

Jim Ford Creek

TMDL Ag

Implementation Plan

2000

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1.0 INTRODUCTION

WATER QUALITY CONCERNS AT A GLANCE

<i>§303(d) Listed Segments:</i>	<i>Jim Ford Creek (#3171) ; Grasshopper Creek (#3172)</i>
<i>Pollutants of Concern:</i>	<i>Sediment, Temperature, Nutrients, Dissolved Oxygen, Pathogens, Ammonia, Oil and Grease, Habitat Modification and Flow</i>
<i>Designated and Existing Beneficial Uses:</i>	<i>Primary Contact Recreation, Secondary Contact Recreation, Agricultural Water Supply, Cold Water Biota, Domestic Water Supply, Salmonid Spawning (below waterfall)</i>
<i>Point Sources:</i>	<i>City of Weippe Wastewater Treatment Plant, Timberline High School Wastewater Treatment Plant, Hutchins Lumber Inc.</i>
<i>NonPoint Sources:</i>	<i>Non-irrigated croplands, timber harvest activities, urban runoff, grazing, hydropower, land development activities</i>

Section 303(d) of the Clean Water Act requires states to develop a Total Maximum Daily Load (TMDL) management plan for water bodies determined to be water quality limited. A TMDL documents the amount of pollutant a water body can assimilate without violating a state's water quality standards and allocates that load capacity to known point sources and nonpoint sources. TMDLs are the sum of the individual waste load allocations for point sources and load allocations for nonpoint sources, including a margin of safety and natural background conditions.

The Clean Water Act requires each state to adopt water quality standards necessary to protect fish and wildlife while providing for recreation in and on the water, whenever attainable. The ultimate goal of the TMDL is to achieve water quality standards and to restore full support of beneficial uses to a water body. Load allocations and pollutant reductions are intended to provide an environment conducive to support beneficial uses. As part of this implementation plan, a Watershed Restoration Strategy (WRS) was developed to ensure reasonable progress toward attainment of water quality standards (see Appendix A). Watershed improvements will be accomplished through riparian restoration activities coupled with sound management practices.

Jim Ford Creek is a third order tributary of the Clearwater River in the southern part of Clearwater County, Idaho (Figure 1). The creek flows twenty miles northwest, from an elevation of 4,068 feet to 1,050 feet, at its confluence with the Clearwater River near Orofino, Idaho (Figure 2). It drains a 65,838 acre watershed that has two distinct portions. In the upper portion, Jim Ford Creek flows through rolling forested uplands and the Weippe prairie until it reaches the City of Weippe. Below Weippe, the creek enters into a narrow steep basalt canyon nearly fourteen miles in length.

A 65 foot waterfall at the top of the canyon restricts fish passage upstream. Primary land uses in the watershed consist of timber production, grazing, and recreation in the entire watershed; dryland agriculture on the rolling Weippe prairie; and a small urban area at the City of Weippe. A small hydropower facility is located along the creek just downstream of the City of Weippe.

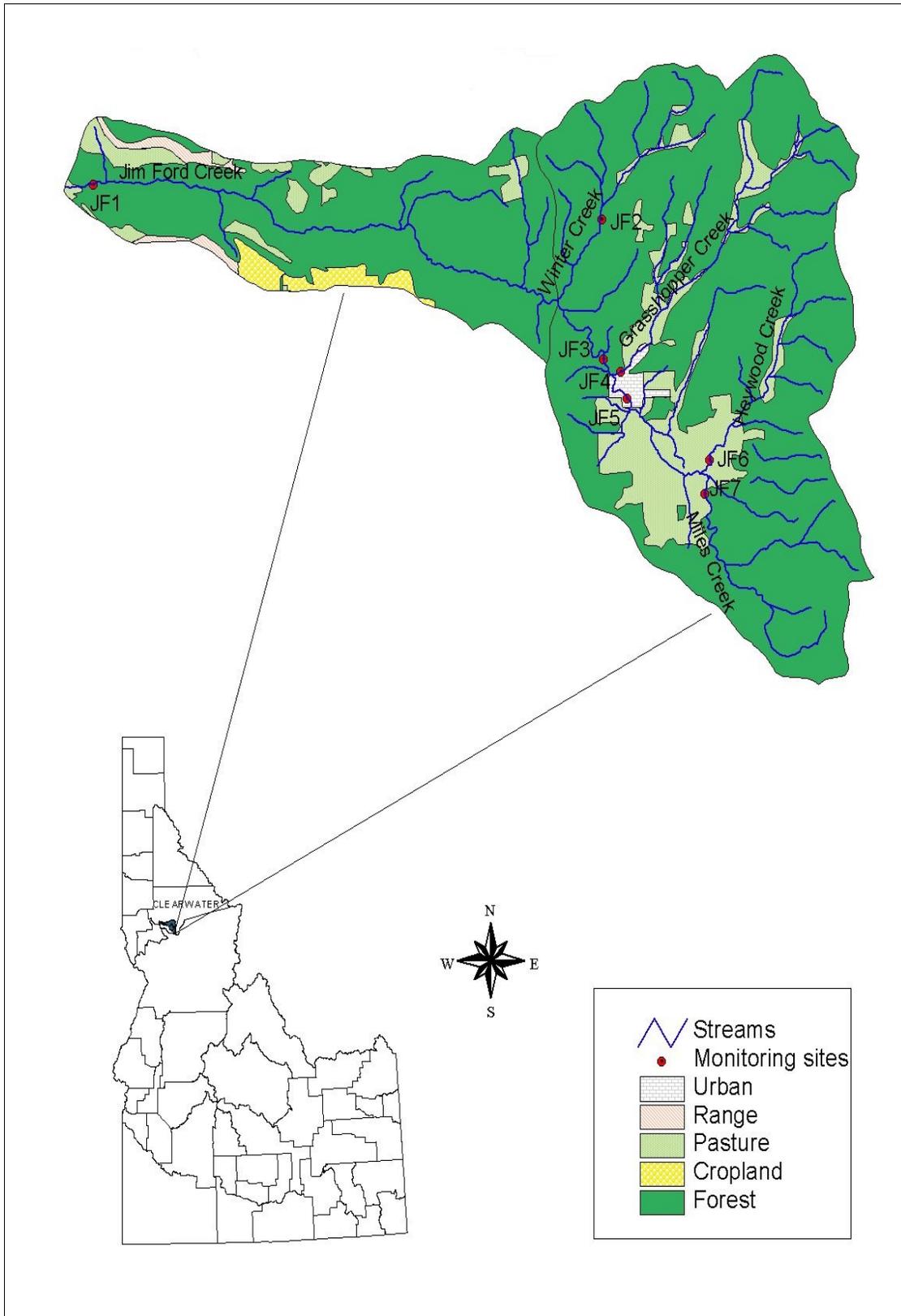


Figure 1. Location of the Jim Ford Creek Watershed, Idaho

Idaho Water Quality Standards designate cold water biota, secondary recreation, primary contact recreation, and agricultural supply as beneficial uses for Jim Ford Creek. Salmonid spawning is an existing use for the lower portion of the watershed below a 65 foot waterfall located 14 miles upstream of the mouth. 1995 beneficial use studies indicated that Jim Ford Creek does not provide full support of beneficial uses because of macroinvertebrate population impairment and exceedances of temperature criteria. The status of beneficial uses based on 1997 and 1998 beneficial use studies has not been assessed pending revisions of the State's *Water Body Assessment Guidance* document.

Three point sources are permitted to discharge in the Jim Ford Creek watershed: the Weippe wastewater treatment plant; the Timberline High School wastewater treatment plant; and Hutchins Lumber Inc. which operates a sawmill and log yard. The Weippe wastewater treatment plant usually discharges into Jim Ford Creek from January to mid-June each year, and only when the instream flow of Jim Ford Creek provides dilution. The Timberline High School wastewater treatment plant typically discharges into Grasshopper Creek, a tributary of Jim Ford Creek. Hutchins Lumber Inc. is currently implementing stormwater runoff controls pursuant to an approved stormwater management plan.

The primary nonpoint sources of pollutants in the Jim Ford Creek watershed are grazing, timber harvest activities, non-irrigated croplands, urban runoff, land development and hydropower. The hydroplant penstock ruptured in April 1988, causing a landslide and scour erosion within the canyon portion of the stream corridor.

