2013 Performance and Progress Report

State of Idaho Nonpoint Source Management Program

State of Idaho
Department of Environmental Quality

March 2014

Cover photo: The Rock Creek Rehabilitation Project (S026) converted an unpermitted landfill into a park. For more information, see page 18.

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March 2014

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Acronyms and Abbreviations

AFO	animal feeding operation
ATV	all-terrain vehicle
BAG	basin advisory group
BMP	best management practice
cfs	cubic feet per second
DEQ	Idaho Department of Environmental Quality
EPA	US Environmental Protection Agency
GRTS	grants reporting and tracking system
IASCD	Idaho Association of Soil Conservation Districts
MOU	memorandum of understanding
NPS	nonpoint source
NRCS	Natural Resources Conservation Service
Section 303(d) (§303(d))	Section 303(d) of the Clean Water Act
Section 319 (§319)	Section 319(h) of the Clean Water Act
SWCD	soil and water conservation district
TFCC	Twin Falls Canal Company
TMDL	total maximum daily load
TP	total phosphorus
TSS	total suspended solids
WAG	watershed advisory group

Project S026 in 2002. For details about this project, see page 18.

Section 1. Overview

This document summarizes the State of Idaho Nonpoint Source Management Program's performance and progress for the period from December 1, 2012, through November 30, 2013. The Department of Environmental Quality (DEQ) administers the program for Idaho.

1.1 Introduction

Clean Water Act Section 319(h) requires the US Environmental Protection Agency (EPA) make an annual determination of satisfactory progress in meeting the milestones of each state's nonpoint source (NPS) management plan. To assist EPA in making this determination, DEQ provides an annual report that assesses the program's performance and progress toward meeting the goals and milestones in Idaho's plan.

Idaho's Nonpoint Source Program

Congress established the national NPS program in 1987 when it amended the Clean Water Act with §319, "Nonpoint Source Management Programs." States were given the federally funded mandate to address NPS water pollution by (1) conducting statewide assessments of their waters, (2) developing NPS management programs to address identified impaired or threatened waters, and (3) implementing EPA-approved, federally funded NPS management programs to remediate and prevent NPS pollution.

In accordance with the congressional mandate, DEQ places strong emphasis on ensuring that §319 funds are directed to on-the-ground projects that prevent, reduce, or eliminate NPS pollution in Idaho's surface water and ground water. Idaho's NPS Program has funded hundreds of on-the-ground projects since 1998. The majority of these projects were designed to remediate and prevent NPS pollution, thereby resulting in measurable pollution reduction.

The State Revolving Fund and the NPS Program

Starting in 2011, the NPS Program began working closely with the State Revolving Fund (SRF) Program to leverage SRF wastewater loans, providing funding to offset lower levels of §319 assistance.

In general, the SRF funding protocol allows the interest rate charged on a traditional SRF wastewater project loan to be adjusted to accommodate an NPS project's financial needs. Projects funded in this manner are then administered by DEQ's §319 grant staff and have essentially the same administrative conditions as a project funded with a traditional §319 grant. A sponsorship agreement is required for projects receiving funds from the SRF. The funds for the NPS project result from reducing the interest rate on the SRF loan.

Throughout this report, projects funded from the SRF are identified alphanumerically, beginning with the letters "WW."

Scope of the Program

DEQ managed 61 active projects (Table 1) in 2013. Each project is described in a subgrant agreement established between DEQ and the project sponsor. Project sponsors may include federal or state agencies, counties, municipalities, nonprofit organizations, or private individuals.

Table 1. Nonpoint source funding summary for projects active during 2013, including projects closed during 2013.

Sub-grant	Project Name	Project Sponsor	Start Date	End Date	§319 Grant Amount	Total Spent (through 11/30/2013)	Balance (as of 11/30/2013)
S246	Croy Creek Wetland Restoration	Wood River Land Trust	6/15/2008	3/15/2013	$99,419.00	$99,418.83	$0.17
S247	Little Weiser River Stream Bank Protection	Adams SWCD	6/15/2008	3/15/2013	$201,050.00	$191,069.16	$9,980.84
S250	N Idaho AFO Implementation Phase 4	Latah SWCD	6/20/2008	3/20/2013	$215,086.00	$188,754.51	$26,331.49
S251	Lawyer Creek Water Quality Improvement	Lewis SWCD	6/20/2008	3/20/2013	$250,000.00	$154,267.98	$95,732.02
S252	E Coulee Drain Elimination	Balanced Rock SWCD	6/30/2008	6/30/2012	$204,500.00	$204,500.00	$0.00
S280	American Red River	Framing Our Community, Inc.	10/15/2008	12/21/2012	$247,943.00	$162,776.00	$85,167.00
S307	Bruneau-Grand View GWQ Management Plan	Bruneau River SWCD	6/2/2009	12/31/2013	$238,707.00	$238,575.00	$132.00
S310	Potlatch River Watershed Management Plan Phase 1	Latah SWCD	6/15/2009	12/31/2013	$205,028.00	$181,129.21	$23,898.79
S311	Pend Oreille Lake *A*Syst	Bonner SWCD	6/15/2009	12/31/2013	$36,368.00	$26,441.99	$9,926.01
S312	Camas Prairie GW Nitrate Priority Area Phase 3	Lewis SCD	6/15/2009	12/31/2013	$245,000.00	$244,771.77	$228.23
S313	Fish Creek Road Improvement	Bonner SWCD	6/15/2009	12/31/2013	$147,268.00	$89,244.89	$58,023.11
S321	Latour Creek Road Improvement	IDL	7/1/2009	12/31/2013	$250,000.00	$94,500.00	$155,500.00
S323	Canyon Co. BMPs for Water Quality Improvement	Lower Boise Watershed Council	7/1/2009	12/31/2013	$250,000.00	$236,202.00	$13,798.00
S327	Lower Payette River TMDL Implementation Phase 3	Gem SWCD	7/20/2009	12/31/2013	$183,162.00	$182,572.30	$589.70
S332	Lapwai Creek Integrated Analysis	University of Idaho	8/14/2009	12/31/2013	$59,301.00	$59,301.00	$0.00
S333	N Idaho AFO Implementation Phase 3C	IASCD	10/1/2009	12/31/2013	$41,965.00	$41,965.00	$0.00
S381	Boulder Creek Restoration	Trout Unlimited	05/28/10	12/31/14	$5,400.00	$4,000.00	$1,400.00
S385	I Coulee Wetland	Balanced Rock SWCD	06/01/10	12/31/14	$52,200.00	$52,200.00	$0.00
S393	Blackfoot River Water Quality	Three Rivers RC&D	06/22/10	12/31/14	$93,474.00	$92,678.71	$795.29
S394	SF Clearwater Watershed Vegetation	PCEI	06/02/10	12/31/14	$246,261.00	$99,699.54	$146,561.46
S395	Upper Hangman Creek Watershed Road and Culvert	Benewah SWCD	06/21/10	12/31/14	$17,538.00	$17,429.14	$108.86
S396	Potlatch River Watershed Management Plan Phase 2	Latah SWCD	06/01/10	12/31/14	$207,302.00	$32,535.98	$174,766.02
S399	Marsh Creek Middle Portneuf Watershed	Portneuf SWCD	07/01/10	12/31/14	$249,550.00	$171,848.35	$77,701.65
S402	Daniels Reservoir Sediment Reduction	Oneida SWCD	7/20/2010	12/31/2014	$170,329.00	$169,076.62	$1,252.38
S404	Bear Valley Casner Creek Restoration	Trout Unlimited	7/27/2010	12/31/2013	$33,000.00	$33,000.00	$0.00
S406	American Red River Phase 2	Framing Our Community, Inc.	9/13/2010	12/31/2014	$250,000.00	$225,000.00	$25,000.00
S425	Potlatch River Watershed Management Plan Phase 3	Latah SWCD	7/25/2011	5/31/2015	$207,523.00	$20,859.64	$186,663.36
S427	St Maries River Road Improvement	Benewah County	7/25/2011	5/31/2015	$237,504.00	$172,737.12	$64,766.88
S428	Grimes Creek Restoration Cooling Waters	Trout Unlimited	8/1/2011	5/31/2015	$60,000.00	$34,447.05	$25,552.95
S430	Upper Blackfoot River Improvement Phase 1	Caribou SWCD	8/15/2011	5/31/2015	$195,255.00	$44,729.82	$150,525.18
S431	Bear River and Whisky Creek AFOs	Caribou SWCD	8/15/2011	5/31/2015	$212,615.00	$109,689.71	$102,925.29
S432	Boulder Willow Creek Restoration	IDFG	8/18/2011	5/31/2015	$10,250.00	$0.00	$10,250.00
S433	Little Salmon River Watershed Improvement	IDFG	8/18/2011	5/31/2015	$51,700.00	$0.00	$51,700.00
S434	Upper Bear River Streambank Peterson Property	Bear Lake Regional Commission	9/1/2011	4/1/2014	$75,488.00	$49,705.09	$25,782.91
S443	Canyon County BMPs	Lower Boise Watershed Council	01/18/12	12/31/15	$250,000.00	$167,090.77	$82,909.23
S444	Mud Creek /Silo Creek	Balanced Rock SWCD	05/14/12	12/31/13	$158,622.00	$158,622.00	$0.00

S458	Cold Springs Creek Riparian Restoration	Elmore SWCD	08/06/12	12/31/16	$40,476.00	$4,047.60	$36,428.40
S459	Rock Creek BMPs	Idaho SWCD	08/13/12	12/31/16	$95,764.00	$5,380.65	$90,383.35
S460	Potlatch River Phase IV	Latah SWCD	08/13/12	12/31/16	$207,302.00	$20,730.15	$186,571.85
S461	Upper Bear River Streambank Stabilization	Bear Lake Regional Commission	08/13/12	12/31/16	$54,350.00	$0.00	$54,350.00
S462	Clear Creek Road Restoration	Valley County Road Department	07/30/12	07/30/14	$70,000.00	$70,000.00	$0.00
S463	Cove Creek Wetlands	Weiser River SWCD	08/16/12	12/31/16	$127,698.00	$18,072.94	$109,625.06
S464	Coeur D'Alene River at Medimont	Kootenai-Shoshone SWCD	08/17/12	12/31/16	$129,000.00	$116,906.00	$12,094.00
S465	Valley County Watershed	Valley SWCD	09/01/12	11/30/16	$105,000.00	$5,697.00	$99,303.00
S467	Pebble Creek	Portneuf SWCD	09/14/12	12/01/16	$180,729.00	$116,880.92	$63,848.08
S468	St. Maries River Road Phase 2	Benewah County	09/26/12	12/01/16	$238,821.00	$23,882.10	$214,938.90
S469	Twin Falls Coulee	Snake River SWCD	10/03/12	12/01/16	$106,300.00	$90,030.00	$16,270.00
S471	Station Creek Watershed Improvement	Franklin SWCD	10/16/12	12/31/16	$125,008.00	$0.00	$125,008.00
S472	Lindsay Creek Water Quality Improvement Phase 1	Nez Perce SWCD	10/17/12	12/31/15	$135,721.00	$3,217.73	$132,503.27
S490	Fish Creek Restoration	Twin Lakes Improvement Association	08/05/13	05/31/17	$84,000.00	$38,203.84	$45,796.16
S491	Potlatch River Watershed Management Plan Phase 5	Latah SWCD	08/06/13	05/31/17	$207,674.00	$20,767.40	$186,906.60
S492	Upper Lanes Creek Restoration	Trout Unlimited	08/06/13	05/31/17	$250,000.00	$25,000.00	$225,000.00
S493	Middle Snake-Payette Clean Water Phase 2	Payette SWCD	08/07/13	05/31/17	$202,729.00	$0.00	$202,729.00
S494	Owyhee Restoration Incentive Program	Owyhee Watershed Council	10/01/13	10/01/17	$132,750.00	$0.00	$132,750.00
S495	PBJ Division	Bear Lake SWCD	09/01/13	12/31/13	$123,857.37	$0.00	$123,857.37
S496	Wide Hollow Erosion Reduction	Oneida SWCD	08/26/13	12/31/17	$249,750.00	$0.00	$249,750.00
WW1010	Middle Bear River Watershed Mound Valley	Franklin SWCD	12/24/09	03/31/14	$358,704.74	$0.00	$358,704.74
WW1103	Teton Creek Channelization Repair	Friends of the Teton River	04/30/11	04/30/13	$150,000.00	$150,000.00	$0.00
WW1201	Trout Creek AFO	Caribou SWCD	09/05/12	09/05/13	$248,804.00	$24,800.00	$224,004.00
WW1205	North Fork Payette River	Alzar School	02/28/12	09/30/17	$42,750.00	$2,400.00	$40,350.00
WW1207	Ovid Creek Stream Protection	Bear Lake SWCD	03/15/12	12/31/14	$84,375.00	$26,768.00	$57,607.00

