

---

***COTTONWOOD CREEK***

*INITIAL ASSESSMENT*

Nez Perce County, Idaho

JULY 1995

---

Prepared for:

Nez Perce Soil and Water Conservation District

Prepared by:

L. Rasmussen, S. Vetten  
USDA-Natural Resources Conservation Service  
Watershed Enhancement Team

Ray Latham  
USDA - Natural Resources Conservation Service  
Volunteer

Acknowledgments:

Frank Gariglio, USDA-Natural Resources Conservation Service Lewiston Field Office. Frank compiled the soils and acreage information.

Vern McMaster, USDA-Natural Resources Conservation Service Lewiston Field Office. Vern provided vegetation information.

Dennis Dau, Nez Perce Soil and Water Conservation District. Dennis edited the document and provided comments to be incorporated into the initial assessment.

# CONTENTS

Introduction . . . . .	4
Study Area Description	
General. . . . .	4
Land Ownership. . . . .	4
Land Use. . . . .	5
Topography. . . . .	5
Hydrology . . . . .	5
Vegetation. . . . .	5
Geology . . . . .	6
Water Resources. . . . .	6
Wetlands. . . . .	6
Urban / Suburban . . . . .	7
Roads. . . . .	8
Mining. . . . .	8
Livestock. . . . .	8
Soils. . . . .	8
Riparian Areas. . . . .	9
Fisheries. . . . .	9
Wildlife. . . . .	9
Threatened and Endangered Species. . . . .	10
Cultural Resources. . . . .	10
Air Quality. . . . .	10
Economic Profile. . . . .	10
Other. . . . .	10
Past and Current Activities. . . . .	11
Problem Identification. . . . .	12
Prior Study References. . . . .	13
Local Objectives. . . . .	13
Conclusions. . . . .	14

## INTRODUCTION AND OBJECTIVES

The objectives of completing an Initial Assessment (IA) are:

- \* To determine if the problems and local objectives are within the realm and scope of the Natural Resources Conservation Service's mission and technical expertise.
- \* To determine if a detailed evaluation such as a Preliminary Investigation (PI) is warranted.

## STUDY AREA DESCRIPTION

### *General*

Cottonwood Creek (PNRS # 1160<sup>1</sup>) (hydrologic unit # 17060306-069) originates about 4 miles south of the small community of Gifford, Idaho (population - 100) in Nez Perce County. The watershed encompasses 48,242 acres. From its headwaters, Cottonwood Creek traverses in a northwesterly direction for approximately 19 miles until it meets the Clearwater River. The confluence of the Clearwater River and Cottonwood Creek is about 18 miles east of Lewiston, Idaho. The watershed boundaries are within the Nez Perce Tribe reservation.

### *Land Ownership*

Land ownership in the Cottonwood Creek watershed consists of private, Nez Perce Tribe, Idaho state and federal. Table 1 lists the appropriate acreages for each ownership type.

**Table 1. Cottonwood Creek land ownership by acres.<sup>2</sup>**

Private	45,912 acres
Nez Perce Tribe	1,980 acres <sup>3</sup>
State (IDL)	280 acres <sup>4</sup>
Federal (BLM)	70 acres
<b>Total</b>	<b>48,242 acres</b>

<sup>1</sup> This number is from the Stream Segments of Concern List. In order to be listed a stream is nominated by the public (during the Idaho Antidegradation Program Basin Area Meeting process) and chosen by the Idaho Governor's Water Quality Advisory Working Committee as eligible to receive priority for water quality monitoring and management by state and federal agencies.

<sup>2</sup> Acres calculated by planimeter.

<sup>3</sup> Acreage obtained from Nez Perce Tribe GIS map dated 1991.

<sup>4</sup> Acreage obtained from 1981 Bureau of Land Management (1:100,000 scale) 30 X 60 minute quadrangle maps. The Potlatch and Orofino quadrangle maps were utilized.

