

34th Annual Salmonid Restoration Conference

April 6-9, 2016 at the Fortuna River Lodge

Salmonid Restoration in Working Watersheds

Conference Co-sponsors

Balance Hydrologics, Inc., Bawell Health Water LLC, Bear River Band of the Rohnerville Rancheria, Bureau of Land Management, Cachuma Operation and Maintenance Board, California American Water, California Conservation Corps, California Department of Fish and Wildlife,

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Northern California Council of Federation of Fly Fishers, Northwest Hydraulic Consultants,
Pacific Coast Fish, Wildlife and Wetlands Restoration Association,

Pacific States Marine Fisheries Commission, Pacific Watershed Associates, Restoration Design Group, Rincon Consultants, Inc., San Lorenzo Water District, Sanctuary Forest, Solano County Water Agency, Stillwater Sciences,

The County of Santa Cruz Fish and Game Advisory Commission, The Nature Conservancy, The Wildlands Conservancy, West Coast Watershed











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34th Annual Salmonid Restoration Conference

Salmonid Restoration in Working Watersheds

In April 2016, Salmonid Restoration Federation will produce the 34th Annual Salmonid Restoration Conference in Fortuna, California. The theme of this year's conference is "Salmonid Restoration in Working Watersheds." The conference agenda will highlight pioneering habitat restoration techniques in the landscape of legacy impacts and climate change. The agenda will also explore life-cycle modeling, salmonid health, and innovative recovery strategies.

Workshops will include Instream Flow Enhancement and Groundwater Recharge Planning, Design and Engineering of Off-Channel Habitat and Large Wood Projects, Evolving Science and Policy to Restore Streams Using Instream Obstructions and Beaver Dam Analogues, and a workshop focused on tools for encouraging meaningful public input and participation.

Field tours will include a tour of Arcata's community-based urban/wildland restoration program; a tour of the Lower Mattole River and Estuary to see heliwood placement, riparian planting, and off-channel slough restoration; and a tour of upland restoration in the Headwaters Forest Preserve and tidewaters projects at Humboldt Bay National Wildlife Refuge. Additional tours include one of the Eel River delta and estuary, Lower Klamath and Redwood National Park projects, and fish passage and tidegates restoration in Humboldt Bay and the Mad River watershed.

Concurrent sessions include a biology track with sessions focused on life cycle-modeling, Eel River biology, salmonid health, and Spring-run Chinook salmon genetics. There will be a habitat restoration track that explores incised stream channels, off-channel ponds, floodplains, and beaver-influenced habitats. Additionally, a landscape track will feature sessions focused on climate change, Gold Country legacy impacts and restoration strategies, impacts of cannabis cultivation on fisheries, and a session on innovative approaches

The Plenary session will highlight the elements that comprise ecosystem function including a keynote address by Mike Furniss, entitled "Homage to the Interface: Coastal Deltas, Estuaries and Floodplains." Mary Power from UC Berkeley will present on "Drought, Floods, and Alternate States of Algal-based Food Webs in the Thirsty Eel." Merv George Jr, Forest Supervisor of Six Rivers National Forest, will make a presentation, "Ridges to River—Ecological Restoration," and Peter Moyle, from the Dept. of Wildlife, Fish and Conservation Biology and Center of Watershed Sciences at UC Davis, will present, "Climate Change, Drought, and the Future of California Salmonids."

Other conference events will include the SRF Annual Meeting and membership dinner on Thursday evening with a special screening of the film *A River Between Us*, a poster session and reception on Friday night, and a cabaret and banquet with a wild

Copper River salmon dinner, and live dance band on Saturday evening. For more information about the conference, please visit www.calsalmon.org

Some of the illustrious SRF Board and staff at our annual strategic planning retreat.



to Community-Based Water Conservation Proposal

Drastically depleted groundwater supplies, the lowest recorded Sierra snowpack in five centuries, widespread water diversions have led to critical statewide water shortages. Governor Brown has called for a 25% mandatory reduction in water usage throughout the state, and the California Water Bond addresses objectives of the California Water Action Plan (CWAP) including restoration of important species and habitat, sustainably managed water resources, and drought and climate change resilience. The South Fork Eel River was identified as a priority watershed under the CWAP because it is critical for the recovery of coho salmon and suffers from low summer flows and high water temperatures that can harm juvenile salmonid populations.

To improve water security for families and streamflows for salmon, Salmonid Restoration Federation (SRF) submitted a Proposition 1 implementation proposal for nearly one million gallons of water storage in Redwood Creek, the 26-square-mile watershed that borders the Mattole River and flows into the South Fork of the Eel River near Redway, CA. The proposal builds on three years of community outreach and low-flow monitoring that are part of a collaborative, multi-stakeholder effort called the Redwood Creek Water Conservation Project, which aims to build capacity for water conservation implementation projects in the region. The Redwood Creek Water Conservation Project is modeled after Sanctuary Forest's Mattole Headwaters Water Storage Forbearance Program, where participating landowners received 50,000 gallons of water storage in exchange for agreeing to forbear from diverting water during the dry summer months when flows are most critical for salmon.

In the past year, SRF staff worked closely with local stakeholders and restoration partners to ensure that the ongoing efforts of the Redwood Creek Water Conservation Project meet the needs of rural residents and salmonids in the region. We hosted a stakeholder meeting to address the pressing concerns of balancing the needs of fish and wildlife with human needs, water scarcity, fire protection, and regulatory obstacles including permitting, taxation, and water rights compliance.

Additionally, SRF partnered with CDFW, Trout Unlimited, Stillwater Sciences, Sanctuary Forest, and the North Coast Regional Quality Control Board to host a community water meeting that offered presentations about current water conservation efforts, navigating NCRWQCB's rights, the water Cannabis Cultivation Waste Discharge Regulatory Program, Water Bond restoration opportunities, and roundtable tributary discussions so that landowners and residents had an opportunity to discuss water stewardship strategies for their specific tributaries. These events were highlights of an ongoing education and outreach campaign that has included local radio interviews, hands-on water for landowners, assistance and displaying water conservation information and demonstration materials at local garden stores.

