

COAST WATCH

Photo by Ron Thrower



A diver climbs toward the surface and the boat's ladder

A glimpse of life At 60 feet under

As thunder rumbles near Beaufort Inlet on a muggy July morning, a dive boat sputters to a halt and drops anchor.

Bob Eastep shrugs his air tanks onto his shoulders, tightens his face mask over his eyes and nose, bites his mouthpiece, perches himself on the side of the boat and rolls sideways into the grayish sea.

Eastep's head quickly bobs to the surface where he watches his dive buddy, Terry Leonard, slip into the water beside him. The two men signal "all's well" to the boat captain, upend themselves in the ocean swells and disappear.

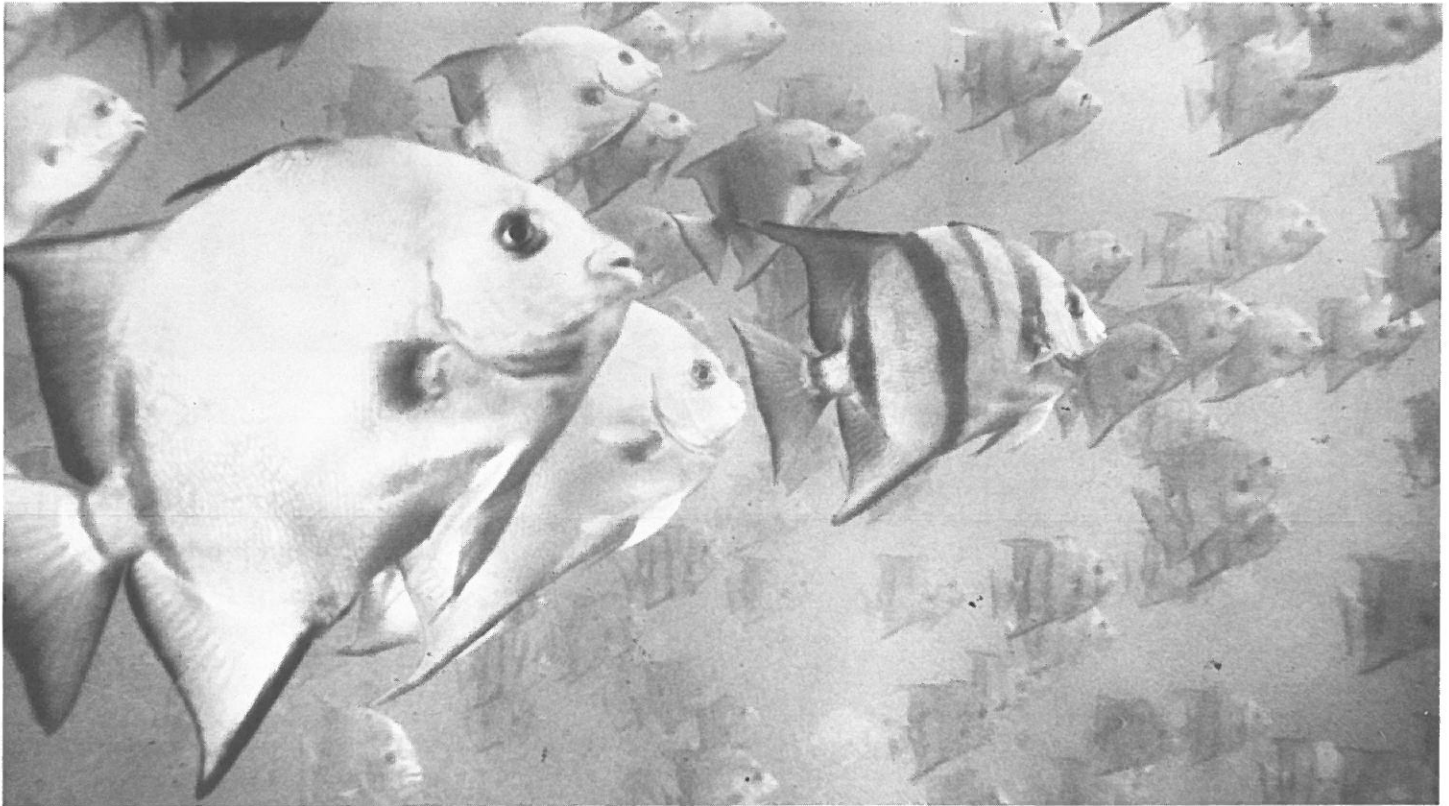
10 feet below . . . The feeling of weightlessness overtakes them. The 60-pound tanks are no longer a burden and the divers revel in their own effortless motion. The slightest flip of a finned foot propels them downward.

