New Jersey Outdoors

September, 1973

Department of Environmental Protection

Symbols

The symbol of the Department of Environmental Protection has been in use for about two years and represents the department's responsibility to the total environment. Complementary to this is a new symbol representing the Division of Fish, Game, and Shell Fisheries' commitment to the wildlife resource and its life-sustaining habitat.

This new symbol will appear on signs and posters designating wildlife management areas. The upper portion of the circle and the deer are actually green, symbolizing the forest and upland habitat managed to support New Jersey's native game and non-game species.

The lower portion of the sphere and the pickerel are blue. This represents our native aquatic wildlife resources and the management necessary to maintain their habitat.

Wise land and water use creates the habitat necessary for the survival of wildlife. The lands administered by the Division of Fish, Game, and Shell Fisheries are excellent examples of the benefits of wise land use. Thus, it is hoped that our wildlife management symbol will better identify the habitat management necessary to preserve New Jersey's wildlife heritage. #

Division of Fish, Game, and Shell Fisheries

New Jersey Outdoors

New Jersey Outdoors is published monthly by the New Jersey Division of Fish, Game, and Shell Fisheries of the Department of Environmental Protection in the interest of the natural resources of fisheries and wildlife and the betterment of hunting and fishing in New Jersey.

In This Issue

Cover — "Great Horned Owl" — *Robert Henschel*

The great horned owl is the largest and most powerful of our common owls. It is the only large owl with horns or ear-tufts and it has a white throat. The great horned owl is an efficient winged hunter that has earned the title of tiger of the night. However, it is an interesting member of our fauna that is protected by law and should not be shot or molested.

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Hunter recoveries of banded woodcock are helping biologists to understand the migration of this secretive game bird

Cape May Woodcock

their migration and behavior

By William B. Krohn, *Research Biologist*
U.S. Bureau of Sport Fisheries and Wildlife
Photographs by the Author

The Cape May Peninsula in southern New Jersey has been the location of important woodcock research. For two weeks each year, 1968 through 1972, usually starting in the third week of November, biologists from many state wildlife agencies and universities have cooperated in banding woodcock. The following states, and New Brunswick, Canada, have helped at Cape May: Connecticut, Maine, Michigan, New York, Rhode Island, and Vermont. Personnel of the New Jersey Bureau of Wildlife Management, the West Virginia Division of Wildlife Resources, and the U. S. Bureau of Sport Fisheries and Wildlife annually supported the project. This article presents some of the findings from the joint state-federal effort at Cape May.

Few woodcock nest in south Jersey, but sportsmen and naturalists have long known that migrants often occur in unusually high numbers at Cape May. The exact cause of these concentrations is unknown. One theory is that land birds, such as woodcock, are reluctant to fly over large expanses of water. Since the Atlantic Coast lies on a northeast- southwest axis, birds migrating south from breeding grounds in eastern Canada and New England encounter the coast north of Long Island, New York. Once seeing the ocean, birds probably alter their course to the southwest and follow the coastline until funnelled onto the Cape May Peninsula between the waters of the Atlantic Ocean and Delaware Bay.

In addition to geography, weather influences the number of woodcock at Cape May. Early in the fall, many woodcock are still north of the Garden State. If an early winter storm deposits snow over extensive areas north of New Jersey, birds are forced southward. The combination of an early snow with strong and steady northwest winds seems to cause massive flights of woodcock at the Cape. Three days after the first snow blanketed New England in November 1971, banders on the southern end of the Peninsula observed an average of 30 woodcock per hour. Of course, the number of birds moving through the Peninsula varies, but on the average, populations at Cape May in late fall are

. . . *Woodcock*

almost three times greater than during the summer on breeding grounds in Maine.

The best estimate is that the fall population of woodcock in North America consists of approximately 55 percent adults and 45 percent immatures. Strangely, the ages of birds banded on the Peninsula, and shot by hunters in Cape May County (cooperators in the Wing Collection Survey), 1968 through 1972, were as follows:

	Adults		Immatures	
	percent	(no.)	percent	(no.)
Banded:	15	(315)	85	(1,845)
Harvested:	19	(240)	81	(1,028)

The high percentage of young banded and shot shows that few adults migrate through southern New Jersey. Apparently, many immatures do not adjust their direction of migration to compensate for prevailing westerly winds. Instead of staying inland on their journey south, many young woodcock must be drifted off course by winds. Immatures are probably more easily pushed to the East Coast than adults, possibly because they are less experienced or weaker fliers than older birds.

Where do woodcock that migrate through the Cape May Peninsula in late fall come from? The location of birds banded at Cape May and shot or found dead during hunting seasons one or more years after banding provide an insight into the origin of Cape migrants. The most northerly recoveries as of January, 1973, were reported from eastern Ontario, Quebec, Maine, New Brunswick, and New Hampshire. On November 27, 1972, a woodcock banded in Maine during the summer of 1971 was recaptured and released on the Peninsula. Most woodcock in south Jersey during late fall are probably raised in eastern Canada and the New England States.

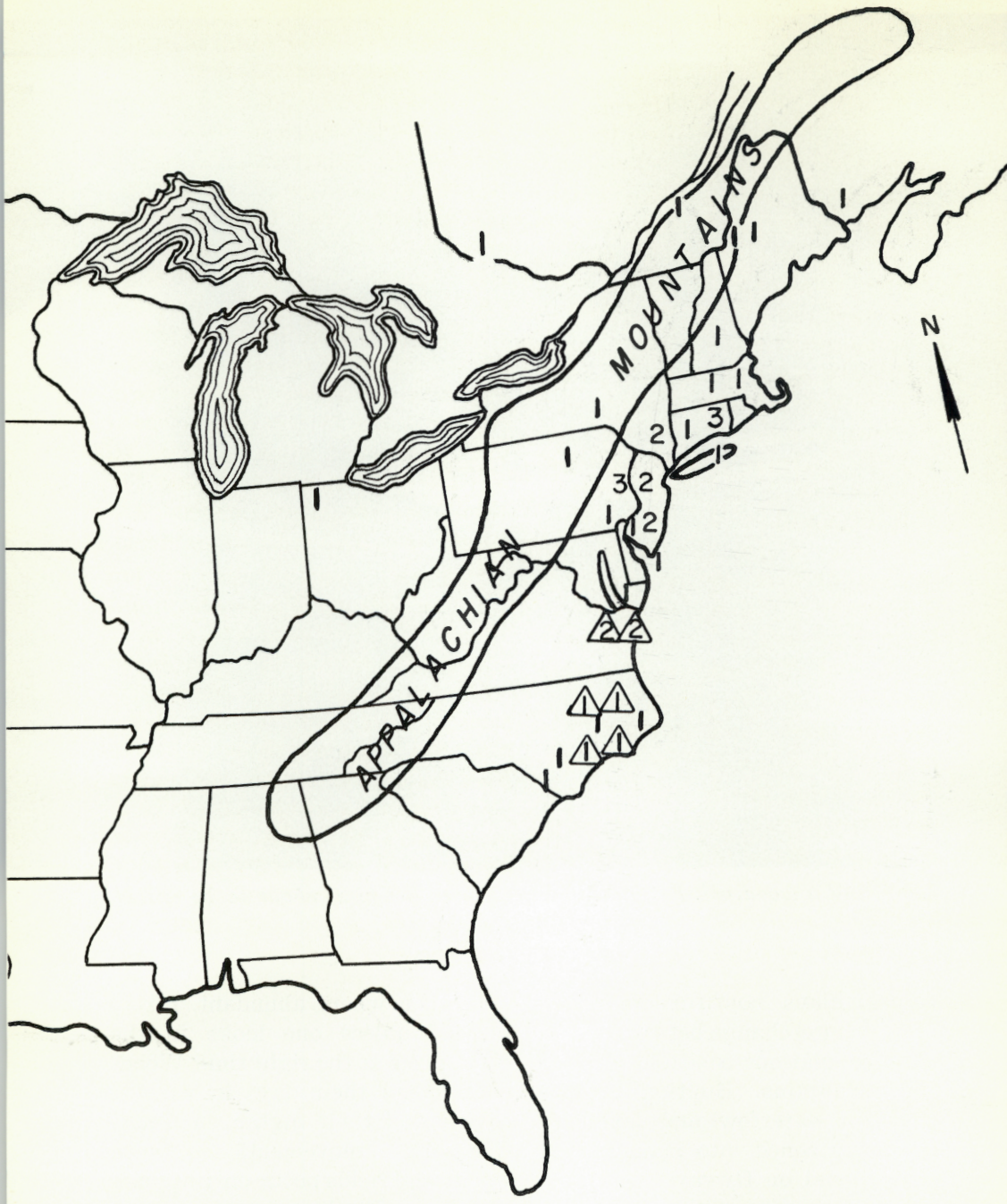
Where do Cape May migrants spend the winter? This question can be answered by looking at the locations of banded birds recovered during the same year of banding in states other than the Garden State. Woodcock moving through southern New Jersey in late November do not winter in the Deep South. In fact, every year some woodcock spend December through February on the southern tip of the Cape May Peninsula. However, most birds banded at the Cape winter along the coastal plain from Virginia to South Carolina.

