

# Ecosystem Reconciliation: Realities Facing the San Francisco Estuary

## 7<sup>th</sup> Biennial Bay-Delta Science Conference

October 16–18, 2012

Sacramento Convention Center

1400 J Street, Sacramento California



Delta Science Program  
Delta Stewardship Council



### TAKE A LOOK!

Schedule at a Glance	2–3
Daily Schedule	4–11
Poster Session	12–16

**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.**

The conference program features a mix of plenary and contributed talks and poster presentations that provide scientific information on topical themes, as well as to the broader overall conference theme “Ecosystem Reconciliation: Realities Facing the San Francisco Estuary.” The theme refers to the growing realization that the ecosystem of the San Francisco Estuary is vastly changed and is continuing to change as the result of human actions. For it to function in desirable ways, we have to reconcile human use with maintaining desirable natural elements such as native species. And because the new ecosystem is increasingly unlike any previously experienced, we need to develop new ways of reconciling these potentially conflicting goals.

### Conference Organizing Committee

#### Conference Co-Chairs

Peter Moyle, UC Davis  
Brian Pellerin, USGS

#### Program Chairs

Lenny Grimaldo, USBR  
Cindy Messer,  
Delta Stewardship Council

#### Poster Chairs

Darcy Austin, USGS  
Josh Israel, USBR

#### Student Judging Chairs

Stephanie Fong, CVRWQCB  
Rainer Hoenicke, SFEI

#### Web Chair

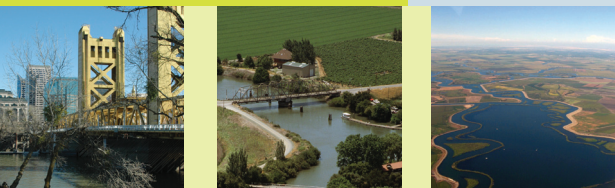
Dusty Boeger,  
Delta Science Program

#### Logistics Chair

Karen McDowell, SFEP

#### Committee Members

Marina Brand,  
Delta Science Program  
Val Connor, SFCWA  
Steven Culberson, USFWS  
Kim Gazzaniga, DWR  
Mike Hoover, USFWS  
Lauren Muscatine, UC Davis  
Kevin Reece, DWR  
Michelle Shouse, USGS  
Hildie Spautz, DFG  
Leo Winternitz, TNC



## Schedule at a Glance

### Tuesday, October 16

#### PLENARY SESSION Rooms 308–313

8:00 AM Registration—3rd Floor Lobby

9:00 AM Plenary Session

10:10 AM B R E A K —3rd Floor Lobby

10:30 AM Plenary Session

12:10–1:35 PM L U N C H —Exhibit Hall B (1st Floor)

12:25–1:25 PM **SPECIAL EVENT** **Town Hall Meeting: Building the Delta Science Plan**  
Peter Goodwin, Lead Scientist,  
Delta Science Program (**Room 314**)

## SPECIAL EVENTS

### Town Hall Meeting: Building the Delta Science Plan

Peter Goodwin, Lead Scientist, Delta Science Program

Tuesday, October 16

12:25–1:25 PM, Room 314

This will be an informal opportunity to discuss new communication approaches and technologies for enhancing communications among scientists in agencies, academia, and stakeholders. Specifically, the objective of this session will be to explore the best ways for you to engage in the development of the Delta Science Plan. All welcome.

### Someplace with a Mountain—A 52-Minute Video Presentation

Tuesday, October 16

6:45–7:45 PM, Rooms 308-310

Narrated by Chevy Chase, this tragic yet hopeful documentary tells the story of a small group of Island Atolls in the tropical Pacific that are disappearing because of sea rise. A sailor, Steve Goodall, came across them on his travels and discovered they knew nothing about the current forecasts for sea level rise. Once informed they asked for his help. Steve took their statements, filmed their lifestyles and traveled to the Island of Yap to look for land. Steve will be introducing the film and will be available for questions at the end of the film.

### Not Just a Pretty Picture: The Synergy between Art and Science

Moderator: Enid Blader, California State University, Monterey Bay

Wednesday, October 17

Panel 12:20–1:20 PM, Rooms 308–310,

Art Viewing 5:15–7:15 PM Exhibit Hall B

Art gives us beauty, science gives us facts. Alone they are meaningful, but together they create a whole greater than their parts. This synergy between art and science has been harnessed by the following six artists: Jane Wolf, Delta Primer Playing Cards; Jenny Stark, Photo Series on the Delta; Water Underground, interactive presentation; Amy Bount-Lay, Sea Monsters from Recycled Plastic; and Nicole Antebi, Artist and collaborator on Water-CA.

#### Room 306

#### Room 307

#### Room 308–310

#### Room 311–313

#### Room 314

1:35–3:15 PM Organic Contaminants (I)  
Jennifer Teerlink, USGS

Managing Delta Lands to Reverse  
Subsidence and Sequester  
Carbon  
Amy Merrill, Stillwater Sciences

Food Webs and Lower Trophic  
Dynamics (I)  
Anke Mueller-Solger, Interagency  
Ecological Program

Existing and Emerging Life Cycle  
Models (I)  
Marin Greenwood, ICF International

Issues and Challenges in  
Landscape-Scale Restoration (I)  
Eric Ginney, ESA/PWA

3:15–3:35 PM B R E A K —3rd Floor Lobby

3:35–5:15 PM Organic Contaminants (II)  
Steve Blecker, Delta Science Program

Implications of Sea Level Rise and  
Climate Change for the Coastal  
and Interior Waters of California  
John Andrew, DWR

Food Webs and Lower Trophic  
Dynamics (II)  
Francis Parchaso, USGS

Existing and Emerging Life Cycle  
Models (II)  
Marin Greenwood, ICF International

Issues and Challenges in  
Landscape-Scale Restoration (II)  
Eric Ginney, ESA/PWA

5:15–7:15 PM POSTER SESSION AND RECEPTION—Exhibit Hall B (1st Floor)

6:45–7:45 PM **SPECIAL EVENT** **Screening of Someplace with a Mountain,** Steve Goodall, Filmmaker (**Rooms 308-310**)

## Wednesday, October 17

	Room 306	Room 307	Room 308–310	Room 311–313	Room 314
8:20–10:00 AM	Contaminants Stephanie Fong, CVRWQCB	Comprehensive Monitoring Network in Tidal Marsh Habitats Under Sea Level Rise Christina Sloop, SFBJV	Cache-Liberty Complex: Last Refuge for Native Fishes? John Durand, UC Davis	Fish Biology (I) Lindsay Correa, Delta Science Program	San Francisco Bay Ecology (I) Marina Brand, Delta Science Program
10:00–10:20 AM	<b>B R E A K —3rd Floor Lobby</b>				
10:20–12:00 PM	Sediment Data and Turbidity in the Bay- Delta System Jamie Anderson, DWR	Climate Change George Isaac, Delta Science Program	BREACH III: Evaluating and Predicting ‘Restoration Thresholds’ of Liberty Island Lori Smith, USFWS	Fish Biology (II) Victoria Poage, USFWS	San Francisco Bay Ecology (II) Tom Keegan ECOPR Consulting, Inc.
12:00–1:35 PM	<b>L U N C H —Exhibit Hall B (1st Floor)</b>				
12:20–1:20 PM	<b>SPECIAL EVENT</b> <b>Not Just a Pretty Picture: The Synergy between Art and Science</b> , Moderator: Enid Blader, California State University, Monterey Bay <b>(Rooms 308-310)</b>				
1:35–3:15 PM	Sediment Transport in the San Francisco Bay Coastal System Patrick Barnard, USGS	Bay Area Precipitation Monitoring Activities by the NOAA Hydro-meteorology Testbed Program Rob Cifelli, NOAA/ESRL	Yolo Bypass: Managed Floodplain as Seasonal Habitat for Fish Louise Conrad, DWR	Fish Biology (III) Lenny Grimaldo, USBR	San Francisco Bay Ecology (III) Martina Koller, Delta Science Program
3:15–3:35 PM	<b>B R E A K —3rd Floor Lobby</b>				
3:35–5:15 PM	Multi-Dimensional Modeling of Sediment Transport in the Bay-Delta Fabian Bombardelli, UC Davis	Flood and Levee Management Rebecca Fris, California Landscape Conservation Cooperative	The Once and Future Delta Ellen Hanak, PPIC	Genetics Randy Baxter, DFG	Mercury Carol Atkins, DFG
5:15–7:15 PM	<b>POSTER SESSION AND RECEPTION WITH THE JAZZ MINIONS—Exhibit Hall B (1st Floor)</b>				

## Thursday, October 18

8:20–10:00 AM	Latest Science Updates from the South Bay Salt Pond Restoration Project Laura Valoppi, USGS	Delta People: Residents, Workers and Recreationists Dan Ray, Delta Stewardship Council	Low Salinity Habitat in the San Francisco Estuary (I) Bruce Herbold, US EPA	Salmonid Life History and Biology (I) John Hannon, USBR	Global Perspectives Lee Case, USGS
10:00–10:20 AM	<b>B R E A K —3rd Floor Lobby</b>				
10:20–12:00 PM	Napa-Sonoma Marshes Wildlife Area Restoration Larry Wyckoff, DFG	Multiple Benefits of Flood Corridors on the Lower San Joaquin River Mark Tompkins, NewFields	Low Salinity Habitat in the San Francisco Estuary (II) Fred Feyrer, USBR	Salmonid Life History and Biology (II) Alicia Seesholtz, DWR	Achieving Ecological Goals through the BDCP in the Face of Uncertainty David Zippin, ICF International
12:00–1:00 PM	<b>L U N C H —Exhibit Hall B (1st Floor)</b>				
1:00–2:40 PM	Modeling (I) Bob Fujimara, DFG	Adaptive Management Sam Harader, Delta Science Program	Understanding Cyanobacterial Blooms in the San Francisco Estuary Delta (I) Alexander Parker, RTC/ SFSU	Using Biotelemetry to Assess Survival and Behavior of Fishes (I) Pat Brandes, USFWS	
2:40–3:00 PM	<b>B R E A K —3rd Floor Lobby</b>				
3:00–4:40 PM	Modeling (II) Daniel Riordan, DWR	Integrated Science and Management Joanne Vinton, Delta Science Program	Understanding Cyanobacterial Blooms in the San Francisco Estuary Delta (II) Valerie Connor, SFCWA	Using Biotelemetry to Assess Survival and Behavior of Fishes (II) Cynthia Le Doux-Bloom, DWR	
4:40–4:45 PM	<b>A D J O U R N</b> <b>Evaluation Form Submission and RAFFLE (East Lobby—3rd Floor)</b>				





