

An aerial photograph of a lush, green valley. A winding creek flows through the center, leading to a small, clear lake. The surrounding area is densely forested with tall evergreen trees. The overall scene is a natural, mountainous landscape.

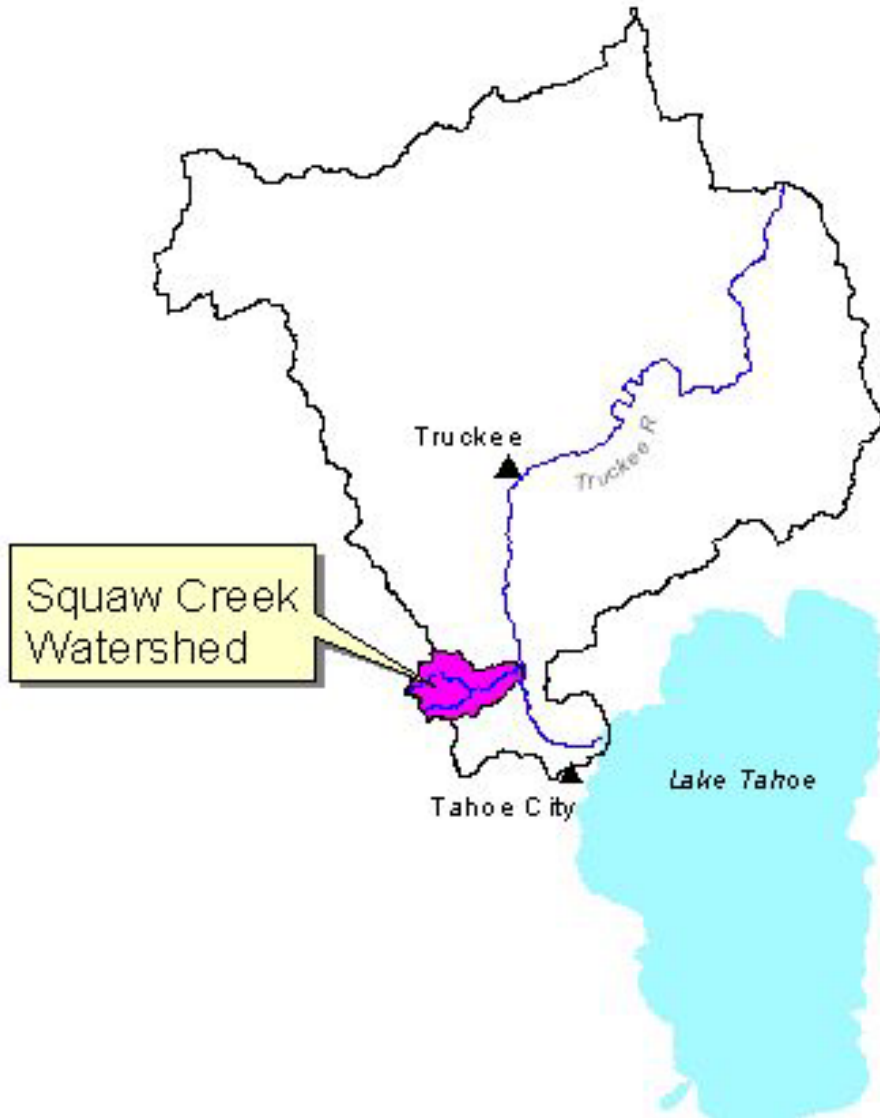
Item 8:

**Total Maximum Daily Load
for Sediment in
Squaw Creek, Placer County**

Adopted April 13, 2006

February 20, 2007
Public Meeting of the
State Water Resources Control Board

Squaw Creek Watershed:



