South Fork Payette River

Subbasin Five-Year Review

Department of Environmental Quality

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Executive Summary

This document presents a five-year review of the South Fork (SF) Payette River Subbasin Assessment (SBA). The review describes current water quality status, pollutant sources, and recent pollution control efforts in the SF Payette River Subbasin, located in Southwest Idaho.

In particular, this report addresses assessment units (AUs) listed as impaired in Section 5 of the 2008 Integrated Report (Table 1). More detailed information on the watershed can be found in the South Fork Payette Subbasin Assessment (IDEQ 2005). AU SW001_02 was split due to its large size since the original Subbasin Assessment. SW001_02 contains the second order tributaries to the SF Payette River below Clear Creek and SW001_02a contains the second order tributaries above Clear Creek. The split of the assessment unit resulted in current BURP information for one AU but not the other. Additional sediment data was collected for all AUs but due to lack of current habitat and biological data for SW001_02a, it is recommended that this AU be listed in Section 5 of the next Integrated Report. This report also contains the justification for delisting AU SW001_05 from Section 5 of the next Integrated Report.

Watershed At A Glance

The watershed, at a glance, is as shown in Table 1.

Table 1. Watershed at a Glance.

Approved TMDLs	**Pollutants Within Watershed**	**Assessment Units Going From 4a to 2**
None	Sediment	Not applicable
Implementation Plans	**Assessment Units Recommended for Section 5 in next Integrated Report**	**Assessment Units in Section 5**
None	ID17050120SW001_02a Combined biota/habitat bioassessment	ID17050120SW001_05 ID17050120SW001_02

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Section 1: Assessment Units

Prior to 2002, impaired waters were defined as stream segments with geographical descriptive boundaries. In 2002, DEQ modified the structure and format of Idaho's 303(d) list by combining it with the 305(b) report, required by the CWA to inform Congress of the state of Idaho's waters. This modification included identifying stream segments by Assessment Units (AUs) instead of non-uniform stream segments, and defining the use support of stream AUs by five categories, published as Sections, in the Integrated Report. Assessment units (AUs) now define all the waters of the state of Idaho. These units and the methods used to describe them can be found in the WBAG II (Grafe, et al., 2002). AUs are groups of similar streams that have similar land use practices, ownership, or land management. Stream order, however, is the main basis for determining AUs— even if ownership and land use change significantly, an AU remains the same. Because AUs are an extension of water body identification numbers, there is now a direct tie to the WQS for each AU, so that beneficial uses defined in the WQS are clearly tied to streams on the landscape.

To facilitate comparisons between the 1998 303 (d) list and the 2002 Section 5 "impaired waters" category in the Integrated Report, a crosswalk from the 1998 303 (d) list to the new AUs was included in the 2002 Integrated Report. A copy of the report is available from the DEQ website at http://www.deq.state.id.us/water/data_reports/surface_water/monitoring/2002.cfm#2002final. The boundaries from the 1998 303(d)-listed segments have been transferred to the new AU framework using an approach quite similar to how DEQ has been writing SBAs and TMDLs. All AUs contained in any listed segment were carried forward to the 2002 303(d) listings in Section 5 of the integrated report (DEQ, 2005). Any AU not wholly contained within a previously listed segment, but partially contained (even minimally), was also included on the 303(d) list. This was necessary to maintain the integrity of the 1998 303(d) list and continuity with the TMDL program. The *South Fork Payette River* subbasin water bodies listed on the 2008 303 (d) list are included in this report.

When assessing new data that indicate full support, only the AU that the monitoring data represents will be removed (de-listed) from the 303(d) list (Section 5 of the integrated report).

The one change that has occurred is that a large AU (SW001_02) was split due to its large size. SW001_02 are the second order tributaries to the SF Payette River below Clear Creek and SW001_02a are the second order tributaries above Clear Creek.

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Section 2: Subbasin Review and Status

TMDLs were not developed for the South Fork Payette River Subbasin Assessment (IDEQ 2005).

The South Fork Payette River Subbasin (Figure 1) is located primarily in Boise County with the upper half of the Deadwood River watershed in Valley County. The South Fork Payette River subbasin is designated as U.S. Geological Survey (USGS) cataloging unit (fourth field) 17050120. The subbasin contains the entire South Fork Payette River from its headwaters in the Sawtooth Mountains to its confluence with the Middle Fork Payette River near Garden Valley, Idaho. The South Fork Payette River subbasin is bounded on the north by the Salmon River Mountains, on the east by the Sawtooth Mountains and on the south by the Boise Mountains. Elevations of the South Fork Payette River range from approximately 8,920 feet at the headwaters to 3,000 feet at the confluence with the Middle Fork Payette River.

The subbasin contains bull trout, a species listed as threatened under the Endangered Species Act. The South Fork Payette River is a key bull trout watershed in Idaho. Fine grained sediment is one of the factors identified as limiting bull trout habitat.

DEQ did not recommend developing a sediment TMDL for the South Fork Payette River because the river appears to adequately transport the sediment without excessive aggradation or degradation. In the 2005 subbasin assessment, suspended sediment data for the South Fork Payette River showed that during years of normal flow, the water column sediment levels are well below the suspended sediment targets identified by literature values; however, during years of high flow, when erosion can be significant, the sediment target is exceeded. However, because anthropogenic sources of sediment (primarily from forest roads) exist within the basin and exceedances of the target are documented in high flow years, road management activities were slated to be prioritized to reduce erosion. Beneficial uses were determined to not be impaired by sediment on the South Fork Payette River; therefore, no sediment targets were established.

Figure 2 shows the assessment units that are on the 2008 Integrated Report in Section 5.

Current data suggests that suspended sediment is not impairing beneficial uses. A review of management activities in the watershed shows that while road management activities were identified for implementation, many of those activities have not started yet. However, additional activities not identified in the Subbasin Assessment have been implemented and will contribute to minimizing sediment delivery from roads in the watershed. These are discussed in Section 4.

