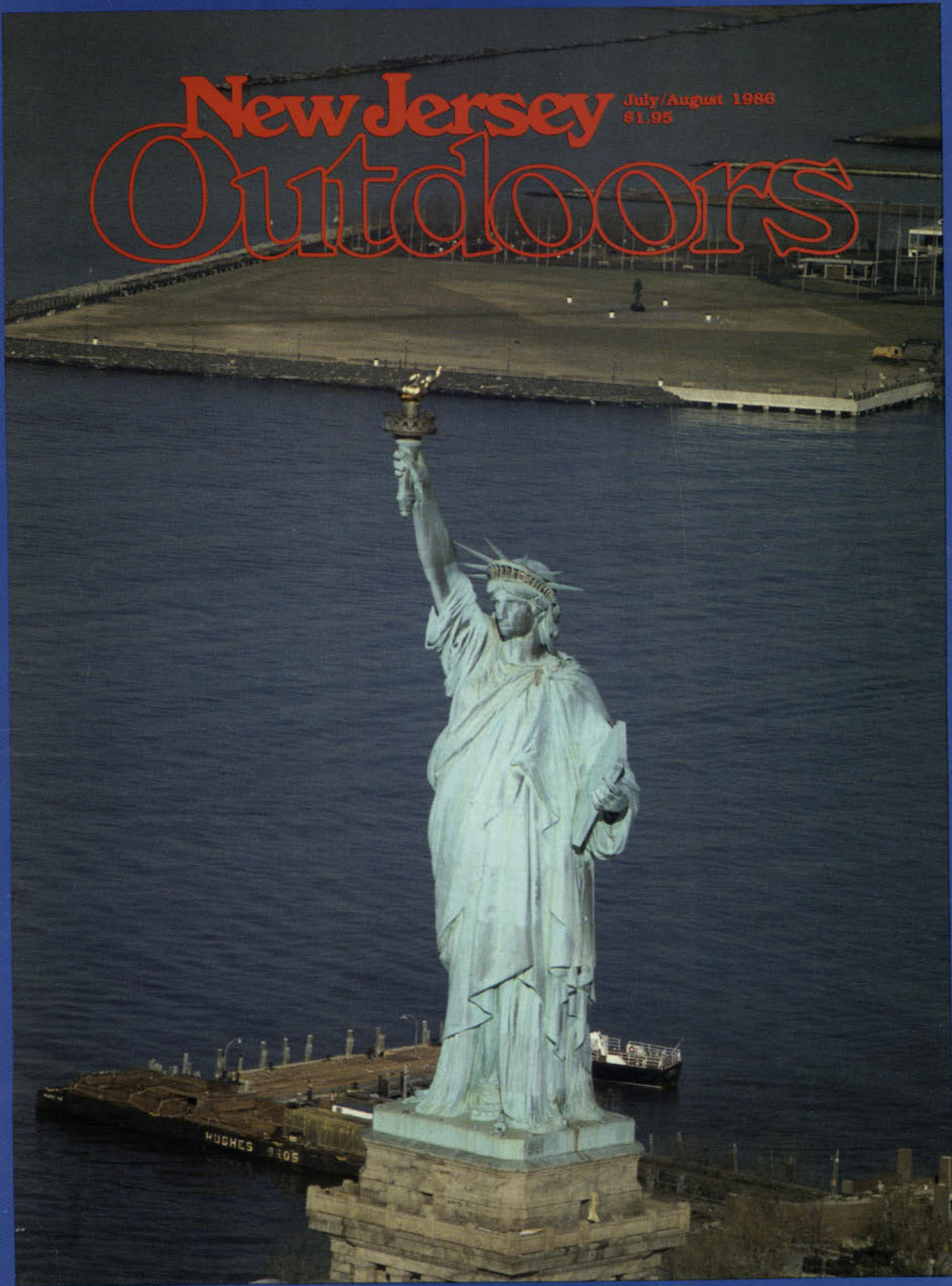


New Jersey July/August 1986
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Outdoors



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State of New Jersey

Thomas H. Kean
Governor

Department of Environmental Protection

Richard T. Dewling
Commissioner

Natural Resources Group

Helen C. Fenske
Assistant Commissioner

Resources Interpretive Services

Howard J. Wolf, Director
CN 402, Trenton, NJ 08625
Telephone: (609) 633-2102

New Jersey Outdoors Magazine Staff

Steve Perrone
Editor

Sally Dudley
Special Projects Editor

Contributing Editors

Sharon Ann Wander

Cathie Cush

Carolyn Bevis

Circulation

Lucy Brennan

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NEW JERSEY OUTDOORS CREDO

This publication is dedicated to the wise management and conservation of our natural resources and to the fostering of greater appreciation of the outdoors. The purpose of this publication is to promote proper use and appreciation of our natural, cultural, and recreational resources, and to provide information that will help protect and improve the environment of New Jersey.

FROM THE EDITOR

School's out and the lazy days of summer are upon us again. Do something this summer, get out and get active. Check our Calendar of Events for ideas. I did and went canoeing in the pines—about seven miles on the Batsto River—and we capsized when we went to the aid of another capsized craft. It was delicious. It was an 85-degree day and the water was refreshing. But my money, my handkerchief, and what was left of my lunch were soaked! Fortunately, I didn't bring my camera. So do it . . .

Now something new for teachers and school children, ages 9 to 14, starting up in our September/October 1986 issue just in time for the new school year. It's a new center-spread, illustrated snap-out segment called *New Jersey Outdoors Explorer* that will deal with our environment by interpreting and tying in articles in *NJO* and with appropriate teaching aids available through DEP's Environmental Awareness and Education Program. *NJO Explorer* will contain suggestions for activities and field trips as well as regular features, such as "Look What We Discovered," *Explorer Ex-*

change," and "Out My Bedroom Window."

I hesitate to talk about the next school year so soon after the close of the last one, but our aim is to sell the concept to teachers and administrators because we need to sell a great many discounted classroom subscriptions in order to justify making *NJ Explorer* a fulltime feature.

Each student will have an individual subscription, but each subscription will be part of a group subscription purchased by an entire class.

For more information about *NJO Explorer*, contact NJO/Environmental Awareness and Education, DEP Resources Interpretive Service, CN 402, Trenton, NJ 08625. Phone: 609-633-2103

Another item of interest: a new 16-page *New Jersey Outdoors Index*, January/February 1974 to November/December 1985, is available free. Please send a stamped self-addressed No. 10 or larger envelope to:

New Jersey Outdoors Index
CN 402
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IN THIS ISSUE

The "Lady" on the front cover introduces the focus for this issue—the national celebration of her 100th birthday. The pictorial spread beginning on page 15 depicts the role played by the Statue of Liberty as an international symbol of freedom and hope.

Our mid-summer issue kicks off with *Summer on a Stream* by Al Peinecke, a frequent contributor and a summer stream angler.

Scuba divers will enjoy *Beneath the Waves* by Steve Nagiewicz and Herb Segars. Both authors have been here before.

Writer Thomas J. Horwath informs us that *Bicycle Touring in the Garden State Is Not Always a Bed of Roses*.

Frequent contributor Thomas Pagliaroli likes to fish for summer "Togs," so

read the article titled, *Blackfish*.

The Sky's the Limit by Rosalie Strachan is all about the Santore family, New Jersey's oldest and largest manufacturer of fireworks, a family enterprise started in 1890 by Augustino Santore.

A President Remembered/Grover Cleveland by Susanne Banta Harper ties into the rededication of the Statue of Liberty because President Cleveland presided over the original dedication of the statue on October 28, 1886.

Writer/angler Ferd Di Palma, a frequent contributor when he was alive, would appreciate seeing his *Dogfish Anyone?* article in print.

The Osprey article, written and photographed by Herb Segars, emphasizes the success of the osprey restoration

program carried out by DEP's Division of Fish, Game and Wildlife.

The Wetlands Institute, by new author, David K. Noss, discusses the research and public education functions of this Stone Harbor facility.

Another new author, biology teacher David Grant, introduces us to a strange-looking critter, *The Click Beetle*.

Our Wildlife in New Jersey feature, *The Eastern Woodrat* was written by James Sciasca, a biologist with the Division of Fish, Game and Wildlife's Endangered and Nongame Program.

Steve Perone

Summer on a Stream

BY AL PEINECKE
PHOTOS BY AUTHOR

A twenty-minute walk upstream from the bridge and the path all but peters out. Circling overhead, a redtail hawk screams his protest at our intrusion. The stream below glistens through the foliage as it threads its way through an array of boulders. A farm machine clattering in a distant field blends with the murmuring of the stream to provide a monotone of sound. But this is not some super-stream in some faraway place, it is one of several where New Jersey anglers may cast a line on a summer day.

Local angling lore has it that river smallmouth bass are willing to strike when the corn begins to ripen. As an added inducement, summer offers the possibility of a mixed bag on those streams patrolled by trout fishermen earlier in the season. Now largely deserted, the low, clear waters offer a challenge to the contemplative angler.

Black Ghost Streamer

The fly rod has been chosen for the day's outing, and we tie on a Black Ghost streamer, a size four, long-shanked affair with a white marabou wing, silver-ribbed black floss body, and a few wisps of yellow hackle for tail and throat. A size eight Wooly Worm goes along as the dropper fly on a four-inch length of nylon about 15 inches above the streamer. During the day in mid-summer, significant fly hatches are rare, thus we favor flies which represent underwater aquatic life.

It is mid-morning and the hazy sun has just topped the tall hardwoods bordering the east bank of the trough the river has carved through the valley. We slither down the bank and wade out knee-deep—a few false casts and the flies drop to the water. The streamer chases the dropper as the various pockets interspersed among the boulders are addressed, and a half-pint smallmouth takes to the air, sporting the long white fly in his jaw. Following a display of youthful acrobatics he is carefully released, perhaps to grow larger and wiser.

The stream shunts off and deepens as it carves its way along the far bank. A cast alongside a submerged tree tangle brings a solid strike and a respectable-size smallmouth, enticed by the Black Ghost, vaults skyward and then bores for the sunken haven. Rod pressure turns him and directly he comes to net. His glistening bronze form is deposited on a bed of dampened leaves in the old wicker creel.

Now the river sprawls over a shallow gravel riffle and we shuffle along toward deeper water



ahead. Sporadic casts to the few possible holding spots turn up some small fry, and we move along until the water deepens. A slack pocket near the far bank produces a splashy strike, but we draw a blank.

Quietly absorbed in placing a cast beneath an overhanging maple, we become aware of a splash behind us. We turn to see what manner of finny upstart deigns to deride our efforts, only to spot several deer beating a hasty retreat up the bank, the ripples they made rapidly melding into the current. Perhaps a vagrant breeze had carried our scent their way. We reflect upon the fact that there is more to a day on the stream than a full creel.

Just downstream, where the current sluices between a pair of flat rocks, the streamer garners smallmouth number two—a mate to the first.

Strategy

We repair to the bank for a snack, and watch a great blue heron lumber across the nearby meadow and disappear downstream. The leader is checked for fraying—a nine-foot leader tapered to 2X affords the ability to handle the heavier flies. Of the myriad fly patterns, a certain few have evolved as perennial workhorses. The Black Ghost marabou (white wing), and the Black Marabou streamers, along with the Muddler, ride the end of the leader, while a Wooly Worm, Hair Wing Coachman, or Hellgramite fly is knotted to the dropper strand. There are certain to be other productive patterns—these have been our favorites.

As a graduate of the old-time wet fly school, the two-fly cast has become second nature. Besides offering multiple choice, it seems as though fish sometimes hit the dropper because they think it is being chased by the streamer. In fast water, the tail fly can act as a sea anchor while the dropper skips along near the top. Rises to this manner of presentation can be spectacular. Occasionally we get

Five favorite flies for summer stream fishing, from the left: Black Marabou, Black Ghost marabou, Muddler, Hellgramite fly, and a sparsely dressed Wooly Worm.

Opposite:

When the corn begins to ripen, some days bring the bounty of a mixed catch of smallmouth bass and trout.

Summer stream fishing affords a great opportunity to take a youngster fishing. Bass, trout, and the often willing panfish are apt to keep young interest high while learning the vagaries of the stream.

a double, and, very rarely, a mixed double of bass and trout.

