Agenda: 01-19-06
Item: 8b

M E M O

To: Board of Directors

From: District Manager

Subject: Education Program Grant Final Project Report for "Healthy Rivers, Happy Fish Watershed Conference"

Date: January 13, 2006

RECOMMENDATION:
It is recommended that your Board receive and accept the Education Program Grant Final Project Report for "Healthy Rivers, Happy Fish Watershed Conference".

BACKGROUND:
On March 3, 2005, your Board awarded Education Program Funding in the sum of $2,180.00, for "Healthy Rivers, Happy Fish Watershed Conference. Said grant proposal provided for a one (1) day educational watershed conference focusing on the means of determining stream health, salmon lifestyle and habit needs and fisheries improvements. The project was initiated by Citizens for Responsible Forest Management, Jodi Frediani, Executive Director.

Ms. Frediani has prepared a final project report. See Attachment 1. Ms. Frediani will be in attendance to present your Board with the Final Project Report for "Healthy Rivers, Happy Fish Water Conference".

It is recommended that your Board receive and accept the Education Program Grant Final Project Report presentation for "Healthy River, Happy Fish Watershed Conference".

James Mueller
District Manager

JAM/leb

Report on the Healthy Rivers, Happy Fish Watershed Conference
October 29-30, 2005
Citizens for Responsible Forest Management

We had approximately 90 participants in attendance for Saturday's program, plus a dozen presenters - some of the best in California. We had attendees from the Santa Cruz City Water Department, Santa Cruz County Environmental Health, Department of Fish and Game, NOAA Fisheries, the RCD, California Department of Forestry, plus four Santa Cruz County Fish and Game Advisory Commission members. Also present were representatives of Sempervirens, The Nature Conservancy, The Ocean Conservancy, CRFM, Lompico Watershed Conservancy, Sierra Club-Loma Prieta and Santa Cruz Group. In addition there were members of the Friends of Soquel Creek, the Arana Gulch Watershed Alliance, the Carmel River Steelhead Association, the Stevens Creek Watershed Council and the Scotts Creek Watershed Council. Various groups set up posters around the room perimeter.

We had foresters present from Redwood Empire and Big Creek Lumber, including Bud McCrary himself. There were students from CSUMB, Cal Poly, UCSC and San Jose State, including staff and professors from those institutions. We had people who live along the San Lorenzo River and other county creeks. We had steelhead restorations from the Carmel River. We had folks from the Sierra Nevada, Mill Valley, Fairfax and Carmel, as well as a strong showing of local citizens.

We held two field visits on Sunday with approximately 20 people participating. We visited the Queseria Creek Restoration project on Swanton Pacific Ranch, then took a pleasant hike up to the North Fork Flume to eat lunch and view the sediment and turbidity monitoring station. After lunch, we drove to San Vicente Creek on Coast Dairies where we had a guided tour of a variety of Large Woody Debris Installations that had created by Matt Baldzikowski and Dave Hope for Santa Cruz County.

Outstanding box lunches were provided by New Leaf Market in Felton. Snacks and drinks were organized by Nancy Macy of the Valley Women's Club. The VWC also provided insurance for both days of the conference.

We produced a video PSA in conjunction with Community TV which aired during available time slots. We gave a presentation on CRFM's weekly EcoReview TV program which aired on Community TV. We got good placement with brief articles in the Santa Cruz Sentinel and the San Jose Mercury. Plus we got a great front page piece in the Register-Pajaronian, complete with front page photo. An article appeared in the Ventana, monthly newsletter of the Ventana Chapter of the Sierra Club. The article appeared on their website as well as the website of the Loma Prieta Chapter of the Sierra Club and CRFM's website. Emails were sent far and wide, utilizing a variety of lists, as were media releases, calendar notices and PSAs. We mentioned the San Lorenzo Valley Water District as a grant funder in all of our written materials and our media releases.

The conference was also professionally video-taped and will air in segments on Community TV. Copies of the video-tape will be donated to local schools and libraries and are for sale. As soon as available, we will give a DVD to the Water District.

Healthy Rivers, Happy Fish Watershed Conference
Income/Expense Report

INCOME	
SLVWD Educational Grant	$ 2180.00
SC Fish & Game Adv. Comm. Grant	1000.00
Dontation from The Ocean Conservancy	200.00
Registration Fees + lunch	1090.00
TOTAL INCOME	**$ 4470.00**
EXPENSE	
Church Rental	$ 250.00
PA System	135.00
Alley Honorarium	150.00
Higgins Honorarium	200.00
Lunches (New Leaf)-participants + Speakers + volunteers	1000.00
Programs – Kinkos	150.47
Snacks/coffee	192.83
Palace Arts (misc. supplies)	22.67
Staff Time – organizing	650.00
Video Tape & Edit	400.00
Motel (2 nites)	118.00
Video Production	1170.00
Miscellaneous	31.03
TOTAL EXPENSE	**$4470.00**

Healthy Rivers, Happy Fish Watershed Conference
Evaluation Responses
October 29-30, 2005

What did you like best about this conference?

Information on potential, future funding sources; funding needs; latest research findings.

Abstracts were great. Liked the attendees; everyone was very cordial and interesting.

The opportunity to meet and speak informally with natural resource professionals involved in salmon/steelhead in Santa Cruz.

The knowledgeable people who spoke. It was extremely well run.

Restoration information and field trip examples

Diversity of speakers in terms of disciplines/ background

The speakers were very knowledgeable and the diversity of topics was terrific. There was a sense of wholeness to the conference; even though the topics were very complex, one felt one could find the processes to answer many questions, or at least find some excellent possible pathways.

There also were many interesting exhibits and the abstracts were also very useful.

Overall, I felt that the conference and field trips were inspiring and energizing and encouraging the public, as well as professionals, to learn more and do more for our rivers, fish, and other wildlife.

The high quality of presenters, including Fred Keely's introduction to the conference.

Good venue. **Research reports.** Informative, knowledgeable speakers

Overall educational opportunity. Its scope and variety

It was exciting to see so many people in Santa Cruz County interested in restoring rivers for fish.

Balanced high-level presentations covering a wide range of relevant subjects

What could be improved for a follow-up conference?

Planning for delays and presentation glitches, overruns.
Friday presentations geared toward agencies, professionals, continuing education classes. Saturday for field trip, public education presentations.

