

Fivemile / Sixmile Subwatersheds
Total Maximum Daily Load
Implementation Plan for Agriculture



Developed for the Idaho Department of Environmental Quality
Prepared by: Idaho Soil and Water Conservation Commission
In Cooperation With: Nez Perce Tribe and Lewis Soil Conservation District
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Introduction

This plan will serve as the Fivemile / Sixmile Creek Agricultural TMDL Implementation Plan. Sixmile Creek is presently on the State’s 2010 Integrated Report for a water quality limited streams (Table 1). The Nez Perce Tribe has written the TMDL for the Lower Clearwater (including Fivemile and Sixmile Creeks) and it is pending approval from EPA. This implementation plan will focus on implementing the necessary Best Management Practices (BMPs) relating to agriculture and grazing resource problems and will work toward restoring the designated beneficial uses to a full support status. As the designated agency, the Soil & Water Conservation Commission (ISWCC) is responsible for preparing the implementation plan for agriculture.

PURPOSE

The Fivemile / Sixmile Creek TMDL Implementation Plan for Agriculture outlines an adaptive management approach for implementation of best management practices (BMPs) and resource management systems (RMS) on agricultural lands. The purpose of this plan is to recommend BMPs that would improve or restore physical, chemical, and biological functions of Fivemile and Sixmile Creeks.

GOALS AND OBJECTIVES

The goal of this implementation plan is to assist in a comprehensive watershed management plan focusing on agriculture and grazing improvements that compliment other resource improvements specified in the Lower Clearwater River TMDL for Fivemile and Sixmile Creeks. The overall goal is to meet the TMDL load reductions for the listed pollutants and to restore and protect the designated beneficial uses of the Lower Clearwater River. The 2010 Integrated report listed the following pollutants for Sixmile Creek. Fivemile creek was not listed in the 2010 report as impaired. This is a change from the TMDL that utilized the 2002 listings.

Table 1. 2010 Integrated Report Listing for the Sixmile subwatershed.

Stream Name	Boundaries	Listed Pollutant
Sixmile Creek	Headwaters to Clearwater River	Ammonia, Oil/Grease, Sediment, Temperature, Fecal Coliform

This implementation plan will provide guidance to the Lewis Soil Conservation District and agricultural producers in the Fivemile and Sixmile Creek subwatersheds to identify BMPs necessary to meet the requirements of the TMDLs on 303(d) listed streams. The objective of this plan is to reduce the amount of pollutants entering these water bodies from agricultural-related practices. Agricultural pollutant reductions will be achieved by on-farm conservation planning with individual operators and application of BMPs in agricultural critical areas. This plan recommends BMPs needed to meet TMDL targets in the Fivemile and Sixmile Creek subwatersheds, and suggests alternatives for reducing surface and groundwater quality problems from agricultural related activities.

Background

PROJECT SETTING

The Fivemile Creek subwatershed (7,985 acres) and the Sixmile Creek subwatershed (16,067 acres) are located in Lewis County, and entirely within the Nez Perce Reservation (Figure 1). Five and Sixmile Creek subwatersheds fall within the Upper Clearwater River watershed that is part of the Lower Clearwater River subbasin. Fivemile creek flows in an easterly direction approximately 5.5 miles to its confluence with the Clearwater River, 2.5 miles upriver from the town of Greer. Elevations range from 1,000 feet at the confluence with the Clearwater River to 3,500 feet in the uplands. The stream flows primarily through a steep canyon area, and has several smaller intermittent tributaries. The stream gradient is generally steep and large boulders are common. The dominant land use in the watershed is agriculture (99% cropland). The watershed contains steelhead/rainbow trout (Kucera 1983).

Sixmile Creek flows in an easterly direction approximately 8.15 miles to its confluence with the Clearwater River, 6 miles downstream from the town of Kamiah. Elevations range from 1,119 feet at the mouth to 3,330 feet in the uplands. Effie Creek,

the only major tributary, flows into the mainstem about 0.5 miles from the mouth. The dominant land use in Sixmile Creek subwatershed is agriculture (99% cropland). The subwatershed contains steelhead/rainbow trout, speckled dace, and piute sculpin. The density of young of the year steelhead/rainbow at stream mile 3.9 ranked second among reservation streams sampled by Kucera (1984), indicating substantial natural reproduction.

Climate can be described as arid to semi-arid with hot dry summers and moderately cold winters. Annual precipitation ranges from 22-30 inches. The climate is maritime influenced. Rain on snow events are common from January through April. Average snowfall in January ranges from 5 to 15 inches. Canyons are typically a forest – grass mix with uplands in cropland production. Soils are typified by silt loams and clay's. Predominant soil series are: Johnson, Dragnet, Klickson, Rock outcrop, Kettenbach, Lauby, Southwick, Mohler, Nez Perce, Uhlorn, and Driscoll.

Pasture: Non-irrigated riparian pastures with a growing season of 120 to 185 days. Livestock utilization is from late spring through fall and big game species are present in winter and early spring. Soils are deep with variable textures and wetland inclusions with slopes from zero to two percent. Annual precipitation is greater than 20 inches with very dry summers. Typically these pastures are adjacent to perennial or intermittent streams. Vegetation ranges from native grass/sedge/rush complexes to improved forage species such as timothy, smooth brome grass, creeping meadow foxtail, orchard grass and clover. (NRCS 2006)

Upland pastures are located above flood plains on steeper, dissected hill sides or mountain sides. Average annual precipitation is 20 to 30 inches per year. The majority of the precipitation is rain and snow from mid-November to mid-May. Summer months are hot and dry. Soil type is moderately deep to shallow silt loam to gravel. Vegetation is typically introduced species, such as orchard grass and smooth brome. Native species such as bluebunch wheatgrass, Idaho fescue, pine grass, elk sedge and native shrubs and trees may be found. The majority of grazing animals are cattle, and horses. Big game utilize the pastures for early spring and winter grazing. Wildlife includes elk, whitetail and mule deer. (NRCS 2006)

Dry Cropland: Dry cropland with tillage that ranges from conventional to no-till. Approximately 75% of Lewis county producers are using No-till (Seitz 2012). Typical rotations are two to three years and consist of winter wheat/summer fallow, winter wheat/spring grain, or bluegrass. Precipitation is 20 to 24 inches per year. Fertilizers and pesticides are applied. Soils are typically silt loam cut over timber with slopes ranging from less than five to 25 percent. Wildlife includes deer, elk, small game, upland game and nongame birds. (NRCS 2006)

Hayland: Non-irrigated riparian hayland on zero to two percent slopes. Growing season is 120-185 days. Soils are deep with variable textures and wetland inclusions. Annual precipitation is greater than 20 inches with very dry summer months. Typically this hayland is adjacent to perennial or intermittent streams. Fertilizers and/or pesticides are periodically applied. Vegetation ranges from grass/sedge/rush complexes to improved species like timothy, smooth brome grass, creeping meadow foxtail, orchard grass and clover. Big game species are present in winter and early spring. Forage harvest management is usually an existing practice. (NRCS 2006)

Non-irrigated upland hay is found on slopes ranging from three to thirty percent. Vegetation consists of introduced perennial grasses and legumes. Soils vary from loam to silt loams. Renovations occur every six to ten years. Precipitation is 20 inches or greater. One cutting is common. The growing season is approximately 100 to 160 days long. Small grains and alfalfa hay are grown in rotation, with alfalfa typically maintained for four to six years. Grazing of crop aftermath may occur. Nutrient and pest management may be less than desirable. (NRCS 2006)

