

# Final Evaluation Findings

Apalachicola National Estuarine  
Research Reserve

May 2006 to July 2014

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## Executive Summary

The Coastal Zone Management Act requires the National Oceanic and Atmospheric Administration's Office for Coastal Management to conduct periodic evaluations of the performance of state programs participating in the National Estuarine Research Reserve System. This evaluation examined the operation and management of the Apalachicola National Estuarine Research Reserve by the Florida Department of Environmental Protection for the period from May 2006 to July 2014. The evaluation focused on three target areas: program administration; research and monitoring—use of data and research findings; and education, outreach, and new visitor center.

The findings in this evaluation document will be considered by the NOAA Office for Coastal Management in making future financial award decisions concerning the reserve. The evaluation came to these conclusions:

The Florida Department of Environmental Protection (DEP) is adhering to the programmatic requirements of the National Estuarine Research Reserve System in the operation of the Apalachicola National Estuarine Research Reserve (ANERR).

**Accomplishment:** ANERR's research and monitoring and stewardship programs have provided critical results and monitoring data to inform coastal decision makers at the federal, state, regional, and local levels, and the Coastal Training Program has brought the information to a broad audience.

**Accomplishment:** ANERR's new Research and Education Center includes office and lab space, conference facilities for reserve and community use, and a visitor center that is highly regarded and valued by the local community, tourists, and partners.

**Accomplishment:** ANERR and Friends of the Reserve have a strong partnership that provides educational opportunities for local school children and engages them in learning more about science and their local natural and cultural resources.

**Necessary Action:** To ensure that ANERR meets federal requirements for national estuarine research reserves, DEP must work with the Board of Trustees of the Internal Improvement Trust Fund to ensure that ANERR has an approved five-year management plan by [six months from the date of the final findings].

**Recommendation:** The NOAA Office for Coastal Management encourages DEP to identify and pursue opportunities for streamlining the management plan approval process.

**Recommendation:** The NOAA Office for Coastal Management encourages DEP to work with NOAA to transition its facility in the City of Apalachicola to a new owner in a timely manner,

while meeting the requirements of the original NOAA grant that provided funding for the facility.

**Recommendation:** The NOAA Office for Coastal Management encourages DEP to consider the addition of a new position of assistant manager.

**Recommendation:** The NOAA Office for Coastal Management encourages the reserve to continue to assess and pursue opportunities for promoting the use of its valuable GIS data.

**Recommendation:** The NOAA Office for Coastal Management encourages the reserve to complete a needs assessment and market analysis for the education program and to engage all sectors in identifying new educational and programmatic opportunities, such as a volunteer program or new or expanded partnerships with other federal or state agencies, local governments, nonprofits, and local businesses, and to build on the reserve's strengths to maximize opportunities provided by the visitor center.

## Program Review Procedures

The NOAA Office for Coastal Management evaluated the Apalachicola National Estuarine Research Reserve in fiscal year 2014. The evaluation team consisted of Carrie Hall, evaluation team lead; Sacheen Tavares-Leighton, evaluator; Matt Chasse, reserve site liaison; Hank Hodde, coastal program site liaison; and Andrea Woolfolk, stewardship coordinator at Elkhorn Slough National Estuarine Research Reserve. The support of the reserve staff was crucial in conducting the evaluation, and this support is most gratefully acknowledged.

NOAA sent a notification of the scheduled evaluation to the secretary of the Florida Department of Environmental Protection, published a notice of “Intent to Evaluate” in the *Federal Register* on May 21, 2014, and notified members of Florida’s congressional delegation. The reserve posted a notice of the public meeting and opportunity to comment in the *Apalachicola Times* on June 25, 2014.

The evaluation process included a review of relevant documents, a survey of stakeholders, selection of three target areas, presentations by staff members about the target areas, and focus group discussions with stakeholders and program staff members about the target areas. In addition, a public meeting was held on Tuesday, July 1, 2014, at 6:30 p.m. at Apalachicola National Estuarine Research Reserve, 108 Island Drive, Eastpoint, Florida 32328, to provide an opportunity for members of the public to express their opinions about the implementation of the reserve. Stakeholders and members of the public were given the opportunity to provide written comment via email or U.S. mail through Friday, July 11, 2014. No public comments were received. The Office for Coastal Management then developed draft evaluation findings, which were provided to the reserve for review, and the reserve’s comments were considered in drafting the final evaluation findings.

Final evaluation findings for the national estuarine research reserves highlight each reserve’s accomplishments in the target areas and include recommendations, which are of two types:

**Necessary Actions** address programmatic requirements of implementing regulations of the Coastal Zone Management Act (CZMA). These must be carried out by the dates specified. Failure to address necessary actions may result in a future finding of non-adherence and the invoking of interim sanctions, as specified in CZMA §312(c).

**Recommendations** are actions that the office believes would improve the program, but which are not mandatory. The state is expected to have considered the recommendations by the time of the next evaluation or dates specified.

