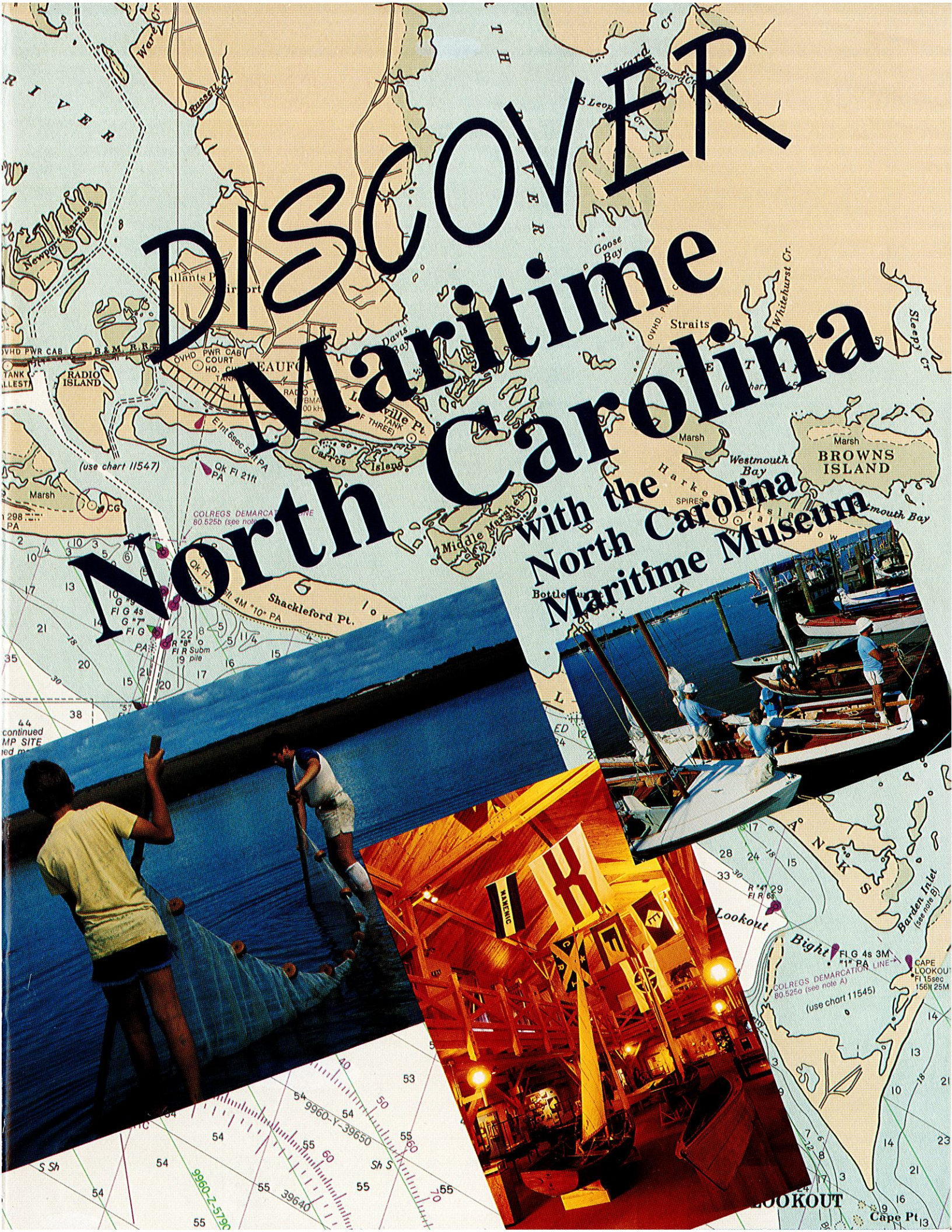


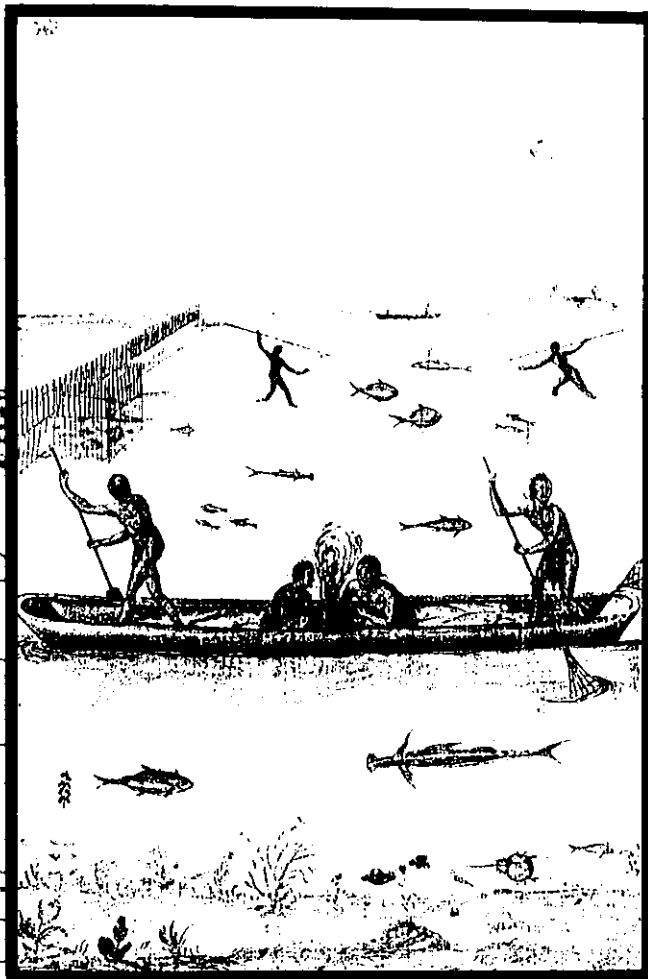
DISCOVER Maritime North Carolina

with the
North Carolina
Maritime Museum

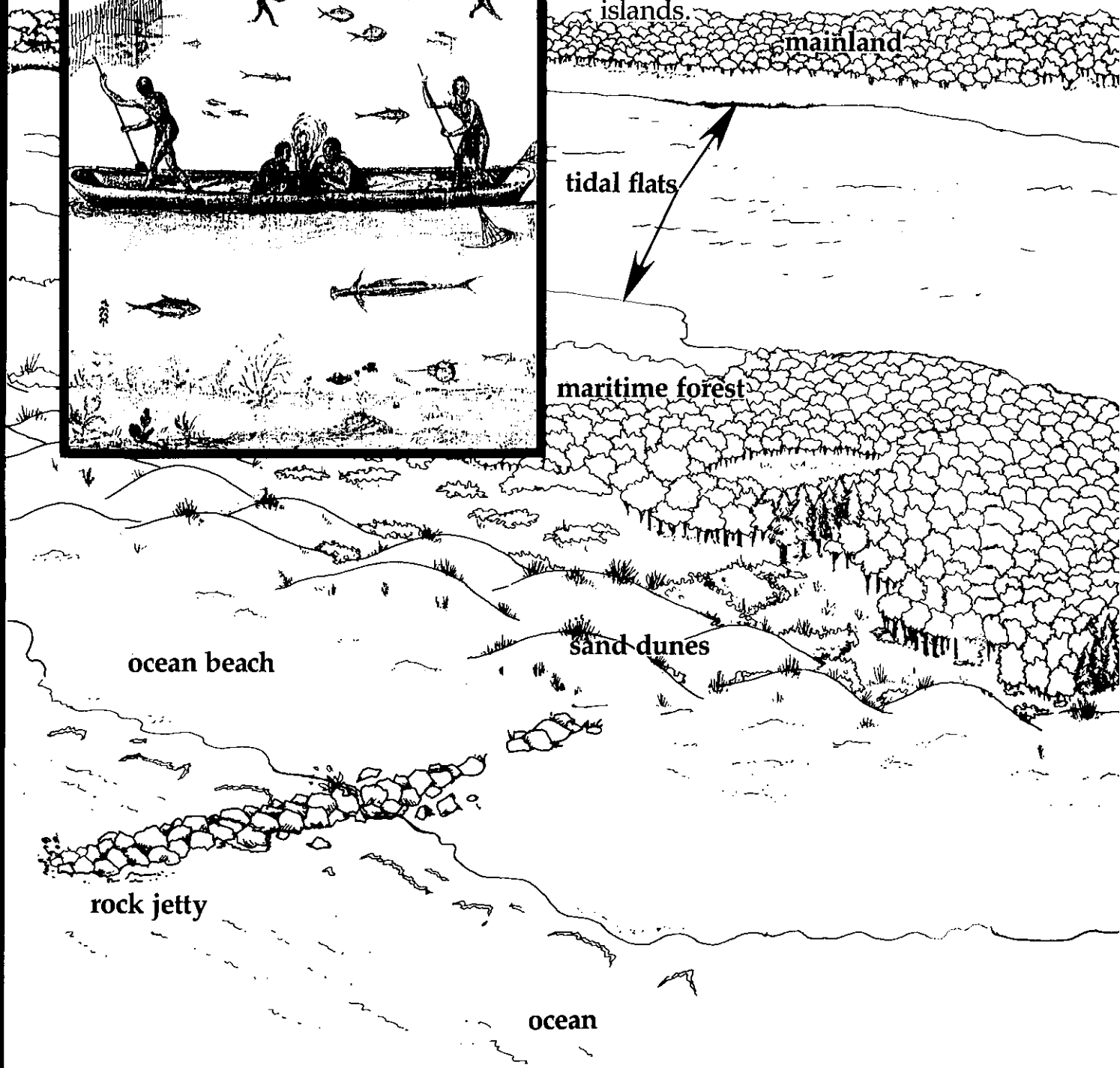


THE COAST

John White's painting of Indians fishing 1585



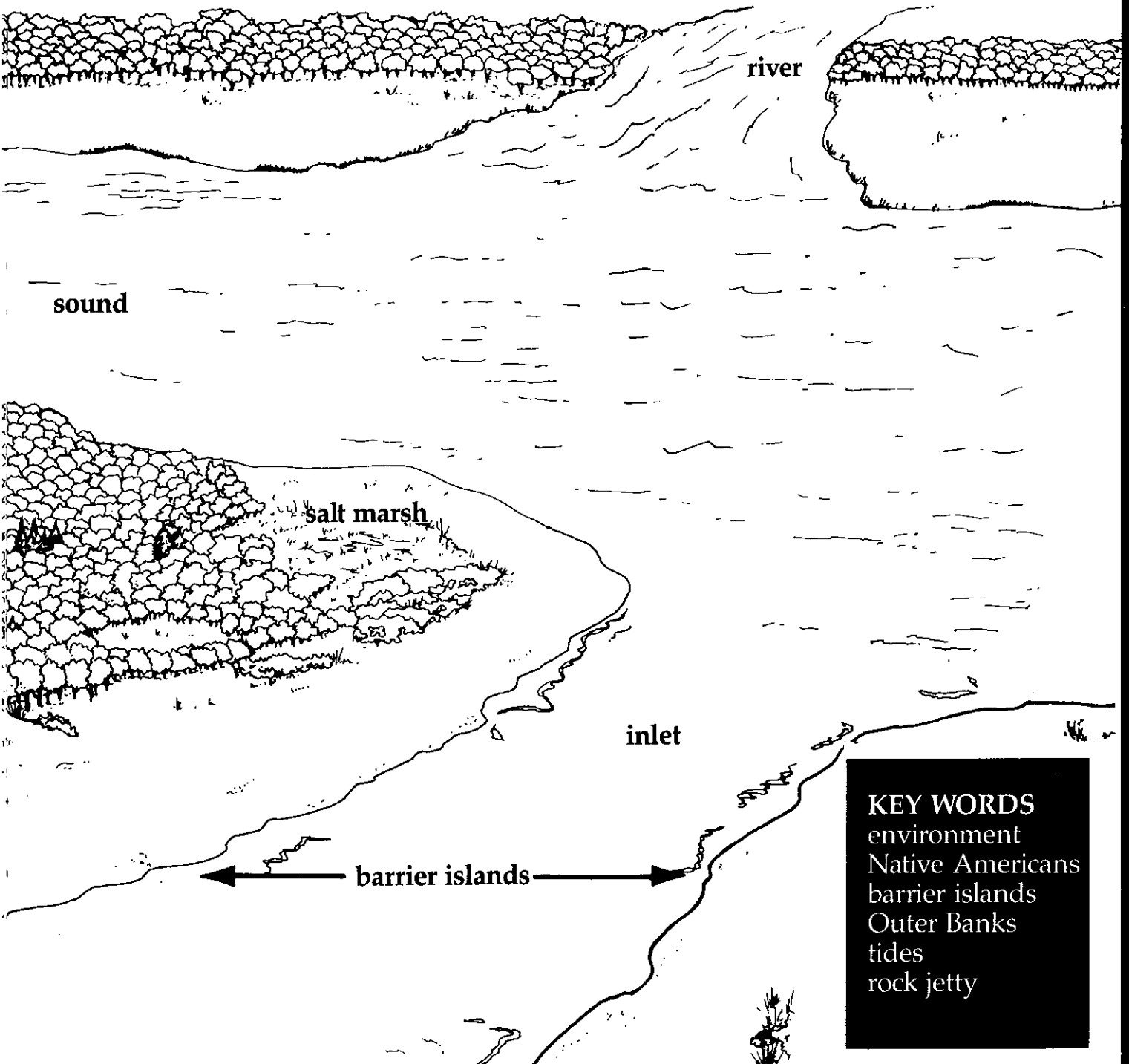
The coastal environment has shaped the lives of the people who lived there. The first settlers arrived in the 1580s and found the native Americans traveling by water and fishing by methods still used today. The land was low and flat, with abundant creeks, rivers, and bays that eventually flow into sounds lying inside a chain of sandy, low islands, called barrier islands.



Self-reliant communities, dependent upon abundant resources and with a healthy respect for an unforgiving environment, were established on the shores of these waterways.

People living on the coast have always had to do things in a special way because of the environment. The weather, the

water and tides, the soils, beaches and islands, all were important factors in their lives. It has been necessary for people to do a number of different things throughout the year, depending on the season. They built specialized boats to carry their families and their goods and to harvest their food.



KEY WORDS

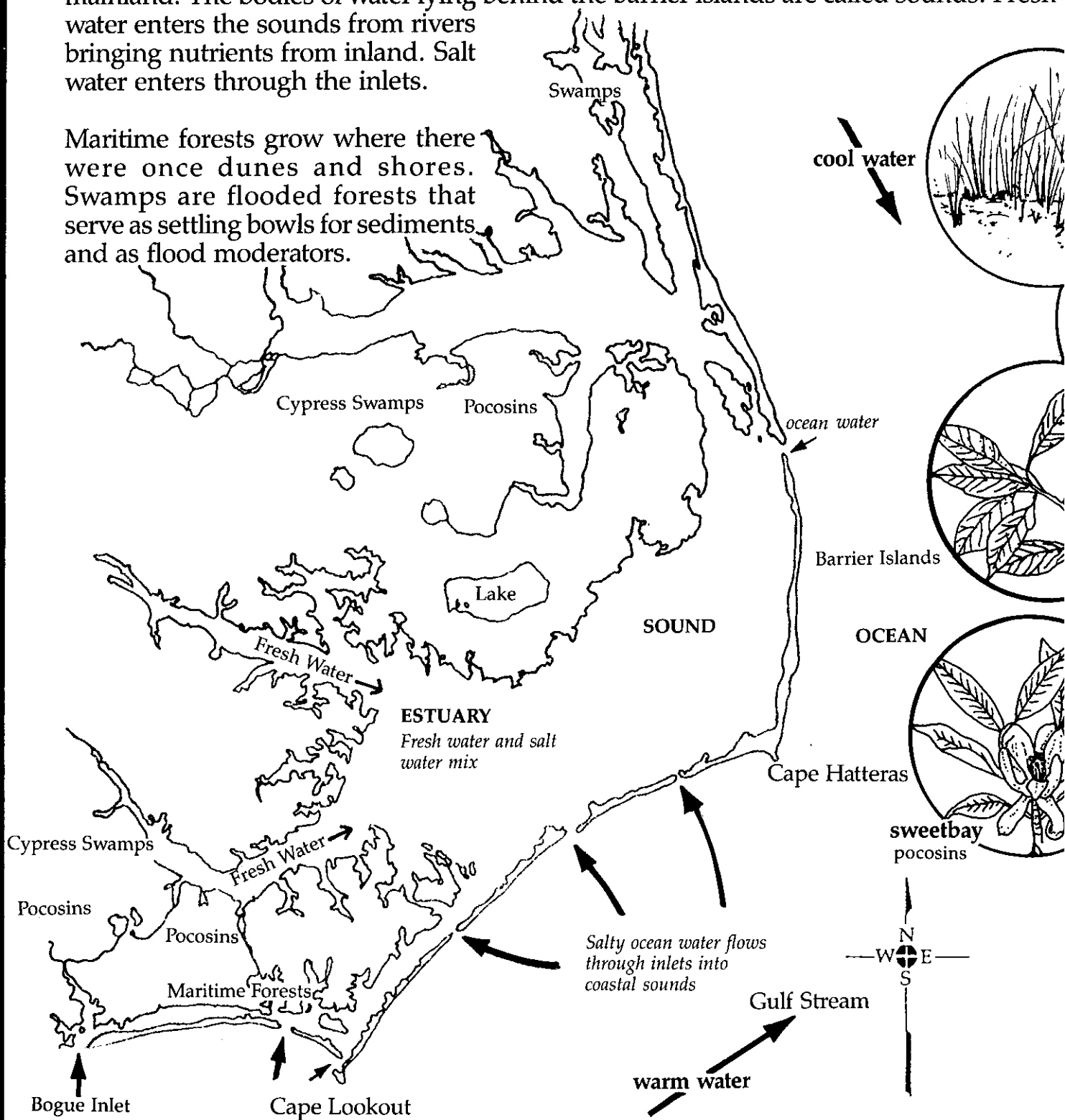
environment
Native Americans
barrier islands
Outer Banks
tides
rock jetty

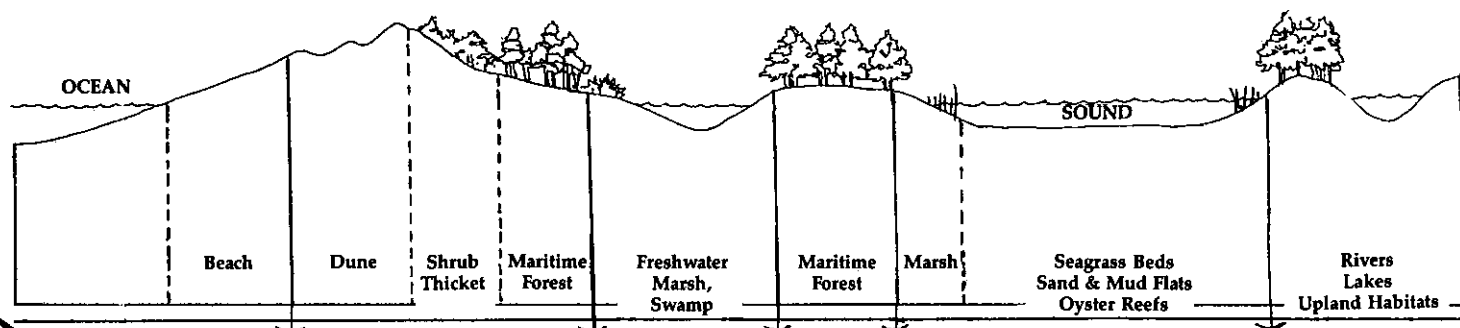
COASTAL HABITATS

The Gulf Stream brings warm waters from the south and moderates air temperatures. Northern cold currents sweep down from Virginia. Plants and animals from southern and northern waters are found in North Carolina because of this range of water temperatures.

