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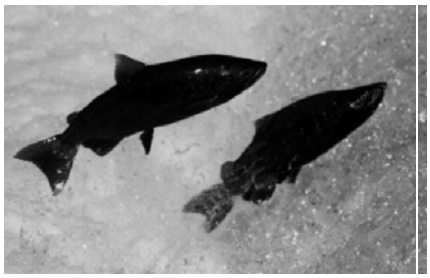


Northwest California
Resource Conservation & Development Council, Inc.

# Five Counties Salmonid Conservation Program (5C)

# E- NEWSLETTER

Volume 6, July 2011

## IN THE NEWS:

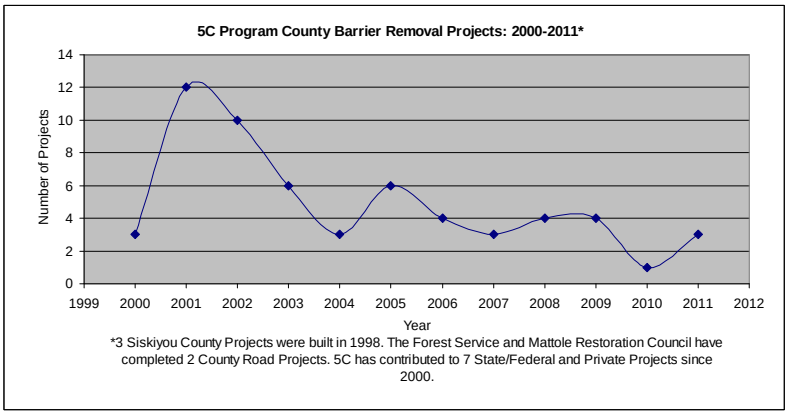
### CASPAR CREEK DESIGN RECOGNIZED

The design team for the Caspar Creek Barrier Removal Project, led by Winzler-Kelly Consulting, received the American Society of Civil Engineers (ASCE) Statewide (Region 9) Outstanding Environmental Project Award in March 2011. The 5C Program, via a California Coastal Conservancy grant, funded design of the project and provided project, team and timeline management. Another Conservancy grant funded portions of project construction (refer to Enews 4 & 5 for more on the project). Congratulations to project partners- Coastal Conservancy, Winzler-Kelly, CA Fish and Game, National Marine Fisheries Service, CalFire & US Forest Service Pacific Southwest Research Station- Redwood Sciences Laboratory.

FOUNDED 1852
AMERICAN SOCIETY OF CIVIL ENGINEERS
SAN FRANCISCO SECTION

The American Society of Civil Engineers (ASCE) represents 130,000 members of the civil engineering profession worldwide, and is America's oldest national engineering society.