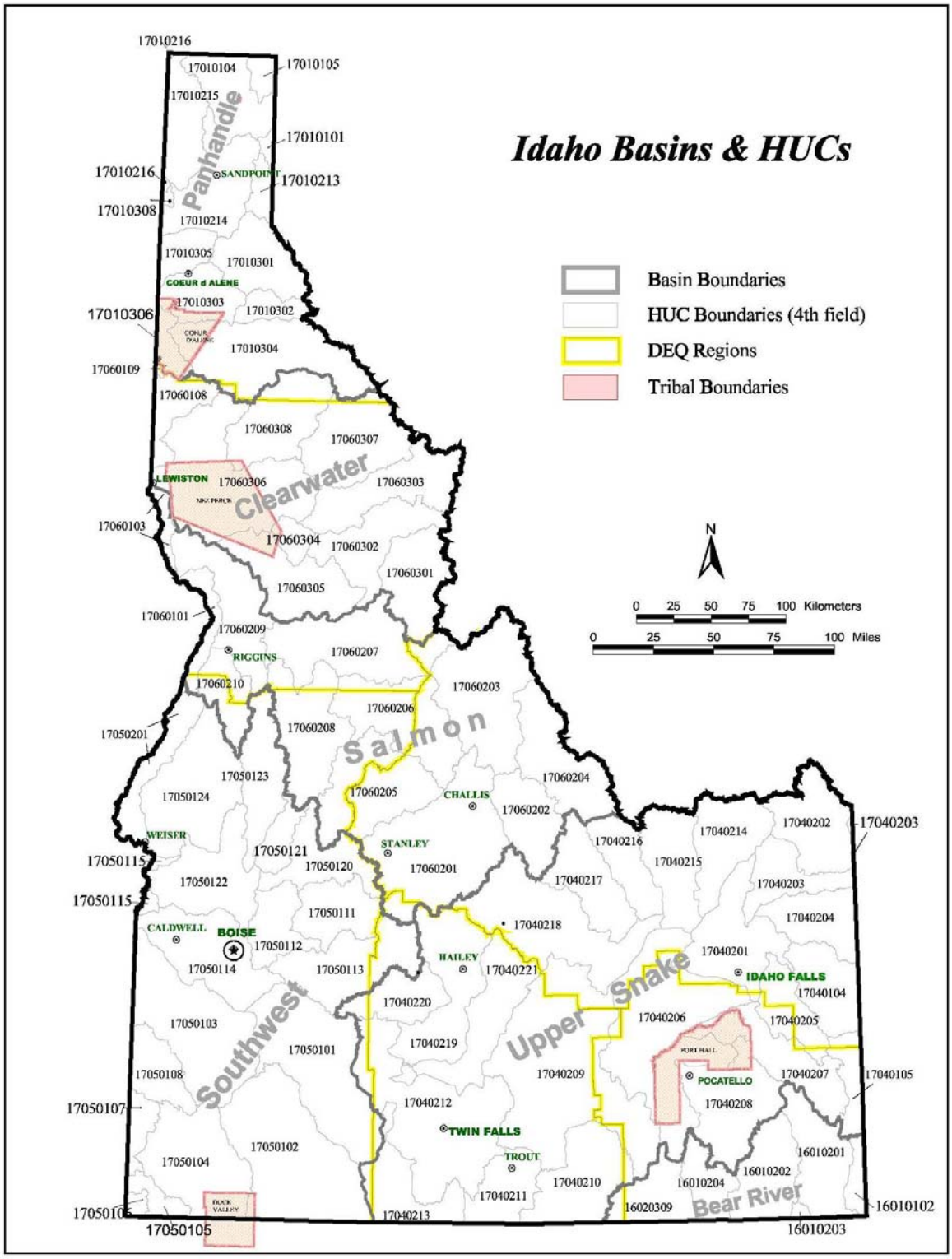

Figure 1. Location of subbasin.

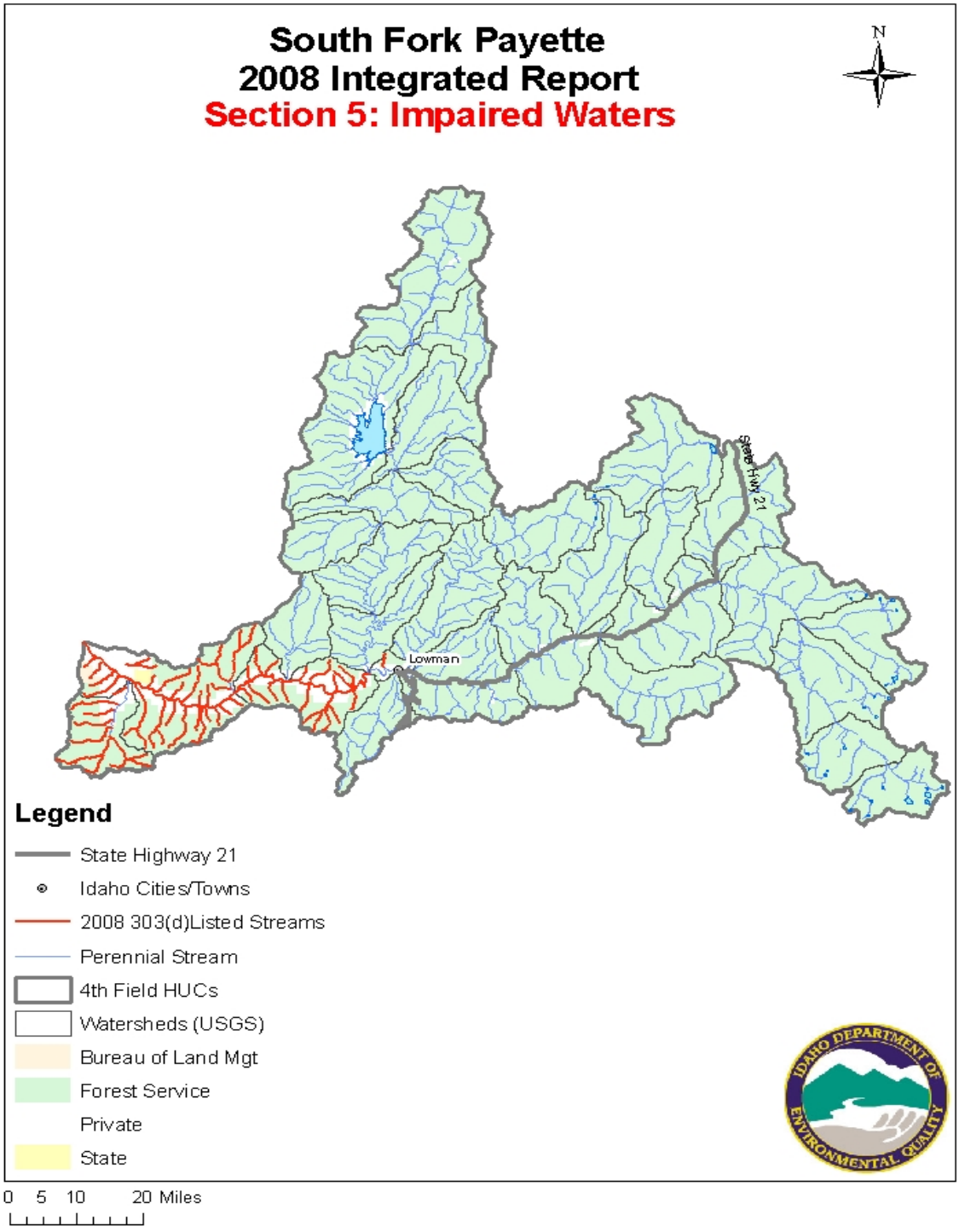

Figure 2. 303(d) Listed Streams in the South Fork Payette River Watershed.

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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*, second edition (Grafe et al. 2002) gives a detailed description of beneficial use identification for use assessment purposes.

Existing uses under the CWA 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 the Idaho water quality standards (see IDAPA 58.01.02.003.27 and .02.109-.02.160 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

Beneficial Uses

The beneficial uses of the 303(d) listed assessment unit are shown in Table 2.

Table 2. Beneficial uses of 2008 303(d) listed water bodies.

