

**FINAL EVALUATION FINDINGS**  
**ROOKERY BAY NATIONAL ESTUARINE RESEARCH RESERVE**  
**FLORIDA**

*July 2005 – January 2011*

October 2011



Office of Ocean and Coastal Resource Management  
National Ocean Service  
National Oceanic and Atmospheric Administration



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## I. EXECUTIVE SUMMARY

The Coastal Zone Management Act (CZMA) of 1972, as amended, established the National Estuarine Research Reserve System (NERRS). Sections 315 and 312 of the CZMA require the National Oceanic and Atmospheric Administration (NOAA) to conduct periodic performance reviews or evaluations of all federally approved National Estuarine Research Reserves (NERRs). The review described in this document examined the operation and management of the Rookery Bay National Estuarine Research Reserve during the period of July 2005 through January 2011. The Rookery Bay National Estuarine Research Reserve (RBNERR or Reserve) is administered by the Florida Department of Environmental Protection (FDEP).

This document describes the evaluation findings of the Director of NOAA's Office of Ocean and Coastal Resource Management (OCRM) with respect to RBNERR during the review period. These evaluation findings include discussions of major accomplishments as well as recommendations for program improvement. The fundamental conclusion of the findings is that the Florida Department of Environmental Protection is successfully implementing and enforcing its federally approved NERR.

The evaluation team documented a number of RBNERR accomplishments during this review period. Notable Reserve efforts include increasing visitation to the Reserve; continually improving educational programs to better serve students and the public; strengthening and expanding the volunteer program including developing Team Ocean, to assist visitors; using science to inform management and the development of programs such as Project Greenscape; completing numerous restoration projects; and staff's contribution to the Deep Water Horizon incident response. In addition, the Reserve has been able to maintain core programs in the face of significant state budget cuts.

In addition to these numerous accomplishments, the evaluation team identified several areas where the Reserve could improve its program and contribute to the success of the national system. The recommendations for RBNERR are in the form of four program suggestions which describe actions that OCRM believes FDEP and RBNERR could take to improve Reserve programs and strengthen the national system but that are not mandatory. OCRM encourages FDEP to enable Reserve staff to actively participate in system-wide meetings, and encourages RBNERR staff to participate in national workgroups. RBNERR is an innovative leader within the national system and other Reserves can greatly benefit from their participation. National meetings also provide valuable information, resources, and training opportunities to Reserve staff. OCRM also encourages RBNERR to pursue additional funding to conduct research and monitoring in the Henderson Creek area, enabling decision makers to make informed water management decisions. In addition, OCRM supports RBNERR efforts to continue to maintain the volunteer-based Team Ocean program that provides outreach and education to visitors and assists with on-the-ground maintenance and monitoring activities.

## II. PROGRAM REVIEW PROCEDURES

### A. Overview

NOAA began its review of RBNERR in October 2010. The §312 evaluation process involves four distinct components:

1. An initial document review and identification of specific issues of particular concern
2. A site visit to Florida including interviews and a public meeting
3. Development of draft evaluation findings
4. Preparation of the final evaluation findings, partly based on comments from the state regarding the content and timetables of recommendations specified in the draft document

The recommendations made by this evaluation appear in boxes and bold type and follow the findings section where facts relevant to the recommendation are discussed. The recommendations may be of two types:

**Necessary Actions** address programmatic requirements of the CZMA's implementing regulations and of the RBNERR approved by NOAA. These must be carried out by the date(s) specified.

**Program Suggestions** denote actions that the OCRM believes would improve the program, but which are not mandatory at this time. If no dates are indicated, the state is expected to have considered these Program Suggestions by the time of the next CZMA §312 evaluation.

A complete summary of accomplishments and recommendations are outlined in Appendix A.

Failure to address Necessary Actions may result in future finding of non-adherence and the invoking of interim sanctions, as specified in CZMA §312(c). Program Suggestions that are reiterated in consecutive evaluations to address continuing problems may be elevated to Necessary Actions. The findings in this evaluation document will be considered by NOAA in making future financial award decisions relative to the RBNERR.

### B. Document Review and Issue Development

The evaluation team reviewed a wide variety of documents prior to the site visit, including (1) the federally approved 2001-2006 Management Plan and program documents; (2) Draft Management Plan dated November 2010 (3) financial assistance awards and work products; (4) semi-annual performance reports; (5) official correspondence; (6) previous evaluation findings; and (7) relevant publications on natural resource management issues in Florida.

Based on this review and on discussions with OCRM's Estuarine Reserves Division, the evaluation team identified the following priority issues:

- The Reserve's general administration, including grants and fiscal management
- Implementation and status of the Management Plan
- Facilities development and operations planning
- Implementation of the Reserve's research, stewardship, monitoring, coastal training and education programs
- Reserve staffing and needs
- The manner in which the Reserve coordinates with other governmental and non-governmental organizations and programs in the state and region
- Major accomplishments and challenges during the review period
- The state's response to the previous evaluation findings dated June 2006

### **C. Site Visit to Florida**

Notification of the scheduled evaluation was sent to FDEP and RBNERR. In addition, a notice of NOAA's "Intent to Evaluate" was published in the *Federal Register* on November 12, 2010 and in the *Naples Daily News*, a regional newspaper, on December 13, 2010.

The site visit to Florida was conducted January 24-28, 2011. Carrie Hall, Evaluation Team Leader, OCRM National Policy and Evaluation Division and Erica Seiden, RBNERR Program Specialist, OCRM Estuarine Reserves Division formed the evaluation team.

During the site visit, the evaluation team interviewed RBNERR and FDEP staff, federal partners, K-12 teachers, university educators, state and local government staff, and nongovernmental representatives. Appendix B lists persons and institutions contacted during this review.

As required by the CZMA, NOAA held an advertised public meeting during the evaluation on Wednesday, January 26, 2011, at 6:30 p.m. at the Rookery Bay National Estuarine Research Reserve Environmental Learning Center, 300 Tower Road, Naples, Florida. The public meeting is to give members of the general public the opportunity to express their opinions about the overall operation and management of RBNERR. Appendix C lists persons attending the public meeting.

The excellent support of RBNERR staff with the site visit's planning and logistics is gratefully acknowledged.

### III. RESERVE PROGRAM DESCRIPTION

NOAA's Office of Ocean and Coastal Resource Management designated the Rookery Bay National Estuarine Research Reserve in 1978. The state lead agency is the Florida Department of Environmental Protection. The mission of the RBNERR is to provide a basis for informed stewardship of estuaries in Southwest Florida through research and education.

RBNERR is located in Collier County on the southwest coast of Florida, between Naples and Marco Island. Collier County is the second largest county in the State, with approximately 2,025 square miles of land. Over 50 percent of this area has been set aside under public or private ownership for conservation purposes. These areas include: Big Cypress National Preserve, Everglades National Park, Corkscrew Swamp Sanctuary, Fakahatchee Strand State Preserve, Florida Panther and Ten Thousand Islands National Wildlife Refuges, Picayune Strand State Forest; Collier Seminole State Park, Delnor Wiggins Pass State Recreation Area and Rookery Bay NERR.

RBNERR is located in the West Indian biogeographic region and is comprised of 110,000 acres. The Rookery Bay and Ten Thousand Islands estuarine ecosystem contains bays, interconnected tidal embayments, lagoons, and tidal streams. Sources of freshwater drainage include sloughs, strands, a series of tidal creeks and channels, surface and sub-surface sheetflow, and canals. Twelve habitats occur within the Reserve and adjacent lands, including mangrove forests, barrier beaches, coastal dry-zone scrub, pine flatwoods, seagrass beds, tropical hardwood hammocks, fresh and salt water wetlands, oyster reefs, and open shallow waters. The three dominant habitats are mangrove, saltwater marshes, and freshwater marshes. The Reserve has a high level of biodiversity including 150 species of birds, and many threatened and endangered animals such as the Florida panther which thrive in the estuarine environment and surrounding upland hammocks and scrub in the Reserve.

A unique feature of the Reserve and adjacent region are shell mounds. These are mostly kitchen middens and refuse sites used by Native Americans. The mounds form prominent topographical features above the low-lying contiguous tidelands of the Reserve.

## IV. Review Findings, Accomplishments, and Recommendations

### A. Operations and Management

#### 1. Reserve Administration

##### *Overview*

The Reserve is administered through the FDEP Office of Coastal and Aquatic Managed Areas (CAMA) as are the Apalachicola and Guana Tolomato Matanzas Reserves. Management authority for RBNERR uplands is delegated to FDEP by the 1990 lease agreement with the Florida Board of Trustees. FDEP also holds a cooperative agreement with the U.S. Fish and Wildlife Service (USFWS) which provides for co-management of lands titled to the Board and located within the Ten Thousand Islands National Wildlife Refuge (NWR). In addition, the state signed an agreement with the Collier County Conservancy (now the Conservancy of Southwest Florida), the National Audubon Society, and The Nature Conservancy in 1977, leasing approximately 3,800 acres of land holdings around Rookery Bay for a period of 99 years.

RBNERR serves as a regional hub for the South Florida Aquatic Preserves. The RBNERR manager served as the regional administrator for four Aquatic Preserve field offices and associated staff in Tampa Bay (Pinellas, Boca Ciega, Cockroach Bay, and Tierra Ceia Aquatic Preserves), Charlotte Harbor (Cape Haze, Lemon Bay, Pine Island Sound, Matlacha Pass, and Gasparilla Sound-Charlotte Harbor Aquatic Preserves), Estero Bay, and Biscayne Bay. The Reserve provides technical and administrative support for the field offices including budgeting, grants and contract management, facilities and equipment maintenance, support with troubleshooting issues, and training and assistance on activities such as water quality monitoring, education and resource management.

In April 2010, the oil platform Deep Water Horizon exploded and caught fire, leading to the largest accidental marine oil spill in history. CAMA was designated as Florida's lead for the Natural Resource Damage Assessment process and RBNERR staff played a critical role in developing and implementing Southwest Florida's response. Staff were engaged in numerous efforts including coordinating with the U.S. Coast Guard to hold an informational briefing for 70 federal, state, and local agency and non-profit representatives; coordinating with state and local government agencies to plan and implement water and soil sampling to assess damage; sending trained staff to the Northern Gulf to participate in on-the-ground cleanup and mitigation activities in oil effected coastal areas; and hosting training programs for HAZMAT and HAZWOPER certification. During the last 10 months of the evaluation period, Reserve staff spent considerable time and effort addressing the impacts of the Deep Water Horizon incident while still maintaining critical programs.

**Accomplishment: OCRM commends RBNERR staff for their leadership, dedication, and hard work addressing the impacts of the Deep Water Horizon incident.**

### *Budget*

During the evaluation period, the state's operating budget for the Reserve decreased by almost 40 percent. Reserve management has worked to minimize the impacts on Reserve programs and to keep up staff morale. To help offset state budget cuts, RBNERR has successfully pursued additional grants and new funding sources such as increased revenue from targeted programs and events, and through cost savings achieved by operational efficiencies. Although the Reserve has not been able to completely offset the loss of state funding, impacts to programs have been lessened. OCRM commends the Reserve for its success in obtaining additional funding but is concerned that any future cuts to the state operating budget may significantly impact the Reserve's ability to maintain programs.