Only 3 of the 41 bands plotted were found west of the Appalachian Mountains. This is important since it supports the recent findings of two woodcock flyways. Briefly, birds which nest in Ontario and the Great Lake States winter in the Gulf States, while woodcock from the Maritime Provinces and New England winter in the Southeastern States. The fact that all but three Cape-banded birds were recovered east of the

Capturing a woodcock by night-lighting. Note the bird, about to be netted, in the circle of light

Appalachians confirms the idea of little interchange between woodcock populations east and west of the mountains. Hunting regulations for waterfowl and doves are presently zoned into management units based on flyways. One day, this technique may also be used to manage woodcock.

Woodcock are inconspicuous and, even where abundant, rarely noticed unless one looks in the right place at the right time. Woodcock spend their days in wooded covers and their nights on fields. Generally, movements between woods and fields occur only at dusk and dawn. One known exception to this rule is migrants which have been observed at Cape May land-



The locations of indirect (numbers) and direct (numbers in triangles) recoveries of woodcock banded during late fall at Cape May, New Jersey, 1968 through 1971

ing in fields throughout the night. Such birds were thought to be members of massive flights just arriving at the Cape.

Timberdoodles eat mainly earthworms, and while 85 percent of the weight of the summer diet is worms, this figure increases to 95 percent in the fall (5 percent other invertebrates). Apparently, woodcock have a less varied diet in the fall when grubs and other insects are less abundant in the soil. During the summer, woodcock roost in brushy fields and feed mostly in hardwood stands. Migrants behave differently in that while most feeding probably occurs in woodlands during the day, some woodcock at Cape May feed at night in both weedy and alfalfa fields. This finding is not too surprising considering the stress of migration. The body weights of woodcock in south Jersey during late November averaged five percent lighter than birds weighed in Maine during late October and early November. Migrating woodcock probably eat whenever the opportunity arises to refuel for their journey south.

Cape May is unique in that for centuries immature birds of many species have concentrated there during their migrations southward. The primary causes of these massive flights, geography and weather, will not change in the foreseeable future. Thus, large numbers of young birds will continue to be funnelled onto the Cape. Presently, man is rapidly changing southern New Jersey from fields and woodlots to an urban complex of buildings and pavement. Only by preserving some of the natural habitats can Cape May continue to provide shelter and food for the countless migrants which are forced onto the Peninsula each fall.

In closing, special thanks are due to those citizens of Cape May and Cumberland Counties who allowed crews to work on their fields at all hours of the night. Many new facts about the migration and behavior of woodcock would not have been discovered without the understanding and cooperation of these landowners. The many persons who encountered and reported banded woodcock are also thanked, as are the sportsmen who participated in the Bureau's Woodcock Wing Collection Survey. #

National Hunting and Fishing Day

September is the month for National Hunting and Fishing Day. That red, white, and blue sportsmen's day for this year was set for September 22nd. All 300,000 plus licensed New Jersey sportsmen and all wildlife lovers and conservation-minded citizens should participate in their regional or local National Hunting and Fishing Day celebration each year. Get involved! Last year some 3,000 clubs and over 40 national organizations became involved in the National Hunting and Fishing Day concept. And over 4,000,000 citizens attended National Hunting and Fishing Day Open House observances throughout the country. #

An unheard of catch

State Record Tarpon

By Mike Balint
News Tribune Sports Writer

A tarpon caught off the Jersey coast?

Unheard of.

Unheard of yes. Impossible, no.

Jack Hoagland of Perth Amboy proved that on Sunday, August 20, 1972, when he hauled in a 42½ pound tarpon off the Shrewsbury rocks to establish a New Jersey state record for tarpon.

This wasn't a tall tale however, as the 5-foot, 3-inch tarpon finally succumbed after a 30-minute struggle, which was culminated by a barehanded landing.

Hoagland and his fishing companion, Rick Van Reed of South Amboy, spotted the fish from Hoagland's boat the *Howard P.*, but couldn't identify the species.

"We didn't know what it was at first." Hoagland said after the catch. The tarpon was hooked at 1:10 p.m. "The line reeled and he ran up on the boat. We followed him around for about ten minutes but I couldn't tell what fish it was."

The fish came along side the boat three or four times Hoagland recalled, but no one was ready to identify it as a tarpon. "I thought that maybe it was a shark," Howard said. "The other guys thought maybe it was a tarpon, but nobody wanted to say exactly what they thought it was."

Since tarpon are native to Florida and warmer waters it seemed highly unusual that one was found in the off-shore waters of New Jersey. Yet the whitish-looking fish was nothing familiar to these parts and once it was decided that it could be nothing but a tarpon, Hoagland's desire to land the fish intensified.

Hoagland let the fish run in hope of tiring it out, but even after the 30-minute struggle the tarpon wasn't quick to succumb. Hoagland had preferred not gaffing the fish, but when it looked like it was going to be a struggle landing him otherwise, Hoagland opted for the gaff.

It didn't work because of the bone construction of the tarpon and the gaff was lost. Finally the catch appeared to be tiring.

"I reached my hand into the water and grabbed the fish by the gill," Hoagland recalled. "There's no way that I wanted to lose the tarpon. Rich gave him a headlock and together we were able to pull the fish into the boat."

The action occurred right off the Bell Buoy near the Shrewsbury rocks and followed a morning of chumming for tuna by the fishermen. After a frustrating stint in the deeper waters they had decided to move in for a shot at bluefish.

The tarpon, which had a girth of 25-inches, was hooked on fresh spearing. He used a boat pole with a Penn 66 reel and 50-pound test line. Hoagland brought his catch to Fred's Bait Service in South Amboy where it was officially weighed.

The unusual nature of the catch has left many local anglers discussing recollections of when the last tarpon was caught off the Jersey coast. Since reports of tarpon north of North Carolina are extremely rare, the situation has puzzled most as to the last similar experience. #

Young Fluke in New Jersey

Fact or Fiction?

By Walter S. Murawski,
Bureau of Fisheries Management

If you fish during the summer from Barnegat Inlet southward you probably know him as "flounder" or if you fish from there northward you probably know him as "fluke", but no matter what you call him, he is the same species of hard fighting—good tasting fish.

During the 1960's biologists from the New Jersey Division of Fish, Game, and Shell Fisheries, along with several other states and the federal government, undertook some extensive studies of the fluke to learn more about the early life history of this fish in order to shed some light on a drastic population decrease that was occurring from Massachusetts to Virginia.

If you are somewhat vague on the identification of our most common flatfishes, you might remember that the best way to tell the fluke from his most common relative, the winter flounder, is by the fact that he has his eyes, mouth, and color on his left side rather than on his right. Take a close look and you will also note that he has many sharp teeth—certainly nothing to run your finger over unless you want to draw some blood—your own. Here again he is different from the winter flounder as that species has only small teeth.

Although most saltwater anglers have no difficulty in telling the fluke from the flounder when the fish are larger than about eight inches, it is when they are smaller than this that identification by the angler becomes based more on what he thinks rather than what he sees. Because of this habit, a good many anglers misidentify young flatfish and are convinced that our estuaries are loaded with young fluke all summer long. Unfortunately, this is not the case, as the small flatfish that they spot during the summer months generally are not fluke, but rather young and yearling winter flounder.