Assessing Program Performance

DEQ operates under the goals and objectives incorporated in the 1999 *Idaho Nonpoint Source Management Plan*, which provides guidance for developing an annual work plan required to effectively administer the program (DEQ 1999). Work plan tasks for the fiscal year reported are presented in section 1.2.

Framework of the Program

NPS Program functions include the following:

- Implementing watershed plans that target meeting total maximum daily loads (TMDLs) for pollutants and require adhering to drinking water, source water protection, and ground water management plans developed for the watershed
- Targeting compliance with water quality standards
- Evaluating the successful implementation of projects proceeding under their respective work plans and approved watershed plans, through water quality and various forms of effectiveness monitoring

Program Emphasis and Focus

Most program-managed projects focus on reducing NPS pollution associated with agricultural and grazing practices. Other NPS pollution sources in which the program has invested resources include the following:

- Fisheries
- Forestry
- Mining
- Transportation
- Urban and rural stormwater

Determining Pollutant Load Reductions

DEQ requires project sponsors to submit estimated load reductions of sediment, phosphorous, and nitrogen resulting from the completion of each project. Most projects take place within or close to a particular water body. A project's pollutant load reduction can be added to load reductions resulting from other projects within the watershed to show a cumulative load reduction over the entire subbasin or basin.

Providing Technical Support

Idaho's NPS Program provides technical support through various actions:

- Facilitating and coordinating implementation of the *Idaho Nonpoint Source Management Plan* (DEQ 1999)
- Developing and assisting with new technical approaches aimed at improving surface water and ground water quality
- Promoting natural resource partnerships, interagency collaboration, environmental education, and information transfer
- Ensuring consistency of base-level implementation activities related to TMDLs

- Training for project application, invoicing, and reporting
- Managing §319 funds in accordance with standard accounting and reporting practices

Public Participation

Public participation is an important component of the NPS Program and is mainly achieved through interaction with watershed advisory groups (WAGs) and basin advisory groups (BAGs) in accordance with Idaho Code 39-3601. Both WAGs and BAGs are required to evaluate and recommend actions necessary for improving water quality across the state.

In addition, the NPS Program works to coordinate activities with local, state, tribal, and federal agencies, whose support is essential to closing the feedback loop as provided for in the 1999 *Idaho Nonpoint Source Management Plan*, project-by-project, within each of the major river basins in the state.

1.2 Calendar Year 2013 Nonpoint Source §319 Grant Work Plan

NPS Program tasks are defined in terms of "outputs," as described for the following tasks.

Task 1: DEQ State Office Administration

Output:	Maintain a process for soliciting new nonpoint source related projects, monitor program activities, process and track grant expenditures to ensure compliance with Clean Water Act §319 program requirements and federal grant conditions.
Milestone:	As needed: June 1, 2013 through May 31, 2014
Estimated cost:	$162,941
Staffing level:	1.58 fulltime positions

Task 2: Develop Procedures and Guidance Materials

Output:	Draft procedures and guidance to support new and ongoing program implementation efforts.
Milestone:	As needed
Estimated cost:	$55,689
Staffing level:	0.54 fulltime positions

Task 3: Revise Memoranda of Understanding (MOUs) with Designated Management Agencies (DMAs)

Output:	Revised MOUs.
Milestone:	On a schedule agreed to with EPA
Estimated cost:	$23,719
Staffing level:	0.23 fulltime positions

Task 4: Program Implementation

Output 4A:	Collaborate with partners to target priority waters of the state that would benefit as a result of an NPS project being implemented.
Milestone:	June 1,2013 through May 31, 2014
Output 4B:	Implement program workplan as necessary to meet objectives and the key elements of TMDL Implementation Plans. In partnership with DMA's (Designated Management Agencies) WQ monitoring will be encouraged and may be performed to assess improvements to water quality. Routine Program evaluations will provide insight on implementation effectiveness and allow for corrective action to be taken, as needed.
Milestone:	June 1,2013 through May 31,2014
Output 4C:	Support the Idaho Water Quality Monitoring and Management Conference.
Milestone:	February 2014
Estimated cost:	$166,035
Staffing level:	1.61 fulltime positions

Task 5: Evaluate Nonpoint Source Projects

Output:	Perform on-site evaluations of a minimum of 50% of all active projects, and a set number of legacy projects to assess progress and the continuing performance of previously implemented BMPs.
Milestone:	Annually, May through October
Estimated cost:	$55,689
Staffing level:	0.54 fulltime positions

Task 6: Integrate NPS Program Protocols with Water Pollution Control Loan (SRF) Program Protocols

Output:	Achieve mutual goal of leveraging SRF-generated funding to implement projects that meet respective program criteria.
Milestone:	Annually
Estimated cost:	$11,344
Staffing level:	0.11 fulltime positions

Task 7: Provide Technical Support, Education, and Information Transfer on Watershed-Based Plans

Output:	Provide base-level support to watershed-based planning efforts.
Milestone:	Annually, as requested
Estimated cost:	$19,594
Staffing level:	0.19 fulltime positions

Task 8: Develop, Review, and Distribute the Annual Program Performance and Progress Report

Output:	Submit report to EPA Region 10.
Milestone:	Annually, in March
Estimated cost:	$22,688
Staffing level:	0.22 fulltime positions

Task 9: Conduct Required Reporting to the Federal Grants Reporting and Tracking System (GRTS) Database

Output:	Complete entry of mandatory data into GRTS.
Milestone:	Annually, by February 15.
Estimated cost:	$22,688
Staffing level:	0.22 fulltime positions

Task 10: Update Idaho Nonpoint Source Management Plan

Output:	Draft of revised Idaho Nonpoint Source Management Plan.
Milestone:	By January 31, 2014
Estimated cost:	$22,688
Staffing level:	0.22 fulltime positions

Task 11: Surface Water Quality Management

Output:	Support 319 Program goals and objectives by developing water quality standards, conducting assessments, and completing the biannual Integrated Report.
Milestone:	Ongoing
Estimated cost:	$375,405
Staffing level:	3.70 fulltime positions

1.3 Schedule and Budget Utilization

For active projects, Figure 1 illustrates how much time each project has been underway compared to the amount of time provided to complete the project, while Figure 2 shows funds expended (through November 30, 2013) for each active project compared to the project budget.

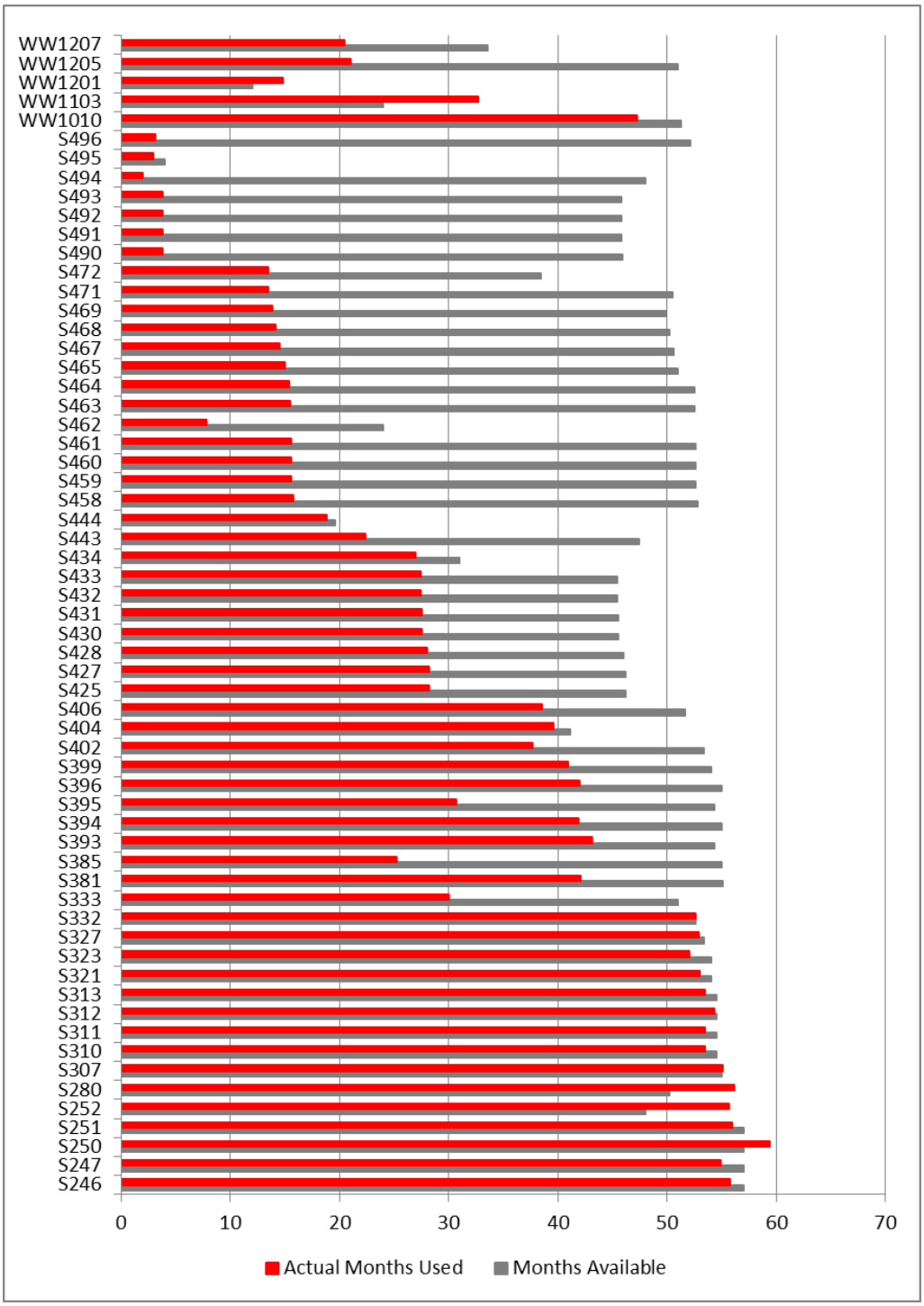

Figure 1. Active projects, time used, and total time available. The red bars represent the total number of months the project has been underway. The gray bars represent total months available for project completion. (Note: Active projects are any projects funded in federal grant years 2008—2014, inclusive.)