SRF continued the Redwood Creek low-flow monitoring program this past summer and documented longer periods of dry streams compared to previous years. Starting July 1, 2015, SRF's Monitoring Coordinator, Bill Eastwood, started recording a lack of flow in Redwood Creek and its tributaries. By August 1, flows monitored at 12 sites averaged less than one gallon per minute. When flows are at a critical low.

any amount of pumping can dewater the stream. Throughout the summer, Redwood Creek and its tributaries contained disconnected pools of slowly disappearing water where juvenile coho salmon were stranded.

SRF will be working with hydrologist Randy Klein to analyze this year's low-flow and water temperature data. We hope to better understand the flow levels required to maintain pool connectivity in order to provide juvenile salmonid refugia within this critical habitat area.

This low-flow monitoring is funded through a NCRWQCB Planning, Monitoring, and Assessment grant (319h Program), which has enabled us to conduct more comprehensive low-flow and temperature monitoring with manual weekly monitoring and continuous flow data from data loggers in order to better assess water conservation opportunities. This grant in conjunction with a feasibility study funded through the California Department of Wildlife's Drought Solicitation has increased our ability to build capacity for on-theground implementation projects that could enhance instream flows for fish and rural communities.



Monitoring coordinator Bill Eastwood, and hydrologist Randy Klein, measuring flows in a tributary of Redwood Creek. This summer, many creeks became disconnected, stranding juvenile coho salmon.

SRF 2016 Conference Registration

Name: P	_			
Address:				
E				
Affiliation:		Advanced Registration Closes March 5, 2016		
Workshops & Field Tours		Advanced Registration	Late Registration	Fee
Wednesday, April 6				
 Evolving Science and Policy to Restore Streams Using Instream Obstructions and Beaver Dam Analogue 	s Workshop	\$60	\$70	
Let's Get Connected—Tools for Getting Meaningful Publi and Participation Workshop	c Input	\$60	\$70	
3. Headwaters to Bay: Tour of Arcata's Community-Based Urban/Wildland Restoration Program		\$60	\$70	
4. Lower Mattole River and Estuary: Heliwood Placement, Riparian Planting, & Off-Channel Slough Restoration		\$60	\$70	
5. Salmon Creek Watershed: Headwaters Forest Reserve to Humboldt Bay National Wildlife Refuge Tour		\$60	\$70	
Thursday, April 7 6. Design and Engineering of Off-Channel Habitat and Large Wood Projects Workshop		\$60	\$70	
7. Instream Flow Enhancement and Groundwater Recharge Planning and Implementation Workshop		\$60	\$70	
8. Eel River Delta and Estuary Tour		\$60	\$70	
9. Lower Klamath and Strawberry Creek, Restoration Proje	cts Tour	\$60	\$70	
10. Fish Passage and Tidegates Restoration in Humboldt B and the Mad River Watershed Tour	ay	\$60	\$70	
Thursday Evening SRF Membership Dinner & Film Scree	enin g	\$20	\$25	
Conference				
Friday and Saturday, April 8 & 9				
SRF Member		\$140	\$170	
Non-member		\$190	\$220	
Student (with ID)		\$90	\$100	
Saturday Evening Banquet		\$45	\$55	
SRF Membership				
Membership: O \$35 Alevin O \$50 Fry O \$100 Smo	lt 🔾 \$250.	Jack 🔾 \$500	Spawner	
Method of Payment: O Check O Money Order O Purch Purchase Orders will only be accepted for 5 or more people register		trant will need to	Payment Tot fill out an individual	
O VISA O MasterCard Credit Card#				

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Workshops & Tours

Wednesday, April 6

Evolving Science and Policy to Restore Streams Using Instream Obstructions and Beaver Dam Analogues

Workshop Coordinator: Eli Asarian, Riverbend Sciences

Instream structures such as beaver dams, wood jams, living vegetation, and other obstacles that slow the downstream movement of water and sediment are essential to the restoration of streams. This workshop will provide a state-of-the-science overview of recent innovations in the construction of instream obstructions in California and their use in stream restoration, particularly for building "stage zero" fluvial ecosystems with well-connected floodplains, elevated water tables, spatially variable hydrologic regimes, and structurally complex aquatic and riparian habitat. Following the presentations there will be in-depth group discussions about how restorationists and permitting agencies can improve the process for permitting innovative and adaptive restoration projects in California.

Streams Evolve, and Habitat and Ecosystem Benefits Accrue, Brian Cluer, Ph.D., NOAA Fisheries

Using Ecologically Functional Dams and Other Instream Obstructions to Restore Complex Fluvial Ecosystems, Michael Pollock, Ph.D., NOAA Fisheries

Post-Assisted Woody Structures: Implementing California's First Beaver Dam Analogues, Betsy Stapleton, Scott River Watershed Council

A Demonstration of the Carbon Sequestration and Biodiversity Benefits of Beaver and Beaver Dam Analogue Restoration Techniques, Sarah Yarnell, University of California, Davis

Fish Passage at Natural and Constructed Channel-Spanning Obstructions: Preliminary Observations from Klamath Basin Tributaries, Rocco Fiori, Fiori Geosciences

Beaver Restoration in the Sierra Nevada: U.S. Fish and Wildlife Service Applications, Damion Ciotti, U.S. Fish and Wildlife Service

The Beaver Restoration Guidebook: Are Beavers Too Good to be True for Stream Restoration?, Gregory Lewallen, Portland State University

How to Streamline Permitting of Restoration Projects that Makes Streams Less Streamlined, Gordon Leppig, California Department of Fish and Wildlife

Regulatory Challenges to Restoring Complex Fluvial Ecosystems in California—The Federal Perspective, Michael Pollock, Ph.D., NOAA Fisheries

Panel Discussion on Improving the Restoration Permitting Process, All Presenters

Let's Get Connected—Tools for Getting Meaningful Public Input and Participation

Workshop Coordinators: Natalie Arroyo, Redwood Community Action Agency (RCAA) and Eureka City Council Member, and Anna Halligan, Trout Unlimited

This workshop will provide guidance about how to: reach the public with an emphasis on the hardest-to-reach audiences, improve your listening skills, demonstrate helpful facilitation techniques, and provide a venue to practice these skills. We will have the opportunity to interact and model effective public process as well as learn about different types of outreach efforts and approaches.

