

Salmonid Restoration Federation

Winter 2006/7

25th Annual Salmonid Restoration Conference March 7-10, 2007 Santa Rosa, California

The Salmonid Restoration Federation will hold the 25th Annual Salmonid Restoration Conference at the Wells Fargo Arts Center in Santa Rosa, California, March 7-10, 2007. The conference includes full-day workshops on dam removal and FERC relicensing, fish passage barrier removal tools and estuary and lagoon restoration. Field tours include visits to sustainable grazing sites at Point Reyes National Seashore, Sonoma vineyards with salmon-friendly agricultural practices, a rivermouth to ridgeline tour of Dutchbill Creek watershed, steelhead habitat restoration projects on Upper Sonoma Creek, bioengineering and in-stream restoration projects, a tour of

cooperative approaches to restoration in the Austin Creek watershed as well as a short tour of restoration projects in the Prince Memorial Greenway.

Concurrent sessions focus on environmental, biological, and policy issues that affect Salmonid habitat restoration and recovery of native fish populations. Concurrent sessions include water diversions and the associated water quality and quantity issues on the North Coast, the Coho Recovery Program, the economic, cultural and recovery impacts of the Chinook fisheries closures, coastal watershed planning and restoration, salmonid and watershed environmental education, Salmonid recovery downstream of large reservoirs, measuring watershed condition and management performance, fluvial geomorphology, and regional land use planning and implementation strategies in aquatic conservation.

The plenary session will feature prominent keynote speakers including UC Davis Fisheries Professor Peter Moyle who will address climate change and the state of California salmonid recovery efforts, restoration pioneer Liza Prunuske who will give a talk entitled, "Taking Wood Out and Putting it Back in Again: A Generation of Salmonid Restoration in in Marin and Sonoma



Russian River estuary. The estuary workshop will highlight techniques and practices to implement estuary restoration projects.

photo: Leah Mahan

Counties," Nat Scholz from NOAA Fisheries who will present on Coho Salmon recovery issues, and Freeman House, co-author of *Totem Salmon* will address climate change and watersheds. Salmon champion Congressman Mike Thompson is also invited to speak. Seth Zuckerman, editor of *Salmon Nation*, will facilitate the Plenary.

Other highlights of the conference include the *Wild and Scenic Environmental Film Festival*, SRF's annual meeting, a poster session and reception, and a cabaret, a Copper River salmon banquet, and a lively dance party with Latin-dance band Sambada.

For more information, please see www.calsalmon.org or contact Salmonid Restoration Federation at (707)923-7501.



Some SRF Board and staff brainstorming the 2007 Conference agenda.

photo: Traci "Bear" Thiele

Take Down the Klamath Dams

By: Don Allan

Oral Comments on the Draft Environmental Impact Statement for the re-licensing of the Klamath River Hydroelectric Project. Given at the Federal Energy Regulatory Commission Hearing, Red Lion Inn, Eureka, California, November 16, 2006

Hello, my name is Don Allan. I am the president of the Salmon Restoration Federation. We are a California-based

non-profit organization with about 400 members. We put on an annual conference, as well as several workshops, trainings, and field schools per year at which we bring together watershed and fisheries restorationists, scientists, land managers, and government regulatory agency representatives, to share the latest thinking in the design, permitting, and implementation of a variety of watershed

and fisheries restoration strategies aimed at salmon recovery and restoration.

I want to thank the FERC representatives for coming to Eureka to hear the concerns about the Klamath dams. I feel sorry for you guys! I think you are probably all decent enough people. But you are here representing a

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Klamath River Hydroelectric Project, continued from front page

corrupt government and you are receiving the brunt of a lot of animosity aimed at the policies of the administration in Washington.

I remember Gail Norton defiantly opening the control gates up at Klamath Lake—directing the water down the irrigation canal rather than down the river—70,000 Chinook spawners died as a result. Three years later the run is devastated and the ocean and in-river fisheries are shut down, with a significant negative impact on the fishing families and communities in Northern California and Southern Oregon.

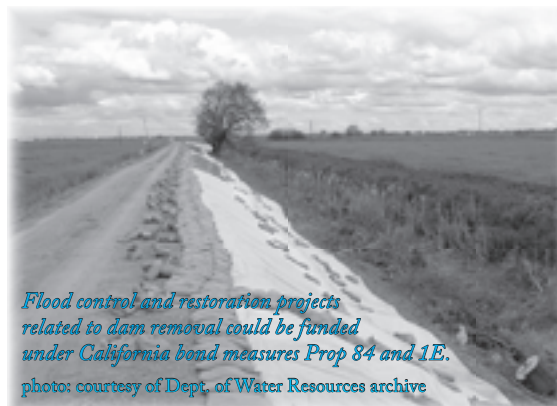
The draft EIS is fatally flawed. It does not consider the removal of the Klamath dams. The economics of a healthy fishery far outweigh the minimal amount of power generated by those dams. It is also a social and environmental justice issue. The first amendment and treaty rights of the Native Americans demand that the dams be removed. They are a sovereign nation—they have a constitutional right to pursue their traditional livelihood. The salmon were the center of the Indian culture and religion. It was an incredible food source—it went out to sea weighing a few ounces and came back weighing as much as 50 pounds or more of high quality healthy protein—all the Indians had to do was harvest it from the river. Native Americans today have a high incidence of obesity and type II diabetes because their traditional high quality food supply has been replaced by low quality processed food. Environmental justice needs to prevail for the spiritual, physical, and economic well being of the Klamath tribes.

Fish ladders are expensive and ineffective. Trucking is not a viable option. The water quality issues created by the dams demand that they be removed to protect the beneficial uses of the waters of the US and the state of California. Not only do the dams create a toxic stew of algae and bacteria, they are shallow and heat up, and the downstream river loses the beneficial effects of the cold water springs covered by the reservoirs. The DEIS needs to consider dam removal as the only viable option.

I am humbled by the native peoples here tonight. I am a newcomer—they have been here for thousands of years. They have spoken very eloquently and have given you all the reason you need to reject this DEIS. I also have a great deal of empathy for the fisherman from Trinidad who spoke earlier. I moved into Trinidad in 1983 and I remember a viable commercial and sport salmon fishery operating out of Trinidad Harbor. Now there is no commercial season and not much of a sport season. I grew up among fishermen—I had a grandfather and seven uncles who were commercial fishermen. I saw first hand how difficult it was for some of them to make the transition when their fishery was shut down and their livelihood and way of life were taken away from them.



SRF Board President Don Allan moonlighting as a bartender at the SRF Conference.



*Flood control and restoration projects related to dam removal could be funded under California bond measures Prop 84 and 1E.
photo: courtesy of Dept. of Water Resources archive*

You have the opportunity to do the right thing—to make the right decision. Environmental justice needs to prevail for the spiritual, physical, and economic well being of the native people and those who rely on salmon as a way of life—Take Down the Klamath Dams.

Californians Vote to Fund Conservation and Flood Control

The November 2006 elections clearly indicates that the majority of Californians want to continue to invest in natural resources conservation, habitat restoration and flood control.

Prop 1E (the Flood Control measure) passed with 64% of the vote. Prop 84 provides another \$800 million to flood control. In order to spend these bond funds, the measure requires the Legislature to appropriate them in the annual budget act or another law. This measure authorizes the state to sell about \$4.1 billion in general obligation bonds for various flood management programs including:

Ⓢ *State Central Valley Flood Control System and Delta Levees—\$3 Billion.* To evaluate, repair, and restore existing levees in the state's Central Valley flood control system; to improve or add facilities in order to increase flood protection for urban areas in the state's Central Valley flood control system; and to reduce the risk of levee failure in the Delta region through grants to local agencies and direct spending by the state.

Ⓢ *Flood Control Subventions—\$500 Million.* To provide funds to local governments for the state's share of costs for locally sponsored, federally authorized flood control projects outside the Central Valley system.

