

Final Evaluation Findings

Mission-Aransas National Estuarine Research Reserve

May 2011 to July 2020

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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 Mission-Aransas National Estuarine Research Reserve by the University of Texas at Austin, the designated lead agency, for the period from May 2011 to July 2020. The evaluation focused on two target areas: program administration and hurricane recovery.

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:

Program Administration

Accomplishment: The University of Texas Marine Science Institute and the Mission-Aransas Reserve are commended for a nimble education program that adapted its delivery model in response to both a major hurricane and pandemic and is responsive to stakeholder needs. Additionally, the successful integration of all Marine Science Institute educational programming under the reserve umbrella has created more efficient program delivery.

Accomplishment: The Mission-Aransas Reserve's coastal training program continues to fill an important gap in professional training services in the Texas Coastal Bend area and consistently receives accolades from local partner organizations.

Accomplishment: The Mission-Aransas Reserve is recognized by partners and stakeholders in Southeast Texas as a credible, trusted source of science-based information. The reserve's research and data are highly valued for their support of statewide and regional resource management efforts, for example marine plastic pollution.

Accomplishment: The Mission-Aransas Reserve's Nurdle Patrol is a highly successful citizen science initiative that engages people along the Texas Coastal Bend, enhancing stewardship, expanding the reserve's research and monitoring capabilities, and raising the public's and coastal decision makers' awareness of the prevalence of plastic pollution in the coastal environment. The Nurdle Patrol has expanded across the U.S. and Mexico and is being adopted by a number of other reserves in the National Estuarine Research Reserve System.

Accomplishment: The Mission-Aransas Reserve and the University of Texas Marine Science Institute are commended for completing the integration of the Amos Rehabilitation Keep into the reserve. This has shifted volunteer management, education, and administrative work to the reserve which allows Amos Rehabilitation Keep employees to focus on rehabilitation activities.

Recommendation: The Mission-Aransas Reserve and the University of Texas Marine Science Institute are encouraged to work together to build knowledge transfer plans for positions like the coastal training program coordinator position which have experienced frequent turnover.

Recommendation: The Office for Coastal Management encourages the Mission-Aransas Reserve to continue to develop standard operating procedures and training for Amos Rehabilitation Keep volunteers and staff, prioritizing procedures for care and handling of species that pose a higher risk to staff and volunteers.

Hurricane Recovery

Accomplishment: The Mission-Aransas Reserve is to be commended for its successful efforts to convene stakeholders and partners along the Coastal Bend of Texas to share and exchange research and information about relevant coastal management issues. For example, the reserve hosted the National Estuarine Research Reserve System Annual Meeting, Hurricane Harvey Recovery Symposium, and the Texas Plastic Pollution Symposium while also recovering from the impacts of Hurricane Harvey. Partners and stakeholders have described these efforts as highly successful demonstrating the value of the reserve to coastal communities and partner organizations.

Recommendation: The University of Texas, in continuing its strong support of the mission of the reserve, is strongly encouraged to work with the Mission-Aransas Reserve to develop a facilities use agreement or guidance that describes how the dorm facilities will be managed to coordinate and accommodate both university and reserve program current and future needs.

Recommendation: The Office for Coastal Management recommends that the University of Texas Marine Science Institute and Mission-Aransas Reserve work together to explore strategies to address the additional educational, outreach, guest services, and volunteer management demand associated with the reconstituted and expanded reserve programming and facilities. This could include the development and implementation of staffing plans and establishment of a friends of the reserve organization.

This evaluation concludes that the University of Texas at Austin through its College of Natural Sciences Marine Science Institute is adhering to the programmatic requirements of the National Estuarine Research Reserve System in the operation of the Mission-Aransas National Estuarine Research Reserve.

