South Bay Salt Pond Restoration Project

Bird Work Group
March 11, 2005 Meeting #1

I. Background: The purpose of the workshop was to discuss the state of our knowledge on migratory bird use of existing habitats in the South Bay and to examine the extent to which restoration is likely to affect bird species currently using salt ponds. Specific goals included:

- understanding the habitat needs of shorebirds and waterfowl using habitats in the South Bay.
- understanding how South Bay habitats can be managed and enhanced to increase the use of ponds by these migratory species while supporting tidal marsh species recovery.

Desired outcomes were as follows:

1. A list of habitat requirements of migratory shorebirds and waterfowl.
2. A suite of feasible management and enhancement methods likely to improve habitat for migratory birds and likely effects of these actions (for example, which species will benefit and how much; which species will not benefit).
3. A list of indicator species and parameters for monitoring bird response to management/enhancement actions for adaptive management.
4. Key questions and uncertainties for near-term and long-term studies/experiments.

II. Working Group Organization: The Project Management Team convened the meeting and the following individuals participated:

Al Jaramillo, SFBBO	Catrina Martin, USFWS	Eric Mruz, USFWS
Amy Hutzel, SBSP Project, SSC	Cheryl Millett, SFBBO	Gary Page, PRBO
Andree Breaux, RWQCB	Chris Alderete, NASA Ames	Mark Herzog, PRBO
Arthur Feinstein,	Diana Stralberg, PRBO	Harry McQuillen, USFWS
Bill DeJager, ACOE	Nadav Nur, PRBO	Carl Wilcox, CDFG
Caitlin Sweeny, BCDC	Eric Dunlavey, City of San Jose	Steve Ritchie, SBSP Project
Josh Collins, SFEI	Steve Rottenborn, H.T. Harvey	John Bradley, USFWS
Janet Hanson, SFBBO	Joelle Buffa, USFWS	Bruce Herbold, EPA
Ron Duke, H.T. Harvey	Deborah Clark, CCP	Letitia Grenier, SFEI
Mike Josselyn, WRA	Anne Hanson, SFBBO	Clyde Morris, USFWS
Nicole Athern, USGS	Brenda Buxton, SCC	John Krause, CDFG
John Takekawa, USGS	Stuart Weiss, SBW	

The following experts were invited to participate:

Doug Barnum, Shorebird expert, Salton Sea Science Office	Andy Gordus, Shorebird expert, CDFG
Valary Bloom, Endangered species expert, USFWS	David Herbst, Invertebrate expert, Sierra Nevada Aquatic Research Lab
Josh Collins, Landscape change, SFEI	Keith Miles, Invertebrate expert, USGS
Scott Terrill, Birds habitat expert, H.T. Harvey	Nils Warnock, Shorebird expert, PRBO

III. Key Outcomes - <u>Presentation 1</u>: Nils Warnock, PRBO, presented, "Overview of Migratory Bird Use/Habitat Needs in the South Bay Salt Ponds." He discussed data on migratory bird use of salt ponds. Then, Valary Bloom, USFWS, presented "Background Context: USFWS Tidal Marsh Species Recovery Plan." Valary presented an overview of the recovery plan and stated that FWS wanted to get feedback from this group and others about it.

David Herbst, Sierra Nevada Aquatic Research Lab, discussed "Management of Salt Pond Habitat to Support Invertebrate Production for Migratory Birds". He presented findings on how aquatic invertebrates respond and interact over salinity gradients. Scott Terrill, H. T. Harvey, spoke on, "Optimization of Pond Systems in the South Bay Salt Ponds Restoration Project." He described lessons learned from ponds developed in the San Joaquin Valley to optimize migratory bird use. With respect to Outcome 1, the group discussed these habitat requirements:

- Patch size and connectivity of marshes
- Prey quality and quantity
- Adequate invertebrates and plants
- Salinity, depth, landscape characteristics, proximity to the Bay, presence of islands and interior levees, size, disturbance
- Tidal flats, marshes, mudflats, salt pannes, ponds, large channels
- "Hotspots" of foraging areas in salt ponds

The group developed this suite of feasible management and enhancement methods (Outcome 2):

- Changing to gentler slopes, shallower depths, contour dikes, islands and curved levees (for predator control).
- Draw down salt ponds in winter to remove vegetation.
- Create pond islands at least 300 feet from perimeter, using a 20-33% surface area to 66-80% foraging habitat or water, etc.
- Build water control structures to cycle water between ponds to create differing water levels and salinities.
- Don't let bird populations get too dense, creates a "bird farm."
- Enhance prey abundance by introducing rocky substrate and alfalfa bales, creating moderately saline ponds (100-150 g/L) and potholes.
- Provide electric fences for predator control.
- Build contingencies into the permitting process.
- Maintain infrastructure of managed ponds in groups, rather than isolated.

The discussion on Outcome 3, indicator species and parameters, lead to this list:

- Rare species, especially the Western Snowy Plover, California Clapper Rail, California Black Rail, Saltmarsh Common Yellowthroat, Song Sparrow and California Least Tern
- Duck guilds: Diving ducks, dabbling ducks
- Common nesting species, especially black-necked stilts and avocets
- Small and large shorebirds
- Key invertebrates especially brine flies, brine shrimp and water boatmen
- Coverage of key vegetation, especially Pacific cordgrass
- Specific algae and phytoplankton
- Vertebrate prey species, especially fish such as Tidewater Gobies
- Rare fish: Chinook Salmon/steelhead
- Rare tidal marsh vertebrates, Salt Marsh Harvest Mouse and Salt Marsh Wandering Shrew
- Physical parameters, such as salinity, depth, pH, DO

Some key data needs (Outcome 4) included the following:

- More data are needed on the quality and quantity of food resources for birds and how to enhance productivity of invertebrates and other food resources.

- More data are needed to determine how flexible birds are in foraging and if they will use other types of habitat and to what degree when the salt ponds are reduced.
- Additional data collection and monitoring within the ISP on the salt ponds are needed to determine a better baseline for early and Phase I actions of the Project's impact on birds.
- Additional predictive modeling of migratory bird response to habitat change is needed.
- More data is needed to determine how much tidal marsh and tidal flat to create and ponds to manage to balance bird species diversity and population.
- Data are needed on seasonal and other bottlenecks for migratory birds.

IV. Next Steps: We will hold Bird and Habitat Workshop 2, focused on modeling, on held May 23, 2005.