

**Memorandum**

Date : November 15, 1994

To : Terry Mills  
California Department of Fish & Game  
1416 Ninth Street, 12 Floor  
Sacramento, California 95814SECTION 9

ITEM # \_\_\_\_\_

DATE 11/94

From : Department of Water Resources

Subject : San Joaquin River Tributaries Spawning Gravel Assessment

This memorandum report presents an assessment of the location, area, and quality of salmon spawning gravel on the Stanislaus, Tuolumne, and Merced Rivers. The assessment included surface and bulk sampling of spawning gravel, measuring spawning gravel area, and observing river conditions such as vegetative encroachment or predominance of fines in riffles.

This assessment was performed under the terms of a contract with the California Department of Fish and Game, Contract Number DWR 165037, effective January 1, 1993. Although the study area lies within DWR's San Joaquin District, the work was performed by the Northern District because of staff availability, equipment, and past experience. Sampling methodology and location were informally negotiated between DWR-ND staff and DFG staff during performance of the contract.

The three rivers are tributaries of the San Joaquin River. The tributaries extend from Sierran alpine regions with elevations exceeding 12,000 feet above sea level to their confluence with the San Joaquin River near sea level. Large dams have been built at the transition between foothill terrain and valley floors, effectively stopping the flushing flows of spring and early summer runoff. The dams also stop the transport of gravel into the lower river reaches.

The study reaches lie immediately downstream of the dams extending approximately 20 to 25 miles toward the San Joaquin River. These reaches remain the only natural areas where chinook salmon may spawn in each river.

Our sampling results show that existing gravel in the assessed reaches is generally adequate to support chinook salmon spawning. However, degradation of the spawning habitat continues in absence of flushing flows and encroachment of vegetation. Recommendations are made in the memorandum report to protect the riffles by management of vegetation and deposition of fines and focused study on the effects of previous aggregate mining.