TMDL Implementation Plan for Agriculture
Little Canyon – Holes / Long Hollow Creeks

Idaho Soil Conservation Commission
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Table of Contents

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Introduction

Holes Creek and Long Hollow Creeks are tributaries of Little Canyon Creek and both are listed on the 1998 303(d) list. This implementation plan presents an adaptive management approach for implementation of Resource Management Systems (RMS) and Best Management Practices (BMPs), as described in the Agricultural Pollution Abatement Plan, to meet TMDL requirements for these listed stream segments.

Goal

The goal of this implementation plan is to develop a comprehensive and detailed plan for agriculture in order to successfully implement the Little Canyon Watershed TMDL while meeting TMDL loading targets for sediment, bacteria, nutrients, pesticides and temperature within Holes Creek and Long Hollow Creek. This implementation plan will assist and/or complement other watershed efforts in restoring and protecting beneficial uses for these 303(d) listed stream segments.

Objectives

The primary objectives of this plan are to:

1. Reduce the amount of sediment, nutrients, bacteria, and temperature in Long Hollow Creek.
2. Reduce sediment, nutrients, bacteria, pesticides, and temperatures in Holes Creek.

Agricultural pollutant reductions and temperature reductions (when feasible) will be achieved through the application of BMPs and RMS developed and implemented on a site-specific basis with individual agricultural operators.

Another objective of this plan is the implementation of a water quality outreach program that will encourage landowner participation in the application of water quality BMPs. Emphasis will also be placed on BMP effectiveness evaluation and monitoring in terms of pollutant reduction and impacts on designated beneficial uses of the listed stream segments.

Project Setting

The Little Canyon Creek watershed, 60,346 acres in size, encompasses Lewis, Nez Perce, and Clearwater Counties in North Central Idaho. Little Canyon Creek, a third-order stream, is 25 miles long and drains an area of 94 square miles. The upper basin flows through gentle to moderately rolling uplands used primarily for dry land agriculture. Holes and Long Hollow Creeks are the major tributaries of this basin. These creeks come

together to form Little Canyon Creek, which then flows through a steep canyon for 14 miles until its confluence with Big Canyon Creek.

This low-gradient stream (3%) flows in a northerly direction crossing elevations ranging from 1,300 feet to 3,500 feet. The average annual precipitation for the drainage is 20 inches, which produces an average stream flow of approximately 2.5 cubic feet per second (CFS). A snowmelt hydrograph measured a flow of 3,400 CFS during a 1965 flood. A more typical spring flow would be 500 CFS with a 50-year event producing a discharge of 1,900 CFS. (See Figure 1: Location Map.)

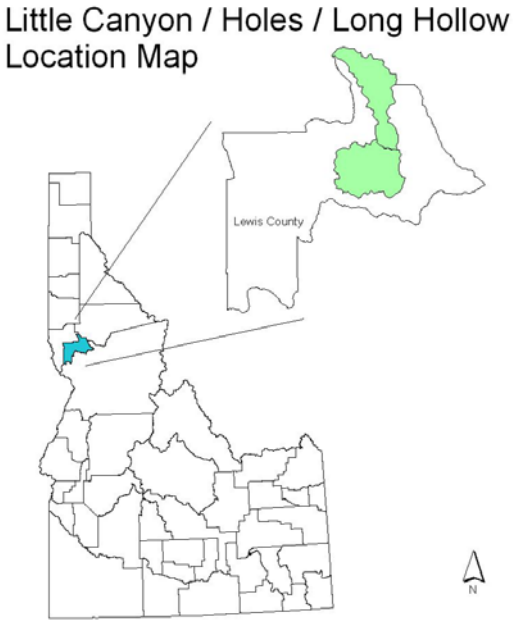

Figure 1: Location Map

Land Use

Land use is dominated by agricultural cropland in the Little Canyon (61%), Holes and Long Hollow (91%) creek watersheds. Little Canyon watershed has approximately 21% forest and 18% pasture. Holes and Long Hollow Creeks watershed have about 7% pasture. (See Table 1 and Figure 2)

Table 1: Land Use

Land Use	Holes/Long Hollow (ac)	Little Canyon (ac)	Total Acres
Cropland	29,442	16,971	46,413
Forest	165	5,826	5,991
Pasture	2,436	5,166	7,602
Urban	335	-	335
Water	-	5	5
Total	**32,378**	**27,968**	60,346