Forests and Grazed Forests: The riparian forest consists of mixed conifers and deciduous trees. The associated understory is comprised of grasses and brush species with inclusions of wetter areas. Soils are silt loams and clay loams that are shallow to deep, and can have low to high rock fragment content. They range from somewhat poorly to well drained. Average annual precipitation ranges from 18 to 35 inches. The forest landscape is characterized by level to nearly level landforms. Riparian grazing units typically exhibit impacts to riparian vegetation and a loss of woody species. Important wildlife species include elk, deer, raptors and songbirds; turkey and wolf numbers are increasing within the watershed, as well. (NRCS 2006)

Ponderosa pine and dryer Douglas fir habitat types are found on a variety of soil types. Annual precipitation is less than 25 inches with hot, dry summers. Slopes are 35 percent, on average. The forest understory is dominated by snowberry, serviceberry, ninebark/oceanspray and associated brush species. Grass and forb species are common. Livestock grazing occurs during the summer and early fall period, and overgrazing is common. Livestock tend to concentrate along the road corridors and riparian areas. (NRCS 2006)

COMMON RESOURCE AREA DESCRIPTIONS

The National Coordinated CRA Geographic Database provides:

- A consistent CRA geographic database;
- CRA geographic data compatible with other GIS data digitized from 1:250,000 scale maps, such as landuse/landcover, political boundaries, Digital General Soil Map of the U.S. (updated STATSGO), and ecoregion boundaries;
- A consistent (correlated) geographic index for Conservation System Guides information and the eFOTG
- A geographic linkage with the national MRLA framework (NRCS 2006)

9.11 Palouse and Nez Perce Prairies - Nez Perce Prairie

This unit is a loess-covered plateau. It is higher, cooler, less hilly, and has shallower soils than the Palouse Hills CRA. Idaho fescue and bluebunch wheatgrass are native. Cropland is now extensive and grows wheat, barley, peas, and hay. The headwaters of many perennial streams are impacted by agricultural land use, negatively impacting the water quality of downstream canyon reaches. (NRCS 2006)

43A.3 Northern Rocky Mountains - Lower Clearwater Canyons

The deep, narrow Lower Clearwater Canyons are lower, drier, warmer, and have been more developed than the Lochsa-Selway-Clearwater Canyons. Savanna, Douglas-fir-ponderosa pine forest, and, in riparian areas, western red cedar-western white pine-grand fir forest occur. Forests are more widespread on canyon bottoms than on slopes. (NRCS 2006)

LAND USE

The primary land use in the Fivemile and Sixmile subwatersheds is cropland. The typical rotations are winter wheat, spring wheat, spring barley; and bluegrass. Canola is occasionally grown in rotation as well. Tables 2 and 3 break the land uses out for each category. Figures 2 and 3 illustrate the different land uses within the Fivemile and Sixmile subwatersheds.

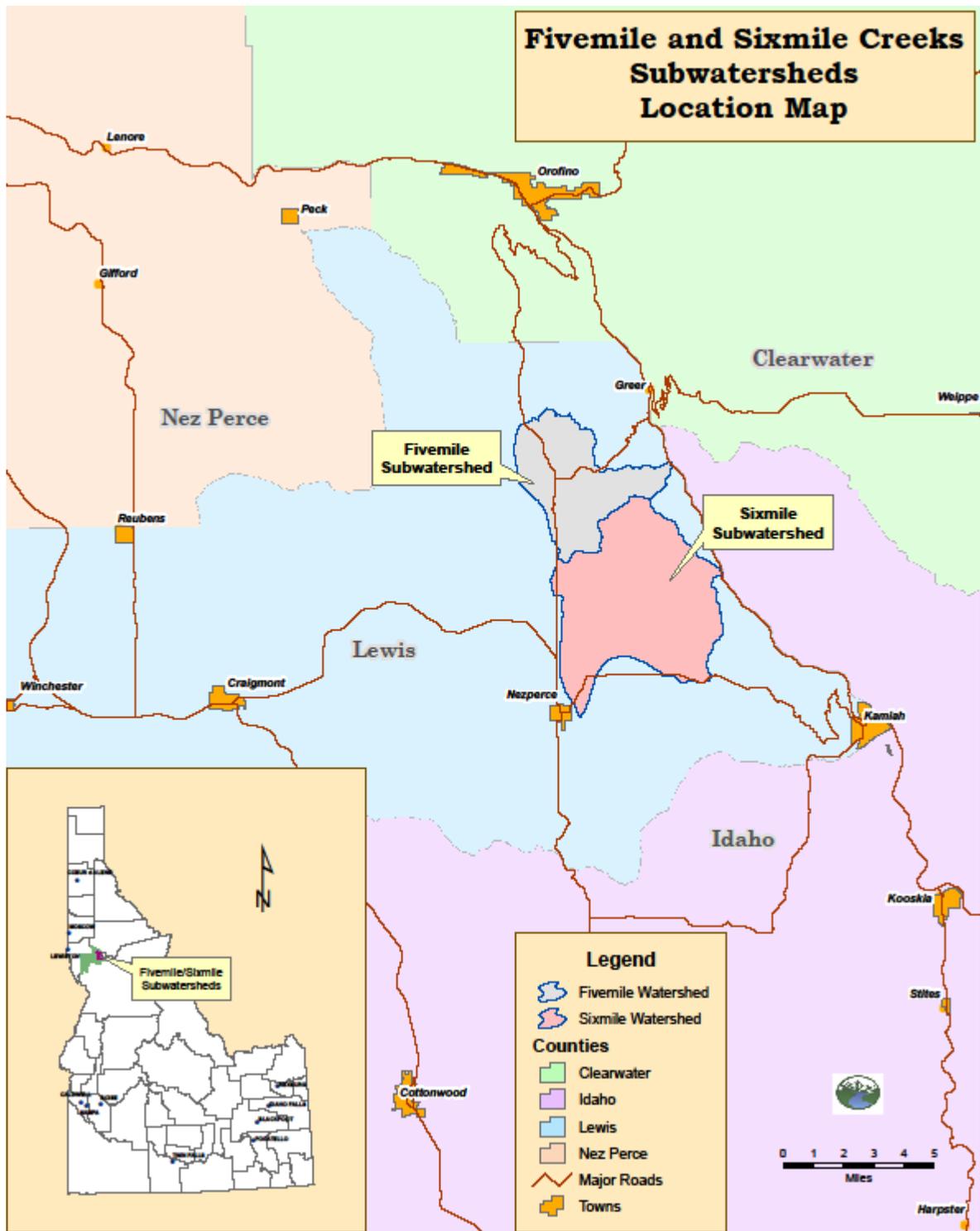


Figure 1: Location Map of Five and Sixmile Subwatersheds

Table 2. Land Use in the Fivemile Creek Subwatershed.

<i>Land Use Category</i>	<i>Acres</i>	<i>% of Subwatershed</i>
CRP	681	8%
Crop	3,352	42%
Grass/Crop	1,251	16%
Hay	280	3%
Pasture	110	2%
Feedlot	10	0.01%
Grass	650	8%
Shrub/Grass	170	2%
Tree/Shrub	340	4%
Tree/Shrub/Grass	1,141	14%
TOTAL:	7,985	100%

Table 3. Land Use in the Sixmile Creek Subwatershed.

