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

CHNEP 2013 Calendar

Since 2005, the CHNEP has been creating popular calendars of donated images, such as the one on this page. The calendars depict the beauty and diversity of the natural environment of southwest Florida. The CHNEP will create a 2013 calendar. By July 14, please donate up to three photographs or paintings. In August, please select images you would like included. More guidance is posted at *www.CHNEP.org/calendars.html*.

Juvenile Mangrove Snapper
© James R. White, JimmyWhitePhoto.com

Spring 2012: Volume 16, Issue 1

Program update by Dr. Lisa B. Beever, CHNEP

I recently celebrated my ten-year anniversary as director of the Charlotte Harbor National Estuary Program (CHNEP). I have been with the CHNEP longer than any other agency of my career. This is my dream job. I love working with scientists, citizens, elected officials and professionals who commit so much to the wise solutions. I also love seeing the magic of data analysis coupled with vision result in outstanding decisions. I can't imagine more meaningful work.

The CHNEP is currently undertaking the five-year update of our *Comprehensive Conservation and Management Plan* (CCMP). The CCMP is our guiding document for every action we take. Both my anniversary and our CCMP update have given me the opportunity to think about where we were, how much we have achieved and where our next challenges are.

Ten years ago, the CCMP was approved. At that time, we were grappling with how to implement the plan and talked about "low-hanging fruit." We were also beginning to think about broader gaps of knowledge, which were obstacles to sound decision-making. We wanted to improve state and federal decisions and become effective advocates for our natural environment. We wanted all children, new residents and a broad public to understand and respond to complex environmental information. Finally, multifaceted restoration projects were needed to improve water flows, water quality and landscape-scale habitat connections. Frankly, these needs overwhelmed the "low-hanging fruit" available to us. What we needed to accomplish would take imagination and hard work.

Fast-forward ten years. The 2001 Impaired Waters Rule has resulted in two rounds of water quality impairment assessments. Now, Basin Management Action Plans (BMAPs) are being developed. BMAPs outline actions to address water quality problems. With our new online water atlas at *www.chnep.wateratlas.usf.edu*, scientists and citizens now have easy access to the data on which these decisions are made. We can now graph, map, download and analyze the data to provide alternative perspectives. Pollution sources can often be seen through these tools. Our partners then address them.

Local urban fertilizer ordinances, agricultural best management practices and conservation lands have placed nearly one million acres, or three times the 2002 levels, into some form of active management. In 2002, we had already exceeded our initial goal of increasing habitat protection to 300,000 acres. Now, at well over 450,000 acres in conservation, major landscape level habitat connections are protecting plant diversity, animals and water resources.

The CHNEP has been a successful advocate for the natural environment. An Area-Wide Environmental Impact Statement (AEIS) is under way for the Peace and Myakka basins. We have recommended numeric nutrient criteria which are in the draft state rule. Cities and counties still have the right to implement urban fertilizer ordinances and protect wetlands. Our recommendations have improved Peace River and Myakka River flow rules and the Caloosahatchee River Watershed Protection Plan. We have commented successfully on legislative bills and agency plans. We have hosted single-issue workshops that resulted in policy changes.

> We have the opportunity to frame our new challenges and identify ways to meet them as we update our CCMP.

The CHNEP's *Adventures in the Charlotte Harbor Watershed* reaches every child at one grade level through the seven school districts. We host workshops and events geared to a myriad of targeted audiences. Our series of videos reach a mass audience through our partnerships with WGCU. You are reading our newsletter right now!

New challenges lay ahead. Nutrient dynamics in tidal creeks and the services our ecosystems provide are emerging research questions. Logical locations and methods to restore oysters, scallops and seagrasses are being identified. The new recovery plan for smalltooth sawfish will change permitting decisions and how we view riprap. The AEIS will provide an opportunity to expand habitat connections from Charlotte Harbor to its headwaters. Many more issues will need to be considered.

We have the opportunity to frame our new challenges and identify ways to meet them as we update our CCMP. If the last ten years are any indication, we will achieve great things for our estuaries and watersheds in the next ten years!

CHNEP Friends

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

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

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Harbor Happenings **Spring 2012: Volume 16, Issue 1**

The CHNEP Friends publishes this free quarterly newsletter on behalf of the CHNEP 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 newsletter 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.

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Volunteer scallop "fostering" around the CHNEP estuaries

Judy Ott, CHNEP

Fifteen volunteers from Pine Island are the most recent recruits to join the juvenile scallop "fostering" corps throughout the CHNEP estuaries. The purpose of the volunteer bay scallop restoration project is to protect juvenile scallops from predation from crabs, whelks and people — long enough to reach reproductive age.

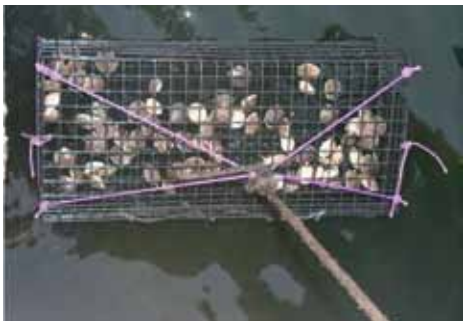
The number of volunteer scallop restoration sites within the CHNEP has grown steadily since the project began in 2009. This year, volunteers have deployed juvenile scallops at about 40 sites.

The volunteer scallop restoration project is a partnership with Florida Fish and Wildlife Conservation Commission (FWC). The efforts are coordinated in Dona and Roberts Bays by Sarasota County (René Janneman, *rjannema@scgov.net)*, in Lemon Bay and Gasparilla Sound by Sea Grant (Betty Staugler, *Staugler@ufl.edu*), in Pine Island Sound by SCCF (Mark Thompson, *mthompson@sccf.org*) and in Matlacha Pass by CHNEP (Judy Ott, *jott@swfrpc.org*). Sites in Estero Bay may be added in the future.

As part of the project, volunteers receive 25 juvenile scallops (about ½" long) and a cage (about 2'x1'x¾') to hang off their docks and grow the scallops to adulthood. The cages, affectionately known as "scallop condos," are placed in the water in early winter, usually February, when the scallops are about 3 months old. Measurements are taken of the scallops every two weeks until August or September, when cooler water temperatures trigger reproduction. Larvae develop from the fertilized eggs and drift for about 2 weeks before settling onto seagrass blades and developing into juvenile scallops. They remain hidden in the seagrasses for the duration of their lives.

The CHNEP is working with its partners and the Southwest Florida Scallop and Oyster Working Groups to develop restoration plans for the shellfish throughout the CHNEP study area. Both the Southwest Florida Scallop Restoration Plan and the CHNEP Oyster Restoration Plan are due to be completed this fall. The two plans will be used to develop comprehensive shellfish restoration goals for the CHNEP.

Visit *www.CHNEP.org* to learn more.



Bay scallops (*Agropecten irradians*) are secretive marine bivalves that spend most of their short lives hiding in seagrasses. Photos by Judy Ott.

CHNEP micro-grants

The Charlotte Harbor National Estuary Program is supporting 35 projects, which began in October 2011, with micro-grants. The 470 other projects supported with micro-grants since 2002 are listed at *www.CHNEP.org*, as is guidance and an online application form. While all projects help the CHNEP implement its plan to protect the environment, they are varied in their purpose and scope. One project that has received two micro-grants is described below.

Student creates field guide of marine life

Sarasota Bay Watch (SBW) is reaching out to students to help them learn more about our bays and waterways. SBW, with funding from the CHNEP, partnered with Tanner Stults, a senior at Riverview High School in Sarasota County, to create a field guide of marine life in Florida's west coast bays. The guide, titled *What the Heck Is That . . .?* is full of photos, interesting information and fun facts about plants and animals that people discover while they are in the water or at the beach. In addition to promoting community awareness and educational outreach about our marine environment, the field guide is also useful as a classroom resource for school programs. The field guide is available as a PDF file at *www.CHNEP.org*.