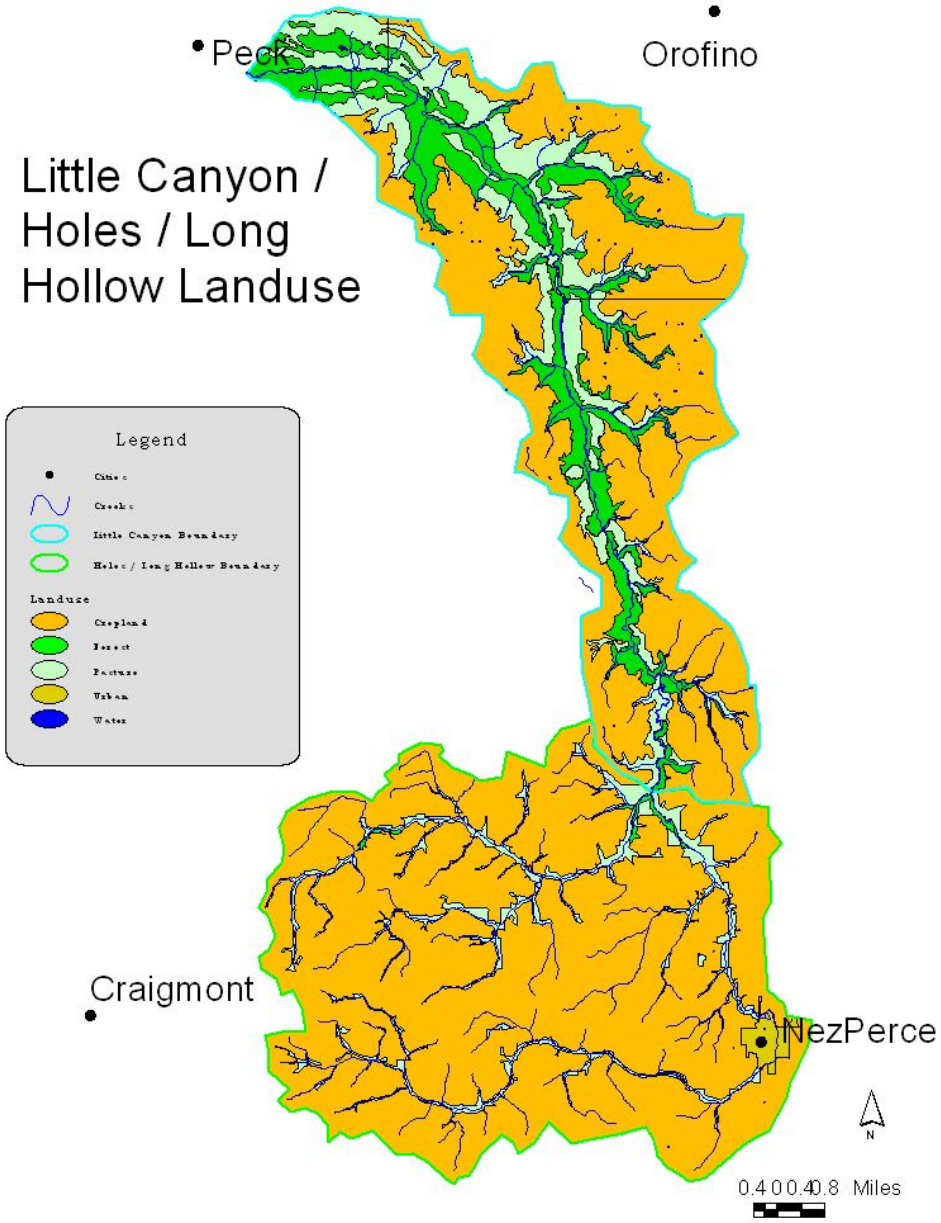

Figure 2: Land Use map

Land Ownership

Land ownership is dominated by private land ownership (94%). The Nez Perce tribe has approximately 2,000 acres of land (3%), followed by 1,300 acres in BLM ownership (2%). See Table 2 and Figure 3 for land ownership details.

Table 2: Land Ownership

Ownership	Holes/Long Hollow (ac)	Little Canyon (ac)	Total Acres
NezPerce Tribe	2,053	-	2,053
BLM	-	1,319	1,319
Urban	335	-	335
Private	29,987	26,652	56,639
Total	**32,375**	**27,971**	**60,346**

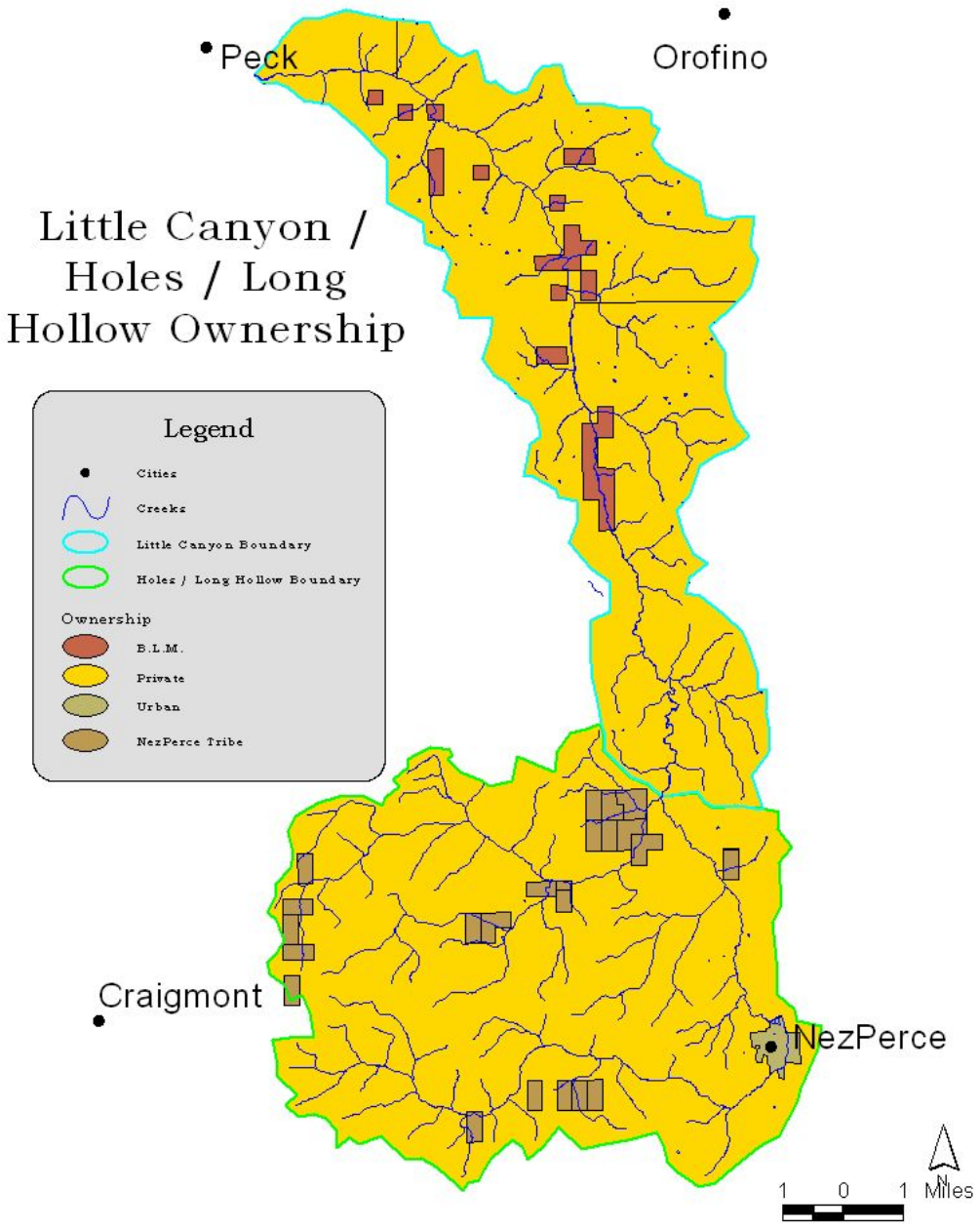

Figure 3: Land Ownership map

Accomplishments

The Lewis Soil Conservation District (LSCD) has proactively pursued opportunities for program and project funding for the implementation of water quality Best Management Practices (BMPs) since the early 1980s. The LSCD was sponsor for a Bonneville Power Administration (BPA) grant in the Little Canyon watershed. That grant was responsible for implementing 14,242 acres of spring direct seed, 9 grass waterways, 108 gully plugs / culvert outlets, 17 ponds / sediment basins and 9 water facilities. The LSCD was successful in obtaining funding through the State Agricultural Water Quality Program (SAWQP) for a watershed planning project in January 1987. The Holes / Long Hollow project is responsible for BMP implementation of direct seed practices on 13,551 acres (see attached "tracker" documentation for additional BMPs). Recently, the LSCD was sponsor again for the Camas Prairie Nitrate Priority area 319 Clean Water Act Grant. That grant has also placed an additional 120 acres of direct seed and nutrient management in the Holes / Long Hollow watershed. The Division II Animal Feeding Operation (AFO) project also sponsored through the 319 grant program has one contract of 16 acres on Long Hollow Creek that will be implemented late summer of 2005. (See Table 3)

The Nez Perce Tribe has implemented a direct seed program, installing 273 acres of direct seed in the Holes / Long Hollow watershed. Federal contracts total 3,286 acres in the Little Canyon / Holes / Long Hollow watershed (See Table 3). Table 3 also shows the estimated sediment, phosphorus, and bacteria load reductions for the various best management practices that have been implemented.

