

# Stewardship Gaps

## Quantifiable objectives

**SG-1:** By 2025, a minimum of 75 percent of all residents will have recalled attending a watershed event, reading watershed material or hearing watershed/estuary information on radio or TV. A minimum of 50 percent of all residents in the CHNEP study area can recognize estuaries and watersheds. A minimum of 10 percent of all residents will be able to claim personal actions that protect the estuaries and watersheds.

**SG-2:** By 2010, the CHNEP will serve as a recognized resource to elected officials or their agents from local, state and federal government for policy advice.

**SG-3:** By 2010, the CHNEP long-term monitoring strategy and data management strategy will be implemented and resulting informational websites maintained systematically.

**SG-4:** By 2010, key geographic and scientific information will be presented in ways that are meaningful to the majority of the CHNEP study area population.

## Priority actions

**SG-A:** Gauge public involvement.

**SG-B:** Provide people with opportunities to be involved in research, monitoring and restoration activities.

**SG-C:** Identify underrepresented populations and develop methods to include them in estuary and watershed protection.

**SG-D:** Produce watershed and estuary communication tools.

**SG-E:** Offer grants to broaden participation of individuals and groups in implementing the CCMP.

**SG-F:** Provide events that involve people in the stewardship of their local natural resources and opportunities to connect them to their watershed.

**SG-G:** Implement target audience programs.

**SG-H:** Incorporate estuary and watershed protection in educational curricula.

**SG-I:** Conduct new resident programs to inform and encourage environmental stewardship.

**SG-J:** Identify and showcase accomplishments and excellent examples including research findings, restoration, legislative changes and outreach successes using a variety of methods.

**SG-K:** Present scientific information in a form readily understood by the majority of people.

**SG-L:** Implement the *Advocacy and Review Procedures*.

**SG-M:** Vigorously pursue the *Long Range Funding Strategy* and funding mechanisms to implement watershed and estuary protection.

**SG-N:** Update comprehensive inventories of research, restoration, legislative and outreach needs.

**SG-O:** Create incentives to protect desired ecosystem resources.

**SG-P:** Incorporate into federal, state and local permits and public works improved standard practices that better protect estuaries and watersheds.

**SG-Q:** Build capacity for communities and their local leadership to mitigate and adapt to the effects of climate change through joint efforts.

**SG-R:** Track and present monitoring data according to CHNEP adopted targets in Environmental Indicators.

**SG-S:** Post raw data, geographic information system (GIS) and technical analysis on the Internet under the data management strategy.

## Other priority actions

**WQ-K:** Implement Florida-friendly plant programs throughout the CHNEP study area, including the Florida Yards & Neighborhoods program.

**WQ-L:** Increase the use of personal and home best management practices by consumers throughout the watershed to reduce nonpoint-source pollution.

**WQ-M:** Support public involvement programs addressing water quality issues.

**HA-P:** Support public involvement programs addressing watershed management issues of hydrology, water resource issues, water conservation and water use.

**FW-H:** Bring environmentally sensitive land under protection through ownership and/or management and expand conservation areas, reserves and preserves, including undeveloped platted lots.

**FW-I:** Advocate land acquisition and conservation easement programs.

**FW-J:** Provide information on the economic, social and environmental benefits of protected land.

**FW-K:** Acquire as much of Babcock Ranch as possible for public stewardship and promote conservation management of the entire ranch.

**FW-N:** Provide education programs on the impacts of invasive exotic plants and exotic nuisance animals.

**FW-O:** Provide multifaceted environmentally responsible boater education programs.

**FW-P:** Support public involvement programs in habitat and wildlife issues.



### Background

Public outreach effectiveness is difficult to ascertain without the use of surveys and other methods. The CHNEP is a science-based organization and similar standards should be used with social research. It is in the best interest of the program to measure the present conditions regarding the level of public awareness, understanding, attitude and actions toward environmental conditions in the CHNEP study area.

The CHNEP and its partners have been successful in establishing monitoring, restoration, research and outreach programs in the CHNEP study area. However, social indicators that link the sound science performed by these programs and the effect on the population, or vice versa, have not been routinely evaluated. These environmental-social indicators should be conducted regularly to determine the effectiveness of the activities conducted or sponsored by the program.

We are committed to establishing a base line and tracking changes in citizen awareness, knowledge, behaviors and advocacy through time. We are committed to measuring the effectiveness of our priority actions related to education and outreach. An active outreach program must have measurable results. A study/survey tool will identify educational gaps encountered through a scientific evaluation of our community. The study will provide a framework to guide our efforts in closing gaps in stewardship.

So how do we achieve our vision of stewardship together? First, we use survey tools to measure an environmental awareness base line. The base line tells us where we are. We already have a vision of where we want to be. Then we devise a plan to get there — a plan that closes the gap between where we are and where we want to go. How will we know when we have succeeded as good stewards of our watershed? Set up good measurable, achievable objectives that we can measure over time.

This priority action helps fulfill SG-1.

### Strategy

- 1) Establish base line information on familiarity and actions regarding estuaries and watersheds by conducting random sample surveys. Determine the awareness of the program, understand the differences between an estuary and watershed and identify behavior programs associated with protecting our estuaries and watersheds.
- 2) Verify results using a variety of methods, such as interviews and focus groups.
- 3) Analyze the results of the surveys and compare with other partners' surveys.
- 4) Continue to assess delivered CHNEP programs for future improvements.
- 5) Develop mechanisms to assess changes in awareness, understanding and behavior.

### Potential coordinating organizations

Charlotte Harbor National Estuary Program  
 Education: Colleges and universities  
 U.S. Environmental Protection Agency  
 Water management districts

*The CHNEP and its partners commonly use surveys to improve their programs.*

**Septic System Homeowners**

The information from this survey will be provided to Crews Environmental so they can assist you in maintaining your septic system with a FREE pump-out, inspector and report. Personal contact information will not be shared with any other entities. This service is being provided to select homeowners by the Charlotte Harbor National Estuary Program and South Florida Water Management District as part of a pilot project on septic system education in your neighborhood.

Page 1 of 2

0% Complete

Required Fields

1. Name(s):

2. Address:

3. Phone Number:

4. How many years have you lived in your home?

5. Do you live in your home year round?

6. Has your septic system been replaced since original construction?

7. If yes when?

8. How many people, over the age of 20, live in your home?

9. How many young adults, ages 12-20, live in your home?

10. How many people, ages 3-11, live in your home?

11. How many children, ages 0-2, live in your home?

[Continue](#)



# SG-B

Provide people with opportunities to be involved in research, monitoring and restoration activities.

## Background

The CHNEP has identified a need for an increase in public awareness and public responsibility of natural resources. Participation in research, monitoring and restoration activities provides opportunities for hands-on stewardship, educational outreach and promotion of the CHNEP and its partners' continued efforts in the community. Examples of public volunteer opportunities include citizen removal of invasive exotic plants, Florida-friendly planting, oyster reef building, water quality monitoring and amphibian monitoring.

This priority action helps fulfill SG-1.

## Strategy

- 1) Encourage use of volunteers in research, monitoring and restoration such as invasive exotic removal, marsh plantings, upland plantings and maintenance and volunteer water quality monitoring.

- 2) Network and build partnerships with schools and environmental and volunteer organizations to create, coordinate and promote opportunities.
- 3) Promote general public events such as coastal cleanups and estuary cleanups.
- 4) Offer grants and letters of support for citizen-driven research, monitoring and restoration activities.