On a hunch, (we often heed hunches), a Black Marabou with silver body relieves the white fly, and the Wooly Worm is replaced by a Hellgramite fly. Our favorites, the marabous, have a translucent, lifelike action in the water and often have elicited strikes on slow days.

But, like the river, the day slides by, and we had best not tarry if we hope to finish our chosen stretch of water. Spring floods had deposited a huge tree at the deep end of the next pool, and we approach with expectation of a strike from "the one that got away" last week.

The Catch

Systematically we work toward our target. A cast quartering upstream allows the flies to sink before the current swirls them alongside the tree trunk. There is a golden flash in the dark shadows, and we are fast to a nice brown trout. A stubborn effort to regain his lair fails and soon we admire his coloring, apparently a holdover from an earlier stocking. We remove the Black Marabou, add the trout to the creel, and enjoy the heft of the added weight.

Occasionally, as our way progresses along the stream, we pause to unsling the camera and record some of the sights. There are vistas, wildflowers, trees, and yes—fish. They will be pleasant to view some winter day while outside the storm rages. We might even imagine a few beads of perspiration trickling down our backs!

The current slackens and some overhanging willows present a likely spot for bluegills. We send the Wooly Worm and a Hair Wing Coachman to investigate. The cast sinks about a foot and a *slow* hand-twist retrieve brings a solid strike. Bluegill number one—to be followed by a half-dozen counterparts. Hard to surpass in the pan, we prefer to skin them, at the same time cutting out the dorsal and anal fins.

It is mid-afternoon now, and the clouds are mounting up in the hazy sky. We move on downstream, and at a sharp bend the current deepens and runs along a rock-strewn embankment. The Hellgramite fly is back at work and a feisty smallmouth seems to think it was just what he had been waiting for. We add him to the creel to complete the day's catch.

Clambering up the bank we meet the path mid-way. A kingfisher rattles along the stream below and we wish him well ... after all, we have a common bond. We trudge along toward the bridge, and, somehow, mowing the lawn at home does not seem such a chore—and the weeds waiting in the garden do not present such a menace.



Beneath the Waves



*Diver Roy Sorenson
swims over the wreck,
"Stolt Degalt."*

BY STEVE NAGIEWICZ & HERB SEGARS
PHOTOGRAPHY BY HERB SEGARS

We have all watched television and marveled at the presentations of renowned underwater explorer Jacques Cousteau, or the movie fiction of Peter Benchley's "Jaws" or "The Deep." They have given us a glimpse into the strange underwater world that few of us get to explore. Yet how many of us have sat along the water's edge and wondered what mysteries must lie beneath the waves?

There are thousands of certified scuba divers in New Jersey and many more from neighboring New York and Pennsylvania. The sport is enjoyed by a large cross section of people. Most of the organizations that train divers set a minimum age limit of 12. At the upper end of the spectrum, many divers over the age of 60 have entered the undersea world.

Why do we venture into this undersea domain? The answer lies with the individual. For some, it is the chance to discover the mystery and beauty of an alien world. For others, it is the ability to glide and soar effortlessly over vast reefs whose palette of colors and panorama of fish and coral life seem like paintings come to life.

This picture is somewhat different for New Jersey divers. Here, the warm, clear waters of the Caribbean are replaced by the cooler blue-green waters of the Mid-Atlantic. The New Jersey diver trades the tranquil setting of the coral reefs for the intrigue of shipwrecks. Mere mention of the word "shipwrecks" conjures visions of pirate ships laden with treasure, or maritime disasters like the tragedy of Morro Castle, which burned off Asbury Park, or sinking of the Stolt Dagali, which was sliced in half by the passenger liner Shalom on Thanksgiving 1964.

A typical New Jersey dive trip could begin with a visit to the wreck of the Stolt, followed by visits to several more commonplace or unknown shipwrecks. These wrecks provide gathering areas for diverse marine life that feeds in the nutrient-rich waters off the Jersey shore. The normally barren, sandy ocean floor offers the marine community very little in the way of shelter and food sources. Shipwrecks solve this dilemma. These derelict and decaying hulks are transformed into reef communities full of colorful cold-water corals and anemones.

The shipwrecks, once victims to violent storms, collisions, fires and the misfortunes of war, are no longer able to provide transport and passage. Their human captain and crew

*Diver exits water with
dive flag in hand*



are replaced by sea bass, bergalls and ling which now patrol the decks and cargo holds. Jumbled piles of machinery and debris offer hiding places for lobster and crabs. Every available space is utilized and life is everywhere! These wrecks resemble small islands under the sea; communities where fish are the residents and scuba divers are the tourists.

On most spring and summer days, boats can be seen heading out from the many harbors and inlets along the shore, carrying scuba divers out to these fantastic dive sites. There are more than 4,000 recorded shipwrecks, and each offer divers something different. Some can even provide an insight into the maritime history of the New Jersey coast.

Shifting sands on the ocean bottom regularly reveal new pieces of the wrecks, helping artifact divers and underwater archeologists uncover brass and bronze relics of the past. Diving offers an opportunity to explore old shipwrecks and to discover nautical antiques such as glass bottles or bits of brass. On rare occasions, the shipwrecks may yield gold or silver coins, valuable china or even brass cannons. Many such items have been recovered from several ships that are rumored to be treasure ships!

Other divers find that spearfishing is their favorite underwater pursuit. Their quarry might be flounder, blackfish, seabass, ling or striped bass. Many times an unsuspecting diver will surprise a flounder lying camou-

flaged on the sand, causing it to flitter away like a Frisbee skimming over the sand. Flounder are sometimes so numerous that one frightened fish will race away only to startle another, which will scare another. . . . Before long the fleeing flounder look like dozens of shoeless soles flapping in the breeze!

Underwater photographers find that the diverse forms of marine life make excellent subjects. Capturing the scenic beauty of this underwater world is of prime importance to the photographer. Different tastes and perspectives are evident in each underwater photographer's photo album. Whether their models are fish, other divers or the myriad of small invertebrate life that thrives on the wrecks, the end result is the same—the beauty of this undersea kingdom is brought to their friends on land.

Most seasoned Jersey divers search the crevices and holes on these shipwrecks for an elusive but delicious crustacean known as the North American lobster. Few New Jerseyans are aware of the large lobster population located off this coast. Even fewer are aware of the methods divers use to capture these tasty crustaceans. "I know how you catch them," quoted one dockside bystander. "They are just walking all over the bottom, waiting for you to scoop them into your bag." If it were only true! It would save many divers several bruised fingers! Lobsters live in holes on wrecks. When viewed by searching divers, they appear claws first. To catch a lobster, a diver must plunge his or her hand into this hole with sufficient speed to grab the lobster before it can retreat deeper into its lair. On many occasions the lobster is quicker, leaving the unfortunate diver to discover just how hard it can pinch.

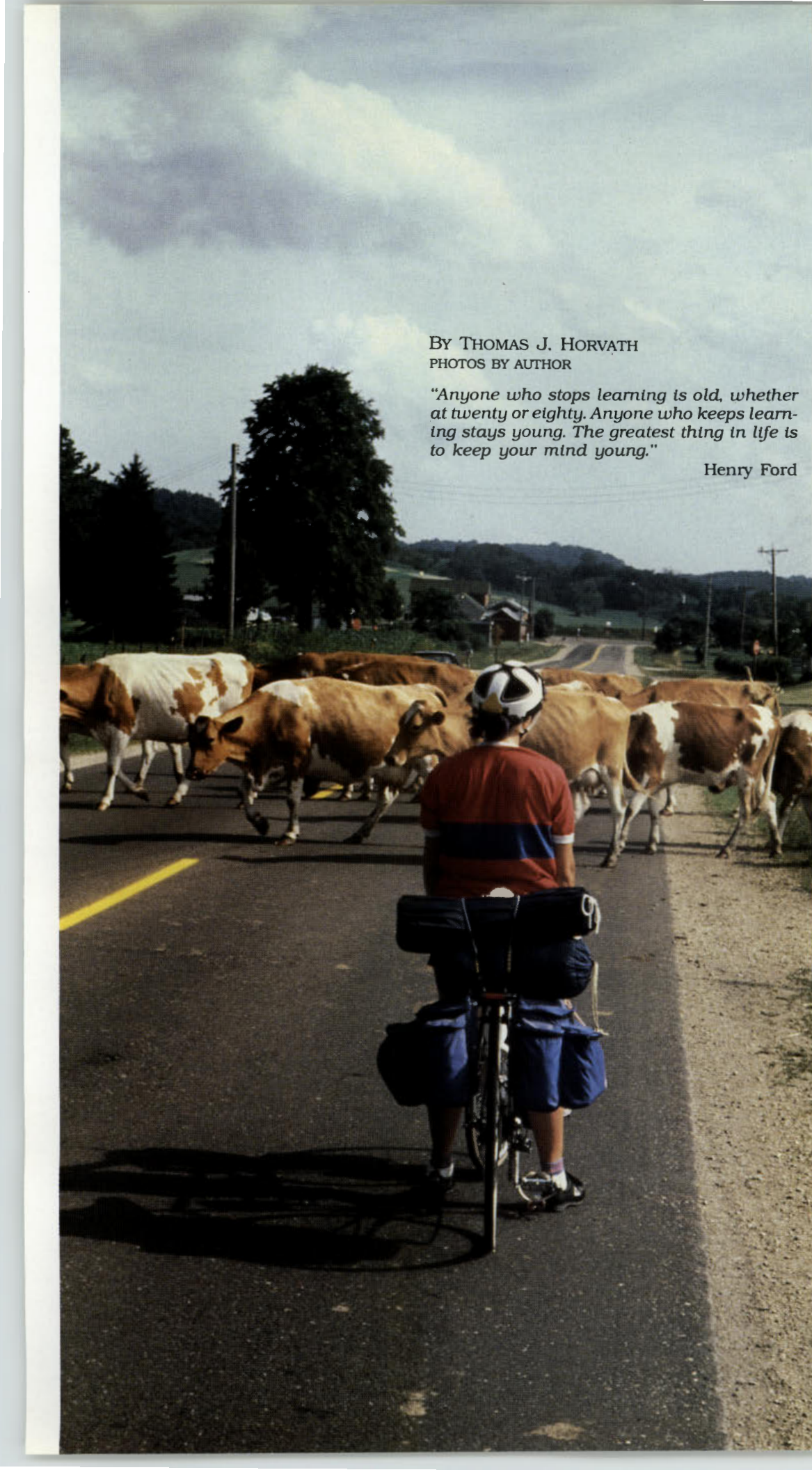
Divers and fisherman are working with marine biologists to help create artificial reefs to attract and support marine life. These man-made reefs are often no more than old ships, useless barges or even collections of old tires. If you could imagine what an old junkyard would look like underwater, you would have a good idea of what the artificial reefs are like. The reefs help provide fish with more sanctuaries on the barren seafloor.

New Jersey's diving community has worked also with the state museum to set up educational exhibits of relics and artifacts recovered from the wrecks off New Jersey.

Whatever kind of diving one might choose, be it offshore wrecks, man-made reefs, rock piles or inlets, it is available in New Jersey. So the next time you spot strangely clad divers preparing to dive, you might just like to tag along and visit a most unforgettable adventureland—New Jersey beneath the waves.



Eleven pound lobster dwarfs 11-year old Tom Segars



BY THOMAS J. HORVATH
PHOTOS BY AUTHOR

"Anyone who stops learning is old, whether at twenty or eighty. Anyone who keeps learning stays young. The greatest thing in life is to keep your mind young."

Henry Ford

Bicycle Touring

*is not
always
a bed of
roses!*

Bicycle touring is not a 9-to-5 job where you leave the people and problems behind at quitting time. In this venture, the stress, physical strain, and constant companionship can sometimes ignite a short fuse. If that happens and is not handled appropriately, the ride may soon deteriorate into a survival test for all.



The end of a tough day—but the magnificent New Jersey sunset refreshes the body and soul.

There are numerous lessons to be learned for the biker riding his first tour. During the tour, he will probably encounter situations that require definitive action. He will also learn how successful his planning was for the trip and what his reactions are to adverse weather conditions. More important, he will learn how to deal with other members of the group when points of conflict loom.

