



HARBOR HAPPENINGS

Working together to protect the natural environment from Venice to Bonita Springs to Winter Haven

Watershed Restoration: Restoring Land and Water Together

Often, the activities occurring up on land are significantly affecting our waterways. Whether it is pollution being carried in stormwater or agricultural runoff, rerouting or blockage of surface water flow, over drainage, or reduction of groundwater recharge, the quality and quantity of freshwater for healthy lakes, rivers, and estuaries are at risk. Read more about how CHNEP is working to reverse these impacts and restore our watersheds.



There are many ways that water flows through the watershed to reach the Gulf



Executive Director Update

Jennifer Hecker

Finding the financial resources to protect our waters can be daunting — as our water resource challenges are great and the restoration projects required to solve them are often very expensive.

That is why we here at the CHNEP go up to Tallahassee and to Washington DC at least once a year to meet with state and federal agency and elected leaders, educating them about the science and consensus-based solutions that our communities have identified for improving water resources. Providing them examples of the results from successfully completed projects, as well as what new projects are still urgently needed, is vital to maintaining strong state and federal funding support for water resource restoration in our region.

One of the funding priorities we supported this year was for the Florida Department of Environmental Protection (FDEP) to receive \$3.6M for coastal resiliency projects. We are pleased to report that this

was provided in the final state budget and as a result, the CHNEP will be applying for funding to assist our communities with adaptation planning, as well as working with the FDEP to host resiliency workshops to support communities in our region.

We are also fortunate this year that in spite of the federal administration proposing to eliminate the National Estuary Program (NEP), that Congress continued to provide full federal funding in the recently passed Omnibus federal budget — reflecting that they value the NEP and the approach that we take in leveraging federal dollars with other sources to have a more significant impact. Please take a moment to reach out to your federal legislative representatives and thank them for their support of the National Estuary Program in protecting our waters!

As for pursuing other sources of funding, we have recently added a staff position in order to dedicate more time to seeking grants for the projects that we and our partners want to undertake. We are already starting to see some results, with a recently awarded grant from a new funding source to do an environmental educational project (see next page).

There are no silver bullets or easy quick fixes for the large complex problems we are trying to solve. One thing is for sure though; to continue to make progress, we are going to need to make more financial investments. Bringing the influential stakeholders in our region together, to work collaboratively and speak with one voice as we strive to do, increases the opportunities in getting the additional financial support needed.

Thank you for your continued support of the Charlotte Harbor National Estuary Program and all you do to protect our waters,

A handwritten signature in blue ink that reads "Jennifer Hecker". The signature is fluid and cursive, written in a professional style.



CHNEP presentation on Disaster Response and Recovery to the US EPA, FEMA, USFWS, and other federal agency leaders in Washington DC.



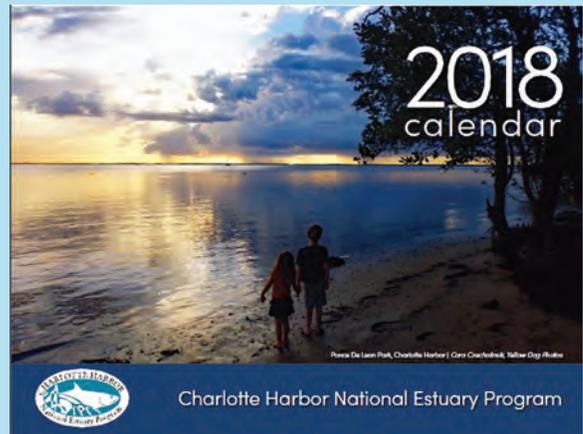
April

CHNEP Volunteer Monthly Event

Come join us to learn about, and help statewide tracking of our amazing horseshoe crabs!

