

Evaluation Findings

ACE Basin National Estuarine Research Reserve

June 2011 to June 2021

March 2022



Office for Coastal Management
National Ocean Service
National Oceanic and Atmospheric Administration
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Summary of Findings

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 ACE Basin National Estuarine Research Reserve by the South Carolina Department of Natural Resources, the designated lead agency, for the period from June 2011 to June 2021. The evaluation focused on two target areas: community engagement and coastal development.

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:

Overarching

Accomplishment: The ACE Basin Reserve staff have fostered strong, mutually beneficial partnerships across multiple geographic scales, both within the reserve boundary and more broadly across southeastern South Carolina. The connection the reserve provides between geographies has resulted in the transfer of lessons learned from more populated and experienced regions of the coast to smaller, less experienced communities that struggle with similar pressures like population growth, water quality, and climate change.

Accomplishment: The South Carolina Department of Natural Resources' leadership has demonstrated consistent and strong support of the reserve by providing additional staff positions, such as the assistant manager, as well as by funding a number of land acquisition and infrastructure projects.

Recommendation: The South Carolina Department of Natural Resources' leadership is strongly encouraged to document strong support of the reserve as an ongoing practice and operating principle so that as leadership changes occur in the future, the culture and practice of support for the reserve mission continues beyond the tenure of current leadership.

Recommendation: The ACE Basin Reserve and the South Carolina Department of Natural Resources are encouraged to work together to continue to identify new ways to provide staffing support for the reserve's research and monitoring programs.

Recommendation: The pandemic has offered an opportunity to revisit program(s) priorities and assess audiences, messaging, and delivery for education, training, and public outreach. The ACE Basin Reserve staff is encouraged to continue these formal and informal assessments and to expand them across sectors. The reserve should consider how program assessments can be formalized by including them within the updated strategies and program plans during its 2022 management plan update.

Recommendation: The ACE Basin Reserve and the South Carolina Department of Natural Resources are encouraged to work together to explore options to reduce staff turnover. Two recommended approaches to consider are to assess appropriateness of alignment between education level requirements, position requirements, and pay rate, as well as to build knowledge transfer plans for positions which have experienced frequent turnover and those that are anticipated to become vacant as a result of retirement.

Community Engagement

Accomplishment: The ACE Basin Reserve has extended both its own capacity and that of professional partner organizations through effectively identifying ways to leverage expertise and resources among partnering agencies within the South Carolina Coastal Information Network. For example, as a part of the network, the reserve collaborated to develop and implement the Calling the Coast Home series, designed to equip real estate professionals with science and information on coastal topics and issues related to property ownership that they could share with their clients. The series has reached over 588 realty professionals to date.

Accomplishment: The ACE Basin Reserve is recognized for fostering and maintaining a strong volunteer program at Botany Bay. The volunteer program provides very effective docents and caretakers of this portion of the reserve, which consistently experiences significant public visitation. In addition, volunteers provide a valuable labor force and assistance for various archaeological and shoreline change monitoring projects.

Accomplishment: The ACE Basin Reserve demonstrated flexibility and creativity in continuing to meet the needs of their partners and stakeholders during the pandemic. As needs and options for safe program delivery have shifted, the reserve has adapted by providing virtual programming when appropriate, such as training events for coastal training program and education audiences, as well as by taking advantage of broader resources from the South Carolina Department of Natural Resources, such as the “Bringing the Outside In” webinar series.

Accomplishment: The ACE Basin Reserve staff is dedicated to intentional approaches to strengthen diversity, equity, and inclusion efforts. This is demonstrated by the addition of specific actions within the reserve’s new draft strategic plan and throughout the draft management plan. It’s also shown within new partnerships with organizations representing Gullah-Geechee communities, and by targeting outreach and programs for Title 1 schools. In addition, the reserve has leveraged resources from the South Carolina Department of Natural Resources to reach more Spanish-speaking communities.

Recommendation: The ACE Basin Reserve is encouraged to continue to work with trusted partners to expand programs to enhance cultural interpretation to better include Native American, Gullah-Geechee, Hispanic, and other underserved communities.

Recommendation: The ACE Basin Reserve is encouraged to continue to explore ways to enhance accessibility to reserve resources and programs, including partnering with organizations that serve multigenerational populations and people with disabilities.

Coastal Development

Accomplishment: The ACE Basin Reserve continues to be recognized by partners for connecting science and data to policy to inform management and protection of critical habitat and resources. As an example, in the development and updates of regulations that relate to visitor use of Botany Bay, the reserve carefully considered the habitat requirements of birds and other species and resulted in the exclusion of dogs and the use of bicycles during nesting season in that area of the reserve.

Accomplishment: The ACE Basin Reserve continues to successfully balance the dual mission of stewardship and use of managed lands through effective, seasonally appropriate shifts in management goals. For example, the reserve manages water levels in tidal impoundments to accommodate the seasonality of the habitat needs of migratory and nesting birds by gradually dewatering select impoundments after the waterfowl hunting season has ended.

Accomplishment: The ACE Basin Reserve successfully convenes stakeholders and partners to share and exchange research and information about relevant coastal management issues and research efforts in the ACE Basin. For example, the reserve hosted the 2019 National Estuarine Research Reserve Annual Meeting and the first ACE Basin Research Symposium in 2020.

Accomplishment: The ACE Basin Reserve is recognized by stakeholders and partners as a consistent, science-based “first stop” for advice and counsel, and a trusted resource due to its expertise and ability to consistently provide high-quality support and relevant, timely content that addresses needs. For example, research partners have come to recognize the importance of a stakeholder-driven collaborative approach in the research project design process to create more successful outcomes, as demonstrated throughout the Expanding Living Shorelines project.

This evaluation concludes that the South Carolina Department of Natural Resources is adhering to the programmatic requirements of the National Estuarine Research Reserve System in the operation of the ACE Basin National Estuarine Research Reserve.

Program Review Procedures

The Coastal Zone Management Act of 1972, as amended,¹ requires that state coastal zone management programs and national estuarine research reserves that are developed under the act and approved by the secretary of the Department of Commerce be evaluated periodically. Section 312 of the Coastal Zone Management Act and implementing regulations at 15 CFR 921, Subpart E, require that a research reserve be periodically evaluated with regard to 1) its operation and management including education and interpretive activities; 2) the research being conducted within the research reserve; and 3) adherence to the requirements of Section 315(b)(2) of the Coastal Zone Management Act.