**Tuesday, October 16**

## Plenary Session Rooms 308–313

- 9:00 AM **WELCOME**  
Peter Moyle, UC Davis
- 9:10 AM **Money, Water, and Fish: Economics of Reconciliation**  
Ellen Hanak, Senior Policy Fellow, Public Policy Institute of California
- 9:40 AM **River Deltas: From Local Challenges to Global Syndrome**  
Charles J. Vörösmarty, Director, CUNY Environmental Crossroads Initiative
- 10:10 AM **BROWN-NICHOLS SCIENCE AWARD**
- 10:30 AM **BREAK — 3<sup>RD</sup> FLOOR LOBBY**
- 10:50 AM **Present and Future Challenges for Estuaries: Towards Solutions**  
Marcia McNutt, Director, USGS
- 11:20 AM **The Changing Face of Science and Emerging Opportunities for the Bay-Delta Science Community**  
Peter Goodwin, Lead Scientist, Delta Science Program
- 11:50 AM **Communicating Science to the Public**  
**Panel Preview—Not Just a Pretty Picture: The Synergy between Art and Science**  
Enid Blader, California State University, Monterey Bay  
**Movie Preview—Someplace with a Mountain**  
Steve Goodall, Filmmaker
- 12:10 PM **LUNCH — EXHIBIT HALL B (1<sup>ST</sup> FLOOR)**
- 12:25 PM **SPECIAL EVENT: TOWN HALL MEETING — Building the Delta Science Plan**  
Peter Goodwin, Lead Scientist, Delta Science Program (Room 314)

### Room 306

**Organic Contaminants (I)**  
Jennifer Teerlink, USGS

### Room 307

**Managing Delta Lands to Reverse Subsidence and Sequester Carbon**  
Amy Merrill, Stillwater Sciences

### Room 308-310

**Food Webs and Lower Trophic Dynamics (I)**  
Anke Mueller-Solger, Interagency Ecological Program

### Room 311-313

**Existing and Emerging Life Cycle Models (I)**  
Marin Greenwood, ICF International

### Room 314

**Issues and Challenges in Landscape-Scale Restoration (I)**  
Eric Ginney, ESA PWA

1:35 PM Urban Pesticide Runoff from Neighborhoods in Northern California and Their Contribution to Pesticide Contamination in Urban Creeks  
Michael Enslinger, Cal EPA, DPR

1:55 PM Current Use Pesticides Detected in the San Francisco Bay-Delta during Spring 2011 and 2012  
James Orlando, USGS

Can Rice and Tule Wetlands Help Manage a Changing Delta?  
Phil Bachand, Tetra Tech Inc.

Counting Carbon: Methane and Carbon Dioxide Emissions from Agricultural and Restored Delta Peatlands  
Jaclyn Hatala\*, UC Berkeley

Benthic Nutrient Fluxes in the San Francisco Bay Delta: Nutrient Stoichiometry, Denitrification and Effects of Benthic Microalgal Photosynthesis  
Jeffery Cornwell, University of Maryland

New and Regenerated Productivity: an Oceanographic Concept Applied to the San Francisco Bay Delta to Understand Phytoplankton Response to Improved Irradiance and Nitrate versus Ammonium Supply  
Richard Dugdale, RTC/SFSU

Principles and Recommendations for Life Cycle Models  
James Anderson, University of Washington

Application of a Winter Run Chinook Salmon Life Cycle Model to Evaluating Conservation and Management Actions  
Steven Zeug, Cramer Fish Sciences

Historical Ecology and Landscape Scale Restoration: Application to the McCormack-Williamson Tract  
Julie Beagle, SFEI

Suisun Marsh Historical Ecology: Notoriously Swampy and Overflowed Lands  
Amber Manfree\*, UC Davis

## Tuesday, October 16 *(continued)*

2:15 PM	Pyrethroid Concentrations in the American River: Historical Assessment and Impact of Proposed Regulatory Controls Thomas Young, UC Davis	Greenhouse Gas Emission from Rice: A Crop to Address Water and Subsidence Issues in the Delta William Horwath, UC Davis	Experimental Manipulations Confirm the Role of Ammonium as a Stress to Phytoplankton in the Bay Delta Patricia Glibert, University of Maryland	Using OBAN and Decision Theory to Evaluate BDCP Alternatives Noble Hendrix, QEDA Consulting, LLC and UW	Management Considerations Associated with Large-Scale Ecosystem Restoration Curt Schmutte, State and Federal Contractors Water Agency
2:35 PM	Distribution of the Pyrethroid Insecticide Concentration between Freely Dissolved and Particle-Bound Forms in Sacramento Wastewater Effluent Emily Parry*, UC Davis	The Economics of Establishing Rice-Based Cropping Systems in the Delta Leslie Butler, UC Davis	Inside and Outside Forces Change the San Francisco Bay Phytoplankton Community Tara Schraga, USGS	A Flexible, Multi-Input Life Cycle Model for Chinook Salmon in the Central Valley of California Candan Soykan, SWFSC	Delta Working Landscapes Michael Machado, Delta Protection Commission
2:55 PM	Asking the Fish: Using Tissue Concentrations to Understand Pesticide Exposure Kelly Smalling, USGS	Ongoing Efforts to Develop Pilot Projects and Protocols for Verification of GHG Reductions in the Delta Campbell Ingram, Delta Conservancy	Are Shallower, Slower Habitats Necessarily "Greener"? How Clams Upend Conceptual Models Guiding Ecosystem Management in the Delta Lisa Lucas, USGS	Sacramento River Chinook: Modeling the Influence of Environmental Variability in a Stock Complex Curry Cunningham*, University of Washington	South Bay Salt Pond Restoration Project: Overview and Updates John Bourgeois, California Coastal Conservancy

### 3:15 PM **BREAK**

	<b>Organic Contaminants (II)</b> Steve Blecker, Delta Science Program	<b>Implications of Sea Level Rise and Climate Change for the Coastal and Interior Waters of California</b> John Andrew, DWR	<b>Food webs and Lower Trophic Dynamics (II)</b> Francis Parchaso, USGS	<b>Existing and Emerging Life Cycle Models (II)</b> Marin Greenwood, ICF International	<b>Issues and Challenges in Landscape-Scale Restoration (II)</b> Eric Ginney, ESA PWA
3:35 PM	Effect of Diuron and Imazapyr Herbicides on Phytoplankton in the San Francisco Estuary in an Experimental Study Sarah Blaser, RTC/SFSU	Findings from the 2012 NRC West Coast Sea Level Rise Report Daniel Cayan, UC San Diego and USGS	Spatial, Temporal, and Tidal Effects on the Distribution of Zooplankton in the Deep Water Ship Channel of the San Joaquin River, CA Mark Brunell, University of the Pacific	Hierarchical Spatial-Temporal Modeling of Delta Smelt Population Dynamics Ken Newman, USFWS	Implementing the Habitat Restoration Requirements of the Biological Opinions: DWR/DFG Fish Restoration Program Agreement Implementation Strategy Dennis McEwan, DWR
3:55 PM	Effects of Pesticides to Critical Zooplankton Species of the San Francisco Estuary Sarah Lesmeister*, UC Davis	Delta Conservancy Climate Change Policy Kristal Davis-Fadtke, Delta Conservancy	Invasive Zooplankton Alter Nutritional Prey Quality for Fish in San Francisco Estuary Pavel Kratina, UC Davis	Bay Delta Ecosystem Diagnosis and Treatment Jesse Schwartz, ICF International	Issues and Challenges to Restoration at the Landscape Scale—The Whole is More Than the Sum of its Parts Michelle Orr, ESA PWA
4:15 pm	Assessment of the Effects of Tertiary Pesticide Mixtures upon Aquatic Invertebrates Simone Hasenbein*, UC Davis	Sea-Level Rise and Coastal Inundation during the Near-Term Jeanine Jones, DWR	The Other Fish Food: A Preliminary Look at Spatial and Temporal Trends in Amphipod Abundances in the Upper Sacramento-San Joaquin Estuary Heather Fuller, DWR	Models as Tools for Learning: Room for Many In The Sandbox Steven Culberson, USFWS	Time Heals All: Reconciling Conflicting Restoration Goals Christopher Enright, Delta Science Program
4:35 PM	Variation in Pyrethroid Sensitivity among <i>Hyalella azteca</i> from Different Sources Donald Weston, UC Berkeley	San Francisco Bay Area Sustainable Communities Strategy Will Travis, Bay Area Joint Policy Committee	Influence of biotic interactions on the distribution of the copepod <i>Pseudodiaptomus forbesi</i> in Upper San Francisco Estuary Karen Kayfetz*, RTC/SFSU	A Lower Trophic Level Food Web Model for Simulating Dynamics in the Low Salinity Zone (LSZ) of the San Francisco Estuary Shaye Sable, Dynamic Solutions, LLC	Connecting Wetland Restoration and Subsidence Reversal to the Carbon Market Stephen Crooks, ESA PWA
4:55 PM	Effects of Endocrine Disrupting Chemicals on <i>Menidia beryllina</i> , a Resident Fish in the Sacramento-San Joaquin Delta Bryan Cole, UC Davis	<b>PANEL DISCUSSION</b> Amber Mace, UC Davis	Evidence of Food Web and Biogeochemical Changes in the San Francisco Estuary as indicated by Stable Isotope Analysis of Historical Zooplankton Samples Julien Moderan, RTC/SFSU	<b>PANEL DISCUSSION</b>	Solutions for Landscape-Scale Restoration Challenges Eric Ginney, ESA PWA

