

CHAPTER THREE: ACCOMPLISHMENTS AT TIJUANA RIVER NATIONAL ESTUARINE RESEARCH RESERVE

INTRODUCTION

Since the establishment of the Tijuana River National Estuarine Research Reserve (NERR) in 1982, the list of accomplishments has grown significantly. Many of the actions first recommended in the 1986 Management Plan have been achieved. These accomplishments reflect the cooperative efforts of the agencies that have a stake in the protection and improvement of the Reserve. This chapter of the plan briefly summarizes accomplishments in the areas of facilities, resource protection, management and restoration, research and monitoring, education and interpretation, administration, and Reserve events. These accomplishments relied on innovative partnerships and creative funding initiatives. More detailed descriptions are provided in subsequent chapters.

I. FACILITIES ACCOMPLISHMENTS

A. VISITOR CENTER CONSTRUCTION AND DEVELOPMENT

The construction of the Tijuana River NERR visitor center building in 1991 was one of the most significant accomplishments at the Reserve. Funded by the National Oceanic and Atmospheric Administration (NOAA), the State Department of Parks and Recreation (CDPR), and the Coastal Conservancy in conjunction with Southwest Wetlands Interpretive Association (SWIA), the \$1.5 million visitor center received several awards for design and gained acclaim both locally and nationally.



Tijuana River NERR visitor center

TRNERR Photograph

Shortly after the construction of the visitor center, the native plant garden and Phase I of the exhibits were completed. The exhibits were completed with funding and design input from NOAA, the U.S. Fish and Wildlife Service (FWS), CDP, SWIA and other participants. Phase II of the exhibits is currently underway with funding from FWS and CDP. The visitor center is operated jointly by FWS and CDP and is open to the public five days a week.

B. TRAILS AND OUTLOOKS

Physical improvements to several key public access points at the Reserve have been made since 1986, including the following:

- Construction by FWS of a staircase from the city sidewalk to the trailhead for safer access at the end of the Refuge's Oneonta Trail (1997).
- Construction by FWS of a boardwalk on the east side of the Refuge, to provide safe access from the city street (1996).
- Construction by FWS of an interpretive overlook with several interpretive panels at the end of Seacoast Drive. This outlook provides views of the marsh and dunes, and access to the beach (1995).
- Construction by FWS of an entry monument and interpretive deck at Imperial Beach Boulevard and Third Street. The outlook and monument provide a welcoming entry to the Reserve and, through placement of agency logos on the monument, indicate the cooperative arrangement between state and federal agencies (1994).
- Installation of bulletin boards at three key entrances to the Reserve: the trailhead of the 5th and Iris Trail, the southern end of Seacoast Drive, and the west end of Sunset Drive at the equestrian trail trailhead (1995-1997).

II. RESOURCE PROTECTION AND MANAGEMENT ACCOMPLISHMENTS

A. LAND ACQUISITION

From 1986 to 1998, 17 parcels comprising over 350 acres within the Reserve boundaries were transferred from private to public ownership, allowing for a more closely coordinated management effort. The following table summarizes acquisitions that have taken place since 1986.

TABLE 1: Summary of Land Acquisitions Since 1986

Parcel Code*	Acres	Year	Acquiring Entities	Method of Purchase
QQ	25.0	1986	City of San Diego	Coastal Conservancy and NOAA funds
RR,TT,UU	72.96	1992	City of San Diego	Coastal Conservancy and NOAA funds
GG,HH,II	41.0	1997	County of San Diego	County funds
OO	11.40	1996	City of San Diego	Donation
PP,WW, XX,YY,ZZ	52.88	1996	County of San Diego, State Parks, International Boundary and Waters Commission	Multiple funding sources coordinated by Trust for Public Land
KK	79.39	1991	County of San Diego	County funds
R	26.30	1992	County of San Diego	County funds
JJ	39.83	1998	County of San Diego	County funds
Seacoast Dr. AP #632-040-16	1.25	1997	City of Imperial Beach	Multiple funding sources
TOTAL	350.01			

* Parcel codes keyed to 1986 Management Plan

B. ENDANGERED SPECIES PROTECTION

Reserve employees have overseen the following activities to protect endangered species at the Reserve.

- The FWS initiated the “Tern Watcher” volunteer program in 1996 to improve signs and educate local citizens and beach users about how to enjoy the beaches without disturbing the California least terns and western snowy plovers.
- IBWC initiated cowbird trapping programs in the southern end of the Reserve in 1990 to remove nest parasites from critical habitat for the least Bell’s vireo.
- In 1994, FWS listed riparian habitats in the Tijuana River Valley, including portions of the Reserve, as critical habitat for least Bell’s vireo.
- FWS employees assigned to the Reserve assumed responsibility for on-site monitoring of California least tern/western snowy plover nesting areas in 1996.
- In the early 1990s, FWS initiated contracts with the Animal and Plant Health Inspection Service (APHIS) and qualified private contractors to provide dedicated predator management services to protect endangered species during the California least tern nesting season (April - September).

