Joint Meeting of the Boards
Aquatic Science Center and San Francisco Estuary Institute

To Be Held
December 5, 2012
Time: 9:30 a.m. – 3:30 p.m.

San Francisco Estuary Institute
4911 Central Avenue Richmond, CA 94804
Large Conference Room

DRAFT AGENDA
Joint Business

1.	**Closed Session – Tracking the ED Performance Plan and 2013 Outlook Related to Implementation Plan** **Desired Outcome:** Feedback and recommended priority adjustments	9:30 Dave Tucker, Jim Fiedler
2.	**Call to Order** **Review and Approval of Agenda** **Introductions**	10:30 Dave Williams Jim Fiedler
3.	**Public Comments**	10:35
	Action: Consent Items (Attachments 1a, b) **a) September 13, 2012 Meeting Minutes and Follow-up Actions** **b) Quarterly News** **Desired Outcome:** Approval of Meeting Minutes and Follow-up Actions; Acceptance of Quarterly News	10:45 Dave Williams Jim Fiedler
4.	**Action: Joint Governance Committee Report** (Attachments 2a, b, c) **Desired Outcome:** Approve ASC and SFEI Bylaws Changes and Slate of Officers; Final Committee Roles and Responsibilities; Extension of Leyna Bernstein's Contract	11:00 Dave Williams Jim Fiedler Leyna Bernstein
5.	**Action: Resolution to Honor Jeff Haltiner, former Board Member**	12:15 Jim Fiedler
6.	**Appreciation of Staff Accomplishments**	12:30 Dave W., Jim F.

	LUNCH	12:35
7.	**Information:** Staff Draft Implementation Plan (Attachment 3) **Desired Outcome:** Provide initial feedback on proposed staff initiatives and priorities and delegate any follow-up actions to Programs Committee	1:15 Rainer Hoenicke, Josh Collins
8.	**Proposed Agenda Items for March 2013 Meeting**	1:45 Dave Williams
9.	**Adjourn Joint Business Meeting and Call SFEI Meeting to Order**	2:00 Dave Williams Jim Fiedler

San Francisco Estuary Institute Business Meeting

SFEI 1.	**Action: 2013 Program Plan** (Attachments 4a, b, c) **Desired Outcome:** Approve 2013 Program Plan and Associated Resolutions	2:00 Jim Fiedler
SFEI 2.	**Information:** Executive Director and Fiscal & Administration Committee Report (Attachment 5)	2:30 Dave Tucker, Rainer Hoenicke
SFEI 3.	**Action: SFEI Audit Report and Recommendations on Financial and Risk Management Practices and Direct Follow-up Actions to Executive Committee, as Appropriate** (Attachment 6) **Desired Outcome:** Accept Audit Report and Management Letter, and Prioritize Next Steps	2:45 Valerie Ruban
SFEI 4.	**Adjourn SFEI Business Meeting and Call ASC Meeting to Order**	3:15 Jim Fiedler Dave Williams

Aquatic Science Center Business Meeting

ASC 1.	**Action: Approve Program Plan and Budget Update**	3:15 Dave Williams
ASC 2.	**Adjourn**	3:30

Dial-in Information – Rainer is Host
Toll Free: 1-888-296-6500
Direct Dial: 1-913-227-1219
Guest Code: 604242

ATTACHMENT 1a

Joint Meeting of the Boards
Aquatic Science Center and San Francisco Estuary Institute
September 13, 2012
10:00 a.m.-2:30 p.m. Joint Board Meeting
DRAFT Meeting Minutes

Members Present:
Jim Fiedler
Dave Williams
Mitch Avalon
John Callaway
Alan Ramo
Barbara Salzman
Dave Tucker
Darrin Polhemus
Bruce Wolfe
Karen Schwinn
Dyan Whyte
Kirsten Struve

Others Present:
Rainer Hoenicke
Leyna Bernstein
Robin Grossinger
Dave Senn

1. Call to Order and Approval of Agendas

The meeting was called to order by Mr. Fiedler, SFEI Board Chair and Mr. Williams, Aquatic Science Center Board Chair, at 10:00 a.m. All members present were in favor of the approval of agenda. All agenda items reflected business affecting both SFEI and ASC.

2. Public Comments

None

3. Consent Items

Rainer Hoenicke asked that the SFEI and ASC Program Plan Updates be taken off the consent calendar, since a new ASC project was added that was not contained in the agenda package and needed to be discussed. The ASC Board unanimously voted to consider the Program Plan Update separately. The consent items (July 12, 2012 meeting minutes, follow-up actions, and special SFEI and ASC meeting minutes of May 4, 2012) were unanimously approved by the SFEI Board, and approved with one abstention by the ASC Board.

SFEI and ASC Program Plan Updates

Rainer provided background on the additional project in a handout, to be added to the final ASC Update after consideration and vote by the ASC Board. The Water Board intends to provide $250,000 to ASC for the next phase of the Delta Regional Monitoring Program. The SFEI Board voted unanimously to approve the SFEI Program Plan Update. The ASC Board voted to approve the ASC Program Plan Update, with Darrin Polhemus abstaining.

4. Review of July Workshop Outcomes

Leyna Bernstein reviewed the highlights of the July 12, 2012, workshop, with particular emphasis on the impact the boards would like to have on the Strategic Plan. She confirmed with both Boards that the workshop breakout session outcomes were represented accurately and with sufficient detail to move forward, as requested by the *ad hoc* Governance Committee. Two items that did not get addressed at the July 12 workshop were carried over into discussion at this joint meeting of the Boards: (1) Board balance and composition, and (2) Board member responsibilities. These two items had been taken up in August by the *ad hoc* Governance Committee in preparation for the full Board meeting in September.

5. Joint Governance Committee Report

The co-chair of the *ad* hoc Governance Committee, Dave Williams, provided a summary of the committee's recommendations for a Board committee structure, once the re-structuring process has been completed, comprised of:

- Executive Committee
- Governance Committee
- Resource Development Committee

- Programs Committee, and
- Audit Committee

The Boards discussed the general roles and responsibilities of these committees and asked clarifying questions that Leyna Bernstein agreed to reflect in an updated version of committee descriptions. Next steps concerning the establishment of these five committees consist of:

- Draft committee charters
- Duties and required expertise of Board Officers and Committee Members
- Appointment of Committee Chairs

Leyna presented a series of slides with specific recommendations for the establishment process of these committees, as well as identifying candidates for officers, and hence for the Executive Committee.

- Step One:

Ad-hoc Governance Committee identifies candidates for Executive Committee (Chair, two Vice Chairs, Secretary, Treasurer)

- Step Two:

Board votes to approve Officers

- Step Three:

Chair (with input from Executive Committee) appoints chairs of other committees

- Step Four:

Committee Chairs populate their own committees

- Ongoing:

Governance Committee facilitates ongoing identification and solicitation of board leaders

Each Committee would draft their own charter, which will then suggest the kinds of expertise required to serve, and what implications this may have for recruitment of new Directors and committee members not serving on the Boards. The motion to establish these five committees for the re-structured Boards and the steps required to start the process of populating these committees was unanimously approved by both Boards.

6. Discussion and Potential Action: Achieving Balanced Representation on Unified ASC and SFEI Boards

The topic of Board composition and balance was discussed based on a staff analysis of strategic capacity gaps, which the *ad hoc* Governance Committee had recommended as background material, as well as the current make-up of, and representation on, both boards. The Strategic Plan, the emerging staff Implementation Plan, and the July 12 workshop outcomes all suggest that additional Board expertise is necessary to meet strategic goals. The discussion about stakeholder balance also included the additional criteria of new expertise/characteristics, and expanded geographic scope and diversity (e.g., Delta representation). A general framework emerged that worked for all board members. To achieve stakeholder balance, stakeholders could be grouped into four major categories: Protection advocates for the Estuary, scientists, users, and regulators. "Users" was defined very broadly, including dischargers, business representatives, water purveyors, etc. A good goal would be to achieve representation by six directors from the protection advocate category, six science representatives, six directors from the user community, and three from regulatory agencies. Since the ASC Joint Powers Agreement (which is not slated for amendments at this point) already stipulates participation as voting members by three regulators (USEPA, Region 9, is a non-voting member) and three "users" (clean water agencies), the Governance Committee would apply the additional criteria (specific sets of expertise/characteristics consistent with identified needs and broader geographic coverage) in their new member recruitment plan. Rainer offered to send out the staff analysis in Word format to board members and invited them to provide comments.

7. Executive Director's Report and Quarterly News Highlights

Rainer provided highlights about new projects coming on-line and submitted as proposals, and asked board members for feedback on his 2012/13 performance plan. Recommendations included referencing estuary health goals to make it less dry, and

make certain targets more discrete. The formatting could be improved by color-coding each quarter differently and by avoiding landscape format. The Board asked Rainer to agendize a closed session in December, since quarterly performance tracking may contain some sensitive items that should not be discussed in an open forum.

Discussion about quarterly news highlights included major progress in the mercury exposure reduction program, the fact that the Aquatic Science Center was chosen to serve as the interim entity to manage the initial implementation phase of the Delta RMP, and that the kick-off meeting of the Delta RMP Steering Committee is planned for mid-October.

8. Staff Implementation Plan

Rainer provided an update on the status of the staff Implementation Plan and the sequence in which it will be circulated – first to staff and subsequently to the Boards at a time when the committees have been established. The likely committee to look at the staff Implementation Plan will be the Programs Committee that can set-up and agendize more in-depth discussion and recommendations for forging closer ties between the staff leadership team, committees, and the unified boards on various implementation steps.

9. Fiscal and Administration Committee Report

Dave Tucker (SFEI Treasurer) briefed both boards on year-to-date financial performance and augmented the data included in the agenda package with more recent ones for the month of August. The August surplus was sizeable and brought up the cumulative surplus to $217,000. Comparisons between the approved annual budget, actual, and projected numbers will be reformatted to make them more user-friendly.

10. Proposed Agenda Items for December 5 Meeting

In addition to scheduling a closed session to discuss performance plan updates, the boards intend to address proposed changes to the ASC and SFEI bylaws, committee charters, the 2013 Program Plan, and science briefings on new initiatives proposed in the staff Implementation Plan.

ATTACHMENT 1b

Quarterly Newsletter

2012 • Quarter 4

IN THIS ISSUE

2012 ends with notable successes.

We are closing the year with a return to modest financial surpluses, thanks to everyone on staff staying busy with their project commitments and putting in many extra hours of their personal time to draft the staff Implementation Plan - representing the nuts and bolts of implementing our new strategic goals and objectives.

Several high-profile projects were completed in the last quarter on time and on budget that received high praise from external reviewers and the user community. One of the reviewers of the Delta Historical Ecology Report (Whipple et al. 2012) mentioned that..."Within a week of its release, figures from this new report were displayed prominently in hearings of the State Water Resources Control Board as it works to update the Delta Plan. This masterpiece of historical ecology will be widely used by policy makers and scientists because it provides a detailed, painstakingly crafted description of the Delta of the past -- a benchmark from which we will measure the success of programs to rebuild habitats and ecological functions lost over the past century and a half." The Alameda Creek landscape change report to the San Francisco Public Utilities Commission received similar accolades (see page 2). We also successfully completed the pilot project on reducing angler exposure to bioaccumulative pollutants in certain fish species, with the California Department of Health Services in the lead (see page 19), and successfully launched the EcoAtlas (formerly Wetland Tracker) in November with major input by the user community. We are on track for an even better 2013!

— RAINER HOENICKE, EXECUTIVE DIRECTOR

SEPTEMBER 1

Alameda Creek Habitat Conservation Plan Science Review Panel Report Cites Benefits of Historical Ecology Research for Conservation Planning

Source: San Francisco Public Utilities Commission

Author: Thomas Dunne (UCSB), Brian Cluer (NOAA National Marine Fisheries Service), David Manning (Sonoma County Water Agency), Joseph E. Merz (Cramer Fish Sciences) Sacramento-San Joaquin Delta Historical Ecology Study

Historical ecology is becoming more widely used as a means of informing the construction of landscape restoration and management plans. The method can indicate what conditions "were actually like before the changes that restorationists seek to undo or mitigate" (from the Consultant's presentation). However, the activity can yield several other products useful for the goals of Habitat Conservation Plan's, even in a watershed that has been so radically altered that ecosystem planning is unlikely to return the landscape anywhere close to original conditions. For example, it can identify habitat patterns, connectivity, and processes that no longer exist but that can be reestablished even within modern constraints. It can document secular changes in vegetation patterns, sediment supplies, or channel conditions that have not been sampled in the instrumental record of environmental change. It can document the relative magnitude and quality of habitat loss or transformation in various parts of a river system, such as in the two main tributary watersheds of Alameda Creek, highlighting the potential importance of seeing an HCP in the context of other positive and negative trends that might influence the effectiveness of the conservation plan. Combined with modeling, this aspect of historical ecology constitutes one form of cumulative watershed effects analysis. An example of such analysis occurs when mapped land cover changes reflect changes in the water balance of groundwater recharge, leading to desiccation or waterlogging of riparian zones downstream. Observations of this type might indicate the potential for unwelcome surprises or changes that landowners wish to avoid, no matter how natural they might be.

The consultant team from the San Francisco Estuary Institute has documented landscape change since the late-18th century in the entire Alameda Creek Watershed, including the watershed of the larger tributary, Arroyo de la Laguna. The data sources are diverse in nature and reliability, and mainly qualitative, but when recorded in consistent ways, compiled by time period, and geo-referenced, they can reveal patterns and persistent changes, which when interpreted by people with training in landscape functioning, can produce important insights for conservation planning. Early data sources tend to comprise descriptions and other records at places or on small areas of land, although early instrumental surveys or even sketched maps are surprisingly widespread and can be digitally geo-referenced. The record became significantly enriched beginning in the 1920s with the introduction of aerial photographic surveys of increasing scale and quality, many of which are now published directly in digital form. The increasing wealth of data, however, does not diminish the level of interpretive skill required to convert these subtle spatial records into an understanding of landscape patterns and change.

A crucial step in assimilating the diverse data sources is to recognize the fingerprint of landscape processes, such as how patterns of ground water flow relate to topography, geological structure, and surface water bodies, and thereby create patterns of water flow and availability that sustain plant communities and the activities of people. The magnitude and role of flooding and the density and intricacy of water bodies are other important recognizable landscape features.

Another potential of the method is the documentation of rates of processes, such as the spread of plants and other aspects of succession. One of the limitations of the reconstructions, however, is that they often can involve only qualitative identification of processes, habitat potentials, or ecosystem services. Thus, it is valuable to combine the results with quantitative estimates based on process models or statistical characterizations from elsewhere.

Although the historical documentation and interpretation of the Alameda Creek watershed is not yet complete, it has already yielded important insights which suggest both conceptual models for restoration but also targets for quantitative interpretation through mathematical modeling of hydrology, hydraulics, and ecosystem functioning. The most widespread and significant targets of this work have been outside of the parts of Alameda Creek watershed involved in the current HCP. Relevant features within the HCP domain include natural and anthropogenic influences on channel morphology and riparian vegetation in the Sunol Valley reach, and channel simplification and pool eradication in the flood-control reach downstream of Niles. These results emphasize that the critical ecological role of those two reaches should be closely addressed by EDT and other habitat modeling exercises involving flow, channel morphology, and water temperature.

The historical analysis also points to wider issues that would favor aquatic ecosystem improvements in the longer term, building on the fruits of the HCP. Examples include the former role of extensive marshlands in providing fish habitat and turbidity control along Arroyo de la Laguna. Another is the original denser and more intricate network of tidal channels with pools and shade provided by tree-covered natural levees and securely watered channels, sustained by artesian ground water immediately upstream from them. These channels probably provided extensive rearing habitat for anadromous fish throughout the year, and the historical documentation suggests analyzing the potential yield of partial restoration. This larger historical spatial context provides a strong foundation for SFPUC to play an important role in ecosystem management by promoting the expansion of its current approach of monitoring and modeling in support of its HCP.

SEPTEMBER 13

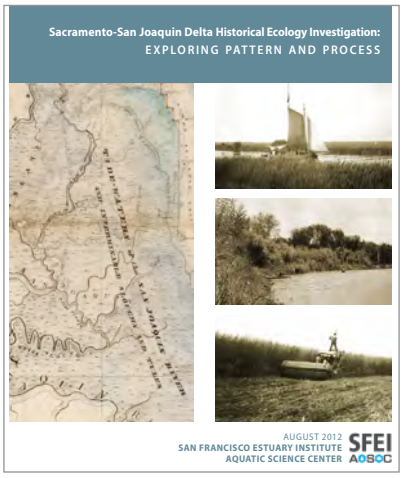
Announcing the Release of the Delta Historical Ecology Report

The San Francisco Estuary Institute-Aquatic Science Center, in collaboration with the California Department of Fish and Game, has completed a historical ecology study of the Sacramento-San Joaquin Delta. The project improves understanding of what the Delta looked like and how it functioned prior to the significant modification that has occurred over the last 160 years.

This historical reconstruction documents patterns of variation and extent of habitat types throughout the Delta for improved understanding of species support functions and controlling physical processes within the native landscape. Knowing how different parts of the vast historical Delta looked and functioned provides needed information for future restoration strategies.

Given the extensive changes to the Delta, the goal of the project is not to create a literal template from which to recreate the historical Delta. Rather the objective is to understand how large-scale restoration can support an ecosystem in the future Delta that reflects functions to which native species are adapted. This involves recognizing physical gradients along which ecosystems can adapt as the Delta continues to change.

(see page 8 for Media coverage)



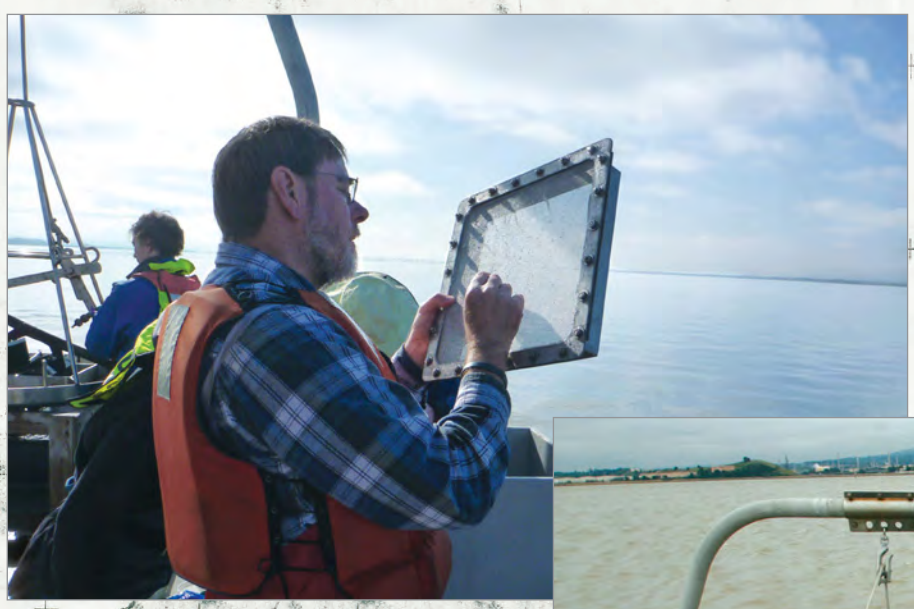
Cover of the Delta Historical Ecology Study

OCTOBER

Release: 2012 Regional Monitoring Program Update

The Regional Monitoring Program for Water Quality in the San Francisco Estuary (RMP) provides water quality managers and regulators with information they need to maintain, and where necessary, restore the beneficial uses of the Estuary effectively.

Traditionally, the RMP has issued an annual report, the Pulse of the Estuary, that presents the latest results from monitoring and addresses a theme related to a timely water quality topic. This year, a more concise report was produced that provides stakeholders with an overview of recent RMP activities and findings, and a look ahead to significant RMP products and studies anticipated in the next few years. To view the report please go to http://www.sfei.org/news_items/RMP-Update-2012



(left) Page 20 of the report. Mike Kellogg screening benthos. Photographed by Don Yee.

(below) Page 4 of the report. Sampling bay sediment. Photographed by Thomas Jabusch.

OCTOBER 12

Delta RMP Steering Committee Meets for First Time

The first Delta RMP Steering Committee meeting was held at the North Natomas Library Community Room. The initial Steering Committee involves representatives of Publicly Owned Treatment Works (POTWs), stormwater programs (Phases 1 and 2), agriculture, the Interagency Ecological Program (IEP), State and Federal Water Contractors, the Central Valley Regional Water Board, and the U.S. Environmental Protection Agency (USEPA). The initial Steering Committee considers itself a design group that will meet monthly for four or more months to make fundamental decisions about the governance, monitoring questions, and operation and funding of the program. Aquatic Science Center (ASC) and the Central Valley Water Board will provide staff support. Rainer Hoenicke (Executive Director), Thomas Jabusch (Project Lead), and subcontractor Brock Bernstein (Facilitator) coordinated and staffed the meeting together with Central Valley Regional Water Board staff. A meeting summary and background materials are available at the Central Valley Regional Water Board's Delta RMP website. (http://www.waterboards.ca.gov/centralvalley/water_issues/delta_water_quality/comprehensive_monitoring_program/index.shtml)

OCTOBER 26

2012 RMP Insert in SFEP's Estuary News: Flame Retardants in San Francisco Bay

This annual RMP contribution was distributed as an insert in the October issue of Estuary News, published by the San Francisco Estuary Partnership. This edition summarized information on flame retardant concentrations and trends in San Francisco Bay.

The insert highlightd two recently published articles, co-authored by former SFEI scientist Susan Klosterhaus, "Brominated and Chlorinated Flame Retardants in San Francisco Bay Sediments and Wildlife" and "Identification of Flame Retardants in Polyurethane Foam Collected from Baby Products" (winner of Environmental Science & Technology's 2011 Best Paper of the Year Award).

Polybrominated diphenyl ether (PBDE) flame retardants are described as contaminants of diminishing concern because of falling PBDE concentrations in Bay water and in the food web. The decline in PBDE loads is attributed to the ban of two major PBDE classes, penta-BDE and octa-BDE, and the recent phase-out of deca-BDE. Reductions in PBDE use have led to increased use of organophosphate and other brominated and chlorinated PBDE replacements, many of which have been detected in Bay samples. Little is known about these PBDE replacements. The RMP will continue to be on the lookout for flame retardants and other contaminants of emerging concern that make their way into commerce and pose threats to Bay water quality. View the San Francisco Estuary Partnership Newsletter. http://www.sfei.org/sites/default/files/Estuary%20insert%204FINAL10-25%20to%20Distribute-1.pdf

(right) Cover of the Regional Monitoring Program inserts for the San Francisco Estuary Partnership News.

NOVEMBER 1

Return of the Alma

Ruth Askevold and **Erin Beller** sailed on the Alma, a historic schooner that was built at a shipyard near Hunter's Point in 1891. The Alma sailed from Aquatic Park to the historic shipyard where the scow was built in India Basin. This event opened the Year of the Bay — a year which brings the America's Cup and the opening of a new span of the Bay Bridge. The morning sail was modeled on the voyages of discovery, and included scientists, naturalists, cartographers, writers, and historians. After landing, the team proceeded to the EcoCenter at Heron's Head Park for lunch, conversations about history, and natural history talks. The event was sponsored by Stanford University, the San Francisco Maritime National Historical Park, Historypin, the California Historical Society, Heyday Books, and the EcoCenter at Heron's Head Park.

For more information, visit:

- Year of the Bay
  http://blog.yearofthebay.org/
- Stanford University- The Bill Lane Center for the American West
  http://west.stanford.edu/news/year-bay-launches-sail-alma
- History Pin
  http://www.historypin.com/project/13839007-YearoftheBay/

Photos of the Alma and San Francisco Bay.
Photographs by Ruth Askevold

NOVEMBER

Regional Data Center

We've surpassed 1.5 million records in the Regional Data Center – more than 30% of all records stored in the California Environmental Data Exchange Network (CEDEN). We've added datasets ranging from NOAA's long term Mussel Watch data to Laguna de Santa Rosa Foundation nutrient and water quality data. We've implemented more automated approaches to our data formatting, quality checking and uploading, which is allowing us to process more datasets more quickly with the same staff resources. In addition we have strengthened and made new regional partnerships with data providers. We've placed particular emphasis on establishing relationships with data providers with long term datasets including multiple Bay Area Stormwater Management Agencies Association (BASMAA) datasets and Cal Ecological Data Application System (EDAS) benthic data.

NOVEMBER

Building Statewide Capacity for Spatial Data

We continue to engage Bay Area Aquatic Resources Inventory (BAARI) users in an effort to meet their needs and improve the dataset. For instance, we're working with stakeholders to include information of local importance. We've refined The Sonoma Creek Watershed map with improved locally available stream network and sediment data. Integration of SCVWD hydrology and routing information into BAARI is also underway. More than 2,000 mi^2 of BAARI have been integrated into the National Wetlands Inventory and are now part of the federal dataset.

BAARI continues to have ripple effects statewide:

- We've completed three regional implementations of maps based on standards based on BAARI standards. Initial mapping in select watersheds in the Lake Tahoe Basin was so successful that the whole basin will be mapped. SFEI has partnered with Tahoe Regional Planning Agency and California Tahoe Conservancy to help build local capacity. SFEI will continue to play an advisory role.
- A Delta Aquatic Resource Inventory map has been completed as part of the Delta Conveyance Wetland and Riparian Area Monitoring Program (WRAMP). Aquatic resource extent information will be included in the conveyance Environmental Impact Report (EIR) and will be used to inform the mitigation requirements.
- There is continued momentum toward development of consistent, standardized, statewide base map of aquatic resources which would integrate these and other available high quality data into a common GIS dataset.

Public access to all these datasets is available through GeoFetch – our spatial data repository – which is being linked to the state's spatial data repository, the California Geoportal, which will be released imminently.

Press for the Delta Historical Ecology Study

SEPTEMBER 13

Announcing the Release of the Delta Historical Ecology Report: Press Release

California Department of Fish and Game

Link source
http://cdfgnews.wordpress.com/2012/09/13/new-study-provides-detailed-view-of-pre-development-delta/

New Study Reconstructs the Historical Sacramento-San Joaquin Delta

Bill Lane Center for the American West - Stanford University

Link source
http://west.stanford.edu/news/new-study-reconstructs-historical-sacramento-san-joaquin-delta

SEPTEMBER 14

New Study Examines How Delta Ecosystem Once Worked

Valley Public Radio

Link source
http://kvpr.org/post/new-study-examines-how-delta-ecosystem-once-worked

SEPTEMBER 26

Knowing the Delta's Past offers New Ideas Forward

by Alison Whipple California Water Blog - UC Davis

Alison Whipple examines historical maps at the California State Lands Commission in Sacramento, Aug. 19, 2009. Photo by Erin Beller/SFEI-ASC.

Link source
http://californiawaterblog.com/2012/09/26/knowing-the-deltas-past-offers-new-ideas-forward/

OCTOBER 7

NPR Story on Delta Historical Ecology Featured Nationally on Weekend Edition

Link source
http://m.npr.org/news/Science/162393931

NOVEMBER 14

Mixed reviews for US Clean Water Act

Richard A Lovett, Nature- International weekly journal of science. Forty-year-old environmental law has spurred progress in water quality, but problems remain. **Jay Davis** was quoted in this article.

Link source
http://www.nature.com/news/mixed-reviews-for-us-clean-water-act-1.11809

A fire on the oil-polluted Cuyahoga River in Ohio in 1952 was one of several US environmental crises that triggered the creation of the Clean Water Act of 1972. Photograph courtesy of Bettmann/Corbis.

IN THIS SECTION

Reports

Aquatic Science Center. 2012. The Pulse of the Delta: Linking Science & Management through Regional Monitoring. Contribution No. 673. Aquatic Science Center, Richmond, CA.

David, N., **Gluchowski, D. C.**, **Leatherbarrow, J. E.**, **Yee, D.**, **McKee, L. J.** 2012. Estimation of Loads of Mercury, Selenium, PCBs, PAHs, PBDEs, Dioxins, and Organochlorine Pesticides from the Sacramento-San Joaquin River Delta to San Francisco Bay. Contribution No. 681. San Francisco Estuary Institute, Richmond, CA.

Hunt, J.A., **Gluchowski, D.C.**, **Gilbreath, A.N.**, and **McKee, L.J.**, 2012. Pollutant Monitoring in the North Richmond Pump Station: A Pilot Study for Potential Dry Flow and Seasonal First Flush Diversion for Wastewater Treatment. A report for the Contra Costa County Watershed Program. Funded by a grant from the US Environmental Protection Agency, administered by the San Francisco Estuary Project. San Francisco Estuary Institute, Richmond, CA.

McKee, L. J., **Gilbreath, A. N.**, **Hunt, J. A.**, and **Greenfield, B. K.**, 2012. Pollutants of Concern (POC) Loads Monitoring Data, water year (WY) 2011. A Technical Report prepared for the Regional Monitoring Program for Water Quality in San Francisco Bay (RMP), Small Tributaries Loading Strategy (STLS). Contribution No. 680. San Francisco Estuary Institute, Richmond, CA.

Stanford, B., **Grossinger, R. M.**, **Beagle, J.**, **Askevold, R. A.**, **Leidy, R. A.**, **Beller, E. E.**, **Salomon, M.**, **Striplen, C.**, **Whipple, A. A.** 2012. Historical Ecology of Alameda Creek Watershed, Prepared for the San Francisco Public Utility Commission and the Alameda County Flood Control and Water Conservation District. A Report of SFEI's Historical Ecology Program, SFEI Publication #679, San Francisco Estuary Institute, Richmond, CA.

Yee, D., **Davis, J. A.**, **McKee, L. J.**, **Greenfield, B. K.**, **Melwani, A. R.**, **Lent, M. A.** 2012. Conceptual Model of Contaminant Fate on the Margins of San Francisco Bay. Final Report. An RMP Technical Report. Contribution No. 663. San Francisco Estuary Institute. Richmond, CA.

Journal Articles

Greenfield, B. K., **Melwani, A.R.**, **Allen, R. M.**, Slotton, D. G.., Ayers, S.M., **Harrold, K. H.**, **Ridolfi, K.**, Jahn, A., **Grenier, J. L.**, Sandheinrich, M. B., 2012. Seasonal and annual trends in forage fish mercury concentrations, San Francisco Bay. Contribution No. 682. Science of the Total Environment. In review.

Weisberg, S. B., Thompson, B., Ranasinghe, J. A., **Lowe, S.**, **Melwani, A**. 2012. Benthic Macrofaunal Assemblages of the San Francisco Estuary and Delta, USA. Contribution No. 683 Environmental Monitoring Assessment.

OCTOBER 9

Regional Monitoring Program 2012 Annual Meeting

The RMP Annual Meeting was held on Tuesday, October 9, 2012 at the David Brower Center in Berkeley, CA. The meeting focused on modeling efforts for San Francisco Bay and surrounding watersheds. The meeting also included highlights from RMP work groups:

- Sources, Pathways, and Loadings
- Exposure and Effects
- Contaminant Fate
- Emerging Contaminants

Presentations covered topics including modeling Bay water quality, modeling transport from watersheds, mercury, effects of contaminants on fish, and emerging contaminants.

Presentations

Morning

- Stephen Monismith (Stanford University) -Hydrodynamic Processes in San Francisco Bay
- Jim Fitzpatrick (HDR, Inc.) - Water Quality Modeling in Estuaries: Lessons Learned
- Joel Baker (University of Washington - Tacoma) - Contaminant Modeling in San Francisco Bay: Lessons from Other Estuaries
- Roger Bannerman (Wisconsin Department of Natural Resources) - Modeling Stormwater: A Formula for Success
- **Alicia Gilbreath** (SFEI) - The Regional Watershed Spreadsheet Model: A Tool for Estimating Urban Stormwater Contaminant Loads

Afternoon

- **Jay Davis** (SFEI) - Reducing Methylmercury in the Food Web of San Francisco Bay
- Bruce Herbold (U.S. Environmental Protection Agency) - Fish Habitats in Suisun Bay and What Degrades Them
- David Baldwin (National Oceanic and Atmospheric Administration) - Olfactory Toxicity of Copper to Salmon in Freshwater and Saltwater
- **Meg Sedlak** (SFEI) - Contaminants of Emerging Concern: Synthesis and Strategy
- Keith Maruya (Southern California Coastal Water Research Project) - A Multiagency Pilot Project on Distribution of Contaminants of Emerging Concern (CECS) In California Coastal Bivalves

IN THIS SECTION

OCTOBER 16-18

7th Biennial Bay-Delta Science Conference 2012

The Biennial Bay-Delta Science Conference is a forum for presenting technical analyses and results relevant to the Delta Science Program's mission to provide the best possible, unbiased, science-based information for water and environmental decision-making for the Bay-Delta system. The goal of the conference is to provide new information and syntheses to the broad community of scientists, engineers, resource managers, and stakeholders working on Bay-Delta issues.

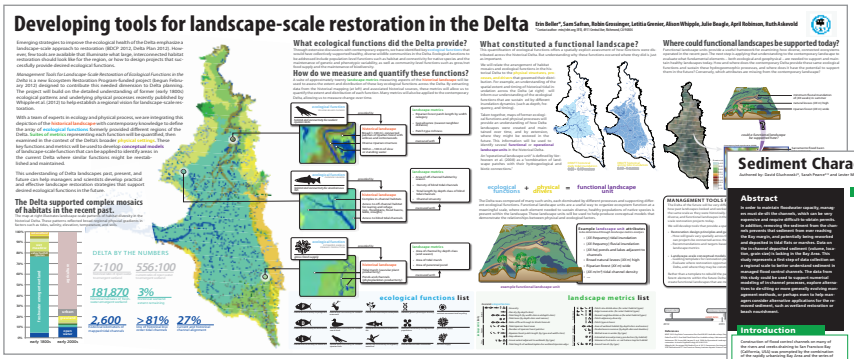
Presentations

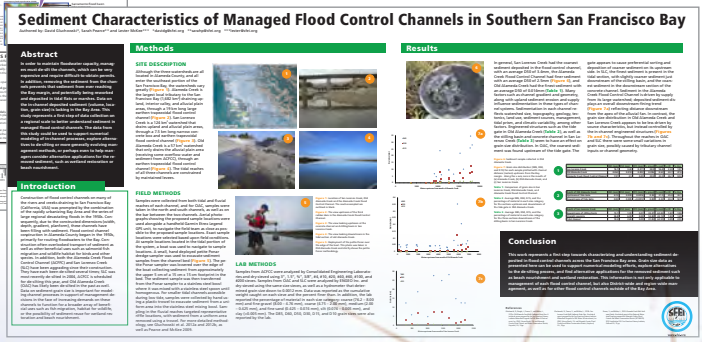
- **Julie Beagle** - Historical Ecology and Landscape - Scale Restoration Application to the McCormack-Williamson Tract
- **Robin Grossinger** - Envisioning a Reconciled Delta Based on Empirical Data from Healthy Landscapes
- **Lester McKee** - San Francisco Bay Sediment Transport: Comparison of Sediment Supply to San Francisco Bay from Coastal and Sierra Nevada Watersheds
- **April Robinson** - Riparian Mercury Biosentinels for the San Francisco Bay Area
- **Alison Whipple** - Building a Landscape Perspective for the Delta: Lessons from Historical Ecology

Posters

- **Robin Grossinger**, Letitia Grenier, **Ruth Askevold**, **Erin Beller***, **Julie Beagle**, **Alison Whipple** and **April Robinson** - Developing Tools for Landscape-Scale Restoration in the Delta (bottom left)
- **David Gluchowski***, **Sarah Pearce** and **Lester McKee** - Sediment Characteristics of Managed Flood Control Channels in Southern San Francisco Bay (bottom right)
- **Kristen Cayce**, **Patty Frontiera**, **Cristina Grosso**, Nathan Hemenway, Amye Rita Osti*, David Osti, **Meredith Williams*** - Data Analysis and Visualization Tools for San Francisco Bay Delta Ecosystem Management

* Poster Presenter





IN THIS SECTION

OCTOBER 24

Presentation of Contaminant Data Display & Download to Regional Board's Wastewater Permitting Division

Adam Wong and **Emily Novick** participated in the October meeting of the Water Board's NPDES Permitting Division. Adam demonstrated how to use the Contaminant Data Display and Download (CD3) tool to access RMP data. Emily presented the rolling copper averages and the dredged material testing thresholds for San Francisco Bay Area sediments that are available on the RMP's webpage.

OCTOBER 25

Alameda Creek Watershed Council Annual Conference

Robin Grossinger presented the results of the completed Alameda Creek Historical Ecology Study. The conference was held in Dublin, CA.

For more information, visit http://www.acrcd.org/WatershedCouncil/MeetingsandEvents.aspx.

NOVEMBER 15

Presentation to Delta Stewardship Council

Robin Grossinger and **Alison Whipple** presented highlights from their recent report to the Delta Stewardship Council. The video of their briefing has been posted here: http://dsc.videossc.com/archives/111512/

OCTOBER 24

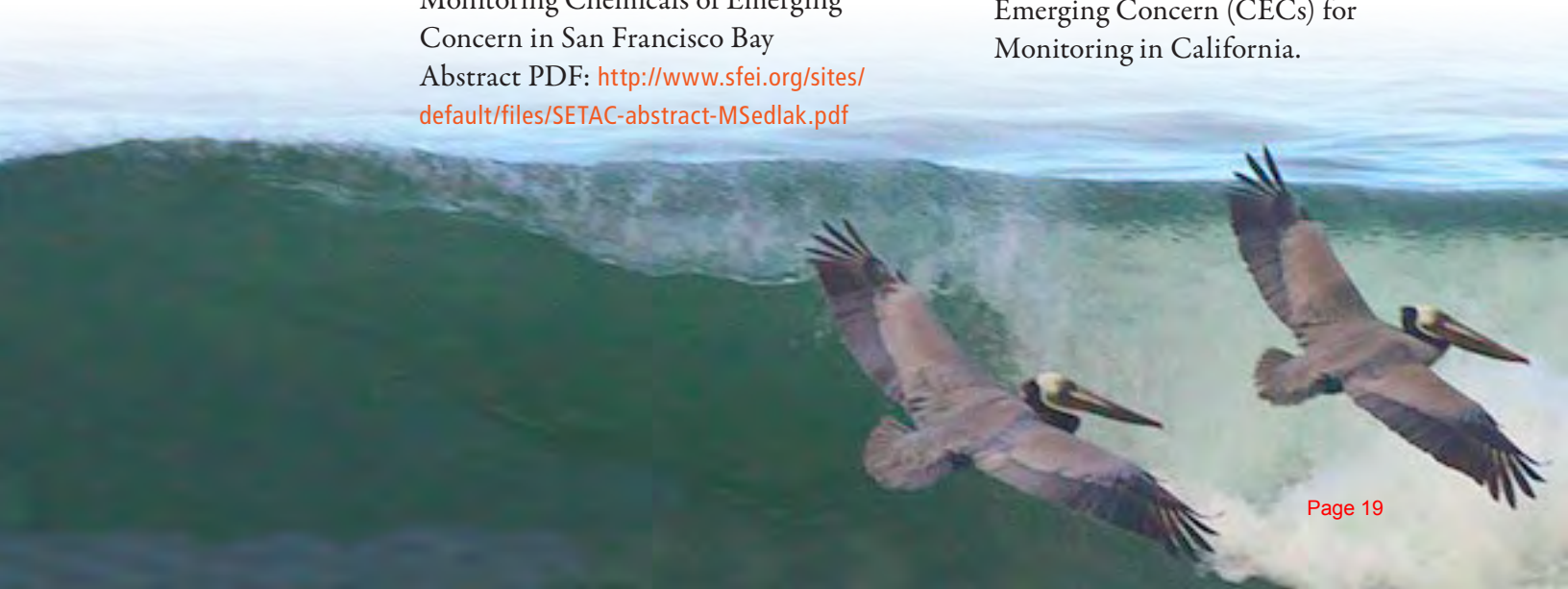
Society of Environmental Toxicology and Chemistry North America 33rd Annual Meeting

Presentations

- **Nicole David**
  Overview of Urban and Agricultural Stormwater Treatment Projects
  Abstract PDF: http://www.sfei.org/sites/default/files/SETAC-abstract-book-2012%2063.pdf
- **Meg Sedlak**
  Monitoring Chemicals of Emerging Concern in San Francisco Bay
  Abstract PDF: http://www.sfei.org/sites/default/files/SETAC-abstract-MSedlak.pdf

Moderated Sessions

- **Thomas Jabusch**
  Focusing on the assessment of pollutant effects in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary.
- **Meg Sedlak**
  Prioritizing Contaminants of Emerging Concern (CECs) for Monitoring in California.



IN THIS SECTION

SEPTEMBER 18

RMP Technical Review Committee Meeting

The TRC discussed the status of the RMP 2012 Annual Meeting and previewed two Annual Meeting Presentations. Updates and highlights from the "Conceptual Model of Contaminant Fate on the Margins of San Francisco Bay" and the "Conceptual Foundations for Modeling Bioaccumulation in San Francisco Bay" reports were presented. An overview of the Nutrient Conceptual Model and Nutrient Loading Study was given, including a revised timeline for the draft report's release. To conclude, results from the California Mussel Watch CEC Pilot study were shared.

SEPTEMBER 28

Alameda Creek Alliance Annual Membership Dinner

Robin Grossinger presented at the Alameda Creek Alliance. His presentation included fascinating findings of the soon-to-be-published historical ecology study for the Alameda Creek watershed. Other topics discussed included what the Alameda Creek looked like long ago and how the Livermore-Amador Valley, Sunol Valley, Niles Canyon and the Niles Cone have changed over the past two centuries.

OCTOBER 24

RMP Sources, Pathways, and Loading Workgroup Meeting

The RMP Sources, Pathways, and Loading workgroup reviewed SPL activities and objectives, POC watershed studies, and the Regional Watershed Spreadsheet Model (RWSM).

OCTOBER 29

RMP Steering Committee & Multi-year Planning Meeting

The Multi-Year Planning Meeting was held from 9:00 a.m. to 12:00 p.m. and was followed by the Steering Committee Meeting. For a list and download of items, please go to http://www.sfei.org/calendar_events/SC10_29_2012.

OCTOBER 29

Wetland and Riparian Area Monitoring Plan (WRAMP) Technical Advisory Team (TAT)

Josh Collins chaired a meeting of the Technical Advisory Team (TAT) for the State Board's proposed Wetland and Riparian Area Protection Policy and the Wetland and Riparian Area Monitoring Plan (WRAMP) to begin finalizing definitions for stream systems and riparian areas, continue vetting the California Aquatic Resource Inventory (CARI) of WRAMP as the way to "map the definitions," and to begin vetting the riparian buffer width decision tool of WRAMP with the riparian science community. This meeting brought forward lessons learned from recent pilot applications of the definitions and tools at the Willits By-Pass Project (CalTrans), High Speed Rail Project (HSR Authority), Coyote Creek Environmental Services and Stewardship Assessment (SCVWD), assessment of the Stream Environment Zone (SEZ) Protection Policy for Tahoe (TRPA), and Delta Conveyance Project (DWR). These definitions and tools will be integrated into WRAMP to support the new policy. The challenge moving forward is to certify through the TAT that the draft stream definition is applicable throughout the state.

IN THIS SECTION

NOVEMBER 1

Vernal Pool Forum

Josh Collins presented an invited talk at a special forum for 200+ vernal pool interests represented by many federal, state, and local agencies as well as academics, scientific NGOs, and consultants to explain the application of the Wetland and Riparian Area Monitoring Plan (WRAMP) for vernal pool project design, mitigation design, and project evaluation. One outcome of this meeting was that the new accredited statewide map of vernal pools developed through the Native Plant Society will be transferred to SFEI for inclusion in California Aquatic Resource Inventory (CARI).

NOVEMBER 5-7

California Stormwater Quality Association (CASQA)

Lester McKee attended the California Stormwater Quality Association (CASQA) annual conference held in San Diego. This is the fifth time Lester has attended this increasingly important forum for stormwater management. The conference had a new record attendance this year attracting managers, scientists and practitioners from across the State, in the context of both Phase I and Phase II permits. It was gratifying to see and hear references to our work, particularly Lester's and his team members'. In some instances, questions during either post-presentation discussions or panel discussions were directed to Lester in the audience, providing the opportunity to further highlight our work. This will continue to be a "must-attend" conference for SFEI. In the future, rather than just doing presentations, we should consider increasing our presence through contributions to one of the preconference workshops.

NOVEMBER 6

California Wetland Monitoring Workgroup (CWMW)

Josh Collins and **Meredith Williams** met with the CWMW of the Water Quality Monitoring Council to discuss the status and continuing development of the CA Rapid Assessment Method for wetlands and streams (CRAM), CRAM QAQC procedures, EcoAtlas, and the upcoming WRAMP pilot with the North Coast Water Board, DFG, USACE, USEPA, State Board, and local agencies. One important outcome of this meeting was a draft agenda for an upcoming joint meeting between the CWMW and Data Management Workgroup to define the base map to be used across all of the state's My Water Quality Portals, and whether or not CARI might serve as that base map.

NOVEMBER 7

San Francisco Joint Venture Meeting

Josh Collins, **Sarah Pearce**, and **Meredith Williams** presented an overview of the Wetland and Riparian Area Monitoring Plan (WRAMP) to the Bay Area Habitat Joint Venture. This Joint Venture(JV) asked for the presentation to further its development of a Monitoring and Evaluation Plan. The State Board, USACE, Regional Water Board, and some local agencies were represented in addition JV members. At the request of the JV, the presentation covered the USEPA 1-2-3 Framework, the CA Aquatic Resource Inventory (CARI), the California Rapid Assessment Method for wetlands and streams (CRAM), EcoAtlas, and recent regulatory as well as non-regulatory pilot applications. The commentary by the audience centered on the pros and cons of regulatory uses of CRAM, punctuated by testimony in favor of WRAMP including CRAM for these and a variety of other uses. The meeting was for information purposes

only. A follow-up meeting between SFEI and the JV leadership is being planned by the JV. SFEI will continue to express its willingness to assist the JV if and when the JV decides such assistance is needed. The JV now understands more of what SFEI has to offer regarding wetland and stream planning, monitoring, and information management.

NOVEMBER 8

Webinar: "The RMP: A Collaborative Effort Providing Water Quality Regulators in the San Francisco Bay Area with Information They Need"

The California Water Quality Monitoring Collaboration Network and the San Francisco Estuary Institute's **Dr. Jay Davis** teamed up for a special Webinar session, "The Regional Monitoring Program: A Collaborative Effort Providing Water Quality Regulators in the San Francisco Bay Area with Information They Need". The webinar was from 11:30 a.m. -12:30 p.m.

The Regional Monitoring Program for Water Quality in the San Francisco Estuary is an innovative collaborative effort between SFEI, the Regional Water Quality Control Board, and the regulated discharger community. It provides water quality regulators with information they need to manage the Estuary effectively. The Program began in 1993, is still going strong in its twentieth year, and is a model of the attributes that define a successful monitoring program. This talk provided an overview of the keys to the success of the Program, highlights from recent monitoring, and a look at future plans.

NOVEMBER 14

Society of Environmental Toxicology and Chemistry Regional Topic Session: Assessing Contaminant Effects in Multi-stress Ecosystems

SFEI scientist **Thomas Jabusch** co-chaired a regional topic session at the SETAC North America 33rd Annual Meeting. The meeting was held November 11-15 in Long Beach, California. The regional topic session was focused on the assessment of pollutant effects in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. This session highlighted the Bay-Delta as a case study for a multi-stress environment. Presentations highlighted lessons learned from the Bay-Delta and other estuaries in the following areas (1) research advances in the diagnosis or prognosis of toxic effects in multi-stress environments, (2) integrated assessment of multiple stress responses in estuaries, and (3) implications for ecosystem management (case studies for applications).

NOVEMBER 15

Northern California Conservation Planning Partners 10th Annual Workshop

County and sub-county scale Habitat Conservation Plans and Natural Community Conservation Plans are in preparation or being implemented in a number of counties in the San Francisco Bay Area and the Sacramento Region. These plans provide a means for the conservation of endangered species and contribute to their recovery, while allowing appropriate, compatible growth and development in the metropolitan areas.

The workshop provided essential information, ideas and discussion opportunities for the wide range of stakeholders and local officials involved in development of a regional conservation plan, and for all citizens who are concerned about these issues.

Robin Grossinger gave a talk titled "Historical Ecological Analysis and its Application to Regional HCP/NCCPs".

NOVEMBER 28

Freshwater Cyanotoxin Workshop

Cyanotoxins from harmful algal blooms have been causing problems in a number of water bodies in California, and have resulted in drinking water supply concerns, wildlife and domestic animal deaths, human health risks, and restrictions on shellfish harvesting. In spite of these well-documented problems, no monitoring efforts are in place to routinely screen for harmful algal blooms or associated cyanotoxins in water or organisms in California's freshwater habitats.

To begin to address this need, the State Water Resources Control Board's Surface Water Ambient Monitoring Program is holding a workshop on November 28 at the San Francisco Regional Water Quality Control Board in Oakland, CA. A series of talks by managers and scientists at the forefront of this issue will be presented. The workshop is intended to educate managers about the potential harmful effects of cyanotoxins and factors leading to cyanotoxin production. Space is limited and attendees must register in advance through the Water Board Training Academy. Although the workshop is set up as a training session for Water Board staff, others are also welcome to attend.

DECEMBER 4

Regional Monitoring Program Technical Review Committee

The fourth quarter TRC meeting will be held on December 4, 2012 from 10:00 a.m. to 3:00 p.m. An agenda is forthcoming. View draft agenda : http://www.sfei.org/sites/default/files/TRC%20Draft%20Agenda.doc

IN THIS SECTION

Central Coast Pollen Work

Presenter: Alicia Cowart

Talk Title: Paleoenvironmental Change in Central California: Impacts of Climate Change and Human Land Use on Vegetation and Fire Regimes

California has experienced dramatic environmental changes in the last 50,000 years due both to changes in climate and anthropogenic impacts. Analysis of pollen and microscopic charcoal from sediment cores from three wetland sites in central California record changes in vegetation and fire frequencies during the late Pleistocene and Holocene at different temporal resolutions. A long-term record spanning the last 50,000 years from a coastal wetland north of Santa Cruz shows important vegetation shifts at the Pleistocene/Holocene transition, as well as the introduction of a recurring fire regime in the Holocene. A 3,000-year record from a wetland near Año Nuevo State Park provides evidence of an increase in human ignited fire in coastal California from the fifteenth century to the present. A core from an oxbow lake in the Sacramento Valley records a flood history for the last 700 years and the introduction of several non-native plants into the area after European arrival. Together, these records help place the magnitude of anthropogenic impacts in the context of long-term environmental change due to regional or global climatic forcing.

Environmental Working Group's Guide to Healthy Cleaning: Pollution prevention through market change

Presenter: Dr. Rebecca Sutton

Talk Description: Dr. Rebecca Sutton, senior scientist with Environmental Working Group, profiled key cleaning product ingredients that harm aquatic life and reviewed the regulatory framework that applies to cleaning supplies. EWG's Guide to Healthy Cleaning, a consumer database released in September, provides safety ratings for over 2,000 household cleaners. The Guide helps consumers make safer choices and encourages manufacturers to disclose information about the ingredients in their products.
http://www.ewg.org/guides/cleaners

Environmental Working Group's web guide to cleaning

IN THIS SECTION

DECEMBER 12

Southern California Coastal Water Research Project Meeting

Rainer Hoenicke will participate in a meeting with the Southern California Coastal Water Research Project in Costa Mesa, CA, with State Water Board staff and representatives of the Pacific Merchant Shipping Association to explore coordinated general permit monitoring approaches.

MID-DECEMBER

Meeting with NCRWQCB

SFEI will meet with new Executive Officer of the North Coast Regional Water Quality Control Board and his staff to explore science support needs.

DECEMBER 17

Symposium: Bioaccumulation in California

Pollutants that accumulate in fish and other aquatic life (or "bioaccumulate") are having detrimental impacts on water bodies throughout California. Monitoring information will provide an essential foundation for cleanup plans and exposure reduction plans to remedy this problem. In addition, effective communication of this information to the public is imperative to enable fish consumers to reduce their exposure to pollutants.

The California Water Quality Monitoring Council has established a committee, the Bioaccumulation Oversight Group (BOG), that is charged with coordinating monitoring, assessment, and communication of information relating to bioaccumulation in California.

As a first step in taking on this role, the BOG is holding a meeting on December 17 where a series of speakers will provide an overview of various aspects of the bioaccumulation problem in California water bodies. The presentations will summarize the latest information on statewide surveys of sport fish, accumulation in humans, risks to wildlife, contaminants of emerging concern, the new statewide mercury program, studies of mercury in reservoirs, consumption advisories, and efforts to communicate consumption advice to fish consumers. This meeting will set the stage for subsequent BOG meetings aimed at coordinating work in all of these areas. For more information visit: http://www.sfei.org/calendar_events/Symposium

2013

JANUARY 9

Meeting: San Francisco Public Utilities Commission

SFEI staff will be meeting with San Francisco Public Utilities Commission (SFPUC) staff to discuss Low Impact Development (LID) and Green Infrastructure Lessons.

JANUARY 28

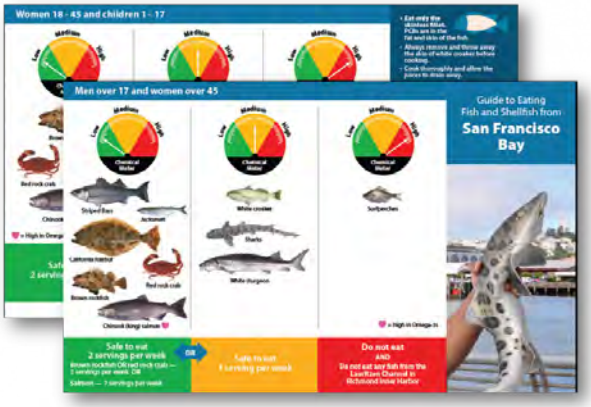
Meeting: Regional Monitoring Program Steering Committee Meeting

The first quarter SC meeting will be held on January 28 from 10:00 a.m. to 3:00 p.m.

OCTOBER 12

Phase I of the San Francisco Bay Fish Project Declared a Success

The San Francisco Bay Fish Project (SFBFP), an outgrowth of permit requirements to industrial and municipal wastewater dischargers and municipal stormwater agencies, successfully completed a demonstration of how community-based outreach and education efforts can contribute to reducing exposure to harmful chemicals that accumulate in Bay-caught fish. The project was coordinated by the Aquatic Science Center and led by the California Department of Public Health in partnership with the US Environmental Protection Agency, the San Francisco Bay Regional Water Quality Control Board, CalEPA's Office of Environmental Health Hazard Assessment, the Bay Area Clean Water Agencies, Western States Petroleum Association and smaller industrial dischargers, and the Bay Area Stormwater Management Agencies Association.



The project was the first test case of how the Aquatic Science Center, as a Joint Powers Authority, could serve as an effective intermediary and fiduciary agent for efficiently accomplishing common goals among a variety of public and private entities – each with its own administrative constraints and barriers that the Center was able to overcome. The success of the project is a testimony to the Center's role as "honest broker" to get the job done (Goal #4 in our Strategic Plan: "Best Practices").

The SFBFP is part of a larger effort by the Regional Water Quality Control Board to reduce the levels of mercury and PCBs in the Bay and in Bay fish. Faced with the enormous task of communicating to diverse groups of fishermen and their families, the California Department of Public Health, under a Memorandum of Agreement with the Aquatic Science Center, instituted a Stakeholder Advisory Group and developed a program to work with local organizations with established ties to the community and proven records of effective outreach. The program was designed to support community-based outreach and education projects tailored to the needs of fishing populations and underserved communities.

Please visit http://www.sfei.org/content/educational-materials to updated signage around fishing locations, brochures, and other materials that are helping anglers make informed choices. A final report is expected to be publicly available within the next two months.

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FUTTERMAN DUPREE
DODD CROLEY MAIER LLP

MEMORANDUM

Date: June 25, 2012

To: Rainer Hoenicke, Executive Director - San Francisco Estuary Institute

From: Michael Futterman

Re: Proposed Governance Changes to Aquatic Science Center and San Francisco Estuary Institute Boards of Directors

---

The Aquatic Science Center *("ASC")* and the San Francisco Estuary Institute *("SFEI")* are evaluating a potential restructuring of their respective boards of directors. Specifically, you have provided at least three principal directions in assessing an alternative governance structure for ASC and SFEI:

I. You propose to "merge" the boards of directors of the two entities. Note that this is not the same as a merger of the two entities.
II. You do not want to alter the ASC Joint Powers Agreement *("JPA")* at this time.
III. You wish to maintain the existing voting rights of directors of ACS and SFEI, respectively.

This memo discusses a number of considerations in accomplishing the boards' goals for such a "merger."

