



RIVER KIDZ

MARTY

RIVER KIDZ PRESENT
MILLY, MARTY MANNY

JULIA KELLY
©

3RD. EDITION WORKBOOK

Laurie J. Gaylord, Superintendent

THE SCHOOL BOARD OF MARTIN COUNTY, FLORIDA

500 East Ocean Blvd • Stuart, Florida 34994 • Telephone (772) 219-1200 Ext: 30222 • Facsimile: (772) 219-1231



Dear River Kidz,

For the last two years, the River Kidz has taken our students through an amazing journey learning about our local waterways. This year, I am excited to share that you will be introduced to three manatee friends (Manny, Milly, Marty) who will serve as your guide through our Estuaries, rivers, bays and lakes. Your manatee musketeers will share a story to inspire and empower you to become advocates of our precious ecosystem. Students, you are a powerful resource and have the skills to protect our natural assets. Thank you to the River Kidz for empowering our youth as YOU, our students, have the ability to influence the future, preserve our environment, and change the world!

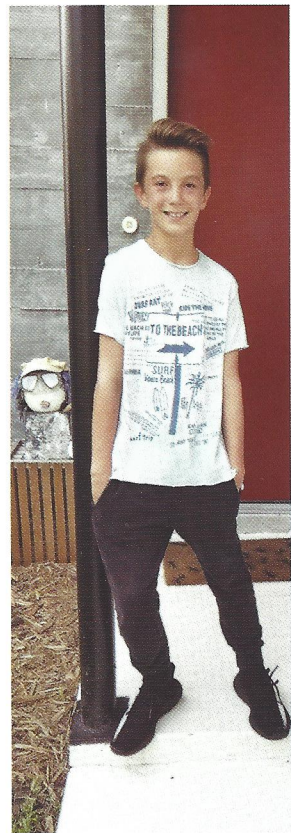
Sincerely,

Laurie J. Gaylord
Superintendent

School Board Members: Michael DiTerlizzi • Tina McSoley • Rebecca Negron • Marsha Powers • Christia Li Roberts

"An Equal Opportunity Agency"

My name is Jack and I'm a River Kid. I moved to Florida when I was four. My mom grew up here. I love to swim, surf, and be outside. When my mom and I heard about the new group The River Kidz, I was the very first person to sign up! I knew the river was dirty because my grandparents live on the St. Lucie River. I thought if I could help clean it up, I should.



I have now been a River Kid for almost seven years. I have learned so much about our river and the politics that keep it from getting cleaned up. I have been to many river rallies screaming, "Save Our River" at the top of my lungs. I have made signs and t-shirts to spread the word around town. I won an art contest in the Stuart News newspaper showing our sick river. I won third place in a video contest about sharks. I have met and spoken with many famous people about our water problems: Congressman Patrick Murphy, Senator Bill Nelson, Senator Marco Rubio, and Secretary Darcy from the Army Corps of Engineers. I have travelled to Washington D.C. and spoken in front of Congress with several other kids. None of these opportunities would have been possible without the River Kidz.

If you would like to help protect our river and have a chance to have experiences like mine, you should sign up. You will meet other kids and have a lot of fun learning, teaching, and getting involved. Kids shouldn't have to fight for clean water, but showing the adults that kids care makes a difference.

Jack Benson- Maldonado



We are Evie Flaugh and Naia Mader, and we are the founders of the River Kidz. We started this organization in 2011 and we've been fighting for clean water ever since. It's great to see all the support over the years, with almost 500 members! We hope this workbook will help show you how important it is to send the water south as nature intended. We need to stop the discharges from Lake Okeechobee! We know you will enjoy learning from our 3rd edition River Kidz workbook and we encourage you to inspire people to join the cause.

With Love, Naia and Evie

LAKE
OKEECHOBEE

River Kidz' Mission Statement

Our mission is to speak out, get involved, and raise awareness, because we believe kids should have a voice in the future of our rivers.



welcome!



Good watery day fellow River Kidz! My name is Marty the Manatee and I am here to welcome you to the third edition of the River Kidz workbook. I am a marine mammal who lives in the St. Lucie River and the Indian River Lagoon. I have two other manatee friends who are joining me in this book today. Their names are Milly and Manny. Milly is a manatee that calls the Caloosahatchee River home. The Caloosahatchee River is on the west side of Florida and connects to the Gulf of Mexico. My other friend is Manny and he calls Florida Bay home. Florida Bay is in the southern end of Florida just south of Miami and north of the Florida Keys. Both of these friends have problems with their home waters and we all need your help to fix them. These problems are caused by freshwater, either too much freshwater or not enough freshwater. With all this water you would never imagine water to be such an issue. It sure is, though! My manatee friends live in a unique area of Florida, but together we all live in the Everglades Eco-System. The Everglades starts at the head waters of Shingle Creek in Central Florida and goes south to Florida Bay. We are here to teach you about our watery homes and we hope you will use your powerful voice and capable hands to make a difference in cleaning our waterways. I remember when I was a little manatee, swimming with my mom through the clear waters of the Indian River Lagoon. We would swim on sunny days just munching on seagrass and enjoying the critters that call it home also. Those days are hard to find now. The seagrass is missing in most of my favorite spots and the water is often murky, or even covered with gross green algae. I miss those good days and want to see them again. I have a great bunch of friends all over the state who are fighting for our water and we hope you will join us too!

The River Kidz speak out and raise awareness about the state's waterways. They believe kids have a voice and they should use that voice to speak up for the water they love to enjoy. The River Kidz started with a lemonade stand and from there it has grown and grown. They have gathered together to do projects in the community. The kids have gone to Tallahassee, Florida (our state capital) and Washington D.C. (our nation's capital) and some of them were even able to meet our president. They have created art, presented at conferences, and held rallies full of adults who appreciate the River Kidz' voice and message. We came together to create this book so you could learn about the issues facing us in Florida and join with your voice, too. The more friends we have with an educated voice the louder we will become.

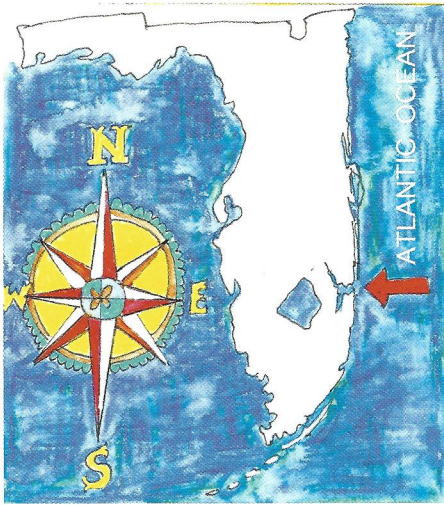
Inside this book you will learn about the Indian River Lagoon and St. Lucie River. We will explore Florida Bay and the Caloosahatchee River.

You will learn about The Florida eco-system, unique weather pattern and the intricate food chain. When you are completed with the workbook, you will have learned and be able to teach your friends and family about protecting our precious home.

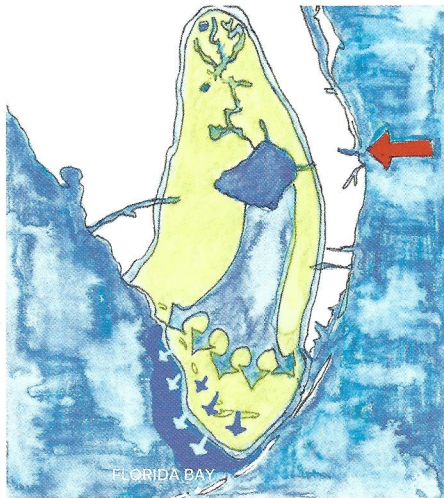


A peninsula is land that has water on three sides of it.

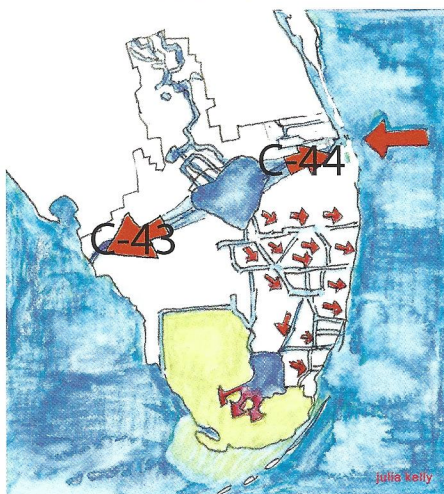
history



Where I am



Historic flow

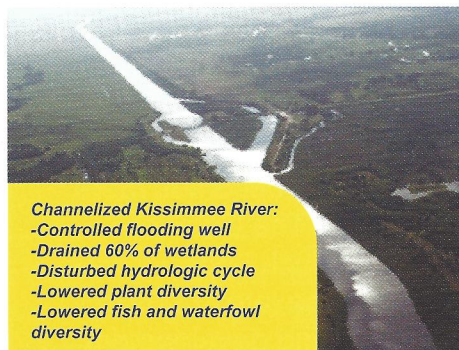


Current flow

As you can see, central and south Florida looked very different than today. For instance, the Kissimmee River that originated in the swamplands of Orlando's Shingle Creek at the heart of Disney World, once winded south through floodplains for 134 miles, emptying into Lake Okeechobee. The lake in turn would fill up 21 feet before its waters tipped over the southern rim into a 32,000 square mile custard apple swamp located along the southern edge of Lake Okeechobee. Then, ever so slowly, this water would flow for months through miles of sawgrass, sloughs, and tree islands, being purified until reaching Florida Bay. This area is very important and is known as the Everglades system.

Although draining the land seemed helpful at first, people went too far. This over drainage is now causing problems with the health of the state's waterways, water supply for people, and destroying wildlife habitat for the animals.

Here to talk more about this are some of our animal friends, Marty, Milly, Manny, Cathy, and Kit. Each animal will tell you the story of water and their home, hoping you can help by becoming a River Kidz member. River Kidz' mission is "to speak out, get involved and raise awareness because we believe kids should have a voice in the future of our rivers."



