

38th Annual Salmonid Restoration Conference

March 31 – April 3, 2020 Santa Cruz, CA

2020 Vision for California's Salmonscape



Conference Co-Sponsors

Balance Hydrologics, Inc., Bear River Band of the Rohnerville Rancheria, Cachuma Operation and Maintenance Board, California American Water, California Conservation Corps, California Department of Fish and Wildlife, California Department of Water Resources, California State Coastal Conservancy, CalTrans, California Trout - North Coast, Cardno, cbec, inc., City of Santa Cruz-Water Branch, County of Santa Cruz, East Bay Municipal Utility District, Environmental Science Associates, Eureka Water Probes, FISHBIO, GHD, Green Diamond Resource Company - CA Timberlands Division, Guadalupe-Coyote Resource Conservation District, HDR, ICF International, KSN, Inc., Lyme Redwood Forest Company, LLC, Marin Municipal Water District, McBain & Associates, Mendocino County Resource Conservation District, Michael Love and Associates, Midpeninsula Regional Open Space District, Monterey Peninsula Water Management District, NOAA Fisheries, Northern California Council – Fly Fishers International, Northern California Water Association, Pacific States Marine Fisheries Commission, Pacific Watershed Associates, Prunuske Chatham, Inc., Redwood Forest Foundation, Inc. and Usal Redwood Forest Company, Restoration Design Group, Rincon Consultants, Inc., Samara Restoration, San Lorenzo Valley Water District, San Mateo Resource Conservation District, Solano County Water Agency, Sonoma County Agricultural Preservation and Open Space District, Sonoma Water, Stillwater Sciences, The Nature Conservancy, Trinity River Restoration Program, Trout Unlimited, Valley Water, Westervelt Ecological Services, Wildlife Conservation Board, William Rich and Associates, WRA, Inc.



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Design & Layout by
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Anadromous salmon and steelhead journey through the California Salmonscape from the forested mountains to the flowing rivers, through meandering or channelized floodplains to the coastal lagoons and estuaries to the Pacific Ocean. For many, there is the California Salmonscape of our imagination (the beautified version of what functioning ecosystems would look like) and the reality of our paved, channeled, diked, and disrupted systems that once teemed with salmon.

Protecting, conserving, and restoring California wild salmon and steelhead populations will require laser focus on restoration strategies that show a strong fish response. If our best thinking got us to this precipice of salmonid recovery, our way forward will need clarity and acuity beyond what we have practiced in the last decade.

The salmon restoration field intersects with many disciplines including science, engineering, communities, infrastructure, planning, food production, and land use practices. These intersections animate the lively debate and discussions about the most appropriate strategies and techniques to achieve restoration milestones. Nowhere is this more evident than the SRF Conference, where practitioners from many fields converge to address the very issues that are germane to salmonid recovery.

Many of us try to think like a salmon to understand their impulses, foraging and migratory behavior, and the extent of their adaptability. Looking forward in 2020 and beyond, SRF wishes the restoration community the determination, prowess, and adaptability that grace our totem salmon.

SRF's contributing members are the backbone of our organization. Please consider joining SRF or renewing your commitment today!



**NATIONAL MARINE
SANCTUARIES**
MONTEREY BAY

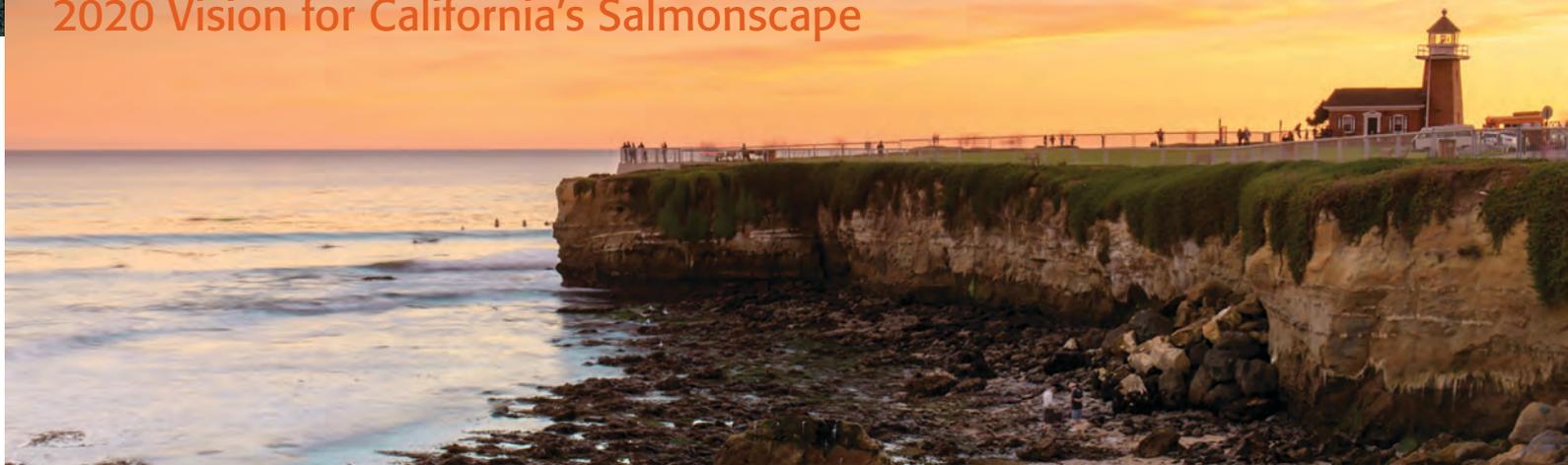


The "California Salmonscape" poster was illustrated by the legendary artist Ray Troll, and sponsored by National Marine Sanctuary Foundation. "The California Salmonscape ranges from the Klamath River in the north to the Tijuana River in the south...Migrating from their home streams to the ocean and back again, they mature from egg to adult, sharing the landscape with human activities across the most populous state in the nation." This is our California, this is the era in which we live, this is the species we look to for guidance and inspiration.

Salmonid Restoration Federation

38th Annual Salmonid Restoration Conference

2020 Vision for California's Salmonscape



Salmonid Restoration Federation (SRF) is excited to host the 38th Annual Salmonid Restoration Conference in Santa Cruz, CA, home to some of the southernmost populations of wild salmonids left in California. The theme of this year's conference is focusing on the California salmonscape and anadromous species from the forested mountains to the sea. The conference will highlight ocean conditions, food webs, fish passage, dam removal, reintroduction strategies, and the toolbox of restoration techniques to enhance recovery efforts.

