

Nancy Scolari
Marin Resource Conservation District

# **Program Distinctions**

- Early implementation of a TMDL. (Is this watershed impaired? If so, how?)
- Administered by local Resource Conservation District (RCD).
   Funded by Proposition 13 Nonpoint Source Pollution Control program.
- Describes implementation of existing watershed plan. (monitoring and restoration projects)



## Lagunitas Creek Profile



- Subwatershed of larger Tomales Bay watershed.
- 103 square miles
- Land use Recreation(1/2), agriculture and residential
- Impairments (1987)- nutrients, sediment and pathogens
- Historically supported several thousand salmonids.
- Populations declined between 1950-1990 due to sedimentation.

#### Past Efforts

- Restoration work in the 80s' by Trout Unlimited, Marin RCD, Soil Conservation Service, etc.
- Marin Municipal Water District (fish populations, temperature, sedimentation)
- Salmon Protection and Watershed Network (water quality).
- Point Reyes National Seashore (fish populations and habitat surveys)
- UC Davis (effectiveness of fish restoration projects)



# 2003 Tomales Bay Watershed Plan



#### Goal:

"Ensure water quality in Tomales Bay and tributary streams sufficient to support natural resources and sustain beneficial uses."

#### **Action:**

"Assess condition of salmonid habitats. Restore salmonid habitat. Identify limiting factors for salmonids in Lagunitas Creek...."

# Lagunitas Advisory Group Responsibilities to Resource Conservation District



#### **Answer the following questions:**

- What is the scope of work for our limiting factors analysis?
- Who shall we hire to conduct the work?
- Does analysis seem accurate?
- Shall we proceed with the monitoring recommendations?
- How will we evaluate and rank our restoration projects?
- How much money should we spend on our projects?

# Lagunitas Advisory Group

- CA Department of Fish and Game
- Marin Municipal Water District
- Marin Resource Conservation District
- Paul Siri, Ocean Policy and Science Consultant
- Point Reyes National Seashore
- Salmon Protection and Watershed Network
- Samuel P. Taylor State Park
- San Francisco Bay Regional Water Quality Control Board
- Sierra Club
- Tomales Bay Association
- Tomales Bay Watershed Council
- Trout Unlimited
- Other interested members of the public

#### Information

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- Ettlinger, E., G. Andrew, and A. Rossi. 2001. Juvenile salmonid population monitoring report, Lagunitas Creek, Marin County, California, fall 2000. Marin Municipal Water District, Corte Madera, California.
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- Ettlinger, E., J. Riley, and G. M. Andrew. 2003b. Lagunitas Creek salmon spawner survey report 2002-2003. Marin Municipal Water District, Corte Madera, California.
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- NPS (National Park Service). 2001. Compliance report, construction of the Cheda Creek fish passage structure, File No. 25315N. Prepared by National Park Service, Point Reyes National Seashore.
- NPS (National Park Service). n.d. Coho Salmon and Steelhead Trout Restoration Project (CSRP) Powerpoint™ posters.
- Prunuske Chatham. 2000. San Geronimo bedload sediment reduction program 2000 monitoring report. Prepared by Prunuske Chatham, Occidental, California in association with Balance Hydrologics, Berkeley, California for Marin County Resource Conservation District, Point Reyes Station and Marin Municipal Water District, Corte Madera, California.

# Limiting Factors Analysis

#### **Evaluating different life stages:**

- Elementary/Middle/High School Kids
- Egg/Fry/Juvenile Coho Salmon

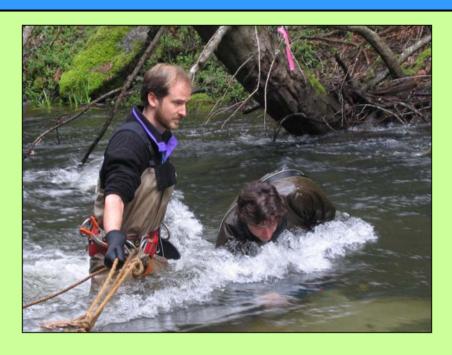
#### **Suspected problems:**

Low survival between egg deposition to late summer life stages due to:

- Redd entombment?
- Redd scour?
- Limited winter rearing habitat?
- Loss of estuarine rearing habitat?



# Limiting Factors Analysis - Monitoring

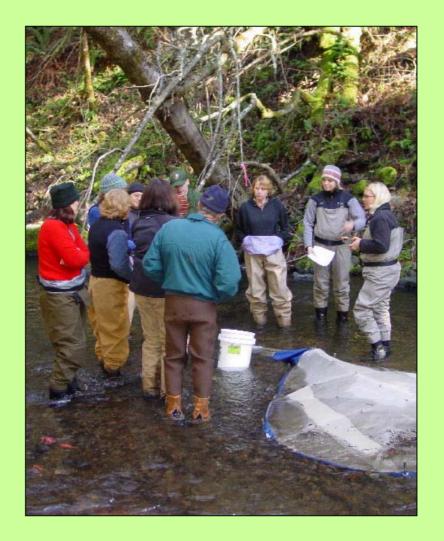


- Infiltration bags and freeze cores to measure fine sediment causing redd entombment
- Scour chains, embedded tracers to measure redd scour
- Emergence traps to monitor fry emergence
- Snorkel surveys to monitor juvenile abundance

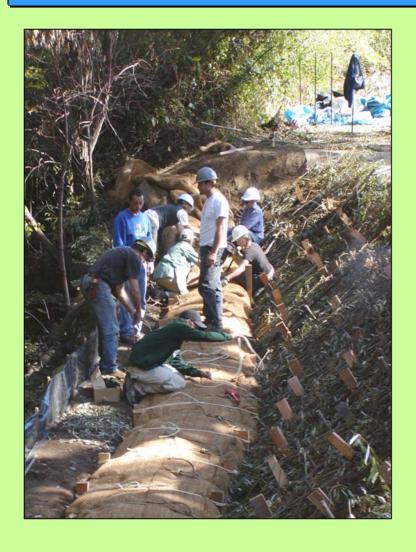
# Limiting Factors Analysis - Monitoring Results

- ✓ NO Redd Entombment
- ✓ NO Redd Scour

Limited winter rearing habitat?



## **Restoration Projects**



- Focusing on habitat improvement projects.
- Evaluating projects using local expertise hydrologist, biologist, engineer, construction foreman etc.
- Training local stream technicians.
- Projects are followed up with photo monitoring, fish population surveys, watershed-wide water monitoring by partnering agencies/organizations.

#### **Discoveries**

- Make certain the role of the advisory group is well defined.
- Communicate all progress to the advisory group.
- Plan for advisory group meetings when planning for implementation.
- Learn from each other and build stronger partnerships.