Take time to think about the people you will be touring with. How well do you actually know them? Will their ideas of a tour be compatible with what you think touring should be? By taking the time to consider the group's interests, the good times can only be made better and the bad times will not seem as bad.

When the opportunity presents itself, take time to learn about an area's history or talk with its residents. These are only two of the many activities that can make bike touring more than just exercise.

History can be absorbed at your own pace. The roadside historical markers are only passing blurs when seen through a car's windshield. Now you will be able to discover what they have to say at a more relaxed pace.

Close Encounters

Other matters the bicyclist will have to contend with during his travels are close encounters of three kinds: dogs, the weather, and cars.

The adage, "A dog is man's best friend," was obviously composed by a non-bicyclist. In all probability, the rider will have to resort to evasive tactics more than once in his bicycling lifetime in avoiding man's best friend.

No simple solution exists for the biker confronted by a dog intent upon wreaking havoc; the response will vary depending upon the terrain and type of dog.

I generally use one of three methods when such a confrontation occurs; however, what has been successful for me may not work for you. Be prepared to quickly devise your own strategy if my advice should fail.

My first suggestion is to ignore the dog and continue on your way. Give a threatening dog a wide berth. Continue at the same steady pace, acting as if the dog were part of the scenery. The addition of a "nice doggie," in a soothing voice, may also help to pacify the dog.

A second evasive tactic to be used when bicycling downhill or on level ground and a dog starts nipping at your heels is the "outrun 'em" technique. This method utilizes a combination of fright, favorable terrain, and adrenaline for maximum speed to quickly put a safe distance between you and the dog. It's amazing how fast one can pedal in this situation.

The third method is get off your bike, on the side opposite the dog, stoop down to the dog's eye level and say "NO!" in a firm voice. This method allows the bicycle to serve as a protective barrier in case of a possible attack. A voice command identifies the biker as an authority figure rather than an intruder in the dog's domain. By using this method and keeping calm the dog may continue to bark, but the chances of his attacking will have been lessened.

As the barometer rises and falls so does the biker's touring enjoyment. Coping with the heat, rain, and wind will determine if trip plan-

ning was sufficient. It's too late to lament, "If only I had brought along my raingear..." when you and your equipment are soaked.

Despite what some experts say, riding in the rain is no fun. Wait it out under the first available shelter you come across. If you must continue biking, ride slowly and avoid any muddy puddles. That puddle might really be a sinkhole in disguise. Pedal into it and you might not pedal out!

Avoid wearing a poncho while riding because those loose corners can easily become entangled in the wheels. A much safer attire would be the rain jacket and pants combination available in bike shops. Wearing a hat with a brim isn't a bad idea either. It keeps the rain and road dirt from getting into your eyes.

Take time to wipe down the bike thoroughly after the day's ride is done. Reoil all movable parts, derailleurs, shifting levers, and chain to prevent rust from settling in.

The wind silently overtakes you at no set time. Miles are effortlessly reeled off when the wind is with you. Reverse its direction and the wind becomes your nemesis, making every crank of the pedal a gut-busting effort. Pedaling against it you soon learn to despise it.

To combat the wind and make a group's ride less strenuous, a technique called drafting can be employed. In drafting, the lead rider will set a steady pace with the other cyclists following close behind in single file. This allows the leader to create an area in which the trailing riders can keep the same pace without expending extra energy to battle the wind.

It's those "Lazy, Hazy Days of Summer..." which Nat King Cole sings about that cause bikers to break out in a cold sweat. After a day of biking under a sweltering sun, you question your sanity in going biking today in the first place.

On a hot day increase the amount of water you drink to replace what is lost through perspiring. Schedule your break to avoid riding during the hottest time of the day. These are basic precautions that are sometimes overlooked.

Go forth, but be aware of the third close encounter—cars. Bicycling on a road with 10-foot traffic lanes, a high volume of traffic, and gravel shoulders can only give a bicyclist gray hairs before his time.

You might encounter the motorist who revels in scaring an unsuspecting biker by blowing his horn or seeing how close he can bring his car to your bike while you're riding it.

But for every inconsiderate driver, there are others who acknowledge your effort with a thumbs-up signal. What a boost to those sagging spirits!

Discover New Lifestyles

Plan your route carefully. Being forced to ride a city route, complete with honking cars, cursing drivers, stifling exhaust fumes, etc., as a result of inadequate planning will only create stress and tension within the group.

Bicycle touring should not be through cities. Instead, it should follow lesser-traveled roads that offer a chance to discover new lifestyles. Biking these backroads, you will learn about New Jersey lifestyles from "see-level."

Another intriguing facet of bike touring is the fact that strangers are inclined to strike up a spontaneous conversation, a situation that doesn't often occur when traveling by other modes of transport. It allows you to see and talk with people, opening your mind to new ideas and philosophies.

Talking over the day's happenings represents a way to avert or reduce problems by candidly discussing them among the group. Honest communication can greatly contribute to a tour's enjoyment. It should be discussed in an open and sincere manner.

However, the best part of bike touring comes when you are not doing it. After pedaling so long that the bike's seat feels as if it has become part of your anatomy, then pausing for a short break, the tranquility becomes more evident than you realized.

The final two lines from Robert Frost's poem "The Road Not Taken" are worth contemplating as you bicycle New Jersey's back roads:

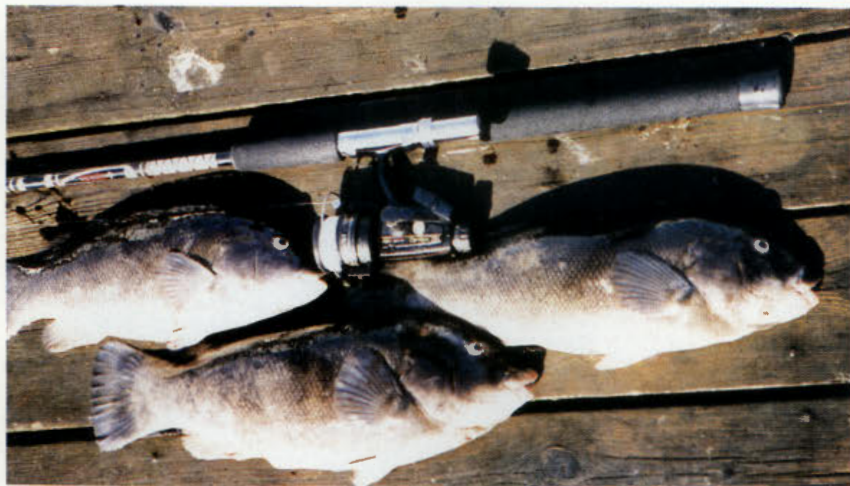
... and I—I took the one less traveled by, And that has made all the difference.



A stop for home-grown nourishment along the way.

Blackfish

BY THOMAS DALE PAGLIAROLI



GREG VENTURO

Blackfish, or tautog, is becoming a mainstay in the autumn and spring fisheries along the Jersey coast. Despite the popularity of winter flounder and mackerel, tog boasts a dedicated band of followers, and the ranks are swelling with each passing season. Unlike the flounder, whose feeble wiggling leave much to be desired insofar as sport is concerned, and the mackerel, whose dark flesh is best suited to smoking or shark chum, the blackfish combines both muscle and flavor to create what has to be one of the finest inshore fisheries to patrons of the briny.

While it is true that the period between the last week in April until the first week of June traditionally offers the togger his best shot at these buck-tooth combatants, it is the summer months which provide exciting fishing for the landlubber angler and a chance for the tog to strut its stuff against light tackle. The trouble is that the blackfish goes relatively unnoticed because of all the attention heaped upon those summer superstars—the fluke and bluefish.

Blackfish are members of the *wrasse* family, a toothy conglomeration of fishes who display a passion for shellfish, be it the lowly clam or the regal lobster. The tog utilizes its buck teeth to nip mussels and other tidbits off the rocks as well as to subdue livelier prey before it is passed to the throat, where a second set of teeth crush the meal into a digestible mass before it is swallowed. The bulk of a tog's diet consists of clams, crabs, and mussels, although it is not adverse to tackling larger quarry such as lobster. Granted, it takes a mighty big tog to choke down a lobster; however, blackfish can and do reach heavyweight proportions. New Jersey currently holds the world record with a specimen tipping the scales at more than 20 pounds! For the most part though, blackfish frequenting the in-

Summer blackfish provide excellent sport and superlative table fare for those willing to give them a try.

shore wrecks weight in up to 12 pounds, with jetty togs rarely topping the five-pound mark.

I was first introduced to summer togging several years ago in Point Pleasant Beach. I had come down for several days of sun but rather than let the rod, reel and tackle box sit buried in the trunk, I purchased a dozen sandworms and picked my way out onto the rocks.

Bam! Another blackfish, a twin of the first

An hour and umpteenth drifts later all I had to show for my efforts was a sea robin which belted the worm with a lot of heart, but came in like a wet undershirt. For no particular reason I snipped off the large hook and replaced it with a #4 Mustad baitholder. I snapped a three-quarter ounce sinker onto the clip, replacing the three-ounce hunk of lead, baited up with a two-inch piece of worm and flipped out the mess just beyond the last visible rock. I felt a slight tap and retrieved, only to find the bait stripped. My pulse quickened as I hastily rebaited and plopped it out into the same spot. I struck at a slight hesitation in the line and was surprised at the fight I had on my hands. It was touch-and-go for a minute or two before I flipped a pound-and-a-half tog up onto the jetty rock. I stuffed it in the cooler and cast again. Bam! Another blackfish, a twin of the first was added to the cooler.

The next black tied me up in the nightmare of rip-rap under the surface and broke off. I dropped the bait into a hole in the rocks almost at my feet, and there was no soft nudge but a yank which snapped the rod downward and sent a tremor up my shoulder. I didn't give the fish a chance to react to the sting of the hook and dragged it up onto the rocks; not very sporting but very effective. This one went over three pounds. I ended up with seven blackfish within the hour, and my last piece of worm was lost to a tog which grabbed it before I even had a chance to close the bail.

Lugging the rod, cooler and tackle box, I half ran, half stumbled back to the bait shop. I had frequently cashed in on the fantastic blackfish bonanza which goes on every spring and fall at the Manasquan Inlet, but this was too much. It was July!

"Check it out!" I crowed. "Not bad for out of season, huh?"

The experts glanced into the cooler, but did not appear to be terribly impressed. "Blackfish hang out by the rocks all summer," the old timer stated mater-of-factly.

Summer blackfish are ideal game for the light tackle angler. Although the jetty togs will not be that large, they will fight like there is no tomorrow. These fish are squat, muscular, and are all shoulder, sort of like a fire plug. A tog will elect to slug it out on bottom and will test tackle to the point of leaving the outcome of the struggle in doubt. I will even go out on a limb and say that ounce for ounce, the tog just may be the toughest inshore fish. Some may scoff at that statement, but given the room to duke it out, a blackfish will display as much, if not more, endurance than a bluefish of similar size.

Care must be taken when handling blackfish. The dorsal spines have a nasty habit of impaling themselves into the soft flesh of a palm, and those buck teeth will rip out a steak or two from heedless fingers. Make no mistake about it: a blackfish's teeth can inflict painful and occasionally serious damage. A second of inattentiveness is all that it takes. A fisherman who was doing a job on the togs on the Manasquan side of the inlet last year was in the process of showing his young nephew the three-pounder's dental work when his finger just came a hair too close. The tog crunched down and went through the nail and almost to the bone. It didn't let go either, but stuck with the tenacity of a bulldog. Eventually he shook it off, and the blood was flowing like an artesian well. Needless to say the fishing was over for the day.

Top baits are fiddlers and green crabs

A stiff action rod with a soft tip for sensitivity in detecting the genteel manners of a tog as it takes the bait is the proper medicine. It should be designed to handle eight-to 14 pound test monofilament. The rod must possess a good amount of flex while still having the muscle to heave the fish off the bottom and/or out of the rocks. This is why fiberglass is the choice of most blackfish aficionados. The glass has the "give" so lacking in graphite, but still maintains the power to bring the fish out.

Reels are a sticky subject. It is futile to attempt to convert fishermen one way or another; suffice to say that it remains a matter of personal choice.