# Evaluation Findings

## Program Administration

### Administration

In 2012, the Florida Department of Environmental Protection (DEP) was restructured. The three Florida reserves were moved out of the Division of Recreation and Parks and placed in the new Florida Coastal Office (FCO), which also houses state aquatic preserves, the Coral Reef Conservation Program, and the Florida Coastal Management Program. The new office structure provides for a focus on coastal issues and new opportunities for a closer relationship between the estuarine research reserves, Florida Coastal Management Program (FCMP), and Coral Reef Conservation Program and brings together the state partner programs that are also funded and supported in part through NOAA's Office for Coastal Management. During the evaluation period, the FCMP provided funding for specific reserve projects, and both programs have served on the other's workgroups. The new office structure has the potential to improve coastal management in the state, and the NOAA Office for Coastal Management encourages the reserve and DEP to continue to collaborate, explore, and engage in new opportunities to enhance integration, maximize limited resources, and capitalize on new opportunities such as those offered by Deepwater Horizon RESTORE Act funds.

With the construction of a new facility in Eastpoint, reserve staff members are now located together in one facility. The previous evaluation findings included a program suggestion that the Apalachicola National Estuarine Research Reserve (ANERR) "should consider how to improve coordination among program sectors." The reserve conducted a number of successful projects where one sector worked closely with another, but there continues to be room for improvement and for deliberate coordination and collaboration across all sectors. With the location of staff members in one facility and the addition of a number of new staff members, opportunities arise for reserve leadership and staff to explore new opportunities for collaboration to maximize the impacts of their well-respected education, stewardship, education, and coastal training programs.

With the opening of the reserve's new facility in 2011, the old facility in the City of Apalachicola, built with NOAA funding, is no longer needed and remains unused by the reserve. The NOAA Office for Coastal Management encourages DEP to work with NOAA to transition the facility to a new owner in a timely manner, while meeting the requirements of the original NOAA grant that provided funding for the facility.

ANERR lost two positions during the evaluation period, but in 2011 the state provided increased support to the reserve to maintain the new visitor center. The funding allowed the reserve to hire two maintenance positions, and with NOAA funding that is no longer going towards facility maintenance, the reserve was able to take a previously split position and create a full-time position in the Coastal Training Program, a full-time position in the education program, a half-

time position in the stewardship program, and a full-time research assistant position. DEP also moved quickly to fill a number of positions that had become vacant in 2014, or were scheduled to become vacant: two education specialists, research coordinator, manager, and Coastal Training Program coordinator positions. The state and DEP have supported the growth of ANERR with the addition of the new visitor center.

The CZMA requires that a state provide for adequate implementation of required staff roles in administration. In Florida, reserve managers also serve as regional managers for the state aquatic preserve program. During the evaluation period, the reserve manager was also asked to serve as the state lead for the Deepwater Horizon response. The manager carried a workload equivalent to two full-time positions, leaving a leadership gap at the reserve. As a result, sector leads were tasked with serving in an assistant manager role, drawing time away from their core duties. Since the evaluation, DEP created two separate positions: a reserve manager who is responsible for managing the reserve and regional aquatic preserves and a non-reserve staff position to lead the state's response to the Deepwater Horizon incident.

Although the reserve manager no longer is the state lead for the Deepwater Horizon response, the manager still carries a large workload with the additional responsibilities of serving as the northwest regional administrator of the aquatic preserves from Ocala to Pensacola. The NOAA Office for Coastal Management recommends that DEP consider the addition of a new position of assistant manager, one of two priority positions in the draft management plan (2013-2017). The reserve would benefit from having an assistant manager to address day-to-day staff and facility management, while leaving the manager time to focus on longer-term strategic issues, to continue building and improving relationships with federal, state, and local government agencies and local entities, including those groups that have been more challenging to engage in the past, and to understand and provide resources to assist with their coastal management needs.

Reserve staff members have also been severely limited in their ability to travel during the evaluation period. The NOAA Office for Coastal Management values and encourages the use of federal funds for travel to national and regional reserve meetings and trainings to enable reserve staff members to share their knowledge and contribute to the national system, as well as to learn and bring new ideas and efficiencies back to their reserve. A special award condition, that is part of the cooperative agreements signed by the state, calls for "the reserve manager, research coordinator, education coordinator, Coastal Training Program coordinator, and stewardship coordinator [to] attend the Annual National Estuarine Research Reserve System Meeting." In addition, the evaluation team met with other partners who stated that the reserve staff's inability to travel had a negative impact on collaborative work. One partner noted that they offered to pay for a reserve staff member's travel costs to participate in meetings to address issues of regional concern (drought and associated impacts to the oyster industry) but that travel was not allowed by DEP. The NOAA Office for Coastal Management encourages DEP to allow the use of federal funds to support travel that benefits the state and to ensure that cooperative agreement obligations are met by the state.

