

Interagency Ecological Program 2024 ANNUAL WORKSHOP

April 23-25, 2024



Interagency Ecological Program

COOPERATIVE ECOLOGICAL
INVESTIGATIONS SINCE 1970

Science, Synthesis, Service

2024 Workshop Planning Committee

Rosemary Hartman, California Department of Water Resources (Organizing Chair)
Christine Joab, Interagency Ecological Program (Program Support Team)
Shawn Acuna, The Metropolitan Water District of Southern California
Kristi Arend, U.S. Bureau of Reclamation
Sam Bashevkin, State Water Resources Control Board
Daniel Ellis, Interagency Ecological Program (Synthesis)
Theodore Flynn, California Department of Water Resources
Stephanie Fong, Interagency Ecological Program
Denise Goodman, U.S. Fish and Wildlife Service
Brock Huntsman, U.S. Geological Survey
Vivian Klotz, California Department of Water Resources
Nicole Kwan, California Department of Water Resources
Tricia Lee, Delta Science Program within the Delta Stewardship Council
Claudia Macfarlane, U.S. Fish and Wildlife Service
Amanda Maguire, California Department of Water Resources
Catarina Pien, U.S. Bureau of Reclamation
Asha Pluton, California Department of Water Resources
Ellen Preece, California Department of Water Resources
Márcia Scavone-Tansey, California Department of Water Resources
Lynn Takata, Delta Science Program within the Delta Stewardship Council
Vanessa Tobias, U.S. Fish and Wildlife Service
Steve Tsao, California Department of Fish and Wildlife

IEP Mission Statement

The Interagency Ecological Program's mission is to provide and integrate relevant and timely ecological information for management of the Bay-Delta ecosystem and the water that flows through it. This is accomplished through collaborative and scientifically sound monitoring, research, modeling, and synthesis efforts for various aspects of the aquatic ecosystem. The IEP addresses high priority management and policy science needs to meet the purposes and fulfill responsibilities under State and Federal regulatory requirements. The IEP relies upon multidisciplinary teams of agency, academic, non-governmental agencies, and other scientists to accomplish its mission.

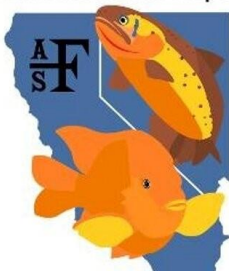
IEP Community Statement

The Interagency Ecological Program celebrates equity, diversity, and inclusiveness. We embrace these pillars of excellence as crucial to healthy people and healthy communities. We welcome collaborative scientists of all affiliations and ask that you contribute within a spirit of supportive collegiality.

IEP Workshop Sponsors

The IEP Workshop Planning Committee would like to thank our sponsors for supporting activities at the workshop. The California-Nevada Chapter of the American Fisheries Society has been assisting IEP in securing the rental of poster boards for the poster session. The State Water Contractors are kindly sponsoring the Early Career Mentoring Luncheon for the 2nd year and ICF, Inc. is sponsoring our new Coffee & Tea Bar in the lobby.

California-Nevada Chapter



COVID Safety Guidelines

The California Natural Resources Agency follows COVID-19 health and safety measures set by the Sacramento County Public Health Office. Masks are not required to be worn inside the building. However, it is highly recommended to wear masks in crowded indoor public places. Masks and hand sanitizer are available at the Registration Table.

We strongly encourage participants who don't feel well or who are sick to stay home and watch the workshop remotely.

To Our Attendees

Welcome to the 2024 IEP Annual Workshop!

Registration

The workshop is a free, hybrid event taking place in the California Natural Resources Agency building ([715 P Street, Sacramento](#)) on April 23 through April 25, 2024. An associated virtual data training course will occur on April 18.

Live presentations will be held in the auditorium (North Lobby, 1st floor) April 23-25. Registration to attend the live presentations is required. Registration will open March 15 and the registration link can be found on the [IEP Workshop](#) web page. A separate registration is required to attend the data training course.

Remote viewing of the live presentations will be shared via Zoom. Registration for remote viewing is required. Registration will open March 15 and the registration link can be found on the [IEP Workshop](#) web page. The Zoom link will be specific to the registrant, so don't share it with others. The link will cover the entire 3-day workshop.

IEP Training Course

A remote-only Data training course will be held the week before the workshop on April 18 from 9:00 a.m. – 3:00 p.m. Registration (separate from the regular workshop) is required. Registration will open on March 15, 2024. More information on the course, instructors, and any prerequisites as well as the registration link can be found on the [IEP Workshop](#) web page.

