

THE NEWSLETTER OF THE CHARLOTTE HARBOR NATIONAL ESTUARY PROGRAM



HARBOR HAPPENINGS

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



This mangrove painting was provided by Linda Soderquist (linist@hotmail.com).

Fall 2010: Volume 14, Issue 3

Program update

On Sept. 20, 2010, the Charlotte Harbor National Estuary Program (CHNEP) conducted what will probably be the single most influential technical subcommittee in its history so far. Let me tell you the events leading to the meeting and why it is so relevant.

In the 1990s, the Tampa Bay Estuary Program (TBEP) adopted an approach to decrease nitrogen inputs to the bay that would reduce *chlorophyll a* (the green stuff in the water) and allow light to reach expanding seagrass beds. This approach has been highly successful. TBEP has demonstrated both decreasing *chlorophyll a* concentrations and more seagrass acreage toward meeting their target. Work completed by Mote Marine Laboratory demonstrated that light penetration within Charlotte Harbor's estuaries was controlled not only by *chlorophyll a* but also turbidity (muddy stuff in the water) and colored dissolved organic matter (tea-colored stuff in the water). In 2008, we embarked on a process to establish seagrass and water clarity targets. We identified restoration targets for about half of our bay segments, including Dona & Roberts Bays in Venice, Upper Lemon Bay, Peace River and Upper Charlotte Harbor, Matlacha Pass, Caloosahatchee River and Estero Bay. We also established water clarity targets and thresholds for each bay segment to protect existing seagrass. Concurrently, we updated the pollutant loading information by watershed.

NEPs represent a wide variety of interests with science-based policy advancement at our heart. A CHNEP meeting probably set the stage for specific standards for numeric nutrient criteria to be adopted into federal law.

Also in 2008, the Florida Wildlife Federation filed a lawsuit seeking to require EPA to promulgate numeric nutrient water quality standards for Florida waters. On Jan. 14, 2009, EPA determined that Florida's existing narrative criteria was not sufficient. It identified allowable *chlorophyll a* levels but was silent on specific nitrogen and phosphorus concentrations, which could be used more effectively in regulatory programs. The consent decree set a time clock to propose numeric nutrient standards for lakes and flowing waters by January 2010 and standards for estuarine and coastal waters by January 2011. EPA further agreed to establish final standards by October 2010 for lakes and flowing waters and by October 2011 for estuarine and coastal waters.

This seemed to constitute an incredible alignment of stars: EPA committed to propose numeric nutrient standards for estuarine and coastal waters by January 2011.

The Gulf Coast National Estuary Program, including CHNEP, TBEP and Sarasota Bay Estuary Program were already working on establishing water quality targets to protect seagrass beds within estuaries. With the assistance of the Southwest Florida and the South Florida water management districts, we modified the 2008 contract to include development of a CHNEP recommendation to

EPA and the state of Florida for appropriate, science-based numeric nutrient criteria. This year, we also successfully advocated that EPA should delay promulgation of "Downstream Protection Values" for estuaries within the freshwater rule. That would allow us to complete our review of estuarine water quality needs prior to rules being adopted.

That brings us to September 20! The Technical Advisory Committee (TAC) Water Quality and Quantity Subcommittee (WQQOS) hosted a meeting for the first review of alternatives related to setting the criteria. More than 30 people participated, with some participating remotely. (We have been more successful using telephone conference and web-based techniques this year. This allows participation from EPA's regional office in Atlanta and elsewhere.)

From this meeting, we developed consensus on several issues and directed our contractor to perform some additional analysis so that our recommendations emanate from our water clarity targets and thresholds. NEPs represent a wide variety of interests with science-based policy advancement at our heart. This single NEP meeting probably set the stage for specific standards to be adopted into federal law.



Dr. Lisa B. Beever, Director



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

Charlotte Harbor National Estuary Program

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Harbor Happenings Fall 2010: Volume 14, Issue 3

The CHNEP publishes this free quarterly newsletter 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 CHNEP editor by mail or email. Deadlines are February 1, May 1, August 1 and November 1. The newsletter is typically distributed in January, April, July and September.

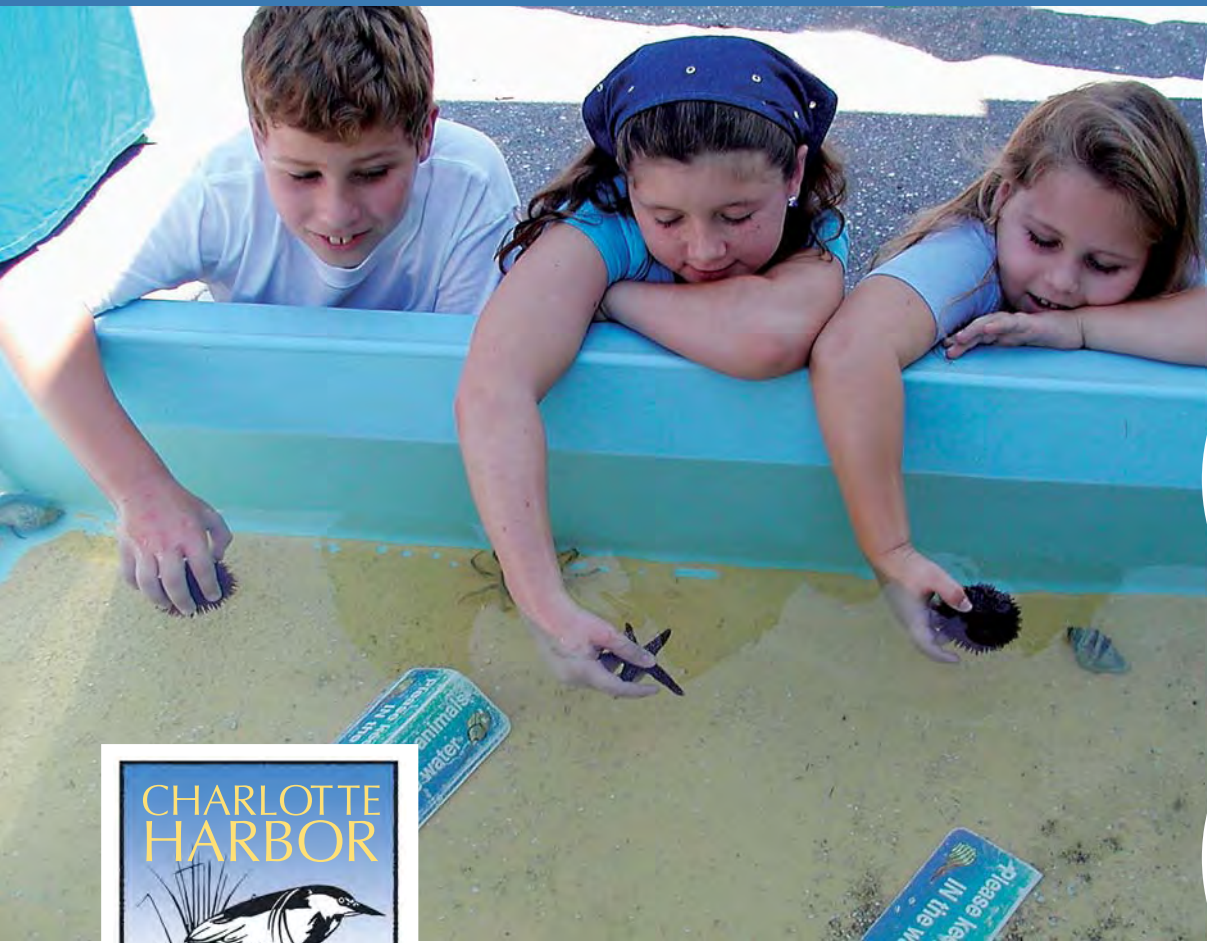
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Request a free subscription by contacting the editor.