I. Limitations Imposed by ASC Joint Powers Agreement

A. Structure of ASC Board of Directors

1) Size and Board Membership under JPA.

a) The JPA provides that "the representatives of each Signatory agency shall establish a Governing Board of Directors (Board) for the Aquatic Science Center, which at a minimum is composed of" three representatives of state and local water boards, three representatives of BACWA, and one representative of the EPA, Region 9. *See* JPA §4(a). Under this provision, the six representatives of the two constituent Signatory Agencies have the authority to "establish" the ASC board of directors, subject to the minimum designations and requirements set forth §4(a). Although use of the word

"establish" is somewhat vague in this context, the text does not say that the board of the ASC shall be composed "only" of the seven designated members; nor does it say that the board cannot be expanded. In fact, use of the word "minimum" suggests that the board can, in fact, be expanded.

b) The Joint Exercise of Powers Act (Cal. Gov't Code §6500, et seq.) *(* the *"JEPA"*) "two or more public agencies" to form a joint powers authority. *See* Cal. Gov't Code §6502. Subject to certain specific statutory exceptions that do not apply in this instance, the JEPA does not authorize a private entity to form a joint powers authority. Consistent with these rules, section 4(b) of the JPA contemplates adding other public agencies as signatories to ASC, and section 4.3 if the ASC Bylaws contemplates adding non-public agency *non-voting* members to ASC.

c) It is important to distinguish (1) membership in ASC from (2) membership on the ASC Board of Directors. With regard to the latter, the JPA does not expressly limit membership on the ASC Board to representatives of public agencies. Further, the Bylaws expressly provide that a non-profit entity may be admitted as a "Non-Voting Member" of ASC, and that representatives of such members may be added to the ASC Board of Directors. See ASC Bylaws §§4.3(b) and (c), 7.2(a) and (b). ***Thus, in our judgment, the JPA does not forbid expansion of the ASC Board of Directors, subject to the approval of 2/3 of the ASC board***. *See* ASC Bylaws §7.2(b) (four out of the six signatory directors must vote in favor of such an expansion).

2) <u>Quorum</u>.

a) JPA - The JPA provides that ***three directors shall constitute a quorum, and a simple majority of that quorum (i.e., as few as two directors) shall be required for action to be taken***. *See* JPA §4(e). These three directors must be representatives of either or both of the ASC Signatory Agencies.

b) California Non-Profit Law - Under applicable non-profit law, ***a majority of the directors authorized by the bylaws constitutes a quorum***. Cal. Corp. Code §5211(a)(7). The non-profit law also authorizes a corporation to require the presence of one or more specified directors to constitute a quorum. *Id.*

c) Suggested Resolution – ***Adopt bylaws provisions that require the determination of separate, but overlapping quora for each meeting of the board of directors.***

i. For the purpose of conducting business for *both entities*, *i.e.,* ASC and/or SFEI, a majority of the authorized directors of SFEI, which must include at least three directors representing one or both of the Signatory Agencies, shall constitute a quorum for all purposes.

ii. For the purpose of conducting *SFEI business*, a majority of the SFEI directors shall constitute a quorum.

iii. For the purpose of conducting *ASC business*, at least three directors representing one or both of the Signatory Agencies shall constitute a quorum.

iv. Alternate Directors Limitation - The JPA authorizes a director to designate, in writing, an "alternate" director to act in place of that director during his or her absence. *See* JPA §4(d). *See also* ASC Bylaws §7.2(a)(authorizing "Alternate Directors"). By contrast, *California non-profit law does NOT authorize the use of alternate directors*. Thus, the presence of properly designated "Alternate Directors" at a board meeting could be counted toward a quorum for ASC, but could be counted toward a quorum for SFEI.

3) <u>Voting Rights</u>

a) A simply majority of an ASC quorum is required for action to be taken with respect to ASC, *i.e.,* as few as two of three representatives of the Signatory Agencies. *See* JPA §4(e). All other voting rights with respect to ASC are addressed in the ASC Bylaws, not the JPA, and thus are subject to change upon agreement of the relevant directors, or the members, as applicable. *See* ASC Bylaws §17.1(d)(members retain the sole right to amend certain provisions of ASC Bylaws). (Note that the ASC board member representing the EPA, Region 9 is non-voting. *See* ASC Bylaws §4.3(a). This provision may be retained, if desired).

b) The JPA allocates the following powers to the ASC Board of Directors (JPA §§7(a), 8(e)):

i. Contracts over $50,000
ii. Annual program plans and budgets
iii. Hiring of the Executive Director
iv. Resolutions describing powers and duties of the Executive Director (or other administrator)

c) "Alternate" directors may vote on ASC matters, but not on SFEI matters.

d) The ASC Bylaws evince the intent of the Signatory Agencies to retain control of ASC by limiting the voting power of non-Signatory members and their representative directors. *See, e.g.,* ASC Bylaws §4.2(b) (only public entities may become "Signatories"), §4.3(c)(non-Signatories may be designated as "Non-Voting Members"), §7.2(b)(directors representing Signatories shall have three directors for every one director representing a non-Signatory), and §7.3(c)(reserving certain powers to the votes of a majority of directors representing Signatories). Notwithstanding the above, except for the basic quorum and simple majority voting requirement set forth in the JPA (*see* §I.A.2.a, above), the ASC Bylaws may be amended by the Board of Directors or the ASC members, as applicable, with respect to voting rights, including the retention or dilution of certain voting powers presently held by the Signatories.

e) Suggestion – At a minimum, ASC and SFEI may construct an arrangement of overlapping boards, such that (a) ASC directors are regular voting directors of SFEI, and (b) SFEI directors who do not represent Signatory Agencies are non-voting directors of ASC. Joint meetings may be conducted, provided that issues are properly identified as pertaining to ASC or SFEI, and that quorum and voting rights are tracked carefully. A more aggressive "merger" of the boards would assign voting rights to directors representing non-Signatory members of ASC, perhaps subject to voting restrictions with respect to certain fundamental matters pertaining to ASC.

f) Certain statutory restrictions will continue to apply to the specific areas of ASC. For example, the annual budget of ASC must be approved by the ASC Board of Directors (Cal. Gov't Code §6508); and SFEI, which is empowered to administer ASC, must invest ASC funds in accordance with Cal. Gov't Code §§ 6509.5, 53601.

Impact of BACWA Rules

1. ASC's exercise of powers as a joint powers authority is subject to the restrictions placed on the separate exercise of such powers by BACWA. *See* JPA §3. *See also* Cal. Gov't Code §6509 (authorizing members of a joint powers authority to impose restrictions on the exercise of the authority's powers). Further, ASC must use the "procurement and other procedural rules and regulations" of BACWA, and the BACWA auditor shall serve as the ASC auditor. *See* JPA §§7(c), 8(c).

2. Upon review of the BACWA Joint Powers Agreement, as amended, the only clear *restriction* imposed on BACWA is that it is "prohibited from issuing revenue bonds or incurring indebtedness" as provided in Cal. Gov't Code §6550 et seq. *See* BACWA JPA §4. Thus, under §6509 of the Government Code, it appears that ASC is subject to the same restriction against issuing certain bonds or incurring certain indebtedness. We note that BACWA's JPA also imposes other obligations on BACWA, such as preparation of an Annual Work Plan and an Annual Budget. These would appear to be "affirmative" obligations of BACWA, rather than "restrictions," and thus presumably do not require ASC compliance. Nevertheless, the issue is somewhat open to interpretation.

3. We have not been provided with copies of BACWA's "procurement" or "procedural" rules. We assume for purposes of this memo that such rules are largely administrative, hence fall outside the scope of the issues of governance relevant for this memorandum.

4. In sum, based on the information provided, it does not appear that restrictions applicable to BACWA would prevent some sort of "merger" of the boards of ASC and SFEI.

II. Fiduciary Duties of Directors. California statutory and common law impose fiduciary duties on directors of non-profit corporations. *See* Cal. Corp. Code §5231. It is unclear whether directors of joint powers authorities have general, common law fiduciary obligations to the authority's members. Joint powers authorities are creatures of statute, and there is nothing expressly set forth in the JEPA that would impose such duties on directors of joint powers authorities. (Of course, in a specific counterexample, directors of public entities that manage investment funds on behalf of beneficiaries have fiduciary obligations arising out of the trust relationship between the entity and the beneficiaries, but that is not the issue addressed here.) For our purposes, if ASC

directors are elected to serve as voting directors of SFEI, they will assume the fiduciary obligations owed by all directors of non-profit corporations. If a joint board is structured so that ASC directors are non-voting board members of SFEI, it is unlikely that they would be construed to owe the same high level of fiduciary duties owed by regular, voting directors of the non-profit entity.

ATTACHMENT 2a-2

BYLAWS
OF

AQUATIC SCIENCE CENTER

amended

DECEMBER 5, 2012

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BYLAWS OF THE AQUATIC SCIENCE CENTER

ARTICLE 1 – CONSTRUCTION AND DEFINITIONS

Unless the context requires otherwise, the general provisions, rules of construction, and definitions in the California Civil Code will govern the construction of these Bylaws. Without limiting the generality of the above any capitalized term not defined in these Bylaws will have the meaning ascribed to it in the Agreement.

(a) "Agreement" shall mean the Joint Powers Agreement entered into by the Signatories.

(b) "Alternate Director" shall mean another person from the same agency or entity as the Director appointed pursuant to these Bylaws to fulfill the duties of the Director if the Director is absent for a temporary period of time.

(c) "Board of Directors" or "Board" shall mean the Board of Directors of Aquatic Science Center.

(d) "Contracting Parties" shall have the meaning given in California Government Code Section 6502.

(e) "Director" shall mean the director appointed by a Member pursuant to these Bylaws.

(f) "Members" shall mean those public entities, nonprofit, and other stakeholder entities that have agreed to be bound by the terms of these Bylaws. The term "Member" shall, unless otherwise specified, include Signatories and Non-Voting Members.

(g) "Non-Voting Member" shall mean any Member designated as a non-voting member at the time of such members admission to the Aquatic Science Center.

(h) "Public Entity" shall have the meaning given in California Government Code §6500.

(i) "Signatories" shall mean the Public Entities that are Contracting Parties to the Agreement and have agreed to by bound by the terms of these Bylaws.

ARTICLE 2 – NAME

The name of this public entity is Aquatic Science Center.

ARTICLE 3 – OFFICES

The principal office for the transaction of the business of the Aquatic Science Center is located at 4911 Central Avenue, Richmond, California. The Board of Directors may change the principal office from one location to another. Any change of this location will be noted by the Secretary in these Bylaws pursuant to an amendment hereof.

ARTICLE 4 – SIGNATORIES AND PARTICIPANTS

4.1 Membership

Membership in the Aquatic Science Center is open to both Signatories and Members.

4.2 Signatories

(a) The original Signatories of the Aquatic Science Center are Bay Area Clean Water Agencies (BACWA) and the State Water Resource Control Board (SWRCB).

(b) In addition to the original Signatories, any other Public Entity that becomes a Contracting Party pursuant to the Agreement and these Bylaws, is a Signatory. Any Signatory that withdraws or is expelled pursuant to these Bylaws shall cease to be a Signatory.

4.3 Members

(a) In addition to the original Signatories, BACWA and SWRCB, the U.S. Environmental Protection Agency, Region 9 shall also be a Member. The Member from U.S. Environmental Protection Agency, Region 9 is designated a Non-Voting Member.

(b) In addition to the original Members, any other Public Entity, nonprofit entity or other stakeholder organization may become a Member as provided in these Bylaws. Any Member that withdraws or is expelled pursuant to these Bylaws shall cease to be a Member.

(c) Any Member who is not a Signatory, upon its admission to the Aquatic Science Center, may be designated a Non-Voting Member. Except as to the exercise of voting power, or for the formation of a quorum, the Non-Voting Member, and the Director and Alternate Directors appointed by such Non-Voting Member shall have all duties, rights, and privileges of any Member or Director or Alternative Director appointed by a Member.

ARTICLE 5 – LIMITATION ON AUTHORITY

The Aquatic Science Center's exercise of the joint powers of the Signatories under the Agreement and these Bylaws is restricted to the extent required under California Government Code Section 6509. Pursuant to Section 6509, the Aquatic Science Center will jointly exercise such powers subject to the restrictions placed on the separate exercise of such powers by BACWA. This designation may be changed by a two-thirds (2/3) vote of the Board.

ARTICLE 6 – DEBTS AND LIABILITIES

The debts, liabilities and obligations of the Aquatic Science Center will not be the debts, liabilities or obligations of any or all of the Signatories. However, nothing in these Bylaws or the Agreement:

(a) Prevents a Signatory or Signatories from agreeing, in a separate agreement, to be jointly and/or severally liable, in whole or in part, for any debt, obligation or liability of the Aquatic Science Center, including but not limited to, any bond or other debt instrument issued by the Aquatic Science Center; or

(b) Impairs the ability of any Signatory to undertake the responsibility described in subsection (a) of this Article.

ARTICLE 7 – DIRECTORS

7.1 Powers.

(a) General Powers. Subject to the provisions of these Agreement and these Bylaws, the business and affairs of the Aquatic Science Center will be managed, and all powers will be exercised, under the policy direction of the Board of Directors. The Aquatic Science Center will have such powers necessary and proper to effect the purposes of the Aquatic Science Center, the Agreement, and these Bylaws.

(b) Specific Powers. Without prejudice to these general powers, the Board of Directors also has the power to:

(i) borrow money and incur indebtedness on behalf of the Aquatic Science Center and cause to be executed and delivered for the Aquatic Science Center's purposes, in the Aquatic Science Center's name, promissory notes, bonds, deeds of trust, mortgages, pledges, hypothecations, and other evidences of debt and securities and certificates of participation

(ii) maintain an office or offices within in the State of California;

(iii) acquire, own, maintain, and dispose of real and personal property as necessary to carry out the purposes of the Aquatic Science Center;

(iv) hire and fire employees;

(v) enter into contracts in its own name;

(vi) accept and receive donations;

(vi) sue and be sued; and

(vii) have perpetual succession.

7.2 Directors and Alternates.

(a) Appointment of Directors and Alternate Directors by Member. Each Signatory shall appoint three of its members, employees, or other representatives as a Director and, for each directorship, shall appoint up to two Alternate Directors, any or all of whom may be elected officials. Members who are not Signatories shall appoint one of its members, employees, or other representatives as a Director and shall appoint up to two Alternate Directors, any or all of whom may be elected officials. If two Alternate Directors are appointed by any Member, the Alternate Directors shall be designated as a first and second alternate. The designation of Directors and Alternate Directors shall be made in writing to the Executive Director.

(b) Expansion of Number of Directors to be Appointed. Upon a two-thirds (2/3) vote of the Board, the number of Directors on the Board may be expanded, but each Signatory shall have the same number of Directors and any Member who is not a Signatory shall have no more than one Director for each three Directors appointed by each Signatory. Such Directors shall be appointed in accordance with these Bylaws.

(c) Non-Voting Directors. The Director appointed by any Non-Voting Member shall not exercise a vote on any member, nor shall such Director's presence at a meeting be counted toward the requirement for any majority or supermajority vote required under these Bylaws.

7.3 Voting.

(a) Voting Power of Director and Alternate Director. Each Director shall be entitled to cast one vote for any matter than requires approval of the Board. Alternate Directors may not vote in the capacity as Director except in the absence of the Director to whom such Alternate Director is designated the alternate and any second Alternate Director may not vote in the capacity as Director except in the absence of both the Director and the first Alternate Director to whom such Alternate Director is designated the alternate.

(b) Actions Requiring Approval of Directors. Except as set forth in paragraph 7.3(c), below, the approval of any action taken in furtherance of the Agreement or these Bylaws, or the implementation of any policy or program of the Aquatic Science Center, shall require a majority (or, where applicable, such necessary supermajority) of the Board.

(c) Actions Requiring Approval of Directors Appointed by Signatories. Notwithstanding paragraph 7.3(a) or 7.3(b), above, without the approval of a majority (or, where applicable, such necessary supermajority) of Directors appointed by the Signatories, no action of the Board of Directors or any committee may be taken regarding the exercise, or any issue regarding the exercise, of powers or functions of the Aquatic Science Center set forth in Article 5, Articles 7.1(b), 7.4(d), 7.9, 7.10, Article 11 (regarding the admission, withdrawal, suspension, or expulsion of Members who are Signatories), Article 12, Article 13, Article 14, Article 15, Article 16, or Article 17, the amendment or waiver of the exercise of such powers, or as otherwise required by law.

7.4 Vacancies.

(a) Vacancies. Any vacancy in any Director's position will be filled as provided in this Article 7.

(b) Events Causing Vacancy.

(1) A vacancy on the Board exists on the occurrence of the following: (i) the death of any Director; (ii) the removal or dismissal of such Director, or resignation of a Director from the position such Director held with the Member at the time such Director became a Director; (iii) the declaration by resolution of the Board of a vacancy of the office of a Director who has been declared of unsound mind by an order of court or convicted of a felony; or (iv) written notice to the Secretary from the entity that appointed such Director stating that the designation of the Director or Alternate Director has been revoked, said revocation to be effective upon receipt, unless the notice specifies a later time.

(2) Notwithstanding paragraph (b)(1), above, to the extent any person serves as a Director *ex officio* pursuant to the Agreement, a change in the person serving as Director by virtue of such capacity with the Member shall not constitute a vacancy within the meaning of these Bylaws.

(c) Resignations. No Director appointed by a Signatory may resign if the Aquatic Science Center would then be without at least one Director (or Alternate Director acting as Director pursuant to these Bylaws) from each of at least two Signatories in charge of its affairs, unless the Aquatic Science Center is being dissolved pursuant to Article 16 of these Bylaws.

(d) Reduction or Increase in Number of Directors. The authorized number of Directors may be reduced or increased to accommodate the deletion or addition of a Member.

(e) Temporary Authority of Director. Until such time as a new Director is designated by the respective Member, the respective Alternate Director shall act as the Director for such Member.

7.5 Call of Meetings.

The Chair or Vice-Chair of the Board may call a meeting of the Board and shall call a meeting of the Board if requested, in writing, by a majority of the Board.

7.6 Quorum.

(a) Except as provided in Article 7.6(b), attendance at any meeting of a majority of the Directors entitled to cast a vote is a quorum for the transaction of business. Except for acts requiring a supermajority under these Bylaws or the Agreement, every act or decision done or made by a majority of the Directors present at a meeting duly held at which a quorum is present is an act of the Board. A meeting at which a quorum is initially present may continue to transact business, notwithstanding the withdrawal of Directors, if any action taken is approved by at least a majority of the quorum for that meeting, or if a supermajority is required, by the supermajority of the quorum for that meeting.

(b) Notwithstanding paragraph 7.6(a) above, a quorum for the exercise of any power reserved to the Signatories and the Directors appointed by such Signatories pursuant to Section 7.3(c), shall only be present if a majority, or such designated supermajority, of such Directors is present for the exercise of such power.

(c) The presence or absence of any Director appointed by a Non-Voting Member shall not be counted in any assessment of whether a quorum for the transaction of business is present.

(d) For the purpose of conducting joint business for both the Aquatic Science Center and the San Francisco Estuary Institute, a majority of the authorized directors of SFEI, which must include at least three directors representing one or both of the Signatory Agencies, shall constitute a quorum.

(e) For the purpose of conducting Aquatic Science Center business, at least three directors representing one or both of the Signatory Agencies shall constitute a quorum.

7.7 Rules of Order.

The Board may adopt rules of order to govern the conduct and procedure of Board meetings.

7.8 Minutes.

The Board will keep or cause to be kept a written summary of minutes of its proceedings, except executive sessions.

7.9 Fees and Compensation of Directors.

Directors and members of committees may receive such reimbursement of expenses as may be determined by resolution of the Board to be just and reasonable.

7.10 Delegation of Powers.

Except as otherwise proscribed in these Bylaws and the Agreement, the Board may delegate any of its powers, subject to the constraints of California law.

ARTICLE 8 – BOARD COMMITTEES

8.1 Ad Hoc Committees.

(a) Upon written notice to all Members, the Chair may designate one (1) or more ad hoc advisory committees or a subcommittee of any such committee, each consisting of two (2) or more Directors or their respective Alternate Directors, to be ratified by and serve at the pleasure of the Board, and to exercise such powers as may be delegated to it, except that no ad hoc committee may:

(1) take any action on the exercise of such powers designated under paragraph 7.3(b);

(2) take any final action on matters which, under the Agreement or these Bylaws, requires approval a majority or supermajority vote of Board;

(3) amend or repeal Bylaws or adopt new Bylaws;

(4) amend or repeal any resolution of the Board which by its express terms is not so amendable or repealable;

(5) fill any vacancy in a committee, create any other committee of the Board or appoint members to such committees; or

(6) approve any transaction (i) to which the Aquatic Science Center is a party and one or more Directors have a material financial interest as defined in the California Government Code; or (ii) between the Aquatic Science Center and one or more of its Directors or between the Aquatic Science Center or any person in which one or more of its Directors have a material financial interest.

(b) Any ad hoc committee which either (i) has a membership which is sufficient to constitute a quorum of the Board or (ii) becomes a standing committee, shall comply with the requirements of the Ralph M. Brown Act, California Government Code Section 54950, et seq., as if such committee meeting were a meeting of a legislative body as such term is defined in Government Code Section 54952.

8.2 Meetings and Action of Committees.

Meetings and action of Board committees will be governed by, and held and taken in accordance with, the provisions of Article 7 of these Bylaws concerning meetings of Directors, with such changes in the context of those Bylaws as are necessary to substitute the committee and its members for the Board and its members, except that the meetings of committees may be called by the Board. A summary of minutes will be kept of each meeting of any committee and will be filed with the Secretary of the Aquatic Science Center.

ARTICLE 9 – OFFICERS

9.1 Officers.

The officers of the Aquatic Science Center are the Chair, two (2) Vice-Chairs, Executive Director, Secretary and Treasurer. The Chair and Vice-Chairs will be elected by the Board or may be designated by the Board in writing. All Directors are eligible to serve as an elected officer. Any number of offices may be held by the same person, except that neither the Secretary nor the Treasurer may serve concurrently as the Executive Director.

9.2 Election of Officers.

At the first meeting of the Board, and as necessary thereafter, nominations for the offices of Chair and the two Vice-Chairs, will be made and seconded by a Director. If more than two (2) names are nominated for any one office, balloting occurs until a nominee receives a majority of the votes cast; provided that after the first ballot the nominee receiving the fewest votes will be dropped from the balloting. Each elected officer serves a term ending on December 31st of the year following the year of such appointment for a term not to exceed two years. An elected officer may succeed himself/herself and may serve any number of consecutive or non-consecutive terms.

9.3 Removal of Officers.

An elected officer may be removed, with or without cause, by a two-thirds (2/3) vote of the Board at a regular or special meeting. The removal of an individual from any office shall not by itself affect the status of such individual as a Director or Alternate Director.

9.4 Vacancies.

Any vacancy in any office because of death, resignation, removal, disqualification, or any other cause will be filled for the balance of the vacated term in the manner prescribed in these Bylaws for regular appointments to that office; provided, however, that such vacancies may be filled at any regular or special meeting of the Board.

9.5 Resignation of Officers.

In the absence of a contrary written agreement, any officer may resign at any time by giving written notice to the Executive Director or Secretary. Any resignation takes effect at the date of the receipt of that notice or at any later time specified in that notice. Unless otherwise specified in that notice, the acceptance of the resignation is not necessary to make it effective.

9.6 Responsibilities of Officers.

(a) Chair of the Board. The Chair of the Board presides at meetings of the Board and exercises and performs such other powers and duties as may be from time to time assigned to the Chair by the Board or prescribed by the Bylaws.

(b) Vice-Chairs of the Board. In the absence of the Chair, one of the Vice-Chairs to be designated by the Board fulfills all the duties of the Chair.

(c) Executive Director. Subject to such supervisory powers as may be given by the Board of Directors to the Chair of the Board, the Executive Director generally supervises, directs, and controls the business and the employees of the Aquatic Science Center. The Executive Director has such other powers and duties as may be prescribed by the Board or the Bylaws. The Executive Director may, but need not, be a Director.

(d) Secretary. The Secretary will (i) keep or cause to be kept, at the principal executive office or such other place as the Board may direct, a book of summary minutes of all meetings and actions of Directors and committees of the Aquatic Science Center, with the time and place of holding, whether regular or special, and, if special, how authorized, the notice given, the names of those present at such meetings and the proceedings of such meetings; and (ii) give, or cause to be given, notice of all meetings of the Board and Committees of the Aquatic Science Center required by the Bylaws to be given. The Secretary has such other powers and may perform such other duties as may be prescribed by the Board.

(e) Treasurer. The Treasurer will (i) keep and maintain, or cause to be kept and maintained, adequate and correct books and records of accounts of the properties and business transactions of the Aquatic Science Center, including accounts of its assets, liabilities, receipts, disbursements, gains, losses, capital, retained earnings, and other matters customarily included in financial statements, which books of account will be open to inspection by any Director at all reasonable times; (ii) deposit all money and

other valuables in the name and to the credit of the Aquatic Science Center with such depositories as may be designated by the Board, disburse the funds of the Aquatic Science Center as may be ordered by the Board, and render to the Directors, whenever they request it, an account of all of such transactions and of the financial condition of the Aquatic Science Center; (iii) other powers and perform such other duties as may be prescribed by the Board or the Bylaws; and (iv) if required by the Board, give the Aquatic Science Center a bond in the amount and with the surety or sureties specified by the Board for faithful performance of the duties of his/her office and for restoration to the Aquatic Science Center of all its books, papers, vouchers, money, and other property of every kind in the possession or control of the Treasurer upon death, resignation, retirement, or removal from office.

9.7 Fees and Compensation of Officers.

The officers may receive such reimbursement of expenses as may be determined by resolution of the Board to be just and reasonable.

ARTICLE 10 – MEMBER INDEMNITY

The Aquatic Science Center shall carry during the entire term of this Agreement, liability insurance coverage, naming the Members as additional insured parties, in such kind and amounts as the Board ay from time to time determine to be appropriate. Such cost shall be incurred by the Aquatic Science Center.

The Aquatic Science Center shall indemnify and hold harmless each Member, its officers, agents, employees, and each Director and Alternate Director from and against all claims, demands or liabilities, including legal costs, arising out of or encountered in connection with the JPA or these Bylaws and the activities conducted hereunder and shall defend them and each of them against any claim, cause of action, liability or damage resulting therefrom.

ARTICLE 11 – ADMISSION, WITHDRAWAL, SUSPENSION, AND EXPULSION

11.1 Conditions for Admission of a New Member.

No new Member shall be added to the Aquatic Science Center unless such prospective new Member:

(a) adopts a resolution approving entry into the Aquatic Science Center, designating the requisite number of Directors, acknowledging and agreeing to be bound by these Bylaws and, in the case of a new Signatory, authorizing the execution of the Agreement; and

(b) is approved for admission to the Aquatic Science Center by a vote of at least two-thirds (2/3) of the authorized Directors of the Board.

11.2 Conditions to Permitting Withdrawal of a Member.

A Member may withdraw provided that the following conditions are satisfied:

(a) such Member is not in default of any of its obligations owed to Aquatic Science Center;

(b) such withdrawal will not cause the Aquatic Science Center to be in default or breach of any agreement to which it is a party, or of any bond or other evidence of indebtedness issued by the Aquatic Science Center;

(c) not later than thirty (30) days immediately preceding the effective date of such withdrawal, such Member has provided written notice to the Aquatic Science Center of its intent to withdraw;

(d) such withdrawal is effective on thirty (30) days notice;

(e) with respect to the withdrawal of a Signatory, the Aquatic Science Center will have at least two (2) Signatories after such withdrawal. In the event that such withdrawal would leave the Agreement with only one Signatory, said Signatory may not withdraw until all principal of and interest on any and all bonds and other evidences of indebtedness issued by the Aquatic Science Center have been paid in full;

(f) in connection with the termination of the Aquatic Science Center pursuant to Article 16, compliance with the requirements of such Article 16 shall be deemed sufficient for all Members to withdrawal from Membership in the Aquatic Science Center;

(g) a notice of withdrawal may be revoked within thirty (30) days.

11.3 Conditions to Permitting Suspension of a Member.

The Aquatic Science Center may suspend a Member from the Aquatic Science Center subject to the following conditions:

(a) the Member is in default under the terms of the Agreement, these Bylaws, any contract executed by the Member in connection with any the Aquatic Science Center program, any bond or other evidence of indebtedness for which the Member has agreed to assume responsibility, in whole or in part;

(b) the Aquatic Science Center has given written notice of the default described in subsection 11.3(a) to the defaulting Member; and

(c) not earlier than thirty (30) days after transmittal of the notice and not later than the sixty (60) days immediately preceding the effective date of such suspension, two-thirds (2/3) of the authorized Directors votes to suspend said Member.

11.4 Conditions to Permitting Expulsion of a Member.

The Aquatic Science Center may expel a Member from the Aquatic Science Center provided that:

(a) the Member is in default under the terms of the Agreement, these Bylaws, any contract executed by the Member in connection with any the Aquatic Science Center program, any bond or other evidence of indebtedness for which the Member has agreed to assume responsibility, in whole or in part;

(b) the Aquatic Science Center has given written notice of the default described in subsection 11.4(a) to the defaulting Member; and

(c) not earlier than thirty (30) days after transmittal of the notice and not later than the sixty (60) days immediately preceding the effective date of such expulsion, two-thirds (2/3) of the authorized Directors votes to expel said Member.

ARTICLE 12 – FEES

No fees may be assessed to join or continue membership in the Aquatic Science Center.

ARTICLE 13 – ADMINISTRATIVE AGENCY

The San Francisco Estuary Institute (SFEI) is designated in the Agreement as the administrative agency for the Aquatic Science Center. As such, pursuant to an administrative service agreement, SFEI will provide necessary services to administer and execute the purposes of the JPA for the Aquatic Science Center.

ARTICLE 14 – PURCHASE OF INSURANCE

In conformance with the procedures and criteria developed by it, the Board may cause the Aquatic Science Center to purchase commercial insurance or reinsurance or terminate commercial insurance or reinsurance upon a majority vote.

ARTICLE 15 – EVENTS OF DEFAULT AND REMEDIES

15.1 Events of Default Defined.

The following are "events of default" under the Agreement and these Bylaws, and the terms "events of default" and "default" means, whenever they are used in the Agreement and these Bylaws, with respect to a Member, any one or more of the following events:

(a) failure by such Member to observe and perform any covenant, condition or agreement on its part to be observed or performed under the Agreement, to comply with these Bylaws or to comply with any Aquatic Science Center program requirement (including but not limited to any contract executed by the Member in connection with any program, any bond or other evidence of indebtedness for which the Member has agreed to assume responsibility, in whole or in part) for a period of thirty (30) days after written notice specifying such failure and requesting that it be remedied has been given to such Member by the Aquatic Science Center or the Secretary; provided, however, if the failure stated in the notice cannot be corrected within the applicable period, the Aquatic Science Center, or the Secretary, as the case may be, will not unreasonably withhold its consent to an extension of such time if corrective action is instituted by the Member within the applicable period and diligently pursued until the default is corrected. After such an extension, failure to diligently pursue or to achieve corrective action is a separate "event of default" under this clause requiring notice but not requiring that the Aquatic Science Center consent to any extension;

(b) the filing by such Member of a case in bankruptcy, or the subjection of any right or interest of such Member under the Agreement or these Bylaws to any execution, garnishment or attachment, or adjudication of such Member as bankrupt, or assignment by such Member for the benefit of creditors, or the entry by such Member into an agreement of composition with creditors, or the approval by a court of competent jurisdiction of a petition applicable to the Member in any proceedings instituted under the provisions of the Federal Bankruptcy Code, as amended, or under any similar act which may hereafter be enacted;

(c) action taken by the Member to withdrawal from or repudiate membership in the Aquatic Science Center in violation of, or inconsistent with, the Agreement or these Bylaws; or

(d) the failure of the Director or Alternative Director of such Member to attend at least fifty percent of the board meetings in a given twelve-month period;

15.2 Remedies on Default.

(a) Whenever any event of default referred to in paragraph 15.1(a) of this Article has occurred and is continuing, it will be lawful for the Aquatic Science Center to exercise any and all remedies available pursuant to law or granted pursuant to the Agreement and these Bylaws.

(b) In the event that the Aquatic Science Center elects to expel any defaulting Member, subject to the conditions described and in the manner provided in Section 11.4 of these Bylaws, the Member nevertheless agrees to pay the Aquatic Science Center all costs, losses or damages arising or occurring as a result of such default and termination, and administrative and legal costs incurred in noticing the default and effecting the expulsion. No such expulsion becomes effective, by operation of law or otherwise, unless and until the Aquatic Science Center has given written notice of such expulsion to the Member; no such expulsion will be effected either by operation of law or acts of the parties hereto, except only in the manner herein expressly provided; and no such expulsion terminates the obligation of the expelled Member to pay any fees assessed prior to such expulsion.

15.3 No Remedy Exclusive.

No remedy conferred herein upon or reserved to the Aquatic Science Center is intended to be exclusive and every such remedy is cumulative and is in addition to every other remedy given under the Agreement or these Bylaws, now or hereafter existing at law or in equity. No delay or omission to exercise any right or power accruing upon any default impairs any such right or power or will be construed to be a waiver thereof, but any such right and power may be exercised from time to time and as often as may be deemed expedient. In order to entitle the Aquatic Science Center to exercise any remedy reserved to it in these Bylaws, it is not necessary to give any notice, other than such notice as may be required in these Bylaws or by law.

15.4 Agreement to Pay Attorneys' Fees and Expenses.

In the event either the Aquatic Science Center or any Member, should be in default under any of the provisions of these Bylaws and the nondefaulting party should employ attorneys or incur other expenses for the collection of moneys or the enforcement of performance or observance of any obligation or agreement on the part of the defaulting party, the defaulting party agrees that it will on demand therefor pay to the nondefaulting party the reasonable fees of such attorneys and such other expenses so incurred by the nondefaulting party.

15.5 No Additional Waiver Implied by One Waiver.

In the event any agreement contained in the Agreement and these Bylaws should be breached by either party and thereafter waived by the other party, such waiver will be limited to the particular breach so waived and will not be deemed to waive any other breach hereunder.

ARTICLE 16 – TERMINATION

16.1 Time of Termination.

The Aquatic Science Center may be terminated upon the written consent of all of the Members if the effective termination date and such written consents are delivered to the Aquatic Science Center and the Secretary at least sixty (60) days prior to the effective termination date provided that all principal of and interest on any and all bonds and other evidences of indebtedness issued by the Aquatic Science Center are paid in full.

16.2 Continuing Obligations.

After the termination date, the Aquatic Science Center will continue to be obligated to pay, or cause to be paid any amounts due for winding up its affairs, including but not limited to any litigation costs and/or extraordinary costs associated with a financing transaction.

16.3 Distribution of Assets.

In the event any assets remain after winding up the affairs of the Aquatic Science Center, the Board shall either return any assets to the Member or other entity which provided such asset to Aquatic Science Center, or shall sell the assets, in accordance with California law, and distribute the funds according to Section 16.4.

16.4 Distribution of Funds.

In the event any surplus money remains on hand after winding up the affairs of the Aquatic Science Center, such sums will be returned to the Members in proportion to the contributions made.

ARTICLE 17 – AMENDMENTS

17.1 Amendment by Directors.

Subject to the limitations set forth below, the Board may adopt, amend or repeal Bylaws. Such power is subject to the following limitations:

(a) The Board may not amend any provision of these Bylaws which requires the vote of a larger proportion of Directors than a simple majority, except by vote of such larger number of Directors.

(b) The Board may not delete or amend Bylaw provisions requiring compliance with the Agreement.

(c) The Board may not delete or amend Bylaw provisions contained in Article 4, paragraph 7.1(b), 7.3, 7.4(d), 7.9, 7.10, Article 11, Article 12, Article 13, Article 14, Article 15, Article 16, and Article 17.

ARTICLE 18 – RECORDS AND REPORTS

18.1 Maintenance of the Aquatic Science Center Records.

The Aquatic Science Center will keep at the Aquatic Science Center's principal office:

(a) a copy of the Agreement and these Bylaws;

(b) adequate and correct books and records of account; and

(c) minutes in written form of the proceedings of its Board and committees of the Board.

18.2 Inspection Rights.

(a) Any Member may inspect the Agreement, Bylaws, accounting books and records and minutes of the proceedings of the Board and committees of the Board, at any reasonable time, for a purpose reasonably related to such person's interest in the business of the Aquatic Science Center.

(b) Any inspection and copying under this section may be made in person or by an agent or attorney or the entity entitled thereto and the right of inspection includes the right to copy and make extracts. The Aquatic Science Center may charge reasonable fees associated with the provision of such copies or extracts.

18.3 Inspection by Directors.

Every Director has the absolute right at any reasonable time to inspect all non-confidential books, records, and documents of every kind and the physical properties of the Aquatic Science Center. This inspection by a Director may be made in person or by an agent or attorney, and the right of inspection includes the right to copy and make extracts of documents. The Aquatic Science Center may charge reasonable fees associated with the provision of such copies or extracts.

18.4 Financial Report.

(a) As soon as possible after the close of the Aquatic Science Center's fiscal year, the Board will cause an annual report prepared by BACWA's auditor and sent to the governing body of each Member.

(b) The report required by this section will be accompanied by any report thereon of independent accountants, or, if there is no such report, by the certificate of an authorized officer of the Aquatic Science Center that such statements were prepared without audit from the books and records of the Aquatic Science Center.

18.5 Fiscal Year.

The Aquatic Science Center's fiscal year is July 1 to June 30.

ATTACHMENT 2a-3

BYLAWS OF THE SAN FRANCISCO ESTUARY INSTITUTE

Adopted May 20, 1994
Amended July 16, 1997
Amended April 23, 2001
Amended May 28, 2002
Amended June 3, 2010
Amended September 9, 2011
Amended December 5, 2012

BYLAWS OF THE SAN FRANCISCO ESTUARY INSTITUTE

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1. OFFICES

1.1 PRINCIPAL OFFICE

The principal office of the corporation for the transaction of its business is located in Contra Costa County, California.

1.2 CHANGE OF ADDRESS

The county of the corporation's principal office can be changed only by amendment of these Bylaws and not otherwise. The Board of Directors may, however, change the principal office from one location to another within the named county.

2. PURPOSES

2.1 OBJECTIVE AND PURPOSE

The primary objective and purpose of this corporation shall be to describe the health of the Estuary in scientifically objective terms and to provide the scientific understanding needed to manage the complex and biologically rich San Francisco Bay-Delta Estuary. The Institute will accomplish its purpose through the implementation of a coordinated, cooperative monitoring, research, data management and education program designed to produce information that (1) addresses management needs, (2) guides decision-makers, and (3) educates and informs the public. The Institute will accomplish these goals through a combination of the work of its staff, contractual activities, and coordination and cooperation with appropriate federal, state, and local agencies, educational and research institutions, business and industry, and other non-governmental organizations. The Institute shall focus its efforts on the development and distribution of sound scientific information. It may objectively evaluate the consequences of existing or proposed management approaches, but will not advocate, lobby for, or formally recommend specific laws, regulations, standards or other management activities governing use of the resources of the San Francisco Bay-Delta Estuary.

3. MEMBERS

3.1 CLASSES OF MEMBERS

There shall be two classes of members in this corporation: (1~~) Directors~~Voting members, and (2) Non-voting members.

3.2 VOTING MEMBERS

The Board of Directors will be responsible for any action which, under Section 5310(b)(1) of the Nonprofit Public Benefit Corporation Law of the State of California, or

the provisions of the Articles of Incorporation, or the Bylaws of this corporation, requires approval of the members. All rights which would otherwise vest in the members under the law, the Articles of Incorporation, or the Bylaws of this corporation shall vest in the Directors of this corporation.

3.3 NON-VOTING MEMBERS

The Board of Directors may create, and from time to time may modify, categories of non-voting members. Furthermore, it may establish dues for such membership categories, and bestow certain benefits upon such membership categories. Non-voting members shall have only those rights and privileges which are specifically granted to them by the Board of Directors. The Board of Directors may not delegate any of the powers or duties vested in the Directors to the non-voting members of this corporation.

4. DIRECTORS

4.1 NUMBER AND AFFILIATION

The corporation shall have ~~at least seven (7) and~~ no more than ~~fifteen~~ twenty-one (21~~15~~) directors and collectively they shall be known as the Board of Directors.

The Board of Directors shall be composed of persons with demonstrated interest or expertise related to the goals and objectives of this corporation. Members of the Board shall be selected so as to assure a balance of environmental, business and user groups, regulatory and management and scientific interests are represented. In selecting new members, or in replacing members whose terms have expired, the Board shall solicit nominations from a wide variety of governmental, nongovernmental and private organizations that have an interest in the use, conservation, or management of the resources of the Estuary.

The Board shall include, at all times, two or more members who represent organizations which participate financially in the Regional Monitoring Program for Water Quality ~~Trace Substances,~~ two or more members with a demonstrated commitment to protection of the Estuary, and two or more members representing the scientific research community. The Board shall take care to ensure that a balance of interests in use and protection of the Estuary is maintained within its membership and that expertise in science and management is present.

In addition to voting members, the Board may include members or liaisons who serve *ex officio* on behalf of any the federal, state, or local agencies involved in regulation, planning, management or research related to the waters, wetlands, watersheds or other resources of the San Francisco Estuary area. These individuals shall receive official notice of all meetings and have standing to present their views on all matters before the Board and may serve on standing or *ad hoc* committees, but shall not vote. Nothing in this section shall prevent an employee of a public agency from serving ~~in~~ as a voting

member of the Board as a private individual based upon personal interest, if the rules of their employing agency allow and no conflict of interest is created.

4.2 POWERS

Subject to the provisions of the California Nonprofit Public Benefit Corporation Law and any limitations in the Articles of Incorporation and Bylaws relating to action required or permitted to be taken or approved by the members, if any, of this corporation, the activities and affairs of this corporation shall be conducted and all corporate powers shall be exercised by or under the direction of the Board of Directors.

4.3 GENERAL DUTIES

(a) Perform any and all duties imposed on them collectively or individually by law, by the Articles of Incorporation of this corporation, or by these Bylaws,

(b) Appoint and remove, employ and discharge, and, except as otherwise provided in these Bylaws, prescribe the duties and fix the compensation of the Executive Officer and employees and agents of the corporation,

(c) Meet at such times and places as required by these Bylaws,

(d) Register their addresses with the Secretary of the corporation, and notices of meetings mailed or electronically transmitted to them at such addresses shall be valid notices thereof,

(e) Accept or reject all proposed contracts with the Institute for monitoring or special studies, unless specifically delegated to the Executive Officer,

(f) Adopt, amend, and implement a Regional Monitoring Strategy and a Regional Research Plan for the Estuary,

(g) Adopt an annual work plan and budget for the Institute,

(h) Adopt the annual report of the Institute, and

(i) Appoint committees as needed to assist the Board.

4.4 SPECIAL DUTIES

In addition to the above duties, members of the Board, if elected, will serve as Officers of the corporation. One Director will be elected by the Board to serve as Chairperson of the Board, ~~one~~ two Directors will be elected to serve as Vice-Chairpersons, one Director will be elected to serve as Secretary, and one director will be elected to serve as Treasurer.

4.5 ELECTION OF OFFICERS

The election of officers of the Board shall be held biennially at the first regular meeting of the Board and as necessary thereafter to select Directors to serve as Chairperson, Vice-Chairpersons, Secretary, and Treasurer. The term for each officer shall be two years. An elected officer may succeed himself/herself and may serve any number of consecutive or non-consecutive terms.

~~Officers may serve no more than two terms in any one office, however, any officer may move to a different office.~~

4.6 DUTIES OF CHAIRPERSON

The Chairperson shall, subject to the control of the Board of Directors, supervise and control the affairs of the Board. The Chairperson shall, subject to the control of the Board of Directors, supervise and control the affairs of the corporation and the activities of the officers of the Board. The Chairperson shall perform all duties incident to his or her office and such other duties as may be required by Law, by the Articles of Incorporation of this corporation, or by these Bylaws, or which may be prescribed from time to time by the Board of Directors.

4.7 DUTIES OF VICE-CHAIRPERSON

In the absence of the Chairperson, or in the event of his or her inability or refusal to act, the Vice-Chairperson shall perform all the duties of the Chairperson, and when so acting, shall have all the powers of, and be subject to all the restrictions on, the Chairperson. The Vice-Chairperson shall have other powers and perform such other duties as may be prescribed by law, by the Articles of Incorporation, or by these Bylaws, or as may be prescribed by the Board of Directors.

4.8 DUTIES OF SECRETARY

The Secretary shall:

(a) Certify and keep at the principal office of the corporation the original, or a copy, of these Bylaws as amended or otherwise altered to date;

(b) Keep at the principal office of the corporation or at such other place as the Board may determine; a book of minutes of all meetings of the Directors; and, if applicable, meetings of committees of Directors, recording therein the time and place of holding, whether regular or special, how called, how notice thereof was given, the names of those present or represented at the meeting, and the proceedings thereof;

(c) See that all notices are duly given in accordance with the provisions of these Bylaws or as required by law;

(d) Be custodian of the records and of the seal of the corporation and see that the seal is affixed to all duly executed documents, the execution of which on behalf of the corporation under its seal is authorized by law or by these Bylaws;

(e) Exhibit at all reasonable times to any Director of the corporation, to his or her agent or attorney, or to any member of the public on request therefore, the Bylaws and the minutes of the proceedings of the Directors of the corporation;

(f) In general, perform all duties incident to the office of Secretary and such other duties as may be required by law, by the Articles of Incorporation of this corporation, or by these Bylaws, or which may be assigned to him or her from time-to-time by the Board of Directors.

4.9 DUTIES OF TREASURER

Subject to the provisions of these Bylaws relating to the "Execution of Instruments, Deposits and Funds," the Treasurer shall:

(a) Have charge and custody of, and be responsible for, all funds and securities of the corporation, and deposit all such funds in the name of the corporation in such banks, trust companies, or other depositories as shall be selected by the Board of Directors;

(b) Receive, and give receipt for, monies due and payable to the corporation from any source whatsoever;

(c) Disperse or cause to be disbursed the funds of the corporation as may be directed by the Board of Directors, taking proper vouchers for such disbursements;

(d) Keep and maintain adequate and correct accounts of the corporation's properties and business transactions, including accounts of its assets, liabilities, receipts, disbursements, gains and losses;

(e) Exhibit at all reasonable times the books of accounts and financial records to any Director of the corporation, or to his or her agent or attorney, on request therefore;

(f) Render to the Directors, whenever requested, an account of any or all of his or her transactions as Treasurer and of the financial condition of the corporation;

(g) Prepare, or cause to be prepared, and certify, or cause to be certified, the financial statements to be included in any required reports;

(h) In general, perform duties incident to the office of Treasurer and such other duties as may be required by law, by the Articles of Incorporation of the corporation, or by these Bylaws, or which may be assigned to him or her from time-to-time by the Board of Directors.

4.10 COMPENSATION

Directors shall serve without compensation except that they shall be allowed and paid their actual and necessary expenses incurred in attending Directors meetings. In addition they shall be allowed reasonable advancement or reimbursement for expenses incurred in the performance of their regular duties as specified in Section 3 of this Article. Individual Directors shall not be compensated for rendering services to the corporation in any capacity other than Director.

4.11 NON-LIABILITY OF DIRECTORS

The Directors shall not be personally liable for the debts, liabilities, or other obligations of the corporation.

4.12 INDEMNIFICATION BY CORPORATION OF DIRECTORS, OFFICERS, EMPLOYEES AND OTHER AGENTS

To the extent that a person who is, or was, a Director, employee or other agent of this corporation has been successful on the merits in defense of any civil, criminal, administrative or investigative proceeding brought to procure a judgment against such person by reason of the fact that he or she is, or was, an agent of the corporation, or has been successful in defense of any claim, issue or matter therein, such person shall be indemnified against expenses actually and reasonably incurred by the person in connection with such proceeding.

If such person either settles any such claim or sustains a judgment against him or her, then indemnification against expenses, judgments, fines, settlements and other amounts reasonably incurred in connection with such proceedings shall be provided by this corporation, but only to the extent allowed by, and in accordance with the requirements of, Section 5238 of the California Nonprofit Public Benefit Corporation Law.

4.13 INSURANCE FOR CORPORATE AGENTS

The Board of Directors may adopt a resolution authorizing the purchase and maintenance of insurance on behalf of any agent of the corporation (including a Director, employee or other agent of the corporation) against any liability other than for violating provisions of law relating to self-dealing (Section 5233 of the California Nonprofit Public Benefit Corporation Law) asserted against or incurred by the agent in such capacity or arising out of the agent's status as such, whether or not the corporation would have the power to indemnify the agent against such liability under the provisions of Section 5238 of the California Nonprofit Public Benefit Corporation Law. The Board of Directors may also adopt a resolution authorizing the purchase and maintenance of a Treasurer's Bond and insurance against errors and omissions.

4.14 VACANCIES

Vacancies on the Board of Directors shall exist upon the death, resignation, or removal of any Director. It shall be the responsibility of the Chairperson of the Board to inform the appropriate organizations or interests when a vacancy occurs on the Board of Directors. Any Director may resign effective upon giving written notice to the Chairperson of the board. No Director may resign if the corporation would then be left without a duly elected number of Directors in charge of its affairs, except upon notice to the Attorney General.

4.15 SELECTION OF DIRECTORS

All Directors shall be chosen by a vote of the majority of sitting members of the Board. ~~The Board shall maintain a nominating committee which will solicit nominations and review credentials as needed prior to recommending new members to the Board.~~ The Board may seek and appoint new members at any time as needed to replace members who vacate their seat for any reason or to increase the expertise or experience of the Board, so long as the total number of voting Directors does not exceed ~~fifteen~~ twenty-one (21~~15~~). In appointing new members, the Board shall ensure that a balance of interests in use and protection of the Estuary is maintained within its membership and that expertise in science and management is present.

4.16 TERMS OF OFFICE

The term of a Director shall be three years. Directors may be reappointed for unlimited successive terms. Terms for one-third of the Board members expire each year on June 30. A partial term shall be considered a full term.

5. MEETINGS

5.1 PLACE OF MEETINGS

Meetings of the Board of Directors shall be held at the principal office of the corporation unless otherwise provided by the Board or at such place within the State of California which has been designated from time to time by resolution of the Board of Directors. In the absence of such designation, any meeting not held at the principal office of the corporation shall be valid only after all Board members have been given written notice of the meeting.

5.2 OPEN MEETINGS

All regular meetings of the Board of Directors shall be open to the public. The public, users, and other interested persons may appear and participate at the open meetings.

5.3 REGULAR MEETINGS

Regular meeting dates shall be determined by the Board at its first meeting.

5.4 SPECIAL MEETINGS

Special meetings of the Board of Directors may be called by the Chairperson of the Board, or by any two Directors, and such meetings shall be held at the place, within the State of California, designated by the person or persons calling the meeting, or in the absence of such designation, at the principal office of the corporation.

In the event of an emergency requiring immediate action by the Board, a meeting may be held by a telephone conference call provided that all Directors are given at least three days notice of the call, any resolution to be voted on is provided in advance in writing, a quorum is obtained, and attendance and minutes are recorded in the same manner as for regular meetings. In the event of an emergency or in the event of routine administrative action requiring formal Board approval, when a quorum cannot be obtained, voting on a Board resolution may be conducted via facsimile. All such votes shall be on the matter as presented, and no amendments can be tendered. In the event that a decision is rendered through conference call or via facsimile, a vote of confirmation shall be conducted at the next regular meeting of the Board.

5.5 QUORUM FOR MEETINGS

For the purpose of conducting SFEI business, a majority of the SFEI Directors shall constitute a quorum ~~quorum shall consist of a simple majority of the voting members of the Board~~.

For the purpose of conducting joint business for both SFEI and the Aquatic Science Institute, a majority of the authorized directors of SFEI, which must include at least three directors representing one or both of the Aquatic Science Center signatory Agencies, shall constitute a quorum.

No business shall be considered by the Board of Directors unless a quorum is present. If a quorum is not present, the Chairperson shall adjourn the meeting and no action shall be taken. A meeting at which a quorum is initially present may continue to transact business, notwithstanding the withdrawal of Directors, if any action taken is approved by at least a majority of the quorum for that meeting, or if a supermajority is required, by the supermajority of the quorum for that meeting.
~~If the quorum is lost, the Chairperson shall adjourn the meeting and no further action shall be taken.~~

5.6 CONDUCT OF MEETINGS

Meetings of the Board of Directors shall be presided over by the Chairperson of the Board or, in the absence of the Chairperson, the Vice-Chairperson.

If neither the Chairperson or Vice-Chairperson is present, an acting Chairperson shall be selected by majority vote.

5.7 RULES OF PROCEDURE

~~Meetings of the Board shall be governed by Roberts Rules of Order Rules, as they may be revised from time to time,~~ The Board may adopt rules of order to govern the conduct and procedure of Board meetings, insofar as such rules are not in conflict with these Bylaws, with the Articles of Incorporation of this corporation, or with the provisions of Government Code Section 11120-11131.

6. COMMITTEES

6.1 AD HOC COMMITTEES

Upon written notice to all Members, the Chair may designate one (1) or more ad hoc advisory committees or a subcommittee of any such committee, each consisting of two (2) or more Directors, to be ratified by and serve at the pleasure of the Board, and to exercise such powers as may be delegated to it, except that no ad hoc committee may:

(a) Take any action on the exercise of such powers designated under Article 4.2;

(b) Take any final action on matters which, under the Agreement or these Bylaws, requires approval a majority or supermajority vote of Board;

(c) Amend or repeal Bylaws or adopt new Bylaws;

(d) Amend or repeal any resolution of the Board which by its express terms is not so amendable or repealable;

(e) Fill any vacancy in a committee, create any other committee of the Board or appoint members to such committees; or

(f) Approve any transaction (i) to which SFEI is a party and one or more Directors have a material financial interest; or (ii) between SFEI and one or more of its Directors or SFEI or any person in which one or more of its Directors have a material financial interest.

6.2 STANDING COMMITTEES

The Board of Directors may appoint and dissolve Standing Committees, as deemed appropriate, with a simple majority of vote. With the exception of an external **Audit Committee**, which shall be comprised of the Treasurer and two (2) or more individuals not serving on the Board of Directors, each standing committee shall be comprised of two

(2) or more Directors, to be ratified by and serve at the pleasure of the Board, and to exercise the same powers as may be delegated to *ad hoc* committees.

6.3 MEETING AND ACTIONS OF COMMITTEES

Meetings and action of Board committees will be governed by, and held and taken in accordance with, the provisions of Article 5 of these Bylaws concerning meetings of Directors. A summary of minutes will be kept of each meeting of any committee and will be filed with the Secretary of SFEI.

7. EXTERNAL SCIENCE OVERSIGHT

7.1 PURPOSE

The Board of Directors shall receive the advice, analysis, and guidance of individual external science advisors and reviewers as well as standing and *ad hoc* advisory committees, as necessary, on such matters as the following:

(a) Design and implementation of a Regional Monitoring Strategy and a Regional Research Plan for the Estuary;

(b) Development of annual science work plans and budgets;

(c) Reviews of technical studies, reports, analyses, new program or project proposals, and other products prepared by Institute staff members.

7.2 ORGANIZATION OF SCIENTIFIC REVIEW

The Board of Directors shall determine the types of scientific advice or review needed to ensure the appropriateness, validity, and objectivity of the technical work accomplished by Institute staff members. The Board of Directors will seek out advice and/or reviews by individual outside technical experts or by standing or *ad hoc* committees, all of whom will serve at the pleasure of the Board of Directors. The science representatives on the Board Directors will prepare, for Board consideration and approval, nominations of individuals appropriate to serve in the capacity of individual or committee advisors/reviewers based on recognized expertise in those fields relevant to the work of the Institute.

The Board of Directors will specify both the format and the recipient of the requested advice or review. In some cases, the requested report will be submitted to the Board for its deliberation and action; in other cases the report will be submitted to the Executive Director. In all cases, advisory or review reports will be prepared and submitted in writing.

The Board of Directors will review the membership of standing committees at least once every three years to ensure that the membership adequately reflects the responsibilities of the Committee.

7.3 COMPENSATION

External science advisors/reviewers shall be entitled to compensation for each day worked at the request of the Board of Directors. The Board of Directors may waive compensation and expenses when, as a matter of policy, the member's employer provides compensation and expenses to the member while the member is engaged in Institute business. The Board of Directors shall set the rate of compensation. Each member shall be entitled to receive his or her necessary expenses for each day while on business at the request of the Board of Directors.

7.4 MEETINGS

The Executive Director will arrange meetings of external reviewers or advisors with Institute staff members or the Board of Directors, as required.

Standing advisory/review committees shall meet on a mutually agreed-upon frequency, depending on the task(s). The Chairperson of any such committee may call additional meetings, with notification of the Executive Director.

8. EXECUTIVE DIRECTOR

8.1 QUALIFICATIONS

The Corporation shall employ a full-time Executive ~~Officer~~ Director whose qualifications shall be determined by the Board of Directors.

