San Dieguito Wetlands Restoration:
A Twenty Year Odyssey Restoring a Southern California Lagoon

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Inlet Maintenance

Issue: Inlet closure can result in decreased oxygen in lagoon, affecting fish community.

Background: Inlet is located on small beach and is historically subject to closure approximately 65% of the time. Hardscape solutions such as jetties were not allowable.

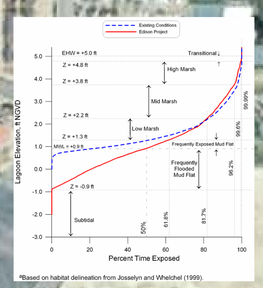
Solution: SCE was given 35 acres of credit for the maintenance of the tidal inlet over the life of the project. While expanded tidal prism provides some of the energy to maintain entrance, a study on the dynamics of inlet closure was completed and it is expected that dredging of the inlet channel will be necessary every 8 months. Dredging will also include an inlet sand basin to store sand ingested at the mouth.

Elevations

Issue: Determining tidal elevations for entire lagoon based on projected tidal conditions.

Background: Restored tidal conditions could alter vegetation distribution within marsh.

Solution: Modeling of tidal conditions to determine percent exposure was used to predict tidal regimes under restored conditions. Tidal exposure curves were gathered from other southern California coastal lagoons.



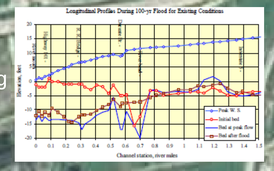
*Based on habitat delineation from Josselyn and Wheitchel (1999).

River Berms

Issue: Maintaining sediment flow to the beaches and reducing scour at bridges.

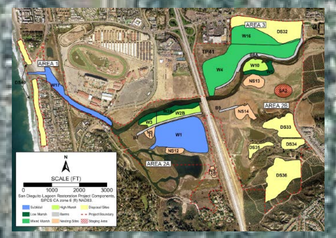
Background: Excavated wetlands could act as sinks for sediment, reducing sediment discharge and inducing scour, potentially effecting bridge structures.

Solution: River berms were erected along the channel to maintain effective bed load transport within the channel. River berms have weirs to allow for some flooding provide suspended sediment to wetland surface.



Background

Planning for the restoration of the San Dieguito Lagoon began in 1991 and the final construction elements were completed in 2011. The wetland restoration was required as mitigation for the once through cooling system impacts to marine fisheries by the San Onofre Nuclear Power Plant in southern California. The $90 million construction project resulted in the excavation and creation of over 160 acres of tidal wetlands, the development of shorebird nesting sites, and the maintenance of tidal influence through a non-jettied entrance. During the twenty years of planning, environmental review, construction; the project overcame many challenges that required compromises between optimizing natural habitat design criteria with public safety and policy.

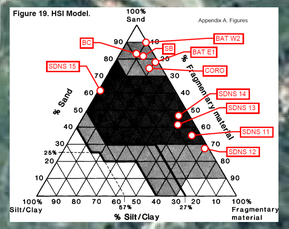


Nesting areas

Issue: Approximately 20 acres of shorebird nesting habitat required.

Background: Adjoining landowner required to provide nesting habitat as a result of previous violation.

Solution: SCE designed and built five nesting areas in project. Sand on site was fine sand compared to reference sites and was augmented with shell and sand from inlet dredging.



Disposal areas

Issue: Over 2 million cubic yards of fine sand and silt to be excavated.

Background: Particle size too fine for ocean disposal and off-site transport not environmentally acceptable.

Solution: Disposal on 100 acres of former farm land at site was completed. One foot of topsoil was placed over materials; however, it soon developed saline conditions by upwards migration of salts from disposal material. Required testing of various native species to meet native cover requirements. *Atriplex* most successful.

More information

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