## RECENT AND UPCOMING MIGRATION BARRIER PROJECTS:

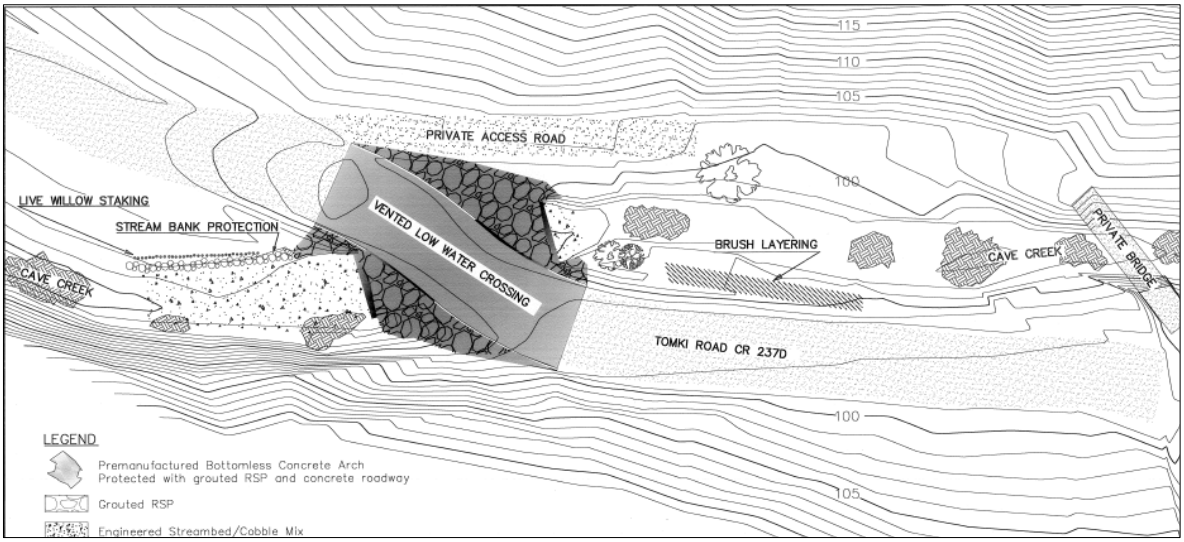



Featured fish passage enhancement projects by 5C member Counties collectively averaged 5.1 barrier removal projects per year with annual spending of approximately $1.5 million for construction, supplies and materials, which supports local economies.

## CAVE CREEK (Mendocino County)- Tomki Road Low Water Crossing #1- (Complete)

This low water crossing (left) was replaced with an arch culvert that can be safely overtopped in large floods (right). There are 8 more crossings that need to be addressed on this road.

Below, the overview plan for this project shows the unique and complicated features addressed – including a skewed road, a vented arch, and the placement of willow streambank stabilization.




## INDIAN CREEK (Humboldt County) – Mattole Road Barrier Removal (Completed)

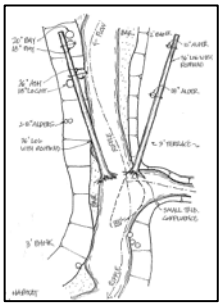
Below, the 10-ft wide x 10-ft high concrete box culvert with a 1-2 ft vertical drop at the outlet compared with the new bridge installed in fall of 2010.

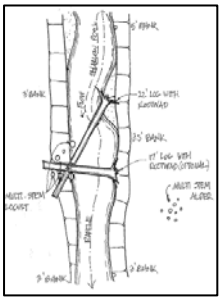
## RYAN CREEK (Mendocino County)- Ryan Creek Road Migration Barrier Removal Project (In Progress)

Ryan Creek, a tributary to Outlet Creek, which is a tributary to the Eel River, is one of the longest migratory journeys made by coho salmon in California. This project removes a concrete box culvert with an outlet jump that prevents upstream migration, replacing it with a larger “stream simulation” arch structure. Fish removal at the outlet pool relocated approximately 600 coho salmon and steelhead trout, while no coho were found upstream.

Large woody debris (LWD) removed from the fill over the box culvert will be relocated upstream and downstream to create numerous small pools and provide cover for fish

**Below Right**: crossing over Ryan Creek. **Middle and left:** examples of design plans for LWD placement






## CONNER CREEK#1 (Trinity County)- Conner Creek Road Migration Barrier Removal Project (Construction Scheduled for August-October 2011)

An existing box culvert with a jump at the outlet and high velocity flows was replaced with a bridge to accommodate 100-year flows and fish migration. The upper 41% of the watershed burned in a 2008 fire. An upstream partial barrier will be removed in 2012.

The 5C Counties use a variety of techniques to improve fish passage, storm flow, bedload and debris passage at county road crossings. Engineering staff strive to design projects that balance site and right-of-way constraints with traffic, safety, biologic, geologic/hydraulic, costs and other factors. This approach has resulted in more than 25 separate design approaches (see the 5C Program website at www.5counties.org for more detailed information on the fish passage program).

# 2010-2011 ROAD DRAINAGE AND SEDIMENT REDUCTION PROJECTS

## CHINA GULCH PHASE 2A (Trinity County)- China Gulch Road- (Completed)

Ten road erosion sites within a 1-mile stretch of China Gulch Road in Trinity County were addressed during 2010. The picture to the immediate right shows an upslope, partially-gutted debris slide and culvert inlet before project implementation. Large rock slope protection (RSP) was installed upstream of the stream crossing. A larger culvert was placed at the crossing and a critical dip was installed across the road (far right). Final grading and rocking are pending.


