

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION**

**MEETING OF MARCH 11-12, 2015
SOUTH LAKE TAHOE, CA**

ITEM: 9

SUBJECT: TMDL IMPLEMENTATION STATUS REPORTS

INTRODUCTION: Staff will explain and summarize the TMDL (Total Maximum Daily Load) Implementation Status Reports for five of the Lahontan Region's six TMDLs. TMDL Unit staff has developed these documents to report on the parties responsible for TMDL implementation, pollutant indicator parameters, targets, and performance measures.

BACKGROUND: A TMDL is a regulatory term in the U.S. Clean Water Act, describing a value of the maximum amount of a pollutant that a body of water can receive while still meeting water quality objectives. The Clean Water Act does not expressly require the implementation of TMDLs, just their development. However, in California, the State Water Board has interpreted the Porter-Cologne Water Quality Control Act to require that implementation be addressed when TMDLs adopted. Therefore, all TMDLs developed by the Water Boards must include an Implementation Plan.

There are five steps in developing a TMDL in California:

1. Involve Stakeholders: Stakeholders can be the general public, business interests, government entities, environmental groups, or anyone concerned with a particular water body.
2. Assess Water Body: In this step, pollution sources and amounts, or "loads," are identified for various times of the year. Then the overall effect of these loads on the water body is determined.
3. Define the Total Load and Develop Allocations: To ensure water quality standards are met, allocations of pollutant load to all sources are established for the pollutant(s) in question. The sum of the allocations must result in the water body attaining the applicable water quality standards.
4. Develop Implementation Plan: This step is a description of the approach and activities to be undertaken to ensure the allocations are met and identification of parties responsible for carrying out the actions.

5. Amend the Basin Plan: Federal law requires that TMDLs be incorporated into the Basin Plans.

DISCUSSION:

This informational item presents a summary of the implementation plans for five of the six TMDLs (Lake Tahoe TMDL implementation will be presented in a separate item) and how Lahontan Water Board staff tracks and reports on the progress of the TMDL implementation.

The Lahontan Water Board has adopted six TMDLs:

2001	Heavenly Valley Creek-sediment	Most targets on track toward compliance
2002	Indian Creek Reservoir-phosphorus	Most targets on track toward compliance
2006	Squaw Creek-sediment	Target compliance shows mixed results
2007	Blackwood Creek-bedded sediment	Most targets on track toward compliance
2008	Truckee River-sediment	Target is in compliance (staff is evaluating appropriateness of target)
2010	Lake Tahoe-nitrogen, phosphorus, fine sediment	(separate agenda item)

A TMDL is not a regulation. It cannot require a discharger to install or conduct best management practices for sediment control, for example. But a TMDL does describe what actions should be undertaken to alleviate the impairments and identifies enforceable features (e.g., practices to reduce sediment load) and triggers for Regional Board action (e.g., unmet performance standards such as a total suspended solids concentration).

In the Lahontan Region, our TMDLs are implemented in various ways including MS4 stormwater permits, stream restoration activities conducted by a land management agency, voluntary actions by a discharger (with financial assistance from a grant). The TMDL Implementation Status Reports specify these sediment or nutrient reducing implementation measures and identifies the parties conducting the activities.

For the Lahontan Region, the TMDL Unit staff tracks and reports on the implementation progress and the status of the water body impairment. The TMDL Unit staff obtains information from other units, primarily the Regulatory Unit whose staff oversees the permits, and from the dischargers or project implementers directly if there are no permit in place. TMDL Unit staff report implementation progress to entities such as USEPA and the State Board TMDL Program in various formats. One such format is the one-page Water Quality Report Cards posted on State Board’s webpage:

http://www.waterboards.ca.gov/about_us/performance_report_1314/plan_assess/11112_tmdl_outcomes.shtml

TMDL Unit staff has developed their own detailed format for reporting on the implementation parties, indicator parameters, targets, and performance measures. These TMDL Implementation Status Reports are posted on Lahontan's webpage:

http://www.waterboards.ca.gov/rwqcb6/water_issues/programs/tmdl/index.shtml, and are the subject of this item.

**RECOMMEND-
ATION:**

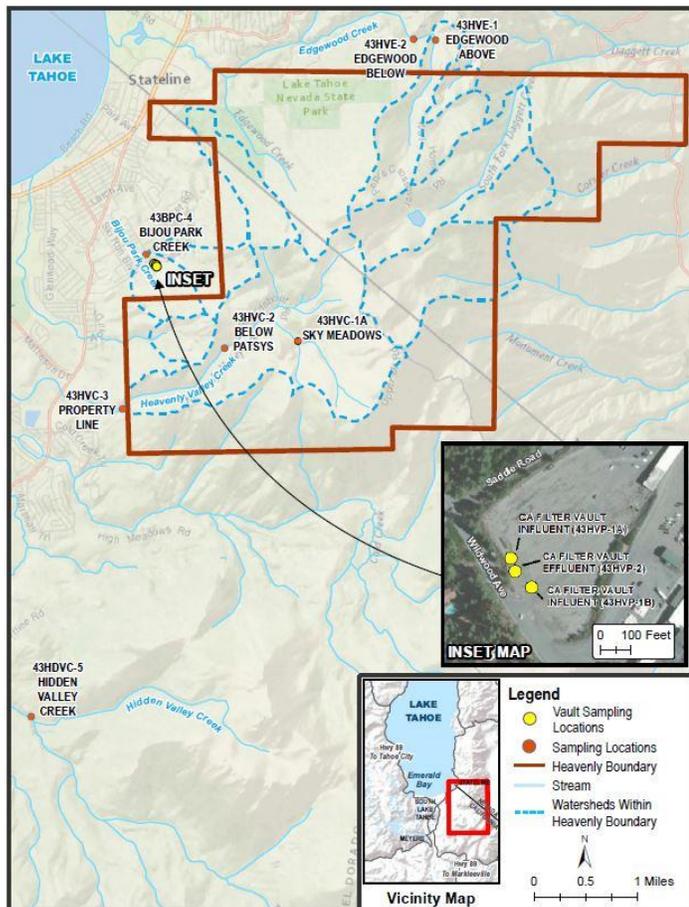
This is an informational item. The Water Board will not be asked to take any formal action.

ENCLOSURES

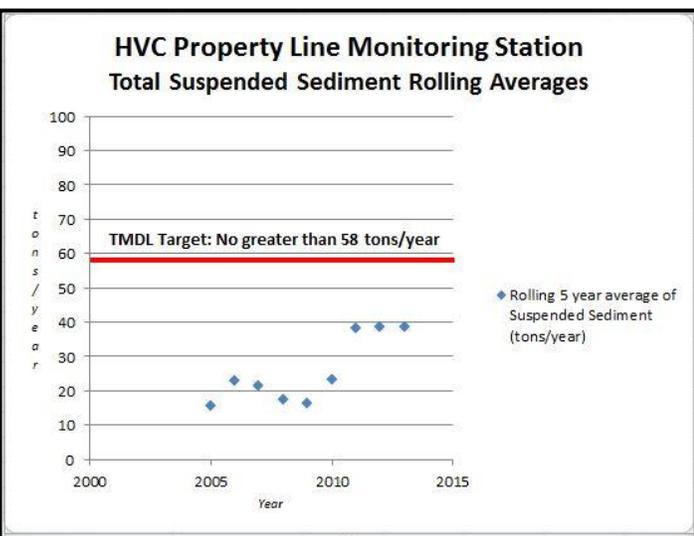
ENCLOSURE	Description	Bates Pages
1	Heavenly Valley Creek TMDL Implementation Status Report	9-6
2	Indian Creek Reservoir TMDL Implementation Status Report	9-13
3	Squaw Creek TMDL Implementation Status Report	9-23
4	Blackwood Creek TMDL Implementation Status Report	9-29
5	Truckee River TMDL Implementation Status Report	9-34

ENCLOSURE 1

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[Click here](#) for a description of sampling sites



Background Information

- **Date of Approval:**
 January 2001 (Lahontan Region); September 30, 2002 (USEPA)
- **Basis for TMDL:**
 With the development of the ski resort beginning in 1955/56, the creek has been altered by hydromodification. This includes a snowmaking reservoir, a diversion of part of the creek into a culvert, and by erosion of the hillslope.
- **Responsible Parties:**
 United States Forest Service, Lake Tahoe Basin Management Unit and Heavenly Ski Resort
- **Target:**
 The TMDL will be met when the instream total sediment load does not exceed 58 tons/year as a 5 year rolling average, as measured at the Property Line monitoring station (HVC-3)
- **Attainment of TMDL:**
 Instream standards projected to occur within 20 years after final approval of TMDL (2022). Based on the continued attainment status, Heavenly Ski Resort and Regional Board staffs have begun discussions regarding a proposal to de-list Heavenly Valley Creek.