Ⓢ *Stormwater Flood Management—\$300 Million.* For grants to local agencies outside of the Central Valley system for projects to manage stormwater.

Ⓢ *Statewide Flood Protection Corridors and Bypasses—\$290 Million.* To protect, create, and enhance flood protection corridors, including flood control bypasses and setback levees; as well as for floodplain mapping.

Proponents of Prop 1E believe that the quality of California's oceans, streams, rivers, and drinking water will be kept safe and clean with funding made available through this measure.

—*excerpted from various sources*

Proposition 84 Will Provide \$5.4 Billion for Natural Resources

This November 54% of the voting California public said YES to Proposition 84, the Clean Water and Coastal Protection Bond Act of 2006. Proposition 84 will provide \$5.4 billion in bonds to fund safe drinking water, improve water management and flood control, and protect the state's lakes, rivers, streams, bays and beaches. Passage of Prop 84 indicates that California voters are willing to respond proactively to improve the state's water infrastructure and protect the natural waterways and coastal areas that make California a beautiful place to live.

California faces enormous population growth over the coming decades, with a predicted population increase of 25 million by 2040. An increase in population inevitably results in a corresponding increase in the pressures placed on both infrastructure and natural resources. Before the passage of Proposition 84 funding for natural resources and environmental protection made up only 1% of the overall state budget.

To address this issue a broad coalition of interests—water districts, conservation and environmental groups, local government entities, business organizations, museum and park interests, elected officials, and civic groups—formed to promote and support Proposition 84, the Clean Water, Parks and Coastal Protection Bond Act.

The funds authorized by Prop 84 will be allocated among several water-related projects. Projects dedicated to improving access to safe drinking water and improving water quality will receive \$1.535 billion. Some portion of this will be dedicated to protecting the water quality of the Sacramento-San Joaquin Delta, which provides drinking water to 23 million California residents—almost 2/3rds of California's population.

Proposition 84 would authorize \$5.4 billion in general obligation bonds, payable from the state's general fund, to fund water-related projects as follows:

\$1,535 million for **safe drinking water, water quality and other water projects.**

\$ 928 million for **protection of rivers, lakes, and streams** and funding to develop river parkways, restore and protect urban streams, and keep contaminated storm water runoff out of our rivers, lakes and streams.

\$ 800 million for **flood control** including the identification and mapping of high-risk flood areas, and the inspection and repair of levees and flood control facilities. By planning, designing and implementing multi-objective flood corridor projects, Proposition 84 will reduce future flood risk and maximize public benefits.

\$ 580 million for **sustainable communities** and the greening of our cities, schools and neighborhoods, while stimulating investments in water use efficiency and conservation to reduce energy consumption.

\$ 540 million to **preserve beaches, bays, coastal water and fishing communities** and also funds programs to protect the San Francisco, Santa Monica and San Diego bays and their watersheds.

\$ 500 million for **state parks and nature education & research** to expand and restore the state park system to reflect the state's growing population and shifting population centers.

\$ 450 million for **forests and wildlife conservation.**

\$ 65 million for **statewide water management and planning.**

\$1 billion to **Fund Resources Programs** in the 12 hydrologic regions in the state outlined in the California Water Plan, to address multi-regional needs and issues of statewide significance. Restorationists must stay informed to advocate for long-term restoration funding sources and that these natural resource allocations include Salmonid habitat restoration.

9th Annual Coho Confab: Celebrating a Coho Community

Salmonid Restoration Federation, Trees Foundation and Salmon Protection and Watershed Network (SPAWN) hosted the 9th annual Coho Confab August 25-27, 2006 at the Clem Miller Education Facility at Point Reyes National Seashore in Marin County. The Confab is a symposium to explore watershed restoration and learn techniques to enhance recovery of salmon and steelhead. This dynamic educational event was sponsored by the Fisheries Restoration Grant Program of the Department of Fish and Game, Marin Community Foundation, and NOAA's Restoration Center provided in-kind support.

The Confab brings together community members, landowners, activists, scientists, and restoration ecologists for a weekend of innovative skills-building workshops, hands-on tours of restoration projects, community networking, and fun.

This year kicked off with an orientation with Paola Bouley of SPAWN who gave

an inspiring talk about Coho salmon empowerment and local grassroots action and Liza Prunuske of Prunuske Chatham Inc. who presented a 20-year retrospective on Marin County salmon restoration efforts. Field tours included tours of Giacomini Wetlands and Point Reyes restoration projects where participants learned about and assisted with invasive plant removal and a tour of sustainable farm management practices that addressed water quality and habitat conservation. SPAWN led a tour of San Geronimo Creek restoration projects including the Geronimo Valley Rain Catchment Design Project and bioengineering projects.

Workshops included underwater fish identification of coho salmon and steelhead, macro-invertebrate sampling as a means of determining the health of the creek, native plant propagation workshop, and bird response to riparian restoration. NOAA Fisheries Restoration Center also led a full-day workshop on fish passage barrier

removal which addressed project design and planning, discussion of fish passage database resources including FishXing and CalFish, and a tour of fish passage barrier removal projects at Lagunitas Creek. Concurrent sessions included recovering California's central coast salmon and steelhead under the federal ESA, Miwok cultural perspectives on restoring the land and salmon, and estuary restoration.

The Confab culminated with a wild salmon feast prepared by Tomales Bay Association and a campfire with ecotroubadours Dana Lyons and Bill Oliver. This Confab was attended by nearly 100 participants from watershed groups throughout California as well as restorationists and agency personnel. The caliber and content of the presentations was excellent and it was a joy to partner with SPAWN.

Next year is the 10th Anniversary of the Confab and Trees Foundation will host the Confab on the Smith or Mattole River in Northwestern California.



Coho Confab organizers: Francine Allen of Trees Foundation, Dana Stolzman of Salmonid Restoration Federation, and Paola Bouley of SPAWN. (From L to R)

photo : Traci "Bear" Thiele



Discussing Fish Passage in the Culvert with Nancy Scolari of Marin County RCD, Kallie Kuhl formerly of FishNet 4C, Paul Mason of the Sierra Club, and a representative of the Fishery Foundation.

photo: Jodi Frediani



Paul Mason of the Sierra Club and Macroinvertebrate pioneer, Jim Harrington of DFG.

photo: Jodi Frediani

Coho Salmon Protections Upheld by Courts but Battle Continues

Coho salmon will remain protected by the California Endangered Species Act (CESA) after Sacramento Superior Court Judge Gail D. Ohanesian ruled against the California Forestry Association (CFA) et al and in favor of the fish on all counts. The June, 2006 ruling stymied attempts by the plaintiffs to undermine habitat protections for coho salmon in California. The case was filed against the California Fish and Game Commission and the California Department of Fish and Game. CalTrout intervened in the suit to preserve our long standing interest in the coho listing we submitted over six years ago and to insure habitat protections and recovery plans remain in place.

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The plaintiffs took a broad brush approach in the litigation and were hoping to find any opening that would overturn or delay implementation of the listing and the Recovery Strategy for California Coho Salmon. They were denied on all counts.

CalTrout is committed to remaining involved in the litigation and has retained legal representation to continue our efforts to protect the listing and the fish.