The field guide has been donated to high school students at Venice, Riverview and Sarasota in Sarasota County, Island Coast High School in Lee County, the Carefree Learner marine education vessel, youth sailing programs at the Sarasota Sailing Squadron and the Sarasota Yacht Club, and to Sarasota County's volunteer-based Sea Grass Monitoring Program. The copies donated to students within the CHNEP study area were supported as a result of an additional micro-grant from the CHNEP.

SBW donated copies of the field guide to Venice High School's Exceptional Student Education (ESE) program. ESE Instructor Beverly Alden says, "The students enjoy instructional activities at the beach and on trips on the Carefree Learner. They are fascinated by marine life they discover in the bay. The SBW field guide will enrich their experiences and help bring the bay into the classroom."

Nutrient pollution: Too much of a good thing

Allison Gold, U.S. EPA ORISE Fellow

Nutrient pollution is one of America's most widespread, costly and challenging environmental problems, and it is caused by excess nitrogen and phosphorus in the air and water.

Nitrogen and phosphorus are nutrients that are natural and necessary parts of aquatic ecosystems. Nitrogen is also the most abundant element in the air we breathe. Nitrogen and phosphorus support the growth of algae and aquatic plants, which provide food and habitat for fish, shellfish and smaller organisms that live in water.

But when too much nitrogen and phosphorus enter the environment, the air and water can become polluted. Excess nitrogen in the air can impair our ability to breathe, limit visibility and alter plant growth. Too much nitrogen and phosphorus in the water causes algae to grow faster than ecosystems can handle.

The U.S. Environmental Protection Agency (EPA) created a website — *http://epa.gov/nandppolicy* — on nutrient pollution policy and data to help individuals access information on EPA actions to reduce nutrient pollution, state efforts to develop numeric nutrient criteria, and EPA tools, data, research and reports related to nutrient pollution.

Another website — *http://epa.gov/nutrientpollution* — on nutrient pollution for homeowners, students and educators was also created. The site features information explaining the problem of nutrient pollution; the sources of the pollution, how it affects the environment, economy and public health, and what people can do to reduce the problem. The site also features an interactive map of local case studies in reducing nutrient pollution.

What can you do to make a difference?

Our lawns and gardens, and how we maintain them, can have a big influence on nutrient pollution. EPA estimates that 50 percent of the nitrogen in fertilizer can be carried off a lawn due improper fertilizer use. Pet waste can also be picked up and thrown away to prevent it from impacting water quality in local waters.

Visit *www.CHNEP.org* for specific tips on how to reduce nutrients on your property.

What are numeric nutrient criteria?

Water quality standards are established in state regulations as the goals for the protection of aquatic ecosystems, safe recreation and fishing, and provision of water supplies. These standards contain water quality criteria that are established at values that, if achieved, protect these goals. Numeric nutrient criteria are measurable levels of the amount of nitrogen and/or phosphorus allowed in a water body that maintains the goals. The measurable levels of aquatic health related to the effects of excess nitrogen and/or phosphorus, such as the amount of algae or the water clarity, would also constitute numeric nutrient criteria.

Excess nitrogen and phosphorus pollution (nutrient pollution) in water bodies can cause harm to the aquatic ecosystems and threaten public health. Nutrient pollution leads to significant water quality problems such as harmful algal blooms, low-oxygen "dead zones" in water bodies and declines in wildlife and wildlife habitat. These effects can also disrupt recreational activities and pose threats to public health. The Florida Department of Environmental Protection found that 16% of Florida's assessed river and stream miles, 36% of assessed lake acres, and 25% of assessed estuary square miles are impaired by nutrients (*2008 Integrated Water Quality Report*).

The Florida Department of Environmental Protection (FDEP) is currently developing a rule to establish numeric nutrient criteria for a number of water body types.

The CHNEP contracted Janicki Environmental, Inc. to provide technically defensible quantitative habitat and water quality restoration and protection targets for the CHNEP based on seagrass water clarity needs. The target uses seagrass and water quality analysis methodologies built on a previously developed CHNEP optical model and are consistent with those used in Tampa Bay and Sarasota Bay estuary programs. The project was initiated in September 2008 and has been modified several times to add tasks associated with EPA's requirement that Florida develop numeric nutrient criteria (which are total nitrogen [TN] and total phosphorus [TP] measurable concentrations and loadings). This effort resulted in 15 reports and a database, all of which are available at *www.CHNEP.org*.

What's your water footprint?

A water footprint is the total of how much water is consumed in the growing and manufacturing of things we consume. The average American lifestyle requires 2,000 gallons of water a day — twice the global average.

- It takes almost 37 gallons of water to produce a cup of coffee.
- It takes about 713 gallons of water for the cotton used in a cotton shirt.
- It takes about 6,800 gallons of water to grow a day's food for a family of four. That includes 1,300 gallons for a 12 oz. steak, 52 gallons for one glass of pasteurized milk (ratio is 1,000:1 so to produce 1 gallon of milk in the fridge, it takes 1,000 gallons out in the fields) and more than 10 gallons of water to produce one slice of wheat bread. A slice of cheese takes 13 gallons.

You can take action to return more water to rivers, lakes, wetlands, underground aquifers and wildlife. Save water by:

- Using a low-flow faucet, which can save you 3.5 gallons per minute.
- Using a low-flow toilet, which can save nearly 5 gallons per flush.
- Shutting off the water while brushing your teeth.
- Using a low-flow showerhead, which can help reduce water usage by about 40%.
- Fixing leaky faucets — a leaky faucet can waste up to 100 gallons of water a day.
- Using an automatic dishwasher, which uses approximately 9 to 12 gallons of water; hand washing dishes can use up to 20 gallons.

Visit *www.CHNEP.org* for links to online water footprint calculators.

CHNEP recognizes students for their research presented at local science fairs

The Charlotte Harbor National Estuary Program presented its second year of science fair awards. Students from grades 6 to 12 design a learning experience in an area of personal interest — one that allows for innovation, just as scientists do in the real world.

Last year the CHNEP began recognizing students' science fair projects that help implement the CHNEP *Comprehensive Conservation and Management Plan,* a 20-year plan to protect the environment from Venice to Bonita Springs to Winter Haven. This plan identifies four problems that affect the health of the environment: water quality degradation, hydrologic alterations, habitat loss and stewardship.

The students must reside in Charlotte, DeSoto, Hardee, Lee, Manatee, Polk or Sarasota counties. These students participate in one of five local science fairs. Students recognized receive a $100 cash award and are invited to submit an article for the CHNEP website.

In 2011, the CHNEP presented its first science fair award at the Thomas Alva Edison Kiwanis Science and Engineering Fair for students in Charlotte and Lee counties. Katie Thorp, then an eighth-grade student at Bonita Middle School in Lee County, received that award for her project, "The effect of aeration on algae and dissolved oxygen in ponds."

Top and right: Katilyn is working in the field collecting and analyzing samples to determine the impact of fire to the soil.

Left: Valeriya stands by her science fair project, ready to share her research on the impact of oil on shrimp. Her research was done in a laboratory using the beakers shown below.

In the 2011-12 school year the CHNEP recognized five students for the work presented at each of five science fairs held within the CHNEP study area.

Thomas Alva Edison Kiwanis Science and Engineering Fair (includes students in Lee and Charlotte)

Katilyn Hansen, Lemon Bay High School, for *The Impact of Prescribed Burning Upon the pH and Nitrates of Soil in a Mesic Flatwood: The Myakka River State Forest*

Lockheed Martin Manatee Regional Science and Engineering Fair

Valeriya Mikhaylova, Braden River High School, for *Impact of the Oil Spills on the Brine Shrimp*

Sarasota County Regional Science, Engineering and Technology Fair

Catherine Taunton, Sarasota High School, for *Precipitation Effects on Fecal Coliform Growth Over Time*

Polk County Regional Science and Engineering Fair

Kirstie Tandberg, Chain of Lakes Collegiate High School, for *A Possible Active Component in Cacti Mucilage for Phosphate Removal*

Heartland Regional Science and Engineering Fair (includes students in Hardee and DeSoto)

Caroline Durrance, Hardee High School, for *How does the salinity of water on the Peace River affect the amount of coliform bacteria and* E. coli *there will be in the water*

Visit *www.CHNEP.org* to learn more about these students and their projects.