<i>Land Use Category</i>	<i>Acres</i>	<i>% of Subwatershed</i>
CRP	240	2%
Crop	9,630	60%
Grass/Crop	930	6%
Pasture	87	0%
Feedlot	10	0%
Grass	350	2%
Tree/Shrub	92	0%
Tree/Shrub/Grass	4,740	30%
TOTAL:	16,079	100%

Fivemile Creek Watershed Landuses Map

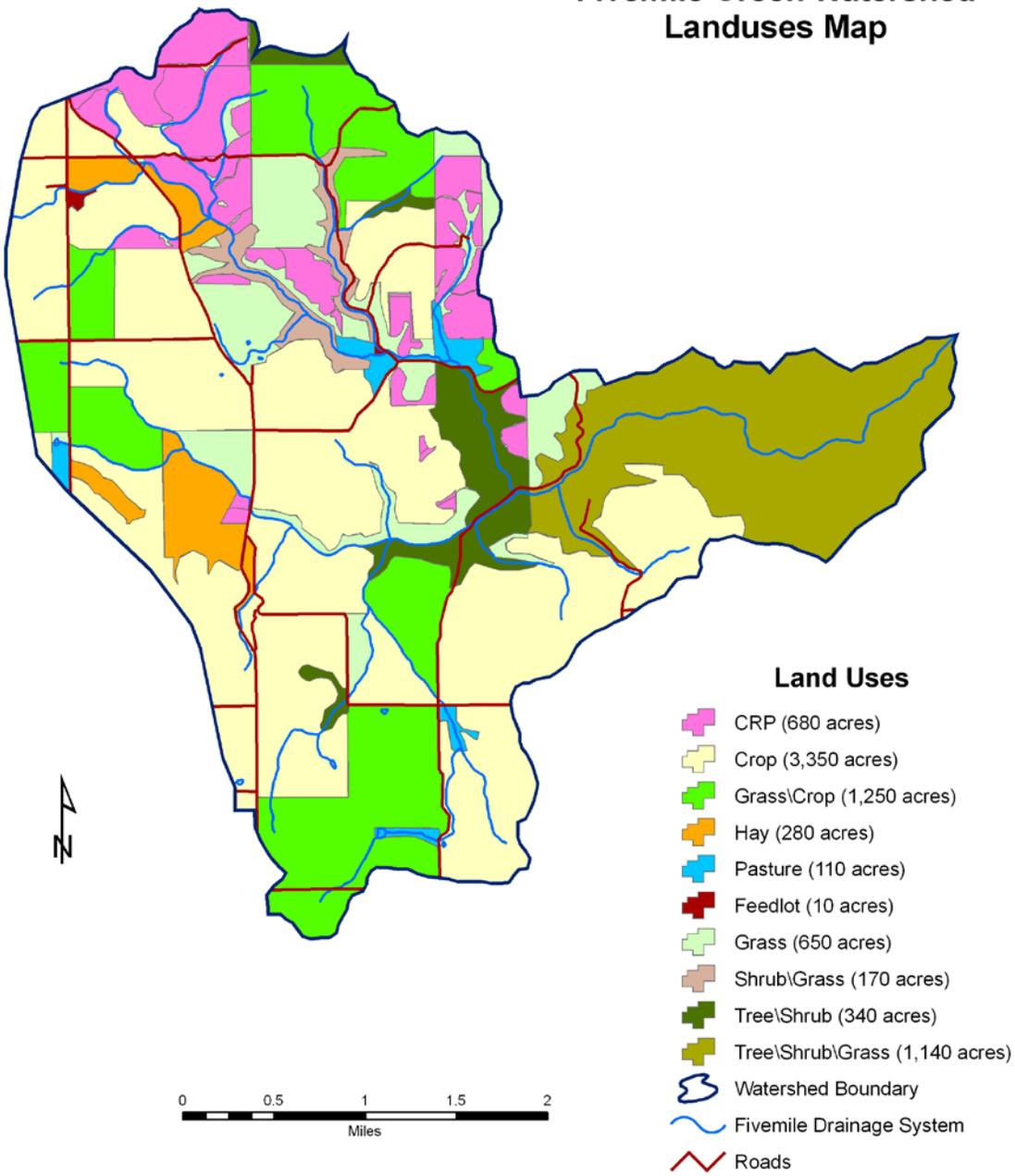


Figure 2: Fivemile Subwatershed Land Uses.

Sixmile Creek Watershed Landuses Map

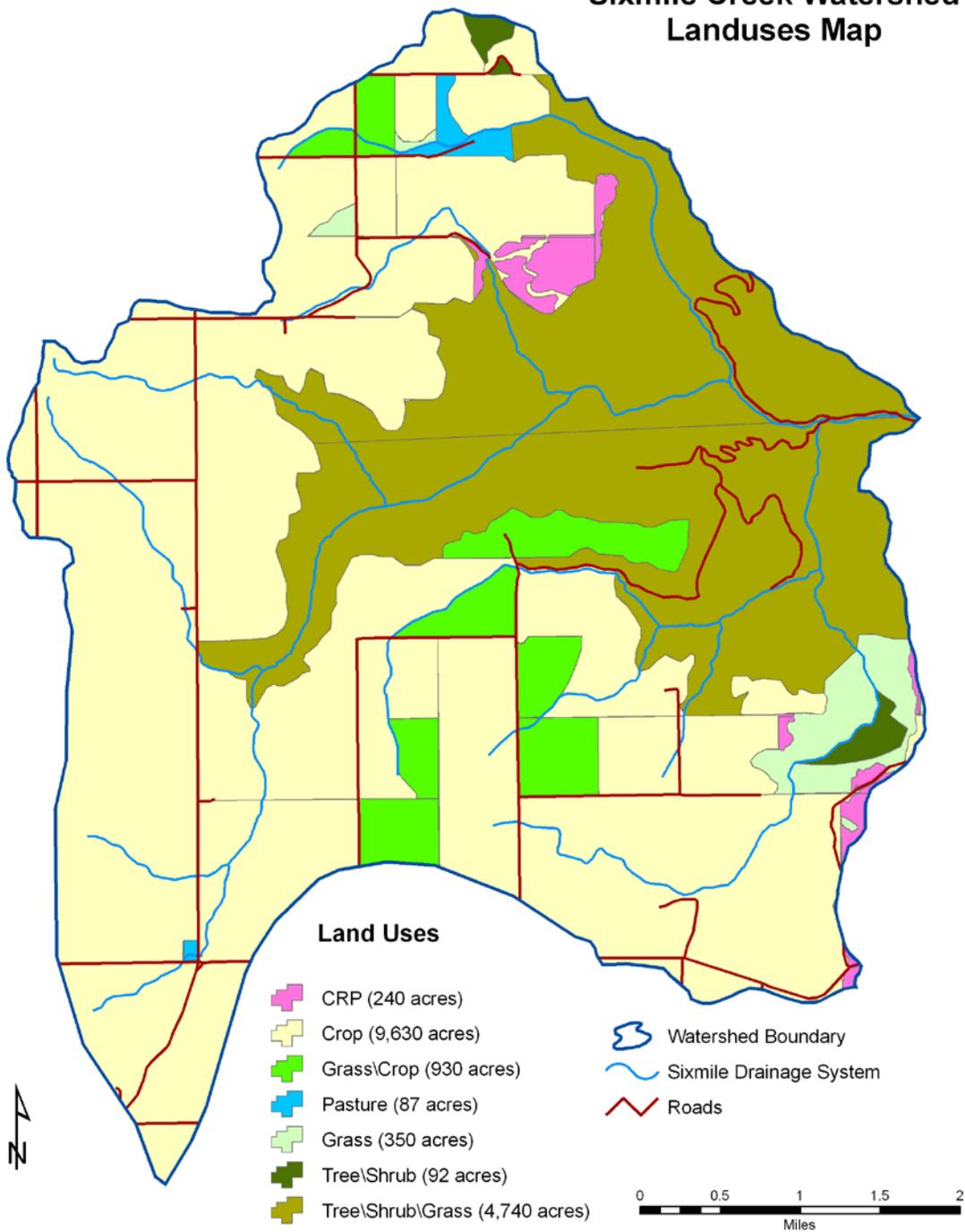


Figure 3: Sixmile Subwatershed Land Uses.

