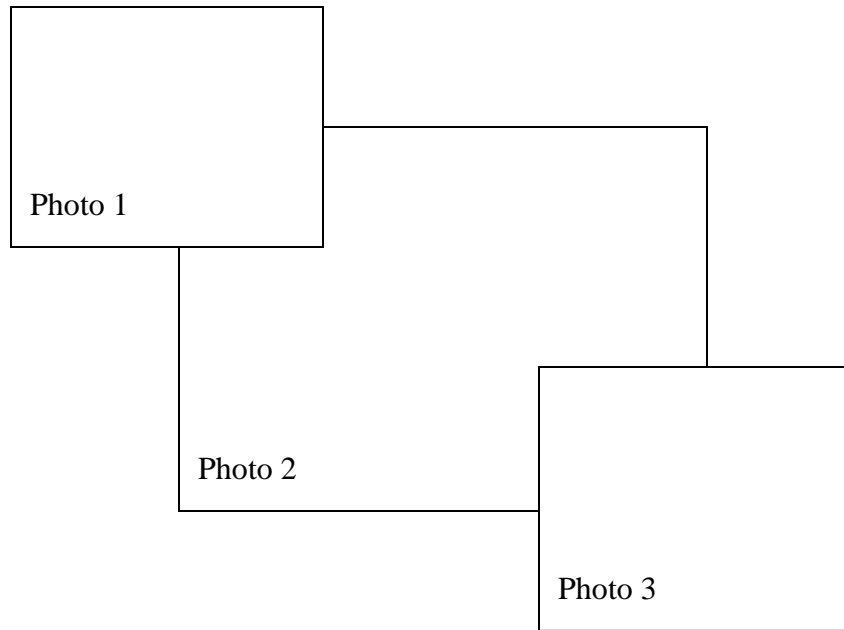


# Fish Creek Watershed Assessment and Total Maximum Daily Load Implementation Plan

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Prepared by  
Idaho Department of Environmental Quality  
In cooperation with  
The Fish Creek Watershed Advisory Group



Cover photos:

Photo 1 – Lower Fish Creek adjacent to agricultural land use looking west (up stream) towards Mount Spokane.

Photo 2 – Fish Creek upstream of photo 1 near vegetation transitional zone from meadow and deciduous trees to coniferous forest.

Photo 3 – Miller Creek, tributary to Fish Creek, forested area managed for timber harvest.

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## **1.0 Introduction, Authorities, TMDL Summary, and Overview**

### **1.1 Introduction**

The goal of this plan is to link total maximum daily load (TMDL) allocations to on-the-ground projects. The Fish Creek TMDL Implementation Plan will be utilized as a descriptive tool to identify methods for pollutant load reductions. The implementation plan will include measurable milestones and a schedule for implementing the identified actions.

The Fish Creek TMDL Implementation Plan will be considered a “living” document. A living document is a document that can be continually edited or updated depending on implementation progress and/or changes in water quality. Changes to the document will be reviewed and approved by the Fish Creek watershed advisory group (WAG) and the associated designated management agencies (DMAs). Implementation project ideas are included within the document and project specifics can be found in Appendix B. Additional project ideas will be added to Appendix B as they are developed.

### **1.2 Authorities**

The development of a TMDL is one of the first steps taken by DEQ to improve water quality. A TMDL outlines pollutants which are contributing to beneficial use impairment. Also included in the TMDL document are load reductions needed to return or maintain water quality standards and beneficial use support.

*Upon completion of total maximum daily load process as set forth in section 39-3611, Idaho Code, the director shall integrate such processes into the states’ water quality management plan development pursuant to the federal clean water act. Total maximum daily load processes shall be used by all designated agencies for achieving water quality standards, Idaho Code 39-3612 – Integration of total maximum daily load processes with other programs.*

The water quality management plan is the state management plan developed and updated by DEQ in accordance with sections 205, 208, and 303 of the federal clean water act. Federal regulations (40 CFR §130.6) describes a minimum of nine water quality management plan elements, of which TMDLs, nonpoint source management controls, management agencies, and implementation measures are key components (40 CFR §130.6(1)(4)(5)(6)). Aspect of all four are accounted for in TMDL and TMDL implementation.

Under Idaho code 39-3602 (7) DMAs are defined and the land use activities for which they have oversight outlined. Idaho’s DMAs are:

- The Idaho Department of Lands (IDL) for timber harvest, oil and gas exploration, and mining development
- The Soil Conservation Commission (SCC) for grazing and agricultural activities
- The Idaho Department of Transportation (ITD) for public roads
- The Department of Agriculture for aquaculture and
- The Department of Environmental Quality (DEQ) for all other activates.