Wildflower Wayside Shrine is a living resource

Sharon Jones, South Florida Community College

The Wildflower Wayside Shrine Trail, located on South Florida Community College's Highlands Campus in Avon Park, is now open to the public.

Extending approximately 7/10ths of a mile through pristine scrubland, the walking trail showcases rare, native plants of the Lake Wales Ridge ecosystem. Conceived five years ago by SFCC Museum of Florida Art and Culture (MOFAC) curator Mollie Doctrow, the project came to fruition through the joint efforts of SFCC, MOFAC, Archbold Biological Station, SFCC students and many community supporters. Funding was provided by the U.S. Institute of Museum and Library Sciences with additional sponsorship from the Florida Division of Cultural Affairs. Dr. Eric Menges, Archbold's chief plant biologist, identified plants and helped write the trail guide, *Wildflower Wayside Shrine Trail Flora*. For more information, visit *www.waysideshrinetrail.com.*

An SFCC student makes a rubbing of the relief carving on one of the shrine boxes.

Lake Wales Ridge is the geographic feature to the east of the Greater Charlotte Harbor Watershed. Water that lands on the ridge flows to Lake Okeechobee, not the Peace River, then to Charlotte Harbor.

CHNEP Offers Chance to Explore Estuaries Up Close

Muck about in the shallow waters of our 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.

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

- Thursday, May 17, 2012
- Tuesday, June 12, 2012
- Saturday, July 14, 2012
- Wednesday, August 1, 2012

Lovers Key State Park north entrance at 10 A.M. Call the ranger station at 239/463-4588.

- Thursday, May 10, 2012
- Thursday, June 21, 2012
- Tuesday, July 24, 2012

Pine Island Sound on Pine Island at 9 A.M. Call Randell Research Center at 239/283-2157.

- Saturday, May 5, 2012
- Saturday, May 19, 2012

The CHNEP has sponsored wading trips since 2003 and anticipates offering more in 2012–13. An updated list is posted at *www.CHNEP.org*.

Photo provided by DDWS.

Mangrove canopy trail enjoyed again

Hurricane Charley's cruel axe closed the canopy paddling trail through Buck Key, part of the J.N. "Ding" Darling National Wildlife Refuge complex, in August 2004. Refuge funding didn't allow the trail to be restored.

Enter a group of avid kayakers from Captiva Island — Choppy and Sally Rheinfrank, Chic and Kathleen Bruning, and Dave and Hobby Jeffrey — who formed a committee to raise funds. In 2010, the group presented "Ding" Darling Wildlife Society Friends of the Refuge (DDWS) with funds to hire a contractor to clear out the felled trees and make the trail paddle-able once again. The trail was re-opened in 2011.

According to reports from kayakers, the half-mile mangrove-lined trail is better than ever. Paddlers reported seeing a bobcat, a small alligator, green herons, egrets, ospreys and a variety of other birds.

"The wildlife kayak trail is a real jewel for nature lovers and kayaking enthusiasts and gives a true understanding and appreciation as to why we need to continue to protect areas such as this for future generations," said Birgie Vertesch, DDWS executive director. "This was a wonderful gift from caring Captiva islanders that will have a lasting impact on those who live in and visit our area."

Visit *www.CHNEP.org* for more paddling information from the Florida Paddling Trails Association and Blueways maintained by coastal counties. Thanks to these efforts, there are hundreds of miles of trails to canoe and kayak in the CHNEP study area.

The City of North Port's environmental stewardship is golden

North Port IT employee Jonathan Hall (left) loads a truck with computer equipment to be recycled. The city earned a point toward its gold "Florida Green Local Government" certification for this continuing activity, which is described in the program standards manual as "Develop a recycling program for end-of-life electronic equipment."

In 2011, the City of North Port was awarded "gold" level certification by the Florida Green Building Coalition (FGBC). The Coalition's Green Local Government Designation program recognizes cities and counties for achievements in outstanding environmental stewardship.

To earn certification, a municipality must employ a comprehensive list of criteria and meet a minimum level of points. The standard focuses on improving environmental performance in energy, water, air, environmentally positive waste disposal and land. The FGBC evaluates environmental practices done in-house, incentives and ordinances that foster green practices, and educational activities for the community to improve the environment. Based on the number of applicable points earned, the Florida Green Local Government Designation is granted at one of several levels, in ascending order of points earned: bronze, silver or gold. A platinum level is also offered, but no Florida community has yet earned enough points to win this designation.

"This important accomplishment shows North Port's continuing dedication to protect our natural environment while finding long-term cost efficiencies that will save our residents money," said City Manager Jonathan Lewis. "A lot of hard work and dedication has gone into this process by city employees and through the strong support of the City Commission."

Currently 36 municipalities are recognized by FGBC for their environmental stewardship. Those in the CHNEP study area include:

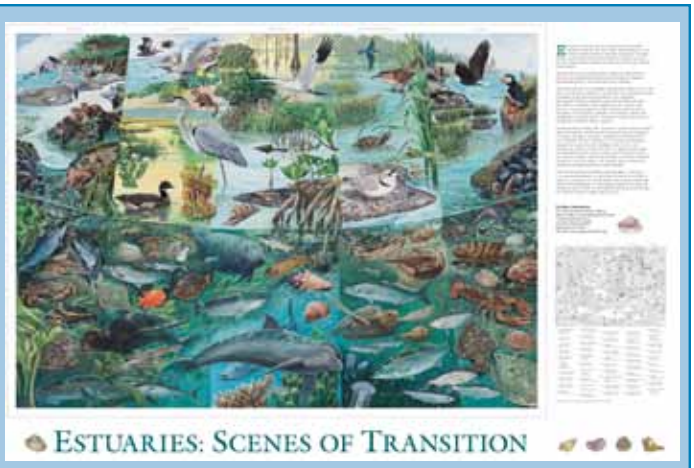
Gold Certification

- Sarasota County (September 2008)
- North Port (December 2011)

Silver Certification

- Charlotte County (May 2011)
- Manatee County (April 2011)

Learn more at *www.floridagreenbuilding.org/local-governments*.



Scenes of Transition

Estuaries — where the land meets the sea and freshwater rivers mix with salty oceans — are one of our most valuable natural resources and create more food per acre than the richest farmland.