The National Oceanic and Atmospheric Administration (NOAA) evaluated the ACE Basin National Estuarine Research Reserve in fiscal year 2021. The evaluation team consisted of Pam Kylstra, evaluation team lead; Stephanie Robinson, regional specialist; and Makeda Okolo, Southeast and Caribbean lead; and Jennifer Harper, manager, Apalachicola 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 director of the South Carolina Department of Natural Resources and published a notice of intent to Evaluate in the *Federal Register* on May 7, 2021. NOAA also notified members of South Carolina's congressional delegation. On May 7, 2021, the ACE Basin Reserve posted a notice in the *Post and Courier* about the public meeting and the opportunity to comment.

As a part of the evaluation process, a review of relevant information was conducted, including annual federal financial assistance award reports, the previous evaluation findings, and information provided by the programs documenting how they are implementing their programs and addressing the programmatic requirements of the Coast Zone Management Act. A survey of stakeholders was conducted, and reserve sector leads were interviewed.

The information review and survey results informed the identification of two target areas for the evaluation: community engagement and coastal development. A virtual site visit was conducted, and the evaluation team held meetings with staff members and group discussions with stakeholders and program staff members to discuss the target areas. Meeting participants helped identify issues and workable solutions to maintain and improve the implementation of the reserve's programs. In addition, a virtual public meeting was offered on June 22, 2021, at noon (EDT) to provide an opportunity for members of the public to express their opinions about the implementation of the program. Stakeholders and members of the public were also given the opportunity to provide written comments via email through July 2, 2021. One written comment was received from an interested party. The Office for Coastal Management then developed draft evaluation findings, which were provided to the South Carolina Department of

¹ 16 U.S.C. 1451 et. seq.

Natural Resources and to the reserve for review, and the department'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. 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 the Coastal Zone Management Act.

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

The South Carolina Department of Natural Resources continues to successfully implement the federally approved ACE Basin National Estuarine Research Reserve and continues to be committed to and supportive of the reserve's mission.

Overarching

Key Findings

The reserve has invested in building strong partnerships that have allowed it to successfully leverage resources across all programs and to serve audiences that extend from Charleston to the Georgia border, including the inland portions of coastal watersheds. The connection the reserve provides between geographies has resulted in the transfer of lessons learned from more populated and experienced regions of the coast to smaller, less experienced communities that struggle with similar pressures like population growth, water quality, and climate change. For instance, the design of both the coastal training program's storm water management and the low impact development focused trainings includes time for participants to hear from practitioners from more populated areas like Charleston and Mt. Pleasant. They present about their experiences, best practices, and lessons learned that attendees could use to address issues in their communities. The reserve staff have been able to be the conduit to build knowledge about best practices within smaller communities.

Additionally, the ongoing collaboration with the North Inlet-Winyah Bay Reserve enhances the reach and effectiveness of both reserves. The coastal training program staff of the two reserves frequently conduct joint programming, resulting in increased capacity among coastal decision makers along the whole coastal area. The education programs of both reserves partner on delivery of Teachers on the Estuary (TOTE) workshops, setting the stage for increased networking and collaboration among teachers. The ACE Basin Reserve's education vessel, *Discovery*, is moved to Winyah Bay and Port Royal Sound periodically in partnership with the North Inlet-Winyah Bay Reserve and the Port Royal Sound Foundation, respectively. This provides students along the greater South Carolina coastline with increased access to experiential learning about the estuaries near their communities, and about the value of the state's coastal resources.

While the geographic area of the reserve connects communities and allows for the protection of varied habitats, it poses challenges with coordination among the reserve staff. They are not only distributed geographically at multiple work sites, but are also in different programs in the Marine Resources Division, and have work schedules that range from part- to full-time. Although regular communication occurs between staff members, they are rarely all in one place at the same time, either virtually or on-site. They meet as a full staff twice annually and in smaller groups as required by the work they do; however, a more coordinated approach to communication would allow all sectors to better share expertise and to foster inclusion.

Accomplishment: The ACE Basin Reserve staff have fostered strong, mutually beneficial partnerships across multiple geographic scales, both within the reserve boundary and more broadly across southeastern South Carolina. The connection the reserve provides between geographies has resulted in the transfer of lessons learned from more populated and experienced regions of the coast to smaller, less experienced communities that struggle with similar pressures like population growth, water quality, and climate change.

The ACE Basin Reserve is thoroughly integrated into and supported by its state agency, the South Carolina Department of Natural Resources' Marine Resources Division. During the evaluation, leadership with the South Carolina Department of Natural Resources reinforced the idea that supporting the reserve's mission is a core part of the department's operation. Recent and current leadership within the Marine Resources Division are former ACE Basin Reserve managers. This organizational structure allows reserve staff to work directly with colleagues within and across other divisions of the department to leverage expertise and resources. This access to broad, in-house expertise represents great value to the reserve and functionally serves as an extension of reserve staff, saving time and funding. Without this relationship, experts would have to be recruited or contracted from other agencies or academic institutions. For instance, for the NOAA Science Collaborative project, "Expanding Living Shorelines in the ACE Basin," the reserve looked to a Department of Natural Resources marine scientist from the Shellfish Research Section to provide applied research science and expertise regarding restoration of oyster reefs.

Department leadership and staff also recognize the expertise among reserve staff members as a strong asset. In the example above, the reserve provided leadership and expertise for the integration of a collaborative research process in which stakeholders were engaged from the beginning of the project, a departure from the traditional approach used by the department in applied science. This work led to another NOAA Science Collaborative project in cooperation with the South Carolina Department of Health and Environmental Control that resulted in the development of living shoreline project standards that have been adopted into state regulations for the implementation of living shorelines in South Carolina.

In the last 10 years, the reserve has expanded its System-Wide Monitoring Program activity and also established the sentinel site application module-1 (SSAM-1). This involved adding telemetry to one water quality station, relocating two other stations, installing two new secondary water quality stations, as well as eight sediment elevation table sites, and establishing biomonitoring and the sentinel site. These efforts required an enormous amount of time and energy and were accomplished without dedicated, recurring funds for staffing or equipment. The increased focus on the sentinel site efforts has pulled attention away from the water quality and meteorological work. To address this gap, the reserve has scaled back some SSAM-1 work (e.g., vegetation monitoring every other year, no level data collection) and has tried to bring in other reserve and South Carolina Department of Natural Resources staff, as available, to help support the reserve's SSAM-1. However, additional staffing capacity is still

needed so that the research program can broaden its focus beyond support for the System-Wide Monitoring Program and the sentinel site application module-1.

