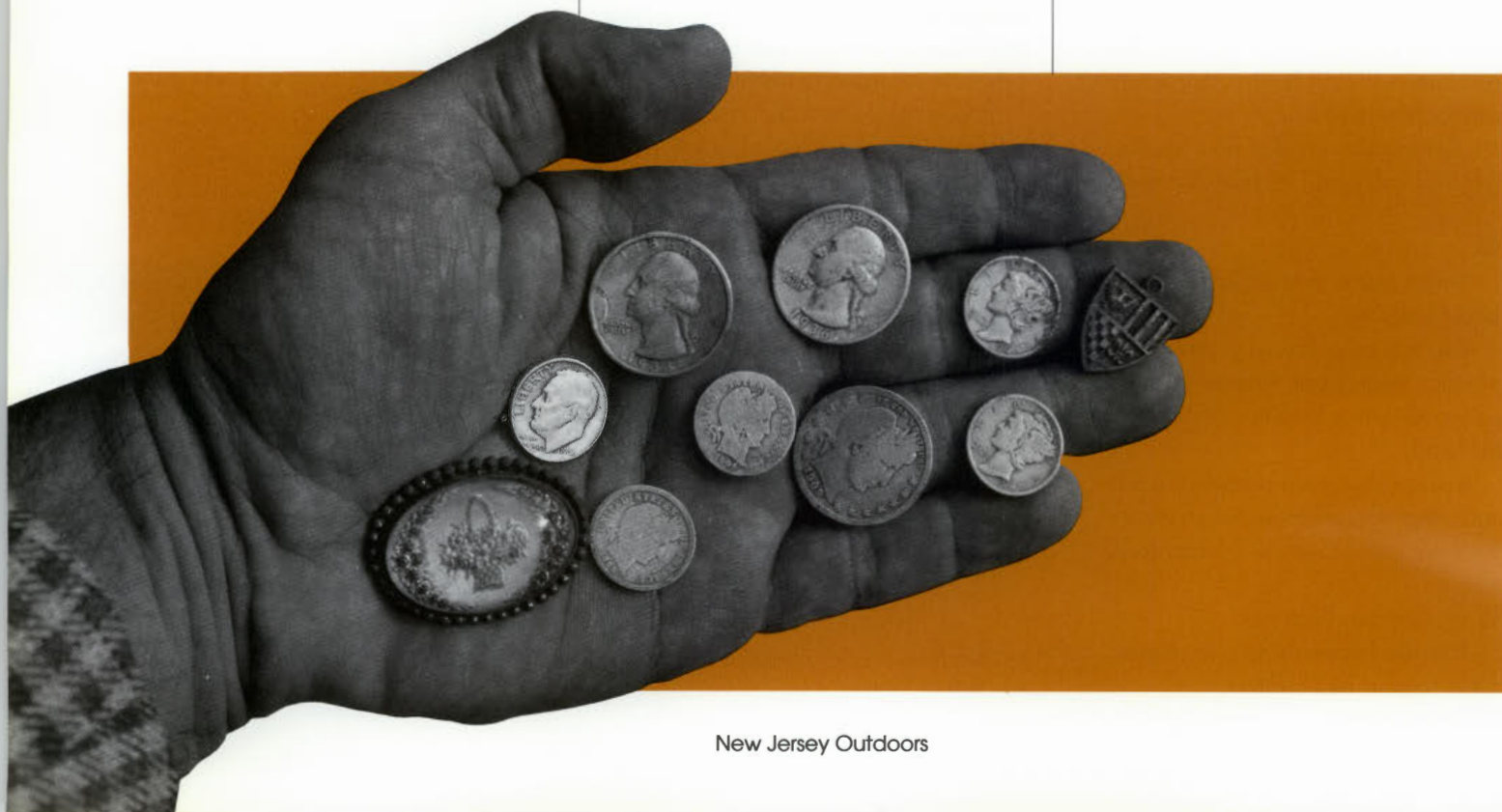
The Jersey coast has long been recorded as a place that once harbored pirates and renegades — particularly in the Atlantic City-Brigantine area. Although many adventurers are lured in to the sport of metal detecting by notions of finding long lost treasures,

those who scour the beaches generally settle for items of nominal or no value.

Many a time I have been called upon to find jewelry or lost keys that enable the owners to get home. Once I was approached to help an elderly couple find a family heirloom — an almost 100-year-old ring. But despite carefully working the beach for three days, the ring was found by a six-year-old armed only with a shovel and pail.

I love to spend hours at the beach and nearly always find enough coins to pay for my hot dog and soda. The best places for treasure hunting are beaches with high people traffic, especially those with boardwalks and amusement areas. The more people, the more items that can be lost. The best times to hunt are long weekends in the summer — Sunday evening and Monday mornings after the crowds have gone.

My favorite beach is Atlantic City in July and August when a large number of tourists come to visit the casinos. These tourists often make it a point to walk on the beach, where they are very prone to losing valuables like rings, watches, jewelry and coins. Morning hunting has



an added bonus when overnight tides wash ashore valuables lost at sea.

It is also great to search the beach after a severe storm when the churning ocean often dredges up sunken treasures.

### Sport for the Old and Young

Treasure hunting is a sport enjoyed by both the young and the old, male and female. It has grown immensely during the last 10 years, and the beaches in New Jersey have become a top attraction to many hunters, including those from out of state. Many vacationers split their time between sunbathing, sightseeing and treasure hunting.

A metal detector is truly an electronic marvel. It operates on the same principle as radar. The detector sends out an electronic beam and when it strikes a metal object, it will send a signal back to the control box which can be heard through a speaker or earphones. Some modern detectors are now so advanced that they can discriminate between so-called treasures and trash items, such as can tabs or bottle caps. Metal detectors range in price from about \$150 to as high as \$1,000. In

addition, a sand scoop can help retrieve treasures, and a good pair of earphones can assist in locating those valuables.

All New Jersey beaches are open to treasure hunting with the exception of Sandy Hook National Recreation Area. But many communities have their own regulations for treasure hunting, so it is best to check with your destination before you get to the beach. A general rule of thumb is that metal detector use

is permitted from sunrise to 9 a.m. or from about 6 p.m. to sunset.

So this summer, why not find a new way to enjoy the Jersey Shore. You never know what hidden treasures lurk just beneath the sand.

*by John A. Punola, an outdoors writer and author who lives in Madison*

These coins and metals (opposite page) were discovered during treasure hunting expeditions at the Jersey Shore.

The author, equipped with a metal detector and sand scoop, scours the beaches of Atlantic City in search of lost treasures.



PHOTOS BY JOHN A. PUNOLA



Bob Rutter  
whittles a  
decoy head in  
his workshop  
in West Creek.

# The Ancient Arts of the Baymen

*Text and photos by Tom McDonough*

John Cavelier has picked a tough way to make a living. A bayman like his father and grandfather, Cavelier clams the Great Bay, just north of Atlantic City. The hours can be long.

"One time, we were transplanting clams from the Manasquan River, and we had to get up at 4 a.m. to get there early," he says. By the time they transplanted the clams to his "farm" in the Great Bay, underwater fields staked off by wooden pole "markers" where the shellfish are prepared for harvest, it was 9 p.m.

"Then we had to get up the next morning at 3:30 a.m. to start over again," he adds.

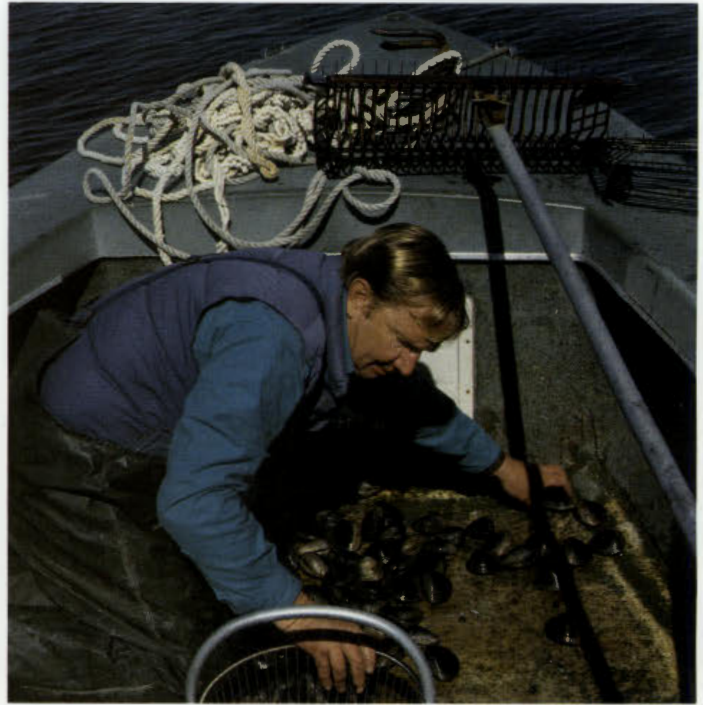
There is also the constant battle with Mother Nature and the weather. "I don't work in hard rain or snow anymore, but I used to," he says. "Yet sometimes you get out there, and you get snow squalls, and it gets snowing so hard you can't see. And I've broke ice for two miles to get to a hole so I could clam."

Cavelier is just one of many people along the Jersey Shore who still follows the traditional baymen's lifestyle. Others, such as decoy carvers Art Birdsall and Bob Rutter, and boat builders Gus Heinrichs and Tom Beaton, excel at the crafts the baymen developed to "harvest" fish and wildlife from the estuaries and tidal marshlands along the coast. Each of them helps to preserve a way of life that has made the Jersey Shore what it is today.

According to Tom Gormley, president of the Board of Trustees for the new Barnegat Bay Decoy and Baymen's Museum in Tuckerton, the baymen's life centered on doing whatever was necessary to earn a living from the coastal waterways. Baymen — and this *has* traditionally been a male vocation — raked and tonged for clams and oysters, speared and trapped eels, fished the waters, hunted the vast flocks of waterfowl migrating through the marshlands, trapped muskrats and snapping turtles and harvested salt hay, a type of cordgrass that was used as feed for animals, mulching and packing materials.

Their ingenuity and the area's isolation made baymen skilled in the crafts needed to make tools such as spears for eeling, rakes and tongs for clamming, decoys for duck hunting, and boats, such as garveys, sneakboxes and catboats, for sailing the waters.

"Cavelier, Birdsall and Heinrichs are this generation of the baymen," says Gormley. "They are continuing that lifestyle and hopefully will teach the next generation."



Bayman John Cavelier sorts oysters after raking them from the Great Bay. The rake used in his trade can be seen on the boat beside him.

## Farming the Bay

For Cavelier, the calling to become a bayman came quite early in life. "It was a summer job when I was a kid, but I took it up full time after I got out of the Coast Guard," he says.

He starts a typical day at first light when he's raking or tonging for clams. But that's not an absolute. "If you're working overboard, which means wading in a wet suit with a basket and tube, feeling the clams with your feet and picking them up with your hands, you work with the tide, which can be anytime during the day."

In raking for clams, Cavelier uses a Shinnecock rake — named after the Shinnecock Bay in Long Island — with a 2.5 foot wide bottom with 22 teeth and an aluminum telescope handle. "You drag the bottom for five to 10 minutes, and then you pull it up," he says.

Tongs work like huge blunt scissors, digging into the bottom of the bay where the clams lay buried.



A decoy on display at the Old Time Barnegat Bay Decoy and Gunning Show (top).

Art Birdsall cuts a block of white cedar on a band saw for use as the body of a duck (bottom).

While he's made a good living, Cavelier says, it isn't a life for someone who wants a steady paycheck. "There will be some days when it will blow too hard, it's just impossible to work. You've got to be able to manage your money well enough so that you don't go under when you don't work."

To help make ends meet, Cavelier is a duck hunting guide in the Brigantine Wildlife Refuge, and he has trapped muskrat and snapping turtle. "I've done a little bit of everything on the bay to make a living," he says.

## The "Wood" Duck

Duck hunting has traditionally been a popular sport along the shoreline of New Jersey, and it has given rise to another baymen's craft that has since transcended into an art form — decoy carving. As if by magic, baymen have developed the ability to take a plain block of white cedar and turn it into a canvasback or a black duck. Today, thousands of collectors around the country spend upwards of \$10 million annually on these treasured artifacts.

Sitting in the Lovelandtown Woodshop in Point Pleasant is a fourth generation decoy carver with a very appropriate name — Art Birdsall. Birdsall is a diminutive man with a full beard and long hair pulled back in a pony tail. The wood shop smells of freshly-cut cedar and is piled with sawdust thick as snowdrifts.

Birdsall explains that New Jersey carvers belong to the Barnegat school of carving, which mean their decoys have hollow bodies, often referred to as "dugouts."

"This makes them light so you can carry more, and it makes them more buoyant," he says.

Essentially, there are four steps in making a decoy — building a body, adding a head, sanding and finishing the decoy, and painting and attaching a ballast.

To build a body, the form of the duck is marked out on a block of cedar using a master template, and the block is cut in two on a band saw. Each half is hollowed out to a quarter inch, then roughly shaped with a short-handle hatchet. A variety of knives are used to carve away the rough edges on each half. The body halves are then glued and nailed together.

Then a head is whittled, doweled and nailed to the body.

Finally, the entire decoy is sanded and painted before a lead weight is attached to the bottom for ballast. The painting is impressionistic, not realistic, because the old time carvers just wanted their decoys to attract ducks into shooting range.

It really isn't a difficult process, according to Birdsall, citing an old carving axiom: "You carve away everything that doesn't look like a duck."

Aficionados of decoy carving can distinguish subregional styles among New Jersey carvers, says Bob Rutter of West Creek, who has been making decoys since he was 14 years old. "We carve in similar styles, but everybody's different."

For example, the Head of the Bay style from carvers at the

northern end of Barnegat Bay near Point Pleasant, features high tails with small knobs, rounded bottoms, tight eye grooves, and rectangular lead ballast pads. Rutter's decoys in the Barnegat style, which developed around Waretown, Barnegat and Forked River, have tails that are not so high, bottoms not so rounded and eye grooves less pronounced. Decoys from the Parkertown area feature low tails and flat heads, and the lead ballast is poured into a rectangular opening in the bottom.

"There are no rules in the decoy world," adds Birdsall, "except that you make them right and they hold water."

## The Devil's Coffin

While decoys have evolved into an art form, there is one device that remains central to the life of a bayman — his boat. He works in it, travels in it and races it. With such a strong personal and economic reliance on his boat, baymen have produced a wide range of vessels in backyard boat shops, such as sneakboxes, garveys and catboats.

At the end of Homestead Street in West Creek in a garage behind a white clapboard house, Gus Heinrichs is putting the finishing touches on one of his sneakboxes.

The sneakbox, known as the Devil's Coffin because of its looks, was invented in New Jersey in the early 1800s by Hazelton Seaman and is said to be the culmination of the bayman's knowledge of his environment — lightweight and low-decked — perfect for the shallow tidal waters of the bays. An old saying declares that a sneakbox can "follow a mule as it sweats up a dusty road."

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Baymen have produced a wide range of vessels in backyard boat shops, such as sneakboxes, garveys and catboats.

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Made of white cedar, it is 12 feet long and four feet wide with a spoon-shaped bow and melon-shaped hull. It has a cockpit to keep a clammer or duck hunter warm. It is equipped with many collapsible parts, including a folding mast and sails, folding oarlocks, removable decoy racks and a windshield to allow a low profile on the water. It can be camouflaged with vegetation from the bay and can even be equipped with runners to navigate over ice.

Heinrichs, who is the first recipient of the memorial award for boat building from the Philadelphia Maritime Museum and six-time blue ribbon sneakbox builder at the annual Barnegat Bay Decoy and Gunning Show in Tuckerton, follows traditional building methods with a few modern innovations. At a customer's request, he will coat the bottom of the boat with fiberglass and, instead of a mast and sails, his sneakboxes feature a removable headboard so outboard motors can be



Tom Beaton and Paul Smith work on the frame of an A-cat at Beaton's Boatyard in Mantoloking.

attached. "A hunter or clammer can run out and do his hunting and clamming and zoom back," he says.

It takes Heinrichs about 120 hours to complete a sneakbox, which costs about \$1,800. He usually builds two a year. "I don't rush my boat, and you won't get it until I get it the way I want," he says.

Among the finest craftsmen of sailing sneakboxes and catboats on the Jersey Shore is Beaton's Boatyard in Mantoloking, operated by the Beatons, a Scottish family who started the yard in the 1930s. Tom Beaton, a young soft-spoken man and a third generation boatbuilder, currently runs the yard.

"The sneakbox we build evolved out of the hunting tradition," he says. "As soon as you get two or three boats with sails, you start having races. Over a period of time, the races become more organized."

The sailing sneakbox is about three feet longer and a little wider than those built for hunting, Beaton says. His current project is building an A-cat, a racing yacht that he describes as a larger version of the sneakbox and a descendant of the baymen's working catboats which were used for charter, cargo and mail.