The State of Florida has an extensive review process for reserve five-year management plans, which are required by the state for aquatic preserves and by federal regulations for national estuarine research reserves. The previous evaluation conducted in 2006 included a necessary action requiring the program to develop and approve a five-year management plan. A five-year plan was finally drafted that covers the years 2013-2017. The plan has undergone review and been approved by the Florida Office of Coastal and Aquatic Managed Areas (CAMA) in May 2013, the Acquisition and Restoration Council in August 2013, and by NOAA in February 2014 but has still not obtained its final state approval by the Board of Trustees of the Internal Improvement Trust Fund, two years into the management plan and nine years since the previous necessary action. The reserve must have a fully approved five-year management plan to meet federal requirements for the implementation of national estuarine research reserves. DEP must work with the Internal Improvement Trust Fund to ensure that the management plan is approved by October 31, 2015 and the reserve is in compliance with federal requirements. To ensure that five-year management plans for reserves can be approved in a timely manner, DEP should identify and pursue opportunities for streamlining the management plan approval process.

### **Land Stewardship**

The reserve includes public lands managed by the U. S. Fish and Wildlife Service, Florida Fish and Wildlife Conservation Commission (FWC), Florida DEP Park Service, Northwest Florida Water Management District, and CAMA. The total area of land and open water encompasses over 234,000 acres. Most of Florida's natural communities depend on recurring fire for survival. A few evaluation participants noted that land management was a challenge and, in particular, the ability to maintain fire-dependent ecosystems. Fire management through prescribed burns is particularly challenging on reserve-managed lands since areas are often located near development. During the evaluation period, the reserve worked with its partners to manage reserve lands and to conduct prescribed burns through the sharing of personnel and equipment and partnered with the Florida Forest Service to burn 15 acres on St. George Island, partnered with the FWC to burn the lower river marsh parcel, and cut fire lines at Nick's Hole for a future burn. The reserve ran into weather challenges for conducting additional prescribed burns on the populated wildland urban interface areas on St. George Island. Although, the reserve is challenged in maintaining fire-dependent communities, the reserve is working closely with its partners to make sufficient progress in implementing regular prescribed burns. In 2006 and 2013, the reserve completed its land management reviews by the Division of State Lands with excellent reviews on management planning and activities.

The evaluation team also heard from a number of participants about the Apalachicola Regional Stewardship Alliance (ARSA) Cooperative Invasive Species Management Area (CISMA) subcommittee and its value in serving as a network for federal, state, and local government and nonprofit land managers to address the growing threat of non-native invasive species in the region. The reserve's stewardship coordinator has supported this effort and served as a CISMA steering committee member.

The reserve stewardship coordinator works with ARSA to identify, monitor and map, and reduce the distribution of invasive exotic species on ANERR-managed uplands. The reserve completed an Invasive Species Work Plan and initiated ground surveys to monitor and map invasive species in two priority focus areas: Little St. George Island and Cat Point. An adaptive management strategy will be used to prioritize species for control based on the current extent of species, potential impacts, value of habitat, and difficulty of control. The stewardship program works collaboratively with its partners to manage ANERR lands and to actively address and manage invasive species.

In 2013, ANERR staff collaborated with ARSA partners to develop a Priority Land Acquisition Map for the Panhandle of Florida to identify priority lands for potential acquisition that may benefit longleaf pine habitat. Agency partners and The Nature Conservancy established a ranking system and priority matrix to identify priority parcels. This process is serving as a model for other areas in Florida.

The reserve continues to create and maintain sustainable recreational opportunities on ANERR-managed lands. The new Research and Education Center features an elevated boardwalk that includes an observation platform, spotting scope, and native wildflower garden and is compliant with the Americans with Disabilities Act. In addition, two education kiosks along with picnic areas were installed at two parcels on St. George Island. Two additional kiosks are planned for installation at the new facility and on the reserve-managed barrier island. The reserve also enhanced parking areas and existing trail systems, developed two additional primitive camp sites, created trail maps, and developed plans for two additional primitive trails on the barrier island. In addition, the reserve installed a kayak launch at a subunit on St. George Island and partnered with Franklin County to establish a new public boat ramp in Apalachicola.

Between 2006 and 2007, the reserve assisted with moving the Cape St. George Lighthouse to St. George Island after it collapsed on Little St. George Island and helped develop the St. George Island Lighthouse Association, which serves as a citizen support organization for ANERR. Stewardship staff also assisted with habitat restoration efforts at the new public library site in Eastpoint through a partnership with the Apalachicola Riverkeepers, Northwest Florida Water Management District and Franklin County.

In 2013, Stewardship staff completed Archaeological Resource Monitoring training to conduct limited monitoring activities in accordance with review and compliance recommendations. Cultural resource sites are monitored annually in collaboration with the Division of Historical Resources to ensure the protection of these irreplaceable resources.

**Necessary Action:** To ensure that ANERR meets federal requirements for national estuarine research reserves, DEP must work with the Board of Trustees of the Internal Improvement Trust Fund to ensure that ANERR has an approved five-year management plan by October 31, 2015.