20 feet below . . . The divers' eyes adjust to the growing dimness. The sea is like a shadowy room at dusk where color and contrast between objects is dulled. The sea is bathed in shades of blue and green, often concealing the brilliant colors of its inhabitants.

30 feet below . . . A school of fish glides gracefully by the divers. Their steady, unhurried movement hints of a slower pace in this undersea world. The wreckage of an old British trawler looms in the murky distance.

50 feet below . . . The divers explore the encrusted remains. They find the sea has claimed this man-made vessel as its own and converted it to feeding grounds and living quarters for the

Continued on next page



Schools of fish glide through their undersea world

Photo by Ron Thrower

creatures of the sea. Amberjack, angel and butterfly fish now meander the decks and hide in the crevices.

North Carolina diving

More and more Americans are taking to the seas to dive and North Carolina waters are particularly good seas to take to.

For divers seeking a history lesson, the North Carolina coastline is littered with thousands of wrecks ranging from Civil War blockade runners to German U-boats.

For divers interested in observing the creatures of the deep, snapping their pictures or maybe spearing a few for dinner, the wrecks offer another advantage. They act as artificial reefs and attract a variety of marine life.

"I dive because you can see more life in the ocean in one hour than you can see in your whole life on land," says Jay Greenblatt, former president of the University of North Carolina at Chapel Hill Dive Club.

The warm Gulf Stream curves north along the North Carolina coast, while the Labrador arctic currents move southward. The two meet near Cape Hatteras and go out to sea, but their meeting serves as a mixing ground for tropical and cold-water fish.

"It's amazing," says Shirley Kelley, a diver from Raleigh. "You can see a barracuda and a codfish swimming side by side on a wreck in these waters. There are very few places in the world you would find that sort of thing occurring."

Wrecks are not the only places sea life congregates in North Carolina waters. The coast also has a few natural reefs where divers can see marine creatures in a natural setting.

While some divers are attracted by the wrecks and the fish, many people initially dive to experience the weightless feeling that comes with being underwater, says Paul Goetz, a dive instructor and president of the North Carolina Wreck Diving Club. Eventually though, he says, the divers turn to other underwater hobbies like photography, selecting fish for an aquarium, or collecting shells.

Whatever the reason for diving, more people are investing the time and money it takes to do it, say North Carolina dive shop owners and instructors. Divers are now having to arrange their dive parties and charter their boats two and three months in advance. Bob Eastep, owner of Discovery Dive Shop in Beaufort and a diveboat captain, said he is already booking diveboat charters for next summer.

Even though the charter may be booked months in advance there is still a chance the divers may never leave the dock because of weather conditions. Eastep says he doesn't like to take divers out in stormy conditions or seas over three to four feet because of the difficulty getting them in and out of the boat in the ocean.

Also, if waters are rough, underwater visibility is likely to be low because sand and silt are being stirred up.

Certification

But there are few other limitations to diving. Instructors emphasize that anyone who is an adequate swimmer and in good physical shape can become a diver after a thorough diving certification course.

Diving certification is not required by state or federal law, but divers, dive shop owners and boat captains regulate the sport themselves.

"Almost all diving operations ask for a certification card or evidence that a person has been trained in diving before they are going to let him go on a dive trip, rent equipment or sell him breathing air," says Ron Thrower, instructor and owner of the Sea Wolf Dive Shop in Raleigh. "It's sort of a common law. We have a certain

responsibility to the public and to ourselves to see that the sport stays safe.”

Instructors stress that certification courses are needed to familiarize people with the equipment and the do's and don'ts of diving.

“Much of what goes on in diving courses is teaching students how to deal with unexpected situations like having your mask flood while underwater,” says Goetz.

Another objective of the diving course is to dispel fears people have about marine life such as sharks and eels. Seasoned divers scoff at movies like “Jaws” and “The Deep,” saying the writers and producers are misleading the public about these normally harmless creatures.

“In the water, to a shark, you are just another big fish, and, as long as you don't start thrashing around and drawing attention to yourself, they will swim right on by,” Goetz says.

Shirley Kelley offers this rule when diving. “If you don't know what it is, don't touch it, and keep your hands out of cracks and crevices,” she says.

