



HARBOR HAPPENINGS

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



Special Places

Many special places can be found from Venice to Bonita Springs to Winter Haven. This issue includes a map of a few of the places with public access where you can enjoy being outside, learn from a guide and study our natural environment.

Photo of Corkscrew Regional Ecosystem Watershed by Deb Hanson, CREW Land & Water Trust.

Program update

by Dr. Lisa B. Beever, CHNEP

In our 2013 update of the *Comprehensive Conservation and Management Plan* (CCMP), the Charlotte Harbor National Estuary Program (CHNEP) committed to expanding our “role as a recognized resource to elected officials or their agents from local, state and federal government for policy advice.” That’s exactly what we have been doing—and how!

CHNEP is a trusted source for information concerning complex environmental issues.

At the local level, I was asked to provide testimony before the Charlotte County Board of County Commissioners and the City of Punta Gorda regarding improvements to their Urban Fertilizer Ordinances. At the state level, we have advocated continued ability of local governments to adopt Urban Fertilizer Ordinances tailored to their soils and climate.

The City of North Port Commission invited me to present an overview of the CHNEP and treated me to a tour of their new weirs and low-impact development techniques. Fountains, filter marshes with flowering plants, pervious pavement, vegetated canal banks and below-ground cisterns improve water quality, water flows and habitat in attractive, park-like settings. In the last 10 years, the City of North Port has made fabulous progress. Most recently, Charlotte County staff asked me to present water quality

information to help inform decisions regarding expansion of their central sewer system.

At the federal level, the CHNEP submitted our comments regarding the Final Area-wide Environmental Impact Statement for the Central Florida Phosphate District. We were given until May 2013 to review a three-volume document! After a workshop forum, another day-long joint advisory committee meeting and four iterations of our letter, we submitted comments. Our letter has received many compliments concerning its craftsmanship and integration of a wide variety of views. We fully expect that concepts in our letter will be incorporated into permit conditions.

Beginning in 2010, the three southwest Florida NEPs (Tampa Bay Estuary Program, Sarasota Bay Estuary Program and CHNEP) used our science-based, consensus-driven approach to recommend estuarine Numeric Nutrient Standards to the state of Florida. The state adopted our recommendations verbatim in Chapter 62-302, with an effective date of Dec. 20, 2012. Our approach was accepted by the state and the Environmental Protection Agency.

The *Southwest Florida Regional Ecosystem Restoration Plan*, jointly prepared and adopted by the three southwest Florida NEPs, is gaining prominence in Gulfwide forums. The state added the plan projects to



Charlotte Harbor Aquatic Preserve staff conducting annual seagrass transect monitoring.

their database of potential RESTORE Act projects. The directors of the NEPs became concerned that the individual projects would not be viewed in the watershed context in which the NEPs had prioritized them, so the projects were grouped by major action. This resulted in 239 separate projects becoming 12 integrated watershed projects that stand in a Gulfwide context. These projects have been added to the “Preliminary Authorized But Not Yet Commenced Projects and Programs List” associated with the draft *Initial Comprehensive Plan* that the RESTORE Act requires of the Gulf Coast Ecosystem Restoration Council. This approach will make it easy for the Council to invest in southwest Florida! Funding sources will find well-conceived restoration projects with significant and broad local support. Remember the conservation land acquisition of Babcock Ranch!

Science, Restoration, Public Outreach and Policy—you can see how interrelated they are when action is needed to protect and improve our natural resources.



CHNEP Friends

PO Box 2245, Fort Myers FL 33902-2245

www.CHNEPfriends.org

The CHNEP enjoys the assistance of the 501(c)3 not-for-profit known as the Friends of Charlotte Harbor Estuary (aka CHNEP Friends).



Charlotte Harbor National Estuary Program

1926 Victoria Ave., Fort Myers FL 33901-3414

239/338-2556 • Toll-Free 866/835-5785

Fax 239/338-2560 • www.CHNEP.org

The CHNEP is a partnership that protects the natural environment from Venice to Bonita Springs to Winter Haven.

Dr. Lisa B. Beever, Director • lbeever@swfrcp.org | ext 235

Liz Donley, Contracts & Grants Mgr • ldonley@swfrcp.org | ext 234

Maran Hilgendorf, Communications Mgr • mhilgendorf@swfrcp.org | ext 240

Judy Ott, Program Scientist • jott@swfrcp.org | ext 230

Harbor Happenings Summer 2013: Volume 17, Issue 2

The CHNEP publishes this free quarterly magazine in cooperation with the CHNEP Friends to provide information about the environmental “happenings” in the CHNEP study area. News items, photographs and letters are welcome and may be submitted to the editor by mail or email. Deadlines are February 1, May 1, August 1 and November 1. The magazine is typically distributed in January, April, July and September.

The views expressed herein are those of the authors and do not necessarily reflect the views of the CHNEP Friends or CHNEP or its cooperating agencies and associations. The mention of trade names or commercial products does not constitute, in any way, an endorsement or recommendation for use.

Request a free subscription by contacting the editor.

EDITOR: Maran Hilgendorf, mhilgendorf@swfrcp.org

CONTRIBUTORS: Thomas J. Allen, Jan Allyn, Jim Beever, Lisa Beever, Melynda A. Brown, Robert Cameron, Gail Campbell, Tonya Clayton, William Ellis, Bill Evoy, Shawn Garner, Katrina Gillin, Alex Gore, Carol Granger, Deb Hanson, Eve Haverfield, Jennifer Hergenroeder, Maran Hilgendorf, Miguel Hnatow, Linda Hoppes, Amy Hoyt, Pamela Jones-Morton, Doug MacGregor, Joe Mullen, Marilyn L. O’Dea, Nannette O’Hara, Judy Ott, Pat Rooney, Kharli Rose, Janice Sylvain, Theodore Thelin, Tim Walker



CHNEP 2014 calendar: The CHNEP's 10th calendar made possible because of your generosity

Thanks to everyone who contributed images for the CHNEP 2014 calendar. The deadline to submit up to three images was July 15.

Vote for your favorite images.

In August, all entries that comply with the requirements will be posted online for public viewing and voting. Images with the highest votes will be included in the calendar as "people's choices." Visit www.CHNEP.org/calendars.html to learn how to vote and for more guidance.

Sponsor the calendar.

Since the 2012 calendar, we have accepted sponsorships to offset costs. For the 2014 calendar, sponsor possibilities are in 1" increments ranging from 1"x1" for \$100 up to 12" wide x 9" high for \$10,800. We will distribute 34,000 copies of the 2014 calendar.

Support the CHNEP by donating.

This project is funded by those committed to helping protect the natural environment of southwest Florida. If you would like to make a donation, please do so through The Friends of Charlotte Harbor Estuary, Inc., also known as CHNEP Friends, a 501(c)3 not-for-profit organization. Donations can be made by visiting www.CHNEPfriends.org to use PayPal or a credit card, or you can mail a check payable to The Friends of Charlotte Harbor Estuary, Inc. to:

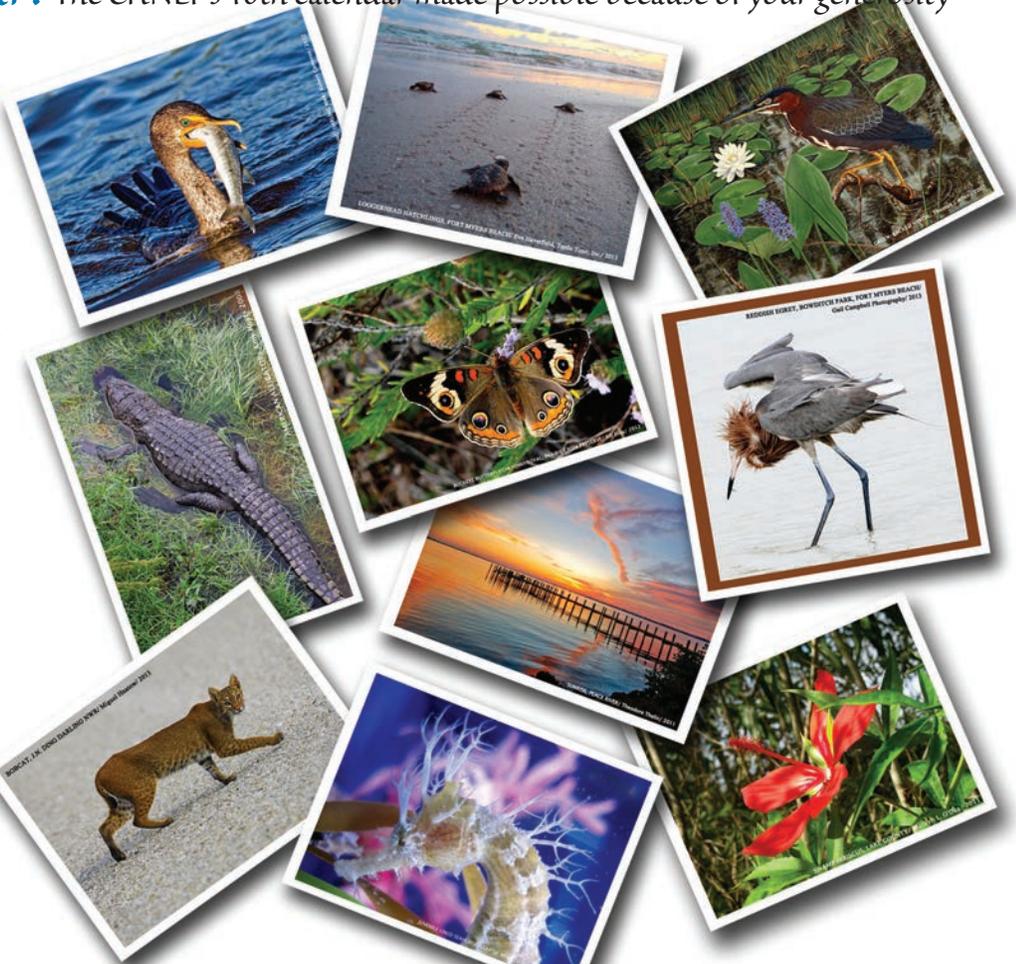
CHNEP Friends, P.O. Box 2245

Fort Myers, FL 33902-2245

Donations of \$100 or more received by Sept. 14 will be acknowledged in the calendar itself.

Do you want calendars to distribute?

By November, the calendar will be distributed to everyone who subscribed to *Harbor Happenings* prior to Sept. 14. The CHNEP provides calendars to many of its partners, including nature centers, libraries and government offices, for their distribution. To receive a supply to distribute to those who somehow help protect this environment, please email mhilgendorf@swfrpc.org by Sept. 14 and provide your name, mailing address (no post office boxes please), quantity and explanation of how the calendars will be distributed. Requests will be honored as demand and funds allow.



View new and old calendar photos!

Pictures of panthers and mollusks and birds, oh my! Ten years of photos and paintings have made the CHNEP's calendar a sweet success. Though it has been nice seeing different treasures every month, we don't want those early years to be forgotten and we want to share all of them with those who never saw their wonder. By October, we will post select photos and paintings in slideshows on our website at www.CHNEP.org and periodically through our Tumblr account. The caption and byline will be embedded in each image.

Do you have a project that helps protect the environment?

The CHNEP is pleased to have supported 518 projects with micro-grants since 2012 and 155 projects with public outreach grants since 2000. This past year, 42 micro-grants and 8 public outreach grants were awarded. These grants support your efforts to protect the environment and solve issues of concern identified in the Program's *Comprehensive Conservation and Management Plan (CCMP)*.

The CHNEP offers public outreach grants once a year, with applications due Sept. 4. Micro-grant requests (usually up to \$250) are being accepted for projects that can be completed between Oct. 1, 2013 and Aug. 31, 2014. Information about the grant-making process for these grants is posted at www.CHNEP.org/grants.html.

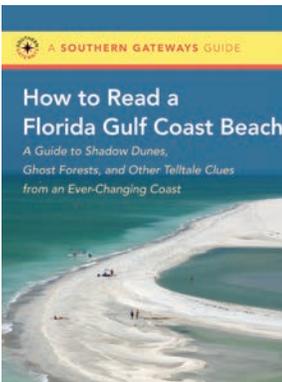
The Calusa Land Trust (calusalandtrust.org) received a micro-grant to purchase an extractigator, which they are using to remove invasive exotic plants, including earleaf acacia and Australian pine with a trunk diameter of up to 1 inch. If you live on Pine Island, you can borrow the device by contacting Ed Chapin (239/218-7531) or Pat Rooney (239/282-5811).



Aerial view of Murdock Point, Cayo Costa Island State Park. Photo by Alex Gore, www.alexgoreproductions.com.

How to Read a Florida Gulf Coast Beach

A Guide to Shadow Dunes, Ghost Forests and Other Telltale Clues from an Ever-Changing Coast



Come explore the geology of Florida's gulf coast beaches, from a bird's-eye view down to a crab's-eye view in *How to Read a Florida Gulf Coast Beach*.

With Tonya Clayton as your guide, you'll learn how to recognize the stories and read the clues of these dynamic shores, reshaped daily by winds, waves and sometimes bulldozers or dump trucks.

This dynamic tour begins with a broad description of Florida's gulf coast, roaming from popular Perdido Key in the northwest to remote Cape Sable in the south. (All CHNEP beaches are

in this region.) You'll first fly over large-scale coastal features such as the barrier islands, learning to spot signs of the many processes that shape the shores. In subsequent chapters you'll visit dunes and beaches to check out sand ripples, tracings and other markings that show the handiwork of beach breezes, ocean waves, animal life and even raindrops and air bubbles. You'll also encounter signs of human shaping, including massive boulder structures and sand megatransfers. This book, published last year as a Southern Gateways Guide™ by the University of North Carolina Press, makes coastal science accessible. Why do singing sands sing? Why do beaches migrate? What are the signs of a leaky beach? A burping beach? What caused the little-known tsunami that washed our shores in '95? With an easy style and more than a hundred illustrations, *How to Read a Florida Gulf Coast Beach* invites vacationers and residents alike to see and enjoy our beaches in a new way.

Ms. Clayton will join us at the Charlotte Harbor Nature Festival on Saturday, Nov. 23.

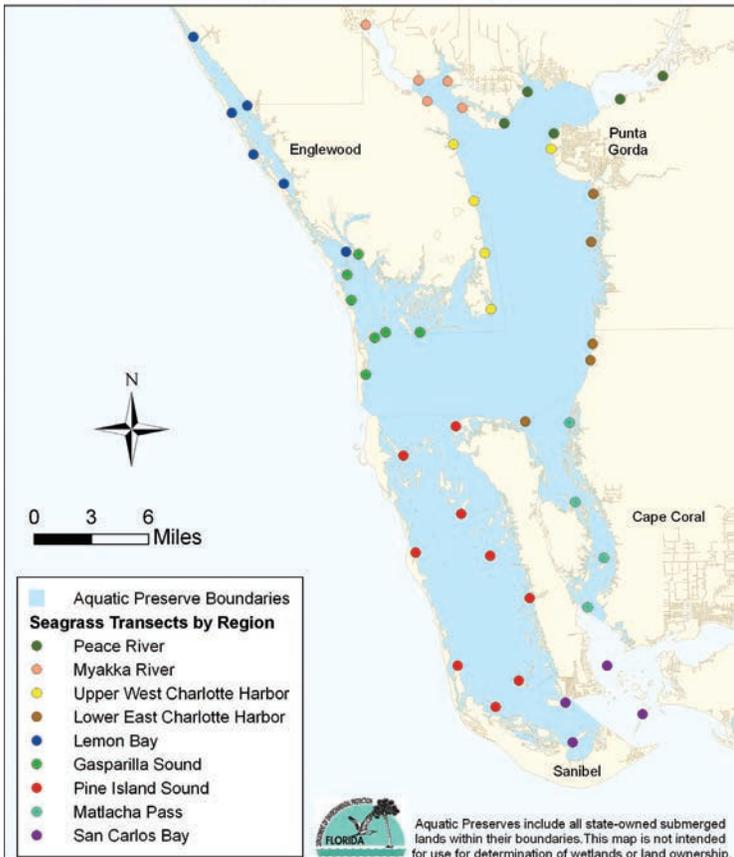
“Tonya Clayton loves her subject and respects her readers. Her prose is clear, sinuous and delightful. Her transformation of scientific information into an accessible guide for the beach-loving non-specialist is a total success. . . .It’s a book all Gulf Coast residents and visitors should have handy in order to fully savor and revere the unique joys at the water’s edge.”

—Florida Weekly

“Tonya Clayton shows you how to read the natural and man-made shapes and textures of Florida’s Gulf beaches, dunes, and islands like a tracker reads animal signs in the wild. You’ll be eager to go straight to the nearest beach to immerse yourself in your new, richer understanding of your favorite beaches. This is the book I’ve been waiting for!”

—David McRee, “The BeachHunter,”
Florida beach expert and blogger

FDEP Charlotte Harbor Aquatic Preserves' Seagrass Monitoring Sites



Results of the FDEP Charlotte Harbor Aquatic Preserves' Seagrass Monitoring from 1999-2009 is one of 18 articles in the Florida Scientist issue dedicated to the CHNEP Charlotte Harbor Watershed Summit held in 2011.