### 5:15–7:15 PM **POSTER SESSION AND RECEPTION—Exhibit Hall B (1st Floor)**

### 6:45–7:45 PM **SPECIAL EVENT Screening of Someplace with a Mountain, Steve Goodall, Filmmaker (Rooms 308-310)**

\* Denotes student presenter



# Wednesday, October 17

## Room 306

### Contaminants

Stephanie Fong, CVRWQCB

## Room 307

### Comprehensive Monitoring Network in Tidal Marsh Habitats under Sea Level Rise

Christina Sloop, SFBJV

## Room 308–310

### Cache-Liberty Complex: Last Refuge for Native Fishes?

John Durand, UC Davis

## Room 311–313

### Fish Biology (I)

Lindsay Correa, Delta Science Program

## Room 314

### San Francisco Bay Ecology (I)

Marina Brand, Delta Science Program

8:20 AM	A Two-Tiered Analytical Approach for Testing Contaminant Mixture Interactions Krista Callinan*, UC Davis	Using Monitoring and Models to Help Manage the Evolving Marshes of the San Francisco Estuary Jeremy Lowe, ESA PWA	Habitat Characteristics of the North Delta Arc John Durand, UC Davis	2011 Georgiana Slough Non-Physical Fish Barrier Ryan Reeves, DWR	Differential Response in Vegetation Community Dynamics in Riparian and Grassland Communities After Removal of Invasive Perennial Pepperweed Rachel Hutchinson*, University of Idaho/UC Davis
8:40 AM	Utilizing Molecular Biomarkers to Assess Urban Related Contaminant Effects in the Sacramento River Erika Fritsch, UC Davis	The Data and Monitoring Needs of Marsh Sustainability Models Currently Being Used in the SF Estuary Kathleen Swanson, USGS	The North Delta: A Cache of Native Fishes in the Upper San Francisco Estuary Denise De Carion, UC Davis	Effectiveness of a Non-Physical Barrier on Route Entrainment of Migrating Juvenile Salmonids in the Sacramento-San Joaquin River Delta Jason Romine, USGS	Salinity and Inundation Effects on the Growth and Interactions of Two Dominant Tidal Marsh Plants Stephanie Bishop*, SFSU
9:00 AM	North San Francisco Bay Selenium Characterization Study Tom Grieb, Tetra Tech, Inc.	Understanding How Climate Change and Associated Extreme Storm Events Affect Wildlife Populations: Implications for Monitoring Karen Thorne, USGS	Larval and Juvenile Fishes of Liberty Island Lori Smith, USFWS	Advantages of a Shuttle Box System in Capturing Behavior of the Endangered Delta Smelt Joan Lindberg, UC Davis	Location, Location, Location: Where is the Best Neighborhood for Olympia Oysters Growing Up in San Francisco Bay? Andrew Chang, UC Davis
9:20 AM	Improved Monitoring of Water Quality and Pelagic Organism Decline in the Delta with Continuous In Situ Sensor Measurements Brian Pellerin, USGS	NOAA Sentinel Sites Program: Monitoring Effects of Climate Change on Tidal Marshes in the San Francisco Estuary and Beyond Matthew Ferner, SF Bay NERR	Some Like it Fresh: Evidence of Year-Round Freshwater Residence of Delta Smelt in the North Delta James Hobbs, UC Davis	Comparison of Effective Population Sizes for the Two Splittail Populations in the San Francisco Estuary Brian Mahardja*, UC Davis	Monitoring to Optimize Invasive Spartina Control Ingrid Hogle, San Francisco Estuary Invasive Spartina Project
9:40 AM	Suisun Bay Reserve Fleet—Metals Discharge to Suisun Bay David Elias, SF Bay Water Board	Building a Regionally Coordinated Monitoring Network for Assessing Future Sustainability of Marsh Habitats in the San Francisco Estuary Christina Sloop, SF Bay Joint Venture	Climate Change Effects on North Delta Fishes Peter Moyle, UC Davis	Toxicity of Selenium to White and Green Sturgeon William Beckon, USFWS	Invasion of San Francisco Bay by Upogebia Major: A Newly Recognized Non-Native Species with Potentially Large Ecosystem Consequences Michael McGowan, Maristics

## 10:00 AM BREAK

### Sediment Data and Turbidity in the Bay-Delta System

Jamie Anderson, DWR

### Climate Change

George Isaac, Delta Science Program

### BREACH III: Evaluating and Predicting 'Restoration Thresholds' of Liberty Island

Lori Smith, USFWS

### Fish Biology (II)

Victora Poage, USFWS

### San Francisco Bay Ecology (II)

Tom Keegan, ECORP Consulting, Inc

10:20 AM	Particle Size Distributions of Suspended Sediment in the Sacramento-San Joaquin River Delta Scott Wright, USGS	Assessing Demographic Impacts of Climate Change on Tidal Marsh Birds: Population Modeling and Viability Analysis Nadav Nur, PRBO Conservation Science	Insights into Colonization and Expansion Dynamics of <i>Schoenoplectus californicus</i> at Liberty Island, California Mark Hester, University of Louisiana	Comparative Acoustic Tag Detections at Control Sites versus Artificial Reefs Sites in the San Francisco Estuary Robert Abbott, Environ International Corporation	Habitat Evolution Modeling Brian Fulfro, Brian Fulfro and Associates
10:40 AM	Sacramento-San Joaquin Delta Sediment Budgets Including Regional Transport and Deposition Characteristics for Water Year 2011 Tara Morgan-King, USGS	The California Climate Commons Deanne DiPietro, Sonoma Ecology Center	Restored Marshes in Liberty Island: How 'Deltaic' are the New Wetlands? Denise Reed, The Water Institute of the Gulf	Population Dynamics and Predation Impacts of Three Invasive Hydrozoan Jellyfish in the upper San Francisco Estuary Jessica Donald*, RTC/SFSU	Pepperweed Invasion Increases Soil Nitrogen Cycling Rates and Nitrous Oxide Emissions in a Drained Peatland Pasture Wendy Yang, UC Berkeley

\* Denotes student presenter



## Wednesday, October 17 *(continued)*

11:00 AM	Hydraulic Geometry and Bed Material Characteristics of the Sacramento-San Joaquin River Delta Mathieu Marineau, USGS	Change, Urbanization, and Water Management Scenarios on Habitats and Ecology of Waterfowl and Other Waterbirds in the Central Valley of California Elliot Matchett, USGS	The Importance of Vegetated Ponds to Water Quality and Phytoplankton Carbon Production in Liberty Island, California Peggy Lehman, DWR	Feeding of Adult Delta Smelt During Their Yearly Spawning Migration into the Upper San Francisco Estuary Aaron Johnson*, RTC/SFSU	Tidal Wetlands Alter Suspended Sediment Composition through Tidally Driven Exchange John Franco Saraceno, USGS
11:20 AM	Development of a Coupled Sediment Transport and Hydrologic (HSPF) Model of the Sacramento River Basin, CA, to Estimate Future Sediment Supply to the Bay-Delta System Michelle Stern*, USGS, CAWSC	Updating the San Francisco Baylands Ecosystem Habitat Goals for Climate Change Letitia Grenier, Baylands Ecosystem Habitat Goals Update	Hydrodynamic, Wind-Wave, and Sediment Transport Modeling to Inform Ecological Response at Liberty Island Matt Brennan, ESA PWA	Persistence of Delta Smelt DNA in the Gut of Mississippi Silversides and Other Preliminary Experiments for Detecting Prey in Non-Native Fish Stomachs Using Real-Time PCR Scott Brandl*, UC Davis	Sediment Budget for the Far Southern Reach of San Francisco Bay: Importance of Hydrodynamics to the Supply of Sediment Available for Habitat Restoration Gregory Shellenbarger, USGS
11:40 AM	Suspended-Sediment Trapping and Pulse Attenuation in the Tidal Reach of Corte Madera Creek, a Tributary of San Francisco Bay Maureen Downing-Kunz, USGS	Predicted Sea-Level Rise Negatively Affects Tidal Wetland Distribution and Plant Productivity Lisa Schile*, UC Berkeley	Liberty Island Landscape Vegetation Model Enrique Reyes, East Carolina University	Food Web Relationships for Delta and Longfin Smelt Bryan Manly, West, Inc.	The Influence of Surface Water Mixing on Gas Budgets in Restored Wetlands Cristina Poindexter*, UC Berkeley

## 12:00 PM LUNCH

12:20–1:20 PM **SPECIAL EVENT** **Not Just a Pretty Picture: The Synergy between Art and Science**, Moderator: Enid Blader, California State University, Monterey Bay **(Rooms 308-310)**