Audio-Visual facilities could have worked more smoothly. Maybe fewer presenters with longer program time or two days of papers.

A longer (but more focused) panel discussion. More spacious less dense schedule.

Probably ability to make the room darker. Better visibility of slides

Better organization on presentations (tech glitches), more "outside" talent. Stick to schedule more if possible (maybe try to pack less in more time...)

On a technical level, there needs to be a better sense of how dark the room needs to be fore better viewing of slides and power-point presentations. Regarding power-point, there needs to be a review of what kind of equipment presenters have, so that one's sure all equipment is compatible. Presenters need to perhaps be gently reminded to edit their presentations well, due to time restraints.

On a more conceptual level, I think it might be a good idea to have the conference divided into two parts, perhaps. I think that this conference would and did reach some of the general public, but much of it was aimed at professionals. What might work better would be to have two concurrent talks – one for professionals and another for those new to many of the topics, with some plenary speakers that all would hear.

I would take care to perhaps have fewer speakers overall- so more time could alas be spent with people talking informally and looking at the exhibits. This is always a difficult decision, but I believe that it is important for people to pace themselves well so information can truly be absorbed (and the body stay healthy, too.)

Bring Fred Keeley back! The price was excellent, the food was good. The presenters and subject matter was excellent and Jodi covered all the housekeeping essentials. Field trip assembly on Sunday could have been better.

On-time, less preaching to the choir. **A/V eqpt and handling various electronic report formats**

Great. More outreach, so more people could take advantage of it?

The music was too loud during registration, making it difficult to talk with others – especially new acquaintances. It slides are to be shown, this should be known in advance. Then you might be able to find a room where light from the window can be controlled.

Watch room lighting for slides

"Proof" presentation data inputs on available equipment. Re: Alley image rotations, Robin's slow DVD images producing jerky movie sequencing

What was your favorite presentation?

Trush and Google Earth, in a frightening (nothing is private, confidential) sort of way.

Tie between Jim Harrington and Bill Trush

Opening remarks by Mr. Keeley.

Ecology and status of Coho (versus steelhead)
Chronic Turbidity and Streamflow Diversion Effects

Turbidity, log jams, macrobiology

This is a difficult one to answer as I found great merit in all of them! But I did especially enjoy "Google Earth: by Rebecca Moore and also "Water and Watersheds" by John Ricker.

Salmon Enhancement with Large Woody Debris" presented by Greg Andrew was a theme echoed throughout the conference and seen during the field visits on Sunday.

Trush. ***Bill Trush.*** Jim Harrington, William Trush. *Trush;* Bill Trush's

John Ricker, Bill Trush, Greg Andrews, Dave Hoe, Don Alley, Jerry Smith, Jim Harrington, Pat Higgins all great, so different and important subjects hard to pick a favorite..

John Ricker and Dave Hope, for their knowledge of the progress of restoration in the San Lorenzo River Watershed

Google Earth. Google Earth, Rebecca Moore. Fred Keely was great, I'd vote for him

If you attended the field trips, did you find them worthwhile?

Both field trips were informative, but material was probably more valuable to persons less familiar with the projects.

Too lengthy. Did not attend. You betGreat after the discussions – make everything REAL

Yes, extremely helpful. **Yes**

Yes! I learned a lot from all of them and liked the mixture of the scientific information with the visual. (From a logistical level, I think in the future I would plan to eat the lunches where it's a bit more conducive for people talking to each other and where restrooms are located.)

I really was fascinated to see what is being done at Queseria, Little Creek and San Vicente. San Vicente is truly amazing! So much has been accomplished in a relatively short time. Kudos to Matt Baldzikowski, Dave Hope, and their colleagues.

The field visits served to illustrate matters covered by presenters, eg woody debris. Brian Dietterick from Cal Poly with Queseria Creek Restoration and Matt Baldzikowski and Dave Hope with the San Vicente Creek salmonids project gave a hands on" view of the work and planning required to bring a project to fruition.

Not attended. Did not attend. Yes, extremely worthwhile, put all of Saturday's talks into good context.

No. I had a family commitment on Sunday. I'm sorry I missed the field trips

Was there something you would have liked to see covered which wasn't?

Yes, Dave Hope's presentation with visible slides including the before and after photos (they were found mid-week before the conference) scanned into a power point presentation.

Unfortunately I had to leave before Jim Harrington's presentation. Personally, I need to find ways to stay up to date on the issues and science of watershed health and monitoring without traveling as my work program is too busy and my family commitments too great to be able to have the time to travel and attend out of town conferences.

I would liked to have heard an analytic summary of all the watershed groups and programs active in the county or central coast area. Along with an analysis of funding sources and program success and failure.

More about varieties of local fish and life in the local streams including historical perspective.

I am NEW at this…I was overwhelmed with input. **Good stuff.**

Perhaps a description of the differences in habitat requirements for Coho, steelhead, and Chinook.

More regulatory/research presence/info from NOAA/DFG/USFWS

Though it was covered to a degree in various talks, I would like to hear a talk about what everyday things the public can do to improve water quality and quantity, and the overall well-being of the fish and other wildlife in our homelands.

I would like to learn more about the different methods of tagging fish and electro shocking for study with emphasis on how the data is used.

Incorporate other riparian system components: frogs, birds, people...how do we choose the hierarchy of conditions to determine when best to employ stream restoration techniques?

An overview of the history of Coho and Steelhead in California would have been helpful to me as a novice.

?

Discussion of creating a network so that we can all stay motivated in our individual work. Mine is on the City of Santa Cruz River Committee which only meets four times a year.

Great Coverage

How would you rank the conference overall? 1 = lowest 10 = highest

8 (Except for the Chicken Sandwich and Salad that was a 10+)

8, 9, 8, 10, 10, 9, 9, 8, 9, 5, 7-8, 10, 9, 8, 10, 10

Would you be interested in participating in a field workshop on Rapid Stream Bioassessment learning how to identify and use aquatic macroinvertebrates for measuring the stream health?

Yes. *Maybe. Yes. Yes* Yes. Yes, but it would have to be on a weekend. Sure

Yes. I took Jim's training about 5 years ago with a group from the Coastal Watershed Council. Was sorry that we where unable to keep active in a citizen level program of Bioassessment going.

I have already taken a similar workshop, but I think it would be valuable for local presentation.