Morning Session: Defining the Issue and Developing Facilitation Skills

What's Up with People in our Watersheds? Defining the Issues that Reduce Public Participation in Recovery, Natalie Arroyo, Senior Planner, RCAA, and Anna Halligan, North Coast Coho Project Manager, Trout Unlimited

Compassionate Communication, Steph Wald, Watershed Projects Manager, Central Coast Salmon Enhancement

Sense Making: How to Use Graphics to Convey Ideas and Increase Understanding, Keytra Meyer, Strategy Manager, Humboldt Area Foundation

Facilitating Effective Communication, Miriam Volat,
Policy Program Manager, Occidental Arts & Ecology
Center



Afternoon Session: What Do These Connections Look Like in Our Work?

The Mattole Field Institute: An Incidentally Novel
Approach to Engaging the Public in a Rural
Watershed, Flora Brain, Mattole Restoration Council

Connecting Policy and People, Jennifer Savage, California Policy Director, Surfrider Foundation

How Service Programs Create a Legacy of Stewardship, Jennifer Catsos, Director, Watershed Stewards Program

Building Trust Within a Project Area Through Meaningful Public Engagement and Outreach, Sara Schremmer, Program Manager, Salmonid Restoration Federation

Involving Multiple Landowners in a Large-Scale Restoration Project, Doreen Hansen, Humboldt County Resource Conservation District

Rollout of the SONCC Coho Salmon Recovery Plan: the Vision and Lessons Learned, Julie Weeder, SONCC Coho Salmon Recovery Coordinator, NOAA Fisheries

Headwaters to Bay: Tour of Arcata's Community-Based Urban/Wildland Restoration Program

Tour Coordinators: Mark Andre and Julie Neander, City of Arcata, and Dan Gale, U.S. Fish & Wildlife Service

This field tour will begin in the forested uplands of Arcata and work downstream to the urbanized middle-reach stream segments and then down to the lower gradient coastal agriculture and salt marsh estuary zone. Restoration actions have included "daylighting" creek segments in downtown areas, upland community forest road decommissioning in the headwaters area, large-scale estuarine and salt marsh projects, installing fish-friendly tide gates to restore fish passage, reestablishing floodplains connected to altered watercourses, implementing Low Impact Design (LID) features into urban development, setting back or breaching levees, and establishing riparian cover.



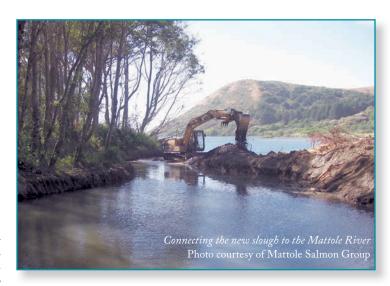
CCC crew removing non-native reed canary grass and planting riparian vegetation on lower Janes Creek in Arcata, CA.

Photo courtesy of City of Arcata

Lower Mattole River and Estuary: Heliwood Placement, Riparian Planting, & Off-Channel Slough Restoration

Tour Coordinators: Sungnome Madrone and Nathan Queener, Mattole Salmon Group; Dave Fuller, Bureau of Land Management; Conor Shea, Ph.D., USFWS; and Cassie Pinnel, Mattole Restoration Council

This tour of the Lower Mattole will feature heliwood placement sites and Engineered Log Jam structures as well as information about working with helicopters, lessons learned, costs, and other factors that help make this type of work feasible and well-integrated. We will see extensive riparian planting sites of varying ages, including deeptrenched willow baffles and whole-tree stream barbs. This tour will also highlight recent slough excavation that resulted in extensive salmonid use immediately after completion and participants will spend time at the slough observing wildlife and talking about fish use in the slough as compared to nearby riverine and estuary locations.



Salmon Creek Watershed: Headwaters Forest Reserve to Humboldt Bay National Wildlife Refuge

Field Tour Coordinators: Mitch Farro, Pacific Coast Fish, Wildlife and Wetlands Restoration Association; Chris Herbst, Pacific Watershed Associates; Sam Flanagan, Bureau of Land Management; and Eric Nelson, Humboldt Bay National Wildlife Refuge



Rehabitation in the Headwaters Forest Reserve.

Photo by Sam Flanagan

This field trip will visit projects located in the Salmon Creek watershed, the third-largest and now best-protected tributary to Humboldt Bay. Starting in the Headwaters Forest Reserve and continuing to the estuary of Salmon Creek on Humboldt Bay National Wildlife Refuge, participants will explore the issues involved in salmonid habitat project design, permitting, construction, and monitoring at an "entire watershed" level. An overview of both the watershed setting and the nearly completed scope of the restoration efforts that have taken place in the Salmon Creek watershed will be presented.

Thursday, April 7

Restoring Complexity: Design of Large Wood Structures and Off-Channel Habitats Workshop

Workshop Coordinators: Michael Love, P.E., Principal Engineer, Michael Love & Associates, Inc., and **Steve Allen**, P.E., Principal Engineer, GHD Inc.

This workshop focuses on developing and constructing projects that restore geomorphic diversity to our streams and rivers by using large wood structures (LWS) and connecting off-channel habitats while working within current-day constraints. Presenters will discuss means of identifying and characterizing site suitability for creating high-flow and thermal refugia, available tools and analyses to support design development, use of LWS to produce desired geomorphic responses, approaches to mitigate potential project risks, and engineering and construction techniques.



Geotechnical Characterization and Construction Techniques for Creating Off-Channel Habitats and Post-assisted Wood Structures, Rocco Fiori, Fiori GeoSciences

Constructed Wood Jams and Off-Channel Habitats on the Trinity River, CA, Aaron Martin, DJ Bandrowski, Kyle DeJuilio, and Andreas Krause, Yurok tribe

Installation of LWD from a Contractor's Perspective, Mark Cederborg, Hanford ARC

LWS Construction Considerations for Publically Bid and Contracted Restoration Projects, Steve Allen, GHD Integrating Off-Channel Estuary Slough Restoration in the Mattole, with Riparian Revegetation and Terrace Margin Treatment Sungnome Madrone and Drew Barber, Mattole Salmon Group

Jacoby Creek Off-Channel Habitat: Site Characterization,
Design, and Construction, Michael Love and
Antonio Llanos, Michael Love & Associates