C. EXPANDED LAW ENFORCEMENT PROGRAM

The on-site presence of law enforcement officers at the Reserve has increased greatly since 1986. A full-time ranger from State Parks and FWS law enforcement officers patrol the Reserve, emphasizing coastal areas where the concentration of endangered species habitats is highest. There is increasing cooperation between the law enforcement divisions of the landowning agencies and the Volunteer Mounted Assistance Unit to provide more comprehensive public safety and law enforcement at the Reserve.

D. EXPANDED FIRE MANAGEMENT PROGRAM

FWS completed a fire dispatch plan for Tijuana Slough NWR in 1997. Additionally, starting in 1997, a seasonal FWS fire-fighting crew and engine were stationed at the Reserve.

E. DUNE STABILIZATION

FWS has conducted an annual program to stabilize and prevent erosion of dunes north of the River.

F. REOPENING OF RIVER CHANNEL AND CORPS OF ENGINEERS PERMIT

In 1989, following the repeated closures at the mouth of the estuary, FWS dredged the north channel of the estuary and reopened the estuary mouth to restore tidal flow. This project improved tidal circulation and promoted the flushing of sediments out of the estuary. Through a permit with the United States Army Corps of Engineers, in conjunction with other regulatory approval, re-dredging of the channels may be performed in response to flood or storm induced closures.

G. REMOVAL OF CONCRETE DEBRIS

To improve the visual esthetics and habitat values, 80 truckloads of broken concrete debris were removed from Navy lands operated by the FWS and from Refuge lands in 1995 and 1996. After the debris was removed from the four clean-up areas, the sites were revegetated with native plants and monitored for success in plant establishment.

H. REDUCTION IN CROSS-BORDER FOOT TRAFFIC

Through the early 1990s, Reserve habitats were degraded by foot traffic from undocumented immigrants from Mexico. A series of efforts by the Border Patrol and other state and federal agencies, including Operation Gatekeeper, resulted in increased enforcement at the U.S.-Mexico border by U.S. Border Patrol starting in 1994.

III. HABITAT RESTORATION

A. TIJUANA ESTUARY TIDAL RESTORATION PROGRAM

Hydrological and biological inventories and assessments were conducted and a Geographic Information System database was developed as a foundation for restoration planning. A long-range plan for restoring the estuary's tidal prism and intertidal wetlands was developed, and the plan was reviewed in a programmatic EIR/EIS approved and adopted by FWS and the Coastal Conservancy. The plan calls for approximately 500 acres of intertidal wetland restoration to be undertaken in increments using an adaptive management design process. The monitoring and evaluation of projects will influence design decisions for subsequent phases.

1. Construction of Oneonta Tidal Linkage

The first project of the program, a 1,200-foot channel connecting the northern end of Oneonta Slough and the tidal ponds southeast of the visitor center, was constructed in winter 1997. The channel is intended to improve the hydrology of Oneonta Slough, invigorating approximately 200 acres of prime saltmarsh. The Oneonta Tidal Linkage is a project coordinated by the California State Coastal Conservancy, and built by SWIA with funding from FWS and the Coastal Conservancy. An extensive research program is incorporated into the project and is being conducted by the Pacific Estuarine Research Laboratory.

2. Design for the Model Marsh

Final engineering plans for a 20-acre intertidal wetland restoration were prepared as a first module of the 500-acre south arm component of the Tijuana Estuary Tidal Restoration Program. The design emphasizes tidal creeks in the marsh plain. Excavated material is intended for use in a beach nourishment program. Implementation requires funding and additional regulatory approvals.

B. OTHER RESTORATION ACTIVITIES

1. Caspian and 3rd Street Riparian Area

In 1990, a stormwater channel was excavated to convey runoff from 3rd Street and Caspian Way to the marsh. The channel was planted with cottonwoods and willows to filter nutrients and contaminants, thereby protecting the Oneonta Slough habitats.

2. Native Plant Garden

A native plant garden was designed and planted shortly after the construction of the visitor center. The garden, which is approximately one acre in size, provides a welcoming entry to the visitor center and is part of the Reserve's interpretive

program. The plants, which are all native to coastal southern California, are labeled and each species is described in a handout available at the Reserve.

IV. RESEARCH AND MONITORING

A. ACADEMIC RESEARCH

As one of the primary elements of the Reserve system, research has played an important role in the Tijuana River NERR. This is evidenced by the extensive research that has occurred during this time frame. A comprehensive list of the research is provided in Chapter Six of this plan.

Research accomplished by San Diego State University (SDSU) at Tijuana Estuary has guided the region's understanding of coastal wetland functioning. Several findings have led to general management recommendations at Tijuana Estuary and other coastal wetlands. Dozens of peer-reviewed publications, graduate theses, and technical reports have resulted from work at the Reserve.

