On a Roll: Increasing Charlotte Harbor’s seagrass coverage for the 8th year in a row!

Did you know seagrasses are an important indicator of a bay’s health? You might think they would grow anywhere, but they actually require relatively clean water to flourish. Their sensitivity to changes in water clarity and quality make them an excellent yardstick for measuring Charlotte Harbor’s health. Recently, scientists with the Southwest Florida Water Management District’s “Surface Water Improvement and Management Program” (SWIM) announced a nearly 2 percent increase in our seagrass coverage. Great news! Check out page 4 to learn more about our 8 year streak.
An Update from Our New CHNEP Executive Director

Jennifer Hecker

The first months here have flown by, with my jumping into my new role both figuratively and literally. Ever since joining the organization last Fall, I’ve been knee deep in Charlotte Harbor helping with our Volunteer Oyster Habitat restoration and monitoring projects, meeting with partners in Southwest Florida and in New Orleans at the Association of National Estuary Programs meeting and Restore America’s Estuaries conference, as well as diving into numerous other things.

My new role at CHNEP feels like a natural progression in my lifelong pursuit to protect our exceptional natural environment and quality of life in Southwest Florida.

Already, I can see the important role CHNEP plays and the potential we have to be an even stronger unifying force for bringing communities and stakeholders in our region closer together. This was evident at the recent CHNEP Watershed Summit where numerous scientists presented and shared information with each other and attendees on the latest research relating to water and wildlife in our region. I’m passionate about strengthening our partnerships because collaborating to advance a common set of priorities can help us garner more state and federal resources to protect and restore critical resources.

It’s inspiring to see how sharing our collective knowledge is assisting with identifying gaps and preventing redundancy, increasing our efficiency and results. Partnering to pursue and share resources is also allowing us to leverage limited dollars to get even more projects completed than ever before.

That is the power of partnerships — because sometimes the whole truly is greater than the sum of the parts. With so many potential partners from Venice to Bonita Springs to Winter Haven, we can have incredible influence and impact together. I look forward to working with you — our partners — and can’t wait to see how much we can collectively do this coming year!

Thank you for your continued support and engagement in the CHNEP.

Jennifer Hecker

After nearly 13 years working as a professional advocate and lobbyist for the Conservancy of Southwest Florida, I find I am working on many of the same issues in my new role — just from a different angle. In my prior position as the Director of Natural Resource Policy there, I focused heavily on water resources and Everglades issues, as well as other natural resource policy and legislative issues.

Prior to that, I worked as a scientist for the private sector and the government in Naples and Tampa.
Our 7th Charlotte Harbor Watershed Summit: Showcasing Our Accomplishments

Our Charlotte Harbor Watershed Summit in March was an incredible success with over 50 scientists presenting and 160 attendees! This event focused on the latest research and restoration efforts affecting the Charlotte Harbor watershed. Every three to five years, we host the Charlotte Harbor Watershed Summit to share the latest findings, to network, and to discuss critical environmental issues affecting the watershed.

This year’s Summit, Showcasing Our Accomplishments, featured sessions on New Tools and Monitoring and Assessment of Water Quality and Quantity, as well a number of presentations on Habitat and Living Resources including plants, fish, reptiles, invertebrates, shellfish and stewardship topics. To see the presentations, go to https://www.chnep.org/watershed-summit.

Our remarkable sponsors made the 2017 Watershed Summit happen: Thank you!

**Summit sponsors ($2,000)**
- U.S. Environmental Protection Agency Gulf of Mexico Program
- Mote Marine Laboratory

**Session sponsors ($1,000)**
- Mosaic
- Southwest Florida Water Management District
- Charlotte Harbor Event and Conference Center
- Florida Fish and Wildlife Conservation Commission
- Friends of Charlotte Harbor Estuary, Inc.