Terminal tackle is simple. If you do not make your own rigs, most tackle shops will carry a variety of ready-made for blackfish. One friend ties his own rigs and goes one better by using tiny bonito hooks rather than the standard

togging hooks. He claims that the hook is readily concealed in the body of a fiddler or piece of green crab, thus nearly eliminating the chance of a blackfish stripping the hook.

The top baits for togs are fiddlers and green crabs. Since there are available only during the spring and autumn, I will buy several bags at the end of the spring run, wrap them well and freeze them. Double or even triple wrap-

Search out summer blackfish along the jetties...

ping is necessary, especially with fiddlers, because they can get out of control in nothing flat! When planning a summer togging excursion, merely pack along a bag of the frozen crabs. Allow them to thaw partially before using. They work quite well, even after being frozen.

Sandworms are the more common bait of the summer togger. They are readily available and the blackfish will take them with nearly the same enthusiasm as they would a crab. Clams and mussels can also be used, but they aren't nearly as effective.

Search out summer blackfish along jetties or wherever rock are the dominant bottom structure. The jetties along Sandy Hook, on either side of the Manasquan Inlet and at Barnegat Light are known for their togs. I've spoken with divers who work these areas during the summer months and tell of hordes of blackfish scooting in and out of the rocks.

An incident last summer deepened my appreciation for the summer togs. I had been fishing the Point Pleasant side of the inlet when another angler scrambled over to make some small talk. There were a lot of fishermen working the inlet that day, drifting squid and killies for fluke.

"How are you making out?" I asked.

"Nothing but a few sea robins" came his reply. "How about you?"

I pointed to the cooler just as another tog sipped in the bit of sandworm. It contained five blackfish ranging between two and three pounds, and as I added another robust two-pounder to the cooler, the guy smirked.

"Only blackfish? Big deal!"

I asked him again if he caught anything and he shook his head before heading back to his spot along the wall.

"Yeah buddy," I thought "only blackfish."



DIVISION OF FISH, GAME & WILDLIFE

the Sky's the limit!



BY ROSALIE STRACHAN

*"... And the rockets' red glare,
The bombs bursting in air..."*

Nothing brings the words of our national anthem to life better than a spectacular Fourth of July fireworks display. And nothing else really seems to signal the start of summer.

Italian immigrants have been the major contributors to this American tradition. In New Jersey, the Santores, owners of Garden State Fireworks, are the state's largest manufacturer and world champions of this art.

Augustino Santore, the company's founder, had the usual youthful enthusiasm for fireworks, but he took his interest one step further. While most boys will merely play with fireworks, Augustino took the duds from the local firm in his native Italy, repacked them, and set off a spectacular display. In 1890, he moved to New Jersey, starting the business his grandsons run today.

Like their father and grandfather before them, Nunzio, August, and their sister Frances learned their craft as children. "You really are born into it," says Nunzio, the company's president.

The business is still a family affair, employing about 20 people year-round but adding 150 to 200 for the Fourth of July. These additional workers are also relatives or close family friends, people who can be trusted not only with potentially dangerous materials but with "trade secrets," formulas and methods of packing a shell that are developed and kept within a company to create its own unique displays.

A person unfamiliar with the manufacture of fireworks might expect one of the world's foremost companies to have a large, modern factory. But mass production hasn't come to this business, which depends on careful hand labor. And safety factors preclude the construction of large, impressive buildings. Small batches made in small buildings with lots of space in between has kept Garden State accident-free. "The local quarry calls us before they blast," comments Bruce Bassman, display designer. "Any unexpected loud noise can make you nervous in this business."

Surrounded by woods and swamp, Garden State Fireworks resembles a military outpost more than a business. Only the office is outside the stockade where the small, yellow buildings are guarded by dogs, watchmen, and barbed wire.

Blending of the chemical powders is done in one building which has a rubberized floor, covered lights, a specially-designed static-free telephone, and heat piped in from another building, all to eliminate the possibility of the slightest spark. Even the workers wear static-free clothing.

August, Nunzio, and a cousin are the only workers responsible for blending. "We still use our grandfather's notebooks, written in Italian," says Santore. These notebooks, about 100 years old, are based on even older "recipes." Ingredients range from chemicals like potassium perchlorate and mercuric thiocyanate to common household items like string, paste, and Kraft paper. It's how they're combined that produces unique effects.

After the basic ingredients are blended, the dampened "crumbs" are dried into powders and packed into paper canisters. If various effects are desired, a tube is placed down the center through which fuses will pass. Then different types of fireworks are packed around the tube, color stars and salutes being the most common, creating the familiar burst of color followed by a bang.

The entire canister is wrapped in brown paper, smeared with paste, and dried, with the process repeated several times. This strengthens and fireproofs the casing so it doesn't go off until it's well up in the air, sometimes as high as 1,800 feet.

Some canisters are "spiked," wrapped with string between the layers of paper and paste which makes them pop more dramatically, the colors inside bursting and hurtling out of the canister, rather than dropping out.

A lifting charge at the bottom of the canister propels it into the sky where various fuses detonate the explosives at a predetermined pace.

Even the fuses, cotton thread impregnated with black powder, are handmade at the factory. The entire process of making one shell, depending on its size and complexity, might take four days of hand labor. The final product will rip into the night sky, burst into color and noise, and die within seconds.

The Santores are noted for their exhibition shells, large aerial shells with multiple breaks, canisters that contain a variety or succession of effects. The split comet is a Santore specialty, a multi-break shell bursting to form a six-pointed star that breaks into sparkling golden "fireflies" that seem to melt as they drop from the sky.

For the international competition held every year in Monte Carlo, the Santores outdo themselves as well as everyone else.

PETER RALSTON

PHOTOS ON THIS PAGE
BY R. STRACHAN

Garden State Fireworks is a family enterprise. Nunzio Santore and his mother, Marta, look over a variety of the family's handiwork.

Augie Santore with the finished product after the fuse and powder are added: a five-inch red and green shell with a rising silver tail.



Garden State Fireworks won the 1982 World Championship by the sheer magnitude of their shells, hurtling rockets that weighed between 75 and 135 pounds into the soft Mediterranean sky. Within 25 minutes, they had shot off about \$600,000 worth of fireworks weighing approximately two tons. The Santores' fireworks were so effective, breaking hundreds of windows, that in 1983 the rules were changed so the largest shell can weigh only 22 pounds.

As 1982 World Champions, Garden State was invited back in 1983 to compete against other winners. The challenge this time was how to be effective within the new rules. And the Santores must have found the answer. "We were the first company to win back-to-back competitions," Nunzio says with modest pride.

Rather than relying on volume to blast the judges and spectators into stunned approval, variety was the keystone of the 1983 display. The Santores developed new pastel colors such as lavenders, pinks and ivories. (They have six shades of white.) Micro-flash techniques filled the sky with sparkling green and

white rain, keeping the sky bathed in color. Some of the individual rockets, containing 300 separate components, were developed especially for the competition.

Garden State didn't stint on mass effects this time, either. Starting with the minute-long opening barrage, containing more material than an entire July Fourth display usually does, until the 3,500 bomb finale, the Santores blasted off about 5 tons of explosives.

Fireworks aren't just for the traditional Independence Day celebrations anymore. Increasingly, rock concerts feature fireworks with the Santores providing displays for Genesis, Journey, and the Rolling Stones. Garden State also supplied fireworks for the 1984 Statute of Liberty display, a Mardi Gras festival in Trinidad, Patrick Kennedy's sixteenth birthday party in Hyannis Port, and the Stowe Winter Carnival in Vermont.

Although it would be fun, it isn't necessary to travel to exotic places to find the Santores' fireworks. They regularly supply displays for local Italian festivals as well as Fourth of July celebrations.

Celebrating a Special Birthday



The "Lady," as she is called with great fondness by many New Jerseyans, stands in the harbor off Liberty Park in Jersey City. Now resplendent after a five-year restoration, she is ready for the huge national celebration of her 100th birthday that started on July 4 and will continue through her actual birth date on October 28.

Her new torch—the design originally planned by her creator, Frederic Auguste Bartholdi—was lighted July 3 during the rededication ceremonies. The lighting began three days of celebration—with dozens of countries joining in to pay tribute to the Statue—a world symbol of freedom and hope.

New Jersey's Liberty State Park was at the center of many of the celebration activities. Named for the Statue of Liberty, the park is the land closest and most accessible, it lies just 1,750 feet west of the Statue.

The area is steeped in history. During the great immigration surge to America, the Statue welcomed millions of immigrants as their ships came into New York Harbor. Their entry was through Ellis Island, then America's immi-

gration center. The thousands of immigrants who were accepted daily were ferried to the Central Railroad of New Jersey (CRRNJ) Terminal where they boarded trains to a new life in America.

The Statue of Liberty, Ellis Island and the CRRNJ Terminal form a historic trilogy on the New Jersey shore.

History and patriotism are Liberty State Park's strong attractions. Since the first section of Liberty Park opened in 1976, hundreds of thousands of people annually have visited it. This year attendance at the park is expected to triple with visitors coming from every state and from the four corners of the world.

Liberty State Park is a developing park that treasures its history. Throughout the park are patriotic symbols, which enhance it as a gathering place for ethnic groups—both immigrants and descendants of immigrants for whom the Statue, Ellis Island and the CRRNJ Terminal stir deep emotions.

There is also a natural area that attracts wildlife and an education center that offers natural resources and history programs.

ALL PHOTOGRAPHS BY WALTER CHOROSZEWSKI
UNLESS OTHERWISE INDICATED

A sense of history, the pride of heritage, the passion of patriotism are the strong attractions of Liberty State Park.



A place for cultural entertainment, sports-oriented activities and family fun, Liberty park is making its mark not only in New Jersey, but nationally as well.

In the following pages is an intimate look at Liberty—New Jersey's emerging urban state park.

For the past few years the park was a perfect spot to watch the progress of the restoration and refurbishing of the Statue of Liberty. From the Administration building area, the Statue is always framed by 13 American flags representing the original American colonies. It was to commemorate the 100th anniversary of America's independence that France gave the Statue of Liberty to the American people.

On the South Lawn, directly west of the Statue of Liberty, is the Liberation Monument—a statement of man's humanity to man. The newest addition to the park, the statue was designed by Nathan Rapoport and dedicated by Governor Thomas H. Kean in May, 1985.

As you drive into the park, the road that leads directly toward the Statue is lined on both sides with the 50 state flags. They fly in the order that each state entered the Union. Our neighboring states, Delaware and Pennsylvania, are first and second; New Jersey's flag is third.

Within a half-mile radius of the park are three historic sites—the Statue of Liberty, Ellis Island and the CRRNJ Terminal. They form a historic trilogy commemorating the great surge of immigration and an important era in American history. Ferry service to the Statue of Liberty is available from Liberty State Park. A visit to all three sites will be possible when Ellis Island's restoration is completed in 1987.





***A hope for the future . . .
. . . the joy of achievement.***

The dream of hundreds of thousands of immigrants today is still, as it has been since our country began, to become an American citizen. A highlight of the State Ethnic Festival held in the Park each September is the swearing in ceremony for new citizens of Hudson County.

New American citizens express their special joy with the Nation's flag which just became their flag. The ceremony, always a moving one, takes on added significance in the historic setting of Liberty State Park.



Liberty State Park is a gathering place for the State's many ethnic groups.

New Jersey has more than 103 ethnic groups represented among its seven million people. Many of the groups gather for a huge State Ethnic Festival held in September in the CRRNJ Terminal area. As illustrated on these pages people come to celebrate the music and folk dances of their native cultures, to display their native dress and to demonstrate their native crafts.

Ethnic is the term applied to a group of people who have a common history, a common culture and who co-exist in one nation. No country in the world has the multiplicity of ethnic groups that exist in America.

The American people are immigrants or descendants of people who have immigrated here from every country of the world. And more arrive every day eager to become citizens.