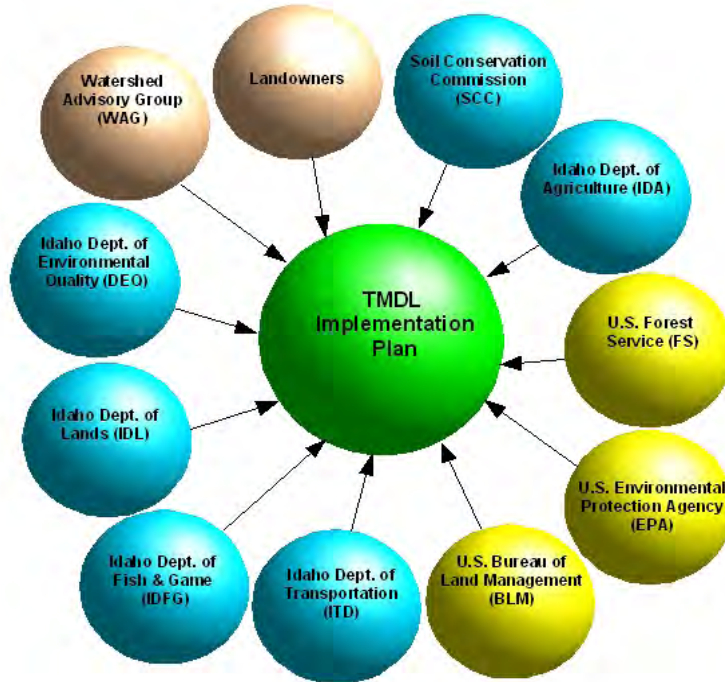
To further outline the roles and responsibilities in implementing the nonpoint source water quality provisions of the federal Clean Water Act for the State of Idaho (i.e. TMDL and TMDL implementation) a memorandum of understanding (MOU) was developed between DEQ, IDL, U.S. Department of Agriculture, Forest Service, Northern Intermountain Regions, and the U.S. Department of Interior, Bureau of Land Management on February 14, 2008 (BLM MOU ID-08-02 and FS MOU# 08-11046000-015).

Under the terms of the MOU, IDL has the responsibility to ensure compliance with Forest Practices best management practices (BMPs) on all lands in the state, and to apply BMPs which will provide for protection of beneficial uses of water. On private lands, IDL has the responsibility to administer the Idaho Forest Practices (FPA) rules and take enforcement action, when needed.

Similar to the MOU identified above, the SCC, DEQ, and other federal and state agencies entered into an MOU to identify roles and responsibilities for implementing the Idaho Agricultural Pollution Abatement Plan (Ag Plan). As stated in the Ag Plan, its purpose is *to function as a guidance document that describes the state's process for the control and abatement of agricultural nonpoint source pollution as it relates to water quality. The goal of the Ag Plan is to contribute toward full support of identified beneficial uses through enhancement and maintenance of the quality of surface and ground water of water of Idaho, to the extent that they are impacted by agricultural nonpoint source pollution.*

In addition to the purpose and goal of the Ag Plan, element 10 under roles and responsibilities (related to the control and management of nonpoint source pollution originating from agricultural activities) directs the SCC to *develop the agricultural component of comprehensive total maximum daily load (TMDL) watershed implementation plans in consultation with soil conservation districts (SCDs) and WAGs.* Element 11 in the same section states that the SCC shall *provide technical and administrative assistance to SCDs and watershed advisory groups for TMDL planning and implementation.*

Currently activities within the Fish Creek watershed only pertain to the IDL and the SCC. When feasible or practical a multitude of additional state and federal agencies may be asked to contribute to the plan (Figure 1).



**Figure 1. Possible agencies involved with developing an implementation plan.**

### 1.3 TMDL Summary and Other Pertinent Information

The *Fish Creek Watershed Assessment (WSA) and Total Maximum Daily Load (TMDL)* document was in development from February 2008 through August 2008 and approved by EPA on June 5, 2008. During the development of the TMDL public meetings were held in April, May, July, September, and October of 2007 and January 2008. All meetings were open to the public and advertised at least one week prior to the meeting. Meeting announcements were noted on the public meeting calendar on DEQ’s Web site, posted at the DEQ regional office in Coeur d’Alene, and advertised in local newspapers.

WAG participants reviewed beneficial use designations in the watershed, Idaho water quality standards, and water quality information collected within the watershed. The WAG reviewed several drafts of the *Fish Creek Watershed Assessment and TMDL* document and submitted comments to DEQ throughout the WAG meeting period. The comments submitted to DEQ by the WAG were incorporated into the final document.

Key finding of the WSA and TMDL included:

- Assessments of data collected during 10 Beneficial Use Reconnaissance Program (BURP) surveys reveal that index scores failed to consistently indicate support of beneficial uses. Beneficial uses of the surface waters include cold water aquatic life, salmonid spawning (SS), and primary contact recreation (PCR). Most failures were due to low macroinvertebrate and fish numbers despite good habitat index scores. Failure to support beneficial uses was also due to temperature criteria violations and elevated in-stream *E. coli* concentrations. TMDLs are

completed for sediment, bacteria, and temperature due to Idaho water quality criteria violations.

- Numeric targets for TMDLs include 68% above natural background sediment generation, shade targets developed from intact potential natural vegetation riparian communities, and 126 Escherichia coli (*E. coli*) cfu/100ml for bacteria.
- A 33% reduction in current sediment load has been identified as needed to support beneficial uses. Percent reductions in summer solar load vary from 37-45% for the mainstem Fish Creek, 35-81% for the south-side tributaries to Fish Creek, and 33-83% for the north-side tributaries to Fish Creek. Bacteria load reductions in Fish Creek vary considerably over time and range from 10,217% to 190,376%.
- Although Fish Creek is not included on Idaho’s 2002 Integrated Report as nutrient-impaired, nutrient samples were collected to characterize the current nutrient load within Fish Creek and compare current data to previously collected data. Nutrient concentrations collected in the summer of 2007 were similar to nutrient concentrations collected in late 1985 and 1986. The similarities in the values led to the determination that nutrient concentrations within the watershed have remained relatively constant. *The Subbasin Assessment and Total Maximum Daily Loads of Lakes and Streams Located on or Draining to the Rathdrum Prairie* (DEQ 2000) allocated a total phosphorus (TP) reduction goal of 271 kilograms/year (597.4 pounds/year), a 47.7% reduction (DEQ 2000). A nutrient TMDL will not be developed for the Fish Creek watershed at this time. Achievement of the nutrient load reductions identified in the previous TMDL efforts will meet Idaho water quality standards and improve beneficial use support status.