The Outer Banks are low, sandy islands that form a barrier between the ocean and the mainland. The bodies of water lying behind the barrier islands are called sounds. Fresh water enters the sounds from rivers bringing nutrients from inland. Salt water enters through the inlets.

Maritime forests grow where there were once dunes and shores. Swamps are flooded forests that serve as settling bowls for sediments and as flood moderators.





marsh
grass
marshes

bald cypress
swamps

black tupelo
swamps

sea oats
dunes

venus fly trap
pocosins

Swamp Forest

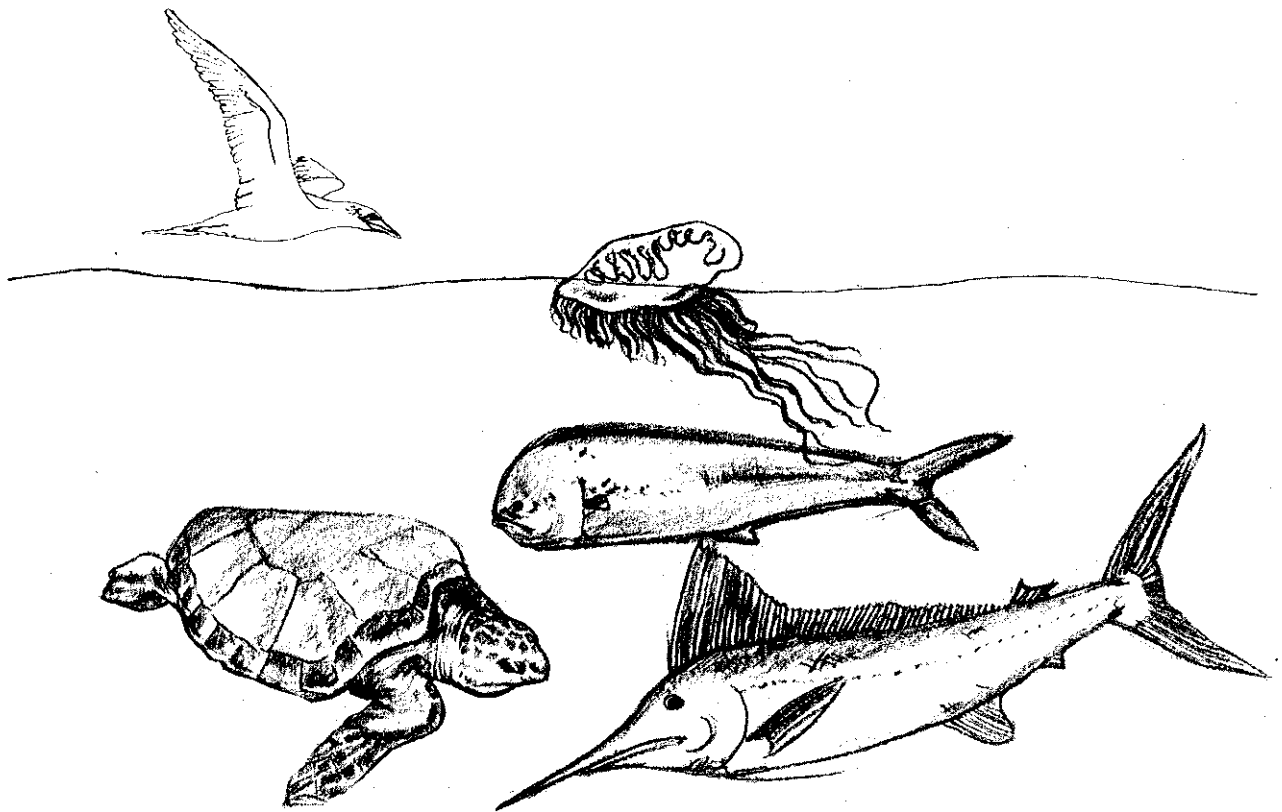


KEY WORDS
nutrients
current
sounds
pocosin
wetlands

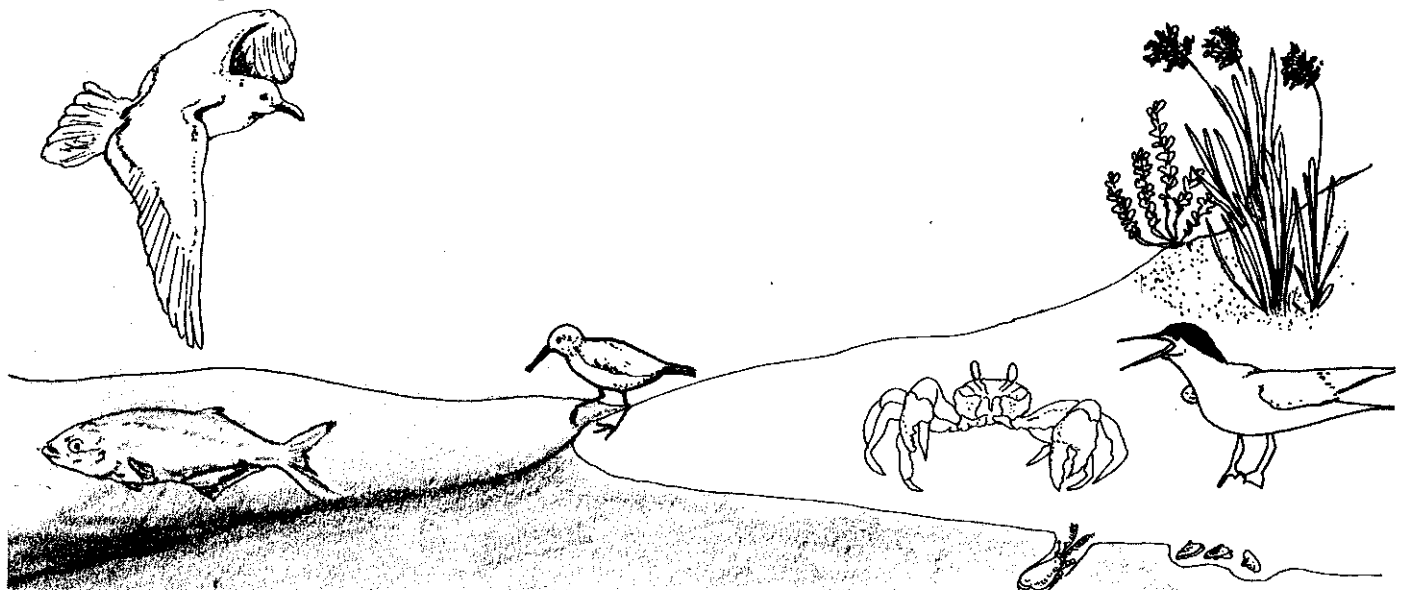
Pocosin is an Indian word meaning "swamp on a hill." They are ancient lake beds that have filled in with organic matter and act like a sponge retaining rain water and releasing it slowly.

MARINE LIFE HABITATS

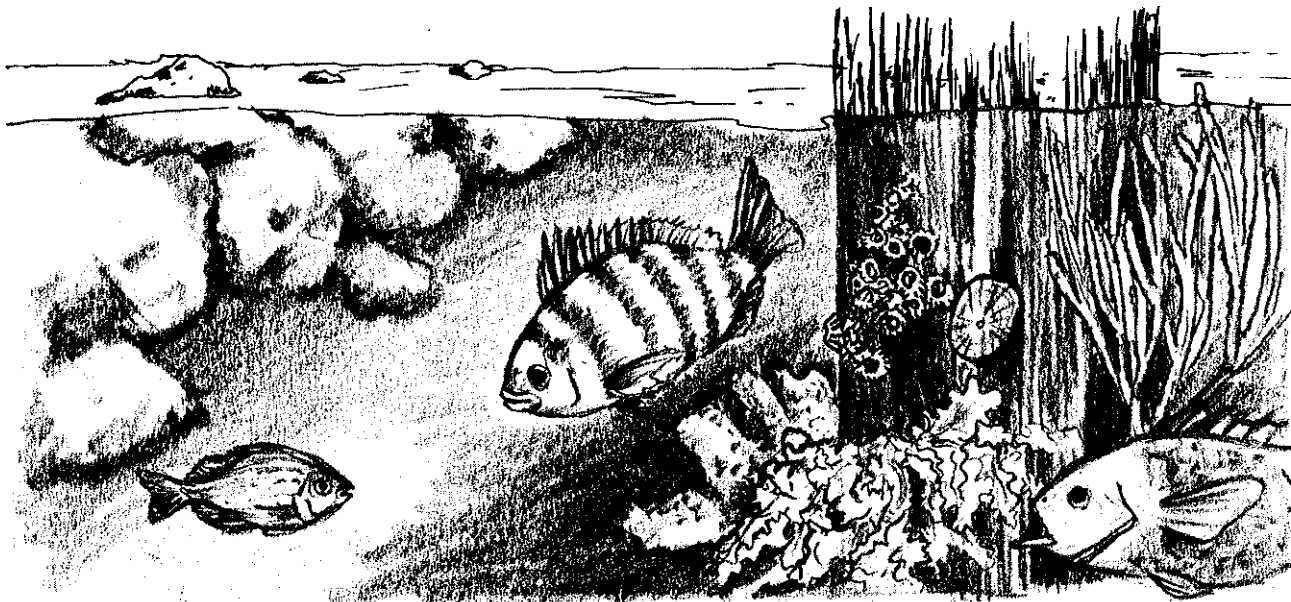
If you could see under water you would discover that most of the bottom is soft sand or mud. This kind of habitat is called soft substrate. Patches of sea grass occur in the sounds near salt marshes. In some places there are oyster reefs and patches of old shells that provide another kind of habitat, called hard substrate. Other examples of hard substrate are jetties, piers and sunken wrecks. The plants and animals that live in these different habitats are adapted to the special characteristics of each. Some of them are shown below.



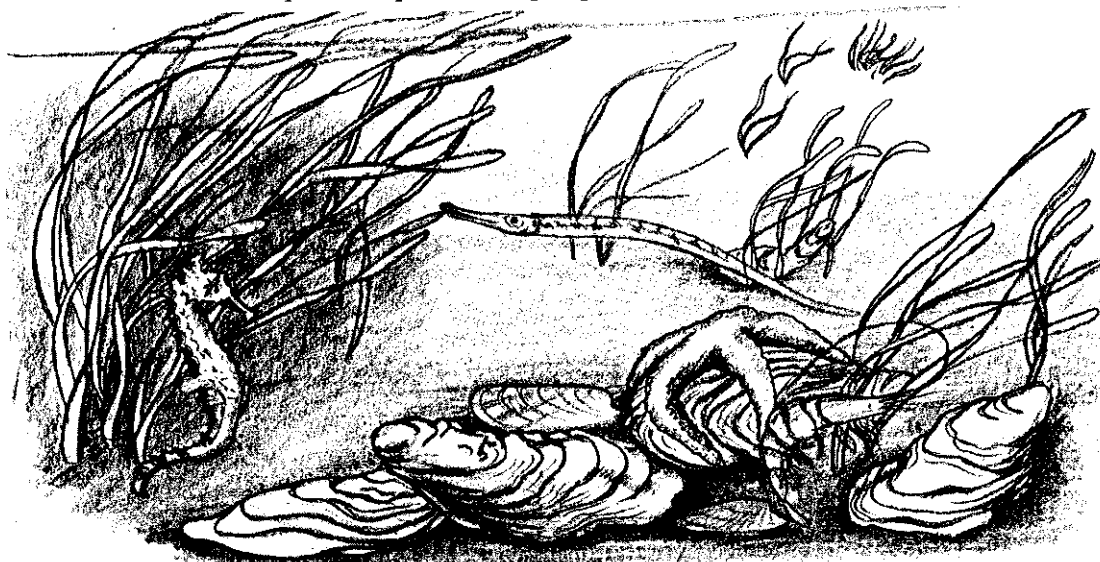
Offshore: Portuguese man-o-war, sargassum, marlin, dolphin (fish), loggerhead turtle, gannets.



Ocean beach: Gulls, bluefish, terns, ghost crabs, mole crabs, coquina, drums, sanderlings, nests of sea turtles, and sea oats.



Man-made jetties and pilings: Mobile animals like pinfish, sheepshead and black bass. Attached seaweeds and animals like barnacles, sea whips, sea squirts and sponges.



Grass beds: Scallops, seahorses, pipefish, oysters, clams, sea stars, shrimps, blue crabs, and the young of many species.



Mud flats: Oystercatchers, plovers, razor clams, worms, fiddler crabs, mud snails, whelks, greater yellowlegs, black skimmers.

