

## Salmonid Restoration Federatio

## 19th Annual Coho Confab in Mendocino

Salmonid Restoration Federation (SRF) is coordinating the 19th Annual Coho Confab which will take place August 26-28 at the charming Jug Handle Creek Farm and Nature Center on the Mendocino Coast. People gather together for this field symposium to learn about watershed restoration techniques used to recover coho salmon populations. The Confab provides an ideal opportunity for networking with other fish-centric people and participating in field tours that highlight innovative salmon restoration practices. This year, SRF is collaborating with several groups to produce this educational event including Trout Unlimited, the Mendocino Land Trust, Redwood Forest Foundation, and the Conservation Fund.

The Coho Confab opens Friday evening with a community dinner and inspiring keynote presentations. Carlos Garza, NOAA Fisheries, will address spatial and temporal variation in structure and abundance of coho salmon in California. Sean Gallagher, California Department of Fish and Wildlife, will provide an overview of

15 years of monitoring coho salmon populations in Coastal Mendocino County and highlight lessons for recovery management. Lisa Bolton, North Coast Coho Project Director of Trout Unlimited, will provide an overview of collaborative, strategic restoration on the North Coast.

Saturday will include two full-day field tours focusing on large wood augmentation and restoration forestry. Trout Unlimited is organizing An Evolution of Large Wood Augmentation—A Synopsis of Techniques for Implementation and Validation Monitoring that will visit multiple project sites within the Pudding Creek and Noyo River basins. On this tour, participants will visit the project area for the "Using Large Wood to Increase Salmon Abundance in Pudding Creek: A BACI Experiment" and learn about about the methodology for large wood treatment, and the effectiveness and validation monitoring that has followed. The tour will also visit the



The Usal Redwood Forest tour will visit some of the instream restoration work in Anderson Creek. Photo by Richard Gienger

South Fork Noyo River to view previously implemented large wood projects that relied on both soft and hard anchoring techniques. This tour is a collaborative effort led by representatives from Trout Unlimited, The Nature Conservancy, Jackson State Demonstration Forest, and Blencowe Watershed Management. Confab founder, Richard Gienger, and Tom Leroy, Pacific Watershed Associates, will lead a full-day tour Restoration Responsibilities and Actions for Recovery of Fisheries and Watersheds in the Usal Redwood Forest of the Redwood Forest Foundation, Inc.

When participants return from field tours, there will be an Open Forum entitled *Large Wood: How Much is Good?* that will prompt a lively discussion about practices, protocols, and challenges of utilizing large wood in restoration projects.

The last day of the Confab will include three concurrent field tours including Downstream/Upstream—Working

> Together to Restore Coho Habitat in Neefus Gulch with Patty Madigan, Mendocino Resource Conservation District, and Kirk Vodopals, Rancho Navarro; Large Wood Installation at Two Log Creek on the Big River Property with Holly Newberger, The Conservation Fund, and forester Chris Blencowe; and Fish Passage Upgrades on Historical Logging Roads with Lisa Bolton, Trout Unlimited, and Doug Kern,

Mendocino Land Trust.

Registration fees cover field tours, workshops, meals, and camping. Lodging in the farmhouse or cabins is available for an addional \$100.

To register for the Confab or to view the full agenda, please visit our website www.calsalmon.org.

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# Community Outreach, From Watershed to County Scale

For several years, SRF has been engaged in community outreach efforts in the South Fork of the Eel River in order to promote water conservation and educate landowners about water rights, as well as regulatory changes pertaining to water storage on a local and statewide level.

Last year, the Department of Fish and Wildlife's Drought Solicitation funding allowed us to expand these types of outreach efforts to other North Coast Counties including Del Norte, Siskiyou, Trinity, Humboldt, and Mendocino. These counties are some of the largest and least populated in the state of California and home to several salmon strongholds. These Northern California counties are also where a majority of the state's water supply comes from and where the State Water Control Board estimates that rural



landowners are over 90% out of compliance with state water law.