“It's an incredible world down there

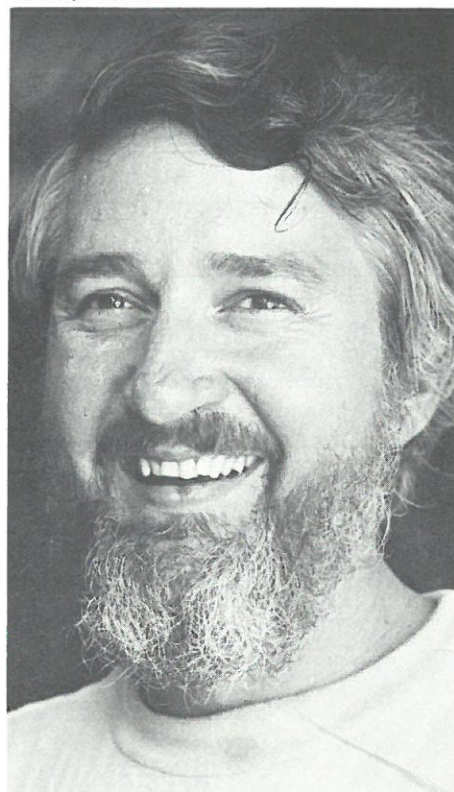
and a friendly one too,” she says. “What makes me so sad is that everybody is afraid of it. It's like being afraid of a flower garden.”

Topside again

Eastep glances at his watch and sees that he and Leonard have only a few minutes of bottom time left—time needed to locate the anchor line before ascending. 40 feet . . . 30 feet . . . 20 feet . . . 10 feet . . .

Beside the boat, Eastep's head and shoulders emerge from the swells. “Good dive” he shouts to the captain. He swims to the ladder attached at the boat's stern and ducks his head under the water to remove his flippers. As he hands his flippers to the captain, Leonard's head pops out of the water behind him. Eastep looks back at him and grins before climbing the ladder. Leonard soon follows. Both begin to remove their wet equipment that now gleams in the morning sunlight. They talk rapidly about the things they've seen.

Photo by Neil Caudle



Ron Thrower

Some diving essentials

Diving is an expensive sport, especially if divers frequent the coast with any regularity. Certification courses cost anywhere from \$50 to \$100. A full set of new equipment will range in price from \$400 to \$800, but you can rent it by the weekend for \$20 to \$30. A short trip on a chartered dive boat (one dive) will probably run between \$20-25 and a longer trip (two dives) will cost \$40-50.

Diving rules

—Take a certification course with a good dive instructor. The YMCA, the National Association of Skin Diving Schools (NASDS), the National Association of Underwater Instructors (NAUI), the Professional Association of Diving Instructors (PADI) and SCUBA Schools International offer good diving courses.

—Be familiar with the prospective dive site and plan your dive. Be sure the conditions at the site are within your diving capabilities.

—Make sure your boat captain puts out a divers' flag.

—Never dive alone. Dive with someone whose abilities you can trust in an emergency and maintain contact with your buddy throughout the dive.

—Ascend according to the Navy dive tables or the NOAA dive tables.

—Watch for any symptoms of decompression sickness—rash, dizziness, pains or nausea. Even a minor case of the bends, left untreated, can intensify and become crippling.

—Never dive if you have a cold. Diving with a head cold can result in a ruptured eardrum, while diving with a chest cold can lead to embolism, or blockage of blood vessels by air bubbles.

—Never consume alcohol or other drugs before diving. Drugs affect the body differently underwater where pressure is increased. A diver's judgment may be dulled and he may be more prone to decompression sickness and other physical problems.

—Divers should refrain from smok-

ing at least one hour before diving. Smoking impairs breathing and decreases the body's ability to supply oxygen to vital tissues. For smokers, a conservative approach to the Navy's dive tables is recommended.

—Sport divers should not dive at depths greater than 110 feet. Below that depth, divers are susceptible to nitrogen narcosis, more commonly called “rapture of the deep,” which affects the diver much the same way as alcohol.

Equipment

Since man doesn't have gills and fins like fish to help him underwater, he needs special equipment to adapt to the ocean environment. Here's a list of equipment instructors suggest divers have: mask, fins, buoyancy compensator (controls buoyancy underwater and acts as a lifejacket on the surface), weight belt, air tanks, wet suit, regulator, pressure gauge, waterproof watch and an underwater knife.

Divers flock to state's graveyard of sunken ships

The remains of thousands of vessels lie strewn across the ocean floor off the North Carolina coast. Nicknamed "The Graveyard of the Atlantic," the state's treacherous capes and sandy shoals have proven disastrous for many a worthy sea captain during a battering storm or moonless night.

But what has been a nightmare for sea captains has become a paradise for the sport diver. Not only are the wrecks themselves interesting—capsules of American history—but

they also attract a variety of marine flora and fauna.

"Even if you hate ships you have got to be impressed when you see these wrecks underwater," says diver Shirley Kelley. "Because a ship belongs on top, when you see it underwater where it doesn't belong, it's an eerie feeling."