Accomplishment: The South Carolina Department of Natural Resources' leadership has demonstrated consistent and strong support of the reserve by providing additional staff positions, such as the assistant manager, as well as by funding a number of land acquisition and infrastructure projects.

Recommendation: The South Carolina Department of Natural Resources' leadership is strongly encouraged to document strong support of the reserve as an ongoing practice and operating principle so that as leadership changes occur in the future, the culture and practice of support for the reserve mission continues beyond the tenure of current leadership.

Recommendation: The ACE Basin Reserve and the South Carolina Department of Natural Resources are encouraged to work together to continue to identify new ways to provide staffing support for the reserve's research and monitoring programs.

Although the pandemic has presented many challenges, it has afforded the reserve the opportunity to review program priorities, and to assess audiences, messaging, and delivery for education, training, and public outreach. Reserve staff are encouraged to continue these informal and formal assessments and to expand them to all sectors. This cross-sector review positions the reserve well to incorporate these approaches into the revision of the management plan. Additionally, because of the scale of the reserve, the education program has had the ongoing challenge of effectively reaching and engaging schools in more rural, underserved areas. During the pandemic, they discovered success in working with clubs, mentoring organizations, and after-school programs instead of the previous approach of trying to engage during school hours. They found that this strategy allowed a stronger connection with the community, as well, and they plan on continuing it as the restrictions ease.

This time of COVID restrictions has also enabled the stewardship staff to address a recommendation from the previous evaluation findings to continue to adaptively manage the Botany Bay Plantation to address visitor impacts and work with partners to anticipate management challenges and develop solutions. Through the work of a Margaret A. Davidson Fellow, the reserve is revisiting an effort to gain an understanding of the impact of reserve visitors. With that information, they'll be better able to balance the visitor experience with protection of the natural environment.

Recommendation: The pandemic has offered an opportunity to revisit program(s) priorities and assess audiences, messaging, and delivery for education, training, and public outreach. The ACE Basin Reserve staff is encouraged to continue these formal and informal assessments and to expand them across sectors. The reserve should consider how program assessments can be formalized by including them within the updated strategies and program plans during its 2022 management plan update.

A key challenge during the review period has been the significant turnover of reserve staff, which can impact continuity, productivity, and momentum of long-term programs. However, the reserve is often successful at promoting from within when there are vacancies. For instance, the reserve manager was the coastal training program coordinator in the past. While this provides for retention of institutional memory, it does create periodic gaps in staffing that then take time and effort to fill. One factor, as the reserve management has noted, is that the South Carolina Department of Natural Resources pay rates are below those of most other natural resource agencies in the country, and that current policy requires the salary of new employees to be set at the minimum of the pay band. Additionally, in some cases, position descriptions require higher levels of education than the job warrants or that the pay rate accommodates, leading to frequent turnover in the position. For example, the coastal training program assistant position currently requires a bachelor's degree and a few years of experience, but the tasks necessary to support the coastal training program coordinator, including event planning and the more day-to-day logistical details of hosting trainings, could be accomplished by an individual with an associate's degree. A more appropriate alignment of education-level requirements, actual portfolio of the position, and pay rate could serve to increase job satisfaction and tenure.

Another factor that will likely contribute to turnover in the near future is that there are reserve staff members who are nearing retirement. This shift may pose the risk of loss of valuable institutional knowledge of staff members with long tenure. To address succession planning and turnover of reserve positions, the reserve could choose to pursue a strategy that emphasizes the transfer of knowledge and rapid connection-building for each position. This could include documentation of processes, practices, timing requirements in monitoring protocols, and things to know about interacting with key partners.

Recommendation: The ACE Basin Reserve and the South Carolina Department of Natural Resources are encouraged to work together to explore options to reduce turnover. Two recommended approaches to consider are to assess appropriateness of alignment between education level requirements, position requirements, and pay rate, as well as to build knowledge transfer plans for positions which have experienced frequent turnover and those that are anticipated to become vacant as a result of retirement.

Community Engagement

From the beginning, the department and the reserve have placed great emphasis on effective community engagement. The programs are shaped and guided by the needs of the community. The evaluation team heard consistent support for the reserve and the value it brings to partners, stakeholders, and the broader community.

Examples of Key Efforts

The reserve's role in extending the capacity of professional partner organizations is deeply valued within the region. The reserve staff provides expertise in collaborative processes and

serves as a neutral player and bridge to bring communities together. For example, as a part of the South Carolina Coastal Information Network, the reserve collaborated to develop and implement the Calling the Coast Home series, designed to equip real estate professionals with science and information on coastal topics and issues related to property ownership that they could share with their clients. Representatives from all of the real estate associations in the state were included from the beginning to ensure that the content, outreach, and delivery of the four-course training series were relevant to the professional community and helped to protect the public. Additionally, participation in the course series was incentivized by the opportunity for realty professionals to earn continuing education credits necessary for license renewal. The reserve staff transitioned to delivering the courses virtually to accommodate participation during the pandemic. One stakeholder noted that, as a member of the realty community who had not grown up in the area and had clients from out of town, the series provided her with valuable information to pass along to her clients. She characterized the project success as “really having gotten hay to the ponies.” As of June 2021, 588 of the region’s realty professionals have participated in the Calling the Coast Home series since it began in 2020.

Accomplishment: The ACE Basin Reserve has extended both its own capacity and that of professional partner organizations through effectively identifying ways to leverage expertise and resources among partnering agencies within the South Carolina Coastal Information Network. For example, as a part of the network, the reserve collaborated to develop and implement the Calling the Coast Home series, designed to equip real estate professionals with science and information on coastal topics and issues related to property ownership that they could share with their clients. The series has reached over 588 realty professionals to date.

