

**Napa Plant Site Restoration
Monitoring Review Team (MRT) meeting
May 15, 2006
9am – 12:30pm
Final Notes, August 1, 2006**

These are notes from the Monitoring Review Team (MRT) meeting to discuss a Monitoring Plan for the NAPA PLANT SITE WETLAND RESTORATION PROJECT. The meeting was held on May 15, 2006 from 9a.m. to 12:30 p.m. at the CA. State Building, 1515 Clay Street, Oakland, CA. 94612.

These notes represent the understanding and recollections of the attending committee members plus project representatives based on their collective review of their comments as compiled by Andree Breaux. These notes are not intended to be verbatim or legally binding on the participants including the monitoring review team, the permit applicant, or the regulatory agencies. Please contact Andree at abreaux@waterboards.ca.gov if you have any questions or comments regarding these notes.

Attendees

Monitoring Review Team (MRT): Andree Breaux (Chair), San Francisco Bay Regional Water Board, (hereafter referred to as Water Board), John Callaway, University of San Francisco; Josh Collins, San Francisco Estuary Institute; Mark Herzog, Point Reyes Bird Observatory; Tom Kucera, University of California at Berkeley; Phil Lebednick, LFR Levine-Fricke, Inc.; Margarete Beth, Water Board; Bob Batha, Michelle Levin, & Jennifer Feinberg, Bay Conservation and Development Commission (BCDC); Susanne von Rosenberg GAIA Consultants.

Project Representatives: Carl Wilcox & Karen Taylor, California Department of Fish & Game (CDFG); Francesca Demgen, URS.

Summary of the Meeting

Opening statement (Andree Breaux):

The purpose of the meeting was to provide guidance in developing a minimal monitoring program that will assure the protection of the beneficial uses of wetland habitats as waters of the state, but will, at the same time, encourage wetland restoration by avoiding unreasonably expensive monitoring requirements. The Regional Water Board and BCDC will consider the input from this meeting in their deliberations about the monitoring requirements for the Napa Plant Site Restoration project (Project).

Project Background & Site Description (Carl Wilcox, CA Dept. of Fish & Game; Francesca Demgen, URS). (The MRT was provided with hardcopies of project descriptions including its EIR/EIS prior to this meeting.)

The Dept. of Fish & Game received money to buy and restore wetlands and associated habitats in the San Francisco Bay, but there generally is not much money available for monitoring these sites. Every site is monitored differently. A standardized

and affordable approach needs to be applied that should result in greater efficiency in protecting and restoring wetlands in the San Francisco Bay. All other issues can be addressed as research questions.

The site is owned by the CDFG. The basic goals for the Project have been to: 1) Restore tidal habitats; 2) Promote environmental benefit and reduce impacts; 3) Provide recreational opportunities; 4) Minimize ecological risks; 5) Maintain flood protection; 6) Maintain current level of vector management; 7) Create self-sustaining / cost-effective designs; and 8) Identify suitable areas for managed ponds. These basic goals are represented by more specific objectives that were not provided in writing to the MRT but were brought into its discussion as needed by the Project Representatives. One criterion for the preferred design is minimum required maintenance over time.

The preferred design emphasizes restoration of fully tidal marsh (minimal channel construction, no water control structures, and no planting of vegetation except perhaps in upland-tidal ecotones on east side of Project), plus ongoing management of one historical salt pond as waterfowl and shorebird habitat. The managed pond will provide fluctuating water levels to accommodate the various activities of shorebirds and waterfowl. The pond will be managed as a flow-through system. The pond is about 200 acres and will be low enough to fill and drain easily. Historical marshland south of Fagan Slough will be reconnected to the Slough. The levee of the managed pond will be rebuilt in part and water control gates will be added to manage the pond's hydroperiod. Other internal levees will be lowered or abandoned, except along the eastern, upland ecotone where flood protection is needed. A new drinking source is requested for residence and recreational uses. Passive recreation will be encouraged with a staging area and peripheral trails. There will be a trail around the managed pond. As part of the Fagan Ecological Reserve, Ponds 9 and 10 will not have hunting. However, hunting could occur in the southern portion of the site and may only be allowed by boat. Hunting on-site will also be limited by its danger to the neighboring Napa Airport. It is a high-use airport and jet use is increasing. There is concern about possible bird strikes especially from Ponds 9 & 10. The preferred design reflects these concerns.