**Accomplishment: The Reserve has successfully pursued additional funding sources to maintain key Reserve programs and partially offset the impacts of a decline in the state operating budget.**

### *Contract staffing*

During the evaluation period, the Reserve implemented cost efficiency measures including developing a new partnership to support contract staff. The Reserve had a contract with Florida Gulf Coast University (FGCU) to support contract staff but after a leadership change at the University, a policy change effecting administrative overhead occurred. RBNERR worked with Edison State College leadership to develop a three-year contractual agreement under which ten Reserve contractors are supported. The new contract provides a more cost effective mechanism for funding contract staff. The Reserve has also strengthened research connections with Edison State College and student volunteers are important contributors to Reserve programs. OCRM commends the Reserve for working with Edison State College to develop a more cost effective method of funding staff and encourages the Reserve to continue to cultivate and seek productive collaborations with Edison State College.

### *Travel*

The NERRS hosts an annual meeting, sector meetings, and trainings which are invaluable for moving the national system forward. At these national meetings, federal and state staff make collaborative system-wide management decisions; state staff have the opportunity to connect with federal and other financial and technical resources; state programs have the opportunity to learn and share best management practices; and state staff receive essential job training to help implement programs.

OCRM places a high value on these national meetings and asks states to spend their federal CZMA funds to attend or to attend with invitational travel support (sector meetings). The cooperative agreements include a special award condition that "*The reserve manager attends the Annual Coastal Program Managers meeting in Washington, DC, and the reserve manager, research coordinator, education coordinator, coastal training program coordinator and stewardship coordinator attend the Annual National Estuarine Research Reserve System Meeting and respective winter Sector meetings.*" Due to state restrictions on travel, Reserve staff have been unable to attend national reserve meetings and trainings. OCRM encourages

FDEP to pursue state participation in NERRS meetings. In 2011, the national meeting will be held in Florida.

**Program Suggestion: OCRM encourages FDEP to enable Reserve staff to participate in national system-wide meetings and trainings.**

## 2. Staff

The Reserve has talented and dedicated staff that work together across sectors to implement innovative and high quality programs. RBNERR has traditionally been a leader within the national system and led the development of new initiatives such as the Coastal Training Program, which was later adopted by the national system. Reserve staff have been unable to participate as actively in the national system and provide leadership due to travel restrictions. In addition to encouraging FDEP to pursue increased state participation in national meetings, OCRM encourages RBNERR staff to participate in appropriate national workgroups and associated phone calls to share their expertise, learn from other programs, and to help move the national system forward.

**Program Suggestion: OCRM encourages RBNERR to increase participation in appropriate national workgroups.**

During the evaluation period, the Reserve has made significant organizational changes to improve management. The previous evaluation findings included a program suggestion that FDEP explore the creation of an assistant manager position as the reserve manager also served as a regional administrator and was frequently called upon to participate in regional and national initiatives. FDEP created a new assistant manager position which has allowed for a stronger focus on day-to-day management and led to improved coordination among programs. In addition, the reserve manager now has the ability to focus more on regional management and larger regional and statewide initiatives.

RBNERR also merged the Environmental Learning Center (ELC) and education staff into one section to streamline management and capitalize on employee strengths and interests. The section is lead by the Environmental Specialist III who manages the ELC and supervises the education staff. This change has resulted in greater integration between ELC and education program staff and has allowed the education coordinator to focus on educational programming.

Reserve management and staff have improved coordination and integration across sectors. Reserve staff regularly collaborate and work together to develop and implement projects and examples are highlighted throughout the findings. Reserve management has also made the ability to collaborate a key consideration in the hiring process. Although collaboration across sectors has improved, there are opportunities to improve it further, in particular incorporating current research and stewardship program activities into the education and public programming. At the time of the site visit, Reserve staff were setting up a regular monthly staff meetings to share information and enhance collaboration across sectors. OCRM commends the Reserve for

increasing coordination across sectors and encourages them to continue to actively pursue enhanced coordination.

The Reserve has also made improvements to, and developed a more structured, employee orientation based on feedback from exit interviews. Staff developed a set of core values that are provided during orientation. To support program and employee growth, programs and employees have annual work plans and employees are given quarterly feedback.

### **3. Cooperative Agreement and Grants Management**

OCRM awards the State of Florida federal funds through annual cooperative agreements for the implementation and enhancement of the RBNERR and the Reserve is required to submit semi-annual performance reports. OCRM finds that the RBNERR satisfactorily managed its federal funding, submitted complete performance reports in a timely manner, and achieved desired results from funded tasks during this evaluation period.

The Reserve's administration team is very effective in monitoring and managing multiple grants from local, state, and federal sources. The Florida Office of Inspector General (OIG) interviewed the RBNERR Management Consultant in 2009 to discuss the grant management strategies and tools used by the Reserve. OIG used the information to develop suggestions for other state agencies as to how to improve their grants management. OCRM commends the Reserve for serving as a model for effective grants management.

### **4. Management Plan**

Reserves are required by Federal regulation to have a current NOAA-approved management plan (15 C.F.R. sec. 921.13). The plans describe the reserves' goals, objectives and management issues, as well as strategies for research, education and interpretation, public access, construction, acquisition, and resource preservation, and, if applicable, restoration and habitat manipulation. A management plan has four valuable functions (1) to provide a vision and framework to guide reserve activities during a five year period; (2) to enable the reserve and NOAA to track progress and realize opportunities for growth; (3) to present reserve goals, objectives, and strategies to constituents; and (4) to guide program evaluations. Regulations also require that a reserve's plan be updated every five years.

The Reserve's current management plan was approved by OCRM in 2003. The Reserve completed a new draft management plan and submitted it to OCRM for comment in November 2010 and comments were provided by OCRM. The Reserve addressed OCRM's comments, as well as applicable public and RBNERR Management Plan Advisory Group comments, and the final draft management plan submitted to OCRM September 1, 2011.

As part of the management plan development process, the Reserve held focus group meetings with the community to ensure that they were considering the appropriate issues and topics and reinvigorated its Advisory Council to solicit input into the development of its new management plan. The Advisory Council represents a broad range of interests including city, county, federal

and state officials, local business owners, educators, and nongovernmental representatives. The Reserve worked with members to develop management priorities and identify implementation activities for the next five years.

The Reserve's 2010 draft management plan identifies six key issue areas and goals, associated objectives, and a list of strategies by sector for each objective. The Reserve's six goals are:

1. Ensure user experiences are sustainable and consistent with natural and cultural resource protection for the benefit of existing and future generations relative to public use patterns.
2. Improve the conservation of native biodiversity.
3. Enhance understanding, interpretation and preservation of RBNERR's cultural resources.
4. Minimize adverse environmental impacts from land use while restoring the ecosystem services.
5. Increase the community's level of awareness, knowledge, skills and sense of value for the coastal environment that would result in positive attitudinal and behavioral change.
6. Determine appropriate level of response and serve as a regional clearinghouse of accurate and credible science-based information and a coordinator of appropriate response for partners and the general public related to global and meteorological change events, catastrophic environmental events (both natural and human-induced) and harmful algal blooms.

The Reserve worked with stakeholders and the general public to develop a special area management plan for Keewaydin Island that has been incorporated into the 2010 draft management plan. Keewaydin Island is an 8-mile long un-bridged barrier island and RBNERR manages approximately 86 percent of the 1,147-acre island. During the evaluation period, the City of Naples expressed an interest in annexing the southern end of Keewaydin Island, the northern third is already within city boundaries. In order to plan for the annexation, RBNERR initiated the development of a Keewaydin Island special area management plan to guide the management of state owned lands. The Reserve brought together an advisory council comprised of public and private sector representatives from stakeholder groups with interests on Keewaydin Island, including the City of Naples, Keewaydin Island Homeowner's Association, Collier Marine Industries Association, Collier County Department of Natural Resources, Conservancy of Southwest Florida, and City of Marco Island. Public meetings to solicit input from the community were also held. As part of the process, the City of Naples and Reserve also developed a draft MOU for the annexation, although the City of Naples later dropped its proposal to annex the island.

**Accomplishment: The Reserve demonstrated regional leadership in protected area planning by engaging stakeholders in an inclusive planning processes and the development of the draft management plan and special area management plan for Keewaydin Island.**

## **5. Facilities**

The Reserve completed six large construction projects during 2010. The projects were initially managed at FDEP headquarters but were not moving forward and the grant funds for were due to expire. Management of the projects was then delegated to the Reserve and staff made a tremendous effort to ensure the projects were completed before the funding expired. For example, to ensure that the Shell Island Road project would be completed, Reserve staff worked collaboratively with FDEP headquarters and Collier County to use existing county contracts to complete the work. The Reserve was able to hire contractors to work at an accelerated rate and under budget to finish the project in time. The downturn in the national and local economy enabled the Reserve to complete projects under budget while providing needed jobs to local contractors. During the evaluation period, NOAA provided \$1,298,305 in construction funds that were matched by \$362,918 in cash and \$296,365 in in-kind services. OCRM commends Reserve staff for their dedication in ensuring that constructions projects were completed before grant funding expired.

The facilities manager places a strong emphasis on proactive maintenance of vehicles, buildings, and grounds. RBNERR staff are assisted by volunteers who contribute their time and expertise towards maintaining Reserve facilities and equipment. The facilities team relies heavily on volunteers to accomplish needed tasks and credits volunteers with accomplishing 70 percent of work completed. The state of Florida emphasizes green buying and RBNERR has focused on using green products and strategies to maintain and upgrade its current buildings including window felt, increasing roof reflectivity, low VOC paint, and solar panels on fuel trailers and pumps.

The facilities manager is also responsible for safety and hazard preparedness. During the evaluation period, the Reserve has improved safety procedures, including instituting a new procedure to track plans for boat travel. The Reserve is located in a hurricane evacuation zone and conducts annual drills to ensure preparedness and has successfully implemented evacuation procedures when hurricanes have been predicted to make landfall.

## **6. Friends of Rookery Bay**

The Friends of Rookery Bay (FoRB) was established in 1987 as a nonprofit citizen organization dedicated to supporting the management of Rookery Bay. In 2009, FoRB's Board came together and determined that they wanted to move the organization forward. The Board hired FoRB's first paid staff: an executive director and director of marketing and development. With the energy, expertise, and support of dedicated staff, FoRB has been able to grow its membership from 150 to over 500, develop new events, and build relationships with local community members and businesses. Interest in board membership has also grown and board members have taken on a more active role in community outreach. At the time of the site visit, FoRB was undergoing a strategic planning process to guide its future growth.

The Reserve's partnership with FoRB is stronger than it ever has been and Reserve and FoRB staff and FoRB board members work closely together to determine how FoRB can best support

Reserve goals and objectives. The reserve and ELC managers attend FoRB board meetings and meet regularly with the board chair. Reserve staff often give presentations on Reserve activities before board meetings. FoRB provides targeted financial support for Reserve activities and examples are highlighted throughout the findings

A key focus of FoRB and Reserve staff has been to draw more visitors to the Reserve. As a result, visitation to the Reserve and participation in its education programs rose by 33 percent in 2010. To increase visitation to the Reserve, FoRB's marketing and development director attends monthly concierge meetings, set-up a boat tour for concierges to let them experience the Reserve, and works with the Convention and Visitors Bureau which has led to the Reserve being added to their list of local sites to visit. The marketing and development director has worked with Reserve staff to develop many new events to draw the public to the Reserve such as Kids Free Friday and holiday celebrations. FoRB has also developed a signature revenue raising event, the Batfish Bash. The community donated over \$36,000 in items for the first Batfish Bash and auction held in 2010. The Batfish Bash drew in new members of the community and over half the attendees were visiting the Reserve for the first time. At the time of the site visit, FoRB had already received \$43,000 in donated items for the March 2011 Bash.