Program Review Procedures

The NOAA Office for Coastal Management evaluated the Mission-Aransas National Estuarine Research Reserve in fiscal year 2020. The evaluation team consisted of Pam Kylstra, evaluation team lead, Matt Chasse, regional specialist, and Becky Allee, fisheries biologist, all with the NOAA Office for Coastal Management; and Mike DeLuca, manager, Jacques Cousteau 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 dean of the University of Texas at Austin's College of Natural Sciences and published a notice of "Intent to Evaluate" in the *Federal Register* on June 16, 2020. NOAA also notified members of Texas's congressional delegation. On June 1, 2020, the reserve posted a notice in the *Caller Times* about the public meeting and the opportunity to comment.

The evaluation process included a review of relevant documents and a survey of stakeholders, which helped identify two target areas for the evaluation:

- Program Administration
- Hurricane Recovery

A virtual site visit was also conducted and the evaluation team held meetings via Google Meets with staff members and group discussions with stakeholders, partners, and program staff members about the target areas. In addition, a virtual public meeting was held on Thursday, July 16, 2020, at 6:00 p.m. via Google Meets 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 comments via email through Sunday, July 26, 2020. No public comments were received. The Office for Coastal Management then developed draft evaluation findings, which were provided to the University of Texas at Austin's College of Natural Sciences and Marine Science Institute, and to the reserve for review, and their 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 § 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

The University of Texas at Austin's College of Natural Sciences continues to successfully implement the federally approved Mission-Aransas National Estuarine Research Reserve. The University of Texas at Austin's Marine Science Institute continues to be committed to and supportive of the reserve's mission.

Mission-Aransas National Estuarine Research Reserve staff members are respected in the region and community as experts. The evaluation team heard from stakeholders and partners during the site visit meetings, in written comments, and in the responses to the survey that staff members are recognized as being highly dedicated, knowledgeable, and an important part of the community, providing critical information and expertise for coastal decision-making that benefits their community, region, and the national system. This view of the reserve continues to be reinforced even in the face of the setbacks reserve staff have experienced from Hurricane Harvey and the pandemic. The reserve and the marine institute are a tremendous example of resilience.

The reserve's leadership has continued to cultivate a culture of collaboration, and leveraging of resources and expertise with an even-keeled approach that resonates with existing partners and stakeholders.

Program Administration

Key Findings

Over the course of the evaluation period, the reserve has successfully integrated all of the **educational programming** at the University of Texas Marine Science Institute under the reserve umbrella. Combining programs has effectively eliminated branding issues brought up in the previous evaluation and maximized efficiencies in program delivery to targeted stakeholders.

More recently, as a result of campus closure to the public after Hurricane Harvey, the education program shifted its model from hosting school and family groups at reserve facilities to going off-site to bring program delivery to them. With the onset of the pandemic in 2020, the education program has continued to adapt and offers more virtual educational activities to be able to continue to engage with the community and local schools. For example, education staff designed a blended virtual and place-based delivery of the Teachers on the Estuary workshop this year that, although challenging, was successful despite constraints imposed by hurricane-related loss of facilities and healthcare policies associated with the pandemic. Now that the reserve has built and continues to develop a portfolio of virtually delivered programming, it is well positioned to be able to provide continuity of programs after future extreme events. This also will enable the reserve to potentially expand its reach to serve audiences that may have factors like transportation that limit their ability to visit the reserve in person.

Accomplishment: The University of Texas Marine Science Institute and the Mission-Aransas Reserve are commended for a nimble education program that adapted its delivery model in response to both a major hurricane and pandemic and is responsive to stakeholder needs. Additionally, the successful integration of all Marine Science Institute educational programming under the reserve umbrella has created more efficient program delivery.

A key challenge during the review period has been the frequent **turnover of coastal training program staff**. Staff turnover can impact the continuity, productivity, and momentum of long-term programs. There have been six coordinators since the last evaluation in 2011. The reasons for this are not completely clear; however, the reserve manager has suggested that factors may include the long commute time to the reserve from Corpus Christi and cost of living differences between Port Aransas and surrounding communities. Additionally, the available salary for the coastal training program coordinator position attracts individuals who are early in their careers and who then advance to higher level positions in other organizations after gaining experience and strengthening their skill set.