More about varieties of local fish and life in the local streams including historical perspective.

Yes, there is at least one other person (we are both members of the Stevens Permanent Creek Watershed Coucnil).

Yes, the Stevens and Permanente Creeks Watershed Council which I represent would be very interested.

I'm sure there would be a lot of interest in a Rapid Stream Bioassessment Workshop.

Sure; how much? Yes! (If it fits into my busy schedule, and is affordable!)

Other comments

Some presenters (we know who they are need a bit more help than others.)

I think there is a lot of interest in doing some monitoring of local streams with Macroinvertibrate Bioassessment. I would like to be part of an active, serious group; Allen Hasty and Max Alford might be interested also.
Would be interested in talking to you about the current plans and possibilities.

Very good box lunch!

Too much ambient light for satisfactory visual presentations.
But very good sound system.

Very infomative and enjoyable conference

Thank you for all the time you put into making this happen.

Congratulations on an excellent Conference. Your hard work showed (BH)

You did an amazing job Jodi. The conference and field trips were wonderful and completely supported each other. (TH)

Great Job! I can't figure why we don't have events like this more often around the Monterey Bay. Thanks for providing some leadership on this!

Many thanks, Jodi, for this Amazonian effort. Thanks to all the speakers and those who helped with AV equipment and taping, and with making the conference a success! Thanks to Nancy for the great treats and New Leaf for their find food and effort too.

Congratulations, your conference was very successful. It was great seeing Mat show off that terrific stream work also. (KC)

I felt that the conference illustrated to a statewide audience the effort and concern that Santa Cruz has for the future of its streams for salmonids and steelhead trout populations.

Thank YOU for making the event such a success. You are a good organizer, and a great enviro. I very much enjoyed the experience, and was so impressed with the great turn out, and your as usual great organizational skills. Again, thank you. (FK)

Great job Jodi, the conference exceeded my expectations and was run very smoothly, no glitches and tasty lunches! Thanks again!

Great work, Thank you!

The conference was very well organized except for a few power point malfunctions. Thank you for all your hard work

Thanks for bringing together all these professionals from all over the state, so we could get a better picture of stream health, problems/solutions

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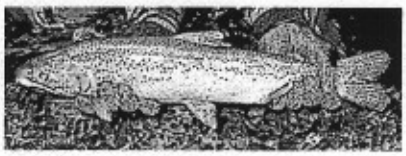
Organized by Citizens for Responsible Forest Management

Healthy Rivers, Happy Fish



Watershed Conference

October 29-30, 2005

First Congregational Church, 900 High Street
Santa Cruz, California 95060

Sponsored by:

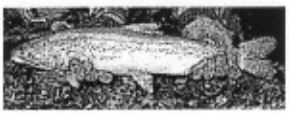
Citizens for Responsible Forest Management **Sierra Club-Santa Cruz Group**

Valley Women's Club of SLV **Lompico Watershed Conservancy**

The Ocean Conservancy

Conference made possible courtesy of grants from:

San Lorenzo Valley Water District **Santa Cruz County Fish & Game Advisory Commission**



Healthy Rivers, Happy Fish

Watershed Conference - *October 29-30, 2005*

Saturday, October 29 - First Congregational Church, 900 High Street, Santa Cruz

8:30-9:00am: **Check-in; Late Registration**

9:00am: **Introduction**

9:10am: **The One Thousand Mile Journey to Save the Fish Next to You** *The Honorable Fred Keeley,* Treasurer, County of Santa Cruz

9:40am: **Water and Watersheds** *John Ricker,* Water Resources Program Coordinator, Santa Cruz County Water Resources Program

10:10am: **Chronic Turbidity and Streamflow Diversion Effects on Salmon Habitat Loss** *Bill Trush*, Senior Scientist, McBain and Trush

10:40am: **Break**

11:00am: **Salmon Enhancement with Large Woody Debris** *Greg Andrews*, Fishery Program Manager, Marin Municipal Water District

11:30am: **20 Years of Barrier Modification in the County of Santa Cruz,** *Dave Hope* - Senior/Supervising Environmental Scientist, North Coast Regional Water Quality Control Board, State of California

Noon: **Lunch Stuck in the Mud**: **The Pajaro River in Peril,** *Lois Robin,* Environmental Film Maker; **Google Earth GIS Santa Cruz Mountains virtual "fly-over" Demo**, *Rebecca Moore*, Google Earth and Mountain Resource Group w/ Kristen Schroeder Kittleson, Resource Planner, County of Santa Cruz

1:00pm: **Local Trends in Juvenile Steelhead Numbers and How to Reduce Habitat Loss from Fine Sediment Input,** *Donald Alley*, Local Fisheries Biologist, D.W. ALLEY & Associates

1:30pm: **Ecology and Status of Coho (Versus Steelhead) in Santa Cruz and San Mateo Counties,** *Jerry Smith*, Fisheries Biologist, Department of Biological Sciences, San Jose State University

2:00pm: **Use of Aquatic Macroinvertebrates for Measuring the Health of Streams and Rivers in California,** *Jim Harrington*, Environmental Scientist, California Department of Fish and Game

2:30pm: **Break**

2:50pm: **Managing Watershed Information to Support Pacific Salmon Recovery,** *Pat Higgins*, Fish Biologist, KRIS Project Field Coordinator

3:20pm-4:30pm: **Panel - Question and Answer Session**

Sunday, October 30 – Field Trips

8:30am: **Meet to Carpool** at First Congregational Church, 900 High Street.

9:00am-Noon: **Field Trip**: **Little Creek Monitoring Project & Queseria Creek Restoration Project**, *Brian Dietterick,* Director, Swanton Pacific Ranch

Noon - 1:00pm: **Lunch** at Swanton Pacific Ranch

1:00-4:00pm: **Field Trip**: **Wood Back to the Woods, the San Vicente Creek Salmonid Habitat Enhancement Project, San Vicente Creek,** *Matt Baldzikowski,* Santa Cruz

ABSTRACTS:

Saturday, October 29, 2005

The One Thousand Mile Journey to Save the Fish Next to You

[Fred Keeley] The Honorable Fred Keeley, Treasurer, County of Santa Cruz

The State of California is changing in rapid and dramatic ways. Every environmental goal and objective must be seen in the context of these changes. Saving, protecting and enhancing our environment will not be possible without a dramatic change in the point of view of the environmental movement and our relationships with the emerging majority populations.

