

# 2018 Performance and Progress Report

## State of Idaho Nonpoint Source Management Program



State of Idaho  
Department of Environmental Quality  
April 2019



## Acknowledgments

The Idaho Department of Environmental Quality would like to acknowledge all who helped develop this report, including federal and state agencies, project sponsors, and the many individuals whose efforts have helped improve water quality throughout the state.

Cover photo taken by Julia Achabal, DEQ: Treasure Valley producers use drip systems for pepper plants.

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*Printed on recycled paper, DEQ April 2019, PID 319 M, CA codes 82808. Costs associated with this publication are available from the State of Idaho Department of Environmental Quality in accordance with Section 60-202, Idaho Code.*

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## Acronyms and Abbreviations

BAG	basin advisory group
BMP	best management practice
BRO	Boise Regional Office
CRO	Coeur d'Alene Regional Office
DEQ	Idaho Department of Environmental Quality
EPA	United States Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
GRTS	grants reporting and tracking system
IDFG	Idaho Department of Fish and Game
IFRO	Idaho Falls Regional Office
LRO	Lewiston Regional Office
MOU	memorandum of understanding
NPS	nonpoint source
NRCS	Natural Resources Conservation Service
PRO	Pocatello Regional Office
SRF	State Revolving Fund
SWCD	soil and water conservation district
TFRO	Twin Falls Regional Office
TMDL	total maximum daily load
WAG	watershed advisory group

## Section 1 Overview

This document summarizes the State of Idaho Nonpoint Source Management Program's performance and progress for the period from December 1, 2017 through November 30, 2018. The Idaho Department of Environmental Quality (DEQ) administers the program for Idaho.

### 1.1 Introduction

Clean Water Act §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 a federal 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 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.

#### State Revolving Fund and 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 decreasing 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 a NPS project's financial needs. Projects funded in this manner are then administered by DEQ's §319 program staff and have essentially the same administrative conditions as a project funded with a traditional §319 grant. A sponsorship agreement is required for any project receiving funds from the SRF. The funds for the NPS project result from borrowing against a community's SRF loan; the interest rate on the loan is lowered so that the ratepayers are held harmless (i.e., their rates are not affected by the cost of the NPS effort).

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

## **State General Fund NPS Agriculture BMP Program**

In the 2017 session, the Idaho Legislature appropriated an ongoing \$500,000 from the general fund to the Idaho Department of Environmental Quality (DEQ) to implement agricultural best management practices (BMPs) in high-priority watersheds throughout Idaho.

In the program's first year, DEQ received seven applications from across the state to implement projects that met the funding criteria. After vetting each application, DEQ selected four projects to fund in state fiscal year (SFY) 2018. DEQ received 13 applications in year 2, 6 of which were selected to fund in SFY 2019. All 2018 projects were successfully implemented. All 2019 projects are underway and expected to be substantially complete by July 2019.

[Note: Throughout this report references to projects that were implemented with state general funds are shaded grey for rapid recognition purposes.]

## **Scope of the Program**

DEQ managed 45 active projects (Table 1) in 2018. A description of each project is included in a subgrant agreement entered into between DEQ and the project sponsor. Project sponsors may include state agencies, counties, municipalities, nonprofit organizations, or private individuals.

**Table 1. Nonpoint source funding summary for projects active and closed during 2018.**

**[Note: Shaded projects were implemented with state funds.]**

Subgrant	Project Name	Sponsor	Subgrant Issue Date	Subgrant Expiration Date	\$319 Grant Amount	Total Spent (through 11/30/18)	Balance (on 11/30/18)
S491	Potlatch River Phase - V	Latah SWCD	08/06/13	05/31/18	\$207,674.00	\$207,674.00	\$0.00
S496	Wide Hollow Erosion Reduction	Oneida SWCD	09/10/13	11/13/17	\$249,750.00	\$238,684.75	\$11,065.25
S521	Continued Canyon County BMP Program	Lower Boise Watershed Council	08/18/14	12/31/18	\$250,000.00	\$250,000.00	\$0.00
S523	Upper Weiser River Bank Stabilization	Adams SWCD	08/28/14	12/31/18	\$190,796.00	\$135,113.20	\$55,682.80
S528	Stauffer Creek Project	Bear Lake SWCD	10/24/14	12/31/17	\$186,361.20	\$135,029.45	\$51,331.75
S529	39/39A Water Quality Project	Balanced Rock SWCD	02/06/15	12/31/17	\$54,526.00	\$54,526.00	\$0.00
S530	Wimpey and Pratt Creek Restoration	Trout Unlimited	02/25/15	12/31/17	\$250,000.00	\$249,977.81	\$22.19
S532	Lower Payette River TMDL Implementation — Phase IV	Gem and Squaw Creek SWCD	01/04/16	12/31/18	\$165,809.41	\$151,198.71	\$14,610.70
S534	Owyhee Restoration Incentive Program	Owyhee Watershed Council	02/15/16	02/15/19	\$153,012.00	\$120,000.00	\$33,012.00
S535	Addressing Temperature Issues in Three Mile Creek	Palouse-Clearwater Environmental Institute	02/15/16	01/30/18	\$90,064.06	\$90,064.06	\$0.00
S536	Cove Streambank Restoration and Off Stream Watering	Caribou SWCD	02/15/16	02/15/19	\$174,423.00	\$109,436.95	\$64,986.05
S537	Tom Beall Creek Restoration	Nez Perce SWCD	02/19/16	12/31/18	\$30,500.00	\$17,496.18	\$13,003.82
S540	Upper Blackfoot AFOs	Caribou SWCD	04/01/16	04/01/19	\$130,916.00	\$109,202.10	\$21,713.90
S545	Thomas Fork AFOs Waste Containment	Bear Lake SWCD	05/01/16	12/31/19	\$178,869.00	\$43,531.60	\$135,337.40
S548	Mud Creek/Silo Creek Water Quality—Phase II	Balanced Rock SWCD	11/15/16	11/14/19	\$81,000.00	\$65,200.00	\$15,800.00
S549	Washington Creek Culvert Replacements	Clearwater SWCD	11/15/16	11/14/19	\$250,000.00	\$0.00	\$250,000.00
S550/S589	Upper Bear River Streambank Stabilization	Bear Lake Regional Commission	09/01/18	08/30/20	\$82,100.00	\$2,250.00	\$79,850.00
S551	Western Camas Prairie Culvert Replacement	Idaho SWCD	12/20/16	12/20/19	\$184,925.00	\$114,377.23	\$70,547.77
S552	South Fork Palouse River TMDL Implementation	Palouse-Clearwater Environmental Institute	12/07/16	12/31/19	\$103,687.00	\$0.00	\$103,687.00
S553	Wimpey and Pratt Creek Restoration Project—Phase II	Trout Unlimited	01/01/17	12/30/20	\$250,000.00	\$128,041.00	\$121,959.00
S554	North Fork Payette River Watershed Improvement Project	Valley SWCD	02/01/17	02/01/20	\$114,050.00	\$31,633.40	\$82,416.60
S555	Middle Eighteen Mile Creek Habitat Improvement Project	Lemhi SWCD	03/01/17	05/30/19	\$250,000.00	\$0.00	\$250,000.00
S556	Boulder Creek and North Fork Payette River Bank	Idaho Dept. Fish and Game	05/01/17	12/31/18	\$27,330.00	\$0.00	\$27,330.00

