

CHAPTER 1: TIDAL CALOOSAHATCHEE RIVER

Section 1: Hickey Creek Swamp

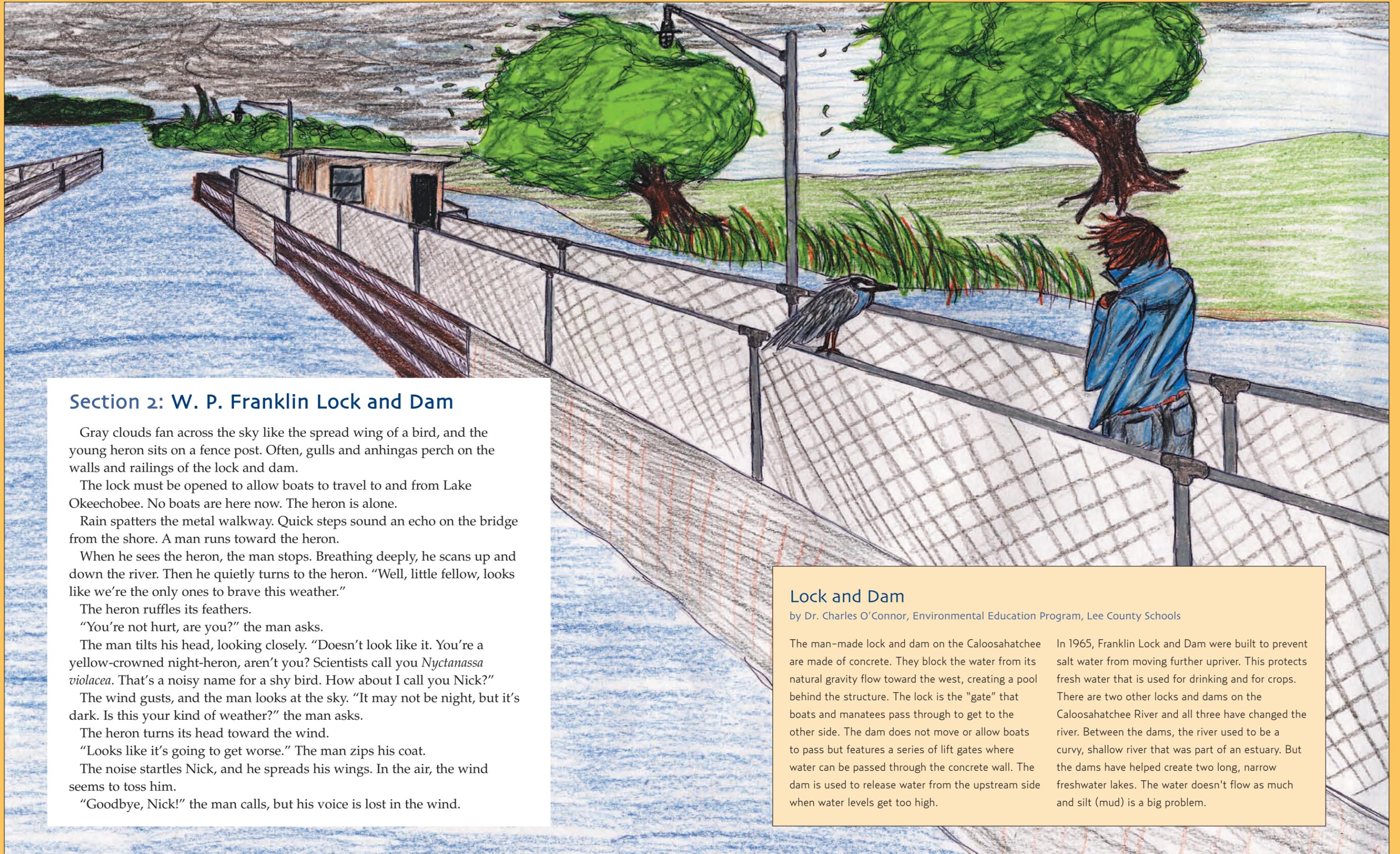
Near the Caloosahatchee River, a male yellow-crowned night-heron builds a nest. He weaves together sticks and twigs. Inside, grass and leaves make it soft. The nest is hidden in the branches of a cypress tree.

The male greets the female bird. As part of mating, they bow, raise the feathers on their necks and call softly to each other. They also fly in circles. After a short time, the female lays three pale blue eggs in the

nest, sits on them for three weeks, and they hatch.

Mother and father both work to feed the babies. First they find crabs to eat. Then, they fly back to the nest. They bring the food they have swallowed back up from their stomachs and feed it to their babies. When the babies are three or four weeks old, they learn to fly and to catch their own meals.

A northwest wind pushes cold weather, and the wind blows one young heron away from his family.



Section 2: W. P. Franklin Lock and Dam

Gray clouds fan across the sky like the spread wing of a bird, and the young heron sits on a fence post. Often, gulls and anhingas perch on the walls and railings of the lock and dam.

The lock must be opened to allow boats to travel to and from Lake Okeechobee. No boats are here now. The heron is alone.

Rain spatters the metal walkway. Quick steps sound an echo on the bridge from the shore. A man runs toward the heron.

When he sees the heron, the man stops. Breathing deeply, he scans up and down the river. Then he quietly turns to the heron. "Well, little fellow, looks like we're the only ones to brave this weather."

The heron ruffles its feathers.

"You're not hurt, are you?" the man asks.

The man tilts his head, looking closely. "Doesn't look like it. You're a yellow-crowned night-heron, aren't you? Scientists call you *Nyctanassa violacea*. That's a noisy name for a shy bird. How about I call you Nick?"

The wind gusts, and the man looks at the sky. "It may not be night, but it's dark. Is this your kind of weather?" the man asks.

The heron turns its head toward the wind.

"Looks like it's going to get worse." The man zips his coat.

