



Monitoring and Managing Lagoon Mouths in Southern California

Overview

Southern California lagoons are complex, both in their environments and their management. In their natural states many estuaries will periodically open and close to the sea, but the strategy in recent decades has been to actively manage these lagoons to be largely open to improve water quality. Recently, however, scientists and managers have been reconsidering this one-size-fits-all approach. Managing a lagoon mouth to be continually open can be expensive, and a lagoon that is allowed to close may engender a unique set of species and environmental services.

This study will use existing knowledge and gather new data to provide managers with the information they need to improve the health of this resource.

Anticipated Benefits

- Greater understanding and agreement about the ecology and management of lagoon mouths
- Current and comprehensive information that will enhance the work of the Southern California Wetlands Recovery Project and improve ongoing and future restoration efforts
- Identification of additional research needs for intermittent estuaries

Project Location

Tijuana River National Estuarine Research Reserve, San Diego Bay, and Los Peñasquitos Lagoon

Project Duration

September 2015 to August 2017

Project Lead

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Project Type

Science Transfer – promoting the use of science

Project Partners

- Tijuana River National Estuarine Research Reserve
- Southwest Wetlands Interpretive Association
- Bodega Marine Laboratory, University of California-Davis
- Southern California Wetlands Recovery Project

Project Approach

A team of collaborators from the Tijuana River National Estuarine Research Reserve, Southwest Wetlands Interpretive Association, and University of California-Davis are exploring the environmental consequences of managing the opening and closing of lagoon mouths. The project approach includes the following elements:

- **Collaboration with Users:** The project team will regularly engage members of the Southern California Wetlands Recovery Project, which coordinates and funds restoration projects throughout the region. The science advisory panel for this body was recently charged with developing lagoon mouth management guidance, offering an excellent opportunity to use already existing data to inform regional decision-making. In addition, a workshop will be held to allow for broader discussion of project findings and the implications for lagoon management.
- **Data Synthesis:** Long-term water quality and vegetation data will be analyzed from three estuary systems: San Diego Bay, Los Peñasquitos Lagoon, and Tijuana Estuary. The team will look at how mouth closures influence factors such as dissolved oxygen and salinity, which in turn affect plants and animals.
- **Literature Review:** The project team will pull together relevant scientific articles and reports to guide its interpretation of monitoring data and development of management recommendations.

Anticipated Products and Targeted End Users

- A technical report to the Southern California Wetlands Recovery Project
- A public-oriented summary for use by the Tijuana River reserve
- Supplements to existing K-12 curriculum about estuaries

About the Science Collaborative

The National Estuarine Research Reserve System's Science Collaborative supports collaborative research that addresses coastal management problems important to the reserves. The Science Collaborative is managed by the University of Michigan's Water Center through a cooperative agreement with the National Oceanic and Atmospheric Administration (NOAA). Funding for the research reserves and this program comes from NOAA. Learn more at www.nerrs.noaa.gov or www.graham.umich.edu/water/nerrs.