The upland and prairie portions of Jim Ford Creek and tributaries typically receive suspended sediment from eroding agricultural fields, unstable stream banks, and forest roads during rainfall and snow melt. Phosphorous and bacteria associated with the suspended sediment also enter the creek at these times. During the summer low flow periods, these portions of Jim Ford Creek experience temperature increases, algae growth, and low dissolved oxygen concentrations. Temperature and bacteria levels often exceed water quality criteria. Phosphorus and nitrogen are present in high enough concentrations to stimulate excessive aquatic plant growth that causes diurnal and seasonal fluctuations in dissolved oxygen concentrations that can impair aquatic life.

Primarily forest harvest activities and the quality of the water entering from the prairie portion upstream impact the canyon portion of Jim Ford Creek. Within the canyon stream temperatures often exceed those recommended for cold water biota and salmonids. Results of a 1999 channel stability and habitat survey indicate excess cobble size bed material is likely impairing cold water biota and salmonid spawning beneficial uses in the stream reaches below the waterfall.

Since portions of Jim Ford Creek lie within the Nez Perce Indian Reservation, a Memorandum of Agreement was developed between the Nez Perce Indian Nation, the Environmental Protection Agency, and the State of Idaho Division of Environmental Quality to develop the TMDL, with the advice of the Jim Ford Creek Watershed Advisory Group.

2.0 Jim Ford Creek TMDL

The Jim Ford Creek TMDL was approved by the US Environmental Protection Agency (EPA) in May, 2000. The resulting TMDL Implementation Plan will address the estimated load capacities for pollutants in Jim Ford Creek. Targets, loading analyses, and load allocations are presented for

sediment, nutrients, dissolved oxygen, temperature, and pathogens. Evaluation of available data indicated a TMDL is not necessary for oil and grease or for ammonia.

The following discussion explains how all the listed parameters were addressed in the TMDL, and summarizes the pollutant and loading allocations.

2.1 Sediment

Existing data indicates fine sediment is not degrading the water quality of Jim Ford Creek; therefore, no TMDL was necessary for fine sediments. However, a channel stability analysis and habitat survey indicates that coarse sediment is impairing salmonid spawning and rearing of lower Jim Ford Creek. The instream loading analysis suggests that to improve the condition of response reaches the bedload transport rate in transport reaches needs to be reduced approximately 70 to 95%. Bankfull width/depth ratio needs to be below 40 which is a 56% decrease. Also residual pool volume needs to be increased by 49

Sediment impairment likely results from a combination of increased sediment load and flood magnitude. However, until a more in-depth analysis of sediment and flow impacts is complete, a more definitive answer is not possible. The Jim Ford Creek Watershed and Technical Advisory Groups have committed to complete this analysis in the year 2000. Results of this analysis will be used to revise the sediment load reduction and allocation scheme presented herein.

2.2 Temperature

The Jim Ford Creek TMDL was established to address thermal loading (heat) for the protection of Chinook salmon and steelhead spawning, and other cold water biota. The watershed was evaluated for cold water biota temperature in the upper watershed, and for salmonid spawning in the lower watershed below the falls.

This TMDL establishes percent reduction targets (instream temperature) for nonpoint sources in each subwatershed. These percent reduction targets are linked to "Percent Increase in Shade" targets for each subwatershed, thereby reducing the overall rate of increase in instream temperature throughout the watershed. Management activities within a watershed, such as removing riparian shade trees, harvesting of the conifer overstory, grazing in riparian areas, and introducing bedload sediment which results in increased surface area, can increase the amount of solar radiation reaching the stream. The amount of heat energy (i.e. loading capacity) which would meet state water quality temperature criteria in the creek was determined by applying a modeling technique. Model results indicate that a 0% to 52% increase in shade is necessary in order to attain and maintain state water quality criteria

depending on stream reach. It is recognized that meeting the criteria will best be accomplished by additionally promoting channel restoration that leads to a narrower, deeper channel, by colder water contributions from improved segments upstream, and by increases in flow. A more in-depth temperature breakdown by individual subwatersheds will be discussed later in this plan.

2.3 Nutrients/Dissolved Oxygen

The presence of visible nuisance algae growth and low dissolved oxygen conditions indicates that Jim Ford Creek is impaired for excess nutrients. Nuisance algae growths are present in the upper reaches of Jim Ford Creek, and low dissolved oxygen levels are present throughout the watershed.

The nutrient and dissolved oxygen TMDLs are combined. As part of these TMDLs, a key assumption is made that by meeting the instream nutrient target the dissolved oxygen water quality standard will be achieved as well. TMDL targets are established for both of these water quality parameters.

April 1 through July 31 was selected as the averaging period for estimating nutrient load capacity, existing load, and load reductions. While the total inorganic nitrogen and total phosphorus targets were evaluated only during this period, these targets apply year round. The dissolved oxygen target applies year round as well.

The nutrient load capacities and existing loads were estimated by subwatershed in pounds per month for April through July. The estimated existing total phosphorus load exceeds the load capacity in all the subwatersheds except for Winter Creek. Total phosphorus needs to be reduced by about 25% across the watershed. The total phosphorus load of lower Jim Ford Creek needs to be reduced by 23%. Heywood and Miles/Wilson Creeks contribute the greatest amount of phosphorus to the mainstem and receive a phosphorus reduction of 32 and 26%, respectively. The phosphorus reductions are allocated to nonpoint sources. The only exception is the Weippe WWTP, which receives a phosphorus reduction of 50%. Analysis of the total inorganic nitrogen data indicates that no reductions of instream total inorganic nitrogen are needed at present.

2.4 Pathogens

A loading analysis was performed using instream fecal coliform concentrations, measured at seven sites in the Jim Ford Creek watershed and using flow estimates. Flow estimates for four sites were derived from a relationship established between gage levels and flow measurement. Flow estimates for the other three sites were modeled. Load capacity was considered on both Idaho's acute and chronic water quality criteria for fecal coliform during the primary contact recreation season (May through September), which was determined to be the critical time period. An explicit 20% margin of safety was added to these target criteria to address uncertainties. No TMDL for secondary contact recreation was necessary due to low bacteria levels below water quality criteria during the secondary contact recreation period (October through April).

The analysis indicated that load reductions estimated from 33% to 82% are necessary in nonpoint source loads to the upper portions and tributaries of Jim Ford Creek. Load reductions based on chronic criteria were greater than those based on acute criteria; consequently the chronic analysis is the basis for the TMDL. A comparison of load reductions using the same procedures both with *E. coli* data instead of fecal coliform data yielded similar results in terms of estimated load reductions; however, the reductions based on the acute criteria were greater than those based on the chronic criteria for *E. coli*.

2.5 Ammonia

Ammonia can be both toxic to aquatic animal life and a source of nutrients to plants. Idaho water quality criteria for ammonia is based on ammonia toxicity and vary depending upon pH and temperature conditions. As pH and temperature increase, the toxic form of ammonia increases; thus, the criteria are more stringent under higher temperature and pH conditions.

Total ammonia levels taken at various locations in the Jim Ford Creek watershed were initially compared to a conservative target based on worst-case pH and temperature conditions. Only a small portion of these samples, 10 of 225, exceeded this conservative target. These 10 samples were then compared to the applicable criteria based on actual or estimated pH and temperatures. None of the ammonia levels in these 10 samples exceeded applicable criteria. Based on this evaluation, a TMDL for ammonia based on its toxicity effects was not needed. The nutrient effects of ammonia were considered in the nutrient TMDL.

2.6 Oil and Grease

Oil and grease is a general measure of pollution from petroleum compounds. Idaho water quality criteria indicate that oil and grease concentrations must be less than those found to impair beneficial uses. It is unclear why oil and grease were identified on the §303(d) lists as pollutants of concern for Jim Ford Creek. Limited sampling for oil and grease was conducted in 1998 at locations considered most likely to have oil and grease from stormwater runoff and also at locations considered representative of general creek conditions. All samples had no measurable level of oil and grease. Given these results and because a regulatory framework exists to address oil and grease problems which are readily identified and treated, no TMDL for oil and grease was developed.