## Potential coordinating organizations

Charlotte Harbor National Estuary Program  
Education: Colleges and universities  
Education: School districts  
Organizations: Conservation  
Organizations: Nonprofit research  
Water management districts



Photo by Judy Ott, FDEP

*Volunteers collect water quality samples for the Florida Department of Environmental Protection and the CHNEP. The data are incredibly valuable because they are taken monthly at the same time throughout the estuaries.*



# SG-C

Identify underrepresented populations and develop methods to include them in estuary and watershed protection.

## Background

Underrepresented segments of the population are difficult to access. Many of these segments are constrained by low income, language barriers and cultural differences. Major health problems from industrial pollution and disproportionate hardship from infrastructure development among these groups resulted in environmental justice concerns. Everyone should receive their share of benefits from the National Estuary Program and partner programs.

This priority action helps fulfill SG-1.

## Strategy

- 1) Identify segments of the population that are not currently benefiting from the CHNEP.
- 2) Maximize reach to underrepresented groups by utilizing existing networks such as rural and minority area parks, churches, community centers and recreational clubs.
- 3) Develop multilanguage materials and programs.

- 4) Support community environmental projects.
- 5) Actively work to involve leaders of underrepresented populations with the CHNEP.

## Potential coordinating organizations

Chambers of commerce  
Charlotte Harbor National Estuary Program  
Churches  
Community centers  
Education: Colleges and universities  
Federal, state, community and municipal government agencies  
Libraries  
Organizations: Nonprofit organizations that serve underrepresented populations



Photo by Dennis Guenther, 5/6/02

*Working with city parks and recreation departments, such as the city of Fort Meade, is an excellent way to reach underrepresented communities.*



### Background

Communication tools, such as websites and newsletters, can be effective in increasing knowledge and awareness of CHNEP issues throughout the CHNEP study area. In addition, these tools can be used to further the average person's understanding of terms such as *estuary* and *watershed* and the effect human activities have on them. They can also be used to provide scientific information on water quality degradation, hydrologic alterations, habitat loss and stewardship gaps, which are often not meaningful to the average person.


This priority action helps fulfill SG-1 and SG-4.

### Strategy

- 1) Maintain a user-friendly website that is meaningful and relevant to the average person with links to partners' websites.
- 2) Publish *Harbor Happenings* newsletter and increase its accessibility.
- 3) Measure the success of the communication tools used, including the website and newsletter, through surveys.


### Potential coordinating organizations

- Businesses
- Charlotte Harbor National Estuary Program
- Education: Colleges and universities
- Federal, state, community and municipal government agencies
- Foundations
- Organizations: Conservation
- Organizations: Environmental
- Organizations: Nonprofit research



## Charlotte Harbor National Estuary Program

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



**What's new?**

[Management Conference](#)  
 Next meeting of the CHNEP Management Conference is: [Science Forum](#)  
 J.N. "Ding" Darling National Wildlife Refuge on Sanibel  
*This meeting is open to the public.*

[Comprehensive Conservation and Management Plan \(CCMP\)](#)  
 Request a free subscription to Harbor Happenings

[Events](#)  
 Florida-friendly plant workshops: September 8 at SFCC in Lee County and October 13 at SFCC in DeSoto County  
[Charlotte Harbor Nature Festival](#): November 3, 2007  
[National Estuaries Days](#): Call for events (by July 17)  
[Community Planning and Development](#): December

[Grants](#)  
 and Restoration Partners Grant Proposals: [October 26](#)  
 of up to \$250 are available  
 result in products for others to use. Two of the are a children's [Estuaries Coloring Book](#) and [Grants](#)

[Publications and Projects](#)  
 ges have been submitted and the en received. We're now busy creating you are not already a subscriber to [Harbor Happenings](#), subscribe now so calendar in the mail.  
 est issue posted June 12 with links Some issues are [now available in Spanish](#) and [Coasts devoted to impacts](#)



# Harbor Happenings

Volume 11, Issue 2, 2007  
Working together to protect the natural environment from Venice to Bonita Springs to Winter Haven

### Peace River Cumulative Impact Study assesses impact of development

Many portions of the Peace River watershed have been considerably altered from their natural state by agriculture, urban development and phosphate mining. In addition, considerable volumes of ground water, and to a lesser extent surface water, are withdrawn each day to support these land uses. It has become evident that these land and water uses have cumulatively impacted both the hydrology and ecology of the Peace River watershed.

In recognition of these impacts, Senate Bill 18-E, enacted in 2003 by the Florida Legislature, directed the Florida Department of Environmental Protection (FDEP) to conduct a Peace River Cumulative Impact Study (Study) and subsequently prepare a Peace River Basin Resource Management Plan (RMP) and subsequently prepare a Management Plan (MP).

The 383-page Study was submitted in January 2007 to the FDEP Bureau of Water Resources and the Southwest Florida Water Management District by PBS&J with input from a large number of individuals having a wide variety of expertise. A few findings from the Study are included on page 4 of this issue of Harbor Happenings.

Additional information, including links to the full report, 100-page executive summary and coverage by Charlotte Sun, are on the website at CHNEP.org.

### Guidance for CHNEP 2008 calendar

You are invited to submit images for consideration for the 2008 calendar

1) Submit your entries by Friday, July 20, 2007. Additional guidance and entry forms are on the website at CHNEP.org.

2) Select the images during August 2007 that you would like to see in the 2008 calendar. Guidance will be posted on the website at CHNEP.org.

3) To receive your 2008 calendar in the mail, subscribe to Harbor Happenings by September 30, 2007. You can subscribe online at CHNEP.org. We anticipate the calendar will be mailed in October.

The calendar will be mailed to all newsletter subscribers. Also, a limited supply will be available for others to distribute. If you are interested in receiving calendars for distribution, please contact Maran Hilgendorf (mhilgendorf@chnep.org) by August 31 with your request. Please include number of copies needed and explain who will receive the calendars.

*Tools such as the www.CHNEP.org website and Harbor Happenings newsletter are critical to communicating to the Management Conference and to the public.*



# SG-E

Offer grants to broaden participation of individuals and groups in implementing the CCMP.

## Background

There are many talented and imaginative individuals and groups who are capable of developing projects that implement the CCMP.

Additional funding may make the difference whether these groups are able to make their ideas reality. Grants also help increase understanding of the CCMP.

This priority action helps fulfill SG-1.