Permitting and Reporting

- **TMDL Implementation Permits:**
 Monitoring and Reporting Program No. R6T-2003-0032 (2003)
 Including amendments
 R6T-2003-0032A1 (2006)
 R6T-2003-0032A2 (2013)
- **Period of Evaluation:**
 2001 – 2013
- **Reporting**
 Annual and comprehensive monitoring reports are submitted to the Lahontan Water Board for review as part of the Heavenly Ski Resort Permit.
- **Previous Status Report**
 For previous Heavenly Valley Creek Status Report (2001 – 2008) please refer to [2010 Heavenly Valley Creek Status Report](#)

Target	Evaluation Schedule	Source Reported	2015 Compliance Comments
Instream total sediment load maximum of 58 tons/yr as a 5 year rolling average, as measured at the Property Line monitoring station	Annually, as a 5 year rolling average	Annual Monitoring Reports and Comprehensive Monitoring Report Heavenly Mountain Resort Epic Discovery Project EIR & EIS	Meets Requirements: Since 2005, the five-year rolling average has been significantly lower than the Lahontan TMDL target of 58 tons/year of total suspended sediment. See Table 1 for Total Suspended Sediment Data
USFS Region 4 “Stream Condition Inventory” improving trends in channel morphology over time	Conducted every three years beginning in 2006	Annual Monitoring Report; Heavenly Mountain Resort Epic Discovery Project EIR & EIS	Meets Requirements: <u>Sky Meadows (HVC-1):</u> Improved and consistent channel conditions as compared to Upper Hidden Valley Reference Reach. 97% bank stability & 29% stream shading. <u>Below Patsy’s (HVC-2):</u> Physical habitat parameters are good. Habitat types, pool numbers and dimensions are stable, and stream shading is good. <u>Property Line (HVC-3):</u> Improved and consistent channel conditions as compared to Lower Hidden Valley Reference Reach. See Table 4 for <i>Instream Biotic Condition criteria</i>
Macroinvertebrate community health improving to approach conditions at Hidden Valley Creek	Sampling has been conducted in a 2 year on, 2 year off cycle: 2001-2003; 2006-2007; 2010-2011 & 2014-2015	Annual Monitoring Report; Heavenly Mountain Resort Epic Discovery Project EIR & EIS	In progress: Improving trend cannot be determined from current data set. <u>Sky Meadows (HVC-1):</u> The Instream biotic condition is Poor. <u>Below Patsy’s (HVC-2) & Property Line (HVC-3):</u> The Instream biotic condition is Fair to Good but not yet “approaching conditions in Hidden Valley Creek.” See Table 2 for <i>Bioassessment Scores</i> See Table 3 for <i>IBI and CSCI Thresholds</i>
Maintaining/implementing BMPs for roads and ski runs with effectiveness reported	Yearly, on-going basis yearly	Annual Monitoring Report	Meets Requirements: Between 3 and 37 BMP evaluations were completed each year in Heavenly Valley Creek. On average 90.5% of the inspections concluded that permanent BMPs were fully implemented and fully effective. BMP effectiveness is rated as Excellent.
Overall rating of “good” or better for effective soil cover on ski runs and roads using the LTBMU evaluation criteria. <i>The Forest Service recommended that the measurements be discontinued because the tests were too time intensive and did not support monitoring objectives.</i>	In 2013, an erosion-focused rapid assessment process was tested for identification of erosion “hot spots.” ¹	Annual Monitoring Report; Heavenly Mountain Resort Epic Discovery Project EIR & EIS	Meets requirements: In 2005 soil coverage was rated as excellent. Eight of 25 hotspots were completed in 2013 & indicate measurable improvement in erosion resistance. Seven more treatment projects are scheduled for 2014.

¹The Monitoring Program was amended in November 2013 under Board Order Number R6T-2003-0032A2 to update effective soil cover monitoring with an erosion-focused rapid assessment process described in the *Watershed Management Guidebook* (Drake and Hogan 2012). Erosion hot spot identification and ranking criteria include: erosion risk, active erosion, active deposition, proximity to stream, connectivity to stream and stream environment zone, watershed priority, and operational priority.

Implementation Measure	Evaluation Schedule	Source Reported	2015 Compliance Comments
Abandon and restore 7.59 acres of existing unpaved roads ¹	Completed by 2006	TRPA Land Coverage Removal Verification Permits	Meets requirements: Reported in Tahoe Regional Planning Agency Land Coverage Verification letter to Heavenly Ski Resort December 5, 2005.
Stabilize 21.10 acres of existing roads which will remain in use ¹	Completed by 2006	2003 and 2006 Forest Service Comprehensive Monitoring Report	Meets requirements: Reported in Heavenly Ski Resort TMDL Compliance Report for stabilized and treated summer maintenance roads submitted to Lahontan July 16, 2010.
Restore 182 acres of existing ski runs ¹	Completed by 2006	2003 and 2006 Forest Service Comprehensive Monitoring Report.	Meets requirements Reported in Heavenly Ski Report TMDL Compliance Report for Stabilized and Treated Ski Runs - July 16, 2010 Heavenly Ski Run Erosion Control Measures Since 2001/2002 - July 30, 2010
Maintain BMPS as necessary ¹	On-going basis	Annual Monitoring Report	Meets requirements: BMP monitoring frequency is biweekly during construction and after precipitation events. Between 3 and 37 BMP evaluations were completed each year in Heavenly Valley Creek. On average 90.5% of the inspections concluded that permanent BMPs were fully implemented and fully effective. BMP effectiveness is rated as Excellent.
Review success of specific BMPs at specific sites; identify and implement improvements through adaptive management approach ¹	On-going basis	Annual Monitoring Report & Environmental Monitoring Program Comprehensive Reports.	Meets requirements: BMP effectiveness monitoring and recommendations are conducted by Resource Concepts, Inc. from 2001-2014. Resource Concepts Inc. submits their findings in the "Environmental Monitoring Program Comprehensive Reports."
Conduct a comprehensive review of progress toward watershed restoration and attainment of water quality standards and identify needs for change through adaptive management system ¹	On-going basis	Annual Monitoring Reports and Comprehensive Monitoring Report	Meets requirements: A comprehensive review of watershed restoration can be found in the "Heavenly Mountain Resort Epic Discovery Project Environmental Impact Report and Environmental Impact Statement – August 2014."

¹Incorporated by reference in Tahoe Regional Planning Agency (TRPA) Draft EIR/EIS/EIS for Heavenly Ski Resort Master Plan (1995), pages 4.150 to 4.172 (CWE Soil Erosion Reduction Program) and Appendices H and I; TRPA (1996), pages 6.41 to 6.56 (Revised Mitigation and Monitoring Plan); and U.S. Forest Service (1998), Appendix G (CWE Technical Memorandum No. 1).

Table 1. Heavenly Valley Creek Property Line (43-HV-C3) monitoring station instream suspended sediment loading.

Water Year	Suspended Sediment (tons/year)	Rolling 5 year average of Suspended Sediment (tons/year)
2001	6.6	-
2002	9.1	-
2003	20.4	-
2004	5.2	-
2005	36.9	15.6
2006	42.6	22.8
2007	1.3	21.3
2008	0.6	17.3
2009	0.5	16.4
2010	70.5	23.1
2011	118.6	38.3
2012	1.7	38.4
2013	1.0	38.5

Table 2. Bioassessment Scores for Heavenly Valley Creek and Hidden Valley Creek sampling sites.

Sample Year	Sample Date	HVC-1 Heavenly Valley "Sky Meadows"		HVC-2 Heavenly Valley "Below Patsy's"		HVC-3 Heavenly Valley "Property Line"		LHC-1 (Lower) Hidden Valley (control/reference)	
		ESIBI	CSCI	ESIBI	CSCI	ESIBI	CSCI	ESIBI	CSCI
2001 -USFS	Jul-01	35.6	0.56	49.4	0.74	53.9	0.77	75.2	0.92
2001 -SNARL	Jul-01	n/a	n/a	n/a	n/a	84.2	1.08	93	0.95
2002 -SNARL	Jul-02	n/a	n/a	n/a	n/a	75.3	0.87	96.8	1.15
2002 - USFS	Jul-02	37.9	0.69	53.9	0.91	51.1	0.72	75.2	1.08
2003	Jul-03	49.6	0.84	56.6	0.85	48.7	0.93	78.2	1.06
2006	Sep-06	55.3	0.92	52.2	0.95	69.1	1.02	80.6	1.15
2007	Aug-07	23.6	0.44	67	0.98	74.7	1.1	93.3	1.04
2010	Aug-10	36.8	0.74	55.2	0.99	80.7	0.9	94.6	1.08
2011	Aug-11	49.8	0.69	75	0.86	83.5	1.02	87.8	0.86
2011	Oct-11							87.8	0.99

Table 3 – Eastern Sierra Index of Biological Integrity (IBI) Thresholds & California Stream Condition Index (CSCI) Thresholds

Eastern Sierra Index of Biological Integrity (IBI) Thresholds					
Supporting (Unimpaired)			Impaired		
Acceptable		Intermediate supporting but uncertain	Partially-supporting	Not supporting	
>89.7	89.7–80.4	80.4 – 63.2	63.2 – 42.2	<42.2	
A	B	C	D	F	
Very good	Good	Fair	Poor	Very poor	
Good		Fair	Poor		

Source: Herbst and Silldorf 2009 (Lahontan 2014)

California Stream Condition Index (CSCI) Thresholds					
Index	Very Likely Intact (>=0.50)	Likely Intact (0.30 to 0.50)	Possibly Altered (0.10 to 0.30)	Likely Altered (0.091 to 0.10)	Very Likely Altered (<0.01)
CSCI	>1.00	1.00 – 0.92	0.91 – 0.79	0.78 – 0.63	0.62 – 0.00

Source: Drs. Andrew Rehn and Peter Ode (Lahontan 2014)

Table 4 – Stream Condition Monitoring status ratings are based on the following criteria

Excellent:	All channel conditions are stable or improving
Good:	Most channel conditions are stable or improving
Fair:	Some channel conditions are stable or improving
Poor:	Most channel conditions are not stable or improving

Description of Sampling Sites

HVC-1 Sky Meadows: HVC-1 is a high elevation, low gradient meadow. It is located on Heavenly Ski Resort and in a high use area for guests.

HVC-2 Below Patsy’s: HVC-2 is a high elevation, higher gradient reach of the creek. It is directly below Heavenly Valley ski operations and captures the impacts coming off the mountain.

HVC-3 Property Line: HVC-3 is the lowest elevation sampling location and is close to the confluence with Trout Creek. HVC-3 is where sediment data is collected for the TMDL.