Saturday April 28th, 9:30—11:30 am
Cedar Point Environmental Center
2300 Placida Road
Englewood, Florida 34224

To learn more and sign up, go to <https://www.chnep.org/monthly-volunteer-events>

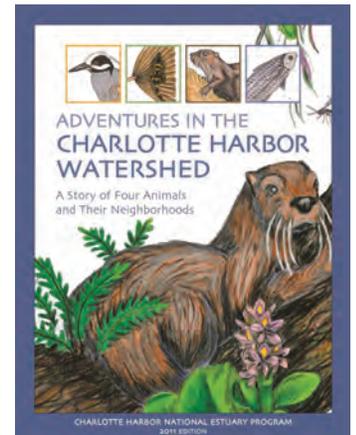


2019 Calendar Photo Contest Now Underway

If you would like to submit a photo for consideration to be included in CHNEP's 2019 annual calendar, please go to <https://www.chnep.org/calendars> for more information. Entries due July 1st, so feel free to gather your favorite nature photos from anywhere in the CHNEP area and send them in today!

New Interactive Children's E-Book

The CHNEP applied and has been awarded its first Charlotte County Marine Advisory Committee grant for \$5,000. These funds will be used to convert our existing Adventures in the Charlotte Harbor Watershed book into a new interactive e-book, which we will make available online for all to access and use. Since this book was originally written in 2008, we have made hardcopies available to thousands of students and hundreds of teachers to enable our youth to learn about the natural environment they live in. Now, we will be using this grant to revise the book to become an electronic module that supports STEM (Science Technology Engineering and Mathematics) educational requirements.



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Harbor Happenings, Spring 2018: Volume 22, Issue 2

External Contributor: Carla Kappmeyer-Sherwin, Highlands Hammock State Park

CHNEP publishes this free educational magazine. Photographs and story ideas are welcome. Sign up for a free subscription on our website — www.CHNEP.org

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Watershed Restoration 101

What is a Watershed?

A watershed is the area of land that contributes runoff or drains to a lake, river, stream, wetland, estuary or bay.

Wetlands often serve as a link between land and water. These shallow inundated areas are transition zones where the flow of water, the cycling of nutrients, and the energy of the sun meet to produce a unique ecosystem characterized by hydrology, soils, and vegetation, making these areas very important features of a watershed.

Since most of the problems in our estuaries and coastal waters stem from changes in quality, quantity, timing and distribution of water moving above and underground in the watershed, improving their condition requires watershed restoration.

What is Watershed Restoration?

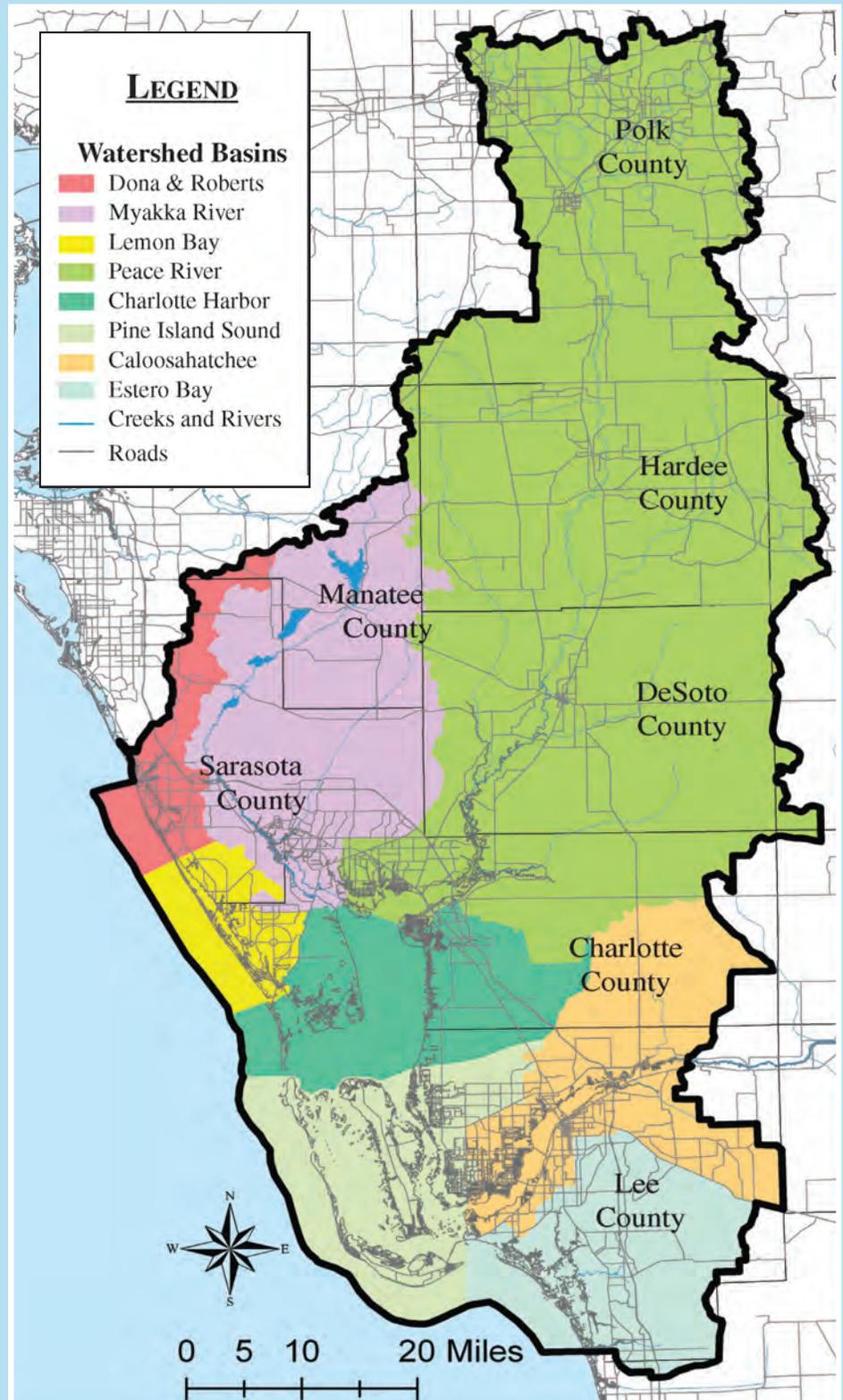
Watershed restoration involves getting the water right—the right amount and quality of water to the right places at the right time to support both natural systems and human water management / supply needs.