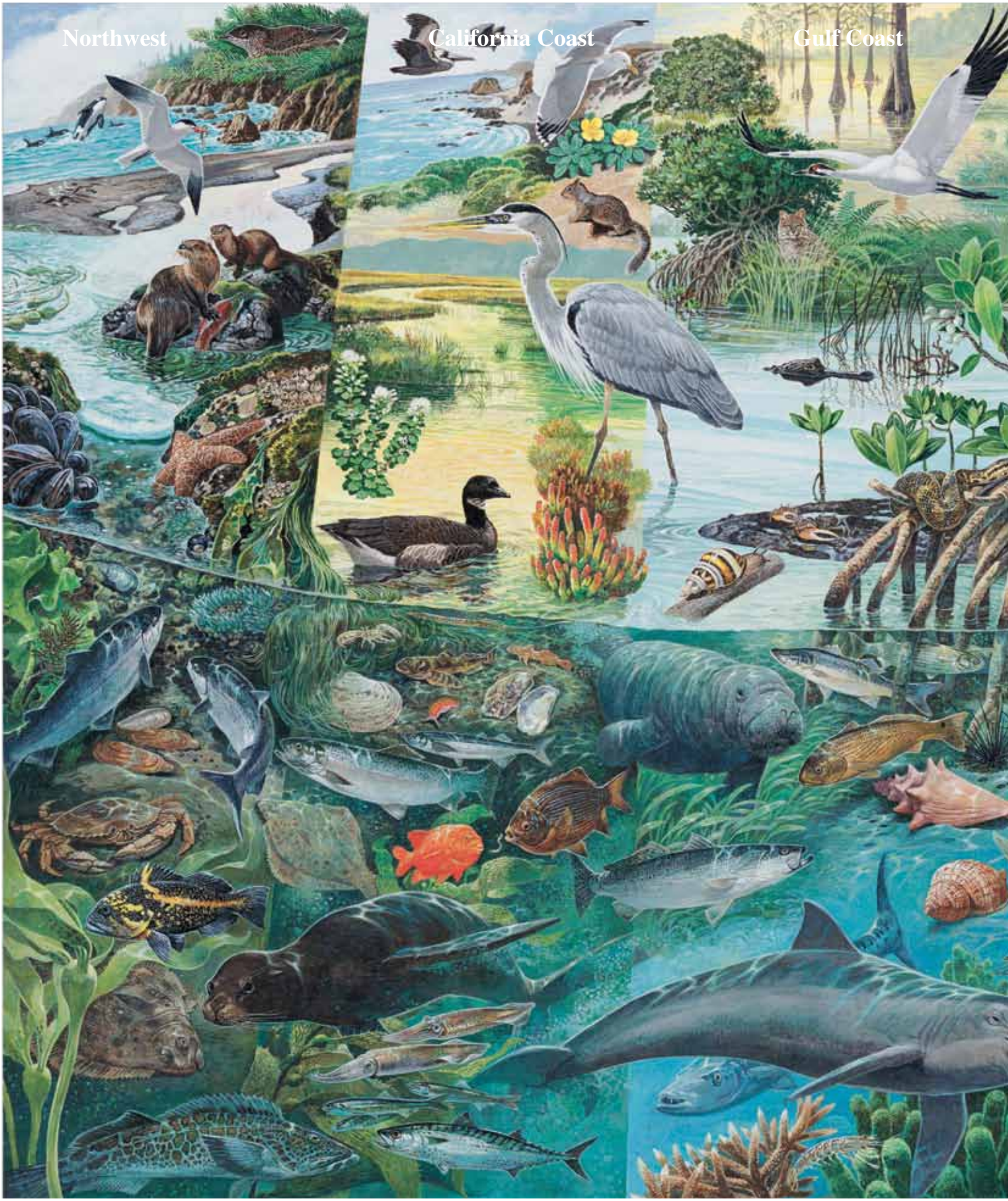
Teeming with life, estuaries provide essential habitat for 80 percent of the world's fish and shellfish species, and 45 percent of U.S. endangered and threatened species live in estuaries.

The centerfold poster shows some of the geographic and biological diversity in our estuaries, but estuaries are scenes of transition in ways other than those depicted in this illustration. With more than half the nation's population living within 50 miles of the coast and hundreds of thousands of new residents moving into coastal areas each year, there is increased stress on coastal environments. Excess nutrients, pathogens, toxic chemicals, habitat loss and degradation, introduced species, natural water flow alterations, and overfishing all threaten our nation's estuaries.

Working to restore and protect these sensitive ecosystems, the National Estuary Program (NEP) provides funding and technical assistance to citizens, governments, businesses, researchers and organizations in local communities that take responsibility for creating and implementing comprehensive conservation and management plans for their own estuaries. The objective of each local NEP is to address the whole range of environmental problems facing an estuary while balancing the needs of the community. Together, these estuary programs work to safeguard the health of some of our nation's most important natural resources and transfer the lessons learned to other watersheds.

This *Scenes of Transition* poster was created by the U.S. Environmental Protection Agency with art by John D. Dawson.

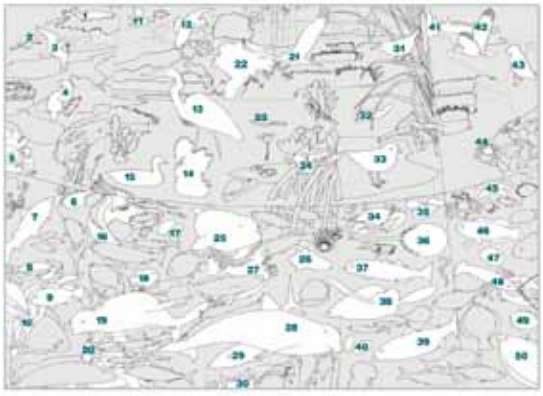
For more information about estuaries and the national estuary programs, visit *www.epa.gov/owow/estuaries*. To order the printed 38"x25" poster (EPA842-H-99-001, see sample above), call the National Service Center for Environmental Publications at 800/490-9198.



ESTUARIES: SCENES O

F TRANSITION

This poster shows some of the geographic and biological diversity in our estuaries, but estuaries are scenes of transition in ways other than those depicted in this illustration. Visit *www.epa.gov/owow/estuaries* to learn more.



Of the 50 species shown, 27 live in the estuaries in the CHNEP study area.

1. Marbled Murrelet *Brachyramphus marmoratus*
2. Orca Whale *Orcinus orca*
3. Caspian Tern *Sterna caspia*
4. River Otter *Lutra canadensis*
5. Blue Mussels *Mytilus edulis*
6. Anemone *Anthopleura xanthogrammica*
7. Sockeye Salmon *Oncorhynchus nerka*
8. Dungeness Crab *Cancer magister*
9. China Rockfish *Sebastes nebulosus*
10. Bull Kelp *Nereocystis luetkeana*
11. Brown Pelican *Pelecanus occidentalis*
12. Western Gull *Larus occidentalis*
13. Great Blue Heron *Ardea herodias*
14. Pickleweed *Salicornia virginica*
15. Black Brant *Branta bernicla nigricans*
16. Eel Grass *Zostera marina*
17. Native Pacific Oyster *Ostrea lucida*
18. Garibaldi *Hypsypops rubicundus*
19. California Sea Lion *Zalophus californianus*
20. Giant Kelp *Macrocystis pyrifera*
21. Whooping Crane *Grus americana*
22. Red Mangrove *Rhizophora mangle*
23. Alligator *Alligator mississippiensis*
24. Water Moccasin *Agkistrodon piscivorus*
25. Manatee *Trichechus manatus*
26. Queen Conch *Strombus gigas*
27. Turtlegrass *Thalassia testudinum*
28. Atlantic Bottlenose *Dolphin Tursiops truncatus*
29. Great Barracuda *Sphyraena barracuda*
30. Staghorn Coral *Acropora cervicornis*
31. Marsh Wren *Cistothorus palustris*
32. Diamondback Terrapin *Malaclemys terrapin*
33. Piping Plover *Charadrius melodus*
34. Blue Crab *Callinectes sapidus*
35. Eastern Oyster *Crassostrea virginica*
36. Horseshoe Crab *Limulus polyphemus*
37. Bluefish *Pomatomus saltatrix*
38. Loggerhead Turtle *Caretta caretta*
39. Striped Bass *Morone saxatilis*
40. Comb Jellyfish *Mnemiopsis leidyi*
41. Hemlock *Tsuga canadensis*
42. Bald Eagle *Haliaeetus leucocephalus*
43. Atlantic Puffin *Fratercula arctica*
44. Green Crab *Carcinus maenas*
45. Sea Star *Asterias forbesi*
46. Tautog *Tautoga onitis*
47. Quahog *Mercenaria mercenaria*
48. Lobster *Homarus americanus*
49. Bay Scallops *Pecten irradians*
50. Winter Flounder *Pleuronectes americanus*

This poster was created by U.S. Environmental Protection Agency with art by John D. Dawson.

Printed in the CHNEP newsletter *Harbor Happenings* Spring 2012 edition.

Mangrove impact, recovery from Hurricane Charley in Lee County

Terry A. Tattar, University of Massachusetts, and David C. Scott, Marine Forest Research Inc.

Saltern, or salina, in center of Big Panther Key. Note flooded central depression and dead black mangroves in the background. Red color of sediment is due to pigments of halobacteria in saltern.