**Recommendation:** The NOAA Office for Coastal Management encourages DEP to identify and pursue opportunities for streamlining the management plan approval process.

**Recommendation:** The NOAA Office for Coastal Management encourages DEP to work with NOAA to transition its facility in the City of Apalachicola to a new owner in a timely manner, while meeting the requirements of the original NOAA grant that provided funding for the facility.

**Recommendation:** The NOAA Office for Coastal Management encourages DEP to consider the addition of a new position of assistant manager.

## **Research and Monitoring – Use of Data and Research Findings**

The reserve's research and monitoring program addresses issues of regional concern and is actively used by researchers, resource managers, and coastal decision makers. In its role as a platform for research, the reserve is able to provide a comprehensive suite of assistance to visiting researchers, including access to lodging, laboratory space, and transportation by boat.

The reserve completed its site profile, *A River Meets the Bay: A Characterization of the Apalachicola River and Bay System*, in 2008, and the document was described by a stakeholder as a "thorough resource." The completion of the site profile successfully addresses the necessary action in the 2006 evaluation findings that ANERR develop a site profile to meet the requirements of the National Estuarine Research Reserve System's implementing regulations. Researchers are also using the reserve's extensive library of over 6,000 documents related to the Apalachicola Bay. In addition, the reserve has a well-developed geographic information system (GIS) with over 1,500 data layers and habitat maps of the reserve. Much of the information was initially developed to support local government decision-making. Reserve staff members have been able to use the information to support local governments; for example, during emergencies reserve staff members serve in the Franklin County Emergency Operations Center and create any needed maps. The data were also used by the U.S. Coast Guard in its response to the Deepwater Horizon incident. Although the data layers can be used for a variety of coastal management decisions, they are not as well utilized by local governments as they could be. The NOAA Office for Coastal Management encourages the reserve to continue to assess opportunities to promote the use of this valuable resource.

The reserve has developed a water-quality monitoring system that exceeds NOAA's System-wide Monitoring Program requirements and has added an additional water quality station, seven additional nutrient monitoring stations, and installed 20 surface elevation table (SET) stations. Maintaining a robust monitoring system is resource-intensive, but the reserve's monitoring data have been very valuable to both state and local coastal management activities as discussed below. In 2013, the reserve transitioned to using DEP's lab for water-quality analysis with funding coming from a state trust fund enabling the reserve to have additional analyses performed (i.e., total nitrogen and total phosphorus), which supports DEP water-quality information needs.

The reserve works closely with local stakeholders, university researchers, and state and federal agency staff members to identify research and monitoring needs. Reserve staff members attend meetings and serve on committees of local groups to identify informational needs and discern which data products would be most helpful in supporting partner efforts in maintaining a healthy and resilient bay.

The reserve's research and monitoring data are used extensively for coastal management. Examples include the following:

### **Water Inflows, Droughts, and Oysters**

In 2012, Apalachicola produced 10 percent of the nation's oyster supply and 90 percent of the oysters harvested in Florida. In 2013, Apalachicola Bay oyster stocks crashed and reserve monitoring information showing prolonged drought conditions, low flow in the Apalachicola River, and high salinity conditions were used to support the declaration of a state commercial fishery disaster for Florida's oyster industry in the Gulf of Mexico.

Reserve research and monitoring data have supported the work of the new Oyster Resource Recovery Team, which was formed by the executive director of FWC to develop a short- and long-term recovery plan for the bay. The team includes the reserve manager and local oyster dealers and oystermen. The reserve has set up several monitoring projects related to oyster spatfall and survival on different substrates. Reserve staff members have also helped researchers from the University of Florida in an investigation of the presence of *Vibrio cholera* found in oyster tissues harvested in Apalachicola Bay. Abiotic and biotic data from the reserve were included in a model that looked at possible recovery scenarios. The reserve also upgraded one of its System-Wide Monitoring Program stations on a key oyster bar with disaster funds to provide additional data to assist with recovery efforts. In addition, through the reserve manager's work with the Deepwater Horizon Natural Resource Damage Assessment, an oyster restoration project was included in the Phase III Restoration Plan.

The reserve also participated in a NOAA National Integrated Drought Information System pilot project with Florida, Georgia, and Alabama to work collaboratively to identify drought conditions in the Apalachicola-Chattahoochee-Flint river basin, characterize drought impacts, and predict to some degree future conditions within the basin. The reserve participates in monthly webinars and provides salinity data for three locations within the bay, including two of the most productive oyster reefs, Cat Point and Dry Bar. The information is provided to various stakeholders such as farmers and those involved in oyster management so they can make more informed decisions.

Water inflows have been reduced, in part, by increased upstream use in the state of Georgia and exacerbated by drought conditions. Florida and Georgia have been unable to work out a water management agreement, and in late 2014, the U.S. Supreme Court agreed to hear Florida's lawsuit against the State of Georgia regarding the decades-long fight over river flows

and water extraction in the Apalachicola-Chattahoochee-Flint river basin. The reserve's long-term research and monitoring data are likely to play a key role in the court case.