A-cats have a special place in the history of Barnegat Bay. A fleet of them, built around the 1920s and registered as historic landmarks, still competes for the oldest perpetual yacht racing cup in the United States — the Toms River Challenge Cup, which was first run in 1864.

The A-cat that Beaton is building — 28 feet long with a 50-foot mast made from white cedar, spruce and mahogany and equipped with 600 feet of sails — is only the second A-cat built in the United States in the last 70 years. The first was also built at Beaton's in 1980.

"These boats are the old boats unique to Barnegat Bay and the Jersey Shore," Beaton says. "It's important to continue to build them because if nobody does, they will just die out. I don't want to be the one to let something die that's been around for 100 years."

Fortunately, people seem to have a love affair with the sneakbox and the A-cat and that's why they come to Beaton and Heinrichs to build them. "They grow up with these boats. They are part of the Jersey Shore," says Beaton.

## On the Horizon

Whether Cavelier, Birdsall, Rutter, Heinrichs and Beaton can continue to preserve the baymen's traditions is another matter. For clammers, like Cavelier, times are tough. The clam harvest is down significantly, from about 1,500 clams a day to approximately 500.

"Normally, there are cycles when it's good, then bad, then good again," says John Maxwell, president of the New Jersey Shell Fisheries Association. "We have some real good years in the late '80s, but it's been on the slide since then to a point where clams and



Gus Heinrichs finishes a sneakbox in his workshop garage.

oysters are as poor as I've seen them since I've gotten into this."

Maxwell, owner of Maxwell's Shellfish in Port Republic, says there are several theories for the decline, including the change in water flow in Barnegat Bay due to dredging and unseasonably warm waters prior to this winter which failed to kill off organisms that harm clams.

The carvers and boatbuilders are faring better because decoys, sneakboxes and A-cats are still in demand, but the hard woods needed to make them, such as New Jersey white cedar, are becoming difficult to get. "There isn't big demands for those woods anymore, so they are not readily available," says Beaton, who has gone as far as Alaska for wood for his A-cat.

Despite the obstacles, each of these baymen wouldn't think of giving up what he is doing and will continue this unique lifestyle. "My great grandfather was into decoy carving, and it's been passed down in my family from generation to generation," says Rutter. "The kids today don't really know how things happened years ago. I think it's good for the kids to see how people used to live."

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

## Preserving the Barnegat Trades

The lifestyles and traditions of the baymen are celebrated in Tuckerton at the Barnegat Bay Decoy and Baymen's Museum and at the Old Time Barnegat Bay Decoy and Gunning Show.

The museum, located on Route 9 and Lakeside Drive, opened its doors in July 1993 and, to date, has had more than 6,000 visitors from 28 states.

It contains hundreds of artifacts portraying the baymen's life, including decoys, rustic clam rakes and eel gigs, a 1911-1912 logbook chronicling the daily life of bayman Jay Parker, and a 1895 sneakbox that was built by Josephus Seaman, son of Hazelton Seaman.

"But this is just the annex," explains Tom Gormley, president of the museum's board of trustees. "We built this to show everybody how serious we were and how much history there is here."

The museum is run by a non-profit organization, which hopes to raise \$2 mil-

lion to build a 9,500 square foot museum and interpretive center on a 10-acre site across the street from the annex. To date, they have raised \$150,000 in private donations for the project.

"We are talking about Mystic Seaport," says Gormley, comparing the site's potential to Connecticut's historic port restoration. "There will be 10 to 15 buildings featuring a boat shop, a blacksmith shop, a sawmill, a shipyard, a fish processing plant and a duck hunting shanty. They will be actual working sites."

The aim of the museum is not only to preserve the baymen's traditions, but to educate the public about their lifestyles. "We want to teach not only the next generation but generations after that what the baymen were all about," he says.

More than 38,000 visitors flocked to the Old Time Barnegat Bay Decoy and Gunning Show in Tuckerton in 1993 (below).

Josephus Seaman's sneakbox is the centerpiece of the Barnegat Bay Decoy and Baymen's Museum in Tuckerton (right).

The museum's current hours are 10 a.m. to 4:30 p.m., Wednesday through Sunday. Admission is \$2. Members and children under 12 are admitted free. For more information, call the museum at (609) 296-8868.

### Decoy and Gunning Show

Another attraction that features the baymen's crafts is the Old Time Barnegat Decoy and Gunning Show. It is held every September at Tip Seaman Park, the Pinelands Regional High School and the Pinelands Middle School. The two-day event features the work of some of the finest decoy carvers and outdoors painters from around the state as well as exhibits from such groups as the Pinelands Cultural Society, the N.J. State Police Marine Bureau, New Jersey

Waterfowlers, the U.S. Fish and Wildlife Service and the N.J. Division of Fish, Game and Wildlife. The show includes competitions in skeet shooting, duck and goose calling, working decoy patterns, sneakbox building and model boat building. There is also an art contest and a photo contest.

According to Mike Mangan of the Ocean County Parks Department which sponsors the show, it has grown tremendously over the years. "Last year's show saw 38,000 people attend, and there were over 4,000 exhibits," he says.

This year's show is scheduled for September 24 and 25. The hours will be from 8 a.m. to 5 p.m. Admission is free. For more information, call the Ocean County Parks Department at (609) 971-3085.



# The Many Faces of the Maurice River



PAT WITT

The Maurice River serves as an inspiration to many artists. This Pat Witt painting shows mud flats near the Delaware Bay.



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## The Maurice River is believed to be named after a Dutch ship reputed to have sunk in its waters in the 17th century and is pronounced locally as “Morris.”

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*by Jean Jones*

The Maurice River has been called one of South Jersey's best-kept secrets, but now that it has received national recognition, the secret is out.

In December 1993, President Bill Clinton signed legislation designating parts of the Maurice River and three of its tributaries — the Menantico, Manumuskin and Muskee creeks — as part of the National Wild and Historic Scenic Rivers System. This designation, along with a locally-developed management plan, will regulate future development along the river while preserving the traditional resources and uses of the waterway for future generations.

The Maurice River, believed to be named for a Dutch ship reputed to have sunk in its waters in the 17th century and pronounced locally as “Morris,” flows from a network of swamps, streams and lakes in Gloucester, Salem, Atlantic and Cumberland counties. It passes west of Vineland and empties in to the 898-acre Union Lake at Millville. South of the lake, the river becomes tidal, and its wooded shores are interspersed with areas of open marsh, high sandy bluffs and gravelly beaches before the rolling expanse of salt marsh takes over near the Delaware Bay, 14 miles south. Its channel is marked by the red-roofed East Point Light.

The Maurice is a haven for all kinds of outdoor activities. Anglers cast the waters for many species of game fish that make their home there; boats of all varieties skim its waters; wildlife and plants — including some endangered species — grace the landscape; and the towns on its banks are steeped in history. It is a place to discover and enjoy some of the best of what New Jersey has to offer.

## Fishing By Land or Sea

Union Lake was acquired by the Department of Environmental Protection and Energy's (DEPE's) Division of Fish, Game and Wildlife in 1982, and a new spillway, incorporating the state's largest fish ladder, was built at the Sharp Street dam. Annual runs of herring and other fish now spawn in Union Lake, providing more forage for resident populations of bass, catfish, pickerel and other species. Stocking and several artificial reefs have further enhanced fishing in the lake, already known as one of the area's best fishing holes.

(However, the DEPE recently issued an advisory against eating three species of fish caught in Union Lake, bass, pickerel and yellow bullhead, because elevated levels of mercury were found in some samples taken from the lake. See related story on page 56).

Downriver, anglers may find largemouth bass, striped bass, perch, eels, blue crabs and weakfish. In addition, shad are returning to the river.

Sturgeon also used to be common on the river and, once in a great while, one is still caught. The late Albert Reeves of Mauricetown was fond of recalling a sturgeon his brother caught on the Maurice 60 years ago. It had 80 pounds of roe, or caviar, which sold for \$4 a pound, a handsome sum in the early 1900s.

Boats of all kinds can be found here — from aluminum prams to yachts — but a boat is not necessary to fish the Maurice. The waterfront park at Mauricetown in Commercial Township and the parking lots at the opposite end of Mauricetown Bridge in Maurice River Township are popular fishing spots. The Main Street Bridge at Millville is also lined with anglers during the spring herring run.



PEGGY VARGAS

## The "Watermen" of the Maurice

Many commercial "watermen" make their living from the Maurice. A "waterman," a traditional term used for generations to describe the men who made their living from the Maurice, may be involved in commercial crabbing, net fishing, oystering, eeling or anything else that rounds out the seasons.

Port Norris is the home of the Delaware Bay oyster fleet, now idle because two protozoan parasites, MSX (*Haplosporidium nelsoni*) and Dermo (*Perkinsus marinus*), have decimated the oyster grounds by weakening and then killing the shellfish. Most of the old oyster schooners remain at dock.

MSX hit the bay with a vengeance in the late 1950s. Dermo showed up just a few years ago. Periodically, high oyster mortality from these parasites causes the closing of the state-owned oyster seed beds and the cancellation of the annual spring "Bay Season," when oysters are transplanted from seed beds to leased grounds for a later harvest.

Research is being conducted at the Haskin Shellfish Research Laboratory in Port Norris by Rutgers University's Institute of Marine and Coastal Sciences on both parasites, which are harmless to humans, to try and find a solution to the problem.

The oyster industry is currently being preserved in the Delaware Bay Schooner Project where the 1928 oyster schooner, the *A.J. Meerwald*, is being renovated to serve as a floating classroom to educate the public about the ecology and resources of the Delaware Bay.

In the meantime, numerous watermen make their headquarters in Bivalve and Shell Pile and, despite the lack of oysters, the docks are busy, and a few seafood processing plants still operate there.

Commercial crabbing is another important industry. Numerous piles of large, square commercial traps with bleach bottle buoys are visible in yards. Commercial crabbing is a mainstay for some watermen since the decline of the oyster industry. In fact, many in the oyster industry used to be farmers in the off-season, but farming too has changed, and the main crop is now soybeans instead of garden vegetables.

JANE MORTON GALETTI



People can also be found rowing on the river.

A railbirding boat, which is used to hunt sora rail, is poled through the shallow waters of the Maurice at sunset.



DONALD L. FAUERBACH

## A Boating Bonanza

In addition to commercial fishing boats, another unique water craft can be seen on the river in the fall. The traditional sport of railbirding is still pursued here, and guides can be hired to pole the shallow boats through the high stands of reeds in search of the elusive sora rail. Legend has it that Teddy Roosevelt hunted railbirds at Port Elizabeth, where the railbirds were so numerous that one man could kill 50 before returning to pick them up.

Canoeing is also popular in the upper Maurice and Union Lake, and the colorful sails of craft from the Union Lake Sailing Club appear in summer, with the bluffs on the west side of the lake providing a striking backdrop.

Water skiers skim the wider stretches of the river in warmer weather, competing with anglers and pleasure boaters for space on some of the narrower reaches. Some residents worry that the river may already have reached its carrying capacity in terms of recreation.

A great blue heron.



ROBERT T. ZAPPALORTI

An aerial view of the Manumuskin River in Maurice River Township.



JANE MORTON GALETTI

## Nature's Bounty

Nature lovers can also enjoy the river's bounties along its banks.

The National Lands Trust has acquired the 197-acre Peek Property just below the Fowser Road boat ramp in South Millville, where it plans to rebuild the dock and establish nature trails.

The 12,000-acre Edward G. Bevan Wildlife Management Area touches the river briefly at Buckshutem, and the DEPE manages the 5,700-acre Heislerville Wildlife Management Area near the river's mouth.

The immense variety of habitat along the river hosts an equal diversity of wildlife. Deer herds are found along the whole length. Small game abounds, an occasional beaver is found on the upper Maurice, and increasing numbers of river otters are being seen frolicking in the water. Game birds are abundant, and trappers still seek muskrats, which build their dome-shaped houses in the marshes.

The river's fish provide a feast not only for anglers and otters, but for 10 families of osprey which nest along its banks and for the bald eagles which hunt the entire river. During the 1994 wintering eagle count, ornithologist Clay Sutton of Herpetological Associates saw up to seven eagles at once, and a total of 16 individuals were counted during the two-day tally sponsored by the Division of Fish, Game and Wildlife's Endangered and Nongame Species Program.

For birdwatchers, the Maurice is also a bonanza. From the interior forest dwellers of the upper river to the birds of field and marsh down river and shorebirds at its mouth, feathered creatures abound. The spring shorebird migration, when horseshoe crabs lay their eggs on Delaware Bay beaches and shorebirds gather by the thousands to feed on them, is legendary. A colony of bank swallows has made its home in one of the sand bluffs south of Millville, and the broad marshes draw raptors in search of prey, especially in the winter.

In the summer, the marshes become a shaggy carpet of green, striped with ribbons of silver and dotted with white egrets. All of Cumberland County has been recognized in recent years as one of the state's best birding areas.

Even the plants of the Maurice River area are special. The endangered swamp pink is found here, along with the Parker's pipwort and the world's largest stand of sensitive joint vetch, located on the pristine Manumuskin near its confluence with the Maurice River. The swamp pink is a striking plant, with a globe of tiny pink flowers which appear in early spring.

The state's largest stand of wild rice starts just north of Mauricetown Bridge. Wild rice is the drawing card which attracts thousands of wintering waterfowl to the area each year, including one of the largest concentrations of black ducks in the state.

The DEPE recently received \$2.3 million in federal grants, which will be matched with \$4.4 million in contributions from public and private agencies, to purchase land and restore beaches along the river. Among the contributors are the Green Acres Program, New Jersey Natural Lands Trust, the New Jersey Waterfowl Stamp Program, the Nature Conservancy and Natural Lands Trust (Pa.).

## A Historical Haven

The area is also rich in history.

Mauricetown, perched on a high knoll with its white church steeples dominating the town, resembles a New England fishing village. Once a busy port for the coastal trade, schooners sailed from Mauricetown to destinations ranging from New England to the West Indies and up the Delaware River to Philadelphia. The village's major business now is antique shops.

Mauricetown is one of several picturesque villages which line the Maurice River, although not all can be seen from the river itself.

Port Elizabeth, founded in 1782 by Quaker Elizabeth Bodly, is another small community with no hint of its former importance. Designated a port of delivery for U.S. Customs in 1789, it too was a trading center but faded when it lost out to Bridgeton as the location of the county's first bank in 1816. Many attractive old homes remain here and in the villages of Dorchester, Leesburg and Heislerville.

Shipyards used to line the river, but Dorchester has the only remaining facility which builds as well as repairs boats. Penny Hill boat yard at Dorchester still makes major repairs and Silverton Marina, at Millville, manufactures sleek new boats for the recreational trade.

Shipyards were historically important to the Maurice River. It always has been a working river, and so it remains.

A young osprey.



JANE MORTON GALETTI

Beautiful homes and rustic docks dot the Maurice River, a subtle reminder of the river's nautical history.



ROBERT T. ZAPPALORTI

## The Farming Life

The Maurice also supports a rich farming industry. Almost all the river's banks once were diked and farmed, but today only one diked farm remains, operated by sisters Janice and Jeanette Burcham near Menantico Creek. The sisters raise vegetables and a flock of sheep, which graze in a meadow lower than the Maurice at high tide.

Chickens, geese and ducks roam at will in the yard surrounding the sturdy brick house built by the sisters' grandfather, Amaziah Burcham, who came here from Massachusetts after the Civil War to establish a farm and brickyard. The house is built of Burcham bricks, as are the older sections of many stores lining High Street in Millville.

Native Americans also made their home along the bountiful water. Although there is no evidence that they farmed, Native Americans once camped along the river's shores and harvested shellfish along the bay. Shell middens, where they processed shellfish, still can be found on the marshes. Their stone tools, projectile points and potsherds also give mute evidence to thousands of years of use of the river before Europeans settled here.

There is a realization now that the Maurice River is a special treasure. Citizens United to Protect the Maurice River and Its Tributaries, a nonprofit watershed organization, has worked tirelessly to carry the message that preservation can coexist with economic use and to promote the Wild and Scenic designation.

Hopefully, future generations will recognize the importance of their legacy and will continue to protect one of the cleanest and most unspoiled watersheds in South Jersey.

*Jean Jones is a freelance writer and a reporter for the Evening News Co.*



A windowbox at the Carriage House (above).

The Perennial Garden (opposite page).

# Skylands — A Botanical Treasure

*Photographed by Walter Choroszewski*

Nestled in the Ramapo Mountains is a natural treasure, sculpted by human hands.

The New Jersey State Botanical Garden at Skylands in Ringwood State Park is 96 acres of manicured gardens, majestic buildings and rustic retreats. It was originally developed in the late 1800s as the country estate of Francis Lynde Stetson, a prominent New York lawyer and trustee of the New York Botanical Garden.

