

# Final Evaluation Findings

## Tijuana River National Estuarine Research Reserve

August 2016 to July 2022

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# Executive Summary

The Coastal Zone Management Act requires the National Oceanic and Atmospheric Administration's (NOAA's) Office for Coastal Management to conduct periodic evaluations of the performance of national estuarine research reserves. This evaluation examined the operation and management of the Tijuana River National Estuarine Research Reserve for the period from August 2016 through July 2022. The evaluation focused on three target areas: community connections, habitat restoration through partnerships, and sustaining and building programs through external funding sources.

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:

**Accomplishment:** Tijuana River National Estuarine Research Reserve has created a culture of integrating the human dimensions and natural resource management into how they operate. It is a flexible and adaptive framework that contributes to strong partnerships and community connections, increased opportunities, and improved outcomes.

**Accomplishment:** California State Parks, with support from the Southwest Wetlands Interpretive Association, improved coordination and oversight of NOAA operations funding by establishing the San Diego Coast District NOAA Grant Review Team. This team ensures the reserve is able to best assign funds to projects and staff (including split positions between California State Parks and the Southwest Wetlands Interpretive Association) for effective program implementation. The coordination effort contributes to the stability of cash-flow for the Southwest Wetlands Interpretive Association to support staff and programming.

**Accomplishment:** Tijuana River National Estuarine Research Reserve has substantially increased its engagement with local federally recognized tribal communities on cultural and historic resources for reserve restoration projects. The reserve has partnered with tribal communities on education and interpretive projects, which has provided space for sharing stories in their own voice, maintaining language, and building and strengthening connection and identity with the Tijuana River estuary.

**Accomplishment:** Tijuana River National Estuarine Research Reserve created an innovative podcast, *Divided Together*, that tells the stories of the people and history of the Tijuana River estuary and watershed. It is a product that has been used in several ways and which is an example for other parks and organizations.

**Accomplishment:** Tijuana River National Estuarine Research Reserve Coastal Training Program continued to work with Mexican partners to reduce land-based sources of pollution, support a circular economy based on reuse of waste, and promote transboundary cooperation. The

Coastal Training Program is a reliable and consistent partner for ecological and human dimensions work in both the Mexican and Californian portions of the Tijuana River watershed.

**Accomplishment:** Tijuana River National Estuarine Research Reserve Education Program adapted to the changing conditions of the COVID-19 pandemic and met student and educator needs by partnering with California State Parks and the Parks Online Resources for Teachers and Students program for remote learning.

**Accomplishment:** Tijuana River National Estuarine Research Reserve has effectively leveraged federal funding and technical assistance in a coordinated and holistic way to inform their approach to habitat restoration in the Tijuana Estuary. The reserve is about to implement, expand, or support three habitat restoration projects. Although these three projects are managed independently, they are part of a landscape-level restoration effort covering the reserve watershed and crossing landownership boundaries.

**Necessary Action:** Tijuana River National Estuarine Research Reserve must work with the NOAA Office for Coastal Management to develop within 30 days of issuance of the final evaluation findings a complete draft of the reserve comprehensive management plan.

**Recommendation:** California State Parks and Southwest Wetlands Interpretive Association should consider reviewing and updating their memorandum of agreement to document changes in their relationship and to support the new strategic vision of the Tijuana River National Estuarine Research Reserve and its soon-to-be-completed comprehensive management plan.

**Recommendation:** Tijuana River National Estuarine Research Reserve should consider how to better promote reserve accomplishments, including their landscape-scale habitat restoration program. This can elevate the status of the reserve and lead to new applications of reserve successes and leverage reserve expertise and experience. The reserve should consider existing relationships as well as new and innovative approaches to do this.

**Recommendation:** Tijuana River National Estuarine Research Reserve should consider ways in which to further their engagement with tribal communities in meaningful and impactful ways. The reserve should also consider ways to engage tribal communities in the completion of their comprehensive management plan.

**Recommendation:** Tijuana River National Estuarine Research Reserve should consider ways to grow its capacity to work with partners in Mexico. This could include new economic and social justice initiatives by the federal government and by partnering with new organizations which have the ability to directly fund projects in Mexico.

**Recommendation:** Tijuana River National Estuarine Research Reserve should work with the Office for Coastal Management National Estuarine Research Reserve System's education sector lead and the reserve system education sector to explore opportunities to meet the needs of the

reserve target audience for Teachers on the Estuary while still meeting objectives and the intent of the national Teachers on the Estuary program.

## Program Review Procedures

The Coastal Zone Management Act of 1972, as amended,<sup>1</sup> 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 315 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 NOAA Office for Coastal Management evaluated the Tijuana River National Estuarine Research Reserve in fiscal year 2022. The evaluation team consisted of Michael Migliori, evaluation team lead, Melis Ökter, site liaison, and Doug George, physical scientist, all from the NOAA Office for Coastal Management; and Jeff Carter, stewardship coordinator and aquatic preserve manager of the Rookery Bay National Estuarine Research Reserve in Naples, Florida. The support of the Tijuana River Reserve staff was crucial in conducting the evaluation, and this support is most gratefully acknowledged.