LAND OWNERSHIP

The vast majority of lands in both Fivemile and Sixmile Creek subwatersheds are in private ownership; with the Nez Perce tribe as the secondary ownership (Table 4 and Figures 4 and 5). Implementation activities should focus on private lands and be coordinated with the Nez Perce tribe.

Table 4. Land ownership in the Fivemile and Sixmile Creek Subwatersheds.

<i>Watershed</i>	<i>Total Area (Acres)</i>	<i>Private Acres (%)</i>	<i>NPT Acres (%)</i>	<i>Federal Acres (%)</i>	<i>State Acres(%)</i>
Fivemile Creek	7,985	6,482 (81)	1,503 (19)	0 (0)	0 (0)
Sixmile Creek	16,067	11,780 (73)	4,273 (27)	<1 (<1)	14 (<1)

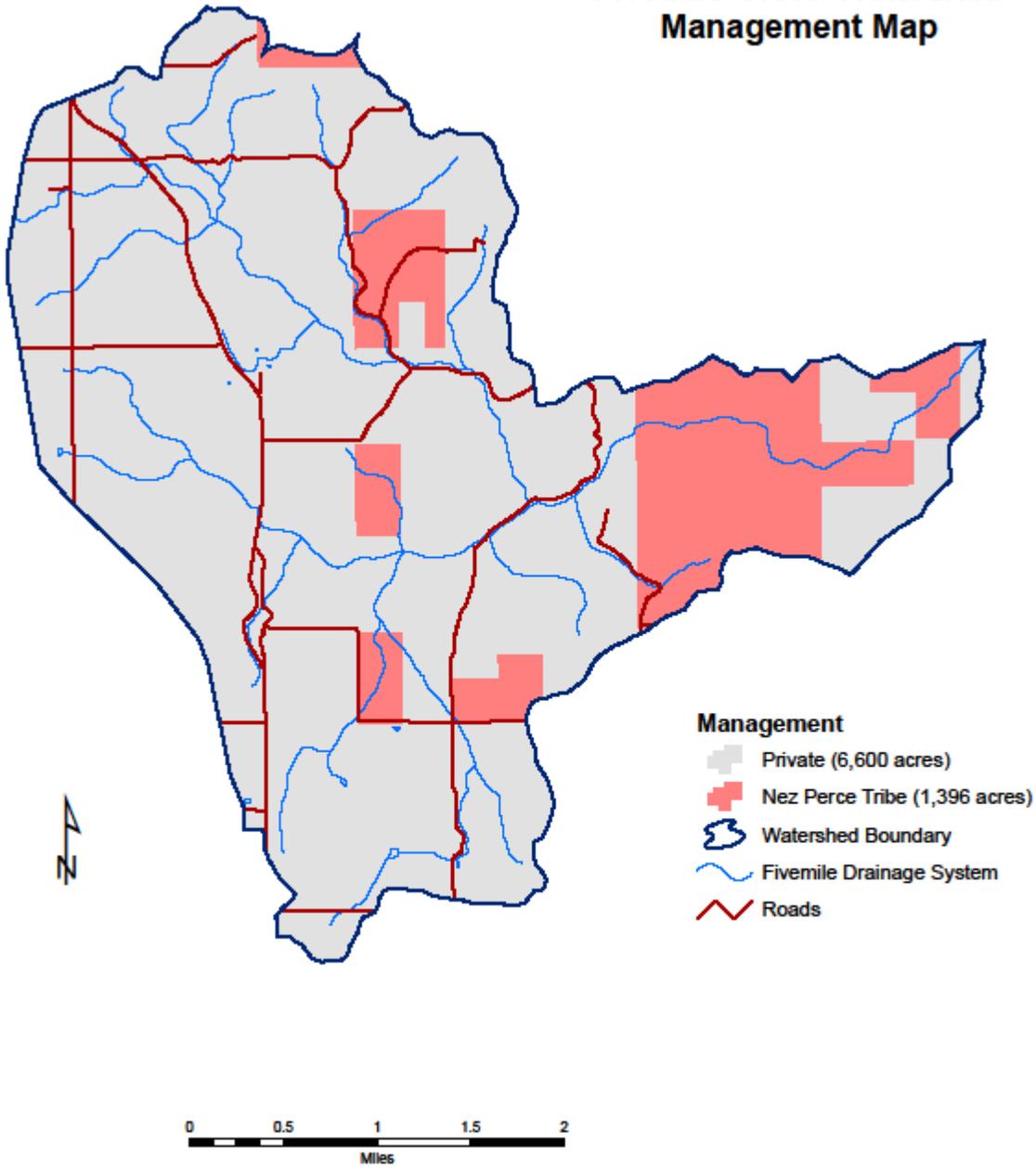
Conservation Accomplishments

A very small amount of conservation work has taken place in the Fivemile and Sixmile subwatersheds. Federal programs such as CRP and EQIP have been used to implement practices such as conversion to permanent grass, tree and shrub plantings, residue management – direct seed, and nutrient management. PL-566 was used after a local fire devastated much of the area timber and grazing areas. This program aided with re-vegetation, weed control, and disease suppression.

The Lewis Soil Conservation District has utilized 319 and WQPA funds in adjacent watersheds with approximately 1,400 acres of direct seed overlapping into the Sixmile subwatershed. In the Fivemile subwatershed there have been two animal winter feeding operations assisted. Installed BMPs are fence, heavy use feeding pads, off-stream water facilities, access road, and stream crossings.

The Nez Perce tribe is working on wildlife enhancements in the lower Sixmile drainage. In the upper portions of the drainage they have approximately 160 acres of CRP where they have planted trees and shrubs, native grasses and installed fence to enhance wildlife and return the ground to permanent vegetation.