FoRB has also expanded and improved its social media and outreach activities. FoRB received a \$50,000 marketing grant from the Collier County Tourist Development Council to rebuild its website, purchase advertising, and produce public service announcements that air for free on Comcast, ABC, and NBC. At the time of the site visit, FoRB was in the process of rebuilding its website and adding interactive activities such as games and developing e-commerce opportunities. FoRB also purchased flip cameras for staff to film short video clips that can be posted to the web and Facebook to highlight Reserve activities such as controlled burns. The website [www.rookerbay.org](http://www.rookerbay.org) also serves as the Reserve's main outlet for providing the public with information on the web and postings are coordinated with FDEP. The evaluation team heard repeatedly from Reserve partners that FoRB was "amazing" and that their visibility and that of the Reserve had been significantly raised during the past two years.

**Accomplishment: FoRB and Reserve staff worked together to develop and host new events and raise the visibility of the Reserve which resulted in a 33 percent increase in visitation and participation in education events in 2010.**

The volunteer program and FoRB have some overlap in membership but many belong to only one group. The Reserve's volunteer application form provides volunteers the opportunity to join FoRB and some volunteers choose to join. There may be additional opportunities to increase synergies between the two groups and to develop stronger constituent support. OCRM encourages the Reserve and FoRB to work together to explore stronger linkages between the volunteer program and FoRB.

FoRB has placed a tremendous amount of effort into drawing new visitors to the Reserve which has increased the amount of staff and volunteer time necessary to provide services. FoRB expressed interest to the evaluation team in increasing the entrance fee to the Reserve and having

the additional funds be directed to FoRB for use in support of the Reserve or to be returned to the Reserve through another financial mechanism. The additional funding could enable the Reserve to directly benefit from and provide the staffing and support necessary to serve an increasing number of visitors and/or support other Reserve programs. NOAA Administrative Standard Award Conditions require that (1) *program income earned during the award period shall be retained by the Recipient and shall be added to funds committed to the award and used for the purposes and under the conditions applicable to the use of the award funds and (2) program income shall be reported on the Financial Status Report long form (SF-269).*

The Reserve is required to charge an entrance fee based on “...*user demand, location of the property, costs of managing and operating the property and facilities, types of facilities available, season, and natural and historic resource values. (FAC Ch. 18-23.011(3)).*” The user fees to be charged are referenced to the CAMA Fee Schedule, effective date 10-26-04 (*FAC Ch. 18-23.011(6).*” The entrance fee remains unchanged from 2004 when it was set at five dollars for adults and three dollars for children ages 6-12. OCRM encourages FDEP to consider pursuing the legislative and/or administrative changes necessary to obtain the ability to raise the entrance fee to the ELC, in accordance with the requirements laid out in (*FAC Ch. 18-23.011(3).*) The additional financial support would enable the Reserve to better manage increased visitation and directly benefit from the dedicated work of FoRB.

## **7. Legislative Day**

RBNERR hosted a Legislative Day in 2010 to reach out to the greater area’s state legislative members and their staffs and inform them about the Reserve and its activities. The Reserve hosted a panel of local business operators who have used Reserve services. The panel, an ecotour operator, developer, and owner of a landscaping company, discussed how the Reserve’s education, stewardship, research and monitoring, and coastal training programs had assisted them. In addition, participants went on a boat trip and learned more about Reserve activities. The legislative day was well received by those in attendance and the Reserve has seen an increased interest in Reserve programs by legislators and staff.

## **B. Research and Monitoring Program**

The Reserve System's research and monitoring program provides a stable environment for research through long-term protection of Reserve resources; addresses coastal management issues through coordinated estuarine research within the System; and collects and makes available information necessary for improved understanding and management of estuarine areas. The Reserve’s research and monitoring program conducts and supports research on relevant coastal management issues, conducts monitoring that supports resource management efforts, and the Geographical Information System (GIS) program provides training and information to assist coastal decision-makers and researchers.

## 1. Research and Monitoring Program

The research program has led and participated in many research projects during the evaluation period. The research and monitoring conducted by the Reserve has helped inform local coastal management decisions. Research projects have included:

- Developing new tools to monitor harmful algal blooms
- Sea turtle monitoring to identify the factors influencing sea turtle nest selection and hatchling success for the area managed by the Reserve
- Field and laboratory studies assessing the influence of altered freshwater inflow on targeted crab populations
- Looking at stress response in sharks to capture methods by analyzing blood samples from live specimens
- Monitoring relative sea level change in mangrove forests

The Reserve has recently increased its focus on research and monitoring in the Henderson Creek area. The City of Marco Island draws its freshwater from both wells and Henderson Creek but salt water intrusion is occurring in the wells. In the future, the city will likely need to rely more heavily on the creek for its water supply. In addition, Henderson Creek will likely receive increased freshwater inflow when South Florida Water Management District redirects canal water away from Naples Bay to Henderson Creek as part of their strategic plan. The results of the RBNERR's research and monitoring will enable the state and local governments to make informed decisions and manage adaptively.

**Program Suggestion: OCRM encourages the Reserve to pursue additional financial support for research and monitoring efforts in the Henderson Creek area. Additional research and monitoring will enable the state and local governments to make informed water management decisions.**

The research program is considering hosting an informal biennial research forum to promote the sharing of research results and facilitate networking and collaboration. The forums could provide the Reserve with an excellent opportunity to focus on priority issues, such as climate change, and how to move forward. OCRM encourages the research program to host a research forum involving all the Reserve sectors and a broad spectrum of representatives to integrate and share natural and social science information related to priority issues.

RBNERR provides extensive support and facilities for use by visiting researchers. The Reserve provides equipment and logistical support such as vehicles, vessels, dormitories, field equipment, and laboratory facilities. The Reserve Field Station includes a small laboratory for staff and visiting investigators and a dormitory for overnight use by visiting investigators. The Goodland Field station provides a more accessible facility to the Cape Romano–Ten Thousand Islands Aquatic Preserve and includes a boat dock and overnight accommodations for 4-6 people. The Cannon Island Field Station is located on a barrier island and is a biological field station for use by RBNERR staff, visiting investigators, and educational groups.

Visiting researchers use the Reserve to conduct a broad array of research. The evaluation team met with researchers who were using the Reserve to study the distribution, movements, and habitat use of manatees and to gather water quality information to develop hydrological models. The information is being used to understand how the implementation of the Comprehensive Everglades Restoration Plan and changes in hydrology would impact manatees.

The research staff track research occurring in the Reserve and pro-actively contact researchers for information on their projects and results. Staff are looking at opportunities to streamline the collection of information. In addition, the GIS coordinator is working on methods to make information on previous projects easily accessible through a web based GIS tool. The GIS tool will allow researchers to easily access information on previous research and the principal investigators.

Over the past year, the research coordinator has analyzed previous research and considered the Reserve's priorities to determine the Reserve's future research needs. The research coordinator has begun to reach out to scientists to encourage research on Reserve priorities. OCRM commends the research program for tracking research and working to make project information and research results available in a user friendly format.

The Reserve has a strong bio-assessment and monitoring program. The results of a 2009 review of RBNERR, by FDEP State Lands, commended the manager and staff for their exemplary monitoring of listed species on and off the Reserve. The Reserve monitors sea grass on a biannual basis and has seagrass monitoring stations at Cape Romano and Johnson Bay that are paired with water quality stations. The monitoring data is showing that sea grass in the area continues to decline. In 2010, the Reserve received funding from the SFWMD to continue monitoring sea grass for three more years. The Reserve's sea turtle and bird monitoring programs are discussed in *Section E. Stewardship*.

The Reserve also conducts monthly fish trawls (since 1998) and shark monitoring (since 2000) in three bays downstream of the Faka Union canal. In the 1960s, a large residential development was planned to the east of the Reserve and roads and 58 miles of canals were built, greatly altering the natural sheet-flow of fresh water to the bay. The development failed and most of the land has since been purchased by the state and on-the-ground restoration began in 2006. The fish and shark monitoring studies will enable scientists to measure changes resulting from restoration efforts.

The fish and shark monitoring programs rely heavily on volunteers and over 12,450 volunteer hours were recorded during the evaluation period. In addition to increasing understanding of the fish and shark populations, the program has also helped build partnerships in the community and served as a recruiting tool. For example, a volunteer became editor of a local fishing guide and has now published articles highlighting Reserve research and information. In addition, at least six staff participated as project volunteers before being employed by the Reserve.

## 2. System-wide Monitoring Program

The goal of the NERR System-wide Monitoring Program (SWMP) is to identify and track short-term variability and long-term changes in estuarine water quality, habitat, and land use in each reserve. The data gathered through SWMP provides standardized information about how estuaries function and change over time, enabling scientists to gain a better understanding of how human activities and natural events can change coastal ecosystems.

The Reserve has four SWMP stations: Lower Henderson Creek for which data is available in real-time and Middle Blackwater River, Fakahatchee Bay, and Faka Union Bay. The Reserve also maintains a water quality station at Pumpkin Bay. A meteorological station is located at Upper Henderson Creek near RBNERR headquarters. During the early part of the evaluation period, the nutrient monitoring portion of SWMP (nutrients and chlorophyll) received additional support from the Southeast Environmental Research Center (SERC) Water Quality Monitoring Network enabling them to monitor additional parameters. In 2008, funding for the network was reduced and the Reserve had to reduce the number of additional parameters tested. The Reserve continues to support the network by providing data.

The Reserve's water quality data is valued by researchers and coastal managers and has been used by partners to:

- Develop and ground truth a hydrodynamic model to link salinity patterns in Henderson Creek and Rookery Bay to alterations of freshwater inflow. This research was funded by the South Florida Water Management District through FDEP and a NOAA GRF student assisted with model development.
- Support USFWS, U.S. Army Corps of Engineers, South Florida Water Management District (SFWMD), U.S. Geological Survey, and Reserve efforts to develop and track ecological performance for habitat restoration for the Comprehensive Everglades Restoration Plan for the Ten Thousand Islands and Rookery Bay.
- Build habitat suitability models to predict changes in natural biodiversity in response to freshwater inflow alterations between Naples Bay and Rookery Bay.
- Support Florida Department of Agriculture efforts to maintain healthy aquaculture lease sites within the Ten Thousand Islands.
- Compare nitrogen levels to a relatively pristine reference site by the City of Marco Island.
- Develop total maximum daily loads by FDEP.
- Provide baseline data for analysis of Deep Water Horizon oil spill impacts.

During the evaluation period, the water quality manager conducted an initial analysis of 11 years of SWMP data. With funding from FoRB, the Reserve was able to hire a web developer to build a query-based database so that staff could look at particular time frames and/or other parameters to better analyze the data. The water quality manager is also planning to work with a statistician at FGCU who will assist with reviewing the initial analysis. OCRM commends the Reserve for conducting an analysis of SWMP data.

