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Volume 3, No. 4

Coastlines

GEORGIA

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Dr. Robert J. Reimold, Director

Steve Olsson, Editor

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Fishing This Coast

It takes some of us longer than others to experience the excitement, accessibility and pleasure of saltwater fishing and fishing in general. It is the same stuff Hemingway wrote about, barroom buddies boast about and quite a few people actually live.

From split cane poles and bobbers to downriggers and electric reels, the possibilities for fishing this coast are endless. Whether you're dockside with fiddler crabs angling for sheepshead or topside rigging ballyhoo for king mackerel, Georgia's coastal waters will provide memorable fishing experiences. This issue of **Coastlines Georgia** relfects some of those experiences:

Those lazy, passive, sunburned afternoons, as well as the grueling back-bending competition of man against nature.

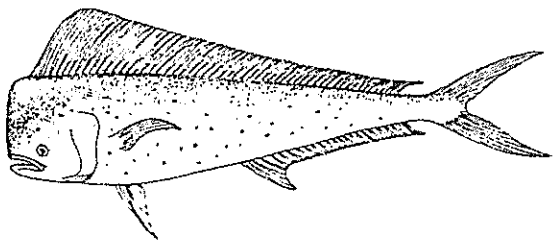
The excitement of fishing tournaments as anglers seek to land the biggest fish, the most fish or the most difficult fish.

The fun of trolling or bottom fishing at one of Georgia's natural or artificial reefs.

The satisfaction of knowing that successful fishing is readily and economically available in our tidal creeks or streams and from Georgia's many bridge or pier locations.

We hope this issue will stimulate your interest, possibly help refine your technique and above all heighten your awareness and appreciation of Georgia's coastal resources.

--Steve Olsson



About The Cover

Young Chris Anderson poses with this 190 lb. blue marlin. The catch earned Chris' father, Ray Anderson, top honors in the Savannah Billfish Tournament.

--Cover photo by Susan Shipman

Coastal Fishing Tournaments

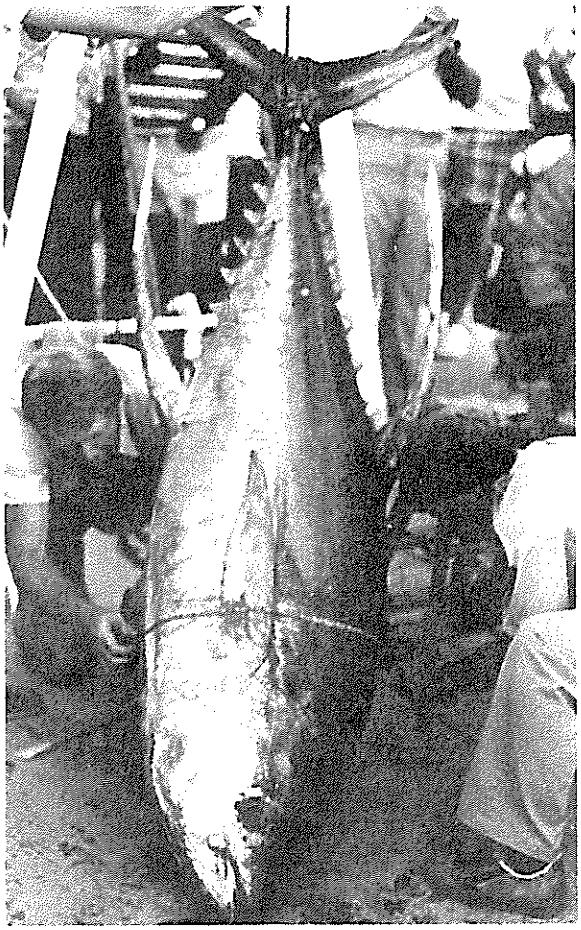
A new 1980 Ford Mustang convertible. $1,000 cash. $500 cash. $300 cash. Radios, coolers, rods and reels. A new 1980 Volvo sport coupe. The prize lists from this year's coastal fishing tournaments could easily compete with the offerings on an afternoon of Let's Make A Deal. The activity at the weigh-ins is almost as berserk. Participation is at an all time high this year from sponsors and anglers alike.

Competition in the two coastal king mackerel tournaments and the Savannah Billfish Tournament accounted for four broken marks in the men's division of the Georgia Saltwater Game Fish Records Program (swordfish, tuna, little tunny and porgy), and two records set in the women's division (king mackerel and bluefish). Sport fishing activity during other times was highlighted by the setting of new men's records for bluefish and flounder and the women's record for tarpon (a three hour fight!). With excellent fishing ahead in the next few months, there is a good chance for more records to be set or broken. Many categories in the women's division still remain open with the final king mackerel tournament slated for October 4, 1980 in Savannah.

For further information on sport fishing tournaments or the Georgia Saltwater Game Fish Records Program, contact Henry Ansley or Steve Olsson at DNR headquarters, 1200 Glynn Ave., Brunswick, GA. 31523, (912) 264-7218.

--Photos by Susan Shipman and Steve Olsson

Sailfish, though not normally eaten, are premier game fish easily recognized by their large dorsal fin.

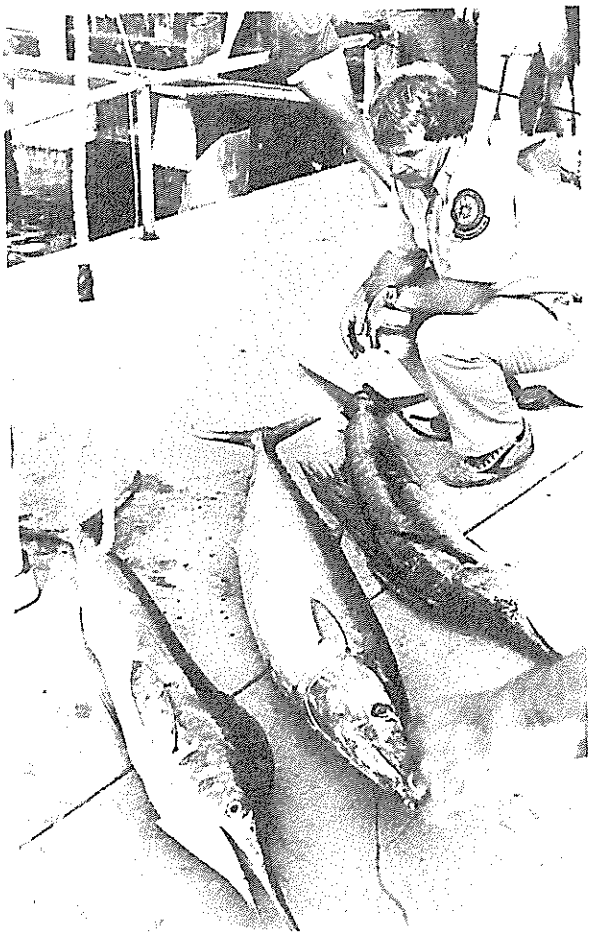


CRD biologists check the girth on this 250 lb. yellowfin tuna, a new state record. This world class specimen was landed by Ken Cooper during the Savannah Billfish Tournament.

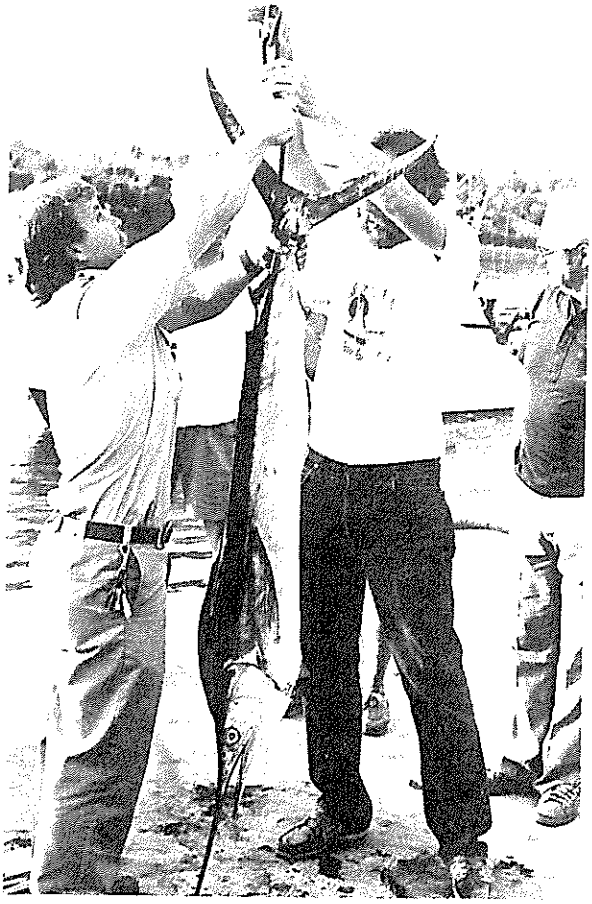
Tomorrow's sport anglers examine a strange creature during the Landings Kingfish Tournament.

While fishing in the Savannah Billfish Tournament, Jimmy Ginn happened to land this 5 lb. 6 oz. porgy, a new state men's record.

Floyd Kipf of Savannah with his state record little tunny, 14 lbs. 2 oz., caught during the Landings Kingfish Tournament.



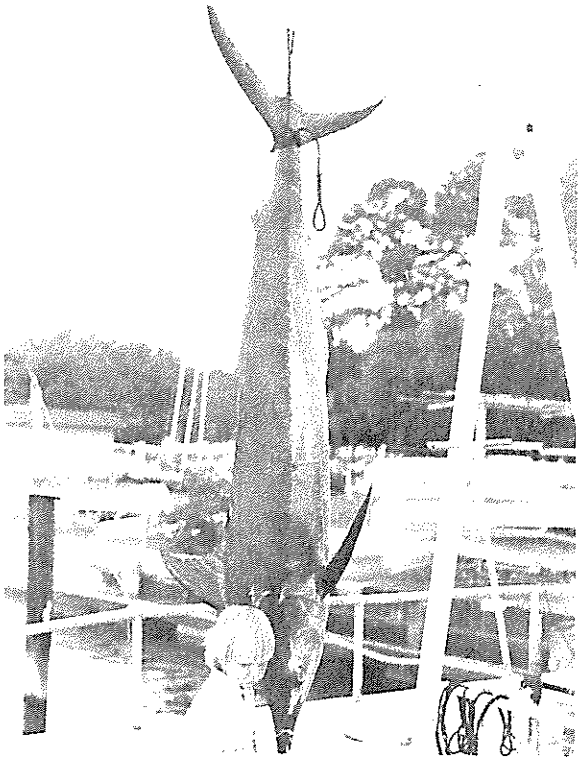
Weighmaster Henry Ansley inspects (l-r) a white marlin, a wahoo, and a sailfish during the Savannah Billfish Tournament.



Henry Ansley and Hunt Leaf steady a blue marlin about to be weighed.

Henry Ansley and Duane Harris measure a sailfish for a possible state record.

William "Dub" Brown and his state record flounder, 13 lbs. 8 oz., caught June 7, 1980 on the St. Simons Pier.



A reluctant fisherman examines the day's catch.

Coastal Sport Fishing Tournament Winners

Savannah Billfish Tournament

—Angler category (largest individual fish): Ray Anderson, blue marlin, 190½ lbs.

—Boat category (total pounds of fish caught): AMBUSH, Rick Glendye, captain; 190½ lb. blue marlin by Ray Anderson.

Landings Kingfish Tournament

—Angler category: Ed Ludwig, 22 lb. 2 oz. king mackerel.

—Boat category (highest total pounds of four fish): DEBORAH LYNN, 54 lbs. 4 oz.

Savannah Shark Hunter's Firecracker 1000

—Men's: David Reddick, 142 lb. lemon shark.

—Women's: Tommie Patrick, 17 lb. shark.

