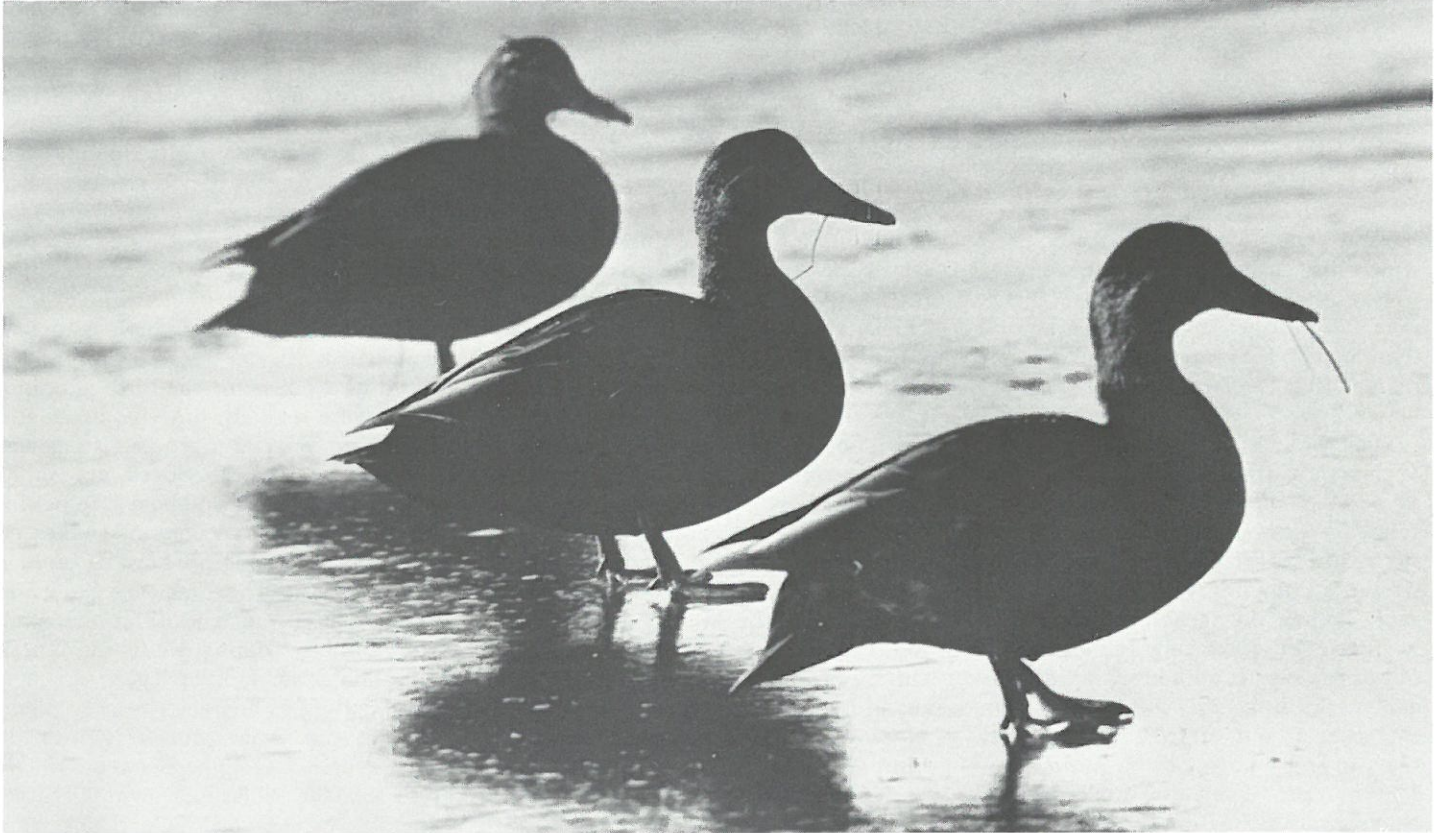


COAST WATCH

Photo by Michael Halminski



Three companions search the frozen sound for a bite to eat

Autumn settles in on a cloud of southbound wings

Let the first chill of autumn sidle over North Carolina and you can bet thousands of waterfowl will be setting their wings southward. Some ducks, geese and swans merely pass through the state en route to a more southerly destination, but thousands of waterfowl skitter into North Carolina lakes, marshes and sounds for the winter.

By late December, mallards, black ducks, wigeons, teals, Canada geese, whistling swans, pintails, redheads, canvasbacks and more have settled

into areas like Currituck Sound, Lake Mattamuskeet, Pamlico Sound and the lower Cape Fear River. There, they fill their bellies with marsh grass, wild celery, acorns and occasional "leftovers" from a farmer's corn crop. And about the same time, they become targets for hunters.

Hunting season is intermittent in this state with opening and closing dates and bag limits set by the N.C. Wildlife Resources Commission. The populations of some species such as

whistling swans and canvasback ducks (in certain areas) are low and are protected from hunting.

The early arrivers each fall are the blue-winged teal. They wing in during late September and early October. The peak for duck season is mid-November, says Steve Frick, refuge manager at the Lake Mattamuskeet National Wildlife Refuge. Geese arrive by early December, while swans make their debut around Christmas, he says.

Continued on next page



Green-winged teal preparing for take-off

Some waterfowl move into their wintering areas during the night. "They migrate on the moons," Frick says. "You'll get up one morning and there will be thousands of ducks on the refuge that weren't there the day before."

Dick Brame, a waterfowl biologist at North Carolina State University, says the snow goose will migrate thousands at a time, day or night, usually riding the coattails of a good northwester. "They migrate in high Vs," he says. "When they reach the place they want to overwinter they fall like leaves out of the sky. It's like free falling. It's called whiffling, and the geese are letting the air out of their wings. They seem to enjoy it, but I don't know how I know that. They also make a noise that sounds like a high-pitched dog at a distance. They're so loud in a flock you can hardly hear yourself think."

Scoters, which are sea ducks, migrate only during the day, Brame says. They migrate offshore, forming a line just above the water. "When the scoters come across an obstacle like a boat they fly over it one after another," Brame says. "It looks like someone has snapped a rope."