NOAA sent a notification of the scheduled evaluation to Armando Quintero, director, California State Parks, on March 29, 2022, and published a notice of “Intent to Evaluate” in the *Federal Register* on June 16, 2022. NOAA also notified members of California’s congressional delegation and the 19 federally recognized tribes and tribal bands in San Diego County.

The evaluation process included a review of relevant documents and a survey of stakeholders, which helped identify three target areas for the evaluation: community connections, habitat restoration through partnerships, and sustaining and building programs through external funding sources. The evaluation team held a series of virtual meetings 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 Wednesday, July 27, 2022, at 1:30 p.m. to provide an opportunity for members of the public to express their opinions about the implementation of the reserve’s programs.

Stakeholders and members of the public were given the opportunity to provide written comments via email through Friday, August 5, 2022. No written comments were received from the public or interested parties. The Office for Coastal Management then developed draft evaluation findings, which were provided to the reserve for review, and the reserve’s comments were considered in drafting the final evaluation findings.

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

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<sup>1</sup> 16 U.S.C. § 1451 et seq.

**Necessary Actions** address programmatic requirements of the 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 by the dates specified.

# Evaluation Findings

## Reserve Administration

### *Examples of Key Efforts*

The Tijuana River estuary, including the Tijuana River National Estuarine Research Reserve, represents the largest undeveloped coastal wetland in the Southern California biogeographic region (Point Conception to the Mexican border) and the northern portion of coastal Baja California in Mexico. It is a wetland of regional, national, and international importance as a designated RAMSAR Wetland site. Partners and stakeholders repeatedly mentioned its ecological value and the unique human dimensions of the area. The reserve brings together people and organizations to address ecological and human dimension challenges for the region. The reserve works in a binational setting. Their work also includes the additional consideration of the Kumeyaay peoples, the original stewards of the area. It is within this context that the reserve addresses land-based sources of pollution; cross-border impacts to water quality and quantity; climate change impacts; human migration, refugee movements, and national security concerns; changing economic conditions; and the challenges of operating during a pandemic.

The Tijuana River Reserve continues to benefit from the administrative structure that has been in place since 2001. California State Parks and the Southwest Wetlands Interpretive Association have been partners since the reserve's designation in 1982, and that relationship continues to grow and strengthen. The association has long provided advocacy for the reserve and more recently manages some reserve projects and programs. The relationship has grown to include staff management and coordinated decision-making for items such as grant funding and project planning. This structure benefits California State Parks in having a partner that can sometimes react more nimbly and quicker than a large state agency. The Southwest Wetlands Interpretive Association benefits from stability in operational costs. The joint approach to funding is further discussed in the "Sustaining and Building Programs Through External Funding Sources" section of these evaluation findings.

Additional coordination between California State Parks and the Southwest Wetlands Interpretive Association includes the reserve assistant manager attending the association's board meetings regularly (but does not hold a voting seat). And the Southwest Wetlands Interpretive Association director sits on the reserve advisory council.

Through a memorandum of agreement between state parks and the association, the Southwest Wetlands Interpretive Association is allowed to receive federal funding through the Coastal Zone Management Act directly from NOAA to support management of the reserve's research program. The association has received this funding directly from NOAA annually since 2001. During this review period California State Parks established the San Diego Coast District NOAA Grant Review Team primarily for oversight of the reserve operations award submittal process as well as staffing of positions split between the association and California State Parks. The



Grant Review Team is composed of the assistant reserve manager, San Diego Coast District Natural Resources Program lead, the San Diego Coast district superintendent, the San Diego Coast District environmental coordinator, and the reserve research coordinator, who is an employee of the Southwest Wetlands Interpretive Association. The Grant Review Team has the decision-making authority over all state park agreements, grants, and contracts associated with reserve operations including the NOAA operations award and the Coastal Training Program contract. This team ensures that the reserve is able to best assign funds to projects and staff for effective program implementation.

The cooperation among the two organizations has been referred to as part of the reserve “culture.” Or to put it another way, “DNA beats strategy [people and relationships are more influential than planning].” But there is a possible long-term challenge to maintain that spirit of cooperation and collaboration. As the reserve prepares to complete an update to their comprehensive management plan, there is an opportunity to revisit and formalize expanded partnership roles. Such strategic leveraging of capacity and funding can help the reserve direct contracts and staff work to the most appropriate party. This way, the work of the reserve can be completed efficiently and effectively. The nimbleness that such an arrangement provides would contribute to the continued success of the reserve.

The reserve has demonstrated added value to the California State Parks San Diego Coast District and the agency more broadly. The reserve has developed a case study with Parks California and California State Parks Foundation (California State Park’s statewide nonprofit partners) on the *Divided Together* podcast, participated in the California State Parks Online Resources for Teachers and Students program, and made contributions to interpretation and education at the Old Town San Diego State Historic Park. The reserve can continue to build on these efforts to the benefit of California State Parks, the people of California, and beyond.

The Tijuana River National Estuarine Research Reserve has many successes to share. Many of those successes achieved since the last evaluation are documented within these findings. Improved capacity of the reserve to tell its story and promote the work they do beyond their community (and within the national reserve system) would increase opportunities to share their expertise and elevate the reserve and the Tijuana River estuary to even greater recognition. There are many opportunities to leverage the advocacy work of existing partners, including Southwest Wetlands Interpretive Association, Parks California, the California State Coastal Conservancy, and the National Estuarine Research Reserve Association. There may be additional new partners to consider for such a strategy of reserve promotion. The reserve comprehensive management plan could address the objectives of such a strategy.