Fivemile Creek Watershed Management Map

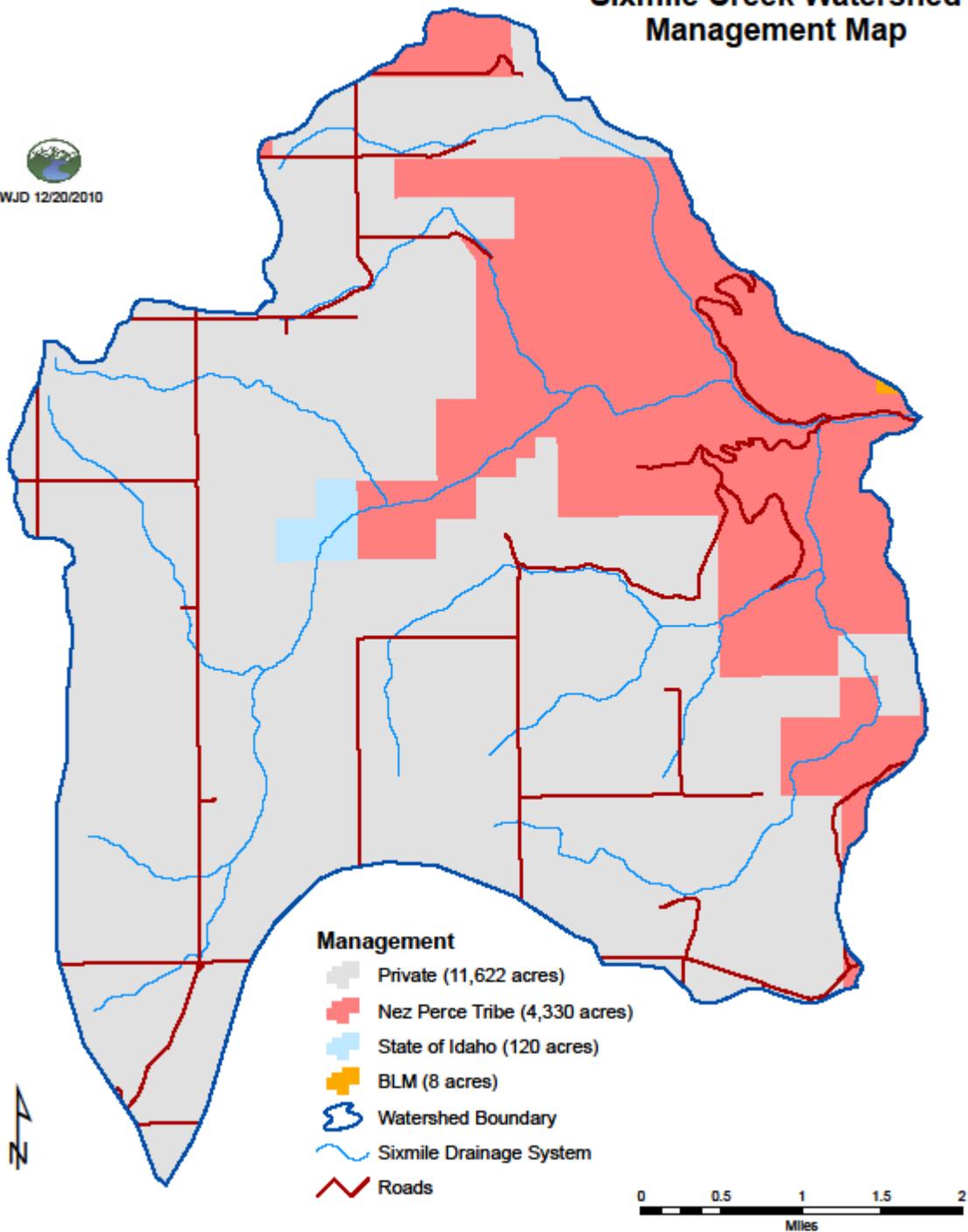



WJD 12/20/2010

Figure 4: Fivemile Subwatershed Land Ownership

Sixmile Creek Watershed Management Map

WJD 12/20/2010



Sixmile Subwatershed Land Ownership

Figure 5:

Water Quality Problems

BENEFICIAL USE STATUS

Idaho water quality standards require that beneficial uses of all water bodies be protected. Beneficial uses can include existing uses, designated uses, and presumed existing uses. Designated uses are uses officially recognized by the state. Agricultural water supply, industrial water supply, wildlife habitat, and aesthetics are designated uses for all waterbodies within the state of Idaho. In cases where designated uses have not been established by the state for a given water body, DEQ has established the presumed existing uses of supporting cold water aquatic life and either primary or secondary contact recreation. Beneficial uses for water bodies on the 303(d) list in the Fivemile and Sixmile subwatersheds are listed below in Table 5 (IDEQ, 2010).

Table 5. Beneficial Uses for Five and Sixmile Creeks .

<i>Water Body</i>	<i>Boundaries</i>	<i>Assessment Unit ID#</i>	<i>Beneficial Uses</i>	<i>Support Status</i>
Fivemile Creek	Headwaters to Clearwater River	17060306 CL022	CWAL	Fully Supporting
			DWS, PCR, SS	Not Assessed
Sixmile Creek	Headwaters to Clearwater River	17060306 CL023	CWAL, PCR	Not Supporting
Beneficial Uses Key: CWAL = cold water aquatic life; SS = salmonid spawning; PCR = primary contact recreation; SCR = secondary contact recreation; SRW = special resource water; DWS = drinking water supply				

POLLUTANTS

Early studies have shown that Fivemile Creek water quality is impacted by sparse riparian vegetation, variable annual flows, and low summer flows.. Nonpoint sources of pollutants are predominantly agricultural activities. (NPT 2009)

Sparse riparian vegetation, variable annual flows, low summer flows, siltation, and high instream summer temperatures were identified in early studies as impacting the water quality for Sixmile Creek. Recent Sixmile Creek stream survey data for one reach, 188 meters, indicate suboptimal conditions for: width/depth ratios, streambank stability, cobble embeddedness, large woody debris, and pool frequency (see Appendix C of TMDL). (NPT 2009)

Temperature data was collected in 2000 with continuous temperature recorders and compared to Idaho State Standards (NPT 2001). One thermograph was placed at the mouth of Sixmile Creek. The waterbody was evaluated for cold water biota (CWB) (22°C) for the entire record, July – October, and salmonid spawning (13° C) for the interval monitored between January 15 – July 15. The CWB instantaneous criteria were exceeded 14% of the time monitored. Data was not available to evaluate temperature during the salmonid spawning interval. (NPT 2009)

Road construction and logging activities were identified as contributing to the siltation problems. Agriculture is also a source of nonpoint pollution in the subwatershed. (NPT 2009)

Table 6 summarizes the reductions found in the Lower Clearwater TMDL (NPT 2009).

Table 6. TMDL Reductions for Fivemile and Sixmile Creeks.

Waterbody	Solar Radiation Reduction	Phosphorus Reduction	Sediment Reduction
Fivemile	43%	77%	98.1%

Sixmile	50%	80%	97.4%
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WATER QUALITY MONITORING

The Nez Perce Tribe’s Water Resources Division monitored Fivemile and Sixmile Creeks monthly, from June 2005 through May 2006, at their mouths. Parameters monitored include: air temperature, water temperature, dissolved oxygen, pH, specific conductivity, turbidity, stream flow, nitrate+nitrite, ammonia, total phosphorus, dissolved phosphorus, total suspended solids, total coliform, E. coli, pheophytin, and chlorophyll-a. This data is part of the Lower Clearwater Tributaries TMDL that the Tribe developed. (Clark 2012)

The tribe is revisiting those sites 2012 – 2013, as part of the water quality trend monitoring (Clark 2012)

According to Campbell (2006); Sixmile creek shows positive for 2,4-D at the 0.51 ppb concentration on June of 2006. The concentration was well below any aquatic reference dose for acute levels on rainbow trout. The herbicide 2,4-D is widely used to control weeds in a variety of applications. This one time detection for the program was thought to be related to weather conditions prior to sample collection. (Campbell 2006)

AGRICULTURAL WATER QUALITY INVENTORY AND EVALUATION

Recent inventories of agricultural lands in the Five and Sixmile subwatersheds by ISWCC staff have shown that there are some concerns in these subwatersheds. Primary concerns have been cattle in and near the streams, weed management, access roads, cropland erosion, and nutrient management.

Riparian

Riparian areas in general were categorized in fair condition using Stream Visual Assessment Protocol (SVAP) on agricultural lands. The primary reason for the fair rating was lack of shade. Areas where cattle have access to the stream were usually rated poor primarily due to extensive bank trampling, manure presence, and lack of shade. SVAP data and a map in Appendix A.

Plantings will increase the shade on the creek, especially when combined with limited cattle access. Working with producers to install fencing and off-stream water will directly benefit riparian areas.

