# Black Lake Watershed (Non- Reservation)
# 1701030302
# Agricultural TMDL Implementation Plan

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In cooperation with the Kootenai-Shoshone Soil and Water Conservation District

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# Introduction

## Purpose

The Idaho Soil and Water Conservation Commission (ISWCC) is the designated management agency in Idaho for managing agricultural nonpoint source pollution and is therefore the lead in TMDL implementation activities on non-reservation agricultural land. Although the ISWCC does not have regulatory or licensing authority over water quality or pollution control, the mission of the ISWCC is to facilitate coordinated non-regulatory, voluntary, and locally-led conservation by federal, state, and local governments including Idaho's conservation districts and other partners to conserve, sustain, improve, and enhance soil, water, air, plant, and animal resources (ISWCC, 2013). The ISWCC works with the Kootenai-Shoshone Soil and Water Conservation District (KSSWCD), the Idaho Association of Soil Conservation Districts (IASCD), and the Natural Resource Conservation Service (NRCS) in a conservation partnership to reach common goals and successfully deliver conservation programs in Kootenai County. The KSSWCD's 5 year plan identifies water quality as one of their top priorities for Kootenai County.

The purpose of this plan is to document observed agricultural uses and make recommendations that would improve the physical, chemical, and biological functions of Black Lake.

## Goals and Objectives

The overall goal of a TMDL implementation plan is to help restore beneficial uses on §303(d) listed water-bodies. The objectives of this plan are to identify critical agricultural areas and to recommend BMPs for reducing nutrient loading to Black Lake.

# Background

## Project Setting

The Black Lake watershed is located east of Coeur d'Alene Lake and the town of Harrison in Northern Idaho. Approximately three-quarters of the Black Lake Watershed Assessment and TMDL area is located within the Coeur d'Alene Reservation, including the two southern arms of Black Lake. For details on project setting, see pages xi, xii (Location Map), 4, 5, 6 (Figure 1-Black Lake Watershed), 7, 8, and 9, (Parsons, 2011).

## Land Ownership and Land Use

Tables 1-4, below, summarize land ownership and land use within the Black Lake watershed, as documented in the watershed assessment. Land ownership is primarily private with limited sections of Coeur d'Alene Tribe, BLM, and State of Idaho.

**Table 1. Land Ownership in the Black Lake Watershed**

| Land Ownership | Acres | Percent of Total |
|---|---|---|
| Private | 9,722 | 95 |
| Coeur d'Alene Tribe | 560 | 5 |

**Table 2. Land Ownership in the East and West Pastures**

| Land Ownership | Acres | Percent of Total |
|---|---|---|
| Private | 2,770 | 96 |
| Idaho Parks and Recreation | 80 | 3 |
| BLM | 40 | 1 |

**Table 3. Land Use in the Black Lake Watershed**

| Land Use | Acres | Percent of Total |
|---|---|---|
| Forest | 5,655 | 55 |
| Ag (Hay/Pasture/Grains) | 3,804 | 37 |
| Urban/Suburban | 103 | 1 |
| Water (Black Lake/Tribs) | 485 | 5 |
| Other | 235 | 2 |
| Total | 10,282 | 100 |

**Table 4. Land Use in the East and West Pastures**

| Land Use | Acres | Percent of Total |
|---|---|---|
| Forest | 1,618 | 56 |
| Ag (Hay/Pasture/Grains) | 1,127 | 39 |
| Urban/Suburban | 44 | 1.5 |
| Other | 101 | 3.5 |
| Total | 2,890 | 100 |

For a detailed description of land use and ownership, see pages 10, 11, 12 (Figure 3- Black Lake Watershed Land Use Map) and pages 13 (Table 4- Summary of Black Lake Watershed Land Use/ Land Cover) and 14 (Figure 4- Black Lake Watershed Percent Land Use/ Land Cover), (Parsons, 2011).

## Accomplishments

The conservation partnership has been active in soil and water conservation activities and public education efforts in Kootenai County since the formation of the Kootenai-Shoshone Soil and Water Conservation District in 1946. The partnership has developed individual conservation plans for local agricultural producers and has pursued funding sources to assist in implementing BMPs. The partnership has additionally restored wetland and riparian areas, stabilized stream banks, coordinated with other agencies and individuals in educational activities for youth, and made educational materials available to the public.