On Aug. 13, 2004, Category 4 Hurricane Charley tracked through Lee County from southern Cayo Costa Island to the islands of Useppa and Patricio in Northern Pine Island Sound then across Charlotte Harbor to the Gallager Keys, southwest of the southern tip of Cape Haze, where it exited Lee and entered Charlotte County. This study was limited to the coastal mangrove forests of north Matlacha Pass and Pine Island Sound, which are north of Pine Island Road (SR 78), and a line from the intersection of SR 78 and Stringfellow Road to the southern tip of North Captiva Island. The northern extent of the study area was the Lee-Charlotte county line. Coastal mangroves to the south of this study received minimal damage from this hurricane.

Mangrove forests along both Matlacha Pass and Pine Island Sound consist of a community of almost 100 percent red mangrove (*Rhizophora mangle)* at the shoreline, extending approximately 50–65 feet inland. Further inland, the forest become an equal mixture of red and black mangroves (*Avicennia germinans)* with a minor component (less than 10%) of white mangrove (*Laguncularia racemosa*) in most locations where our transects were conducted. On the numerous islands in Pine Island Sound, the center of the islands was usually entirely black mangrove, and many of these islands also exhibited an open central depression salina (saltern) feature.

Hurricane Charley caused 2,512 acres of mortality to the fringing mangroves in the Lee County study area and 1,606 acres in Charlotte County. Our observations in the study area, in conjunction with observations in northern Charlotte Harbor, are consistent with the earlier reports from hurricanes Andrew, Donna, Georges, Hattie, Joan and Mitch. Since Hurricane Charley, major changes to the mangrove forests were measured and observed. Fringing red mangroves were impacted to a level of greater than 80 percent mortality. They are generally being replaced with lower canopy red mangroves in understory release growth with only a few areas of recruitment near the shoreline observed. This new release growth is unfortunately on average 50–65 feet inland from the edge of the pre-Charlie canopy. Most of the red mangrove trees on the windward shoreline of the hurricane have been totally lost. This mortality is contributing to observable shoreline erosion and also represents a significant loss of mangrove oyster habitat. Woody aerial roots of healthy red mangroves in the intertidal zone are abundantly colonized by oysters. Hence, the loss of the living fringing red mangroves exacerbated the loss of oyster habitat.

Visit *www.CHNEP.org* to read more about hurricane impacts, including the report this article is based on, maps and reference to other studies. An issue of *Harbor Happenings* was dedicated to hurricane impacts, as was an entire issue of a peer-reviewed journal.

Above: NGS coastal monument. Below: David Scott examines an NGS coastal monument that is seaward of the modern high tide line.

We also documented shoreline position changes utilizing National Geodetic Survey (NGS) coastal survey monuments and the associated archived survey data and notes. The monuments, which span from 1860 through 1955, were recovered at or near the published position established for each of 14 NGS monuments in the study area. These survey monuments were all established at or above the high tide line of the period. Today, these monuments/positions are all 19–26 feet seaward of the modern high tide line. This horizontal distance correlates well with the geometry formed by a flat slope of less than 2 degrees and a regional measured tidal datum increase of approximately 4 inches over the 80-year period of the survey data. The inland migration is essentially invisible on successive years of photo images due to resolution and registration issues in computer mapping systems. The use of this archived historic coastal survey data is especially useful in documenting shoreline morphology as a response to sea level changes.

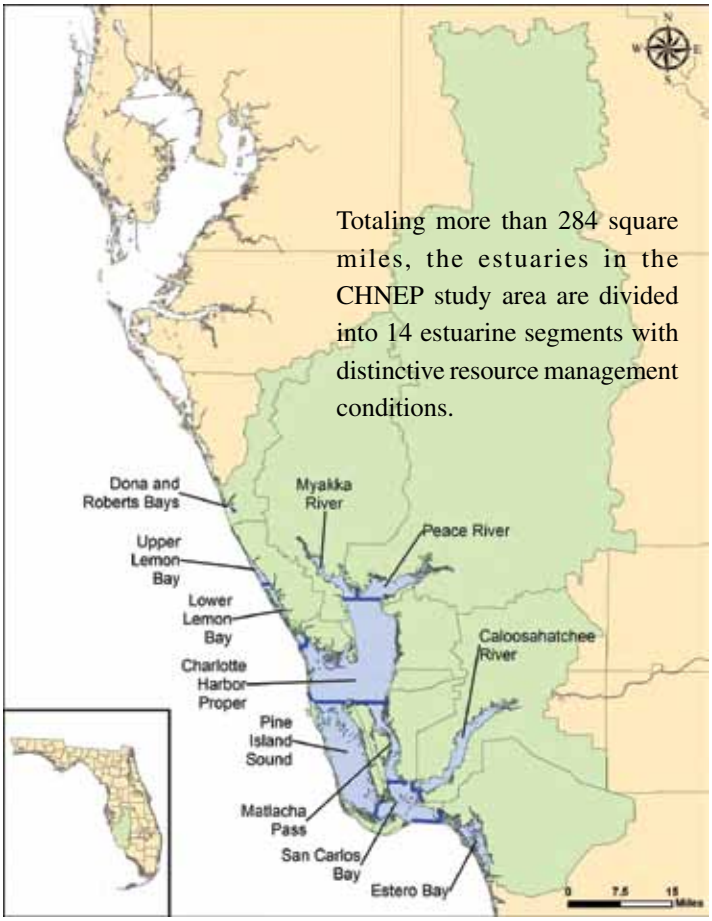
CHNEP watershed

The CHNEP area encompasses 11 interconnected estuaries and their watersheds in southwest Florida along the eastern Gulf of Mexico. The CHNEP watershed extends more than 100 miles from the river headwaters to the estuaries and includes 8 subwatersheds. Totaling more than 284 square miles, the estuaries are divided into 14 estuarine segments with distinctive resource management conditions.

From north to south, the CHNEP estuarine complex stretches from Dona and Roberts Bays in Sarasota County, through Lemon Bay to the main body of Charlotte Harbor in Charlotte County, fed by the Myakka and Peace rivers, to Pine Island Sound and Matlacha Pass in Lee County, joining San Carlos Bay, which is fed by the Caloosahatchee River, and finally to Estero Bay.

Charlotte Harbor is the largest and deepest of the estuaries, extending more than 22 miles from river mouth to Gulf pass and reaching 20 feet deep in the harbor and more than 70 feet deep at Boca Grande Pass. The smallest, shallowest bays are Dona and Roberts and Estero, which are, respectively, 1 mile and 13 miles long and generally less than 6 feet deep. Lemon Bay is the narrowest estuary, about ¾ of a mile wide. Pine Island Sound has the most extensive coverage of seagrasses (more than 26,000 acres) and Matlacha Pass is the tidal node between Charlotte Harbor and Caloosahatchee River waters.

Circulation in the CHNEP study area is primarily driven by tidal exchange between the Gulf of Mexico and the freshwater inflows from three major rivers and numerous smaller tidal creeks. Dona and Roberts and Lemon bays are separated from the Gulf of Mexico by a series of barrier islands with passes at Venice Inlet, Stump Pass and Gasparilla Pass. Freshwater inflows include three major rivers (Myakka, Peace and Caloosahatchee) and numerous smaller creeks. Daily exchange of water is greatest through Boca Grande Pass, which serves as the conduit between the Gulf of Mexico and Charlotte Harbor. Pine Island Sound has the most stable salinities due to passes at Boca Grande, Captiva, Redfish and San Carlos Bay, with little direct watershed inflow. Matlacha Pass has highly altered inflows from the urban areas of Cape Coral and Fort Myers and is connected indirectly to the Gulf in the south through San Carlos Bay. San Carlos Bay provides a direct connection between the Gulf of Mexico and the Caloosahatchee River. The Caloosahatchee River is a highly managed system that includes a series of locks between Lake Okeechobee and the lower portion of the Caloosahatchee River. Estero Bay has three moderate-sized passes (Matanzas, Big Carlos and Little Carlos) and drains a relatively small but highly urbanized watershed through Hendry Creek, Mullock Creek, Spring Creek, Estero River and Imperial River.