## Strategy

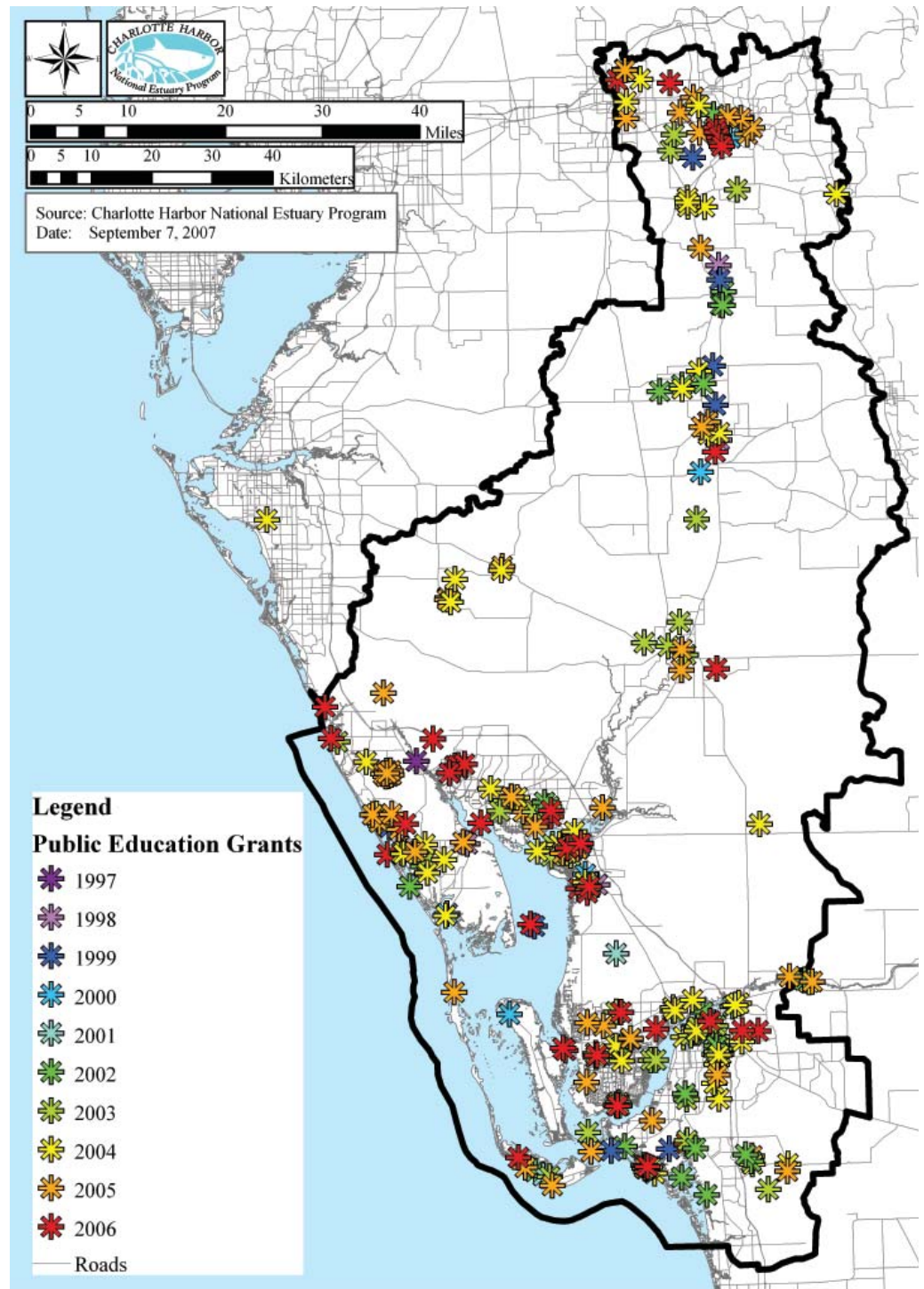
- 1) Develop grant programs through the CHNEP budgeting process.
- 2) Increase awareness of available grants offered by the CHNEP and partners to those who could help implement the CCMP.
- 3) Provide assistance to those who request grant-writing guidance and letters of support.

## Potential coordinating organizations

Charlotte Harbor National Estuary Program  
Education: Colleges and universities

Federal, state, community and municipal government agencies  
Foundations

Organizations: Conservation  
Organizations: Nonprofit research



Map 30: Public Outreach Grant Awards

Distribution of CHNEP grants geared to public information and education from 1996–2006.



# SG-F

Provide events that involve people in the stewardship of their local natural resources and opportunities to connect them to their watershed.

## Background

Events provide specialized family-friendly, fun or hands-on learning experiences. They connect the public to a concentration of resources and groups. A well-publicized event is effective at providing information and at showcasing partners' programs. Conferences help communities solve local problems and scientists communicate their recent findings. Professional development workshops sponsored by the CHNEP help its partners in their efforts to protect the natural environment and fulfill the program management plan. Other opportunities for people to experience the natural environment are critical to connect them to their watershed and highlight the importance of these resources.

This priority action helps fulfill SG-1.

## Strategy

- 1) Partner with select festivals and events.
- 2) Participate in continuing education outlets such as the Charlotte County Cultural Center.

- 3) Host professional development and public workshops, seminars, summits and conferences.
- 4) Financially support hands-on education such as wading trips and other outreach programs.
- 5) Offer multiple opportunities throughout the season to celebrate National Estuaries Days.
- 6) Determine effectiveness of events using tools such as exit surveys, interviews and other means.
- 7) Offer multiple and varied opportunities for people to experience the study area's ecosystems.

## Potential coordinating organizations

Businesses  
Chambers of commerce  
Charlotte Harbor National Estuary Program  
Civic associations  
Education: Colleges and universities  
Federal, state, community and municipal government agencies  
Organizations: Conservation  
Water management districts



*CAC Chair Deb Highsmith working the crowd at the 2004 Charlotte Harbor Nature Festival.*

Photo by Lisa Beever, 2/4/03



# SG-G

## Implement target audience programs.

### Background

Not everyone can be reached using a one-message-fits-all approach, requiring specific efforts to reach targeted audiences with a message delivered in a way that is appropriate for that audience. The CHNEP Education Strategy developed in 1999 listed the following as targets for individualized treatment:

- Business and Industry: Mining, Agriculture, Developers and Real Estate Professionals, Hotel and Tourism, Marine Trades/Fisheries, Recreation, Transportation
- Government Agencies and Elected Officials
- Education
- Clubs, Organizations and Associations
- Media

This priority action helps fulfill SG-1.

### Strategy

- 1) Survey Management Conference on strategic target audiences.
- 2) Identify strategic target audiences to define which would provide the greatest value in implementing our CCMP.
- 3) Identify leaders within or affecting the strategic target audiences.
- 4) Define the purpose of reaching that target audience, such as change behavior, increase understanding or provide information to others.
- 5) Develop, implement and evaluate plans to reach strategic target audiences.
- 6) Develop mechanisms to reach strategic target audiences in a cost-effective way.

### Potential coordinating organizations

Charlotte Harbor National Estuary Program



Photo by Maran Hilgendorf, 12/10/04

*Hotel industry representatives saw different ecotour sites over the course of several months to engage their industry in environmental protection.*



## Background

The region is rich in programs that provide informal and formal education. Informal education is provided by many, including:

- Site-based nonprofit organizations found throughout the region such as Explorations V.
- Citizens organizations such as Estero Bay Buddies.
- Government departments, including parks such as Paynes Creek State Historic Site, Lemon Bay Park and Cape Coral Rotary Park.

Formal education is just as diverse. For students in K–12, each county and a Virtual School has its own school district that implements academic plans based on Sunshine State Standards and grade level expectations, with guidance provided by the Florida Department of Education. As of the 2004–5 school year, there were approximately 170,000 students in 170 K–12 public schools and 31,000 students in 200 private schools in the CHNEP study area. Statewide, more than 50,000 students are homeschooled. State-assisted colleges based in the region include New College of Florida, Florida Gulf Coast University, Edison College, Manatee College, Polk Community College and South Florida Community College. Many private colleges are also based in the region.

This priority action helps fulfill SG-1.

## Strategy

- 1) Inventory and evaluate estuary and watershed protection educational curricula offered.
- 2) Identify problems in existing curricula and recommend improvements, including gaps.
- 3) Enhance programs by supplying materials (posters, videos, curricula) and offering grants.
- 4) Promote educational programs to increase participation.

