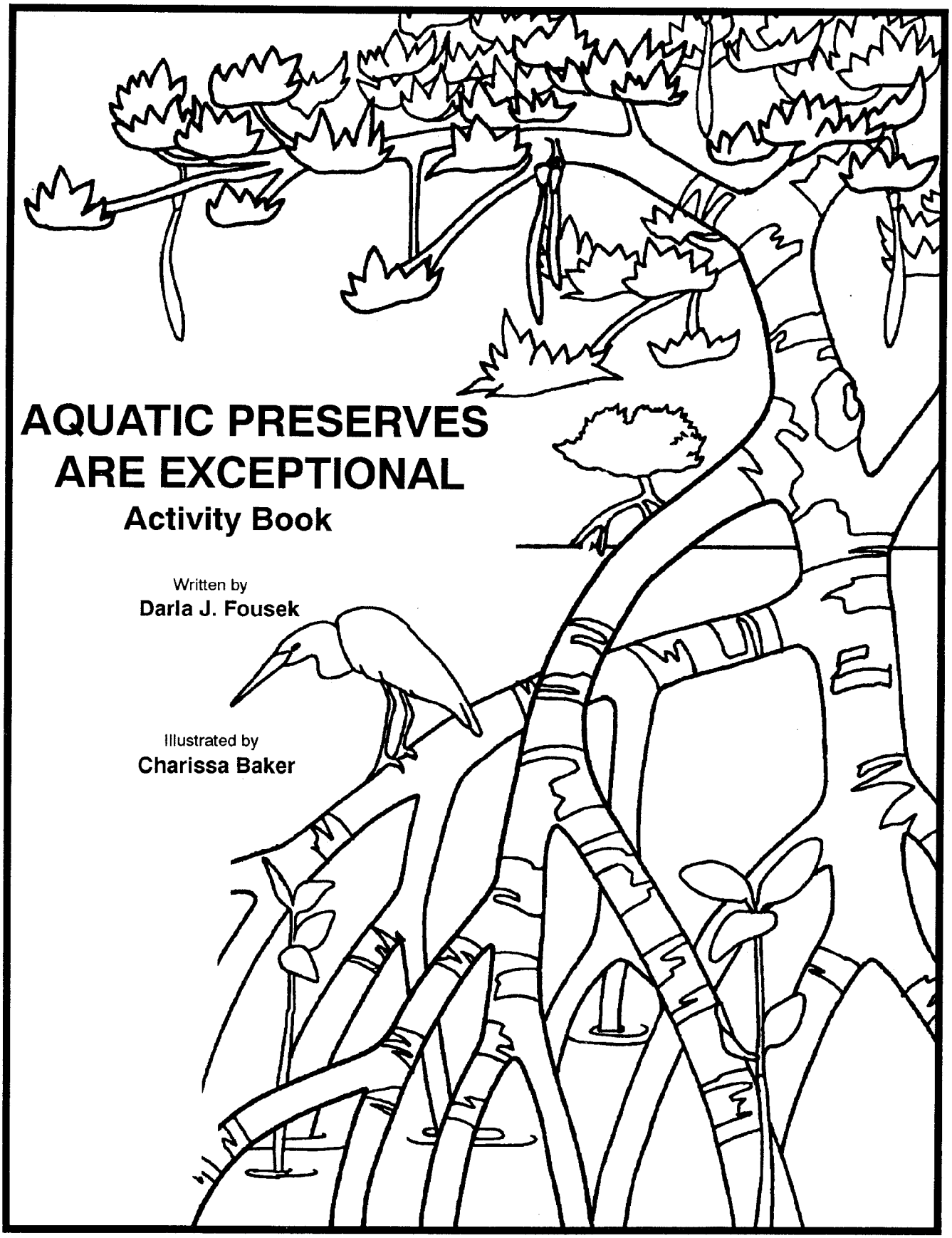
INDIAN RIVER LAGOON COLORING BOOK



AQUATIC PRESERVES ARE EXCEPTIONAL

Activity Book

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THIS PUBLICATION HAS BEEN REPRODUCED THROUGH A COOPERATIVE EFFORT OF THE FOLLOWING AGENCIES:

Department of Environmental Protection
Bureau of Submerged Lands & Preserves

St. Johns River
Water Management District

South Florida
Water Management District

Indian River Lagoon
National Estuary Program

This publication was produced at a cost of $.74 a copy to provide information to the public about the natural resources of the Indian River Lagoon.

Dear Teachers and Parents:

To protect distinctive water related natural features for the enjoyment of future generations, the Florida Legislature created aquatic preserves. Aquatic Preserves are exceptional areas of submerged lands and associated waters which are to be maintained in their natural or existing condition. Management objectives for the preserves are to maintain and improve existing resources such as seagrasses, mangroves, aquatic plants, birds and fish.

Unfortunately, these features that have drawn people to Florida are endangered by increasing population pressures. Only through careful preservation of these essential resources can the public be assured continued enjoyment of activities such as fishing, boating and swimming.

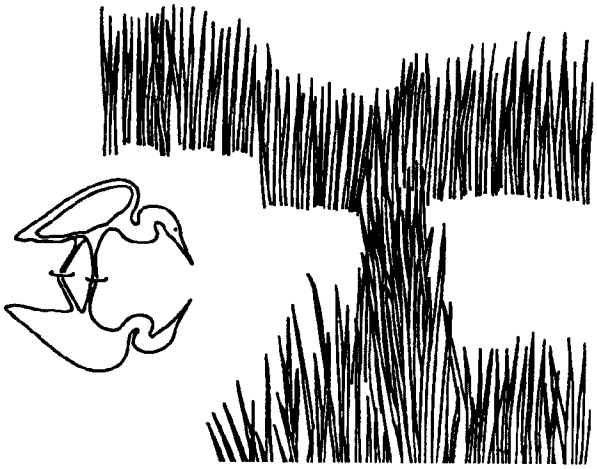
The Aquatic Preserves are Exceptional, student activity booklet is designed to introduce children to some native plants and animals living in Florida's various ecosystems. We encourage you to explore this booklet with your child and enhance your awareness of Florida's natural resources. Present generations must help preserve and protect these fragile resources to insure their continued existence in Florida's future.

"If a child is to keep alive his inborn sense of wonder...he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement and mystery of the world we live in. " -Rachel Carson

Environmentally yours,

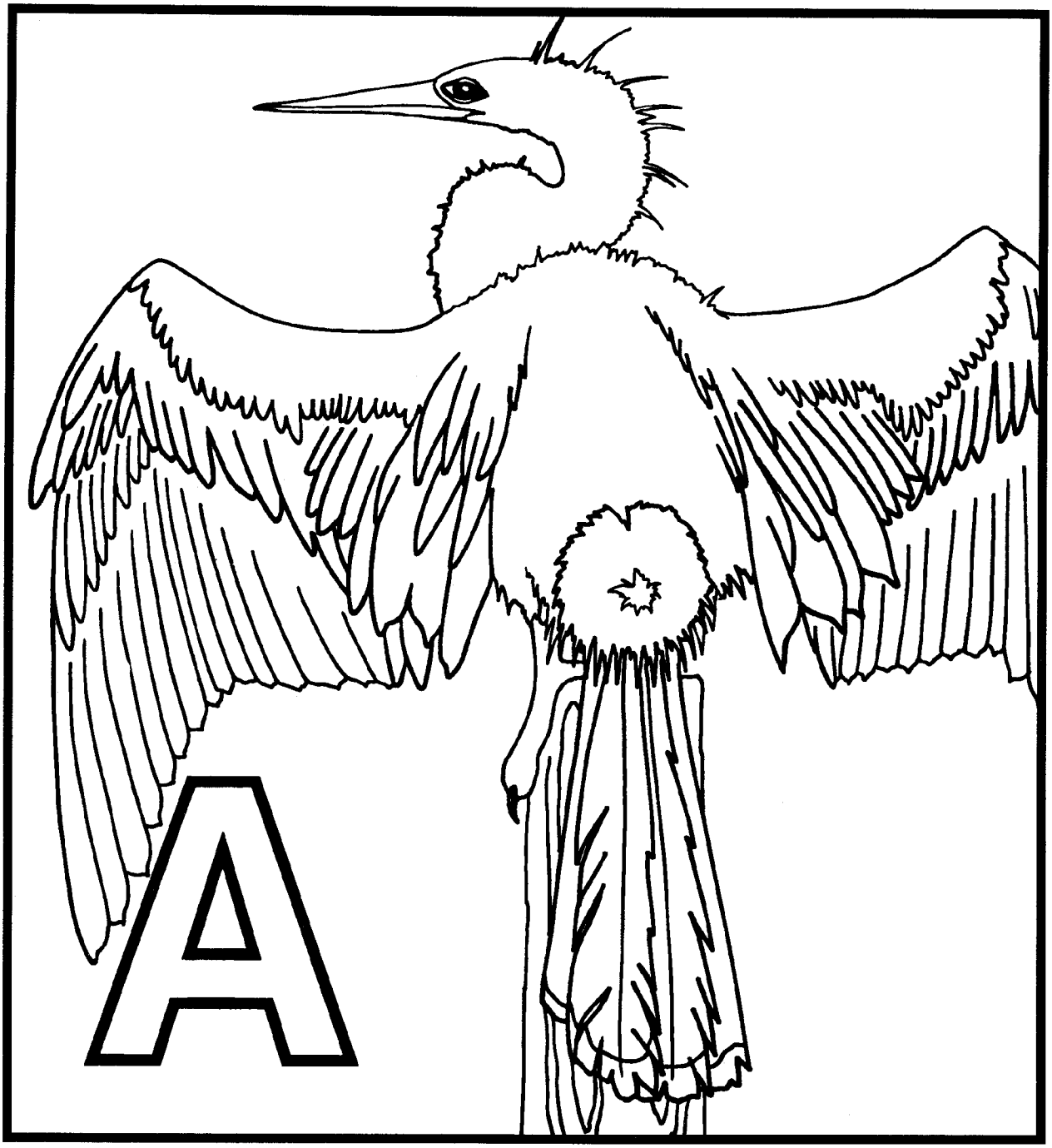
Darla Fousek

Darla Fousek

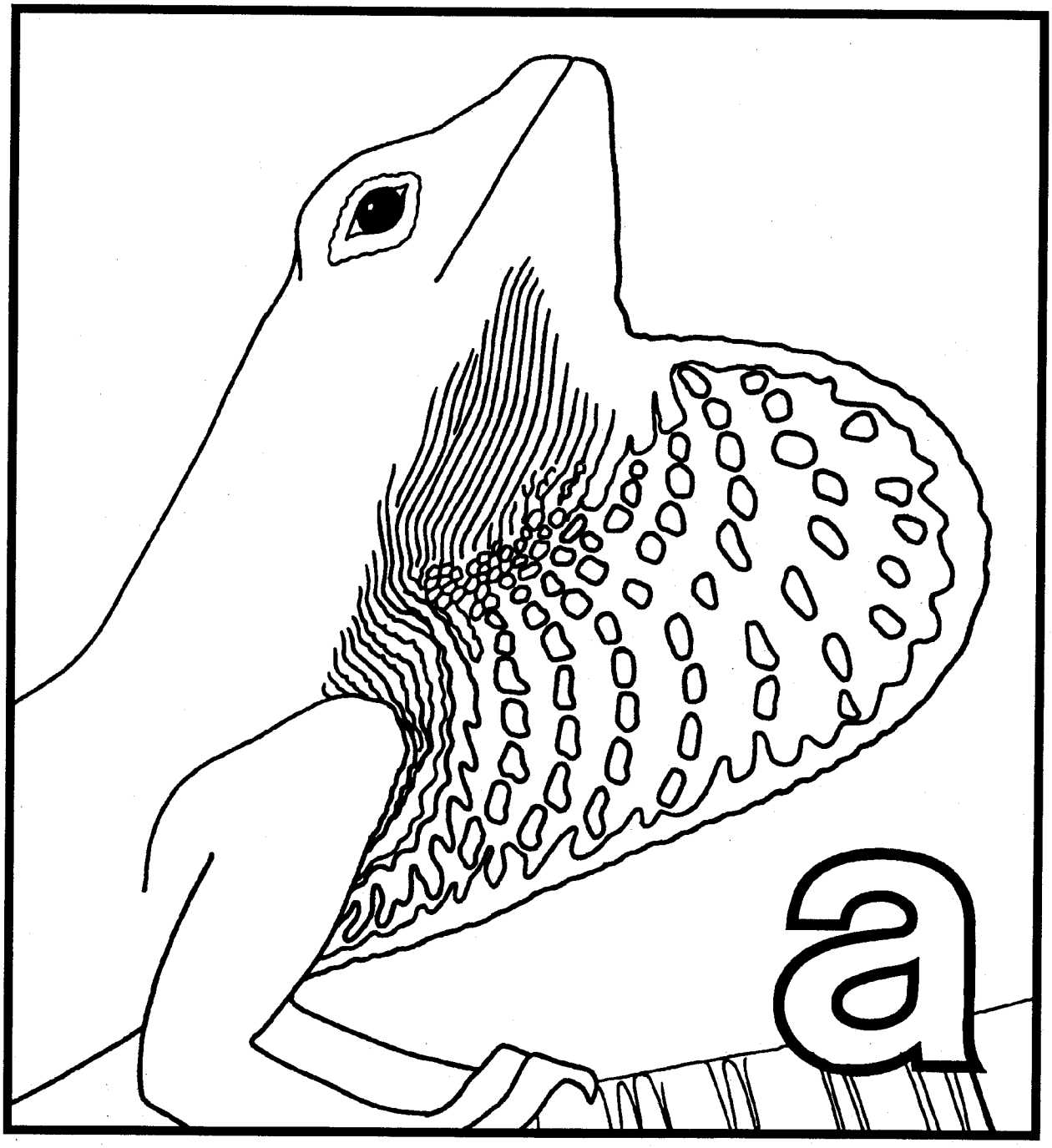


ACKNOWLEDGEMENT

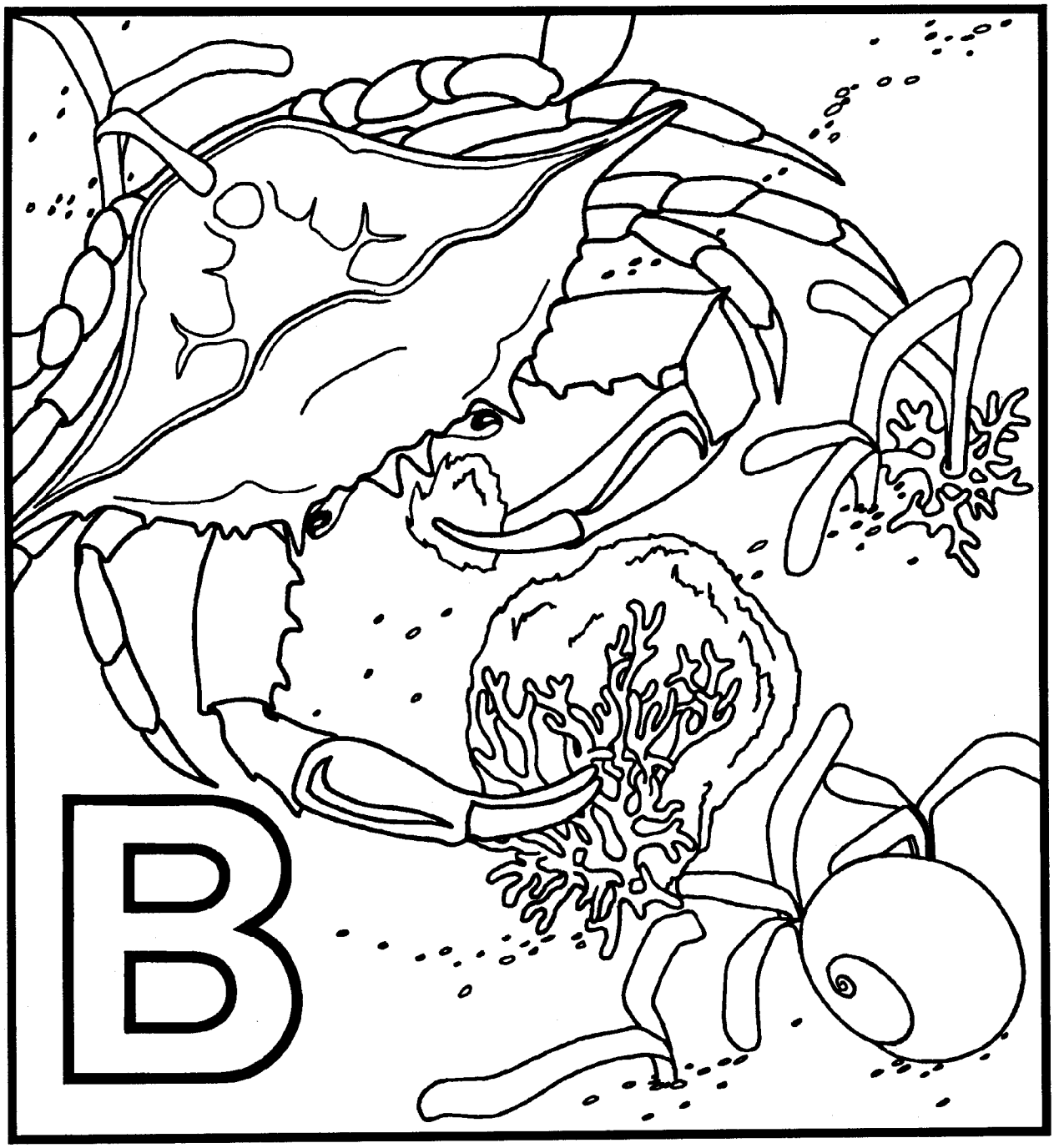
I would like to thank Paul S. Mikkelsen for his willingness to lend assistance with all computer related aspects of this project. His patience and dedication is greatly appreciated.



Anhingas are long slim waterbirds. Anhingas dive into water to escape danger or hunt fish. This bird swims under water and spears fish with its sharp bill. Their feathers are not waterproof like other waterbirds. Anhingas must sit with wings spread open to dry them.

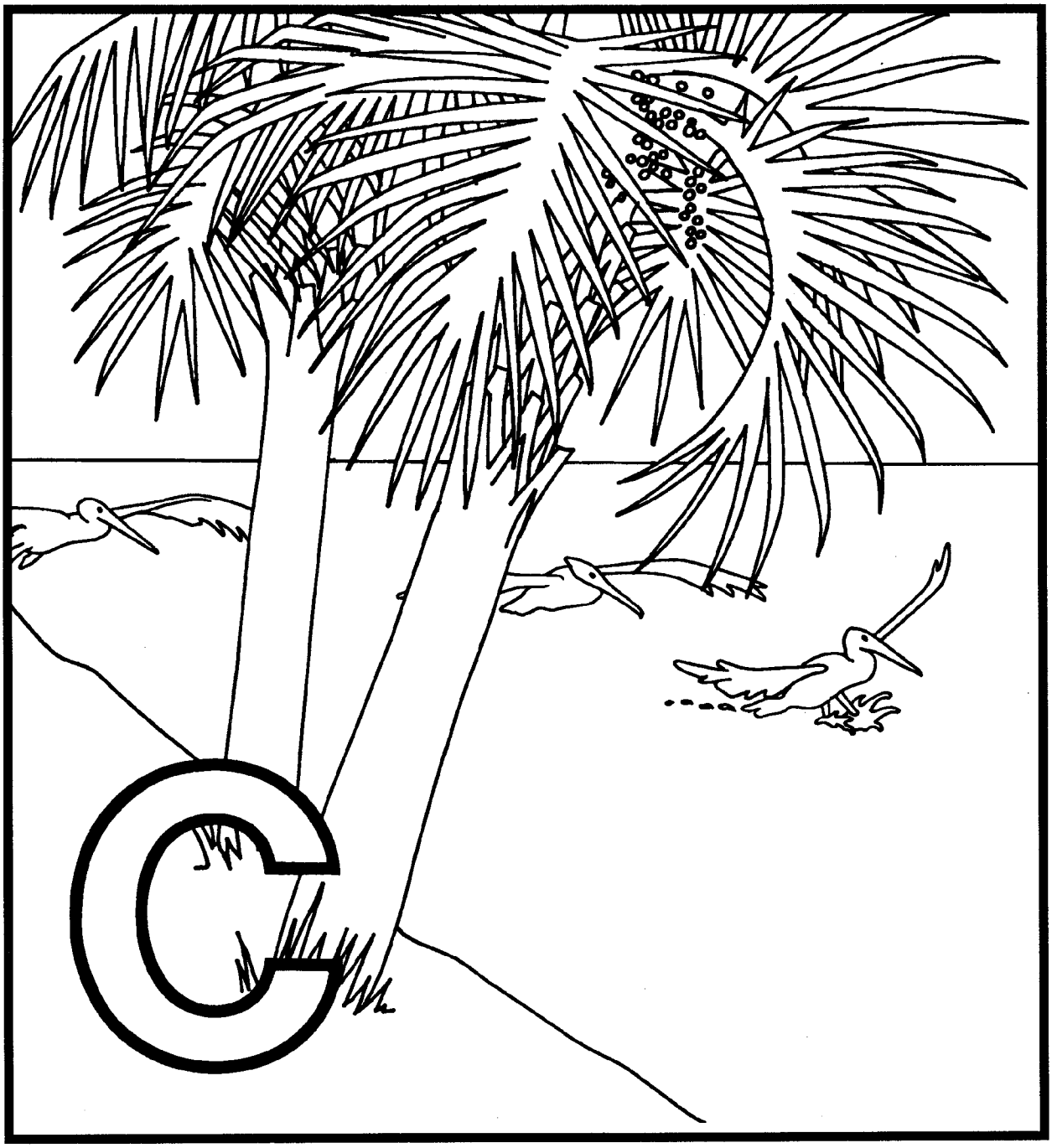


Anoles are small lizards that change color to match their surroundings. Anoles defend their home area from other lizards. Male anoles bob their heads and extend a bright red flap of skin under their necks as a warning to all intruding males. With the use of special toe pads, anoles climb trees in search of insects and spiders.

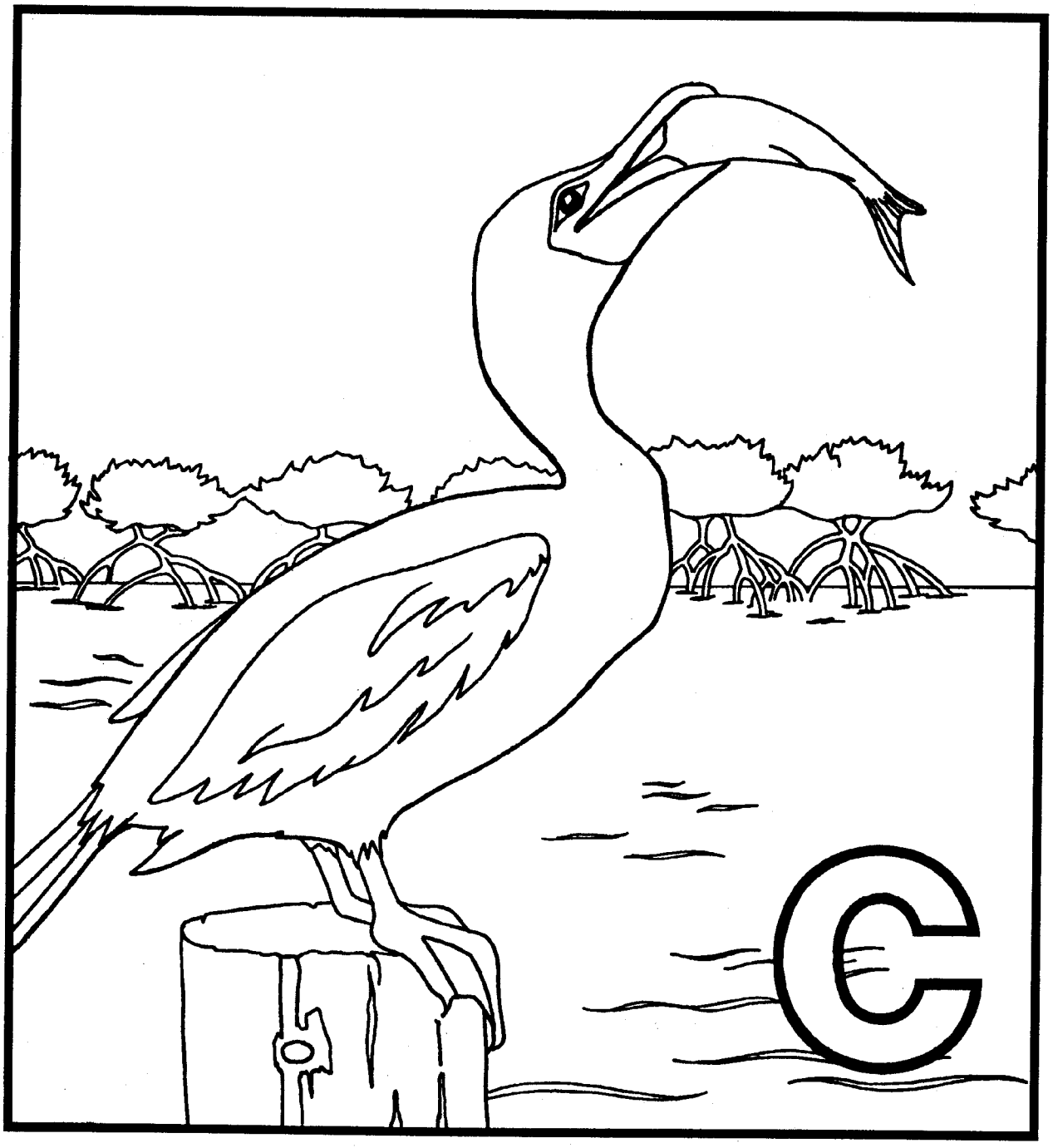


Blue crabs live near muddy shores of bays and estuaries. They swim in fresh or salt water. Their hind legs are paddle shaped, making them rapid swimmers. Blue crabs hide in mud to escape predators or to surprise and capture unwary fish.