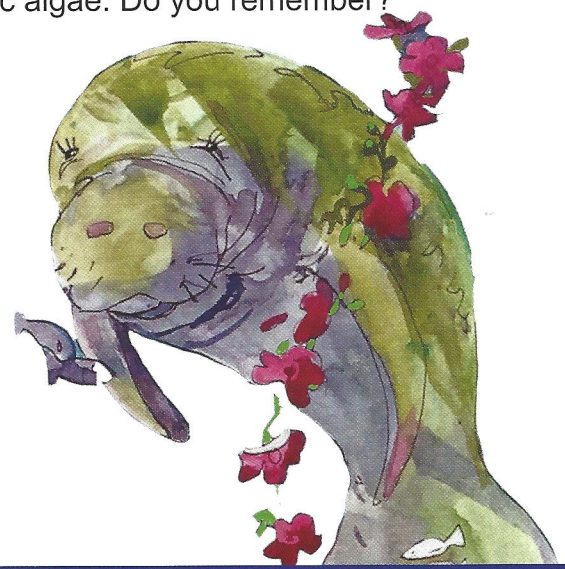
new friends



Marty the Manatee

My name is Marty the Manatee and my home is the St. Lucie River, and southern Indian River Lagoon. I remember when the dark, clear waters of the St. Lucie River were fresh and the river was filled with grasses. When my Great Grand-manatee lived in 1892, the local pioneers wanted to make the St. Lucie Inlet permanent, so they opened it with shovels. The salt water poured in, killing the fresh water grasses, as the fresh and salt waters mixed, it created the most bio-diverse estuary in North America. My family could still live in the river as we can be in both fresh and salt water. Our river became the fishing grounds of presidents because fish like tarpon thrived there. But in 1923 the Army Corp of Engineers dug a canal from Lake Okeechobee to the St Lucie River to create the Okeechobee Waterway, allowing boats to cross the state and to drain Lake Okeechobee through the St. Lucie. Immediately mud poured in and killed many of the fish. The county commission begged the Army Corp to stop the releases but the federal government refused. In the 1950s and 60s, after a big flood in 1947, the state and federal government connected three more canals to the river to drain northern lands for orange groves and development as part of the Central and Southern Project. These canals known as C-23, C-24 and C-25 pollute our river too. The river has been getting sicker each year and in 2013 and 2016 it was so bad the river filled with toxic algae. Do you remember?

Now, I want to introduce you to my manatee friends Milly and Manny who are in the same boat. Milly is from the Caloosahatchee, on the west side of the state. Her river also had toxic algae blooms last year and previously coming in from Lake Okeechobee. You see as the lake dumps into the brackish rivers the water becomes more fresh. In fresh water the algae blooms. The Caloosahatchee is a lot like the St. Lucie but much larger. It was one of the very first rivers dredged in the late 1800s in order to lower the lake for agriculture and development. Like the St. Lucie, the Caloosahatchee was not originally connected to Lake Okeechobee. What is different about the Caloosahatchee is that in times of drought it needs some fresh water so it doesn't get salty. When it gets too saline the seagrass dies and there's no food for manatees to eat and no where for fish to hide. So often when its not raining farmers and the Caloosahatchee are fighting over water and the South Florida Water Management District gets to decide.



Milly the Manatee



Manny the Manatee

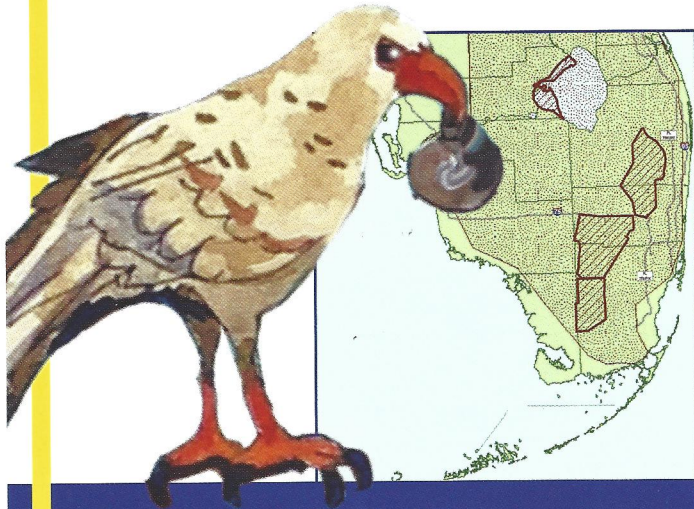
Manny is our other friend and he is from Florida Bay. Florida Bay is a giant estuary where the Everglades, a river of grass, meets the Gulf of Mexico and the Atlantic Ocean. This famous, gigantic estuary used to get most of its fresh water from Shark and Taylor Sloughs, giant rivers that merged with the sawgrass area south of Lake Okeechobee. Because of all the changes upstream, Florida Bay gets less than half the freshwater compared to pre-drainage times. As you can see on a map people have also moved into the Everglades along Florida's southeast coast and built right into what was once the Everglades. Florida Bay is home to tremendous fisheries that begin their lives hiding in the seagrasses. When the water is too salty, like it has been this year, seagrass beds die and the fish have no place to grow up. Until more water flows south from Lake Okeechobee and the sloughs are restored, Florida Bay will suffer seagrass die offs like this year where 50,000 acres of seagrass is reported to have died. Seems kind of weird doesn't it? The St. Lucie is sick because it gets too much water, the Caloosahatchee gets either too much or not enough, and Florida Bay is starving for more fresh water.

Catherine

The Cape Sable Seaside Sparrow



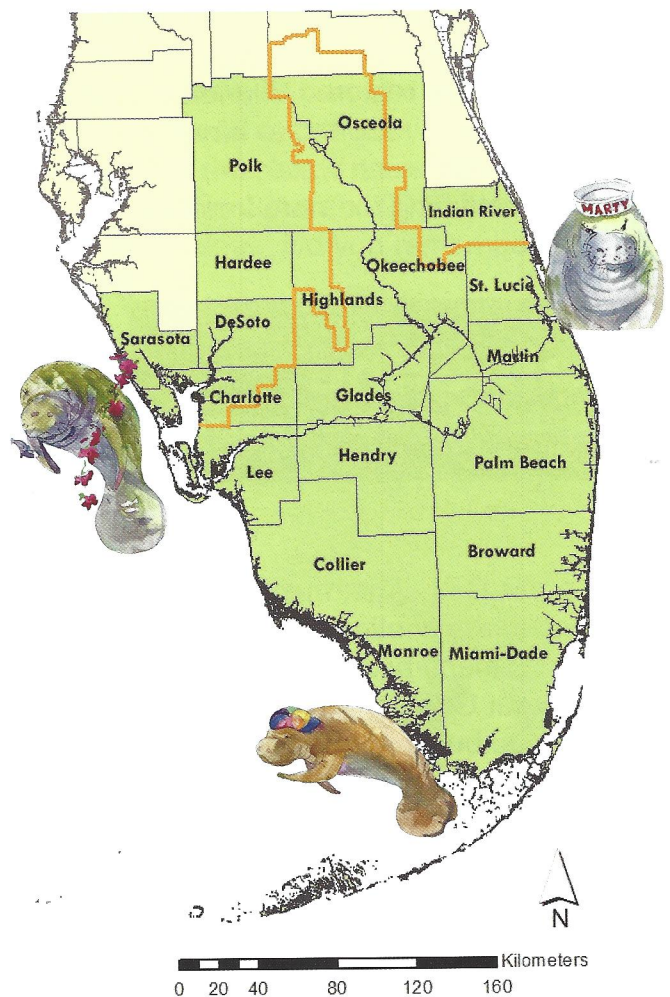
Hi, my name is Catherine, the Cape Sable Seaside Sparrow and I am named for the southernmost point of land in the continental United States at the very tip of southwest Florida. My real name is *Ammodramus maritimus mirabilis* but that's way too hard to say, so just call me Cathy! My Great-Great Grandsparrrows used to live in Cape Sable, a land of fresh and brackish water marsh habitats, but changes in water distribution due to repeated attempts to drain south Florida, water management practices since 1930, and two big hurricanes caused a shift in flora and fauna so we have to live mostly further north now. My homelands have changed so much me and my friends are considered "endangered species." Sometimes we get blamed for not allowing water to move south because we have to build our homes in lands further north and east. People forget that they changed my ancestors' house in the first place! We would love to have our Cape Sable back, but now we can't live there. We do the best we can.



Kit the Snail Kite

Lake Okeechobee was a secret and unknown place except to the native peoples until about In the late 1800's when pioneers began to move to the area south of Lake Okeechobee to start farming in year round sunshine. Problems arose for farmers growing crops in the fertile lake watershed just south of the lake. In 1928 a strong hurricane killed many migrant workers and farmers, so the residents of the state asked Congress to help them control this natural but dangerous situation. A reinforced dike was built around the lake by the Army Corp of Engineers to help keep the lake from overflowing. Over the years the area below the lake became known as the Everglades Agricultural Area (EAA) and expanded to 700,000 square miles. This was good for the farmers growing sugarcane and other crops but no longer could the "water move south" and my homeland was destroyed.

Good day, my fellow students! My name is Kit the Snail Kite. I, too am an endangered species like my little friend Cathy the Cape Sable Seaside Sparrow. My home, the wetlands, has been drained for agriculture and urban development. Only one-fifth of my ancestors' original home remains. The present day system of canals, levees, and water-control structures has disrupted the volume, timing, direction, and velocity of freshwater flow. The natural sheet-flow pattern under which the Everglades evolved over the last 5,000 years no longer exists. Because my diet is composed almost entirely of apple snails who live in this habitat too, my life depends entirely on hydrology as I capture the snails with my sharp talons in the shallow waters.

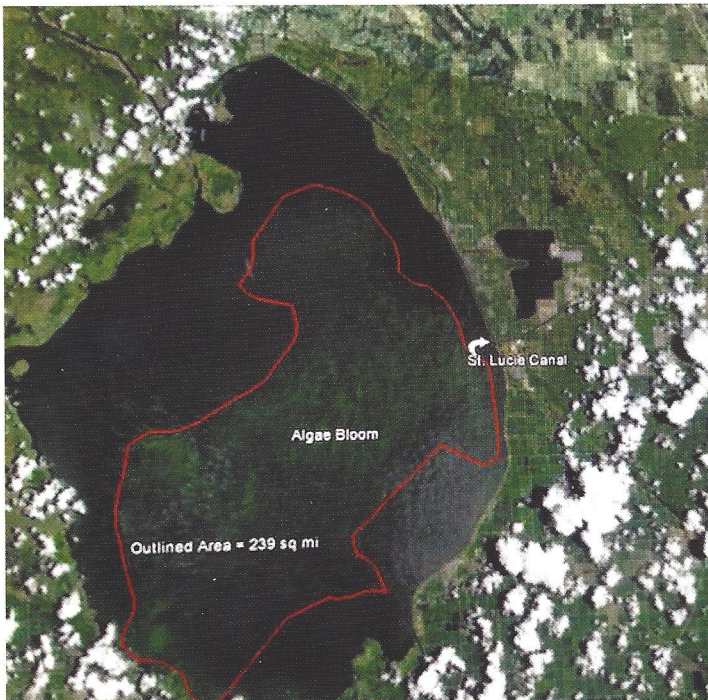


Florida's Past in-depth

Almost 100 years ago, South Florida looked very different than it does today. Lake Okeechobee did not have a dike around it, nor was the Caloosahatchee River or the St. Lucie River connected to the lake. The Kissimmee River in the north flowed in a winding path to Lake Okeechobee, and overflowed into the great custard apple forest and sawgrass prairie that extended to Florida Bay. This became known as "The Everglades."