It was sold in 1922 to Clarence McKenzie Lewis,

an investment banker and also a trustee of the New York Botanical Garden. He set out to make the estate a botanical showplace, importing plants from all over the world. He also commissioned distinguished American architect John Russell Pope to build the Tudor Revival mansion that serves as the centerpiece of the grounds.

In 1953, the estate was sold to Shelton College and in 1966 it was purchased by the state of New Jersey. Today it serves as an inspiration to home gardeners, bota-

nists, landscape designers, architects, historians, photographers, painters, hikers, geologists, animal lovers and bird watchers.

Skylands was designated the New Jersey State Botanical Garden in 1984. It has about 5,000 different kinds of plants, including several species unique to the estate — a golden form of oriental spruce, a dwarf, purple iris and the “Skylands Giant,” a climbing hydrangea.

In addition to the magnificent mansion, Skylands features 10 different displays, including

an annual garden, a sweeping crab apple allee, a perennial border, a lilac garden, a peony garden, a summer garden, an azalea garden, a magnolia walk, an octagonal garden and a winter garden.

Skylands, which is open to the public year-round, is a place of beauty in any season. It is also in close proximity to Ringwood Manor, an equally exquisite estate. For more information, call Skylands in Ringwood State Park at (201) 962-7031 or the Skylands Association at (201) 962-7527.









The Perennial Garden (above).

The Annual Garden (right).

These are among the 5,000 species of plants at the New Jersey State Botanical Garden at Skylands (opposite page).







by  
Frances  
Ann Burns  
and Robert  
T. Zappalorti

Three of New Jersey's rarest snakes make their home in the southeastern part of the state, but development, collectors and even the lack of periodic forest fires threaten to drive them to extinction.

The endangered corn snake (*Elaphe gutiata*), the threatened northern pine snake (*Pituophis melanoleucus*) and the endangered timber rattlesnake (*Crotalus horridus horridus*) can be found in the Pine Barrens and surrounding areas. The region with its downed logs, brush piles, dense vegetation, low-lying swamps and meandering streams, provides a good habitat for the secretive creatures. But that habitat — and the snakes — are disappearing.

These snakes have been retreating in recent decades before a wave of retirement communities. New roads and increased traffic in the Pine Barrens create a hazard in the terrain.

The suppression of fires also destroys their habitat because the snakes prefer mixed pine and oak forests to the stands of mature oak trees that take over when the Pinelands do not undergo periodic fires.

And illegal collectors are plucking these rare specimens from their dens because of their ability to adapt well in captivity or for the thrill of owning a poisonous snake.

Public and private organizations are mounting a campaign to save these rare snakes and other unique species that live in the Pine Barrens. And in doing so, they have learned a lot about these fascinating reptiles.

## The Timber Rattlesnake

The timber rattlesnake is found in the Pine Barrens, but it has a wider range including the Kittatinny Ridge and other rocky areas along the New York State border as far east as western Bergen County. Randy Stechert, a Midland Park herpetologist who is surveying northern New Jersey's rattlesnake dens for the Department of Environmental Protection and Energy (DEPE), believes there are no more than 1,200 to 1,700 members of this

PHOTOS BY ROBERT T. ZAPPALORTI



The non-venomous northern scarlet snake (opposite page) mimics the colors of the deadly coral snake.

The northern timber rattlesnake (above) can be found in the Pine Barrens and northern New Jersey.

interesting and beneficial species left in the state.

The venomous timber rattlesnake, known for its distinctive rattles on the tail that serve as a warning signal, has a diamond-shaped head. It ranges in color from tan to yellow with black or brown stripes or "saddles."

Pine Barren rattlesnakes hibernate in cavities among the roots in cedar swamps or along the banks of the region's slow-moving streams. In the summer, they head for dry uplands.

Many people do not realize that all snakes, even venomous ones, will retreat or try to fade into the background when approached, only attacking if they are cornered or taken by surprise. Killing any wild snakes or capturing them without a permit is illegal in New Jersey. Permits are generally given to bona fide researchers and to college teachers who agree to release captives after short stays in the classroom or laboratory.

Many snakes live in populated areas and are often spotted during the spring after they emerge from hibernation and go in search of food. Mike Valent of the northern office of the Division of Fish, Game and Wildlife's Endangered and Nongame Species Program says his telephone rings off the hook in the spring with frightened callers reporting copperheads. Most prove to be harmless species like the eastern milk snake and even the common garter snake.

A corn snake (top) suns itself on a tree branch.

The corn snake (bottom) is at the northern limit of its range in the Pine Barrens.



## Prowling for Pinelands Snakes

The threatened and endangered species in the Pine Barrens, on the other hand, are rarely seen. The northern pine snake, which can grow up to six feet long, is generally white or gray with black, brown or maroon patches. The corn snake, which is also known as the red rat snake, has red or orange markings. Both snakes are at the northern limits of their range in the Pine Barrens and are found as far south as Florida.

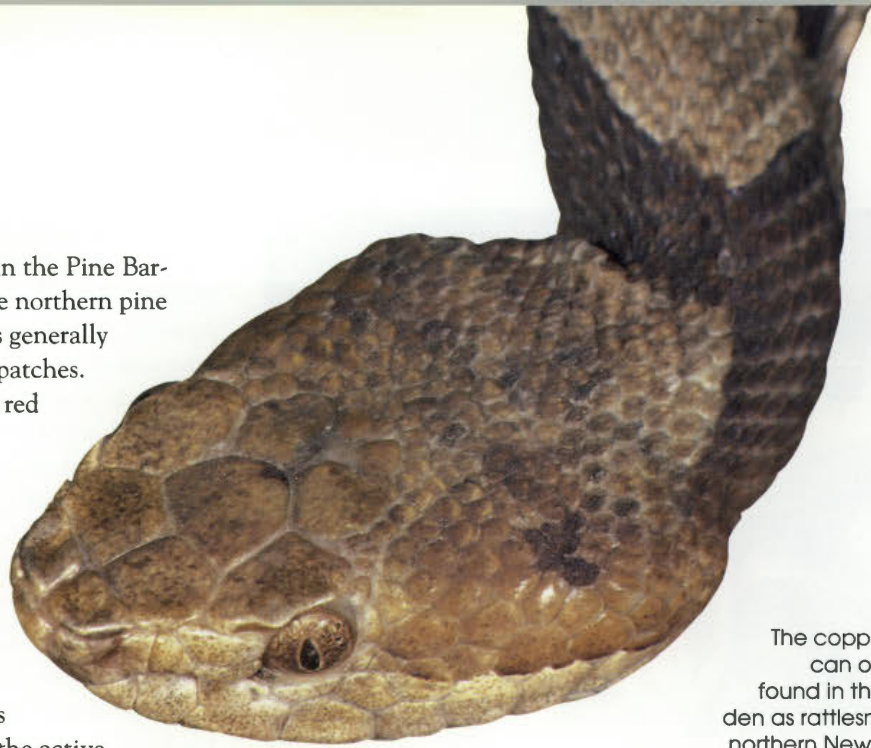
Herpetological Associates Inc. (HA) has done recent surveys of pine, corn and rattlesnakes in the Pine Barrens — some of them for the Endangered and Nongame Species Program — using radio transmitters placed under the skin to track them during the active summer season, as well as to find the denning sites used for winter hibernation and the nesting areas used by the egg-laying pine and corn snakes. The company has also experimented with breeding corn snakes in the laboratory and releasing the young snakes in protected DEPE management areas in Ocean and Burlington counties.

Species like the pine and corn snake that are picky about their habitat are more at risk than those that can live anywhere from a vacant lot in the city to the deep woods. Corn snakes have become so rare in New Jersey that the loss of a single good nesting site to development or its picking over by collectors threatens the species' survival in the state.

## The Corn Snake

The corn snake's unique markings make it attractive to collectors. Docile and easily handled, the snake has been known to live up to 21 years in zoos.

A pine snake emerges from its egg.



The copperhead can often be found in the same den as rattlesnakes in northern New Jersey.

Corn snakes were once found in Atlantic, Cumberland, Burlington and Ocean counties. But HA's 10-year survey failed to find any specimens in Atlantic County, and none has been sighted in the Lakewood area of Ocean County for more than 25 years.

Like many reptiles, corn snakes switch their habits as temperatures rise, becoming active at night during the hot summer months. Females seek open sunny nesting areas with rotten logs or brush piles to provide sheltered holes for their eggs. Once they lay their eggs in June, their maternal duties are over, and the young snakes that emerge a few weeks later are on their own.

## The Northern Pine Snake

The northern pine snake once ranged even more widely in New Jersey than the corn snake, from Cape May County to southern Monmouth County and as far west as the eastern portions of Camden and Gloucester counties. But the snake has disappeared from coastal areas and the western part of its range.

While the pine snake is the second largest snake species in New Jersey and is active during the day, it can be hard to spot. Mike Catania, executive director of the New Jersey field office of the Nature Conservancy, says that he lived for years in the Pine Barrens without seeing one.

Most of the pine snakes captured by HA were spotted crawling across sand roads or railroad beds or hiding under logs. Snakes tracked by radio transmitters were found deep in the upland woods, although some were also located in low-lying swampy areas.

The survey found that individual pine snakes roam within a small area, returning to a favored shelter like a hollow log, stump hole or brush pile when they are not hunting. Like corn snakes, pine snakes tend to stay within 1,800 feet of a permanent source of water, both to satisfy their own thirst and because the water attracts the small mammals they prey upon.



The northern pine snake is the second largest of the snake species in New Jersey.

Pregnant pine snakes excavate nesting burrows in sandy soil, using their snouts to push sand from side to side and their bodies to force sand out of the hole.

Snakes, like many animals, are creatures of habit. Yearlings preparing for their first winter will often find a hibernating site by following the scent trail of an adult of the same species to a den. The young snake becomes patterned on that den. Armed with this instinctive information, pine and corn snakes return to the same nesting areas from year to year, and some burrows appear to get more than one use, either by those who have made it or by different snakes.

## The Scarlet Snake

HA has also surveyed one of New Jersey's least-known snakes, the beautiful and secretive northern scarlet snake (*Cemphora coccinea copei*). The snake, also known as the false coral snake, is one of many in the United States that imitates the coloring and banded pattern of the deadly coral snake, a species not found in New Jersey. Scarlet snakes have broad red bands on their backs, bordered with black and separated by narrow yellow or off-white bands. Coral snakes' red bands are yellow-bordered and an old Boy Scout rhyme instructs, "Red, yellow, kill a fellow. Red, black, venom lack."

The first reliable report of the scarlet snake in New Jersey was not made until 1935, when two young snakes found in the Pine Barrens were identified by the late Carl Kauffield of the Staten Island Zoo in New York.

The scarlet snakes, active at night, spend much of their time beneath the surface. Legendary Pine Barrens hunter Ace Pittman found the first specimens in a "cell six feet underground." Scarlet snakes have also been spotted crossing roads late on warm rainy nights, found under old railroad ties and plowed up by farmers.

The HA survey found 412 specimens or reliable reports of scarlet snake sightings since Pittman's discovery, most from Burlington and Cumberland counties with a scattering from Atlantic, Camden and Gloucester counties. Like corn and pine snakes, the scarlet snakes prefer well-drained areas in the Pinelands. Their favorite food is the eggs of other reptiles, especially those of turtles.

The scarlet snake's status in New Jersey is undetermined because so little is still known of its range or population.

## Preserving Habitat

Many of New Jersey's endangered and threatened snakes are being helped through the preservation of open land and wetlands in the Pine Barrens.

In addition, the DEPE's Division of Fish, Game and Wildlife has begun mapping pine snake habitats in Burlington County, building on HA's work. DEPE Senior Zoologist Dave Jenkins says the project will be expanded to the rest of the Pine Barrens in the future. The state is also working on an atlas of reptiles and amphibians living in New Jersey.

The pine snake survey may find areas where habitat management may be useful, including building artificial hibernaculum and selective cutting of oak trees. Jenkins says stricter enforcement of the Pineland Protection Act and other regulations could also help the pine snakes.

"The New Jersey population (of pine snakes) is very separated or disjunct from other populations," says Jenkins, adding that the nearest pine snake population outside the Pine Barrens is in western Virginia. "Therefore, it makes them very vulnerable."

Among the recommendations for helping the state's rare snake species, building up their numbers and returning them to areas they once inhabited are:

■ **Selective Cutting and Controlled Burns.** Selective cutting of oak trees or controlled burnings in pine and corn snake habitats in the Pine Barrens would preserve the historic balance that existed when those areas were regularly swept by fire. The fires interrupted the natural succession of hardwood trees shading out the pines, which gave the area its name and its distinctive array of special plants and animals.

■ **Public Education.** Public education on the harm done by illegal collecting, off-road vehicles and habitat disruption would deter those who are concerned about the preservation of plants and animals. Stepped-up enforcement, including increased patrols in nesting and denning areas, might cut down on outlaw collectors. HA has often found the nesting areas only after the collectors have stripped them, leaving a trail of overturned logs in their wake.

Rattlesnakes could also use a public relations program to

# Rattling in the Woods of North Jersey

There is an old maxim that the only dangerous rattlesnakes are the ones you do not see.

Mike Valent of the northern office of the Division of Fish, Game and Wildlife's Endangered and Nongame Species Program says he once received a series of calls from a Passaic County woman who shared her backyard for several days with a four-foot timber rattlesnake. She used a broom to shoo the snake out of the way when she needed

to work in her yard.

"She would sweep the snake out of the way, hang some clothes, move down the line and then sweep it out of the way again," Valent says.

Not all rattlesnakes would be this docile when being swept away. The division recommends that people avoid handling or disturbing rattlesnakes in the wild, both for their own protection as well as that of the animal.

In the northern part of the state, there is a small population of rattlers. Rattlesnakes hibernate in communal dens in the rocks, often sharing space with copperheads and non-poisonous

black rat snakes. The live-bearing females do not need to find nesting spots, but they are vulnerable to those who would capture or kill them as they bask on sunny rock ledges.

Midland Park herpetologist Randy Stechert, who believes he has identified 95 percent of the rattlesnake dens in northern New Jersey, describes his search as fascinating detective work. He makes local inquiries and searches for snakes, eventually zeroing in on the den. While he reports his find to the Endangered and Nongame Species Program, the locations are kept from the pub-

lic to protect the snakes.

Rattlesnakes have also suffered from collectors. Stechert calls them "geeks" who show off by keeping venomous snakes in the home or wearing rattlesnake skins as hat bands. One notorious outlaw collector released three captured rattlesnakes in a Bergen County apartment to terrorize the occupant.

While the rattler has a reputation as a vicious biter, in reality it has a placid temperament, attacking only when cornered. Like other snakes, it plays an important role in the balance of nature, eating small rodents that might otherwise become pests.

teach people about their placid nature. Education is the key to changing public opinion on snakes in general and timber rattlesnakes in particular.

■ **Artificial Dens.** Pine and corn snakes would also benefit from the creation of artificial hibernaculum or "denning mounds," neighbored by brush piles to provide hiding places for the small mammals they eat, including the white-footed mouse and red squirrel. A few Pine Barrens landowners have already agreed to create snake habitat, and others have accidentally done so by dumping mounds of brush and other refuse cleared from building sites.

An artificial corn snake hibernaculum would consist of a

An artificial pine snake nest with eggs.



sand mound six-feet-high with tree branches and stumps mixed in. The hibernaculum would also extend six feet below the ground surface with railroad ties, stumps and tree trunks used to provide burrows. Gradual-sloping, three-inch pipes set with their opening facing the four compass points would allow the snakes to leave the artificial refuge.

■ **Captive Breeding Programs.** Corn snakes can also be bred in the laboratory or in large outdoor pens. Between 1982 and 1986, HA released 142 captive-bred snakes hatched at its headquarters in Ocean County and at Trenton State College.

■ **Habitat Preservation.** The state and private groups like the New Jersey Audubon Society, the New Jersey Conservation Foundation and the Nature Conservancy could also acquire more natural tracts containing key snake denning and nesting areas, especially ones bordering land that is already protected.

Snakes are important to protect in the Pine Barrens and other regions because they are among the predators that help to keep rodent populations in check. They also provide a good gauge for the health of the planet.

"These rare snakes, like other endangered species, are indicators of the relative health of our environment," says Catania. "If they are having problems surviving now, humans will have problems surviving in the near future. That is why it is important to protect them now."

*Frances Ann Burns, former New Jersey state editor for United Press International, is a freelance writer who lives in Trenton. Robert T. Zappalorti is executive director and president of Herpetological Associates Inc., a plant and animal consulting firm in Forked River.*

Get Ready  
To Go...



CORNELIUS HOGENBIRK

# RIDING THE WIND

by Judy Finman

Wind surfing pits a man against the elements in Barnegat Bay (above).

In summer, you see the sails in New Jersey waters, skimming along at high speeds like brightly colored, transparent shark fins chasing the wind. Harnessed to each is a lone sailor, who dips and turns in a kind of ritualistic water dance, sometimes mastering the frisky beast, sometimes spilling over into the deep.