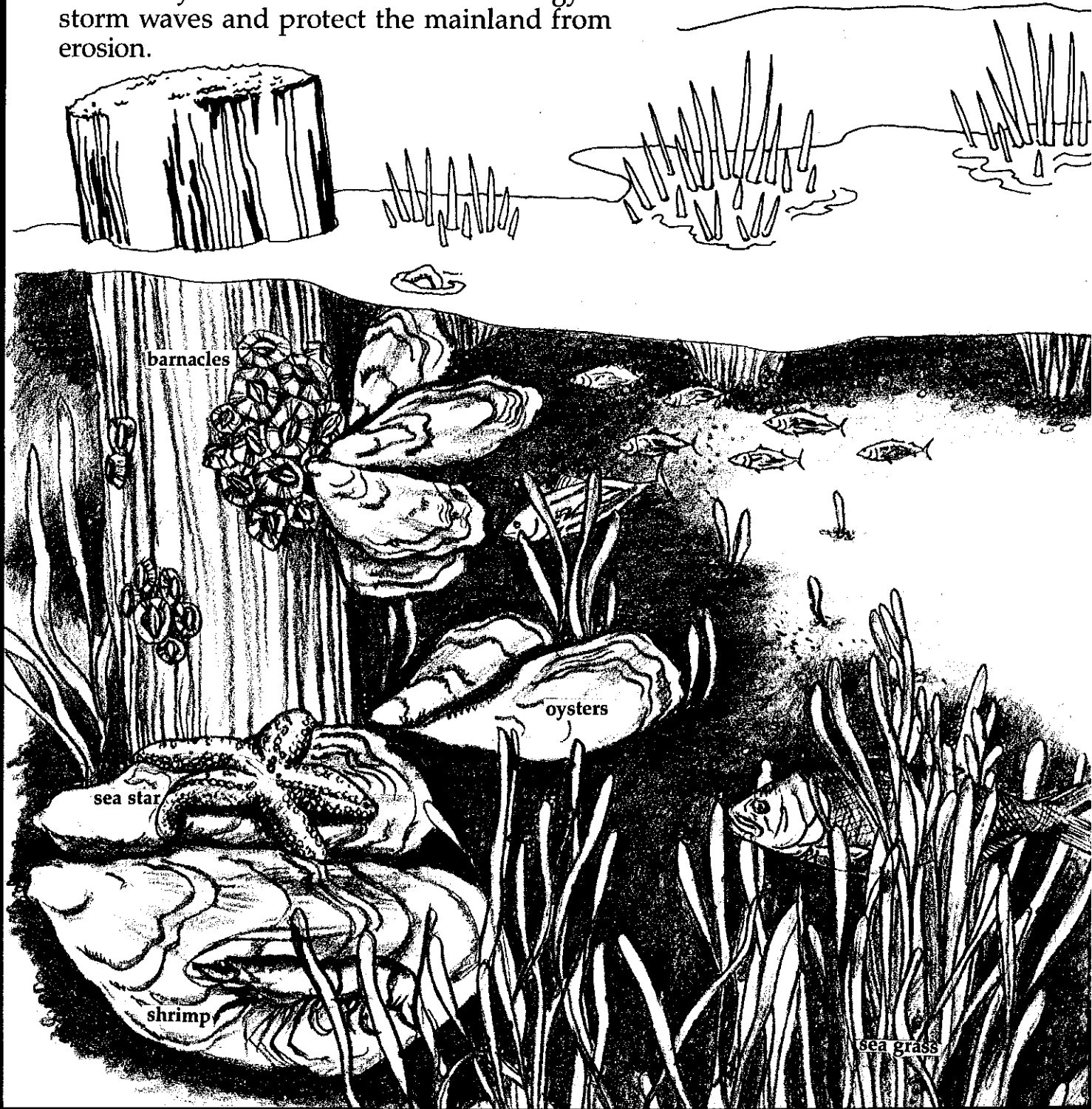
KEY WORDS

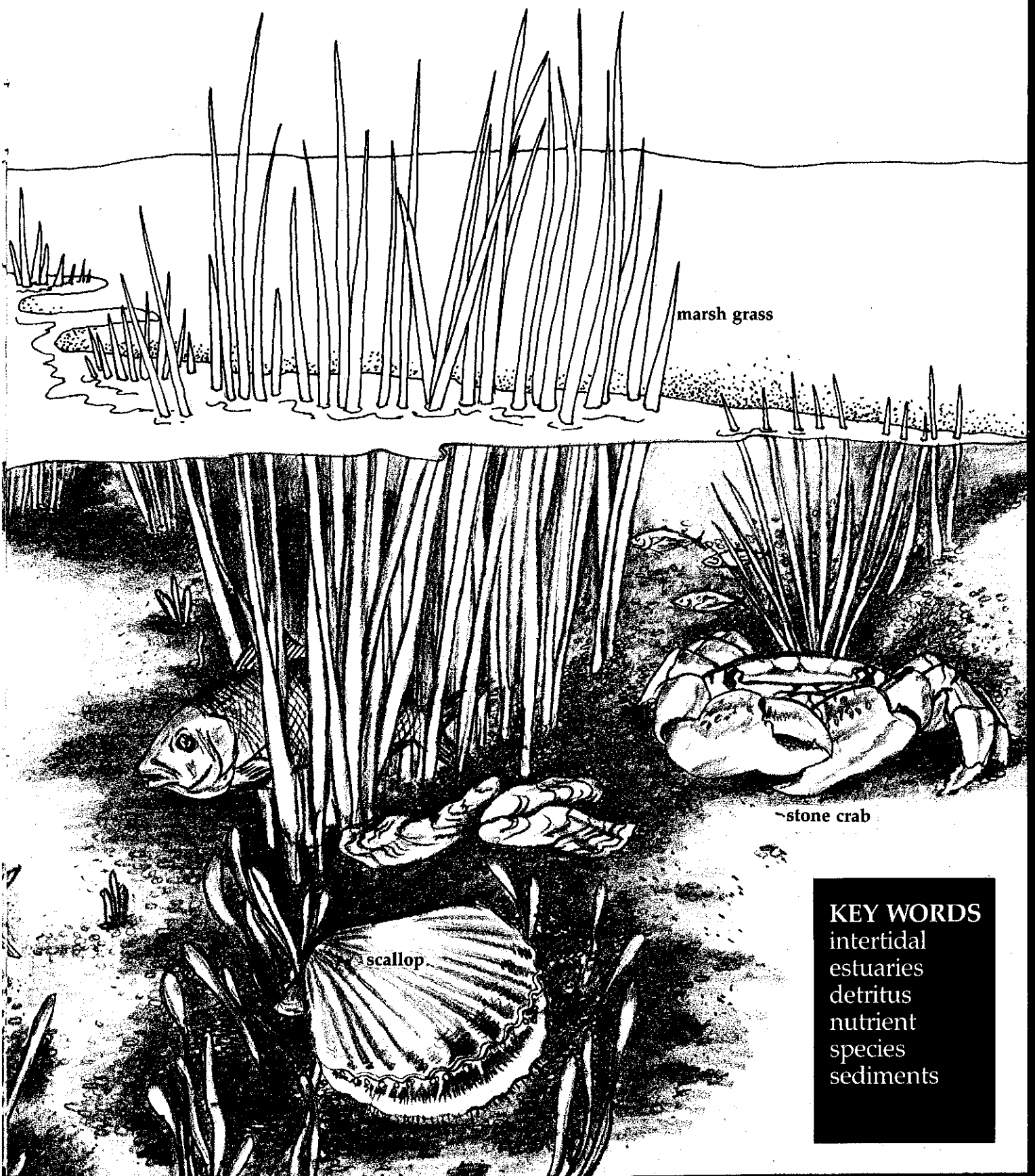
substrate
jetties
habitat
mobile

ESTUARIES

An important intertidal feature of the estuary is marsh grass. Marsh grass is used as a refuge by small species and the juveniles of many commercially important species — 90% of these species find protection and nourishment in the estuaries. Dead marsh grass breaks down into detritus, which is the basic building block of the food web.

Marshes function like a sponge, absorbing storm runoff. Fresh water from upland sources drains into the estuary. It carries nutrients and sediments and deposits them in the estuary. Marshes also absorb the energy of storm waves and protect the mainland from erosion.





marsh grass

stone crab

scallop

KEY WORDS

intertidal
estuaries
detritus
nutrient
species
sediments

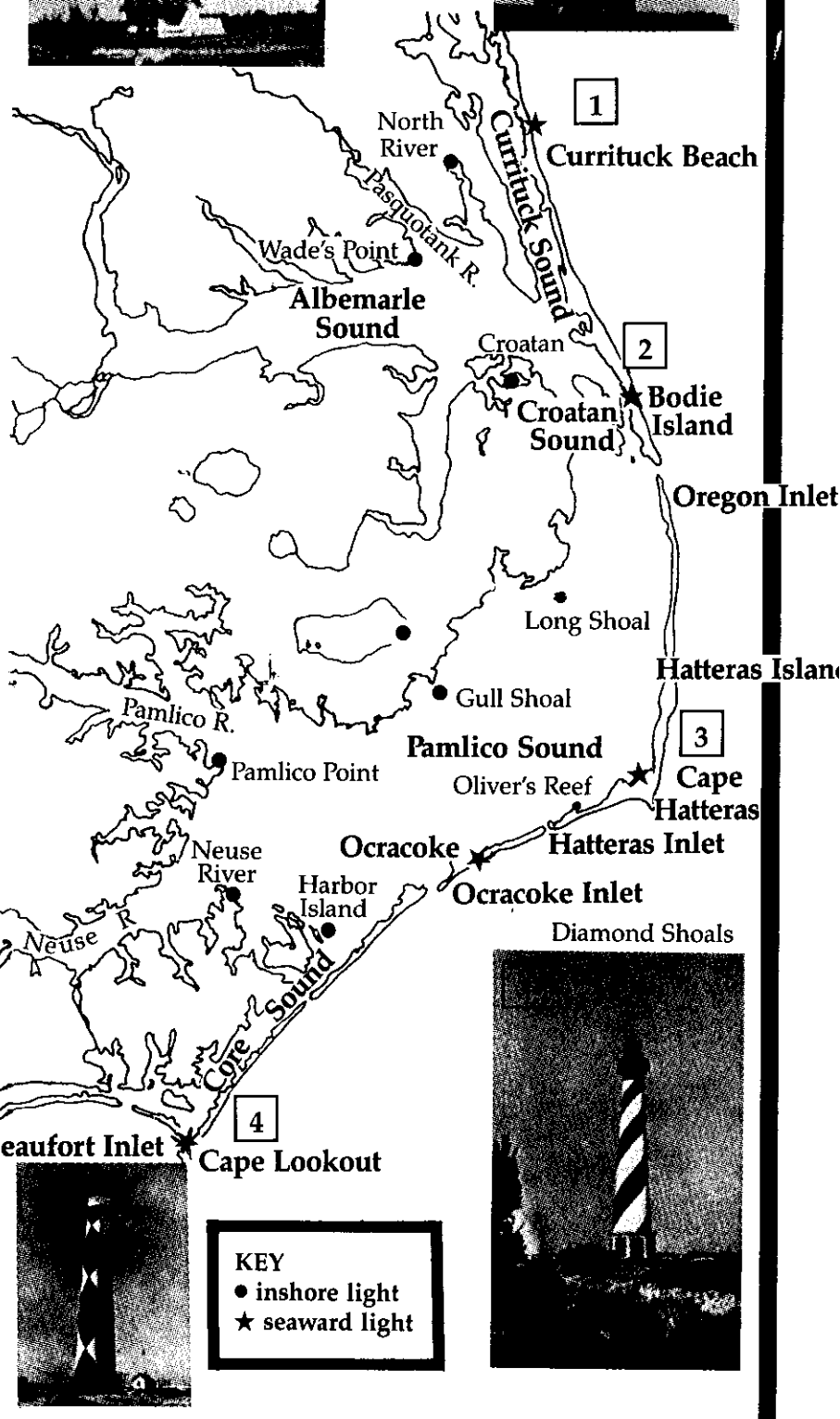
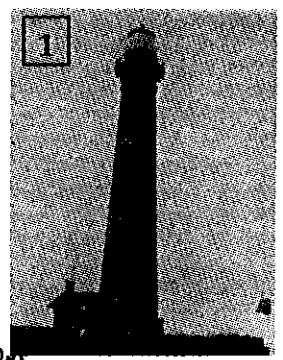
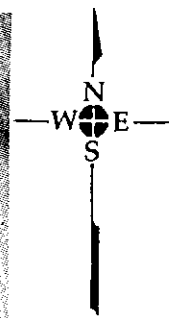
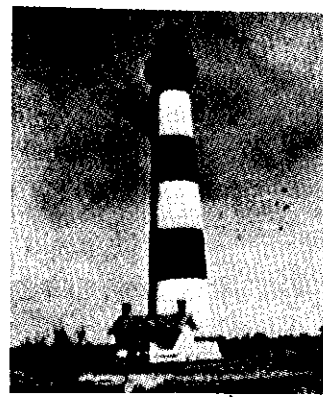
OUTER BANKS GEOGRAPHY

Barrier islands are unstable and are shaped by the winds, daily tides and wave action. When you find a black shell, or see the uncovered stumps and roots of trees on the beach, it is evidence of these forces.

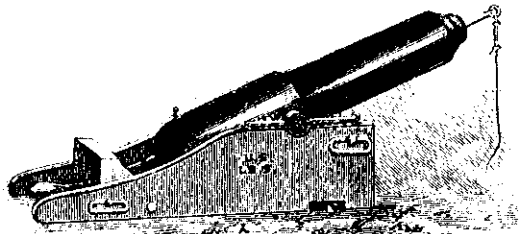
Inlets are formed when entrapped storm tides escape over low places in the barrier islands. Normal tides keep the inlets open but the channels shift as currents move the unstable sands.

Shallow waters and offshore bars are associated with the barrier islands and are hazards for ships that pass by. Lighthouses on the islands enabled the navigators of ships to determine their positions and to steer clear of danger. Even so, hundreds of shipwrecks along the North Carolina shores are evidence of this grave hazard.

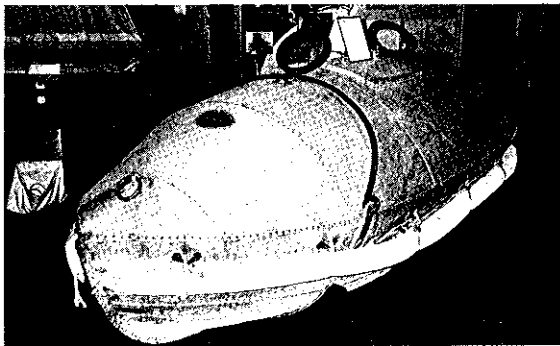
Geography, more than any other factor has contributed to the isolated lifestyles of Banks dwellers.



THE U.S. LIFE SAVING STATIONS



Lyle gun: This was a small cannon that propelled a line from shore to the wrecked ship. It was named for its inventor.



Life Car: The life car is a little boat-shaped trolley that rides back and forth on a heavy rope between the wrecked ship and shore. The car is covered over to keep its passengers secure during the rescue.



Surf boat: If a ship was too far from shore to use the Lyle gun and life car, surf boats were launched and rowed out to the wreck.



Horse cart: Boats were moved from the station house to the water's edge on carts, often hauled by horse.



Breeches buoy: The breeches buoy also rides on a rope but only carries one person under normal circumstances.



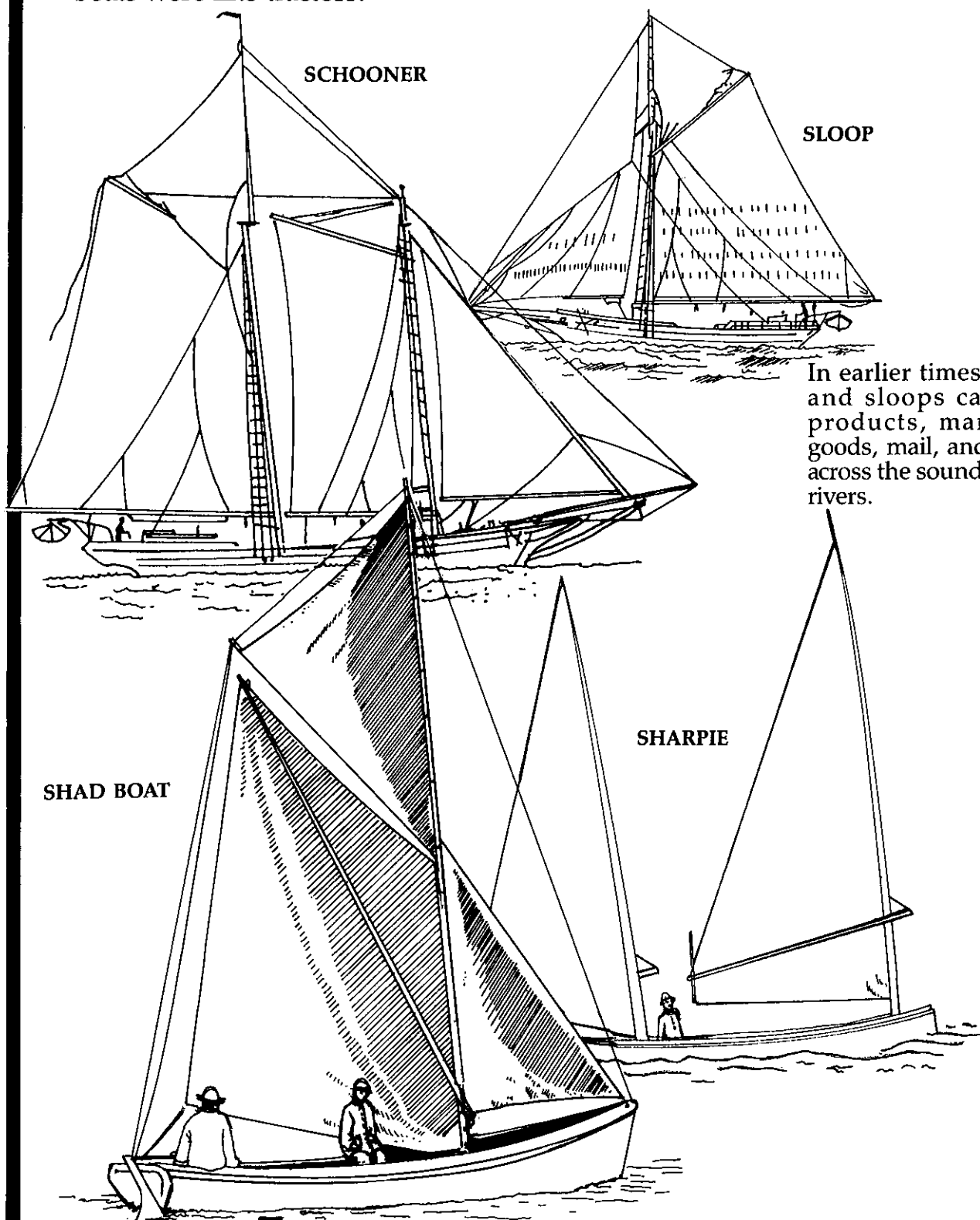
Station houses were located every 14 miles along the Outer Banks. Their architecture was very distinctive.

KEY WORDS

isolated
inlets
lighthouses
navigators
life car
breeches buoy
Lyle gun

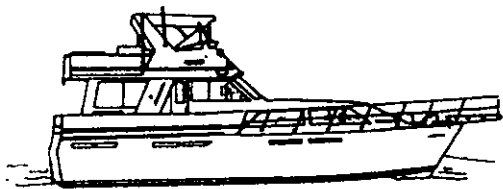
INSHORE WATERS

Inshore waters provide sheltered avenues for transportation. Before improved bridges and roads, it was easier to travel by water than overland because creeks, rivers and bays hindered land travel. The waters, rich in seafood, were like fields to be harvested, and boats were like tractors.