8.2 DUTIES

The Executive Director shall supervise the day-to-day work of all agents and employees of the corporation. The Executive Director shall carry out those duties specified by the Board of Directors, including but not limited to: ensuring the employment of a sufficient office staff and employment of an accountant, by contract or otherwise, to keep proper fiscal records and make necessary tax filings; coordinating of activities of the corporation with other environmental monitoring, research, data management, and public education activities performed on the San Francisco Estuary; preparing contracts, and funding and working agreements; and arranging for Board meetings.

The Executive Director shall constitute and organize meetings for advisory panels or committees at the direction of the Board of Directors.

The Executive Director shall attend all meetings of the Board of Directors.

The Board of Directors may, by resolution, delegate additional duties and responsibilities to the Executive Officer, provided that they may not delegate responsibility for adoption of an annual budget and work program or approval of the annual report.

9. EXECUTION OF INSTRUMENTS, DEPOSITS AND FUNDS

9.1 EXECUTION OF INSTRUMENTS

The Board of Directors, except as otherwise provided in these Bylaws, may by resolution authorize the Executive ~~Officer~~ Director of the corporation to enter into any contract or execute and deliver any instrument in the name, and on behalf, of the corporation, and such authority may be general or confined to specific instances. Unless so authorized, the Executive Officer shall not have any power or authority to bind the corporation by any contract or engagement, or to pledge its credit or to render it liable monetarily for any purpose or in any amount.

9.2 CHECKS AND NOTES

Except as otherwise specifically determined by resolution of the Board of Directors, or as otherwise required by law, checks, drafts, promissory notes, orders for the payment of money, and other evidence of indebtedness shall be countersigned by the Treasurer.

9.3 DEPOSITS

All funds of the corporation shall be deposited from time-to-time to the credit of the corporation in such banks, trust companies, or other depositories as the Board of Directors may select.

9.4 GIFTS

The Board of Directors may accept on behalf of the corporation any contribution, gift, bequest, or device for the charitable or public purposes of this corporation.

10. CORPORATE RECORDS, REPORTS AND SEAL

10.1 MAINTENANCE OF CORPORATE RECORDS

The corporation shall keep at its principal office in the State of California:

(a) Minutes of all meetings of Directors and committees of the Board indicating the time and place of holding such meetings, whether regular or special, how called, the notice given, and the names of those present, and the proceedings thereof;

(b) Adequate and correct books and records of accounts, including accounts of its properties and business transactions, and accounts of its assets, liabilities, receipts, disbursements, gains and losses;

(c) A copy of the corporation's Articles of Incorporation and Bylaws as amended to date, which shall be open to inspection at all reasonable times during office hours.

10.2 CORPORATE SEAL

The Board of Directors may adopt, use, and at will, alter a corporate seal. Such seal shall be kept at the principal office of the corporation. Failure to affix the seal to corporate instruments, however, shall not affect the validity of any such instrument.

10.3 DIRECTOR'S INSPECTION RIGHTS

Every Director shall have the absolute right at any reasonable time to inspect and copy all books, records, and documents of every kind and to inspect the physical properties of the corporation.

10.4 RIGHT TO COPY AND MAKE EXTRACTS

Any inspection under the provisions of this Article may be made in person or by agent or attorney and the right to inspection includes the right to copy and make extracts.

10.5 ANNUAL REPORT

The Board shall cause an annual report to be furnished not later than one hundred and eighty (180) days after the close of the corporation's fiscal year to all Directors of the corporation.

This annual report shall contain the following information in appropriate detail:

(a) The assets and liabilities, including the trust funds, of the corporation as of the end of the fiscal year;

(b) The principal changes in assets and liabilities, including trust funds, during the fiscal year;

(c) The revenue or receipts of the corporation, both unrestricted and restricted to particular purpose, for the fiscal year;

(d) The expenses or disbursements of the corporation for such general and restricted purposes during the fiscal year;

(e) The monitoring, research, data management and education activities of the corporation.

11. FISCAL YEAR

11.1 FISCAL YEAR OF THE CORPORATION

The fiscal year of the corporation shall begin on the first day of January of each year and end on the last day of December of the same year.

12. BYLAWS

12.1 AMENDMENT

Subject to any provision of law applicable to the amendment of Bylaws of public benefit nonprofit corporations, these Bylaws, or any part thereof, may be altered, amended, or repealed by a vote of at least two-thirds of the members of the Board of Directors.

13. AMENDMENT OF ARTICLES

13.1 GENERAL AMENDMENTS

This corporation shall not amend its Articles of Incorporation to alter any statement which appears in the original Articles of Incorporation, nor the names and addresses of the first Directors of this corporation nor the name and address of its initial agent, except to correct an error in such statement or to delete such statement after the corporation has filed a "Statement by a Domestic Nonprofit Corporation" pursuant to Section 6210 of the California Nonprofit Corporation Law.

14. PROHIBITION AGAINST SHARING CORPORATE PROFITS AND ASSETS

14.1 PROHIBITION AGAINST SHARING CORPORATE PROFITS AND ASSETS

No Director, employee, or other person connected with this corporation, or any private individual, shall receive at any time any of the net earnings or pecuniary profit from the operations of the corporation, provided, however, that this provision shall not prevent payment to any such person of reasonable compensation for services performed for the corporation in effecting any of its public or charitable purposes; that such compensation is otherwise permitted by these Bylaws and is fixed by resolution of the Board of Directors; and that no such person or persons shall receive, any of the corporate assets on dissolution of the corporation.

ATTACHMENT 2a-4
Summary of By-Laws Provisions for ASC and SFEI and Recommended Changes
DRAFT – November 15, 2012

By-Law Provisions	San Francisco Estuary Institute - SFEI (public benefit corporation)	Aquatic Science Center – ASC Joint Powers Authority	Recommended Bylaws Changes - ASC	Recommended Bylaws Changes- SFEI
Definition of Director	The Board of Directors will be responsible for any action which, under Section 5310(b)(1) of the Nonprofit Public Benefit Corporation Law of the State of California, or the provisions of the Articles of Incorporation, or the Bylaws of this corporation, requires approval of the members.	"Director" shall mean the director appointed by a Member pursuant to these Bylaws.		
Composition	Balance of interests in use and protection of the Estuary. Balance of environmental, business and user groups, regulatory and management and scientific interests.	3 Directors appointed by each Signatory (BACWA and SWRCB) with up to 2 Alternates for each Director; Non-signatory members may be designated as non-voting or voting (note: EPA is a non-voting member)		Expand number of Directors from 15 to 21
Composition	2+ Directors with demonstrated commitment to protection of the Estuary			

ATTACHMENT 2a-4
Summary of By-Laws Provisions for ASC and SFEI and Recommended Changes
DRAFT – November 15, 2012

By-Law Provisions	San Francisco Estuary Institute - SFEI (public benefit corporation)	Aquatic Science Center – ASC Joint Powers Authority	Recommended Bylaws Changes - ASC	Recommended Bylaws Changes- SFEI
Composition	2+ organizations which participate financially in the Regional Monitoring Program			
Composition	2+ representatives of the scientific research community			
Composition	In addition to voting members, the Board may include members or liaisons who serve *ex officio* on behalf of any federal, state, or local agencies involved in regulation, planning, management or research related to the waters, wetlands, watersheds or other resources of the SF Estuary area.			
Number of Directors	At least 7, and no more than 15	Upon a 2/3 vote of the Board, the number of Directors on the Board may be expanded, but each Signatory shall have the same number of Directors	No changes needed, only a 2/3 vote to add new Directors based on the agreed-	Expand number of Directors from 15 to 21

		and any Member who is not a Signatory shall have no more than one Director for each three Directors appointed by each Signatory.	upon stakeholder categories	
By-Law Provisions	**San Francisco Estuary Institute - SFEI (public benefit corporation)**	**Aquatic Science Center – ASC Joint Powers Authority**	**Recommended Bylaws Changes - ASC**	**Recommended Bylaws Changes- SFEI**
Selection/Election	Directors voted by majority of the board	Directors appointed by Signatories and Members (Members are organizations)		
Officers	Chairperson, Vice-Chairperson, Secretary, and Treasurer.	Chair, Vice-Chair, Executive Director, Secretary and Treasurer. All Directors are eligible to serve as an elected officer.	Chairperson, two Vice-Chairs, Secretary, and Treasurer.	Chairperson, two Vice-Chairs, Secretary, and Treasurer Limited to two two-year terms
Terms	3 year terms with no limit	Directors appointed by Members, officer terms not to exceed 2 years with unlimited number of terms		
Quorum	Majority of Directors; Alternates are not authorized under CA nonprofit law	At least three Directors representing one or both of the Signatory Agencies; Alternate can act in place of a Director if absent	Require determination of separate, but overlapping quora for each meeting of the board of directors	Require determination of separate, but overlapping quora for each meeting of the board of directors

Voting Rights	All Directors, unless expressly designated as non-voting	All Directors, including non-signatory members, unless expressly designated as non-voting		
Other Considerations	Special meeting voting policy not reflected in bylaws	Brown Act and FPPC disclosure rules apply		No by-laws changes needed, but voting policy should be documented

Attachment 2b

Ad hoc SFEI/ASC Governance Committee Recommendations

Draft Descriptions for Proposed Standing Committees 11/19/12
Incorporating changes recommended by Governance Committee 8/29/12 and
Incorporating additional changes recommended by SFEI/ASC Boards 9/13/12

Board committees are accountable to the full Board, and are designed to enable the Board to carry out its duties and strategic objectives.

EXECUTIVE COMMITTEE

PURPOSE
To oversee the operations of the Board, act on behalf of the full Board on matters that require action between board meetings, and ensure that the full Board is carrying out its fiduciary responsibility to effectively oversee the financial affairs of SFEI/ASC.

COMPOSITION
The members of the Executive Committee are Directors who are officers of the Corporation -- Chair, Vice Chairs, Secretary and Treasurer -- plus any number of additional directors appointed by the Board. A Joint Powers Authority (JPA) signatory representative must serve on the Executive Committee at all times; if none of the Officers of the Corporation are representatives of JPA signatories, then the Executive Committee must appoint a JPA signatory representative to serve as an additional committee member.

PRIMARY ACTIVITIES

- The Executive Committee ensures that the Board regularly reviews the Board's and staff's progress on implementation of the strategic plan, and reviews and approves the agendas for full Board meetings.
- The Committee monitors the financial condition of SFEI/ASC with reference to the budget, including the fiscal aspects of contracts and grants, sets investment policies, and reviews major or extraordinary expenditures.
- The Committee also provides guidance to the Executive Director on facilities and human resource issues on an as-needed basis.
- The Committee oversees the annual evaluation process for the Executive Director.
- Establishes ad hoc committees and determines their duties on an as-needed basis.

GOVERNANCE COMMITTEE

PURPOSE
To ensure that SFEI/ASC has an effective, well-functioning, motivated Board that attracts Directors who can best advance the mission of San Francisco Estuary Institute and the Aquatic Science Center. The Governance Committee's primary functions are to assess the needs and performance and structure of the Board and its committees, to recruit and propose individuals to serve as Directors, officers and committee members, to evaluate current and prospective Directors, and to provide orientation and training for Directors to maximize the Board's effectiveness.

COMPOSITION
The Governance Committee is chaired by a member of the Board, and may be composed of both Board Members and Non-Members.

PRIMARY ACTIVITIES

- The Governance Committee ensures that a balance of interests in use and protection of the Estuary is maintained within the board's membership, and that the expertise in science and management is sufficient to carry out its legal and fiduciary responsibilities.

- The Governance Committee develops and implements an annual board recruitment plan, solicits nominations and reviews credentials prior to recommending new members to the Board.

- The Governance Committee ensures that newly elected Board Members are welcomed and receive proper board orientation.

- The Governance Committee develops and revises the Board Member job description, and descriptions for Board Officers, Board Committees and Committee Chairs.

- The Committee ensures that the board evaluates its own performance annually, and that individual Board Members are engaged and participating actively in the affairs of the Board.

- The Governance Committee maintains/updates the board manual and Board Bylaws. The Committee is advisory to the full Board and the Executive Committee, the Chair of the Board and the Executive Director.

RESOURCE DEVELOPMENT COMMITTEE

PURPOSE
To advance SFE/ASC's funding and communications strategies in support of increasing diversity of income streams and greater organizational visibility.

COMPOSITION
The Resource Development Committee is chaired by a member of the Board, and may be composed of both Board Members and Non-Members.

PRIMARY ACTIVITIES

- The Resource Development Committee works with the Executive Director and members of the staff to develop annual and longer-term resource development plans designed to provide adequate funding for SFEI/ASC/ASC's core activities and strategic initiatives.

- The committee oversees and ensures the effectiveness of board member-driven fundraising and earned income-focused activities resulting from SFEI/ASC resource development plans.

- The Resource Development Committee works with staff to identify ways that board members can serve as ambassadors for SFEI/ASC, in order to raise the organization's profile and to build new and stronger relationships, both within and outside of government.

PROGRAMS COMMITTEE (SCIENCE OVERSIGHT COMMITTEE)

PURPOSE
To ensure that the Board is appropriately providing oversight of the technical and scientific work accomplished by SFEI/ASC staff members. To assess whether staff is overlooking or avoiding critical issues or questions that might substantively change the nature of scientific projects and/or products.

COMPOSITION
The Programs Committee is chaired by a member of the Board, and may be composed of both Board Members and Non-Members.

PRIMARY ACTIVITIES

- The Programs Committee develops the process by which the Board of Directors receives the advice, analysis, and guidance necessary to carry out its fiduciary responsibility in ensuring the scientific integrity and relevance of the work of SFEI/ASC/ASC, consistent with strategic goals and objectives.

- The Programs Committee advises the Board on the types of advice and review needed, and helps develop the metrics and oversight activities that best ensure that SFEI/ASC programs, initiatives, and projects advance the mission and strategic goals of SFEI/ASC, and that they are implemented in ways that reflect objective, unbiased science in service to all stakeholders.

- The Programs Committee oversees the identification, recruitment and engagement of individual external science advisors, as well as *ad hoc* advisory committees, as necessary, to provide the full Board with appropriate, periodic outside assessment of scientific directions, methods, scientific and technical products produced by SFEI/ASC staff, and the reputation SFEI/ASC in the broader scientific community.

- The Programs Committee specifies both the format and the recipient of the requested scientific advice or review. In some cases, the requested report will be submitted to the Board for its deliberation and action; in other cases the report will be submitted to the

Executive Director. In all cases, advisory or review reports will be prepared and submitted in writing.

AUDIT COMMITTEE

PURPOSE
To serve as a financial oversight body independent from staff and the Board, to recommend to the board the retention and termination of the outside auditor, and oversee the work of the outside auditor in order to satisfy the committee members that the financial affairs of SFEI/ASC are in order.

COMPOSITION
The Audit Committee shall be comprised of the Treasurer and two (2) or more individuals not serving on the Board of Directors. The Audit Committee cannot be chaired by the Chair of the Executive Committee, and members of the Executive Committee must constitute less than half the Audit Committee's membership.

PRIMARY ACTIVITIES

- The Audit Committee recommends retaining and terminating the auditor, and negotiates the auditor's compensation on behalf of the Board.

- The Audit Committee confers with the auditor, and reviews the annual audit and submits to the full Board for approval. The committee also approves the performance of any non-audit services provided to SFEI/ASC by the auditor's firm.

- The Audit Committee periodically reviews the auditor's performance, recommending either renewal or replacement.

- The Audit Committee meets with the auditor in an executive session, without management present, at least once per year, in order to discuss SFEI/ASC's internal controls, and the fullness and accuracy of the organization's financial statements.

- The Audit Committee reports to the Board at least annually and provides the Board with the annual external audit report.

Leyna Bernstein Consulting

Helping **good** causes recruit and retain **great** leaders.

November 27, 2012

Dave Williams, Governance Committee Chair
Board Members
SFEI/ASC
4911 Central Avenue
Richmond, CA 94804
Via email

Dear Dave and Members of the Joint Boards,

This proposal contains a draft work plan for the continuation of my board development consulting with the joint boards of SFEI/ASC for the entirety of next calendar year. Given the frequency with which the full board meets, and the significant shift in focus and engagement desired by the organization, I believe it will take a full year to fully implement the goals of this consultancy.

My prior contract covers all the work I anticipate completing through the end of this calendar year, including attendance at the December 5th board meeting and follow up tasks from that meeting to be completed by December 31st.

The new work plan focuses on helping implement the new committee structure, advising the Governance Committee on assessment of board composition, identification of any board leadership gaps, and development and implementation of a recruitment plan to fill those gaps.

I look forward to continuing my work with San Francisco Estuary Institute/Aquatic Science Center in support of the important work you do for all of us who enjoy the San Francisco Bay and Delta.

Kind regards,

Leyna Bernstein, Principal
Leyna Bernstein Consulting

Board Consulting Proposal for San Francisco Estuary Institute/ASC: Phase II

Proposed Scope of Work

Desired Outcomes and Deliverables:

- New board structure is fully implemented, with Committee Chairs and Committee Members in place for Executive Committee, Audit Committee, Governance Committee, Resource Development Committee and Programs Committee;
- Updated/new board documents including board job and committee descriptions; board recruitment tools and new member orientation plan;
- Recruitment plan developed and implemented supporting pro-active and successful recruitment of new board members on an as-needed basis.

I. Revised Committee Structure and Board Member Responsibilities

Support the Governance Committee in fully implementing new board structure;

Work with the Governance Committee to support individual Committee Chairs, and to help Committee Chairs develop Committee Charters and 2013 work plans. Support population of committees with current board members and identify unfilled slots;

Assist the Governance Committee in revising board member job description to best reflect updated board structure and areas of focus;

Assist the Governance Committee in identifying specific expertise, contacts, roles and authority desired for various individual board members and develop targeted recruitment plan.

Timing: January – March, 2013

II. Support Gov. Committee in Recruitment and Engagement of New Board Members

Support the Governance Committee in implementing a board recruitment plan that maintains the balance of representation between regulators, users, protectors and scientists.

Timing: March – December, 2013

III. Governance Committee Coaching

Participate in Governance Committee approximately once per month for 2013 to assist with carrying out board recruitment and transition plans.

Assist the Governance Committee in strengthening the Board's ability to help SFEI/ASC achieve the goals of its current strategic plan.

Timing: January – December, 2013

Fees and Expenses

I work on a flat-fee basis. Based on the scope of work outlined in this proposal, I anticipate spending approximately 8 hours per month on this consultancy. My hourly rate is $185.00. I propose to execute this year-long consultancy for $14,000.

We will bill SFEI/ASC on a quarterly basis for my work with the Board.

Attachment 3
Draft Implementation Plan

SFEI AQUATIC SCIENCE CENTER

IP 2012

SUMMARY of v.1.0

DECEMBER 2012

THE SAN FRANCISCO ESTUARY INSTITUTE
www.sfei.org

THE AQUATIC SCIENCE CENTER
www.aquaticscience.org

STAFF REPORT

IMPLEMENTATION OF THE STRATEGIC PLAN

SUMMARY of v.1.0

DECEMBER 2012

IP 2012

The Strategic Plan of the Institute (SFEI-ASC 2011) reflects our growing role as a source of independent science to support the diverse community of interests responsible for the health of aquatic ecosystems in the Bay Area, Delta, and beyond. The Strategic Plan articulates our commitment to vigorously apply appropriate science and technology through collaborative efforts with measurable progress toward healthy aquatic ecosystems in three years.

This Implementation Plan [IP] is designed to turn the Strategic Plan into action. It is the result of intensive collaboration among the leading staff of the Institute based on our shared values that emphasize honesty, innovation, technical excellence, and commitment to environmental stewardship.

This Implementation Plan, while designed as a living document, culminates a four-year process of strategic assessment and planning triggered by a challenge from staff to make the Institute more effective, and the commitment of new leadership to meet that challenge during a worsening national and state economic recession. The economic crisis created for us a willingness to combine outside reviews of our performance with intensive self-examination. We weighed advice and adjusted our financial practices accordingly, while re-calibrating our role as an independent science organization servicing environmental regulatory and management agencies. We examined our professional aspirations and how we could support each other to achieve them. We developed and implemented a system of shared leadership across Programs with increased accountability. We recognized that our increased effectiveness as individuals and as an organization required strong alignment with our Boards of Directors.

This plan supports our existing priorities while calling for new strategic initiatives. We are firmly committed to continuing to do what we already do well. This plan will, however, help actuate structural, operational, and cultural changes that we believe are essential for us to better support environmental planning, regulation, and management. It reflects the continuing maturation of the Institute, its growing reputation as a source of scientific syntheses, the increasing capacity of its partners and collaborators, and the increasing need for clear and timely communications between environmental scientists and decision-makers who must regulate and manage rapidly changing environmental conditions. This plan promises to harness new technologies while implementing sound science to help frame, advance, and resolve public debates about increasingly complex environmental problems.

We thank the members of our Boards of Directors for providing this opportunity to develop this Implementation Plan, and their willingness to participate in bringing it to fruition. We believe it will significantly advance the Institute toward its vision of healthy aquatic ecosystems, while nurturing valuable careers. We look forward to success.

THE MANAGEMENT TEAM AND STAFF

VISION AND MISSION

SFEI-ASC (the Institute) envisions healthy aquatic ecosystems that are protected and supported by independent science. Our Mission is to provide scientific support and tools for decision-making and communication through collaborative efforts that achieve our Vision.

This Implementation Plan (IP) will turn the Institute's Strategic Plan into action. The Vision and Mission for the Institute are bold and far-reaching. We are committed to providing the science and technology necessary to accelerate and improve the decisions of environmental planners, managers, and regulators that will achieve and sustain healthy aquatic ecosystems in the Bay-Delta region and beyond.

NICHE

The Institute is a unique union of the San Francisco Estuary Institute (SFEI), a non-profit source of independent science founded through the U.S. Clean Water Act, and the Aquatic Science Center (ASC), a Joint Powers Authority linked directly to the California Water Quality Improvement Act through the State Water Resources Control Board. This union provides us with unique opportunities to work directly and closely with regulatory and management agencies at all levels of government to provide independent, objective, unifying scientific and technological support for policies, programs, and projects that aim to protect the waters of the state and U.S., and the life they should support.

STRUCTURE

SFEI and ASC are two separate entities operating under different legal statutes (the California Corporations Code and the California Government Code, respectively). However, they have the same Vision and Mission. The Boards of Directors of these entities have, therefore, developed a common Strategic Plan, and they have decided to jointly oversee and participate in its implementation.

THE ORGANIZATIONAL STRUCTURE INVOLVES THREE ADMINISTRATIVE GROUPS:

1
THE EXECUTIVE GROUP consists of:
Boards of Directors (Board)
Executive Director (ED)
the Deputy Director (DD)
and the Chief Scientist (CS)

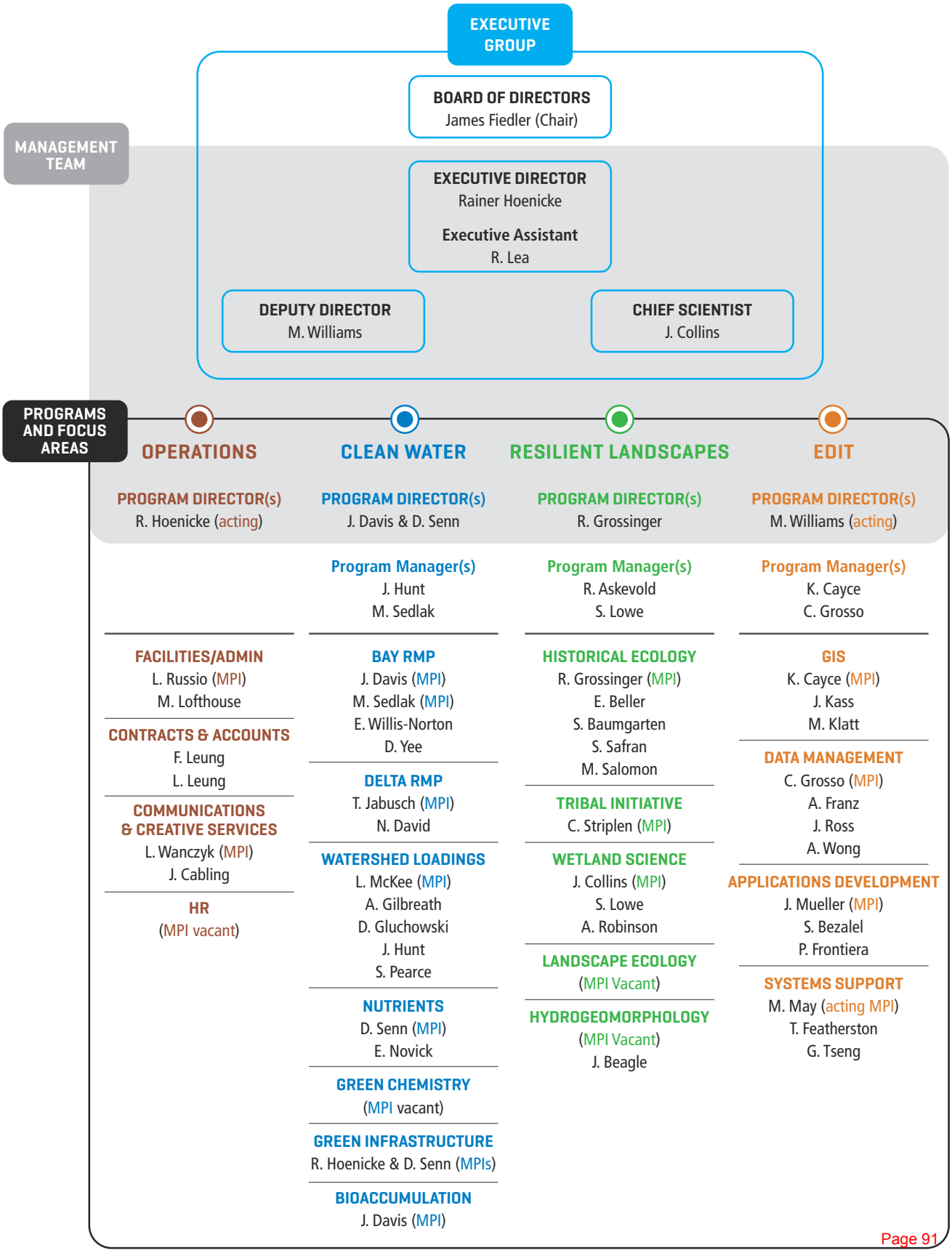
2
THE MANAGEMENT TEAM consists of:
ED, DD, CS, and the Program Directors (PDs).

3
THE PROGRAMS consist of the PDs, the Program Managers (PMs), and the supporting staff.

THE INSTITUTE HAS FOUR PROGRAMS

- ENVIRONMENTAL DATA & INFORMATION TECHNOLOGY (EDIT)
- CLEAN WATER
- RESILIENT LANDSCAPES
- OPERATIONS

Each Program is organized into strategic Focus Areas that are led by Managing Principal Investigators (MPIs).


EXECUTIVE GROUP
BOARD OF DIRECTORS
James Fiedler (Chair)
MANAGEMENT TEAM
EXECUTIVE DIRECTOR
Rainer Hoenicke
Executive Assistant
R. Lea
DEPUTY DIRECTOR
M. Williams
CHIEF SCIENTIST
J. Collins
PROGRAMS AND FOCUS AREAS
OPERATIONS
CLEAN WATER
RESILIENT LANDSCAPES
EDIT
PROGRAM DIRECTOR(s)
R. Hoenicke (acting)
PROGRAM DIRECTOR(s)
J. Davis & D. Senn
PROGRAM DIRECTOR(s)
R. Grossinger
PROGRAM DIRECTOR(s)
M. Williams (acting)
Program Manager(s)
J. Hunt
M. Sedlak
Program Manager(s)
R. Askevold
S. Lowe
Program Manager(s)
K. Cayce
C. Grosso
FACILITIES/ADMIN
L. Russio (MPI)
M. Lofthouse
CONTRACTS & ACCOUNTS
F. Leung
L. Leung
COMMUNICATIONS & CREATIVE SERVICES
L. Wanczyk (MPI)
J. Cabling
HR
(MPI vacant)
BAY RMP
J. Davis (MPI)
M. Sedlak (MPI)
E. Willis-Norton
D. Yee
DELTA RMP
T. Jabusch (MPI)
N. David
WATERSHED LOADINGS
L. McKee (MPI)
A. Gilbreath
D. Gluchowski
J. Hunt
S. Pearce
NUTRIENTS
D. Senn (MPI)
E. Novick
GREEN CHEMISTRY
(MPI vacant)
GREEN INFRASTRUCTURE
R. Hoenicke & D. Senn (MPIs)
BIOACCUMULATION
J. Davis (MPI)
HISTORICAL ECOLOGY
R. Grossinger (MPI)
E. Beller
S. Baumgarten
S. Safran
M. Salomon
TRIBAL INITIATIVE
C. Striplen (MPI)
WETLAND SCIENCE
J. Collins (MPI)
S. Lowe
A. Robinson
LANDSCAPE ECOLOGY
(MPI Vacant)
HYDROGEOMORPHOLOGY
(MPI Vacant)
J. Beagle
GIS
K. Cayce (MPI)
J. Kass
M. Klatt
DATA MANAGEMENT
C. Grosso (MPI)
A. Franz
J. Ross
A. Wong
APPLICATIONS DEVELOPMENT
J. Mueller (MPI)
S. Bezalel
P. Frontiera
SYSTEMS SUPPORT
M. May (acting MPI)
T. Featherston
G. Tseng

CONTINUING PRIORITIES

We will continue to do what we do well. The Institute has a strong reputation for applied environmental science in the service of governmental agencies charged with the protection of aquatic resources. Through the Implementation Plan, we will continue to build on this reputation. Our existing work is vital to the success of the Institute and its many partners who already rely on our products and services. We are using the goals and objectives of the Strategic Plan to shape existing work and to evaluate new opportunities to maximize their relevance to our Vision and Mission.

NEW INITIATIVES ARE REFERENCED BY CODE:

1
OPTIMAL BUSINESS MODELS (Operations Program)

2
GREEN INFRASTRUCTURE (Clean Water Program)

3
CENTER FOR RESILIENT LANDSCAPES (Resilient Landscapes Program)

4
LANDSCAPE FUTURES (EDIT Program)

5
FORUM
(this Initiative is an integral aspect of all our Programs)

CONTINUING PRIORITIES FOR THE CLEAN WATER PROGRAM

BODY OF WORK	ANNUAL BUDGET	TIME FRAME	DESCRIPTION	SIGNATURE PRODUCTS	NEW INITIATIVES STRONGLY SUPPORTED	GOVERNMENT PLANS OR DECISIONS INFORMED
BAY RMP	$3M	1993 onward	A multifaceted array of activities that aim to provide the information that is most urgently needed by managers of SF Bay water quality. Forward-looking study plans for priority topics fall into five main contaminant topics: impacts; spatial patterns; long-term trends; sources, pathways, and loadings; and forecasting.	Pulse of the Estuary Website Annual meeting Technical reports Multi-year strategic plan	2, 5	303(d) listings TMDLs Discharge permits Fish advisories Chemical bans Regional Board CEC strategy
CALIFORNIA BIOACCUMULATION	$650k	2007	Statewide bioaccumulation monitoring as a major component of the California Surface Water Ambient Monitoring Program. Priority topics include: contaminants in sport fish, mercury in wildlife, emerging contaminants, and biotoxins.	Series of reports on statewide surveys of contaminants in fish Safe-to-eat Portal Strategy for coordinated monitoring, assessment, and communication	2, 5	303(d) listings TMDLs (including first statewide TMDL for Hg) Fish advisories State CEC policy and strategy
DELTA RMP	$250k	2010 onward	A complement to the Bay RMP that addresses regional water quality condition and trends. Initial priorities are an improved understanding of the spatial and temporal distribution of contaminants in the Delta, improving the efficiency and usefulness of compliance monitoring and data reporting, and fostering large-scale collaborations. Monitoring is expected to begin in 2013.	Pulse of the Delta	2, 5	303(d) listings TMDLs Discharge permits
WATERSHED LOADINGS	TBD	TBD	Leading the development and implementation of techniques to identify sources of contaminants in our watersheds, monitor and model runoff loads at scales from whole watersheds to individual land uses, measure trends in relation to management or natural attenuation, and determine the efficacy of management opportunities including monitoring and modeling the effectiveness of green infrastructure implementation.	Hayward Zone 4 loading report series Guadalupe River loading report series Delta loading report series LID monitoring reports BMP toolbox reports	2, 3, 4, 5	Municipal regional stormwater permit TMDLs
NUTRIENT SCIENCE	TBD	2012 onward	A Nutrient Science Strategy for the Bay that outlines collaborative studies to support nutrient management decisions. Partners include the RMP, USGS, the State Water Board, the Regional Water Board, and BACWA.	Nutrient conceptual model report	1, 2, 5	Discharge permits
GREEN CHEMISTRY AND EMERGING CONTAMINANTS	$100k	2007 onward	Strives to promote consideration of water quality protection in Green Chemistry policy development and implementation. Provides early identification of chemicals that enter into commerce and could or do emerge as environmental and human health problems.	Pulse of the Bay on CECs (2013) CEC Strategy (2013) Technical reports on priority CECs	2, 5	Green Chemistry Initiative Regional Board CEC strategy State CEC policy and strategy

END

CONTINUING PRIORITIES FOR THE RESILIENT LANDSCAPES PROGRAM

BODY OF WORK	ANNUAL BUDGET	TIME FRAME	DESCRIPTION	SIGNATURE PRODUCTS	NEW INITIATIVES STRONGLY SUPPORTED	GOVERNMENT PLANS OR DECISIONS INFORMED
LOCAL HISTORICAL ECOLOGY STUDIES AND REGIONAL SYNTHESES	$500k	1994 onward	Building the foundation for understanding landscape trajectories and alternative futures.	Delta Historical Ecology Investigation (2012) East Contra Costa County Historical Ecology Study (2011) Napa Valley Historical Ecology Atlas (2012) S. California T-sheet Atlas (2011)Ventura Historical Ecology Study (2011)	3, 4, 5	Management priorities and targets of the Baylands Habitat Goals Report Design of major restoration projects (e.g. Ormond Beach, Napa River, South Bay Salt Ponds, Napa-Sonoma Salt Ponds, etc.) 401/404 decisions on streams
LOCAL SEDIMENT SCIENCE AND REGIONAL SYNTHESES	TBD	2000 onward	TBD	McKee et al. 2012	2, 3, 4	Bay sediment plan Watershed plan Flood control master plan
WETLAND SCIENCE	$500k-$800k	1994 onward	Foundational program for SFEI-ASC leading to Historical Ecology, Watershed Science, Conservation Biology, GIS and EDIT at SFEI-ASC, plus new programs and organizations outside the Institute, while focusing on the support of state and federal initiatives to improve wetland, stream, and riparian protection by providing fundamental science to establish protection goals and comprehensive national, statewide, and regional monitoring and assessment capacities. Work relies on staff from other SFEI-ASC Focus Areas plus outside partnerships. Products are largely integrated across the Institute.	Bay Area Wetland Regional Monitoring Program Plan (1993, 1998, 2002) Baylands Habitat Goals Project (1999) Bay Area EcoAtlas (1998) Wetland Tracker (2002) California Rapid Assessment Method for wetlands and riparian areas (2005) USA Rapid Assessment Method for wetlands (2011) Statewide Wetland and Riparian Area Monitoring Plan (2010) State definitions of wetlands, streams, and riparian (2008-2012) Statewide 1-2-3 Framework for comprehensive watershed and landscape assessment with demonstration projects throughout the state (2005-2013) Watershed approach to mitigation planning (2014) Report on National Wetland Condition (2013)	2,3,4,5	CA Wetland Conservation Policy S. CA Wetland Restoration Program Inter-agency long-range SF Bay conservation plans SWRCB Wetland and Riparian Protection Policy Watershed/landscape approach to SWRCB 401/WDR Program Watershed/landscape approach to 404 for USACE in CA Creation of the Bay Area Habitat Joint Venture Creation of the CA Wetland Monitoring Workgroup SWRCB wetland Beneficial Uses Designs, performance standards, assessment for restoration and mitigation projects

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CONTINUING PRIORITIES FOR THE RESILIENT LANDSCAPES PROGRAM

BODY OF WORK	ANNUAL BUDGET	TIME FRAME	DESCRIPTION	SIGNATURE PRODUCTS	NEW INITIATIVES STRONGLY SUPPORTED	GOVERNMENT PLANS OR DECISIONS INFORMED
BAY RESILIENCE PROJECTS	$200k	2012 onward	Scientific understanding shoreline processes, tracking change, and enhancing resilience and redesign in response to accelerated sea level rise. Projects include: Shoreline Change Head of Tide Historical Ecotone Flood Control 2.0	Forthcoming: Shoreline change analysis Historical ecotone analysis	2,3,4,5	Anticipated: Acquisition Priorities Restoration Targets Restoration Designs Regulatory Performance Measures
LANDSCAPE SCALE RESTORATION STRATEGIES	$300k	2012 onward	Scientific support for creative, landscape-scale approaches to improving ecological resilience and adaptive capacity. Current projects include: Delta Landscapes Flood Control 2.0 Zone 7 Stream Restoration Plan TNC McCormick-Williamson landscape restoration strategy	Baylands Goals Project Delta Historical Ecology report recommendations McCormack-Williamson restoration strategy Re-Oaking initiative	2,3,4,5	Anticipated: Acquisition Priorities Restoration Targets Restoration Designs Regulatory Performance Measures

END

CONTINUING PRIORITIES FOR THE EDIT PROGRAM

BODY OF WORK	ANNUAL BUDGET	TIME FRAME	DESCRIPTION	SIGNATURE PRODUCTS	NEW INITIATIVES STRONGLY SUPPORTED	GOVERNMENT PLANS OR DECISIONS INFORMED
BAY RMP DATA MANAGEMENT AND WEB SUPPORT	$400k	1993 onward	EDIT services for many aspects of the RMP.	Annual Monitoring Report Data Data for Pulse of the Estuary CD3 (Contaminant Data Display & Download tool) WWTP fee tool calculator	2, 5	303(d) listings TMDLs Discharge permits Fish advisories Chemical bans Regional Board CEC strategy
CALIFORNIA ENVIRONMENTAL DATA EXCHANGE NETWORK (CEDEN)	$600k ($50k/yr after 2013)	2008 onward	Data accessibility for SWRCB decision-making. SFEI's RDC facilitates data standardization and brings new data to CEDEN.	Regional datasets integrated into CEDEN	2, 5	303(d) listings TMDLs SB 1070 implementation
CALIFORNIA BIOACCUMULATION MONITORING PROGRAM DATA SUPPORT	$650k	2007 onward	Partnership with Clean Water Program for data analysis of contaminants in sport fish, mercury in wildlife, emerging contaminants, and biotoxins; creates advanced queries for data analysis and interpretation.	Data and analyses for statewide surveys of contaminants in fish Information for annual BOG report content. Safe-to-eat Portal data, maps, and content	2, 5	303(d) listings TMDLs (including first statewide TMDL for Hg) Fish advisories State CEC policy and strategy
BASMAA POLLUTANTS OF CONCERN DATA SUPPORT	$120k	2012 onward	Assists BASMAA with regional Pollutants of Concern (POC) monitoring and coordinate efforts with the RMP Small Tributaries Loadings Strategy.	Modifications to SFEI's Regional Data Center database to support time series data Data review and access tool POC dataset for eventual submittal to RB2	2, 3, 5	MRP compliance
FLOOD INFRASTRUCTURE	$200k	2012 onward	Compiles and standardizes flood infrastructure data into a geodatabase, resulting in a regional and standardized dataset of flood infrastructure.	GIS database of flood infrastructure data Protocols for standardizing data Web access to flood infrastructure data and flood risk analysis	2, 3, 4, 5	Foundation for Statewide Flood Needs Assessment Climate change adaptation

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CONTINUING PRIORITIES FOR THE EDIT PROGRAM

BODY OF WORK	ANNUAL BUDGET	TIME FRAME	DESCRIPTION	SIGNATURE PRODUCTS	NEW INITIATIVES STRONGLY SUPPORTED	GOVERNMENT PLANS OR DECISIONS INFORMED
SFEI AND ASC WEB SITES	TBD	TBD	TBD	www.sfei.org www.aquaticscience.org	TBD	TBD
MONITORING COUNCIL MY WATER QUALITY PORTAL SUPPORT	$100k	2010 onward	Brings monitoring and assessment information to the public to convey relevant and timely information about water quality themes at a variety of spatial and temporal scales.	Maps and data for Safe to Eat Portal Maps and data for Healthy Streams Portal Estuary Portal development Maps, data, and content for Wetlands Portal	2, 5	SB 1070 implementation
401 PROJECT TRACKING, CIAP PROJECT TRACKING	$100k	2008 onward	Online data entry, mapping, display, review, and file repositories for 401 certifications and associated project information.	Online 401 Application form Wetland Project Tracker content within EcoAtlas	2, 4, 5	401/404 project decisions Integrated CWA Reporting State Water Board's Wetland and Riparian Area Protection Policy
CRAM DATA MANAGEMENT AND ECRAM TOOLS	$150k	TBD	Data management, online data entry, and data display/download capabilities to support wetlands assessment for statewide partners.	www.californiawetlands.org eCRAM	2, 4, 5	Category 4b watershed identification 401/404 decisions Integrated CWA Reporting State Board's Wetland and Riparian Area Protection Policy

END

NEW INITIATIVES

Our Vision and Mission demand more of us than our continuing work alone can achieve. Based on the stakeholder input provided during the Strategic Planning process, and our analysis of gaps in our capacity relative to our Vision and Mission, each Program has developed strategic initiatives to guide our growth from where we are to where we need to be (see Appendix 2 of the Strategic Plan – Key Informant Feedback).

We have chosen **FIVE** initiatives to focus on during the next three years, although we recognize the need to adjust to the changing needs of agencies we strive to serve.

Achieving these initiatives will require building on our existing work with more coordination and collaboration across our Programs. The success of these Initiatives will move the Institute into a leadership role in making our region a world-class model for protection and improvement of highly valued aquatic ecosystems. Our continuing work will support these initiatives, which are briefly described as follows.

1
GREEN INFRASTRUCTURE will provide the vision and scientific support to determine how wastewater management, stormwater management, water reuse and recycling, and aquatic habitat restoration can be integrated across landscapes to determine and meet future demands for water quality and quantity.

2
THE CENTER FOR RESILIENT LANDSCAPES will support restoration designs, plans, and management actions that sustain broad suites of ecological services for landscapes, including whole watersheds, by generating exemplary land use strategies that increase the capacity of landscapes to adapt to climate change and other stressors, while meeting shared goals for water quality, water supplies, flood control, natural resource extraction, and wildlife conservation.

3
LANDSCAPE FUTURES will generate online decision-support and planning tools through the aggregation of information about aquatic ecosystem condition, landscape context, and management alternatives.

4
OPTIMAL BUSINESS MODELS are needed to greatly improve our capacity for communication and fundraising around all of our Programs.

5
FORUM will achieve the levels of consensus, coordination, and collaboration among us and our stakeholders that are required to correctly define aquatic resource problems and to affect enduring solutions. Forum is a key aspect of all the other Programs and an essential mechanism for achieving or Vision and Mission.

KEY OUTPUTS AND OUTCOMES

Our Continuing Priorities and new Strategic Initiatives will establish the Institute as a regional and national leader.

GREEN INFRASTRUCTURE AND GREEN CHEMISTRY

Statewide, regional, and local strategies for effectively using Low Impact Development (LID) to help prevent hydromodification of waterways, and for household product stewardship to reduce the threat of new and emerging contaminants.

EXEMPLARY LANDSCAPE RESTORATION STRATEGIES

Statewide, regional, and local strategies to identify and sustain essential levels of ecosystem services in the context of increasing human demands and accelerating climate change.

REGIONAL STATUS AND TRENDS REPORTS

Regular, timely, authoritative reports on the health of local and regional aquatic ecosystems.

REGIONAL DATA CENTER AND ECOATLAS

Exemplary online data and information management, analysis, and visualization that supports all aspects of aquatic ecosystem health care.

LANDSCAPE DESIGN AND LAND USE POLICIES AND PRACTICES

New or revised policies and practices for regulatory and management actions that have proven benefits to aquatic resource health within and among watersheds.

To enhance our national recognition, we will use our internal Science Forum and its Project Lifecycle process to prioritize products for peer-reviewed publication and presentation at national scientific and technology meetings. Staff, especially PDs and MPIs, will be encouraged, as appropriate, to serve on statewide and national technical advisory and review panels.

THE FOLLOWING DIAGRAM

illustrates the relationships among the Programs, Focus Areas, Continuing Priorities, Strategic Initiatives, and their intended outputs and outcomes. The Initiatives are color-coded for the Programs they involve, indicating the necessary inter-program collaborations.

HEALTHY AQUATIC ECOSYSTEMS

Where We're Going

LANDSCAPE DESIGN AND LAND USE POLICIES & PRACTICES TO PROTECT & RESTORE AQUATIC RESOURCES

- REGIONAL DATA CENTER & ECOATLAS
- GREEN CHEMISTRY & INFRASTRUCTURE STRATEGIES
- REGIONAL STATUS & TRENDS REPORTS
- EXEMPLARY LANDSCAPE RESTORATION STRATEGIES

KEY OUTPUTS & OUTCOMES

FORUM: ADVICE & REVIEW TO ACHIEVE CONSENSUS, COORDINATION, AND COLLABORATION

STRATEGIC INTIATIVES FOR 2012-2014 WITH SMART ACTIONS

- OPTIMAL BUSINESS MODELS
- COMMUNICATIONS PLAN
- DEVELOPMENT PLAN
- GREEN INFRA-STRUCTURE SUPPORT
- DELTA RMP
- GREEN CHEMISTRY & EMERGING TECHNOLOGIES
- CENTER FOR LANDSCAPE RESILIENCE
- CLIMATE-INDEXED LANDSCAPES
- TRIBAL LANDSCAPES
- LANDSCAPE FUTURES
- DYNAMIC PUBLIC DATASHARING
- WRAMP USER INTERFACE

CONTINUING PRIORITIES OF PROGRAMS & FOCUS AREAS

OPERATIONS
R. Hoenicke (acting)

- FACILITIES/ADMIN — L. Russio
- CONTRACTS & ACCOUNTS — F. Leung
- COMMUNICATIONS & CREATIVE SERVICES — L. Wanczyk
- HR — (vacant)

CLEAN WATER
J. Davis & D. Senn

- BAY RMP — J. Davis & M. Sedlak
- DELTA RMP — T. Jabusch
- WATERSHED LOADINGS — L. McKee
- NUTRIENTS — D. Senn
- GREEN CHEMISTRY — (vacant)
- GREEN INFRASTRUCTURE — R. Hoenicke & D. Senn
- BIOACCUMULATION — J. Davis

RESILIENT LANDSCAPES
R. Grossinger

- HISTORICAL ECOLOGY — R. Grossinger
- TRIBAL INITIATIVE — C. Striplen
- WETLAND SCIENCE — J. Collins
- LANDSCAPE ECOLOGY — J. Collins & R. Grossinger
- HYDROGEOMORPHOLOGY — (vacant)

EDIT
M. Williams (acting)

- GIS — K. Cayce
- DATA MANAGEMENT — C. Grosso
- APPLICATIONS DEVELOPMENT — J. Mueller
- SYSTEMS SUPPORT — M. May (acting)

Where We Are

PERFORMANCE METRICS

The following tables present the SMART actions that we must accomplish within each Initiative to advance toward our Vision. Actions are SMART if they are Specific, Measurable, Attainable, Relevant, and Time-Bound. Each prioritized Initiative has been constructed as a set of SMART actions that lay out the way forward with accompanying Performance Metrics to assure adequate progress and accountability. We coarsely estimate that about $2 million in additional funds are needed to accomplish the SMART Actions scheduled for the next 3-5 years. This highlights the need for Board support in developing and implementing new business models.

GREEN INFRASTRUCTURE (priority Initiative of the Clean Water Program)

SMART ACTIONS	REGULATORY OR MANAGEMENT LINKS	PERFORMANCE METRICS	TIMELINE	STATUS
1. Establish workgroup of technical collaborators and regional, state, and federal level regulatory champions	TBD	Assemble workgroup	Q2 2013	Need $10k
		Hold 4 meetings	2013-2014	Need $50k
2. With help of workgroup, develop program plan that can serve as a roadmap and fundraising tool	TBD	Draft program plan completed	Q3 2013	Need $100k
		Final program plan completed	Q4 2013	
3. Develop overview strategy document for wastewater that sketches out the need, regulatory drivers, technological approaches, benefits and costs, and approach	AB 32; CWA Section 402; Urban Water Management Planning Act; Water Conservation Act; CWC section 13523.1 (b)(3), CPC Title 22, Title 24	Draft Strategy completed	Q2 2014	Need $200k
		Final Strategy completed	Q4 2014	
4. Develop strategy document for stormwater identifying the need, regulatory drivers, technical approaches, benefits and costs	CWA Section 402; AB 1750 (2012);	Draft Strategy completed	Q2 2014	Need $200k
		Final Strategy completed		
5. Obtain start-up funding and on-going funding		Partial funding secured for 1	Q2 2013	
		Partial funding secured for 2	Q2 2013	
		Partial funding secured for 3	Q4 2013	
		Partial funding secured for 4	Q4 2013	
6. Develop next generation of LID tools	MRP; NPDES; 319(h)	LID site suitability tool	Q4 2011	Beta version completed
		BAARI watershed tools	Q4 2013	Partially funded
		LID site screening tool	Q3 2014	Partially funded
		Develop tools for quantifying ecological benefits	Q1 2015	Funding needed
		LID effectiveness and cost-benefit tools	Q4 2015	Partially funded
		Integrate screening and effectiveness tools with Landscape Futures technology	Q4 2015	See EDIT
7. Develop regional green infrastructure master plans for stormwater and wastewater	CWA Section 402	Historical ecology studies	on-going	Partially completed
		Draft stormwater master plans	2016	Funding needed
		Draft wastewater master plans	2016	Funding needed

END

LANDSCAPE RESTORATION STRATEGIES (priority Initiative of the Center for Resilient Landscapes)

SMART ACTIONS	REGULATORY LINKS	PERFORMANCE METRICS	TIMELINE	STATUS
1. Develop Strategic Partnerships		3 Research Associates identified and recruited	Q3 2012	Need $5k
		Institutional Partners signed on (The Nature Conservancy, Stockholm Resilience Center, SFEP, State Coastal Conservancy)	Q4 2012	Need $10k
		Priority projects identified through advisory meeting	Q1 2013	Need $15k
2. Create Marketing/ Outreach Materials		Master PowerPoint presentation ("the pitch") developed, presented to senior staff, and revised for external use	Q4 2012	Need $20k
		Draft prospectus/White paper created	Q1 2013	Need $50k
		Website updated/expanded to back up marketing efforts	Q1 2013	Need $25k
3. Increase Scientific Capability		Senior science staff hired with expertise in the fields of: Hydrology, Geomorphology, & Landscape ecology	Q4 2012	Need $10k ea.
		Restoring a Resilient River paper submitted	Q4 2012	Partially funded Need $10k
		Develop lit-based "white paper" component of prospectus	Q4 2012	Need $20k
		Technical advisory team established	Q4 2012	Need $15k
4. Acquire Funding		Meet with two potential individual donors	Q1 2013	Need $10k
		Make informal initial pitch to two foundations	Q1 2013	Need $10k
		Develop donor contributions	Q2 2013	Need $10k
		Submit solicited proposal to foundation	Q2 2013	Need $20k
5. Establish and Announce Center		Establish Center website (Resilient Landscapes Resources)	Q4 2013	Need $100k
		Develop website content: videos and stories documenting current project success and impacts ("Follow our Projects")	Q4 2013	Need $50k
		Start Resilient Landscapes blog	Q4 2013	Need $15k
		Announce through media	Q1 2014	Need $10k
		Initiate priority integrative projects (e.g. pubs, syntheses)	Q1 2014	TBD
		Begin developing integrated online tools with Desktop Watersheds	Q1 2014	Need $100k

END

LANDSCAPE FUTURES (priority Initiative of the EDIT Program)

SMART ACTIONS	REGULATORY LINKS	PERFORMANCE METRICS	TIMELINE	STATUS
1. Integrate hydrological data, modeling, and display information to enable view of hydrographs	Hydromodification	Senior science staff hired with hydrology expertise		Need $100k
		Establish web service for USGS stream gauge info	Q4 2013	Need $50k
		Choose appropriate models	Q4 2014	Need $100k
		Integrate models into online tools	Q4 2014	Need $150k
2. Develop capacity to create visualization tools for display of alternate scenarios and implement tools. (In collaboration with Resilient Landscapes and Green Infrastructure)		Integrate metrics and indicators tools	Q1 2014	Need $50k
		Complete revised kriging tool	Q3 2013	Partially funded (RMP)
		Complete training in visualization for key EDIT staff	Q3 2013	Need $10k
		Formalize partnership with Jon Christensen	Q1 2013	
		Application of new visualization technique in EcoAtlas	Q2 2015	Partially funded
3. Develop next generation of LID tools (Action 6 from Green Infrastructure)	MRP NPDES 319(h)	LID site suitability tool	Q4 2011	Beta version completed
		BAARI watershed tools	Q4 2013	Partially funded
		LID site screening tool	Q3 2014	Partially funded
		Develop tools for quantifying ecological benefits	Q1 2015	Funding needed
		LID effectiveness and cost-benefit tools	Q4 2015	Partially funded
		3f Integrate screening and effectiveness tools with Landscape Futures technology	Q4 2015	$100k
4. Establish partnership with The Nature Conservancy to adapt tools for use in EcoAtlas	Category 4B watersheds 401/404 Wetlands Area Protection Policy	Identify appropriate links within TNC	Q4 2012	Unbillable time needed
		Create MOU or partnership agreement	Q2 2013	Unbillable time needed
		Joint fundraising in collaboration with TNC	Q4 2013	Unbillable time needed
		Tech transfer from TNC to SFEI or web services to Rivers for Tomorrow technology	Q4 2014	$100k
5. Marketing and awareness of RDC services and EcoAtlas		Increased number of regional partners using RDC services	Q4 2013	$50k
		Participate in Conservations Commons (PRBO/SEC) and Data Integration Initiatives (SFBJV)	Ongoing	Unbillable time needed
		Develop alternate ways to make BAARI available (Google maps, hard maps)	Q4 2013	Need $20k
		Increase BAARI usage	Ongoing	Unbillable time for outreach
7. Establish a systems and infrastructure strategy for long term maintenance of the tools		Develop cloud strategy (cost-benefit analysis)	Q3 2013	Unbillable time needed
		Develop an internet bandwidth strategy	Q2 2013	Unbillable time needed
		Implement higher bandwidth strategy	Q1 2014	Pending strategy
		Develop business model for ongoing maintenance including funding sources	Q4 2013	Unbillable time needed

END

KEY PARTNERSHIPS AND COLLABORATIONS

A major purpose of the Strategic Plan and this IP is to "shorten the distance" between scientific understanding and informed environmental decisions. This will rely on careful identification of the key decisions and decision-makers who need and want our support. It will also require collaboration and partnership with outside scientists and technologists who can help fill critical gaps in our expertise or capacity.

We recognize important differences among partnerships, collaborations, and coordination. Partnerships are carefully planned relationships between the Institute and other organizations or outside experts based on developing and sharing financial and human resources to achieve joint outputs and outcomes. Collaborations are based on co-developing workplans, budgets, and staffing plans for related but separate projects to minimize their cost-benefit ratios and add value to their standalone outputs. Collaborations can evolve into partnerships. Coordination is the alignment of separately funded workplans among organizations to improve the collective effectiveness of their separate outputs without having to adjust their budgets or staffing. Coordination helps identify potential collaborations and partnerships.

For each of our priority Initiatives, and with reference to our Continuing Priorities, we have identified existing and potential key partners and collaborators. They span a broad portion of the greater community of public and private interests in aquatic ecosystem health. Some of the identified organizations are especially important to the Institute because they can provide significant support to much of our ongoing work as well as multiple new Initiatives.

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2013 Program Plan

Contents

Introduction

The 2013 Program Plan represents the first annual work plan for SFEI and the Aquatic Science Center that follows the new structure of the staff Implementation Plan. Our goal is to enable our Boards of Directors to recognize the connectivity of individual projects and larger, integrated efforts across our Programs (Clean Water; Resilient Landscapes; Environmental Data, Information and Technology; and Operations). There are projects that fit our Continuing Priorities and other projects that, when considered together as a larger package, provide start-up funding for the New Initiatives we have prioritized as deserving our immediate attention. This does not mean that we will neglect other Initiatives (e.g. Delta Regional Monitoring Program; Tribal Initiative) that have sufficient momentum, funding streams, or are likely to generate funding in the short term.

The Programs, Continuing Priorities, and New Initiatives all fit into the broader Goals and Objectives articulated in the Strategic Plan. Thus, the Boards and their Committees will be able to evaluate how individual projects contribute to healthy aquatic ecosystems supported by independent science and evaluate their relevance and strategic importance.

Projects funded through SFEI and ASC use the same template, since both organizations share the same Strategic Plan and implementation roadmap.