Figure 4 was removed by SWCC in January 2014 to attain compliance with Farm Bill Section 1619.

Table 3: Accomplishments as of July 2005

Description	Acres	Estimated Sediment Reduction (Tons/AC/YR)	Estimated Phosphorus Reduction (lbs/year)	Estimated Bacteria Reduction
Little Canyon Direct Seed	14,242	71,000	5,000	-
Holes/ Long Hollow	13,551	68,000	4,700	-
EQIP/CRP/WHIP	3,286	16,000	1,100	-
NezPerce Tribe Direct Seed	273	1,400	100	-
Camas Prairie Direct Seed / Nutrient Management	120	600	40	-
Division 2 AFO projects	16	1,250	90	99% of instream deposits in treated areas.
Description	**Number**			
Little Canyon BMP's				
Grass Waterways	9	45	3	50% in treated areas
Gully Plugs / Culvert outlets	108	2,000	175	?
Ponds / Sediment Basins	17	255	18	?
Water Facilities	9	?	?	?
Direct Seed Totals:		157,000	10,940	-
Structure Totals:		3,550	286	-
Grand Total:		160,550	11,226	-

Sediment reduction Calculations
Direct Seed / No-till - ~ 5 tons/ac/yr reduction (RUSLE)
AFO's - miles of stream x lateral recession rate (direct calculation)
Waterways - (incoming sediment rate (RUSLE) / 2) x acres (data interpolation)
Basins / Ponds - ~ 15 tons/basin/year (data interpolation)
Gully Plugs - ~ 18 tons/plug (data interpolation)

Phosphorus reduction Calculations ~ 0.07 lbs. P / ton of Sediment (data interp

Problem

Beneficial Use Status

In 2002, IDEQ processed all of their Beneficial Use Reconnaissance Program (BURP) monitoring data using their updated Water Body Assessment Guidance II protocol. This was monitoring results collected from 1997 thru 2000. Table 4 explains the status of each of the listed beneficial uses for Holes, Long Hollow, and Little Canyon Creeks.

All current data and explanations of the beneficial uses will be addressed in the Sub-basin Assessment and TMDL that will be written by the Nez Perce Tribe in 2006.

Table 4: Beneficial Use Status

Beneficial Uses	Holes Creek Status	Long Hollow Status	Little Canyon Creek Status
Aquatic life use - Cold	Not Supporting	Not Supporting	Fully Supported
Primary Contact Recreation	Not Supporting	Not Supporting	-
Secondary Contact Recreation	-	-	Fully Supported
Agriculture	Not Assessed	Not Supporting	Not Assessed
Industrial Water Supply	Not Assessed	Not Assessed	Not Assessed
Wildlife Habitat	Not Assessed	Not Assessed	Not Assessed
Aethestics	Not Assessed	Not Assessed	Not Assessed

In August 2005 a Stream Visual Assessment Protocol (SVAP) survey was done on Holes and Long Hollow Creek (see Figure 5). The results showed that Holes Creek was in Good to Fair condition. Long Hollow Creek was dominantly in Fair condition with a few sections in Poor and Good categories. Poor condition ratings were primarily due to livestock influences. Stream sections in Fair condition are lacking large shrubs and trees that provide shade, and in-stream habitat for fish and invertebrates. Recommendations and suggestions would be to limit livestock access to creek areas with riparian fence, and provide off-site water facilities, and riparian plantings along stream corridor areas where possible.

