

CHARLOTTE HARBOR NATIONAL ESTUARY PROGRAM:

UNITING PARTNERS AND RESOURCES TO RESTORE HYDROLOGY



Jennifer Hecker, Executive Director

Protecting and restoring water resources from Venice to Bonita Springs to Winter Haven



Who We Are



- Formed in 1995 and one of 28 Congressionally designated “estuaries of national significance” in the United States
- CHNEP service area encompasses 4,700 sq. mile. Estuaries include Lemon Bay, Dona & Roberts Bay, Charlotte Harbor, Pine Island Sound, Caloosahatchee, San Carlos Bay and Estero Bay.

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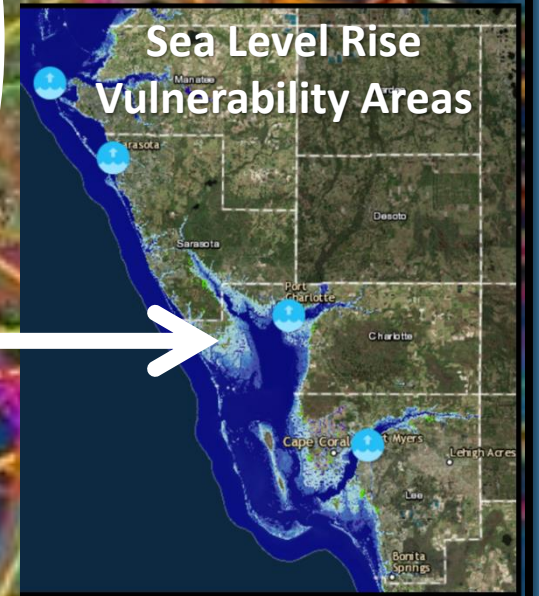
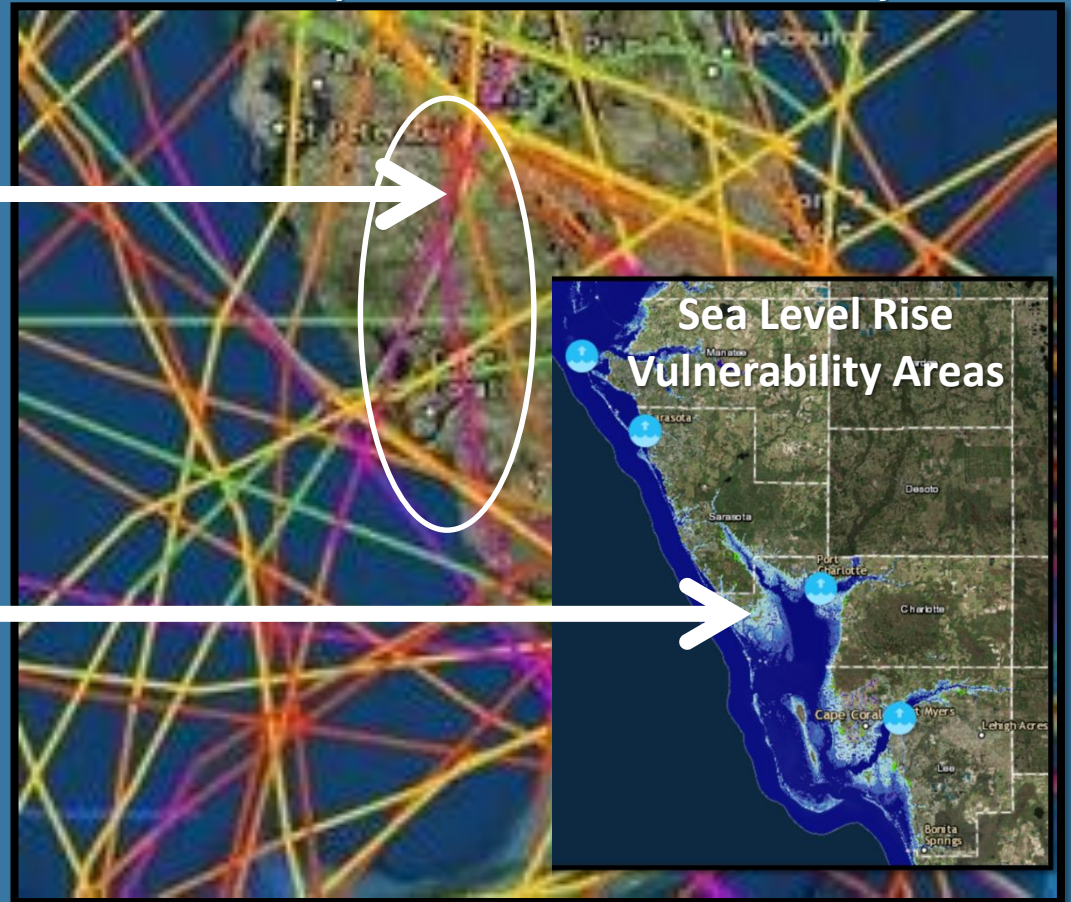


CHNEP covers a very vulnerable area

Current CHNEP Program Area



NOAA Map of Hurricanes in Past 100 yrs



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What We Do

Address 4 Priority Problems:

1. Hydrologic Alterations
2. Water Quality Degradation
3. Fish & Wildlife Habitat Loss
4. Stewardship Gaps

50+ member entities
7 counties, 10+ cities



Through:

Research

Restoration

Public Education & Engagement

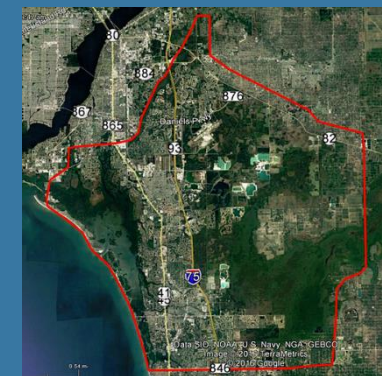
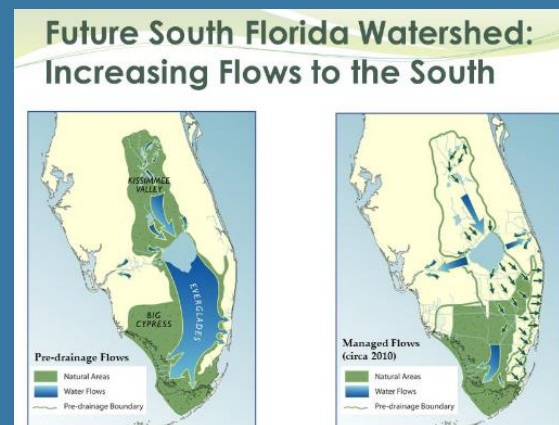
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Restoration – Hydrological

CHNEP is working to store and move water safely from where it is causing harm to where it can enhance our environment and water supply.

- Charlotte Harbor Flatwoods
- LeHigh Headwaters
- South Lee County Watershed Initiative
- Western Everglades Restoration



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Example: Charlotte Harbor Flatwoods Project (Charlotte County)

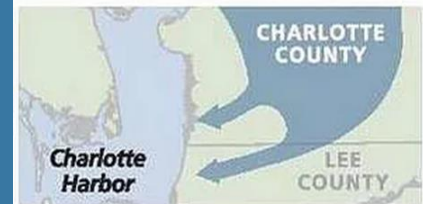
- Lower Charlotte Harbor Flatwoods Initiative – Project ID #1404
- Too much water is unnaturally impounded on Cecil Webb and not enough is getting to Yucca Pens and the tidal creeks of Charlotte Harbor or canals in Cape Coral. →
- CHNEP is a member of the Charlotte Harbor Flatwoods Initiative (CHFI) as well as SWFWMD, FWC, Lee County and Charlotte Counties, City of Cape Coral, and FDOT.

Restoring the flow into Charlotte Harbor

A multi-agency effort called the Charlotte Harbor Flatwoods Initiative will restore the natural flow of water from Charlotte County into Charlotte Harbor. This would reduce flooding in North Fort Myers and improve water quality in the harbor and Caloosahatchee River.