As part of SWMP, the NERRS has a land use and habitat change component that focuses on tracking and evaluating changes over time in coastal and estuarine habitats to understand the relationships between land use and habitat changes, anthropogenic influences from the watershed, and environmental stressors related to climate change.

RBNERR secured funds for a contractor to begin baseline mapping and ground truthing of aerial photographs. The Reserve's mapping effort will look at the whole Reserve but the current focus of the mapping effort is on exotic infested uplands. The contractor is also conducting 360 degree fixed point photography at identified points and changes in ecotones will be monitored over time to determine any impacts due to sea level rise. In addition, the contractor is also noting the location of rare plants. The contractor is working directly with Reserve staff and training them on the mapping techniques to ensure staff can continue to update the map and keep it as a living document. The Reserve will use the habitat map and results of the vegetative monitoring to guide management decisions and the stewardship and Coastal Training Programs hope to use the habitat map to provide new information and understanding of the local ecosystem to local officials and staff.

The stewardship and research programs are working on developing a vertical control plan and identifying and recording the location of known geodetic markers. The Reserve will use its new habitat maps to identify areas that are a priority for placement and installation of surface elevation tables (SETs). OCRM encourages the Reserve in its efforts to develop a vertical control plan and install SETs in order to better understand how emergent vegetation is responding to changes in sea level and connect with reserve system partners to understand the latest protocols, techniques, and challenges.

As the Reserve moves forward with efforts to monitor and understand the long term impacts of climate change and sea level rise, OCRM encourages the Reserve to reach out to regional entities interested in a landscape view of resource management including the new Department of Interior led Landscape Conservation Cooperative network. Landscape Conservation Cooperatives are a national network of applied conservation science partnerships working to inform resource management decisions across broad landscapes.

### **3. Geographic Information System (GIS)**

The Reserve has a robust GIS program that started in 1998 and now has over 1,000 data layers. The Reserve receives frequent requests for information and is working to make the data even more accessible through the web.

The Reserve regularly uses GIS to support informed coastal decision making. For example, in 2005, the Reserve compared aerial photographs to information from side scan sonar and determined that a 200-acre seagrass bed contained five miles of propeller scars. Collier County officials used this information to determine that there was a need to put in channel markers to assist boaters with remaining outside the seagrass beds. GIS also informed the development of

the Reserve's fire and gopher tortoise management plans and will be used to assess their effectiveness.

The Reserve began offering GIS training in 2006 and since that time, has trained 142 students from state and local agencies, other NERRs, consulting firms, federal government staff, and universities. The classes are an opportunity to learn new GIS skills and provide participants with a chance to network with students from a variety of backgrounds. The GIS specialist is authorized to teach: Introduction to ArcGIS I, ArcGIS Desktop: Getting Started with GIS, ArcGIS Desktop II: Tools and Functionality, and ArcGIS III: Workflows and Analysis. Although the Reserve is able to offer training at a relatively low cost, the Reserve is seeing reduced class participation due to the slow economy and budget cuts at the local government level.

The Reserve is interested in pursuing a GIS Symposium to bring together past students to share how they've applied their GIS skills and to look for synergies and project ideas. The event would provide participants with networking and learning opportunities and could assist the Reserve with evaluating the program. OCRM encourages the research program in its efforts to develop and host a GIS symposium and encourages broad participation from Reserve staff.

#### **4. Site Profile**

NERRS implementing regulations require each reserve to develop a comprehensive site profile. A site profile is designed to (1) compile scientific datasets relating to the reserve, (2) characterize the physical and biotic components of the environment, (3) synthesize the known ecological relationships within the reserve and its watershed, (4) trace the impact of natural and human disturbances, and (5) explore the need for future research, education, and management initiatives.

RBNERR completed its site profile in 1992. The research coordinator has recently been reassessing the Reserve's research and monitoring needs and has begun to reach out to scientists to inform them of priority research needs. The Reserve may find it beneficial to formally update recommendations for future research and monitoring and/or other sections of the site profile to encourage research that supports the Reserve.

#### **5. Graduate Research Fellowships**

The Reserve continues to be actively engaged in the education and training of both undergraduate and graduate students. During the evaluation period, the Reserve has sponsored five NERRS Graduate Research Fellows (GRFs). The NERRS GRF Program is a system-wide program that supports masters or doctoral students' management-related research projects that enhance scientific understanding of the reserve system, provide information needed by reserve managers and coastal decision-makers, and improve public awareness and understanding of estuarine ecosystems and management issues. The research coordinator provides research and logistical support to GRF students and ensures that reserve resources are available. In addition, research program staff have assisted GRF's conduct their research and GRF's are encouraged to share their results through brown bags and other opportunities. The Reserve has also integrated GRF research into ongoing and proposed projects. For example, a GRF project on sea grass was

integrated into a grant proposal to look at decreases in sea grass. OCRM commends the Reserve for its strong support of GRFs.

NERRS GRF research projects include:

<b>Year</b>	<b>Fellow</b>	<b>Project Title</b>
2009	J. Peterson	<i>Dynamics of Mangrove Boundaries: field tests of mangrove expansion into marsh plant habitat</i>
2009	S. Denham	<i>Is Thalassia testudinum and Halodule wrightii growth light limited in Southwest Florida, particularly in Rookery Bay National Estuarine Research Reserve?</i>
2007	J. Geng*	<i>Rookery and Naples circulation simulations: application to tides and fresh water inflow regulation</i>
2006	G. Ellis	<i>Carbon and Nitrogen Isotopic Linkages Between Water-Column Particulates and Benthic Primary Consumers as a Means of Assessing Current and Historical Estuarine Trophic Conditions in Southwest Florida</i>
2004	M. Dvorak	<i>Assessing estuarine health in Rookery Bay National Estuarine Research Reserve using a geochemical approach</i>

\* J. Geng left his fellowship before completion to pursue a different career path. The project was continued by his advisors R.H. Weisberg and L. Zhang and a paper published in *Ecological Modeling*.

In 2010, the Reserve did not solicit or receive any GRF applications. OCRM encourages the Reserve to advertise and more actively solicit GRF applications.

## **C. Education, Outreach, and Volunteer Program**

National Estuarine Research Reserves are federally designated “to enhance public awareness and understanding of estuarine areas, and provide suitable opportunities for public education and interpretation.” The reserve system provides a range of educational programming to key audiences depending on watershed and community needs and the specific capacity of each reserve. During the evaluation period, the Reserve has capitalized on dedicated volunteers to increase the number of students served and expand its general public educational offerings, expanded its volunteer program, and continued to improve visitor experiences at the ELC.

### **1. K-12 Education**

The mission of the education department at Rookery Bay is to deliver positive, rewarding experiences that increase awareness and understanding of the value of coastal ecosystems. The education program offers a wide variety of formal and informal programs. The Reserve has three main field-trip programs: Estuary Explorers, Learning in Florida’s Environment (LIFE), and Field Based Estuarine Studies that serve approximately 3,000 students annually. The education program also provides additional opportunities for less structured learning including after school programming, summer programs, and programs for groups such as birthday celebrants.

The Estuary Explorers Program for 4<sup>th</sup> graders in Collier County public schools is one of the Reserve's core education programs. The highlight of the program is a field trip to the Reserve with hands-on activities that are aligned with Sunshine State Standards and focus on 'The Practice of Science' and 'Interdependence.' The Reserve provides an educator's guide with pre- and post-visit classroom activities and a workbook to assist teachers with incorporating estuarine information into their lessons. The Reserve also provides a teacher training workshop in September to train new teachers and update veteran teachers on any program changes.

The Reserve has a strong partnership with the Collier County School District and the Estuary Explorers Program is formally incorporated into Collier County's curriculum and teachers are eligible for pay when attending the Estuary Explorers training. The School District will be changing leadership in 2011 and OCRM encourages the Reserve to continue to engage school administrators and highlight the value of the educational opportunities provided by the Reserve.

During the evaluation period, funding for school field trips has decreased and to offset the loss of funding, schools have increased the number of students per bus. The Reserve has been able to increase its capacity to work with large groups through the efforts of a dedicated group of talented volunteers who help staff educational programming. The Reserve has nearly doubled the number of students it can serve and approximately 1,500 4<sup>th</sup> graders participated in the program during the 2010-2011 school year. The evaluation team met with teachers who emphasized the importance of the Reserve's ability to handle larger groups of students.

The education program regularly evaluates its programming and has developed standardized pre- and post-tests. The education staff are interested in conducting more in depth evaluation and developing new methods to increase survey responses. OCRM encourages the education program in its efforts to further refine and improve its program evaluation.

The Reserve education staff rely on teachers to help assist them with their programming onsite. Education staff noted that some teachers were not as engaged or prepared as others and that they were looking at new opportunities to engage teachers that might not be as comfortable with the material. Evaluation participants discussed potential methods of assisting teachers including the development of short videos to prepare teachers for the field trip. OCRM encourages the education program to work with teachers to identify and develop innovative teacher training aids.

The education program is also an education provider for the initiative Learning in Florida's Environment, or LIFE Program. The FDEP Office of Environmental Education coordinates the program which engages 7<sup>th</sup> grade students from three of the lowest performing schools in a school district in field work and science. Students participate in classroom lessons and participate in three field experiences where they conduct inquiry-based field labs. The program also builds teacher capacity through training and teachers lead a portion of each trip and work with students to create a community project. RBNERR also highlights the students work by having them communicate their findings to the public at the annual Dive into Oceans event. The project is funded in Collier County through a NOAA B-WET grant. The grant ends in 2012 and RBNERR

is discussing with partners their interest in continuing the program and the capacity of the Reserve to take on and continue to grow the program.

The education program also offers field-based estuarine studies for high school and college level marine science students. The programs are conducted while on board one of several education vessels and usually include a trawl to explore diversity of estuarine inhabitants and barrier island ecology study on a barrier island. Prior to the trip, the Reserve also holds a training workshop for teachers and has teachers conduct classroom-based investigations.

In previous years, the Reserve obtained grants to support additional teacher trainings on the estuarine environment. Currently, the Reserve doesn't have the funding to offer additional workshops for teachers but is searching for grant funds to support additional teacher training opportunities in estuarine science. OCRM encourages the education program to continue to seek support for additional opportunities for teacher training.

**Accomplishment: The education program offers high quality programming and has successfully adapted to changing conditions with the support of dedicated volunteers. Reserve volunteers have enabled the Reserve to provide field-trip based programs for large groups of students and to meet the increasing demand for educational activities.**

## **2. Environmental Learning Center (ELC) and Public Programs**

The ELC was constructed in 2004 and visitation has continued to steadily increase over the evaluation period. RBNERR continues to improve the ELC and develop new programs to meet public demand.

The education program has completed 12 new exhibits or upgrades during the evaluation period and developed an audio tour that provides narration for each exhibit. The new and upgraded exhibits are more interactive and focus on the work at RBNERR and the need to protect coastal environments through stewardship efforts. The new and redesigned exhibits include:

- **CAMA Exhibit** which was designed to increase the understanding and appreciation of Florida's aquatic preserves and the environmental and economic resources found within them.
- **Solution to Avoid Red Tide, Inc. (S.T.A.R.T.) Exhibit** is sponsored by S.T.A.R.T. and informs visitors about the health, environmental, and economic impacts of harmful algal blooms and ongoing research to maintain and improve coastal water quality to minimize harmful algal blooms.
- **Climate Change Exhibit** provides an overview of greenhouse gases in the atmosphere and sea level rise, and how they might affect various forms of life in Southwest Florida.
- **Butterfly Sustainable Garden Exhibit** behind the ELC demonstrates the importance of native plants to support native butterflies and wildlife and to help reduce daily watering.
- **Mobile touch tank** allows visitors to get to the many unique species of invertebrates who make the estuary their home.