Charlotte Harbor Watershed Summit 2011: Florida Scientist

Due to a request by the Charlotte Harbor technical community, the proceedings of the 2005, 2008 and 2011 Summits are published in the *Florida Scientist*, a scientific, peer-reviewed journal of the Florida Academy of Sciences. The issues are available as PDF files at <http://chnep.org/Research/FloridaScientist.html>. The CHNEP financially supported these issues.

Students for the Environment

Reaching high school students in the CHNEP study area

The CHNEP is seeking 100 select high school students from Lee, Charlotte, Sarasota, Manatee, Polk, Hardee and DeSoto counties who want to learn more about the natural environment and related careers. In this new program students will learn from experts on habitat, water quality, water flow and stewardship. They will then represent the CHNEP by sharing findings with classmates and serving on an advisory committee to improve how we reach students and others through social media and in other ways. Students will convene on Friday, Sept. 20 at "Ding" Darling National Wildlife Refuge on Sanibel. For more details, contact Maran Hilgendorf (mhilgendorf@swfrc.org).

Charlotte Harbor Watershed Summit: March 25-27, 2014

The CHNEP hosts the Charlotte Harbor Watershed Summit every three years to learn about current research and restoration efforts as well as critical environmental issues affecting the Charlotte Harbor watershed. These are opportunities for participants to review progress since the preceding summit.

The next Charlotte Harbor Watershed Summit will be March 25–27, 2014, at the Charlotte Harbor Event & Conference Center in Punta Gorda. The theme is "our vision in action." Presentation and poster abstracts are due to Judy Ott (jott@swfrc.org) by July 26.

The CHNEP is able to hold this event in part because of the generosity of sponsors. Thanks to CF Industries, Mosaic, Friends of Charlotte Harbor Estuary, Inc. and the Charlotte Harbor Event & Conference Center for being the first to sponsor the 2014 program. If you are able to help as a sponsor, contact Maran Hilgendorf (mhilgendorf@swfrc.org). Guidance on how to register will be included in the next issue of *Harbor Happenings*.

CHNEP Meetings and Events

The CHNEP partnership is guided by its Management Conference of four committees. The Policy Committee establishes general policies and goals for the Program and executes ultimate authority in program administration. The Management Committee develops and reviews work plans, funding requests, work products and other activities. The Citizens Advisory Committee (CAC) provides a mechanism for citizen input and helps develop and promote public information and education programs. The Technical Advisory Committee (TAC) is the scientific and technical voice of the program.

All meetings are open, but the public is encouraged to join the Citizens Advisory Committee. Membership is open to all who are interested in protecting the natural environment bounded by Venice, Estero Bay and Winter Haven.

These dates are tentative. Confirm dates and obtain locations and agendas at www.CHNEP.org. Additional meetings and events are also posted on this website, as are grant deadlines.

Technical Advisory Committee (TAC)	July 25
CHNEP Song Writing Contest entries due	August 1
CHNEP 2014 Calendar entry selection	August
Management Committee	August 2
Citizens Advisory Committee (CAC)	August 7
Policy Committee	August 19
Public Outreach Grant applications due	September 4
Environmental Education Network	September 6
www.eventbrite.com , search for CHNEP	
CHNEP High School Outreach	September 20
Conservation Land Conference	September 26
www.eventbrite.com , search for CHNEP	
Technical Advisory Committee (TAC)	October 10
Citizens Advisory Committee (CAC)	October 16
Management Committee	November 1
Policy Committee	November 15
Charlotte Harbor Nature Festival	November 23
Project Design and Evaluation Training	Dec. 10-11
www.eventbrite.com , search for CHNEP	

Water supply plans

South Florida Water Management District

The South Florida Water Management District completed the *2012 Lower West Coast (LWC) Water Supply Plan Update* in November 2012. The LWC planning area includes all of Lee County, most of Collier County and portions of Hendry, Glades, Charlotte, and mainland Monroe counties. The region extends approximately 5,129 square miles, generally reflecting the drainage patterns of the Caloosahatchee, Imperial, Estero and Cocohatchee river basins, and the Big Cypress Swamp. The planning area also contains the Big Cypress Basin.

The LWC update assesses projected water demands and potential sources of water from 2010 to 2030. The purpose is to identify sufficient water supply sources and future projects to meet existing and future reasonable-beneficial uses during a 1-in-10-year drought condition, while sustaining water resources and natural systems. The LWC population is projected to increase 51 percent from 2010 (992,486) to 2030 (1,502,701). Agriculture remains the largest water user and is expected to continue as the dominant land use, with citrus being the area's primary crop. Cultivated agricultural acreage is anticipated to increase from about 306,000 acres to potentially 362,000 acres. Correspondingly, LWC total water demands are projected to increase by approximately 30 percent — from 971 million gallons of water per day (MGD) to 1,263 MGD.

Fresh groundwater and surface water primarily from the Caloosahatchee River and canals have historically been used to meet the water needs of the region. However, fresh groundwater development has been generally maximized over time in many areas and potential increases in production are limited, especially in coastal areas. In addition, surface water withdrawals from Lake Okeechobee and hydraulically connected surface waters are limited. Because of these limitations, users in this region have diversified water supply sources through the development of alternative sources, including brackish (slightly salty) groundwater, reclaimed water and limited storm water captured and stored during the rainy season for later beneficial use. Water conservation has also been an essential tool in extending available resources.

The plan update concluded that future water demands can be met through the 2030 planning horizon with appropriate management and continued diversification of water supply sources. This includes further development of alternative water supplies, including increased use of brackish groundwater and reclaimed water, as well as greater emphasis on water conservation practices and water storage for dry season use. Continued construction of area-critical ecosystem restoration projects and studies to increase knowledge of groundwater resources are also needed. Recommended action steps include completion of water supply utility projects, evaluation of site-specific refinement of groundwater availability and completion of the Comprehensive Everglades Restoration Plan's Caloosahatchee River (C-43) West Basin Storage Reservoir Project.

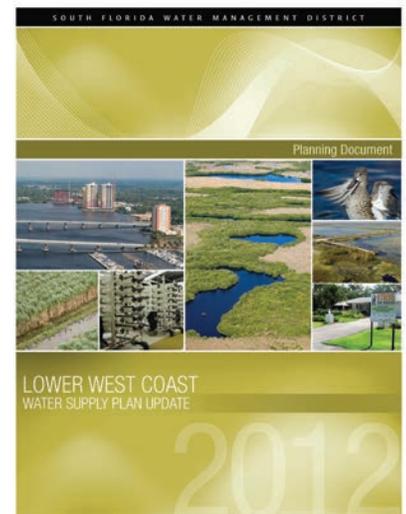
The *2012 Lower West Coast Water Supply Plan Update* is an important tool used by local governments and utilities to update and modify

Regional water supply plans are assessments of projected 20-year water demands and potential sources of water to meet these demands. Other areas of the CHNEP study are included in Southwest Florida Water Management District's water supply plans (www.swfwmd.state.fl.us/documents/plans/RWSP/) for the heartland and southern planning regions. First published in 2001, the plans are updated every five years. The most recent updates were approved in 2010. These plans are required by the state of Florida (Statute 373.709).



local comprehensive plans, facility work plans and ordinances. Area water users are recognized for their proactive efforts toward implementing alternative water source projects and effective water conservation measures. These contributions help address the water needs of both people and the environment.

For more information, visit www.swfwmd.gov.



CHNEP Special Places

From the Lake Wales Ridge to the Gulf of Mexico, throughout the watersheds of the Myakka, Peace and tidal Caloosahatchee rivers, there are many amazing natural features to behold. This publication showcases a few places people can visit to enjoy the beauty of the environment and learn from guides. There are diverse habitats found in the 146-mile drive between Boca Grande to Lake Alfred and 65 miles of coastal community driving from Estero to Englewood.

An online map of more than 500 places and a mileage chart of 50 cities, towns and communities throughout the seven counties will help guide you to locations in southwest Florida. The online map will be available by September and will include links to additional information about each site maintained by those who own and manage those properties. Please let us know if there is a site you'd like included or a resource to add to the website by sending an email message with the details to mhilgendorf@swftrpc.org.