The reserve has not completed an update of its management plan (adopted in September 2010). Although the reserve has since created an updated strategic visioning plan, there is still the need to update the management plan. This plan will guide their management and operations over the next five-year period. NOAA regulations<sup>2</sup> require an updated management

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<sup>2</sup> 15 CFR 921.33(c)

plan once every five years. As part of the previous evaluation findings, there was a necessary action to develop within 90 days of receipt of the final evaluation report [August 7, 2017], an agreed-upon timeline for the completion of the management plan within publication. On October 24, 2017, the reserve carried out this necessary action and set December 31, 2019, as the target for completion of their management plan and was included as a task within the fiscal year 2018-2019 NOAA Operations Award. An updated timeline for the completion of the management plan was set for December 31, 2021, as indicated in the fiscal year 2020-2021 NOAA Operations Award. The plan is long overdue and the reserve must prioritize the completion of this requirement.

In 2008, the Department of Homeland Security seized roughly 53 acres of Border Field State Park within the reserve and roughly 120 acres of county parkland adjacent to the reserve to develop additional border infrastructure. At the time of the most recent management plan approval, ownership of this portion of the reserve was still under litigation. As such, there was some ambiguity in how the boundary was described. As part of the management plan revision process, the reserve should thoroughly and clearly describe the boundary, ownership, and management structure and operation of this area.

One of the challenges of managing the natural resources of the reserve is the multijurisdictional nature of landownership within the reserve boundary. Out of necessity, the reserve stewardship program must work with these partners for resource stewardship activities even though the reserve does not have direct management authority over all lands within the reserve boundary. As noted in previous evaluation findings, in the past the stewardship coordinator position was a seasonal position and at times had been vacant. An assistant manager position, whose responsibility includes stewardship project management, has been filled on a full-time basis and has greatly enhanced the reserve's ability to coordinate stewardship activities across the reserve and reduce the burden of stewardship project coordination on the reserve manager.

The Tijuana River National Estuarine Research Reserve has broad sector integration across stewardship, education, research and monitoring, and coastal training. It is a reserve operational principle that manifests in many of the reserve's programs. A few examples include successful multidisciplinary grant applications to the National Estuarine Research Reserve System Science Collaborative and NOAA Marine Debris Program, integration of reserve research projects and monitoring data into education programs, and collaborative research, convening, and facilitation for planning and execution of habitat restoration projects.

#### *Findings for Reserve Administration*

**Accomplishment:** Tijuana River National Estuarine Research Reserve has created a culture of integrating the human dimensions and natural resource management into how they operate. It is a flexible and adaptive framework that contributes to strong partnerships and community connections, increased opportunities, and improved outcomes.

**Accomplishment:** California State Parks, with support from the Southwest Wetlands Interpretive Association, improved coordination and oversight of NOAA operations funding by establishing the San Diego Coast District NOAA Grant Review Team. This team ensures the reserve is able to best assign funds to projects and staff (including split positions between California State Parks and the Southwest Wetlands Interpretive Association) for effective program implementation. The coordination effort contributes to the stability of cash-flow for the Southwest Wetlands Interpretive Association to support staff and programming.

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## Community Connections

### *Examples of Key Efforts*

The Tijuana River National Estuarine Research Reserve serves a diverse community and a diversity of communities. The scope of this evaluation focused in on a subset of community connection. In this way the evaluation was representative of the breadth of communities that the reserve works with. It also provides a more in-depth exploration of these select communities. This discussion will illustrate success in reaching communities and also brings to light areas where additional focus or resources could enhance programs and provide greater impact.

The reserve has made significant and meaningful progress in engaging with tribal communities that have a connection with the Tijuana River valley and Tijuana River estuary. The evaluation team regularly heard reserve staff describe the area of the reserve as trinational (United States of America, Mexico, and the Kumeyaay people) to be inclusive of the interest and historic connection of the tribal communities. The reserve has engaged with federally recognized tribal communities in the California Environmental Quality Act process and with historic and cultural preservation on specific restoration projects (Monument Mesa and Road Project, Tijuana Estuary Tidal Restoration Program, Nelson Sloan Quarry, and native plant restoration and invasive species management projects).

The reserve developed a podcast called *Divided Together*. It has been used to help visitors orient themselves to Border Field State Park and the larger Tijuana River estuary and watershed. The stories are told by the people of the area and include unique perspectives that tie the land to its people. Episodes are “Kumeyaay Nation Divided by the Border,” “Scientist and Geographers Working Across Borders,” “Indigenous Land Use Practices,” and “Human Rights Along the Border.” These episodes again show the reserve’s strength of bringing together the ecological and human dimension. It provides the space for tribal members, Mexican partners, and others to tell their stories in their own voice. The *Divided Together* podcast has been used as part of the celebration of the 50<sup>th</sup> anniversary of Border Field State Park and has been incorporated into reserve field trips and as part of a self-guided tour on Monument Mesa. Parks California has developed a case study on *Divided Together* so that the experience of having people tell their own stories can be shared as an example with other parks. The reserve, California State Parks, and Parks California are working on developing Season 2 of *Divided Together*.