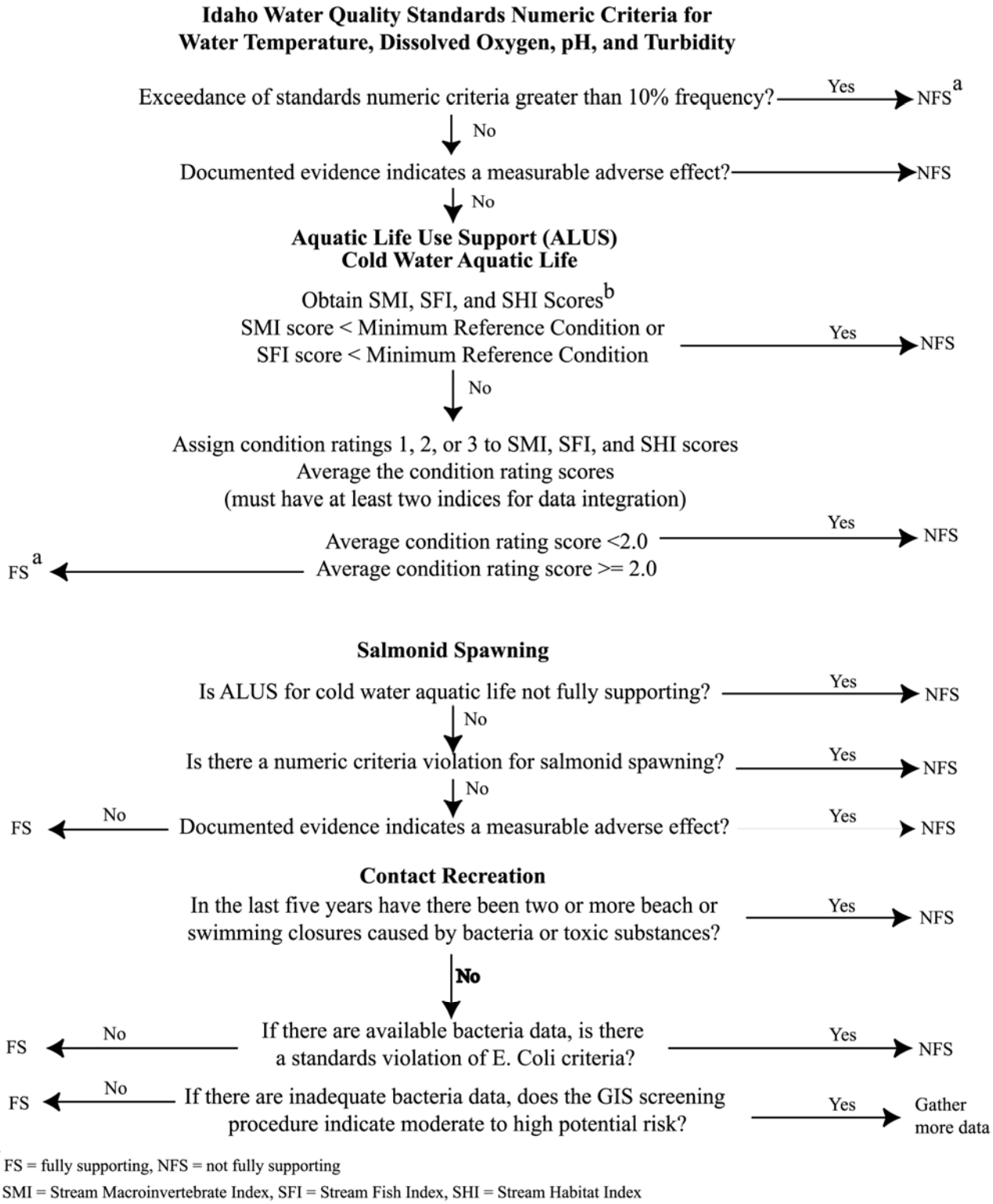
Assessment Unit	Beneficial Uses	Type of Use (designated, existing, presumed)
17050120SW001_02	Coldwater aquatic life, primary contact recreation	presumed
17050120SW001_05	Coldwater aquatic life, salmonid spawning, primary contact recreation, drinking water supply, special resource water	designated

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). Table 3 includes the most common numeric criteria used in TMDL while Figure 3 provides an outline of the stream assessment process for determining support status of the beneficial uses of cold water aquatic life, salmonid spawning, and contact recreation.

Table 3. Common numeric criteria supportive of designated beneficial uses in Idaho water quality standards.

Designated and Existing Beneficial Uses				
Water Quality Parameter	Primary Contact Recreation	Secondary Contact Recreation	Cold Water Aquatic Life	Salmonid Spawning (During Spawning and Incubation Periods for Inhabiting Species)
Water Quality Standards: IDAPA 58.01.02.250				
Bacteria, ph, and Dissolved Oxygen	Less than 126 E. coli/100 ml[a] as a geometric mean of five samples over 30 days; no sample greater than 406 E. coli organisms/100 ml	Less than 126 E. coli/100 ml as a geometric mean of five samples over 30 days; no sample greater than 576 E. coli/100 ml	pH between 6.5 and 9.0 DO[b] exceeds 6.0 mg/L[c]	pH between 6.5 and 9.5 Water Column DO: DO exceeds 6.0 mg/L in water column or 90% saturation, whichever is greater Intergravel DO: DO exceeds 5.0 mg/L for a one day minimum and exceeds 6.0 mg/L for a seven day average
Temperature[d]			22 °C or less daily maximum; 19 °C or less daily average	13 °C or less daily maximum; 9 °C or less daily average Bull trout: not to exceed 13 °C maximum weekly maximum temperature over warmest 7-day period, June – August; not to exceed 9 °C daily average in September and October
			Seasonal Cold Water: Between summer solstice and autumn equinox: 26 °C or less daily maximum; 23 °C or less daily average	
Turbidity			Turbidity shall not exceed background by more than 50 NTU[e] instantaneously or more than 25 NTU for more than 10 consecutive days.	
EPA Bull Trout Temperature Criteria: Water Quality Standards for Idaho, 40 CFR Part 131				
Temperature				7 day moving average of 10 °C or less maximum daily temperature for June - September

[a] *Escherichia coli* per 100 milliliters
[b] dissolved oxygen
[c] milligrams per liter
[d] Temperature Exemption - Exceeding the temperature criteria will not be considered a water quality standard violation when the air temperature exceeds the ninetieth percentile of the seven-day average daily maximum air temperature calculated in yearly series over the historic record measured at the nearest weather reporting station.
[e] Nephelometric turbidity units



[a] FS = fully supporting, NFS = not fully supporting

[b] SMI = Stream Macroinvertebrate Index, SFI = Stream Fish Index, SHI = Stream Habitat Index

Figure 3. Determination Steps and Criteria for Determining Support Status of Beneficial Uses in Wadeable Streams: Water Body Assessment Guidance, Second Addition (Grafe et al. 2002)

Changes to Subbasin Characteristics

Both Garden Valley/Crouch and the South Fork Landing development, a residential community along the SF Payette near Alder Creek are trying to develop wastewater treatment systems. As of this writing, no NPDES permits have been issued.

Fires

In recent years, fires have occurred in the SF Payette drainage, mainly in the upper Deadwood, Warm Springs Creek and Ten Mile drainages (Figure 4). Many fires have manifested as high intensity crown fires, particularly in Ponderosa pine forests, resulting in slope destabilization, accelerated slope erosion and catastrophic sediment transport in debris flows and floods. Meyer et al. (2001) hypothesizes that this trend relates not only to forest management practices of fire suppression but also to global warming and has investigated alluvial fans and tree ring data in the SF Payette River watershed to support this hypothesis. DEQ does not view sediment discharge after fire as a water quality impairment but rather a short term response to a natural event. DEQ takes into account that fire can periodically alter the ecosystem while also taking into account any anthropogenic variables that may influence stream water quality at the same time.

