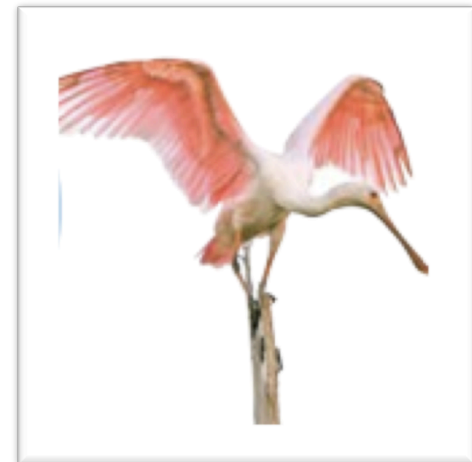




River Kidz in
your
classroom

Mission with the book:

- To teach kids about the ecosystems around them
- Increases their personal esteem as stakeholders
- Inspire them to get involved
- Do all of this while meeting standards





Backstory for the book

- Written by JBHS Marine II class in 2013-14 year
- Met multiple times with JTL, Nic, Valerie to go over standards and vision
- Students came up with it all (with gentle guidance)



Who is Marty?

Marty is a manatee

Marine mammal- Intended to give you the chance to teach about marine mammals and also talk about how we are mammals too!

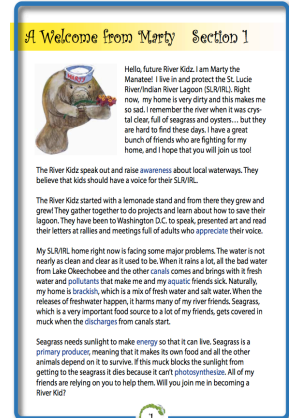
Help give a lovable face to the animals that live in the lagoon that almost every student should recognize and not be afraid of

Marty talks about his friends and the water connections throughout the book. He is our gentle giant narrator.

Developed after Marty Baum, our Indian River Keeper

Overview of the book

- Page 1 is a **welcome from Marty**
- Things to possibly focus on:
 - Marty introduces his home. He describes the water type (brackish) and then the seagrass and how it is a primary producer
- This is an AWESOME lead in to food chains and would really be a great time to do food chains in the classroom.





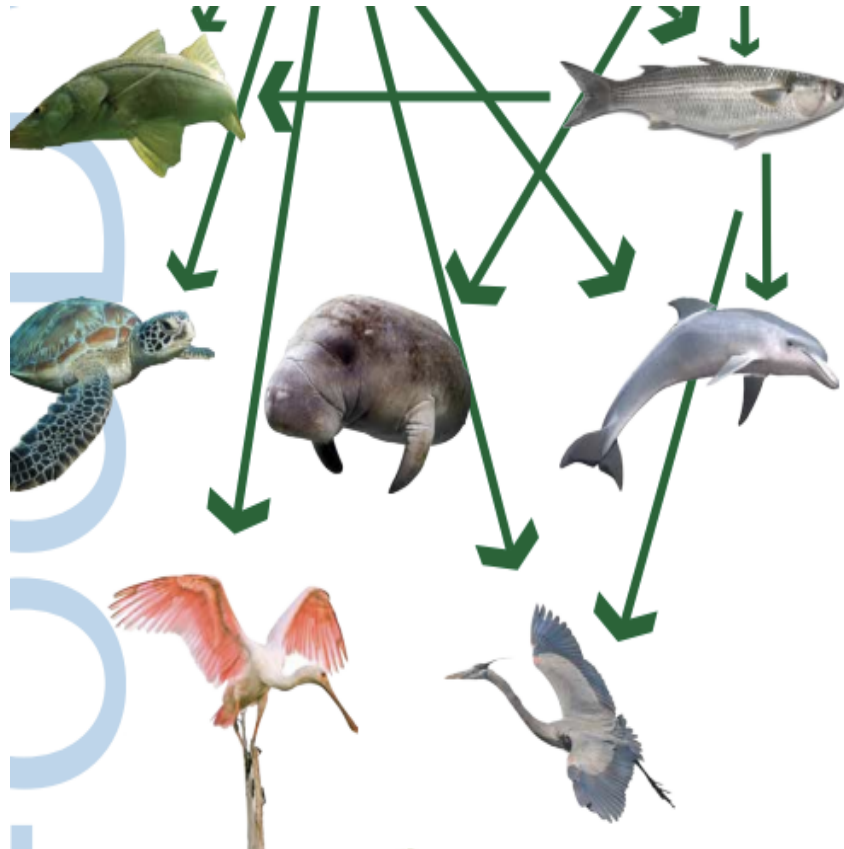
Page two and three

– Food Web

- **Zooplankton**- Tiny animals that live in the water and free float around, they might move with little appendages but not a lot of control
- **Oyster Reef**- Oyster reefs are very important to the health of the estuary- oysters are filter feeders and help clean the water. Their populations have declined dramatically.
- <http://youtu.be/saAy7GfLq4w>