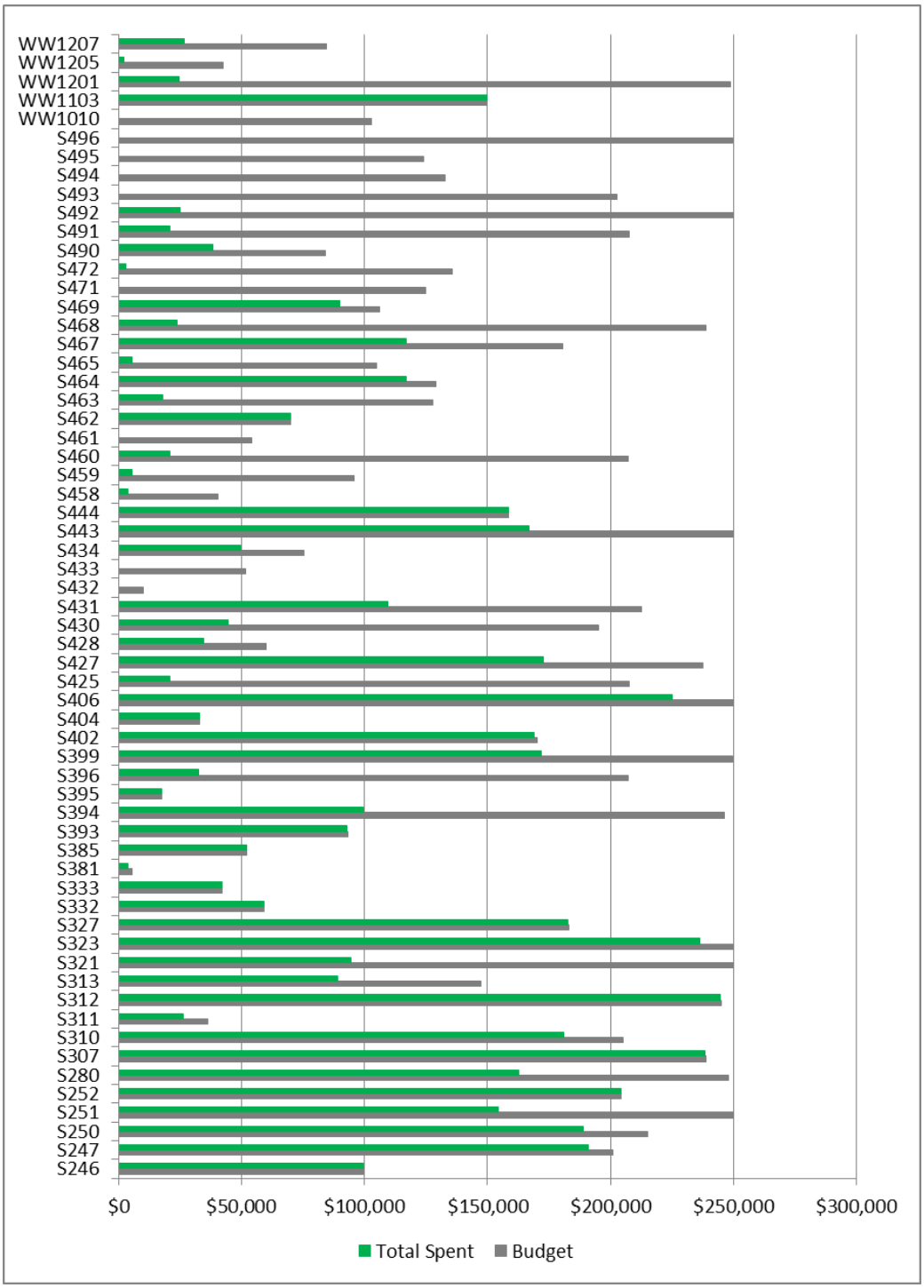

Figure 2. Budget usage by active projects. The gray bars represent the total federally funded budget for each project. The green bars show the amount expended through November 30, 2013.

Section 2. Project Field Evaluations—2013

This section summarizes the project field evaluations DEQ performed in 2013. Following this section, Section 3 continues with a short report on each completed evaluation. The full report on each field evaluation is available at the DEQ State Office.

2.1 Introduction

In 2013, DEQ managed 61 active projects across the state (Figure 3). Of these, 15 were determined to be complete and were closed out. Thirty-one (31) projects were evaluated in the field (Figure 4).

2.2 Field Evaluation Process

The field evaluation process begins with a review by DEQ staff of the project file record and subgrant agreement. An on-site visit follows to determine the project sponsor's compliance with the agreement. A standard evaluation form is used to report on compliance with the project work plan and budget.

2.3 Results

Table 2 lists and briefly describes all projects that were field-evaluated during 2013.

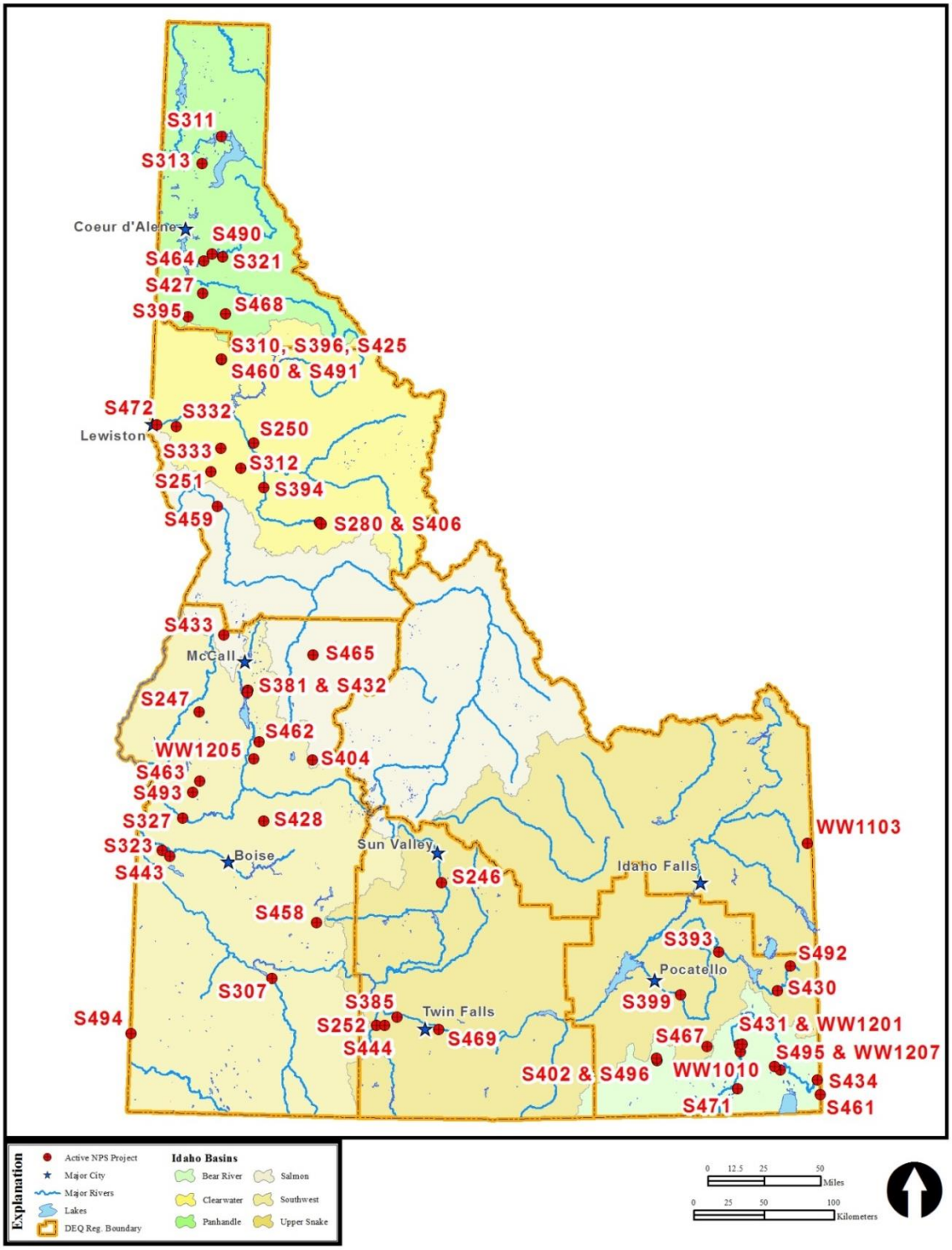

Figure 3. Active or recently closed nonpoint source projects, as of November 30, 2013. For project information, see Table 1.

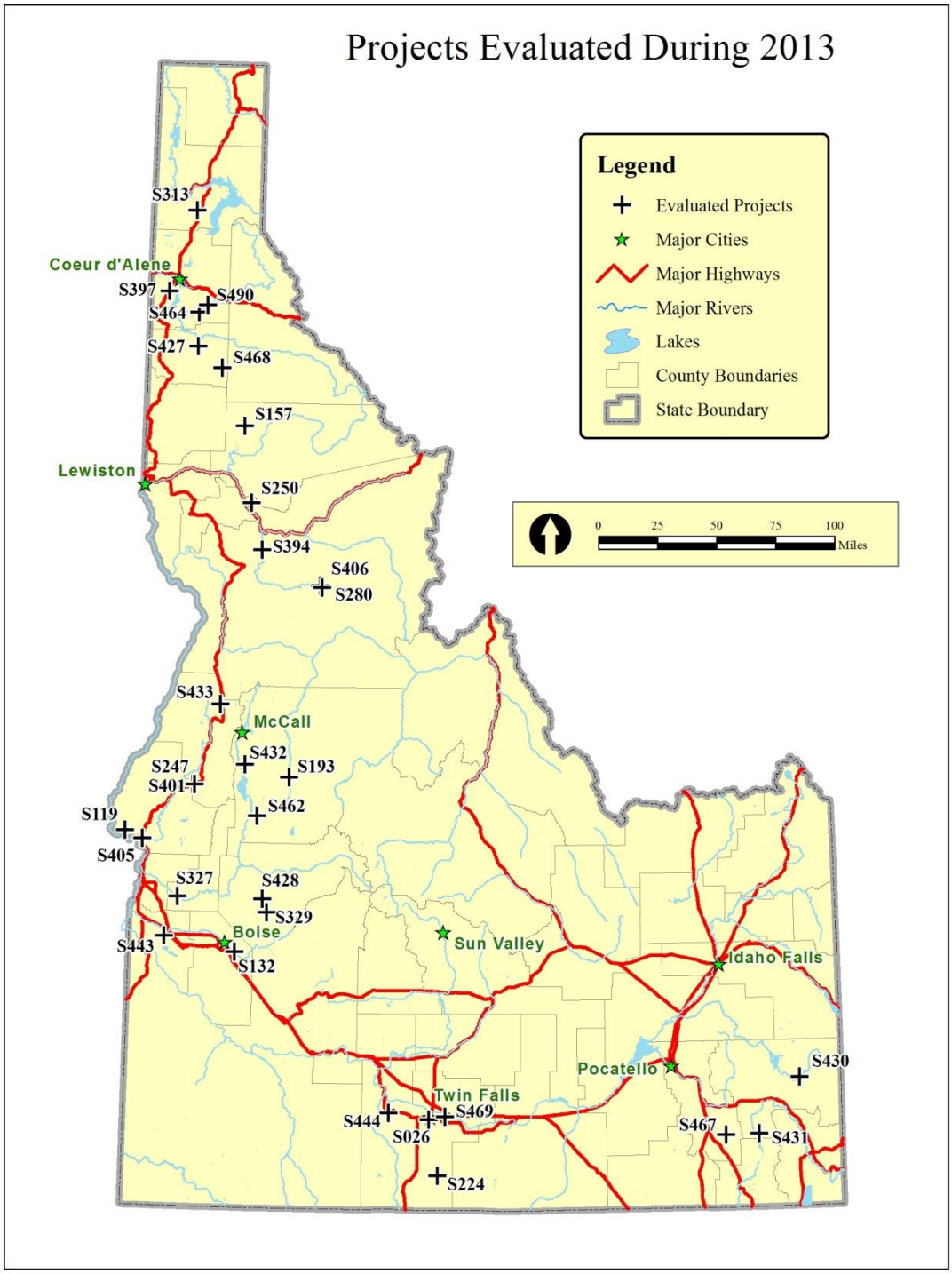

Figure 4. Nonpoint source projects evaluated during 2013. For project information, see Table 2.