## Potential coordinating organizations

Associations: Environmental education, such as National Marine Educators Association, North American Association for Environmental Education, League of Environmental Educators in Florida

Education: Associations concerned with home schooling, nonprofit organizations that provide programs to schools, private schools and school districts

Educational media such as Public Broadcasting Service

Federal, state, community and municipal government agencies

Florida Department of Education

Foundations such as National Science Foundation and National Research Council

Government agencies responsible for initiatives such as environmental literacy, U.S. Ocean Policy, Gulf of Mexico Alliance


Libraries

### Salt Marsh Food Chains

Algae→	Fiddler Crab→	Croaker→	Diamondback Terrapin
Algae→	Silverside→	Hooded merganser→	American alligator
Detritus→	Shrimp→	Sea trout→	Man
Detritus→	Blue crab→	Man	

### Common Plants and Animals of the Salt Marsh

ANIMALS		PLANTS
<b>Insects</b> Marsh fly Dragon fly Mosquito	<b>Reptiles</b> American Alligator Diamondback terrapin	Black needlerush Sawgrass Cattail Salt meadow cordgrass Smooth grass
<b>Shellfish</b> Fiddler crab Crabs Pink shrimp Salt marsh periwinkle snail Clams	<b>Birds</b> Redwing black bird King fisher Hooded merganser Great blue heron White ibis Red head duck Osprey Sand piper	
<b>Fish</b> Anchovy Croaker Silverside Gulf menhaden Sea trout	<b>Mammals</b> Raccoon Otter	

*A page from the Hardee County Outdoor Classroom Estuary Study Curriculum Guide, for use with fifth-grade students.*



# SG-I

Conduct new resident programs to inform and encourage environmental stewardship.

## Background

As the population of the CHNEP study area continues to explode, it is increasingly important to educate residents about the fragility of their new natural environment and promote a sense of stewardship. By focusing on new residents, materials presented will be meaningful to all residents.

New resident packages have been developed by many partners that include printed material available from many concerned with the health of the natural environment. The CHNEP provided support of these packets and developed a new resident guide that summarizes information in many publications by many sources.

This priority action helps fulfill SG-1.

## Strategy

- 1) Review existing new resident packets and citizens guides for continued relevance.
- 2) Make new resident materials and programs available in a variety of ways. Distribution locations may include utilities, libraries, parks, chambers of commerce, county Extension offices, government administrative offices, car and boat registration departments and local civic and business organizations.
- 3) Increase public awareness regarding environmental laws, violations and impacts to resources.



Photo by Maran Hilgendorf, 4/26/04

*Demonstration gardens in high-growth areas, such as the Cape Coral Historical Museum garden, reach new residents.*

## Potential coordinating organizations

- Businesses
- Charlotte Harbor National Estuary Program
- Civic associations
- Federal, state, community and municipal government agencies
- Florida Sea Grant College Program
- IFAS Cooperative Extension Service
- Libraries
- Organizations: Conservation
- Peace River Environmental Education Network
- Utilities: Public and private
- Water management districts
- Water supply authorities



# SG-J

Identify and showcase accomplishments and excellent examples including research findings, restoration, legislative changes and outreach successes using a variety of methods.

## Background

The vision of the CCMP is rooted in sound science and measured results. Implementation of the CCMP is only successful if results are clearly communicated and put to use by public officials, educators and private citizens alike. Scientific findings lead to sound decision making in the hands of legislators and other public officials. Sharing effective public outreach methods serves to increase environmental knowledge and awareness exponentially across partner networks. Showcasing the CHNEP project results is essential for continued legislative and public support of the CHNEP and highlights excellent examples for partner consideration.

This priority action helps fulfill SG-1 and SG-2.

## Strategy

- 1) Network with other National Estuary Programs and partners for effective ways to represent accomplishments.
- 2) Design current and fluid “accomplishment brochures” or “talking points” for legislators and elected officials.
- 3) Interview legislative staffers for the most effective way to communicate with them.
- 4) Produce videos, posters, publications, displays and other appropriate tools.
- 5) Showcase research, restoration and outreach results to the media with press releases and special publications.
- 6) Maintain databases of successes.

## Potential coordinating organizations

Charlotte Harbor National Estuary Program  
Organizations: Conservation  
Organizations: Nonprofit research  
Water management districts



Photo by Maran Hilgendorf, 6/10/04

*The Hardee County Outdoor Classroom EcoCamp is an outstanding example of environmental education and is showcased in a video designed for teachers.*



# SG-K

Present scientific information in a form readily understood by the majority of people.

## Background

Scientific information is often hard to access and difficult to understand. It is imperative that scientific information be presented in ways meaningful to the majority of people, including decision-makers.

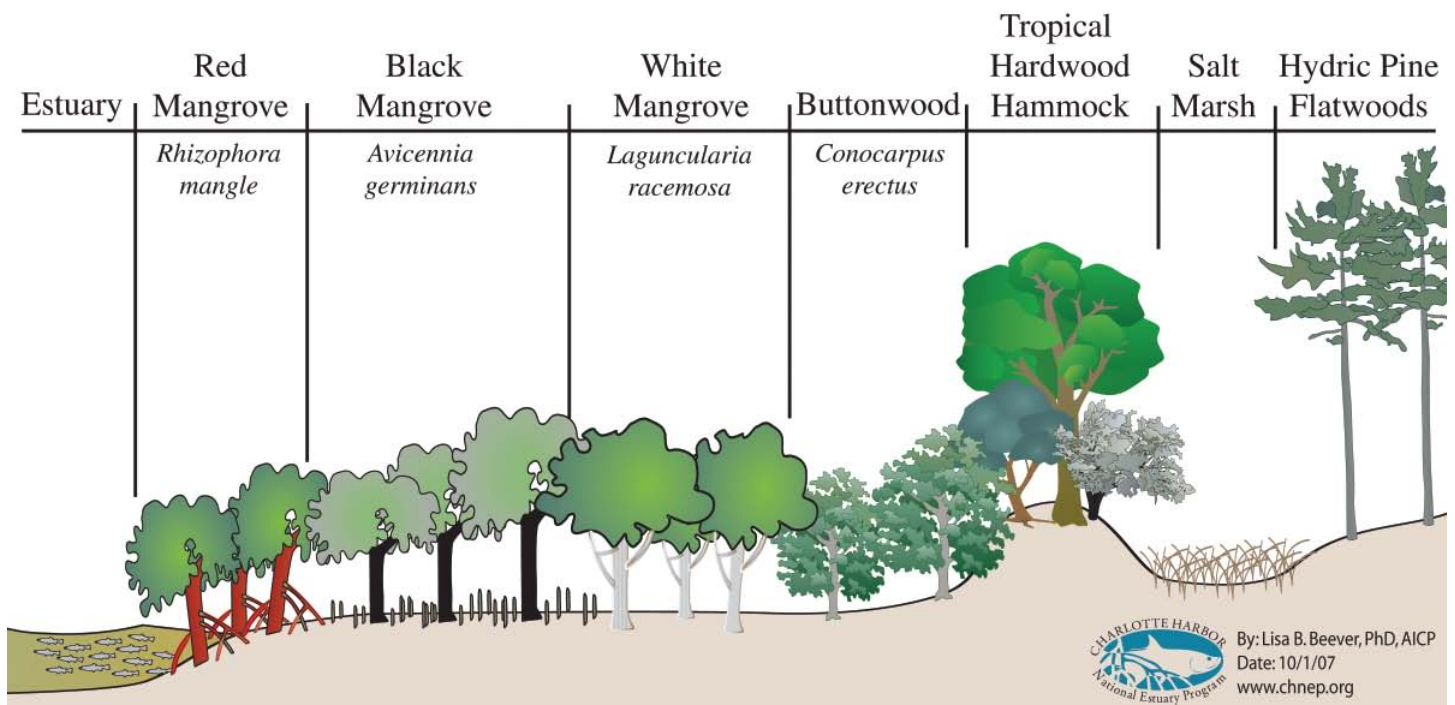
This priority action helps fulfill SG-4.