This is wind surfing, the world's fastest growing water sport, and a three-season pastime in New Jersey's lakes, reservoirs, bays and ocean. Also known as sailboarding or board sailing, it lures adventurers from ages 10 to 80. You can enjoy it as a competitive performance sport, a family or group activity or a Zen-like private experience.

Board sailors liken their sport to sailing — surfing under the power of a sail, using the wind to accelerate the board through the water. But it costs only a fraction of owning and sailing a boat, with none of the transportation hassles. You stow the approximately 45-pound gear on top of your car, and off you go to catch the wind.

John Wood of Princeton sailed small boats for 40 years. "I noticed that the people who were wind surfing were having more fun than I was and were going faster," he says.

So in 1991, while vacationing in Florida, he got a coach to teach him the intriguing sport. In no time he abandoned boat for board. His wife Kate, who didn't sail, has also become a "board head," as the sport's aficionados are called.

"We're fanatics," says John Wood. "We'd be very tempted to wind surf every day if the wind was good."

To get started in the sport, you should get a professional coach. Taking lessons from a friend or relative can be risky since you need to learn safety skills and sailing techniques.

"While we're teaching, we see family and friends teaching others," says Terry Deakyne, owner of Long Beach Island Surf and Sail in Brant Beach. "A lot of people get discouraged; they've been on the board for a couple of hours and have fallen. (So) they come to see us. We teach you to use your body weight for leverage instead of your muscles and to get balance on the board for stability."

Perhaps the most persistent misconception about wind surfing is that you have to be Herculean to pull yourself up on the board and to pull the sail out of the water.

"If I can do it, anyone can do it," says David Woodley of Media, Pennsylvania, who heads the Delaware Valley Board Sailing Association. "You struggle for a day, with torn shins and knees and tired arms. You need a patient instructor."

Some people can sail the first time they try, others take days or even weeks to master the necessary skills.

"Pulling the sail out of the water after it's gone over is the hardest thing," says Deakyne, an ocean racer who got hooked on the sport as a 12-year-old at sailing camp 17 years ago.

Having the right equipment is also crucial. Beginners start with large boards — "long and wide, like a battleship, more stable, with a center board," says Wood. Beginners' classes also feature "soft" sails — smaller, lighter sails that are easier to pull out of the water.

As you advance, boards get smaller, lighter, more maneuverable and faster to turn in stronger winds.

Novices may aspire to the turns and jumps Deakyne performs in ocean waves — like a hot-dogger on a mogul ski course. Most board sailing, though, takes place on the flat,

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Perhaps the most persistent misconception about wind surfing is that you have to be Herculean to pull yourself up on the board and to pull the sail out of the water.

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shallow water of bays, reservoirs and lakes. Here the beginner can learn to balance on the board, steer and maneuver, and self-rescue — de-rigging the equipment in the water and paddling to shore.

Inland waters don't get the high and steady wind of the Jersey Shore, however. Lakes also tend to be gusty and speeds



CORNELIUS HOGENBIRK

A sail board lifts out of the water during a run at Berkeley Island Park in Ocean County (above). Board sailing equipment, including a board, mast and sail, lies on the beach at Sandy Hook Bay (below).



MICHAEL S. MILLER



MICHAEL S. MILLER

Wind surfing is a popular sport at Sandy Hook Recreational Area.

as high as 58 miles per hour have been achieved with very thin boards on flat water inland. But, in time, the desire for more wind and for consistent winds leads many sailors to the sea.

A lone sailor going 58 m.p.h. perched on a small piece of high-tech fiber and harnessed to a rigging? Is this sport dangerous? Kate Wood says no, not if you use reasonable judgment. She has never seen an accident.

"It is a peaceful sport, out there with the wind and the elements — focused," she says. She always wears a helmet and life preserver when wind surfing. Advanced sailors also wear helmets in high winds.

Danger may occur when the water is crowded with wind surfers, especially when experts and beginners share the same space. Sailors who fall can get hit by other people's boards, which may be going at high speeds. Equipment can break. Therefore, board sailors are cautioned never to go out on the water alone.

The New Jersey coast abounds with sites to enjoy the sport — including Sandy Hook, Seaside, Long Beach Island, Atlantic City and Cape May. Round Valley Reservoir in Lebanon and Spruce Run Reservoir in Clinton are popular inland waters. In fact, Jim Karabasz of Bethlehem, Pa., and Ocean City says Spruce Run can have the highest concentration of wind surfers anywhere — perhaps 100 — in a day.

Karabasz, a member of the New Jersey Windsurfing

A wind sailor's view of the Twin Lights looming over Sandy Hook Bay.



MICHAEL S. MILLER

Association, also says Monksville Reservoir in Ringwood and West Milford, Budd Lake near Hackettstown, Cooper River north of Camden, and Thorofare on the Delaware River are popular locations for the sport.

Lakes Bay in Pleasantville near Atlantic City is a favorite spot. Its shallow, waist-deep water has no weeds, the breeze is warm, and the local Hampton Inn offers amenities and discounts for wind surfers.

Wind surfing can get expensive, but it doesn't have to. Beginners may want to rent before investing in their own gear. New beginner equipment, including a board and rig (sail, mast, boom), can range from \$500 to \$700. You outgrow your equipment as you advance, and you may want to hold on to it to share with other family members or friends interested in the sport. The used equipment market is lively, and swap meets help sailors trade up to smaller, faster boards. This so-called performance equipment costs around \$1,500 for a medium-priced board and rig, but boards alone can easily climb to \$2,000.

Wind surfing was introduced in the late 1960s by two Californians who invented a universal joint that allows the sail to pivot 360 degrees. This makes it possible to steer the board by moving the sail instead of a rudder. There are an estimated 1.7 million wind surfers in the United States, 5 million in Europe, and upwards of 10 million worldwide. Wind surfing even became an Olympic event in 1984.

Deakyne of Long Beach Island and Bob Huizing of Peak Performance Sports in Clinton are New Jersey's two major wind surfing equipment suppliers. Both say the sport is growing in popularity in the state. Business increased last year, and they expect the same this year.

The season runs from April through November, though some hearty sailors take to New Jersey waters even during the winter. Those who can afford it also head for wind surfing meccas in the Caribbean and Hawaii.

What does it take to succeed as a board sailor? Persistence, dedication and a willingness to learn. You don't have to be unusually strong; Huizing says that beginners tend to use their body weight to hold up the rig, but they learn to let the rig support their weight.

"It takes five to 10 years to become good, and you enjoy yourself all along the route — except the first two weeks," John Wood says.

Whether they excel or not, wind surfers can become addicted to the sport. Former workaholic David Woodley says that after only one week he "would have killed for a day of sailing." Wind surfers head for the water when most of the population seeks dry land.

As Terry Deakyne put it: "When the winds are high and small craft advisories are issued, when they call (for a) hurricane, the board sailors start leaving work and heading for the water."

## Setting Sail

Join a wind surfing group and meet new people, learn about places to sail, events, clinics, parties, and racing events. Local organizations include:

### ☐ Delaware Valley Boardsailing Association

271 Clover Circle  
Media, Pa. 19063  
(215) 566-7112

### ☐ Long Beach Island Boardsailing Association

3304 Long Beach Blvd.  
Brant Beach, NJ 08008  
(609) 494-5553

### ☐ New Jersey Windsurfing Association

P.O. Box 153  
South Plainfield, NJ  
(908) 494-6811

For retail equipment, lessons or other information, call:

### ☐ Island Surf and Sail

3304 Long Branch Blvd.  
Brant Beach, NJ 08008  
(609) 494-5553

### ☐ Peak Performance

2605 Route 31  
Clinton, NJ 08809  
(908) 638-5277

### ☐ Windsurfing Bay Head

(908) 899-9394

### ☐ WINDZONE, the Windsurfer's Catalog

(800) 946-3966

### ☐ Boardpatch Windsurfing Plus

4365 Lincoln Highway  
York, Pa. 17406  
(800) 256-9464

*Judy Finman is a staff member with the Department of Environmental Protection and Energy's Office of Communications.*

# The Deer Hunter in 3-D



AL IVANY, DIV. OF FISH, GAME AND WILDLIFE

by Patrick C. Carr

Garden State bowhunters can now hunt year-round in New Jersey — even though the official white-tail deer season only runs for 70 days in fall and winter. Off-season, the way to legally get that buck or doe is through three-dimensional (3-D) shooting.

Walk through a wooded course and come upon a life-size plastic replica of deer, elk, bear, turkey or wild boar. Pick the best shot at the animal which stands in various poses either broadside or looking straight ahead. Practice the skill of getting the arrow dead on by shooting down a lane of trees at various distances.

The sport of 3-D archery is quickly growing at bow and arrow club ranges all over the state and country. Most courses provide 25 to 35 targets set up in established shooting lanes in the woods for a day of practice.

"We set up the 3-D archery shoot to put bow shooters in situations similar to what they would encounter if they were hunting for game in the woods," says Joe Cattafi, who conducts the 3-D archery shoots at the club grounds of the United Sportsman's Association of North America in Elmer. "Turn a corner and there is a buck deer down a shooting lane at about 25 yards. Hit the vital area and feel the pride of a good shot; miss and hear the heckling from your companions.

"It is an exciting course where the hunter gets a number of chances to take shots," he adds. "3-D archery shooting is a great warm-up for actual hunting."

The equipment required to shoot a 3-D archery course is a bow — either compound, recurve or long bow — and six or more arrows with field tips. The compound bows use a pulley system in the strings to enhance the draw; recurve bows are curved bows which provide more energy in the draw; and long bows are the traditional straight wooden bows that bend when a string is attached.

The arrows can be aluminum, graphite or cedar, although some courses do not allow graphite arrows because of damage caused by the adaptor tips. Some traditional archery clubs only allow

Bow shooters can practice their hunting skills by shooting down a lane at 3-D targets.

the use of the long bow with cedar arrows, so be sure to check with the range before heading out. An arrow quiver may also be a helpful addition on the shoot.

There are various styles of shooting, which include using a compound bow or recurve/long bow, aiming either with or without sights to gauge distances, and pulling the string with fingers or a release. The shoot operators will place you in a category based on your shooting style in different classification for men, women or juniors. These categories are important only if you are shooting competitively. Many bowhunters just enjoy the chance to be outdoors.

The 3-D shoot is an ideal family outing where women, men and children can compete. Because the emphasis is on accurate shooting and the ability to judge distances, finesse and precision prevail over strength. Stamina also plays a role because the participant shoots about 50 arrows in a few hours. The time spent shooting a course together also underscores the importance of practice to all hunters, especially youngsters.

Current scoring allows the most points for a hit in the core vital areas which includes the heart and lungs, fewer points for hits in fringe areas which include the outer lungs and liver, and some points for any other hit on the animal target. The late Bill Wadsworth, founder of the National Bowhunter Education Foundation, however, advocated a negative scoring system which would allow two points for a hit in the vital region, one point in the fringe area and minus two points for any other animal hit. This system places greater value on good hits and penalizes those shots which would wound an animal without killing it under real-life hunting conditions. This system is supported by most responsible hunters.

Probably the most critical aspect of successful 3-D shooting — and hunting — is judging distances. The trajectory of the arrow is such that with some equipment a dead-on shot at 20 yards could be six to eight inches lower at 40 yards. Even a misjudgment of three yards on a 30-yard shot could cause the arrow to slip out of the vital region to a fringe area or lower. Many a shooter has been sent searching for an arrow in leaves or the grass by underestimating the distance of a target. When searching for lost arrows, keep range etiquette in mind. If others are waiting to shoot, the polite hunter returns later to retrieve lost equipment.

The majority of ranges set targets at distances of 10 to 60 yards. Most ranges provide large targets like elk or standing bear, mid-sized animals like deer and wild hogs, and smaller animal targets like wild turkeys, raccoons and coyotes.

Mike Volpe, president of the United Bowhunters of New Jersey (UBNJ), recognizes the importance of year-round bow shooting as a key to success in the hunt.

"UBNJ strongly believes that a well-practiced archer is a proficient bowhunter, and 3-D archery shoots provide a mechanism for realistic shooting conditions prior to shooting at live deer," Volpe says.

UBNJ published a calendar of shooting events in early summer which lists 3-D shoots. It also conducts its own 3-D program at the Sportsman's Field Day at the Fort Dix Rod and Gun Club grounds in Burlington County on Sept. 10 and 11.

"This is a great opportunity to get some final tune-up practice before the fall bow deer season, which opens on Oct. 1, 1994," Volpe says.

Hunters who shoot 3-D courses are much better prepared when the deer bow hunting season begins in New Jersey. Although shooting paper targets in the backyard or at a fixed distance range is important to success, the most prepared bowhunter is the one who has been estimating and shooting the unknown distances provided by life-sized, 3-D targets in the woods. So if you like the idea of year-round bow hunting in New Jersey, dust off the old bow, practice with your sights at a fixed distance range and head out to the nearest 3-D archery shoot.

*For more information on the United Bowhunters of New Jersey and 3-D shoots conducted statewide, write to UBNJ, P.O. Box 11, Ringwood, New Jersey 07456-0011.*

*For a list of places to shoot in New Jersey or for information on the Sportsman's Field Day, send your request with a self-addressed, stamped envelope to the New Jersey Division of Fish, Game and Wildlife, Hunter Education Unit, CN 400, Trenton, NJ 08625-0400.*

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If you like the  
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Patrick C. Carr is a hunter education administrator with the Department of Environmental Protection and Energy's Division of Fish, Game and Wildlife.

# The Video Hunter

Hunting has joined the world of high-tech sports.

Armed with a computer, a video and a bow and arrow, archers can now shoot a deer, bear, elk or turkey in the comfort of a local indoor shooting range.

Interactive video archery, which provides various hunting scenarios played in 20 second vignettes, allows hunters to view — and then shoot — at a different types of game. It is great practice for hunting because the archer makes the critical decision of when to shoot and where to aim — just like out in the field.

Basic interactive video systems contain a video tape player, a projection lens and a white target with five different scoring areas placed in front of an arrow back-stop. After lining up the projector and panel, the archer watches five different hunting scenarios. When the action stops on each of the five scenes and a green light appears, the archer makes his shot. The round is scored by counting all the arrows that landed in the five traced vital areas, like the heart and lungs, which are critical for a quick kill.

In more sophisticated systems, archers shoot blunt arrows through infrared sensors set up in front of a

pressure-sensitive screen. Different game animals appear in the video, each with the opportunity for one clear shot to vital areas. As the archer shoots, the arrow passes through the infrared beam and hits the screen. The infrared sensors freeze the video action, and a target indicating vital areas appears on the screen. The screen sensors record the location of the hit and relay the information to a computer, which displays a dot on the screen.

The computer shows a “hit” or “miss” message on the screen and awards points for a shot to the vital areas. Shooting at an inappropriate time, such as when an animal’s vital area is behind a tree or when the animal is running, results in no points. The computer tabulates each archer’s score after several rounds and prints out the results.

The action is true-to-life, and the archer becomes involved in the excitement of the hunt. In fact, one archer at Targeteer’s range in Saddle Brook got so carried away he shot the outside metal frame of the screen as he tried to follow an elk which was quickly walking out of view.

The real beauty of interactive video shooting

is the realism of the scenarios. Watching the video and deciding when to shoot and where to aim as a deer or turkey moves in natural settings is an excellent training tool. It prepares the archer to pick a spot at the appropriate time when hunting.

Some locations for interactive videos target shooting include:

**Targeteer’s Inc.**  
101 Route 46 West  
Saddle Brook, NJ 07662

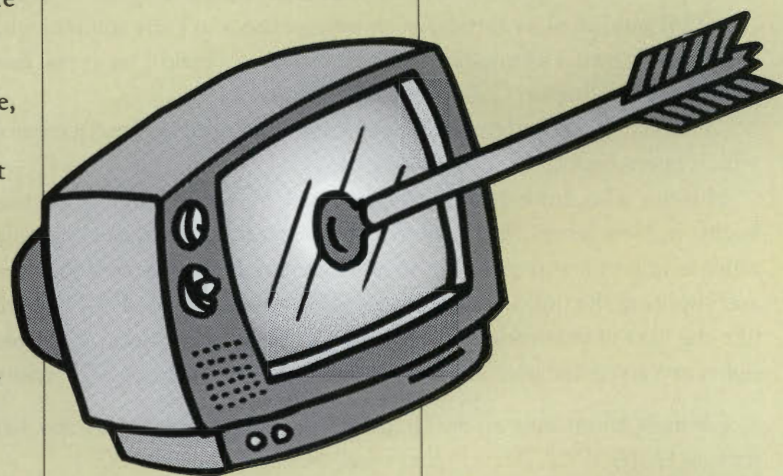
**Scott’s Mountain Bait and Bow**  
1 Harmony Brass Castle Road  
Phillipsburg, NJ 08865

**PGS Company**  
825 South Delsea Drive  
Vineland, NJ 08360

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The real  
beauty of  
interactive  
video shooting  
is the realism  
of the  
scenarios.