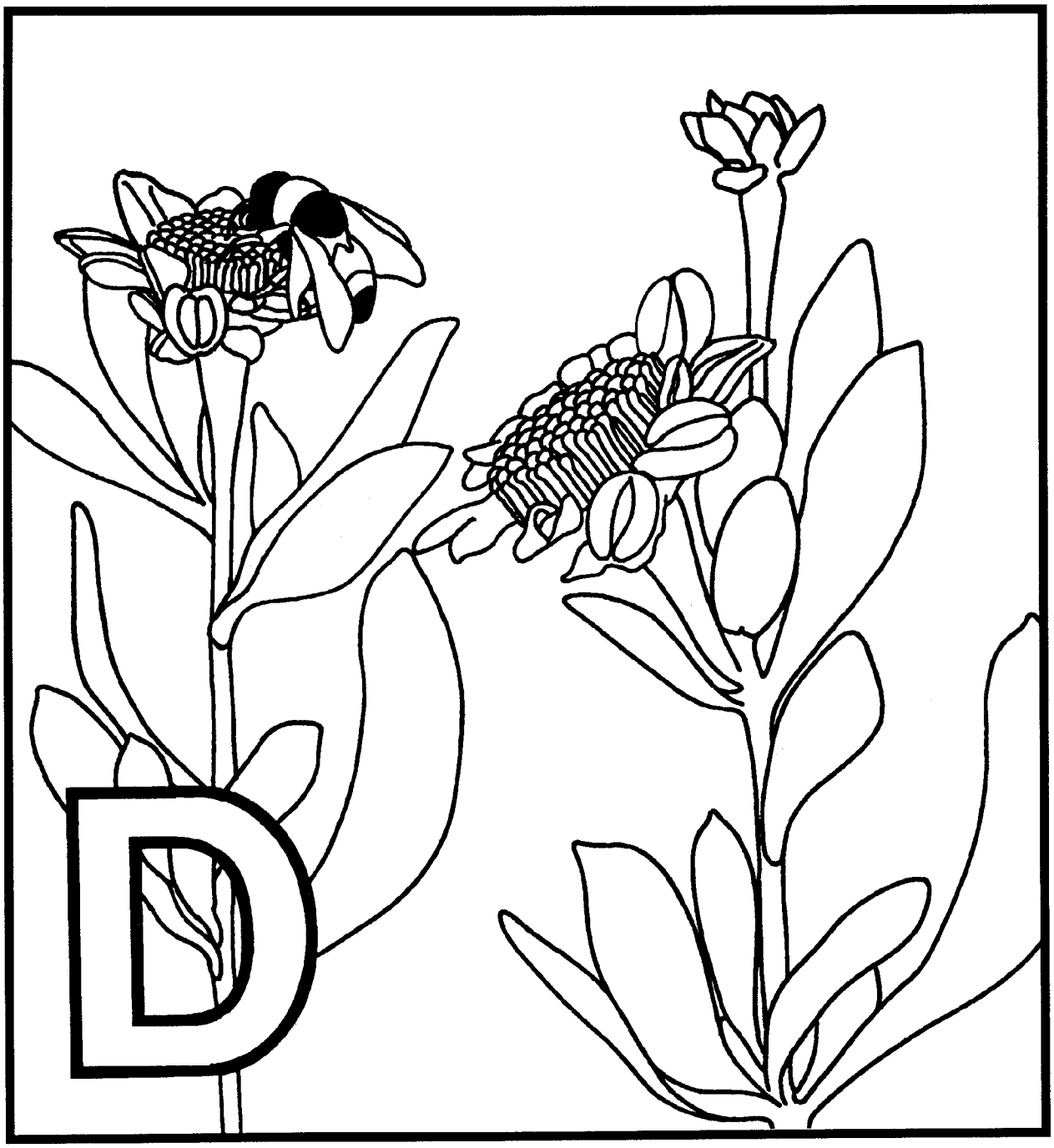
Bobcats are short tailed cats which live in woodland and wetland areas. Although small (25 pounds or less), bobcats are powerful carnivores. As agile in trees as on the ground, this nighttime hunter captures all sizes of prey, from birds and mice to deer.



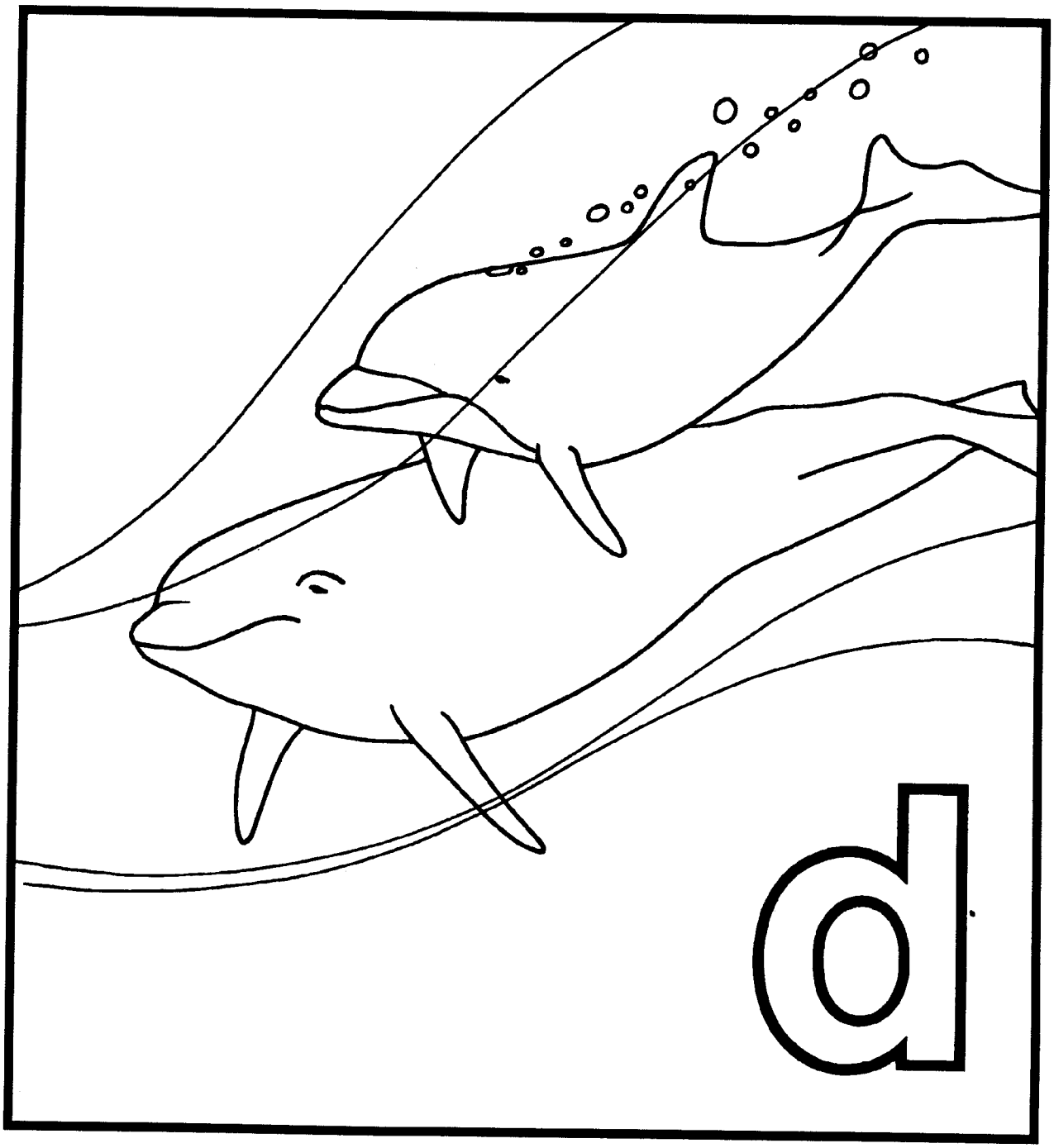
Cabbage palms are the most common native palm in Florida, and Florida's state tree. Cabbage palms produce hundreds of small round black berries every fall. These berries are a major food source for many animals, including raccoons and robins.



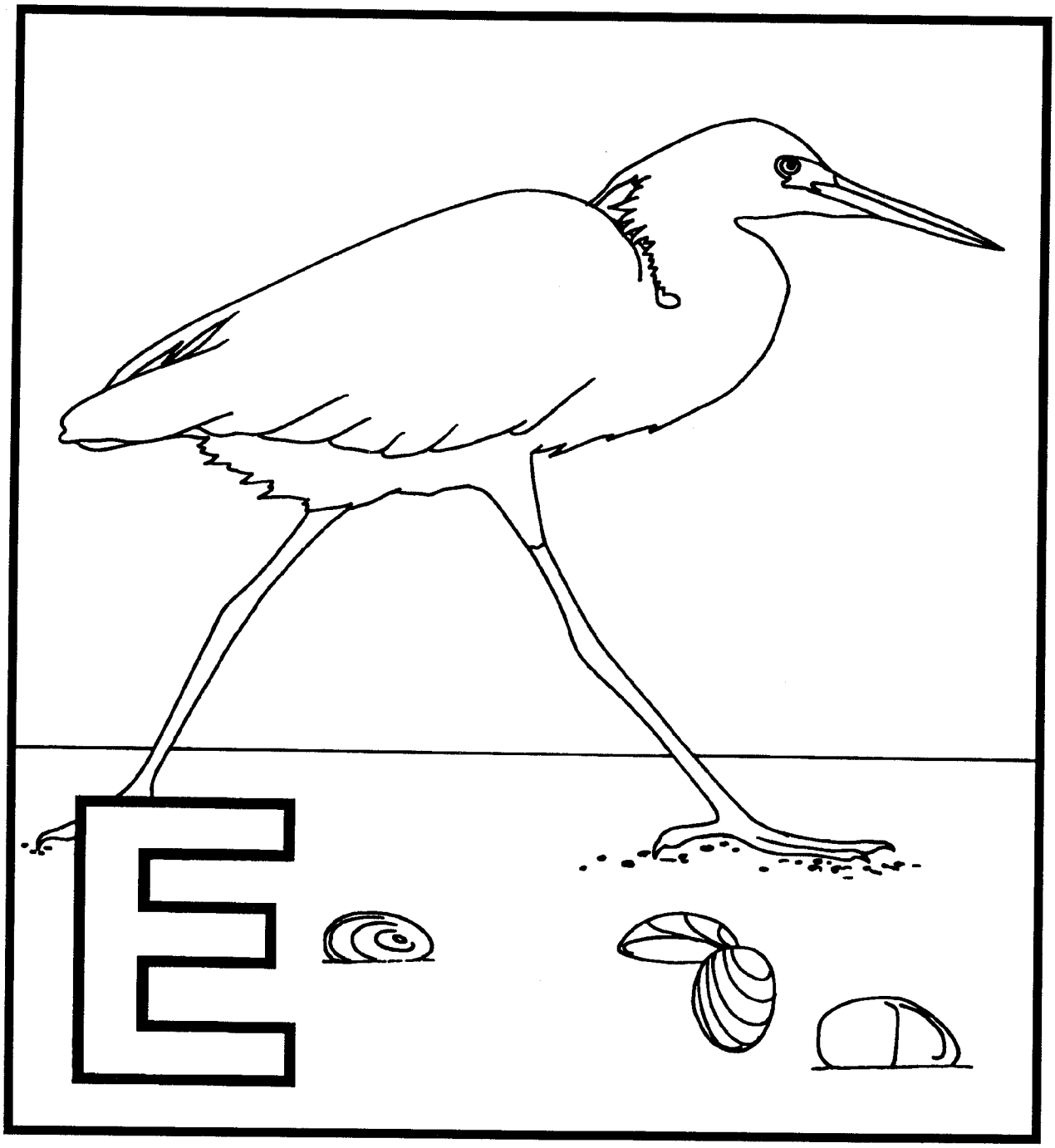
Cormorants are dark brown birds with bright orange throats. Cormorants are social animals, preferring to nest together high in trees. The young are fed digested fish from their parents' hooked bills. Like anhingas, cormorants roost after fishing with wings spread to dry in the sun.



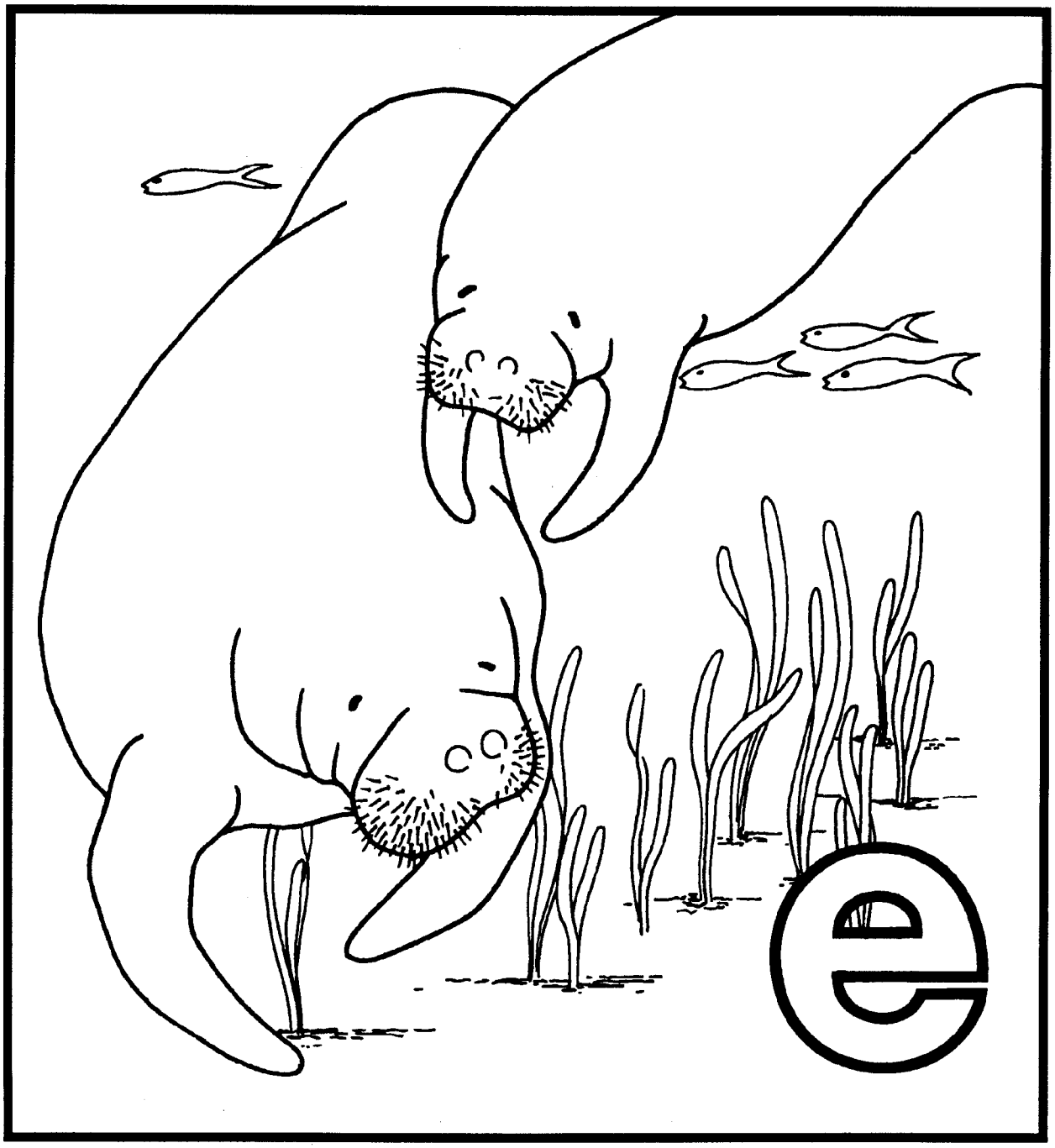
Daisies grow on the beach! Sea daisy is a common yellow flower which grows in sandy salt marsh areas. This bushy silver green plant grows well in hot, salty conditions. Its thick, fuzzy leaves prevent the sea daisy from drying out during warm sunny days.



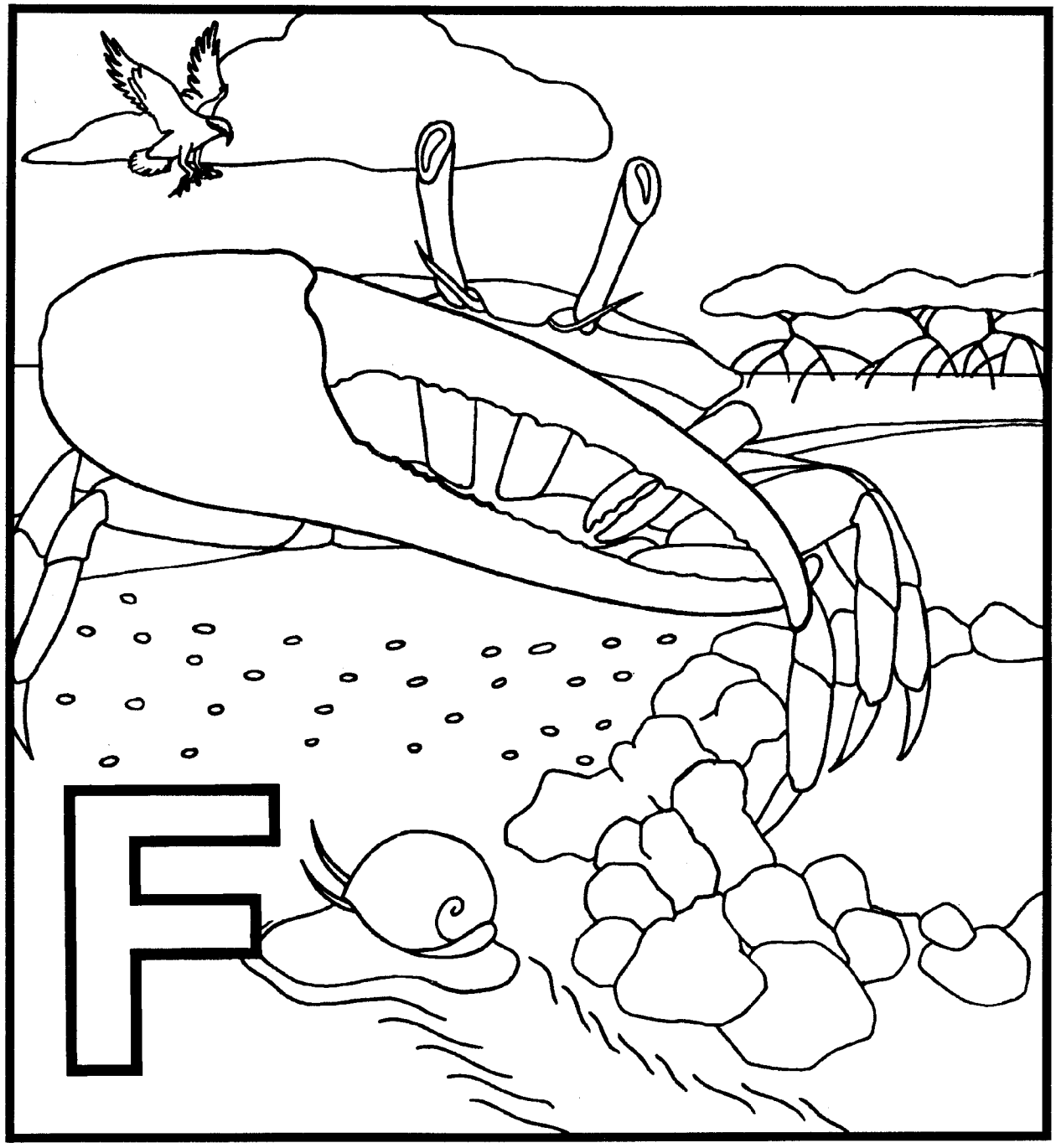
Dolphins are air-breathing mammals found in coastal waters around the world. Dolphins locate fish by echolocation, the bouncing of sound waves off of their prey to find it. Each dolphin has a unique whistle which identifies it to other dolphins in their pod (family group).



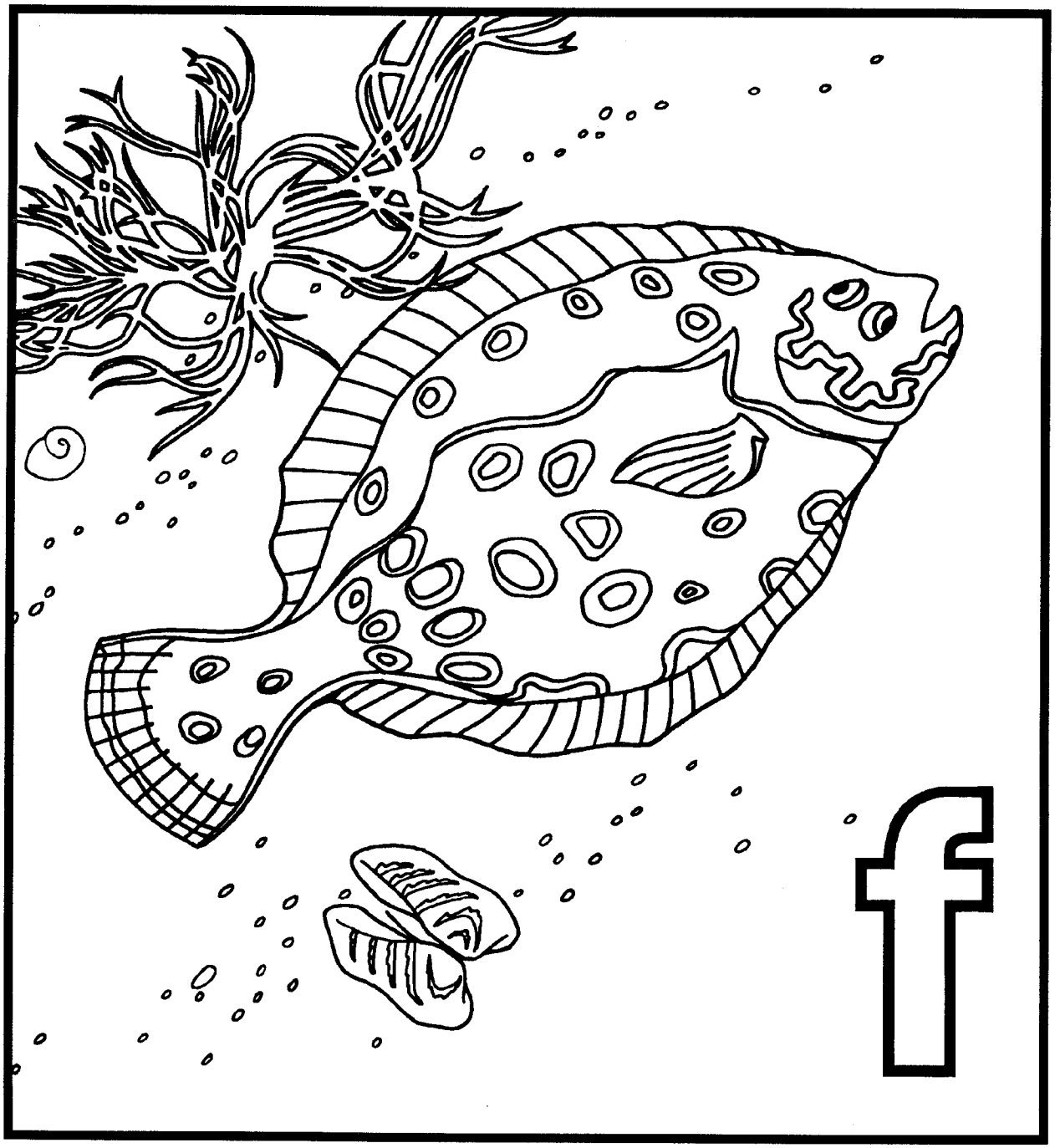
Egrets are small white herons. Snowy egrets have black legs and bright yellow feet. Unlike other members of the heron family, this egret shuffles its feet in the water when fishing. Snowys shuffle to stir up shrimp, crabs, insects, and fish.