Funding sources utilized by the conservation partnership in Kootenai County have included Farm Bill Programs such as Environmental Quality Incentives Program (EQIP), Conservation Reserve Program (CRP), Continuous CRP (CCRP), Wetland Reserve Program (WRP), Wildlife Habitat Incentive Program (WHIP); Idaho's Water Quality Program for Agriculture (WQPA); and the Clean Water Act Section 319 Program. Accomplishments on agricultural land in the Black Lake watershed occurring in the last five years (2009 – 2013) are summarized in Table 5 (Woodcock, 2013):

**Table 5. Completed Agricultural BMPs in the Black Lake Watershed**

| BMP | Amount | Units | Project/Program |
|---|---|---|---|
| Conservation Cover | 580 | Acres | CRP (10 year contracts) |
| Use Exclusion | 580 | Acres | CRP (10 year contracts) |
| Wildlife Habitat Management | 580 | Acres | CRP (10 year contracts) |
| Tree/ Shrub Establishment | 150 | Acres | EQIP/ WQPA (2008-2010) |

## Problem Statement

### Beneficial Use Status

Idaho water quality standards require that surface waters be protected for beneficial uses, wherever attainable, in order to meet the requirements of the federal Clean Water Act. Black Lake (ID17010303PN009L_0L) is on the state of Idaho's 2008 and 2010 Integrated Report of water quality impaired water bodies and is listed as: cause unknown- nutrients suspected impairment (IDEQ, 2009 and 2011). Beneficial uses that are presumed include cold water aquatic life and primary contact recreation. These beneficial uses are not fully supported. For more details on the 303(d) listing and beneficial use status, see pages 15-19 (Parsons, 2011).

### Pollutants of Concern

As stated in the Black Lake watershed assessment, the pollutant of concern is nutrients, specifically total phosphorus. Total phosphorus loading to Black Lake was determined to be the result of nonpoint sources. Three pollutant transport pathways were cited in the TMDL: rainfall/snow melt runoff, direct permitted discharges, and seasonal flooding from the Coeur d'Alene River.

The joint developers for this TMDL (DEQ, Coeur d'Alene Tribe, and EPA) set the total phosphorus water quality target for Black Lake at 20 µg/l. Two models (GWLF and BATHTUB) and research literature by Kann and Falter in 1987 were used to determine load allocation and percent reduction goals. The Black Lake TMDL reports an estimated existing load of 1,000 kg/yr total phosphorus. In order to achieve the 20 µg/l water quality target, the existing load needs to be reduced to 322 kg/yr, This represents an overall percent reduction in total phosphorus of 68%. The TMDL placed reduction goals on the following sources: Lamb Creek, Black Creek, Porter Creek, West and East Pastures, and septic systems. For more details on pollutants of concern, see pages 33-39 (Parsons, 2011).

## Identified Problems

Sources of pollutants of concern or in this case total phosphorus, are generally point or nonpoint in nature. The watershed assessment concludes that all total phosphorus loading to Black Lake is the result of nonpoint sources the primary transport pathway is from rain/snow melt runoff. The watershed assessment and pollutant source inventory discusses direct discharges from pumps draining the East and West Pastures. These discharges are exempt under the NPDES permitting process. Other total phosphorus delivery mechanisms evaluated were loading from the entire watershed, seasonal flooding of Black Lake from high flows of the Coeur d'Alene River, and internal recycling within Black Lake. Suspected nutrient sources within the Black Lake watershed include septic tanks, residential development, agricultural practices and livestock, wildlife, delivery of organic matter from near-shore areas, atmospheric deposition, and naturally occurring concentrations in soil (Parsons, 2011).

## Water Quality Monitoring Results

According to the Black Lake watershed assessment very little recent monitoring data exists. The TMDL was based on historical data. For details on past monitoring efforts, see pages 23-32 (Parsons, 2011).

## Agricultural Water Quality Inventory and Evaluation

About 75% of the upper Black Lake watershed as defined in the TMDL, lies within the Coeur d' Alene Tribal Reservation boundary. This includes all tributaries to Black Lake and the southern two thirds of the lake itself. The tribe has full jurisdiction over all TMDL activities within their reservation boundary. Thus, this agricultural plan only officially addresses the northern quarter of the watershed.

