

# North Fork Payette River Watershed

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TMDL Five-Year Review



**State of Idaho  
Department of Environmental Quality**

**July 2012**



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# **North Fork Payette River Watershed**

TMDL Five-Year Review

**July 2012**

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## Executive Summary

This document presents a 5-year review of the North Fork Payette River watershed (represented by hydrologic unit codes 17050123 and 17050122) total maximum daily load (TMDL) (DEQ 2005). The review describes current water quality status, pollutant sources, and recent pollution control efforts in the North Fork Payette River and part of the Payette River watersheds, located in southwest Idaho, with the exception of the Cascade Reservoir subwatershed, which had a 5-year review completed in 2009 (DEQ 2009). This report also addresses assessment units listed as impaired in Category 5 of *Idaho's 2010 Integrated Report* (Table A) (DEQ 2011).

More detailed information on the watershed can be found in the North Fork Payette River subbasin TMDL (DEQ 2005).

## Watershed at a Glance

The watershed, at a glance, is as shown in Table A.

**Table A. Watershed at a glance.**

<p style="text-align: center;"><b>Approved TMDLs (pollutant)</b></p> <p>North Fork Payette River ID17050123SW001_06 (sediment)</p> <p>Round Valley Creek ID17050123SW002_02, _03 (sediment)</p> <p>Clear Creek ID17050123SW003_02, _03, _03a (sediment)</p> <p>Big Creek ID17050123SW004_03a, _06 (sediment)</p> <p>Fall Creek ID17050123SW017_03, _02a (temperature)</p> <p>Box Creek ID17050123SW017_02a (temperature)</p>	<p style="text-align: center;"><b>Assessment Units Going From Category 4a to 2</b></p> <p>None</p>
<p style="text-align: center;"><b>Implementation Plans</b></p> <p>Forestry, agriculture, and urban/suburban (DEQ 2007)</p>	<p style="text-align: center;"><b>Assessment Units Recommended for Category 5 in Next Integrated Report</b></p> <p>None</p>
<p style="text-align: center;"><b>Assessment Units in Category 5 (listing basis)</b></p> <p>Tributaries to Black Canyon Reservoir ID17050122SW002_02 (combined biota/habitat bioassessments, <i>E. coli</i>)</p> <p>Little Squaw Creek ID17050122SW011_04 (combined biota/habitat bioassessments)</p> <p>Soldier Creek, 3rd order ID17050122SW012_03 (sediment)</p> <p>Round Valley Creek ID17050123SW002_03 (<i>E. coli</i>)</p> <p>Beaver Creek ID17050123SW006_02 (combined biota/habitat bioassessments)</p> <p>Payette Lake ID17050123SW017L_01L (mercury)</p>	

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## Section 1. Introduction

The federal Clean Water Act requires that states and tribes restore and maintain the chemical, physical, and biological integrity of the nation's waters. States and tribes, pursuant to Section 303 of the Clean Water Act, are to adopt water quality standards necessary to protect fish, shellfish, and wildlife while providing for recreation in and on the nation's waters whenever possible.

Section 303(d) of the Clean Water Act establishes requirements for states and tribes to identify and prioritize water bodies that are water quality limited (i.e., water bodies that do not meet water quality standards). States and tribes must periodically publish a priority list (a "§303(d) list") of impaired waters. This list is currently published every 2 years as the list of Category 5 waters in the Integrated Report. For waters identified on this list, states and tribes must develop a total maximum daily load (TMDL) for the pollutants, set at a level to achieve water quality standards.

Idaho Code 39-3611(7) requires a 5-year cyclic review process for Idaho TMDLs:

The director shall review and reevaluate each TMDL, supporting subbasin assessment, implementation plan(s) and all available data periodically at intervals of no greater than five (5) years. Such reviews shall include the assessments required by section 39-3607, Idaho Code, and an evaluation of the water quality criteria, instream targets, pollutant allocations, assumptions and analyses upon which the TMDL and subbasin assessment were based. If the members of the watershed advisory group, with the concurrence of the basin advisory group, advise the director that the water quality standards, the subbasin assessment, or the implementation plan(s) are not attainable or are inappropriate based upon supporting data, the director shall initiate the process or processes to determine whether to make recommended modifications. The director shall report to the legislature annually the results of such reviews.

This report is intended to meet the intent and purpose of Idaho Code 39-3611(7). The report documents the review of approved Idaho TMDLs and implementation plans in the North Fork Payette River watershed, excluding the Cascade Reservoir subwatershed, by considering the most current and applicable information in conformance with Idaho Code 39-3607, evaluating the appropriateness of the TMDL to current watershed conditions, evaluating the implementation plan, and consulting with the watershed advisory group (WAG). This review also evaluates assessment units (AUs) listed as impaired in Category 5 of *Idaho's 2010 Integrated Report* (DEQ 2011).

This document presents and evaluates recommendations, but final recommendations for TMDL modifications are made by the Idaho Department of Environmental Quality (DEQ) director. Approval of TMDL modifications is decided by the US Environmental Protection Agency (EPA), with consultation by DEQ.

## **Section 2. Subbasin Review and Status**

No significant changes have occurred in the watershed since the *North Fork Payette River Subbasin Assessment and Total Maximum Daily Load* was approved by EPA in 2005 (DEQ 2005). A whitewater park was built on the North Fork Payette River in Cascade in 2010.

## Section 3. Beneficial Use Status

Idaho water quality standards require that surface waters of the state be protected for beneficial uses, wherever attainable (IDAPA 58.01.02.050.02). These beneficial uses are interpreted as existing uses, designated uses, and presumed uses. The *Water Body Assessment Guidance* (Grafe et al. 2002) gives a detailed description of beneficial use identification for use assessment purposes. Beneficial uses are protected by a set of criteria, which include *narrative* criteria for pollutants such as sediment and nutrients and *numeric* criteria for pollutants such as bacteria, dissolved oxygen, pH, ammonia, temperature, and turbidity (IDAPA 58.01.02.250).