The budget for 2013 is mostly based on conservative assumptions. Although we increased our overhead multiplier to 2.95, many continuing projects still operate under our old multiplier (as low as 2.7). Revenue has been forecast based on billable targets rather than planned hours as this has proven to be more accurate.

- Our revenue projections are based on an average multiplier of 2.80 for 2013. We anticipate that the multiplier will continue to increase toward 2.95 over the course of the year.

- Billable targets that were raised as part of our back-to-black strategy have been reduced. Lower targets allow staff to continue professional development, develop proposals, become involved in clearly defined internally funded projects, or support Board Committees, or other activities that ado not generate revenue.

- Our discretionary administrative expense allocations are higher than in 2012 to accommodate short-term expertise in the form of consultants, specialized software, professional training, a building fund set-aside, and other items.

We intend to fill three vacancies and up to three new positions to handle additional workload. As is our practice, we apply strategic considerations to creating new positions, based on the likelihood of continuing needs and funding streams for the specific skill sets of new hires.

ASC Projects

A. Clean Water

CONTINUING PRIORITIES

1. Bioaccumulation Monitoring and Assessment

1.1 North Bay Mercury Biosentinel Monitoring

PROJECT CODE
8252

START DATE
6/23/11

ANTICIPATED COMPLETION
12/31/13

TOTAL FUNDING
$199,941

FUNDING FOR SFEI LABOR
$73,681

FUNDING FOR 2013 SFEI LABOR
$48,500

STATUS
Active

DIRECT CLIENT
State Coastal Conservancy

PRIMARY CLIENT
Same

LEAD SCIENTIST
Josh Collins

PROJECT MANAGER
Sarah Lowe

COLLABORATORS
UC Davis

Project Description

The State Coastal Conservancy (SCC) has requested wetland restoration mercury (Hg) biosentinel monitoring for the North Bay region (including the Napa-Sonoma Marshes, Petaluma Marsh, and appropriate control or reference locations).
This project will convene a Science Advisory Group (SAG) to provide advice and review on study design, data analysis, and interpretation. The project also includes sampling biosentinel species appropriate to each wetland type for mercury exposure, project and data management, data analyses, and reporting. The study design has been developed with advice and review of the regional stakeholders from agencies involved in tidal wetland restoration. Field and laboratory work will include collection of small fish and Biosentinel birds and their preparation and analysis for Hg. The data generated from this project will be made available through SFEI's Regional Data Center (RDC). The project will be completed in December 2013.

Work Products

- SAG meeting summaries and recommended monitoring designs for wetland restoration using methyl-Hg biosentinels.
- PowerPoint summary of the first year of sampling with initial findings.
- Final project report.
- Project monitoring data to be made available through the regional data center (RDC).

Plans for 2013

The field sampling design will be finalized at the end of 2011 and sampling will begin in 2012 and likely carry over into 2013. If funding permits, seasonal sampling may occur, but the SAG recommended that monitoring multiple biosentinel species be a priority over seasonal sampling for monitoring methyl-Hg in a restoration project.

Recent Findings and Publications

This project follows the North Bay Small Fish Mercury Project completed by ASC and UC Davis in 2010. Details on that work and the final report are available on the project website: http://sfei.org/projects/NBaySmallFishHg.

Project Status

This project is well underway. The field sampling design was finalized based on guidance from the SAG and sampling for fish was conducted in 2012. Additional fish and bird Biosentinel sampling will also be conducted in 2013. Laboratory analyses of the 2012 fish samples will be completed by early 2013.

2. Delta Regional Monitoring Program for Water Quality

2.1 Delta Regional Monitoring Program

PROJECT CODE
8107

START DATE
11/20/12

ANTICIPATED COMPLETION
3/30/15

TOTAL FUNDING
$250,000

FUNDING FOR SFEI LABOR
$197,598

FUNDING FOR 2013 SFEI LABOR
$66,000

STATUS
Active

DIRECT CLIENT
SWRCB

FUNDING SOURCE
Same

LEAD SCIENTIST
Thomas Jabusch

PROJECT MANAGER
Meg Sedlak

COLLABORATORS
Brock Bernstein, Delta RMP Steering Committee, Delta RMP Participants

Project Description

This project is intended to provide technical, administrative, and science support for planning and implementing a comprehensive ambient regional water quality monitoring program for the Sacramento-San Joaquin Delta (Delta RMP). The second planning phase of the Delta RMP development has been completed with the preparation of a proposed Regional Monitoring and Assessment plan and its implementation. The draft plan includes a design for core water quality components of a Delta RMP. The focus of this follow-up work is to develop a fully vetted program plan that describes interim organizational structure, projects, and anticipated organizational budget for the first year of long-term implementation. One of the main expectations is that the Delta RMP will help the State and Regional Water Boards set priorities for implementing actions to protect, and where necessary, restore beneficial uses of water in the Delta.

Work Products

Regional Monitoring and Assessment Framework ("Master Plan"), Memorandum of Agreement, program implementation, Pulse of the Delta

Plans for 2013

Final Regional Monitoring and Assessment framework ("Master Plan"), approved by Delta RMP Steering Committee, to Central Valley Regional Water Quality Control Board.

Recent Findings and Publications

Release of a draft proposal for a Regional Monitoring and Assessment plan and its implementation, 2012 Pulse of the Delta, first Steering Committee meeting, agreement to appoint Aquatic Science Center as interim lead entity.

Project Status

The new contract has been executed on November 9; the "design phase" has begun with the first meeting of the preliminary Steering Committee ("design committee"), which is planning to meet monthly into April/May to develop the regional monitoring and assessment framework ("Master Plan") and program structure, supported by Delta RMP staff from Aquatic Science Center and the Central Valley Regional Water Board.

2.2 Delta Water Quality

PROJECT CODE
8104

START DATE
12/10/10

ANTICIPATED COMPLETION
6/30/13

TOTAL FUNDING
$211,760

FUNDING FOR SFEI LABOR
$173,319

FUNDING FOR 2013 SFEI LABOR
$10,000

STATUS
Active

DIRECT CLIENT
EPA

PRIMARY CLIENT
Same

LEAD SCIENTIST
Thomas Jabusch

PROJECT MANAGER
Meg Sedlak

COLLABORATORS
Brock Bernstein

Project Description

This project is a cooperative agreement that supports an U.S. EPA initiative to review the success of Clean Water Act (CWA) programs in protecting aquatic resources in the Bay-Delta Estuary and identify critical actions to accelerate restoration of water quality. The contributions of Aquatic Science Center are focused coordinating, facilitating, and evaluating input into U.S. EPA's initiative and connecting technical information to recommendations for improving water quality protection and restoration.

Project outputs include:

- A synthesis report of public comments regarding water quality issues based on responses to the Advance Notice of Proposed Rulemaking (ANPR) for Water Quality Challenges in the Bay-Delta Estuary
- Coordination and facilitation of a Technical Workshop on Estuarine Habitat in the Bay Delta Estuary
- Pulse of the Delta 2012: Linking Science and Management through Regional Monitoring, produced in cooperation with the Central Valley Regional Water Quality Control Board.

Work Products

Pulse of the Delta 2012, Technical Workshop on Estuarine Habitat in the Bay Delta Estuary, Synthesis of Public Comment on the Advance Notice of Proposed Rulemaking (ANPR) for Water Quality Challenges in the San Francisco Bay/ Sacramento – San Joaquin Delta Estuary

Plans for 2013

Complete final report and project wrap-up

Recent Findings and Publications

See Work Products

Project Status

Currently developing the scope of the final deliverable.

B. Resilient Landscapes

CONTINUING PRIORITIES

1. Wetland Science

1.1 Performance Curves & Watershed Profiles

PROJECT CODE
8251

START DATE
1/1/11

ANTICIPATED COMPLETION
12/31/13

TOTAL FUNDING
$346,091

FUNDING FOR SFEI LABOR
$233,251

FUNDING FOR 2013 SFEI LABOR
$118,000

STATUS
Active

DIRECT CLIENT
EPA

PRIMARY CLIENT
Same

LEAD SCIENTIST
Josh Collins

PROJECT MANAGER
Sarah Lowe

COLLABORATORS
Southern California Coastal Water Research Project (SCCWRP)/Regional Board - 2

Project Description

An essential element of the California wetland protection strategy is to incorporate watershed profiles and performance curves into the planning and design of mitigation and restoration projects. Performance curves forecast how the beneficial uses and functional capacity of projects can increase over time, and thus represent a significant need for agencies that assess and regulate the condition of California wetlands. The State has developed the tools necessary for creating performance curves and watershed profiles (i.e., EPA's Level 1-2-3 wetland assessment framework), but the curves and profiles themselves have not been built.

One objective of this project is to develop performance curves for wetland restoration efforts. Using the California Rapid Assessment Method (CRAM) for estuarine and coastal riverine systems the curves can be used to estimate how overall ecological condition (as assessed using CRAM) increases over time and what levels of performance are ultimately achieved by restoration projects, relative to reference conditions. These performance curves will help calibrate public and agency expectations and inform mitigation plans to minimize the risk of temporary losses of wetland functions (due to lags between wetland impacts and compensatory mitigation) or permanent losses (due to unreasonable expectation for project performance).

Another project objective is to develop a watershed profile tool (currently called 'landscape profiles') that can be used to quantify acres of wetland types, patch size distribution, total length of creek miles (incl. natural vs. unnatural), channel density, and other ecological attributes that can be used to characterize and better understand the natural resources at a watershed planning scale.

Work Products

White paper detailing approach to performance curves

Wetland restoration performance curves developed for estuarine wetlands of the San Francisco Bay Area and for riverine systems of coastal Southern California

Demonstration of the landscape profile tool in two Bay Area watersheds.

Plans for 2013

In 2013 this project will finalize the Landscape Profile Tool and complete the project reporting products.

Project Status

This project is well underway. In 2012 the core elements of a draft Landscape Profile Tool has been developed by the EDIT team. In 2013 they will draft the documentation and two factsheets that will demonstrate the tool in two watersheds. The performance curves task is also well underway. Both SFEI and our sub-contracting partner SCCWRP have outlined the project tasks, conducted most of the field work and are beginning to conduct the data analyses needed to develop the curves.

1.2 Stream & Wetland System Protection Policy Support: Technical Advisory Team (TAT)

PROJECT CODE
8404

START DATE
10/1/10

ANTICIPATED COMPLETION
2/28/14

TOTAL FUNDING
$350,000

FUNDING FOR SFEI LABOR
$197,000

FUNDING FOR 2013 SFEI LABOR
$23,500

STATUS
Active

DIRECT CLIENT
EPA

PRIMARY CLIENT
Same

LEAD SCIENTIST
Josh Collins

PROJECT MANAGER
Sarah Lowe

COLLABORATORS
Roberts Environmental & Conservation Planning LLC, Huffman-Broadway Group, Inc., ABAG

Project Description

This project established and implemented a process of coordination between the technical teams working on recommendations to the State Water Resources Control Board's (SWRCB) Policy Development Team for the Wetland Area Protection Policy (WAPP). This includes the technical teams preparing recommendations on wetland status and trends monitoring, wetland and riparian classification, stream definition, and mapping standards for wetlands and streams. Coordination is a major component of this grant and is achieved by having the teams operate as sub-teams to the overarching Technical Advisory Team (TAT) for WAPP development. SFEI-ASC chairs that TAT and coordinates and develops technical memos in support of the WAPP development though this project.

Background: The State Water Resources Control Board passed Resolution 2008-0026 for "development of a policy to protect wetlands and riparian areas in order to restore and maintain the water quality and beneficial uses of the waters of the State." To foster greater efficiency, effectiveness, and consistency among State Water Board programs and other State programs, to reverse the trend in wetland loss revealed by recent scientific studies, and to counter a series of U.S. Supreme Court decisions that have destabilized Federal wetland jurisdiction, resulting in less protection for California wetlands. The resolution called for a Policy Development Team within the State Water Board to coordinate with other State and federal agencies and interested stakeholders. The WAPP is being developed in three Phases.

Phase 1 establishes a policy to protect wetlands from dredge and fill activities by establishing the intent of the California Water Boards to protect all waters of the State in coordination with other local, State, and federal agencies and local watershed interests; provide a statewide wetland definition; develop a framework for protecting water quality and beneficial uses at watershed scales; and, provide guidance on tracking wetland condition and function.

Phase 2 will expand the scope of the policy to protect wetlands from all other activities, other than dredge and fill activities.

Phase 3 will extend the policy's protection to riparian areas.

The TAT works by developing and writing Technical Memoranda on scientific topics related to the WAPP. The Policy Development Team defines the topics to be covered by the TAT. Recent memos include a recommended definition of wetlands as well as methods of wetland delineation, mapping standards in support of assessing wetland health, and wetland classification that are applicable statewide. These memoranda are submitted for review by the California Wetlands Monitoring Workgroup, The Policy Development Team, and the Interagency Coordinating Committee comprised of executive managers from State and federal agencies with regulatory authority over wetlands. Final technical review is provided by independent, refereed peer review managed by the University of California on behalf of State Water Board.

Work Products
Technical Memoranda on specific scientific questions presented to the TAT by the Policy Team.

Plans for 2013
In 2013 the TAT meetings will focus on drafting a scientific rationale for a watershed approach to mitigation planning.

Recent Findings and Publications
The Preliminary Draft Wetland Area Protection Policy was released by the State Board on March 9, 2012. Additionally TAT Technical Memos 2, 3, & 4 were updated based on peer review comments. Those documents can be found on the State Board's website: http://www.waterboards.ca.gov/water_issues/programs/cwa401/wrapp.shtml .

Project Status
TAT participants continue to participate in state, regional, and local science coordination meetings as needed to support WAPP. This project also provided partial funding for the statewide Standard Operation Procedures for California Aquatic Resource Inventory (CARI), which is largely drafted and waiting final review. The TAT is currently developing and drafting the Stream and Riparian Definition memorandum in support of the Policy.

1.3 Tahoe Region Wetlands Protection Development - CA Wetland Riparian Area Monitoring Program

PROJECT CODE
8403

START DATE
12/1/10

ANTICIPATED COMPLETION
11/30/13

TOTAL FUNDING
$345,000

FUNDING FOR SFEI LABOR
$229,070

FUNDING FOR 2013 SFEI LABOR
$29,000

STATUS
Active

DIRECT CLIENT
EPA

PRIMARY CLIENT
Same

LEAD SCIENTIST
Josh Collins

PROJECT MANAGER
Sarah Lowe

COLLABORATORS
Tahoe Regional Planning Agency (TRPA), California Tahoe Conservancy (CTC), & Lahontan Regional Water Board (RB6SLT)

Project Description

This project demonstrates the Wetland and Riparian Area Monitoring Plan (WRAMP) in the Tahoe Basin on behalf of the California Wetland Monitoring Workgroup of the California Water Quality Monitoring Council. This project builds capacity within the Tahoe region to implement WRAMP by transferring WRAMP tools to the Tahoe community of state and regional agencies. The tools include standardized mapping protocols, rapid assessment of ecological condition using the California Rapid Assessment Method (CRAM) and data management and reporting tools through one of the state's Regional Data Centers (RDCs). The project is conducting watershed assessments and landscape profiles within the Tahoe Basin through a collaborative multi-agency regional effort and will adjust the tools as needed for the Sierra ecoregion. The project will establish a multi-agency WRAMP Sierra Team to (1) test the ability of the draft wetland and riparian mapping protocol to depict the Sierran Stream Environment Zones that are jointly managed by Federal, State, and local agencies; (2) use the mapping protocol to assess the distribution, abundance, and size-frequency of wetlands and other aquatic habitats in demonstration watersheds; (3) integrate the Sierra ecoregion into the California Wetlands Portal by adding the base map and selected wetland projects to the Wetland Tracker; and (4) begin developing a montane wet meadow module of the CRAM.

Work Products

- Development of a multi-agency Sierra Regional Team for project planning and review
- Sierra ecoregion base map (for two sub-watersheds in the Tahoe basin) and selected wetland projects to be added to the Wetland Tracker
- Begin developing a CRAM module for the montane wet meadow of the Sierra ecoregion.
- Watershed profiles and summary CRAM assessments of the two mapped sub-watersheds in the Tahoe basin
- Project website and factsheet for public outreach (the project website is hosted and managed by TRPA at: http://www.tahoemonitoring.org/tahoe-wramp.html

Plans for 2013

This project will largely be completed in 2012 but final reporting and deliverables may not be completed until 2013.

Recent Findings and Publications

One significant finding to date is that aquatic resource mapping can be greatly improved by using Lidar as the primary source of topographic information. The statewide mapping standards are being revised accordingly. Another finding, based on the Upper Truckee assessment, is that the stream set-back policy implemented over past decades to protect stream resources appears to be working; urban and rural streams have comparably high scores for overall condition. The project has abundant participation by many agencies.

Project Status

The Sierra Regional Team has developed a charter and has provided ongoing review of workplans and products for this project. Two sub-watersheds (Upper Truckee and Third Creek) were selected for assessment. GIS staff worked with CTC and TRPA to transfer the mapping standards and ambient sample design methods for the two demonstration watersheds and the base maps are in the final review stage. Tahoe agencies were trained in the Riverine CRAM assessment methodology, and CRAM assessments were conducted at 60 sites in the Upper Truckee and Third Creek watersheds in the summers of 2011 and 2012 respectively.

Out of that work, the multi-agency CRAM assessment team is working to refine the riverine CRAM module and the wet meadow module for the Sierra snow-driven systems.

1.4 Science Support for Wetland Area Protection Policy

PROJECT CODE
8407

START DATE
9/15/11

ANTICIPATED COMPLETION
11/15/13

TOTAL FUNDING
$159,078

FUNDING FOR SFEI LABOR
$95,569

FUNDING FOR 2013 SFEI LABOR
$63,700

STATUS
Active

DIRECT CLIENT
EPA

PRIMARY CLIENT
Same

LEAD SCIENTIST
Josh Collins

PROJECT MANAGER
Sarah Lowe

COLLABORATORS
Association of Bay Area Governments (ABAG)

Project Description

This project provides additional funding for SFEI and ABAG to provide science and policy development support for the Wetland Area Protection Policy (WAPP) Phases 1 and 2 activities described in this Program Plan under project number 18. The project tasks and final products include: 1) Provide technical support for the WAPP and Phase 1 adoption; 2) Support Phase 2 including draft staff reports on beneficial uses and water quality objectives for wetlands; and 3) Provide coordination among the extensive and integrated local, state, and federal wetland protection policies.

Work Products

- Development of policy language critical for WAPP Phase 2 and supporting technical documents (e.g., Staff Report, Technical Advisory Team memos) for statewide adoption.
- Development of report with beneficial use definitions, crosswalk with beneficial uses and wetland classification system, and programmatic guidance for Regional Water Boards to adopt beneficial uses into Basin Plans.
- Coordination between State and Regional Water Boards on wetland protection policies.
- Policy outreach and coordination with local, state, and federal resource agencies and interested stakeholders.
- Development of integrated "process-ready" tools and documents (e.g., Basin Plan amendment language, supporting environmental documents, etc.) that the State Water Board; other Regional Water Boards; federal, state, and local agencies; and Tribes can use to develop stream and wetland system protection strategies within their jurisdictions.

Plans for 2013

The subcontract with ABAG provides funding for them to develop most of the products listed above in 2013. SFEI's portion of this funding is largely to provide Policy outreach and coordination with local, state and federal agencies.

Project Status

This project has largely funding Josh Collins and Ben Livsey (ABAG) to provide Policy outreach and

coordination with regional, statewide, and federal agencies regarding the WAPP and supporting tools.

1.5 Coastal Impact Assistance Program Wetland Monitoring Tool Kit

PROJECT CODE
8405

START DATE
5/20/11

ANTICIPATED COMPLETION
1/31/14

TOTAL FUNDING
$795,000

FUNDING FOR SFEI LABOR
$392,990

FUNDING FOR 2013 SFEI LABOR
$186,000

STATUS
Active

DIRECT CLIENT
California Natural Resources Agency

PRIMARY CLIENT
U.S. Fish and Wildlife Service

LEAD SCIENTIST
Josh Collins

PROJECT MANAGER
Sarah Lowe

COLLABORATORS
Southern California Coastal Water Research Project, Moss Landing Marine Laboratories, California Coastal Commission, Roberts Environmental and Conservation Planning LLC

Project Description

This project will further develop and implement the Wetland and Riparian Assessment and Monitoring Program (WRAMP) for assessment and tracking of California's wetlands and riparian areas that employs the USEPA's Level 1-2-3 monitoring framework. Level 1 involves landscape level analyses using geographic information systems (GIS) and remote sensing. Level 2 is application the California Rapid Assessment Method (CRAM) for rapid field assessments of wetland health or condition. And Level 3 monitoring entails intensive assessment of ecological function or specific aspects of wetland condition. These tools will support statewide adoption of the Wetlands Regional Assessment Monitoring Programs (WRAMPs) as called for by the emerging state Wetland and Riparian Area Protection Policy (WRAPP).

The project has three elements. 1) Enhancement of IT tools used for wetlands data management - Wetland Tracker and eCRAM; 2) development and calibration of the depressional wetlands module for California Rapid Assessment Methodology (CRAM); and 3) a North Coast Demonstration of the 1-2-3 monitoring framework in a selected watershed.

Work Products

- Improved CRAM database, CRAM reporting tools, eCRAM software and CRAM manuals.
- Upgraded Wetland Tracker with improved ease of use including online map editing and online project data entry forms.
- Improved reporting of habitat condition through CRAM and Wetland Tracker including results visualization.
- Calibrated CRAM modules for depressional wetland systems.
- Report on wetlands condition for a demonstration watershed in the North Coast region.

Plans for 2013

Continue work on the Wetland Tracker and other CRAM software and web-based tools. Finalize the recommended updates to the Depressional CRAM Module. Begin the North Coast Demonstration

of WRAMP. Workgroup meetings with statewide partners will be held throughout the year to review and advise on work elements. Field work is expected in 2013. Significant project deliverables will likely not be completed until late 2013 or early 2014.

Project Status

In 2012 the SFEI EDIT team has been working on design enhancements to the CRAM online services and has reported (and gotten review from) statewide partners on a regular basis. Work on the Depressional CRAM Module Refinement is well underway. CRAM experts from around the state have been in the field across the state to assess new depressional wetlands from a wide range of hydroperiods. The group will develop an updated module(s) next year. The North Coast Demonstration Project trained 30 people in two CRAM modules including staff from the North Coast Regional Board and the Army Corps of Engineers. The Demonstration Project will get underway in 2013.

1.6 Delta Wetland and Riparian Areas Monitoring Program

PROJECT CODE
8406

START DATE
9/1/11

ANTICIPATED COMPLETION
12/31/14

TOTAL FUNDING
$652,883

FUNDING FOR SFEI LABOR
$515,343

FUNDING FOR 2013 SFEI LABOR
$175,000

STATUS
Active

DIRECT CLIENT
DWR

PRIMARY CLIENT
Same

LEAD SCIENTIST
Josh Collins

PROJECT MANAGER
Sarah Lowe

COLLABORATORS
Roberts Environmental and DWR

Project Description

The Aquatic Science Center (ASC) will assist the Department of Water Resources (DWR) with an assessment of impacts to wetlands and riparian areas for the Bay Delta Conservation Plan (BDCP) conveyance options. This assessment will contribute to the Clean Water Act 404 (b)(1) Alternatives Analysis which is required for obtaining a Section 404 permit.

The USEPA and USACE requested that Level I and Level 2 techniques from the Wetland and Riparian Areas Monitoring Program (WRAMP) be used to understand the distribution, abundance, and function of wetlands in the project area. WRAMP Level 1 methods include remotely sensed mapping of aquatic habitat (i.e., depressional, lacustrine, estuarine, riverine, slope and vernal pool wetlands and riparian functional areas) using a vetted mapping standard and protocol (http://www.sfei.org/BAARI). WRAMP Level 2 methods include the California Rapid Assessment Methodology (CRAM) for wetlands, a state-wide standard developed by the California Wetland Monitoring Workgroup (CWMW). DWR staff requires assistance from the ASC to employ Level 1 and Level 2 WRAMP methodologies.

Work Products

- Copy of the mapping standards and protocols used to develop the aquatic basemap
- GIS data of stream network, polygonal wetlands, and riparian areas
- GIS data of the CRAM survey sites and the CRAM index and attribute scores

- Project report presenting the Level-1/Level-2 protocols, study design, and summaries of the CRAM results and landscape profiles for each alternative.

Plans for 2013
This project will conduct CRAM field assessments and largely complete the CRAM analyses and reporting by the end of the year.

Recent Findings and Publications
None at this time.

Project Status
This project completed the base map of the project areas in 2012. The study design for the CRAM assessments of one project area is complete. SFEI-ASC staff have trained and worked with DWR staff to conduct CRAM assessments of about 40 sites.

2. Bay Resilience

2.1 Head-of-Tide (HOT)

PROJECT CODE
8703

START DATE
6/1/12

ANTICIPATED COMPLETION
6/30/14

TOTAL FUNDING
$118,316

FUNDING FOR SFEI LABOR
$118,316

FUNDING FOR 2013 SFEI LABOR
$85,000

STATUS
Active

DIRECT CLIENT
BCDC

PRIMARY CLIENT
DOI

LEAD SCIENTIST
Robin Grossinger/Josh Collins

PROJECT MANAGER
Ruth Askevold/Julie Beagle

COLLABORATORS
None

Project Description
The goals of this study are to build awareness of the potential impacts of sea level rise and coastal flooding that may arise from the migration of the head of tide (HOT) and to develop tools to better identify its current and future location. This will be accomplished completing two primary milestones: (1) development of a protocol for identifying HOT locations (e.g., what are the HOT ecological and hydrological attributes); and (2) development of a HOT basemap and guidance for managers on how to assess HOT migration due to sea level rise and coastal flooding induced by climate change (e.g., where it is and how alternative methods of forecasting migration differ in terms of cost and risk assessment).

Work Products
- TAC charter and roster
- HOT mapping protocol
- HOT basemap
- HOT location map
- HOT migration assessment guidance

Plans for 2013
Based on feedback from the Technical Advisory Committee, develop initial head-of-tide protocol for base maps, and perform field work and reconnaissance to inform base map.

3. Landscape Restoration Strategies

3.1 Management Tools for Landscape-Scale Restoration of Ecological Functions

PROJECT CODE
8702

START DATE
2/1/12

ANTICIPATED COMPLETION
1/31/15

TOTAL FUNDING
$875,000

FUNDING FOR SFEI LABOR
$668,750

FUNDING FOR 2013 SFEI LABOR
$240,000

STATUS
Active

DIRECT CLIENT
DFG

PRIMARY CLIENT
Same

LEAD SCIENTIST
Robin Grossinger

PROJECT MANAGER
Ruth Askevold

COLLABORATORS
Letitia Grenier is a key collaborator working with the team, and co-leading the project with Robin Grossinger.

Landscape visualization may include partners such as : Laura Cunningham, Jennifer Natali, David Diethelm, 34 North (Dave Osti), Stanford's Bill Lane Center for the American West, California Academy of Sciences.

Landscape Interpretation Team: including

- Brian Atwater (USGS)
- Stephanie Carlson (UC Berkeley)
- Jim Cloern (U.S. Geological Survey)
- Brian Collins (University of Washington)
- Chris Enright (Delta Science Program)
- Joseph Fleskes (U.S. Geological Survey)
- Geoffrey Geupel (PRBO Conservation Science)
- Todd Keeler-Wolf (California Department of Fish and Game)
- William Lidicker (UC Berkeley)
- Steve Lindley (NMFS)
- Jay Lund (UC Davis)
- Jeff Mount (UC Davis)
- Peter Moyle (UC Davis)
- Eric Sanderson (Wildlife Conservation Society)
- Anke Mueller-Solger (Bay-Delta Interagency Ecological Program and Delta Science Program)
- John Wiens (PRBO Conservation Science)
- Dave Zezulak (California Department of Fish and Game)

Project Description

This is a cross-disciplinary project designed to augment current restoration planning in the Delta with the tools needed to design and evaluate large-scale restoration. Building from the current SFEI-ASC research on the historical ecology of the Delta, this project will develop a more refined understanding

of fundamental ecological process and function at the landscape scale and apply this to current planning efforts. This research responds to the recognized need for landscape-scale restoration planning tools that help establish ecological function along current and future physical gradients. Through this research, current conceptual model uncertainties regarding physical landscape drivers and the ecological functions they provide will be addressed. The goals of the project are to 1) quantify and compare historical and contemporary landscape attributes, 2) determine historical ecological function and compare to current functions, 3) refine conceptual models at the landscape scale and develop restoration design principles, and 4) present landscape illustrations and other visualizations of potential landscape-scale restoration. Development of these products will be performed in close discussion with a team of scientists and managers.

Work Products

- Summaries of meetings with the LIT
- Technical memo presenting the metrics measured for the historical and contemporary Delta and presenting landscape units of the historical Delta as defined by these metrics
- Maps of historical and contemporary Delta ecological functions, likely with annotations along themes such as species or taxonomic groups
- Memo on key changes in ecological function between the past and present Delta
- Memo on addressed uncertainties in DRERIP conceptual models
- Landscape-scale conceptual models describing ecological functions and physical drivers associated with landscape units
- Design principles and suggested performance criteria and metrics
- Memo on available opportunities for restoring functional landscape components in the contemporary and projected future landscape context
- Five public presentations
- Interactive website with maps, graphics, and artwork presenting project products

Plans for 2013

In 2012, we developed a detailed work plan; organized two Landscape Interpretation Team meetings; identified criteria for selection of key ecological functions and landscape metrics; assembled and prepared historical and contemporary GIS datasets for analysis; developed a workplan for each metric; started development of the metrics; and presented at the Bay Delta Science Conference in October.

In 2013, the team will hold a Landscape Interpretation Team meeting to present the results from the metrics analysis; write, design, and publish a brochure describing the project; perform targeted research to address identified information gaps; describe landscapes units; assign ecological functions; and write technical memos on metrics and ecological functions, both illustrated with annotated maps.

Project Status

Active

4. Visualization and Public Outreach

4.1 Historical Delta Landscape Visualization/Modeling

PROJECT CODE
87xx

START DATE
1/1/13

ANTICIPATED COMPLETION
12/31/14

TOTAL FUNDING
$54,500

FUNDING FOR SFEI LABOR
$50,000

FUNDING FOR 2013 SFEI LABOR
$20,000

STATUS
Proposal (50% probability)

DIRECT CLIENT
Metropolitan Water District/34 North

LEAD SCIENTIST
Robin Grossinger/Meredith Williams

PROJECT MANAGER
Ruth Askevold

COLLABORATORS
34 North (visualization services)

Project Description

SFEI will work with 34 North to develop a flyover to visualize historical, contemporary, and possible future scenarios in the Delta. The flyover allows the user to visualize habitat types in the landscape as they fly through the landscape from an oblique viewpoint. This will be accomplished using a mix a GIS and 3-D animation software to depict these scenarios. The historical component will be derived from the Delta historical ecology project, and the future scenarios will be developed from the Delta Landscapes project. This is consistent and will complement a primary task in the Delta Landscapes project (Task 5, public participation), and will help make the overall findings of Delta-related projects more accessible to managers, stakeholders, and the public through a compelling visual product.

C. Environmental Data, Information, and Technology

CONTINUING PRIORITIES

1. Data Management Support

1.1 GIS Support for SF Bay Regional Board

PROJECT CODE
8603

START DATE
2/17/11

ANTICIPATED COMPLETION
2/17/14

TOTAL FUNDING
$30,000 + $35,000 in negotiations

FUNDING FOR SFEI LABOR
$80,000

FUNDING FOR 2013 SFEI LABOR
$65,000

STATUS
Active + $35,000 in negotiations

DIRECT CLIENT
SWRCB

FUNDING SOURCE
Same

LEAD SCIENTIST
Kristen Cayce

PROJECT MANAGER
Kristen Cayce/Marcus Klatt

COLLABORATORS
San Francisco Bay Regional Water Board

Project Description

SFEI-ASC provides the San Francisco Bay Regional Water Board (Regional Board) with on-going GIS services to fill a much needed technical support role. This formal relationship was established in 2010 and since has been extended with additional funding twice. Initial services to the Regional Board focused on data generation and production of maps and overlays critical to the TMDL and the NPS programs. We provided essential information for the development and enforcement of the Waivers of Waste Discharge Requirements (WDRs) for grazing activities, the Waiver of WDRs for vineyards, and the Waiver of WDRs for dairies in the San Francisco Bay Region. Work under the initial contract provided necessary analysis to support a scientific basis for water quality protection and the information necessary to reconcile property ownership data with Waiver of WDRs coverage requirements. Since the extension in February 2011, SFEI-ASC has continued supporting the Regional Board and Bay Area water quality issues with GIS services including spatial data management (acquisition, quality control, and storage), spatial analysis, and cartography in a variety of projects that include stream longitudinal slope analysis for Lagunitas Creek, cartography in support of the Suisun Marsh project, and sediment study using GIS data for Pescadero Watershed. Another extension to continue providing GIS support to the Regional Board is in negotiations and when executed will fund support for another 2 years.

Work Products

- Quarterly reporting
- Maps, spreadsheets, and GIS data as requested

Plans for 2013

Details will be outlined in negotiated contract extension, but will include requests for GIS services stated above.

Project Status

- Finalizing data for Pescadero Sediment Study
- Filling any general GIS requests

2. My Water Quality Portals

2.1 Regional Data Center & Wetlands Portal

PROJECT CODE
8604

START DATE
8/1/11

ANTICIPATED COMPLETION
8/31/13

TOTAL FUNDING
$1,290,298

FUNDING FOR SFEI LABOR
$1,257,798

FUNDING FOR 2013 SFEI LABOR
$620,000

STATUS
Active

DIRECT CLIENT
SCCWRP

PRIMARY CLIENT
SWRCB

LEAD SCIENTIST
Josh Collins/Meredith Williams

PROJECT MANAGER
Cristina Grosso

COLLABORATORS
SWRCB, SSCWRP, MLML, CVRDC, USEPA

Project Description

This 2.5 year project provides technical assistance to grant recipients that collect water quality monitoring data by assisting them with data management services. Grant recipients will be able to show the effectiveness of their projects by making their data publicly accessible.

The project will enable the Regional Data Centers (RDCs) and the California Environmental Data Exchange Network (CEDEN) to collect and make more data available in a timely and comparable manner and to assist with the SWRCB's preparation of the Integrated Report.

Work Products

Products for this project include: (1) identify new data providers (data discovery), (2) expand and enhance the Wetlands Portal into an Aquatic Atlas, (3) transfer data to the CEDEN system, (4) develop improved data display and visualization tools, (5) develop a future data capture plan and resource assessment, and (6) coordinate activities among the four regional data centers.

Plans for 2013

In 2013, the project's focus on developing tools that will allow data to be uploaded faster and more efficiently (online data checkers and submittal templates), developing better analysis and visualization tools for viewing the data in CEDEN, and to expanding and enhancing the Wetlands Tracker into EcoAtlas.

Recent Findings and Publications

In 2012, the primary goal of the RDCs was to contact new data providers that could contribute to the State's Integrated Report. RDCs met quarterly to discuss the progress and challenges of working with new data providers and uploading data from the RDCs to CEDEN in a timely manner. RDC representatives also met bimonthly via phone to discuss data vocabulary and database structure questions. At the Team Meeting in October, the SWRCB staff reported that they considered CEDEN to be a successful system for which they will continue to obtain maintenance funding for the RDCs.

Project Status

Active

2.2 Estuary Portal Science Support

PROJECT CODE
8605

START DATE
5/1/12

ANTICIPATED COMPLETION
6/30/13

TOTAL FUNDING
$75,000

FUNDING FOR SFEI LABOR
$42,388

FUNDING FOR 2013 SFEI LABOR
$22,000

STATUS
Active

DIRECT CLIENT
State and Federal Contractors Water Agency

FUNDING SOURCE
California Water Quality Monitoring Council

LEAD SCIENTIST
Meredith Williams

PROJECT MANAGER
Cristina Grosso

COLLABORATORS
The Bay Institute

Interagency Ecological Program

Project Description

The Aquatic Science Center has a cornerstone role in the California Estuary Monitoring Workgroup. The portal workgroup is just beginning to work together. The portal needs to be designed and integrated with existing portals. Data analysis, synthesis and visualization from existing data sets will be required before the portal can be officially released. This initial agreement will allow ASC staff to actively engage in the process and help guide portal development. Tasks will focus on initial site design, assessment support, and development of a coordination plan.

Work Products
Products for this project include initial portal development, data analysis and synthesis, coordination with the Wetlands Portal and Safe to Eat Portal, and incorporation of the RMP data and SFEI's historical ecology's data into the Estuary Portal.

Plans for 2013
Plans for 2013 include participating in regular workgroup meetings and facilitating communication with Bay Area partners about involvement in the workgroup.

Recent Findings and Publications
In 2012, the Estuaries Work Group met several time to discuss the content and needs of an Estuary Portal.

3. Project Tracking

3.1 CA LID/Stormwater BMP Tracker

PROJECT CODE
86xx

START DATE
4/1/13

ANTICIPATED COMPLETION
3/31/16

TOTAL FUNDING
$450,000

FUNDING FOR SFEI LABOR
$450,000

FUNDING FOR 2013 SFEI LABOR
$112,500 – potentially 75% of the labor amount will be spent in 2013; however, there is too much uncertainty to allocate hours to staff

STATUS
Proposal (25% probability of funding)

DIRECT CLIENT
SWRCB

PRIMARY CLIENT
Same

LEAD SCIENTIST
Meredith Williams

PROJECT MANAGER
Cristina Grosso

COLLABORATORS
User group and other partners yet to be identified.

Project Description
An LID Tracker will enable compilation of LID BMP selection, installation, and maintenance information. This could include documentation of BMP objectives (i.e., load reduction or hydrology improvement), sizing criteria, and placement decision factors. Maintenance and effectiveness information could also be tracked.

The Tracker will be map-based in order to enable managers to relate individual projects to landscape factors such as the catchment area of the selected BMP, nearby receiving water bodies, storm drains, aquatic resources, and adjacent land use. A map-based, web interface will allow users to find and use information easily and to review and aggregate data at multiple scales – catchment, watershed, region, and state .

Anticipated functionality

- Online permitting;
- Installation and maintenance costs tracking;
- Tracking of target objectives for LID BMPs;
- Online mapping capabilities for mapping catchment areas and LID installation locations;
- Photo inventory;
- Report generation of LID adoption, estimated load reductions, cost-benefit outcomes, etc.;

- LID locations map generation; and
- Quantification of benefits at the watershed scale

Work Products

- Beta release version of Tracker
- Pilot test of beta release for user feedback and functional validation.

Plans for 2013

- Form a User Group to identify user needs and tool functionality requirements.
- Develop prototypes for User Group review
- Revise prototypes for beta version

Project Status

The Stormwater Roundtable has approved the concept, but a Feasibility Study Report (FSR) is required by the SWRCB. State Board program manager, Bruce Fujimoto and Shin-Roei Lee are working with the DIT (Division of Information Technology) on the required FSR documentation.

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San Francisco Estuary Institute

A. Clean Water

CONTINUING PRIORITIES

1. Bay Regional Monitoring Program for Water Quality

1.1 The Regional Monitoring Program for Water Quality in the San Francisco Estuary

PROJECT CODE
3013

START DATE
January 1, 2013

ANTICIPATED COMPLETION
3/31/14

TOTAL FUNDING
$3,535,650

FUNDING FOR SFEI LABOR
$1,856,700

FUNDING FOR 2013 SFEI LABOR
$1,856,700

STATUS
Active

DIRECT CLIENT
RMP stakeholders including wastewater treatment facilities, dredgers, refineries, storm water agencies, industrial dischargers, RWQCB (Region 2) and USEPA (Region 9).

PRIMARY CLIENT
Same

LEAD SCIENTIST
Jay Davis

PROJECT MANAGER
Meg Sedlak

COLLABORATORS
RWQCB, USEPA, USGS, BACWA, BPC, BCDC

Project Description

The RMP is a partnership that combines shared financial support, direction, and participation by regulatory agencies and the regulated community in a model of collective responsibility. The RMP has established a climate of cooperation and a commitment to participation among a wide range of regulators, dischargers, industry representatives, non-governmental agencies, and scientists. The RMP provides an open forum for interested parties to discuss contaminant issues facing the Bay.

Stable funding has enabled the RMP to develop long-term plans through the core annual monitoring program, Status and Trends. In addition, pilot and special studies provide an opportunity to adapt to changing management priorities and advances in scientific understanding. RMP committees and workgroups meet regularly to keep the Program efficient, focused on the highest priority issues, and to ensure that the RMP is based on sound science. The RMP has continually improved since its inception in 1993.

The RMP has produced a world-class dataset on estuarine contaminants. Monitoring performed in the RMP determines spatial patterns and long-term trends in contamination through sampling of water, sediment, bivalves, bird eggs, and fish, and evaluates toxic effects on sensitive organisms and chemical loading to the Bay. The Program combines RMP data with data from other sources to provide for comprehensive assessment of chemical contamination in the Bay.

The RMP provides information targeted at the highest priority questions faced by managers of the Bay. The RMP produces an Annual Monitoring Report that summarizes the current state of the Estuary with regard to contamination, a summary report (Pulse of The Estuary), technical reports that document specific studies and synthesize information

from diverse sources, and journal publications that disseminate RMP results to the world's scientific community. The RMP website provides access to RMP products and links to other sources of information about water quality in San Francisco Bay.

The RMP budget for 2013 is projected to be $3.4 million with approximately $1.1 million of that budget dedicated to pilot and special studies. These studies are described in more detail below.

Work Products

RMP work products are varied and include: project management products such as budgets and workplans; information dissemination products such as the "Pulse of the Estuary", Annual Monitoring Results and RMP Annual Meeting; Status and Trends products such as sample collection and data analysis of sediment, water, bivalve, bird egg and sport fish samples, and; reports and manuscripts from special studies

Plans for 2013

Outside of programmatic tasks including project management and information dissemination, the RMP is comprised of two major elements: annual Status and Trends monitoring and special studies which vary years to year. In 2011, after careful review of the data and information needs, the Technical Review Committee (TRC) and the Steering Committee (SC) approved the reduction of the frequency of water and sediment monitoring to a biennial program. This change was implemented in 2012. As a result of the reduction in S&T, the Program has been able to expand to address a number of urgent information needs in other areas such as tributary and nutrient monitoring and modeling. Details on both Status and Trends elements and special studies are provided below.

1.2 RMP Program Management

PROJECT CODE
RMP 3013

START DATE
January 2013

ANTICIPATED COMPLETION
December 2013

TOTAL FUNDING
$616,000

FUNDING FOR SFEI LABOR
$554,000

FUNDING FOR 2013 SFEI LABOR
$554,000

CLIENT
RMP stakeholder, RWQCB, and USEPA

LEAD SCIENTIST
Jay Davis

PROJECT MANAGER
Meg Sedlak

COLLABORATORS
RMP Stakeholders

Project Description

The administration and management of the RMP requires a substantial effort from SFEI staff. Costs for this component of the RMP reflect the staff time required to manage finances and contracts, plan and coordinate internal activities and workgroups, and provide technical oversight of RMP products.

Work Products

The work products for this task are quite varied and include: Workgroup, Technical Review Committee and Steering Committee meetings; written documents such as Program Plans, memorandums, scope of work, contracts and workplans; presentations to TRC/SC and workgroups and external participants, and project management (meetings and staffing).

Plans for 2013

The RMP will continue to hold quarterly TRC/SC meetings and annual or semi-annual work group meetings. The RMP will also continue to engage and collaborate with local and regional partners.

1.3 Information Management and Synthesis

PROJECT CODE
RMP 3013

START DATE
January 2013

ANTICIPATED COMPLETION
December 2013

TOTAL FUNDING
$510,000

FUNDING FOR SFEI LABOR
$433,000

FUNDING FOR 2013 SFEI LABOR
$433,000

STATUS
Will start in January 2013

CLIENT
RMP Participants

LEAD SCIENTIST
Jay Davis

PROJECT MANAGER
Meg Sedlak

COLLABORATORS
RMP Stakeholders

Project Description

The overarching goal of the RMP is "to collect data and communicate information about water quality in the San Francisco Estuary to support management decisions." Therefore, all activities related to data management, RMP web site maintenance, development of newsletters, the RMP Annual Meeting, presentations, and information transfer to a variety of audiences, including preparation of the RMP Annual Monitoring Results and the "Pulse of the Estuary", are included in this category.

Work Products

Varied. Maintenance and improvements of the database and website; newsletters, annual meeting, national presentations, Pulse of the Estuary and the Annual Monitoring Results.

Plans for 2013

The following deliverables are scheduled for 2013:

- Pulse of the Estuary summarizing Status and Trends data and featuring several scientific and management articles related to this year's theme, emerging contaminants.
- Annual Monitoring Results. This document summarizes the methods and results of the 2011 sample collection.
- Annual Meeting. The Annual Meeting will be held in the Fall of 2013 and will be in conjunction with the biannual State of the Estuary Meeting.

Recent Findings and Publications

- 2012 RMP Update
- 2012 RMP Annual Meeting

1.4 Status and Trends

PROJECT CODE
RMP 2013

START DATE
January 2013

ANTICIPATED COMPLETION
December 2013

TOTAL FUNDING
$802,000

FUNDING FOR SFEI LABOR
$216,000

FUNDING FOR 2013 SFEI LABOR
$216,000

STATUS
Will start in January 2013

CLIENT
RMP Participants

LEAD SCIENTIST
Jay Davis

PROJECT MANAGER
Meg Sedlak

COLLABORATORS
RMP Stakeholders

Project Description

In 2011, the RMP reviewed the Status and Trends monitoring to evaluate the information that Status and Trends is providing and the frequency at which this monitoring needs to occur. Based on this review, the TRC and SC recommended a reduction in the frequency of sediment and water monitoring to a biennial program. In addition, the frequency of organic analyses in water was reduced to a four-year cycle.

Work Products

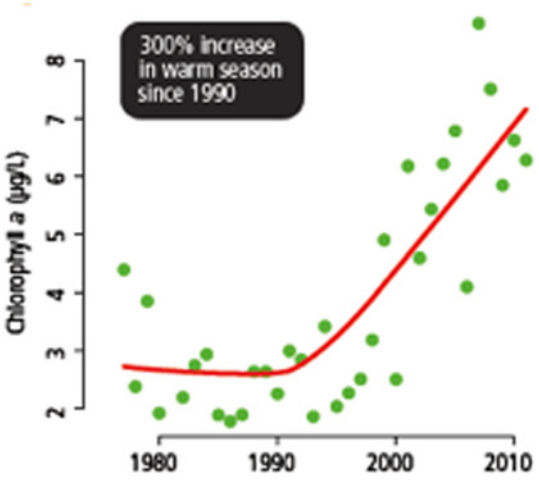
Collection and analysis of sediment, bivalves and bird eggs.

Plans for 2013

In 2013, water samples will be collected at 22 sites (5 historic, 17 random) and analyzed for both total and dissolved fractions of trace elements.

Recent Findings and Publications

- A sudden decrease in suspended sediment concentrations occurred in 1999.



- Increasing chlorophyll concentrations have been observed in the Bay and are attributed to a variety of possible drivers (e.g., decrease in SSC concentrations and an increase in bivalve predators such as English sole, shrimp and crab). PBDE concentrations appear to be leveling off (BDE 47) or declining (BDE 209)

- Concentrations of mercury in sediment correlate poorly with methylmercury in sediment (MeHg represents 1% of the total Hg).

1.5 PBDE Summary Report

PROJECT CODE
RMP 3013

START DATE
January 2013

ANTICIPATED COMPLETION
December 2013

TOTAL FUNDING
$35,000

FUNDING FOR SFEI LABOR
$35,000

FUNDING FOR 2013 SFEI LABOR
$35,000

STATUS
Will start in January 2013

CLIENT
RMP Participants

LEAD SCIENTIST
Rebecca Sutton

PROJECT MANAGER
Meg Sedlak

COLLABORATORS
RWQCB

Project Description
The RMP has monitored for polybrominated diphenyl ethers (PBDEs) since 2002 and has one of the most comprehensive datasets on PBDEs in environmental matrices. The data present a compelling story of the rapid rise of this contaminant in the Bay, followed by a period of dramatic decline in biota after the phase-out of two of the three major formulations (Penta and Octa formulations). (The third formulation, Deca BDE, is on schedule to be phased out at the end of 2013.) At the same time that concentrations are declining, recent benchmarks suggest that PBDEs may be less of a concern than originally believed. RMP-sponsored work on hatching and success of tern bird eggs suggests that concentrations observed in Bay area tern eggs are of low risk. Similarly, the Office of Environmental Health Hazard Assessment has recently established human health thresholds and Bay fish are substantially below these levels. This task will summarize our current state of understanding of PBDEs in the Bay. In addition, a short summary of the RMP work on alternative flame retardants will be presented.

Work Products
Technical report summarizing Bay occurrence data, relevant toxicity information and occurrence data for PBDE replacements.

Plans for 2013
Data formatting and analysis in early 2013, with draft and final reports in mid-to-late 2013.

1.6 Updating the Emerging Contaminant Strategy

PROJECT CODE
RMP 3013

START DATE
January 2013

ANTICIPATED COMPLETION
December 2013

TOTAL FUNDING
$20,000

FUNDING FOR SFEI LABOR
$20,000

FUNDING FOR 2013 SFEI LABOR
$20,000

STATUS
Will start in January 2013

CLIENT
RMP Participants

LEAD SCIENTIST
Rebecca Sutton

PROJECT MANAGER
Meg Sedlak

COLLABORATORS
RWQCB

Project Description
The RMP has just completed a synthesis document summarizing the occurrence of contaminants of emerging concern (CECs) in San Francisco Bay

(Klosterhaus et al. 2012). The objective of this effort is to insure the RMP is keeping up with the state of the science regarding CECs by tracking new information as it becomes available and communicating relevant information to the ECWG. This effort will involve the review of key information sources throughout the year from several sources, including abstracts of newly published articles, documents produced by other programs and abstracts/proceedings from relevant conferences

Work Products

A short summary memorandum will be prepared and presented to the Emerging Contaminants Work Group

Plans for 2013

Review of key information sources ongoing throughout the year, with preparation of a short summary memorandum for 2013 ECWG meeting.

1.7 Current Use Pesticide (CUP) Focus Meeting

PROJECT CODE
RMP 3013

START DATE
January 2013

ANTICIPATED COMPLETION
December 2013

TOTAL FUNDING
$15,000

FUNDING FOR SFEI LABOR
$15,000

FUNDING FOR 2013 SFEI LABOR
$15,000

STATUS
Will start in January 2013

CLIENT
RMP Participants

LEAD SCIENTIST
Don Yee, Rebecca Sutton

PROJECT MANAGER
Meg Sedlak

COLLABORATORS
RWQCB, Kelly Moran (TDC Environmental), Susan Kegley (Pesticide Research Institute), Mike Johnson (AQUA Science) and Don Weston (UC Berkeley)

Project Description

In the last few years, new information on CUPs has become available but RMP staff have not had the resources to stay updated on these developments. There are CUPs that have not yet been considered for monitoring in the Bay, including a number of 'new' compounds (e.g., fungicides or imidacloprid). There are also some compounds that have been recommended for monitoring in surface waters (the pyrethroids bifenthrin and permethrin) (Anderson et al. 2012), but thus far have only been monitored in Bay sediments. This project would enable RMP staff to collect and evaluate the new information generated by other programs and researchers to identify potential CUPs of concern that should be proposed for future monitoring by the RMP.

Work Products

A meeting will be convened with local experts in order to discuss monitoring recommendations for CUPs.

Plans for 2013

Relevant information relating to CUPs will be gathered and reviewed in preparation for a meeting with local experts to discuss monitoring recommendations for CUPs.

Recent Findings and Publications

- Several CUPs have been detected on Bay Samples in recent S&T monitoring
- New information on CUPs have led to recommendations that certain compounds be monitored in surface waters

1.8 Bioanalytical Tools

PROJECT CODE
RMP 2013

START DATE
January 2013

ANTICIPATED COMPLETION
December 2014 (pending EC and EEWG/ECWG approval)

TOTAL FUNDING
$70,000 for 2013, additional funds in 2014 pending EC and EEWG/ECWG approval

FUNDING FOR SFEI LABOR
$0

FUNDING FOR 2013 SFEI LABOR
$0

STATUS
Will start in January 2013

CLIENT
RMP Participants

LEAD SCIENTIST
Nancy Denslow (University of Florida), Keith Maruya (SCCWRP) and Steve Bay (SCCWRP)

PROJECT MANAGER
Meg Sedlak

COLLABORATORS
SCCWRP, University of Florida,

Project Description

Concurrently, novel in vitro methods based on receptor binding or transactivation have been developed that are extremely sensitive to target chemicals acting with the same mode of action as potent endocrine disrupting CECs. Few studies, however, link results from such in vitro assays with higher order in vivo effects which result in adversity for survival, growth, reproduction, or susceptibility to disease. The goal of this project is to establish quantitative linkages between the in vitro receptor-based assays and traditional endpoints of adversity in a sensitive estuarine fish model, the common silverside (Menidia beryllina) which is an established EPA model for estuarine toxicity. Half of this project will occur in 2013, and pending approval from the SC and EEWG/ECWG, additional funds will be allocated in 2014 for completion of this project

Work Products

A midterm progress report will be complete at the end of year 1 and a final technical report at the end of year 2 summarizing results.

Plans for 2013

In the first year of this two year study, researchers will evaluate the effects of four endocrine disrupting compounds on cellular functions and will develop simple bioassays. The presence of biomarkers associated with growth, sexual differentiation, brain development, and reproduction (e.g., vitellogenin) will be correlated with exposure to endocrine disruptors. One of the unique and important points of this research is that it will link cellular effects to whole organism endpoints such as reproduction, growth, and mortality.

1.9 Developing Benthic Indices for Mesohaline Environments

PROJECT CODE
RMP 2013

START DATE
January 2012 (2013 is the second year in a two-year project)

ANTICIPATED COMPLETION
December 2013

TOTAL FUNDING
$75,800 for 2013

FUNDING FOR SFEI LABOR
$0

FUNDING FOR 2013 SFEI LABOR
$0

STATUS
Active (2013 is the second year in a two-year project)

CLIENT
RMP Participants

LEAD SCIENTIST
Eric Stein (SCCWRP)

PROJECT MANAGER
Meg Sedlak

COLLABORATORS
SCCWRP

Project Description
To date, benthic indices have been calibrated and validated for two nearshore habitats in California, 1) southern California marine bays, and 2) polyhaline (high salinity) portions of San Francisco Bay. Indices have not been developed for other habitats such as the low salinity mesohaline and tidal freshwater environments. These habitats are particularly challenging because they are naturally subject to relatively broad ranges of conditions (e.g. salinity and dissolved oxygen) and hence the resident organisms are adapted to tolerate environmental stress. The objective of this project is to develop and calibrate a minimum of three benthic indices for the mesohaline environments of San Francisco Bay.

Work Products
Calibrated benthic indices, technical report /journal article summarizing results

Plans for 2013
Following up on work completed in 2012, 2013 work will focus on developing and calibrating benthic indices, including testing for independence of each index from habitat variables such as salinity, sediment grain size distribution, sample depth, latitude, longitude, and total organic carbon. Next, the benthic indices will be evaluated and calibrated, and a summary report/journal article will be prepared.

1.10 Modeling

PROJECT CODE
RMP 2013

START DATE
January 2012 (2013 is the second year in a two-year project)

ANTICIPATED COMPLETION
December 2013

TOTAL FUNDING
$100,000 for 2013

FUNDING FOR SFEI LABOR
$30,000

FUNDING FOR 2013 SFEI LABOR
$30,000

STATUS
Active (2013 is the second year of funding for modeling work)

CLIENT
RMP Participants

LEAD SCIENTIST
Jay Davis

COLLABORATORS
Craig Jones, Sea Engineering; RWQCB; US Army Corps of Engineers; USGS

Project Description
The RMP is in the process of identify potential models that will answer key management questions such as: What is the contribution of contaminated Bay margins to Bay impairment and what are the projected impacts of Bay margin management actions to Bay recovery? What patterns of exposure are forecast for major segments of the Bay under various management scenarios? Answers to these questions will be useful for: the next iteration of the mercury and PCBs TMDLs in 2016-2020; modeling of nutrients; potential TMDLs for other contaminants; prioritizing remediation of small tributaries and contaminated margin sites; and identifying best options for management actions to reduce impairment

Work Products

3-D hydrodynamic/sediment model that can be coupled with basic water quality models.

Plans for 2013

In the last quarter of 2012, RMP staff will develop a tactical modeling plan that will clearly articulate the management questions that we expect to answer using the model, the strengths and weakness of the model selected, the cost and time associated with developing and maintaining the model, the institutional agreements that may be needed, and a draft schedule for nutrient and contaminant fate modeling. Building upon this effort, in 2013, we will develop the base hydrodynamic and sediment transport model (e.g., defining the grid, boundary conditions, model resolution, etc.). RMP staff will work with a team of modeling experts and RMP stakeholders to construct the model. Once the hydrodynamic/sediment model is developed, a basic water quality model for Suisun and South Bay will be added on to the base model to assist in understanding the system, to test hypotheses, and to inform data collection and future modeling efforts. This model will be used to synthesize nutrient load and concentration data (i.e., mass budgets); to assess relative importance of processes affecting phytoplankton productivity and nutrient cycling and to perform sensitivity analyses. Lastly, the 3-D model will be used to develop forecasts for particle-reactive and bioaccumulative contaminants.