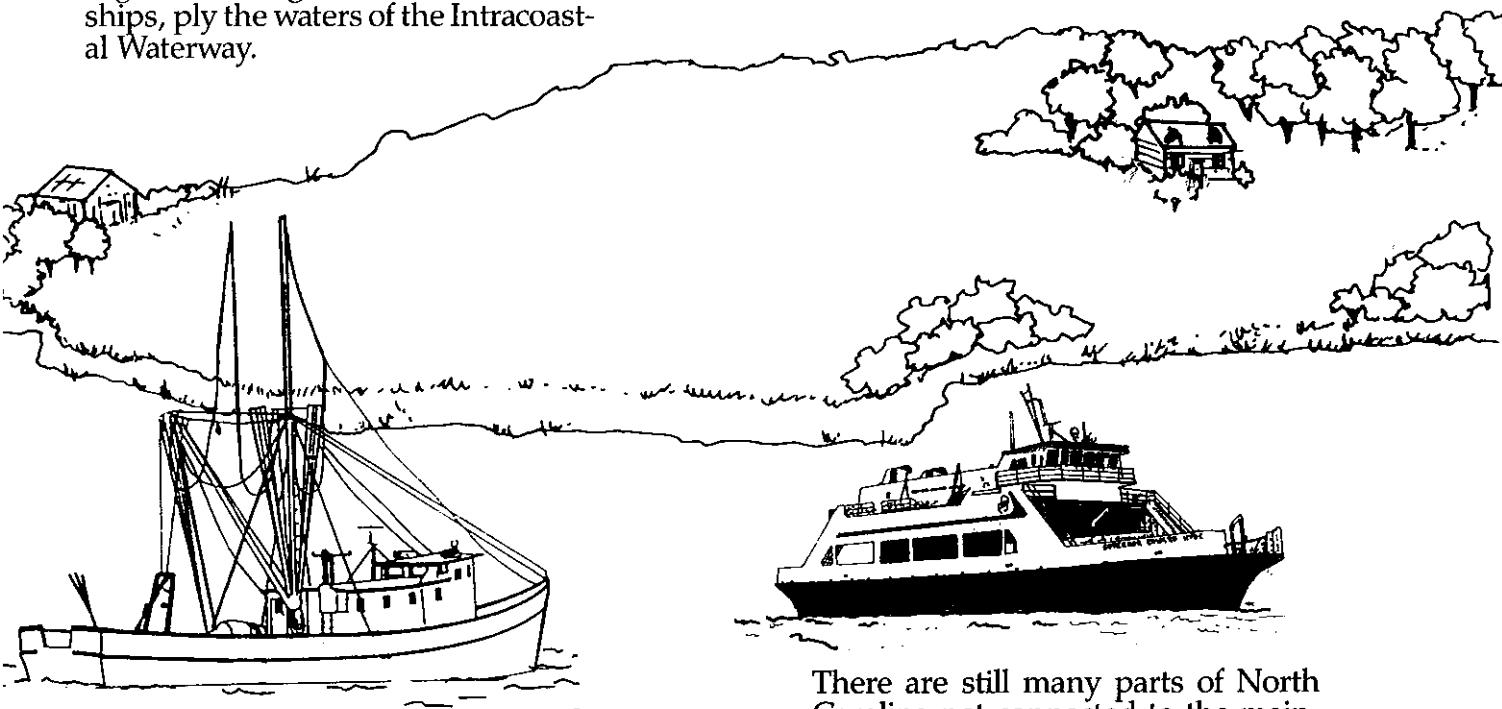


In earlier times, schooners and sloops carried farm products, manufactured goods, mail, and passengers across the sounds and up the rivers.

Shad boats and sharpies were used in local fisheries, and to a lesser extent, transport for goods.

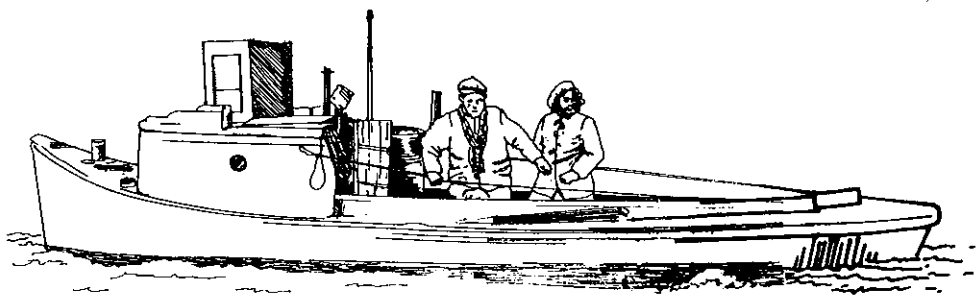


Yachts and commercial traffic, such as tugs with barges and small cruise ships, ply the waters of the Intracoastal Waterway.



Trawlers work in the sounds and rivers and sometimes go long distances offshore in search of fish.

There are still many parts of North Carolina not connected to the mainland by bridges. Ferries serve these areas and cross some of the wider rivers.



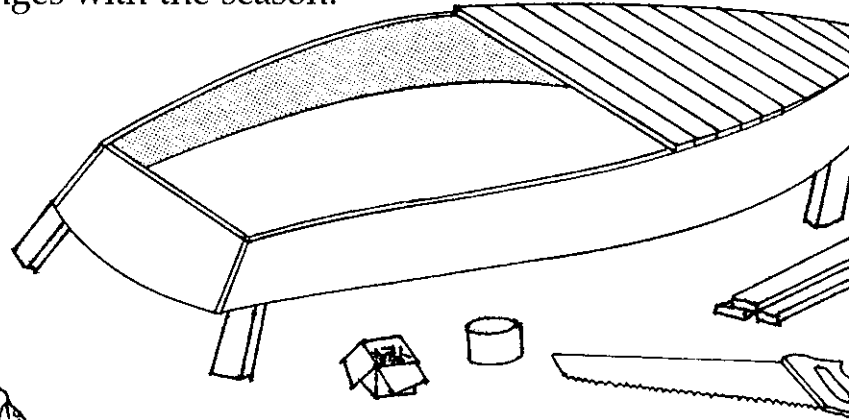
The Core sounder is a style of boat, still seen today, that harks back to the sharpies of former times.

KEY WORDS

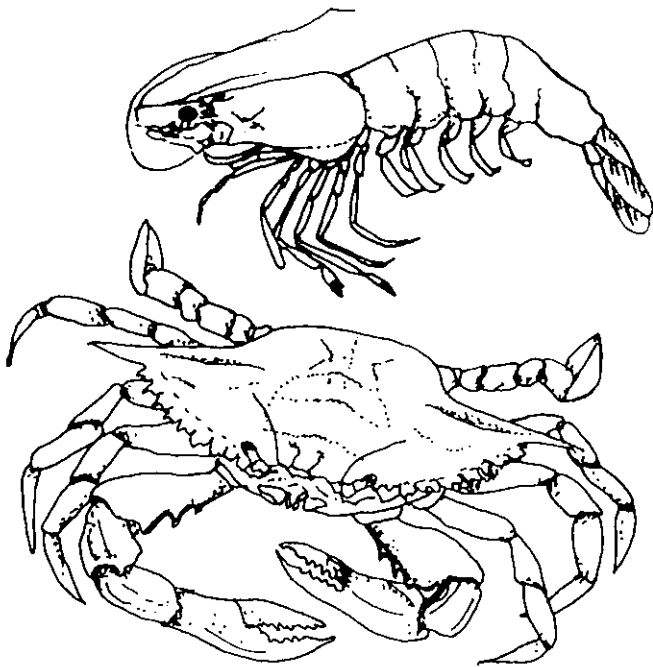
trawlers
ferries
barges
schooners
sloops
shad boats
sharpies
intracoastal
waterway

INDEPENDENT WATERMEN

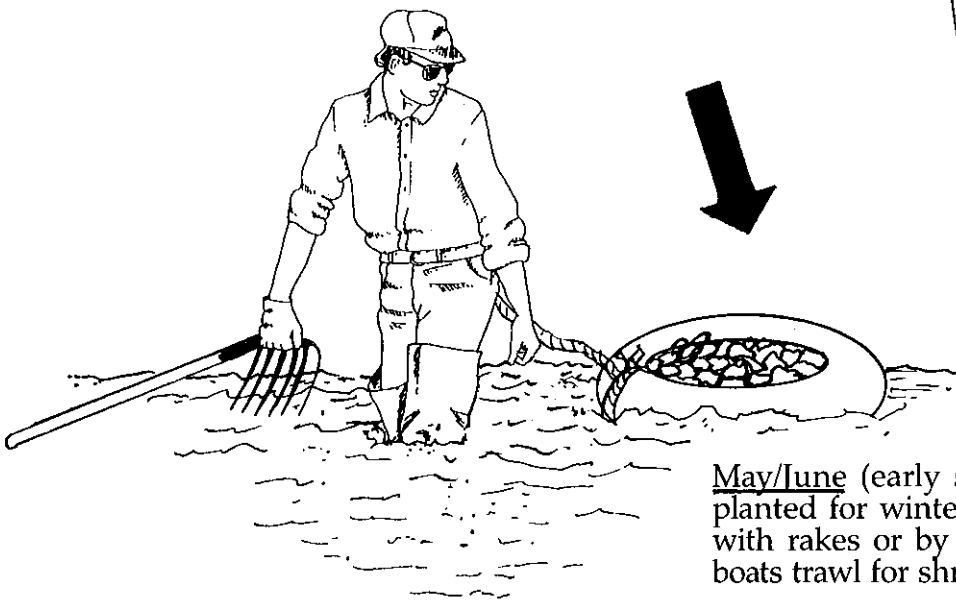
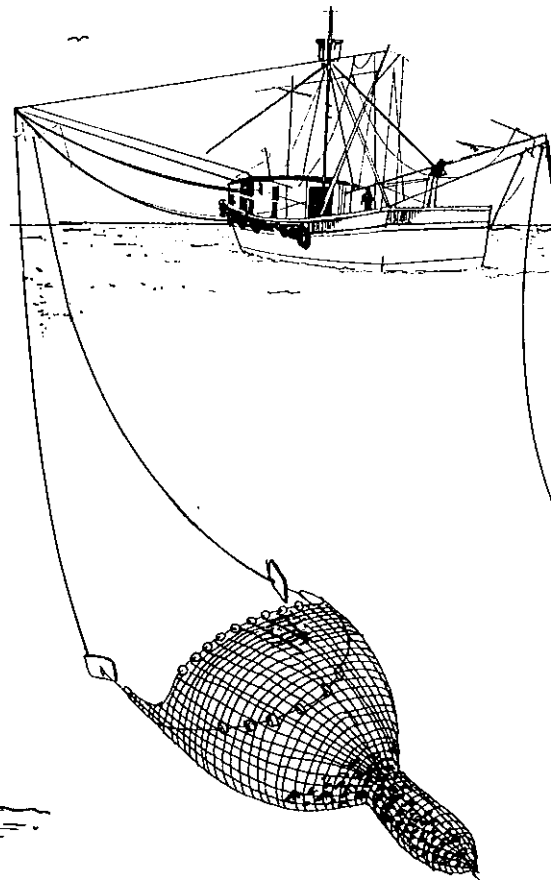
For the individuals who make their living on and by the water, the year is filled with many different activities. The variety of species that can be harvested changes with the season.



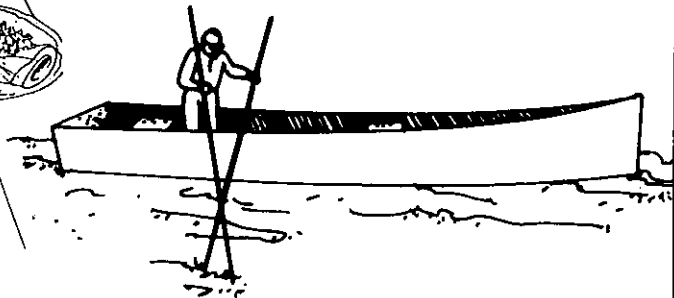
January/February (late winter): Boats are repaired and equipped for the summer season. New small boats are built in back yards and under sheds. Oysters are caught with dredges and tongs.



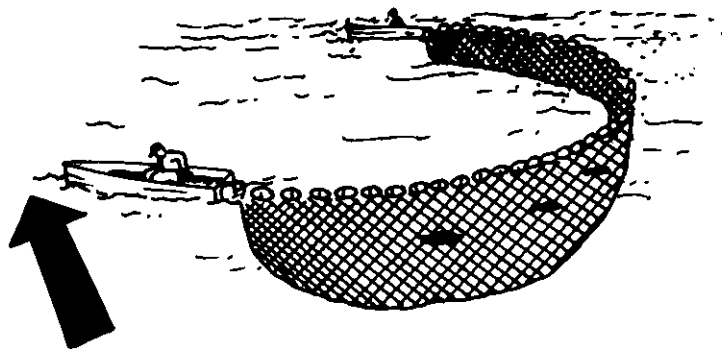
March/April (early spring): Pots are set for blue crabs. Jimmies (male crabs) and "peelers" (soft crabs) are sold to crab dealers for premium prices.



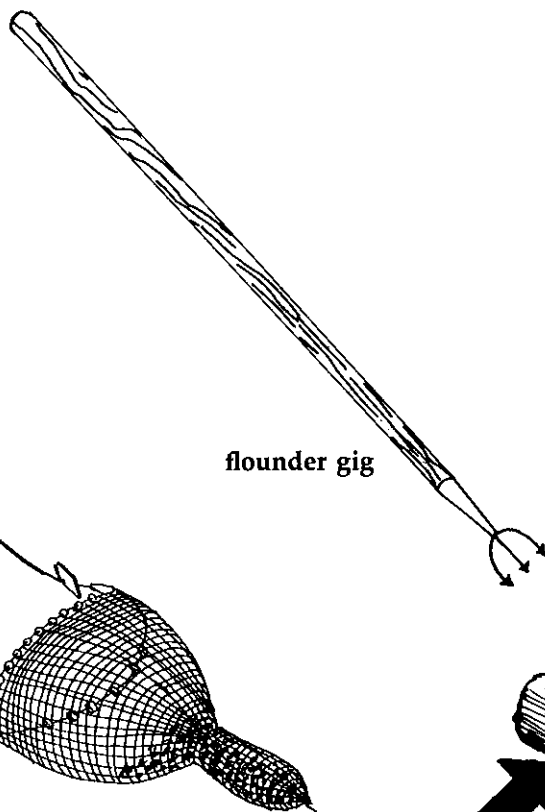
May/June (early summer): Sweet potatoes are planted for winter harvest. Clams are gathered with rakes or by hand in shallow water. Small boats trawl for shrimp and set nets.



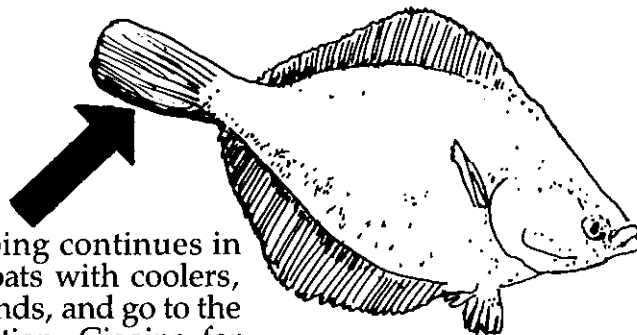
November/December (early winter): Oystering increases. Early season for scallops. Hunting for waterfowl provides a goose or ducks for the table.



September/October (late summer-early fall): "Mullet blows" bring cool air, overcast skies and MULLET! Gill nets are set from skiffs, and haul seines sweep the shoal waters for schools of mullet. "Barbecued" mullet are grilled over charcoal on festive occasions, and served up with slaw, beans, "hush puppies." Watermelon tops it off. Collards for winter harvest are planted. October begins the season for oysters and oyster roasts — another occasion to gather family and friends to enjoy the harvest.



flounder gig



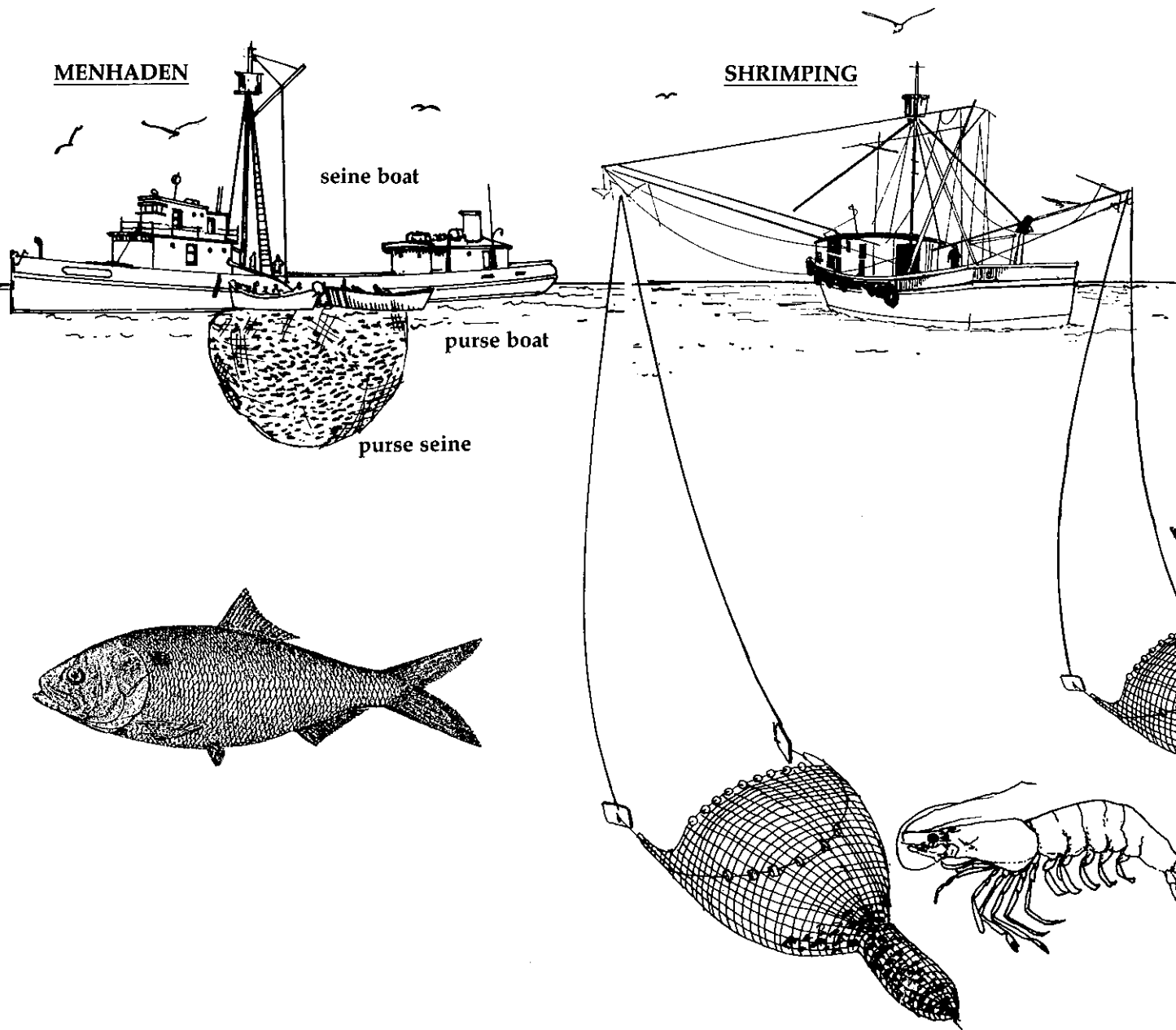
July/August (summer): Shrimping continues in small trawlers. Families load boats with coolers, fishing rods, clam rakes, and friends, and go to the Outer Banks for rest and relaxation. Gigging for flounder is done at night with the help of bright lights.