Rather than identifying and protecting individual water resources, a watershed approach involves developing a framework for management of multiple waterbodies over an area defined by drainage rather than political or land ownership boundaries.

Watershed plans outline what changes in water quality and hydrology (where water moves) are needed to improve water management. Ideally, they result

from implementation of the watershed approach and balance human and environmental needs.

The watersheds in the CHNEP Area (black outline) are depicted below.



Charlotte Harbor Flatwoods Initiative

The Charlotte Harbor Flatwoods Initiative is a watershed restoration project to move water that has been artificially impounded in the Cecil M. Webb Wildlife Management Area in Charlotte County, and move it to areas with too little freshwater flow including the tidal creeks to Charlotte Harbor in Charlotte County as well as Yucca Pens Unit State Wildlife Management Area and the canals in Cape Coral, Lee County. In addition to the CHNEP, this Initiative includes numerous state and federal agencies, two counties and a city, as well as other entities.

Currently, there needs to be additional groundwater and surface water monitoring as well as ecological and hydrological modeling — to determine how much water is needed for the downstream natural systems and the balance available for human supply.

The CHNEP is supporting this project primarily through preparing and submitting funding applications, recently applying for a US Fish & Wildlife Service Southeast Region Coastal Program Implementation Strategy Grant. We are hopeful that this grant application for \$150,000 will be funded, so we can move this important restoration project forward.

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

LeHigh Headwaters Initiative

Harns Marsh, a watershed restoration project in LeHigh Acres, is definitely worth the visit!

The LeHigh Headwaters Initiative is a watershed restoration project to restore more natural flows in an approximately 100,000 acre area that includes the upper headwaters for the Caloosahatchee River, Orange River, Hickey's Creek, Bedman Creek, and Estero River in Lee County. This initiative also includes numerous other entities including state and federal agencies, in addition to the CHNEP.