Page two and three

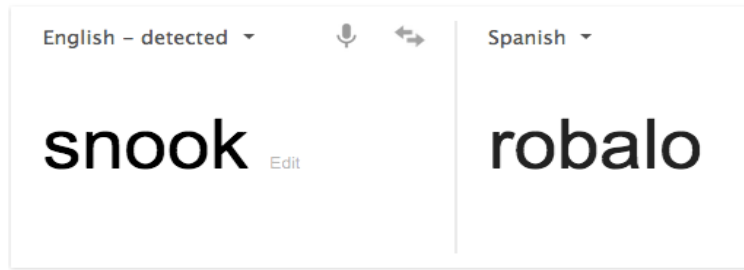
- Snook
- Mullet
- Dolphin
- Manatee
- Rosette Spoonbill
- Great Blue Heron
- Green sea turtle



Page two and three

- Arrows in the food web point FROM the thing being eaten TO the thing doing the eating (think who is getting the energy)





Taxonomy

- *Common name* - name we know in America,
scientific name -in LATIN (universal language)

The *family* is a more generalized grouping where the species is specific to that animal

- Lesson idea- You could have them research what the scientific name is of things they encounter daily (their dog, their snake, a red ant)

Question levels

- Broken down into levels to help you understand what might be easier and harder for your kids to answer. Level 1-2 are explicitly stated in the reading while level 3-4 some facts or starter information is given but more critical thinking or research is needed.

Question Difficulty Key



Level 1



Level 2



Level 3



Level 4

Florida's past

- 100 years ago Florida did not look anything like it does today
- Lake Okeechobee would often overflow into the surrounding areas
- This is why the soil is so fertile and why farming was and continues to be successful in the EAA

Historical Florida



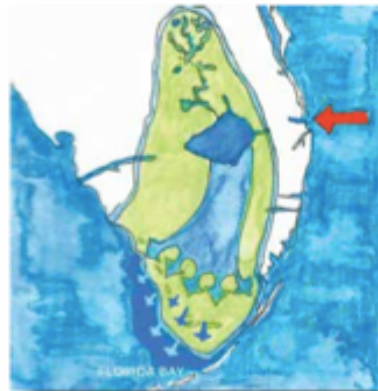
Florida Today



[http://
www.evergladesfoundation.o
rg/](http://www.evergladesfoundation.org/)



Where I am



Historic flow



Current flow



Flooding in Belle
Glade during the
1928 hurricane



Memorial to the over
2,500 lives lost in the
1928 storm

<http://www.hurricanescience.org/history/storms/1920s/Okeechobee/>

Great information about hurricanes, especially the 1928 storm

Hurricanes: Science and Society

[Home](#)[Science](#)[Hurricanes & Society](#)[History](#)[Resources](#)[Galleries](#)[Glossary](#)[About](#)[Search](#)

Interactive History Timeline

Featured Storms

Storms In the 2000s

Storms In the 1990s

Storms In the 1980s

Storms In the 1970s

Storms In the 1960s

Storms In the 1950s

Storms In the 1940s

Storms In the 1930s

Storms In the 1920s

1928- Okeechobee Hurricane

1926- Great Miami Hurricane

1923- Tokyo Earthquake and Typhoon

Storms In the 1910s

Storms In the 1900s

Storms before the 1900s


Hurricane Case Studies

Home > History > Featured Storms > Storms in the 1920s > 1928- Okeechobee Hurricane