Excess sediment, temperature, and bacteria were identified as impairing beneficial uses. The TMDL developed load capacities and load reductions for each pollutant. Pollutant load capacities are the maximum allowable pollutant load which the stream can assimilate and still met Idaho water quality standards and support beneficial uses. Pollutant load reductions identifies the amount of each pollutant which needs to be reduced for achievement of water quality standards and anticipated support of beneficial uses.

**Sediment**

Sediment was determined to be in excessive quantities and impairing the cold water aquatic life use designation. The target load capacity was set at 68% above natural background, based on reference conditions. Sediment loading values are displayed in Table 1.

**Table 1. Current sediment load, background load and load capacity for Fish Creek.**

Estimated existing load (tons/year)	Natural background (tons/year)	Load capacity at 68% above natural background (tons/year)	Load Reduction Required (tons/year)	% Load Reduction Required
827	327	549	278	33%

**Temperature**



Temperature TMDLs were developed for the mainstem of Fish Creek and tributaries to Fish Creek because stream temperatures exceeded Idaho’s numeric water quality temperature standard and beneficial use impairment is attributed to these exceedances. Salmonid spawning and rearing are adversely impacted by elevated stream temperatures. Solar radiation was determined to be the factor most manageable in reduction of stream temperatures. A decrease in solar radiation requires an increase in shading of the stream (Table 2).

**Table 2. Solar loading reductions needed within the Fish Creek watershed.**

Water Body	Excess Load (kWh/day)	Percent Reduction
Fish Creek mainstem	72,872 (12,116 MD)	37 – 45%
South-side Tributaries	37,179 (21,031 MD)	35 – 81%
North-side Tributaries	17,319 (10,359 MD)	33 – 83%

### Bacteria

A bacteria TMDL was developed for one assessment unit within the Fish Creek watershed, the Fish Creek mainstem, because water quality monitoring data indicated that the beneficial use of primary contact recreation was not fully supported. The source of bacteria is unknown. Further monitoring will be needed to determine the source of contamination. Known possible sources include domesticated and wild animals, and/or human contributions.

*E. coli* is used as an indicator of human pathogens, disease-causing organisms. *E. coli* is also used because it is relatively more abundant than other pathogens, easy to test for, and relatively harmless. Table 3 contains the calculated load capacity and existing load for *E. coli*, based on flow information collected during sampling.

**Table 3. The *E. coli* colony forming units (cfu) load capacity in Fish Creek based on measured discharge and *E. coli* concentration and the reduction necessary to achieve the loading capacity.**

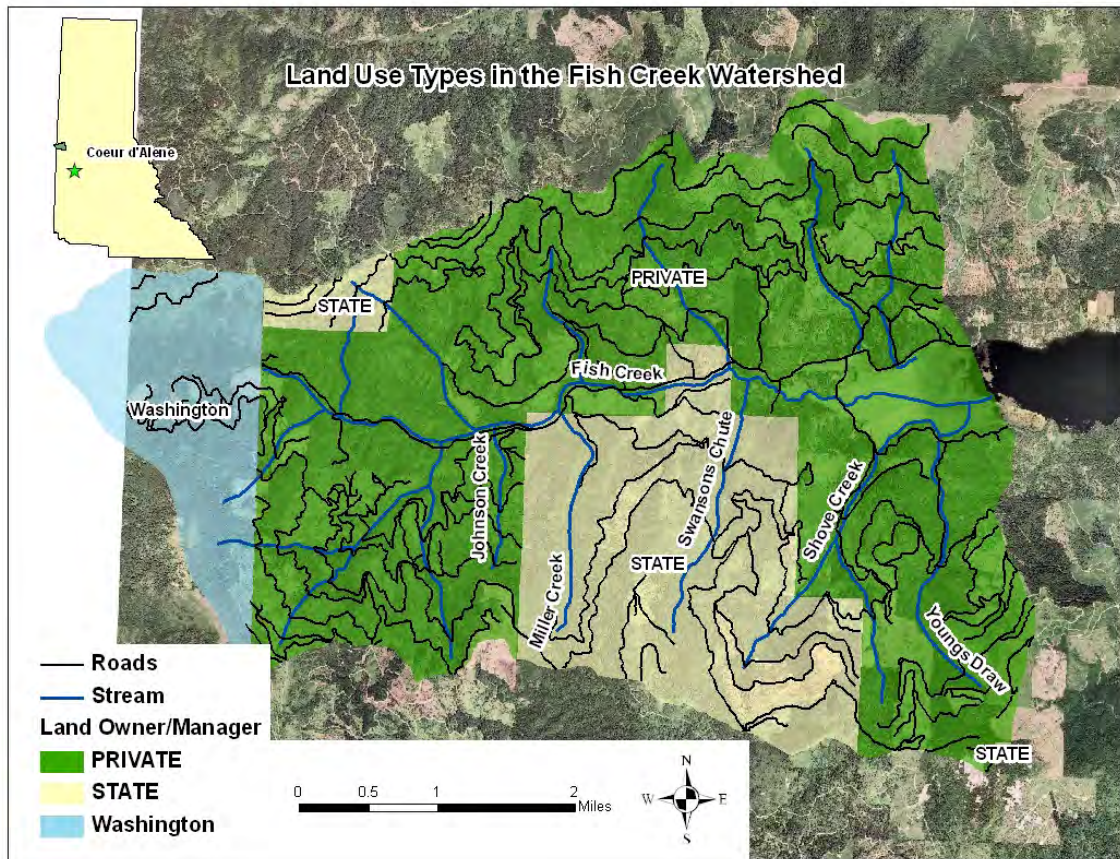
Fish Creek ID17010305PN014_03					
Measured <i>E. coli</i> Concentration (cfu/100mL)	Discharge (cfs) at sample collection	Load Capacity (cfu/100mL)	Current Load (cfu)	Reduction (cfu)	Reduction (%)
>2,400 <sup>1</sup>	5.82	207,653	395,529,761	395,322,108	190,376
1,400	1.93	68,861	76,512,129	76,443,268	111,011
980	1.06	37,820	29,415,544	29,377,724	77,678
1,300	3.2	114,174	117,798,096	117,683,922	103,075
260	1.5	53,519	11,043,572	10,990,053	20,535
130	1.59	56,730	5,853,093	5,796,363	10,217

<sup>1</sup> Quantity of *E. coli* cfu in sample were at the method detection and reporting limit.