This year participants will have the opportunity to visit fisheries recovery projects in the Butano and Pescadero Watershed, as well as tour the Los Padres fish passage projects and the San Clemente dam removal site. There will be a restoration tour of Scotts Creek, which is the only watershed south of the Golden Gate Bridge that continues to support all three cohorts of Central California Coast Coho. Additionally, participants can learn how to combat human-induced sedimentation with a tour of mitigation measures that address the effects of mountain bikes and logging in the San Gregorio watershed.

Conference technical workshops will include assessing ecological risks from streamflow diversions and low tech process-based restoration with beaver and wood. Additionally, a two-day workshop and field tour will explore fish passage design for road crossings.

The conference agenda will explore a range of issues including anadromous salmonid habitat suitability criteria, community involvement to address common urban stream management issues, challenges and innovations in salmonid lifecycle monitoring in coastal streams and salmon seascape ecology. Concurrent sessions will also focus on sediment management and restoration, salmonid reintroductions, and dam removals small and large.

The SRF Plenary session will feature legendary artist Ray Troll who will co-present with Sarah Mesnick about art, science, and illustrating the California Salmonscape. Chuck Bonham, Director of California Department of Fish and Wildlife, will give a presentation about *Sharpening our Vision for California's Salmon Restoration Approaches*. Margaret Spring, Chief Conservation and Science Officer at the Monterey Bay Aquarium,

will discuss sustainable seafood, ocean conditions, and how science can inform policy. Rene Henery, California Science Director of Trout Unlimited will present on how preserving salmon diversity requires a diverse set of approaches that foster social and scientific interactions in a talk called *Of Salmon and People: Tending to Nature, Tending Ourselves*.

Other conference events will include the SRF membership social that will be hosted at NOAA Fisheries Monterey Bay National Marine Sanctuary's Exploration Center in conjunction with Ray Troll's launch of the California Salmonscape project, the annual poster session and reception on Thursday night, and a cabaret and banquet with a wild salmon dinner and live dance band on Saturday evening.

For more information about the conference, including registration, please visit www.calsalmon.org.



The Cocoanut Grove (the main conference facility) is right on the Santa Cruz boardwalk.

SRF 2020 Conference Registration

38th Annual Salmonid Restoration Conference, March 31 – April 3, 2020

Name: _____ Phone (work): _____

Address: _____ (cell): _____

_____ Email: _____

Affiliation: _____

Advanced Registration Closes February 21, 2020

Workshops and Field Tours

Tuesday, March 31

	Advanced Registration	Late Registration	Fee
1. Fish Passage Design for Road Crossings Workshop and Field Tour <i>Please note this is a 2-day workshop and field tour. Workshop limited to 35.</i>	\$160	\$180	_____
2. Assessing Ecological Risks from Streamflow Diversions by Applying Riffle Crest Thalweg Rating Curves Workshop	\$80	\$90	_____
3. Restoring Processes—San Clemente Dam Removal and Floodplain Restoration, Carmel River	\$80	\$90	Sold Out
4. Los Padres Dam Removal and Fish Passage Tour	\$80	\$90	_____
5. It Takes A Watershed: Fisheries Recovery in the Butano and Pescadero Watershed Field Tour	\$80	\$90	_____

Wednesday, April 1

6. Low-tech Process-based Restoration with Beaver and Wood: Jump-starting Structurally Starved Streams Workshop	\$80	\$90	_____
7. Accelerating Coho and Steelhead Recovery Workshop	\$80	\$90	_____
8. Managing Mountain Bikes, Sediment, and Legacy Logging to Improve Salmonid Habitat in San Gregorio Watershed Field Tour	\$80	\$90	_____
9. Salmonid Recovery in the San Lorenzo River Watershed: Water, Wood and Working with Neighbors	\$80	\$90	_____
10. Scotts Creek Tour: A Three-pronged Approach to Coho Recovery	\$80	\$90	_____

SRF Membership Soiree

\$20 \$25 _____

Conference

Thursday and Friday, April 2 & 3

SRF Member	\$250	\$300	_____
Non-member	\$300	\$350	_____
Student (with ID)	\$100	\$110	_____
Friday Evening Banquet	\$60	\$70	_____

SRF Membership

\$35 Alevin \$50 Fry \$100 Smolt \$250 Jack \$500 Spawner Membership: _____

Method of Payment: Check Money Order Purchase Order Credit Card **Payment Total:** _____

Purchase Orders will only be accepted for 5 or more people. Each registrant is required to fill out an individual registration form.

VISA MasterCard Credit Card# _____ Exp. Date _____

Mail form and payment to: SRF Conference, 425 Snug Alley, Unit D, Eureka, California 95501 • Make checks payable to SRF.

Phone: (707) 923-7501 • Fax: (707) 923-3135 • info@calsalmon.org

Please Note: We do not give refunds • Receipts are emailed, so print legibly • This form is available at www.calsalmon.org

Workshops & Tours

Tuesday, March 31

Fish Passage Design for Road Crossings Workshop and Field Tour (2 Days)

Workshop Coordinators: Michael Love P.E., Michael Love & Associates, Inc., Ross Taylor, Ross Taylor and Associates

Tour Coordinators: Steve Wiesner, County of Santa Cruz Public Works, and Gary Kittleson, Kittleson Environmental

This two-day workshop will focus on fish passage design approaches and techniques for road-stream crossings and other low-head barriers. The course will be structured around Part XII—Fish Passage Design and Implementation—of the CDFW California Salmonid Stream Habitat Restoration Manual. The workshop is intended for participants with a variety of backgrounds, including engineers, biologists, geologists, planners, and project managers. Covered topics include:

- Biological imperative of providing passage
- Assessing geomorphic risk for a fish passage project
- Pre-design and selection of project approach
- Stream simulation design and reference reach characterization
- Roughened channel design
- Use of boulder and log weirs
- Retrofits and technical fishways



The fish passage workshop will culminate with a field tour of local road crossings
By Kristen Kittleson

Exploring the Riffle Crest Thalweg (RCT) as a Tool for Assessing the Ecological Performance of Streamflow Diversions

Workshop Coordinators: Bill Trush, Co-Director HSU River Institute and Department of Environmental Science and Management; Valerie Zimmer, State Water Resources Control Board; and Katrina Nystrom, HSU Graduate Student, Department of Environmental Science and Management



SRF's flow monitor, Katrina Nystrom, measuring low flows and dissolved oxygen in Redwood Creek, SF Eel. By Alexandra Hootnick

By restricting streamflow (Q) diversions to a relatively small percentage change in ambient riffle crest thalweg depth (RCT) in unregulated streams, key ecological processes will be protected. This workshop (1) introduces basic RCT concepts, (2) reviews recent RCT research/monitoring, (3) connects stream hydraulics to stream ecosystem processes for evaluating ecological performance, and (4) prioritizes ample opportunity for discussion, hands-on data analysis, and practical applications.