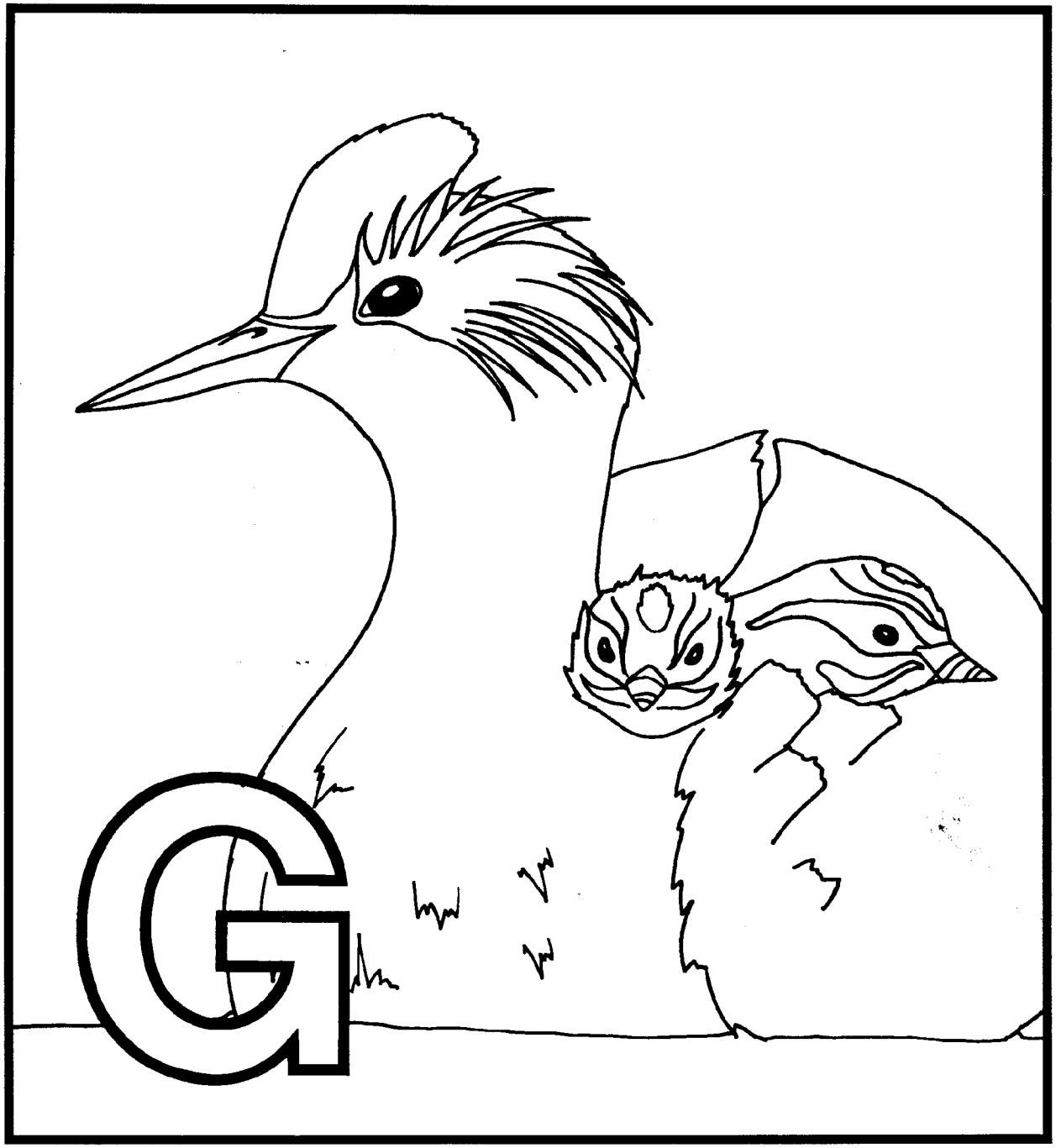
Endangered species are plants or animals which exist in very few numbers today. The best way to save endangered species is to protect the areas where they live. For example, manatees eat plants in shallow water. Can you think of a way a boater can protect the manatee?



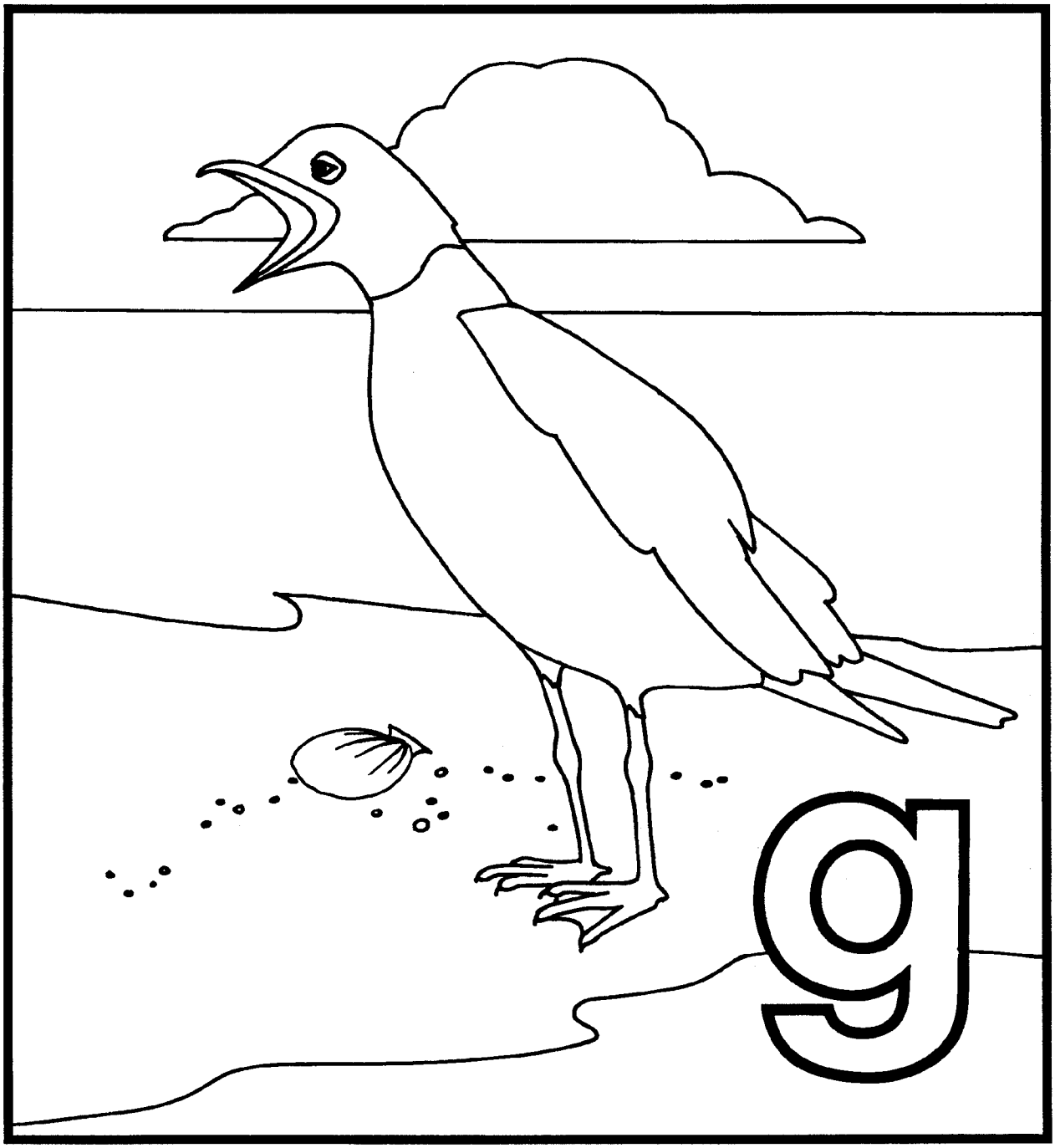
Fiddler crabs are small land crabs. Fiddlers dig burrows just below the water line on muddy shores of salt marshes or fresh water streams. Before each high tide, they scurry into their burrows and plug the opening with sand pellets. This plug holds air in and keeps water out.



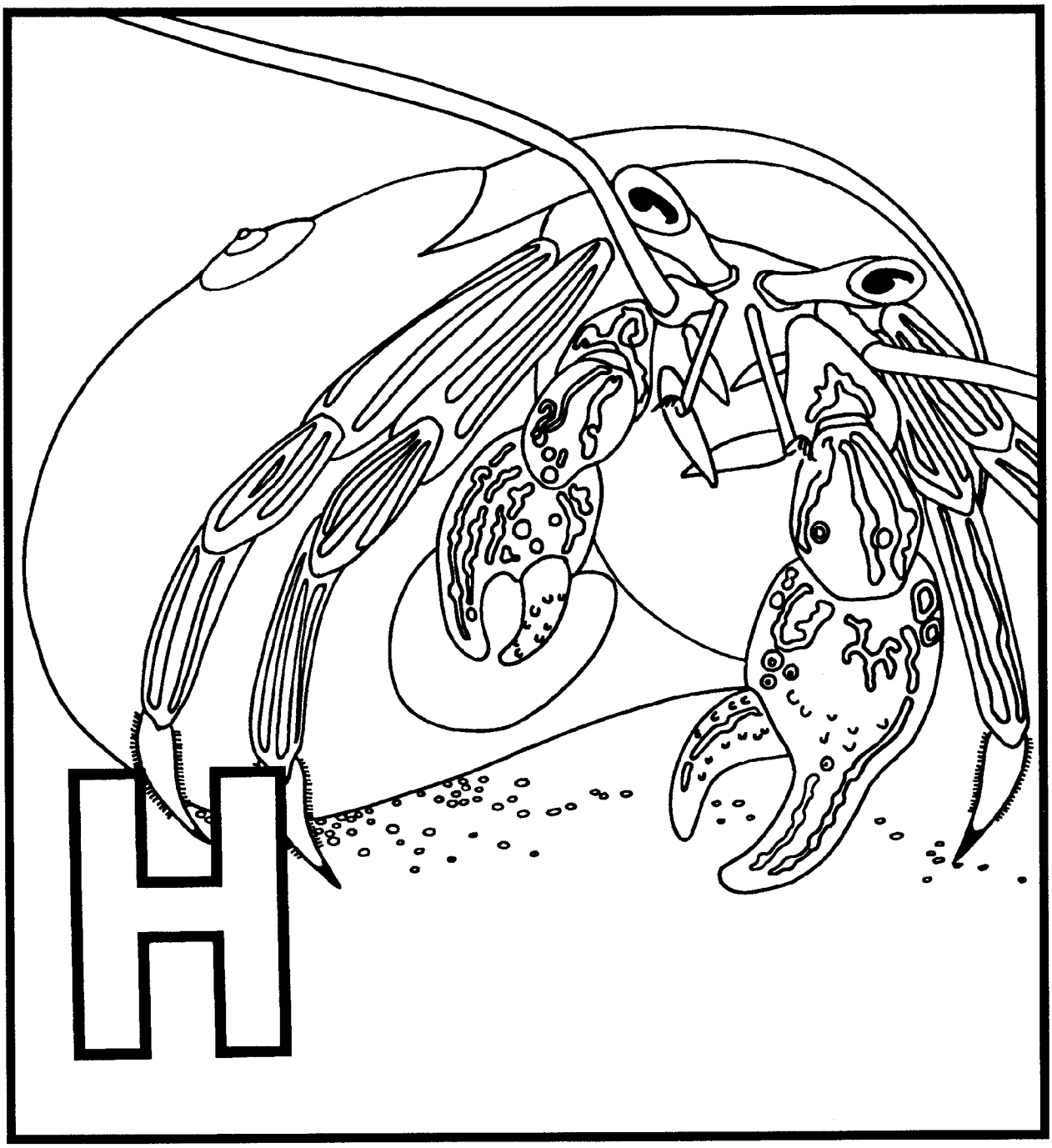
Flounders are green and brown flat fish that live on the sea floor. Flounders lay motionless on their side, using their color to hide from hungry predators. Both eyes are on the upper surface of its body. This allows the fish to see while remaining hidden. Crabs, fish and mollusks are the flounder's favorite foods.



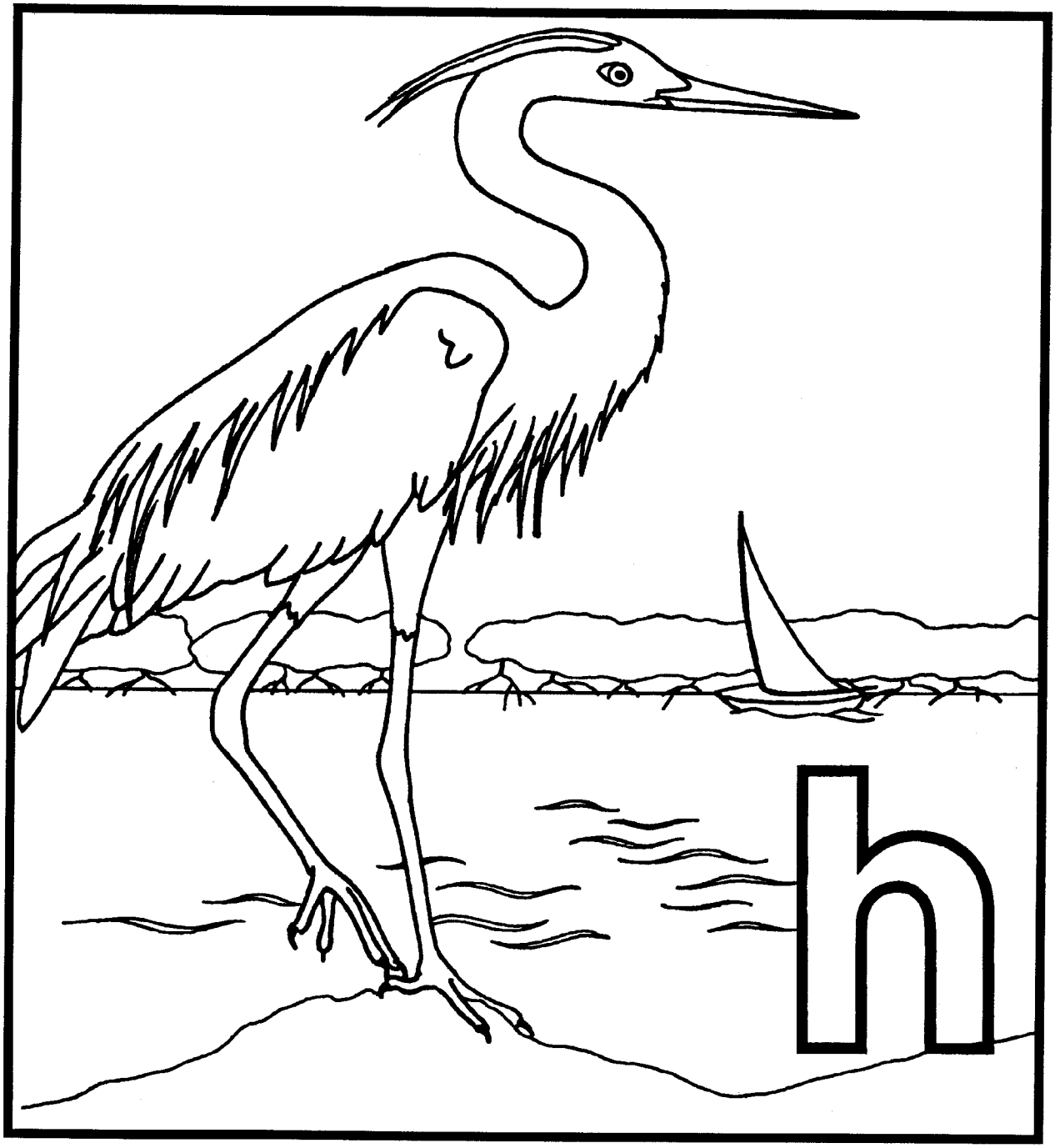
Grebes are small diving waterbirds. Grebes spend most of their time on water, coming to land only to nest. At hatching, the grebe chicks are quickly led to water. Their parents carry them on their backs as protection from predators.



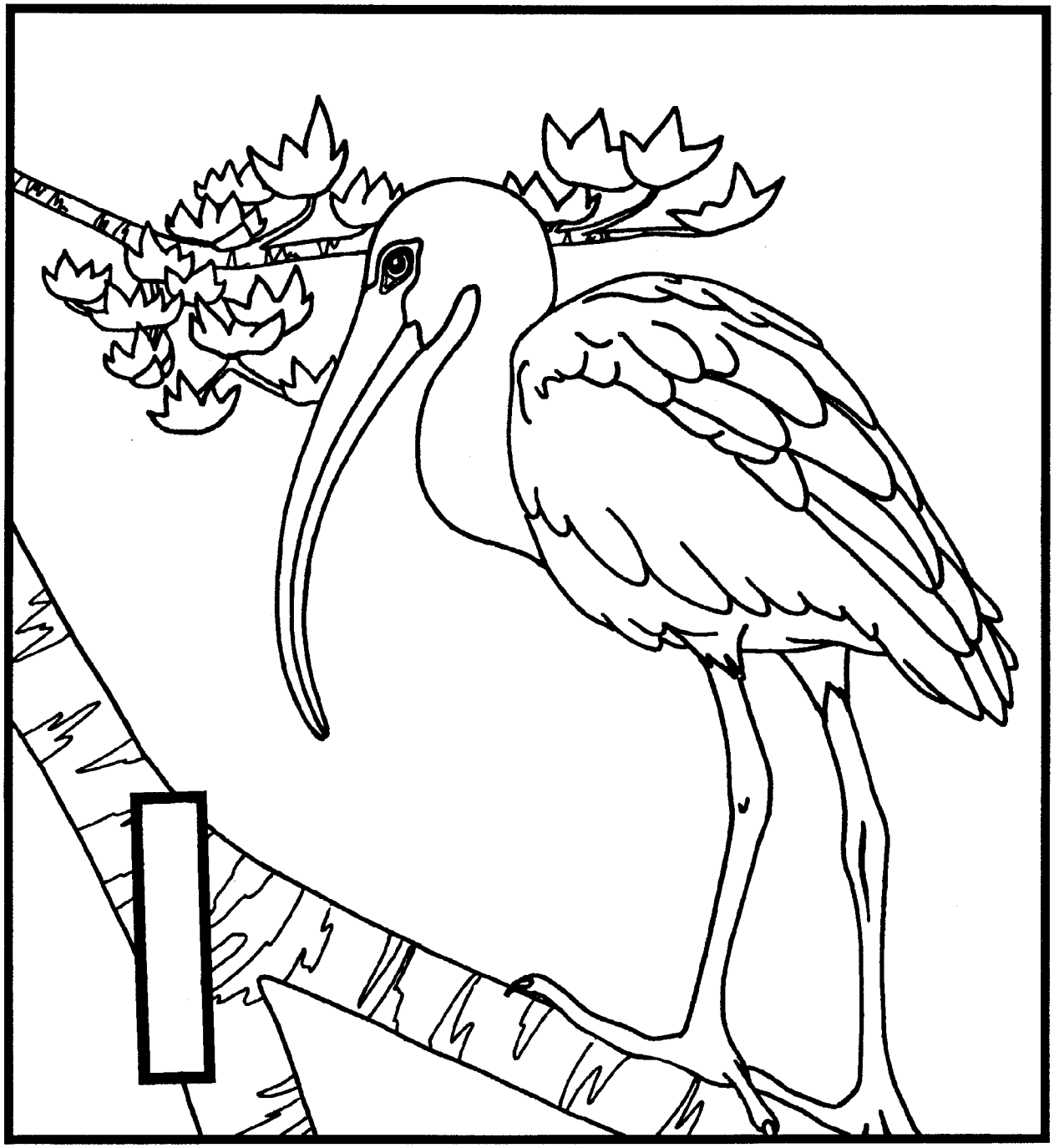
Gulls are common waterbirds found around the world. Unlike many waterbirds, seagulls do not dive underwater for food, but fish only on the surface. The laughing gull is less of a scavenger than most gulls. Laughing gulls hunt fish, shrimp and crabs in shallow areas. Laughing gulls' common call is a "ha-ha-ha" which gives this bird its name.



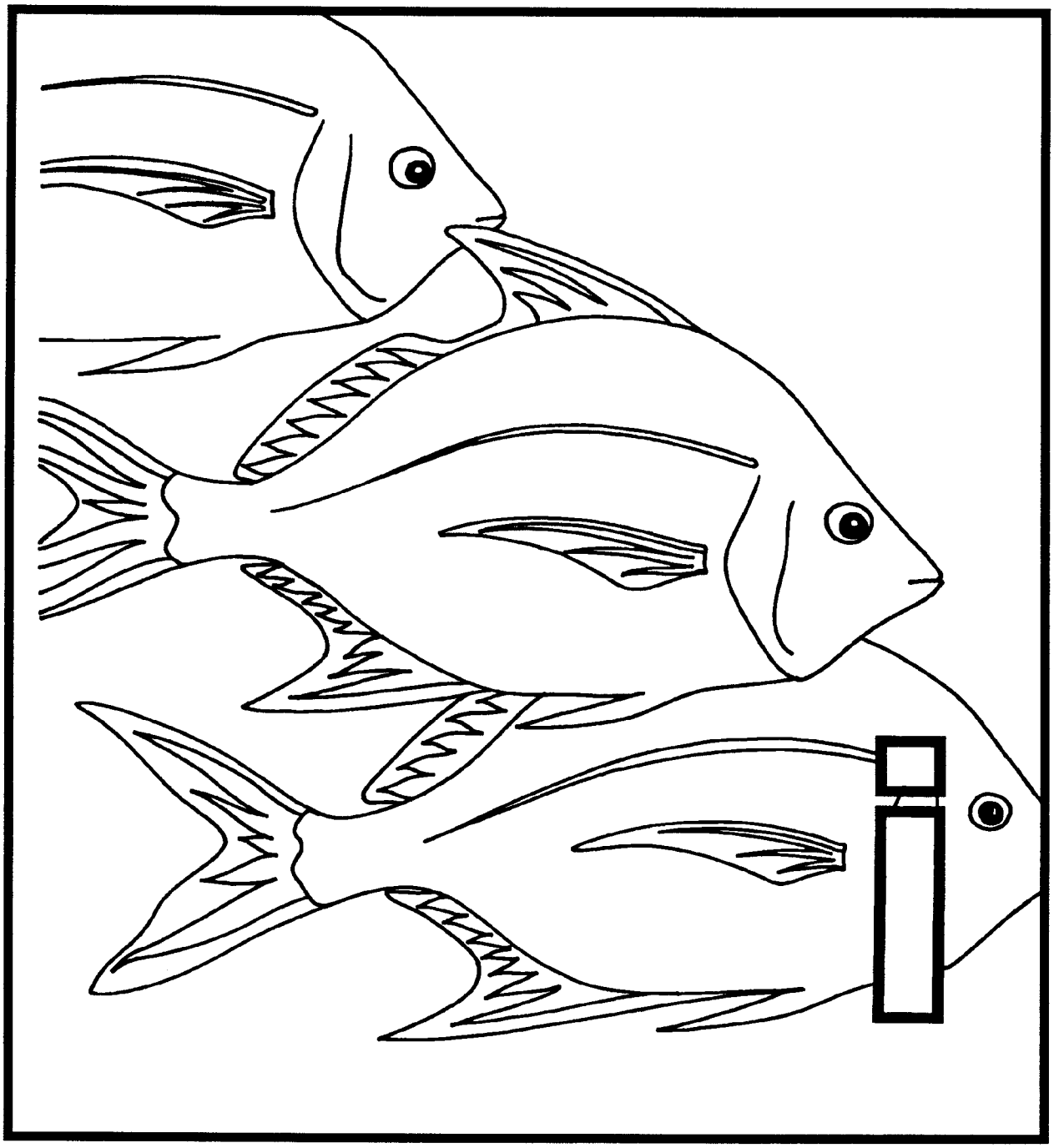
Hermit crabs are true omnivores, eating everything from mangrove leaves to bird eggs. Some types of hermit crabs live on land, some live in water. All hermits crabs have gills. To breathe, they must return to water to wet them. Hermit crabs do not make their own shells. They crawl into an empty one to protect their long soft bodies.



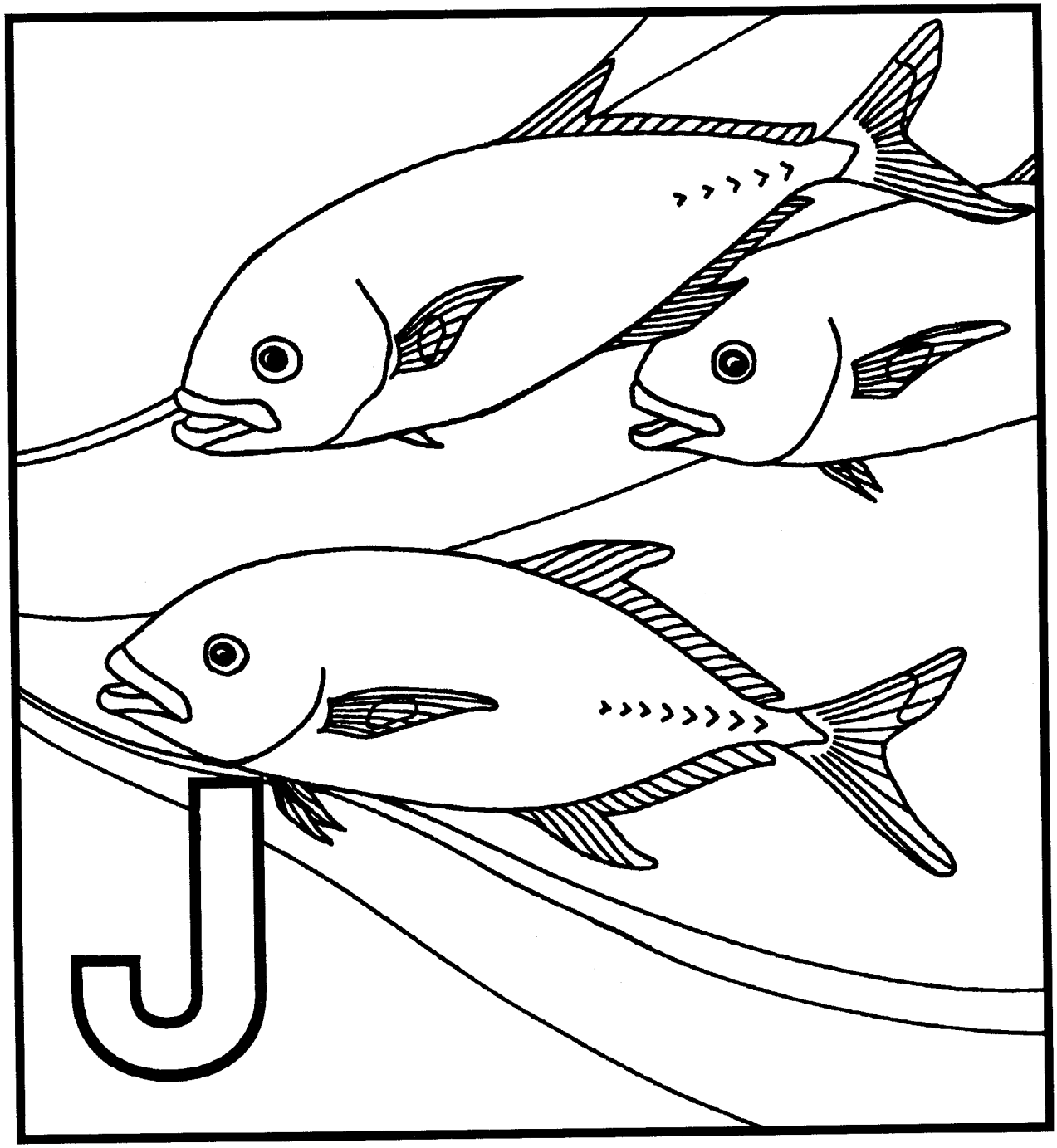
Herons are wading birds. They walk through shallow water to find food. How can you tell if a bird is a heron? Watch it in flight. If its neck is S-shaped, it's a heron! Their favorite meal is fish, but they will eat almost any small animal.



