



**RECEIVED**  
CALFED Bay-Delta Program

## MEMORANDUM

Date: May 9, 2002

To: Dan Ray, CALFED Bay Delta Program  
1416 Ninth Street, Suite 630, Sacramento, CA 95814

From: Nadine Hitchcock and Amy Hutzal, California State Coastal Conservancy

RE: Napa-Sonoma Marsh Restoration Project CALFED Grant Application, #31

The California State Coastal Conservancy is honored to have the Napa-Sonoma Marsh Restoration Project be among the projects selected by the CALFED Selection Panel to be Considered as a Directed Action in the Annual Workplan. This letter is meant to clarify questions raised by the selection panel about the Napa-Sonoma Marsh Restoration Project, particularly clarification of the hypotheses, conceptual model, and monitoring plans. The Conservancy encourages CALFED to fund Phase 1 of the Napa-Sonoma Marsh Restoration Project, a landscape-scale restoration of national significance.

### Project Summary

The CALFED grant would enable work to begin on Phase 1, which will tackle water quality improvements and restoration in three former commercial salt ponds along the Napa River, totaling approximately 3,000 acres of the 10,000-acre Napa-Sonoma Marsh project site. Phase 1 will include final design work and construction that will provide for salinity reduction in Ponds 4 and 5 (1,700 acres) and the restoration of the Pond 3 (1,300 acres) to tidal marsh (see attached maps). Phase 1 is an exciting opportunity to conduct a large-scale restoration project that will result in a self-sustaining wetland ecosystem, aid in the recovery of multiple at-risk species, including anadromous and resident fish, waterbirds, and mammals, and benefit a broad range of other fish, wildlife, and plant species, including migratory waterfowl and shorebirds.

Future work in the 10,000-acre pond complex, which will not be funded under the CALFED grant, will include additional tidal marsh restoration along with construction of water control structures to enable efficient management of ponds for waterfowl and shorebirds. The Phase 1 project will serve as a model for other restoration work in the North Bay salt ponds and for restoration work in the South Bay salt ponds, if acquired from Cargill.

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There is an urgency to this project. The project site's water quality, habitat conditions, and infrastructure are deteriorating: salinity levels are rising within the ponds, levees are deteriorating, and several water control structures no longer function. As the site deteriorates, ponds no longer provide habitat for wildlife, the risk of a high-saline spill to the Napa River rises, and the cost of future restoration work increases. The Department of Fish and Game, Conservancy, and U.S. Army Corps of Engineers have invested funds and staff time in the design and analysis of this restoration project, and DFG and the Conservancy are eager to begin this restoration project in the near-term in order to deal with these issues and begin providing higher-quality, self-sustaining habitat to benefit a diversity of species.

The Draft EIR/EIS and Feasibility Study for restoration of the entire pond complex will be issued in the summer of 2002 and will have 3 alternatives for salinity reduction in the ponds, all three of which contain variations on water intake and outfall structures along the Napa River, Napa Slough, and San Pablo Bay, with one alternative providing for controlled levee breaches to reduce salinities in Ponds 3, 4, and 5. In addition, the Draft EIR/EIS will include 3 alternative mixes of managed pond and tidal marsh habitats (see Figures 2-15, 2-16, and 2-17 and descriptions below):

Alternative 1 - Mix of Managed Ponds and Tidal Marsh: Ponds 3, 4, and 5 (2,904 acres) will be opened to the tidal prism in an orderly manner depending on accretion rates and sediment budget. Design features will be used as needed for improved accretion rates and habitat evolution. Ponds 1, 1A, 2, 7, 7A, and 8 (2,406 acres) will be kept as managed ponds, with levee repair and water control improvements as needed. Ponds 6/6A (1,146 acres) will be managed as ponds for 10 to 20 years. Depending upon success of restoration in Ponds 3 - 5, availability of waterfowl and shorebird habitat in the region, and availability of funds for management, Ponds 6/6A will continue to be managed as ponds or will be restored to tidal marsh.

Alternative 2 - Tidal Marsh Emphasis: Ponds 3, 4, 5, 6 and 6A, plus eastern half of 2 (4,373 acres) will be opened to the tidal prism in an orderly manner depending on accretion rates and sediment budget. Design features will be used as needed for improved accretion rates and habitat evolution. Ponds 1, 1A, western half of 2, 7, 7A, and 8 (2,080 acres) will be kept as managed ponds, with levee repair and water control improvements as needed. A new levee will be built down the middle of Pond 2.

Alternative 3 - Managed Pond Emphasis: Ponds 3 and 4 (2,162 acres) will be opened to the tidal prism in an orderly way depending on accretion rates and sediment budget. Design features will be used as needed for improved accretion rates and habitat evolution. Ponds 1, 1A, 2, 5, 6, 6A, 7, 7A, and 8 (4,294 acres) will remain as managed ponds, with levee repair and water control improvements as needed.

### **Phase 1 Implementation**

As stated in the grant application, Phase 1 would involve improvement of water quality in Ponds 3, 4, and 5 by installing water control structures that will enable DFG to reduce salinities in the ponds. The Phase 1 project will include installation of water control

structures on Ponds 4 and 5 and restoration of Pond 3 to tidal habitats via levee breaches (dependent upon analysis in EIR/EIS and receipt of a discharge permit from the RWQCB). Phase 1 would consist of the following components:

- Salinity Reduction/Water Quality Improvements in Ponds 4 and 5
  - Water Intake Structure on Pond 5 with Fish Screens
  - Levee Breaches between Pond 5 and 4
  - Outfall with Diffuser on Pond 4
- Tidal Habitat Restoration in Pond 3
  - Levee Breaches, Pilot Channels, Ditch Blocks, and Levee Lowering
- Engineering, Permitting, and Project Management
- Baseline, Construction, and Post-Construction Monitoring (to assess marsh evolution and to ensure compliance with discharge criteria)
  - Vegetation, Sedimentation, Wildlife, and Water Quality Monitoring

### **Conceptual Model**

#### *Statement of Problem*

An estimated 85% of the historic tidal marshes in the San Francisco Bay have been filled or significantly altered over the past two centuries. The diking of tidal marsh has had negative effects on the physical, chemical, and biological health of the Bay, recognized as the following in the *Baylands Ecosystem Goals Report*:

- Curtailment of the influence of tidal marshes on sediment transport leading to the accumulation of sediments from watersheds at the mouths of streams;
- Loss of tidal prism causing tidal channels to become more narrow and shallow, significantly decreasing the capacity of local rivers and streams and increasing the local hazards of flooding and need for dredging;
- Decreased water quality and increased turbidity within the Estuary; and
- Declines in fish and wildlife populations, leading to economic losses through declines in sport and commercial hunting and fishing and the listing of numerous species under the federal and state endangered species acts.

The 10,000 acres of former commercial salt ponds in the Napa-Sonoma Marshes, now owned by the State of California, provide a unique opportunity for landscape-scale restoration of tidal marsh to benefit water quality, physical processes, and fish and wildlife, including special-status anadromous and resident fish, special-status birds and mammals, aquatic invertebrates, and migratory waterfowl and shorebirds.

#### *Pond 3 Design Approach and Expected Habitat Evolution*

The approach to tidal restoration is to allow natural sedimentation and vegetative processes to gradually regenerate a self-sustaining marsh ecosystem. Philip Williams and Associates (PWA) has created preliminary conceptual designs for the 3 restoration alternatives (see Figures 1, 2, and 3), which will be refined after hydrodynamic modeling and further geomorphological analysis. Design features for Pond 3 (1,300 acres) are described below. Similar design features will be used in the subsequent tidal restoration of Ponds 4 and 5.

Design features for Pond 3 include:

- **Levee Breaches:** Pond 3 will first be desalinated via levee breaches along the Napa River during a high flow event (current salinity in Pond 3 is approximately 50 ppt). Additional levee breaches will be added along South Slough and Dutchman Slough. Breaches will be located at the mouths of historic slough channels and enough breaches will be created to ensure that all drainage areas of approximately 250 acres are served by at least one breach. Breaches will be located to reduce negative impacts associated with erosion of fringing marsh and unintended breaching of levees (for example, on Cullinan Ranch).
- **Ditch Blocks:** The borrow ditches which were created to build and maintain the salt pond levees will be blocked in order to promote reestablishment of natural channels and ensure drainage within the site.
- **Starter Channels:** starter channels will be excavated from the breach some distance into the pond, generally in the locations of large historic slough channels. Starter channels benefit habitat by facilitating more rapid channel and marsh development, and may increase the eventual channel drainage density.
- **Berms.** Excavated material from the starter channels may be sidecast along the slough channel to form berms no higher than natural marshplain elevations. Berms create a diversity of marsh habitat and enhance sedimentation and marsh establishment by reducing wind wave resuspension of sediment.
- **Levee Lowering:** Grade portions of the perimeter levees to marshplain elevations as feasible to create new marshplain within the first few years of the project. Locations of levee lowering will be designed to improve habitat connectivity between areas of marsh.

When first breached, Pond 3 will primarily provide intertidal mudflat habitat, which is expected to benefit at-risk fish and aquatic species, and migratory shorebirds and waterfowl. It is expected that as deposition of sediment occurs intertidal areas will aggrade to elevations at which cordgrass and bulrush can initially colonize and low marsh will form. Vegetation will extend to lower areas through lateral colonization. Low-marsh, once fully established, is expected to gradually transition to mid-marsh (marshplain), predominantly pickleweed. This transition is assumed to occur in approximately 10 years, based on observations at other restored San Francisco Bay marshes (Muzzi, Bothin, and DeSilva Island), but has a relatively wide range of uncertainty (PWA, 2002). Formation of low and mid marsh is expected to benefit at-risk marsh species, such as the California clapper rail and salt marsh harvest mouse, as well as anadromous and resident fish and other aquatic species.

#### *Ponds 4 and 5 Design Approach and Expected Habitat Evolution*

The approach to salinity reduction and water quality improvement in Ponds 4 and 5 (1,700 acres) is to install water control structures which will allow for intake of Napa River water and discharge of water into the Napa River (discharge criteria will be defined in a RWQCB permit). Currently, the ponds are a closed system with no discharge point. In order to maintain current pond habitat value, San Pablo Bay water is drawn into Ponds 1 and 1A and moves up through the pond system, while Napa River water is drawn in at Pond 8 and moves down the pond system. High salinity waters end up in Ponds 4 and 5,

the dead end in the system. Salt is continually being added to the system, making future restoration much more difficult and costly.

