

SAN FRANCISCO BAY AREA WETLANDS RESTORATION PROGRAM DESIGN REVIEW GROUP

MEETING SUMMARY JANUARY 12, 2003

Attendees:

Bob Batha (San Francisco Bay Conservation and Development Commission)
Peter Baye* (Independent Biologist)
Andree Breaux (San Francisco Bay Regional Water Quality Control Board)
John Brosnan (Wetlands Restoration Program)
Josh Collins* (San Francisco Estuary Institute)
Laurel Collins* (Watershed Associates)
Leslie Ferguson (San Francisco Regional Water Quality Control Board)
Dale Hopkins (San Francisco Regional Water Quality Control Board)
Linda Huller (Task Force on the Future of Mt. Tam/Muir Beach resident)
Marla Lafer (San Francisco Regional Water Quality Control Board)
Phil Lebednik* (LFR Levine-Fricke)
Roger Leventhal* (FarWest Engineering)
Molly Martindale (U.S. Army Corps of Engineers)
Mike Monroe (U.S. Environmental Protection Agency)
Walter Postle (Task Force on the Future of Mt. Tam/Muir Beach resident)
Michael Rochette (San Francisco Regional Water Quality Control Board)
Barbara Salzman (Marin Audubon Society)
Carolyn Shoulders (National Park Service)
Stuart Siegel (Wetlands and Water Resources)
Jennifer Vick (National Park Service)

* Big Lagoon Wetland and Creek Restoration Design Review Team members

1. Introductions/Review Agenda

Mike Monroe chaired the meeting and opened the discussion with a review of the agenda and a roundtable of introductions. He asked the group if there were any announcements. Stuart Siegel noted a two-day Suisun Marsh science workshop will be held on March 1 and 2. The meeting will reach out to a variety of stakeholders who work in and around Suisun Marsh. John Brosnan noted he has been assisting with planning for the September 2004 Restore America's Estuaries conference and the call for presentations closes February 2.

John revised a list of projects the DRG may invite in the future, including Bair Island, Pond A4, Yosemite Creek and Schoolhouse Creek. He asked group members for additional projects. Peter Baye suggested the California Department of Fish and Game's Bahia project, with Larry Wyckoff as the contact. Peter also suggested projects near the Sears Point raceway, where the Sonoma Land Trust recently acquired land. Laurel Collins suggested the Army Corps of Engineers and Coastal Conservancy project in Shellville, with the Southern Sonoma Resource Conservation District as the contact organization. Josh Collins suggested Bolinas Lagoon, with Ron Mitska of Marin County Open Space District as the contact. Roger Leventhal noted he's

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about to begin work on a project along Lower Rheem Creek. Bob Batha suggested Caltrans' North Basin eelgrass mitigation going on near the Berkeley Marina.

John provided an update on a few key actions since the September 2003 DRG meeting. The Napa Plant Site Letter of Review was completed and released on November 6. The Bahia Homeowners' Association (BHA) initiated a Public Records Act request in November and requested the Wetlands Restoration Program turn over all documents related to the Bahia Lagoon Dredging and Lock project. John reminded the group that the BHA project's Letter of Review was never completed due to the Executive Council's directives to cease work on the project and the subsequent policy disallowing DRG review of privately sponsored mitigation projects. In response to the BHA request and following consultation with legal counsel at U.S. EPA, the state Resources Agency and the Association of Bay Area Governments, the Wetlands Restoration Program turned over all correspondence related to the BHA project. The Public Records Act does not require an organization to provide draft documents and, as such, no draft comments were released. John then updated the group on the Coordinating Committee's guidance for DRG review of projects located outside the DRG geographic boundary. The Coordinating Committee determined the DRG could review a project outside of the bay's immediate watershed only when (1) there is no cost to the Wetlands Restoration Program for reviewers' time, (2) project review does not delay review of a bay project, and (3) John has time to manage completion of the Letter of Review. These criteria were met in order to allow the Big Lagoon project to come before the DRG. John stated he updated the Wetlands Restoration Program website with the goal of making the site more visually appealing and professional in appearance. He advised DRG members to alert him to any important announcements they feel should be posted to the site.