2.7 Flow and Habitat

Flow and habitat are identified on the §303(d) list as impairing uses in Jim Ford and Grasshopper Creeks. This TMDL does not address flow and habitat issues because these parameters are not required to be addressed under §303(d) of the Clean Water Act.

3.0 Jim Ford Creek TMDL Implementation Plan

This plan will specify projects and controls designed to improve Jim Ford Creek water quality by

meeting the load allocations outlined in the TMDL document. The Jim Ford Creek Watershed Advisory Group and supporting agencies will work as a team to ensure the development of this plan. Implementation of best management practices within the watershed to reduce pollutant loading from nonpoint sources will be on a voluntary basis. Reductions from point sources will be addressed in revisions to discharge permits. This plan also includes a Watershed Restoration Strategy (WRS) that provides the framework for the implementation plan and will focus on riparian restoration (Appendix A). The WRS will serve as a working document and planning tool, subject to change, revisions, and additions. Presently it lists most of the best management practices the Jim Ford Creek Watershed Advisory Group believes will best improve water quality and the locations where these practices can reasonably be expected to be applied. The restoration strategy focuses on reduction of sediment, temperature, nutrients, and bacteria. Practices included in the WRS are, but not limited to: prescribed grazing, nutrient management, alternate livestock water supplies, ponds, livestock exclusions, riparian buffers, tree and shrub planting, riparian fencing, grassed waterways, streambank stabilization, conservation cropping and tillage practices and wetland enhancements.

As additional information becomes available during the implementation of the TMDL, the targets, load capacity, and allocations may need to be changed. In the event that new data or information shows that changes are warranted, TMDL revisions will be made with assistance of the Jim Ford Creek Watershed Advisory Group. It should be noted that nonpoint source loads are largely driven by climatic conditions and the effects of some best management practices such as riparian plantings, bank stabilization, and thermal load reduction may take years to be fully realized. Although specific targets and allocations are identified in the TMDL, the ultimate success of the TMDL is not whether these targets and allocations are met, but whether beneficial uses and water quality standards are achieved. This implementation plan should be viewed as a dynamic document, subject to change as current conditions dictate.

3.1 Past and Present Pollution Control Efforts

Pollution control efforts over the past few years within the Jim Ford Creek watershed have been examined according to land use and activities. They are divided between point and nonpoint sources.

3.1.1 Nonpoint Pollution Control Efforts

Agriculture.

A wide variety of BMPs have been implemented in Clearwater County over the past few years with great success. No-till conservation systems, water and sediment control structures, and grassed waterways have continued to reduce overland flow and subsequent gully erosion on cropland. Fencing livestock access ramps, pasture and hayland management, and proper grazing use are other BMPs used to improve livestock grazing and management.

Prior to 1990, programs available to landowners within the Jim Ford Creek watershed were cost share incentives through the Farm Service Agency's Alternative Conservation Program (ACP). These were site specific BMPs aimed at reducing livestock impacts to streams and other water bodies. These BMPs consisted of fencing, ponds, off-site watering systems, and spring

developments. Minimal participation occurred within the Jim Ford Creek watershed in conjunction with this program.

During the early 1990's the Clearwater Soil and Water Conservation District (CSWCD) produced a comprehensive watershed management plan for the Lolo and Jim Ford Creek watersheds (CSWCD 1993). In the process of preparing the plan, the CSWCD identified and evaluated various nonpoint source pollution control strategies to determine the most feasible alternative. The planning strategies from this document along with the recommendations from the Watershed Advisory Group will be incorporated into this implementation plan to achieve the needed water quality improvements to meet the TMDLs pollutant load reductions. Within the Jim Ford Creek watershed, funds were available for the development of the management plan but funding as not yet been approved for implementation.

Livestock

Currently, no concentrated animal feeding operations (CAFOs) such as feedlots, hog producers, or dairies are within the Jim Ford Creek watershed. However, approximately 80 livestock winter feeding operations exist. The CSWCD conducted an inventory of livestock overwintering and holding facilities throughout Clearwater County in the spring of 1998.

The inventory was part of an ongoing effort to remain proactive in the conservation of the areas land and water resources.

An inventory and analysis of all overwintering operations and their roles as potential pollutant contributors to area streams and rivers was a first step toward establishing economically feasible alternatives that allow livestock operators (both professional and hobby interests) to respond voluntarily to local water quality concerns. Operations in five watersheds (Jim Ford Creek included) were inventoried. The resulting study identified which watersheds are at the greatest risk of negatively impacting water quality. In addition, a number of general water quality improvement strategies are presented.

The inventory of the livestock overwintering facilities in the Jim Ford Creek watershed and adjoining tributaries revealed several management considerations that could help reduce potential water quality impacts. Many of these recommended management considerations meet previously established NRCS conservation practices. Many of these conservation practices were not developed with livestock overwintering facilities in mind but adapt very well to that need. Various adaptations and combinations of these practices will provide site-specific packages of management recommendations to minimize water quality impacts.

Idaho Department of Lands (IDL) manages livestock grazing on endowment land, and is involved in three separate cooperative grazing allotments in the Jim Ford Creek watershed. Although the Idaho Forest Practices Act (FPA) and rules adopted pursuant to it do not regulate grazing practices, IDL encourages grazing lessees to apply BMPs on state land and other land, such as Potlatch, within the cooperative allotments. Common practices include fencing critical areas, rotational pastures, development of water sources and salting areas away from streams, and minimizing forage utilization in riparian areas. Grazing management plans are in effect for each allotment and are reviewed and revised each year as needed to continue an adaptive management strategy to minimize impacts of grazing.

Septic Systems

Homeowners outside the City limits within the watershed rely on individual septic tanks and drain field systems. The North Central District reviewed a number of the waterways in the Weippe area to evaluate the potential for surface water contamination from failure of septic systems (King 1998). The soils around Weippe are not considered optimum for individual subsurface sewage systems as they have high clay content as a general rule. However, the density of housing in the rural areas around Weippe is quite low. The dwellings in that area are set back from the waterways; an adequate distances such that subsurface sewage systems meet the required setbacks from surface water. One failing system in the past was close enough to a stream to be a problem. That system is believed to have been repaired (King, 1998). The District has no documentation of failing individual subsurface sewage systems that are causing a surface water contamination problem at this time. However, this evaluation was based on limited information and further investigation is needed to ascertain whether septic systems contribute significantly to pollutant loading in the watershed.

Hydropower

Efforts to repair failures and landslides as a result of penstock failures and road failures that occurred in the late 80's along Jim Ford Creek and to avoid future failures were completed by the Ford Hydro Limited Partnership in 1998. Also, the diversion structure is cleaned out on a regular basis, thus retaining its ability to remove some of the instream sediment from the upper basin.

Forestry

Forestland ownership is divided between Potlatch Corporation, the State of Idaho, and non- industrial private land and makes up 83% of the total land base (55,039 acres) in the watershed. The State of Idaho and private industrial land is actively managed for timber production with some grazing which is managed through allotments. Non-industrial private forestland is mostly grazed by livestock, and intermittently managed for timber production.

Application of conservation applications on private forested lands has been accomplished with Best Management Practices (BMP's) applied under the authority of the Idaho Forest Practice Act (FPA), which is administered by Idaho Dept. of Lands (IDL). Throughout Clearwater County, increased awareness and action through the Forest Practices Act, both the State and private landowners have caused great strides in improving land resources on timberland. Present timber harvests, road building and maintenance, and livestock grazing management have all shown improvements in overall water quality within the watershed. The Cumulative Watershed Effects Assessment conducted in 1997 and 1998 indicated the only adverse condition for forestry in the

Jim Ford Creek Watershed to be the lack of shading for reaches of the creek below the falls. This triggers further analysis and/or the development of site specific best management practices.

IDL manages 23,000 acres of state endowment land in the watershed, most of which is forested. The department has the charge of managing these lands for revenue to the state endowments using sound long-term management practices. IDL endeavors to meet or exceed the rules of Idaho's Forest Practices Act and BMPs throughout State ownership. Jim Ford Creek was listed as a stream segment of concern (SSOC) under the previous anti-degradation rules, and site- specific BMPs determined by

the SSOC process have been implemented since that time.