### Land Ownership/Management and Land Use Types

Land use and land ownership/management is mixed within the Fish Creek watershed (Figure 2). The two major land use types are silviculture and grazing, with some small hay production in the lower watershed. The entire watershed is utilized for recreation,

however, access to the watershed is restricted and limited to day use only. Overnight camping and campfires are not allowed.



**Figure 2. Land ownership/management and land use type in the Fish Creek watershed.**

Beneficial uses of Fish Creek from the Idaho/Washington state line are both presumed and existing (Table 4). Cold water aquatic life, primary contact recreation, agricultural water supply, and domestic water supply are all presumed uses for the Fish Creek watershed. If beneficial uses are not otherwise designated, and lacking 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). Existing beneficial uses are those uses which are attained in the waterbody on or after November 28, 1975. The presence of multiple age classes of native salmonid species supports the establishment of salmonid spawning as an existing beneficial use.

**Table 4. Beneficial uses of §303(d)-listed streams within the Fish Creek watershed.**

<b>Water Body</b>	<b>Uses<sup>1</sup></b>	<b>Type of Use</b>
Fish Creek, mainstem and tributaries	CW, PRC, AWS, DWS	Presumed
Fish Creek, mainstem and tributaries	SS	Existing

<sup>1</sup>CW – cold water aquatic life, SS – salmonid spawning, PCR – primary contact recreation, SCR – secondary contact recreation, AWS – agricultural water supply, DWS – domestic water supply

### **1.4 Statement of Reasonable Assurance**

To insure water quality improvements are made a continued working relationship between DEQ, DMAs, and the Fish Creek WAG is needed to help to facilitate the completion of projects aimed at reducing pollutants and restoring beneficial uses. Throughout the process DEQ will continue to monitor beneficial use support within the Fish Creek watershed according the TMDL five year schedule.

Funding for projects will be dependent on the scope of the project and the grant applicant. Multiple granting opportunities are available through state and federal organizations. Because of the multiple funding sources legitimate projects should be eligible to compete for funding.

### **1.5 Process to Ensure Public Participation**

DEQ solicited public participation in the Fish Creek WAG in March 2007. An informational packet containing a survey, watershed map, and brief description of the TMDL process were sent twenty individuals. Out of the twenty packets sent out eight responses were received. Based on the response a meeting date was set for April 17, 2007 which initiated the development of the Fish Creek WSA and TMDL.

All meetings are open to the public and advertised at least one week prior to the meeting. Meeting announcements are noted on the public meeting calendar on DEQ’s website, posted at the DEQ regional office in Coeur d’Alene, and advertised in local newspapers.

Throughout the development of the implementation plan public meetings will be held when needed in similar fashion to the TMDL meetings. Meeting dates, times, and locations will be posted to the DEQ website, posted at the DEQ regional office in Coeur d’Alene, and advertised in local newspapers.

### **1.6 Timeline for Implementation of Projects**

Many factors influence the timing and installation of implementation projects. A few of the compounding factors include, but are not limited to the following; landowner participation, project funding, workforce availability, state and federal budgets, time of year, and grant requirements. Once a project has been identified and all of the above are dealt with, project implementation can be achieved. It is unreasonable to place a timeline on the implementation of projects because of the multitude of variables, but once a reasonable project has been identified the WAG and DMAs should work together to expedite the project.

## **1.7 Process to Measure and Evaluate Progress**

The ultimate goal of the TMDL implantation plan is to meet Idaho water quality standards and in doing so restore all beneficial uses to full support. The load allocations and load reduction requirements identified in the TMDL are intended as guidelines to meet this goal. Idaho water quality standards and beneficial uses will be periodically evaluated to determine if implementation activities are achieving this goal.

To measure and evaluate implementation project effectiveness field measurements will be collected by the WAG, DMAs, and DEQ on a set schedule. The monitoring schedule will be established by the WAG and DMAs based on an individual project and project scope. Macroinvertebrate and fish population data will be collected as needed to help determine the overall biological status of the watershed. Below are few of the possible field measures that can applied to gauge project success.

### **Temperature**

Shade can be measured when projects are intended to reduce stream temperatures. Shade will be monitored using a Solar Pathfinder and follow DEQ monitoring protocol.

### **Sediment**

In-stream sampling methods can be utilized when appropriate to help gage sediment reductions from implementation projects. Other sources of sediment quantification such as modeling may also be utilized when appropriate.