People began to move to Florida and wanted to settle in the Everglades and start farming in the year-round sunshine and very good soils. Most years, Lake Okeechobee overflowed. This posed a problem for people living and farming near the fertile lake watershed who had turned much of the custard apple forest and the sawgrass prairies into farmlands. In 1928 a very strong hurricane killed thousands of people and destroyed farmland. It was devastating; they were living in a dangerous place. Residents and the state of Florida asked Congress to help them control this situation. A reinforced dike was built around the lake by the Army Corp of Engineers (ACOE) to stop the lake from overflowing and flooding the area where people were living and growing crops.

This dike is still there today but is even stronger. It is named after a past president, Herbert Hoover. After the dike was built, citizens and the government began draining even more of the Everglades area for farming and development. A few Florida cities are actually located in the Everglades.



Over the years, many canals have been built to drain the Everglades, but two of these are the biggest. These two major canals are the C-44 and the C-43. The C-43 canal runs from Lake Okeechobee westward to the Caloosahatchee River. The other canal, the C-44, runs from Lake Okeechobee eastward to the St. Lucie River and the Indian River Lagoon. (SLR/IRL) These two estuaries were originally not connected to the lake.

These tremendous canal connections disrupt the salinity of the Caloosahatchee and the (SLR/IRL) and another thing is, sheet-flow south to Taylor Slough and then to Florida Bay has also been cut off. And Lake Okeechobee? Lake Okeechobee has become more of a reservoir than a lake leading to stagnation and algae blooms.

We can't forget the mightiest river of all, where all this water starts flowing into Lake Okeechobee in the first place, starting in a place near Disney World called Shingle Creek. The Kissimmee River has also been altered and because this river flows downhill, these changes affect Lake Okeechobee, the estuaries of the St. Lucie/Indian River Lagoon, the Caloosahatchee River, and Florida Bay.

The story goes like this. Originally water flowed southward through natural oxbows that slowed the water down, cleaning it and removing sediment. But here too, in Central Florida, people wanted to settle, ranch, and grow crops. To do this, it was necessary to quickly move the water off the land.

Florida's Past in-depth

The ACOE once again heard the people and the State of Florida's call and straightened the once winding Kissimmee River, making it a giant canal. As a result, the river was shortened and straightened to a length of 56 miles, much shorter than its original 134 miles. The straightening of the river caused the flow of the water to speed up. Dirty water polluted Lake Okeechobee, causing disastrous effects including harmful algal blooms, raised water levels, and increased nitrogen and phosphorus levels within Lake Okeechobee. What is kind of interesting is the estuaries are sick because they get too much water from Lake Okeechobee and Florida Bay is sick because it doesn't get enough. As a River Kid, it's our job to help fix this!



move it south

Stakeholders and scientists have been working many years on plans to move more water south to help the estuaries and Florida Bay. In 2017, the Florida Legislature put aside money to build a reservoir. A reservoir is like a big bucket of water that can hold the water in years when there is too much water and in years when there was not much rain the farmers in the EAA can use it too. Getting this plan passed was lots of hard work, but in the end farmers, environmentalists, giant sugar corporations, and even a majority of our elected officials agreed it was time help send some water south.

The South Florida Water Management District created a cool timeline on their website to follow along with the building progress as many things have to happen for it to work. This project requires the cooperation of both the Water Management District (state) and the Army Corp of Engineers (federal). This is a partnership, and like any good friendship, group project or relationship, it takes both sides working together to make the project great! As a River Kid, part of your job is to contact people and inspire them to work together with the people involved. You speak up for the river and its animals because they don't have a voice! Kidz are powerful, and the future of our world. Our lagoon and estuaries are your playground and together we can all work to make sure the reservoir is built and clean water can flow south into the Everglades and Florida Bay.

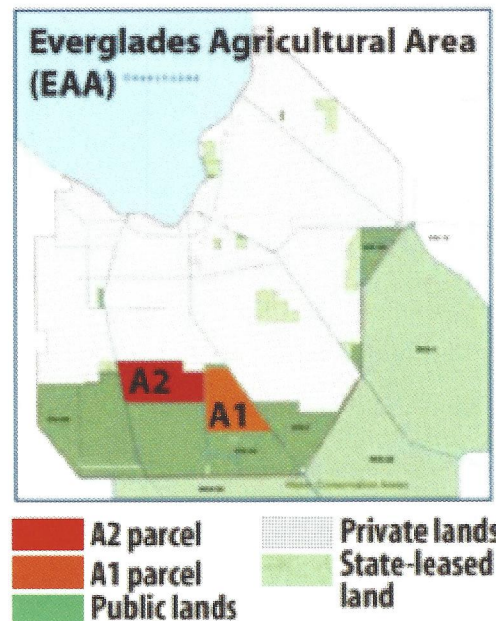


Image: Sanibel-Captiva Conservation Foundation

Here is the SFWMD website: <https://sfwmd.maps.arcgis.com>

Contact Information

SFWMD

<https://www.sfwmd.gov/contact>
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, Florida 33406

ACOE

<http://www.saj.usace.army.mil/Contact/>
701 San Marco Blvd, Jacksonville, FL 32207
(800) 291-9405



Julia Kelly

weather and water cycle

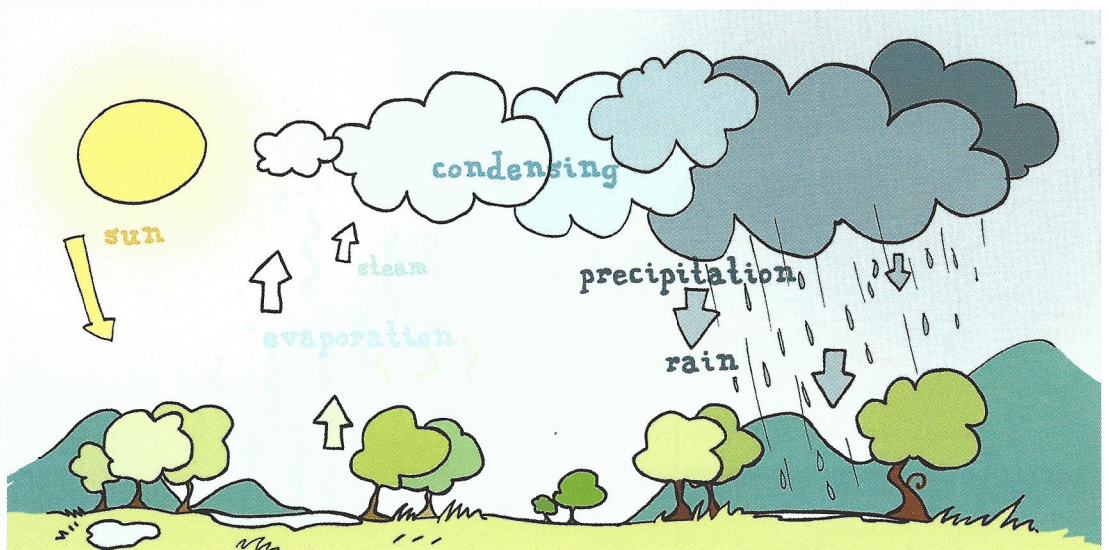


Weather is a big part of life in Florida and plays an important role in the Everglades ecosystem. People moved to Florida long ago because of the temperate and tropical climate. This means our winters are warmer compared to other places in the United States. In south Florida it never snows although occasionally North Florida does get cold enough to have flurries!

In Florida we have two distinct rain seasons. We have a “rainy season” which is the spring and summer when we get lots of rain and thunderstorms. This is also when we are more likely to have tropical cyclones such as a tropical depression, tropical storms or even hurricanes. Hurricane season starts June 1st and goes until November 30th. This is the time of year when the Atlantic ocean waters are the hottest. These storms usually form off the coast of Africa on the other side of the Atlantic Ocean and follow the winds and the Gulf Stream towards Florida or the eastern coast of the United States.

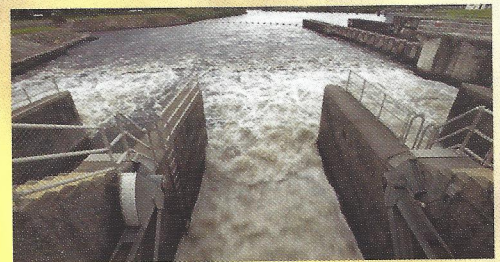
Our summer rains are a result of the water cycle! The ground heats up during our hot summers and this causes evaporation off the many lakes, the Atlantic Ocean and the Gulf of Mexico. This evaporation makes water vapor and this is water in the gas form. This vapor then rises into the clouds. When these clouds are too full of water vapor it causes condensation in the cold atmosphere air and changes into the liquid state which we call RAIN, which is precipitation! The rain falls onto the land, the Gulf of Mexico and the Atlantic Ocean and fills up our lakes and rivers. When we have a lot of rain, the Kissimmee River and Lake Okeechobee fill up and that water is released through the canal system and is sent to the coasts both on the east and west sides of Florida. These discharges damage the estuaries, and by not sending water south into the Everglades where it is needed, that ecosystem is unnaturally dry and faces fires and drought.