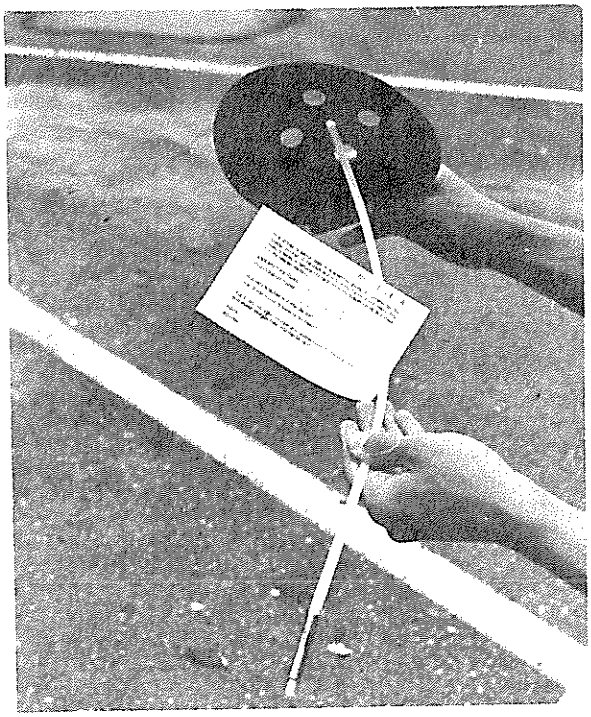
—Jr. Division: Randy Deason (6 yr. old), 49 lb. hammerhead.

Golden Isles King Mackerel Tournament

—Jane Renfroe, 22 lb. 12 oz. king mackerel (new women's record.)

Strange Drifters

Strange devices resembling 21st century plastic mushrooms have recently been washing up on Georgia shores, and are also being caught in shrimp nets. Known as Woodhead Seabed Drifters, these "mushrooms" are actually red plastic six-inch diameter discs with 18-inch spaghetti-like stems. The devices are being used by DNR's Coastal Resources Division staff in cooperation with the Savannah District, U.S. Army Corps of Engineers to learn more about sand movement off the central portion of Georgia's coast.



The Woodhead Seabed Drifter moves with sand along ocean currents.

Over 500 drifters were released off Jekyll and Sea Island during June 1980. Once released into the ocean, the drifters sink to the bottom and, much like particles of sand, are carried by the currents. Finders of the devices are instructed to complete the attached waterproof card reporting where and when the drifter was found.

In less than two months, over two hundred or 40% of the drifters have been returned. Although some have been found by beachcombers, commercial shrimpers have been extremely helpful in returning the cards telling when and where they found the drifters.

Preliminary results show that sand within one mile of Sea Island beach is moving directly onto the beach. Sand further offshore of Sea Island moves north, past Pelican Spit and on to the mouth of the Altamaha River. Sand along the Jekyll coast moves north into the Brunswick/St. Simons ship channel.

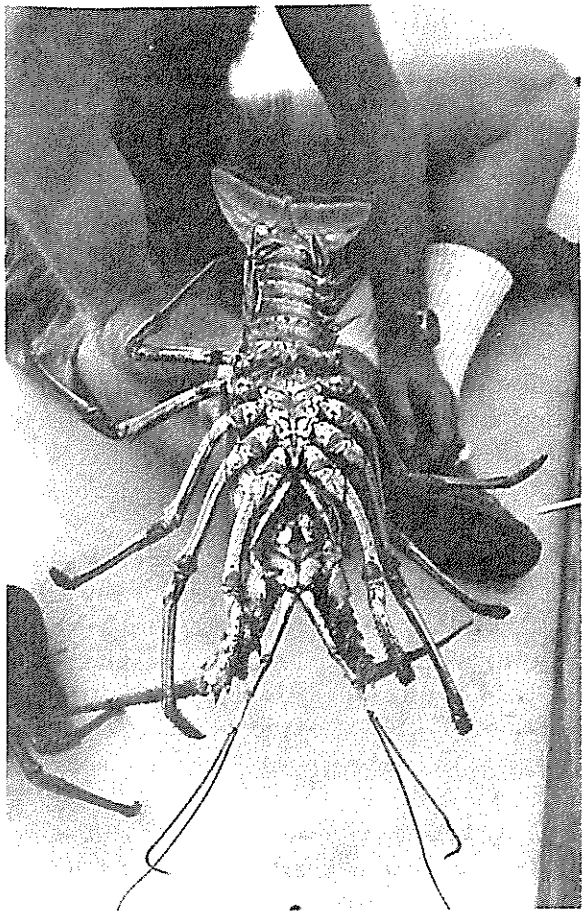
This fall, DNR plans to release more of the seabed drifters. Presently, Coastal Resources Division staff are using the results to make recommendations to the Corps of Engineers concerning ecological and economic impact from the disposal of dredged material coming from the Brunswick ship channel. Scientists are also using the results to better plan for future shrimp production and to further understand the dynamics of the sand-sharing system off Jekyll and Sea Island.

--Robert J. Reimold

Georgia Lobsters

They're out there. Hiding under ledges or in holes with only their giant antennae protruding, they ARE out there. Georgia's offshore lobster population is not believed to be very extensive nor is it famous, but it does exist.

Commercially fished for in Florida, these lobsters are actually at the northernmost extent of their range and are relatively uncommon in Georgia. Like the Florida lobster, it does not possess claws, only ten spindly legs, a hard-shelled body and two antennae measuring up to 1½ feet in length. As a food item it is valued only for its tail, as opposed to the New England variety which boasts delicious claws too. Georgia lobsters range from 1½ to six pounds and may measure almost three feet from top of antennae to tip of tail.

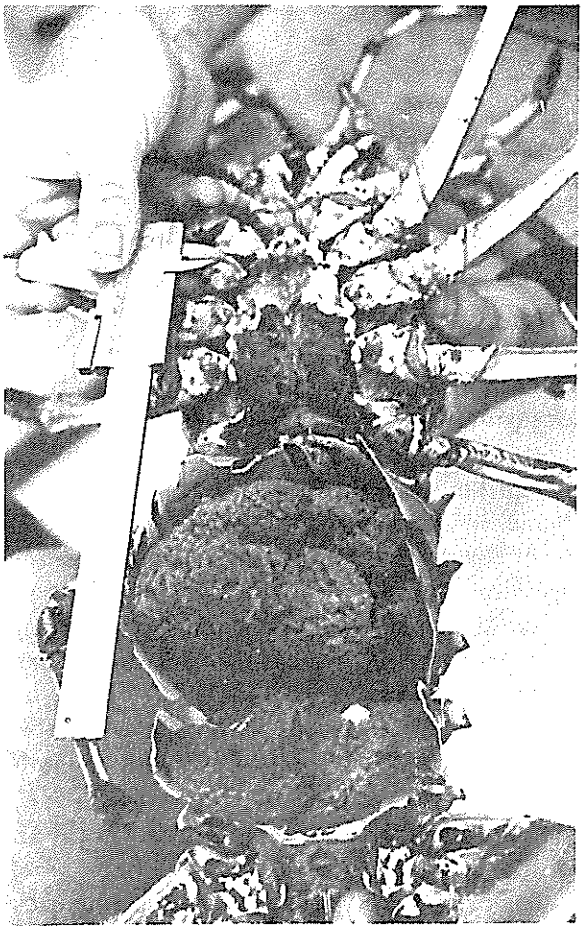


The Georgia lobster -- ten legs, a large tail and antennae which may be as long as the rest of the body.

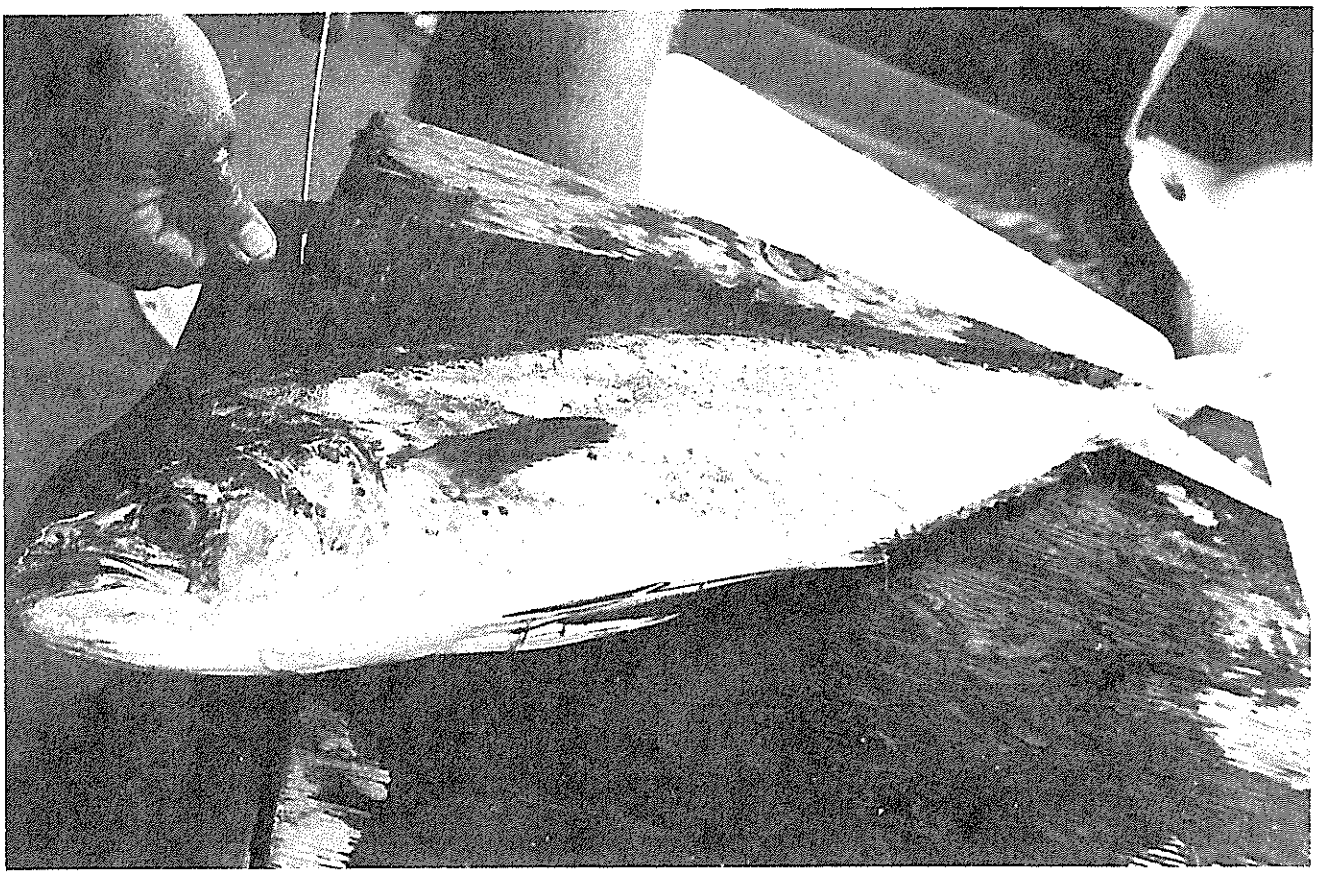
Presently, CRD researchers are finishing up a year long assessment study of the lobster population off Georgia's coast. Most sampling has been focused on the Savannah Snapper Banks, approximately 40 miles east of Ossabaw Island. Here, in a depth of 120 feet, the lobsters sleep during the day and feed during the night.

Through the use of traps and actual "on site" diving, CRD biologists are attempting to estimate the numbers of lobster offshore and possibly gain insight about their breeding, growth and migration patterns.

Though attempts have been made, commerical trapping of Georgia lobsters has been unsuccessful. Their numbers are presently small. However, Georgia lobsters are out there, and may one day be found in markets and on menus. --Steve Olsson



Like the blue crab, female lobsters' eggs make up a sponge-like region near the tail.



Life At The Bottom:
Fishing Gray's Reef

Intense sun and sparkling water: the combination is blinding, but beautiful. Occasionally, a puff of air adds its cooling effect to that of the slight breeze created by the forward motion of the boat. The heat seems to deaden even sound. The only noise is created by the steady hum of the motors and the occasional gurgle of our wake.

Suddenly, the quiet is broken by the singing of the port reel. A fish has taken the bait. For a moment, confusion abounds.

Everyone is shouting at once as the rod is snatched from the rod-holder. The boat is throttled back from trolling speed. The anticipation on the boat seems to charge the air with excitement.

The catcher and the catchee are giving each other a very difficult time. The fish gains some advantage; quickly the fisherman recovers it, each time inching the fish closer and closer to the boat. Finally, the apprehended fish shows itself. A king mackerel in the twenty pound range is brought alongside, gaffed and hoisted into the boat. Congratulations are offered all around as the lines are let out and the boat is brought up to trolling speed again.

The king mackerel season at Sapelo Live Bottom (Gray's Reef) is usually from May until September or October. The Georgia Saltwater Gamefish record for king mackerel, 46 lbs. 4 oz., was set at Sapelo Live Bottom in June of 1977. The state record for red snapper, 36 pounds, ws also set there in June of 1979.