The Botany Bay Heritage Preserve and Wildlife Management Area is co-managed by the reserve and the Wildlife and Freshwater Fisheries Division of the South Carolina Department of Natural Resources. Between 70,000 and 100,000 people, including tourists and area residents, visit Botany Bay annually. The reserve leads and coordinates the valuable volunteer program that is supported by the reserve’s volunteer coordinator and stewardship coordinator, who are located at the Botany Bay site. The volunteer program has a core of about 100 volunteers who participate in citizen science projects, act as docents to provide education and site tours to visitors, provide grounds maintenance so Botany Bay can remain open to visitors, and conduct stewardship activities such as shorebird and sea turtle monitoring. Botany Bay docents also provided assistance with the Pockoy Island shell ring archaeology work, allowing archaeologists to focus on excavation rather than management of volunteers and visitors. Using the [Independent Sector’s](#) value of volunteer time for the state of South Carolina, the dollar value of the time volunteers contribute to the citizen science work for the Department’s Marine Resources Division as a whole, including reserve volunteers, is over \$1.6 million for the evaluation period. The intrinsic value of the time and expertise reserve volunteers dedicate to their work and how that extends the capacity of the division is beyond measure. The reserve is considering ways to grow the volunteer program to extend it beyond Botany Bay. It is currently using that area as a pilot for citizen science volunteer opportunities and intends to expand

them into other areas. Additionally, the reserve is exploring the possibility of picking up volunteers from the Edisto Education Center and taking them by boat to field sites to decrease the current time it takes for volunteers to travel to sites by land.

Accomplishment: The ACE Basin Reserve is recognized for fostering and maintaining a strong volunteer program at Botany Bay. The volunteer program provides very effective docents and caretakers of this portion of the reserve, which consistently experiences significant public visitation. In addition, volunteers provide a valuable labor force and assistance for various archaeological and shoreline change monitoring projects.

As touched on in the “Overarching” section above, the reserve continued to meet the needs of partners and stakeholders, despite the pandemic, by embracing flexibility and getting even more creative with how to reach people. That was noted by several stakeholders during the site visit. For example, a realty professional commended the reserve for shifting the Calling the Coast Home series to virtual delivery with the onset of the pandemic instead of letting progress stall. In 2020, ACE Basin teamed up with North Inlet-Winyah Bay Reserve and South Carolina Sea Grant to deliver the Teachers on the Estuary (TOTE) programming virtually for teachers across the state. These examples, along with other new virtually delivered resources, will continue to serve to broaden access to reserve programming in a post-pandemic setting. Reserve staff also participated in the virtual delivery of the South Carolina Department of Natural Resources’ popular “Bringing the Outside In” webinar series highlighting current reserve projects. As the pandemic restrictions decrease, the series and other reserve programs will be presented in a hybrid format to continue to reach broader audiences. These resources and expertise in the virtual arena could serve as additional platforms to connect with schools and groups that may not have the resources for transport to the reserve while continuing to find ways for them to experience the reserve on-site as well.

Accomplishment: The ACE Basin Reserve demonstrated flexibility and creativity in continuing to meet the needs of their partners and stakeholders during the pandemic. As needs and options for safe program delivery have shifted, the reserve has adapted by providing virtual programming when appropriate, such as training events for coastal training program and education audiences, as well as by taking advantage of broader resources from the South Carolina Department of Natural Resources, such as the “Bringing the Outside In” webinar series.

Stakeholders and partners consistently stated the high value the reserve education, stewardship, and coastal training programs bring to the region. The reserve staff work to create, enhance, and expand content and delivery of and access to reserve programs to continue to meet the needs of communities.

- As an example of the regional value of reserve programming, the From Seeds to Shoreline project launched at the ACE Basin in 2011 to engage students in salt marsh restoration. The program has aligned with K-12 science education standards and teaches students the importance of the salt marsh ecosystem including its role in stabilizing the shoreline, reducing erosion, and providing wildlife habitat. In an

expansion to North Carolina, Georgia, and Florida, the partnership model and content was replicated. The ACE Basin co-hosts teacher trainings and provides technical assistance to teachers after the training.

- In terms of mechanisms for the delivery of reserve programs, the popularity and effectiveness of the use of the *E/V Discovery* for hands-on learning in the field was noted multiple times by partners and stakeholders throughout the site visit. For instance, the support from the reserve for the Master Naturalist course by providing a tailored field trip aboard the vessel is considered one of the most valuable of the entire program and is identified in program evaluations as the favorite among participants. For school field trips, the vessel is moved to different locations to increase ease of access by schools along the South Carolina coast. The ability for students, adult learners, and partners to engage in field experiences out on the reserve was mentioned time and again as a vital part of the reserve's operations. This should continue to be a priority element of reserve programs.
- As an outgrowth from the pond management conferences, the ACE Basin in partnership with Clemson University Extension created the Healthy Pond Series to expand on issues and strategies and to provide a foundation for future connection and collaboration among participants. Initially, the focus was on engaging property managers, homeowner association members, and local government maintenance and management staff in Charleston, Berkeley, and Dorchester counties. The reserve is planning to expand the program into the Beaufort area in the near future.

A key factor for the success of, and access to, these types of experiences and all the program and outreach events the reserve has to offer is the awareness of them by existing and potential new audiences. The department is encouraged to assist the reserve in continuing to build on existing communication and outreach mechanisms to enhance connection with partners and stakeholders, and as a part of developing relationships with new ones. In its website update, the department should consider design that allows the user to more efficiently access opportunities the reserve offers. The reserve could also coordinate within the South Carolina Coastal Information Network to post events and to consider new ways for network members to share information with their audiences. The reserve is encouraged to continue to build on its notable communications successes with social media and the reserve website. Reserve communication staff may also consider leveraging support from the Department of Natural Resources' communications team to explore targeted marketing approaches as the reserve seeks to become more effective at reaching diverse populations.

The reserve is looking to update the exhibits at the Edisto Learning Center and has received funding for a catalyst project from the National Estuarine Research Reserve System Science Collaborative. The evaluation team encourages the reserve to continue working with the South Carolina Department of Parks, Recreation, and Tourism to explore funding opportunities to accomplish the necessary updates at this facility, including enhancing the representation and visibility of the reserve at the center. The reserve could identify procurement, acquisition, and construction funding in the management plan update for this purpose as well. Additionally,

consideration should be given to ways to better market the learning center itself, since many people visit the state park, but do not make their way to the learning center.