ENCLOSURE 2

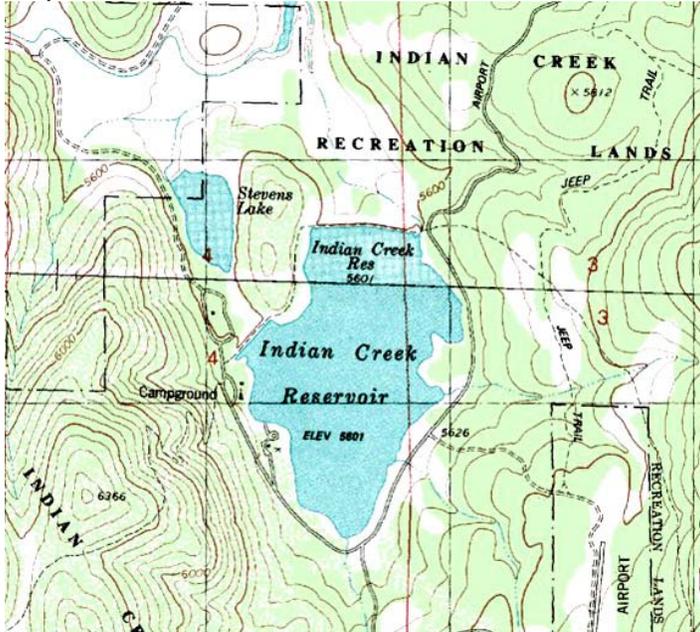
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Waterbody:
Indian Creek Reservoir

TMDL: **Phosphorus**

Updated:
2/19/2014
Jorge Orozco

Map of Location:



TMDL Summary Information:

- *Date of approval:* July 2002 (Lahontan); July 1, 2003 (USEPA)
- *Basis for TMDL:* The South Tahoe Public Utility District disposed of South Lake Tahoe area wastewater to Indian Creek Reservoir from 1967-1989 with the residual effect of symptoms of eutrophication including blooms of blue-green algae, low transparency, and depletion of dissolved oxygen in the hypolimnion
- *Responsible parties:* The responsibility of STPUD (for control of internal phosphorus loading) and the U.S. Bureau of Land Management, Alpine County, STPUD, and other land owners and land managers in the watershed (for control of external sources)
- *Target:* The primary numeric target is an annual mean concentration in the water column of 0.02 mg/L total phosphorus. The interim target is 0.04 mg/L.
- *Attainment of TMDL:* standards projected to occur within 21 years after final approval of TMDL (2024)

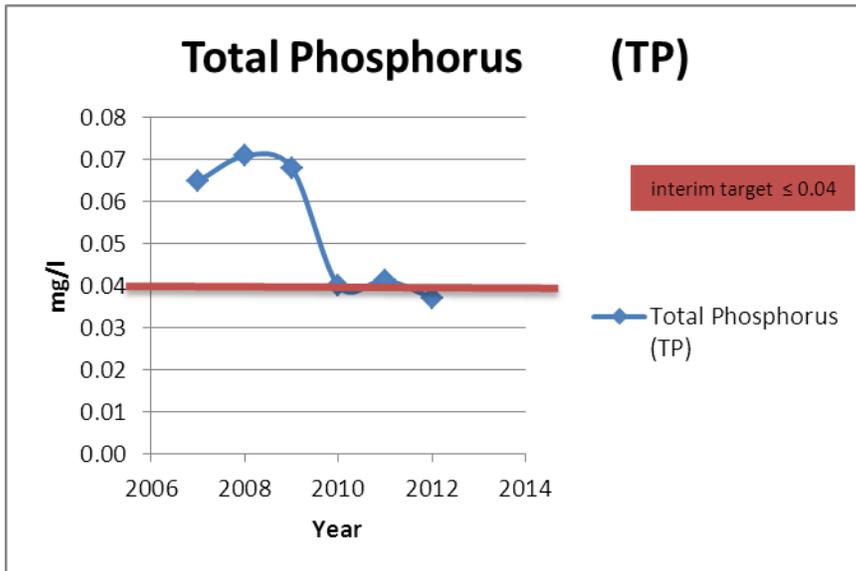


Figure 1 Phosphorus data from: *Indian Creek Reservoir TMDL Progress Report for 2012* by South Tahoe Public Utility District, February 27, 2013

Permits that include TMDL implementation measures: no permit was issued to South Tahoe Utility District, however they voluntarily provide a TMDL Progress Report annually

Grant/contract that includes TMDL implementation measures: CWA 319(h) non-point source grant [06-244-556-0]

Period of evaluation: 2007-2012

Additional Information: Indian Creek Reservoir (ICR) consists of an inreservoir Oxygen Delivery System (Speece Cone), on-site oxygen generation system and underground and submerged utilities connecting the oxygen generator to the Speece Cone. In June 2008 work for the on-site Oxygen Generation System began with the construction of the equipment building. In December 2008 the Speece Cone was installed in the deepest portion of ICR (approx. 32 feet). The Hypolimnetic Oxygenation System operates during the late spring and summer to deliver oxygen for water quality and aquatic improvements, since late spring 2009.

Indicator	Target Value	Evaluation Schedule	Source Reported	Compliance
Total Phosphorus (TP) concentration	(Interim ¹) No greater than 0.04 mg/L, annual mean	Annual mean of samples collected from all depths from all sites over the reporting period.	<i>Indian Creek Reservoir TMDL Progress Report for 2012, by STPUD (2/27/13)</i>	Yes, TP was higher than the objective until the installation of the hypolimnetic system, where levels have consistently met the objective since 2010. Please refer to Table 1 and Figure 2 .
	(Long term ²) No greater than 0.02 mg/L, annual mean			
Dissolved oxygen (DO) concentration	(Interim ¹) 30 day mean 6.5 mg/L; 7 day mean minimum 5.0 mg/L; 1 day minimum 4.0 mg/L	Mean of samples collected from all depths at each site measured monthly over the reporting period.	<i>Indian Creek Reservoir TMDL Progress Report for 2012, by STPUD (2/27/13)</i>	Yes, DO concentrations were less than 4.0 mg/L at ICR-1 during August 2007, August 2008 and August 2011. Daily mean DO concentrations were greater than 4.0 mg/L at all sites during 2009, 2010 and 2012. Please refer to Figure 3 .
	(Long term ²) Shall not be depressed by more than 10 percent, below 80 percent saturation, or below 7.0 mg/L at any time, whichever is more restrictive			
Secchi depth (SD)	Summer mean no less than 2 meters	Mean for all readings collected over the reporting period.	<i>Indian Creek Reservoir TMDL Progress Report for 2012, by STPUD (2/27/13)</i>	Yes, since 2009 summer SD mean levels have been increasing and have consistently met the objective since 2010. Please refer to Figure 4 .
Chlorophyll a (chl-a)	Summer mean no greater than 10 µg/L	Mean for all samples collected over the reporting period.	<i>Indian Creek Reservoir TMDL Progress Report for 2012, by STPUD (2/27/13)</i>	Yes, Chl-a levels were consistently above 10 ug/L until 2011 when levels showed a significant decrease and met the target value. Please refer to Figure 5 .
Trophic State Index ³ - Secchi Disk [TSI(SD)]	Composite index no greater than 45 units	Mean of all TSI (SD) derived from SD readings (in meters) collected from all sites over the reporting period.	<i>Indian Creek Reservoir TMDL Progress Report for 2012, by STPUD (2/27/13)</i>	Yes, TSI (SD) averages in the reservoir have been decreasing since 2009, and met the objective for first time in 2012. Please refer to Table 2 and Figure 6 .
Trophic State Index ⁴ - Chlorophyll-a [TSI(Chl-a)]	Composite index no greater than 45 units	Mean of all TSI (Chl-a) derived from Chl-a concentrations (in ug/l) collected from all sites over the reporting period.	<i>Indian Creek Reservoir TMDL Progress Report for 2012, by STPUD (2/27/13)</i>	Yes, TSI (Chl-a) averages in the reservoir have shown decreasing trend since 2009, and met the objective for first time in 2012. . Please refer to Table 2 and Figure 6 .
Trophic State Index ⁵ - Total Phosphorus [TSI (TP)]	Composite index no greater than 45 units	Mean of all TSI (TP) derived from TP concentrations (in ug/l) collected from all sites over the reporting period.	<i>Indian Creek Reservoir TMDL Progress Report for 2012, by STPUD (2/27/13)</i>	Yes, since 2009 the average reservoir TSI (TP) has been on a decreasing tread although not yet less than 45 units. Please refer to Table 2 and Figure 6 .

¹ Interim targets are expected to be attained by 2013.

² Long term targets are expected to be attained by 2024.

EPA calculations for Carlson Trophic Status Index (<http://www.epa.gov/bioiweb1/aquatic/carlson.html>):

³ Secchi depth calculation = $60 - 14.41 * (\text{natural logarithm (Secchi depth in meters)})$

⁴ Chlorophyll a = $9.81 * (\text{natural logarithm Chlorophyll a (ug/L)}) + 30.6$

⁵ Total Phosphorus = $14.42 * (\text{natural logarithm TP (ug/L)}) + 4.15$

ICR = Indian Creek reservoir, mg/L = milligrams per liter, ug/L = micrograms per liter (equivalent to milligrams per cubic meter)

Implementation Measures			
Internal Loading	Responsible Party	Schedule	Status
After approval of TMDL, Regional Board staff will request a report from STPUD on the method(s) it intends to use to reduce internal loading of phosphorus to ICR to meet TMDL target.	STPUD	Due 2003	Met requirements: Grant from 319 (federal grant) to implement the Hypolimnetic Oxygenation System. Implemented in 2007.
By 15 months after final approval of TMDL, STPUD will submit a plan for approval by the Regional Board for management measures to meet TMDL target.	STPUD	Due October 1, 2004	Met requirements: Regional board accepted 319 grant plan and monitoring plan. The plan has been implemented and is being utilized and monitored.
STPUD will fully implement controls for internal phosphorus loading	STPUD	Due 2013	Met requirements: Hypolimnetic Oxygenation System.