The site was used by Cargill for salt production and a salt reduction plan is now underway. The current habitat is predominantly salt ponds. The Cargill phase-out started in 2003 and will continue for approximately 8 years to reduce the salinity to acceptable levels throughout the site. Salinity within the site is acceptable when water discharged from the site meet does not adversely affect the condition of the receiving waters, namely the Napa River near the Project, based on standards already established for the Napa Salt Pond Restoration Project across the Napa River. It was not within the purview of the MRT to provide advice about these standards, other than to comment on methods of compliance monitoring. Salinity reduction on-site will be accomplished in phases. The salinity is down to less than 50 ppt in ponds scheduled for Phase I restoration, which includes the North and possibly the Central Unit. Salinity is higher in the southern portion but will be reduced before being restored to tidal action.

Site Context

Fagan Slough Ecological Preserve to the immediate north is fully tidal. The Napa River that borders the project to the West is fully tidal. The Napa-Sonoma Marsh Restoration Project across the Napa River from the Project is a mixture of tidal marsh restoration and managed ponds. The preferred Project design considers the optimal ecological synergies with the Napa-Sonoma Project. American Canyon baylands to the South of the Project will be restored to full tidal action. The Project includes Green Island and the edge of uplands on the East side of the Project where some restoration of upland-tidal ecotone may be possible.

Project Timeline

1. Purchased in 2003
2. Draft EIR has been submitted to the public
3. Final EIR due June 2006
4. 50% of design will be finished in June 2006

Phase 1 implementation in 2007 (Northern and possibly the Central units)

- Cargill is done with salinity reduction the northern unit.
- Central unit may also be ready to go by 2007; it will have reduced salinities but may still be required to conduct Cargill's phase-out processes.

Phase 2 complete by 2010 (Southern Unit)

- Cargill needs to reduce the salinity
- Cargill is struggling to manage the excess water from recent heavy rains.

Baseline Data includes:

- Good aerial photography
- Adequate bathymetry relative to NAVD 88 and local tidal datums
- Soil and water salinity and contaminant chemistry data for each restoration unit
- Habitat maps (state standard typology not used but existing map is adequate for design purposes)
- On-site wildlife surveys restricted to birds. (No fish are on site but the river has been sampled by the Napa River Fisheries Monitoring Program.)
- Availability of data uncertain to MRT.

Existing Monitoring Proposal (described in the attached draft table, presented for discussion purposes only):

There is essentially no money for monitoring except what can be done in-house by CDFG during perhaps 2-3 weeks of personnel time each year. The on-site person most likely will be a warden and might not have time or expertise for monitoring.

Parameters in existing plan include the following:

Water quality:

salinity, pH, ammonia, total mercury

Sediment quality:

Grain size

- Total mercury
- Geomorphology:
 - Sedimentation using SETs
 - Tidal channel cross-sections and plan-form extent
 - Breach cross-sections
- Biota:
 - Avian use\
 - Plant species cover and community composition

Compliance points for Waste Discharge Requirements (WDR) from the Water Board:

Managed pond discharge into the Napa River could require continuous monitoring. No water quality monitoring is required in the tidal area unless there is some special reason for it. The Water Board will probably ask for more monitoring in the managed pond than what is currently proposed especially if water quality is poor. Salinity discharge from the managed pond may not have an adverse effect on the Napa River but low oxygen and pH could be a problem. In addition, if dredged sediment is used as part of the restoration project, the material will need to meet sediment quality standards and the decant water will need to be monitored.

MRT Response

The MRT should provide recommendations for the minimum monitoring required for the Napa Plant Site in terms of parameters to monitor, methods, and frequency of data collection.

The MRT discussed and generally agreed to the following criteria or considerations for minimal monitoring

1. Make sure all data are highly relevant. No data should be collected that do not directly pertain to one or more project goals or primary objectives. The data that directly pertain to the most goals or objectives are most important. No data should be collected if their use is not clear and articulated before they are collected. There must be a large likelihood that the data will affect a basic decision about project design, management, maintenance, or monitoring.
2. For any data that are collected there must be a predicted state or condition indicating when the related goal or object is met. The data must be compared to a predicted or desired endpoint.
3. Focus on condition, not its causes. The data can be used to develop hypotheses about cause and effect, but do not have to test the hypotheses. For example, an assessment of bird use may be essential, but assessing why the birds use the site is not essential. If the data indicate conditions are not adequate, then assemble an interpretive team to help diagnose the problem and advise any effort to assess its causes.
4. Assume there will be no problems. The data should be collected often enough to track progress toward goals and objectives, and to indicate when they have been reached, but not to explain the rate of progress or lack of progress. Again if a

- problem develops, then assemble an interpretive team to help diagnose the problem and advise any effort to assess its causes. Monitoring can be added if essential measures of condition indicate a problem.
5. Mine other projects. Look to other projects for needed data. No data should be collected for this project that can be provided by another project. Projects that might be looked into include the Napa River Flood Control Project, the CalFed Fish Mercury Project, the Napa-Sonoma Marsh Restoration Project, and the Regional Monitoring Program for Trace Substances.
 6. Maximize the use of available human resources. For example, the on-site manager should be considered for data collection. Whoever is stationed on-site or has the duty of patrolling the site should be instructed to keep a notebook of potential problems relating to levees, breaches, and other basic considerations. Volunteer monitoring should also be considered.