	<b>Sediment Transport in the San Francisco Bay Coastal System</b> Patrick Barnard, USGS	<b>Bay Area Precipitation Monitoring Activities by the NOAA Hydrometeorology Testbed Program</b> Rob Cifelli, NOAA/ESRL	<b>Yolo Bypass: Managed Floodplain as Seasonal Habitat for Fish</b> Louise Conrad, DWR	<b>Fish Biology (III)</b> Lenny Grimaldo, USBR	<b>San Francisco Bay Ecology (III)</b> Martina Koller, Delta Science Program
1:35 PM	A Multi-Constituent Approach for Analyzing Sediment Transport in the San Francisco Bay Coastal System Mary McGann, USGS	Evaluation of Quantitative Precipitation Estimation (QPE) in Complex Terrain Rob Cifelli, NOAA/ESRL	Migratory Patterns and Survival of Juvenile Salmonids in the Yolo Bypass Phillip Sandstrom*, UC Davis	Habitat Affinity Analysis as a Tool to Guide Environmental Restoration for Delta Smelt Scott Hamilton, Center for California Water Policy and Management	Estimating Abundance of California Clapper Rails: Trends, Spatial Patterns and Effects of Climate Change Leonardo Salas, PRBO Conservation Science
1:55 PM	San Francisco Bay Sediment Transport: Comparison of Sediment Supply to San Francisco Bay from Coastal and Sierra Nevada Watersheds Lester McKee, SFEI	Water Management Applications of Advanced Precipitation Products Lynn Johnson, NOAA/ESRL	Testing Hypotheses about Fish and Food Web Responses in Managed Habitat in Yolo Bypass Floodplain Ted Sommer, DWR	The Pelagic Organism Decline and the Game of Clue BJ Miller, San Luis & Delta-Mendota Water Authority	Macroinvertebrate Colonization and Avian Community Response Following Restoration of Salt Ponds in Northern San Francisco Bay John Takekawa, USGS
2:15 PM	Synthesis of Bed Characteristics, Geochemical Tracers, <i>in Situ</i> Measurements and Numerical Modeling for Assessing the Provenance of Beach Sand in the San Francisco Bay Coastal System Patrick Barnard, USGS	A 21st-Century Observing Network for California Allen White, NOAA/ESRL	Residence Time of White Sturgeon in the Yolo Bypass and Subsequent Movements in the Sacramento River Watershed in a Dry Year Myfanwy Rowlands*, UC Davis	The Spatial and Temporal Distribution of Delta and Longfin Smelt David Fullerton, Metropolitan Water District of Southern California	Submerged Surprise in Suisun: Extensive Beds of Native SAV Kathryn Boyer, RTC/SFSU
2:35 PM	Sediment Dynamics in the Shallows of San Francisco Bay Jessica Lacy, USGS	Estimating Basin Drainage Characteristics Using Spatially and Temporally Limited Soil Moisture Observations Robert Zamora, NOAA/ESRL	A Long-Term Examination of Juvenile Fall-Run Chinook Salmon ( <i>Oncorhynchus tshawytscha</i> ) Utilization of the Yolo Bypass as Rearing Habitat Lynn Takata, DWR	FLaSH: Multivariate Analyses of Delta Smelt Health Indices in the Upper San Francisco Bay Delta Estuary Alireza Javidmehr, UC Davis	The Structure of Estuarine Fish Communities: Three Decades of Observation in the San Francisco Estuary, California, USA Fred Feyrer, USBR

## Wednesday, October 17 *(continued)*

2:55 PM Influence of History and Environment on the Sediment Dynamics of Intertidal Flats  
Craig Jones, Sea Engineering, Inc.

Pacific Atmospheric Rivers: Impacts on Extreme Rainfall, Flooding and Water Supply in California  
David W. Reynolds, CU Boulder

Parameterizing a System Optimization Model for Flood Extent, Location, and Timing on the Yolo Bypass  
Robyn Suddeth\*, UC Davis

Revisiting Longfin Smelt Population Dynamics in the San Francisco Estuary  
Jonathan Rosenfield, The Bay Institute

Going to Extremes: Evidence of Refuges for Native Fishes from the Sacramento River to San Francisco Bay  
Brian Schreier, DWR

3:15 PM **BREAK**

### Room 306

#### Multi-Dimensional Modeling of Sediment Transport in the Bay-Delta

Fabian Bombardelli, UC Davis

### Room 307

#### Flood and Levee Management

Rebecca Fris, California Landscape Conservation Cooperative

### Room 308–310

#### The Once and Future Delta

Ellen Hanak, PPIC

### Room 311–313

#### Genetics

Randy Baxter, DFG

### Room 314

#### Mercury

Carol Atkins, DFG

3:35 PM Use of Scour Monitoring Data for Sediment Budget Analysis and Model Validation in the Delta  
Rene Leclerc, Northwest Hydraulic Consultants

Analysis of Flood Statistics for Flood Risk Management in the Far South San Francisco Bay  
Lisa Andes, USACE

Building a Landscape Perspective for Ecosystem Planning: Lessons from Historical Ecology  
Alison Whipple, SFEI/ASC

Saving San Francisco Bay-Delta Native Fishes: Hatchery Management and Reintroduction Strategy Modeling  
Kathleen Fisch, San Diego Zoo Global

Mercury Cycling in Blacklock Wetland: A Study of a Restored Tidal Marsh  
Wesley Heim, Moss Landing Marine Laboratories

3:55 PM Tracking Sediments through the Bay-Delta System over a Water Year with a 2D Process Based Model (D-Flow FM)  
Fernanda Achete\*, UNESCO IHE

Modeling the Establishment of Riparian Habitat Vegetation with Applications to *Populus fremonti* on the Sacramento River, California  
Michael Tansey, USBR

Envisioning a Reconciled Delta Based on Empirical Data from Healthy Landscapes  
Robin Grossinger, SFEI

Genetic Analysis of Natural and Hatchery Origin Steelhead in the Central Valley Reveals Population Structure and Origins  
John Carlos Garza, NOAA/UC Santa Cruz

The Song Sparrow as a Biosentinel for Methylmercury in Riparian Food Webs of the San Francisco Bay Area  
April Robinson, SFEI

4:15 PM Validation of 3D Sediment Transport Modeling in the Delta  
Paul Craig, Dynamic Solutions - International, LLC

Holland Tract Levee - Case History  
Gilbert Cosio, MBK Engineers

The Pre-Export Delta: How Flow and Water Quality Changed Over the Last 60 Years  
William Fleenor, UC Davis

Estimates of Hatchery Contribution to California's Central Valley Chinook Salmon Populations: Results of 2010 and 2011 Coded-Wire Tag Recovery Data  
Brett Kormos, DFG

Mercury in Motion: Wetland Restoration in South San Francisco Bay and the Legacy of Historic Mercury Contamination  
Mark Marvin-DiPasquale, USGS

4:35 PM Numerical Simulations of First Flush Sediment Dispersal throughout the Sacramento-San Joaquin Delta and San Francisco Bay  
Aaron Bever, Delta Modeling Associates, Inc.

Identifying High-Risk Islands and Modeling Levee Failure Scenarios using the Adaptive Hydraulics Model (ADH)  
Stephen Sanborn, Dynamic Solutions, LLC

Managing a Reconciled Future Delta Ecosystem  
Jeffrey Mount, UC Davis

Application of Genetic Methods to Salvaged Winter-Run Chinook Salmon  
Scott Blankenship, UC Davis/Cramer Fish Sciences/GENIDAQS

Use of Coagulation to Remove Inorganic Mercury and Methylmercury from Solution  
Tamara Kraus, USGS

4:55 PM Three-Dimensional Coupled Wind-Wave and Mud Suspension Modeling in San Francisco Bay  
Yi-Ju Chou, National Taiwan University

Economic Consequences of Levee Failure Associated with Subsidence and Accretion, Sacramento-San Joaquin Delta  
Steven Deverel, HydroFocus, Inc.

### PANEL DISCUSSION

Results of Parentage Based Tagging at the Feather River Hatchery: Pedigree Reconstruction and Ocean Tag Recoveries  
Anthony Clemento\*, UC Santa Cruz/NOAA Fisheries/SWFSC Santa Cruz

Strategies for Resolving Low Dissolved Oxygen and Methylmercury Events Originating in Diked Managed Wetlands of Suisun Marsh,  
Stuart Siegel, Wetlands and Water Resources

5:15–7:15 PM **POSTER SESSION AND RECEPTION WITH THE JAZZ MINIONS—EXHIBIT HALL B (1ST FLOOR)**



# Thursday, October 18

## Room 306

### Latest Science Updates from the South Bay Salt Pond Restoration Project

Laura Valoppi, USGS

## Room 307

### Delta People: Residents, Workers, and Recreationists

Dan Ray, Delta Stewardship Council

## Room 308-310

### Low Salinity Habitat in the San Francisco Estuary (I)

Bruce Herbold, US EPA

## Room 311-313

### Salmonid Life History and Biology (I)

John Hannon, USBR

## Room 314

### Global Perspectives

Lee Case, USGS

8:20 AM Will Salt Pond Restoration in South San Francisco Bay Cause Erosion of Mudflats and Sloughs?  
Bruce Jaffe, USGS

Transitions in the Delta Economy  
Josue Medellin-Azuara, UC Davis

Preliminary Analysis of Suspended-Sediment Concentration and Turbidity in the Fall Low Salinity Zone of the San Francisco Estuary  
David Schoellhamer, USGS

Do Hatchery Chinook Salmon Supplement Naturally Produced Fish, or Replace Them?  
John G. Williams

Intractable Islands in the Delta: Innovations in Polder Management for Ecosystem Restoration in the Bangladesh, California and Dutch Deltas

Philippus Wester, Wageningen University

8:40 AM Sediment Dynamics in Restored Salt Ponds and Tidal Wetlands in San Francisco Bay  
John C. Callaway, USF

Economy of the Sacramento-San Joaquin Delta  
Jeffrey Michael, University of the Pacific

Comparison of Seston Composition and Sources in the Delta during Two High-flow Falls, 2006 and 2011  
Steve Silva, USGS

Key Uncertainties Surrounding Predation at Diversion Structures  
David Swank, NOAA-NMFS

Projected Climate Change Impacts to the San Francisco Bay-Delta Ecosystem and Region  
Tom Suchanek, USGS

9:00 AM Balancing Act: Protecting Waterbirds and Providing Public Access  
Lynne Trulio, SJSU

People of the Sacramento-San Joaquin Delta  
Thomas Pogue, University of the Pacific

Modeling Fall Low Salinity Zone Habitat Using the UnTRIM Bay-Delta Model  
Michael MacWilliams, Delta Modeling Associates, Inc.