SRF has developed tools and resources that can be shared with landowners, planners, and watershed groups, including a Best Management Practices checklist guide. SRF worked with the Mendocino Resource Conservation District, North Coast Regional Water Quality Control Board, and Pacific Watershed Associates to create a Best Management Practices brochure. This resource outlines BMP procedures including a 1) Land self-assessment checklist (map and flow rate guidance); 2) BMP checklist for various types of activities (water system, water storage, pest control, chemical storage, catch-basin, roads and crossings, developed sites, soils, stream banks, water management, habitat enhancement and protection); 3) Resources for BMPs with a list of federal, state, regional, and local agencies involved with water quality; 4) Quick reference guide for permitting requirements; and 5) Water Diversion and Storage resources.

This type of BMP outline and checklist is extremely helpful for rural landowners who are grappling with coming into regulatory compliance in an era of marijuana legalization. Cannabis cultivation is the largest cash crop on the North Coast and unregulated cultivation practices often impair watersheds, water supply, and salmonid habitat. It is our hope that through the dissemination of information and hosting Best Management Practices workshops and Water Rights clinics we can offer technical assistance to landowners and planners.

Our recent Best Management Practices event in Trinity County included a workshop with Pacific Watershed Associates and a field tour of erosion control sites. The video and powerpoint are now available at https://goo.gl/Ui9YuJ

Additionally, SRF and Trout Unlimited have developed an online webinar to walk landowners through the Initial Statement of Diversion and the Small Domestic Use application. To access the webinar, go to our Water Rights Eduction section at *www.calsalmon.org* 

SRF educates residents about various methods and opportunities for reducing their water use footprints including utilizing permaculture principles, segregating drinking water and irrigation water, simple plumbing improvements, and greywater applications that can yield an immediate water savings. Additionally, we have facilitated bulk orders of water tanks for various tributary groups. We designed all of our community outreach efforts to build capacity for community water stewardship and serve as transferable resources for other watersheds.

# 8th Spring-run Chinook Symposium Returns to Chico, CA

The Salmonid Restoration Federation is hosting the 8<sup>th</sup> Spring-run Chinook symposium July 26-28 in Chico, California. This is a truly collaborative educational event with diverse partners including Friends of Butte Creek, Pacific Gas & Electric, The Nature Conservancy, Northern California Water Association, and the California Conservation Corps.

Our first Spring-run Chinook symposium was a campout in Upper Butte Creek and our keynote addresses were given during a BBQ at the local firehouse. From our humble beginnings, the event migrated to watersheds where communities rally around Spring-run Chinook salmon restoration and recovery efforts: the Salmon, Yuba, and Lodi Rivers, and Chico, CA that is next door to the legendary Butte Creek population.

This year's symposium will include presentations and panel discussions about the status of Spring-run Chinook recovery efforts, movement



Symposium participants will have an opportunity to tour the legendary spawning grounds at Upper Butte Creek. Photo by Allen Harthorn



Mill Creek in the lower canyon. Photo by The Nature Conservancy

and survival rates in Mill and Butte Creeks, population trends of Springrun Chinook, management practices for water storage and instream flow enhancement, and translating research and data into recovery actions.

The orientation presentations will include presentations by Michael Miller, PhD from UC Davis, and Jacob Katz, PhD from CalTrout. Michael Miller will address how the evolutionary basis of premature migration in pacific salmon provides insights into conservation and restoration. Jacob Katz will discuss full life history management of Spring-run Chinook and the use of floodplains.

The agenda will include monitoring and population status reports from Butte Creek to San Francisco Bay; Mill, Deer, and Antelope Creeks; Clear and Battle Creek; and the Upper Klamath, Trinity and Salmon Rivers.

In the afternoon, representatives from CA Department of Fish and Wildlife, Pacific Gas & Electric, Trout Unlimited, and The Nature Conservancy will highlight different management strategies for water storage and instream flows. The full-day symposium will conclude with a session on "Translating Research and Data to Implementation and Action," with exciting presentations by Brad Cavallo, Cramer Fish Sciences, Eric Ginney, Environmental Science Associates, and David Bandrowski, Yurok Tribe. These presentations will explore recovery strategies for Spring-run Chinook in the Central and Sacramento Valleys and the Klamath River basin.