Existing uses under the Clean Water Act are “those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards.” Designated uses are specifically listed for water bodies in Idaho in tables in the Idaho water quality standards (see IDAPA 58.01.02.101.01; 140.003.16 and . 140.003.17) in addition to citations for existing and presumed uses).

Undesignated uses are to be designated. In the interim, and absent information on existing uses, DEQ presumes that most waters in the state will support cold water aquatic life and either primary or secondary contact recreation (IDAPA 58.01.02.101.01). To protect these so-called “presumed uses,” DEQ will apply the numeric cold water aquatic life criteria and primary or secondary contact recreation criteria to undesignated waters.

### 3.1 Beneficial Uses

The beneficial uses of the §303(d)-listed AUs (AUs in Category 5 of the 2010 Integrated Report) are shown in Table 1.

**Table 1. Beneficial uses of 2010 §303(d)-listed water bodies.**

Assessment Unit	Beneficial Uses <sup>a</sup>	Type of Use (Designated, Existing, Presumed)
Tributaries to Black Canyon Reservoir ID17050122SW002_02	CWAL, PCR, SCR	Presumed
Little Squaw Creek ID17050122SW011_04	CWAL, PCR, SCR	Presumed
Soldier Creek—3rd order ID17050122SW012_03	CWAL, PCR, SCR	Presumed
Beaver Creek ID17050123SW006_02	CWAL, PCR, SCR	Presumed
Payette Lake ID17050123SW017L_01L	CWAL, SS, PCR, DWS	Designated

<sup>a</sup> CWAL = cold water aquatic life; PCR = primary contact recreation; SCR = secondary contact recreation; SS = salmonid spawning; DWS = domestic water supply

TMDLs were developed for the North Fork Payette River subbasin assessment and TMDL (DEQ 2005) as shown in Table 2. Figure 1 shows the North Fork Payette River watershed, including

AUs in Category 5 of the 2010 Integrated Report (DEQ 2011). More detailed information about the TMDLs can be found in the *North Fork Payette River Subbasin Assessment and Total Maximum Daily Load* (DEQ 2005).

**Table 2. Summary of 2005 EPA-approved TMDLs.**

Assessment Unit <sup>a</sup>	TMDL	Load Allocation	TMDL Target	Pollutant Reduction Required	Time Frame to Meet Allocations
North Fork Payette River 001_06	Sediment	547 tons/year	80% bank stability	36%	5–15 years
Round Valley Creek 002_02, 002_03	Sediment	107 tons/year	80% bank stability	18%	5–15 years
Clear Creek 003_03, 003_02	Sediment	124 tons/year	12% above natural background conditions for sediment delivery to stream as determined by BOISED <sup>b</sup>	38%	5 years
Clear Creek 003_03a	Sediment	182 tons/year	80% bank stability	48%	5–15 years
Big Creek 004_03a 004_06	Sediment	410 tons/year	80% bank stability	22%	5–15 years
Fall Creek 017_03 017_02a	Temperature	0.957 kWh/m <sup>2</sup> /day <sup>c</sup>	85% vegetative cover	20%	5–15 years
Box Creek 017_02a	Temperature	1.15 kWh/m <sup>2</sup> /day	82% vegetative cover	35%	5–15 years

<sup>a</sup> All assessment unit numbers begin with ID17050123SW.

<sup>b</sup> BOISED is a version of the Forest Service sediment yield prediction model (WATSED) developed to predict watershed-scale responses to disturbance in the Boise and Payette National Forests.