The History of the Spawners: Juvenile Delta Use by Adult Winter and Spring-Run Chinook Salmon  
Peter K. Weber, LLNL/UC Berkeley

Stemming the Tide of Ballast Water Invasions? Geographic Patterns of Ballast Water Exchange and Discharge to the San Francisco Bay-Delta Region

Amanda Newsom, California State Lands Commission

9:20 AM Effects of Wetland Management on Carrying Capacity of Duck and Shorebird Benthivores in a Coastal Estuary  
L. Arianna Brand, USGS

Recreation Opportunities in the Delta and Suisun Marsh  
Cheryl Essex, California State Parks

FLaSH: Health Status of Delta Smelt, *Hypomesus transpacificus*  
Shawn Acuña, UC Davis

Using Size, Growth Rate and Rearing Origin to Evaluate Selective Mortality of Juvenile Chinook Salmon Across Years of Varying Ocean Productivity  
Rachel Johnson, USBR/UC Santa Cruz

Atmospheric Rivers, Levees and Floodplain Ecology in the Bay-Delta System

Michael Dettinger, USGS, Scripps Institution of Oceanography

9:40 AM Examining Fish Usage of Recently Restored Saltmarshes  
Nicholas Buckmaster, UC Davis

## PANEL DISCUSSION

Water and Particle Properties as Measures of Habitat Quality  
Brian Bergamaschi, USGS

Did San Francisco Bay Previously Provide Rearing Habitat for Juvenile Salmonids?  
John Largier, UC Davis/Bodega Marine Laboratory

Enhancement of the Sacramento-San Joaquin Delta Island Consumptive Use Estimates and Water Quality Predictions  
Lucas Siegfried\*, UC Davis

10:00 AM **BREAK**

### Napa-Sonoma Marshes Wildlife Area Restoration

Larry Wyckoff, DFG

### Multiple Benefits of Flood Corridors on the Lower San Joaquin River

Mark Tompkins, NewFields

### Low Salinity Habitat in the San Francisco Estuary (II)

Fred Feyrer, USBR

### Salmonid Life History and Biology (II)

Alicia Seesholtz, DWR

### Achieving Ecological Goals through the BDCP in the Face of Uncertainty

David Zippin, ICF International

10:20 AM How Long Will it Take? Factors Affecting the Schedule for Salt Pond Restoration from Land Acquisition through Salinity Reduction to Completion of Construction  
Susanne von Rosenberg, GAIA Consulting, Inc.

Modeling the Hydraulics of Expanded Floodways on the Lower San Joaquin River  
Paul Frank, NewFields

Response of the Delta Smelt Population to the Fall Outflow Conditions in 2011: Insights from Qualitative Modeling  
Gonzalo Castillo, USFWS

Flow, Gates, Trucks, and Chinook Salmon: Collaborative Approaches to Adaptive Management in the Lower Mokelumne River  
Jose Setka, EBMUD

Biological Goals and Objectives for the Bay Delta Conservation Plan: Balancing Theoretical, Practical, and Institutional Factors  
Christopher Earle, ICF International

10:40 AM Access, Airspace, and Avocets—Crafting a Solution  
Francesca Demgen, URS Corp.

Developing Alternate Hydrologies for the Lower San Joaquin River  
Rich Walkling, Restoration Design Group

FLaSH: Enzymatic Biomarkers and Pathogens as Stress Indicators on the Health of Delta Smelt, *Hypomesus transpacificus*  
Saikrithika Gandhi, UC Davis

Juvenile Chinook Salmon Entrainment into Unscreened Water-Diversion Pipes: Can Behavioral Fish-Deterrent Devices Decrease Their Entrainment Rates?  
Timothy Mussen, UC Davis

Tastes Great, Less Filling: Delta Smelt in a Pelagic Food Web, Past, Present, and Future  
Matt Nobriga, USFWS

\* Denotes student presenter

## Thursday, October 18 *(continued)*

11:00 AM	Trajectory of Early Tidal Marsh Restoration: Elevation, Sedimentation and Colonization of Breached Salt Ponds in the northern San Francisco Bay Lacy M. Smith, USGS	Quantifying the Ecosystem Benefits of Restored Floodplain Habitat Connectivity on the Lower San Joaquin River Mary Matella, UC Berkeley	Opposing Seasonal Biomass Cycles Influence the Grazing Effects of Corbicula and Potamocorbula Janet Thompson, USGS	How do Inflow, Outflow, Water Export, and Tides Affect Salmonid Loss in the Delta's Fish Facilities? Li-Ming He, NOAA-NMFS	Department of Fish and Game Perspectives on Adaptive Management in Achieving the Goals and Objectives of the Bay Delta Conservation Plan Carl Wilcox, DFG
11:20 AM	Monitoring and Supporting Listed, Ground Nesting Birds in a Changing Environment Karen Taylor, DFG	Evaluating Changes in Flood Risk with Changes in Floodway Size and Hydrology Along the Lower San Joaquin River Katie Jagt, Consultant for American Rivers	The Food Environment for Delta Smelt in Fall: A Synthesis of Recent Findings Wim Kimmerer, RTC/SFSU	Factors Driving Variation in Salvage and Survival of Juvenile Chinook in the Delta Steve Cramer, Cramer Fish Sciences	DWR Perspective on Collaborative Science Process for BDCP Implementation and Adaptive Management Program Mark Cowin, DWR
11:40 AM	Progression of Fisheries use in Restored Salt Ponds at Napa Plant Site Michael Carbiener, URS Corp.	Consulting Engineer to American Rivers: A Flow of Analyses to Evaluate Multiple Benefits of Floodway Expansion Along the Lower San Joaquin River John Cain, American Rivers	The Rise in Fall of Northern Estuary Phytoplankton During the FLASH Study Frances Wilkerson, RTC/SFSU	Using Acoustic Telemetry to Assess Hydrodynamic Factors Influencing the Migration Behavior and Route Selection of Juvenile Salmonids in the Interior Delta Bradly Cavallo, Cramer Fish Sciences	<b>PANEL DISCUSSION</b> David Zippin, ICF International

## 12:00 PM LUNCH

	<b>Modeling (I)</b> Bob Fujimura, DFG	<b>Adaptive Management</b> Sam Harader, Delta Science Program	<b>Understanding Cyanobacterial Blooms in the San Francisco Estuary Delta (I)</b> Alexander Parker, RTC/SFSU	<b>Using Biotelemetry to Assess Survival and Behavior of Fishes (I)</b> Pat Brandes, USFWS
1:00 PM	Thermal Implications of an Unimpaired Hydrograph on Managing Declining Salmonid Populations in a Delta Tributary Chris Hammersmark, CBEC, Inc. Eco Engineering	Adaptive Management in the Delta Plan Lindsay Correa, Delta Science Program	DNA Fingerprinting and Quantitative Assessments of Toxigenic Microcystis Assemblages and Their Environmental Drivers in the San Francisco Estuary Delta Timothy Otten, University of North Carolina	Assessing the Survival and Behavior of Radio Tagged Chinook Smolts on the Lower Stanislaus River Kristopher Jones, Cramer Fish Sciences
1:20 PM	Analyzing Spatial Patterns of Groundwater-Surface Water Interactions at the Meander-Bend Scale in a Gravel-Bed Lowland River during a Large-Scale Flow Experiment Erin Bray*, UC Santa Barbara	The Necessary Action to Ensure the Ecological Recovery of the San Joaquin Delta Stacy Li, Aquatic Systems Research	Monitoring Cyanobacteria, Microcystis, and Microcystin in the San Joaquin River Estuary William Stringfellow, Ecological Engineering Research Program, University of the Pacific	Estimating Relative Survival of Feather River Fish Hatchery Steelhead, <i>Oncorhynchus mykiss</i> , Smolts under Different Release Strategies Ryon Kurth, DWR
1:40 PM	Forecasting Delta Turbidity Conditions with Artificial Neural Networks Paul Hutton, Metropolitan Water District of Southern California	Can Adaptive Management for the Sacramento-San Joaquin Delta be more than Words? Jay Lund, UC Davis	Occurrence and Abundance of Other Toxin-Producing Cyanobacteria in the San Francisco Bay Delta Dolores Baxa, UC Davis	Tracking Juvenile Salmon with Micro-Transmitter Technology: Lessons Learned from a Pilot Sacramento River Study Sean Hayes, NOAA Fisheries
2:00 PM	The Devil is in the Details: Why the Representation of the Flow Field, Especially at Junctions, Matters in Order to Simulate Dispersion in the Delta Nancy Monsen, Stanford University	Managing Freshwater Inflows to the San Francisco Estuary to Reverse "Chronic Drought" Conditions Christina Swanson, NRDC	Determining Environmental Controls and Ecological Impacts of CyanoHABs in the San Joaquin-Sacramento Delta—A Multi-disciplinary Approach Cecile Mioni, UCSC	Applying Predator-Prey Models to Reach-Specific Survival Estimates of Juvenile Late-Fall Chinook Salmon in the Sacramento-San Joaquin River Delta Russell Perry, USGS
2:20 PM	Investigating the Retention of Planktonic Organisms in the Low-Salinity Zone Using a Particle Tracking Model Edward Gross, Resource Management Associates	Unifying the Science, Regulation and Operation of the Delta Waterworks System: A Practical Path Forward Erwin Van Nieuwenhuyse, USBR	Carbon and Nitrogen Uptake Rates Associated with Cyanobacterial Blooms in the San Francisco Delta Alexander Parker, RTC/SFSU	Survival and Route Selection of Juvenile Chinook Salmon in the Southern Sacramento-San Joaquin River Delta, 2011 Rebecca Buchanan, University of Washington