In New Jersey, the ethnic groups are:

- | | | |
|-----------------|--------------|-----------------|
| Afghan | Estonian | Pakistani |
| Afro-American | Filipino | Panamanian |
| Albanian | Finnish | Peruvian |
| American Indian | French | Polish |
| Argentine | Frisian | Portuguese |
| Armenian | Georgian | Puerto Rican |
| Australian | German | Rumanian |
| Austrian | Greek | Russian |
| Azerbaijan | Grenadian | Scotch-Irish |
| Bahamian | Guyanese | Scottish |
| Bangladeshi | Gypsy | Serbian |
| Barbadian | Haitian | Sikh |
| Basque | Hungarian | Slovak |
| Belgian | Icelander | Slovenian |
| Bermudan | Indonesian | Spanish |
| Brazilian | Iranian | Swedish |
| Bulgarian | Irish | Swiss |
| Byelorussian | Israeli | Surinamese |
| Cambodian | Italian | Syrian |
| Carpatho-Rusyn | Jamaican | Syrian-Aramean |
| Chilean | Japanese | Taiwanese |
| Chinese | Jewish | Tatar |
| Circassian | Jordanian | Thai |
| Colombian | Kalmuk | Tibetan |
| Coptic | Korean | Trinidadian |
| Cossack | Laotian | Turkish |
| Croatian | Latvian | Turkistan |
| Cuban | Lithuanian | Ukrainian |
| Czech | Luxembourger | Uruguayan |
| Danish | Macedonian | Venezuelan |
| Dominican | Maltese | Vietnamese |
| Druse | Mexican | Virgin Islander |
| East Indian | Netherlander | Welsh |
| Egyptian | Norwegian | |
| English | Palestinian | |





The CRRNJ Terminal is the centerpiece of the Park.

For millions of immigrants, it was the

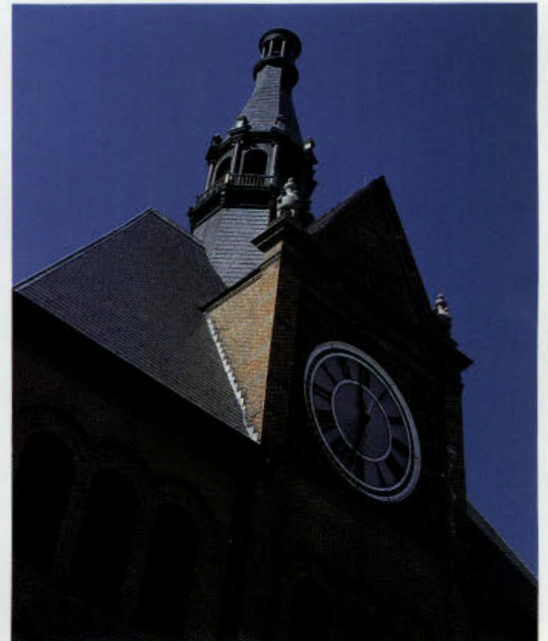
gateway to America.



The CRRNJ Terminal, built as a maritime terminal in 1889, provided the transition between ferry boat and railroad transportation. The central immigration entry established by the U.S. Government in 1892 was Ellis Island. Immigrants passed through its halls for routine screening before they could enter the country. Thousands daily then boarded ferries which took them the short distance across the harbor to the railroad station in New Jersey. Approaching the Terminal, they first saw the building's cupola and Howard clock. They found the Terminal bustling with daily commuters who once took the same journey, eagerly crowding through the train concourse to the gates to waiting trains—there were 20 tracks for departing trains.

Today, the trains and tracks are gone, but the Terminal building has been preserved and restored. A handsome building, its historic significance has been recognized through listing on both the state and national Register of Historic Places.

Inside the Terminal a main waiting room is used throughout the year for cultural and social functions. The open expanse of the room is enhanced by its decorative detail.





*A park for learning about the environment, seeing wildlife,
picnicking, attending cultural events and just having fun.*



At the edge of the park's natural area, overlooking the harbor and the Statue of Liberty, is the Environmental Interpretive Center. Designed by New Jersey architect, Michael Graves, the building will house an extensive exhibit to interpret the park's environmental, industrial and historical significance.

The natural area, an "island" in the midst of the east coast's most populated region, attracts wildlife. More than 230 species of birds have been identified in the area.

For children in the surrounding urban schools, the park is becoming a favorite place. There are nature trails and the Center's naturalists offer a number of wildlife study programs.

On warm, sunny days the park is filled with families enjoying the outdoors and picnicking within sight of the Statue of Liberty.

The Manhattan skyline across the harbor presents a magnificent backdrop for the park—the view alone is worth a visit to Liberty State Park.



MARLENA K CAMPBELL



FRANK GALLAGHER



FRANK GALLAGHER

CALENDAR OF EVENTS

SUMMER PROGRAMS

WASHINGTON CROSSING STATE PARK NATURE SUMMER PROGRAMS FOR CHILDREN. All ages, 3 to 12 years. The programs are *Audubon Adventures*, *Nature Discoveries*, and *Wild Times*. Phone (609) 737-0609 Wednesday to Sunday, 10 a.m. to 4 p.m. for registration and information.

THEATRE IN THE PARK at the Sunset Lake Amphitheatre, Bridgeton. Performances on July 9, August 6, 27 at 7 p.m. (609) 451-4802.

SUNDAY NIGHT CONCERT SERIES at the Riverfront, Bridgeton. Performances on July 6, 20, August 3, 17 at 7 p.m. (609) 451-4802.

Saturdays
and
Sundays

PEQUEST TROUT HATCHERY AND NATURAL RESOURCE EDUCATION CENTER open for tours, Oxford. (201) 637-4125.

JULY

3-12 OPEN AIR THEATRE PRESENTATION of "The Music Man" at Washington Crossing State Park, Titusville. (609) 737-0609.

4 INDEPENDENCE DAY CELEBRATION at Allaire State Park, Farmingdale. (201) 938-2371.

5 PADDLE AND PEDAL DAY AT SMITHVILLE MANSION at the Burlington County Park at Smithville, two miles east of Mt. Holly. The day will include two- and ten-mile bicycle rides, a children's decorated bicycle parade and a bicycle rodeo on the grounds, canoe races and a creek float on the Rancocas. Croquet, badminton, volleyball and horseshoes equipment will be set up within the walled gardens of the Mansion at Smithville. Call (609) 261-5068.

12

INNERTUBE FLOAT; HARRISVILLE-BODINE (Lower Beach-Evans Br. version). Two hours of beat-the-heat cruising in superb pineland environment, plus a short walk to start and from disembarking. Bring lunch, beverage and wear old sneakers (a must). Weak swimmers should also use life jackets. Meet by 10 a.m. opposite Harrisville Dam, Rt. 679, 11 miles south of Chatsworth. Bert Nixdorf (609) 267-7052.

2, 3

THE HISTORICAL SOCIETY OF ESTELL MANOR Sponsors the Third Annual Pine-lands Folk Festival in Atlantic County Park, Rt. 50, Estell Manor. Call Jan Bock (609) 476-4516 or Arlene Pacitto (609) 696-2374.

3

BATSO RIVER TUBING. For all ages down to the weefolk! First part involves only a ten-minute walk to the water, an excellent spot for all. Float in a jungle-like beautiful environment for another hour or more. Bring lunch and beverage, wear old sneakers, and meet by 10 a.m. in the field next to Atsion Ranger Station, Rt. 206, 10½ miles south of Red Lion Circle (Rtes. 206 & 70). Bert Nixdorf (609) 267-7052.

15

STONE HARBOR HERONRY & WETLANDS SUNSET SUPPER Always a sellout! Safari to the heronry for a live lecture, return to the Institute for dinner and our own slide programs—always a new twist! Call (609) 368-1211 for information and costs.

12

STONE HARBOR WETLANDS LOBSTER BAKE. Fabulous food prepared by George and Mary Jo Herr. George is an Institute Board member. Absolute fun and a terrific evening. Another sellout! (609) 368-1211.

20

STONE HARBOR WETLANDS—THE GREAT CRAB TOURNAMENT. A day of family fun followed by a crab feast. Instructions, games and a film. (609) 368-1211.

16

HIPPOPOTAMUS HIKE (under 4 miles). Like a hippo, amble along on a lazy summer day and plop into the nearest dipping hole as weather or fancy may dictate. Good for all ages down to about six. Sneakers are a must. Bring lunch and beverage, towel and perhaps dry footwear for going home. Meet at 10 a.m. in field adjacent to and north of Atsion Ranger Station, Rt. 206, 10½ miles south of Red Lion Circle (Rtes. 206 & 70). Bert Nixdorf (609) 267-7052.

SEPTEMBER

5, 6
& 7

THE GLASSBOWMAN ARCHERY CLUB will hold a three-day shoot that will feature a Friday night Coon Shoot. Call (609) 627-7029 or (609) 589-1391.

19

NEW JERSEY SYMPHONY CONCERT at the Sunset Lake Amphitheatre, Bridgeton at 7 p.m. Concludes with fireworks. (609) 451-4802.

13

SALEM COUNTY SPORTSMEN'S CLUB DECOY SHOW and NJ STATE CHAMPIONSHIP DUCK CALLING CONTEST. One mile from the southern end of the NJ Turnpike and one mile east of Deepwater, NJ, on Rt. 40. (609) 678-5994.

AUGUST

1, 2,
& 3

MORRIS COUNTY 4-H FAIR at Chubb Park, Route 24, Chester. Youth exhibits; petting farm; entertainment; demonstrations; fashion show; Chinese Auction; pet show; canoe races; goat milking; dog, rabbit, cavy and poultry shows; club carnivals; rocket launches; and much, more more! FREE! (201) 829-8592.

To avoid disappointment, it's best to call the numbers listed for more detailed information about each particular event.

A President Remembered Grover Cleveland



BY SUSANNE
BANTA HARPER

PHOTOS PROVIDED BY
OFFICE OF NJ HERITAGE

President Cleveland arrived in Jersey City with members of his cabinet on Wednesday, the day before the dedication ceremony. The presidential party was escorted from their train by the station master and taken to the Desbrosses Street Ferry which carried them to New York City. The ferry passed near Bedlow's Island where the newly erected statue was enshrouded in a misty rain that would continue into Thursday. Although the dismal weather dampened the event, the ceremony officially enshrining the Statue of Liberty took place on schedule and with appropriate pomp. The Statue was unveiled as bands played and salvos were fired. Minister Plenipotentiary and Delegate Extraordinary M. A. Lefavre were on hand as President Grover Cleveland officially accepted France's gift to the people of the United States on October 28, 1886. After the commemorative address by the Honorable Chauncey M. Depew, and the benediction by the Right Reverend Henry C. Potter, the Statue was illuminated with fireworks launched from Bedlow's and Governors' Islands and the Battery in lower Manhattan. After the festivities, the president and his party returned to Jersey City for the return train to Washington.

Grover Cleveland was born in 1837 in Caldwell, New Jersey where his father was a Presbyterian clergyman. Originally from Massachusetts, Richard Cleveland served in Baltimore before being called to the First Presbyterian Church of Caldwell in 1832. The Reverend Cleveland and his family were the first to occupy the Manse that was built at a cost of \$1,500, a high sum for that era. In spite of the comfortable home provided him, Richard Cleveland had difficulty supporting his growing family. He requested and received an additional \$200 dollars in 1837, bringing his income to \$600 annually. Unfortunately for the Cleveland family, trouble in collecting his salary and later reduction of it due to lack of support from the congregation, created financial difficulties, and Richard Cleveland found it necessary to move his family to a new church in Fayetteville, New York in 1841. Local tradition maintains that the last sight of the future president was that of a young Grover swinging his legs from the back of his family's wagon as it rolled through "Parsonage Bend" and out of sight.

Cleveland never returned to his birthplace, but he retired to Princeton, New Jersey after

his second term as president. In his last years he agreed to serve as a trustee of the ailing Equitable Life Insurance Company.

After Cleveland's death in 1908, a committee was formed to preserve his birthplace in Caldwell. The Old Manse, as the parsonage is known, was purchased from the Caldwell Presbyterian Church by the Cleveland Birthplace Memorial Association which assumed the deed on March 18, 1913. This was the culmination of a four-year struggle to establish the memorial and included the support of New Jersey's Governor Woodrow Wilson. Wilson said of the plan, "I need not tell you that this has my most cordial endorsement ... The purchase and preservation of the birthplace would be the most interesting and best expression of the veneration in which the memory of the man is held." The Memorial Association maintained the Cleveland Birthplace until 1945 when New Jersey assumed administration of the property as a State Historic Site.