Ponds 4 and 5 were once high-quality habitat, used by large numbers of waterfowl and shorebirds. The salinities in Ponds 4 and 5 have exceeded 350 ppt (10 times the salinity of ocean water) at times over the past few years. Installation of water control structures which allow intake and discharge is expected to reduce salinities in the ponds, including reduction of precipitated salts, over a period of several years. Reduction of salinity will improve conditions for waterfowl and shorebirds in the ponds, will reduce the risk of a high-saline spill into the Napa River or sloughs in the event of a levee breach, and will allow future tidal restoration work to proceed, which will provide for the same benefits as the Pond 3 restoration.

### Hypotheses

- Pond 3 will evolve to a 1,300-acre self-sustaining mix of tidal habitats, including midmarsh (marshplain), low marsh, intertidal mudflat, and subtidal channels. The restoration will be designed to ensure that natural processes can act to gradually regenerate a marsh ecosystem. PWA has conducted preliminary analysis of the geomorphological evolution of the site, taking into account initial elevations, sedimentation rates, vegetative processes, and wind-wave action within the ponds. Analysis was conducted for the three restoration alternatives (described above) and was conducted showing with and without design features to minimize wind-wave action, such as berms or peninsulas. Below is PWA's preliminary estimated habitat evolution for Pond 3, without design features. The evolution estimates indicate that once opened to the full tidal prism, the site will primarily consist of intertidal mudflat. As sediment deposits, elevations will rise and low marsh vegetation (cordgrass and bulrush) will colonize. Low marsh will increase between years 10 and 30 and then transition to mid-marsh habitat (predominantly pickleweed marshplain), which will increase during years 30 to 50. Complete descriptions of the assumptions and methods used are provided in the PWA 2002.

Preliminary Estimated Habitat Evolution for Pond 3 (acres)

Year*	0	5	10	20	30	40	50
Subtidal	0	30	30	30	30	30	30
Intertidal Mudflat	520	440	360	150	230	30	30
Low Marsh	0	20	100	310	270	30	3
Mid Marsh	0	40	40	40	200	440	470

\* Years after breaching.

Note: Areas over ten acres rounded to the nearest 10 acres.

- Tidal habitat restoration in Pond 3 will help achieve restoration of the following at-risk native species:
  - special-status anadromous fish, specifically steelhead trout and Chinook salmon, which could benefit from the tidal habitats during their upriver migration or in the smoltification process;

- special-status resident fish, specifically delta smelt and Sacramento splittail;
  - harvestable fish, specifically striped bass;
  - special-status waterbirds and mammals that depend upon tidal wetlands in the San Francisco Bay estuary, specifically California clapper rail, salt marsh harvest mouse, and black rail;
  - aquatic invertebrate species, such as amphipods, isopods, mysid shrimp, bay crabs, bay shrimp, Dungeness crabs, polychaetes, and molluscs; and
  - migratory shorebirds and dabbling ducks, which depend on Bay wetlands for feeding and resting during migration along the Pacific Flyway.
- Improved water quality in Ponds 4 and 5 will benefit migratory diving waterfowl, such as canvasback, and shorebirds, which had been seen in high numbers in Ponds 4 and 5 prior to the rising salinity.
- Decreased salinities in Ponds 4 and 5 will allow for future restoration of one or both ponds to tidal habitats (future of Pond 5 as either tidal marsh or managed pond habitat is dependent upon EIR/EIS analysis; Pond 4 is restored to tidal marsh in all 3 Habitat Alternatives in the EIR/EIS).

### **Demonstration Project**

There has already been one large-scale restoration success story within the salt pond complex. Pond 2A (550 acres) was restored to tidal habitat in 1995 by DFG and has rapidly evolved into tidal marsh, serving as a model for restoration of Pond 3. Although Pond 2A has different characteristics than Pond 3 (Pond 2A was slightly less subsided than Pond 3 and was never farmed prior to conversion to a salt pond), it provides some indication of expected evolution and expected vegetation colonization and wildlife use. Pond 3 will be restored using a similar technique to the Pond 2A restoration (levee breaches), and will include additional design features. The techniques and monitoring employed in the Pond 3 restoration will in turn serve as a model for restoration of other ponds in the 10,000-acre complex and could serve as a model for restoration of the South Bay Salt Ponds.

The physical and biological evolution of the 550-acre Pond 2A marsh was monitored over a four-year period (1996-2000) through surveys of levee breach and natural slough channel width equilibrium, sediment chemistry and grain size, sedimentation rates, tidal range and response, fish usage, avian usage, and plant colonization.

Results of the monitoring include the following:

- By the year 2000, the marsh plain and slough channels were reaching equilibrium and vegetation cover had increased dramatically to 90% coverage from about 10% coverage in 1995;
- Nineteen different species of fish were caught over the four-year study period (1,314 individuals), including 142 Sacramento splittail, 3 delta smelt, 99 striped bass, and 207 topsmelt;
- The invertebrate census identified nine crustacean species, including bay crab, bay shrimp, and Dungeness crabs, along with mollusks and polychaetes; and

- Seventy different bird species were observed, primarily shorebirds and dabbling ducks, along with a few California clapper rails and black rails observed in the last two years of the surveys.

### **Monitoring**

As stated in the application pre-construction and post-construction monitoring will be conducted. Phase 1 includes three years of post-construction monitoring. Subsequent monitoring will continue for a total of 10 years after each pond is breached.

For clarification, here is a preliminary outline of monitoring tasks:

#### *Overview*

Biologists and hydrologists with U.S. Geological Survey, and contractors as needed, will monitor the restoration project. The primary objectives of the monitoring are to evaluate: physical evolution of Pond 3 and the external slough channels, wildlife use of Ponds 3, 4, and 5 and fringing marsh, and water and sediment quality in the Ponds and Napa River.

USGS has been monitoring six ponds of varying salinities (Ponds 1, 2, 2A, 3, 4, and 7) since 1999. This interdisciplinary study, involving biologists and hydrologists, has included avian, macroinvertebrate, and fish surveys, along with collection of salinity and other water quality data in the ponds and collection of hydrodynamic, salinity, and suspended sediment concentration data in the sloughs. (Takekawa et al. 2001). The ongoing nature of this monitoring effort will allow for before and after comparisons. Comparisons will also be made to other restoration projects in the North Bay that are currently being monitored (such as Guadalcanal, Tolay Creek, and Pond 2A), and to the fringing marsh that exists along the slough channels within the salt pond complex. Monitoring will be coordinated with the Regional Monitoring Program and will be shared widely in order to better plan tidal restoration projects throughout the San Francisco Bay estuary.

#### *Wildlife Monitoring in Ponds*

Baseline, construction, and post-construction macroinvertebrate, fisheries, and avian species data will be collected at locations within Ponds 3, 4, and 5 and compared to Ponds 1, 2, 2A, and 7 to assess the impacts of the restoration upon the wildlife. Ponds will be overlaid with 250 m Universal Transverse Mercator (UTM) grids and all integrated samples will be located within this grid.

Invertebrates will be sampled in the water column and in the benthos. Biomass and diversity of invertebrates will be measured on a seasonal basis. Fish species assemblages will be surveyed quarterly. Multiple sampling gear will be used to assess distribution and relative abundance of juvenile and adult fishes. Waterbird surveys will be conducted quarterly or bimonthly. Locations of flocks will be mapped in the grid overlay and displayed in GIS maps. Trends will be examined by comparing data from before and after installation of water control structures in Ponds 4 and 5 and tidal marsh restoration in Pond 3. Water depth and foraging preferences will be examined. To monitor bioaccumulation of elemental contaminants by predators in these ponds, samples from

the month of maximum migratory bird use will be analyzed each year for chemical residues.

#### *Pond 3 Sediment, Hydrology, and Vegetation Monitoring*

A topographic and bathymetric survey of the ponds and sloughs has been completed by Towill, Inc. as part of the Feasibility Study. Sediment, hydrology, and vegetation monitoring will be conducted immediately pre-breach to establish baseline conditions, then approximately annually for three years. Pre-breach monitoring will include some additional surveys for consistency with post-project monitoring locations, plus installation of sedimentation stations. Post-construction (post-breach) and some additional pre-breach surveys of tidal geomorphic evolution will document rates and patterns of habitat evolution and key underlying physical processes.

Monitoring results will be used to identify the need for any adaptive management at Pond 3 to improve tidal circulation. They will also be used to inform and adaptively manage the tidal wetland restoration designs for Ponds 4 and 5. For example, the extent of starter channels and berms in Ponds 4 and 5 will take into account their performance in enhancing habitat evolution in Pond 3. Although not included in Implementation Phase 1 (this phase), monitoring of tidal geomorphic evolution will be conducted at Ponds 4 and 5 once they are breached (breaching of Pond 5 depends upon analysis in EIR/EIS).

Sedimentation will be monitored to understand rates and patterns of marsh evolution within Pond 3. Sedimentation will be measured using methods such as marker horizons, sedimentation plates and pins, and topographic re-surveys. Cross-section surveys of levee breaches, external sloughs, and pond-internal sloughs and adjacent berms (if used) will be conducted to understand patterns of tidal scour and drainage. Water surface elevations in the sloughs and restored ponds will be monitored to identify any drainage constraints due to increases in the tidal prism. Vegetation-elevation transects will be conducted within Pond 3 to document rates and patterns of vegetation colonization in tidal marsh restoration projects in the Napa-Sonoma Marsh. Similar data will be collected for a natural reference marsh, for comparison.

#### *Water and Sediment Quality*

Water and sediment samples from 40 sites within the pond complex, along with sites in the Napa River, Napa Slough, and San Pablo Bay were collected in October, 2001, by Hydrosience, after development of a Sampling and Analysis Plan and Quality Assurance Project Plan approved by the RWQCB. Samples were analyzed by MEC Analytical Laboratories for volatile and semi-volatile organics, pesticides, PCBs, heavy metals, dioxins, and general water quality parameters, including nutrients, TDS, TSS, pH, temperature, salinity, and DO.

Post-construction monitoring will include monitoring within Ponds 4 and 5 to understand and manage water quality changes and monitoring of the discharge from Ponds 4 and 5 to ensure compliance with NPDES or WDR permit requirements. The discharge monitoring will include continuous recording devices for key parameters and periodic grab samples for specific constituents of concern. Measurement of key variables (flow,

salinity, temperature, and TSS) will be implemented within the ponds and Napa River to provide for real time management of the intakes and discharges. Grab samples will be used to characterize long-term changes in other constituents of concern, such as trace metals.