1928- Okeechobee Hurricane

This classic [Cape Verde-type hurricane](#) was first detected over the tropical Atlantic on September 10, 1928 some 1450 km (900 mi) east of the Caribbean island of Guadeloupe. It likely formed four days earlier between Cape Verde and the coast of Senegal. The system gradually intensified as it moved westward, attaining Category 3 status near the Caribbean on 12 September. It made [landfall](#) at Point-a-Pitre, Guadeloupe as a [major hurricane](#) that same day. After crossing Guadeloupe, the hurricane continued to strengthen and struck Puerto Rico on 13 September as a powerful Category 5 storm with winds of 256 km/h (160 mph). The mountainous regions of the island saw up to 730 mm (29 in) of rainfall, the highest amount seen there in three decades. The hurricane then moved through the Bahamas as a strong Category 4 hurricane with winds of up to 249 km/h (155 mph). Late on 16 September, it made another landfall near West Palm Beach, FL, still as a Category 4 hurricane with winds of 241 km/h (150 mph) and generating a 3 m (10 ft) storm surge. After directly crossing Lake Okeechobee, the forward motion of the storm turned northeast, bringing it across northern Florida without losing intensity. It then paralleled the coasts of eastern Georgia and the Carolinas, and steadily weakened. Over Virginia, the then [tropical storm](#) turned to the northwest, ultimately merging with a low pressure system near Toronto, Canada on 20 September.

This hurricane caused heavy casualties and extensive destruction along its path from the Leeward Islands to Florida. At least 1,500 lives were lost in the Caribbean as a direct result of the hurricane. Nearly every building on the island of Guadeloupe was destroyed and 600-1,200 fatalities were a result of the hurricane. The nearby island of Montserrat lost a great amount of crops during the event, which brought a near starvation situation to the island prior to the arrival of relief. The hardest hit island was Puerto Rico as it took a direct hit from the then Category 5 storm. Residents of the island were well prepared for the storm, however, and as a result the island had a fairly low death toll of about 300. Hurricane-force winds lasting for 18 hours, however, combined with heavy rain, caused disastrous property damage. Tobacco, coffee, sugar, and citrus fruit crops were decimated, with coffee growers losing what had previously appeared to be the most promising harvest in several years and citrus growers losing their entire crop but managing to save most of the trees. Some towns nearest the eye of the storm were almost fully destroyed. In total, several hundred thousand people were rendered homeless in Puerto Rico and an estimated \$50 million (1928 USD) in property and crop losses occurred.



SKIRM OF UTTER WRECKAGE, WEST PALM BEACH

A NOAA image of destruction that occurred in West Palm Beach, Florida during the Okeechobee Hurricane. In the background are houses that have been reduced to their most sturdy elements, while debris in the foreground is other destroyed homes. *Source: NOAA*



**Herbert Hoover Dike
was the answer to
resident's fears of
being flooded in the
next major storm**



That led us to our current situation:

- Large amounts of FRESH WATER are going out to tide
- Everglades is starving for water
- Wading bird populations drop annually
- Salt water intrusion in South Florida
- Complicated canal system that sends water into Everglades National Park in small amounts when compared historically