<sup>c</sup> kWh/m<sup>2</sup>/day = kilowatt-hour per square meter per day

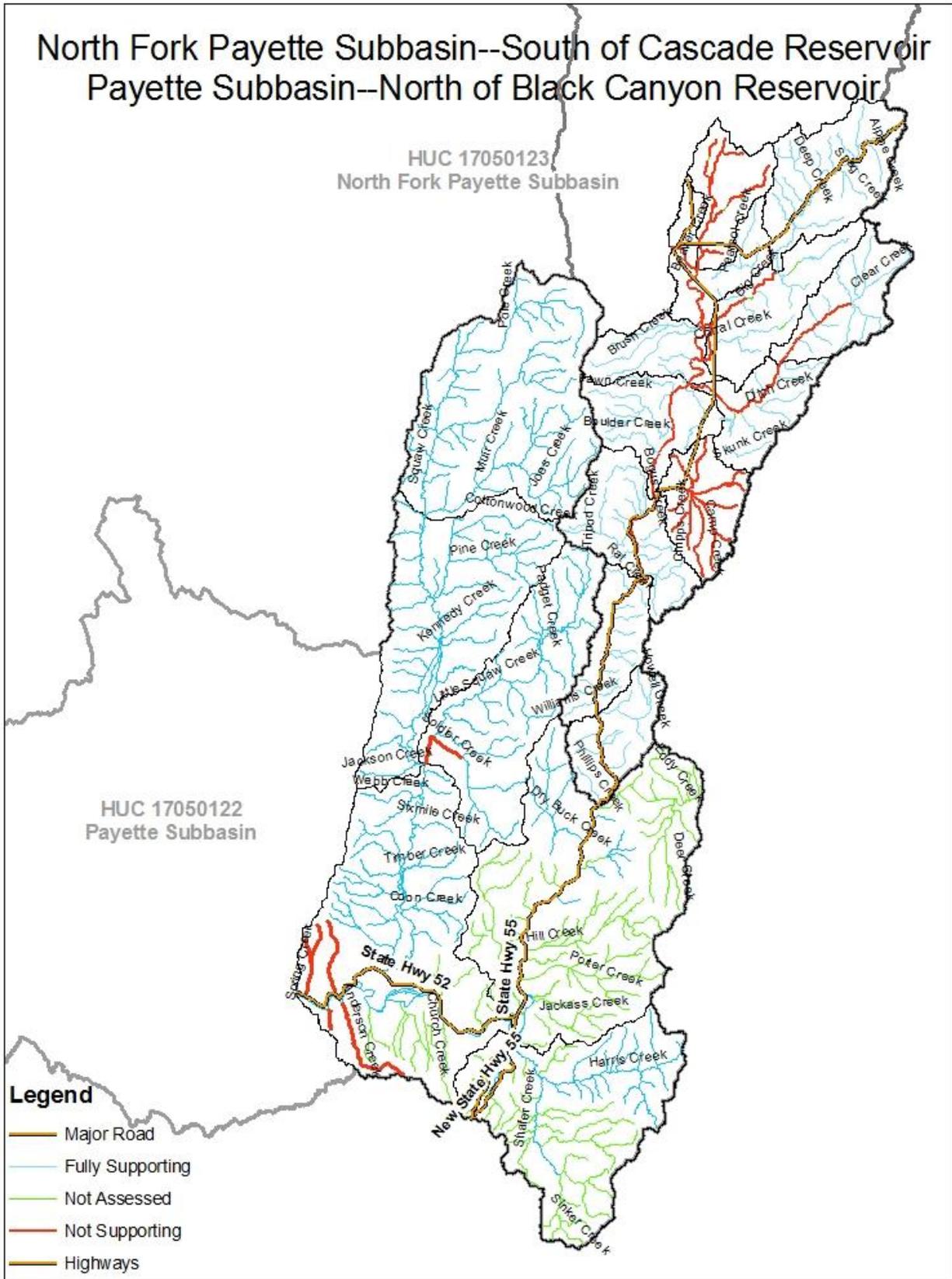


Figure 1. North Fork Payette River HUC 17050123 watershed below Cascade Reservoir

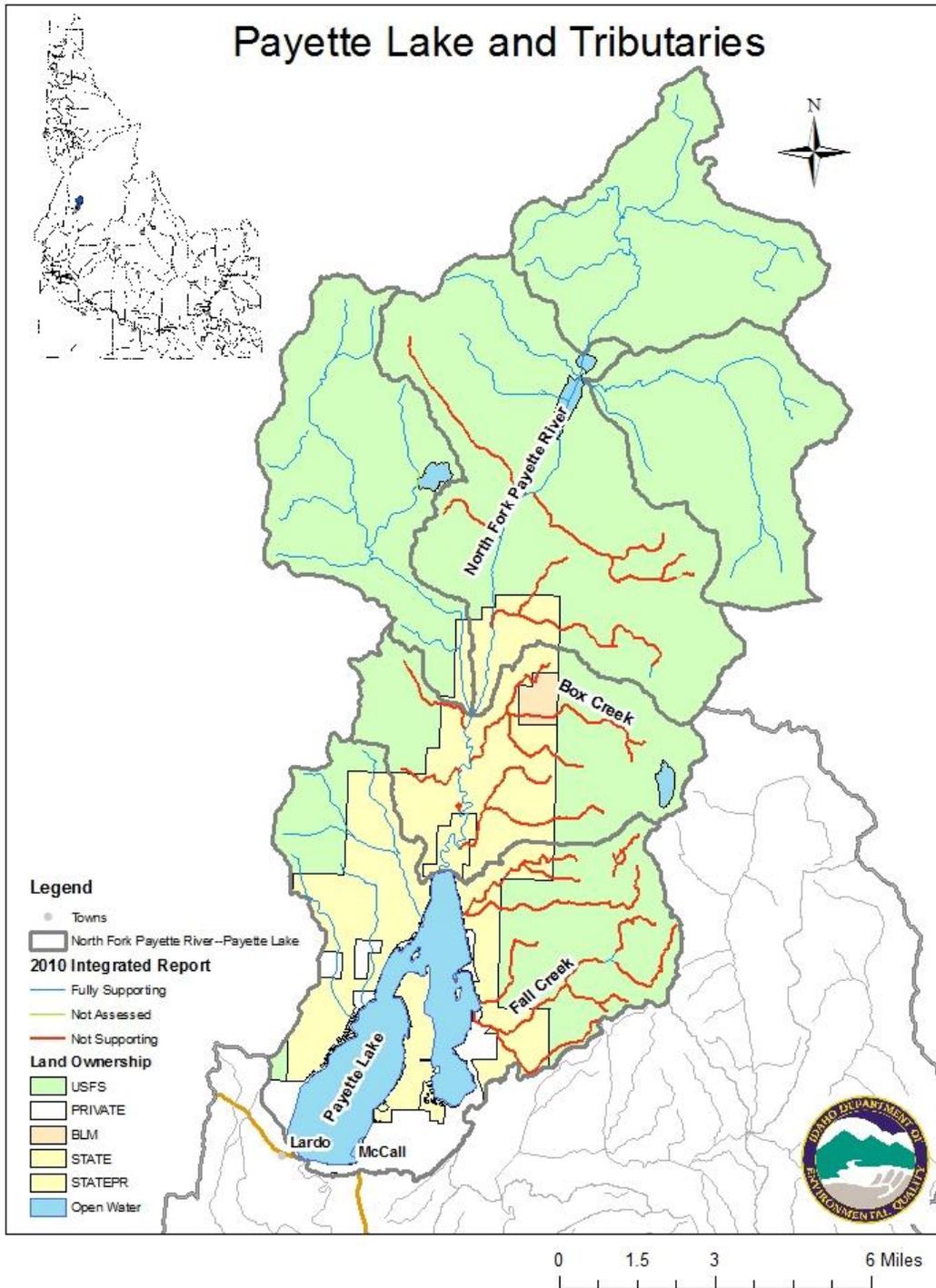


Figure 2. HUC 17050123 North Fork Payette River-Portion above Payette Lake

## **3.2 New Water Quality Data for Assessment Units**

The following section summarizes new data collected in the watershed since the TMDL was approved in 2005. If an AU from the original TMDL is not included in this section that means no new data were available.

### **3.2.1 Tributaries to Black Canyon Reservoir (AU ID17050122SW002\_02)**

According to 2004 DEQ stream inventory information, Anderson Creek in this AU did not fully support beneficial uses due to low habitat and macroinvertebrate index scores and high bacteria levels.