Table 2. Projects field-evaluated during 2013.

Sub-grant	Project Name	Project Goals and Evaluation Conclusions	Category	DEQ Region
S026	Rock Creek Rehabilitation Re-Evaluation	This project addresses NPS water quality problems on Rock Creek and in the Rock Creek watershed that were not addressed in the original Rock Creek Rural Clean Water Program. (See page 18 for more information.)	Urban and Rural Stormwater	Twin Falls
S119	Weiser Flat Hog Creek Wetlands Re-Evaluation	This project captures sediment and nutrients from Hog Creek prior to deposition to the Snake River. (See page 19 for more information.)	Agriculture	Boise
S132	Barber Park Green Roof Demonstration Re-Evaluation	The objective of this project was to approach NPS pollution “upstream” at the source, taking a highly cost-effective approach. (See page 20 for more information.)	Urban and Rural Stormwater	Boise
S157	Partridge Creek Re-Evaluation	Outdoor recreation, mainly use of all-terrain vehicles, caused considerable damage to a fragile meadow area less than 1 mile upstream of the town of Elk River’s surface water intake. Through public awareness and replanting riparian vegetation, the community leaders sought to reduce water pollution at the intake. (See page 21 for more information.)	Urban and Rural Stormwater	Lewiston
S193	Kline Mountain Road Restoration Re-Evaluation	Road stabilization project with multiple BMPs to control NPS pollution. (See page 22 for more information.)	Transportation	Boise
S224	Shoshone Creek Water Quality Improvement Re-Evaluation	This project collects water from natural springs and stores it in a 10,000-gallon holding tank. The water is then gravity fed to 14 water troughs located parallel to Shoshone Creek along the hillsides. (See page 23 for more information.)	Agriculture	Twin Falls
S247	Little Weiser River Streambank Protection Phase 1 Re-Evaluation	This project stabilized the streambanks by resloping, planting trees, and adding root wads, barbs, and other treatments aimed at streambank protection. (See page 24 for more information.)	Agriculture	Boise
S250	North Idaho AFO Relocations, Phase 4 Re-Evaluation	This project addresses multiple animal feeding operations (AFOs) within north-central Idaho. (See page 25 for more information.)	Agriculture	Lewiston
S280	American Red River Re-Evaluation	The project focused on implementing BMPs in three categories: rural roads, riparian restoration, and rangelands/pasturelands. (See page 26 for more information.)	Agriculture	Lewiston
S313	Fish Creek Road Improvement Re-Evaluation	Approximately 22 undersized culverts were replaced, unstable areas in the road drainage network were stabilized, and magnesium chloride was applied to dirt roads, which reduced the chance of future road failures and excess sediment and nutrient delivery to Fish Creek. (See page 27 for more information.)	Transportation	Coeur d’Alene
S327	Lower Payette River TMDL Phase 3	The goal of this project is to work with local landowners and irrigation districts to install BMPs including pipelines, gated pipe, lift pumps, sprinklers, and other irrigation devices that will greatly reduce and in some cases eliminate sediment and phosphorous discharge to the lower Payette River. (See page 28 for more information.)	Agriculture	Boise
S329	Mores Creek Floodplain Restoration Re-Evaluation	The Mores Creek floodplain project stabilized and revegetated approximately 10 acres of abandoned placer mine hill slopes and improved 5 acres of roads used for recreational activities. (See page 29 for more information.)	Mining	Boise
S394	South Fork Clearwater River Restoration	The original work plan lists riparian planting of stream buffers, wetlands, and vegetative filter strips. (See page 30 for more information.)	Agriculture	Lewiston

Sub-grant	Project Name	Project Goals and Evaluation Conclusions	Category	DEQ Region
S397	Mica Creek Sediment and Nutrient Reduction Re-Evaluation	The goal of this project is reversing the damage along Mica Creek by working through the NPS Program and with other stakeholders to install Natural Resources Conservation Service-approved streambank stabilization BMPs and restrict cattle access to the creek. (See page 31 for more information.)	Agriculture	Coeur d'Alene
S401	Little Weiser River Streambank Phase 2	This project's goal is to stabilize the streambanks by resloping, planting trees, and adding root wads, barbs, and other treatments aimed at streambank protection. (See page 32 for more information.)	Agriculture	Boise
S405	Payette Ditch Discharge Treatment Re-Evaluation	The new wetland filters pollutants from the Lower Payette Ditch. (See page 33 for more information.)	Agriculture	Boise
S406	American Red River Phase 2 Re-Evaluation	This project seeks to stabilize streambanks by excluding cattle from the streams and stabilizing impacted streambanks. (See page 34 for more information.)	Agriculture	Lewiston
S427	St. Maries River Road Phase 1 Re-Evaluation	This project removed right-of-way timber, widened the right-of-way, upgraded existing culverts, added additional culverts as needed, and improved road drainage along the lower 2 miles of St. Maries Road. (See page 35 for more information.)	Transportation	Coeur d'Alene
S428	Grimes Creek Restoration Cooling Waters Re-Evaluation	These treatments were performed to lower the elevated temperatures for which Grimes Creek is on the §303(d) list and reduce bank erosion. (See page 36 for more information.)	Mining	Boise
S430	Upper Blackfoot River Phase 1	This project will reduce livestock impacts from four animal facilities, improve 2 miles of riparian habitat, and eliminate weeds on approximately 600 acres of range- and pastureland. (See page 37 for more information.)	Agriculture	Pocatello
S431	Bear River/Whiskey Creek Re-Evaluation	The project consisted of rerouting and stabilizing a tributary to Bear River around the site of a former dairy barn and existing manure stockpile area, rejuvenating an old domestic well, installing 650 feet of exclusionary fencing, and installing 11,200 feet of pipeline to supply water to five watering troughs. (See page 38 for more information.)	Agriculture	Pocatello
S432	Boulder and Willow Creek Re-Evaluation	As of the previous evaluation, this project included planting over 500 trees and shrubs on two streams. This evaluation looked at new work on Boulder Creek. (See page 39 for more information.)	Agriculture	Boise
S433	Expanded Little Salmon River Restoration	The loss of native vegetation due to logging and ranching has negatively impacted biodiversity, including the quality and quantity of riparian and stream habitat along sections of the Little Salmon River and its tributaries. (See page 40 for more information.)	Agriculture	Boise
S443	Canyon County BMPs for Water Quality Phase 2	This phase 2 project is a continuation of phase 1 work implementing agricultural BMPs to improve instream concentrations of sediment, nutrients, bacteria, and temperature. The phase 2 project consists of seven subprojects on seven separate farms. (See page 41 for more information.)	Agriculture	Boise
S444	Mud Creek and Silo Creek Water Quality	Shriver Water Quality Pond consists of a series of wetlands on I-Coulee Drain, which is an irrigation drain that enters Silo Creek above the completed Boulder Ridge Ranch Wetland. University of Idaho monitoring shows that I-Coulee has had a seasonal average of 125 milligrams per liter of total suspended solids for the last three years (2009–2011). (See page 42 for more information.)	Agriculture	Twin Falls
S462	Clear Creek Road Restoration	This project improved 6 miles of road in the Clear Creek watershed. The road was built with very poor drainage along Clear Creek, and in several areas, the creek has started to erode the road. (See page 43 for more information.)	Transportation	Boise
S464	Coeur d'Alene River, Medimont	The project includes stabilizing 4,000 linear feet of eroding streambank. BMPs include bank resloping, application of rip-rap, and riparian plantings. Prior to this project, all of the shoreline within the project boundaries consisted of nearly vertical, unstable layers of very fine, contaminated sediments from decades of lead and silver mining and milling upstream. This project is preventing tons of contaminants from being reintroduced to the river's flowing water. (See page 44 for more information.)	Mining	Coeur d'Alene

Sub-grant	Project Name	Project Goals and Evaluation Conclusions	Category	DEQ Region
S467	Pebble Creek and Portneuf River	The Pebble Creek project will reduce livestock impacts from one animal containment facility, improve approximately 1 mile of riparian habitat, and eliminate grazing on 24 acres of rangeland. The goal of the project is to reduce sediment and nutrient loads on the Portneuf River and provide fish habitat in a critical spawning stream for Yellowstone Cutthroat Trout. (See page 45 for more information.)	Agriculture	Pocatello
S468	St. Maries River Road Phase 2	There are two phases within this overall project area. This project is a continuation of work accomplished under subgrant S427 and involves removing right-of-way timber, widening the right-of-way, upgrading existing culverts, adding additional culverts as needed, and improving road drainage on 2 more miles of road. (See page 46 for more information.)	Transportation	Coeur d'Alene
S469	Twin Falls Coulee Wetlands	These wetlands filter suspended sediment, phosphorus, nitrogen, and bacteria out of the Twin Falls Coulee, thus improving water quality in the Snake River to which the Twin Falls Coulee discharges. (See page 47 for more information.)	Agriculture	Twin Falls
S490	Fish Creek Restoration	Fish Creek will be fenced and planted with up to 8,000 willow bundles, native shrubs, wetland plants, and conifers reinforced by bank hardscape stabilization structures. (See page 48 for more information.)	Agriculture	Coeur d'Alene

Section 3. Project Field Evaluation Reports—2013

DEQ staff traveled to 31 project sites to evaluate and document progress on active projects, and to assess how BMPs on older projects were functioning and being maintained:

- 20 projects addressed NPS water quality issues related to agriculture or grazing.
- 3 projects addressed issues related to mining.
- 5 projects addressed issues related to transportation.
- 3 projects addressed issues related to urban and rural stormwater.

The following pages include summaries of the projects that were evaluated in 2013. More detailed evaluation reports for each project are available from DEQ upon request.