Channel Surfing by Juvenile Salmonids: Fish and Water Quality Responses to Off-Channel Habitat Restoration Projects in the Stream-Estuary Ecotone of Humboldt Bay, Mike Wallace, California Department of Fish and Wildlife

Coho, Cows, and Collaboration: Creating Coho Rearing Habitat in an Anthropogenic Landscape, Charles Wickman, Mid Klamath Watershed Council

Coho Salmon Utilization of Constructed Off-Channel Habitats along Seiad Creek and other Middle Klamath Tributaries, Toz Soto, Karuk Tribe

The Effectiveness of Large Wood Enhancement in Lagunitas Creek over 15 Years, Eric Ettlinger, Marin Municipal Water District

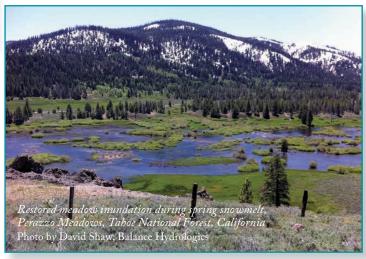
Design and Implementation of Fine Woody Material for Juvenile Salmonid Habitat, Brian Wardman, Northwest Hydraulic Consultants

Models for Cranberry Bog Stream and Wetland Restoration, Caitlin Alcott, Inter-Fluve, Inc.

Instream Flow Enhancement and Groundwater Recharge Planning and Implementation Workshop

Workshop Coordinators: Lisa Hulette, The Nature Conservancy, and Tasha McKee, Sanctuary Forest

This workshop will address streamflow and groundwater recharge science, including project implementation, resource management challenges, and new policy directions designed to provide salmon and steelhead the best chance for survival across their freshwater life cycle. Presenters will discuss strategies for increasing instream flow from statewide action plans to water conservation and transaction programs to restoration of ground and surface water hydrology. An interactive groundwater planning exercise will take participants through the steps of preliminary assessment and planning of groundwater recharge projects.



Instream Flow Enhancement and Groundwater Recharge Planning Workshop: Morning Session

California Water Action Plan: Enhance Water Flows in Stream Systems Statewide, Daniel Worth, State Water Resources Control Board

Policy Analysis and Implementation of the Sustainable Groundwater Management Act (SGMA), Pablo Garza, Associate Director, State Policy and External Affairs, The Nature Conservancy

Providing Flows for Salmonids in Drought Years and Beyond, Daniel Schultz, State Water Resources Control Board, Division of Water Rights, Public Trust Unit

South Fork Eel River Water Conservation Program — Sproul Creek Instream Flow Study, Darren Mierau, North Coast Director, California Trout

South Fork Eel River Water Conservation Program
—A Variable Diversion Rate Strategy for Coastal
Watershed Management, William Trush, Ph.D.,
Humboldt State University, River Institute

Effect of Water Transactions on Water Quality and Adult Fall-Run Chinook Salmon in the Shasta River, Ann Willis, Center for Watershed Sciences, University of California, Davis



Mount Shasta Headwaters Photo by Dean Rimmerman

Instream Flow Enhancement and Groundwater Recharge Planning Workshop: Afternoon Session

Aquatic Habitat Is More than Skin Deep—Linkages
Between Human Activities, Reduced Groundwater
Abundance, and Aquatic Ecosystem Health,
Brad Job, Civil Engineer, Pacific Watershed Associates

Reconnecting Hillslope Hydrology—Road Run-Off and Infiltration, Joel Monschke, Civil Engineer and Geomorphologist, Stillwater Sciences

Meadow and Floodplain Restoration and Active and Passive Groundwater Recharge, Eric Ginney, Environmental Science Associates (ESA)

Quantifying Groundwater Recharge and Storage Increases from Meadow Restoration in the Sierra Nevada, David Shaw, P.G., Balance Hydrologics, Inc.





Restoring an Incised Coastal Stream—Groundwater Recharge Outcomes, Tasha McKee, Sanctuary Forest, and Brad Job, Pacific Watershed Associates

Interactive Groundwater Planning Exercise, Joel Monschke, Stillwater Sciences, Tasha McKee, Sanctuary Forest, and Eric Ginney, Environmental Science Associates (ESA)

Permitting Groundwater Recharge Projects—Permit Pathways and Lessons Learned, Tasha McKee, Sanctuary Forest, and Joel Monschke, Stillwater Sciences

Flow Enhancement Workshop

By Lisa Hulette, The Nature Conservancy and Tasha McKee, Sanctuary Forest

Coho salmon in California are on the brink of extinction, and if current trends continue, Chinook salmon and steelhead trout are close behind. Dependent largely on the small forested tributaries of the Coast Ranges for spawning and the first year of their lives, salmon populations have been significantly reduced by the devastating effects of logging, agriculture, and urbanization. Populations of coho salmon in the state have fallen from more than 500,000 fish to fewer than 5,000 in less than a century.

Water scarcity issues now pose the single biggest threat to salmonid recovery. Drought, land-use impacts, and human water use are all contributing factors. With climate change and prediction of future droughts, we are urgently called upon to restore ground and surface water hydrology and develop conservation programs to reduce human-use impacts.

This workshop will explore several different approaches to groundwater recharge, presented in different settings such that participants will walk away with a broad understanding of techniques and their application. An interactive groundwater planning exercise will take participants through the steps of preliminary assessment and planning of groundwater recharge projects. Two contrasting project types will be used for the exercise and participant teams will be assisted in the preparation and sharing of a groundwater recharge project. Permitting for groundwater recharge projects will also be addressed including the new Water Quality Certification for Small Habitat Restoration Projects.

Voyage of the Argonauts: Returning Habitat, Economic Prosperity and Navigability to the Eel River Delta

Field Tour Coordinators: Michael Bowen, State Coastal Conservancy; **Jeremy Svehla**, GHD, Inc.; **Emily Afriat-Hyman**, Preserve Manager, Eel River Estuary Preserve, The Wildlands Conservancy; and **Doreen Hansen**, Humboldt County Resource Conservation District

SRF attendees will have an unusual opportunity to tour key restoration sites within the Eel River Delta, some of which are located on private land or are otherwise inaccessible for viewing. Points along the tour will include the 444-acre Riverside Ranch, the Port Kenyon reach of the Salt River channel, and much of the 1,200-acre Eel River Estuary Preserve, site of a proposed effort to restore historic Centerville Slough and its freshwater tributaries.