Water and Watersheds

John Ricker, Water Resources Program Coordinator, Santa Cruz County Water Resources Program.

Salmon and steelhead need adequate streamflow for migration, spawning, rearing and down migration. The amount of streamflow and available habitat is limited by watershed geology, climatic variations, dams, stream diversions, groundwater pumping and development in the watershed. Flow during critical times can be increased by water conservation, groundwater recharge protection, carefully managed water supply projects, and conjunctive water management. More effort is needed.

Chronic Turbidity and Streamflow Diversion Effects on Salmon Habitat Loss

William J, Trush, PhD, Senior Scientist, McBain and Trush

Cumulative watershed effects (CWEs) result from repeated applications of management prescriptions within a defined space. How these prescriptions are applied, where, how often, and to what extent, collectively contribute to CWEs. Although Best Management Practices have been required since the 1970's, significant CWEs are still apparent. Turbidity and suspended sediment possibly are the most quantifiable physical variables for measuring CWEs and the most time-sensitive, direct physical variables for assessing potential biological and ecological impacts from CWEs. Prevention of cumulative watershed effects requires a seamless basinwide perspective.

Smolt survival, especially for steelhead, is strongly a function of smolt size. Reductions in growth (measured as length) decrease a smolt's chance of returning as a spawning adult. Healthy watersheds must produce a size class distribution and abundance of salmonid smolts that can support returning adult populations. CWEs from increased fine sediment production force the smolt size class distribution to the left (i.e., produce smaller smolts) as well as decrease abundance, especially within the larger size classes. In turn, this shift and diminishment of the smolt size class distribution lowers overall smolt survival. This left-directed shift in size eventually, if man-induced impacts increase in severity and/or duration, reduces the probability of attaining an adult population capable of sustaining the species. Increased chronic turbidity is directly related to increasing rates of timber harvest; scientists and agencies can predict the loss of adult steelhead with varying rates of timber harvest operated under current Forest Practice Rules.

Potential anadromous salmonid turbidity thresholds, greater than the 20% background condition required by North Coast Regional WQCB, are:

NTU = 10: 15% decrease in primary production in 1 ft of water and onset of daily juvenile salmonid feeding rate inhibition,

NTU = 25: 50% decrease in daily feeding rate efficiency,

NTU = 70: forced emigration of salmonid juveniles,

NTU = 100: incipient threshold for emergent salmonid fry death.

Identification of the duration and frequency of these thresholds will be key to preventing CWEs, particularly how to establish turbidity thresholds in headwater streams to protect/prevent exceeding turbidity thresholds in the mainstem channel downstream.

Salmon Enhancement with Large Woody Debris

Gregory Andrew, M.S. Fishery Program Manager, Marin Municipal Water District

Lagunitas Creek, Marin County, supports one of the best and most important populations of coho salmon in the State, a robust population of steelhead, and small numbers of Chinook and chum salmon. Since 1998 the Marin Municipal Water District (MMWD) has constructed 43 large woody debris (LWD) structures through a 5-mile stretch of Lagunitas Creek. The LWD structures consist of large size trees and boulders installed to enhance in-stream habitat for salmonids in the following ways:

- Provide escape cover for juvenile salmonids within the structure and by trapping debris in and around the structure;
- Enlarge pool volume by creating scour flows around the structure;
- Provide high flow refuge habitat for juveniles and adults by creating backwater eddy flows; and
- Retard downstream migration of beneficial size gravel and cobbles to provide spawning habitat for adult salmon.

The LWD designs have included: obstruction logs, creek constrictors, digger logs, staggered structures, divide logs, channel-spanning structures, cover/treetop logs, and a boulder weir. Existing habitat conditions and suitable anchor points are important considerations in selecting LWD locations. MMWD crews are doing the construction, using redwood logs collected from accumulated debris in Kent Lake. Construction is accomplished without putting any heavy equipment into the creek. Construction is completed each year, during the late summer months.

The LWD structures have been subjected to stream flows in excess of 2,000 cubic feet per second but might be under flows in excess of 5,000 cfs. Monitoring of the structures consists of pre- and post-construction snorkel surveys for fish and streambed depth, as well as annual surveys following the year each structure is completed. The snorkel surveys have shown that juvenile coho and steelhead congregate in and around the LWD structures, with fewer fish up and downstream of the structures. The depth monitoring has documented positive changes in streambed conditions, in many cases achieving the intended goals of the particular LWD structure. Future monitoring could be done to attempt to document winter-time use of LWD structures, as refuge habitat, and to try to link habitat improvement of the LWD structures to the documented increases in the juvenile coho and steelhead populations.

20 years of Barrier Modification in the County of Santa Cruz

Dave Hope- Senior/Supervising Environmental Scientist, North Coast Regional Water Quality Control Board, State of California

This presentation will show the prioritization and extent of barrier modification accomplished from 1980 to 1999. The work ranges from Major Fish Ladder construction to small dam removal, odd structures and bedrock chute modification. The focus will be to show the extent and diversity of types of barrier work accomplished and the differing methods employed at all locations. The outcome will be to educate the audience on the full range of options available with successes and failures highlighted

Stuck in the Mud: The Pajaro River in Peril (DVD)

Lois Robin, Environmental Film Maker

Stuck in the Mud: The Pajaro River in Peril" is a video that addresses challenges to the health of the immense Central California Pajaro River Watershed. From sand and gravel operations in the Upper River to management of high flows in the Lower River, the video observes habitat conditions, water quality and the historical and legal aspects of public access. It urges a management strategy that embraces all aspects of the river system. Impacts of forestry and farming, loss of birds, fish and amphibians, and urban development on the flood plains are major issues of the video.

Through aerial and historic photographs, interviews, and scenic footage, we get a sense of the resource of the River and strategies underway to protect and restore it.