## Strategy

- 1) Establish a CAC subcommittee to review scopes of work and findings of research projects to ensure clarity and applicability to the majority of people.
- 2) Assist scientists on methods to present their findings in a meaningful way to the general public. Such assistance may include providing published guides and presenting workshops.
- 3) Use a variety of communication tools such as conceptual diagrams and models.
- 4) Through surveys, measure the success of this effort to provide meaningful scientific information to the public.

## Potential coordinating organizations

Businesses  
Charlotte Harbor National Estuary Program  
Education: Colleges and universities  
Federal, state, community and municipal government agencies  
Foundations  
Organizations: Conservation  
Organizations: Environmental



The above conceptual diagram was prepared to display typical plant community and mangrove zonation in southwest Florida in a form readily understood by the majority of people.



## Background

On December 7, 2001, the CHNEP Policy Committee unanimously adopted the motion to “become a spokesman for the Harbor and the water bodies in the natural system in the forums where decisions are being made and implementations are being undertaken.” Although special reference was made to minimum flows and levels (MFLs), total maximum daily loads (TMDLs) and the Comprehensive Everglades Restoration Plan (CERP) and its implications for the Caloosahatchee River, the overall goal was for “the CHNEP to assume the lead role in being the advocate for the Charlotte Harbor Ecosystem Complex and its watersheds.” The position further suggested that the Florida Department of Environmental Protection, the South Florida Water Management District and the Southwest Florida Water Management District “look to the CHNEP for guidance in setting goals for the CHNEP study area for their various programs currently under way.” With this guidance, the CHNEP adopted its *Advocacy and Review Procedures* on February 21, 2003. The aims of the CHNEP advocacy stance are:

- To implement the quantitative objectives and priority actions of the adopted *Comprehensive Conservation and Management Plan* (CCMP).
- To provide policymakers with a source of review and comment from an organization that represents the considered opinions of diverse interests.
- To provide a voice for natural systems within the CHNEP study area watersheds based on the best scientific information available.
- To facilitate citizen entry into the CHNEP Management Conference process.

It is important that the CHNEP be recognized as a resource to elected officials. Without insightful ordinances and sound legislation, no environmental initiative can succeed. A key component of effective communication must be advocacy. We must bring issues of relevance backed by sound science to the political fore. With informed leadership, our communities can be clean, safe and compatible for humans and the wildlife that make Florida the home sought by so many.

We are succeeding in closing stewardship gaps if we are building strong citizen advocates. We are succeeding if our elected officials look to the CHNEP as a resource.

This priority action helps fulfill SG-2.

## Strategy

- 1) Utilize all CHNEP committees and subcommittees as a vehicle to identify issues requiring the attention of the Management Conference.
- 2) Provide opportunities to reveal all aspects of an issue in the context of the best available science.
- 3) Craft correspondence and presentations pursuant to the procedures.
- 4) Amend the procedures as needed to serve the Management Conference.
- 5) Review pending 404 permit applications, policies and rule making regarding development of headwater tributaries.
- 6) Recognize water reservations as a tool to protect fish and wildlife; promote this tool to decision-makers, their staff and public.
- 7) Advocate the continued ability to set water reservations under state statutes.
- 8) Establish water reservations for the Caloosahatchee estuary and Estero Bay. Include the Caloosahatchee estuary and Estero Bay as a legal source user for environmental purposes.

## Potential coordinating organizations

Charlotte Harbor National Estuary Program



## Background

Six themes were identified in the 2000 CCMP to direct funding toward its implementation:

- Maintain existing levels of expenditures for programs making cost-effective contributions to restoration goals.
- Evaluate programs that fall short of these aims and investigate opportunities to redirect resources to accomplish more with public dollars.
- Aggressively pursue state and federal funding assistance for watershed management.
- Promote public-private partnerships with the potential for real economic and natural resource benefits.
- Support local option taxes, when deemed essential for the implementation of action plans.
- Pursue new funding sources beyond those described above only if strategies fail to achieve adequate progress toward management and implementation.

The *Long Range Funding Strategy*, adopted in 2004, outlines the status of the six themes and identifies core services provided through the CHNEP, partner commitments, funding and resource needs, as well as funding strategies.

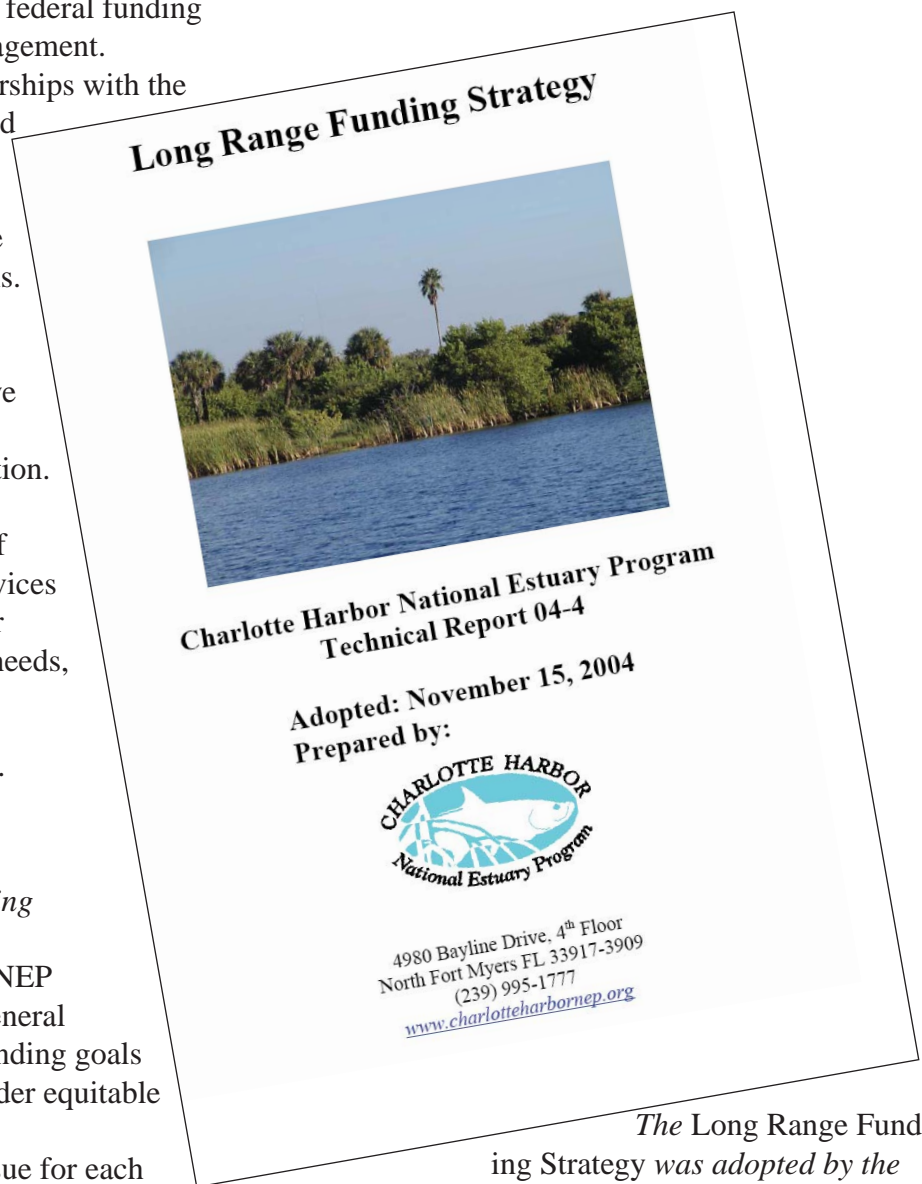
This priority action helps fulfill SG-2.

