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## SALMON PROTECTION AND WATERSHED NETWORK

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Post Office Box 400 • Forest Knolls, CA 94933  
Phone: 415-488-0370 • Fax: 415-488-0372  
spawn@spawnusa.org • www.spawnusa.org

### Larsen Creek Salmonid Passage Baffles Repair Project

**Background:** This cement box culvert with baffles passes under Sir Francis Drake Blvd (SFD) 15 meters upstream of the confluence with San Geronimo Creek. An extension was added to the existing cement box culvert as a part of a road widening project on SFD in the last decade. During this extension construction, we believe that the fish passage baffles and weirs were installed to enable juvenile and adult salmonid passage. SPAWN crews note spawning salmonids utilizing a 400 m stretch of creek upstream of this site each winter.

**Problems at the Site:** Encroachment of rip-rap from the right bank has entered the stream channel and is causing the degradation of a jump pool at the base of the culvert. This encroachment has also caused significant erosion on the left bank due to: a) the culvert under SFD; b) armoring of the right bank and c) narrowing of stream channel between the rip rap and a live alder tree in the middle of the channel. Furthermore, the baffles are not water tight and therefore when water levels drop in the spring, flow leaks under the baffles causing hundreds of juvenile salmonids to become trapped. This problem has prompted SPAWN crews to rescue and relocate 200-300 juvenile salmonids from the baffles since 1999.

**Recommended Repair:** We recommend modification of this site to prevent downstream migrants from becoming trapped behind baffles and provide upstream migrants with easy passage by repairing stream channel constriction. Ideally this would entail the complete removal of the culvert and replacement with a wider channel and natural creek bed design. In the short term however, we recommend a less costly modification to provide safe migration passage, particularly for juveniles, by repairing the baffles and a jump pool at the base. Such a short term repair may prevent hundreds of juveniles from dying each spring until the larger culvert replacement and erosion problems can be addressed.



These wooden baffles leak and trap hundreds of juvenile salmonids each spring.

#### Short term repair alternatives to enable juvenile salmonids safe passage:

- 1) Seal the weirs and creating a 'V' notch in the baffle for flow\*
- 2) Cut a small opening in the bottom of weirs
- 3) Remove the weirs in summer and replacing before the fall rains

\* Alternative selected by the NMFS. Plans are currently being developed for this option. A project description is listed on the following page.

## **Short Term Repair Project Plan.**

### **Sealing of the Weirs and creating a 'V' notch in the baffle for flow:**

The initial implementation (steps 1-4) of this project will take approximately 4 hours and includes the following process:

- Implementation:**
- 1) Place net across creek on upstream end and relocate salmonids from the weirs.
  - 2) Clean dirt and gravel from surface around area where epoxy will be applied.
  - 3) Apply epoxy - (Within 30 minutes the substance sets. It will harden within 24 hours.)
  - 4) Remove net across creek on upstream end.
- Monitoring:**
- 5) Monitor weirs to determine if maintaining water tight integrity and survey for salmonids throughout the season and make additional repairs if necessary
  - 6) Survey baffles when creek flow ceases to determine if salmonids remain trapped