The noise startles Nick, and he spreads his wings. In the air, the wind seems to toss him.

"Goodbye, Nick!" the man calls, but his voice is lost in the wind.

Lock and Dam

by Dr. Charles O'Connor, Environmental Education Program, Lee County Schools

The man-made lock and dam on the Caloosahatchee are made of concrete. They block the water from its natural gravity flow toward the west, creating a pool behind the structure. The lock is the "gate" that boats and manatees pass through to get to the other side. The dam does not move or allow boats to pass but features a series of lift gates where water can be passed through the concrete wall. The dam is used to release water from the upstream side when water levels get too high.

In 1965, Franklin Lock and Dam were built to prevent salt water from moving further upriver. This protects fresh water that is used for drinking and for crops. There are two other locks and dams on the Caloosahatchee River and all three have changed the river. Between the dams, the river used to be a curvy, shallow river that was part of an estuary. But the dams have helped create two long, narrow freshwater lakes. The water doesn't flow as much and silt (mud) is a big problem.

Section 3: Fort Myers Shores

Behind a house in Fort Myers Shores is a dock. An older woman and a boy walk to the end. Under them, Nick stands in the water.

"Grandma, the river doesn't seem to be moving," the boy says.

"That's because the river mostly flows in the deep channel in the middle. This is an oxbow of the river," the woman says.

The boy leans on the railing. Nick watches his reflection in the water.

"What's an oxbow?"

"It's two things, really." She moves her hands to show the shape. "It's a U-shaped piece of wood that fits around the neck of an ox."

The boy picks up a leaf. "What's that got to do with a river?"

"When a river turns to make that same U-shape and is cut off from the main flow of the river, it's called an oxbow," the woman says.

The boy throws the leaf in the water. Nick watches it float.

"This is a shallow oxbow that was bypassed when the channel was dug and the river became the Okeechobee Waterway, or C-43 Canal. It is part of the Cross Florida shipping channel, which links the Gulf of Mexico and the Atlantic Ocean."

The boy picks up a beetle and places it on the railing. "How do you take the curves out of a river?"

The woman sighs. "It wasn't easy. It takes a big machine called a dredge. It's like a bulldozer, and it digs sand out of the river."

"Wow! I want to see that!" the boy says.

Nick walks closer to a piling beneath the dock.

"It was a long time ago. Workers began to dig canals to connect the Gulf of Mexico and the Atlantic Ocean and to drain marshes and wetlands to make drier land for houses and farming. They had to dynamite a waterfall to do it."

"You mean the river didn't flow from Lake Okeechobee?" the boy asks. He flicks the beetle off the railing, and Nick watches it plop on the water.

"It did, but not like today. It was very shallow — like they say of the Everglades — a river of grass," the woman says.

The boy watches the beetle. Nick does too.

The woman says, "The riverbed used to be white sand, and now it's covered with silt from the lake. The channel's been widened and deepened several times. It's perfect for boats."

Nick leans out from under the dock to catch the beetle.

The boy points. "That bird just ate my bug!"

Nick flies away.

YELLOW-CROWNED NIGHT-HERONS

by Melissa Cain Nell, Conservation Lands Management Department, Manatee County

Florida has two kinds of night herons: black-crowned and yellow-crowned.

As chicks, both kinds have golden eyes and brown-and-white-streaked feathers. Adult black-crowned night-herons have red eyes and gray feathers. The yellow-crowned night-heron's head is black with a white stripe on its cheek. Named for their bright yellow forehead, both males and females grow a long, white feathery "crown" when looking for a mate. They are called "night" birds, but they often feed in the evening and morning. They eat blue crabs, mud crabs, mangrove crabs, fiddler crabs, small fish, aquatic insects and even frogs.



Section 4: Owl Creek and Trout Creek

Owl Creek and Trout Creek flow into the river, not far from the Lee Civic Center. Nick stands in the shallow water and, through the reeds, sees two fishermen on the shore.

“Did you hear that RiverWatch got an oxbow restored up by old Fort Denaud?” The first man jerks the rod as he reels.

The second man baits his hook, and Nick watches the minnow in his hands.

“What do you mean — restored?” The second man casts his line. Nick watches the bait fly through the air and splash into the water.

“They did some digging so the water would flow. They planted a bunch of plants to keep the water clean, even though it moves slowly. There’s even an oxbow island.” The first man pulls up his hook and checks the bait. Nick watches him cast.

The second man feels a tug on his line. He yanks his fishing rod to set the hook, but his line

is loose. Nick sees a blue crab stealing the bait.