Subgrant	Project Name	Sponsor	Subgrant Issue Date	Subgrant Expiration Date	\$319 Grant Amount	Total Spent (through 11/30/18)	Balance (on 11/30/18)
	Stabilization						
S561	Potlatch River Watershed Management	Latah SWCD	10/01/17	09/30/20	\$209,998.00	\$102,318.46	\$107,679.54
S562	St. Joe River Streambank Stabilization	Benewah SWCD	10/01/17	09/30/20	\$39,140.00	\$0.00	\$39,140.00
S563	Continued Treasure Valley BMP Implementation	Lower Boise Watershed Council	10/01/17	9/30/20	\$250,000.00	\$225,000.00	\$25,000.00
S564	Lower Payette River TMDL Implementation-Phase V	Gem SWCD	10/13/17	10/12/20	\$163,589.00	\$57,898.33	\$105,690.57
S565	Teton County Soil Health Initiative	Friends of the Teton River	10/13/17	10/12/20	\$74,366.00	\$0.00	\$74,366.00
S566	State General Fund SFY18 Mica Creek Sediment Reduction	Kootenai-Shoshone SWCD	10/11/17	10/11/18	\$44,340.00	\$44,154.60	\$185.40
S567	State General Fund SFY18 Continued Treasure Valley BMP Implementation	Lower Boise Watershed Council	10/11/17	06/30/18	\$250,000.00	\$250,000.00	\$0.00
S568	Little Sawmill Creek Restoration	Lemhi SWCD	10/12/17	10/12/20	\$250,000.00	\$118,716.21	\$131,283.79
S569	State General Fund SFY18 Red Rock Creek AFO Implementation	Idaho SWCD	10/13/17	06/30/18	\$128,237.00	\$125,898.13	\$2,338.87
S570	Weiser River/Snake River Streambank Restoration	Weiser River SWCD	10/13/17	10/13/20	\$59,240.00	\$14,481.88	\$44,758.12
S571	Fernan Lake Phosphorus Reduction	Kootenai Environmental Alliance	10/20/17	10/20/20	\$29,911.00	\$17,139.65	\$12,771.35
S572	Middle Bear River Bank Stabilization	Caribou SCD	11/01/17	10/30/20	\$220,905.00	\$22,090.00	\$198,815.00
S575	State General Fund SFY18 Stargazer Wetlands Complex Development	Snake River SWCD	10/06/17	06/30/18	\$77,423.00	\$67,250.00	\$10,173.00
S583	Gully Erosion Reduction/Potlatch River Wtshd.	Latah SWCD	07/01/18	06/30/19	\$47,011.00	\$0.00	\$47,011.00
S585	Teton County Soil Health Initiative-Phase II	Friends of the Teton River	07/01/18	06/30/19	\$84,000.00	\$0.00	\$84,000.00
S586	Continuing Treasure Valley BMP Program	Lower Boise Watershed Council	07/01/18	06/30/19	\$250,000.00	\$187,018.54	\$62,984.46
S587	Curlew Watershed BMP Implementation	Oneida SWCD	07/01/18	06/30/19	\$146,499.00	\$0.00	\$146,499.00
S588	Big Wood River Sediment Reduction	Trout Unlimited	07/01/18	06/30/19	\$64,864.00	\$18,318.48	\$46,545.52
S590	Payette Ditch Wetlands	Weiser River SWCD	09/15/18	12/31/18	\$4,615.00	\$0.00	\$4,615.00
S591	Flemming Creek Road Sediment Reduction	Boundary SCD	09/20/18	12/31/18	\$45,000.00	\$0.00	\$45,000.00
S592	Potlatch River Wtshd.-Meadow Restoration	Latah SWCD	11/01/18	10/30/21	\$209,914.00	\$0.00	209,914.00
S593	Continuing Treasure Valley BMP Program	Lower Boise Watershed Council	11/01/18	10/31/21	\$250,000.00	\$0.00	\$250,000.00

## Assessing Program Performance

DEQ operates under the goals and objectives incorporated in the 2015 *Idaho Nonpoint Source Management Plan*, which provides guidance for developing an annual work plan required to effectively administer the program (DEQ 2015). Work plan tasks for the latest fiscal year are located in section 1.2.

## Framework of the Program

NPS Program functions include the following:

- Implementing watershed plans that emphasize meeting total maximum daily loads (TMDL) for pollutants and require adhering to drinking water, source water protection, and ground water management plans developed for the watershed
- Emphasizing compliance with water quality standards
- Evaluating projects that are implemented based on a specific work plan and approved watershed plan.

## Program Emphasis and Focus

Most program-managed projects focus on reducing NPS pollution associated with agriculture and grazing practices. The program has invested resources to address the following nonpoint sources of pollution:

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

## Determining Pollutant Load Reductions

DEQ requires project managers to estimate reductions of sediment, phosphorous, and nitrogen loads at the start and at the completion of their project, that result from implementing best management practices (BMP). Most projects take place in close proximity to a water body. Load reduction estimates for all projects in a watershed can be combined to calculate the cumulative load reduction.

## Providing Technical Support

Idaho's NPS Program provides technical support through the following actions:

- Facilitating and coordinating implementation of the *Idaho Nonpoint Source Management Plan* (DEQ 2015)
- Developing and working to advance new technical approaches aimed at improving surface water and ground water quality and quantity
- Promoting partnerships, interagency collaboration, environmental education, and information transfer
- Ensuring consistency of base-level implementation activities addressed in TMDLs
- Providing various types of training, as necessary
- Managing §319 funds according to standard accounting and reporting practices

## Public Participation

Public participation, an important component of the NPS Program, is mainly achieved by interacting with watershed advisory groups (WAG) and basin advisory groups (BAG) 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.

The NPS Program coordinates activities with local, state, federal and tribal agencies. Their support is essential to close the feedback loop project-by-project within the state's major river basins, as described in the 2015 *Idaho Nonpoint Source Management Plan*.

## 1.2 2018 Nonpoint Source §319 Grant Work Plan

NPS Program tasks are defined in terms of *outputs*.

### Task 1: State Office Administration

Output: Continue a process for soliciting proposals for projects attempting to address water quality problems caused by nonpoint sources, conduct public outreach, oversee program activities, and track grant expenditures to ensure compliance with program requirements and federal grant conditions.

Milestone: As needed, July 1, 2018–June 30, 2019

Estimated cost: \$125,932

Staffing level: 1.09 FTE

### Task 2: Develop Procedure and Guidance Documents

Output: Maintain procedure and guidance documents in place to support new and ongoing program implementation efforts.

Milestone: As needed

Estimated cost: \$11,553

Staffing level: 0.10 FTE

### Task 3: Revise Memoranda of Understanding (MOU) with Designated Management Agencies (DMA)

Output: Revised MOUs

Milestone: In agreement with EPA schedule

Estimated cost: \$103,981

Staffing level: 0.90 FTE

**Task 4: Program Implementation**

- Output 4A: Collaborate with partners to implement NPS projects in priority watersheds.
- Milestone: July 1, 2018–June 30, 2019
- Output 4B: Implement the program in a manner consistent with the goals and objectives of the Nonpoint Source Management Plan, Strategic Plan, and Performance Partnership Agreement. DEQ encourages monitoring to assess improvements to water quality. Program evaluations are performed on a predetermined schedule to assess the effectiveness of implementation activities and to determine when corrective action is needed.
- Milestone: July 1, 2018–June 30, 2019
- Output 4C: Support the Idaho Water Quality Monitoring and Management Conference.
- Milestone: January 2019
- Estimated cost: \$220,670
- Staffing level: 1.61 FTE

**Task 5: Evaluate Nonpoint Source Projects**

- Output: Perform on-site evaluations at a minimum of 50% of open projects and a predetermined number of closed projects. Also, assess project manager's performance and maintenance of existing BMPs.
- Milestone: Annually, May–October
- Estimated cost: \$72,786
- Staffing level: 0.96 FTE

**Task 6: Coordinate and Implement Joint Activities of the NPS and Water Pollution Control Loan Programs, per Established Protocols**

- Output: Leverage State Revolving Fund funding to implement projects that meet the respective program criteria.
- Milestone: Annually
- Estimated cost: \$6,932
- Staffing level: 0.03 FTE

**Task 7: Provide Technical Support and Information Transfer on Implementation (Watershed-based) Plans**

Output: Support watershed-based implementation and planning efforts.  
Milestone: As requested  
Estimated cost: \$13,864  
Staffing level: 0.02 FTE

**Task 8: Prepare the NPS Program Performance and Progress Report**

Output: Submit final report to EPA.  
Milestone: March 2019  
Estimated cost: \$21,952  
Staffing level: 0.29 FTE

**Task 9: Meet the Requirements for Entering Data into the EPA-Grants Reporting and Tracking System (GRTS)**

Output: Enter required data into GRTS.  
Milestone: Annually, by February 15  
Estimated cost: \$11,553  
Staffing level: 0.10 FTE

**Task 10: Maintain the Idaho NPS Plan**

Output: Update the NPS Management Plan and submit to EPA.  
Milestone: As needed  
Estimated cost: \$10,398  
Staffing level: 0.09 FTE

**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: \$399,779

## **Section 2 Project Field Evaluations—2018**

This section includes information on field evaluations and the location of projects that were evaluated.