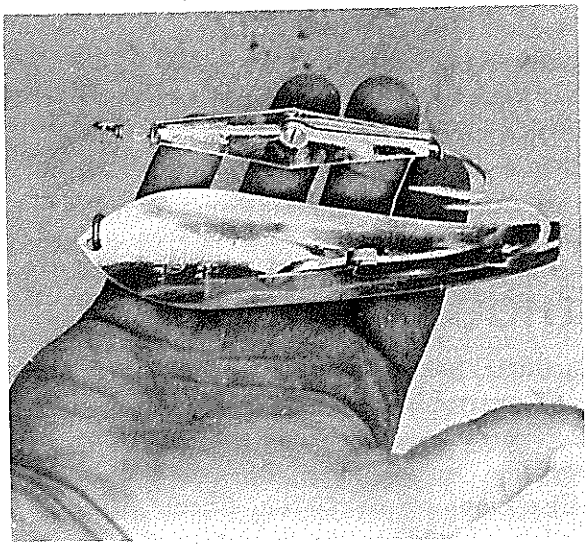
The "reef" is actually a large concentration of scattered limerock outcroppings in 55 to 65 feet of water. These outcroppings and ledges attract large numbers and a wide variety of ocean life-forms; from corals and sea fans to large barracuda and cobia. Its close proximity

to land and its rich marine life also attract many recreational fishermen and SCUBA divers.

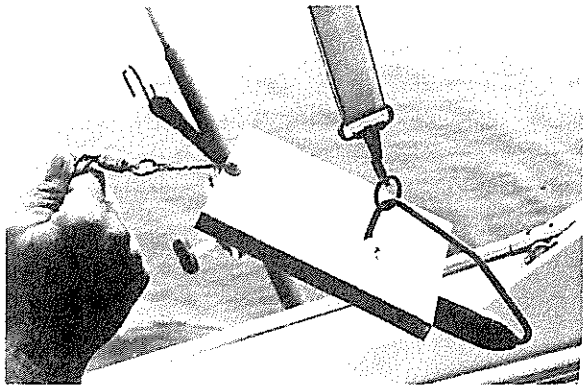
Recreational fishing at Gray's Reef takes many forms. Trolling for king and Spanish mackerel and barracuda are popular methods. Anchoring and bottom-fishing for black sea bass, red snapper and grouper is a frequently used and highly successful technique. Drift fishing for king mackerel is becoming more popular as gas prices continue to rise.

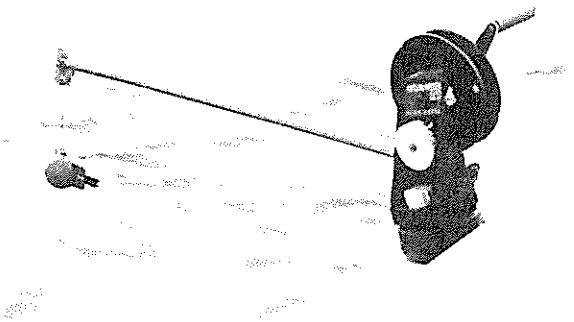
Located 17 nautical miles east of Sapelo Island, Georgia, Gray's Reef has been nominated for National Marine Sanctuary status by the Georgia Department of Natural Resources (DNR) to the National Oceanic and Atmospheric Administration (NOAA) which administers the Marine Sanctuary Program. Because of the important recreational, educational, ecological and aesthetic resources of Gray's Reef, DNR and NOAA feel that there is a good chance for the nomination to succeed. The Marine Sanctuary Program offers the opportunity to provide a comprehensive program of protection and management for the resources of Gray's Reef. Under the proposed plan, recreational fishing and diving would not be restricted.

Our fathometer has recorded a good section of bottom. We continue to troll here, picking up one and two fish at a time. Drone spoons trolled deep on down-riggers or planers seem to be working the best. Mullet and ballyhoo



The drone spoon (above) works best on king mackerel and barracuda. A Clark no. 2 spoon (below) is often preferred when going for the smaller Spanish mackerel.





Planers (above) and downriggers (below) allow live or artificial baits to be carried deep and be trolled at depths where king and Spanish mackerel normally "run." The flat surface of the planer uses the force of water against it to pull it down. The downrigger relies on a large cannonball-like weight which may weigh from five to 20 lbs.

are popular natural baits but sometimes difficult to obtain. King mackerel are notorious for striking short, leaving the angler with a hook and half his bait. Therefore, the drone spoon, with its hook at the end of the lure, is probably the best all around bait for the fish. The drone will also attract barracuda and Spanish mackerel.

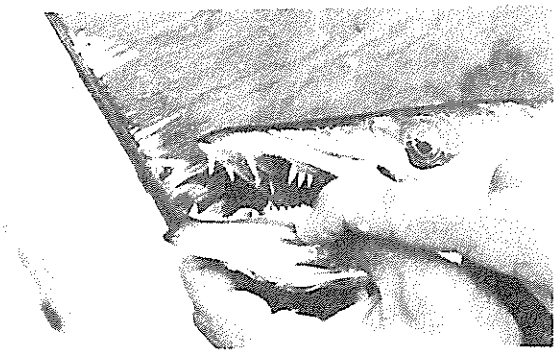
Fishing on Gray's Reef, like other offshore locales, is generally better during the morning hours. However, various species can be caught at any time of the day or night. King mackerel frequent the reef usually from May through July while Spanish tend to be found there from July to September. Snapper, grouper, porgy, and black sea bass are found there year round.

The fish box has filled quite nicely since the morning. Kings constitute the majority of our catch with three barracuda and six Spanish mackerel making up the remainder.

All on board are pleasantly tired and more than a bit sunburned. We decide to turn west and head for the "hill." As we make our way towards Sapelo Island, we contentedly sit back, relaxed by the thoughts of the day's adventures while fishing off Georgia's coast. The trip is about 1½ hours to our "home port," in this case McIntosh County. Just enough time to unwind, rest the reels, filet some of the catch and trade fish stories.

--Bill Gordon

--Photos by Steve Olsson



Barracudas are notorious for leaving anglers with only a half eaten king or Spanish mackerel to reel in. A look inside shows why.

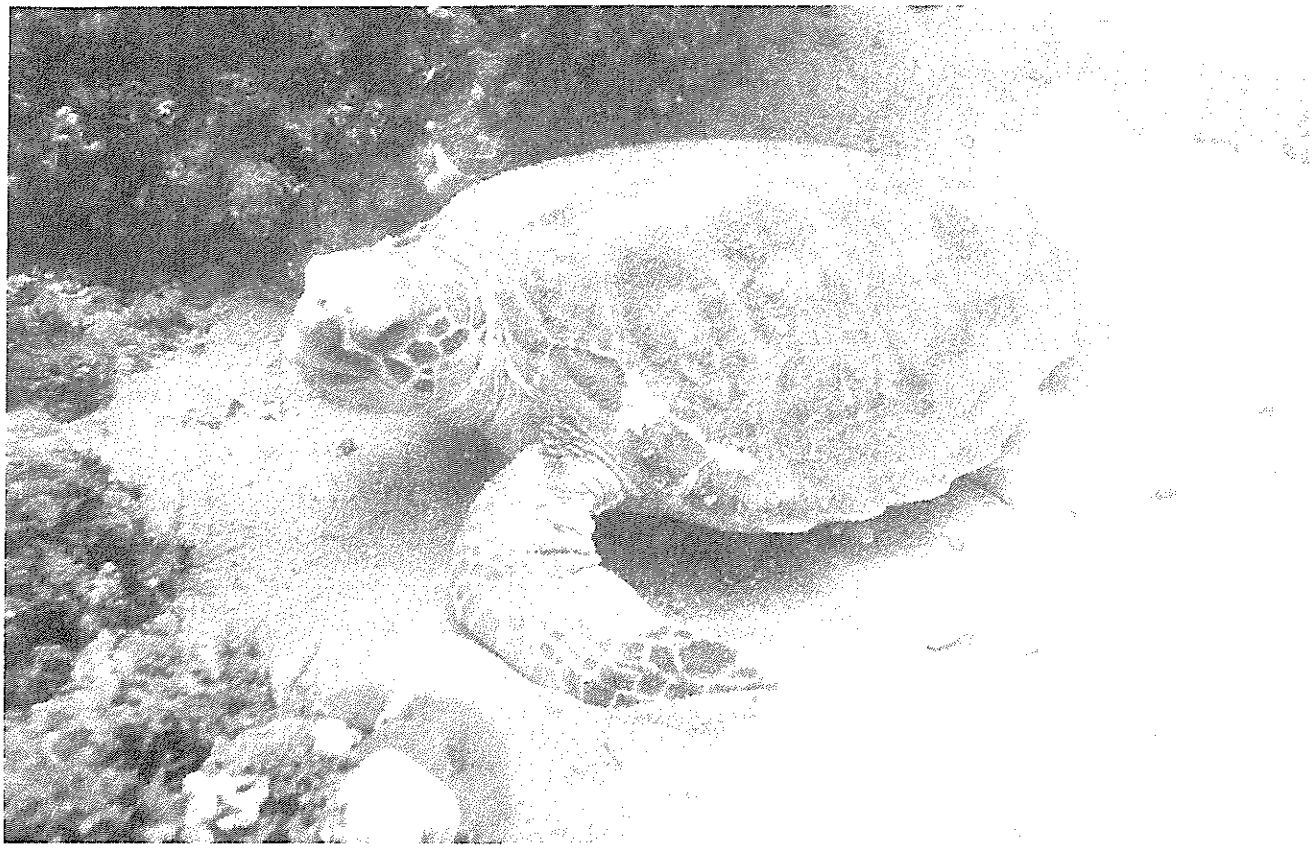
Spanish mackerel, like dolphin, cobia, king mackerel, and billfish are without scales, allowing them to move faster in water. They also provide the fishermen an easy filet and some delicious eating.

Saltwater Fishing Guide Available

A new fishing guide to coastal South Carolina is now available from the South Carolina Wildlife and Marine Resources Department at a charge of $4.50.

The new guide contains information on inshore fishing facilities, including pier fishing, coastal boat rentals, coastal boat landings, coastal marinas, S.C.U.B.A. diving shops and offshore fishing facilities, including artificial fishing reefs and wrecks, head boats, and charter boats.

The new fishing guide may be ordered by writing to: Guides, P. O. Box 12559, Charleston, S.C. 29412. Check or money orders should be made out to the "South Carolina Marine Research and Conservation Foundation" or to "S.C.M.R.C.F." Please allow 3 to 4 weeks for delivery.



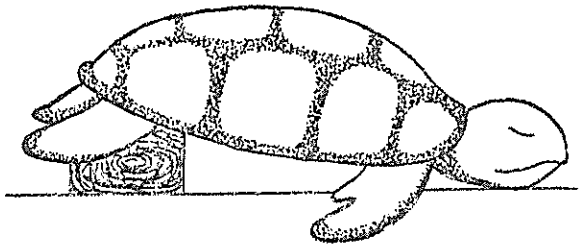
The Atlantic loggerhead makes up the majority of Georgia's sea turtle population. This particular one was photographed at Sapelo Live Bottom.

Turtle Program Expands

The National Marine Fisheries Service has recently authorized the Coastal Resources Division to implement and conduct a project which should reduce shrimper related mortalities of sea turtles. This program is a cooperative venture involving the National Marine Fisheries Service, the Georgia Department of Natural Resources and volunteer vessels within the Georgia shrimp fleet. The goals of the project are to: (1) reduce the number of sea turtles caught incidentally by shrimpers, (2) reduce the number of injuries and mortalities of sea turtles associated with incidental capture by shrimp trawlers, and (3) study the effectiveness of an alternate turtle resuscitation technique. Ultimately, the program will develop a statewide management strategy focused on preserving and maintaining the integrity of Georgia sea turtle populations without affecting the individual shrimper's income. It will also further demonstrate the concern Georgia shrimpers have for the well being and preservation of sea turtles.

One component of the project involves issuing letters of permit to each participating shrimp vessel captain. The permits allow him to keep incidentally captured Atlantic loggerhead (*Caretta caretta*) and green (*Chelonia mydas*) sea turtles on board the shrimping vessel for purposes of resuscitation and relocation to areas where shrimping activities are not being conducted. These areas are defined as the sounds and bays (inshore of the beach limits) of coastal Georgia. By keeping the turtles on board until the end of the shrimping day and releasing them into the sound systems, the shrimpers will allow the turtles time to fully recuperate. In doing so, shrimpers will be releasing them at a location which reduces the chances of the turtle being recaptured within a reasonable period of time.