At the China Gulch Road crossing, a shallow, undersized 30' x 18" culvert with outlet scour created a plunge site (left). Buried wood in the outboard fill as well as accumulated surface wood (center-left) created additional problems. Excavating removed the old culvert, woody debris and fill (center right). Installed 60' x 24" culvert set near channel gradient (~14' below road grade) with critical dip and RSP installed (right).

## RUBE CREEK (Humboldt County)- Cappell Road- (Completed)

In July 2009, a similar situation was discovered on Cappell Road, crossing Rube Creek (Klamath River), when investigation of road failures revealed that an eight-foot-diameter, 220-foot-long, steel multi-plate culvert had partially collapsed under 60 feet of road prism. It is likely that a tree entering the culvert tore a portion of the middle of the culvert away and saturated fill material washed out. Rather than a temporary repair that would necessitate future ground disturbance, the decision was made for a permanent replacement using County road funds.

**Left**: Shows a 6-ft-diameter sinkhole on the road shoulder due to high flows coming up through the failed section of culvert. The sinkhole is located ~ 10 feet from the edge of the slipout (**right**).

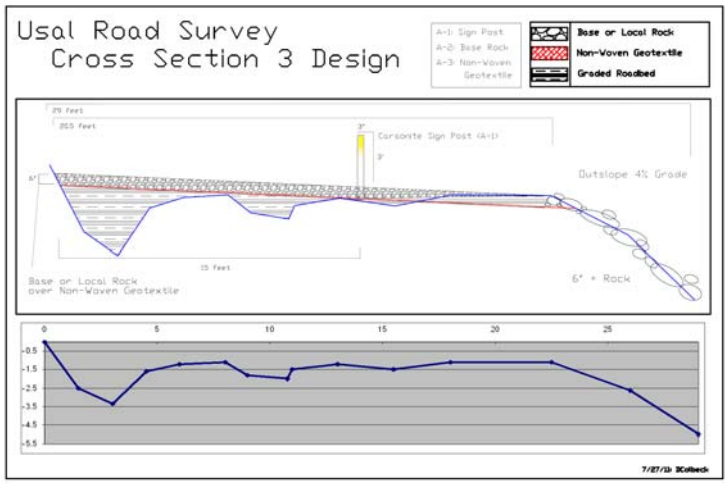
**Left**: New culvert construction – outlet side shown.

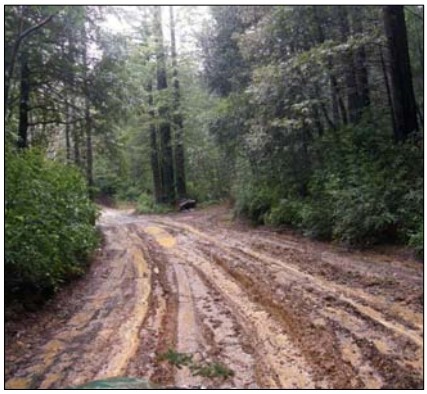
**Right**: Shows coconut fiber geotextile matting installed on downslope. Upslope side contains straw wattles and mulch.

## USAL CREEK (Mendocino County)- Usal Road Sediment Reduction Project – Part 1 Construction Began in September, 2011

**Left**: A cross-section of Usal Road in Waterfall Gulch, a tributary to Usal Creek. **Above:** The same general area as the cross section surveyed.

The Usal Road project represents a unique opportunity to experiment with geo-textile fabric and varying depths of base rock in combination with road drainage and woody material treatments. The cost and effectiveness of various treatments will be studied and results presented in a paper. If proven effective, additional Road BMP's may be developed.