The reserve could choose to pursue a strategy that emphasizes transfer of knowledge and rapid connection building. This could include documentation of processes, practices, upcoming trainings, and things to know about interacting with key partners, as well as mentoring and training during a period of overlap with the outgoing program coordinator. A new tool, the Coastal Training Program Toolbox, which will support the rapid onboarding of a new coastal training program coordinator, is being developed by the National Estuarine Research Reserve System. Additionally, it could be helpful to incorporate funding into the biennial cooperative agreement and other grants that supports activities essential to the continued development of the program, such as networking, needs assessment, strategic planning, and relationship building. This could be accomplished by greater collaboration in external grant opportunities to allow for better balance and prioritization of the coastal training program needs. The reserve could also explore options for freeing up time for essential program development activities, such as creating a full- or part-time coastal training program assistant position that could address the more day-to-day logistical details of hosting trainings as well as provide continuity between coordinators when change occurs.

Recommendation: The Mission-Aransas Reserve and the University of Texas Marine Science Institute are encouraged to work together to build knowledge transfer plans for positions like the coastal training program coordinator position which have experienced frequent turnover.

Despite frequent turnover in the coastal training program position, according to the data gathered in preparation for the evaluation and information presented by reserve stakeholders during the virtual site visit, considerable impacts resulted from coastal training program workshops and activities. The program continues to fill an important gap in professional training services in the Texas Coastal Bend area, receiving accolades from local partner organizations. The program facilitated numerous workshops to bring science to bear on priority

regional issues ranging from resilience of coastal ecosystems and communities to plastics pollution and impacts of coastal development on water and habitat quality. Highlights of coastal training program projects with partners included:

- Technical assistance to the City of Rockport to identify vulnerabilities to coastal hazards. This enabled the city to have projects designed to increase community resilience ready to go with implementation funding that became available in the aftermath of Hurricane Harvey.
- Participation in coastal training program workshops that provided content on key issues such as behavior change, and training for communicating science with the Water Words that Work training.
- Development of a video that communicated the impacts of boating, fishing, and natural processes on critical habitats such as seagrass.
- Master naturalists benefit greatly from reserve-hosted workshops on topics such as freshwater inflows and invasive species.
- Collaboration with the City of Port Aransas to inform development of a stormwater ordinance with science-based information.

Accomplishment: The Mission-Aransas Reserve's coastal training program continues to fill an important gap in professional training services in the Texas Coastal Bend area and consistently receives accolades from local partner organizations.

The reserve has continued to foster collaboration and a strong network of **partners** in the region. These efforts have leveraged expertise and funding to the benefit of all involved. Partner organizations relied heavily on reserve expertise to advance public awareness and engagement in policy discussions, including the impact of nurdles and climate change. For instance, a key priority for the Texas General Land Office is resilience to coastal hazards, and it looks to the reserve to provide information on sea level rise. They partner with the reserve on living shoreline-related training, and the reserve manager also serves on the office's technical advisory committee. The reserve has collaborated with partners, including the Coastal Bend Bays and Estuary Program, Texas Parks and Wildlife Department, and U.S Fish and Wildlife Service, on grants to address coastal issues such as invasive plant removal, ocean acidification, and sea turtle monitoring. The U.S. Fish and Wildlife Service also solicits comments on permit applications from the reserve regarding project impacts to birds and sea turtles.

All partnerships need to have clear benefits for all partners. The reserve has been asked to help expand the Stream Team Initiative, a citizen-science, water-quality monitoring network. This represents a good opportunity for the reserve to increase its visibility through the Stream Team Initiative's statewide network; however, the result of the partnership should not be limited to simple expansion of the initiative's monitoring network. The partnership could add value to reserve priorities by tailoring the monitoring parameters to align with and complement reserve priorities. For example, the addition of stream flow measurements certainly could be incorporated into the freshwater inflow program conducted by the reserve.