**Additional sponsor support provided by:**
- Additional sponsor support was provided by Florida Gulf Coast University’s College of Arts and Sciences and U.A. Whitaker College of Engineering
- Science and Environmental Council of Southwest Florida
- Linda Elligott
- Estero Bay Buddies

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Harbor Happenings, Spring 2017: Volume 21, Issue 1

The CHNEP publishes this free magazine to provide updates about environmental news in the CHNEP study area. News items, photographs and letters are welcome and may be submitted to the editor by mail or email. The magazine is typically distributed quarterly. Free subscription by signing up online on our website.

Editor: Jennifer Hecker, jennifer@chnep.org
Contributors: Bob Howard, Gary Hubbard, Carol McCardle, Doug MacGregor, Kharli Rose, Jeff Spence
The Charlotte Harbor National Estuary Program (CHNEP) has been working to improve conditions for seagrasses and other aquatic life in Charlotte since its 1995 inception. Recently, scientists with the Southwest Florida Water Management District’s Surface Water Improvement and Management (SWIM) Program released the results of the 2016 seagrass mapping study showing a nearly 2% increase in seagrass coverage in Charlotte Harbor.

Charlotte Harbor is Florida’s second largest open water estuary, and provides some of the most productive estuarine ecosystems in southwest Florida. This is the 4th consecutive survey to show increases for the system from 2008 values. The new results show Charlotte Harbor gained 384 acres of seagrass between 2014 and 2016. The area now collectively supports 20,279.67 acres of seagrass beds, the largest amount of seagrass measured since 1996. Seagrass acreage in Charlotte Harbor has remained around 18,000 acres since 2000, making 2016 estimates another significant gain towards the protection and recovery of seagrass in the system. Documenting seagrass acreage and how it changes over time is a valuable tool for scientists across the state of Florida. Seagrasses are an important indicator of a bay’s health because they require relatively clean water to flourish, thus they are sensitive to changes in water clarity and quality. Seagrass generally grows in waters less than six feet deep, but in the clear waters around Boca Grande Pass it can be found in water 8 to 10 feet deep.

The District began its formal seagrass mapping program in 1988. As part of the program, SWIM scientists assess seagrass in five Gulf coast estuaries. Every two years, maps are produced from aerial photographs and then verified for accuracy by conducting field surveys. The mapping effort required nearly 10 days of field work on the water to verify seagrass presence at hundreds of locations throughout the harbor. The results are used to track trends in seagrass and to evaluate ongoing water quality improvement efforts. A worthy cause with exciting results!
It’s now even easier to stay in the loop with us.

Check Out Our Redesigned CHNEP.org Website!
We’re pleased to share that our revamped website (see a glimpse at left) launched in February. We think you’ll find it easier than ever to find the information you need and want, Here’s a peek at what’s new:

1. Engaging new format
   Interactive new format helps visitors easily learn about our work.

2. Revamped tab navigation
   Links to CHNEP’s Water Atlas, key reports, newsletters and more.

3. Clear view of the area we impact
   A simple view of our total study area and how we support it.

See You There!
Check Our Calendar for Upcoming Public CHNEP Events.

TO REGISTER AND LEARN MORE:
Go to https://www.chnep.org/events, click on the “Get Involved” tab in the top navigation bar and then choose “CHNEP Events Calendar.” Also, check out www.EventBrite.com, search for CHNEP and be sure to change the location to Florida.
In 2016, the Florida Fish & Wildlife Conservation Commission (FWC) conducted a statewide effort to conserve Florida’s most vulnerable wildlife by creating and modifying Critical Wildlife Areas (CWAs) throughout the state. CWAs are established by the FWC to protect important wildlife concentrations from human disturbance during critical periods of their life cycles, such as nesting or migration. In November 2016, the FWC approved 13 new areas and re-established 5 existing areas, including some in the CHNEP study area.

The two CWAs already in place in the CHNEP study area were Myakka River and Little Estero Island. Myakka River was re-established. The CWAs recently added within the CHNEP study area are Roberts Bay, 3 in Pine Island Sound (Broken Islands, Useppa Oyster Bar, and Hemp Key) and 3 in Estero Bay (Matanzas Pass Island, Big Carlos Pass, and Coconut Point East).