## TRINITY RIVER (Trinity County)- Dutch Creek Road Sediment Reduction Project – Phase 2 Construction Begins in 2012

Two proposed treatment sites on Dutch Creek are related to fill failures (left) and slides (right). This project will include upgrading existing culverts and installing additional ones to dewater ditch segments at the base of active slides. Upslope of portions of the project area were burned in 2008.

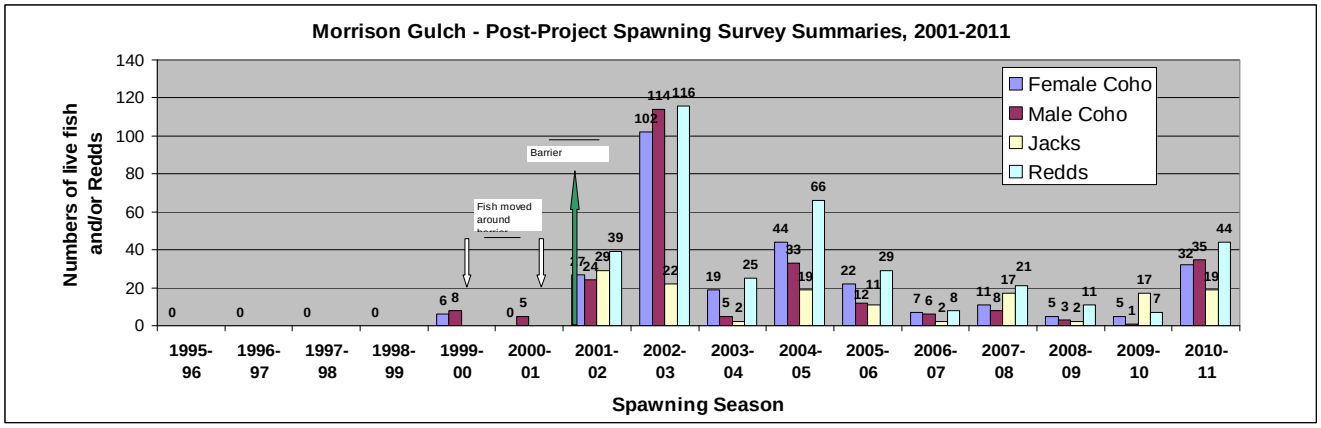
## FRANCIS CREEK Port Kenyon Road (Humboldt County)


While the culvert at this crossing site seems adequate, it will be replaced. Due to extreme amount of sediment in the culvert, backlogging and overflowing are common occurrences. Note water level in photo taken in October prior to winter rains.

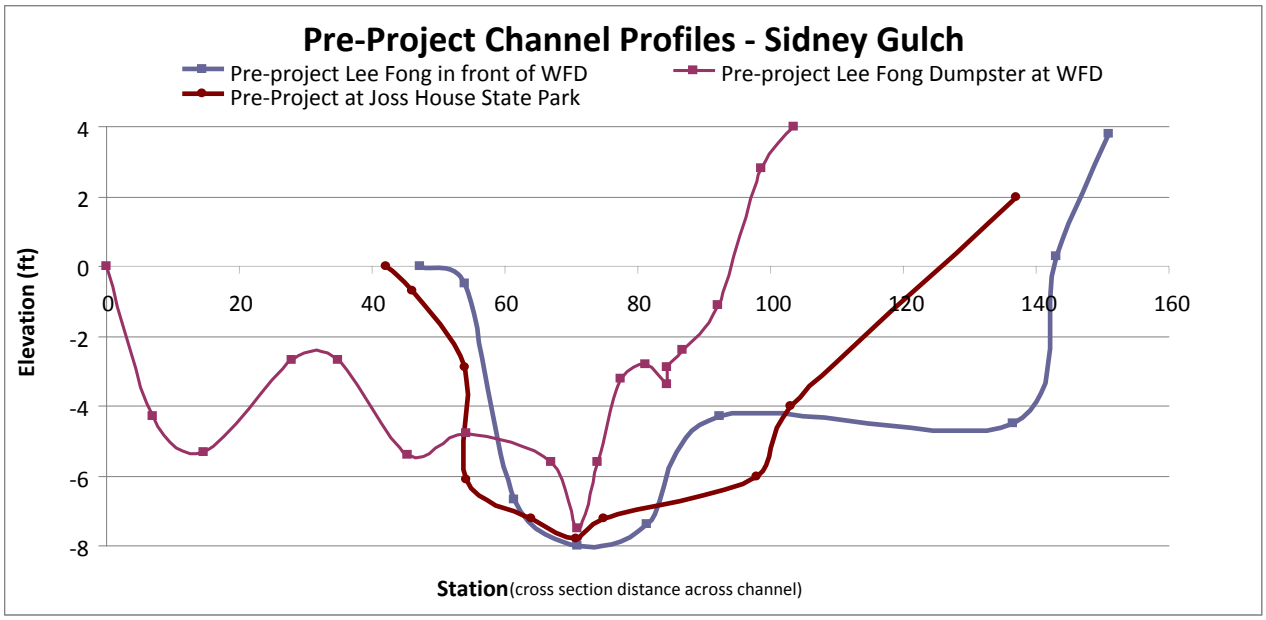
## FISHERIES MONITORING AND PROJECT DESIGN