Data and results that the reserve produces are critical to the work of partners. For example, the reserve partnered with the Coastal Bend Bays and Estuary Program to collect salinity and vegetation data in Egery Flats prior to activities to restore hydrology to an expansive marsh area. Informed by the pre-construction data, the post-construction monitoring plan was adjusted and well designed.

The reserve staff have done an outstanding job in developing volunteer citizen science monitoring initiatives. Three of the citizen science initiatives that are well integrated across the reserve sectors are the larval blue crab study, Little Bay salinity monitoring, and the establishment of the Nurdle Patrol.

As a part of leading the effort to mitigate marine plastic pollution, the Nurdle Patrol monitoring activities were initiated by the reserve in 2018 after large numbers of plastic pellets, referred to as nurdles, washed up on Mustang and North Padre Islands. In 2019, the reserve launched the interactive mapping website where citizen scientists document where they are finding high concentrations of nurdles across the U.S. and Mexico. With the website, a training video, development and distribution of start-up kits, and fostering a community on Facebook, the reserve has expanded the monitoring effort to other reserves and communities across the U.S. coastal areas. This effort represents a tremendous achievement with broad public support that brings great visibility to the reserve and provides critical data about an important marine debris issue facing the Gulf of Mexico region and the nation. Additionally, the reserve and University of Texas researchers are looking into connections between contaminants and plastic pellets.

Accomplishment: The Mission-Aransas Reserve is recognized by partners and stakeholders in Southeast Texas as a credible, trusted source of science-based information. The reserve's research and data are highly valued for their support of statewide and regional resource management efforts, for example marine plastic pollution.

Accomplishment: The Mission-Aransas Reserve's Nurdle Patrol is a highly successful citizen science initiative that engages people along the Texas Coastal Bend enhancing stewardship, expanding the reserve's research and monitoring capabilities, and raising the public's and coastal decision makers' awareness of the prevalence of plastic pollution in the coastal environment. The Nurdle Patrol has expanded across the U.S. and Mexico and is being adopted by a number of other reserves in the National Estuarine Research Reserve System.

The Amos Rehabilitation Keep (ARK) is viewed by partners and reserve stakeholders as a critical sea turtle and bird rehabilitation center along the Texas coast. Stakeholders and partners reported that the staff and volunteers are knowledgeable and responsive, and make communication easy. During the evaluation period, the ARK has shifted from an independent nonprofit to being fully integrated into the reserve as a part of the stewardship program, which allows the ARK employees to focus on animal care and rehabilitation while the reserve education staff provide interpretation of natural history and habitat to campus visitors. Strong, long-standing partnerships with the U.S. Fish and Wildlife Service and the Texas State Aquarium

have continued throughout the period since the hurricane. After Hurricane Harvey destroyed over 80 percent of the ARK facility, the reserve has made great strides in rebuilding the ARK in a way that improves capabilities to rehabilitate injured wildlife, conduct sea turtle nesting patrols, and respond to sea turtle strandings. It was also recommended that development of written standard operating procedures for handling of animals could help incorporate a consistent approach to volunteer and staff training that would maximize safety.

Accomplishment: The Mission-Aransas Reserve and the University of Texas Marine Science Institute are commended for completing the integration of the Amos Rehabilitation Keep into the reserve. This has shifted volunteer management, education, and administrative work to the reserve which allows ARK employees to focus on rehabilitation activities.

Recommendation: The Office for Coastal Management encourages the Mission-Aransas Reserve to continue to develop standard operating procedures and training for Amos Rehabilitation Keep volunteers and staff, prioritizing procedures for care and handling of species that pose a higher risk to staff and volunteers.

Hurricane Recovery

During the evaluation period, one tropical storm and four hurricanes impacted Texas. Hurricane Harvey made landfall at Port Aransas in 2017 and caused major damage to every reserve facility, structure, and research location. The reserve and the University of Texas Marine Science Institute continue to work together to repair damage and recover from the impact and have made tremendous progress in addressing the impacts from the hurricane.