Endowment land is managed by professional foresters using sound land management practices, silvicultural methods, and road engineering techniques. Examples of BMPs applied on state land in the watershed are managing stream protection zones, properly locating and constructing needed roads to minimize erosion, including proper drainage, spot rocking, or graveling road surfaces, cross-ditching or rolling dip construction, grass seeding and mulching. Old roads that are improperly located too close to riparian areas are relocated, abandoned, or obliterated. IDL initiates road closures that barricade unsurfaced logging roads after use to prevent road damage and erosion, and gate many main roads seasonally to restrict general traffic during wet or adverse conditions. IDL also has a deferred maintenance program to repair damaged roads or drainage structures annually as they become evident. IDL is currently implementing a statewide road inventory system that will be the basis for identifying and prioritizing all future road maintenance needs to ensure water quality objectives are met. Since the late 1970's, Potlatch Corporation has been following a strict set of harvesting guidelines specifically written to minimize or prevent erosion and sedimentation of streams. The requirements of these guidelines are to meet or exceed the FPA. These guidelines have been updated several times as new technologies have been developed.

Specific activities by Potlatch within the Jim Ford Creek watershed include: reconstruction of many older roads to meet current criteria; improved drainage structure, water bars, grass seeding, and relocating out of riparian areas; natural dirt roads have been surfaced with gravel and pavement to eliminate road surface erosion; temporary road closure activities with gates and/or berms; and permanent road closure activities. Ongoing planning efforts include ongoing inspection and routine maintenance for areas owned by Potlatch within the Jim Ford Creek watershed.

3.1.2 Point Source Control Efforts

Weippe WWTP

The original treatment facilities for the City of Weippe were constructed in the late 1960's. Prior to that time, homeowners were served by individual septic tanks and drain field systems. Currently, every household within the Weippe City limits are connected the WWTP sewer system.

In January of 1981 a Facility Plan for the Weippe's WWTP was completed in order to meet State of Idaho wastewater treatments and effluent discharge limitations requirements. Changes to the system as a result of this plan included: construction of wastewater collection system in the Pleasant Acres community, installation of an improved aerator, and installation of new pumps to handle increased flow.

In 1987 the State of Idaho recognized the potential contamination to Jim Ford Creek from the wastewater treatment plant during the low flow season and recommended NPDES Permit requirements allowing a minimum dilution ratio of 50:1 for the effluent discharge (IDEQ 1987). These requirements were specified in a NPDES permit issued in June 1988. Subsequently, the City initiated upgrades to its facility in two phases under terms of a compliance order with U.S. EPA. The first phase of the waste water system upgrade in 1988 was a limited Sewer Evaluation Survey on the sewer main and manholes of the system. Numerous points of infiltration and

inflow were identified during the survey. As a result, approximately 115 manholes were replaced and numerous main line holes and shears were repaired.

During the summer of 1991 the second phase to enlarge the holding capacity of the lagoons took place. This phase included enlarging Lagoon No. 1 for a total capacity of 14 million gallons, the installation of floating aerators in Lagoons No. 1 and 2, the construction of a lagoon control building, and the addition of a chlorination system. The enlargement of Lagoon No. 1 resulted in a thinning of the clay seal along the bottom of the lagoon. A leak developed from a fresh water spring at the lagoon bottom. A drainpipe was installed under the lagoon to provide drainage for the spring water. Outflow from the spring, and possibly the wastewater, occurs at a low rate (e.g. <0.01 cfs) year round into Grasshopper Creek.

Timberline High School WWTP

The Timberline High School WWTP provides sewage service for approximately 200 students, faculty, and administrators over each school year. The facility received its permit to discharge into Grasshopper Creek, a tributary to Jim Ford Creek, in 1974. In 1991, the facility underwent a series of maintenance and upkeep repairs. The pond's aerator and concrete liner were repaired and accumulated sludge and cattails were removed from the facultative pond. The sludge tank between the aerator pond and the facultative pond was cleaned out during the summer of 1997.

Hutchins Lumber, Inc

A Storm Water Pollution Prevention Plan was developed for Hutchins Lumber, Inc. by TerraGraphics in 1997 and revised by Blue Ribbon Environmental, Inc. in 1999. This environmental management plan provided direction for controlling surface water discharge from the mill site through prescribed BMPs. Construction of storm water controls were completed in 1999.

3.2 Current and Future Pollution Control Efforts

The Jim Ford Creek TMDL Implementation Plan is a unique and comprehensive plan comprised of multi-agency and landowner involvement. Numerous funding sources are available to help implement BMPs and reduce the targeted pollutants thus achieving the beneficial uses and water quality standards. This section will provide details on these planning efforts.

3.2.1 Agricultural, Grazing, and Riparian/Wetland (EQIP Program)

The Clearwater SWCD applied for and received funding for implementation projects in the Jim Ford Creek and Big Creek watersheds under the Environmental Quality Incentive Program (EQIP). The funding will focus on implementing agricultural related BMPs. First year efforts (FY2000) will focus on planning and promoting the 6-year project (Appendix B). The area to be treated with potential EQIP contracts is estimated to be 75% of the non-federal and tribal acres, or approximately 11,700 acres in both the Jim Ford Creek and Big Creek watersheds. This does not include the urban or forested areas.

The goals of the EQIP project will follow the guidelines of meeting the targeted pollutant reductions set in the Jim Ford Creek TMDL document. They are:

- Control erosion and trap sediment with crop residue management, permanent vegetative plantings, stream buffers and filter strips.
- Lower or modify water temperatures and stream recharge by improving upland vegetative cover, improving infiltration rates of soil, provide multi-layered shading along stream buffers, water spreading in meadows, and constructing wetlands.
- Apply comprehensive nutrient management plans with landowners, remove nutrients through controlled harvesting or grazing.
- Reduce bacteria in surface water by eliminating direct discharges from pollutant sources by constructing wetlands, improving filter and buffer areas, and better livestock distribution.

Information, Education and Public Outreach Plans

Information Plan – The working group will prepare brochures for meetings and when technical assistance is provided to individuals and groups. The Clearwater SWCD already has a mailing list set up for the project area, so they have agreed to send a regular newsletter to all potential participants. Local radio, newspaper and television are also available to present information, as well as producer groups.

Outreach Plan – The livestock producers have not received as much technical assistance in the recent years compared to other agricultural producers. Therefore, community and neighborhood meetings will be used to reach those individuals, and one-on-one contacts. There are also a few livestock producer groups, clubs, and local agricultural organizations where these landowners can be contacted.

Education Plan – Demonstrations and tours of key conservation practices will be an emphasis to get potential participants interested in the program. There will also be hands-on workshops for participants to cut, propagate, and transplant woody vegetation, to evaluate streambank stability and restore them, to develop nutrient management plans, to improve distribution of livestock, and to refine their grazing management systems.

Summary Budget

EQIP Resources Requested

The first year of the program will be primarily for outreach, education, and assisting landowners with conservation plans.

Estimated percent of the project that will go to livestock concerns is 65%.

Fund Type	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005
Educational Assistance	\$ 1,500	\$ 1,000	\$ 1,000	\$ 500	\$ 500	\$ 250
Financial Assistance	\$22,500	\$112,500	\$112,500	\$112,500	\$112,500	\$90,000

Total EA for all years is estimated to be \$ 4,750. Total

FA for all years is estimated to be \$562,500.

Total Assistance = \$567,250

Technical assistance will be administered jointly between the Natural Resource Conservation Service (NRCS) and Soil Conservation Commission (SCC) as staffing permits.

The complete EQIP proposal including budget can be reviewed in detail in Appendix B.

3.2.2 Agricultural, Grazing, Riparian/Wetland, and Forestland (Ag Water Quality Cost-Share Program for Idaho (WQPA))

The Clearwater SWCD applied for and received funds to implement a comprehensive riparian restoration plan in the upper portion of the Jim Ford Creek watershed. Funding for this project will come from the new Agricultural Water Quality Cost-Share Program for Idaho. This plan will focus on riparian restoration efforts in the upper end of the watershed. The project area will encompass the area from the hydro dam (just outside the town of Weippe), through the prairie, and up into the timbered ground to the southeast. This funding source unlike some federal programs, has the ability to address more site-specific areas of concern such as urban and rural areas. In the town of Weippe for example, there are numerous landowners who pasture horses in their backyard which borders Jim Ford Creek. This funding source can address issues like these without having to have a complete conservation plan written. Although the whole watershed is being planned for, it was decided to focus our efforts and resources on reducing the pollutant loads in the upper watershed area. If we ever want to reduce the temperature in the lower canyon, we need to enhance the upper riparian areas. Through improvements in stream- side vegetation, establishment of riparian buffer areas, and improved livestock management, we can begin to get a handle on the temperature, sediment, nutrient, and bacteria problems outlined in the TMDL document.