External Loading	Responsible Party	Schedule	Status
By one year after approval of the TMDL, Regional Board staff and stakeholders will identify sites in the watershed <i>contributing direct surface runoff</i> to ICR that need Best Management Practices (BMPs) for phosphorus control.	Lahontan and stakeholders	Due July 1, 2004	Did not meet requirements: Stakeholders Group Kickoff Meeting October 22, 2003 to discuss ICR TMDL implementation. This led to the ICR external phosphorus loading field tour with Hal Byrd (STPUD) to get a preliminary idea of sites to visit for the planned Stakeholder Group field tour/meeting March 23, 2004. On March 3, 2004, ICR TMDL implementation letter – Invitation to March 23, 2004 Stakeholders field tour, to identify sites needing external phosphorus loading reduction BMPs – Alpine County. Scheduled for March 23, 2004 from 1:30-4:30PM. There is no other information regarding the Stakeholder Group.
By one year after approval of the TMDL, Regional Board staff and stakeholders will identify sites on public and private lands within the watershed <i>tributary to the irrigation ditch that provides inflow to ICR from Indian Creek and the West Fork Carson River</i> needing BMPs.	Lahontan and stakeholders	Due July 1, 2004	Did not meet requirements: Refer to letters and meetings regarding Stakeholders Group stated above. There is no other information in the file regarding current efforts if any.
By three years after final approval of the TMDL, staff will consider the need for regulatory action to ensure implementation of BMPs to control external sources of phosphorus loading to ICR.	Lahontan	Due July 1, 2006	Did not meet requirements: No information stating this has been completed
BMPs will be fully implemented for nonpoint sources of phosphorus loading to ICR within the subwatershed affected by the TMDL.	stakeholders	Due 2013	Have not met requirements: Not completed

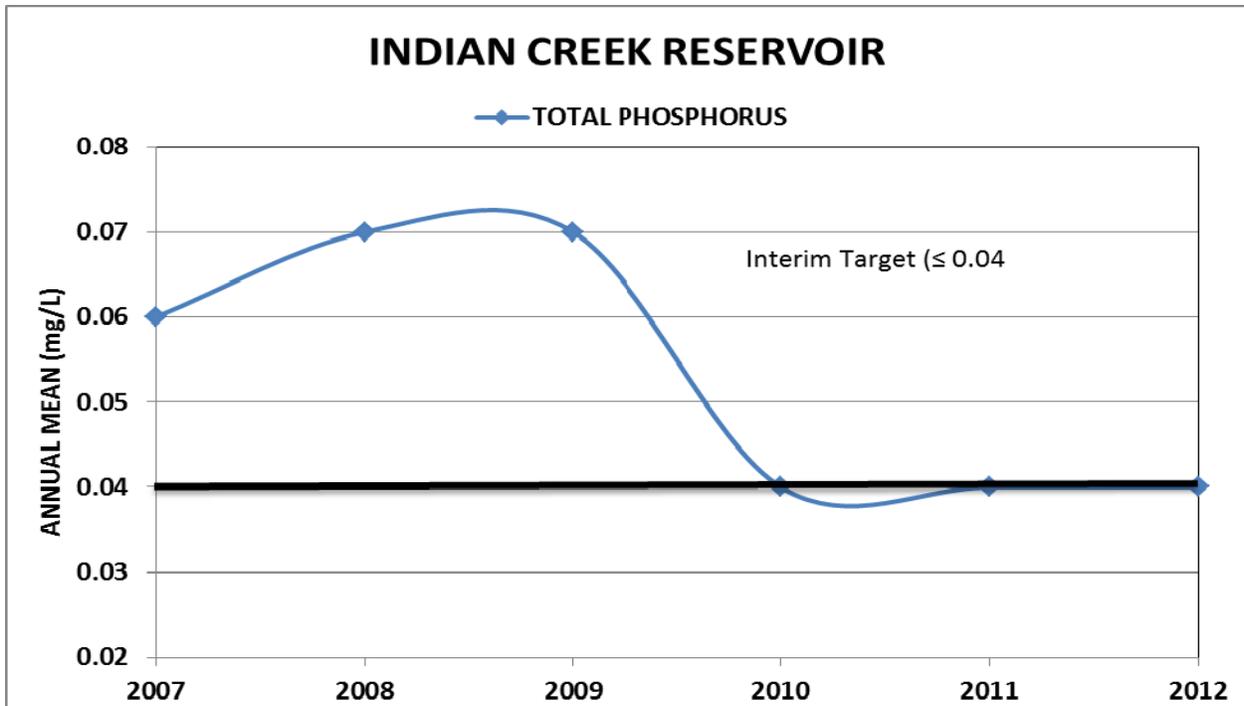


Figure 2. Total phosphorus levels at ICR, plotted as an annual mean, in milligrams per liter (mg/L). In order to evaluate TP levels in the reservoir, all available data for sites ICR-1, ICR-3 and ICR-5 were combined and analyzed as an annual mean.

Table 1. Total phosphorus at ICR. In order to evaluate TP levels in the reservoir, all available data for sites ICR-1, ICR-3 and ICR-5 were combined and analyzed as an annual mean.

YEAR	PERIOD	Annual Mean
		TOTAL PHOSPHORUS mg/L
2007	Baseline	0.06
2008	Baseline	0.07
2009	Year 1	0.07
2010	Year 2	0.04
2011	Year 3	0.04
2012	Year 4	0.04
2013 interim Target		<0.04

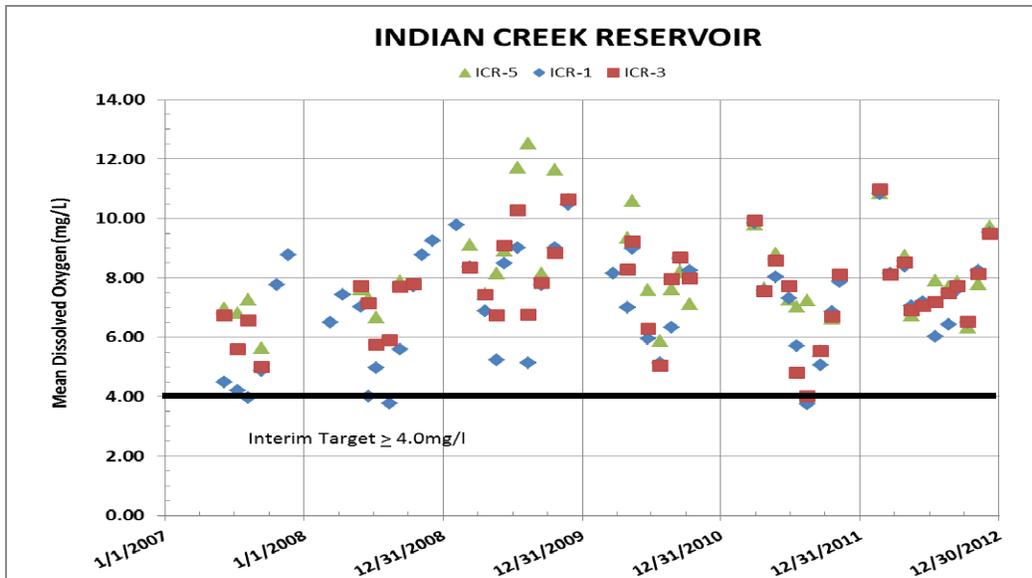


Figure 3. Daily mean dissolved oxygen levels measured at ICR, in milligrams per liter (mg/L). In order to evaluate DO levels in the reservoir, the data were analyzed by averaging DO readings collected through the water column at each site (ICR-1, ICR-3 and ICR-5) and plotted as a daily mean for each month of the year.

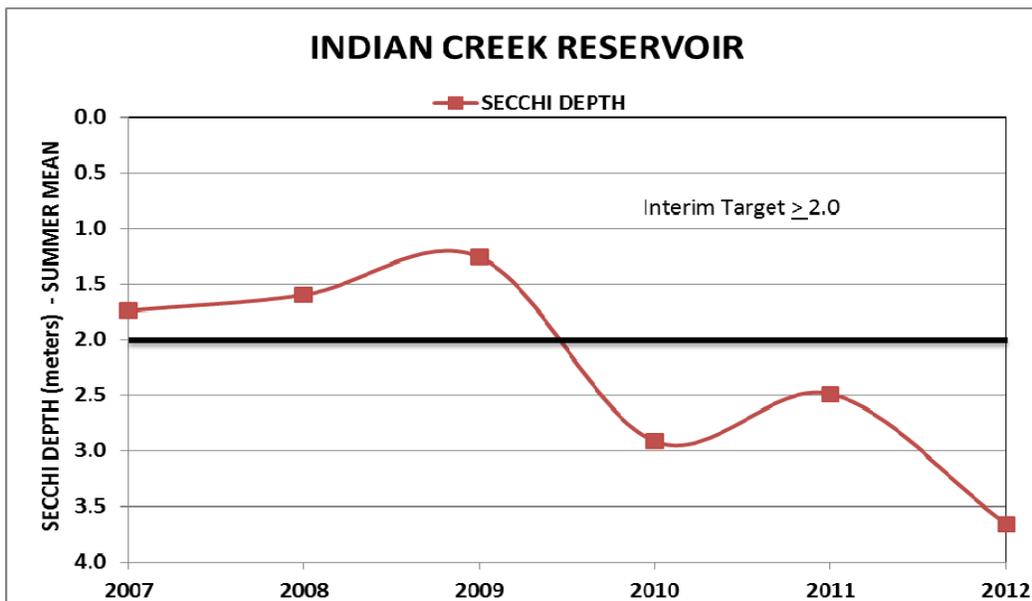


Figure 4. Summer mean Secchi depth (SD) readings measured at ICR during June, July and August 2007 through 2012, in meters. In order to evaluate SD levels at ICR, the data were analyzed by averaging the SD readings measured during the summer (June, July and August) at ICR-1, ICR-3 and ICR-5 and plotted as a summer mean for each year.