Sidney Gulch Young-of-the-Year (YoY) sampling

Steelhead and coho salmon are observed in the creek year after year




A habitat improvement project for Sidney Gulch (Trinity County) is in the planning stages. Sidney Gulch, a tributary to Weaver Creek, is identified as a priority watershed for coho recovery under the CA Coho Recovery Strategy because of year-over-year Coho populations. Sidney Gulch is an integral part of the Weaver Creek fish population matrix. There is potential to increase channel and habitat complexity to support larger populations of Coho, steelhead, and other aquatic species as well as increasing the stream's carrying capacity. As planning continues, channel profiles help asses the current state and extent of potential restoration in the Gulch (below).




# PROJECT DESIGNS IN 2010-12

## TELEGRAPH CREEK Dam and Triple Culvert Removal Project (Humboldt County)

A concrete dam located approximately 1.1 miles upstream from the Pacific Ocean represents a partial barrier to adult fish during winter flows up to 30 cubic feet per second (cfs) and a total barrier to fish passage during the dry season due to low flows of 1.0 cfs. The dam has been in place for over 40 years and is used as part of a water treatment plant intake that provides the community of Shelter Cove with 99% of it potable water supply. The project goal is removal of the dam and triple culvert on Telegraph Creek to re-establish fish passage and open an additional 4,900 feet of stream habitat for adult and juvenile salmonids. Full removal of the dam is contingent upon the District securing an alternative water supply**.**


## SIDNEY GULCH MIGRATION BARRIER REMOVAL PROJECT – at Weaver Bally Loop Road (Trinity County)

The existing structure is a circular corrugated metal pipe 7-foot diameter and 60-feet long set at 4.91%. The culvert is undersized for 100-year flows and estimated to overtop during a 20-year storm flow. When first installed, engineers evaluated the stream and determined the system was aggrading. They subsequently determined that the culvert did not have to be embedded, assuming that it would embed itself naturally. This determination proved to be wrong and the outlet of the culvert remains above grade and has downcut significantly. This new project would improve fish passage and reduce sediment/bedload transport at the stream crossing by replacing one undersized culvert structure with a larger box culvert.

**Above left** – outlet jump into culvert. **Above Right** – inlet to culvert showing rock movement through the excessive gradient culvert