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# Bookshelf

**Before and After an Oil Spill: The Arthur Kill**, edited by Joanna Burger, published by Rutgers University Press, discusses the consequences of the January 1990 Exxon refinery oil leak into the 15-mile strait between New Jersey and Staten Island. See the effect of the spill on egrets, sea turtles and other animals that inhabit the Arthur Kill through data collected before and after the event. Cost is \$50. Available in bookstores or from Rutgers University Press at (908) 932-7037.

**The Best of Blueberries**, by R. Marilyn Schmidt, published by Pine Barrens Press, is a guide to growing and enjoying New Jersey's blueberry crop. This book gives tips on how to grow different varieties of blueberry — from high bush to low bush to rabbiteyes — for either fruit or ornamentals. It also contains 60 recipes including Lemon-Blueberry Tarts or Sour Cream Blueberry Pie. Cost is \$7.95. Available from Pine Barrens Press at (609) 494-3154.

**Birding Guide to Cumberland County, N.J.**, by Clay Sutton, published by the Cumberland County Economic Development Board and the Delaware Estuary Program, describes the breeding and migrating birds that can be found in this county. The booklet outlines eight self-guiding bird watching tours throughout Cumberland County, including those for bald eagles, South and Central American species, raptors, songbirds and wintering waterfowl. This guide is free. Available from the Cumberland County Economic Development Office at (609) 453-2177.

**Fish Carving Patterns**, written and published by Anthony Hillman, features over 34 patterns for carving fresh and saltwater fish, providing such angles as a profile, top and front. These accurate drawings of almost 50 species of fish provide a unique guide to replicating New Jersey's most popular game fish. A list of fish eye colors, and an explanation of fish decoys is also included. Cost is \$19.95. Available from Anthony Hillman at (609) 465-8234.



**Fishing — Delaware River**, by John A. Punola, published by Outdoors USA Inc., covers the history of the Delaware River, fishing regulations along the waterway, and where to catch different fish including trout, bass, walleye and others. An insect emergence chart, water temperature chart and sectional maps of the river are included. Cost is \$9. Available at bookstores or from Outdoors USA Inc. at (201) 822-2395.

**Natural Wonders of New Jersey**, by Hope Gruzlovic and Amy Cradic, features 40 of New Jersey's wildest and most picturesque parks, forests and wilderness areas. This book, by a former editor of *New Jersey Outdoors*, provides a guide to the Great Falls of the Passaic River, the Marine Mammal Stranding Center, the Pine Barrens and more. Nature centers and botanical gardens are also listed. Cost is \$9.95. Available from Country Roads Press at (800) 729-9179.

**New Jersey Park Service Spring & Summer Events**, published by the Department of Environmental Protection and Energy, Division of Parks and Forestry, is a guide to seasonal events in the state's public park system. The guide lists all state parks, forests, recreation areas, marinas and interpretive programs as well as events planned from April through September. The guide is free. Available from the Division of Parks and Forestry at (800) 843-6420.

**The New Jersey Saltwater Angler: Results of a 1992 Survey**, published by the New Jersey Division of Fish, Game and Wildlife, shows the results of a survey of 822 avid saltwater anglers regarding their fishing activities during the 1992 season. The division found that the typical saltwater angler is male, in his forties, well-educated and has a household income in the \$50,000 range. Also, the majority of anglers found the New Jersey waters cleaner than in previous years. The report is free. Available from the New Jersey Division of Fish, Game and Wildlife at (609) 292-1276.

**Roadside New Jersey**, by Peter Genovese, published by Rutgers University Press, pays tribute to New Jersey's oddest roadside attractions. Discover the strangest buildings, street names, and billboards in the state and meet the people who put them there. Learn about the world's biggest ice cream cone, the world's largest cigar store, the world's largest stone museum and many more eccentricities of the Garden State. Cost is \$18.95. Available in bookstores and from Rutgers University Press at (908) 932-7037.



**The Vanishing New Jersey Landscape**, by Clem Fiori, published by Rutgers University Press, documents why New Jersey has earned the nickname "Garden State." Rolling fields, inviting woods and tumbling streams are captured in photographs. Accompanying Fiori's photographs are brief captions which evoke the spirit of each site. Cost is \$29.95. Available in bookstores and from Rutgers University Press at (908) 932-7037.

## Woolly Blight Destroys Hemlocks

Anglers reel in wriggling trout whose streams are cooled by these trees; hikers walk along paths under their shady branches; drivers take in their beauty along hillsides.

The majestic Eastern hemlocks, whose deep lacy green branches seem to dangle thick needle earrings and hold hands across miles of hillsides, make these and so many other New Jersey woodland scenes special.

But the hemlock woolly adelgid (*Adelges tsugae*)

could make these trees mere memories all too soon.

A tiny insect visible as a cottony mass, the woolly adelgid already has killed thousands of hemlocks in New Jersey and across the Northeast. Unless foresters and researchers can come up with a miracle — in the form of an equally tiny mite — the adelgid may wind up decimating the state's entire 26,000-acre hemlock population, leaving in its wake bare hillsides, hot streambeds and possibly dead

ferns, trout and small woodland creatures.

"It really is a very serious problem," says Richard Evans, hemlock woolly adelgid program coordinator for the National Park Service. "It could really damage a lot of important natural resources. . . . Other species are being affected."

For example, Evans says, New Jersey's climate for trout is vulnerable. Without hemlocks shading such streams as Van Campens Brook in the Delaware Water Gap, the trout population could be seriously affected or even eliminated.

The Department of Environmental Protection and Energy's (DEPE's) Endangered

and Nongame Species Program is performing a two-year study for the National Park Service to see if mammals too could be affected by the loss of these trees. The study will examine mammal and amphibian populations that live in the hemlock habitat and may reveal how important hemlocks are to these wildlife. The first year of sampling revealed more than 20 species living in these areas, including the pygmy shrew, not previously recorded in the Delaware Water Gap National Recreation Area.

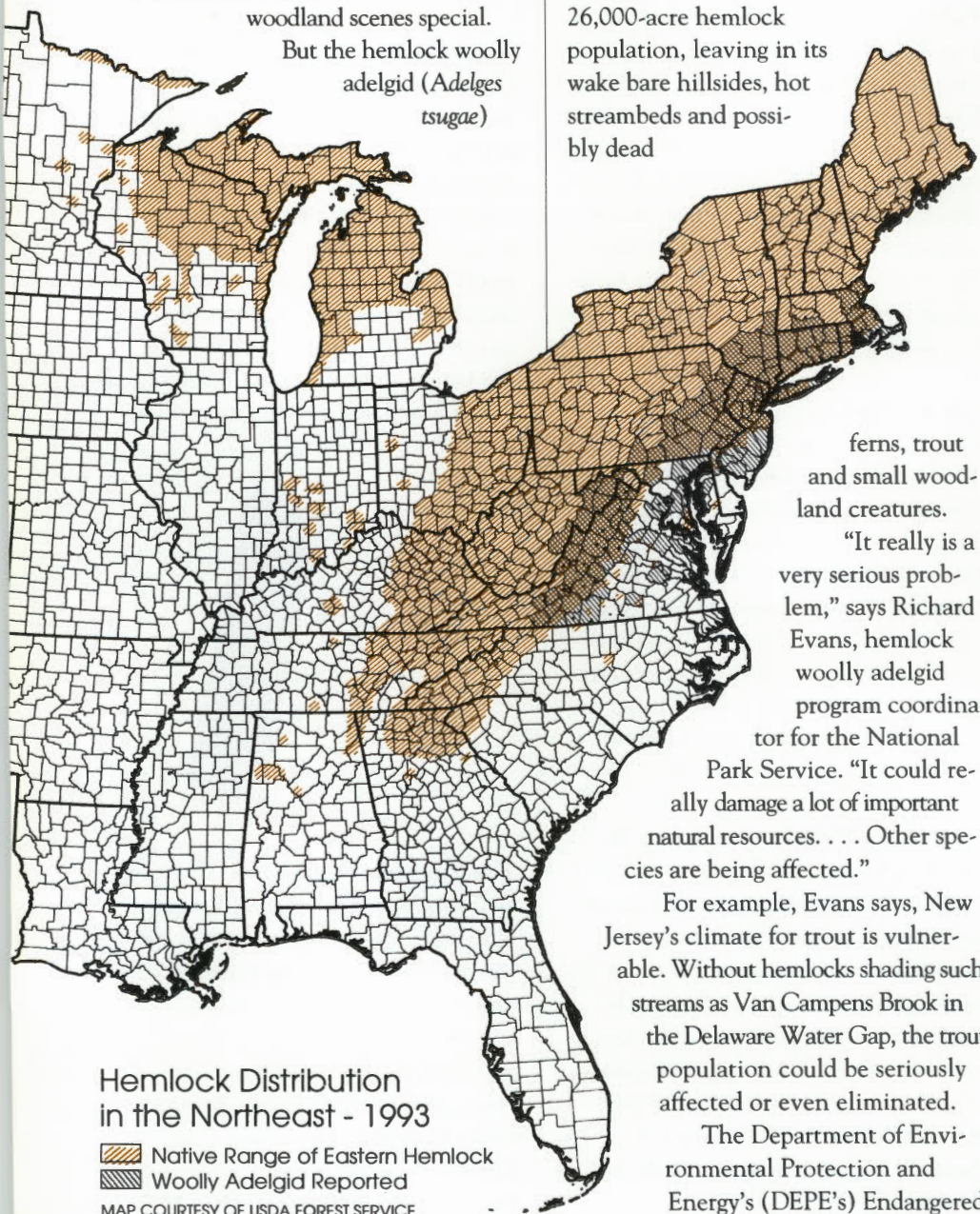
The adelgids, believed to have come to the United States in 1924 from Japan, are about one millimeter long when fully grown, resembling a speck of black pepper. The adelgids began killing hemlocks in New Jersey around 1987, according to State Forester George Koeck of the DEPE's Division of Parks and Forestry.

State officials have been studying the effects of the adelgid since 1988 in 11 study plots throughout North Jersey. The DEPE and the National Park Service are now trying to gauge the extent of the damage throughout the state and determine the effects the loss of hemlocks could have on small mammals, amphibians and forest vegetation.

"They do not seem to be dying as quickly as we thought, but definitely hemlocks are deteriorating where these adelgids are increasing," says Robert Chianese, chief of the New Jersey Department of Agriculture's Bureau of Biological Pest Control. "We still have a lot of stands of hemlocks in New Jersey that are very clean."

But other areas, like Sparta Glen in Sussex County, have lost whole stands, and officials fear the rest of the state's hemlocks eventually could suffer a similar fate.

In winter and summer, adelgids lay between 50 and 250 eggs at a time on the trees and surround them with a



These tiny white clusters located at the base of needles on this eastern hemlock branch are woolly adelgid eggs.



COURTESY OF THE NATIONAL PARK SERVICE

white mass for protection. When the young hatch, they feed on the sap and nutrients from new growth twigs and from the spot where needles are attached.

After several years, a hemlock invariably dies, says Mark McClure, chief scientist at the Connecticut Agricultural Experiment Station in Windsor, who is testing the use of a predator mite called *Diapterobates humeralis* to stop the adelgids' assault.

McClure's research is so important because it may be the only viable control in the forest.

Chianese said the adelgids can be killed by standard horticultural oil or insecticidal soap, but these must be applied directly to the insects and requires complete coverage of the trees. This can work for ornamental hemlock trees in a backyard, but because forest hemlocks grow as tall as 75 feet and are clustered closely together in inaccessible loca-

tions, smothering all the insects on all the trees is impossible. Koeck says he has tried some aerial spraying experiments in Ringwood State Park in 1990, but found they were ineffective.

Another way to kill the adelgids is to inject the hemlocks with a deadly pesticide. While this, too, is effective, it is also impractical in a forest because of the thousands of trees there. It is also unwise, says Evans, because "you have to punch a hole in the tree, damaging the trees."

McClure believes the hemlock's only hope is the predator mite he discovered two years ago in Japan that has been successful in keeping the adelgids there in check and the hemlocks alive. He is trying to determine whether the mite will kill adelgids in the United States, and he is encouraged by the results so far.

"The mite is very actively foraging," says McClure, who has tested the mite in the laboratory and two forests in

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A tiny insect visible as a cottony mass, the woolly adelgid already has killed thousands of hemlocks in New Jersey and across the Northeast.

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Connecticut. "It's eating the cottony material around the adelgid eggs and dislodging the eggs. But there are many obstacles yet to overcome."

He says, for example, that the mite in Japan feeds on the adelgid as an infestation is beginning. Here, it would have to work very quickly to bring down larger colonies of adelgids in many forests. It may take "months, if not years," to determine whether the mite will be able to kill large numbers of the insect.

Chianese says he doesn't know if New Jersey would be able to get large quantities of the mite quickly enough to save the most heavily infested stands.

"We would definitely try to get a colony of mites and try putting them in one of our study plots," Chianese says. "Even if the mite is going to work, I have no idea how fast they reproduce, or if they would survive our climatic conditions."

"I'm a little skeptical about it myself," says Evans. "I'm turning my thoughts to what may replace the hemlocks if and when they are lost."

But Koeck refused to give up hope.

"Since we have a meager amount of hemlocks, it makes it all the more crucial that we save them," Koeck says.

by Colleen O'Dea, a reporter for *The Daily Record of Morris County* and freelance writer who lives in High Bridge

## (Not) Going Overboard

It was a normal day on the Upper Delaware River. Conditions weren't rough, and an average amount of water was flowing down Skinners Falls. Still, a canoe flipped, and a young boy washed down the river and found himself caught under a boat, which was pinned by a rock.

What could have been a tragedy instead turned quickly into a well-executed rescue by staff of the National Canoe Safety Patrol, who spotted the boy in trouble and saved him. One member swam out to the child, extricated him from underneath the boat and stabilized

him, while another member threw out a line of rope to bring the pair to shore.

Christian Nielsen remembers observing the dramatic rescue from shore. As a founding member of the patrol, he too has helped bring many inexperienced canoeists, who suddenly find themselves in trouble on white water, to safety.

Those memories are why he finds himself out on the Delaware nearly every weekend of canoe season.

"People come out of New York City and Philadelphia looking for a weekend away doing something different," says Nielsen, 67, the patrol's vice president. "They get involved in something they really don't know about and are not aware of the skills needed."

Nielsen speaks from experience. He first paddled a canoe in 1973, and early on, he

learned there was a lot more to canoeing than he thought. So, he joined a canoe club and bought the right equipment before taking his two sons on the water.

"I got involved in canoeing like a lot of people do things — just to get my kids away from the television set," he says.

It worked. The Long Valley family became avid canoeists, and 20 years later, Nielsen still finds himself in a canoe on all but the coldest weekends, paddling about 1,000 miles a year on rivers like the Musconetcong in New Jersey, the Shenandoah in Virginia and the Esopus Creek in New York's Catskills.

"It's been a way to meet an awful lot of nice people over the years and a great way to see the scenery," says Nielsen, who owns an insurance agency in Flanders.



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### Helping Novice Canoeists

Nielsen turned his attention to helping novice canoeists in 1977 as an instructor with the Greater Trenton Area Red Cross Small Craft Safety Committee. It was a pilot program run by the Mohawk Canoe Club along the Delaware River in Lambertville, and it proved to be an immediate success.

"We decided there was a lot of inexperienced use of canoes," he recalls. As the number of people on the water rose, club members also saw initiating a patrol as a way to discourage government intervention.

"We were concerned regulation might shut down the river for us if we didn't do something to police it ourselves," he says.

The patrol shifted its locale in 1978 to the more crowded Upper Delaware and formed the National Canoe Safety Patrol, based at Skinners Falls in the National Park Service's Upper Delaware Scenic and Recreational River, headquartered in Narrowsburg, N.Y.

The area boasts 73.4 miles of the Delaware River, "the largest stretch of the wild and scenic river system admin-

istered by the park service on the East Coast," says John Hutzky, the National Park Service superintendent. The Upper Delaware begins where the east and west branches on the Delaware River converge in Hancock, N.Y. and runs southeastward to Sparrowbush, N.Y., just north of the Delaware Water Gap National Recreation Area. Last year, more than 260,000 people visited the area, and about 187,000 of them went boating, canoeing, rafting and tubing.