Google Earth as a Citizen's Tool for Conservation

Rebecca Moore, computer scientist, Google Earth with Kristen Kittleson, Resource Planner, Santa Cruz County

Citizens are confronted today by a bewildering array of environmental concerns at every level: the effects of global climate-change, national resource management policy (to drill for oil in ANWR vs. protecting the wilderness), California state-wide water concerns and local issues such as timber harvesting and watershed protection. The catchphrase "Think Globally, Act Locally" sounds good in principle, but is often difficult to practice. Citizens often lack access to the information and tools which could enable them to understand these complex issues, communicate about them effectively, share local knowledge and community perspectives with experts and government agencies, advocate their views in a compelling and authoritative fashion to the media, and participate fully and effectively in public regulatory processes. As a result, citizens can become disenfranchised and even cynical about their ability to make a difference with respect to environmental issues affecting their communities.

Software-based digital mapping offers a powerful tool for understanding and communicating about environmental issues. However, these "Geographic Information System" (GIS) tools tend to be expensive, complex, slow, desktop-oriented (not well-conceived for web users) and too arcane for ordinary citizens to master. *Google Earth* is a new web-based application that offers 3D satellite imagery for the entire earth within a free, high-performance client that permits virtual fly-overs anywhere on the globe. It also offers simple tools for annotating the earth with information, importing GIS data, creating a "story" about an issue and then sharing this easily with others.

Millions of citizens around the world have already downloaded Google Earth, and some have begun using it to address environmental issues. This talk will present a live demonstration of Google Earth, including several specific case studies developed by ordinary citizens: to visualize a proposed timber harvest plan in the Santa Cruz Mountains, to review a Napa Valley vineyard's application to draw water from a local creek and, if time permits, we'll also "fly around" Santa Cruz County and inspect mapped fish passage barriers in local creeks.

Kristen Schroeder Kittleson, Fisheries Biologist, Resource Planner for the County of Santa Cruz will discuss the data in the fish passage barrier mapping she coordinated for the County.

Local Trends in Juvenile Steelhead Numbers and How to Reduce Habitat Loss from Fine Sediment Input

Donald Alley, Local Fisheries Biologist, D.W. ALLEY & Associates

Regarding trends in juvenile steelhead population size, the estimate of juveniles large enough to emigrate to the sea is most relevant to producing adult returns. In Soquel Creek for the monitoring period 1997-2004, the average estimate was 7,900 juvenile steelhead smolts. The years 1997-1999 and 2004 were above average and the remainder were below average. The highest production of smolts in 12 years was responsible for the upswing in 2004 and not a general watershed improvement. In the entire San Lorenzo River watershed for the monitoring period 1998-2001, the average estimate was 39,300 juvenile steelhead smolts. Production in 1998-1999 was above average and production in 2000-2001 was below average, with 2001 the lowest of the 4 years. There was a precipitous decline in smolt production in the San Lorenzo mainstem in the last 2 years of the period 1994-2001, with the average being 24,000. The estimate for 2001 was only 11,500. Causal factors for levels of smolt production will be provided, including timing of winter storm events, spring streamflow, summer baseflow, escape cover and sedimentation.

To reduce streambank erosion, protect undercut banks and provide wood to streams, priorities and attitudes must change to create a healthy aquatic environment and help restore our salmon populations. Steelhead salmon are spawned in our coastal streams and spend 1-2 years there before out-migrating to the sea. Their eggs are buried in the streambed and incubate for 1-2 months before the fry emerge to begin their freshwater phase. Egg survival is best when incubation occurs in gravels with considerable interstitial space for water to circulate through and provide oxygen. Excessive sediment hinders this porosity and smothers eggs. Fine sediment also hinders fry emergence. After emergence, juvenile steelhead and other stream fishes are vulnerable to predation day and night. They require sufficient water depth and flow deflectors to feed. They need escape cover to avoid predation. With low summer flow typical along the Central Coast (and becoming less with ever-increasing water extraction for domestic and agricultural use), steelhead use any object they can hide under for cover. Water depth of 2 feet or more also provides some cover. Excessive fine sediment buries cover objects and increases juvenile mortality. Fortunately, the force of water

will scour pockets around large objects to provide cover and increase water depth. To offset sediment input, a continual and adequate supply of wood is necessary. Streamside trees also armor streambanks from failure and allow undercutting for excellent cover. Alder and particularly redwood (though rare these days) are excellent at this. Streamside residents and logging operators must refrain from removing streamside vegetation. Also, County flood control personnel must refrain from cutting into small pieces most large wood that enters streams, particularly after large flows that provide wood recruitment. Are these changes reasonable?

Ecology and Status of Coho (Versus Steelhead) in Santa Cruz and San Mateo Counties

Jerry Smith, Fisheries Biologist, Dept. Biological Sciences, San Jose State University

Steelhead are widespread and use a wide variety of habitats, including warm, productive lagoons, riffles and pools of steep cool tributaries, riffles and heads of pools of moderately warm main stem streams (if streamflows are sufficient to allow for fast-water feeding to meet metabolic demands). Steelhead have variable life history, including 1-3 years in fresh water, 1-2 years in the ocean to first maturity, multiple spawning attempts, and possible completion of the life cycle completely in freshwater. Juvenile numbers mostly track year to year rearing conditions in the streams and vary relatively little.

Coho south of San Francisco have recently been scarce and confined to a few cool, flat streams (especially Gazos, Waddell and Scott creeks), where they prefer to occupy deeper, more complex pools. Their life history is also very rigid, with almost all fish spending 1 year in freshwater, females maturing after 2 years in the ocean, and death after maturing, whether they are able to spawn or not. The rigid life history means that a single bad year of poor access (such due to drought), redd destruction or poor overwintering conditions due to storms (such as in 1982, 1998) can cripple or eliminate a year class. Studies of Gazos, Waddell and Scott creeks since 1988 have shown wide coho abundance from year to year, partially because of the legacy of unpredictable environmental effects upon year classes. Only a single year class (ie. 1996, 1999, 2002, 2005) is strong, and the other year classes are mostly weak or gone from the streams. Accelerated hatchery growth, and a very low rate of 2-year freshwater residency, can help rebuild lost or weak year classes by producing 2 or 4 year old spawning females.