There are many networks that help guide those interested in birding, paddling and other specific activities. A few include:

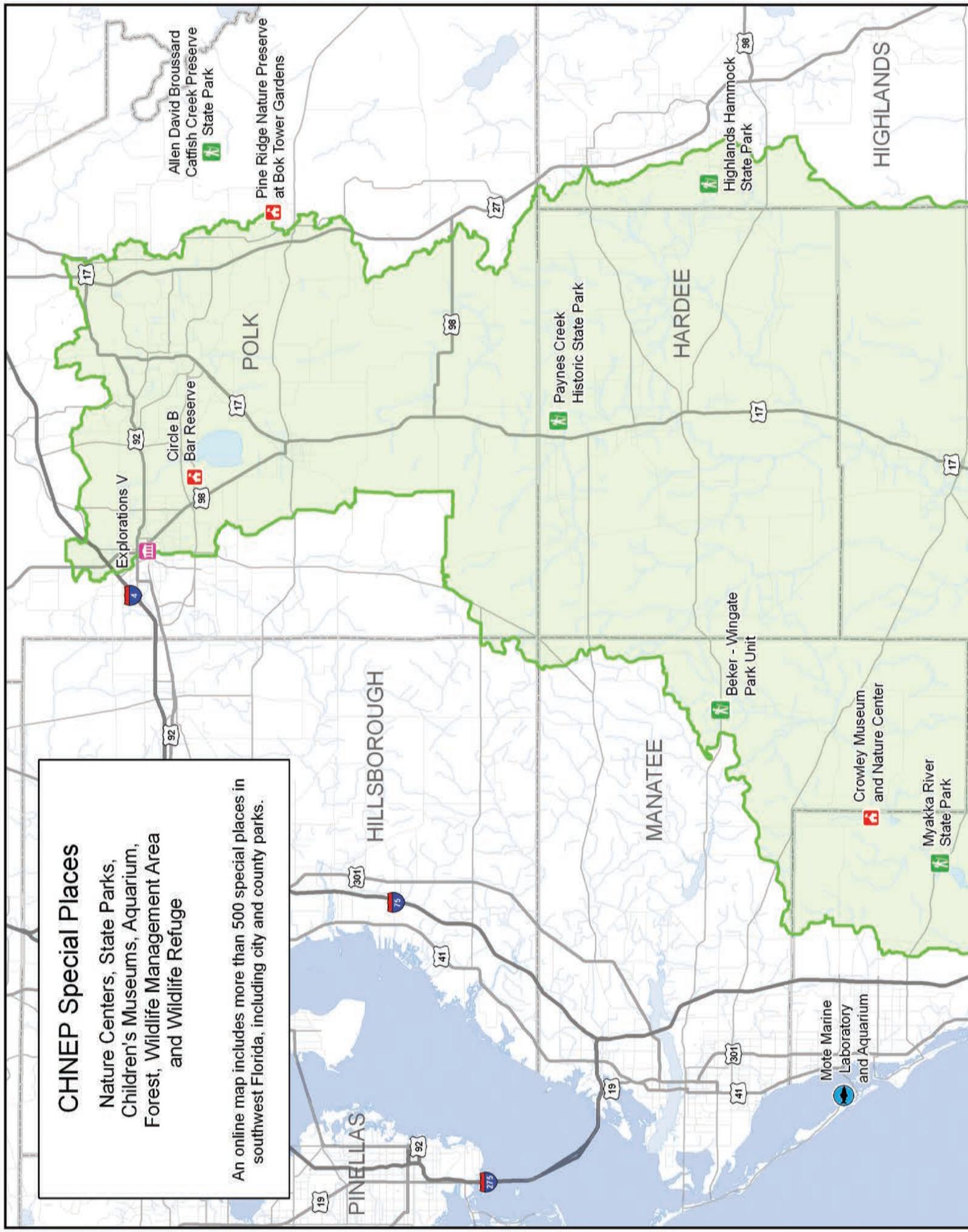
- The Great Florida Birding and Wildlife Trail (<http://florida-birdingtrail.com>) networks 514 sites throughout Florida selected for their excellent birdwatching, wildlife viewing or educational opportunities. This 2,000-mile, self-guided highway trail is designed by Florida Fish and Wildlife Conservation Commission to conserve and enhance Florida's wildlife habitats by promoting birding and wildlife viewing activities, conservation education and economic opportunity.
 - As the steward of all Florida water trails, the Florida Paddling Trails Association (<http://floridapaddlingtrails.com>) develops water trails, protects the environment and is a resource and voice for paddlers.
 - The Trail of Florida's Indian Heritage (<http://trailoffloridasindianheritage.org>) promotes awareness, responsible visitation and protection of the remaining cultural sites of the original people of Florida.
- There are also many initiatives that further this work:
- American's Great Outdoors (www.doi.gov/americansgreatoutdoors) is President Obama's initiative to develop a 21st Century conservation and recreation agenda.
 - Get Outdoors Florida (<http://getoutdoorsflorida.com>) is a coalition to address social needs, including natural resource conservation and the well-being and health of the public.

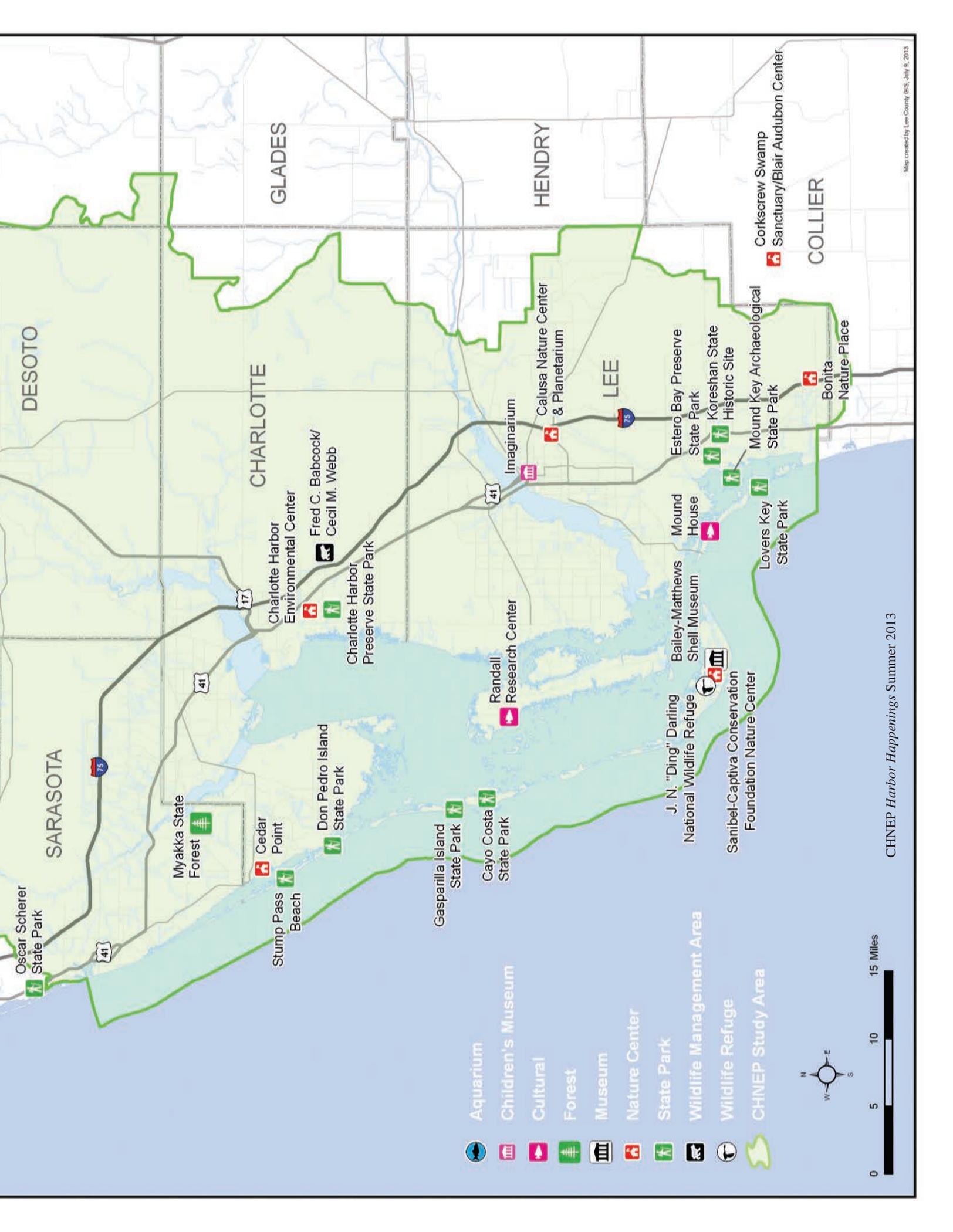
Get outdoors and enjoy!

CHNEP Special Places

Nature Centers, State Parks, Children's Museums, Aquarium, Forest, Wildlife Management Area and Wildlife Refuge

An online map includes more than 500 special places in southwest Florida, including city and county parks.