These CWAs are important for protecting wildlife, including bird nesting areas. Landowners must support the CWA designation before a site can be considered for establishment. The boundary of a CWA may be larger than the posted area since the areas suitable for wildlife may shift each year.

FWC reviews of Florida bird species in 2010 revealed that many were in decline, so this action is important for protecting, restoring and enhancing critical wildlife habitat – an objective in the CHNEP’s Comprehensive Conservation and Management Plan.

To learn more, please visit http://myfwc.com/conservation/terrestrial/cwa/.

Follow us on Tumblr!
Sign up to see CHNEP’s weekly messages on Tumblr featuring amazing photos of the natural environment in southwest Florida. The photos were submitted to the CHNEP for its calendars. Each message includes an introduction to the landscape, plant or animal featured that week. It’s easy. Go to www.tumblr.com, set up your account, search for CHNEP and select “follow.”
Preserving Our Waters: Documenting 50 Years of Protecting Estero Bay

What better way to learn about the 50-year history of the Estero Bay Aquatic Preserve than a beautifully made documentary? The Preserving our Waters documentary, produced by WGCU Public Media, takes a look at the preserve and the people behind the efforts to establish it as the first estuarine preserve in Florida. The 30-min film explores how these actions were the blueprint for the Florida Aquatic Preserve Act of 1975 and the statewide aquaculture system. The documentary also addresses the state of the preserve’s water quality today and the groups who are working to continue its preservation in increasingly challenging times.

Produced for WGCU Public Media by award-winning producer Tom James, the film examines the delicate balance between development and maintaining the integrity of an estuary. The CHNEP was pleased to sponsor this documentary, which was also funded in part by the Florida Humanities Council and the Florida Humanities Council National Endowment for the Arts.

To watch the video and learn about other projects on Estero Bay, visit: http://www.wgcu.org/waters/

Estero Bay:
Florida’s First Aquatic Preserve

More than 188,000 acres of submerged land resources are designated as six Florida aquatic preserves to be “preserved in essentially natural conditions for future generations to enjoy.” They are known as Lemon Bay, Gasparilla Sound/Charlotte Harbor, Cape Haze, Pine Island Sound, Matlacha Pass and Estero Bay. The adjacent Charlotte Harbor and Estero Bay preserve state parks (about 56,000 acres) are a buffer between human uses of the watershed and natural resources in the estuaries, with 84% of the shoreline from the mouth of the Caloosahatchee River north to Placida.
Mangroves stabilize our coastline, reducing erosion from storm surges, currents and tides.

The roots slow the movement of tidal waters, causing sediments to build up the muddy bottom.

Their roots are important to algae, fish and other organisms seeking food and shelter.

Mangrove Swamps: Supporting Florida’s Amazing Eco-Productivity

Contributor: Kharli Rose

Red, black, white and buttonwood: Florida’s fabulous mangroves! The CHNEP is helping to facilitate is the restoration and preservation of our critical mangrove forests, recently finalizing a landmark study which can more readily identify stressed mangroves to aid resource managers in protecting them. Protection is vital to the health of our bays and fisheries. These uniquely individual plants create dense forests in flat coastal areas along saline or brackish portions of rivers, the edges of low-energy estuaries and the seaward fringes of salt marshes and rockland hammocks. Their roots serve as nurseries for juvenile fish and other aquatic life to grow and thrive.

How they grow
Mangroves can live in mixed strands, but this arrangement depends on their tolerance for tidal impacts, salt levels and types of soil.

- **Red mangroves** often dominate the lowest (or deep-water) zone. They can be easily identified by their tall, red prop roots that make them look like they are walking on water.
- **Black mangroves** are typically found in the intermediate zone with their extensive pneumatophores (aerial roots) that stick up toward the sky.
- **White mangroves** are often found in the highest, least tidally-influenced zone.
- **Buttonwood** is not a true mangrove plant but belongs to this rich swamp system.