Four of the ten-room Manse are open to the public. The parlor contains a number of pieces owned by the Cleveland family, including a pedestal rocker used by the First Lady in the White House and a desk chair from the president's first term. The bed warmer and the foot warmer on the hearth were his parents, and one of Reverend Cleveland's communion vessels is also on display. The parlor is dominated by a large portrait of the president which projects the strength of character for which Cleveland was held in such high esteem.

A back room contains the cradle of Cleveland's infancy and is designated as the site of his birth by a memorial plaque. A variety of personal articles are on display here. The Cleveland family bible stands on a period chest, and a quilt made by his mother covers the bed. One of the president's shirts lies on the bed and clearly indicates that Cleveland

was a large man. A white lace baby dress worn by Cleveland's daughter Ruth is also on view. Ruth was only one year old when he began his second term, and she became the nation's darling. The Baby Ruth candy bar was named for her.

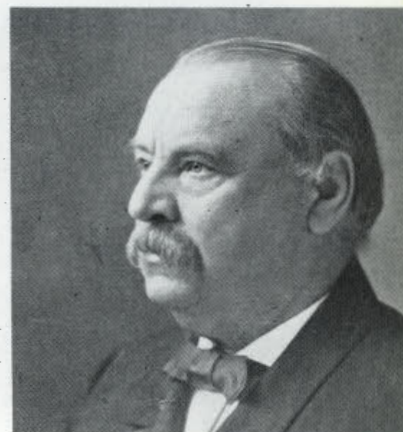
Adjacent to the bedroom, history enthusiasts will find memorabilia of Cleveland's personal life and political career. Cleveland was the only president to be married in the White House. The certificate of his marriage to Frances Folsom, her bridal wreath, and a piece of their wedding cake is exhibited along with his top hat and the flags from his first and second inaugurations. Cleveland's tackle, fishing boots, and even his Spalding sneakers are on view and indicate his interest in the outdoors, especially his love of fishing. The desk from Cleveland's mayoralty in Buffalo contains a display of campaign posters from his first presidential campaign as well as an assortment of telegrams. Another desk, used during his second term as president, encases Republican political cartoons poking fun at the hefty Democrat. A collection of medals from all three of Cleveland's presidential campaigns is also on exhibit.

Married in the White House

A large open fireplace and 1830's furnishings give the Manse's kitchen the inviting warmth typical of early 19th century homes. Cleveland's snow shoes stand under a sampler embroidered by his cousin. The caretaker, Mrs. Sharon Farrell, explains the use of the wool wheel and the weasel, or yarn winder. She also discusses open-hearth cooking and plans to develop a demonstration program.

While visitors may walk through the site alone, Mrs. Farrell will don a 19th century costume if called in advance, and conduct a 40 minute tour. Her presentation includes interesting Cleveland trivia as well as an explanation of the articles on display. For students of the era, Mrs. Farrell will make available the site's collection of period newspapers. Special programs for children teach crafts, songs, and dances from the 19th century. In good weather, Mrs. Farrell will also present outdoor games of the era. Although admission to the birthplace is free, materials for the children's programs must be paid for in advance.

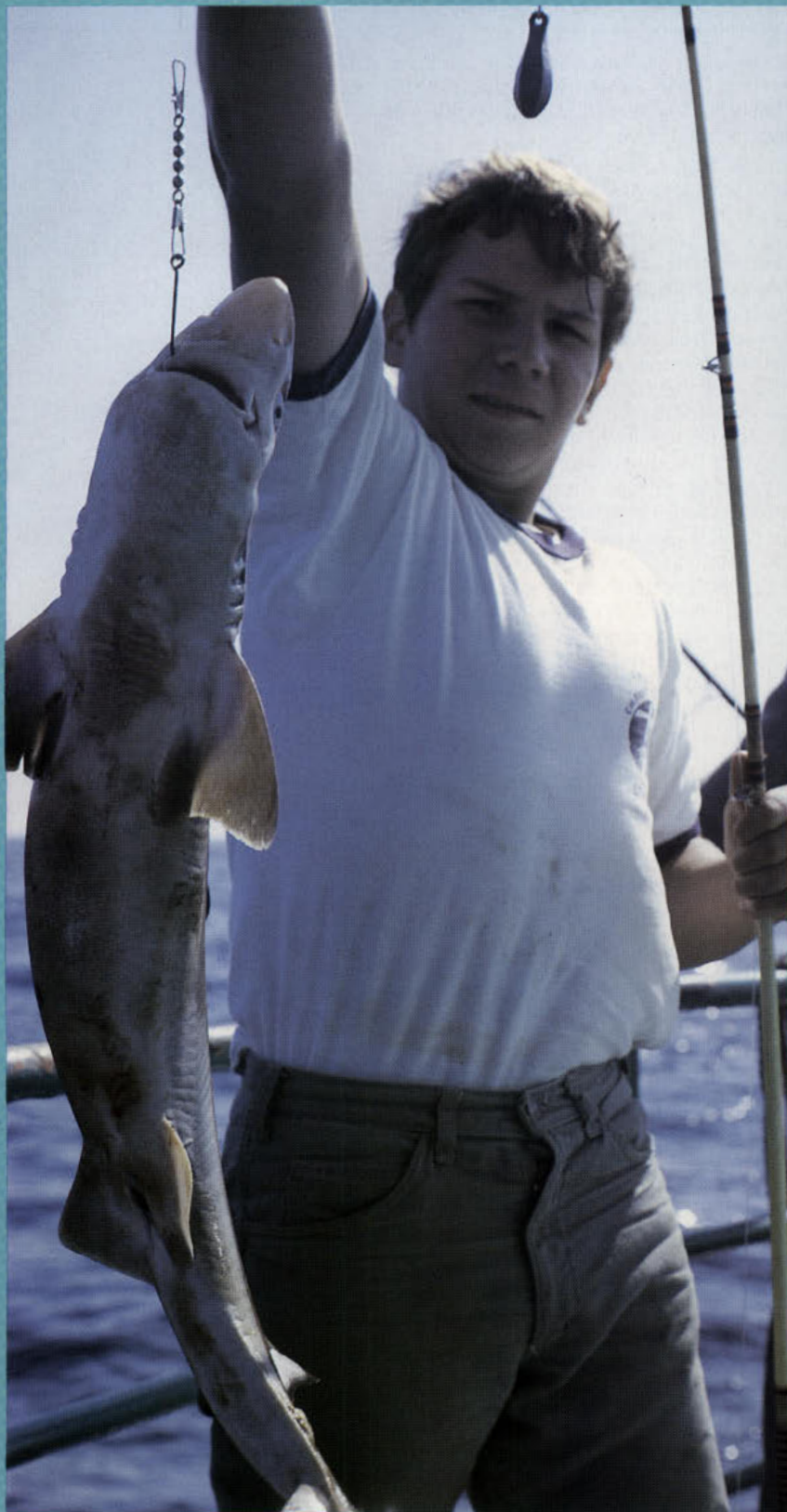
The Grover Cleveland Birthplace is located at 207 Bloomfield Avenue, Caldwell. It is open Wednesday through Sunday but may be closed without notice. Mrs. Farrell recommends calling 201/226-1810 before visiting the site.



Dogfish, Anyone?

BY FERD DiPALMA

PHOTO BY AUTHOR



It is likely that the vast majority of New Jersey party-boat fishermen have encountered, at one time or another, the small species of shark commonly known as the dogfish—or, more exactly—the spiny dogfish. *Squalus acanthius*, the largest and most plentiful of the two dogfish species, is fond of cold water; it makes its presence known as large numbers of them invade the autumn chum slicks of anglers fishing for bluefish as those animated eating machines progress southward along the New Jersey coast on their annual fall migration.

The appearance of three- to six-pound sharks is usually greeted with wails of dismay and hastily pulled anchors as the vessels' skippers take evasive action to avoid their unwanted presence. For the simple fact is that these unwanted and unloved creatures of the autumn sea are considered pests and trash along with other, more derogatory appellations.

But this ubiquitous, otherwise inoffensive creature should be labelled anything but "trash" or "pest." Properly cared for, filleted, and skinned, these "horned dogs" provide a firm, white, fat-free, protein-rich flesh that should satisfy the most discriminating palate.

During the years of the Second World War many Americans unknowingly sampled the flesh of this little shark which was sometimes marketed under the name of ocean whitefish. During that relatively unsophisticated decade the presence of dogfish, no matter how well prepared, would have been about as popular as chocolate-covered ants. Nevertheless, under the euphemistic name there were few, if any complaints.

In England the dogfish has long been the staple ingredient in the popular snack known as "fish and chips"—especially so with the decline of the cod during the 1960's and 70's. Scandinavian countries also have long known of this treat.

In the northeastern part of the United States there are signs that this attitude is about to change. Sport fishermen who encounter the spiny dogfish, and indeed, those who catch its close relative the smooth dogfish, *Mustelus cantis*, are becoming increasingly aware of the culinary possibilities of these small sharks. I would venture an opinion that this awareness came about in a roundabout manner with the emergence of

the mako shark as a true gourmet food. The tremendous increase in game fishing for the mako shark, its acceptance by name in several commercial markets, its appearance on the dinner menus of fine seafood restaurants, ensure a rapid word-of-mouth publicity as to its culinary worth. Once accepted it was only a matter of time before other species of shark were considered by lovers of sea food for further adventures in dining.

Knowledgeable party boat fishermen who hook a few dogfish from New Jersey's inshore waters no longer throw them over the side or into the vessel's trash barrel; they reach instead for the filet knife!

The spiny dogfish stands today where the ling or red hake stood a generation ago. A couple of decades back the ling also was scorned as a trash fish. The old-timers kept the fish but younger know-it-alls sneered at the soft-bellied, slimy, and bewhiskered critter. They called it "sewer trout" as well as a few saltier designations. Today the ling is one of the more popular targets of the spring and fall bottom-fishing packets. We have learned that this soft-fleshed species is excellent food only if properly cared for. In these days of large plastic ice chests this is easily accomplished. The result has been the addition of red hake fillets to the great dining enjoyed by all who pursue the pleasant pastime of fishing in New Jersey.

So also, the flesh of the small shark species should be promptly cared for. Allowing it to deteriorate in a sack or on a boat's deck will only serve to change the fish's natural blood urea into ammonia. The meat of such a mishandled shark, no matter how well prepared, will prove to be an immediate turnoff.

But beheaded, gutted and blooded; or better yet filleted and skinned as soon as removed from the hook; placed on ice, shark meat will amply reward the venturesome fisherman when he has his fillets cooked in his favorite manner, broiled, baked or deep fried.

Next time you hook a few small sharks think twice before throwing them back.

I don't say the day is at hand when your favorite restaurant is about to feature "dogfish meuniere," or "horned dog almon-dine." But broiled filet of minishark doesn't sound too far fetched, does it?

Recipes from *The South Carolina Wildlife Cookbook*, by Julie Lumpkin and Nancy Ann Coleman. Published by South Carolina Wildlife and Marine Resources Department.

MARINATED SHARK

- | | |
|---------------------------------|-------------------------------|
| 3 lb. shark | juice of ½ lemon |
| ¼ c. Teriyaki sauce | ¼ c. vodka |
| ½ c. soy sauce | dash of: salt, pepper, |
| 2 garlic cloves (minced) | oregano, and parsley, |
| 2 T. oil | minced |
| 4 T. catsup | |

Marinate shark for one hour in all of the remaining ingredients mixed together. Then place in greased, shallow baking pan and bake 20 minutes at 350 degrees or grill on charcoal grill like steak. Serve with lemon slices.

Joan Joyce
Summerton

SHARK STEAKS ON THE GRILL

- | | |
|----------------------|----------------------------------|
| shark fillets | seasoning salt and pepper |
| lemon juice | butter |
| garlic salt | |

Marinate shark fillets overnight (or so) in lemon juice, garlic salt, seasoning salt and pepper (other spices can be added). Place on charcoal grill, basting with butter. Slightly char on each side. Serve with anything that you would eat with fish. *This is also delctious using fillets of catfish, striped or largemouth bass and other large fish.*

Billy DuRant
Irmo



The Osprey

BY HERB SEGARS
PHOTOS BY AUTHOR

The large powerboat bore down on its mark, Barnegat Bay buoy number 64, as it continued on its journey from the upper bay to Barnegat Inlet. Unbeknownst to those aboard, a pair of keen eyes were watching their movements with more than casual interest. Perched atop marker number 64 was an osprey, occupying one of the approximately 125 nests in the State of New Jersey. As the vessel approached, the majestic "fish hawk" let out a shriek, bounded from its nest, and hurtled upward with powerful thrusts of its long wings. Higher and higher it climbed, drawing the attention of all aboard, until it reached a thermal current strong enough to maintain its altitude. Here the brown and white bird drifted, keeping the craft under constant surveillance.