Please see the CalTrout website for additional information on the court rulings and the appeal, www.caltrout.org. The Recovery Strategy for California Coho Salmon can be viewed at: <http://www.dfg.ca.gov/nafwb.cohorecovery.html>

Salmonid Restoration Federation

Salmonid Restoration Federation's

25th Salmonid Restoration Conference

**March 7-10, 2007
Santa Rosa, CA**



Co-Sponsors:



Americorps Watershed Stewards Project, California Conservation Corps, California State Coastal Conservancy, Cal Trout, CalTrans, City of Santa Rosa - Creek Stewardship Program, Department of Fish and Game, Department of Water Resources, Eyak Preservation Council, Goldridge RCD, Forest, Soil, and Water, Inc., Marin County RCD, Marin Municipal Water District, Meadowbrook Conservation Associates, NOAA Restoration Center, Pacific Coast Fish Wildlife Wetlands Restoration Association, Pacific Watershed Associates, Prunuske Chatham, Inc., San Francisco Estuary Institute, Solano County Water Agency, Sonoma County Open Space District, Sonoma County Water Agency, Stoecker Ecological Consultants, Sycamore Associates LLC, The Bay Institute, Trees Foundation, Trout Unlimited, USDA Natural Resources Conservation Services of Davis, Winzler and Kelly

training workshops & field tours

Wednesday, March 7

Workshop:

Workshop 1: Fish Passage Barrier Removal Tools

The array of fish barrier removal tools is constantly changing. This workshop will highlight developments in website databases, fish passage design innovations, barrier assessments, and unique implementation tools that can help you in your own projects as well as tour some local fish passage projects and share experience in tailgate discussions.

Workshop Moderators: Leah Mahan, NOAA Restoration Center and Darcy Aston, Program Director, FishNet 4C

The Passage Assessment Database, a Tool for Stream Habitat Connectivity Restoration, Martina Koller, Pacific State Marine Fisheries Commission

Innovations in Approaches to Solving Fish Passage Problems, Mike Love, Mike Love & Associates

Design Methods for Improving Fish Passage and the Costs, Christine Jordan, Assistant Program Manager Five Counties Salmonid Conservation Program, Trinity County Planning Dept.

Horse Creek Damolition—A Case Study of Successful Dam Removal Using Explosives, Matt Stoecker, Ecological Services

Private-Public Partnerships for Fish Barrier Removal: The Experience in Sonoma Creek, Lisa Micheli, Restoration Program Manager Sonoma Ecology Center

House Creek Dam Removal: A Case Study and Lessons Learned, Leah Mahan, NOAA Restoration Center

County Road Crossing Inventories: Priorities for Fish Barrier Removal, Darcy Aston, Program Director, FishNet 4C

Promoting Natural Channel Evolution: a Solution to Fish Passage Issues in Willow Creek, Sonoma County, Lauren Hammack, Geomorphologist, Prunuske Chatham, Inc.

Field Tours:

Sustainable Winegrape Growing Practices Along the Northcoast

Tour leaders: Kent Reeves, East Bay MUD, and Ann Thrupp, Director of CA Sustainable Winegrowing Association

Participants will visit Fetzer and Bonterra vineyards and Preston winery involved in sustainable winegrape growing practices in Sonoma and Mendocino counties to see RCDs and NRCS projects to restore watersheds, and salmonid habitat. After the tour we will have an opportunity to taste wines at the Fetzer Winery in Hopland.

Upper Sonoma Creek Watershed Salmonid Habitat Enhancement Sites: Working within a Hydrologically Diverse System—Successes, Land Owner Objections, Modifications, and New Technical Considerations

Tour leaders: Lisa Micheli, PhD, fluvial geomorphologist; Will Pier, fisheries restoration specialist; Mark Newhouser, riparian vegetation project manager, Sonoma Ecology Center.



The Russian River meets the Pacific Ocean.

photo: David Landsman

This tour will visit 10 salmonid habitat enhancement installation sites, on three creeks that were treated with log and boulder in stream installations, and revegetated with native plants.

In-Stream Restoration and Bioengineering Practices

Tour leaders: Mike Jensen, Prunuske Chatham, Inc., Evan Engber, Bioengineering Associates, Brita Dempsey, Students and Teachers Restoring a Watershed (STRAW) Project, Project of the Bay Institute, Michael Lennox, UC Cooperative Ext.

This full day event will start with a slide show of the project sites and an overview of project considerations and design details. Afterwards we will tour local in-stream restoration and bioengineering projects.

S&F Annual Meeting 5:30-6:30pm

Thursday, March 8

Workshops:

Estuary and Lagoon Restoration Workshop

Coordinators: Leah Mahan and Gillian O'Dougherty, NOAA Restoration Center

This workshop will bring together researchers, planners and restoration practitioners to discuss estuarine restoration at an ecosystem level and as it specifically relates to salmonid restoration and recovery. Speakers will cover a variety of topics from research to planning to implementation and post-project monitoring.

Why Are There No Longer Any Salmon in Salmon Creek: Clues and Habitat Enhancement Opportunities from the Recent Estuary Study, Lauren Hammock, Prunuske Chatham, Inc.

Restoring Ecosystem Function to the Carmel Lagoon, John McKeon, National Marine Fisheries Service

The Dynamic Dance: Habitat Understanding and Enhancement of the Mattole Estuary?, Drew Barber, Mattole Salmon Group

Limiting Factors for Salmonids in Coastal Estuaries and Lagoons, Steve Cannata, California Department of Fish and Game

Salt River Estuary Enhancement: Restoring the Legendary Eel River a Piece at a Time, Michael Bowen, California Coastal Conservancy

Tidal Marsh Restoration in Humboldt Bay, Darren Mireau, McBain and Trush

Designing, Permitting, and Building Estuary Restoration Projects in Humboldt Bay, California, Don Allan, Redwood Community Action Agency

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Salmonid Restoration Federation

Salmon Restoration Federation 2007 Conference

Individual Registration Form (PLEASE USE ONE FORM PER PERSON)

• Advanced Registration Must Be Postmarked By February 14, 2007 •

Name: _____ Phone (work): _____
 Address: _____ (home): _____
 _____ email: _____
 Affiliation: _____ Please check box if you are a presenter

Training Workshops & Field Tours

Advance Registration Late Registration _____ FEE

Wednesday, March 7, 2007

1. Fish Passage Barrier Removal Tools Workshop	\$50	\$60	
2. Sustainable Winegrape Growing Practices Tour	\$50	\$60	
3. Upper Sonoma Creek Watershed Tour	\$50	\$60	
4. Instream Restoration and Bioengineering Practices Tour	\$50	\$60	

Thursday, March 8, 2007

5. Estuary & Lagoon Restoration Workshop	\$50	\$60	
6. Dam Removal and FERC Relicensing Workshop	\$50	\$60	
7. Dutchbill Creek Watershed Restoration Project Tour	\$50	\$60	
8. Planned Grazing for CA Native Grassland Management Tour	\$50	\$60	
9. Headwaters to Mouth: Austin Creek Watershed Tour	\$50	\$60	
10. Prince Memorial Greenway short tour (5:15- 6:45pm)	\$20	\$20	

* Field tours include a bagged lunch and transportation. Please wear clothing, raingear and shoes appropriate for field tours.

Wild and Scenic Environmental Film Festival

\$7 \$10 _____

Conference

March 9-10, 2007 (includes Friday and Saturday lunch and a copy of the Proceedings)

SRF Member (individual membership only)	\$100	\$130	
Non-member	\$150	\$180	
Student (with photocopy of student ID)	\$70	\$80	

Saturday Banquet

(Preference: Salmon _____ Chicken _____ Vegetarian _____) \$30 \$30 _____

Membership

New Renewal

Individual Memberships: \$25 Alevin \$50 Fry \$100 Smolt \$250 Jack \$500 Spawner _____

Payment Total _____

Method of Payment Check Money Order Purchase Order

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

VISA MasterCard Credit Card# _____ Exp. Date _____

Approval Signature _____

Mail form and payment to: SRF Conference, PO Box 784 Redway, CA 95560 (Make checks payable to: SRF)
 phone: (707) 923-7501 • fax: (707) 923-3135 • e-mail: srf@calsalmon.org

Please Note: We do not give refunds • Receipts provided upon request. • This form is available at www.calsalmon.org

Salmon-Friendly Vineyard and Sustainable Grazing Practices on Wednesday & Thursday, March 7-8, 2007

Livestock and winegrape production are two of the largest agricultural land uses in California and encompass over 38.5 million acres combined. These two forms of agriculture production have been an important component of California's economic and social fabric since the establishment of the first Spanish mission in San Diego in the late 1700's. Combined, livestock and winegrape production contribute over \$50 billion annually to California's economy. Resource management professionals recognize the role of sustainable agriculture in the conservation of fish and wildlife. Therefore, understanding the sustainable management of livestock and winegrape production can contribute to an overall benefit for fish and wildlife influenced by these two forms of agriculture.