Use of Aquatic Macroinvertebrates for Measuring the Health of Streams and Rivers in California

Jim Harrington, Environmental Scientist, California Department of Fish and Game, Aquatic Bioassessment Laboratory

In 1993, the California Department of Fish and Game (DFG) released the California Stream Bioassessment Procedure (CSBP) based on the EPA's Rapid Bioassessment guidelines for wadeable streams. The CSBP is a cost-effective tool which utilizes measures of the stream's benthic macroinvertebrate (BMI) community and its physical/ habitat structure. BMIs can have a diverse community structure with individual species residing within the stream for a period of months to several years. They are also sensitive, in varying degrees, to temperature, dissolved oxygen, sedimentation, scouring, nutrient enrichment and chemical and organic pollution. Together, biological and physical assessments integrate the effects of water quality over time, are sensitive to multiple aspects of water and habitat quality, and provide the public with more familiar expressions of ecological health. The State Water Quality Control Boards use BMI data to monitor and assess the health of streams and rivers throughout the state using tools developed by DFG.

Managing Watershed Information to Support Pacific Salmon Recovery

Patrick Higgins, Fish Biologist/KRIS Project Field Coordinator

Many Pacific salmon stocks have been recognized as being in danger of extinction, particularly those in the southern range of the species. Many California chinook, coho, steelhead and coastal cutthroat stocks are listed as endangered or threatened under federal and State Endangered Species Acts or are candidates for listing. The Klamath Resource Information System (KRIS) is custom Windows based software devised to track fishery restoration efforts in the Klamath and Trinity River basins, but has subsequently been utilized in dozens of watersheds throughout northwestern California and applied to Atlantic salmon conservation in the Gulf of Maine. KRIS is a tool that allows assimilation of data, reports, maps, photos and any other information to help understand fish population, water quality and watershed health trends. Millions of dollars have been spent collecting data and writing reports, but

they can only be used for decision support if they are readily available to policy makers and technical staff that support them.

KRIS provides annotated summary charts with useful reference information, the raw data itself, metadata that explains bounds of fair use, and any associated reports. A built in KRIS Map Viewer allows review of spatial data with clickable themes by anyone with KRIS loaded on their computer hard drive. All contents of KRIS projects are also posted to the Internet at www.krisweb.com. KRIS provides a built in help system and tutorials that can assist local communities and organizations in participatory updating of projects, including results from volunteer monitoring programs. KRIS software would be useful if applied to the central and southern California coastal watersheds to assist in adaptive management of coho salmon and steelhead populations. The majority of KRIS projects have been sponsored by the Institute for Fisheries Resources (http://www.ifrfish.org/), the research non-profit organization affiliated with the Pacific Coast Federation of Fishermen's Associations.

Sunday, October 30, 2005

Little Creek Monitoring Project & Queseria Creek Restoration Project

Brian Dietterick, Director, Swanton Pacific Ranch

The Little Creek Project is a long-term study designed to evaluate water quality and geomorphic conditions of a coastal mountain stream located in the southern-most extent of the redwood/Douglas-fir forest region. The primary goal is to provide scientific documentation of water quality and channel conditions before, during, and after single-tree and small group selection harvests.

The monitoring is designed to evaluate the effectiveness of timber harvesting practices, afforded through the California Forest Practice Rules, to protect water quality from increases in sediment yields. Suspended sediment concentration, turbidity, and temperature are being monitored before, during, and after single-tree and small group selection harvests. The data collected from a paired and nested watershed study design will be used to evaluate the effectiveness of these practices.

Three rated-section flumes were installed on Little Creek on the Main Stem, North Fork, and South Fork. The flumes confine the channel between two sidewalls and have a natural channel bottom with a concrete sill for grade control. A natural channel monitoring site was established in the upper North Fork in 2001. During a significant hydrologic event, water samples are removed from each site at 1-hour intervals using ISCO 6700 automated water quality samplers. Instream water is monitored at 15-minute intervals using instream turbidimeter and temperature probes.

Wood Back to the Woods, the San Vicente Creek Salmonid Habitat Enhancement Project

Matt Baldzikowski, Resource Planner, Water Resources Specialist, Santa Cruz.

The San Vicente Creek Salmonid Habitat Enhancement Project is the result of the dedication and support of numerous groups and agencies including: the Department of Fish and Game, Wildlife Conservation Board, County of Santa Cruz, Trust For Public Land, and RMC Pacific Materials. Initial project planning and design began in 1997, with project installation completed in 2000. Matt Baldzikowski and Dave Hope planned, permitted, and directed the completion of the project. Matt Smith of Environmental Restoration Services, Arcata, was the contractor who installed the project along with Matt and Dave. The project was designed to diversify and increase salmonid habitat complexity within a 1 mile reach of San Vicente Creek. San Vicente Creek suffers from large volumes of bedload associated with a century of mining upstream, and the lack of instream large wood within this reach, combined with bedload, greatly simplified salmonid habitat. Historic mining has cut off access to the upper watershed to anadromy, making the enhancement of the remaining anadromous habitat a high priority. Additionally, the project incorporated native material revetments to stabilize road failures impacting the stream, while at the same time adding additional woody habitat. These serve as demonstrations of incorporating salmonid habitat into road repairs.

PRESENTER BIOS

Fred Keeley is presently Treasurer-Tax Collector of the County of Santa Cruz. Prior to his service as Treasurer-Tax Collector, Mr. Keeley served as Executive Director of the Planning & Conservation League, and the PCL Foundation. These two forty-year-old environmental organizations are established leaders in the research, development, and enactment of major environmental protection policy.

From 1996 through 2002, Mr. Keeley represented the Monterey Bay area in the California State Assembly. He served for four years as Speaker pro Tem under three Speakers. As such, he was the highest ranking member of the Speaker's leadership team, and was responsible for analysis and management of the majority's policy initiatives. Upon his retirement from the state Assembly, the University of California at Santa Cruz established a lecture series in his honor, the Fred Keeley Lectures on the Environment. The inaugural lecture was presented in 2004 by former Arizona Governor and Secretary of the Interior, Bruce Babbitt.