### **2.1 Introduction**

DEQ managed 45 active projects in 2018 (Figure 1). Of these, 9 were completed and closed. Field evaluations were conducted on 28 projects (

Figure 2).

### **2.2 Field Evaluation Process**

The field evaluation process begins with a review of the project file. Next, DEQ visits the site to evaluate the work that is either ongoing or has been completed. The evaluation records if the project complied with the terms of the agreement.

### **2.3 Results**

Table 2 lists and briefly describes the projects that were evaluated during 2018.

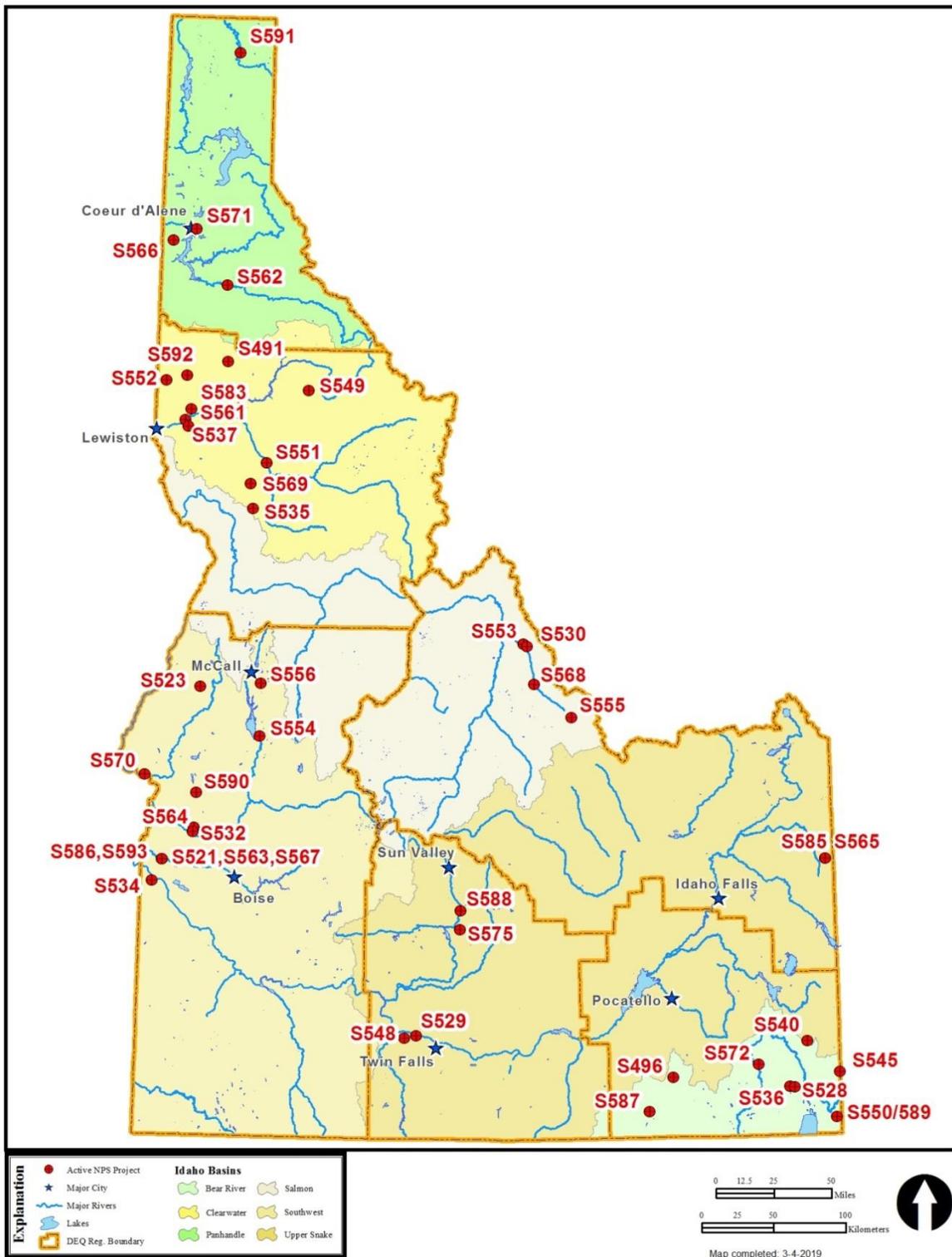


Figure 1. Nonpoint source projects active or closed as of November 30, 2018 (Table 1).

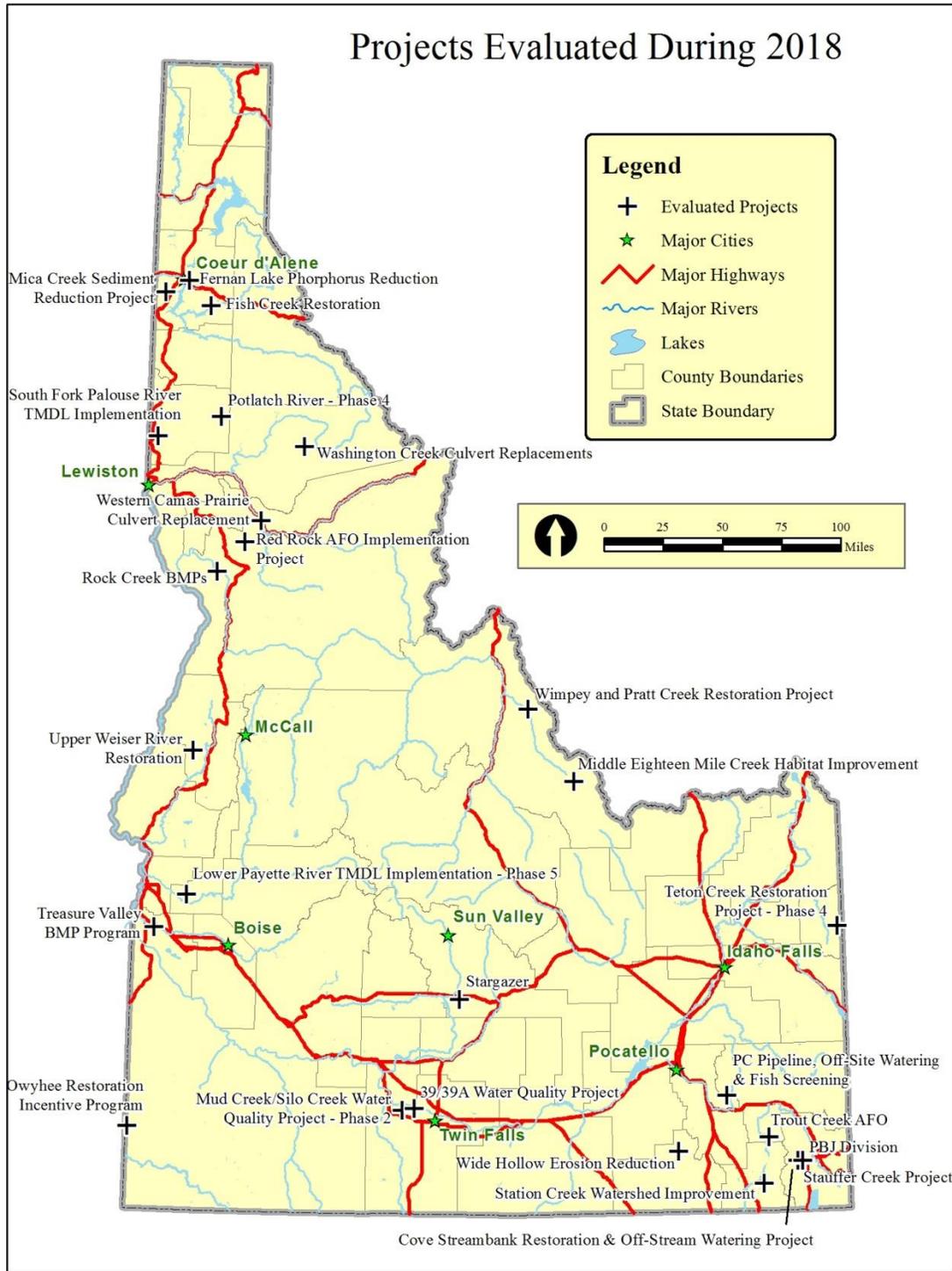


Figure 2. Nonpoint source projects evaluated during 2018 (Table 2).