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Enjoy a hands-on nature experience!



The Eleventh Annual CHARLOTTE HARBOR NATURE FESTIVAL

**Charlotte County
Sports Complex
2300 El Jobean Rd.
SR 776 in
Port Charlotte,
2.5 miles
west of US 41**

**Admission and
parking are FREE**

**Additional details
are posted at
www.CHNEP.org**

The Charlotte Harbor Nature Festival is a regional celebration where young and old can enjoy a day outdoors and learn about the natural environment of southwest Florida.

Discover what's unique and wonderful about our animals, plants, water and land – and what you can do to help our environment. We'll help you create your own habitat for butterflies and birds and show you products that are friendlier to the Earth.

There will be more than 60 exhibits, guided walks and wagon rides (conditions permitting) in Tippecanoe Environmental Park, hands-on activities, art and food. The Charlotte Harbor National Estuary Program will give away three-power binoculars to

children and tote bags to families, while supplies last.

Plus, an entire tent is devoted to children. Author Carol Mahler will read from *Adventures in the Charlotte Harbor Watershed*. Mote Marine Laboratory will bring their traveling touch tank with lots of live native animals. Children can learn about fishing then, while supplies last, receive a free fishing pole. There will be lots of other fun activities, including meeting our local mascots.

Volunteers organize the festival and generous sponsors allow the event to be free. Exhibitors donate items for an on-site raffle.

Come out for a day of fun and learn what makes southwest Florida's natural environment so special!

Saturday, Nov. 20 • 10 a.m. to 3 p.m.

CHNEP Offers Chance to Explore Estuaries Up Close and Personal

Muck about in the shallow waters of our local estuaries to see for yourself some of the aquatic critters that call these shallow waters home and you'll quickly understand the importance of these waters. The Charlotte Harbor National Estuary Program is pleased to sponsor wading trips through several local environmental organizations. To register, contact the organization that is offering the program of interest to you. Dates are subject to change due to weather, etc. An updated list will always be posted at www.CHNEP.org. The wading trips listed on this page are scheduled between October 2010 and September 2011.



Cedar Point Park in Englewood

Ponce de Leon Park in Punta Gorda

Pine Island Sound on Pine Island

Estero Bay at Big Carlos Pass



Pine Island Sound on Pine Island at 9:30 a.m. Call Charlotte Harbor Aquatic Preserves at 941/575-5861.

- Friday, November 5, 2010
- Friday, February 11, 2011
- Saturday, March 19, 2011
- Friday, April 8, 2011

Estero Bay at Big Carlos Pass at the north entrance of Lovers Key at 10:30 a.m. Call Estero Bay Aquatic Preserve at 239/463-3240.

- Friday, March 4, 2011
- Friday, April 1, 2011
- Monday, May 23, 2011

Pine Island Sound on Pine Island at 9 a.m.

Call Calusa Heritage Trail/Randell Research Center at 239/283-2157.

- Saturday, March 26, 2011
- Saturday, April 9, 2011
- Saturday, April 23, 2011
- Saturday, May 7, 2011



The students in these pictures participated in field trips for seventh-grade students at L.A. Ainger Middle School in 2005. Field trips were sponsored by the CHNEP with public outreach grants from 2002 to 2008.

Cedar Point Park in Englewood at 9 a.m. Call CHEC Cedar Point Environmental Park at 941/475-0769.

- Wednesday, November 24, 2010
- Tuesday, December 28, 2010
- Wednesday, January 26, 2011
- Monday, February 28, 2011
- Tuesday, March 29, 2011
- Wednesday, April 27, 2011
- Friday, May 27, 2011
- Monday, June 27, 2011
- Saturday, July 9, 2011
- Tuesday, July 26, 2011
- Saturday, August 13, 2011

Ponce de Leon Park in Punta Gorda at 9:30 a.m. Call CHEC Alligator Creek Site at 941/575-5435.

- Friday, November 19, 2010
- Saturday, January 15, 2011
- Saturday, January 29, 2011
- Saturday, February 12, 2011
- Tuesday, March 1, 2011
- Friday, March 4, 2011
- Tuesday, March 8, 2011
- Friday, March 11, 2011
- Tuesday, March 15, 2011
- Friday, March 18, 2011
- Tuesday, March 22, 2011

CHNEP CHARLOTTE HARBOR WATERSHED SUMMIT

THE STATE OF OUR WATERSHED

March 29–31, 2011

Charlotte Harbor Event & Conference Center, Punta Gorda

The Charlotte Harbor National Estuary Program (CHNEP) is a partnership of citizens, elected officials, resource managers and commercial and recreational resource users who are working to improve the water quality and ecological integrity of the CHNEP study area. A cooperative decision-making process is used within the program to address diverse resource management concerns in the 4,700-square-mile study area from Venice to Bonita Springs to Winter Haven.

The watershed summit is an essential part of the CHNEP process to bring public and private stakeholders together to discuss current studies and environmental issues facing our watershed. It is an

important opportunity to review accomplishments completed since our last watershed summit in 2008 and discuss emerging topics affecting the Charlotte Harbor watershed in the future.

The CHNEP is now requesting abstracts for oral and poster presentations for the fifth triennial Charlotte Harbor Watershed Summit. The theme is “The State of Our Watershed” and will include research, restoration, implementation and outreach presentations. Abstracts are due no later than Jan. 9, 2011.

Additional guidance, as well as presentations and reports from the first four summits, are available at www.CHNEP.org.

Reading list for CHNEP

Ever wanted to know how researchers catch a panther? How railroads in early Florida changed the environment? How to identify a slash pine? What Florida was like before bug spray? How people have reshaped the ecosystem? How to plant a butterfly garden in Florida?

Check out the new recommended book list on the CHNEP website, www.CHNEP.org. The list features a handpicked selection by Claire Miller of the best fiction and nonfiction books about the Charlotte Harbor watershed, with links to WorldCat so you can search for them at your local library. Pick one out and expand your knowledge of our environment, history and culture.

Do you have a favorite book that helps the reader better understand the natural environment of southwest Florida? The website will give you the ability to add your recommendations.