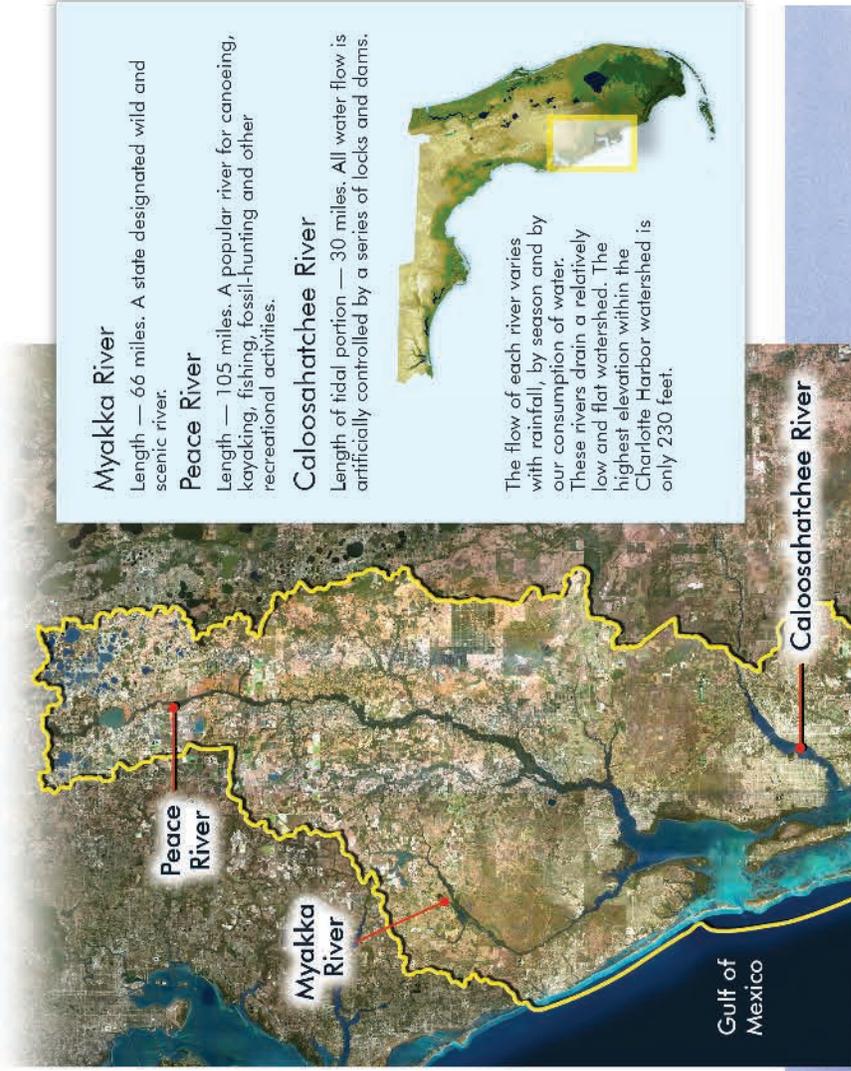
Currently, the watershed restoration plan (with identified projects) has already been developed and is now being implemented. These projects are designed to reduce flooding of downstream tributaries receiving excessive runoff, increase freshwater storage, improve water quality and restore downstream flows to waters needing additional freshwater. One of these projects is Harns Marsh, a 578-acre former farm that is now a large created wetland which captures and treats stormwater, and which is excellent for recreation and birdwatching. The CHNEP continues to support this important watershed restoration effort.

The Charlotte Harbor Watershed

The Charlotte Harbor watershed covers a land area of 4,700 square miles in portions of seven counties. Approximately 1.34 million people live within its boundaries. Throughout this living space, water flows in sheets over the land, seeps underground through sandy soil, trickles into streams, rushes through man-made ditches and is carried by three major rivers into the Charlotte Harbor estuary.

What is a watershed?

A watershed is an area of land that water flows across as it moves toward a common body of water, such as a stream, river, lake or estuary. Watershed boundaries in southwest Florida are not distinct. They vary depending on locations and intensity of storms. For example, Lake Trafford is sometimes in the Estero Bay watershed. All living things within a watershed share the water within it and are inextricably linked by a common drainage. As part of this system, humans have both a great need for water and a unique capacity to purposefully and inadvertently alter its course and quality.



Myakka River

Length — 66 miles. A state designated wild and scenic river.

Peace River

Length — 105 miles. A popular river for canoeing, kayaking, fishing, fossil-hunting and other recreational activities.