**Table 2. Projects evaluated during 2018.**

**[Note: Shaded projects were implemented with state funds. ]**

Subgrant	Project Name	Project Description	Category <sup>a</sup>	DEQ Region <sup>b</sup>
459	Rock Creek BMP Implementation	The goal of this project was to work with local landowners to install BMPs aimed at decreasing the amount of sediment, nutrients, and bacteria entering the creek from their properties.	AG	LRO
S460	Potlatch River Watershed Management Plan Phase IV Implementation <b>Error! Bookmark not defined.</b>	The goal of this project was to return perennial flow to the sinuous, well-vegetated Potlatch River channel. Restoration activities included installing channel plugs and constructing a series of wetland cells to store water and enhance infiltration.	AG	LRO
S471	Station Creek Watershed Improvement	The goal of this project was to improve water quality by reducing the sediment load coming into the Creek from nearby cropland, grazing land, and an unstable streambank. BMPs implemented included rock structures, tree revetments, riparian plantings, sediment basins, and developing off-stream water sources.	AG	PRO
S490	Fish Creek Restoration	The goal of this project was to improve water quality by stabilizing the bank, planting the riparian area, constructing cattle exclusion fencing along 1,200 feet of stream and building two stream crossings.	AG	CRO
S494	Owyhee Restoration Incentive Program	The goal of this project was to implement BMPs to reduce the amount of sediment and nutrients entering the Mid-Snake/ Succor Creek subbasin from nearby agricultural lands.	AG	BRO
S495	PBJ Diversion Project	The objective of this project was to upgrade a diversion structure that was causing the bank to erode up and downstream of the structure, and to install head gates that could be adjusted, as needed, during the irrigation season.	AG	BRO
S496	Wide Hollow Erosion Reduction	Sheet and rill erosion and livestock watering practices were causing an increase of sediment and nutrients entering local waters. The goal of this project was to improve water quality by constructing water and sediment basins, terraces, stock water systems, and animal waste containment facilities on three different sites.	AG	PRO
S523	Upper Weiser River Bank Stabilization	The goal of this project was to improve water quality and restore the river to a stable condition by replanting riparian vegetation and armoring, and placing revetments along the bank to reduce the sediment and phosphorus load in the river.	AG	BRO
S527	PC Pipeline, Off-Site Watering, and Fish Screening	The objective of this project was to remove several small irrigation diversions and replace them with one large diversion. An irrigation pipe was placed in the ditch and used to deliver gravity-pressurized water to irrigators. The pipe eliminated the need to construct fish screens on the diversions and reduced the amount of sediment entering the Portneuf River.	AG	PRO

Subgrant	Project Name	Project Description	Category <sup>a</sup>	DEQ Region <sup>b</sup>
S528	Stauffer Creek Project	The objective of this project was to reduce the frequency of maintenance needed on irrigation diversions and stream crossings by combining several existing diversions and installing permanent structures and a culvert at a site where a road crosses the creek. A pipe was installed to reduce the amount of irrigation water that was being lost to evaporation and seepage from the former open canal.	AG	PRO
S529	39/39A Water Quality Project	BMPs were implemented to reduce the amount of sediment found in irrigation return water in the 39/39A drains. Four cleaning cells were constructed for this purpose.	AG	TFRO
S530	Wimpey and Pratt Creek Restoration	The goal of the project is to improve water quality in both creeks by reducing the fecal coliform, sediment, and temperature loads. A broad range of BMPs are to be implemented to improve stream flows, reduce stream temperatures, and reconnect Pratt Creek to Sandy Springs and to the Salmon River.	AG	IFRO
S531	Teton Creek Restoration, Phase IV	The goal of this project is to improve water quality in Teton Creek and the Teton River. Approximately 800 feet of stream channel and 670 feet of eroding streambank will be stabilized to improve instream habitat conditions and restore the aquatic and riparian ecosystem to a functional state.	AG	IFRO
S536	Cove Streambank Restoration	The goal of this project is to improve the water quality of the Bear River by reducing the amount of sediment, phosphorus, and nitrogen entering the river. BMPs will be implemented to stabilize the bank and off-site watering troughs will be used to draw livestock away from the River.	AG	PRO
S541	Fernan Lake Phosphorus Reduction	The goal of this project is to revegetate the shoreline between Lily Pad Bay and Charlie's Point. Work will include planting shrubs and rushes along 150 feet of shoreline, as well as seeding turnout areas with rabbit's foot clover.	AG	CRO
S548	Mud Creek/Silo Creek BMP Implementation-Phase 2	The goal of the project is to reduce the sediment load entering the Creek from 1,000 acres of farmland from 10,588 to 6,776 tons per year. To meet the goal a wetland complex with three small cleaning cells and a large finishing pond will be constructed. A 20-year conservation easement will be enacted for the 6-acre site.	AG	TFRO
S549	Washington Creek Culvert Replacements	The objective of this project is to replace three 60-inch round culverts that are prone to plugging, with bridges that would span the 35-foot bankfull channel of Washington Creek. The bridges will allow high flows, wood, debris, fish, and other aquatic organisms to pass in the channel beneath, unobstructed.	AG	LRO
S551	Western Camas Prairie Culvert Replacement	The goal of this project is to improve water quality and fish habitat by significantly reducing the sediment load in the Lawyer Creek watershed as required by the TMDL. Three undersized culverts along Keuterville Road, on the west slope of Cottonwood Butte, will be replaced.	AG	LRO

Subgrant	Project Name	Project Description	Category <sup>a</sup>	DEQ Region <sup>b</sup>
S552	South Fork Palouse River TMDL Implementation	This project adheres to the guidance for the South Fork Palouse River WAG in the TMDL Implementation Plan. The objective is to establish and increase up to 114,000 square feet of riparian vegetation to filter pollutants, and to stabilize 3,800 linear feet of streambank along nearby agricultural lands. This restoration project will reconnect the river with the adjacent floodplain, establish seasonal wetlands to filter nutrients and bacteria, increase water-holding capacity, and provide shade in areas where it is currently lacking.	AG	LRO
S555	Middle Eighteen Mile Creek	This Upper Salmon Basin Watershed Program project is part of the Lemhi River subbasin TMDL effort. The goal of this project is to reduce sediment, decrease water temperature, and increase flow in the creek.	AG	IFRO
S563	Treasure Valley BMP Implementation	The goal of this project was to improve surface water quality in both Ada and Canyon Counties by promoting and installing best management practices on Tier I agricultural lands. Two projects were funded from this sub grant. The first project involved installing a sediment basin, pumps and irrigation to eliminate flood irrigation on 134 acres of Tier 1 land. The second project involved installing a pump and filter to convert 160 acres of surface flood irrigated Tier II agricultural land to drip irrigation.	AG	BRO
S564	Lower Payette River TMDL Implementation Project - Phase 5	The goal of this five-phase project is to continue to improve water quality in the Lower Payette sub watershed by providing financial incentives and technical expertise to landowners who show an interest in implementing BMPs on their land. This project targets landowners in the Bissel and Squaw Creek drainages.	AG	BRO
S566	State General Fund SFY2018 Mica Creek	This project continues stream restoration work that started in 2001. This phase proposes to stabilize 360 feet of bank, and manage vegetation along another 600 feet.	AG	CRO
S567	State General Fund SFY2018 Continued Treasure Valley BMP Program	The goal of this project is to reduce sediment, nutrient and bacteria pollutant loads in the Lower Boise River and its tributaries. The objective is to provide financial assistance to a landowner in the Lower Boise River sub basin to eliminate the use of flood irrigation on 134 acres of Tier 1 agricultural land. The goal will be reached by installing a sediment basin, pumps and drip irrigation equipment.	AG	BRO
	State General Fund SFY2018 Red Rock Creek AFO Implementation	This project involves reaching agreement with landowners to implement BMPs on Red Rock Creek. Efforts will be made to reduce livestock access to the creek by developing off-stream water sources; reduce runoff through feedlots; and to develop new spring sources. Over time, these improvements will help reduce the amount of sediment, nutrient and pathogens in the creek water, and the water temperature by adding shade.	AG	LRO