Key Findings

Three of the four dormitories on the University of Texas Marine Science Institute campus were destroyed during Hurricane Harvey and had to be razed because of severe structural damage. The remaining dormitory, Dorm D, sustained severe storm damage. Instead of rebuilding those three dormitories, with funding from NOAA under the Coastal Zone Management Act and the University of Texas, Dorm D is being repaired and a wing will be added to replace the capacity lost by the destruction of the three dormitories. The dormitory space is critical to both the university's periodic academic programs and the reserve's K-12 and community programs; however, the space planned will not accommodate all needs at the same time. For example, during the site-visit stakeholder meetings, the point was made that annually, in the springtime, 50 undergraduate students will participate in the Semester by the Sea program, occupying all of the dormitory space. This seasonal increase in the number of university students limits the ability of the reserve to host residential programs during that time. The reserve's research coordinator, who also is university faculty, is gathering information from multiple universities in the University of Texas system about their preferences for either spring or fall for the Semester by the Sea program. The reserve program staff will then be able to use the information to plan their residential programming during a time that will not conflict with the Semester by the Sea program lodging needs. Flexibility and adaptability will be critical to ensuring that the needs of both programs are met. Working together to think ahead about capacity and the needs among

the programs would be beneficial to the university, the reserve, and other programs that anticipate using the dorm facilities.

Recommendation: The University of Texas, in continuing its strong support of the mission of the reserve, is strongly encouraged to work with the Mission-Aransas Reserve to develop a facilities use agreement or guidance that describes how the dorm facilities will be managed to coordinate and accommodate both university and reserve program current and future needs.

While the reserve depends on volunteers from the community to enhance the reach of its efforts, including wildlife rehabilitation, beach cleanups, marine plastic pollution removal, citizen science initiatives, and educational programs, the volunteer program also provides a sense of community and belonging to reserve program volunteers. After Hurricane Harvey damaged all of the reserve facilities and impacted programs, reserve volunteers came out in force to assist with the cleanup and repair efforts. Since the onset of the pandemic, volunteer opportunities have become extremely limited, although the education staff responsible for overseeing the volunteer programs have made concerted efforts to engage the volunteer community virtually. The evaluation team consistently heard from stakeholders who are volunteers that they stand at the ready to come back as soon as it is safe to do so.

Reserve facilities are being rebuilt and expanded after Hurricane Harvey to better accommodate the education programming needs of students, teachers, and the public. Educational infrastructure on and off campus, including the Wetlands Education Center, the Bay Education Center, Estuary Explorium, Water-wise Garden, Dunescape, and the Patton Marine Science Center, are being rehabilitated. Facilities have been added to Fennessey Ranch that will allow the reserve to conduct educational programming there. As a consequence of the Harvey recovery in Rockport, the reserve is positioned to expand educational programming at that site by periodically docking the R/V *Katy* near the Bay Education Center. With this secondary docking location, audiences near this area would have a more accessible opportunity to experience the educational program offered by the R/V *Katy*.

With the expansion of facilities and associated growth in educational programming, it will be necessary to determine ways to also expand the support of existing education staff. The education program responsibilities have historically included not only educational programming, but also management of the volunteer program and provision of guest services for the reserve facilities, as well as those shared with the university. Support for education staff could be accomplished through seeking additional support from volunteers for education programming and guest services, which may necessitate more staff time dedicated to volunteer management. Another consideration for expanding the reach of the education program without an investment in additional staff would be to foster partnerships with other organizations that possess science education staff. Another option could be having the university participate in helping to provide guest services at the shared facilities.

Another potential source of support for the work of the reserve, including but not limited to volunteer management and recruitment, is the establishment of a friends organization. Many

reserves have realized the benefits that a friends group presents, supporting reserve work as champions of the reserve and its mission, and providing fiscal and administrative assistance that allows reserve staff members to focus on the reserve's core mission and activities.