## References

Goals Project, 1999. Baylands Ecosystem Habitat Goals. A report of habitat recommendations prepared by the San Francisco Bay Area Wetlands Ecosystem Goals Project. First Reprint. U.S. Environmental Protection Agency, San Francisco, Calif./S.F. Bay Regional Water Quality Control Board, Oakland, Calif.

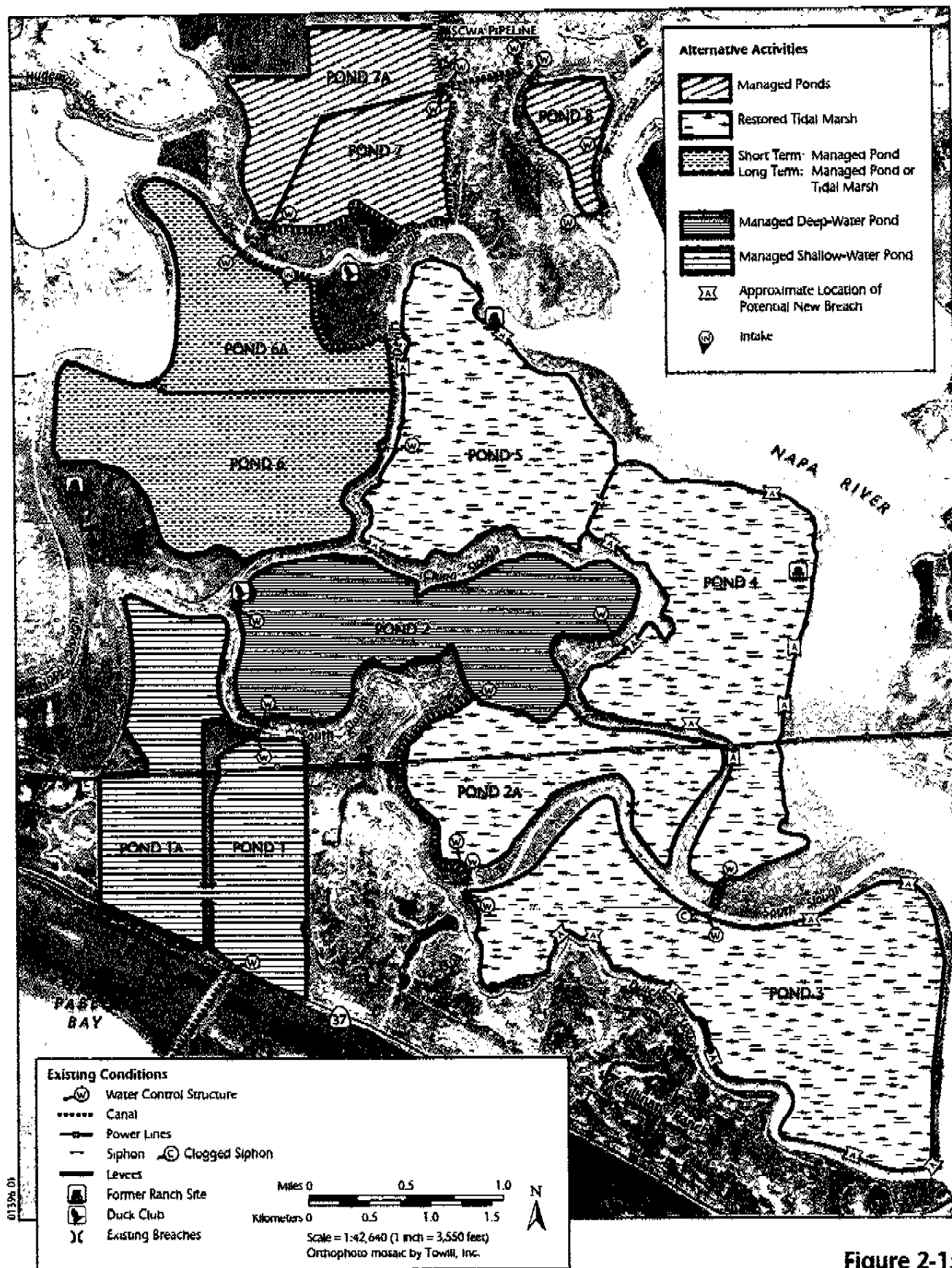
Hydroscience Engineers, Inc. Napa River Salt Marsh Restoration Project, Water Quality and Sediment Characterization. Prepared for the California Coastal Conservancy. February 2002.

MEC Analytical Systems, Inc. Baseline Monitoring of the Pond 2A Tidal Restoration, Project Final Report, July 1996 – July 2000. Prepared for the California Department of Fish and Game. December, 2000.

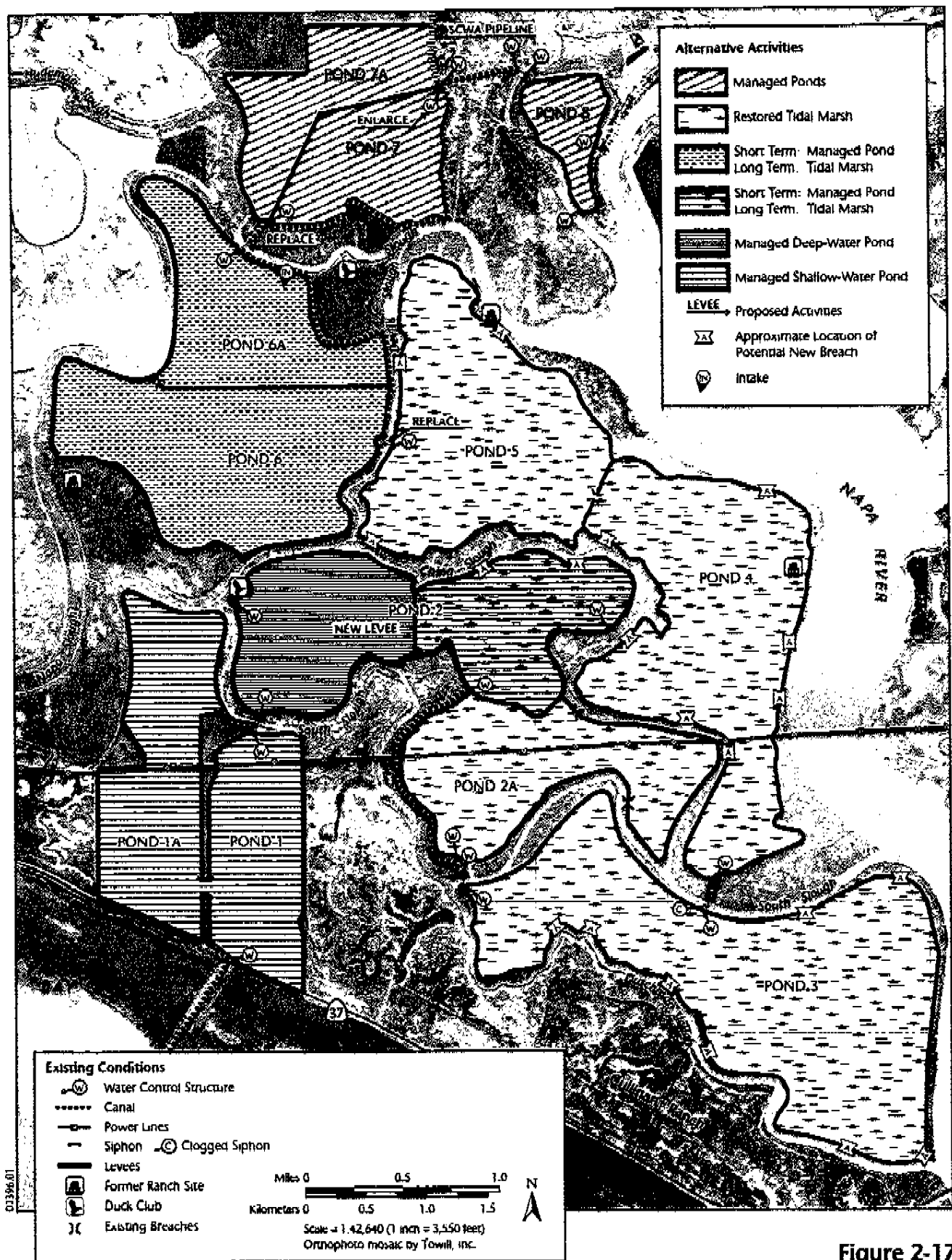
Orr, Michelle and Nick Garrity. Philip Williams and Associates Draft Memorandum to Amy Hutzell, State Coastal Conservancy. RE: Napa-Sonoma Marsh Restoration: Methods for the Hydro-Geomorphologic Estimate of Habitat Evolution. December 17, 2001, revised January 31, 2002.

Philip Williams and Associates with DHI Water and Environment and Cooper Testing Laboratories. Draft Napa-Sonoma Marsh Restoration Feasibility Study Phase 2 Stage 1. Prepared for the California Coastal Conservancy. March, 2002.