Restoring Processes—San Clemente Dam Removal and Floodplain Restoration, Carmel River

Field Tour Coordinator: Tommy Williams, PhD, NOAA Fisheries, Southwest Fisheries Science Center

Tour Leaders: Brian Cluer, NMFS West Coast Region California Coastal Office; Amy East, USGS Pacific Coastal Marine Science Center; Christy Fischer, Santa Lucia Conservancy; Tim Frahm, Trout Unlimited; and Rafael Payan, Monterey Peninsula Regional Park District

The focus of this field tour is on stream processes in the context of large-scale restoration—dam removal and floodplain restoration with in-the-field examples from areas downstream of the former San Clemente Dam and reconnection of floodplain at the site of a former golf course.

The removal of San Clemente Dam on the Carmel River in 2015 was the third-tallest dam removed intentionally thus far globally. The morning will be spent with researchers from NMFS and USGS discussing stream channel response and sediment movement following dam removal and high flow events.



Aerial of post-San Clemente dam removal. By Brian Cluer.

Los Padres Dam Removal and Fish Passage Tour

Field Tour Leaders: Brian LeNeve, Carmel River Steelhead Association; Haley Ohms, PhD, University of California Santa Cruz & NOAA Southwest Fisheries Science Center; and Beverly Chaney, Associate Fisheries Biologist, Monterey Peninsula Water Management District, Cal Am Dam Keeper

The Los Padres Dam tour will focus on how to improve fish passage over and back down from an existing dam, along with habitat improvements below an existing dam and learning how steelhead use a dam. With co-presenters from NMFS, Monterey Peninsula Water Management District, California American Water, and the Carmel River Steelhead Association you will learn about 40 years of work to benefit steelhead.

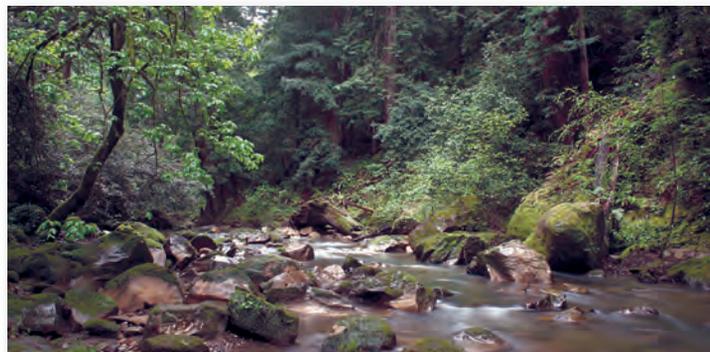
It Takes A Watershed: Fisheries Recovery in the Butano/Pescadero Watershed

Field Tour Leaders: Jim Robins, Alnus Ecological; Joe Issel, San Mateo RCD; Tim Hyland, CA State Parks; Joe Pecharich, NOAA Fisheries, Restoration Center; Jon Jankovitz, CDFW; John Klochak, USFWS; Chris Hammersmark and Sam Diaz, cbec, Inc.



Looking upstream to the end of the spillway of Los Padres Dam and seeing nearly complete downstream fish passage, start of ladder and trap, remains of gravel injection and extension of spillway. By Brian LeNeve

Pescadero Creek Watershed is a critical independent watershed for CCC Coho, is home to myriad special status species, and contains the Pescadero Marsh Natural Reserve that has been a management flashpoint for 30+ yrs. The tour will focus on Butano Creek, the main tributary to Pescadero creek and will enable participants to learn about solutions and partnerships necessary to address critical stressors of lagoon water quality, fish passage, habitat complexity, sediment transport dynamics, and instream flows. This tour will visit an array of representative projects from headwaters to ocean starting with the marquee Butano Reconnection project within the Marsh and ending in the redwood forests of Butano State Park.



Pescadero Watershed By Trout Unlimited

Wednesday, April 1

Low-Tech Process-Based Restoration with Beaver and Wood: Jump-Starting Structurally Starved Streams

Workshop Coordinators: Eli Asarian, Riverbend Sciences; Elijah Portugal, California Department of Fish and Wildlife; and Joseph Wheaton, PhD, Utah State University

Low-tech process-based restoration (LT-PBR) is the practice of adding low unit-cost wood and beaver dams to riverscapes to mimic functions and initiate specific processes that improve river habitats. This workshop starts with a morning of instruction by Dr. Joseph Wheaton (Utah State University) on a new LT-PBR design manual. Afternoon presentations by scientists and practitioners explore LT-PBR design, implementation, monitoring, modeling, and case studies, and the workshop ends with a panel discussion.

Introduction to the Low-Tech Process-Based Restoration of Riverscapes Design Manual, Joe Wheaton, PhD, Utah State University

Temperature, Hydrological and Fish-Passage Impacts of Beaver-based Stream Restoration: Hypotheses, Models and Data and the Way Forward with Low-Tech Process Based Restoration, Chris Jordan, NOAA Fisheries, Northwest Fisheries Science Center

Riparian Vegetation and Stream Channel Response to Meadow Restoration using Synthetic Beaver Dams in Childs Meadow, California, Kristen Wilson, The Nature Conservancy

California's First Beaver Dam Analogues (BDAs) - What Half a Decade Has Taught Us, Charnna Gilmore, Scott River Watershed Council



Beaver dam analogue constructed in 2014 by the Scott River Watershed Council on Sugar Creek in Scott Valley. By Eli Asarian

Four Years of Process-based Restoration at Doty Ravine,
Damion Ciotti, U.S. Fish and Wildlife Service

Shinn Ranch: PBR the Hard Way, Kevin Swift,
Swift Water Design

**Beaver Dam Analog Design, Construction, and
Performance on the Trinity River California,**
John Bair, McBain Associates

**Beaver Restoration Planning and Implementation in
California: Tools and Case Studies,** Kate Lundquist,
Occidental Arts and Ecology Center WATER Institute

**Beaver (*Castor canadensis*) of the Salinas River: A Human
Dimensions-Inclusive Overview for Assessing
Landscape-Scale Beaver-Assisted Restoration
Opportunities,** Stuart Suplick, Cal Poly

The State of California's Salmonids, Curtis Knight,
California Trout

**Twenty Years of Recovery Planning and Project History
with the Pacific Coastal Salmon Recovery Fund:
California Case Studies,** Keith Wolf, Cardno

**Implementing Priority Recovery Actions for Coho Salmon
in the Central California Coast,** Stephen Swales,
CDFW, and Erin Seghesio, NOAA Fisheries

**The North Coast Salmon Project: A Synergistic Approach
to Coho Salmon Recovery,** Jonathan Nelson, CDFW

**How to Use the Salmon Habitat Restoration Priorities
(SHaRP) Process to Enhance Inclusion and Support
in On-the-ground Restoration Planning,** Julie Weeder,
NOAA Fisheries, and Allan Renger, CDFW