## **Land Use**

**Table 2. Cottonwood Creek watershed land use summary.**

Non-irrigated cropland	27,980 acres (58%)
Forestland	5,789 acres (12%)
Rangeland	13,990 acres (29%)
Pastureland	483 acres (<1%)
Total	48,242 acres

## **Topography**

Elevation ranges from 850 feet at the mouth of Cottonwood Creek to 3,500 feet at the watershed headwaters. Rolling upland plateaus of non-irrigated cropland with steep canyon walls and a somewhat inaccessible canyon floor typify the topography of the watershed.

The watershed is characterized by steep slopes and narrow bottomlands. For the most part, the north and east facing slopes are forested with various tree and shrub species. Whereas the south facing slopes and the flatter plateau areas are cropland.

A preliminary Rosgen classification completed in July of 1995 concludes that stream channel types include A, B, and C.<sup>5</sup>

## **Hydrology**

Major drainages in the watershed include Coyote Creek, Magpie Creek, Pickle Canyon and Star Mill Creek. According to local residents typical peak runoff events occur in March or April from a combination of snowmelt and rain.<sup>6</sup> No current hydrology information is available at this time. However, the Nez Perce Tribe may install a flow gauging station at the mouth of Cottonwood Creek.

## **Vegetation**

The forested areas are scattered intermittently throughout the watershed on moist sites and within incised drainages. The undulating upper plateau areas south of Star Mill Creek do contain some large areas of forestland covering about 3,500 acres. Logging operations on private land are very active, and may have up to 80%<sup>7</sup> of the forested acreage logged within the next five years.

---

<sup>5</sup>Rosgen classification completed by L. Rasmussen in a preliminary survey taken at 5 points in the watershed. Note that the classification is preliminary and was obtained for the sole purpose of this report. Additional transects should be completed in order to improve accuracy.

<sup>6</sup>Local residents were personally interviewed in June of 1995.

<sup>7</sup>Sources of information include Rich Talbott, Idaho Department of Lands, and local land owners. Data was collected in March of 1995.

Non-irrigated agriculture consists of winter wheat, barley, pea, lentil, garbonzo, canola, and bluegrass seed production. Some small grain/ summerfallow operations occur in the areas of lower precipitation. Crop rotations throughout the watershed consist mainly of two and three-year rotations.<sup>8</sup> Crop yields vary throughout the watershed. Average yields include; 65 bushels per acre for winter wheat, 3,000 pounds per acre for spring barley, 1,700 pounds per acre for spring peas, and 1,000 pounds per acre for lentils.<sup>9</sup>

Some CRP acreage does exist in the watershed. Approximately 1200 acres is seeded to orchard grass, smooth brome, Intermediate wheatgrass and small burnet<sup>10</sup>. Some of these contracts will start to expire in September of 1995, and it is likely that many of these CPR acres will be converted back to cropland.

Noxious weed invasion is a significant problem within the drainage. Yellow starthistle and Cheatgrass brome has reduced the grazing forage on the rangeland, ( Rasmussen et al, 1995).

### ***Geology***

The watershed is located in the Columbia Plateau Geomorphc Province. Bedrock predominantly consists of Tertiary age Columbia River Basalt. Detailed geology information will need to be collected in order to accurately describe the geology of the watershed.

### ***Water Resources***

Surface Water - Surface water flows are extremely low in summer months<sup>11</sup>. There are two known water diversions located on the main stem Cottonwood Creek. Pollution sources include sediments and nutrients. Water temperature is a suspected pollutant, however, no temperature data is available at this time. Water turbidity is evident during storm events. In addition, an on-farm nitrate study conducted in the adjacent Big Canyon Creek watershed concludes that high amounts of nitrates are leaving cropland fields (Rasmussen, 1995)<sup>12</sup>. The Nez Perce Tribe is in the process of collecting water quality data which should complement the historical data collected by DEQ. The Past and Current Activities portion of this report includes additional surface water information.