The following is a brief summary of the project layout. See Appendix C for a complete breakdown of the project including budget.

Project Proposal: (5 years)

Jim Ford Creek Watershed Enhancement Project

Total acres in watershed: 65,838

Total critical acres to be treated15,518

(Based on 75% participation)

Agricultural participants (75%)..... 128

Best Management Practices:

Non-Irrigated Cropland

Conservation Tillage (No-Till)

Nutrient Management

Filter Strips

Grazing Land

Prescribed Grazing

Fencing (barbed & electric)

Spring Developments

(large containments)

Livestock Access Ramps

Nutrient Management

Diversions/Water Spreading

Riparian/Wetland

Riparian/Stream Buffer

Tree/Shrub Planting

Ponds (large containments)

Streambank Protection Stream

Channel Stabilization

Forestland

Forestland Erosion Control

Forestland Management Ponds

Access Roads

Stream Channel Stabilization

(in forested canyon- lower Jim Ford Creek)

Information Outreach

As part of an ongoing effort to inform the public as to the progress and success of various BMPs installed in the watershed, the Clearwater SWCD plans to focus on annual tours, displays and newsletters. Certain areas will be highlighted as demonstration sites to showcase the effectiveness of critical Best Management Practices (BMPs). These BMPs can include riparian plantings, water gaps for livestock, riparian fencing, streambank stabilization, or wetland restorations. The success of any program is to show the positive effects of managed change.

Budget Summary

The entire funding proposal including the following budget summary has recently been approved at the State level and is waiting EPAs final decision. It is the hopes of the Clearwater SWCD that the grant will be approved by EPA and contracting begins. Please keep in mind that this is only one of three major funding proposals being sought as part of the restoration efforts targeted for the Jim Ford Creek watershed.

	Jim Ford Watershed Enhancement Project
BMPs	\$250,000.00
Technical Assistance (1)	(\$328,806.00)
Administration	\$16,900.00
Information Outreach	\$ 8,100.00
Monitoring (2)	(\$30,605.00)
Total	\$ 275,000.00

1- Total reflects various agency proposed contributions to project (match)
2- Total reflects monitoring funds requested but not funded

3.2.3 Agricultural, Grazing, Riparian/Wetland, and Forestland (Idaho Non-Point Source Grant Proposal (EPA 319 Clean Water))

The Clearwater Soil & Water Conservation District is proposing five Sub-Projects, with participation from the Idaho Department of Lands (IDL), Clearwater Highway District, Potlatch Corporation, Nez Perce Tribe, and private landowners in the Jim Ford Creek watershed. The Clearwater Soil & Water Conservation District, to make up the overall grant application, combined the five sub-projects into one proposal. They will be the sponsor of the grant, and will handle all financial transactions and accounting for 319 funds.

The proposed projects will play a key role in addressing the non-point source pollution in the Jim Ford Creek Watershed and will focus primarily on riparian areas in the upper portion of the watershed.

Targeted pollutants of concern as listed in the TMDL document are sediment, temperature, ammonia, dissolved oxygen, nutrients, pathogens, flow alteration and habitat modification. Although it is unclear whether flow and habitat requirements need addressed under section §303(d), they both play an important part in our implementation strategy. With the success of this comprehensive riparian restoration plan, targeted load reductions will be achieved over time.

The following discussion will focus on the last of three comprehensive implementation plans. As stated above, this proposal will be broken down into five sub-projects. This is a very proactive approach to watershed planning and implementation by having the caliber of participants willing to work together as we have here.

Treatment

These projects are proposed to address non-point source pollution in the watershed through implementation of Best Management Practices (BMPs). These BMPs will target conditions detrimental to water quality as identified in the Jim Ford Creek TMDL, primarily high in-stream temperatures, and excessive nutrients and bacteria.

The major focus for implementation efforts will be aimed at stream restoration in the upper end of the watersheds. The BMPs planned for implementation will specifically address the targeted pollutant load reduction spelled out in the TMDL Document.

Successful stream restoration is based on an understanding of the relationship among physical, chemical, and biological processes at varying time scales. The approach that will be used in implementing the Jim Ford Creek TMDL will be a phased approach. The goal of this project is to meet targeted pollutant load reductions. The effectiveness of the implementation BMPs will be based on this phased approach.

The following table shows the potential water quality impacts of selected stream restoration and watershed management practices.

Restoration Activities	Sediment Loads	Water Temp.	Dissolved Oxygen	Nutrients	Toxins
Reduction of Land-disturbing Activities	Decrease	Decrease	Increase	Decrease	Decrease
Restore Riparian Vegetation	Decrease	Decrease	Increase	Decrease	Decrease
Restore Wetlands	Decrease	Increase/ Decrease	Increase	Decrease	Decrease
Stabilize channel And restore Under-cut Banks	Decrease	Decrease	Increase	Decrease	Negligible effect
Riparian Grazing Management					
- Fencing	Decrease	Increase	Increase	Decrease	Decrease
- Offsite watering	Decrease	Increase	Increase	Decrease	Decrease
Road Restoration					
- Culverts	Decrease	Indirect Positive effect	Indirect Positive effect	Decrease	Decrease
- Ditch Armoring	Decrease	Indirect Positive effect	Indirect Positive effect	Decrease	Decrease
- Roadbank seeding	Decrease	Indirect Positive effect	Indirect Positive effect	Decrease	Decrease
- Slope repair	Decrease	Indirect Positive effect	Indirect Positive effect	Decrease	Decrease
- Road rock Surfacing	Decrease	Indirect Positive effect	Indirect Positive effect	Decrease	Decrease

3.2.3.1 Sub-Project # 1

The Idaho Department of Lands (IDL) is proposing three projects on state endowment land in the Jim Ford Creek Watershed to be included in the 319 Grant application submitted by the Clearwater Soil & Water Conservation District. The three projects are combined into one proposal by the IDL, which is just one of several submitted by different landowners in the watershed to make up the overall application. The three Sub-Projects are located on Miles Creek (tributary to Jim Ford Creek), Wilson Creek (tributary to Miles Creek) and Space Creek (tributary to Grasshopper Creek).

1) Miles Creek Project

This project will rehabilitate 3.64 miles of stream reach by constructing livestock exclusion fences, planting a riparian zone with woody plants and trees, re-establishing non-functional portions of the stream, replacing inadequate culverts to withstand a 50-year flood event, and raising and rocking one section of road where it is close to and crosses Miles Creek

The project area contains natural meadows along Miles Creek that have historically been grazed by livestock. IDL leases grazing rights to a local cattlemen's association that is responsible for livestock management and control, and fence maintenance. The association has been active in helping IDL develop a pasture system of fences that will help protect water quality and tree plantations in the area. However, it is difficult to keep livestock out of the meadows and streams, which are a primary source of both forage and water. The proposed riparian fencing will exclude livestock from the streamside along 3.64 miles of Miles Creek while providing eight rocked water gaps for livestock access for drinking. Two cattle guards will also be installed. The riparian plantings will serve as both a source of shade to cool the stream and a filtration zone for nutrients and bacteria. The fences will be located approximately 25' on either side of the stream and the plantings, consisting of willows, other brush species, and conifers, will occur within the fences. The fences will not only keep livestock away from stream banks, but will help protect young seedlings from browsing by deer and elk. Once the project is completed, all future fence maintenance will be the responsibility of the state's grazing lessee.

The existing state gravel road has been, in places, impedance to stream flow due to improperly sized culverts and a damming effect, as well as a source of sediment when the creek overflows it. Water backs up behind a portion of the road during snow melt in the spring, inundating the meadow and becoming a source of nutrients and bacteria into Miles Creek during runoff.

Multiple culverts will be installed at each of five locations to allow a natural drainage pattern rather than funneling the water at each pipe. Raising the road in places will allow the larger culverts to fit properly underneath the surface.