Dry Cropland

The uplands are dominated by dry cropland. Visual surveys indicated some cropland erosion in some areas. NRCS records shows a large number of producers have adopted No till in the area. Thus, the reason the erosion is not more extensive. The records show about three producers farming in these two subwatersheds that could be potential participants for No till contracts. Likely these are the lands that had the erosion during visual surveys. RUSLE2 data shows the No till lands with soil losses of 0.3 to 0.9 ton/acre/year. Minimum till lands have RUSLE2 soil losses of 1 to 2 ton/acre/year.

The other concern in the cropland areas is nutrient management. The Clearwater Plateau Nitrate Area extends only slightly into these subwatersheds; however, NRCS records show that there could be some improvements in nutrient management procedures by changing the timing, amounts and products. Applying nutrients closer to the time of seeding, in lower amounts and/or using slow release nitrogen products could benefit the overall soil health and thus water quality. The primary method of nutrient losses from upland fields is from nutrients bound to soil particles. No till remains the biggest bang for the buck for both soil and nutrient savings.

In areas where road culverts are contributing large amounts of water to the fields, there would be need for “Culvert Outlets” or small settling basins on the downstream end of culverts that can divert the velocities of water from the culverts. Installing these would decrease erosion from the high velocity waters that are entering fields from road culverts.

Pasture

Pasture lands surveys showed high infestations of weeds. Weed management, grazing management, and water developments will be the key practices to manage weed infestations. Managing the weeds will decrease erosion from the pastures and enable the pastures to be more productive. More productive upland pastures will allow cattle to graze the uplands longer rather than go to the riparian areas. Upland water developments will allow pastures to be managed more efficiently, and again reduce the need for cattle to use riparian areas.

Animal Feeding Operations

Primary concerns in AFO areas were cattle access to the streams, and access roads. Limiting access to the streams will benefit riparian areas, water quality and herd health. Improving access roads will decrease sediment losses from the roads and improve the facilities. There are three known winter feeding operations in the watershed. No dairies are present in these subwatersheds.

Timber/Shrublands

The primary landowner of the timber/shrubland areas in the watersheds is the Nez Perce tribe.

THREATENED AND ENDANGERED SPECIES

The following species are listed as candidate or threatened and are found in these subwatersheds (Table 7). (USFWS 2012). A detailed list of all species (including plants) can be found at http://ecos.fws.gov/tess_public/countySearch!speciesByCountyReport.action

Table 7. Threatened and Endangered Species in the Fivemile and Sixmile Subwatersheds.

<i>Species</i>	<i>Status</i>	<i>Habitat affected by water quality OR distribution</i>
Yellow-billed Cuckoo (<i>Coccyzus americanus</i>)	Candidate species	no
Bull Trout (<i>Salvelinus confluentus</i>)	Listed threatened	YES
Chinook Salmon (<i>Oncorhynchus tshawytscha</i>)	Listed threatened	YES
North American wolverine (<i>Gulo Gulo luscus</i>)	Candidate species	no
Snake River Basin Steelhead (<i>Oncorhynchus mykiss</i>)	Listed threatened	YES
Spalding's Catchfly (<i>Silene Spaldingii</i>)	Listed threatened	no

There are three federally listed fish that will be influenced by actions suggested in this TMDL implementation plan. Agricultural conservation planning will be coordinated with other species recovery and protection efforts in the subwatersheds to improve listed species' habitats and address any potential impacts from BMP implementation. Improvements in water quality, achieved from BMPs installed on agricultural lands, are not expected to adversely affect these listed species and should improve or enhance their habitat. Any BMP implementation that will affect T&E species or habitat will follow Endangered Species Act (ESA) consultation requirements.

Treatment

CRITICAL AREAS

Areas of agricultural lands that contribute excessive pollutants to water bodies are defined as critical areas for BMP implementation. Critical areas are prioritized for treatment based on their location to a water body of concern and the potential for pollutant transport and delivery to the receiving water body. Critical areas are those areas in which treatment is considered necessary to address resource concerns affecting water quality. Agricultural critical areas within the Fivemile and Sixmile subwatersheds include Riparian, Dry Cropland, Pasture, and AFO's. They were determined by the on the ground surveys. Areas having significant resource concerns were identified as critical areas.

TREATMENT UNITS (TU)

The following Treatment Units (TUs) describe areas in the Fivemile and Sixmile subwatersheds with similar land uses, soils, productivity, resource concerns, and treatment needs. These TUs not only provide a method for delineating and describing land use, but are also used to evaluate land use impacts to water quality and in the formulation of alternatives for solving water quality problems. BMPs to improve water quality are suggested for critical areas within each treatment unit. Table 8 describes the treatment units for these subwatersheds.

Table 8: Treatment Units and Soils by Subwatershed

Fivemile:

Treatment unit	Soils	Critical Acres
Riparian	Wilkins	10
Cropland	Southwick, Driscoll, Larkin, Lauby, Nezperce, Uhlorn	3,600
Pasture	Keuterville, Larkin, Gwin, Vollmer	300
AFO	Klickson, Keuterville, Wilkins	10

Sixmile:

Treatment unit	Soils	Critical Acres
Riparian	Wilkins, Riverwash, Aquents,	10
Cropland	Southwick, Driscoll, Larkin, Moler, Nezperce, Uhlorn	7,200
Pasture	Watama, Flybow, Kettenbach, Keuterville	200
AFO	Klickson, Keuterville, Jacket, Larkin, Driscoll	10

RECOMMENDED BMPs AND ESTIMATED COSTS

BMPs appropriate for the reduction of agricultural impacts to water quality in the Fivemile and Sixmile subwatersheds and their estimated costs are listed below in Table 9. Individual conservation planning for willing landowners will determine the most appropriate BMPs to install on a case by case basis. The information included in Table 9 provides an estimate only of the BMPs recommended for critical acres in the subwatersheds and their approximate costs. A more precise estimate of quantities of each BMP recommended to install will be determined at the time of conservation planning for a particular landowner.

The NRCS, ISWCC, and Lewis SCD provide technical and other assistance for the development of conservation plans for landowners who participate in State or Federal cost-share programs. Each plan consists of an evaluation of resource concerns as well as an assessment of crop rotation, tillage operations, irrigation water management, nutrient management, waste storage, and other site specific considerations.

Table 9. Recommended BMPs and Estimated Costs by Subwatershed.

Fivemile			
<i>TU</i>	<i>Recommended BMPs</i>	<i>NRCS Practice Code</i>	<i>Estimated Costs</i>
Riparian	Riparian Plantings	391, 612	\$ 3,000
	Fence	382	\$20,000
	Critical Area Planting	342	\$ 1,500
Dryland Crop	Residue Management	329, 345	\$ 6,000
	Nutrient Management	590	\$ 3,000
	“Culvert Outlets”	410, 638	\$30,000
Pasture	Weed Management	595	\$ 3,000
	Grazing Management	528	\$ 2,000
	Spring Developments	574	\$ 6,000
	Pipeline	516	\$9,000
	Watering Facilities	614	\$ 6,000
	Pasture and Hay Plantings	512	\$ 3,000
	Fence	382	\$ 6,000
AFO	Spring Developments	574	\$ 6,000
	Pipeline	516	\$11,000
	Watering Facilities	614	\$ 6,000
	Fence	382	\$6,000
	Heavy Use Protection	561	\$ 5,000
	Access Road	560	\$ 5,000
	Roof Runoff System	558	\$ 3,000
Subtotal			\$137,500
Sixmile			
<i>TU</i>	<i>Recommended BMPs</i>	<i>NRCS Practice Code</i>	<i>Estimated Costs</i>
Riparian	Riparian Plantings	391, 612	\$ 5,000
	Fence	382	\$25,000
	Critical Area Planting	342	\$ 1,500
Dryland Crop	Residue Management	329, 345	\$ 9,000
	Nutrient Management	590	\$ 3,000
	“Culvert Outlets”	410, 638	\$30,000
Pasture	Weed Management	595	\$ 3,000
	Grazing Management	528	\$ 3,000
	Spring Developments	574	\$ 6,000
	Pipeline	516	\$11,000