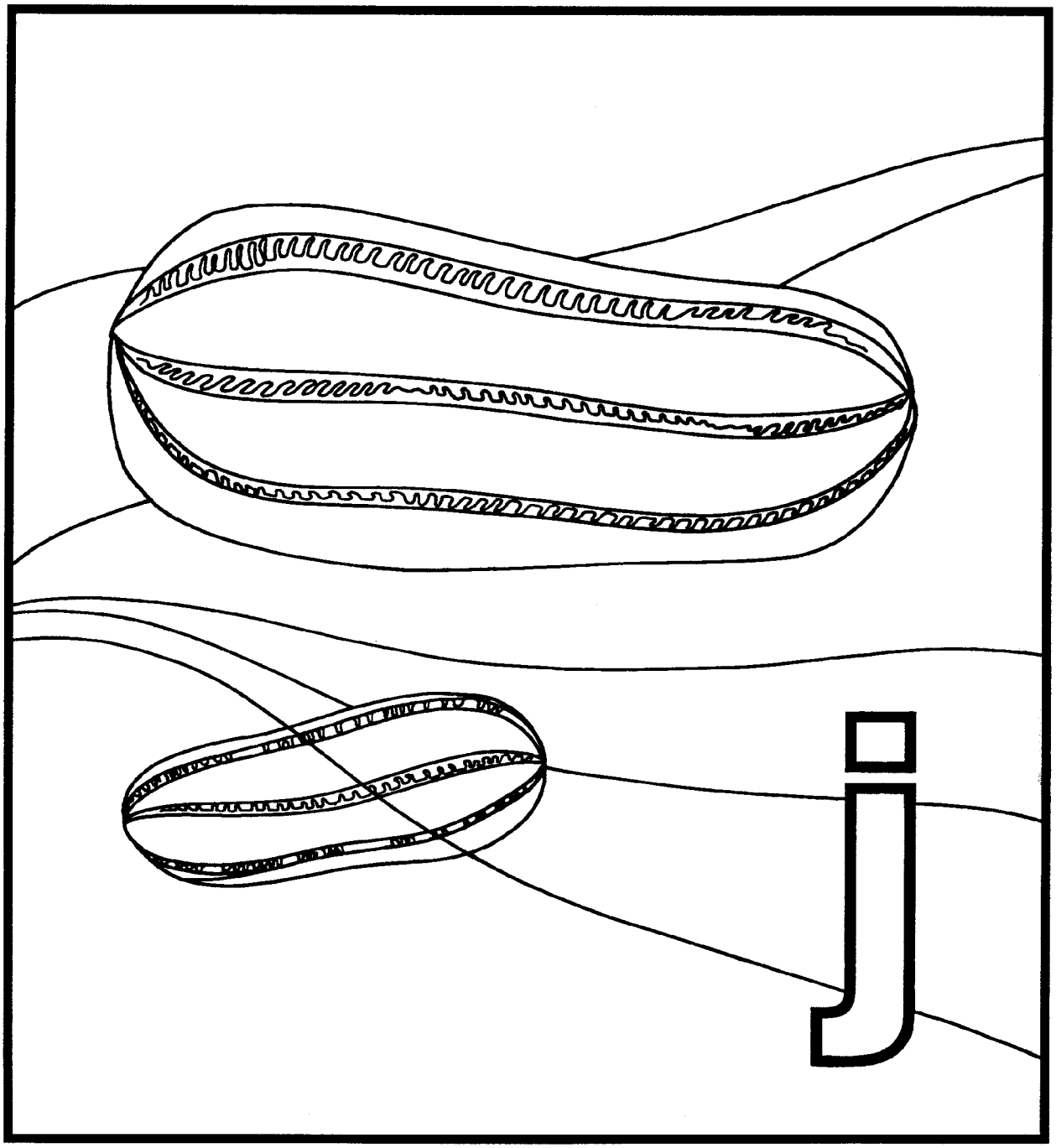
Ibis are long-legged wading birds. The glossy ibis wades through shallow water to feed. Its long thin bill curves toward the ground. This bill is perfect for digging through water-soaked mud for insects, worms and the glossy's favorite food, fiddler crabs.



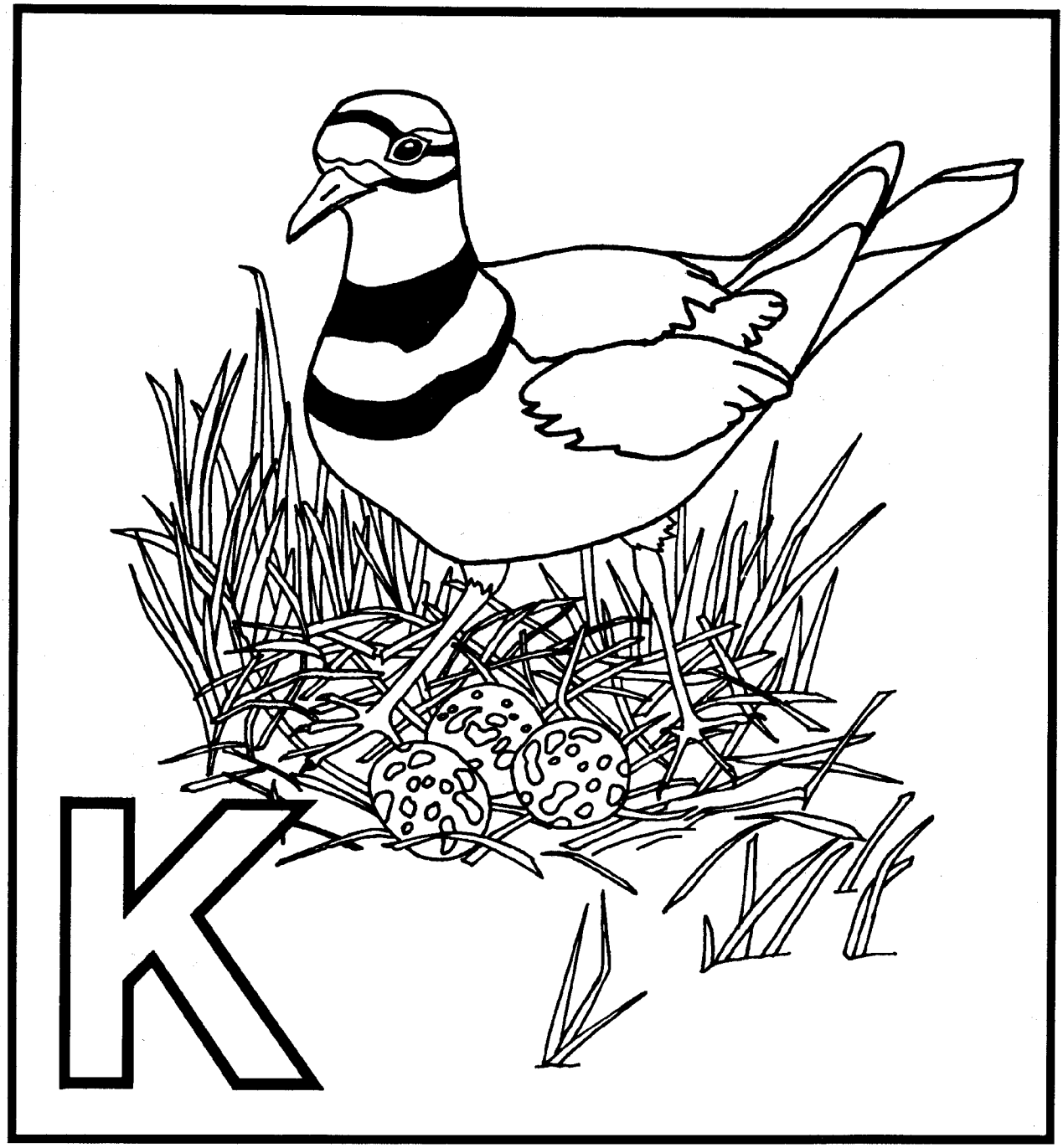
Irish pompanos are actually mojarras, silvery tall-bodied fish with deeply forked tails and large jaws. These fish extend their jaw down and out to catch small shrimp, crabs and other crustaceans on the sea floor. Irish pompanos live in shallow sandy or grassy areas close to shore.



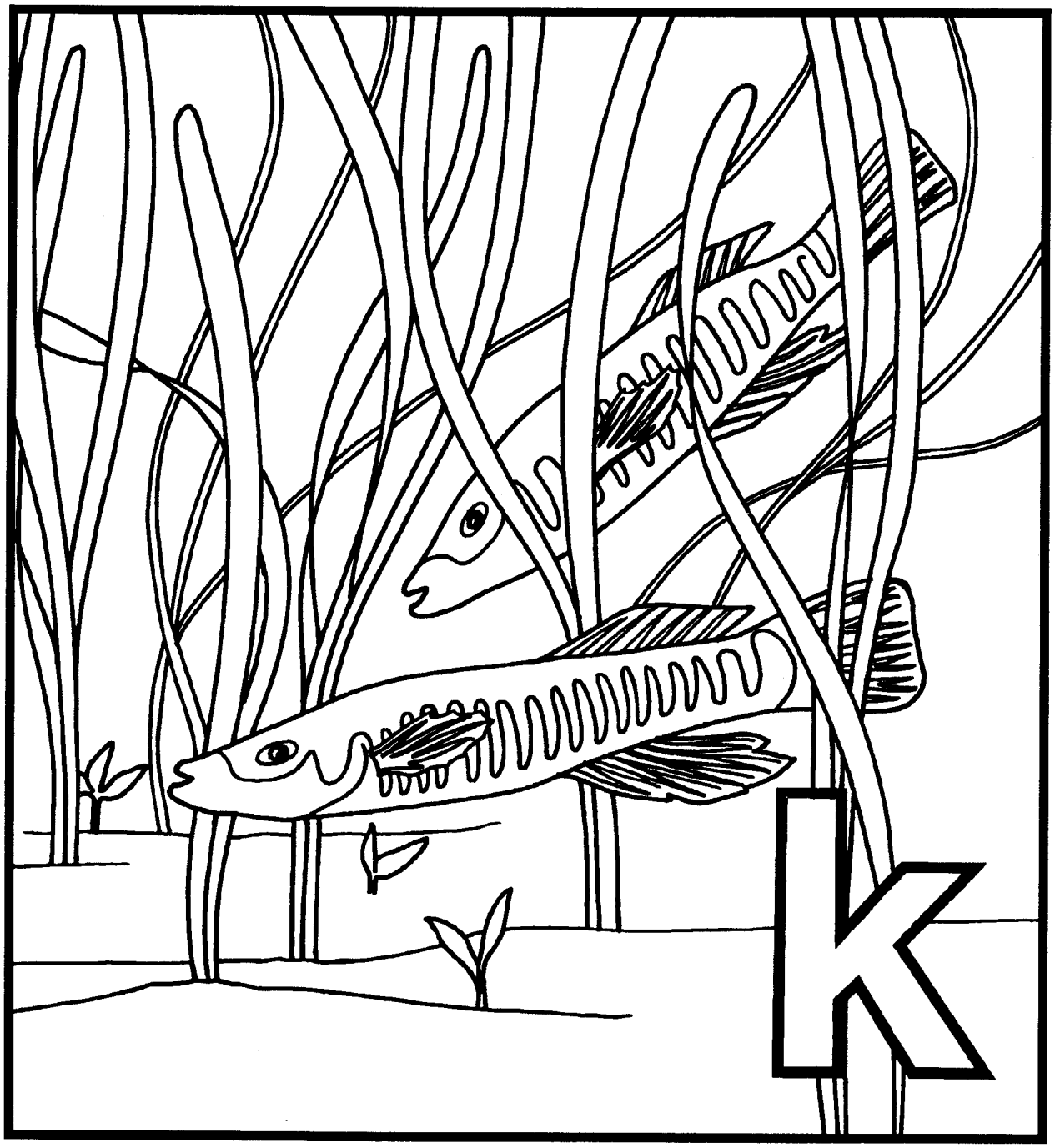
Jack crevalles have olive green backs and yellow bellies. They are fast swimmers, traveling in large schools. Jacks live in shallow estuaries when young. They hide under jellyfish, seaweed and in seagrass for protection. Adults are found in both the ocean and estuaries. They are a fun fish to catch. Adults weigh up to forty pounds!



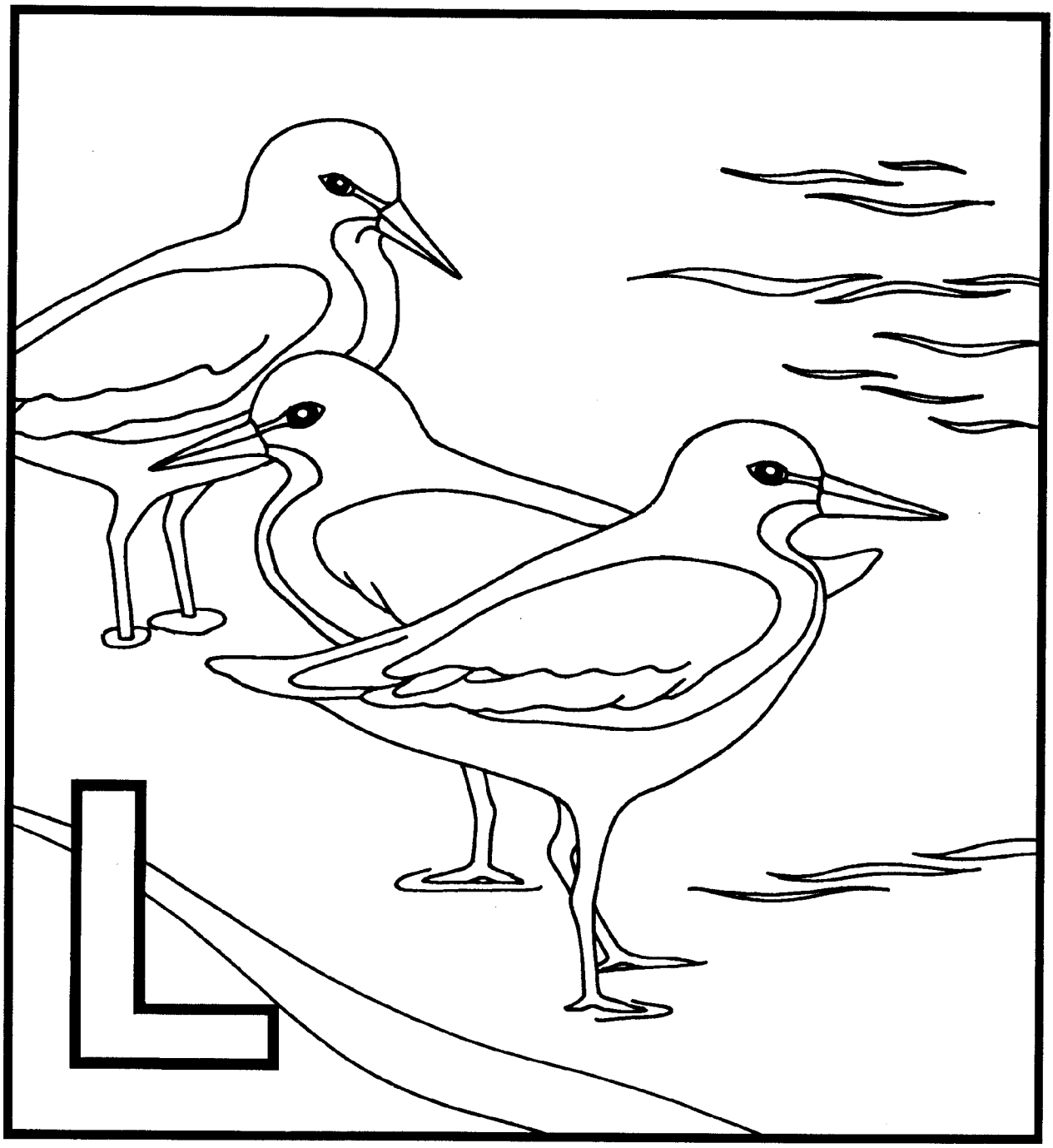
Jellyfish are floaters, moving freely with water currents. Comb jellies are animals closely related to jellyfish. Comb jellies move slowly by beating rows of body hairs which glow in the dark. They drift amidst the seagrass, sucking in passing fish eggs and plankton. Unlike jellyfish, comb jellies do not sting.



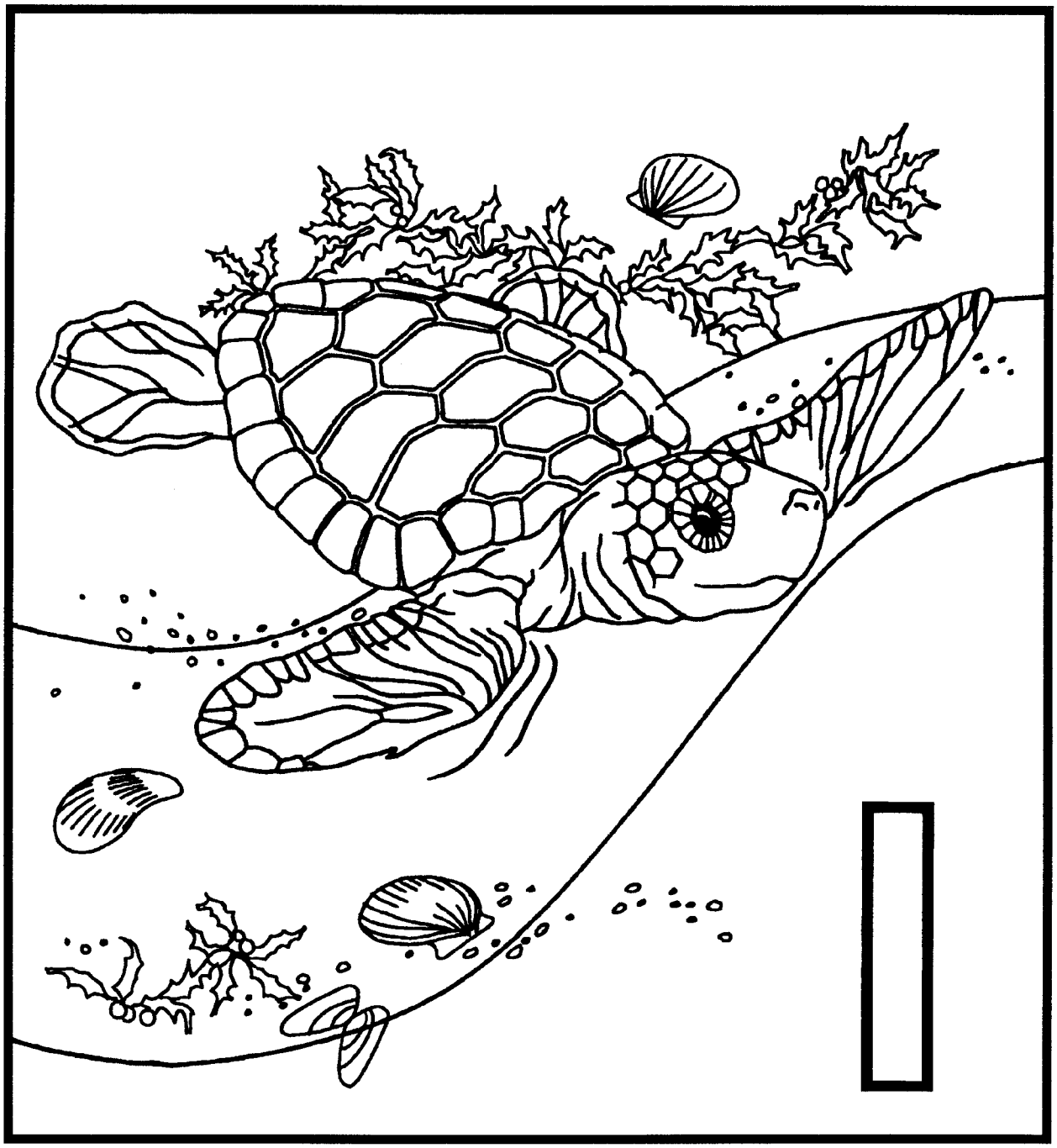
Killdeer are ground nesting shorebirds. The patterns of brown and tan on both the bird and its eggs hide them from predators. Killdeer lure predators from their nest by faking injury. The bird drags its wings on the ground as it limps from the nest site. Once a safe distance from its young, the parent flies off, calling loudly "killdeer, killdeer"!



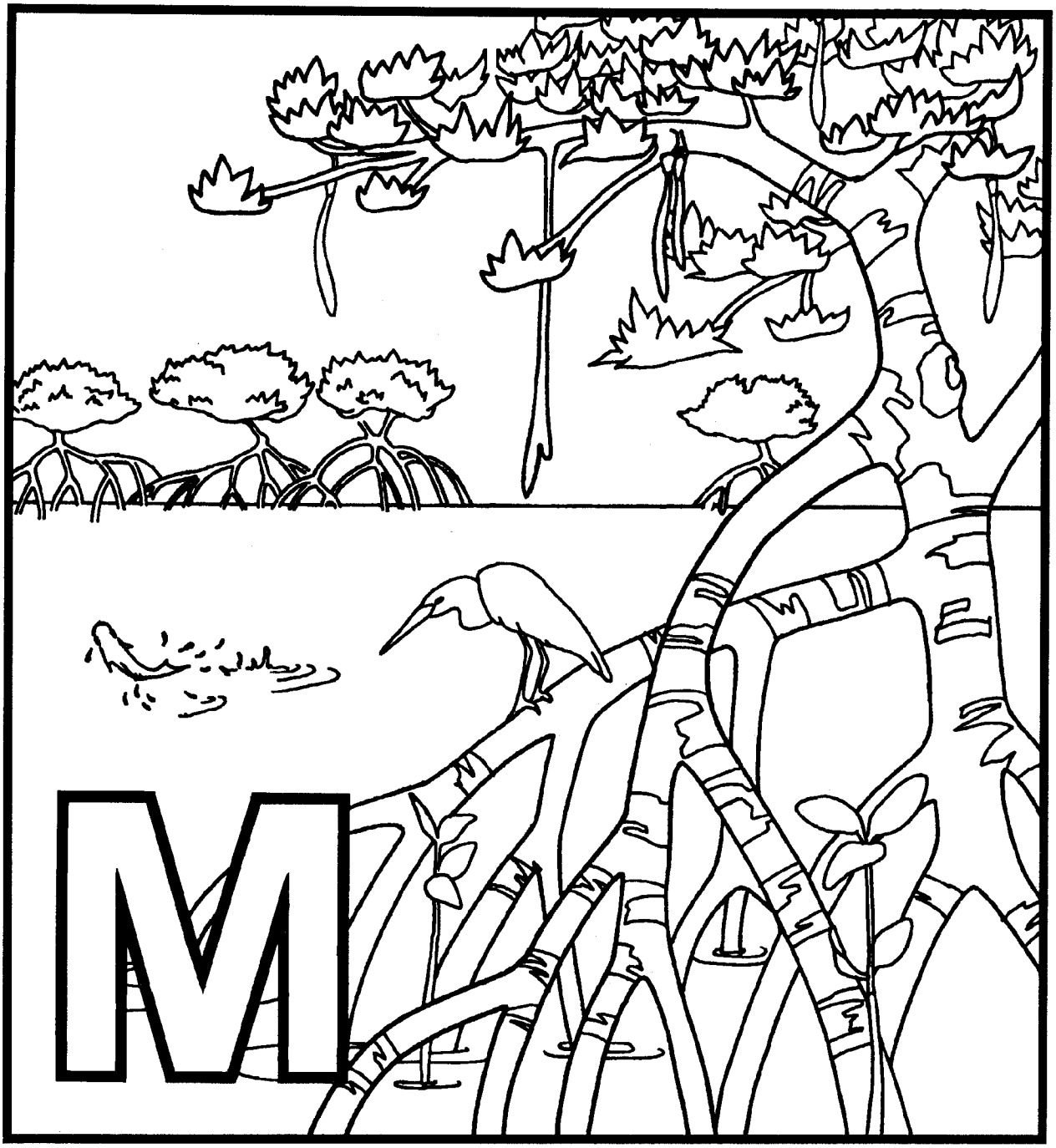
Killifish are a favorite food item of larger sport fishes. Different species of killifish live in both fresh and salt water. Longnose killifish live around mangrove roots and on tidal flats. They are dull silver in color with dark bars along their sides.