DESOTO

SARASOTA

CHARLOTTE

GLADES

HENDRY

LEE

COLLIER

Oscar Scherer State Park

Myakka State Forest

Stump Pass Beach

Cedar Point

Don Pedro Island State Park

Gasparilla Island State Park

Cayo Costa State Park

Randall Research Center

Charlotte Harbor Environmental Center

Fred C. Babcock/Cecil M. Webb

Charlotte Harbor Preserve State Park

Imaginarium

Calusa Nature Center & Planetarium

J. N. "Ding" Darling National Wildlife Refuge

Sanibel-Captiva Conservation Foundation Nature Center

Bailey-Matthews Shell Museum

Mound House

Esteros Bay Preserve State Park

Koreshan State Historic Site

Mound Key Archaeological State Park

Corkscrew Swamp Sanctuary/Blair Audubon Center

Bonita Nature Place

Aquarium

Children's Museum

Cultural

Forest

Museum

Nature Center

State Park

Wildlife Management Area

Wildlife Refuge

CHNEP Study Area



CHNEP Harbor Happenings Summer 2013

Map created by Lee County GIS, July 6, 2013



Atlantic Ghost Crab, Nokomis Beach in Sarasota County | Katrina Gillin | Printed in the CHNEP 2013 Calendar in June

Atlantic ghost crabs (*Ocypode quadrata*) are small crabs (up to about two inches) with squarish sand-colored shells. These crabs dig burrows above the intertidal zone on ocean beaches from Delaware through the Caribbean and Gulf of Mexico to Brazil. They are very active and dash into the retreating surf to wet their gills or to grab scraps of food (“Ocypode” means “swift-footed”), although they will drown if kept submerged. SOURCE: *Encyclopedia of Life*



Getting Better All the Time

Jan Allyn, USF Florida Center for Community Design & Research

This fall will mark the two-year anniversary of the launch of the Charlotte Harbor Water Atlas. Funded by the CHNEP and SWFWMD and developed by the Florida Center for Community Design & Research at the University of South Florida in Tampa, the atlas makes data about the area’s water resources available to everyone via the World Wide Web. It is instrumental in helping the CHNEP implement its long-term monitoring and data management strategies. Using geographic information systems and a massive database, the atlas displays water quality and hydrology data using maps and charts, making it easier to visualize and understand. The database is shared with nine other water atlas sites, all of which may be reached from the Charlotte Harbor atlas.

In addition to making water resource data accessible, the atlas has a calendar to help spread the word about upcoming events hosted by the CHNEP and its partners. The news page highlights current environmental happenings that are likely to be of interest to those in the CHNEP study area. Like the water resource database, the digital library is shared with the other water atlas sites, contains thousands of documents and is continually updated with new content.

CHNEP Water Atlas: www.chnep.wateratlas.usf.edu

- 8 Watersheds in 7 Counties
- 92 Data Providers
- 116 Near Real-Time Stations
- 9,000 Unique Visitors (Between Jan. 2011 and May 2013)
- 2,276 Documents
- Latest Data: Today
- 698 Water Bodies
- 5,700 Monitoring Stations
- 56 Million+ Data Samples
- Earliest Data: Aug. 5, 1930

Since the initial release of the atlas, its home page has received a makeover, a Coastal Watersheds Wiki section has been added and a data collection tool has been implemented to assist shoreline survey volunteers. More enhancements are being planned. The water quality contour mapping tool will be modified to add more parameters to its selection options. A new time-series analysis tool is being developed that will help scientists and resource managers identify and predict water quality trends. Pages to display sample data from the planned Charlotte Harbor Flatwoods Initiative Monitoring Network will be added, similar to those currently provided for the Charlotte Harbor Volunteer Water Quality Monitoring Network and the Cape Coral Canal Watch groups.

The Charlotte Harbor Water atlas will continue to expand and improve, and the contributions of Atlas users are vital. News releases, event notifications, photographs, historical documents and suggestions of useful online resources are all much appreciated. If you have content to provide, feedback about the atlas or a question about how to use it, you can use the online forms on the site to contact water atlas staff or call/email content manager Jan Allyn (813/579-33801).

Mangroves: A true Florida native

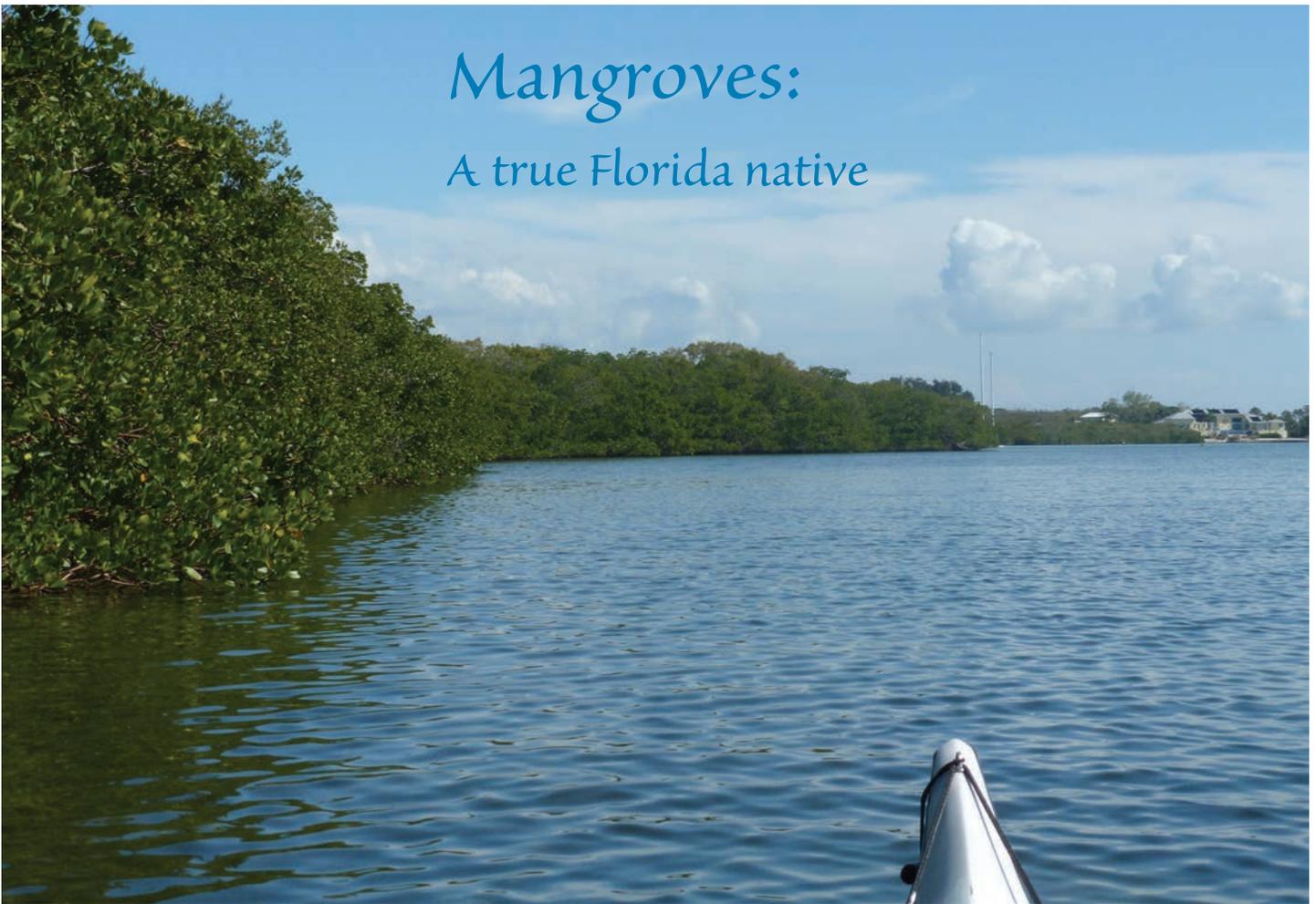


Photo by Joe Mullen.

Mangroves thrive in tropic and subtropic estuaries. They obtain fresh water from salt water, secreting excess salt through their leaves or blocking absorption of salt at their roots. The relationship between mangroves and the overall health of the coast, including marine life, is extremely important.

Why are mangroves important?

- Serve as feeding, breeding and nursery grounds for a variety of fish, shellfish, birds and other wildlife. An estimated 75% of game fish and 90% of commercial species in south Florida depend on the mangrove system.
- Trap and cycle organic materials, chemical elements and important nutrients in the coastal ecosystem.
- Serve as storm buffers by reducing flooding and wind and wave action in shallow shoreline areas.
- Assist in protecting water quality and clarity by filtering runoff and trapping sediments and debris from adjacent uplands.