One feature of the project is a new resuscitation procedure. The Federal



New turtle resuscitation techniques recommend leaving the turtle on its belly while raising the rear end.

Endangered Species Act of 1973 instructed those shrimpers resuscitating turtles to turn the turtle on its carapace (back) and pump its plastron (belly). This method is currently being used by most shrimpers. The new program, however, will request shrimpers to leave the turtle on its plastron with its posterior (rear) end raised a few inches. It is believed this method will be superior to the method previously used.

This project will continue through September of 1981 with a possibility of extension. Any shrimpers interested in participating should contact Chuck Cowman, Coastal Resources Division, Georgia Department of Natural Resources, 1200 Glynn Avenue, Brunswick, Georgia 31523.

--Chuck Cowman

--Photo by Duane Harris

--Illustration by Joni Miller

Eagle Update

The second phase of the Georgia Department of Natural Resources' program to re-establish the bald eagle in Georgia appears to be successful. Almost a year ago, two eaglets were released from their man-made "nest" on Sapelo Island (**Coastlines,** Vol. 2, No. 3), hopefully to return there to breed and nest. Since then, the Department has received two additional eagles which are now fully fledged and flying free.

The second pair of eaglets was received from the U. S. Fish and Wildlife Service in early June, then only eight weeks old. Reared in a man-made nesting tower, the eagles began making trial flights near their "nest" around mid-July. Biologists on Sapelo then began limiting their food supply, prompting the eagles to search other areas for food. Presently the young eagles are fed every other day with plans to reduce this to every third day in a few weeks.

According to endangered species biologist William Guthrie, everything concerning release of the eagles is going as planned. "Although one eagle escaped last year before we could get a radio transmitter on him," Guthrie said, "both birds this year have tags and transmitters and are being monitored regularly."

Guthrie added that sightings of immature eagles have occurred at various locations on Sapelo and are thought to be last year's released eagles.

Biologists are asking anyone seeing these large brown birds with bright green tags, to notify the Game and Fish office in Social Circle, Georgia, at (404) 557-2532. If successful, the project calls for the addition of two, possibly three, more eaglets to Sapelo next year.

Editor's Note:

The following corrections should be made to the Georgia boat ramps, fish camps and marina listings which appeared in the May-June, 1980 issue of **Coastlines:**

1. The Coffee Bluff Public Boat Ramp in Chatham County is no longer operational.

2. The Lake George facilities listed in Liberty County are private and for members only.

McIntosh and Bryan Counties have made the necessary applications for permits to construct public access facilities in their respective counties. McIntosh County has planned constructon of a ramp at Blue N' Hall Landing on the North River. Bryan County proposes construction of two public fishing piers on the Tivoli River.

Seeking A Sanctuary

The proposal to designate Gray's Reef as a Marine Sanctuary has attracted the attention of many people concerned with Georgia's coast.

Fishermen, divers, environmentalists, researchers, educators, and others have raised questions and comments on the purposes and needs for such a sanctuary. Many wonder exactly what a marine sanctuary is and whether sanctuary status will interfere with their activities on Gray's Reef.

In 1978, The Georgia Department of Natural Resources (DNR), Coastal Resources Division (CRD), nominated Gray's Reef (Sapelo Live Bottom) for consideration as a national marine sanctuary under the Marine Protection, Research and Sanctuaries Act of 1972. The area is a natural hard bottom reef located 17 nautical miles east of Sapelo Island (see **Coastlines**, Vol. 3, No. 2, March-April, 1980 for geographic location of the reef in relation to aids to navigation).

The concept of a marine sanctuary is similar to that of an underwater park or a marine preserve. It is not necessarily a totally unspoiled area or a non-activity zone, as the name may imply. Instead, a marine sanctuary is a site of distinctive marine resources where comprehensive management is needed to coordinate ecosystem protection with multiple public use. Goals of the national marine sanctuary program are: to provide long-term protection to special marine areas; to provide a focus for site-specific management of these areas; to promote public awareness and wise use of natural resources; and to encourage research and exchange of information about marine ecosystems. The sanctuary program aims to prevent problems, rather than react to them after-the-fact. Most public activities, such as recreational boating, fishing, diving, scientific research and education, are compatible with sanctuary

CRD diver Susan Shipman inspects sponge and coral formations along a ledge at Gray's Reef. The natural live bottom covers approximately 16 square miles.

Tomtates and a black sea bass (foreground) swim in front of a basket sponge while a sheepshead (background) makes his way among the surrounding corals.

purposes and are allowed.

Two National Marine Sanctuaries have been designated since the program became active in 1975: the Monitor Marine Sanctuary, surrounding the wreck of the Civil War ironclad U.S.S. MONITOR, off Cape Hatteras, North Carolina; and Key Largo Coral Reef Marine Sanctuary just seaward of the John Pennecamp Coral Reef State Park in the Florida Keys. Besides Gray's Reef, six other marine areas are currently active candidates for sanctuary designation: Flower Garden Coral Banks, twin coral caps in the Gulf of Mexico; the waters around the Channel Islands and Santa Barbara Island in California; Monterey Bay, California; Point Reyes and the Farallon Islands off California, which support many endangered marine mammals (seals, sea lions, sea otters, whales and dolphins) and sea birds; Florida's Looe Key coral-reef area; the lush seagrass beds and coral reefs off St. Thomas, Virgin Islands.

Gray's Reef represents a regionally significant marine habitat type, a live bottom, whose elevated limerock substrates and rich marine life distinguish it from the otherwise flat, sandy and sparsely populated ocean bottom covering over 80 percent of the South Atlantic Continental Shelf. For persons not familiar with the term "live bottom," the concept is similar to that of oases in the desert; small life-supporting islands sprinkled across vast areas of barren ocean bottom.

Gray's Reef is one of the largest inshore live bottoms in the South Atlantic, covering approximately 16 square nautical miles. Unlike tropical reefs formed by living corals and algae, Gray's Reef is composed of limestone rock in the form of ridges, ledges, caves and burrows of various sizes as well as shallow-buried hard surfaces covered by thin veneers of sand. The bottom relief or "breaks" (up to 6 feet or more) found at Gray's Reef are usually only encountered in deepwater locations further offshore.

Many types of marine plants and animals are found at Gray's Reef on a permanent or seasonal basis. Because of its location, the live bottom hosts a mixture of inshore, cold-tolerant northern species and offshore, tropical southern species. Rock outcrops are covered with dense growth of attached seaweeds and invertebrates, the latter including hard corals, soft corals (sea whips and sea fans), sea anemones, vase sponges, tube-building worms and sea cucumbers. Various crabs, shrimp, sea snails and sea stars live on and around the outcrops. Small, showy tropical fish and bottom sportfish, such as snapper, grouper, black sea bass, and porgies are found at the reef year round. More pelagic game fish such as king and Spanish mackerel, bluefish, cobia and bonita occur there seasonally. Shark and barracuda are not uncommon, and loggerhead turtles and marine animals are frequently seen in the vicinity of the live bottom.

Marine sanctuary designation would provide several public benefits. It would insure protection and wise use of an essential fisheries habitat and its resources. This would be accomplished through a comprehensive management program to control activities which may pose a substantial threat to the live bottom, now or in the future, such as seabed alteration (drilling, dredging or filling), placement of structures, bottom trawling, wire

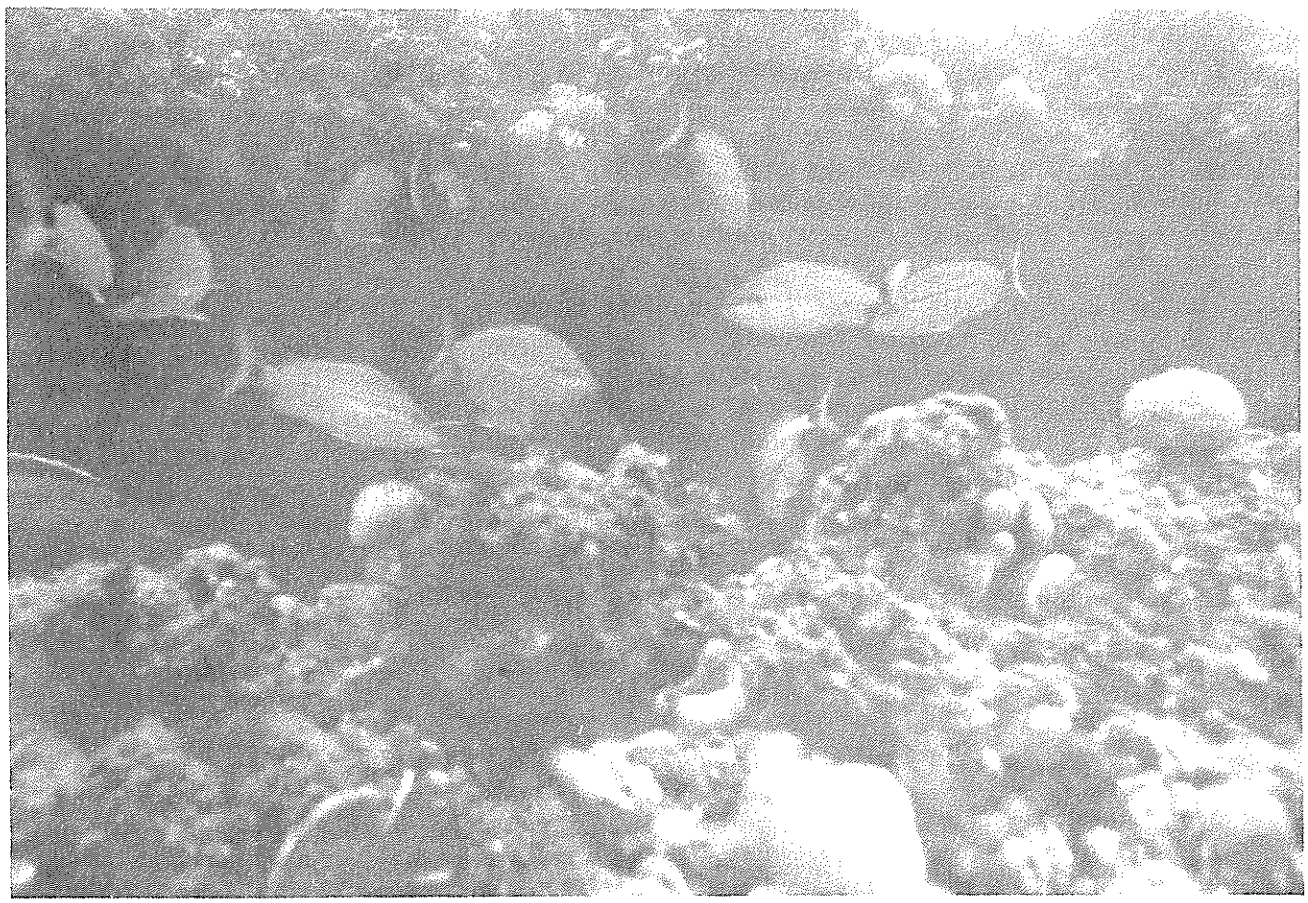
trap fishing, marine specimen collecting (principally corals and tropical or rare fish) and discharges of polluting substances. It would also be fulfilled by raising the awareness of people to the importance of live bottom areas and of general conservation practices. Safe anchoring procedures and conservative fishing practices (hook and line and spearfishing) will be encouraged. Sanctuary resources and human activities will be monitored to assess the health of the reef and visitor use.

As a marine sanctuary, Gray's Reef will also serve as a "living laboratory" for marine research and public education. Sanctuary management will encourage projects to enhance knowledge of the extent of live bottom coverage and the types of organisms found there, their numbers and their relationships. Live bottoms are generally of little concern to the average person, simply because he doesn't know of their importance or even of their existence. However, it will be possible through the sanctuary program to apply research to public education and recreational services. Planned public services include interpretative programs and brochures, definitive nautical charts and additional marker buoys at the reef site.

Gray's Reef offers a large, accessible area of a natural reef for aquatic recreation and public enjoyment. At the present, there is less demand on offshore marine recreation areas than there is on coastal and terrestrial areas. However, because of the ocean's accessibility and recreational potential, the number of people involved in water-related activities is growing. With fuel shortages and increasing fuel prices, competition for nearshore marine areas such as Gray's Reef will no doubt increase. Now is the time to protect natural recreation areas for future generations to enjoy.

For further information on the marine sanctuary proposal, please contact Coastal Management Services, Coastal Resources Division, Brunswick, (912-264-7289).