DEQ is committed to seeing that BMPs installed many years ago continue to function as designed. This commitment is important because properly functioning BMPs result in cleaner water in Idaho.

3.1 Rock Creek Rehabilitation (Re-Evaluation)

Subgrant: S026 **Latitude and Longitude:** 42.54991, -114.47633

Description:
This project addressed NPS water quality problems on Rock Creek that were not fully addressed in the original Rock Creek Rural Clean Water Program. The cleanup done at the site removed residual material from an abandoned concrete plant and unpermitted landfill waste that was a source of pollutants to Rock Creek. The project area now collects stormwater runoff and routes it to a settling pond for treatment. Grass was planted to filter out sediment and other pollutants. The land adjacent to the settling pond was converted to a park with recreational vehicle parking and hookups to accommodate overnight camping. A hiking trail was created that extends several miles upstream from the camping area.

Completion date:
This project was completed on schedule in 2003.

Project status:
Some minor signs of overgrazing exist, but the BMPs are holding up well. No water quality monitoring is performed at this site other than Beneficial Use Reconnaissance Program monitoring every 4 years.

Figure 5. Park and campgrounds in 2002.

Figure 6. Park and campgrounds in 2013.

3.2 Weiser Flat Hog Creek Wetlands (Re-Evaluation)

Subgrant: S119 **Latitude and Longitude:** 44.28960, -117.08670

Description:
This project addressed sediment and nutrients entering Hog Creek, a tributary to the Snake River. In addition to the normal intermittent flow of Hog Creek, the northernmost branch of the Galloway Canal discharges excess irrigation water and return flows from irrigation into Hog Creek, just upstream of the constructed wetland area.

Completion date:
This project was completed on schedule in 2005

Project status:
The dam on the constructed wetlands was breached during a flood on January 1, 2006. The Weiser Irrigation District subsequently rebuilt the dam that winter. The dam has held up since reconstruction and appears to be functioning well. Average flow through the wetlands varies from 0 to 10 cfs. The dam and wetlands are monitored visually on a regular basis.

Figure 7. When DEQ visited the site in May 2005, the pond had just been completed.

Figure 8. During the May 2005 visit, DEQ was concerned that wave action could erode the dam.

Figure 9. The dam on the wetland failed on January 1, 2006, due to a major rain-on-snow flood event. The irrigation district rebuilt the dam, and it has held through considerable flood events since then.

Figure 10.This photograph, taken 8 years later, is of the same view shown in Figure 8

3.3 Barber Park Green Roof Demonstration (Re-Evaluation)

Subgrant: S132 **Latitude and Longitude:** 43.56226, -116.12537

Description:
The project included design and construction of a “living roof” on a commercial building. The living roof was intended to demonstrate what could be integrated into new buildings or, as in this case, during retrofit of an existing site. The living roof project offers a demonstration of NPS stormwater management through design.

Completion date:
This project was completed on schedule in 2005.

Project status:
The goal of this evaluation was to check the status and functionality of the living roof project 8 years after its construction. The outcome revealed that approximately one half of the vegetation had failed. No storm or irrigation water is discharged from this project site.

Figure 11. The northeast sloping roof where plants on the green roof have survived since 2005.

Figure 12. The southwest sloping roof where the green roof project failed. The plants were removed, and photovoltaic cells were installed under a different grant program. The cells generate power for the house shown in the background. During much of the year, excess electric power is sold to Idaho Power.

3.4 Partridge Creek (Re-Evaluation)

Subgrant: S157 **Latitude and Longitude:** 46.79008, -116.15785

Description:
Outdoor recreation, especially all-terrain vehicle (ATV) use, caused considerable damage to a fragile meadow upstream of the City of Elk River's surface water intake. Through public awareness and replanting riparian vegetation, community leaders sought to reduce water pollution at the water intake.

Completion date:
This project was completed on schedule in 2005.

Project status:
The BMPs are in good functioning condition. Due to the efforts of the US Forest Service and the local community, it appears recreationists are now complying with the request to limit ATV activity in the area. Local residents have also taken measures to restrict livestock access to the Creek upstream of the intake. Oversight of the project area is ongoing by the Forest Service and local residents to ensure ATV enthusiasts refrain from disturbing the creek and adjacent riparian vegetation. Water samples are taken at the water system intake on a regular basis.

Figure 13. This ATV trail is adjacent to a US Forest Service approved ATV trail, approximately 200 feet from Partridge Creek.

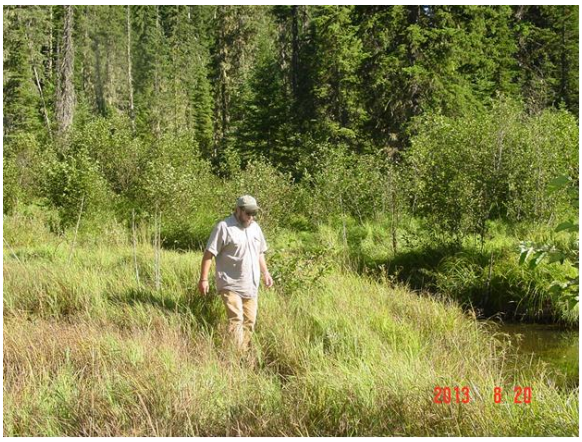

Figure 14. The former site of an ATV creek crossing that was a major source of sedimentation to Partridge Creek. Riparian vegetation has been reestablished, and beaver are acting to create ponds that help capture suspended sediment.

Figure 15. Most of the grass and deciduous woody vegetation seen in this photograph was planted during this project and is thriving.

Figure 16. One of several beaver ponds created in the project area.

3.5 Kline Mountain Road Restoration (Re-Evaluation)

Subgrant: S193 **Latitude and Longitude:** 44.64016, -115.69408

Description:
This road stabilization project included slope stabilization, revegetation, and installation of retaining walls, culverts, and berms.

Completion date:
This project was completed on schedule in 2008.

Project status:
Despite a massive forest fire and heavy recreational and logging truck use, all BMPs appear to be holding up well.

Figure 17. The roadway was cut along a challenging hillside where unconsolidated glacial material is prone to landslides. The fill slope below the road is nearly the same angle as the cut slope above the road. This situation required special BMPs designed for steep hillside road cuts on unconsolidated material.

Figure 18. A good example of road obliteration. The road fill material approximates the original contour, and large boulders across the old right-of-way serve to permanently close the road. The entire project area was burned in a massive forest fire about 4 years ago.

Figure 19. Gabion walls—three dimensional wire baskets filled with rocks—are holding up as intended 5 years after installation. The roadway is about 10 feet above the top of this wall, and the South Fork Salmon River is about 150 feet below. This slope would not support the roadway without this type of BMP.

Figure 20. Three culverts were installed to handle storm runoff and reduce water infiltration. This galvanized steel shield at the intake helps keep debris from sloughing off the hillside and plugging the culvert.

3.6 Shoshone Creek Water Quality Improvement (Re-Evaluation)

Subgrant: S224 **Latitude and Longitude:** 42.20600, -114.40600

Description:
To reduce cattle encroachment on Shoshone Creek and Hopper Gulch, this project included the installation of pipe to collect water from natural springs, and then store it in a 10,000-gallon holding tank. The water is then gravity fed to 14 water troughs. The project supplied 21,600 feet of 1.5-inch HDPE pipe to deliver water to each of the 1,000-gallon troughs. Metal pipe was used to sleeve the HDPE pipe at three road crossings.

Completion date:
This project was completed on schedule in 2009.

Project status:
The project was successfully completed. The troughs were installed, and the water delivery system is working as designed. More cattle are remaining up on the hillsides where the footing is good, and feed and clean water is available.

Figure 21. The 14 water troughs, constructed in clusters of 2 or 3 over a 4-mile span, are successful in attracting the cattle.

Figure 22. Each concrete trough was constructed on a concrete pad to give the cattle good footing during wet weather.

Figure 23. To conserve water, each trough has a float valve that cuts the flow off once the water reaches a certain level.

Figure 24. Prior to this project, the banks of Shoshone Creek were almost totally denuded of riparian vegetation. Five years later, the riparian area is again green and lush.

3.7 Little Weiser River Streambank Protection, Phase 1 (Re-Evaluation)

Subgrant: S247 Latitude and Longitude: 44.58384, -116.50712

Description:

Decades ago, the Army Corps of Engineers straightened and channelized a section of the Little Weiser River to give farmers more land to cultivate. Because of the alterations to the channel, the stream dynamics changed, increasing the gradient and stream velocity. As a result, the stream began downcutting and attempting to re-establish its meandering pattern. This project involved stabilizing the streambanks by resloping, planting trees, and adding root wads, barbs, and other treatments. This area received a heavier than normal runoff in Spring 2011, and most of the BMPs held up quite well.

Completion date:

This project was completed ahead of schedule in 2013.

Project status:

At two sites, DEQ evaluated trench packs, rock barbs, rip-rap along banks, root wads, exclusionary fencing, and thousands of woody plantings—mainly willows. All BMPs were in good functioning condition. The plantings have largely survived, although some damage due to beaver and drought was evident.

Figure 25. Rock barbs installed in 2009 are holding up well. They have served to direct the stream channel away from the former badly eroding bank. Note the large willows in the background and along the shoreline; all were planted in 2009.

Figure 26. After four spring runoff seasons, many of the rock barbs are halfway or completely covered with silt, sand, and vegetation and functioning as intended.

Figure 27. The hundreds of willows that were planted along the banks 4 years ago are doing well.

Figure 28. This gravel bar was treated with trench packs (parallel trenches planted with willows) 4 years ago. It extends about 50 feet out into the former channel, and the channel has shifted to the left as seen in this photograph.

3.8 North Idaho AFO Relocations Phase 4 (Re-Evaluation)

Subgrant: S250 **Latitude and Longitude:** 46.32000, -116.08000

Description:
This project originally was to include 10–15 subprojects focused on animal feeding operations (AFOs) located throughout north-central Idaho. Due to budget constraints, Phase 4 work was limited to 9 subprojects. Prior evaluations were completed in July 2010 and September 2012. The August 2013 evaluation included an update of work in progress during the 2012 evaluation.

Completion date:
This project was completed on schedule in 2013.

Project status:
The project area covers hundreds of square miles stretching over five counties in north-central Idaho. The previously installed BMPs that were observed during this evaluation were in good functioning condition. The Latah Soil and Water Conservation District is conducting monthly bacteria, nitrate, and turbidity water quality sampling over portions of the project area.

Figure 29. During DEQ's 2012 evaluation, a well had been drilled and cased, but no pump or power was available.

Figure 30. When DEQ returned to the well site in 2013, a pump, pipeline, solar panels, and watering troughs had been installed. The bright red object left-center is one of the installed troughs. The green fence panels keep cattle from damaging the well and solar panels.

Figure 31. Water troughs are designed for water conservation and are operated when livestock press the red ball with their nose.

Figure 32. This trough is designed to accommodate two animals at one time. The wooden buttress helps prevent livestock from damaging the trough. The nose-activated trough helps to conserve water, and to prevent contaminated water from flowing into nearby surface waters.

3.9 American/Red River (Re-Evaluation)

Subgrant: S280 **Latitude and Longitude:** 45.81780, -115.45860

Description:
The goal of the project was to implement BMPs on local rural roads, restore damaged riparian areas, and improve conditions on range and pasture lands adjacent to the Rivers.

Completion date:
The project subgrant expired on December 31, 2012.