The evaluation team heard during the site visit that maintaining relationships with schools has been challenging due to the turnover of administrators and teachers, which makes it difficult to keep the schools engaged in reserve programs. In response to this, the reserve has found success by strategically reaching out to after-school programs, clubs, and mentoring programs to reach students outside of normal school hours. It will also be important to continue to work on outreach and engagement with principals and administrators to ensure that they understand the value of reserve programs, their alignment with state education standards, and how participation in the reserve programs can positively impact testing outcomes. Another avenue for reserve staff to engage with schools is to work with the science, technology, engineering, and math (STEM) coordinators for each targeted school district to increase their awareness of how the reserve programming supports career development. An additional challenge is finding times during which teachers would be available to participate in professional development opportunities offered for them by the reserve. An option may be for the reserve to schedule these events during the professional days that are already on the school-year schedules.

The reserve is dedicated to the values of access, equity, diversity, and inclusion and continues to learn how best to expand upon existing efforts. The equation involves finding ways to engage under-resourced and underserved communities. The reserve is working to identify these populations, understand their needs, and translate that to program content and engagement that addresses those needs.

One approach the reserve has employed is to focus efforts in three communities: North Charleston, Edisto, and Walterboro. While the reserve continues to prioritize participation for Title 1 schools by making all programs free of charge to them, for schools to get to on-site programs at the reserve, there is still a cost to schools for substitute teachers and buses. The reserve is encouraged to work with schools to explore ways to fund these expenditures to remove those barriers.

The reserve has also been investing in bringing resources to communities to increase awareness of what the reserve offers. For instance, in Walterboro, reserve staff are working with the Summer Meals Program in Colleton County to include educational activity kits in the food packets and to staff a booth at the local farmers market as another way to build a relationship with the community. Reserve staff also have plans to reach out to state-recognized tribal governments and schools that serve them.

With the assistance of trusted internal and external partners, the reserve has a number of different areas they could choose to pursue to enhance inclusion, build trust, and reduce barriers to full access and engagement of all populations. The reserve is encouraged to work with internal and external partners to determine which areas to prioritize and to continue to build out the plan they've started.

- Continue to work with the Department of Natural Resources' diversity outreach coordinator to build strategies to increase awareness of the reserve and access to its offerings by underserved populations.
- The reserve has done a considerable amount of work to help create awareness of and access to STEM career pathways for students from underserved populations. Work with involved partners to create a cohesive approach to better understand priorities, opportunities, and areas for improvement.
- Better understand and inform all audiences about the multifaceted cultural history of the people who have shaped ACE Basin, current opportunities afforded by the reserve, and the connection to natural resources. This could inform the exhibit update as well as updates to existing program content and creation of new content. The exhibit update at the Edisto Learning Center affords the reserve the opportunity to not only enhance the visibility of the reserve, but to address elements that would support its dedication to inclusion and equity. The exhibits could help tell the story of those who lived in the area in the past and those who still do today. Partner with and leverage other county or state parks and more historically focused organizations that are already working on this type of interpretation, for instance, the Gullah-Geechee Heritage Museum, McLeod Plantation, and other southeastern reserves.
- Additionally, the exhibit update could incorporate elements of [universal design](#) to increase accessibility by audiences of all abilities.
- The reserve is encouraged to learn more about universal design and incorporate principles into program materials and delivery methods.

Accomplishment: The ACE Basin Reserve staff is dedicated to intentional approaches to strengthen diversity, equity, and inclusion efforts. This is demonstrated by the addition of specific actions within the reserve's new draft strategic plan and throughout the draft management plan. It's also shown within new partnerships with organizations representing Gullah-Geechee communities, and by targeting outreach and programs for Title 1 schools. In addition, the reserve has leveraged resources from the South Carolina Department of Natural Resources to reach more Spanish-speaking communities.

Recommendation: The reserve is encouraged to continue to work with trusted partners to expand programs to enhance cultural interpretation to better include Native American, Gullah-Geechee, Hispanic, and other underserved communities.

Recommendation: The reserve is encouraged to continue to explore ways to enhance accessibility to reserve resources and programs, including partnering with organizations with expertise that serve multigenerational populations and people with disabilities.

Coastal Development

Key Findings

The goal of the reserve is to “sustain the ecological health of estuaries entrusted to our care and provide natural areas for research, education, stewardship, and compatible human uses through habitat conservation, water quality, public access, and community resilience.” Critical to this goal is building the capacity of communities in the region to adapt to change. Reserve stakeholders and partners place a high priority on the state of the natural resources, as it is strongly connected to the quality of life for those who live and play in the area. The reserve has continued to contribute in critical ways to bring science to action and creates a multiplier effect in the work of partners. Notable examples include the following:

- Land use in Beaufort County was shifting from pervious to impervious surfaces that seemed to contribute to degradation of water quality and shellfish; however, the town did not have the expertise, resources, or time to challenge existing development standards. The reserve worked collaboratively with Beaufort County and all the municipalities including the Watershed Management Division of the Town of Bluffton to identify and prioritize creeks that were the most volume sensitive to freshwater input. The results helped the Town of Bluffton make science-informed decisions about the allocation of limited resources for the development of new stormwater regulations and ordinances.
- The ACE Basin serves as a key habitat for nesting and migratory seabirds, shorebirds, and wading birds.
 - Research conducted at the reserve demonstrated that the ACE Basin is one of the remaining strongholds for the eastern black rail, a species of wading bird whose population has been impacted by habitat destruction, sea level rise, and increasing intensity of storms. The reserve served as an important research site, with reserve staff contributing to the understanding of the population status, and this work supported the listing of the species as federally threatened.
 - Development and updates of rules and regulations for visitors to Botany Bay, an area that is popular with tourists and local community members, carefully consider habitat requirements of birds and other species, resulting in the exclusion of dogs and use of bicycles, as well as temporary closures related to nesting season. The reserve works with volunteers to educate visitors about the temporary closures and shorebird activity.
 - Motus wildlife tracking tower installation in partnership with communities. For example, the reserve partnered with the Port Royal Sound Maritime Center to install a Motus tower. The reserve had assisted other entities in tower installation around the reserve, expanding a network of towers monitoring bird movements along the coast.
- Expanding Living Shorelines. Two very successful research projects funded by a National Estuarine Research Reserve System Science Collaborative Grant furthered living shoreline construction techniques for South Carolina. The reserve was vital in

bringing together key partners as part of the research team and convening stakeholders in a thoughtful and productive way. The projects were truly collaborative, engaging early with the end-users, local property owners who provided a unique perspective on the use of living shorelines. The projects were valuable from a regulatory and permitting perspective as they provided data on which shorelines were appropriate for living shoreline use and also the type of living shoreline that would be most sustainable. Following the completion of the projects, the reserve provided training opportunities for regulatory staff, identifying data gaps, community engagement opportunities, and feedback and concerns over the viewshed. Project standards were developed for living shorelines, which are now adopted into state regulations.