### **Bacteria**

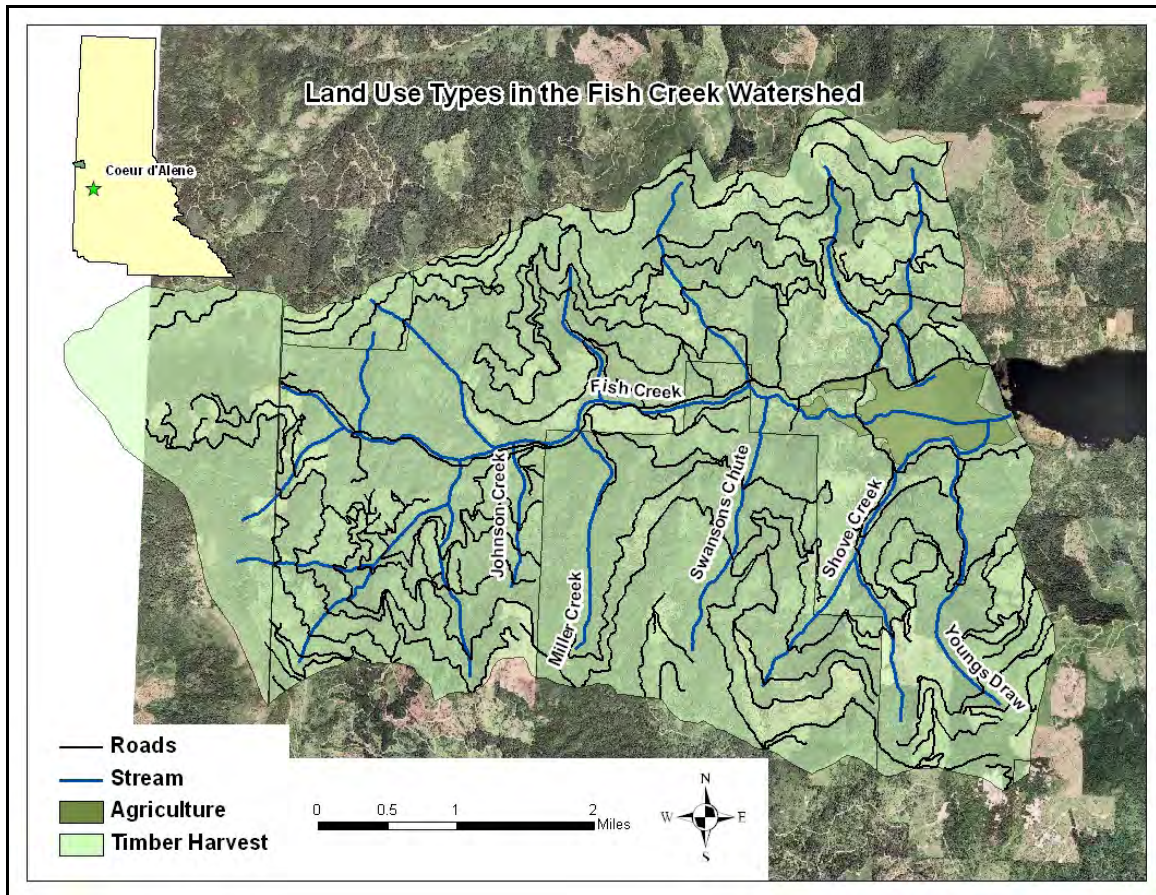
Instream water samples can be collected and analyzed for *E. coli* to determine compliance with Idaho water quality standards.

## **1.8 Processes to Establish Priorities**

Water quality improvement projects that are associated with a pollutant load reduction identified in the Fish Creek WSA and TMDL are high priority. If funding is limited projects targeting the reduction of multiple pollutants should receive higher priority.

## **2.0 TMDL Implementation Planning by DMA**

Out of the five designated management agencies (DMA) defined in Idaho Code 39-3602 (7) only two have programmatic authority within the Fish Creek watershed. The two DMAs with authority in the Fish Creek watershed are the Soil Conservation Commission (SCC) for grazing and agricultural activities, and the Idaho Department of Lands (IDL) for timber harvest, oil and gas exploration, and mining development. The most prevalent land use types within the Fish Creek watershed are timber harvest and agricultural (Figure 3).



**Figure 3. Land use types in the Fish Creek watershed.**

## 2.1 Agricultural and Grazing

*The Kootenai-Shoshone Soil and Water Conservation District (KSSWCD) have remained active in soil and water conservation and water quality issues since the 1940's. The District and the Natural Resource Conservation Service (NRCS), have proactively developed individual conservation plans and pursued the application of several farm bill funding programs such as the Wetland Reserve Program, Environmental Quality Incentive Program, Soil and Water Conservation Assistance Program, and Emergency Watershed Protection.*

*Taken from the Lakes and Streams Located on or Draining to the Rathdrum Prairie (17010305) Agricultural TMDL Implementation Plan (draft) developed by the Kootenai-Shoshone Soil and Water Conservation District, Idaho Association of Soil Conservation Districts, and the Natural Resources Conservation Service, December 2007 (ISCC 2007).*

## Authorities

The Idaho Soil Conservation Commission (SCC) is the DMA in Idaho tasked with managing agricultural nonpoint source pollution and is therefore the lead in TMDL implementation activities on agricultural land. Although the SCC does not have regulatory or licensing authority over water quality, the mission of the SCC is to provide

support to Idaho's Soil and Water Conservation Districts for wise use and improvement of natural resources (RPU 2003).

SCC offers technical assistance to landowners and operators, and administers the Water Quality Program for Agriculture (WQPA), the Conservation Improvement Grants program, and the Resource Conservation and Rangeland Development Program (RCRDP) in cooperation with Soil and Water Conservation Districts. SCC works with the local Soil Conservation District, the Idaho Association of Soil Conservation Districts (IASCD), and the Natural Resource Conservation Service (NRCS) in a conservation partnership to reach common goals and successfully deliver conservation programs.

Local soil and water conservation districts, the SCC, and NRCS have partnered up, recognizing common conservation goals. Each agency has its own responsibilities and recognizes the need to coordinate efforts to successfully implement conservation programs. This working relationship is referred to as the *conservation partnership*.