Using Planned Grazing in the Management of Native Grasslands

Although there are gaps in research-based knowledge in regards to managing for California's native grasslands, the initial grazing/classroom portion of this workshop will discuss planning a livestock grazing program which seeks to control annual invasive species while enhancing


native perennial species. How to select an appropriate herbivore, timing of grazing and intensity of grazing, managing riparian areas, grazing system, and tools needed for a successful grazing regime will be explored. Real life experiences, successful and less successful, will provide context for the discussions.


Implementation of Sustainable Winegrape Growing in California

California is one of the world's leading grape producers, accounting for 90 percent of U.S. production and more than nine percent of global output—fourth largest after France, Italy and Spain. Winegrapes are grown in 46 of California's 58 counties covering 513,000 acres and ranking among the state's top 10 agricultural products. Within the agriculture industry, California winegrape growers are considered leaders in the sustainable farming arena. However, how does one implement sustainable farming in their own vineyard? The classroom portion of the workshop will address the challenges of sustainable winegrowing, which are: 1) Defining sustainability; 2) Implementing sustainable winegrowing practices in the

vineyard; and 3) Measuring progress at the individual vineyard level. Examples of sustainable winegrape growing adjacent to riparian areas will be discussed.

Field Trips

 *Sustainable Winegrape Growing Practices along the Northcoast*

 *Planned Grazing in the Management of Native Grasslands and Riparian Areas*

Participants in these tours can receive six Continuing Education Credits per tour.



Kent Reeves (co-leader of both field tours) has two educations, one from Humboldt State University (a B.S. and M.S.), and the other from the backside of a horse. He is a Certified Professional in Rangeland Management and Certified Wildlife Biologist.

photo: Kent Reeves







FERC Relicensing Process and Dam Removal Workshop on Thursday, March 8, 2007



Most hydropower dams were constructed prior to the enactment of our nation's environmental laws and have therefore been operating under antiquated terms for decades. These state and utility-owned dams receive federal operating licenses that last 30 to 50 years. During this license term, dam owners are not expected to modify projects in order to meet evolving environmental laws. Not until the license expires is there an opportunity to evaluate how a project has impacted the natural environment and the public's right to clean, accessible rivers. New licenses may require dam owners to incorporate measures that improve habitat for fish and wildlife, reduce impacts to water quality, and increase

opportunities for public recreation. In some cases, when hydropower operations produce a small amount of energy with respect to the harm caused to rivers, the most economical and environmentally sound decision may mean dam removal.

During this discussion we will take a look at:

-  What is the FERC relicensing process?
-  Who is involved in the process?
-  Restoration opportunities
-  What are the key opportunities for public involvement?
-  Upcoming projects in California
-  Examples of dam removal through the FERC process

The West Panther Creek Dam on the Mokelumne River is removed as a result of a federal dam relicensing process. Note: SRF does not condone the use of heavy equipment in the riparian zone.

photo: Steve Evans

Dam Removal and FERC Relicensing

Coordinator: California Hydropower Reform Coalition

This workshop will discuss what the FERC relicensing process is, who is involved in the process, restoration opportunities, what the key opportunities for public involvement are, upcoming projects in California, and examples of dam removal through the FERC process.

CHRC—The FERC Relicensing Process and Dam Removal, Keith Nakatani, Director, California Hydropower Reform Coalition

Removing Dams on the Mokelumne: A Case Study of the FERC Relicensing Process, Pete Bell, Foothill Conservancy

Stakeholder Conflict in Adaptive Management, Dave Steindorf, CA Stewardship Director, American Whitewater

Visualize the Klamath River Un-Dammed: Using an Interactive Model to Envision Dam Removal, Steve Rothert, Director, California Field Office, American Rivers

Moving the Message: Effective Media and Grassroots Outreach, Craig Tucker, Klamath Campaign Coordinator, Karuk Tribe

Fuel for the Fire: Does Science Provide the Answers Sought by Participants of a License Proceeding Involving Dam Removal?, Eric Ginney, PWA Environmental Hydrology

Trials on Fishways and Other Mandatory Conditions in Hydropower Licenses, Richard Roos-Collins, Director of Legal Services, Natural Heritage Institute

A Perspective on Incentives, Costs, and Process Involved in FERC Relicensing Proceedings—A Cautionary Perspective, Guy Phillips, PhD. Economics

Field Tours:

Rivermouth to Ridgeline Tour of Dutch Bill Creek Watershed Restoration Projects

Tour Coordinator: Brock Dolman, Occidental Arts & Ecology Center

This field tour will focus on the Dutch Bill Watershed, a tributary of the lower Russian River where participants will see applied watershed restoration techniques, from instream structures, fish passage, dam removal, advanced road reshaping, upland headcut & fuel load mitigation, stormwater recharge, wildlife habitat enhancement, and community education and organizing. Dutch Bill is considered to be one of the most critical watersheds for the recovery of endangered coho salmon and steelhead in the Russian River. Additional tour leaders include Gold Ridge RCD staff and restoration specialist Doug Gore of Dragonfly Stream Restoration.

Using Planned Grazing in the Management of Native Grasslands and Riparian Areas

Tour Coordinators: Kent Reeves, California Native Grasslands Association and Stephanie Larson, UC Cooperative Extension Livestock Manager

This tour will visit three sites on Thursday, March 8 to view grazing management practices that benefit native grasslands, riparian areas, and ultimately fish and wildlife. We will visit the Walker Creek and McDonald Ranches in western Marin County. The McDonald Ranch was featured in the California Cattlemen's Association publication *Grazing for Change*. We will then turn our attention to the Point Reyes National Seashore and the range management program that includes livestock and reintroduced tule elk.



The Prince Memorial Greenway provides recreation as well as enhanced habitat for fish and wildlife in downtown Santa Rosa.

photo: courtesy City of Santa Rosa archive

Restoration from Headwaters to Mouth: a Tour of Cooperative Approaches to Restoration in the Austin Creek Watershed

Tour Coordinators: John Green, Pacific Watershed Associates and Sierra Cantor, Fisheries Biologist, Sotoyome, Resource Conservation District, and Bob Coey, Dept. Fish and Game

The Austin Creek watershed harbors some of the best habitat in the Russian River basin, and is home to a number of federally-listed threatened and endangered species, including coho salmon, steelhead trout, and freshwater shrimp. The field tour will visit recently completed restoration projects ranging from upslope sediment reduction and native riparian re-vegetation projects to the "Lower Austin Creek Migration Improvement Project" near the confluence with the Russian River.

Prince Memorial Greenway Tour: The Benefits and Constraints of Urban Creek Restoration

Tour Coordinators: former Santa Rosa City Councilmember Steve Rabinowitsh, Steve Chatham, Principal of Prunuske Chatham, Inc., Supervising Engineer Dave Montague and Environmental Specialists Steve Brady and Alistair Bleifuss of the City of Santa Rosa Public Works Department.

A walking tour of Santa Rosa Creek: Discover how citizens sparked the transformation of a concrete lined channel into an award-winning greenway that provides environmental, social, and economic benefits to the community. Discussion of contaminated soils, flood protection, limited right-of-way, funding, and other obstacles to creek restoration in the urban environment.

Wild and Scenic Environmental Film Festival—Thursday 7-10pm

See back page for info.



A Rainbow Trout

drawing: courtesy Trees Foundation archive

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Conference events & sessions

Friday, March 9

Plenary Session 8:30 am to noon

Plenary Moderator: Seth Zuckerman, author of *Salmon Nation Taking Wood Out and Putting it Back in Again: A Generation of Salmonid Restoration in Marin and Sonoma Counties*, Liza Prunuske, Prunuske Chatham, Inc.