Posters

Posters will be shown on the 2nd floor in conference rooms 2-221 B-C. An overflow seating area is available in room 2-221-A next to the poster rooms. For remote viewers, the posters and abstracts will be posted in the Poster Forum after completion of the workshop. The Poster Forum can be found on the [IEP Workshop](#) web page.

Poetry Slam

Back by popular demand, we will have a poetry slam before the poster session on the second day of the conference. This is an opportunity for poster authors to perform creative pitches to get audience members to visit their posters. Other attendees are welcome to share their creative poems, songs, skits, and stories about the San Francisco Estuary and California's amazing natural resources.

Workshop Schedule

IEP TRAINING COURSES: Thursday, April 18

DATA MANAGEMENT, VISUALIZATION, AND ACCESS

Virtual Training via TEAMS

9:00 a.m. – 3:00 p.m.

IEP is excited to offer a full day of training on data management, visualization, and access for IEP community members. The training will be 100% remote and cover 4 topic areas followed by a Q&A panel with the instructors. Registration is required to attend.

Data Management Course

This course will provide an overview of the data management lifecycle, from data collection to data management and storage to data access.

Coded Data Access Course

This course will provide an overview of how to download data directly into R. Examples will include EDI datasets, real-time water quality data, and synthesized data within data packages.

Metadata and Data Publication Course

This course will walk users through on what to include in metadata, how to create metadata, and how to publish metadata and data on EDI.

Visualization and Communication of Data Course

This course will walk through examples of data visualization and communication tools and portals.

Panel Q&A

This is an open question and answer session.

Workshop Day 1: Tuesday, April 23

REGISTRATION CHECK-IN

1st Floor North Lobby (next to Auditorium) 7:30 am – 8:30 am

SESSION 1 – WELCOME AND PLENARY 1

Moderator and Speaker: 8:30 am – 9:00 am

Rosemary Hartman, California Department of Water Resources

8:30 – 8:40 Workshop Welcome
Rosemary Hartman, California Department of Water Resources

8:40 – 9:00 10 Things I Have Learned Working with the IEP
Steve Culberson, [Lead Scientist of the Interagency Ecological Program](#)

SESSION 2 – PHYSICAL AND BIOLOGICAL EFFECTS OF FLOW

Moderator and Speakers: 9:00 am – 10:00 am

Sam Bashevkin, State Water Resources Control Board

9:00 – 9:15 As the Smelt Swims: Re-examining the Spawning Migration of Delta Smelt
Brian Mahardja, U.S. Bureau of Reclamation

9:15 – 9:30 Evaluation of Spring Outflow to Larval Delta Smelt (*Hypomesus transpacificus*)
Health and Condition
Marie Stillway Garcia, U.C Davis

9:30 – 9:45 Improving our Understanding of X2 and Salt Field Dynamics through High
Resolution Near-Bed Salinity Monitoring in the San Francisco Estuary
Paul Stumpner, U.S. Geological Survey

9:45 – 10:00 The Interaction of Uncertainty and Objective Weights: Value-of-Information
Analysis to Inform River Temperature Management for Green Sturgeon and
Winter-run Chinook Salmon Below Shasta Dam
Brian Healy, U.S. Geological Survey

BREAK (20 minutes)

10:00 – 10:20

SESSION 3 – POSTERS (2nd Floor, Rooms 2-221 B-C)

Moderators: 10:20 am – 12:25 pm

Amanda Maguire, California Department of Water Resources

Asha Pluton, California Department of Water Resources

See the Poster Abstract Booklet for list of poster titles and authors.

LUNCH (90 minutes)

12:25 – 1:55 **Early Career Luncheon:** 2nd Floor Room 2-301 (Registered attendees only)

12:25 – 1:55 **Regular Lunch:** Area Restaurants – All attendees on their own

SESSION 4 – RECONNECTING DELTA FOOD WEBS

Moderator and Speakers:

1:55 pm – 3:10 pm

Daniel Ellis, Interagency Ecological Program (Synthesis)