The effects of agricultural practices on water quality vary depending on the management practices and location of particular operations in relation to surface and ground water. The conservation partnership assists landowners in implementing Best Management Practices (BMPs) that minimize negative impacts to water quality. The Idaho Agriculture Abatement Plan identifies BMPs for the control of nonpoint sources of pollution (IDAPA 58.01.02.054.07). The partnership is committed to targeting watersheds listed as water quality limited, and program delivery efforts prioritize projects occurring in degraded watersheds.

## **Past Actions**

An agricultural management plan was developed for Fish Creek in 1995. The plan was developed by the NRCS and utilized a phased approach. The phases consisted of incremental BMP instillation. Some riparian fencing was installed but further work was not completed. It is unclear how much of the initial work remains in place and its effectiveness.

## **Current Practices**

Currently the lower portion of the Fish Creek watershed is utilized for livestock grazing and hay production. Livestock grazing occurs throughout the summer through early to mid spring and returned in June or July.

Some exclusionary fencing has been installed along the pasture. However, on different occasions livestock have been seen grazing on the opposite side of the fence adjacent of the lake and stream.

## **Proposed Projects**

All proposed projects are reliant upon landowner participation. Through continued partnership with the WAG and DMAs it is hopeful that the projects identified can be implemented to their fullest extent.

- BMPs recommended in the *Lakes and Streams Located on or Draining to the Rathdrum Prairie (17010305) Agricultural TMDL Implementation Plan* (draft), December 2007. This plan identifies 10 projects for the grazing land adjacent to

lower Fish Creek. The instillation of the BMPs has been identified as a high priority for the partnering agencies (ISCC 2007). Estimated total cost of all the projects identified is \$142, 725 (ISCC 2007).

- Fish Creek WAG membership suggested the possibility of entering the lower portion into a conservation easement. Many different types of conservation easements exist and the possibility will be investigated.

## **Funding or Program Assurances**

See ISCC 2007 for a list of funding sources to implement agricultural BMPs. Fourteen different sources are identified in this report.

## **Revision or Updating Process**

The goal of the document is to identify projects which will reduce pollutant loads outlined in the Fish Creek WSA and TMDL. To meet this goal the feedback-loop will be utilized. The feedback-loop consists of four steps to insure that the project identified is meeting its intended purpose. If the project is determined through this process to not be meeting the goals outlined, the projects will be reviewed and modified accordingly.

Feedback loop is a process used to evaluate and refine installed BMPs. The feedback loop occurs in four steps:

1. Developing water quality criteria to protect beneficial uses.
2. The existing water quality criteria are compared to water quality criteria established in step 1.
3. The BMP is installed .
4. The effectiveness of the installed BMP in achieving the criteria established in step 1 is evaluated by comparison to water quality monitoring data. If the established criteria are achieved the BMP is adequate as designed. If not he BMP is modified and the feedback-loop continues.

## **Tracking of Projects**

Projects will be tracked by the ISCC. The DEQ and ICSS (and partners) will meet on occasion and share information on completed and ongoing projects directed towards agricultural practices.

## **Monitoring of Project Effectiveness**

Monitoring of BMP effectiveness will be consistent with DEQ ambient water quality monitoring protocol.

## **2.3 Forestry**

Approximately 97% (13,788 acres) of the Fish Creek watershed is managed for timber production. Roads and harvest areas were identified in the TMDL as nonpoint sources of pollutants.

## **Authorities**

The authority and mandate of State Board of Land Commissioners was established under Article 9 of the Constitution of the State of Idaho. The Idaho Department of Lands (IDL) is authorized under Title 58, Chapter 1 Idaho Code for purpose of exercising the constitutional functions of the Board. The greatest share of assets managed by the Board and Department are land grant public school endowment trust parcels that were deeded by the federal government at statehood. The Constitution requires the management of endowment lands to focus upon generating maximum revenue for the trust beneficiaries. In addition to managing these assets in the context of Idaho law, the IDL has regulatory powers in certain areas of resource protection and can enter into cooperative agreements.

The DEQ is responsible for development and enforcement of Idaho's water pollution administrative rules. Those administrative rules governing nonpoint source activities (IDAPA 58.01.02.350) recognize BMPs as the most appropriate method to handle these types of sources, and section .03.a. recognizes the Idaho Forest Practices Act (FPA) as administered by the IDL as an approved BMP for silviculture and forestry.

The Idaho Forest Practices Act (FPA) is state policy and is legislatively mandated under Title 38, Chapter 13 Idaho Code. The Board of Land Commissioners is charged with establishing minimum standards for conducting practices on forest lands and the IDL is charged with both development and enforcement of appropriate administrative rules. A FPA Committee has been established pursuant to the law with the specific responsibility to review and improve forestry BMPs such that practices will be conducted using the latest economically and scientifically sound information. This committee conducts research into forest practices questions and gathers information from various sources, effectively providing a feedback loop for continuous improvement.

## **Past and Current Actions**

Inland Empire Paper Company (IEPC), the majority landowner within the Fish Creek watershed, manages the land for timber production. FPA governs timber harvest practices in Idaho (IDAPA 20.02.01). All commercial timber harvest activities in the state must comply with FPA rules and regulations. Rules and regulations of the FPA outline BMPs that will be taken by the timber harvester to mitigate impacts to surface water and the surrounding ecosystem. Idaho's FPA identifies standards for logging, road building, reforestation, streamside protection, and other forestry practices such as slash management and prescribed fires. IDL is the Idaho state agency tasked with overseeing the FPA. IDL conducts routine site inspections of harvested areas to check for compliance with FPA rules and regulations. Those operators not in compliance are subject to penalty (work stoppage or fines).