### **Numeric Nutrient Criteria**

Numeric nutrient criteria are a critical tool used by the U.S. Environmental Protection Agency (EPA) to protect and restore the designated uses (e.g. drinking water supplies, shell fishing, or recreational activities) of a waterbody with regard to nitrogen and phosphorus pollution. The reserve's long-term System-Wide Monitoring Program data sets were critical in supporting DEP efforts to establish numeric nutrient criteria for Apalachicola Bay. Based in part on the reserve's monitoring data, DEP was able to use a "maintain healthy conditions" approach to establishing nutrient criteria for the bay. This approach required a minimum of nine years of data to demonstrate that nutrients were not interfering with healthy, well balanced communities and that chlorophylls in East Bay, Apalachicola Bay, and St. Vincent Sound were characteristic of alluvial estuaries and supported healthy biological conditions and oysters. Reserve staff members also supported this effort through participation in a technical meeting where DEP and EPA staff discussed numeric nutrient criteria issues for Florida Panhandle estuaries and hosted a workshop in 2010 that included presentations on reserve System-Wide Monitoring Program data. The numeric nutrient criteria based on current conditions of the bay were accepted by the EPA in 2013.

### **Sea Level Rise**

The University of Central Florida, University of South Carolina and Florida State University were awarded funding by the National Centers for Coastal Ocean Science, Center for Sponsored Coastal Ocean Research, to conduct a five-year project, the Ecological Effects of Sea Level Rise (EESLR) in the Northern Gulf of Mexico. The geographic span of the project encompasses the three northern Gulf of Mexico NERRs: Apalachicola, Weeks Bay and Grand Bay, with each of the Reserves contributing significantly to the project. The five-year project began in 2010 and the reserve was able to install and monitor six surface elevation table stations as part of this project to provide erosion-accretion data to support sea level rise modeling efforts. One of the outcomes of this project is that the Northern Gulf of Mexico reserves were also chosen to be one of NOAA's Sentinel Site Cooperatives.

Reserve staff members have also worked with local communities to assist them with planning for coastal hazards and building resilience to changes. The Coastal Training Program hosted a Community Vulnerability Index Training in which Franklin County and Town of Carrabelle staff members participated in assessing their vulnerability to coastal hazards. Reserve staff members also provided follow-up technical assistance and worked with the local chamber of commerce to help businesses develop resilience business plans. The Coastal Training Program held additional workshops including the following:

- Building Coastal Community Resilience, which provided information on ongoing research in the reserve and information on what other local governments in Florida were doing to address climate change;

- Adaptive Planning for Coastal Change – Legal Issues for Local Governments, which was held in partnership with Sea Grant and focused on legal issues concerning coastal property rights and liability issues and presented adaptation strategies and planning options; and
- A workshop on the National Flood Insurance Program’s Community Rating System to provide information to local governments on how to reduce flood insurance premiums for their citizens.

The stewardship and research programs have also developed a Habitat Mapping and Change Plan to support research and monitoring of habit change over time caused by changes in the reserve watershed and climate. The programs worked to map the reserve’s habitat in order to be able to track and evaluate short-term variability and long-term trends in the geographic extent and types of habitats within the reserve in relation to local sea level change and anthropogenic stress from adjacent watersheds. The reserve plans to update the maps every three years.

### **Living Shorelines**

The reserve installed two living shorelines, including a 188-foot-long oyster reef designed to reduce erosional wave energy impacts, allowing a planted native vegetation buffer to become established. The combined oyster reef and shoreline vegetation will buffer the Research and Education Center from future storm impacts. The living shorelines provide an educational opportunity for visitors to the center to learn about living shorelines, and the education program has incorporated living shorelines and oyster reefs into educational programming. The reserve plans to install a public viewing pier with signage explaining the benefits of living shorelines. The reef at the center also provides the reserve with the opportunity to research the effectiveness of living shorelines given the reserve’s extensive monitoring capabilities. The Coastal Training Program worked with U.S. Fish and Wildlife Service to develop a living shorelines workshop, and provided one workshop in Apalachicola and assisted with others hosted by Gulf reserves.

### **Other Uses of Research and Monitoring Data**

- In 2005-06, the reserve partnered with the U.S. Geological Survey and with funds from the NOAA Coastal Services Center mapped the bay’s benthic habitat and oyster bars. The reserve’s data were crucial in siting a proposed utility route through Apalachicola Bay to minimize impacts to bay habitats, particularly oyster reefs. The initial proposed route was modified using the reserve’s benthic maps of the bay to reduce habitat impacts.
- Local governments have used reserve research data to write and successfully apply for grants. Evaluation participants noted that reserve staff members were the “go-to people” for data.
- Fishermen use the data from the reserve’s weather stations to plan their work activities.

The evaluation team was very impressed with the reserve's monitoring and research program and the extent to which it addressed critical federal, state, and local information needs.