Recommendation: The Office for Coastal Management recommends that the University of Texas Marine Science Institute and Mission-Aransas Reserve work together to explore strategies to address the additional educational, outreach, guest services, and volunteer management demand associated with the reconstituted and expanded reserve programming and facilities. This could include the development and implementation of staffing plans and establishment of a friends of the reserve organization.

The reserve has initiated a number of events to provide a forum for sharing and exchanging research and lessons learned among researchers, resource managers, and community leaders. Three notable examples are the National Estuarine Research Reserve System Annual Meeting, the Hurricane Harvey Recovery Symposium, and the Texas Plastic Pollution Symposium. Remarkably, the reserve proceeded with plans and hosted the National Estuarine Research Reserve System Annual Meeting in November 2017, just months after the hurricane made landfall nearby. Following that, the reserve convened the other two events roughly a year after the hurricane impacted the Texas coast. The agendas of each of the events included opportunities for the attendees to participate in cleanup and repair efforts. In addition, the Texas Plastic Pollution Symposium has been held twice to date, and planning for a third is underway. It is co-hosted by the reserve, Texas Sea Grant, Texas Parks and Wildlife Department, and the Surfrider Foundation.

Accomplishment: The Mission-Aransas Reserve is to be commended for its successful efforts to convene stakeholders and partners along the Coastal Bend of Texas to share and exchange research and information about relevant coastal management issues. For example, the reserve hosted the National Estuarine Research Reserve System Annual Meeting, Hurricane Harvey Recovery Symposium, and the Texas Plastic Pollution Symposium while also recovering from the impacts of Hurricane Harvey. Partners and stakeholders have described these efforts as highly successful demonstrating the value of the reserve to coastal communities and partner organizations.

Evaluation Metrics, 2012-2017

Three performance measures and targets were selected by Mission-Aransas 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 a draft list of ten measures submitted for initial review by NOAA partners.

Metric 1

Goal: Improve understanding of Texas coastal zone ecosystems structure and function.

Objective: By 2017, reserve staff will improve the understanding of resource managers and researchers about short- and long-term changes within Texas coastal ecosystems.

Strategy: The reserve will work with stakeholders to conduct research on effects of freshwater inflow to Texas estuaries, nutrient dynamics, and harmful algal bloom. Information related to these issues is needed within Texas to enable resource managers to effectively manage this critical resource. These issues have been identified as priority research issues for our watershed by reserve staff and Reserve Advisory Board members.

Performance Measure: By 2017, the number of peer-reviewed journal manuscripts authored or co-authored by reserve staff and submitted for publication describing one or more of the reserve’s priority research issues.

Target:

By 2017, five peer-reviewed journal manuscripts authored or co-authored by reserve staff and submitted for publication describing one or more of the reserve’s priority research issues.

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
5	3	6	3	6	23

Discussion: The reserve has exceeded the target of five peer-reviewed journal manuscripts describing at least one of the reserve’s priority research issues.

Metric 2

Goal: Increase understanding of coastal ecosystems by diverse audiences.

Objective: By 2017, increase community (families and general public) understanding of habitat diversity and its importance within the Coastal Bend region.

Strategy: The reserve will work with partners to provide outdoor educational experiences in a diversity of settings for K-12 audiences and the general public. This performance measure was chosen because, as a new reserve, we have not offered the quantities of outdoor experiences that we are capable of hosting. It is also a good expansion opportunity for the Education program, since we've already been doing K-12 programs for many years. This strategy will also help provide identity for the Mission-Aransas Reserve as suggested in the CZMA Section 312 evaluation completed in 2011. The reserve already offers weekly guided Wetlands Education Center tours and an average of five senior programs per year, and these will not be included in the following performance measure and target. New outdoor educational opportunities will be developed to meet the needs of K-12 audiences and the community. These opportunities may be similar to activities such as habitat hikes, public lectures, or beach walks.

Performance Measure:

From 2012-2017, the number of new outdoor educational opportunities for the community developed and implemented annually.

Target:

From 2012-2017, two new outdoor educational opportunities for the community developed and implemented annually.