Brame says five groups or tribes of ducks can be spotted in North Carolina. Diving ducks (Aythyini) such as canvasbacks, scaup and redheads will dive to depths up to 60 feet to snack on widgeon grass or Rangia clams. A distinguishing characteristic, diving ducks' feet are located to the back of their bodies to help them dive.

Dabbling or puddle ducks (Anatini) won't go to such depths for their meals. Mallards, pintails, wigeons, teals and black ducks feed in shallower areas where they need only "tip up" (so their tails are above water) for a taste of pondweed or bulrush seeds. Dabbling ducks' feet are located more forward on their bodies allowing them to walk easily on land and occasionally feed on the remains of harvested crops such as corn. Like a helicopter lifting off a launch pad, dabbling ducks rise straight off the water when taking flight. And one of the dabbling ducks, the black duck, adds a little dazzle to his lift off. According to Brame, as the black duck raises his wings against a blue winter sky, the silver underlinings of his black wings twinkle in the light.

Scoters, goldeneyes, buffleheads, mergansers, eiders and oldsquaws make up a tribe of ducks known commonly as sea ducks (Mergini). Sea ducks tend to spend more time in large, open bodies of salt water, though they will sometimes inhabit freshwater areas. They too dive for their food, eating mainly mollusks and fish.

Ruddy ducks are the only stiff-tailed ducks (Oxyurini) to winter in North Carolina. As their common tribal name suggests, their tail feathers are long, stiff and pointed. Their feet are even further back on their bodies than the diving ducks, making it very awkward for them to walk on land.

Of the perching ducks (Cairinini), only one, the wood duck, inhabits the United States. The wood duck winters

and nests in North Carolina. Characteristic of perching ducks, the wood duck's legs are forward on its body (further forward than dabbling ducks). They have strong claws for perching, broad wings and a rectangular tail that helps them balance. The male wood duck has been labeled the most beautiful duck in North America. "He's got a big crest and a red and yellow bill, a greenish tinge on his head, two white stripes coming up either side, and a reddish breast sprinkled with white," says Brame. "He has a beautiful, beautiful side. It's a tan gold color with black and white edging on each of his large flank feathers. He's the most striking bird of the bunch."

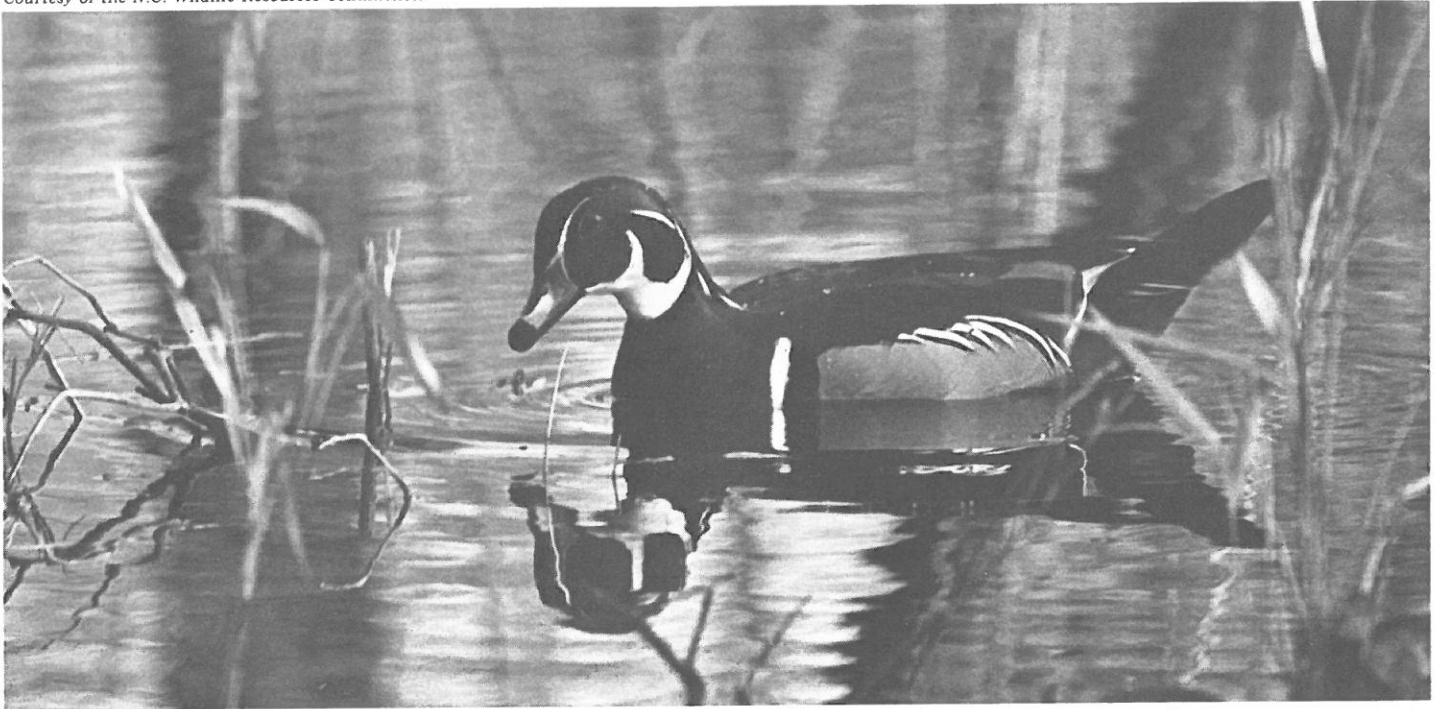
The wood duck neared extinction during the first part of the century. Some overhunting, but mainly the clearing of forests (wood ducks nest in the hollows of trees near the water) for lumber and farmland, drove the wood duck populations downward. In an effort to help wood ducks find private niches for their eggs, biologists and concerned citizens began a program to build nest boxes for the birds. Populations were revived, but the ducks still need help. Special precautions must be taken as the nest boxes are built, otherwise the nest will be a sure bet for predation from raccoons or snakes.