Historic water flow

Water flowed along its natural course, into the rivers, creeks and sloughs that would feed into Charlotte Harbor.



Current water flow

Water falling in Charlotte county is now diverted to the south by U.S. 41, Interstate 75 and utility roads.



SOURCE: South Florida Water Management District

THE NEWS-PRESS

Multiple Benefits

The goal of the 90 square mile project is to:

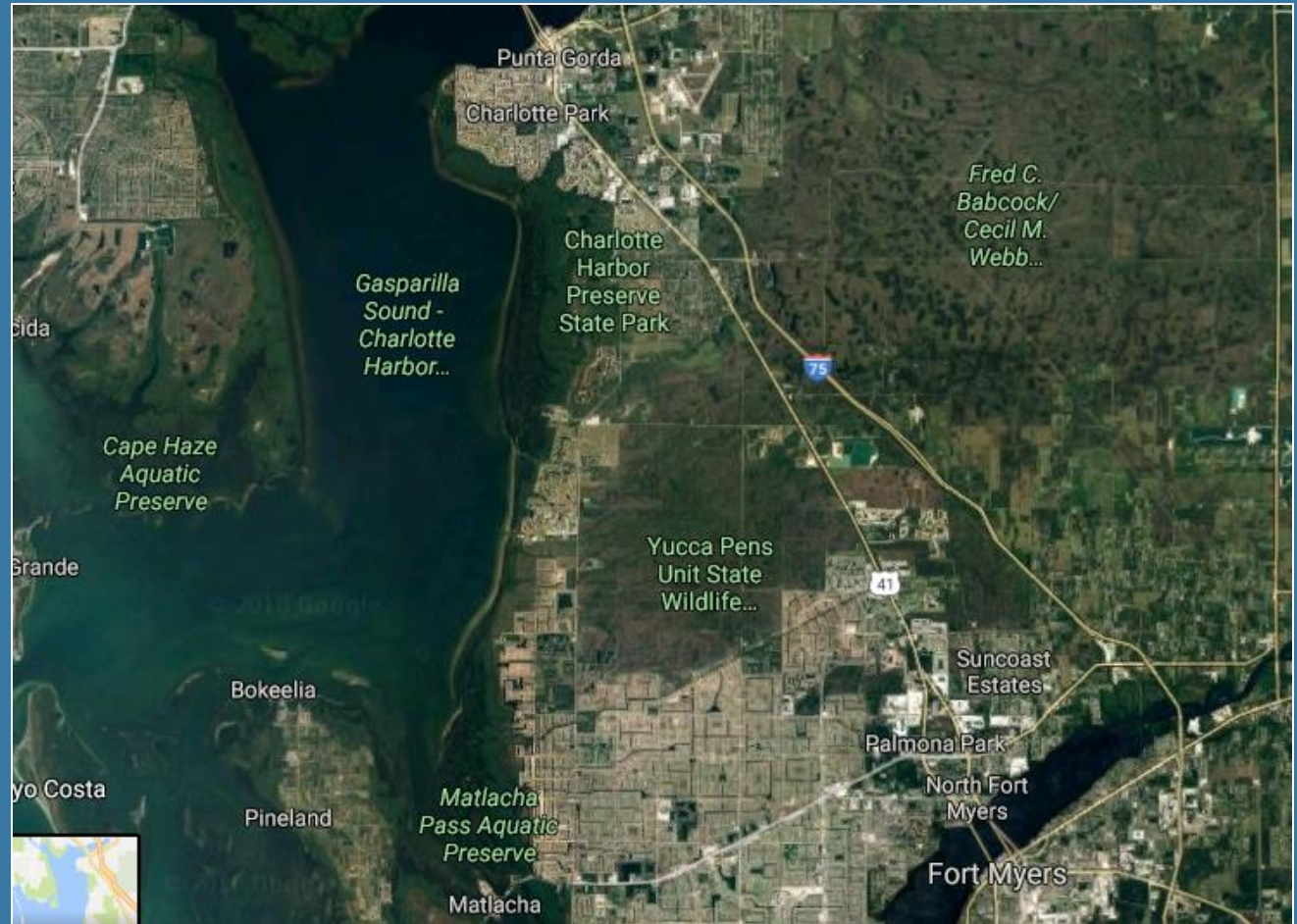
- **improve flow pathways to Yucca Pens WMA**
- **create storage areas on the state-owned Bond Farm and potentially SW Aggregates**
- **improve water levels in the Cecil Webb WMA**
- **reduce peak discharges from man-made canals from west of I-75 to tidal waters in Matlacha Pass Aquatic Preserve**
- **increase base flows and reduce pollutant loads to tidal waters which will improve habitat**
- **reduce flooding in North Fort Myers**
- **improve water quality in the Caloosahatchee and Charlotte Harbor Watersheds**
- **enhance community resilience**
- **help to restore and revitalize the Gulf economy**



Need for Natural Systems Studies

Two of the most critical funding needs are for the:

- 1) Charlotte Harbor Tidal Creeks Flow Study
- 2) Yucca Pens Water Levels and Flow Study

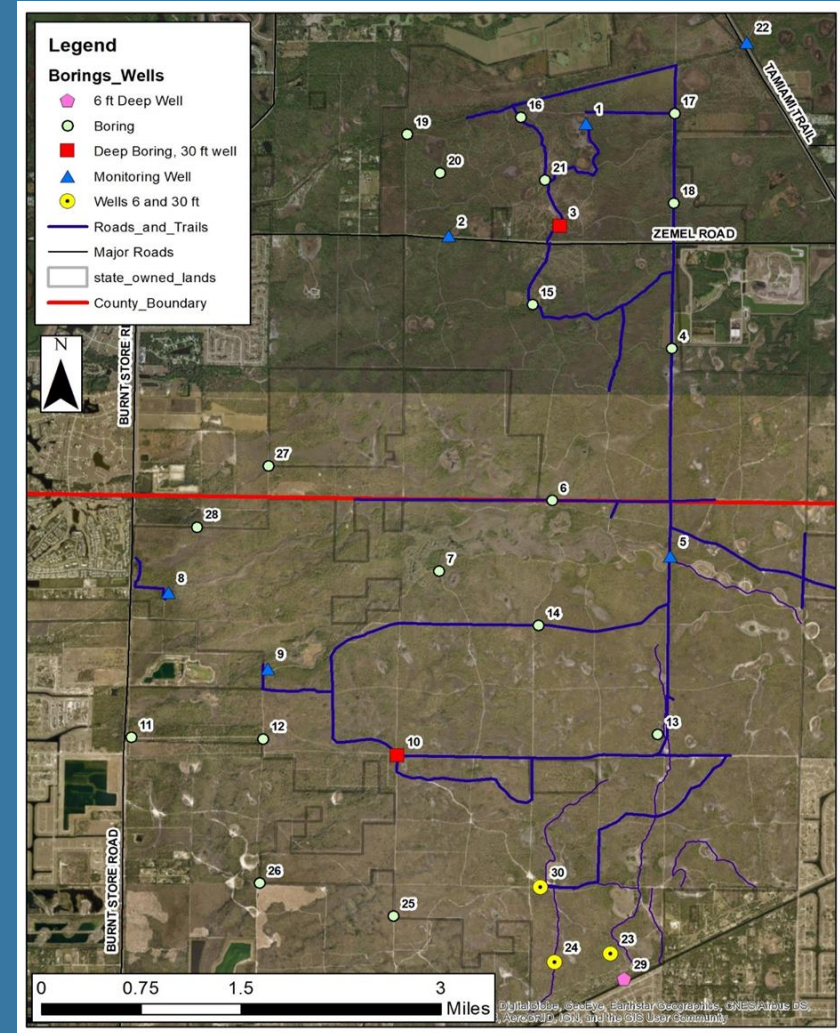


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Yucca Pens Hydrological Restoration

- Charlotte County had mitigation monies owed to FWC for widening of Burnt Store Road that they were willing to contribute towards gathering data on Yucca Pens hydrology
- Approx. \$165k has been transferred to CHNEP, who developed RFP and procured services for geologic borings, installation of monitoring wells, installation of two water supply wells, and surveying of cross sections at key locations. This work has begun.