An osprey glides on a thermal current.

The osprey reaches a length of two feet and has a wingspread of five to six feet. Its upper body parts are dark brown, while its underparts and head are white. There are black streakings on the head, including a broad eyestrip, and, in the female, a "necklace" of dark streaks on the breast. Its only plumage resists waterlogging. The osprey has a hooked beak, long, powerful talons, and pointed scales on the undersides of the feet. The bird is an ideal fish catching machine.

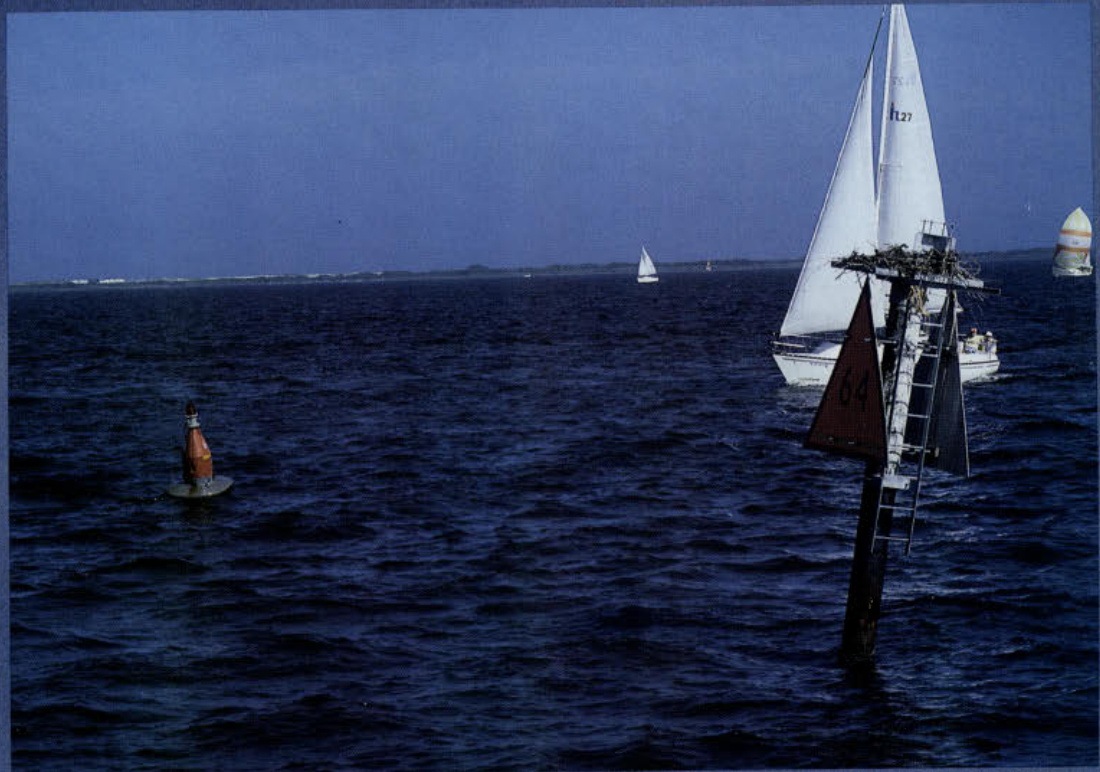
Marker 64

I returned to marker number 64 weekly to observe any changes in the habits of the beautiful bird. Two weeks after initial contact, I found the osprey sitting on its nest, offering no diversions as my vessel approached. I kept my distance, not wanting to frighten the bird. Peering through the lens of my camera, I could see that the osprey never once took its sharp eyes off me. Much to my chagrin, the next week found the nest uninhabited and disarranged with the osprey gone, not to be seen again for the remainder of the summer. It was sad to think that the osprey had not produced young from the eggs that she obviously sat on those few weeks.

A note of credit is due at this point to the United States Coast Guard in their handling

of a malfunctioning buoy light at marker 64. Rather than disturb the osprey nest, the Coastal Guard added a smaller lighted buoy next to marker 64 when the original light failed. It is understanding and performance such as the Coast Guard's that has helped the osprey population to make a comeback in our state. Back in the 1950's, there were 500 osprey nests in New Jersey, but the number had dropped to only 50 in the 1970's, causing the osprey to be listed as an endangered species. This decline of the osprey population was due largely to the pesticide DDT, a highly toxic substance that was used to control salt-marsh mosquitos. The pesticide accumulated in the food chain, reaching the osprey through its staple food, the fish. Its most profound effect was to produce infertile eggs or eggs with shells too thin to support the weight of the incubating female osprey.

One of the most significant efforts in the recovery of the osprey population was that of the Endangered and Nongame Species Project, within the state Department of Environmental Protection's Division of Fish, Game and Wildlife. A restoration program by the Endangered and Nongame Species unit provided numerous nesting places atop special telephone poles and instituted a restocking program, in which infertile eggs



The additional marker buoy placed next to the malfunctioning number 64.



The osprey returned to its nest on marker number 64 as the vessel moves away.

were replaced with fertile, healthy eggs from out-of-state nests.

Their efforts have certainly paid off, for in 1985 the osprey was taken off the state's endangered species list. It will be the first species to be removed from the lists since its inception 11 years ago. Even though the species is making a comeback, however, our efforts cannot be relaxed, and the osprey is still on the state's list of threatened species.

Barnegat Bay is an ideal location for the fish-hunting osprey. As this species' diet consists almost of live fish, its nesting and hunting areas must be close to a body of water. Not being able to dive under the water like a duck, the osprey must restrict its hunting to those fish found at the surface or in shallow water. The many shallow flats in the bay are well suited to this task.

Hovering at heights of 100 feet or more, the osprey's keen eyes (able to spot even neutral-colored fish from such heights) select a suitable prey. Downward the osprey plummets, with its large, powerful feet poised to

snatch the tasty morsel. Its feet are important to its fishing success. The long, greatly curved talons and scaly soles provide a secure grip even on a slippery, struggling fish. The outer toe is reversible, much like that of an owl. After rising from the water with its catch, the bird positions its feet one behind the other and carries the fish head first to reduce wind resistance. The male osprey will usually feast on the head of the fish before depositing the remaining food at the nest. The female must remove the fish from the claws of the male, tear it into suitable-size strips for the young ospreys, and then feed herself with the remains.

Although I'm not an ornithologist, my heart soars with joy at the prospects of a rebirth of the osprey population. One does not need to be learned about the fish to appreciate the grace and beauty of this magnificent bird as it glides effortlessly in the air above Barnegat Bay. Let us work toward the reversal of trends that have resulted in the need for an endangered species list.



the Click Beetle

PHOTO AND ILLUSTRATION
PROVIDED BY AUTHOR

BY DAVID GRANT

A distinct advantage of working with the public as a biology instructor is having an unending pile of "What is it?" deposited at my doorstep. Animals, vegetables, minerals, and even corpses (non-human) in varied states of decay, inevitably find their way to my mailbox or are hand-delivered by curious friends and strangers. Whatever the parcel's contents or the method of delivery, the enthusiastic courier is always certain to exclaim, "You won't believe what I just found!"

In particular, and in what has become a rite-of-summer, I am presented annually with a covered container and the solemn warning "Careful, it really jumps." From within the container a peculiar rattle can be heard; "it" is knocking randomly against the walls and ceiling of the makeshift cage. The distinctive snaps and clicks have become familiar to me now, and with confidence I release one of our remarkable native insects—the big-eyed click beetle.

Although common, click beetles are not often chanced upon. Most frequently they are discovered on a lighted porch in the evening, or soar through an open window as uninvited house guests. Harmless, they nevertheless create a stir with their unexpected and somewhat ominous appearance. Click beetles are equipped with two menacing false eyespots on the thorax, and many are more than 1½ inches in length. Understandably, people are discouraged from rushing to pick them up.

Click beetles also possess a secret weapon which is guaranteed to startle both naturalists and predators alike. When threatened, the beetle's first line of defense is to release itself from what it is climbing on, drop to the ground, and lie motionless until the danger passes. (This is typical of most beetles, and home gardeners are well aware of this strategy if they have ever done battle with the Colorado potato beetle.) Instead of playing dead as its cousins do, however, the click beetle arches its

In their Lilliputian world, the oversized eyespots suggest a creature larger and more menacing than the harmless click beetle. Perhaps to a hungry predator, the click beetle looks serpentlike and dangerous as it snaps and rears up when threatened.

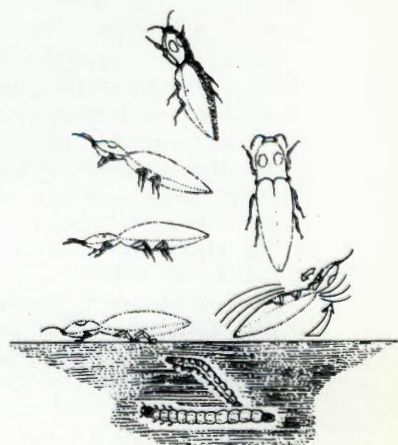
body and launches itself repeatedly into the air with an audible "click." Often it jumps as high as six inches. When it feels secure it scurries off to safety. Predators may well be intimidated by this frantic behavior, although (as you might suspect) cats find it rather entertaining.

Click beetles are primarily vegetarians, feeding on roots and tubers. Some of the 800 species found in North America are among our most harmful crop pest, spending up to six years as "wireworm" larvae in the soil. Our friend the big-eyed click beetle, *Alaus oculatus*, is benign, however, spending its larval stage in decaying logs while hunting wood-boring beetles.

Tropical relatives of our big-eyed click beetle, called fir beetles, have bioluminescent eyespots. One, *Pyrophours luminosa*, produces "cold light" that is both green and red, and is as bright as that of familiar fireflies. Its larvae, called glow-worms, also produce light.

There are thousands of other less spectacular types of click beetles—about 8000 species worldwide. Most of those in our region are smaller and less striking than the big-eyed, but all have the distinctive clicking mechanism. Do look for them on summer evenings—they are often found with other insects that collect on lighted porches.

Big-eyed click beetles and "wireworm" larvae. By forcing the thoracic spine on its underside into a resistant socket in the abdomen, a sudden snapping results. This miniature shock wave passes through the body to the wing and covers and the resultant force launches the beetle into the air.



The Wetlands Institute

BY DAVID K. NOSS



The Wetlands Institute at Stone Harbor is the only marine facility in New Jersey that is physically located on marsh lands. Beyond the Institute's 34-acre marsh and adjacent 6600 acres, the Delaware Bay lies to the west (out of sight) and the Atlantic Ocean lies beyond the barrier island beaches to the east. Here on the Cape May Peninsula, with its variety of marine environments, the Wetlands Institute offers a number of educational activities for the public, and houses research facilities and marine scientists.

Designed by the Cape Cod architect, Mac Wells, the cedar shake Institute building rises above the marsh with its thirty-five foot high observation tower. Inside the building is the Wetlandia museum, a lecture hall, and the Tidepool Book and Gift Shop. In addition to these features, it also incorporates dormitories with kitchen facilities, and laboratories for staff and visiting scientists. At the rear of the building, a salt marsh trail leads to tidal ponds and bay creeks accessible to visitors year round. The building location was a pre-existing building lot on the marsh before the enactment of current environmental protection laws. Founded in 1969 by the late Herbert

Mills, who assembled building costs through the World Wildlife Fund and private donations, the Wetlands Institute is dedicated to education and research.

Public Education

Dr. William W. Reynolds, the Institute's first full-time Executive Director says, "Our facility has two missions. One is public education, which the Wetlands Institute directly handles. Our second mission is research. We will be operating our own research laboratories beginning in July 1986, following termination of our previous contract with Lehigh University."