For instructions on how to build a wood duck nest box, contact Gary San Julian, extension wildlife specialist in the zoology department at North Carolina State University.

Whistling swans are the only members of the swan genus (*Cygnus*) to visit North Carolina. Between 18,000 and 22,000 whistling swans scatter themselves between Currituck and Pamlico Sounds and Lake Mattamuskeet (accounting for 50 percent of the whistling swans in the Atlantic Flyway). A visible concentration of whistling swans can be sited at the Mattamuskeet National Wildlife Refuge.

One of the whistling swans kin, the trumpeter swan, formerly wintered in this state. But exploitation of the bird for its feathers during the mid-19th century almost led to the trumpeter's extinction. The trumpeter swan populations have mounted a slow revival, but its wintering range remains limited.

Luckily the whistling swan has not suffered such a fate. In fact, the whistling swan population in the United



The wood duck

Photo by Michael Halminski

States has risen steadily for the past 25 years. And in North Carolina, the larger populations are causing wildlife biologists some headaches. Dennis Luczcz, migratory bird project leader for the N.C. Wildlife Resources Commission, says the heavy-bodied birds trample farmer's winter crops as they munch on shoots of wheat. Luczcz says the commission may soon consider a limited hunting season for whistling swans.

Swans share some common characteristics with two tribes of waterfowl—geese and whistling ducks. Part of the same subfamily of waterfowl (Anserinae), geese, swans and whistling ducks display similar plumage among the sexes, mate for life, and molt only once. Among these waterfowl, both sexes care for the young. In contrast, most ducks in the tribes previously mentioned (Cairinini, Anatini, Aythyini, Oxyurini, Mergini), molt twice a year, perform elaborate courtships and mate temporarily. Among these ducks, the court of nature always awards the ducklings to the female to hatch and rear after the divorce.

Each year from the tundra of northern Canada and the Arctic slopes, two species of geese return to the Tar Heel state—greater snow and Canada geese. The greater snow geese whiten the skies along the Outer Banks as some 14,000 to 15,000 birds return



Black ducks

to the Pea Island Wildlife Refuge each November (snow geese also winter in the Currituck and Pamlico Sounds).

During the early 1900s when greater snow goose populations were estimated at 3,000 worldwide, Pea Island was the only wintering area for the greater snow geese along the East Coast. But as snow geese made their come back, their wintering area spread as far northward as New Jersey as their numbers have climbed to over 200,000.

The greater snow goose is an Arctic

nester and works on a limited time schedule between the lull in Arctic snows during the summer. Most of the geese arrive at their Arctic nesting ground by June 16, Brame says. They lay their eggs within 24 hours of arriving. But if the Arctic spring is cold and snow still covers the ground, most of the geese will not nest, Brame says. Few goslings are added to the flock. To make sure these lean years don't adversely affect snow goose populations,

Continued on next page

Brame says wildlife managers must make sure an adequate adult population of snow geese is maintained for breeding.

While the snow goose has its troubles in the Arctic, its cousin, the Canada goose, is having some problems in North Carolina. Once the wintering capital for Canada geese along the eastern shore, Lake Mattamuskeet National Wildlife Refuge drew 150,000 geese. Now, Steve Frick says the refuge draws only between 20,000 and 25,000 Canadas. What has happened to the Canada geese? They're "short-stopping," which means the Canadas are stopping short of North Carolina for the grain fields of New York, Pennsylvania, the Delmarva Peninsula and coastal Virginia. Many northern farmers switched from truck farming to raising grain, while southern farmers began harvesting their grain crops earlier and leaving less in the fields for the geese to snack on. "Why should these birds come to North Carolina to get steak, so to speak, when they can get steak in New York with less travel," Frick says.

Luczcz says North Carolina is taking the plight of the Canada goose in this state to the Atlantic Flyway Council. The state is asking northern states not to open their season on Canadas so early. It wants to give birds that still have the instinct to winter here a chance to return before they are shot, Luczcz says. "The secret to maintaining a wintering flock of Canada geese is protecting the population already here," he says.

The Wildlife Commission has shortened the season and decreased the bag limit for Canada geese to take some of the hunting pressures off the birds in this state. "Right now we're buying time until an overall decision is made by the Council for the whole flyway," Luczcz says. "It will be a big compromise. Everybody has got to give up something."

To see some of North Carolina's waterfowl, plan a visit to the Lake Mattamuskeet or Pea Island National Wildlife Refuges. Lake Mattamuskeet, the state's largest natural lake, is located in Hyde County a few miles off U.S. 264. The whole refuge is open to birdwatchers. The refuge also has two photography blinds that are available by reservation only.

The Pea Island refuge is located in

Photos by Dick Brame



Flapping their wings, snow geese catch air to lift them upward for flight



Snow geese losing their heads in sleep and food

Dare County along the Outer Banks. Highway 12 runs through the refuge, so a leisurely drive along the banks may find you spotting flocks of snow geese and whistling swans. For large groups, the refuge will organize a tour or you can enjoy the birds on your own.

Waterfowl can also be spotted at the Pungo (south of Plymouth in Washington County) and Swan Quarter (in Hyde County bordering the Pamlico Sound) National Wildlife Refuges. The Wildlife Resources Commission provides 21 impoundments where the public can hunt, photograph