Ground Water - Cottonwood Creek is a basalt aquifer located within the Clearwater Uplands and Plateau aquifer<sup>13</sup>. Major sources of recharge to basalt aquifers include infiltration of precipitation and seepage from streams and rivers. Basalt aquifers are characterized by numerous basalt flows and thin interbeds of sediments and / or pyroclastic volcanic rocks. Water yielding zones in these aquifers are usually located between the basalt flows. Potential contamination sources to the watershed's groundwater include agricultural chemical applications, storage, waste disposal, accidental spills, and handling. Other

---

<sup>8</sup>Data obtained from land owner interviews and from the Big Canyon Creek Farming Practices Survey completed February 1995 (Rasmussen et al).

<sup>9</sup>Data obtained from land owner interviews and the Big Canyon Creek Environmental Assessment (Rasmussen et al).

<sup>10</sup>Data obtained from the Natural Resources Conservation Service - Lewiston Field Office (March 1995).

<sup>11</sup>Information from personal interviews with local landowners and the Nez Perce Tribe (June 1995).

<sup>12</sup>Nitrate Leakage in the Big Canyon Creek watershed.

<sup>13</sup>Data from Protecting Groundwater Quality in Idaho (The Idaho Groundwater Quality Council).

sources may include underground and above ground storage tanks, confined animal feeding operations, urban uses, and abandoned wells.

Agricultural chemicals are utilized in the watershed on all cropland acres. According to the Big Canyon Creek Plant Protection Products Survey (Rasmussen et al, 1995) most products utilized pose little risk to groundwater. However, an analysis should be completed based on the products utilized in the Cottonwood Creek watershed. In addition, only one commercial agricultural chemical dealer is located within the watershed. The Western Farm Service facility is located adjacent to Star Mill Creek. Many farm operators store agricultural products at their farm sites. No inventory exists to qualify or quantify the type or amounts of products stored on farm. Also chemical product information concerning the ranchette operators is not available.

Petroleum product point source contamination may come from above ground or underground storage tanks. The April 12, 1995 listing of registered underground storage tanks for the state of Idaho includes the Western Farm Service facility near Star Mill Creek<sup>14</sup>. No other underground storage tanks are registered within the watershed. Most farm tanks are less than 1,100 gallons and are therefore not listed on the register. No information was obtained to quantify the number of above ground or non-registered underground storage tanks. The major concern from these storage tanks is the impact on groundwater from benzene pollution. The current water quality standard is 5 parts per billion (ppb) benzene for drinking water quality. Because some of the soils within the watershed have perched water tables this type of pollution may be a concern.

Well location and depth information can be obtained from the Idaho Department of Water Resources. The Idaho Department of Health and Welfare does not have any records of reported drinking well water contamination from any pollution sources in the Cottonwood Creek watershed<sup>15</sup>. In addition, a 1993 wellhead survey for nitrates completed in the Big Canyon Creek watershed concluded that nitrates were not a concern for drinking water within that watershed<sup>16</sup>. Another source of data may be the Idaho Farm Bureau.

### ***Wetlands***

Limited data is available for wetlands within this watershed. The Nez Perce Tribe is conducting an on-going wetland inventory. The planned completion date for this inventory is January 1996. Wetlands may have been impacted in this watershed from agricultural drainage, timber harvesting, water developments, stream channelization, road building, railroad locations, and vegetation removal.

### ***Urban / Suburban***

---

<sup>14</sup>Only underground storage tanks over 1,100 gallons are required to be registered. The list is available from DEQ.

<sup>15</sup>Data obtained by phone interview (June 1995).

<sup>16</sup>Big Canyon Creek Environmental Assessment (Rasmussen et al).