--Carroll Curtis
--Photos by Duane Harris



Cathead Jambalaya

An old favorite of coastal dwellers, jambalaya is a savory mixture of shrimp and rice. McIntosh County's Cathead Creek provides a similar combination, blending the aura of the rice plantation era together with the vitality of the Darien shrimping fleet to create an ambience unique to this coastal canoe trip.

Slipping away from the bank, you soon sense that you're in the midst of a vast fallow field, acres of marsh once used in the production of rice. When slavery was introduced in 1749, rice cultivation set its roots in Savannah and soon spread up and down the coast along the major rivers. The deltas of rivers, such as the Savannah, Ogeechee and Altamaha, which poured abundant fresh water into the estuaries, were developed into rice fields. Rice plantations flourished and continued in cultivation for over 100 years. The plantations suffered numerous hardships during these times. Ravenous rice birds, searing white hot summers and epidemics of malaria and yellow fever taxed the successfulness of the farmers. Hurricanes dealt lethal blows on many occasions as they destroyed flood gates, broke levees, flooded fields and ruined the soils with salt water. The final demise of the plantations was the result of Gulf Coast and Arkansas competition coupled with the advent of sophisticated machinery not adaptable to the boggy nature of Georgia's tidal marsh soils.

The aggressive and competitive perennial Southern Wild Rice (*Zizaniopsis miliacea*) and to a lesser extent Wild Rice (*Zizania aquatica*) quickly populated the old rice fields along Cathead Creek replacing domestic varieties once in cultivation. Large fields of Southern Wild Rice are laced with canals and ditches, remnants of the support system developed to alternately flood and drain the crops. Today these canals afford access deep into the old fields of the delta. If you climb Dunwoody Bluff, 25 feet straight up, you can command a southwest panoramic view across the fields on Potosi Island to the distant tree line.

Canoeing Cathead Creek provides an excellent way in which to experience the watery world of an old rice plantation. In addition, it is a short float trip. There is time to explore the old mill ruins at the head of the creek or to venture into the hardwood hammocks of Buffalo Swamp via the old logging tramway. Only one bridge marks time and after passing beneath it, the houses of fishermen and boat builders become frequent. Handmade shrimp boats are still launched from the bluff on Cathead Creek at Darien. Dozens of shrimp boats are at dockside on the Darien River as you glide by them approaching the take-out point.

When To Go:

Southern Wild Rice blooms from May to July and is at its peak from mid-June to mid-July. Wild Rice, an annual form found usually on mud banks and bars or newly formed deposits, blooms throughout summer from May to October. The grasses are golden brown from late fall to early spring.

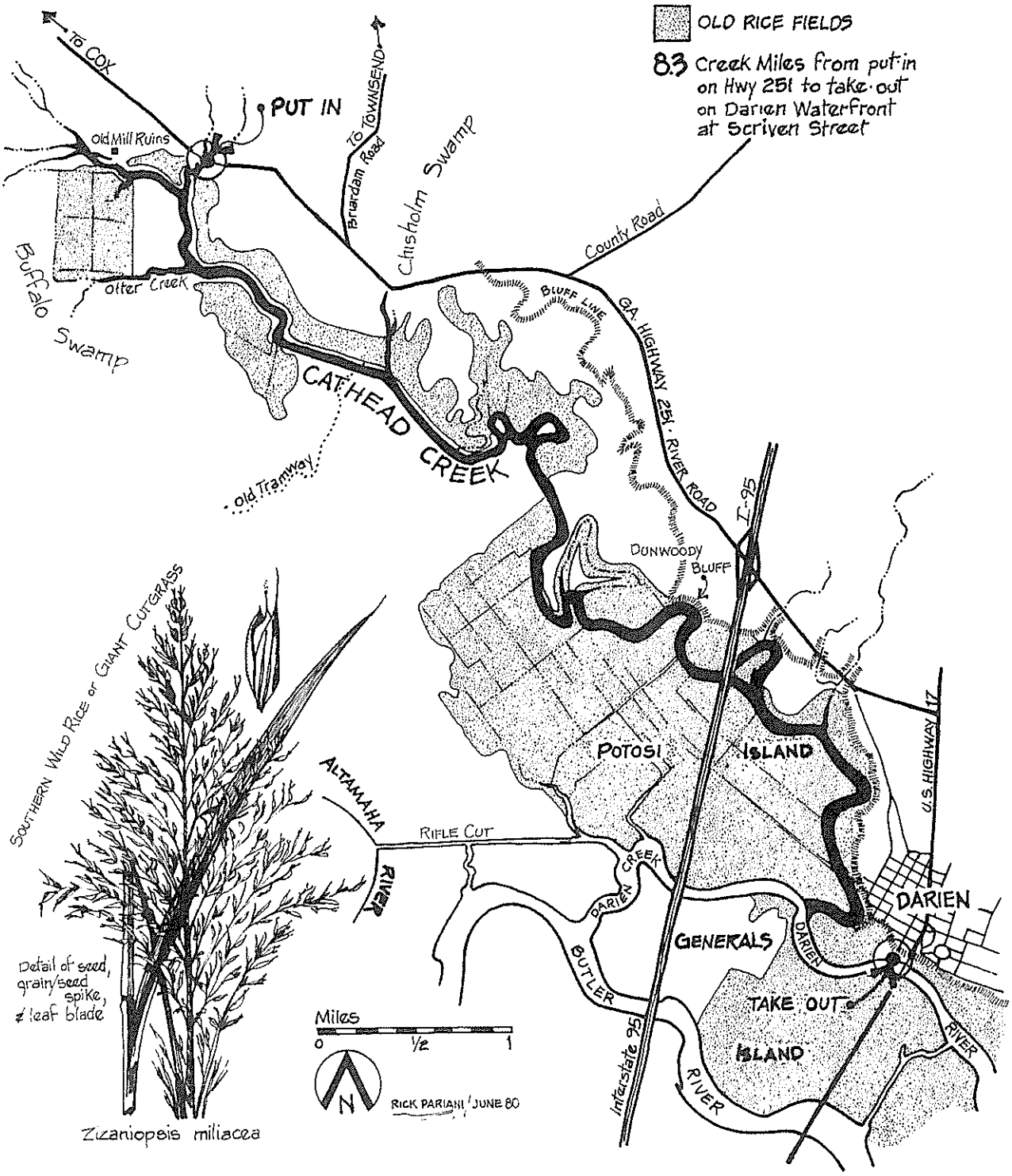
Obtain a high tide reading (correct it for Daylight Savings Time if necessary) and add from 3½ to 4½ hours (depending on height of tide and wind conditions for the particular day) to that reading to arrive at your put-in time. Cathead Creek carries a large tidal flow so you want to insure that you are able to float out *with the tide* rather than fight against it. If you follow this precaution, the tide will have turned and begun to ebb at the time you are putting in.

Remember that throughout the summer, the prevailing breezes are from the southeast. On Cathead Creek, you will be canoeing predominantly straight into the wind. Take into account this effect on the tide and your progress. If all conditions are right and you catch the creek on maximum ebb (which starts approximately two hours after the tide turns), you can literally fly down the creek. Fast or slow, Cathead offers a variety of pleasures.

How To Get There:

In Darien, turn west off Highway 17 onto Broad Street at the first traffic light north of the Darien River. Travel 300 feet on Broad and take the first left on Scriven Street. The narrow two story tabby building with 'hand-wrought' iron shutters on the corner of Broad and

Cathead Creek
McIntosh County



Scriven is one of the oldest buildings in Darien. Scriven Street ends on the Darien River with a public ramp. Go down and get an idea of what the boat ramp may look like from the water. Notice how many shrimp docks are around it so you can recognize the ramp when you reach this destination. Leave a car in the dirt parking lot here. In another car go back to Highway 17. Go 1.3 miles north on U.S. 17 and take a left on Highway 251. Travel 5.3 miles on Highway 251 to the put-in point. As you can see from the map, the put-in is on the second bend after the Briardam Road to Townsend. Do not confuse it with the sharp bend in Highway 251 between the Briardam Road and the County Road. The access point is nothing more than a large concrete box culvert beneath the road bed. In other words, if you're going along at 60 m.p.h. trying to identify as many wildflowers as you can, you'll miss it. Look for a break in the tree canopy and possibly some people fishing. The tributary stream here is only 20′ to 35′ across but quickly widens before meeting Cathead Creek. You will have to leave your car on the shoulder of 251 and walk your canoe down to the water. For this 8.3 mile trip, allow three to five hours between here and the boat ramp in Darien.

--Rick Pariani
--map and illustration by the author

Shrimp boats are still constructed and launched along the banks of Cathead Creek.

EPD Advisory Committee

The Statewide Environmental Advisory Committee on Public Participation to the Environmental Protection Division (EPD), will meet August 28, 1980 at 10:00 a.m. in Room 605, 270 Washington Street, Atlanta, Georgia.

At this meeting plans for the Governor's Conference on Environmental Resource Management will be made. This conference will be in November and will provide an exchange of ideas on priority environmental issues between citizens, public officials, economic groups and special interest groups. Other committee business and sub-committee reports will be on the agenda.

For further information contact Sandra Hasser at 404/656-4713 or write to Environmental Protection Division, Room 823-A, 270 Washington Street, S.W., Atlanta, Georgia 30334.

All Environmental Advisory Committee Meetings are open to the public.

Oyster Survey

The report, "Survey of the Intertidal and Subtidal Oyster Resources of the Georgia Coast," by C. Duane Harris is now available for free distribution from the CRD library at 1200 Glynn Ave., Brunswick, Georgia 31523, phone (912) 264-7330.

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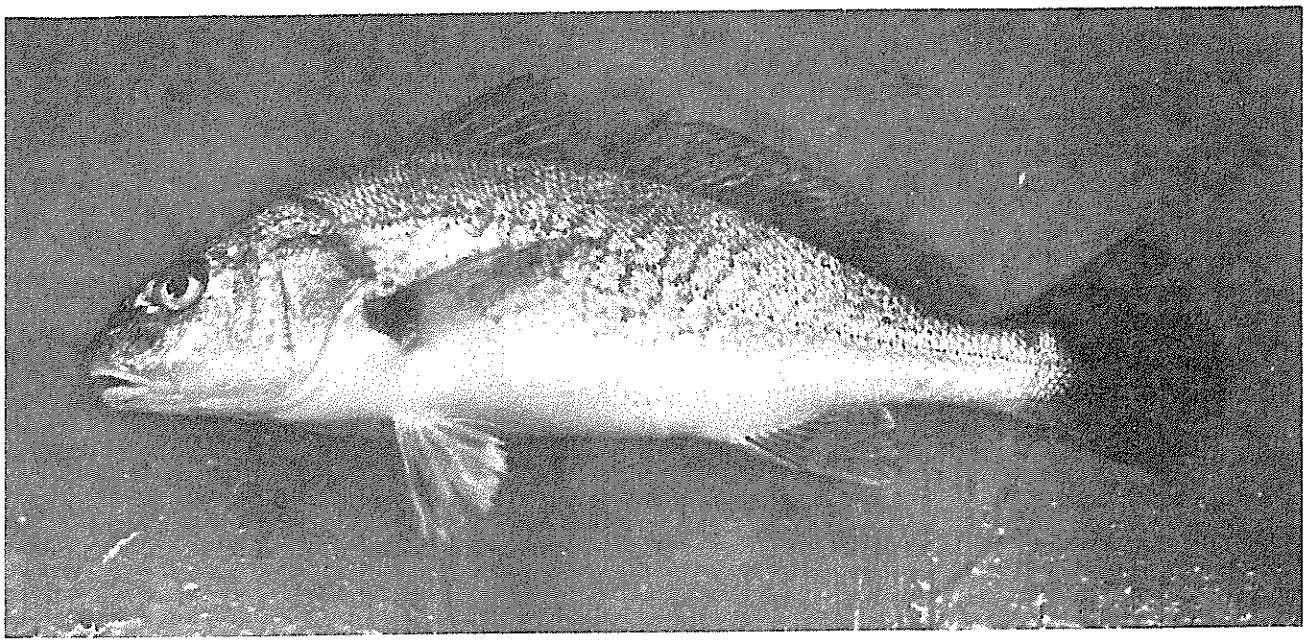
July-Aug, 1980



Atlantic Croaker

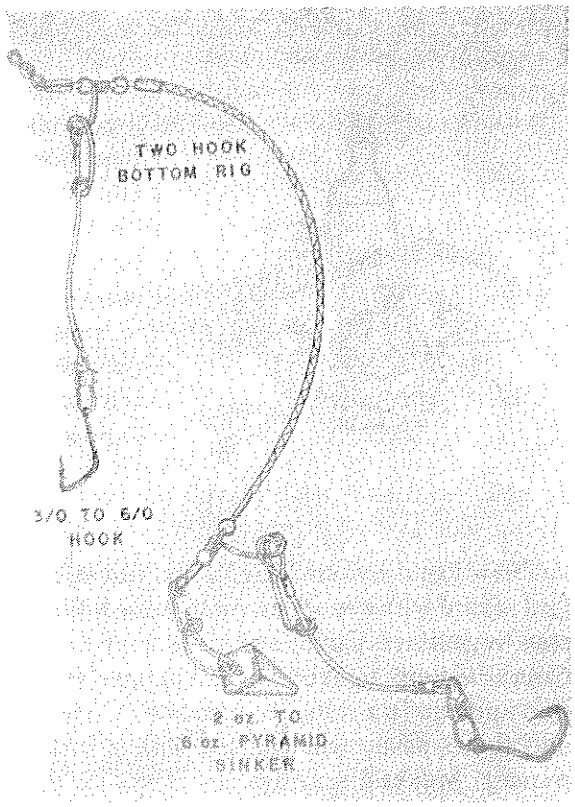
Possibly the best known member of the drum family, the Atlantic croaker (*Micropogon undulatus*), is found along the Atlantic coast from Massachusetts to Florida and in the Gulf as far as Texas and eastern Mexico. Its center of abundance appears to be from North Carolina to northeastern Florida and also in the northern Gulf of Mexico.