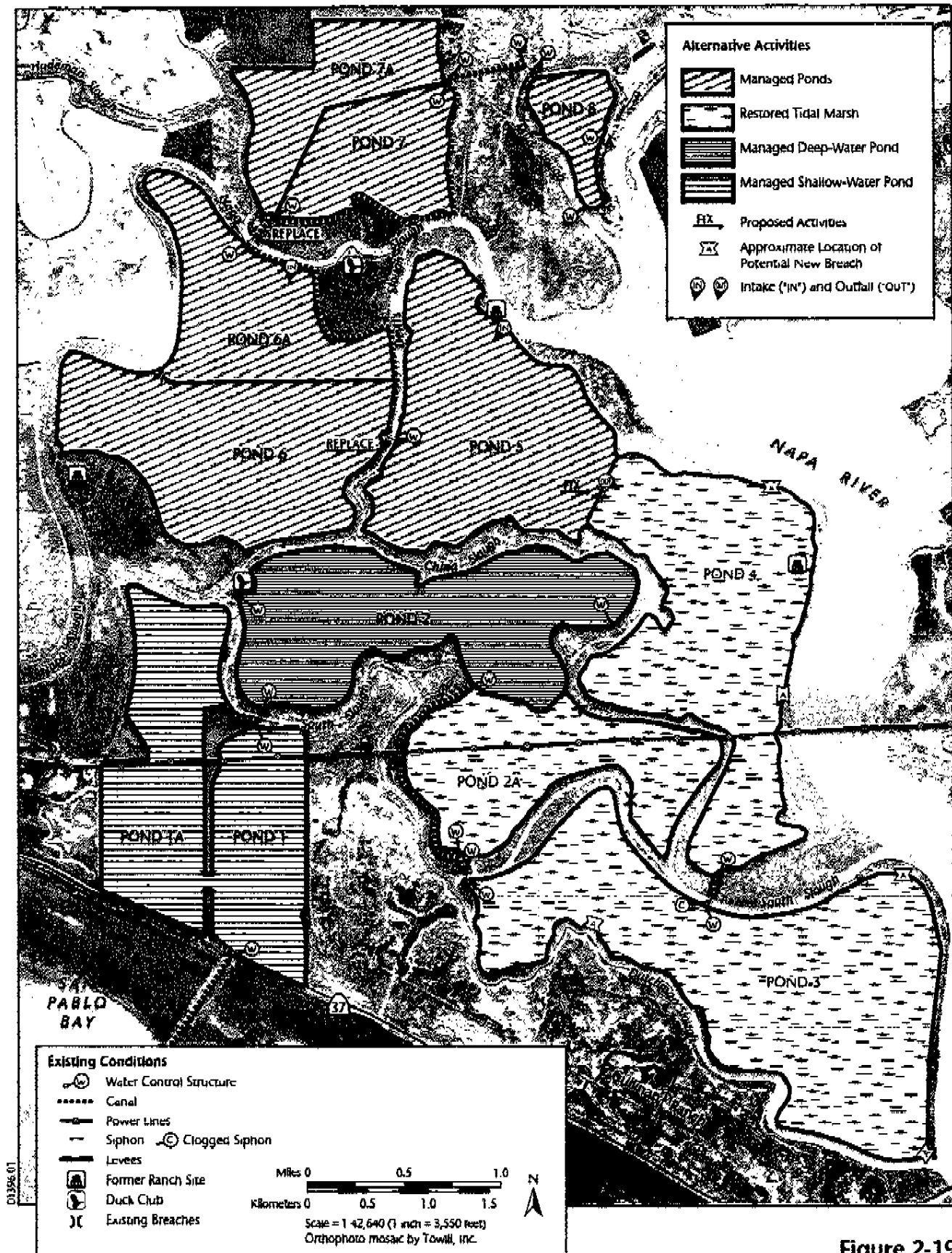
Takekawa, John Y., Corinna T. Lu, and Ruth T. Pratt. Avian Communities in baylands and artificial salt evaporation ponds of the San Francisco Bay estuary. *Hydrobiologia* 00: 1-12, 2001.



**Figure 2-15**  
**Habitat Restoration Alternative 1:**  
**Mix of Ponds and Tidal Marsh**



**Figure 2-17**  
**Habitat Restoration Alternative 2:**  
**Tidal Marsh Emphasis**



**Figure 2-19**  
**Habitat Restoration Alternative 3:**  
**Pond Emphasis**



- breach
- salinity reduction breaches
- starter channel
- pilot channel
- ▲ ditch block
- - - lowered levee

*figure 1*

### Habitat Restoration Alternative 1 Mix of Ponds and Tidal Marsh

#1591-1 1.Atl1 edr

 PWA



Note: Design for Pond 6/6A is incomplete pending review of more detailed channel information.

*figure 2*

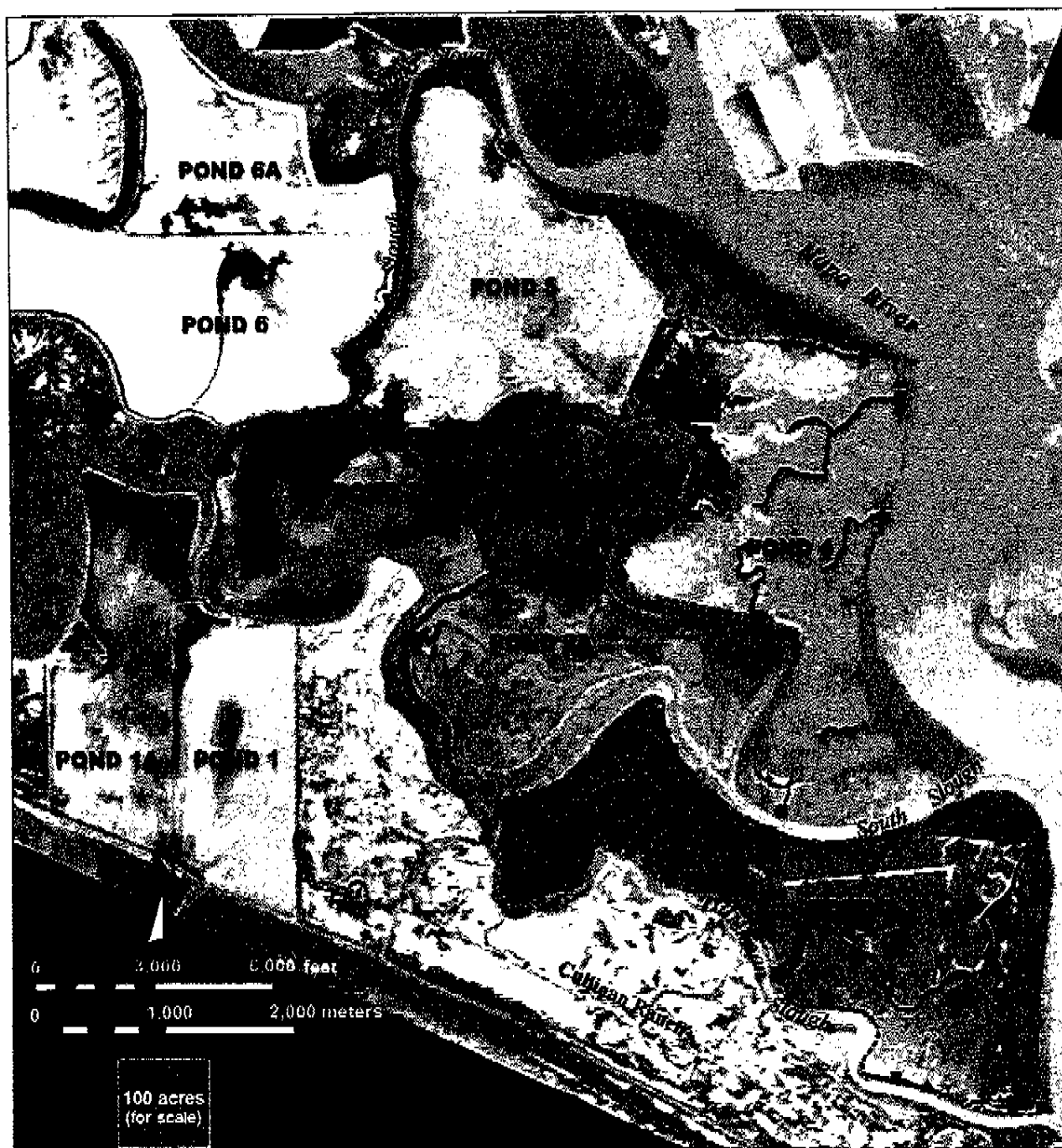
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**Habitat Restoration Alternative 2**  
**Tidal Marsh Emphasis**

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#1591-1.1 AIC2.cdr





- breach
- starter channel
- ▲ ditch block
- - - lowered levee
- improved levee

figure 3

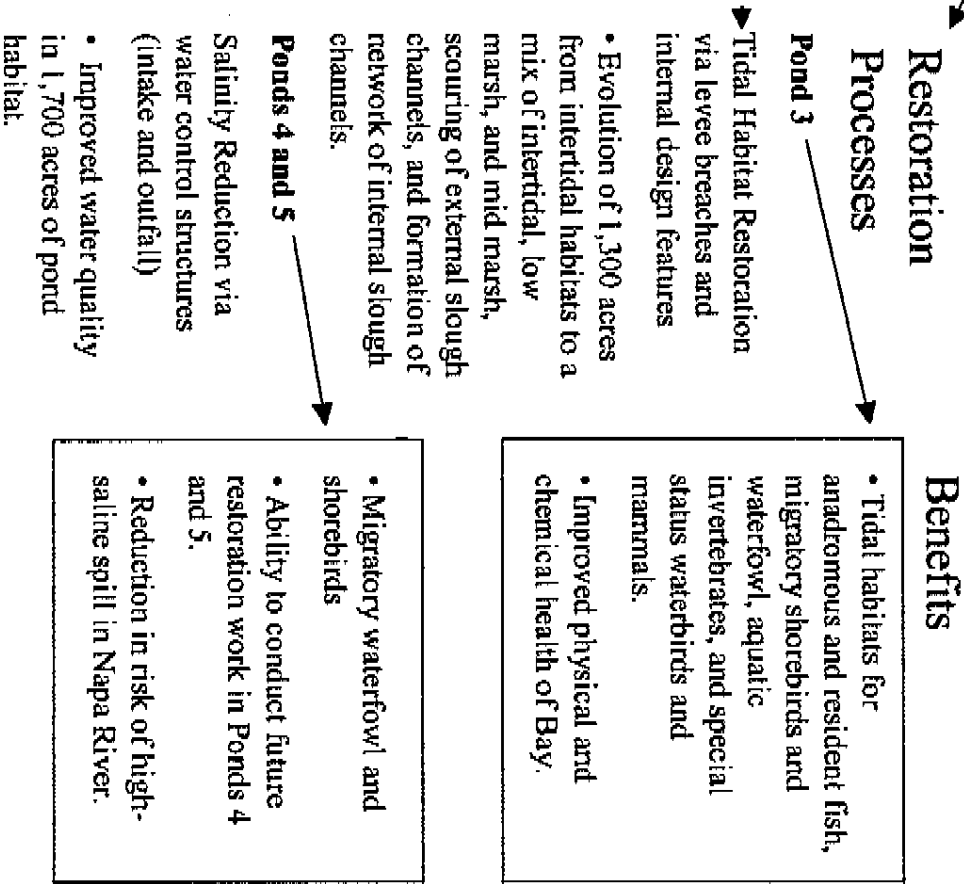
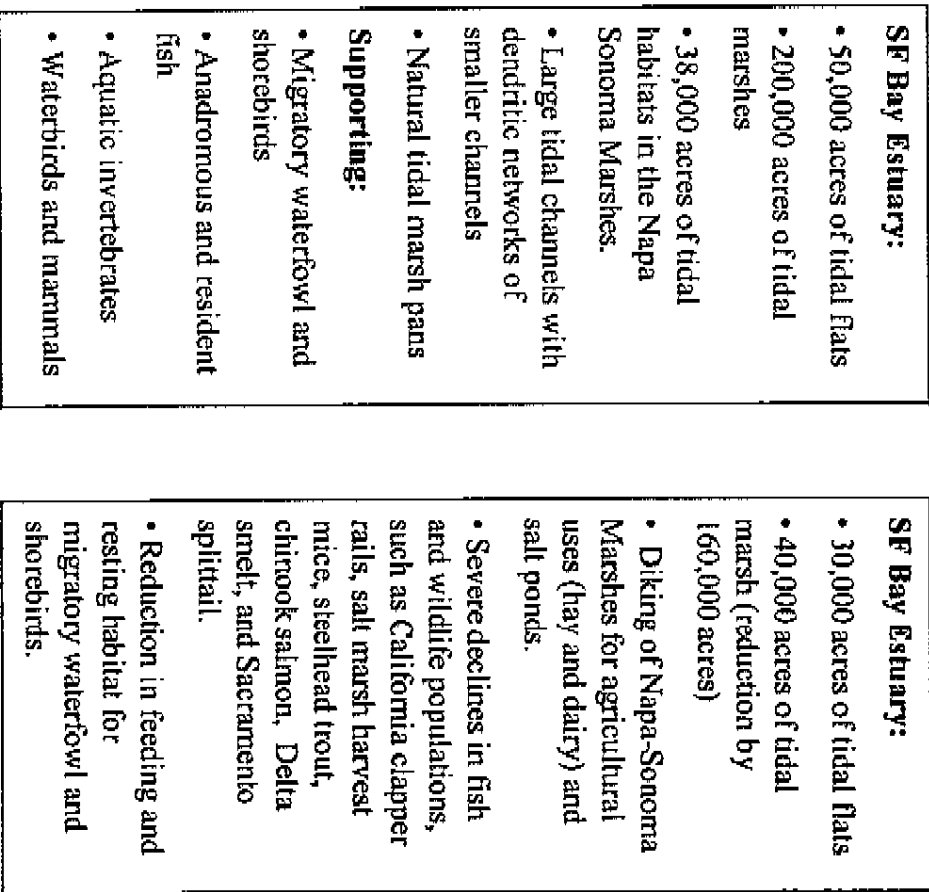
### Habitat Restoration Alternative 3 Pond Emphasis