**A Scientific Framework to Guide Salmonid Recovery
Prioritization, Implementation, and Monitoring,**
Darren Mierau, California Trout

**Accelerating Steelhead and Coho Recovery Using the
Habitat Restoration and Enhancement Act and other
Programmatic Permits,** Katie Haldeman and
Erika Lovejoy, Sustainable Conservation

**Effectiveness Monitoring of Coho and Steelhead Habitat
Enhancement in Lagunitas Creek,** Gregory Andrew,
MS, Marin Municipal Water District

**Coho Salmon Flow Initiative (CFI):
A Watershed-Scale Approach to Instream Flow Issues
Based on Conservation Priorities,** David Hines, CDFW
and Matt Clifford, Trout Unlimited

**Building Local Capacity: the Most Overlooked Element
in the Implementation of Habitat Restoration,**
Group Discussion



From www.pacificsun.com

Accelerating Coho and Steelhead Recovery Workshop

Workshop Coordinators: Matt Clifford, Trout Unlimited,
Monty Schmitt, The Nature Conservancy

Despite two decades of federal and state endangered species protection, California's coastal coho and steelhead populations continue to decline. This workshop will focus on new efforts to jump-start recovery of these species, including prioritizing restoration at the watershed level, streamlining the permitting of restoration projects, re-examining how water diversion and streambed alteration are regulated, and more effectively monitoring populations of both species. The workshop will include breakout sessions to share information and solicit input from participants.



18 Years of Managing Mountain Bikes, Sediment, and Legacy Logging to Improve Salmonid Habitat

Field Tour Leaders: Aaron Hébert, Midpeninsula Regional Open Space District, Jonathan Owens, Balance Hydrologics

Midpeninsula Regional Open Space District and Balance Hydrologics will present technical information and lessons learned about 18 years of sediment reduction efforts in a popular mountain biking preserve with a focus on instream sediment monitoring and the V* method. A technical briefing in the morning will be followed by a field tour of the project site, El Corte de Madera Open Space Preserve, and a hands on demonstration of the V* method.



Chelsea Neill of Balance Hydrologics and Aaron Hebert of Midpen gather V data at a pool in El Corte de Madera Open Space Preserve (2019). By Morgan Williams*

Salmonid Recovery in the San Lorenzo River Watershed: Water, Wood, and Working with Neighbors

Field Tour Leaders: Kristen Kittleson, County of Santa Cruz, Chris Berry, City of Santa Cruz

This tour will visit sites in the San Lorenzo River Watershed that showcase current salmonid recovery actions including lagoon and water management, stream wood enhancement and working within residential neighborhoods to preserve natural wood recruitment and enhance riparian corridors. The tour will include lunch at the beautiful Quail Hollow County Park.



Logs and rootwads installed for the Upper Zayante Creek Stream Enhancement Project. By Kristen Kittleson

Scotts Creek Tour: A Three-Pronged Approach to Coho Recovery

Field Tour Leaders: Lisa Lurie, Santa Cruz Resource Conservation District; Brian C. Dieterick, PhD, Cal Poly's Swanton Ranch; and Joseph Kiernan, NOAA Fisheries

Scotts Creek is the only watershed south of the Golden Gate Bridge that continues to support all three cohorts of CCC coho. This watershed is critical to coho recovery in the Santa Cruz Mountains Diversity Strata. As coho struggle to keep a foothold south of the Golden Gate, a unique collaboration of scientists, restoration practitioners, geneticists, transportation planners, and farm managers are working in tandem to keep this population from going extinct. The field tour will showcase the three major efforts underway by partners: ecological restoration, monitoring, and hatchery efforts. Tour participants will get an inside view of habitat restoration projects, new science being developed through NOAA's Science Center, and the challenges and achievements of the watershed's coho recovery hatchery.



The Scotts Creek tour will visit the lagoon, conservation hatchery, and Cal Poly's Swanton Ranch. By Walter Heady, TNC

2020 Conference Logistics & Events

Conference Location

Cocoanut Grove
400 Beach St., Santa Cruz, CA

Conference workshops will be held at the Hotel Paradox at 611 Ocean Street, Santa Cruz, CA.

Field tours will depart from the Center for Non-Violence across from Hotel Paradox. Please park at the CNV if you are going on a field tour and not staying at Hotel Paradox.

Conference Events and Schedule

Tuesday and Wednesday Workshops and Field Tours are 9am to 5pm on March 31 and April 1. 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.

SRF's Membership Dinner will be a strolling soiree at NOAA's Monterey Bay National Marine Sanctuary's Exploration Center. Join us for a celebration of Salmon Science, Art, and Seafood featuring local chefs for a culinary tour through the center. This event will coincide with the launch of the Sanctuary's interactive California Salmonscape exhibit and will feature a short presentation by the legendary artist Ray Troll whose art is highlighted in the exhibit, and Sarah Mesnick who leads the science, art, and seafood campaign at NOAA Fisheries. Please purchase your tickets in advance—we expect this special event to sell out!

The **Plenary Session** is at 9am on Thursday, April 2 at the Cocoanut Grove Ballroom.

SRF Membership Meeting & Lunch will be in the Bay Terrace room after the Plenary session.

The **Conference Poster Session** is on Thursday April 2 from 7-10pm.

SRF Banquet starts at 6:30pm on Friday, April 3 at the ballroom of the Cocoanut Grove.

The Conference Banquet, Awards Ceremony, and Cabaret features a wild salmon dinner and Edge of the West, who will play with artist Ray Troll!

Poster Session

The Poster Session on Thursday evening is free to attend for all conference participants and is an excellent networking opportunity. For info about how to present at the poster session, please email info@calsalmon.org or refer to the Events or FAQ section of the conference website.

Awards Nomination

Please submit nominations of 200 words or more to srf@calsalmon.org by February 7, to nominate candidates for the illustrious Restorationist of the Year Award, the Golden Pipe Award for Innovation, the Lifetime Achievement Award, and the Gordon Becker Memorial River Advocate Award.



Anna Halligan and Mary Ann King of Trout Unlimited received the illustrious Restorationist of the Year in 2019.

Conference Host Hotels

Hotel Paradox
www.hotelparadox.com

Hotel Paradox hosts the main group block for this conference, and will offer limited state (\$130) and federal rooms (\$130) with proper identification, and premium poolside rooms for \$199. To book any of these rooms, please call 1 (831)600-4510 and ask for the 38th Annual Salmonid Restoration Conference to book with our group block rate.



The Sanctuary Exploration Center across from the Cocoanut Grove will host the SRF Membership social.