Coho Habitat Restoration in Urbanizing Watersheds: Beware Non-point Source Pollution, Nathaniel Scholz, Research Zoologist, Ecotoxicology and Environmental Fish Health Program, Northwest Fisheries Science Center

Climate Change and Watersheds, Freeman House, author of *Totem Salmon*

Climate Change and the Future of California Salmonids, Peter Moyle, Fisheries Biologist, University of California, Davis and author of *Inland Fishes of California*

Friday Afternoon Concurrent Sessions

The Future of California Salmon—Water Quality and Quantity Issues Downstream of Large Reservoirs

Session Chair: Tom Stokely, Trinity County Planning Dept.

Assessing Effects of Groundwater Accretion on Scott River Water Temperatures, Bryan McFadin P.E., Water Resource Control Engineer, North Coast Water Quality Control Board

How Flow Effects Temperature—Shasta River Temperature TMDL, Matt St. John, Water Resource Control Engineer, Acting Lead TMDL Unit, NCRWQCB

Addressing Low Flows in California TMDLs, Samantha K. Olson, Staff Counsel NCRWQCB

Inter-Relationships Between Water Quality/Quantity in Klamath/Trinity/Sacramento Systems, Michael Deas, Ph.D, P.E. Principal, Watercourse Engineering, Inc.

The Tribal Perspective on Water Quality and Quantity, Kevin McKernan, Director Yurok Tribe Environmental Program

Will We Run Out of Cold Water for Salmon During the Next Drought?, Tom Stokely, Trinity County Planning Department

The Scott River Experience with Water Code Section 1707 Water Transfers, Gary Black, Siskiyou County Resource Conservation District and Robert E. Donlan, Ellison, Schneider & Harris

Coho Recovery Program,

Session Chair: Dave Lewis, UC Coop Ext.

NOAA Fisheries Coho Recovery Plan, Charlotte Ambrose, National Marin Fisheries Service North-Central California Coast Recovery Coordinator

CDFG Coho Recovery Plan, Manfred Kittle and Joe Pisciotto, California Department of Fish and Game Coho Recovery Planners

Russian River Coho Salmon Captive Broodstock Program, Louise Conrad, Pacific States Marine Fisheries Commission Hatchery Biologist and Mariska Obedzinski UC

Cooperative Extension and Sea Grant Program Monitoring Coordinator

Coho Response to Habitat in the Lagunitas and Olema Creek Watersheds, Brannon Ketchum, Point Reyes National Seashore Hydrologist

Scott and Shasta Rivers Coho Recovery Plan, Gary Black, Senior Project Coordinator Siskiyou Resource Conservation District

Coho Recovery in Santa Cruz and San Mateo Counties, NMFS Santa Cruz Laboratory and Monterey Salmon and Trout Project

Salmonid and Watershed Education

Session Coordinator: Stephanie Lennox, Envirichment

The STRAW Project (Students and Teachers Restoring A Watershed), Brita Dempsey and Laurette Rogers, STRAW of the Bay Institute—Students and Teachers Restoring A Watershed

Creating the Cultural Conditions for Restoring the Lost Fish of the Yuba, Jason Rainey, Executive Director, & Jeff Martinez, RiverTeachers Director, South Yuba River Citizens League

Taking Action—Helping Students Plan and Implement an Environmental Project, Connie O’Henley, Executive Director, Sarah Paddock Education/Outreach Project Manager, Central Coast Salmon Enhancement

Salmon Camp Research Team, Dan Calvert, Program Coordinator, Salmon Camp Research Team

Place Based Education at Salmon Creek School, Laurel Anderson and two middle school students, Salmon Creek School

Evolving Towards Effectiveness: 8 Years of Bioassessment, Bugs and Human Behavior in Santa Rosa, California, Stephanie Lennox, Envirichment

Education and Grassroots Action: Two Integrally Linked Pieces of the Puzzle for Coho Recovery in the Lagunitas Watershed, Marin County, CA, Todd Steiner and Paola Bouley, Salmon Protection and Watershed Network (SPAWN)

Poster Session & Reception 7-10pm

Saturday, March 10

Saturday Morning Concurrent Sessions:

Measuring Watershed Condition and Management Performance

Moderator: Fraser Shilling, UC Davis

Measuring Watershed Condition and Management Performance, Fraser Shilling, Research Scientist, Department of Environmental Science and Policy, University of California, Davis

Aligning Socio-Economic and Ecological Condition Valuation, Rainer Hoenicke, Deputy Director, San Francisco Estuary Institute

Meeting and Measuring Water Quality Objectives, Lauma Jurkevics, Division of Financial Assistance, State Water Resources Control Board

CDFG Salmonid Habitat Indicators and Rating System, Scott Downie, Senior Biologist, Coastal Watershed Planning and Assessment Program, California Department of Fish and Game

Riparian and Aquatic Habitat Trajectory on North Coast Ranches, Michael Lennox, UC Cooperative Extension

Evaluating and Managing for the Effect of a Changing Climate on Stream Temperatures, Peter Miller, Department of Landscape Architecture and Environmental Planning University of California at Berkeley

State Framework to Measure Programmatic Performance, Stefan Lorenzato, Watershed Program, Department of Water Resources

Enhancement, Rehabilitation, and Restoration: What's the Difference and Why Should the Fish Care?

Session Coordinator: Eric Ginney, PWA Environmental Hydrology

An Overview of California Restoration to Date: The Big Picture Via the National River Restoration Science Synthesis (NRRSS), Shannah Anderson, UC Berkeley

Changing Restoration Paradigms: Research from the Russian River, Adina Merenlender, UC Berkeley

Stream Enhancement Projects: The Good, the Bad, and the Ugly, (presenter TBD)

Ecologically Meaningful Restoration and Rehabilitation: Considerations of Floodway Width, Scott McBain, McBain & Trush

Restoring the Lower San Joaquin River: Is it Reasonable?, G. Matt Kondolf, UC Berkeley

Dynamic Geomorphic Processes, Human Impacts, and Floodplain Restoration, Joan Florsheim, UC Davis

Coastal Watershed Planning and Restoration

Session Coordinators: Karen Gaffney, West Coast Watershed, and Paola Bouley, SPAWN

Integrated Watershed Planning in North Coastal California, Karen Gaffney, Restoration Ecologist, West Coast Watershed

A Search for Better Tools to Measure Impairment or Recovery of Salmonid Populations, Charley Dewberry, Ecotrust, Portland

Watershed and Forest Restoration On Private, Rural Lands: New Insights From The Mattole Valley, Chris Larson, Mattole Restoration Council

Highly Impacted Tributaries of the Upper Lagunitas Watershed: Most Important Coho Spawning and Rearing Habitat?, Todd Steiner and Paola Bouley, Salmon Protection and Watershed Network (SPAWN)

Rincon Creek Watershed Plan, Michelle Bates, Tetra Tech, Inc. and Mauricio Gomez, Community Environmental Council

Homeless in the Creek? Do LWD Structures Work to Improve Coho Habitat: A Comparison Between Lagunitas Creek (Marin County) and the Pacific Northwest, Leslie Ferguson, UC Davis and Regional Water Quality Control Board

Coastal Marin Watershed Planning and Ecological Restoration, Brannon Ketcham, Point Reyes National Seashore.

Evaluating S.F. Estuary and South Coast Watersheds for Steelhead Restoration, Gordon Becker, Senior Scientist, Center for Ecosystem Management and Restoration

Saturday Afternoon Concurrent Sessions

Chinook Fisheries Closures: the Economic, Cultural, and Recovery Impacts

Winter 2006/7

Session Coordinator: Zeke Grader, Pacific Coast Federation of Fishermen's Associations (PCFFA)

Chinook Fisheries Closures: an Overview, Zeke Grader, PCFFA

Bringing the Klamath Salmon Back Home, Troy Fletcher, Fisheries Manager, Yurok Tribe

Local and Regional Impacts of Fishery Closures: A Klamath River Example, Guy Phillips, Economist

Native American Cultural Impacts of the Loss of Salmon, Jene McCovey, Yurok Tribal member and traditional storyteller

North Coast Water Diversions: Can Coho Go with the Flow?