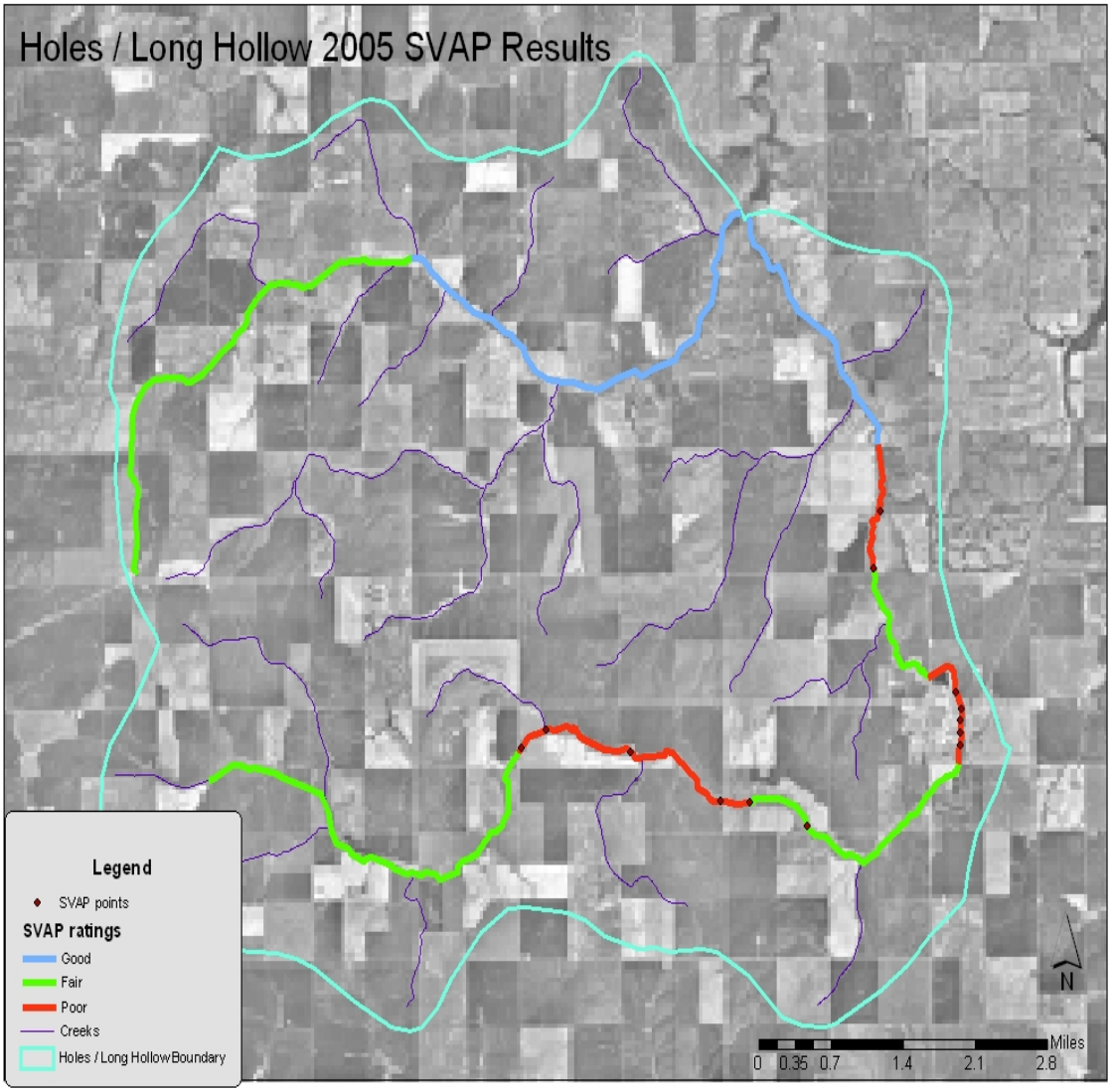

Figure 5: Holes / Long Hollow 2005 SVAP Results.

According to IDEQ 1998 303(d) stream list, the following pollutants are listed for Holes and Long Hollow Creeks: Holes Creek is listed for bacteria, nutrients, sediment, and organic pesticides. Long Hollow Creek is listed for bacteria, nutrients, and sediment.

Water Quality Monitoring Results

There has been quite an extensive monitoring effort in the Little Canyon, Holes, and Long Hollow Creeks over the last five years. These efforts were conducted by State and Tribal agencies to get a handle on the status of the beneficial uses, to tract the pollutant loading of these streams, and identify areas where best management practices (BMPs) would have the greatest benefit. This information will also provide baseline data prior to

the development of the Sub-basin Assessment and TMDL. The following is a brief synopsis of the monitoring efforts going on out there.

The Soil Conservation Commission (SCC) technical staff ran two RUSLE soil loss predictions for each cropland contract in the Holes/Long Hollow area. The first prediction was for current tillage procedures and the second for planned tillage procedures. Most contracts were for conversion from conventional tillage to a no-till or direct seed tillage system. On the average RUSLE predictions show a soil loss of 12 tons/acre/year using conventional tillage and 1 ton/acre/year soil loss for no-till or direct seed tillage systems. The SCC technical staff has also completed a riparian area assessment on all selected reaches of Holes and Long Hollow Creeks using NRCS's Stream Visual Assessment Protocol (SVAP). This was completed July-August of 2005. Except for some livestock grazing issues and associated stream bank trampling along the stream corridor, the watershed showed remarkable improvements over the past years.

The Idaho Association of Soil Conservation Districts Water Quality Analyst completed a one-year monitoring program within the Little Canyon Creek Complex (Little Canyon, Holes, Long Hollow) from May of 2000 to May of 2001. Parameters measured were total suspended solids, nitrate/nitrite (NO3 + NO2), ammonia (NH3), total kjeldahl nitrogen (TKN), total phosphorous (TP), and ortho-phosphorous (OP). Other measurements included flow, PH, specific conductance, total dissolved solids (TDS), dissolved oxygen (DO), % saturation, turbidity, and temperature.

In summary, sediment wasn't much of an issue but the nutrients and bacteria were. With some stream reaches drying up in mid to late summer, there were various degrees of monitoring data (both good and bad) within the monitoring parameters. There were also issues dealing with the Nez Perce Waste Water Treatment Plant. The data collected has given the water quality planners valuable information as to what recourse to take to implement the necessary BMPs to improve these numbers.

The Nez Perce Tribe's Water Resources Division is developing total maximum daily loads (TMDL's) for the following listed pollutants in the Little Canyon Watershed: sediment, nutrients, habitat alteration, microbial pathogens, dissolved oxygen, flow alteration, pesticides, temperature and ammonia.

Currently, the Nez Perce Tribe is assessing and collecting watershed data accumulated by NPT Water Resources, Fisheries-Watershed, ID Dept. of Ag., and a private contractor, Watershed Sciences, Inc..

The Water Resources Division began water quality assessment of 5 sites in Little Canyon watershed on June 2005 on water quality and quantity. Full spectrum monitoring was started on the following parameters:

- Continuous data: consisting of flow and temperature
- Instantaneous data: consisting of discharge, temperature, dissolved oxygen, PH, specific conductance, turbidity (ntu), ammonia mg/l, NO2 + NO3 mg/l, phosphorous - both total and dissolved mg/l, TKN mg/l, chlorophyll-a g/m2, periphyton/biomass g/m2,

total coliform (cfu/100ml), E. Coli. (cfu/100ml), TSS mg/l.

The Nez Perce Tribe Fisheries- Watershed Division has collected habitat (cross-sections, longitudinal profiles, embededness, sinuosity, etc.), fisheries (distribution, abundance, biomass, etc.), and water quality data (same suite as Water Resources) once a season for the past three years.

Watershed Sciences have conducted aerial thermal infrared surveys from the mouth to headwaters this past summer (2005). This information mapped surface water temperatures during critical time periods.

The Idaho Dept. of Ag completed an assessment on pesticide concentrations of the lower Clearwater River region, which includes the Little Canyon watershed. This report was finished late 2004.

Critical Areas

The areas identified as critical in Little Canyon are located in the riparian cropland treatment units. Although isolated sites of sedimentation exist in other treatment units, the relative amounts of sediment delivered from these areas are minimal. Critical riparian areas are those that have severe stream bank wasting and nutrient loading. Table 5 & 6 below shows the breakdown of the critical areas within the Little Canyon watershed, which includes Holes Creek and Long Hollow Creek.

Table 5: Little Canyon Watershed Critical Areas

Land Use	Holes Creek Acres	Long Hollow Acres	Little Canyon Creek Acres
Cropland	10,006	9,014	9,362
Pasture/Hay	-	-	-
Forest/Range	-	-	-
Forestland	-	-	-
Riparian	350	444	-
Urban	-	5	-
Total Acres	**10,356**	**9,463**	**9,362**

Nez Perce Tribal Allotments

The Little Canyon watershed contains 2,083 acres of Nez Perce Tribal Allotments, which are listed in Table 6. Critical acres on Tribal lands that are owned by private individuals are eligible to be included in the Water Quality Program for Agriculture (WQPA). Tribal lands owned and administered by the Tribe are precluded from participating in the program based on the definition of eligible land in ADAPA Section 16.01.14003.15. This definition limits eligible land to that which is privately owned in fee simple.