First Year Results <i>(7/1/12-6/30/13)</i>	Second Year Results <i>(7/1/13-6/30/14)</i>	Third Year Results <i>(7/1/14-6/30/15)</i>	Fourth Year Results <i>(7/1/15-6/30/16)</i>	Fifth Year Results <i>(7/1/16-6/30/17)</i>	Total
No data	9	17	27	59	112

Discussion: Many activities were repeated. The program defined “new” broadly. The target for this new metric was met 4 of the 5 years; however, no data were submitted for year one possibly due to confusion during the transition between managers.

Metric 3

Goal 3: Promote public appreciation and support for stewardship of coastal resources.

Objective: By 2017, improve the ability of coastal resource managers to conserve, protect, and restore coastal ecosystems.

Strategy: The reserve will develop Coastal Training Program activities that promote stewardship by giving coastal resource managers the tools and information they need to conserve, protect, and restore coastal ecosystems. These activities include workshops and technical support initiatives. Technical support involves reserve staff time and effort provided to stakeholders, and technical support initiatives will be developed to meet the needs of stakeholders. These initiatives may be similar to activities such as reviewing city plans and ordinances or guidance with local water quality committees. The performance measure was chosen because it promotes integration of stewardship and coastal training. We have not offered as many

stewardship-focused trainings as we are capable of. Restoration is a key issue and has become even more important since the Deepwater Horizon spill. Technical support initiatives will build capacity and promote tools for priority issues of climate science, land use and development, restoration science, and wildlife and wildlife management. We can offer our stakeholders valuable information and support that would improve the stewardship of our coastal resources.

Performance Measure:

By 2017, number of technical support initiatives provided for resource managers that build coastal decision-maker capacity and promote tools for priority issues.

Target: By 2017, six technical support initiatives provided for resource managers that build coastal decision-maker capacity and promote tools for priority issues.

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
No Data	2	15	11	6	34

Discussion: The reserve exceeded the target for this new metric and did not report data in the first year possibly due to confusion during the transition between managers.

Evaluation Metrics, 2017-2022

Approved July 12, 2019

Metric 1

Goal: Mission-Aransas Reserve Management Plan Goal 2: Increase understanding of coastal ecosystems by diverse audiences.

Objective 2-1: Disseminate research information and results to researchers and decision makers through an on-site resource center, website, and other forms of media.

Strategy: Mission-Aransas Reserve is always looking for ways to further science on management issues within the boundaries of the reserve, including freshwater inflow impacts to oysters, shrimp, and crab populations. Other management issues to research and educate decision makers about include mangrove expansion impacts to Whooping Crane habitat, sea level rise impacts on marsh loss or expansion, and water quality changes over time due to storm events. One of the key ways we get this information to other scientists is through peer-reviewed publications. The strategy is to publish the research that Mission-Aransas Reserve will be conducting on these management issues to further our mission’s goals. All publications under this performance measure are either authored or co-authored by reserve staff or

partners. Publications are highly dependent on external funding opportunities outside of NOAA funding, and for this reason, publications are limited to 10 peer-reviewed publications over the performance period.

Note: The research database tracks performance by calendar year, not cooperative agreement cycle.

Performance Measure: Between 2018-2022 the number of peer reviewed published papers authored or co-authored by reserve staff conducted within the Mission-Aransas Reserve.

Target: Between 2018-2022, 10 peer-reviewed published papers authored or co-authored by reserve staff conducted within the Mission-Aransas Reserve.

First Year Results (9/1/17- 8/30/18)	Second Year Results (9/1/18- 8/30/19)	Third Year Results 9/1/19- 8/30/20)	Fourth Year Results (9/1/20- 8/30/21)	Fifth Year Results (9/1/21- 8/30/22)
0	0	6	TBD	TBD

Discussion: During the first and second year, the reserve was engaged in hurricane recovery. If the third year is an indicator, they are on track for meeting and possibly exceeding the target of this metric.

Metric 2

Goal: Mission-Aransas Reserve Management Plan Goal 2: Increase understanding of coastal ecosystems by diverse audiences.