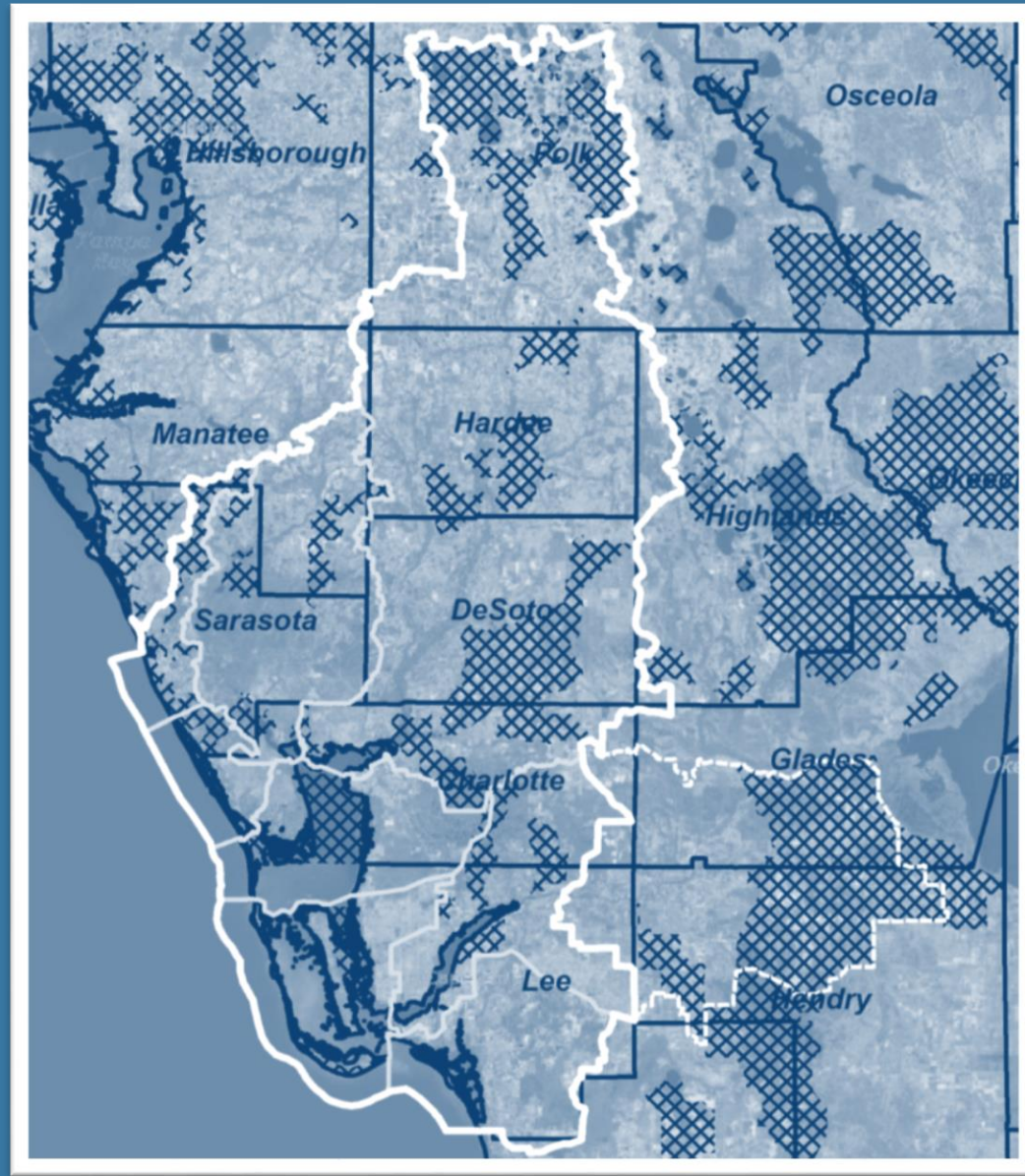
Where's the \$ to do the rest of the modeling to know how/where to build the infrastructure needed to move the water?

- CHNEP, SFMWD, and other partners approached RESTORE Council to request funding for this project.
- The Charlotte Harbor Flatwoods Initiative has been approved for \$636,500 of funding, coming to CHNEP. Project scoping is beginning.

WQ12, Lower Charlotte Harbor Flatwoods Hydrologic Restoration Initiative, Yucca Pens Unit (P&D) (preferred)	
Restoration Approach	Reduce pollution and hydrologic degradation to coastal watersheds (PDARP/PEIS 5.5.5)
Restoration Technique	Restore hydrologic connections to enhance coastal habitats (PDARP/PEIS Appendix 5.D.1.1)
Project Location	Charlotte and Lee Counties, Florida (Figure 2-24)
Project Summary	<p>The project would be implemented by the FDEP FL TIG Trustee in coordination with the South Florida Water Management District (SFWMD), the Charlotte Harbor National Estuary Program, FWC, City of Cape Coral, Lee County, and Charlotte County. The project would reduce pollution and hydrologic degradation to coastal watersheds in lower Charlotte Harbor through development and implementation of a science-based, data-driven Strategic Hydrological Planning Tool that would provide resource management agencies guidance for restoration and management of surface waters that flow through the 15,014-acre Yucca Pens Unit of the Cecil Webb/Babcock Wildlife Management Area (WMA) into eastern Charlotte Harbor and the Caloosahatchee River via tidal channels.</p> <p>Specific activities include:</p> <ul style="list-style-type: none">• Baseline data collection for the modeling effort including installing approximately 70 piezometers and sensors, GPS survey of the piezometers, installing 16 flow-meters in tidal creeks and canals, installing eight rain gauges, mapping historical hydropatterns, and mapping existing conditions;• Development of the Strategic Hydrological Planning Tool;• Completion of multiple model runs including a historic/pre-development conditions model/natural systems model, existing conditions model, and future conditions model;• Development of final report, summarizing results of each model run and recommendations on priority restoration and management projects or actions and associated benefits and implementation costs.

Water Quality Degradation is a Wide-spread Problem

Crosshatched areas are areas deemed *impaired* (not meeting state water quality standards) by the FDEP for nutrient pollution.