Table 6: Nez Perce Tribal Allotments
Little Canyon Watershed Critical Areas

Land Use	Holes Creek Acres	Long Hollow Acres	Little Canyon Creek Acres
Cropland	1,332	463	124
Pasture/Hay	55	17	-
Forest/Range	92	-	-
Forestland	-	-	-
Riparian	-	-	-
Urban	-	-	-
Total Acres	**1,479**	**480**	**124**

ESA Issues

Section 7 of the Endangered Species Act of 1973, "mandates all Federal agencies to determine how to use their existing authorities to further the purpose of the Act to aid in recovering listed species and address existing and potential conservation issues". Section 7 (a)(2) states that "agencies shall consult with either the U. S. Fish and Wildlife Service (USFWS) or NOAA Fisheries, to insure that any action they authorize, fund or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat." The Natural Resources Conservation Service (NRCS) is required to follow the above mandate for all project implementation and TMDL implementation within this plan will also follow this process.

If it is determined that a proposed action is within close proximity to habitat used by a listed Threatened or Endangered species (T&E) or the known location of a T&E species, consultation is initiated with the appropriate regulatory agency. Consultation involves describing the project, assessing the potential project impacts, describing the mitigation effort for the project and determining the effect of the project on the species of concern. The consultation process results in the development of reasonable alternatives for implementation and helps to minimize the impacts of conservation practices to critical habitat. Generally, good communication between consulting agencies ensures the development of sound decisions being made.

Another tool available in the planning process is the Idaho Department of Fish and Game Conservation Data Center, 2002 Threatened and Endangered Species GIS database. The database contains documented locations for terrestrial species (plants and animals only!). This can help identify known locations of T&E species and identify critical habitat types that may harbor threatened or endangered species. Planners can reference habitat requirements to help landowners determine the potential benefits of their project implementation. These discussions remain confidential between the landowner and the planners. The Little Canyon Watershed contains numerous rare plants and species of

concern. Impacts to these species will be taken into account in any TMDL project implementation.

Animal Feeding Operations (AFOs)

Problem areas in Holes and Long Hollow Creeks include specific, isolated sites where domestic livestock are confined to the creek for feed and water. In these locations, livestock concentrations are such that stabilizing vegetative cover has been removed and stream banks have wasted directly into the channel. In addition, manure from cattle has accumulated during dry periods. During storm events, sediment from the stream banks plus livestock effluent is added to the stream system. Stream Visual Assessment Protocol (SVAP) data generated in the 2005 field season showed a need to address this problem on at least four or five separate areas within the two sub-watersheds. Critical area acres addressing AFO related BMPs are be listed under the riparian heading in Table 5.

Nitrate Priority Area

Historically, ground water throughout the west has been viewed as an inexhaustible resource: a resource that is inexpensive, readily available and invulnerable to the detrimental effects of activities occurring on the land surface. This perception has led to the widespread indiscriminate use of this natural resource. With the ever-expanding use of the resource, Idaho's principle aquifers have been mapped. Four percent of the ground water is used for domestic drinking water. Generally, Idaho's ground water is acceptable for drinking water and other beneficial uses. However, recent incidents of ground water contamination have occurred from such activities as agricultural chemicals, household chemicals, industrial chemicals and failing septic systems, which has created an awareness of ground water vulnerability. Protection of this resource can be achieved most effectively by preventing contamination through implementing best management practices and other measures that prevent contamination.

During a ground water study of the Camas Prairie in 1998, entitled "A Reconnaissance of Nitrite/Nitrate in Camas Prairie Ground Water," land use was recorded for each well site and those wells within 100 feet of cultivated farmland had elevated levels of nitrate concentrations. The Camas Prairie Nitrate Priority Area is ranked fifth in the state of Idaho due to the degradation of the groundwater resources in that area.

The Camas Prairie Nitrate Priority Area extends North into the Little Canyon upper watershed, namely in the Holes Creek area (Figure 9).

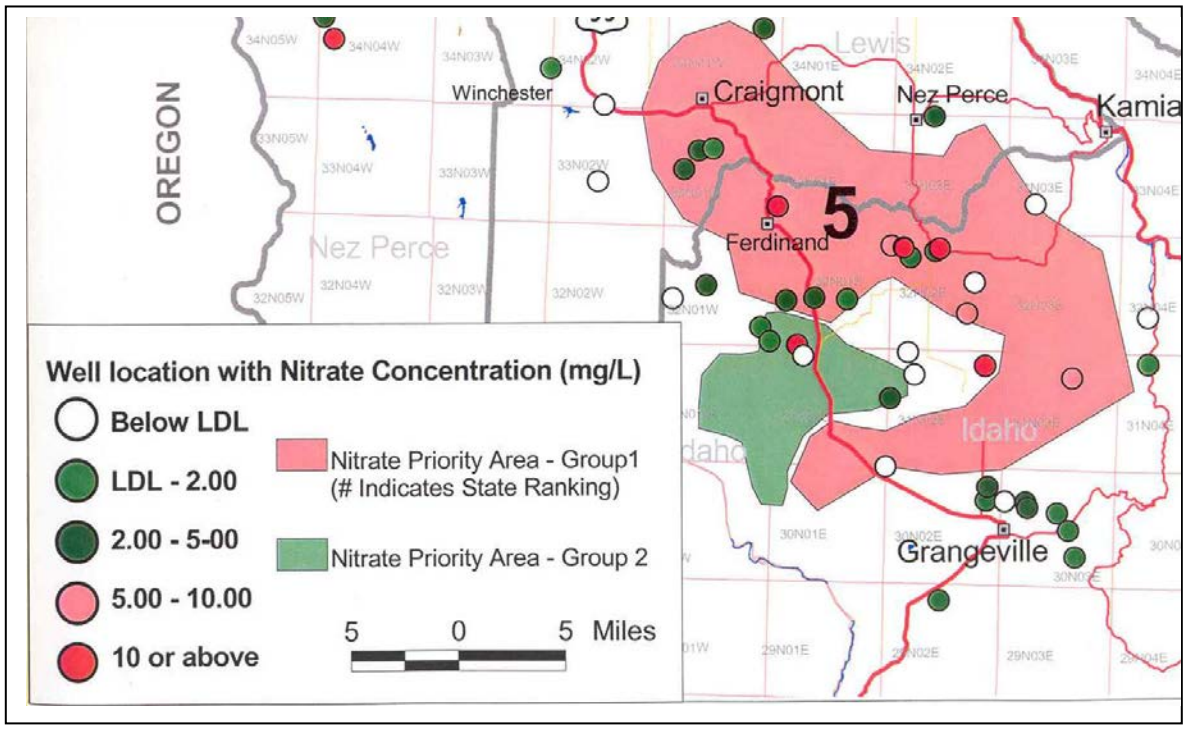

Figure 9 – Camas Prairie Groundwater Nitrate Priority Areas

Implementation Priority (Rationale)

The two sub-watersheds that lie within the Little Canyon Creek watershed are Holes Creek and Long Hollow Creek. The priority for implementation efforts will focus on both of these streams. No implementation efforts were addressed for the sub-watershed within Little Canyon Creek.