The drum or croaker family gets its name from the noise made by a specialized sound producing apparatus. By repeated, rapid contractions of the fish's drumming muscles and amplification by the swim bladder, the Atlantic croaker produces a distinctive drumming or croaking sound which is audible for some distance.

Primarily an estuarine fish, croakers are abundant in Georgia's inshore waters from April to September. When water temperatures begin to drop in October, the larger individuals tend to move to offshore waters. Croakers prefer sandy hard bottoms with some shell but are also caught near shallow shell beds during summer months.

Predominantly a bottom feeder, the croaker feeds primarily on invertebrates such as small clams, crabs, sea worms, shrimp, snails, mussels, and occasionally small fish.

As a food fish, the texture of the croaker's flesh is not impressive when compared to some of Georgia's other sport fish. Its flavor, however, is good. As a result of its abundance during the warm months, it is common



A standard double hook bottom rig with pyramid sinker.

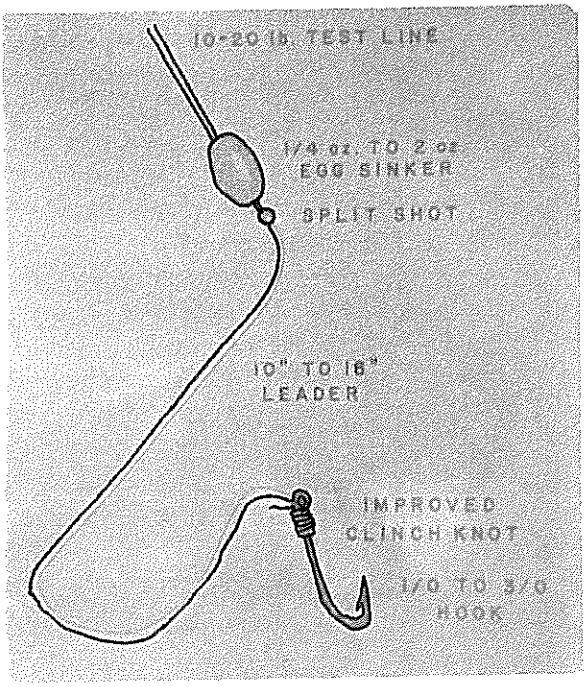
tablefare for many local sport fishermen.

Using such baits as shrimp and blood worms (used further north), the croaker is usually taken with a "bottom rig" or similar bottom-type fishing rig. Its strike is usually a series of rapid tugs. When fishing on light rigs you will find that the croaker puts up a good fight. Remember to thread the bait on the hook to prevent the chance of losing your bait and to increase your catch.

The current rod-and-reel record for croaker in Georgia is 5 lbs. 12 oz. It was caught in Brunswick River by David Flynt in March of 1977.

For those interested in fishing for croaker and other inshore game fish, the University of Georgia's Marine Extension Service in Brunswick has made some excellent fishing charts showing some of the better fishing drops along the coast. They are free at their offices on Bay Street in Brunswick, or $.50 by mail to: Box Z, Brunswick, Georgia 31523.

--Jim Music, John Pafford
--Photos by the authors



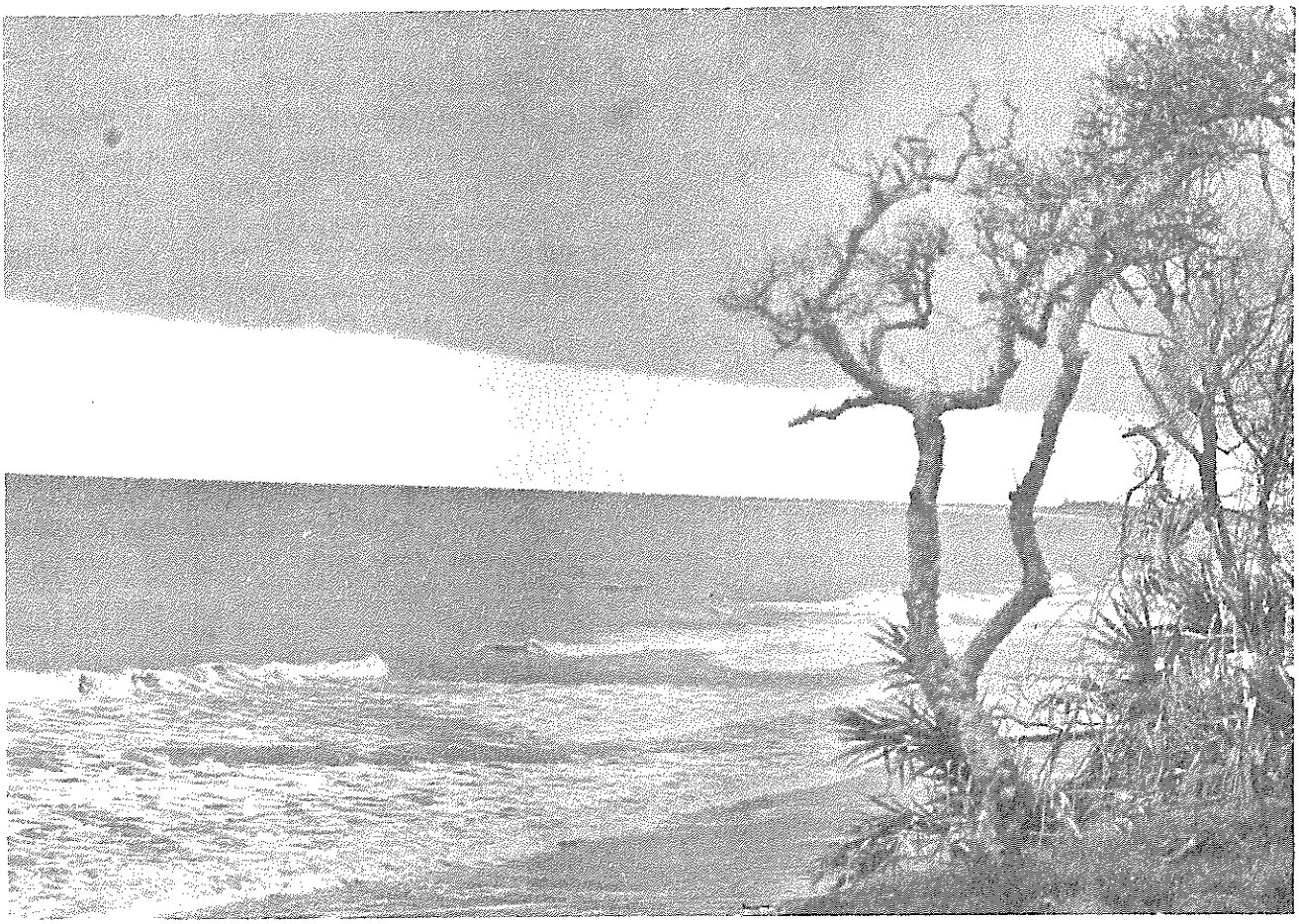
A fish finder rig with slipping egg sinker.

Hearty Fishermen's Stew

1½ pounds croaker fillets
1 teaspoon salt
1 cup boiling water
1 chicken bouillon cube
1 pkg. (1 lb. 8 oz.) frozen stew vegetables
1 can (10¾ ounces) cream chicken soup
½ cup light cream
½ teaspoon white pepper
2 tablespoon dry white wine
Chopped parsley for garnish

Thaw fish if frozen. Skin fillets. Cut large fillets in half. Sprinkle fillets with salt. Roll fillets into turbans and secure with a wooden pick. Pour boiling water into a 4-quart soup pot and dissolve bouillon cube. Add stew vegetables. Cover and cook over low heat for 10 to 15 minutes or until vegetables are almost tender. Combine soup, light cream and pepper. Pour soup mixture over vegetables and mix well. Bring mixture to a boil and add fish rolls. Reduce heat. Cover and cook over low heat for 10 to 12 minutes or until fish is done and flakes easily when tested with a fork. Remove wooden picks. Stir in wine. Garnish with chopped parsley. Makes 6 servings.

--Courtesy Gulf and Atlantic Fisheries Development Foundation, Inc.



The constant changes and natural beauty of the beach provide limitless subjects for the photographer. Here, a squall line hovers off St. Catherines Island.

Beach Photography

Seascapes and beach scenes of various descriptions have always been popular subjects for the canvas. Since the advent of the camera, photographers have recorded the seaside and its moods, both in color and in black-and-white. The sea and shoreline certainly offer many enticing subjects for the camera lens, but at the same time, photography at the beach has several pitfalls for the unwary shutterbug. This article is an attempt to provide a few ideas and perhaps a little guidance for achieving the best results from your beach photography, with the least possible wear and tear on equipment and nerves.

If you have a 35mm camera with manually-adjustable focus, shutter speed, and aperature opening (f-stop), you can manipulate these adjustments to give you all kinds of interesting effects. If you're shooting black and white film, you'll probably want a rather slow film ("slowness" in film means its lack of sensitivity to light) such as Panatomic X (ASA 32) or Plus X (ASA 125). For late afternoon or night shots you might work up to Tri X (ASA 400). For color slides, Ektachrome 25 is good. For color prints, again select a slow film. An ASA reading of 64 to 100 will be adequate unless you're trying to catch an early morning or late evening scene. Then you might want to switch to something like Kodacolor 400.

Playing with your f-stop and shutter speed adjustments, you can control the amount of light you want on your subject. Remember, world-famous photographers don't get that way by adhering strictly to middle of the road light meter readings. Take chances: sometimes you will be rewarded by spectacular effects. One nature photographer, for instance, recommends that sunrise scenes be

overexposed 1-2 stops, to saturate the film with light.

The same can be true of your focus. Some objects that appear all too mundane when seen clearly can be very alluring when they're out of focus and lit in an imaginative way.

Now that you're geared up and ready to take some memorable seaside shots, think a bit about the subject matter on hand. What are some unique attributes of the seaside landscape that make for rewarding photographs? There is light -- lots of it, creating unlimited variations on the landscape. There is weather, visible on a panoramic scale from Georgia's beaches because of the flat terrain and huge expanse of sky. There is the uncluttered look of things: simple forms of water, sky, beach and dune. Another appealing element is the constantly changing face of the shore because of the actions of the tides, position of the sun or moon, cloud reflections, and the forces of wind and wave. Some of these points are self-evident, but light and weather may merit a bit more discussion.

Light. If you have spent much time at the beach, you've probably noticed that the intensity and quality of the light is always changing. When the light changes, it influences the way colors appear on the landscape. During mid-day, for instance, the glare reduces the appearance of color. Later in the day, a hazy sky and low sun angle combine to bleach the landscape so it seems almost monochromatic (one-color). In the early morning, the light is less harsh and colors are distinct. If you are shooting with color film, you'll want to give some thought to what effect the time of day and direction of the light will have on your picture. Even with black and white film, light intensity is important. Remember, too, that at the beach you have not only a good deal of light, but also all that gleaming white sand to reflect the light in every direction. Also, the large expanse of water catches light on many shifting surfaces. The effect of direct and reflected light can be used to create an interesting picture, but it also can make laser beams out of Aunt Mildred's sunglasses or wayward coke bottles. Light coming in at the wrong angle can throw a frenzy of sun spots into your carefully-composed beach scene.