KEY WORDS

oysters
gigging
dredges
soft crabs
trawl

COMMERCIAL FISHING

Commercial fishing is done on a larger scale by company-owned fishing vessels. They fish for some of the same species that the independent fishermen do. Commercial fishing vessels often travel greater distances and stay away from home port longer than the individual operator. Many kinds of commercial fishing are carried on in North Carolina. Here are four common types.



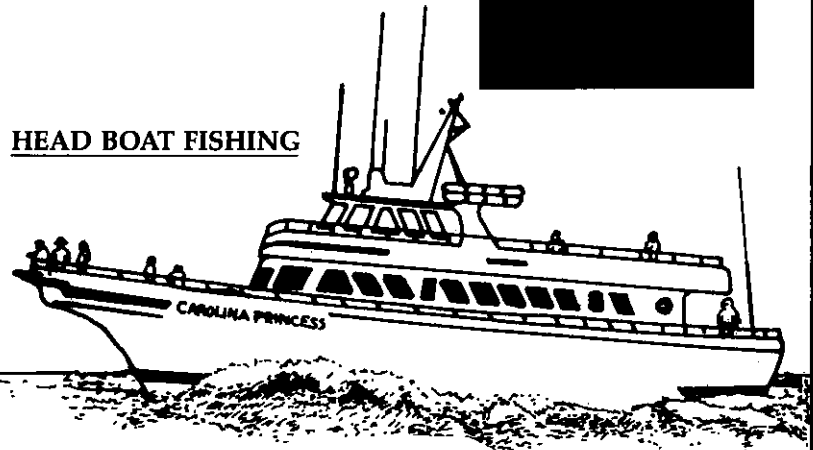
Tons of menhaden are processed each year to make fertilizer, chicken feed, and oil. Purse seines are used to catch these fish. Two small boats stretch the net around a school of menhaden. A large vessel with special gear to haul the purse seine loads the catch and carries it to the processing plant.

Shrimp are caught in trawl nets towed by boats with special rigs that allow two nets to be fished at the same time. Shrimp are a favorite seafood throughout the world. Nowadays shrimp trawls are fitted with special devices to prevent sea turtles from drowning in the net.

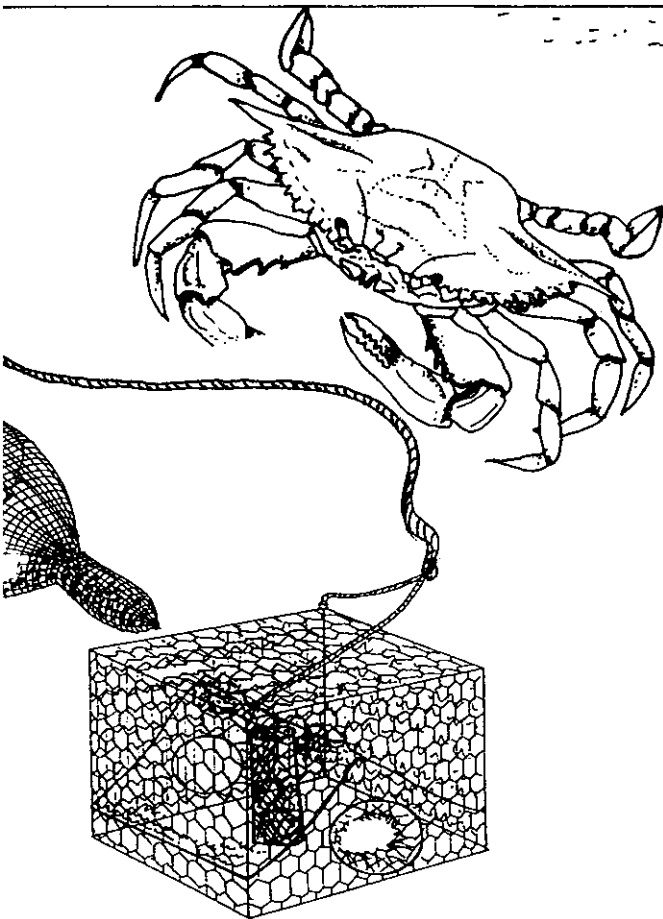
KEY WORDS

reefs
delicacy
purse seines
menhaden

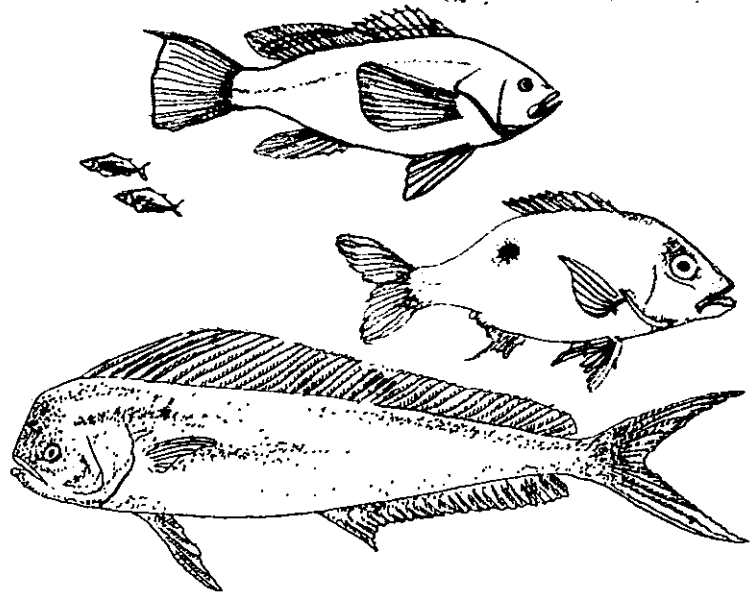
HEAD BOAT FISHING



CRABBING



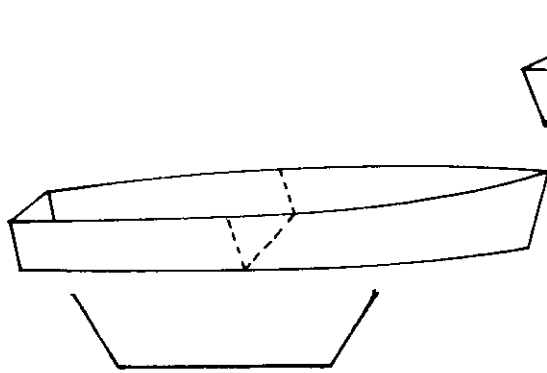
Blue crabs are usually caught commercially in pots, a type of wire trap. For a short time after crabs shed their hard shell, they are soft and vulnerable. Soft crabs are a delicacy enjoyed by many seafood lovers. Hard crabs are cooked at fish houses before the meat is picked from the shell and packaged for the market.



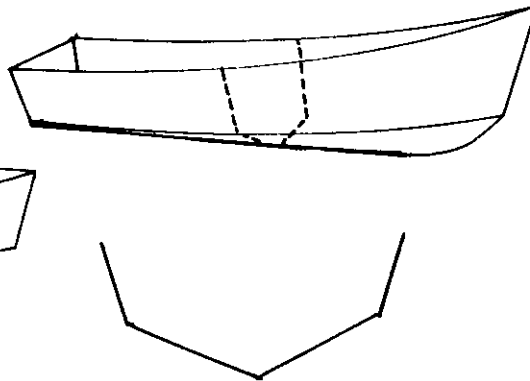
Head boats, which take individuals offshore to catch bottom fish, are a different sort of commercial activity. These boats go to offshore reefs and the Gulf Stream to give their paying passengers a chance at grouper, red snapper, black bass, and sometimes king mackerel and dolphin. This dolphin is a brightly colored and tasty fish of warm seas. It is not the same as the mammal of that name, which breathes air and gives birth to single, live young.

BOATBUILDING STYLES

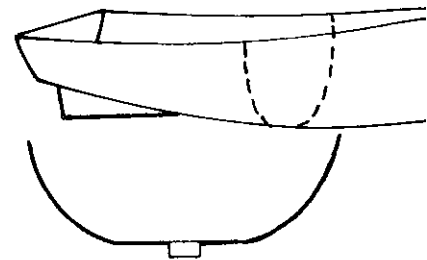
The need for boats in the isolated communities along the North Carolina coast led to the development of many styles, each uniquely suited to the jobs they performed. The methods by which they were built were also unique. Some of the common ways to build boats are described here.



Flat Bottom

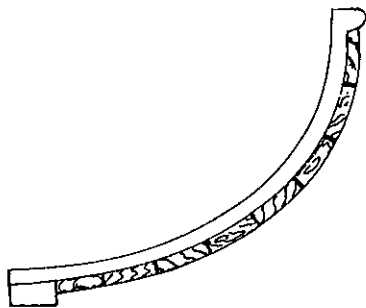


V-Bottom

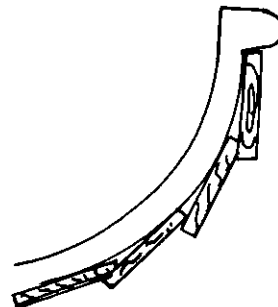


Round Bottom

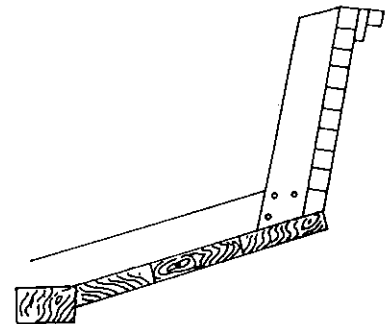
Flat bottom boats are inexpensive and easy to build. V-bottom boats are a little more difficult to build but are better boats in rough water. Round bottom boats are best for rough water, but they require more expensive materials and special boatbuilding skills.



**Carvel Planked
(Smooth)**



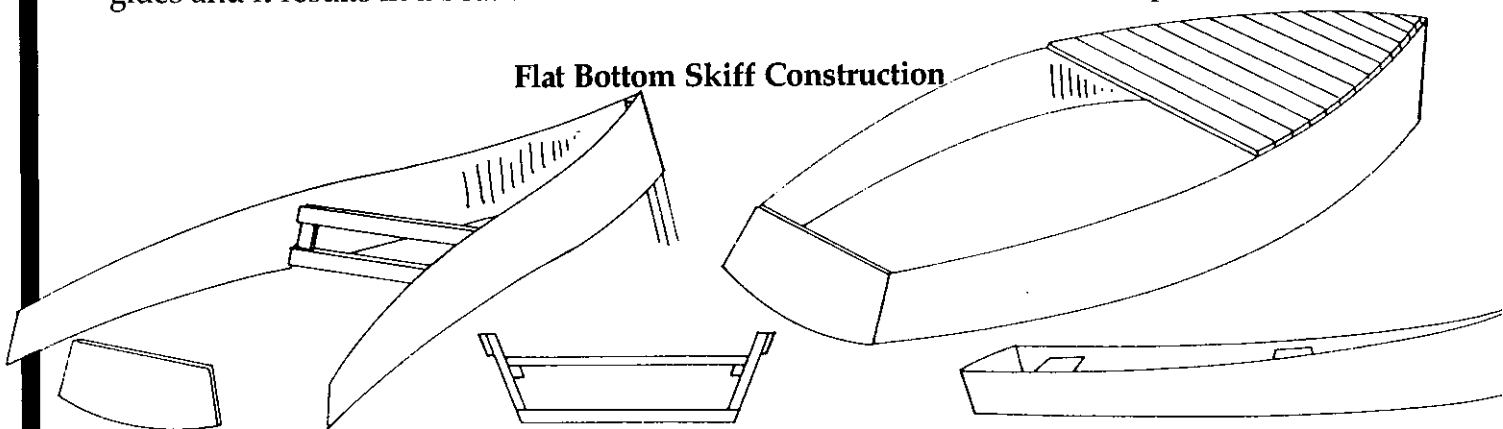
**Lapstrake
(The planks overlap each other)**



**Strip Planked
(Narrow strips are glued
and nailed to each other)**

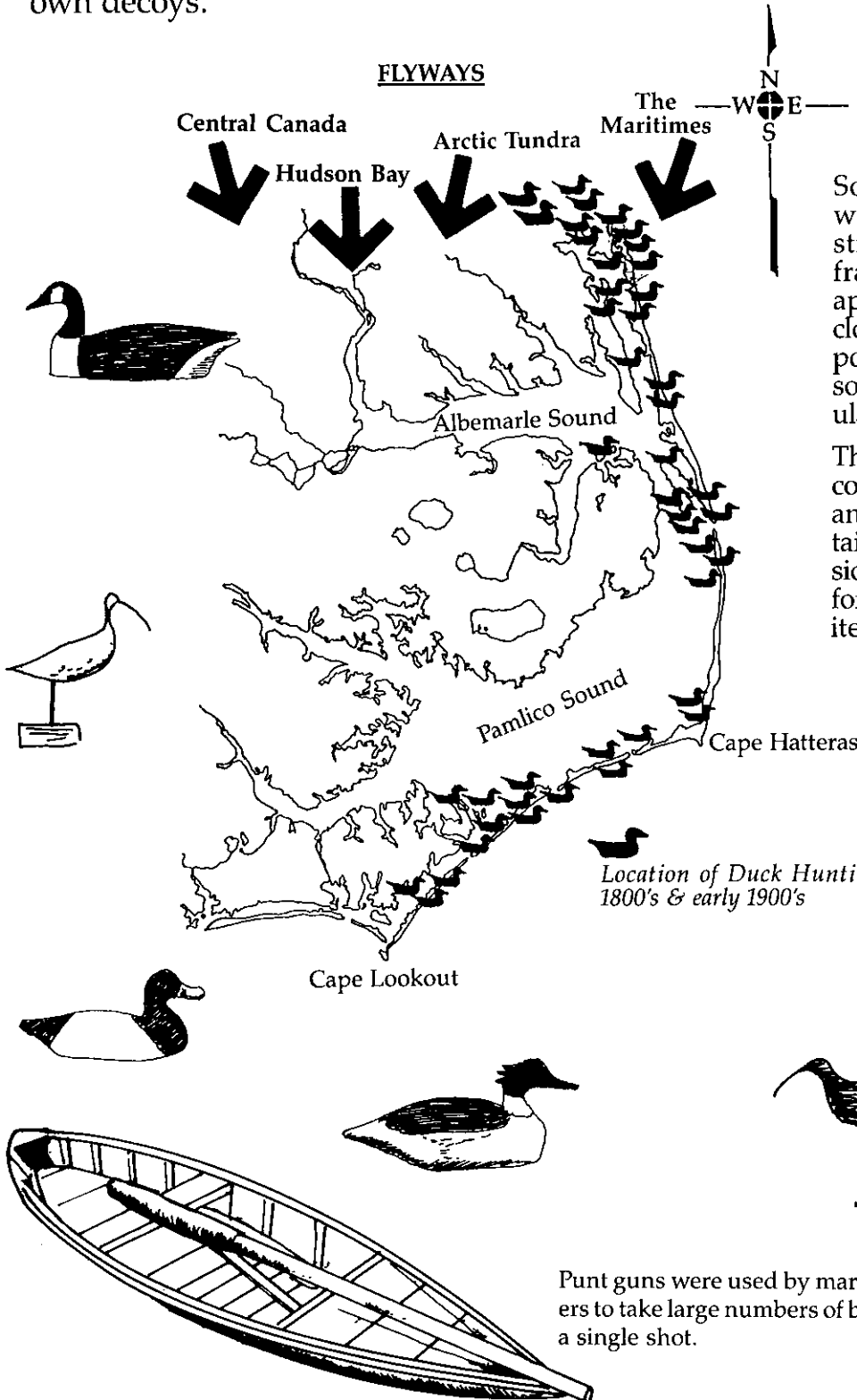
Planking forms the shell of a boat. Lapstrake, an old method of planking last used in boats that were launched through surf (lifeboats and beach seiners). Carvel planking is smooth and was used in shad boats and some deep v-bottom boats. Strip planking is a recent style that is made possible by modern glues and it results in a boat with a smooth skin like boats built with carvel planking.

Flat Bottom Skiff Construction



WATERFOWL HUNTING

Many coastal people supplemented their summer occupations by hunting waterfowl — ducks, geese, swans — when these birds were wintering in the sounds and wetlands. Guns, boats and decoys made up the gear of the hunters. Boats were used to take hunters to blinds and to carry and tend to the decoys. Most guides made their own decoys.



Some decoys are carved from wood. Others are made by stretching canvas over a wire frame. The shape and painting approximated the real birds — close enough to fool them. The population of waterfowl declined so sharply that government regulation was necessary.

The 1918 legislation curtailed the commercial market for waterfowl and the taking of plumage of certain showy birds. Many professional hunters turned to guiding for sports hunters, who were limited to fewer birds.