In order to assess agricultural impacts to surface water on TMDL listed streams, the first step is to inventory private agricultural land use that exists within the Black Lake watershed. This researcher felt it was important to inventory the entire watershed for agricultural use as a service to the Coeur d'Alene Tribe and KSSWCD, and also to fill potential data gaps as discussed in the TMDL and watershed assessment. For this plan, agricultural land use was inventoried, visually in the field, starting in 2011 and updating through the fall of 2013 (Hogen, M. 2011-2013). The main remaining agricultural uses found within the Black Lake watershed were hay land, pasture land, and CRP. The agricultural land use inventory conducted for the Black Lake watershed has been summarized on Figure 1. Hay lands within the TMDL watershed total 1,690 acres, and are typically in good to excellent condition and lie on relatively flat slopes. In general, highly productive hay fields are fertilized, but at rates well below recommended. Proximity of hay fields to the tributaries and riparian areas was inventoried where possible. In general, the perennial reaches of the three Black Lake tributaries are well vegetated and buffered from agricultural use. The upper intermittent reaches of the tributaries mainly dissect hay land. Vegetative buffer zones could significantly decrease nutrient delivery in these intermittent reaches. The Conservation Reserve Program (CRP) has approximately 580 acres enrolled within the Black Lake watershed. These retired agricultural areas have been seeded to permanent vegetative cover for a 10 year period. No haying or grazing is allowed while under contract, and generally no fertilizer is applied. CRP land is mainly managed for the enhancement of wildlife habitat. No potential agricultural impacts were observed from hay lands or CRP land within the northern ¼ of the

watershed. Nearly 1,100 acres of pasture land was inventoried within the Black Lake watershed. The following livestock numbers were observed on these pasture areas: cattle = 180, horses = 90, sheep = 6, and llamas = 6. Approximately 70% of the pasture acres and nearly 50% of the livestock inventoried were found in the upper ¼ of the watershed (non-reservation). Part of the agricultural inventory included documenting livestock access to the riparian areas of the lake and tributaries. No livestock or livestock access was observed around the entire lake shoreline. The only pasture that livestock (12 cow/calf pairs) were observed in a perennial riparian area was in upper Black Creek. These cattle appear to have access to the creek year round. Lastly, 520 acres of grass land was inventoried within the watershed. These areas were most likely historic agriculture but are no longer being actively hayed or grazed.

The watershed assessment and TMDL list the East and West Pastures as significant sources of total phosphorus to Black Lake. The main agricultural use observed on the East and West Pastures is cattle and horse grazing. Numerous pastures exist in the East Pasture and haying followed by rotational grazing was seen. The interesting fact here is that these pastures are only connected to the hydrologic boundary of the Black Lake watershed when surface water from the pastures is being pumped out to the north end of the lake. When the pumps are not operating surface waters remain diked up within the pastures. The ownership and management of the East and West Pastures changed in or around 2011. During the past two pumping seasons this author has not observed the pumps operating during the typical timeframe (February-June). Thus, no surface waters from these pastures have entered Black Lake for at least two years. Since, the East and West Pastures are the only significant agricultural areas identified within the northern ¼ of the watershed (non-reservation), there is actually no significant impact to Black Lake by agricultural use when the pumps are not being utilized.