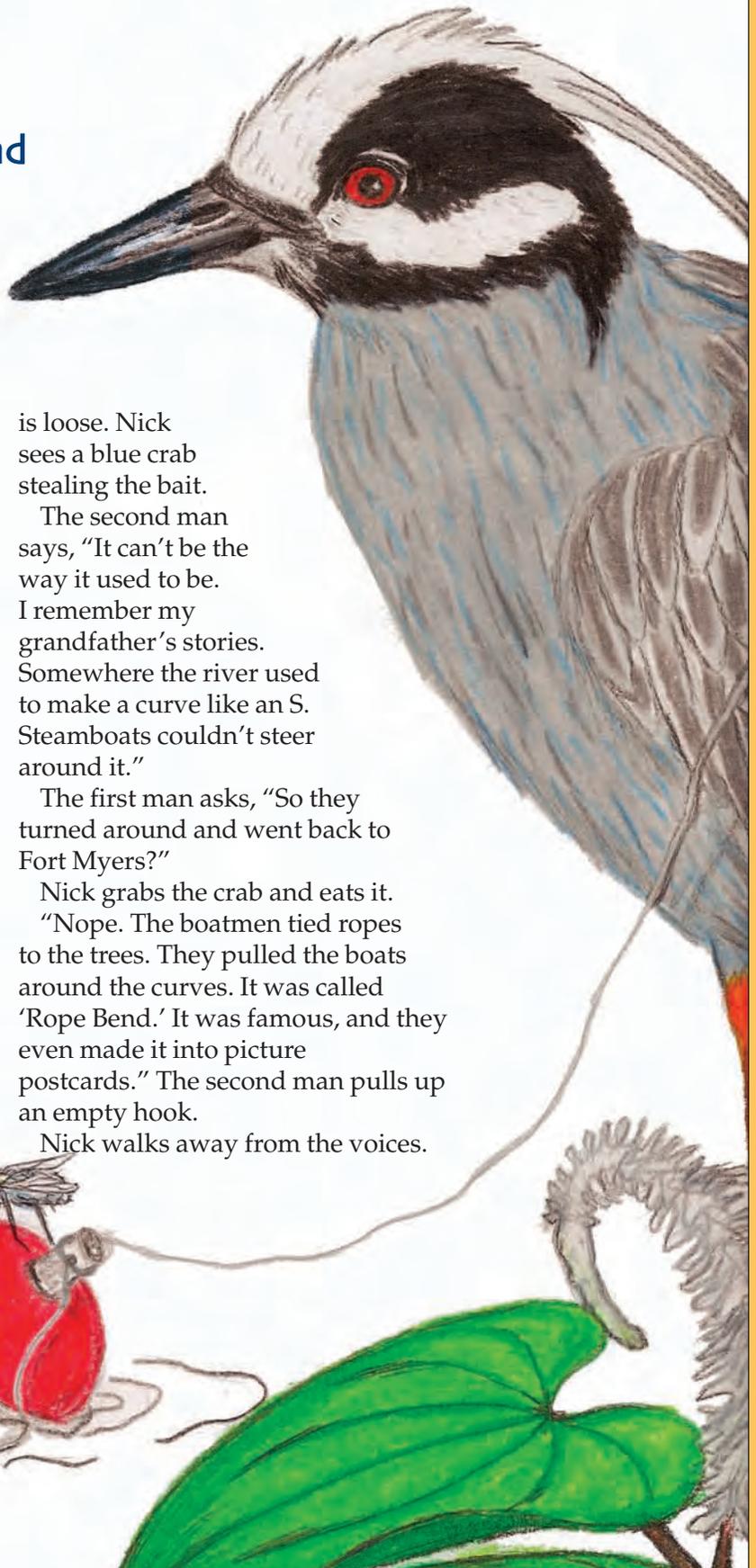
The second man says, “It can’t be the way it used to be. I remember my grandfather’s stories. Somewhere the river used to make a curve like an S. Steamboats couldn’t steer around it.”

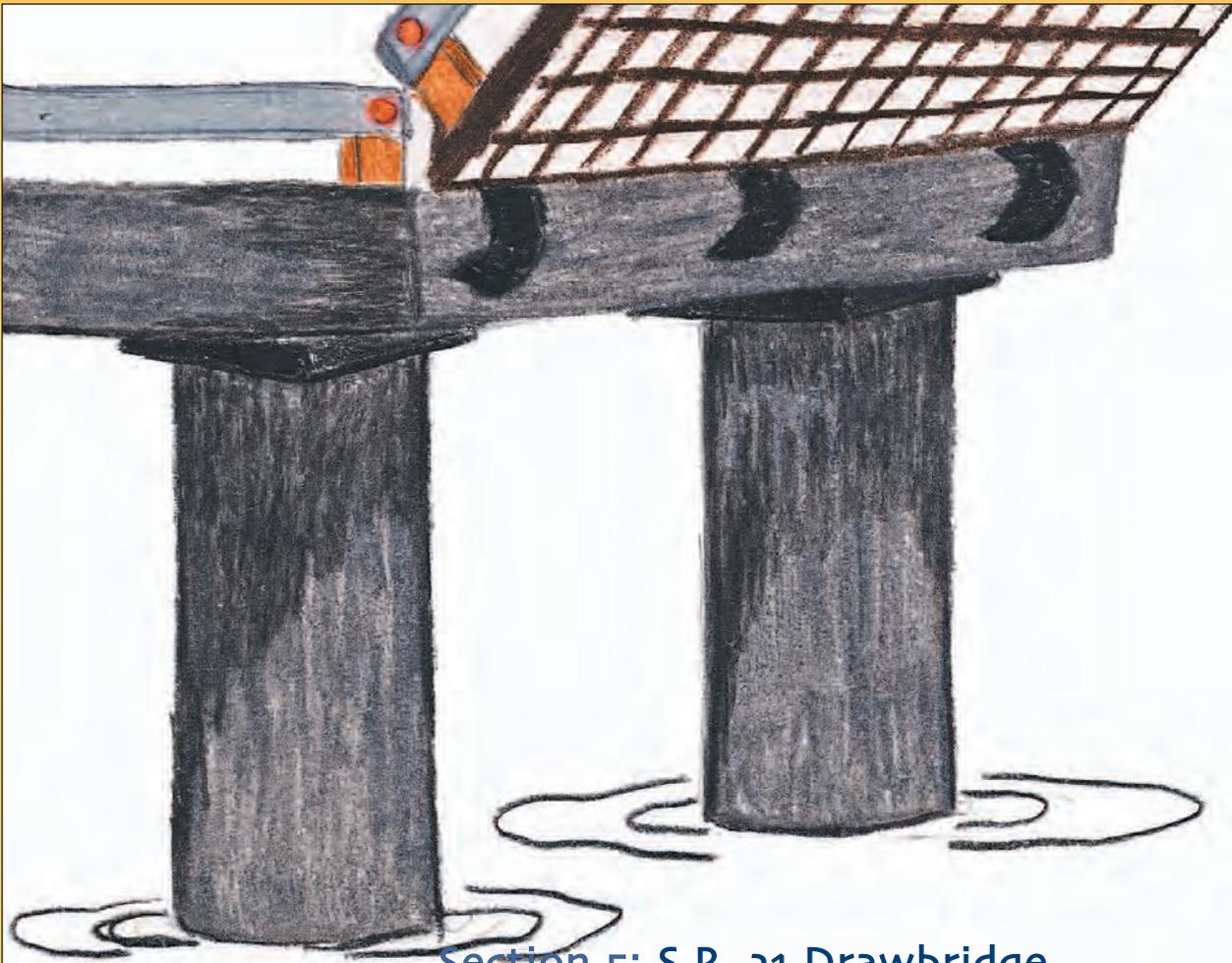
The first man asks, “So they turned around and went back to Fort Myers?”