1.11 Load Monitoring in Representative Watersheds

PROJECT CODE
RMP 2013

START DATE
October 2012 (sampling began late in 2012)

ANTICIPATED COMPLETION
December 2013

TOTAL FUNDING
$343,000

FUNDING FOR SFEI LABOR
$192,000

FUNDING FOR 2013 SFEI LABOR
$192,000

STATUS
Active (sampling began late in 2012)

CLIENT
RMP Participants

LEAD SCIENTIST
Lester McKee , Jennifer Hunt and Alicia Gilbreath

PROJECT MANAGER
Jennifer Hunt

COLLABORATORS
BASMAA, RWQCB, Caltest Analytical Laboratory, AXYS Analytical Laboratory, PERL, SJSURF Laboratory

Project Description

There is an urgent need for estimates of stormwater loads by watershed and by region. The recently adopted Municipal Regional Permit (MRP) specifically requires additional information on the loads of sediment and contaminants. In addition, the Mercury and PCB TMDLs require reductions in watershed loads by 50 and 90 percent, respectively.

Understanding the loads from representative watersheds will be critical for addressing these information needs and achieving these load reductions. The RMP will coordinate sampling of two sites: North Richmond Pump Station and Sunnyvale East Channel.

Work Products
Sampling of stormwater for 4 storms at each of the two RMP sites, QA/QC of data and a technical report summarizing results.

Plans for 2013
Sampling for WY 2013 will begin in late 2012 and will continue through Spring 2013. Data analysis will begin upon the completion of sampling with a technical report to be complete by the end of 2013.

1.12 Regional Watershed Spreadsheet Model – Year 4

PROJECT CODE
RMP 2013

START DATE
January 2013

ANTICIPATED COMPLETION
December 2013

TOTAL FUNDING
$25,000 for 2013

FUNDING FOR SFEI LABOR
$25,000

FUNDING FOR 2013 SFEI LABOR
$25,000

STATUS
Active (this is the fourth year of funding for the RWSM)

CLIENT
RMP Participants

LEAD SCIENTIST
Lester McKee and Alicia Gilbreath

PROJECT MANAGER
Jennifer Hunt

COLLABORATORS
BASMAA, RWQCB

Project Description
During the RMP 2010 calendar year (year 1 of this project), version 1 of the hydrology component of the regional watershed spreadsheet model (RWSM) was developed. During RMP 2011 calendar year (year 2 of this project), version 2 of the GIS-based hydrology model was developed following Y1 recommendations. During calendar year 2012 (year 3 of this project), a Copper test case model for RWSM was developed. The overall objective of this 2013 proposed study is to continue to develop and refine mass emissions estimates of Hg and PCBs for the region as a whole draining into the San Francisco Bay using single watersheds for calibration and verification purposes.

Work Products
A brief technical memo will be prepared that summarizes Hg and PCB modules.

Plans for 2013
2013 plans include:

- Refine the RWSM by incorporating spatial data (GIS layers) of PCB and Hg sources (developed with RMP 2012 EMC funding) as input data sets.
- Refine the RWSM by incorporating back calculations of land use-specific EMCs (developed with RMP 2012 EMC funding) as input data sets.

- Revise and complete Hg and PCB RWSM v2 testing and calibration. We will also evaluate model weaknesses through a sensitivity analysis (combinations of more and less source area classes and reasonable ranges of EMCs for each source class, hybrid models) and make any obvious or within budget improvements. Assumption: The model and documentation will not be packaged for external users. Such packaging and creation of supporting documentation (i.e., a user manual) may be a prioritized as a further step.

- Deliverable: 10 page technical memo

1.13 Development of Land-use and Source Area Specific Event Mean Concentration

PROJECT CODE
RMP 2013

START DATE
October 2012 (sampling began late in 2012)

ANTICIPATED COMPLETION
December 2013

TOTAL FUNDING
$80,000

FUNDING FOR SFEI LABOR
$80,000

FUNDING FOR 2013 SFEI LABOR
$80,000

STATUS
Active (sampling began late in 2012)

CLIENT
RMP Participants

LEAD SCIENTIST
Lester McKee , Jennifer Hunt and Alicia Gilbreath

PROJECT MANAGER
Jennifer Hunt

COLLABORATORS
BASMAA, RWQCB

Project Description

A critical input parameter for the Regional Watershed Spreadsheet model is the event mean concentration for POCs (EMCs). Although EMCs have been developed for Southern California, these data is not directly applicable to the PCB and mercury emissions in the Bay Area. The framework for the development of EMCs will differ by contaminant. In general, the following approach will be used: perform literature review for each contaminant to identify available EMC data and to characterize EMC values based on soil type, land use, etc.; use soil data to calibrate the suspended sediment spreadsheet model; evaluate loadings based on land use/source areas; develop GIS databases for proposed contaminant-specific land use or source area; using literature values and current loads estimate Bay Area specific EMCs; and lastly, monitor specific land use/source areas during wet weather events to confirm EMCs.

Work Products

Technical Report summarizing methods and results for inclusion in model documentation

Plans for 2013

The priorities for EMC development in 2013 are:

- Further refinement of GIS layers,

- Further computations of PCB and Hg EMC data for the land use and or source areas developed in the GIS layers,

- Empirical field data collection of EMC data for specific land uses or source areas (see project #10)

Recent Findings and Publications

Sedlak, M and D. Greig. In Press. Perfluoroalkyl Compounds (PFCs) in Wildlife from an Urban Estuary. Journal of Environmental Monitoring.

1.14 Management support for Small Tributaries Loading Strategy

PROJECT CODE
RMP 2013

START DATE
January 2013

ANTICIPATED COMPLETION
December 2013

TOTAL FUNDING
$20,000

FUNDING FOR SFEI LABOR
$20,000

FUNDING FOR 2013 SFEI LABOR
$20,000

STATUS
Will begin in January 2013

CLIENT
RMP Participants

LEAD SCIENTIST
Lester McKee

PROJECT MANAGER
Jennifer Hunt

COLLABORATORS
BASMAA, RWQCB

Project Description

A substantial amount of coordination is required to assure that the STLS activities are in alignment with other monitoring partners, BASMAA, the Regional Water Quality Control Board, and in accordance with the Municipal Regional Permit. This task will support STLS meetings to collaborate on WY2013 monitoring and to provide updates and solicit input on the spreadsheet model and EMC development

Work Products

Meetings and phone conferences

Plans for 2013

Support for the STLS will include quarterly STLS meetings and monthly phone conferences for updates, information sharing and solicit input on STLS projects.

1.15 Management Support for Nutrients Strategy

PROJECT CODE
RMP 2013

START DATE
January 2013

ANTICIPATED COMPLETION
December 2013

TOTAL FUNDING
$20,000

FUNDING FOR SFEI LABOR
$20,000

FUNDING FOR 2013 SFEI LABOR
$20,000

STATUS
Will begin in January 2013

CLIENT
RMP participants

LEAD SCIENTIST
David Senn

PROJECT MANAGER
Meg Sedlak/Emily Novick

COLLABORATORS
Nutrient Workgroup, Region 2 Water Board staff, Martha Sutula (SCCWRP), Lester McKee (SFEI), Jim Cloern (USGS), Dick Dugdale (SFSU-RTC), Mike Connor (EBDA)

Project Description

The SFB Nutrient Strategy is being developed and implemented through a collaborative process between the Water Board and multiple partners and stakeholders sharing the common vision of a healthy San Francisco Bay ecosystem. The Nutrient Strategy is being undertaken to support the development of nutrient water quality objectives for San Francisco Bay, the development of San Francisco Bay Water Board policy to address the discharge of nutrients, regulating decision-making. The Nutrient Strategy will also identify and evaluate control strategies for reducing nutrient loads should reductions be needed. Generating the scientific understanding needed to fully support all of the management decisions and questions will likely take substantial time and significant resources, and will involve complex decisions. This task involves managing the Nutrient Strategy implementation. Activities will include scientific oversight, stakeholder engagement, coordinating SAG meetings, coordinating external scientific review, information dissemination, fundraising, and overall program management (e.g., overseeing projects, project and contract management).

Work Products

Meetings and phone conferences with stakeholders. Development of budget and scopes or work for future nutrient projects.

Plans for 2013

Nutrient Workgroup meetings will be held approximately quarterly for updates, information sharing and solicit input on Nutrient projects. Small meetings with partners, stakeholders, and regional scientists will take place as needed.

1.16 Moored Sensor Monitoring Program

PROJECT CODE
RMP 2013

START DATE
January 2013

ANTICIPATED COMPLETION
December 2013

TOTAL FUNDING
$200,000

FUNDING FOR SFEI LABOR
$120,000

FUNDING FOR 2013 SFEI LABOR
$120,000

STATUS
Will begin in January 2013

CLIENT
RMP participants

LEAD SCIENTIST
David Senn

PROJECT MANAGER
Meg Sedlak/Emily Novick

COLLABORATORS
Nutrient Workgroup, Region 2 Water Board staff, Jim Cloern (USGS), David Schoellhamer (USGS)

Project Description

The USGS has monitored the water quality parameters in the Bay since the late 1960s. These data have been critical for determining the effects of nutrients on the Bay and will be essential for future modeling efforts. However, at the present time, the future of the USGS long-term water quality monitoring is uncertain. It will be important for

the RMP to begin to evaluate methods for cost-efficient monitoring. One opportunity may be the use of moored sensors. This project will evaluate a moored sensor that may be suitable for the Bay, select and calibrate the sensor, and then field test for approximately one month the sensor at the Redwood City dock used by the USGS Menlo Park staff. Once the system is deemed reliable, it will be installed at the Dumbarton Bridge at a site at which the USGS is currently maintaining turbidity and dissolved oxygen sensors.

Work Products

An operations and maintenance manual for the sensor and a technical memorandum summarizing the results of calibration and deployment of the moored sensor.

Plans for 2013

This project has been broken down into six subtasks. Task 1 focuses on sensor platform selection. The LOBO system (http://www.satlantic.com/lobo) is our initial recommendation, but other sensor platforms will be considered. In Task 2, the LOBO system will be calibrated and tested in the lab, and then field tested for ~1 month at the Redwood City dock near USGS Menlo Park. In Task 3 the system will be deployed on a bridge piling at Dumbarton Bridge in June 2013, in collaboration with David Schoellhamer (USGS). Data will be collected continuously from June-December 2013, with on-going QA/QC (Task 4). Discreet water samples will be collected periodically (bi-weekly) adjacent to the sensor and measured for the suite of parameters to validate sensor operation. An operation and maintenance manual will be developed (Task 5). Finally, a technical memo will be produced that presents initial data analysis and synthesis, and just as importantly describes lessons learned during year 1 and recommendations for next steps with moored sensor applications (Task 6).

1.17 Algal Biotoxin Monitoring

PROJECT CODE
RMP 2013

START DATE
January 2013

ANTICIPATED COMPLETION
March 2014

TOTAL FUNDING
$65,000

FUNDING FOR SFEI LABOR
$0

FUNDING FOR 2013 SFEI LABOR
$0

STATUS
Will begin in January 2013

CLIENT
RMP participants

LEAD SCIENTIST
Raphe Kudela (UC-Santa Cruz)

PROJECT MANAGER
Meg Sedlak/Emily Novick

COLLABORATORS
Nutrient Workgroup, Region 2 Water Board staff, USGS, UCSC

Project Description

This goal of this task is to develop, new more cost efficient methods for monitoring the Bay and is focused on the detection of algal toxins produced by harmful algal blooms (HABs). There was broad agreement within the conceptual model technical team that increased concentrations of algal toxins are one likely outcome of elevated nutrient loads to the Bay and Delta. Dr. Kudela at University of California at Santa Cruz (UCSC) and his colleagues have been investigating the use of a passive sampling method, Solid Phase Adsorption Toxin Tracking (SPATT), to monitor microcystin (and other toxin) levels in seawater. This project will provide continued funding for UCSC to collaborate with USGS on the deployment of SPATT during the USGS

monthly cruises of the Bay. In addition, the project will conduct calibration experiments to understand the relationship between the SPATT and ambient concentrations of HABs, develop best practices for handling and analyzing SPATTs, and evaluate optimal deployment times.

Work Products

Calibration of SPATT samplers to increase ability to interpret field results. A technical memorandum/ journal article summarizing results will be completed by March 2014.

Plans for 2013

This project is divided into three subtasks. In Task 1, it is proposed to continue deployment of SPATT during USGS monthly cruises and also at fixed locations at Dumbarton and Benicia Bridge for approximately 1 month. In Task 2, controlled experiments will be conducted in the laboratory to better characterize partitioning of phytotoxins out of solution and into the SPATT during exposure in ship-board flow-through systems. This "calibration" information will allow for more accurate back-calculations of average ambient concentrations in natural systems. In Task 3 a technical memo will be prepared that interprets the results from 2013 field sampling and the controlled experiments.
It is anticipated that results will also be published as a journal article, to be submitted in the first half of 2014.

1.18 Augment 2013 Storm Water Monitoring for Nutrient Analytes

PROJECT CODE
RMP 2013

START DATE
October 2012 (sampling began late in 2012)

ANTICIPATED COMPLETION
December 2013

TOTAL FUNDING
$40,000

FUNDING FOR SFEI LABOR
$20,000

FUNDING FOR 2013 SFEI LABOR
$20,000

STATUS
Active (sampling began late in 2012)

CLIENT
RMP participants

LEAD SCIENTIST
David Senn

PROJECT MANAGER
Meg Sedlak/Emily Novick

COLLABORATORS
Nutrient Workgroup, Lester McKee (SFEI), Jennifer Hunt (SFEI), Alicia Gilbreath (SFEI), Caltest Analytical Laboratory

Project Description

The RMP is funding storm water monitoring to quantify concentrations and loads of priority pollutants to the Bay from watersheds. Although nutrients are not the main focus of the POC study, three nutrient parameters (nitrate, total phosphorous, dissolved P) are among the current list of analytes. However, other important nutrient parameters that are needed to create a full picture of nutrient loads to the Bay are not being measured (total Kjeldahl nitrogen, ammonium, nitrite). This task will fund the collection and analyses of additional nutrient parameters at the two watersheds being sampled by

SFEI staff during the 2012-2013 wet weather season.

Work Products
Results of storm water sampling will be summarized in a memorandum.

Plans for 2013
Samples will be collected for additional nutrient parameters at the two RMP watersheds being sampled during the 2012-2013 rainy season. The additional analytes to be monitored are ammonium, nitrite and total Kjeldahl nitrogen. Data analysis will begin shortly after conclusions of sampling and a technical memo will be prepared in late 2013.

1.19 Nutrient Loading Study and Data Gaps Analysis

PROJECT CODE
RMP 2013

START DATE
January 2012 (2013 is the second year in a two-year study)

ANTICIPATED COMPLETION
May 2013

TOTAL FUNDING
$30,000 (for 2013)

FUNDING FOR SFEI LABOR
$30,000

FUNDING FOR 2013 SFEI LABOR
$30,000

STATUS
Active (2013 is the second year in a two-year study)

CLIENT
RMP participants

LEAD SCIENTIST
David Senn

PROJECT MANAGER
Meg Sedlak/Emily Novick

COLLABORATORS
Nutrient Workgroup, Region 2 Water Board staff, SCCWRP

Project Description
Quantifying external nutrient loads to San Francisco Bay was identified as high-priority funding item by the Nutrient Workgroup. Given that nitrogen (and to a lesser extent phosphorous) can experience multiple potential fates once entering an estuary, accurate load estimates are a pre-requisite for eventually developing reliable mass budgets and quantifying internal-Bay processes. In 2012, RMP staff have begun the process to develop spatially- and temporally-explicit estimates of nutrient loads to the Bay, and to identify critical data gaps that contribute most to current uncertainty in total loads, speciation of those loads, and the relative importance of various sources. Because this project began late in the year, it will continue into 2013. Within the process of noting major uncertainties and data gaps, this project will identify high-priority monitoring activities and special studies designed to better constrain nutrient load estimates. This project will also point out high-leverage opportunities for decreasing nutrient loads.

Work Products
Final technical report summarizing results to be complete by May 2013

Plans for 2013
This project will develop spatially- and temporally-explicit estimates of nutrient loads to the Bay, and identify critical data gaps that contribute most to current uncertainty in total loads, speciation of those loads, and the relative importance of various sources. A summary of external loads to the South Bay has already estimated by SFEI through funding from BACWA (McKee and Gluchowski, 2011). This project will expand that loading work into the Central and North Bay, develop daily, monthly, and annual load estimates, and explore the importance of uncertainties in loading and nutrient speciation.

The nutrient sources considered will include: POTW discharges; stormwater discharges; flows from the San Joaquin and Sacramento Rivers entering through the Delta, along with other smaller downstream tributaries; exchange across the Golden Gate; and direct atmospheric deposition. A technical report summarizing results will be complete by Mar 2013.

1.20 Copper and Olfaction in Salmon

PROJECT CODE
RMP 2013

START DATE
January 2013

ANTICIPATED COMPLETION
December 2013

TOTAL FUNDING
$38,000

FUNDING FOR SFEI LABOR
$0

FUNDING FOR 2013 SFEI LABOR
$0

STATUS
Will begin in January 2013

CLIENT
RMP participants

LEAD SCIENTIST
David Baldwin

PROJECT MANAGER
Meg Sedlak

COLLABORATORS
NOAA

Project Description

Copper has been a priority concern due to its acute toxicity to aquatic life. As a result of significant research demonstrating that much of the copper in the Bay is not bioavailable and the on-going observations of concentrations below water quality objectives, the Bay was delisted for copper. A copper site-specific objective was developed in 2007 that establishes water quality criteria for various segments within the Bay. The site-specific objectives specifically called for further study on the potential toxicity of copper to the olfactory system of salmonids.

Exposure to dissolved copper has been shown to cause olfactory impairment at relatively low concentrations in freshwater (e.g., 3 µg/L), resulting in an impaired avoidance respond to predators. However, preliminary research conducted by the Northwest Fisheries Science Center/ NOAA has demonstrated relatively little effects of copper in saltwater. The goal of this study is to vary salinity to understand when toxic effects begin to occur.

Work Products

Final technical report summarizing results.

Plans for 2013

Studies in 2013 build upon work from previous years, except they will occur at a range of salinities to evaluate the effect of copper in more freshwater environments. Following the completion of studies, a technical report will be produced that summarizes the results.

2. Bioaccumulation Monitoring and Assessment

2.1 SWAMP Bioaccumulation Rivers & Streams Year 1

PROJECT CODE
1066.9

START DATE
4/1/11

ANTICIPATED COMPLETION
6/30/13

TOTAL FUNDING
$154,145

FUNDING FOR SFEI LABOR
$137,000

FUNDING FOR 2013 SFEI LABOR
$95,000

STATUS
Active

DIRECT CLIENT
SJSURF

PRIMARY CLIENT
SWRCB

LEAD SCIENTIST
Jay Davis

PROJECT MANAGER
Jennifer Hunt

COLLABORATORS
State and Regional Boards, CDFG
United States Geological Survey

Project Description

The Surface Water Ambient Monitoring Program (SWAMP) Roundtable has formed a subcommittee, the Bioaccumulation Oversight Group (BOG) that develops plans for and guides implementation of SWAMP bioaccumulation monitoring. The BOG has also convened a Bioaccumulation Peer Review Panel that is providing evaluation and peer review of the bioaccumulation program. SFEI coordinates the BOG and is the technical lead for SWAMP bioaccumulation monitoring. The BOG is evaluating bioaccumulation impacts on the fishing beneficial use in all California water bodies. Sampling of lakes and reservoirs was conducted in the first two years (2007 and 2008). In 2009 and 2010, the California coast, including bays and estuaries, were being sampled. Rivers and streams will be sampled in 2011 and data analysis and reporting will occur in 2012/2013.

Work Products

A report on the findings of the two-year survey of Contaminants in Fish from California Coastal Waters, along with a fact sheet, press release, and posting of the data on the California Water Quality Monitoring Council's web portal.

Plans for 2013

Activities in 2013 under Project 1066.9 will relate to data management and development of a draft report on the findings of the 1st and only year of the survey of Contaminants in Fish from California Rivers and Streams.

Recent Findings and Publications

Davis, J.A., Ross, J.R.M., Bezalel, S.N., Hunt, J.A., Melwani, A.R., Allen, R.M., Ichikawa, G., Bonnema, A., Heim, W., Crane, D., Swenson, S., Lamerdin, C., Stephenson, M., Schiff, K. 2012. Contaminants in Fish From the California Coast, 2009-2010 Summary Report on a Two-Year Screening Survey

Project Status

Fish collection was completed in 2011. Sample analysis was complete in 2012 except for 2 samples that needed to be re-analyzed. Data have been QA QC reviewed and validated and are ready for analysis and reporting.

2.2 Wildlife Biomagnification Study

PROJECT CODE
1094.00

START DATE
1/5/2012

ANTICIPATED COMPLETION
3/31/2014

TOTAL FUNDING
$330,800

FUNDING FOR SFEI LABOR
$120,438

FUNDING FOR 2013 SFEI LABOR
$50,000

STATUS
Active

DIRECT CLIENT
San Jose State University Research Foundation

PRIMARY CLIENT
State Water Resources Control Board

LEAD SCIENTIST
Jay Davis

PROJECT MANAGER
Jen Hunt

COLLABORATORS
USGS, MLML, DFG-WPCL

Project Description
The Surface Water Ambient Monitoring Program (SWAMP) needs information on pollutant levels in wildlife (birds and fish) in the state of California. Grebes and fish will be collected from 12 lakes in California and analyzed for Mercury. Biomagnification factors for mercury exposure in wildlife will be estimated from mercury concentrations in a lower trophic level prey animal (small fish). This biomagnification factor can then be used for translating small fish mercury concentrations to bird mercury concentrations.

Work Products
Draft and Final Report

Plans for 2013
Sample analysis will continue in 2013 and data analysis/reporting will begin at the end of 2013

Recent Findings and Publications
SWAMP/RMP/Bight Program Report on Contaminants in Fish from the California Coast, 2011

Project Status
Active

2.3 Lindsey Slough Methyl Hg Study

PROJECT CODE
1082

START DATE
12/1/08

ANTICIPATED COMPLETION
12/31/14

TOTAL FUNDING
$89,446

FUNDING FOR SFEI LABOR
$79,014 estimated

FUNDING FOR 2013 SFEI LABOR
$39,000 estimated

STATUS
Active

DIRECT CLIENT
Solano Land Trust

PRIMARY CLIENT
California Department of Fish and Game

LEAD SCIENTIST
Don Yee

PROJECT MANAGER
Jennifer Hunt

COLLABORATORS
Brooks Rand, EBMUD

Project Description
Solano Land Trust needs to implement a methylmercury characterization study in association with the Lindsey Slough Enhancement Project, a Freshwater Tidal Wetland Enhancement Project in the Northwest Delta. Methylmercury monitoring and analysis will be conducted before and after project instruction in order to characterize the effects of tidal wetland enhancement on methylmercury levels in the project area and methylmercury loading to the Delta.

Work Products
A pre-restoration and post-restoration report.

Plans for 2013
There are plans to begin post construction monitoring beginning in the fall 2013 with the bulk of post construction monitoring occurring in 2014. This project will need to be re-scoped and re-budgeted since delays in restoration construction has resulted in delays for post construction monitoring. Rescoping will occur in the 1st quarter 2013.

Recent Findings and Publications
Yee, Donald. 2011. Lindsey Slough Enhancement Pre-Construction Methylmercury Characterization Study

Project Status
Post construction monitoring will begin after restoration work in the study area. Monitoring is slated to begin in Fall 2013

2.4 Quality Assurance Project Plan Assistance for EPA

PROJECT CODE
4086

START DATE
12/1/12

ANTICIPATED COMPLETION
2/28/13

TOTAL FUNDING
$35,000

FUNDING FOR SFEI LABOR
$35,000

FUNDING FOR 2013 SFEI LABOR
$5,000

STATUS
Contract in negotiation

DIRECT CLIENT
State Coastal Conservancy

FUNDING SOURCE
EPA

LEAD SCIENTIST
Josh Collins

PROJECT MANAGER
Jennifer Hunt

COLLABORATORS
USGS

Project Description
Assist USGS scientists in developing a QAPP for South Bay Salt Pond Mercury Studies (bathymetry/core analysis in Alviso Slough, flow/sediment flux analysis in Alviso Slough and diel concentrations of methylmercury in Alviso Slough)

Work Products
Final EPA approved QAPP

Plans for 2013
Begin writing QAPP

Project Status
In negotiations

3. Watershed Loadings

3.1 Grasslands Bypass Report

PROJECT CODE
1091

START DATE
4/1/02

ANTICIPATED COMPLETION
9/30/15

TOTAL FUNDING
$1,016,210

FUNDING FOR SFEI LABOR
$955,350

FUNDING FOR 2013 SFEI LABOR
$97,000

STATUS
Active

DIRECT CLIENT
U.S. Bureau of Reclamation

PRIMARY CLIENT
Same

LEAD SCIENTIST
Nicole David

PROJECT MANAGER
Same

COLLABORATORS
Dr. Andrew Gordus, Rachel MacNeal (California Department of Fish and Game)

Chris Linneman, Joe McGahan (Summers Engineering Inc.)

Gail Louis, Eugenia McNaughton, Karen Schwinn (U.S. Environmental Protection Agency)

William Beckon, Thomas Maurer, Kim Forrest, Dennis Woolington (U.S. Fish and Wildlife Service)

Dan Nelson, Frances Mizuno (San Luis & Delta-Mendota Water Authority)

Chris Eacock, Julie Eldredge, John Field, Tim McLaughlin, Victor Stokmanis (U.S. Bureau of Reclamation)

Jeanne Chilcott, Gail Cismowski, Joe Karkoski, Rudy Schnagl (California Regional Water Quality Control Board)

Theresa Presser, Neal Dubrovsky, Joe Grant, Steve Schwarzbach, Mark Woloszyk (U.S. Geological Survey)

Project Description

The Project prevents discharge of subsurface agricultural drainage water into wildlife refuges and wetlands in central California. The drainage water is conveyed instead through a segment of the San Luis Drain to Mud Slough, a tributary of the San Joaquin River. The Project improves water quality in the wildlife refuges and wetlands, sustains the productivity of 97,000 acres of farmland, and fosters cooperation between area farmers and regulatory agencies in drainage management reduction of selenium, boron, and salt loading.

Work Products

Monthly, quarterly, and annual reports

Plans for 2013

Complete all 2013 deliverables as soon as data are available. Additional summary chapter for annual report written by SFEI. Possibly shorter report (fact sheet) with feature article and data highlights.

All data will be uploaded into CEDEN.

Recent Findings and Publications

Annual Report 2009-10 was published in October 2012 online and will be printed when all edits are completed.

Project Status

This project continues to monitor impacts of the use of a portion of the San Luis Drain for conveyance of

agricultural discharge. SFEI collects and disseminates data generated by the participating institutions. Monthly, quarterly, and annual data reports are currently presented on a web page for USBR and public data users.

3.2 Geomorphology and Sediment Source Analysis

PROJECT CODE
5072

START DATE
6/1/10

ANTICIPATED COMPLETION
5/24/13

TOTAL FUNDING
$380,000

FUNDING FOR SFEI LABOR
$238,713

FUNDING FOR 2013 SFEI LABOR
$10,000

STATUS
Active

DIRECT CLIENT
Alameda County Flood Control and Water Conservation District

PRIMARY CLIENT
Same

LEAD SCIENTIST
Lester McKee / Sarah Pearce

PROJECT MANAGER
Jennifer Hunt

COLLABORATORS
CEMAR, DHI Water and Environment, Watershed Sciences, Restoration Design Group, Paul Bigelow, Mitch Swanson

Project Description

SFEI is coordinating a team of scientists and engineers to provide support for improved management of ACFC&WCD facilities focusing on two main issues; sediment supply and transport through the Alameda Flood Control Channel than passes through Fremont and the supply of sediment to Don Castro Reservoir. The Fremont Flood Control Channel component has a number of sub tasks. The first subtask included facilitation of the annual Alameda Creek watershed annual meeting and facilitation of a field trip to the San Lorenzo system in Santa Cruz and the development of a lessons learned document from the decadal experience in that system as a tool for facilitating discussion between the DISTRICT and regulators (primarily the Water Board and CDFG and FWS). The outcomes were improved dialogue and a number of supporting written product (field trip notes, a PP presentation and written report of the history of channel mods in the San Lorenzo system, and a tabular comparison between the San Lorenzo and Alameda Creek systems. The remaining tasks for the Alameda system include a technical reports on sediment supply from Sinbad and Stonybrook Creeks, sedimentation and channel processes in the flood channel, a biological inventory of the flood channel and conceptual design options for a number of problem areas. The project was delayed considerably due to disagreement at the DISTRICT as to the scope but we are now entering the last 6 months and the period when a number of the products will be finalized.

Work Products

Draft reports on all tasks have been submitted to the funder for review. Work in 2013 will be dependent on the scope of comments received.

Plans for 2013

Finalize reports.

Recent Findings and Publications

To-date we have produced an number of technical reports to support the Alameda County Flood Control and Water Conservation District. These are available on our website and include:

McKee, L.J., and Pearce, S., 2011. Comparison of Alameda Creek Flood Control Project in Alameda County to the San Lorenzo River Flood Control Project in the City of Santa Cruz. Memo delivered to the Alameda County Flood Control and Water Conservation District as part deliverable to SFEI Task 2, contract number 5132, December 8, 2010. 4pp.

Pearce, S., and McKee, L., 2010. 12/8/10 Santa Cruz San Lorenzo River Fieldtrip Summary. Memo prepared for to the Alameda County Flood Control and Water Conservation District as part deliverable to SFEI Task 2, contract number 5132, December 8, 2010

Swanson Hydrology and Geomorphology, 2010. San Lorenzo River Flood Control Project, Levee Retrofit and Revised Maintenance Measures: An example of performance based maintenance. Report to the Alameda County Flood Control and Water Conservation District as part deliverable to SFEI Task 2, contract number 5132, December 8, 2010

Pearce, S., Bigelow, P., and McKee, L., 2009. Dry Creek Watershed Sediment Source Reconnaissance. A technical report of the Regional Watershed Program prepared for Alameda County Flood Control and Water Conservation District (AFC&WCD): SFEI Contribution 595. San Francisco Estuary Institute, Oakland CA.

Pearce, S., and McKee, L., 2009. Alameda Creek Bulk Sediment Study. A technical report of the Regional Watershed Program prepared for Alameda County Flood Control and Water Conservation District (AFC&WCD): SFEI Contribution 596. San Francisco Estuary Institute, Oakland CA,

McKee, L., 2009. Review of sediment gauging studies in Alameda Creek Watershed. SFEI Contribution #571. San Francisco Estuary Institute, Oakland, CA.

Bigelow, P., Pearce, S., McKee, L., and Gilbreath, A., 2008. A Sediment Budget for the Alameda Creek Channel between Niles Canyon, Arroyo De La Laguna at Verona and Alameda near the Welch Creek Confluence. A Technical Report of the Regional Watershed Program: SFEI Contribution #550. San Francisco Estuary Institute, Oakland, CA. 140pp + Appendix.

Gilbreath, A.N, and McKee, L.J, 2008. Spatiotemporal variation of turbidity in Alameda Creek and selected tributaries: August thru December 2007. A Technical Report of the Regional Watershed Program: SFEI Contribution 547. San Francisco Estuary Institute, Oakland, CA. 53pp + Appendices

Project Status
Ongoing

3.3 Sedimentation Study of Arroyo Mocho & Arroyo Las Positas

PROJECT CODE
5075

START DATE
10/1/10

ANTICIPATED COMPLETION
10/31/14

TOTAL FUNDING
$244,000 (+$150,000 in negotiations for a total of $394,000)

FUNDING FOR SFEI LABOR
$311,139

FUNDING FOR 2013 SFEI LABOR
$78,500

STATUS
Active ($150K add-on in negotiations)

DIRECT CLIENT
Alameda County Flood Control and Water Conservation District (Zone 7)

PRIMARY CLIENT
Same

LEAD SCIENTIST
Lester McKee

PROJECT MANAGER
Alicia Gilbreath

COLLABORATORS
N/A

Project Description

Zone 7 Water Agency maintains 37 miles of channels that receive and convey urban drainage from the tri-cities and runoff and eroded sediment from the watersheds of Arroyo Mocho, Arroyo Las Positas and tributaries to the north totaling approximately 220 square miles. In recent several decades, population has increased dramatically and agriculture has been shifting in the Valley from non-irrigated rangeland to irrigated and controlled drainage viticulture. As a result, the flow of sediment and water has continued to evolve so that now there is evidence of sedimentation and modeling now indicates that the combination of loss of capacity from sedimentation coupled with increased peak flows has lead to channels that do not pass design flows in some reaches. In addition, the Zone 7 has been coming under pressure to include improved habitat and water quality function as well as flood control function to its operating procedures. Obtaining permits for routine maintenance activities, such as sediment removal, is more challenging than ever before.

These issues have caused the Zone 7 to embark upon a 3-year fact finding study to directly support improved modeling for design and compliance purposes and decisions about future operations and maintenance of its facilities focusing on the mainstem of Arroyo Mocho upstream from Alamo Canal and downstream from the Arroyo Mocho at Hagemann gage (the study area). The sub-objectives of this fact finding effort are:

- Determine the flow of water and sediment into and out of mainstem Arroyo Mocho,
- Determine characteristics, rates, and causes of sedimentation in DISTRICT channel facilities,
- Develop a sediment budget for the study reach as a tool for clearly communicating the main sources and processes affecting the function of DISTRICT channels within the study area,
- Map and characterize channel modification and mitigation opportunities based on a comparison of historic and modern channel function,
- Communicate findings primarily to the DISTRICT and also to stakeholders within the Alameda Watershed Council.

In addition, Zone 7 is funding a project that will utilize and further the existing historical ecology study in the Alameda Creek watershed. Tasks include acquiring and compiling additional historical and contemporary data; analysis of historical landscape patterns and landscape change in support of planning efforts; and providing technical support for development of alternative management strategies.

Work Products

2. A series of technical reports on
3. Data and literature review
4. Suspended sediment and bedload measurements,
5. Sediment supply processes and loads from the northern tributaries
6. Sediment deposition rates and character in the flood control channels
7. Sediment budget for the study area
8. Historical Ecology interpretations, and a series of GIS layers and raw data files.

A final report including synthesis and recommendations.

The historical ecology component of the study will include a new chapter in the Alameda Creek Watershed Historical Ecology Study, and a final report on the detailed work completed for Zone 7.

Plans for 2013
Measure suspended sediment load and bedload for 3 stations

Second phase of the project (contract pending) that will include completion of efforts on sediment transport, channel characterizations, sediment budget, and historical ecology.

Recent Findings and Publications
Three reports in full draft or in progress but not final yet.

Project Status
Ongoing

3.4 BASMAA Pollutants of Concern (POC)

PROJECT CODE
6528/6535

START DATE
11/22/11

ANTICIPATED COMPLETION
10/31/13

TOTAL FUNDING
$710,907

FUNDING FOR SFEI LABOR
$352,828

FUNDING FOR 2013 SFEI LABOR
$215,000

STATUS
Active

DIRECT CLIENT
BASMAA

PRIMARY CLIENT
Same

LEAD SCIENTIST
Meredith Williams

PROJECT MANAGER
Cristina Grosso/Jen Hunt

COLLABORATORS
ADH, BASMAA

Project Description
This project will assist BASMAA with their regional Pollutants of Concern (POC) monitoring and coordinate efforts with the RMP's Small Tributaries and Loadings Study. The scope of work, which supports the Municipal Regional Permit (MRP) section C.8.e RMC 5d, includes various tasks required to develop and maintain the POC information management system.

For water year 2013, six sites will be sampled for 4 storms (24 sampling events). In addition, 3 sites will be sampled for five carryover storms from water year 2012.

Work Products
Products for this project include: (1) subcontract with the four different analytical laboratories, (2) perform laboratory contract management, (3) modify and maintain the project's data review and access tool(4) perform data quality assurance review and data management services, (6) provide preliminary data analysis and presentation of results for water years 2012 and 2013, (6) coordinate with the RMP's Small Tributaries and Loadings Study, and (7) perform data quality assurance review and data management services for the inter-comparison datasets from four analytical laboratories used during water year 2012.

Plans for 2013
The data for this project will be received in 2013. SFEI staff will maintain the project's data review and access, perform data quality assurance review and data management services, and provide preliminary data analysis and presentation of results for water years 2012 and 2013.

Recent Findings and Publications
In 2012, the subcontracts with the analytical laboratories were developed, and SFEI staff participated in meetings to coordinate this project with the RMP's Small Tributaries and Loadings Study.

Project Status
Active

3.5 On-call Water Quality and Pollutant Control Consulting

PROJECT CODE
5076

START DATE
10/5/10

ANTICIPATED COMPLETION
9/30/15

TOTAL FUNDING
$200,000

FUNDING FOR SFEI LABOR
$150,000

FUNDING FOR 2013 SFEI LABOR
$34,000

STATUS
Active

DIRECT CLIENT
ACFC & WCD

FUNDING SOURCE
ACFC & WCD/BASMAA

LEAD SCIENTIST
Lester McKee

PROJECT MANAGER
Cristina Grosso/Jennifer Hunt

Project Description
During 2010 and 2011, SFEI completed contaminant profiles and model workplan recommendations for PCBs, Hg, Dioxins, Cu, and Se (Lent and McKee, 2011). Five components went into developing each profile: 1. A review of known uses for each substance (Hg, PCBs, Cu, Dioxins, and Se), 2. A review of regulatory data bases on contaminated sites/ spills (Hg, PCBs, and Cu), 3. A review of local and world soils literature (Hg, PCBs, Se), 4. A review of concentrations in stormwater (Hg, PCBs, Cu, Dioxins, and Se), and 5. A general commentary on presently known GIS layers in relation to the recommended land use / source area categories resulting from the first four components. The outcome of this task will be contaminant profiles and model workplan recommendations for PBDE, DDT, chlordane, and dieldrin based on a selection of these steps.

Suspended sediment (SS) is an important vector for many pollutants. In 2008/09 the RMP completed a detailed analysis of SS flowing to SF Bay from local tributaries in the 9-counties adjacent to the Bay (Lewicki and McKee, 2009). During 2011, the first versions of the SS RWSM was developed using local land use based SSC EMC data (BASMAA, 1995). The results were questionable but informative. The outcomes of the SS RWSM differed substantially and non-systematically from Lewicki and McKee (2009) leading us to recommend improving the Lewicki and McKee (2009) model as the best path. Weakness in the Lewicki and McKee (2009) analysis included the treatment of urban upland land use categories without regard for base geology (known to have highly variable erosivity in the Bay Area). SFEI and many Bay Area consulting firms have completed geomorphic studies that describe either quantitatively or qualitatively landscape erosion in relation to land use and geology/soils.

Work Products
PBDE, DDT, chlordane, and dieldrin contaminant profiles and model set up. 10 page technical memo including methods, results and any recommended phase II improvements for the sediment model.

Recent Findings and Publications
Complete contaminant profiles and sediment model.

4. Nutrient Science

4.1 Nutrient Strategy Development and Implementation

PROJECT CODE
1092

START DATE
02/17/2012

ANTICIPATED COMPLETION
06/30/2013

TOTAL FUNDING
$350,000

FUNDING FOR SFEI LABOR
$301,600

FUNDING FOR 2013 SFEI LABOR
$113,000

STATUS
Active

DIRECT CLIENT
BACWA

PRIMARY CLIENT
Same

LEAD SCIENTIST
Dave Senn

PROJECT MANAGER
Meg Sedlak

COLLABORATORS
Region 2 Water Board, SCCWRP, USGS, SFSU-RTC

Project Description

San Francisco Bay has long been recognized as a nutrientenriched estuary, but one that has historically proven resilient to the harmful effects of nutrient enrichment, such as excessive phytoplankton blooms and hypoxia. However, evidence is building that, since the late 1990s, the historic resilience of the Bay to the harmful effects of nutrient enrichment is weakening, as shown through significant increases in phytoplankton biomass (e.g., Cloern et al., 2007) and through hypothesized linkages between elevated ammonium and decreased diatom primary productivity rates (e.g., Dugdale et al. 2007).

Concurrently, the State Water Resources Control Board (State Board) has begun developing numeric objectives for nutrients in estuaries, and has adopted the Nutrient Numeric Endpoint (NNE) framework for this work. The NNE framework utilizes biological indicators as endpoints combined with loadresponse modeling to determine nutrient loads to estuaries that are protective of beneficial uses. The California Regional Water Quality Control Board, San Francisco Region, (Regional Water Board) is using the NNE approach to develop nutrient objectives for the San Francisco Bay. An early product of that effort was a literature review (McKee et al., 2011) that identifies candidate biological indicators for the Bay and important science and data gaps that need to be addressed along the path to setting nutrient objectives.

In response to the apparent changes in the Bay's resilience to nutrient loading and recognizing the need for nutrient objectives, Regional Water Board staff and various Bay stakeholders have begun the process of developing a Nutrient Strategy. An initial draft strategy was developed in 2011, with a main goal of laying out a well reasoned and cost effective program to generate the scientific understanding needed to fully support major management decisions related to nutrients. The draft strategy has four main work elements: i) defining the problem; ii) monitoring program development and implementation; iii) developing a nutrient assessment framework; iv) developing a modeling strategy that can be used to assess potential impacts of various management actions.

Within the framework of the Regional Water Board and BACWA's cooperative effort on nutrients in San Francisco Bay, this project will support on going nutrient strategy development, and begin work on two sets of high priority projects. The proposal consists of four main tasks: Task 1: Administration and Reporting; Task 2: Coordination of Nutrient Strategy Development and Implementation; Task 3: Numeric Models and Budgets: Suisun Bay and South Bay; and Task 4: Synthesis of Science Supporting

Management Decisions in Suisun Bay. This work will be carried out by the SFEI in collaboration with the Southern California Coastal Water Research Project (SCCWRP), and in cooperation with the Regional Water Board, BACWA, other regional stakeholders, and regional scientists.

Work Products

- Stakeholder Advisory Group (SAG) meetings
- Nutrient Strategy
- SF Bay Nutrient Website
- Study Plan for Suisun and South Bay Numeric Models
- Suisun Bay science synthesis report and study plan

Plans for 2013

Up to 3 SAG meetings for progress updates and iteratively developing the Bay Nutrient Strategy (Task 2). Developing scope for additional Suisun Bay Synthesis and Lower South Bay Synthesis (Task 3 and 4) and beginning data analysis and synthesis.

Project Status

A revised draft of the Bay Nutrient Strategy and a first draft of the Suisun Bay Synthesis are complete. Revision of the Suisun Bay Synthesis, and the Nutrient Strategy as needed, will continue in 2013. The project continues to synthesize existing data for both Suisun Bay and Lower South Bay in preparation for upcoming synthesis documents.

4.2 Nutrient and Phytoplankton Monitoring Program

PROJECT CODE
10xx

START DATE
1/1/13

ANTICIPATED COMPLETION
12/31/13

TOTAL FUNDING
$50,000

FUNDING FOR SFEI LABOR
$35,000

FUNDING FOR 2013 SFEI LABOR
$35,000

STATUS
Active

DIRECT CLIENT
SJSURF

FUNDING SOURCE
SWRCB

LEAD SCIENTIST
David Senn

PROJECT MANAGER
Meg Sedlak/Emily Novick

COLLABORATORS
J Cloern (USGS), T Schraga (USGS), M Sutula (SCCWRP), A Jassby (UC Davis, retired), Region 2 Board staff, BACWA reps

Project Description

Over the next 2-5 years, a regional nutrient monitoring program needs to be developed for the Bay. The current thinking is that this program would be managed by the RMP, designed to address management questions and inform regulatory decisions, and that it will involve the gradual migration of aspects of the current USGS water quality research program to the RMP, complemented by additional activities.

This project will involve initial planning for nutrient monitoring program development, including: identifying goals and priorities for the monitoring program (what/where/how frequently to measure); developing a range of program structures that would achieve monitoring program goals (e.g., combination of ship-based measurements and moored sensors) and cost estimates for these different structures; and identifying key partnerships, and holding meetings to lay the groundwork for institutional agreements that need to be put in place.

The main deliverable of this project will be a technical report that lays out the range of monitoring program goals, potential structures, and costs associated with those structures.

Work Products
Report describing range of options for Bay nutrient monitoring program, including cost estimates.

Plans for 2013
Selecting technical team, planning approach, initial meetings with technical team and stakeholders to identify priorities and approaches.

Project Status
Contract signed

4.3 Nutrient Modeling in the Delta

PROJECT CODE
10xx

START DATE
1/1/13

ANTICIPATED COMPLETION
12/31/13

TOTAL FUNDING
$181,000

FUNDING FOR SFEI LABOR
$72,842

FUNDING FOR 2013 SFEI LABOR
$72,842

STATUS
In negotiations

DIRECT CLIENT
IEP

FUNDING SOURCE
Same

LEAD SCIENTIST
Dave Senn

PROJECT MANAGER
Emily Novick

COLLABORATORS
USGS/RMA

Project Description
The Sacramento-San Joaquin Delta and Suisun Bay are highly altered ecosystems with complex hydrology and biogeochemistry. The IEP's conceptual model for the Pelagic Organism Decline (POD) recognizes that multiple factors may be acting in concert to degrade habitat and contribute to the sudden decline in both native and non-native pelagic fish species (Baxter et al 2010). Elevated nutrient loads and concentrations are considered one potential factor, and specifically elevated ammonium, which some studies suggest may be exerting a bottom-up effect by inhibiting primary productivity (Dugdale et al 2007; Parker et al., 2012). Other studies argue that changes in nutrient ratios and forms of N could also exert strong bottom-

up pressures on Delta and Suisun food webs (e.g., Glibert et al., 2011). However, there remains a lack of consensus on the potential role that ammonium and other nutrients play in this system (e.g., Cloern et al 2012). In order to inform important and potentially costly management decisions aimed at reducing nutrient loads, substantially improved information on load quantification, sources of nutrients, and nutrient transformations within the Delta are needed.

This project will synthesize existing water quality data and stable isotope data, along with existing hydrologic/hydrodynamic models, to quantify loads to the Delta (internal and external), characterize nutrient transformations and losses during transit through the Delta, and quantify nutrients loads to Suisun Bay. Nutrient-related data from the Bay-Delta EMP will first be combined with flow data from DAYFLOW to perform a coarse mass balance to quantify loads and transformations (e.g., analogous to the approach for organic matter used by Jassby and Cloern 2000). This approach will be complemented at finer spatial and temporal resolution by reactive transport modeling using the Delta Simulation Model 2 (Guerin, 2011) and by using the wealth of stable isotope data recently collected along transects and over time in the Delta, Suisun, and along river stretches (Kendall et al 2008). Transformations and loads will be quantified for a range of representative hydrologic forcings and across months/seasons both to improve our understanding of nutrient dynamics in the system and to serve as an upstream loading condition for upcoming modeling efforts in Suisun Bay and other seaward sub-embayments as part of the Bay Nutrient Strategy. Results will inform how nutrient loads through the Delta will vary under future hydrologic conditions, including those resulting from changes in water withdrawals, future restoration efforts, and interannual and climate-change related variations in precipitation and runoff.

Work Products

Project outputs will include a technical report on results, a calibrated/validated model on nutrient loads and transformations in the Delta and a peer-reviewed manuscript.

Plans for 2013

During the first quarter of 2013, compilation and analysis of existing ambient water quality data for the Delta and North SF Bay will begin, with a focus on identifying seasonal and temporal variations in nutrient concentrations as well as performing a rough mass balance on the Delta to evaluate the magnitude of sources, sinks and transformations within. Also during the first quarter of 2013, stable isotope data will be incorporated into an updated version of the DSM-2 model to further resolve sources and transformations and update the model to 2011. In the second and third quarter, the newly calibrated/validated model will be applied to the Delta to characterize and quantify major drivers of nutrient concentrations and downstream loads. Report preparation will occur during the fourth quarter, including monitoring recommendations based on model results.

Project Status

This project was approved by the IEP in November 2012 and work is expected to begin in January 2013.

NEW INITIATIVE

5. Green Infrastructure

5.1 Estuary 2100 & Newcomb Model Block

PROJECT CODE
5065

START DATE
3/1/09

ANTICIPATED COMPLETION
12/31/13

TOTAL FUNDING
$268,750

FUNDING FOR SFEI LABOR
$267,760

FUNDING FOR 2013 SFEI LABOR
$31,000

STATUS
Active

DIRECT CLIENT
ABAG

PRIMARY CLIENT
EPA

LEAD SCIENTIST
Meredith Williams

PROJECT MANAGER
Kristen Cayce

COLLABORATORS
13 project partners: Bahia Restoration Project (Marin Audubon Society), Yosemite Slough Restoration (California State Parks Foundation), Littorina Eradication (CRAB), Stream Management Program for Landowners (Urban Creeks Council), Shoreline Habitat Restoration (Save the Bay), Invasive Spartina Project, Wetland Adaptation Techniques in the Lower Corte Madera Creek Watershed (BCDC), Habitat Evolution Monitoring and Pond A8 Mercury Monitoring (South Bay Salt Ponds), Stream Channel Restoration Design Curves (Waterways Restoration Institute), Green Solutions (Community Conservancy International), Bayview Model Block (City and County of San Francisco/SFPUC), Santa Clara County Senador Mines (Santa Clara County)

Project Description

In November 2009, the Estuary Partnership was awarded a $4.8 million grant from the U.S. Environmental Protection Agency's San Francisco Water Quality Improvement Fund to improve the health of the Estuary. The Institute has been providing technical and monitoring support to project partners, by reviewing project design, and developing monitoring protocols and Quality Assurance Project Plans (QAPPs), managing data, and preparing technical reports. The Institute was funded to promote local stewardship of watershed-scale maps to assist TMDL implementation. Lastly, we will adapt and refine methodologies from the USGS to characterize anticipated shoreline changes due to project results and climate change in the North Bay.

Work Products

1. Reviewed, written and/or expedited 13 QAPPs
2. Developed the Transitional Ecotone Vegetation protocol and an online data management tool to support the protocol
3. Final report summarizing SFEI's participation in and key lessons learned from E2100 projects
4. Provided data management services to E2100 project partners including Transitional Ecotone Vegetation Protocol, Senador Mine monitoring data, and State of the Estuary data repository
5. Landscape change analysis completed to quantify changes in wetland extent over time focusing on Napa Valley and Coyote Creek Watershed.

6. Newcomb model block project report detailing project summary, monitoring plan, data analysis, and interpretation.

Plans for 2013

1. QAPP support for Senador Mine post-project monitoring, and the re-envisioned Stonybrook and Urban Creeks Council projects.

2. Data analysis of Transitional Ecotone Vegetation Protocol data

3. E2100 final report

4. Third year of monitoring data will be collected for the Newcomb Model Block project after improvements to the LID treatment site is complete and completion of the final report as an appendix to the larger project

Project Status

- Newcomb model block project is preparing for a 3rd year of monitoring.

- Development of the final report.

5.2 Estuary 2100 Phase 2

PROJECT CODE
5069

START DATE
3/10/10

ANTICIPATED COMPLETION
1/1/14

TOTAL FUNDING
$370,000

FUNDING FOR SFEI LABOR
$370,000

FUNDING FOR 2013 SFEI LABOR
$208,500

STATUS
Active

DIRECT CLIENT
ABAG

PRIMARY CLIENT
EPA

LEAD SCIENTIST
Josh Collins

PROJECT MANAGER
Kristen Cayce

COLLABORATORS
5 project partners:

Napa/Sonoma TMDL support North Bay Watershed Association, Yosemite Slough Restoration (California State Parks Foundation), North Richmond Dry Weather Flow Treatment Bypass (Contra Costa County Flood Control District), Living Shoreline subtidal restoration at Corte Madera Creek and Eden Landing (CA Coastal Conservancy, Marin Open Space District, San Francisco State University), LID Tree Well Filters (City of Fremont).

In addition, The Watershed Program will provide monitoring support of the Richmond stormwater diversion.

Project Description

In November 2009, the Estuary Partnership was awarded a $3.3 million grant from the U.S. Environmental Protection Agency's San Francisco Water Quality Improvement Fund to improve the health of the Estuary. The Institute is again providing technical and monitoring support to project partners, by reviewing project design, and developing monitoring protocols and Quality Assurance Project Plans (QAPPs), managing data, and preparing technical reports. In addition, The Watershed Program will provide monitoring support of the Richmond stormwater diversion. The Institute was funded to promote local stewardship of the Bay Area Aquatic Resources Inventory (BAARI) maps to assist TMDL implementation. Lastly, we will adapt and

refine methodologies from the USGS to characterize anticipated shoreline changes due to changing conditions in the North Bay – restoration projects, climate change, changes in sediment delivery.

Work Products

- Documentation of local map stewardship protocols
- Release of BAARI v2 that includes updates from local partners
- North Richmond Pumping Station report
- Publication of protocols for shoreline change characterization as well as final report.

Plans for 2013

- Map stewardship protocols and methodology to transfer map data to partners. Continue analysis of shoreline change trends for San Pablo Bay and prepare findings for inclusion in final report
- Develop outreach materials and monitoring support for North Bay TMDL implementation partners
- Provide science support for the development of Napa River TMDL tracking tool

Recent Findings and Publications

Hunt, J.A., Gluchowski, D.C., Gilbreath, A.N., and McKee, L.J., 2012. Pollutant Monitoring in the North Richmond Pump Station: A Pilot Study for Potential Dry Flow and Seasonal First Flush Diversion for Wastewater Treatment. A report for the Contra Costa County Watershed Program. Funded by a grant from the US Environmental Protection Agency, administered by the San Francisco Estuary Project. San Francisco Estuary Institute, Richmond, CA

Project Status

- Updates to the BAARI GIS layer through local partnerships
- Shoreline change draft mapping and preliminary analysis is complete
- Completed the North Richmond Pump Station final report (anticipated release in Dec 2012)
- Participated in the Napa River TMDL tracking system kick-off and workgroup meetings

5.3 San Francisco Public Utilities Commission Low Impact Development

PROJECT CODE
50xx

START DATE
1/1/13

ANTICIPATED COMPLETION
12/31/14

TOTAL FUNDING
$200,000

FUNDING FOR SFEI LABOR
$200,000

FUNDING FOR 2013 SFEI LABOR
$75,000

STATUS
In negotiations

DIRECT CLIENT
SFPUC

FUNDING SOURCE
Same

LEAD SCIENTIST
Lester McKee

PROJECT MANAGER
Alicia Gilbreath

COLLABORATORS
N/A

Project Description
The San Francisco Public Utilities Commission (SFPUC) has developed a Green Infrastructure monitoring program as part of the Sewer System Improvement Program (SSIP). The program was launched for the 2011-2012 rainy season and continues into the coming 2012-13 rainy-season. The goal of the program is to obtain green infrastructure performance data to inform near-term watershed planning and assessment efforts and to provide insight for the development and implementation of green infrastructure projects for the duration of the SSIP. During Phase I of the agreement, the SFPUC is enlisting the San Francisco Estuary Institute (SFEI) to perform analysis of hydrologic data for up to seven sites from the 2011-2012 rainy seasons, and provide reports summarizing the results of that analysis. During Phase II, SFEI will also perform analysis and provide a summary report of hydrologic and water quality data to be collected during the 2012-2013 rainy season. In addition, SFEI will facilitate on SFPUC's behalf a Technical Advisory Committee comprised of SFPUC, SSIP Program Management Consultant (PMC), and outside experts to complete a variety of tasks. Subsequent phases still in discussion may include further analytical support and will hopefully include ongoing involvement by SFPUC in support of a regional Technical Advisory Committee.

Work Products
- Technical reports on the individual hydrologic performance of green infrastructure installations, as well as a summary report of synthesized findings.
- Development and facilitation of a TAC, aimed at producing a Strategic Monitoring Plan for SFPUC's Green Infrastructure projects.

Plans for 2013
Analyze WY 2012 hydrologic performance data for up to seven locations. Begin development of a TAC. Analyze WY 2013 hydrologic and water quality performance data for up to nine locations.

Project Status
Contract in negotiation

5.4 Prop 84 Green Infrastructure Master Planning Project

PROJECT CODE
50XX

START DATE
1/1/13

ANTICIPATED COMPLETION
12/31/14

TOTAL FUNDING
$597,901

FUNDING FOR SFEI LABOR
$319,250

FUNDING FOR 2013 SFEI LABOR
$100,000

STATUS
In negotiations

DIRECT CLIENT
San Francisco Estuary Partnership

FUNDING SOURCE
Prop 84

LEAD SCIENTIST
Dave Senn/Lester McKee/Kristen Cayce

PROJECT MANAGER
Jennifer Hunt

COLLABORATORS
SFEP, Watearth, Inc, Dan Cloak Consultants, San Mateo County, Contra Costa County, cities of Redwood City, San Jose, Fremont, Oakland, and El Cerrito

Project Description

All of San Francisco Bay and most of its contributing creeks are in violation of the U.S. Clean Water Act and are listed as impaired under Section 303(d) of that act for a variety of pollutants. Impaired creeks experience problems related to high flow, sediment erosion, and habitat degradation. The Bay Area Green Infrastructure Master Planning Project will provide municipalities with a Low Impact Development (LID) Toolkit and other planning assistance to help the municipalities strategically plan and implement LID projects at a watershed scale.