Project status:
The BMPs DEQ observed were functioning as intended. However, a plan to install a bridge across the American River was unsuccessful and was eventually tabled by the sponsor. The parties remain in discussion to determine the final status of the project. Some water quality sampling data—including for *E. coli*, total suspended solids (TSS), and temperature—was done at sites located below Red River Ranch, on Moose Creek, and at the US Forest Service's Red River ranger station.

Figure 33. Proposed site of the bridge that was to be installed across the American River.

Figure 34. The earlier streambank protection work—including planting vegetation and excluding cattle along Red River—is producing the desired results. The riverbanks are in the process of becoming stable.

Figure 35. Much of the woody vegetation planted in 2010 is still protected from browsing elk and deer.

Figure 36. Another view of Red River, showing the recovery taking place in the riparian area

3.10 Fish Creek Road Improvement (Re-Evaluation)

Subgrant: S313 **Latitude and Longitude:** 48.10038, -116.64511

Description:
Undersized culverts were replaced to minimize the likelihood of failure. Magnesium chloride was applied to the surface of the dirt road to control excess sediment from entering Fish Creek. Fish Creek discharges directly to Cocolalla Lake.

Completion date:
The project is on schedule to be completed by the end of 2013.

Project status:
It appeared that minimal maintenance had been conducted since the road culverts were replaced. While none of the culverts had failed, many culverts and borrow ditches were observed partially clogged with storm debris. The project sponsor was contacted after the evaluation was completed and directed to attend to these BMPs as soon as possible.

Figures 37 and 38. These culverts are partially concealed with grass and have accumulated some rock and sediment, threatening their ability to function as intended.

Figures 39 and 40. Two culverts on the verge of becoming completely plugged with debris. With one major precipitation event or heavy spring runoff, the culverts could experience total failure.

3.11 Lower Payette River TMDL Phase 3

Subgrant: S327 **Latitude and Longitude:** 43.89614, -116.62548

Description:
The goal of this project is to work with local landowners and irrigation districts to install BMPs (including pipelines, gated pipe, lift pumps, sprinklers, and other irrigation devices) to eliminate or significantly reduce the amount of sediment, phosphorous, bacteria, and herbicides found in irrigation return flows prior to its discharge to the Lower Payette River. Multiple subprojects involving several landowners will be implemented on agricultural lands to accomplish this goal.

Completion date:
This project was completed on schedule in 2013.

Project status:
All BMPs observed were in good condition and functioning as designed. Load reduction estimates for the subprojects that were completed to date show that 320 tons of sediment and 320 pounds of phosphorous will be kept from entering the river annually as a result of this project.

Figure 41. This irrigation pump, protected from cattle with fence panels, provides water to a low-pressure sprinkler system covering 70 acres of previously flood-irrigated ground.

Figure 42. Wheel line irrigation was installed on this subproject.

Figure 43. A pipeline (located in the barren area between the alfalfa field and the road) replaced a heavily eroded ditch that was a major contributor of sediment to the Payette River.

Figure 44. A pump and pivot line was installed to irrigate a field that was formerly flood-irrigated.

3.12 Mores Creek Floodplain Restoration (Re-Evaluation)

Subgrant: S329 **Latitude and Longitude:** 43.81000, -115.86500

Description:
The goal of this project was to stabilize and revegetate approximately 10 acres of hillside near an abandoned placer mine and to improve the condition of nearby dirt roads used for recreational activities. Efforts will also be taken to stabilize 5 stream segments and to create 7 acres of riparian buffer adjacent to Mores Creek.

Completion date:
This project was completed on schedule in 2008.

Project status:
The BMPs observed were installed 5 years ago and are holding up very well. Approximately 30 photo points are visited each summer to record the status of the BMPs installed. In addition, US Forest Service and Trout Unlimited staff visit this project annually to verify that the BMPs are functioning as designed. Trout Unlimited conducts fish surveys annually in Mores Creek and reports results to DEQ.

Figure 45. Previously, this area held decades of old gold placer tailings that were devoid of vegetation, and many streambanks were severely eroding each spring. Much of the vegetation shown here was donated to Trout Unlimited by a local nursery.

Figure 46. A rock and log barb was placed to deflect the stream flow away from this vulnerable bend in the creek. As shown here, the barb is trapping debris, as intended.

Figure 47. Prior to this project, a lack of riparian vegetation caused excessively high stream temperatures. Now, with proper shading, the water is cooler, which promotes healthy fish populations.

Figure 48. Cottonwoods, planted just 5 years ago, are thriving.

3.13 South Fork Clearwater River Restoration

Subgrant: S394 **Latitude and Longitude:** 46.03173, -115.97481

Description:

This project focused on planting riparian areas to function as stream buffers, wetlands, and vegetative filter strips. Planting will be done in the spring and fall throughout the life of the project. Deliverables include 120,000 square feet of riparian buffer and filter strips planted with native trees, grasses, and shrubs. DEQ approved using a portion of this project's funding to replant a downriver riparian area that was washed out due to a previous high water event.

Completion date:

This project is scheduled for completion in 2014.

Project status:

Very little new work had been done to evaluate in August 2013. Some trees and shrubs had been planted along Three Mile Creek, in a residential area in Grangeville. Most of what had been planted had since died due to an apparent lack of water.

Figure 49. The property along Three Mile Creek in Grangeville. The only accomplishments were removing some landfill items (e.g., tires and discarded appliances) and planting some woody riparian plants, many of which had since died due to lack of water.

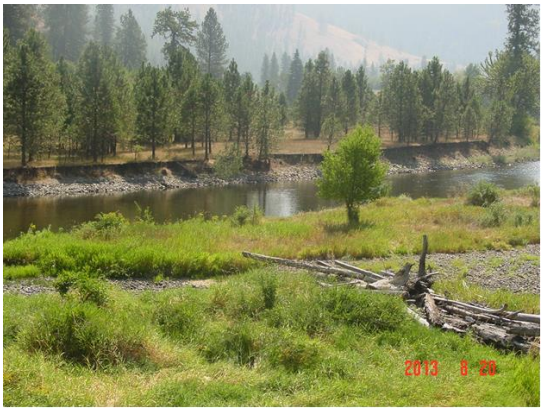

Figure 50. A bank failure at one project site along the South Fork Clearwater River shows the need for stabilization.

Figure 51. Bank failure is occurring on this private land along the South Fork Clearwater River. This site and many others were proposed for implementing BMPs aimed at stabilizing the streambank.

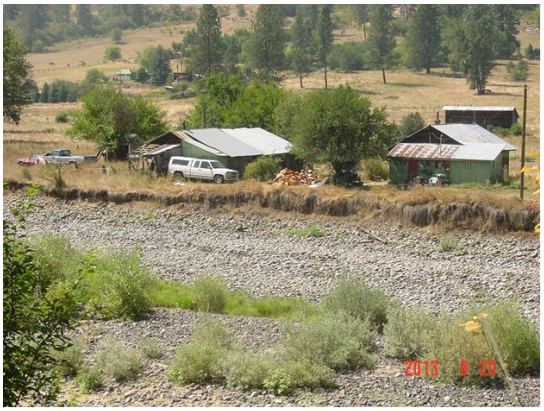

Figure 52. Bank erosion can be observed along this stretch of the South Fork Clearwater River. The landowner could be approached by the project sponsor to see if he would be willing to participate in a project aimed at stabilizing the bank.

3.14 Mica Creek Sediment and Nutrient Reduction Re-Evaluation

Subgrant: S397 **Latitude and Longitude:** 47.60033, -116.87403

Description:
Decades ago, the Idaho Transportation Department built a highway along Mica Creek and pushed the creek to one side of the valley. This once common road building practice steepened the gradient and destabilized the stream channel, which led to downcutting. Simultaneously, local ranchers and farmers have allowed unfettered cattle access to the creek and have farmed right up to the creek banks—another common practice—resulting in further destabilization. A local landowner took the initiative to begin attempting to reverse the damage by working with other stakeholders to install streambank stabilization BMPs and restrict cattle access. This re-evaluation focused on recent work and the functioning condition of some older BMPs.

Completion date:
This project closed well ahead of schedule in 2012.

Project status:
All of the BMPs—including streambank stabilization, riparian planting, and exclusionary fencing—are functioning as designed. The landowner lives within the project area and keeps a careful watch over the stability of BMPs as stream levels fluctuate. DEQ is also conducting streambank stabilization monitoring.

Figures 53 and 54. The photograph on the left shows this site in September 2011, shortly after BMP installation. The photograph on the right shows the same site as of August 2013. A sand point bar formed as a result of a rock barb that was installed just upstream of the rip-rap. Vegetation has since grown up through the rip-rap.

Figures 55 and 56. The photograph on the left shows a section of resloped and rip-rapped streambank as it appeared in September 2011, shortly after the work was completed. The photograph on the right shows that same section as it appeared two years later, in August 2013. The BMPs have held up well, and the vegetation is flourishing.

3.15 Little Weiser River Streambank Protection Phase 2

Subgrant: S401 **Latitude and Longitude:** 44.58310, -116.52162

Description:
Decades ago, the Army Corps of Engineers straightened and channelized a section of the Little Weiser River to give farmers more land to cultivate. This effort changed the dynamics of the river, increasing the gradient and velocity. As a result, the river began downcutting its banks, attempting to reestablish a meandering pattern. This project's goal is to stabilize the streambanks by resloping, planting trees, and adding root wads, barbs, and other treatments.

Completion date:
This project is on schedule to be completed in 2014.

Project status:
DEQ visited five subproject sites. The BMPs used included rock barbs, willow trench packs, rip-rap, willow and grass riparian plantings, and exclusionary fencing. An annual monitoring program consists of photo points and lateral recession rate measurements.

Figure 57. Looking down the axis of one of the rock barbs, one can see the angularity and size of the rocks that were selected based on anticipated high spring runoffs, as per National Resource Conservation Service (NRCS) specifications.

Figure 58. Each of the numerous rock barbs on this project are keyed in at the high-water mark along the shoreline. Each barb is set on a 30–35 degree angle, pointing upstream to divert the deepest part of the flood away from the shoreline.

Figure 59. DEQ evaluated five areas along the Little Weiser River where rock barbs have successfully stabilized formerly eroding streambanks. Adams SWCD staff, landowners, and local volunteers planted much of the vegetation.

Figure 60. One of the BMPs used on this project was the installation of exclusionary fencing.

3.16 Payette Ditch Discharge Treatment (Re-Evaluation)

Subgrant: S405 **Latitude and Longitude:** 44.24313, -116.93834

Description:
Wetlands were constructed on 6.5 acres of land at the end of the Payette Irrigation Ditch, adjacent to the Payette River. The new wetland filters pollutants from the Lower Payette Ditch. Planting in and around the wetlands was completed in Spring 2012.

Completion date:
This project was completed well ahead of schedule in 2012.

Project status:
This re-evaluation verified the functioning condition of the settling ponds/wetlands and the status of the willows planted in 2012. All BMPs observed were in good condition and functioning as intended. Every 2 weeks during the life of the project, the project manager collected water samples to test for sediment, phosphorous, and nitrogen at the inflow and discharge points of the wetlands. No funding exists for continued post project monitoring.

Figure 61. When the uppermost pond requires cleaning, a track hoe will have easy access.