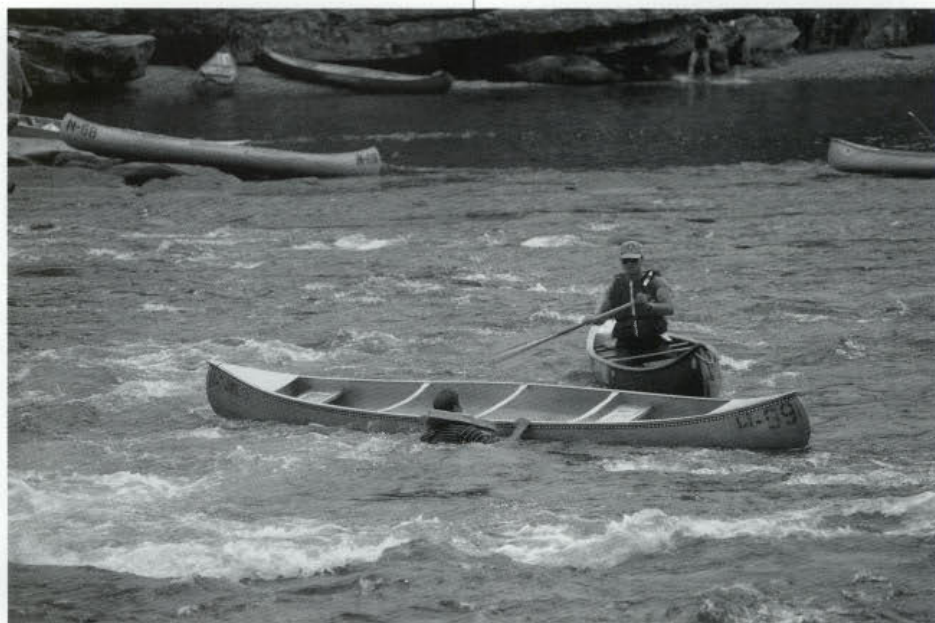
Skinners Falls, one of several Class II rapids on the Delaware, is a popular spot for canoeists and therefore the patrol. The rapids, with rushing waters and hidden obstacles, does not provide a straight run through but rather requires canoeists to maneuver from side to side to have a successful run.

service more than \$543,000 if they paid park rangers to do the work.

The patrol officially linked up with the park service in 1980, the year there were nine drownings on the Upper Delaware River. In 1985, there were no deaths by drowning in these waters. In 1992, the same. In every other year there have been one or two deaths, most swimming related, says Hutzky. He attributes the drop in fatalities in large part to the patrol.

"Undoubtedly, they have probably saved many more lives that may have been lost as a result of their not being here," says Hutzky.

Since 1980, there have been 29 deaths in the area, most of them young men overestimating their physical limits versus the strong, unfamiliar currents of the river, says Hutzky. Surprisingly, only



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Hutzky is convinced that lives have been saved by Nielsen and the other devoted patrol members, who number between 70 and 90 and last year contributed 2,240 hours on peak-season weekends. Hutzky estimates that since the volunteer program began, patrol members have put in more than 66,000 hours, which would have cost the park

Patrol members often use ropes (opposite page) to reach canoeists in trouble.

A volunteer (above) paddles to the rescue of a canoeist who fell overboard.

## Volunteers

eight of them were deemed related to alcohol and drugs.

While drinking among the weekend canoeists and boaters is an acknowledged problem by the patrol and park service, the safety patrol is not out to snag drinkers, says Nielsen. They cruise the river only to find canoeists in trouble and to help them, he says.

Canoe liveries are now playing a key role in discouraging drinking on the river, Hutzky says. Some are checking every item put into the canoe or raft to ensure no alcohol is going along. One livery has even opened its own alcohol-free campground. And all 22 canoe liveries licensed by the park service must provide safety orientation on canoeing and rafting, he adds.

### Training for the Rescue

The patrol members train annually to reinforce their rescue skills as well as their knowledge of CPR and first aid before the canoe season, which runs from April through October. For most of their rescues, rope is used to pull overboard boaters to shore.

"We use ropes extensively," says Nielsen. "Throwrope bags" — 60-foot white, highly-visible polypropylene rope — are used alone or tied together if the imperiled canoeist is far from shore.

"It's quite effective and gets right out to people," says Nielsen. "We pull in a lot of people with those."

Sometimes patrol members must swim out to the endangered boaters, stabilizing victims by instructing them to lie calmly on their back and hold onto the rope while being pulled to safety. Once the canoeists are ashore, the patrol also rounds up the errant boat and gear.

"The normal scenario involves somebody dumping over in the water and momentarily being terrified by it," says Nielsen.

When not cruising the Upper Delaware — the only park where the volunteers patrol — some of the members travel to prominent white water races to volunteer their rescue skills. Nielsen has

attended Olympic trials on the Savage River in western Maryland, World Cup races and the well-known white water slalom races on the Tohickon in Point Pleasant, Pa.

### Preventing Injury

But on the Delaware, inexperience, the patrol has found, is what leads most to injury. Not knowing basic paddling techniques or how to sit in a canoe is "like someone going to a ski area and trying to go down a hill without knowing what to do," says Nielsen. "They're going to kill themselves."

Nielsen and his fellow patrol members found a long time ago that the best time to instruct people on some of canoeing's basics and safety tips is after their first day on the river, not before.

New Jersey Trails Council as the water trails representative since the 1970s. This citizen advisory council inventories and monitors hiking, biking, horseback riding, skiing and water trails throughout the state, working to link the trails together so they can be accessible to all residents.

It only takes about 15 to 20 minutes to impart some of the basics needed not to get hurt. Advice on how to keep the boat pointed downstream, and warning that canoeists should always wear life jackets and kneel in a boat, not sit, are included in those brief talks. They also illustrate basic paddling techniques to go forward, stop, move to the side and slow down.

With several thousand canoes rented on the Upper Delaware on a summer



Chris Nielsen canoes Penns Creek.

Patrol volunteers go around to the area's campgrounds to tell the first-day canoeists what they saw them doing wrong and, in a nice way, give them pointers for the next day out. Just about all, says Nielsen, are receptive.

"They had to get involved to realize they needed more information," adds Nielsen, who also has served on the

weekend, Nielsen knows the patrol's work is important and that he could be busy for a long time to come.

"There are an awful lot of people out there who just don't understand what they're doing and we're here to help," he says.

*by Dory Devlin, a freelance writer from Basking Ridge and a reporter with the Morris County Bureau of The Star-Ledger.*

## Roundup Notes on the Environment



MARK DOBELBOWER, DIV. FISH, GAME AND WILDLIFE

Golden Retriever Cheyenne signals her find — a gun.

### Pooches Bust Poachers

Illegal hunters beware! The Department of Environmental Protection and Energy's Division of Fish, Game and Wildlife may soon be hot on your trail.

The Law Enforcement Bureau is following the lead of other crime fighting agencies and enlisting the help of a new breed of officer — dogs.

The unit was started by the bureau's Lt. Mark Dobelbower, who owns a bloodhound, Ruby, and a golden retriever, Cheyenne. The two dogs recently became part of the team in snagging illegal hunters throughout New Jersey. They have been joined by Deputy Conservation Officer Harley Simons and his dogs, Missy, a bloodhound, and Cady, a field spaniel.

"We train the dogs three to five times a week, hiding used or live shells and shotguns and rifles in a variety of terrain," he says. "It's a lot of work, but it keeps the dogs sharp, since they always get a reward."

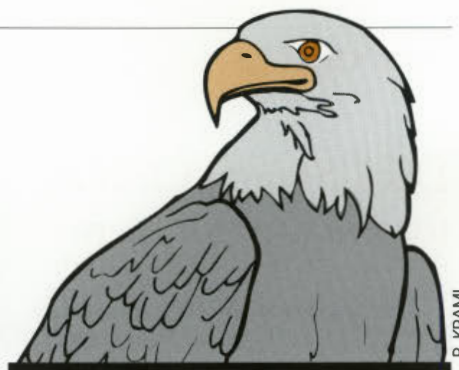
The bloodhounds are trained to track the scent of people, while the golden retriever and field spaniel have been schooled in finding firearms and ammunition. The dogs are trained under the direction of Patrolman John Miller of the Mount Holly Police Department, a qualified police canine trainer.

In early February, Ruby's nose helped in the prosecution of two poachers who were hunting in a restricted area.

"Ruby found their bows and arrows," Dobelbower says. "We never actually saw them hunting, but Ruby connected the individuals and their equipment."

"There is case law supporting the use of evidence supplied by bloodhounds," he adds. "We probably wouldn't have gotten a conviction without Ruby."

The dogs still train after the hunting season ends. In the off-season, Ruby, Cheyenne, Missy and Cady are playing another important role in promoting wildlife conservation. They have visited kennel clubs and schools in an effort to tell the public about the role of conservation officers in protecting the environment.



### Eagles Soar in New Jersey

New Jersey's annual mid-winter eagle count revealed that the number of eagles living in the state is increasing. A record-setting 96 bald eagles and nine golden eagles were counted by dozens of volunteer bird enthusiasts during the January event.

This year's count easily surpassed last year's tally of 74 eagles, according to Robert McDowell, director of the New Jersey Department of Environmental Protection and Energy's Division of Fish, Game and Wildlife. McDowell says New Jersey is part of a trend in the lower 48 states where eagle populations are increasing.

The survey focused on known wintering eagle sites in north Jersey as well as the major river systems in south Jersey. In the north, 17 adult and 10 immature bald eagles were sighted around major reservoirs and the upper Delaware River. In south Jersey, volunteers spotted 28 adult and 41 immature eagles along river systems flowing to the Atlantic Ocean or Delaware Bay.

The survey was sponsored by the division's Endangered and Nongame Species Program. The program, funded through a checkoff from the New Jersey income tax, has acquired and released more than 60 bald eagles from Canada into south Jersey during the last 12 years. Biologists expect the number of nesting eagles to continue to increase as more of those previously-released birds reach maturity.

Good eagle viewing sites include the Cohansey River and Bear Swamp along the Delaware Bay and Great Egg Harbor and Wading Rivers along the Atlantic Coast.

### Duck Stamps Cash in for the Environment

This year marks the 10th anniversary of New Jersey's waterfowl stamps, which are required for all waterfowl hunters over 16 and coveted by stamp collectors across the country. Bruce Miller, the winner of the Federal Duck Stamp contest, has been chosen by the New Jersey Waterfowl Advisory Committee as the artist for the historic 1993 stamp print.

Miller's 1993 stamp features a pair of buffleheads riding the waves off the coast of Cape May Point, with the Cape May Point Lighthouse in the background.

In 1984, through an act of the Legislature, New Jersey began issuing annual waterfowl stamps. The program, administered by the New Jersey Department of Environmental Protection and Energy's, Division of Fish, Game and Wildlife, assists in purchasing wetlands for waterfowl habitat. The 10th anniversary occurs during the fiscal 1994 calendar year, which runs from July 1, 1993 to June 30, 1994.

Since the program began, proceeds from the sale of New Jersey's Duck Stamps and Prints have totalled more than \$2.6 million, all of which is used to acquire wetlands for waterfowl habitat and public use. In the past decade, 8,700 acres of wetlands have been purchased or donated.

A list of the New Jersey Waterfowl Stamps and Prints that are available include:

- ☐ Resident Waterfowl Stamp, \$2.50
- ☐ Non-Resident Waterfowl Stamp, \$5
- ☐ 8 X 10 Souvenir Card with set of stamps, \$16.50
- ☐ Anniversary Mini Series Sheet with eight stamps, \$35
- ☐ Governor's Edition Stamps with a mint pair of stamps, \$107.50
- ☐ Limited Edition Print and Stamps, \$142.50
- ☐ Governor's Edition Mini-Sheet (signed by the governor), \$460

For more information, call Frank Tourine at (609) 292-9480.



The 1993 New Jersey Waterfowl Stamp painting and stamp.

### Mercury Warning for Freshwater Fish

New Jersey's departments of Environmental Protection and Energy (DEPE) and Health (DOH) have issued a public health warning against eating pickerel, bass or yellow bullhead caught in 15 state lakes, streams and reservoirs because of elevated amounts of mercury found in fish tissues.

Preliminary data from a study commissioned by the DEPE's Division of Science and Research found elevated levels of mercury in these fish from locations throughout the state. In March, the DEPE expanded its study to include other freshwater lakes, other freshwater fish species like trout and perch and other large saltwater species like shark, swordfish and tuna.

The public health warning will remain in effect until a report is issued by the Toxics in the Biota Committee, composed of representatives from the DEPE, the DOH and the Department of Agriculture, which is studying the preliminary data. That committee is expected to release its recommendations shortly.

The public health warning advises pregnant women against eating freshwater fish from New Jersey waters until the studies are concluded. Mercury can be easily passed from mother to fetus, putting the baby at risk of neurological damage.

The rivers, lakes and streams where elevated mercury levels have already been found in pickerel, bass or yellow bullheads include:

The Atlantic City Reservoir, Atlantic County; Batsto Lake, Burlington County; Carnegie Lake, Middlesex County; East Creek Lake, Cape May County; Harrisville Lake, Burlington County; Lake Mummy, Cape May County; Manasquan Reservoir, Monmouth County; Merrill Creek Reservoir, Warren County; Monksville Reservoir, Passaic County; Mullica River, Burlington County; New Brooklyn Lake, Gloucester County; Union Lake, Cumberland County; Wading River, Burlington County; and Wanaque Reservoir, Passaic County

## From Rails to Trails

A former railroad line between Glassboro and Bridgeton is being considered for a nature trail under a \$1 million grant to the Department of Environmental Protection and Energy.

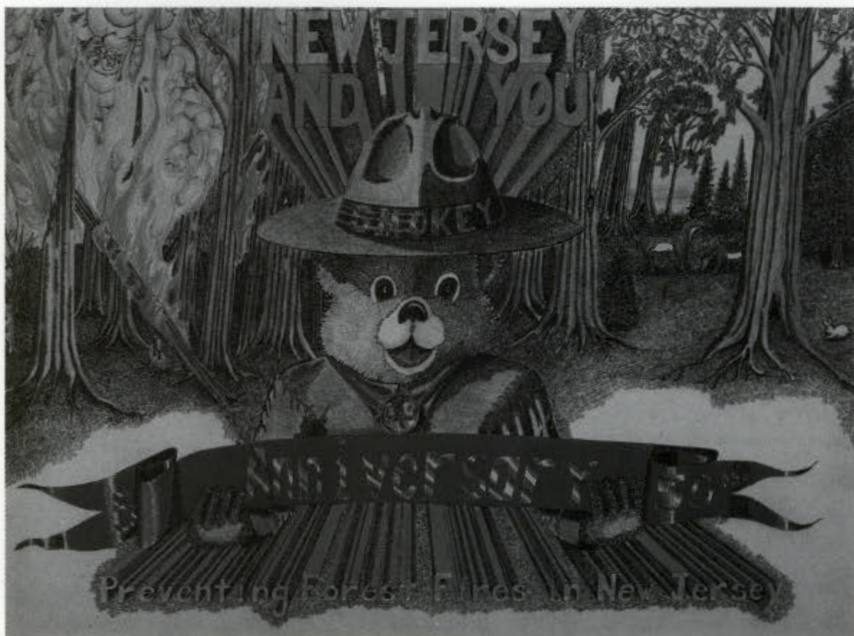
The grant is part of \$11 million from the New Jersey Department of Transportation (DOT) that has been earmarked for special projects across the state.

The DEPE grant will be used to acquire an 18-mile stretch of the Penn-Reading Seashore Line, which ceased operation in 1986. The line, located on flat to rolling terrain, will be converted to a trail for biking, hiking and horse-back riding. It passes through oak-pine forests, orchards, agricultural fields and villages in Gloucester, Salem and Cumberland counties.

Other projects to be funded by the DOT include:

- ☐ \$450,000 to Cape May County for a half-mile addition to a pedestrian and bikeway in Wildwood Crest.
- ☐ \$200,000 for the purchase of three miles of the former Cape May Point Branch railroad line from Cape May Point State Park to Washington Street in Cape May for use as a pedestrian and bicycle path.
- ☐ \$345,000 to Clayton in Gloucester County for the restoration and beautification of its downtown district.
- ☐ \$491,000 to Salem in Salem County to upgrade the downtown area, including new street lights, signs, benches and sidewalks.

*Roundup by Eric Gonzalez, a journalism intern from Trenton State College*



This poster by Floyd Hancock won first place in Division 4 of the statewide Smokey Bear Poster Contest.

## Smokey Bear Turns 50

Smokey Bear, the nationwide symbol of forest fire prevention, celebrates his 50th birthday in 1994. Before the Smokey campaign was born, 30 million acres of forest were damaged by fire every year. Today, only five million acres burn annually.

Throughout the country, events are scheduled to honor Smokey and the message he has been sending. The culmination of this celebration will be held in Washington, D.C. on Aug. 9.

