

# **Coeur d'Alene Lake and River TMDL Tributaries**

## **Agricultural Implementation Sub-Plan**

**(Non-Metals)**

**January 2002**

### **1.0 Introduction, Goals and Objectives**

This Agricultural Implementation Sub-Plan outlines an approach to meeting the requirements for pollution reduction as set forth in the Coeur d'Alene Lake and River Tributaries Total Maximum Daily Load (CdA TMDL). This plan covers the following stream segments:

- Cougar Creek
- Kid Creek
- Latour Creek
- Mica Creek
- Wolf Lodge Creek

The goal of the Agricultural Implementation Sub-Plan is to restore the identified beneficial uses to full support status. In all five of the above listed segments, sediment is the pollutant that is causing the non-attainment of the beneficial uses. In addition, bacteria is a pollutant in the Mica Creek segment. The CdA TMDL calls for specific reductions for these pollutants.

The objective of the Agricultural Implementation Sub-Plan will be to reduce the amount of sediment and bacteria entering the creeks from agricultural sources. Potential sources of sediment from agricultural lands are sheet and rill erosion, gully erosion, and streambank erosion. Potential sources of bacteria from agricultural lands are livestock grazing, and concentrated livestock feeding areas. Pollutant reductions will be achieved through application of Best Management Practices (BMPs). BMPs will be planned as part of a complete Resource Management System.(RMS).

The CdA TMDL identified streambank erosion as the primary source of sediment from agricultural lands for all five stream segments. BMPs for reduction of this sediment loading include; streambank protection, channel vegetation, riparian forest buffers, off-channel livestock water supply, planned grazing systems, livestock use exclusion, fencing, pasture and hayland planting, and animal trails and walkways. These BMPs will also be effective in reducing bacteria levels in Mica Creek. Ponds, sediment basins, and gully plugs are effective at reducing sediment delivered to the creek from sheet and rill, and gully erosion. BMPs for concentrated feeding areas may include diversions, filter strips and waste management systems.

A limited amount of monitoring was conducted to determine that these pollution sources are, and remain, in excess of the TMDL. Additional inventory and monitoring will be needed to more precisely determine the locations of the pollution sources. Continued monitoring will also be required to determine the effectiveness of the applied BMPs. Monitoring efforts should be coordinated with pollution control efforts on forest and residential land.

## 1.1 Background

In December of 1999, The Idaho Department of Environmental Quality (DEQ) completed the Non-metals TMDL for the Water Quality Limited Waterbodies of the Coeur d'Alene Lake and River Tributaries (HUC 17010303). These Water Quality Limited Segments include:

- Wolf Lodge Creek #3541 (headwaters to CdA Lake)
- Cougar Creek #3545 (North Fork Cougar Creek to CdA Lake)
- Kidd Creek #3546 (headwaters to CdA Lake)
- Mica Creek #3547 (headwaters to CdA Lake)
- Latour Creek #3535 (headwaters to CdA River)

See Appendix A-1 for Location Map and Appendix A-2 for Subwatershed Map.

The CdA TMDL was submitted to the Environmental Protection Agency (EPA), and approved in July of 2000. The TMDL was mainly directed at sediment, but Mica Creek required a bacteria TMDL also.

The CdA TMDL watersheds are vastly made up of forest lands. Table 1 illustrates Land Use by acreage and percent (TMDL data):

**TABLE 1: Land Use**

	<u>Wolf Lodge Cr.</u>	<u>Cougar Creek</u>	<u>Kidd Creek</u>	<u>Mica Creek</u>	<u>Latour Creek</u>
Forest Use (Fed./ State/ Private)	37,974 Ac. 95.6%	8,043 Ac. 75.5%	1,965 Ac. 52.6%	12,335 Ac. 82.6%	33,101 Ac. 99.2%
Agricultural And Residential Subdivision Use (Private)	1,746 Ac. 4.4%	2,609 Ac. 24.5%	1,772 Ac. 47.4%	2,606 Ac. 17.4%	257 Ac. 0.8%

All of the above watersheds have a significant amount of residential subdivision use. This land use continues to grow as people move into the rural Coeur d'Alene area, while the percent of true agriculture continues to decline. Thus, this implementation plan is directed at traditional agricultural use only. The plan will be referred to as a sub-plan, and the intent will be for incorporation with a larger forest use plan, when available.