Because LID sites have not been comprehensively identified and evaluated in most jurisdictions, potential retrofit opportunities may be missed. LID implementation currently does not occur during regular infrastructure upgrades as part of municipalities Capital Improvements Plan (CIP) programs. In addition, LID sites are usually not included in planning and development opportunities funded locally by agencies such as the Metropolitan Transportation Commission (local expenditure of federal transportation funds). Sites that are not already designed do not qualify for the State Water Board's Proposition 84 Stormwater Grant Program. In short, the lack of planning and design of effective and economically viable LID sites and features for local landscapes is a major barrier to wide-scale and efficient LID implementation in the San Francisco Bay Area.

The first task of the Bay Area Green Infrastructure Master Planning Project is to develop and demonstrate a transferable GIS-based LID Siting Toolkit. The Toolkit will facilitate identification, evaluation and ranking of potential sites based on both their relative feasibility (e.g., cost) and their potential effectiveness in reducing pollutant loads and impacts to beneficial uses of Bay Area rivers, lakes, and streams. Following development of the LID Toolkit, in the project's second task, the project team will collaborate with partnering Bay Area municipalities to develop Green Infrastructure Master Plans where conceptual designs for high priority project sites will be developed. In the third task, the project will also consider a variety of strategies to fund LID retrofits. Lastly, an education and outreach task will expand the reach and impact of the project: all products developed will be accessible by download from a publically accessible project website. One or more webinars will be presented to introduce the LID Toolkit to stormwater managers throughout California. Presentations to local agencies and the Association of Bay Area Governments (ABAG) Executive Board will also facilitate transfer of the tools and methodology. The Toolkit will be made available through California Stormwater Quality Association (CASQA) on its LID web portal, reaching all municipalities and consultants statewide.

Work Products

- Development, demonstration, and delivery of the LID feasibility tool
- Case study on Green Infrastructure Master Plans in at least one watershed/area
- Development of an alternative compliance program acceptable to agencies and partners
- Publication of a project website

Plans for 2013

TBD

Recent Findings and Publications

Community Conservancy Solutions. 2011. The Green Solution Project—Alameda County, Phase I.

David N., Lent, M., Leatherbarrow, J., Yee, D., and McKee, L., 2011. Bioretention Monitoring at the Daly City Library. Final Report. Contribution No. 631. San Francisco Estuary Institute, Oakland, California.

Kass, J., Walker, J., Cayce, K., Senn, D. and Williams, M. 2011. White Paper on Regional Landscape Characterization for Low Impact Development Site Suitability Analysis. SWRCB Agreement #06-345-552-0. Contribution No. 653. San Francisco Estuary Institute, Richmond, California.

Lent, M.A. and McKee, L.J., 2011. Development of Regional Suspended Sediment and Pollutant Load Estimates for San Francisco Bay Area Tributaries

Based on Annual Scale Rainfall-runoff and Volume-concentration Models: Year 1 results. A Technical Report for the Regional Monitoring Program for Water Quality. San Francisco Estuary Institute, Oakland, CA.

Project Status
In negotiations

5.5 James V. Fitzgerald Area of Special Biological Significance Pollution Reduction Program

PROJECT CODE
5078

START DATE
5/24/11

ANTICIPATED COMPLETION
3/31/15

TOTAL FUNDING
$490,000

FUNDING FOR SFEI LABOR
$248,971

FUNDING FOR 2013 SFEI LABOR
$20,000

STATUS
Active

DIRECT CLIENT
San Mateo County Public Works

PRIMARY CLIENT
Prop 84 ASBS

LEAD SCIENTIST
David Senn

PROJECT MANAGER
Jennifer Hunt

COLLABORATORS
San Mateo County RCD

Project Description
Includes implementation of targeted BMPs and an education/outreach campaign. Pilot BMPs on high threat discharges to the ASBS, a storm drain inventory and assessment, and a pathogen source tracking study will precede targeted BMP implementation. Information from these precursory studies will guide targeted, broad-scale application of the most appropriate and effective BMPs to address upland sources of specific pollutants and eliminate dry weather discharges. The Program will protect the beneficial uses of the ASBS by improving water quality at public beaches and the ASBS, help the community to meet objectives and regulations outlined in the Ocean Plan, and reduce pathogens in 303(d) listed Fitzgerald Marine Reserve and San Vicente Creek.

Work Products
Monitoring plan, data, outreach materials, QAPP

Plans for 2013
Pilot BMP stormwater will continue in 2013 at a very low effort. Pilot BMP data analysis/reporting will be completed in 2013. Preliminary planning for upland monitoring may occur in 2013.

Recent Findings and Publications
This project will benefit from a number of other projects that are underway or pending, including Green Infill, El Cerrito, and Fremont Treewell Filler Project.

Project Status
There are 2 remaining pilot BMP locations for stormwater monitoring. Monitoring will occur during to storm events during the water year 2013.

5.6 Estuary 2100 Phase 2 (Tree Wells)

PROJECT CODE
5069

START DATE
3/10/10

ANTICIPATED COMPLETION
1/1/14

TOTAL FUNDING
$203,095

FUNDING FOR SFEI LABOR
$98,440

FUNDING FOR 2013 SFEI LABOR
$60,000

STATUS
Active

DIRECT CLIENT
ABAG

PRIMARY CLIENT
EPA

LEAD SCIENTIST
Lester McKee

PROJECT MANAGER
Jennifer Hunt

COLLABORATORS

The Fremont Low Impact Development (LID) Tree Well Filter (TWF) pilot project aims to retrofit moderate density urban feeder streets with green stormwater infrastructure to improve city aesthetics and treat urban runoff to remove PCBs, mercury, copper and trash as specified in San Francisco Bay Basin Water Quality Control Plan TMDLs and SSOs. The City of Fremont tree well system incorporates landscape beautification elements, water quality treatment, and trash capture and is proposed as a suitable system to achieve these aims. The City intends to build 14 TWF systems over the next few years and install interpretive outreach signage and conduct student tours to boost public and city employee awareness and promote further implementation. In the context of the EPA grant funding framework, achieving these aims and intentions constitutes tangible outputs. In addition to implementation of 14 TWF systems, the City plans to carry out direct observation, maintenance, and water quality monitoring to determine maintenance methods, costs, and schedule, trash capture rate, and pollutant removal capability. In the context of the EPA grant, the intended outcomes of the pilot project include:

- Increased acreage of treated area for trash and water quality
- Measured rates and volume of trash capture
- Measured water quality improvements in post treatment effluent

Project Description

There will be 2 years of monitoring the tree wells for the city of Fremont. The 1st year will be observation only in preparation for water quality monitoring in year 2. Four storms will be observed, during Water Year 2012, in order to qualify/quantify storm flow into/out of the tree wells, rainfall detention within tree wells, turbidity/conductivity, and maintenance needs. The 2nd year (Water Year 2013) will include monitoring water quality in 2 tree wells (inflow and outflow), data management/QAQC, data analysis, and reporting. The objective of SFEI's involvement is to support the monitoring aspects of the project, specifically:

1. Recommend design modifications prior to installation of the TWF systems to help increase the quality of water quality monitoring data,
2. Carry out inspections with City Staff present during installation to ensure correct installation in the context of unforeseen circumstances such as infrastructure barriers,
3. Sample stormwater influent and effluent during rain storms and work with laboratories to analyze water samples for a selection of water quality constituents in relation to the

impact of the TWF itself on effluent water quality and Bay TMDLs and SSOs.

4. Interpret influent and effluent data to determine quality in relation to Basin Plan Water Quality objectives or standards and pollutant removal efficiency (note efficiency is influenced by influent water quality and usually higher when influent concentrations are higher).

Work Products

- Year 1 Tree Well Filter observation results
- Water quality monitoring of pollutants of concern
- Final report

Plans for 2013

Begin water quality monitoring during fall 2012 and continue through winter 2013

Project Status

Tree well filters are being installed and should be completed by the start of 2012. SFEI has taken part in developing designs for tree well systems.

5.7 IRWMP Green Infrastructure/ San Pablo Spine

PROJECT CODE
5083

START DATE
5/1/12

ANTICIPATED COMPLETION
12/31/15

TOTAL FUNDING
$330,000

FUNDING FOR SFEI LABOR
$181,500

FUNDING FOR 2013 SFEI LABOR
$30,000

STATUS
In Negotiation

DIRECT CLIENT
ABAG/SFEP

PRIMARY CLIENT
Prop 84/DWR

LEAD SCIENTIST
Lester McKee

PROJECT MANAGER
Jen Hunt

COLLABORATORS
San Francisco Estuary Partnership (SFEP)

Cities of San Pablo, Richmond, El Cerrito, Albany, Berkeley, Emeryville, Oakland; Caltrans;

StopWaste.org/Bay-Friendly Landscaping

City of Campbell

Napa County

Cities of American Canyon, Napa, St. Helena, and Calistoga, the Town of Yountville; Napa County Resource Conservation District; Napa County Agricultural Commissioner; Napa County Farm Bureau; Napa Valley school districts; Napa Valley Grape Growers; Master Gardeners; Napa Valley California Native Plant Society; and Friends of the Napa River

Project Description

The Regional Green Infrastructure Capacity Building Program will be undertaken by a team of partners under the leadership of SFEP. The program will implement three demonstration projects in the northern, southern and eastern sub-regions of the San Francisco Bay Area IRWM region. The projects included are completion of the San Pablo Spine along seven East Bay cities from Emeryville to San Pablo, "Green Street" Improvements to Hacienda Avenue in Campbell, and Napa Valley Rainwater Harvesting.

The program will analyze the performance of these projects to determine actual benefits of water conservation and/or stormwater quality benefits. Results of the pilot evaluations will then be used to inform and expand development of green infrastructure projects to all parts of the region. The future goal of the project is to convert non-permeable areas to permeable or landscaped areas; Decrease maintenance, material and energy costs; Treat surface runoff and allow for percolation into the ground aquifer

SFEI will be responsible for project performance analysis for each project. SFEI will use appropriate, standardized monitoring and assessment, results analysis and geospatial tools to inform future green infrastructure management decisions.

San Francisco Estuary Institute (SFEI) will be the lead for the water quality evaluation of this project. Specifically, SFEI will

- Develop a monitoring plan to cover representative sites along the San Pablo Avenue Stormwater Spine
- Assist Napa and Campbell in developing monitoring plans, consistent with monitoring along the San Pablo Avenue Stormwater Spine and other Green Infrastructure monitoring efforts around the region
- Collect and analyze samples from sites on the Stormwater Spine and Campbell
- Napa County will collect and analyze representative stormwater samples

Work Products

- San Pablo Spine monitoring plan and monitoring report
- Hacienda Avenue monitoring plan and monitoring report

Plans for 2013

- Team formation
- Draft monitoring plans
- Advise as needed.

Project Status

In negotiations

5.8 Analysis of the State of the Science and Applications of Green Infrastructure (GI) and Low Impact Development and Retrofits (LID) (Internally funded through overhead)

START DATE
1/1/13

ANTICIPATED COMPLETION
12/31/13

TOTAL HOURS
80 hours of mid-level staff

50 hours of senior staff (Lester, Rainer, Dave)

LEAD SCIENTIST
David Senn

Project Description

SFEI will carry out a critical analysis of the state of the science/application of Green Infrastructure (GI) and Low Impact (re)Development (LID) in urban, suburban, and agricultural areas. The review and analysis will emphasize approaches that are most relevant for the San Francisco Bay region - its infrastructure, range of development, unique geology, and climate - and will focus on:

1. approaches to restoring hydrographs and removing contaminants, both small-scale dispersed projects and larger infrastructure-intensive approaches
2. successes, failures, and lessons learned from implementation in other areas of the US and internationally

3. approaches to long-term planning and evaluating potential effectiveness at various spatial scales (sub watershed, watershed, regional), including benefit-cost analysis over a range of time horizons

4. pre- and post-implementation monitoring programs for assessing effectiveness

The practical motivation for this project - for municipalities, the Regional Board, and SFEI - is that ideally, implementation of LID and GI should be part of some larger coherent plan, one in which the incremental benefits are known and projects are prioritized based on consideration of achieving maximum benefit. Even if, as a practical matter, GI and LID are carried semi-opportunistically as money becomes available or as redevelopment and capital improvement projects begin, they should nonetheless be priority sites identified through a long-term plan that has quantifiable benefits.

The project will include three main components. First, a technical review will be carried out that critically evaluates the state of the science and engineering of various GI and LID approaches. The review will explore approaches that have been implemented (i.e., constructed) and evaluated elsewhere, as well as next-generation approaches. The review will also assess planning approaches that have been used elsewhere, with the goal of identifying a combination of methods/tools that can be used in the Bay area to carry out planning studies that quantitatively and rigorously assess potential effectiveness of green infrastructure approaches, and techniques for quantifying the benefits and costs. The review will also assess approaches to pre- and post-implementation monitoring that have been applied elsewhere.

The second component involves establishing a GI and LID technical team. This technical team will be comprised of regional and national experts - in the areas of hydrology, engineering, and resource economics - along with regional managers, and will play a critical advisory role during the development of the technical review/report.

The third component will be the development of a set of recommendations for developing green infrastructure strategies for the Bay area. In 2 workshops over the project time period, regional managers and the technical team will meet to discuss and identify the critical needs and opportunities for GI in the Bay area, and to match approaches evaluated in the technical review with those needs and opportunities. For this exercise, effort will focus on 2-3 case studies of actual watersheds or sub-watersheds that, combined, capture the range of development/land-use and geological features of the Bay area. Systematic approaches for planning and quantifying effectiveness will be identified, along with the palette of green infrastructure approaches that should be considered.

Deliverables for this project will include:

1. A technical report that critically evaluates GI approaches that are relevant for the Bay area, and techniques for planning that quantitatively and rigorously assess effectiveness, and benefits and costs.

2. A draft document that identifies steps that the Bay area could take toward developing a green infrastructure planning and implementation strategy.

3. Establishment of a green infrastructure technical committee that could serve as an on-going resource to regional managers.

4. One project kick-off and planning meeting, and one technical workshop with regional managers and the technical team.

5. 3-5 presentations to municipalities Regional Board staff and various municipalities to present the findings.

The overall cost for this effort is estimated to be $150,000 and is a 1-2 year undertaking. Our plan is to obtain external funding to support the vast majority of this work.

In the near term we are requesting $10,000 to support the start-up of this project, to better position SFEI to obtain external funding. This funding will support initial synthesis of studies carried out to date by SFEI, gathering of key reports and literature review, and organizing this material into a powerpoint presentation, and an expanded outline for an eventual technical report (funding permitting). Near-term project components include:

1. Synthesis of SFEI's efforts to date on LID monitoring: lessons learned about effectiveness and about construction/operation.

2. Synthesis and take-home messages from SFEI's other LID projects
   - site suitability GIS tool
   - new prop 84 project
   - others

3. Synthesis of SFEI's work on stormwater runoff, sediment loading, and contaminant loading in stormwater.
   - field studies
   - planning efforts (work groups, strategy development)
   - lessons learned
   - stormwater and contaminant GIS/ spreadsheet model

4. Identify best technologies/approaches for monitoring of LID/green infrastructure effectiveness

5. Synthesis of key literature on the state of the science with LID and green infrastructure approaches for restoring hydrographs and removing contaminants. What has been successfully (and unsuccessfully) applied in other regions, with a focus on what may be most relevant for the Bay area?

6. Identify planning approaches that other regions/municipalities have followed, in terms of developing "master plans" that consider feasibility and effectiveness, and optimize site selection based on target goals for reductions (e.g., in runoff peak flow, or contaminant loads) and trade-offs between multiple benefits and costs.

If external funding appears promising, we will pursue a thorough and efficient approach to carrying out #1-6. If funding does not appear promising in the near-term, we will focus our efforts on #1-4, and make more gradual progress on #5-6.

B. Resilient Landscapes

CONTINUING PRIORITIES

1. Local Historical Ecology Studies and Regional Syntheses

1.1 Joint Fire Science Project

PROJECT CODE
7080

START DATE
3/1/11

ANTICIPATED COMPLETION
3/31/14

TOTAL FUNDING
$84,665

FUNDING FOR SFEI LABOR
$79,865

FUNDING FOR 2013 SFEI LABOR
$20,000

STATUS
Active

DIRECT CLIENT
National Park Service

PRIMARY CLIENT
Same

LEAD SCIENTIST
Chuck Striplen

PROJECT MANAGER
Ruth Askevold

COLLABORATORS
BLM, NPS Pinnacles NM, UC Berkeley, Amah Mutsun Tribal Band

Project Description

SFEI will oversee and implement a fire history study at a number of study locations from southeast San Benito County to northwest Santa Cruz County, including National Park lands, State park lands, BLM lands, and private property. This is one element of a larger study on Ethno-ecological fire traditions. Other elements include a phytolith study and archaeological field school in PNM.

Work Products

- Collaboratively undertake a study titled 'Exploring the Traditional Use of Fire in the Coastal Mountains — Dendroecological and historical ecology components' of Central California
- Extract fire scar samples from two sites within the JFSP study area (Scott and Waddell Creeks).
- Determine historic fire frequency from two watersheds within the AMTB territory (Scott and Waddell Creeks).
- Collect, assemble, and orthorectify the earliest available aerial photography for the project sites (Pinnacles National Monument, and the Scott and Waddell Creek watersheds).
- Collect, assemble, and georeference historic maps for the project sites (Pinnacles National Monument, and the Scott and Waddell Creek watersheds).
- Assist in the development of status and final reports that relate to the tasks identified within this task agreement that are consistent with Joint Fire Science Program requirements.

Plans for 2013

Phase 1 has been completed (including assembly and georeferencing of historical maps and aerial photography for use in a GIS for the study areas, collection of samples from project sites for fire scar analysis, initial fire scar analysis). In 2013, Phase 2 will include advanced analysis on the fire scar data; and development of status and final reports.

Project Status

Active

1.2 South Coast Wetland Change Analysis, Phase 1

PROJECT CODE
7084

START DATE
7/1/11

ANTICIPATED COMPLETION
9/30/13

TOTAL FUNDING
$58,940 + $15,000 in negotiations

FUNDING FOR SFEI LABOR
$58,940 + $15,000 in negotiations

FUNDING FOR 2013 SFEI LABOR
$40,000

STATUS
Active

DIRECT CLIENT
SCCWRP

PRIMARY CLIENT
USFWS

LEAD SCIENTIST
Robin Grossinger

PROJECT MANAGER
Kristen Cayce

COLLABORATORS
SCCWRP, CSUN

Project Description

In partnership with SCCWRP and CSU Northridge (CSUN), this project will build upon work performed last year that georeferenced, digitized, and quantified estuarine habitats along the Southern California coast from the US Coast Survey T-sheets. Previous work focused on half (26 T-sheets) of the historical estuarine landscape. This project will complete the remaining 25 T-sheets using the methodology established in the 2011 to produce a complete historical picture of estuarine habitat along the Southern California Coast from Point Conception to the US/Mexico border. Analysis of wetland extent and distribution will provide an understanding of the historical landscape mosaic that existed on the South Coast informing current-day restoration.

In addition, this project will compare past and present extent and distribution of estuarine habitat a change analysis performed in GIS. CSUN will be finishing a 4-year project to update the National Wetland Inventory (NWI) of existing habitat. This contemporary layer along with the habitats mapped from the T-sheets will be used to conduct the change analysis. A technical memo documenting the change analysis process and results, including updates to figures and graphs from the T-sheet Atlas will be an output of this project.

Work Products

- 15 georeferenced T-sheets
- Geodatabase of Southern California Coast historical estuarine habitats
- Updated 'US Coast Survey Maps of California' website with GIS layers
- Technical memo discussing change analysis methods and results including updates to distribution of coastal habitats to include new data.

Plans for 2013

- Historical estuarine habitats digitally mapped off the T-sheet maps and stored in a geodatabase
- Classification of all mapped features
- Establish change analysis protocols and perform change analysis on historical and contemporary datasets
- Update www.caltsheets.org to include new T-sheets and GIS data
- Produce final technical memo

Recent Findings and Publications

Grossinger, R.M., E.D., Stein, K.N. Cayce, R.A. Askevold, S. Dark, and A.A. Whipple 2011. Historical Wetlands of the Southern California Coast: An Atlas of US Coast Survey T-sheets, 1851-1889. San Francisco Estuary Institute Contribution #586 and Southern California Coastal Water Research Project Technical Report #589.

US Coast Survey Maps of California website
www.caltsheets.org

Project Status

- T-sheet maps have been georectified and QAQC'd
- Team met with So Cal Wetland Managers to present project status and gather input data needs
- Drafted a revised historical classification scheme and draft crosswalk to contemporary classification

1.3 North San Diego County Lagoons Historical Ecology Study

PROJECT CODE
7083

START DATE
5/21/11

ANTICIPATED COMPLETION
10/31/13

TOTAL FUNDING
$300,000

FUNDING FOR SFEI LABOR
$239,000

FUNDING FOR 2013 SFEI LABOR
$150,000

STATUS
Active

DIRECT CLIENT
Coastal Conservancy

PRIMARY CLIENT
Same

LEAD SCIENTIST
Robin Grossinger

PROJECT MANAGER
Erin Beller

COLLABORATORS
SCCWRP, CSUN

Project Description

The Study will provide critical information for the planning and design of several important coastal wetland restoration projects, including San Elijo and Buena Vista lagoons. There is currently little available information about the natural structure and function of the coastal wetland systems in this area. To address this need, the project team (SFEI, SCCWRP, and California State University Northridge) will develop new information about the historical habitat mosaics, hydrology, and native species assemblages that characterized these systems, through a rigorous analysis of historical documents. The Study will build on the first regional assessment of historical wetland habitat types and distribution, the South Coast T-sheet Atlas.

Work Products

GIS products, technical report, public presentations

Plans for 2013

GIS products, project presentations, technical report

Project Status

Active

1.4 Tijuana River Valley HE Study

PROJECT CODE
7096

START DATE
9/18/12

ANTICIPATED COMPLETION
1/31/15

TOTAL FUNDING
$440,000

FUNDING FOR SFEI LABOR
$400,000

FUNDING FOR 2013 SFEI LABOR
$125,000

STATUS
Active

DIRECT CLIENT
SCC

PRIMARY CLIENT
SCC

LEAD SCIENTIST
Robin Grossinger

PROJECT MANAGER
Erin Beller

COLLABORATORS
SCCWRP (Eric Stein), Urban Wildlands Group (Travis Longcore), CSUN (Shawna Dark), TRNERR (Jeff Crooks)

Project Description

The Tijuana River Valley is of national and international importance, though it currently faces environmental challenges such as compromised water quality from sediment and trash and associated ecological degradation. It is currently the focus of numerous restoration efforts designed to improve the health of the watershed. As these ongoing efforts seek to address the environmental issues associated with the river and create new visions and goals for the river's future, historical ecological data can provide valuable insight into how the river looked and functioned in the past, suggesting ways it might do so in the future. However, little such information is currently available.

The Tijuana River Valley Historical Ecology Study will address this data gap, providing comprehensive, landscape-scale research in support ongoing management efforts in the watershed. SFEI, in collaboration with the Tijuana River National Estuarine Research Reserve (TRNERR) and the Southern California Wetlands Recovery Project (WRP), will synthesize historical ecological, hydrological, and geomorphic data to reconstruct conditions of the Tijuana River Valley prior to major modification and produce an illustrated technical report describing the findings and implications for sustainable wetland restoration and management. The overarching goal of this process is to piece together the complex story of the early Tijuana River Valley, using historical clues to gain perspective on both the landscape-scale patterns and local variability expressed by the system to guide effective restoration and minimize project implementation and maintenance costs. This information is essential to designing sustainable, adaptive restoration projects for the system.

Paired with a thorough understanding of the contemporary system, an awareness of historical attributes can be used to set restoration goals and envision creative solutions to management issues in the river valley. This will be particularly relevant for the implementation of the Tijuana River Valley Recovery Strategy, which was developed by the Tijuana River Valley Recovery Team and was recently endorsed by the San Diego Regional Water Quality Control Board. In addition, the work being proposed herein is being leveraged in a proposal to the NOAA National Estuarine Research Reserve Science Collaborative (as a partnership between TRNERR, SFEI, and the Southern California Coastal Water Research Project). This proposed project is asking, at both the site and regional level: How can an increasing body of estuarine assessment information be synthesized to effectively reflect past, current and future changes in systems, and how can this temporal information be integrated into a management framework that effectively steers conservation and restoration goals?

Work Products

- Historical GIS mapping for lower Tijuana River watershed and associated metadata
- Technical report detailing findings

Plans for 2013

Data collection and compilation, initial presentations

1.5 Mark West Creek Historical Alignment

PROJECT CODE
70xx

START DATE
3/1/13

ANTICIPATED COMPLETION
10/31/2013

TOTAL FUNDING
$35,000

FUNDING FOR SFEI LABOR
$35,000

FUNDING FOR 2013 SFEI LABOR
$35,000

STATUS
In negotiations

DIRECT CLIENT
Laguna de Santa Rosa Foundation

FUNDING SOURCE
Sonoma County Water Agency

LEAD SCIENTIST
Robin Grossinger/Chuck Striplen

PROJECT MANAGER
Erin Beller

COLLABORATORS
Laguna de Santa Rosa Foundation

Additional interest in project from SCWA (Grant Davis and Keenan Foster), SCAPOSD (Karen Gaffney), NCRWQCB (Steve Butkus and Rebecca Fitzgerald), USGS (Lorrie Flint), FIGR (Lorelle Ross), NOAA-NMFS (Brian Cluer and Dan Wilson), and others.

Project Description

This project will develop historical ecological data for the Mark West Creek and the broader Laguna de Santa Rosa area to aid conservation and planning efforts. The Laguna presents significant long-term restoration opportunities and a broad-based Historical Ecology Study will support these efforts, provide a scientific basis, and catalyze local interest through compelling images and stories about the past, present, and future of the local landscape. This proposal is for the initial data gathering phase of the project, in anticipation from further funding of interested stakeholders.

Work Products

Deliverables include GIS layers for the Mark West Creek study area and initial analysis of the creek alignment.

Plans for 2013

Start project data collection.

Project Status

In negotiations

1.6 Tijuana River Science Collaborative

PROJECT CODE
70xx

START DATE
1/1/13

ANTICIPATED COMPLETION
12/31/14

TOTAL FUNDING
$39,446

FUNDING FOR SFEI LABOR
$37,840

FUNDING FOR 2013 SFEI LABOR
$19,000

STATUS
In negotiations

DIRECT CLIENT
Tijuana River National Estuarine Research Reserve

FUNDING SOURCE
NOAA

LEAD SCIENTIST
Robin Grossinger

PROJECT MANAGER
Erin Beller

COLLABORATORS
SCCWRP, Sacramento State Center for Collaborative Policy (CCP); Scripps Center for Marine Biodiversity and Conservation (CMBC)

Project Description

How can an increasing body of estuarine assessment information be synthesized to effectively reflect past, current and future changes in systems, and how can this temporal information be integrated into a management framework that effectively steers conservation and restoration goals?

This theme, of integrating the past, present, and future to steer actions today represents the broad context for our project. In our work, we will focus on the ecosystem services provided by the region's estuaries, as understanding these functions is one of the most effective ways to approach conservation and restoration activities. The specific goals are to provide decision support for site-specific estuarine restoration and regional recovery planning within the context of altered landscapes, ecosystem services, and climate-induced changes. Collaborative processes are central to this proposal, bringing the perspectives of diverse stakeholders to bear on this management problem. The two broad collaborative objectives of our work are to gain an understanding of stakeholder needs in estuarine management through an issues assessment and to create a typology of ecosystem services provided by Southern California tidal wetlands.

The applied science objectives are to conduct a historical ecology study of the Tijuana River Valley (leveraging external funding), create models to track shifting services over time, and develop tools to disseminate and visualize models. The ultimate, overarching objective is to create a management framework that integrates data and perspectives from the past, present, and future to help steer wetland conservation and recovery goals. This work will be approached conceptually for wetlands of the Southern California, with an intensification of work using the Tijuana River Valley as a case-study. The project will be led by the Tijuana River National Estuarine Research Reserve, with project participants from the Southern California Coastal Water Research Project, the San Francisco Estuary Institute, Sacramento State University's Center for Collaborative Policy, and the State Coastal Conservancy. Two management communities in the region – the Tijuana River Valley Recovery Team and the Southern California Wetlands Recovery Project – represent the Intended Users of this project.

Work Products

SFEI will contribute historical ecology information from the coordinated Tijuana River Historical Ecology Study. SFEI will provide presentations, attend collaborative meetings, provide technical review, and help translate the historical ecology findings and products into the broader project.

Plans for 2013
Project initiation; attend collaborative meetings and team conference calls

Project Status
Contract negotiation

1.7 San Joaquin River Historical Flowpaths GIS

PROJECT CODE
70xx

START DATE
3/1/13

ANTICIPATED COMPLETION
6/30/14

TOTAL FUNDING
$225,000

FUNDING FOR SFEI LABOR
$175,000

FUNDING FOR 2013 SFEI LABOR
$110,000

STATUS
Proposal (70% probability)

DIRECT CLIENT
Department of Water Resources

FUNDING SOURCE
Same

LEAD SCIENTIST
Robin Grossinger/Chuck Striplen

PROJECT MANAGER
Ruth Askevold

Project Description
At the request of a number of entities involved in San Joaquin River planning (including EPA, DWR, USBR, TNC, FWS, and the Regional Board), SFEI-ASC has developed a project description for a San Joaquin River historical ecology project. The project will provide a better understanding of historical river conditions and characteristics along the San Joaquin River as it existed in the 19th and early 20th centuries. As the San Joaquin River and floodplain comprises a large system, the project would take place as several independent but synergistic tasks, focusing on project proponents' information and timing needs.

The first task is a GIS-based (Geographic Information Systems) capture of historical river course data. This product would show stream centerline positions from differing sources and time frames, supporting immediate needs for floodplain planning as part of the Central Valley Flood Protection Plan. Subsequent work would include a second task, which would expand the initial task to provide valley context, reconstructing the overall patterns and drainage, groundwater recharge and discharge, flooding and wetland extent. The third major task involves acquiring and synthesizing the full array of additional data sets into a more detailed, three-dimensional understanding of the river corridor.

The project work described here is for the first task (GIS capture of historical river course data).

Work Products
- GIS data layers depicting historical flow paths of the San Joaquin River
- Orthorectified mosaic of historical aerial imagery
- Georeferenced historical maps

Plans for 2013
- Collect maps and aerial photographs relating to the San Joaquin River course
- Georeference historical maps and aerial photographs
- Develop GIS of the historical locations occupied by the San Joaquin River

1.8 San Francisquito Creek Historical Ecology

PROJECT CODE
70xx

START DATE
1/1/13

ANTICIPATED COMPLETION
6/30/15

TOTAL FUNDING
$350,000

FUNDING FOR SFEI LABOR
$275,000

FUNDING FOR 2013 SFEI LABOR
$110,000

STATUS
Proposal (65% probability)

DIRECT CLIENT
Stanford University

FUNDING SOURCE
Same

LEAD SCIENTIST
Robin Grossinger

PROJECT MANAGER
TBD

Project Description

As part of evaluating future alternatives for Searsville Dam, the San Francisco Estuary Institute (SFEI) has been asked to describe a possible historical ecology study for the watershed. This project would acquire, synthesize, interpret, and analyze the diverse data available to describe early historical conditions on San Francisquito Creek and subsequent hydrological and ecological change through time. The project would provide a stronger technical foundation for management decisions in the watershed by establishing an authoritative, broadly accessible picture of the functions the watershed used to provide. Data development and analysis would document, to the extent possible with available data, the historical distribution of wetland and riparian habitat types; the composition of vegetation in the upper watershed and the extent of early logging; evidence for historical fish habitat and fisheries; and channel morphology.

Work Products

Final products will include report and GIS layers.

Plans for 2013

In 2013, we will develop a workplan for the project, collect maps, photographs, and textual data relating to the study area, and compile data using the GIS.

1.9 John Muir National Historic Site (Mt. Wanda): Historical Ecology Reconnaissance

PROJECT CODE
7099

START DATE
9/4/12

ANTICIPATED COMPLETION
12/31/14

TOTAL FUNDING
$35,984

FUNDING FOR SFEI LABOR
$32,000

FUNDING FOR 2013 SFEI LABOR
$25,000

STATUS
Active

DIRECT CLIENT
National Park Service, John Muir National Historic Site

FUNDING SOURCE
NPS

LEAD SCIENTIST
Robin Grossinger

PROJECT MANAGER
Ruth Askevold

Project Description

In this project, SFEI will perform an investigation of the historical ecological characteristics of the John Muir Historic Site. SFEI will assemble historical data to assess ecological and hydro geomorphic conditions prior to significant 19th century modification. We will also interpret and compile these data, and produce a technical memorandum describing the findings.

The study will collect data about historical conditions in the area, including, to the extent possible, terrestrial vegetation characteristics riparian cover, wetlands, oak savanna, grasslands, and land use history. The study will be designed and carried out to produce information directly useful to the environmental restoration and conservation of the study area by NPS, and will provide potential educational opportunities for the NPS.

Work Products

Progress reports, a draft and final illustrated technical memo; field meetings at the historic site; a public presentation; and GIS layers (historical aerials and maps).

Plans for 2013

Develop a data collection plan and work with the NPS at the John Muir site to collect relevant data. Collect and compile data from other archives. Develop basemap in GIS. Develop draft of report.

2. Local Sediment Science and Regional Syntheses

2.1 Flood Control 2.0: Rebuilding Habitat and Shoreline Resilience through a New Generation of Flood Control Channel Design and Management

PROJECT CODE
7097

START DATE
7/1/12

ANTICIPATED COMPLETION
12/1/15

TOTAL FUNDING
$857,000

FUNDING FOR SFEI LABOR
$857,000

FUNDING FOR 2013 SFEI LABOR
$300,000

STATUS
Active

DIRECT CLIENT
ABAG/SFEP

FUNDING SOURCE
EPA

LEAD SCIENTIST
Robin Grossinger/Lester McKee

PROJECT MANAGER
Ruth Askevold/Jennifer Hunt

COLLABORATORS
BCDC, SF Bay Joint Venture, San Francisquito Creek Joint Powers Authority, Committee for Green Foothills, Marin County Flood Control and Water Conservation District , Contra Costa County Flood Control and Water Conservation District

Project Description

Flood Control 2.0 is an effort to restore stream and wetland habitats, water quality, and shoreline resilience to San Francisco Bay. The project leverages local resources at forward-looking flood control agencies through the Bay Area Flood Protection Agencies Association (BAFPAA) to redesign major flood control channels and transform costly sediment removal and disposal ("waste") into resources for healthy Bay habitats and improved water quality.

Our broad local-regional partnership leverages flood control agency resources to significantly improve the amount, quality, and long-term resilience of Bay Area tidal wetlands, beaches and mud flats, and major creeks. We aim to incentivize these emerging approaches by helping local flood control agencies solve a suite of expensive, time-consuming, technical, financial, and regulatory challenges related to excessive in-channel sedimentation. This timely and comprehensive project takes advantage of the "second chance" provided by Bay Area history: the need and opportunity to rebuild aging or out-of-date flood control infrastructure at the Bay shore, while addressing the interrelated challenges of habitat restoration, ineffective sediment transport, increasing flood risk, and sea level rise (SLR).

The interface between flood control channels and the San Francisco Bay shoreline is one of the most ecologically important and societally challenging components of the Bay system. Historically, these were the Bay's natural deltas; places of high ecological diversity and complexity. Then, as now, they were critically important as reliable rearing habitat for juvenile steelhead. These locations play a disproportionately important role in the sustenance of the Bay's tidal marshlands, as the delivery points for watershed carbon and sediment.

Flood channels were designed to move water quickly to the Bay, with less consideration for sediment transport. As a result, coarser sediments often drop out of suspension and remain in many channels, requiring costly periodic maintenance removal. Resulting impacts include increased flood risk, frequent habitat disturbance, Bay marshes less resilient to SLR, and shoreline development more vulnerable to SLR effects. From a human and economic hazard perspective, these areas face increasingly high flood risk because of climate change and the predicted increases in storm intensity and sea level.

Project Approach / Scope

This proposal recognizes the environmental benefits and cost-savings that would be granted through recognition of coarse-grained sediment in flood control channels as a resource rather than waste. By redesigning the flood channel-Bay interface so that coarse-grain sediment is dispersed to missing points of connectivity such as historic delta wetlands and mudflats, we can re-create critical habitat features along marsh fronts, historic tributary deltas, and beaches, while simultaneously improving flood conveyance and re-establishing more resilient shorelines. The project will integrate regional data sets on coarse sediment availability/quality and a regional historical ecology stream-shoreline analysis with the results of local demonstration projects into a regional strategy that addresses the economic and regulatory benefits of these new approaches, defining opportunities and a path forward.

This project will use the combined talents of the National Estuary Program for the San Francisco Bay (The San Francisco Estuary Partnership, SFEP), a research institution (The San Francisco Estuary Institute, SFEI), the key regulatory agency for Bay sediment management (The Bay Conservation and Development Commission, BCDC), and a regional restoration coordinator (The San Francisco Bay Joint Venture, SFBJV). This team will work with three forward-thinking flood control agencies and the regional Bay Area Flood Protection Agencies Association (BAFPAA) to strategically address the scientific, regulatory, and policy challenges of this new approach.

The strategy has two complementary approaches to transform sediment problems into resources: channel redesign where sufficient land use flexibility exists, and sediment reuse for highly constrained channels. The three demonstration projects represent different parts of the Bay and different stages of project trajectory, providing an ideal suite of case studies to inform the regional approach. Implementation of the pilot projects will provide an opportunity to take advantage of the historical analysis, test out the redesign concepts, identify and work through additional regulatory issues, and implement the monitoring program to confirm the desired ecological outcomes and sediment maintenance removal needs in the pilot flood channels.

Proposed Task

Task 1: Project Management

Task 2: Regional Channel Redesign and Sediment Reuse Assessment

Task 3: National and Local Scientific Guidance

Task 4: Economic Analysis

Task 5: Regulatory and Policy Guidance

Task 6: San Francisquito Creek Implementation Project

Task 7: Novato Creek Implementation Project

Task 8: Walnut Creek Implementation Project

Task 9: Regional Implementation Toolbox

Task 10: Regional Public Outreach and education

Work Product (outcomes and deliverables from Project Team for grant funds (doesn't include match or leverage products)

Task 2: Regional Channel Redesign and Sediment Reuse Assessment

Regional historical ecology stream-shoreline map/database. From sediment supply analysis: regional map/database of deposition, availability for reuse, and expenditure. Classification scheme and conceptual models for channel re-design and sediment reuse

Task 3: National and Local Scientific Guidance

Regional forums (to review conceptual models and sediment reuse). Convene National Science Team (to review conceptual models and sediment reuse)

Task 6: San Francisquito Creek Implementation Project

- Final project design for SFC project
- Post-project monitoring reports
- RSF forum summary
- Public outreach

Task 7: Novato Creek Implementation Project

- Historical Ecology report
- Final project design
- Pre-project monitoring data
- Public outreach

Task 8: Walnut Creek Implementation Project

- Conceptual models
- Public outreach

Task 9: Regional Implementation Toolbox

- Implementation toolbox documents and website (collated info about classification, models, guidelines, etc.)
- Develop sediment "match-up" online database, matching availability with opportunities for re-use

Task 10: Regional Public Outreach and education

Presentation summaries and outcomes through regional partnerships, meetings, and workshops

Plans for 2013

TBD; develop work plan & subcontracts. Begin work on sediment supply analysis, analysis of regional historical ecology stream shoreline interface, Novato Creek historical ecology component, and working with regional partners.

Project Status

Project will kick off in early 2013.

3. Wetlands Science

3.1 Statistical Design & Analysis for the Guadalupe River Streams Assessment: Technical Support Services

PROJECT CODE
4084

START DATE
2/8/12

ANTICIPATED COMPLETION
6/30/13

TOTAL FUNDING
$75,432

FUNDING FOR SFEI LABOR
$70,672

FUNDING FOR 2013 SFEI LABOR
$7,000

STATUS
Active

DIRECT CLIENT
Santa Clara Valley Water District (SCVWD)

PRIMARY CLIENT
Same

LEAD SCIENTIST
Josh Collins

PROJECT MANAGER
Sarah Lowe

COLLABORATORS
None

Project Description

This project is providing scientific and technological services in support of the Santa Clara Valley Water District's assessment of stream condition in the Guadalupe River Watershed. This is mainly a science and technology transfer project. It is an extension of an earlier SFEI-ASC project to help assess stream condition in the Coyote Creek Watershed (Ecological Monitoring and Assessment Framework

2009-2011). SFEI will help the District with the study design, California Rapid Assessment Method training (CRAM training) for data collection, data analyses, and the process of developing management recommendations. In a strategic sense, this project is an opportunity to further demonstrate the EPA's Level 1-2-3 wetland assessment framework to support the proposed regional and state steam and wetland protection policies.

Work Products

- Guidance document for developing management questions
- Analyses of stream and riparian extent
- Probabilistic sample design
- BAARI and CRAM training
- Report on stream condition
- Guidance document to frame alternative management actions

Plans for 2013

This project will be largely completed by the end of 2012 with the final coordination with the District on alternative management actions occurring in 2013.

Project Status

The project is largely complete with the study design, CRAM training and field assessments done. The data analyses and Stream Condition reporting products will be completed before the end of 2012.

3.2 CRAM Manual Updated & L2 Committees

PROJECT CODE
4080

START DATE
10/1/10

ANTICIPATED COMPLETION
9/30/13

TOTAL FUNDING
$44,250

FUNDING FOR SFEI LABOR
$43,770

FUNDING FOR 2013 SFEI LABOR
$17,500

STATUS
Active

DIRECT CLIENT
SJSURF

PRIMARY CLIENT
EPA

LEAD SCIENTIST
Josh Collins

PROJECT MANAGER
Sarah Lowe/Cristina Grosso

COLLABORATORS
CCWG / SCCWRP

Project Description

A crucial component of a comprehensive statewide wetland assessment program is the development of a process to support the additional development and refinement of all validated CRAM modules. This core element of the assessment toolkit is urgently needed to facilitate the on-going development of wetland assessment programs and smooth implementation of existing statewide programs. To accomplish this, the following activities are proposed: project administration and reporting; annual standardization of CRAM materials; coordination of CRAM training materials across the State; and manage the QA process

and support biannual events for CRAM development team. Tasks are shared among several collaborators in each region, with CCWG taking the lead on project administration and technical coordination.

Work Products

- Work products include:
- annually updated CRAM manual and field books for three modules
- annual minor updates to eCRAM for three modules
- annually updated CRAM plant list
- continuously updated CRAM website
- annual update of CRAM training powerpoints based on manual and field book updates
- participation in biannual events for the CRAM development team

Plans for 2013

The project's plans for 2013 include incorporating updates to the CRAM manual and field books, eCRAM, and plant list on an annual basis, updating the CRAM website as needed, preparing a standardized set of CRAM training powerpoints that will be updated on an annual basis, and compiling regional photo inventories of common plants and indicators. SFEI staff will assist in the updating of eCRAM, the eCRAM plant list, and the CRAM website.

Project Status

SFEI has assisted in periodic updates to the CRAM manual and eCRAM, and has participated in the four biannual CRAM development team meetings.

3.3 Montezuma Technical Review Team (TRT)

PROJECT CODE
4044

START DATE
4/1/04

ANTICIPATED COMPLETION
12/31/12 (ongoing renewals)

TOTAL FUNDING
$54,945 + ~$25,000 renewal pending

FUNDING FOR SFEI LABOR
$62,126

FUNDING FOR 2013 SFEI LABOR
$20,000

STATUS
Active

DIRECT CLIENT
Montezuma Wetlands LLC

PRIMARY CLIENT
Same

LEAD SCIENTIST
Josh Collins

PROJECT MANAGER
Sarah Lowe

COLLABORATORS
Robert Batha, SF Bay Conservation and Development Commission, Andree Breaux, SF Bay Regional Water Quality Control Board, Jane Hicks, USACE, Eric Polson, private consultant, Karl Malamud-Roam, Contra Costa County Mosquito Abatement District, Howard Shellhammer, San Jose State University, Bruce Herbold and Paul Jones, USEPA, Joe Didonato, East Bay Parks District, Jay Davis and Ben Greenfield and Don Yee and Cristina Grosso, SFEI, Steve Culberson, DWR, Peter Baye, Dan Robinette, Teejay O'Rear

Project Description

The Montezuma Project is a for-profit venture to restore 2,500 acres of brackish tidal marsh in the western Delta using dredged sediment. SFEI partners with the project sponsor to lead the technical team for independent scientific review and interpretation of the project monitoring effort and resulting data for the 20-30 year life of the project. SFEI renegotiates the contract each year. This project is a test case for large-scale re-use of dredged sediment. This project continues the planned part of the regional monitoring program that provides advice and review for local and regional monitoring efforts. Efforts on this project have been hampered by limited availability of dredged sediment.

Work Products

The TRT provides written comments to the Montezuma Management Team on scientific work, and is working with the project leads to develop pre-breach and post-breach monitoring plans as part of the Project's DWR permit.

Plans for 2013

Services to be performed by the TRT include: (1) Scientific review and comment on technical reports, (2) Planning and holding sub-team meetings that focus on key issues for the project (e.g., contaminants, high marsh design, least tern habitat, etc). 3) Monitoring plan recommendations that include a biological component. 4) Holding an Annual Meeting for the project.

Recent Findings and Publications

In 2012 the project has received dredge sediment for filling the wetland cells at the Project site. It will be at least another year before the project might be able to conduct the first levee breach. The Water Board issued an update to the Montezuma Project's Waste Discharge Requirement (WDR) that became the final Order on November 14th, 2012.

The TRT recruited new TRT members in 2012 and the group is beginning to work with the Project leads on developing the pre- and postbreach Monitoring Plans as required by the WDR.

Project Status

This is an ongoing project with a new contract negotiation annually.

3.4 USA RAM 2012 Support

PROJECT CODE
4082

START DATE
1/12/12

ANTICIPATED COMPLETION
9/30/13

TOTAL FUNDING
$100,000

FUNDING FOR SFEI LABOR
$55,671

FUNDING FOR 2013 SFEI LABOR
$19,000

STATUS
Active

DIRECT CLIENT
EPA

PRIMARY CLIENT
Same

LEAD SCIENTIST
Josh Collins

PROJECT MANAGER
Sarah Lowe

COLLABORATORS
Siobhan Fennessy

Project Description

The USEPA is conducting the first National Wetland Condition Assessment (NWCA) in collaboration with States and other partners. The goals of NWCA are to: (1) report the ecological condition of the

nation's wetlands, (2) build state and tribal capacity for wetland monitoring and assessment, and (3) advance the science of wetland assessment.

Work Products

- Memo on the conceptual framework that will be used to guide analysis of the USA-RAM field data and the procedures used to assign scores for each relevant USA-RAM metric.
- Conduct a USA RAM training in Puerto Rico.

Plans for 2013

The USEPA is conducting the first National Wetland Condition Assessment (NWCA) in collaboration with States and other

Recent Findings and Publications

The USEPA is conducting the first National Wetland Condition Assessment (NWCA) in collaboration with States and other

Project Status

The USA RAM training was completed in February 2012. Josh Collins and Siobhan Fennessy have been working together on developing the conceptual framework and the USA RAM metrics during 2012. Work will continue into 2013 with guidance documentation developed by the end of the project.

3.5 Tahoe Wetland Riparian Area Monitoring Plan Phase II

PROJECT CODE
40xx

START DATE
1/1/13

ANTICIPATED COMPLETION
12/31/13

TOTAL FUNDING
$19,000

FUNDING FOR SFEI LABOR
$17,310

FUNDING FOR 2013 SFEI LABOR
$17,310

STATUS
In negotiations

DIRECT CLIENT
SIG-GIS

FUNDING SOURCE
Tahoe Regional Planning Agency (TRPA)

LEAD SCIENTIST
Kristen Cayce/Josh Collins

PROJECT MANAGER
Kristen Cayce

COLLABORATORS
TRPA, Lahontan Water Board, CA Tahoe Conservancy

Project Description

To appropriately identify, evaluate, protect, and manage riparian and aquatic resources in the Lake Tahoe Basin requires a collaborative approach involving multiple agencies, scientists, and other stakeholders. These aquatic features, and their associated riparian areas, are managed as stream environment zones (SEZs), as described in the Tahoe Regional Planning Agency (TRPA) Code of Ordinances. A number of efforts are currently underway to develop a comprehensive strategy for SEZ management. Recently, the TRPA developed an

SEZ Roadmap to review and update the SEZ policies and program in the Lake Tahoe Basin. In addition, an SEZ Technical Working Group formed to develop an SEZ program to help meet these complex management needs. As part of a state-federal initiative to implement California's Wetland and Riparian Area Monitoring Plan (WRAMP), the SFEI-ASC (the San Francisco Estuary Institute – Aquatic Science Center) is working with TRPA, the Lahontan Water Board, Tahoe Conservancy, USFS and other partners to test the suitability of the mapping methods and standards of the California Aquatic Resource Inventory (CARI) for depicting SEZ. CARI is the resource mapping component of WRAMP, and also serves to update and intensify the National Hydrologic Dataset (NHD) of the USGS and the National Wetland Inventory (NWI) of the USFWS. CARI therefore meets federal mapping standards and can be utilized by federal agencies. Our proposed project will build on these efforts by further evaluating the efficacy of CARI for SEZ mapping, and by implementing CARI, as appropriate, across the Tahoe Basin, based on the findings of the WRAMP pilot.

Work Products
Evaluation of the efficacy of CARI methods for SEZ mapping

Plans for 2013
- Assist in the continued development of TARI
- Quality control of TARI data

Recent Findings and Publications
Klatt, M.K., Brewster, J., Cayce, K.N, and Collins, J.N. 2012. Tahoe Aquatic Resource Inventory (TARI) Mapping Standards and Methodology for Channels, Wetlands, and Riparian Areas in the Tahoe Basin. A report for the Tahoe Workgroup of the Wetland and Riparian Area Monitoring Plan (WRAMP). Funded by a grant from the US Environmental Protection Agency, administered by the Aquatic Science Center. Aquatic Science Center, Richmond, CA

Project Status
Contract is in negotiations.

4. Bay Resilience

4.1 Baylands Goals Upland Ecotone Work Group

PROJECT CODE
40xx

START DATE
2/1/13

ANTICIPATED COMPLETION
12/31/13

TOTAL FUNDING
$18,000

FUNDING FOR SFEI LABOR
$18,000

FUNDING FOR 2013 SFEI LABOR
$18,000

STATUS
Proposal (90% probability)

DIRECT CLIENT
California State Coastal Conservancy

FUNDING SOURCE
Same

LEAD SCIENTIST
Josh Collins

PROJECT MANAGER
Sarah Lowe

COLLABORATORS
Baylands Goals Project, John Klochak (USFWS)

Project Description

With direction from the Baylands Goals Project, Josh Collins (SFEI-ASC), John Klochak (USFWS), and Donna Ball (Save the Bay) will co-chair the Uplands Ecotone Workgroup. Monies provided by the USFWS (project 4075) will be combined with monies provided from the Coastal Conservancy ($18,000) for the Baylands Goals Project to help fund the Upland Goals Workgroup. SFEI-ASC will work with the Workgroup to integrate output from recent and ongoing studies of the upland ecotone by USFWS, SFEI, and other interests. The Upland Ecotone Workgroup of the Baylands Goals Project will be the main venue for this integration. Specifically, SFEI will use the Workgroup to:

- Develop criteria for the definition of the San Francisco Estuary Upland Ecotone;
- Recommend a definition based on these criteria for use in the Baylands Goals Report, State of the Estuary Report, and other suitable reports and documents;
- Review and recommend methodologies and tools for mapping the Upland Ecotone, and for identifying and prioritizing Upland Ecotone restoration opportunities

Work Products

- Recommended definition of the transition zone
- Conceptual Model for the transition zone ecological services
- Methods for mapping the transition zone
- List of key data-gaps and research needs for the Bay Area

Plans for 2013

The Workgroup and projects leads will complete the project deliverables in 2013.

Project Status

Several Transition Zone Workgroups have been held in 2012 and the group has developed a workplan and begun to develop conceptual models and criteria for the definition of the Upland Ecotone

5. Landscape Restoration Strategies

5.1 Switzer Tribal Initiative

PROJECT CODE
7095

START DATE
7/1/12

ANTICIPATED COMPLETION
6/30/13

TOTAL FUNDING
$40,000

FUNDING FOR SFEI LABOR
$34,000

FUNDING FOR 2012 SFEI LABOR
$17,000

STATUS
Active

DIRECT CLIENT
Switzer Foundation

FUNDING SOURCE
Same

LEAD SCIENTIST
Josh Collins

PROJECT MANAGER
Chuck Striplen

COLLABORATORS
Amah Mutsun Tribal Band, Graton Rancheria, EPA, NPS, State Parks, + others

Project Description

The goal of the Tribal Initiative is to develop and help implement regional and then statewide watershed and cultural landscape planning and an assessment framework using a combination of Traditional Ecological Knowledge, historical ecology, and conventional environmental science. The Tribal Initiative will focus on building capacity to establish the planning, organizational, and professional development required to sustain this effort for at least the next ten years. We approach this work with an existing network of willing and interested tribes, agency officials, NGOs, museums, and funders. Switzer-funded hours will be directed toward the following goals:

1. Establishment of a Steering Committee including tribal leaders and professional staff, agency personnel, and SFEI senior staff to guide and advise the development of the Initiative;

2. Development of a Strategic Plan, which will outline the goals, objectives, and vision for the administration and direction of this program.

3. The development of a Sustainability plan articulating strategies for funding and staffing, including development of funding proposals for specific projects or operational support.

Work Products

Strategic & Sustainability Plans, professional development, additional funding proposals

Plans for 2013

Selection of a steering committee and beginning work on Strategic Plan

Project Status

A number of potential Steering Committee members have been approached, yielding positive sentiments. Anticipated meeting date of in early 2013.

5.2 Application of Delta Historical Ecology to Cache Slough Restoration Planning

PROJECT CODE
70xx

START DATE
1/1/13

ANTICIPATED COMPLETION
6/30/13

TOTAL FUNDING
$130,000

FUNDING FOR SFEI LABOR
$120,000

FUNDING FOR 2013 SFEI LABOR
$120,000

STATUS
Proposal (50% likelihood)

DIRECT CLIENT
Stillwater Sciences and WWR

FUNDING SOURCE
DWR

LEAD SCIENTIST
Robin Grossinger

PROJECT MANAGER
Ruth Askevold

Project Description

SFEI researchers have recently completed an extensive study documenting how the Delta looked and functioned prior to significant modification. The Sacramento-San Joaquin Delta Historical Ecology Investigation: Exploring Pattern and Process (Whipple et al. 2012) provides a new foundation for setting more specific and functional restoration targets and developing effective restoration strategies at the landscape scale. SFEI is currently analyzing historical and contemporary Delta landscape attributes and ecological functions to develop broad regional restoration tools as part of the new Delta Landscapes project. These projects provide an excellent starting point for developing more detailed metrics and conceptual models for landscape-scale restoration at the scale of Cache Slough.

For this project, SFEI would work with Stillwater Sciences and WWR to apply this information and approach to the Cache Slough area. This would involve several subtasks.

1 Analyze Cache Slough area past and present landscape characteristics and attributes, building on the regional analyses to provide Cache Slough-specific metrics.

2. Describe these attributes/metrics in relation to the larger Delta.

3. Describe expected associated key ecological functions.

4. Use the above analyses to define historical landscape units or complexes at Cache Slough.

5. Based on this information, develop conceptual models for the Cache Slough landscape past, present, and potential future.

6. Work with team to develop conceptual models for restoration (participate in meetings, contribute to materials, and review documents).

Work Products

Conceptual models for the Cache Slough landscape past, present, and potential future

Plans for 2013

Analyze Cache Slough area past and present landscape characteristics and attributes; describe these attributes/metrics in relation to the larger Delta; describe expected associated key ecological functions; use the above analyses to define historical landscape units; develop conceptual models for the Cache Slough landscape past, present, and potential future; and work with team to develop conceptual models for restoration (participate in meetings, contribute to materials, and review documents).