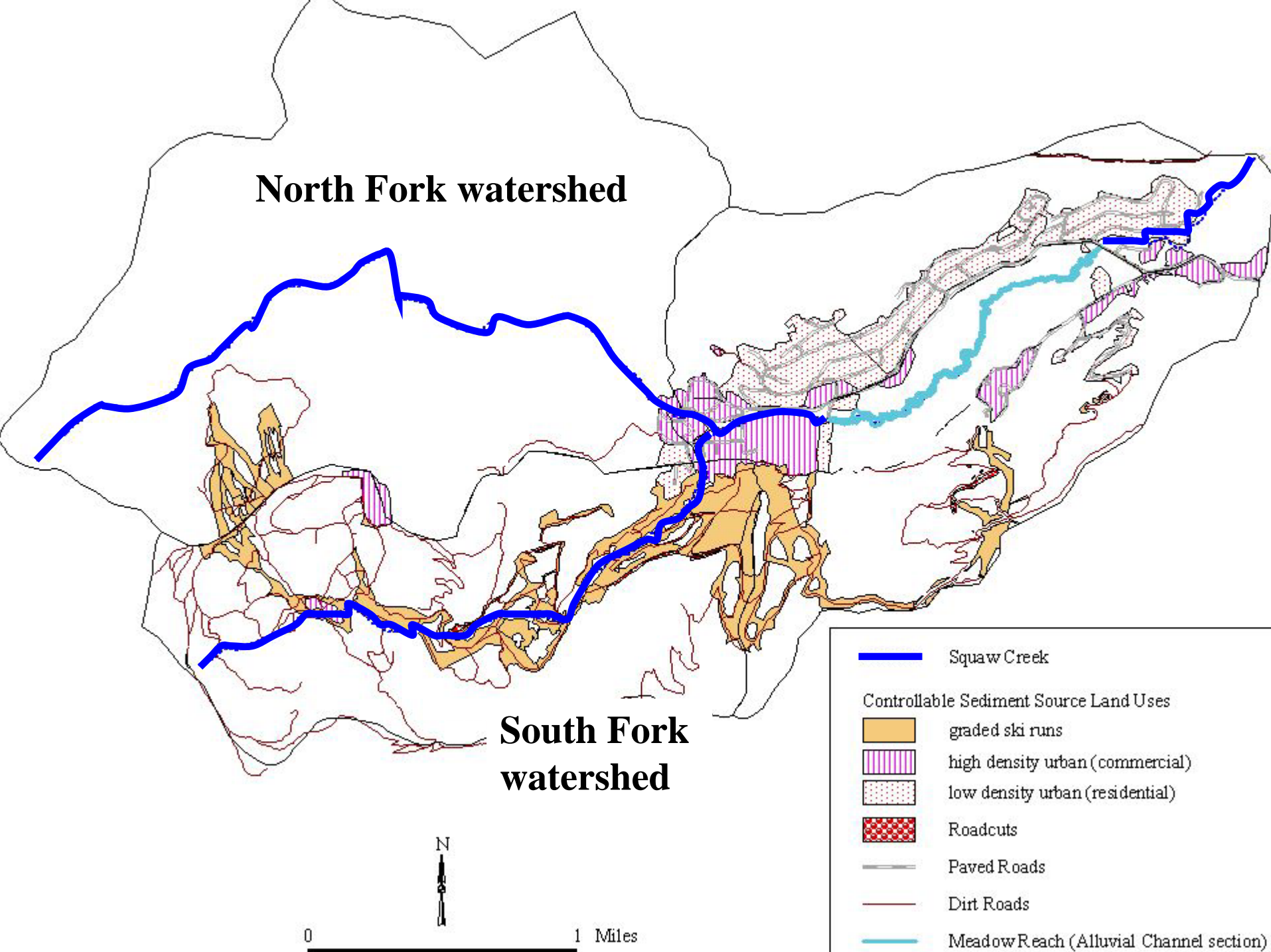
Historic and current land disturbance in erosive watershed contributes excessive sedimentation to creek.

- Cattle ranching, sheep herding, logging in early 20th century.
- 1960 Winter Olympics.
- Construction & expansion of ski areas, residential and recreational facilities.