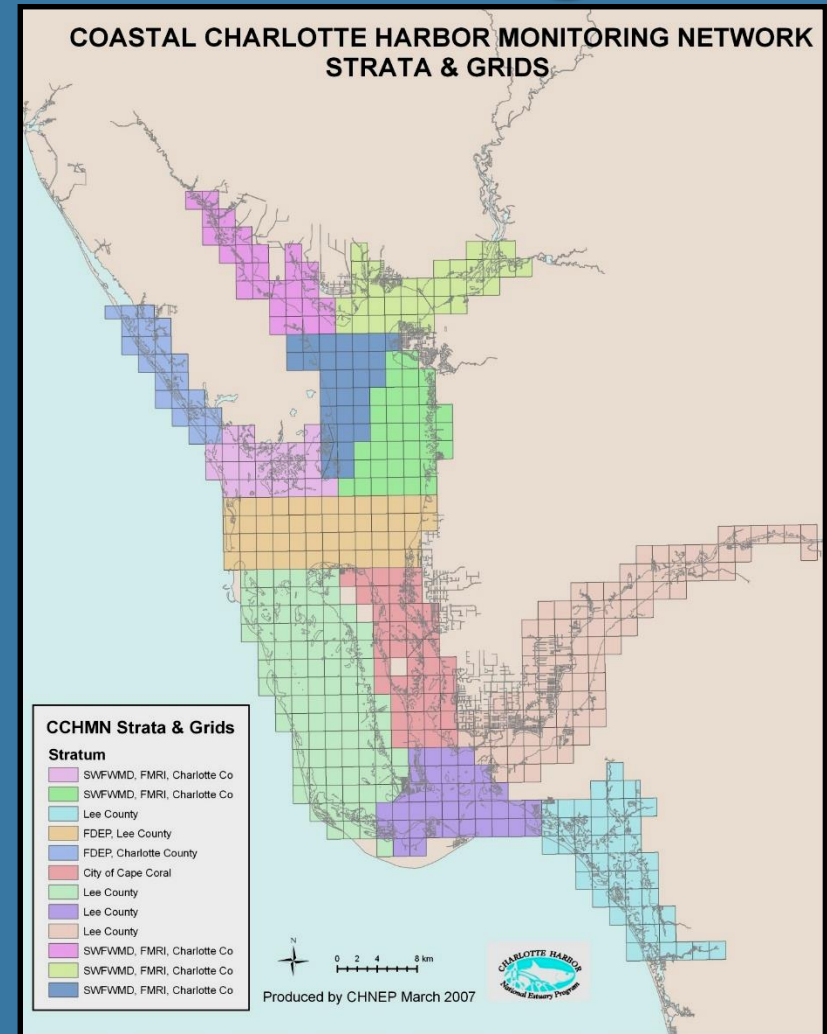


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Water Quality Monitoring

- Coastal Charlotte Harbor Monitoring Network (CCHMN) funded and coordinated by CHNEP since 2002
- 15 Physical & chemical parameters measured and tested
- CHNEP staff is updating SOPs, as well as conducting annual quality assurance field audits & certified labs



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Research - Testing New Water Quality Technologies

The Charlotte Harbor National Estuary Program (CHNEP), AquaFlex® Holdings LLC, Sea & Shoreline and the Calusa Waterkeeper conducted a demo deployment of AquaFlex Open-Cell in August 2018.

Samples were analyzed for removal/detection and absorption of algae/cyanotoxins by the Florida- and EPA-approved GreenWater Laboratories.

Results showed evidence of absorption of algae/toxins into the foam capillary network in concentrations ranging from 45,000 ppb – 259,000 ppb.

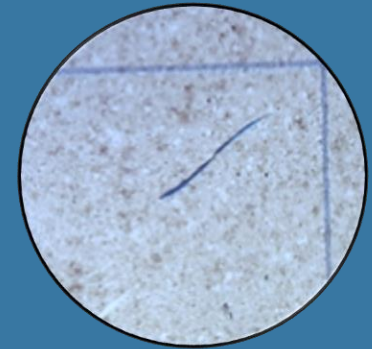


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Research - Emerging WQ Pollutants

- Past 2 years, been working with Citizen Scientist volunteers to collect and process water and sediment samples for microplastics.
- 86% of initial samples contained microplastics with most common being microfibers.



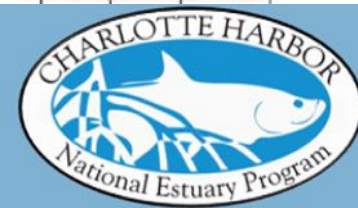
Microfiber collected from Myakkahatchee Creek



MICROPLASTIC DATA LOG SHEET

Sample #	Water Sample <input type="checkbox"/>	Sediment Sample <input type="checkbox"/>	Sample collected by (name/group)	Sample collection date/time	Sample collection location (name and GPS coordinates)	Sample processed by (name/group)	Sample processing date	Weight (sediments only)	Microplastics counted by (name/group)	# of plastic FIBERS	# of plastic FRAGMENTS	# of plastic MICROBEADS	# of plastic FILM
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SS EO SSL	4/13/2018 2:20	Twin Lakes Waterway N27°04.316 W82°08.993	SS-CHNEP EO-NPFOWL SSL	4/13/2018		SS-CHNEP EO-NPFOWL SSL				
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SS EO SSL	4/17/2018 3:00	McKibbens Park N27°02.385 W82°12.60	SS-CHNEP	4/14/2018		SS-CHNEP	1			
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	SS EO SSL	4/13/2018 3:39	Myakkahatchee Creek N27°02.562 W82°11.591	SS-CHNEP	4/14/2018		SS-CHNEP				

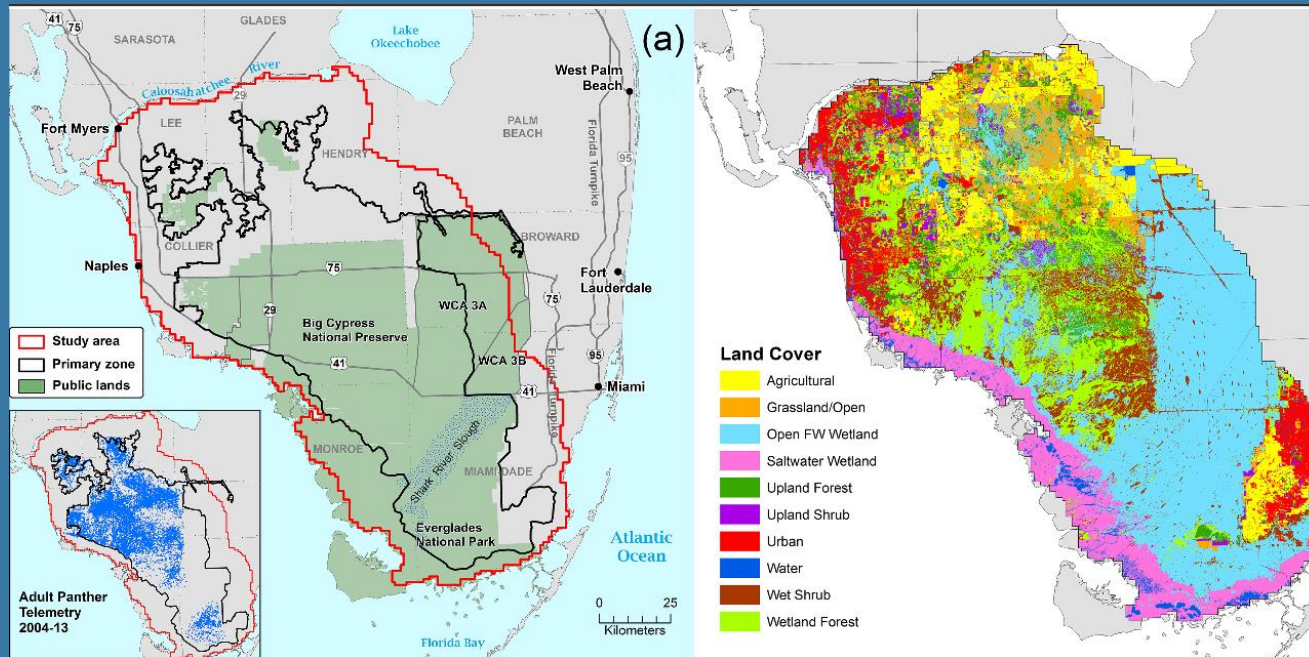
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Fish and Wildlife Habitat Loss

There has been significant loss of habitat for many species in SW FL.

The endangered Florida panther which used to roam SE US is now restricted to 5% of historic range – only in South FL.