In recent years there has been a notable increase of urban growth in the lower portions of Cottonwood Creek near the Clearwater River. This urbanization occurs mostly in the bottomland riparian zones in the form of 'ranchette' grazing operations and small pastures holding livestock

for year round grazing and feeding. This has caused degradation of riparian vegetation, trampled streambanks, compacted soils and excessive overland flow from snow melt and rainstorms.

### **Roads**

Roads consist of hard surface secondary highway, light duty roads, non-maintained timber harvesting roads, and gravel roads. No inventory is completed to quantify the road miles.

### **Mining**

There are several old rock quarry sites within the watershed. They are used primarily for local sources of gravel and rock for maintenance and repair of roads, culverts and bridges.

### **Livestock**

Many small confined animal feeding operations exist within the watershed. The most common livestock produced are cattle and horses. No inventory exists to quantify the impacts from these operations.

### **Soils**

Four general soil map units are identified for the Cottonwood Creek watershed<sup>17</sup>. They include: Naff-Palouse-Thatuna, Southwick-Driscoll-Larkin, Taney-Setters, and Kettenbach-Linville.

Naff-Palouse-Thatuna - Very deep, well drained, and moderately well drained warm soils that formed in loess. Slopes are 2 to 40 percent, with an average frost free season (32°F) of 110 to 160 days. Elevation ranges from 1,800 to 2,900 feet. The average annual precipitation ranges from 18 to 22 inches per year. These soils are developed on plateaus and are classified as Argixerolls and Haploxerolls. Naff soils are found on convex hillsides, Palouse soils on concave hillsides, and Thatuna soils on plane to concave hillsides. The major land use for these soil types is cropland. This map unit is limited by the hazard of erosion and by seasonally perched water tables.

Southwick-Driscoll-Larkin - Very deep, well drained and moderately well drained soils formed in loess. Slopes are 2 to 25 percent, elevation ranges from 2,300 to 3,400 feet, precipitation ranges from 22 to 25 inches per year, with an average frost free season (32°F) of 100 to 130 days. These soils developed on plateaus and are classified as Argixerolls and Palexerolls. The major

---

<sup>17</sup>Soils information completed by Frank Gariglio, District Conservationist, Lewiston Field Office, USDA-Natural Resources Conservation Service. (July 1995).



land use is cropland. The soil unit is limited by the hazard of erosion, and by seasonally perched water tables. Southwick soils are found on plane to concave hillsides, commonly on north and east facing aspects, Driscoll soils are on plane to convex hillsides and summits, commonly on south and west facing aspects; and Larkin soils are on plane to concave hillsides.

Taney-Setters - Moderately deep to fragipan and very deep, moderately well drained, cool soils formed in loess. Slopes are 2 to 30 percent, elevation ranges from 2,600 to 4,200 feet, precipitation ranges from 23 to 26 inches, with an average frost free season (32°F) of 100 to 120 days. These soils were developed on plateaus and are classified as Argixerolls and Palexerolls. Land uses include cropland, hayland, woodland, woodland grazing and pastureland. This map unit is limited by the hazard of erosion, by a seasonally perched water table, and a short growing season. Taney soils are located on plane to concave hillsides, commonly on north and east facing aspects; Setters soils are located on plane to convex hillsides, commonly on south and west facing aspects.

Kettenbach-Linville - Moderately deep and very deep well drained, moderately fine and medium textured, warm soils that formed in basalt colluvium. Slopes are 35 to 90 percent, elevation ranges from 800 to 4,000 feet, precipitation ranges from 15 to 22 inches, with an average frost free season of 120 to 160 days. These soils were developed on canyon sides and are classified as Argixerolls and Haploxerolls. Land uses include rangeland and wildlife habitat. This map unit is limited by steep slopes, by the hazard of erosion, and by the shallow depth to bedrock in some areas. Kettenbach soils are located on south and west facing canyon slopes. Linville soils are found on north and east facing canyon slopes.