Accomplishment: The ACE Basin Reserve continues to be recognized by partners for connecting science and data to policy to inform management and protection of critical habitat and resources. As an example, in the development and updates of regulations that relate to visitor use of Botany Bay, the reserve carefully considered the habitat requirements of birds and other species and resulted in the exclusion of dogs and the use of bicycles during nesting season in that area of the reserve.

Stewardship and use of managed lands can be competing goals, yet the reserve consistently balances these dual roles successfully. Reserve research has demonstrated the importance of tidal impoundments within the ACE Basin as critical habitat for resident waterfowl species and migratory stopover and nesting habitat for shorebirds.² The reserve manages water levels in these impoundments to accommodate the seasonality of the habitat needs of these migratory species by gradually dewatering select impoundments after the waterfowl hunting season has ended. In another example, through research conducted by a Margaret A. Davidson Fellow, the reserve is gathering information to better understand actual visitor use patterns and behaviors. This work will help reserve staff manage visitor use of the area while concurrently protecting ACE Basin habitats and the visitor experience. Procurement, acquisition, and construction funds were used to purchase parcels on South Hutchinson Island and South Fenwick Island. These acquisitions are significant because they involve two of the remaining areas of previously unprotected land within the reserve boundary and contribute to the conservation and public access goals of the reserve.

Accomplishment: The ACE Basin Reserve continues to successfully balance the dual mission of stewardship and use of managed lands through effective, seasonally appropriate shifts in management goals. For example, the reserve manages water levels in tidal impoundments to accommodate the seasonality of the habitat needs of migratory and nesting birds by gradually dewatering select impoundments after the waterfowl hunting season has ended.

² Folk, T.H., E.P. Wiggers, D. Harrigal, and M. Purcell (Editors). 2016. *Rice Fields for Wildlife: History, Management Recommendations and Regulatory Guidelines for South Carolina's Managed Tidal Impoundments*. Nemours Wildlife Foundation: Yemassee, South Carolina.

The reserve has initiated events to provide a forum for sharing and exchanging information, research, and lessons learned. They co-hosted the National Estuarine Research Reserve Annual Meeting in 2019 and the ACE Basin Research Symposium in 2020. Partners and stakeholders described these events as highly successful in demonstrating the value of the reserve to coastal communities and partner organizations and in serving as important opportunities to build collaboration and foster relationships. The reserve is encouraged to continue with these efforts and to explore additional ways of sharing research results.

Accomplishment: The ACE Basin Reserve successfully convenes stakeholders and partners to share and exchange research and information about relevant coastal management issues and research efforts in the ACE Basin. For example, the reserve hosted the 2019 National Estuarine Research Reserve Annual Meeting and the first ACE Basin Research Symposium in 2020.

The reserve is looked upon by partners and stakeholders as a trusted resource that actively engages to bring them ideas for solutions, regards them as clients, and connects them to additional expertise in the region. A few key examples include the following:

- Watershed plan for Edisto and Edisto Beach: The reserve connected the community to Clemson Extension to create a community-driven watershed plan for the area to protect and restore water quality and reopen shellfish beds. Although most of the Clemson Extension team did not have a history of working with the community, the reserve was a trusted entity and, serving as a conduit, allowed the Clemson Extension project team to be accepted from the beginning. The reserve research coordinator served on the local advisory committee, and the coastal training program coordinator's help as a member of the community to engage local stakeholders was essential with the onset of the pandemic. The involvement of reserve staff continues to be critical to the success of this ongoing project to facilitate the two-way communication between the project team and the stakeholders.
- Low impact development manual in partnership with the South Carolina Sea Grant Consortium: The reserve teamed up with the North Inlet-Winyah Bay reserve to pursue a Science Collaborative Grant that afforded a dedicated funding source for the project. Reserve staff provided leadership and, despite challenges with staffing changes, kept it moving forward. The first edition of the manual was released in 2014. The reserve assisted with introducing the manual to professionals through trainings. Recently, the reserve has conducted further work to understand how sea level rise and increasing flooding would change some of the design elements. They also plan to engage underrepresented communities to better understand their needs.
- Calling the Coast Home: Discussed above in the "Community Engagement" section, the reserve worked closely with the Charleston Trident Association of Realtors to develop a course geared toward living on the coast and awareness of coastal hazards. When people are thinking about moving to the coast, realtors are often the first point of contact; however, realtors tend to be resistant to certain topics such as flooding and sea level rise. As an incentive to participate, this course offers continuing education credits.

During the last year, the training was made virtual and over 588 realtors to-date have participated.

- **Regional Stormwater Consortium:** Stormwater management is an issue for many neighborhoods near and within the ACE Basin Research Reserve. The coastal training program connected technical staff and planners to better understand, and plan for, stormwater impacts. The reserve's listserv is valuable to broadcast information, as well as news about training and workshop opportunities, to audiences that can be hard to reach. The reserve serves as a bridge and allows the consortium to look at issues from a truly regional scale because of the reserve's location, proximity to the rural communities near and within the ACE Basin, and the established relationships.
- **Expanding Living Shorelines:** As discussed in the "Coastal Development" section above, these projects, funded by a National Estuarine Research Reserve System Science Collaborative Grant, furthered living shoreline construction techniques for South Carolina. These projects integrated applied research science with collaborative processes that involved local property owners and state managers from the beginning, resulting in a greater acceptance of and active support for the project. Additionally, the collaborative involvement from the reserve was instrumental in successfully obtaining the funding.

Accomplishment: The ACE Basin Reserve is recognized by stakeholders and partners as a consistent, science-based "first stop" for advice and counsel, and a trusted resource due to its expertise and ability to consistently provide high-quality support and relevant, timely content that addresses needs. For example, research partners have come to recognize the importance of a stakeholder-driven collaborative approach in the research project design process to create more successful outcomes, as demonstrated throughout the Expanding Living Shorelines project.

Evaluation Metrics, 2012-2017

Three performance measures and targets were selected by ACE Basin Reserve staff to track during the five year period of 2012-2017 as part of the NOAA 312 program evaluation process. These were selected from the *ACE Basin National Estuarine Research Reserve Management Plan 2011-2016*. The metrics were approved May 18, 2012.