Objectives 2-4: Increase K-12 and early grade-level student literacy about coastal ecosystems through programs hosted at reserve facilities, aboard the R/V *Katy*, and in the Scientist in Residence Program;

Objective 2-6: Increase public literacy about Texas coastal ecosystems through public education programs hosted at reserve facilities, Summer Science Program, and Road Scholar Program.

Strategy: Education within Mission-Aransas Reserve is expanding with the new trail systems put into place over the past two years, including the Dunescape, water-wise garden, and the Amos Rehabilitation Keep. This opens up opportunities for establishing new tours to educate folks about different habitats, processes, and ecosystems that they might not have been exposed to in the past. The strategy is to develop these tours and programs, and expand our reach to the public. However, the campus was closed to the public and school groups in August 2017 due to Hurricane Harvey. The campus is expected to open back up to the public and school groups in mid to late 2020. For this reason, the number of people reached is lower than what has been reported in the database from the previous performance period.

Performance Measure: From 2017-2022, the number of people reached through public presentations, public/outreach activities, conservation action program, and number of walk-in visitors at the education/visitor center (Public Served Index).

Target: From 2017-2022, 20,000 people reached through public presentations, public/outreach activities, conservation action programs, and number of walk-in visitors at reserve education/visitor center. (Public Served Index).

First Year Results (9/1/17-8/30/18)	Second Year Results (9/1/18-8/30/19)	Third Year Results (9/1/19-8/30/20)	Fourth Year Results (9/1/20-8/30/21)	Fifth Year Results (9/1/21-8/30/22)
3,312	4,236	3,822	TBD	TBD

Discussion: As the reserve continues to recover from the impacts of Hurricane Harvey and to increase virtual and socially distanced engagement opportunities during the pandemic, the reserve seems on track to achieve the target numbers.

Metric 3

Goal: Mission-Aransas Reserve Management Plan Goal 2: Increase understanding of coastal ecosystems by diverse audiences.

Objective 2-7: Enhance the transfer of knowledge, information, and skills to coastal decision makers by hosting a minimum of eight trainings, updating the reserve’s market analysis/needs assessment, creating a listserv, and enhancing use of the reserve coastal training program website.

Strategy: The Mission-Aransas Reserve is in a unique position, since Hurricane Harvey hit in August 2017, to start serious conversations about coastal resiliency, emergency management, coastal flooding and hazards, and recovery. The strategy will be to develop workshops and trainings centered on these conversations in a way that benefits the local community in being prepared and planning for future events. The workshops or technical support initiatives for resource managers will build coastal decision-maker capacity and promote tools for coastal resiliency, wetland restoration, climate science, and land use and development issues.

Performance Measure: From 2017-2022, workshops and technical assistance for coastal decision makers that build coastal decision-maker capacity to address habitat protection, water quality, and climate change.

Target: From 2017-2022, 30 targeted workshops and technical assistance for coastal decision makers that build coastal decision-maker capacity to address habitat protection, water quality, and climate change.

First Year Results (9/1/17-8/30/18)	Second Year Results (9/1/18-8/30/19)	Third Year Results (9/1/19-8/30/20)	Fourth Year Results (9/1/20-8/30/21)	Fifth Year Results (9/1/21-8/30/22)
4	4	13	TBD	TBD

Discussion: Much like for metric two, the reserve continues to seek ways to engage coastal decision-maker audiences virtually during the pandemic. With 21 workshops and technical assistance instances achieved to date, they are on track for meeting or exceeding their target.

Conclusion

For the reasons stated herein, I find that the University of Texas at Austin through its College of Natural Sciences Marine Science Institute is adhering to the programmatic requirements of the Coastal Zone Management Act and its implementing regulations in the operation of its approved Mission-Aransas National Estuarine Research Reserve.

These evaluation findings contain four 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 Mission-Aransas 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.

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

dated December 21, 2020
Date

Appendix A: Response to Written Comments

No comments were received.