Relatively small watershed; heavy seasonal population demands & land use.

North Fork watershed

South Fork watershed





North Fork watershed



South Fork watershed (1999)



Meadow Reach

Accelerated sedimentation has been identified as impairing the aquatic beneficial uses of Squaw Creek which include cold freshwater habitat, spawning, reproduction, development and wildlife habitat.

Excessive Sedimentation Impacts on Aquatic Life:

- Clogs spawning gravels.**
- Smothers fish eggs, embryos, benthic insects.**
- Limits suitable habitat for fish and aquatic insects.**

Primary Data Used to Develop TMDL:

Dr. Herbst of UC-Santa Barbara/SNARL:

Bioassessment

for problem statement, numeric targets, loading capacity, linkage and monitoring parameters

University of Nevada Master's Thesis (Maholland, 2002):

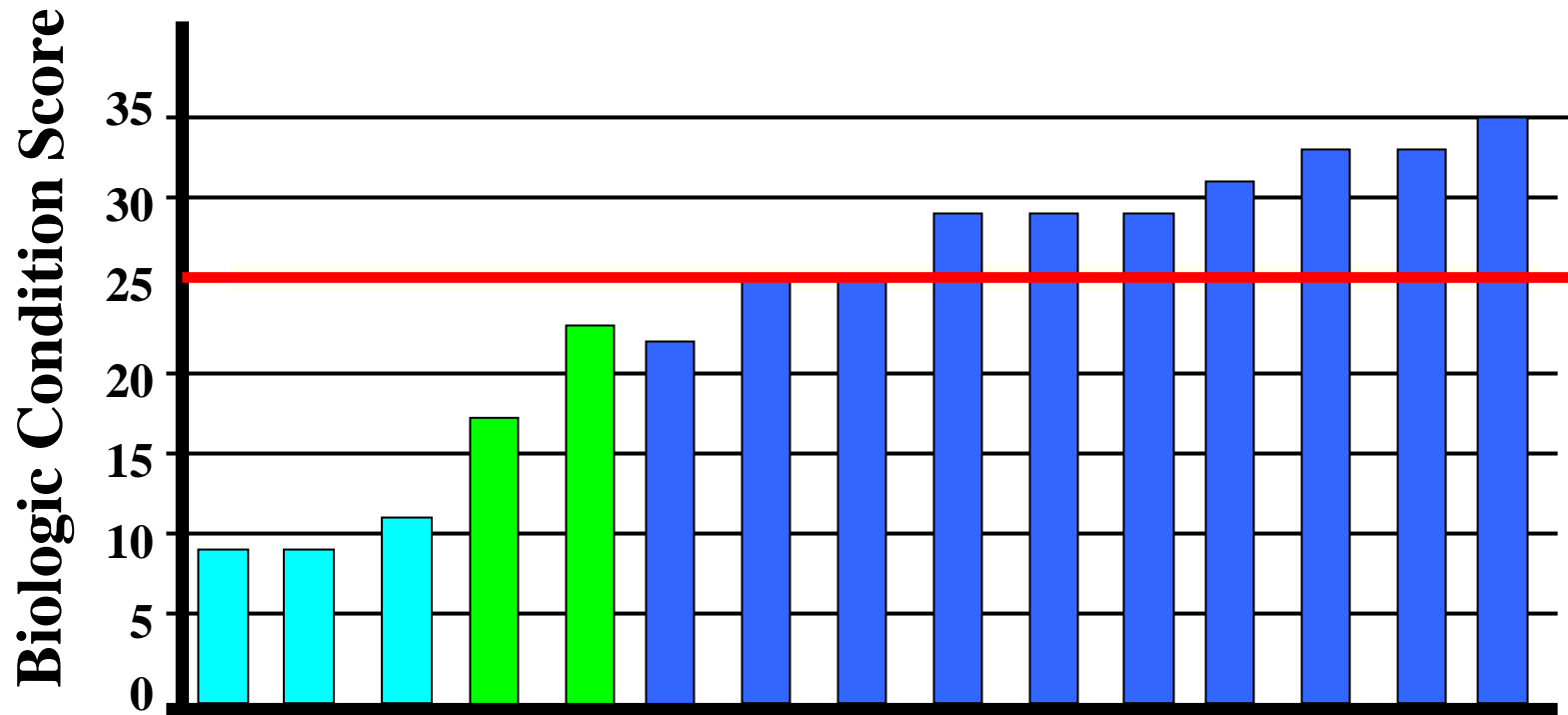
Sediment loading estimates

for source analysis.