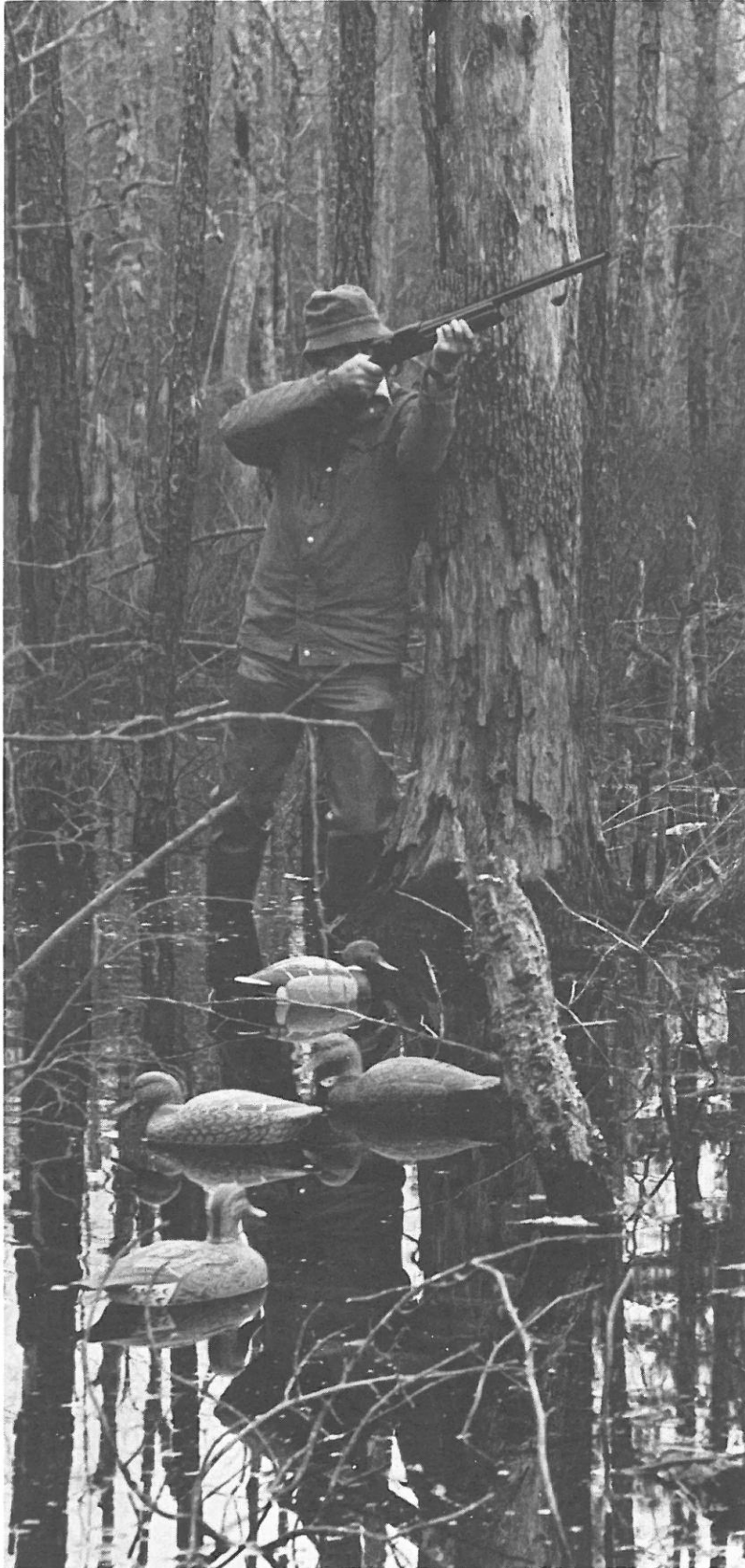
or observe waterfowl. For the location of and more information on these impoundments, contact the N.C. Wildlife Resources Commission, Division of Game, 512 N. Salisbury Street, Raleigh, N.C. 27611.

The Marine Resources Center on Roanoke Island plans a waterfowl expedition each fall. Contact the center at (919) 473-3493 for dates and times. To see winter birds other than waterfowl, the Marine Resources Centers at Bogue Banks and Fort Fisher plan bird outings as does the Hampton Mariners Museum at Beaufort.

—Kathy Hart

A little help for some web-footed friends

Courtesy of N.C. Wildlife Resources Commission



A hunter shoulders his gun for a live target

Old timers talk of days when ducks and geese were so thick they shielded the sun like clouds over Currituck and Pamlico Sounds. No longer does that happen, they say. But many populations, once on the brink of extinction, are on the upswing again, and they owe their revival to state and federal wildlife managers and conservation groups like Ducks Unlimited.

The N.C. Wildlife Resources Commission, as part of its management scheme, operates 21 impoundments, encompassing several thousand acres, to provide suitable habitat for waterfowl. Dennis Luczcz says the waterfowl impoundments or man-made marshes are dyked areas where the water level is controlled with pumps. The water level is maintained at levels that encourage the growth of aquatic plants that are the prime diet for many waterfowl. Most of the impoundments are shallow, brackish water marshes, Luczcz says.

The state also manages a few green-tree impoundments in the Croatan Forest. Under the green-tree system, low-lying hardwood forests are dyked and flooded with water during late fall and winter (during this period the water is not harmful to the hardwoods' root systems). These green-tree impoundments are rich in acorns and seeds, another food source for ducks.

Luczcz says the impoundment system is a costly one to maintain, but funds are provided by fees from gameland permits, hunting licenses and taxes on firearms. Some biologists say the state could do more for waterfowl habitat if state legislators would pass a state duck stamp (in addition to the federal duck stamp fee presently paid to hunt waterfowl). But legislators are hesitant to add the additional fee.

Besides managing waterfowl impoundments, the state wildlife commission also conducts aerial surveys to count waterfowl, investigates disease outbreaks and sets the season for waterfowl hunting. Luczcz says the hunting seasons don't change much from year to year because waterfowl populations don't change quickly. "We look at the overall trends in water-

Continued on next page

fowl populations," he says. "We look at their breeding areas to see the quality of the habitat and the breeding success and the winter census for populations in the wintering areas. We can tell by studying this data whether a population is on the rise or wane."

Luczcz says 23,000 to 26,000 hunters shoot for waterfowl during the season in North Carolina each year. The Wildlife Commission sets a "bag limit" for hunters to follow while hunting. Under the bag limit, hunters can kill only a limited number of waterfowl a day. For instance, during this year's season, hunters are limited to five ducks, seven sea ducks, four snow geese, one Canada goose and two brandt per day. Some states use a point system where each bird is worth a certain number of points and a hunter can only amass a set total of points per day.