Caloosahatchee River

Length of tidal portion — 30 miles. All water flow is artificially controlled by a series of locks and dams.



The flow of each river varies with rainfall, by season and by our consumption of water. These rivers drain a relatively low and flat watershed. The highest elevation within the Charlotte Harbor watershed is only 230 feet.



Water flows



in many ways across the watershed to reach our estuaries, then the Gulf of Mexico

4

3

Natural features that are modified by man:

1 Rivers, Streams and Lakes
Before humans altered the landscape, rainwater flowed from tiny streams into larger rivers and lakes. Now, much of that water flows within artificial ditches and large canals.

2 Sheetflow
During heavy rains, water flows in broad sheets over flat ground. This flow transports pollutants, makes seemingly dry ground into temporary streams and directly connects uplands to the sea.

3 Groundwater Flow
Water flows underground through sandy soil and porous limestone. This water supplies tributaries and shallow wells. It also carries septic tank effluent, lawn fertilizer and other pollutants.

4 Wetlands
These water-holding areas filter out pollutants that would reach rivers and estuaries, and they allow water to percolate into the ground. Wetlands are also habitats for diverse plant and animal species.

5 Reservoirs and Lakes
Artificial lakes store water by blocking or diverting the flow of waterways. This water storage controls flooding and provides water for household use and agriculture. Lakes are also dug to mine phosphate and gravel.

6 Roads, Ditches and Canals
Roads are raised surfaces that act like dams to interrupt sheetflow. Ditches lining roads permit fast, direct flow without time for the water to seep underground or for pollutants to be filtered.

7 Stormwater Ponds
These ponds are dug to retain water and to detain water during heavy flow. Artificial ponds store water like a wetland, but they require maintenance and lack diverse plant and wildlife habitat.

Man-made additions that affect water flow:

Just add water...

Water drives the ecological system we fit into, our economic activity and the quality of life we enjoy. These functions rely not just on some water, but on sufficient water of good quality delivered at the right time. We use water flowing over our watershed to drink, irrigate and wash away waste. To supply ourselves with just enough water—but not too much—we've engineered a complex plumbing system for our watershed. Within this system, a balance is needed to provide flows and levels that are required for the living things that share our neighborhood and make us want to live here.



Sharing water is vital. Water provides for the living things in our neighborhood, which in turn provide economic value and enhance our quality of life. Wetland forests, clean rivers, wading birds and abundant healthy fish populations contribute significantly to our overall happiness.

The Aquifer System

Our aquifer is recharged by surface water, as long as the water is not forced to rush across our watershed. The aquifer that supplies us with clean drinking water is made of porous limestone, which soaks up water like a rocky sponge. Our aquifer water levels are falling, which means we are using more water than we are allowing to recharge.



1. Sandy soils allow water recharge
2. Impermeable soils seal off groundwater
3. Porous limestone holds water
4. Wells extract water

How to help

Reduce your use — irrigation. Use native landscape plants that require little or no additional water. Collect water in rain barrels for watering plants.
Reduce your use — household. Install water-conserving faucets, showerheads, toilets and washing machines.
Reduce your use — electricity. One kilowatt hour takes 42 gallons of water to produce. Use less.
Support businesses that voluntarily conserve water through programs such as Florida Water Star.



A partnership working to protect the natural environment of Florida from Venice to Bonita Springs to Winter Haven.

www.CHNEP.org

2018 Conservation Lands Workshop: Thinking BIG with Landscape-level Conservation

The Charlotte Harbor National Estuary Program recently hosted a Conservation Lands Workshop, which over 80 participants from all over Southwest Florida attended. This year's workshop included presenters from government, environmental non-profits as well as private landowners. In addition to the informative presentations, there were interactive exercises where participants evaluated climate factors, assessing their likelihood and level of risk to established conservation objectives. A free showing of "The Forgotten Coast" followed, which members of the public and their children attended as well. We thank everyone who supported or attended this special event!