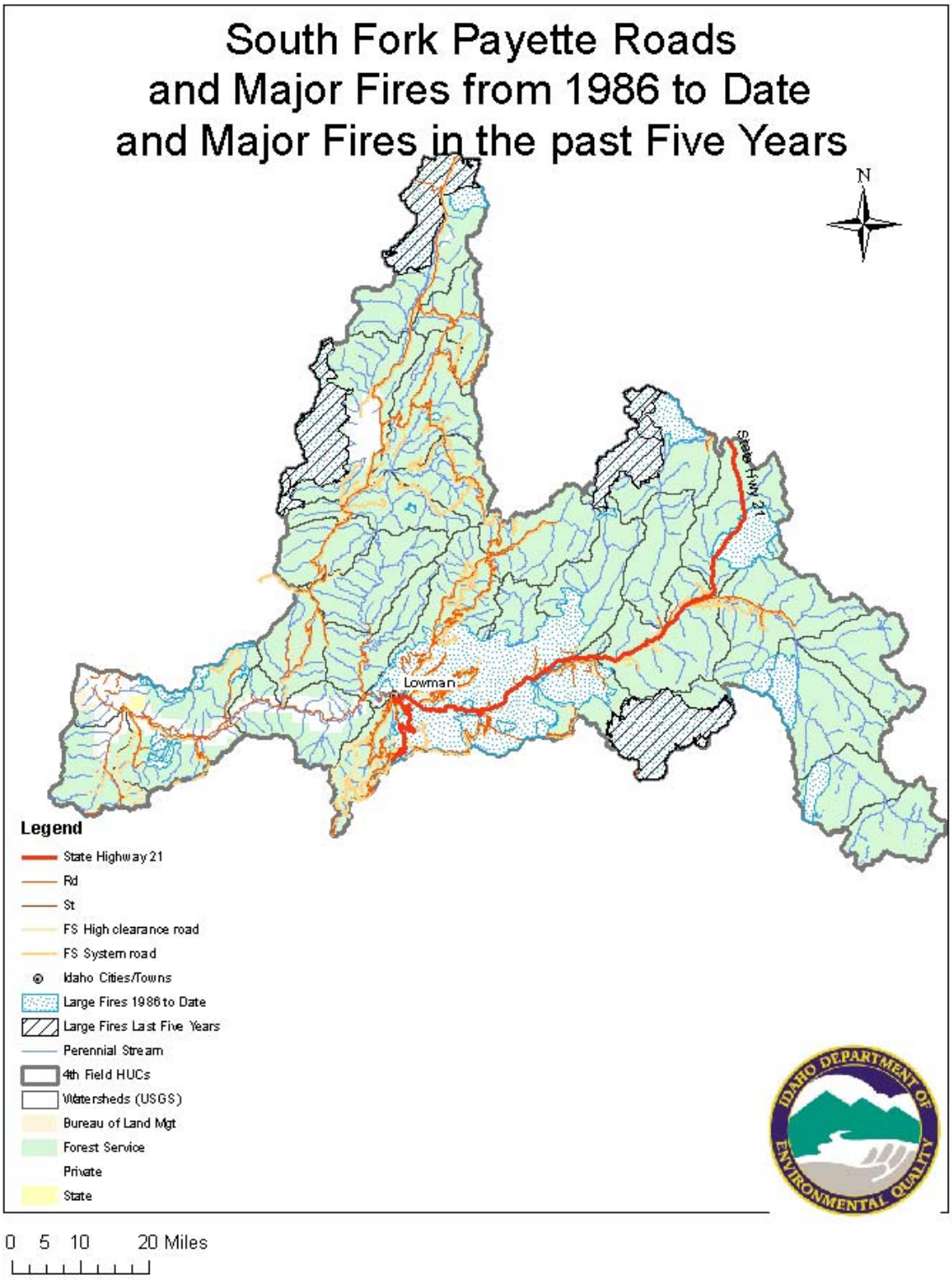


Figure 4. South Fork Payette River Roads and Large Fires

Summary and Analysis of Current Water Quality Data

Most of the data in the watershed was collected by DEQ, USGS, and the USFS. The results of a 2004 USFS Geomorphic Road Analysis Inventory Protocol (GRAIP) sediment delivery study are shown in Figures 5-6. BURP, suspended sediment concentration and depth fines data are shown in Tables 4-10 below. A variety of sediment data was analyzed to more conclusively determine if sediment is impairing beneficial uses in the watershed.

Geomorphic Road Analysis Inventory Program (GRAIP) Study of Sediment Delivery from Roads in the SF Payette Watershed

The GRAIP study is useful in prioritizing road improvement projects to prevent excess sediment delivery to the South Fork Payette River and its tributaries. Figure 5 is derived from a GRAIP survey of the SF Payette watershed. 450 miles of road were inventoried. This figure shows areas of high sediment production from road surface erosion in red with the highest concentration of red areas in the Rock Creek subwatershed.