New reports from the CHNEP

The CHNEP contracts with experts to produce reports, supports projects through research and restoration partner grants, and receives grants from others to accomplish specific projects. A few recently accepted reports include:

- *Lemon Bay Fisheries Independent Monitoring Report*
- *Restoration of Native Groundcover Report*
- *Peace River Submerged Aquatic Vegetation Report*
- *Watershed Analysis of Permitted Coastal Wetland Impacts and Mitigation Methods Within the CHNEP Study Area*

These reports are posted on the website at www.CHNEP.org.

Conservation landscaping workshop

January 20, 2011

Each year the Charlotte Harbor National Estuary Program, the Southwest Florida Water Management District and many others offer a free conservation landscaping workshop, primarily for those who live in Hardee, DeSoto and Highlands counties. The 2011 workshop will be held Saturday, January 20, 2011 at the Turner Center in Arcadia. More details will be included in the next issue and will be posted on the CHNEP website at www.CHNEP.org.

Ten guidelines for landscaping

1. Minimize mowing.
2. Incorporate native plants.
3. Reduce hardened surfaces.
4. Conserve energy by conserving water.
5. Minimize/eliminate fertilizer and pesticide use.
6. Reuse yard waste.
7. Increase tree canopy.
8. Create biodiversity.
9. Naturalize the shoreline.
10. Engage your neighborhood.

More details about this guidance is posted on the CHNEP website, at www.CHNEP.org.

Smalltooth Sawfish (*Pristis pectinata*)

Sawfish, like sharks, skates and rays, belong to a group of fish called elasmobranchs, whose skeletons are made of cartilage. Sawfish are actually modified rays with a shark-like body and gill slits on their ventral side. Early sawfish arose around 100 million years ago, but these first sawfish are actually distant cousins to modern-day sawfishes, which first appeared around 56 million years ago. Sawfish get their name from their “saws” — long, flat snouts edged with pairs of teeth. They use their saws as a weapon to kill and capture prey and also as a sensory organ in murky water or to detect buried prey. Their diet is mostly fish but also includes some crustaceans.

Smalltooth sawfish is one of two species of sawfish that inhabit U.S. waters. Smalltooth sawfish commonly reach 18 ft. in length, and they may grow to 25 ft.

Little is known about the life history of these animals, but they may live up to 25–30 years, maturing after about 10 years.

Like many elasmobranchs, smalltooth sawfish are ovoviparous, meaning the mother holds the eggs inside of her until the young are ready to be born, usually in litters of 15 to 20 pups.

Sawfish species inhabit shallow coastal waters of tropical seas and estuaries throughout the world. They are usually found in shallow waters very close to shore over muddy and sandy bottoms. They are often found in sheltered bays, on shallow banks and in estuaries or river mouths. Certain species of sawfish are known to ascend inland in large river systems, and they

are among the few elasmobranchs that are found in freshwater systems in many parts of the world.

Under the Endangered Species Act, it is illegal to catch or harm an endangered sawfish. However, some fishermen catch sawfish incidentally while fishing for other species. National Marine Fisheries Service and the Smalltooth Sawfish Recovery Team have developed guide-

lines for fishermen on how to safely handle and release any sawfish they catch. Some states have taken additional steps to protect this species. The states of Florida, Louisiana and Texas have prohibited the “take” of sawfish. Florida’s existing ban on the use of gill nets in state waters is an important conservation tool. Three national wildlife refuges in Florida also protect their habitat.

SOURCE: National Marine Fisheries Service

NOTICE TO RECREATIONAL AND COMMERCIAL FISHERS



Sawfish are listed as endangered under the Endangered Species Act, which makes it illegal to harm, harass, or handle them in any way. It is illegal to hook or net one, except with a permit or in a permitted fishery. Accidental captures do occur while fishing for other species; if a sawfish is hooked or netted it should be released immediately. Remove as much fishing gear as safely as possible. **DO NOT REMOVE THE SAW.**

Sawfish Safe Release Guidelines

If hooked:

- Keep sawfish in the water at all times.
- If it can be done safely, untangle the line if it is wrapped around the saw and remove as much of the line as possible.
- Cut the line as close to the hook as possible.
- Do not handle the animal or attempt to remove any hooks on the saw unless you have a long-handled de-hooker.

If tangled in a net:

- Make every effort to free the animal from the net with minimal additional stress or injury.
- Keep sawfish, especially the gills, in the water as much as possible.
- Try to remove all the netting and release the animal quickly.
- **DO NOT REMOVE THE SAW.**



WARNING: Sawfish are large powerful animals that can cause serious injury. For your safety, and the safety of the sawfish, use caution if you do hook or net one of these animals.

Reporting a Sawfish Encounter

The Florida Museum of Natural History and Mote Marine Laboratory have established a sawfish tracking database to assist in sawfish conservation efforts. If you do accidentally encounter a sawfish, you can greatly help conservation efforts by providing the following information:

- Your name, phone number, and email address
- Date, time, and location of the encounter
- Number, size, and behavior of the sawfish during encounter
- Your activity at time of encounter
- Information on any tags, scars, or distinguishing marks

Please report this information to any of the below contacts:

George H. Burgess
Florida Museum of Natural History
Email: sawfish@flmnh.ufl.edu
Phone: (352) 392-2360

Colin Simpfendorfer
Mote Marine Laboratory
Email: sawfish@mote.org
Phone: (941) 388-4441

Gregg Poulakis
FL Fish and Wildlife Conservation Commission
Email: sawfish@myfwc.com
Phone: (941) 255-7403



Little is known about endangered smalltooth sawfish

Amy Timmers, FWRI Charlotte Harbor Field Laboratory

Since 2004, scientists with the Florida Fish and Wildlife Conservation Commission (FWC) Fish and Wildlife Research Institute (FWRI) are part of a small group of scientists learning about the biology, ecology and life history of the endangered smalltooth sawfish (*Pristis pectinata*).

Smalltooth sawfish swim like sharks but are more closely related to rays. Historically, sawfish were often caught from North Carolina to Texas in commercial nets because their saw is very susceptible to entanglement. In addition, like other rays and sharks, sawfish take years to reach maturity, are long-lived and produce few young. These factors contributed to the decline of the sawfish population. Today, sawfish occur in the United States primarily from Charlotte Harbor, Florida, to the Florida Keys. Large sawfish (up to 18 feet) are found in deep-water habitats. During the first two to three years of life, juvenile sawfish (up to 7 feet) are found in estuarine habitats where there is a mixture of fresh and salt water. This habitat provides an area of food production as well as protection from large marine predators. Typically, adult female sawfish move into estuaries, especially river mouths such as the lower Caloosahatchee, Myakka and Peace rivers, during spring to deliver up to 20 live young.

At birth, sawfish measure about 2.5 feet. Their saw teeth are covered in a protective sheath made of soft tissue so as not to injure the mother. Newborn sawfish have been collected with whole or partial sheaths between November and July. The sheath takes about two weeks to disappear after the sawfish are born. Based on the presence of the sheath, sawfish can be born from November to July, but most are typically born during March and April. Juvenile sawfish have a fast growth rate, doubling in size during their first year.