In 1988 when the Little Canyon Creek Water Quality Project was first started, the main focus was to reduce the sediment transport off cropland to the receiving waters which included all tributaries to Little Canyon Creek and on down to the Clearwater River and points further downstream. At a 75% treatment goal, the Lewis SCD estimated a sediment reduction savings of 125,000 tons/acre/year. Through a successful direct seed tillage program, that figure has grown to an estimated 157,000 tons/acre/year.
See Table 3 (Accomplishments).

Future goals and priorities will continue to focus on sediment load reductions from cropped fields, but with some additional BMPs addressing nutrients, bacteria, pesticides, and temperature. Recent incidents of ground water contamination have occurred from such activities as agricultural chemicals, household chemicals, industrial chemicals and failing septic systems, which has created an awareness of ground water vulnerability.

Nutrient Management has been addressed as a necessary follow up to compliment the successful direct seed program that has been implemented in the past few years. The Camas Prairie Nitrate Priority Area extends North into the Little Canyon upper watershed, which includes the Holes Creek area.

Problem areas relating to bacteria loadings in Holes and Long Hollow Creeks include specific, isolated sites where domestic livestock are confined to the creek for feed and water. These areas will be addressed in the near future as funding becomes available.

The Camas Prairie Nitrate Area is currently working to include animal feeding operation Best Management Practices (BMP's). Approximately five producers will be targeted to implement BMP's on their pastureland.

Treatment Units

Critical area treatment units (TU) for the Implementation Plan for Agricultural will consist of agricultural and grazing treatment units in Holes Creek, Long Hollow Creek, and Little Canyon Creek. These units consist of two cropland TU (< 25% slopes and >25% slopes), and one riparian TU. Based on recent SVAP data, this is where the priority lies for implementing the necessary BMPs to improve water quality and meet the designated beneficial uses for this watershed.
Table 7 on the next page, outlines the treatment unit descriptions.

Holes Creek

Cropland <25% slopes

Acres	Soils (silt loams)	Resource Problems	TMDL Pollutants
~9506 acres	Uhlorn - NezPerce	Surface and groundwater quality; ephemeral and classic gully erosion; sheet and rill erosion; excess nutrients; organic pesticides	Sediment, Nutrients, Organic Pesticides

Cropland >25% slopes

Acres	Soils (silt loams)	Resource Problems	TMDL Pollutants
~500 acres	Uhlorn - NezPerce	ephemeral and classic gully erosion; sheet and rill erosion; excess nutrients; organic pesticides	Nutrients, Organic Pesticides

Riparian

Acres	Soils (silt loams)	Resource Problems	TMDL Pollutants
~350 acres	Westlake-Latahco complex	Plant productivity; streambank degradation; excess nutrients; organics; surface quality	Sediment, Nutrients, Bacteria, Temperature

Long Hollow Creek

Cropland < 25% slopes

Acres	Soils (silt loams)	Resource Problems	TMDL Pollutants
~8,964 acres	Uhlorn - Nezperce	Surface and groundwater quality;ephemeral and classic gully erosion;sheet and rill erosion;excess nutrients	Sediment, Nutrients

Cropland > 25% slopes

Acres	Soils (silt loams)	Resource Problems	TMDL Pollutants
~499 acres	Uhlorn - Nezperce	Surface and groundwater quality;ephemeral and classic gully erosion;sheet and rill erosion;excess nutrients	Sediment, Nutrients

Riparian

Acres	Soils	Resource Problems	TMDL Pollutants
~444 acres	Westlake - Latahco complex	Plant productivity; streambank degradation; excess nutrients; organics; surface quality	Sediment, Nutrients, Bacteria, Temperature

Little Canyon Creek

Cropland < 25% slopes

Acres	Soils (silt loams)	Resource Problems	TMDL Pollutants
~8,894 acres	Southwick - Driscoll - Larkin	Surface and groundwater quality;ephemeral and classic gully erosion;sheet and rill erosion;excess nutrients	Sediment, Nutrients

Cropland > 25% slopes

Acres	Soils (silt loams)	Resource Problems	TMDL Pollutants
~468 acres	Uhlorn - Nezperce	Surface and groundwater quality;ephemeral and classic gully erosion;sheet and rill erosion;excess nutrients	Sediment, Nutrients

BMP Alternatives / Costs

HOLES CREEK

BMP Practice	Amount	Units	Cost	Total Cost
Cropland < 25% slopes				
Direct Seed	7,130	Acres	$30	$213,900
Minimum Till	7,130	Acres	$0	$0
Mulch Till	7,130	Acres	$15	$106,950
Crop Rotation	9,506	Acres	$0	$0
Nutrient Mangement - Soil tests	713	Each	$55	$39,215
Nutrient Mangement - Split Fertilizer Applications	7,130	Acres	$5	$35,650
Sediment Basins	4	Each	$4,000	$16,000
Water Control Structures	4	Each	$5,000	$20,000
Filter Strips	5	Acres	$80	$400
Grass Waterways	2	Acres	$1,500	$3,000
Hayland Seedings	950	Acres	$80	$76,000

BMP Practice	Amount	Units	Cost	Total Cost
Cropland > 25% slopes				
Direct Seed	375	Acre	$30	$11,250
Minimum Till	375	Acre	$0	$0
Mulch Till	375	Acre	$15	$5,625
Crop Rotation	500	Acre	$0	$0
Nutrient Mangement - Soil tests	38	Each	$55	$2,090
Nutrient Mangement - Split Fertilizer Applications	375	Acre	$5	$1,875
Sediment Basins	1	Each	$4,000	$4,000
Filter Strips	3	Acre	$80	$240
Grass Waterways	2	Acre	$1,500	$3,000
Hayland Seedings	190	Acres	$80	$15,200

BMP Practice	Amount	Units	Cost	Total Cost
Riparian				
Riparian Pasture	262	Acre	$80	$20,960
Buffer Strips	3	Acre	$1,500	$4,500
Tree and Shrub Establishment	2,000	Each	$2	$3,500
Fence	2,500	Feet	$3	$6,250
Off-Channel Water Facilities	4	Each	$800	$3,200
Spring Developments	4	Each	$1,000	$4,000
Roof-Runoff Structures	3	Each	$3,000	$9,000
Waste Management Structures	2	Each	$5,000	$10,000
Culvert Crossings	6	Each	$3,000	$18,000
Diversions	600	Feet	$3	$1,500