When all other criteria are met, the consideration of alternative monitoring methods should favor those that can also inform the design and management of other projects. In addition, it would be very useful for the CDFG to get the word out sooner rather than later to local researchers about the Project and opportunities for more detailed research at the site. Since it takes time to get outside funding for this kind of work, it would be very helpful to get some ideas going and proposal together before the site is breached so that there is the possibility of more research and monitoring there.

Review of Table 1: Draft Napa Plant Site Monitoring Plan (5/4/06):

1. **Water Quality:** For tidal marsh restoration, and for managing pond discharge, the objective is that outflow from the site will only increase total salts relative to inflow by 1-3 ppm during each high tidal period, as measured at the breach or gate. It is likely that dissolved oxygen (DO) and pH will also be monitored because of problems with these constituents in managed ponds in the South Bay. Performance standards for these parameters must also be stated.

For Phase 1, inflow and outflow water quality should be monitored at least initially at the breaches and at the mouth of Fagan Slough to verify that the objective is met. If sondes are used in the restored tidal area for salinity, then it should be cost-effective to include pH and DO measurements. There is no reason to monitor ammonia in the tidal marshes, but it should be included in the water quality data for the managed pond along with pH, DO, and salinity, some of which have violated water quality limits in the South Bay Salt Ponds. If sondes are used, they should be fixed to floats such that the measurements pertain to the upper foot of the water column. If the goal is met during the end of the dry season then monitoring can possibly stop. Due to difficult access the easiest time to monitor continuously for a month is during August and September. Whether or not such monitoring has to be repeated for Phase 2 depends on what is learned in Phase 1. If the goal is met quickly in Phase 1, then salinity, DO, and pH monitoring may not be needed in Phase 2.

2. **Total Mercury and Methyl Mercury:** The objective should be that mercury is no more abundant in sentinel species within the site than elsewhere in comparable habitats of San Pablo Bay. The project should build on the sentinel species work from the South Bay Salt Pond Restoration Project. It is likely that the sentinel species will be gobies for subtidal habitat and ponds, brine flies for ponds and pannes, and song sparrows for tidal marsh. Maximum sampling frequency is likely to be twice per year.
3. **Benthic macroinvertebrates and grain size distribution:** The minimal monitoring program can exclude these parameters.
4. **Fish:** See number 2 above. Gobies might be used as sentinel species to assess environmental mercury conditions. Otherwise fish need not be monitored in a minimal program. Avian presence (piscivores) and behavior or observation can be used to document fish presence.
5. **Birds:** The objective should be to support adequate numbers of individuals of the expected guilds during the migratory and nesting seasons. Predict avian species use of habitat types and monitor to determine if those predictions are realized. The adequacy of the results should be assessed as a consensus of opinion among reviewers of the monitoring results. Monitoring should include fields of information for feeding behavior since this will indicate the status of fish and benthos as prey on site. Use the “grid method.” Monitor for 1 year for phase 1; monitor tidal marsh in years 1, 5, and 10 and during the same time vegetation monitoring is occurring. Monitor managed pond every year for 5 years. Monitoring should be conducted weekly over 2-3 months during the fall and nesting season of each year of monitoring.
6. **Small Mammals:** The objective should be to support adequate numbers of individuals of target species. Determine which species would be best to monitor for each habitat type. The Salt Marsh Harvest Mouse should be monitored for estuarine wetlands and adjacent upland ecotones. Sampling should coincide with vegetation monitoring such that vegetation can be treated as a predictor of small mammal support. There will be no mammals of interest until vegetation is established. Rather than beginning in any specific year, begin small-mammal trapping after achieving some threshold, for example, 50% pickleweed cover in a particular area of interest. Once vegetation has reached the threshold, monitoring can happen once per year every two years until the populations of interest seem to stabilize, every 5 years thereafter. Ideally monitoring can also begin in nearby existing marshlands adjacent to the site (i.e., Fagan Slough) to survey for source populations. Salt marsh harvest mouse will reproduce in this habitat due to the pickleweed.
7. **Vegetation:** Vegetation is probably the most important component to monitor in a wetland restoration site, especially one evolving over time. The objective

should be to support adequate cover of vegetation based on the existing plant community mapping protocol of the WRMP. The adequacy should be assessed as a consensus of opinion among reviewers of the monitoring results. For any restoration unit, monitoring should be conducted during July or August, starting in the year when the absolute plant cover reaches 5%, and then be repeated during years 3, 5 and 10. Vegetation maps can be ground-truthed during the small mammal and bird monitoring efforts. Coordinate with other monitoring efforts, such as the Napa-Sonoma Marsh Restoration Project, to see if they can provide the needed aerial imagery.