	Watering Facilities	614	\$ 6,000
	Pasture and Hay Plantings	512	\$ 5,000
	Fence	382	\$10,000
AFO	Spring Developments	574	\$ 6,000
	Pipeline	516	\$11,000
	Watering Facilities	614	\$ 6,000
	Fence	382	\$10,000
	Heavy Use Protection	561	\$ 5,000
	Access Road	560	\$ 5,000
	Roof Runoff System	558	\$ 3,000
Subtotal			\$158,500
TOTAL:			\$296,000

Implementation Priority

The TMDL implementation planning process included assessing impacts to water quality in the Fivemile and Sixmile subwatersheds from agricultural lands on 303(d) listed streams and recommending a priority for installing BMPs to meet water quality objectives stated in the Lower Clearwater TMDL for the Fivemile and Sixmile subwatersheds. Data from water quality monitoring and field inventory and evaluations were used to identify critical agricultural areas affecting water quality and set priorities for treatment.

RECOMMENDED PRIORITIES FOR BMP IMPLEMENTATION

The priority is to work in the Sixmile subwatershed because it is “not fully supporting”. The Lewis Soil Conservation District performed a survey of landowners in the subwatersheds and determined what BMP’s were most desired and would most likely be implemented. They obtained a Snake River Basin Adjudication (SRBA) grant to work toward these priorities summer 2012.

Table 8. Subwatershed Priority for BMP implementation.

<i>Priority Ranking</i>	<i>Subwatershed</i>	<i>Critical Areas</i>	<i>Rationale</i>
1	Sixmile Creek	~8,000	Listed as “Not Fully Supporting”. Water quality reductions assigned for temperature, phosphorus and sediment. More critical acres.
2	Fivemile Creek	~ 4,000	Listed as Fully Supporting – Not assessed. Water quality reductions assigned for temperature, phosphorus and sediment.

TREATMENT ALTERNATIVES

Treatment will include continuing to work with LSCD to evaluate alternatives and implement based on available funding.

Describe alternatives:

1. No Action – In this alternative nothing will be done to improve water quality.
2. Full Implementation of Table 9 – In this alternative all BMP's listed in Table 9 will be implemented over time and as funding is available.

This alternative is the best for water quality. This alternative is the best alternative. However, the time to implement all the practices listed may extend out several years, especially when coupled with available funding needs.

3. Priority 1 implementation only - In this alternative the only BMPs that would be implemented are the Sixmile BMP's.

This alternative works better for the available funding needed and would make a beneficial impact on Sixmile Creek and ultimately the Lower Clearwater River. However some of the landowners are the same and they desire to implement practices on all of their land.

4. Partial Implementation of Table 9 – In this alternative part of the BMP's would be installed over the next 3 years when funding is available.

This alternative recognizes the timing issues and funding issues that are present. It implements the BMP's that are most desirable first with landowners that are openly willing to volunteer (the most innovative and fervent). BMP's installed will provide some water quality improvement.

Option 4 is the proposed alternative by the LSCD because it recognizes timing and funding issues. The ultimate goal will be Option 2, over time.

Funding

Financial and technical assistance for installation of BMPs is needed to ensure success of this implementation plan. The Lewis Soil and Water Conservation District will actively pursue multiple potential funding sources to implement water quality improvements on private agricultural and grazing lands. Many of these programs can be used in combination with each other to implement BMPs.

These sources include (but are not limited to):

CWA 319 –These are Environmental Protection Agency funds allocated to the Nez Perce Tribe and the State of Idaho. The Idaho Department of Environmental Quality (DEQ) administers 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. The Nez Perce tribe has CWA 319 funds available for projects on Tribal lands on a competitive basis. http://www.deq.idaho.gov/water/prog_issues/surface_water/nonpoint.cfm#management

Resource Conservation and Rangeland Development Program (RCRDP) –The RCRDP is a loan program administered by the ISWCC for implementation of agricultural and rangeland best management practices or loans to purchase equipment to increase conservation. <http://www.scc.state.id.us/programs.htm>

Conservation Improvement Grants – These grants are administered by the ISWCC. <http://www.scc.state.id.us/programs.htm>

PL-566 –This is the small watershed program administered by the USDA Natural Resources Conservation Service (NRCS).

Agricultural Management Assistance (AMA) –The 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) –The 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) –The 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. <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) –The 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/>

State Revolving Loan Funds (SRF) –These funds are administered through the ISWCC <http://www.scc.state.id.us/programs.htm>

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

Conservation Security Program (CSP) –CSP is a voluntary program that rewards the Nation’s premier farm and ranch land conservationists who meet the highest standards of conservation environmental management. <http://www.nrcs.usda.gov>

Grazing Land Conservation Initiative (GLCI) –The GLCI’s 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/>

HIP – This is an Idaho Department of Fish and Game program to provide technical and financial assistance to private landowners and public land managers who want to enhance upland game bird and waterfowl habitat. Funds are available for cost sharing on habitat projects in partnership with private landowners, non-profit organizations, and state and federal agencies. <http://fishandgame.idaho.gov/cms/wildlife/hip/default.cfm>

Partners for Fish and Wildlife Program in Idaho – This is a U.S. Fish and Wildlife program providing funds for the restoration of degraded riparian areas along streams, and shallow wetland restoration. <http://www.fws.gov/partners/pdfs/ID-needs.pdf>

Outreach

Conservation partners in the Fivemile and Sixmile subwatersheds will use their combined resources to provide information about BMPs to improve water quality to agricultural landowners and operators. A local outreach plan will be developed. Newspaper articles, district newsletters, watershed and project tours, landowner meetings and one-on-one personal contact will be used as outreach tools.

Outreach efforts will:

- Provide information about the TMDL process
- Supply water quality monitoring results
- Accelerate the development of conservation plans and program participation

- Distribute progress reports
- Enhance technology transfer related to BMP implementation
- Increase public understanding of agriculture's contribution to conserve and enhance natural resources
- Improve public appreciation of agriculture's commitment to meeting the TMDL challenge
- Organize an informational tour bringing together irrigation districts' Board of Directors and Soil Conservation Districts' Board of Supervisors.
- Identify and encourage the use of BMPs for recreation activities on the sub-basin

Monitoring and Evaluation

FIELD LEVEL

At the field level, annual status reviews will be conducted to insure that the contracts are on schedule and that BMPs are being installed according to standards and specifications. BMP effectiveness monitoring will be conducted on installed projects to determine installation adequacy, operation consistency and maintenance, and the relative effectiveness of implemented BMPs in reducing water quality impacts. This monitoring will also measure the effectiveness of BMPs in controlling agricultural nonpoint-source pollution. These BMP effectiveness evaluations will be conducted according to the protocols outlined in the Agriculture Pollution Abatement Plan and the ISWCC Field Guide for Evaluating BMP Effectiveness.