Figure 62. Partially treated water from the uppermost pond flows to a second holding pond where contaminants continue to settle out prior to discharge to the Payette River.

Figure 63. Wildlife is gradually moving in now that riparian vegetation is growing in the lower pond.

Figure 64. Discharge to the Payette River is much cleaner than the water that entered the wetlands.

3.17 American/Red River Phase 2 (Re-Evaluation)

Subgrant: S406 **Latitude and Longitude:** 45.80676, -115.43990

Description:
Historic mining, logging, and cattle grazing along its banks have affected the American River and its tributaries. The goal of this project is to stabilize streambanks by excluding cattle from the rivers and streams. Because of recent mill closures, unemployment is high in the Elk City area. This project intends to recruit and train displaced local mill workers to assist with installing BMPs.

Completion date:
This project is on schedule for completion in 2014.

Project status:
All of the BMPs DEQ observed were in good condition. Monitoring data are being collected and will be summarized in the final report.

Figure 65. The jack pole fencing installed in 2010 is in good condition and continues to keep livestock out of Big Elk Creek, a tributary to the American River.

Figure 66. During the evaluation, DEQ observed a work crew using trees salvaged from a local logging operation to help stabilize a streambank. Each tree was anchored securely to the nearly vertical banks, with particular attention given to bends in the creek where high velocity water had undercut the banks.

Figure 67. Work on this section of Big Elk Creek is complete. During next spring's runoff, high flows will likely near the top of the vertical bank and cause some sloughing. This will aid the recovery process, as the anchored trees will deflect high velocity waters, thereby allowing sediment to remain in place behind the trees. In time, the trees will be unnoticeable because of the riparian vegetation that will be growing along the now barren banks.

Figure 68. Some of the Big Elk Creek streambank is revegetating itself with no streambank BMPs needed, other than exclusionary fencing.

3.18 St. Maries River Road Phase 1 (Re-Evaluation)

Subgrant: S427 **Latitude and Longitude:** 47.26983, -116.59618

Description:
This project involved widening the roadside right-of-way by removing standing trees, adding culverts, and upgrading older, under-sized culverts to improve the drainage off the lower 2 miles of St. Maries Road.

Completion date:
This project was completed well ahead of schedule in 2013.

Project status:
The BMPs installed in 2011 were all in good functioning condition and are being maintained by Benewah County. In accordance with the project's stormwater permit, Benewah County is responsible for twice-daily monitoring of sediment captured in traps located above and below each creek that crosses the road.

Figure 69. Where space allowed, trees were left undisturbed along the road.

Figure 70. This August 2013 photograph shows the same section of road as seen in the previous figure, after the BMPs were installed. The road was widened and redressed, and the road now slopes toward the new borrow ditch.

Figure 71. As part of Benewah County's water quality monitoring responsibilities, numerous sediment collection boxes were installed.

Figure 72. All culverts installed in 2012 were functioning as designed. This is the inflow side of a typical culvert.

3.19 Grimes Creek Restoration Cooling Waters (Re-Evaluation)

Subgrant: S428 **Latitude and Longitude:** 43.89155, -115.90349

Description:
The project involved strategically placing boulders to narrow and deepen the channel and increase the number of pools in an approximately 3 mile reach of Grimes Creek near Centerville, Idaho. Pools provide deeper water, creating refugia for coldwater fish species. Boulders were obtained from the US Forest Service and hauled to the site for this portion of the project. Additional boulders were staged in the area for future work that will occur downstream. These treatments will help to lower water temperatures, for which Grimes Creek is on the §303(d) list, and will serve to reduce bank erosion.

Completion date:
This project is on schedule for completion in 2015.

Project status:
All the BMP's evaluated were in good functioning condition. A contractor is performing stream profile cross sections and vegetation growth monitoring.

Figure 73. Recently planted woody plants, such as this willow, are surviving without additional watering because they are rooted in the moist vadose zone.

Figure 74. Grimes Creek had been straightened, channelized, and moved to one side of the valley because of placer gold mining activities that took place at the turn of the century. This activity resulted in an increased stream gradient, velocity, and extensive downcutting. Numerous drop structures were installed to reverse the downcutting. This BMP, keyed into both banks and V-shaped upstream, resulted in desired ponding and sediment deposition.

Figure 75. This photograph depicts how the affected areas should look in several years. In this case, beaver have moved in and their activities have further enhanced the man-made BMPs.

Figure 76. Considerable engineering has gone into this project. This drop structure is keyed into both banks and is V-shaped upstream to give it additional strength during high flows. The locally derived angular boulders were size-selected based on anticipated high flows. The streamflow is from right to left.

3.20 Upper Blackfoot River Phase 1

Subgrant: S430 **Latitude and Longitude:** 42.78618, -111.38552

Description:
The goal of this project is to address the impact 4 animal facilities are having on the river by improving 2 miles of riparian habitat and eliminating invasive, non-native weeds on approximately 600 acres of range and pastureland to reduce sediment and nutrient loads in the river. This will be accomplished by installing off-site watering facilities to improve grazing management, and by installing pasture and exclusionary fencing. Once this project is completed, nearly 3,500 head of cattle will no longer water directly from the Blackfoot River and Slug Creek.

Completion date:
This project is on schedule for completion by the end of 2015.

Project status:
The BMPs DEQ observed were in good functioning condition. A large parcel of cattle-excluded land was inaccessible for evaluation purposes due to flooding and an on-going cattle roundup.

Figure 77. This well, along with buried pipe leading to three watering troughs, supplies water for about 3,500 head of cattle annually. Prior to this project, cattle were watering directly from the Blackfoot River.

Figure 78. One of three water troughs. The troughs were empty during the evaluation because cattle were in a different location.

Figure 79. Cattle have been excluded from this entire area.

Figure 80. Some of the fencing that was installed to exclude cattle from grazing on this 113 acre parcel of land adjacent to the River.

3.21 Bear River/Whiskey Creek (Re-Evaluation)

Subgrant: S431 **Latitude and Longitude:** 42.44645, -111.73365

Description:
The goal of the project is to redirect a tributary to the Bear River around the site of a former dairy barn and manure stockpile area, stabilize banks, rejuvenate an old domestic well, and install 650 feet of exclusionary fencing and 11,200 feet of pipeline to supply water to five troughs.

Completion date:
The project is on schedule to be completed by the end of December 2013.

Project status:
Minimal progress has been made towards removing the concrete foundation at the old dairy barn and constructing a stream channel through its footprint. At the off-site watering facility, located north of Grace, a new solar panel was installed to power the pump supplying water to the troughs. The BMPs installed last year are being well maintained.

Figure 81. This four-panel solar generator is performing adequately to supply water at a rate of 60 gallons per minute to the watering troughs. Over the past season, cloud cover impeded power output on a few days, but it has not yet been a major problem.

Figure 82. While cattle were not on-site during the evaluation, the landowner demonstrated how the watering system works. The metal canister float turns off the water flow once the trough is filled.

Figure 83. Site of the former dairy barn that was built over Whiskey Creek. The creek flows through an underground culvert located below where these people are standing and discharges in the clump of trees in the background. The landowner is obligated to remove the concrete shown here and to daylight the creek and return it to its original channel by December 31, 2013.

Figure 84. Two fabricated irrigation-related concrete structures will be modified to allow fish to pass to reach upper Whiskey Creek.

3.22 Boulder and Willow Creeks (Re-Evaluation)

Subgrant: S432 **Latitude and Longitude:** 44.71406, -116.07837

Description:
This project consisted of planting over 500 trees and shrubs alongside the two creeks. Most of the work along Boulder Creek was completed in April–May 2012 and involved planting willow, dogwood, aspen, cottonwood, alder, and Engelmann spruce over an approximate 2,500 feet riparian area. About 100 feet of storm-damaged riparian area along Willow Creek was replanted, also as part of this project.

Completion date:
This project is on schedule for completion in 2015.

Project status:
The BMPs installed, mostly, were being well maintained. Some cottonwood trees planted last summer had not survived, apparently due to a lack of water.

Figure 85. Although some of the cottonwoods died, many others, and nearly all of the willows, are doing well. Most of the willow canes seen in this photograph had taken root and will likely survive without additional watering.

Figure 86. These mature pine trees and hawthorns were planted during a previous project several years ago.

Figure 87. This now well-established willow was planted in 2011 at the start of work along this stretch of Boulder Creek.

Figure 88. These willow canes were planted in the streambank last spring with the assistance of a hydraulic stinger, which allows a pilot hole to be drilled several feet deep. Nearly all of the canes shown in this photograph survived their first summer and will likely continue to mature.

3.23 Expanded Little Salmon River Restoration

Subgrant: S433 **Latitude and Longitude:** 45.07912, -116.30320

Description:
The loss of native vegetation, due in part to logging and ranching, has negatively affected biodiversity, including the quality and quantity of riparian and stream habitat along sections of the Little Salmon River and its tributaries. The lack of vegetation results in large stretches of unshaded water, which contribute to elevated water temperatures. Work included planting, fertilizing, and watering native trees and shrubs and willows on private land. On Round Valley Creek, the work involved constructing willow weavings to protect exposed, actively eroding streambanks. On Fourmile Creek, work included constructing a fence and developing an off-site shade and shelter for cattle.

Completion date:
This project is on schedule for completion in 2015.

Project status:
All BMPs DEQ evaluated were in properly functioning condition.

Figure 89. 2.5 miles of Round Valley Creek have been fenced to exclude cattle from grazing. Landowners and volunteers, including 18 high school students, planted hundreds of willows and cottonwoods to help restore this riparian corridor.

Figure 90. Workers stand in one of the many excavated trenches the volunteers hand dug to plant willows and cottonwoods.

Figure 91. Some of the willows planted along the banks. With normal snowpack and rainfall, simply excluding cattle and replanting riparian areas is enough to stabilize formerly vertical banks. No heavy equipment and bank resloping is required, as this bank will eventually slough to a stable angle as grass and woody vegetation take over.

Figure 92. The Idaho Department of Fish and Game and volunteers will hand water new plantings for the first 2 years to ensure their survival.

3.24 Canyon County BMPs for Water Quality Phase 2

Subgrant: S443 **Latitude and Longitude:** 43.64999, -116.72699

Description:
Phase 2 is a continuation of efforts to work with landowners to install BMPs aimed at reducing sediment, nutrients, bacteria, and temperature load to local waters. BMPs used to improve water quality include converting lands from flood to drip irrigation, reducing the amounts of fertilizer being applied, installing sediment basins, and constructing wetlands, exclusion fencing, and farm field buffer strips.

Completion date:
This project is scheduled for completion in 2015.

Project status:
All BMPs evaluated were in excellent condition. The landowners, conservation district, and Lower Boise River Watershed Council staff combined forces to conduct water quality monitoring. Observations made at one subproject site revealed that a new drip irrigation system cut in half the amount of irrigation water being used and resulted in zero discharge to the Boise River.

Figure 93. The pump and filtering system for a field recently converted from flood to drip irrigation. The three large canisters contain synthetic sand-sized particles that capture very fine-grained sediment and other pollutants that could plug the drip irrigation tape buried in the 30-acre field.

Figure 94. The larger water pipe is under pressure from the pump and delivers irrigation water to each length of buried tape, which has very fine emitters spaced every 16 inches. This tape is expected to last about 7 years before needing replacement. The old drip tape will be recycled.