LONG HOLLOW CREEK

BMP Practice	Amount	Units	Cost	Total Cost
Cropland < 25% slopes				
Direct Seed	6,723	Acres	$30	$201,690
Minimum Till	6,723	Acres	$0	$0
Mulch Till	6,723	Acres	$15	$100,845
Crop Rotation	8,964	Acres	$0	$0
Nutrient Mangement - Soil tests	672	Each	$55	$36,960
Nutrient Mangement - Split Fertilizer Applications	6,723	Acres	$5	$33,615
Sediment Basins	4	Each	$4,000	$16,000
Water Control Structures	4	Each	$5,000	$20,000
Filter Strips	6	Acres	$80	$480
Grass Waterways	3	Acres	$1,500	$4,500
Hayland Seedings	670	Acres	$80	$53,600

BMP Practice	Amount	Units	Cost	Total Cost
Cropland > 25% slopes				
Direct Seed	375	Acre	$30	$11,250
Minimum Till	375	Acre	$0	$0
Mulch Till	375	Acre	$15	$5,625
Crop Rotation	499	Acre	$0	$0
Nutrient Mangement - Soil tests	38	Each	$55	$2,090
Nutrient Mangement - Split Fertilizer Applications	375	Acre	$5	$1,875
Sediment Basins	1	Each	$4,000	$4,000
Filter Strips	5	Acre	$80	$400
Grass Waterways	2	Acre	$1,500	$3,000
Hayland Seedings	190	Acres	$80	$15,200

BMP Practice	Amount	Units	Cost	Total Cost
Riparian				
Riparian Pasture	335	Acre	$80	$26,800
Buffer Strips	3	Acre	$1,500	$4,500
Tree and Shrub Establishment	3,500	Each	$2	$6,125
Fence	3,000	Feet	$3	$7,500
Off-Channel Water Facilities	6	Each	$800	$4,800
Spring Developments	4	Each	$1,000	$4,000
Roof-Runoff Structures	2	Each	$3,000	$6,000
Waste Management Structures	4	Each	$5,000	$20,000
Culvert Crossings	8	Each	$3,000	$24,000
Diversions	800	Feet	$3	$2,000

LITTLE CANYON CREEK

BMP Practice	Amount	Units	Cost	Total Cost
Cropland < 25% slopes				
Direct Seed	6,670	Acres	$30	$200,100
Minimum Till	6,670	Acres	$0	$0
Mulch Till	6,670	Acres	$15	$100,050
Crop Rotation	8,894	Acres	$0	$0
Nutrient Mangement - Soil tests	890	Each	$55	$48,950
Nutrient Mangement - Split Fertilizer Applications	6,670	Acres	$5	$33,350
Sediment Basins	2	Each	$4,000	$8,000
Water Control Structures	2	Each	$5,000	$10,000
Filter Strips	4	Acres	$80	$320
Grass Waterways	2	Acres	$1,500	$3,000
Hayland Seedings	445	Acres	$80	$35,600

BMP Practice	Amount	Units	Cost	Total Cost
Cropland > 25% slopes				
Direct Seed	350	Acre	$30	$10,500
Minimum Till	350	Acre	$0	$0
Mulch Till	350	Acre	$15	$5,250
Crop Rotation	468	Acre	$0	$0
Nutrient Mangement - Soil tests	47	Each	$55	$2,585
Nutrient Mangement - Split Fertilizer Applications	350	Acre	$5	$1,750
Sediment Basins	1	Each	$4,000	$4,000
Filter Strips	3	Acre	$80	$240
Grass Waterways	1	Acre	$1,500	$1,500
Hayland Seedings	120	Acres	$80	$9,600

Funding

Financial and technical assistance for installation of BMPs is needed to ensure success of this implementation plan. There are many potential sources for funding that will be actively pursued by the Idaho SWCD to implement water quality improvements on private agricultural and grazing lands. These sources include (but are not limited to):

CWA 319 projects refer to section 319 of the Clean Water Act. These are Environmental Protection Agency funds that are allocated to the Nez Perce Tribe and to Idaho State. The Idaho Department of Environmental Quality has primacy to administer the Clean Water Act §319 Non-point Source Management Program for areas outside the Nez Perce Reservation. Funds focus on projects to improve water quality and are usually related to the TMDL process. Source: Idaho Department of Environmental Quality. The Nez Perce tribe has CWA 319 funds available for projects on Tribal lands on a competitive basis.

The RCRDP program is the Resource Conservation and Rangeland Development Program administered by the Idaho Soil Conservation Commission. This is a grant/loan program for implementation of agricultural and rangeland best management practices or loans to purchase equipment to increase conservation. Source: Idaho Soil Conservation Commission. http://www.scc.state.id.us/programs.htm

PL-566: The small watershed program administered by the USDA Natural Resources Conservation Service (source).

Agricultural Management Assistance (AMA): AMA provides cost-share assistance to agricultural producers for constructing or improving water management structures or irrigation structures; planting trees for windbreaks or to improve water quality; and mitigating risk through production diversification or resource conservation practices, including soil erosion control, integrated pest management, or transition to organic farming. http://www.nrcs.usda.gov/programs/ama/

Conservation Reserve Program (CRP): CRP is a land retirement program for blocks of land or strips of land that protect the soil and water resources, such as buffers and grassed waterways. http://www.nrcs.usda.gov/programs/crp/

Conservation Technical Assistance (CTA): CTA provides free technical assistance to help farmers and ranchers identify and solve natural resource problems on their farms and ranches. This might come as advice and counsel, through the design and implementation of a practice or treatment, or as part of an active conservation plan. This is provided through your local Conservation District and NRCS.
http://www.nrcs.usda.gov/programs/cta/

Environmental Quality Incentives Program (EQIP): EQIP offers cost-share and incentive payments and technical help to assist eligible participants in installing or implementing structural and management practices on eligible agricultural land.
http://www.nrcs.usda.gov/programs/eqip/

Wetlands Reserve Program (WRP): WRP is a voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property. Easements and restoration payments are offered as part of the program.
http://www.nrcs.usda.gov/programs/wrp/

Wildlife Habitat Incentives Program (WHIP): WHIP is a voluntary program for people who want to develop and improve wildlife habitat primarily on private land. Cost-share payments for construction or re-establishment of wetlands may be included.
http://www.nrcs.usda.gov/programs/whip/

SRF State Revolving Loan Funds are administered through the Idaho Soil Conservation commission. http://www.scc.state.id.us/programs.htm