2012 NRCS Stream Visual Assessment Protocol (SVAP) surveys showed that the upper and middle sections of the assessment unit rated good to excellent. Riparian composition, stream erosion condition inventory, and solar pathfinder shade measurements were taken as well as completing the SVAP qualitative analysis. Landowners in the lowermost section of Anderson Creek did not give staff permission to do SVAP because they said that the creek was usually dry during the time staff wanted to monitor.

In the sections of stream monitored, banks were 100% stable and the riparian habitat was vigorous (Figures 4 and 5). A wolman pebble count was not conducted because flows were very low in early June already, no fish were observed and the creek was likely to be dry within a few weeks. Livestock encroachment was not observed in the creek. The CAFO that was located in the lower section of Anderson Creek is now defunct and when DEQ staff went to monitor bacteria in late June, the stream was already dry. In 2004, the BURP sample was taken when the stream was 0.1 cfs. To delist Anderson Creek for bacteria, water quality samples will be taken in early spring when water is present in 2013 to verify that bacteria is no longer a pollutant of concern.

LongHollow Creek in the same assessment unit also rated highly in the SVAP survey with a similarly vigorous and diverse riparian habitat, no evidence of livestock impact to the stream and 100% stable streambanks (Figure 3).

When adequate water is present, no significant pollutant sources appear to be present. Lack of water rather than a specific pollutant appear to be the main factor impacting the coldwater aquatic life community. This AU is recommended for delisting from Category 5 for combined biota/habitat bioassessments to reflect these findings.



**Figure 3. Long Hollow Creek June 2012**



**Figure 4. Upper Anderson Creek June 2012**



**Figure 5. Middle Reach of Anderson Creek in early June 2012**

### **3.2.2 Johnson Creek (AUID1705012SW003\_02)**

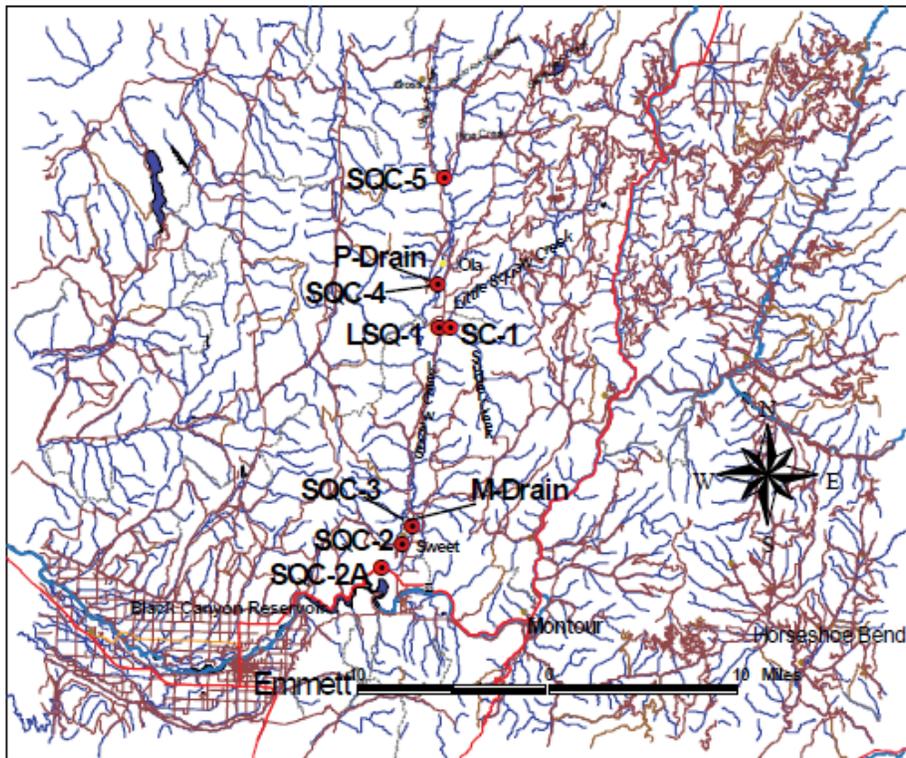
*E. coli* data were collected for this AU in spring 2011 (Table 3). The results showed a geometric mean of 5.09 CFU that was below the bacteria criteria. Bacteria data was collected in April because this creek is often dry or extremely low flow in July and August. Recreational uses appear supported.

**Table 3. *E. coli* results for tributaries to Johnson Creek (AU ID17050122SW003\_02)**

Date	<i>E. coli</i> (colony forming units/100 milliliters)
4/13/2011	4.1
4/18/2011	52.9
4/22/2011	5.1
4/25/2011	1
4/28/2011	3.1

**3.2.3 Squaw Creek (AU ID17050122SW010\_04 and 05)**

ISDA monitored the Squaw Creek watershed in 2005 and 2006 (Figure 6 shows the monitoring locations). The results are shown in Tables 4 and 5. Suspended sediment levels averaged less than 22 mg/L, which is a conservative target for sediment. No nuisance algae problems or low dissolved oxygen levels were detected, although nutrient levels were elevated at the mouth compared to the sites farther upstream in the reach. No TMDL is recommended at this time, because beneficial uses do not appear to be impaired by either nutrients or sediment.



**Figure 6. Squaw Creek Watershed Monitoring Locations**

**Table 4. Main stem average suspended sediment concentration, 2005 and 2006.**

Year	Suspended Sediment Concentration (mg/L)				
	Site SQC-5	Site SQC-4	Site SQC-3	Site SQC-2	Site LSQ-1
2005	6.6	6.6	7.1	9.7	5.8
2006	11.7	12.8	17.6	19.9	11.0

**Table 5. Main stem average total phosphorus concentration, 2005 and 2006.**

Year	Total Phosphorus Concentration (mg/L)				
	Site SQC-5	Site SQC-4	Site SQC-3	Site SQC-2	Site LSQ-1
2005	0.042	0.072	0.088	0.090	0.110
2006	0.039	0.078	0.078	0.081	0.100

### 3.2.4 Little Squaw Creek (AU ID17050122SW011\_04)

Little Squaw Creek monitoring results from the Idaho State Department of Agriculture (ISDA) showed elevated nutrient levels and low suspended sediment concentrations. The ISDA noted that there were no nuisance algal blooms present, and dissolved oxygen levels remained above the state standard.