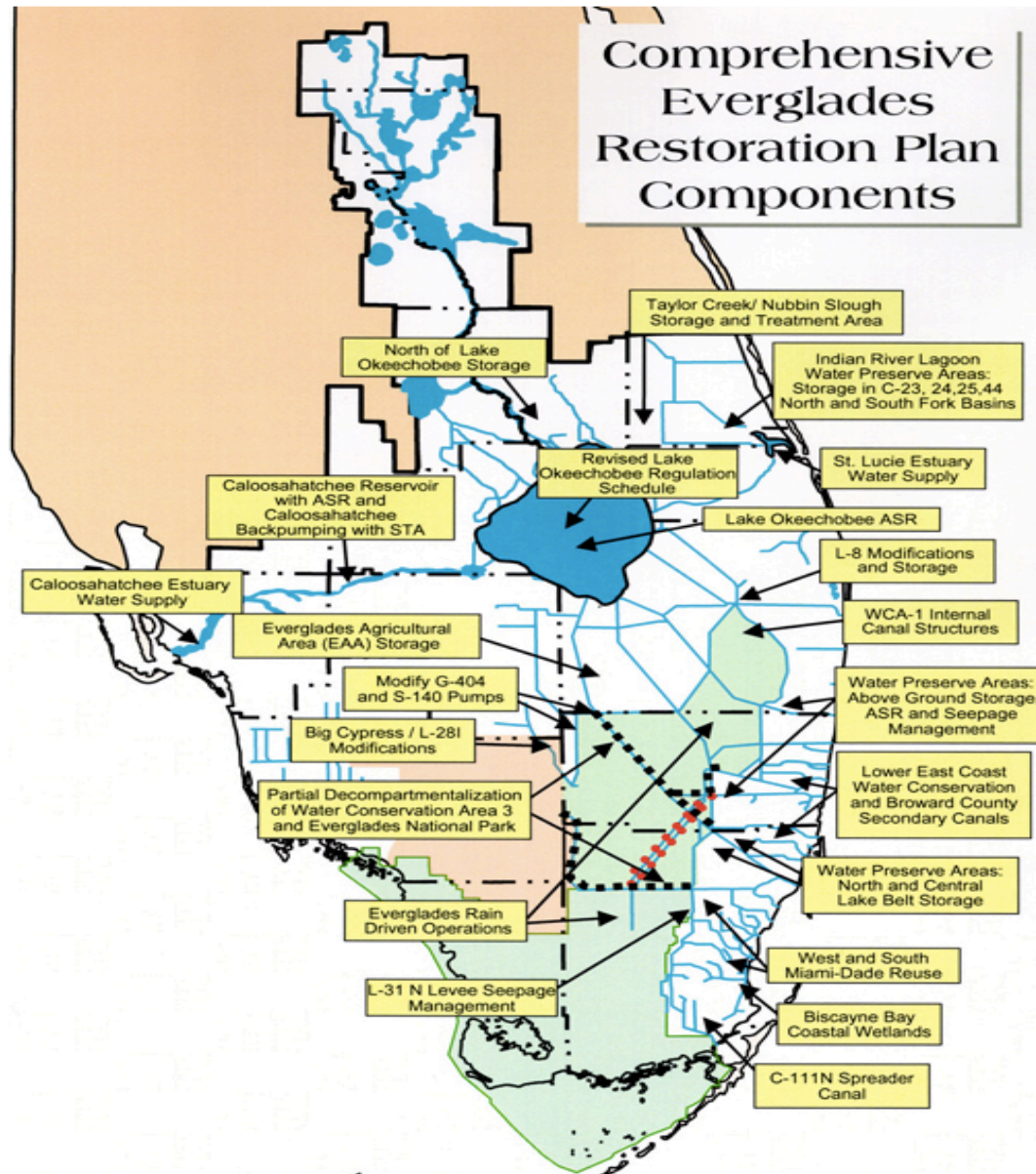
Current flow

CERP and CEPP

- Comprehensive Everglades Restoration Plan
- Central Everglades Planning Project
- CERP is a multi agency plan that was approved by WRDA (water resources development act) in 2000.
- 60 elements
- 30 years
- \$11.9 billion

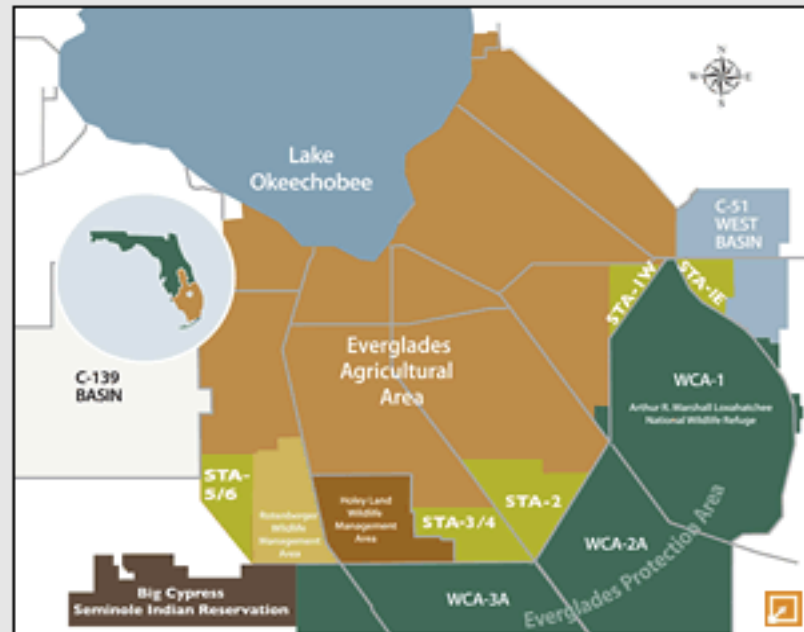


COMPREHENSIVE EVERGLADES RESTORATION PLAN (CERP)