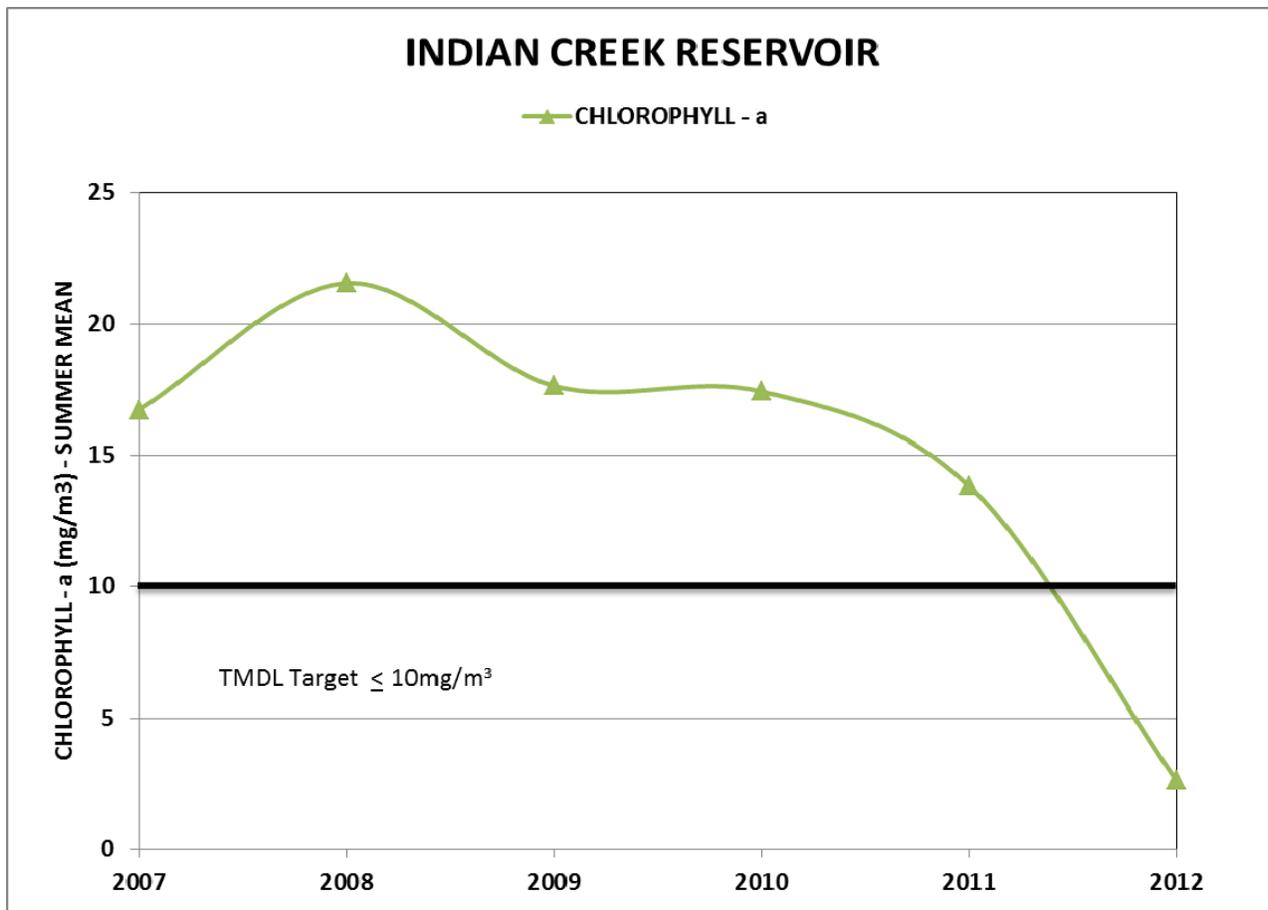


Figure 5. Summer mean chlorophyll-a concentrations measured at ICR during June, July and August 2007 through 2012, in milligrams per cubic meter (mg/m³). In order to evaluate Chl-a levels at ICR, the data were evaluated by averaging the Chl-a values measured during the summer (June, July and August) at ICR-1, ICR-3 and ICR-5 and plotted as a summer mean for each year.

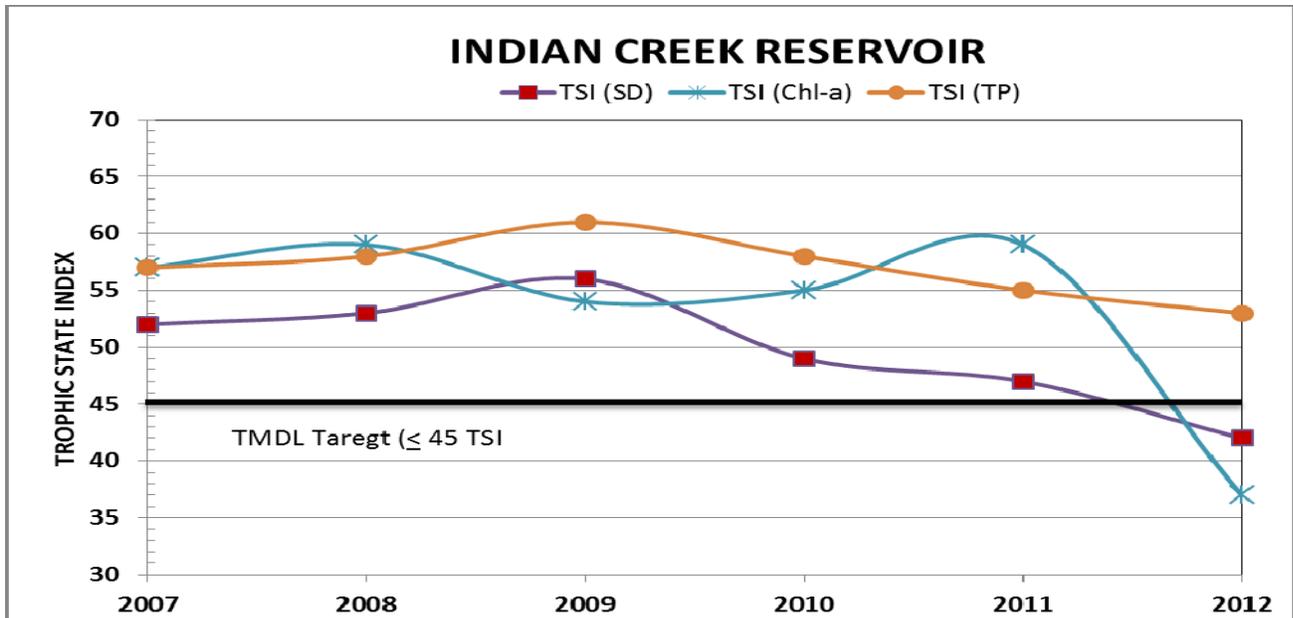


Figure 6. Carlson trophic state index (TSI) values for sechhi depth, chlorophyll-a and total phosphorus, during June, July and August 2007 through 2012, in TSI units. In order to evaluate TSI, a TSI for each parameter value [TSI(TP), TSI(SD) and TSI(Chl-a)] was calculated. The TSI for all values were then used to produce an average reservoir TSI for each parameter.

Table 2. Chlorophyll (Chl), Secchi depth (SD), and Total phosphorus (TP) with the values of the Trophic Status Index (TSI) as evaluated by EPA (<http://dipin.kent.edu/tsi.htm>).

A list of possible changes that might be expected in a north temperate lake as the amount of algae changes along the trophic state gradient.

TSI	Chl (ug/L)	SD (m)	TP (ug/L)	Attributes	Water Supply	Fisheries & Recreation
<30	<0.95	>8	<6	Oligotrophy: Clear water, oxygen throughout the year in the hypolimnion	Water may be suitable for an unfiltered water supply.	Salmonid fisheries dominate
30-40	0.95-2.6	8-4	6-12	Hypolimnia of shallower lakes may become anoxic		Salmonid fisheries in deep lakes only
40-50	2.6-7.3	4-2	12-24	Mesotrophy: Water moderately clear; increasing probability of hypolimnetic anoxia during summer	Iron, manganese, taste, and odor problems worsen. Raw water turbidity requires filtration.	Hypolimnetic anoxia results in loss of salmonids. Walleye may predominate
50-60	7.3-20	2-1	24-48	Eutrophy: Anoxic hypolimnia, macrophyte problems possible		Warm-water fisheries only. Bass may dominate.
60-70	20-56	0.5-1	48-96	Blue-green algae dominate, algal scums and macrophyte problems	Episodes of severe taste and odor possible.	Nuisance macrophytes, algal scums, and low transparency may discourage swimming and boating.
70-80	56-155	0.25-0.5	96-192	Hypereutrophy: (light limited productivity). Dense algae and macrophytes		Rough fish dominate; summer fish kills possible
>80	>155	<0.25	192-384	Algal scums, few macrophytes		

ENCLOSURE 3

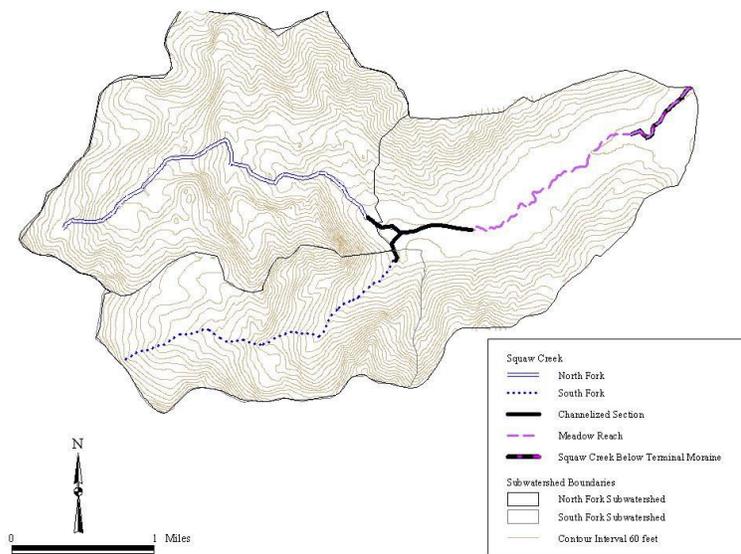
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Waterbody:
Squaw Creek

TMDL: **Sediment**

Updated:
Jorge Orozco
7/29/2013

Map



Background Information:

- *Date of approval: April 2006 (Lahontan Region); July 27, 2007, (USEPA)*
- *Basis for TMDL: Bioassessment studies conducted in 2000 and 2001 by researchers from UC Santa Barbara Sierra Nevada Aquatic Research Center demonstrated degraded benthic aquatic invertebrate communities and physical channel conditions in Squaw Creek. Accelerated hill slope erosion from land disturbance related to development, stream channel erosion, road sanding operations, and naturally occurring erosion contribute to sediment loading to the creek.*
- *Responsible parties: Squaw Valley Ski Corporation, Resort at Squaw Creek, Village at Squaw Valley, and Placer County.*
- *Target: The TMDL will be met when the rolling average for three consecutive 3-event datasets meets or exceeds the biologic condition numeric target of 25.*
- *Attainment of TMDL: Estimated time Frame for meeting the numeric target and achieving the TMDL is 20 years*