Session Coordinator: Rob Dickerson, Trout Unlimited

Invasive Plant Species: Landscape Scale Impacts to Aquatic Habitat, Water Quality & Quantity, Karen Gaffney, West Coast Watershed

Like Water for Coho: Solutions for Managing Water Diversions and Maintaining Instream Flows in Salmon and Steelhead Tributaries, Brian Johnson, Trout Unlimited

Upcoming TMDLs in the Russian River, Brian McFaddin, North Coast Regional Water Quality Control Board

Russian River Watershed Adaptive Management Plan, Dan Smith, USACE Engineering Research and Development Center

North Coast Regional Water Quality Control Boards Proposed Riparian, Floodplains, and Wetland Policy, Dave Hope, NCRWQCB

Stream Flow and Habitat Scaling Along a Spatial Gradient: Do Current Management Policies in Northern Coastal California Offer the Same Protections to Anadromous Salmonids Throughout the Drainage Network?, Mathew Deitch, UC Berkeley

The Mattole Flow Program: Effort and Experiences in the Restoration of Instream Flows, Tasha McKee, Sanctuary Forest

Summer Flow Variability and Juvenile Steelhead Survivorship in Russian River Tributary Streams, Ted Grantham, UC Berkeley

Regional Land Use Planning and Implementation Strategies in Aquatic Conservation

Session Coordinators: Bill Weaver and Danny Hagans, Pacific Watershed Associates

Setting Regional Priorities for Watershed Restoration, David Bayles, Executive Director, Pacific Rivers Council

Scott River Sediment TMDL: Technical Project—Public Process, Richard Fadness and Donald A. Coates, North Coast Regional Water Quality Control Board

California Water Law Can Help Salmon—A Short "How To" Guide, Alan Levine, Coast Action Group

Land Use, Water Quality and Stream Habitat—Is a New Strategy Needed in Rural Counties?, Mark Lancaster and Sandra Perez, Five Counties Salmonid Conservation Program, Trinity County Natural Resources Division

First Priority Implementation Strategies for Sediment Control in Ecologically Valuable Watersheds, Todd Kraemer, William Weaver and Danny Hagans, Pacific Watershed Associates

Cabaret & Banquet

6:00 pm Wild Salmon Banquet

7:00 Awards & Cabaret

8:30 pm Dance



Harvesting Stormwater, Saving our Creeks

 by SPAWN

SPAWN recently completed a stormwater-harvesting project in partnership with the Lagunitas School and the Regional Water Quality Board. The project serves as a model of sustainable water-use and conservation that also serves to protect creekbanks from harmful erosion due to runoff from impervious surfaces. The design captures rainwater from the roof of a lunch-shelter on the playground, and before it reaches the stormdrains, diverts and stores it in a cistern that will serve to irrigate the Schools' Organic Garden Project through the dry summer months.

Left un-captured, the runoff would have drained into a 10-inch storm-drain that empties out onto an already eroded bank on Larsen Creek, a salmon-bearing creek in the San Geronimo Valley. "This project saves precious drinking water, saves the school money on their water bill, and reduces erosion," said Todd Steiner, SPAWN's Director. "If this innovative and scaleable project was replicated throughout the watershed, it could help to re-charge our underground aquifer, reducing the impacts of development that cause our creeks to go dry salmon, stranding baby salmon, in the summertime."

Capturing and re-using this water on site saves society and the environment enormous costs associated with building more dams to meet growing water needs for humans, eliminating the energy needed to pump water from its source to treatment plants to users, and eliminates the need to treat water with chlorine or chloramines for drinking, even though the majority of our water use is for landscaping.

In Marin County 33% of water demand during the summer drought period is used for landscaping. The project will save the Lagunitas School District from purchasing at minimum 35,000 gallons of chloramine-treated water each year from Marin Municipal Water District.

Currently, impervious surfaces from roofs, parking lots, driveways and roads prevent water percolation into

underground aquifers, causing more dangerous and frequent flooding that threatens lives and property. The increased velocity and volumes of water also increase soil erosion, damage creek banks and caused harmful sedimentation that harm salmon and other aquatic life.

"Sediment is a key pollutant in salmon streams and bank erosion due to runoff from paved areas deposits fine sediment which smothers gravelbeds, key spawning and rearing areas for endangered salmon and steelhead. Additionally, steep and eroded creek banks become unstable and streamside forests lose their footings, further exacerbating the erosion problem, said Paola Bouley, SPAWN's watershed biologist.

A single half-acre school parking lot, similar to one of several at Lagunitas School, drains a half-million gallons of runoff in an average rainfall year. If instead of simply disposing of the water as a waste-product, we learn to retain and treat it in vegetated swales and infiltration basins, then we begin the process of protecting what is increasingly a limited resource on this planet, clean water," remarked Bouley.

For more information on this project and to learn about ways your school can conserve water and reduce non-point source pollution contact SPAWN at 415-488-0370 x102, *Spawn@SpawnUSA.org*. Visit our website at *www.SpawnUSA.org*.



A drawing of a coho salmon
drawing: courtesy Trees Foundation archive

Lodging: SRF has arranged a discounted rate at the FountainGrove Inn (2 miles from the Wells Fargo Center for the Arts). To receive discounted rates, you must make your reservation by January 24th, 2007 and let them know you are attending the Salmonid Restoration Federation Conference.

FountainGrove Inn Reservations Department (800)222-6101, www.fountaingroveinn.com. To avoid confusion, please contact hotel by phone to make reservations. \$84 Deluxe King/Double Queen Sun-Thu, \$94 Standard King Suite Sun-Thu, \$104 Deluxe King/Double Queen Fri-Sat, \$109 Standard King Suite Fri-Sat, \$15/additional person in room

Fountain Grove Inn: 101 Fountain Grove Parkway, Santa Rosa, CA 95403

Directions from SF: 101N to Mendocino Ave/Old Redwood Hwy Exit, Go Right onto Mendocino Ave to Fountain Grove Parkway. Hotel is at intersection.

From Eureka: 101S to Hopper Ave Exit toward Mendocino Ave, left onto Cleveland Ave, left onto Mendocino Overcrossing, cross 101 until intersect Fountain Grove Parkway.

Driving Directions to the Arts Center: On US 101, take the River Road exit and head west (go right if on 101 North, left if on 101 South) to Mark West Springs Road. Turn right into the Wells Fargo Center for the Arts' main entrance. Each day shuttle service will be provided between the Fountain Grove Inn and the Wells Fargo Arts Center.

Airport Shuttle Service: Sonoma County Airport Express (800)327-2024. Serves both San Francisco Airport and Oakland Airport, \$28 one way, no reservations required. Stops in Santa Rosa include Sonoma Airport and Days Inn—Santa Rosa. Please refer to webpage www.airportexpressinc.com for schedule details.

Please note:

To perform in the Cabaret, please call Jennifer Jenkins at (707)318-4618. To arrange to present at the Poster Session, please email jgeppert@waterboards.ca.gov & cc: abaker@waterboards.ca.gov

SRF has limited scholarships available. Please call (707)923-7501 or email srf@calsalmon.org to inquire. Check out www.calsalmon.org for more information.

SRF Presents Awards for Outstanding Achievements in the Salmonid Restoration Field. If you would like to nominate someone for a Lifetime Achievement award or the Golden Pipe award for innovations in the restoration field, please email srf@calsalmon.org 200 words describing the nominee's accomplishments by February 10.