Precipitation can come in many forms. If it is warm outside (above 32 degrees fahrenheit) it will be in the form of rain. If it is cold outside it might come in the form of sleet or snow. If the conditions are just right we might see fog outside.



weather and water cycle

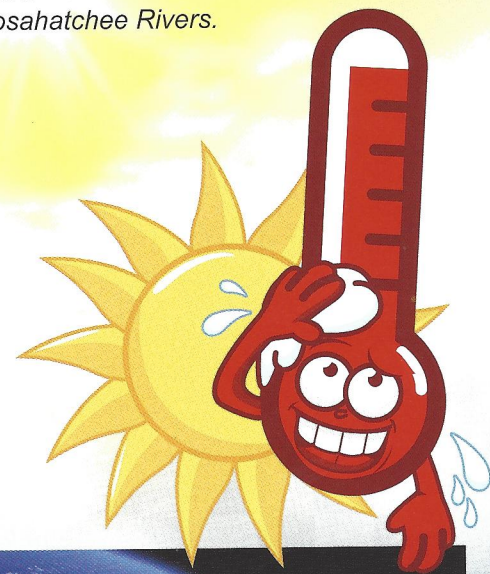
There are two weather patterns that impact weather all over the world. These patterns are called El Niño and La Niña. These translate to “little boy” and “little girl” in Spanish. El Niño makes the Pacific Ocean warm up to higher than normal temperatures. In Florida this can mean more rain. For the Caloosahatchee River and the Indian River Lagoon, this can mean a greater amount of discharges during the fall and spring. The winter of 2016 was an El Niño year and we saw discharges that started earlier than usual and continued through the spring, summer and even into fall. We also saw toxic algae blanket the SLR/IRL because of this increased rain and water coming from Lake Okeechobee. During La Niña years we often have dry conditions in Florida. This weather pattern brings winters that tend to be colder than normal in the western United States and warmer than normal in the Southeastern United States.



Rains from hurricanes drain forcing Lake Okeechobee to be discharged carrying pollution into the St. Lucie and Caloosahatchee Rivers.

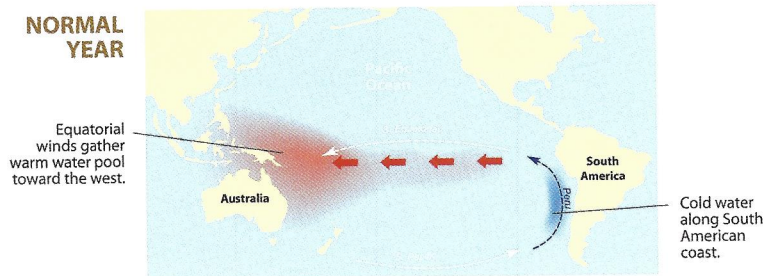


Shown here are three major hurricanes during the summer of 2017. These storms included Irma which impacted the entire state of Florida.

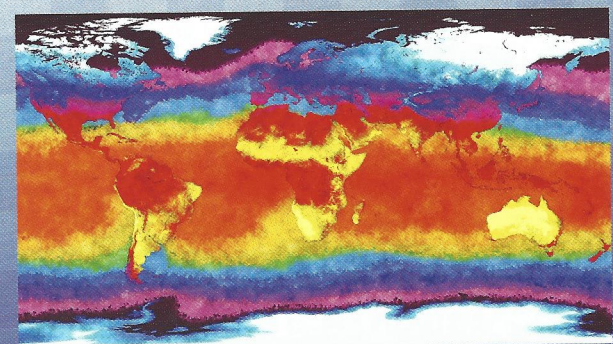
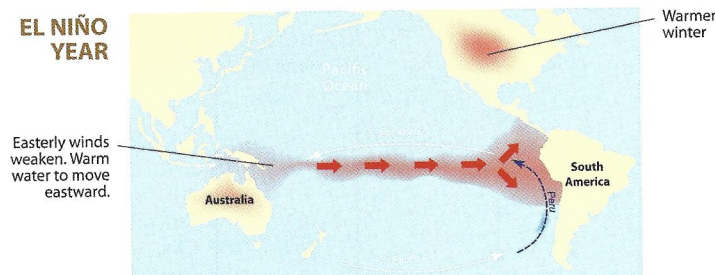


THE EL NIÑO PHENOMENON

NORMAL YEAR



EL NIÑO YEAR



What's all this green stuff everywhere?

I'm afraid it's toxic algae, Manny

CONDENSATION

PRECIPITATION

SNOW

RAIN

EVAPORATION

SURFACE RUNOFF

GROUNDWATER

I just ate some and my belly hurts....

It's making it hard for me to find fish to eat.

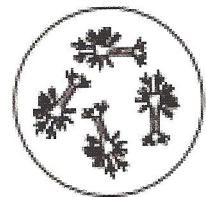
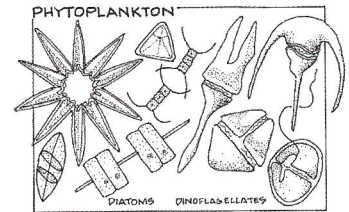


survive & thrive

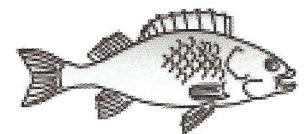
Everything eats! All living things require some sort of energy to live their lives and survive on a daily basis. You may have eaten cereal at breakfast to give yourself energy for school. Well, a dolphin who lives in the Indian River Lagoon does not eat cereal, but it may have enjoyed a tasty morning meal of mullet or pinfish! Many animals in the Indian River Lagoon, Florida Bay and the Caloosahatchee River rely on each other for their meals. The roseate spoonbill likes to eat plankton out of the lagoon and so do the oysters and the mullet. The green sea turtle gets its energy from the seagrass and so does the manatee. The seagrass gets its energy from the sun that shines down into the water.

The amazing thing about food chains is that each piece of the chain helps the next piece survive and thrive. If you take away one of these animals in the chain, the chain will weaken or might fall apart altogether. This is why each animal is important and has its own ecological niche. An ecological niche is a special "job." Seagrass has a special job, too. It helps hold down sand, gives lots of animals homes and also is an important food source for the animals who eat it. Food chains are full of animals that each have their own ecological niche and all have unique jobs in the environment they inhabit.

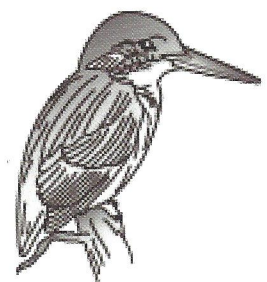
Every living thing has needs to stay alive. Plants need soil, water, nutrients and light to stay alive. Animals (including humans) need food, air, water and space to live to stay alive. The food part for things to survive is the part that makes up a food chain. For animals that is eating something and for plants that is the light of the sun shining down on them. In a food chain all things start with the sun. The sun shines down on plants (like seagrass and phytoplankton) and gives these critters the energy they need (through photosynthesis) to survive. The next step in the food chain would be the animals that rely on these plants for their food (these are often called herbivores). There is likely something that eats that animal that ate the seagrass and that animal is then getting energy from the animal it ate that got its energy from the seagrass that got its energy from the sun! It is a chain of living things getting energy from the living thing before it! That cereal you may have eaten this morning? It was made from grains that were getting their energy from the sun before they were harvested. You are part of a food chain. Maybe at lunch you will have a tasty fish sandwich? Well you would be eating fish that might have eaten other smaller fish. Again, you are part of a food chain.



Brine Shrimp



Perch

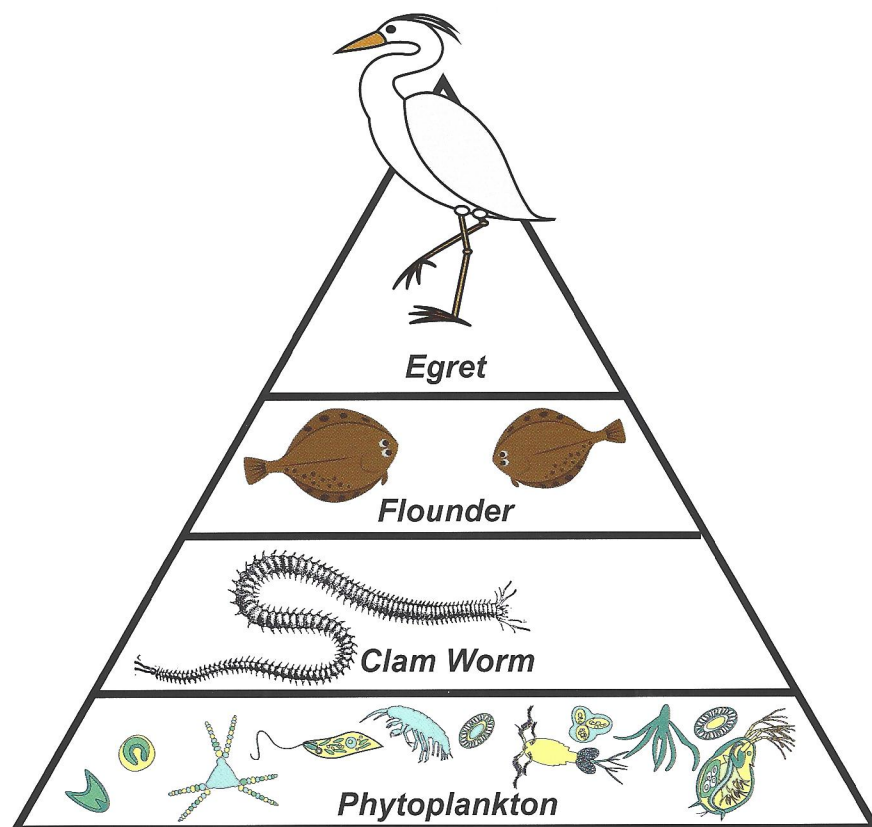
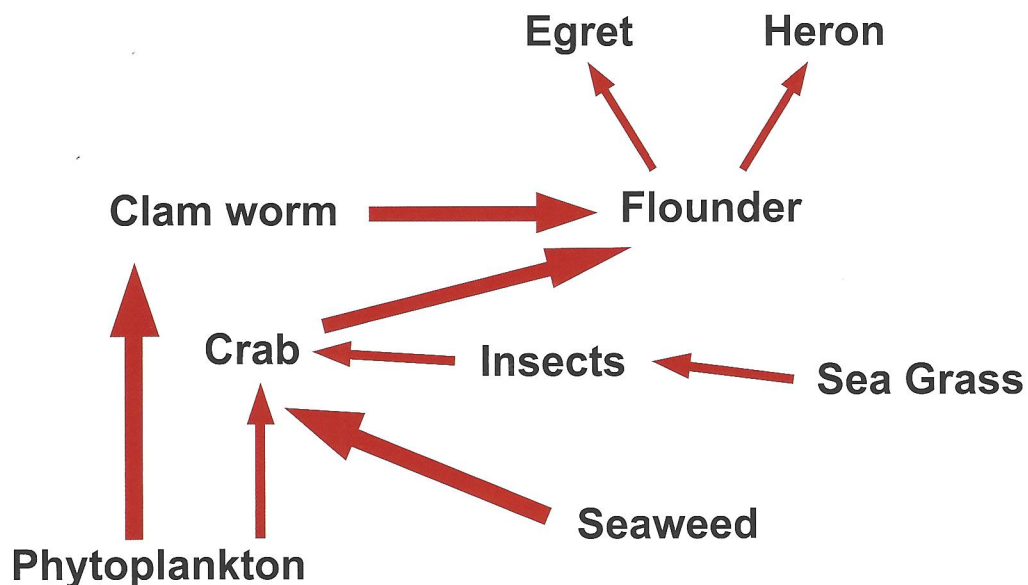