Many of the wrecks which used to lie in the state's ocean graveyard were of the pre-Civil War vintage. Time and the sea have taken their toll on these vessels and only an occasional wooden

hulk remains to remind us of the era's majestic sailing schooners.

The Civil War blockade runners have fared better in the shallow seas along the state's southern coast, where they tried to run the Union blockade of Wilmington.

"All wrecks change from year to year because of deterioration and winter storms that stir up the bottom," says Paul Goetz. "But the blockade runners which lie just off the beach are especially changeable. The natural movement of the sand up and down the beach will cover and uncover these wrecks from time to time."

The most famous wreck to lie in North Carolina's underwater graveyard is the ironclad U.S.S. Monitor. It was declared the nation's first marine sanctuary in 1975. Permission must be obtained from the Underwater Archaeology Branch at Fort Fisher to dive on the Monitor. It lies 16 miles off Cape Hatteras in 220 feet of water—a depth too risky for sport divers.

World War II wrecks

While divers have limited access to Civil War vessels, tankers and freighters sunk during World War II are abundant along the state's coast because of German U-boat activity.

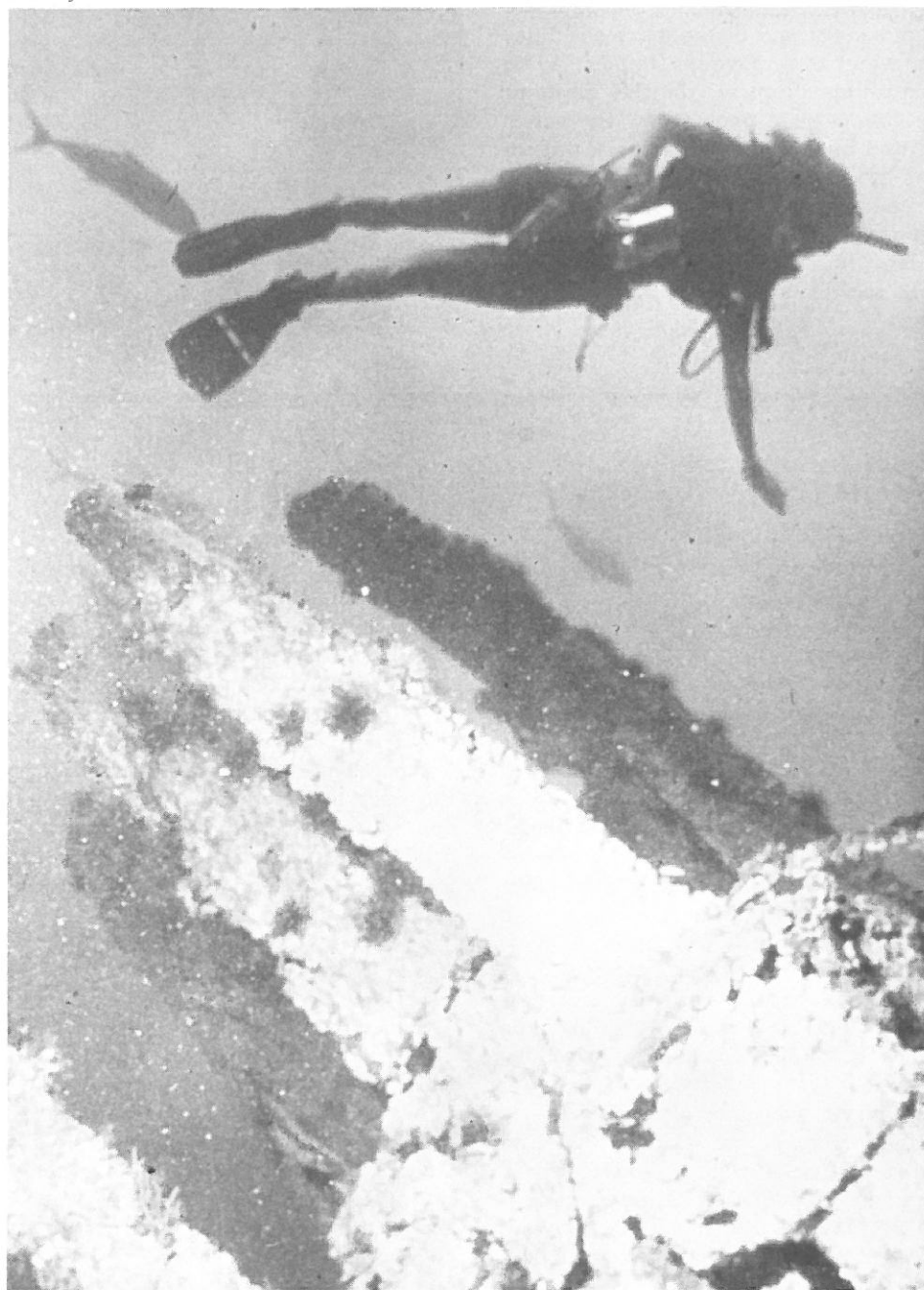
"It's really kind of scary," says one veteran diver. "We all thought the war was being fought in Europe and the South Pacific, but it was actually right here on our doorstep."