Subgrant	Project Name	Project Description	Category <sup>a</sup>	DEQ Region <sup>b</sup>
S571	Fernan Lake Phosphorus Reduction FY17	The goal of the project is to improve water quality by reducing the concentration of total phosphorus in the lake to a level that supports beneficial uses. The objective involves using BMPs such as straw wattles and erosion control matting, and planting drought tolerant native grass, shrubs and tree species along a stretch of mostly bare and eroding shoreline.	AG	CRO
S575	State General Fund SFY18 Stargazer Wetlands	The goal of this project is to reduce the sediment, nutrient, and bacteria load in the water in the H, I, and J-coulee lateral before they discharge to Rock Creek. Four 40 x 150-foot cleaning cells and a large finishing pond will be constructed to help reach the goal. The finishing pond will be constructed to retain as many existing trees as possible and maximize wildlife habitat. Excavated soil will be used to fill low spots in an adjacent pasture to provide for better irrigation and grass production. Pasture grass seed will be planted on 2.5 acres of reclaimed land. The buffer and filter strip will be fenced to keep nutrient and bacteria from entering the site.	AG	TFRO
WW1201	Trout Creek AFO relocation and Improvements	The objective of this project was to move a nearby feedlot to a location upslope from the creek. Corrals, a cement lagoon, and a water gap were removed from the old feedlot site and the streambank was restored. Native vegetation was planted in the riparian area along the creek.	AG	PRO

a Agriculture (AG), transportation (T), urban or rural storm water (SW)

b Idaho Falls Regional Office (IFRO), Boise Regional Office (BRO), Lewiston Regional Office (LRO), Pocatello Regional Office (PRO), Coeur d’Alene Regional Office (CRO), Twin Falls Regional Office (TFRO)

## **Section 3 Project Field Evaluation Reports**

Section 3 includes summaries of the results of the on-site evaluations. DEQ staff evaluated work at 28 project sites and documented progress. Some evaluations were of active projects while others were of projects where work had been completed years earlier. DEQ evaluated a number of older projects to assess how well previously installed BMPs were being maintained and their functioning condition. All evaluations addressed NPS related water quality issues associated with agriculture and grazing practices.

Summaries of the projects that were evaluated in 2018 are provided below. Copies of complete evaluation reports are available from DEQ on request.

Projects with shaded headings were implemented with state funds.

### 3.1 Rock Creek BMP Implementations

**Subgrant:** S459    **Latitude and Longitude:** 45.905180    -116.39697

**Description:**

The objective of this project was to work with local landowners to install a wide-range of BMPs to decrease the amount of sediment, nutrients, and bacteria entering the creek from their farms and ranches. Implementing BMPs will lead to improved water quality in Rock Creek, a tributary to the Lower Salmon River.

**Project Status:**

The project was a success with 22 agriculture producers implementing 80 BMPs over 2,200 acres in the watershed. The quantity and type of BMPs implemented included such practices as constructing 1 mile of exclusion fence, 8 off-stream water systems, 1 roof runoff system, and 2 manure collection pads. A manure management plan was developed for 500 acres of grazing land and 600 acres of hay and pastureland was seeded. An additional 600 acres was converted to no-till seeding and spring development. As a result of implementing the BMPs, the amount of sediment entering Rock Creek has decreased by 2,576 tons; nutrients by 18 pounds; and bacteria in treated areas by 99%.

**Outcome To-Date:**

The project is complete.



An offsite watering trough, reinforced for heavy-use.



Water troughs were constructed upslope from the creek to provide livestock an alternative to having to enter the creek for water.



A well supplies a heavy use feeding area with clean water.

### 3.2 Potlatch River Watershed Management Plan—Phase IV Implementation

**Subgrant:** S460    **Latitude and Longitude:** 46.850000    -116.40000

**Description:**

The primary focus of the Potlatch River Watershed Management Plan Phase IV is to restore endangered steelhead habitat in prioritized subwatersheds throughout the Potlatch River system. The recommended BMPs will address a number of habitat and water quality issues that are part of the Potlatch River Subbasin Assessment and TMDLs (2008) and the Potlatch River Subbasin TMDL Implementation Plan for Agriculture (2010).

**Project Status:**

The following BMPs were implemented and in proper functioning condition when evaluated: streambank vegetation, channel stabilization, critical area planting, stream habitat improvement and management, fencing, tree/shrub establishment, fish passage, riparian forest buffer, stream crossings, wetland/meadow restoration, access road, road rocking, culvert installations and conservation crop rotation.

**Outcome To-Date:**

The project is complete.



A faux beaver dam was built in the old channel. The dam was designed to reduce water velocity and hold water longer to help saturate the meadow system.



An access road to Racetrack Meadow located within the Corral Creek drainage.



Flagging was used to identify the location of new plants for watering and other maintenance.



An eroded stream channel was altered to redirect flow to a meadow floodplain.



After flows were redirected and exclusion fencing was installed the meadow system started to become saturated.

### 3.3 Station Creek Watershed Improvement

**Subgrant:** S471    **Latitude and Longitude:** 42.166584    -111.75602

**Description:**

The objective of the project was to reduce the amount of sediment entering Station Creek by reducing livestock impact on the creek and streambank and channel bed erosion. Rock checks were installed in the channel to reduce bed erosion, and woody vegetation was planted in the riparian area to stabilize the bank. Fencing was built to exclude livestock from the streambank until the vegetation was established. Water and sediment basins were built to capture runoff from eroding cropland.

**Project Status:**

Four landowners in the Station Creek watershed initially committed to implementing BMPs on their property to restore the streambank and stabilize the stream channel grade by planting trees and shrubs, installing livestock water systems, fencing riparian areas, hardening stream crossings and constructing water and sediment basins. Three landowners later withdrew from the project for various reasons. A decision was made to redirect remaining funds to replace a washed out diversion structure causing excessive erosion. Installing a new diversion would also provide the canal company a way to measure flow at variable water levels. The new diversion would provide the company a way to better allocate water to keep stream flows consistent. The one landowner that remained committed to the project installed a host of BMPs on his land. He planted trees and shrubs along the bank and on steeper side slopes, constructed a stream crossing, reduced the grade of the bank, and installed a fence and livestock watering system. The landowner also constructed water and sediment basins to capture any soil eroding off fields and preventing the canal from filling with mud.

**Outcome To-Date:**

The project is complete.



An irrigation diversion and measuring device provides the landowner the capability to measure flows and determine how much water to divert.



The riparian exclusion fence and a water trough for livestock were maintained and functioning properly.



Dogwoods, willows and a recently planted cottonwood tree were growing well on the bank. A few trees did not survive due in large part to a very hot, dry summer. Overall, the plantings were doing well. As they grow the trees will shade the creek to lower the water temperature and help stabilize the bank.



One of the several rock-grade stabilization structures constructed in the channel to help prevent the creek from down cutting.

### 3.4 Fish Creek Restoration

**Subgrant:** S490    **Latitude and Longitude:** 42.166584    -111.75602

**Description:**

Fish Creek is a tributary to Upper Twin Lake located near the town of Rathdrum in northern Idaho. The project site is at the mouth of the creek. Due to years of cattle access to the creek the channel had become incised. The riparian area is depleted of vegetation, the bank has become unstable, and the creek is no longer connected to its floodplain. After earning the trust of the landowner, the project was allowed to move forward. Plans call for the bank to be stabilized, trees and shrubs planted across 1,400 feet of riparian area, two stream crossings to be hardened and the riparian area to be fenced to exclude cattle.

**Project Status:**

BMPs implemented include bioengineered bank stabilization structures, armored banks, rock barbs and exclusion fencing. Revegetation in bioengineered areas with soil lifts, in particular, was highly successful. Some bank had withstood the force of high flows while other stretches, where logs and gabion structures had been constructed, did not hold up well and needed to be repaired or replaced.

**Outcome To-Date:**

The project is complete.



A hardened stream crossing is fenced to keep cattle from disturbing other segments of the Creek.



Signs of scour show behind a gabion structure. At some point, the structure may have to be replaced with a reliable stabilization technique.



A good amount of riparian vegetation recruitment and regeneration is helping to stabilize the bank.



New vegetation and a rock barb are helping to stabilize the bank. A section of riparian fence can be seen in the background.