6. Visualization and Public Outreach

6.1 SF Bay Exhibit

PROJECT CODE
7091

START DATE
1/3/12

ANTICIPATED COMPLETION
8/31/13

TOTAL FUNDING
$113,000

FUNDING FOR SFEI LABOR
$110,000

FUNDING FOR 2013 SFEI LABOR
$45,000

STATUS
Active

DIRECT CLIENT
Oakland Museum of California

PRIMARY CLIENT
Same

LEAD SCIENTIST
Robin Grossinger

PROJECT MANAGER
Ruth Askevold

Project Description

SFEI will be a partner in the major exhibition about San Francisco Bay, opening at the Oakland Museum of California in August 2013 in coordination with the opening of the new Bay Bridge. SFEI will support the efficient and accurate development of engaging, informative interpretive themes and content about San Francisco Bay. SFEI will draw upon its extensive work on the geography and ecological history of the Bay, as well as the ways people have used and modified the shoreline, shaping the Bay of the present and future.

Senior scientist Robin Grossinger will serve as guest co-curator of the exhibit; Ruth Askevold is providing content from SFEI's collection and body of work; Chuck Striplen will provide assistance particularly with regard to the representation of indigenous cultures; other SFEI staff will provide technical review and content as identified.

Work Products

- contribute to exhibit concept design
- contribute selected content
- help recruit advisors
- interact with project advisors
- provide technical review as needed

Plans for 2013

In 2013, the SFEI team will provide additional content and interpretation of materials for specific exhibits. Areas of contribution will include content and interpretation for a number of subject areas, including

Emeryville shellmounds: Chuck Striplen has been instrumental in bringing together Oakland Museum and members of the Mowekma tribe. A result of this collaboration and increased understanding has developed into an innovative exhibit on the Emeryville shellmound.

- The Bay edge: tidal marshes, reclamation, filling and diking, salt pond restoration
- The Bay floor: depth, sediment, and bathymetry
- Bay water: water quality and contaminants;
- Species: native and invasive species
- Geostations: content and text explaining how to read the landscape around the Bay, tied to a 1:10,000 scale map of the Bay on the museum floor

- Islands: images, photographs, newspaper articles and spatial data about the myriad islands around the Bay.

Project Status
Active

6.2 Alameda Creek Watershed Center

PROJECT CODE
7100

START DATE
11/19/12

ANTICIPATED COMPLETION
12/31/13

TOTAL FUNDING
$21,000

FUNDING FOR SFEI LABOR
$21,000

FUNDING FOR 2013 SFEI LABOR
$21,000

STATUS
Active

DIRECT CLIENT
Alameda County Resource Conservation District

FUNDING SOURCE
SFPUC

LEAD SCIENTIST
Ruth Askevold

PROJECT MANAGER
Ruth Askevold

Project Description
The SFPUC is opening an interpretive center in Sunol relating to the Alameda Creek watershed. SFEI will advise in the conceptual design and assist in content development of material in support of the interpretive center. Tasks include assisting in conceptual design of exhibits through team meetings and communication; selection and preparation of content for selected exhibit elements; and development of exhibit text. Chuck Striplen will also provide assistance in regard to representation of indigenous Bay cultures.

Work Products
Development of content and exhibit text.

Plans for 2013
Assist in conceptual design of exhibit through team meetings and communication

Provide content for selected exhibit elements

Contribute to exhibit text

Project Status
Active

7. Center for Resilient Landscapes

NEW INITIATIVE

7.1 Develop outreach and marketing materials to seek foundation funding for the Center for Resilient Landscapes (internally funded through overhead)

START DATE
1/1/13

ANTICIPATED COMPLETION
12/31/13

TOTAL HOURS
163

LEAD SCIENTIST
TBD

COLLABORATORS
Other departments

Objective
Acquire funding from two foundations for the Center for Resilient Landscapes

Project Description
This initiative will create the descriptive and marketing materials necessary to attract well-connected partners and funders to the Center for Resilient Landscapes (CRL). It will accomplish ten of the SMART actions of the CRL initiative identified in the Implementation Plan.

This initiative is important for two reasons. First, it will establish SFEIs new program and the priority initiative, neither of which have any representation in descriptive materials, promotional materials, or website at this point. Secondly, it is specifically directed to develop funding for currently unbillable tasks such as communication, outreach, and marketing. The lack of time for these aspects hinders SFEI's ability to enhance public visibility, and achieve ultimate success; is a financial drain; and contributes to staff overwork. For Resilient Landscapes, this initiative is our highest priority, because it both advances our mission and has the potential to help SFEIs finances and work balance.

This initiative should coordinate with and help advance our forthcoming SFEI Communications and Marketing strategy, as well as have good synergy with the Green Infrastructure initiative. These activities will have the benefit of raising the profile of the Institute at large by forging connections and interactions with a broader range of scientists and grant-makers than we currently engage with. This is seed money towards developing the full funding required to achieve this initiative as laid out in the Implementation Plan ($3-400K).

Unbillable hours from this initiative will allow us to

- create targeted marketing materials (a 2-page brief and a 15 minute presentation) presenting a compelling description of the Center with buy-in from key partners
- recruit regional partners (Stanford University, SCC, SFEP, TNC, etc.) and other strategic alliances (Carole Crumley, Eric Sanderson, Stockholm Resilience Center, Resilience Alliance) through communication and recruitment meetings
- make informal pitch to two foundations (in concert with SFEI development plan)

Work Products
- Recruited CRL Research Associates and Advisors
- 2-page prospectus
- 15 minute ppt presentation
- Entrees to 2 foundations for Resilient Landscapes and SFEI

7.2 Foundational publication and intellectual framework for the Center (internally funded through overhead)

START DATE
1/1/13

ANTICIPATED COMPLETION
12/31/13

TOTAL HOURS
165

LEAD SCIENTIST
TBD

Objective
To really establish the Center, we need to support the ideas with excellent publications (not quantity). Yet it is difficult to support publishing at SFEI. The next step, to establish our stature more quickly in the field of resilience and adaptation to climate change, would be a peer-reviewed publication to place our Resilient Landscapes approach in the context of current "resilience" literature.

Project Description
Thanks to efforts by Erin and our intern Jenny, we are part-way towards a manuscript on restoring riverine resilience based on our Santa Clara River Research, and a white paper describing the potentially significant role of the Center in the context of resilience and climate change literature. This funding would successfully complete these efforts.

Work Products
- White paper on need for SFEIs Center for Resilient Landscapes
- Restoring riverine resilience paper to River Research and Applications or equivalent journal for review

7.3 Center for Resilient Landscapes Website (internally funded through overhead)

START DATE
1/1/13

ANTICIPATED COMPLETION
12/31/13

TOTAL HOURS
80-400?

LEAD SCIENTIST
TBD

COLLABORATORS
EDIT

Objective
Create a presence for the Center and program on the SFEI website, including structure and content

Project Description
Work with EDIT team to develop website structure and content in preparation for the Center launch and as a tool to support marketing efforts. Developed in coordination with advancement of overall SFEI website in 2013.

Work Products
Excellent web presence for SFEI and the Center, conveying the purpose and objectives, highlighting our implementation projects, and providing some neat functions and high-impact tools.

7.4 Recruit Landscape Ecologist (internally funded through overhead)

START DATE
1/1/13

ANTICIPATED COMPLETION
12/31/13

TOTAL HOURS
140

LEAD SCIENTIST
TBD

Objective
Expand SFEI expertise in the areas of landscape ecology, to support our Resilient Landscapes program especially historical ecology, wetlands science, and conservation biology. Also important for mentoring and supervising junior staff. This person could become co-director of the program.

Project Description
Identify projects and funding, develop job description, identify target individuals and programs, solicit candidates, interview, and offer.

Work Products
Landscape Ecologist (Environmental Scientist or Senior Scientist)

C. Environmental Data, Information, and Technology

CONTINUING PRIORITIES

1. Data Management Support

1.1 Data Management for Montezuma Wetlands

PROJECT CODE
6504

START DATE
1/1/13

ANTICIPATED COMPLETION
12/31/13

TOTAL FUNDING
~$8,500

FUNDING FOR SFEI LABOR
$8,500

FUNDING FOR 2013 SFEI LABOR
$8,500

STATUS
In negotiations

DIRECT CLIENT
Montezuma Wetlands, LLC

FUNDING SOURCE
Same

LEAD SCIENTIST
Cristina Grosso

PROJECT MANAGER
Cristina Grosso

Project Description

Since 2004, SFEI staff have provided data management services for the Montezuma tidal marsh restoration Project described in the Wetlands Science Program section (above). Services include compiling datasets from the different analytical labs into the project's relational database, preparing QA summaries, and generating data tables for the monitoring data for the project's reporting needs.

Work Products

- Prepare 2012 data tables and QA summaries
- Upload 2013 datasets into the project's database

Plans for 2013

Plans for 2013 include preparing the data tables and QA summaries for samples collected during 2012, uploading 2013 datasets, and maintaining the project's database.

Recent Findings and Publications

In 2011, data tables and QA summaries were prepared for the water and sediment samples collected during 2010-2011.

Project Status

In negotiations

1.2 Electronic Reporting System Data Management

PROJECT CODE
6532

START DATE
3/18/12

ANTICIPATED COMPLETION
3/31/13

TOTAL FUNDING
$12,000

FUNDING FOR SFEI LABOR
$12,000

FUNDING FOR 2013 SFEI LABOR
$10,000

STATUS
Active

DIRECT CLIENT
BACWA

FUNDING SOURCE
Same

LEAD SCIENTIST
Meredith Williams

PROJECT MANAGER
Cristina Grosso

Project Description

The BACWA Board authorized SFEI to work on preserving the historic Electronic Reporting System (ERS) database that was developed and maintained by Johnson Lam for storing region 2's discharger data. Once Johnson Lam retired, the database was no longer maintained. Dischargers are now required to upload their data to the California Integrated Water Quality System (CIWQS).

Work Products

Products for this project include: (1) create a centralized queryable database, provide server and database maintenance as needed, and (3) produce technical documentation.

Plans for 2013

In 2013, SFEI staff will respond to any data requests for the historic data and work with BACWA on longer-term options for making these data accessible online.

Recent Findings and Publications

In 2012, SFEI staff reviewed the database structure and documentation, copied the Access database to SFEI's server and added it to a regular backup and recovery plan, and reviewed the queries provided in the original database to determine which new queries need to be developed.

Project Status

Active

1.3 Quality Assurance and Clean Water for Clean Bay Data Management

PROJECT CODE
6537

START DATE
12/5/12

ANTICIPATED COMPLETION
5/31/13

TOTAL FUNDING
$58,914

FUNDING FOR SFEI LABOR
$58,914

FUNDING FOR 2013 SFEI LABOR
$52,000

STATUS
Awaiting 12/5 Board approval

DIRECT CLIENT
Applied Marine Sciences (AMS)

FUNDING SOURCE
BASMAA

LEAD SCIENTIST
Meredith Williams

PROJECT MANAGER
Cristina Grosso

COLLABORATORS
Applied Marine Sciences, Kinnetic Labs

Project Description

The Clean Watersheds for a Clean Bay project will be implemented by an EPA Water Quality Improvement Fund Grant. SFEI is responsible for providing data management services and performing quality assurance review for the project. There are three tasks that are pilot projects within watersheds to investigate different pollution abatement measures, including property source investigation (task 3), municipal operation and enhancements (task 4), and stormwater retrofit projects (task 5). Separate task orders will be developed for each phase since the sampling plan

depends on the results of the previous task.

Work Products
Products for task 3 of this project include: project management and coordination, data receipt and management of data collected by two field crews (AMS and KLI), data validation, and data storage and release.

Plans for 2013
In 2013, SFEI staff will perform the data management and data validation for samples collected as part of the property source investigation.

Recent Findings and Publications
AMS and KLI have completed the collection of 15-20 samples in 5 different watersheds around the Bay Area

2. Flood Infrastructure

2.1 IRWMP Prop 84 Flood Infrastructure Mapping

PROJECT CODE
6533

START DATE
8/16/11

ANTICIPATED COMPLETION
9/30/16

TOTAL FUNDING
$655,000

FUNDING FOR SFEI LABOR
$655,000

FUNDING FOR 2013 SFEI LABOR
$165,000

STATUS
Active

DIRECT CLIENT
ABAG/SFEP

PRIMARY CLIENT
Prop 84/DWR

LEAD SCIENTIST
Meredith Williams

PROJECT MANAGER
Kristen Cayce

COLLABORATORS
SFEP, Bay Area Association of Flood Protection Agencies (BAAFPA), Environmental Justice Coalition for Water (EJCW)

Project Description
The San Francisco Estuary Institute in partnership with BAFPAA will gather, compile and standardize existing flood infrastructure data into a Geographic Information System (GIS) database. The database will build upon the existing Statewide Levee Database and the existing Army Corps of Engineers Levee Database, but will map a broader range of flood protection and stormwater facilities and information. The result will be a regional and standardized dataset of flood infrastructure for the SF Bay region and the information will provide a foundation for the Statewide Flood Needs Assessment. This critical information will be provided to flood managers and planners through an on-line interactive map.

Specific flood risk information will be collected for a disadvantaged community (DAC) in Richmond by EJCW under a separate Prop 84 grant. Data from that effort will be integrated into the regional website as a pilot of targeted flood risk analysis for Bay communities.

Work Products
- GIS database of flood infrastructure data
- Protocols for standardizing existing data and development of new data
- Website to access flood infrastructure data and DAC flood risk analysis

Plans for 2013
- Identify priority flood infrastructure datasets though meetings with BAAFPA members.

- Identify a subset of BAAFPA members to serve as advising team
- Assess the extent and quality of existing flood infrastructure data.
- Begin to develop strategy for integration and addition of added value to datasets
- Begin to implement and refine, where necessary, integration and upgrade strategy
- On-going communication with BAAFPA, SFEP, and other key stakeholders

Project Status

- Began collection of existing levee data
- On-going coordination with BAAFPA

3. SFEI, ASC, and Other Project Websites

3.1 SBSP GIS Coastal Conservancy

PROJECT CODE
6509

START DATE
8/1/04

ANTICIPATED COMPLETION
12/31/13

TOTAL FUNDING
$491,000

FUNDING FOR SFEI LABOR
$481,000

FUNDING FOR 2013 SFEI LABOR
$40,000

STATUS
Active

DIRECT CLIENT
Coastal Conservancy

PRIMARY CLIENT
Same

LEAD SCIENTIST
Mike May

PROJECT MANAGER
Same

Project Description

SFEI administers the SBSP website and Shoreline Study website for the Coastal Conservancy and Army Corps. For 2013, the sites will be maintained, with design, document processing, and site organization work as needed and requested. The SBSP electronic bulk mailing lists, and the SBSP online photo archive will continue to be operated, maintained and improved. The final element of SFEI's services is to maintain the Project's spatial data holdings, which are catalogued in ESRI Geoportal software.

Work Products

Maintain websites:
http://www.southbayrestoration.org and
http://www.southbayshoreline.org

Bulk emails sent to 2,500-member SBSP list as requested—approximately 20 times a year

Maintain photo archive:
http://photos.southbayrestoration.org

Plans for 2013

Maintain the SBSP website as a repository of visitor information, public meetings, restoration progress reports, requests for proposals, the Project photo archive, and related information.

Continue to refine the website, refocused on supporting visitation and participation by the general public, and less on use as a project management tool.

Maintain the Project's spatial data holdings and metadata, including fulfilling data requests as requested.

Recent Findings and Publications
Main website: http://www.southbayrestoration.org

Photo archive: http://photos.southbayrestoration.org

Project Status
Ongoing. Renewal expected in 2013.

3.2 SFEP Website Support

PROJECT CODE
6526

START DATE
4/1/11

ANTICIPATED COMPLETION
8/30/13

TOTAL FUNDING
$15,000 spent to date + renewal of $10,000 in negotiations

FUNDING FOR SFEI LABOR
$25,000

FUNDING FOR 2013 SFEI LABOR
$5,000

STATUS
Active w/$10,000 in negotiations

DIRECT CLIENT
ABAG/SFEP

FUNDING SOURCE
EPA

LEAD SCIENTIST
Jeff Mueller

PROJECT MANAGER
Amy Franz

COLLABORATORS
SFEP

Project Description
SFEP recently upgraded their website and implemented a new Content Management System. SFEI will serve as web master and will provide ongoing routine maintenance to the site. SFEI developed and implemented an interactive map for SFEP's Watershed program. Minor modifications to this portion may also be performed under this contract.

Work Products
TBD depending on needs of SFEP

Plans for 2013
We will respond to SFEP request as required.

Project Status
In negotiations

4. Project Tracking

4.1 San Diego Regional Water Board 401 Tracking Support

PROJECT CODE
6534

START DATE
6/18/12

ANTICIPATED COMPLETION
3/31/14

TOTAL FUNDING
$16,000

FUNDING FOR SFEI LABOR
$16,000

FUNDING FOR 2013 SFEI LABOR
$8,000

STATUS
Active

DIRECT CLIENT
SCCWRP

FUNDING SOURCE
SWRCB

LEAD SCIENTIST
Meredith Williams

PROJECT MANAGER
Cristina Grosso

COLLABORATORS
SCCWRP

Project Description
The primary goal of this project is to assist the San Diego Water Board (Region 9) with incorporating project data associated with 401 certifications into the Wetland Tracker database so they can be displayed on the Wetlands Portal and EcoAtlas. SFEI will serve as a subcontractor to SCCWRP.

Work Products
1. This project has four main tasks:
2. Project administration and management
3. Incorporate project information into the Wetland Tracker database for an estimated 150 projects. SCCWRP staff will provide information in an electronic template.
4. Support Online 401 project tracking by developing an online project tracking form to capture the additional fields of information required to move an approved 401 certification into the Wetland Tracker database for Southern California and support Region 9's participation in the Online 401 Pilot Study.
5. Draft and final project reports will be produced by SCCWRP.

Plans for 2013
Plans for 2013 include supporting Region 9's participation in the Online 401 Pilot Study and begin developing an online project tracking form to capture the additional fields of information required to move an approved 401 certification into the Wetland Tracker database for Southern California.

Recent Findings and Publications
Region Board 9 staff and potential applicants participated in both Online 401 Training Webinars in June 2012. Region Board 9 staff reviewed the common Online 401 form and provided minor edits.

Project Status
Active

5. CRAM Data Management and e-CRAM Tool Development

5.1 Central Coast Floodplain Riparian Mapping

PROJECT CODE
65xx

START DATE
12/5/12

ANTICIPATED COMPLETION
6/30/15

TOTAL FUNDING
$50,000

FUNDING FOR SFEI LABOR
$45,000

FUNDING FOR 2013 SFEI LABOR
$40,000

STATUS
In negotiations

DIRECT CLIENT
SJSURF/Central Coast Wetlands Group at Moss Landing Marine Labs (MLML)

FUNDING SOURCE
EPA

LEAD SCIENTIST
Kristen Cayce

PROJECT MANAGER
Kristen Cayce

COLLABORATORS
MLML

Project Description
SFEI will work in partnership with CCWG to advance the development of an aerial imagery interpretation module for the Riparian Area Mapping Tool (RAMT). The identified limitations of the RAMT (e.g. under-representing riparian in floodplain valleys) will be addressed through development of an automated imagery analysis process that integrates aerial imagery (ex. IR and NAIP), allowing for analysis of riparian extent defined within the provided imagery. This module will be piloted within the Morro Bay Central Coast Demonstration watershed where current and historic imagery is electronically available, the 2003 wetland base layer exists and a watershed assessment of wetland resources has been completed. SFEI will also provide technical transfer of the RAMT to CCWG.

Work Products
Develop the floodplain vegetation mapping tool as a module to RAMT

Documentation of methods to delineate floodplain vegetation

Demonstrate RAMT tool in Morro Bay Watershed

Plans for 2013
Run existing RAMT (vegetation and hillslope functions) in Morro Bay Watershed

Begin to develop methods for delineation of floodplain vegetation through object oriented mapping

Project Status
Contract in negotiations

5.2 Technology Performance Optimization (internally funded through overhead)

Description
This is a continuing project that is being driven by the development of the new eCRAM application, slated to be completed on Dec 31, 2012. Work in 2013 will focus on identifying procedures and tools to establish Technology Best Practices for future application development that includes:

- Identification of the most appropriate solutions for the technology stack that comprise the eCRAM application
- Implementing Database Design & Configuration Optimizations
- Establishing Coding Best Practices
- Use of web-based tools to identify issues (programming, networking, resource management and design) impeding performance (e.g. page speed online)
- Security enhancements with the right balance between effective security and cost of implementation/maintenance.
- Benchmarking – a performance benchmark document serves the purpose of having an objective basis of comparison when behavior of an application starts to feel slow. This helps direct future troubleshooting. Performance benchmarking is also useful for setting the bar for improvement and determining where it would be most advantageous to hone our efforts in terms of tuning database queries, which can be a time-consuming effort

Completed To-Date:
- Technology Stack
  - Decisions were made on which software to use for each part of the stack
  - Server Hardware and Software Upgrades

- Database Improvements
- Coding Best Practices
- Security Improvements
- Documentation Improvements: Using Redmine, we have thoroughly documented the development process for eCRAM. These documents will serve as a centralized, searchable repository and establish a good template for future projects. Includes development decisions, migration rules, database design modification, forum emails, etc.

Estimated hours required in 2013: 60 internally funded, 80 funded

NEW INITIATIVE

6. Landscape Futures

6.1 Riparian Buffer Width Tool

PROJECT CODE
4081

START DATE
6/1/11

ANTICIPATED COMPLETION
1/30/14

TOTAL FUNDING
$500,000

FUNDING FOR SFEI LABOR
$418,792

FUNDING FOR 2013 SFEI LABOR
$200,000

STATUS
Active

DIRECT CLIENT
SWRCB

PRIMARY CLIENT
SWRCB

LEAD SCIENTIST
Josh Collins / Kristen Cayce

PROJECT MANAGER
Sarah Lowe

COLLABORATORS
Andy Richardson, GIS developer, Independent contractor

Marin County Flood Control District

Project Description

With Prop 50 funding, The State Water Resources Control Board (SWRCB) has contracted with SFEI to develop a riparian width decision support tool (DST) to assist local agencies in determining ecologically significant and scientifically-based riparian buffer widths (RBW). This DST will be developed through extensive literature review, oversight and advice from a technical advisory committee (TAC), and field validation. This project will enhance SFEI's existing riparian mapping areas tool (RAMT) to include fluvial geomorphic and additional water quality functions of interest to SWRCB. These additional modules will produce an estimated buffer width required to maintain specific riparian functions. Vetting and testing of the DST will be done in collaboration with Marin County Flood Control District to understand how the DST may help District employees and be expanded to meet similar needs for other agencies. Through several meetings with the TAC, conceptual models for the fluvial geomorphic and shade modules will be vetted, along with field validation techniques. The field effort in this project will be designed to validate or improve the model and if possible, contribute to existing regional curve efforts. The final component of this project will be outreach to the DST users, local agencies in the Bay-Delta region. One to two workshops will be held to demonstrate the DST applicability in environmental planning and management and provide training on the tool. A website will also be developed and hosted to provide access to the DST and project information.

Work Products

- Riparian Buffer Width Decision Support Tool and necessary documentation
- TAC roster, meeting schedule, and meeting notes
- Outreach materials
- Documentation of field work methods
- Website

Plans for 2013

Hold TAC meetings to develop and review the scientific functioning of the tool and articulate its intended uses. Begin planning field work and tool development.

Recent Findings and Publications

This tool will enhance SFEI's existing riparian mapping areas tool. [www.sfei.org/baari/riparian]

Project Status

The project is well underway with updates to the current riparian mapping tool program (necessary in order to build the new DST module) almost complete. The TAC met and reviewed the outline of how the tool will function and discussed what types of stream reaches this tool will be most useful for.

6.2 Visualization of Information Content (internally funded through overhead)

The Landscape Futures Initiative will generate online decision support and planning tools through aggregation of information about aquatic ecosystem condition, landscape context, and management alternatives. This initiative will require the ability to aggregate multiple datasets across multiple scales. New ways of synthesizing information and providing a better context for the interpretation of results for management decisions are needed. The success of this initiative will depend on compelling visualization and data display. If successful, EDIT will provide tools, so our scientists can convert raw data into useful information and create dynamic, compelling, and visually stimulating presentations of environmental information. Some examples for exploration and implementation include:

- Animation to capture change over time and/or space
- R-based spatial visualization (e.g., i2maps, kriging maps)
- Standard SFEI cartography

Two essential needs for this initiative are training for visualization and collaboration with experienced visualization partners. Training opportunities include the Tufte course and O'Reilly's Strata Making Data Work conference. In 2012, EDIT staff informally collaborated with the Stanford Spatial History Lab to apply their existing visualization tools to SFEI datasets. Further collaboration with this group and other partners needs to be explored.

Proposed deliverables:

- Release ~3 visualization examples by the end of the year.
- Potential projects include animation of historical ecology information; adaptation of the Stanford Crop Suitability Explorer to visualize our LID BMP modeling; integration of spatial and temporal data using the Checkerspot butterfly visualization; and augmentation of the Delta Landscapes visualization tasks.

Team members:

- All EDIT staff are likely to contribute to this initiative. EDIT will need to partner with science staff and design team.

Estimated hours required in 2013:

- Training - 60 hours among various EDIT staff
- Collaboration with partners and prototyping - 200 hours

6.3 Research and Development (R&D) Initiative (internally funded through overhead)

Technology changes rapidly. Methodologies using improved technology are constantly evolving. In order to effectively and efficiently support the Mission and Vision of SFEI-ASC, the EDIT team needs to understand the applicability of current and upcoming technology and methods. In contrast to Institute science work where literature remains the primary means of staying current, remaining current with technology requires learning by doing, workshops, and even tracking trends on Twitter. The R&D plan would identify a protocol by which EDIT staff can propose a limited-scope research project (including project question, methods, deliverables, timeline), get sign-off to pursue that research, produce the deliverable as a result of that research, and present the results to appropriate staff so that the research can be used to improve the Institute's products and/or grant proposals. This can be viewed as part of or an accompaniment to staff training. Implementation of training materials in a tangible project often enhances and solidifies the content learned in training. R&D projects could also involve cutting-edge topics for which no training is available.

A potential case study to help define the criteria for an R&D project is the evaluation of ESRI web mapping technology compared to open-source applications. Many of our latest web mapping tools have been developed using open-source technology due to many factors which, as everything, has its pros and cons. In addition, the EDIT team has ESRI web technology available, the functionality of which has greatly improved over the last five years. It would behoove us to explore ESRI web technologies to understand how and where we can gain efficiencies compared to open-source technology. At the same time, the Historical Ecology focus area has identified the need for an on-line spatial presence. Through the EDIT R&D program, we could demonstrate the use of ESRI web tools through the implementation of an Historical Ecology web mapping interface meeting both the EDIT and HE web mapping needs.

The proposed EDIT R&D effort including steps and interim deliverables:

1. Develop EDIT R&D Plan including the following topics:
    - Criteria for proposing project
    - R&D project lifecycle (should relate to the Institute's Project Lifecycle)
    - Deliverables, hours, timeline
    - Deliverable-Documentation of EDIT R&D Plan
2. Identify 1-2 case studies to go through the R&D process
    a. Deliverable – Concept proposals
3. Implement 1-2 R&D case studies
    a. Deliverable – all deliverables outlined in project and lifecycle

Anticipated hours required in 2013

1. Develop R&D Plan – EDIT staff (50 hours)
2. Identify 1-2 case studies and write concept proposals – EDIT staff (8 hours)
3. Implement 1-2 case studies – Will vary with case study but could be capped (e.g., 40 hours maximum)

D. Operations (Internally funded through overhead)

ONGOING PRIORITIES

We are highlighting here primarily the types of activities in the Operations Program that promise to generate greater efficiencies and alignment with our new strategic objectives and implementation plan. While some of the "projects" described below include standard activities required to run our organization, most of them also include one-time investments, some possibly spanning several years, that would enable the Board to better exercise their fiduciary oversight responsibilities. All of these priorities and proposed new initiative in the Operations Program are estimated to require approximately 14,000 staff hours of overhead time, or 17% of all productive work hours.

1. Human Resources

1.1 Training

At the end of the third quarter of 2012, the Fiscal and Administration Committee requested a comprehensive training plan for SFEI, which was finalized in November. The 2013 administrative and operations budget includes financial resources for priority training opportunities specifically geared toward overall development of the organization, such as project management, effective meeting management, enhancement of consultative skills, communication with clients (internal and external customer service), etc.

Training tailored to individual needs related to managing projects and programs (e.g., identified in coaching conversations, 360-degree processes and performance evaluations) will be considered on a case-by-case basis. The average time allocation for staff training and development is anticipated to be 40 hours per person per year, or approximately 2000 hours total in 2013, approximately three times the amount dedicated to training in 2012. We allocated sufficient financial resources in the administrative budget to accommodate the costs of high-priority training and professional development efforts.

1.2 Performance Management and Feedback

Improvements in organizational performance and accountability have been identified and underway since early 2012. Key remaining steps include:

- updates to job descriptions and duty statements with clearly articulated expectations
- implementation of continuous staff feedback mechanisms and a streamlined annual review process to insure accountability to organizational and individual SMART Goals.

Required hours for this overhead-funded area are estimated at 360 in 2013.

1.3 HR Database Development

Opportunities exist for using technology to improve organizational communications and generate efficiencies in several areas. We intend to address:

- automating some contract/project reporting and tracking through development of databases, scripting of macros, and more advanced use of our accounting software.
- Creating a database for Program Plan content. This database would be a centralized repository for all the project information that goes into the Program Plan and its quarterly updates. Forms would be developed to speed project updates. Queries would be developed to automate the generation of the document that goes into the Board package.

- Implementation of the SFEI-wide deliverables tracker.

- SFEI does not possess software capable of maintaining HR records that can be accessed with ease. The 2013 plans include testing and selection of off-the-shelf comprehensive HR software and migrating existing dispersed records into the database. We estimate that this will be an effort by the Executive Assistant with help from technology staff of 400 hours in 2013.

2. Financial Oversight and Management

Most of the time dedicated to contract management can be incorporated into externally funded project budgets. However, about 1.1 FTE, or 2000 hours per year are dedicated to payroll administration, Audit Committee support, financial planning and record-keeping, and various other financial management tasks that are funded internally by SFEI overhead. In 2013, we intend to consider implementation of recommendations that will come out of the financial practices review of the firm that conducted our 2011 audit. We intend to work closely with the emerging Audit Committee to implement any appropriate actions, finalize the accounting and contract management manual, provide support to the audit committee, and implement best practices as recommended by our external auditor.

3. Communication

Communicating our new Strategic Plan and Initiatives to stakeholders and potential funders that do not know us well at this time will require additional expertise. The 2013 administrative and operations budget includes $15,000 to retain a communications specialist.

In addition, SFEI may be successful in obtaining in-kind marketing assistance through one or more foundation grants in 2013 that require time of the executive team and our Creative Director to manage and implement. Approximately 350 hours of ED, DD and Creative Director time are dedicated to this effort.

In addition, the SFEI website will be redesigned with a focus on branding, messaging, and clarity. The content on the site will be streamlined to better provide an understanding of who we are and what we do as an organization. The result will be a collection of information about the Institute and its focus areas that is simple and easy to navigate. This effort will be undertaken in coordination with any communications efforts of the Institute stemming from the Implementation Plan and is expected to take approximately 500 hours.

4. Building Management and IT Infrastructure Support

Activities related to infrastructure support take up about 1.5 FTE, or 5,000 hours per year funded through overhead. We intend to gradually "customize" our new building in Richmond, adding more work spaces in the open areas on the second floor, and begin to explore better space utilization. This is reflected in the administrative budget. Basic IT infrastructure support is expected to remain at roughly 4% of our overall available time.

5. Board Support

The anticipated restructuring of the Board in 2013 and emergence of three new committees will likely require the same level of effort as in 2012 – approximately 2000 hours, funded through overhead.

6. Program Development

The Implementation Plan identifies a number of areas that require expanded outreach to stakeholders that do not sufficiently know how they could take advantage of our expertise. Furthermore, new initiatives will require some up-front investment to generate sufficient momentum to sustain them. Expectations are that in addition to the estimated hours already identified for the Center for Resilient Landscapes and Green Infrastructure initiatives allocated through overhead funds, approximately 2,000 hours of time by Program Directors, ED, and DD are required to start the process of expanding our funding base.

NEW INITIATIVE

7. Optimal Business Models

This internally funded project is a new initiative and is aimed at improving our capacity for using our scientific content and decision-support tools to better coordinate across agency boundaries and build scientific consensus. Our work necessarily integrates across many agencies, and therefore is not easily funded by any one agency that the work serves. Therefore, our funding for any initiative tends to be piecemeal, and none of the pieces adequately covers the costs of coordination and consensus-building. We intend to allocate approximately 360 hours of ED or DD time to research a variety of funding models and work with the emerging Development Committee to determine how SFEI-ASC may find its way into forthcoming regional wetland restoration/ climate change response bond measure language and pursue other potential funding sources.

2013 Budget Summary

2013		
	Expenses	
	Admin Expense Budget	$963,000
	IT Expense	$93,523
	Labor Expense	$4,370,517
	Direct Cost Expense	$2,175,000
	Capital Improvement Fund	$5,000
	Internally Funded Projects	$70,000
	Total Expense Budget	**$7,677,040**
	Revenue	
	Total Revenue	$7,790,990
	Surplus/(Deficit)	$113,950

Projected Revenue

2013 SFEI Revenue	
Revenue	
Billed Labor	$2,083,422
Subcontracts	$524,861
Other Reimbursable Revenue	$64,497
Other Revenue*	$50,000
Total Revenue	$2,722,780
*Extra revenue from equipment and other rental	

2013 ASC Revenue	
Revenue	
Billed Labor	$1,818,958
Subcontracts	$335,935
Other Reimbursable Revenue	$54,609
Total Revenue	$2,209,502

2013 RMP Revenue	
Revenue	
Billed Labor	$1,663,609
Subcontracts	$1,039,205
Other Reimbursable Revenue	$155,895
Total Revenue	$2,858,709

Total 2013 Revenue	
Revenue	
Billed Labor	$5,565,990
Subcontracts	$1,900,000
Other Reimbursable Revenue	$275,000
Other Revenue*	$50,000
Total Revenue	$7,790,990
*Extra revenue from facilities, equipment, and rental income	

Projected Expenses

Direct Costs	
Salaries	$3,454,954
Benefits	$915,563
Total Labor Expenses	**$4,370,517**
Subcontracts	$1,900,000
Other Reimbursable Expense	$275,000
Total Direct Costs	**$6,545,517**

IT Expenses	
Workstation software	$29,000
Workstation hardware	$27,800
Internet	$11,530
Data Storage (Backup)	$6,180
Server software	$11,663
Server hardware	$3,600
Small Equip. & Book	$3,750
Total IT Expenses	**$93,523**

Administrative Expenses	
Legal/Accounting	$35,000
Consultant	$35,000
Building Exp - Trash	$5,000
Building Exp - PG&E	$20,000
Building Exp - Pass Through	$15,000
Building Exp - Office Build outs	$30,000
Supplies - Office & Field	$25,000
Publications/Dues	$5,000
Printing	$20,000
Postage & Courier	$5,000
Small Equip Offce & Field	$25,000
Rent	$339,000
Equipment Lease & Rental	$35,000
Telephones	$35,000
Insurance	$50,000
Repairs & Maint	$12,000
Janitorial service	$25,000
Travel - Miscellaneous	$20,000
Travel - Conferences	$12,000
Professional Development & Training	$50,000
Conference Registration	$20,000
On-site Meetings & Events	$8,000
Professional Membership Dues	$5,000
Recruiting Costs	$15,000
License & Taxes	$2,000
Fundraising	$8,000
Communications	$15,000
Depreciation	$60,000
Misc Payroll Expenses	$5,000
Temporary Staff	$20,000
Bank Fee	$2,000
Bad debt & Write-offs	$5,000
Total Admin Expenses	**$963,000**

SAN FRANCISCO ESTUARY INSTITUTE
4911 Central Avenue, Richmond, CA 94804 • p 510-746-7334 • f 510-746-7300 www.sfei.org

RESOLUTION No. 03-12

The Board of Directors of the San Francisco Estuary Institute

Resolution for the 2013 Program Plan

IT IS HEREBY RESOLVED THAT:

The Executive Director shall be specifically authorized to take the following actions on behalf of the Board of Directors of the Institute:

1. Maintain bank accounts in a local bank and deposit receipts of payments or contributions into the Institute's bank account; provided that the Institute's accounts will not be moved without prior written notification to the Board.

2. Acquire goods and services on behalf of the Institute as necessary for the maintenance of an efficiently operating office and staff, provided that such expenditures are consistent with the budget presented to the Board at the beginning of each fiscal year; sign checks on behalf of the Institute for all Institute expenditures relating thereto, provided that any non-routine, unbudgeted expenditure which exceeds $15,000 shall be subject to explicit Board approval.

3. Make payments up to $5,000 per contract per month to "SOHO" – single-owner, home-operated consultants – within 30 calendar days of receipt of invoice for reimbursable projects. All other consultants/vendors for reimbursable projects will continue to be paid within 15 business days upon receipt of payment from client.

4. Make emergency expenditures which exceed $15,000 if required between Board meetings only upon approval of the Executive Committee; or, if it is not possible to contact the Committee, and harm to the Institute would result if the expenditure is not made, the Executive Director shall be empowered to make such expenditures, but will immediately notify the Board of the purpose and amount of the expenditure and the cause for emergency action, and shall submit the matter to the Board for their approval at the next regular meeting.

5. Consistent with the Institute's Strategic Plan and with the Board approved Program Plan: represent the Institute in negotiations or solicitations related to the procurement of funding for the Institute's programs; sign as the Institute's authorized representative on applications or proposals for grants or contracts, permit Principal Investigators to explore potential projects and funding, and through the Executive Director, report to the Board; and with prior notification to the Board, accept awards of such grants, contracts or other funding arrangements.

6. Sign as the Institute's authorized representative on all State and Federal tax and other such official forms as necessary to the ordinary conduct of the corporation.

7. Maintain a qualified staff of scientific, technical and office professionals in accord with the personnel policies of the Institute.

8. This Resolution is approved and effective only for the period of the 2013 Program Plan.

Approved: **Date:**

James Fiedler, Chairman

SAN FRANCISCO ESTUARY INSTITUTE
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RESOLUTION No. 04-12

The Board of Directors of the San Francisco Estuary Institute

Resolution Authorizing and Designating a Representative to Negotiate Contracts or Agreements on Behalf of the San Francisco Estuary Institute

WHEREAS, the Board authorizes all contracts or agreements on behalf of the Institute; and

WHEREAS, the Board designates the Executive Director to sign all contracts, agreements and any amendments thereto; and

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors of the San Francisco Estuary Institute hereby authorizes the Executive Director to negotiate and execute all grants or contract agreements consistent with the Institute's Strategic Plan and Board approved Program Plan.

BE IT FURTHER RESOLVED, that any grants or contract agreements not exceeding $50,000 may be signed by the Executive Director prior to Board approval of quarterly Program Plan updates. The Executive Director shall notify the Board of such action at the next regular Board meeting.

APPROVED AND ADOPTED the 5th day of December, 2012.

I, the undersigned, hereby certify that the foregoing Resolution No. 04-12 was duly adopted by the Board of Directors of the San Francisco Estuary Institute by roll call vote.

Attest: _____

James Fiedler
Chairman, SFEI Board of Directors

ATTACHMENT 5

Executive Director's Report

December 5, 2012

Contents

A. Summary

Fiscal and Admin Committee Update – July-October 2012

Financial performance

SFEI continued to manage the "Back to Black" strategy. Staff more consistently met monthly billable targets, the distribution of staff was re-balanced as more highly billable staff came on board, and the number of highly unbillable staff was reduced. SFEI also began to see the financial benefit of the increased 2.95 multiplier.

As a result of this, SFEI has had continued monthly surpluses with the exception of our high vacation months. Staff anticipates a year end surplus of $190,000 and has observed better predictability in our revenue forecast. Staff is now forecasting based on billable targets (rather than planned hours) and is more effectively forecasting fluctuations due, for instance, to conferences and vacations.

Audit

The Annual SFEI Audit was completed under our new auditor, Ganze and Company. Based on the audit findings, staff is developing additional documentation of procedures for fiscal operations. Additionally, bank transaction management has been modified to ensure more segregation of duties.

The audit called for more consistent application of accrual accounting methods. This resulted in two major adjustments in the Institute's accounting. Rent expenses will no longer be shown on a cash basis, but will be tracked on an accrual basis such that our rent payments will be constant over the life of the lease rather than variable as our rent increases. This necessitated a one-time adjustment in our rent expense of $112,000 and a corresponding reduction in our annual surplus.

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Similarly, the Institute's accrued vacation is now tracked as a liability to our cash position. This change has been reflected as a $197,000 reduction in net cash.

As part of the audit process, staff requested an assessment of financial management, tracking, reporting and risk mitigation practices from the auditor. Among their recommendations for risk mitigation was that SFEI establish a reserve to cover three to six months of operation. The Committee agrees that an operating reserve of three months or $1.2M would be appropriate.

Operational performance

The Committee reviewed an outline of a proposed organizational training plan to cover professional training needed by staff. The proposed plan addresses compliance (e.g., safety or sexual harassment training), staff technical and other professional development, supervisor skill development, executive and leadership training, communication and board member training elements.

Committee structure

The Committee has reviewed the necessary steps for transitioning from a Fiscal and Administration Committee to Executive Committee. Findings are included elsewhere in this board package.

On time on budget follow-up

Both a revised client survey and organization-wide deliverables tracking tool are being implemented through the project manager team. The new Client Survey has been drafted and is under final review. It will be used starting in 2013. Database design has begun on organization-wide deliverables tracking tool based on the RMP Stoplight deliverables tracking tool.

Table 1 Budget Comparisons

2013 Budget & 2012 Budget, Actual, and Projected					
	2013 Budget	2012			
		Budget	Actuals thru October	Projected	Projected to Budget Difference
REVENUE					
Labor	$5,565,990	$5,254,812	$4,209,059	$5,029,6921	($225,120)
Other Direct Cost	$2,175,000	$2,215,000	$2,062,228	$2,424,673	$209,673
Other	$50,000	$8,500	$37,330	$44,796	$36,296
Total	$7,790,990	$7,478,312	$6,308,617	$7,499,161	$20,849
EXPENSE					
Labor	$4,370,517	$4,396,841	$3,384,057	$4,013,632	($383,209)
Other Direct Cost	$2,175,000	$2,215,000	$2,061,960	$2,474,351	$259,351
Admin	$963,000	$774,428	$642,261	$770,715	($3,713)
IT	$93,523	$82,022	$40,624	$48,748	($33,274)
Internally Funded Projects	$70,000	$0	$0	$0	$0
Capital Improvement	$5,000	$0	$0	$0	$0
Total Expenses	$7,677,040	$7,468,291	$6,128,902	$7,307,446	($160,845)
Surplus/(Deficit)	$113,950	$10,021	$179,715	$191,715	$181,694

2011 Budget versus Actual			
	2011 Budget	Total Actuals for the Year	Difference Over / (Under)
REVENUE			
Labor	$5,206,459	$4,692,072	($514,387)
Other Direct Cost	$2,119,530	$1,993,092	($126,438)
Other	$8,500	$14,806	$6,306
Total Revenue	$7,334,489	$6,699,970	($634,519)
EXPENSE			
Labor	$4,152,144	$4,079,738	($72,406)
Other Direct Cost	$2,119,530	$2,001,267	($118,263)
Admin	$799,000	$781,372	($17,628)
IT	$149,250	$66,451	($82,799)
Total Expenses	$7,219,924	$6,928,828	($291,096)
Surplus/(Deficit)	$114,565	($228,858)	($343,423)

Table 2 Dashboard - Financial and Operational Effectiveness thru October 2012

						Actuals													Projections		
Ln	Metric ($000)	Definition	Import-ance (1-10)	Trend (Oct)	2012 Budget	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Status	*Oct Target	Oct	Perf YTD.	Nov	Dec	Notes/Corrective Action
A	B	C		D	E	F	G	H	I	J	K	L	M	P	N	O	R	Q	S	T	U
	Income																				
1A	Monthly billed labor revenue	Revenue generated by SFEI staff based on contracted projects.	8	↑	$439	$395	$371	$491	$431	$445	$392	$384	$425	$383	●	*$410*	*$491*	$421 avg	*$410*	*$410*	Highest month of the year.
1B	YTD Actual Cumulative Labor Revenue	Cumulative based on Line 1A. Can be used to determine if revenue shortfalls are chronic or transient.	10			$395	$766	$1,258	$1,689	$2,134	$2,526	$2,910	$3,336	$3,718		*$4,129*	*$4,209*	Same	*$4,619*	*$5,030*	
1C	YTD Budgeted Labor Revenue	Expected revenue based on approved Dec 2011 budget. $439k per month. Amount to be compared to 1B			$5,263	$439	$877	$1,316	$1,754	$2,193	$2,632	$3,070	$3,509	$3,947		*$4,386*	*$4,386*	Same	*$4,825*	*$5,263*	
1D	YTD Act. / Budgeted Labor Revenue	Rough estimate of our performance to budget. If 100% we are precisely on budget. This is another way to determine if shortfalls are chronic or transient.				90.1%	87.3%	95.6%	96.3%	97.3%	96.0%	94.8%	95.1%	94.2%		*94.1%*	*96.0%*	Same	*95.7%*	*95.6%*	

Table 2 Dashboard - Financial and Operational Effectiveness thru October 2012 (cont'd)

						Actuals													Projections		
Ln	Metric ($000)	Definition	Import-ance (1-10)	Trend (Oct)	2012 Budget	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Status	*Oct Target	Oct	Perf YTD.	Nov	Dec	Notes/Corrective Action
A	B	C		D	E	F	G	H	I	J	K	L	M	P	N	O	R	Q	S	T	U
2	**Unrestricted Cash	Cash in the bank minus reserved/prepaid cash (i.e. funds for projects paid up front), deferred salary, and overhead accounts payables. Does not subtract out accrued vacation liability. Since SFEI doesn't have a specific reserve fund, this cash amount represents our reserve. These funds are available as reserve or for capital investments or can be designated to offset unbillable initiatives.	10	↓		$155	$210	$242	$281	$394	$344	$274	$275	$368	●	*$336*	*$290*	Same	*$379*	*$385*	September deficit caused low collections. November and December will have high collections due to strong October.
3	Net Cash	Cash in the bank minus current SFEI liabilities (i.e. line 2 less accrued vacation liability).	10	↓		($86)	$58	$37	$233	$345	$295	$80	$40	$138	●	*$107*	*$51*	Same	*$139*	*$145*	
4	YTD surplus/(deficit)	Cumulative surplus (deficit) based on Line 5	10	↓	$10	$22	$20	$110	$161	$232	$157	$162	$217	$186	●	*$192*	*$180*	Same	*$74*	*$80*	See notes under Expenses for $95K rent & depreciation. Surplus would be $88K without this recognition.
5	Monthly surplus/ (deficit)		8	↓	$0.8	$22	($2)	$90	$51	$71	($76)	$6	$55	($31)	●	*$6*	*($7)*	$18 avg	*$6*	*$6*	

Table 2 Dashboard - Financial and Operational Effectiveness thru October 2012 (cont'd)

						Actuals													Projections		
Ln	Metric ($000)	Definition	Import-ance (1-10)	Trend (Oct)	2012 Budget	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Status	*Oct Target	Oct	Perf YTD.	Nov	Dec	Notes/Corrective Action
A	B	C		D	E	F	G	H	I	J	K	L	M	P	N	O	R	Q	S	T	U
6	Actual Hours Billed Monthly	Hours billed by all employees on payroll. Starting in July, target will be adjusted to remove all non-benefitted staff - interns or staff associated with fiscal agency projects.	6	↑		4,933	4,616	5,857	5,316	4,991	4,469	4,077	4,418	4,227	●	*4,503*	*5,394*	4,767 avg	*4,503*	*4,503*	Hits: Highest Institute-wide average this year. Misses: Delays in Delta RMP. Planned underbilling by select staff who have exceeded their targets for the year for publications.
7	Actual billable ratio	Aggregate ratio of actual hours billed to actual work hours for all staff. Vacation, sick, and leave time not included. Starting in July, target will be adjusted to remove all non-benefitted staff.	6	↑		68.0%	65.2%	75.0%	71.1%	70.4%	65.7%	67.8%	69.3%	72.6%	●	*70.5%*	*76.3%*	69.4% avg	*70.5%*	*70.5%*	
	Expenses																				
8	Total labor and overhead	Payroll plus overhead. Fluctuates based on key payments (HSA, insurance). Labor expenses typically stay quite flat except for the annual increase due to the review process.	10	↓	$5,253 $438mth	$377	$374	$400	$391	$380	$467	$386	$378	$412	●	*$406*	*$502*	$407 avg	*$406*	*$406*	Rent accrual expense adjustment of $112K and depreciation adjustment of -$17K caused a $95K increase in expense recognition.
9	Overhead	Fixed and controllable overhead expenses. Varies as insurance payments, controllables, etc. fluctuate.	5	↓	$856 $71mth	$30	$33	$69	$57	$57	$57	$66	$56	$87	●	*$70*	*$170*	$68 avg	*$70*	*$70*	
10	Controllables	Variable overhead costs (e.g., consultants, office & field supplies and equipment, IT expenses, training, travel, professional development, conference, and membership). Traditionally, SFEI has kept controllable expenses well in hand and in line with budget.	4	↑	$239 $20mth	$4	$6	$13	$11	$17	$11	$17	$14	$25	●	*$18*	*$13*	$13 avg	*$18*	*$18*	

Table 2 Dashboard - Financial and Operational Effectiveness thru October 2012 (cont'd)

						Actuals													Projections		
Ln	Metric ($000)	Definition	Import-ance (1-10)	Trend (Oct)	2012 Budget	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Status	*Oct Target	Oct	Perf YTD.	Nov	Dec	Notes/Corrective Action
A	B	C		D	E	F	G	H	I	J	K	L	M	P	N	O	R	Q	S	T	U
	Project																				
11A	Contracts Awarded Labor (YTD)	Cumulative new contracts based on Line 11B. Yearly fundraising goal of $3.14M (SFEI labor) to cover non-RMP revenue needs	9		$3,140	$35	$1,322	$1,444	$1,655	$1,680	$2,273	$2,273	$2,974	$3,019	●	*$2,617*	*$3,033*	Same	*$4,407*	*$4,476*	Well ahead of goal, but continued delays in IRWMP and Delta RMP contracting.
11B	Contracts Awarded Labor (Month)	New contracts signed		↑	$262	$35	$1,287	$122	$211	$25	$593	$0	$701	$46		*$262*	*$13*	$303 avg	*$1,374*	*$69*	
11C	Individual Amount and Project Name	List of contracts signed				$27 Alviso $8 Data Montezuma	$739 Delta $330 Nutrient $110 Bay Exhi $75 Stat Dgn	$56 US RAM $24K S&T Va $15 Onli 401 $13 Z2 SLC	$120 BOG $44 HE Alam $30 HE McC $13 Alviso	$25 Sac-San Joaquin Delta HE	$350 Tiju HE $118 HOT $52 Ala HE $34 Switzer		$655 IRWM $35 Mark W $16 RB9 401	$43 Estuary Portal Science Supp $3 Quality Assurance Officer for CW4CB	$10 Corps Shoreline, Alviso $4 Remnicity				$720 Flood $499 Prp84 **$240 POC** $198 Delta $80 GrassInd	$59 CW4CB Data Mgmt $10 SFEP Website Support	

*Monthly targets are not December 2011 Board-approved goals, but are realistic goals adjusted every month as requested by the Admin Fiscal Committee.