All three mangroves have a remarkable method of propagation. Seeds sprout while still on the trees and drop into the soft bottom around the base of the trees or into the water. Transported by currents and tides, a small group of propagules can create a large, hearty swamp.

How they work to keep our waters healthy
Have we already mentioned that mangroves are amazing? They truly are! The magnificent roots of mangroves naturally trap sediments, organic litter and recycle nutrients. This includes filtering upland runoff to improve water quality and clarity.

These processes, along with the continuous shedding of mangrove leaves and other plant components, produce as much as 80% of the total organic material available in the aquatic food web. They also lock away carbon at up to five times the rate of tropical forests! This is why mangrove swamps have been called the most productive forests in the world. Their nursery grounds support invertebrates and fish below, while winged predators nest in rookeries above. Their stabilization of the land and buffering of storm wind and surges protects people living along Florida’s coasts. These are just some of the miraculous benefits of mangroves!
Seagrass Grant Awarded from the Florida Department Environmental Protection

In case you’re still in doubt, those of us at CHNEP think *seagrasses are pretty important*. Many organisms in our local ecosystems depend on the successful growth of seagrasses in our waters, as you saw in our lead article about seagrass growth in Charlotte Harbor. This is one of the reasons we’re also focusing efforts to regrow seagrass areas in the Caloosahatchee River.

Grant money jump starts our efforts.

With a partner-matched grant of $15,000 from the Florida Department of Environmental Protection, we are starting to grow and monitor seagrasses in the tidal Caloosahatchee — in protective cages designed especially for the job.

Through our Citizen Seagrass Gardening project, the grant money will be used to grow seagrasses in cages (see photos on this page) from nursery stock to establish seed-source colonies for restoration.

- The seed-source colonies will be created at 6 locations — 3 sites on the north side of the river, 3 on the south side
- We’ll plant Tape Grass and Ruffia shoots and protect them from herbivory with the mesh enclosures shown here
- At each site, we’ll install 5 herbivore exclusion cages (available from Sea and Shoreline as GrowSAV)
- Citizen volunteers, recruited by Calusa Waterkeeper, will perform the “seagrass gardening,” and the Florida Gulf Coast University Environmental Studies Department will assist in recruiting students to help with ongoing monitoring of the sites
- Gardening and monitoring work will continue while the exclusion cages are in place (for 2 years)

Thanks again to the Florida Department of Environmental Protection’s Coastal Management Program! Without your support and the matching funds from our partners, important projects like this might never happen!
Fun Times were had by all at the 2016 Charlotte Harbor Nature Festival!

Thanks for helping make our 2016 Charlotte Harbor Nature Festival a great success! The festival, an annual event since 2002 to assist residents and visitors in learning about the natural environment of central and southwest Florida, was led by CHNEP and a diverse group of dedicated volunteers.

A BIG thanks to the following Nature Festival sponsors:

**Eagle ($2,500+)**
Charlotte Harbor National Estuary Program
* Charlotte County Community Services * Mosaic
* Tents & Events

**Florida Panther ($1,000+)**
Charlotte Sun * Fish Florida * WGCU Public Media

**Osprey ($500+)**
City of Punta Gorda * Friends of Charlotte Harbor Estuary * Lemon Bay Conservancy * Mote Marine Laboratory * Peace River Audubon Society

**Sea Turtle ($250+)**
Coastal Wildlife Club * Conservation Foundation of the Gulf Coast
* Punta Gorda-Port Charlotte-North Port Association of Realtors

**Dolphin ($100+)**
Charlotte Punta Gorda/Englewood Beach Visitor & Convention Bureau
* Charlotte County Utilities * Linda Soderquist * Maximized Living * Waste Management

Save the Date
Our 2017 Nature Festival is November 18, 2017, at the Charlotte County Sports Park.
Public Outreach Grants Help Raise Awareness

The Charlotte Harbor National Estuary Program (CHNEP) offers grants to help its partners protect the environment and solve issues of concern as identified in CHNEP’s Comprehensive Conservation and Management Plan (CCMP), a plan to protect and restore the water resources of Florida from Venice to Bonita Springs to Winter Haven. These grants are offered to further partnerships to protect and restore the greater Charlotte Harbor estuarine system and watershed from Venice to Bonita Springs to Winter Haven. Seven projects were awarded CHNEP Public Outreach Grants this past year and since 2000, 189 projects have been funded.