### ***Riparian Areas***

Riparian areas are immediately adjacent to water sources such as streams, springs, rivers, and ponds. A healthy riparian system provides the following functions: sediment filtering, bank stabilization, water storage and release, and aquifer recharge. Riparian areas within the Cottonwood Creek drainage vary in their size and quality. No riparian survey information is available at this time. Visual observations of the stream indicate that a multi-layered woody canopy occurs sporadically along the stream. Major woody species include alder, cottonwood, and willow. A detailed inventory should be completed in order to qualify and quantify the condition of the riparian areas in this watershed.

### ***Fisheries***

Historically, many of the tributaries of the lower Clearwater River supported substantial populations of anadromous salmonids, primarily steelhead rainbow trout (*Oncorhynchus mykiss*). These fish typically move into the Clearwater River System in the fall and overwinter in the main stem of the Clearwater River. The fish move into the Cottonwood Creek watershed in January or February and spawn in March or April.

Other fish species inhabiting Cottonwood Creek include speckled dace (*Rhinichthys osculus*), northern squawfish (*Ptychocheilus oregonensis*), redbelt shiner (*Richardsonius balteatus*), bridgeline sucker (*Catostomus columbianus*), and the Paiute sculpin (*Cottus beldingi*)<sup>18</sup>.

---

<sup>18</sup>Data obtained from Kucera and Johnson, 1986).

Additional data is included in the Past and Current Activities portion of this report.

### **Wildlife**

The upland game bird population is limited by the amount of available nesting cover in the watershed. Upland game birds include pheasant, gray partridge, valley quail, mountain quail, forest grouse, and wild turkey. Big game species include elk and white-tailed deer. Additional data should be collected from the Nez Perce Tribe or Idaho Department of Fish and Game.

### **Threatened and Endangered Species<sup>19</sup>**

The list of CANDIDATE species includes the Broad-fruit Mariposa (*Calochortus nitidus*), Jessica's Aster (*Aster jessicae*), Palouse Goldenweed (*Haplopappus liatrifolmis*), Spalding's Silene (*Silene spaldingii*), Constance's Bittercress (*Cardamine constancei*) and Plumed Clover (*Trifolium plumosum var amplifolium*).

The LISTED animal species include the Bald Eagle (*Haliaeetus leucocephalus*) and Snake River Fall Chinook Salmon (*Oncorhynchus tshawytscha*).

The SPECIES OF SPECIAL CONCERN list includes the wild run steelhead.

### **Cultural Resources**

A cultural resources survey has not been completed for this watershed. The Nez Perce Tribe indicates that the area was an important fishery, is located near the Nez Perce Trail, and may contain various other cultural areas.<sup>20</sup>

### **Air Quality**

According to the Idaho Department of Environmental Quality in Lewiston, Idaho the only air quality concerns at this time are from road dust<sup>21</sup>. Particulates from gravel roads enter the air and can impact the air quality of residents along the road systems.

### **Economic Profile**

The most recent data collected is for the Big Canyon Creek watershed. This watershed is located adjacent to and to the east of the Cottonwood Creek watershed. Many of the land owners and operators manage land within both watersheds. Because of the proximity of the watersheds and the similarity in land uses and employment types, data from the 1995 Big Canyon Creek Environmental Assessment (Rasmussen et al) is used at this time. However, a

<sup>19</sup>Data from Idaho Conservation Data Center (March 1995).

<sup>20</sup>Information obtained by phone from the Nez Perce Tribe (July 1995).

<sup>21</sup>Information obtained from Joe Wiley, DEQ, air quality specialist in Lewiston, ID (July 1995).

more detailed economic profile should be developed for the residents of the watershed. Many of the employment opportunities within the watershed are natural resource based (timber and agriculture). Several watershed residents earn their wages from employment in Lewiston. At this time no data exists to characterize the economic profiles of these individuals. The average annual wage per employee for the Big Canyon Creek watershed area was reported as \$18,365.<sup>22</sup>

### **Other**

A septic systems inventory is not available at this time. Information may be requested from the Nez Perce County Planning Department.