Dream Inn

www.dreaminnsantacruz.com

The fabulous Dream Inn on the Santa Cruz boardwalk is just a few minute walk from the conference facility at the Cocoanut Grove. Every room has spectacular ocean views. This boutique hotel is offering a deeply discounted rate for conference participants. This is an ideal choice if you are coming with family. Rates are \$239 + tax per night for Sun - Thursday, and \$359 for Friday and includes parking. To make a reservation, please call (831)740 8069 and ask for the Salmonid Restoration Federation Room Block.

Walk, Bike or Jump!

SRF strongly recommends trying to have a car-free conference experience. Hotel Paradox is where the conference workshops will be held and is a short walk or bike ride to the Cocoanut Grove. The Dream Inn is right down the boardwalk from the Cocoanut Grove.

The JUMP app is also a great bike service that is only \$1 per ride and can be picked up or left at any destination. To utilize this fun bike option, you will need to download the Uber app.

Banquet, Cabaret, and Dance!

The banquet includes a wild salmon dinner, local wine and beer, an awards ceremony, a fun-filled Cabaret, and a lively band. Because the SRF banquet usually sells out, please purchase your tickets in advance.



NOAA's Monterey Bay National Marine Sanctuary Salmonscape Exhibit



Edge of the West will play with Ray Troll at the SRF Banquet.

Conference Sessions

Plenary

California Salmonscape: Science, Art and Seafood, Ray Troll, and Sarah Mesnick, PhD, Southwest Fisheries Science Center, NOAA Fisheries

Near and Long-term Vision for California's Salmon Restoration Approaches, Chuck Bonham, JD, Director, California Department of Fish and Wildlife

Strategies to Protect and Restore California's Ocean Ecosystems, Margaret Spring, JD, Chief Conservation and Science Officer, Monterey Bay Aquarium

Of Salmon and People: Tending to Nature, Tending Ourselves, Rene Henery, PhD, California Science Director, Trout Unlimited

Thursday Afternoon

Approaches for Management and Restoration of Central California Coastal Lagoons

Session Coordinator: Dane Behrens, ESA

Considerations to Management of the Mouth State of California's Bar-built Estuaries, Kevin O'Connor, Moss Landing Marine Labs

Butano Marsh Channel Reconnection and Resilience Project, Jai Singh, cbec

Scott Creek Lagoon and Marsh Restoration Project, Dane Behrens, ESA

Santa Clara River Estuary Habitat Restoration and Enhancement Project, Chris Hammersmark, cbec

Logging, Leather, Lime and "Lost Boys": Reducing Limiting Factors for Anadromous Salmonids in the San Lorenzo River Lagoon, Santa Cruz County, Chris Berry, City of Santa Cruz, Water Department

Balancing Flood Risk and Habitat Enhancement on the San Lorenzo River Estuary, Ben Snyder, WRA

Lagoon Management of the San Lorenzo River, Santa Cruz California: Using Sand to Balance Ecological Function and Social Demands, David Revell, Revell Coastal

Understanding Historical Context to Inform Current Salmonid Recovery Planning

Session Coordinator: Jay Stallman, Stillwater Sciences

Years in their Ears: What do Fish Earbones Tell us About Spring-run Chinook Salmon Success?, Flora Cordoleani, PhD, UC Santa Cruz and NOAA Fisheries

What Ancient Salmon Bones Can Teach us about Recovering California's Salmon Populations, Malte Willmes, UC Santa Cruz, NOAA Fisheries, Southwest Fisheries Science Center

Yuba River Salmon Impacted since the Gold Rush: An Analysis to Modify Aging Infrastructure, Restore Volitional Passage and Remove Mercury from the Aquatic Environment, Carrie Monohan, PhD, The Sierra Fund and California State University, Chico

Understanding Patterns and Processes that Supported Salmon in the Sacramento San Joaquin Delta Historically, April Robinson, San Francisco Estuary Institute

Novel Physical Evidence of the Historical Nativity of Chinook Salmon "*Oncorhynchus tshawytscha*" in the Guadalupe River Watershed of Santa Clara County, California, Richard B. Lanman, MD, Guadalupe-Coyote RCD and Institute for Historical Ecology

Using Historical Context to Understand Altered Watershed Processes and Appropriate Restoration in Salmonid Habitat Restoration Prioritization (SHaRP), Chris Loomis, CA Department of Fish and Wildlife

Legacy Effects of Timber Harvesting on Salmonid Habitat at Caspar Creek and Avenues for Improving Habitat During Future Timber Harvests, Paul Richardson, USDA Forest Service Pacific Southwest Research Station



Scott Creek marsh and lagoon during a closed bar phase, with Highway 1 in the foreground. By Dane Behrens, ESA



Illustration from *A Delta Renewed* (San Francisco Estuary Institute, 2016)
Created by Yiping Lu (UC Berkeley)

Creating Opportunities for Community Involvement to Address Common Urban Stream Management Issues

Session Coordinators: Ann Riley, and Jackie Van Der Hout, California Urban Streams Partnership

Coalition and Community-based Endangered Steelhead Recovery in Southern California, Sandra Jacobson, PhD, California Trout, Director—South Coast Region

A Summary of Building Community Capacity in Southern California Urban Stream Management, Michael Wellborn, California Watershed Network

Community-Based Ecological Solutions to Reduce Risk of Flooding in the Rheem Creek Watershed, Anne Bremer, Education and Community Programs Manager, The Watershed Project

Addressing Property Owners Fears of Creek, Emanuel Peterson and Ann Riley, California Urban Streams Partnership

Working with Homeless Populations to Reclaim and Restore Urban Coastal Habitat, Herman Garcia, Founder and Executive Director, Coastal Habitat Education and Environmental Restoration (CHEER)

Engage, Educate, and Empower: Motivating Communities to Get on Board with Restoration in Their Backyards, Sarah Phillips, Marin Resource Conservation District



The California Urban Streams Partnership works with youth to restore habitat and engage the community. By CUSP

Sediment: Management Challenges and the Foundation of Habitat

Session Coordinators: Eric Ginney, ESA, and Brian Cluer, NOAA Fisheries

Implementation of the Yuba River Canyon Salmon Habitat Restoration Project—Water Quality Permitting Challenges, Constraints, and Utility, Justin Gragg, ESA

Not Just a Steelhead Passage Project: Removal of the Upper York Creek Dam for Restoration of Sediment Transport after Over 100 Years of Aggradation, Jenn Hyman, EKI Environment & Water Inc.