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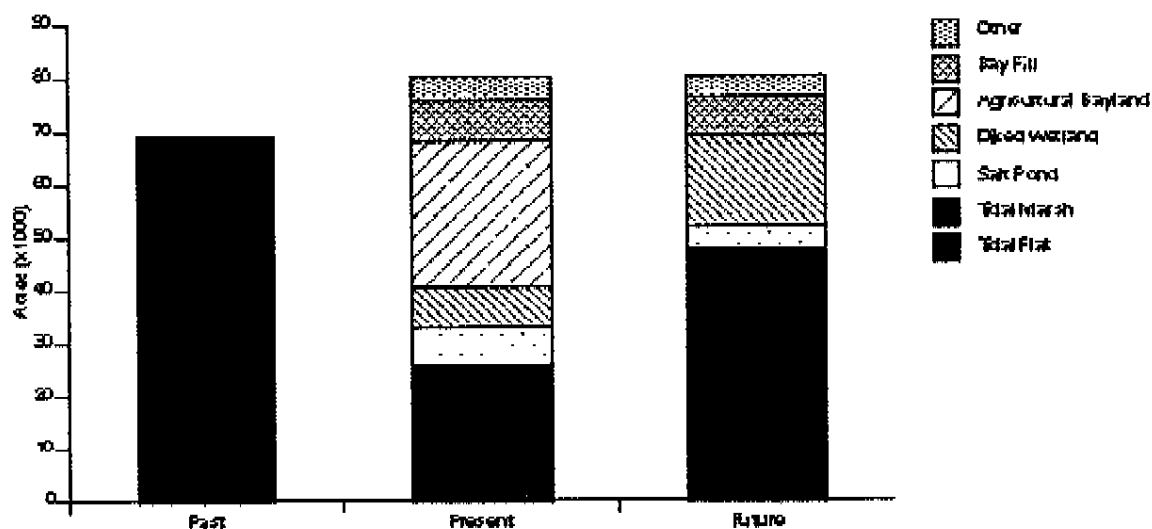


# Napa-Sonoma Marsh Restoration Project Conceptual Model

Historical State (ca. 1800) → Current State (1998)



**FIGURE 5.4 Past, Present, and Recommended Future Bayland Habitat Acreage for North Bay Subregion**



### North Bay Subregion

The overall goal for North Bay is to restore large areas of tidal marsh and to enhance seasonal wetlands. Some of the inactive salt ponds should be managed to maximize their habitat functions for shorebirds and waterfowl, and others should be restored to tidal marsh. Tributary streams and riparian vegetation should be protected and enhanced, and shallow subtidal habitats (including eelgrass beds in the southern extent of this subregion) should be preserved or restored.

Tidal marsh restoration should occur in a band along the bayshore, extending well into the watersheds of the subregion's three major tributaries — Napa River, Sonoma Creek, and Petaluma River. Seasonal wetlands should be improved in the areas that currently are managed as agricultural baylands. All remaining seasonal wetlands in the uplands adjacent to the baylands should be protected and enhanced.

In much of this subregion, achieving the Goals will depend on the willingness of farmers to convert agricultural baylands to tidal marsh and to allow the remaining areas to be managed as seasonal pond habitat.

Figure 5.4 shows the approximate acreage goals for the key bayland habitats in this subregion, along with past and present acreage. In total, the Goals for the North Bay subregion call for increasing the area of tidal marsh from the existing 16,000 acres to approximately 38,000 acres, and creating about 17,000 acres of diked wetlands managed to optimize their seasonal wetland functions.

The North Bay subregion includes Segments D through H. Actions for achieving the Goals in each of these segments are described beginning on page 106.



**DEPARTMENT OF THE ARMY**  
SAN FRANCISCO DISTRICT CORPS OF ENGINEERS  
333 MARKET ST.  
SAN FRANCISCO, CALIFORNIA 94105-2197

May 8, 2001

Mr. Dan Ray  
CalFed Bay Delta Program  
1416 Ninth Street, Suite 630  
Sacramento, CA 95814

Re: #31, Napa-Sonoma Marsh Restoration Project

Dear Mr. Ray:

The U.S. Army Corps of Engineers, California Coastal Conservancy, and Department of Fish and Game began the Napa Salt Marsh Restoration Feasibility Study in 1998 to analyze alternatives for salinity reduction and habitat restoration in former Cargill salt ponds in the Napa River Unit of the Napa Sonoma Marsh. This area, consisting of 9,850 acres of former commercial salt ponds and remnant marsh, was purchased from Cargill, Inc. by the State of California in 1994 and is currently managed by the Department of Fish and Game.

The Corps, Conservancy, and Fish and Game have each contributed funding and staff time to the Napa Salt Marsh Restoration Feasibility Study, and the agencies expect to release a draft environmental impact statement/environmental impact report (EIS/EIR) for public comment this summer. The feasibility study, including a final EIS/EIR, is expected to be completed by the end of 2002. Upon completion of this study, it is expected that the Corps will recommend that Congress provide authorization for implementation of a restoration project. Because this recommendation cannot be made prior to public review of the EIS/EIR and Corps review of technical and policy related issues, the Corps is unable to recommend Federal participation in this project at this time. However, results of detailed analysis completed as part of the Feasibility Study indicate that restoration of the former salt ponds is technically feasible and would assist the recovery of at-risk anadromous and resident fish and at-risk waterbirds and mammals, and would provide feeding and resting habitat for waterfowl and shorebirds migrating the Pacific Flyway.

The Corps, Conservancy, and Fish and Game have diligently involved a wide range of experts and stakeholders to ensure that any recommended project would be both feasible and well supported by local, state, and Federal organizations. Therefore, CalFed funding

of any portion of the Napa-Sonoma Marsh Restoration Project is likely to result in the successful restoration of vital habitat in the San Francisco Bay region. Any state CalFed funds provided to the Conservancy or Fish and Game could be applied to the state's share of any Corps project authorized for implementation by Congress.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy S. O'Rourke". The signature is fluid and cursive, with a large initial "T" and "O".

Timothy S. O'Rourke  
Lieutenant Colonel, Corps of Engineers  
District Engineer

**United States Department of the Interior**  
**FISH AND WILDLIFE SERVICE**  
**San Pablo Bay National Wildlife Refuge**  
**Azuar Drive & "I" Street, Building 505**  
**P.O. Box 2012, Mare Island**  
**Vallejo, California 94592**  
**(707) 562-3000**

May 6, 2002

Mr. Dan Ray  
CALFED Bay Delta Program  
1416 Ninth Street, Suite 630  
Sacramento, CA 95814

Subj: Support for Calfed Project #31: Napa-Sonoma Marsh Restoration Project

Dear Mr. Ray:

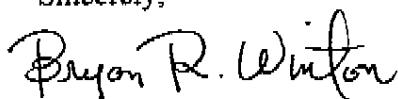
I am a U.S. Department of Interior, Fish & Wildlife Service, National Wildlife Refuge System employee. I have been serving as the Refuge Manager for the San Pablo Bay National Wildlife Refuge (NWR) and Marin Islands NWR/State of California Ecological Reserve, in the north Bay since September 1999. I am the adjacent neighbor to numerous State of California, Department of Fish & Game Wildlife Areas in the region. Therefore, I am very familiar with the work proposed under this CALFED Project.

I am very supportive of the Napa-Sonoma Marsh Restoration Project which, once restored, will improve water quality in former salt ponds (Pond 4 and 5), and restore tidal habitats to nearly 1,300 acres in Pond 3. This project will benefit resident, and threatened and endangered fish species, will provide feeding/resting habitat for migratory birds like waterfowl and shorebirds, and reverse the existing trend in extensive tidal marsh habitat loss critical to the long-term survival of the Salt marsh harvest mouse and California clapper rail—two endangered species, endemic to the greater San Francisco Bay area.