8 Tidal Channel Evolution: For each breach, the objective should be that a drainage network evolves that is similar to the networks in other sites that are comparable in terms of salinity regime and absolute plant cover. The photography used to assess vegetation can also be used to assess drainage networks. Assess the network for each breach in terms of overall channel density. Cross-sections are only needed at the breaches. Start monitoring during the first fall after breaching, and then during subsequent years 3, 5 and 10.

9 Sedimentation: The objective should be for adequate net annual accretion of sediment in the intertidal habitats. Sedimentation should be assessed using Sediment Erosion Tables (SETs) according to the WRMP protocol. For each Phase of tidal marsh restoration, data should be collected annually in October until absolute plant cover reaches 75%. There should be 3-5 SETs spread out across each Phase.

10 Recreation: The objective should be to meet annual visitation quotas. These need to be set. Data might be counts of visitors as evidenced by parked cars at the staging area, trail-side sign-in logs, etc.

11 Mosquito control: The objectives are the performance criteria for adequate mosquito control provided by the Napa County MVCD. List these criteria and describe the monitoring and control methods that are likely to be used.

Table 1: DRAFT Napa Plant Site Monitoring Plan (For discussion purposes only; this table does not incorporate MRT suggestions.)

Sampling Category	Parameter	Method notes	Frequency	Sampling Years	Total Number of Stations				
					North Unit	Central Unit	South Unit	Napa River	Managed Pond
Water Quality	Salinity	water, upper foot	D/M	1	at breach	at breach	at 2 breaches	2	1
Water Quality	DO	water column profile, every half foot; in pm	monthly	1	2	2	4	2	1
Water Quality	pH, temp., turbidity, total ammonia	Water	monthly	1	2	2	4	2	1
Water Quality	unionized ammonia	Calculated	monthly	1	1	1	4	2	1
Water & SedimentQuality	total mercury	water and sediment	bimonthly (6X/yr)	1, 5	2	2	2	2	1
Water & SedimentQuality	methyl mercury	water, sediment, addled eggs	bimonthly (6X/yr)	1, 5	2	2	2	2	1
Biota	(BMI) Benthic macroinvertebrates	clam gun, 2 reps/sta, intertidal mudflat	once annually (Aug. or Sept.)	2, 6, 10	2	1	3	2	1
Sediment characterization	Grain size distribution	in conjunction with BMI	once annually	2, 6, 10	2	1	3	2	1
Biota	fish	in channels, seine toward block net	2X/yr between Apr & Oct	2, 4, 6, 10	2	1	2	use data from other program	1 (depending on operation, may not sample fish after year 2)
Biota	small mammal trapping	in appropriate high marsh & ecotone habitats	once annually	6, 8, 10 (depending on habitat development)	number of trap nights based on USFWS protocols			not applicable	
Biota	birds	USGS grid method	monthly	1, 5, 10	grid placed on each unit (North, Central, South & Managed pond)				
Biota	vegetation	aerial photo with ground truthing	annually	2, 6, 10	Use GIS to calculate total, ID marsh plain & ecotone communities				
Geomorphic evolution	channel extent	aerial photo with ground truthing	annually	2, 6, 10	map channel development by unit, using aerial photos				

Sampling Category	Parameter	Method notes	Frequency	Sampling Years	Total Number of Stations				
					North Unit	Central Unit	South Unit	Napa River	Managed Pond
Geomorphic evolution	breach & channel cross-sections	width; depth at MLW	annually	2, 6, 10	Breach; 2 x-sections internal; 2 Fagan Slough	Breach, barge channel, internal channel	2 Breaches, 4 x-sections internal; 2 riverine mudflat	see South Unit	not applicable
Geomorphic evolution	sedimentation	sediment pins	annually	2, 6, 10	4	3	8	0	2
Geomorphic evolution	erosion (levee lowering to MHHW)	map depth of eroded cuts on lowered levees	annually	1, 3	9/10 north, 9 west	barge channel north	not applicable	not applicable	not applicable

Notes:

Aerial photo should be taken on a minus tide.

D/M = Once during the first and fifth day following breach; weekly during weeks 2-4; monthly thereafter