The other side of light, of course, is shadow. As a child, you probably studied the shadow of the school flagpole, watching it move across the playground, disappear at noon, and come out again during the afternoon. But perhaps you haven't considered the implications for picture-taking. Many a fine subject can be ruined by shadows, and many a simple subject can be accentuated by effective placement of shadow. The dune lines cast dramatic shadows; rippling sand also creates interesting patterns when those lines are emphasized by shadow. However, you won't be a favorite with Aunt Mildred when she sees that shadow of her long nose snaking across her face, captured forever on film.

Weather. When you can catch elemental

A beach rockpile was photographed under two different sets of conditions. An early morning shot (left) was taken using a red filter to bring out various shadings. A noontime shot (right) shows the stark rock forms with intense lighting and little shadow.

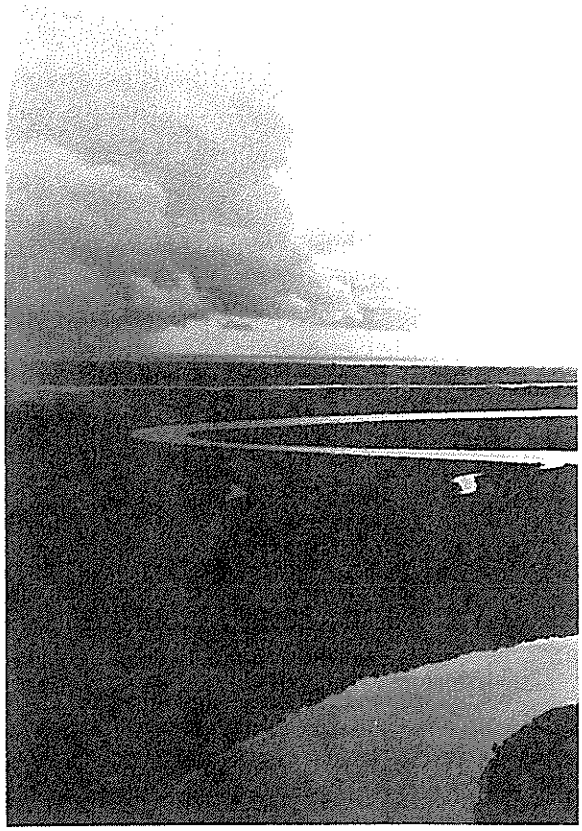
forces in pictures, the result is often good. There is usually a lot of weather happening at the seashore. Changing, drifting cloud formations, spectacles such as lightning or squall lines, make the sky as important a focal point as the land or water. Sunrises, while a bit common as subjects, are almost always satisfying.

Besides the endless variation in the natural landscape elements, the beach offers lots of interesting objects with which to compose pictures. Shells and other animals remains that wash up on the beach vary widely in form and color. Vegetation grows in interesting patterns on the dunes: clumps of sea oats, especially with feathery seed heads, make good photographic subjects, as do flowering morning glories. For most oceanside still lifes, sand is an easily manipulated and effective background, if you plan your lighting well.

You've probably noticed there's plenty of bird activity on the shore and in the nearshore waters. If you own a long (telephoto or zoom) lens or are possessed of stealthy approach, you may come away from your photographic excursion with some worthwhile shots of gulls, terns, sandpipers or their feathered friends.

So much for creating prize-winning photographs at the beach. Since you've been chasing seagulls and getting closeups of jellyfish for a couple of hours, how about a little loving care to make sure that your camera doesn't suffer the ravages of salt air, sand and heat?

Protection is a key. If you don't have a camera case, or even if you do, a bag of some sort is a must. These range from expensive leather ones to cheaper, but equally effective solutions to the problem. As you know, cameras are delicate instruments with low tolerance for irritants such as dirt, salt air, and extreme temperatures. One very good camera protector is an inflatable heavy clear plastic bag that keeps your equipment dry and clean. However, you still need to keep your camera equipment at a moderate temperature. To ward off the heat (or cold), buy an inexpensive styrofoam cooler into which your camera bag will fit. The cooler minimizes temperature change, seals off the camera bag from windblown sand and water, and looks, to potentially sticky-fingered passers-by, like a cheap styrofoam cooler instead of a camera bag.



Thunderheads moving across the marsh skyscape create the kind of effective weather picture that one can also capture on the beach.

What happens to your camera and lenses when they get hot? The light-weight lubricating oil that keeps all your camera's parts adjusting smoothly thins out and moves around the instrument in a very indiscriminate way. When you go to focus your lens or change the f-stop there may not be enough lubricant to protect the parts from wearing. Use a hot camera with tenderness; but best of all, try to keep your equipment at a less than sweaty temperature.

Cold weather can be equally hard on your camera. You're not likely to have freezing cold temperatures at the beach, but if you do, remember that those same lubricating oils are pretty sluggish and may not grease the mechanism very well. Warm the moveable parts with your hand before adjusting, if possible. Don't try the short cut of climbing into your car and turning on the heat to warm your camera. When you step back out into the cold and look through your viewfinder it will

appear as if all the fog in the Atlantic has descended on your lens.

The same temperature warnings go double for film. You can't store film (especially color) in the steamy glove compartment of your car and expect it to produce decent images. Heat deteriorates the material. Film keeps well in chilled places, such as refrigerators or coolers, but should be warmed to a moderate temperature (65-75°) before you take pictures. Cold film will become cloudy and the resulting image is not good. If you're in foggy beach weather, you can take along a good quality clear plastic food bag in which to wrap your camera. Leave the bag loose around the main body of the camera but stretch it tight (fastened with a rubber band) over the lens opening.

Above all, don't leave your camera sitting out for long periods of time -- at the beach or anywhere. Even on the most benign days at the beach, your faithful camera will be coated with salt spray and very likely harbor a few grains of sand in critical places. So, after outdoor exposure, dust your camera with a brush, clean the lenses with lens tissue, and inspect it, inside and out, for problems that require professional cleaning. You might want to do a little careful wiping of the exterior with fresh water. Avoid the lens, though. Lenses are delicate and should be cleaned only with lens tissue (not facial tissue or your shirt) and special lens cleaning solution.

If you use a tripod at the beach, clean the sand off before you retract the legs so you don't end up with sticky, gritty and generally uncooperative joints. Put a lightweight plastic sheet or garbage bag in your cooler to spread out under your tripod. That will minimize the amount of sand that magically adheres to the tripod legs.

Your camera and associated gear will serve you well if you respect its limitations and give it basic care. An ill-treated camera will produce disappointing results, such as scratches on the negatives (sand in the camera!) or poor images (you forgot to clean the lens). But for the spectacular -- or even mildly pleasing -- photographs you're able to produce at the beach, a little routine maintenance for the equipment that helps make it possible is well worth the trouble.

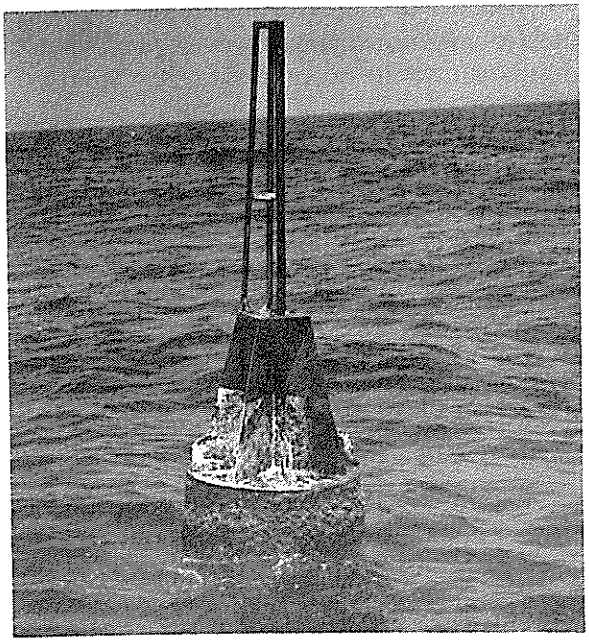
--Jenny Phillips

-Photos by Jenny Phillips, Ron Essig, Rick Pariani

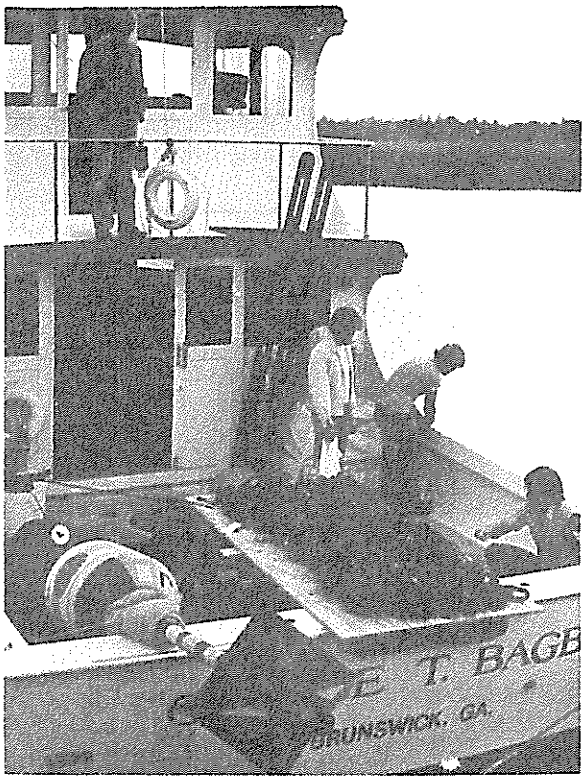
Good Ol' Buoys

Approximately every two years it happens. The nuts and bolts are undone, the shackles and pins knocked away, the worn chain drops to the ocean floor and a 900 lb., slightly battered and barnacled artificial reef buoy is supplanted with a clean, freshly painted replacement. The old buoy, covered with a carpet of algae, barnacles, and bryzoans, is towed to shore to be scraped, cleaned, painted and made ready to once again, return to sea. Its chain system, rusted and worn by the constant motion of sea and sand, is left behind to join the tire units and sunken vessels below.

Thus far this year, Coastal Resources Division divers have replaced two buoys, "F" and "J", in Georgia's artificial reef system. The buoy at reef "G", 23 nautical miles offshore of Little Cumberland Island, is to be replaced this summer, as is the buoy at artificial reef "L", 23 nautical miles east of Ossabaw Island. The buoys are also periodically inspected and



The buoy marking "J" reef before replacement. Note the mass of barnacles, algae and bryzoans at its base and the missing radar reflector.



Divers Phillip Daughtry, Dave Ansley and Chuck Cowman secure 200 lbs. of chain bound for artificial reef "J".

maintained three times a year.

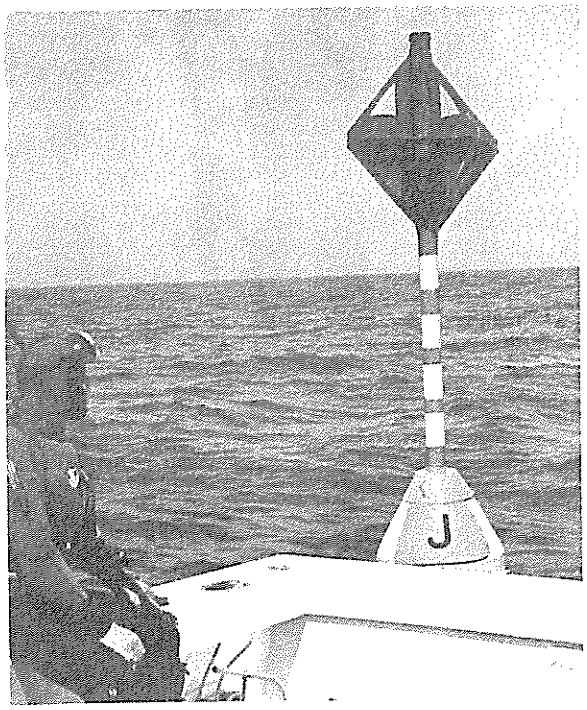
Replacing a buoy is not an easy task. Even in calm seas, 900 lb. buoys and 200-foot lengths of chain weighing up to twelve pounds per foot make changing or maintaining a buoy a cautious, demanding activity. The process of changing a buoy and its system, under ideal conditions, may take four divers, diving in teams of two, one or more hours.