1st Annual Spring-Run Chinook Symposium

Butte Creek, July 27-29, 2006



SRF hosted the 1st Annual Spring-run Chinook symposium at beautiful Butte Creek Meadows.

photo: Connie O'Henley

The Salmonid Restoration Federation, in partnership with Pacific Gas, and Electric, Friends of Butte Creek, Department of Water Resources, and Sacramento River Preservation Trust hosted the 1st Annual Spring-Run Chinook Symposium, July 27-29, 2006, in beautiful Butte Creek. SRF offered a three-day opportunity for local landowners, restorationists, fisheries biologists, and agency staff to participate in workshops on fish monitoring and identification techniques, to tour and understand restoration projects, and, through positive dialogue, to increase their capacity to positively impact the recovery of Spring-run in California.

This new symposium provided affordable technical and hands-on trainings for the fisheries restoration and water conservation communities to benefit Spring-run Chinook populations

in California. Additionally, this event provided cooperative opportunities for landowners, agency biologists, and community restorationists to discuss issues and perspectives in Spring-run Chinook restoration and recovery in California. Located in the Northern Sacramento Valley, Butte Creek contains one of the last self-sustaining populations of Spring-run Chinook in California. The recovery of the Butte Creek Spring-run Chinook provided a unique opportunity to highlight the importance of collaborative watershed planning efforts in the recovery of other Spring-run populations in California.

The event began with full day tours on the upper and lower watersheds. PG & E led a tour of their hydroelectric facilities in the upper watershed. Olen Zirkle of Ducks Unlimited led a Lower Watershed tour that viewed and discussed recent and upcoming dam, diversions, and fish barrier modifications. SRF also hosted a wild salmon BBQ with Paul Ward and Tracy McReynolds of DFG who discussed Spring-run Chinook salmon and Tina Swanson of the Bay Institute who presented about the status of the Spring-run Technical Review Team's recovery efforts.

Participants had the opportunity to tour the upper watershed to see roads and meadows restoration efforts. Kent Reeves of the California Native Grasslands Association, Roger Cole of Streaminders, and Geomorphologist Eric Ginney led meadow restoration tours. The Lower Watershed

Workshop provided an overview of fish identification and counting techniques, weirs, snorkel surveys, and carcass counts. Doug Demko of SP Cramer discussed the fish counting weir on the Stanislaus and the Spring-run population model that they are developing. Mark Gard from USFWS taught participants about spawning gravel survey methods to assess the habitat relationships between water flow and gravel quality. Other tours included a visit to Big Chico Creek Ecological Preserve and a hike to Deer Creek Falls.

SRF hopes to reestablish the spirit of the Spring-run Salmon workgroup founded by Nat Bingham to engage restorationists in watersheds containing Spring-run Chinook salmon by highlighting past and ongoing restoration and recovery efforts. SRF hopes to make the Spring-run Chinook symposium an annual event and to host this symposium in the Klamath Basin next summer.



Participants in the Spring-run Chinook symposium toured PG & E facilities including the De Sabla Reservoir.

photo: SRF archive

Central Coast Field School Report

Central Coast Salmon Enhancement and the Salmonid Restoration Federation hosted a Field School on July 18-21 in Arroyo Grande, California. Course Instructors, Bill Weaver and Danny Hagans of Pacific Watershed Associates presented Culvert and Road Drainage Practices to Protect and Benefit Salmon and Steelhead in the Central Coast Region. The three-day course included classroom material as well as several sessions in the field. The course highlighted proper ditch relief and stream crossing culvert installation, with and without downspouts, flared inlets, trash racks, etc., as well as proper installation of critical rolling dips or measures to eliminate stream diversions. Classroom and field methods to determine appropriate culvert sizing for

peak stream flows, sediment, and woody debris in transport; Proper approaches for addressing potential road fill and landing failures, as well as spoil disposal techniques. The course illustrated a variety of road bed and ditch drainage approaches. These include when, where, and how to convert insloped and ditched roads to outsloped roads with or without a ditch, when, where, and how to construct rolling dips with and without rock, and when, where, and how to dispose of berms along roads. The course also addressed how to properly excavate a stream crossing fill to minimize post excavation erosion and sediment delivery to streams, and how to reduce roadbed width on excessively wide segments of road. Next summer we will offer a bioengineering and road decommissioning short-courses on the Central Coast.

Winter Road Maintenance

By Jennifer Jenkins

Following a hectic summer of project implementation, salmonid restoration projects throughout California have been closing up shop as winter approaches. In the northernmost reaches of western California, rains have already begun to fall, and projects near streams have been buttoned up. As the season changes, it is time to baton down the hatches on our local roads, to reduce erosion that may occur during the wet months ahead. This article highlights “do it yourself” methods for winterizing your road to reduce erosion that may deliver excess sediment to fish bearing streams.

Each winter, erosion from roads has the potential to reach fish-bearing streams, filling in spawning beds and degrading water quality. This type of erosion typically occurs when culverts become plugged with debris, ditches do not function properly or are not adequate to transport winter flow, or when road design does not allow for adequate road drainage. Any or all of these problems on a road can lead to catastrophic road failure and delivery of sediment directly to stream channels. Compacted road surfaces, including unpaved surfaces, may increase runoff rates. Ditches create concentrations of water and can transport sediment to nearby stream channels. Undersized and un-maintained stream crossings can plug and wash out or create gullies when diverted streamflow runs down nearby roads and hillslopes (Weaver and Hagans 1994).



Maintaining & unplugging culverts is an integral part of winter road maintenance.

photo: Bryan McFadden

If you live on a road, especially a low volume rural road, don't hang up your restoration hat for the season just yet. Regular road maintenance, including winterization, are important pieces of the restoration picture. Roads that are not winterized, or maintained, have the potential to fail creating access problems, property damage, and damage to fish-bearing streams. These failures can severely damage road conditions, preventing access to property and creating unsafe driving conditions. Furthermore, road problems such as plugged culverts can lead to catastrophic road failures and discharge of sediment directly into the streams below that could have a detrimental effect on salmonids at all life stages within those streams.

Inspecting your road throughout the winter can prevent some of these problems. Most of the “do it yourself” winterization practices listed below require only hand, shovel and minor chainsaw work. (NOTE: The following recommendations are intended for smaller volume roads, not larger volume roads where the use of heavy equipment may be necessary to winterize. Please follow all rules and regulations when working near streams.)

Before winter weather beings:

- ❦ Identify all potential erosion locations on road (i.e. stream crossings, ditches, unstable fill slopes.)
- ❦ Clear all culvert inlets and outlets of debris.
- ❦ Clean all floatable debris and sediment accumulations around culverts, drop inlets and trash racks.
- ❦ Remove debris and sediment from ditches.
- ❦ Trim any vegetation that may impede flow in ditches.
- ❦ Apply erosion control (i.e. mulch) to bare ground.
- ❦ Excavate unstable fill which could fail and be delivered to a watercourse during the winter.
- ❦ Once seasonal or temporary roads have been winterized, they should be gated or closed to non-essential traffic.

During winter weather:

- ❦ Check all culverts and drainage structures following storms ensure proper function and that they are free of debris.
- ❦ In snowy regions, ensure that snow is pushed to the outside edge of the road. Holes should be cut or pushed in the snow berms to allow water to drain off the road during rain events and thawing conditions.
- ❦ Inspect all trash barriers following storms and if possible clear of any floatable debris.

In spring:

- ❦ Re-inspect all roads for damage.
- ❦ Before conducting any major repairs (i.e. requiring heavy equipment) consult a geologist (or other resource professional) for treatment options and agency personnel that may require a permit for such repair.

Checklist adapted from the “Handbook for Forest and Ranch Roads” by William Weaver and Danny Hagans. Copies are available from the Mendocino County Resource Conservation District, 405 Orchard Ave, Ukiah, CA 95482. (707)468-9223. \$20

Places to look for more information:

“Low Volume Roads Engineering: Best Management Practices Field Guide.” US Agency for International Development, 2003.