## Strategy

- 1) Implement the *Long Range Funding Strategy*.
- 2) Enter into an agreement with CHNEP signatory partners that outlines general implementation commitments, funding goals and funding commitments. Consider equitable allocations among partners.
- 3) Identify top-priority needs to pursue for each CHNEP study area watershed.
- 4) Investigate new funding sources to fund environmental projects.

## Potential coordinating organizations

Charlotte Harbor National Estuary Program  
 County and municipal governments  
 Florida Department of Environmental Protection  
 Regional planning council: Southwest Florida RPC  
 U.S. Environmental Protection Agency



*The Long Range Funding Strategy was adopted by the CHNEP on November 15, 2004. It outlines concepts and recommendations regarding resources to implement the CCMP.*



## Background

In order to implement the *Comprehensive Conservation and Management Plan* adopted in 2000, the CHNEP developed a database to track research, restoration, legislative and outreach needs and implemented projects. By highlighting and prioritizing these needs, Management Conference-wide attention resulted in cost-effective implementation of many of the most critical watershed and estuary needs. This mechanism has become a core implementation action to achieve all quantifiable objectives.

This priority action helps fulfill SG-2.


## Strategy

- 1) Review research, restoration, legislative and outreach needs inventories.

- 2) Incorporate newly identified needs into the CHNEP Plans and Tracking Database managed by the Program Office.
- 3) Publish restoration needs and other geographic information to the Internet — currently to the Internet Map Server [www.SWFRPC-GIS.org/CHNEP](http://www.SWFRPC-GIS.org/CHNEP)
- 4) Publish database information to the Internet; currently the CHNEP home page — [www.CHNEP.org](http://www.CHNEP.org).
- 5) Publish needs in the form of technical reports for the purposes of disseminating the information.

## Potential coordinating organizations

Charlotte Harbor National Estuary Program  
 County and municipal governments  
 Florida Fish and Wildlife Conservation Commission  
 Organizations: Conservation  
 Organizations: Nonprofit research  
 Water management districts

Project Title			ID:		
Impacts of Canal/Lake Management Activities on Fish and Wildlife in Southwest Florida			4		
Description   Plan   Implementation   Resources					
CHNEP #	Calusa RCT#	Big Cypress RCT#	STATUS:		IMPLEMENTATION
53	53	4	<input checked="" type="checkbox"/> PLAN		<input type="checkbox"/>
Lee Mit Plan:	BASIN:		Date Entered:	HurricaneRecovery	
	Estero		9/1/2002	<input type="checkbox"/>	
	ISSUE:	Hydrogeology	Date Modified:	1/10/2003	
	<input checked="" type="checkbox"/> Biodiversity	<input type="checkbox"/>	Operator:	Lisa B. Beever	
	<input type="checkbox"/> Water Quality	<input type="checkbox"/> Information			
	TYPE:	Legislation			
	<input checked="" type="checkbox"/> Research	<input type="checkbox"/> Restoration			
	<input type="checkbox"/> Legislation	<input type="checkbox"/> Education			
<b>Justification/Background:</b>					
Thousands of man-made lakes and canals have been and continue to be constructed in southwest Florida for storm water management (water storage, water retention, and flood control), aesthetics (lakefront homes/vistas), and fill. By default, these man-made systems have become a part of the remaining habitat available to amphibian, reptile, fish, bird, and mammal species. Many canal systems are managed with herbicides to control "weed" and exotic plant					
<b>Project Description:</b>					
Survey and analyze chemical and physical management of representative lake and canal systems in southwest Florida to determine the impacts of these management practices on amphibian, fish and wildlife species. Document occurrences of wildlife mortality associated with management practices. Study potential sub-lethal effects based on analysis of chemicals used, including combination effects. Recommend changes in management techniques (BMP) to improve fish and wildlife habitat.					
<b>PREREQUISIT:</b>					
None					
<b>LINKAGES:</b>			<b>Relationship to CERP:</b>		
* For additional information, search relevant issue category at <a href="http://ocean.fmri.usf.edu/bcb">http://ocean.fmri.usf.edu/bcb</a>					
			GROUP: Impacts of Canal/Lake Management Activities on Fish and Wildlife in E		
Primary CCMP Action	Secondary CCMP Action	Secondary CCMP Action	SWFFS ADG:	SWFFS Number:	ShapeFileID:
FW-B/P	WQ-E/M				
					Everglades Objective:
					1-B.2

*CHNEP maintains a database of research, restoration, legislative and outreach needs. As these projects are implemented, the database maintains information on implementation information such as leverage.*

# SG-O

Create incentives to protect desired ecosystem resources.

## Background

It has been argued that the traditional regulatory approaches have failed to protect desired ecosystem resources. In response, there has been a call for the use of incentives to complement this regulatory approach. Conservation policy for private lands could be improved by relying on a combination of incentives, including financial incentives and assurances, rather than exclusively on regulation. Tradeoffs may include incentives for increased densities and the addition of other uses that may require zoning changes to protect ecosystems of higher value.

This priority action helps fulfill SG-2.