Nick grabs the crab and eats it.

“Nope. The boatmen tied ropes to the trees. They pulled the boats around the curves. It was called ‘Rope Bend.’ It was famous, and they even made it into picture postcards.” The second man pulls up an empty hook.

Nick walks away from the voices.





Section 5: S.R. 31 Drawbridge

S.R. 31, known by some as Dixie Highway, crosses the river east of Fort Myers. Nick stands on a piling. Above him is a small house on the side of the bridge. Inside, the bridge tender makes sure that cars and trucks stop so the drawbridge can open for boats.

Just east of the bridge, a sailboat sounds its horn. It is too tall to pass under and waits for the bridge to open.

The bridge tender turns on the alarm bells. The noise is loud, but Nick doesn't fly away. Red lights flash on the gates. When lowered, the gates keep cars and trucks off the bridge.

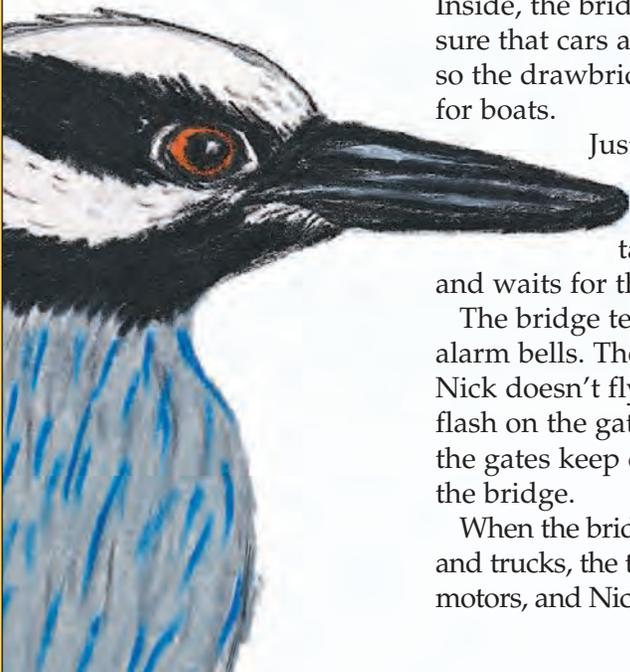
When the bridge is empty of cars and trucks, the tender turns on the motors, and Nick feels the throbbing.

At the center of the bridge span, two sections of the bridge rise.

After the boat passes through, the bridge sections lower into place. Joined again at the center, the bridge is now safe for cars and trucks to pass. The gates are raised, the lights stop flashing and the bells stop ringing. Nick hears the hum of tires as traffic moves across the bridge again.

He also hears the cry of gulls and sees them behind the boat as they swoop and dive in the wake. They are catching small fish that tumble to the surface as the boat's propeller churns the water.

From the piling, Nick flies to the shallow water near shore where some of the small fish scatter. He catches and eats one, and then another.



Section 6: Manatee Park

On the south bank of the river looms the Florida Power and Light plant. Built in 1958, it used to burn diesel fuel to make electricity. Since 2002, it burns natural gas. Water for cooling the plant's hot engines comes from the river. The heated water flows into a canal that drains into Orange River.

On the west side of the canal and along the north shore of the river is Orange River Preserve, purchased by Lee County's Conservation 20/20 Program. A bird watcher there sees Nick fly above the canal. On the east side of the canal is Manatee Park. The land is owned by the power company. Lee County and other groups pay for the building and the people who work there.

Nick lands on the bank of the canal and hears a guide say, "I see a group of manatees just at the entrance. They come here when the temperature in the Gulf falls below 68 degrees." She shades her eyes with one hand and points with the other.

"Here's one," a girl says. She stands with her mother and brother on the

sidewalk behind a fence that surrounds the manatee viewing area.

"Look at its snout. It's ugly." A boy kicks at the ground with one foot.

Their mother says, "You're seeing it through the water, so it looks strange, like when you see your friend underwater in the swimming pool."

"Is it looking for something to eat?" the girl asks.

The guide says, "Manatees aren't fish, so they have to surface to breathe. They need air to live, just like we do."

"What do they eat?" the girls asks.