Even with the examples provided above, there are opportunities to build on relationships and engagement with tribal communities. This could happen both at the project level as well as at an advisory level. There are examples within the National Estuarine Research Reserve System of inviting tribal members to participate in advisory meetings and establishing a tribal advisory structure. The Office for Coastal Management recognizes the importance of contributions for the tribal communities in the implementation of reserve programs that affect them. And the

office also recognizes that there are State of California responsibilities when engaging and working with tribes and that the reserve will operate within those parameters.

The previous evaluation findings recognized the work that the reserve conducted in Mexico and with Mexican partners. The reserve has built upon these accomplishments and addressed some of the recommendations discussed in the previous evaluation. This is supported by a full-time binational liaison and Coastal Training Program associate on the reserve's Coastal Training Program staff dedicated to reserve efforts in Mexico. There has been a major focus on furthering the partnership with the NOAA Marine Debris Program and the transnational nature of pollution in the Tijuana River watershed. The 6<sup>th</sup> International Marine Debris Conference was held in San Diego with the reserve supporting a field trip and sharing the work they had done on land-based sources of pollution. Additional funding from the NOAA Marine Debris Program and support from the U.S. Environmental Protection Agency's Border 2020 Program has allowed the reserve to address pollution sourced within Mexico. The reserve's Coastal Training Program provided technical assistance to Mexican partners, including Proyecto Fronterizo de Educación Ambiental, resulting in the Desembolsate BC campaign. Translated as "Baja California: Get Rid of Your Bags," this campaign resulted in local government of the City of Tijuana voting unanimously to ban disposable plastic bags. Additional ways in which the reserve Coastal Training Program works to reduce input of debris into the Tijuana River estuary is to promote a circular economy, where discarded materials can be repurposed or reused rather than become sources of pollution. This benefits the people and economy of Tijuana and the health of the river and estuary.

The evaluation team heard from stakeholders in Mexico that they rely on the support that the reserve provides to build capacity and support programs for environmental issues within the Tijuana community. With economic development and poverty, immigration and refugees, crime, and other concerns, having a dedicated and reliable partner for environmental issues from the reserve was recognized as critical to the success of such efforts in the Mexican portion of the Tijuana River watershed. In order to ensure that the health of the Tijuana River estuary continues to benefit from reduced pollution inputs from Mexico, the reserve should find ways to sustain their outreach support and technical assistance to communities and organizations in Mexico. The federal government has recently committed additional resources that can address transboundary pollution. The Infrastructure Investment and Jobs Act (2021) provides additional resources to the National Sea Grant Program (through the NOAA Marine Debris Program) to address the prevention and removal of marine debris. As part of the United States-Mexico-Canada Agreement, the U.S. Environmental Protection Agency has committed funds to address transboundary flow of pollution.

In 2019, the reserve education program recognized a decline in attendance and participation in reserve education programs. The reserve education coordinator participated in training for the California State Parks virtual learning program, PORTS (Parks Online Resources for Teachers and Students). Then the COVID-19 pandemic happened. Having prepared for a shift to virtual education programs, the reserve was well positioned to continue its education program at the start of the pandemic and build upon its fortuitous timing. As pandemic restrictions have eased,

the reserve has transitioned to blended learning, incorporating online learning with in-person field trips at the reserve. The Tijuana River National Estuarine Research Reserve has contributed greatly to the PORTS program, with Border Field State Park being the only park participating in the program that is providing content on estuaries and climate change. The reserve's use of virtual learning and transitioning to blended learning demonstrates its commitment to equitable access, providing opportunities for those that are unable to visit the reserve. Through the use of California State Park funding, the reserve can transport Title I schools to the reserve for in-person programs.

The reserve developed a Climate Teachers on the Estuary program in 2018. Some of the successes of this program include partnering with San Diego County Office of Education to incorporate next generation science standards into county curriculum, increasing teacher ability to bring climate change topics into the classroom, and incorporating reserve research and monitoring into lessons. Despite these positive outcomes, the reserve is struggling to meet its participation goals given the in-person requirements of the Teachers on the Estuary program. The large size of San Diego county can make it difficult for participants to travel to the reserve. Teacher shortages and lack of substitute teachers also contribute to difficulty in recruiting participants. This was something that was confirmed in discussion with the San Diego County Department of Education. The difficulty extends to teachers in Mexico with the added challenge of crossing the U.S-Mexico border. A review or update of the most recent market analysis and needs assessment could inform future strategies to meet program requirements and reserve performance targets.

It is important to note that the location of the reserve within Border Field State Park provides for additional connections within and between communities at Friendship Park, a park joining the San Diego and Tijuana regions along the U.S.-Mexico border. Communities, families, tribal members, and others separated by the border fence have the opportunity to gather and meet here. The reserve has committed to improve infrastructure to access to Border Field State Park and Friendship Park via Monument Road (discussed further in the "Restoration Partnership" section). With the ever-evolving national security situation along the border, the reserve continues to work with U.S. Customs and Border Protection to manage access and resource management in the border area of the reserve.