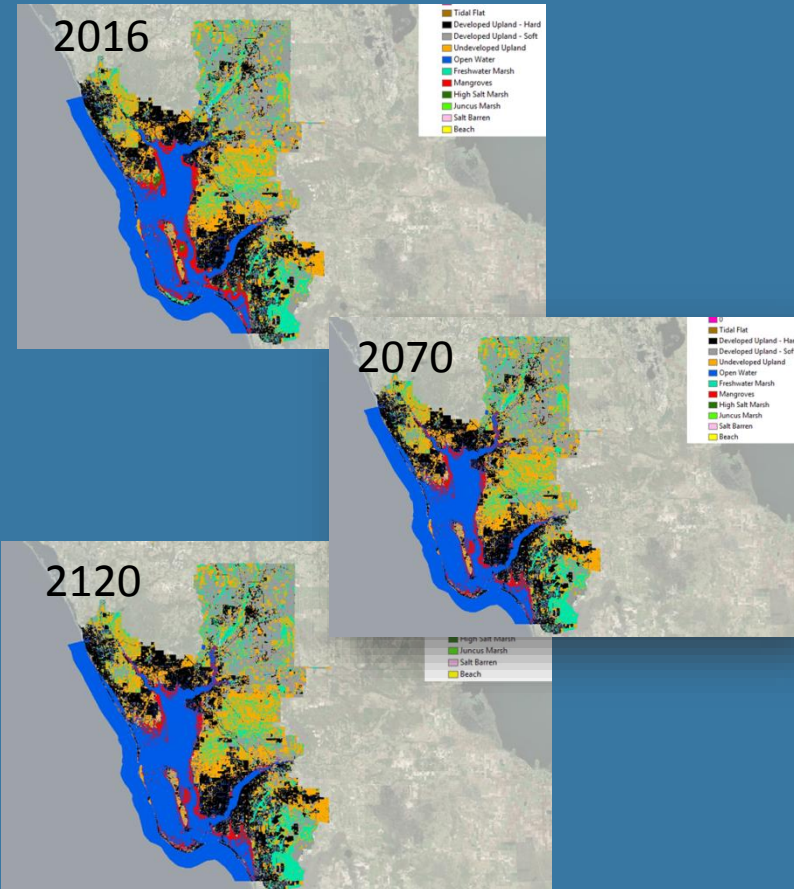


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Habitat Resiliency and Restoration Planning

- Uses best available science in modeling projected habitat changes in response to sea level rise
- Compiles existing habitat plans and combines with habitat migration corridors, reservation areas, etc.
- Designed to guide future habitat conservation and restoration efforts. Final report will be released in 2019.



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Habitat Restoration

– Living Shorelines

Hurricane Irma severely eroded a critical shoreline/berm that separates Lake Hancock from Banana Creek Marsh.



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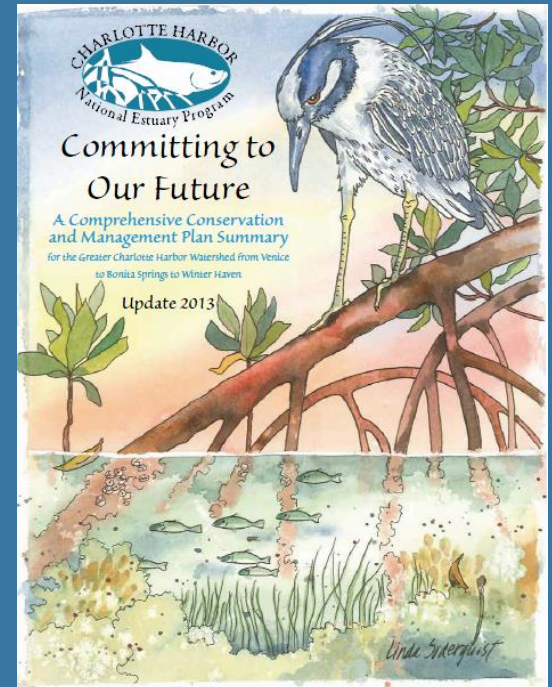
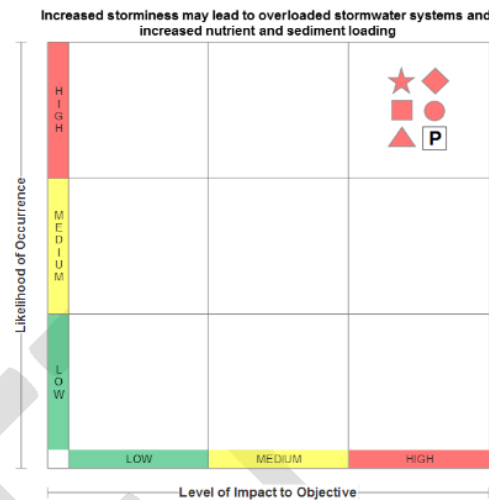
Conservation Planning for the Future

- Climate Change Vulnerability Assessment

Assessed 48 potential climate risks to achieving regional water/conservation objectives, with experts and the general public (P).

(18) Increased storminess may lead to overloaded stormwater systems and increased nutrient and sediment loading

Stormwater systems that have been designed for current conditions will not be adequate to address future needs. Intensity of extreme rainfall events is expected to increase (Runkle, 2017; Carter et al. 2014). The effects of heavy precipitation events will exacerbate issues from land use and population growth (SFWMD 2009; Obeysekera et al. 2011). Increased storminess and high volume rain events will lead to overloaded stormwater systems and increased nutrient and sediment loading. The effects of inadequate stormwater systems are already being observed in Florida (SFWMD 2009; Wanless, personal communication). This risk illustrates the interactions of climate stressors with human infrastructure and coastal development and was consistently rated to be high likelihood and high impact.



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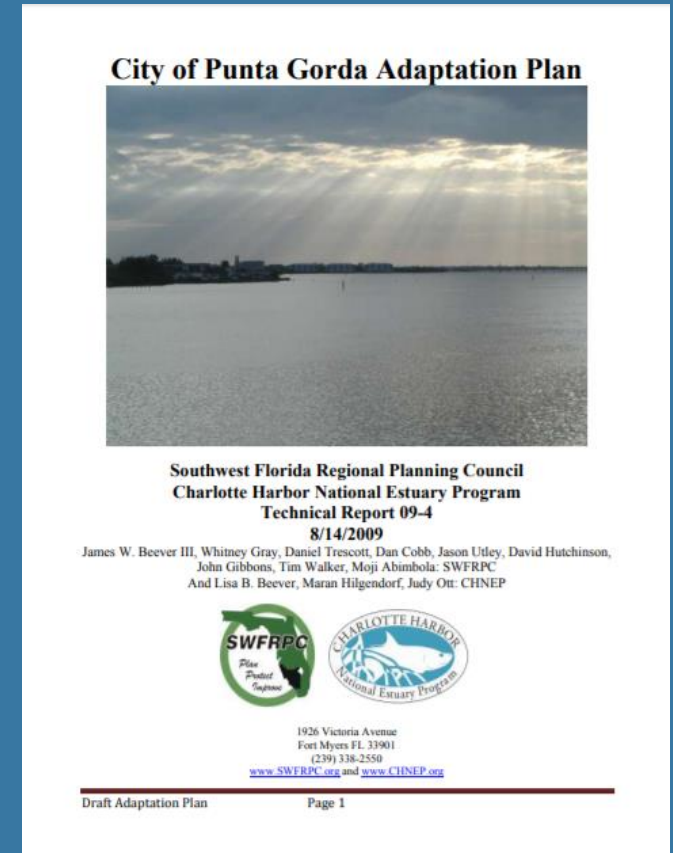


Conservation Planning for the Future

– Climate Adaptation Planning & Implementation

Working to Build Resilient Communities

- CHNEP worked with SWFRPC to help City of Punta Gorda be first community in SW FL to have an Adaptation Plan (back in 2009!).
- We assisted City in obtaining grant funding from FDEP for updating the Plan, are a contractor to assist in the updating - subcontracting the RPC to input technical comment on the draft.