In order to find out just when and where the fluke spawned, we examined the ovaries (roe) from female fluke that were caught by commercial fishing vessels over a two-year period. We found that the ovaries developed rapidly in August and in some fish reached maturity in about mid-September. Reduction in the numbers of females having ripe eggs at that

time clearly showed that spawning had begun. Further samples revealed that spawning reached its peak in October-November and dwindled to a halt by late December. We traced back the individual females to the boat on which they were caught and finally to the location of their capture. This method indicated that spawning began when the fish started on their offshore journey away from the estuaries out to the edge of the Continental Shelf. The earliest spawning took place when the fluke were just south of Long Island in about 90 feet of water and as the fall season progressed, spawning occurred in progressively deeper and more southern and eastern waters. Our final sample of spawning females was taken in December at a point east-southeast of Cape May in water approximately 330 feet deep.

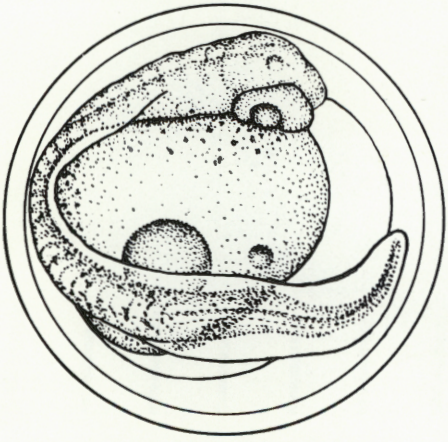
By examining the gonads of the fluke in our samples, we found that the females begin spawning when they are about 14 inches in length and the males begin at just about the same size if not a little smaller. At that size both sexes are three years old.

At the time of our investigation no one had a very accurate description of what the fertilized fluke egg looked like and as we were planning on studying the distribution of the eggs and larvae, we decided to take the eggs directly from the females and raise them in the laboratory. In order to do this, we hitched rides on trawlers sailing out of Point Pleasant Beach

Larval fluke of the size that begin to work their way into our estuaries during the late fall

and while aboard ship we stripped the eggs from the females and fertilized them with the milt from the males while the fish were still alive. Our efforts met with success and we were able to bring back quantities of fertilized eggs. Upon fertilization, the fluke egg swells up to about 1/16 inch in diameter and becomes buoyant, that is, in the ocean it would remain somewhere near the surface. Thus it would become part of the plankton and float along by itself at the mercy of the wind and waves.

In the lab, hatching took place in about three days. At that time

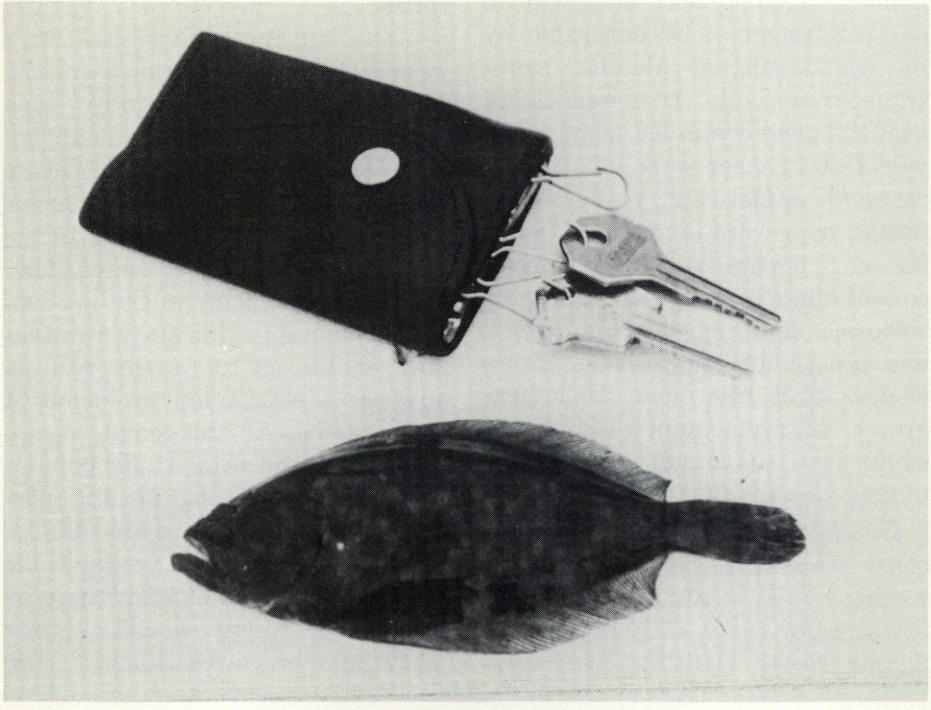


Drawing of a fertilized fluke egg 50 hours after fertilization——just about ready to hatch

the newly emerged larvae are about 1/6th of an inch in length and have one eye on each side of their head, thus looking like any of the more normal "round" fishes when they first come out of the egg. During their 12-day span in the lab, the young fluke sustained by their yolk sac were still "round" in shape.

One of the things that we wanted to find out is whether or not New Jersey estuaries are used as nursery grounds for young fluke. In order to do this, we set about sampling the waters coming in from the ocean to the Manasquan and Corson inlets. We chose as our fishing gear a plankton net which is essentially a big soupstrainer about a yard across the opening. Once a week during the nighttime hours, we positioned the net so the incoming tide washed through it for one hour. As expected from what we learned about the spawning time for the fluke, we captured our first larvae coming in from the ocean in late November. In fact, for two consecutive years we found the first larval fluke of the season entering our inlet on Thanksgiving morning. So next Thanksgiving when you are getting ready to enjoy your turkey, you might remember that the fluke for which you will be fishing in a few years are then entering our bays to begin their nursery existence. By the time the fluke start coming into our inlets, they have grown to about one-half inch in length and have taken on their flattened form. At that size they are clear as glass except for their eyes and some spots which have begun to show. Also at this stage of their life they

are still rather feeble swimmers and are carried about by the moving tides. But, when the current slackens, they will head for the bottom and stay there. This immigration of larval fluke continues into our estuarine waters until about the end of December.



Young fluke taken in mid-summer. Fluke this size have been rare in New Jersey waters

What happens to them during the winter months is still anybody's guess. It is possible that during severe winters in New Jersey these young may be completely wiped out by sub-freezing temperatures. There is a good chance this was the case during the 1960's because during several summers of that decade we searched our estuaries from Sandy Hook to Delaware Bay for young of the previous fall but came up with very few specimens. These summer specimens were about nine months old and about the size of your hand. They are brown in color and have beautiful blue spots which are surrounded by orange halos. Like their elders, they possess strong jaws and sharp teeth.

Knowing of our quest for young fluke many people contacted us to let us know where they were sure we would find multitudes of young fluke. But it turned out the

. . . *Young Fluke*

same in just about every case—no fluke—just young winter flounder or an occasional young sundial. Incidentally, the sundial is also a left-handed flatfish that is found in our waters but is recognizable by its round, almost dishlike semi-transparent body. It is surprising that the people who led us on these wild fluke chases were not the occasional angler but rather were people who were somewhat familiar with marine species including commercial bait netters, outdoor editors, amateur ichthyologists, and experienced skin divers. Nonetheless, they like most other fishermen, simply assumed that every small flatfish found in the bays during the summer is a fluke.

In our communications with the other state conservation agencies, we finally did locate a major nursery area for fluke. Only in Pamlico Sound, North Carolina, was anyone able to locate large quantities of young fluke. Thus during the lean fluke fishing years of the 1960's it was apparent that New Jersey certainly was not producing its own future supply of fluke but rather, in all probability, was depending on the young that were raised in North Carolina's coastal waters. Whether in fact New Jersey must wait until it can become a fluke "producer" before we can expect to enjoy bumper crops as we did in the mid to late 1950's is not certain at this time. However, a close watch on the production of young in this state's waters may enable us to predict well in advance a population explosion of this species. At this point, it appears that the total fluke population is now building up and perhaps in the near future the chances of misidentifying the young fluke in our bays in the summer may be eliminated. Just imagine—they just might be young fluke. #

A Reminder to Hunters

Avoiding long waiting times, crowded classes, and a chance of missing opening day can all be taken care of now by enrolling in a hunter safety program if you do not already have a valid hunting license.