Seventy-two species of mangroves are found throughout the world, but only three are native to Florida: red mangrove (*Rhizophora mangle*), black mangrove (*Avicennia germinans*) and white mangrove (*Laguncularia racemosa*). Each species is easily identified by distinctive root structures, reproductive structures (propagules) and leaf shapes.

What can you do?

Don't trim or remove mangroves. The state's Mangrove Trimming and Preservation Act and local regulations protect Florida's mangroves.

If you'd like more mangroves, they can be successfully planted.

The Mangroves of the Charlotte Harbor Estuarine System poster, printed in the Summer 2010 issue of *Harbor Happenings*, is available at www.CHNEP.org/posters.html.

—Mangroves of the Charlotte Harbor Estuarine System—

Mangroves thrive in tropic and subtropic estuaries. They obtain fresh water from salt water, secreting excess salt through their leaves or blocking absorption of salt at their roots. Fifty species of mangroves are found throughout the world, but only three are native to Florida. Each species is easily identified by distinctive root structures, reproductive structures (propagules) and leaf shapes. The buttonwood, *Conocarpus erectus*, is often considered a fourth mangrove species because it generally inhabits the upland fringe of many mangrove communities.

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Don't trim or remove mangroves. The state's Mangrove Trimming and Preservation Act and local regulations protect Florida's mangroves. If you'd like more mangroves, they can be successfully planted.

The Florida Department of Environmental Protection estimates there are 469,000 acres of mangrove forests in Florida. Of these, the SWFWMD estimates 64,000 acres occur in Charlotte Harbor from Venice to Bonita Springs.

While Charlotte Harbor is one of the least urbanized estuarine areas in Florida, mangrove destruction has also occurred here with dredging and fill waterfront development, accounting for approximately 10% of the loss. However, mangrove acreage has also increased with mangroves containing salt marshes, tidal flats and spoil islands, a byproduct of dredging and filling.

Visit www.CHNEP.org links to maps, sources and additional information.

Red mangrove, *Rhizophora mangle*

Air-laying roots, called prop roots, originate from trunk and lower branches. They have an unusual long, pencil-shaped reproductive structure, called a propagule. Unlike seeds or fruits of most trees, propagules germinate while on the tree and are immediately ready to put out roots as soon as they drop and lodge in the soil. Propagules develop during summer months and are commonly seen drifting in the water or washed along the shoreline in late summer and early fall. Lance-shaped leaves are shiny, dark olive-green on surface; underside is light green, usually with small dark spots. (See right column.)

Black Mangrove, *Avicennia germinans*

Numerous finger-like projections (pneumatophores) extend upward above the sediment from the root system. Lance-shaped leaves are dull, dark green on surface; underside is a lighter, silver-green color without dark spots. Leaves are often coated with salt crystals, especially during dry periods. Propagules resemble pointed lima beans.

White Mangrove, *Laguncularia racemosa*

Without prop roots and pneumatophores, this tree is easily identified by the leaf shape. Leaves are elliptical, light yellow-green on both sides and have two distinguishing glands at the base of the leaf blade where the veins meet. Propagule is relatively small, oblong and wrinkled.

Florida's southwest coast supports one of the largest mangrove swamps in the world. Red mangroves — the most common mangrove found in Florida — are generally found closest to the water's edge and are often found in dense high tide. Black mangroves are found closer to land and white mangroves grow closest to land.

Photographs by Don Parsons © by NatureInMyPocket.com

2013 Shoreline Survey

In 2007, 2010 and again in 2013, citizen kayakers and boaters completed for the CHNEP comprehensive mapping of the privately owned estuarine shoreline in Lee and Charlotte counties. Volunteers paddled and motored along the urban and residential coasts, each time collecting important pieces of information about how much shoreline was natural vegetation, nonnative vegetation or “hardened” with seawalls or riprap. The 2007 survey combined on-site field visits by volunteers with aerial photography interpreted by scientists at Photo Science. Photo Science compared the 2007 data to aerial photo data and then incorporated it into a report.

A total of 5,543 urban parcels or lots (approximately 250 miles) were identified for this project. In 2007, 4,485 urban lots were surveyed. In 2010, the survey increased to 5,032 urban lots. The 2013 volunteer effort surveyed 4,308 urban lots. By augmenting the 2013 volunteer effort with shoreline reviews using Google Earth™, mangrove presence was assessed for 5,416 (98%) of the 5,543 urban parcels identified in 2007.

Overall, mangroves increased on the shoreline of urban lots. Mangroves gained 9 miles of presence between 2007 and 2013.

On a direct parcel-to-parcel comparison, mangroves were eliminated on 339 urban lots (nearly 13 miles) between 2007 and 2013. However, mangroves were present where they had not been before on 516 urban lots (nearly 22 miles).

The 2013 survey was possible because of a tremendous group of volunteers and a grant from the Florida Coastal Management Pro-

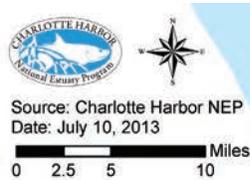


Volunteers surveyed nearly 250 miles of shoreline in Lee and Charlotte counties. Photo by Carol Granger

gram, Florida Department of Environmental Protection and National Oceanic and Atmospheric Administration. The grant funded the CHNEP to create GIS coverage that allows for presentation and analysis of the collected data and a special page of the water atlas so volunteers could input their data directly into the database. By September, the data from all three surveys will be available for your analysis at www.chnep.wateratlas.usf.edu and the survey reports will also be available on www.CHNEP.org.

These surveys provide shoreline vegetation condition information that helps inform resource managers in their efforts to restore and maintain estuary shorelines that support diverse fishery and invertebrate populations. The data is also used in research studies and helps implement the *Comprehensive Conservation and Management Plan (CCMP)*, the CHNEP’s plan to protect the environment.

Thanks to everyone who helped make these surveys possible.



2007-2013 Change in Mangrove Presence

- None
- Eliminated Mangroves
- Fewer Mangroves
- Same-Less than 30%
- More Mangroves
- Same-Greater than 30%

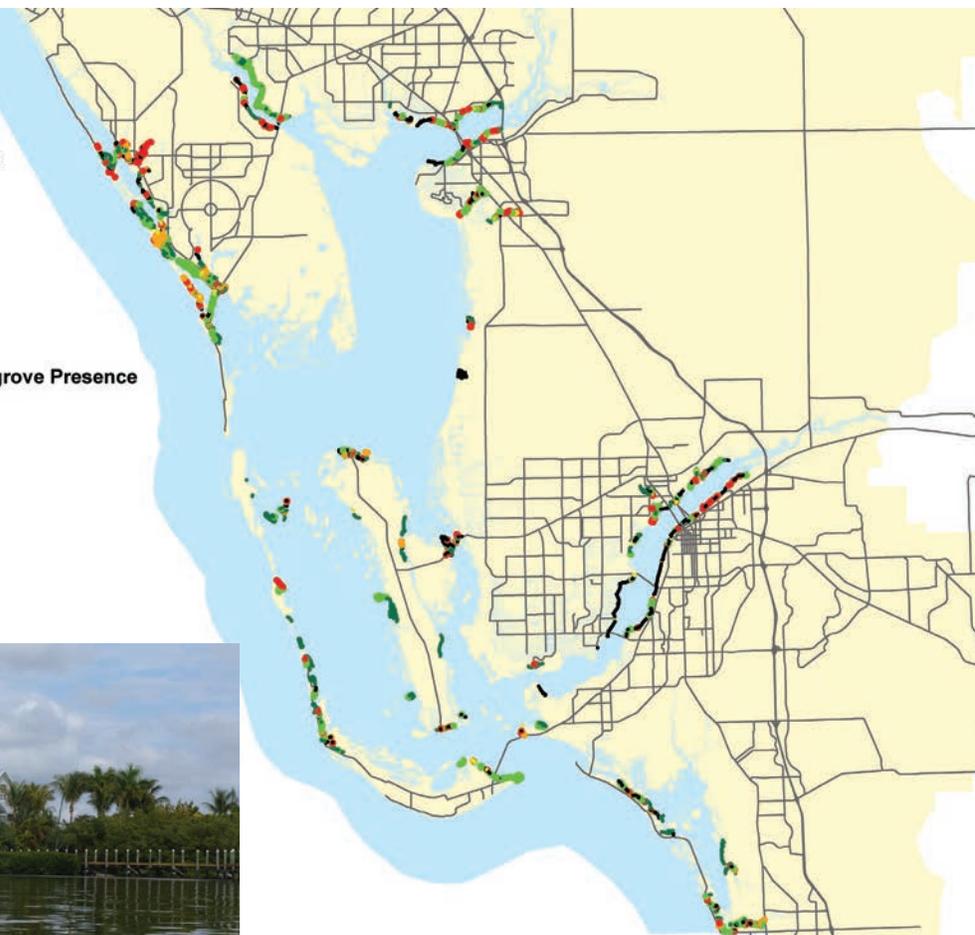


Photo by Joe Mullen.