During the first three months of 1942, Hitler's U-boat fleet downed over 50 vessels off the North Carolina coast alone. But by mid-April the United States began strengthening its defense and four German subs were sunk.

After World War II, better navigation techniques, shipbuilding methods and weather forecasting combined to reduce the number of ships victimized by the shoals and the storms. Only occasionally now does a vessel fall prey to the state's hazardous shoreline.

Today most divers prefer to dive on the World War II wrecks because they remain largely intact and are big enough to attract more marine life, says Dennis Regan, a diver and Sea Grant's marine advisory services

Photo by Ron Thrower



A diver swims by the wreckage of the U-352

recreation agent based on Roanoke Island.

In a Sea Grant publication, *Wreck Diving in North Carolina*, Regan briefly describes the popular wrecks accessible to the average diver. Some wrecks should not be approached, he says, because they lie in strong currents or waters over 110 feet deep—the limit for sport diving.

Regan says new wrecks are being discovered almost every year by commercial fishermen and divers. Fishermen locate them when their nets get caught in the wreckage or their catch is especially abundant over a particular area. On the other hand, divers will often use old charts and military records to pinpoint areas where a vessel may have gone down and then search the bottom for the remains. Whatever the method, "every now and then someone stumbles across a new one," Regan says.

But once a wreck is discovered, it is not always easy to find on the return trip. An experienced boat captain whose vessel is equipped with a Loran system for navigation and a sonic depth recorder is needed to find most wrecks.

"Finding a wreck 20 to 30 miles offshore is sometimes like looking for a needle in a haystack," says Ron Thrower. "It's nice to look at a chart and say that's where the wreck is, but there aren't any signs when you get there."

Several controversies have arisen about diving the wrecks off the North Carolina coast. One centers on whether divers should remove artifacts like brass portholes and gauges from the sunken vessels.

Artifacts

Some divers maintain that souvenir hunters and salvaging companies have destroyed the beauty of the wrecks and are hastening their deterioration.

"After a while it begins to show," Thrower says. "Especially when people take dynamite and blow holes in the wreck. The ocean will eventually destroy any wreck, but people are helping speed up the process and everybody is losing."

Other divers say the wrecks should be salvaged before they deteriorate and collapse and the portholes and navigation gauges are lost permanently.

But any wreck, within the three-mile

state limit is state property once it has remained unclaimed more than 10 years. It is illegal to remove artifacts from these vessels without a contract or permit.

The only exception to this law is a blockade runner, *The Modern Greece*. A \$1 permit from the Underwater Archeology Branch at Fort Fisher allows divers to retrieve unattached artifacts from around this wreck. But even then the state may claim any item a diver finds if it is of historical value.

"When divers first started diving the wrecks many of them were going out there just to rip off the vessels," says Leslie Bright, an archaeologist at Fort Fisher. "But now they're beginning to understand the historical significance of what we have there."

The U-325

Another controversial topic in North Carolina wreck diving is the U-325, a German submarine that lies in 115 feet of water about 26 miles south of the Beaufort Inlet. One armed torpedo protrudes from the sub's firing tube and four others are visible in storage racks.

Connecticut Senator Lowell Weicker drew national attention to the sub last year when he made a dive on the wreck and said it presented a "very real danger" to divers and fishermen. Weicker asked the U.S. Navy to investigate.

After the Navy reached an agree-

ment with the West German government over the remains of the U-boat crew, the Germans gave the Navy permission to explore and destroy the wreck if necessary. The Navy found the ordnance dangerous and is presently deciding whether the sub should be destroyed or whether an attempt should be made to remove the torpedoes.

Many N.C. divers maintain the Navy and Senator Weicker are exaggerating the wreck's danger and feel that destruction of it is unnecessary.