- 1:55 – 2:10 Food Webs Forward: Understanding the Benefits and Science Needs for Incorporating Food Web Interactions into Management in the Bay-Delta Estuary
Lillian McCormick, California Sea Grant and Delta Independent Science Board (Postdoctoral Researcher) and Robert Naiman, Delta Independent Science Board
Early Career Award candidate
- 2:10 – 2:25 The Cache Slough Complex: A Deep Dive into a Shallow Wetland
Emily T. Richardson, U.S. Geological Survey
Early Career Award candidate
- 2:25 – 2:40 Continuous Zooplankton Observation, Detection, and Enumeration
Kai Ross, Cramer Fish Sciences
- 2:40 – 2:55 Reconnecting Delta Food Webs: Evaluating the Influence of Tidal Marsh Restoration on Prey Availability and Diet of Native Fishes
Susan De La Cruz, U.S. Geological Survey
- 2:55 – 3:10 Restoring Tidal Marsh Food Web Structure and Energy Pathways for Estuarine Fish Communities
Megan Pagliaro, UC Berkeley
Early Career Award candidate

BREAK (20 minutes)

3:10 – 3:30

SESSION 5 – PHYTOPLANKTON AND NUTRIENTS

Moderator and Speakers:

3:30 pm – 5:00 pm

Ellen Preece, California Department of Water Resources

- 3:30 – 3:45 Identification of Environmental Conditions Driving Cyanobacterial Multi-Species Blooms and Their Toxicity Using Genome Resolved Metagenomics
Andreja Kust, U.C. Berkeley, Innovative Genomics Institute
Early Career Award candidate
- 3:45 – 4:00 Using Numerical Tracers to Estimate Ecological Rates in a Phytoplankton Model
Edward Gross, Resource Management Associates Inc.
- 4:00 – 4:15 Benthic Overwintering *Microcystis sp.* Seedstock and its Role in Summertime Blooms
Ellen Preece, California Department of Water Resources
- 4:15 – 4:30 Comparing Cyanobacteria and Cyanotoxins in the Delta During Droughts and Deluges
Keith Bouma-Gregson, U.S. Geological Survey
- 4:30 – 4:45 Assessing the Dynamics of Emerging Spring Phytoplankton Blooms at the Confluence
Schuyler Nardelli, USGS California Water Science Center
Early Career Award candidate
- 4:45 – 5:00 Assessing Sediments as a Nutrient Source/Sink to the Sacramento-San Joaquin River Delta
Nicholas Framsted, USGS California Water Science Center
Early Career Award candidate

Workshop Day 2: Wednesday, April 24

REGISTRATION CHECK-IN

1st Floor North Lobby (next to Auditorium)

7:30 am – 8:30 am

SESSION 6 – WELCOME AND PLENARY 2

Moderator and Speaker:

8:30 am – 9:05 am

Rosemary Hartman, California Department of Water Resources

8:30 – 8:40 Workshop Welcome

Rosemary Hartman, California Department of Water Resources

8:40 – 9:05

How Science and Policy Can Work Together: What does it take to get there?

Felicia Marcus, [William C. Landreth Visiting Fellow at Stanford University's Water in the West Program](#)

SESSION 7 – SMELT SUPPLEMENTATION

Moderator and Speakers:

9:05 am – 10:05 am

Denise Goodman, U.S. Fish and Wildlife Service

9:05 – 9:20 Delta Smelt Experimental Release – Summary of Year Three Activities and Initial Observations

Katie Osborn, California Department of Water Resources

9:20 – 9:35 Quantifying the Stress Response of an Endangered Fish Species to Support Population Supplementation

Nicholas Hudson, UC Davis, Department of Wildlife and Fisheries Biology

Early Career Award candidate

9:35 – 9:50 Branding, Spraying, and Tagging, Oh My! Investigating New Methods of Marking Cultured Delta Smelt

Trishelle Tempel, California Department of Water Resources

9:50 – 10:05 Enhancing Delta Smelt Conservation: A Naturalistic Approach to Rearing and Supplementation

Florian Mauduit, UC Davis

Early Career Award candidate

POETRY SLAM

Moderator:

10:05 am – 10:25 am

Rosemary Hartman, California Department of Water Resources

BREAK (20-minutes)

10:25 – 10:45

SESSION 8 – POSTERS (2nd Floor, Rooms 2-221 B-C)

Moderators:

10:45 am – 12:40 pm

Amanda Maguire, California Department of Water Resources

Asha Pluton, California Department of Water Resources

See the Poster Abstract Booklet for list of poster titles and authors.