2. DRG Steering Committee

John noted this agenda item has been informally discussed within the DRG and the Monitoring Group for several months. He noted the DRG participants have long talked of a "core" DRG, although one has never been defined. John stated that limitations imposed by compliance with the Federal Advisory Committee Act (FACA) would restrict steering committee participation to agency staff, yet the value of opinions and input from non-agency participants would not be diminished as a result. While the entire DRG can create its own internal policies, the steering committee would be charged with moving policy recommendations up to the Coordinating Committee and the Executive Council. FACA simply requires that recommendations coming from either group be traceable to a body solely composed of agency staff people. John wanted to make sure non-agency participants of the group do not feel relegated to a second tier as a result of this action; all group members can make suggestions and participate in group deliberations without restriction. Josh suggested Mike and John already serve as the conduit to the Coordinating Committee and the Executive Council and proposed they might be the steering committee. Mike Monroe noted this was more or less a formality in planning for the future and reiterated that FACA requires recommendations to the Executive level must be moved forward under agency representation. Stuart suggested this concept would establish a clear bifurcation of duties in the DRG, with non-agency staff serving as the technical reviewers and agency staff serving the purpose of moving recommendations to management. Phil saw three functions - the whole DRG being both agency and non-agency participants that features

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project presentations and debates DRG direction, the policy-focused, agency staff members of the DRG and the technically focused DRG review team members who are not agency staff.

3. Adoption of DRG documents (Ground Rules and Project Summary Outline)

John presented the revised Ground Rules and Project Summary Outline and thanked DRG members for providing comments. Both documents have undergone two rounds of review and revisions and all edits have been incorporated. He reminded the group of the last meeting, when he noted he would seek formal adoption of the documents at the next meeting. He asked if there were final questions about the documents. Michael Rochette suggested the project summary outline ask project proponents if they're aware of the Basin Plan's beneficial uses for groundwater and surface water at their project site; Phil Lebednik and Mike Monroe noted the DRG does not involve itself with making those designations. Mike noted we could ask proponents to state the beneficial uses for waters, pursuant to the Basin Plan. **Stuart suggested removing the word "surface" from the hydrology section.** Josh pointed out that, in many cases, all the of the information in the summary would not necessary for review, and John added the document was intended to serve as a comprehensive catch-all, particularly for ensuring coverage of controversial issues. **Marla Lafer wanted to see a list of project documents that are being reviewed by agency staff.** She felt this list would provide a frame of reference to the DRG's response. Mike Monroe stated John already distributes the information on what is being reviewed and asked the group to adopt the documents. They will serve as living documents and be added to or modified as needed. **Josh proposed changing the language in the Summary Outline's introductory paragraph and moving #8, the Desired Feedback section, further up front.** Mike asked the group to adopt the documents and there were no objections. Phil suggested placing a poster in the room at each meeting to state the meeting rules.

4. DRG PROJECT PRESENTATION: Big Lagoon Wetland and Creek Restoration

Mike Monroe introduced the Design Review Team members and introduced Jennifer Vick of the National Park Service. Jennifer noted the Design Review Team has reviewed the Sediment Budget, the Site Analysis, and the Administrative Draft of the Feasibility Analysis. The project has a 10-year planning history. The project team is through the public involvement process (12-15 public meetings), the scoping kickoff, several technical studies, and alternatives development. The Final Feasibility Analysis is due by the end of February. The EIS/EIR process is about to get underway, with a public draft expected in October 2004. The project team expects construction to begin in 2007.

The Big Lagoon Wetland and Creek Restoration is located in the community of Muir Beach in southwest Marin County. Redwood Creek flows through the site and is periodically connected to the Pacific Ocean. The majority of the watershed is under public ownership. The project site is about 40 acres in size and land ownership is split between the National Park Service and the Green Gulch Farm, which is private property. An aerial photograph of the site from 1853 shows about 12 acres of open water on the site along with 13 acres of wetlands. The creek channel does not provide spawning habitat for salmonids, but juvenile Coho and steelhead are found in the backwater through summer. The Green Gulch tributary maintains limited rearing habitat. Seasonal wetlands along the east side of the project site provide breeding and rearing habitat for red-legged frog, western toad, Pacific treefrog, California newt and the rough-skinned newt.

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Threespine stickleback and Sacramento blackfish use the flooded pasture and channels, as do wintering waterfowl and shorebirds. The tidal lagoon provides steelhead summer rearing, rearing or refugia for Coho, and habitat for Yellowfin goby, starry flounder, staghorn and prickly sculpins.

Current site conditions include several constraints. Pacific Way (the beach access road and ingress/egress for local residences) is situated in the floodplain and regularly floods during heavy storm events. Redwood Creek has been confined between Pacific Way and the adjacent levee road, which has resulted in localized channelization. Willows and alders have colonized locales of excessive sediment deposition. A current hypothesis purports channelization has filled in the lagoon. In general, the site contains creek channels, willow-alder riparian habitat, seasonal wetlands, sand dunes and coastal beach. The site is breeding habitat for the endangered California red-legged frog (frogs are breeding on the Green Gulch property) and rearing habitat to Coho salmon and steelhead. The site has supported Western pond turtle in the past. The Coho do not stay at the site due to chronically depressed dissolved oxygen levels. Approximately 440,000 people visit the site annually and 94% of those visitors arrive by private vehicle. The site includes extensive hiking, horse riding and biking trails. Cultural (midden) resources have been located at the site.