To date, there has been no Watershed Advisory Group (WAG) involved in the CdA TMDL development. Due to the lack of locally-led participation in this process, coupled with non-point source pollution being non-regulatory, the overall success of this agricultural implementation plan cannot be predicted at present.

## 1.2 Beneficial Uses

Table 2 summarizes the current DEQ beneficial use assessment and status of the TMDL tributaries within the CdA Lake and River watershed:

**TABLE 2: Beneficial Use Status**

Beneficial Uses	Wolf Lodge Creek	Cougar Creek	Kidd Creek	Mica Creek	Latour Creek
Cold Water Biota	<b>Not Full Support</b>				
Salmonid Spawning	<b>Not Full Support</b>	*****	*****	*****	*****
Domestic Water Supply	Full Support	*****	*****	*****	*****
Primary Contact Recreation	Full Support	*****	*****	*****	Full Support
Secondary Contact Recreation	Full Support	Full Support	Full Support	<b>Not Full Support</b>	Full Support

\*\*\*\*\* Not a designated beneficial use

## 1.3 Pollutants - Load Allocation and Reduction

### 1.3.1 Sediment

The agricultural/ residential subdivision sediment load and reduction allocations were defined in the CdA TMDL for all five tributaries. Table 3 summaries the actual allocation data from the TMDL as follows:

**TABLE 3: Agricultural/ Residential Subdivision Sediment Allocations**

	<u>Sediment Load Allocation (T./Yr.)</u>	<u>Sediment Load Reduction (T./Yr.)</u>	<u>Sediment Load Reduction (%)</u>
Wolf Lodge Creek	147	40	21.4
Cougar Creek	100	14.7	12.8
Kidd Creek	67	16.3	19.6
Mica Creek	99	13.9	12.3
Latour Creek	77	13	14.4

The TMDL sediment load allocation of 77 T./Yr. for Latour Creek is significantly high compared to land use, and the other four creeks listed (see Table 1 for agriculture land use acres). The agricultural/ residential land use in Latour Creek was identified to be 257 acres, or 0.8% of the entire watershed. (Whether 0.8% of the entire watershed is significant to the TMDL, in itself remains questionable). This load deviation from the TMDL sediment model was predicted by DEQ, based on data sharing from Wolf Lodge Creek. Before a sound agricultural implementation plan can be developed for Latour Creek, an in-the-field bank erosion inventory needs to be conducted to justify this high sediment allocation.

### 1.3.2 Bacteria

The CdA TMDL defined a bacteria load allocation and reduction for Mica Creek and the North Fork of Mica Creek. Bacteria exceeded the state recreation use standard of 126 E-coli per 100 ml water during July and August of 1999. Table 4 summarizes the actual allocation data from the TMDL as follows:

**TABLE 4: Mica Creek Bacteria Allocations**

	<u>Bacteria Load Allocation (E-coli/day)</u>	<u>Bacteria Load Reduction (E-coli/day)</u>	<u>Bacteria Load Reduction (%)</u>
Mica Creek	9.87 Billion	44.2 Billion	81.8
North Fork of Mica Creek	6.66 Billion	7.64 Billion	53.3

The TMDL cites grazing animals along the creek as the most likely source of the bacteria exceedance. However, the monitoring was not able to adequately determine the location of bacteria sources. Additional monitoring will be needed. Private septic systems were also listed as a potential source of bacteria.