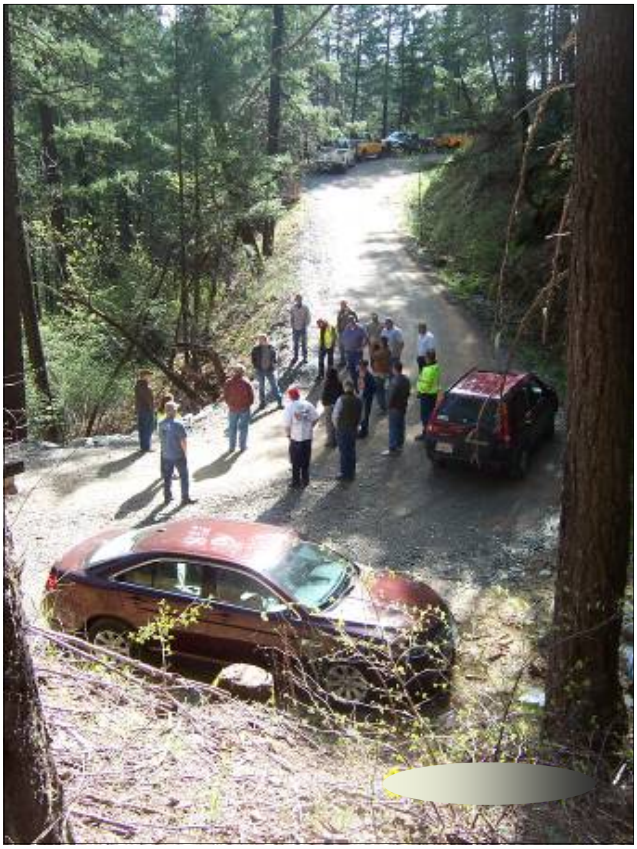
# 2011 ROADS WORKSHOP:

The 8th “Roads Workshop” training was held at the Trinity Lakes Resort at Cedar Stock in May 2011. Approximately 66 attendees represented road departments from all 5 counties along with tribal, state and federal agencies, private sector businesses, fisheries biologists, & local government. Specialists in the restoration field presented topics and led panel discussions and field demonstrations. Workshop sessions included policy, permitting, BMPs, and innovative restoration techniques.

**Above left:** General meetings and presentations in the main conference room.

**Above right:** The deck is the setting for a discussion led my Mark Lancaster on Resource Sharing, Equipment and Bulk Purchases

**Above:** A breakout session, attended by a Water Board representative, discusses permitting.



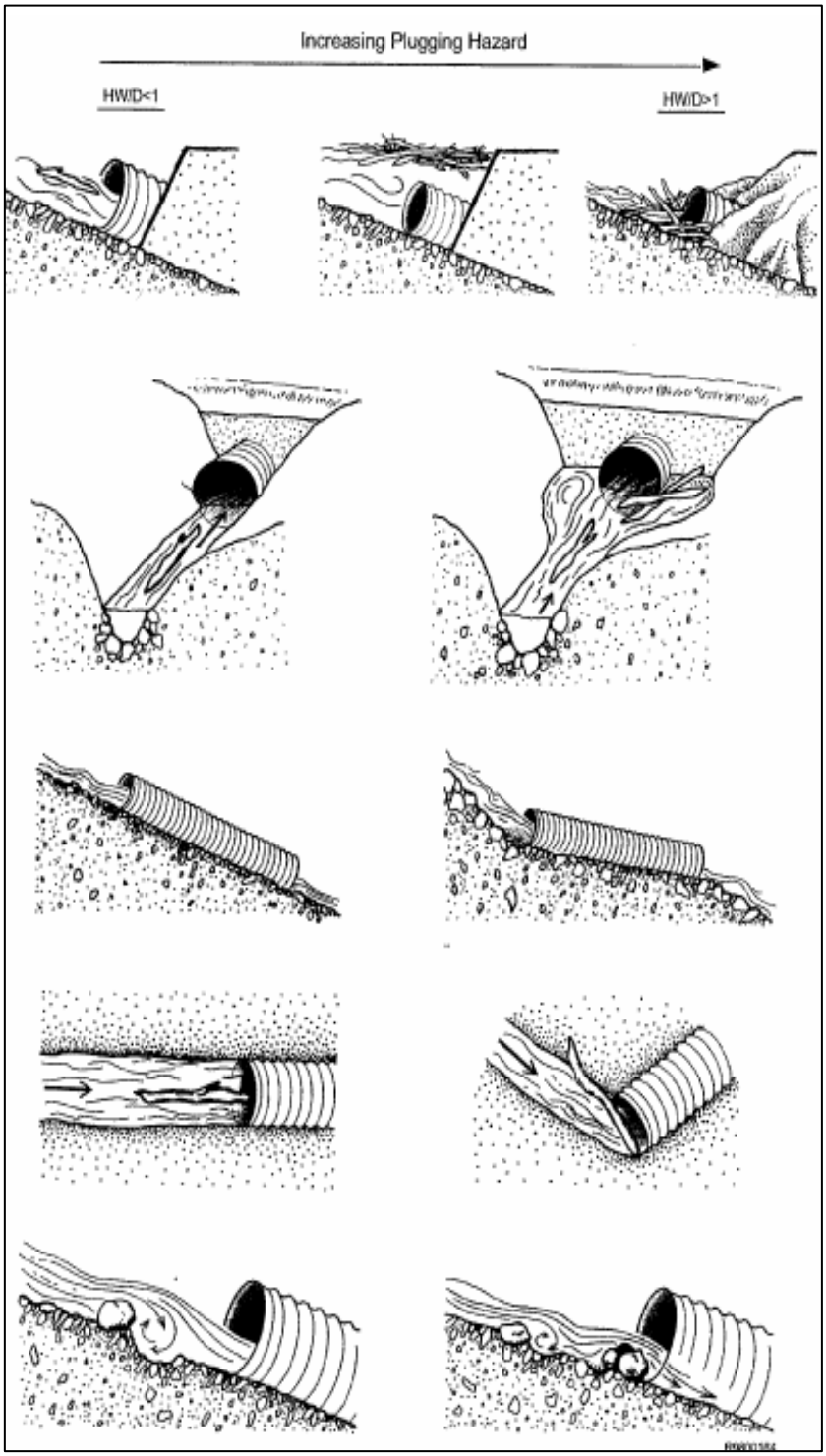
**Right:** Joined by a restoration specialist, the group inspects a site to discuss treatment options