Field Tour Coordinators: Ross Taylor, Ross Taylor & Associates and **Leah Mahan,** NOAA Restoration Center

Tributaries to Humboldt Bay and the lower Mad River support spawning and rearing populations of coho salmon, Chinook salmon, steelhead, coastal cutthroat trout, Pacific lamprey and other native fish species. The tour will provide an overview



Coho digging a redd after the completed Morrison Gulch restoration project.

Photo by Ross Taylor

of a wide range of solutions to restore fish passage, including: replacement with streambed simulation, hydraulic design option / bridge, retrofitting of existing structures, muted tide gates, and engineered fishways.

Lower Klamath and Strawberry Creek Field Tour

Field Tour Coordinators: Rocco Fiori, Fiori GeoSciences, and Mitch Farro, Pacific Coast Fish, Wildlife and Wetlands Restoration Association

Participants will visit an example of an aggressive approach to controlling invasive, non-native grasses and restoring riparian function along Strawberry Creek, the only restorable tributary to the Redwood Creek estuary. Strawberry Creek is located within Redwood National Park and adjacent private property. The Lower Klamath portion of the tour will focus on restoring complexity and resiliency to instream and off-channel habitats to support self-maintaining salmonid populations. Case examples from four different hydro-geomorphic settings will be presented that illustrate design considerations and constraints and provide associated biological and physical monitoring results.



Constructed off-channel habitats in McGarvey Creek, Lower Klamath tributary Photo by Sarah Beesley



Conference Location

Fortuna River Lodge 1800 Riverwalk Dr, Fortuna, CA 95540

Conference Events

Wednesday and Thursday workshops and field tours are 9am to 5pm. Field tours depart promptly at 9am so please come to the facility early to pick up your registration packet and pack a lunch for the day. Vans are provided for field tours.

The Salmonid Restoration Federation (SRF) Annual Membership Meeting will be at 5:15pm on Thursday followed by a networking social, membership dinner, and film screening.

Meals

Registration on Wednesday, Thursday, Friday, and Saturday includes lunch. Evening meals during the conference are optional on the following dates:

Thursday, April 7: The SRF Annual Membership Meeting and Dinner begins at 5:15pm. Please purchase tickets in advance and they may be available at the door. Free beer is included at the membership dinner and film screening!

Friday, April 8: Appetizers will be available during the Conference Poster Session from 7-10pm. Wine and beer will be for sale.

Saturday, April 9: The Annual Conference Banquet and Cabaret is a conference highlight.

All meals will feature locally sourced and organic ingredients whenever possible.

Poster Session

The poster session is free to attend for all conference participants and is an excellent networking opportunity. For information about how to present at the poster session, please e-mail poster@calsalmon.org or visit the 2016 SRF Conference page at www.calsalmon.org and click on the Events tab.

Conference Host Hotels

Best Western Country Inn bwcountryinnfortuna.com

This hotel is located across the street from the conference venue at 2025 Riverwalk Drive, Fortuna, CA 95540. The Best Western is offering 30 Double Queens for \$90, and 10 Kings for \$90. This hotel includes a full hot breakfast, free wi-fi, and a heated pool. The group code is SRF. Please call the hotel directly at (707) 725-6822 in order to get the group rate which will expire March 5, 2016.

The Redwood Riverwalk Hotel

A five-minute walk from the conference venue, this hotel is located at 1859 Alamar Way, Fortuna, CA, CA 95540. The Redwood Riverwalk Hotel group block includes 12 Double Queens at \$90 and 10 King rooms for \$85. This hotel includes a full hot breakfast, free wi-fi, and a heated pool. The group code is SRF. Please call the hotel directly at (707) 725-5500 in order to get the group rate which will expire March 5, 2016.

The Comfort Inn is offering double and king rooms for \$85 that includes free parking, wi-fi, heated pool and jacuzzi, and full hot breakfast. Their rooms have recently been renovated. To book a reservation, please visit tinyurl.com/srf-comfort-inn to select the conference dates.

Banquet, Cabaret, and Dance!

The banquet includes a wild Copper River salmon dinner, local wine and beer, and an awards ceremony, a fun-filled Cabaret, and a lively band, Casey Neill and the Norway Rats.

The SRF banquet in Fortuna always sells out. Please purchase your tickets in advance to ensure a banquet ticket.



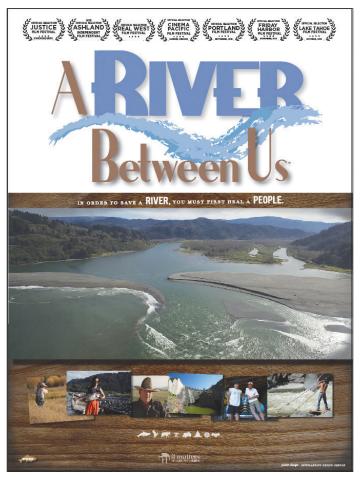
Casey Neill and the Norway Rats

"Be it through raucous rockers, fragile acoustic ballads, ragged country, passionate bursts of punk fury or soulful touches of Irish folk, Neill's narrative talent and concern for real people's struggles stand out."

- Splendid Magazine



A River Between Us Film Screening at SRF Membership Dinner



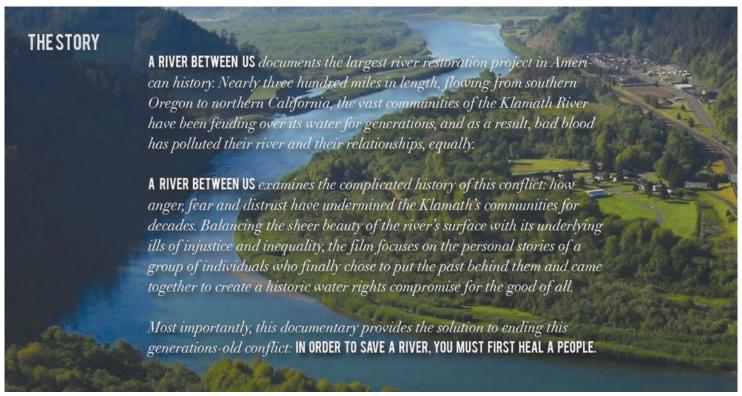
Klamath Settlement Crumbles

The Klamath Basin Restoration Agreement represented a herculean task of bringing together more than 40 stakeholders including tribes, conservation groups, and farmers in an effort to strike a broad compromise among divergent factions that had been at odds for decades about water management.