- **Art Gallery Partnership** The Reserve has strengthened its partnership with the United Arts Council of Collier County and now hosts two gallery exhibits each year and hosts a Collier County Public School art show, with award-winning art from each grade level.

The Reserve offers a wide variety of guided tours and special programs. The education staff developed 10 educational programs that are offered free with admission, twice daily. Program topics include: Orchids of South Florida, Slithering Snakes, Munchin' in the Mangroves, A Sea Turtle's Hurdles, Sharks: Fact of Fiction, Native Plant Walk, and A Cultural History guided walk on Shell Island Road where visitors learn about the Calusas and pioneering families of the Little Marco Settlement. Staff have also created a program guide to showcase the Reserve's events and programming and 5,000 copies are printed per season.

With increased outreach and visitation, the Reserve has also seen a tremendous increase in requests for offsite programs. The education program staff developed a Certified Interpreter Program to provide intense training to volunteers interested in leading tours and programs, both on- and off-site. At the time of the evaluation site visit, 10 volunteers had completed the program.

In addition to regular daily programs at the ELC, the Reserve offers a variety of fun educational activities.

- Free Friday for kids feature a different theme each week and includes educational programs, activities, games, crafts, aquarium programs, and more.
- Serves as a field trip site for summer camps and offers a variety of programs for groups.
- Educators conduct summer camp programs off-site for camps unable to travel.
- A lunch speaker series for adults is held once a month October through April and experts discuss environmental topics such as Southwest Florida Nature and Amphipods and Sex in the Sea: Why Some Fish Bend and Blend Genders.
- Hosts birthday parties for children and provides educational programs.

The Reserve regularly conducts visitor use surveys to better understand visitor needs and make improvements. Through visitor surveys the Reserve found that people spent about 1 to 2 hours at the ELC and the number one reason people left was that they needed lunch. With the help of FoRB, the Reserve worked with a local business to provide an opportunity for lunch on site. In addition, the Reserve modified its daily programs to work better with visitor's schedules. Visitors were also requesting more opportunities to engage in outdoor activities and the Reserve constructed the Henderson Creek Bridge and a trail system to encourage visitors to stay and enjoy outdoor activities.

For several years, visitors regularly inquired about guided kayak tours and in 2008, the Reserve created a kayak program. Programs were initially led by education staff but this limited staff time for other activities. Through a grant from FoRB, the Reserve has been able to hire a knowledgeable part-time educator who leads approximately 100 tours per year with the help of 12 trained volunteers. The tours are very popular and sell out weeks in advance. The guided tours

highlight Reserve research and stewardship efforts and the natural environment. A Paddle into the Past trail guide is also available for those interested in kayaking through the Reserve on their own.

The Reserve also hosts several large signature events every year:

- **Southwest Florida Nature Festival** (January) is a collaborative effort with many partners to provide three days of field trips including more than 40 guided field trips to 20 wildlife hot spots around Southwest Florida. The event also includes on-the-water adventures plus on-site activities at the ELC including lectures on a variety of animal, plant, and environmental topics, interactive children's activities, a marine touch tank, live birds of prey, guided walks along the half-mile nature trail, and nature films.
- **Girls Science Day** (April) is a special day devoted to middle school girls in grades 6-8 which is held on a teacher work day. Girls work with educators and scientists to experience ways that they can excel in science related fields. Participants get hands-on experience as they study marine life and systems while exploring the pristine mangroves of Rookery Bay Reserve.
- **Dive into the Ocean** (April) is a multi-day event for middle school students highlighting careers in the marine industry. Local industry representatives interact with students and the Diving Equipment and Marketing Association brings a dive pool and provides middle school students with the opportunity to try SCUBA diving in the tank. On the Free Family Day, visitors enjoy additional activities including nature films, laboratory tours, guided nature walks, presentations, and children crafts.
- **National Estuary Day** (September) is a free event celebrating productive and diverse estuaries that also highlights Reserve activities. Visitor activities include free boat and kayak trips as well as a touch tank, music, food, lab tours, and crafts.

The events continue to grow in popularity and draw larger crowds. Reserve staff also have partnered with FoRB to try many new events and ideas such as a first annual adventure race, adult lunch and lecture series, and many others. Reserve staff debrief after big events to solicit input from volunteers and staff to determine what went well and what could be improved. Special events require a significant amount of staff effort and time which was to be balanced with other core activities. Reserve staff are working with FoRB to determine staff capacity and the best mix of special events. OCRM encourages the Reserve and FoRB to continue to evaluate the best mix of events with current staff capacity.

**Accomplishment: The education program's new and innovative programs, new exhibits, and incorporation of new public access facilities into educational programming has expanded its reach in the local community and visitation continues to increase.**

### 3. Volunteer Program

The Reserve has an excellent volunteer program and volunteers play a key role in supporting the Reserve's programs. The Reserve hired a new volunteer coordinator in 2008 and the program is growing. In 2008, volunteers logged 5,276 hours in support of Reserve activities and in 2010 this number increased by over 50 percent to 8,153 hours. Volunteers contribute to a wide range of activities including community outreach, special events, fish feeding and aquarium maintenance, staffing the visitor center, trail maintenance, research, monitoring turtles and birds, resource management, maintaining a butterfly garden, and educational programming such as Estuary Explorers and daily programs. The volunteer program is well organized and the volunteer coordinator and Reserve staff provide extensive support to volunteers ensuring they enjoy their duties and feel they are contributing.

RBNERR successfully recruits a diverse volunteer base by working closely with area high schools and colleges, the local press which provides free advertising for volunteer opportunities, the county's Retired Seniors Volunteer Program, and through word of mouth. The volunteer coordinator interviews potential volunteers, holds monthly orientations, and volunteers are trained by employees in charge of an area and by shadowing other volunteers and/or employees.

The Reserve also hosts spring break volunteers who work at the Reserve for a week while living in the dorms. For the past two years, the Reserve has hosted groups from the University of Florida and Grinnell College in Iowa. The Reserve has also worked with Walmart and Comcast whose employees have participated in 'Give a Day of Service' events.

The Volunteer Program recently began a new initiative to create volunteer teams to empower volunteers and enable volunteers with similar interests to work together to improve areas. The initiative has been successful and the Reserve is looking to expand the number of volunteer teams. The teams are:

- Outreach Team which leads participation at special events
- Trail Team maintains the new Snail Trail on a weekly basis including exotic plant removal
- Estuary Explorer Team is a key group of trained volunteers that assists with training new volunteers and implementing educational programs
- Facilities Team is a group of seasonal volunteers who work one day a week for the facilities department and additionally help with special events.

The Reserve, with the support of FoRB, also holds volunteer appreciation events including a dinner in March for winter volunteers, a lunch in August for summer volunteers, and an annual holiday party. The volunteer coordinator also provides regular updates on volunteer opportunities through a bimonthly newsletter with a circulation of 900 which is also linked to FoRB's newsletter for members. Volunteers meetings are also held once a month and often highlight guest speakers from different Reserve sectors that explain what role volunteers play in their department.

The Reserve has also been able to streamline its record keeping with an upgrade to the Volunteer Reporter software and a new touch screen computer which were purchased by FoRB. The system enables volunteers to quickly log in and out when volunteering and the information does not have to be entered manually, saving much needed time.

**Accomplishment: The Reserve has continued to strengthen and improve its volunteer program, in particular, empowering volunteers through the development of teams.**

## **D. Coastal Training Program**

The Coastal Training Program (CTP) is designed to inform coastal decision-making, improve coastal stewardship at local and regional levels through the application of science-based knowledge, and increase dialogue and collaboration among decision-makers. Planning for the program includes establishing a training advisory committee, conducting a market survey of training providers and an audience needs assessment, developing a program strategy every three years that outlines priority coastal issues to be addressed, prioritizing target audiences, and creating a marketing plan.

The CTP was first piloted at Rookery Bay NERR in 1998 and the program was soon adopted by the national system. Today, every Reserve has a CTP. Rookery Bay NERR's CTP was "fully implemented" in October 2002. RBNERR has a successful, high performing CTP and from January 2007 – December 2010 conducted 170 workshops for 4,263 people. The Reserve continually assesses the effectiveness of its training programs and according to post-workshop evaluations more than 90 percent of participants believe their scientific understanding had increased and that they would apply that understanding to their work.

The CTP is staffed by a full-time CTP coordinator and five training staff. The CTP relies on its partnerships and grant funding to support the training staff. The CTP has received grants from the Gulf of Mexico Alliance (through the U.S. Environmental Protection Agency (USEPA) and NOAA), FDEP Non-Point Source Management Program and Florida Coastal Management Program (FCMP), and partnered with Collier County and the City of Naples in order to provide successful training programs on a variety of topics. OCRM commends the CTP for successfully pursuing multiple grants and funding sources to support the CTP and expanding its ability to reach local decision makers including local government officials, business leaders, and their staffs.

The Reserve's CTP strives to provide relevant science to decision-makers, to maintain market knowledge and flexibility, and to increase regional networking. A statewide needs assessment of elected and appointed government officials in Florida was conducted in cooperation with Apalachicola and Guana Tolomato Matanzas CTPs in 2006 with funding from the FCMP. The needs assessment was used to update the program's strategy in 2007. In 2009, the CTP completed an audience needs assessment of journalists and media practitioners which was used to help update the program strategy in 2010.

The Coastal Training Program provided a variety of trainings to meet identified priorities in the 2007 strategy: watershed and land use, visitor use, biodiversity, and informed stewardship.

Training Programs included:

- Project Greenscape (*see also subsection 1*)
- Ecotour Provider Series (*see also subsection 2*)
- Monthly law enforcement briefings and a quick reference “cheat sheet” for citations
- Florida Stormwater, Erosion & Sedimentation Control Inspector Training
- American Red Cross CPR, AED, First Aid Certification
- Coastal Considerations a half- or full-day outdoor program for professional groups such as realtors or the Leadership Collier program where participants learn about the value of estuaries and watersheds and impacts from visitors and development
- Florida Master Naturalist Program which targets audiences interested in learning about Florida’s environment and/or wishing to increase their knowledge for use in education programs as volunteers, ecotourism guides, or other fields

The CTP reaches a large audience and actively advertises its workshops, including e-mailing announcements to a 3,500 member database. In addition, the CTP uses the website [www.rookerybay.org](http://www.rookerybay.org) to market programs and post information.

The CTP evaluates its trainings immediately after events and makes changes based upon feedback. The CTP is also interested in assessing the long term impacts of the program and is considering working with NOAA partners and/or the University of Florida to support a formal assessment. OCRM encourages the CTP in its efforts to measure the long-term impacts of the program.