The symposium will be followed by two days of exploratory field tours. Field tours on Wednesday will include a hydroelectric and Spring-run holding habitat tour to Upper Butte Creek and a fish passage and flow enhancement tour in Lower Deer, Mill, and Antelope Creeks. Field tours on Thursday will feature a tour of Springrun restoration efforts in Clear Creek that will highlight floodplain and stream rehabilitation sites, spawning gravel supplementation areas, views of Spring-run habitat, and Whiskeytown Dam, and a half-day tour of Upstream Spring-run Chinook Salmon Passage through Lower Butte Creek. This tour will include presentations about the history of Spring-run Chinook salmon listing, restoration projects, instream flow evaluation process, and postrestoration observations.

This symposium is a great venue to learn about policy, fish passage, reintroduction efforts, and flow enhancement opportunities that could bolster California's threatened Springrun Chinook populations.

The North Coast has experienced some much needed rainfall during the recent El Niño winter yet there still hasn't been enough rain to end the extended drought that has impaired stream flows and salmon habitat throughout the region for the past several years. Since SRF's low streamflow monitoring began in 2013, low flow conditions throughout the Redwood Creek watershed continue to develop earlier and persist for longer. In 2015, the lack of water extended our data collection season. As we head into the 2016 monitoring season, SRF will continue to work 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.

#### The Redwood Creek Water Conservation Project

Many rural residents call the Redwood Creek watershed home and divert water directly from the creeks for their household and irrigation needs. While low flow trends may be part of Redwood Creek's natural cycle, drought and increased water usage can prolong and amplify stressors felt by young salmon. When streamflows minimally run, as SRF monitoring project has clearly documented, any amount of pumping can dewater the stream. Redwood Creek and its tributaries are important cohobearing streams, yet habitat degradation resulting from low summertime flows and high water temperatures pose a serious threat to the recovery of this threatened native salmon population.

Both watershed legacy effects and current water withdrawals impact hydrologic conditions for salmonids. The Redwood Creek Water Conservation Project was designed to engage rural landowners and stakeholders in a coordinated, community-led water conservation effort. With the support of many partners, SRF has hosted several water conservation workshops and field tours in Southern Humboldt, and distributed educational materials about water rights, water conservation, and drought resilience throughout the region. SRF works to help landowners understand their water usage and rights, and encourages them to forbear from diverting water during the dry, summer months.

#### Monitoring and Low Flow Trends in the Redwood Creek Watershed

Creek Redwood experiences drastically different flows throughout the year, including extremely high and dangerous water levels in the winter to less than one gallon per minute in the summer. Beginning in early summer when flows quickly start to diminish, Monitoring Coordinator, SRF's Bill Eastwood, starts collecting streamflows at 12 sites throughout the Redwood Creek watershed. This monitoring effort is a part of SRF's Redwood Creek Water Conservation project. Through this collaborative program, SRF hopes to quantify low flows at a variety of sites selected to represent potential juvenile salmonid rearing habitat; identify locations within Redwood Creek where low flows appear to be most severely reduced by human uses; and prioritize stream reaches for actions to augment low flows with a goal of optimizing benefits to juvenile salmonids.

During our 2015 season, our streamflow monitoring season began in early June and by July 1, Bill Eastwood, Monitoring SRF's Coordinator, started recording a lack of flow in our monitoring area. By August 1st, flows monitored at 12 sites averaged less than one gallon per minute, and only two sites maintained flows through the season. Throughout the summer, Redwood Creek and its tributaries contained disconnected pools of slowly disappearing water with stranded juvenile coho and Chinook salmon.

Our data shows that small precipitation events highly influenced flow at most of our sites. On July 13, the watershed received about 0.3 inches of rain and then about 2 inches of rain again on September 16, 2015. Both events increased flows, and at some sites, returned streamflows to a dry riverbed. A week after flows returned, they disappeared again without additional rainfall. Late season storms on October 17 (0.3 inches) and 19 (0.1 inch) brought back water to many sites, but flows were not fully established throughout the watershed until the first week of December.

#### Next Steps for the Project

SRF will continue to monitor flows this summer and add to ongoing Redwood Creek data collection efforts.