Within New Jersey, students from grades kindergarten through 12 helped celebrate with a poster contest by the Department of Environmental Protection and Energy in honor of the popular bear. Posters had to reflect the importance of preventing forest fires in New Jersey. The winners, who were awarded their prizes by DEPE Commissioner Robert C. Shinn, Jr., were:

**State Grand Prize:** Charlton Palmer, Perth Amboy  
Middlesex County Vocational School, Grade 12

**Division 1 (K-3):** Courtney Bosworth, East Brunswick  
Bowne-Munro School, Grade 3

**Division 2 (4-6):** Akiko Yasuda, Hohokus  
Hohokus Middle School, Grade 6

**Division 3 (7-8)** Connie Soldi, Union Beach  
Union Beach Memorial School, Grade 8

**Division 4 (9-12)** Floyd Hancock, East Brunswick  
Middlesex County Vocational School

# Events

## June

### 11 SUPER HEROS: A HIGH TECH ADVENTURE (through Sept. 5)

Become a super hero through the use of state-of-the-art technology. Ward off ping pong balls with Wonder Woman's special wrist bands, climb Spider Man's web, help Batman solve a kidnapping or train with the Hulk at the Super Heroes Training Academy. **Hours:** 9:30 a.m. to 5:30 p.m. (Sunday through Thursday); 9:30 a.m. to 8:30 p.m. (Friday and Saturday) **Admission:** Adults, \$9; students and senior citizens, \$8; children under 12, \$6 **Phone:** (201) 200-1000 **Location:** Liberty Science Center, Jersey City

### 11 ANTIQUE ENGINE SHOW

Check out a variety of antique machinery, including vintage gas engines that work. **Hours:** 10 a.m. to 4 p.m. **Admission:** Adults, \$3; children and senior citizens, \$2 **Phone:** (201) 326-7645 **Location:** Fosterfields Living Historical Farm, Kahdena Road, Morristown

### 11 HOOKED ON FISHING

A fishing contest for high school juniors and seniors, sponsored by Hooked on Fishing International. **Hours:** 9 a.m. to noon **Admission:** Free **Phone:** (609) 645-5960 **Location:** Gaskill Park, Mays Landing

### 11 YOU AND YOUR PET

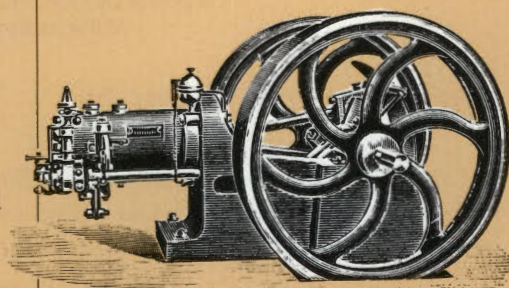
Discuss which pet is right for your family and how to care for it with experts from St. Hubert's Animal Shelter. **Hours:** 2 p.m. **Admission:** Free **Phone:** (201) 635-6629 **Location:** Great Swamp Outdoor Education Center, Southern Boulevard, Chatham

### 11 N.J. PERCUSSION ENSEMBLE

The Lily Lake Festival presents this ensemble performing music by Anthony Cornicello, Lou Harrison, Tom Laughlin and more. **Hours:** 8 p.m. **Admission:** \$3 **Phone:** (609) 492-6463 **Location:** Noyes Museum, Oceanville

### 11 SCOTTISH GAMES AND FESTIVAL

Enjoy this festival of all things Scottish: bagpipers, highland dancing, Celtic harping and fiddling, scottish dogs and more. **Hours:** 9:30 a.m. to 5 p.m. **Admission:** Adults, \$7; children, \$3 **Phone:** (908) 647-4700 **Location:** Valley Road opposite Lyons Veterans Hospital, Millington



**11-12 FREE FISHING DAYS** Fish the public waters of New Jersey without a license. Free fishing classes also are offered. **Hours:** All weekend **Admission:** Free. **Phone:** (908) 637-4125 **Location:** Public waters statewide

**11-12 INDIAN POW WOW** Celebrate Native American tribes from throughout the country. **Hours:** 9 a.m. **Admission:** Free **Phone:** (609) 455-6910 **Location:** Salem County Fairgrounds, Woodstown

### 11-12 SMALL BOAT FESTIVAL

Bring your own small craft and swap with someone else, or just come and observe. Bring "fixins" for a barbecue. **Hours:** 10 a.m. to 5 p.m. **Admission:** Free **Phone:** (609) 971-3085 **Location:** Berkeley Island County Park, Bayville

### 11-12 STRAWBERRY FESTIVAL

Pick to your heart's content or relax and enjoy strawberry treats and music. **Hours:** 10 a.m. to 5 p.m. **Admission:** Free **Phone:** (908) 475-3872 **Location:** Matarazzo Farms, Belvidere

**12 CANAL OPEN HOUSE** Join this celebration at the bridge tender's house on the Delaware and Raritan Canal which will include ice cream, house tours, crafts and other entertainment. **Hours:** All day **Admission:** Free

**Phone:** (609) 987-8196 **Location:** Quakerbridge Road at the Delaware and Raritan Canal, Lawrence

### 12 CULTURAL ARTS FESTIVAL

This festival showcases the cultural diversity of New Jersey. **Hours:** 10 a.m. to 6 p.m. **Admission:** Free **Phone:** (201) 547-5522 **Location:** CRRNJ Terminal, Liberty State Park, Jersey City

### 12 DECOY AND WOOD

**CARVER'S SHOW** Buy or browse from a selection of decoys and wood carvings, both antique and modern. **Hours:** 10 a.m. to 4 p.m. **Admission:** Free **Phone:** (609) 561-3262 **Location:** Batsto Village, Wharton State Forest, Rt. 542, east of Hammonton

### 12 MEDFORD VILLAGE ART AND MUSIC FESTIVAL

The historic town of Medford will be the stage for an art show and sale, performing artists, festive food and fun. **Hours:** 11 a.m. to 4 p.m. **Admission:** Free **Phone:** (609) 654-5227 **Location:** Main Street, Medford Village

### 12 WEAVING DEMONSTRATION

Learn about the art of weaving from Lois Macknik. **Hours:** 1 to 4 p.m. **Admission:** Free **Phone:** (201) 696-1776 **Location:** Dey Mansion, Totowa Road, Wayne





#### 16 THE SOUND OF MUSIC

(Through July 2) This classic is brought to life on the rustic stage of Thompson Park. **Hours:** 8:30 p.m. **Admission:** Free **Phone:** (908) 842-4000 **Location:** Newman Springs Road, Lincroft

**16-17 FATHER'S DAY CELEBRATION** This day in the country includes wine tasting, wine cellar tours and a hot buffet luncheon. **Hours:** 11 a.m. to 5 p.m. **Admission:** Luncheon: Adults, \$9.95; children, \$5.95 **Phone:** (908) 475-3671 **Location:** Matarazzo Farms, Belvidere

#### 18 DRAGONFLY WORKSHOP

Dragonfly expert Ken Soltesz presents a workshop and slide show, followed by a walk by the ponds of Cape May County. **Hours:** 9 a.m. to 3:30 p.m. **Admission:** \$15 (Preregistration required) **Phone:** (609) 884-2736 **Location:** Cape May Bird Observatory, Cape May Point

**18 GUIDED BIRD WALK** Enjoy summer's great variety of birds, including snowy egrets, kingfishers and pied-bellied grebes. **Hours:** 8 a.m. **Admission:** Preregistration, \$2; at door, \$3 **Phone:** (201) 460-8300 **Location:** Hackensack Meadowlands Development Commission Environment Center, DeKorte Park Plaza, Lyndhurst

**18 HONEY BEES** Explore the life of the honey bee and the hobby of beekeeping. **Hours:** 2 p.m. **Admission:** Free **Phone:** (201) 635-3329 **Location:** Great Swamp Outdoor Education Center, Southern Boulevard, Chatham

**18 WHALE WATCH** (Also Aug. 27) After a bus trip to Plymouth, Ma., board an 80-foot double decker boat for a 4 1/2 hour whale watch to see such species as humpback, minke and fin whales. **Hours:** 7:30 a.m. to 12:30 a.m. **Admission:** \$54 (Preregistration required) **Phone:** (201) 835-2160 **Location:** Weis Ecology Center, Ringwood

**18-19 FOUR SISTERS WINERY FATHER'S DAY CELEBRATION** Dad gets a free gift this weekend as new wines are released. Visitors can pick their own strawberries and tour the wine cellars. **Hours:** 11 a.m. to 5 p.m. **Admission:** Free **Phone:** (908) 475-3671 **Location:** Four Sisters Winery, Belvidere

**19 DAIRY DAY** See how our ancestors processed milk, cream and other dairy products 100 years ago. **Hours:** 1 to 4 p.m. **Admission:** \$3 **Phone:** (201) 326-7645 **Location:** Fosterfields Living Historical Farm, Kahdena Road, Morristown

**25 BUTTERFLY COUNTS** (Also July 8, 9) Learn more about butterflies while helping experts with official counts. **Hours:** 9 a.m. to 3 p.m. **Admission:** \$7 **Phone:** (609) 884-2736 **Location:** Cape May (June 25); Belleplain State Forest (July 8); Cumberland County (July 9)



**25 CANOE THE KEARNY MARSH** Discover the marsh's beautiful ecosystem within the area's urban environment. **Hours:** 8 a.m. **Admission:** \$7.50 (Preregistration required) **Phone:** (201) 460-8300 **Location:** Hackensack Meadowlands Development Commission Environment Center, DeKorte Park Plaza, Lyndhurst

**25 DOLPHIN OBSERVATION CRUISE** (Also July 17, Aug. 14 and Sept. 11) Cruise aboard the "Princess" along the coast of southern New Jersey in search of dolphins. **Hours:** 1 to 4 p.m. **Admission:** Adults, \$15; children, \$10 **Phone:** (609) 266-0538 **Location:** 42nd Street, Sea Isle City



**25-26 MONMOUTH COUNTY REVOLUTIONARY WAR WEEK-END** Watch the reenactment of the largest battle of the American Revolution at Monmouth Battleground State Park, and tour tents, farmhouses, churches and an inn where soldiers were quartered and the wounded treated. **Hours:** 9 a.m. to 5 p.m. **Admission:** Free **Phone:** (908) 462-5868 **Location:** Monmouth Battleground State Park, Freehold

**26 THE CONCORD** Pianist Paul Hoffman performs Charles Ives' epic Piano Sonata #2 "Concord." **Hours:** 1 p.m. **Admission:** \$3 **Phone:** (609) 492-6463 **Location:** Noyes Museum, Oceanville

## Events

**26 INNER TUBING** Splash through the Pinelands on a two-hour tubing cruise sponsored by the Sierra Club. **Hours:** 10:30 a.m. **Admission:** Free **Phone:** (609) 267-7052 **Location:** Harrisville Lake, Harrisville

**26 LAUNDRY DEMONSTRATION** Visitors can help scrub, rinse and wring clothes like they did at the turn of the century. **Hours:** 1:30 to 4 p.m. **Admission:** Adults, \$3; children and senior citizens, \$2 **Phone:** (201) 326-7645 **Location:** Fosterfields Living Historical Farm, Kahdena Road, Morristown

**26-31 MONMOUTH COUNTY FAIR** Hot-air balloon races, pig races, live professional entertainment, firemen's mud flag football, policemen's volleyball, children's games and amusement rides and an 1890s living farm are among the attractions for this 20th annual event. **Hours:** 5 to 11 p.m. (July 26-28); 11 a.m. to 11 p.m. (July 29-30); 11 a.m. to 6 p.m. (July 31) **Admission:** \$3.50; children under 12, free **Phone:** (908) 842-4000 **Location:** East Freehold Park Showgrounds, Freehold

**26 EMBROIDERY DEMONSTRATION** Discover the art of embroidery from Mimi Novak, president of the Embroiderer's Guild. **Hours:** 1 to 4 p.m. **Admission:** Free **Phone:** (201) 696-1776 **Location:** Dey Mansion, Totowa Road, Wayne

**27 ECO-TOUR OF LONG BEACH ISLAND** (Also every Monday and Wednesday through Sept. 30) This three-hour tour of the island will demonstrate the ecology and environment of the area through hands-on projects. **Hours:** 9 a.m. to noon **Admission:** \$10; children five and under, free **Phone:** (609) 492-0222 **Location:** 265 West 9th Street, Ship Bottom

## July

**2 HORSE RIDE** Enjoy a ride from Hainesburg to Blairstown. Bring your own horse. **Hours:** 10 a.m. **Admission:** Free **Phone:** (908) 725-9649 **Location:** Viaduct on Station Road off Rt. 94, Hainesburg

**8 FIDDLER'S MEADOW COFFEEHOUSE** David Massengill, author of popular folk anthems, performs with a guitar and dulcimer. **Hours:** 8:30 p.m. **Admission:** Free **Phone:** (201) 460-8300 **Location:** Hackensack Meadowlands Development Commission Environment Center, DeKorte Park Plaza, Lyndhurst

**9 DINOSAUR DIG IN MONTANA** Maxine Ginsberg will present a slide program on a dig in Montana, and dinosaur crafts will be made. **Hours:** 2 p.m. **Admission:** Free **Phone:** (908) 876-3100 **Location:** Schooley's Mountain Park, Long Valley

**10 HAMILTON TOWNSHIP TRIATHLON** A quarter-mile swim, followed by an 11-mile bike ride, ending with a three-mile run. **Hours:** 8 a.m. **Admission:** \$30 **Phone:** (609) 625-3935 **Location:** Lake Lenape, Mays Landing

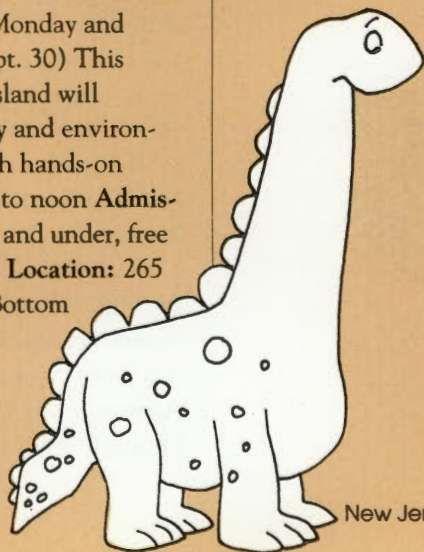
**10 ICE CREAM MAKING DEMONSTRATION** Learn how ice cream is made and enjoy free samples. **Hours:** 1 to 4 p.m. **Admission:** Free **Phone:** (201) 696-1776 **Location:** Dey Mansion, Totowa Road, Wayne

**12 INDEPENDENCE DAY CELEBRATION CONCERT** Listen to the Waldwick Band in a free outdoor concert. **Hours:** 8 p.m. **Admission:** Free **Phone:** (201) 696-1776 **Location:** Dey Mansion, Totowa Road, Wayne

**13 TUBING CEDAR CREEK** Two hours of cruising in a tube at Cedar Creek. Bring old sneakers, life vests for children, a tube and lunch. **Hours:** 10:30 a.m. **Admission:** Free **Phone:** (609) 267-7052 **Location:** William J. Dudley Township Park, south of Bayville

**14 INTERACTIONS III** Explore the interrelationships of artistic disciplines with Robert J. Koenig, former director of the Noyes Museum. **Hours:** 8 p.m. **Admission:** \$3 **Phone:** (609) 492-6463 **Location:** Noyes Museum, Oceanville

**16-17 BENEFIT POW WOW** Enjoy dancing and drumming Native American style. Crafts and food will also be sold. **Hours:** 11 a.m. to 8 p.m. (July 16); 11 a.m. to 6 p.m. (July 17) **Admission:** Adults, \$5; children and senior citizens, \$2 **Phone:** (908) 525-0066 **Location:** Ringwood State Park, Ringwood



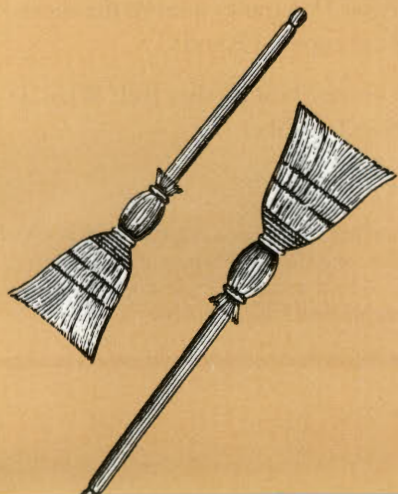
**17 LIFE AT WINDSOR CANTONMENT 1782-1783** Jane Townsend, site manager of the New Windsor Cantonment Historic Site, discusses the food, shelter, pensions and back pay issues that concerned the residents of this last winter's encampment of George Washington's army. **Hours:** 2 p.m. **Admission:** Free (Reservations required) **Phone:** (201) 696-1776 **Location:** Dey Mansion, Totowa Road, Wayne

**17 WOODEN BOAT FESTIVAL** This festival is dedicated to preserving the heritage of wooden boats. Crews will display, discuss and race their boats. **Hours:** 9:30 a.m. **Admission:** Free **Phone:** (908) 270-4723 **Location:** Toms River Yacht Club, Toms River

**23 INDIAN WAYS** Discover the Lenape Indian tribe through artifacts, games, stories, crafts and food. **Hours:** 1 to 4 p.m. **Admission:** Free **Phone:** (908) 876-3100 **Location:** Schooley's Mountain Park, Long Valley