Figure of current data from

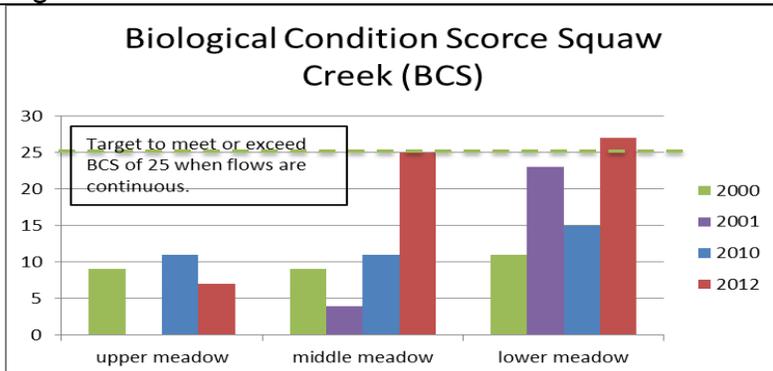


Figure 1

Permits that include TMDL implementation measures: Amended MRP No. 93-25-A2 for Squaw Valley Ski Area, Amended MRP No. 2003-0002A1 for Village at Squaw Valley, Small MS4 permit 2013-0001-DWQ for Placer County, Updated WDR MRP No. R6T-2009-0024

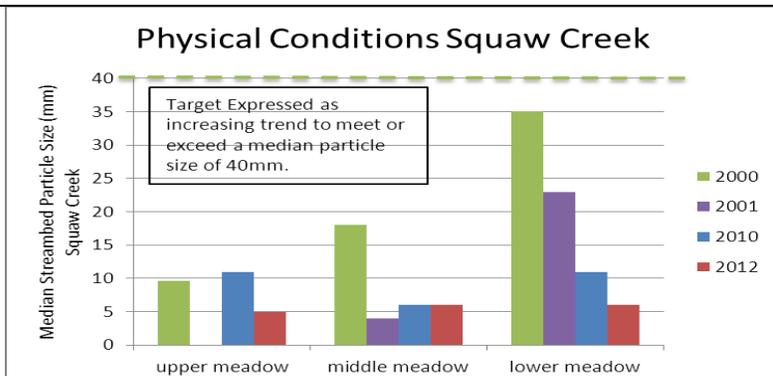


Figure 2

Period of evaluation: 2010-2012
In 2011, the flows were high due to a large snow year so Rapid Assessment Methodologies (RAM) and bioassessment data were not collected. Monitoring for TMDL parameters are planned to occur in 2012 and every even year thereafter.

¹ Squaw Creek Sediment TMDL numeric targets use three established sampling sites (upper, middle, and lower) on the meadow reach of Squaw Creek.

Indicator	Target ¹	Evaluation Schedule		Responsible Party	Source Reported	Compliance Comments
Biologic Health (Herbst 2002 protocol)	Biologic condition score (BCS) of 25 or more when flows are continuous	Sampling conducted once every two years between the months of July and September	Assessed using 3- (sampling) event rolling average datasets	Squaw Valley Ski Corp, Squaw Valley Neighborhood Company, Squaw Creek Associates (regulated through individual WDRs), and Placer County (regulated through MS4).	Placer County/ Town of Truckee, Truckee River Water Quality Monitoring Report	BCS has shown improvement from 2010 to 2012 but still has not met the TMDL BCS target of 25 when flows are continuous. (Refer to Figure 1)
Physical Habitat (Herbst 2002 protocol)	Increasing trend in D-50 (median particle size) value approaching 40 mm or greater		Trend Assessment after three consecutive sampling events are completed	Squaw Valley Ski Corp, Squaw Valley Neighborhood Company, Squaw Creek Associates (regulated through individual WDRs), and Placer County (regulated through MS4).)	Placer County/ Town of Truckee, Truckee River Water Quality Monitoring Report	Median particle size showed a decrease in size, moving in the opposite direction of the TMDL target of 40mm or greater. (refer to Figure 2)
	Decreasing trend in percent fines and sand approaching 25% cover of the stream bottom or less			Squaw Valley Ski Corp, Squaw Valley Neighborhood Company, Squaw Creek Associates (regulated through individual WDRs), and Placer County (regulated through MS4).	Placer County/ Town of Truckee, Truckee River Water Quality Monitoring Report	Shows an increasing trend in percent fines and sands covering the bottom of the stream bed. (refer to Figure 3)

Monitoring Parameter	Responsible Monitoring Party	Monitoring Schedule	Compliance Comments/BMP projects	
<p>Compliance with all erosion and sedimentation control permit requirements, including BMP installation and maintenance focusing on source control, general requirements and prohibitions, monitoring, and reporting</p>	<p>Water Board staff</p>	<p>Assess permit compliance related to erosion and sedimentation control quarterly using Water Board's permit tracking database currently in place.</p>	<p>Squaw Valley Ski Area</p>	<p>Facility is in compliance. The area is much more vegetated than in years past. All of the sediment controls that have been constructed contain the heavier sediments during major storm events. Mitigated wetland areas have also continued to flourish.</p>
			<p>Village at Squaw</p>	<p>Not in compliance due to a 10% increase in turbidity from natural levels which correlates directly with sediment (4/20/2010), and exceeded the TDS limit of 85mg/L (12/04/2007).</p>
			<p>Resort at Squaw</p>	<p>Facility is in compliance.</p>
			<p>Placer County</p>	<p>Placer County is coordinating with the Town of Truckee on the Truckee River Water Quality Monitoring Plan (TRWQMP) to monitor Squaw Creek watershed including the Bio assessment.</p>
<p>Facilities inspections to ensure permit compliance</p>	<p>Water Board staff</p>	<p>Water Board staff to inspect all facilities twice annually</p>	<p>Squaw Valley Ski Area</p>	<p>Facilities have been inspected but not twice annually.</p>
			<p>Village at Squaw</p>	<p>Facilities have been inspected but not twice annually.</p>
			<p>Resort at Squaw Creek</p>	<p>Facilities have been inspected but not twice annually.</p>
			<p>Placer County</p>	<p>Water Board staff participates as part of an advisory committee to deal with small municipal separate storm sewer systems (MS4) and help evaluate new storm water projects.</p>
<p>TMDL data review and assessment</p>	<p>Water Board staff</p>	<p>As needed in accordance with numeric targets</p>	<p>All information that is reported by permit holders is reviewed and evaluated by Water Board. Implementation requirements satisfy the requirements for tracking TMDL implementation.</p>	

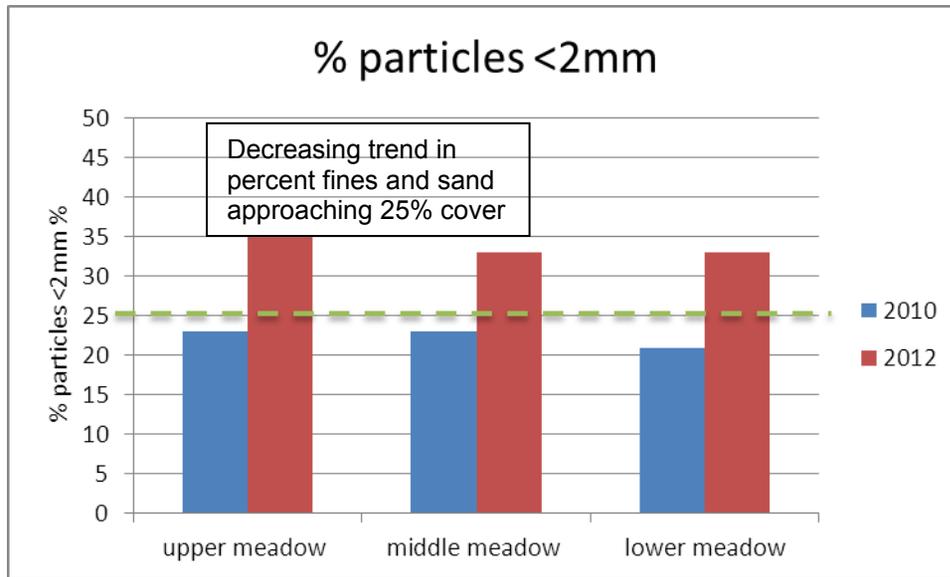


Figure 3

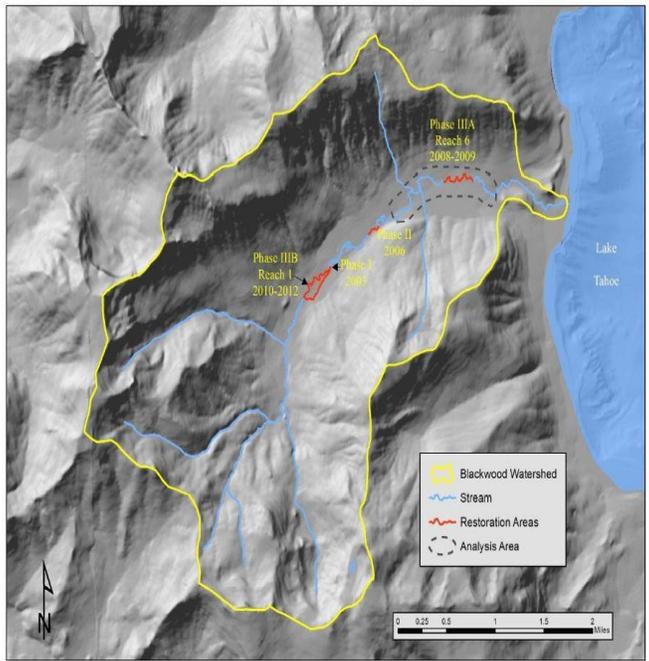
ENCLOSURE 4

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Waterbody: Blackwood Creek	TMDL: Bedded Sediment	Author: Taylor Currier February 18, 2015
---------------------------------------------	------------------------------	------------------------------------------------

Current Compliance with Sediment Target:
 “Maybe”