### **Inland Empire Paper Company**

Access to IEPC land in the Fish Creek watershed is restricted to day use only during the months of May through October. A gate is maintained at the entrance to IEPC land and vehicles traveling in and out are required to pass a check-station. The check-station is looked after by a gate host and a work permit or a recreational pass is required by persons entering the watershed. The gate is closed for the season in November and the area is



patrolled for violators during December through May. Overnight camping, campfires, and off-road travel are prohibited throughout the year.

Road rocking, along with road smoothing, outsloping, and waterbar repair, is conducted on an annual basis on all main haul roads. Rolling dips have also been constructed on main haul roads to drain water from the road surface to the forest floor. Rock surfacing of main haul roads and near all culverts and stream crossings have been implemented to reduce sediment transport to streams. Forest haul road obliteration has been completed on roads no longer needed for access or transport. In addition to road obliteration approximately 5 to 10 miles of road have been abandoned in the Fish Creek watershed since 1988. Many of the roads obliterated or abandoned were located near streams or perched on steep hill slopes. During road obliteration and abandonment, culverts are removed to restore fish passage and natural stream flow.

In conjunction with road maintenance efforts, use of forest roads has been restricted by gates and tank-traps (a tank-traps is a large ditch cut across (perpendicular to) a road that generally succeeds in making the road impassable for motorized vehicles). All-terrain vehicles are only allowed on designated roads and off-road travel of any vehicle type is prohibited. On IEPC land, vehicles are not allowed on any roads during the spring thaw, which usually runs from sometime in March through sometime in May.

Timber harvesting practices have also been altered by IEPC to help reduce pollutant export to surface water. Timber harvesting has been concentrated so that fewer roads need to be constructed and are used for shorter periods of time. After timber harvest activities, prompt reforestation is implemented. Approximately 300 seedlings per acre are planted on all harvested areas within two to three years after harvesting. Currently, the IEPC is promoting healthy timber stands by trying to regenerate stands with a greater portion of white pine, western larch, and ponderosa pine, similar to the historical mix of species.

### **Idaho Department of Lands**

Idaho Department of Lands (IDL) administers approximately 3,317 acres of endowment land within the Fish Creek watershed for the purpose of generating revenue for the trust beneficiaries (public schools and charitable institutions). Administration of this land meets and exceeds the FPA rules. Stream crossing structures are engineered to meet 50-year peak flows. Roads are inventoried and inspected on a periodic basis. Sediment management problems are identified and repaired as soon as weather conditions and funding permits.

IDL has under taken a number of capital improvements projects expressly to reduce potential sediment generation from existing forest roads. These include applying crushed rock surfacing and/or drainage upgrades to Miller Creek Roads (4.00 miles).

In addition the IDL has abandoned approximately (0.5) mile of substandard spur road. IDL also routinely regulates public access and limits timber purchasers use of roads using a variety of closure measures at times when potential is greatest for damage from running surface water, in order to control erosion and sediment production. Purchases of timber sales are required to maintain active roads over the duration of individual timber sale contracts. Inactive roads are identified and erosion control measures installed seasonally

and/or prior to a timber sale completion. At other times, the IDL uses deferred road maintenance monies to fund road maintenance projects in order to keep drainage structures operational and correct problems as they are detected.

### **Proposed Actions**

Nonpoint source pollution reduction activities will be developed by the IDL and the Inland Empire Paper Company. Watershed tours may be conducted to help identify additional projects on forest land.

### **Funding or Program Assurances**

The IDL uses dedicated monies collected from timber sale purchasers to fund contract and/or State-crew deferred road maintenance projects in order to keep drainage structures operational on endowment-owned properties during periods when no sale operations are being conducted in the vicinity. Capitol improvement projects and road maintenance are also funded through development credits given to timber sale purchasers in exchange for work completed under the terms of sale contracts, and are often cost-shared with large industrial landowners under cooperative road agreements. These activities may occur on lands not owned by the State in situations where easements or right-of-way exist which provide management access to endowment properties. In all cases, continued funding for water quality measures is closely tied to the ability of the Department to generate income from the management of assets of the trust.

Under the FPA, the party responsible for conducting the forest practice must meet FPA rules and BMPs. The IDL has responsibility to administer and enforce the FPA. The cost of complying with FPA during the operation is borne by the operator, landowner, or third parties, depending upon whatever contractual agreements are made. At present, private landowners are assessed \$0.10 per acre for all forest lands and \$0.12 per thousand board feet harvested to provide funds to the IDL for administration of the Act. Idaho endowments fund FPA administration out of dedicated funds appropriated for timber sale contract administration. In addition, the general fund of the State of Idaho provides funds for FPA enforcement and educational programs on private land (subject to legislative approval), and federal grants are also used as available.

### **Revision or Updating process**

See Revising or Updating Process in section 2.1.

### **Tracking of Projects**

In 2004 the IDL created a GIS-based tracking system with associated database to track management problems identified in Cumulative Watershed Effects (CWE) reports on a statewide basis. This computer system resides on a server at the IDL private forestry bureau in Coeur d' Alene and is available for generating reports at any supervisory area office. Data collected includes the location and type of problem, digital image, date observed and repairs initiated. Local supervisory area personnel complete updates to this system. Information on this data base is not restricted to just endowment properties, although updates to non-state problems requires voluntary reporting and coordination through the local IDL forest practices act advisor.

Each IDL supervisory area also maintains a GIS-based road inventory layer with specific information on engineering standards, drainage structures and closures on those roads maintained by the IDL and/or cooperators. Voluntary FPA terms adopted by the local IDL unit include completing a detailed inventory of drainage structures, stream crossing conditions and management problems prior to fall of 2009. Large industrial private road cooperators plan to combine inventory information with IDL and produce one data set.