The CTP also offers technical assistance to local communities and is seen by its partners and the public as a trusted source of scientific information. When the City of Marco Island was considering whether or not to install a sewer system, the Reserve analyzed SWMP data to look at water quality impacts and the CTP helped communicate the results to local officials, staff, and the public. The CTP assisted the city with planning and facilitating an informational meeting on the sewer project for citizens. The Reserve brought in experts to answer questions that were submitted by citizens and the meeting was well received. The CTP coordinator’s ability to communicate the science surrounding the sewer issue was noted by an evaluation participant as essential for moving the project forward.

The CTP has partnered with Apalachicola and Guana Tolomato Matanzas CTPs to develop the coastal strategies website ([www.floridacoastalstrategies.org/](http://www.floridacoastalstrategies.org/)) for local governments. The website is a toolbox that provides information on water quality and quantity, land use density and intensity, and shoreline management and coastal erosion. The website highlights relevant CTP training opportunities, examples of model ordinances, best management practices, case studies and demonstration projects, and research.

Although the CTP provides extensive training opportunities, evaluation participants noted a need for even more training opportunities and increased effort to reach elected officials and local councils, especially as members often change. The evaluation team also encourages the CTP to continue to share the results of research regarding the effectiveness of land management techniques.

The findings below highlight key CTP innovations and successes during the evaluation period (1) Project Greenscape a successful initiative to minimize the impacts of landscaping practices, (2) the Ecotour Provider Series which provides operators with information on natural resources and best practices, (3) leadership and support of the Gulf of Mexico Alliance, and (4) a new innovative partnership with Sea Grant.

### **1. Project Greenscape**

One of the CTP keystone programs is Project Greenscape. Through Project Greenscape the Reserve uses science to inform and improve coastal management and save landscaping firms money. During the Legislative Day panel, the owner of a local mid-sized landscaping firm who participates in Project Greenscape estimated that the program had saved the firm hundreds of thousands of dollars in reduced fertilizer use and increased staff pride and retention.

The CTP partnered with the City of Naples to improve water quality in Naples Bay through Project Greenscape. The CTP built on an existing training program called *Green Industries Best Management Practices (GI-BMP) for Water Resource Protection in Florida*. The training was provided to landscaping professionals to give them the knowledge, skills, and tools to minimize the impacts of landscaping practices on nonpoint source pollution. Based on the success of the initial training program, the City of Naples passed the first-in-Florida fertilizer applicator licensing program requiring training of landscape and lawn care professionals. The Reserve has now trained over 1,800 landscapers. The CTP also initiated and staffs a local sustainable landscaping group that meets quarterly to assist with the implementation of best management practices.

In 2009, the state's Fertilizer Task Force drafted legislation that included requirements for GI-BMP training and licensure of all commercial fertilizer applicators by the Florida Department of Agriculture by 2014. Training was included as part of the statewide licensing program because positive post-workshop evaluation data from the Rookery Bay CTP GI-BMP trainings indicated it would be beneficial to require such training. With the passage of a statewide law, the number of landscapers to be trained was beyond the capacity of Reserve staff. The CTP coordinator led the development of a state-wide train-the-trainer program and the three Florida Reserves serve as regional hubs to prepare instructors to deliver trainings for the state's 100,000 plus landscapers. The Project Greenscape coordinator serves as the liaison between the regional coordinators and CAMA and the other GI-BMP partners. CTP staff authored a training manual which contains the state's training-related licensing policies. CTP staff have also translated the GI-BMP training into Spanish and created a series of four-hour refresher classes in both English and Spanish. The Reserve has also begun to work more closely with the state's extension office, a key partner in

providing train the trainer workshops and relations. OCRM commends the Reserve for its leadership and partnership with the City of Naples to implement a model program addressing a high priority issue, coastal nonpoint source pollution.

**Accomplishment: The CTP used science to inform the development of Project Greenscape, a program that has improved the management of water quality and led to reduced operating costs for landscaping firms. Project Greenscape is a successful model that has been adopted by the State of Florida.**

## **2. Ecotour Provider Series**

Tourism is an important part of Collier County's economy and according to the Naples Chamber of Commerce accounted for more than 31,000 jobs and an annual local economic impact of more than \$1.1 billion in 2009. RBNERR provides support to local tourism providers and for over fifteen years, has offered the popular Ecotour Provider Series for land and water based tour operators and guides. Workshops are offered during the summer off-season at Rookery Bay and in Lee County through a partnership with the Marine Industries Association, Society for Ethical Ecotourism, Lee County Sea Grant, and Lee County Parks and Recreation Department. The Charlotte Harbor National Estuary Program has recently joined the partnership and is looking to expand the training into Charlotte County. From 2007-2010, 1040 attendees attended 26 classes.

Ecotour Provider workshops are 2.5 hour evening classes that focus on different topics and provide science-based information, tools for effective interpretation, and concrete guidance on best practices. Attendees also have an opportunity to network and often become an extra set of eyes and ears in remote areas of the Reserve. The trainings not only encourage responsible interaction with the environment, they enable ecotour providers to teach their clients more about the local environment. A charter boat captain at the Reserve's 2010 Legislative Day noted the workshops enabled him to provide his customers with more information and had increased his repeat business.

## **3. Gulf of Mexico Alliance (GOMA)**

The Gulf of Mexico Alliance is a partnership of the Gulf states with the goal of significantly increasing regional collaboration to enhance the ecological and economic health of the Gulf of Mexico. The Alliance works through collaboration at the local, state, and federal levels to address six priority issues (1) water quality (2) habitat conservation and restoration (3) ecosystem integration and assessment (4) nutrients and nutrient impacts (5) coastal community resilience and (6) environmental education. NOAA, USEPA, and other federal agencies provide financial and staff support to the Alliance.

The Reserve has been a leader in supporting the Gulf of Mexico Alliance since its initiation. In the summer of 2005, the Reserve hosted environmental officials from the White House and four neighboring states to discuss and develop a plan to strengthen protection for the Gulf of

Mexico. Through GOMA, the Reserve has been able to expand its ability to address its goals and support local government efforts.

The CTP coordinator is a member of the Environmental Education Priority Issue Team Steering Committee and the lead for the state of Florida. As the Alliance was getting off the ground, the CTP worked with NOAA Coastal Services Center to develop a model community workshop to solicit input from the public in each of the five states. The CTP helped facilitate the community workshops and also hosted a workshop in Naples. A final report summarizing the findings of the workshops was produced and is available on-line at [www.gulfofmexicoalliance.org/pdfs/comwkspreportfinal2.pdf](http://www.gulfofmexicoalliance.org/pdfs/comwkspreportfinal2.pdf)

Through GOMA, RBNERR partnered with NOAA, state and local governments, the tourist development council, and Mote Marine Laboratory to develop an improved red tide monitoring and alert system for Collier County. The Reserve hosted a technical workshop, “Living with Red Tide” and organized a series of meetings to help develop the alert system. Local government parks personnel use Blackberrys to complete a checklist of observations and submit the information to Mote Marine Lab which posts the information in near real-time. Vacationers and locals are able to check reports that are updated twice daily for beach conditions and red tide warnings at specific beaches. The site allows vacationers to determine what beaches in the county have safe conditions instead of relying on blanket warnings that would likely keep them from visiting all together. The information is also shared with federal and state agencies such as NOAA to assist in their efforts to predict red tide. Eight days after the Deepwater Horizon oil rig sank in April 2010, the site was expanded to include possible impacts from the oil spill.

The CTP coordinator successfully applied for funding through GOMA for a public awareness and community outreach project. Through the project, two Alliance educators were hired, one located at RBNERR and the other at Apalachicola NERR. The Alliance educators played a lead role in the development and launch in 2009 of the website [www.supportthegulf.org](http://www.supportthegulf.org) which provides the public with information on GOMA’s activities in Florida. The funding also enabled the support of several outreach events and 10 regional workshops in Florida in support of Alliance Priority Issue Teams, including four workshops for the public to provide input on the *Draft Governor’s Action Plan II for Healthy and Resilient Coasts*. The CTP also conducted a needs assessment of scientists and worked with the University of Florida to host a workshop to assist scientists with communicating scientific results to the media, a priority identified in the assessment.

The Education Team also initiated a public relations subgroup to focus on public relations and increasing awareness of GOMA across Gulf states. The subgroup has developed a strategic plan and will be looking to GOMA for funding for a staff position to support the effort. The group developed *Gulf of Mexico Minutes*, a set of 50 and 90-second professional radio messages about the Gulf and GOMA actions that are played on public radio and at Gulf environmental centers. The radio messages target topics such as deepwater coral reefs, historic shipwrecks, and intriguing sea creatures. The committee used radio messages previously developed for RBNERR as the model.

GOMA provides a mechanism for Gulf Coast states to successfully work together with federal and local partners. The Alliance is dependent upon the support and enthusiasm of Gulf state governors and leaders. OCRM encourages RBNERR to work with GOMA leadership to develop a program to engage and educate newly elected leadership and their staffs and promote their participation in GOMA. The program could include the development of briefing materials and a process for current leaders to reach out to new leaders.

**Accomplishment: The Reserve has provided critical leadership and support to the Gulf of Mexico Alliance by educating and engaging the public and elected officials on key topics related to the health of the Gulf of Mexico.**

#### **4. Sea Grant Partnership**

The CTP has also strengthened the Reserve's partnership with Sea Grant during the evaluation period. In order to better reach the marine, fisheries, and seafood safety industries, the CTP pursued outside funding to support a Sea Grant extension agent who now sits at the Reserve. The Sea Grant extension agent is funded through Florida Sea Grant and Collier County Extension. The CTP coordinator and Sea Grant extension agent sit on each other's advisory boards and regularly work together to identify issues and audiences for their respective programs in order to maximize their impact. The position has been a great benefit to the Reserve and has resulted in a stronger relationship with both extension agencies. The partnership has enabled the Reserve to reach new audiences, and the extension specialist has contributed to Reserve initiatives such as the Ecotour Provider workshops and marine education. The extension agent benefits from working near his core audience and Reserve resources such as boats, vehicles, and the Reserve's auditorium.

#### **E. Stewardship Program**

Stewardship is a functional role at most reserves, involving aspects of research, monitoring, education, policy, and implementation of resource management actions. Stewardship provides long-term protection of natural resources within the system and serves to model responsible resource management practices to coastal communities

The stewardship program is involved in a variety of activities that further the mission of the Reserve. During the evaluation period, the stewardship program managed multiple restoration projects, removed invasive species, developed a draft management plan for the gopher tortoise, worked to protect archeological, historical, and cultural resources, conducted and expanded biomonitoring, developed Team Ocean, a volunteer program that provides outreach and education to visitors, and enhanced public access. The Reserve staff also provide comments on permits that will impact the Reserve. The stewardship and research programs have also worked closely together to integrate their programs, maximizing the Reserve's ability to implement successful restoration projects, manage species, and conduct biomonitoring.

During the evaluation period, the RBNERR has also maintained and improved its good relationship with law enforcement. The Conservancy of Southwest Florida continues to provide the Florida Fish and Wildlife Conservation Commission (FFWCC) enforcement staff with use of its old nature center building. FFWCC officers regularly patrol the Reserve, in particular south of Keewaydin Island to ensure responsible use of resources and public safety.