Public Engagement:

Conservation Grants

- **One Application for projects up to \$3,000**
- **Has to support an activity identified in the Comprehensive Conservation & Management Plan**
- **3 review periods throughout the year to coincide with CAC Meetings**
 - **Summer Deadline is August 1, 2019 for October 2019 award notice**
 - **Winter Deadline is December 1, 2019 for February 2020 award notice**
 - **Spring Deadline is April 1, 2020 for June 2020 award notice**

Ex. of CHNEP Awarded 2018 & 2019

Project Title	Applicant	CHNEP Funded Amount	Match	Project Total
FY18 (sampling)				
Monofilament Madness	Keep Lee County Beautiful	\$1,000	\$5,375	\$6,375
Wading Trip to Cedar Point Environmental Center	Lemon Bay High School	\$600	\$0	\$600
SW FL Gulf Coast Regional Envirothon	Betty Staugler	\$900	\$2,175	\$3,075
Hickory Bluff Cemetery Beautification Project (Tree Planting)	Hickory Bluff Chapter, NSDAR	\$250	\$145	\$395
Polk County Water School	Polk County Board of County Commissioners	\$756	\$2,068	\$2,824
16 th Burrowing Owl Festival	Cape Coral Friends of Wildlife	\$580	\$759	\$1,339
Pond Watch Annual Workshop	Lee County Hyacinth Control District	\$670	\$0	\$670
Bocilla Islands Native Plant Identification, Signage, and Education Project	Bocilla Islands Conservancy, Inc.	\$802	\$592	\$1,394
Drone Wading Bird Nest & Environmental Lands Survey	Church Environmental	\$3,000	\$5,040	\$8,040
FY19				
Microplastics Awareness Program	University of Florida	\$1,000	\$3,359	\$4,359
MRMCC Web Site Maintenance	Myakka River Management Coordinating Council	\$220	\$0	\$220
Sea Dragon Marine Debris Sculpture	Weavers of Char-Lee	\$1,000	\$1,000	\$2,000
2019 Great American Cleanup	Keep Charlotte Beautiful	\$500	\$5,018	\$5,518
Wading Bird Survey in North Port	WRA Engineering	\$1,000	\$1,975	\$2,975
	Total	\$12,278	\$18,946	\$39,784

Public Education – Website / Fact Sheets

<https://www.chnep.org/news-resources>

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- Get Involved
- Partner Grants
- News & Resources

News & Resources

The CHNEP is also pleased to offer several resources free of charge. We include a wide variety of publications, grant reports, PowerPoint presentations, reports from conferences and other events, videos and posters.

To find an expert or presenter on the work of the CHNEP and how the program protects Southwest Florida's water and estuarine resources, or for information about the

- Harmful Algae Blooms
- Water Quality Fact Sheets
- Red Tide Fact Sheet
- Technical Comment Letters
- Videos & Presentations
- Publications & Reports

Florida Red Tide (*Karenia brevis*) Impacts and How the National Estuary Programs Can Help

What is the current Florida red tide event?

Florida's current red tide event, a type of harmful algal bloom (HAB), results from the proliferation of *Karenia brevis*, an algal species typically found in low concentrations in off-shore coastal waters.

Karenia brevis can move toward shore and reach bloom concentrations in response to factors that are physical (e.g., tides, currents, and water temperatures), chemical (e.g., nutrients and salinity), and biological (e.g., outcompeting other algal species).

Human activities can exacerbate most harmful algal blooms, including red tides. Habitat degradation and loss, nutrient pollution in runoff from developed landscapes (urban, residential, and agricultural), and other factors may stimulate and worsen HABs.

Florida red tides are known to:

- Produce a toxin (brevetoxin) that can: 1) make people sick; 2) kill fishes, shellfishes, marine mammals, and birds; and 3) make shellfish unsafe to eat.
- Create low-oxygen "dead zones" that worsen already adverse conditions; and
- Hurt local economies through lost commerce, recreation, and tourism.

What is being done to combat harmful algal blooms, including red tides, in Florida and throughout the nation through NEP?

When we invest in America's estuaries through the National Estuary Program, we get cleaner water and thus minimize nutrient pollution that can worsen the frequency, duration, and extent of red tides and other harmful algal blooms in the future. These investments include:

1. **Reducing nutrient pollution entering our waters from all sources:** runoff from urban, suburban, and agricultural landscapes; point-source discharges; G atmospheric deposition on land & water (i.e., air pollution that falls, often in rain, snow, and dusts).
2. **Conserving and creating natural coastal habitats:** like oyster reefs, mangroves, marshes, and freshwater wetlands that remove nutrient pollution and provide other valuable ecosystem services.
3. **Engineering stormwater facilities that mimic the ecosystem services provided by natural habitats:** to remove nutrient pollution from runoff before it can reach our coastal waters.

To learn how the Association of National Estuary Programs assists these efforts, visit anepnational.org

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Public Education -

The Charlotte Harbor Water Atlas

A collection of data, information and educational materials dedicated to the natural resources found within the Charlotte Harbor National Estuary Program.

- 1) On CHNEP.org home page, click on “Learn About Your Waters” button or google “Charlotte Harbor Water Atlas”
- 2) Once on the Atlas, you can go into mapping, analysis and other sections to find tons of data from our region!

GULF OF MEXICO

LEARN ABOUT YOUR WATERS

1994 Landcat™ composed Conservation Commission

Google charlotte harbor water atlas

All News Maps Images Videos More Settings Tools

About 135,000 results (0.47 seconds)

Charlotte Harbor Water Atlas - University of South Florida
chnep.wateratlas.usf.edu/

Helping researchers, resource managers, and the general public better understand and appreciate Florida's water resources.

Charlotte Harbor wateratlas

MAPPING ANALYSIS LEARN PARTICIPATE ABOUT

Pond Watch

WELCOME TO CHARLOTTE HARBOR WATER ATLAS

Helping researchers, resource managers, and the general public better understand and appreciate Florida's water resources.

Popular Resources

Gulf Of Mexico

Cape Coral Canal System

Tidal Caloosahatchee River

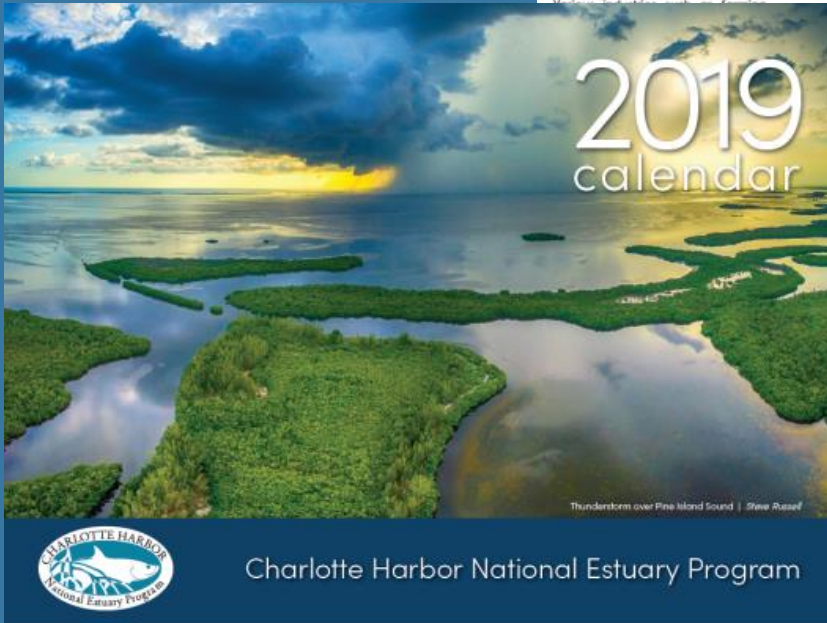
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Public Education –

Harbor Happenings Magazine and Annual Calendar

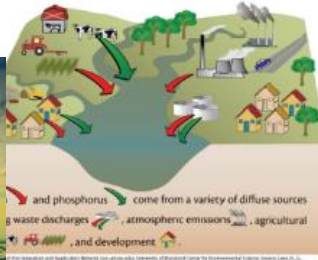
- Designed, printed and sent out 34,000 calendars



Nutrient Pollution: Where Is It All Coming From?

Nutrients, nitrogen and phosphorus, are necessary for healthy rivers, lakes, and estuaries—feeding the plants and animals that inhabit them. However, just as we can get unhealthy and sick from too much food, waterways receiving too much nutrient matter can become unhealthy, contribute to harmful algae blooms (HABs). Often, the excess nutrients are entering from man-made sources and activities through stormwater, wastewater, and industrial runoff.