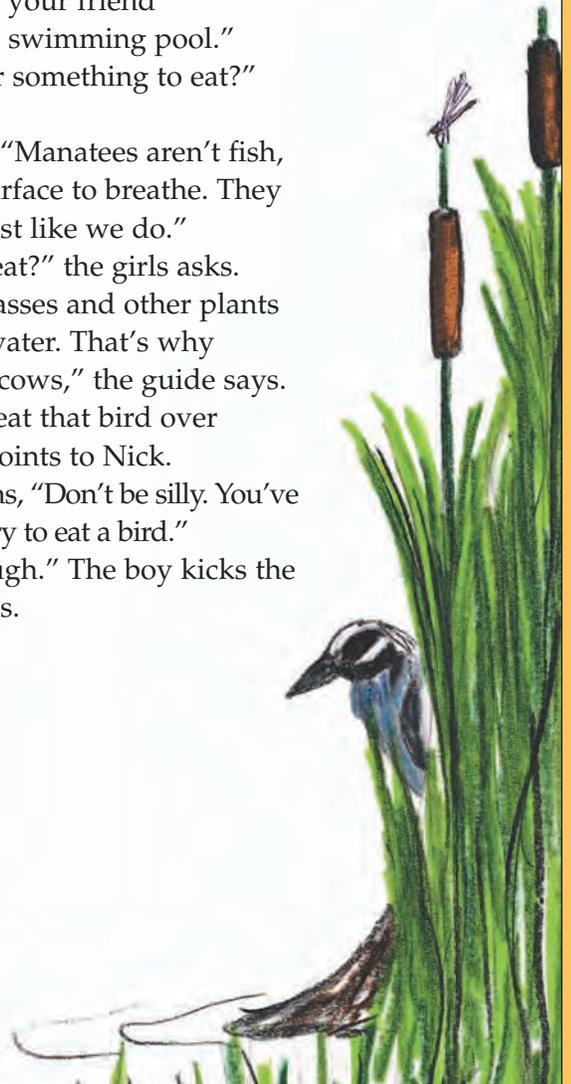
"They eat seagrasses and other plants that grow in the water. That's why they're called sea cows," the guide says.

"It won't try to eat that bird over there?" The boy points to Nick.

His mother laughs, "Don't be silly. You've never seen a cow try to eat a bird."

"I'd like to, though." The boy kicks the fence, and it rattles.

Nick flies away.



LEE COUNTY'S CONSERVATION 20/20 PROGRAM

by Carol Mahler

In 1995, some citizens wanted to preserve natural areas in Lee County. They asked the government to help, and in 1996, voters agreed to pay more taxes to buy wild lands. By 2008, the 20/20 Program had bought 97 parcels, nearly 21,000 acres, including Orange River Preserve and the Caloosahatchee Creeks Preserve, which protect part of the watersheds of Daughtrey's Creek, Cohn Branch, Chapel Branch, Bayshore Creek, Popash Creek, Stroud Creek and Palm Creek. Similar land acquisition programs exist in Charlotte, Polk and Sarasota counties.

MANGROVES

by Melissa Cain Nell,
Conservation Lands
Management
Department, Manatee
County

Mangroves are trees that can live near salt water. They protect the coasts by keeping sand from washing away and breaking the force of strong waves caused by storms. Mangroves also make new land by trapping sand and leaves brought in by the tide. Mangrove seeds sprout before they drop from the trees so they can float to another shore where they will grow. Mangrove roots offer hiding places for young fish and shellfish. Their branches are homes for different birds. A rookery is where many birds build their nests in the trees.

Section 7: Caloosahatchee National Wildlife Refuge

On Interstate 75, cars and trucks roar across the bridges. On the river's north shore, the interstate cuts through the Caloosahatchee Creeks Preserve. The mangrove islands nearby form the Caloosahatchee National Wildlife Refuge.

Nick stands in the water near the mangroves. A lizard runs along a branch. A breeze rustles the cabbage palms and sea grapes that grow at the island's center.

Two white egrets and a great blue heron hunt for fish. In the water, three pelicans have eaten and are resting.

The breeze blows again. Nick watches a mangrove leaf fall. Beneath it, he sees many leaves sunk in the water. They are caught in the prop roots of the mangrove. As the water moves, they are ground into smaller and smaller pieces. Animals too small to see live on and eat these bits. Tiny shrimp and baby fish feed on them.

A Styrofoam cup bobs between the roots. A bead of Styrofoam breaks free. It mixes with the leaf bits. If something eats the bead, it could get sick.

A fiddler crab runs across the sand. Nick stabs for it but misses. He stalks across the sand. His footprints join those of crabs, ibis and gulls.



Section 8: Russell Park

Railroad bridges, called trestles, cross the water between small islands. At sunset, Nick flies over. His shadow slides along the tracks like a train.

Boats usually travel in the middle of the river where the water is deepest. The track that crosses the channel is raised like a drawbridge so boats can pass under. Nick lands on the top and looks at the houses and docks built on the shores.

He flies to the south shore and lands near the Russell Park Boat Launch. A driveway of gravel slopes into the river. The grass on either side of the driveway is blocked off with “no parking” signs.

Nick stands very still when he sees a frog hopping across the grass.

Across the street are many historic homes. In front of one, a woman and a girl walk out and down the front porch steps. They hold hands as

they walk to the street and stop. The woman points at Nick. “See the bird?”

“What kind is it, Mommy?” the girl asks.

The frog hops closer to Nick and eats a mosquito.

“Some kind of heron, I think. Look at its long legs,” the woman says.

The girl rubs her leg. “Bugs are biting me, but I can’t see them!”

“They are tiny flies called no-see-ums.” The woman slaps her arm. “The mosquitoes are biting too. Let’s go back in.”

“Will the bird go home?” the girl asks.

“I think it’s a kind of night heron. Like an owl, it hunts at night.”

As they walk away, the girl waves her hand.

“Bye, bye, birdie.”

The frog leaps very close to Nick, and he grabs it in his bill.

FLOODING

by Desiree Companion, Sarasota County Surface Water Planning & Regulatory

Flooding is part of the earth's natural hydrological cycle. Floodplains are low-lying areas near coastlines, rivers and streams that temporarily store excess surface water caused by storm surge or intense rainfalls. Many people want to live by water, and their homes and businesses have filled these once-natural storage systems. Flooding only becomes a problem when met with human habitation.

RESIDENTIAL DEVELOPMENT

by Curtis Porterfield, Polk County Natural Resources Division

Florida is developing fast. Many houses, shopping centers and roads are being built. When people build, they often get rid of natural lands and surface water to make room for the buildings and roads. This means that many animals and plants lose their homes. Also, because surface water refills ground water, when we get rid of surface water, we lose ground water too. When surface waters are surrounded by buildings and roads, they change. The dirty substances in towns and cities can run off into surface waters when it rains, and this can make them too dirty for plants and animals to live in.