New Hunters of all ages, whether using firearms or bow and arrow, are now required by regulation to obtain a certificate of completion from an accredited hunter safety course.

Aspiring hunters are recommended to enroll now by contacting their local conservation officer or the Division of Fish, Game, and Shell Fisheries office in Trenton. Completing tests now will assure the hunter of participating in opening seasons.

Keep That Gun Moving

To hit flying targets with a shotgun consistently you've got to keep the gun moving, swing the muzzle past the target, pulling the trigger as you do so, and continue swinging in a follow through motion after you've touched off the shot.

Many shooters worry about the distance they should lead a target. The fact is, however, that lead without swing and follow through is doing it the hard way. There are some successful gunners who "spot shoot," picking a predetermined point ahead of the bird, and consciously firing at it before the target arrives. But, these people are the exception rather than the rule, and they can only learn the technique with years of practice. If your mind works like an IBM machine and you can program it to solve a complex problem in spherical trigonometry while at the same time coordinating your body to carry out its orders, spot shooting is the system for you. If not, the "swing and follow through" technique is best.

Perhaps the best way to visualize the problem is to remember that a shotgun, in effect, throws out a string of lead shot much as a hose throws out a stream of water. Another good analogy is a football player throwing a pass to an end running down the field. If the pass receiver is going to catch the ball, the passer has to toss it to a point where the receiver is going to be, not where he is at the moment of throwing. The passer doesn't consciously comput the "lead" to accomplish this, however; he does it instinctively.

In the case of shooting, by swinging your gun through the target, pulling the trigger and keeping the gun moving, you are actually computing the lead automatically. #

Hunter Orange A Must

New Jersey hunters must wear a daylight fluorescent orange color cap or outer garment containing at least 200 square inches of orange fluorescent material.

This law applies to all persons while hunting deer, rabbit, hare, squirrel, fox, or game birds, other than waterfowl, with firearms in New Jersey.

The penalty for violation will be $50 for each offense.

This law does not apply to bow hunters.

Other states which have adopted similar hunter's orange provisions have reported a decrease in hunting accidents because of its use. #

Duck Identification Guide For Hunters

After making the first choice offered at the top of the page follow the black lines to secondary choices until the correct identification has been made.

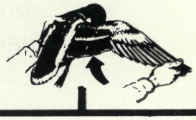
STA

DOES YO

Bill broad, typically ducklike

Wing patch gray, nonmetalic or wing uniform in color

Wing patch irridescent blue, purple, green, brown or black or white

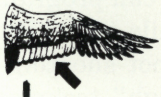


Bill without two rings

Bill with two bluish-white rings, one at the base and one near the tip

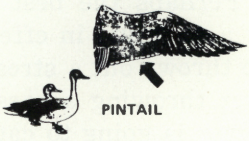
RING-NECKED DUCK

Wing patch white



Wing pa
green, b

Wing patch brown



PINTAIL

Wing patch bl

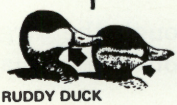
Head flattish, sloping with straight line appearance from forehead to bill

Head rounded with angle at forehead and bill

CANVASBACK

White or whitish cheek patch

Head uniformly reddish or yellowish brown



RUDDY DUCK

REDHEAD

Wing patch bordered on both sides with white

MALLARD

Head creste

WOOD DUCK

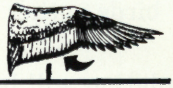
White face patch behind eye

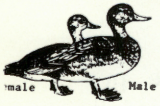
BUFFLEHEAD

No white face patch, or if present, in front of eye

White wing patch with black or dark feathers in center

White wing patch without black or dark feathers in center



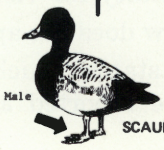


GADWALL

Feet yellow

GOLDENEYE

Feet gray



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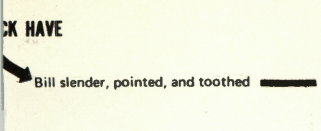


Feet yellow or yellowish-gray

HOODED MERGANSER

Feet pink or reddish

COMMON MERGANSER

RED-BREASTED MERGANSER

alic blue, purple, black

Wing patch blue, purple, green or black

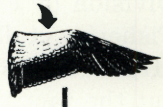
rple

Wing patch green or black

Wing patch without white border or white only at feather tips

Blue patch on shoulder of wing

Patch on shoulder of wing not blue



ellow

Head not crested, feet orange-red or coral red

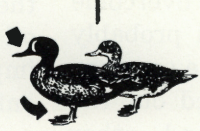
Male

BLACK DUCK

Bill very large and broad, feet orange or coral-red

SHOVELER

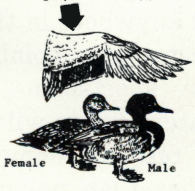
Bill normal, feet yellow



BLUE-WINGED TEAL

Cinnamon teal is similar to blue-wing teal except that male cinnamon teal is reddish on head and underparts. The female is virtually identical to the female blue-wing teal.

Shoulder of wing gray or brownish



GREEN-WINGED TEAL

Shoulder of wing with white patch

AMERICAN WIDGEON

Female American widgeon has brown breast and flank. Female green-wing teal has gray speckled breast and flank.

This pictorial aid is designed to assist in recognizing ducks in the hand after they have been bagged.

The shape of the bill, wing markings, color of feet or head crest are some of the typical characteristics used to identify ducks in the hand. This is quite different from identification of ducks in flight or sitting on water. When flying or on water other identifying features are used such as silhouettes, mannerisms of flight, wing beat, speed of flight or color patterns on body and wings. Every effort should be made to learn to recognize ducks before they are shot. By doing this the hunter is able to take much greater advantage of his sport.

Although occasionally seen inland, sea ducks are not included in this key. They are most frequently found in open salt water areas.

Annual Meeting

The 16th annual meeting of the New Jersey State Federation of Sportsmen's Clubs was held at Wildwood Crest. Over 150 participants enjoyed the hospitality generated by the 1973 gathering. Many subjects were discussed, from the future of hunting in New Jersey to the need for more emphasis on warm-water fishing, to the idea of a saltwater fishing license.

Bob Smalley terminated his two-year stay in office by presenting a short talk on the progress of the Federation and the need for unity among all groups interested in New Jersey's wildlife. Al Bal will be the new president.

Russell Cookingham, Director, Division of Fish, Game, and Shell Fisheries, talked on the state of affairs of the Division. He pointed out the fact that, if environmental problems such as air and water pollution, overcrowding, and anti-hunting sentiment can be overcome in New Jersey, they can probably be solved anywhere in the country. The Director also pointed out the need for sportsmen and other groups interested in wildlife to pull together on environmental problems rather than polarizing away from the main issue of keeping wildlife a renewable resource in New Jersey.

The Director explained the new planning program recently implemented by the Division to establish policies for future Division actions.

A program of regionalization has been put into effect by the Division to centralize Division personnel in the three sections of the state: north, central, and south. Such localization will help immensely the problem of publicizing Division activities in particular areas and will personalize the Division.

A representative from the Exxon, U.S.A., company presented a slide program and lecture on "Offshore Operations—One Answer to Our Energy Problems." W. Chapelle of Lubbock, Texas, geological manager of Exxon Company's Eastern Marine Division, gave the talk with back up from three other representatives. With the use of charts Mr. Chapelle pointed out the need for increased domestic oil sources as opposed to foreign imports. Since oil and natural gas only occur in two kinds of sedimentary rocks, these resources are found only in particular areas of the world. Most of the underground sources in the continental United States have been tapped, with the exception of Alaska. Offshore of the Jersey coast, however,

is a formation referred to as the Baltimore Canyon Trough which may contain large amounts of oil and gas.

New Jersey Department of Environmental Protection Commissioner, Richard J. Sullivan, was the guest of honor at the banquet. Having just arrived from the dedication of north Jersey's Sunfish Pond as a natural landmark, the commissioner commented on the great variety of land types found in New Jersey. He pointed out that a visitor riding only on the New Jersey Turnpike would get the impression that Jersey is well-deserving of its position as one of the largest chemical producing states in the country. The commissioner went on to point out that about 60 percent of New Jersey's land is still open and in need of management. The challenges are great and Mr. Sullivan felt that the grass roots efforts of sportsmen can help meet these challenges.