According to 2004 DEQ stream inventory results, this creek has stable banks and a vigorous bug community. DEQ recently reevaluated the BURP stream inventory evaluation and found that a miscalculation had been made on the habitat score, which caused this AU to be listed in Category 5 as impaired in the 2010 Integrated Report. The stream metrics show full support of beneficial uses, and Little Squaw Creek will be recommended for delisting from Category 5 of the 2012 Integrated Report.

### 3.2.5 Soldier Creek (AU ID17050122SW012\_03)

Water quality improvement projects have been initiated in this AU and are reflected in > 80 % stable streambanks. The lower 4400 foot stretch of Soldier Creek has been enrolled in the Conservation Reserve Program since 2006. According to Scott Henderson, District Conservationist for the NRCS (July 2012), the area is in excellent, stable condition with a healthy diverse riparian area. The following photos are from this assessment unit and are being published with permission of the landowner (Figure 7-10). This improvement is in stark contrast to the eroded banks noted in the North Fork Payette River TMDL (DEQ 2005). The streambanks at that time were less than 80% stable based on visual assessment.

In 2006, Soldier Creek's suspended sediment average was 9.6 milligrams per liter (mg/L). Due to the late start at monitoring site SC-1, the early runoff period in April, which normally transports a larger volume of sediment, was not captured. Soldier Creek is listed on the §303(d) list as impaired due to sediment. Although the suspended sediment numbers were low, in the lower section, large cut-banks were observed and the bottom substrate was armored with

medium to coarse granitic materials. The North Fork Payette River TMDL (DEQ 2005) resulted in the delisting of the 2<sup>nd</sup> order AU of Soldier Creek for sediment because banks were >80% stable and excess sediment transport from that section was not occurring. No other possible sediment sources (i.e. roads) were noted for those assessment units. A vigorous riparian area was documented in the field notes, which would further serve as a filter for overland runoff.

The more recent information on the improvement projects initiated in the lower watershed show that substantial water quality improvements took place and that sediment from streambank erosion is no longer a concern.

This AU is recommended for delisting from Category 5 for sediment.



**Figure 7. Soldier Creek-3rd Order Assessment Unit**



**Figure 8. Soldier Creek- Riparian Area**



**Figure 9. Soldier Creek-Typical Streambanks**



**Figure 10. Typical Riparian Plants in Soldier Creek**

### **3.2.6 North Fork Payette River (AU ID17050123SW001\_06)**

In summer 2010, DEQ staff measured bank stability along the North Fork Payette River between Cascade and Cabarton (Figure 11). The results were 74% average stability, which is still under the target of 80% stable. No changes are recommended to the next Integrated Report.