The CHNEP offers Public Outreach Grants (up to $5,000) once a year. Applications have been due the first Wednesday in September. Each year since 2002, the CHNEP has also provided micro-grants for funding smaller initiatives. Guidance can be found on www.CHNEP.org website. While all projects help implement the CCMP, they are varied in their purpose and scope.

The CHNEP has been pleased to award Public Outreach Grants in 2016-2017 to the following:

- Wading Trips for Second Grade Students at Charlotte County Public Schools: Charlotte Harbor Environmental Center
- Estero Bay Aquatic Preserve History and Short Videos: Estero Bay Buddies
- Water, Wings and Wild Things Kids Festival 2017: Polk County BCC, Parks and Natural Resources Division
- FNPS Conference Connection: Florida Native Plant Society
- Lakeshore Education and Action for Upper Peace River: Lakes Education/Action Drive
- Comprehensive Nesting Wading Bird Survey for the City of North Port Canals: WRA Engineering
- 8FMH3 Wolves in the Watershed: A collaborative effort between high school students and other community stakeholders: South Fort Myers High School
Make Your Mark on our CHNEP 2018 Calendar!

Thanks to the generosity of many, the CHNEP calendars continue to amaze with nature’s beauty and diversity in central and southwest Florida. They also serve as important tools to help readers better understand our ecosystems and how to protect them. As we get ready for the 2018 calendar, there are many ways you can help.

Support by submitting your images

One way you can participate is by submitting your photos and art. To enter, complete the online release form at https://www.surveymonkey.com/r/CHNEPcalendarentryform and send your images using a free file sharing service (e.g., Dropbox) by July 15. Entries for the 2018 calendar are already being received, but we’re happy to receive more to complete the layout. Entries should:

- Depict the beauty and diversity of the native environment in our CHNEP study area
- Focus on natural subjects from our area, such as sea life, landscapes, plants and people enjoying the environment

Support by donating

The calendars and many other projects are funded by those committed to helping protect our natural resources. Donations can be made online through our website or with a check payable to the Charlotte Harbor National Estuary Program, 326 W. Marion Ave., Punta Gorda, FL 33950.

Support by sponsoring

We also accept sponsorship ads to help offset costs. Anyone who donates $100 or more may opt to be listed in the calendar or acknowledged as a sponsor of any other project. Sponsor ad possibilities range from 2”x1” for $200 up to 12”x18” for $21,600. We expect to distribute more than 30,000 copies of the 2018 calendar. To help sponsor the next calendar, please send an email request to jennifer@chnep.org by July 1, 2017.

To receive the next calendar by mail, please subscribe on our recently updated website at http://chnep.org/.

Thanks for helping make our CHNEP calendars awesome year after year!

This remarkable anhinga photo by John Giuseppe, Circle B Bar Reserve in Polk County, was included in the 2017 CHNEP calendar.

Thanks John!
Improving Water Quality with New Wastewater Infrastructure

Contributor: Gary Hubbard, Director, Charlotte County Utilities Department

Charlotte Harbor is a beautiful place to live, but it’s no secret that our increasing population has had an environmental impact over time. Since water is recycled through the natural water cycle and we are continuously reusing this water, the Charlotte County Utilities Department is taking a leadership role in making water quality improvements. Here’s how:

Partnering with Florida Atlantic University’s Harbor Branch Oceanographic Institute:

We’re working on the first phase of a research project, which will show how septic systems are contributing to nutrient and bacterial pollution in the Charlotte Harbor Estuary.