Since 1997, the Redwood Creek channel has been expanding and associated sedimentation problems have been worsening. A positive feedback cycle of sedimentation has been emerging, as high sediment loads associated with storms and landslides have flushed down the creek to choke off the creek mouth. The groundwater table's rate of rising has only increased along with this sediment deposition. At some points along the creek, the creek's thalweg is higher than the valley floor. This has contributed to flooding over Pacific Way and the access road and some private homes have been flooded. The levee road is quickly deteriorating due to flood flows over its surface. Different entities, including the National Park Service, Marin Municipal Water District and the ~150 homes in the community of Muir Beach, have water rights along Redwood Creek. It is expected that the proposed project's lowering the mouth of the creek (near the present parking lot) will lower the groundwater, which is one concern for water rights holders. The Muir Beach supply is located one mile upstream from the proposed project site.

The stated project goals include the following: restore a functional, self-sustaining ecosystem; develop a restoration design that functions in the context of the watershed and the region; recreate habitats for special status species; reduce flooding on Pacific Way and in the Muir Beach community; provide visitor experience and public access that are compatible with the ecosystem restoration and historic preservation; incorporate Federated Indians of the Graton Rancheria cultural values and indigenous archeological resources into the project; provide opportunities for public education and community-based restoration; and, coordinate with the Comprehensive Transportation Management Plan to identify transportation alternatives that are consistent with ecosystem restoration. The stated strategy for achieving the project's goals includes recognizing the site is a dynamically evolving system, grading the site template to anticipate and to take advantage of geomorphic processes, designing the template to achieve desired habitat characteristics as the site evolves, accommodating future sediment delivery and minimizing maintenance and intervention. Alternative 1 is the No Action alternative, Alternative 2 focuses on creek restoration, Alternative 3 focuses on creek and relatively smaller lagoon restoration and Alternative 4 would restore a very large lagoon. The parking lot's new

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design and configuration would be based on what is hydrologically appropriate for the site, in each of the action alternatives. Parking in close proximity to the beach would be retained in Alternatives 2 and 3, while Alternative 4 would concentrate the majority of the parking near Highway 1 (which poses a higher potential for traffic and safety impacts). Jennifer stated Alternative 3 presents the best mix of open water and riparian habitats at 50 years out from construction.

Excavation costs present the highest cost of the project. Sediment volumes increase from 10,500 to 100,000 to 170,000 cubic yards from Alternative 2 to 3 to 4. Associated projected costs of moving that sediment off-site increase at a similar rate. Sediment removal options considered but were deemed infeasible include piping sediment off-shore, barging it (which would require a slurring facility). Trucks will most likely be used to remove sediments and NPS has identified potential off-site disposal locations.

Key findings include: Alternative 2 is anticipated to be a stable equilibrium form with little change in habitat types over the planning horizon; Alternative 3 small lagoons would be mostly filled by Year 50, converting open water areas to wetlands; Alternative 4 Large Lagoon would be about half filled by Year 50; Alternative 2 provides the most acreage of riparian woodlands, but the least wetland habitat; Alternative 3 would maintain the largest mix of open water, wetland, and riparian habitat types; Alternative 4 would sustain the highest proportion of estuarine habitats compared to other alternatives; Winter rearing habitat and passage for salmonids will be improved under Alts 2 - 4; Greater flow depths, channel complexity, and floodplain connectivity; Alt 3 provides greatest benefit followed by 2 & 4; Breeding and rearing habitat for red-legged frog will be improved under Alts 2 - 4, initially, Alt 2 provides greatest benefit; Bird diversity is expected to improve under Alts 2 - 4, Alt 3 will promote greatest bird diversity; No Action Alternative would likely result in increased flooding, significant annual maintenance, and potential loss of fish passage; Alternative 4 would provide the greatest improvement to flooding and Alternatives 2 and 3 also provide improvement relative to No Action; Public access, parking, and trails can be accommodated by the restoration alternatives; and, onsite or offsite disposal of excavated material is a key feasibility and cost issue.

Jennifer stated her primary interests in the feedback from the DRG were (1) based on the project's sediment budget dynamics, how will this site function from a physical standpoint, and (2) as the project will lower the mouth of the creek and potentially excavate in current red-legged frog habitat, would/how would the future site provide the intended mix of habitats?