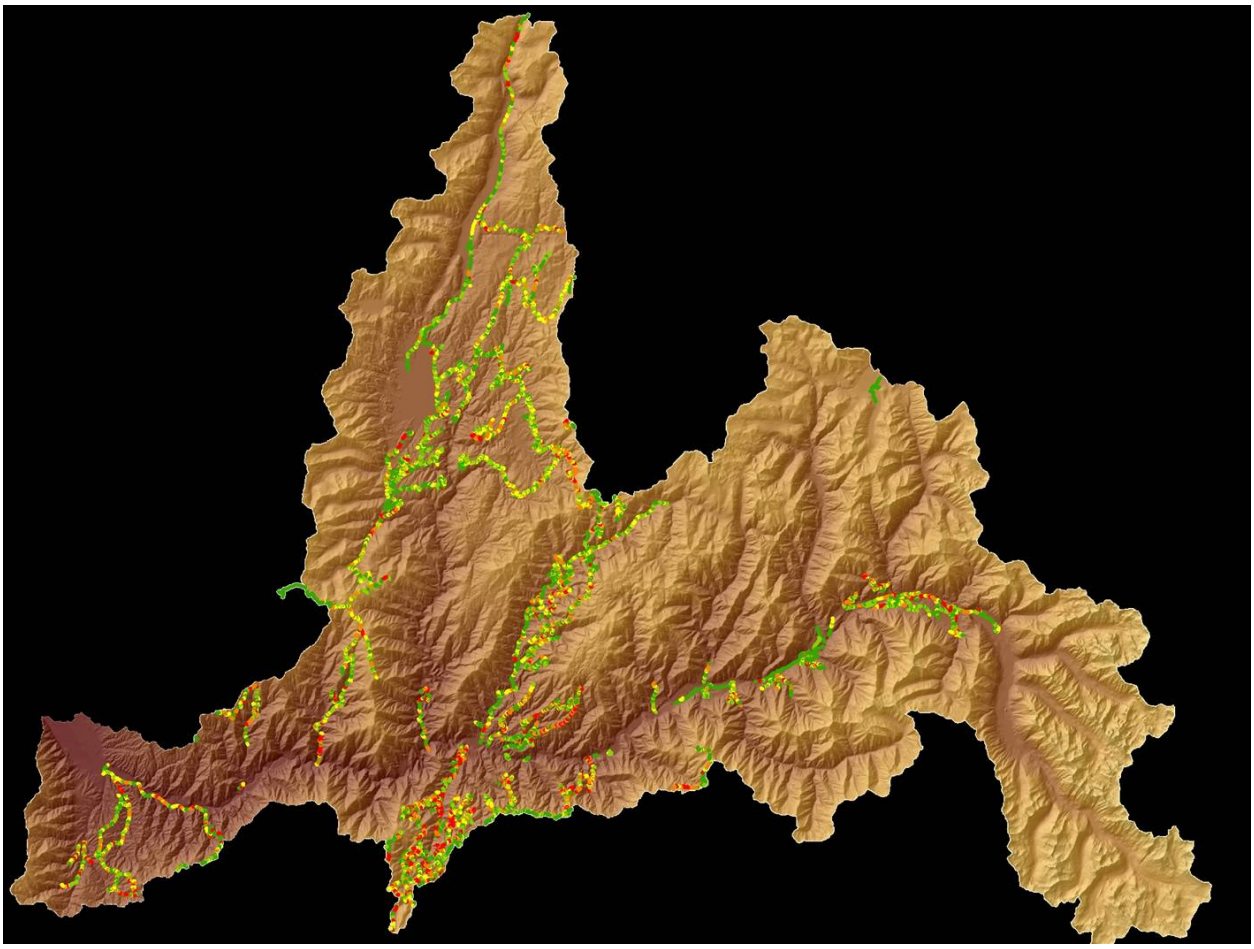


Figure 5. Sediment Production from Roads in the SF Payette Drainage.

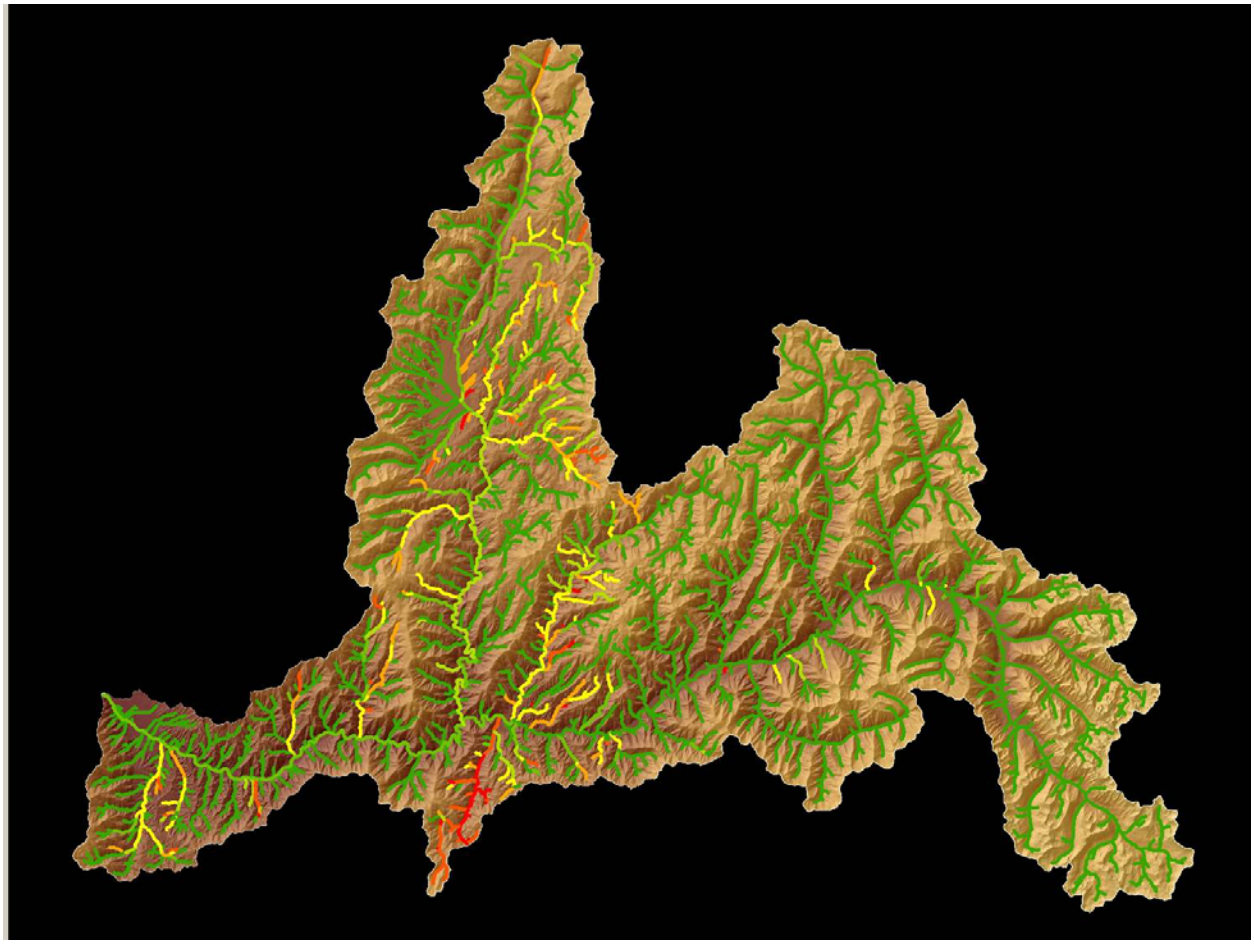


Figure 6. Sediment Delivery to Local Channels.

Figure 6 illustrates areas of high local sediment delivery (shown in red) routed to stream channels. Undisturbed basins in this area transport 10 tons/km^2/year over several years as measured by Megahan in the South Fork of the Salmon River. The Rock Creek drainage near Lowman shows high levels of sediment routed to the SF Payette. BURP data shows that Rock Creek itself supports beneficial uses. Overall, localized areas of sediment are not that great.

Suspended Sediment Monitoring

DEQ and the USGS monitored suspended sediment concentrations (Tables 4- 5), attempting to capture high flow and base flow events. Bedload sediment could not be investigated in the reach below Lowman due to cost and safety considerations. The USFS (2004) stated in a sediment transport study based on 72 measurements of bedload transport and 37 measurements of suspended sediment from 1994-1997 that suspended sediment accounted for the majority of transported material with over an order magnitude greater suspended transport than bedload transport at the highest discharges and similar rates at the lowest discharges. Thus, suspended sediment concentration is an adequate target in this case for determining water quality impairment due to sediment.

Table 4. 2008 USGS Suspended Sediment Concentration Results

Location	Date Collected	Suspended Sediment Concentration (mg/L)
Lowman	4/24/08	4
Lowman	5/22/08	349
Lowman	6/26/08	<5
Lowman	7/14/08	5
Lowman	8/05/08	6
Lowman	9/23/08	5

Table 5. 2009 DEQ Suspended Sediment Concentration Results

Location	Date Collected	Suspended Sediment Concentration (mg/L)
Alder Creek	4/9/2009	5
Lowman	4/9/2009	5
Alder Creek	4/22/2009	120
Lowman	4/22/2009	67
Alder Creek	5/11/2009	10
Lowman	5/11/2009	6.8
Alder Creek	6/30/2009	5.2
Lowman	6/30/2009	5
Alder Creek	7/21/2009	5
Lowman	7/21/2009	5
Alder Creek	8/27/2009	5
Lowman	8/27/2009	5

The effects of suspended sediment on aquatic fauna, especially fish, are dependent on the duration and frequency of exposure just as much as on concentration. The suspended sediment concentration targets from the SF Payette River SBA (IDEQ 2004) were used in the analysis of current data and the data was plotted as a function of flow duration (Figure 6). The target for suspended sediment concentration is a ***geometric mean of 50 mg/L SSC for no longer than 60 days and a geometric mean of 80 mg/L SSC for no longer than 14 days.*** This target allows for spikes in total suspended sediment due to spring runoff or episodic storm events.