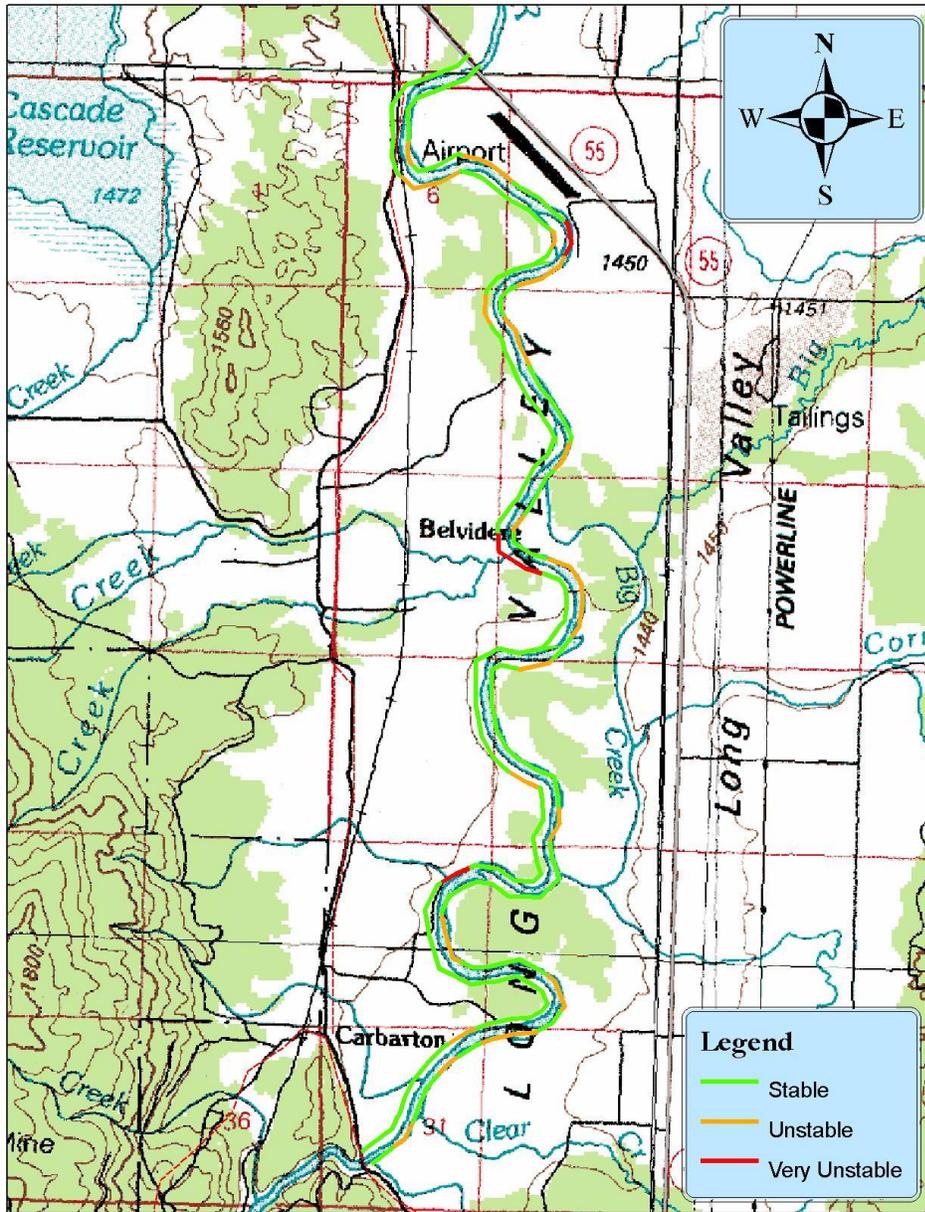


Figure 11. North Fork Payette River bank stability results.

### 3.2.7 Round Valley Creek (AU ID17050123SW002\_03)

Round Valley Creek is listed on the 2010 §303(d) list for *E. coli*. DEQ monitored Round Valley Creek in 2010 and found that bacteria did not violate the single sample water quality standard for bacteria of 406 colony forming units per 100 milliliters (cfu/100 mL) for primary contact recreation as shown in Table 6.

**Table 6. Round Valley Creek bacteria monitoring results.**

<b>Date</b>	<b><i>E. coli</i> (colony forming units/100 milliliters)</b>
5/17/2010	36.9
5/20/2010	130
5/24/2010	22.6
5/27/2010	290
6/1/2010	42

The geometric mean calculated for this collection period (based on 5 samples taken every 3–7 days over a 30-day period) was 66.7 cfu/100 mL, which is below the criteria of 126 cfu/100 mL. This AU was recommended for delisting in the 2012 Integrated Report cycle.

### **3.2.8 Clear Creek (AU ID17050123SW003\_03a)**

SVAP results showed that over 60% of streambanks are unstable in this AU. The load allocation is 182 tons/year of sediment, and the current sedimentation rate based on the SVAP/streambank erosion condition inventory (SECI) evaluation is 252 tons/year of sediment. A 39.5% reduction in sediment is required to meet TMDL goals, which shows improvement over the 48% reduction estimated in the original TMDL.

No new data was available for the other Clear Creek assessment units.

### **3.2.9 Big Creek (AU ID17050123SW004\_03a, \_06)**

No new data are available for Big Creek.

### **3.2.10 Beaver Creek (AU ID17050123SW006\_02)**

Stream visual assessment protocol (SVAP) data were collected on Beaver Creek in summer 2011 and will be completed by Fall 2012. This information will be used to assess the beneficial use support of the creek in the next Integrated Report cycle.

### **3.2.11 Payette Lake (AU ID17050123SW017L\_01L)**

Payette Lake is listed for mercury based on fish tissue results from lake trout (results in kokanee were below the mercury criterion), which is attributed to air deposition from outside of the watershed. In 2010, DEQ staff sampled for mercury in the water column and did not find concentrations above the detection limit. Since mercury is still present in the fish even without a watershed source, the lake will remain in Category 5 as impaired for mercury.

Payette Lake is sampled annually for nutrients, and dissolved oxygen/temperature profiles are taken during four to five sampling events between May and November. The following objectives were established for the lake as part of the 1997 Payette Lake management plan. If these objectives are not met for 3 consecutive years that triggers a review of promulgating standards to ensure that excess nutrient enrichment of the lake does not occur.

**Objective #1:** Dissolved oxygen concentrations during June through September measured in the southwest basin shall be equal to or greater than a value of 6.0 mg/L between the lake's surface and 200-foot depth.

*Observations in 2011:* Dissolved oxygen concentrations at this depth range in the southwest basin were above the criterion on all visits. Objective met.

*Observations in previous years:* Objective not met in 2005–2007 and 2009.

**Objective #2:** Dissolved oxygen concentrations during June through September measured in the southwest basin shall be equal to or greater than a mean value of 3.0 mg/L below the 200-foot depth and above 3.0 feet of the lakebed.

*Observations in 2011:* The mean dissolved oxygen concentration at this depth range in the southwest basin was above the criterion. Objective met.

*Observations in previous years:* The objective has been met for the past 14 years (1997–2011).

**Objective #3:** Lake-wide euphotic zone total phosphorus concentrations from May through September shall not exceed a median value of 6.0 milligrams per cubic meter ( $\text{mg}/\text{m}^3$ ).

*Observations in 2011:* The median lake-wide total phosphorus concentration was  $17 \text{ mg}/\text{m}^3$ , exceeding the criterion. The objective was not met. The maximum total phosphorus concentration measured in the euphotic zone ( $76 \text{ mg}/\text{m}^3$ ) was at Station 1 (southwest basin) during the May sampling visit shortly after ice off.

*Observations in previous years:* This objective was not met in 2009 and 2010.

**Objective #4:** Lake-wide euphotic zone chlorophyll-*a* concentrations from May through September shall not exceed a median value of  $3.0 \text{ mg}/\text{m}^3$ .

*Observations in 2011:* The median lake-wide chlorophyll-*a* concentration in the euphotic zone did not exceed the criterion. Objective met. The maximum chlorophyll-*a* concentration measured in the euphotic zone ( $2.9 \text{ mg}/\text{m}^3$ ) was at Station 1 (southwest basin) during the July sampling visit. The median value was  $0.97 \text{ mg}/\text{m}^3$ .

*Observations in previous years:* The objective has been met for the past 14 years (1997–2011).

### **3.2.12 Fall Creek and Box Creeks (AU ID17050123SW0017\_02a and \_03)**

The temperature TMDLs for this AU will be updated in late 2012 or 2013 based on a potential natural vegetation (PNV) approach that more closely reflects that vegetative community.

### **3.2.13 DEQ Stream Inventory Information**

Table 3 presents the most recent stream inventory information or BURP data for the North Fork Payette River watershed, not including the Cascade Reservoir subwatershed. This information includes the Payette River watershed above Black Canyon Dam.