Industrial Runoff

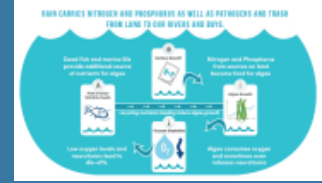


Wastewater Runoff

Human wastewater can also be a source of nutrient pollution. Many wastewater treatment plants, those that do not have advanced treatment standards, do not have enough back-up or storage to hold wastewater during storm events, not have alternate wastewater disposal options, can discharge nutrient wastewater into downstream waterways. Additionally, septic tanks placed in areas such that they are in the ground table or near surface waters, can leak nutrient wastewater into surface water or groundwater that flows to surface waters.

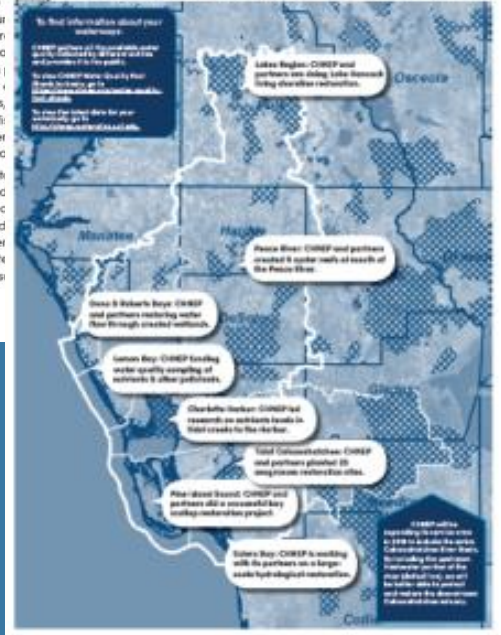
Wastewater Runoff

Runoff from parking lots, lawns, and other surfaces in residential and commercial areas often finds its way into nearby rivers, and eventually into lakes and estuaries. This is called stormwater runoff and can carry nutrient pollutants generated from human activities (ex. uncollected pet waste, fertilizer, etc.).



Charlotte Harbor National Estuary Program Tackling Nutrient Pollution

There are still open nutrient pollution problems throughout the LEEA region. Our program uses three tactics to tackle nutrient pollution in Charlotte Harbor. These tactics are: 1) water quality monitoring, 2) water quality improvement, and 3) water quality protection. Our program uses three tactics to tackle nutrient pollution in Charlotte Harbor. These tactics are: 1) water quality monitoring, 2) water quality improvement, and 3) water quality protection.



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Public Education – Nature Festival



FREE 19th Annual Nature Festival
Saturday November 17, 10 am - 3 pm

WHAT:
Join us for a free day of fun for all ages to learn about our amazing natural environment!

WHERE:
Laisley Park
200 Laisley Court
Punta Gorda, FL

Family Friendly!

- 40+ exhibitors
- Hands-on activities
- Guided nature walks
- Kids' fishing clinic
- Face painting
- Music
- Crafts
- Animals

FOOD! FUN! GAMES!

Thank you to our sponsors!

LEMON BAY CONSERVANCY **WCCU** **WMM**
Punta Gorda **CONSERVATION FOUNDATION of the Gulf Coast** **PEACE RIVER** **Mosaic**

Learn more at CHNEP.org



- 40+ exhibitors and vendors
- Approx. 1,500 attendees
- Next year will be CHNEP's 20th year in hosting this regional event to educate and engage the public on conservation

Thank you to our sponsors!

Punta Gorda FLORIDA **CONSERVATION FOUNDATION of the Gulf Coast** **PEACE RIVER AUDUBON SOCIETY 1977** **LEMON BAY CONSERVANCY ESTABLISHED 1971** **WCCU** **PBS** **npr** **WMM WASTE MANAGEMENT** **Mosaic** **CHARLOTTE HARBOR National Estuary Program**

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Public Engagement – Citizen Science

CHNEP is working with volunteers and partners all through Southwest Florida to restore our estuaries – planting seagrasses and oysters, conducting water quality monitoring, and other projects to bring them back to ecological health!



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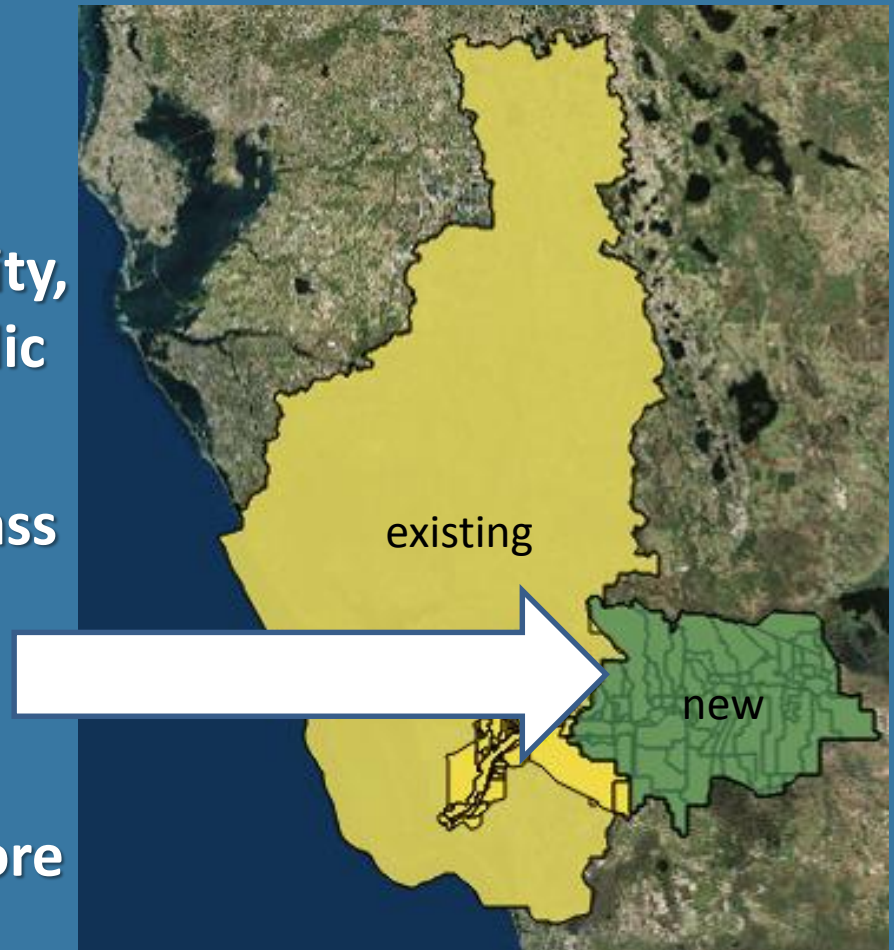
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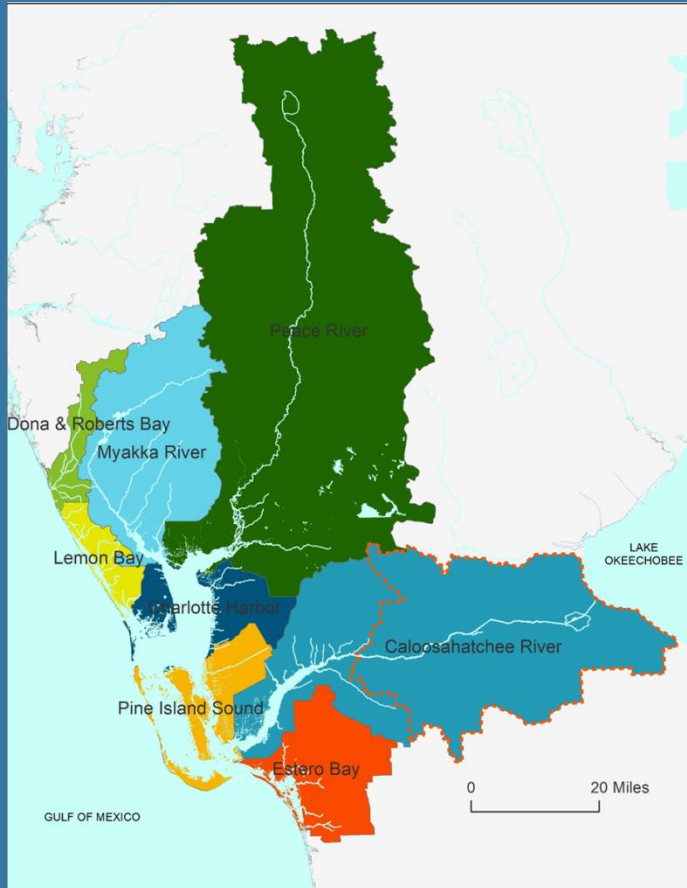