Background Information



- *Date of approval:* October 2007 (Lahontan); July 11, 2008 (USEPA)
- *Basis for TMDL:* Starting in the late 1800’s the Blackwood Creek watershed was used for sheep and cattle grazing, timber harvesting and gravel pit mining; all of which impaired the creek. During gravel mining the creek channel was modified causing an excess of sediment which led to bedded sediment pollution.
- *Responsible parties:* U.S. Forest Service, Lake Tahoe Basin Management Unit.
- *Targets:*
 1. The ecological status of meadow vegetation is late seral (50 percent or more of the relative cover of the herbaceous layer is late seral with high similarity to the potential natural community). A diversity of age classes of hardwood shrubs is present and regeneration is occurring. Vegetative rooting occurs throughout the soil profile; root masses stabilize stream banks against cutting action.
 2. Throughout the project area, the long term average channel sinuosity should be greater than or equal to 1.6 by year 20 following restoration.
 3. The Blackwood Creek stream restoration project should achieve 80 percent bank stability throughout the project area.
- *Attainment of TMDL:* Instream standards projected to occur within 20 years after final approval of TMDL (2028)

USFS Lake Tahoe Basin Management Unit Restoration Phases

Phase 1: Fish Ladder Removal
 Replace an antiquated fish ladder with a sequence of step pools and riffles.
 Completed 2003

Phase 2: Barker Pass Road Crossing Replacement
 Replaces the Barker Pass Road crossing with a clear span bridge and restores portions of the adjacent channel.
 Completed 2006

Phase 3: Reach 6 Stream Channel Flood Plain Restoration
 3,400 feet In-channel restoration, reconstruction, including installation of 13 rock-log flow deflection structures and 28 log-based floodplain roughness structures.
 Completed 2009

Phase 3: Reach 1 Stream Channel Flood Plain Restoration
 4,000 feet of in-channel restoration, reconstruction, including installation of 20 large rock/boulder grade control weirs and 1,000 feet of large rock/wood channel stabilization and habitat improvement structures.
 Completed 2012

Permits that include TMDL implementation measures:

NPDES construction activity storm water general permit No. R6T-2005-0007-62

Period of evaluation:

20 Years from TMDL: 2028

Annual Monitoring performed during construction activities associated with the Phase 3 restoration project.

Following Phase 3 completion, monitoring reporting for TMDL purposes will be completed at five year intervals.

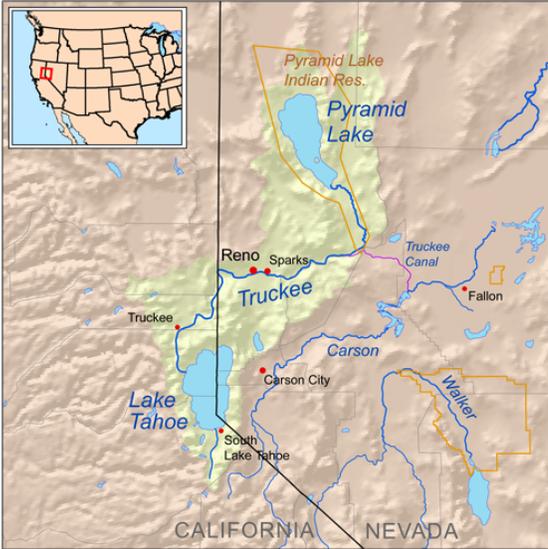
Indicator	Target	Evaluation Schedule	Source Reported	Compliance Comments
Vegetation	<p>(Interim) An increasing trend by Year Five following restoration in the establishment and maintenance of vegetation along the stream channel and floodplains.</p> <p>(Long term) Ecological status of meadow vegetation is late seral (50% or more of the relative cover of the herbaceous layer is late seral with high similarity to the potential natural community). A diversity of age classes of hardwood shrubs is present and regeneration is occurring. Vegetative rooting occurs throughout the soil profile; root masses stabilize stream banks against cutting action.</p>	<p><i>All Phases</i>-photo points the season following implementation and at 5-year intervals and/or following major flood events</p> <p><i>All Phases</i>-aerial photos in 2001, 2007, and 2010. Google Earth Imagery at 5 year intervals. and every five to ten years after project completion and/or major storm events</p> <p><i>Phase 3-Reach 1 and 6: Pre-project vegetation plots established, post project evaluation at two 5-year intervals.</i></p>	<p>Blackwood Creek Restoration Effectiveness Monitoring Plan – Draft February 2015</p> <p>Blackwood Creek Reach 6 Restoration (Phase 3A) Effectiveness Monitoring Results – January 2014</p> <p>Blackwood Creek Stream Channel Restoration – December 2013</p>	<p><u>Phase 3- Reach 6</u> No quantitative post project effectiveness data is reported at this time. Visual observations and photos indicate that many of the willow stakes planted as part of restoration appear to be taking hold and graminoids and woody vegetation recruitment are beginning to appear in areas where fine sediment has deposited on the floodplain surfaces. The USFS has not been able to identify a feasible protocol to measure attainment of the current stated long term TMDL target. USFS staff will coordinate with Water Board staff to discuss modifications to wording of vegetation target.</p>
Channel Sinuosity	<p>(Interim) An increasing trend in channel sinuosity that is maintained following 25 year flood events.</p> <p>(Long term) Throughout the project area, the average channel sinuosity should be greater than or equal to 1.6</p>	<p><i>All Phases</i>-Google Earth Imagery</p>	<p>Blackwood Creek Restoration Effectiveness Monitoring Plan – Draft February 2015</p> <p>Blackwood Creek Reach 6 Restoration (Phase 3A) Effectiveness Monitoring Results – January 2014</p>	<p><u>Phase 3- Reach 6</u> The sinuosity over the entire length of Reach 6 is 1.87. Pre-project sinuosity was 1.25 in 2001. Current sinuosity exceeds the interim goal and long term goal.</p>
Stream bank stability	<p>The project should attain 80% bank stability throughout the project</p>	<p>-Stream channel condition inventory at five-year intervals. Will include reference reaches, and be performed throughout mainstem of Blackwood Creek.</p>	<p>Blackwood Creek Restoration Effectiveness Monitoring Plan – Draft February 2010</p> <p>Blackwood Creek Reach 6 Restoration (Phase 3A) Effectiveness Monitoring Results – January 2014</p> <p>Blackwood Creek Stream Channel Restoration – December 2013</p>	<p><u>Phase 3 Reach 6</u> USFS reports 95% bank stability in reach 6. <u>Phase 3- Reach 1</u> 98% of project reach has stable banks. Overall bank stability in Reach 1 is 89%. Current bank stability exceeds the interim goal and long term goal.</p>

Other Long Term Effectiveness Monitoring Parameters	Source Reported	Current Trends/Results
Channel Floodplain hydrologic connectivity and Channel and floodplain sediment storage	Blackwood Creek Reach 6 Restoration (Phase 3A) Effectiveness Monitoring Results – January 2014	Reach 6: Overbank flooding occurring at higher frequency compared to pre-project. Measurements of sediment retained on the floodplain the first year after restoration indicated retention of 142 tons of silt and clay sized particles.
Stream Channel Condition	Blackwood Creek Reach 6 Restoration (Phase 3A) Effectiveness Monitoring Results – January 2014	Reach 6: Overall measured improvement in pool quality metrics, %riffle fines, width/depth ratios and entrenchment ratios.
Aquatic Macroinvertebrates	Blackwood Creek Reach 6 Restoration (Phase 3A) Effectiveness Monitoring Results – January 2014	Reach 6: Benthic macroinvertebrate scores are incomparable to the upstream and downstream reference reaches. None of the reaches are considered “poor” by the California State standards.

ENCLOSURE 5

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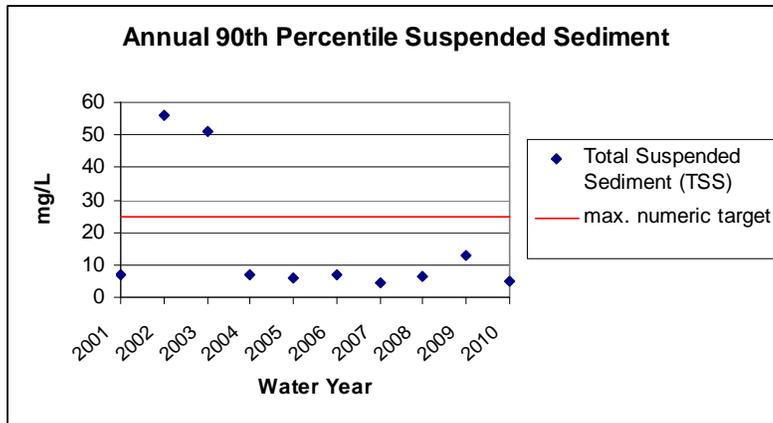
Location map: (outlet of Lake Tahoe to Nevada border)



Background Information:

- *Date of TMDL approval:* May 2008 (Lahontan Region); September 16, 2009 (USEPA)
- *Basis for TMDL:* Flow events resulting from thunderstorms, snow melt and dam releases produce turbidity spikes that exceed the water quality objective. Population growth and urbanization have also contributed in affecting the in-stream aquatic beneficial uses.
- *Responsible parties:* construction projects; highway operations and maintenance (Caltrans); facilities with long-term operations, including ski resorts (Squaw Valley, Northstar-at-Tahoe, Tahoe-Donner Ski Area and Alpine Meadows); industrial areas (Town of Truckee, Placer County and the U.S. Forest Service-Tahoe National Forest).
- *Target:* Annual 90th percentile value of less than or equal to 25 milligrams per liter (mg/L) suspended sediment as measured at the Farad monitoring station.
- *Attainment of TMDL:* The estimated time frame for meeting the numeric target and achieving the TMDL is 20 years.