## 2:40 PM BREAK

\* Denotes student presenter

# Thursday, October 18 *(continued)*

## Room 306

### Modeling (II)

Daniel Riordan, DWR

## Room 307

### Integrated Science and Management

Joanne Vinton, Delta Science Program

## Room 308–310

### Understanding Cyanobacterial Blooms in the San Francisco Estuary Delta (II)

Valerie Connor, SFCWA

## Room 311–313

### Using Biotelemetry to Assess Survival and Behavior of Fishes (II)

Cynthia Le Doux-Bloom, DWR

3:00 PM Water Quality Model Framework to Support Resource Management Planning for the Sacramento San Joaquin Delta  
Andrew Stoddard, Dynamic Solutions LLC

3:20 PM Assessment and Comparison of One- and Two-Dimensional Models for Predicting Flow and Salinity in the Delta  
Fabian Bombardelli, UC Davis

3:40 PM Flood Modeling in the Yolo Bypass to Support Habitat Evaluation  
Chris Bowles, CBEC Eco Engineering, Inc.

4:00 PM Tidal Salt Marsh Susceptibility with Sea-Level Rise: The Importance of Spatially-Explicit, Local-Scale Models to Assess Outcomes for Endangered Wildlife  
Kevin Buffington, USGS

4:20 PM Investigating the Influence of Tides, Inflows, and Exports on Sub-Daily Flows at Junctions in the Sacramento-San Joaquin Delta  
Phil Gaskill, Cramer Fish Sciences

Prioritizing Tidal Marsh Conservation and Restoration Efforts Given High Uncertainty Due To Future Environmental Change  
Sam Veloz, PRBO Conservation Science

Restoration in the North Delta  
Amy Merrill, Stillwater Sciences

Scaling Restoration Strategies to Ecosystem Processes  
Michael C. Vasey, SFSU

### PANEL

Communicating Bay-Delta Science to the Public: Envisioning the Delta as it Was  
Panel Moderator: Jon Christensen, Stanford University

Stable Nitrate Isotopes Reveal Different Nitrate Dynamics in the San Joaquin River under Changing Flow Conditions  
Megan Young, USGS

Using Multi-Isotope Techniques to Estimate the Relative Uptake of Ammonium and Nitrate by Phytoplankton for Sites in Sacramento River and Delta  
Carol Kendall, USGS

Cyanobacterial Toxins, Environmental Drivers, and Watershed Connectivity: How Serious is the Threat?  
Raphael Kudela, UC Santa Cruz

Are Nutrients a Driver of Cyanobacterial Abundance in the San Francisco Estuary Delta?  
Adam Pimenta, RTC/SFSU

Monitoring Toxin-Producing Cyanobacteria in Clear Lake and Sacramento-San Joaquin Delta by DNA Barcoding and Development of Quantitative PCR Assays  
Tomofumi Kurobe, UC Davis

Napa River Steelhead Smolt Utilization of Napa Plant Site Tidal Marsh Using Acoustic Tags  
Thomas Keegan, ECORP Consulting, Inc.

Seasonal Distribution and Habitat Usage of Juvenile Striped Bass in the San Francisco Estuary Watershed  
Cynthia Le Doux-Bloom, DWR

Environment and Movement Patterns of Largemouth Bass in the Sacramento - San Joaquin Delta  
Anna Steel\*, UC Davis

Using Acoustic Telemetry to Determine Movements, Behavior and Critical Spawning Habitat for Green Sturgeon in the Sacramento River  
Michael Thomas, UC Davis

Advancements in Delta Smelt Acoustic Tagging  
Kai Eder, UC Davis

4:40–4:45 PM **ADJOURN** Evaluation Form Submission and **RAFFLE** (East Lobby—3rd Floor)



## Poster Clusters

### **BREACH III: Evaluating 'Restoration Thresholds' of Liberty Island**

Seed Ecology and Transplant Success of *Schoenoplectus acutus*, *S. californicus*, and *Typha latifolia* at Liberty Island, California: Applications to Restoration

Taylor Sloey\*, University of Louisiana

Relationship between Elevation, Edaphic Characteristics, and Patterns of *Schoenoplectus californicus* Abundance and Distribution at Liberty Island, California  
Jonathan Willis, University of Louisiana

The Importance of Vegetated Ponds to Water Quality and Phytoplankton Carbon Production in Liberty Island, California

Peggy Lehman, DWR

Fish Community Composition and Abundance across a Vegetation Gradient in a Restoring Tidal Freshwater Wetland

Sarah Whitley, Washington State University

Spatial and Temporal Patterns in the Diet of Fishes in a Restoring Tidal Freshwater Wetland

Sarah Whitley, Washington State University

BREACH III: Evaluating 'Restoration Thresholds' of Liberty Island

Lori Smith, USFWS

### **Integrated Regional Wetland Monitoring Pilot Project: New Findings**

The Integrated Regional Wetland Monitoring Pilot Project: Program Introduction

Stuart Siegel, Wetlands and Water Resources

Ecosystem Scale Rates of Primary Production within Salt Marsh Habitats of the Northern San Francisco Estuary

Risa Cohen, Georgia Southern University

Reassessment of the Role of Tidal Wetland Restoration in Enhancing Populations of Native Fishes

Larry Brown, USGS

Invertebrate Assemblages and Fish Diets of Interior Tidal Marsh Channels in Relation to Environmental Variables and Restoration Status in the San Francisco Estuary

Emily Howe, University of Washington

### **Low Salinity Habitat in the San Francisco Estuary: From Physics to Fish**

Spatial and Temporal Recruitment Patterns of the Freshwater Bivalve, *Corbicula fluminea*, in Suisun Bay and the Sacramento–San Joaquin Delta

Jeff Crauder, USGS

Spatial and Temporal Recruitment Patterns of the Estuarine Bivalve *Potamocorbula amurensis* in San Francisco Bay and Delta

Francis Parchaso, USGS

Investigating Food Limitation of Planktivorous Fish in the San Francisco Estuary: The Functional Response of Delta Smelt

Jorge Ruiz, CSU Stanislaus

Abundance and Distribution of Gelatinous Zooplankton in the Low Salinity Habitat of the San Francisco Estuary

Amalia Borson, SFSU

Reproduction and Mortality of Key Copepod Species in Low-Salinity and Freshwater Habitats of the San Francisco Estuary

Anne Slaughter, RTC/SFSU

Comparing the Growth of *Pseudodiaptomus forbesi*, throughout Various Life Stages, in the Sacramento River and the San Joaquin River Systems

Toni Ignoffo, RTC/SFSU

Old Standards versus New Approaches: Towards Defining the Fundamental Niche of Delta Smelt (*Hypomesus transpacificus*)

Matthias Hasenbein\*, TU Munich, Freising Germany/ UC Davis

Fall Low Salinity Zone Fish Food: Feast or Famine?

April Hennessy, DFG

Comparison of Adult Delta Smelt Prey Use between Wet (2011) and Dry (2012) Winters

Steven Slater, DFG

FLaSH: Otolith Growth and Migratory History

James Hobbs, UC Davis

FLaSH: Nutritional Status of Delta Smelt, *Hypomesus transpacificus*

Shawn Acuña, UC Davis

FLaSH: Enzymatic and Histopathologic Biomarker of Delta Smelt, *Hypomesus transpacificus*

Saikrithika Gandhi, UC Davis

FLaSH–Harboring Mycobacterium and Other Pathogens in Delta Smelt: Comparison between Populations Collected in 2010 and 2011 and Relationship to Environmental Factors in the San Francisco Bay Delta  
Dolores Baxa, UC Davis

FLaSH: Maturity of Delta Smelt, *Hypomesus transpacificus*

Tomofum Kurobe, UC Davis

Particle Concentration, Size and Composition Dynamics in the San Francisco Estuary

Travis S. von Dessonneck\*, USGS

Comparison of Water Chemistry and Isotopic Trends in Steamboat and Miner Sloughs with Mainstem Sacramento River

Steven Silva, USGS

Improved Monitoring of Water Quality in the San Francisco Estuary: The Application of Continuous Nitrogen and Phosphorus Monitors in Liberty Island

Katy O'Donnell\*, USGS

Influence of Light Attenuation on Euphotic Zone Depth and Visibility Range during Fall/Winter X2 Surveys of the San Francisco Estuary (SFE)

Michael Sauer, USGS

Water and Particle Properties as Measures of Habitat Quality

Brian Bergamaschi, USGS

## Poster Clusters (continued)

### Organic Contaminants

Water Quality Effects on Survival, Growth and Feeding Performance in Larval Delta Smelt (*Hypomesus transpacificus*)

Kevin Aceituno, USFWS

The Effects of a Commonly Used Pyrethroid, Bifenthrin, on the Reproductive Health of Steelhead (*Oncorhynchus mykiss*)

Kristy Forsgren, UC Riverside

Monitoring Input of Current-Use Pesticides to the Sacramento-San Joaquin Delta

Jennifer Teerlink, USGS

### The Monitoring Council, Its Workgroups, and Web Portals Improve Collaboration to Better Inform Bay-Delta Management

The California Water Quality Monitoring Council  
Jon Marshack, California Water Quality Monitoring Council;  
State Water Resources Control Board

Using Web Portals to Present Meaningful Information  
Jon Marshack, California Water Quality Monitoring Council;  
State Water Resources Control Board