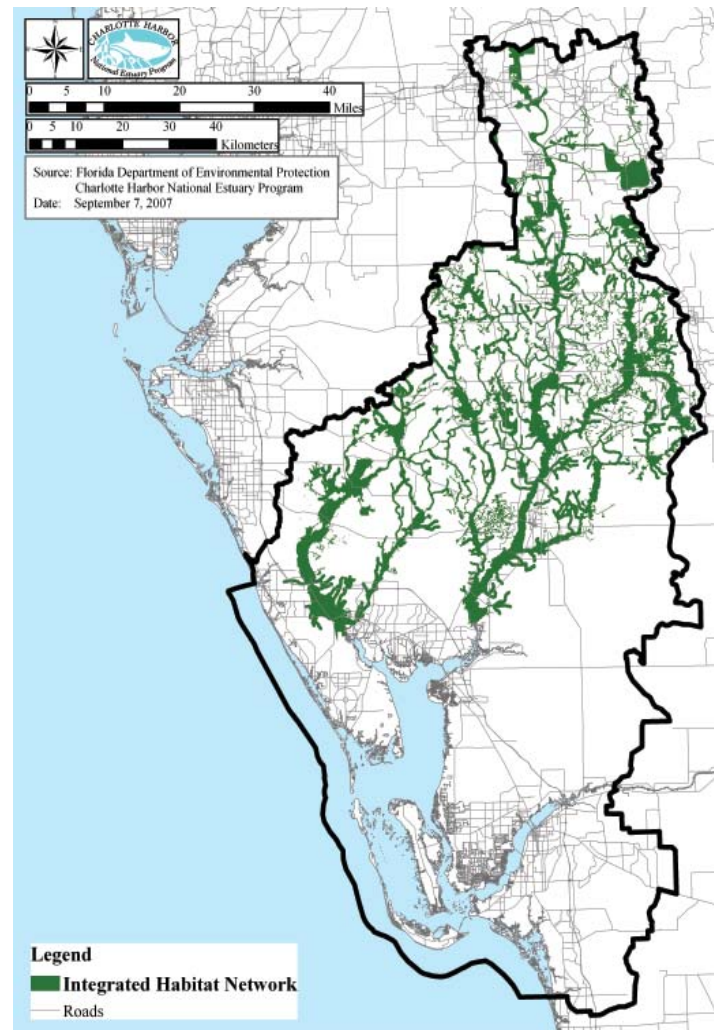
## Strategy

- 1) Prepare a business-oriented presentation and pamphlet to offer to chambers of commerce that catalog ways in which protection of natural resources can make them money. Use [www.envirovaluation.org/](http://www.envirovaluation.org/) and the *Ecological Economics* journal as resources.
- 2) Inventory alternative incentives that have been used by governments to protect desired ecosystem resources and post at [www.CHNEP.org](http://www.CHNEP.org).
- 3) Provide incentives to direct development away from the 100-year floodplain, review Florida's Uniform Mitigation Assessment Methodology (wetlands) to determine whether preservation of the floodplain would serve as appropriate mitigation offset for development activities, as identified in the *Peace River Resource Management Plan*.
- 4) Identify situations where sensitive habitats are not protected by the existing zoning and subdivision laws and consider implementing incentives for activities that protect these areas. For example, maintenance of allowable density on a parcel where a developer agrees to preserve a vegetated shoreline buffer that exceeds the legal requirement. The process may begin by reviewing the criteria and checklist accounting system developed by the American Planning Association.

## Potential coordinating organizations

Charlotte Harbor National Estuary Program  
County and municipal governments  
Florida Department of Environmental Protection  
U.S. Environmental Protection Agency  
Water management districts

Data Source: 1992



Map 31: Integrated Habitat Network

The Florida Department of Environmental Protection's *A Regional Conceptual Plan for Florida's Southern Phosphate Region* features an Integrated Habitat Network (IHN). The Peace River 100-year floodplain is a part of the IHN.



# SG-P

Incorporate into federal, state and local permits and public works improved standard practices that better protect estuaries and watersheds.

## Background

State and local permitting activities, such as the Environmental Resource Permitting Program and the federal Section 404 of the Clean Water Act, require permits for specific activities occurring in wetlands and other waters. In many areas there are also local permitting requirements for development and other activities. There are many standard practices that are incorporated into land development and infrastructure designs that have negative effects on the estuaries and their watersheds. A review of these practices is needed and could improve the effects of these activities.

This priority action helps fulfill SG-2.

## Strategy

- 1) Identify types of activities and regional trends with permitted actions.
- 2) Determine effectiveness of permitting process (e.g., how well are the actions following 404(b)(1) guidelines of avoidance, minimization, etc.).
- 3) Determine areas for improvement based on current legislation and site-specific locations/needs.
- 4) Evaluate environmental resource permitting to determine whether enhanced permitting criteria, special watershed (basin) rules or other regulatory strategies should be implemented to minimize cumulative impacts more effectively, as identified in the *Peace River Resource Management Plan*.
- 5) Evaluate combining Environmental Resource Permit and Conceptual Reclamation Plan approval into single phosphate mining authorization, as identified through the *Peace River Resource Management Plan*.
- 6) Identify local and regional activities (i.e., ordinances, best management practices, etc.) that could support federal and state programs.
- 7) Identify specific practices for each general type of permit activity that could protect the estuaries and watershed.
- 8) Develop standard practices that could be incorporated into land development and infrastructure design, leading to better local environmental results.

## 9) Pursuant to EPA's *Protecting Water Resources With Smart Growth*:

- Encourage development in strategic areas to ensure that preservation areas and development areas sustain the estuary. Redevelopment is a priority over development in new areas. Tie analyses to cumulative and secondary assessments.
- Modify regulations from process-driven to outcome-driven, link water (including water for the environment) to growth and tie performance approvals to needs at build-out.
- Regarding site planning, emphasize water storage over water discharge, green infrastructure over constructs, off-site mitigation for redevelopment and onsite mitigation for new development and encourage mitigation projects to also be remediation projects.
- Maximize the use of existing impervious surface and encourage 15 percent or less impervious surface for new development.
- Encourage adoption of local ordinances for stormwater management and quality, water conservation, Florida-friendly tree and landscape, and waterway protection.
- Coordinate funding strategies among state, regional and local levels to promote concentrated urban areas, recognize full environmental mitigation as a public works cost, and update funding sources as the need for complexity of infrastructure increases.
- Incorporate watershed and green models into professional certification and provide examples/models of good development, codes, financing strategies, etc.

## Potential coordinating organizations

County and municipal governments  
Florida Department of Environmental Protection  
Florida Department of Transportation  
State and federal resource agencies  
U.S. Army Corps of Engineers  
U.S. Environmental Protection Agency  
Water management districts



# SG-Q

Build capacity for communities and their local leadership to mitigate and adapt to the effects of climate change through joint efforts.

## Background

Modifying the successful model of Climate Friendly Parks, EPA will work with interested NEPs to develop and implement “Climate Ready Estuaries.” The primary focus will be on adaptation of coasts to climate change as well as actions to reduce greenhouse gas emissions. The national program will designate NEPs and other coastal communities as “climate ready,” allowing the coastal leaders to implement climate adaptation within their communities and market their needs and actions to public and private interests. The CHNEP is particularly well poised to implement this model. The CHNEP’s host agency, the Southwest Florida Regional Planning Council, has adopted a set of resolutions that have resulted in actions at the city and county levels to protect water quality. Map 30 shows potential sea level rise to the year 2200 based on 95% cumulative probability (Titus and Narayanan 1995).

This priority action helps fulfill SG-2.

## Strategy

- 1) Conduct an initial overview of the significant potential human and ecological effects related to climate change from sea level rise, aquatic and atmospheric temperature rise, changes in rainfall patterns, increased storm intensity and ocean acidification. The goal of such an initial overview would be to identify potentially critical areas to be addressed related to adaptation for the Charlotte Harbor area. Subsequent efforts could evaluate options for minimizing the social and environmental costs of anticipated effects.
- 2) Develop greenhouse gas emission and carbon sequestration inventories for the Charlotte Harbor study area. Results from these inventories could be compared with other areas regarding extent and per capita emissions and sequestration. Potential local and regional policies, consistent with state initiatives, could then be evaluated and promoted by the CHNEP to demonstrate emissions reduction and carbon sequestration.
- 3) Seek assistance from EPA’s Office of Atmospheric Programs (OAP), Climate Change Division (CCD), to assess vulnerabilities to sea level rise

and integrating information on climate science, impacts and adaptation. CCD is looking to support application of those tools, particularly in coastal communities.