Section 9: Lofton Island and Centennial Park

Nick flies over the bridges, which are the north and south lanes of U.S. Highway Business 41. They were built high above the river, so even tall boats can pass under. Nick lands in the water beside an island.

Two men sit in the shade of Australian pines. When the breeze blows the branches, the sound is like waves washing the shore. The first man asks, "Did you know this island was named for a fellow named Lofton?"

The second man pours coffee from a thermos into a cup. "Who's he?"

The first man says, "He dredged the river back in 1910. He made it wider and deeper from here to LaBelle. This island is sand he dug from near the south shore where the Fort Myers Yacht Basin is now."

Nick watches dragonflies zip over the water.

The second man sips his coffee. "This is a huge pile of sand. The river must have been very shallow."

Standing very still, Nick sees a mud crab.

The first man says, "It was different then. Docks with packing houses jugged out into deep water. Two piers even had tracks for trains!"

"So what happened?" the second man asks.

"The docks were taken out because most businesses had failed. It was the Great Depression. Sand dredged from the yacht basin filled in the waterfront to make Centennial Park."

A fish crow lands on the branches above Nick.

The first man looks at it. "Are you an American crow?"

The crow tilts its head, ruffles its feathers and says, "Uhn-uhn."

"I knew it!" the first man slaps his leg. "That's a fish crow. I see them over at the park. They're always at the fishing pier and near the boat ramp."

The second man points at Nick. "I see herons like that one when I'm at the park."

As the men walk away, Nick grabs the crab. The fish crow dives at Nick. It wants to steal the crab, but Nick eats it. The fish crow flies away.

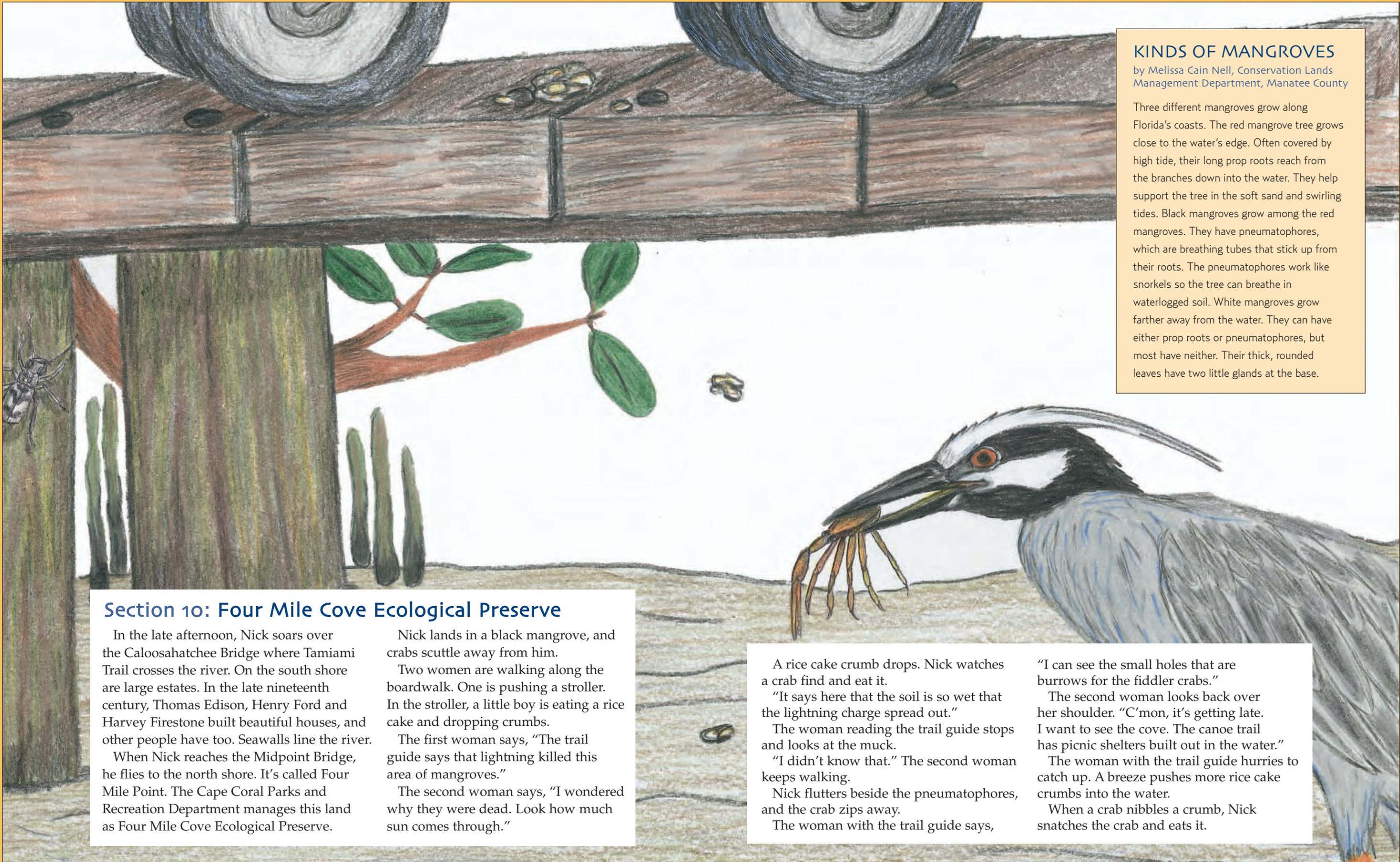
DREDGING

by Dr. Charles O'Connor, Environmental Education Program,
Lee County Schools

A dredge is a machine that scoops dirt and mud from a waterway and places it somewhere else. Dredges are used to deepen or straighten a waterway. This can speed boat traffic and water movement, but many problems can occur. Pollution in the mud can be spread to other areas. Fish, plants and birds can be harmed by quick changes. The plants and fish may die and then

the birds have a problem finding food. The water can become muddy and not as friendly to life. Also, less of the fast-flowing water is in contact with plants that help clean the water. Usually, nature changes waterways more slowly so that life can adjust and survive. Some waterways that were dredged are now being restored and repaired.