The bag limit makes it easier for hunters who can't easily identify ducks and geese on the wing, Luczcz says. But he emphasizes that waterfowl hunters should be able to identify the birds before they go hunting. "Those hunters who make illegal kills or kills by misidentification penalize themselves by making the Commission be more restrictive with our regulations," Luczcz says. "If hunters would just pay more attention to regulations we might be able to have longer seasons and special seasons on certain species." Another problem plaguing managers is a controversy over the lead and steel shot used to kill waterfowl. Hunters have long preferred lead shot over steel because it was denser, had a longer range and had a greater impact. But unfortunately those lead pellets that don't hit the target fall back into the

marshes where waterfowl mistake them for seeds. "When the duck takes the shot into his system it is ground up in his gizzard," Dick Brame says. "This releases lead salts into the bird's blood. After these salts build up, waterfowl experience paralysis, usually along the esophagus. The waterfowl starve to death. It's not a pretty sight."



Already, Currituck, Dare and Pamlico Counties, North Carolina's most heavily hunted waterfowl counties, have outlawed the use of lead shot (the Wildlife Commission is enforcing these rulings). Some hunters, mad about the steel-shot decisions, maintain steel shot has a shorter range, so hunters wound but not kill their targets. Biologists counter that deaths among waterfowl from woundings don't really match the deaths from lead poisoning. Luczcz adds that recent statistics have shown the most modern steel loads have a comparable or better range than lead shot.

Luczcz says the federal government was going to phase out use of lead in the United States, but debate over the controversy has left U.S. Fish and Wildlife Service treading water over the matter.

To get a broader perspective on waterfowl, the state Wildlife Commis-

sion participates in the Atlantic Flyway Council, a cooperative venture between the states along the Eastern Seaboard and Canada to manage the birds in the Atlantic Flyway. The council sponsors research, formulates regulations (that serve as recommendations to the U.S. Fish and Wildlife Service and subsequently the state wildlife commissions) and works on problems facing waterfowl.

Federal help for waterfowl in North Carolina partially comes in the form of four wildlife refuges—Lake Mattamuskeet, Swan Quarter, Pea Island and Pungo. The refuges also use impoundments to provide more winter habitat for the ducks, geese and swans. At Lake Mattamuskeet, refuge managers have worked out a deal with local farmers to feed their winter visitors. Steve Frick says farmers are allowed to grow grain crops, usually corn, on refuge lands in return for leaving a percentage of the harvest in the field.

On a private level, waterfowl get some help from a group called Ducks Unlimited. Some 11,000 North Carolinians belong to Ducks Unlimited, an organization dedicated to conserving and preserving waterfowl breeding grounds in Canada. Don Manley, regional director for Ducks Unlimited in eastern North Carolina, says North Carolina members contributed \$1,036,000 last year, the only state to raise over a million dollars east of the Mississippi River.

Manley says the organization spends 80 cents of every dollar collected in Canada, where 70 to 80 percent of all North American waterfowl breed and hatch. Ducks Unlimited funds pay to maintain the Canadian wetland

Courtesy of N.C. Wildlife Resources Commission



A line of ducks stretches endlessly through a marsh

where thousands of potholes left by the glaciers of the Ice Age provide nesting area for waterfowl. Drought and flood are natural problems that have long plagued the Canadian wetlands area, but development is now encroaching on nesting habitat.

To help maintain breeding grounds, Ducks Unlimited takes out free, long-term leases from farmers and others in these Canadian wetland areas, Manley says. Then the organization invests in bulldozers and other heavy equipment to build dykes, levees and flood gates to control water level in these prairie

potholes.

Already, Ducks Unlimited controls three million acres of Canadian wetlands. Manley says the organization's goal is to control 6½ to 7 million acres, the acreage Ducks Unlimited feels would stabilize the continental waterfowl populations for the future.

Last year, Ducks Unlimited raised \$25.1 million nationwide to raise its 44-year total to \$134 million for waterfowl conservation. Manley says the organization is saving waterfowl nesting habitat almost single-handedly, since neither the Canadian

government nor other conservation groups have shown little interest in helping waterfowl.

Opponents of Ducks Unlimited say the organization neglects waterfowl in the United States. But Manley counters that taking care of the breeding area is vital to maintaining the population.

The majority of Ducks Unlimited members are hunters, Manley says. "Many hunters feel that if they are harvesting part of the population they should be the ones to conserve it," he says.

Flocking to Currituck, hunters and waterfowl

Say duck hunting in Currituck County and stories of big duck kills, fancy hunting clubs and wooden decoys roll off natives' tongues like rain off oil. Steeped in a waterfowl tradition, the Currituckian's livelihood has often depended on hunters' guns.

But its no wonder that waterfowl reign king in Currituck. The county harvests more waterfowl per square mile than any county in the Atlantic Flyway. Biologists estimate about 15 percent of the wintering waterfowl population along the Atlantic Flyway chooses Currituck Sound as their winter home.

But Currituck Sound hasn't always been such a waterfowl haven. It wasn't until after the 1820s when the New Currituck Inlet closed and sound waters freshened that flocks of waterfowl began beating at Currituck's door. The fresher sound water supported the aquatic plants like wild celery and widgeon grass that draws ducks and geese. And draw it did.

Hunters, many of them Currituckians, began cashing in on the abundant waterfowl by the barrels, literally, during the late 1800s and early 1900s. Remembered as the "market days" in Currituck County, large quantities of ducks and geese were killed and shipped in large wooden barrels to northern restaurants. Hunters were killing hundreds of birds a day. "It's recorded that Russell and Van Buren Griggs killed 789 ruddy ducks in one day," says Neal Conoley, education specialist with the Office of Marine Af-

fairs who is looking into the waterfowl history of the county. Conoley says that for many county natives hunting waterfowl became a business, and for others a supplement to their incomes.

To kill such large quantities of birds, hunters used a variety of methods now illegal. One such method involved baiting the birds with corn. Conoley says in one four-mile stretch along Currituck Sound 180 bushels of corn were spread a day to bring the birds into the marsh for the kill.

Another popular hunting method before 1918 (the date the Migratory Bird Treaty Act was passed outlawing the more extravagant forms of

hunting) involved night hunting with a firelight rig or a sneak box, Conoley says. Hunters would put a lantern in a box on the bow of their boats, then sneak up on a flock of ducks and lift the box off the lantern. Blinded by the light, the birds were literally sitting ducks for hunters.