Reprinted from *Proposed Numeric Nutrient Criteria for the CHNEP Estuarine System*, prepared by Janicki Environmental, Inc. This is one of many reports produced as part of the numeric nutrient criteria study. All are available as PDF files at *www.CHNEP.org*.

Striped mullet are found in most coastal waters and estuaries of tropical and subtropical seas. In Florida, striped mullet *Mugil cephalus* are considered one genetic stock. They have a loosely defined catadromous life cycle, meaning they reside in fresh waters but spawn in the sea. Juveniles actively recruit to estuaries and ascend toward freshwater rivers. Striped mullet grow up to 20 inches total length and can reach 9–13 years of age. Females mature at 2–3 years old when about 11.5 inches. Spawning occurs in depths of up to 5,400 feet during November through early January. SOURCE: *http://myfwc.com.*

Photo by James W. Beever, III.

Areawide EIS for Continued Phosphate Mining in the Central Florida Phosphate District

An Areawide Environmental Impact Statement (AEIS) is being prepared by the U.S. Army Corps of Engineers (USACE) to evaluate the potential environmental effects of proposed phosphate mining expansion within the Central Florida Phosphate District.

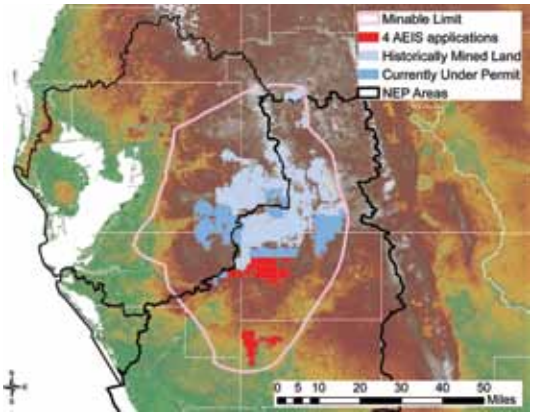
The U.S. Environmental Protection Agency (USEPA) and the Florida Department of Environmental Protection (FDEP) are working with the USACE as cooperating agencies. Participating agencies include a broad range of federal, state, regional and local agencies. They have provided technical reports and information to be used during the AEIS evaluations. In the future, they will provide technical review during the Draft and Final AEIS review periods.

Major elements of the AEIS activities to date have included:

- Facilitation of the Public Scoping Process, during which technical issues of concern to agencies and the public were identified.
- Preparation of a draft section addressing the Purpose and Need for phosphate mining.
- Preparation of a draft section describing the Proposed Action and Alternatives under consideration for meeting the Purpose and Need statement, including a description of the screening process used to identify which alternatives are to be analyzed in greater detail in a subsequent AEIS section.
- Preparation of a draft section describing the Affected Environment, with particular focus on environmental elements most at risk of being affected by phosphate mining.
- Performance of comparative evaluations of the potential environmental effects of selected alternatives carried forward into the Impact Assessment section of the AEIS.

During the summer of 2011, the USACE held individual status update meetings with various participating agencies. In January 2012, to facilitate communication and reduce the need for travel, the USACE updated participating agencies via a webinar. Information presented, including an audio file of the presentation and question and answer session, is posted at *www.phosphateaeis.org*. The next scheduled participating agency group briefing will occur toward the end of April. (See website for details.) The purpose of participating agency briefings and making information available on the project website is to promote communication and collaboration with all interested parties.

The draft AEIS is scheduled to be released in May 2012; the final statement is scheduled for December 2012.



Additional information was provided in the previous three issues of *Harbor Happenings,* which are posted at *www.CHNEP.org.*

Phosphate in Florida: Remains of ancient sea life

Millions of years ago, when Florida was under water, rich phosphate deposits were formed from sediments and remains of ancient sea life buried what is now 15 to 30 feet below the earth's surface.

In 1881, J. Francis LeBaron, an engineer for the U.S. Army Corps of Engineers, discovered phosphate pebbles while surveying the Peace River. As early as 1887, phosphate companies used dredges and rudimentary washers to recover phosphate pebbles from the river between Arcadia and Cleveland. They shipped the wet phosphate rock by rail to Liverpool, where it would be dried and loaded onto barges. The barges traveled to Charlotte Harbor where it would then be loaded onto phosphate schooners and steamships.

At about the same time, land pebble phosphate was discovered in the area around Mulberry — an area eventually known as "Bone Valley" because of the many fossils found there. Mining of land pebble phosphate began in 1890 and quickly proved to be a much cheaper source of phosphate than river pebble. Almost all land pebble phosphate was shipped by rail to the large terminals at Port Tampa and Seddon Island, where it was loaded onto ships.

Peter B. Bradley of the American Agricultural Chemical Company envisioned a company-owned shipping terminal at South Boca Grande. He became known as the "Founding Father of Boca Grande" after buying much of Gasparilla Island and developing the town. In addition to the phosphate shipping terminal, Bradley built the Gasparilla Inn in an effort to entice wealthy Northerners to spend the winter in Florida. Bradley was also responsible for building a railroad, the Charlotte Harbor & Northern Railway, that came from central Florida, over the Myakka River and onto Boca Grande to the phosphate terminal, which was a key shipping operation until 1978. The Boca Grande Historical Society continues to give tours of the "old phosphate docks."

In the 1940s and 1950s Florida phosphate mining companies started building and producing more of their own fertilizer products, instead of shipping phosphate rock to other states for processing.

Phosphate operations changed dramatically since then – consolidating companies and improving technology, safety and environmental standards to what has become one of the most stringently regulated industries in the nation.

Florida's phosphate industry has had a continuing presence in the Greater Charlotte Harbor Watershed for more than a century and remains a major economic force in the Tampa Bay and Central Florida region.

To help protect the integrity of the Peace River and Charlotte Harbor, state laws and regulations require that land mined after July 1, 1975, be reclaimed, that the hydrology approximate that prior to mining, and that habitat loss be appropriately mitigated. Since 1977, a state trust, supported with phosphate severance tax dollars, has provided funds for the voluntary reclamation of land mined prior to 1975.

Settlement Equals Additional Mining and Long-Lasting Environmental Benefits of Land Conservation, Setbacks and More

A settlement agreement between Sierra Club Florida, People for Protecting Peace River (3PR) and ManaSota-88 with the Mosaic Company has been entered to resolve their federal court lawsuit challenging Mosaic's South Fort Meade Extension (SFM Extension) phosphate mine in Hardee County. The U.S. Army Corps of Engineers' permit for the mine allowed more than 7,000 acres of phosphate strip mining in the Peace River watershed. The plaintiffs' lawsuit was filed in June 2010 in the U.S. District Court in Jacksonville and charged that the Corps' permit was issued in violation of the National Environmental Policy Act (NEPA) and the Clean Water Act. The Court issued a preliminary injunction preventing mining under the challenged permit in July 2011.

When entered by the District Court, the settlement will allow mining to proceed at the SFM Extension. The settlement will be final when approved by the District Court and when the lawsuit and pending appeals have been dismissed by the District Court and the Appellate Court.

Mosaic's South Fort Meade Hardee County Extension is 10,856 acres, of which approximately 3,200 acres are to be preserved under the permits authorizing Mosaic's mining activities. The existing permits preserve more than 73 percent of the site's wetlands and 60 percent of all streams on-site. Under the terms of the settlement, Mosaic will now have access to mine more than 7,000 acres of land containing viable phosphate reserves. The extension is anticipated to allow 10 additional years of mining.