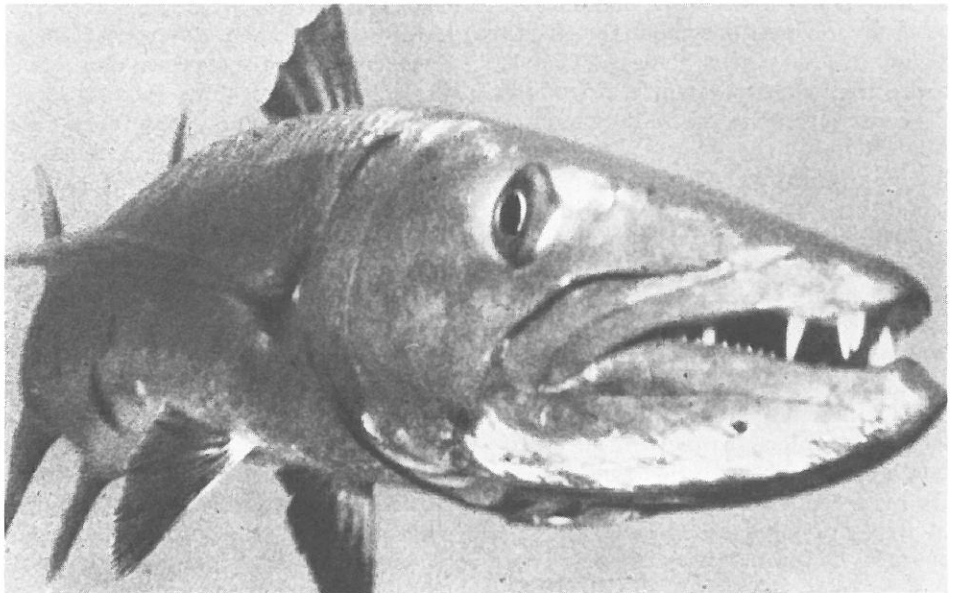
"That particular wreck is so deep you only have about 15 minutes of bottom time. I would say if you took 100 divers that had dived on the sub that you might find one of them that could tell you where that torpedo was," says Eastep. "Yes, there is a chance some diver might go down there and set that torpedo off. But there is also the possibility when you are walking down the street you'll get hit by a car."

Meanwhile, the U-325 has become one of the most frequently visited wrecks in the coastal graveyard.

The German sub is not the only wreck known to have carried ordnance, so divers should exert caution when diving on any wreck off the coast.

While wreck diving in North Carolina has aroused some controversy, the wrecks are still the most popular spots to dive because of the valuable history and biology lessons they offer to those willing to visit their graves.

Photo by Ron Thrower



A ferocious-looking barracuda grins for the camera

Women are diving, too!

Mention SCUBA diving and many people think of a strapping Lloyd Bridges.

Rarely does anyone think of women donning SCUBA equipment, slipping beneath the waves and exploring the ocean depths. But they do, both for sport and as professionals.

According to a February issue of the National Oceanic and Atmospheric Administration's magazine, about 25 percent of the country's divers are women. Their numbers are increasing by 20 percent annually.

Though more women are diving, there are many more who could be diving but won't because of misconceptions about the sport.

Shirley Kelley, an advocate of women diving and a member of the national YMCA's subcommittee on women's activities, believes that most women begin diving at the urging of male friends or relatives. She also maintains many women automatically assume they can't dive because they think the sport is largely a masculine one that requires great strength. But equipment has gotten lighter and the weightlessness under water acts as an equalizer between the sexes.

Fear of the marine life is a common reason women cite for not diving. But diving instructors quickly refute that argument by emphasizing that sea creatures, including sharks, will rarely bother anyone unless they are bothered first.

Kelley maintains diving is largely psychological and that self-confidence can go a long way toward making women and men better divers.

"Diving is certainly not as complicated as driving a car and not nearly as dangerous," Kelley says. "Yet nearly every woman in this country can drive and never gives a thought to the danger involved."

Kelley and others feel that as more people know and understand diving there will be fewer misconceptions about the sport. Many women who take a diving course and make several ocean dives wonder why they ever balked at the beginning.

"My first ocean dive was in the Virgin Islands and it was one of the most emotional experiences of my life," Kelley says. "My husband doesn't dive and here I was sitting on the edge of this boat alone. Everybody in my dive party had gone in. I thought, what

Photo by Marshall Wyatt



Shirley Kelley

have I done? I'm going to go down there and get killed. This whole thing is the dumbest thing I've ever thought of.

"But I went over the side and bubbles were everywhere. I was dizzy because I was upside down. Then the bubbles cleared. I've never seen anything like it in my life. The colors, the forms, the fish—everything was beautiful—I was hooked from then on."

Does diving affect women differently?

As more women become divers, they are asking dive instructors, doctors and other divers questions about the effects diving has on their bodies: "Can I dive during menstruation?" "What are the consequences to me and my baby if I dive while I'm pregnant?" "If I'm on the pill, will diving affect me differently?"

These are important questions for women and researchers are now conducting studies to find the answers.