“SORRY BABE, BUT FLORIDA NEEDS ME AT THE BEACH”

FREE DAY OFF FROM YARD WORK



Holder entitled not to fertilize lawn this summer, because Florida’s summer rains wash fertilizer into waterways triggering algae blooms and killing fish. Coupon doubled if holder landscapes yard for Florida, not Ohio or New Jersey, (use QR code to see how) and gets more time for Florida fun. Like going to the beach. Or fishing.

GO TO THE BEACH

BEFLORIDIAN.ORG

Sometimes you need to sacrifice. Like this summer. Sure, you’d like to sweat your butt off applying fertilizer that’s only going to wash down drains to the gulf. But you recognize that triggers algae blooms and kills fish. So you’re going to do what’s right: You’re going to go enjoy the beach.

BeFloridian.org



Be Floridian

Skip Fertilizer in Summer

Nanette O’Hara, Tampa Bay Estuary Program

With the iconic plastic pink yard flamingo as our standard-bearer, communities are persuading residents to “skip the fertilizer” in the rainy summer months to protect the water bodies that make living in Florida so much fun. “Be Floridian” was launched by the Tampa Bay Estuary Program (TBEP) to support fertilizer ordinances in Pinellas and Manatee counties and the City of Tampa. Sarasota County and the Sarasota Bay Estuary Program have also joined the campaign as major partners.

In 2007, Sarasota County and the City of Sanibel adopted urban fertilizer ordinances. By 2012, every coastal county and city within the CHNEP study area had adopted similar ordinances. Together, the four counties and eight cities will prevent tons of nutrients from entering our waters.

Fertilizer ordinances in many communities ban the application of lawn/landscape fertilizers containing nitrogen from June 1 to Sept. 30. Fertilizer applied during these rainy months has the greatest potential to run off into our ponds, bays, rivers and the Gulf of Mexico, causing harmful algal blooms that harm our environment and our economy — and spoil our summer fun!

In Tampa Bay, residential runoff accounts for about 20 percent of the nitrogen entering Tampa Bay in stormwater. It’s expensive to remove — about \$3,500 a pound, based on estimates derived from current stormwater treatment projects around the state. Fertilizer ordinances are a cost-effective solution to this pollution, since they prevent nitrogen from entering a water body in the first place.

TBEP was asked by its Policy Board to lead education efforts in support of the ordinances. Working with the marketing firm of Salter-Mitchell, “Be Floridian” was hatched. “Be Floridian” promotes both short-term and long-term behavior changes. The short-term goal is avoiding fertilizer use in the summer — fertilizing instead in April and/or October with a slow-release nitrogen product. The long-term goal is to change cultural attitudes about what constitutes an attractive landscape — away from landscapes dominated by resource-intensive turfgrass to “Florida Yards” featuring native and Florida-friendly plants that require less water, fertilizer and pesticides.

Since its launch in 2010, “Be Floridian” has employed a variety of marketing tools. This year, residents are being invited to take the “Be Floridian” pledge to skip fertilizing in the summer, with prizes such as flamingo mousepads and original Don Featherstone-created pink yard flamingos awarded biweekly in random drawings.

To learn more about “Be Floridian,” visit www.BeFloridian.org or like “Be Floridian” on Facebook.

Estimating and Forecasting Ecosystem Services

in the Pine Island Sound, Sanibel Island, Captiva Island, North Captiva Island, Cayo Costa Island, Useppa Island, Other Islands of the Sound, and the Nearshore Gulf of Mexico

James (Jim) Beever, Southwest Florida Regional Planning Council

In southwest Florida, we are well aware of how important ecotourism, sport and commercial fishing, and natural products, such as locally produced fruits, vegetables and honey, are to our regional economy. Ecosystems and the services they deliver underpin our very existence, but they are consistently undervalued in conventional economic analyses and decision making. The natural environment provides, for free, services that we would otherwise have to pay for in capital outlay and operation and maintenance costs. Humans depend on these ecosystem services to produce food, regulate water supplies and climate, and breakdown waste products. Humans also value ecosystem services for the pleasure nature gives and recreation it provides, which are known to have positive impacts on long-term health and happiness.

The recently-completed project *Measuring and Forecasting Total Ecosystem Services Values (TEV) from Habitat Condition Analysis of Habitats in Southwest Florida: The ECOSERVE Method* was funded by Elizabeth Ordway Dunn Foundation and the CHNEP with in-kind services provided by Sanibel-Captiva Conservation Foundation and the Southwest Florida Regional Planning Council. The study area includes the Pine Island Sound barrier islands and the nearshore Gulf of Mexico within the CHNEP study area.

With GIS analysis of existing aerial imagery, 69 habitat types were identified. The range and quantity of ecosystem services provided by existing habitats was estimated. Total Ecosystem Services Value (TEV) dollar values for ecosystem services were obtained either directly from scientific literature or through calculation.

A map was created of current ecological services value topographies (ECOSERVE) using the combined GIS map and the TEV value for each habitat type. All the values were then totaled. Two alternate future ECOSERVE topographies were generated of anticipated land-use changes for the year 2030 and for a one-foot sea level rise.

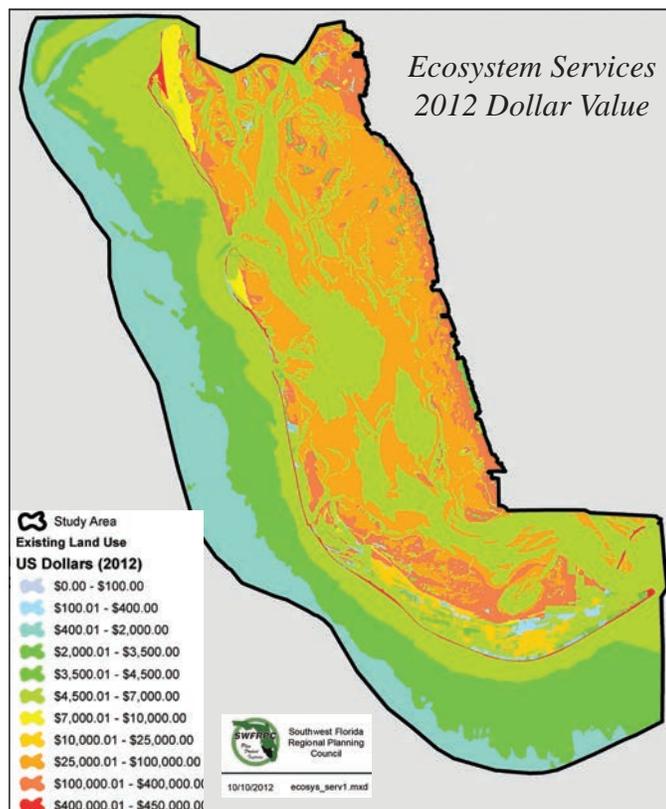
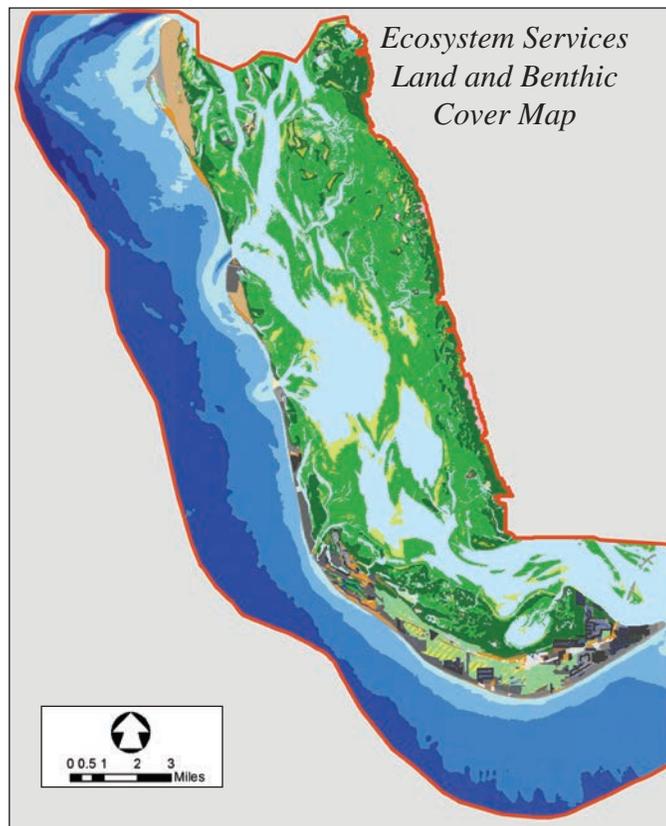
The TEV for the study area in 2012 is \$7,033,362,634. The majority (98%) of the TEV is found in the top seven habitats, including mangrove swamp (38%), continuous seagrass beds (36%), estuarine embayments (10%), swimming beaches (5%), the nearshore Gulf of Mexico (3%), discontinuous seagrass beds (2%) and unvegetated shallow subtidal bottoms (1%). These seven habitats make up 83% of the physical area of the study area. (The report includes more exact percentages and values.)