From 1988 until his election to the state Assembly, Mr. Keeley served two terms on the Santa Cruz County Board of Supervisors. fred.keeley@co.santa-cruz.ca.us 831-454-2450

John Ricker received a B.A. from UCSC in Biology and Environmental Studies. Graduate courses at SJSU in hydrology and fisheries. Work for County of Santa Cruz in watershed management, water quality protection, beach water quality, septic system management and water resources programs. On Board of Directors for Santa Cruz County Resource Conservation District. john.ricker@co.santa-cruz.ca.us 831-454-2022

Dave Hope, North Coast Regional Waterboard, Senior Environmental Scientist, Timber Harvest Unit, 5550 Skylane Blvd., Santa Rosa CA 95403, dhope@waterboards.ca.gov 707-576-2830

Worked for: USFS -Condor Recovery Program
California Conservation Corps- Channel Islands Restoration
County of Santa Cruz- Watershed Analyst, Senior Resource Planner, Forester- Stream Restoration Program, Watershed Management Plan, San Lorenzo River Management Plan
North Coast Regional Water Quality Control Board- Senior Environmental Scientist- TMDL Implementation, Timber Harvest Program, Office-wide Specialist Rivers/Forests

Education: San Diego State University- B.S. Physical Science/Psy
U.C.Santa Cruz - Geology
U.C.Berkeley- Forestry/ Fluvial Geomorphology

Gregory Andrew, Fishery Program Manager, Marin Municipal Water District, 1996 – Present.

Born and raised in New England, Mr. Andrew received his bachelor's degree in Biology from Bard College, in New York State, and his master's degree in Ecosystem Management from Antioch University in San Francisco.

As the Marin Municipal Water District's Fishery Program Manager, Mr. Andrew is responsible for implementing the District's Lagunitas Creek fishery program. The program is focused on enhancing the habitat of the creek for the benefit of coho salmon, steelhead, and California freshwater shrimp. This work involves conducting field surveys to tract the status of the fish and shrimp population and habitat, implementing habitat enhancement projects, and coordinating with other agencies and the public. Mr. Andrew also addresses fishery and other aquatic resource issues on other streams and reservoirs under the District's sphere of influence. Prior to joining the District, Mr. Andrew spent 12 years in private environmental consulting, working on wetlands and fisheries issues. gandrew@marinwater.org 415-945-1191

Lois Robin When Lois Robin moved to this beautiful area twenty-five years ago, she resolved to be environmentally responsible in her adopted home. At that time she had begun to study photography seriously. Since then she has used photography and videography for a variety of purposes, but especially to express her dedication to the place where she lives. She has been involved with Action Pajaro Valley, the Pajaro Valley Art Gallery and the Pajaro Valley Ohlone Indian Council. She has written, published and curated environmentally related works often in connection with a California Indian theme. She is currently on the Executive Committee of the Santa Cruz Group of the Sierra Club

and a co-chair of the Pajaro River Watershed Committee. In 2004 she co-curated a well attended multi-media exhibit at the Pajaro Valley Art Gallery called *Rumme Living River: the Pajaro River Experience.* After the flood in 1996, her video *The Song of the River* told about that event. She definitely sings the song of the River and hopes you will, too after seeing her video *Stuck in the Mud: the Pajaro River In Peril.* robin@baymoon.com 831-464-1184

Rebecca Moore is a professional computer scientist with over twenty years experience leading award-winning software development projects at Hewlett-Packard, Centigram and Google. A Santa Cruz Mountain resident, she recently founded **The Mountain Resource Group**, a 501(c)3 non-profit whose mission is "to inform and empower Santa Cruz Mountain residents in order to manage our mountain resources more wisely." She is currently a member of the Google Earth software development team, with a personal and professional interest in promoting environmental and community-based applications of this new tool. rebecca@mountainresource.org, www.mountainresource.org, rmoore@google.com, http://earth.google.com

Jim Harrington began his career as an aquatic biologist in 1980 for Redwood National Park (RNP) where he worked on inland and estuarine aquatic resource studies. While with RNP, he designed his first major watershed monitoring program which was intended to measure the effects of sediment produced from construction of the 16 mile highway bypass on the aquatic resources of several north coast streams.

In 1987, Jim started working for the California Department of Fish and Game(s Pesticide Investigation Unit and is currently assigned to the Water Pollution Control Laboratory (WPCL). As Staff Environmental Scientist for the WPCL, Jim investigates and provides biological interpretation of toxicological and chemical data associated with enforcement (Fish and Game Code 5650) of pollution events throughout California. WPCL provides technical support to all CDFG functions and many branches of State and Federal government which deal in environmental monitoring and regulation.

He is also the program director of the WPCL(s Aquatic Bioassessment Laboratory (ABL). The ABL uses various chemical and biological techniques to assess status, damage and monitor recovery of aquatic systems. Some of these techniques include analytical chemical analysis, field water quality determinations, aquatic toxicity testing, stream gravel quality assessment, aquatic habitat measurement and aquatic biota surveys including vertebrates, benthic macroinvertebrate and algae.

For the past 12 years, Jim has volunteered with the Sustainable Land Stewardship Institute International () to help watershed groups monitor the health of streams and rivers. He has written a widely-used methods manual and has conducted over 50 3-day bioassessment workshops throughout the state. jharring@ospr.dfg.ca.gov 916-358-2862

William J. Trush, PhD is senior ecologist for McBain & Trush. Inc. in Arcata, CA, an environmental consulting firm since 1995. As an adjunct professor to the Humboldt State University Fisheries Department, he has taught courses in stream ecology and coastal stream management since 1990. Bill earned his Ph. D. from the University of California Berkeley in the Department of Forestry and Resource Management, an M.S. (in Stream Ecology) from Virginia Tech, and a B.S. (Zoology) from Penn State. He specializes in integrating river ecosystem processes, salmon life history, and cumulative land use management practices. McBain & Trush helped develop maintenance flow recommendations for the Trinity River. Bill was on the Scientific Review Team (1999) for NMFS and the CA Resources Agency evaluating current the California Forest Practice Rules with respect to anadromous salmonids in Northern California, and has testified for the North Coast Regional Water Quality Control Board on establishing water quality standards related to cumulative watershed impacts. Presently he is (1) one of two scientists directing a stream restoration plan approved by SWRCB for Los Angeles Department of Water and Power on two tributaries to Mono Lake, (2) finalizing a protocol for how to divert streamflows from small coastal streams supporting salmon and steelhead, and (3) assessing basinwide cumulative watershed effects from fine sediment loading. He also co-instructs, with Dr. Luna Leopold and Scott McBain, a 3-day course on river channels at the Teton Science School in Kelly, Wyoming. Scott and Bill have developed alluvial and bedrock river attributes for guiding aquatic ecosystem restoration and prescribing flow releases. bill@mcbaintrush.com 707-826-7794 (ext. 12)

Donald W. Alley, Principal, D.W. Alley & Associates, received his B.S. in Wildlife and Fisheries Biology, from the University of California, Davis and his M.S. in Aquatic Ecology from the University of California, Davis.