- 4) Establish a “Climate Ready Estuaries” program to educate, communicate and mitigate climate change and air pollution.
- 5) Develop local tools to address climate change such as:
  - a. Conceptual ecological models that display the dynamics and interactions of climate change.
  - b. Narrative and graphic representation for habitat succession in response to anticipated effects.
  - c. Identification of conflicts in the existing federal wetlands regulatory permitting decision framework, including mitigation practices with the potential to increase the potential for negative climate change wetland losses.
  - d. Best management practices (BMP) methods manual for habitat restoration design that will be resilient and achieve success in the face of a changing climate.
  - e. Coastal management elements and comprehensive plan language and model local ordinances.
- 6) Consider resolutions supporting Florida Governor Crist’s Executive Order 07-126.
- 7) Establish an environmental statement or policy for the CHNEP committees to reduce, reuse and recycle. Share the policy with suppliers, facilities and speakers so they can help implement this policy.
- 8) Follow the suggestions from [www.epa.gov/oppt/greenmeetings/](http://www.epa.gov/oppt/greenmeetings/) including increasing conference calls, video conferencing and other remote participation methods when available.
- 9) Work with hotel industry to gain green lodging certification ([www.dep.state.fl.us/greenlodging/](http://www.dep.state.fl.us/greenlodging/)) by the state of Florida.

## Potential coordinating organizations

Charlotte Harbor National Estuary Program  
County and municipal governments  
Florida Department of Environmental Protection  
Organizations: Conservation



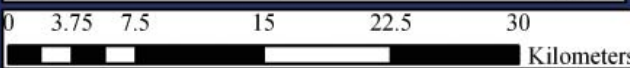
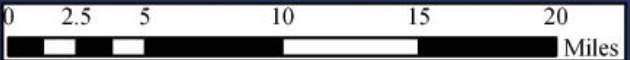
Source: Southwest Florida Regional Planning Council  
 Charlotte Harbor National Estuary Program  
 Date: September 3, 2008

Potential sea level rise to the year 2200 based on 95% cumulative probability (Titus and Narayanan 1995)

**Legend**

**Potential Sea Level Rise Underlying Land Uses**

- Tidal Wetlands
- Nontidal Wetlands
- Upland Conservation
- Urban
- Land Above 10'
- Roads



Map 32: Potential Sea Level Rise and Underlying Land Uses



# SG-R

Track and present monitoring data according to CHNEP adopted targets in Environmental Indicators.

## Background

Subsequent to the 1993 U.S. Government Performance and Results Act (GPRA), government agencies are required to develop performance reports that measure management success using indicators and goals.

According to U.S. Environmental Protection Agency 2000 Evaluation Guidelines for Ecological Indicators, 15 evaluation guidelines for developing environmental indicators include the following:

- Relevance to the assessment.
- Temporal variability across years.
- Discriminatory ability.
- Linkage to management action.

Examples of indicators of ecological condition include direct measurements (e.g., total nitrogen concentration), indices (e.g., macroinvertebrate condition index) and multimetrics (e.g., fish assemblage).

The CHNEP developed a series of environmental indicators and targets that was approved by the Management Conference in 2005. Knowledge, monitoring and reporting gaps regarding the approved indicators were identified and will need to be addressed so that the CHNEP can track environmental changes and success and failures regarding management practices and land-use changes. These indicators and targets will also need refinement as the state of science advances and knowledge gaps are filled.

This priority action helps fulfill SG-3.

## Strategy

- 1) Revise environmental indicators relevant to tracking progress in implementing the 2007 CCMP.
- 2) Review monitoring and reporting programs for each environmental indicator.
- 3) Implement steps to address gaps in monitoring and reporting.
- 4) Present information on environmental indicators and progress for CCMP implementation in regular monitoring summaries and State of the Watershed reports.

- 5) Assess if indicators adequately track management progress and environmental change.
- 6) Incorporate environmental indicators into long-term monitoring strategy.

## Potential coordinating organizations

Charlotte Harbor National Estuary Program  
County and municipal governments  
Florida Department of Environmental Protection  
Florida Fish and Wildlife Conservation Commission  
Organizations: Conservation  
Organizations: Nonprofit research  
U.S. Geological Survey  
Utilities: Public and private  
Water management districts



*Citizen volunteers Frost, Davis, Hlotz and Park test water quality samples early in the morning.*

Photo by Judy Ott, FDEP



# SG-S

Post raw data, geographic information system (GIS) and technical analysis on the Internet under the data management strategy.

## Background

A data management strategy is a required element of each National Estuary Program. The purpose of these activities is to provide technical information that is available, facilitate the exchange of information among different organizations and support efforts for the analysis of scientific information. The interested public, engineers, managers and scientists desire relevant resource information in a timely and easy-to-use manner. Government agencies may be capable of reducing overlapping data acquisition efforts and filling in data gaps without significantly increasing budgets and personnel if they are aware of efforts outside their individual organizations. Providing timely information by maximizing the existing systems is the goal of a coordinated information management, analysis and exchange process.

This priority action helps fulfill SG-3.

## Strategy

- 1) Identify data gaps and needs through an updated research needs inventory.
- 2) Evaluate the Charlotte Harbor Information Resources Center and similar services to determine use and improvements.
- 3) Maintain an Internet map services center with the following types of information:
  - a. Location and importance of at-risk benthic resources.
  - b. Major habitat types as well as methods to preserve and avoid damage to habitat.
  - c. Endangered species habitat in the CHNEP study area.
  - d. For each of the estuarine areas, develop maps specifically designed to show seagrass beds, oyster beds, major navigational channels, ramps and marinas as well as areas to be avoided based on boat draft and given tidal stages.
  - e. Links to additional programs

and databases.

- f. Within CHNEP study area watersheds, show the location of parks, public access locations, public lands, conservation lands, greenways, blueways and similar public resources, and groundwater level and withdrawal information.
- 4) Create a directory of partner Internet map services.

## Potential coordinating organizations

County and municipal governments  
Florida Department of Environmental Protection  
Florida Fish and Wildlife Conservation Commission  
Florida Gulf Coast University  
Florida Natural Areas Inventory  
Florida Wildlife Research Institute  
Marine advisory committees  
National Oceanic and Atmospheric Administration  
Organizations: Boating and fishing  
Regional planning councils  
Water management districts  
West Coast Inland Navigation District

**Charlotte Harbor National Estuary Program GIS**

ArcIMS Mapping    Map Data    SWFRPC Maps    CHNEP GIS Home    CHNEP Home

**Welcome to the Charlotte Harbor National Estuaries GIS and Mapping site.**

Use the navigation bar above to visit the area of interest. Below is a brief description of the different areas

**ArcIMS Mapping** is our new interactive GIS website. Here you can display some of the most popular data the CHNEP has to offer. Make your own custom map from your selected data and print it out to your printer or perform GIS analysis on your selected data. Prior to visiting the ArcIMS site it is recommended you familiarize yourself with [these toolbars](#). Leave this window open for reference. Datum and Projection information for this feature is here, [Datum and Projection Information](#).

**Map Data** has available for download some of the most popular data and maps the CHNEP has to offer. Display images of prepared maps made by the CHNEP and download the GIS files for that data along with metadata.

**SWFRPC Maps** Visit the map site of the Southwest Florida Regional Planning Council to view and download some of the most popular data and maps the Council has to offer including an interactive GIS web site

*Maps from CHNEP are served at [www.swfrpc.org/chnepgis.htm](http://www.swfrpc.org/chnepgis.htm).*