The accords promised a more secure future for Klamath Basin farmers by guaranteeing them a more reliable supply of water to irrigate their crops. The agreements also promised restored habitat for several species of threatened or endangered fish, and they granted water to wildlife refuges plagued by drought. The settlements hinged on removal of the four privately owned dams—three in California and one in Oregon—that were long seen by tribes, environmental groups and fishing associations as harmful to migratory fish.

But dam removal was the major sticking point for opponents in the north state and Republicans in Washington, D.C. Western Republicans in both the House and Senate for five years have blocked efforts to advance legislation that included dam removal. Due to lack of Congressional action, the primary agreement expired on January 1, 2016. The future is unclear but the Basin's epic regulatory, legal, and political struggles appear set to resume.

Read more here: http://tinyurl.com/srf-klamath-basin



2016 Conference Agenda Packet Page 11

Conference Sessions

Plenary Session

Master of Ceremonies: Thomas Williams, NOAA Fisheries, Southwest Fisheries Science Center

Homage to the Interface: Coastal Deltas, Estuaries, & Floodplains, Michael Furniss, MJ Furniss & Associates

Drought, Floods, and Alternate States of Algal-Based Food Webs in the Thirsty Eel, Mary Power, UC Berkeley

Ridges to River—Ecological Restoration, Merv George, Jr., Six Rivers National Forest, U.S. Forest Service

Climate Change, Drought, and the Future of California Salmonids, Peter B. Moyle, Center for Watershed Sciences and Department of Wildlife, Fish and Conservation Biology, UC Davis

Gravel, Gold, and Fish: Reclaiming California's Gold Fields, Rocko Brown, Ph.D., Environmental Science Associates

Restoration Progress and Opportunities for the Yuba River Goldfields, Gary Reedy, South Yuba River Citizens League

Gold Mining, Extreme Floods, and Geomorphic Context of the Trinity River, CA, Andreas Krause, Yurok Tribe

Riparian Area Rehabilitation after Gold Mining, John Bair, McBain Associates

Quantifying Legacy Impacts on Summer Stream Temperatures and Potential Riparian Reforestation Strategies, Rosealea Bond, Department of Forestry and Wildland Resources, Humboldt State University

Friday Afternoon Sessions

Life-Cycle Modeling to Inform Conservation, Restoration, and Recovery Planning

Session Coordinators: Thomas Williams, NOAA Fisheries, Southwest Fisheries Science Center, and Brian Cluer, Ph.D., NOAA Fisheries, West Coast Region

The Right Side Channel, at the Right Time: Using Life-Cycle Analysis and Interdisciplinary Design to Build Resilient Side-Channels on the Clackamas River, John Esler, Portland General Electric

Coho Life-History Modeling in Coastal Northern California, Gabe Scheer, Humboldt State University

Illuminating Population Consequences of Disparate Survival and Behavior between Hatchery and Wild-Origin Chinook Salmon: the Role of Salmon Life-Cycle Models, Michael Beakes, Ph.D., NOAA Fisheries, Southwest Fisheries Science Center

When are Population Models Like Blimps? How to Avoid Fatal Flaws by Proper Model Selection, Frank Ligon, Stillwater Sciences

The Black Box for Salmon Survival: Changing Perspectives on Marine Survival and Implications for Life-Cycle Models, Cyril Michel, Ph.D., UCSC and NOAA Fisheries, Southwest Fisheries Science Center

Incorporating Life-History Diversity into Estimates of Skagit River Chinook Salmon Production, Corey Phillis, Ph.D., NOAA Fisheries contractor, Ocean Associates, Inc.

Gold Country—Legacy Impacts and Restoration Strategies

Session Coordinator: Jay Stallman, Stillwater Sciences

Assessing Legacy Impacts of Hydraulic Mining in the Sierra Nevada—a 20-Year Perspective, Jennifer Curtis, U.S. Geological Survey, California Water Science Center



Historic gold mining continues to impact California's fisheries.

Innovative Approaches to Understanding and Improving Salmon-Habitat Relationships

Session Coordinator: Cynthia Le Doux-Bloom, Ph.D., AECOM

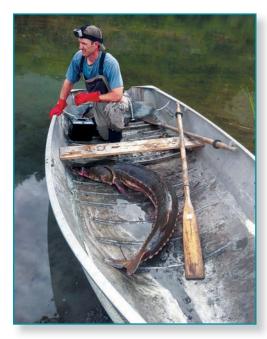
The Progress and Promise of the Timber Regulation & Forest Restoration Program to Implement Planning Watershed Pilot Projects, Richard Gienger, Sierra Club and Forests Forever, and Russ Henly, Ph.D., California Natural Resources Agency

Life on the Edge: Recovering Southern California Steelhead, Mark Capelli, South-Central/Southern California Steelhead Recovery Coordinator, National Marine Fisheries Service, West Coast Region

P.A.C.T.—A Trans-Agency, Trans-Discipline Program to Prevent Coho Salmon Extirpation in the Central California Coast, Stephen Swales, Ph.D., California Department of Fish and Wildlife The Effects of Early Sandbar Formation on the Ecology and Population Dynamics of Steelhead and Coho Salmon in the Scott Creek Lagoon, Ann Osterback, Ph.D., Southwest Fisheries Science Center, NOAA Fisheries

Effects of Staggered Release Timing of Hatchery Coho Salmon Smolts on Subsequent Adult Returns to Scott Creek, California: Spreading Risk to Cope with Variable Ocean Conditions, Brian Spence, Ph.D., NOAA Fisheries, Southwest Fisheries Science Center, Fisheries Ecology Division

Assessing the Impact of Brown Trout on the Trinity River, CA, Justin Alvarez, Hoopa Valley Tribal Fisheries



Captured green sturgeon immediately after removal from the net, enroute to tagging and release at undisclosed location on the Eel River.