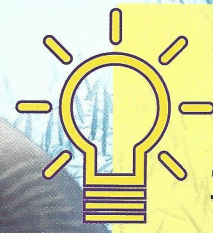
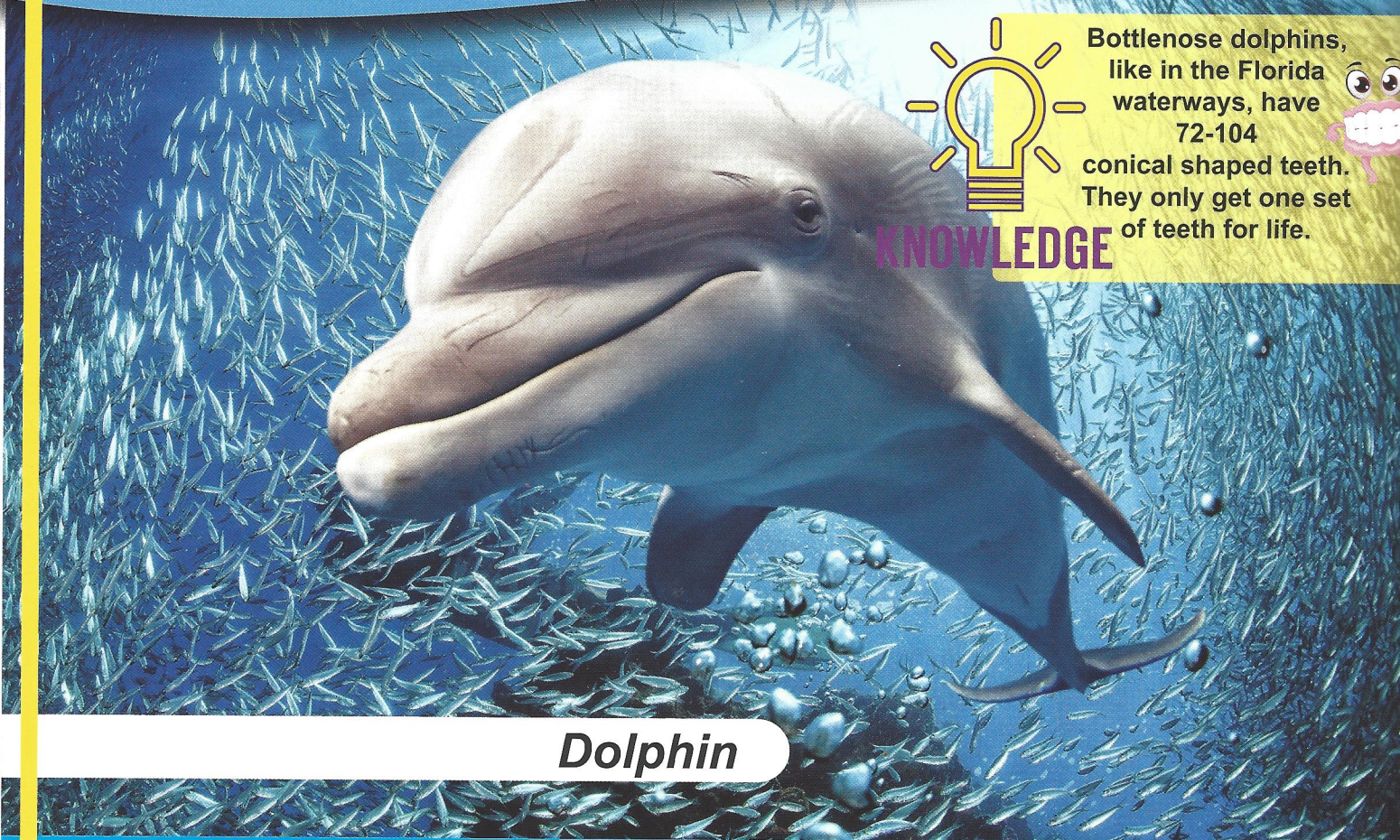
Kingfisher

Survive & Thrive

The Indian River Lagoon

An estuary is a body of water in which fresh water draining from the land mixes with salt water from the ocean. The result of this mixture is an environment with abundant plant and animal life. The Indian River Lagoon is a 156-mile-long estuary on Florida's east coast. It is a diverse estuary, supporting thousands of species of plants and animals.



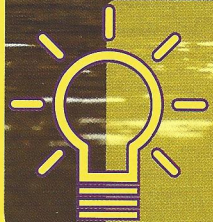


Bottlenose dolphins, like in the Florida waterways, have 72-104 conical shaped teeth. They only get one set of teeth for life.



KNOWLEDGE

Dolphin



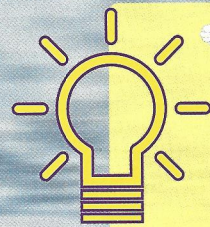
Roseatte Spoonbills forage by wading in shallow muddy water sweeping their bill from side to side with their mandibles slightly open.

KNOWLEDGE

Roseatte Spoonbill



Pelican



While the Pelican drains water from its bill after a dive, seagulls often try to steal the fish right out of its pouch.

KNOWLEDGE



The IGFA world record for the common snook is a 53-pound 10-ounce monster caught in Costa Rica.

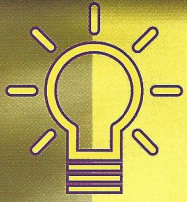


KNOWLEDGE



Snook

animal friends



KNOWLEDGE

Terrapins have been known to "bark" when they are angry. They will also bite.

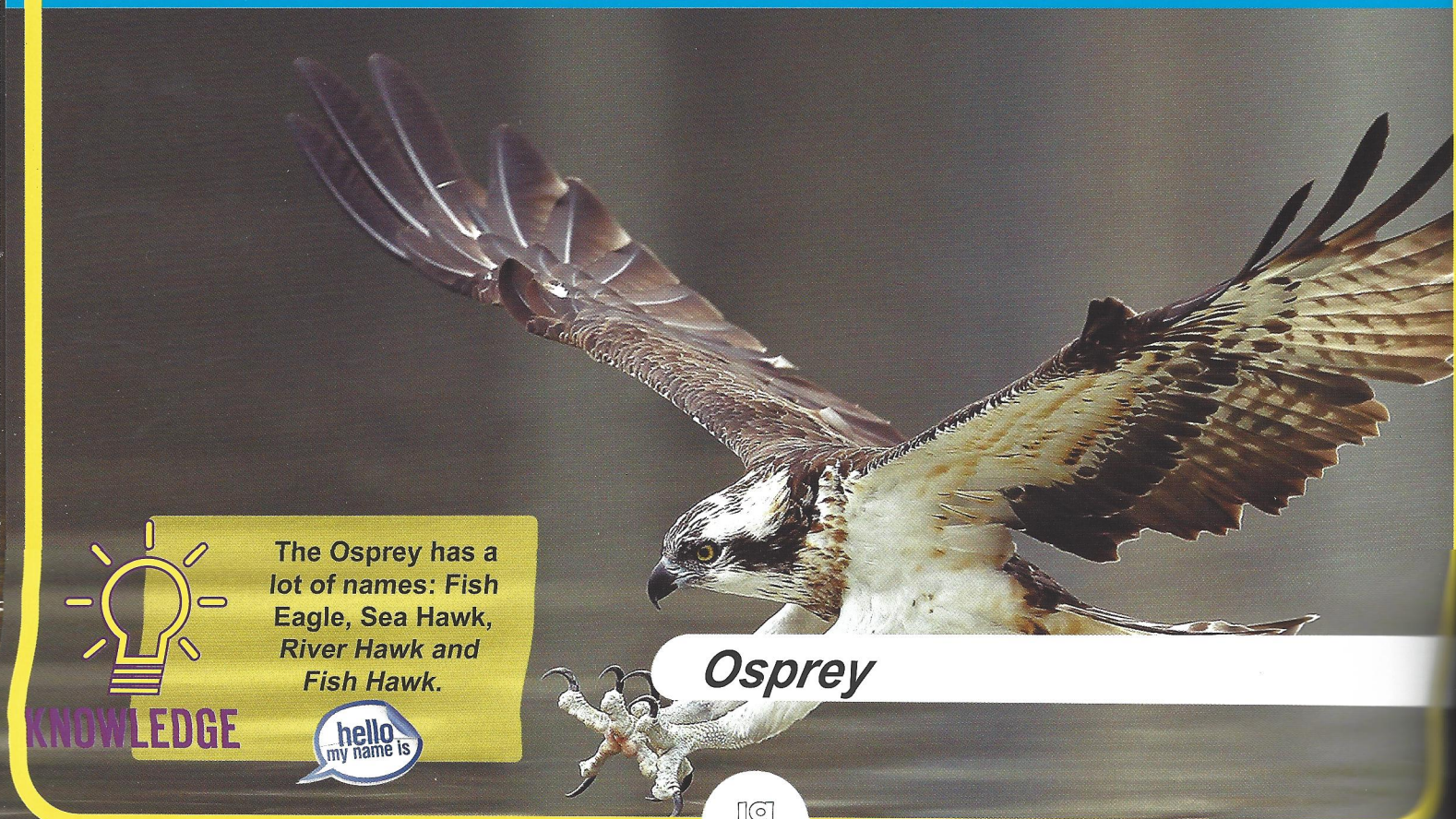


Terrapin



KNOWLEDGE

The Osprey has a lot of names: Fish Eagle, Sea Hawk, River Hawk and Fish Hawk.