Blue River Fish Barrier: 2D Numerical Hydraulic and Sediment Transport Modeling, Caroline Ubing and Michael Sixta, U.S. Bureau of Reclamation

Assessing the Effectiveness of Restoration in Changing Sediment Deposition Patterns on Floodplains, Preston Brown, SPAWN

We All Live Downstream: Pulling the Plug on the Klamath Dams, Eric Ginney, ESA

Followed by Panel Discussion

2020 Conference Agenda Packet

Friday Morning Concurrent Sessions

Seascape Ecology Overview, Current Events, and Movement and Migration

Session Coordinators: Cynthia Le Doux-Bloom, PhD, Humboldt State University, Department of Fisheries Biology; and Nate Mantua, PhD, NOAA Fisheries, Southwest Fisheries Science Center

20 in 2020: Twenty Years of Seascape and Salmon Studies on the Pacific West Coast, Nate Mantua, PhD, NOAA Fisheries

Impact of a Marine Heat Wave on Pacific Salmon Habitat, Steven Lindley, PhD, NOAA Fisheries

Individual-based Models as a Tool for Predicting Juvenile Salmon Growth and Mortality under Changing Ocean and Climate Conditions, Jerome Fiechter, PhD, University of California, Santa Cruz

Ocean Distribution of West Coast Chinook Salmon Inferred from Coded-wire-tags and Genetic Data, William Satterthwaite, PhD, NOAA Fisheries

Seascape Behavior and Distribution of Acoustically Tagged Salmon along the Washington Coastal Shelf, David Huff, PhD, NOAA Fisheries

Ocean Movement and Behavior of Steelhead Revealed by Pop-up Satellite Archival Tags, Emily Miller, PhD, Monterey Bay Aquarium



The seascape session will highlight ocean movement and behavior of salmonids.

By Jordan Plotsky Productions

The Science Informing Salmonid Reintroductions

Session Coordinator: Carlos Garza, PhD, NOAA Fisheries, Southwest Fisheries Science Center and UC Santa Cruz

The Science Informing Salmonid Reintroductions, Carlos Garza, PhD, NOAA Fisheries, Southwest Fisheries Science Center and UC Santa Cruz

Dam, That Was a Wild Ride. Steelhead Passage Up, Down, and Around the Los Padres Dam in California, Haley Ohms, PhD, UC Santa Cruz/NOAA

The Return of the King: Reintroduction of Chinook Salmon to the San Joaquin River, Anthony Clemento, PhD, UC Santa Cruz/NOAA Fisheries

Genetic Monitoring of Reintroduction and Supplementation Efforts in Central California Populations of Endangered Coho Salmon, Elizabeth A. Gilbert-Horvath, NOAA Fisheries, Southwest Fisheries Science Center

Recolonization Potential for Coho Salmon to Tributaries to the Klamath River Above Iron Gate Dam, Max Ramos, Humboldt State University

Capacity of Two High Sierra Rivers in California for Reintroduction of Anadromous Salmonids, David A. Boughton, PhD, NOAA Fisheries and UC Santa Cruz

Head of Reservoir to Ocean; Innovations Connecting Restoration and Reintroductions for ESA Listed Salmonids, Stacie Smith, PhD, NOAA Fisheries



Spring-run release on the San Joaquin River By Elif Fehm-Sullivan

Challenges and Innovations in Salmonid Life-cycle Monitoring in Coastal Streams

Session Coordinator: Jack Eschenroeder, FISHBIO

Slack-Loop Antennas: A Flexible PIT-Tag Antenna Design to Meet the Challenges of Monitoring Fish Movement in Coastal California Streams, Haley Ohms, PhD, UC Santa Cruz and NOAA Fisheries, Southwest Fisheries Science Center

Water Depth Monitoring at Riffle Crest Thalwegs Supports Juvenile Salmon Outmigration, Brian Kastl, UC Berkeley

Life Cycle Monitoring in the Russian River: Overcoming Obstacles and Challenges, Gregg Horton, Sonoma Water

Characterizing Life History Variation in Steelhead, Michelle Pepping, UC Davis

The Efficacy of eDNA Sampling to Detect Presence of Endangered Coho Salmon in Santa Cruz Mountain Streams: Building Reasonable Expectations of an Emerging Method, Brian C. Spence, PhD, NOAA Fisheries, Southwest Fisheries Science Center

Long Term Southern Steelhead Monitoring in the Santa Monica Bay—Tools Used and Lessons Learned!, Rosi Dagit, RCD of the Santa Monica Mountains

Salmonid Monitoring in Turbid Coastal Streams: Learned Perspectives from Salinas River Adaptive Monitoring, Ryan Cuthbert, FISHBIO

Juvenile coho growth enclosures in Big Springs Creek, tributary to the Shasta River. By Rob Lusardi



Seining a restoration pond for juvenile Coho Salmon on Jacoby Creek in Humboldt County, CA. By Darren Ward, HSU

The Influence of Food Webs on Salmonid Growth and Performance: A Forgotten Link to Species Resilience

Session Coordinator: Robert Lusardi, PhD, UC Davis and California Trout

Food Webs and Juvenile Steelhead Behavior in Coastal California—Towards a Foodscape Perspective, Gabriel Rossi, UC Berkeley

Abundant Prey Availability Improves Juvenile Coho Growth under Warming Stream Temperatures, Robert Lusardi, PhD, UC Davis and California Trout

Export of Invertebrate Drift from Fishless Headwater Streams: Implications for Downstream Trout Production, Jonathan M. Hollis, MS, CDFW

Juvenile Chinook Salmon Growth Across a Diversity of Habitats in the Butte Creek and Sacramento River Watersheds, Flora Cordoleani, UCSC and NOAA

Isotopes and Fish Eyes: New Tool to Track Population-level Benefits of Floodplains for Chinook Salmon, Miranda Bell Tilcock, UC Davis

Lollipops and Lemons: Large Differences in Chinook Salmon Growth among Tidal Marsh Sloughs of the Upper San Francisco Estuary, CA, Brett Harvey, Department of Water Resources

Puddle Power: Managing for Residence Time to Restore Floodplain Ecological Process, Jacob Katz, PhD and Jacob Montgomery, California Trout



Friday Afternoon Concurrent Sessions

Growth, Survival, and Foraging Conditions in the California Current

Session Coordinators: Cynthia Le Doux-Bloom, PhD, HSU, Department of Fisheries Biology and Nate Mantua, PhD, NOAA, Southwest Fisheries Science Center

Can We Use an Ocean Productivity Model to Estimate Juvenile Salmon Early Ocean Survival?, Mark Henderson, PhD, USGS and HSU, Department of Fisheries Biology

Epipelagic Community Seascapes: Assessing and Predicting Species Composition in the Northern California Current, Caren Barcelo, UC Davis

The California Current Seascape Influences Juvenile Salmon Foraging Ecology at Multiple Scales, Megan Sabal, UC Santa Cruz