The evaluation team met with stakeholders who talked about the need for research and monitoring to address the critical challenges being faced on the Panhandle coast, from fishery impacts to losing Tupelo trees and the impacts to the local economy and the loss of history.

**Accomplishment:** ANERR's research and monitoring and stewardship programs have provided critical results and monitoring data to inform coastal decision makers at the federal, state, regional, and local levels, and the Coastal Training Program has brought the information to a broad audience.

**Recommendation:** The NOAA Office for Coastal Management encourages the reserve to continue to assess and pursue opportunities for promoting the use of its valuable GIS data.

### **Education, Outreach, and New Visitor Center**

ANERR designed and built a new facility, the Research and Education Center, which opened in Eastpoint in 2011. The new facility is LEED silver certified and showcases many green building techniques and low-impact-development (LID) techniques to manage stormwater. The new facility provides office space for the staff, lab space, rooms for training, education, and public meetings, and a visitor center with a gift shop run by the Friends of the Reserve. The new visitor center provides the reserve with a much more visible presence with its location off of Island Drive, the access road to St. George Island, a major tourist destination. With the opening of the new visitor center, visitation has gone from 10,000 to 29,000 a year.

The new visitor center is popular with tourists and locals, and visitors can learn about the area's natural resources and cultural history, including the role of Apalachicola and Eastpoint as working waterfronts. Several partners stated that they regularly send visitors to the reserve to learn more about the area, and they always received positive feedback. The facility, and particularly the visitor center, was described by partners as "world class," "top notch," and "very popular," and it was noted that "everyone loves it." Several local and state partners the evaluation team met with also expressed their gratitude over the use of facilities for hosting meetings. The reserve has created a facility and visitor center that is well regarded and highly valued by the local community, tourists, and partners.

With the opening of the new visitor center, the reserve is also in the process of developing a new trail system to enhance the visitor experience and provide additional education opportunities. The reserve chose the following as one of its three evaluation performance measures and five-year targets: 2,500 linear feet of nature trails with interpretive signs established on reserve-managed lands. With funding support from the Friends of the Reserve, at the end of two years the reserve had completed 500 linear feet of nature trails.

The opening of the visitor center has created many new education and outreach opportunities for the reserve. During the evaluation period, at least 134,816 participants were reached by the reserve education program. To prioritize limited resources, reserve staff members evaluated the overall program and restructured areas to be more efficient and prioritized educational activities. To reduce potential repetition in activities, reserve staff members designed curriculums for students in odd-numbered grades that build in complexity and content. For seventh graders, the reserve participates in the state-wide initiative Florida LIFE (Learning in Florida's Environment) Program. The reserve curriculums are correlated to Florida curriculum frameworks and student performance standards, but they have not been updated since newer standards have come out. The reserve also has a mobile unit, funded by the Friends of the Reserve, that travels between schools and contains grade-appropriate activities for teachers for all grades. The education program focuses on providing educational activities to local students, and groups from out of the area are encouraged to attend programs at the state park or participate in less resource-intensive activities.

To capitalize on the interest of visitors, the education staff has been developing new lecture topics and outreach programs for walk-in visitors during peak visitation periods, including spring break and summer seasons. Talks on topics such as sea turtles have drawn as many as 150 participants. Although the reserve is expanding its educational offerings, the reserve is unable to fully capitalize on the educational opportunities provided by the new visitor center because of resource constraints.

The reserve offered limited educational development opportunities for teachers during the evaluation period and has found the lack of funding for teacher stipends to be limiting. The reserve also has reduced the number of field and boat programs and has eliminated its overnight program, since these are more resource-intensive activities.

Friends of the Reserve (FOR) is a nonprofit that provides valuable support to further the reserve's mission and is particularly focused on supporting education. FOR provides reimbursement to schools for bus transportation and substitutes, a trailer that is available to schools for six months, which contains lesson plans for teachers and resources for implementing them, and several college scholarships for local students. FOR is also able to apply for, and manage, small grants that support the reserve, such as a NOAA B-WET grant that supports educational activities. FOR is focused on providing financial support to the reserve and does not manage a volunteer program. ANERR and Friends of the Reserve have a strong partnership that provides educational opportunities for local school children and engages them in learning more about science and their local natural and cultural resources.

The reserve Coastal Training Program uses the new facility to host trainings and is able to use the facility's features to teach and demonstrate LID and green building techniques, while hosting educational events such as rain barrel and native landscaping workshops and Florida Master Naturalist classes. The Coastal Training Program also provided technical assistance with the design of the Town of Carrabelle's new library, which incorporates LID techniques. The Coastal Training Program's workshops were cited by evaluation participants as providing high

quality programming that informed participants' work. One stakeholder who attended the public meeting cited the workshops as being crucial to providing the information needed to start an ecotour business.