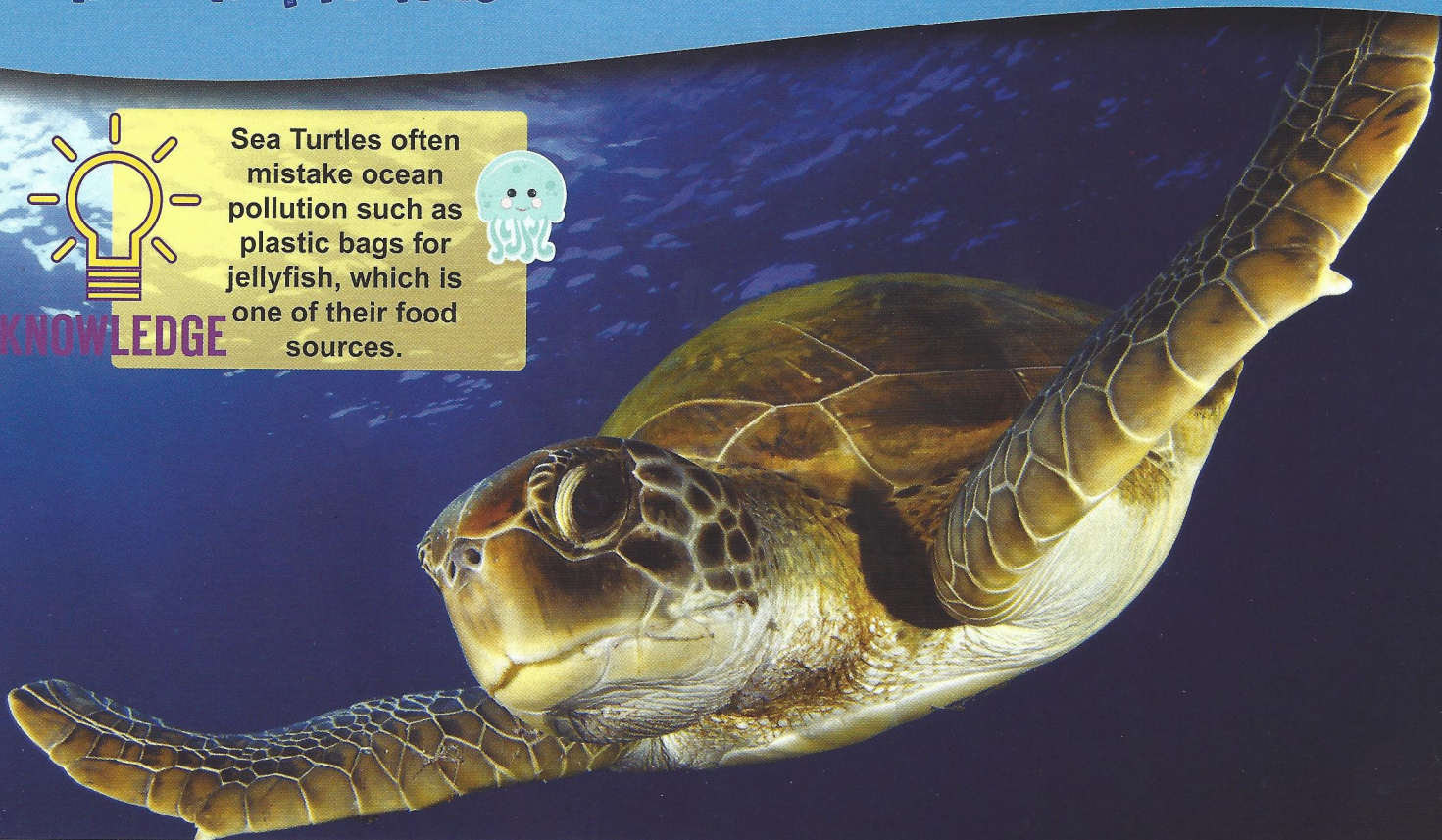
Osprey

animal friends



KNOWLEDGE

Sea Turtles often mistake ocean pollution such as plastic bags for jellyfish, which is one of their food sources.



Sea Turtle



KNOWLEDGE

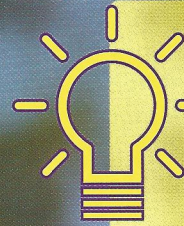
Seahorses pair for life. They meet up first thing every morning to reinforce their strong bond.



Sea Horse



Snail Kite

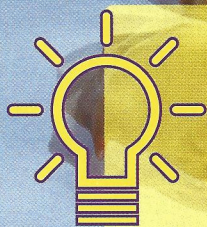


The Everglade Snail Kite's curved beak is slightly off-center to allow it to easily extract the apple snail from its spiraled shell.

KNOWLEDGE



Blue Crab



Blue Crabs deposit masses of eggs but only one in a million survive to an adult crab.

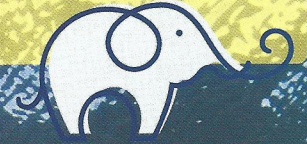


KNOWLEDGE



Manatee calves nurse on milk under their mother's front flippers and the closest living relatives of the manatee is the elephant.

KNOWLEDGE



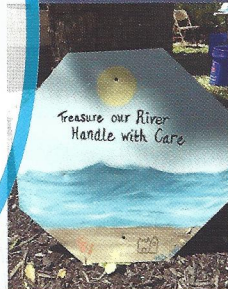
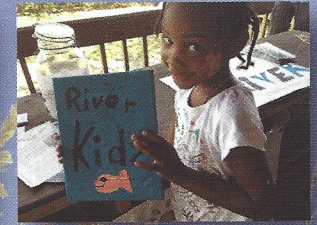
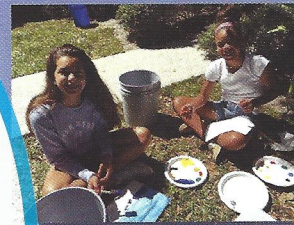
Manatee

kidz in action



Kidz Speak

Being a River Kid is a big part of solving the problems facing the lagoon and the Everglades. If you learn as much as you can about these topics, then you can help my friends and me. There are lots of ways you can help; you have a voice people in charge want to hear. One thing is for sure, with your help and your voice we can clean up the water and send it south.



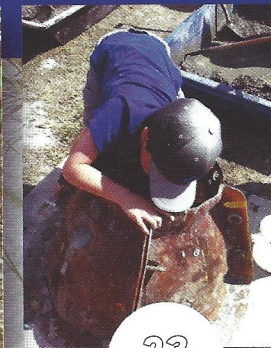
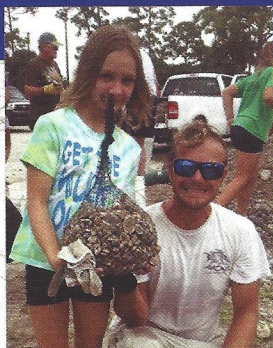
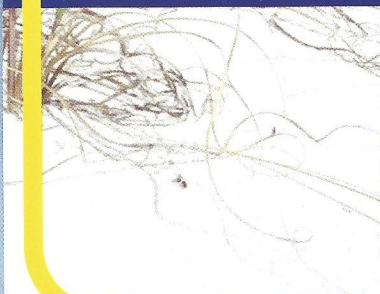
Painting and Art

Dear [Name],
Good Morning!
I am a River Kid, and River kids really and strongly care our beloved River Lagoon. Our mission is to inspire you get involved and make a difference because we believe kids should have a voice in the future of our river. I was when I would go swimming in the river, go out on the boat and go to the school boat. But it's hard now because of all the pollution coming from Lake Okechobee. So as River Kids want to help the land below have pleasure and send the water south to have a healthy, clean river.

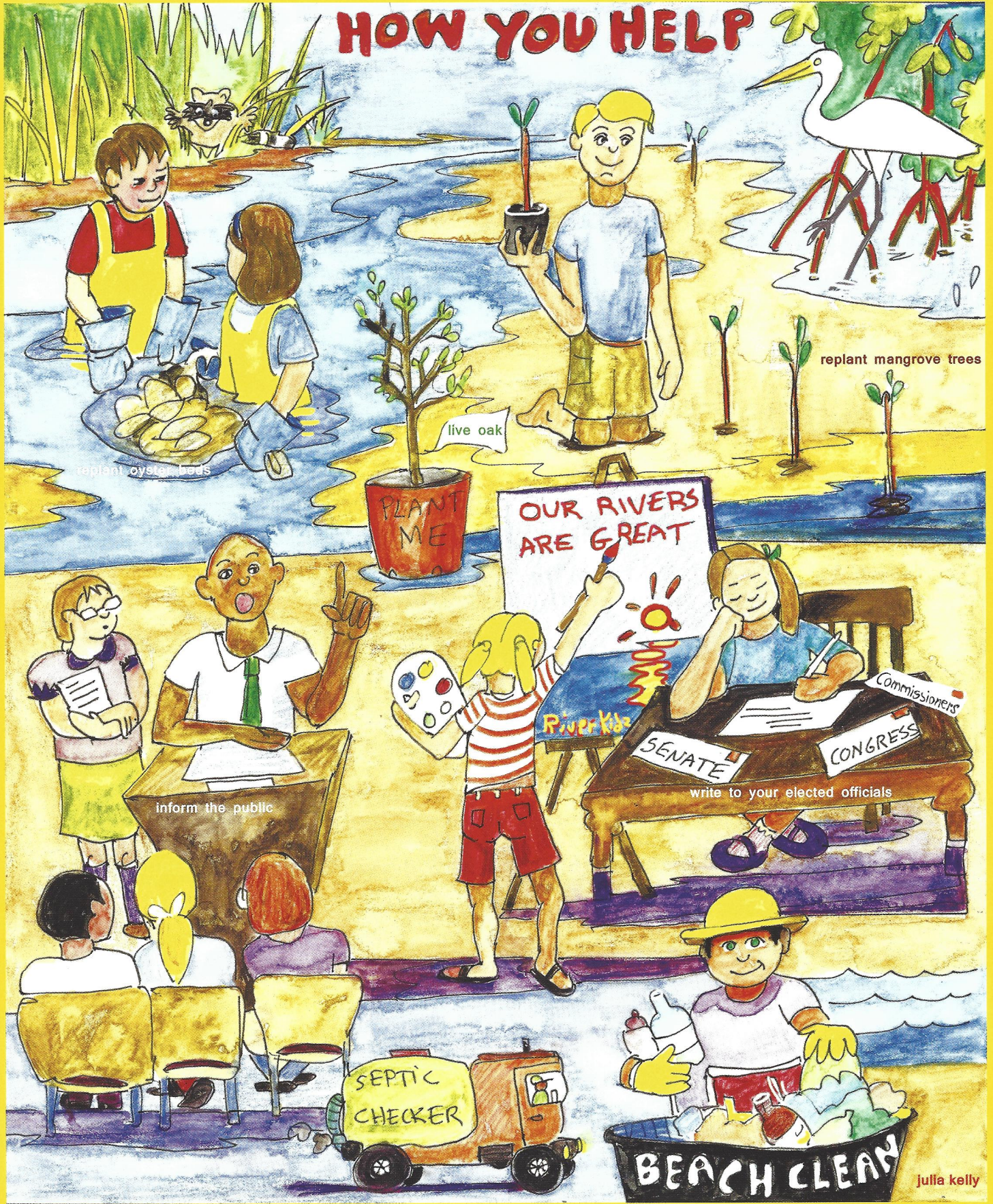


Write Letters

Oyster Restoration



HOW YOU HELP



replant oyster beds

live oak

replant mangrove trees

inform the public

write to your elected officials

SEPTIC CHECKER

BEACH CLEAN

julia kelly

write a letter

Sample Letter

January 30, 2015

Dear Honorable Commissioner _____,

I am writing in support of all projects that help the St. Lucie River/ Indian River Lagoon as well as Marty the Manatee and his friends. Please help us secure the future.