From 2004 to 2009, FWC research was focused on juveniles found in the Caloosahatchee River. The areas of the river concentrated on depended greatly on encounter reports by the public. Public encounter reports, along with FWRI research, have shown that sawfish use all habitats available to them in the Caloosahatchee River. All captured sawfish are tagged with a variety



Sawfish measure about 2.5 feet at birth and double their size during their first year. They typically are born in March and April.

of tags, including small acoustic transmitters that emit an underwater signal. This signal is detected whenever they swim by one of the many listening stations that are moored in the Caloosahatchee River and upper harbor. The fish can be tracked until the tags fall off at about three months. Angler reports and FWRI research also show that sawfish use the lower part of the river during wet years and move upriver during drought years. Therefore, they tend to move upriver with increasing salinity. The smaller juvenile sawfish move upriver about two months after conditions change, and larger juvenile sawfish move upriver about four months after conditions change. These movements could occur for at least three reasons: (1) juvenile sawfish may be more tolerant of salinity changes than other sharks and rays, (2) they prefer specific areas of the river and will remain there until environmental conditions force them to relocate or (3) their response to prey populations also change with environmental conditions.

With a grant from the National Marine Fisheries Service, research will continue through summer 2013. Sampling for juveniles will

continue in the Caloosahatchee River and include upper Charlotte Harbor at the mouths of the Peace and Myakka rivers, as well as the Hog Island area. Research partners will also be sampling juveniles in the Ten Thousand Islands. This research will allow us to determine similarities and differences in habitat use between these areas. In addition, adult sawfish between Charlotte Harbor and the Florida Keys will be tagged with satellite tags to identify the habitats they use. These data will contribute to ensuring the conservation and recovery of the remaining sawfish population.

Smalltooth sawfish have been protected in Florida since 1992; as of April 1, 2003, the species was listed as endangered under the United States Endangered Species Act. If one is accidentally caught, it must be promptly released. To assist in this research, anglers and boaters are encouraged to report a catch or sighting to FWC (941/255-7403, sawfish@MyFWC.com) or the Florida Museum of Natural History (352/392-2360, sawfish@flmnh.ufl.edu).

See p. 6 for more information.

—Charlotte Harbor National Estuary Program —

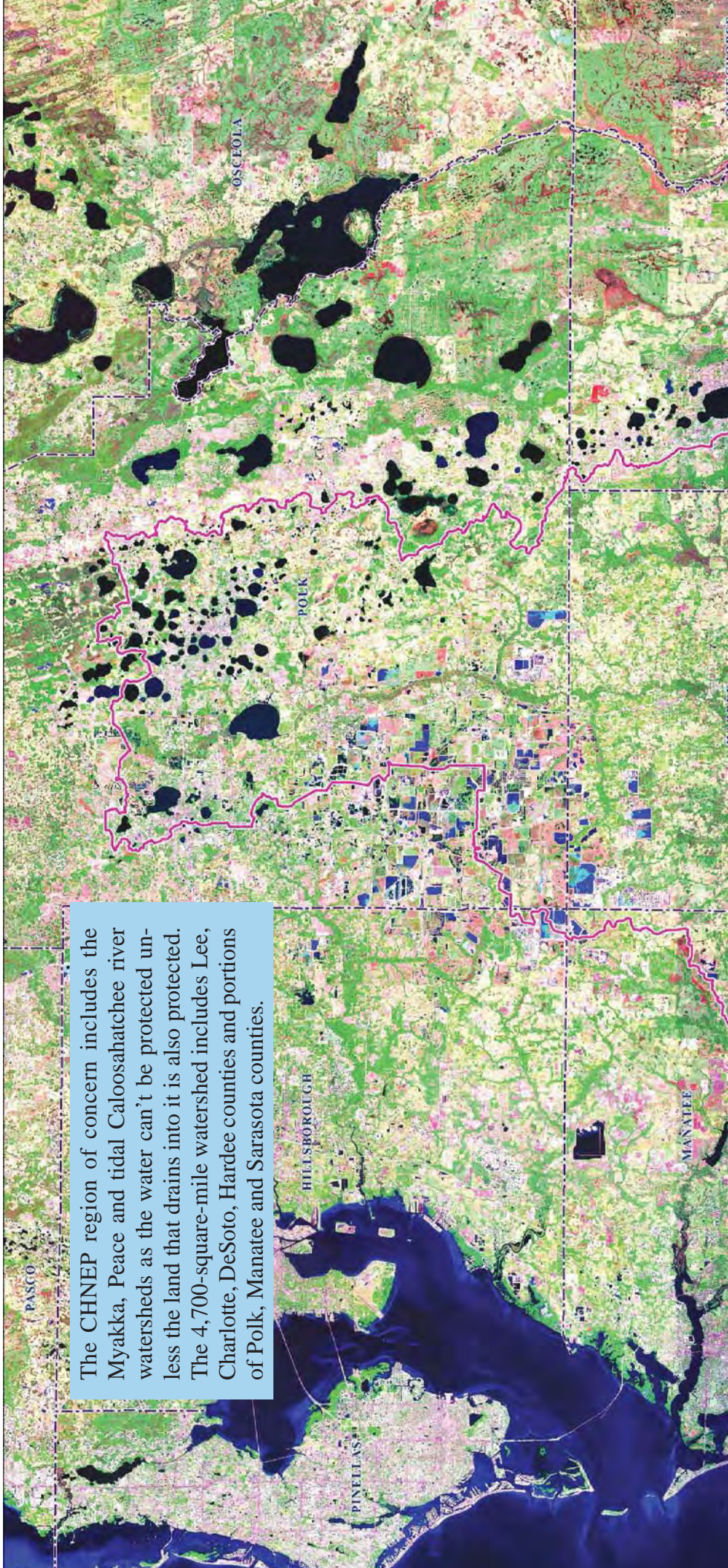
The National Estuary Program was established in 1987 by an amendment to the Clean Water Act to identify, restore and protect estuaries along the coasts of the United States. In 1995, Governor Lawton Chiles submitted an application to designate the estuarine system around Charlotte Harbor. The application was accepted by EPA and the Charlotte Harbor National Estuary Program was created (CHNEP). There are now 28 “estuaries of national significance” within the National Estuary Program.

In 1996, a decision-making team of local citizens, elected officials, resource managers and resource users, known as the Management Conference, set to work to develop a 20-year *Comprehensive Conservation and Management*

Plan (CCMP) that identifies the region’s common priority environment issues and actions needed to solve them.

The CCMP was accepted in 2001 then updated in 2008. The four priority problems throughout the region that impact the health of the estuaries are stewardship gaps, fish and wildlife habitat loss, water quality degradation and hydrologic alterations.

The specific purpose of the CHNEP is to ensure that the CCMP to protect the natural environment from Venice to Bonita Springs to Winter Haven is implemented through a partnership by engaging and empowering local citizens, scientists, elected officials, resource managers and resource users.