The workshop agenda included an overview of the Roads Manual and Best Management Practices (BMP), as well as sessions on the “State of the Fish & Watersheds,” programmatic workloads, county successes and program goals. Several field tours were conducted to discuss past project construction and future project design issues. Restoration specialists joined us in the field and attendees had the opportunity to discuss project design features and techniques.

# FEATURED BEST MANAGEMENT PRACTICES:

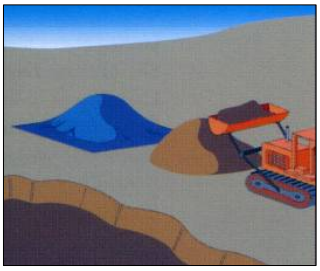
Continuing from the last newsletter, we will be highlighting the Roads Manual BMP's: http://www.5counties.org/Projects/FinalGeneralProjectPages/RoadsManual800.htm.

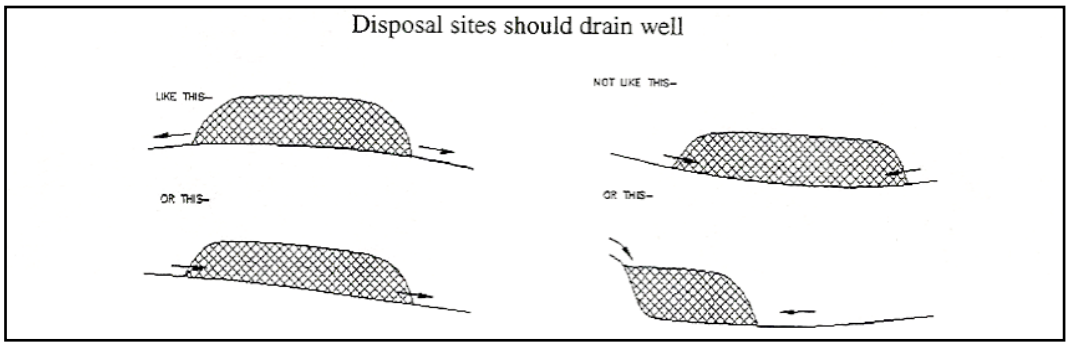
**CHAPTER 4. Culvert Improvement and Repair, BMP 4-B-2:** *"Align culverts and other structures with the stream, with no abrupt changes in flow direction upstream or downstream of the crossing. This can often be accommodated by changes in road alignment or slight elongation of the culvert."*