Researchers with two Sea Grant programs have studied diving's effect on pregnant women. At the Texas A&M University Sea Grant program, scientists subjected pregnant sheep to simulated diving conditions and found the fetus tends to be more susceptible to decompression sickness than the mother. Decompression sickness can lead to birth defects or death of the fetus.

In the University of Florida Sea Grant project, an investigator found in a survey of women divers that about five percent of the women who dived during pregnancy gave birth to malformed infants. The percentages were higher for deep dives where about 12 percent of the women who dived at depths of more than 100 feet had babies with birth defects.

While these studies seem to say that pregnant women who dive may harm their unborn children, the research is inconclusive and investigators say women who have dived during pregnancy should not be alarmed.

Nevertheless, pregnant women are warned to limit dives to 60 feet, limit the duration underwater to one-half what the Navy decompression tables recommend, and avoid strenuous diving, hyperventilation and chilling.

Dr. Susan Bangasser, a SCUBA in-

structor and biochemist for the National Association of Underwater Instructors (NAUI), has researched the effects on women of diving during menstruation and while taking birth control pills. She found that the advisability of diving during menstruation depends on how the woman feels. If a woman has cramps, is nauseated or feels unusually fatigued she should not dive. Also the tendency toward water retention in the body during the menstrual period may increase the risk of decompression sickness for women.

Birth control pills have also been linked to increased occurrence of decompression sickness. Researchers suggest that while taking birth control pills and during menstruation (and sometimes several days in advance) women use the no-decompression limits of the navy dive tables conservatively.

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 and workshops, and new publications. For more information on any of the projects described, contact the Sea Grant office in Raleigh (919/737-2454).



Shark creole. French-fried squid. Eel salad. Forget their slightly unsavory reputations—the sharks, squid and eel proved eminently edible at the third annual "Strange Seafoods Spectacular," held August 16 in Beaufort.

The festival, organized by the Hampton Mariners Museum in Beaufort, was designed to give some neglected seafoods a little public exposure. Cooks and seafood experts from the area, including a group of Sea Grant food science technicians from the North Carolina State University Seafood Lab in Morehead City, prepared the food and served it from warmers set up in a courtyard near the museum.

The expected crowd of a few hundred people didn't show up. The unexpected crowd of over a thousand, however, did.

Bob Hines, Sea Grant's marine advisory agent in the Morehead City area, watched the eight pounds of rock shrimp he'd broiled disappear in less than 15 minutes. A seafood pizza, prepared by Joyce Taylor from the seafood lab, played a new variation on a traditional theme: instead of sausage and mushrooms, flaked fish and shellfish.

The rest of the menu? Among the most popular dishes were eel Newburg, sea urchin eggs, rock shrimp casserole and batter-fried ray.

The museum has printed a complete set of recipes for all 38 of the dishes served at the festival. The booklet

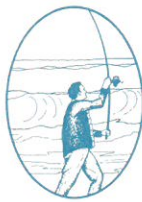
costs \$2 and can be obtained by writing the Hampton Mariners Museum, 120 Turner St., Beaufort, N. C. 28516.

In recent years a seafood delicacy, swordfish, has been found off the North Carolina coast and a few fishermen are now beginning to cash in on this treasure.

Jim Bahen, a Sea Grant marine advisory agent in the Wilmington area, has helped several commercial fishermen at Wrightsville Beach rig their boats for swordfishing. With swordfish fetching between \$1.65 and \$2.25 a pound at the market, fishermen are being paid handsomely for the investment it takes to catch the 100- to 700-pound fish.

Bahen says the market for swordfish is primarily in New England, but a few local retailers and restaurant owners are also purchasing it. The fish, sometimes called the "prime rib of the sea," is cut into steaks that have pleasant texture and flavor.

Bahen is also helping recreational fishermen to land swordfish and at least one fisherman has caught a 500-pounder off the North Carolina coast. Swordfish usually can be found 90 to 150 miles off the state's shoreline in the deep waters of the warm Gulf Stream.



Researchers are asking recreational and charter boat fishermen, along with commercial long liners, for a little help these days in their study of large game fish

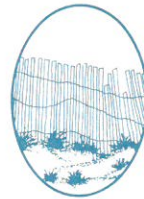
such as blue marlin, white marlin, sailfish, hammerjack and tuna.

Sea Grant agent Jim Bahen is asking on behalf of researchers that sport fishermen tag their catches if they plan to release them. That way, if the fish is caught again, scientists will know how far the fish has traveled, its weight gain and other vital statistics.

Fishermen who catch a fish that already has been tagged are asked to send the tag to the address listed on the tag, along with information about

where the fish was caught and its weight and length.

If you would like to help researchers, you may get a free tagging kit by contacting Jim Bahen at the North Carolina Marine Resources Center at Fort Fisher.