Sincerely,

You can address your letter to many different people, just choose the politician you want to write.

You can draw pictures of favorite river animals on your letter. Your teacher will help you find the address and where to mail the letter.

Addresses

President of the United States
Donald J. Trump
The White House
1600 Pennsylvania Avenue NW, Washington, DC 20500

Office of Governor State of Florida
Rick Scott
The Capitol
400 S. Monroe St., Tallahassee, FL 32399-0001

US Senate,
Marco Rubio
284 Russell Senate Office Bldg, Washington, D.C. 20510

U.S. Senate,
Bill Nelson
716 Hart Senate Office Bldg., Washington, D.C. 20510

US Congress Representative for Treasure Coast,
Representative Brian Mast District 18:
2182 Rayburn House Office Building, Washington, DC 20515

President of the Florida Senate President
Senate President Joe Negron, #409
The Capitol, 404 S. Monroe Street,
Tallahassee, FL 32399-1100

Speaker of the Florida House of Representatives
Speaker Richard Corcoran
420 The Capitol
402 South Monroe Street , Tallahassee, FL 32399-1300

Florida House of Representatives,
MaryLynn Magar, District 82
11700 S.E. Dixie Highway, Hobe Sound, FL 33455

Florida House of Representatives,
Gayle Harrell, District 83
900 S.E. Federal Highway, Stuart, FL 34994-3724

Martin County Commissioners:
Administrative Building, Martin County Commissioners
2401 SE Monterey Road, Stuart FL 34996

Write your own letter on the next page and mail to the above addresses.





RIVER KIDZ

MARTY

RIVER

KIDZ

PRESENT

MILLY, MARTY

MANNY

JULIA KELLY ©

questions

Welcome

What type of animals are Marty and his friends? Explain why you think this?

- (A) Fish
- (B) Reptile
- (C) Mammal

What makes Florida a Peninsula?

Manatee Name	Where do I live?	Description of location
Marty		
Millie		West side of Florida and connects to the Gulf of Mexico
Manny	Florida Bay	

SC.2.E.7.5: What do we Floridians do to prepare for a hurricane and why?

SC.2.E.7.4: Investigate that air is all around us and that moving air is wind.

SC.2.N.1.1: What are the effects of the southern Everglades being in an unusual drought condition?

Questions

Below label where each manatee lives

Marty, Millie, Manny



Our Changing Florida

Historically, where did the Everglades start and end?

Weather and Water Cycle

SC.2.E.7.1: How do our winters compare to some other places in the United States?

	Winter/Fall	Spring/Summer
Also known as		
Description		

When is Florida's Hurricane Season?

Questions

Food Chains

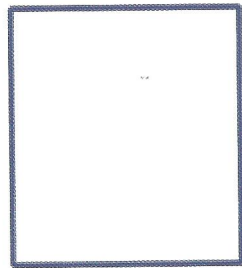
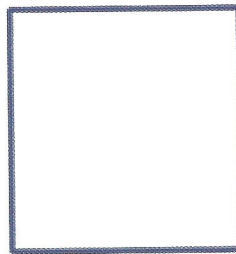
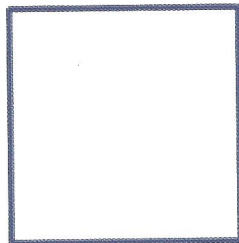
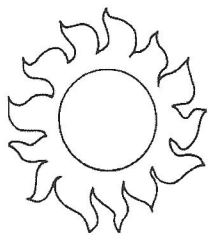
SC.2.L.17.1 & SC.2.L.17.2:

List what living things need to survive?

Animals (including Humans)	Plants

What niche or special job does a seagrass have?

Design a food chain of your own starting with the Sun.





*The River Kidz are here
Our mission's quite clear
We love our river and ALL its critters
Let's hold it all dear*

*Please keep our river clean
So we don't have to scream
"Go shut the locks" and walk the talk
and quit (pause) being so mean*

*To all the little fish
It's our biggest wish
To keep them healthy and swimming around
And sometimes on our dish*

*North Fork, South Fork, Manatee Pocket!
We gotta keep it pristine...
Sand Bar, Pecks Lake, Indian River
The color's blue not green!*

*What about the seagrass?
It's disappearing so fast
What will happen? No shrimp-a-snappin'?
It's just not gonna last*

*The dolphins and the turtles
We know they have some hurdles
Nets and boats and hooks in throats
Our blood begins to curdle*

*North Fork, South Fork, Manatee Pocket!
We gotta keep it pristine...
Sand Bar, Pecks Lake, Indian River
The color's blue not green!*

*Florida's big mistake
Is discharge from the Lake
The runoff and the fer-ti-lizer
Ruins us, FOR PETE'S SAKE!*

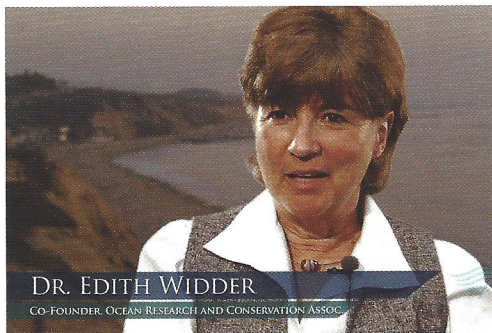
*The River Kidz are here
Let's not live with fear
We'd lose our river and ALL its life
We better keep it clear!*



RIVERSCOALITION.ORG



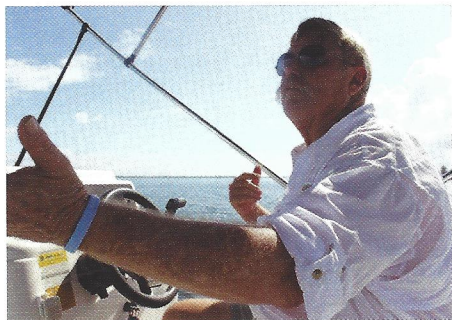
Thank You



DR. EDITH WIDDER
CO-FOUNDER, OCEAN RESEARCH AND CONSERVATION ASSOCIATION

"People know that the best way to preserve and protect land for future generations is to purchase it. But you can't purchase water. The only way to preserve and protect it is to monitor it. With the Kilroy water quality monitoring systems we can see when pollutants like nutrients enter our waters. Our goal at ORCA is to identify a source of pollution and find ways to stop it before it enters the lagoon."

– **Edie Widder**, CEO & Senior Scientist, Ocean Research & Conservation Association



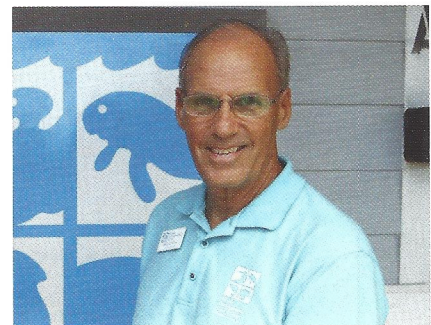
"On River Kidz.....very little enriches my soul more than witnessing the empowerment of our children with the ownership of their environment. DEMAND CLEAN WATER!"

– **Marty Baum**
Indian Riverkeeper



"Our kids are our future. Our water is our future too. It's great that the River Kidz are out there saving our future."

– **Maggie Hurchalla**,
20 year Martin County Commissioner



"The river kids are amazing inspiration to us all. They have energized an active movement to help us fight for clean water in our rivers and estuary.

The St. Lucie estuary and Indian River Lagoon are the most biodiverse ecosystems in North America and the nursery grounds for hundreds of fish and shellfish that we value. We must protect and preserve these ecosystems for our future....."

– **Mark Perry**
Executive Director,
Florida Oceanographic Society

"The River Kidz have been there from Day One in our effort to reduce and ultimately eliminate the harmful discharges from Lake Okeechobee. Thanks to their dedication, Florida has now approved and funded construction of a southern reservoir to clean and store a hundred billion gallons of water. I appreciate all the River Kidz have done to help us accomplish this goal."

Senate President Joe Negron



"If every community in Florida was lucky enough to have River Kidz, the future would be clear and vibrant for all our rivers, bays and estuaries. The great work done by the River Kidz on the Treasure Coast shows how young people with energetic passion for the environment can make a difference."

– **Carl Hiaasen**
Best-selling Author

Vocabulary

ACOE- Army Corp of Engineers- The federal branch of government controlled by the Army and under the department of defense.

Appreciate- To value something highly.

Aquatic- Living in a water environment.

Awareness- Knowing or learning about something.

Biodiversity- Having many different species in one area.

Brackish- A mixture of freshwater and saltwater.

Canals- Man-made waterways intended to move water from one area to another, usually straight and narrow.

Congress- Branch of Government that makes laws.

Consumer- An organism that feeds on other organisms for food.

C-43- Canal that runs from Lake Okeechobee to the west coast of Florida, specifically the Caloosahatchee River.

C-44- Canal that runs from Lake Okeechobee to the east coast of Florida, specifically the St. Lucie River.

Dike- A man-made barrier that surrounds a body of water. (Lake Okeechobee has the Herbert Hoover dike).