KINDS OF MANGROVES

by Melissa Cain Nell, Conservation Lands Management Department, Manatee County

Three different mangroves grow along Florida's coasts. The red mangrove tree grows close to the water's edge. Often covered by high tide, their long prop roots reach from the branches down into the water. They help support the tree in the soft sand and swirling tides. Black mangroves grow among the red mangroves. They have pneumatophores, which are breathing tubes that stick up from their roots. The pneumatophores work like snorkels so the tree can breathe in waterlogged soil. White mangroves grow farther away from the water. They can have either prop roots or pneumatophores, but most have neither. Their thick, rounded leaves have two little glands at the base.

Section 10: Four Mile Cove Ecological Preserve

In the late afternoon, Nick soars over the Caloosahatchee Bridge where Tamiami Trail crosses the river. On the south shore are large estates. In the late nineteenth century, Thomas Edison, Henry Ford and Harvey Firestone built beautiful houses, and other people have too. Seawalls line the river.

When Nick reaches the Midpoint Bridge, he flies to the north shore. It's called Four Mile Point. The Cape Coral Parks and Recreation Department manages this land as Four Mile Cove Ecological Preserve.

Nick lands in a black mangrove, and crabs scuttle away from him.

Two women are walking along the boardwalk. One is pushing a stroller. In the stroller, a little boy is eating a rice cake and dropping crumbs.

The first woman says, "The trail guide says that lightning killed this area of mangroves."

The second woman says, "I wondered why they were dead. Look how much sun comes through."

A rice cake crumb drops. Nick watches a crab find and eat it.

"It says here that the soil is so wet that the lightning charge spread out."

The woman reading the trail guide stops and looks at the muck.

"I didn't know that." The second woman keeps walking.

Nick flutters beside the pneumatophores, and the crab zips away.

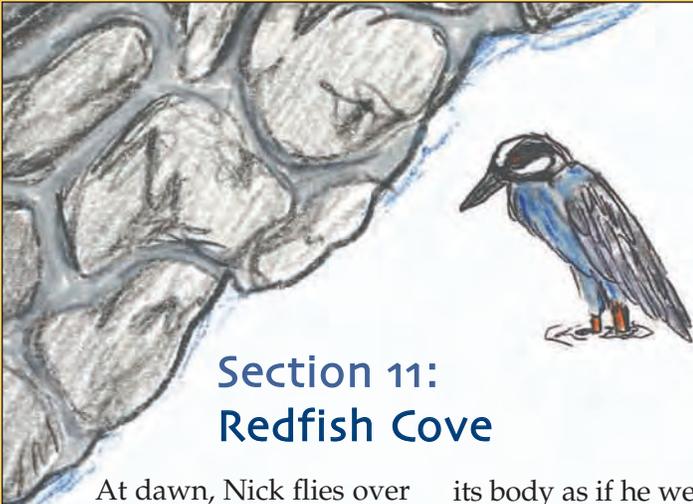
The woman with the trail guide says,

"I can see the small holes that are burrows for the fiddler crabs."

The second woman looks back over her shoulder. "C'mon, it's getting late. I want to see the cove. The canoe trail has picnic shelters built out in the water."

The woman with the trail guide hurries to catch up. A breeze pushes more rice cake crumbs into the water.

When a crab nibbles a crumb, Nick snatches the crab and eats it.



Section 11: Redfish Cove

At dawn, Nick flies over the Cape Coral Bridge. He passes the boat ramp at Peppertree Pointe and flies into the shadows beneath the fishing pier. He hears people walking and sees lines from fishing poles in the water.

A boy pulls up a fish on his hook. Nick hears people crowding around. The boy says, "Hey, Mom. What kind of fish is this?"

"I don't know, but it's beautiful," his mom says.

The boy persists, "I want to know what kind of fish it is."

The fish wiggles, and drops of water from the fish fall near Nick.

A man says, "That's a redfish. This stretch of water is full of them. It's called Redfish Cove."

The woman asks, "Is it good to eat?"

The man nods his head. "Yes, ma'am, but it's not big enough to keep."

The woman says, "Such a beautiful fish. Throw it back, son."

The boy slips the fish from the hook. He strokes

its body as if he were petting a dog.

The man says, "You shouldn't rub a fish like that. It can hurt a special film on the skin that protects the fish from getting sick."

The boy flings the fish over the railing. "Bye, bye, fish!"

Nick watches the fish hit the water, but it is too big for him to eat. He flies to the roof of the shelter at the end of the pier. Looking toward the shore, he sees a restaurant, the Yacht Club Community Park beach and a playground. Children sound as loud as gulls as they play.

On either side of the beach are seawalls. They contain the lawns of houses and form the banks of Cape Coral's canals. Nick turns to the river. Large and small boats zoom inside the channel. Across the water, he sees big houses and buildings. The river seems as wide as a lake or bay.