The Healthy Streams Portal  
Lori Webber, State Water Resources Control Board

California Estuary Monitor Workgroup Website - A Tool for Integrating Monitoring, Assessment and Reporting  
William Templin, DWR

### Understanding Cyanobacterial Blooms in the San Francisco Estuary Delta: Current Trends, Causes and Implications for Ecosystem Function

Climate Change Effects on Cyanobacteria Blooms in the San Francisco Estuary Delta  
Allison Johnson\*, RTC/SFSU

Nitrogen Uptake Kinetics of *Microcystis aeruginosa* in the San Francisco Estuary Delta  
Jamie Lee\*, RTC/SFSU

Reproductive Success of the Calanoid Copepod *Pseudodiaptomus forbesi* in the Presence of Sublethal Levels of *Microcystis aeruginosa*

Rita duMais\*, RTC/SFSU

Isotope Identification of Particulate Organic Matter and Nutrient Sources during *Microcystis* Blooms in San Francisco Estuary

Peggy Lehman, DWR

Trends of *Microcystis* Abundance and Toxicity in San Francisco Estuary, 2004 to 2008

Peggy Lehman, DWR

Trends and Causal Factors Associated with *Microcystis* Abundance and Toxicity in San Francisco Estuary, 2004 to 2008

Peggy Lehman, DWR

### Use of Biotelemetry to Assess Behavior and Survival of Fishes in the San Francisco Estuary Watershed

Movement Patterns and Site Fidelity of Small Striped Bass in the San Francisco Estuary Watershed

Cynthia Le Doux-Bloom, DWR

Use of South San Francisco Bay Habitat by Tagged Special Status and Recreationally Important Fishes  
Thomas Keegan, ECorp Consulting, Inc.

Smolt Behavior in the Sacramento River at a Levee Repair Site

Phil Sandstrom\*, UC Davis

Survival, Movement, and Route Selection of Steelhead Trout in the Sacramento River

Phil Sandstrom\*, UC Davis

## General Sessions

### Fish Biology, Ecology and Protection

Central Valley versus Petaluma/Napa: A Nutritional Examination of Sacramento Splittail

Shawn Acuña, Aquatic Health Program

Effects of Flow, Habitat, and Water Quality on Hitch (*Lavinia exilicauda*) Abundance and Distribution within the Sacramento-San Joaquin River Delta

Amber Aguilera, USFWS

New Genetic Tools and Their Research Applications for Central Valley Chinook Salmon

Melinda Baerwald, UC Davis

Spatial Perspective for Delta Smelt: A Summary of Contemporary Survey Data

Paul Bergman, Cramer Fish Sciences

Using Underwater High Definition Video as a Fish Sampling Tool

Paul Bergman, Cramer Fish Sciences

Evaluating Downstream Movement and In-river Survival of Naturally Produced Juvenile Chinook Salmon in the Lower Mokelumne River using Visible Implant Elastomer Tags

Robyn Bilski, EBMUD

Comparison of Race Compositions Using Length-at-date Criteria and Genetics for Catch of Juvenile Chinook Salmon at Sacramento and Chipps Island in 2007-2011

Patricia Brandes, USFWS

Integrating Hydrodynamic Data, Acoustic Telemetry and Simulation Models to Assess and Describe Juvenile Salmonid Migration Behavior and Survival in the Delta  
Bradley Cavallo, Cramer Fish Sciences

Thermal Preference of Two Populations of Splittail, *Pogonichthys macrolepidotus*

Robert Coalter\*, UC Davis

Comparative Laboratory Critical Swimming Performance of Larval and Juvenile Green and White Sturgeon; with a Note on Exercise Conditioning

Bethany DeCourten, UC Davis

Go West, Young Fish!

Maxfield Fish, DFG

## General Sessions (continued)

Challenges Confronting Juvenile Sacramento River Chinook upon Entering the California Current Ecosystem: Results from NOAA SWFSC Juvenile Salmon Trawls and Acoustic Surveys  
Jason Hassrick, NOAA

Movement, Survival and Life History of Wild Mokelumne River Steelhead  
Walter Heady\*, UC Santa Cruz

Population Differences in Temperature-Dependent Growth of Steelhead  
Walter Heady\*, UC Santa Cruz

Steps Toward Evaluating Salmonid Predation in the Sacramento River Delta  
Sam Johnston, HTI

Effects of Temperature Acclimation on a Native Minnow; Standard Metabolic Rate and Thermal Limits of Adult and Juvenile Hardhead, *Mylopharodon conocephalus*, Acclimated to 4 Seasonal Temperatures  
Felipe La Luz, UC Davis

Straying of Late-Fall-Run Chinook Salmon from the Coleman National Fish Hatchery into the Lower American River, California  
Gena Lasko\*, CSU Sacramento/DFG

Effects of Nutritional Status on the Temperature Tolerance of Green Sturgeon (*Acipenser medirostris*) Fingerlings  
Seunghyung Lee\*, UC Davis

Environmental Water Management for Lake Curry and Suisun Creek  
Laurel Marcus, California Land Stewardship Institute

Effects of Water Year Type on Juvenile Chinook Salmon Size at Emigration in the San Joaquin River Basin  
Ramon Martin, USFWS

Fire, Floodplains and Fish: An Ethnographic Study on *Lavinia exilicauda chi* in Clear Lake California  
Joshua Moore\*, CSU Sacramento

Delta Smelt Captive Refugial Population Update and Relevancy, 2012  
Meredith Nagel, UC Davis

The Effect of Dietary Methylmercury on Na<sup>+</sup>, K<sup>+</sup>-ATPase Activity and Growth in Central Valley Fall-run Chinook Salmon (*O. tshawytscha*)  
John Negrey, Moss Landing Marine Laboratories

Movements, Survival, and Residence Times of Three Native Fish Species in the Yolo Bypass in a Dry Year  
Myfanwy Rowlands\*, UC Davis

Juvenile Salmon Response to Levee Repair on the Sacramento River  
David Smith, US Corps of Engineers

When to Bolt: Fry or Smolt? Estimating Survivorship of Juvenile Salmon Migratory Life Histories Using Otolith Strontium Isotopes  
Anna M. Sturrock, UC Santa Cruz

Central Valley Steelhead Draft DRERIP Conceptual Model  
David Swank, NOAA-Fisheries

Advances in Longfin Smelt Culture Development  
Galen Tigan, UC Davis

Co-occurrence of Juvenile Delta Smelt and Preferred Prey  
Linda Warkentin, DFG

## Food Webs

Influence of Food Web Dynamics on Mercury Bioaccumulation in Nesting Seabirds  
Kevin Aceituno, USFWS

In situ Measurement of Ammonium Utilization by Phytoplankton to Determine the Impacts of Nutrient Loading on the Base of the Delta Food Web  
Calla Schmidt, USGS

Creating an Adaptive Management Decision-Making Framework to Address Uncertainties in Delta Habitat Restoration: Tidal Marsh Productivity Exports, Aquatic Food Webs, and Delta Smelt  
Hildie Spautz, DFG

Comparing Copepod Adult and Naupliar Feeding using Epifluorescence Microscopy and a High-throughput Microplate Assay  
Robert Vogt\*, RTC/SFSU

## Global Perspectives

The Bay Delta has Undergone Similar Food Web Changes to Other Systems Globally Following Changes in Nutrient Loads  
Patricia Glibert, University of Maryland

Environmental Foresight through Computational Chemistry: To Avoid Wasting Resources through Implementing Changes that Turn Out to be Bad Ideas  
Nomana Intekhab Hadi\*, Stanford University

San Francisco Estuary and Watershed Science: Bridging Regional and Global Perspectives through Sound Scholarly Publication  
Lauren Muscatine, UC Davis

## Human Consequences

Rush Hour or Clear Sailing? Traffic Patterns of Commercial Vessels Arriving to San Francisco Bay-Delta from 2010-2012  
Christopher Brown, California State Lands Commission

Delta Working Landscapes  
Marc Ceccarelli, Delta Protection Commission

California State Parks' Gateway>Base Camp>Adventure Strategy  
Cheryl Essex, California State Parks

The 3 C's: Communication, Collaboration, and Coordination  
Gina Ford, DFG

Private Landowners, a Utility District, and the Feds: A Working Partnership to Benefit Rare Species on the Mokelumne River  
James Jones, East Bay Municipal Utility District

The California King Tides Initiative—Raising Awareness about the Impacts of Sea Level Rise through Photography, Public Participation, and Social Media  
Heidi Nutters, San Francisco Bay National Estuarine Research Reserve



## **Integrative Applied Science**

Data Analysis and Visualization Tools for San Francisco Bay-Delta Ecosystem Management  
Amye Rita Osti, 34 North, Inc.

The State of San Francisco Bay 2012: Updated Indicators for Freshwater Inflows and Fish  
Christina Swanson, Natural Resources Defense Council

CHaMP in California: Applications of a Standardized Fish Habitat Monitoring Protocol  
Michael Ward, Terraqua, Inc.

## **Modeling**

Integrated Water Operations and Multi-Species, Multi-Performance Indicator Ecosystem Effects Analysis: The San Francisco Delta Ecological Flows Tool (DeltaEFT)  
Clint Alexander, ESSA Technologies Ltd.