### 1.3.3 Endangered Species Act Concerns

Species protected under the Federal Endangered Species Act must be considered when undertaking water quality improvement activities within these watersheds. The US Fish and

Wildlife Service should be contacted for possible consultation for any activity, which might have an effect on a listed species.

## 2.0 Agricultural Point Sources

No agricultural point source pollution was cited in the CdA TMDL.

## 3.0 Agricultural Non-point Sources

Areas of agricultural lands that contribute excessive pollutants to the water bodies are considered to be “Critical Areas” for BMP implementation.

Critical areas for sediment loading in all five watersheds are:

- 1) Streambanks that have become unstable and erosive due to the impacts of livestock grazing and farming activities.
- 2) Cropland with sheet and rill erosion rates higher than the soil loss tolerance value for that soil.
- 3) Cropland with excessive ephemeral or classic gully erosion.

**TABLE 5: Critical Sediment Areas by Subwatershed**

	Streambank Erosion*	Cropland Erosion**	
		Sheet Rill	Gully
Mica Creek/ Kid Creek	7,300 Feet	440 Acres	875 Acres
Wolf Lodge Creek	10,400 Feet	175 Acres	350 Acres
Cougar Creek	1,000 Feet	260 Acres	520 Acres
Latour Creek	4,600 Feet	0 Acres	0 Acres

\* Streambank erosion based on actual bank erosion survey conducted in the summers of 2000 and 2001.

\*\* Cropland acres based on field staff estimates.

Critical areas for bacteria loading in Mica Creek are:

- 1) Agricultural lands where livestock graze (500 Acres).
- 2) Agricultural lands where livestock have access to the creek (10,000 Feet).
- 3) Concentrated livestock feeding areas that do not have surface runoff controls (1 possible).

Critical area maps for each watershed are located in Appendix A-3 thru A-6. These maps show the general location of potential sources of sediment and/or bacteria. These areas will be the focus of BMP implementation.

### 3.1 Proposed Treatment

The proposed treatment for sediment and bacteria reduction will be to implement appropriate Resource Management Systems (RMS) on critical acres within the affected watersheds. An RMS is a combination of BMPs and is defined by the Natural Resource Conservation Service (NRCS) Field Office Technical Guide. When an RMS is implemented, both onsite and offsite impacts from sediment and bacteria should be reduced to acceptable levels. Follow-up monitoring will determine the effectiveness of the RMS and show the need for any modifications or additional improvements that may be needed.

In general, the RMS will be designed to reduce the impact of livestock grazing on riparian areas. The key components needed to reach TMDL reductions include fencing the riparian area from livestock, riparian buffers, and streambank protection. This will allow riparian vegetation to stabilize stream banks and reduce bank erosion rates.

Tables 6-9 list the proposed additional BMPs and an estimate of the extent of each BMP needed to address resource concerns within the watershed. There are many BMPs already in place within the watershed, and those are not included in this list.

**TABLE 6: Mica Creek and Kidd Creek Proposed BMPs**

<b>NRCS Practice</b>	<b>Amount</b>
Nutrient Management	8 fields
Channel Vegetation	500 feet
Prescribed Grazing	1,000 acres
Pasture and Hayland Planting	50 acres
Forest Riparian Buffer	5 acres
Fencing - Riparian Use Exclusion or Cross Fence	20,000 feet
Riparian Use Exclusion	25 acres
Heavy Use Area Protection - Livestock Access	1 each
Tank or Trough	11 each
Pipeline	3,050 feet
Pond	3 each
Spring Development	4 each
Pump Plant for Water Control	2 each
Animal Trails and Walkways	3 each