Since the South Fork Payette total suspended sediment data collected during water year 2008 and 2009 only exceeds 50 mg/L during the highest stream flows, which is in the five percentile flow duration interval, total suspended sediment is unlikely to impact fisheries in the mainstem river. The load duration curve shown in Figure 6 illustrates that suspended sediment targets are met except at high flows, which account for less than 5% of the flows. 2009 data was used in this graph because 2009 more closely represented an average year whereas 2008 was an extremely high flow year.

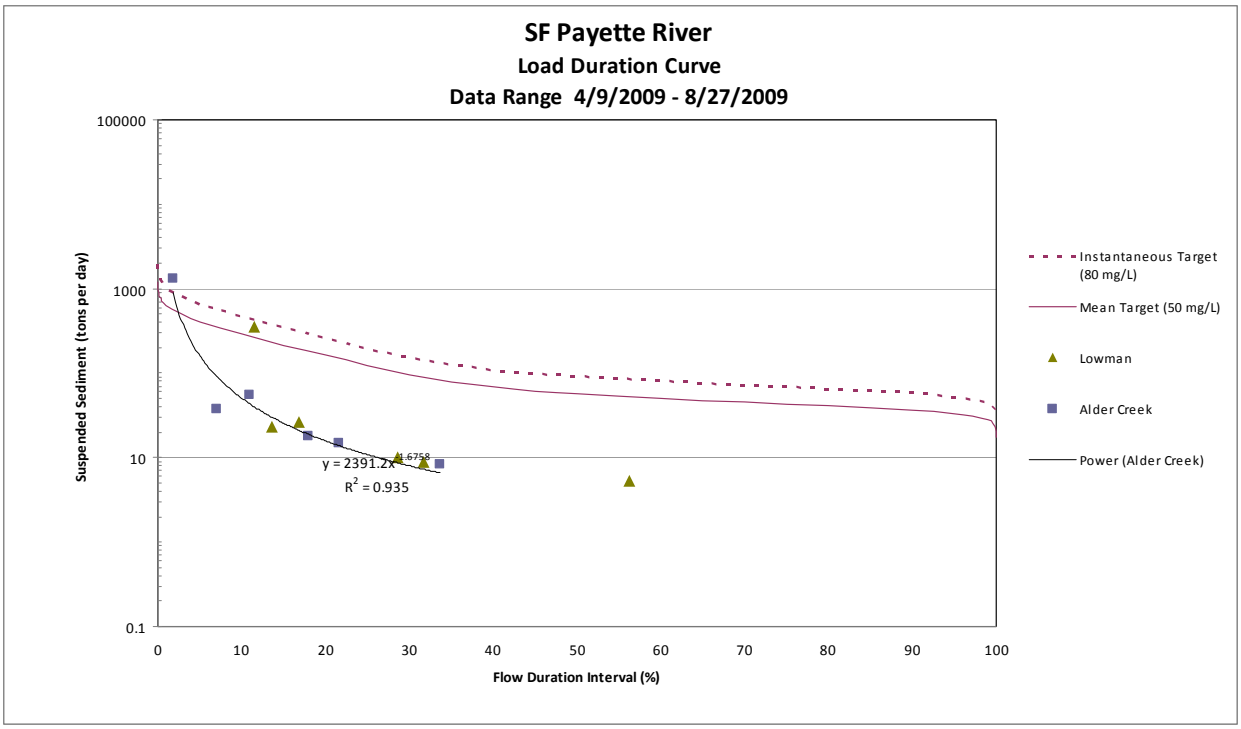


Figure 7. Suspended Sediment Concentration Load Duration Curve-2009

Turbidity

Turbidity levels were all very low (Table 6). The highest measurement of 25 NTRUs on May 22, 2008 occurred at high flows of 3940 cfs and was still far below the instantaneous standard of 50 NTUs above background and would also be below the 25 NTU above background level for consecutive measurements (NTRUs are equivalent to NTUs).

Table 6. USGS Turbidity Data

Sampling Date	Turbidity (NTRU)
4/24/08	1.1 (estimated)
5/22/08	25
6/26/08	2 (estimated)
7/14/08	<2 (estimated)
8/5/08	1.8 (estimated)
9/23/08	1 (estimated)

Depth Fines

Depth fines data were collected in streams from pool tailouts in AUs SW001_02, SW001_02a and SW005_05 (Table 7). The average depth fines for AU SW001_02 were 24.3%, below the depth fines target of 27% used in the SF Salmon River TMDL (IDEQ 2002). The SF Salmon River Subbasin Assessment uses a monitoring target of five year depth fines mean of 27% or less with no individual year > 29%. This sampling set included Horn Creek, which had previously had low BURP scores (Wash Creek was dry at the time of monitoring and was not sampled). The SF Payette River (SW005_05) had depth fines of 14.8%. SW001_02a had average depth fines of 27% and this sampling set included Chapman Creek, which had had low BURP scores previously

Table 7. Depth Fines

AU	Average Depth Fines	Median Depth Fines
17050120SW001_02 second order streams	24.3%	21%
17050120SW001_02a (second order tributaries upstream of Lowman)	27%	29%
17050120SW005_05	14.8%	11%

Other Water Quality Data

The USGS collected nutrient, bacteria, and pH data for the river as shown in Table 8.

Table 8. Additional SF Payette River Water Quality Data

Sampling Date	Ammonia (mg/L)	Total Phosphorus (mg/L)	Ortho Phosphate (mg/L)	E. coli (cts/100 mL)	pH
4/24/08	<.02	.021	.005	1	8
5/22/08	<.02	.166	.008	<1	7.8
6/26/08	<.02	.011	.006	1	7.7
7/14/08	<.02	.005	.006	1	8
8/5/08	<.02	.012	.007	3	8.1
9/23/08	<.02	.011	.005	3	8

BURP Data

The most recent BURP data from SW001_02 showed full support of beneficial uses (Coski Creek). The watershed shows full support of beneficial uses in all Assessment Units with the exception of SW001_02a when the most current data (2005-present) is analyzed (Table 9). The South Fork Payette River Subbasin Assessment determined that further sediment monitoring was warranted for what is now SW001_02 and SW001_02a, which was completed using additional depth fines monitoring to supplement the 2004 BURP monitoring. In 1997, Horn, Wash, Chapman and Smoky Creeks all had severe blowouts associated with the 1997 rain-on snow event, denuding creek vegetation and downcutting stream channels, particularly in the lower reaches. Aerial photos showed evidence of a mass wasting event in Chapman Creek in a mainly roadless area.

Some of these streams were particularly vulnerable due to relatively recent fires. BURP scores for upper Wash and Smoky Creeks in 1997 did not show impairment while scores in lower Wash and Smoky Creeks did show impairment. The SBA determined that impairment was due to natural causes and that the creeks were showing improvement in habitat parameters. This was borne out by the 2004 BURP scores, which although still low were higher than in 1997, exhibiting more robust macroinvertebrate communities.