Two types of outdoor experimental facilities were installed at the Reserve by SDSU's Pacific Estuarine Research Laboratory. One is a unique mesocosm facility that was used to test management techniques, such as salvage and propagation methods, controls on freshwater inflow, and modification of tidal flows. Results from experiments at the mesocosm facility were published in *Ecological Engineering* and in *Restoration Ecology*. The second major outdoor experiment relates to the Oneonta Tidal Linkage. Eighty-seven small plots were planted with 0, 1-, 3-, and 6-species combinations and monitored to assess the differential nitrogen accumulation capability, canopy complexity, and assemblage persistence. The four-year experiment is funded by the National Science Foundation, and results will help guide planting recommendation for the Reserve's restoration program.

B. DESIGNATION OF TRNERR AS AN AUXILIARY FIELD STATION

In July 1997, the Reserve was designated as one of San Diego State University's biological field stations. As an auxiliary field station, the Reserve strengthens its relationship between the Reserve and SDSU and the regional research community. The designation brings human resources to the Reserve and expands its opportunities for acquiring funding for research.

C. SITE PROFILE

A site profile of the Tijuana River NERR entitled The Ecology of Tijuana Estuary - A National Research Reserve was completed in 1986 and revised in 1992 by Dr. Joy Zedler, Christopher Nordby, and Barbara Kus of Pacific Estuarine Research Laboratory, San Diego State University. Tijuana River NERR was the first NERR to publish a comprehensive description of its estuarine system. The description synthesizes and interprets the growing data base on the estuary's diverse biota.

D. ENDANGERED SPECIES MONITORING

Annual surveys for endangered species and their habitats have been performed by FWS since 1992 to assess changes in populations and range. Species surveyed include least Bell's vireo, light footed clapper rail, and least tern. The Tern Watcher program, which is largely staffed by volunteers, has been a highly successful integration of monitoring and public involvement.

V. EDUCATION AND INTERPRETATION

The construction of the visitor center and the permanent staffing of an education coordinator have enabled the education and interpretive programs to expand. The Reserve now sponsors interpretive tours, hosts school groups from the United States and Mexico (including an Extended-Year Program implemented in conjunction with the local school district), and offers teacher training workshops. All programs are offered in both English and Spanish. Teaching curricula have been developed that focus on the Tijuana River estuary and incorporate NERR system themes. A variety of printed materials and a website have been produced to assist in education and interpretation at the site.

Key achievements in educational programs, curriculum materials, and teacher workshops are:

- *Marsh Awareness with Resources for Slough Habitats*: Ecologically based curriculum about salt marshes written at the 4 to 6th grade level.
- *Making of a Naturalist*: Classroom and field activities that train students in the art of field observation.
- *Water Lines - Patterns in the Salt Marsh*: A curriculum for 10th grade that ties the watershed to the coastal wetland at the mouth of the drainage.
- *Rays-Recycle and You Save*: K-2 lesson plans for a recycling curriculum.
- *ART-SCI*: Workshops for teachers in how to use art to teach science.
- *"What's in Our Water" National Geographic Kid's Net*: Kid's Net kits distributed to schools, with additional materials tracing California's water distribution system and San Diego County watersheds.
- *Extended Year School - South Bay Union School District*: The education staff structured and scheduled classroom instruction and field work; provided teacher, teacher aide and volunteer training; developed and revised materials

used at the estuary and in the classroom; and conducted field classes at the estuary, practicing field observation of birds and plants followed by activities in the garden.

- *Bilingual teacher training workshops.*
- *Weekly water-testing activities in the education laboratory.*

VI. ADMINISTRATION

A significant achievement at Tijuana River NERR was the recent signing of a Letter of Agreement between the CDPR and FWS that formalized the commitment of cooperation between agencies to manage a seamless reserve. CDPR and FWS now cooperatively handle operations throughout the Tijuana River NERR (in particular the visitor center). The two agencies authorized several specialist positions to carry out the goals of the Reserve program. The Reserve manager's supervisory status as an employee of CDPR enables this position to have full responsibility for the operations of CDPR programs and shared responsibility for cooperative programs. The FWS recently established a full-time position to serve as the on-site Interpretation/Education Coordinator. CDPR has authorized a full-time position to be in charge of the primary Education Program for the Reserve.

VII. VISITS, CONFERENCES, AND ACTIVITIES

The following is a partial list of site visits, conferences, and related activities hosted by the Reserve, or in which Reserve member agencies actively participated.

- United Nations Association Environmental Subcommittee - Held annually
- Imperial Beach Economic Development Committee - 1996
- Imperial Beach Tourism Task Force - 1995-1996
- Coastal Decision-makers Workshop - 1996
- Tijuana River Watershed GIS Project - 1996
- Site visit by Department of the Interior Binational Subcommittee
- Site visit by the Undersecretary of Commerce
- Ecoparque Opening in Tijuana
- International Art Exhibits
- Imperial Beach Bird Festival
- Eagle Scout Activities
- Creation of a Reserve website
- Natural History Lectures
- Reserve representation at International Sewage Treatment Hearings
- Reserve representation at Tijuana River Flood Task Force Meetings