Some hunters used battery or sink boxes to bag large numbers of waterfowl. The boxes floated at water level with flaps to the sides. A one-man operation, the hunter would lie in the box waiting for the decoys to draw in the ducks. Not able to discern the hunter's trick, the ducks would fly in at

Continued on next page

Courtesy of N.C. Archives and History



Hunting restrictions make kills like these unlawful today



In this 1930s photograph, these hunters return from the marsh saddled with their catch

close range. Sink boxes were outlawed in the mid-1930s, Conoley says.

Word of Currituck's waterfowl lode spread northward during the later 1800s and the wealthy of New York and Boston came to isolated Currituck County to see for themselves. Amazed by the abundant waterfowl there, many of these northerners formed clubs and bought up large tracts of marsh. Travis Morris, a Currituck County realtor whose roots grow deep in Currituck County, says the land was sold for as little as 10 cents an acre.

The first club to form was the Currituck Shooting Club in 1857. Chartered by 15 members, the club immediately built a clubhouse. Morris, whose father, Chester Morris, a lawyer, represented many of the clubs, says records for membership in this exclusive club included such names as Morgan, Fairchild and Rockefeller. The clubhouse was replaced in 1879 by a larger house that stands today. The only club still operating on a mem-

bership basis, the Currituck Shooting Club, has 12 members and an entry fee rumored to be \$100,000.

While the Currituck Shooting Club boasts the most exclusive membership, the most striking clubhouse to grace

travagance of the times. The three-story house, built for a reported \$383,000, had 20 rooms, 10 full baths and two half baths on the three main floors and 16 rooms in the basement. The roof was copper, the pipes brass, the

"By buying up most of the marsh, the clubs preserved the natural beauty of the land here. Our natural resources are this county's main asset."

—Travis Morris

the Currituck marshes belonged to the Whalehead Club. First known as the Lighthouse Club, the club was chartered in 1874 and passed through several groups of stockholders before it was bought by Edward Collins Knight Jr. in 1922.

Historians say Knight bought the club because his new wife, who liked to hunt, was not allowed at the Lighthouse Club.

Built between 1922 and 1925, the new clubhouse carried with it the ex-

floors cork, the chandeliers tiffany glass and the walls were covered with corduroy, Morris says.

Knight died in 1936 and the club was sold to Ray T. Adams, a Washington, D. C. meatpacker. Adams named the property the Whalehead Club and used the clubhouse to entertain friends and clients, the likes of which included governors, U.S. senators and congressmen, Speaker of the House Sam Rayburn and boxer Jack Dempsey.

Jarvis Snow, who was a guide at the Whalehead Club before World War II and whose father served as superintendent there for 28 years, says the club was a hub of activity during hunting season. "Everybody was up way before daylight," Snow says. "The upper folks ate in the dining room. My mom cooked breakfast for 'em. We'd all leave the clubhouse just before daylight, everybody in four skiffs. As we went along we'd drop off two hunters and a guide at each blind. They'd hunt most of the morning, then we'd collect 'em for lunch. After lunch we'd take 'em out for the afternoon.

"Some of the guests were great skeet shooters, but couldn't hit a duck or goose in the marsh no matter how hard they tried," Snow chuckles. "They always blamed their troubles on their guns, too."

Snow says Adams leased the club during World War II to the U.S. Coast Guard for a training area on the condition that his father be made a Chief Bos'n Mate and be stationed at the club to protect Adams' interests. Snow said the Coast Guard looked after the house well and returned it to Adams in better shape than they received it.

Adams had dreams of developing the area into a vacation resort, but those dreams died with him in 1958. Since then the property has passed through numerous owners and was finally bought by realtors in 1971, then divided into lots. The clubhouse still stands abandoned and deteriorating.

Besides the Whalehead and Currituck Shooting Clubs, other major hunting clubs were the Martin's Point Club, the Swan Island Club, the Narrows Island Club, the Monkey Island Club and the Pine Island Club. Morris says the clubs were in their heyday between 1880 and 1930. He says hunters arrived by railroad where they were picked up by boats, first sailboats and later motorboats, or by horse and buggy and carried to the clubhouses. "Those who came stayed for a long time because it was such a job to get here," Morris says.

Morris says the wealthy clubs were an asset to Currituck County. "By buying up most of the marsh, the clubs preserved the natural beauty of the land here," Morris says. "Our natural resources are this county's main asset. We don't have industry or commercial fishing to fall back on." Morris says the clubs provided a lot of jobs for the natives of the remote county. Also,

many wealthy club members donated heavily to county schools and libraries.

Today, the Swan and Monkey Island Clubs are owned by the Nature Conservancy. Earl Slick of Winston-Salem bought the Narrows Island and Pine Island Clubs (he has since deeded the Pine Island Club to the National Audubon Society).

While wooden decoys and dogs seem synonymous with waterfowl hunting, that's not always been the case. Hunting with dogs has become popular during the last 50 years and Neal Conoley says some hunters near the turn of the century used live ducks and geese as decoys. The ducks and geese were either trained to hold their position or tied into place. Hunters would throw in corn to the live decoys so they would feed and draw in their wild companions. Dick Brame says old hunting guides in Currituck County claim that some hunters had geese trained to fly into passing flocks and bring them down to the hunter's firing range. "They could easily spot their own goose as the flock swung in because it was usually larger with a squarer breast from being better fed," Brame says.

Conoley says decoy makers began making wooden decoys about 1880, but they were not in prominent use until the 1920s and 1930s. A typical decoy stand for a hunter was 200 wooden decoys.

"Decoy-making was a folk art in Currituck County," Conoley says. "Many of the early decoys were blocky and crude, but very functional. The canvasback goose decoy was typical of the time. It had a wooden bottom with a brass wire frame that makers stretched canvas over to form the body. The body was painted and a head carved to complete the decoy."

Jarvis Snow remembers his father, Dexter Snow, chopping out the bodies of decoys with a hatchet. "He didn't work on 'em steady," Snow says. "He'd cut the bodies out one time and whittle the heads another. Before you knew it, though, he'd have ten or twelve or fifteen decoys. He probably made ten thousand decoys during his life."