On China Gulch Road in Trinity County, (below right; solid white line in photo) misaligned and undersized culvert erodes bank and road and has high diversion potential down the road. Natural channel alignment is shown as dashed white line. A larger, properly aligned culvert with inlet rock apron erosion control and energy dissipater was installed (middle photo). An offset critical dip, energy dissipater, and erosion control (seed, mulch, and fiber roll) were installed as well.

**CHAPTER 5, Stockpile Maintenance 5-B-1:** *Stockpiled materials at approved disposal sites, even those stored for a short time, need to be maintained. Some sites, particularly of clean fill material such as gravel and crushed rock, may need only short-term maintenance as the spoil is usually reused for other projects. All stockpile sites need to be "storm-proofed" to prevent slumping or erosion of stored material into the stream system.*






*Source: Choctawhatchee, Pea & Yellow Rivers Watershed Management Authority (2000)*

Temporary disposal sites, or stockpiles, are useful when materials can be reused for other County maintenance or construction activities. Proper management of stockpiles on site eliminates or minimizes the discharge of pollutants to the storm water drainage system and watercourses. Temporary stockpiling of certain spoil, such as asphalt or fine-grained sediments, may necessitate stringent drainage-related controls during the wet season.

Stockpile - erosion and sediment control BMPs – straw and sediment fence protection from erosion.

Ancestor Creek Migration Barrier Removal Project- Erosion and Sediment Control BMPs in response to forecast rain.

# With abundant rain, salmon are reaching area streams

**BY AMY GITTELSOHN THE TRINITY JOURNAL**

Fisheries Biologist Eric Wiseman, left, photographs salmon in Weaverville's Sidney Gulch on Friday while Salmon Program Director Mark Lancaster joins him on "fish patrol." Recent rains have filled area creeks and allowed more coho salmon than normal to migrate this far upstream. Below, in a Monday photo by Wiseman, this coho wriggles its way up the concrete-lined portion of Sidney Gulch behind the Forest Service office. *AMY GITTELSOHN | THE TRINITY JOURNAL*

The sign by Sidney Gulch across the street from the Weaverville Post Office says the urban stream is used by coho salmon and steelhead — but they are a rare sight.

With good rainfall this year, U.S. Forest Service Fisheries Biologist Eric Wiseman has been watching for coho coming upstream to spawn. On Friday he checked on the cement-lined portion of the Sidney Gulch behind the ranger station and saw two adult coho trying to swim upstream. It was rough going, and they drifted downstream to spawn near the Post Office. Wiseman saw an immature "jack" as well.

The fish had traveled 120 miles from the ocean. Wiseman has not seen an adult coho - federally listed as threatened over a wide area - up this high since 2001.

"We have evidence they've been here before. We just haven't seen them," he said.

The good turnout was expected, in part because this particular cohort, which returns every three years, is relatively strong. But mostly, Wiseman said, it's the rainfall.

"These fish like these little creeks," he said, "and the creeks don't have enough water until we get a bunch."

Wiseman and Five Counties Salmon Program Director Mark Lancaster went on "fish patrol" around Weaverville, also spotting a coho at Democrat Gulch up Oregon Street.

The Five Counties program has worked on projects such as changing impassible culverts to structures that the fish can get through. A lot more work needs to be done, and Weaver Creek is critical, Lancaster said.

"Coho populations have crashed to the point they are now considered functionally extinct in some rivers around here," Lancaster said.

After spawning, the adult fish stick around to protect their nests, called redds. Then they die, providing food for their offspring when they hatch.

The fish run is expected to last until the middle or later part of January. Wiseman hopes that anyone spotting the fish will just look.

"They should not harass them," he said.