An afternoon session presented by Division personnel gave sportsmen the opportunity to comment on and question Division activities. The Bureau of Wildlife Management gave a slide presentation on the over-crowding experienced on public shooting grounds on opening day of small-game season. Studies done by Rutgers University show that most hunters are afield to enjoy being out rather than just trying to kill game. Over-crowded conditions on fish and wildlife management areas defeat these attempts and also harvest stocked and wild game in an unbalanced manner. One solution to the problem of overcrowding would be a controlled access program whereby only a certain number of hunters would be allowed on each area each day.

Fisheries Management Bureau personnel gave trout stocking information and the overcrowding problems also encountered on New Jersey's streams. The definition of quality fishing was discussed with two areas evolving—that of solitude on the stream versus adequate fish to be taken. The Division currently stocks practically all the waters of the state and there are virtually no natural trout areas open to the public which are not stocked. Fisheries people now believe New Jersey is ready for a natural trout area and that such an area can be productively managed. There is need for acceptance of this concept and support.

Law enforcement gave a rundown of the duties of the conservation officer and the many jobs a CO must perform.

The Information and Education Unit stressed the need for sportsmen's involvement with National Hunting and Fishing Day on September 22 this year and the needed public involvement. Rather than having sportsmen oriented activities at gun clubs, etc., the clubs should take their programs into schools and city parks, perhaps emphasizing gun safety in the home as well as safe hunting techniques. #

The Federal Aid Corner

New Jersey Sport Fishing Today and Tomorrow

By Paul D. McLain
Federal Aid Coordinator

(The following paper was presented at "Sport Fishing Today and Tomorrow" on April 7, 1973 at Convention Hall in Ocean City, Maryland.)

Part II

Over the years, the Division of Fish, Game, and Shell Fisheries has conducted surveillance of the state's waterways, both fresh and salt, for pollution and fought hard to maintain a high level of water quality control and enforcement. The State's Lebanon Fishery Labratory maintains a water pollution unit to monitor water quality and investigate pollutions. We have constructed several public access sites and boat launching ramps on the Atlantic Coast and Delaware Bay at the cost of over $200,000.

However, in spite of our efforts, at the present time it would appear that we are just barely holding our own in maintaining saltwater sport fishing.

Now What Can We Do In The Future For Marine Sport Fishing?

Based on what we have seen happen in the past, what we are presently trying to accomplish on a modest scale, and realizing the public demands which are now being made and will be made on our marine sport fishing resource, the future certainly doesn't look bright!

It doesn't look bright UNLESS we immediately start to gather our forces and begin to manage our saltwater fishery resources in a more intelligent, practical and forceful manner than we have in the past. The day is gone when we can literally give away a little chunk of the saltwater resource without it being felt up and down the Atlantic coastline.

The state and federal biologists stand ready to accept the responsibility they have recognized for years, but they need the sportsman's help and the push necessary to get the show on the road. Without the whole-hearted support of the sportsmen who understand the problems in sport fishery management, it will be impossible to adequately manage the resource; stimulate the legislation; and provide the future funding necessary to perpetuate saltwater sport fishing as we know it today.

The following are some specific objectives and basic needs which might be considered as part of an aggressive saltwater fishery research, development and overall management program:

1. Establish effective and powerful coordinated effort to cooperatively manage, direct and fund the saltwater marine program as a coastal resource rather than as an individual state resource. Such a program started in 1972 on lobster but was set back from the lack of federal funds.
2. Develop public education and information programs, such as we have here today, to acquaint the sportsmen and public with problems of managing our coastal sport fishing resources.
3. Provide the funding necessary to greatly accelerate the present programs and also initiate new studies essential to understanding and managing our saltwater sport fishery resources and the various habitat types. Any funding should be geared to a specific saltwater management program, with well defined goals and objectives which both the commercial and sport fishermen understand and support. However, funding options should be flexible enough to prevent the program from being locked in on one or more unpopular forms. Funding options might include appropriation from general funding, a percentage of the marine fuel tax, a sales tax on saltwater fishing tackle, a saltwater or territorial fishing license, or possibly a combination of the above.
4. Conduct basic long-term research on the value of the wetlands, estuaries, the ocean, basic fishery biology, water chemistry and habitat quality and productivity. Conduct short term applied research on local problems and provide for biological assessments, consultation and constant surveillance of our coastal resources.
5. Strive toward individual management to ascertain the needs and requirements of the various marine sport fish and manage them accordingly. Investigate local problems and provide for land acquisition, development, control and species management as required.
6. Investigate the number of sport fishermen, their harvest, opinions, and desires and gather information on the economics and sociology of saltwater sport fishing.
7. Draft, present and encourage more effective legislation necessary for sound management of the marine sport fishery resource and habitat.
8. Review the present enforcement problems and provide the funding and direction necessary for more practical and

aggressive enforcement of both inshore and offshore fishing.

9. Provide for land acquisition, strategic bank fishing areas, developmental activities such as access sites, ramps, right-of-ways, jetty topping, piers, fish walks on bridges, fish ladders, artificial reefs and overnight camping to provide the sport fishing public with greater fishing opportunities and appreciation of the resource.
10. Develop long term comprehensive sport fishery management plans on a coastal basis to provide the overall direction and coordination of the research, development and management programs. Every state, the federal government and private conservation organizations should have input and a high degree of participation.

I am certain that there are **many more** goals and objectives of a comprehensive saltwater sport fishery management program. Perhaps these can be considered as just a starter.

In summary, I personally feel, that we are at the crossroads of the Atlantic Coast saltwater sport fisheries future. We still have a resource and the habitat to work with and manage. It's possible to sit back, utilize the resource and provide little **more** input than we have in the past. If this is done, we will probably see a gradual deterioration and eventual loss of saltwater fishing as we know it today.

Perhaps we will wake up to the problems, take the bull by the horns and recognize that we as sportsmen and the users of the resource have an obligation to that resource, not only for ourselves, but for the future generations.

Hopefully, we may realize that we must now begin to cope with the problems we have ignored in the past. **They** are not going to **disappear.** It's the sportsmen who are going to have to stand behind and support the federal and state biologists as they scream for funding, legislation, political pressures, and the driving force necessary to intelligently manage our coastal sport fishing. If the present marine sport fishing resource is not important enough for the saltwater **sportsman** to fight for now, then it will be impossible for governmental agencies to justify any major effort or expenditure of funds.

I can only hope that we don't wait for more rivers like the Hackensack and Passaic, the Arthur Kill, Newark and Raritan Bays, and sections of the Delaware River to stare us in the face as examples of our failure to do something about the marine sport fishery resources before it's too late. #

Obtain your hunting license early.

Some Tips on How to Release Fish

Most fishermen eat what they catch. They aren't overly concerned about how a fish is boated since the object is to enjoy their catch at the table. But for some anglers, particularly those who take big fish (such as the trophy trout in Round Valley Reservoir), releasing the fish is more important than eating it!

To them, how the fish is boated is important. If not done correctly, the fish may be injured and die soon after being returned to the water. When this happens, it truly is wasted, for it will no longer provide sport and it wasn't consumed as food.

Realizing that many anglers are interested in releasing their catch, we offer to you some ideas about different ways to land fish—and return them safely to the water.