Interactions between Environment, Forage Availability, and Predation on Salmon in the Central California Current, Brian Wells, PhD, NOAA Fisheries

Climate-related Variability in Zooplankton Indicators of Ecosystem Status in Coastal Waters off Northern California, Eric Bjorkstedt, PhD, NOAA Fisheries and HSU

Monitoring Juvenile Chinook Salmon Distribution and Habitat Use in the San Francisco Estuary Using Environmental DNA (eDNA), Thiago Sanches, UC Davis

(Un)Dam it! Dam Removal and Fish Passage Projects in California

Session Coordinator: Darren Mierau, Cal Trout

If It's Broke, Why Fix It? Crumbling Concrete Coming to a Small Hydro Project Near You, Chris Shutes, California Sportfishing Protection Alliance

The Eel River Potter Valley Project—Modernizing Hydro-Power Infrastructure in one of California's Wildest Rivers, Redgie Collins, California Trout

Thermal and Habitat Suitability for Anadromous Salmonids in the Dammed and Inaccessible Upper Mainstem Eel River Subbasin in the Eel River Watershed, Alyssa FitzGerald, PhD, UC Santa Cruz, NOAA

The Removal of San Clemente Dam—Lessons Learned and Questions Raised, Trish Chapman, State Coastal Conservancy

Battle Creek Salmon and Steelhead Restoration Project, Mary Marshall, USDOJ, Bureau of Reclamation

Modifying Diversion Structures in the Shasta Valley to Improve Fish passage and Enhance Flows, Andrew Braugh, California Trout

A Phased Sampling Approach to Monitor Recolonization and Inform Management of Anadromous Fish in the Klamath River Following Dam Removal, Thomas Williams, PhD, NOAA Fisheries, SFSC

Hydrologic Management Insights from Instrumented Watersheds

Session Coordinators: Tim Bailey, Humboldt County RCD and David Dralle, PhD, Assistant Geology Professor, Sacramento State University

Hyporheic Restoration: Lessons from Meacham Creek, OR, Byron Amerson, Environmental Science Associates

A Paired Watershed Comparison of Stream Condition: Disentangling Human Landuse from Natural Variability in Cannabis Producing Tributaries to the Headwaters of the Mattole River, CA, Elijah Portugal, MS, California Department of Fish and Wildlife

Quantification of Water Storage and Non-perennial Runoff Dynamics in a Semi-arid Catchment, Amanda Donaldson, Ph.D. student, UC Santa Cruz

Hydrologic Insights from Comparing North Coast Stream Gage Data with Flow Estimation Methods and Geology, Valerie Zimmer, State Water Board

Advancing Voluntary Flow Enhancement Projects in California's Small Streams and Rivers, Amy Campbell, The Nature Conservancy

Effects of Flow Augmentation on Coho Salmon Smolt Passage in Porter Creek, a Tributary to the Russian, Sarah Nossaman Pierce, California Sea Grant

The Recession of Freedom—Investigating the Drivers of Within-reach Movement for Oversummering Juvenile Steelhead and Coho Salmon in a Drying Stream, Gabriel Rossi, UC Berkeley

Anadromous Salmonid Habitat Suitability Criteria

Session Coordinator: Mark Gard, California Department of Fish and Wildlife (CDFW)

Review of Central Valley Anadromous Salmonid Habitat Suitability Criteria, Mark Gard, CDFW

Large Scale Floodplain Rearing Habitat Rehabilitation: Southport Levee Setback, Chris Bowles, cbec eco engineering

Increasing Lateral Connectivity to Benefit Juvenile Salmonids on the Lower Yuba River: The Hallwood Side Channel and Floodplain Restoration Project, April Sawyer, cbec eco engineering

Wanted: Project Site—A Framework for Evaluating Possible Restoration Sites, J.D. Wikert, U.S. Fish and Wildlife Service

Mapping Salmon Rearing Habitat in the Delta, Gloria Desanker, San Francisco Estuary Institute

Quantifying Dynamic Floodplain Habitat for Juvenile Salmon using a Hydrospatial Approach, Alison Whipple, San Francisco Estuary Institute

Using Aerial Redd Survey Data and a Two-dimensional Hydraulic Models to Construct a Temperature Dependent Spawning Resource Selection Function for Winter-run Chinook Salmon, Peter N. Dudley, NOAA Fisheries



The Unusually Wet Spring and Eerily Dry Fall Water Year of 2019

Monitoring the Flow Fluctuations of Redwood Creek, South Fork Eel

Redwood Creek is a critical tributary for juvenile salmonids in the South Fork Eel watershed. For seven years, Salmonid Restoration Federation (SRF) has been conducting low flow monitoring in order to understand the low flow patterns and prioritize water conservation efforts in this impaired watershed that is home to hundreds of residents, as well as threatened species like coho salmon. This important tributary historically supported coho, Chinook and steelhead and provided important cold-water refugia for juvenile salmonids.

Under a Wildlife Conservation Board Streamflow Enhancement grant, SRF's flow monitor was able to start streamflow monitoring in May 2019, in order to capture the spring recession in this exceptional water year when the North Coast was showered with late spring rains. Despite high rains late into the season, flows plummeted to mere gallons per minute in early September, rebounded slightly after the September rains, and have since plateaued. Stillwater Sciences, a key member of the SRF project team, has been conducting stream channel assessments that have helped us understand at what flows the creeks reconnect and allow for fish migration. The exciting news about these stream walkthroughs is that we are seeing a lot of juvenile salmon and prioritizing restoration projects that could enhance flows in Redwood Creek.

Instream flows and cool water temperatures are critical for juvenile salmonids to survive the hot summer months. To help

residents be aware of current flows, SRF has maintained a large painted sign on the Briceland Road that is updated after monitoring to indicate the flow level. Additionally, there is an interactive graph on the SRF website (www.calsalmon.org/programs/redwood-creek-low-flow-monitoring) that shows the dates and flows for each monitoring visit as well as comparative graphs for other monitoring years.

Despite this being a relatively wet spring, flows flat-lined in August, bumped slightly after September rains, then receded through the fall, and rebounded during the Thanksgiving rains.

The idea is that if water users understand the current flows they will moderate their diversion amount or schedule. Many residents have built sufficient water storage to voluntarily forbear from diverting water during the dry summer months when salmon are most vulnerable to low flows and high water temperatures. Despite voluntary forbearance efforts, the lack of a coordinated water conservation program translates to disconnected pools and stranded juvenile salmon throughout the tributaries that feed Redwood Creek.

SRF's flow monitoring is being conducted by Katrina Nystrom, a HSU Environmental Science and Management graduate student and former flow monitor for Sanctuary Forest. Katrina is doing her graduate research on lamprey larva (ammocoetes) that dovetails with the monitoring work that SRF is doing in Redwood Creek. This summer, there have been two lamprey sightings in Redwood Creek, including an ammocoete sighting and an adult pacific lamprey in an isolated pool.