2) Wilson Creek Project

This project will rehabilitate 1.50 miles of stream reach by planting a riparian zone with woody plants, and the surrounding meadows with conifer trees

The project area contains natural meadows along Wilson Creek that have historically been grazed by livestock. IDL leases grazing rights to the same cattlemen's association as Miles Creek. The proposed riparian plantings will serve as both a source of shade to cool the stream and a filtration zone for nutrients and bacteria. Plantings of willows, other brush species, and conifers will take place within 25' either side of the stream, and conifers will be planted in approximately 16 acres of adjacent meadows. No livestock exclusion fences are necessary along the stream because livestock will be excluded from this entire area for the next 10 to 15 years by a pasture division fence the cattlemen's association will construct in the spring of 2000.

3) Space Creek Project

This project will rehabilitate 1.18 miles of stream reach by constructing livestock exclusion fences, planting a riparian zone with woody plants and conifer trees, re-establishing non-functional portions of the stream, and rockering an existing dirt road where it crosses Space Creek.

The project area contains natural meadows and man-made openings that have historically been grazed by livestock. IDL leases grazing rights to a local cattlemen's association that is responsible for livestock management and control, and fence maintenance. The association has been active in helping IDL manage the land in a fashion that will help protect water quality and tree plantations in the area. However, it is difficult to keep livestock out of the meadows and stream, which are a primary source of both forage and water. The proposed riparian fencing will exclude livestock from the streamside along 1.18 miles of Space Creek while providing two rockered water gaps for livestock access for drinking. The riparian plantings will serve as a source of shade to cool the stream and a filtration zone for nutrients and bacteria. The fences will be located approximately 25' on either side of the stream and the plantings, consisting of willows, other brush species, and conifers, will occur within the fences. The fences will not only keep livestock away from stream banks, but will help protect young seedlings from browsing by deer and elk. Once the project is completed, all future fence maintenance will be the responsibility of the state's grazing lessee.

3.2.3.2 Sub-Project # 2

Potlatch Corporation is proposing two projects on Potlatch owned land in the Jim Ford Creek Watershed to be included in the 319 Grant application submitted by the Clearwater Soil & Water Conservation District. The two projects are combined into one proposal by Potlatch Corporation, which is just one of several submitted by different landowners in the watershed to make up the overall application.

These projects are proposed to address non-point source pollution in the watershed through implementation of Best Management Practices (BMPs). The riparian BMPs will improve problems associated with grazing near Winters Creek thus reducing excessive nutrients and bacteria as well as temperature. The Green Road Project will reduce or eliminate the potential mass failure of that portion of the road the resulting sedimentation transport into Jim Ford Creek.

1) Winters Creek Project

This project proposes to improve the existing condition of 6 miles of riparian zone in Winter Creek. Riparian zone protection, by elimination of grazing within the area will overtime, stabilize stream banks, allow vegetative regeneration, thereby increasing shade and lowering water temperatures, and reduce nutrient sediments from entering the lower Jim Ford Creek watershed caused by non-point source pollution.

The project includes several separate activities, when completed, will eliminate grazing on 80% of the Winter Creek sub-watershed. These activities include the construction of six miles of 4-strand barbed wire fence, installation of two cattle guards, planting of ponderosa and lodgepole pine seedlings, and a monitoring plan to measure water quality improvement over time.

2) Green Road Project

Potlatch Corporation acquired property located in the lower portion of Jim Ford Creek drainage from the U.S. Forest Service in the mid 1990's. An existing road on the property had a mass failure approximately 100 feet wide and 800 feet long reaching to the creek.

The project proposes to stabilize and repair the failure to prevent further sedimentation of the lower reach of Jim Ford Creek. In addition the project proposes to apply crushed aggregate to the road surface from the failure site down to the bridge crossing Jim Ford Creek, to further prevent sediment delivery.

The TMDL for Jim Ford Creek noted that there was a problem with sediment and large cobble filling pools and moving the channel in the lower reach of Jim Ford Creek. This project would help stop a direct input of sediment into that lower reach.

The road surface will be excavated down approximately 15 to 20 feet to reach solid material. Gabion Baskets filled with 4" minus basalt will be erected on the outside edge to eliminate further slippage of the road. The sub-grade will be re-layered and compacted. The road will then be surfaced with crushed aggregate.

3.2.3.3 Sub-Project # 3

Clearwater Highway District is proposing nine Sub-Projects on land in the Jim Ford Creek Watershed to be included in the 319 Grant application submitted by the Clearwater Soil & Water Conservation District. The nine Sub-Projects are combined into one proposal by the Clearwater Highway District, which is just one of several submitted by different landowners in the watershed to make up the overall application.

These projects are proposed to address non-point source pollution in the watershed through implementation of Best Management Practices (BMPs). These BMPs will target road conditions and water conveyance detrimental to water quality as identified in the Jim Ford Creek TMDL, primarily reduction of flows and sediment transport.

In the past, Jim Ford Creek drainage has experienced runoff problems, especially during the spring thaws. The soil type is such that it resists water entry resulting in a flashy, concentrated runoff that causes water over roadways, gully washing, bank erosion and increased turbidity in the streams. The heavy concentration of sediment in the water absorbs more heat from the sun thereby increasing the water temperature. Increased water temperature has been identified as a problem in Jim Ford Creek, which is a 303(d) listed water body.

As a program of runoff control, Clearwater Highway District is proposing a process of replacing outdated and no longer effective culverts, placing additional culverts, rock lining drainages (ditch armoring), and seeding slopes. This proposed program is intended to slow and control runoff eliminating gully washing, bank erosion, and water over the roadways. The implementation of this program would effectively reduce the amount of sediment transported by slowing the overland flow of water (allowing sedimentation) and allowing water to infiltrate into the ground where recharging of the water table and cooling of the water can take place. To facilitate the work being done and to cause the least amount of turbidity possible, the work will be carried out during periods of low flow (July/August) over a period of two years.

The following individual projects will make up the program of runoff control for the Fords Creek drainage:

- Heywood Creek-Prairie Road Heywood
- Creek- Musselshell Road Heywood
- Creek – Wilson Road Prairie area
- Hjalmer Johnson Road
- Hjalmer Johnson Road at Upper Fords Creek Road
- Hjalmer Johnson Road
- Schlader Road
- Rock Pit

The process of ditch armoring (see attached illustration) has been used by Clearwater Highway District for four years. This has been very effective as a method of reducing erosion by slowing the water flow and holding the soil in place. Monitoring of previously rock-armored ditches (Lolo Creek Road Restoration – 319 Grant – 1996) has shown a drastic reduction of sedimentation in the catch basins. Prior to ditch armoring in the Lolo Creek area, approximately 120 cubic yards of sediment was cleaned from the catch basins on an annual basis. After armoring, the basins have needed no cleaning in the first three years (1997-1999) and are anticipated to need only minimal cleaning (12 cubic yards) during the fourth year (2000). This is a reduction of 97% in the amount of sediment being eroded. These rock armored ditches are expected to need minimal maintenance for a period of at least 15 years. Highway District personnel do regular visual monitoring and appropriate maintenance is carried out as necessary.

Hydroseeding on banks that are especially prone to erosion will be implemented with additional matting on the steepest banks. This additional vegetation will aid in decreasing bank erosion by holding the soil in place.

The Clearwater Highway District intends to meet the required standards specified by the Corps of Engineers and the Department of Water Resources in carrying out this program. A Corps of Engineers Nationwide Permit 13 and State 401 Certification have already been obtained.

3.2.3.4 Sub-Project # 4

The Nez Perce Tribe is proposing three activities combined into one project on Tribal land located in the Jim Ford Creek Watershed to be included in the 319 Grant application submitted by the Clearwater Soil & Water Conservation District. The three projects are combined into one proposal by the Nez Perce Tribe, which is just one of several submitted by different landowners in the watershed to make up the overall application.

These projects are proposed to address non-point source pollution in the watershed through implementation of Best Management Practices (BMPs). These BMPs will target road conditions caused by cutout fill-slope failures. This will reduce potential sediment delivery to Jim Ford Creek.