Table 9. Summary of Current BURP Data

Stream Name	AU	Year	SMI Rating	SHI Rating	SFI Rating	Score	Support Status
Smokey Ck	SW001_02a	2004	3	1	1	1.7	NFS
Chapman Ck	SW001_02a	2004	3	1	1	1.7	NFS
Horn Ck	SW001_02	2004	3	1	1	1.7	NFS
Wash Creek	SW001_02	2004	0	3	No data	1.0	NFS
SF Payette River	SW005_03	2004	3	2	No data	2.5	FS
Warm Springs Crk	SW016_02	2004	3	3	No data	3	FS
MF Big Pine Ck	SW021_02	2004	3	3	1	2.3	FS
Warm Springs Ck	SW016_02	2005	3	3	No data	3.0	FS
NF Deer Creek	SW019_02	2005	3	3	1	2.3	FS
Deadwood River	SW019_03	2005	3	1	2	2	FS
MF Pine Creek	SW021_02	2005	3	3	3	3.0	FS
Trail Creek	SW005_02	2006	3	3	3	3.0	FS
Coski Creek	SW001_02	2007	3	3	No data	3.0	FS
Whitehawk Creek	SW015_03	2007	3	3	2	2.7	FS
Warm Springs Creek	SW016_02	2007	3	3	No data	3.0	FS
Warm Springs Creek	SW016_03	2007	2	3	1	2.0	FS
Rock Creek	SW002_02	2008	3	3	No data	3.0	FS
Tenmile Creek	SW003_02	2008	3	1	3	2.3	FS
Baron Creek	SW007_02	2008	3	3	No data	3	FS
NF Baron Creek	SW007_02	2008	3	3	No data	3	FS
Bear Creek	SW008_02	2008	3	3	3	3	FS
Fivemile Creek	SW012_02	2008	3	3	No data	3	FS
Park Creek	SW013_02	2008	3	3	No data	3	FS
Clear Creek	SW013_03	2008	3	3	No data	3	FS
Whitehawk Creek	SW015_02	2008	3	3	No data	3	FS
NF Whitehawk Creek	SW015_02	2008	3	3	No data	3	FS
Warm Springs Creek	SW016_02	2008	3	3	1	2.3	FS
Wilson Creek	SW017_02	2008	3	3	No data	3	FS
Bitter Creek	SW019_02	2008	3	2	No data	2.5	FS
Deer Creek	SW019_02	2008	3	3	No data	3	FS
EF Deadwood River	SW019_02	2008	3	3	No data	3	FS
Stratton Creek	SW019_02	2008	3	3	No data	3	FS
Deadwood River	SW019_03	2008	3	3	No data	3	FS

Fisheries Data

The most current fisheries information for the South Fork Payette River was reported in the 2005 South Fork Payette River Subbasin Assessment (Table 10). Data exist for the mainstem river from Grandjean to Lowman with one sampling location, 'Cabins below Lowman' at the upper end of SW005_05 (IDFG 2006). In this section, redband trout and mountain whitefish were the predominant species observed in snorkel surveys. Densities of redband ranged from 0.1 to 2.82 redband trout/100 m^2. Redband density was moderate to high with the exception of the largest age class, which was low density.

Table 10. 2003 Redband density by length group (mm)

Location (milepost marker)	<100	101-200	201-300	>300
Sacajawea Hot Springs at Grandjean	0	0	0	0
Bear Creek	0	.71	.82	0
Canyon Creek	1.03	1.13	.41	0
Bonneville (mile 92.3)	.64	1.1	.18	0
Chapman Creek	.22	.15	0	0
Tenmile Creek (mile 86.7)	0	.13	0	0
Red Roof Cabin (mile 85.3)	0	.05	.05	0
Downstream Kettle Creek (mile 83.1)	.26	1.19	.22	0
Upstream Helende Creek (mile 82.4)	.05	.14	.14	.05
Meadow Creek (mile 79.7)	.13	.04	.09	0
Emma Edwards (mile 77.5)	.27	1.2	.27	0
Trailer House Hole (mile 76.3)	.32	2.11	.35	.04
Vehicle Pullout (mile 74.8)	.06	.23	.13	0
Cabins below Lowman	.34	.83	.36	.08

Beneficial Uses

There is no information suggesting that use designations are inappropriate. Beneficial uses are not impaired in the mainstem SF Payette River. While fisheries data shows some declines in coldwater species, the fisheries reports states that this is likely due to angler pressure in the areas surveyed or lack of nutrient enrichment in the watershed. IDFG states that the trout populations are healthy, and that uneven trends in abundance and size are also largely influenced by streamflow (Jeff Dillon, IDFG personal communication 2009).

Sediment sources do exist in the watershed and anti-degradation concerns from sediment are an ongoing concern. Past fires have destabilized hill slopes in some areas, which can lead to mass wasting. Large rain events in other areas have resulted in downcutting in the decomposed granitic soils in streams that are not able to access their floodplain. In addition, there are many miles of dirt roads proximate to streams that could also contribute excess sediment. A GRAIP road analysis of 450 miles of road in the subbasin identified roads that are potentially high loaders of sediment. Areas to concentrate on to prevent degradation and subsequent beneficial use impairment include the Rock Creek and Deadwood drainages. The Deadwood River supports beneficial uses but has the potential to transport excess sediment to the SF Payette.

Suspended sediment concentrations are high during peak flow events, which is to be expected. However, these levels are above the target only during peak flows and less than 10% of the time.

Current data show that at average flows the suspended sediment levels are far below the target of a geometric mean of 50 mg/L for no longer than 60 days since typically the average concentration is well below 10 mg/L. Fish and other aquatic species are adapted to tolerating elevated suspended sediment levels for short periods of time such as spring runoff or brief summer storm events. The data bears out that this is when those elevated levels occur and that they do not last for significant periods.

Depth fines data was investigated and showed low levels of depth fines in the reach in pool tailouts. The SF Payette Subbasin Assessment (DEQ 2004) stated that bedload sediment was not evaluated because the gradient of the stream resulted in transport of fine grained sediment through the system. Depth fines in pool tail outs show that fine grained sediment is not covering spawning gravels. Sediment appears to be transported through the system without excessive deposition, channel downcutting or widening. Based on this information, Table 11 shows the recommended changes to the next Integrated Report.

The South Fork Payette River Subbasin Assessment determined that further sediment monitoring was warranted for what is now SW001_02 and SW001_02a, which was completed using additional depth fines monitoring to supplement the 2004 BURP monitoring. Current BURP scores for SW001_02 show

full support of beneficial uses and there was a steady improvement in BURP scores since 1997. Current BURP scores for SW001_02a were unavailable and depth fines information was used to determine whether sediment was impairing beneficial uses. The depth fines targets were based on the South Fork Salmon River TMDL targets. As described in the section on depth fines, sediment targets were met. However, older BURP scores showed low fisheries and habitat scores, indicating that a more thorough investigation of other variables is warranted in this AU to ensure that even though BURP scores have improved from 1997- 2004 that no other anthropogenic factors are impacting the stream. Thus, SW001_02a is recommended for § 303(d) listing based on habitat and biota assessments indicating probably impairment from an unidentified pollutant..

Table 11. Summary of recommended changes for AUs listed in Section 5

Assessment Unit (2008 Integrated Report)	Stream Segment Description	Pollutant	Recommended Changes to Next Integrated Report	Justification
SW001_02	Second Order Tributaries	Sediment	Delist	Full support BURP score depth fines data meets target
SW001_02a	Second Order Tributaries	Combined biota/habitat bioassessments	List in Section 5	Low BURP
SW005_05	SF Payette	sediment	Delist	Suspended sediment is below literature value target levels; no beneficial uses impaired

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Section 4: Review of Implementation Plan and Activities

No implementation plan exists for the South Fork Payette River Watershed, because TMDLs were not developed as part of the Subbasin Assessment.