### 3.5 Owyhee Restoration Incentive Program

**Subgrant:** S494    **Latitude and Longitude:** 42.501300    -117.01260

**Description:**

The goal of this project was to reduce the amount of sediment and nutrient coming off nearby agricultural lands and depositing in the Mid-Snake/Succor Creek subbasin. The work plan focuses on discharges to Castle Creek, Catherine Creek, Jump Creek, and Snake River. The Owyhee Watershed Council (OWC) would provide cost share and technical assistance to landowners to implement BMPs aimed at improving water quality.

**Project Status:**

Evaluations took place on two project sites: Jump Creek and Castle Creek. OWC and DEQ staff did not obtain permission from the producers to access their land, so the evaluation took place at a distance, from a public roadside.

The first project evaluated was took place on private land along Jump Creek. Sprinkler irrigation was installed on 68 acres of land that had been flood irrigated. BMPs implemented included installing two pivot systems, solid set piping, and a sprinkler. Fund from §319 paid for the mainline pipe to pivots component and the electrical control wire. Environmental Quality Incentives Program, OWC, and landowner funds were also used on the project.

The second evaluation took place on land adjacent to Castle Creek. Several BMPs were implemented including grazing and irrigation water management, developing off-site water sources, fencing, livestock watering systems and converting from flood irrigation practices to sprinkler irrigation. Sprinkler irrigation was permanently installed on 75 acres. This resulted in the abandonment of 7,435 linear feet of open flood-irrigated delivery ditches. An off-site water source was developed. Funds from §319 were used mainly for irrigation, including pivot, and wheel-line conversions. Cost share sources included the Natural Resources Conservation Service (NRCS), OWC and landowners.

**Outcome To-Date:**

This project is complete.



Irrigation induced erosion is the largest source of sediment in Jump Creek. This well house pumps water from Jump Creek to a 2-pivot system that irrigates 68 acres. Field runoff and soil erosion from this site was eliminated.



The Mid Snake/Succor Creek TMDL calls for a reduction of the total suspended sediment (TSS) load in Jump Creek. Projects that eliminate irrigation water runoff will reduce the sediment load and improve water quality.



Combining several on-farm practices such as grazing management, developing off-site water sources and converting from flood to sprinkler irrigation can improve habitat and protect water quality.



Two months after implementation activities ended the site started to show noticeable signs of improvement. This was largely due to better seeding, stabilizing the soil, and improving livestock management practices.

### 3.6 PBJ Diversion

**Subgrant:** S495    **Latitude and Longitude:** 42.299910    -111.43158

**Description:**

The objective of the project was to upgrade an irrigation structure and install head gates. Soil was eroding upstream and downstream of the structure in its current state. The upgrade would allow the gates to be adjusted regularly during the irrigation season, as water was needed, and fish passage would be improved. These improvements would allow the streambank to recover and would reduce the amount of sediment entering Ovid Creek under the current erosive conditions.

**Project Status:**

The new diversion headgates have been installed and are functioning as intended. The gates can be adjusted, as more or less irrigation water is needed. The streambank is beginning to stabilize as willows establish themselves along the bank.

**Outcome To-Date:**

The project is complete.



The new diversion wall is fitted with three screw head gates. Depending on how much water is needed the gates can be adjusted. The sides and bottom of the structure remain in good condition.



The streambank below the diversion had been actively eroding, causing sediment to enter Ovid Creek. Rapidly growing willows and grasses are helping the bank to stabilize. Rock checks were installed to moderate flow as it passes through the diversion.



A catwalk was installed to allow the operator to safely adjust the head gates.

### 3.7 Wide Hollow Erosion Reduction

**Subgrant:** S496    **Latitude and Longitude:** 42.374010    -112.45468

**Description:**

This project took place on three sites located in the Arbon Valley, Cherry Creek watershed, and Daniels Reservoir area. All sites were within the jurisdictional boundary of the SWCD. The TMDL Agriculture Implementation Plan for the Malad subbasin and the Daniels Reservoir area recommends BMPs to reduce the amount of sediment and nutrient discharged to local waters caused by sheet and rill erosion and livestock. To reach their goal, BMPs implemented include water and sediment basins, terraces, stock water systems, and animal waste containment facilities.

**Project Status:**

Terraces were engineered to reduce the slope and decrease the chances of erosion caused by seasonal irrigation practices. Water and sediment basins were excavated at the bottom of gullies to contain runoff and reduce erosion. A pipeline was installed to deliver well water to a storage tank and then on to troughs located throughout the system. The 700-gallon troughs, made from old loader tires, were placed on gravel pads located upslope from the stream to deter livestock from watering in the stream.

A solar-powered pumping plant was constructed as a low-cost, energy efficient way to pump water to equipment in remote locations. Several areas were fenced to confine livestock and control their movement in the winter-feeding area. In the spring, berms and ponds constructed for this purpose will contain nutrient runoff on-site.

**Outcome To-Date:**

This project is complete.



An insulated livestock water trough is set on a cement pad to keep the trough level. Cows can depress balls in the trough to get water at all times of the year.



A berm diverts runoff away from the stream and the working pens.



Water and sediment basins are excavated at the bottom of gullies to capture eroding sediment before it leaves the site.

### 3.8 Upper Weiser River Bank Stabilization

**Subgrant:** S523    **Latitude and Longitude:** 44.808050    -116.55916

**Description:**

The project is located in a 16-mile stretch of the Weiser River, from the West Fork confluence at the community of Fruitvale to the Goodrich Creek confluence located about 8 miles south of the Council. A major flood event occurred in 1997, resulting in active bank erosion and a loss of vegetation in the riparian area. A recent inventory documented about 9 miles of bank continue to erode, adding sediment to the river, particularly after more recent flood events and spring runoff.

The goal of this project is to lower water temperature, improve fish habitat, and reduce the sediment and phosphorus load in the Weiser River. Working with local landowners to reestablish riparian vegetation will protect approximately 7,000 linear feet of riverbank. Successful implementation of the project will reduce the sediment load to the river by approximately 450 tons/year. Restored riparian areas will also improve irrigation efficiency and prevent other pollutants from reaching the river.

**Project Status:**

Three work sites were evaluated. Bank barbs and riparian plantings were observed at the first site. Efforts to extract gravel were cut short due to the high water. The water level made it difficult to visualize the large amount of gravel removed from the channel. The work plan calls for more gravel to be removed later in 2018. Funds from Idaho Power’s Snake River Stewardship Program will also be used at this location to augment the upland and riparian corridor located adjacent to the §319-project site.

The second site was on a parcel of land located downstream of the first site, where willows were planted and five large bank barbs were installed in 2017. The willows and barbs are holding up well. A second phase of work at this site is permitted and will begin later in the year, after the water level subsides.

Similar bank stability treatments, including rock barbs and plantings over 800 linear feet of bank, were evaluated at the third site. All work at this site was done on in 2015. Three years of growth and stability were observed during this visit.

**Outcome To-Date:**

The project was active but very close to being completed at the time of the evaluation.



The photo on the left was taken in June 2016 and the one on the right in 2018. The later photo confirms that the bank barbs are holding up well after 2 years, and vegetation along the bank is thriving. Council school children planted willows along this stretch. Some spots between the barbs were showing signs of scouring. The landowner and NRCS will perform maintenance on the barbs and augment plantings at a later date.



The photo on the left shows that vegetation was growing and becoming established around the barbs. The right photograph shows where trenchpack-planted vegetation is thriving in the near uplands and siltation is seen filling in across river on a gravel bar.

### 3.9 PC Pipeline, Off-Steam Water, and Fish Screen Project

**Subgrant:** S527    **Latitude and Longitude:** 42.707660    -112.04544

**Description:**

The goal of the project is to reduce the sediment and nutrient load in Pebble Creek. A second goal is to improve fish habitat and grazing management practices. Three landowners will replace seven small irrigation diversions with one larger structure. The new diversion will be screened to keep imperiled Bonneville Cutthroat Trout from entering the canal and becoming trapped. An open ditch, prone to washing out, will be decommissioned and converted to pipe. Gravity pressurized water will be delivered to irrigators. An off-site watering system will be installed for livestock.

**Project Status:** The new diversion is a rock weir. The weir will check flow at a level high enough to allow water to flow through the fish screen and into the pipeline. Because of the height of the check two smaller rock weirs were constructed downstream to create a gentle transition back to the gradient of the stream channel. The fish screen was built with two bypasses. One bypass allows irrigators to flush sediment and debris that builds up in front of the head gate. The second bypass directs fish and other debris off the end of the screen and back to the stream through a 12-inch pipe. A 2-mile long pipeline was built. The pipeline includes a flow meter to monitor water usage, making it easier for irrigators to deliver the right amount of water to each person and to leave 3 cfs in the stream to sustain aquatic life.