### *Findings for Community Connections*

**Accomplishment:** Tijuana River National Estuarine Research Reserve has substantially increased its engagement with local federally recognized tribal communities on cultural and historic resources for reserve restoration projects. The reserve has partnered with tribal communities on education and interpretive projects, which has provided space for sharing stories in their own voice, maintaining language, and building and strengthening connection and identity with the Tijuana River estuary.

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**Accomplishment:** Tijuana River National Estuarine Research Reserve Education Program adapted to the changing conditions of the COVID-19 pandemic and met student and educator needs by partnering with California State Parks and the Parks Online Resources for Teachers and Students program for remote learning.

**Recommendation:** Tijuana River National Estuarine Research Reserve should consider ways in which to further their engagement with tribal communities in meaningful and impactful ways. The reserve should also consider ways to engage tribal communities in the completion of their comprehensive management plan.

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**Recommendation:** Tijuana River National Estuarine Research Reserve should work with the Office for Coastal Management National Estuarine Research Reserve System's education sector lead and the reserve system education sector to explore opportunities to meet the needs of the reserve target audience for Teachers on the Estuary while still meeting objectives and the intent of the national Teachers on the Estuary program.

## Habitat Restoration Through Partnerships

### *Examples of Key Efforts*

The land ownership of the Tijuana River valley and estuary is a patchwork. This includes local, state, and federal government, as well as private property owners. For the Tijuana River National Estuarine Research Reserve to meet its habitat management and restoration goals, it must work with individual entities and coordinate among these landowners. The integrated nature of the reserve programs, the collaborative culture of the reserve staff, and strong partnerships help the reserve to address important habitat restoration projects across the estuary. The projects rely heavily on the reserve monitoring program to understand historic and current conditions and to inform project monitoring approaches. The Coastal Training Program provides technical assistance and facilitates these collaborative efforts. The evaluation primarily focused on three habitat restoration projects: Monument Mesa Road project, Nelson Sloan Quarry, and the Tijuana Estuary Tidal Restoration Program.

The reserve has taken a comprehensive, ecosystem-wide, and long-term approach to the restoration of the Tijuana River valley and estuary. Some of the habitat restoration projects have taken more than a decade to complete from planning to ongoing monitoring. Some projects have several phases. The reserve participates in the Southern California Wetlands Recovery Project. This group has a comprehensive regional strategy that supports wetland resilience and guides project design and funding decisions. Reserve staff serve on key committees of the Wetlands Recovery Project, including the Wetlands Advisory Group, Science Advisory Panel, and Wetlands Managers Group. This involvement helps ensure that reserve perspectives are incorporated into the regional wetland strategy and activities.

The reserve has led, participated in, or benefited from several federally funded ecosystem-scale research studies that inform its approach to its three major habitat restoration projects. The *Tijuana Estuary Sediment Fate and Transport Study*, led by the U.S. Geological Survey and California Coastal Conservancy with other partners including the U.S. Environmental Protection Agency, informs sediment management practices in the Tijuana estuary. This study is critical to informing the beneficial use of sediment in the Nelson Sloan Quarry project and the Tijuana Estuary Tidal Restoration Program. The Climate Understanding and Resilience in the River Valley project, funded by the NOAA Climate Program Office, investigated possible future sea level rise and riverine flooding scenarios in the river valley. This study helps the reserve and partners consider possible different future conditions when planning their restoration projects. The California State Coastal Conservancy received funding from the NOAA National Centers for Coastal Ocean Science's Ecological Effects of Sea Level Rise program to assess marsh responses to climate change in wetlands throughout Southern California, with a focus for the Tijuana Estuary. This project looked at how habitats to be created as part of the Tijuana Estuary Tidal Restoration Program might respond to sea level rise and sediment input from the watershed. The U.S. Geological Survey contributed hydraulic modeling expertise to the Tijuana Estuary Tidal Restoration Program. All these studies demonstrate how the reserve has leveraged



federal resources to inform its plans for habitat restoration in a comprehensive, holistic, and science-based way.

Since the restoration projects have technical aspects, multiple landowners and partners, and a long time horizon, communicating a holistic story about the landscape-level restoration at the reserve may pose a challenge. The reserve should consider the benefits and drawbacks of a comprehensive communication effort to tell the story of how to conduct this kind of work.

Monument Road project represents important infrastructure investment that will provide access to the reserve's day-use facility at Monument Mesa within Border Field State Park. Initial planning efforts concluded that initial allocation of \$6 million to the project was not sufficient and California State Parks allocated a total of \$12 million to the project in 2021. The project will consider resilience to sea level rise and riverine flooding.

The Tijuana Estuary Tidal Restoration Program has been a centerpiece of reserve restoration for nearly four decades. The next phase (TETRP II, Phase I) is under environmental review. It is planned as an 80-acre salt marsh restoration within the boundary of the reserve. This project will restore habitat damaged by historic cross-border sediment flows. It includes habitat for the endangered light-footed Ridgway's rail. The project is managed by the Southwest Wetlands Interpretive Association and is a partnership between the association, the reserve, California State Parks, the U.S. Fish and Wildlife Service, California Coastal Conservancy, and California Wildlife Conservation Board.