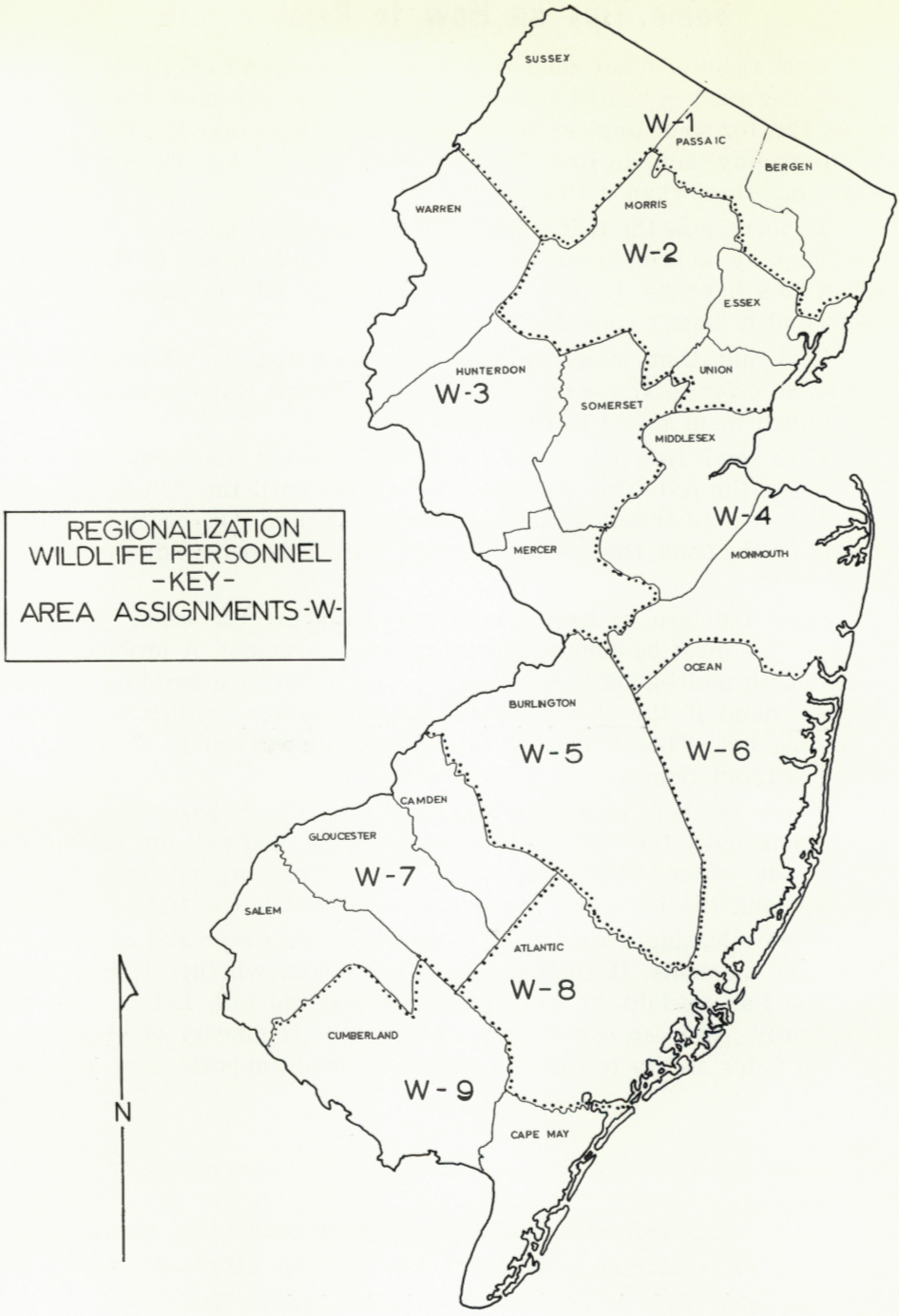
With small fish it is usually possible to swing them into the boat by raising the rod. This presents no problem until the fish is aboard, but then it may thrash about and become injured. Or, because of the weight on the hook, the jaw may become torn. This invites disease and a slow death.

Some fish can be landed by firmly grasping the lower jaw and lifting. This must be done with one smooth movement. A problem here is that with multi-hook lures there is a possibility of imbedding a hook in your hand if the fish jumps around. A better method is to use a landing net. This supports the fish and allows you to remove the hooks without damage.

A new method, especially good for largemouth bass, is to place your hand under the fish, just behind the gills, and pull up, raising it out of the water. This compresses the internal organs against the nerves along the backbone, temporarily paralizing the fish.

When releasing a fish place it gently in the water and observe it for a few moments. If there is any doubt about whether it will live, hold the fish upright by grasping it around the tail. Let it recover sufficiently—you can usually tell when by the regularity of breathing and the fish's ability to remain upright without support—then release it. #

Any fisherman who catches a fish that could be a state record is invited to write to the Trenton office of the Division for record fish application forms and rules.


REGIONALIZATION
WILDLIFE PERSONNEL
-KEY-
AREA ASSIGNMENTS -W-
SUSSEX
W-1
PASSAIC
BERGEN
WARREN
MORRIS
W-2
ESSEX
HUNTERDON
W-3
UNION
SOMERSET
MIDDLESEX
W-4
MERCER
MONMOUTH
OCEAN
BURLINGTON
W-5
W-6
CAMDEN
GLOUCESTER
W-7
SALEM
ATLANTIC
W-8
CUMBERLAND
W-9
CAPE MAY
N

Division Regionalization

Personnel from the Bureaus of Fisheries and Wildlife are incorporated into a regionalization plan to assist resource oriented groups.

This plan is designed as an aid to public and civic groups concerned about fish and wildlife resources and desiring to include management practices into lands and waters they administer.

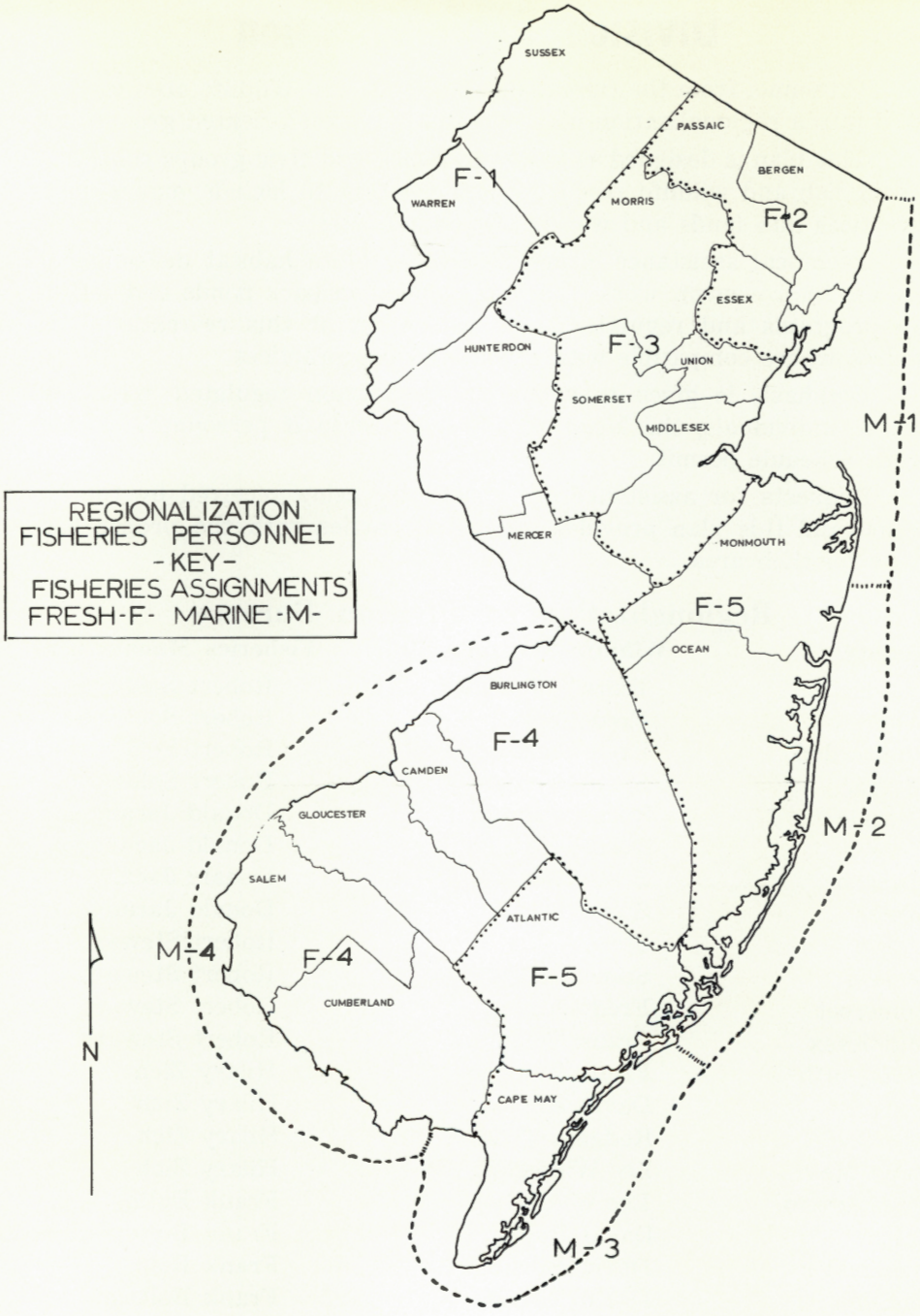
Technical assistance is provided for wildlife habitat development, stream improvement work, fish management in park ponds and setting up programs and regulations for utilization of this recreational resource where compatible with other land use practices.