Disastrous- Having serious results.

Discharges- To release water.

Disrupted- To interrupt the way things normally are.

EAA- Everglades Agriculture Area- An area south of Lake Okeechobee where farming takes place. This area is home to rich, fertile soils created from millions of years of detritus and swampland.

El Nino- The cycle of warm and cold temperatures that are measured on the sea surface temperature of the tropical, central and Eastern Pacific.

Energy- The capacity to do work.

Environment- The sum of conditions affecting an organism, including all living and nonliving things in an area such as plants, animals, water, soil, weather, landforms and air.

Estuary- A brackish body of water influenced by tides.

Fertile- Rich in plant nutrients.

Vocabulary

- Food chain-** Transfer of energy through various stages as a result of feeding patterns of organisms.
- Habitat-** A place in an ecosystem where an organism normally lives.
- Harmful Algae Bloom-** When algae grows at high rates and causes damage to the surrounding water environment.
- Indian River Lagoon (IRL)-** 156 mile waterbody with brackish water on the east coast of Florida.
- Inference-** The act of reasoning from factual knowledge or evidence
- Intervention-** Action and regrouping intended to help improve a current situation.
- Life Cycle-** The entire sequence of events in an organism's growth, development and reproduction.
- Mammal-** Any various warm-blooded vertebrate animal of the class mammalian including humans, characterized by a covering of hair on the skin, and in the female, milk producing mammary glands for nourishing their young.
- Nitrogen-** Naturally occurring element that improves plant growth and is needed by all living things.
- Oxbows-** A bend in a river shaped like a "U."
- Organism-** An individual form of life of one or more cells that maintains various vital processes necessary for life.
- Phosphorus-** Naturally occurring element that improves plant growth and is needed by all living things.
- Photosynthesis-** A process performed by plants and algae using light to produce energy.
- Pollutants-** Harmful substance found in an area.
- Salinity-** Measure of the salt in a water sample.
- Sediment-** Material from the land that reaches the water.
- Sun-** Star closest to the Earth and the center of our solar system.
- Watershed-** Land or area that drains into a waterway, river or stream.
- Waterways-** A navigable channel of water.

thank you

This workbook is made possible by the generous efforts of hundreds of children, parents, companies and talented individuals.

A special thanks to:
The Knopf Family Foundation & Southeastern Printing

Art by Julia Kelly



Milly

Marty

Manny



**Hi! I'm Blanco the white pelican.
Sorry I'm late!
I just migrated in as I only
spend part of the year in Florida.
Thank you for helping to protect
our environment!**

(You can learn more about River Kidz at www.riverscoalition.org)

Olivia Siegel: River Kidz is personal to me because I live on the river and the condition of the river affects my everyday life, so I want to fight with the River Kidz and make a change!

Eryn Kelly: The River is important to both me and our ecosystem. It is imperative that the water is kept clean and free from sewage and pollution. I believe being a part of the River Kidz will have the power to keep it this way.

Matilda Small: Being part of River Kidz to save animals and help raise water awareness so animals have better quality of life.

Tate Small: Being part of River Kidz means being part of a community of people and friends to help better our water!!

Veronica Dalton: To me the river is my home, and as a River Kid I will do everything in my power to protect it. River Kidz show that kids have a voice in what happens in the world they will one day inherit.

Daphne Dalton: To me the river means life, and as a River Kid I will do everything I can to keep it that way. The River Kidz are supposed to teach people about it, and the ways that they can keep our waters clean. That kids have a voice in what happens in the world they will one day inherit.

What the River Kidz

Irie Kernan: I just want to swim. I don't want the manatees to have X eye's.

Dela Kernan: "the river is special to me because I love all the animals in the river, I want them to be safe because they are sweet to me when I swim with them in the river.

Laila and Eloise Mayfield: The river is our home, our life, and our future. It help makes us who we are. I love River Kidz because it lets people know how much we care about our river. Oh, and it is also a lot of fun!!!

Carly Collins: The river is very important to me, I grew up by it. I watched it become so polluted over the years.

It's really important to keep over rivers clean so that kids will be able to go out in the water and play.

Also, to save our dolphins, turtles, manatees and fish that live there. Save Our Rivers!!!!

Brandon Collins: As a child, I spent countless hours playing on the river, fishing and boating. The river is a big part of me and to see it so polluted breaks my heart. The best way to treat our rivers is how you would treat your home. Keep Our Rivers Clean!!!

Zoe Glover: It means the future to me because it's about the animals and the importance of having them in our future. We need clean water to save them, as humans it's our job to help keep them safe, not hurt them or destroy their home.

Chloe Janson: I joined RiverKids while still in elementary school and next year I will be graduating from high school. River Kids not only taught me about my local waterways and environment, I also learned that becoming an active participant and making my voice heard can make a difference in our community. From participating in fundraising activities to attending local protests about clean waterways, River Kids really made me aware of the problems facing our environment and possible solutions to improve it.

Anna McGovern: River Kids has given me so many opportunities to share my voice about our river. It has showed me the importance for standing up for what I believe in and the power that one small voice can have. It has also allowed me to be a part of a family and allowed me

Asher Glover: Animals and birds need clean water and birds need fish to eat. Dirty water means no birds and no fish. We can't live without fish, animals and clean water. The river needs our help. We are little but we all need clean water.

Heath Samples: I feel like the river is my best friend, and you have to protect it from a bully.

means to me

Rachel Goldman: River Kids means bringing the community together to raise awareness about the value of our river and what each of us can do to keep it clean!

Pippa Hilton-Green: I love being a part of River Kidz and am able to help support and protect and support our River"

Kiele Mader: In 2011, the River Kidz was founded and I was lucky enough to be one of its earliest members. Im proud to stand up for our river with all the animals and life in it! Lets make a change and help send the water south to the everglades so our st. lucie river becomes clean again!

Hannah Lucas: The River Kids means a lot to me, it is a place where we can fight for our river. When I was new to river kids five years ago, they were always very welcoming and still are. It is a place to learn and teach others why saving our river is so important. I hope you will join to grow.

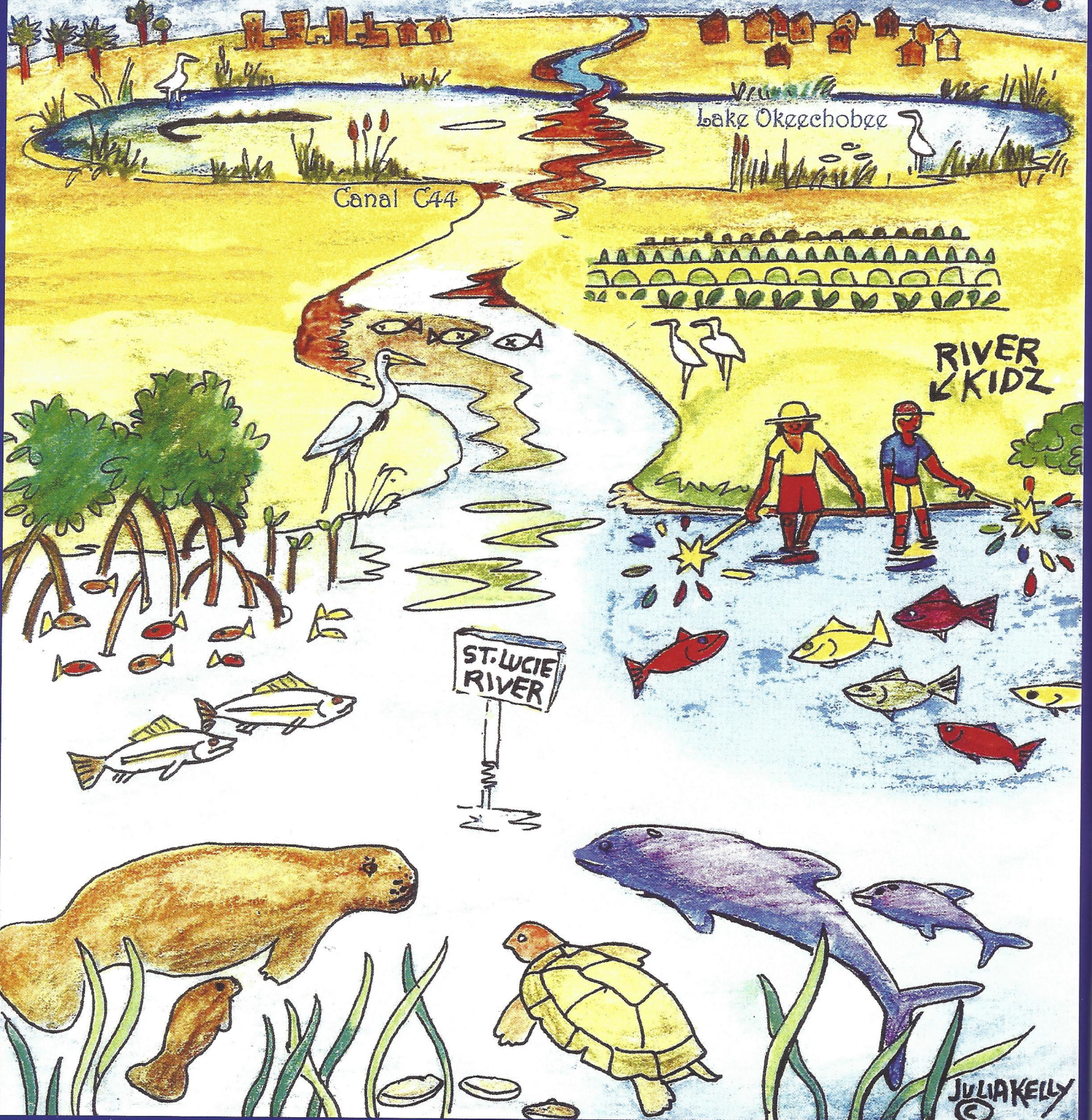
Coltin Moir: The River Kidz means a lot to me because it allows me as a kid to voice my thoughts about the way the "adults" are treating the river. The River Kidz also allows me to meet other kids with likeminded thoughts about the river.

Avery Aydelotte: Being a Riverkid to me means protecting the environment that we are in and around every day. A clean river means a happier, healthier environment and happier healthier people!

Celia Traylor: The river is fun and it keeps a lot of animals alive!

RIVERS COALITION

You are our Rivers' Future!



Canal C44

Lake Okgeehobze

RIVER
KIDZ

ST. LUCIE
RIVER

JULIA KELLY
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