The vast majority of projects undertaken by large industrial landowners and the IDL are completed by independent contractors and sale purchasers. All parties routinely inspect operations for compliance with contract terms before accepting results for payment or releasing performance bonds. Internal audits verify compliance.

### **Monitoring of Project Effectiveness**

In addition to the regular FPA inspection program conducted by the IDL, the Forest Practices Water Quality Management Plan calls for statewide audits of the application effectiveness of forest practices rules. IDL conducts internal audits on an annual basis and interagency audits in conjunction with DEQ, USFS and other agencies on a periodic (every 4th year) basis. The audit process is a key component of the feedback loop mechanism used by the FPA Advisory Committee, IDL, and State Board of Land Commissioners to evaluate the effectiveness of forestry BMPs.

The CWE process was added to the IDL tool chest in 1991. This process includes assessments of erosion hazards, canopy closure, stream temperature, hydrology, sediment delivery, channel stability, beneficial uses and nutrients. The CWE process provides a broad scale watershed assessment that determines if water quality problems exist and what should be done to mitigate those problems. This process can be initiated by the IDL, or by the WAG, or by DEQ at any time that it appears beneficial and monies are available.

### **2.4 Other Activities**

The DEQ is the lead agency on activities which do not include timber harvest, petroleum and mineral exploration, agricultural practices, or transportation networks. Activities which the DEQ may oversee include but may not be limited to storm water runoff or other unidentified nonpoint sources.

## References

DEQ. 2000. Subbasin Assessment and Total Maximum Daily Loads of Lakes and Streams Located on or Draining to the Rathdrum Prairie (17010305). Idaho Department of Environmental Quality, Boise, ID 83720.

DEQ. 2008. Fish Creek Watershed Assessment and Total Maximum Daily Loads. Idaho Department of Environmental Quality, Coeur d'Alene, ID 83814.

Resource Planning Unlimited (RPU) . 2003. Idaho Agricultural Pollution Abatement Plan. Sponsored by Idaho Soil Conservation Commission and Idaho Department of Environmental Quality. Boise, Idaho.

## **Appendix A. Implementation Project Form**

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The table below is intended as a template to help facilitate project development.

<b>Fish Creek TMDL Implementation Project Information Form</b>	
<b>Project Name</b>	
<b>Project Location</b>	
<b>Water body Name (Assessment Unit)</b>	
<b>Pollutants Addressed</b>	
<b>Description of project and anticipated water quality improvement</b>	
<b>Landowner/Manager</b>	
<b>Amount of land addressed</b>	
<b>Estimated pollutant load reduction</b>	
<b>Cost</b>	
<b>Funding sources</b>	
<b>Comments</b>	

## Appendix B. Project Ideas

The tables below are intended to help better identify implementation project specifics.

<b>Project Name</b>	Lower Fish Creek Agricultural BMPs – From ISCC 2007
<b>Project Location</b>	Lower Fish Creek PLS Township 52N, Range 05W, Section 2 & 3
<b>Pollutants Addressed</b>	Sediment, temperature, nutrients, and bacteria
<b>Anticipated water quality impact</b>	Sediment, temperature, and bacteria were all identified in the Fish Creek WSA and TMDL as impairing beneficial uses. Pollutant load allocations and load reductions were set for all sediment, temperature, and bacteria. Although a TMDL was not developed for nutrients during the Fish Creek assessment, a nutrient TMDL was developed for Upper Twin Lake. The Upper Twin Lakes TMDL identified tributaries to the lake as a major contributor of nutrients and a load reduction was developed (DEQ 2000). Implementation of this project is anticipated to reduce all four pollutants.
<b>Water body Name (Assessment Unit)</b>	Fish Creek (ID17010305PN014_03), tributaries to Fish Creek (ID17010305PN014_02), and Upper Twin Lake (ID17010305PN013L_0L)
<b>Landowner/Manager</b>	Private
<b>Amount of land addressed</b>	Refer to ISCC 2007 page 23
<b>Estimated pollutant load reduction</b>	
<b>Cost</b>	Refer to ISCC 2007 page 23
<b>Funding sources</b>	Refer to ISCC 2007 pages 25-27

<b>Project Name</b>	Lower Fish Creek Conservation Easement
<b>Project Location</b>	Upper most end of Upper Twin Lake near the confluence of Fish Creek and Upper Twin Lake. Area of interest is inundated by lake water during spring and early summer. Area is ideal waterfowl habitat and provides for a buffer between grazing practices and the lake.
<b>Pollutants Addressed</b>	Sediment, temperature, nutrients, and bacteria
<b>Anticipated water quality impact</b>	Sediment and bacteria were identified in the Fish Creek WSA and TMDL as impairing beneficial uses. To a lesser extent water temperature will also be influenced by this action. Shade was identified as reducing water temperatures and an intact riparian community adjacent to the lake will reduce water temperatures in the vicinity. Although a TMDL was not developed for nutrients during the Fish Creek assessment, a nutrient TMDL was developed for Upper Twin Lake. The Upper Twin Lakes TMDL identified tributaries to the lake as a major contributor of nutrients and a load reduction was developed (DEQ 2000). Implementation of this project is anticipated to reduce all four pollutants.
<b>Water body Name (Assessment Unit)</b>	Fish Creek (ID17010305PN014_03) and Upper Twin Lake (ID17010305PN013L_0L)
<b>Landowner/Manager</b>	Private
<b>Amount of land addressed</b>	Size of project will be dependent on land owner participation. The area addressed by this project could range from 40 – 300 acres.
<b>Estimated pollutant</b>	

<b>load reduction</b>	
<b>Cost</b>	
<b>Funding sources</b>	