## **III. PAST AND CURRENT ACTIVITIES**

The Nez Perce Tribe and Idaho Department of Health and Welfare Division of Environmental Quality (DEQ) have collected water quality data over the past 15 years. DEQ lists Cottonwood Creek as a moderately productive stream as indicated by the total dissolved solids content of 138 to 148 mg/l. The pH averages around 8.0 along with bicarbonate and calcium levels consistent with a well buffered system. Overall the problems noted were with elevated summer temperatures, low summer stream discharge, and sediment. Most data appears to have been grab samples and may not reflect the influence of storm events.

The Idaho Water Quality Status Report and Non-point Source Assessment has a qualitative evaluation for Cottonwood Creek. Listed as partially supported beneficial uses are agricultural water supplies, cold water biota, salmonid spawning, and secondary contact recreation. Non-point source agriculture, road construction and maintenance, channelization, rangeland, timber harvesting, and removal of riparian vegetation are considered the source of non-point thermal modification, and flow alteration are considered factors in the loss of beneficial uses.

Several reports by the Nez Perce Tribe documented fish populations, aquatic parameters and constraints to the fishery, (Kucera et. al 1983; Fuller et. al. 1985; Kucera and Johnson, 1986). Fish species found include cutthroat trout, speckled dace, northern and chiselmouth squawfish, reside shiner, bridgelip sucker paiute sculpin. Age class distributions of the rainbow trout/steelhead were primarily in the <II+ age category with few adult rainbow trout. This indicates that most were likely steelhead stock. (Kucera and Johnson, 1986.)

Population data and habitat parameters were described in relationship to rainbow/steelhead. In general fish biomass and density was highly correlated to physical habitat, particularly

temperatures (2 to 3 degrees Centigrade ) than the more heavily grazed and denuded sections above and below.

The fish habitat characterization was divided into a lower and upper study areas at Coyote Creek. The riparian zone in the agricultural areas and in the lower flood plains has been moderately to heavily grazed and is generally in poor condition. Some over story cover is present, but the lower area in the midreach has the best overall riparian conditions.

---

<sup>22</sup>1993 income figures. Data from the Big Canyon Creek Environmental Assessment (Rasmussen et al).

The Nez Perce Tribe plans to complete a wetland inventory by January of 1996.

#### **IV. PROBLEM IDENTIFICATION**

The 1988 Idaho Water Quality Status Report and Nonpoint Source Assessment by the IDHW - DEQ, indicates that Cottonwood Creek does not support the designated beneficial uses.. The report lists siltation / sedimentation, nutrients (including nitrate), thermal modification, organic enrichment / dissolved oxygen, habitat alternations. Pathogens (bacteria), ammonia and flow alterations as the primary pollutants of Cottonwood Creek.

Major sources of pollutants include;

- \* non-irrigated cropland production practices
- \* forestland road construction and maintenance practices
- \* forestland harvesting and reforestation practices
- \* rangeland practices
- \* hydrologic / habitat modifications ( including channelization, removal of riparian vegetation, and streambank destabilization)

Agriculture and silvicultural related pollution appears to be caused by:

- \* conventional tillage practices that leave inadequate surface residues
- \* lack of structural BMP's to control or reduce concentrated flow and gully erosion
- \* improper livestock grazing and associated activities in riparian and wetland areas
- \* improper forest road and skid trail construction
- \* Livestock feeding operations

Additional pollution or stream modification appears to be caused by:

- \* flood damage from high runoff events

The following impacts and effects may be the result of hydrologic and habitat modifications.

