Suisun Landscapes: Assessing historical change and planning a resilient future that reflects community priorities

Study Period
2021-2024

Delta Science Program
DELTA STEWARDSHIP COUNCIL

Lead Investigators

Lydia Smith Vaughn,
SF Estuary Institute

Sean Baumgarten,
SF Estuary Institute

Selena Pang,
SF Estuary Institute

About this Project

Suisun Marsh is a transitional landscape between San Francisco Bay and the Delta. Renowned for its rich geomorphic features and diverse wildlife habitats, Suisun Marsh has historically been managed for recreational hunting and habitat preservation. However, its future is increasingly uncertain in the face of climate change. Anticipated impacts such as rising sea levels, increasing salinity, and altered hydrological patterns pose significant threats, including wetland loss, shifts in species distribution, heightened flood risks, and drainage challenges in managed wetland areas.

To address these challenges, the Suisun Landscapes project expanded the existing **Landscape Scenario Planning Tool** (LSPT) to include Suisun-specific information. The LSPT was developed by the San Francisco Estuary Institute to support restoration planning in the Delta. This project expanded the tool to include Suisun-specific ecological functions, historical ecology, and community priorities. Integrating spatial analyses with community-collaborative perspectives will facilitate systematic and ecologically sound restoration of essential Suisun Marsh ecosystem functions and inform robust plans for long-term resilience.

Access the Landscape Scenario Planning Tool

The LSPT and associated datasets are publicly available at https://www.sfei.org/projects/landscape-scenario-planning-tool.

Project Objectives

- Investigate how the landscape has changed over time by developing quantitative metrics on key landscape processes and functions
- Develop spatially explicit scenario analysis tools for landscape planning that account for climate change effects (e.g., sea level rise, salinity changes)
- Establish a community working group of local stakeholders to co-develop spatial information on uses of the Suisun landscape and priorities for future land use
- Make information on Suisun Marsh historical ecology, environmental history, landscape change, restoration opportunities, and community priorities accessible to a broad scientific and stakeholder community

Management Application

The LSPT and other resources created by the Suisun Landscapes project provide support for planners tasked with developing, evaluating, and adapting restoration strategies in Suisun Marsh. A heightened emphasis on community interests will enhance the efficacy of the LSPT and broader Delta-Suisun planning and management initiatives by daylighting commonalities and differences between community and management priorities. Integrating these diverse perspectives during tool development will foster greater inclusivity and equity in future land use planning.

Next Steps

An updated version of the LSPT will be released fall 2024, allowing users to design and evaluate future restoration and land use visions for Suisun. A graphically-oriented report will document changes over time in support for the region's ecological functions and provide a historically-grounded foundation for future management planning.

Connections to the 2017-2021 Science Action Agenda

Invest in Assessing the Human Dimensions of Natural Resource Management

Develop Tools and Methods to Support and Evaluate Habitat Restoration