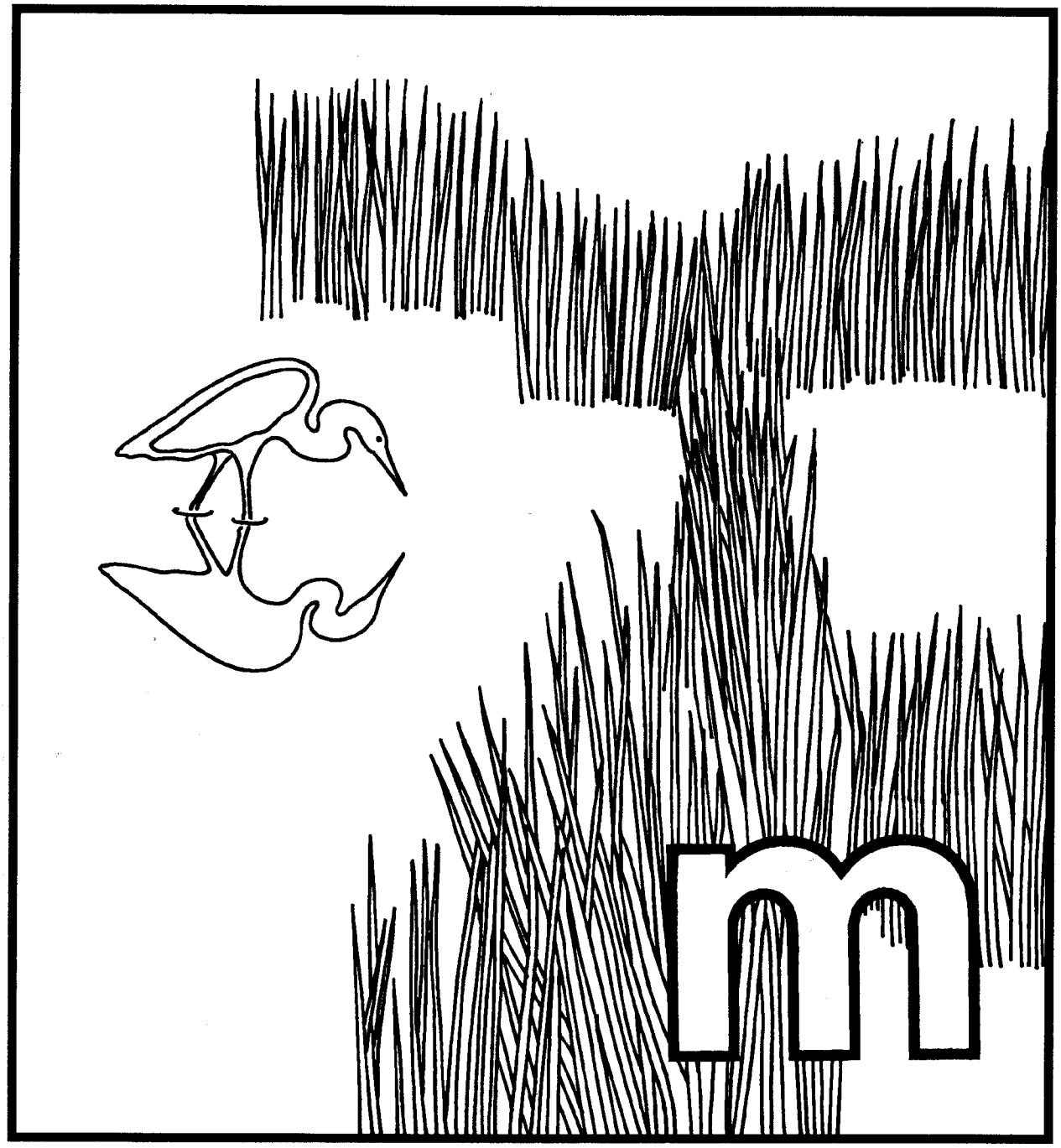
Least sandpipers are the smallest of all sandpipers. Flocks of sandpipers probe beach sand for buried animals. Sandpipers nest in northern tundra regions. These tiny birds migrate by the thousands south along the east coast of the United States to winter in Florida.



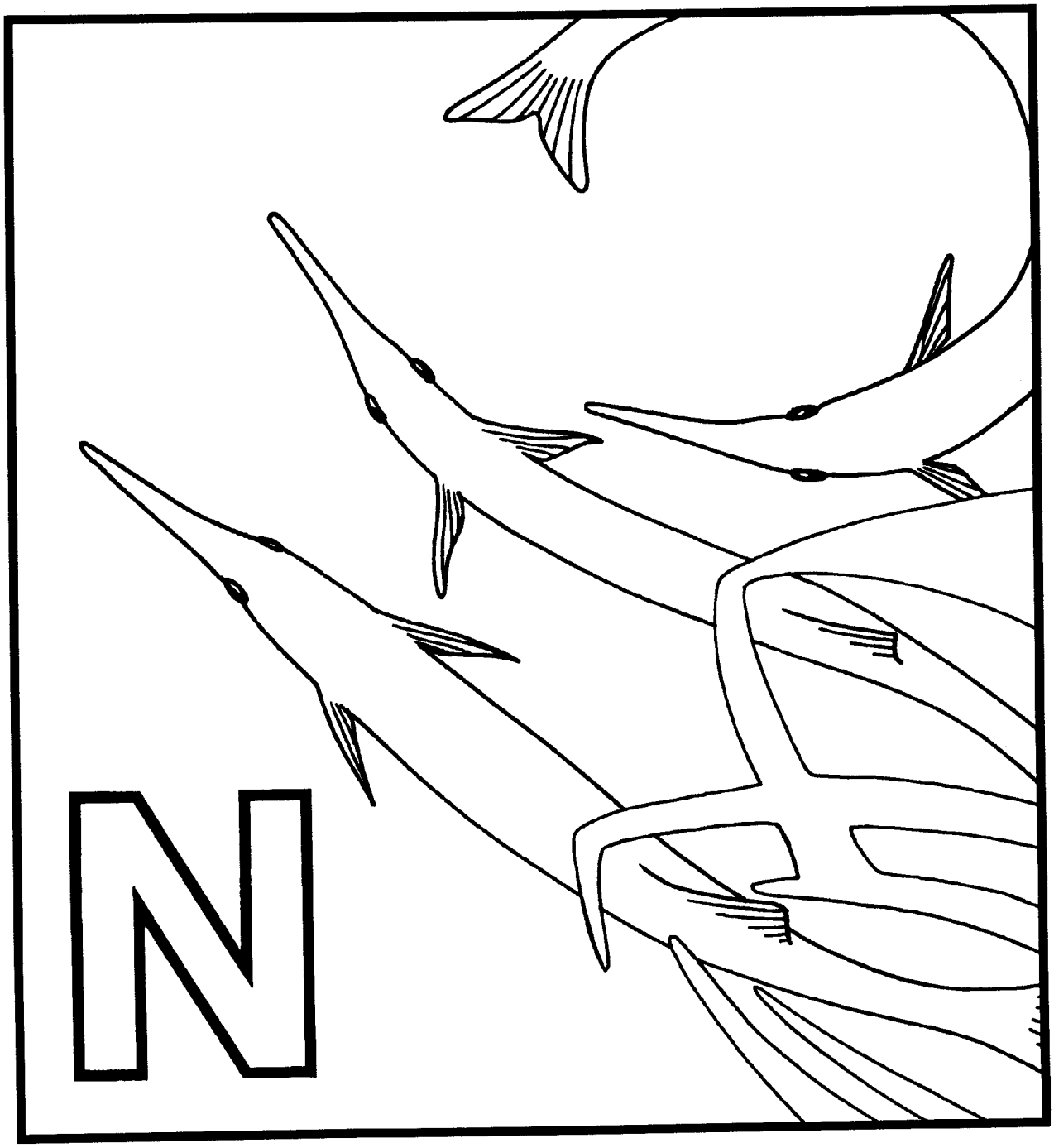
Loggerheads are the most common of six sea turtle species which nest on Florida beaches. This huge reptile may weigh up to 350 pounds. Although its heavy jaws are perfect for crushing shellfish, loggerheads also eat jellyfish, shrimp and water plants.



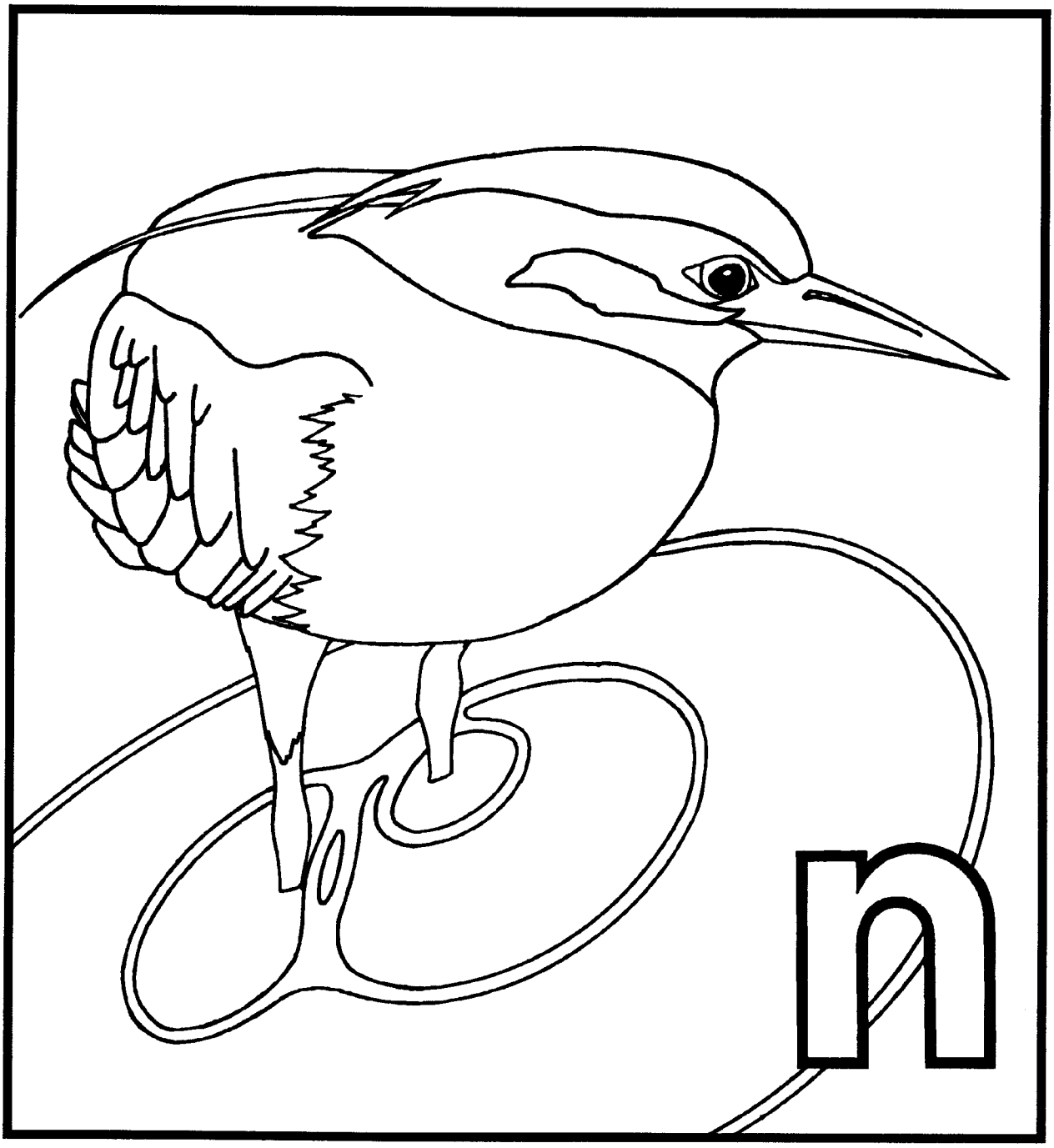
Mangroves are trees found in warm climates near salty water. Mangroves are valuable because they filter pollution in the water. They prevent erosion by anchoring soil with their roots. Many birds find shelter in their branches. Fallen decayed leaves (detritus) of mangroves are an important food for many animals, including zooplankton and fish.



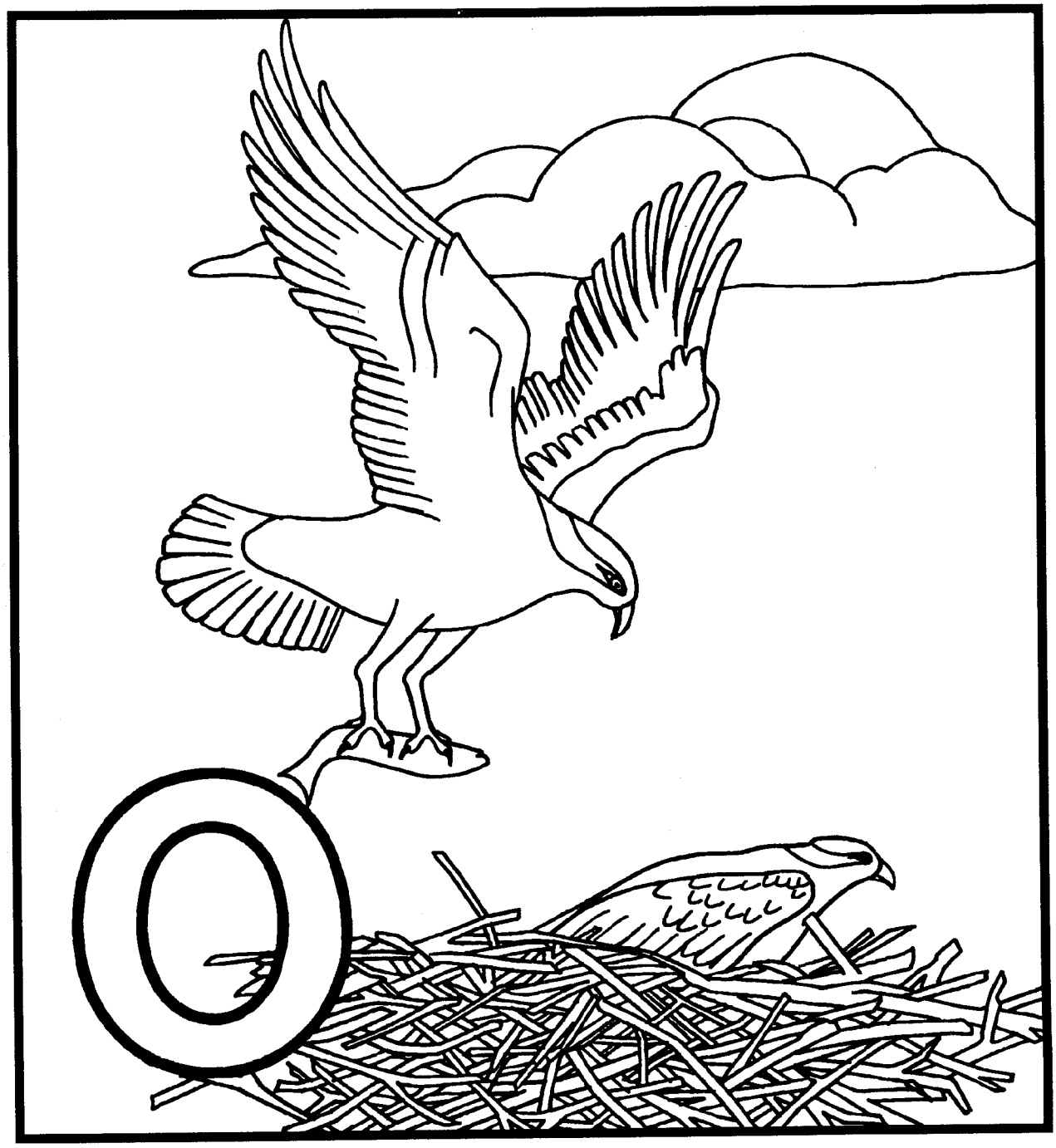
Marshgrass is a water-loving grass that grows in or near salt water. When this grass covers many acres, it is called a saltmarsh. The saltmarsh is a habitat for many animals, meaning it is a place that provides food and a home for living creatures. Can you name any other habitats?



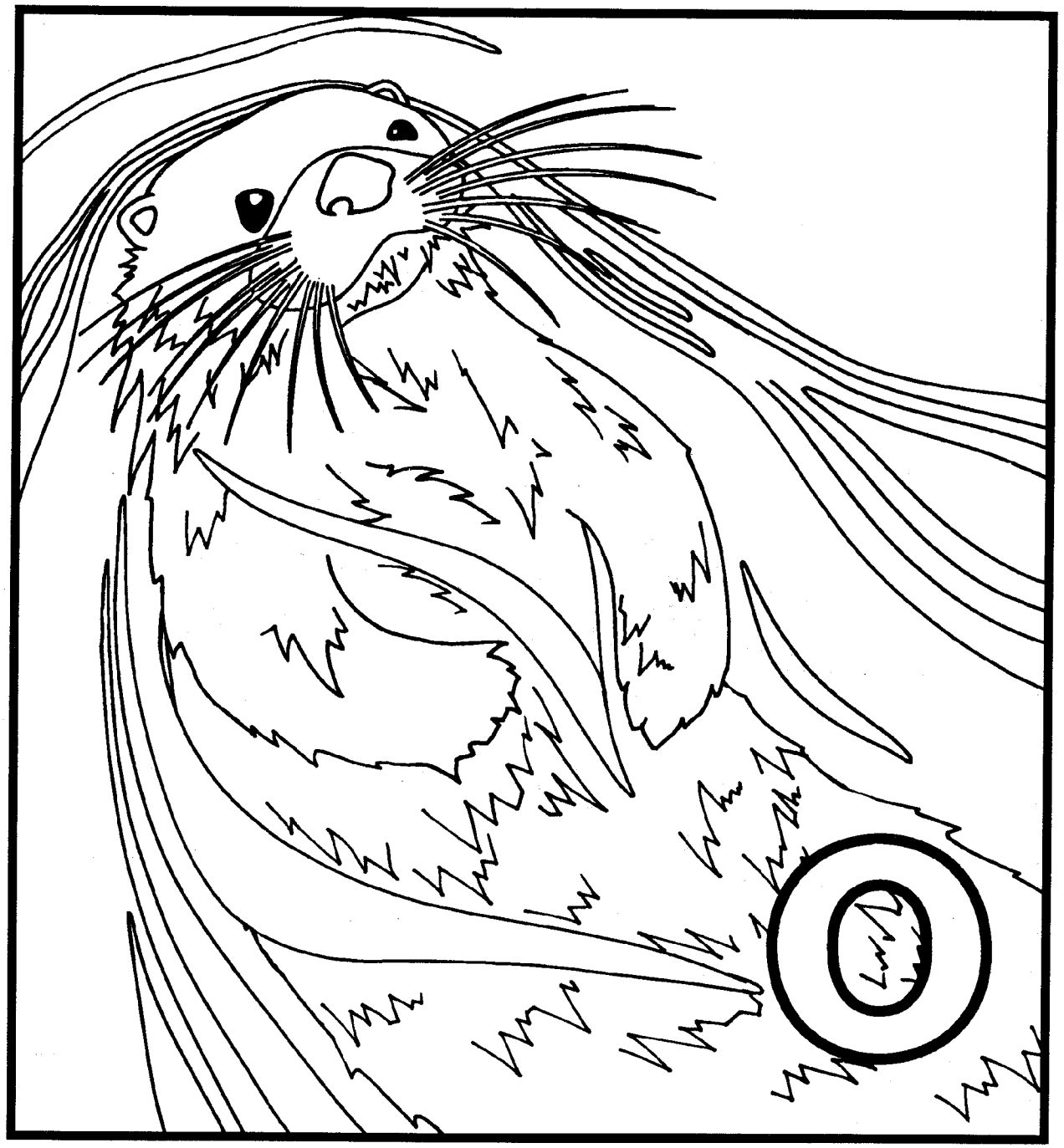
Needlefish are long thin fish whose jaws form a fragile beak. These fish live near the surface in warm coastal waters. All needlefish are predators. They prefer to eat small fish. Needlefish are edible, but man seldom consumes them. Adults can reach two feet in length.



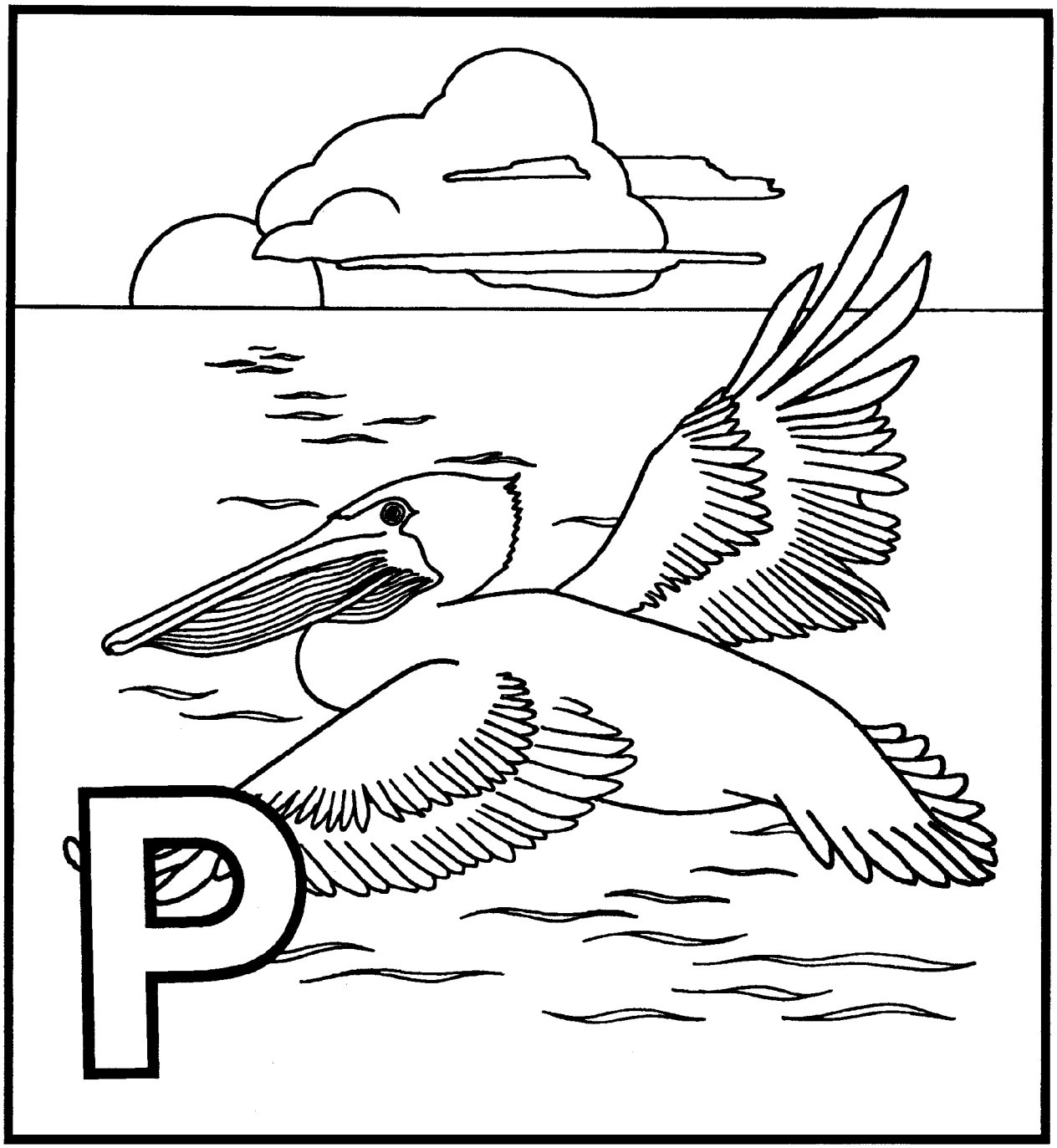
Night herons are night hunters. They sleep in trees during the day. Yellow-crowned night herons are recognized by their black face and white cap. Unlike other herons, the yellow-crown's favorite food is not fish. This heron likes crabs, especially fiddler crabs.



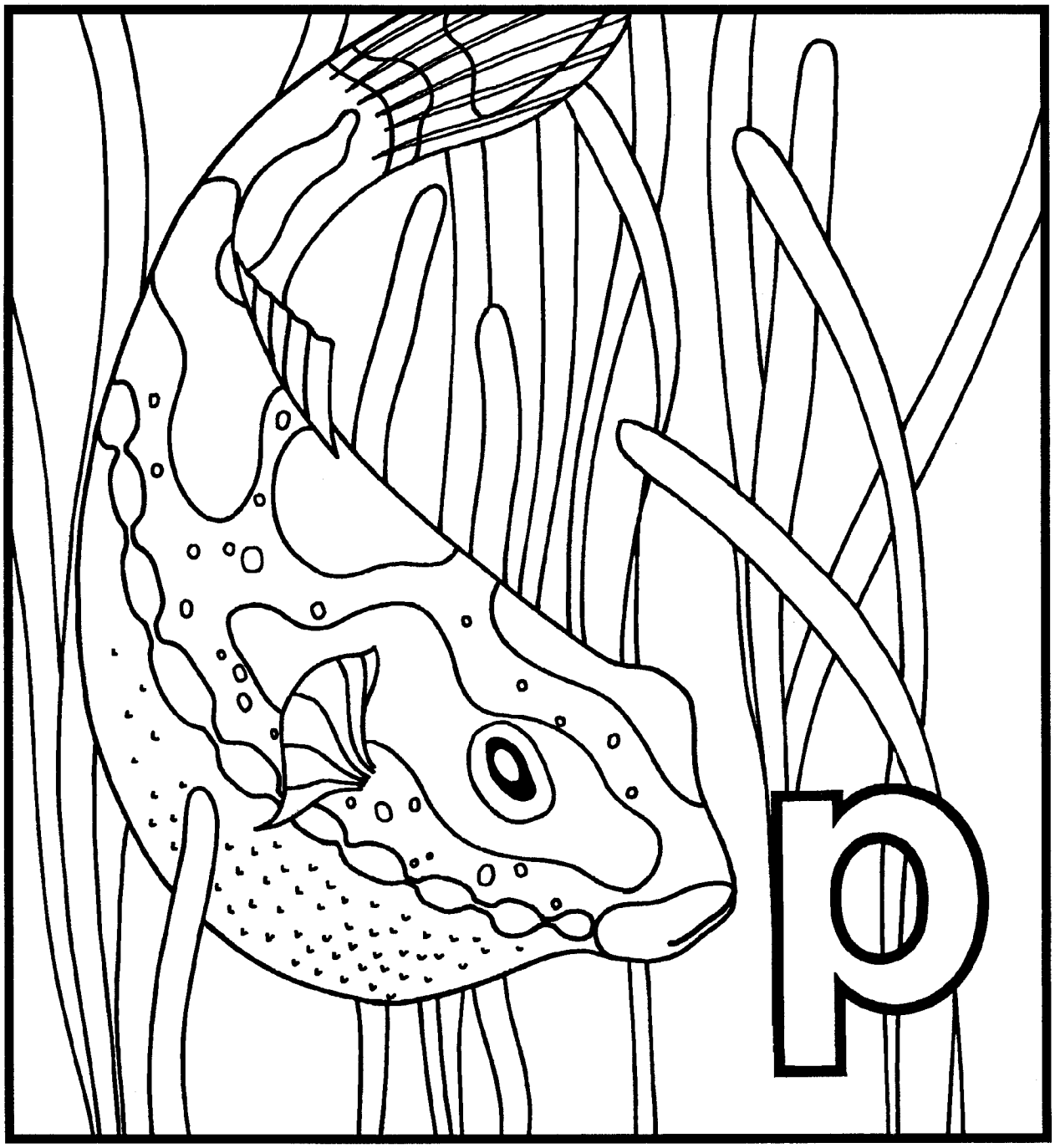
Ospreys are large brown and white hawks that live near clean rivers and lakes. They eat only fish. Ospreys use their keen eyesight to hunt fish. Ospreys must have clear water to spot their prey. Fish are grabbed at the water's surface with the bird's talons and flown to the nearest feeding perch to be eaten.