In return, there will be major changes in the mining plan, providing significant additional protections for the Peace River watershed. Among them are:

• Mosaic purchased the Peaceful Horse Ranch (PHR) for approximately $10 million. This 4,400-acre property is located at the confluence of the Peace River and Horse Creek, with nearly 8 miles of Peace River frontage and nearly 6 miles of Horse Creek frontage, including largely pristine wetlands. PHR, which has some 3,500 acres of wetlands, is on the state's Florida Forever list as a property that is desirable for state protection. It is vital to the region's water supply, water quality, flood protection and natural system management. The property is immediately adjacent to existing conservation lands as well as the water intake for the Peace River Manasota Water Supply Authority. It has been identified as central to the strategy of providing connected conservation areas as well as wildlife corridors along the Peace River for the Florida panther. Pursuant to the settlement, as additional mitigation for the wetlands lost to mining in the challenged permit, Mosaic will donate PHR to the state for a state park, along with $2 million to cover startup and initial maintenance costs. This acquisition and donation will make PHR a destination for hiking, boating and wildlife viewing, will provide long-term protection to the Peace River watershed and the Charlotte Harbor estuary and will supplement the Florida Forever protection program, which has been hobbled by lack of funding.

• At the SFM Extension mine, mining will be set back from the Peace River and on-site perennial streams, creating additional buffers of approximately 42 acres.

• An additional seven bayhead wetlands and buffers, comprising more than 70 acres, will be removed from the mine plan and preserved in a conservation easement. Bayheads are key to the ecosystem and are very difficult, if not impossible, to restore or recreate.

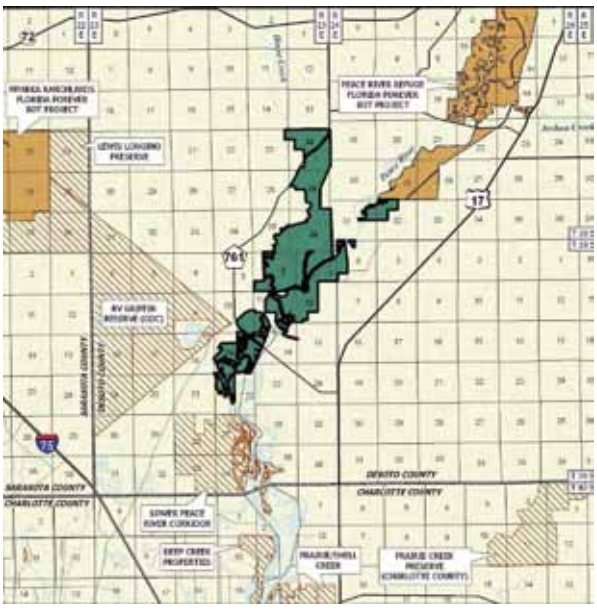
• Some 400 acres of land between the southwest mine border and the Peace River will be placed into conservation easement, providing additional protection for the river.

• An area northwest of the site, and bordering the west side of the Peace, will be placed into conservation easement.

• Two on-site streams will be enhanced with wetland treatment areas.

• Mosaic will enter into a long-term water monitoring program, and an independent panel will be created to review Mosaic's monitoring and restoration over time and to make recommendations where desirable.

The Peace River watershed provides drinking water for hundreds of thousands of Floridians, and the state of Florida, the EPA and Congress have designated the watershed, and the downstream Charlotte Harbor estuary, as a priority watershed, an aquatic resource of national importance and an "estuary of national significance." (NOTE: The CHNEP exists because of this last distinction.) It is home to endangered and threatened wildlife and fish and depends on freshwater flows from the Peace River.



"Under this agreement, some 5,000 additional acres of land will be preserved and put into conservation easement along the Peace River and Horse Creek."
— Percy Angelo of the Sierra Club

"We're hopeful this agreement provides the foundation to continue our constructive dialog with these interested stakeholders as we look to the future. It's especially encouraging that this settlement includes a significant public benefit by conserving the Peaceful Horse Ranch property."
— Richard Mack, Mosaic Executive Vice President and General Counsel

Polk County's Bone Valley Selected Area Study

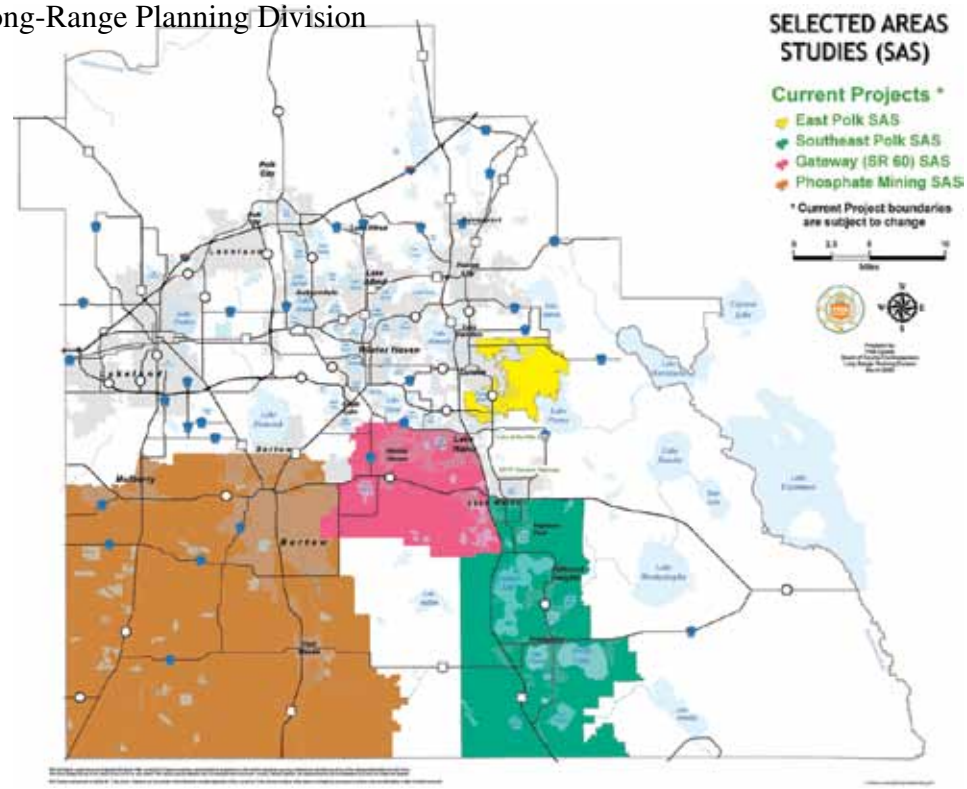
Ameé Nicole Bailey, Polk County Long-Range Planning Division

Polk County began a Selected Area Study (SAS) for the phosphate district in the summer of 2009. The study is known as the "Bone Valley" SAS because of the bones and fossilized remains of prehistoric animals that are common to the area's phosphate deposits. The study boundary is generally defined as the southwest portion of Polk County, including the cities of Bartow, Fort Meade and Mulberry. This is approximately 242,250 acres, or 15 percent of the county.

The SAS process is generally broken into three stages: existing conditions analysis, long-term vision and the implementation plan. Generally, each stage is marked by a public meeting and a recording document.

Some interim work products can assist local governments with existing and continuing planning. Stakeholders have worked with county staff to create a set of guiding principles to direct the process. These principles are designed to serve as framework to convey the intent of a SAS. They are created through collaborative efforts in identifying and addressing pertinent issues of concern throughout the SAS. The following guiding principles have been established to help guide future planning efforts as expressed by the input/dialogue from area communities, stakeholders and other governmental agencies:

- Promote a sustainable development strategy that respects existing communities and the rural character of the area while meeting the demand for economic activity. Encourage maintenance of open space (recreational, conservation and agricultural lands).
- Encourage siting of the various types of development (industrial, commercial, residential) near areas of current similar and compatible use and where appropriate infrastructure already exists or could most efficiently and cost-effectively be extended.
- Promote co-location of infrastructure and multi-modal forms of transportation. Provide appropriate transitions of uses and buffers between areas (e.g., avoid heavy industry near residential areas).
- Promote the conservation, preservation, enhancement, restoration and management of natural resources, such as agricultural lands, wetlands, streams, groundwater systems and wildlife habitat. Provide for connecting corridors and buffer areas such as areas identified in the Integrated Habitat Network (IHN).
- Establish a transition strategy that guides future conversion to other uses when phosphate mining activities cease. Recognize the land use capabilities and limitations of reclaimed landforms and soil types.
- Coordinate with the cities of Bartow, Fort Meade and Mulberry to develop policies and standards for areas adjacent to the cities that could supply infrastructure or may be annexed in the future.
- Promote the use of federal, state and local redevelopment programs, funding or incentives to encourage the sustainable reuse of previously mined lands and Brownfields programs, and to support new or alternative energy source industries.