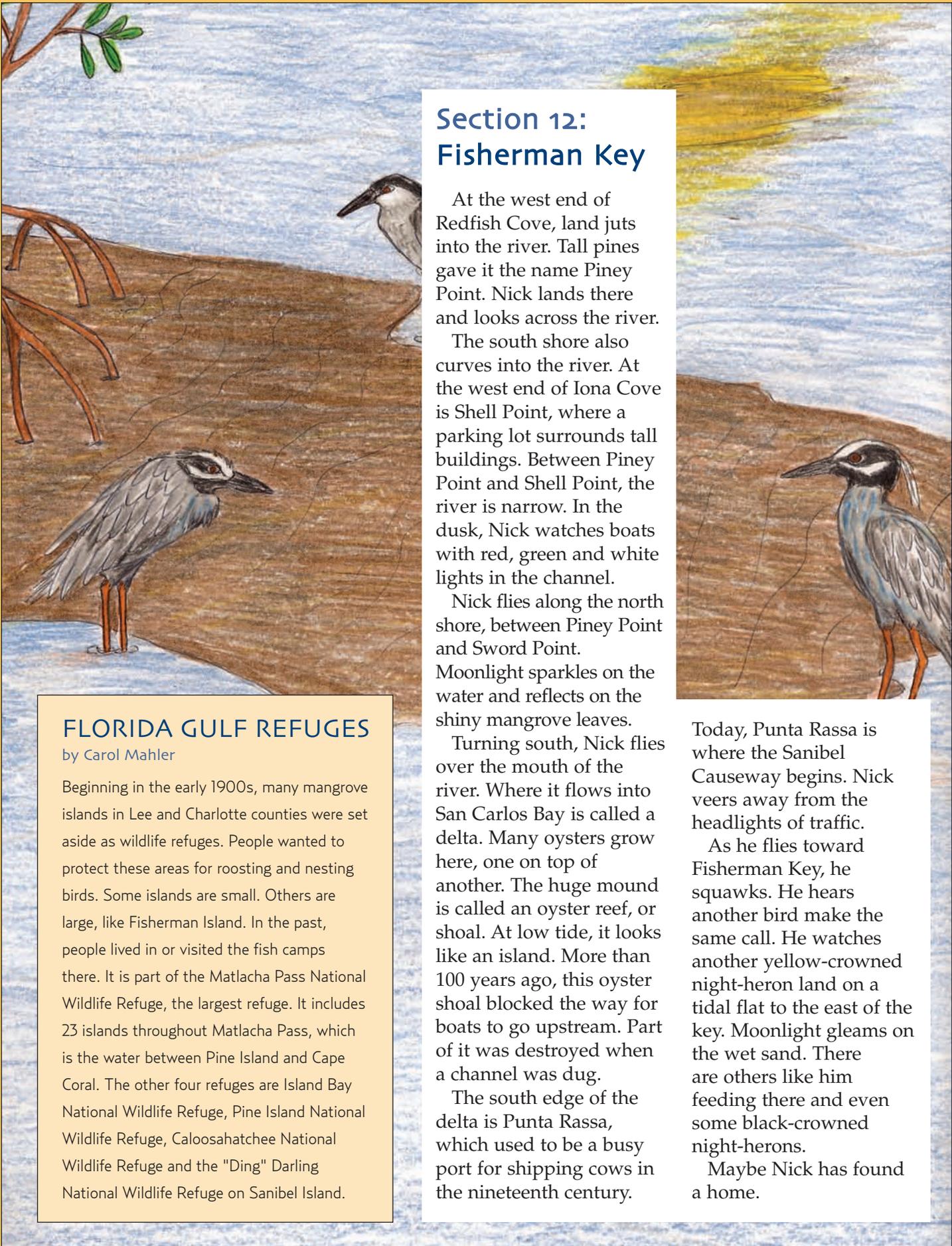
When Nick hears footsteps walking toward him, he flies away.



CANALS

by Dr. Charles O'Connor,
Environmental Education Program,
Lee County Schools

Canals are dug for many reasons, often to drain water off the land. During Florida's wet season, storms dump great amounts of rain. Roads and buildings can be flooded. Rainwater is necessary to nourish plants and animals. It also soaks deep into the ground and restores our supply of underground water. This aquifer is used for drinking water. Unfortunately, canals speed this rainwater into the ocean. Canals create another problem, called saltwater intrusion. If our aquifer water level becomes too low, the ocean is able to push salt water into the aquifer, making it unfit for drinking or agriculture.



Section 12: Fisherman Key

At the west end of Redfish Cove, land juts into the river. Tall pines gave it the name Piney Point. Nick lands there and looks across the river.

The south shore also curves into the river. At the west end of Iona Cove is Shell Point, where a parking lot surrounds tall buildings. Between Piney Point and Shell Point, the river is narrow. In the dusk, Nick watches boats with red, green and white lights in the channel.

Nick flies along the north shore, between Piney Point and Sword Point. Moonlight sparkles on the water and reflects on the shiny mangrove leaves.

Turning south, Nick flies over the mouth of the river. Where it flows into San Carlos Bay is called a delta. Many oysters grow here, one on top of another. The huge mound is called an oyster reef, or shoal. At low tide, it looks like an island. More than 100 years ago, this oyster shoal blocked the way for boats to go upstream. Part of it was destroyed when a channel was dug.

The south edge of the delta is Punta Rassa, which used to be a busy port for shipping cows in the nineteenth century.

Today, Punta Rassa is where the Sanibel Causeway begins. Nick veers away from the headlights of traffic.

As he flies toward Fisherman Key, he squawks. He hears another bird make the same call. He watches another yellow-crowned night-heron land on a tidal flat to the east of the key. Moonlight gleams on the wet sand. There are others like him feeding there and even some black-crowned night-herons.

Maybe Nick has found a home.

FLORIDA GULF REFUGES

by Carol Mahler

Beginning in the early 1900s, many mangrove islands in Lee and Charlotte counties were set aside as wildlife refuges. People wanted to protect these areas for roosting and nesting birds. Some islands are small. Others are large, like Fisherman Island. In the past, people lived in or visited the fish camps there. It is part of the Matlacha Pass National Wildlife Refuge, the largest refuge. It includes 23 islands throughout Matlacha Pass, which is the water between Pine Island and Cape Coral. The other four refuges are Island Bay National Wildlife Refuge, Pine Island National Wildlife Refuge, Caloosahatchee National Wildlife Refuge and the "Ding" Darling National Wildlife Refuge on Sanibel Island.