Metric 1

Goal:

Improve the ability of the ACE Basin community to act as good stewards of the ACE Basin

Objective:

Audiences and partners are equipped with the information necessary to understand, appreciate, and advocate for their estuaries.

Strategy:

Provide K-12 education programs that enhance the long-term understanding, appreciation and stewardship of coastal ecosystems and support our education system. The reserve will continue to provide educational programs through the Carolina Coastal Discovery Marine Education Program in the reserve. The program utilizes a 45' boat *Discovery*, and a variety of land-based programs focusing on middle school students in the ACE Basin watershed. See Management Plan pages 48-54 for more information.

Performance Measure:

Number of Carolina Coastal Discovery education programs conducted by reserve staff, annually

Target:

50 Carolina Coastal Discovery education programs are conducted by reserve staff, annually.

First Year Results (7/1/12- 6/30/13)	Second Year Results (7/1/13- 6/30/14)	Third Year Results (7/1/14- 6/30/15)	Fourth Year Results (7/1/15- 6/30/16)	Fifth Year Results (7/1/16- 6/30/17)	Total
54	50	60	57	64	285

Discussion: The educational programs offered aboard the *Discovery* continue to be well attended. The reserve reached its target each of the five years and exceeded it in four of those five years.

Metric 2

Goal:

Enhance the capacity of the reserve to act as an important contributor to the ACE Basin community, South Carolina Department of Natural Resources, and National Estuarine Research Reserve System

Objective:

High-quality facilities, equipment, and services are available for reserve staff and partners

Strategy:

Provide visitors to the reserve with material and informational support. The McKenzie Field Station and expertise of associated staff leverage efforts of partners that advance the mission of the reserve. Access to the McKenzie Center, staff and equipment is provided at no cost to qualified researchers working on projects of common interest. See Management Plan pages 39-47 and 100-101 for more information.

Performance Measure:

Number of visitor-days annually that the McKenzie Field Station is used by researchers.

Target:

300 visitor-days annually that the McKenzie Field Station is used by researchers.

First Year Results (7/1/12-6/30/13)	Second Year Results (7/1/13-6/30/14)	Third Year Results (7/1/14-6/30/15)	Fourth Year Results (7/1/15-6/30/16)	Fifth Year Results (7/1/16-6/30/17)	Total
455	395	433	318	556	2,157

Discussion: The reserve exceeded its target in each of the five years.

Metric 3

Goal:

Strengthen the role of the reserve in ensuring the long-term protection of the biological, cultural, and historical resources of the ACE Basin Reserve

Objective:

Short-term variability and long-term change in the physical, biological, and societal components of the ACE Basin Reserve are characterized and connections between habitats and land use are understood.

Strategy:

Broaden the reserve’s research portfolio by encouraging and enabling non-System-Wide Monitoring Program (SWMP) research activities. The reserve will provide incentives for

researchers to work in the ACE Basin on projects of mutual interest. Staff will work through existing relationships with professional societies, educational institutions, and funding sources to encourage research in the ACE Basin. See Management plan pages 39-47 for more information. Non-SWMP research or monitoring projects will be counted during each year the project is active.

Performance Measure:

Number of non-SWMP research or monitoring projects conducted annually in the reserve.

Target:

4 non-SWMP research or monitoring projects conducted annually in the reserve.

First Year Results (7/1/12-6/30/13)	Second Year Results (7/1/13-6/30/14)	Third Year Results (7/1/14-6/30/15)	Fourth Year Results (7/1/15-6/30/16)	Fifth Year Results (7/1/16-6/30/17)	Total
15	4	4	4	4	31

Discussion: The reserve exceeded the target in the first year and met the target each of the subsequent four years.

Evaluation Metrics, 2017-2022

Approved February 25, 2018.

The goals and objectives for metrics 1 and 2 are from the 2011-2016 ACE Basin Reserve Management Plan. The goal and objective for metric 3 are from the National Estuarine Research Reserve System Strategic Plan 2017-2022.

Metric 1

Goal: Reserve Management Plan Goal 2, Improve the ability of the ACE Basin community to act as good stewards of the ACE Basin

Objective: Reserve Management Plan Objective 2b, Audiences and partners are equipped with the information necessary to understand, appreciate, and advocate for their estuaries

Strategy: 2017 CTP Strategic Plan Strategy 1.1, Offer training opportunities that fulfill the goals and focus area priorities of the ACE Basin Reserve management plan

The coastal training program (CTP) will provide trainings relevant to current reserve priorities, which are water quality, habitat conservation, public access to natural resources, and community resilience. CTP’s work will center on focus areas under each priority management issue, but the program will also maintain the flexibility to address emerging issues within the

reserve’s priority issues. Focus areas for the 2017 to 2022 period for CTP are stormwater (water quality priority), living shorelines (habitat conservation priority), visitor use (public access priority), and adapting to changing conditions (community resilience priority). Additionally, gaps in scientific information and understanding, resources, tools, barriers to implementation, and desired training formats will be assessed using formal and informal needs assessments to provide dynamic training that best fits the needs of the priority audiences. Input from CTP partners is also valuable in determining emerging needs of the coastal decision maker audience and will continue to be used to keep training topics relevant. More information can be found in the 2017-2022 CTP Strategic Plan.

Performance Measure: From 2017 to 2022, number of training events delivered by the coastal training program

Target: From 2017 to 2022, 30 training events delivered by the coastal training program

First Year Results (7/1/17-6/30/18)	Second Year Results (7/1/18-6/30/19)	Third Year Results (7/1/19-6/30/20)	Fourth Year Results (7/1/20-6/30/21)	Fifth Year Results (7/1/21-6/30/22)
18	14	16	17	TBD

Discussion: The reserve continues to go above and beyond in serving coastal decision maker audiences. It has exceeded the target and is on track to do so in each of the subsequent years, although they may be impacted by pandemic restrictions.

Metric 2

Goal: Reserve Management Plan Goal 1, Strengthen the role of the reserve as a leader in ensuring the long-term protection of the biological, cultural, and historical resources of the ACE Basin Reserve

Objective: Reserve Management Plan Objective 1a, Short-term variability and long-term change in physical, biological, and societal components of the ACE Basin Reserve are characterized and connections between habitats and land use understood.