LUNCH (90 minutes)

12:40 – 2:10 **Regular Lunch:** Area Restaurants – All attendees on their own

SESSION 9 – WETLANDS & FLOODPLAINS: ADVANCEMENTS IN MONITORING AND RESTORATION

Moderator and Speakers:

2:10 pm – 3:25 pm

Nicole Kwan, California Department of Water Resources

- 2:10 – 2:25 Oh, the Places They’ll Go! Results from a Yolo Bypass Adult Salmon and Sturgeon Acoustic Telemetry Study
Dennis Finger, California Department of Water Resources
Early Career Award candidate
- 2:25 – 2:40 No Net Habitat Loss – Quantifying Fish Response to Levee Setback Projects
Bobbie Flores, Cramer Fish Sciences
Early Career Award candidate
- 2:40 – 2:55 Integrating Social and Ecological Research to Control Invasives Species in Suisun Marsh
Gabrielle Keeler-May, Chapman University, Environmental Science and Policy
Early Career Award candidate
- 2:55– 3:10 Investigation of Floating Peat Wetlands, Sacramento-San Joaquin Delta, CA
Steven Deverel, HydroFocus Inc.
- 3:10 – 3:25 Additive Benefits of Point Counts and Automated Recording Units: What Do Secretive Marsh Birds Say After the Survey is Over?
Julian Wood, Point Blue Conservation Science

BREAK (20 minutes)

3:25 – 3:45

SESSION 10 – LIGHTNING TALKS

Moderator and Speakers:

3:45 pm – 5:00 pm

Brock Huntsman, U.S. Geological Survey

- 3:45 – 3:53 Strategic Communication for Collective Action in Wetland Management and Restoration: Engaging with the Public, Landowners, and Agencies
Richelle L. Tanner, Chapman University
Early Career Award candidate
- 3:53 – 4:01 Lessons Learned for Interweaving Traditional Knowledge and Western Science in the San Francisco Bay-Delta
Xoco Shinbrot, Delta Science Program within the Delta Stewardship Council
Early Career Award candidate

- 4:01 – 4:09 A Year of Cage Studies in the San Francisco Estuary to Inform Conservation Efforts of Delta Smelt
Brittany Davis, California Department of Water Resources
- 4:09 – 4:17 Microorganisms as Indicators of Habitat Conditions in Restoring Wetlands
Erick Ortiz, San Francisco State Univ. | Estuary & Ocean Science Center
Early Career Award candidate
- 4:17 – 4:25 Larval Fish Diets as Indicators of Food Web Dynamics in Tidal Wetland Restoration
Anthony Donahue, San Francisco State Univ. | Estuary & Ocean Science Center
Early Career Award candidate
- 4:25 – 4:33 Are Mosquito Control Pesticides Negatively Affecting Delta Water Quality?
James Orlando, U.S. Geological Survey
- 4:33 – 4:41 LightDeck Technology: Evaluating a Cyanotoxin Detection Tool
Silvia Angles, California Department of Water Resources
- 4:41 – 4:49 A Comparison Between eDNA Concentrations & Loach Capture in the San Luis Wildlife Refuge
Matthew E. Murphy, US Fish and Wildlife Service
Early Career Award candidate
- 4:49 – 4:57 How much Vegetation are IEP Fish Surveys Running Into, and Does It Matter?
Daniel Ellis, Interagency Ecological Program (Synthesis)

Workshop Day 3: Thursday, April 25

REGISTRATION CHECK-IN

1st Floor North Lobby (next to Auditorium)

7:30 am – 8:30 am

SESSION 11 – WELCOME AND PLENARY 3

Moderator and Speaker:

8:30 am – 9:05 am

Rosemary Hartman, California Department of Water Resources

8:30 – 8:40 Workshop Welcome

Rosemary Hartman, California Department of Water Resources

8:40 – 9:05 We are Smarter Than Me

Anke Mueller-Solger, [Center Director, USGS California Water Science Center](#)

SESSION 12 – New and Improved Longfin Smelt Science and Monitoring

Moderator and Speakers:

9:05 am – 10:05 am

Vanessa Tobias, U.S. Fish and Wildlife Service

- 9:05 – 9:20 Improving Our Understanding of Longfin Smelt (*Spirinchus thaleichthys*)
Maturation and Fecundity
Nikolas J. Floros, UC Davis
Early Career Award candidate
- 9:20 – 9:35 Larval Longfin Entrainment Sampling 2022-2024: A Developing Long-Term
Monitoring Program
Morgan Gilbert, California Department of Fish and Wildlife
- 9:35 – 9:50 Expansion into San Pablo Bay: Smelt Larva Survey & 20-mm Survey Updates
Vanessa Mora, California Department of Fish and Wildlife
- 9:50 – 10:05 Building a Longfin Smelt Life Cycle Model
Vanessa Tobias, U.S. Fish and Wildlife Service

BREAK (20 minutes)

10:05 – 10:25

SESSION 13 – SO MANY FISHES

Moderator and Speakers:

10:25 am – 11:55 am

Claudia Macfarlane, U.S. Fish and Wildlife Service

- 10:25 – 10:40 A Mark-Recovery Model for Delta Smelt
Will Smith, US Fish and Wildlife Service
- 10:40 – 10:55 Automated Fish Tracking and Enumeration in Dynamic Environments
Andrew Veary, Cramer Fish Sciences
Early Career Award candidate
- 10:55 – 11:10 Lampreys in California (*Lampetra* and *Entosphenus spp.*): Mitochondrial
Phylogenetic Analysis Reveals Previously Unrecognized Lamprey Diversity
Grace Auringer, UC Davis, Genomic Variation Laboratory
Early Career Award candidate
- 11:10 – 11:25 Management Implications of Otolith-Based Insights Regarding the Growth,
Phenology, Life History, Genetics, Fecundity, and Fitness of Delta Smelt
Levi S. Lewis, UC Davis
- 11:25 – 11:40 Environmental Drivers of Fish Populations in Central California
Jonathan Walter, UC Davis

11:40 – 11:55 Biofouling Impacts to Field Enclosure Studies on Delta Smelt
Scott Meyer, California Department of Water Resources (DISE)
Early Career Award candidate

LUNCH (105 minutes)

11:55 – 1:40 **Regular Lunch:** Area Restaurants – All attendees on their own

SESSION 14 – SALMONID HABITAT – Monitoring and Modeling

Moderator and Speakers: **1:40 pm – 2:55 pm**

Márcia Scavone-Tansey, California Department of Water Resources

- 1:40 – 1:55 Reorienting to Recovery: CA Central Valley Salmonid Recovery Project
Alison Collins, The Metropolitan Water District of Southern California
- 1:55 – 2:10 Estimating Abundance of Endangered Winter Run Chinook Salmon Entering
and Exiting the Delta
Bryan Matthias, US Fish and Wildlife Service
- 2:10 – 2:25 Improving Understanding of Survival, Mortality, and Habitat Use of Emigrating
Salmonids Through Applications of Multistage Survival Models
Matt Peterson, FISHBIO
- 2:25 – 2:40 Chinook Salmon and Delta Smelt Metabolic Indices: Determining their Viable
Habitats Across the San Francisco Estuary through Integrating Laboratory
Respirometry and Environmental Monitoring Data
Garfield T. Kwan, UC Davis, Wildlife Fish and Conservation Biology
Early Career Award candidate
- 2:40 – 2:55 Blinded by the Light: Could Reducing Artificial Nighttime Illumination Benefit
Native Fish?
Brendan Lehman, NOAA SWFSC and UC Santa Cruz

BREAK (20 minutes)

2:55 – 3:15

SESSION 15 – TROUBLED WATERS: STRESSORS AND AQUATIC ORGANISMS

Moderator and Speakers: **3:15 pm – 4:30 pm**

Shawn Acuña, The Metropolitan Water District of Southern California
Aaron Angel, Delta Science Program within the Delta Stewardship Council

- 3:15 – 3:30 Identification of Toxic Contaminants in California Sediments Using Nontargeted Analysis and *Hyalella Azteca* Toxicity Tests
Anna Feerick, U.C. Davis
Early Career Award candidate
- 3:30 – 3:45 Navigating Toxic Waters: Sub-lethal Concentrations of Bifenthrin Impact the Behavior of Chinook Salmon but not their Cardiac-Respiratory System
Louise Cominassi, UC Davis, School of Veterinary Medicine
Early Career Award candidate
- 3:45 – 4:00 Development of a Pesticide Response Spectrum Model for Chinook Salmon
Michael J. Lydy, Southern Illinois University, School of Biological Sciences
- 4:00 – 4:15 An Assessment of 6PPD-Quinone Acute and Sublethal Toxicity on San Francisco Bay Delta Species of Conservation Concern
Jackelyn Lang, UC Davis, Department of Anatomy, Physiology and Cell Biology; Department of Medicine and Epidemiology
Early Career Award candidate
- 4:15 – 4:30 Monitoring and Modeling Pathogen Exposure in Salmon Migrating to the Delta Miles Daniels, UC Santa Cruz and NOAA Affiliate

EARLY CAREER AWARDS & CLOSING REMARKS

Moderators:

4:30 pm – 5:00 pm

Ted Flynn, California Department of Water Resources

- 4:30 – 4:50 Conferral of Awards for Best Early Career Talk and Poster
Ted Flynn, California Department of Water Resources
- 4:50 – 5:00 Closing Remarks
Rosemary Hartman, California Department of Water Resources