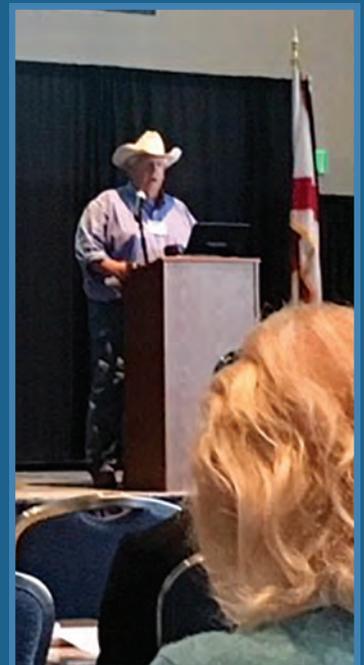
Check the calendar at chnep.org for other exciting upcoming events.

A SPECIAL THANKS TO OUR WORKSHOP SPONSORS!

- ◆ US Environmental Protection Agency
- ◆ Charlotte County
- ◆ Mosaic
- ◆ Environmental Science Associates



Workshop participants break into work groups to evaluate future risks to achieving joint conservation objectives, providing valuable public input into the updating of the regional Comprehensive Conservation & Management Plan.



Rancher Jim Strickland speaking about private land conservation efforts.

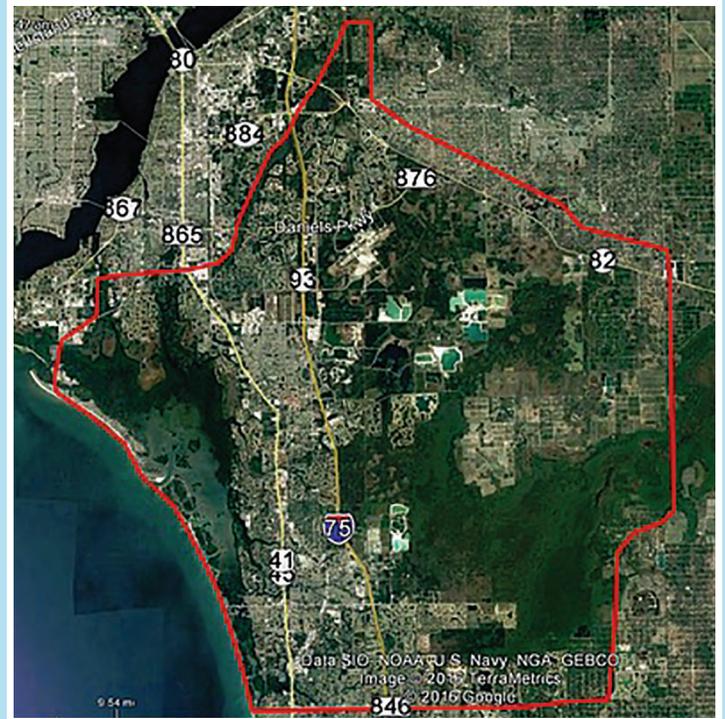


Participants hear presentations from state-wide water and land conservation leaders at the 2018 CHNEP Conservation Lands Workshop.