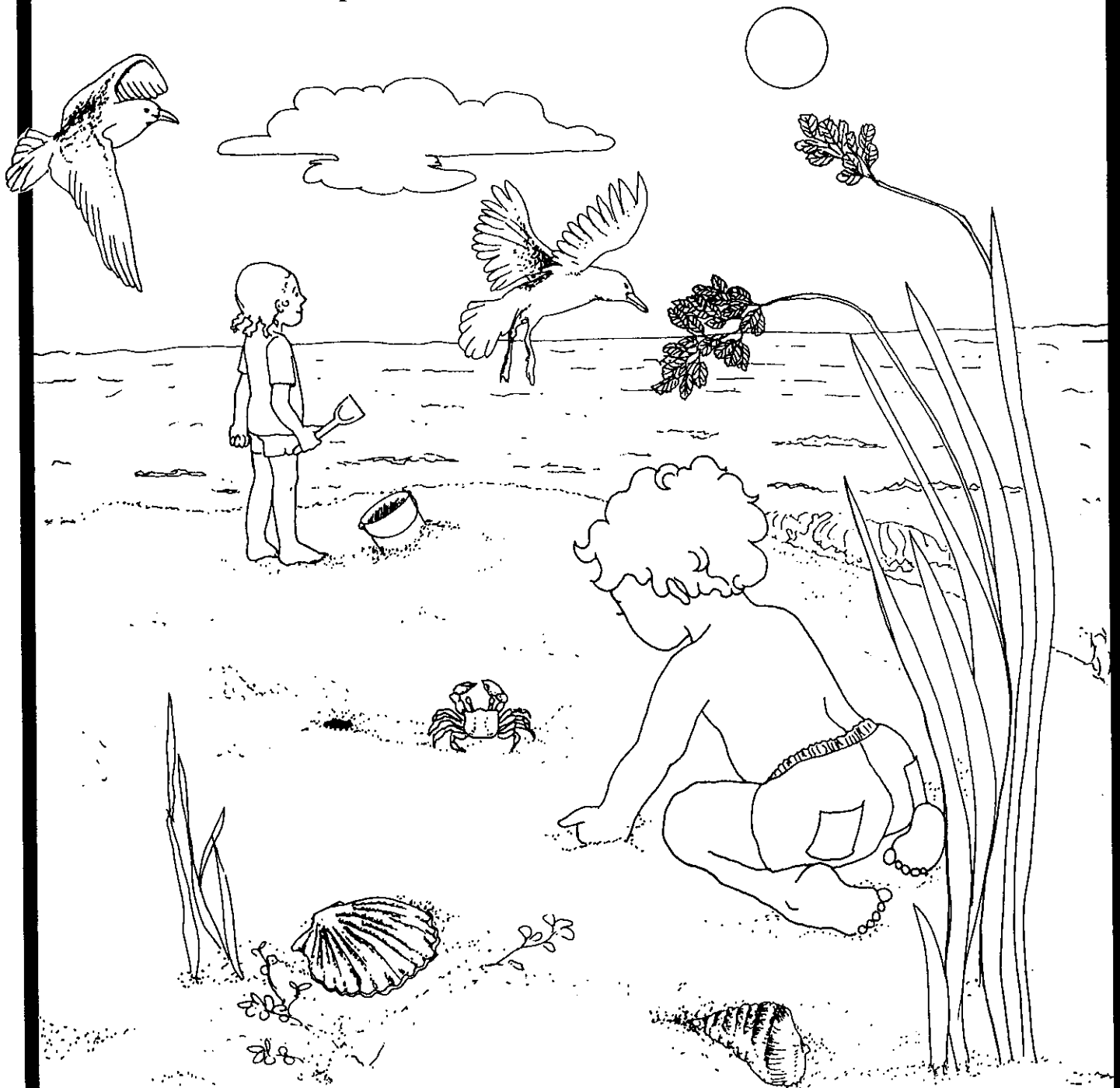
KEY WORDS
ingenuity
decoys
skiff

Punt guns were used by market hunters to take large numbers of birds with a single shot.

CONSERVATION OF NATURAL RESOURCES

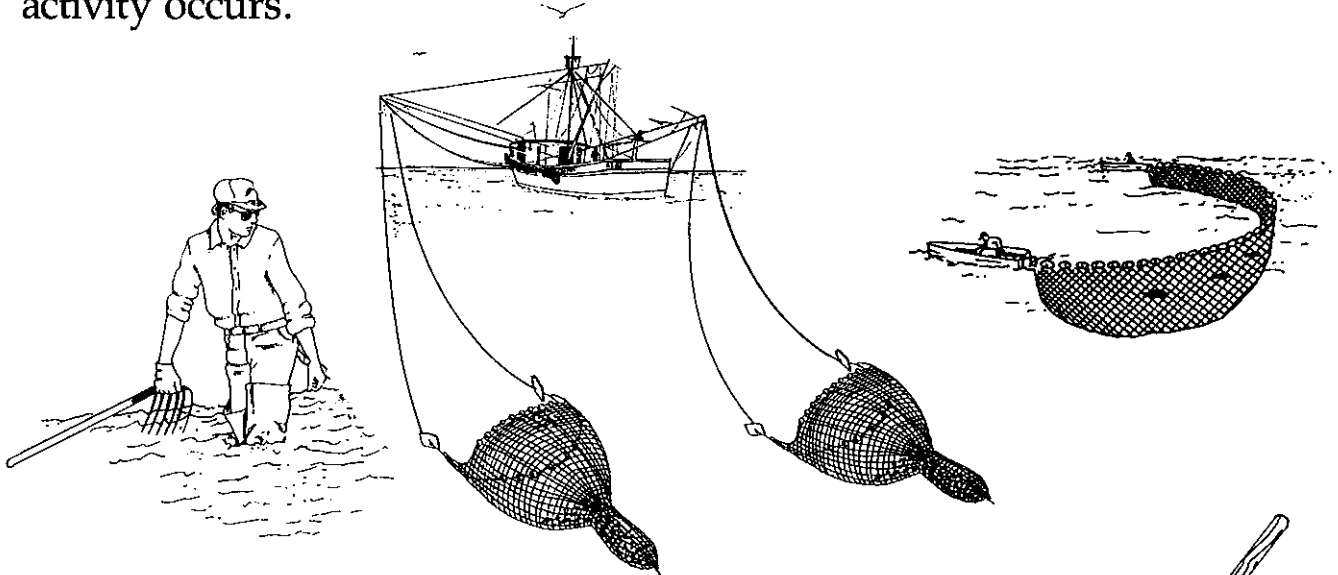
Coastal North Carolina's wildlife are in danger. Each day salt marshes are filled and drained, swamps are channeled and drained, forests are cleared, and water and air are polluted.

Continued development of barrier islands interrupts the natural processes that have maintained the islands over centuries. The livelihoods of many people who live on the coast are dependent on the integrity of the natural habitats. If sufficient numbers of organisms cannot find suitable places to live, then many businesses and occupations will be lost.



INDEPENDENT WATERMEN ACTIVITY

Match the drawing with the months that best describe when the activity occurs.



January and February

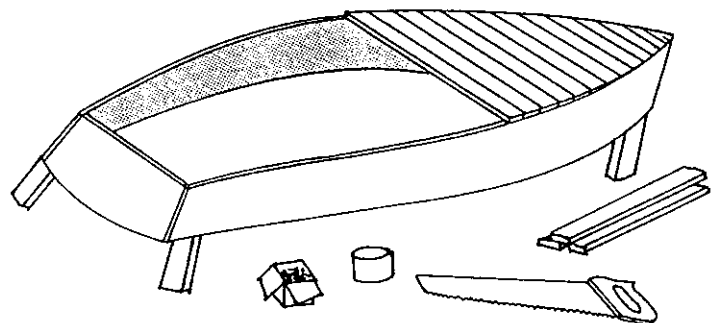
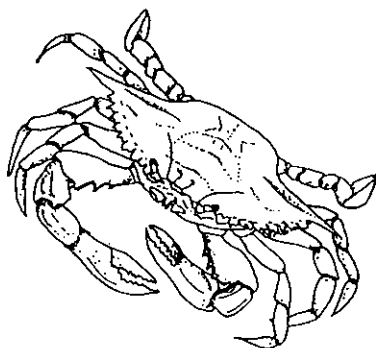
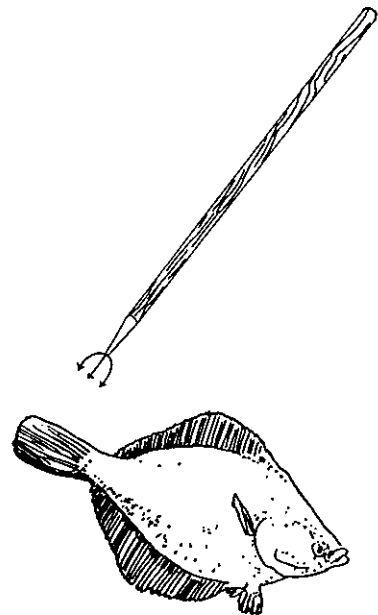
March and April

May and June

July and August

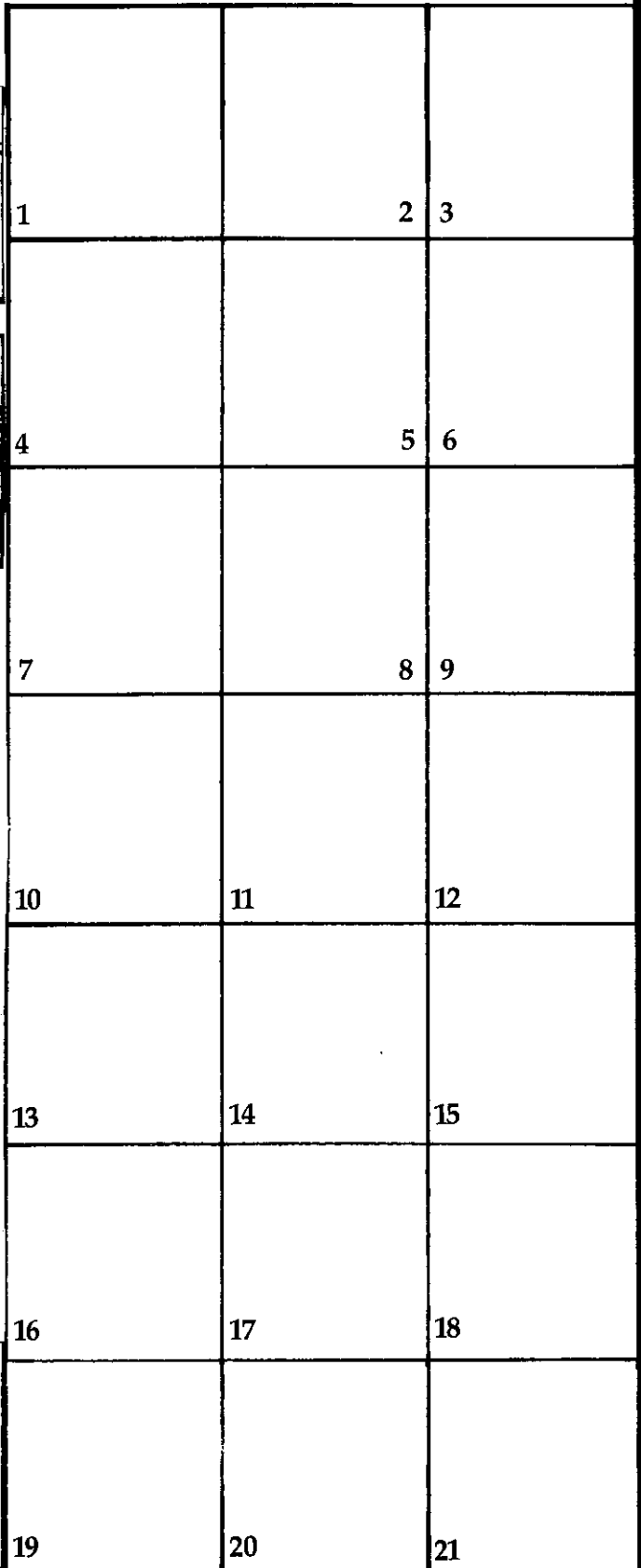
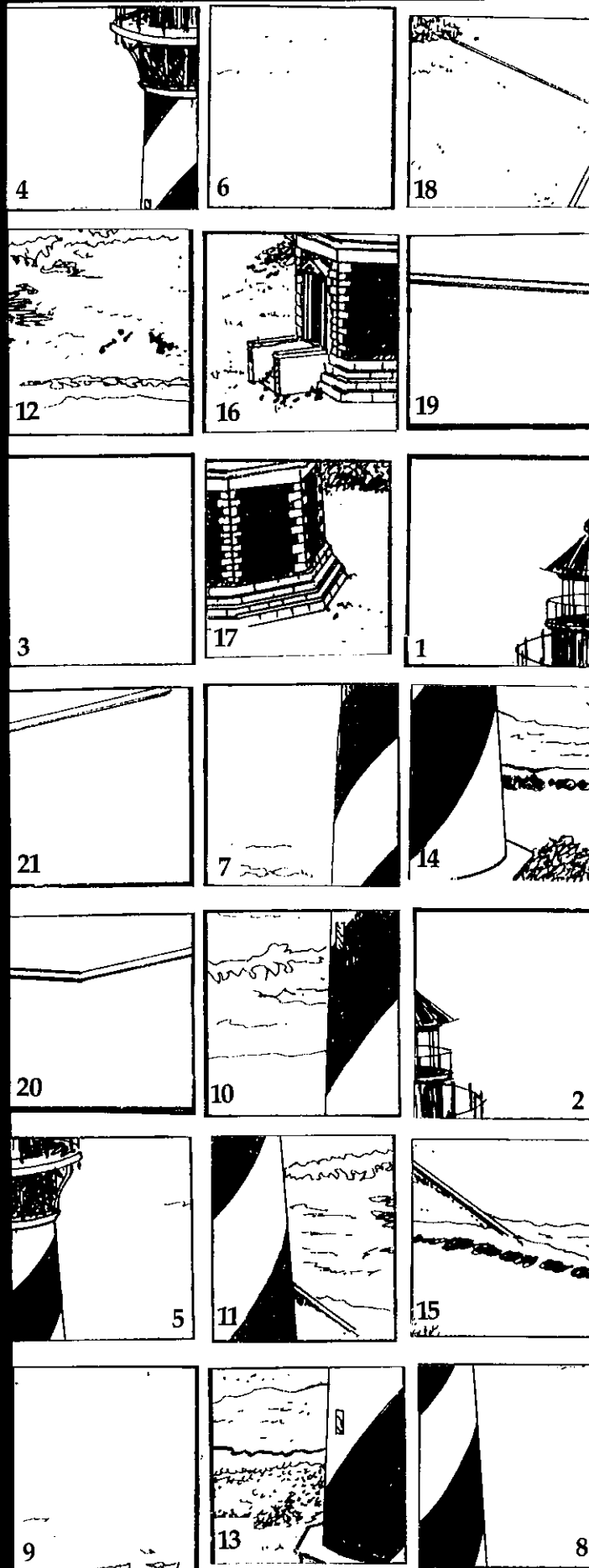
September and October

November and December



OUTER BANKS ACTIVITY

Cut apart the squares then paste on the right space to make a lighthouse.



SHIPWRECK ACTIVITY

Sailing on the Outer Banks of North Carolina could be dangerous, since storms are often unpredictable and fierce. Many shipwrecks occurred within this area. Draw a shipwreck. What kind of animals might be living on your ship? Hint: See page 6 and 7 and read about substrates. _____



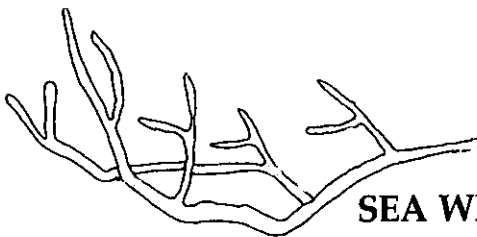
MARINE LIFE HABITAT ACTIVITY

Color and identify the species found on and around the piling.