The Napa River Unit of the Napa-Sonoma Marshes Wildlife Area, includes nearly 10,000 acres of former salt ponds and remnant tidal marsh. The parcel was purchased in 1994 from Cargill, Inc. with the aid of Shell Oil Spill Settlement funds. The U.S. Army Corps of Engineers, California Coastal Conservancy, and Department of Fish & Game, in coordination with the Napa-Sonoma Marsh Restoration Group consists of representatives from trustee and regulatory agencies, non-governmental organizations, and the scientific community. The involved parties have evaluated alternatives and now seek funding to finance restoration that will benefit not only the fish, wildlife, and plants in the region, but meet people's expectations and needs as well, for improving the natural viability of the north bay.

This project will restore vital tidal habitats on 1,300 acres, and will improve water quality for migratory bird species along the Pacific Flyway. These ponds represent the only remaining, undeveloped lands, with high restoration potential—meeting the needs of migratory birds and fish, and resident species. I recommend CALFED funding be made available to initiate Phase 1 of this restoration project, and ask that you give this proposal strong consideration. This letter of support is to substantiate justification for allotting CALFED funding to support this valuable ecosystem restoration project.

Sincerely,

A handwritten signature in cursive script that reads "Bryan R. Winton". The signature is written in dark ink and is positioned below the word "Sincerely,".

Bryan R. Winton  
Refuge Manager

# ASSOCIATION OF BAY AREA GOVERNMENTS

Representing City and County Governments of the San Francisco Bay Area



ABAG

May 9, 2002

**VIA FACSIMILE & US MAIL**

Dan Ray  
CALFED Bay-Delta Program  
1416 Ninth Street, Room 1155  
Sacramento, CA 95814

Dear Mr. Ray:

The ABAG-CALFED Task Force and the San Francisco Estuary Project are pleased to respond to your request for public input on reviewing the CALFED Ecosystem Restoration Program's Selection Panel recommendations. On May 1, 2002, we convened a joint workshop to give an opportunity for the diverse interests of the Bay Area to review the CALFED Ecosystem Restoration Program's Selection Panel recommendations. The goal of this workshop was to identify how those recommendations fit with the priorities identified in the San Francisco Estuary Project's Bay-Delta Environmental Report Card 1999-2001 and to identify any issues for CALFED relative to the recommendations. This letter summarizes the input received at our workshop on specific issues as well as larger CALFED implementation issues.

The Association of Bay Area Governments (ABAG) represents the nine counties and the many cities of the Bay Area. ABAG is interested in providing input as elements of the CALFED plan are implemented that affect the Bay Area. As such, ABAG established the ABAG CALFED Task Force, a consensus based forum that includes representatives of water districts, local government, and many of the stakeholder groups that have an interest in CALFED implementation.

The San Francisco Estuary Project is a cooperative federal-state partnership organized through the US Environmental Protection Agency's National Estuary Program. The project brought together 100 private, government, and community interests to develop a consensus plan, the Comprehensive Conservation and Management Plan (CCMP), which was signed by the Governor and the US EPA Administrator in 1993. In August 2001, the S.F. Estuary Project brought together its stakeholders to revisit the top priorities for CCMP implementation and to review progress. The results of this are detailed in the Bay-Delta Environmental Report Card 1999-2001.

In recognition of the common interest between the SF Estuary Project and the ABAG CALFED Task Force in promoting environmental restoration, the Task Force Ecosystem Subcommittee and the S.F. Estuary Project Implementation Committee have been working cooperatively to address issues related to implementation of the CALFED Ecosystem Restoration Program in the Bay Area.



Roughly 15 people attended the May 1<sup>st</sup> Workshop. Two participants also submitted written comments. One member of the task force offered comments at the April 29, 2002 ABAG-CALFED task force meeting. General comments on CALFED implementation are as follows:

1. As the state and federal budgets become tighter, there is a need for much greater clarification about funding sources. In particular, support needs to be identified for programs at risk because of the amount of general fund dollars they receive or because of their lack of a federal authorization. There is a high level of concern about the potential lack of funds for previously approved projects. Failure to address this important issue creates the potential for the program to become "unbalanced" in its implementation.
2. The Science Program is critically important. One component of the Science Program that the workshop participants wanted to call particular attention to is the identification of indicators and performance measures. This is critically important to understanding how the projects, past and future, are performing, what progress is being made towards the goals, and where gaps exist. This issue is important in its own right but is also a key to obtaining future funding.
3. Using a list provided by CALFED of projects that listed any of the nine Bay Area counties, staff identified how those projects fit with the CCMP priorities. The results of that analysis are attached to this letter. Generally, the projects are consistent with the priorities of the CCMP.

Comments relative to specific recommendations of the Selection Panel are as follows:

Reference Number 90: Bahia Acquisition and Tidal Wetland Restoration: Local support for this project is extremely high. We appreciate the recommendation to fund this project 'as is' and urge the Selection Panel to not change this recommendation. The Bahia acquisition is consistent with multiple CCMP priorities and is consistent and complimentary to other local efforts. The City of Novato and Marin County support the project. The voters of Novato have previously voted 70% against proposals to develop the site and the City sees this as an excellent opportunity that may be lost if there is any delay. When combined with CALFED's previously funded commitment to the Hamilton project, it will provide significant public access. The project falls within the San Pablo Bay watershed and is consistent with the regional planning for that area.

Reference Numbers 17, 31, 90, 138, and 161: Support was expressed for these projects. Some are important components of regional efforts. Others, such as #161, are important because they help update local plans that are very out of date.

Reference Numbers 129, 130, 131, and 69: These projects to address methyl mercury should be funded. However, the Selection Panel should recommend inclusion of an outreach and education component so that the results of the research can be shared with the communities most at risk to exposure to methyl mercury through consumption of fish and wildlife. Research conducted by the Silicon Valley Toxics Coalition has shown a very low level of awareness of this issue in the communities potentially impacted.

Reference Number 30: The Selection Panel correctly identified the need to address concerns of the City of Oakley with the Dutch Slough Project. However, the project should also address the water quality, operational, safety and security concerns of Contra Costa Water District so that it does not adversely impact the Contra Costa Canal that is immediately adjacent to the site. The project must also be designed and implemented so that it does not adversely impact water quality at Delta diversion sites that supply urban water districts.

Thank you for the opportunity to provide input into this important decision. Environmental restoration of the Bay and Delta enjoys broad support in the Bay Area and we appreciate the commitment the CALFED program has shown to restoration projects in the nine Bay Area counties.

Sincerely,



Mike Rippey  
Board of Supervisors, County of Napa  
Chair, ABAG-CALFED Task Force



Greg Zlotnick  
Board of Directors  
Santa Clara Valley Water District  
Vice-Chair, ABAG-CALFED Task Force



Lawrence P. Kolb  
Chair Implementation Committee  
San Francisco Estuary Project

/vm

# Initial Panel Recommendations Compared to Bay-Delta Environmental Report Card September 2001 Revised Priorities

ERP Project Reference Number	CCMP Priorities						
	Expand, restore, and protect Bay and Delta wetlands	Reduce the impact of invasive species on the Estuary through prevention, control, eradication, and education	Protect and restore watersheds throughout the Estuary	Create incentives that encourage governments, landowners, and communities to protect and restore the Estuary	Minimize or eliminate pollution of the Estuary from all sources	Increase public awareness of the Estuary's natural resources and the impacts of human activity on them	Expand the regional monitoring program to address all key CCMP issues
1			X				Promulgate baseline inflow standards for San Francisco, San Pablo, and Suisun Bays to protect and restore the Estuary ecosystem
17	X						
18					X		
22		X					
29	X						
30	X						
31	X						
63		X				X	
69							
71			X				
80	X						
90	X						
112							
113		X					
129					X		
130					X		
131					X		
138							X
150	X						
151							

ERP Project Reference Number	Expand, restore, and protect Bay and Delta wetlands	Reduce the impact of invasive species on the Estuary through prevention, control, eradication, and education	Protect and restore watersheds throughout the Estuary	Create incentives that encourage governments, landowners, and communities to protect and restore the Estuary	Minimize or eliminate pollution of the Estuary from all sources	Increase public awareness of the Estuary's natural resources and the impacts of human activity on them	Expand the regional monitoring program to address all key CCMP issues	Promulgate baseline inflow standards for San Francisco, San Pablo, and Suisun Bays to protect and restore the Estuary ecosystem
154								
159				X				
161								
183								
185		X						
194					X			
196								
199		X						
205		X						
207								
208								
209								
215		X						
228					X			
234					X			
237					X			
242						X		
248								
253								

State of California

**Memorandum**

To : Dan Ray  
CalFed Bay Delta Program  
1416 Ninth Street, Suite 630  
Sacramento, CA 95814

Date: May 9, 2002

From : Robert W. Floerke, Regional Manager   
Department of Fish and Game - Central Coast Region, Post Office Box 47, Yountville, California 94599

Subject : #31, Napa-Sonoma Marsh Restoration Project

The Department of Fish and Game (DFG) owns and manages approximately 13,000 acres within the Napa-Sonoma Marshes State Wildlife Area (NSMWA). The DFG's primary management goal for the NSMWA is the restoration, enhancement and development of wetlands and wildlife habitat. The goal to develop a diverse ecosystem will result in a complex of tidal salt and brackish water marshes, managed salt marshes and ponds, fresh water and seasonal wetlands, and adjacent uplands.

The DFG supports CALFED funding of the Coastal Conservancy application for Phase 1 of the Napa-Sonoma Marsh Restoration Project, which will improve water quality in Ponds 4 and 5 and restore tidal habitats to nearly 1,300 acres in Pond 3. This large-scale restoration project will assist the recovery of at-risk anadromous and resident fish and at-risk water birds and mammals. In addition, it will provide feeding and resting habitat for waterfowl and shorebirds migrating in the Pacific Flyway. The project will serve as a model and allow for adaptive management in future restoration work within the Napa-Sonoma Marshes. This project may also provide lessons for restoration of thousands of acres of the salt ponds currently owned by Cargill in the South San Francisco Bay.