## 1. Restoration

One of the primary focuses of the RBNERR stewardship program is restoring habitat. The stewardship program has successfully partnered with federal, state, and local organizations and obtained grant funding to maximize resources and initiate and complete multiple habitat restoration and invasive species control projects. The stewardship and research programs work together to incorporate research and monitoring elements into restoration design to improve understanding of restoration ecology and methodology. Restoration projects include:

- **Keewaydin Island:** The Reserve initiated a large exotic removal project in 1998 and conducted maintenance treatments for exotic plants on the island in 2005 and 2007 which included the removal of a large number of Australian pines. In 2008, the Reserve received funding from the U.S. Department of Agriculture to remove 39 feral hogs from Keewaydin Island. The year after removal, no sea turtle eggs were lost to hog predation.
- **Isle of Capri Mangrove Restoration Project** (initially part of the Tarpon Bay Hydrologic Restoration Project which began in the 1990s): The project was initiated by local citizens who were concerned about mangrove die off. A channel from McIlvane Bay was created to restore hydrologic flow and Reserve staff and 30 volunteers planted 2,500 plants, including red and black mangroves, to help restore the area. The project was supported in part with grant funding from NOAA's Community Based Restoration Program. In addition, with funding from the Florida Forever capital improvement fund, a community park with parking, restrooms, and the county's first paddle boat ramp will be built. The park will be in Reserve waters and managed collaboratively with Collier County who will be responsible for the day-to-day management of the site.
- **Shell Island Road hydrologic restoration:** In 2009, the Reserve partnered with Collier County to restore tidal exchange across Shell Island Road and pave the road. The road was built in the 1960s and blocked water flow through a mangrove swamp leading to degraded habitat. The Reserve hired contractors under the supervision of Collier County to pave the road, install thirteen culverts under the road, and fill in the existing roadside ditch to restore tidal exchange and freshwater flow. The project was supported through a USFWS grant and matching funds from the SFWMD.
- **Fruit Farm Creek Mangrove Restoration Project:** The Reserve helped facilitate the initiation of this project to restore an area where more than 60 acres of mangroves had died and 400 acres were near death or threatened. Phase 1 of the project includes the planning, engineering and permitting of the project, as well as an educational component consisting of a Mangrove Biology and Restoration Training Workshop which was held in January 2011. Phase I has been funded by USFWS, donated time, and private funds and Phase two, which remains unfunded, will include the physical restoration including

building three culverts beneath S.R. 92 and cutting new tidal channels in the three areas of the forest where mangroves are dead or dying.

- **Fire Management:** The Reserve actively uses fire to manage lands on the Reserve and several staff are certified prescribed burners. The Reserve conducts prescribed fire trainings on site and is able to increase the acreage burned as part of these trainings. The Reserve has also developed new fire prescriptions and GIS fire-related maps that use data being collected as part of the Reserve’s larger habitat mapping effort. The Reserve will be monitoring the results of the prescribed burns to ensure that management goals are being met. From January–June of 2010, the Reserve conducted five prescribed burns covering 231 acres and assisted with the burning of 21,000 acres outside of Reserve. The Reserve fire management team members assist with wildfires in local fire districts, Florida Department of Forestry lands, and National Park Service lands.

The stewardship program has a small staff and stewardship responsibility for a large area. OCRM commends the staff for their management of Reserve lands and completing multiple restoration and invasive species removal projects.

**Accomplishment: RBNERR successfully pursued additional funds and resources to maximize restoration opportunities and has worked with the research program to incorporate research and monitoring elements into restoration design to improve understanding of restoration ecology and methodology.**

## **2. Species Management**

The stewardship program is also developing specific plans to address the needs of “keystone” species. At the time of the site visit, the stewardship program had almost completed drafting a Reserve-wide management plan for the state threatened gopher tortoise. As part of the gopher tortoise management plan, the needs of the gopher tortoise are being incorporated in other reserve management plans including prescribed fire and invasive species control. The plan also identifies usable habitat and identifies areas that could be made suitable for habitation.

## **3. Archeological/Historical/Cultural Resources**

The Reserve is in the process of developing an archeological/cultural/historical resource management plan and ground-truthing cultural resource sites that will be used to update maps from past cultural resource surveys. The information will be used to prioritize site protection. The information is being used for a grant proposal to the Florida Department of Historical Resources to obtain a small matching grant to complete an updated survey of all cultural resources in the northern Reserve.

## **4. Natural Resource Monitoring**

The Reserve has continued a long standing sea turtle nesting monitoring program; however, they have had to transition their staff supported program to one that is coordinated by staff and implemented mostly by interns and volunteers. The transition has allowed the Reserve to

continue a successful program with reduced staffing and funding. The Reserve was able to make this transition with the support of a grant from USFWS to hire interns and the support of a dedicated group of volunteers. The Reserve also increased efforts to remove raccoons from islands with high predation rates and increased the use of cages to keep raccoons and other terrestrial predators out. The Reserve has partnered with the Ten Thousand Islands NWR to provide predator control and monitor Reserve lands that are cooperatively managed.

The stewardship program monitors beach-nesting birds including least terns, snowy plovers, Wilson plovers, and black skimmers and in cooperation with FFWCC, seasonally posts and closes viable beach-nesting bird habitat. The sites are monitored regularly and the numbers of adults, nests, and chicks are recorded. The Reserve also provides educational posters and hand-outs to local partners and organizations for distribution at beach access points and visitor centers. The Reserve's monitoring and evaluation of nesting sites has indicated that the seasonal closure of nesting beaches, in conjunction with increased public awareness through education, enhances nesting success for beach-nesting birds.

In 2010, the Team Ocean Coordinator initiated a shorebird monitoring program for beach-nesting birds in the Big Marco Pass Critical Wildlife Area and in front of Marco Island condos. The program is a joint effort with Collier County Shorebird Partnership, Collier Audubon, City of Marco Island, FFWCC, Friends of Tigertail Beach, and the Conservancy of Southwest Florida. Fifty volunteers participated in the regular monitoring of shorebirds, answered beach goer questions, and gave a short reminder to respect the postings and avoid disturbing chicks or adults. Although the Team Ocean Coordinator position remains unfunded, the National Audubon Society is hoping to continue the monitoring program and the Reserve hopes to augment the effort.

## **5. Team Ocean**

The population of Collier County has grown rapidly with the U.S. Census Bureau estimating a 26.7 percent increase from 2000-2009 with an attendant increase in public use of the Reserve for recreation. In order to help inform visitors and protect the natural resources of Rookery Bay, the Reserve adapted the Team Ocean concept from the Florida Keys Marine Sanctuary to meet the needs of the Reserve. Team Ocean is a volunteer program utilizing teams of volunteers to provide outreach and education to visitors and promote enjoyment of marine resources through sustainable practices.

The program was initially staffed through FFWCC but when the first coordinator left, RBNERR assumed responsibility for Team Ocean and initiated a partnership with Florida Sea Grant to hire a new coordinator. The Reserve helped secure funding from the FCMP to purchase two boats for use in on-the-water outreach and education activities. Volunteers were trained and stationed at heavily used sites to educate and inform visitors about the unique environment and regulations. Unfortunately, the funding for the position expired in 2010 and the Reserve has not been able to fully implement the Team Ocean Program but has continued to support the program at a minimal level.

A core group of about 15 Team Ocean volunteers are still very active and go out on the water four times a week, mostly to Keewaydin Island. The volunteers pick up trash, talk to visitors, and check on and maintain trails, signage, and postings. They also assist staff with other resource management tasks as needed. From January–June 2010, volunteers donated over 400 hours to support the program.

**Accomplishment: RBNERR developed the volunteer Team Ocean program which educates visitors about how to protect and enjoy marine resources in a responsible way.**

**Program Suggestion: OCRM encourages RBNERR pursue necessary funding and/or partnerships to maintain the Team Ocean program.**

## **6. Public Access**

The Reserve has constructed new facilities to enhance the visitor experience.

- A new 400-foot footbridge connects the ELC to the Henderson Creek Trail system.
- The new Henderson Creek Trail system includes the new ½ mile long ADA accessible Snail Trail. Visitors can walk the trail and learn more about the different ecosystems at the Reserve. In addition, 1.5 miles of primitive trails were constructed.
- The Reserve also repaired Goodland dock and added a new 80-foot long floating dock extension to provide more efficient and safer access to Reserve boats.
- The Reserve has also completed smaller projects including the installation a foot control pathway on Keewaydin Island to protect the surrounding dune area and installation of new educational signage regarding sea grass resources and manatee protection at many county-run boat ramps.

Most Reserve visitors are respectful of the facilities, but the Reserve has faced some issues of vandalism and the destruction of gates. Drivers in off-road vehicles and trucks were running directly over gates to enter areas off limits to vehicles. The Reserve has installed a heavy gauge steel gate with large concrete footers along a problem road and so far the improvements have been successful in keeping out unwanted vehicular traffic. Reserve staff have also worked closely with law enforcement, in particular FFWCC officers, to ensure that problem areas are patrolled frequently.

## **7. Marine Protected Areas**

The Reserve was one of 225 sites that first became part of the U.S. Marine Protected Areas (MPA) System in 2009. The national MPA System supports the effective stewardship, conservation, restoration, sustainable use, and public understanding and appreciation of the nation's significant natural and cultural marine heritage and sustainable production of marine resources.

FoRB in cooperation with RBNERR, successfully applied for competitive funding from the National Fish and Wildlife Foundation in coordination with NOAA MPA Center to develop a southeast regional MPA plan. The project was initiated in September of 2010 and an advisory committee made up of the USFWS, MPA Center, National Park Service, NERRS, and National Marine Sanctuaries will help guide the project. A graduate student was hired to survey regional MPA's about issues, priorities, and coordination strategies and support the project to completion. A workshop bringing together 22 MPA stakeholders, including all federal and state MPA's in the region, was held in spring 2011. Participants were tasked with reaching consensus on establishing an effective MPA network in the Southeast and Gulf of Mexico and producing a framework for MPA coordination. At the workshop, participants discussed the three highest priorities as identified in the survey, including disaster response, climate change adaptation and response, and education and outreach initiatives. They developed associated goals and activities, as well as next steps to implement them.

## **8. Land Acquisition**

The Coastal and Estuarine Land Conservation Program (CELCP), housed within OCRM, provides matching funds to state and local governments to protect coastal and estuarine lands considered important for their ecological, conservation, recreational, historical, or aesthetic values. At the state level, CELCP is managed by FDEP-FCMP. Since 2009, at least 15 percent of CELCP allocations are for acquiring Reserve buffer areas and areas within the watershed. In 2010, the Reserve successfully applied for \$1.5 million dollars in CELCP funding to acquire five acres on Keewaydin Island that will protect the nesting grounds and habitat for numerous wildlife species including the Atlantic loggerhead turtle, indigo snake, gopher tortoise, bald eagle, piping plover, and the West Indian manatee.

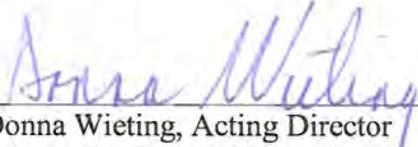
## V. CONCLUSIONS

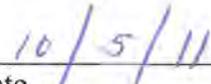
For the reasons stated herein, I find that the Florida Department of Environmental Protection is adhering to the programmatic requirements of the National Estuarine Research Reserve System in the operation of its approved Rookery Bay National Estuarine Research Reserve.