Diminishing Pool in Miller Creek, a Redwood Creek tributary: June 17 and August 4, 2015. Most of the Redwood Creek tributaries flowed at less than one gallon per minute by mid-July. Photos by SRF

# Water Conservation: Planning for Resilience



SRF will also continue with the Redwood Creek Flow Enhancement Feasibility Study, which aims to make informed recommendations for implementation projects that would improve streamflow timing and volume within the project area. The feasibility study is focussed on Miller Creek and a segment of Redwood Creek from the Miller Creek confluence to downstream of Briceland. Stillwater Sciences reviewed our 2015 monitoring data and produced *Preliminary Recommendations for Target Late Recessional and Dry Season Streamflows in Redwood Creek*. We plan to establish target flows for Redwood Creek, conduct targeted outreach and water storage analysis, and develop streamflow improvement projects based on the recommendations of the study.



SRF's Monitoring Coordinator, Bill Eastwood, monitors a Redwood Creek site that maintains minimal flows through the summer. Photo by SRF

A North Coast Regional Water Quality Control Board grant funds the planning, monitoring, and assessment for Redwood Creek's monitoring program. This funding enables us to conduct comprehensive low flow and temperature monitoring, including weekly monitoring and producing continuous flow data from data loggers. Through this program, we hope to better assess water conservation opportunities throughout the Redwood Creek watershed. This grant, in conjunction with a feasibility study funded through the California Department of Wildlife's Drought Solicitation, increased our ability to build capacity for on-the-ground implementation projects that could enhance instream flows for fish and rural communities.

SRF's Redwood Creek project has evolved into a sustainable program that includes community outreach and education, capacity building, a scientific monitoring component, and data analysis to ensure that our water conservation and restoration efforts are scientifically sound. We hope that this project can serve as a model for community-based restoration programs that could be expanded to other watersheds throughout Northern California.

# 34<sup>th</sup> Annual Salmonid Restoration Conference Recap Salmonid Restoration in Working Watersheds

On April 6 - 9, Salmonid Restoration Federation produced the 34th Annual Salmonid Restoration Conference in Fortuna, California. The theme of the conference was Salmonid Restoration in Working Watersheds and over 450 people attended. The conference agenda focused on a broad range of salmonid and watershed restoration topics of concern to restoration practitioners, watershed scientists, fisheries biologists, resource agency personnel, land-use planners, and landowners. The conference agenda highlighted pressing issues that affect the future of the salmonid restoration field, including salmonid life-cycle modeling, physiology, and disease; off-channel pond design and use; climate change planning; impacts of cannabis cultivation on fisheries recovery; and legacy mining effects and restoration.



The Lower Mattole River and Estuary tour brought particpants to the mouth of the Mattole River. Photo by Thomas Dunklin

Workshops included a discussion about evolving science and policy to restore streams using instream obstructions and beaver dam analogues; an interactive look at tools for getting meaningful public input and participation; designing and engineering off-channel habitat and large wood projects; and instream flow enhancement and groundwater recharge planning and implementation.

Full-day field tours included a trip to the City of Arcata's Communitybased urban/wildland restoration



Golden Pipe Award recipients Leah Mahan and Bob Pagliuco of the NOAA Restoration Center. Photo by Thomas Dunklin

program; a tour of the lower Mattole River and estuary to see heliwood placement, riparian planting, and offchannel slough restoration; and a tour of upland restoration in the Headwaters Forest Preserve and tidewaters projects at Humboldt Bay National Wildlife Refuge. Additional tours included 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 included a biology track with topics focused on life-cycle modeling, Eel River biology, salmonid health, and Spring-run Chinook salmon genetics. A habitat restoration track explored incised stream channels, off-channel ponds, floodplains, and beaver-influenced habitats. Additionally, a landscape track featured sessions focused on climate change, Gold Country legacy impacts, cannabis cultivation influences on fisheries, and a session on innovative restoration strategies.

The Plenary session highlighted 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, UC Berkeley, presented Drought, Floods, and Alternate States of Algal-Based Food Webs in the Thirsty Eel. Merv George Jr, Forest Supervisor of Six Rivers National Forest, made a presentation, Ridges to River-Ecological Restoration, and Peter Moyle from the Department of Wildlife, Fish, and Conservation Biology and Center of Watershed Sciences at UC Davis presented Climate Change, Drought, and the Future of California Salmonids.



This year's conference featured a tour of restoration sites in the Lower Klamath River and Strawberry Creek. Photo by Mitch Farro

The Watershed Stewards Program and the California Conservation Corps bring invaluable support to the SRF Conference. Photo by Thomas Dunklin



Salmonid Restoration Federation