The buoy system is anchored by a two ton block of concrete. The anchors and their systems are usually placed away from a reef to avoid damaging any live bottom or tangling in a reef's tire units or vessels.

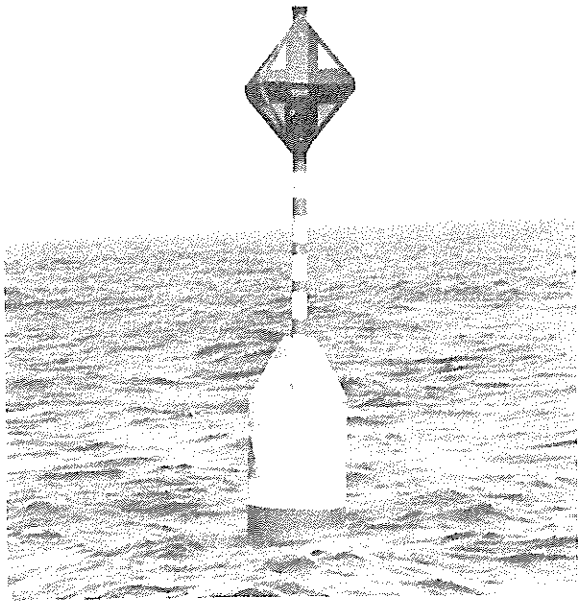
This year, buoys "F" and "J" have been replaced with light polyurethane-plastic buoys. Weighing about 200 lbs. and costing $500 apiece, these aids to navigation are easier to handle and less expensive than the traditional metal buoys which range in cost from $800 to $1,000 and require special marine paint averaging $80 per gallon.

Georgia's artificial reef program was begun in 1972. The nine buoys marking these reefs help provide radar reflection as well as vertical relief to fishing or diving boats seeking the reefs. A complete brochure describing the reefs and their location is available by writing **Coastlines.**

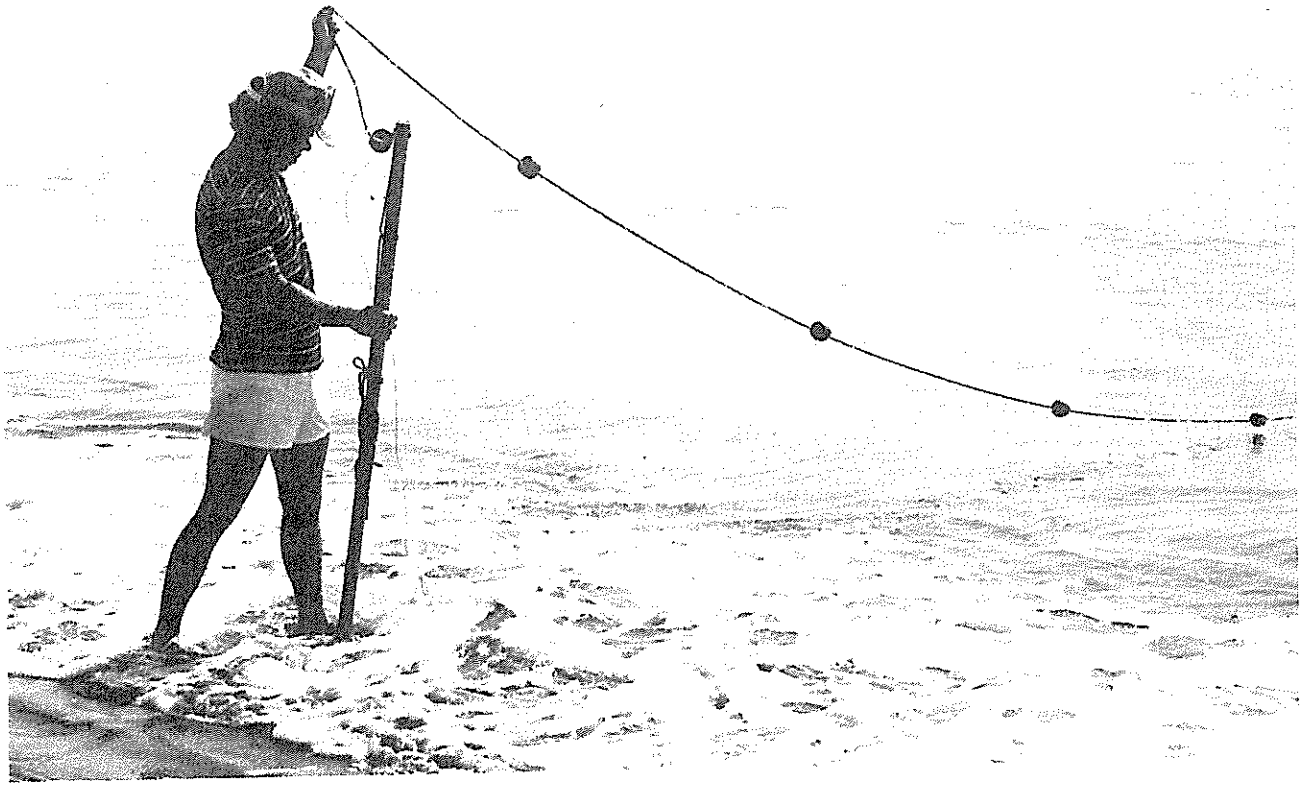
--Steve Olsson
--Photos by the author



Marine biologist Chuck Cowman prepares to inspect the new chain and the new buoy.



New version of "J" reef buoy is lighter and more visible. The diamond shaped radar reflector gives approaching vessels a target to home in on.



Seining

An excellent way to enjoy the beach while also rounding up a bit of that seafood out there is beach seining. Pulling a seine net requires two people, one at each end of the net. During use on the beach, one end of the net is held at the water's edge. The other end is taken into the water, swung out in a wide semicircle and brought back to the beach. The seine is then pulled shoreward, each person gathering his/her end of the seine on the beach. Shrimp, mullet, trout, crabs, or whatever the catch brings should be removed from the net as the puller approaches the beach. Smaller seines (12′ or less) may be used in coastal creeks and rivers. Here the pullers move parallel down a portion of the stream with the seine between them. They then drag the seine upon a suitable bank to recover their catch.

Seines come in a wide variety of lengths, depths, and mesh sizes. The choice of which to use depends mainly on what type of catch you are after. However, your physical abilities, the area you are seining and desire (or lack of) to get wet may also have some bearing on the seine you use.

Smaller seines twelve feet in length or less, with a maximum stretch mesh of one inch, may be used anytime in Georgia saltwaters. Although these small nets may not produce the catches larger ones do, they are excellent for catching small bait fish and bait shrimp. Another advantage is that they may be used in creeks and streams where larger nets are prohibited.

Seines with a minimum stretch mesh of 1¼″ and lengths up to 100 feet are permitted on the ocean front sides of beaches and on sand beaches bordering the south ends of Tybee, St. Simons, and Jekyll islands. Seines in this size range appear to be the most popular among recreational seiners. The stretch mesh (1¼″-1¾″) is ideal for catching tasty Georgia shrimp, while the length is manageable both in and out of the water.

Larger seines from 100 to 300 feet in length require a minimum stretch mesh size of 2½″ and may be used only on the ocean sides of beaches. This seine size is a relatively poor shrimp catcher, but is excellent for catches of mullet and trout. These larger seines require a

DNR license and may be made of monofilament or nylon, while medium and small seines are almost exclusively nylon. Seines over 300 feet in length are prohibited in Georgia.

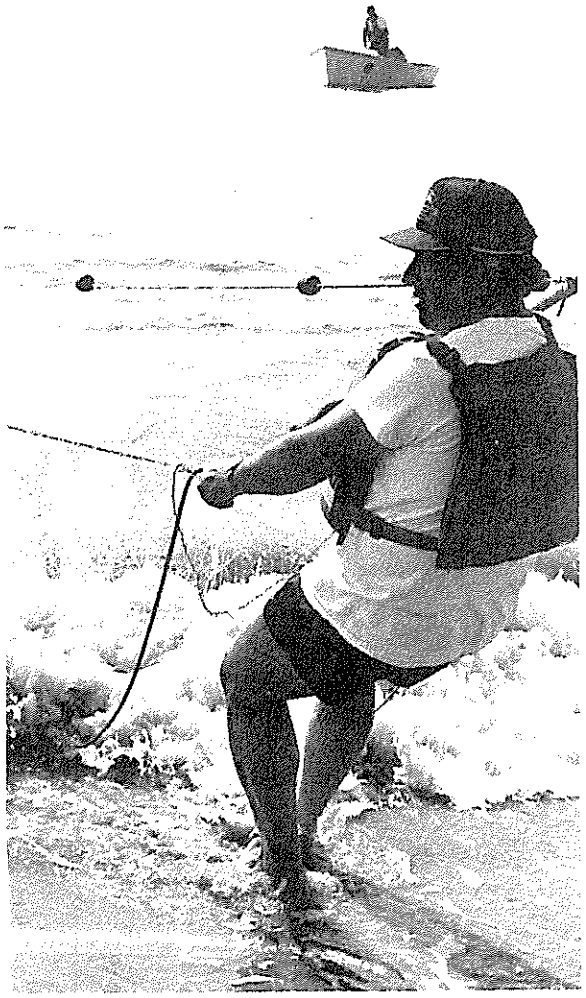
One rule of thumb to follow when pulling a seine is to use a net with a depth 1/3 greater than the depth of the water you are seining in. This helps create a better obstacle for the fish or shrimp, giving them less of a chance to jump over the net.

Once the initial investment in a seine is made all that is further required is a little muscle and some time on the beach. Nylon nets up to 100 feet usually run about $2.20 per foot of net. Larger monofilament nets range from $1.45 to $1.65 per foot.

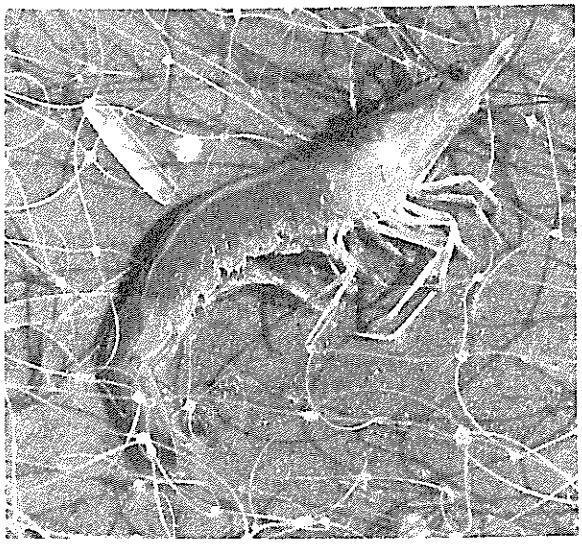
In Georgia saltwaters, no license is required to use a beach seine less than 100 feet in length for noncommercial purposes. However, anyone using or pulling a seine of 100 feet or more must obtain a commercial saltwater fishing license at a cost of $2.00 to residents and $5.00 to non-residents. Using a power boat to pull a seine is also illegal.

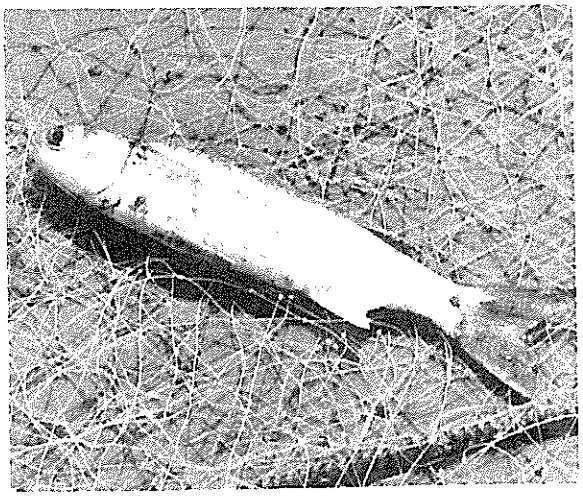
Catch all you want, for there are no legal limits on the amount or number of the catch obtained with a seine. Seiners, however, should use good judgment in returning smaller species of crabs, shrimp and fish back to the sea.

--Steve Olsson
--Photos by the author



After making a wide semicircle into the water, this seiner carries his end of the net toward the beach.





A typical seine catch may yield tasty Georgia shrimp (left) and mullet (right) suitable for eating or for bait. Spotted sea trout, crabs and a variety or nearshore fish species are also frequently caught.