Snow remembers a lot of the decoy makers whose works are now valued as collector's items—Ned Burgess, Wallace and Pat O'Neal, Joe Hammond, Marvin Midgett and Bob Moss. Conoley, who collects old decoys, says each maker had his own style of making the decoys that distinguished them from others (decoy makers did not initial their work). Old wooden decoys not lost or used as firewood are being collected today as a reminder of the days when wealthy gentlemen gathered around the clubhouse fires at night after a day hunting ducks and geese in the Currituck marsh.

—Kathy Hart

Courtesy of N.C. Archives and History



Photographed in 1972, the Whalehead Club reigns king over the Currituck marsh

THE BACK PAGE

"The Back Page" is an update on Sea Grant activities—on research, marine education and advisory services. It's also a good place to find out about meetings, workshops and new publications. For more information on any of the projects described, contact the Sea Grant offices in Raleigh (919/737-2454).



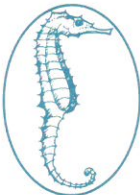
The state's laws regarding septic tanks are once again under fire, both from those who would relax them and from those who believe they should be more strict. (The June/July issue of *Coastwatch* reported on the debate over the use of septic tanks on barrier islands.) Under pressure from several coastal communities, the state legislature recently dropped a provision, favored by the Division of Health Services, that would have set a maximum sewage flow of 1200 gallons per acre, per day for conventional septic-tank installations.

The provision represented an attempt to define the minimum amount of soil area needed to treat effluent safely. But many coastal residents and developers objected that the measure stifled new growth. Most residential septic systems in the state have been required to provide treatment for 150 gallons of effluent per day, per bedroom. The 1200-gallon measure would have allowed only eight bedrooms, or two typical beach houses, per acre. Many coastal developments have been laid out for twice that number of houses per acre.

Bobby Carlile, an NCSU soil scientist, is conducting a Sea Grant research project investigating the performance of septic tanks on barrier islands. Carlile has joined other scientists and sanitarians on a committee formed to recommend to the legislature alternatives to the 1200-gallon rule. The committee will recommend revision

that would increase the minimum area of drain field required for conventional septic systems, and would decrease the per-bedroom rate to 120 gallons a day. The legislature will hear their recommendations this fall.

Research by Carlile and others has shown that, in the porous, sandy soils of barrier islands, untreated sewage from conventional septic tanks can leach into shellfish beds and groundwater supplies. In previous Sea Grant studies, Carlile designed several advanced septic systems, employing low-pressure pumps, that performed well on some marginal coastal soils and helped make development possible on sites once classified as unsuitable. His current project is designed to determine whether these new designs might also offer some relief for the problems on the sandy barrier islands.



Lundie Mauldin, UNC Sea Grant's marine education specialist, was elected president of the National Sea Grant Association's marine education committee. She will coordinate next year's marine education program for the national meeting in Washington, D.C.

Mauldin is also taking a position on the Board of Directors for the National Marine Education Association. She stepped down in October as president of the Mid-Atlantic Marine Education Association. Ned Smith, director of the N.C. Marine Resources Center at Bogue Banks, succeeded Mauldin as president.

While not serving on national committees and boards, Mauldin is often traveling across North Carolina teaching more folks about coastal creatures, plants and processes. A recent program at the Catawba County Museum of Science in Hickory found Mauldin explaining the "World of Squid," in a program complete with slide show and samples of cooked squid.

A few weeks later, Mauldin was discussing the pros and cons of "Eating or Being Eaten by Sharks" in a program at the N.C. Museum of Natural History in Raleigh. Mauldin identified some of the sharks found off the North Carolina coast, then fried up a sample to show her audience it's far better for people to eat sharks than vice versa.

Public facilities interested in Mauldin's programs can contact her at UNC Sea Grant, 105 1911 Building, North Carolina State University, Raleigh, N.C. 27650-5001. The telephone number is (919) 737-2454.



River herring populations have dropped in the Chowan River during recent years. To get a handle on the cause of these declining populations, Bob Sniffen, a Sea Grant researcher from East Carolina University, is looking at the river herring at an early age (larval) to see what factors might affect their survival.

Sampling in Catherine Creek, a tributary of the Chowan River, Sniffen learned that larval river herring concentrate about 25 feet from the stream's edge—the slower-moving portion of the river. The larvae also move with their food source, zooplankton, to the surface at night and downward during the day. Since rainfall was low during the spring, Sniffen says the larvae were moving further downstream than usual in search of a better oxygen mix in the water.

Sniffen had hoped prevailing winds and lunar tides would push Catherine Creek out of its banks and into the floodplains during the spring. He wanted to see how this inundation affected the larval river herring, but conditions never materialized to create the usual spring floods.

Though the information Sniffen has gleaned may seem like disjointed pieces of a puzzle, put together they may tell Sniffen and fisheries managers the critical point in a river herring's life cycle.



Erosion is no stranger to the North Carolina estuarine shoreline. Both a normal and continuing geologic process, typical erosion rates average one to two feet per year.

Property owners have only a few options in dealing with this erosion. A bulkhead is one.

Bulkheads primarily prevent erosion of the high land upland of the wall. But each of the several designs of bulkheads has its own benefits and limitations. Sea Grant's new publication, *A Homeowner's Guide to Estuarine Bulkheads*, discusses these aspects of bulkheads in addition to common construction problems and design considerations to look for when buying one. Written by Spencer M. Rogers, Jr., Sea Grant's coastal engineering specialist, this guide includes a glossary and sources of additional information for homeowners new to estuarine bulkheads.

For a free copy of this publication, write Sea Grant, Box 5001, Raleigh, N.C. 27650-5001. Request publication number UNC-SG-81-11.

One of Sea Grant's most popular publications has been revised. *Seashells Common to North Carolina*, first published in November 1971, recently came under close scrutiny by co-author Hugh J. Porter of the UNC Institute of Marine Sciences, and it emerged updated. The new version contains not only all of your old favorite seashells, but also several new species and many changes in scientific classifications.

To obtain a revised edition, send 75 cents for each copy to Sea Grant. Ask for publication number UNC-SG-72-09. Don't forget that the best time to look for seashells along the North Carolina coast is after a winter storm.