Lower Ford Creek Road Project

This project is located on the Nez Perce Indian Reservation three miles upstream from the mouth and situated approximately 200 yards uphill from Jim Ford Creek. A portion of a hillside within a road cut is a constant source of slumping. The plan is to lay back the cutslope to 1:1 for 1/8 mile and stabilize it with mulch netting and seed it down. The grade of the road would be re-aligned and three rolling dips constructed. One undersized culvert would be replaced with two 18" culverts in two separate locations. The project will also base rock 2 miles of road within the section of unstable hillside where the slump area will be fixed.

The proposed restoration efforts will eliminate potential sediment transport to Jim Ford Creek and protect the road surface from gully erosion caused by vehicle traffic in the spring and late fall when the road surface is saturated. This road is also maintained as access to a private landowner who borders Tribal boundaries

3.2.3.5 Sub-Project # 5

Weippe Prairie Riparian Restoration Project

Land management practices have significantly impacted the watershed. Many areas exhibit instability and channel scouring, which increases sediment and phosphorus loading. Lack of shading increases the solar radiation load. This project works toward accomplishing the following objects of the TMDL: 1) reduction of phosphorus load, 2) reduction of sediment load, 3) reduction in solar loading, 4) reduction in bacteria loading, and 5) stream bank stabilization. The following additional benefits are likely: moderation of water temperatures, provision of food and cover, production of large organic debris, and moderation of cumulative watershed effects.

In keeping with the aggressive riparian restoration strategies laid out among the other project participants like Potlatch, Idaho Department of Lands, the Nez Perce Tribe, and the Clearwater Highway District, the Clearwater Soil & Water Conservation District is proposing this sub-plan for the private landownership.

Upper Jim Ford Creek watershed extending from the town of Weippe and including lower portions of Heywood Creek and Miles Creek will be improved through planting willow, native shrubs and conifer (site dependent). Project will be designed to meet a minimum of 80% shading, as targeted in the TMDL to reduce solar loading. Landowners will have an opportunity to specify vegetation areas within limits of suitability and availability. A plan will be developed for each area, coordinated with the project administrator and agreed upon by the landowner. The plan will include maintenance and monitoring components. Fencing and off-stream watering will be installed in impacted areas to exclude livestock from riparian corridor. This will reduce bank trampling, and erosion, while improving vegetation condition. The fencing will vary in width from 25 feet to 50feet. Off-stream watering will be encouraged within these areas with structures such as ponds, water gaps, nose-pumps and solar pumps to accommodate alternative livestock watering.

3.3 Project Goals

- Reduce nutrient, sediment, and bacteria loading to Jim Ford Creek. Capture fine sediment with riparian vegetation in the restored stream section, and bank stability improvements will decrease sediment and absorbed phosphorus delivery. Filtering of runoff by streamside vegetation will reduce bacterial contamination.
- Reduce stream temperature and condition of aquatic and riparian habitat along stream corridor. A restored riparian vegetative buffer will help to maintain lower water temperatures needed for salmonid species downstream. An additional benefit of the improved riparian vegetation is increased habitat for waterfowl and other wildlife species.
- Reduce soil erosion, conserve soil resources and decrease sediment delivery within the watershed.
- Improve water conveyance, stabilize road cuts, and reduce sediment loading associated with road systems in the watershed.
- Reduce pollutant loading and begin a trend toward restoration of the designated uses.

3.4 Project Schedule

(See next two pages)

3.5 PROPOSED WATERSHED RESTORATION PROJECT ESTIMATES

The following table shows a summary of the complete restoration project planned for Jim Ford Creek and its tributaries. This has been a very comprehensive implementation plan put together by numerous agencies and private landowners. Funding is now in place for all three of the following projects: 1) Jim Ford Creek Watershed Enhancement Project, 2) EPA 319 Clean Water Act Grant, and 3) Environmental Quality Incentive Program.

	Jim Ford Watershed Enhancement Project (1)	319 Grant Proposal	319 Grant Match (2)	EQIP	Total Cost Estimate
BMPs	\$250,000.00	\$ 387,420.40	\$ 184,071.65	\$562,500.00	\$1,383,992.05
Technical Assistance (2)	(\$328,806.00)		\$61,704.00	(\$300,000.00)	\$ 61,704.00
Administration	\$16,900.00	\$ 24,900.00	\$ 32,692.00		\$ 74,492.00
Information Outreach	\$ 8,100.00	\$ 2,500.00		\$ 4,700.00	\$ 15,300.00
Monitoring (3)	(\$30,605.00)		\$ 33,380.00		\$ 33,380.00
Total	\$ 275,000.00	\$ 414,820.40	\$ 311,847.65	\$ 567,200.00	\$ 1,568,898.05

1 - Jim Ford Creek Watershed Enhancement Project

2 - Total reflects various agency proposed contributions to project (match)

3- Total reflects monitoring funds requested but not funded

4.0 Jim Ford Creek TMDL Implementation Monitoring Plan

Monitoring Plan Strategy

As part of a comprehensive implementation plan scheduled for the Jim Ford Creek Watershed, three major funding sources have been secured. These consist of EPA's 319 Grant Program, EQIP, and the new Ag Water Quality Cost-Share Program for Idaho. Each has a monitoring component geared to effectively monitor changes in the existing pollutant loads allocated to the Jim Ford Creek TMDL. Water quality monitoring is an important component of the implementation plan and will be used to measure the success of both individual activities and the overall effort. All three programs, when fully funded, will blend together on their monitoring efforts. Stream flow measurement seems to be the limiting factor that connects most of the monitoring parameters. Jim Ford Creek is severely lacking in this flow data. The monitoring portion of all three grants will concentrate on achieving the necessary flow data needed to run accurate statistical analyses on the other monitoring parameters such as sediment, nutrients, and pathogens.

The success of any implementation plan is to show that the Best Management Practices chosen were effective in taking care of the problem. Water Quality monitoring, both trend and BMP effectiveness monitoring, and photo points will be used to measure the success of these BMPs. Although this plan will focus heavily in riparian restoration in the upper portion of the watershed, monitoring for other parameters will be taking place throughout the entire watershed.

We are looking at this plan using a phased approach structure, thus long-term monitoring efforts are required to determine beneficial use status. The results of our monitoring efforts will be used to evaluate the changing conditions of the watershed. Pollutant targets will be revisited periodically to ascertain if any adjustments may be needed to meet project goals.

Monitoring activities specifically related to the riparian restoration tasks targeted in this plan will be conducted through joint efforts between the Clearwater Soil & Water Conservation District (CSWCD), Idaho Soil Conservation Commission (ISCC), the Nez Perce Tribe (NPT), Idaho Association of Conservation Districts (IASCD), and the Department of Environmental Quality (DEQ).

Due to the comprehensive scope of this implementation plan, the monitoring components used between land uses will not be separated. This means that there will not be a separate monitoring plan for the various land uses relating to agriculture, grazing, forestry, and urban settings. The nature of the three proposed water quality programs will lead to a blending of various monitoring objectives. The exceptions will be with the Idaho Department of Lands (IDL) independent audit process and the DEQ Beneficial Use Reconnaissance Project (BURP). These two monitoring objectives will be discussed later in this section.

The following sections will address the monitoring summaries for the three proposed water quality programs.