South Lee County Watershed Initiative

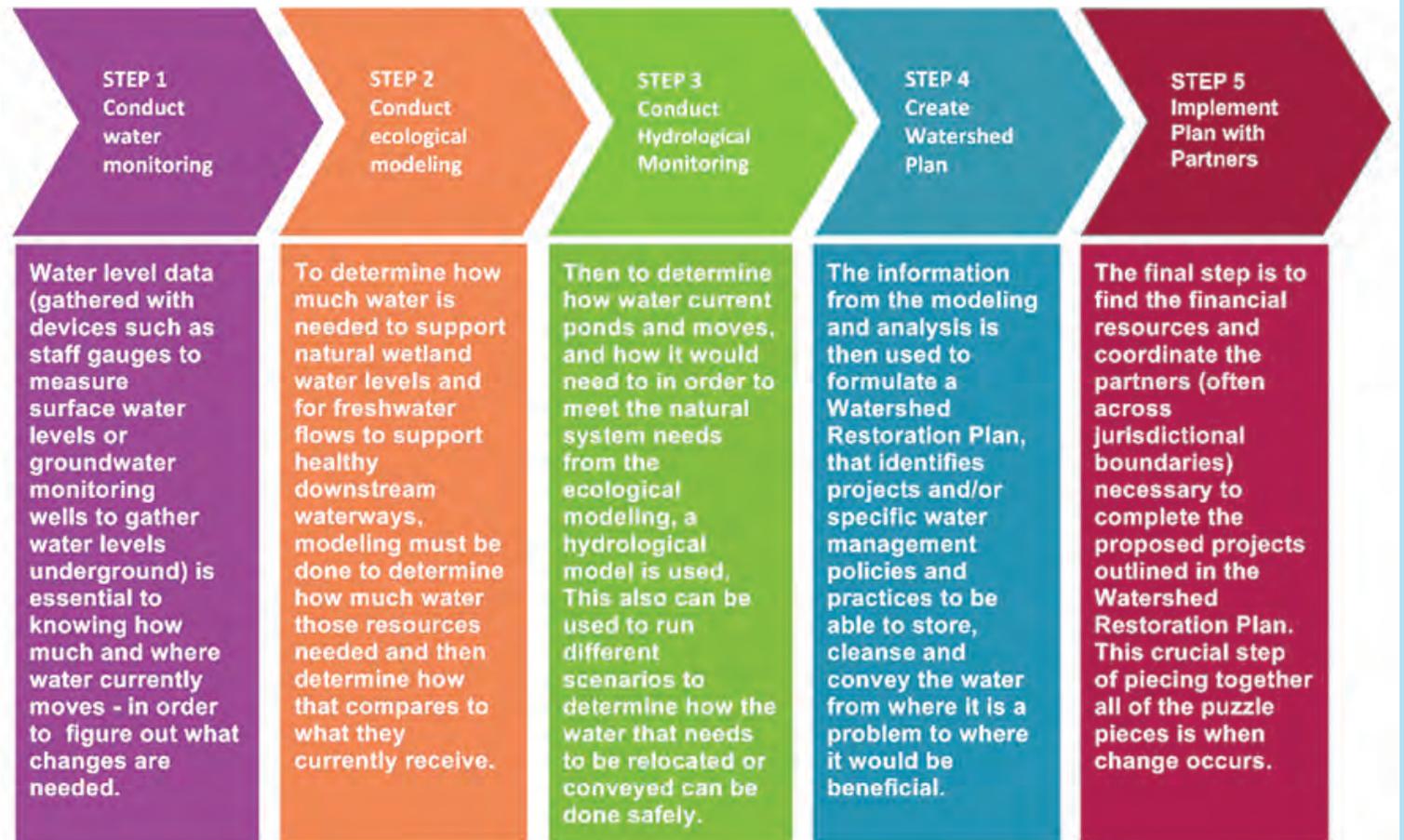
Watershed restoration is more than getting the water right for improving environmental health, its also imperative for protecting our communities — in reducing flooding and protecting public water supply sources. In the case of Hurricane Irma, South Lee County communities were some of the hardest hit. Extensive severe flooding in Estero and Bonita Springs forced people out of their homes and even flooded some evacuation routes.

The South Lee County Watershed Initiative is a watershed restoration effort to restore flowways and tidal creeks that flow into Estero Bay in southern Lee County— increasing water supply and reducing future flooding. CHNEP has been facilitating the stakeholder meetings and working to obtain funding for the monitoring and modeling needed to create a regional watershed plan for this area, working closely with many other state and federal agencies, environmental non-profit organizations, as well as Lee County, the Village of Estero and the City of Bonita Springs.



The South Lee County Watershed Initiative restoration area.

The Watershed Planning Process



Florida Forecast: The Need for a Blue Water Ethic and Re-examining Rain

Contributor: Carla Kappmeyer-Sherwin, Highlands Hammock State Park

Bordered on three sides by the waters of the Atlantic Ocean and the Gulf of Mexico, with expansive coastlines of beaches and backwater estuaries and an interior of rivers, streams, lakes, and springs, water defines Florida. Prior to World War II, Florida was the smallest state in the South. Today, Florida is a Sunbelt megastate, now our third most populous. As growth continues and the demands on Florida's water resources multiply to meet municipal, industrial and agricultural needs as well as sustaining so many abundant and diverse ecosystems, sound management from government agencies, stakeholders and citizen advocacy is vital. The advocacy focus depends on where one is in the peninsula. Concerns range from the hydrological alteration of wetlands in Southwest Florida to the groundwater withdrawals and algal blooms impacting springs in North Florida.