Using ECOSERVE to project the build-out scenarios envisioned on the 2030 Future Land Use Map, the resulting landscape has a reduced TEV loss of 26% (2012 dollars) to \$5,146,537,673.

The current measured sea level rise rate for Lee County is approximately 9 inches in 100 years. Assuming this rate continued without acceleration, then a one foot sea level rise above 2012 levels would be attained in the year 2162. The resulting landscape has a TEV for the study area of \$4,184,956,813. Therefore, the net loss of TEV from sea level rise in the study area for 1 foot of sea level rise separate from the 2030 land-use changes is \$1,126,811,105. This is a 16% loss of 2012 TEV from the sea level rise alone. Combined, the sea level rise of 1 foot with the future land-use changes results in a \$3,013,636,066 loss of TEV. This constitutes a 42% loss of 2012 TEV.

The report is available as a PDF file from www.CHNEP.org.

Ecosystems and the services they deliver underpin our very existence, but they are consistently undervalued in conventional economic analyses and decision making.

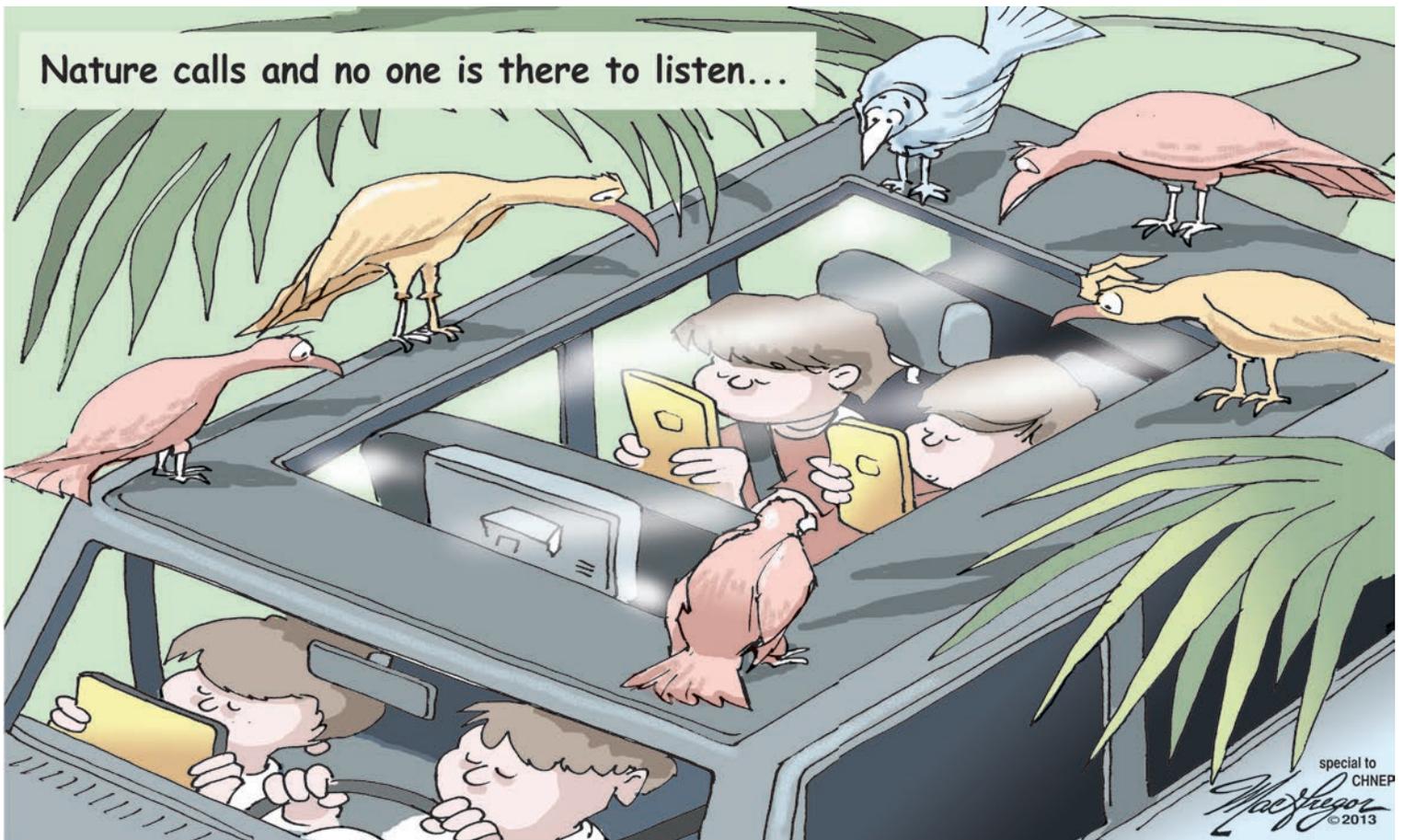


Not receiving *Harbor Happenings* in the mail? Request a free subscription. Visit the website at www.CHNEP.org for details.

Please let us know of any address corrections by sending an email to mhilgendorf@swfrpc.org.

Since 1997, the *Harbor Happenings* magazine has provided information on the environmental “happenings” in southwest Florida as a tool to educate, inform and motivate. Since 2005, the calendar has shown the beauty and diversity of the natural environment through donated images. Each 9” x 12” featured image is also suitable for framing!

Our goal is to mail *Harbor Happenings* in early January, April, July and September and to mail the calendar by November. To help manage costs, the fall issue of *Harbor Happenings* will be postponed from September so that it can be distributed with the calendar by November.





Renew your subscription now if you wish to continue to receive free *Harbor Happenings* magazines and a free 2014 calendar in the mail.

You are receiving this version of *Harbor Happenings* because you've been receiving the magazine since before 2009. We hope you have valued it! Since 1997, the magazine has provided information on the environmental "happenings" in southwest Florida as a tool to educate, inform and motivate. Since 2005, the calendar has shown the beauty and diversity of the natural environment through donated images. Each 9" x 12" featured image is also suitable for framing!

To continue to receive the quarterly 16-page magazine and yearly calendar, you must renew your subscription. You may renew at any time but we need to hear from you by Sept. 13 to receive the 2014 calendar in the mail.

There are two ways to renew: (1) Complete the online form at www.CHNEP.org/subscribe.html. To help manage the renewals, we've added a subscription five-digit number (e.g., 13498) to your record. This number appears after your name on the mailing label. (2) Mail this page to CHNEP *Harbor Happenings*, 1926 Victoria Ave., Fort Myers, FL 33901-3414. If you can, please complete the online form.

The online subscription form allows subscribers to provide multiple addresses and indicate where to send particular issues. You may also provide this information if you mail in your renewal. Our goal is to mail *Harbor Happenings* in early January, April, July and September and to mail the calendar by November. To help manage costs, the fall issue of *Harbor Happenings* will be postponed from September so that it can be distributed with the calendar. You may also subscribe to receive *Harbor Happenings* by email. However, the calendar will only be mailed to those who receive the magazine through the mail.

This will be your last issue until you renew.

The CHNEP will mail one reminder postcard to you in September. No action is required to cancel your subscription.

We hope you'll continue as a member of CHNEP's partnership to protect the natural environment.

If time slips by and you want an issue or the calendar, you can stop by one of the 200+ locations to pick up a free copy. Each publication will also continue to be available as a PDF file from www.CHNEP.org.

The CHNEP would be pleased to accept your financial support. The CHNEP is pleased to join the many organizations that enjoy the assistance of a 501(c)3 not-for-profit organization. Checks may be made payable to The Friends of Charlotte Harbor Estuary and mailed to The Friends of Charlotte Harbor Estuary, Inc., P. O. Box 2245, Fort Myers, FL 33902-2245. To make a donation by credit card or PayPal, visit www.CHNEPfriends.org.