Current data from 1999 to 2010:



Permits that include TMDL implementation measures:

- Placer County 6A310010006 (designated MS4)
- Town of Truckee 6A290712005 (designated MS4)
- Squaw Valley Ski Corporation 6A310118070
- Northstar-at-Tahoe 6A319306003
- Alpine Meadows 6A310003000
- Tahoe Donner Ski Area 6A290009500

Period of evaluation:

January 2010-December 2010

Additional Information: The Town of Truckee and Placer County developed the *Truckee River Water Quality Monitoring Plan (TRWMP)* (September 15, 2008) to design a strategy which will allow the County and Town to assess the effectiveness of their ongoing Storm Water Monitoring Programs (SWMPs) with respect to protecting downstream resources. Annual reports are submitted to the Lahontan Water Board on January 15th. According to the 2010 TRWMP Annual Report, the Town of Truckee conducted Rapid Assessments along 6.4 miles of the Truckee River and the furthest downstream mile of both Donner and Trout Creeks ending at the confluences with the Truckee River and collected grab samples at 3 outfall monitoring sites. In 2010, Placer County conducted Rapid Assessments in the Bear Creek, Squaw Creek and Martis Creek watersheds and performed bioassessments in Squaw Creek and Martis Creek. The Truckee River Watershed Council, a local Truckee non-profit, is also instrumental in restoring and preserving the Truckee River watershed. Some of their current projects include restoration in the Perazzo Meadows, Coldstream Canyon, and Martis Valley (learn more at <http://www.truckeeriverwc.org/projects>).

Table 1. Truckee River Sediment TMDL Indicator

Indicator	Target	Evaluation Schedule	Responsible Party (RP)	Source Reported	Compliance Comments
Suspended sediment concentration (SSC) ¹	Annual 90 th percentile value of less than or equal to 25 mg/L suspended sediment measured at the Farad (USGS gauge 10346000) monitoring station	Total suspended sediment (TSS) grab samples measured at least once per month at Farad monitoring station.	1) Construction projects, highway operations and maintenance (Caltrans) 2) facilities with long-term operations, including ski resorts (Squaw Valley, Northstar-at-Tahoe, Tahoe-Donner Ski Area, and Alpine Meadows) 3) industrial areas (Town of Truckee, Placer County, and the USFS-Tahoe National Forest)	Nevada Department of Environmental Protection (NDEP) website: http://ndep.nv.gov/bwgp/T1.html (and upon request)	Currently in compliance: Refer to Table 3 and Figure 1 .

¹According to the TMDL Staff Report (pg. 3-8), "Samples were analyzed for total suspended sediment (TSS), suspended sediment concentration (SSC), or both. Although the analytical methods differ, both methods are assumed to produce equal results for purposes of this TMDL.....These samples were analyzed using both the SSC and TSS analytical methods. No significant difference between the analysis methods was detected (y=0.9979x; R2=0.9431). Therefore, sediment concentrations are referred to as SSC hereafter in this document."

Table 2. Truckee River Sediment TMDL Implementation Measures

Implementation Measure	Evaluation Schedule	Responsible Party	Source Reported	Compliance Comments
Road sand application and recovery managed to the maximum extent practicable (MEP)	Annually. Includes sand use and recovery tracking and road sand characteristics, such as durability, abrasion loss, sieve analysis, and phosphorus content	Placer County	SWMP Annual Report (Oct '09-Sept '10)	Total applied: 581 tons / Total reclaimed: 1590 tons
		Town of Truckee	SWMP Annual Report (Oct '09-Sept '10)	Total applied: 2938 tons / Total reclaimed: 1864 tons
		Caltrans	Annual Reports	Updated permit expected summer 2011 and includes reporting of road sand application and recovery
Ski area Best Management Practices (BMPs) implementation and maintenance ²	Annually (at a minimum). Ski runs, maintenance facilities, and other features are inspected after snow melt. The RP reports their inspection results, projects proposed to correct deficiencies, and effectiveness of erosion control projects previously implemented	Squaw Valley Ski Corporation	Surface Water Quality Monitoring and Erosion Control Monitoring Quarterly Reports	Lahontan Water Board staff reviewed reports, recorded violations, and took actions when necessary
		Northstar-at-Tahoe	Water Quality Monitoring Monthly Reports and Erosion Control Quarterly Reports	Lahontan Water Board staff reviewed reports, recorded violations, and took actions when necessary
		Alpine Meadows	Water Quality Monitoring Annual Report and Erosion Control Monitoring Quarterly Report	Lahontan Water Board staff reviewed reports, recorded violations, and took actions when necessary
		Tahoe-Donner Ski Area	Monthly Monitoring Reports	Lahontan Water Board staff reviewed reports, recorded violations, and took actions when necessary

² The Lahontan Water Board staff contacts permittees when staff observes violations or deficient reporting.

Table 2 (continued). Truckee River Sediment TMDL Implementation Measures

Implementation Measure	Evaluation Schedule	Responsible Party	Source Reported	Compliance Comments
Dirt roads maintained or decommission ³	Annually monitor and report high priority dirt roads monitored to evaluate erosion features and potential corrective actions, the number of miles of roads inspected, proposed corrective actions, and effectiveness of previous implementation measures	USFS	Informal letter dated April 24, 2011	<ol style="list-style-type: none"> 1) 16 miles of road treated to improve water drainage and watershed function within the Prosser Creek watershed 2) 27 miles of road treated to improve water drainage and watershed function within the Davies Creek and Merrill Creek watersheds 3) 9 miles of off highway vehicle trails treated to improve drainage on the Ellis Peak Trail, Cold Stream Trail, Verdi OHV Route and unnamed trails in the Boca Reservoir area 4) 4) Soil and Water Roads Condition Inventory (SWRCI) applied to 158 miles of road in the Truckee River Corridor area to rate road segments as functional (85.7 miles), at-risk (56.8 miles), or impaired (14.7 miles) [see map].
		Placer County	SWMP Annual Report (Oct' 09-Sept '10)	Currently no maintained dirt roads within the Truckee Basin
		Town of Truckee	SWMP Annual Report (Oct '09-Sept '10)	Alder Creek Road Parking Improvement Project – Dirt parking area at the Equestrian Center was paved and BMPs installed (no acreage/mileage stated)
		State Parks	Personal correspondence	Road restoration work has occurred in Lakeview and Coldstream canyons at Donner Memorial State Park
Legacy site restoration and Best Management Practices (BMP) implementation	Annually, after candidate sites are identified and prioritized through watershed assessments and Water Board regulatory oversight, a list of legacy sites should be maintained and updated, and information reported	USFS	Informal letter dated April 24, 2011	<ol style="list-style-type: none"> 1) Perazzo Meadows Restoration Project Phase II was completed. Approximately 150 acres of wetland meadow was restored (130 acres restored in Phase 1 and relocated a road out of the stream buffer zone in the Upper Perazzo Restoration Project in 2009) 2) Sites 1, 7, and 8 of the Merrill Davies Watershed Restoration Project were completed, approximating 15 acres.
		Placer County	SWMP Annual Report (Oct' 09-Sept '10)	No known legacy sites under the County's jurisdiction
		Caltrans	Annual Report	<ol style="list-style-type: none"> 1) 3 water quality improvement projects on HWY 80 (Donner Pass to Nevada state line). One project completed with the other two expected this year (2011) 2) HWY 267 slope stabilization project (begin 2011) 3) Project near Boca Reservoir that includes stormwater treatment structures
		Town of Truckee	SWMP Annual Report (Oct' 09-Sept '10)	<ol style="list-style-type: none"> 1) Donner Pass Road was reconstructed in Sept/Oct 2010. One drain inlet that historically backed up was replaced with improved infrastructure 2) South Shore Drainage Project re-established a drainage path from South Shore Drive (SSD) to Donner Lake. Two new drain inlets were installed on the south side of SSD in the Fall 2009 and the drainage path improvements were completed in the summer 2010.
		State Parks	Personal correspondence	Removal of part of an old campground at Tahoe State Recreation Area

³ Monitoring intended to focus on dirt roads with high potential for sediment delivery to surface water (e.g. within 200 feet of watercourse).

Table 3. Annual 90th percentile of suspended sediment as measured at the Farad monitoring station.

Water Year	90th Percentile SSC (mg/L)	Number of samples
2000-2001	7	12
2001-2002	56	25
2002-2003	51	36
2003-2004	7	12
2004-2005	6	12
2005-2006	7	12
2006-2007	4.52	12
2007-2008	6.37	12
2008-2009	13	11
2009-2010	5.03	12

Note: Data for Water Years 2001-2005 is from the Truckee River TMDL Staff Report pg. 4-7. Data for Water Years 2006-2008 is directly from the NDEP website. Data for Water Years 2008-2010 was received from NDEP upon request.

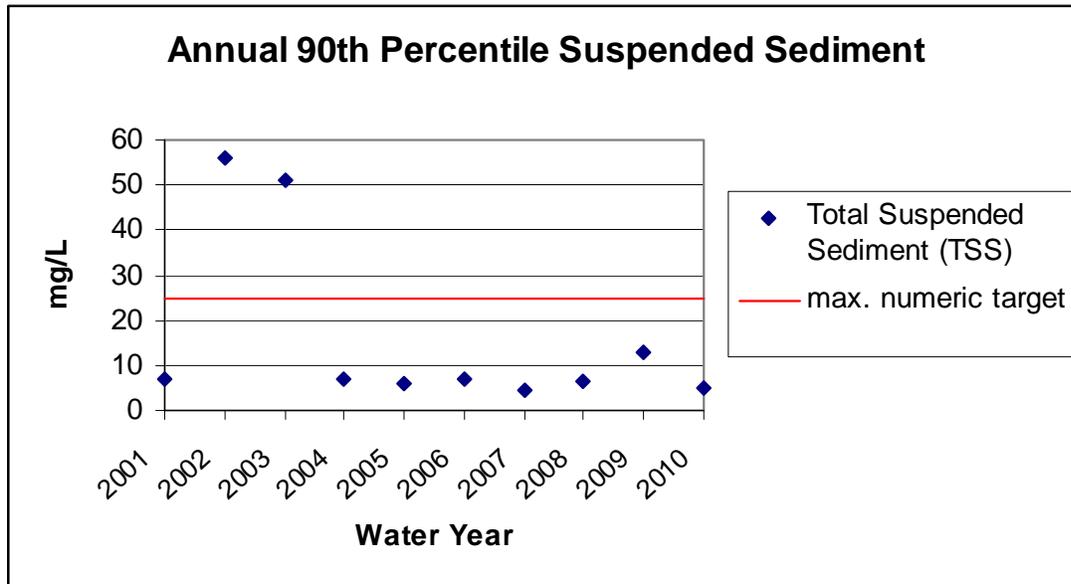


Figure 1. Annual 90th percentile of suspended sediment as measured at the Farad monitoring station.