Along the lines of research, the Institute has grown remarkably since its birth. Research programs conducted by marine scientists are thriving. Diverse in scope, their efforts hold both theoretical and applied interests. Research at the Wetlands Institute has included these research efforts: studies of sedimentation patterns in marshes and inlets; studies concerned with the effects of shipworms on marine structures; and surveys of several kinds of threatened or endangered birds (presently black skimmers, least terns, and piping plovers) along the New Jersey coast.

School children react to underside of a Horseshoe Crab

Wetlands Institute





Fourth grade teacher Carolyn DeVries, Gloucester Township Chews School, asks a question during Mtn-Ecology class session.

PHOTOS BY STEVE PERRONE
NEW JERSEY OUTDOORS



Beginning this summer, Dr. Reynolds plans to begin investigations of the distributional ecology, and migrations of estuarine animals (fishes and crustaceans) in relation to factors such as salinity and temperature. Because of location, the Institute can directly pump fresh sea water from the marsh. He says the water system will enable researchers to effectively work on new projects and to continue current efforts.

An ongoing project being conducted by visiting investigator Dr. Vince Guida seeks to find new ways of treating clam wastewater from the area's many shucking and canning plants. Because conventional clam wastewater is considered an environmental problem, and because the seafood processing industry needs to reduce their expenses, the clam wastewater research effort began. The effort takes on two avenues of research. Initially, after obtaining a grant from the National Oceanic and Atmospheric Administration, Drs. Vincent Guida and Irwin Kugelmann set out to study the possibility of using salt marshes to treat clam wastewater. The second avenue of their study investigates the impact of seafood processing wastewater on the area's water quali-

ty. According to the researchers, their experiments have been quite successful in both avenues.

The staff intends to increase their research production. The studies will be supplemented with hands-on field labs to enhance the learning experience. With the hands-on techniques of instruction, the Wetlands Institute offers a wide variety of activities to encourage public understanding and concern for marsh ecosystems. Both nonmembers and members of the Institute can take part in the activities for a nominal fee. (Reduced rates for members; free admission to lectures for members). Nonmembers: \$1 donation requested.

Many activities are designed for adults and children. Adult activities are scheduled for day and evening sessions throughout the year, and children's activities include Wonders of Fall/Spring/Winter, and Mini-Ecology in summer. They are designed for preschoolers through the sixth grade.

Adult activities include a wide range of nature classes and workshops, plus year-round natural history lectures and films. These lectures are given by experts in various



Seining in the marsh for marine organisms.

fields. Some of the most recently presented lectures have covered diverse topics such as health reasons for eating seafood, beach erosion, "Coastal ecology of the Northern Arabian Sea" and "A Desert Odyssey: Plants & Flowers of the Desert Southwest."

The most popular children's programs, Mini-Ecology, focuses on ecology. It is an extensive hands-on experience that is led by the children's school teacher. The teachers lead their students out onto the marsh and beaches where they can see some of the things they had studied in the classroom. Then, the children collect specimens to take back to the Wetlandia museum. In the museum, the children use microscopes to get closer looks at the creatures they collected in the field.

In addition to these educational activities, the Institute offers family adventures. Some of these family oriented activities include guided beach and salt marsh safaris, birding expeditions, and pineland hiking trips. All the family activities are open to groups as well as individual families.

During the third week in September, the Institute holds its annual fund raising event—The New Jersey Wings 'n Water Festival. The

festival is a Friday evening, Saturday and Sunday celebration of nature with more than thirty events. Some events are held on the Institute's grounds, while others are scheduled at various sites in the surrounding community. Among the Institute's usual menu of activities, several other exhibits and demonstrations add extra flavor to the Festival. For instance, the World Class Decorative Bird Carving exhibit and the Duck Calling demonstration are highlighted, and several nature and wildlife artists are on hand exhibiting their work. At the last festival, Kenneth L. Gosner, the author and illustrator of *A Field Guide to the Atlantic Seashore* displayed his watercolors.

As a major event, the Festival's annual large turnout shows a genuine interest for the Wetlands Institute. And, as a private nonprofit corporation, the Institute relies on the Festival's continued success, as well as on donations, grants, and membership income to support its education and research programs. With continued support, the Institute will accomplish its primary goal—to educate people and make them more aware of the wonders of our wetlands.

Dear Editor

New Jersey Outdoors welcomes letters from readers. Letters for publication should include the writer's name and address and should be mailed to: Editor, *New Jersey Outdoors*, CN 402, Trenton, N.J. 08625. Letters may be edited for reasons of length or clarity. Please keep the letters coming. We'd like to hear what you think about the magazine. We'll also try to answer questions and if we cannot, we'll ask our readers for help.

A Response

Although Colorado is now my home I still have fond memories of my native New Jersey.

I wish to take exception of your "Tale of Tripod Rock" by Gary Hayden in the May/June issue of *New Jersey Outdoors*.

His mention of Max Schrabish's efforts as causing the modern archaeologist to "cringe" disturbed me. I knew Max quite well and traveled with him to many of the rock shelters found by him in New Jersey. I have never met a more dedicated and exuberant man concerning his profession. Certainly we have improved our methods since 1913 as we have everything however, I believe we owe more respect to the early pioneers who led the way for all of us to follow.

Let me conclude that I do enjoy your *New Jersey Outdoors* and from its contents it appears conditions are improving since I left in 1960.

Sincerely
Robert Jantzen
Colorado

A Suggestion to Consider

I am a subscriber to *New Jersey Outdoors* and regularly enjoy each issue sent to me. I also subscribe to *Vermont Life* and note that it has a feature I would like to have you consider incorporating into your magazine.

On the Table of Contents page, they have an outline map of the state with numbers corresponding to articles in that particular issue showing the location of the place covered in the article. This is a great help to readers—being able, at a glance, to locate the place being written about.

The May/June 1986 issue of *New Jersey Outdoors* has this advice included on page 11, in the *New Developments in Artificial Reefs* piece.

Thank you for considering this suggestion and congratulations to you for your continued fine work.

Laurence L. Hlavacek
Pennington

Any Ideas?

My husband and I have a few suggestions to make concerning the environment along our rivers. We frequently go fishing and have noticed that people often dig for worms along the banks and this causes erosion and washing away of the bank. We suggest that signs be posted warning against this. Also, people are disposing of papers and cans along the rivers and we suggest that receptacles be placed so they can dispose of them properly.

We have long been interested in conservation and environment. My husband, Charlie Montana, has been past president of Union County N.J. Federation of Sportsmen's Club and the N.J. Bowhunters Association and Watchung Bowmen.

Please bring our suggestions to the proper agency.

Mr. and Mrs. Charlie Montana
Union County

We Like to Communicate

Having just completed a day of orienteering in the Sourland Mountain Preserve with my Eagle Scout son, I want to commend you on the information you published in NJO. In your January/February 1984 issue, author Steven Brush wrote "Outdoor Destination: Park and Walk in Central Jersey" which I saved and used as the basis for our hike. His article was very factual, truthful and informative; "be prepared to encounter obstacles" was an understatement!! Nonetheless we had a very successful hike through a beautiful area thanks to NJO.

Your recent editorial asked readers what they would like to see published. I would like to see more articles like Mr.

Brush's on hiking, orienteering, backpacking and canoeing. I would like to see less emphasis on fishing.

Keep up the good work.
Gerald D. Petz
Cranford

An Omission

I am writing about a serious omission in the March issue article by Steven K Brush "Building New Jersey's Greenspace." In paragraph three he fails to give credit to New Jersey sportsmen for the important contribution they have made for many, many years. I am speaking of the many thousands of acres of land purchased with a portion of fishing and hunting license fees. The writer erroneously gives the impression that state forests were acquired by special appropriations from the state legislature.

It is my feeling that the public is misled by such statements and a retraction—correction is in order. All of these lands are open to public use by all citizens, not just license holders.

Mike Connelly
Lincoln Park

You are right. In New Jersey, over 100,000 acres of public lands have been purchased with monies from hunting and fishing license fees.

Radon Information

A toll-free Radon Information telephone number went into effect on March 24. Concerned residents seeking copies of a departmental radon fact sheet or who would like to speak with a qualified radiation physicist should call **1-800-648-0394**. The service is available between the hours of 8 a.m. to 5 p.m. weekdays. Information may also be obtained by calling 609-530-4000.

Eastern Woodrat

By JAMES C. SCIASCIA

When rats are mentioned, nearly all people think of the Norway rat, *Rattus norvegicus*, and its deserved reputation for spreading filth and disease. Unfortunately, the image wrought by this unwanted, European immigrant is associated with all rats including our native species which are much different in appearance, behavior and personal hygiene.

There are two rat species that are native to New Jersey. The rice rat, *Oryzomys palustris*, is a native resident of South Jersey tidal marshes. The Eastern woodrat, *Neotoma floridana*, is our other native rat and in New Jersey is found only in the mountainous regions of Northern Jersey. The northwestern corner of New Jersey is at the eastern and northern edge of the range of the Eastern woodrat which occurs in approximately 20 other states south and west of us.

The woodrat has acquired numerous names including cave rat, pack rat, trade rat, Allegheny woodrat, mountain rat, cliff rat and brush rat. Several names such as cave rat, mountain rat and cliff rat can be attributed to the habitats that it chooses in the northern part of its range. As the names imply, it is found in caves, and among boulder piles that accumulate at the base of sheer rock cliffs and rock outcroppings. In the southern part of its range it is found in swamps and hummocks.

The name pack rat was given to this animal because of its habit of collecting a wide assortment of objects at its den site. Bottle caps, silverware, keys, watches, coins, shotgun shells, belt buckles, buttons and eyeglasses are just some of the items found in woodrat dens. Its habit of leaving something in place of the object it collects for the den has earned it the name trade rat.

The woodrat is similar in size to the Norway rat and at a quick glance may be similar in appearance, but closer examination reveals several striking differences. The most noticeable difference is the tail of the woodrat. The woodrat's tail is completely covered with hair and is sometimes bushy compared to the naked tail of the Norway rat. It also has large naked ears, large bright eyes and very long whiskers that reach to the shoulders. The coat of the woodrat is buffy gray above, on the sides and the underparts, and its feet are white. If the stigma associated with

the name woodrat can be overlooked, most would agree the woodrat is a handsome creature.

The nest of this animal is a large bulky structure that can get to be large enough to fill a bushel basket. The nest is constructed in the deep recesses, ledges and crevices of its rugged boulder-strewn habitat. The nest is constructed primarily of twigs, bark and various plant material on the outside and is lined with shredded bark and other soft plant fibers. The nest is usually open above, similar to a bird's nest, with the inside cavity measuring approximately four inches in diameter.

The breeding season for woodrats in our area extends from early spring to autumn. One to four young are born per litter. The young are naked and helpless at birth and for the first 21 days cling tenaciously to the mother's teats.

The diet of the woodrat consists of twigs and bark of various trees and shrubs, berries, nuts, seeds, plants, insects, and mushrooms. Dried green plant material has been found in some woodrat dens which has led some to believe that this animal makes hay by collecting green plant material and spreading it on the rocks to dry. This hay making process is commonly used by Pikas, which are small rabbit-like rodents found in the west.

The woodrat is potential prey for a host of New Jersey predators which include foxes, owls, weasels, bobcats, raccoons and snakes. Very little is known about the impact of predation on the New Jersey woodrat population.

The tax check-off supported Endangered and Nongame Species Program of the DEP's Division of Fish, Game and Wildlife has been investigating the status of the woodrat for the past five years. Surveys for this species in the mountainous areas of northern New Jersey have yielded only two locations where the woodrat still exists. A population exists on the Palisades of Bergen County and also on the Green Mountain range in Morris County. In New Jersey an endangered or threatened species status is currently being considered for the woodrat.

If you have any information on woodrat activity—present or historic—contact Jim Sciascia, NJ Division of Fish, Game and Wildlife, Endangered and Nongame Species Program, Box 383 RD 1, Hampton, NJ 08827.

FRONT COVER

A view of the "Lady" from the air. Photograph by Walter Choroszewski

INSIDE BACK COVER

The Eastern Woodrat. Painting by Carol Decker

BACK COVER

Fish eye lens photo of sailboats passing under the open Rumson-Seabright bridge. Photograph by Al Nunes Vais



86 © Carol Decker 4

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