Emphasis is given to group or commission regulated areas and not to individuals, the latter will be considered if personnel's normal work schedule permit.

Requests for assistance are constantly being received by the Division and this plan provides interested parties with the proper contacts for their area.

Regionalization of Division Bureaus

County	Wildlife Management	Fisheries Management
Sussex	Russell A. Spinks	Robert Soldwedel
Warren	Fred Carlson	Robert Soldwedel
Hunterdon	Fred Carlson	Robert Soldwedel
Mercer	Frank Tourine	Robert Soldwedel
Passaic	Russell Spinks	Donald Jacangelo
Bergen	Russell Spinks	Donald Jacangelo
Hudson	Steve Toth	Donald Jacangelo
Essex	Steve Toth	Donald Jacangelo
Union	Steve Toth	Robert Stewart
Morris	Steve Toth	Robert Stewart
Somerset	Fred Carlson	Robert Stewart
Middlesex	Frank Tourine	Robert Stewart
Monmouth	Frank Tourine	Hilary Zich
Ocean	David Applegate	Hilary Zich
Atlantic	Rodgers Todd	Hilary Zich
Cape May	Lee Widjeskog	Hilary Zich
Cumberland	Lee Widjeskog	Frank Bolton
Salem	David Burke	Frank Bolton
Gloucester	David Burke	Frank Bolton
Camden	David Burke	Frank Bolton
Burlington	Rodgers Todd	Frank Bolton


REGIONALIZATION
FISHERIES PERSONNEL
-KEY-
FISHERIES ASSIGNMENTS
FRESH-F- MARINE-M-
SUSSEX
PASSAIC
BERGEN
WARREN
MORRIS
F-1
F-2
ESSEX
HUNTERDON
F-3
UNION
SOMERSET
MIDDLESEX
M-1
MERCER
MONMOUTH
F-5
OCEAN
BURLINGTON
F-4
CAMDEN
GLOUCESTER
M-2
SALEM
ATLANTIC
M-4
F-4
F-5
CUMBERLAND
N
CAPE MAY
M-3

. . . *Regionalization*

Addresses

Wildlife Management

Russell A. Spinks
Star Route,
Layton, N. J.
(201) 948-3860

Fred Carlson
Clinton Wildlife Management Area
Clinton, N. J.
(201) 735-8793

Steve Toth, 187 Echo Ave.,
Edison, N. J.
(201) 494-8597

Frank Tourine
RD #3, Box 392A,
Robbinsville, N. J.
(609) 259-7954

David Applegate, P. O. Box 156
Collier's Mills Wildlife
Management Area,
New Egypt, N. J.
(609) 758-2455

David Burke, RD #2,
Box 285C,
Absecon, N. J.
(609) 641-0889

Rodgers Todd
N. Maple Ave.,
New Gretna, N. J.
(609) 641-0889

Lee Widjeskog
Tuckahoe Wildlife Management Area
Tuckahoe, N. J.
(609) 628-2103

Fisheries Management

Robert Soldwedel
Fisheries Laboratory
Lebanon, N. J.
(201) 236-2313

Donald Jacangelo
Fisheries Laboratory
Lebanon, N. J.

Robert Stewart
Fisheries Laboratory
Lebanon, N. J.

Hilary Zich
Fisheries Laboratory
Lebanon, N. J.

Frank Bolton
Fisheries Laboratory
Lebanon, N. J.

Tidal Waters*

Pat Festa
Bergen County to Long Branch

Bruce Halgren
Long Branch south to Atlantic City

John McLain
Atlantic City to East Point

John Makai
East Point to Trenton

* For tidal waters contact:
Nacote Creek
Research Station,
Star Route, Absecon,
N. J. (609) 641-0889.

Fisherman's Tackle Box Check List

How often have you discovered, when you were already on the highway or out on your favorite fishing waters, that you forgot one or more essential items you intended to take along? It might be a special lure or even your license. One of the better ways to avoid this embarrassment is to keep a fisherman's check list. Run down the list of items just before leaving home. Years of experience has proved the following list to cover the needs of fishermen under most circumstances. You may want to add your boat equipment check list to this. And we have left blank spaces, if you need them for filling out your own personalized check list for fishing trips. We suggest taping it inside the lid of your tackle box.

Every Fisherman

License
Rods
Reels
Extra Line
Leaders
Swivels
Hooks
Lures, Flies, Bait
Sharpening Stone
Nail Clippers
Pliers
Landing Net
Stringer
Filleting Knife
Fish Scaler
Creel
Tackle Repair Kit
Sunglasses
Suntan Lotion
Insect Repellent
Rain Gear
Coffee Jug

Lunker Fishermen

Electronic gear
Thermometer
Scales
Extra Stringer
Camera

Other

.....
.....
.....
.....
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.....
.....

Please give your CORRECT POST OFFICE ADDRESS and ZIP CODE for change of address, new subscriptions, and renewals.

White Mulberry

(Morus alba)

This mulberry gets its name from its white fruit. It is a small, short-lived, shade-tolerant tree that will grow on fertile or sandy and clay soils. It is common along farm fence rows.

Range:

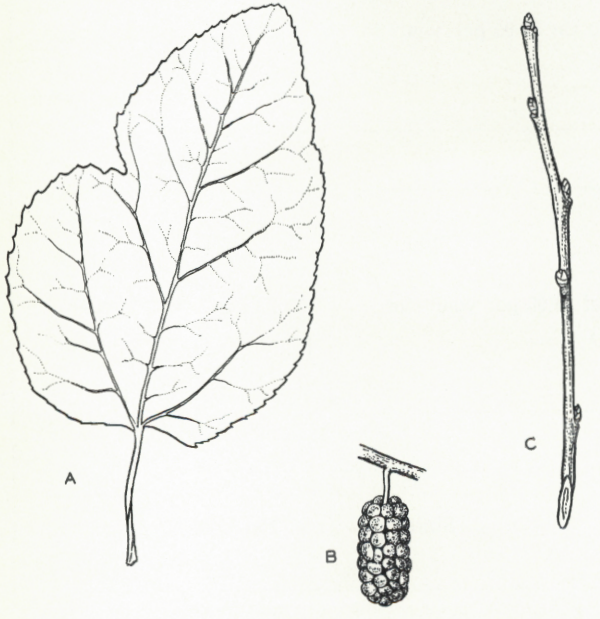
Widely planted in the Eastern United States, it has escaped and become naturalized from New York to Indiana, Missouri, and Kansas, and south to Texas and Georgia.

Leaves:

Alternate, simple, 3 to 5 inches long, smooth, serrate along the margin, and unlobed or take the shape of a mitten. (See figure A.) They may be three lobed and are often cordate at the base. With the exception of being slightly smoother and smaller, the leaf of this tree is similar to the native red mulberry.

Twigs:

Stout and smooth and zigzag slightly. They are greenish to reddish brown and have distinct leaf scars with bundle scars. There is no terminal bud. (See figure C.) Bark on older trees is thin but rough, and it is a dark grayish brown.



White Mulberry
A. Leaf
B. Fruit
C. Twig

. . . *White Mulberry*

Flowers:

The small male and female flowers are borne on the same or different trees. They occur in elongated clusters early in the spring.

Fruit:

An aggregate ½ to 1 inch long composed of many small drupes. They are edible and appear in July or August. (See figure B.)