5. DRG Review - Questions and Answers

Phil Lebednik noted that the project planning emphasized a great deal of upstream evaluation and wanted to make sure the planning team sufficiently recognized the role of coastal littoral processes. Phil suggested investigating the creek functions that are connected to the littoral processes, as it is that interaction that controls the channel's opening and closing. He added this is a particularly important relationship, as it will greatly impact the local Coho populations. Phil advocated for restricting public access to the dune areas, noting their high sensitivity to perturbation. Phil cited the potential for western snowy plovers to use this site in the future. He advised the project team to control for invasive species. Phil questioned the effects of constructing a new channel behind the dunes and also questioned how dunes could be created

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east of such a channel, because littoral processes presumably would sustain them. He noted that Alternatives 2 and 3 do not replicate the historic thalweg gradient while alternative 4 does and asked why 2-3 do not, proposing that all alternatives replicate the historic thalweg gradient. He asked if some of the structures associated with other project goals (e.g., bridge replacement, parking, viewing pads, etc.) could be incorporated into the creek realignment and restoration plan to create channel meander, which would benefit Coho. He asked, why build lagoons if they are expected to silt in? Phil noted the Coho and steelhead here are part of the Central California Coast Evolutionarily Significant Unit (ESU) and recommended that assisting the recovery of these species should be prioritized because there are limited sites where coho restoration can be done, and even fewer places where there are extant coho runs as there are here. He noted that viable outmigrant habitat might be a factor limiting stock (total coho population size in the creek) and recommended that the restoration design incorporate consideration of viable outmigrant rearing habitat and appropriate features for upstream migration of adults (including pools and other low velocity habitats to facilitate resting).

Roger Leventhal asked, what is known about the sediment particle sizes from the upper to the lower watershed (especially the D94 and D50)? He added that, depending on the sediment sizes and channel shear forces, Alternative 2 might not be stable. He noted that the design does not appear to be geomorphically based and that none of the provided reports show typical geomorphic design approaches such as reference site work or field indicators. He noted the report mentions that the creek depth is 5 ft and therefore at this flow depth the channel shear forces will likely be high and could potentially over-erode the banks of the river and suggested beginning with a geomorphic basis. Knowing the sediment particle size distribution and changes down the watershed gradient was essential in determining the stability of the proposed channel design concepts. He asked if the Green Gulch tributary was included in the modeling flow and stated a 2-D model might be more applicable to the proposed project in the tidally influenced pond areas. He asked, will there be adequate flow to move fluvial sediments with the planned 3% grade? He also stated that if the parking lot needs to remain then its possible that flood flows could be directed into culverts placed underneath the parking lot surface as opposed to an impermeable fill that blocks flows.

Laurel Collins asked, what period of time was used to establish the current conditions and why? Laurel suggested basing assumptions on the creek conditions in the most recent timeframe, or from 1981 - present. She noted it was possible the heavy rainfall from the 1982 events could have "reset" the system. She pointed out that had the period of time prior to 1982 been used to establish the current conditions, lower sedimentation rates would serve as the baseline. She asked, how much impact did the parking lot, alone, have on sediment deposition? Laurel noted a modification of the No Action Alternative where there would be no new bridge, but rather an elevated bridge and parking lot, might dramatically affect sedimentation rates and would avoid modifying the streambed. Laurel then referred back to the Feasibility Analysis and proposed the main stem of Redwood Creek was a disconnected system. She wondered how Coho would have migrated up this system, likely during flood events. She stated natural functions might have been functioning even though the opportunities were limited. She asked, could the project disconnect the tributaries and use fill from the parking lot to fill in the historic alluvial fans (instead of storing sediment upstream)? Laurel noted that inundation of the alders would greatly impair their survival. Jennifer Vick noted the concept of the minimum

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alternative has been challenging. She asked, if the channel goes into the floodplain, could there be sufficient incision enough to provide upstream Coho access?

Josh Collins questioned the reliance on the snapshot of 1853 conditions. He noted there might never have been a channel in a stable condition. He referred to the 1853 photo and stated what appears may be a remnant of a meadow that had been drowned, which could have been influenced by the historic high groundwater levels. Carolyn referred to the photograph from 1892, which showed the same channel as appeared in the 1853 image. Josh recognized the immediate needs of relocating the parking lot and flood control, but noted this lagoon or drowned meadow are might have historically served as a sediment sink. He advised the use of a minimum alternative and moving the channel into the middle of the floodplain in order to minimize its ability to flood out adjacent structures. He suggested moving the road from the floodplain in advance of any expensive floodplain modifications.