Those sure-footed off-road vehicles (ORVs) can make tracks almost anywhere. And that, according to some people in Nags Head, is just the trouble.

Since 1974, Nags Head has regulated the use of ORVs on the town's beaches and barrier dunes. Residents hoped that the rules would protect the grasses that help anchor the dunes and stabilize the shoreline.

This summer, after citizens had once again met and voiced concern over ORVs, Nags Head lopped a month off each end of its beach-driving season, leaving only the months between Oct. 1 and May 1 open to beach traffic.

After hearing an earful of pros and cons about ORVs, the town's commissioners decided that some scientific know-how might help settle the debate.

That's where Paul Hosier came in. Hosier, a Sea Grant researcher, has been studying the effects of ORVs on the grasses and dunes at Cape Hatteras. He has found that, although stands of dune grass can recover from occasional traffic, constant or regular trappings quickly kill the grasses and bare the dunes to the wind. Hosier is trying to determine exactly how much driving the grasses can stand.

Nags Head asked Hosier to expand his research to include a two-mile stretch of beach at the town's southern end, an area the commissioners made off-limits to ORVs. The protected stretch is adjacent to some well-traveled shoreline near one of the town's beach-access ramps.

With samples from both protected

Continued on next page

and unprotected parts of the same shoreline, Hosier expects some telling data from his research at Nags Head. And the commissioners expect to have some facts to lean on when, sometime down the road, ORVs wheel onto the agenda again.

If you are planning to build along the beach, you'll need to know about some new restrictions. The Coastal Resources Commission (CRC) has recently revised its regulations governing development in ocean hazard areas.

Spencer Rogers, Sea Grant's coastal engineering specialist, studied the annual rate of erosion and the potential for major storm damage along the beach. Rogers and other researchers used aerial photographs of the shoreline and on-site observations to determine which beach front areas were subject to major erosion. The study was submitted to the CRC and changes were made in July.

Building or development in these areas will no longer be permitted seaward of the primary dune; specific construction standards apply. The primary dune is the first sand dune with an elevation equal to the 100-year flood level plus six feet. Under the former regulations, development was permitted immediately behind the lower frontal dunes.

The CRC also made other changes in the Coastal Area Management Act (CAMA). Builders and developers should check with local CAMA permit officers before building.



Sea Grant offers two free publications of special interest to SCUBA divers. *Wreck Diving in North Carolina*, by Dennis Regan and Virginia

Worthington, is a directory of 42 shipwrecks off the North Carolina coast which are most popular among divers. The 16-page booklet gives locations, a brief description and history of each of the wrecks. It also includes a directory of North Carolina dive shops and a section on safety.

If you're a SCUBA diver, the *Diver's Emergency Information* card could save your life. A water-resistant, wallet-sized card, it alerts medical personnel to the fact that you could be suffering from decompression sickness and gives emergency phone numbers and the locations of nearby decompression facilities. One side of the card provides space for the diver's name, address, next of kin, blood type and drug sensitivities. It's published by South Carolina Sea Grant.

Planning a trip to the North Carolina coast? Sea Grant's new 28-page booklet, *Vacation and weather guide to coastal North Carolina*, may be just what you need. This 28-page booklet features information on coastal recreation, including boating, camping, bird watching, surfing and hang gliding. A detailed fishing section outlines tips on fishing for the most

common freshwater, offshore and in-shore species. The booklet also provides year-round weather data—including charts on sailing winds and offshore weather, a list of related publications and a series of coastal maps. It is published jointly by Sea Grant and the Environmental Data and Information Service.

Learn how to get more nutrition for your money by using high protein, low calorie fish flakes for cooking. *Fish Flakes: seafood stretchers*, is a fold-out flyer which tells you how to flake fish at home in six easy steps and gives two tested recipes which use the flakes.

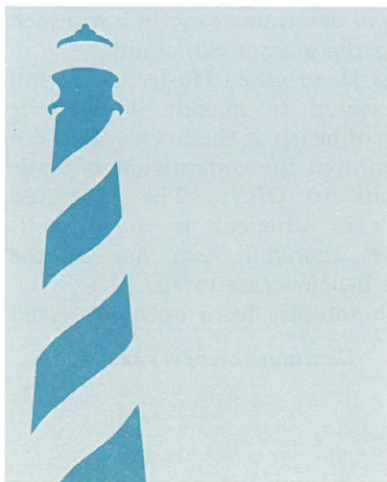
For your single free copy of any of the publications listed above, write Sea Grant, Box 5001, Raleigh, North Carolina 27650. If you wish to order any of the publications in bulk, contact the Sea Grant office for information on charges.

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