“Handbook for Forest and Ranch Roads.” 1994.

“A Water Quality and Stream Habitat Protection Manual for County Road Maintenance in Northwestern California Watersheds”, 5C Roads Maintenance Manual, www.5C.org

“Guidelines for Protecting Aquatic Habitat and Salmon Fisheries for County Road Maintenance”. FishNet 4C.2004. www.fishnet.marin.org

“California Salmonid Stream Habitat Restoration Manual.” 3rd ed. CA Department of Fish & Game, 1998.

Salmonid Restoration Federation

Addressing Sediment as a Limiting Factor

by Josh Israel

This is the first in a series of short articles on limiting factors influencing water quality, water quantity, and the health of salmonids.

Restoring riverine habitats to conditions favorable for supporting salmonids through their reproductive and smoltification life stages as adults, eggs, and juveniles is critical to our necessary response for recovering aquatic biodiversity. The acceleration of fine-sediment delivery and storage in coastal rivers and inland tributaries supporting salmonids drastically decreases egg survival, foraging success, and juvenile growth while increasing injury. This problem is extreme in northern California where about 59% of watersheds are impaired by sediment (EPA 2002). The literature is full of excellent studies that experimentally and empirically characterize the detrimental impacts of fine sediment of salmonids, and some of these are further highlighted here.

In 1985, Berg and Northcote (1985), experimentally demonstrated changes in behavior of juvenile coho salmon to short-term pulses of suspended sediment. During these exposure tests, individual fish left their territories and had irritated gills. Additionally, reaction distances to prey, capture success rates, and prey ingestion rates declined during periods of higher turbidity. More recently, Lake and Scott (1999) described that the type of fine sediment was linked to fish stress and mortality in juvenile coho salmon. In an experimental comparison of distinct types of suspended sediment, natural fluvial sediments caused fish stress and mortality at much lower concentrations than found with anthropocentrically derived "extremely angular" suspended sediment. The behavioral modifications of juvenile coho salmon during a critical period may limit recovery opportunities where watershed condition is limited by fine sediment. Fine sediment enters streams from numerous pathways, and should be managed within and beyond the riparian zone.

Sediment also directly impacts the aquatic food chain in numerous streams creating habitats less favorable to salmonid survival. A recent study completed at UC Berkeley (Suttle

2004) found an increase in fine sediment deposition shifted the macroinvertebrate community towards burrowing taxa, which are less available for prey, and increased metabolic costs in fishes associated with greater activity and intraspecific competition. A linear response between increased deposited fine sediment and decreased juvenile steelhead growth suggests there is no threshold below which increased fine sediment delivery and storage is harmless, and the impact of sediment on stream food webs directly reduces salmonids ability to grow and survive. This study also suggested that any reduction in fine sediment could produce immediate benefits for salmonid restoration.

Embeddedness is a measure of fine sediment in spawning gravel. It is a common metric used by the Regional Water Quality Boards and National Marine Fisheries Services to identify sediment as a limiting factor in restoring spawning gravels. The desired condition for a recovering watershed to support greater salmonid spawning habitat is found where there is an increasing trend of locations where gravel and cobbles are $\leq 25\%$ embedded. While emphasis is often placed on reducing direct inputs of sediment into streams, Opperman et al. (2005) found that coarse-scale quantification of watershed land was significantly related to measurement of embeddedness. In watersheds with agricultural and urban footprints, often characterized by restricted riparian areas, there was often not a direct decrease in fine sediment and reduction of sediment is best accomplished by envisioning reduction throughout the entire watershed. While reach-specific riparian protection offers numerous benefits to salmonids via cover, nutrient, temperature buffer, this type of protection has limited benefits for overall reduction of sediment.

Many restoration projects offer multiple benefits to salmonids during their various freshwater life history stages and holistic projects managing sediment from indirect and direct sources is critical in restoring salmon to viable population sizes in may coastal streams and inland rivers.



Sediment runs down a road.
photo: courtesy EPIC archives

Properly functioning roads, stormwater systems, and sufficient riparian buffers are necessary in many watersheds to adequately reduce fine sediment entering streams. SRF continues to highlight actions to reduce sediment using best management practices for Road upgrading and instream bioengineering projects, and will feature a number of sessions centered on water quality, water quantity and salmonids at the upcoming 2006 conference. If you are more interested in quantifying, monitoring, and assessing fine sediment in relationship to salmonids a number of great agency resources exist including:

Flosi, G., S. Downie, J. Hopelain, M. Bird, R. Coey, and B. Collins, 2004. Updated California Salmonid Stream Habitat Restoration Manual. 3rd Ed. Department of Fish and Game, Inland Fisheries Division.

NOAA Fisheries—Southwest Region, 2004. Sediment removal from freshwater salmonid habitat: guidelines to NOAA Fisheries staff for the evaluation of sediment removal actions from California streams.

North Coast Regional Water Quality Control Board, 2006. Desired salmonid freshwater habitat conditions for sediment-related indices. Available via the water board's Basin Plan TMDL Implementation website <http://www.waterboards.ca.gov/northcoast/programs/basinplan/tipfsiw.html>

If you would like to share additional resources about sediment and salmonids or to see the annotated footnotes for this article, please contact Josh at joshuais@sbcglobal.net. Look for the next SRF newsletter to include a short essay on stream flow as a limiting factor.

Salmonid Restoration Federation

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Conference Registration Packets Inside!

Wild and Scenic Environmental Film Festival **Thursday, March 8**

Salmon on the Backs of Buffalo

by the Klamath Salmon Media Collaborative

Several dams block more than 350 miles of spawning habitat on the Klamath River resulting in a dramatic decline in salmon and other fish. At risk are not only a fishery, but also the physical health, spiritual well-being, and cultural survival of the Klamath Basin's native peoples. Documenting the struggle of four Native American tribes on the Klamath River, this film shares the reality of what dams do to watersheds and the communities within them. (US, 2004, 25 min.)

Down the Copper River

by Thomas Dunklin

Take a journey down the Copper River, with featured musician and raft captain, David Lynn Grimes. Also featured in the clip are aerial and raft based views of the Copper River and sea otters, salmon, eagles, and grizzly bears. The music video is one chapter from a 4-chapter DVD, entitled "Copper River Perspectives." (US, 2004, Music Video, 3:12 min.)

Trout Grass

by Andy Royer

For many anglers, a fly rod is more than a fishing instrument. It's an antenna, capturing signals of the natural world. But what of the process that turns ordinary materials into extraordinary tools? And why do people around the world continue to spend their days happily wading in rivers if they do not keep what they capture? Unveiling the magic of international camaraderie, fine craftsmanship, and flowing water, Trout Grass tracks the 10,000-mile journey of bamboo around the world. From a lush forest in China's Guangdong



Glenn Brackett inspects bamboo for a fly fishing rod in Trout Grass.

photo: Volcano Motion Pictures



The Copper River hosts one of the most abundant runs of salmon in the world.

photo: courtesy Trees Foundation archive

Province to a rustic workshop in Montana this film follows the transition of bamboo from a living plant to a finished fly rod. (US, 2005, Documentary 47:48 min.)

Net Loss

by Melissa Young and Mark Dworkin

We used to say, "there are always more fish in the sea," but not any more. Along with an increase in the world's population, the fishing profession has become industrialized. The expansion of human settlements on land, together with mining and logging, have destroyed spawning habitat for fish like salmon. Pollution of inland and coastal waters has brought a substantial decrease in fish that reproduce there and whose offspring survive their journey to the sea. Now some are proposing a technological solution—fish farms. (United States, 2003, 52 min.)

Mission: Epicocity

by Trip Jennings, Karl Moser

The crazy kayakers of Oregon are back at Wild and Scenic with more of their big and bad whitewater. This time they have traveled internationally and will be sharing some of the most amazing waterfalls and big water of Africa and South America. Don't miss this TRIP! (US, 2006, Adventure Documentary, 20 min.)