Grassland Reserve Program (GRP) is a voluntary program offering landowners the opportunity to protect, restore, and enhance grasslands on their property. Administered by the NRCS. http://www.nrcs.usda.gov/programs/GRP/

CSP Conservation Security Program is a voluntary program that rewards the Nation's premier farm and ranch land conservationists who meet the highest standards of conservation environmental management. More details can be found at http://www.nrcs.usda.gov

FLEP Forest Land Enhancement Program is a new incentives program authorized in the 2002 Farm Bill to encourage the long-term sustainability of non-industrial private forestlands by providing financial assistance to forest owners for the implementation of a wide variety of non-commercial forest stewardship practices administered by the NRCS. http://www.forestadvice.com/news/flep.htm

GLCI Grazing Land Conservation Initiative mission is to provide high quality technical assistance on privately owned grazing lands on a voluntary basis and to increase the awareness of the importance of grazing land resources. http://www.glci.org/

Existing watershed projects are those that have been coordinated through the Focus Program. These projects are sponsored by the Nez Perce Tribe Watershed Division or soil and water conservation districts and funded with Bonneville Power Administration funds in conjunction with other funding sources. Source: Clearwater Focus Program files

Stewardship projects The U.S. Army Corps of Engineers conducts these projects to improve wildlife habitat. Source: US Army Corps of Engineers.

Land acquisitions and conservation easements are estimated as part of the Nez Perce Tribes Wildlife program proposal before the Bonneville Power Administration and other potential acquisitions. Source: Nez Perce Tribe Wildlife Department and conservation districts.

Craig/Wyden Bill Provides compensation to counties in lieu of lost tax revenue from diminished timber harvest. Source: Nez Perce National Forest staff

NOAA Restoration Center Community-Based Restoration Funding source for habitat restoration for listed species. Source: NOAA

Research/supplementation Idaho Department of Fish and Game, Nez Perce Tribe, and U.S. Fish and Wildlife Service work. Source: Bonneville Power Administration.

New Restoration monitoring Implementation and effectiveness monitoring for new projects started during the budget period. Source: Nez Perce Tribe and conservation districts.

New RME Estimated for actions to address data gaps and research needs. Source: Idaho Department of Fish and Game and Nez Perce Tribe.

The Dworshak Nez Perce Tribe Wildlife Mitigation Fund established in part to mitigate the losses of wildlife habitat from flooding caused by Dworshak Dam. The program is administered through the Nez Perce Tribe Wildlife Department. The Department also receives funding for project work from the Bureau of Indian Affairs. Source: Nez Perce Tribe Wildlife Department.

NPT Wildlife Category reflects the Bureau of Indian Affairs budget component of the Nez Perce Tribe Wildlife Department annual budget. Source: Nez Perce Tribe Wildlife Department.

Idaho Department of Fish and Wildlife and Potlatch Corporation Estimated total annual expenditures for restoration and monitoring. Source: Idaho Department of Fish and Wildlife and Potlatch Corporation.

Many of these programs could be used in combination with each other to implement BMPs.

Outreach

An intensive outreach program will be conducted through the Lewis Soil Conservation District (LSCD) and its partners, the Idaho Association of Soil Conservation Districts (IASCD), Idaho Soil Conservation commission (ISCC), and the Natural Resource Conservation Service (NRCS). The purpose of these outreach programs is to inform agricultural landowners and operators how water-quality BMP's can benefit their farm or ranch.

Newspaper articles, district newsletters, direct mailings, project tours, demonstration projects, landowner meetings, a sixth grade field day and personal contacts will be conducted as part of this outreach effort. Other outreach objectives include:

- Provision of information about the TMDL process
- Accelerated technology transfer
- Dissemination of water-quality monitoring results
- Increased landowner support for water-quality BMP's
- Distribution of TMDL implementation progress reports
- Greater awareness of agriculture's involvement in the protection and enhancement of natural resources
- Increased public awareness of agriculture's commitment to meeting the TMDL challenge.

Monitoring and Evaluation

Field Level

Status Reviews

At the field level the ISCC and NRCS will complete annual status reviews in cost-share programs such as EQIP, CRP, WQPA, 319, and RCRDP. Annual status reviews are field checks of progress towards meeting the individuals contract goals and objectives as well as a visual assessment of installed BMP's.

BMP Effectiveness

Along with status reviews the ISCC will complete in-field BMP effectiveness evaluations throughout the implementation phase on installed BMP's. The BMP effectiveness guide posted on the ISCC website will guide these efforts (Resource Planning Unlimited, 2003).

Soil Quality

Soil Quality testing will be done on multiple different farms in triplicate. Several different tests will be performed and a variety of data collected at each site. The data includes infiltration rate, bulk density (surface and subsoil), water filled pore space (WFPS), electrical conductivity (EC), water content, nitrates, water stable aggregates, soil slaking, earthworm counts, soil structure index, top soil depth, soil temperature, and percent organic matter. All tests were done as outlined in the Soil Quality Test Kit Guide (Soil quality institute, Aug 1999).

Tools for BMP effectiveness evaluations such as on-site observations, client interviews, soil quality test kit measurements, field measurements on structures, soil samples and water quality samples will be used to help assess BMP effectiveness.

Watershed Level

Pollution Source and Transport

BURP monitoring

IDAPA 58.01.02.053 establishes a procedure to determine whether a water body fully supports designated and existing beneficial uses. The procedure detailed in the *1996 Water Body Assessment Guidance* (WBAG) (DEQ 1996) and revised in 2000 (Grafe et al. 2000) relies on physical, chemical, and biological parameters to identify water quality limited segments that require TMDL development.

The General Surface Water Quality Criteria (IDAPA 58.01.02.200) for Idaho set forth general guidance for surface water quality. The Surface Water Quality Criteria for Aquatic Life Use Designations (IDAPA 58.01.02.250) set forth specific numeric criteria

to be met for particular beneficial uses. It also sets forth "narrative" standards that require a logical accumulation of evidence to determine whether a water body is supporting its beneficial uses. The WBAG sets forth a methodology whereby a water body is first assessed using the numeric criteria for a particular beneficial use, then identifies indices and methods for "narrative" assessment of pollutants for which numeric criteria do not apply or are not available (DEQ 1996a; Grafe et al. 2000). Sediment is the primary pollutant addressed by narrative means in the WBAG.

Idaho determines if its narrative sediment criteria are being met by collecting BURP data to verify if viable communities of aquatic organisms are present and if evidence of beneficial use exists in the stream. The BURP is a consistent scientific process used statewide for collecting this data. The evaluatation of the BURP data using WBAG results in indices used to compare water quality with the standards to determine beneficial use support status.