The CHNEP region of concern includes the Myakka, Peace and tidal Caloosahatchee river watersheds as the water can't be protected unless the land that drains into it is also protected. The 4,700-square-mile watershed includes Lee, Charlotte, DeSoto, Hardee counties and portions of Polk, Manatee and Sarasota counties.



Charlotte Harbor
National Estuary Program
www.CHNEP.org
Toll-free 866/835-5785

Satellite image provided by Timothy
D. Liebermann, South Florida Water
Management District.

Babcock Ranch Update: Going Green and Going Strong

Lisa Hall, Kitson & Partners

While plans for the world's largest photovoltaic solar plant and advanced technological infrastructure for the future city of Babcock Ranch have drawn national and international attention, less-heralded but equally significant progress has been made by collaborative partners working on wildlife corridor connectivity strategies and the long-term management plan for the Babcock Ranch Preserve.

The Babcock Ranch steering committee has completed its work on wildlife corridors and future land-use recommendations and will be issuing a final report in December 2010, including a connectivity study by Reed Noss and Tom Hctor. Established by Kitson & Partners and the Sierra Club, this broad-based group, including local government, state agencies, conservationists, landowners and other interested citizens, has been working since 2007 toward consensus strategies. These strategies will form the basis of a southwest Florida pilot project by the Florida Fish and Wildlife Conservation Commission (FWC) for their Cooperative Conservation Blueprint (CCB). (Editor's note: The CCB is a multi-partner strategic plan that is being developed to create a proactive conservation framework for Florida.)

Management of the Babcock Ranch Preserve is also a collaborative effort. As the state's only financially self-sufficient working public lands, Babcock Ranch Preserve requires a careful balance between public access and ongoing enterprises that fund the preserve. Kitson & Partners will continue to meet that challenge under an agreement with the state to extend the management contract to 2016. "Babcock Ranch is the product of decades of outstanding land stewardship, and we are proud to continue that tradition," said Syd Kitson, chairman and chief executive officer of Kitson & Partners. "We remain committed to managing the ranch to its full potential as Florida's first self-sustaining public lands."

The Florida Division of Forestry and FWC are the lead agencies for the preserve. Over the past year, FWC has developed and approved a three-tiered approach for public hunting on the preserve. The plan, recently approved by FWC, includes tier one quota permits for weekend hunts and a second



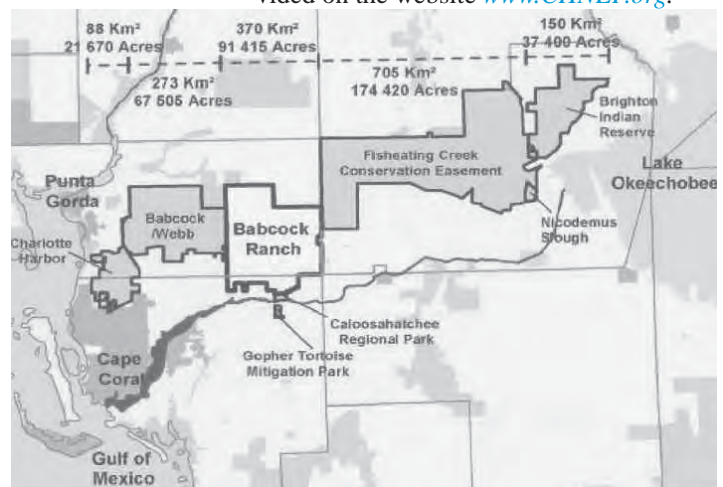
tier — selected by random draw — that will grant seasonal rights for specified areas. The third tier of the FWC plan allows for the future addition of guided hunts. The first tier of hunting is already under way and the second tier of hunting will be added once a detailed implementation plan is in place.

The details for the City of Babcock Ranch, which will be next door to the preserve, are also coming together. In addition to an agreement to build a 75MW photovoltaic solar plant, Florida Power & Light will equip the city with advanced smart grid technology, and rooftop solar arrays on commercial buildings will add to generating capacity as the city grows. Kitson & Partners has partnered with IBM to build Babcock Ranch as a smart city, which will electronically coordinate energy, water, transportation, safety and education. Technology, paired with community-wide standards for energy-efficient design and construction, will drive per-capita energy consumption down. Passive and active conservation

measures are an integral part of the Kitson & Partners' commitment to ensure the new city generates more clean, renewable energy than it uses.

"The technology's flexibility will allow the City of Babcock Ranch to evolve and adapt, incorporating advancing clean technologies as they are developed," Kitson said. "We are excited by the opportunity to pioneer emerging technologies that will create a new model for sustainable living."

Visit www.BabcockRanchFlorida.com for more information. Earlier articles are provided on the website www.CHNEP.org.



On July 31, 2006 the State of Florida and Lee County purchased 73,235.40 of the 90,845.30 acre Babcock Ranch for conservation and agriculture from the Babcock Florida Company. Due to the settlement reached with Sierra Club, 2,000 of the remaining 17,609.9 acres has a conservation easement placed on it. This means that the land can't be developed.

Canalwatch Volunteer Program

Kim Cressman, City of Cape Coral

Cape Coral's most unique feature is its 400-mile network of canals. Residents value the waterfront living and recreation provided by these waterways. Canals also serve to provide stormwater treatment, irrigation water and wildlife habitat. Water quality affects and is affected by all of these functions.



Sunset photo by Jeanette Chupack.

Canalwatch is a volunteer water sampling program composed of local residents and coordinated by the city's Environmental Resources Section (ERS). The goals of the program are to educate citizens about water quality issues, establish relationships between residents and the city's environmental staff, and increase community members' ownership of our common resources.

On the first Wednesday of every month, 60 volunteers measure water clarity at their assigned sites and collect water samples to bring to Cape Coral's environmental laboratory. Because most volunteers sample the canal they live on, the majority of samples come from brackish canals. Some freshwater canals are also sampled. A number of volunteers have accepted the extra task of collecting temperature, dissolved oxygen (DO), Secchi depth and pH data in the field, then using a refractometer to measure salinity at the sample drop-off location. The lab analyzes each sample for several nutrients, including nitrate (NO_3), ammonia (NH_3), total Kjeldahl nitrogen (TKN), which is the sum of organic nitrogen, ammonia and ammonium, total nitrogen (TN) and total phosphate (TPO4).

Staff biologists use the data to keep tabs on areas of the canals that are not regularly sampled by the city. All results are published in the Canalwatch quarterly newsletter, which is mailed or emailed to all interested parties, including non-volunteers. A canal owner's manual, newsletters and other program information can be found at www.capecoral.net.

Cape Coral's 400-mile canal system is a definitive feature of the city and one of its most vital economic assets. The canals offer waterfront living and recreation, protect homes from floods, enhance property values, supply irrigation water and attract wildlife.



Carey Parks takes a Secchi depth reading. This circular disk has been used since 1865 to measure water transparency. It measures how deep a person can see into the water. Photo taken by Ruth Parks.