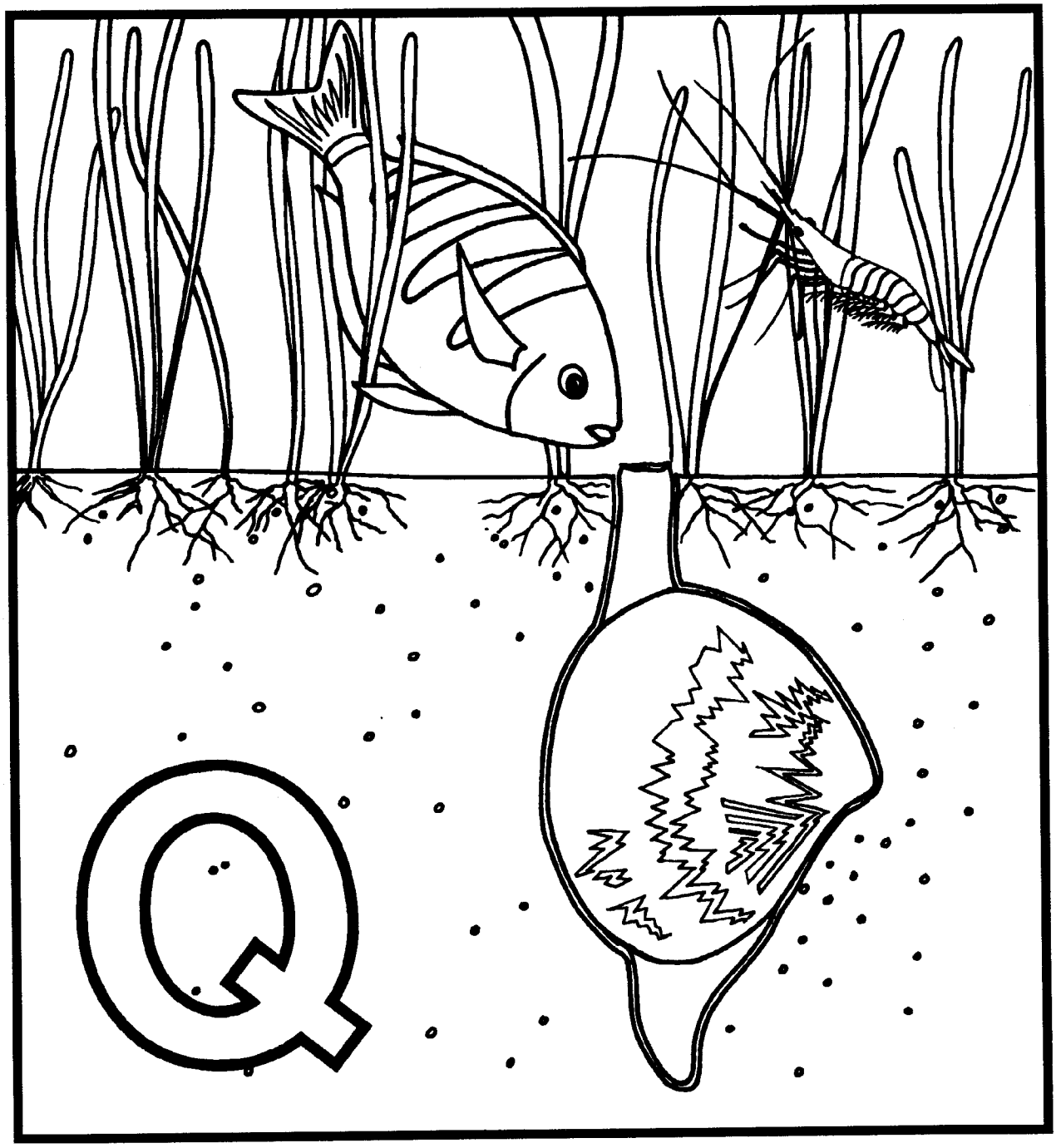
Otters are playful mammals that live in river bank burrows. Their webbed feet and rudder-like tail help them swim both forward and in reverse with amazing speed. Otters often float on their backs when eating. They feed mainly on fish, but will also catch mice and insects.



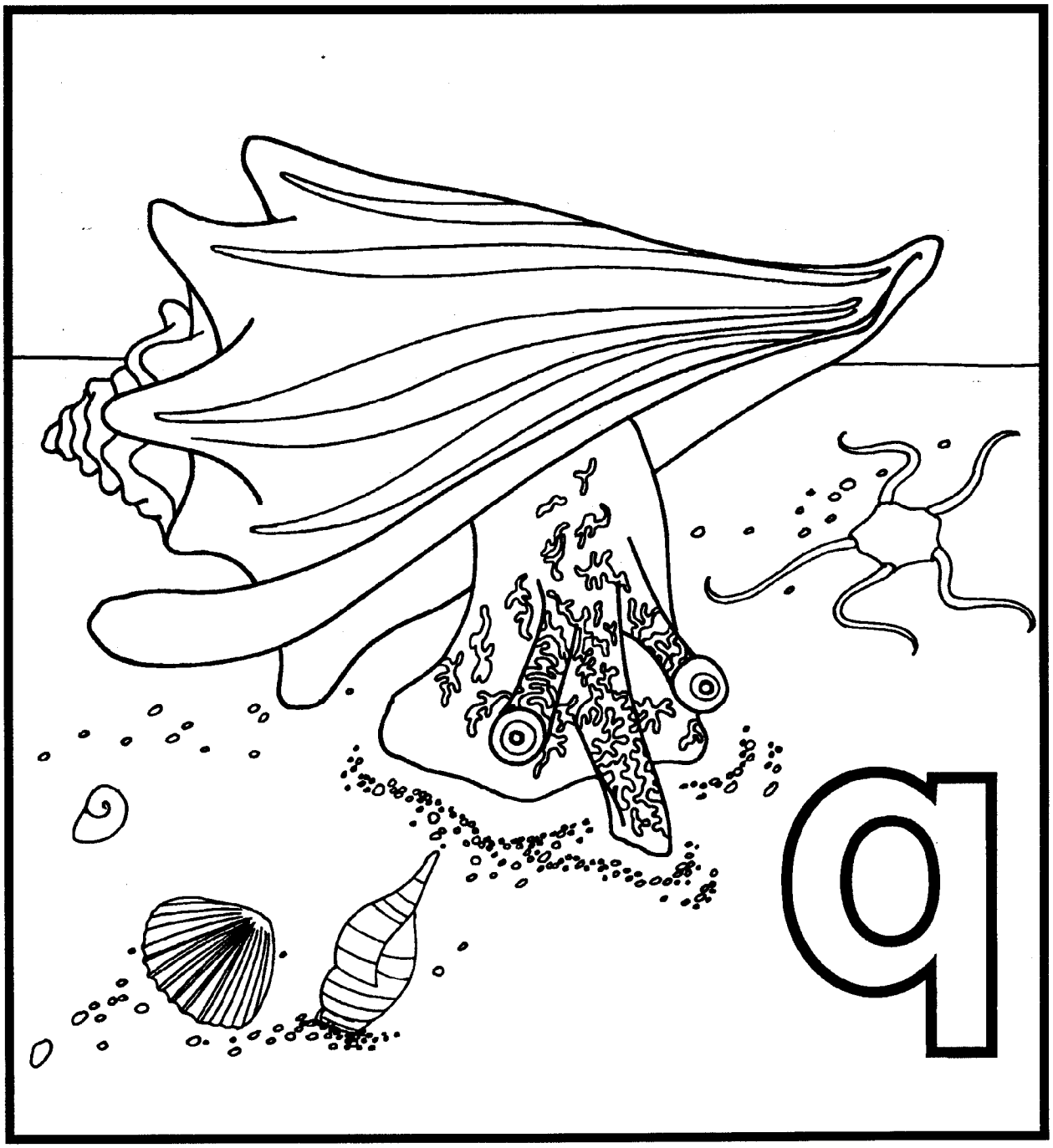
Pelicans are large brown sea birds that live in colonies (groups of birds). Brown pelicans fish by flying in a long line over the water. They splash into the waves and scoop up fish in the large pouch under their beaks. Adult pelicans eat four pounds of fish every day. Pelicans feed on fish which are not preferred by humans.



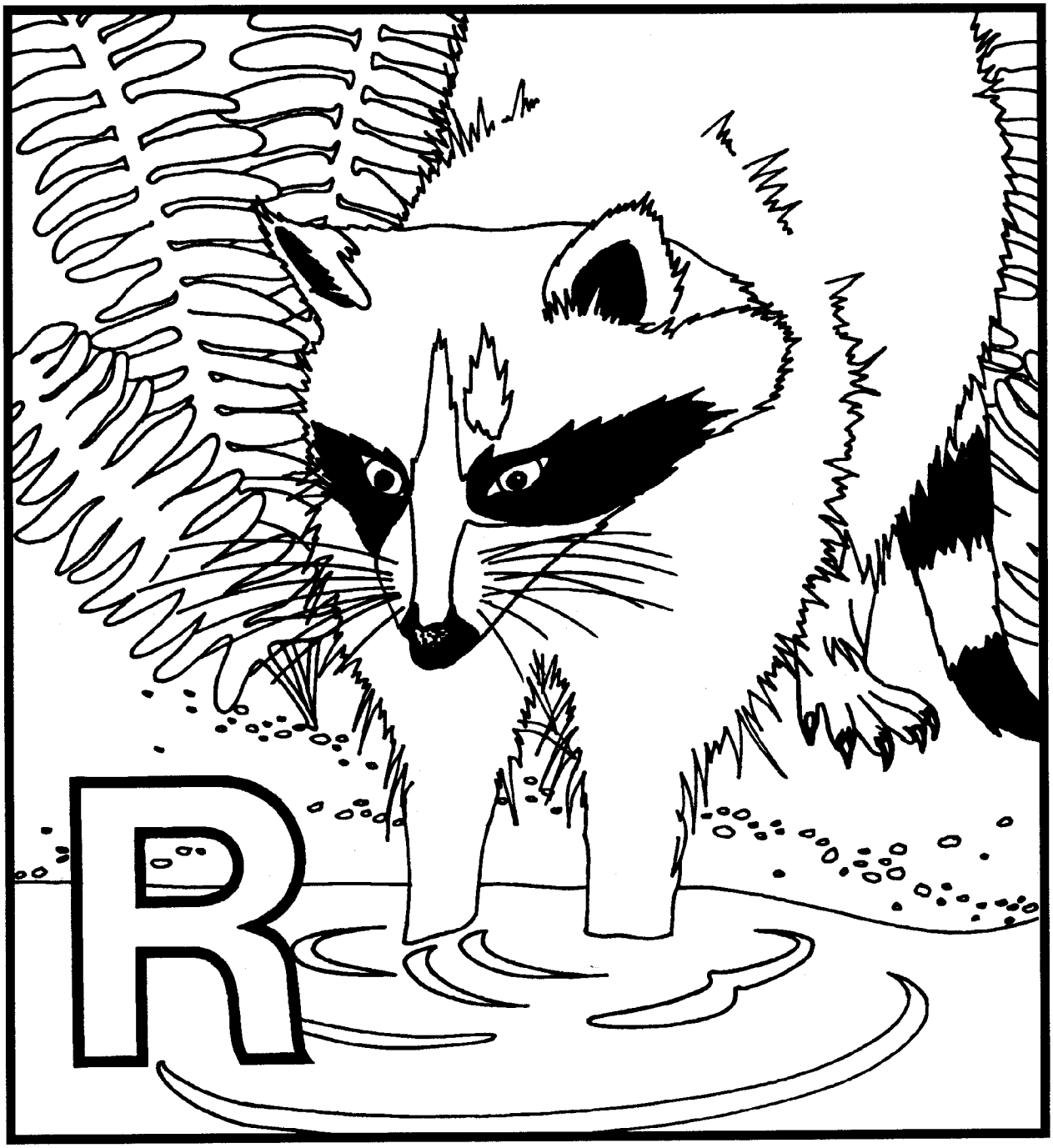
Puffers are fish that inflate their bellies with air when frightened to avoid being swallowed by predators. Puffers like shallow water and are often found in seagrass beds. Their strong teeth are used to crush shellfish. Some puffers are poisonous if eaten by humans.



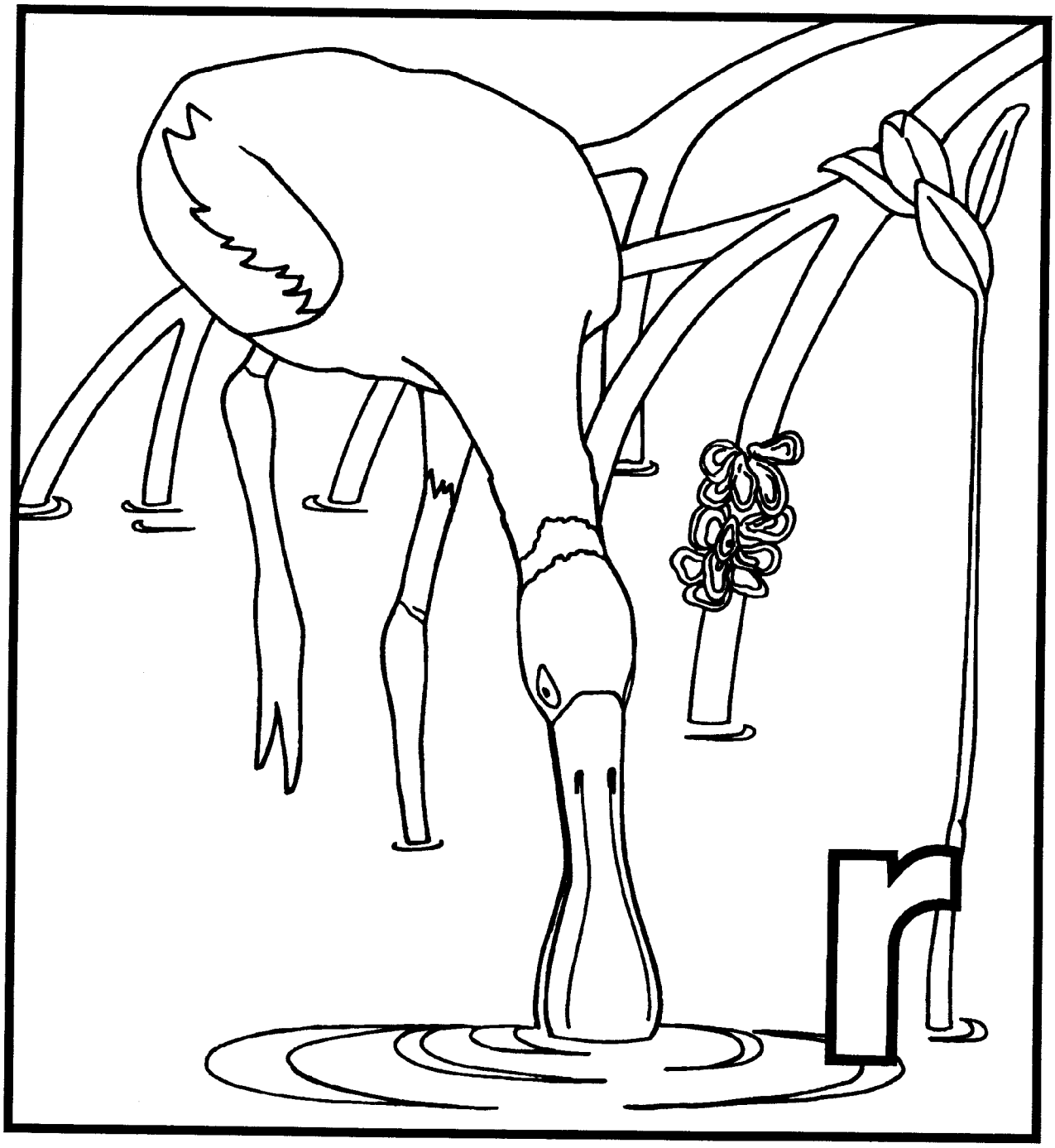
Quahog clams are bivalves, animals whose soft bodies are protected by a two part shell. Quahogs have a short muscle-like foot used to bury themselves in soft mud. Clams eat plankton. They extend two feeding tubes to the mud surface. As clams suck water in, they filter out plankton and oxygen through their gills.



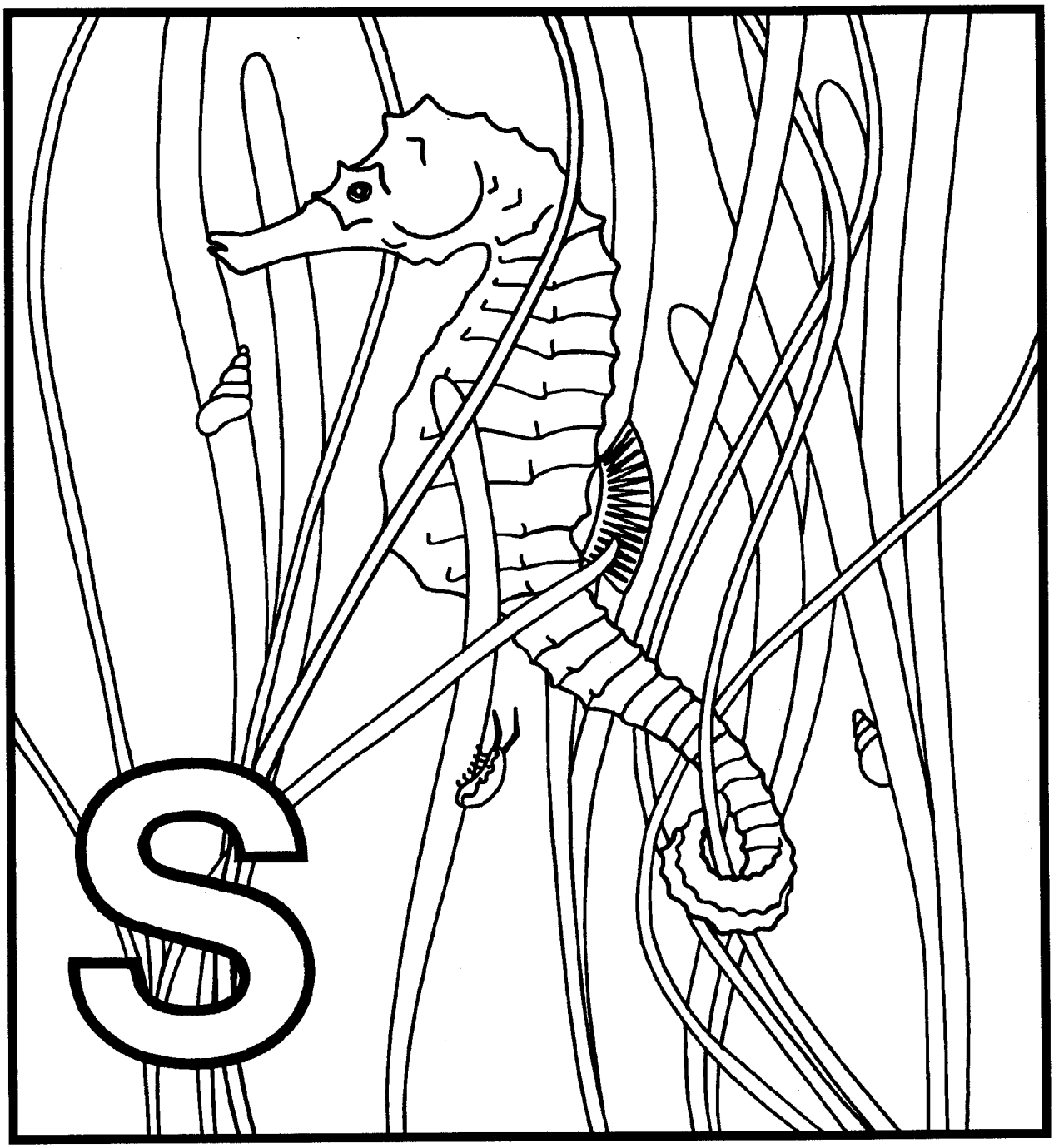
Queen conchs are also called pink conchs because their inner shells are pale pink in color. Conchs live only in tropical waters. They are scavengers, finding dead crabs and clams with a keen sense of sight and smell. Humans collect conchs for their shells and meat.



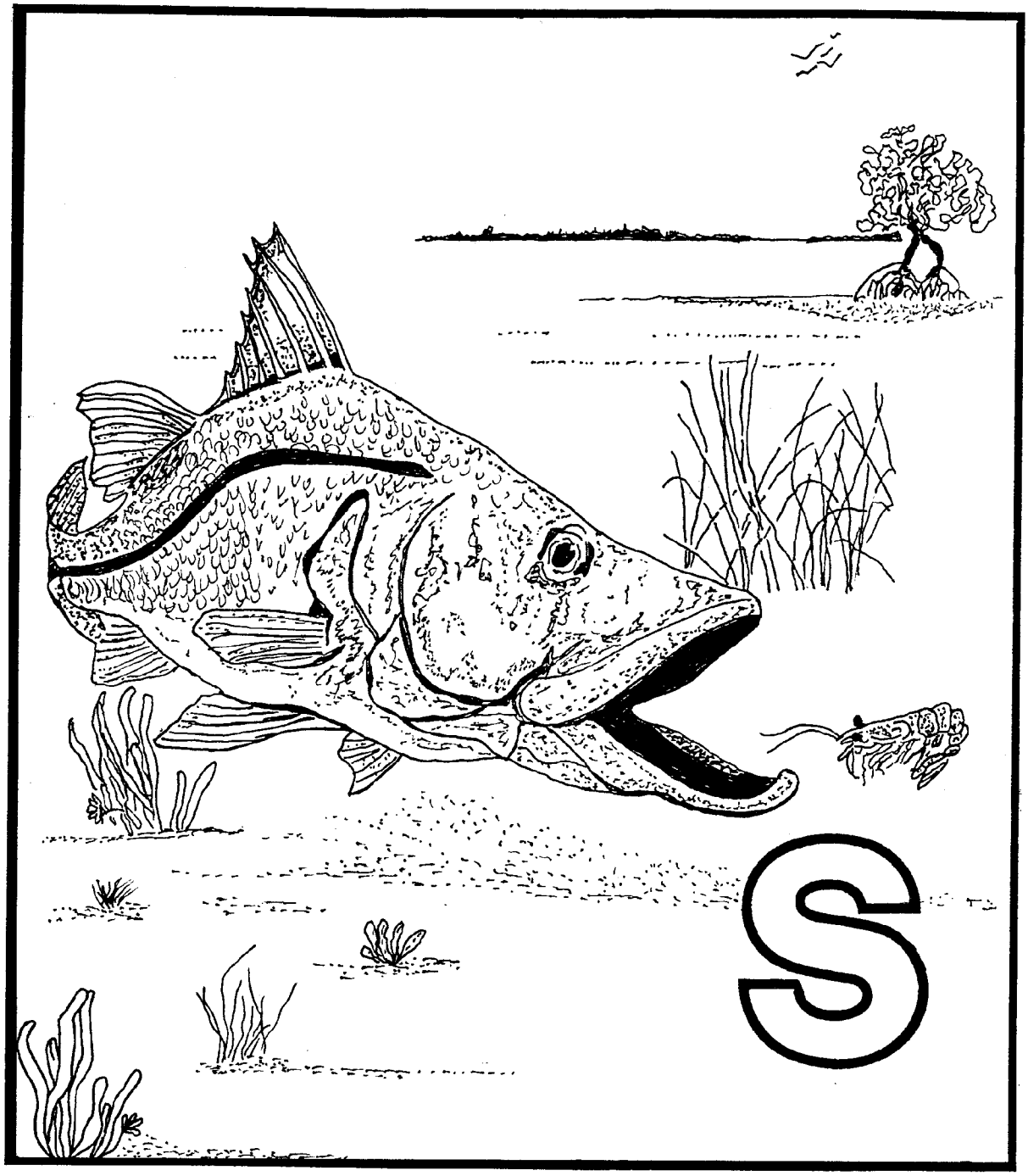
Raccoons are nighttime hunters. They are omnivores, eating everything from oysters to wild grapes. Raccoons dip their food into water before eating. By wetting its front paws, the raccoon is better able to feel its meal. It can then tear away parts that are not edible.