Photo Wiyot Tribe

Eel River Biology: Salmonids, Sturgeon, Lamprey, and Multi-Species Planning

Session Coordinator: Pat Higgins, Eel River Recovery Project

The Distribution of Anadromy Versus Residency in Oncorhynchus mykiss in the Eel River, Bret Harvey, USDA Forest Service, Redwood Sciences Lab

Life History, Distribution, and Ecology of Pacific Lamprey in the Eel River, Abel Brumo, Stillwater Sciences

Green Sturgeon of the Eel River, Eddie Koch, Wiyot Tribe

Gauging Eel River Fall Chinook Abundance Through Citizen-Assisted Monitoring, Pat Higgins, Eel River Recovery Project

The Influence of Natural Barriers on the Distribution of Steelhead and Rainbow Trout in Tributaries of the South Fork Eel River, Suzanne Kelson, UC Berkeley

Wild Fish of Southern Humboldt and Mendocino—What the Coastal Monitoring Program Partnership has Learned from Five Years of South Fork Eel River Coho Spawning Abundance Surveys, Brian Starks, Pacific States Marine Fisheries Commission and Allan Renger, CDFW



2002 Klamath Fish Kill attributed to Ich. Photo by Mike Belchik

Saturday Morning Sessions

Salmonid Health: Effects of Parasites and Pathogens

Session Chair: Cynthia Le Doux-Bloom, Ph.D., AECOM

Presence and Prevalence of Parasites and Pathogens in Pacific NW Salmonids, Cynthia Le Doux-Bloom, Ph.D., AECOM

An Outbreak of *Ichthyophthirius multifiliis* in the Klamath and Trinity Rivers in 2014 with Updated 2015 Results, Michael Belchik, Yurok Tribal Fisheries Program

Ceratonova shasta: Timing of Myxospore Release from Juvenile Chinook Salmon (Oncorhynchus tshawytscha), Scott Benson, Humboldt State University

Ceratonova shasta Disease Impacts on Juvenile Chinook Salmon in the Klamath River Basin: Perspectives from a 10-Year Fish Health Monitoring Program, Kimberly True, U.S. Fish and Wildlife Service

A Conceptual Plan to Remedy Major Fish Pathogens in the Klamath-Trinity Basin, Joshua Strange, Ph.D., Stillwater Sciences

Panel Discussion—Linking Salmonid Health and Restoration Planning



Columnaris causing gill necrosis in Chinook (left) Photo by R. Holt Tumors on lips of Chinook Photo by C. Banner

Shelter in the Slow Lane: Off-Channel Ponds, Floodplains, and Beaver-Influenced Habitats

Session Coordinator: Eli Asarian, Riverbend Sciences

- Fast Life In The Slow Lane—Or How Flooding Facilitates the Floodplain Fatty Feeding Frenzy, Jacob Katz, Ph.D., California Trout
- Slowing Down Fast Traffic: Adapting a Levee System Built for Speed to Provide a Bit of Comfort (and a Fatty Feeding Frenzy), Eric Ginney, Environmental Science Associates (ESA)
- Creating Off-Channel Coho Rearing Habitat in the Middle Klamath River Sub-Basin: A Status Review of Constructed Projects (2010-2015), Will Harling, Mid Klamath Watershed Council
- The Influence of Habitat Characteristics on Juvenile Coho Salmon Abundance and Growth in Constructed Off-Channel Habitats in the Middle Klamath River Subbasin, Michelle Krall, Humboldt State University
- Physical and Biological Monitoring of Beaver Dam Analogues in the Scott River Watershed, Erich Yokel, Scott River Watershed Council
- The Role Beavers Have in Creating Salmonid Rearing Habitats in Coastal California Streams Lacking Perennial Beaver Dams, Marisa Parish, Humboldt State University and Smith River Alliance, and Justin Garwood, California Department of Fish and Wildlife



California's extended drought wreaked havoc for Eel River flows which reached historic lows. Photo by Pat Higgins

Climate Change: Effective Restoration for a Warming World

Session Coordinator: Joshua Strange, Ph.D., Stillwater Sciences

- When It Rains It Pours, But Not Very Often; Implications for Climate Change Considerations for Southern California Steelhead Restoration, Stacie Fejtek Smith, NOAA Restoration Center
- Spatial and Temporal Variability in Baseflow Magnitude and Dry Stream Channels in the Mattole River Headwaters: Implications for Salmonids and Restoration, Nathan Queener, Mattole Salmon Group
- Availability of Thermal Stratification and Refugia in the Middle San Joaquin River System, Nathaniel Butler, Ph.D., University of California, Berkeley

- Use of GIS Technology to Prioritize the Restoration and Protection of Anchor Habitat Riparian Areas in the Rogue River Basin, Eugene Wier, The Freshwater Trust
- Thinking Like Planet Water for Rehydrative Resilience in a Time of Global Weirding, Brock Dolman, Occidental Arts and Ecology Center WATER Institute
- Survive, Thrive, or Die? Adapting California's Water Infrastructure to Help Salmon in the Face of Extreme Climate Change, Joshua Strange, Ph.D., Stillwater Sciences

Saturday Afternoon Sessions

Incised Stream Channels: Causes and Environmental Impacts, and Practical Restoration Solutions

Session Coordinators: Thomas Leroy, Engineering Geologist, Pacific Watershed Associates and John Green, Gold Ridge RCD

- Stream Channel Incision and Coho Salmon Restoration in Coastal California, John Green, Project Manager, Gold Ridge Resource Conservation District
- A Stream Evolution Model for Incised Stream Channels, Brian Cluer, Ph.D., NOAA Fisheries-West Coast Region
- The Evolution and Restoration of Incised, Lower-Order Stream Channels in Managed, Fish-Bearing Mountain Streams of North Coastal California, Thomas Leroy, Pacific Watershed Associates
- Morphologic Effects of Anthropocene Sediment Pulses on the South Fork Eel River of Northwestern California, Tim Bailey, Humboldt State University
- Using Biogenic Structures to Restore Complexity to Incised Streams, Michael Pollock, Ph.D., NOAA Fisheries-Northwest Fisheries Science Center
- Addressing Channel Incision in the Mattole River Headwaters—It Takes a Valley, Sam Flanagan, Bureau of Land Management