Figure 95. The farmer is very satisfied with the condition of this mint field that has been converted to drip irrigation. Crop yield has increased by 25–30% and requires about 50% less water. Fertilizer and herbicide can also be applied via the irrigation system rather than by tractor or airplane.

Figure 96. As with the mint field, this drip-irrigated crop of sugar beets should result in an excellent yield.

3.25 Mud Creek and Silo Creek Water Quality

Subgrant: S444 **Latitude and Longitude:** 42.59149, -114.81191

Description:
I-Coulee drains approximately 10,000 acres of irrigated land in the Buhl area. The goal of the project was to construct a series of wetlands on the I-Coulee Drain prior to its discharge to Silo Creek and, eventually, the Snake River. The wetland complex will consist of two cleaning cells, approximately 200 feet long by 45 feet wide, and two large finishing ponds. Aquatic plants will be grown in the finishing ponds to aid in the uptake of nutrients in the irrigation drain water. A 20-year conservation easement on the 6-acre site has been entered into.

Completion date:
This project was completed on schedule in 2013.

Project status:
BMPs evaluated by DEQ were in properly functioning condition. The Twin Falls Canal Company (TFCC) has contracted with the University of Idaho to monitor the major irrigation drains across the tract, including the I-Coulee system, for nearly 20 years. Monitoring for TSS and total phosphorus (TP) is done on a biweekly basis throughout the irrigation season. Historical water quality data were used to establish a baseline for the project, with subsequent monitoring used to evaluate project effectiveness.

Figure 97. Pond #2 discharges to Pond #3. The ponds collect sediment and other contaminants, and the water becomes visibly cleaner as it moves through the system.

Figure 98. The entire system is gravity fed and relies on sufficient pond retention time to remove contaminants from the irrigation return water.

Figure 99. At the bottom end of the series are two larger finishing ponds that continue the cleaning process.

Figure 100. The final discharge point for the treated irrigation water. The average flow rate is 7–8 cfs. Biweekly monitoring data indicate a 35–40% reduction in TSS and TP.

3.26 Clear Creek Road Restoration

Subgrant: S462 **Latitude and Longitude:** 44.40190, -115.96237

Description:
The goal of this project was to reduce sediment load in Clear Creek by improving 6 miles of road in the watershed. The road was originally built alongside Clear Creek and had very poor drainage. At several locations, the creek had been eroding the road during periods of high water. The work proposed included enhancing existing rip-rap and adding new areas of rip-rap. Efforts also would include revegetating streambanks adjacent to the road, replacing or adding 36 culverts, raising parts of the roadbed, reshaping the road to improve drainage, and re-grading the borrow ditch. This project is consistent with the goals of the North Fork Payette River TMDL and the TMDL forestry implementation plan, both of which call for reduced sediment delivery from roads (DEQ 2005, 2007).

Completion date:
This project was completed ahead of schedule in 2013.

Project status:
DEQ evaluated BMPs implemented along the entire 6 miles of road. All BMPs were in good functioning condition. BMP installation was monitored on a daily basis. Regular oversight the project area continues to ensure all BMPs are maintained and functioning as intended.

Figure 101. This project included laying 6 miles of road surface rock, improving the borrow ditch, and replacing culverts.

Figure 102. Many sections of streambank needed to be graded and armored with rip-rap to eliminate erosion of the road.

Figure 103. In many cases, the creek has meandered to within a few feet of the roadway. Where possible, natural meanders were left and rip-rap was added to prevent further erosion.

Figure 104. Prior to the project, this 900-foot span of roadway was at creek level and was regularly being flooded. The road was a major source of sediment and other pollutants to the creek.

3.27 Coeur d'Alene River, at Medimont

Subgrant: S464 **Latitude and Longitude:** 47.47830, -116.59530

Description:
This project, located on the Coeur d'Alene River directly across from the Medimont boat ramp on Idaho Department of Fish and Game land, involves stabilizing approximately 4,000 feet of eroding streambank. BMPs utilized will include bank resloping, the application of rip-rap, and planting the riparian area. The shoreline within the project boundaries consists of nearly vertical, unstable layers of very fine sediment contaminated with heavy metals because of decades of upstream lead and silver mining and milling. This project will help to prevent the release of tons of contaminants into the watershed.

Completion date:
This subgrant is open until December 31, 2016, but the work is nearly complete.

Project status:
All BMPs DEQ evaluated were constructed to NRCS standards and have held up well, considering the significant amount of recreational boat traffic seen on the river. The functioning status of the BMPs is routinely monitored by SWCD staff.

Figure 105. Prior to this project, all of the shoreline consisted of nearly vertical, unstable layers of very fine contaminated sediments. This project is stabilizing 4,000 feet of streambank and preventing tons of contaminants from being reintroduced.

Figure 106. One short section of the shoreline stabilization work accomplished during this project.

Figure 107. Woody vegetation was planted within the angular rip-rap placed along the bank. Nearly all of the vegetation is surviving.

Figure 108. The project manager and DEQ staff demonstrate how willows were previously planted by volunteers along the resloped and stabilized shoreline.

3.28 Pebble Creek and Portneuf River

Subgrant: S467 **Latitude and Longitude:** 42.44270, -112.01180

Description:
The goal of this project is to reduce livestock impacts from one animal containment facility, improve approximately 1 mile of riparian habitat, and eliminate grazing on 24 acres of rangeland. Successful implementation will result in a reduction of sediment and nutrient loads in the Portneuf River, and the creation of fish habitat in a critical spawning stream for Yellowstone Cutthroat Trout. The project involves constructing off-site watering facilities and installing exclusion fencing. Other BMPs include installing water lines and three troughs for livestock.

Completion date:
This project is on schedule for completion by 2016.

Project status:
All BMPs evaluated were constructed to very high standards and are in excellent functioning condition. The Caribou Soil Conservation District monitors BMP status and effectiveness on a routine basis.

Figure 109. This fish-friendly 12' culvert has no metal bottom and is anchored at both sides in concrete footers.

Figure 110. This view is upstream from the culvert. The old previously straightened channel was abandoned, and this meandering channel was constructed. All of the woody vegetation was harvested from nearby areas and replanted.

Figure 111. A view downstream from the culvert. Most of the willows and dogwood that were transplanted are just beginning to leaf out and will soon become established in their new locations. Woody plants that do not survive will become woody debris fish habitat. The Portneuf River flows through the thick willows seen in the distance.

Figure 112. All three watering troughs are old tires from mine equipment. Each trough is equipped with a float valve that shuts off water flow when the trough is full.

3.29 St. Maries River Road Phase 2

Subgrant: S468 **Latitude and Longitude:** 47.14220, -116.37460

Description:
This project is a continuation of efforts made under a prior subgrant, (S427, page 35). The work plan for this project includes removing trees from the road right-of-way and widening the road, replacing worn and undersized culverts, and installing additional new culverts, where needed, on this contiguous 2 mile section of road. This section has been a major contributor of sediment to the St. Maries River for many years. The new road will greatly reduce the sediment load.

Completion date:
This project is ahead of schedule for completion by 2016.

Project status:
Most of the BMPs were in the process of being installed at the time of DEQ's evaluation. Benewah County is collecting two water quality samples per day from above and below every culvert that is carrying flowing water beneath the road surface.

Figure 113. An inflow to 1 of the 22 culverts that had been installed as part of this project.

Figure 114. All old culverts were removed and replaced with larger culverts, as per NRCS guidelines. The old culverts will be removed and recycled.

Figure 115. Most of the road surface was fragile and will be vulnerable to the effects of heavy snow and rain. Benewah County has established a schedule of regular maintenance aimed at keeping the borrow ditches unobstructed and functional.

Figure 116. During the 2013 evaluation, this creek was the only one observed, along the entire 2-mile stretch of road that had flow.

3.30 Twin Falls Coulee Wetlands

Subgrant: S469 **Latitude and Longitude:** 42.56810, -114.34170

Description:
This project is located on the Twin Falls Coulee, a return drain on the Twin Falls Canal Company (TFCC) system, located about 2 miles northeast of Kimberly, Idaho. It includes construction of a series of sediment basins and a large wetland. Flow rates in the coulee vary from a high of 29 cfs in the spring to 7.6 cfs in the summer. These wetlands will serve to filter suspended sediment, phosphorus, nitrogen, and bacteria from irrigation return flows prior to their discharge to the Snake River. The entire project area is approximately 11 acres and will include the construction of 14 sediment basins and one large wetland complex. Upon completion, the basins and the wetland will function to reduce TSS by 64%, TP by 60%, and *E. coli* bacteria by 89%.

Completion date:
This project is on track to be completed ahead of schedule in 2016.

Project status:
All BMPs observed were in excellent functioning condition. TFCC conducts biweekly water quality monitoring over the irrigation season for TSS, TP, and *E. coli* bacteria.

Figure 117. The 14 sediment basins in the project are located at various sites adjacent to the drain. The drain begins at the tree line seen in the distance.

Figure 118. Each sediment basin has a discharge point similar to the one seen in this photograph.

Figure 119. Before the irrigation return flow gets to the sediment basins, most sediment settles out in the 3 large holding ponds.

Figure 120. This water is leaving the lowermost of the 3 holding ponds. A track hoe and dump truck can easily access the holding ponds, delivery channel, and sediment basins for cleanout. TFCC anticipates not having to clean out any of these facilities for at least 10 years.

3.31 Fish Creek Restoration

Subgrant: S490 **Latitude and Longitude:** 47.52300, -116.52300

Description:
Adding to a short section of work already completed with other funding, over 1,200 feet of Fish Creek will be fenced and planted with up to 8,000 willow bundles, native shrubs, wetland plants, and conifers reinforced by bank hardscape stabilization structures. Hardscape BMPs will consist of several rock/log barbs installed with coir (coconut) logs and burlap/log reinforced wattles, with plantings integrated to provide root protection. Bank resloping will occur on the vertical banks at strategic locations. Two hardened cattle crossings will be graded and buttressed by rock, and log grade control (drop) structures will be anchored to the streambed to reduce velocity and prevent further downcutting.

Completion date:
This project is scheduled for completion in 2017.

Project status:
Very few of the BMPs proposed for this project had yet to be installed as of August 2013. TP, nitrate and nitrite, chlorophyll *a*, temperature, dissolved oxygen, and turbidity will be monitored at three sampling locations. Sediment samples for TP, total nitrogen, and total Kjeldahl nitrogen will be taken at two locations. Baseline sampling was done in 2010 and 2011. Streambank erosion rates will be measured. All bank and wetland plantings will be monitored to determine survival rates.

Figure 121. Some BMPs were previously installed at the upstream end of this project area under the terms of a prior subgrant.

Figure 122. An example of the near-vertical streambanks that will be stabilized.

Figure 123. Some of the exclusionary fencing has been installed in the project area.

Figure 124. Streambank stabilization BMPs and exclusionary fencing can have a major impact on the sediment, nutrient, and bacteria load entering this section of Fish Creek.

References

DEQ (Idaho Department of Environmental Quality). 1999. *Idaho Nonpoint Source Management Plan*. Boise, ID: DEQ.

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DEQ (Idaho Department of Environmental Quality). 2007. *North Fork Payette River Watershed TMDL Implementation Plan*. Boise, ID: DEQ.

Idaho Code. 2012. "Declaration of Policy and Statement of Legislative Intent." Idaho Code 39-3601.