

SCIENTIFIC SUB-COMMITTEE OF THE  
WORKING GROUP OF THE SANCTUARY ADVISORY COUNCIL OF  
GULF OF THE FARALLONES NATIONAL MARINE SANCTUARY FOR THE  
BOLINAS LAGOON ECOSYSTEM RESTORATION PROJECT



Conference call

3:00 p.m. – 4:30 p.m.

Wednesday, March 19, 2008

## Meeting Summary

### Conference call attendees

Scientific sub-committee members present: Brannon Ketcham, Gary Page, Ted Grosholtz, Nick Nidzieko; Staff: Sage Tezak, Bill Carmen, Bill Brostoff

### Biological indicators

- ◆ Need literature/data compilation for Bolinas Lagoon – (Sage)
- ◆ Two levels of monitoring: monitoring for ecosystem health and project monitoring.
- ◆ Important to tease out regional trends from trends at Bolinas Lagoon, whenever possible.
- ◆ Overall, monitoring projects typically need to be kept simple and inexpensive.
- ◆ Based on various habitats – indicator species will be identified.
- ◆ Develop maps of previously sampled sites (invertebrates, vegetation transect, etc.)

### Vegetation

- ◆ Continue monitoring transects set by previous studies (PWA 2002).
- ◆ Sample to measure vertical habitat distribution, plant species elevation, & composition.
- ◆ Develop wetland classification map for Bolinas Lagoon
- ◆ Sample every five years.

### Introduced species

- ◆ Develop a Response Plan (Early Detection Program) for introduced species throughout the Bolinas Lagoon watershed – plan includes identification of possible species (list), level of effort appropriate to control each species, best method to control species.
- ◆ *Spartina alterniflora* – ISP collects samples of suspected invasive cordgrass and conducts genetic testing to determine presence of hybrids with native *S. foliosa*. Ongoing monitoring for *S. alterniflora* in Bolinas Lagoon is conducted by Marin County Open Space District, Audubon Canyon Ranch & ISP.

### Invertebrates

- ◆ Ted to work with gathering baseline data on invertebrates in Bolinas Lagoon
- ◆ A recent study compared to a past study showed the same invertebrates but in different numbers.
- ◆ Necessary to sample invertebrates once a year.
- ◆ Jeb Byers PhD. – sampled Southeast corner of the lagoon
- ◆ Intertidal is more easily sampled than subtidal
- ◆ Invasive invertebrates are not good indicator species. Significant # of invertebrates are invasive.

## Fish

- ◆ Tom to identify method to collect fish (beam trawls or long-lines) and fish species associated with subtidal habitat. Need to identify sampling frequency.
- ◆ Long jawed mud suckers are a good species to monitor; but resilient.
- ◆ Fish are most difficult to separate regional from local trends.
- ◆ Need long-term data sets that may help to flush regional from local trends – CalCOFI?

## Birds

- ◆ Possible to use Xmas bird count to determine regional from local trends.
- ◆ PRBO conducts 6 surveys per year – 3 early/3 late winter – 40 species are monitored.
- ◆ Savanna sparrow - indicator species for salt marsh; currently not monitored, but can be added.
- ◆ Suite of birds that have to dive for food and use the subtidal habitat – diving ducks, grebes, etc.
- ◆ Where habitat may not be currently present, but species are, is indicative of particular habitat at one time or another.

## Marine mammals

- ◆ Harbor seal surveys – Point Reyes National Seashore will continue monitoring Bolinas Lagoon.
- ◆ In the event of restoration projects – surveys can increase during the non-breeding season but would incur greater costs because only one person works on the project part of the year.

## Process measures (chlorophyll; measures of photosynthesis; stable isotopes)

- ◆ Stable isotopes accurately reflect sources of nutrients for birds and mammals in the food webs (5\$ a sample at Davis).
- ◆ These indirect indicators should be considered in the adaptive management framework.