Upper Klamath-Trinity River Spring-Run Chinook: Biology, Genetics and Recovery

Session Coordinator: Tom Hotaling, Salmon River Restoration Council

- Spring-Run Salmon Recovery in the Klamath-Trinity Basin, Joshua Strange, Ph.D., Stillwater Sciences
- Pacific Salmon Run Timing Reveals Critical Flaws in Current Methods for Conservation Unit Delineation, Michael Miller, Ph.D., University of California, Davis

Ishyâat, Spring Salmon, Josh Saxon, Karuk Tribal Council

Spring Chinook of the South Fork Trinity River, Joshua Smith, Watershed Research and Training Center

- Restoration of Wild Spring-Run Chinook on the South Fork Trinity River—A Call for Action, DJ Bandrowski, Yurok Tribe
- Monitoring and Restoration Efforts for Salmon River Spring-Run Chinook and Their Relevance to the Planned Reintroduction of Salmonids in the Upper Klamath Basin After Dam Removal, Nathaniel Pennington, Salmon River Restoration Council



Spring-run Chinook in the Salmon River Photo by Michael Bravo

The Impacts of Cannabis Cultivation on Fisheries Recovery

Session Coordinator: Dougald Scott, Ph.D., Salmonid Restoration Federation Board of Directors

Impacts of Surface-Water Diversions for Marijuana Cultivation on Aquatic Habitat in Four Northwestern California Watersheds, Scott Bauer,

California Department of Fish and Wildlife

Cannabis and Coho, Hezekiah Allen, Executive Director, California Growers Association

Long-Term Streamflow Trends in the Eel River Basin, Eli Asarian, Riverbend Sciences

Regulating the Watershed Impacts of Pot: Assessing the Utility of New Regulatory Regimes for Commercial Marijuana Production on the North Coast of California, Scott Greacen, Friends of the Eel River

Water Resource Protection Requirements for Cannabis Cultivators Informed by Decades of Watershed Restoration, Adona White, North Coast Regional Water Quality Control Board

Where Has the Water Gone? Is it the Trees or the Weed?, John G. Williams, Ph.D.

Regulating the Watershed Impacts of Marijuana Cultivation

by Scott Greacen, Friends of the Eel River

Watershed impacts associated with widespread, large-scale, and rapidly increasing commercial marijuana cultivation on the North Coast have become a key focus for salmonid recovery. Critical impacts include loss of streamflows to dry-season diversions and increased pollution in watersheds already impaired by high sediment levels and temperatures.

Uncontrolled impacts from the hugely profitable but unregulated marijuana industry have compounded the severe impacts of the hottest, driest drought in California history. Entire year-classes of coho salmon have been lost in tributaries of the South Fork Eel River critical to species recovery across the Eel River basin and the larger region, rendering recovery of the Southern Oregon – Northern California Coho (SONCC) Evolutionarily Significant Unit (ESU) increasingly unlikely.

The stage is set for a dramatic change in how California's state and local governments and their respective agencies relate to marijuana producers. Anticipating a 2016 ballot initiative to legalize adult use of marijuana, the

California legislature passed a package of laws in 2015 regulating the ostensibly 'medical' commercial marijuana industry and providing a framework for local rules. Congress, federal courts, and the Department of Justice have all stepped back from interventions

that short-circuited previous attempts to regulate marijuana production. North Coast counties are hurrying to write local rules to meet a March 2016 deadline under state law.

The legal regime likely to come into effect over the course of 2016 and 2017 will thus add several layers to existing laws, including those governing water diversions, water rights, and site grading, which have previously applied to commercial marijuana operations in theory but have proven difficult to enforce in an outlaw industry. The new rules include requirements promulgated by the North Coast Regional Water Quality Control Board to control sediment discharges by permitted operations.

The specific requirements of such regulations will be important. However, the chronic lack of institutional resources and absence of political will necessary



Unregulated marijuana cultivation is rampant on forest lands in California.

to effectively enforce any rules, much less an effective, comprehensive system that will rein in thousands of outlaws, remains the Achilles' heel of California marijuana policy.

In the absence of effective enforcement, new rules will only control, at best, the actions of growers who choose to sign up with underfunded regulatory agencies. Because the rest of the US is unlikely to legalize and regulate marijuana in the near future, California's North Coast is likely to remain the locus of a substantial black-market export industry in the near future. Never has "just legalize it" seemed so comprehensively naïve an approach to eliminating the entirely unecessary burden that marijuana production has placed on the backs of North Coast salmon.

2016 Conference Agenda Packet

Salmonid Restoration Federation PO Box 784

Redway, California 95560



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For more information or to register, visit www.calsalmon.org

SRF News

Water Conservation Community Workshop

January 30, 2016, Briceland, CA

Salmonid Restoration Federation and Sanctuary Forest will host a workshop to highlight water conservation opportunities for rural landowners and tributary groups. This workshop will feature water storage options, forbearance programs, permaculture concepts, landowner incentives, and water rights.

8th Annual Spring-Run Chinook Symposium

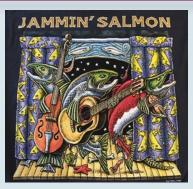
July, 2016, Chico, CA

The 8th Annual Spring-Run Chinook symposium will highlight recent restoration efforts in Butte and Battle Creek,



regional status reports on Spring-run populations, genetics, FERC relicensing, climate variability, and population trend monitoring. Field tours will include visits to the legendary spawning grounds in Butte Creek and projects in critical creeks including Mill, Deer, and Antelope Creek that have been prioritized for instream flow enhancement and fish passage projects.





Check out Salmonid Restoration Federation's merchandise page that features Ray Troll's new bestseller "Return of the Sockeye," classic tees like "Spawn Till you Die" and "Jammin Salmon" in organic cotton. Purchasing merchandise through SRF is a great way to support the organization and look fabulous.

http://salmonid-restoration-federation.myshopify.com

19th Annual Coho Confab

August 26-28, Mendocino

SRF, in cooperation with the Trout Unlimited, Mendocino RCD, The Nature Conservancy, and other non-profits and fisheries agencies will explore coho recovery strategies and techniques. The Confab will feature tours of large-

wood placement, water conservation efforts, streambank stabilization, and fish passage projects. This Confab will visit exemplary restoration sites in the Mendocino and Navarro watersheds.