**Table 3. DEQ stream inventory results for the North Fork Payette River watershed.**

Year	Creek	Assessment Unit	SMI <sup>a</sup>	SHI <sup>b</sup>	SFI <sup>c</sup>	Overall Score <sup>d</sup>	Beneficial Use Support <sup>e</sup>
2005	Soldier Creek	ID17050122SW012_02	1	3	ND <sup>f</sup>	2.0	FS
2005	Pine Creek	ID17050122SW013_03	3	1	1	1.7	NFS <sup>g</sup>
2005	Twentymile Creek	ID17050123SW020_03	2	2	ND	2.0	FS
2006	Shafer Creek	ID17050122SW004_04	3	2	ND	2.5	FS
2006	Shirts Creek	ID17050122SW011_02	3	3	ND	3.0	FS
2006	Pine Creek	ID17050122SW013_03	3	1	ND	2.0	FS
2006	Pine Creek	ID17050122SW013_03	3	2	ND	2.5	FS
2006	Horsethief Creek	ID17050123SW005_02	3	1	3	2.3	FS
2006	Clear Creek	ID17050123SW009_02	3	3	2	2.7	FS
2006	Rapid Creek	ID17050123SW010_02	3	3	3	3.0	FS
2006	Kennally Creek	ID17050123SW010_03	3	3	1	2.3	FS
2006	Duston Creek	ID17050123SW013_02	3	3	1	2.3	FS
2006	NF Lake Fork	ID17050123SW014_02	3	3	ND	3.0	FS
2006	Twentymile Creek	ID17050123SW020_03	3	3	ND	3.0	FS
2007	Twentymile Creek	ID17050123SW020_03	3	3	3	3	FS
2008	Squaw Creek	ID17050122SW010_03	3	3	ND	3.00	FS
2008	Big Creek	ID17050123SW004_03	3	1	ND	2.00	FS
2008	Camp Creek	ID17050123SW019_02	ND	1	ND	ND	ND
2008	Twentymile Creek	ID17050123SW020_03	3	3	ND	3.00	FS
2008	NF Payette River	ID17050123SW021_02	3	3	ND	3.00	FS

<sup>a</sup> SMI = stream macroinvertebrate index

<sup>b</sup> SHI = stream habitat index

<sup>c</sup> SFI = stream fish index

<sup>d</sup> Each index is scored as 0, 1, 2, or 3, with 3 indicating the best condition and 0 the worst. Scores of 2 or greater indicate support of beneficial uses, and scores less than 2 indicate nonsupport. The scores from at least two indices are averaged to determine the overall score and support status.

<sup>e</sup> FS = fully supporting; NFS = not fully supporting

<sup>f</sup> ND= not determined (these streams were not electrofished if in SFI category or the beneficial use support could not be determined due to lack of data)

<sup>g</sup> Pine Creek was reevaluated in 2006 at two different sites and was found to fully support beneficial uses.

### 3.3 Beneficial Uses and Recommended Changes to the Integrated Report

The most recent data suggest that bacteria are not impairing beneficial uses in Round Valley Creek. These findings were forwarded to the waterbody assessment coordinator for inclusion for delisting in the 2012 Integrated Report. Beneficial use impairment and other pollutant sources were investigated for the tributaries to Black Canyon Reservoir and Soldier Creek. Table 4 summarizes the recommended changes to the 2012 and 2014 Integrated Reports. The mistake made in calculating stream habitat BURP scores for Squaw Creek will result in the delisting of Squaw Creek in the 2012 Integrated Report.

**Table 4. Summary of recommended changes for assessment units listed in Category 5.**

<b>Assessment Unit (2010 Integrated Report)</b>	<b>Stream</b>	<b>Pollutant</b>	<b>Recommended Changes to Next Integrated Report</b>	<b>Justification</b>
ID17050122SW002_02	Tributaries to Black Canyon Reservoir	Combined biota/habitat bioassessm ents	Delist in 2014	SVAP scores and SECI scores showed streams in good condition. CAFO previously located along Anderson Creek is no longer there.
ID17050122SW011_04	Little Squaw Creek	Combined biota/habitat bioassessm ents	Proposed for delisting in 2012	Mistake in calculation of BURP scores—Little Squaw Creek fully supports beneficial uses
ID17050122SW012_03	Soldier Creek	Sediment	Delist in 2014	Water quality improvement information from NRCS
ID17050123SW002_03	Round Valley Creek	<i>E. coli</i>	Proposed for delisting in 2012	Geometric mean result did not show violation of bacteria criteria

## Section 4. Review of Implementation Plan and Activities

The 2007 implementation plans for agriculture, forestry, and urban/suburban activities listed various implementation objectives (DEQ 2007). This section updates the accomplished activities in each of these land use categories since 2007.

### 4.1 Accomplished and Anticipated Activities—Agriculture

As part of agricultural implementation of the TMDL, the Valley Soil and Water Conservation District (VSWCD) and its partners—the Idaho Association of Soil Conservation Districts, Idaho Soil and Water Conservation Commission, and Natural Resources Conservation Service—planned to conduct extensive outreach to inform agricultural landowners and operators how water quality best management practices can benefit their farm or ranch. District newsletters were sent out and personal contacts made as part of this outreach effort.

The recommended practices for each creek are outlined in the North Fork Payette River agricultural implementation plan (DEQ 2007) and generally focused on grazing management, hardened crossings, and riparian restoration practices. Table 5 summarizes the implementation activities in AUs with TMDLs.