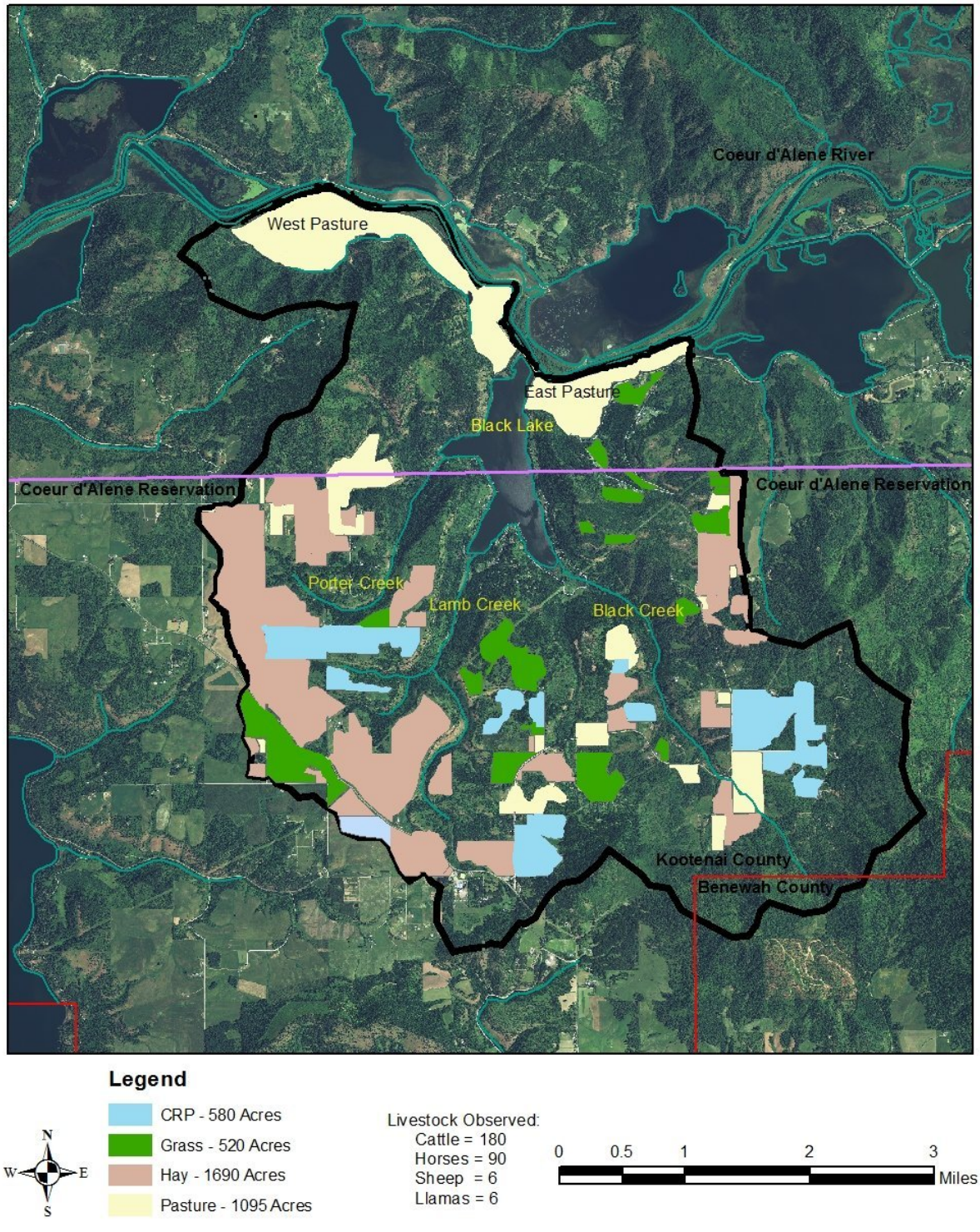


**Figure 1. Black Lake Agricultural Land Use Map**

## Critical Areas

Agricultural areas that have the potential to contribute excess pollutants to waterways are defined as critical areas for BMP implementation. Critical areas prioritized for this plan were identified during field observations from 2011- 2013.

Agricultural critical areas within the Black Lake TMDL watershed include:

- Pasture land where livestock have direct access to streams and riparian areas.
- Fertilized hay land adjacent to perennial stream corridors that lack adequate riparian buffering.
- Pasture land that surface water is being pumped directly into the lake.

In summary, approximately 2,000 feet of Black Creek, and the East and West Pastures (when pumps are operating) have been identified as agricultural critical areas for possible treatment.

## Estimated BMP Implementation Costs

The proposed treatment for agricultural pollutant reduction will be to implement BMPs through conservation plans. Table 6 lists the recommended agricultural BMPs and estimated costs, to help restore beneficial uses to Black Lake.

**Table 6. Estimated BMP Installation and Costs for the Black Lake Watershed**

| BMPs | Amount (Units) | Estimated Cost |
|---|---|---|
| Riparian Fence (Animal Exclusion) | 4,000 Feet | $10,000 |
| NRCS Conservation Grazing Plan | 720 Acres | $0 |

(Above table reflects 2013 EQIP total cost estimates.)

The recommended voluntary treatment process for private agricultural landowners within the Black Lake watershed begins with contacting the local conservation district, the Kootenai-Shoshone Soil and Water Conservation District. Contact information for the KSSWCD is:

7830 Meadowlark Way, Suite C-1
Coeur d'Alene, Idaho 83815
Phone 208-762-4939 Ext.101
ksswcd@yahoo.com
ww.northidahoswcds.org

The KSSWCD works in partnership with the Natural Resources Conservation Service and the Idaho Soil and Water Conservation Commission, to provide free technical assistance to landowners wanting to improve their agricultural lands. The process begins with a thorough NRCS resources inventory of the farm or ranch (soil, water, air, plants, and animals), and ultimately the development of a good conservation plan (for more insight on planning, go to www.oneplan.org). Once the planning process is complete, the KSSWCD can assist the

landowner in seeking grants or cost-sharing type programs, to help pay for needed BMP installation. A list of funding opportunities for private landowners has been included in the Funding Section below.