Bioassessment Study Overview

- Reference stream approach compares Squaw Creek to regional streams.
- 16 streams sampled in the middle Truckee River watershed.
- Aquatic insects collected and identified to describe biologic community structure and diversity.
- In-stream sediment data (substrate particle size).

Biologic Condition Scores for Low Gradient Sites (2000 and 2001)



Average BCS for 2001 Squaw Creek Sites = 20

Target = 25

Indicates a 25% improvement needed to reach target.

Numeric Targets - Meadow Reach of Squaw Creek

Biologic Health Target:

- Biologic Condition Score of 25 or greater

BCS: index that summarizes measurements of aquatic life diversity, abundance, and pollution tolerance.

Stream Substrate Conditions Target:

- Median (D-50) particle size of 40 mm or greater.
- Percentage of fines and sand less than 25 percent.

Represents suitable stream-bottom conditions for aquatic life, based on conditions in low gradient reference sites.

Source Analysis

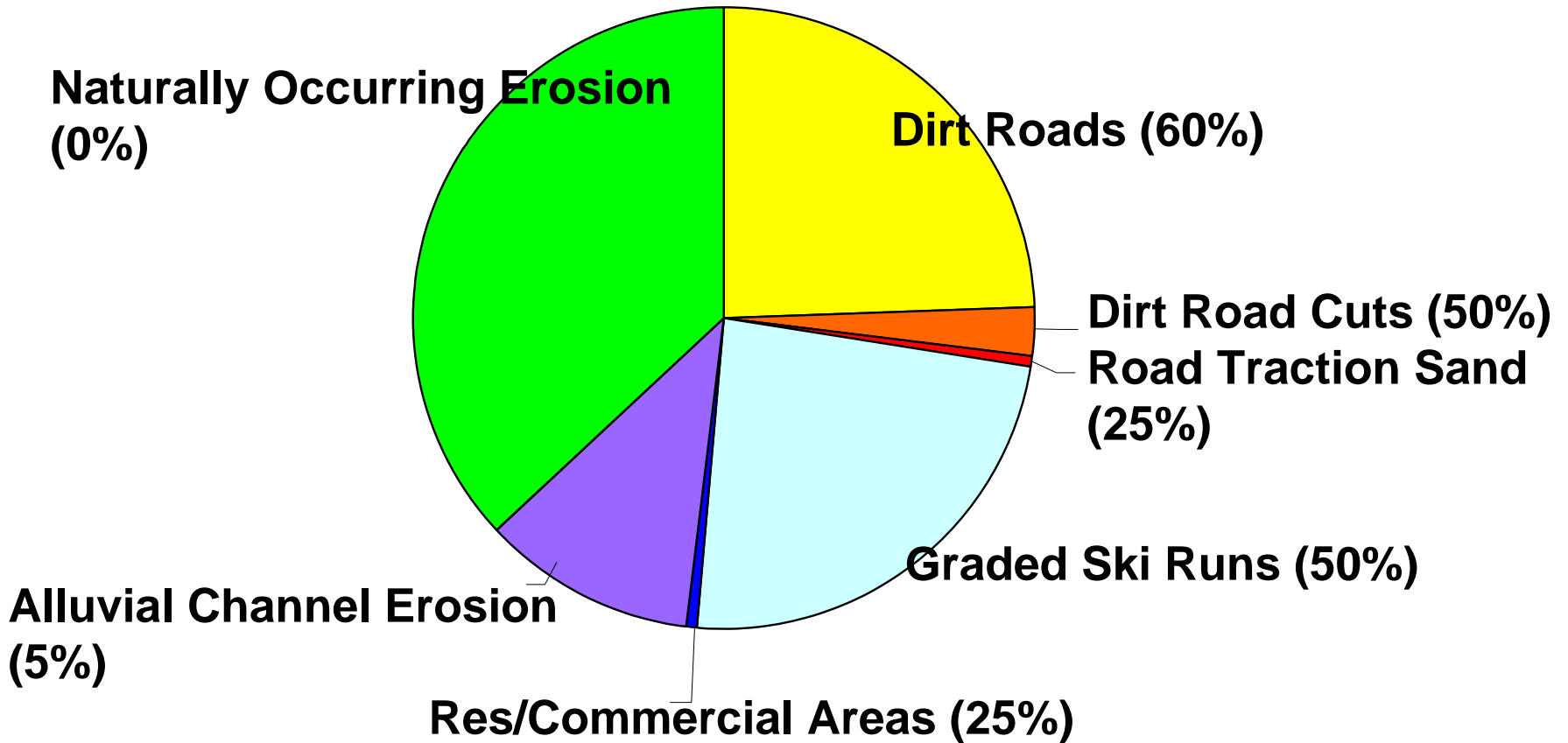
- Characterizes the magnitude and location of sediment sources by land use type.
- Useful for relative comparison of contribution of sources.
- Does not account for BMPs.