STAs – By the Numbers

- ▶ **STA-1 East**, 5,000 acres, northeast of the Arthur R. Marshall Loxahatchee National Wildlife Refuge
- ▶ **STA-1 West**, 6,500 acres, northwest of the Arthur R. Marshall Loxahatchee National Wildlife Refuge
- ▶ **STA-2**, 15,500 acres (includes Compartment B expansion), west of Water Conservation Area 2
- ▶ **STA-3/4**, 16,300 acres in western Palm Beach County, the largest constructed wetland in the world
- ▶ **STA-5/6**, 13,700 acres (includes Compartment C expansion), in Hendry County, west of Rotenberger Wildlife Management Area



STA Operations

- ▶ Affected by weather (rainfall, drought, hurricanes), plant growth rates and invasion of undesirable plant species
- ▶ Water quality is continually monitored by scientists at District laboratories
- ▶ Operational decisions are made based on real-time data
- ▶ Scientists and technicians make approximately 27,000 visits per year to water quality monitoring stations

Guest Speakers on CERP and CEPP



DONNA GEORGE

USACE Project Manager

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904-232-1766



MATT MORRISON

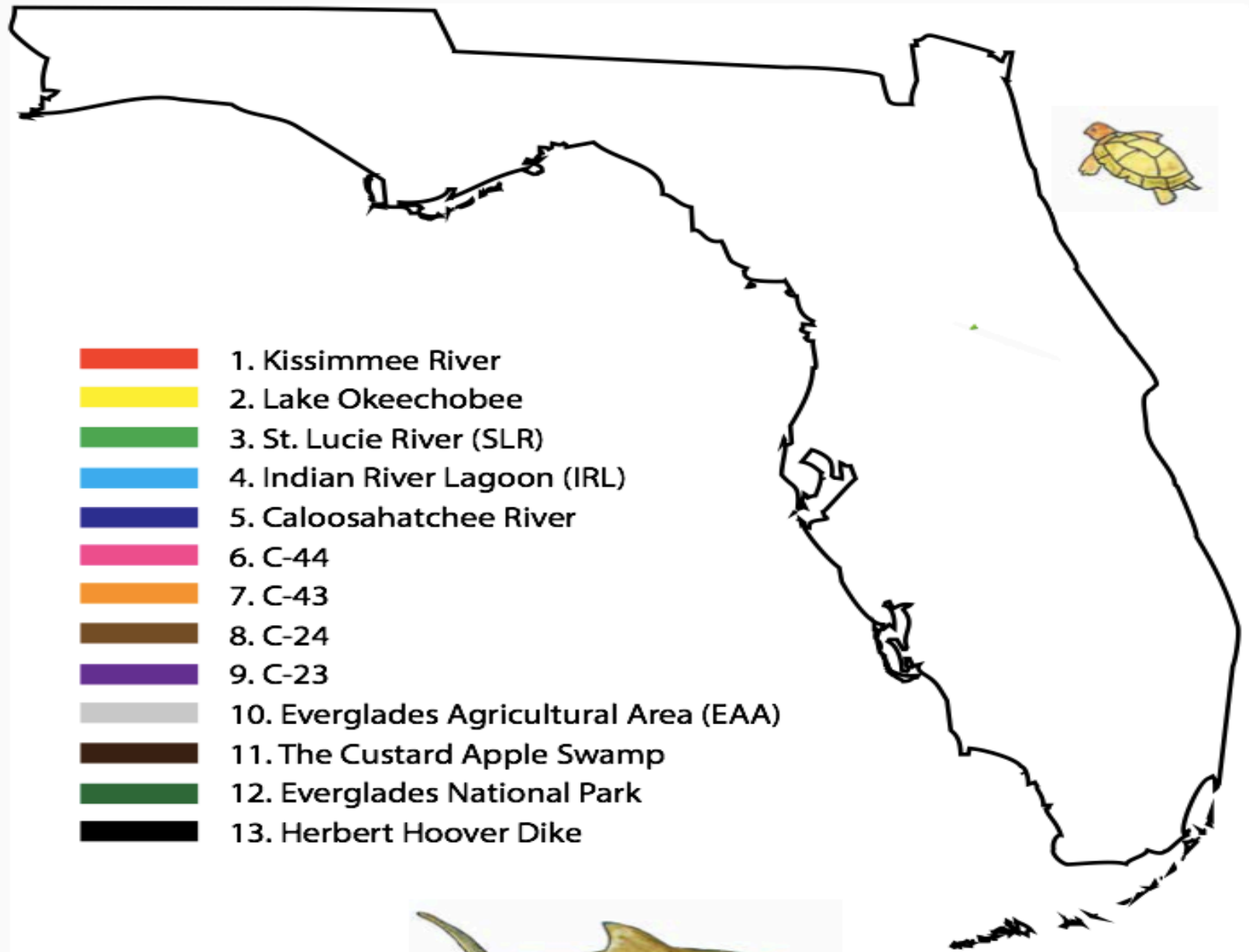
SFWMD Project Manager

mjmorris@sfwmd.gov

561-682-6844



This nice man came to my classroom last year and talked about CERP and SFWMD



The Kissimmee River from curved to straight to curved again!



Before



After

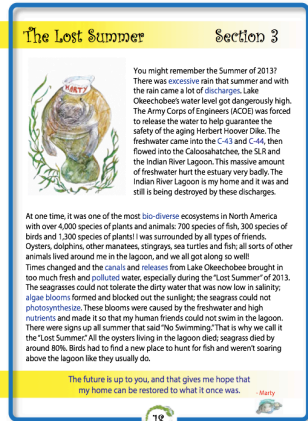
The River was deemed better off straight in the 1960's, they started "fixing" it... Restoration began in 1992.

The project turned 44% of the surrounding area from FLOODPLANE to PATURE!

***** Activity- Research as a class before and after straightening and then complete the Venn diagram on page 14**

The Lost Summer

Massive seagrass die offs



Mass animal deaths in North IRL



Harmful Algal Blooms (HAB)