## Threatened and Endangered Species

Section 7 of the Endangered Species Act of 1973 (ESA) requires federal agencies to determine how to use their authorities to further the purpose of the ESA to aid in recovering listed species and address existing and potential conservation issues. Section 7 (a)(2) further states that agencies shall consult with the U.S. Fish and Wildlife Service or NOAA Fisheries to ensure that any action they authorize, fund, or carry out "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of (designated critical habitat)." As a federal agency, the NRCS is required to follow this mandate for all projects implemented with federal funding. NRCS policy also includes provisions to consider State species of concern in their conservation activities.

Impacts to T&E species and species of concern in the Black Lake watershed will be taken into account in TMDL project implementation. If a proposed action is determined to be within close proximity to habitat used by a Threatened or Endangered (T&E) species or the known location of a T&E species, consultation will be initiated with the appropriate agency. Consultation involves describing the proposed project, assessing potential impacts, describing mitigation efforts for the project, and determining the effect of the project on the species of concern. The consultation process results in development of reasonable alternatives, and helps to minimize impacts of conservation practices to critical habitat.

Species listed as Threatened or Endangered under the ESA for Kootenai County are summarized below in Table 7. Species of Concern are too numerous to list in this document. A detailed list for Species of Concern in northern Idaho Counties can be found under the USFWS County Species list at http://www.fws.gov/idaho/Species.htm.

**Table 7. Federally-listed Threatened and Endangered Species occurring in Kootenai County, Idaho as of June, 2013 (U.S. Fish and Wildlife Service, 2013)**

| ***Species by Category*** | ***Status**** |
|---|---|
| Mammals | |
| Canada lynx (*Lynx canadensis*) | T |
| North American Wolverine (*Gulo luscus*) | P |
| Birds | |
| Yellow-billed cuckoo (*Coccyzus americanus*) | C |
| Fish | |
| Bull trout (*Salvelinus confluentus*) | T |
| Plants | |
| Spalding's catchfly (*Silene spaldingii*) | T |
| Water howellia (*Howellia* aquatilis) | T |

*T – Listed as Threatened, P – Listed as Proposed, C- Listed as Candidate

## Funding

Financial and technical assistance for installation of BMPs may be needed to ensure success of this implementation plan. The Kootenai-Shoshone Soil and Water Conservation District can assist interested landowners in actively pursuing 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 Tribal entities 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 Tribal Reservations. Funds focus on projects to improve water quality and are usually related to the TMDL process. Source: DEQ http://www.deq.idaho.gov/

**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. Source: ISWCC http://www.swc.idaho.gov/

**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. Source: NRCS http://www.nrcs.usda.gov/

**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. Source: local Conservation District and NRCS: http://www.nrcs.usda.gov/

**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. Source: NRCS http://www.nrcs.usda.gov/

**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. Source: NRCS http://www.nrcs.usda.gov/

**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. Source: NRCS http://www.nrcs.usda.gov/

**State Revolving Loan Funds** (**SRF) –**These funds are administered through the ISWCC. Source: ISWCC http://www.swc.idaho.gov/

**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. Source: NRCS http://www.nrcs.usda.gov

**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. Source: IDFG http://fishandgame.idaho.gov/

**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. Source: USFWS http://www.fws.gov/

## Outreach

Conservation partners in the Black Lake watershed will use their combined resources to provide information about BMPs to agricultural landowners and operators to improve water quality. Newspaper articles, Kootenai-Shoshone SWCD newsletter, watershed and project tours, landowner meetings, and one-on-one personal contact may be used as outreach tools. Outreach efforts will be coordinated with the other TMDL designated agencies where possible.

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, and
- identify and encourage the use of BMPs for private land management and recreation activities

Applications for technical and financial assistance will be solicited with emphasis in the Black Lake watershed, through cooperation of all conservation partners. As assistance is requested from this area, high priority will be given to these and other applicants in areas critical to TMDL implementation. Assistance requests resulting in field visits allow direct contact with land managers and observation of the land. One-on-one time will be utilized to dispense information on water quality, BMPs, and available resources. Treatment applicable to the needs of the Black Lake watershed will be the focus of discussions with landowners in the vicinity.

## 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.

### 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 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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