The reserve is working to streamline the permitting and review of the Tijuana Estuary Tidal Restoration Program. The reserve leveraged capacity at the U.S. Fish and Wildlife Service for support with review under the National Environmental Policy Act and the Endangered Species Act. The environmental impact statement was developed as a joint document with the U.S. Army Corps of Engineers as a cooperating agency. And reviews under the National Environmental Policy Act and the California Environmental Quality Act were conducted at the same time. Delays with review and permitting can affect restoration project implementation. Regular engagement and existing relationships with partners with regulatory authority has helped the reserve to facilitate review and permitting. The reserve would benefit from building on this momentum. Reserve projects could also demonstrate how a streamlined review process could benefit the timing and the outcomes of these projects (including restoration ecological function, creation of habitat, and resilience to climate change impacts), while not avoiding or diminishing the review and permit process.

Nelson Sloan Quarry restoration project represents an opportunity to solve a long-term sediment management problem while also creating new upland habitat. The reserve experiences excess sediment coming into the reserve through periodic flooding events. Sediment is collected in basins at Goat Canyon and has historically been removed at great expense to California State Parks. The mesa habitat restoration at Nelson Sloan Quarry will include the beneficial reuse of sediment from the sediment basins in the river channel. The

sediment can also be used from the next phase of the Tijuana Estuary Tidal Restoration Program.

There is an opportunity to be a state leader in the beneficial reuse of sediment for habitat restoration. The *Tijuana Estuary Sediment Fate and Transport Study* can be used to rethink approaches to sediment management. The reserve should engage with the Southern California Wetlands Recovery Project, Coastal Sediment Management Workgroup, and other regional and statewide groups to promote their approach and results.

The Tijuana River National Estuarine Research Reserve System-Wide Monitoring Program supports habitat restoration activities within the reserve and in the larger San Diego area. System-wide Monitoring Program data inform project design and support monitoring of completed restoration projects. It is noteworthy that reserve monitoring data were collected and disseminated during the height of COVID-19 stay-at-home orders. Reserve staff experience and expertise, deployment of dataloggers, and use of telemetry contributed to the availability of this important data even under the pandemic restrictions.

#### *Findings for Habitat Restoration Through Partnerships*

**Accomplishment:** Tijuana River National Estuarine Research Reserve has effectively leveraged federal funding and technical assistance in a coordinated and holistic way to inform their approach to habitat restoration in the Tijuana Estuary. The reserve is about to implement, expand, or support three habitat restoration projects. Although these three projects are managed independently, they are part of a landscape-level restoration effort covering the reserve watershed and crossing landownership boundaries.

**Recommendation** (also included in *Reserve Administration* section): Tijuana River National Estuarine Research Reserve should consider how to better promote reserve accomplishments, including their landscape-scale habitat restoration program. This can elevate the status of the reserve and lead to new applications of reserve successes and leverage reserve expertise and experience. The reserve should consider existing relationships as well as new and innovative approaches to do this.

## Sustaining and Building Programs Through External Funding Sources

### *Examples of Key Efforts*

Despite the challenges associated with administering Coastal Zone Management Act funding across two organizations, California State Parks and the Southwest Wetlands Interpretive Association have developed structures and processes to ensure effective execution of grants. Their approach also provides flexibility. This allows them to adapt to changing priorities or capitalize on new opportunities. The NOAA funding under the Coastal Zone Management Act and the required match provided by the state supports reserve staff and much of the existing programming.

The staff of the Tijuana River National Estuarine Research Reserve have demonstrated capability in developing new initiatives and building on existing programs. One way in which they do this is through external funding opportunities (that is, funding that is beyond the annual operations funding from NOAA under the Coastal Zone Management Act and the required cost share provided by the state of California). In some way, every external funding opportunity represents an opportunity to develop a new partnership or to build upon an existing partnership.

The reserve has been successful in obtaining several external funding opportunities during the evaluation period. However, it has not been able to pursue all possible funding opportunities it has been interested in. There are concerns that funds on hand cannot support grants where expenditures need to be made and then reimbursed. This is a limitation on the reserve that restricts new opportunities. Exploring ways to build financial mechanisms or to partner with other entities that can support this type of funding structure can expand opportunities for sustaining projects through external grants.

During the evaluation, it was made clear by the Southwest Wetlands Interpretive Association that they need to find a long-term solution to sustaining the administration of their organization and programs. Establishment of an indirect cost rate agreement with NOAA has provided some certainty in fiscal planning. The Office for Coastal Management recognizes the challenges the association faces. Annual operations funding provided by NOAA under the Coastal Zone Management Act will continue to support some reserve positions at the Southwest Wetlands Interpretive Association, providing stability as the association works to address their fiscal needs.

### *Findings for Sustaining and Building Programs Through External Funding Sources*

**Accomplishment** (also included in *Reserve Administration* section): California State Parks, with support from the Southwest Wetlands Interpretive Association, improved coordination and oversight of NOAA operations funding by establishing the San Diego Coast District NOAA Grant Review Team. This team ensures the reserve is able to best assign funds to projects and staff (including split positions between California State Parks and the Southwest Wetlands

Interpretive Association) for effective program implementation. The coordination effort contributes to the stability of cash-flow for the Southwest Wetlands Interpretive Association to support staff and programming.