The evaluation team also discussed with partners and stakeholders additional opportunities for education and training. The concern raised most often was the need to educate local citizens and visitors on the value of local resources and instill a sense of stewardship. In addition, partners and stakeholders also brought up other potential educational opportunities:

- Bringing people to the reserve to demonstrate and show LEED building and low-impact-development techniques;
- Installing educational signage for the boardwalk (in development as of July 2014);
- Constructing a shelter to be used as a classroom in St. George Island in the Nick's Hole area; and
- Bringing researchers to local classrooms to talk about their research and build on existing reserve-based lessons.

The reserve has capitalized on the new opportunities provided by its new facility and visitor center but has room for continued growth and positive impacts in the region, particularly the expansion of teacher trainings and educational opportunities for adult and family education and outreach activities. The NOAA Office for Coastal Management encourages the reserve to complete a needs assessment and market analysis for the education program and to engage all sectors in identifying new educational and programmatic opportunities, such as a volunteer program or new or expanded partnerships with other federal or state agencies, local governments, nonprofits, and local businesses, and to build on the reserve's strengths to maximize opportunities provided by the visitor center.

**Accomplishment:** ANERR's new Research and Education Center includes office and lab space, conference facilities for reserve and community use, and a visitor center that is highly regarded and valued by the local community, tourists, and partners.

**Accomplishment:** ANERR and Friends of the Reserve have a strong partnership that provides educational opportunities for local school children and engages them in learning more about science and their local natural and cultural resources.

**Recommendation:** The NOAA Office for Coastal Management encourages the reserve to complete a needs assessment and market analysis for the education program and to engage all sectors in identifying new educational and programmatic opportunities, such as a volunteer program or new or expanded partnerships with other federal or state agencies, local governments, nonprofits, and local businesses, and to build on the reserve's strengths to maximize opportunities provided by the visitor center.

## Evaluation Metrics

Beginning in 2012, national estuarine research reserves began tracking their success in addressing three evaluation metrics specific to their programs. The evaluation metrics include a five-year target and provide a quantitative reference for each program about how well it is meeting the goals and objectives it has identified as important to the program.

The goals and objectives are from the Apalachicola National Estuarine Research Reserve 2012-2017 Management Plan.

### METRIC 1

**Goal 1:** An informed public that is aware of environmental issues and has a sense of stewardship for resources within ANERR (Goal 1.1 in management plan).

**Objective:** By 2017, increase public awareness of opportunities to access and enjoy reserve-managed lands and waters (Objective 1.1.1 in management plan).

**Strategy:** ANERR will establish and maintain trail systems with interpretive signage within the reserve's boundaries to allow the public to learn more about the habitats and species that are commonly found along the Gulf coast. Nature trails would be used for self-guided tours and for lectures and classes offered by the reserve. The initial trail will be established at the new ANERR facility, which is situated on approximately 26 acres of prime coastal uplands along Apalachicola Bay. While the property consists of several fragmented, modified areas, it also exhibits common natural communities found along Florida's Gulf coast. An array of wildlife utilizes the property, including several species of birds, most notably a pair of bald eagles. The shoreline of the property is susceptible to erosion, and through mitigation projects, two living shoreline projects have been established to help with stabilization. A trail system at the facility would allow the public to learn more about the habitats and species that are commonly found along the Gulf coast. They would be able to learn about restoration efforts including living shorelines and prescribed burning. Other demonstration areas could be integrated into the trail system such as xeric gardening, butterfly gardening, and green building practices. This strategy is discussed in more detail in the Apalachicola Reserve Management Plan Draft on pages 76 and 82.

**Performance Measure:** Number of linear feet of nature trails with interpretive signs established on reserve-managed lands.

**Target:** 2,500 linear feet of nature trails with interpretive signs established on reserve-managed lands.

**First Year Results:** Progress has been slower than expected due to the necessity of getting state and federal permits for parts of the trail, which cross wetlands. The reserve now has local, state, and federal permits for construction of a handicap accessible boardwalk trail 2,047 feet long and will begin construction soon.

**Second Year Results:** Progress has been slower than expected due to the necessity of getting state and federal permits for parts of the trail, which cross wetlands. A 500-foot section of elevated Americans with Disabilities Act (ADA)-compliant boardwalk trail has been finalized and a telescope mounted at the end of the boardwalk for viewing the bay, upland habitats, and a nearby eagle nest. The staff is currently working on establishing signage for the new boardwalk at the reserve's new facility. In addition, work will begin within the next month on an additional 1,500 linear feet of boardwalk that will cross uplands and wetlands at the new site.

**Discussion:** The reserve is on track to complete 2,047 feet of boardwalk and install interpretive signage within the five-year time frame.

## **METRIC 2**

**Goal:** Identify potential effects of climate change (increased temperature, sea level rise, ocean acidification) on the resources of ANERR (Goal 5.1 in management plan).

**Objective:** By 2017, the reserve will identify the potential impacts of climate change on natural resources within ANERR (Objective 5.1.2 in management plan).