**Outcome To-Date:**

The project is complete.



An in-stream rock check diverts water into the intake structure and fish screen.



The fish screen helps to keep debris and fish from entering the pipeline.



Landowner takeout vents and flow meters. The meters are used to regulate the amount of water each landowner can withdraw based on his number of shares. This landowner fenced the area around the valves to prevent livestock from entering.



Valves, pressure relief vents, drains, and air vents. This low spot in the system is where the mainline makes a turn and the size of the pipe is reduced.

### 3.10 Stauffer Creek Project

**Subgrant:** S528    **Latitude and Longitude:** 42.296350    -111.42986

**Description:**

The goal of the project is to reduce sediment inputs to Stauffer Creek and improve the riparian area on both sides of the creek. A secondary goal is to improve critical spawning habitat for Bonneville Cutthroat Trout living in the creek.

**Project Status:**

Three landowners implemented BMPs, which included two hardened stream crossings, the conversion from flood to sprinkler irrigation, replacing an old diversion with a newer one, streambank protection, off-stream watering systems, riparian fencing, removing 75 acres of noxious weeds, and a telemetry system to store and transmit irrigation information.

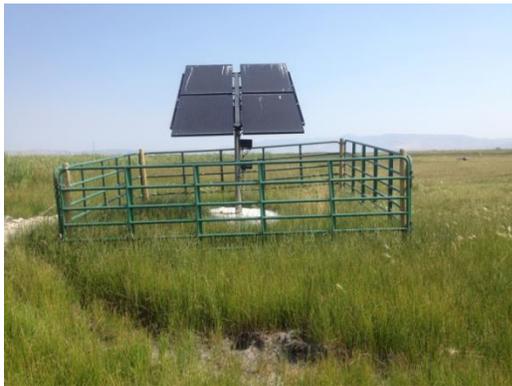
One landowner replaced an open ditch with an irrigation pipeline. The pipeline has helped the landowner manage water more efficiently, allowing less water withdrawn from the creek. Prior to the pipeline, irrigation water in the ditch was lost to seepage.

A second landowner installed fencing to prevent livestock from entering sensitive areas in the watershed. The fencing works effectively, with positive results noted during the evaluation.

The third landowner installed a water pipeline, troughs, and a solar-pumping plant. These practices will serve to transport water from the creek upslope to livestock.

**Outcome to-date**

The project is complete.



A solar-powered pumping plant is used to distribute water to troughs located far from the stream.



The area around the trough is covered with gravel to prevent erosion due to animals using the site. The trough has a float in the center that livestock can depress to receive fresh water.



A crossing was built over the creek so the rancher can move livestock and equipment. A wider but lower squashed culvert was installed so the stream would have more room to transport bed material.



A rock check was built in the channel to direct water through the diversion. During periods of high flow the water moves over the check and through the diversion, allowing bed load material to be transported downstream.

### 3.11 39/39A Water Quality Project

**Subgrant:** S529    **Latitude and Longitude:** 42.646300    -114.635447

**Description:**

The project site is located approximately 3 miles north of Filer and drains about 1,200 acres, some of which is sloped. The site first held two cleaning cells constructed to treat irrigation water from the 39/39A drains operated by the Twin Falls Canal Company (TFCC). Two new cleaning cells will be constructed and the two older cleaning cells will be reclaimed for use by removing the vegetation that has grown in the area since the time they were last in service. The goal of the project is to reduce the TSS load by approximately 548 mtpy (604 metric tons/yr.) and the total phosphorus (TP) load by approximately 2.42 kg/day (5.34 lb/day).

**Project Status:**

Two new cleaning cells (sediment basins) were built and the two older cells were restored. A wetland was constructed and is in place and functional, with hydrophilic vegetation growing to treat runoff from agriculture practices and to retain other pollutants. Observations made during the evaluation verified that the BMPs were maintained. The cleaning cells had been dredged and several cubic yards of soil and debris were removed and are stored on site. The discharge water from the last pond was noticeably clearer than the water seen entering the system. Wildlife has been observed using the wetland area, revealing another positive result of the project

**Outcome To-Date:** The project was closed in 2017.



The inlet to the upper-most cleaning cell, looking north.



Sediment and other debris was dredged from the cells and stored onsite.



The constructed wetland, looking north.



The lower cleaning cell and the inlet to the penstock.

### 3.12 Wimpey and Pratt Creek Restoration—Phase 1

**Subgrant:** S530    **Latitude and Longitude:** 45.086309    -113.682146

**Description:**

The goal of the project is to reduce fecal coliform and sediment loads in Wimpey and Pratt Creeks, increase instream flows, reduce water temperature, and improve fish passage.

**Project Status:**

The following information pertains to the status of the BMPs proposed in the project work plan:

- Diversion: installed
- Fish screen: installed
- Fencing: installed
- Irrigation system sprinkler: installed
- Irrigation water conveyance pipeline: installed (line buried to feed pivot irrigation)
- Irrigation water management: sprinkler irrigation replaced former flood irrigation practices
- Prescribed grazing: employed
- Restoration and management of declining habitats: complete (riparian and wetland areas fenced)
- Riparian forest buffer: established
- Riparian herbaceous cover: established
- Spring development: not accomplished. Replaced with other water sources and instream water gaps
- Stream habitat improvement and management : complete
- Streambank and shoreline protection: complete (step structures, root wads inserted into the bank, willow and native grass plantings )
- Upland wildlife habitat management: complete (riparian fencing installed)
- Use exclusion: complete (feedlot, and calving operation cleaned up, and moved upslope of creek)
- Watering facility: complete (off-stream water source installed)
- Wetland enhancement: complete (wetland was fenced)

**Outcome To-Date:**

This project is complete.



Lower Pratt Creek irrigation pivot and enclosure.



Pratt Creek was reconnected to Sandy Creek to become a properly functioning stream.



Irrigation pivot on the Snook property.



Riparian plantings and root wads tied into the bank.

### 3.13 Teton Creek Restoration Project–Phase 4

**Subgrant:** S531    **Latitude and Longitude:** 43.726389    -111.08333

**Description:**

The goal of the project is to improve water quality in Teton Creek and Teton River by reducing sediment input 170 tons/year and restoring the beneficial uses of cold water aquatic life and salmonid spawning. The goal will be reached by implementing bioengineering techniques to stabilize approximately 800 feet of stream channel and 670 feet of eroding banks. Actions will also be taken to restore the creek to its appropriate channel dimensions, install three rock/riffle grade-control structures, improve fish habitat, plant native vegetation along the bank, and reestablish a functional aquatic and riparian ecosystem.

**Project Status:**

The following information pertains to the status of the BMPs proposed in the project work plan:

- Channel bank vegetation: complete (planted willows, cottonwoods and native riparian herbaceous cover)
- Channel stabilization: complete (planted willows, cottonwoods and native riparian herbaceous cover; installed root wads and large woody debris in the channel; graded the channel and installed rip-rap along the banks)
- Fish passage: complete (directed flow back into the historic channel)
- Riparian herbaceous cover: complete (planted cottonwoods, willows, and native grasses)
- Stream habitat Improvement and management: complete (reconstructed the flood plain)
- Streambank protection: complete (Installed rip-rap and graded the streambank)
- Tree/shrub establishment: complete (planted willows, cottonwoods, and native grasses in riparian areas)

**Outcome To-Date:**

The project is complete.



A meandering channel was plugged and the bank armored with rock rip-rap.



The floodplain was reconstructed and the channel regraded, with root wads placed along the bank. Cottonwoods, willows, and native grasses were planted on the bank.



Depressions, caused by excavation activity, are seen to the left of the channel plug. They were intentionally left unfilled to function as sediment traps and wildlife habitat.



A view of the recently graded channel, with rip-rap and willows in place along the bank.