Mr. Alley's research included pioneer research into the microhabitat selection and instream flow requirements of foothill Sierran stream fishes, including juvenile steelhead and chinook salmon. He began sampling steelhead and coho salmon populations in the Santa Cruz Mountains in 1981. At that time, he was the fisheries field biologist doing stream reconnaissance to evaluate habitat and identify migrational barriers in development of the Pajaro River Steelhead Management Plan. In the early 1980's, Mr. Alley and Dr. Jerry Smith sampled 21 Santa Cruz County streams at over 100 sites for development of a County Water Master Plan.

Mr. Alley is currently one of the most active fishery biologists working along the Central California Coast, and has completed a chinook salmon passage study as far north as Mill Creek, tributary to the Sacramento River near Red Bluff. His geographical region of coastal experience spans from San Mateo County in the north to San Luis Obispo County in the south. D.W. ALLEY & Associates has conducted three instream flow studies of steelhead habitat on the Carmel River, satisfying CEQA requirements for evaluating potential impacts to the proposed New Carmel River Dam and adequately mitigating those impacts. He completed the initial assessments of steelhead and California red-legged frog resources in Arroyo Grande Creek below Lopez Reservoir for San Luis Obispo County. D.W. ALLEY & Associates has monitored aquatic resources and taken part in water feasibility studies on San Simeon and Santa Rosa creeks in San Luis Obispo County for 10 years. The firm has fulfilled the same role on the San Lorenzo River and Soquel Creek in Santa Cruz County over the last decade. Mr. Alley was project manager in the development of the Soquel Creek Lagoon Management and Enhancement Plan. His firm implemented the Enhancement Plan and continues to monitor the lagoon for the City of Capitola. alleybio@sbcglobal.net 831-338-7971

Jerry Smith received his Ph.D. in aquatic ecology from UC Davis and is associate professor of biology at San Jose State University, where he teaches aquatic ecology, fisheries management and conservation biology. He has studied central coast streams and steelhead for over 30 years and has studied coho salmon in central coast streams for 20 years. He has also conducted extensive research on California red-legged frogs, western pond turtles and tidewater goby.

Patrick Higgins is a fisheries biologist with an office in Arcata, California who has been working on salmon and steelhead recovery for over 15 years. He has written restoration plans or contributed to ones for the Klamath, South Fork Trinity, Garcia and Santa Margarita Rivers. Since 1992, Pat has been working on the Klamath Resource Information System, or KRIS project, which now includes coverage for most of northwestern California. As the KRIS Project Field Coordinator, Pat has managed many trained watershed scientists in assimilation of regional fisheries, water quality and watershed information and has helped perform watershed analysis in many of the basins covered. Most recently, Pat has been assisting the environmental departments of five Klamath River Indian Tribes to improve Clean Water Act compliance and in getting Klamath River Hydroelectric Project dams decommissioned www.klamathwaterquality.com).

Brian Dietterick, PhD, has served as Director of Swanton Pacific Ranch for Cal Poly's College of Agriculture for the past year and a half. He is also a professor of hydrology, watershed management, and GIS for the Natural Resources Management Department, Cal Poly, San Luis Obispo beginning in 1994. He has been involved with watershed projects and research since the early1980's, and has been involved in applied research projects at Swanton Pacific Ranch since the beginning of his employment with Cal Poly. He has been involved with a number of water quantity and quality projects and participated on three long-term watershed experiments evaluating the effectiveness of BMPs in protecting water quality. He has also performed in professional hydrology or hydrologic research positions for Penn State University, GeoDecisions, Inc., The State of Montana's Reserved Water Rights Compact Commission, and the Flood Control District of Maricopa County in Phoenix.

Matt Baldzikowski has been involved with environmental field work and related issues, along the Central California Coast for over twenty years. After graduating from UCSC with an Anthropology degree, Matt began working with the California Department of Parks and Recreation, for four years, as an archaeologist and resource ecologist, participating in numerous archaeological projects, and resource issues related to oil pipeline and refinery development along the Gaviota Coast in Santa Barbara County. He then worked thirteen years for the County of Santa Cruz as a Resource Planner, reviewing and permitting numerous types of projects including, private and public development, timber harvests, and quarries. As a Resource Planner, Matt also worked for the County Flood Control and Water Conservation District and has extensive experience within the local watersheds and waterways. Duties included emergency stream response, log jam modification and numerous stream restoration projects. Matt is currently employed by the City of Santa Cruz Water Department as a Water Resources Specialist. mbaldzikowski@ci.santa-cruz.ca.us phone 831 420-5468

Co-Sponsors:

Citizens for Responsible Forest Management

Citizens for Responsible Forest Management (CRFM) is a nonprofit public benefit corporation, formed in 1993. The members of CRFM have a fundamental interest in living in a high quality environment; we enjoy living in a world where natural values are respected and preserved. CRFM is committed to preserving and enhancing the ecological stability of the Santa Cruz Mountains environment, especially wildlife habitat and watershed stability, water quality and all beneficial uses of water including fisheries. www.crfm.org (831) 426-1697 JodiFredi@aol.com

Lompico Watershed Conservancy

The Lompico Watershed Conservancy is a non-profit corporation originally organized as a land trust. The original and continuing goal of the organization is to place important land parcels in protected status through the use of conservation easements or through purchase. The Conservancy also conducts restoration projects for native steelhead and salmon habitat. Our third important project is to monitor and comment on the decisions of our Regional Water Quality Control Board. Beginning in late of 2002 we began working to promote action by this Board to require a legitimate monitoring and regulatory program to control sediment discharge from logging activity. This is a requirement of State law. The Conservancy monitors and comments on the actions of several State and local agencies and departments whose actions affect water quality and wildlife habitat. www.lompicocreek.org (831) 335-4196 bats3@cruzio.com

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Valley Women's Club of SLV

The Valley Women's Club is dedicated to community action, awareness and leadership in environmental, educational, social, and political concerns which affect the health and welfare of the San Lorenzo Valley and our community. The VWC's Environmental Committee is continuing its Watershed Festival of Events with work against invasive non-native plants and information on environmentally sound household products. **www.vwcweb.org** (831) 338-6578 nbbm@cruzio.com

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