Using Conceptual Models to Evaluate Delta Restoration Actions  
Carol Atkins, DFG

Delta and Longfin Smelt Bioenergetics: Determining Maximum Consumption  
Kai Eder, UC Davis

Delta Simulation Model (DSM2) Grid Extension  
Ines Ferreira, DWR

Stanislaus River Floodplain Area versus Flow Relationships  
Mark Gard, USFWS

A Framework for Developing Stream Flow and Thermal Regimes for Multiple Salmonid Species in the Central Valley  
Li-Ming He, NOAA-NMFS

Herbicides and Endangered Butterflies: Can Conservation Practices Imperil Endangered Species?  
Catherine Johnson, USFWS

Advancement of Bathymetry in the Sacramento-San Joaquin Delta  
Shawn Mayr, DWR

Application of an Ecosystem-Scale Selenium Model to the San Francisco Bay-Delta Estuary  
Theresa Presser, USGS

Nutrient Loads in Rivers and from Point Sources Used to Develop a SPARROW Model for California and Adjacent States, U.S.A.  
Dina Saleh, USGS

Improvements in CVP/SWP System Operational Planning: High Acuity Simulation Platforms to Better Capture Hydrological Sensitivity  
Robert Shibatani, The Shibatani Group, Inc.

## **Physical Processes**

The Effects of Managing for Waterfowl Migration on Greenhouse Gas Emissions  
Frank Anderson, USGS

Climate-Change Effects on Bay Delta Unimpaired Flows  
Matthew Correa\*, CSU Sacramento

How Small-Scale Hydrodynamics in Tidal River Junctions Affect Dispersion  
Karla G. Leicauf\*, Stanford University

Sediment Characteristics of Managed Flood Control Channels in Southern San Francisco Bay  
David Gluchowski, SFEI

Hydraulic Interactions between a Meandering River Channel and its Floodplain during an Overbank Flood  
Lee R. Harrison, NOAA

Distributed Hydrological Modeling Using High Resolution Precipitation Products  
Chengmin Hsu, University of Colorado, Boulder

Sediment Transport on the San Joaquin River below Friant Dam, WY2010 and WY2011  
J. Toby Minear, USGS

Contrasting Snowpack Trends in the Sierra Nevada  
Maurice Roos, DWR

Numerical Simulations of the Effect of Small-Scale Flow Features on Dispersion within Channel Junctions  
Phillip Wolfram\*, Stanford University

5 Million Cubic Meters of Channel Change in the Yuba River and the Processes That Made It Happen  
Joshua Wyrick, UC Davis

## **Species and Communities**

Going Native: Evidence that High Flows Expand the Spatial Distribution of Native Fish in the Yolo Bypass  
Jared Frantzich, DWR

Effects on Water Quality and Nutrient Cycling by a Large, Native Unionid Mussel (*Anodonta* spp.) in a San Francisco Bay Watershed and Reservoir  
Alexander Kolosovich\*, SFPUC

Biodiversity Effects of Spartina Control  
Jeff Lewis\*, Olofson Environmental Inc./ San Francisco Estuary Invasive Spartina Project

Determining Habitat Relationships and Estimating Abundance of California Clapper Rail in Spartina-Invaded Marshes in the SF-Bay Estuary  
Jennifer McBroom, Olofson Environmental, Inc./San Francisco Estuary Invasive Spartina Project

Increased Bird Species Richness and Diversity at Restored Sites within the Sacramento-San Joaquin Delta  
Ron Melcer Jr., DWR

Gobies Are Kicking Your Bass to the Curb: Composition Shifts within the Upper San Francisco Estuary's Demersal Fish Community  
Jennifer Messineo, DFG

Extended Layups of Commercial Vessels Operating in California Waters: Implications for Vessel Biofouling and Nonindigenous Species Introductions  
Raya Nedelcheva\*, California State Lands Commission

Investigating Causes of Rarity in the Endemic Suisun Thistle  
Rosa Schneider\*, RTC/SFSU

The Comings and Goings of the Chinese Mitten Crab, *Eriocheir sinensis*, in San Francisco Bay Estuary  
Jonathan Thompson, USFWS

Regional Distribution and Habitat Associations of California Black Rail (*Laterallus jamaicensis coturniculus*) in the Sacramento-San Joaquin Delta  
Danika C. Tsao, DWR

Vegetation-Associated Macroinvertebrate Communities in the Sacramento-San Joaquin Delta  
Matthew Young\*, UC Davis

## **Sustainable Habitats and Ecosystems**

Managed Shoreline Retreat by Reconstruction of an Estuarine Beach at Aramburu Island, Richardson Bay  
Peter Baye, Annapolis Field Station

Predicting Impacts of Global Climate Change on Native and Invasive Submerged Aquatic Vegetation in the San Francisco Estuary  
Evyann Borgnis\*, RTC/SFSU

## General Sessions *(continued)*

Nearshore Linkages: The Roles of Native Oysters and Eelgrass as Living Shorelines in the San Francisco Estuary

Katharyn Boyer, RTC/SFSU

Monitoring Gravel Augmentation in the Englebright Dam Reach of the Lower Yuba River: Nonlinear Responses of Geomorphic Form and Physical Habitat to Management Actions

Rocko Brown\*, UC Davis

Carbon Sequestration and Sediment Accretion in San Francisco Bay Tidal Wetlands

John C. Callaway, University of San Francisco

Restoring Soil Ecology and Native Plant Communities in Former Salt Pond Ecotone

Dylan Chapple\*, UC Berkeley/Save the Bay

Current and Planned Restoration in the Delta and Suisun Marsh

Kristal Davis Fadtko, Sacramento-San Joaquin Delta Conservancy

Avian and Benthic Invertebrate Responses to Eelgrass and Native Oyster Restoration: Pre-Monitoring for the Living Shorelines Near-Shore Linkages Project

Susan De La Cruz, USGS

Rhodia's Success Comes From More Than Science

Francesca Demgen, URS Corp

McCormack-Williamson Tract

Matilda Evoy-Mount, US Army Corps of Engineers

Managing for Resilience in the Face of Climate Change: A Scientific Approach to Targeted Oyster Restoration in San Francisco Bay and Elkhorn Slough, CA

Matthew Ferner, San Francisco Bay National Estuarine Research Reserve

Ecosystem Restoration Program Overview

Julie Garcia, DFG

Developing Tools for Landscape-Scale Restoration in the Delta

Robin Grossinger, SFEI

Towards a Better Understanding of the Carbon Balance of a Grazed Pasture in the Sacramento-San Joaquin Delta, California using Continuous Measurements of Soil CO<sub>2</sub> Concentration and Soil Respiration

Sara Knox, UC Berkeley

Ecosystem Restoration Program Signature Project Highlight

Gena Lasko, DFG

Effects of Flooding and Anaerobic Conditions on Soil Greenhouse Gas Emissions in the Sacramento-San Joaquin Delta

Gavin McNicol\*, UC Berkeley

Accelerating Sea Level Rise: Potential Responses of Tidal Wetlands

V. Thomas Parker, SFSU

Bird Response to Delta Restoration: Fine Scale and Landscape Variables That Determine Success

Anitra Pawley, DWR

Lower Yolo Bypass Tidal Marsh Restoration Project

Stuart Siegel, Wetlands and Water Resources

Restoring Prospect Island: Application of Adaptive Management

Stuart Siegel, Wetlands and Water Resources

Riparian Forest Structure and Successional Trajectories along a Large Mediterranean-Climate River (Sacramento River, CA)

John C. Stella, SUNY Syracuse, College of Environmental Science and Forestry

Fire, Floodplains and Native Fish: Ethnoecology of the Cosumnes River

Michelle Stevens, CSU Sacramento

A Protocol for Monitoring the Vegetation of the Tidal Marsh Ecotone

Laura Wainer, Save the Bay

Dream Blue: Bay Ocean Delta You- Unified Regionwide Pollution Prevention Public Outreach for the San Francisco Bay Delta

Cheryl Wessling, City of San Jose

## Water and Sediment Quality

'Reactive' Inorganic Mercury: A Critical Examination of Preservation and Storage Techniques

Elizabeth Beaulieu\*, USGS

Transfected vs. Native: The Potential for Conflicting Measurements of Endocrine Activity from Different Cell Line Types

Susanne Brander, University of North Carolina

Evaluating Copper Toxicity in the San Francisco Bay Delta and Estuary: Copper Speciation and Dissolved Trace Metal Concentrations

Kristen Buck, Bermuda Institute of Ocean Sciences

Effects of Triclocarban on the Life-Cycle of the Medaka (*Oryzias latipes*) Fish Model

Ida Flores\*, UC Davis

Surface Sediment Characteristics of the San Francisco Bay Coastal System

Amy Foxgrover, USGS

Decentralized Water Disinfection and Designing Low Cost Clean Water Technology in Developing Countries

Nomana Intekhab Hadi\*, Stanford University

Mercury Cycling in Permanent Wetlands in the Yolo Bypass Wildlife Area: A Mass Balance Approach

Wesley Heim, Moss Landing Marine Laboratories

Is Particulate Organic Matter a Driver or a Reflection of Changing Dynamics in the Delta?

Peter Hernes, UC Davis

Varnished Serpentinite on the Floor of San Francisco Bay

Barry Keller, Keller Hydrogeophysicist

Mercury in California Lakes and Reservoirs: Factors Influencing Bioaccumulation in Black Bass

John Negrey, Moss Landing Marine Laboratories

Salmonella in the Delta: Implications for Human Health, Ecosystem Services, and Resource Management

Melissa Partyka, UC Davis

Biomarker and Stable Isotope Analysis of Reservoir Sediments Offer Insights into Watershed Processes Influencing Organic Carbon Accumulation in Englebright Lake

Christina Pondell\*, Virginia Institute of Marine Science

Discarded Plastics and Priority Pollutants: A Multiple Stressor in Aquatic Habitats

Chelsea Rochman\*, San Diego State University

Water Quality Report Card for the Lower Sacramento River

Fraser Shilling, UC Davis

Development of a Statewide Mercury Control Program for Reservoirs

Michelle Wood, Central Valley Water Board

To and Fro: The Intricacies and Challenges of DWR's Tidal Flow Monitoring

Dave Huston, DWR

\* Denotes student presenter