**24 TINSMITHING DEMONSTRATION** Tinsmith George Pierson demonstrates his trade. **Hours:** 1 to 4 p.m. **Admission:** Free **Phone:** (201) 696-1776 **Location:** Dey Mansion, Totowa Road, Wayne

**31 BROOM MAKING DEMONSTRATION** Keith Honamen shows how brooms were made in the 18th century. **Hours:** 1 to 4 p.m. **Admission:** Free **Phone:** (201) 696-1776 **Location:** Dey Mansion, Totowa Road, Wayne



**31 CELEBRATE AMERICAN SONG** Soprano Judith Nicosia Civitano, bass Kevin Maynor and pianist Margaret Kampmeier present an afternoon of songs by George Antheil, Milton Babbitt, Ulysses Kay and others. **Hours:** 1 p.m. **Admission:** \$3 **Phone:** (609) 492-6463 **Location:** Noyes Museum, Oceanville

## August

**5-7 UP UP AND AWAY** The Alexandria Balloon Festival will feature air balloon launches, the Sky High Aviation Show, food and other entertainment. **Hours:** All day **Admission:** \$8.50 **Phone:** (908) 735-0870 **Location:** Alexandria Field Airport, Pittstown

**7 18TH CENTURY WEAPONS AND TACTICS** Daniel Hess of Colonel Pawling's Levies discusses the weaponry of the 18th century and how they were used. **Hours:** 1 to 4 p.m. **Admission:** Free **Phone:** (201) 696-1776 **Location:** Dey Mansion, Totowa Road, Wayne

**7 TUBING THE BATSTO RIVER** Enjoy jungle-like beauty on a two-hour trip down the Batsto River. Bring old sneakers, life vests for children, a tube and lunch. **Hours:** 10 a.m. **Admission:** Free **Phone:** (609) 267-7052 **Location:** Atsion Ranger Station, Lebanon State Forest, Atsion

**13 BRIDGETON ZOO RIDE** Take a 25, 50 or 100-mile bicycle ride along the rolling terrain of Salem County and visit Bridgeton Zoo. **Hours:** 8 a.m. **Admission:** Preregistration, \$10; day of ride, \$12 **Phone:** (609) 848-6123 **Location:** Schalick High School, Centerton

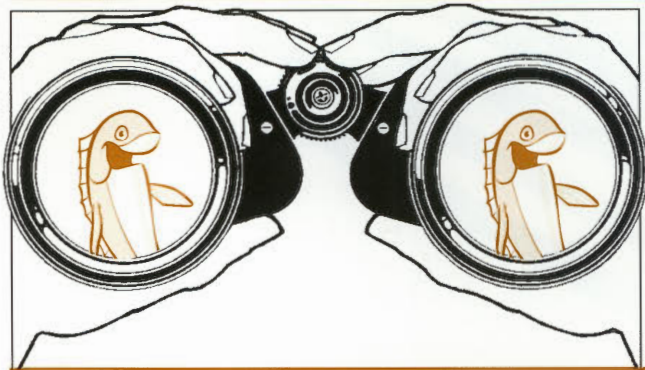
**13 FESTUARY '94** This festival focuses on the resources of the Delaware River Estuary system. Enjoy historical presentations, food and displays. **Hours:** 12 to 7 p.m. **Admission:** Free **Phone:** (302) 739-5726 **Location:** Fort Mott State Park, Pennsville



**13 OWLS AND HAWKS** Giselle Smisko, director of the Avian Wildlife Center, will present a program about these birds of prey featuring slides, displays and live animals. **Hours:** 2 p.m. **Admission:** Free **Phone:** (908) 876-3100 **Location:** Schooley's Mountain Park, Long Valley.

**20 FLY FISHING** Trout Unlimited will present a program on the equipment and techniques of fly fishing. **Hours:** 12 to 2 p.m. **Admission:** Free **Phone:** (908) 876-3100 **Location:** Schooley's Mountain Park, Long Valley





# Explorer

## Hey, Explorer!



## Discover a Fish's Point of View

There are many different kinds of aquatic wildlife that live in New Jersey's waterways. The most common is fish.

Some fish live in fresh water in the Delaware River. Other fish live in salt water in the Atlantic Ocean. But if you are a fish living in an **estuary**, a place where the mouth of a freshwater river meets the salty ocean, you may have some concerns with the amount of salt in the water. If you normally live in fresh water, and the water becomes too

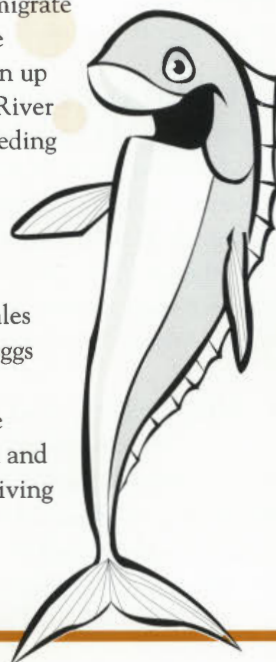
salty, what might happen to you? Or, if you are a saltwater fish and there wasn't enough salt, what might happen to you?

When fish that normally live in the ocean do not have enough salt, they may swell up and die. Fish that normally live in fresh water such as rivers, streams and lakes will lose water from their bodies and become dehydrated if the water is too salty. Animals that live in an **estuary**, where the water is always changing due to the tides, must be very strong to survive.

In New Jersey, the Delaware Estuary is home to the **shad**, a fish which can survive in both salt and fresh waters. Shad are a bluish color with silver on both sides. They are usually about two feet long and average four pounds.

Every spring, like salmon, shad migrate north from the Atlantic Ocean up the Delaware River during the breeding season. They are usually exhausted from this trip, and most females will lay their eggs and die.

To see the effects of fresh and salt water on living cells, try the following experiment.



## Let's Experiment

How can changing the amount of salt in a sample of water affect living things? Using a potato, salt and water, you can see what would happen to the potato in fresh water and in salt water.

## You will need

- ☐ A raw potato
- ☐ 3 clear 8 oz. cups
- ☐ Stirrers
- ☐ Salt
- ☐ Water

## Procedure:

1. Label one of the cup with the letter A and add 4 oz. of water.
2. Label the second cup with the letter B and add 3.5 oz. of water and one teaspoon of salt. Stir.
3. Label the last beaker with the letter C. Add 3 oz. of water and five teaspoons of salt. Stir.
4. Cut a raw potato into three slices about 1/2 inch thick in the shape of a fish.
5. Put a slice of potato into each cup and let them soak for 15 minutes.
6. After 15 minutes remove the slices from cups A, B and C
7. Describe how do they feel? What do they look like?

by Barbara Pietrucha, a Neptune middle school teacher, and Colleen Thomas of the Department of Environmental Protection and Energy's Environmental Education Unit

# Create Your Own "Flying" Fish

Many different kinds of fish live in New Jersey's waterways. Why not try to make your own species with a fish kite? Making kites can be loads of fun. Your fish can be any size, shape or color. It can resemble your favorite fish or one from your own imagination.

Fish kites are perfect for the beach or a windy day in the park. All you need is a few supplies and your imagination!

## You will need:

- ☐ Large sheets of brightly-colored tissue paper or nylon fabric (available at crafts or art supply stores)
- ☐ Scissors
- ☐ Glue
- ☐ 10" to 12" pipe cleaners
- ☐ Sequins, glitter, smaller pieces of colored tissue paper or stick-on dots
- ☐ Kite string

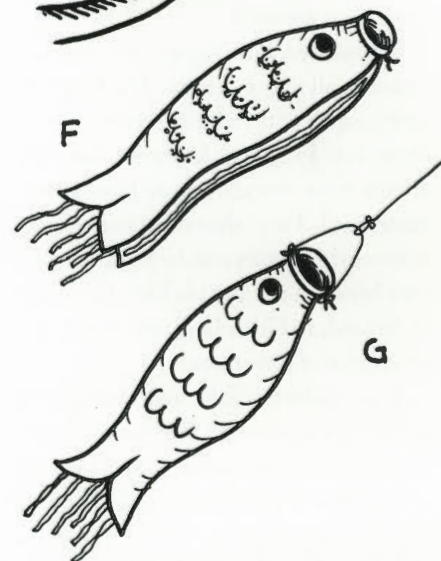
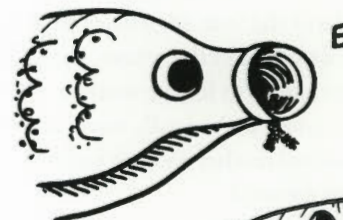
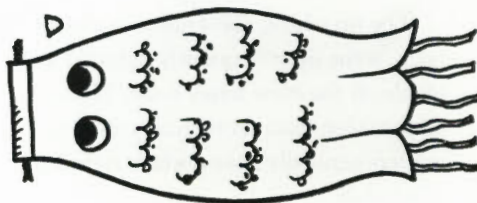
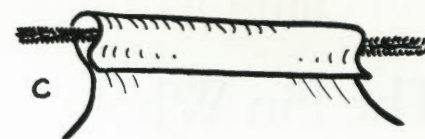
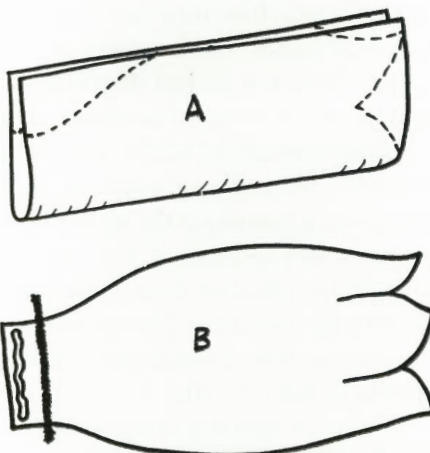
## To Make a Fish Kite:

1. Fold a piece of tissue paper in half lengthwise. (Do not crease it.)
2. Starting at the edge of the paper, begin tracing the shape of your fish as shown in diagram A. The edge will serve as the fish's mouth, and the shape of the fish should be narrow and straight.
3. Cut through both layers of paper and unfold the paper.
4. Put a line of glue at the fish's mouth, the short, straight edge of the paper, as shown in diagram B. Lay a pipe cleaner on the paper next to the glue and fold the glue section over to secure the pipe cleaner as shown in diagram C.
5. Turn the paper over and lay your fish flat. Decorate with eyes, fins, scales and a tail using sequins, colored tissue paper, glitter and glue as shown in diagram D.

6. After your fish has been decorated, hold the kite by the ends of the pipe cleaner and bend the pipe cleaner into a circle, twisting the ends tightly together as shown in diagram E.

7. Glue the bottom of the fish together as shown in diagram F. Leave the tail and mouth ends open.

8. Create a "bridle" for the fish at its mouth by tying one end of a short string around the twisted section of pipe cleaner and then tying the other end of the string to the opposite end of the pipe cleaner. You will have to carefully puncture a small hole in the tissue paper to pull the string through to tie the knots as shown in figure G.



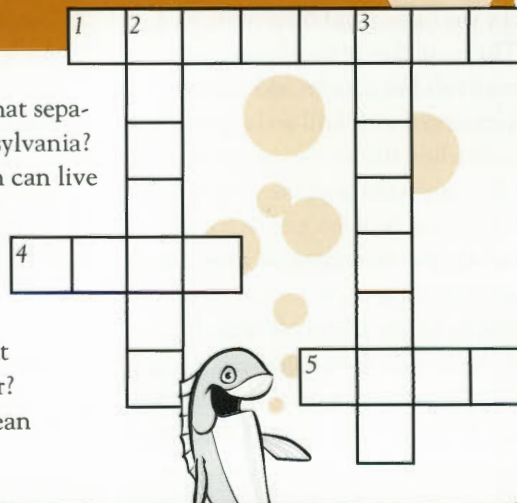
## A Fishy Crossword Puzzle

### Across:

1. What is the body of water that separates New Jersey from Pennsylvania?
4. What native New Jersey fish can live in both fresh and salt water?
5. What is the most common aquatic life in waterways?

### Down:

2. What is the place called that has both salt and fresh water?
3. What is the name of the ocean that borders New Jersey?



ANSWERS: ACROSS: 1-DELAWARE 4-SHAD 5-FISH, DOWN: 2-ESTUARY 3-ATLANTIC

# Wildlife in New Jersey

## The Fin Whale

The fin whale, also known as the fin-back, is the most frequently sighted large whale off the New Jersey coast. Though seldom seen from shore, many offshore anglers generally have a whale sighting tale to tell.

Reported in New Jersey waters during all months of the year, fin whales seem to be more abundant in the winter, probably while moving north for the summer. Off the Jersey coast, they usually travel alone, but occasional mother and calf sightings have been reported.

Fin whales, *Balaenoptera physalus*, are found in all major oceans. The North Atlantic range of fin whales seems to be from about mid-Florida to Labrador, but they appear most abundant from New Jersey northward. Two other main concentrations of the species can be found in an area between the British Isles, just south of Iceland, to Greenland and along the west coast of Greenland.

It is a baleen whale, which means that it does not have teeth like orcas, dolphins and porpoises, but rather has stiff bristles which grow from its upper jaw. These act like strainers. Members of this group eat rather small marine life by filling their mouths with water rich in the food source, partly closing the mouth and forcing water out with the tongue. The food is strained out by the baleen and then swallowed.

The main diet of fin whales is schools of small fish like capelin and herring, supplemented with krill and copepods, especially when the whales are young. They can feed at depths or at the surface, wherever the schools of fish can be found. These whales often swim on their side, which may allow them to turn more sharply to follow schools of small fish.

As mammals, fin whales must surface to breathe. Following dives that can last 10 to 15 minutes, the spout of this baleen giant can blow as high as 20 feet. The spout is a cloud created when steamy compressed air is exhaled into a cooler atmo-

sphere. Upon submerging again, the whale closes off air passages with its valve nostrils, called a blowhole.

Fins are large whales. The average size of an adult male is about 75 feet, second in length only to the blue whale (which averages 90 feet, compared to 45 feet for the humpback). They can be distinguished by the white on the right side of the lower jaw extending back toward mid-body. The left side is all dark. While at the surface their dorsal fin and back are often prominent. When diving, fin whales rarely show their flukes (tails).

Each species of whale and, indeed, individual whales have their own characteristic vocal sounds. The fin whales are known for the low-pitched, deep voices, second only to the huge blue whales.

Being mammals, all whales bear their young live and feed them with milk. Fin whales reach maturity at the age of five or six, when they are nearly 60 feet long. A single calf is carried for about a year and is 20 feet long when born. The calf nurses for seven months, at which time it may grow to 38 feet in length.

Whales evolved from hairy, terrestrial four-legged mammals millions of years ago. About the only remnant of their hairiness is their bristled baleen. Having their body weight supported by water allowed them to develop massive sizes with thick layers of fatty blubber. This gives them buoyancy and insulates their warm interior against cold ocean waters.

Whaling seems to have been originated in the Middle Ages by coastal Basque communities in Europe and by the Japanese. Oar-driven boats were launched from the shore. Whales were fished for food and for oil used in lamps. Later uses included livestock feed, lubricants and the manufacture of certain cosmetics. Sailing fleets evolved to increase the harvest, which eventually encompassed the world's oceans. In modern times, large factory ships and fast motor craft with harpoon

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Whales evolved  
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guns made it possible to over-harvest almost all species of hunted whales.

By the 1950s whaling had reduced the valuable fin whale populations, and others, to about one-fifth their former numbers. In response to these greatly depleted stocks of large whales, the whaling nations formed the International Whaling Commission in 1946 to help study the abundance of whale populations and control their harvest.

Best estimates, which are difficult to compile, seem to indicate that there are more than 10,000 fin whales in the North Atlantic, 15,000 in the North Pacific and perhaps 80,000 in the Southern Hemisphere.

The resurgence of whale populations has given rise to a new industry — whale watching. Several tours are offered in Cape May and Wildwood. To protect the many species of whales off United States waters, the National Marine Fisheries (NMF) has imposed guidelines that prohibit the public from harassing whales by changing their direction, interrupting their feeding or engaging in any actions that causes them to act unnaturally. To report harassment of whale species, call the NMF at (609) 390-8303. To report whale sightings, particularly those close to the beach, call the Marine Mammal Stranding Center at (609) 266-0538.

by Larry Sarner, a biologist specializing in marine, coastal and aquatic education programs with the Information and Education Office of the Division of Fish, Game and Wildlife





"Galloping Shadows" is among the aerial artistry of pilot/photographer Owen Kanzler that will be featured in the fall issue.

## In Next Season's Issue

Get a Bird's Eye View of New Jersey Landscapes

Discover the Surprising Arthur Kill

Wind Your Way to the State's Wineries

Learn About Bog Turtles in the Great Swamp

Take Count of Fish in the Sea

Go on the Trail of the Quail