As part of this planning project, SRF is also identifying participating landowners to partner with to design winter water storage and pond projects that cumulatively could enhance flows in Redwood Creek. To learn more about this project, or see 2019 Redwood Creek flows and educational presentations from the recent Pond Planning and Groundwater Recharge workshop, please visit www.calsalmon.org/programs/redwood-creek-low-flow-monitoring



SRF flow monitor, Katrina Nystrom, closing out the 2019 monitoring season.

By Alexandra Hootnick

Monitoring Flows in Sproul Creek South Fork Eel River

In July, Salmonid Restoration Federation (SRF) was awarded a planning grant from the Wildlife Conservation Board to conduct low-flow monitoring in Sproul Creek for three years, promote dry season storage and forbearance actions, and identify and assess the most suitable locations for flow enhancement projects.

Sproul Creek is a significant tributary for juvenile salmonids in the South Fork Eel watershed. According to the SHaRP process (Salmon Habitat and Restoration Priorities) spearheaded by NOAA Fisheries, Sproul Creek is considered one of the highest priority tributaries in the South Fork Eel River watershed for biological importance. Sproul Creek ranked high for habitat condition as well as “optimism and potential” for recovery. The forested tributaries that flow into the South Fork Eel are critical for the recovery of juvenile salmonids since these cold-water tributaries provide important rearing habitat and the South Fork Eel is key to the overall recovery of coho salmon in Northern California.

SRF is working closely with Stillwater Sciences, a leading consulting firm on the North Coast that is already actively working in the South Fork Eel on restoration and flow enhancement projects. SRF and Stillwater Sciences have been restoration partners for several years and their engineers and geologists have already completed a feasibility study for a portion of Redwood Creek (Miller Creek and a segment of the mainstem). Currently, the Stillwater Sciences project team is exploring flow enhancement opportunities in the remainder of Redwood Creek.

This project complements the existing work of the project team and builds on the years of flow monitoring and studies that Cal Trout conducted in Sproul Creek. In fact, SRF and Cal Trout began their independent flow studies at the same time with the understanding that it would be beneficial to do a paired

study to understand flow patterns in sub-watersheds with and without extensive human consumptive use (Redwood Creek and Sproul Creek respectively).

Redwood Creek is a densely populated watershed with approximately 400 parcels, hundreds of residents, and countless water diversions for legal and unregulated cannabis cultivation as well as small domestic use and homestead gardens. Comparatively, Sproul Creek has significantly less consumptive human water use with large tracts of the watershed in private ownership including the Marshall and Wagner ranches and the former Barnum timberland that is now owned by Green Diamond Resource Company.

This project will create an implementable plan for improving dry season streamflows in Sproul Creek that will support recovery of threatened and endangered steelhead and salmon within the sub-basin. The Implementation Plan will integrate CalTrout’s past work and ongoing work by the California Department of Fish and Wildlife and the State Water Resources Control Board in the watershed in order to identify specific projects and to enhance instream flows. Stillwater Sciences will create project designs and do the initial permitting for the highest priority flow enhancement site as identified in the implementation plan.

SRF was able to start monitoring in early July this year because we were able to utilize the monitoring sites that Cal Trout established in Sproul Creek as well as Little Sproul, West Fork, South Fork, and Upper Fork of Sproul Creek. It was great to be able to capture the early summer recession in a year with relatively late spring rains. The flows in July 2019



Low flow monitoring in Sproul Creek—a high priority tributary to the South Fork Eel River. By Darren Mierau.

were comparable to the flows in May 2018. On July 5, flows in Sproul Creek were nearly 1,000 gallons per minute (gpm) but just two weeks later these flows plummeted to less than 250 gpm and in August were less than 100 gpm. There was a slight bump after the September rains but flows quickly plateaued at less than 50 gpm.

Instream flows are critical for juvenile salmonids, so this planning effort is designed to enhance flows for threatened salmon and provide water security for residents.

To publicize this project, SRF has created a Sproul Creek landing page on our website where stakeholders can see current flows on an interactive graph that plots the summer recession. The landing page includes some of the background presentations shared at the recent SHaRP meeting. Additionally, SRF has created a Facebook page so landowners can easily learn about project updates, flows, and restoration milestones.

“SRF is grateful for the opportunity to work in this crown jewel tributary that provides refugia and habitat for coho and steelhead. The South Fork Eel River is considered key to the recovery of coho salmon and the relatively unimpaired tributaries are essential for juvenile salmonids in an important phase of their life history,” stated Dana Stolzman, Executive Director, Salmonid Restoration Federation.

Salmonid Restoration Federation

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www.calsalmon.org

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Save the Date



10th Spring-run Chinook Symposium

July 2020, Salmon River



Spring-run Chinook salmon in the Salmon River

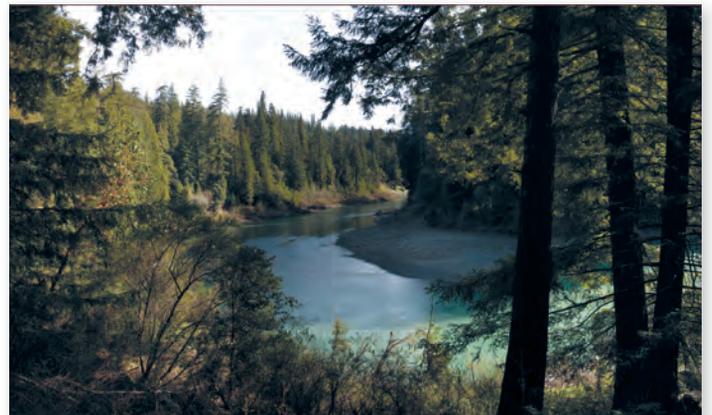
By Scott Harding

SRF and Salmon River Restoration Council will host the 10th Spring-run Chinook symposium in the Salmon River watershed to highlight genetic, recovery, and restoration efforts to enhance Spring-run recovery. This symposium will be directly following the annual Salmon River dives and will tour restoration projects in the Salmon, Trinity, and Scott River. Dates TBA soon.

23rd Annual Coho Confab

September 11-13, 2020, SF Eel River

Join SRF, California Department of Fish and Wildlife, Eel River Watershed Improvement Group, Cal Trout, Eel River Critical Observatory, Pacific Watershed Associates, Trout Unlimited, and other restoration partners in this exciting Confab on the banks of the South Fork Eel River. This Confab will feature fish passage projects, upslope sediment remediation, large wood projects, and a suite of other techniques that are implemented or are being planned in this critical watershed.



South Fork Eel River By Pernel S. Thyseldew

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