Strategy: Reserve Management Plan Strategy 1a2, Broaden the reserve’s research portfolio by encouraging and enabling non-SWMP research activities.

The reserve will broaden the research portfolio by encouraging and enabling non-SWMP research and monitoring activities. Staff will work through existing relationships with professional societies, educational institutions, partners, and funding sources to encourage research in the ACE Basin. Research opportunities at the reserve are available to any qualified scientist, academic, or student affiliated with any university, college, school, non-profit research institution, private profit organization, or state, local, or federal government agency. The ACE Basin Reserve has identified the following four priority topics on which reserve research will be focused as funding becomes available: habitat and ecosystem coastal processes, anthropogenic

influences on estuaries, species management, social science and economics. The Research Program will seek to lead and serve as a partner in the reserve system’s Science Collaborative funded projects as appropriate. See Management plan pages 39-47 for more information. Additionally, the reserve will continue to provide high-quality resources to researchers through the McKenzie Field Station in the ACE Basin. The field station provides laboratory space, housing, meeting space, and boat docking for researchers. For this performance measure, the NOAA database tracks information by calendar year (not by cooperative agreement cycle).

Performance Measure: From 2018 to 2022, total annual number of research and monitoring projects active in the ACE Basin Reserve.

Target: From 2018 to 2022, each year, six research and monitoring projects will be active in the ACE Basin Reserve.

First Year Results (7/1/17-6/30/18)	Second Year Results (7/1/18-6/30/19)	Third Year Results (7/1/19-6/30/20)	Fourth Year Results (7/1/20-6/30/21)	Fifth Year Results (9/1/21-8/30/22)
16	15	13	19	TBD

Discussion: The reserve has exceeded by at least two times the targets annually. It is on track to continue that trend depending on impacts from the pandemic.

Metric 3

Goal: Reserve Strategic Plan Goal 3, Advance environmental appreciation and scientific literacy, allowing for science-based decisions that positively affect estuaries, watersheds, and coastal communities

Objective: Reserve Strategic Plan Objective 2, Educators and students will better understand and use the reserve system and NOAA resources for place-based and inquiry-based learning.

Strategy: Reserve Strategic Plan Strategy 3.2.3 Conduct K-12 teacher and student programs to increase literacy and stewardship

The reserve will provide K-12 education programs that enhance the long-term understanding, appreciation, and stewardship of coastal ecosystems and support our education system. The Education Program will continue to provide place-based educational programs through the Carolina Coastal Discovery Marine Education Program. The program utilizes a 45’ boat *E/V Discovery*, and a variety of land-based programs. Programs are aligned to state standards as well as Ocean and Literacy Awareness Principles. See Management Plan pages 48-54 for more information.

Performance Measure: From 2017 to 2022, number of P-12 students reached

Target: From 2017 to 2022, 20,000 P-12 students will be reached.

First Year Results (7/1/17- 6/30/18)	Second Year Results (7/1/18- 6/30/19)	Third Year Results (7/1/19- 6/30/20)	Fourth Year Results (7/1/20- 6/30/21)	Fifth Year Results (7/1/21- 6/30/22)
6,174	5,089	8,769	2,021	TBD

Discussion: At the end of the third year, the reserve reached the target and will exceed it in the fourth and fifth years.

Conclusion

For the reasons stated herein, I find that the South Carolina Department of Natural Resources is adhering to the programmatic requirements of the Coastal Zone Management Act and its implementing regulations in the operation of its approved ACE Basin National Estuarine Research Reserve.

These evaluation findings contain six 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 ACE Basin 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.



May 5, 2022

Jeffrey L. Payne, Ph.D.
Director
Office for Coastal Management

Date

Appendix A: Response to Written Comments

Donna Windham, Executive Director
Kiawah Conservancy

M. Lee Bundrick, Senior Ecological Health and Conservation Coordinator
Kiawah Conservancy

This letter is submitted as public comment in support of the efforts of the *ACE Basin National Estuarine Research Reserve* (ACE Basin NERR) for their Federal performance evaluation. The Kiawah Island Natural Habitat Conservancy, Inc. (Kiawah Conservancy) is a non-profit, accredited land trust focused on natural habitat conservation and education. Since 1997, we have preserved 2,273 acres of natural habitat, including over 2,000 acres of tidal salt marsh and hummock islands within the Kiawah River watershed.

The Kiawah Conservancy collaborates closely with the Town of Kiawah Island (TOKI) and the Kiawah Island Community Association (KICA) to address issues critical to our barrier island ecosystem. KICA recently began an effort to address community resilience through adaptive management. This is being supported by the Kiawah Conservancy through our *Ecological Health Initiative*, which focuses primarily on Kiawah's natural resources and their relationship to community resilience. Two research projects were initiated in conjunction with funding from TOKI and assistance from the College of Charleston to investigate the island's groundwater table and the vulnerability of the tidal salt marshes. These efforts have also led to a subsequent grant from the National Fish and Wildlife Foundation to explore the use of nature-based solutions toward improving the resilience of our community.

All of these efforts have been bolstered by the work from the ACE Basin NERR staff. During the early stages of our Ecological Health Initiative, ACE Basin leadership met with us to discuss how to incorporate monitoring efforts to explore the health of our tidal marshlands. This assisted in developing a monitoring framework for understanding the status of our intertidal habitats. Following these discussions, ACE Basin NERR staff provided resources which have significantly improved our approach to monitoring and improving coastal resilience. The release of the Living Shorelines Summary, developed with ACE Basin NERR resources in 2019, has also provided a foundation for our organization's effort to explore the use of nature-based solutions in anticipation of future efforts to restore and enhance habitat within the Kiawah River watershed.

Throughout the proposal writing process, current and former ACE Basin staff were instrumental in reviewing and assisting the Kiawah Conservancy. Because of these efforts, our organization was able to successfully receive over \$245,000 in external funding for natural resource conservation.

The work from the ACE Basin NERR staff has significantly helped our community improve our current research and monitoring strategies by incorporating innovative methods originating from their work. This has strengthened our approach to bolster the resilience of our human and wildlife communities through adaptive management. The Kiawah Conservancy is eager to continue collaborating with ACE Basin NERR and strongly support their work to protect critical coastal Habitat in South Carolina through coastal science and education.

NOAA Office for Coastal Management response: The evaluation team appreciates the thoughtfulness of these comments and believes the evaluation findings were enriched by their contribution.