## Evaluation Metrics

Beginning in 2012, reserves began tracking their success in addressing three evaluation metrics specific to their programs. The evaluation metrics include a five-year target and provide a quantitative reference for each program about how well it is meeting the goals and objectives it has identified as important to the program. In 2017, reserves began a new five-year period and set targets specific to their programs based on measures from existing National Estuarine Research Reserve System performance measures.

### *Evaluation Metrics: 2012-2017*

#### **Metric 1: Informed Sediment Management**

**Goal:** National Estuarine Research Reserve System Strategic Plan People Goal: Reserve System education and training increases participants' environmental literacy and ability to make science-based decisions related to estuaries and coastal watersheds.

**Objective:** Improve the capacity and skills of coastal decision makers to use and apply science-based information in decisions that affect estuaries and coastal watersheds.

**Performance Measure:** Between 2012 and 2017, the number of new targeted workshops or technical assistance held that communicate results of new research on sediment management approaches.

**Target:** Between 2012 and 2017, ten new targeted workshops or technical assistance held that communicate results of new research on sediment management approaches.

**Fiscal Year (FY) 2013 Annual Data:** Seven new targeted workshops or technical assistance held that communicate results of new research on sediment management approaches.

**FY 2014 Annual Data:** Four new targeted workshops or technical assistance held that communicate results of new research on sediment management approaches.

**FY 2015 Annual Data:** Two new targeted workshops or technical assistance held that communicate results of new research on sediment management approaches.

**FY 2016 Annual Data:** Three new targeted workshops or technical assistance held that communicate results of new research on sediment management approaches.

**Cumulative Data:** Sixteen targeted workshops have been held.

**Discussion:** The reserve has exceeded its target for this category. Workshops have been held to increase community and partner awareness on sediment management, which has shown on-the-ground results related to both coastal resilience and cross-border issues.

## **Metric 2: Increased Sector Integration**

**Goal:** Tijuana Reserve Management Plan Goal II: To fully integrate the reserve’s research, stewardship, community outreach, and education programs along with the Tijuana Slough National Wildlife Refuge program, and provide a model of excellence in all areas.

**Objective:** Administrative Plan of Action, Objective 4. In cooperation with federal, state, and local partners, a seamless reserve will be managed that addresses watershed and ecosystem-level concerns while meeting the established purpose of the Tijuana River Reserve and Tijuana Slough National Wildlife Refuge.<sup>20</sup>

**Performance Measure:** Between 2012 and 2017, the number of collaborative products produced through the combined efforts between two or more of the reserve’s programs including coastal training program, research, education, community outreach, stewardship, and the Tijuana Slough National Wildlife Refuge.

**Target:** Between 2012 and 2017, ten collaborative products produced through the combined efforts between two or more of the reserve’s programs including coastal training program, research, education, community outreach, stewardship, and the Tijuana Slough Refuge.

**FY 2013 Annual Data:** Six collaborative products produced through the combined efforts between two or more of the reserve’s programs including coastal training program, research, education, community outreach, stewardship, and the Tijuana Slough Refuge.

**FY 2014 Annual Data:** Six collaborative products produced through the combined efforts between two or more of the reserve’s programs including coastal training program, research, education, community outreach, stewardship, and the Tijuana Slough Refuge.

**FY 2015 Annual Data:** Two collaborative products produced through the combined efforts between two or more of the reserve’s programs including coastal training program, research, education, community outreach, stewardship, and the Tijuana Slough Refuge.

**FY 2016 Annual Data:** Seven collaborative products produced through the combined efforts between two or more of the reserve’s programs including coastal training program, research, education, community outreach, stewardship, and the Tijuana Slough Refuge.

**Cumulative Data:** Twenty-one collaborative products produced.

**Discussion:** The reserve has exceeded the target for this category. The products and technical assistance have been very useful to its many partners and have also attracted new partners to the reserve (see especially the discussion of key efforts under “Coastal Resilience” in the Final Evaluation Findings, published May 2017).

### **Metric 3: Binational Collaboration**

**Goal:** Tijuana River Reserve Management Plan Goal IV: To assume regional leadership role for science-based natural resource enhancement and urban ecosystem management using partnership strategies in the entirety of the Tijuana River Watershed.

**Objective:** Stewardship Plan of Action, Objective 2. Respond to ongoing watershed-based resource management problems, such as sedimentation and erosion, by establishing cooperative and integrated programs and approaches throughout the watershed, on both sides of the international border, and, especially, within the Tijuana River Valley.

**Performance Measure:** Between 2012 and 2017, the number of binational collaborative efforts that address coastal environmental issues associated with the U.S.-Mexico border.

**Target:** Between 2012 and 2017, ten binational collaborative efforts that address coastal environmental issues associated with the U.S.-Mexico border.

**FY 2013 Annual Data:** Ten binational collaborative efforts that address coastal environmental issues associated with the U.S.-Mexico border.

**FY 2014 Annual Data:** Ten binational collaborative efforts that address coastal environmental issues associated with the U.S.-Mexico border.

**FY 2015 Annual Data:** Nine binational collaborative efforts that address coastal environmental issues associated with the U.S.-Mexico border.