Canalwatch Volunteer Program

... an opportunity to protect and enhance Cape Coral's aquatic environment. The volunteer monitoring process provides information about canal dynamics throughout the City, enabling better management of its waters.

CHNEP awards 11 public outreach grants

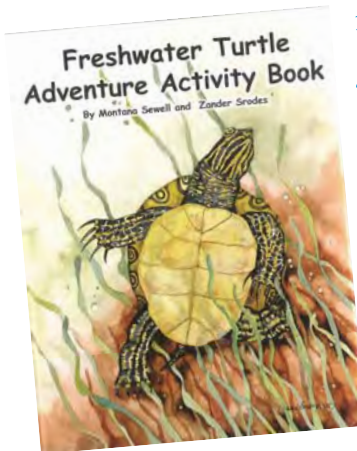
Of the 23 public outreach grant applications received in 2010, the CHNEP will be supporting the 11 applications listed below. These projects help further the program's plan to protect the natural environment from Venice to Bonita Springs to Winter Haven. Brief descriptions of these projects are available at www.CHNEP.org. The CHNEP offers public outreach grants up to \$5,000 to Florida residents, organizations, businesses, government agencies, schools, colleges and universities. The CHNEP is seeking funds to support four more of the applications submitted this year.

- Charlotte Harbor Wildlife Cruises: DeSoto County Public Schools
- Meet Charlotte Harbor: Port Charlotte Middle School (Charlotte)
- Charlotte Harbor Study by Fifth-Grade Students: Hardee County Outdoor Classroom
- Get Your Feet Wet in Estuaries and Science: Volunteer Scientific Research Team, Inc.
- Learning, Serving and SPLASHING: Littleton Elementary School (Lee)
- Cooperate for Conservation at Taylor Ranch Elementary and Venice High Schools (Sarasota): Kay Thorpe Bannon
- Watershed Educational Display Signs at Lake John/Peterson Park: Lakes Education/Action Drive
- Pedal & Learn: TEAM Punta Gorda
- Tiger Water Tails: Snively Elementary School of Choice (Polk)
- No Child Left on Shore: Captiva Cruises (Lee)
- Veterans Parkway Urban Forestry Project: Urban Forestry in Cape Coral

Public outreach grants are awarded once a year. The guidance document will be available from the CHNEP website by December. The deadline to apply for a grant is anticipated to be Sept. 7, 2011.

Small grants are available

The CHNEP offers small "micro" grants up to \$250 to assist others in their efforts to help protect the environment as defined by the program. Guidance and an online application form are at www.CHNEP.org, as well as a listing of completed projects/



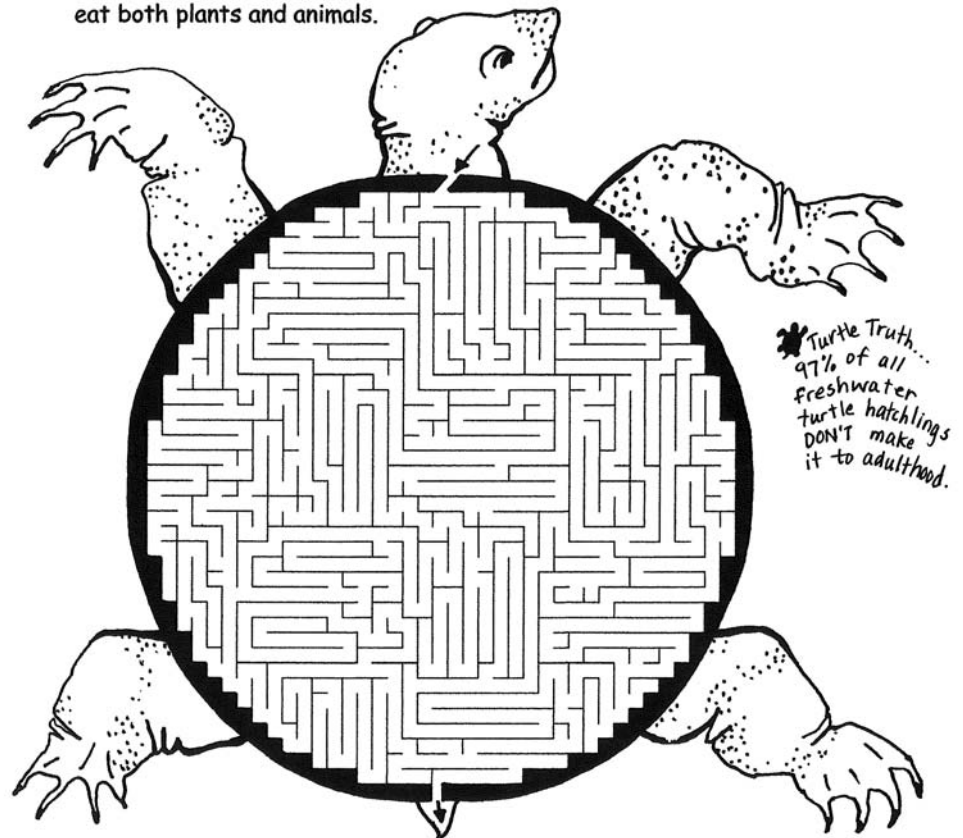
Freshwater Turtle Adventure Activity Book

In 2009, the CHNEP supported a public outreach grant to Turtle Talks to create an activity book on freshwater turtles. This is the fourth activity book CHNEP has supported with a public outreach grant. All the books are posted at www.CHNEP.org with instructions on how to request a supply, if available. A sample page is provided here.

Turtle Habits

Nearly all turtles spend some of their day underwater where they swim, seek out food, or sleep. Some turtles are very closely linked to water plants. They eat water plants, sleep in them, and hide behind them for protection. Some turtles are even camouflaged to look like plants. The spotted shell of one turtle looks like the duckweed plant. Flying bugs will land on this turtle's shell and become its food.

Some turtles species are carnivores eating crayfish, fish, and insects. Vegetarian species eat plants and algae. Several are omnivores. They eat both plants and animals.



Volunteers help preserve trees and gopher tortoise burrows in Charlotte County parks

The logging is finished in three of Charlotte County's parks. After a lengthy process, with the help of Charlotte County Commissioner Bob Starr and Ken Reecy of the Florida Communities Trust, the Greater Charlotte Harbor Group of the Sierra Club and local partner organizations were able to preserve trees along the trails as well as more than 220 gopher tortoise burrows in Oyster Creek and Amberjack parks in west Charlotte County. CHEC volunteers followed suit at Cedar Point Park.

In the process, we found that citizens — old, young, working and retired — love parks. In November 2009, the local community was told of a plan to log four county parks, starting immediately. In January, after reading the contracts and park management plans and meeting with county staff — without satisfaction to many shared concerns — nine community groups along with citizens and experts signed a letter to the Florida Communities Trust (FCT). The letter outlined concerns and requested adjustments to the logging plan.



Commissioner Starr (left to right), Terri Harvey and Sue Reske at Oyster Creek Park. A gopher tortoise is in the foreground.