Florida journalist and author Cynthia Barnett, inspired by the nature and weather of her home state, has thoroughly researched water crises and conservation practices in Florida, the Western states, and all around the globe. She has taken on the challenge of summoning all citizens to adopt a "water ethic" that would have us value and conserve water. Barnett is the author of *Mirage: Florida and the Vanishing Water of the Eastern U.S.* and *Blue Revolution: Unmaking America's Water Crisis*.

In her most recent book, *Rain: A Natural and Cultural History*, which was one of ten contenders for the 2015 National Book Award for Nonfiction, she unleashes a deluge on rain - from primeval times to its key roles in civilization, religion, and art. This water expert also explains the science of the true shape of a raindrop, rainbows, and the mysteries of frog rains together with human efforts to control rain from ancient rain dances to the 2000 plus miles of levees on the Mississippi River. In the wake of Hurricane Irma, she trains her focus on hurricanes and the increasing violent storm events of the past two decades.



Jennifer Adler

Barnett, who has a bachelor's degree in journalism and a master's in American history, is an Environmental Fellow the Bob Graham Center for Public Service.

Barnett who teaches environmental journalism and nature and adventure writing at the University of Florida, has loved rain since childhood. "I feel oppressed by too sunny a day. I like to have a little drama in the weather." says Barnett. Rain, she believes, is truly "as profound as prayer and art, as practical as economics, and as genuine as an exchange between strangers on a stormy day." Her work recognizes that water connects us in all sorts of ways.



Cynthia Barnett's programs are sponsored by the Florida Humanities Council with funds from the Florida Division of Cultural Affairs and the Florida Council on Arts and Culture.

For information about booking her for a lecture on *Rain*, visit <https://floridahumanities.org/rain>.

Get Involved



Have Fun while Doing Good at Our Monthly Volunteer Events!

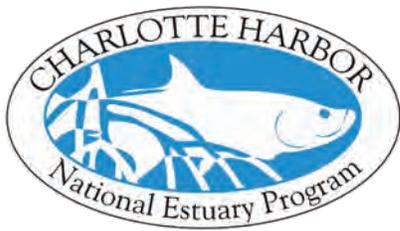
CHNEP has kicked off its free fun monthly volunteer events. February proved to be a great time to get out on kayaks to paddle Alligator Creek, while picking up marine debris that was polluting its waters and spoiling its scenic views. In March to celebrate World Water Day, CHNEP volunteers gathered to learn about local water quality issues as well as how to sample waterways with field kits. Once trained, the volunteers conducted sampling in Punta Gorda and took kits home to sample their waterways and report their results online.

April is all about horseshoe crabs, with us learning their surprising value to human health, as well as their role in the environment. We will train participants how they can help a statewide tracking efforts, so we can better protect this special creature.

We would love to have you join us! To sign up, go to <https://www.chnep.org/get-involved> and you will be added to our volunteer list to be notified of upcoming volunteer opportunities and events. Please also refer to that webpage for the exact dates and times of these events.

CHNEP Research and Outreach Coordinator Sierra Strickland leads volunteers in April on a Canoe/Kayak Clean-up of Alligator Creek (top photo), and then in March, in a water quality sampling training event (photos below).





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CONSERVING OUR OCEAN AND COASTS

COMMUNITIES

Responsible development protects lives and property by adapting to a changing climate.

PROTECT AREAS

Protecting special places and keeping coastal areas open to the public supports tourism, recreation, and our economy.

CORAL REEFS

Research and conservation helps sustain this source of food, medicine, and protection from coastal storms.

WATER QUALITY

Safeguarding coastal water quality protects human and environmental health, and keeps seafood safe.

HISTORIC SITES

Preservation connects us to our heritage and culture.

ESTUARIES & WETLANDS

Long-term stewardship helps to protect critical species, fight pollution, and restore habitat.