UNC Sea Grant Director B. J. Copeland has awarded two new mini-grants. The first goes to Spencer Rogers, Sea Grant's coastal engineering specialist, to

build a ripple tank at the Fort Fisher Marine Resources Center to demonstrate wave dynamics. By watching the tank simulate beach processes, center visitors will have a

better understanding of how waves shape our beaches. The ripple tank will also be designed so that visitors can move model breakwaters and other submerged objects to see the resulting wave and beach changes.

Another mini-grant was awarded to J.E. Hobbie and B.J. Peterson, two scientists with the Marine Biological Laboratory in Woods Hole, Massachusetts. They plan to complete a 17-chapter book, begun earlier, on the ecology of the Pamlico estuarine system.



Problem: You want to buy a boat, but you can't afford a new one. You've thought about buying one used, but you really don't know how to go about it. So, what do

you do? Get a copy of *How to buy a used boat*.

Written by Bob Hines, Sea Grant's marine advisory services agent at Bogue Banks, this publication is designed as a guide for the prospective used-boat buyer interested in small, recreational power-boats and sailboats. Specific information and a checklist is provided on evaluating and

rating the boat and determining the price to offer. A glossary of boating terminology is also included.

To obtain a copy of this free publication, write Sea Grant. Request publication number UNC-SG-81-10.



Sea Grant researcher Mark Sobsey of the University of North Carolina at Chapel Hill, in conjunction with researchers at the National Institute of

Health in Bethesda, Maryland, has developed a strain of hepatitis-A that will grow in cell culture. The strain can now be produced in large quantities for research, an important step toward understanding the virus.

Sobsey is transporting some of the hepatitis-A back to North Carolina for use in his shellfish contamination experiments. Hepatitis is one of the most serious viral diseases contaminated shellfish carry. Sobsey plans to contaminate oysters and clams with the hepatitis-A strain in the laboratory. He will then test the standard methods for detecting other viruses to see how well they detect the presence of hepatitis in the shellfish.

Coastwatch is a free newsletter. If you'd like to be added to the mailing list, fill out this form and send it to Sea Grant, Box 5001, Raleigh, N.C. 27650.

Name _____

Address _____

City•State•Zip Code _____

To help us specialize our services, please answer these questions.

I am in the following line of work:

- | | |
|---|--|
| <input type="checkbox"/> Boatbuilding/Repair | <input type="checkbox"/> Marine operator |
| <input type="checkbox"/> City/County government | <input type="checkbox"/> Marine recreation |
| <input type="checkbox"/> Commercial fishing | <input type="checkbox"/> Mass media |
| <input type="checkbox"/> Educator | <input type="checkbox"/> Seafood processing/marketing |
| <input type="checkbox"/> Farming | <input type="checkbox"/> State government |
| <input type="checkbox"/> Homemaker | <input type="checkbox"/> University professor/researcher |
| <input type="checkbox"/> Lawyer | <input type="checkbox"/> Other _____ |

Coastal property owner yes no Boat owner yes no



Don't be surprised if someday you see a giant crab stalking the beach near Duck. Thirty-five ft. high, 25 ft. wide and weighing 15,000 pounds, this crab is no typical crustacean. It's the coastal research amphibious buggy (crab) designed and built by the Wilmington District of the U.S. Army Corps of Engineers to collect data on the ocean bottom. Its home is the Corps' Field Research Facility a mile north of Duck.

Powered by a Volkswagen engine, the tripod-shaped vehicle rolls out into the water with scientists perched atop. The crab is capable of going out to depths of 30 ft. for bottom-sampling. The facility's staff used it during tropical storm Dennis to record the storm's effect on the bottom.

But the crab isn't the only attraction to scientists using the Field Research Facility. Four years ago, a 1,840-ft. steel-piling, concrete pier was built and fitted with wave gauges, wind instruments and other equipment feeding data into the lab's computer system. Equipment is checked four times daily by the staff of 10 for numerous changes in the beach profile.

According to Kurt Mason, chief of the facility, the area has been available, not only for Corps-related projects, but also for research by universities and science foundations at no charge. Last year, Sea Grant researcher Ernie Knowles from North Carolina State University (NCSU) joined 40 international scientists at the facility for a two-month study on wave direction and generation. Knowles'

test buoy floated beside buoys from Canada and Norway, providing participants a chance to compare equipment and data.

Two other Sea Grant researchers, Tom Curtin and Yates Sorrell of NCSU, have used the facility's pier in their work. Twice, they have set out their current-monitoring gear on brackets mounted to the pier, and have matched data with that collected by the facility. "That's one of the most valuable things about this facility," Curtin says. "Not only do they have an excellent platform, but also complementary data."

Any individuals or groups interested in the Field Research Facility should contact Kurt Mason. In addition to oceanographic experiments, Mason says, "we think this pier is also excellent for biological sampling." The staff gives guided tours of the pier and part of the facility each weekday from Memorial Day to Labor Day. For more information, call (919) 261-3511.



Come Christmas, some people count more than gifts under the tree, they count winter birds for the National Audubon Society. Each winter during a two-week period specified by the society, birdwatchers gather for a single day of intense bird-counting. Biologists think Christmas time is the period when winter bird populations are the most stable. The groups search an area 15 miles in diameter to determine what species are present and how many

birds there are.

Jim Parnell, a biologist at UNC-Wilmington and a bird expert, says the Wilmington group he counts with spotted 148 species of winter birds last year. Parnell says a friendly rivalry develops between counting teams as they compete to see which groups can spot the most species of birds. Last year 18 groups counted birds across North Carolina.

After a day of counting, the groups compile their statistics and send them off to the National Audubon Society (each group already has registered with the society). Audubon then publishes the statistics of each group in its July edition of *American Birds*. The Carolina Bird Club also publishes a summary of the North Carolina count in its publication, *The Chat*.

Some biologists put little stock in these statistics, saying they are gathered haphazardly. But Parnell says the counts can give biologists trends in overall bird populations.

If your club or group would like to count birds, find out how by writing the National Audubon Society.

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