In response, FCT required Charlotte County to:

- Conduct gopher tortoise surveys prior to logging
- Leave a 100-foot buffer along Oyster Creek
- Contact FCT before any future logging in parks
- Mark some trees prior to thinning

In April, leaders from local volunteer organizations, including Sierra Club, CHNEP, RSVP and CHEC, met with county staff

to plan this work. Volunteers then assisted county staff in three parks for five days, two hours each day, marking trees and gopher tortoise burrows. Realizing this was insufficient to cover the 600+ acres involved, CHNEP Citizen Advisory Committee Member Kathleen Rohrer and Sierra Club Special Projects Chair Sue Reske appealed to the county, ultimately gaining permission to flag gopher tortoise burrows with an authorized agent. By July, local volunteers had located, mapped and flagged more than 220 burrows in two parks alone. Thanks to the mapping, Commissioner Starr and Ms. Reske were able to negotiate the removal of several tortoise-dense areas from the logging altogether in Amberjack and Oyster Creek parks. Congratulations to those made this unparalleled cooperation a success, including Drs. Bill and Margaret Dunson and the hard-working members of the Greater Charlotte Harbor Group of the Sierra Club, the Coastal Wildlife Club, CHEC, East Englewood Homeowners Association, RSVP, the Lemon Bay Conservancy, People for Trees, Friends of Cape Haze and Terra Shores.

Climate change threatens hundreds of bird species

Jessica H. Wahl, U.S. Department of the Interior

Climate change threatens to further imperil hundreds of species of migratory birds already under stress from habitat loss, invasive species and other environmental threats, a new report released by Secretary of the Interior Ken Salazar concludes.

The State of the Birds: 2010 Report on Climate Change follows a comprehensive report released in 2009 showing that nearly a third of the nation's 800 bird species are endangered, threatened or in significant decline.

"For well over a century, migratory birds have faced stresses such as commercial hunting, loss of forests, the use of DDT and other pesticides, a loss of wetlands and other key habitat, the introduction of invasive species and other impacts of human development," Salazar said. "Now they are facing a new threat — climate change — that could dramatically alter their habitat and food supply and push many species toward extinction."

The report, a collaboration of the U.S. Fish and Wildlife Service and experts from the nation's leading conservation organizations, shows that climate changes will have an increasingly disruptive effect on bird species in all habitats, with oceanic and Hawaiian birds in greatest peril.

"Just as they did in 1962 when Rachel Carson published 'Silent Spring,' our migratory birds are sending us a message about the health of our planet," Salazar said. "That is why — for the first time ever — the Department of the Interior has deployed a coordinated strategy to plan for and respond to the impacts of climate change on the resources we manage."

"Birds are excellent indicators of the health of our environment, and right now they are telling us an important story about climate change," said Dr. Kenneth Rosenberg, director of Conservation Science at the Cornell

Lab of Ornithology. "Many species of conservation concern will face heightened threats, giving us an increased sense of urgency to protect and conserve vital bird habitat."

"The report offers solutions that illustrate how, by working together, organizations and individuals can have a demonstrable positive impact on birds in the U.S. Specifically, the report indicates that the way lands are managed can mitigate climate change and help birds adapt to changing conditions. For example, conserving carbon-rich forests and wetlands and creating incentives to avoid deforestation can reduce emissions and provide invaluable wildlife habitat.

Links to additional information, including the 2009 and 2010 reports, are available at www.CHNEP.org as are reports about climate change in southwest Florida.

Water resources in Florida

Florida's five water management districts and the Department of Environmental Protection worked to compile all aspects of our state's most precious resource — water — in the 1998 book *Water Resources Atlas of Florida*. This article contains information taken from this book. Visit www.CHNEP.org for links to free PDF files of the book.

Almost every facet of life in Florida has a close association with water. Florida has 1,197 miles of coastline, 7,700 lakes greater than 10 acres, more than 1,700 streams, 3 million acres of wetlands and 27 first-magnitude springs. These resources are intricately and delicately interwoven into an interactive system.

Nearly all of Florida's ground water originates from precipitation. Part of this precipitation percolates to the water table and recharges the groundwater reservoir.

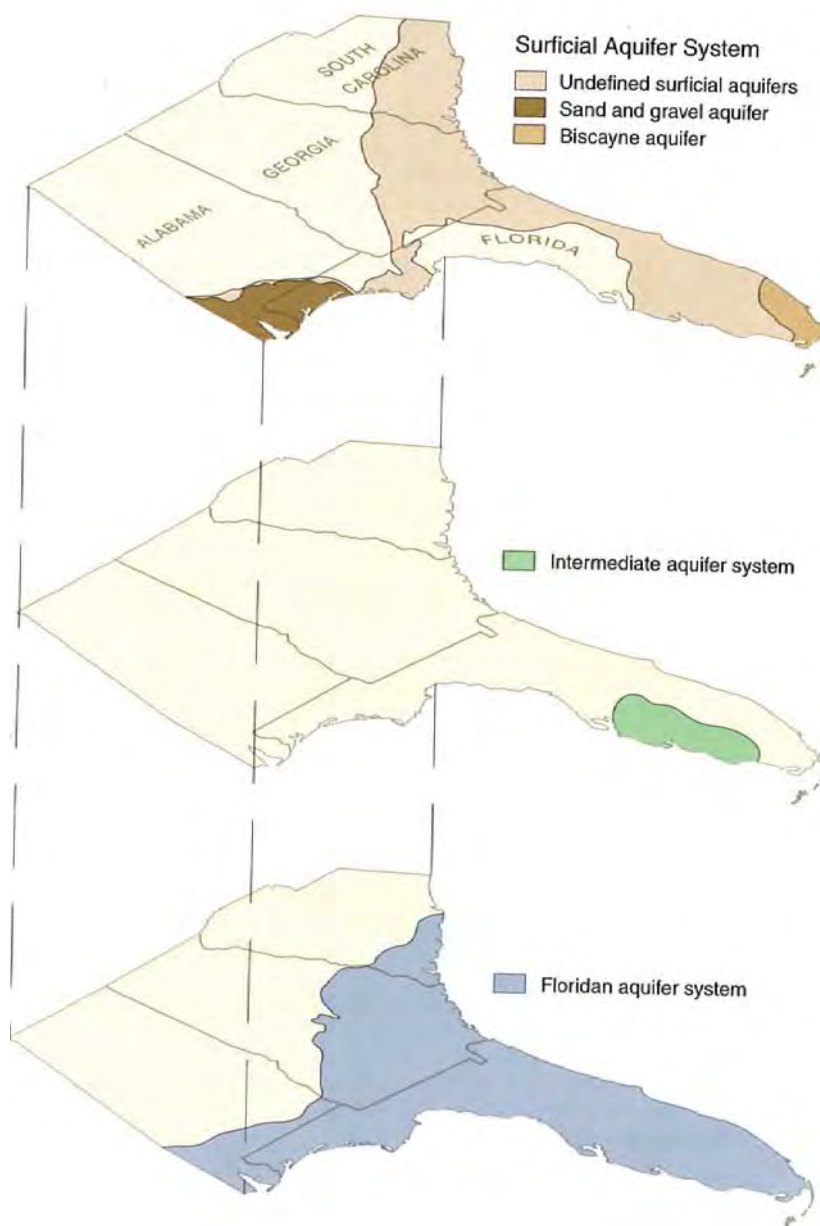
Florida is underlain virtually everywhere by aquifers. Aquifers are defined on the basis of rock types, geological confinement and groundwater flow. An aquifer system consists of two or more hydraulically connected aquifers. Three aquifers in Florida are used for water supply: the surficial aquifer system, the intermediate aquifer system and the Floridan aquifer system.