CHNEP Evolving in 2019

- releasing new Comprehensive Conservation and Management Plan, its 5-year strategic plan to improving hydrology, water quality, fish and wildlife habitat and public engagement.
- expanding boundary to encompass whole Caloosahatchee River watershed to Lake O. – adding 2 inland counties (green area)
- modifying CHNEP name to be more inclusive



Staying Engaged to Coordinate Regional Water Restoration Efforts



- CHNEP Policy Committee is comprised of elected leaders from 10 counties, 10+ cities, state, and federal agency leaders
- CHNEP Mngmt. Committee is govt. staff leaders
- CHNEP Citizens Advisory is community leaders
- CHNEP Technical Advisory is technical/scientific leaders

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One Immediate Action to Consider

- All the Regional Planning Councils have adopted the Biosolids Resolution except SWFRPC.
- Having area not represented could inadvertently entice more biosolid disposal in this region.
- Would recommend considering signing SWFRPC passing as well.

Resolutions of Support for Alternative Technologies for Biosolids Processing

▪ Apalachee RPC	Resolution #18-12	dated 9-13-18
▪ Central Florida RPC	Resolution #2018-10A	dated 10-10-18
▪ East Central Florida RPC	Resolution #02-2018	dated 9-19-18
▪ North Central Florida RPC	Resolution #2018-22	dated 12-13-18
▪ Northeast Florida Regional Council	Resolution # 2018-13	dated 10-4-18
▪ South Florida & Treasure Coast RPCs	Resolution #TCSF 18-03	dated 10-12-18
▪ Treasure Coast RPC	Resolution #18-03	dated 7-20-18
▪ West Florida RPC	Resolution #2018-03	dated 9-25-18
▪ City of St. Augustine Commission	Resolution #2018-41	dated 9-24-18
▪ Clean Water Coalition of IRC		
▪ Friends of St. Sebastian River	Letter of Support	dated 9-14-18
▪ Indian River Lagoon Council	Resolution #2019-02	dated 2-8-19
▪ Indian River County BOCC	Resolution #2018-084	dated 9-11-18
▪ Martin County BOCC	Resolution #18-8.15	dated 8-23-18
▪ St. Lucie County BOCC	Resolution #18-148	dated 8-21-18

RESOLUTION #18-12

A RESOLUTION OF THE APALACHEE REGIONAL PLANNING COUNCIL, SUPPORTING COLLABORATION WITH THE FLORIDA REGIONAL COUNCILS ASSOCIATION, FLORIDA ASSOCIATION OF COUNTIES, FLORIDA LEAGUE OF CITIES, FLORIDA SMALL COUNTY COALITION, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES, AND OTHER PARTNERS TO INCREASE AWARENESS OF BIOSOLIDS MANAGEMENT ISSUES IN FLORIDA, PRIORITIZE THE REDUCTION AND EVENTUAL ELIMINATION OF THE LAND APPLICATION OF HUMAN WASTEWATER BIOSOLIDS, AND ESTABLISH A PILOT PROJECTS PROGRAM FOR FUNDING NEW STATE OF THE ART WASTEWATER TECHNOLOGIES TO IMPROVE RECOVERY AND AFFORD MORE EFFICIENT USE OF HUMAN WASTEWATER BIOSOLIDS

WHEREAS, the Apalachee Regional Planning Council's (ARPC) geographical area is comprised of Calhoun, Franklin, Gadsden, Gulf, Jackson, Jefferson, Leon, Liberty and Wakulla counties and the 28 municipalities contained therein; and

WHEREAS, the ARPC is a multi-purpose regional governmental entity with policy responsibility in the areas of affordable housing, economic development, emergency preparedness, energy, regional health, natural resources and regional transportation; and

WHEREAS, it is time to work together as a region and state to increase awareness of current and future biosolids management issues, examine potential water quality impacts from our current practices, and explore new wastewater treatment technologies to improve biosolids resource recovery and management options; and

WHEREAS, the ARPC wishes to collaborate with Florida Regional Councils Association, Florida Association of Counties, Florida League of Cities, Florida Small County Coalition, Florida Department of Environmental Protection, Florida Department of Agriculture and Consumer Services, and other partners to accomplish these objectives and rethink 21st Century human wastewater management practices for Florida.

NOW, THEREFORE, BE IT RESOLVED THE APALACHEE REGIONAL PLANNING COUNCIL ENCOURAGES THAT:

1. The State of Florida and its local governments prioritize the reduction and eventual elimination of the land application of human wastewater biosolids; and
2. The State of Florida establish a Pilot Projects Program for funding local utilities to implement new state of the art wastewater treatment technologies to improve recovery and afford more efficient use of human wastewater biosolids resources.

DULY ADOPTED by the Apalachee Regional Planning Council this 13th of September 2018.

Randy Merritt
Chair

Chris Rietow
Executive Director

Protecting and restoring water resources from Venice to Bonita Springs to Winter Haven



CHNEP BY THE NUMBERS

WATER
SAMPLES ON
WATER ATLAS



670,484,415

RIVERS IN CHNEP
AREA



- ESTERO
- CALOUSAHATCHEE
- PEACE
- MYAKKA • SANBELL
- IMPERIAL • ORANGE

1,776

VOLUNTEER



HOURS

DONATED
SINCE
2017

300,258

OYSTERS GROWING
ON CREATED
OYSTER REEFS
IN PEACE RIVER



931

ENVIRONMENTAL
PROFESSIONALS
RECEIVED SCIENCE
BASED TRAINING
SINCE 2017



119

ORGANIZATIONS
SUPPLYING
WATER QUALITY
DATA TO WATER ATLAS



Charlotte Harbor National Estuary Program
326 West Marion Avenue
Punta Gorda, FL 33950-4417

 CHNEP.org

 /CHNEP1995

 /CHNEP.Florida

84,153

ACRES OF
HABITAT
ACQUIRED OR
RESTORED IN 2018



485

WADING BIRD NESTS COUNTED
IN CHNEP - FUNDED 2018 DRONE
NEST SURVEY
OF LENORE ISLAND
IN CALOUSAHATCHEE RIVER



63,000

HARBOR HAPPENINGS
EDUCATIONAL MAGAZINES IN 2018

\$1⁰⁰ : \$123⁰⁰



FOR EVERY DOLLAR OF
FEDERAL FUNDING
\$123 DOLLARS OF
RESTORATION PROJECTS
ACHIEVED IN 2018

2

SCIENTIFIC
JOURNAL
ARTICLES



CO-AUTHORED BY THE
CHNEP AND PUBLISHED
IN 2018

558

KIDS CHNEP
FUNDED TO GO TO
ENVIRONMENTAL CAMP OR
ON WADING TRIPS IN 2018



240

MICROPLASTIC
WATER SAMPLES
COLLECTED IN 2018

SUPPORT THE CHNEP



CHNEP.ORG

Questions?

Protecting and restoring water resources from Venice to Bonita Springs to Winter Haven