Uses:

A small short-lived tree, usually under 50 feet in height and under 18 inches in diameter. Used chiefly in the past for silkworm food, it is now used for wildlife food, windbreaks, human food, furniture, fence posts, turnery, and boats.

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

Old Tires Trap Mercury

An AP item datelined Augusta, Georgia, appearing in the *Los Angeles Times* for May 6, 1973, reported that the troublesome old rubber tires may help to provide a solution to mercury pollution. According to the item, scientists at the Atomic Energy Commission's Savannah River plant have discovered that rubber from discarded tires captures mercury in a flowing stream and absorbs it.

Edward L. Albenesius, a research manager in the Savannah River Laboratory, said:

> Any chemist knows that sulfur and mercury form a very insoluble compound—they merge together when exposed to each other.
>
> It occurred to me that since commercial rubber has a high sulfur content, it might be useful in finding a solution to the mercury problem that became so visible in the late 1960's.

Another chemist in the lab, A. Ray McJunkin, and an engineer, Whitney Tharin, Jr., then tried to use rubber to remove mercury from a processed stream exiting from the plant. Tharin obtained a supply of rubber tires from an Augusta businessman and, after grinding the rubber, installed it in the stream.

The experiment was a success and the method was then put to use in the plant's heavy water production area. Small amounts of mercury from water reprocessed after use in the nuclear reactors were successfully removed. #

State of New Jersey
Department of Environmental Protection
DIVISION OF FISH, GAME AND SHELL FISHERIES
P.O. Box 1809 Trenton, New Jersey, 08625
Application for HUNTER SAFETY COURSE
(fill in and mail to above address)

Type of class requested (check only one)

Shotgun _____ Bow and Arrow _____ Rifle _____

NAME (PRINT OR TYPE) LAST	FIRST	MIDDLE	AGE
STREET NO.	STREET NAME		
CITY	STATE	COUNTY	ZIP CODE
DATE	TELEPHONE NUMBER		
STUDENT SIGNATURE	PARENT SIGNATURE IF UNDER 18		

DO NOT DETACH STUB

Student will be notified when and where to report for course.

Guide to the

Turkey Swamp Area

Monmouth County

The Turkey Swamp Wildlife Management Area is located in south-central Monmouth County about 6 miles south of Freehold. Portions of the tract are located adjacent to the Ely Harmony Road and west of the Turkey Swamp County Park. Presently the area consists of 1,855 acres of upland pine-oak woodland, lowland, and swampy areas. Old fields and newly constructed fields are present.

Upland Game

Principal species of game are rabbits, quail, grouse, grey squirrels, and woodcock. Future activities will include the clearing of additional fields, wildlife food and cover plantings, and the addition of impoundments. The Division stocking program provides in-season pheasant and quail liberations for additional hunting recreation.

Deer

This tract maintains a sizable deer herd throughout the year and offers hunting opportunities for both the bow and shotgun enthusiast.

Waterfowl

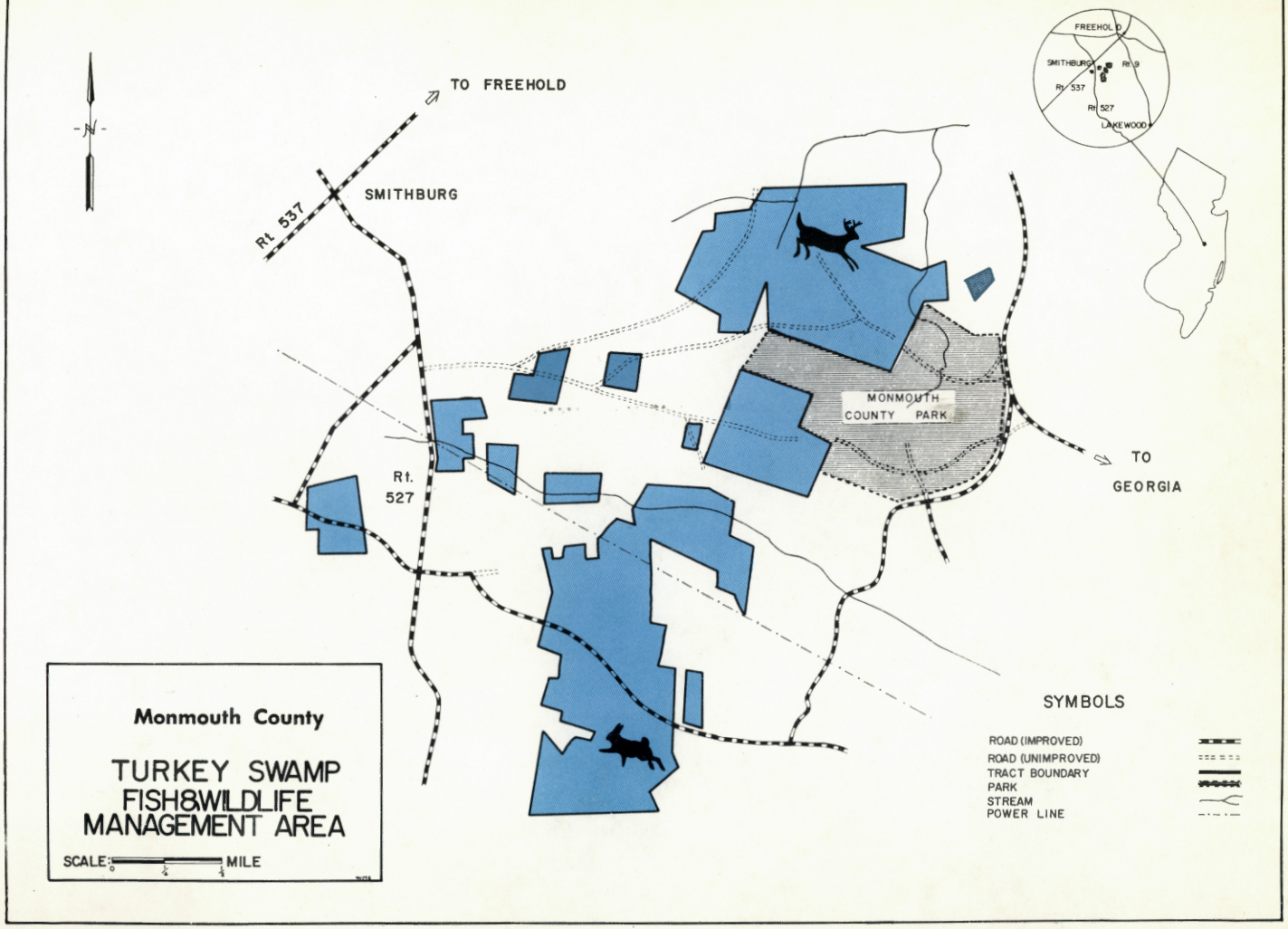
Limited waterfowl hunting occurs along the upper reaches of the Metedeconk River and in the swampy areas. Waterfowl numbers will improve when the impoundments are constructed.

The tract is maintained and supported by sportsmen's license money. #

—William M. Smith
Bureau of Wildlife Management

Fishermen: If you're not catching 'em lately the reason might be because you're using sick worms. That's right—sick worms. According to the Interior Department's Fish and Wildlife Service, earthworms collected near heavily traveled roads in the Washington, D.C. area contain large amounts of lead, zinc, nickel, and cadmium evidently emitted by automobiles. Lead and zinc were found in quantities that could be fatal to birds that consumed the earthworms.

The worms used in the study were alive when taken, but many of them "looked sick" according to a scientist involved in the collections. #


TO FREEHOLD
SMITHBURG
Rt. 537
Rt.
527
MONMOUTH
COUNTY PARK
TO
GEORGIA
FREEHOLD
SMITHBURG
Rt. 9
Rt. 537
Rt. 527
LAKEWOOD
SYMBOLS
ROAD (IMPROVED)
ROAD (UNIMPROVED)
TRACT BOUNDARY
PARK
STREAM
POWER LINE
Monmouth County
TURKEY SWAMP
FISH&WILDLIFE
MANAGEMENT AREA
SCALE:
MILE

Let's protect our earth

New Jersey Department
of Environmental Protection

Division of Fish, Game, and
Shell Fisheries

New Jersey Outdoors
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