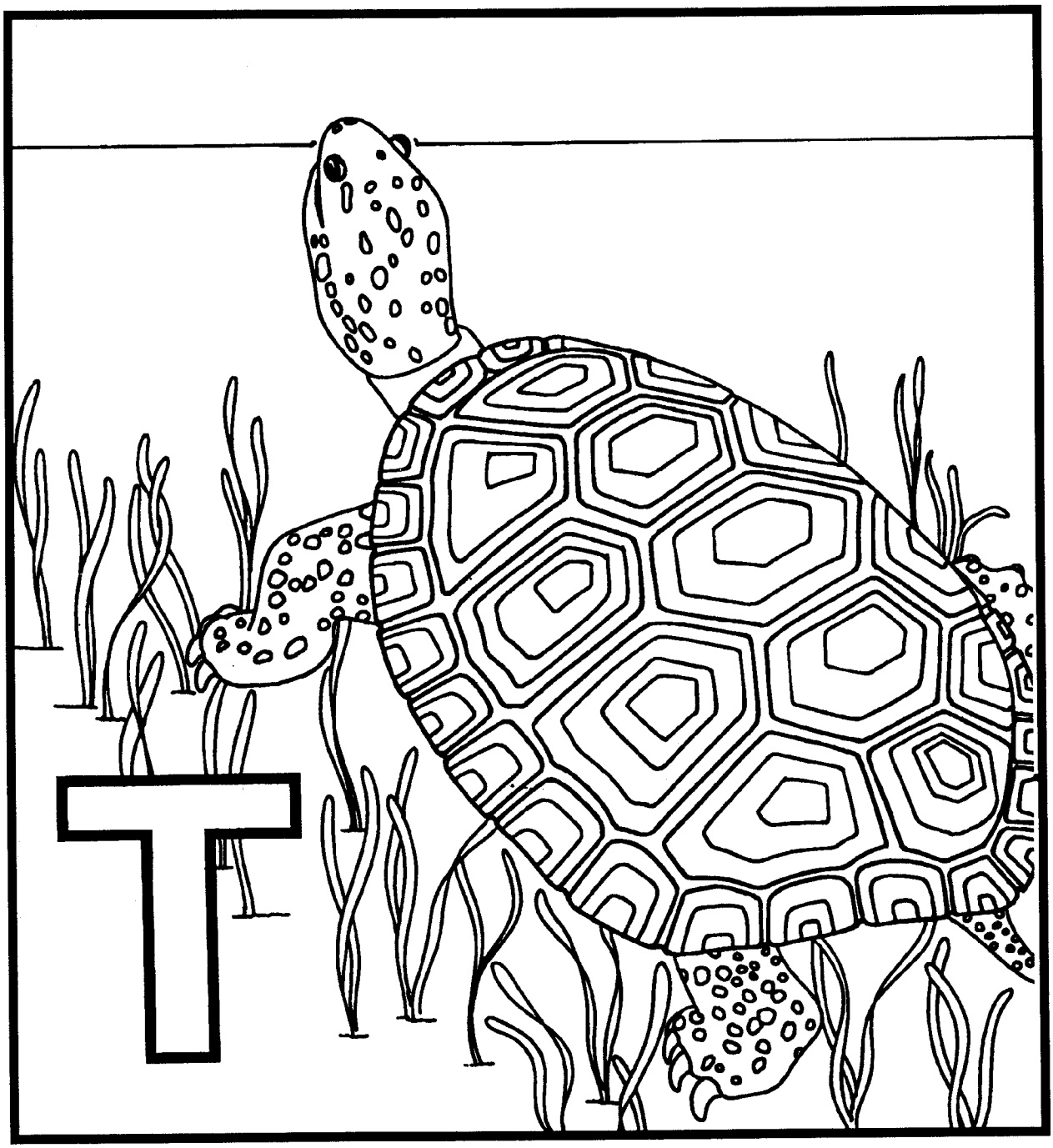
Roseate spoonbills are large pink and white birds. They hunt for food by swinging their spoon-shaped bill through shallow waters. This six inch long beak is very sensitive to touch. It allows them to feel for small fish, crabs, shrimp and water insects.



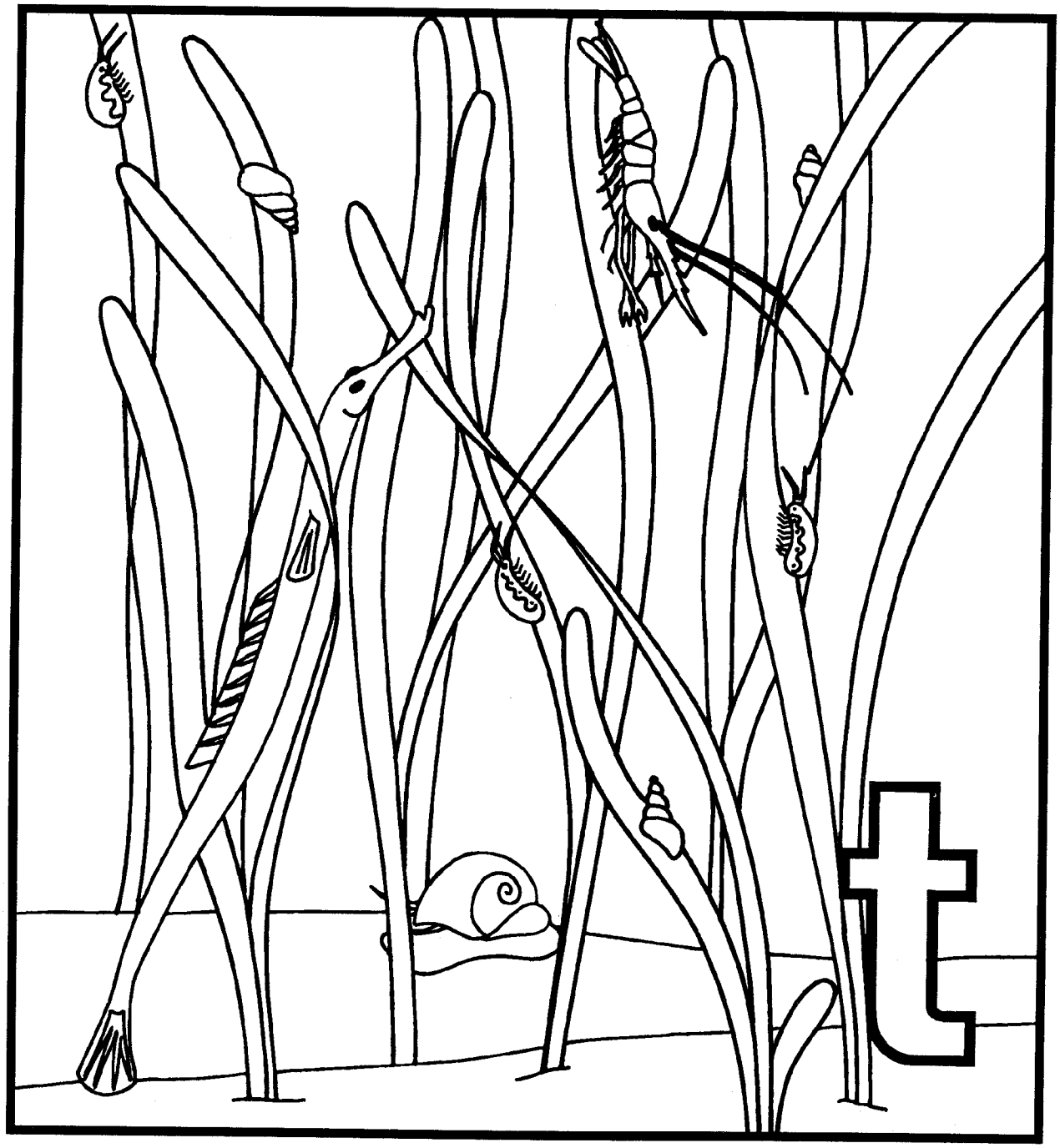
Seahorses are small, weak swimming fish that live in seagrass beds. They curl their tails around seagrass blades and wait for food to float past. Seahorses eat by sucking water rapidly into their snout, pulling in small fish, shrimp, and zooplankton.



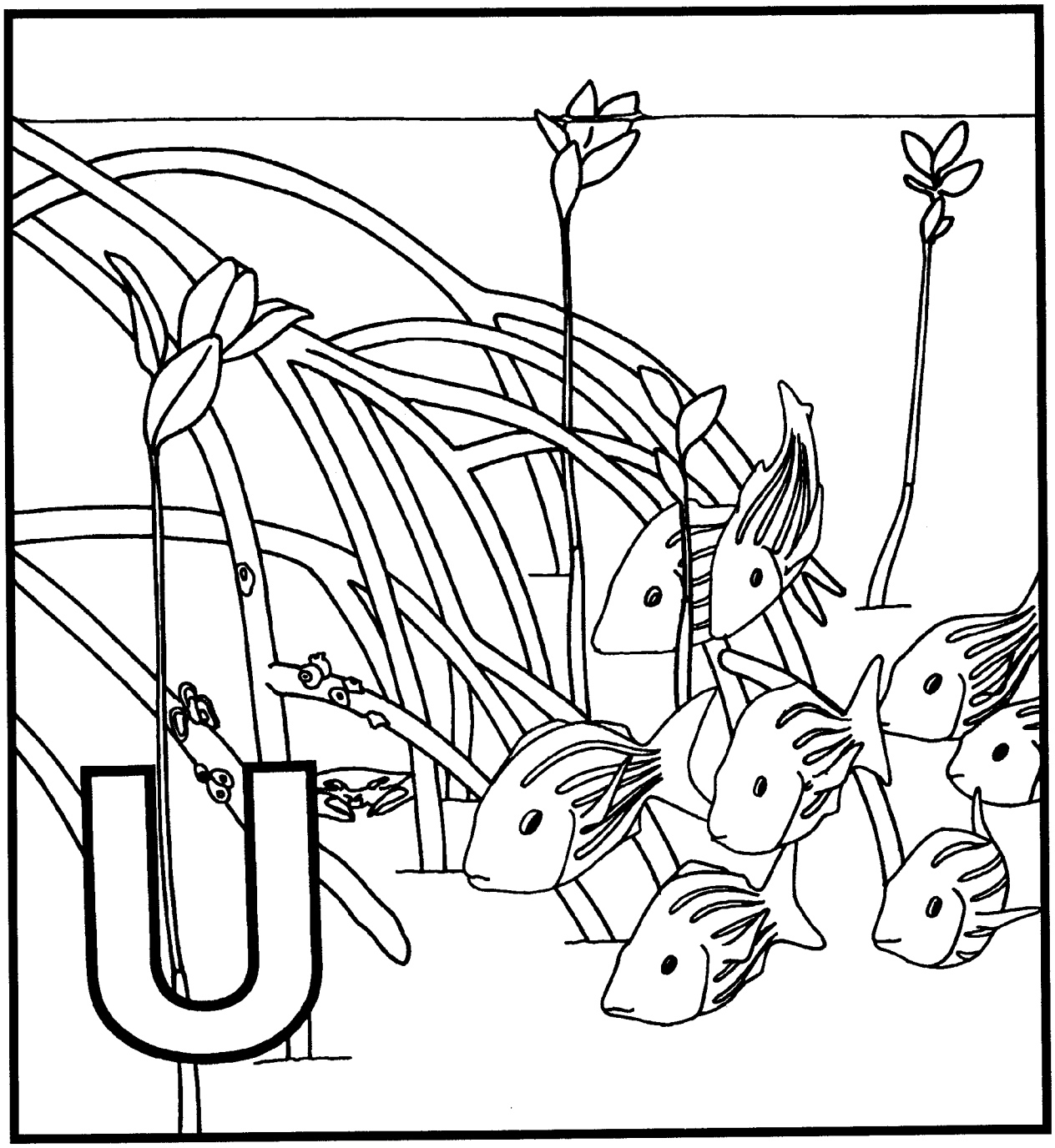
Snook is a saltwater fish which lives in warm water in central and south Florida. They are found throughout the Indian River. Snook like shorelines lined with mangrove trees. They mostly eat small mullet and shrimp. Snook are spectacular, hard fighting sportfish. The world record, caught in Costa Rica, weighed over 53 pounds.



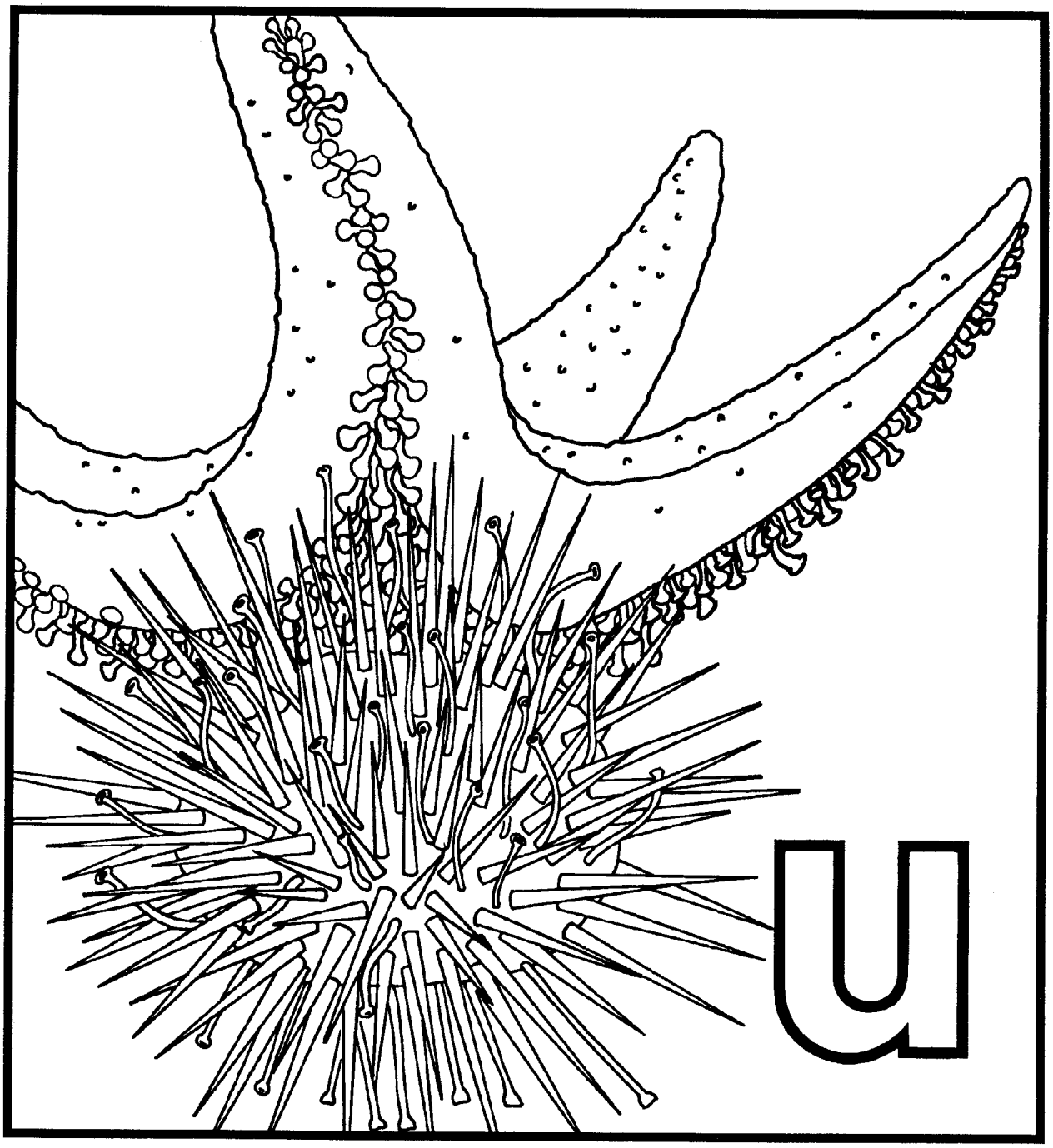
Terrapins are turtles that live only in salt water. They are found in quiet waters of bays and estuaries. Like all terrapins, the diamond-backed terrapin feeds underwater. It eats snails, clams, worms and water plants. This turtle was once hunted to near extinction for its meat and eggs.



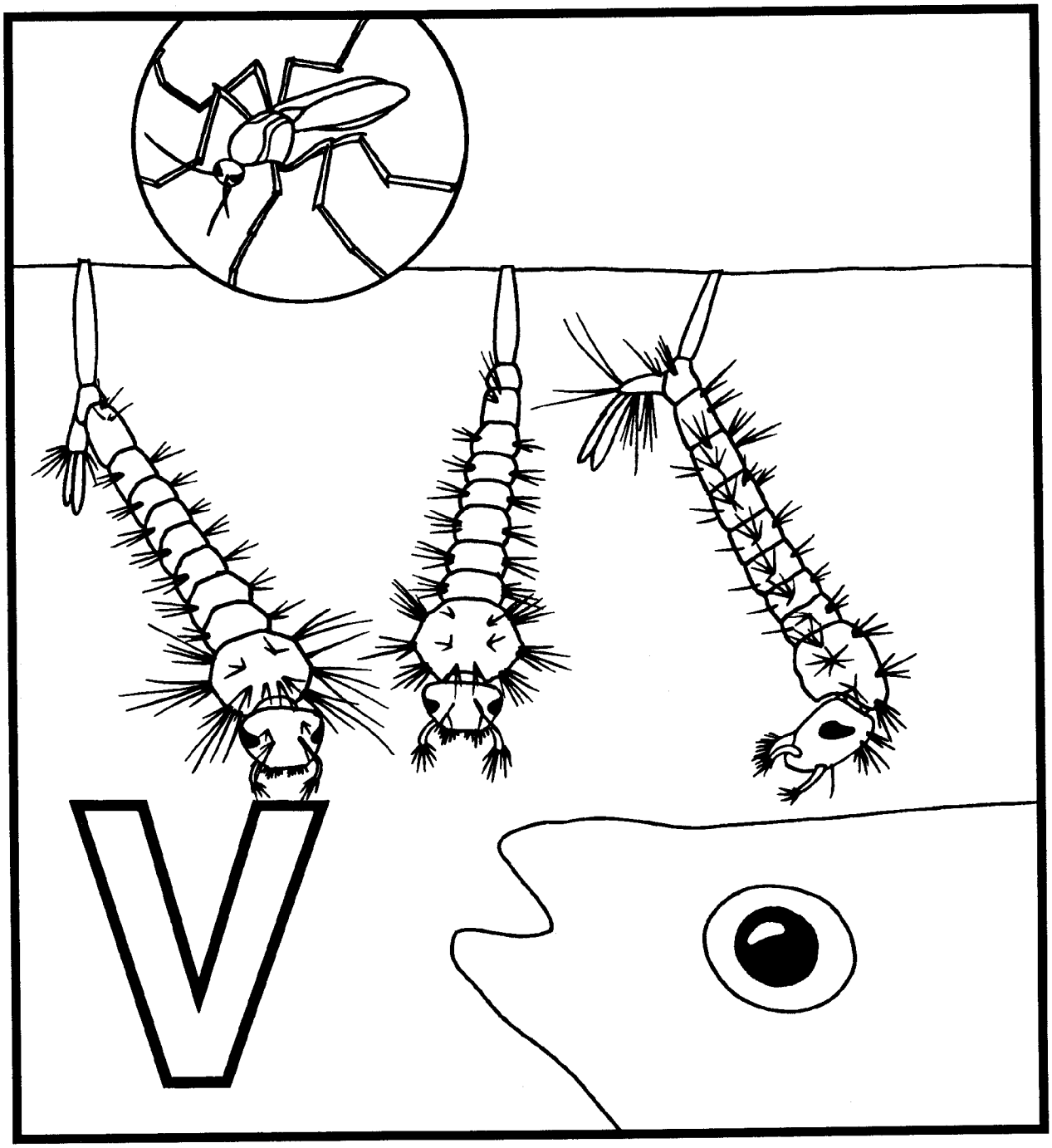
Turtlegrass is one of seven types of seagrass which grows in Florida's shallow estuaries. Seagrass is the lawn of the sea. Their root systems keep waters clear by holding soil in place. These underwater plants also provide food and cover for marine animals, especially young fish and crabs.



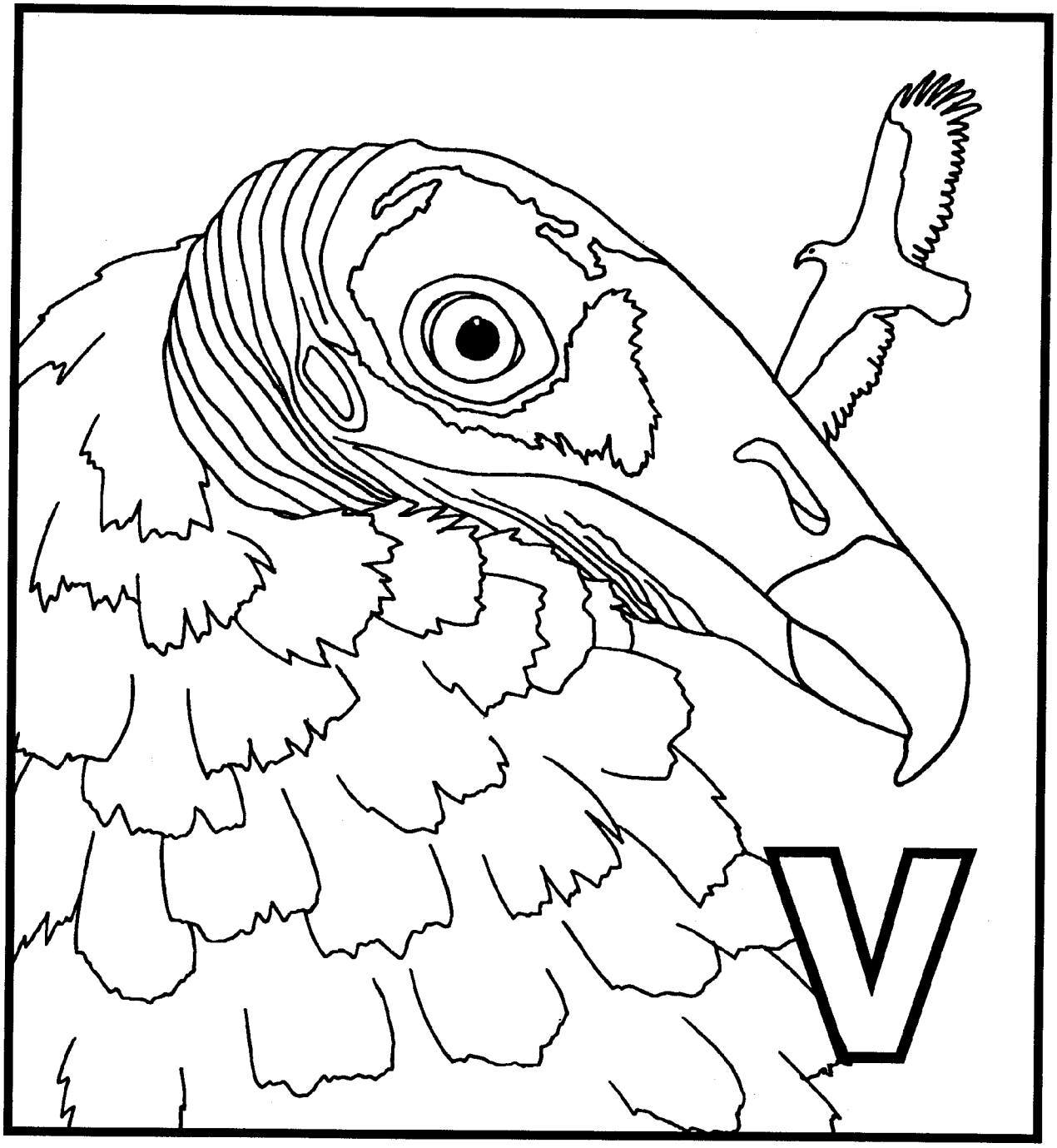
Underwater areas provide food for land and water animals. For example, man eats fish, fish eat shrimp and shrimp eat detritus (decaying plants). This is one example of a simple food chain. All living things in nature depend upon each other for survival.



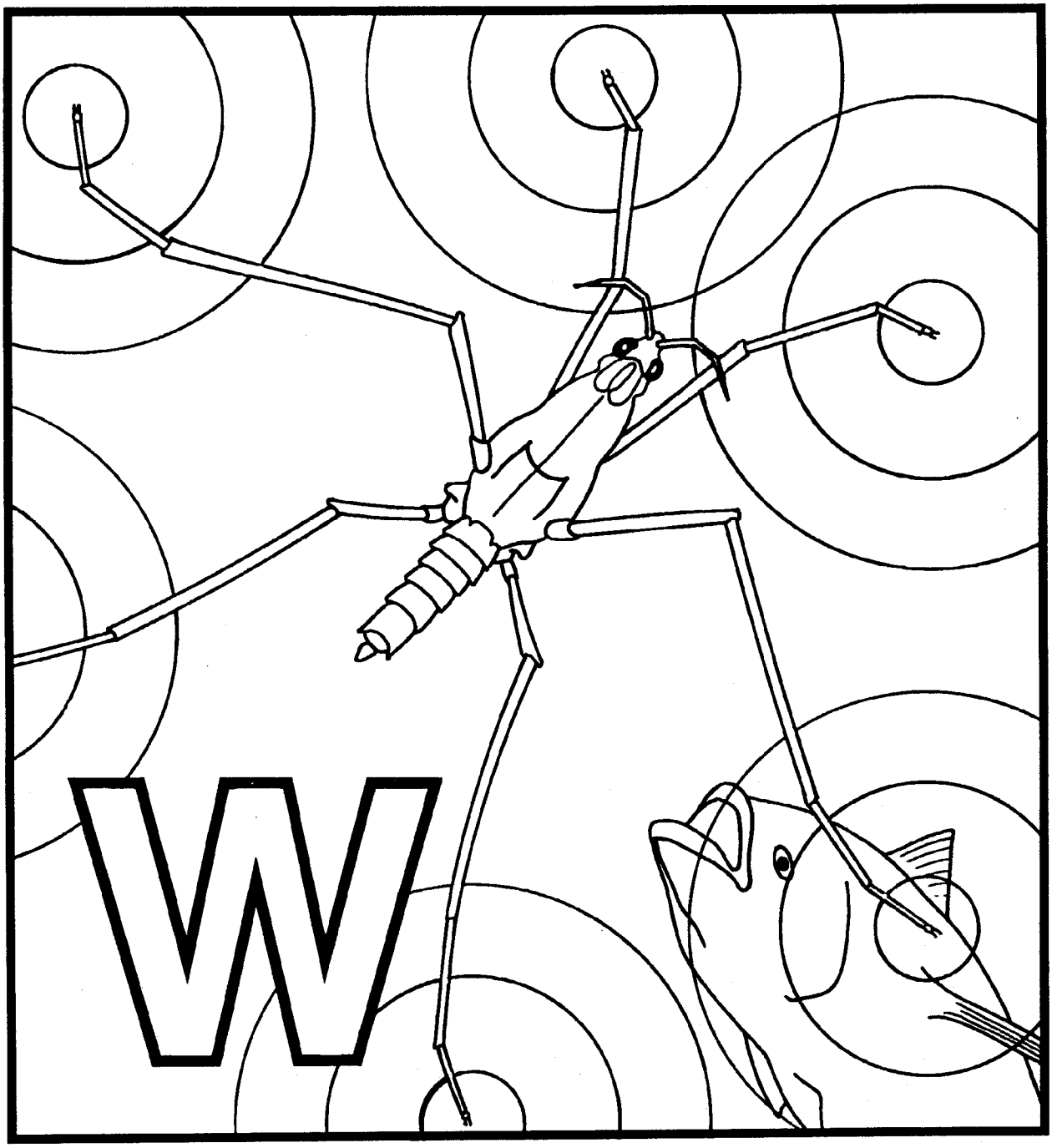
Urchins are a type of echinoderm, relatives of the starfish and sand dollar. All echinoderms have shells covered with skin and spines. What could eat this living pin cushion? Starfish are the main predators of sea urchins. They break off the spines one by one, leaving the urchin defenseless!