**Unrestricted cash definition modified in July to further subtract out overhead accounts payables and deferred salary.

Figure 1 Revenue and Expense

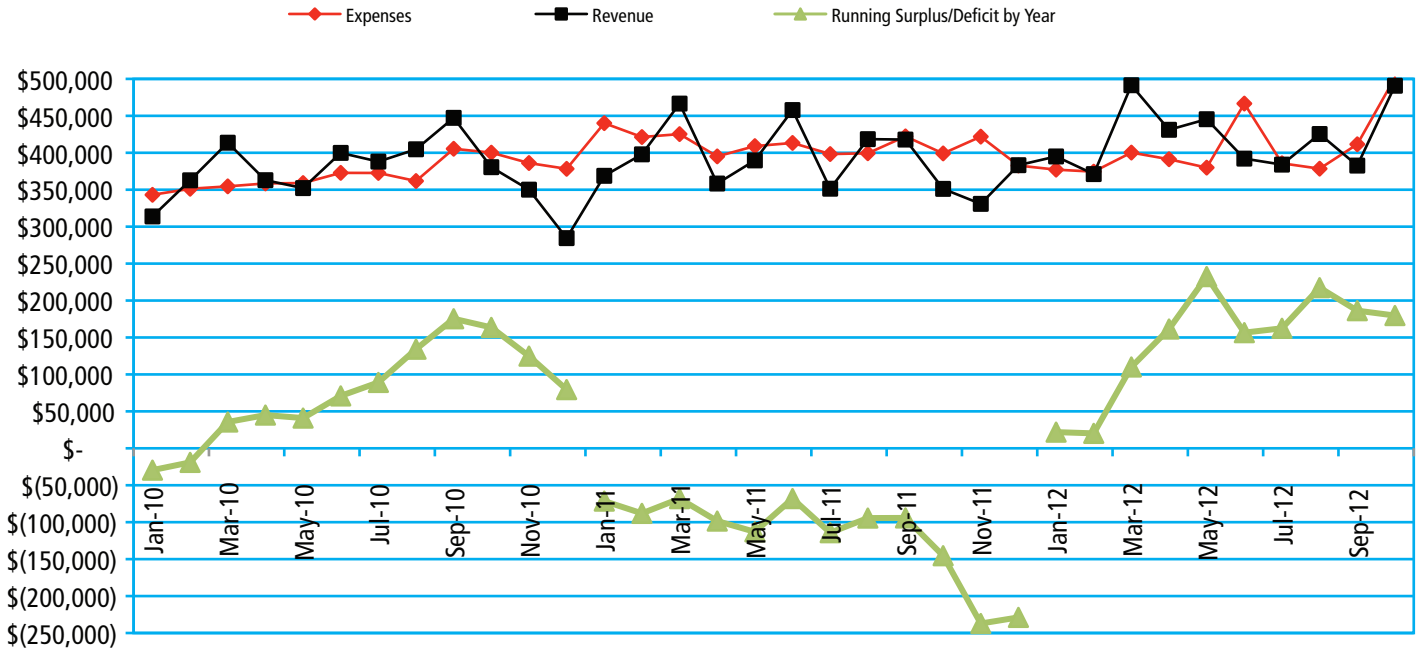

Figure 2 Assets and Liabilities Status

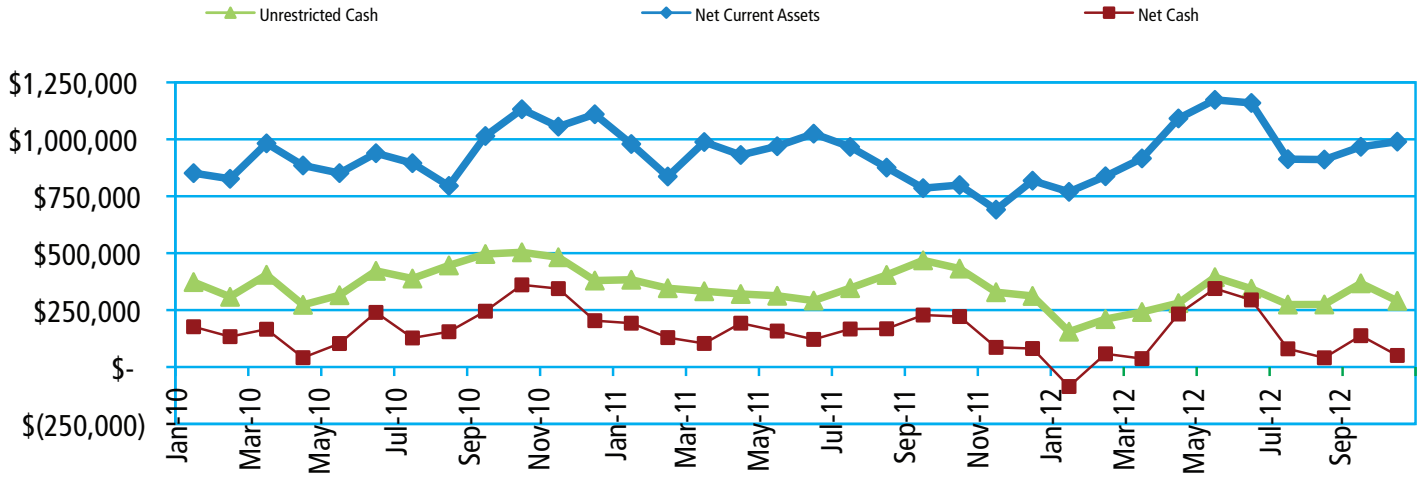

Table 3

Summary of Proposals and Contracts and Months of Labor Funding

	Amount	#
Proposals Submitted	$2,010,137	10
SFEI/ASC Labor	$1,697,309	
SFEI/ASC Labor (anticipated)	$808,139	
Awarded Proposals In Negotiations	$2,946,766	17
SFEI/ASC Labor	$2,063,024	
Contracts Signed Balance (inclu. 2013 & 2014 RMP)	$18,054,329	68
SFEI/ASC Labor Balance	$10,145, 669	
Total Labor Balance	$13,016,833	
Months of Labor Funding (assume $454K labor/mth)		**29**
Minimum hours Spent on Proposals in October		81
Minimum hours Spent on Proposals YTD		1337

Table 4 Proposals Submitted thru November 2012

	PI	Proposals Submitted	Total Amount Submitted	Amount to SFEI/ASC Labor	Percent Probability of Funding	Prorated Amount to SFEI/ASC Labor	Funding Source/ Partners	Anticipated Notice of Award	Anticipated Duration (in mths)	Solicited S, Competitive C, Renewal R	Submit Date	Days Since Submittal
1 SFEI	RG/CS	Graton Rancheria Heritage Management Study	$256,637	$241,467	50%	$120,734	CalTrans/ Far Western Anthropological Research Group, Inc./Cultural Resource Management/ Tiley Research, Laguna de Santa Rosa Foundation	TBD	22	C	1/1/13	-27
2 SFEI	RG	Cache Slough Restoration Planning	$130,000	$120,000	50%	$60,000	DWR/Stillwater Sciences/WWR	Dec-12	6	C	10/26/12	40
3 SFEI	DS	Nutrient Modeling in the Delta	$181,000	$72,842	60%	$43,705	IEP/USGS/RMA	Dec-12	12	C	10/12/12	4
4 SFEI	RG	San Francisquito Creek Historical Ecology	$350,000	$275,000	65%	$178,750	Stanford University	Dec-12	30	S	10/2/12	64
5 SFEI	RG	San Joaquin River Historical Flowpaths GIS	$225,000	$175,000	70%	$122,500	DWR	Dec-12	18	S	9/26/12	70
6 SFEI	RG/CS	Laguna de Santa Rosa HE Study (319(h))	$125,000	$125,000	35%	$43,750	EPA/SWRCB	Feb-17	24	C	9/13/12	83
7 SFEI	JC	Baylands Goals Upland Ecotone WG	$18,000	$18,000	90%	$16,200	SCC	Dec-12	12	S	6/27/12	161
8* SFEI	LM/SP	Sedimentation Study of Arroyo Mocho & Arroyo Las Positas (Geomorphic Assistance for Zone 7 Agency Phase II)	$250,000	$190,000	50%	$95,000	Zone 7 Water Agency/ Rivermetrics/ Bigelow/Benda/ Mahachek/ Swanson	Dec-12	24	R	3/10/11	636
9 ASC	RG/ MW	Historical Delta Landscape Visualization/ Modeling	$54,500	$50,000	50%	$25,000	Metropolitan Water District/34 North	Dec-12	24	S	8/27/12	100
10 ASC	MW	CA LID/Stormwater BMP Tracker	$450,000	$450,000	25%	$112,500	SWRCB	Mar-13	36	S	4/20/12	229
		TOTAL SFEI:	**$1,535,637**	**$1,217,309**	**56%**	**$680,639**						
		TOTAL ASC:	**$504,500**	**$500,000**	**28%**	**$137,500**						
		GRAND TOTAL:	**$,2040,137**	**$1,717,309**	**48%**	**$818,139**						

***Item #8 is already contracted $244,000. The remaining $250,000 is pending Alameda County approval based upon availability of funding.**

Table 5 Awarded Proposals in Negotiations thru November 2012

		PI	Awarded Proposals in Contracutal Negotiations	Amount Submitted	Amount Awarded	Amount to SFEI/ ASC Labor	Funding Source/ Partners	Anticipated Start Date	Anticipated Duration Date (in mths)	S,C,R	Assigned Project #	Last Updated	Days in Negotiations
1	SFEI	DS	Nutrient Modeling in the Delta	$181,000	$181000	$72,842	IEP/USGS/ RMA	Jan-13	12	C	10xx	11/14/12	21
2	SFEI	KC	Central Coast Floodplain Riparian Mapping	$50,000	$50000	$45,000	EPA/MLML	Dec-12	30	S	4087	11/14/12	21
3	SFEI	LM	SFPUC LID	$100,000	$200,000	$200,000	SFPUC	Jan-13	24	S	50xx	11/1/12	34
4	SFEI	MW	SFEP Website Support	$10,000	$10,000	$10,000	EPA/ABAG	Dec-12	12	R	6526	10/24/12	42
5	SFEI	MW	Southern California Coastal Wetland Analysis	$15,000	$15,000	$15,000	SCC/SC-CWRP	Jan-13	12	R	7084	10/24/12	42
6	SFEI	MW	CW4CB Data Management & QA Review	$42,690	$58,914	$58,914	BASMAA/ AMS	Dec-12	8	S	6537	10/19/12	47
7	SFEI	JC	Quality Assurance Project Plan SBSP	$32,000	$35,000	$35,000	EPA/SCC/ USGS/UCD	Dec-12	3	S	4086	8/31/12	96
8	SFEI	RG/EB	Tijuana River Science Collaborative	$39,446	$39,839	$37,840	TRNERR/ NOAA/SC-CWRP	Dec-12	24	C	70xx	8/27/12	100
9	SFEI	DS/LM/KC	Prop 84 Green Infrastructure Master Planning Project	$597,901	$597,901	$319,250	SWRCB/ SFEP, muliple cities & counties, Watearth, Inc, Dan Cloak Consultants	Jan-13	24	C	10xx	6/29/12	159
10	SFEI	KC/JC	Tahoe WRAMP II	$19,000	$19,000	$17,310	TRPA/SIG-GIS	Dec-12	12	S	40xx	6/29/12	159
11	SFEI	RG/LM	Flood Control 2.0	$857,000	$857,000	$720,000	EPA/SFEP/ BCDC/SF-BJV/MCFC/ CCCFC/ SFCJPA	Dec-12	48	C	7097	6/8/12	180
12	SFEI	RG/CG	Mark West Creek Historical Alignment	$50,000	$35,000	$35,000	SCWA/ LSR F	Mar-13	7	S	70XX	5/1/12	218

Table 5 Awarded Proposals in Negotiations thru November 2012 (cont.)

		PI	Awarded Proposals in Contracutal Negotiations	Amount Submitted	Amount Awarded	Amount to SFEI/ ASC LABOR	Funding Source/ Partners	Anticipated Start Date	Anticipated Duration Date (in mths)	S,C,R	Assigned Project #	Last Updated	Days in Negotiations
13	SFEI	DS	IRWMP Green Infrastructure/San Pablo Spine	$330,000	$330,000	$180,000	DWR/ BACWA/ ABAG	Dec-12	36	C	5083	8/17/11	476
14	ASC	KC	GIS Support for RWQCB	$50,000	$35,000	$35,000	SWRCB	Dec-12	12	R?	8603	9/29/12	70
15	ASC	TJ	Delta Regional Monitoring Program	$59,246	$250,000	$197,598	SWRCB	Dec-12	36	S	8107	9/12/12	84
16	ASC	DS	Nutrient Numeric Endpoint Framework	$27,626	$27,626	$27,626	SWRCB/ SCCWRP	Mar-13	25	S	85xx	3/23/12	257
			TOTAL SFEI:	**$2,324,037**	**$2,428,654**	**$1,746,156**							
			TOTAL ASC	**$136,872**	**$312,626**	**$260,224**							
			GRAND TOTAL:	**$2,460,909**	**$2,741,280**	**$2,006,380**							

Table 6 Contracts Signed

		PI	Contracts Signed	Amount Submitted	Amount of Award	Amount to SFEI/ASC	Funding Source/ Partners	Assigned Project #	S,C,R	Date Contract Signed
1	SFEI	RA	Alameda Creek Watershed Center in Sunol	$21,000	$21,000	$21,000	SFPUC/ACRCD	7100	R	11/19/12
2	SFEI	DS	Nutrient & Phytoplankton Monitoring Program	$50,000	$50,000	$35,000	SWRCB/ SJSURF	1096	S	11/16/12
3	SFEI	ND	Grasslands (Water Year 2013)	$85,000	$85,000	$80,000	Bureau of Reclamation	1091	R	11/16/12
4	SFEI	MW	BASMAA Pollutants of Concern WY 2013	$481,710	$481,710	$239,710	BASMAA	6535	R	11/5/12
5	SFEI	JC	Corps Shoreline Study, Alviso	$9,635	$9,635	$9,635	H.T. Harvey & Associates	4085	R	10/10/12
6	SFEI	RG	Remnicity	$3,800	$3,800	$3,800	Exploraotrium	7098	S	10/2/12
7	SFEI	DY	QAO for Task 3, Phase I Field Sampling	$3,000	$3,000	$3,000	BASMAA/AMS	1095	S	9/27/12
8	SFEI	RA	HE Study of Mt. Wanda	$30,000	$35,984	$30,000	DOI/NPS	7099	S	8/31/12
9	SFEI	MW	RB9 401 Tracking Support	$16,000	$16,000	$16,000	SWRCB/ SCCWRP	6534	S	8/9/12
10	SFEI	MW	IRWMP Flood Infrastructure Mapping	$655,000	$655,000	$655,000	DWR/BACWA/ SFEP/BAFPAA	6533	C	8/9/12
11	SFEI	RG	Tijuana River Valley HE Study	$440,000	$440,000	$350,000	SCC	7096	S	6/26/12
12	SFEI	MM	SBSP GIS Metadata and Website Upgrade	$19,800	$25,000	$25,000	SCC	6509.1	R	6/19/12
13	SFEI	RG	Alameda Creek Historical Ecology Study	$52,000	$52,000	$52,000	ACRCD	7062	R	6/7/12
14	SFEI	RG	2012 Dendroecology Work	$8,050	$8,050	$8,050	UC Berkeley	7080	R	6/7/12
15	SFEI	RG/ LM	San Francisquito Creek Design Meeting	$6,000	$6,000	$6,000	SFBJV/SFCJPA	7087	S	6/7/12
16	SFEI	CS	Switzer Tribal Initiative	$40,000	$40,000	$34,000	Switzer Foundation	7095	C	6/7/12
17	SFEI	CG	Bay Area Trash Tracker	$2,754	$2,754	$2,754	ARRA/ABAG	6600	R	4/26/12
18	SFEI	JD	BOG Wildlife BMF Study	$330,800	$330,800	$120,438	SWRCB/ SJSURF/MLML	1094	R	4/19/12
19	SFEI	RG	HE of the McCormack-Williamson Tract Area	$50,000	$30,000	$30,000	TNC	7094	S	4/13/12
20	SFEI	JC	Corps Shoreline Study, Alviso	$13,497	$13,497	$13,497	H.T. Harvey & Associates	4085	R	4/2/12

Table 6 Contracts Signed (cont'd)

		PI	Contracts Signed	Amount Submitted	Amount of Award	Amount to SFEI/ASC	Funding Source/ Partners	Assigned Project #	S,C,R	Date Contract Signed
21	SFEI	LM	Sedimentation Study of Arroyo Mocho & Arroyo Las Positas (Geomorphic Assistance for Zone 7 Agency Phase II)	$44,000	$44,000	$44,000	Zone 7 Water Agency/ Rivermetrics/ Bigelow/ Benda/ Mahachek/ Swanson	5075	R	4/2/12
22	SFEI	JC	USA RAM 2012 Support	$100,000	$100,000	$55,671	EPA/Siobhan F.	4082	S	3/12/12
23	SFEI	LM	Zone 2, San Lorenzo Creek - Sed Samples	$15,128	$15,128	$12,584	ACFCWCD/ DHI	5081.1	S	3/12/12
24	SFEI	MW	Electronic Reporting System (ERS) Data Management	$78,017	$12,000	$12,000	BACWA/EOA	6532	S	3/7/12
25	SFEI	RG	Initiation of a Re-Oaking Strategy for the Napa Valley	$8,000	$2,666	$2,666	Wildlife Conservation Commission	7092	C	3/1/12
26	SFEI	KC	S&T Validation	$20,000	$23,890	$23,890	CNRA/ SCCWRP	6530	S	3/1/12
27	SFEI	JD	SF Bay Data Analysis & Report FY10/11	$50,000	$50,000	$5,000	SWRCB/ SJSURF/ MLML/ SCCWRP	1066.71	R	2/24/12
28	SFEI	CG	Healthy Streams Portal	$7,000	$7,000	$7,000	SWRCB/ SJSURF/MLML	6531	R	2/24/12
29	SFEI	DS	SF Bay Nutrient Strategy Support	$350,000	$350,000	$330,000	BACWA	1092	S	2/21/12
30	SFEI	RG	SF Bay Exhibit	$113,000	$113,000	$110,000	Oakland Museum	7091	S	2/13/12
31	SFEI	JC	Statistical Design & Analysis	$71,598	$75,432	$75,432	SCVWD	4084	S	2/8/12
32	SFEI	RG	Exploratorium Bay Observatory Exhibition	$5,000	$5,000	$5,000	Exploratorium	7082	R	2/2/12
33	SFEI	JC	Corps Shoreline Study, Alviso	$27,762	$27,762	$26,922	H.T. Harvey & Associates	4085	S	1/26/12
34	SFEI	CG	Data Management for Montezuma Wetlands	$8,417	$8,417	$8,417	Montezuma Wetlands LLC	6504.2	R	1/6/12
35	ASC	MW	Estuary Portal Science Support	$75,000	$75,000	$42,500	CWQMC/ SFCWA/TBI	8605	S	9/17/12

Table 6 Contracts Signed (cont'd)

		PI	Contracts Signed	Amount Submitted	Amount of Award	Amount to SFEI/ASC	Funding Source/ Partners	Assigned Project #	S,C,R	Date Contract Signed
36	ASC	RG	CIAP - Evaluating Head-of-Tide	$120,067	$118,316	$118,317	DOI/BCDC	8703	S	6/12/12
37	ASC	RG	Sacramento-San Joaquin Delta HE	$25,000	$25,000	$25,000	DFG	8700	R	5/31/12
38	ASC	MM	Online 401/WDR Applications	$15,000	$15,000	$15,000	SWRCB	8602	S	3/26/12
39	ASC	TJ	Central Valley Monitoring Directory	$15,000	$15,000	$15,000	SWRCB	8106	R	2/28/12
40	ASC	RG	Delta Landscapes	$875,000	$875,000	$739,288	DFG	8702	C	2/2/12
			TOTAL SFEI:	**$3,215,968**	**$3,143,525**	**$2,453,466**				
			TOTAL ASC:	**$1,125,067**	**$1,123,316**	**$955,105**				
			GRAND TOTAL:	**$4,341,035**	**$4,266,841**	**$3,408,571**				

Table 7 Training and Development for Quarter 4

NAME	CONFERENCES & SYMPOSIUMS	TECHNICAL INSTRUCTIONS	PROJECT MANAGEMENT	BUSINESS-FOCUSED TRAINING PROGRAMS
Askevold				
Baumgarten				
Beagle				
Beller	1			
Bezalel		2		
Cabling				
Cayce				
Collins				
David				
Davis	1			
Featherston				
Franz				
Frontiera				
Gilbreath	1	1		
Gluchowski				
Grossinger				
Grosso				
Hoenicke	1			
Hunt				
Jabusch	2			
Kass				
Klatt				
Lea				1
Leung, F				
Leung, L				
Lofthouse				
Lowe				
May				
McKee				
Mueller				
Novick	1			
Pearce				
Robinson				
Ross				
Russio				
Safran	2			
Salomon				
Sedlak	1			
Senn				
Striplen				
Tseng				
Wanczyk				
Williams				
Wills-Norton	1			
Wong		1		
Yee	2			
Total:	**13**	**4**	**0**	**1**

Attachment 6

SFEI Audit Report

6a – Ganze Co. Financial Management Letter dated September 27, 2012

6b – Ganze Co. Final SAS 114 Letter dated September 27, 2012

6c – Financial Statements for the Year Ended December 31, 2011 and Supplemental Schedules and Additional Information

ganze & company sm

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Joel Momsen, CPA
Valerie V. Ruban, CPA
Laura Stark, CPA

Kathy A. Cranston, EA
Amber Hurst, EA

September 27, 2012

To the Management and
The Board of Directors of
San Francisco Estuary Institute

In planning and performing our audit of the financial statements of San Francisco Estuary Institute ("SFEI") for the year ended December 31, 2011, in accordance with auditing standards generally accepted in the United States of America, we considered the Organization's internal control over financial reporting (internal control) as a basis for designing our auditing procedures for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the organization's internal control. Accordingly, we do not express an opinion on the effectiveness of the Organization's internal control.

However, during our audit we became aware of several matters that are opportunities for strengthening internal controls and operating efficiency. The memorandum that accompanies this letter summarizes our comments and suggestions regarding those matters. This letter does not affect our report dated September 27, 2012, on the financial statements of San Francisco Estuary Institute.

We will review the status of these comments during our next audit engagement. We have already discussed many of these comments and suggestions with various Organization personnel, and we will be pleased to discuss them in further detail at your convenience. Our comments are summarized as follows:

Accounting Manual

The Organization does not have a formal accounting manual documenting the procedures for fiscal operations. A written accounting manual is necessary to ensure that transactions are treated in a standardized manner and that proper internal controls exist in the accounting system. Should employees have a question as to the proper handling of a transaction in accordance with management's authorization, such information is not available in writing. We recommend that operating guidelines for fiscal activities be prepared including a description of each fiscal procedure, such as invoice paying, maintenance of accounts receivable and accounts payable subsidiary records, and payroll procedures. In addition, an expense allocation methodology should also be incorporated into the accounting manual. Management indicated that the Treasurer is organizing a new Finance Committee which will address the preparation of an accounting manual before the end of the current fiscal year.

Client Response

The Controller and Contract Manager will develop a formal accounting manual documenting the procedures for the operations as recommended by the Auditor. The new accounting manual will be provided to the Finance and Administration Committee or its successor before the end of the current fiscal year 2012.

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Property and Equipment

During the course of the audit, it was noted that SFEI depreciated property and equipment based on a standard number of years despite the differences in asset types as well as capitalizing smaller dollar items that should be expensed. We recommend that SFEI develop a property and equipment policy which includes criteria for capitalizing an asset and a standard table of asset categories and useful lives used for depreciation. This policy would ensure the standardization and consistency of items capitalized and the method of depreciation.

Client Response

SFEI will develop a depreciation policy based on a standard number of years for different types of assets according to the useful lives used for depreciation to ensure standardization and consistency.

Bank Reconciliation Review

We noted that bank statements are received by the individual performing the bank reconciliation and that there is a lack of evidence indicating that bank reconciliations have been submitted to an individual independent of the accounting function for review. Because of the small size of the accounting department, there is an inherent lack of segregation of duties. Although the basic premise is that no one person should have access to physical assets and the related records to all phases of a transaction, there are mitigating controls that may be taken such as the following: (a) bank statements should be mailed to and received unopened by the Executive Director who should then review for unexpected items and initial (as physical evidence of review) prior to forwarding to the accountant performing the reconciliation and (b) the Executive Director should initial each bank reconciliation subsequent to review indicating the date the reconciliation was reviewed and approved.

Client Response

Effective immediately and dated back to the beginning of the fiscal year 2012, the SFEI Executive Director or Deputy Director will open, review and initial the monthly bank statements prior to forwarding them to accounting department staff that will perform the bank reconciliation. The Executive Director or Deputy Director will review and initial the bank reconciliations for approval.

We wish to thank the management of San Francisco Estuary Institute for their support and assistance during our audit.

This report is intended solely for the information and use of management, the Board of Directors, and others within the Organization and is not intended to be and should not be used by anyone other than these specified parties.

Napa, California
September 27, 2012

ganze & company sm

Anthony J. Ganze, CPA

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Laura Stark, CPA
Valerie V. Ruban, CPA

Kathy A. Cranston, EA
Amber Hurst, EA

September 27, 2012

To the Board of Directors
San Francisco Estuary Institute

We have audited the financial statements of San Francisco Estuary Institute for the year ended December 31, 2011, and have issued our report thereon dated September 27, 2012. Professional standards require that we provide you with information about our responsibilities under generally accepted auditing standards (and, if applicable, *Government Auditing Standards* and OMB Circular A-133), as well as certain information related to the planned scope and timing of our audit. We have communicated such information in our letter to you dated June 25, 2012. Professional standards also require that we communicate to you the following information related to our audit.

Significant Audit Findings

Qualitative Aspects of Accounting Practices

Management is responsible for the selection and use of appropriate accounting policies. The significant accounting policies used by San Francisco Estuary Institute are described in Note 2 to the financial statements. No new accounting policies were adopted and the application of existing policies was not changed during 2011. We noted no transactions entered into by the Organization during the year for which there is a lack of authoritative guidance or consensus. All significant transactions have been recognized in the financial statements in the proper period.

Accounting estimates are an integral part of the financial statements prepared by management and are based on management's knowledge and experience about past and current events and assumptions about future events. Certain accounting estimates are particularly sensitive because of their significance to the financial statements and because of the possibility that future events affecting them may differ significantly from those expected. We evaluated the key factors and assumptions used to develop the estimates and determined that they are reasonable in relation to the financial statements taken as a whole. The most sensitive estimates affecting the financial statements were:

- The allocation of functional expense based on direct labor expenses
- The useful lives of property and equipment
- The accrued contract liabilities related to the Regional Monitoring Program

Certain financial statement disclosures are particularly sensitive because of their significance to financial statement users. The most sensitive disclosure affecting the financial statements was the disclosure of a related party in Note 8 to the financial statements.

The financial statement disclosures are neutral, consistent, and clear.

Difficulties Encountered in Performing the Audit

We encountered no significant difficulties in dealing with management in performing and completing our audit.

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Adjustments

Professional standards require us to accumulate all known and likely adjustments identified during the audit, other than those that are clearly trivial, and communicate them to the appropriate level of management. Management and auditors have reviewed and agreed on all adjusting entries and recorded them as of and for the year ending December 31, 2011.

Disagreements with Management

For purposes of this letter, a disagreement with management is a financial accounting, reporting, or auditing matter, whether or not resolved to our satisfaction, that could be significant to the financial statements or the auditor's report.

We are pleased to report that no such disagreements arose during the course of our audit.

Management Representations

We have requested certain representations from management that are included in the management representation letter dated September 27, 2012.

Management Consultations with Other Independent Accountants

In some cases, management may decide to consult with other accountants about auditing and accounting matters, similar to obtaining a "second opinion" on certain situations. If a consultation involves application of an accounting principle to the Organization's financial statements or a determination of the type of auditor's opinion that may be expressed on those statements, our professional standards require the consulting accountant to check with us to determine that the consultant has all the relevant facts. To our knowledge, there were no such consultations with other accountants.

Other Audit Findings or Issues

We generally discuss a variety of matters, including the application of accounting principles and auditing standards, with management each year prior to retention as the Organization's auditors. However, these discussions occurred in the normal course of our professional relationship and our responses were not a condition to our retention.

Other Matters

With respect to the supplementary information accompanying the financial statements, we made certain inquiries of management and evaluated the form, content, and methods of preparing the information to determine that the information complies with U.S. generally accepted accounting principles, the method of preparing it has not changed from the prior period, and the information is appropriate and complete in relation to our audit of the financial statements. We compared and reconciled the supplementary information to the underlying accounting records used to prepare the financial statements or to the financial statements themselves.

This information is intended solely for the use of the Board of Directors and management of San Francisco Estuary Institute and is not intended to be, and should not be, used by anyone other than these specified parties.

Very truly yours,

Ganze & Company

SAN FRANCISCO ESTUARY INSTITUTE

FINANCIAL STATEMENTS

FOR THE YEAR ENDED DECEMBER 31, 2011

and

SUPPLEMENTAL SCHEDULES
AND
ADDITIONAL INFORMATION

TABLE OF CONTENTS

ganze & company sm

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INDEPENDENT AUDITORS' REPORT

Board of Directors
SAN FRANCISCO ESTUARY INSTITUTE

We have audited the accompanying statement of financial position of SAN FRANCISCO ESTUARY INSTITUTE (a nonprofit organization) as of December 31, 2011, and the related statements of activities, functional expenses, and cash flows for the year then ended. These financial statements are the responsibility of the Organization's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and the significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of SAN FRANCISCO ESTUARY INSTITUTE as of December 31, 2011 and the changes in its net assets and its cash flows for the year then ended in conformity with accounting principles generally accepted in the United States of America.

In accordance with *Government Auditing Standards*, we have also issued our report dated September 27, 2012, on our consideration of SAN FRANCISCO ESTUARY INSTITUTE'S internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* and should be considered in assessing the results of our audit.

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Our audit was conducted for the purpose of forming an opinion on the financial statements as a whole. The Statement of Financial Position with Regional Monitoring Program and the Schedule of Program Expenses are presented for additional analysis and are not a required port of the financial statements. The accompanying schedule of expenditures of Federal awards is presented for purposes of additional analysis as required by U.S. Office of Management and Budget Circular A-133, *Audits of States*, *Local Governments*, *and Non-Profit Organizations*, and is also not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the financial statements. The information has been subjected to the auditing procedures applied in the audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the information is fairly stated in all material respects in relation to the financial statements as a whole.

Ganze & Company

Napa, California
September 27, 2012

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STATEMENT OF FINANCIAL POSITION
DECEMBER 31, 2011

ASSETS	
Current Assets:	
Cash	$ 739,293
Accounts receivable	1,072,208
Investments	4,083,652
Due from Aquatic Science Center	1,000
Prepaid expenses	62,083
Total Current Assets	5,958,236
Property and Equipment, net	91,456
Total Assets	$ 6,049,692
LIABILITIES AND NET ASSETS	
Current Liabilities:	
Accounts payable	$ 426,345
Accrued expenses	216,621
Accrued vacation	177,814
Accrued other	67,561
Obligation under capital lease	11,956
Unearned income	4,109,172
Total Current Liabilities	5,009,469
Long-Term Liabilities:	
Obligation under capital lease	10,874
Total Liabilities	5,020,343
Net Assets:	
Unrestricted	1,020,314
Temporarily restricted	9,035
Total Liabilities and Net Assets	1,029,349
	$ 6,049,692

The accompanying notes are an integral part of these financial statements.

SAN FRANCISCO ESTUARY INSTITUTE

STATEMENT OF ACTIVITIES
FOR THE YEAR ENDED DECEMBER 31, 2011

REVENUES	Unrestricted	Temporarily Restricted	Total
Program service fees	$ 6,564,796	$ 0	$ 6,564,796
In-kind	250,000		250,000
Interest and other income	14,805		14,805
Net assets released from restrictions	51,661	(51,661)	
Total revenues	6,881,262	(51,661)	6,829,601
EXPENSES			
Contaminant monitoring and research	397,295		397,295
Biological invasions	64,134		64,134
Regional monitoring	3,104,923		3,104,923
Wetlands science	391,872		391,872
Watershed science	1,071,549		1,071,549
Historical ecology	524,822		524,822
Aquatic science	1,521,771		1,521,771
Conservation biology	30,373		30,373
Environmental informatics	23,528		23,528
Management and general	61,580		61,580
Total expenses	7,191,847		7,191,847
Change in net assets	(310,585)	(51,661)	(362,246)
Net assets, beginning of year	1,330,899	60,696	1,391,595
Net assets, end of year	$ 1,020,314	$ 9,035	$ 1,029,349

The accompanying notes are an integral part of these financial statements.

STATEMENT OF CASH FLOWS
FOR THE YEAR ENDED DECEMBER 31, 2011

Cash Flows From Operating Activities:		
Change in net assets	$	(362,246)
Adjustments To Reconcile Decrease In Net Assets To		
Net Cash Used In Operating Activities:		
Depreciation		51,716
(Increase) Decrease In:		
Accounts receivable		679,291
Prepaid expenses		(2,142)
Increase (Decrease) In:		
Accounts payable		(148,781)
Accrued expenses		(79,693)
Accrued vacation		13,271
Accrued other		49,411
Unearned income		(255,341)
Total Adjustments		307,732
Net Cash Used In Operating Activities		(54,514)
Cash Flows From Investing Activities:		
Purchase of property and equipment		(72,140)
Change in investments, net		682,052
Net Cash Provided by Investing Activities		609,912
Cash Flows From Financing Activities:		
Payments on lease payable		(13,156)
Net Cash Used By Financing Activities		(13,156)
Net Increase In Cash And Cash Equivalents		542,242
Cash and cash equivalents, beginning of year		197,051
Cash And Cash Equivalents, At End Of Year	$	739,293
Noncash Financing Activities	$	4,354

The accompanying notes are an integral part of these financial statements.

NOTES TO FINANCIAL STATEMENTS

1 - Description of Entity

San Francisco Estuary Institute ("SFEI" or the "Institute") is a private, not-for-profit corporation located in Richmond, California, organized pursuant to the general nonprofit corporation laws of the State of California. The Institute's primary objective and purpose is to describe the health of the Estuary in scientifically objective terms and to provide the scientific understanding needed to management the complex and biologically rich San Francisco Bay-Delta Estuary. The Institute accomplishes its purpose through the implementation of a coordinated, cooperative monitoring, research, data management and education program designed to produce information that addresses management needs, guides decision-makers, and educates and informs the public.

Contaminant Monitoring and Research Program (CMR)

The CMR program includes the Regional Monitoring Program and other studies aimed at providing information relating to contaminant impacts on beneficial uses in the Estuary as a whole, i.e. the Bay and Delta. The objective of the CMR program is to conduct a multifaceted program of monitoring and research and contributes to the understanding of contaminant loading, fate, and effects in the Estuary. The information generated will be used, along with other pertinent information, in syntheses and assessments of the condition of the Estuary.

Biological Invasions

The focus of this program has been on conducting research and providing information and analyses in assessing the extent and impacts of invasions, investigating how species' characteristics and environmental factors affect the success of invasions, identifying and investigating the mechanisms that transport and release exotic species, investigating means of managing that transport and release, and investigating the potential for eradicating or controlling exotic species after they have been introduced.

Regional Monitoring Program (RMP)

Chemical contamination in San Francisco Bay is governed by the San Francisco Bay Regional Water Quality Control Board (the Regional Board). The Regional Board has a well-articulated framework for managing contamination in the Bay contained in the Water Quality Control Plan. The plan classifies the valued attributes of the Bay as "beneficial uses" and establishes water quality objectives that are protective of theses beneficial uses. The RMP is an innovative collaborative effort between the Institute, the Regional Board, and the regulated discharges community. This program for Trace Substances in the San Francisco Estuary is the primary source of information and used to evaluate beneficial use impairment in the Bay due to chemical contamination.

NOTES TO FINANCIAL STATEMENTS

1 - Description of Entity – continued

Wetlands Science Program

Through this program the Institute helps the regional client community of wetland interest to reach consensus about the highest priority needs for scientific information about wetlands and to define the Institute's role in meeting those information needs.

Watershed Science Program

The intent of this program is to provide Bay Area Managers quality science information in the context of the whole system (watersheds, the air shed, wetlands, and the Bay), to help develop a regional picture of watershed condition and downstream effects through quality science methodology, empirical data collection, data interpretation, and peer-review without the intent to advocate any particular stance.

Historical Ecology Program:

This program studies how the Bay Area landscape has changed since native times, guiding environmental restoration and management efforts throughout the region.

2 - Summary of Significant Accounting Policies

Basis of Accounting

The Institute prepares its financial statements using the accrual basis of accounting.

In accordance with the principles of net asset accounting, the Institute presents information about its financial position and activities in three classes of net assets: unrestricted, temporarily restricted, and permanently restricted. A description of the three net asset categories follows:

Unrestricted net assets: The portion of net assets that is not neither permanently restricted nor temporarily restricted by donor-imposed stipulations.

Temporarily restricted net assets: The portion of net assets whose use has been limited by donor-imposed time or purpose restrictions.

Permanently restricted net assets: The portion of net assets whose use has been restricted by donor to be maintained by the organization in perpetuity. The Institute does not have any permanently restricted net assets as of December 31, 2011.

2 - **Summary of Significant Accounting Policies – continued**

Contributions received are recorded as unrestricted, temporarily restricted, or permanently restricted support depending on the existence and nature of any donor restrictions. When a donor-imposed restriction expires, that is, when the time restriction ends or the purpose restriction is accomplished, then temporarily restricted net assets are reclassified to unrestricted net assets and reported in the statement of activities as net assets released from restrictions. Any restricted revenues whose restrictions are met in the same reporting period are shown as unrestricted support.

Cash and Cash Equivalents

The Institute considers all highly liquid debt instruments with an original maturity of three months or less to be cash equivalents.

Accounts Receivable and Allowance for Bad Debts

Accounts receivable arise from contracts with the local agencies that provide for payments for services at contracted, statutory rates, or reimbursement of expenditures within contract guidelines. In the opinion of management, substantially all accounts receivable are collectible in full; therefore, no allowance for bad debts is provided.

Fair Value Measurements

The fair value measurements topic of the FASB Accounting Standards Codification defines fair value, establishes a framework for measuring fair value and enhances disclosures about fair value measurements. Valuation techniques used to measure fair value must maximize the use of observable inputs and minimize the use of unobservable inputs.

The valuation techniques used are based upon observable and unobservable inputs. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect the Company's market assumptions. These two types of inputs create the following hierarchy:

Level 1 inputs are quoted prices (unadjusted) in active markets for identical assets or liabilities that the reporting entity has the ability to access at the measurement date.

2 - **Summary of Significant Accounting Policies – continued**

Level 2 inputs are inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly.

Level 3 inputs are unobservable inputs for the asset or liability.

Further discussion of fair value measurements are described in the notes applicable to the specific asset or liability.

Concentrations of Credit Risk

The Institute maintains cash balances at a financial institution. Accounts at the institution are insured by the Federal Deposit Insurance Corporation (FDIC insured) up to $250,000. The Institution has not experienced any loss in such accounts. As of December 31, 2011, the uninsured balance is $671,759. The Institute believes it is not exposed to any significant credit risk on its cash balances.

Revenue from contracts under the Regional Monitoring Program represents 47% of revenue for the year ended December 31, 2011 although accounts receivable related to the program represent only 7% of total accounts receivable at December 31, 2011.

Property and Equipment

Assets acquired through funding resources are considered to be owned by the funding source while such assets are in use under the funded program or other similar program. Any disposition of restricted assets or any funds derived are subject to funding source regulations. There were no property and equipment acquired through RMP funding source resources for the year ended December 31, 2011.

Property and equipment are stated at cost if purchased or at fair market value in the period received. Property and equipment are capitalized if the cost of an asset is greater than or equal to two thousand dollars and the useful life is greater than one year. Depreciation is computed on the straight-line basis over the estimated useful lives of the assets.

2 - **Summary of Significant Accounting Policies – continued**

Donated Materials and Services

Donated services are recognized as contributions if the services (a) create or enhance nonfinancial assets or (b) require specialized skills, are performed by people with those skills, and would otherwise be purchased. For the year ended December 31, 2011, the Institute recorded in-kind services of $250,000.

Income Tax

The Institute is exempt from taxation under Section 501(c)(3) of the Internal Revenue Code and California Revenue and Taxation Code Section 23701(d).

The Organization is also exempt from California franchise taxes under Section 23701(d) of the Revenue and Taxation Code. Therefore, these financial statements contain no provision for Federal or California income taxes. The Institute has adopted the interpretation regarding accounting for uncertainty in income taxes and is unaware of any unrelated business taxable income or circumstances that would threaten the tax exempt status. The Institute's information returns are subject to examination by federal and state taxing authorities, generally for three and four years after they are filed, respectively.

Functional Allocation of Expense

The costs of providing the Institute's programs and other activities have been presented in the Schedule of Program Expenses. Accordingly, certain costs have been allocated among the programs and supporting services benefited by a method that best measures the relative degree of benefit. The Institute charges direct expenses to program services and allocates indirect costs based on the ratio of direct salaries as supported by employee time activity reports.

Use of Estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes. Actual results could differ from those estimates.

2 - Summary of Significant Accounting Policies – continued

Subsequent Events

Management has evaluated subsequent events through September 27, 2012, the date that the financial statements were available to be issued.

3 - Investments

The Institute participates in the Local Agency Investment Fund (LAIF) which is part of the Pooled Money Investment Account (PMIA) managed by the State Treasurer's Office. The funds placed with the State Treasurer for deposit in the LAIF are pooled with over 2,700 other participants and invested in a variety of securities including U.S. government securities, corporate bonds, time deposits, certificates of deposits and other similar instruments. Realized and unrealized gains and losses are allocated quarterly to the individual participants based on the relationship of the market value of each participant to total market value of the fund, as adjusted for additions to or deductions from each participating account. The investment balance in the LAIF was $4,083,652 at December 31, 2011.

A portion of the investments and investment income are designated for the RMP pursuant to a memorandum of understanding between the Institute and the Regional Board. In accordance with this memorandum of understanding, the RMP portion will be designated for RMP activities.

4 - Fair Value Measurements

Fair values of assets measured on a recurring basis at December 31, 2011 are as follows:

	Level 1	Level 2	Level 3	Total
LAIF Pooled Investment	$ 0	$4,083,652	$ 0	$4,083,652
Total	$ 0	$4,083,652	$ 0	$4,083,652

The fair value of the pooled investments has been valued using a market approach using quoted market prices for similar assets in markets that are not active.

NOTES TO FINANCIAL STATEMENTS

5 - Property and Equipment

Property and equipment consists of the following at December 31, 2011:

Software and equipment	$463,264
Leasehold improvements	40,575
	503,839
Less: accumulated depreciation	(412,383)
	$ 91,456

Depreciation expense for the year ended December 31, 2011 was $51,716.

6 - Unearned Income

The Institute administers the activities of the Regional Monitoring Program (RMP) with the oversight of representatives of its contributing agencies and their regulator, the San Francisco Bay Regional Water Board. Contributing agency fees are assessed and collected each year and designated for various projects by the RMP Steering and Technical Review Committees. Income from agency fees is deferred and recognized as revenue over the periods when the various RMP projects are performed.

These amounts are included in unearned income as follows:

RMP prior year agency fees and interest	$ 867,885
RMP 2011 agency fees	807,072
RMP 2012 agency fees	2,336,728
	4,011,685
SFEI unearned income	97,487
	$4,109,172

7 - Temporarily Restricted Net Assets

Temporarily restricted net assets at December 31, 2011 were designated as follows:

Upper Penitencia Creek Project	$8,793
Santa Clara Valley Historical Ecology Project	242
	$9,035

For the year ended December 31, 2011, net assets released from program restrictions was $51,661.

8 - Cash Flow Information

The Institute had noncash financing transactions relating to capital leases on equipment of $4,354 for the year ended December 31, 2011.

9 - Pension Plan

The Institute has a 403(b) deferred tax annuity plan available to substantially all employees upon completion of one month of employment. The Institute provides a match contribution of up to 5% of the employee's annual salary. Employer contributions under this plan for the year ended December 31, 2011 were $142,952.

10 - Commitments

Operating lease

The Institute leases real property under an operating lease. Future minimum payments with a maturity date of April 30, 2019, by year and in the aggregate, under this lease, consist of the following:

Year Ending December 31,	
2012	$ 207,317
2013	333,620
2014	343,596
2015	353,842
2016	364,376
Thereafter	927,766
Total	$2,530,517

Rent expense for the year ended December 31, 2011 was $328,774.

10 - Commitments - continued

Capital lease

The Institute leases equipment under a capital lease with a capitalized cost of $66,365. Accumulated depreciation in the statement of financial position included $44,243 relating to the leased equipment. Depreciation expense reported in the statement of activities includes $13,273 for the equipment under the capital lease. The assets and liabilities under the capital lease were recorded at the present value of minimum lease payments. Future minimum lease payments are as follows as of December 31, 2011:

Year Ending December 31,	
2012	$17,508
2013	17,508
Total	35,016
Less: interest portion	(12,186)
Present Value of net minimum lease payments	22,830
Less: current portion	(11,956)
Long-term obligation under capital lease	$10,874

11 - Related Party Transactions

The Aquatic Science Center, a Joint Powers Authority for which the Institute is its administrator, shares common board membership. The Institute advanced Aquatic Science Center $1,000 which was outstanding in accounts receivable as of December 31, 2011.

Total revenues from Aquatic Science Center were $1,239,618 for the year ended December 31, 2011. Accounts receivable under these contracts was $383,225.

SUPPLEMENTAL SCHEDULES

SAN FRANCISCO ESTUARY INSTITUTE

STATEMENT OF FINANCIAL POSITION
WITH REGIONAL MONITORING PROGRAM
DECEMBER 31, 2011

ASSETS	San Francisco Estuary Institute	Regional Monitoring Program	Total
Current Assets:			
Cash and cash equivalents	$ 94,952	$ 644,341	$ 739,293
Accounts receivable	992,817	79,391	1,072,208
Investments	323,726	3,759,926	4,083,652
Due from Aquatic Science Center	1,000		1,000
Prepaid expenses	62,083		62,083
Total Current Assets	1,474,578	4,483,658	5,958,236
Property and Equipment, net	91,456		91,456
	$ 1,566,034	$ 4,483,658	$ 6,049,692
LIABILITIES AND EQUITY			
Current Liabilities:			
Accounts payable	$ 170,993	$ 255,352	$ 426,345
Accrued expenses		216,621	216,621
Accrued vacation	177,814		177,814
Accrued other	67,561		67,561
Obligation under capital lease	11,956		11,956
Unearned income	97,487	4,011,685	4,109,172
Total Current Liabilities	525,811	4,483,658	5,009,469
Long-Term Liabilities:			
Obligation under capital lease	10,874		10,874
Total Liabilities	536,685	4,483,658	5,020,343
Net Assets:			
Unrestricted	1,020,314		1,020,314
Temporarily restricted	9,035		9,035
	1,029,349		1,029,349
	$ 1,566,034	$ 4,483,658	$ 6,049,692

The accompanying notes are an integral part of these financial statements.

SAN FRANCISCO ESTUARY INSTITUTE

SCHEDULE OF PROGRAM EXPENSES
FOR THE YEAR ENDED DECEMBER 31, 2011

	Contaminant Monitoring & Research	Biological Invasions	Regional Monitoring	Wetlands Science	Watershed Science	Historical Ecology	Aquatic Science	Conservation Biology	Environmental Infromatics	Total
Expenses:										
Labor	$ 214,719	$ 19,532	$ 902,557	$ 184,315	$ 479,071	$ 270,611	$ 704,168	$ 16,560	$ 13,660	$ 2,805,193
Payroll taxes	19,997	1,819	84,057	17,166	44,617	25,203	65,581	1,542	1,272	261,255
Benefits	77,561	7,055	326,021	66,578	173,050	97,750	254,359	5,982	4,934	1,013,289
Subcontractors and consultants	14,414	28,909	1,471,434	59,779	203,161	38,461	289,782	378	312	2,106,631
Office expenses	4,621	404	19,136	3,842	9,982	6,442	14,649	861	283	60,220
IT expenses	5,117	461	21,298	4,555	11,305	6,386	16,617	391	322	66,451
Rent	25,165	2,289	105,782	21,602	56,148	31,716	82,530	1,941	1,601	328,774
Equipment leasing	1,126	102	4,525	967	2,513	1,419	3,693	87	72	14,505
Telephone	2,306	194	8,944	1,847	4,748	2,713	6,988	164	135	28,039
Insurance	2,983	271	12,537	2,560	6,655	3,759	12,311	230	190	41,496
Repairs and maintenance	488	44	2,466	419	1,090	616	1,602	38	31	6,795
Janitorial services	1,653	150	6,950	1,419	3,689	2,084	5,422	128	105	21,600
Travel and conference	5,212	1,539	27,001	4,430	16,559	9,754	16,637	1,740	310	83,182
Depreciation	3,959	360	16,639	3,398	8,832	4,989	12,982	305	252	51,716
Fees	422	38	1,773	362	941	532	1,383	33	27	5,511
Miscellaneous	3,277	298	13,776	2,813	7,017	4,125	10,747	253	208	42,515
Program expenses	17,706	1,220	106,841	19,203	51,427	22,797	35,461	3	16	254,676
Total Expenses	$ 400,726	$ 64,688	$ 3,131,739	$ 395,256	$ 1,080,803	$ 529,355	$ 1,534,914	$ 30,635	$ 23,731	$ 7,191,847

The accompanying notes are an integral part of these financial statements.

SAN FRANCISCO ESTUARY INSTITUTE

SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
For the Year Ended December 31, 2011

Grantor/Pass Through Grantor/Program Title	Contract/ Pass-through Identifier Number	Federal CFDA Number	Program Award	Program Expenditures
U.S. Environmental Protection Agency				
Pass-through, Aquatic Science Center				
Regional Wetland Program Development Grants: Wetlands Protection Development	CD-00T54501-0	66.461	$ 350,000	$ 124,663
Regional Wetland Program Development Grants: Wetlands Protection Development	CD-00T74001-0	66.461	59,078	120,635
Regional Wetland Program Development Grants: Wetlands Protection Development	CD-00T54701-0	66.461	346,091	45,782
Pass-through, Southern California Coastal Water Research Project				
Regional Wetland Program Development Grants: CRAM Reference Site Network	7175	66.461	61,500	46,883
Pass-through, State Water Resources Control Board				
Regional Wetland Program Development Grants: Wetlands Protection Development	08-047-250-2	66.461	318,200	37,775
Sub-total Regional Wetland Program Development Grants			1,134,869	**375,738**
Pass-through, San Jose State University Research Foundation				
Water Pollution Control: Surface Water Ambient Monitoring Program (SWAMP)	SFEI-09-11-012	66.419	129,833	55,164
Water Pollution Control: Surface Water Ambient Monitoring Program (SWAMP)	SFEI-09-11-015	66.419	50,000	9,904
Water Pollution Control: Surface Water Ambient Monitoring Program (SWAMP)	SFEI-09-11-010	66.419	42,833	41,830
Water Pollution Control: Surface Water Ambient Monitoring Program (SWAMP)	SFEI-09-11-010	66.419	154,145	24,323
Sub-total Water Pollution Control			376,811	**131,221**
Pass-through, Aquatic Science Center				
Water Quality Cooperative Agreements: Delta Water Quality	CP-00T58601-0	66.463	197,260	49,245
Pass-through, Association of Bay Area Governments				
Targeted Watersheds Grants: Green Streets and Parking Lots Project	WS-96932601-0	66.439	200,000	29,083
Pass-through, Association of Bay Area Governments				
Studies, Investigations, Demonstrations, and Training Grants: Estuary 2100	X7-00T04701	66.436	268,750	92,556
Pass-through, Association of Bay Area Governments				
Congressionally Mandated Projects: Estuary 2100-2	EM-00T34101-0	66.202	573,095	57,716
Pass-through, Association of Bay Area Governments				
ARRA - National Estuary Program: Bay Area Trash Track	09-823-550/ 102147	66.456	48,000	24,670
National Estuary Program: San Francisco Estuary Partnership	00T47801-0	66.456	10,000	6,850
Sub-total Water Pollution Control			1,297,105	**260,120**
Pass-through, San Jose State University Research Foundation				
Wetlands Protection State Development: California Wetlands Monitoring Workgroup	CD 00T54301-0	66.641	44,250	9,415
Pass-through, Aquatic Science Center				
Water Quality Management Planning: Wetland & Riparian Area Protection Project	09-111-250	66.454	149,000	108,275
Pass-through, State Water Resources Control Board/Association of Bay Area Governments				
ARRA - Clean Water State Revolving Fund - El Cerrito Green Streets Pilot Program		66.xxx	102,429	14,899
Pass-through, State Water Resources Control Board/Association of Bay Area Governments				
ARRA - Clean Water State Revolving Fund - Taking Action for Clean Water Bay Area		66.xxx	87,976	65,694
Wetlands Strategies & State Programs Branch				
USA Rapid Assessment - USA RAM Field Manual	EP09H002061	66.xxx	38,389	10,622
Total U.S. Department of Environmental Protection Agency			**$ 3,230,829**	**$ 975,984**

The accompanying notes are an integral part of these financial statements.

SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS
For the Year Ended December 31, 2011

Grantor/Pass Through Grantor/Program Title	Contract/ Pass-through Identifier Number	Federal CFDA Number	Program Award	Program Expenditures
U.S. Department of the Interior				
Pass-through, California Natural Resources Agency/Aquatic Science Center				
Coastal Impact Assistance Program: Wetland Monitoring Toolkit	0CA10043	15.426	$ 795,000	$ 44,433
Bureau of Reclamation				
San Luis Unit, Central Valley Project, Grasslands Bypass Project	R11AP20081	15.527	425,860	24,591
San Luis Unit, Central Valley Project, Grasslands Bypass Project	R11AP20521	15.527	590,350	61,968
Sub-total Water Pollution Control			1,016,210	**86,559**
Pass-through, Aquatic Science Center				
Cooperative Research and Training Programs: Joint Fire Science Project	P11AC80801	15.945	79,665	11,891
Total U.S. Department of Interior			**1,890,875**	**142,883**
U.S. Department of Defense				
U.S. Army Engineer District San Francisco - Update to LTMS Science Framework	W912P7-10P-0080	12.xxx	42,672	21,031
U.S. Army Engineer District San Francisco - Longfin Smelt Literature Review	W912P7-10P-0045	12.xxx	28,074	25,893
Total U.S. Department of Defense			**70,746**	**46,924**
Total Federal Awards			**$ 5,192,450**	**$ 1,165,791**

The accompanying notes are an integral part of these financial statements.

NOTES TO THE SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS

1 - Basis of Presentation

The accompanying Schedule of Expenditures of Federal Awards includes the federal grant activity of SAN FRANCISCO ESTUARY INSTITUTE under programs of the federal government for the year ended December 31, 2011. The information in this schedule is presented in accordance with the requirements of OMB Circular A-133, *Audits of States, Local Governments, and Non-Profit Organizations*. Because the Schedule presents only a selected portion of SAN FRANCISCO ESTUARY INSTITUTE, it is not intended to and does not present the financial position, changes in net assets, or cash flows of the operations of SAN FRANCISCO ESTUARY INSTITUTE.

2 - Summary of Significant Accounting Policies

Basis of Accounting

Expenditures reported on the Schedule are reported on the accrual basis of accounting. Such expenditures are recognized following the cost principles contained in OMB Circular A-122, *Cost Principles for Non-profit* Organizations, wherein certain types of expenditures are not allowable or are limited as to reimbursement.

Pass-through Entity Identification

Pass-through entity identifying numbers are presented where available.

ganze & company sm

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Amanda Granados, CPA
Cecily Mason, CPA
Joel Momsen, CPA
Laura Stark, CPA
Valerie V. Ruban, CPA

Kathy A. Cranston, EA
Amber Hurst, EA

REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING AND ON COMPLIANCE AND OTHER MATTERS BASED ON AN AUDIT OF FINANCIAL STATEMENTS PERFORMED IN ACCORDANCE WITH *GOVERNMENT AUDITING STANDARDS*

Board of Directors
SAN FRANCISCO ESTUARY INSTITUTE

We have audited the financial statements of SAN FRANCISCO ESTUARY INSTITUTE (a nonprofit organization) as of and for the year ended December 31, 2011, and have issued our report thereon dated September 27, 2012. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States.

Internal Control over Financial Reporting

Management of SAN FRANCISCO ESTUARY INSTITUTE is responsible for establishing and maintaining effective internal control over financial reporting. In planning and performing our audit, we considered SAN FRANCISCO ESTUARY INSTITUTE's internal control over financial reporting as a basis for designing our auditing procedures for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of SAN FRANCISCO ESTUARY INSTITUTE's internal control over financial reporting. Accordingly, we do not express an opinion on the effectiveness of the Organization's internal control over financial reporting.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis

Our consideration of internal control over financial reporting was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over financial reporting that might be deficiencies, significant deficiencies, or material weaknesses. We did not identify any deficiencies in internal control over financial reporting that we consider to be material weaknesses, as defined above.

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Compliance and Other Matters

As part of obtaining reasonable assurance about whether SAN FRANCISCO ESTUARY INSTITUTE's financial statements are free of material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

We noted certain matters that we reported to management of SAN FRANCISCO ESTUARY INSTITUTE in a separate letter dated September 27, 2012.

This report is intended solely for the information and use of management, the Board of Directors, others within the entity and federal awarding agencies and pass-through entities and is not intended to be and should not be used by anyone other than these specified parties.

Ganze & Company

Napa, California
September 27, 2012

Ganze & Company
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INDEPENDENT AUDITORS' REPORT ON COMPLIANCE WITH REQUIREMENTS THAT COULD HAVE A DIRECT AND MATERIAL EFFECT ON EACH MAJOR PROGRAM AND ON INTERNAL CONTROL OVER COMPLIANCE IN ACCORDANCE WITH OMB CIRCULAR A-133

Board of Directors
SAN FRANCISCO ESTUARY INSTITUTE

Compliance

We have audited SAN FRANCISCO ESTUARY INSTITUTE's compliance with the types of compliance requirements described in the *OMB Circular A-133 Compliance Supplement* that could have a direct and material effect on each of SAN FRANCISCO ESTUARY INSTITUTE's major federal programs for the year ended December 31, 2011. SAN FRANCISCO ESTUARY INSTITUTE's major federal programs are identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs. Compliance with the requirements of laws, regulations, contracts, and grants applicable to each of its major federal programs is the responsibility of SAN FRANCISCO ESTUARY INSTITUTE's management. Our responsibility is to express an opinion on SAN FRANCISCO ESTUARY INSTITUTE's compliance based on our audit.

We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in Government Auditing Standards, issued by the Comptroller General of the United States; and OMB Circular A-133, *Audits of States, Local Governments, and Non-Profit Organizations*. Those standards and OMB Circular A-133 require that we plan and perform the audit to obtain reasonable assurance about whether noncompliance with the types of compliance requirements referred to above that could have a direct and material effect on a major federal program occurred. An audit includes examining, on a test basis, evidence about SAN FRANCISCO ESTUARY INSTITUTE's compliance with those requirements and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion. Our audit does not provide a legal determination of SAN FRANCISCO ESTUARY INSTITUTE's compliance with those requirements.

In our opinion, SAN FRANCISCO ESTUARY INSTITUTE complied, in all material respects, with the compliance requirements referred to above that could have a direct and material effect on each of its major federal programs for the year ended December 31, 2011.

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Internal Control Over Compliance

Management of SAN FRANCISCO ESTUARY INSTITUTE is responsible for establishing and maintaining effective internal control over compliance with the requirements of laws, regulations, contracts, and grants applicable to federal programs. In planning and performing our audit, we considered SAN FRANCISCO ESTUARY INSTITUTE's internal control over compliance with the requirements that could have a direct and material effect on a major federal program to determine the auditing procedures for the purpose of expressing our opinion on compliance and to test and report on internal control over compliance in accordance with OMB Circular A-133, but not for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, we do not express an opinion on the effectiveness of SAN FRANCISCO ESTUARY INSTITUTE's internal control over compliance.

A *deficiency in internal control over compliance* exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a federal program on a timely basis. A *material weakness in internal control over compliance is* a deficiency, or combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis.

Our consideration of internal control over compliance was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over compliance that might be deficiencies, significant deficiencies, or material weaknesses. We did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses, as defined above.

This report is intended solely for the information and use of the management, the Board of Directors, others within the entity, and federal awarding agencies and pass-through entities and is not intended to be and should not be used by anyone other than these specified parties.

Ganze & Company

Napa, California
September 27, 2012

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SCHEDULE OF FINDINGS AND QUESTIONED COSTS
For the Year Ended December 31, 2011

Section I - Summary of Auditors' Results

Financial Statements

Type of auditors' report issued:		Unqualified
Internal control over financial reporting:		
• Material weakness(es) identified?	_____yes	___X___no
• Significant deficiency(ies) identified that are not considered to be material weaknesses?	_____yes	___X___none reported
Noncompliance material to financial statements noted?	_____yes	___X___no

Federal Awards

Internal control over major programs:		
• Material weakness(es) identified?	_____yes	___X___no
• Significant deficiency(ies) identified that are not considered to be material weaknesses?	_____yes	___X___none reported
Type of auditors' report issued on compliance for major programs:		Unqualified
Any audit findings disclosed that are required to be reported in accordance with section 510(a) of Circular A-133?	_____yes	___X___no
Dollar threshold used to distinguish between type A and type B programs:		$ 300,000
Auditee qualified as low-risk auditee?	_____Yes	___X___no

SCHEDULE OF FINDINGS AND QUESTIONED COSTS
For the Year Ended December 31, 2011

Section I - Summary of Auditors' Results - continued

Identification of Major Programs

CFDA Number	Name of Federal Program
66.461	Regional Wetland Program Development Grants
66.419	Water Pollution Control State, Interstate, and Tribal Program Support
66.436	Surveys, Studies, Investigations, Demonstrations, and Training Grants and Cooperative Agreements – Section 104(b)(3) of the Clean Water Act

Section II – Financial Statements Findings

There are no findings required to be reported in accordance with *Generally Accepted Government Auditing Standards*.

Section III – Federal Award Findings and Questioned Costs

There are neither findings nor questioned costs for Federal Awards as defined in OMB Circular A-133.

Section IV – Summary Schedule of Prior Year Findings

None.