The Bone Valley SAS has also recently completed the first phase of the SAS process. The *Bone Valley Selected Area Study Existing Conditions Analysis* provides a detailed look at what makes this part of Polk County unique. Southwest Polk County is an area rich with history, environmental lands, agriculture and industry. This document serves as the preliminary overview, or "snapshot," of the study area. The analysis provides a better understanding of all facets of the study area and serves as the foundation for developing a vision for the study area. During this phase of the SAS, county planning staff analyzed the history, economy, environmental features, infrastructure, community services, mining and reclamation status, and land uses as they currently exist in the study area. This document can be viewed at *www.polk-county.net/projects*.

The second phase of the SAS process has begun and will include the development of a long-term vision. Public participation and broad-based community support are vital components of this study effort. Citizen comments solicited at public meetings, along with input from the focus group, help to guide this effort. An important aspect of this phase is the staff-moderated visioning workshop(s), which will be open to the public and tentatively scheduled for May 2012. (Please check *www.polk-county.net/projects* for workshop details.) Participants will have an opportunity in a group setting to visualize potential growth in the area. The work products from the visioning exercises will determine the tools needed and developed during the implementation phase of the SAS.

Additional information was provided in the Spring 2010 issue of *Harbor Happenings,* which is posted at *www.CHNEP.org*.

CHNEP public conference support is again available

The Charlotte Harbor National Estuary Program is a partnership working to protect the natural environment of Florida from Venice to Bonita Springs to Winter Haven. The *Comprehensive Conservation and Management Plan* (CCMP) is the CHNEP's 20-year plan to protect the environment. Public conferences are one medium used for furthering the CCMP. Since 2003, public conferences have been held on the Caloosahatchee River, Lemon Bay, Cape Coral Canals, Peace River, Estero Bay and Everglades watersheds.

The CHNEP will be making $5,000 available for public conferences that further the CCMP. Conferences must be held between Oct. 1, 2012 and Aug. 31, 2013. Requests must be received by July 13. More details are available at *www.CHNEP.org*. See page 16 for details on upcoming conferences.

Public Issues and Conflict Management training to be held in December 2012

The CHNEP is pleased to host the two-day, instructor-led "Public Issues and Conflict Management" course. This course is designed to increase participants' ability to design, conduct and control public or targeted meetings. Participants will learn techniques to reduce conflict, enhance cooperation and achieve meeting objectives in a timely manner. They will also learn how to use and practice facilitation skills to enhance communication between diverse groups with multiple perspectives.

After completing this course, participants will be able to

- Design and conduct collaborative processes for reaching consensus on public issues.
- Understand how to deal effectively with the media in the public issues management process.

The CHNEP is hosting this training to help its partners in their efforts to protect the natural environment of Florida from Venice to Bonita Springs to Winter Haven and to fulfill the CHNEP management plan. This training is offered through the generosity of NOAA Coastal Services Center, who is teaching the course. The course will be offered during the week of Dec. 3, but dates and location have not yet been confirmed.

To reserve your seat, please complete the online registration form. There is a registration fee of $40. Refreshments and lunches will be provided. If you wish to attend but are unable to pay the registration fee, please contact Maran Hilgendorf. The agenda, registration form and additional guidance are posted at *www.CHNEP.org*.

Developing an economic strategy

The Southwest Florida Regional Planning Council is holding public workshops in April and May to develop a regional economic strategy. The SWFRPC is a Federal Economic Development District that receives federal funding to develop and update this strategy. The workshops will bring public and private sectors together in the creation of an economic road map to diversify and strengthen regional economies. The Comprehensive Economic Development Strategy (CEDS) analyzes the regional economy and serves as a guide for:

- Establishing regional goals and objectives.
- Developing and implementing a regional plan of action.
- Identifying investment priorities and funding sources.

The CEDS Committee, which includes representatives from the region, was established to address economic problems and challenges from a regional perspective. Learn more at *www.swflregionalvision.com/CEDS.html*.

Free software calculates value of trees

The USDA i-Tree software provides calculations of value of annual environmental benefits related to energy conservation, air quality improvement, carbon dioxide reduction and stormwater control.

The i-Tree suite of software tools at *www.itreetools.org/* was developed by the USDA Forest Service and their cooperators to help users access and manage the structure, function and value of urban tree populations, regardless of community size or technical capacity. Communities can determine urban forest benefits, costs and management needs. Succinct summary reports promote well-informed decision making on the future funding, direction and strategies of the community's tree programs.

CHNEP 2012 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.

Management	May 4
Policy	May 21
Technical Advisory Committee (TAC)	July 11
Public conference requests due	**July 13**
Citizens Advisory Committee (CAC)	August 1
Management	August 3
Policy	August 20
Public outreach grant applications due	**September 5**
Technical Advisory Committee (TAC)	October 10
Citizens Advisory Committee (CAC)	October 17
Management	November 2
Policy	November 16
Charlotte Harbor Nature Festival	**November 17**

Friends of Charlotte Harbor Estuary, Inc.
PO Box 2245
Fort Myers FL 33902-2245

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*.

***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 upcoming events

The CHNEP is a partnership working to protect the natural environment of Florida from Venice to Bonita Springs to Winter Haven. The CHNEP offers a number of events and programs to engage and educate various audiences. Some events are described elsewhere in this newsletter. Many more are being planned. Visit *www.CHNEP.org* for event details. If you'd like to help plan, promote or sponsor these events, send an email to *mhilgendorf@swfrpc.org*.

Public conference on land conservation: September 2012 in Punta Gorda

Ecotour operator programs: Since 2010 the CHNEP has assisted Rookery Bay National Estuarine Research Reserve (RBNERR) and others in a summer program for ecotour operators. The 2012 program is tentative but is expected to include:

- June 12 evening program at Eco Living Center at Rutenberg Park
- July 19 for a full-day training at RBNERR TBD
- August TBD for a full-day training at Rutenberg Park

Law enforcement workshops: Since 2011, the CHNEP has assisted Coastal Wildlife Club in workshops geared specifically for law enforcement staff. Three workshops will be held in 2012.

Charlotte Harbor Nature Festival: Saturday, Nov. 17, 2012 from 10 A.M. to 3 P.M. at Charlotte Sports Park in Port Charlotte. Charlotte County will hold a trail run at Tippecanoe Preserve in conjunction with the 2012 festival. Guided walks and wagon rides are also held in the Preserve.

Workshop to assist Babcock Ranch, Inc. in their development of a business management plan: January 2013 in Punta Gorda.

The CHNEP sponsors many other events by awarding public outreach grants and micro-grants.

Ecostudies Institute's Rachel Frieze will spend a year at the Refuge, where Wildlife Drive makes the birds most easily accessible for capturing and tracking. To follow their progress, go to www.facebook.com/EcostudiesInstitute.

Cuckoo for cuckoos

The Ecostudies Institute recently successfully captured, banded and outfitted its first mangrove cuckoo *Coccyzus minor* with a radio telemetry transmitter backpack at the "Ding" Darling National Wildlife Refuge. The bird's movements will be tracked for one year.

"It's the first mangrove cuckoo in North America to be banded and part of tracking study, as far as we know," said Refuge Deputy Manager Joyce Palmer, who commissioned the study on the shy, secretive mangrove cuckoo that inhabits coastal mangrove habitats in south Florida.

"When we saw that mangrove cuckoo populations were declining in certain areas," said Ecostudies Institute's Rachel Frieze, "we realized there wasn't much natural history available on the birds to explain why."

"We want to find out what elements are critical to them," said John Lloyd, the nonprofit's senior research ecologist. "They're here breeding and vocal March through July. Then they quit being vocal. Do they get quieter or are they moving?"