Monitoring Plan For Evaluating The Success of The San Dieguito Lagoon Wetland Restoration Project
Monitoring Plan

Purpose:
The Monitoring Plan will provide a framework to guide the monitoring work.

Contents:
Description of the performance standards and sampling methods.
Performance Standards

Long-term physical

• Topography
• Water quality
• Tidal prism
• Habitat areas
Biological Performance Standards

- Biological communities (fish, inverts, birds)
- Vegetation (cover, open space)
- *Spartina* canopy architecture
- Reproductive success of plants
- Food chain support (feeding activity of birds)
- Exotics (no impairment by exotics)
Topics that will be covered today

• Reference sites

• Sampling methods for post-restoration monitoring
Reference site selection
46 sites evaluated

Criteria for inclusion

• Relatively undisturbed
• Tidal
• Located in Southern California Bight
• Suite of habitats similar to restoration site
  (vegetated marsh, tidal creeks, main channel, basin)
Reference wetlands

Tijuana Estuary

Mugu Lagoon

Carpinteria Salt Marsh
Post-restoration monitoring

Goals

• Provide adequate information to evaluate performance standards
• Minimize damage to wetland resources
• Cost effective
Focus of Pre-restoration Monitoring

Develop sampling methods for evaluating biological performance standards.

Incorporate findings from pre-restoration monitoring into the CCC Monitoring Plan.
Biological Communities

**Standard**
Within 4 years of construction, total densities and number of species of fish, macro-invertebrates and birds shall be similar to densities and number of species in similar habitats in reference wetlands.
Fish

**Sampling methods**

No one method can be used to estimate the abundance and species number in main channels and tidal creeks.

The following methods will be used to sample fish:

- Enclosure traps
- Beach seines
- Purse seines
Enclosure traps

Arrow Goby

Shadow Goby
Beach Seine

Top smelt

Sculpin

California Halibut
Purse seine

Top smelt

Spotted Bay Bass

Mullet
Macro-invertebrates

**Sampling methods**

*Primary*
benthic cores
Macro-invertebrates

Sampling methods

Secondary

enclosure traps

beach seines
Birds & Food Chain Support

**Sampling considerations**
Allocation of sampling effort in space and time
Standardization across wetlands

**Sampling method**
To be determined during current work plan.

Vegetation

**Standard**

The proportion of total vegetation cover and open space in the marsh shall be similar to those proportions found in the reference sites.

**Sampling methods**

Aerial photos with limited ground surveys. Final sampling method to be determined by April 2004.
The restored wetland shall have a canopy architecture that is similar in distribution to the reference sites, with an equivalent proportion of stems over 3 ft tall.

**Sampling methods**
Sample sizes to be determined.
Reproductive success

**Standard**
Certain plant species shall have demonstrated reproduction at least once in 3 years.

**Sampling methods**
Quantify viable seed production in prominent species. Specifics and effort to be developed.
Exotic species

Standard
The important functions of the wetland shall not be impaired by exotic species.

Sampling methods
Rely on biological monitoring.
Augment with routine observations.
Timeline for completion of Monitoring Plan

Draft circulated for comment – Dec 2004

Final draft submitted to CCC – June 2005