**FY 2016 Annual Data:** Five binational collaborative efforts that address coastal environmental issues associated with the U.S.-Mexico border.

**Cumulative Data:** Thirty-four binational collaborative efforts.

**Discussion:** The reserve has far exceeded the target for this category. By actively involving Mexican organizations in their advisory groups, increased future collaboration is ensured.

#### *Evaluation Metrics: 2017-2022*

### **Metric 1: Informed Management through Monitoring**

**Goal:** Enhance the coastal management community's ability to understand and manage estuarine ecosystems through reserve-based long-term (a commitment of five or more years) monitoring programs.

**Objective:** Ensure the operation of stable, long-term abiotic and biotic monitoring programs.

**Performance Measure:** From 2018 to 2022, the annual number of long-term monitoring programs at the reserve.

**Target:** From 2018 to 2022, seven long-term monitoring programs in operation annually at the reserve.

**Calendar Year (CY) 2018 Annual Data:** 10 long-term monitoring programs in operation annually at the reserve.

**CY 2019 Annual Data:** 10 long-term monitoring programs in operation annually at the reserve.

**CY 2020 Annual Data:** 10 long-term monitoring programs in operation annually at the reserve.

**CY 2021 Annual Data:** 10 long-term monitoring programs in operation annually at the reserve.

**CY 2022 Annual Data (through July 2022):** 10 long-term monitoring programs in operation annually at the reserve.

**Discussion:** The reserve has exceeded its target for this metric in each year of reporting during this evaluation period. The reserve has a strong long-term monitoring program that supports reserve research, stewardship, and education programs. It is noted that the reserve does not lead all of these efforts. Some long-term monitoring programs at the reserve are conducted in collaboration with partners or are led by partners.

## **Metric 2: Increased Assistance to Coastal Decision Makers**

**Goal:** Better informed decision-making by local and regional coastal decision-makers (CDMs) through technical assistance.

**Objective:** Ensure technical assistance delivery provided to CDMs that supports and contributes to the goal and outcome of the Coastal Training Program (CTP).

**Performance Measure:** From 2017 to 2022, number of technical assistance offerings by the reserve.

**Target:** From 2017 to 2022, twenty-five technical assistance offerings by the reserve.

**Fiscal Year (FY) 2017 Annual Data:** 17 technical assistance offerings by the reserve.

**FY 2018 Annual Data:** 29 technical assistance offerings by the reserve.

**FY 2019 Annual Data:** 35 technical assistance offerings by the reserve.

**FY 2020 Annual Data:** 44 technical assistance offerings by the reserve.

**FY 2021 Annual Data:** 43 technical assistance offerings by the reserve.



**Ongoing (not assigned to a specific fiscal year but which occurred during the FY2017–FY2021 time period):** 25 ongoing technical assistance offerings reserve.

**Cumulative Data:** 193 technical assistance offerings by the reserve.

**Discussion:** The reserve has exceeded the target for this category. The technical assistance provided by reserve staff has supported many partners and includes activities specific to several of the projects discussed in more detail within these evaluation findings.

### **Metric 3: Teachers on the Estuary**

**Goal:** Improve the scientific understanding of estuaries and their watersheds through the development and application of reserve research, data, and tools.

**Objective:** Scientific, management, and educational audiences will know about and be able to effectively use reserve research, data, and products to understand the effects of climate and land-use change on estuaries, ecosystem services, and human well-being.

**Performance Measure:** From 2017 to 2022, the percentage of Teachers on the Estuary (TOTE) educators that report intent to integrate what they learned from the TOTE workshops into their teaching.

**Target:** From 2017 to 2022, eighty percent of TOTE teachers intend to integrate TOTE workshop materials.

**FY 2017 Annual Data:** No TOTE training conducted at the reserve in FY 2017

**FY 2018 Annual Data:** 100% (6 of 6) of TOTE teachers intend to integrate TOTE workshop materials

**FY 2019 Annual Data:** No TOTE training conducted at the reserve in FY 2019

**FY 2020 Annual Data:** No TOTE training conducted at the reserve in FY 2020

**FY 2021 Annual Data:** 67% (10 of 15) of TOTE teachers intend to integrate TOTE workshop materials.

**Cumulative Data:** 76% (16 of 21) of TOTE teachers intend to integrate TOTE workshop materials.

**Discussion:** The reserve did not meet its target of 80% of TOTE teachers intending to integrate TOTE workshop materials during the FY2017–FY2021 time period. Despite missing the target, the reserve has demonstrated several successes related to their TOTE program. These successes are discussed in further details within these findings. Three times during the evaluation period the reserve has had to cancel a scheduled offering of TOTE due to low enrollment. As discussed in the “Community Connections” section of these evaluation findings, the reserve target audience is best met through virtual engagement, which is not in alignment with the national TOTE program requirements of hands-on, in-person instruction.

## Conclusion

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

These evaluation findings contain one necessary action and five recommendations. The necessary actions must be addressed within the time frame specified within the necessary action. The recommendations must be considered before the next regularly scheduled program evaluation, but they are not mandatory at this time. Program recommendations that must be repeated in subsequent evaluations may be elevated to necessary actions.

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

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Director  
NOAA Office for Coastal Management

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Date

## **Appendix A: Response to Written Comments**

No written comments were received.