The Napa River Unit of the Napa Sonoma Marsh consists of 9,850 acres of former commercial salt ponds and remnant marsh which was purchased from Cargill, Inc. by the State of California in 1994. The U. S. Army Corps of Engineers, California Coastal Conservancy, and DFG, in coordination with

Dan Ray

2

May 9, 2002

the Napa-Sonoma Marsh Restoration Group, have undertaken a Feasibility Study to analyze alternatives for salinity reduction and habitat restoration in the former salt ponds. The Napa-Sonoma Marsh Restoration Group consists of representatives from trustee and regulatory agencies, nongovernmental organizations, and scientific organizations.

This project will restore tidal habitats for at-risk species in 1,300 acres and will improve water quality for waterfowl and shorebirds in another 1,700 acres. We are interested in seeing construction of the Phase 1 Napa-Sonoma Marsh restoration project begin and ask you to consider funding the project.

If you have any questions regarding our comments, please call Larry Wyckoff, Associate Wildlife Biologist, at (707) 944-5542; or Jim Swanson, Supervising Biologist, at (707) 944-5528.



# The Bay Institute of San Francisco

Celebrating 20 years of protecting and restoring the  
Bay-Delta-Rivers ecosystem, from the Sierra to the sea.

May 10, 2002

Dan Ray  
CalFed Bay Delta Program  
1416 Ninth Street, Suite 630  
Sacramento, CA 95814

Re #31, Napa-Sonoma Marsh Restoration Project

## BOARD OF DIRECTORS

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## EXECUTIVE DIRECTOR

Grant Davis

## FOUNDER

Bill Davoren

Dear Mr. Ray,

The Bay Institute is an environmental NGO working since 1981 to restore the San Francisco Bay Estuary. We have been intimately involved in the CalFed program, focusing particularly on its ecosystem restoration elements. Similarly, we have been working with the pertinent agencies to promote restoration of the Napa-Sonoma Marsh complex, (the former Cargill North Bay salt ponds) for several years.

We are writing to support CALFED funding of Phase 1 of the Napa-Sonoma Marsh Restoration Project, which will improve water quality in Ponds 4 and 5 and restore tidal habitats to nearly 1,300 acres in Pond 3. Restoration of the Napa-Sonoma Marsh is at a critical juncture, and assistance from the CalFed program now would help assure that the ultimate restoration is a success. This is especially important since the Napa-Sonoma Marsh would be the largest, most comprehensive wetland restoration ever undertaken in the Estuary.

This large-scale restoration project will assist the recovery of at-risk anadromous and resident fish and at-risk waterbirds and mammals, and will provide feeding and resting habitat for waterfowl and shorebirds migrating the Pacific Flyway. The project will serve as a model for future restoration work in the Napa-Sonoma Marshes and will provide lessons for restoration of thousands of acres of the salt ponds currently owned by Cargill in the South San Francisco Bay.


The Napa River Unit of the Napa Sonoma Marsh, consisting of 9,850 acres of former commercial salt ponds and remnant marsh, was purchased from Cargill, Inc. by the State of California in 1994 and is managed by the Department of Fish and Game. The U.S. Army Corps of Engineers, California Coastal Conservancy, and Department of Fish and Game, in coordination with the Napa-Sonoma Marsh Restoration Group, have undertaken a Feasibility Study to analyze alternatives for

salinity reduction and habitat restoration in the former salt ponds. The Napa-Sonoma Marsh Restoration Group consists of representatives from trustee and regulatory agencies, nongovernmental organizations, and scientific organizations.

This project will restore tidal habitats for at-risk species in 1,300 acres and will improve water quality for waterfowl and shorebirds in another 1,700 acres. We are very interested in seeing construction of the Phase 1 Napa-Sonoma Marsh restoration project begin and urge you to support this keystone project.

Thank you for your thoughtful consideration of this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Grant Davis". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Grant Davis  
Executive Director

## Clean Estuary Partnership

**RECEIVED**

CALFED Bay-Delta Program

Mr. Daniel Ray  
CALFED Bay-Delta Program  
1416 9<sup>th</sup> Street  
Sacramento, CA 95814

May 10, 2002

**Re: Comments on the 2002 CALFED ERP Proposal Package**

Dear Mr. Ray,

Thank you for the opportunity to comment on the Ecosystem Restoration Program's 2002 proposal package and review process. The Clean Estuary Partnership (CEP) is a collaborative effort between the San Francisco Bay Regional Water Quality Control Board (SFRWQCB), the Bay Area Clean Water Agencies (BACWA), and the Bay Area Stormwater Management Agencies Association (BASMAA). The mission of this partnership between local governments and the State's water quality control authority is to develop and implement plans to attain water quality standards. As such, we are very interested in CALFED projects that are directly or indirectly related to water quality standards.

We appreciate the level of effort that went into the scientific and administrative review of the proposals. That review process has produced an outstanding package of projects that will likely lead to significant improvements in the San Francisco Bay ecosystem falling within the CALFED solution area. There are eighteen proposals in the package that have direct overlap with our plans to attain water quality standards (Table 1), and another eighteen that provide indirect benefits. We have some specific comments regarding the feasibility of proposed wetland restoration projects, the importance of results from previously funded CALFED projects, linkages between CALFED projects and water quality standards, the need to fund effective outreach for environmental justice, the need to address endocrine disrupting compounds, pesticide-related projects, the importance of exotic and invasive species proposals, and selenium-related projects.

**Feasibility of Wetland Restoration Projects**

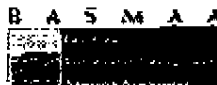
The package includes four wetland restoration projects in the Bay Area, totaling approximately \$12 million (proposals #29, #1, #31, and #90). A key factor affecting the

4235 Piedmont Ave, Oakland 94611 (510) 420-1570

A collaborative effort of



Bay Area Clean Water Agencies



California Environmental Protection Agency  
**SAN FRANCISCO BAY REGIONAL  
WATER QUALITY CONTROL BOARD**

feasibility of proposed wetland restorations is the adequacy of adaptive management plans with respect to monitoring for mercury methylation and bioaccumulation. Mercury in the aquatic ecosystem of San Francisco Bay is a limiting factor for the success of endangered wildlife, such as the California Clapper Rail. Wetlands are known to have the potential for enhanced mercury methylation due to their microbial communities, and enhanced methylmercury bioaccumulation due to their trophic complexity. Although the proposed restoration projects anticipate significant habitat benefits for the California Clapper Rail, there is no discussion within the proposals themselves as to how monitoring plans will quantify mercury risks vs. habitat restoration benefits.

The package overall very likely contains the scientific studies needed to provide such a risk assessment. For example, proposal #90 proposes to breach a levee between existing subsided Baylands and San Pablo Bay to restore tidal wetlands, but does not discuss what affect this could have on the net flux of methylmercury to San Pablo Bay. Proposal #129 contains much of the science needed to answer that question. *All San Francisco Bay-Delta mercury monitoring studies that are "considered as directed actions" (i.e., #234, #228, #196, and #129) should be implemented concurrently with wetland restoration projects.*

The proposed habitat restoration project at Big Break (proposal #29) will restore tidal marsh at the mouth of Marsh Creek. Previous studies have demonstrated that significant mercury loads are discharged from mining waste from the inoperative Mt. Diablo mercury mine into Marsh Creek. One question that could be reasonably asked in a public process is whether it makes sense to restore a tidal marsh immediately downstream of an unremediated mercury mine. The Contra Costa Water District's water supply intakes are also near this project area. Since the quality of municipal intake water affects the quality of discharged municipal wastewater, there is additional concern about a restoration project that ignores a nearby documented mercury source. *The feasibility of proposal #29, with respect to water quality standards, would be greatly enhanced by a plan to reduce mercury loads discharged into Marsh Creek from the Mt. Diablo Mercury Mine.*

### **Important Remaining Products from Previously Funded CALFED Projects**

The integrated mass balance assessment of mercury in the Bay Delta (#18) is an extension of a previously funded (1999-2001) CALFED mercury project, which has produced science information critical to mercury strategic planning in the San Francisco Bay region. The 1999-2001 CALFED mercury project included specific mercury source identification tasks that were to provide site maps, summaries of in-place mining waste, estimates of offsite transport, and estimates of remediation costs. In a December 20, 2000 comment letter regarding the proposed Total Maximum Daily Load (TMDL) for mercury in San Francisco Bay, the United States Environmental Protection Agency (USEPA) expressed concern over the lack of quantitative information regarding plans to reduce

mercury loads from inoperative mines in the Central Valley. *The deliverables from the previously funded CALFED mercury project directly address load estimates and economic analyses needed to establish a TMDL for mercury. We look forward to reviewing them at the earliest possible opportunity.*

Previously and currently funded mercury source assessment work appears to be focused on the Sacramento River Basin, although the CALFED mercury project has also identified a mercury bioaccumulation gradient within the San Joaquin River Basin near Mud Slough. The New Idria Mercury Mine, the second largest historic producer of mercury in North America, drains into the Panoche Fan, which is episodically flushed into the San Joaquin River near Mud Slough. *Mercury source assessments should include known mining legacy sources within the San Joaquin River drainage.*

In addition to loads assessments, contract funds provided by the San Francisco Bay Regional Water Quality Control Board have extended the CALFED Mercury Project into the entire San Francisco Bay estuary. The resulting analyses of methylmercury concentrations in sediments and in avian eggs are vital pieces of information for risk assessment and development of numeric targets. *The funding partnerships between the SFRWQCB and the CALFED Mercury Project team, as well as the team's accessibility and enthusiasm, have improved the quality of science used to support policy decisions in the San Francisco Bay Region; we thank all team members for their thoughtful comments and diligent efforts.*

### **Linkage to Water Quality Standards**

The CEP's interest in attainment of water quality standards is shared by the State Water Resources Control Board (SWRCB) and the USEPA, which are both CALFED agencies. Our comments regarding mercury loads and methylation highlight the need to explain connections between CALFED-funded projects and water quality standards. *The mercury strategic planning workshop proposed by the CALFED Science program is an important forum for linking the mercury science funded by CALFED to impending regulatory actions, such as development of tissue-based water quality objectives for methylmercury and implementation of mercury TMDLs.*

The CALFED ERP has brought together some of the best scientific minds in the world to work on complex problems of mercury loading, cycling, and accumulation in the food web. Although the proposal package can't be expected to provide final answers to all adaptive management questions, it does represent a significant and well-planned investment of public resources in solutions to public problems. *It would be helpful to make sure that the USEPA and the SWRCB are fully briefed as to how the science produced relates to attainment of water quality standards and implementation of TMDLs. This includes discussion of how proposed wetland restorations will affect mercury*