Accomplished Activities

The Forest Service outlined the following potential water quality improvement goals in the Boise National Forest Plan:

- Objective 1117. Improve water quality by reducing accelerated sediment from existing roads in the Big Pine Creek (Scott Mountain Road), Danskin Creek, and Alder Creek drainages.
- Objective 1118. Evaluate opportunities to reduce accelerated erosion from natural and human-caused disturbance, initial focus should be in the Danskin area.
- Objective 1119. Work with Boise County to evaluate culvert on Forest Highway 17 at Danskin Creek to determine if there is a fish passage barrier and, if so, identify options for improvement.
- Objective 1120. Restore fish passage from the South Fork Payette River to Danskin Creek to restore connectivity of native fish populations.
- Objective 1121. Maintain the South Fork Payette River as a migratory bull trout corridor

Accomplishments related to these objectives that have occurred since the Forest Plan was published include the Big Pine Creek culvert replacement project that replaced the culvert under Highway 17 near the confluence of Big Pine Creek and the SF Payette River for fish passage and hydrologic function.

In addition to those projects listed in the objectives, the following projects related to reducing road sediment delivery occurred in the SF Payette watershed are shown in Table 12.

Table 12. Additional Implementation Activities in SF Payette Watershed.

Subwatershed	Year	Project	Description	Length/Area
Lower Deadwood	2004	Lower Deadwood Road & Trail work	Following large debris flow events in 2003, closed the lower Deadwood Road to full-size vehicles, moving trailhead to new location 1 mi from Banks-Lowman road. Planted shrubs in Slim Cr and Slaughterhouse Gulch alluvial fans, stabilized several sections of the Julie Creek motorized trail (along the old road) to reduce sediment delivery.	5 miles of old road/trail
All	2005-2009	Annual road maintenance	Annual road maintenance of most popular roads (i.e .Clear Creek, Grandjean, Rock Cr, etc) and other roads to maintain drainage and minimize sediment production	70-100 miles of road per year
Rock Creek	2006	Road Decommissioning	Decommissioning of system and non-system roads.	8 miles of road
Clear Creek	2006, 2008	Clear Creek dispersed campsite closure	Closed and/or restricted 6 dispersed campsite areas to minimize impacts to riparian areas.	6 dispersed sites.
Blue Jay	2007	Warm Spring Road Repair	Stabilized a steep road cut leading to the SF Payette River.	0.10 mi of road
Bear-Camp	2008	Wapiti Creek Culvert Replacement	Replaced double-pipe at the 525 crossing of Wapiti Creek with a bottomless arch for fish passage and to accommodate the 100-year flow.	1 stream crossing.
Upper Deadwood	2007, 2009	Deadwood Mine CERCLA	Capping (storing, revegetating) fine-grain mine tailings to prevent dispersal by air and water. Removing extreme tailing pile and stabilizing slope to prevent further erosion and transport of mine tailings.	5 acres
Blue Jay	2008	ITD Chapman Creek Stream bank armoring	ITD project, heavy armor along the Chapman Creek stream banks to prevent further bank cutting under the Hwy 21 bridge.	0.1 mi of Chapman Cr.
Blue –Jay, Wolf. Bear-Camp	2009	Road Decommissioning	Decommissioning of system and non-system roads.	5 miles of road

Section 5: Summary of Five Year Review

Changes in Subbasin

No major changes have occurred in the subbasin.

Review of Beneficial Uses

Designated beneficial uses are appropriate and no changes are recommended at this time. Overall, beneficial uses are attained in the subbasin.

Water Quality Criteria

In order to look at beneficial use impairment for sediment, DEQ selected depth fines and suspended sediment concentration criteria. The listed waters met the sediment targets.

Recommendations for Further Action

DEQ recommends moving the following AUs in Table 11 to Section 2 in the next Integrated Report cycle based on data from this review and the 2004 Subbasin Assessment: SW001_02 and SW005_05.

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Appendix A.

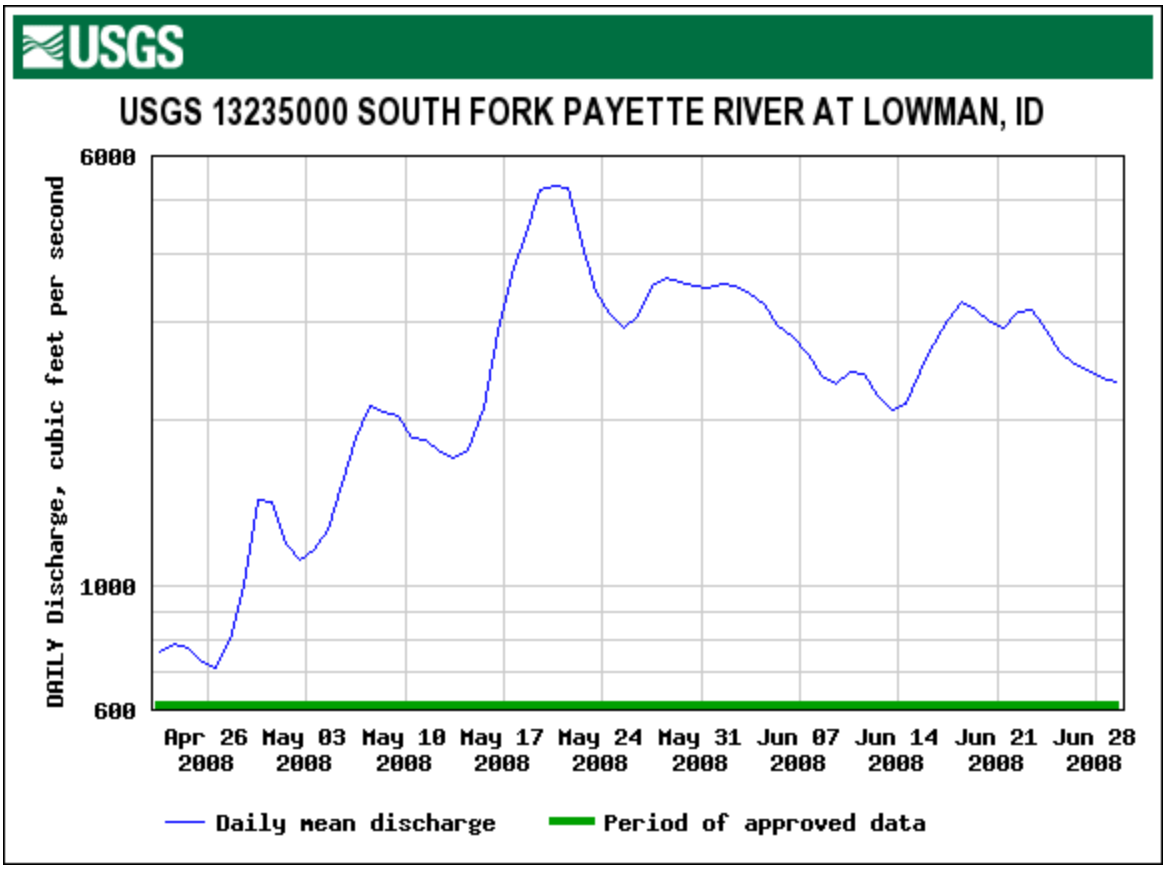

Figure A.1. USGS Data for 2009 Showing Spring Runoff Pattern