**Table 5. Agriculture implementation activities.**

Water Body	Protection Activity	Goal Date
North Fork Payette River	Streambank stabilization using log revetments on 1,500 feet of streambank above Big Creek	Completed 2008
Clear Creek	Fencing along 33,364 feet of creek (gaps in fence need temporary fence for livestock/ATV exclusion during times of use)	2013
SW012_03North Fork Payette River	Fencing and riparian fencing on 1 mile of North Fork Payette River at the Alzar School	2013

### 4.2 Accomplished and Anticipated Activities—Forestry

Expected timber sales in the Clear Creek drainage have not occurred. Thus, planned implementation activities in the watershed that were part of these sales were delayed as shown in Table 6. However, Valley County did receive Resource Advisory Committee (RAC) funding and DEQ 319 funding to improve 7 miles of Clear Creek Road and this project will start in 2012.

**Table 6. Forestry implementation activities.**

Water Body	Protection Activity	Goal Date
Clear Creek	Road improvements to reduce sediment delivery on 7 miles of road	2013
Clear Creek	Timber sales that would result in decommissioning of roads	Have not occurred

### 4.3 Accomplished and Anticipated Activities—Urban/Suburban

The development of Kelly's Whitewater Park resulted in bank improvements on about 1 mile of river as part of this project. In addition, riparian plantings took place on over 500 feet of the North Fork Payette River downstream of the park (Table 7).

**Table 7. Urban/suburban implementation activities.**

<b>Responsible Party</b>	<b>Protection Activity</b>	<b>Completion Date</b>	<b>Notes</b>
City of Cascade/Kelly's Whitewater Park	Bank stabilization and planting of 500 feet and regrading and drainage improvements of North Fork Payette River access area to reduce stormwater runoff to river	2010	Combination of rock, soil bioengineering, and riparian plantings used for bank stabilization

## **Section 5. Summary of Five-Year Review**

### **5.1 Changes in Subbasin**

No major changes have occurred in the watershed.

### **5.2 Review of Beneficial Uses**

Designated beneficial uses are appropriate and no changes are recommended at this time. Overall, beneficial uses are attained in the watershed with the exception of those AUs with TMDLs or those slated for TMDL development.

### **5.3 Water Quality Criteria**

To look at beneficial use impairment in Category 5 AUs, DEQ and Soil Water Conservation Commission used SVAP, including the SECI and PNV protocols and BURP data to determine pollutant sources and evaluate streambanks and riparian shading for the tributaries to Black Canyon Reservoir AU. The Natural Resources Conservation Service provided additional beneficial use support information for the Soldier Creek AU. For the Round Valley Creek AU, bacteria data were collected and evaluated.

### **5.4 Recommendations for Further Action**

DEQ makes the following recommendations regarding AUs examined in this 5-year review:

- Delist Round Valley Creek for *E. coli*.
- Delist Tributaries to Black Canyon Reservoir for combined biota/habitat bioassessments
- Delist Little Squaw Creek
- Delist Soldier Creek for sediment
- Update Fall and Box Creek PNV TMDL

### **5.5 Future Strategy for TMDL Review and Monitoring**

Continued monitoring will determine if implementation actions have been sufficient to restore all beneficial uses. Considerable time will be necessary for the net benefit of nonpoint source load reductions to be seen in improved water quality and beneficial use support. Continuing to reduce nonpoint sources of sediment and increase stream shading will be a priority on those streams covered by the TMDLs that do not support all beneficial uses. A timeline for vegetation growth, stream channel morphological changes, and transport of channel-stored sediments is impossible to identify, but monitoring for beneficial use support will continue and will provide helpful benchmarks.

DEQ will assess water quality status during the development of the 2014 Integrated Report and future 5-year TMDL review processes. DEQ will also continue to collect water quality data to determine beneficial use support.

## **5.6 WAG Involvement**

The Squaw Creek Soil Conservation District and a WAG member encouraged DEQ to investigate the influence that low flows in tributaries to Black Canyon Reservoir and in Little Squaw Creek have on water quality, emphasizing that low and intermittent flows may be a strong factor in the low BURP scores. They requested that these streams be evaluated in the spring or earlier in the summer before base flows occur so a comparison of data can be done. DEQ agreed to do so since the BURP scores for Anderson Creek were based on data collected when the stream was at 0.1 cfs. Little Squaw Creek was mistakenly listed as impaired by DEQ due to miscalculation of a stream habitat score so that stream was not investigated and was proposed for delisting in the 2012 Integrated Report cycle.

All WAG input for this document was done via phone calls and emails to and amongst the WAG due to the fact that WAG members are geographically spread out. WAG input was incorporated into the document based on comments received on previous drafts.

## References Cited

- DEQ (Idaho Department of Environmental Quality). 1997. *Technical Report on the Water Quality of Big Payette Lake*. Boise, ID:DEQ
- DEQ (Idaho Department of Environmental Quality). 2005. *North Fork Payette River Subbasin Assessment and Total Maximum Daily Load*. Boise, ID: DEQ.
- DEQ (Idaho Department of Environmental Quality). 2007. *North Fork Payette River Watershed TMDL Implementation Plan*. Boise, ID: DEQ.
- DEQ (Idaho Department of Environmental Quality). 2009. *Cascade Reservoir Watershed Phase III Water Quality Management Plan and TMDL Five-Year Review*. Boise, ID: DEQ.
- DEQ (Idaho Department of Environmental Quality). 2011. *Idaho's 2010 Integrated Report*. Boise, ID: DEQ.
- Grafe, C.S., C.A. Mebane, M.J. McIntyre, D.A. Essig, D.H. Brandt, and D.T. Mosier. 2002. *The Idaho Department of Environmental Quality Water Body Assessment Guidance*, second edition-final. Boise, ID: Department of Environmental Quality. 114 p.
- Idaho Code. 2012. "Monitoring to Determine Support of Beneficial Uses." Idaho Code 39-3607.
- Idaho Code. 2012. "Development and Implementation of Total Maximum Daily Load or Equivalent Processes." Idaho Code 39-3611.
- IDAPA. 2011. "Idaho water quality standards." Idaho Administrative Code. IDAPA 58.01.02.
- US Congress. 1972. Clean Water Act (Federal Water Pollution Control Act). 33 USC §1251–1387.
- US Congress. 1987. Water Quality Act of 1987. Public Law 100-4.