The surficial aquifer system includes aquifers present at the land surface. The majority of surface water bodies are supplied by discharged ground water that underlies most of the peninsula and forms more than 90 percent of the base flow of surface waters. Rivers flow to estuaries and maintain the salinity regimes necessary for the growth and survival of aquatic organisms and vegetation.

The intermediate aquifer system consists of those water-bearing units separated by confining units. In southwestern Florida, the underlying Floridan aquifer system contains nonpotable water, thus the intermediate aquifer system is a major source of water supply for Charlotte, Lee and Sarasota counties.

The Floridan aquifer system underlies a total area of about 100,000 square miles of the entire state of Florida and portions of Alabama, Georgia and South Carolina. As one of the most productive aquifers in the world, it has been called "Florida's rain barrel." It is defined on the basis of permeability: it is at least 10 times more permeable than its upper and lower confining units. It is composed of a thick sequence of carbonate rocks of limestone and dolomite.

Sequence of Aquifers



People often wonder why Florida, with an average rainfall of 53 inches annually, still has water problems. Florida's water problems can be traced to a few facts.

- Rainfall in Florida is unevenly distributed in time and space. The southern half of the state south of Cedar Key and New Smyrna Beach gets all its fresh water from rain that falls on it.
- Florida's population grew from 1.8 million in 1940 to 14 million in 1990 and 18.5 million in 2009.
- Large areas of the state were altered both ecologically and hydrogeologically to accommodate the needs of agriculture and industry.
- Florida's aquatic environment is one of the most ecologically sensitive areas in North America, if not the world. According to the Environmental Protection Agency, 9 out of the 21 most threatened ecosystems in the country are located in Florida.

'Adventures in the Charlotte Harbor Watershed': Soon to be available as a video!

Thanks to the generosity of Carol Mahler, the Lee County School District and our new Adventurers, *Adventures in the Charlotte Harbor Watershed* will be made available as a video.

Since the Charlotte Harbor National Estuary Program published the book in 2008, the program has provided 18,000 copies each year to the school districts to give to their students. Last year, Carol Mahler gave of her time to read the book at several schools. The response was so positive that the Lee County School District offered to create a video version of Carol to have available for everyone's use. Students will help read the book and the byline authors will be asked to read their contributions to the book. Once the video is complete by the end of this school year, it will be made available through the CHNEP.



Five students from Manatee Elementary School in Lee County have become Adventurers by helping to create a video of the *Adventures in the Charlotte Harbor Watershed* book. Photo by Pam Burt, Lee County School District.

CHNEP Meetings and Events

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

2010

Charlotte Harbor Nature Festival November 20
Policy November 22

2011

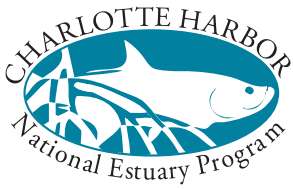
TAC/Science Forum	February 10
Citizens Advisory Committee (CAC)	February 16
Management	March 4
Policy	March 18
Charlotte Harbor Watershed Summit	March 29-31
TAC/Science Forum	April 14
Citizens Advisory Committee (CAC)	April 20
Management	May 6
Policy	May 20
TAC/Science Forum	July 14
Submit images for 2012 calendar by	July 14
Citizens Advisory Committee (CAC)	July 20
Select images for 2012 calendar	August
Management	August 5
Policy	August 22
Citizens Advisory Committee (CAC)	September 7
Public outreach grant applications due	September 7
TAC/Science Forum	October 13
Citizens Advisory Committee (CAC)	October 19
Management	November 4
Policy	November 18
Charlotte Harbor Nature Festival	November 19



Carol Mahler is joined during the first taping by a southern lubber. Photo by Sue Tulis, Lee County School District.

Books given to children through schools

The CHNEP will be providing books to the school districts in February 2011 for distribution to each student in third, fourth or fifth grade (school district's choice). We would also like to provide copies to students who attend private schools and are homeschooled. Please visit www.CHNEP.org to learn how to request copies for distribution to these students.



Harbor Happenings

Charlotte Harbor National Estuary Program
1926 Victoria Ave
Fort Myers FL 33901-3414



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@swfrcp.org.

Harbor Happenings en Español: Cada publicación de *Harbor Happenings* será traducida al español y publicada en el website del Charlotte Harbor National Estuary Program www.CHNEP.org. Por favor anime a sus amigos que hablan español a darle un vistazo.

CHNEP 2011 Calendar: Provides amazing views of southwest Florida



Photo of sunset on Charlotte Harbor by Norman L. Collin. This image was a people's choice selection.

The Charlotte Harbor National Estuary Program (CHNEP) is pleased to provide you with its 2011 calendar. We hope you enjoy the beauty and diversity of the natural environment of southwest Florida as depicted in the images so generously donated and that it inspires you to do more to protect southwest Florida. This calendar is possible thanks to the generosity and talent of everyone who submitted images and to those who selected images, contributed financially, who provided their suggestions and opinions, and who helped distribute it.

If you are a subscriber to this newsletter, you should have received your calendar in the mail. The calendar is also available to be picked up from libraries, government offices and nature centers. The locations of where the calendar will be available, the opinion survey and guidance on how to make a donation and contribute images for the 2012 calendar are online at www.CHNEP.org.

Would you please support the work of CHNEP by making a donation to the Friends of Charlotte Harbor Estuary, Inc.? The CHNEP is pleased to join the many organizations that enjoy the assistance of a 501(c)3 not-for-profit organization. Donations received help defray calendar production expenses and finance our many other education and outreach programs. If you'd like to donate by check, please make it payable to The Friends of Charlotte Harbor Estuary, Inc., add "CHNEP calendar" in the memo line and mail to Friends of Charlotte Harbor Estuary, Inc., PO Box 2245, Fort Myers, FL 33902-2245. To learn more or to make a donation by credit card or PayPal, visit their website at www.CHNEPfriends.org. Checks made payable to SWFRPC and sent to the CHNEP office will also be accepted. *Thank you.*



Photo of Jackie by Tamalyn Sobey.

Please take a few minutes to let us know what you think of our calendar. Would you specifically let us know if you'd like to see more people enjoying the environment, like the one above of Jackie? You can either complete the survey provided in the calendar or you can complete a slightly longer survey at www.CHNEP.org.

Thank you for your time and comments.