FDEP and RBNERR have made notable progress across all areas including administration, education, research and monitoring, coastal training, stewardship, and implementation of the volunteer program. The Reserve has demonstrated leadership with the development of initiatives such as Project Greenscape, their response to the Deepwater Horizon incident, support of the Gulf of Mexico Alliance, and growth of educational programs. The Reserve has also built and strengthened key partnerships, in particular FoRB, Edison State College, and Sea Grant. The Reserve has also been successful in obtaining outside grant funds and has been able to maintain core programs in the face of significant state budget cuts.

The findings contain four recommendations in the form of program suggestions. The program suggestions should be addressed before the next regularly scheduled program evaluation, but they are not mandatory at this time. Summary tables of program accomplishments and recommendations are provided in the Appendix A.

This is a programmatic evaluation of RBNERR that may have implications regarding the state's financial assistance awards. However, it does not make any judgment on or replace any financial audits.

  
\_\_\_\_\_  
Donna Wieting, Acting Director  
Office of Ocean and Coastal Resource Management

  
\_\_\_\_\_  
Date

## VII. APPENDICES

### Appendix A. Summary of Accomplishments and Recommendations

#### Accomplishments

Issue Area	Accomplishment
Administration	OCRM commends RBNERR staff for their leadership, dedication, and hard work addressing the impacts of the Deep Water Horizon incident.
Administration	The Reserve has successfully pursued additional funding sources to maintain key Reserve programs and partially offset the impacts of a decline in the state operating budget.
Management Plan	RBNERR conducted an inclusive planning process to develop their new draft management plan and a special area management plan for Keewaydin Island.
Administration	ForB and Reserve staff worked together to develop and host new events and raise the visibility of the Reserve which resulted in a 33 percent increase in visitation and participation in education events in 2010.
Education	The education program offers high quality programming and has successfully adapted to changing conditions with the support of dedicated volunteers. Reserve volunteers have enabled the Reserve to provide field-trip based programs for large groups of students and to meet the increasing demand for educational activities.
Education	The education program has expanded its reach in the local community through new and innovative programs, new exhibits, and new public access facilities and visitation continues to increase.
Volunteers	The Reserve has continued to strengthen and improve its volunteer program, in particular, empowering volunteers through the development of teams.
Coastal Training Program	The CTP used science to inform the development of Project Greenscape, a program that has improved the management of water quality and led to reduced operating costs for landscaping firms. Project Greenscape is a successful model that has been adopted by the State of Florida.
Gulf of Mexico	The Reserve has provided critical leadership and support to the Gulf of Mexico Alliance by educating and engaging the public and elected officials on key topics related to the health of the Gulf of Mexico.
Stewardship	RBNERR successfully pursued additional funds and resources to maximize restoration opportunities and has worked with the research program to incorporate research and monitoring elements into restoration design to improve understanding of restoration ecology and methodology.
Volunteers	RBNERR developed the volunteer Team Ocean program which educates visitors about how to protect and enjoy marine resources in a responsible way.

## Recommendations

Recommendations are in the form of Necessary Actions (NA) or Program Suggestions (PS).

Issue Area	Recommendation
Administration	PS: OCRM encourages FDEP to enable Reserve staff to participate in national system-wide meetings and trainings.
Administration	PS: OCRM encourages RBNERR to increase participation in appropriate national workgroups.
Research and Monitoring	PS: OCRM encourages the Reserve to pursue additional financial support for research and monitoring efforts in the Henderson Creek area. Additional research and monitoring will enable the state and local governments to make informed water management decisions.
Stewardship	PS: OCRM encourages RBNERR pursue necessary funding and/or partnerships to maintain the Team Ocean program.

## Appendix B. Persons and Institutions Contacted

### Reserve Staff

NAME	Title
Gary Lytton	Environmental Administrator
Randy McCormick	Environmental Manager
Amelia Horadam	ELC Manager/Visitor Services
Sarah Falkowski	Education Coordinator
Susan Cone	Program Assistant Kayak Program
Tabitha Stadler	CTP Coordinator
Alberto Chavez	GI-BMP Regional Coordinator
Renee Wilson	Research Translator
Jeff Carter	Stewardship Coordinator
Steve Bertone	Resource Biologist
Greg Curry	Resource Management Specialist
Sue Leitholf	Environmental Specialist
Donna Young	Volunteer Coordinator
Carl Marchand	Facilities Manager
Donna Pace	Administration
Victoria Vazquez	Research Coordinator
Chris Panko Graff	Water Quality Manager
Pat O'Donnell	Environmental Specialist
Jill Schmid	GIS Specialist
Susan Denham	Graduate Research Fellow
Jennifer Peterson	Graduate Research Fellow
Beverly Anderson	Research Biologist
Ryan Young	Graduate Student

### Department of Environmental Protection

NAME	Title
Robert Ballard	Deputy Secretary Land and Recreation
Lee Edminston	Director Office of Coastal and Aquatic Managed Areas
Danny Clayton	Florida Coastal Program
Stephanie Culp	Assistant Director Office of Coastal and Aquatic Managed Areas

### State Partners

NAME	Agency
Capt. Jayson Horadam	Florida Fish and Wildlife Conservation Commission

### Nonprofit Partners

NAME	Organization
Christian Spilker	Friends of Rookery Bay, Vice President
Ellie Krier	Friends of Rookery Bay, Executive Director

Robin DeMattia	Friends of Rookery Bay, Director of Marketing and Development
Brad Cornell	National Audubon Society
Andrew McElwaine	The Conservancy of Southwest Florida

**Other**

<b>NAME</b>	<b>Organization</b>
Linda Weinland	Edison State College
Chris Humphries	Collier County Schools
Debra Rapp	Collier County Schools
Bryan Fluech	Florida Sea Grant and Collier County Extension
Robert Halman	Collier County Extension
Mike Bauer	City of Naples
Nancy Richie	City of Marco Island
Eduardo Patino	U.S. Geological Survey
Jim Reid	U.S. Geological Survey
Mike Barry	The Institute for Regional Conservation

## Appendix C: Persons Attending the Public Meeting

NAME	AFFILIATION
Pat Carroll	Friends of Rookery Bay
Susan Calkins-Ritas	Friends of Rookery Bay
Lee Belanger	Volunteer
Joseph Belanger	Volunteer
Michael Enderby	Volunteer

## **Appendix D: OCRM's Response to Written Comments**

NOAA received no written comments regarding the evaluation of the Rookery Bay NERR, Florida.

## Appendix E: RBNERR's Response to 2006 Evaluation Findings

- 1. Program Suggestion: NOAA strongly encourages DEP to explore means by which they can hire an assistant manager for RBNERR to help with the day-to-day operations and administration.**

**RBNERR Response:** Following the release of the 2006 Findings, RBNERR worked with DEP CAMA to restructure the staffing of the Reserve and established an Environmental Manager position to serve as the RBNERR Assistant Manager. Randy McCormick, formerly the Reserve's Education Coordinator, oversees much of the daily operations of the Reserve, handling construction project management, supervising program managers, managing personnel issues, etc. allowing the Reserve's Environmental Administrator to more effectively oversee programs at RBNERR while also managing the State's Aquatic Preserve field offices in South Florida.

- 2. Program Suggestion: RBNERR should develop a timeline for their Management Plan revision, including dates for submittal of draft outline, document, and final plan to ERD.**

**RBNERR Response:** Following the release of the 2006 Findings, RBNERR staff:

- Conducted a series of staff workshops to identify and describe priority issues
- Revised programs as needed to effectively address priority issues
- Contracted services of consultant team to work with staff in developing initial draft of Management Plan
- Conducted three public meetings to review draft plan and gather public comments
- Conducted five public meetings with the Reserve's Advisory Council to develop a Special Area Management Plan for Key Island, followed by the RBNERR Management Plan
- Developed a graphic version of the draft RBNERR Management Plan in July 2010
- Submitted draft RBNERR Management Plan to ERD staff for review and comment in October 2010
- Incorporated ERD staff review comments to final draft RBNERR Management Plan in May 2011
- Anticipate submittal of Final Draft RBNERR Management Plan to ERD in September 2011

- 3. Program Suggestion: NOAA encourages RBNERR to involve the Reserve Advisory Committee in their current Management Plan revision, and consider how to align the roles of the Committee with Reserve needs.**

**RBNERR Response:** Following the release of the 2006 Findings, RBNERR established a formal role and set of objectives for the Reserve Advisory Council (RAC), invited new stakeholders members including representatives from local marine industry, Florida Sea Grant, City of Naples, City of Marco Island, and conducted a series of public meetings and briefings (see item #2 above) for the Reserve's Management Plan. RAC members were provided draft copies of the Management Plan and many provided comments that were incorporated into the Final Draft Management Plan.

- 4. NOAA encourages RBNERR to identify a regular process through which landowners within the Reserve and its watershed can share stewardship strategies and work to implement coordinated management approaches.**

**RBNERR Response:** Following the release of the 2006 Findings, RBNERR established the Reserve Advisory Council (RAC) that includes key stakeholder representatives of local landowners (e.g. Key Island Homeowner's Association, City of Marco Island, City of Naples, Collier County, Collier Development Corporation) and meets with the RAC on a regular basis to review land management issues and discuss collaborative strategies. In addition, RBNERR developed a highly effective training program for local landscapers designed to reduce use of fertilizers and pesticides that contribute to stormwater runoff, and expanded training efforts to reach local landowners working in collaboration with agricultural extension agents.

- 5. NOAA encourages RBNERR to continue to work with their Research Advisory Committee to develop a process to track research that occurs within the Reserve.**

**RBNERR Response:** Following the release of the 2006 Findings, RBNERR research staff developed several research tracking methods, including the use of a web-based information sheet for visiting investigators, conducting targeted outreach to faculty from local universities on RBNERR research opportunities and coordination, and incorporation of visiting investigator research sites into a GIS database. More recently, the Reserve's new Research Coordinator is working with the Research Advisory Committee to host a series of informal meetings with faculty from local universities (e.g. Florida Gulf Coast University and Edison State College) designed to increase awareness of the Reserve's research facilities and programs, and to discuss potential for collaboration.

- 6. RBNERR should identify which communication needs and/or outreach tools are best suited to outsourcing, and explore opportunities to do so.**

**RBNERR Response:** Following the release of the 2006 Findings, RBNERR worked with the Friends of Rookery Bay (FORB) to develop a Marketing Plan, and provide sufficient funds to employ a local consultant to work with RBNERR staff on implementing marketing strategies designed to increase the number of visitors to the Reserve's Learning Center. As a result, admissions to the Center have increased dramatically over the last three years, and attendance at Reserve events (e.g. Estuary Day) has exceeded over 1000 participants. The FORB sponsored consultant continues to work with RBNERR staff through an annual renewable contract.

- 7. RBNERR should work with the Friends of Rookery Bay to help focus the group's mission, and identify how FORB can best support the Reserve's mission and goals.**

**RBNERR Response:** Following the release of the 2006 Findings, RBNERR worked with FORB Board members to review the Reserve's mission and priority goals, develop a FORB Annual Budget and work plan, and focus on key priorities including fundraising and partnership development. As a result, FORB has successfully designed and conducted two signature fundraising events (i.e. the Annual Batfish Bash) bringing in a total of over \$80,000 in private sector donations to the Reserve, and assisted the Reserve in establishing important partnerships with local private sector businesses (e.g. Collier Marine Industry, Walmart, and Fifth Third Bank).