**Strategy:** The reserve has already begun the process of becoming an established sentinel site for climate change. Establishing sentinel sites for climate change is a priority for the reserve system as well as NOAA, and ANERR is part of the Northern Gulf of Mexico Sentinel Site Cooperative. In late 2011, three locations within the lower river marshes of the Apalachicola River were identified as sites for more intensive monitoring. These sites are located where the freshwater tidal marsh meets the floodplain forest, an area which is susceptible to changes in river flow, flooding frequency, and sea level rise. Two transects at each site will cross these two habitat types. Regular sampling of quadrats along these transects will provide information about the species composition of vegetation and how it changes relative to several factors. Surface elevation table (SET) stations were installed at the sites to measure rates of erosion and accretion in these two natural communities. The ANERR water quality monitoring sites, dune erosion profile sites, and SET stations were surveyed to benchmarks. The vegetation transects will be surveyed annually after they are established. Regular monitoring will be integrated into the reserve's current monitoring program according to national estuarine research reserve vegetation monitoring guidelines. Data produced will be public and made available to modelers to determine the potential impacts of coastal inundation. Performance will be based on the reserve's ability to maintain monitoring at specific locations at regular intervals, as well as geodetic control of all sampling locations.

**Performance Measure:** Number of emergent vegetation transects established and monitored.

**Target:** Six emergent vegetation transects established and monitored.

**First Year Results:** Selection of vegetation monitoring sites has begun, with two sites selected to date, one in the lower river marsh and one across the bay on the backside of Little St. George Island. Transect surveys will begin this fall.

**Second Year Results:** Three transects, with quadrat locations were set up at Little St. George Island across the bay. Vegetation identification at one of these transects was accomplished this summer. At the end of January the three transects in the lower river marshes will be set up along with an elevation survey at each site. An aquatic vegetation expert will be here to assist our staff with identification to guarantee appropriate species are correctly identified.

**Discussion:** The reserve is on track to set up six transects and conduct annual surveys; three transects are completed and three are scheduled to be set up. Monitoring (vegetation identification) has taken place at one of the transects.

### **METRIC 3**

**Goal:** Maintain biodiversity, abundance, and productivity within ANERR (Goal 2.1 in management plan).

**Objective:** By 2017, use monitoring data and peer-reviewed literature to support science-based decision-making and promote best management practices within communities in the region (Objective 2.1.1 in management plan).

**Strategy:** Water quantity is perhaps the largest issue impacting the health and productivity of Apalachicola Bay. Currently the reserve provides expertise on the impacts to resources in the bay from water allocation changes within the Apalachicola-Chattahoochee-Flint watershed. The reserve will continue to collect and provide these data. The reserve will also provide information based on research data on water quality, nutrient concentrations, and species distribution and abundance within the reserve. Through educational and training programs, the reserve will continue to use these monitoring data and information from peer-reviewed literature on best management practices to engage local and regional stakeholders and decision makers so they are aware of the condition of the resources of the reserve, specific impacts on the resources, and means of mitigating these impacts. Participants in best management practice training will complete evaluations to indicate whether they have increased their knowledge of best management practices.

**Performance Measure:** The percent of regional and local decision makers attending ANERR best management practices training per year who show an increased knowledge of science-based best management practices that support biodiversity in the ANERR.

**Target:** Ninety percent (90%) of regional and local decision makers attending ANERR best management practices training per year show an increased knowledge of science-based best management practices that support biodiversity in the ANERR.

**First Year Results:** The Coastal Training Program offered six best management practices-related programs during this time period. Ninety-nine percent (99%) of decision-makers attending this best management practices-related training reported increased knowledge.

**Second Year Results:** The Coastal Training Program offered five best management practices-related programs during this time period. Ninety-eight percent (98%) of decision-makers attending these best management practices-related trainings reported increased knowledge.

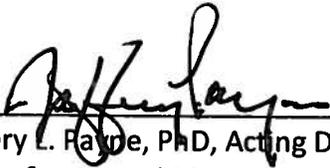
**Discussion:** The Coastal Training Program's post training surveys show that the best management practices training programs are increasing the knowledge of almost every attendee and that the reserve has exceeded its target for the first two years.

## Conclusion

For the reasons stated herein, I find that the State of Florida is adhering to the programmatic requirements of the Coastal Zone Management Act and its implementing regulations in the operation of its Apalachicola National Estuarine Research Reserve.

These evaluation findings contain one necessary action and five recommendations that must be considered before the next regularly scheduled program evaluation. Program recommendations that must be repeated in subsequent evaluations may be elevated to necessary actions.

This is a programmatic evaluation of the Apalachicola National Estuarine Research Reserve that may have implications regarding the state's financial assistance awards. However, it does not make any judgment about or replace any financial audits.

  
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Jeffery L. Payne, PhD, Acting Director  
Office for Coastal Management

4/21/15  
\_\_\_\_\_  
Date

## **Appendix A: NOAA Office for Coastal Management's Response to Written Comments**

No written comments were received.