**TABLE 7: Wolf Lodge Creek Proposed BMPs**

<b>NRCS Practice</b>	<b>Amount</b>
Nutrient Management	10 fields
Channel Vegetation	2,500 feet
Prescribed Grazing	300 acres
Pasture and Hayland Planting	150 acres
Forest Riparian Buffer	10 acres
Fencing - Cross Fence	2,000 feet
Fencing - Riparian Use Exclusion	10,000 feet
Riparian Use Exclusion	60 acres
Heavy Use Area Protection - Livestock Access	3 each
Tank or Trough	4 each
Pipeline	2,000 feet
Streambank Protection	400 feet
Pond	2 each
Sediment and Erosion Control Structure	2 each
Sediment Basin	2 each

**TABLE 8: Cougar Creek Proposed BMPs**

<b>NRCS Practice</b>	<b>Amount</b>
Nutrient Management	10 fields
Channel Vegetation	5,000 feet
Prescribed Grazing	500 acres
Pasture and Hayland Planting	150 acres
Forest Riparian Buffer	10 acres
Fencing - Cross Fence	2,000 feet
Fencing - Riparian Use Exclusion	10,000 feet
Riparian Use Exclusion	60 acres
Heavy Use Area Protection - Livestock Access	6 each
Tank or Trough	6 each
Pipeline	2,000 feet
Streambank Protection	500 feet
Pond	3 each
Sediment and Erosion Control Structure	5 each
Sediment Basin	5 each

**TABLE 9: Latour Creek Proposed BMPs**

<b>NRCS Practice</b>	<b>Amount</b>
Channel Vegetation	1,000 feet
Forest Riparian Buffer	10 acres
Streambank Protection	1,000 feet

### **3.2 Implementation Priority**

The Kootenai-Shoshone SWCD has established watershed priority for TMDL implementation in the following order: Mica/Kid Creeks, Wolf Lodge Creek, Cougar Creek, and Latour Creek. Due to limited staffing for technical assistance, it is not feasible or efficient to begin implementation efforts for all five watersheds simultaneously. Therefore, the conservation district will focus on implementation of Mica and Kid Creeks first.

### **3.3 BMP Cost Estimates**

The cost of implementing the proposed BMPs has been estimated using average costs from the NRCS Field Office Technical Guide. The cost per acre is based on the total cost for the proposed BMPs and the total agricultural acres as reported in the CdA TMDL. The costs for each watershed are shown in Table 10.

**TABLE 10: Total BMP Costs**

<u>Watershed</u>	<u>Total BMP Costs</u>	<u>Per Acre Cost</u>
Mica Creek and Kidd Creek	\$170,000	\$39.00
Wolf Lodge Creek	\$131,000	\$75.00
Cougar Creek	\$189,000	\$72.00
Latour Creek	\$35,000	\$136.00

### **4.0 Water Quality Monitoring**

Monitoring will be an integral component of the overall implementation plan. Monitoring protocols should be designed to measure the effectiveness of the applied BMPs in reducing the amount of pollutants from agricultural sources found in the water bodies. Monitoring should also measure the status of the identified beneficial uses. Monitoring activities will be led by the DEQ, in coordination with the Idaho Soil Conservation Commission (SCC) and the Kootenai-Shoshone Soil and Water Conservation District (KSSWCD).

There is also an immediate need for additional monitoring. It would be very helpful to have data that would more closely define the location of bacteria pollution sources within the Mica Creek watershed. It is recommended to continue the monitoring of the original two sites, plus additional sites at the upper agricultural boundaries and a site at the bottom of the Mica Flats drainage.

## **5.0 Information and Education**

The Conservation Partnership (KSSWCD, SCC and NRCS) will use their combined resources to provide information to agricultural landowners within these watersheds. There is a variety of opportunities available to reach landowners including newspaper articles, direct mailings, public meetings and personal contacts. Information and education efforts will be designed to:

- 1) Provide information on the TMDL process
- 2) Provide information on pollutant allocations and required reductions
- 3) Offer technical assistance in the development of Resource Management Systems
- 4) Offer technical assistance in Best Management Practice implementation.

In addition to reaching the individual landowners in each watershed, there will also be an effort made to inform the general public about the efforts of landowners to improve water quality in local creeks.