Stuart Siegel asked the proponents why the troubles with flooding and rise in the groundwater table have become so problematic so recently? Stuart asked, what is triggering the need for human intervention? He asked if some linkage could be uncoupled in order to reverse these trends. Walter Postle stated that NPS ceased clearing riparian vegetation in 1992 and that was when the channel began to silt up and vegetation increased in density, causing flooding. Stuart felt the groundwater and sediment connection was in need of further exploration. Laurel wondered if the historic system, without maintenance, would periodically close off the channel mouth. Phil advised a better understanding of how phasing this project could affect the dynamic processes going on at the site. He stressed the key to understanding this project was in understanding the littoral processes.

Peter Baye felt there might have been some lost opportunities in not more deeply investigating the littoral processes that maintain the seasonal lagoon during low fluvial discharge conditions. He referred to the 1853 photo and what could have been the low tide line at the mouth, stating the system in its 1853 state might have been a drowned marsh impounded by a naturally beach-choked stream mouth. He felt the restoration was being driven by the fluvial design (backwater riparian ponds as "lagoons"), which inherently has different properties from a coastal backbarrier lagoon. Peter suggested separating the designs for coastal backbarrier lagoon and riparian marsh plains. He felt it would be hard to build a pond over the channel (like a sediment detention basin) and not have it quickly fill in with sediment, yet he noted the backbarrier lagoon periodically scours out from high flows or storm erosion. He suggested exploring the option of excavating (enlarging) a backbarrier lagoon by removing past fills and storm deposits between the parking lot and the mouth. Peter referred to the project map and stated there was not high potential for dunes on the parcels northwest side (because of sheltered position in relation to dominant NW winds and sand deflation sources), where the design called for a "dune evolution area". He noted that sufficient fine-grained summer sand at the lagoon channel's mouth would choke the mouth enough to impound the lagoon seasonally. Peter noted how this system is currently storing fine sand in artificially enlarged dune blowouts (maintained by trampling in the proper foredune zone) that migrate landward, making fine sand less available to the littoral cell. He speculated that dune deposition patterns severely modified by long-term trampling might constrain beach sand supply and processes that affect seasonal lagoon formation. Peter felt the best restoration opportunities for Coho were at the downstream end of the project, in the seasonal backbarrier lagoon. Responding to Linda

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Huller's question, Phil felt the parking lot runoff had minimal impact on the sedimentation problems at the site. Peter proposed a modification to Alternative 3, stating the alternative's lagoon emphasis should be on a larger seasonal backbarrier lagoon, rather than the "lagoons" (ponds) upstream in the riparian areas. He felt this change would likely reduce disposal needs. Overall, he suggested sacrificing some marsh space for an expanded lagoon basin letting the system evolve from there. Peter proposed restricting pedestrian access along the back of the barrier beach (the foredune zone), but restrictions were not necessary along the beach at the mouth. Marla Lafer asked if there were similar systems to point to around the Bay Area and Peter mentioned Salmon Creek, Elk Creek and Alder Creek. He recommended evaluation of modern comparable backbarrier lagoon reference systems in the region for the restoration design.

Josh suggested prioritizing a self-sustainable system in terms of incorporating flooding control. He pointed out that the littoral zone and the dunes are minimally impacted by watershed systems. He noted that sediment coming from upstream bluffs might be what's nourishing the dune systems.

Laurel referred to the creek channel location in Alternative 3. She suggested there was insufficient room for the creek's lateral movement between the lagoons without eventually spilling over into one of them. She also agreed with Phil on the point that the lot location doesn't limit bottlenecks of the new channel. Laurel questioned the assumption in Alternative 4 that the lagoon will have enough flow to keep the mouth open if sediment would be continually filling it up. She suggested investigating other similar sized coastal watersheds for example of this type of restoration, specifically San Pedro in Pacifica and Muddy Hollow in Pt. Reyes. She proposed that perhaps Coho and steelhead historically were able to navigate past willow and alder growth. She also questioned how sudden oak death and accompanying increases in woody debris and sedimentation might affect the project. Laurel also questioned whether or not Green Gulch Farms would always maintain their reservoirs.

6. Public Comment

Walter Postle stated that his organization's concerns were the viability of the entire project; the Muir Beach parking lot (eyesore, etc.), the flooding on Pacific Way, and dredging of ponds and the disposal of spoils. He presented a list of about 20 questions for the consideration of the Big Lagoon Design Review Team.

7. Meeting summary and next meeting date

Mike Monroe wrapped up the discussion and said John would provide the draft Letter of Review to the team the following week. John will coordinate the next meeting via email. The meeting was adjourned.