The Lost Summer

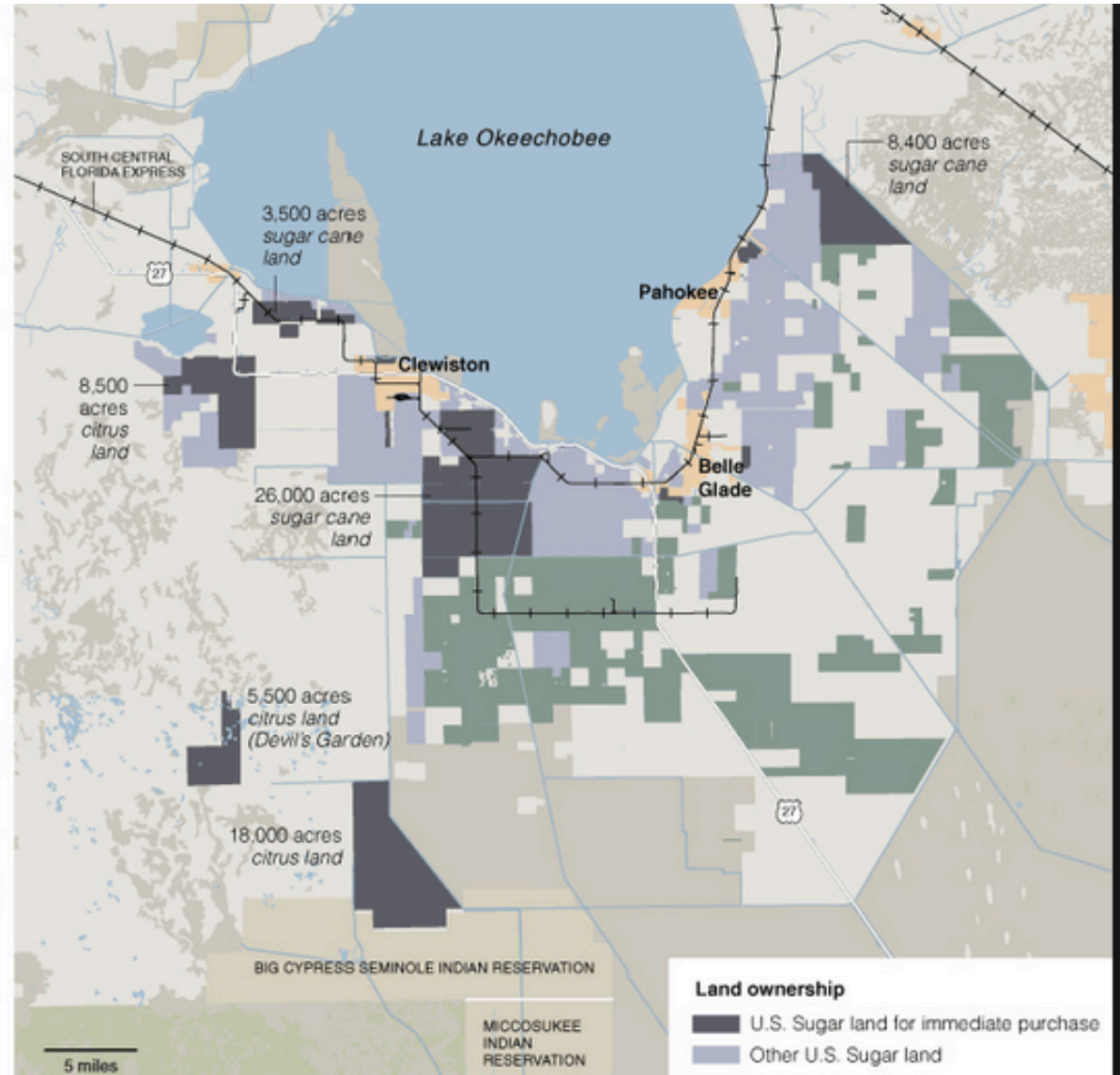


Photos courtesy of Mary Radabaugh

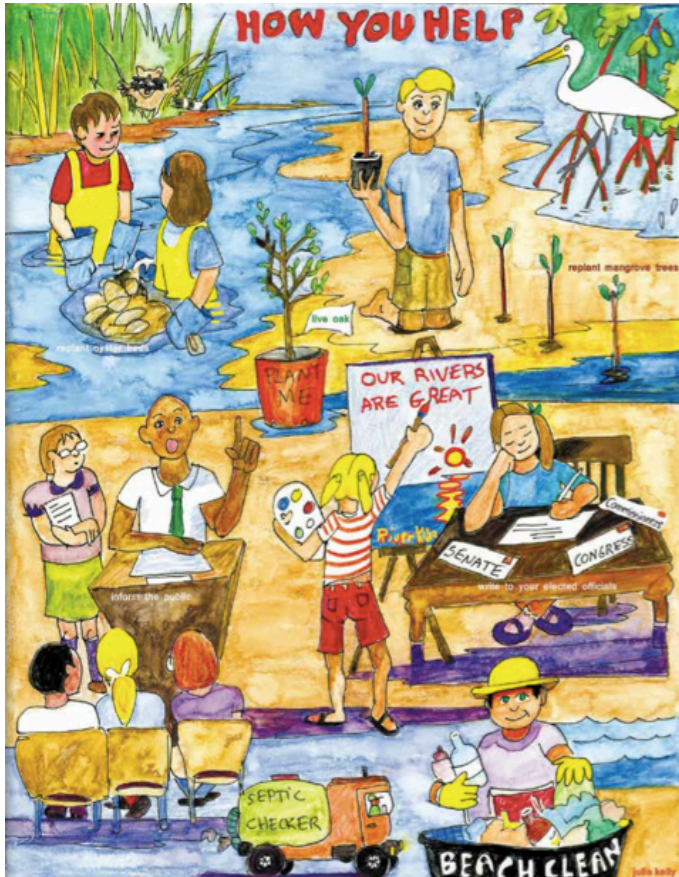
Move It South

- Water quality!
 - ppb parts per billion
 - ppm parts per million
 - Nitrogen- Bad in saltwater
 - Phosphorus settles to the bottom and just sits there
 - ESTUARY- mix of FRESH and SALT so they BOTH are harmful!

Water needs to be clean...and south



ALL Kidz are



Encourage them to participate in THEIR community,
School and at home to protect, speak out for and
learn about THEIR environment

ALL KIDS ARE RIVER KIDZ

Things that can be done IN SCHOOL

- Write letters to elected officials
- Invite guest speakers to come and talk, participate or even talk to you so that you can be better equipped to teach the material.
- STEAM grant ideas?
- Incorporate the IRL and SLR into your room (current events, classroom themes, unit lessons)
- REACH OUT