The Revised Universal Soil Loss Equation (RUSLE) is used to predict sheet and rill erosion on non-irrigated and irrigated lands. The Alutin Method, Imhoff Cones, and direct-volume measurements are used to determine sheet and rill irrigation-induced and gully erosion. Stream Visual Assessment Protocol (SVAP) and Streambank Erosion Condition Inventory (SECI) are used to assess aquatic habitat, stream bank erosion, and lateral recession rates. The Idaho OnePlan's CAFO/AFO Assessment Worksheet is used to evaluate livestock waste, feeding, storage, and application areas. The Water Quality Indicators Guide is utilized to assess nitrogen, phosphorus, sediment, and bacteria contamination from agricultural land.

WATERSHED LEVEL

At the watershed level, there are many governmental and private groups involved with water quality monitoring. The Idaho Department of Environmental Quality uses the Beneficial Use Reconnaissance Protocol (BURP) to collect and measure key water quality variables that aid in determining the beneficial use support status of Idaho's water bodies. The determination will tell if a water body is in compliance with water quality standards and criteria. In addition, IDEQ will be conducting five-year TMDL reviews.

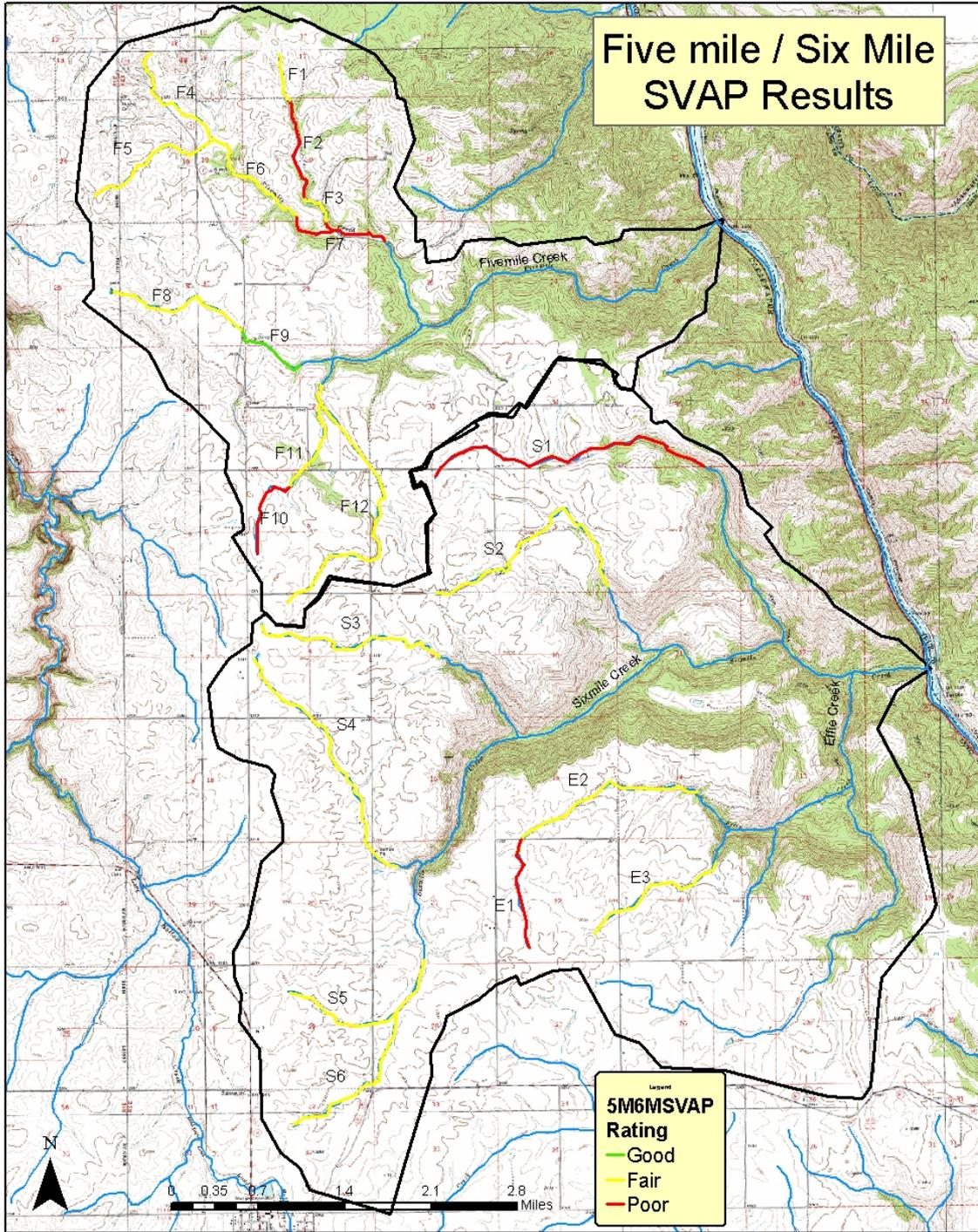
Annual reviews for funded projects will be conducted to insure the project is kept on schedule. With many projects being implemented across the state, ISWCC developed a software program to track the costs and other details of each BMP installed. This program can show what has been installed by project, by watershed level, by sub-basin level, and by state level. These project and program reviews will insure that TMDL implementation remains on schedule and on target. Monitoring BMPs and projects will be the key to a successful application of the adaptive watershed planning and implementation process.

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Appendices

APPENDIX A: SVAP MAP AND DATA



Stream name	Reach ID	Length (ft)	SVAP rating	SECI rating	Streambank erosion
Fivemile	F1	2,100	Fair	8.5 / Mod High	Present
Fivemile	F2	4,500	Poor	11 / High	Present
Fivemile	F3	1,700	Fair	8.5 / Mod High	Present
Fivemile	F4	5,500	Fair	8.5 / Mod High	Present
Fivemile	F5	6,300	Fair	8.5 / Mod High	Present
Fivemile	F6	5,600	Fair	8.5 / Mod High	Present
Fivemile	F7	5,100	Poor	11 / High	Present
Fivemile	F8	6,600	Fair	8.5 / Mod High	Present
Fivemile	F9	3,300	Good	3 / Low	Minimal
Fivemile	F10	4,000	Poor	11 / High	Present
Fivemile	F11	4,150	Fair	8.5 / Mod High	Present
Fivemile	F12	13,700	Fair	8.5 / Mod High	Present
Sixmile	S1	13,200	Poor	11 / High	Present
Sixmile	S2	11,500	Fair	8.5 / Mod High	Present
Sixmile	S3	8,800	Fair	8.5 / Mod High	Present
Sixmile	S4	12,000	Fair	8.5 / Mod High	Present
Sixmile	S5	8,100	Fair	8.5 / Mod High	Present
Sixmile	S6	7,400	Fair	8.5 / Mod High	Present
Effie Creek	E1	5,000	Poor	11 / High	Present
Effie Creek	E2	8,300	Fair	8.5 / Mod High	Present
Effie Creek	E3	6,400	Fair	8.5 / Mod High	Present

143,250 feet of stream surveyed

The SVAP was developed by the USDA NRCS and evaluates stream reaches based on physical parameters such as channel modification, riparian condition, bank stability, water appearance, and stream shading. The protocol uses a rating scale from 1 to 10 (1 being most impaired to 10 being least impaired). SVAP is advantageous because it is a quick qualitative method for comparing stream reaches within a watershed. (NRCS 1998)

The Stream Erosion Condition Inventory (SECI) describes erosion potential. It is a descriptive method that can also include the location of eroding banks and sediment load estimates from those eroding banks. Higher ratings indicate greater potential for sediment production. (NRCS 1998)