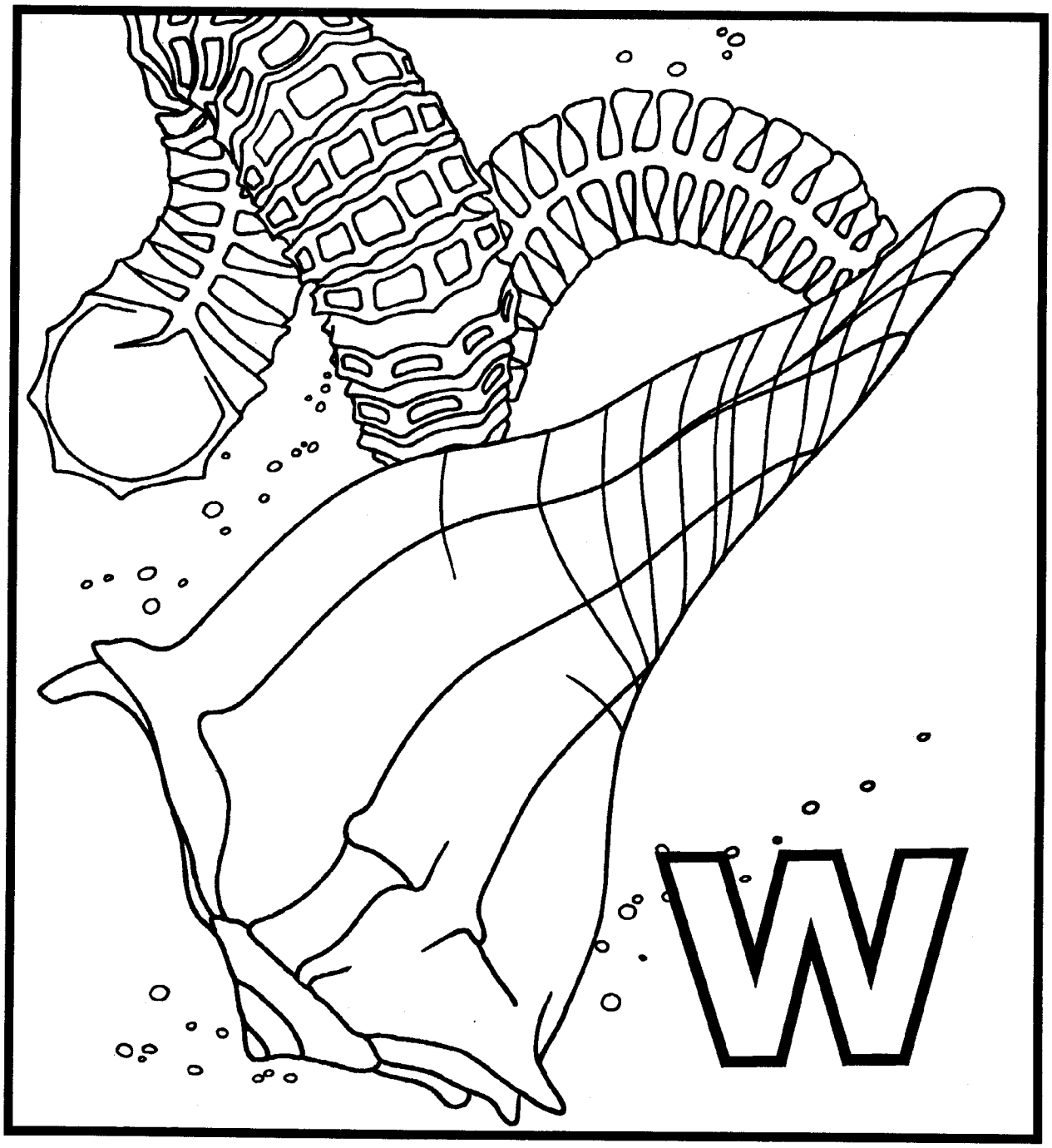
Vectors are animals that can carry harmful diseases. The mosquito is an example of a vector. Although mosquitos may cause sickness in humans, they are an important part of nature's food chain. Many fish, frogs and salamanders rely on mosquito eggs and larvae as a main part of their diet.



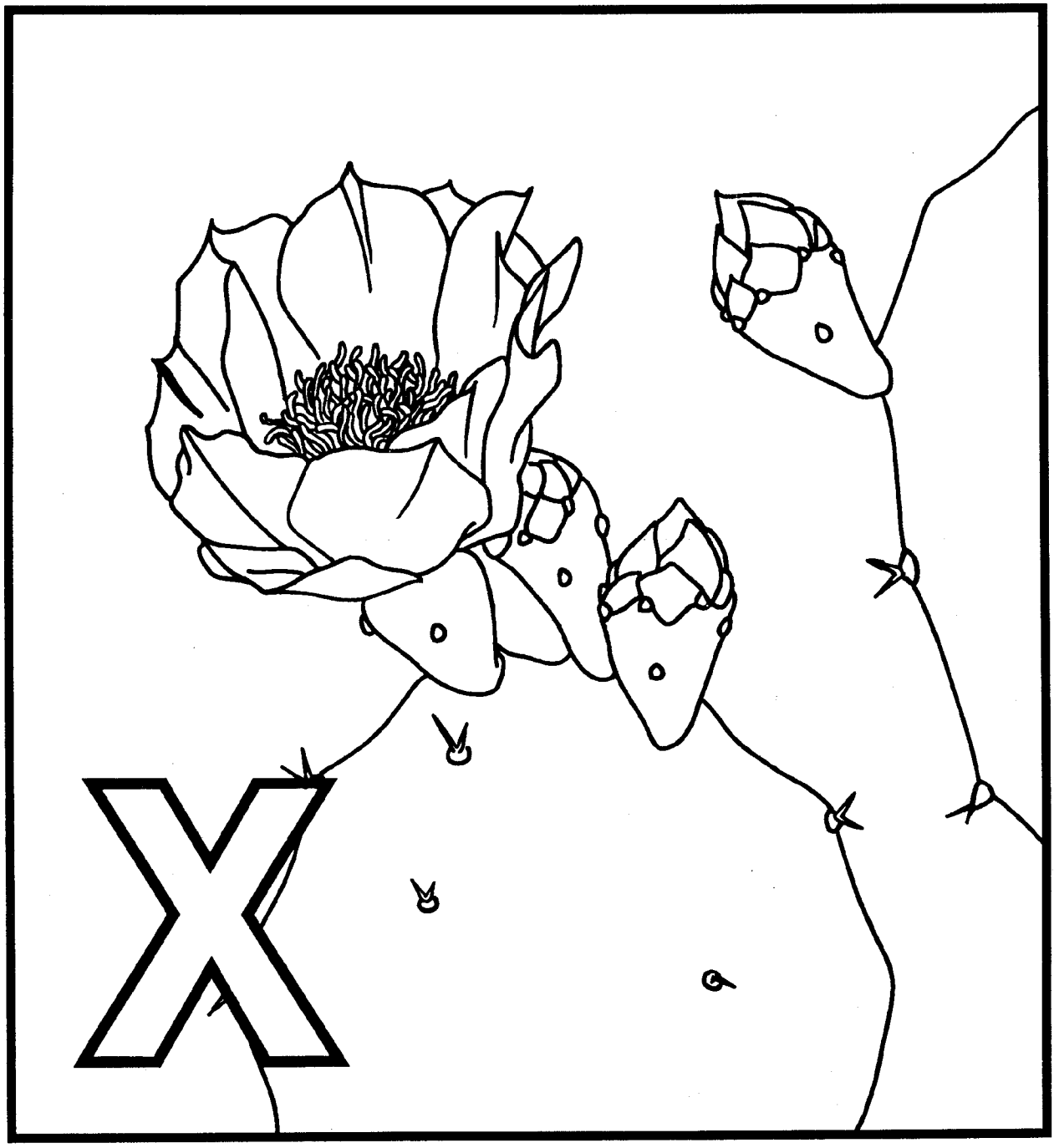
Vultures are large black birds with red, featherless heads. These scavengers are strong flyers, often soaring high above the ground for hours. Their main food is carrion (dead animals). Vultures use keen eyesight and sense of smell to locate their prey.



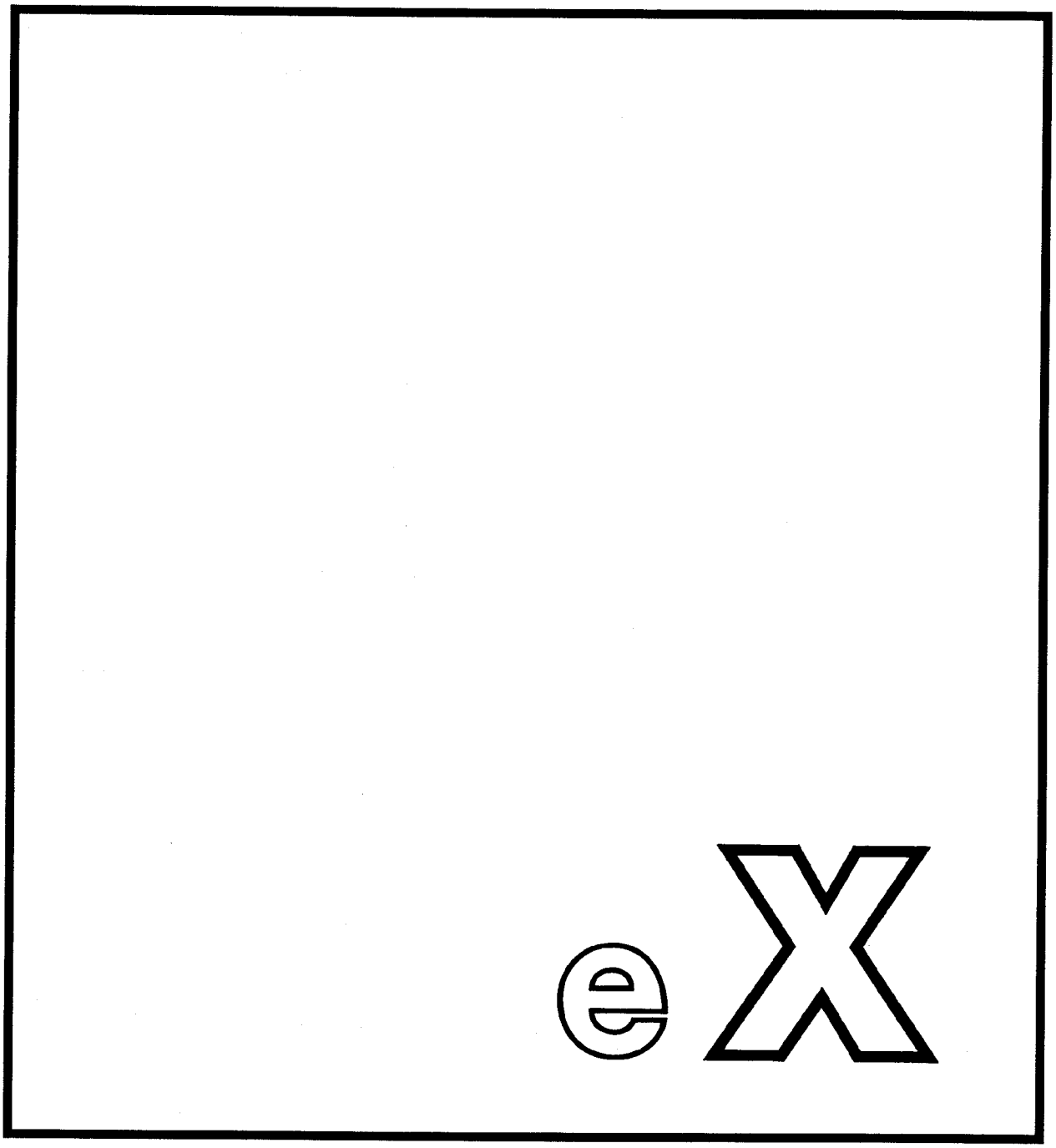
Waterstriders are long thin waterbugs commonly seen on the surface of calm waters. These insects swim by rowing with their middle legs. They steer with their hind legs. Their forelegs capture small prey. Marine waterstriders are the only insects known to live on the open sea.



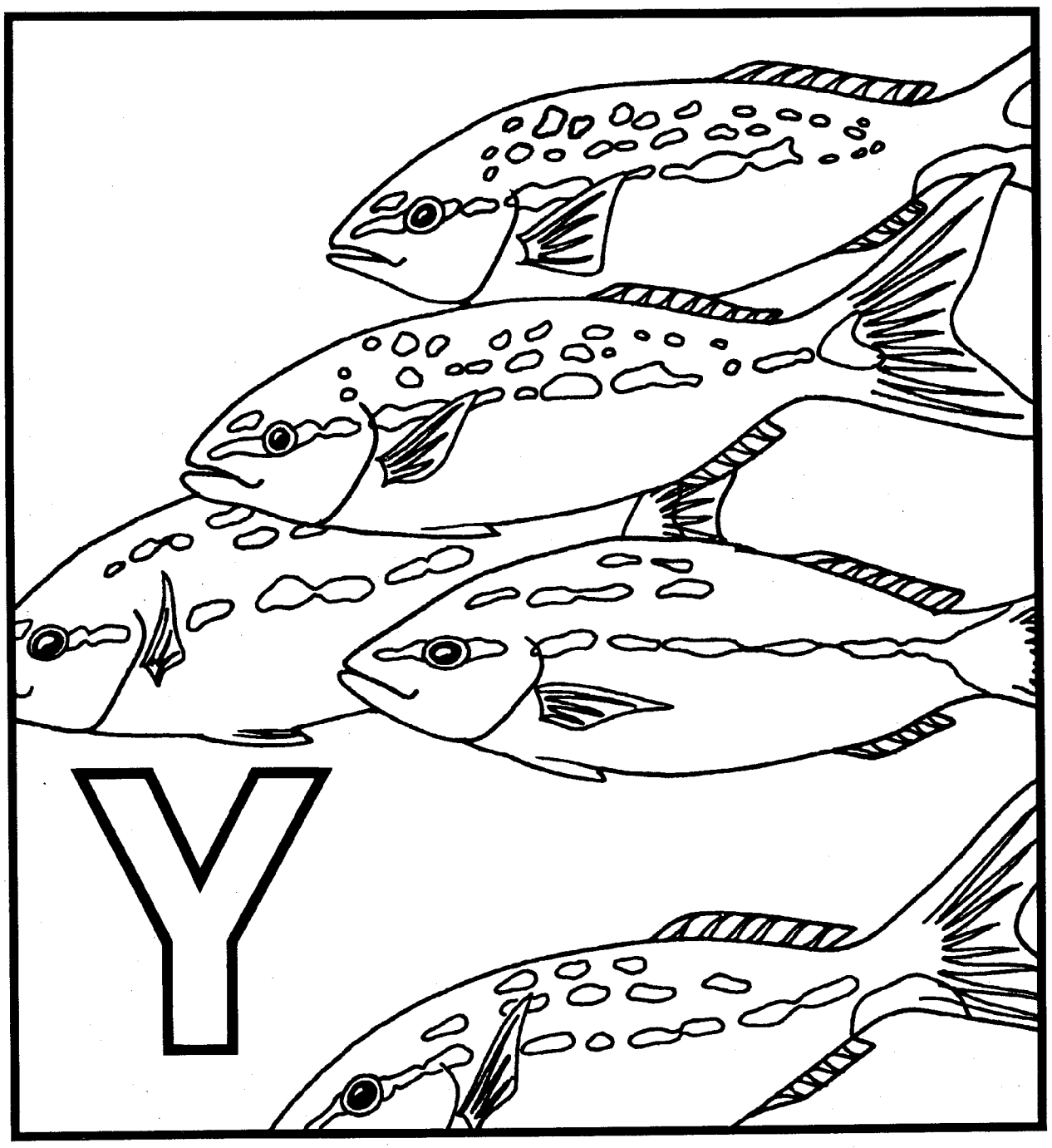
Whelks are underwater snails. Most whelks are carnivores (meat eaters). They use their shell like a can opener. Whelks wedge open clam shells with their own shell, then eat the clam's soft inner tissue. Whelks, and their paper-like spiral egg cases are found in seagrass beds and on underwater mud flats.



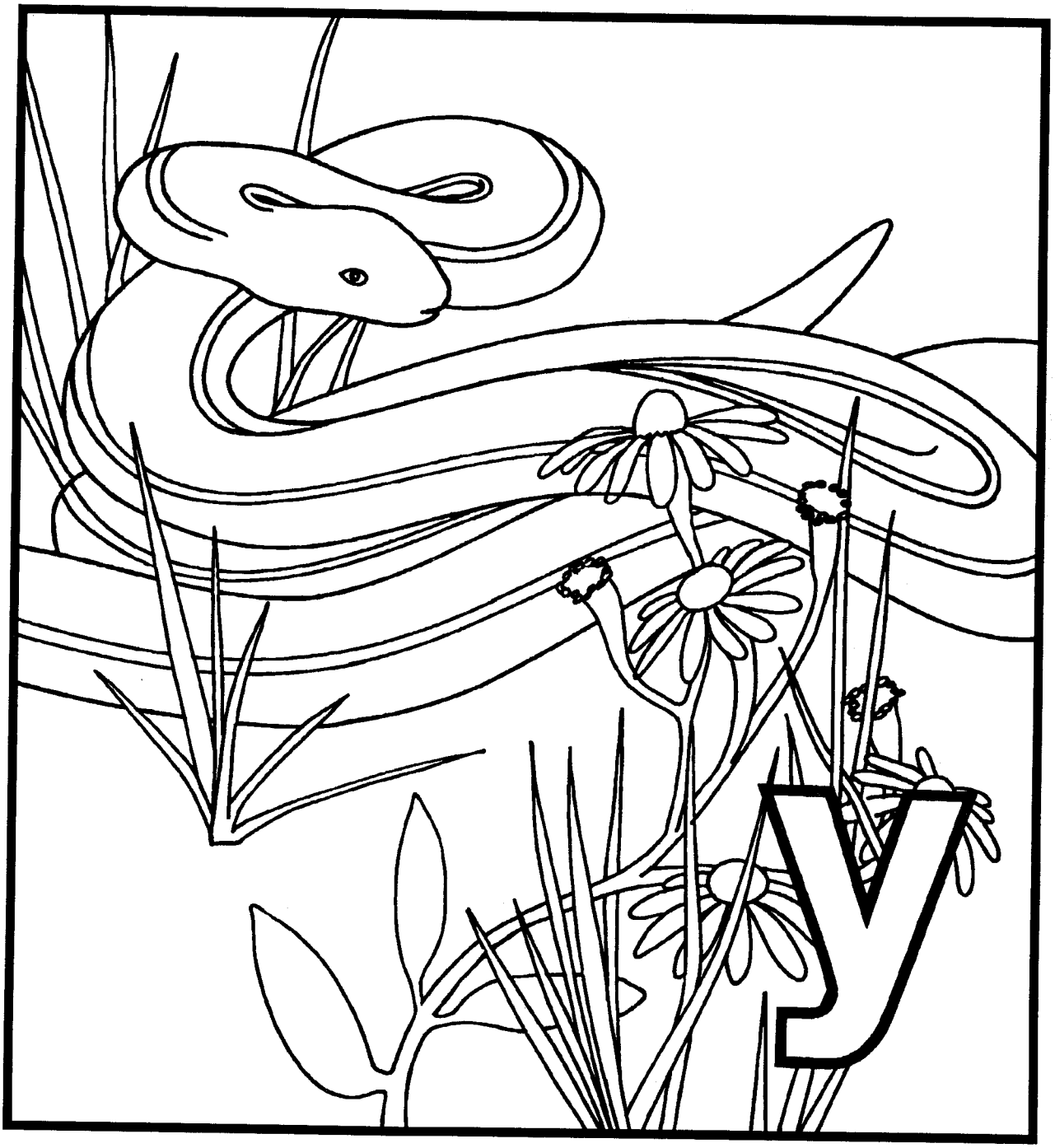
Xerophytes are plants that can live in very dry surroundings. Like many xerophytes, the leaves of the prickly pear cactus are perfect for holding water inside the plant. They are very thick and have a waxy surface. Prickly pear's bright yellow flowers appear during Florida's rainy season, in early spring and summer.



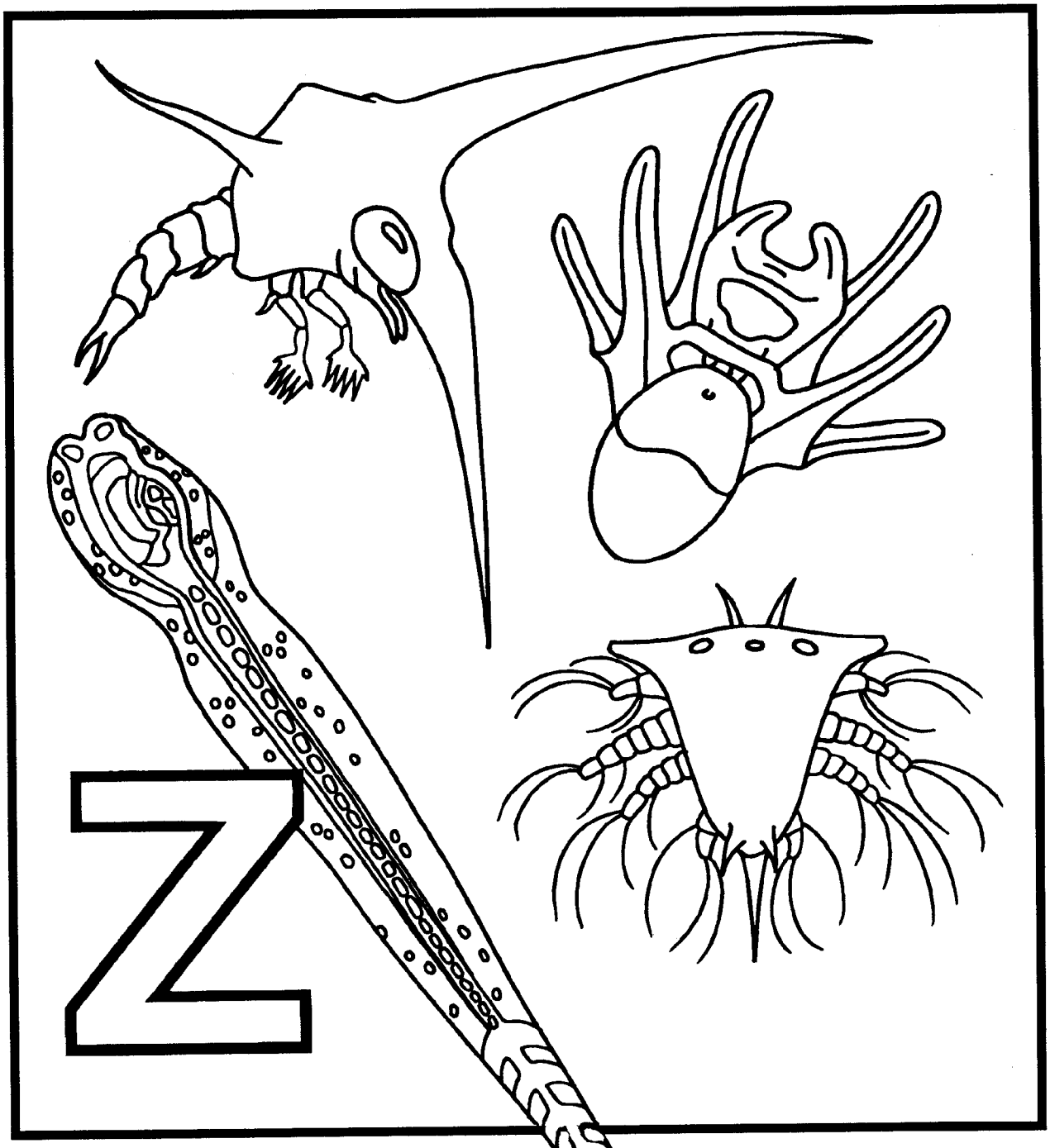
Extinct means a living thing no longer exists on our planet. Extinction is forever.



Yellowtail snappers are a fine food fish named for its bright yellow tail. This common reef dweller lives in open water. The young find shelter in seagrass beds. Like most snappers, yellowtails are carnivorous (meat eaters). They dine on fish, shrimp, crabs and marine worms.



Yellow rat snakes are long yellow snakes with four black stripes on their backs. This harmless reptile is one of the best climbers of all snakes. They are found high in trees, searching for birds, eggs, lizards and small animals. They are named for their favorite food, RATS!



Zooplankton are many kinds of very small animals that float freely in ocean waters. Some of these animals are small only when young, later to grow into full size adults. Baby crabs and jellyfish are examples of zooplankton. All filter feeding marine life, including clams and whales, eat zooplankton.

Zebra butterflies have black wings with bright yellow stripes. Passion flowers are their favorite food. Adults sip their nectar and gather pollen. Larvae feed on the passion flower blossoms. Zebra butterflies can be found in Florida's forest edges and scrub habitats.