**4.1 Jim Ford Creek Watershed Enhancement Monitoring Summary
(Ag Water Quality Cost-Share Program for Idaho)**

PARAMETER MONITORING OBJECTIVE WATERSHED SEGMENT RESPONSIBILITY TIME LINE

Temperature	Trend Analysis	ALL	IDL/SCC/NPT	Annually
	BMP Effectiveness	Winters Creek	SCC	3-5 Years
	Photo Documentation	Miles and Wilson Creeks		
		Main Stem Jim Ford		
		Segments of:		
		Grasshopper Creek		
		Heywood Creek		
Phosphorus	Trend Analysis	Main Stem Jim Ford Creek	IDL/SCC/NPT	3-5 Years
	BMP Effectiveness	Miles and Wilson Creeks		
		Heywood Creek		
		Grasshopper Creek		
Pathogens	NPDES Compliance	Mainstem Jim Ford Creek	WWTP	Per NPDES Permit
	Trend Analysis	Grasshopper Creek	IDL/SCC/NPT	3-5 Years
	BMP Effectiveness	Heywood Creek		
		Winters Creek		
		Miles and Wilson Creeks		
Sediment	Trend Analysis	Main Stem Jim Ford Creek	IDL/SCC	3-5 Years
	BMP Effectiveness	Main Stem Jim Ford Creek		
		Lower Canyon below falls		
Beneficial Use Status	BURP	ALL	IDEQ	3-5 Years
Stream Flow	ALL	ALL	SWCD/SCC	6 Years

Total Monitoring Costs: \$30,605.00 (Lab analysis and staff)
(Future monitoring costs in-kind match will be augmented by IASCD, SCC, ISDA,
and Tribal technical assistance)

4.2 Idaho NonPoint Source Monitoring Plan (EPA 319 Clean Water Act Grant)

Monitoring Components (By Project)

4.2.1 Idaho Department of Lands

- **Riparian Fencing** - Will be monitored for BMP effectiveness and maintained by the Grazing Allotment leaseholder as needed.
- **Riparian Planting** - Will be planted and monitored for survival and heartiness by the IDL staff. Photo documentation will also take place.
- **Nutrient, Pathogens, and Temperature Monitoring** - Will follow riparian rehab on a progressive schedule, i.e., as time elapses, various aspects of data sampling will occur for BMP effectiveness and Trend analysis.
 1. Thermal Graphs (hobos) will be placed in key locations each year to measure temperature fluctuations.
 2. Nutrient sampling for Nitrates and Phosphorus will be random until such time as increased levels are detected; then a more frequent sample regime will be developed.
 3. Bacteria sampling will also follow the same timeline as nutrients. Included in the sampling will be both coliform and E-coli samples. This will stay in line with our past data collection criteria and also meet the needs EPA has regarding the switch to E-coli bacteria sampling.

Soil Conservation Commission staff will accomplish all water quality in-stream data collection, with help from IASCD and Nez Perce Tribal staff. IDEQ will perform their BURP monitoring every five years as scheduled.

4.2.2 Potlatch Corporation

- **Riparian Fencing** - Will be monitored for BMP effectiveness and maintained by the Grazing Allotment leaseholder as needed.
- **Riparian Planting** - Will be planted and monitored for survival and heartiness by the Potlatch staff. Wally Butler, a private consultant to Potlatch, will accomplish photo documentation.

- **Pathogens, and Temperature Monitoring** - Will follow riparian rehab on a progressive schedule, i.e., as time elapses, various aspects of data sampling will occur for BMP effectiveness and Trend analysis.
 1. Thermal Graphs (hobos) will be placed in key locations each year to measure temperature fluctuations.
 2. Bacteria sampling will be random until such time as increased levels are detected; then a more frequent sample regime will be developed. Included in the sampling will be both coliform and E-coli samples. This will stay in line with our past data collection criteria and also meet the needs EPA has regarding the switch to E-coli bacteria sampling.

4.2.3 Clearwater Highway District

After the nine Sub-Projects are completed the Highway District personnel will monitor the construction for sustainability and effectiveness. This will be accomplished on a routine basis throughout the year. The success of these practices will be measured by the amount of sediment removed from a particular sediment trap or ditch bank. Culverts will be monitored for flow characteristics directly proportional to the runoff events.

4.2.4 Nez Perce Tribe

On-site inspection will be made on the Lower Ford Creek Road to the cutslope repair and also on the effectiveness of the base rocking. This will be accomplished on a routine basis to document any changes that might occur as a result of inclement weather. Visual and photo documentation as to the overall effectiveness of the project to reduce potential sediment transport to Jim Ford Creek will be completed.

4.2.5 Weippe Prairie Riparian Restoration Project (Private Landowners)

- **Riparian Fencing** - Will be monitored for BMP effectiveness and maintained by the individual landowners as needed. The Clearwater SWCD, with the technical help from the SCC staff will monitor the stability and effectiveness of the fence as dictated by NRCS Standards and Specifications.
- **Riparian Planting** - Will be planted and monitored for survival and heartiness by the Clearwater SWCD and SCC staff. Photo documentation will also take place on an annual basis.
- **Nutrient, Pathogens, and Temperature Monitoring** - Will follow riparian rehab on a progressive schedule, i.e., as time elapses, various aspects of data sampling will occur for BMP effectiveness and Trend analysis.
 1. Thermal Graphs (hobos) will be placed in key locations each year to measure

temperature fluctuations.

2. Nutrient sampling for Nitrates and Phosphorus will be random until such time as increased levels are detected; then a more frequent sample regime will be developed.
3. Bacteria sampling will also follow the same timeline as nutrients. Included in the sampling will be both coliform and E-coli samples. This will stay in line with our past data collection criteria and also meet the needs EPA has regarding the switch to E-coli bacteria sampling.

Soil Conservation Commission staff will accomplish all water Quality in-stream data collection, with help from IASCD and Nez Perce Tribal staff. Within this 319 Grant funding, all lab expense and support staff to collect data will be considered "Grant Match". IDEQ will perform their BURP Monitoring every five years as scheduled.

4.3 Forest Land Monitoring Plan

The Forest Practices Water Quality Management Plan calls for a statewide audit of the application and effectiveness of the Idaho forest practices rules at least once every four years. The forest practices audit will again be conducted this year (2000). Sites within the Jim Ford Creek drainage may be included with this year's audit.

The objectives of the 1996 forest practices audit were to assess the extent to which the Idaho forest practices rules are being implemented and to assess whether the management practices function as intended when properly implemented and maintained. The audit found that the forest practice rules were implemented at a rate of 97% statewide. It was recommended that more pre- operational inspections be conducted, particularly on non-industrial timber sales. Additionally, the audit suggested a mandatory operator certification program for loggers with a history of non- compliance be implemented and existing educational materials be made readily available to the public.

The audit also evaluated rule effectiveness by assessing individual rule effectiveness and by pollutant delivery to streams or stream channels. On an individual basis, the audit found that when properly implemented and maintained, the practices described in the forest practices rules were effective 99% of the time.

This year's audit (2000) will focus again on Class I streams (fish-bearing) with more emphasis on in-stream parameters like percent shade, large organic debris (LOD), cobble embeddedness, etc. There will also be more emphasis on Bull Trout habitat (which Jim Ford Creek watershed doesn't apply).

Similarly, Potlatch Corporation also falls under the guidelines pursuant to the Forest Practices Act. As stated earlier, Jim Ford Creek is one of several watersheds slated for a potential audit this year. Potlatch Corporation also has their own internal audits on timber sales. The Contract

Supervisor is required to conduct an on-site audit of the sale and once a year the Lewiston Office conducts numerous audits around the region.

Potlatch Corporation along with the State IDL have a grazing monitoring program designed to monitor the effectiveness of livestock grazing, forage utilization, and in-stream water quality. Forage utilization cages along with photo documentation are tools used to track the success of the grazing program.

4.4 Beneficial Use Reconnaissance Project Monitoring

The goals of the Department of Environmental Quality's Beneficial Use Reconnaissance Project (BURP) are to: 1) document the existing beneficial uses of a water body to the extent possible at a reconnaissance-level intensity and 2) to determine the beneficial use support status of a water body (IDHW-DEQ, 1997).

The BURP survey includes the collection of data on the numbers and species of fish and macro invertebrates, as well as habitat parameters, to determine a water body's beneficial uses and support status of those uses. This is based on the Idaho State Water Quality Standards (IDHW- DEQ, 1996). BURP data is analyzed using the Water Body Assessment Guidance document. When BURP data show a major exceedance of Idaho State Water Quality Standards, the corresponding beneficial use is considered to not be fully supported. The ultimate measure of success for the Jim Ford Creek TMDL Implementation Plan is full support of designated beneficial uses. This guidance document was used to evaluate the 1995 and 1996 data for the Jim Ford Creek watershed. At that point this would have been the right avenue to determine the effectiveness of any Best Management Plans aimed at reducing the TMDL targeted pollutant load reductions. Shortly after the 1996 field season, EPA rejected Idaho DEQ's Water Body Assessment Guidance document. Since then, no further data for the 1997 through 1999 filed season has been evaluated for the designated beneficial use status.

The original intent of the BURP inventory was to re-assess the beneficial use status on a biennial basis. With the present workload and backlog of existing data not even evaluated from 1997, it is anyone's guess as to when this analysis will be repeated.