SPECIES TO IDENTIFY



SARGASSUM



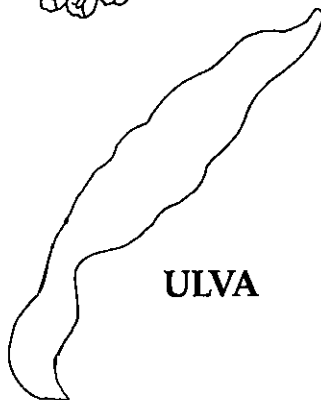
SEA WHIP



BARNACLE



PURPLE SPONGE



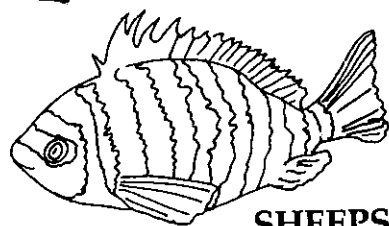
ULVA



BLENNY



SPONGE



SHEEPSHEAD



SEA PORK



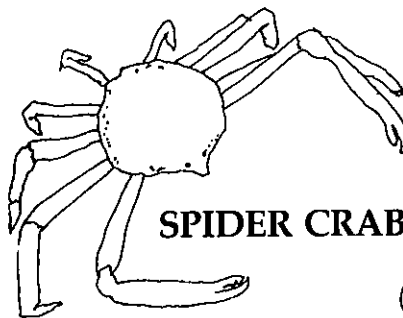
ANEMONE



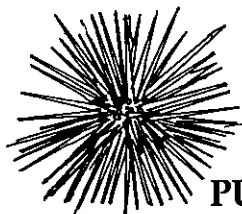
BRYOZOAN



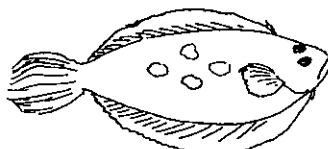
OYSTERS



SPIDER CRAB



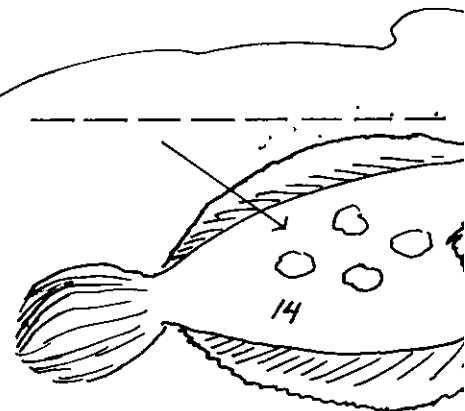
PURPLE URCHIN

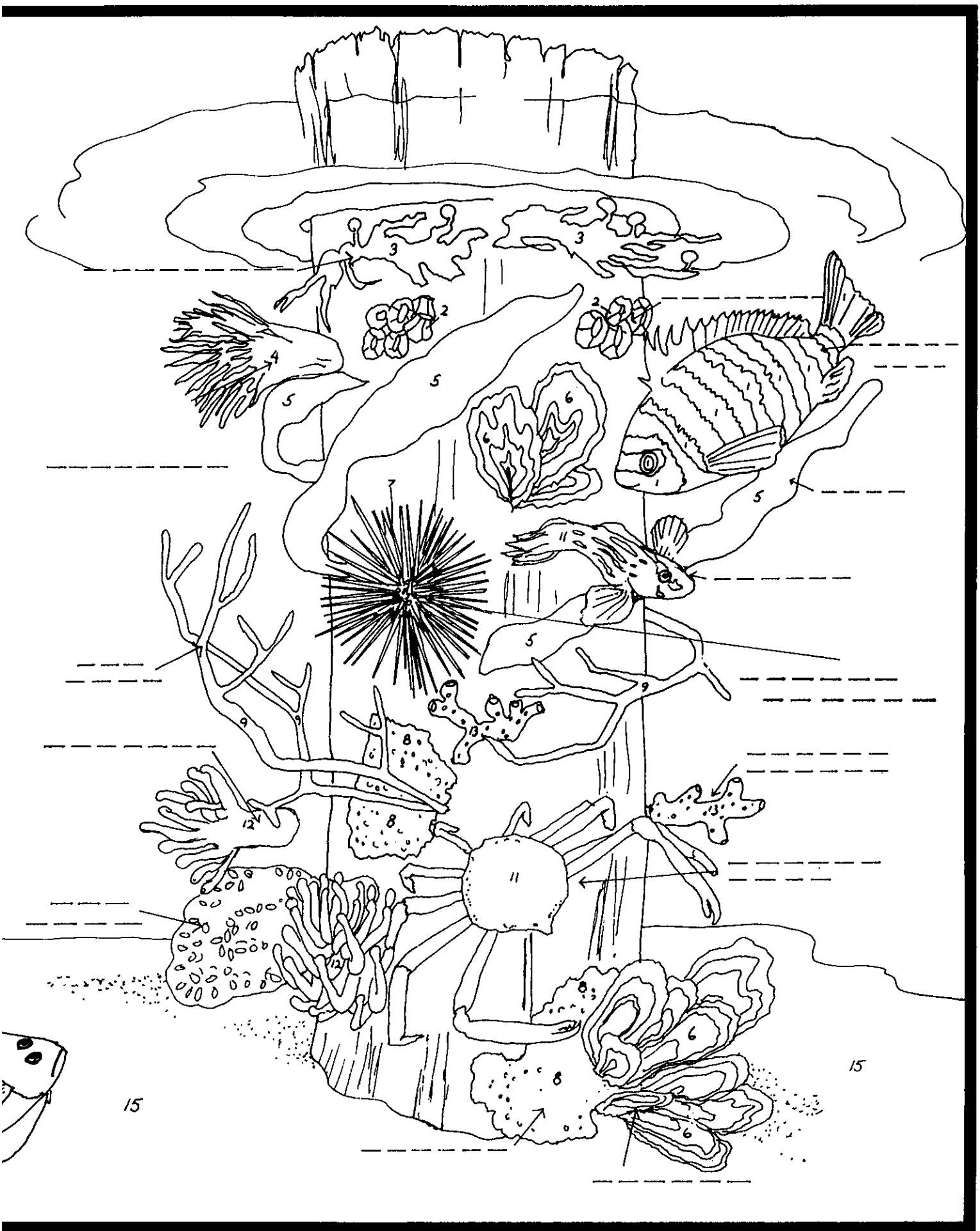


FLOUNDER

COLOR KEY

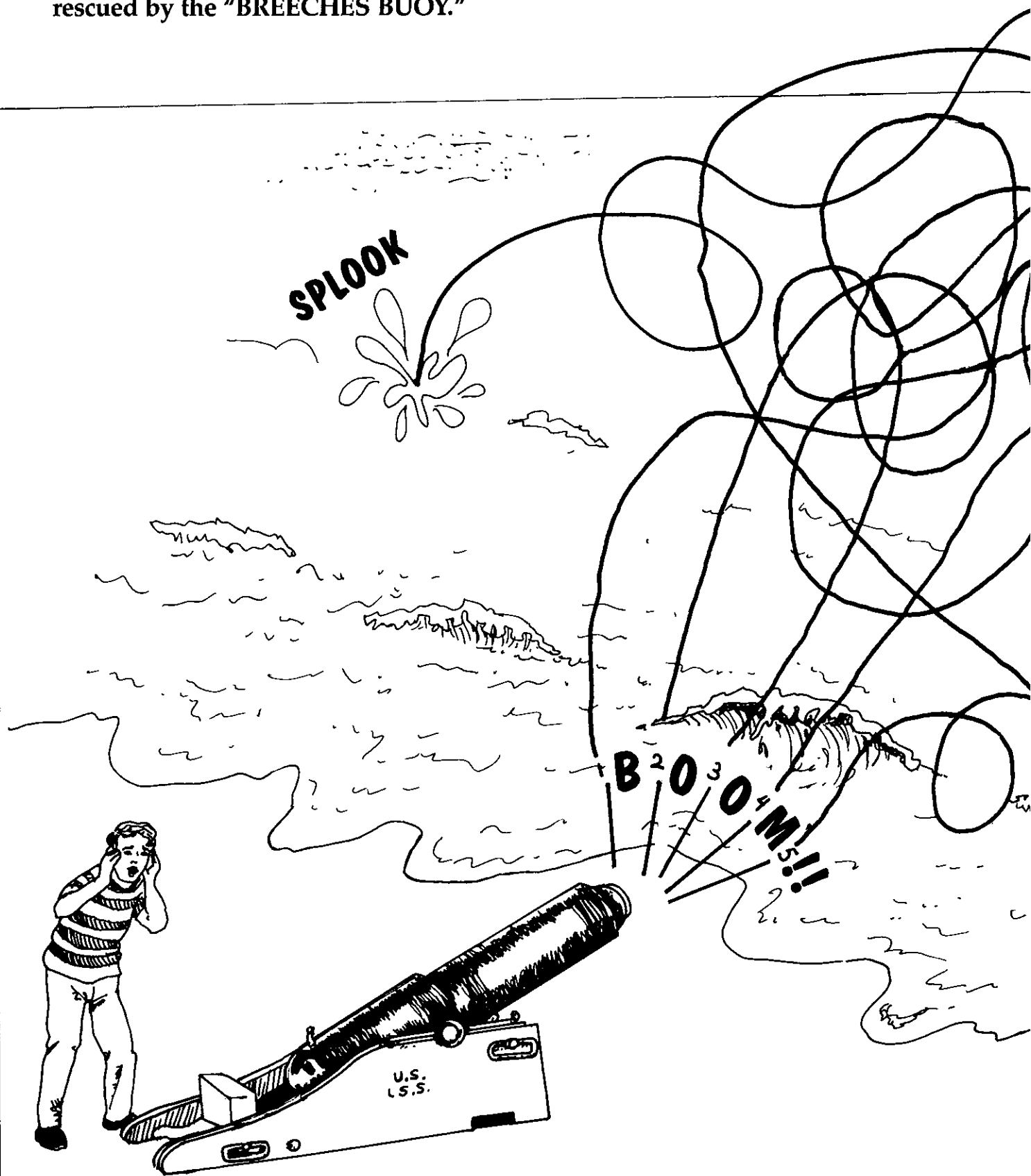
- 1 - BLACK
- 2 - GREY
- 3 - OCHRE
- 4 - BROWN
- 5 - YELLOW/GREEN
- 6 - SILVER
- 7 - DARK PURPLE
- 8 - RED/ORANGE
- 9 - YELLOW OR ORANGE
- 10 - YELLOW
- 11 - BROWN
- 12 - PINK
- 13 - LIGHT PURPLE
- 14 - DARK TAN
- 15 - TAN



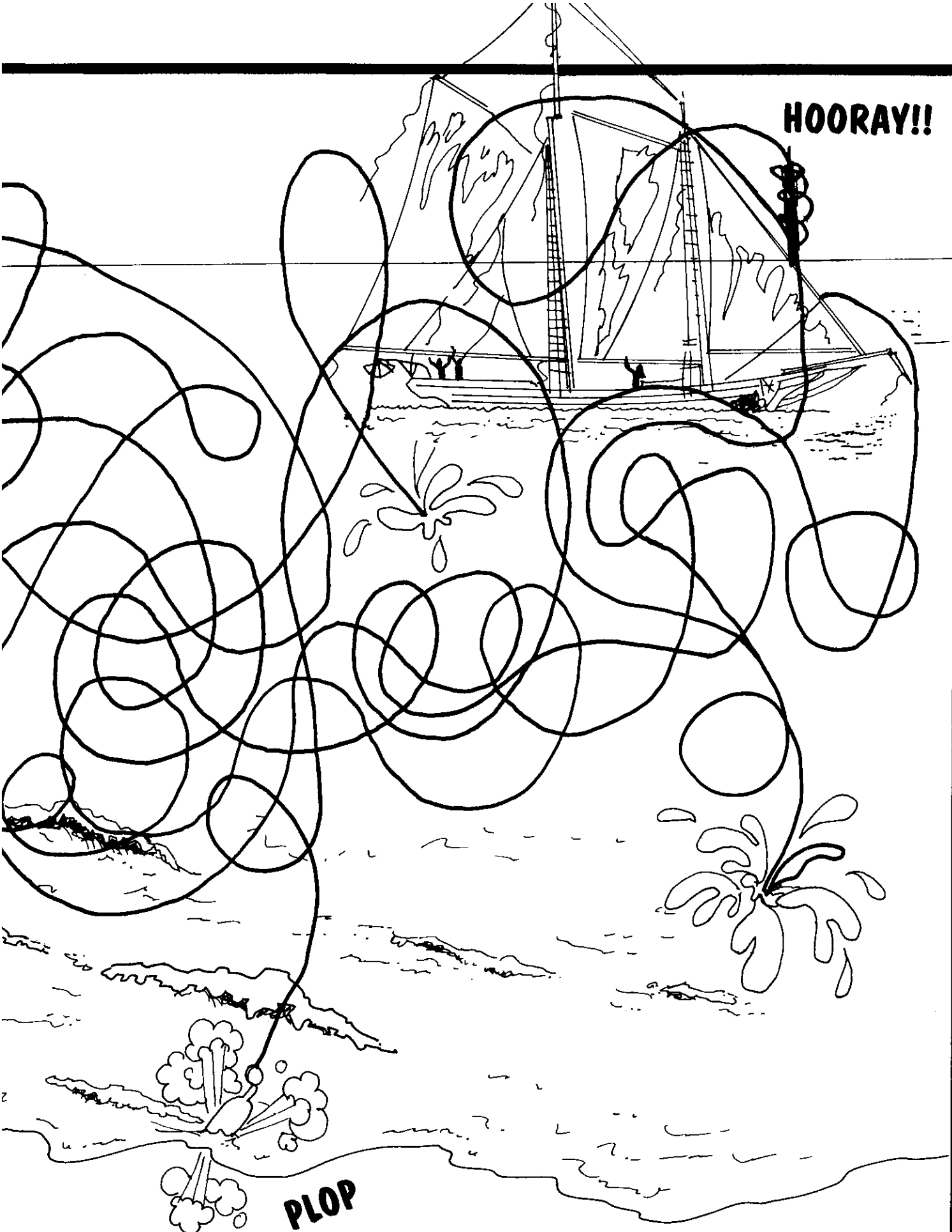


LIFESAVING ACTIVITY

Use different colors to trace over the lines fired from the Lyle gun.
Which projectile made it to the ship so the crew could be
rescued by the "BREECHES BUOY."

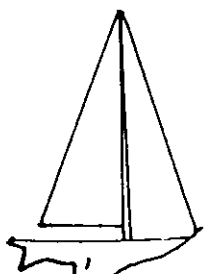


HOORAY!!

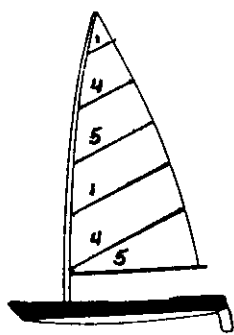


PLOP

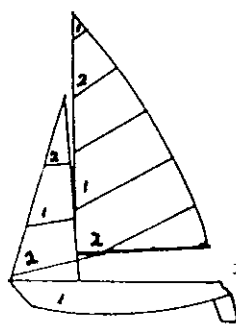
INSHORE WATERS ACTIVITY



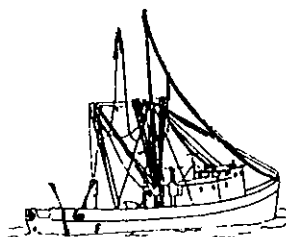
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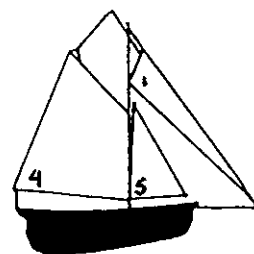
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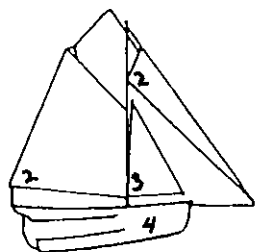
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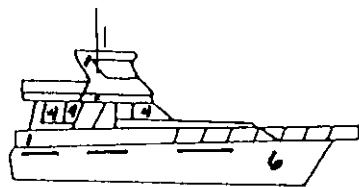
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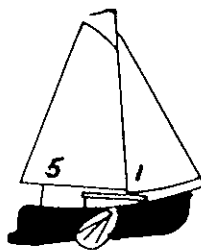
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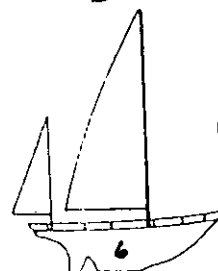
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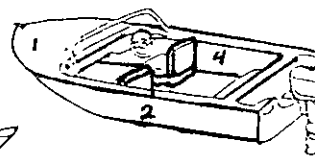
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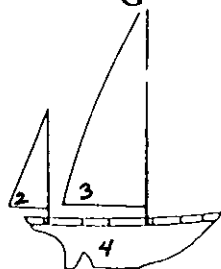
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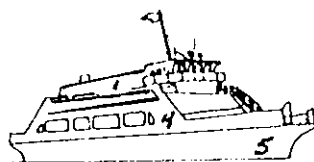
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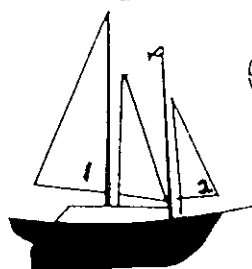
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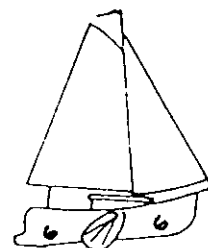
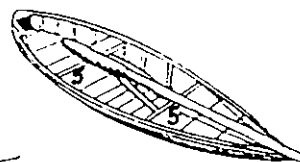
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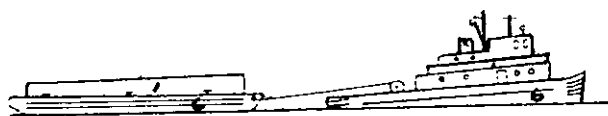
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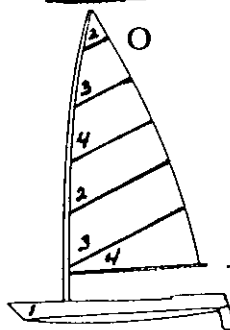
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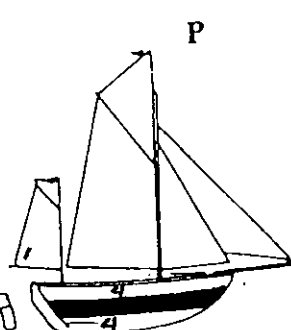
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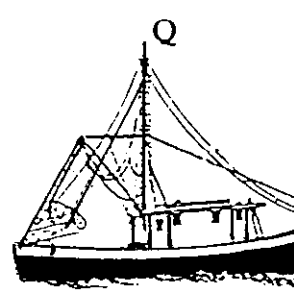
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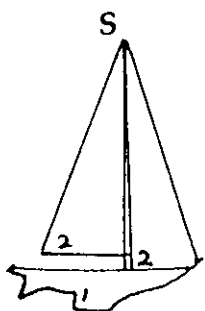
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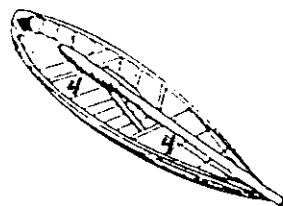
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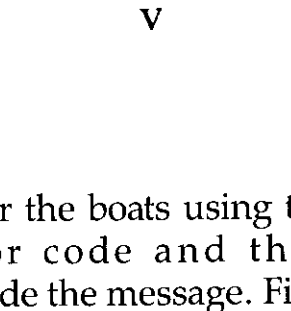
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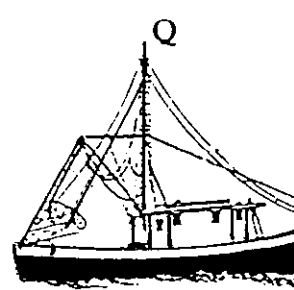
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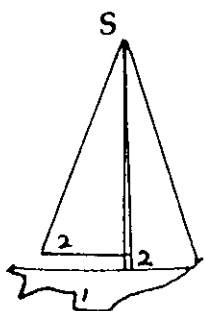
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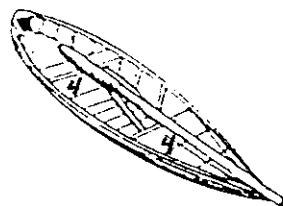
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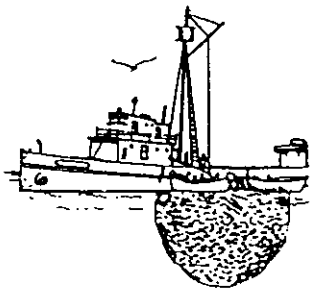


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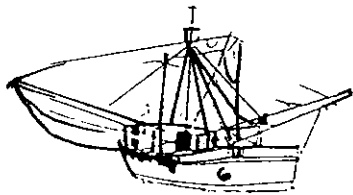


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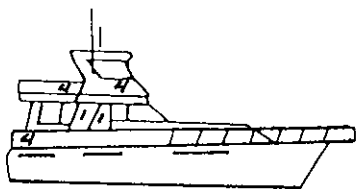
Color the boats using the color code and then decode the message. Find the boat above the letter. Put the letter on the blank to form the word.