- \* low summer flows
- \* extreme fluctuations of annual streamflow variations
- \* high stream temperatures during the summer
- \* lack of instream cover
- \* lack of instream structure and habitat diversity
- \* lack of stream access to its floodplain
- \* increased municipal and industrial water treatment costs

- \* increased operation and maintenance costs due to sediment deposition on roads, culverts and borrow pits
- \* crop damages and losses due to sedimentation
- \* crop yield losses due to erosion
- \* reduction in wildlife populations and of species diversity due to riparian and wetland habitat loss

#### **V. PRIOR STUDY REFERENCES**

- \* Idaho Department of Health and Welfare - Division of Environmental Quality, 1988. *Idaho Water Quality Status Report and Nonpoint Source Assessment*.
- \* Kucera, P.A., D. Johnson and M. Bear, 1983. *A Biological and Physical Inventory of Streams within the Nez Perce Reservation*. Department of Energy - Bonneville Power Administration and Nez Perce Tribe. 1985.
- \* Fuller, R.K. P.A. Kucera, D.B. Johnson. *A Biological and Physical Inventory of Streams within the Nez Perce Reservation*. US Department of Energy - Bonneville Power Administration and Nez Perce Tribe.
- \* *Pacific Northwest Rivers Study Final Report Idaho*, 1986. US Department of Energy - Bonneville Power Administration.
- \* Nez Perce Soil and Water Conservation District, 1990. *5 Year Resource Conservation Plan*. Lewiston, Idaho
- \* Rasmussen, L., D. Ferguson, C. Hart, 1995. *Big Canyon Creek Environmental Assessment, Final Planning Report*. Nez Perce Soil and Water Conservation District. Lewiston, Idaho
- \* Rasmussen, L., B. Poland, K.W. Wilson, V. McMaster, 1995. *Farming Practices Survey, Big Canyon Creek Watershed*. Nez Perce Soil and Water Conservation District. Lewiston, Idaho.
- \* Rasmussen, L., H. Gimmestad, 1995. *Big Canyon Creek Plant Protection Products Report*. Nez Perce Soil and Water Conservation District. Lewiston, Idaho.
- \* *Protecting Groundwater Quality in Idaho*. Idaho Groundwater Quality Plan. Groundwater Quality Council. 1993.

## VI. LOCAL OBJECTIVES

Cottonwood Creek is a tributary of the Clearwater River and is a contributor of nonpoint source (NPS) pollutants. Several land management groups have expressed concern over the impacts of NPS pollution from the various land use operations within the watershed. The Nez Perce Soil & Water Conservation District (District) promotes a watershed approach to all natural resource conservation issues. However, current barriers discourage the use of a watershed approach to

resource management. The District has prioritized Cottonwood Creek Watershed because of its water quality impact on the Lower Clearwater River Basin and communities of Lewiston, Idaho and Clarkston, Washington and also because of the opportunity to improve the current resource status within the watershed. The District believes a detailed watershed study will provide an opportunity for interagency, interstate, and public involvement. The information obtained from this study will be shared with other interested parties. District objectives include; assess the status of the beneficial uses in Cottonwood Creek, improve and / or enhance water quality, and provide a accurate overview of resource concerns within the Cottonwood Creek watershed.

## VII. CONCLUSIONS

As outlined in the IDHW - DEQ Water Quality Status Report, Cottonwood Creek is adversely affected by excess nutrients, sediments, organic enrichment, dissolved oxygen, bacteria, ammonia and hydrologic modifications.

The report also indicates that the designated beneficial use for salmonid spawning is partially supported but potentially at risk. Cold water biota and secondary contact recreation is not supported. Harvesting and reforestation forest activities are rated as a high impact to water quality. Whereas non-irrigated cropland, rangeland uses and riparian vegetation removal are moderate impacts as nonpoint source pollution.

Based on existing data, the Cottonwood Creek project is within the scope of the USDA Natural Resources Conservation Service's mission and technical expertise, and does warrant further investigation through completion of a Preliminary Investigation (PI).

It is suggested that when developing the Plan of Work (POW) appendix during the PI process, the determination of the status of the beneficial uses for Cottonwood Creek, should be reflected as a Plan of Work task.