Source Analysis

Methods used to estimate erosion and sedimentation:

- Erosion measurements for different land use types throughout Squaw Creek watershed.
- Mapping and aerial photos used to assess in-stream channel erosion.
- Computer modeling to estimate sediment delivery to stream channels from erosion measurements.

Sediment Sources:



Implementation Plan

Relies on existing WDRs:

- SVSC
- Resort @ Squaw Creek
- Village @ Squaw Valley

Requires iterative application of erosion control measures, annual worklists, monitoring & reporting.

Proposes new WDR:

- Placer County

Statewide General Municipal NPDES stormwater permit to address residential/commercial areas, road sand.

Monitoring Plan

- **Numeric target monitoring added or included in long-term permits.**
- **Scheduled every other year.**
- **Erosion control monitoring & reporting as required by WDRs.**
- **Numeric target monitoring data assessed after 10 years for progress.**

Public Comments:

- Five comment letters were received within the comment deadline and responded to.
- The State Water Board resolution was revised in response to comments.

Finding No. 2

On April 13, 2006, the Lahontan Water Board adopted Resolution No. R6T-2006-0017 (Attachment) amending the Basin Plan to establish a program (TMDL) to control sediment in Squaw Creek, Placer County. ***The Lahontan Water Board established a sediment loading capacity for Squaw Creek of 28,425 tons per year, equaling an average daily load of approximately 78 tons. The TMDL accounts for critical conditions by establishing multiple targets which together address net long-term effects to the meadow reach of Squaw Creek, which appears to be most sensitive to sedimentation. Attainment with the TMDL will be assessed using multi-year data based on rolling averages and trend analysis.***

Finding No. 5

While this amendment addresses only the impairment to beneficial uses of Squaw Creek due to excessive sediment, the State Water Board recognizes that beneficial uses of Squaw Creek may also be affected by diminished flow conditions.

Resolve No. 2

The State Water Board directs the Lahontan Water Board to continue to support the efforts of entities pumping groundwater and other stakeholders in Squaw Valley to (1) minimize effects on the creek, (2) develop a groundwater management plan that recognizes potential effects of pumping on the creek and seeks to minimize or eliminate adverse effects on Squaw Creek, and (3) conduct a study of potential interaction between groundwater pumping and flows in Squaw Creek. The State Water Board further requests the Lahontan Water Board to report on the progress of these efforts at a future State Water Board meeting in 2008.