*bioaccumulation in the San Francisco Bay ecosystem, how CALFED projects have contributed to identification of controllable mercury loads, and how scientific information developed will affect adaptive management decisions regarding mercury.*

### **Effective Outreach and Environmental Justice**

Outreach to the public is an important part of the linkage between science and policy. Effective outreach is especially important to attain the environmental justice goal of providing people with equal opportunity for significant, meaningful engagement in public decisions affecting public health. Subsistence fishers are concerned about factors that affect concentrations of bioaccumulative pollutants and endocrine disrupting compounds (EDCs) in fish. But the CALFED ERP proposal package did not contain sufficient funding to help underserved communities understand the links between CALFED-funded projects and the beneficial use of fishing. *An additional directed action should be included in the annual work plan to fund a proposal connecting local stakeholder groups with scientists and policy makers who can help people consider the available science information and meaningfully participate in policy discussions related to CALFED-funded projects.*

### **Need to Address Endocrine Disrupting Compounds (EDCs)**

Preliminary information from the United States Fish and Wildlife Service indicates that EDCs, such as certain chlorinated hydrocarbons, may also be limiting factors for the success of endangered wildlife. The 2002 proposal package does not contain any assessment of EDCs or their effects in the Bay-Delta. *Some assessment of EDC occurrence and effects should be considered as a directed action in your annual work plan in order to ensure that the beneficial uses of wildlife habitat and protection of rare and endangered species are restored and protected.*

### **Pesticide application and monitoring**

The proposal to monitor pyrethroid pesticides (#242) will directly help in the characterization and assessment of water quality within the bay, delta, and tributaries. This is particularly important as the pesticide market is shifting toward these newer pesticides. Development of analytical test methods capable of detecting these pesticides at ecologically relevant levels will be essential for tracking their fate and effects in the ecosystem. *We fully support the goals and approach of proposal #242.*

The evaluation of alternative agricultural practices (#213) is an important piece of the economic analysis needed for implementation planning of an agricultural pesticide TMDL. It has the potential to provide useful information as to how conservation tillage and cover cropping can reduce sediment, nutrient, and pesticide loads. However, the

proposal does not indicate what pesticides will be evaluated, and none of the proposed sustainability indicators directly addresses water quality. *Task 1 of proposal #213 should strategically determine which pesticides would be of greatest concern for water quality and ensure that the study evaluates runoff of these pesticides. Task 2 should include attainment of water quality standards as an indicator.*

The proposal to control purple loosestrife (#22) has made a substantive case for the need to prevent the spread of this noxious weed. We support the use of integrated pest management, and would like to see that concept reinforced. Application of the herbicide Rodeo cannot be considered benign just because it's application will comply with the label. Compliance with pesticide-related laws and regulations does not, by itself, ensure that applications will not cause a violation of water quality standards. This is a concern to us because, with a 35 day half-life due to hydrolysis, glyphosate (the active ingredient of Rodeo) released into the aquatic ecosystem upstream can reach San Francisco Bay. The proposal mentions that an NPDES permit for application will be applied for "if necessary." Our understanding is that applications of aquatic herbicides require NPDES permits. The project could choose to operate pursuant to the Statewide NPDES general permit. That general permit contains specific monitoring requirements and requires Best Management Practices consistent with integrated pest management principles. *While proposal #22 contains reasonable funds for water quality monitoring, the feasibility of successfully implementing NPDES monitoring requirements for herbicide application would be enhanced by a clear statement as to beneficial uses potentially affected, levels of concern for glyphosate, and the analytical detection limits proposed.*

### **Exotic and Invasive Species**

Introduction of exotic and invasive species is a critical problem threatening the beneficial uses of San Francisco Bay. Invasive species not only directly degrade habitat but also, as observed with the invasive Asian clam, *Corbicula fluminea*, can exacerbate bioaccumulation of toxic pollutants such as selenium. Given the current legislative restrictions on the direct regulation of ballast water discharge, the proposed outreach projects (#185, #215) are critical to effectively reduce introduction of invasive species. In conjunction with the anticipated SWRCB report to the legislature on best attainable technology, these projects constitute important steps towards eliminating vectors of invasive species. *We fully support the goals and approaches of proposal #185 and #215, and would like to see more projects of this kind funded.*

### **Management of Suisun Marsh**

Suisun Marsh is on the California list of impaired waterbodies (the "303-d list") due to low dissolved oxygen concentrations. Low dissolved oxygen is also a concern for mercury methylation, which is mediated by anaerobic bacteria. Receiving water

monitoring in the Suisun Marsh region demonstrates a strong correlation between low dissolved oxygen and methylmercury concentrations. Because of the low dissolved oxygen conditions in Suisun marsh, and because the CALFED mercury project has identified enhanced bioaccumulation of mercury in avian eggs in the Suisun Bay region, we are very interested in projects related to Suisun Marsh.

The proposal to update individual ownership adaptive management habitat plans (proposal #161) is a golden opportunity to communicate with landowners in Suisun marsh regarding the connection between pond management and dissolved oxygen in adjacent receiving waters. The proposal is not, however, funded at a level sufficient to make any quantitative links between adaptive management plans and receiving water quality. *We fully support the goals and approach of proposal #161, and ask the CALFED ERP to consider an additional directed action in its annual workplan to develop links between the Suisun Marsh adaptive management plans and water quality, and to provide a stakeholder forum to discuss the importance of attaining the dissolved oxygen water quality standard.*

## Selenium

The proposal to assess selenium hazards to birds (#234) is an important contribution to selenium target setting. *We fully support the goals and approach of proposal #234.*

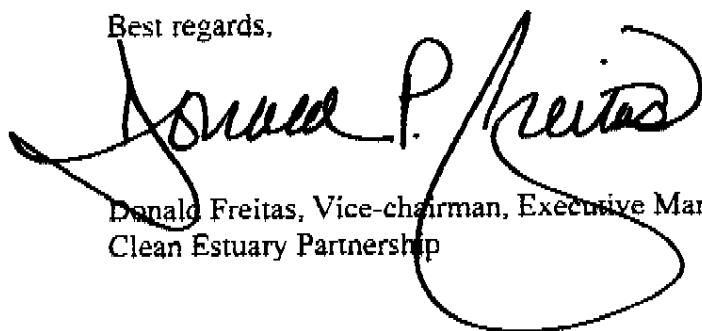
The Big Break restoration proposal (#29) proposes to monitor for selenium, stating that there are refineries nearby. While we support selenium monitoring, the discussion is perplexing with respect to selenium sources, given that the nearest refinery is twenty miles downstream. *Project proponents should include an objective discussion of all selenium sources, including agricultural drainage, when revising proposal #29 for consideration as a directed action.*

The water recycling via membrane technology proposal (#249) could produce useful selenium load reduction options. We understand that if the first phase, testing the nanofiltration technology is successful, the project will proceed to test the full reverse osmosis system. *We fully support the goals and approach of proposal #249, and agree with the reviewer comment that the project should be coordinated with a regional plan to reduce selenium loads.*

Again, we appreciate the opportunity to comment on the proposal package, and look forward to working with you in the future on collaborative efforts to restore and protect the aquatic ecosystem of San Francisco Bay through implementation of Water Quality Standards.

If you have any questions, please contact our Program Coordinator, Dr. Andrew Gunther, at 510-420-1570 (gunther@amarine.com).

Best regards,

A handwritten signature in black ink, reading "Donald P. Freitas". The signature is fluid and cursive, with a large loop at the end of the last name.

Donald Freitas, Vice-chairman, Executive Management Board  
Clean Estuary Partnership

Proposal#	Title	Overlap with CEP Goals	Amount
#234	Assessing the hazards of mercury and selenium to the reproductive success of birds	Mercury and Selenium	\$364,922
#22	Expanded Prevention, Detection, and Control of Pesticide Pesticides in the CALFED Bay-Delta Watershed	Pesticide Toxicity	\$457,162
#185	West Coast Ballast Outreach Project	Invasive Species	\$526,259
#196	Development and Implementation of Bioaccumulation-Based Mercury Monitoring in Support of Restoration, Remediation, and the Regulatory Program for Cache Creek, Flooded Island and Adjacent Tracts, the Yolo Bypass, and Cosumnes River	Mercury	\$896,571
#229	Mercury in Birds of the Bay-Delta Watershed - adverse effects to reproduction and patterns of bioaccumulation	Mercury	\$1,080,855
#129	Mercury and Methylmercury Processes in North San Francisco Bay Tidal Wetland Ecosystems	Mercury	\$1,408,380
#23	Big Slick and Marsh Creek Water Quality and Habitat Restoration Program	Wetland Restoration and Management	\$2,995,045
#36	Napa-Sonoma Marsh Restoration Project	Wetland Restoration and Management	\$4,511,400
#215	Reducing the Introduction and Damage of Aquatic Nonindigenous Species through Outreach and Education, Phase 2	Invasive Species	\$179,783
#237	Evaluation Of Mercury Transformations And Trophic Transfer In The San Francisco Bay/Delta: Identifying Critical Processes For The Ecosystem Restoration Program	Mercury	\$2,262,567
#18	Transport, Cycling, and Fate of Mercury and Monomethyl Mercury in the San Francisco Delta and Tributaries—An Integrated Mass Balance Assessment Approach	Mercury	\$3,881,215
#69	Estuary Action Challenge Environmental Education Program	Outreach and Environmental Justice	\$120,000
#242	Pyrethroid Insecticides: Analysis, Occurrence, and Fate in the Sacramento and San Joaquin Rivers and Delta	Pesticide Toxicity	\$800,000
#213	The ecological and economic costs and benefits of alternative agricultural practices: Sediment, nutrient, and pesticides in runoff from conservation tillage and cover cropped systems	Pesticide Toxicity	\$1,892,916
#249	Full-Scale Demonstration of Agricultural Drainage-Water Recycling Process Using Membrane Technology	Selenium	\$316,090
#161	Update Individual Ownership Adaptive Management Habitat Plans	Wetland Restoration and Management	\$136,244
#90	Bahia Acquisition and Tidal Wetland Restoration	Wetland Restoration and Management	\$3,345,000
#17	Suisun Marsh Land Acquisition and Tidal Marsh Restoration	Wetland Restoration and Management	\$1,046,400

**Table 1: CALFED ERP Proposals recommended by Review Panel that overlap with CEP goals. Shaded background indicates proposals considered as directed actions, light background indicates proposals funded in part or as-is.**