Harbor Branch’s analysis of historical data, along with more recent sampling, showed the presence of sucralse, something only humans eat and drink. It also documented high levels of bacteria and increases in nutrients over the years. As most of Florida’s soil types are unsuitable for proper septic system function and the water table is high, especially in coastal areas, the effluent ends up flowing into the groundwater, and ultimately into the canals and harbor. There are more than 28,000 septic tanks within 3,175 feet of water bodies connected to the harbor and another 96,485 residential lots at risk.

Developing a 20-year Sewer Master Plan:

Charlotte County officials, Utilities Department staff and other stakeholders are developing a Sewer Master Plan; a 20-year road map to build sewer systems that support the health of our Harbor.

Charlotte County is also working on a long-term comprehensive approach for monitoring the changes in nutrient loading throughout the septic-to-centralized sewer conversion process.

We know there are additional water-quality impacts from other land uses, storm water drainage and surface water runoff to consider, so we are forging new ways to collaborate to form funding partnerships and projects to improve water quality in even more ways.

With Western Michigan University’s presence in Charlotte County, the County is working with the University on proposed projects from its hydrogeology department to measure the velocity of nutrients travelling through groundwater; and with its geosciences department to develop a blue-green algae outbreak forecast model.

Leading the way: The Utilities Department is leading the way in creating Charlotte County’s integrated water supply and stewardship strategy. CHNEP is an active partner in this effort to support reaching shared water resource protection goals in making necessary infrastructure improvements.

To learn more, visit the Utilities Department website at CharlotteCountyFL.gov. You can also send an email to Gary.Hubbard@CharlotteCountyFL.gov or Kaley.Miller@CharlotteCountyFL.gov.
Our Citizen Scientists are Showing How Volunteers Can Have a Great Impact

Volunteer Citizen Scientists have donated over 450 hours to monitoring the Trabue Oyster Restoration Project in Punta Gorda. Here’s a glimpse of their important work to date:

A team of 11 volunteers from Peace River Audubon Society have been monitoring water bird utilization of the restored oyster reefs for the past year. The group has documented 17 species of water birds on or near the restored reefs. Recently, American Oyster Catchers were observed for the first time in the area, demonstrating the habitat value being created.

Another 5 volunteers have been monitoring water salinity weekly at three sites adjacent to the oyster restoration site since the end of May. The salinity levels have ranged from 0.6-26.5 parts per thousand or ppt (oysters can tolerate a wide range but not when levels stay at less than 3 ppt for more than 2 to 3 weeks. Thanks to our volunteers, we know the salinity has stayed in range for the oysters to survive.

Crown conchs, a small carnivorous snail, are natural predators of oysters. When monitoring started in May 2016, a large number of them were observed on the reefs, laying eggs there. Crown conchs cannot tolerate salinities as low as what oysters can tolerate, and, remarkably, volunteers monitored the snail populations again in August and did not find any live snails. More recent monitoring in the fall turned up some crown conchs, but they were not as abundant as the spring. We expect the low salinities during the summer wet season will keep the numbers of crown conchs suppressed.

Data being collected by volunteers is also used to determine which of three restoration methods (mats, bags or loose shell) is most successful in this area of the estuary. The volunteers have monitored the numbers and sizes of live oysters growing on the restoration materials.

Preliminary data analysis by The Nature Conservancy :

- An average of 2,105 live oysters per square meter (psm) on the bagged shell reefs, 931 psm on the loose shell reefs and 133 psm on the mat reefs
- Bag reefs and loose shell reefs have met the highest success criteria for density of live oysters used by the Southwest Florida Oyster Working Group

Bottom line: 378,900+ oysters recruited in first year alone, filtering nearly 19 million gallons each day. That is more than 28 Olympic size pools worth of water being cleansed daily!
SW Florida's Thirst for Water

Summer Season
Aquifer Level

Winter Season
Aquifer Level