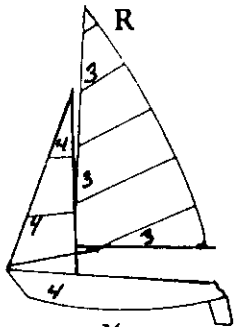
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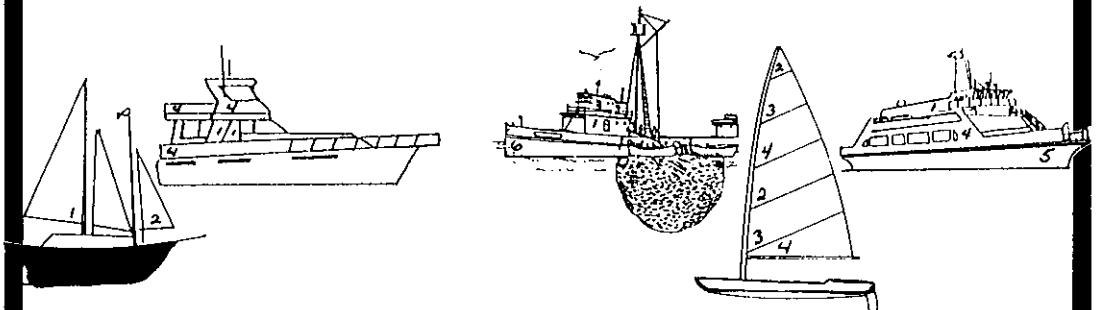
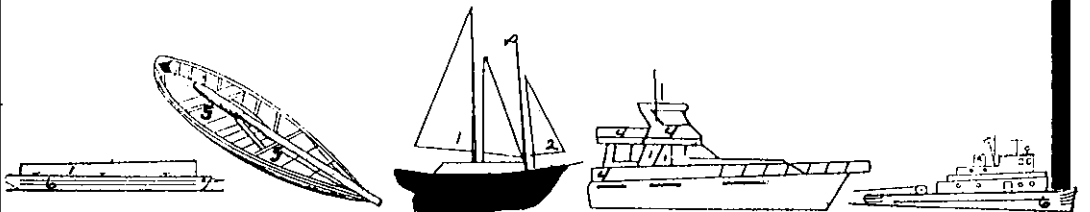
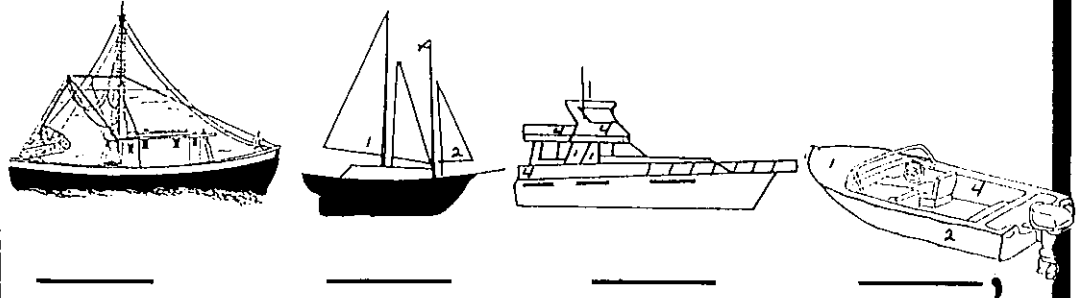
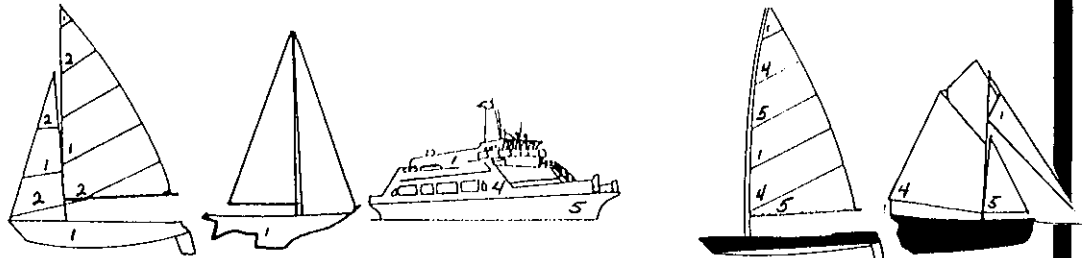
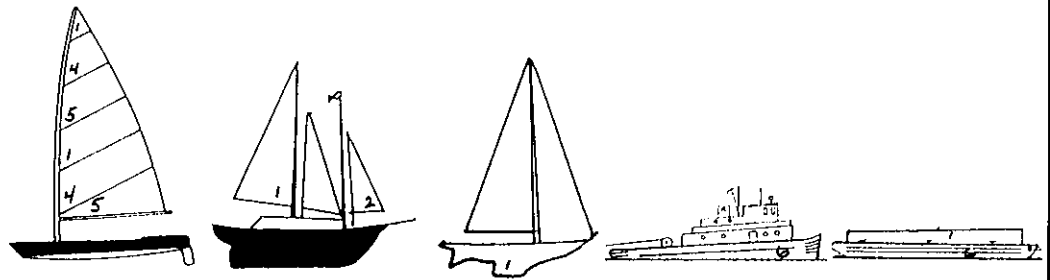
R



X

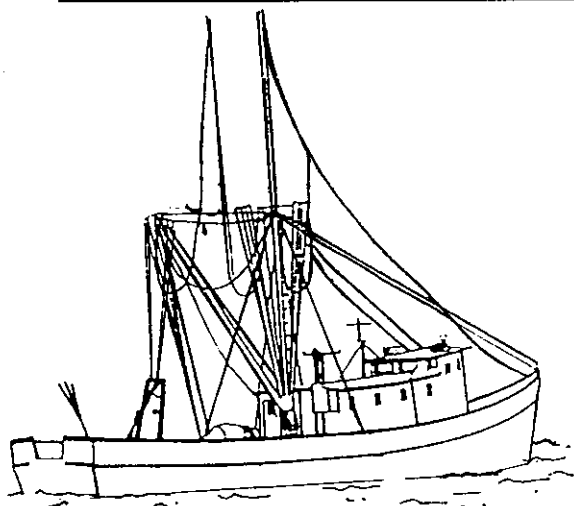
Color Code

- 1 Red
- 2 Blue
- 3 Green
- 4 Yellow
- 5 Orange
- 6 Brown



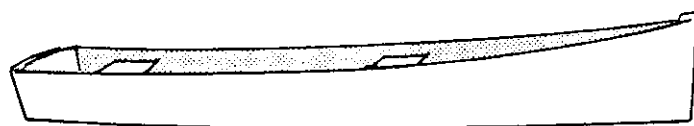
COASTAL WATERS ACTIVITY

This is a chart (map) of some coastal waters. Boaters must be careful to steer clear of shoals (shallow places), so the safe passage is not always a straight one. Color in the chart using the color key. Now draw a line showing your course as you take a deep-draft sailboat from point 1 to point 2. Draw another line that shows your course as you take your poling skiff from point 3 to point 4. Which of your boats went the shortest distance? _____

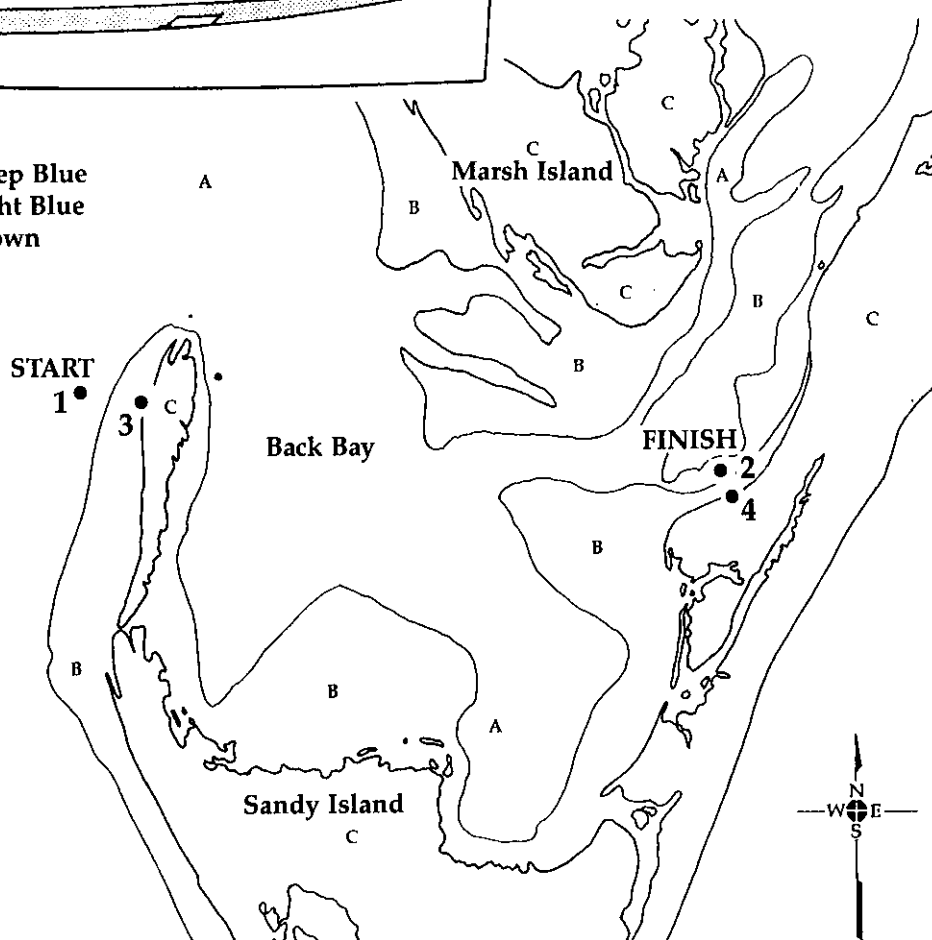


This trawler has a deep keel that extends down several feet. Boats of this kind must stay in deep water or they will go aground.

A poling skiff is a small, flat bottomed boat. Although it may have a small engine, it is usually moved through the water by means of a long pole that is pushed against the bottom. This boat must stay in shallow water so the pole can reach the bottom.



A — Deep Blue
B — Light Blue
C — Brown

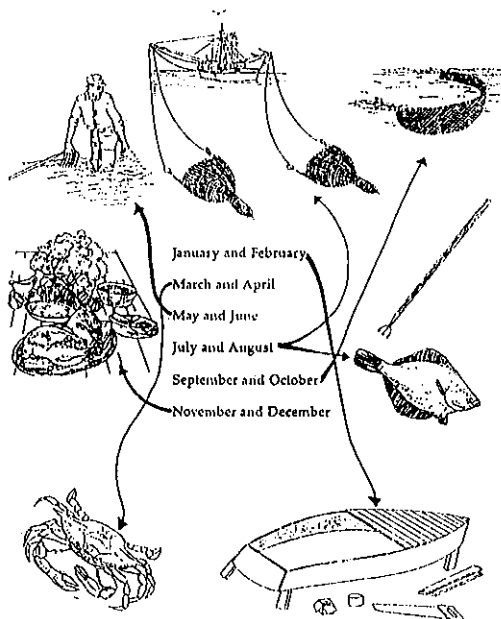


GLOSSARY

- barge** — unpowered boat for transporting freight
- barrier islands** — a chain of sandy, low islands that act as barriers between the ocean and the sound
- breeches buoy** — a life saving device used for carrying a person from a wrecked ship to the safety of shore
- current** — the flow or running of a body of water
- decoys** — carved images of a duck, goose or other birds used to lure live birds
- delicacy** — something which is pleasing to eat
- detritus** — bits of decomposed plant and animal matter
- dredge** — basket-like fishing gear drag across oyster beds
- environment** — surroundings of an organism, including the plants and animals with which it interacts
- estuaries** — where fresh and salt water meet
- ferries** — boats that transfer people or automobiles from one shore to another
- gigging** — the practice of using a barbed spear to catch fish in shallow water
- habitat** — place where a plant or animal lives
- ingenuity** — inventive skill or imagination
- inlet** — an opening between barrier islands which allows tides to flow back and forth
- intertidal** — between the high and low tides
- intracoastal waterway** — a water route within and along the shores of a land mass
- isolated** — to be set apart, or separated, to be alone
- jetties** — structures built in nearshore waters to divert ocean currents in an attempt to prevent erosion
- life car** — a boat-shaped trolley used for saving boat passengers
- lighthouse** — a structure with a powerful light used by ships and boats to locate hazards and land
- Lyle gun** — small cannon which propelled a line from shore to a wrecked ship
- menhaden** — a herring-like fish that is harvested for its oil
- mobile** — capable of moving from place to place
- Native Americans** — Indians
- navigator** — a person who is able to determine the exact position of a ship on a chart so the ship can go accurately from one place to another
- nutrients** — any substance required by organisms for normal growth
- Outer Banks** — the name given the barrier islands along central and northern North Carolina coast
- oysters** — molluscs with rough, irregular shells found in salt water
- pocosins** — ancient lake beds that have filled in with organic matter
- purse seine** — a type of net that surrounds and encloses a school of fish
- reef** — an area of rock, shell, or coral lying underwater
- rock jetty** — a structure projecting into a body of water (**see jetties**)
- schooner** — a sailing vessel with two or more masts and fore-and-aft sails
- sediments** — particles of matter in water that settle to the bottom
- shad boat** — an older type of boat used to catch shad as they swim upriver to spawn
- sharpie** — an older type of flat bottomed boat used in the oyster fishery and as transport
- skiff** — various types of boats small enough for sailing or rowing by one person
- sloop** — sailing vessel with single mast used to transport goods
- soft crab** — a blue crab in the growing stage after shedding its hard shell and before the new, larger shell hardens
- sound** — a body of water between the mainland and an island
- species** — all animals or plants of the same kind
- substrate** — the underwater surface on which an organism can be found
- tides** — periodic variations in the surface level of the oceans and connected bodies of water influenced by the position of the moon and sun
- trawl** — a funnel-shaped fishing net dragged along the bottom
- trawlers** — fishing boats that use trawls to catch shrimp and fish in the sounds, rivers, and in the ocean
- wetlands** — pocosins, swamps, and marshes

ANSWER PAGE

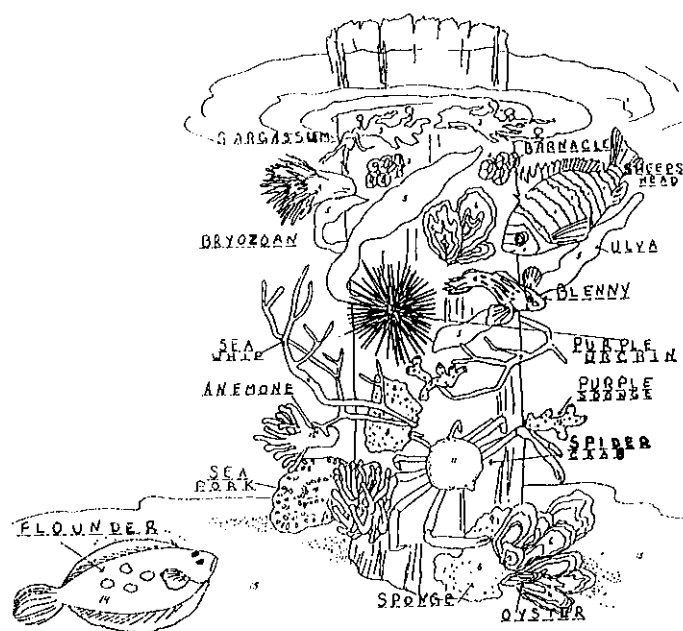
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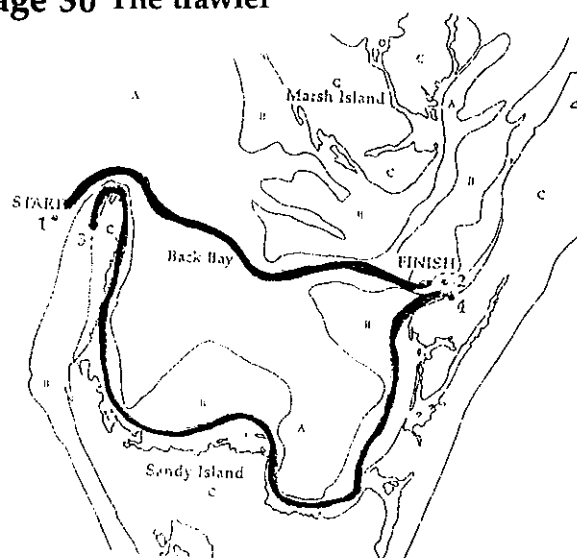
Page 25



Page 26 LINE - 4

Page 29 Boating can be work, sport, or fun.

Page 30 The trawler



BUILD YOUR OWN TOY BOAT ACTIVITY

BUILD YOUR OWN PAPER BOAT

This pattern will make a boat similar to many skiffs that are built in North Carolina.

Cut it directly from the page or transfer it to heavier cardboard for a more durable boat.