### 3.14 Cove Streambank Restoration

**Subgrant:** S536    **Latitude and Longitude:** 42.301276    -111.472950

**Description:**

The goal of this project is to reduce the sediment, phosphorus, and nitrogen load in the main stem of the Bear River. To obtain this goal and keep livestock from watering in the river, the SWCD will install an off-stream watering system on land upslope of the Bear River. Troughs will be placed in select areas so livestock can continue to use the pasture. A stretch of eroding streambank on the Bear River will be stabilized and a small, incised tributary will be connected to its floodplain.

**Project Status:**

A stock water well was dug. Solar panels, pump, storage tanks and troughs were installed and functioning properly throughout the 2018 grazing season. Water is pumped to the storage tank where gravity then feeds the water to the troughs. The troughs are fitted with floats to control the flow.

Streambank work on the Bear River and unnamed tributary continues at this time. Grade stabilization structures were installed on the unnamed tributary. Livestock access points were installed and hardened. Rock was staged along the River in preparation for installing two river barbs.

**Outcome To-Date:**

The project will remain active and ongoing through February, 2019.



Solar panels power a pump located in the well. The pump delivers water to storage tank and troughs. A controller module provides the landowner the ability to use a generator as an alternate source of power during periods of cloudy weather.



A water trough is seen in the foreground; a storage tank in the background. Gravel around the trough serves to keep the area from eroding during periods of heavy use. The trough is positioned to give livestock from two different pastures access to the water.



Rock grade stabilization structures serve to prevent the creek from down cutting.



### 3.15 Fernan Lake Phosphorus Reduction Project

**Subgrant:** S541    **Latitude and Longitude:** 47.401110    -116.44492

**Description:**

The goal of the project is to reduce the amount of phosphorus in Fernan Lake by 35%. The objective is to revegetate the riparian area between Lily Pad Bay and Charlie’s Point by planting shrubs and rushes. A training component will educate local residents on the importance of applying the correct amount of fertilizer on their lawn, and how doing otherwise negatively affects Fernan Lake water quality.

**Project Status:**

Kootenai Environmental Alliance (KEA) volunteers revegetated 150 feet of shoreline by planting shrubs and rushes. Lakeside vehicle turnout areas were seeded with rabbit’s foot clover. The Eastside Highway District offered to dig a trench to plant the shrubs and used a hoe to prepare the parking surface for seeding. Unfortunately, a hot summer and a lack of maintenance (watering) caused many of the plants to die.

Students from the University of Idaho conducted a workshop for local residents on the correct method for collecting soil samples. The students and staff facilitated soil testing from July to September 2017 and reported the results.

**Status to date**

The project is complete.



Bare soil remains at a site where plants perished due to a lack of maintenance plants and a dry, hot summer.



Weeds now dominate most of the project site.

### 3.16 Mud Creek/Silo Creek Water Quality Improvement–Phase 2

**Subgrant:** S548    **Latitude and Longitude:** 42.629644    -114.737133

**Description:**

The goal of phase 2 of the Mud/Silo Creek project is to reduce the sediment load in the creek from 10,588 to 6,776 tons/year. The 6-acre project site is located approximately one-half mile above a fish hatchery. The objective is to construct a wetland complex with three small cleaning cells and a large finishing pond. Drain water from 1,000 acres of farmland flows from the south onto the site. A 20-year conservation easement will be entered into between the landowner and the district.

**Project Status:**

All BMPs were implemented. Water and sediment basins and cleaning cells are operating and functioning to reduce the amount of sediment, nutrients and pathogens in the agricultural return water. The improvements are also reducing the number of gully erosion incidents observed downstream of the site. Sediment removed from the cleaning cells is used to fill in a low area located south of the project site.

**Outcome To-Date:**

The project is complete.



The inlet to one of the cleaning cells in the wetlands complex.



The 23 lateral ditch upstream of where it enters the wetlands complex.



The finishing pond and its outlet, looking north.



The inlet to the finishing pond from the 23 lateral ditch cleaning cell.

### 3.17 Washington Creek Culvert Replacements

**Subgrant:** S549    **Latitude and Longitude:** 46.679980    -115.65724

**Description:**

The project site is located 8 miles upstream from the Washington Creek confluence with the North Fork Clearwater River. A United States Forest Service road crosses Washington Creek in two places with three 60-inch culverts at each crossing. The culverts routinely plug with wood and debris, posing a problem for fish passage. The integrity of the road is also compromised when the culverts plug, creating a chronic source of sedimentation during periods of high flows. The goal of the project is to reduce the amount of sediment entering the creek due to the current conditions. The Clearwater Soil and Water Conservation District proposes replacing both culvert arrays with 35-foot bridges that would span the bankfull channel. Improving conditions for fish passage also gives fish unobstructed access to 6 miles of upstream habitat.

**Project Status:**

The culverts at each crossing were replaced with a bridge that spanned the 35-foot bankfull channel of Washington Creek. The bridges are allowing water, wood, and other debris, as well as fish and other aquatic organisms to pass in the channel during periods of high flows. Removing the culverts and replacing them with the bridges has also diminished the threat caused by water passing onto the road and threatening its integrity. By removing the culverts the threat of damage to downstream aquatic habitat has been eliminated. The following BMPs were successfully implemented as a result of this project: channel bank vegetation, channel stabilization, constructed wetland, stream crossing, stream habitat improvement and management, and streambank protection.

**Outcome To-Date:**

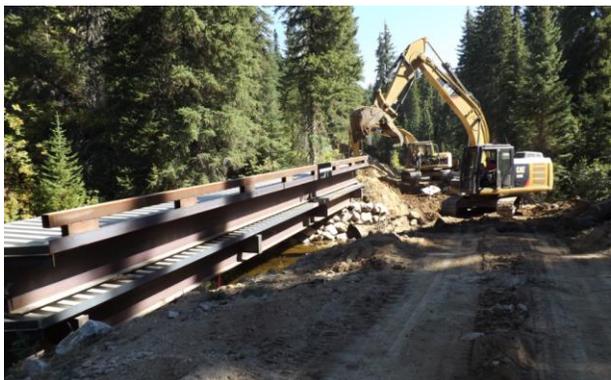
This project is complete.



The new bridges allow fish and aquatic organisms to pass in the channel during periods of high flow.



A sufficient supply of labor and heavy equipment was needed to install the bridges and ancillary pieces.



The prefabricated steel bridges had to be carefully placed over the creek.



A view of Washington Creek before the bridge was installed. Wood and other debris routinely plugged the culverts during periods of high flow.

### 3.18 Western Camas Prairie Culvert Replacement

**Subgrant:** S551    **Latitude and Longitude:** 42.220740    -116.024661

**Description:**

The primary goal of this project is to reduce the amount of sediment entering Lawyer and Cottonwood Creeks as a result of the undersized and poorly installed culverts. Secondary benefits, reducing nutrient and bacteria levels, will be realized after the project has been successfully implemented. A subsequent reduction in creek temperatures is also anticipated. Under present conditions, periods of heavy rains and spring flooding will cause water to back up at plugged culverts. Flooding can diminish the integrity of roadways, erode ditches, and cause the creek to rechannel. A reduction of sediment in these watersheds will benefit water quality and fish habitat and will work towards meeting the goals of the TMDLs.

**Project Status:**

Channels were stabilized by placing large rip-rap along the banks where scour from the previous culverts had been noted. Concrete aprons were set in place at the inlets of all culverts. Only four culverts were replaced under the road near Lawyer Creek due to a series of unforeseen problems that the project manager encountered during implementation.

**Outcome To-Date:**

The project is complete.



A 2-foot corrugated metal pipe culvert was installed and supported with 4-foot rock fill.



A 4-foot corrugated metal pipe culvert with reinforced concrete wing walls was installed on Lawyer Creek.



A second 4-foot corrugated metal pipe culvert with reinforced concrete wing walls was installed on Lawyer Creek.



The third 4 foot- corrugated metal pipe culvert with reinforced concrete wing walls was installed on Lawyer Creek.

### 3.19 South Fork Palouse River TMDL Implementation

**Subgrant:** S552    **Latitude and Longitude:** 46.720150    -116.95581

**Description:**

The goal of the project will be to work with landowners to reduce sediment loads by 80%, nutrients by 50%, and bacteria by 40%. A secondary goal will be to increase shade cover by 30%. The goals will be reached by (1) planting 5,250 woody trees and shrubs and 500 herbaceous wetland plants to create a variable width buffer strip; (2) resloping and stabilizing 3,800 linear feet of streambank and 114,000 square feet of bank using bioengineering techniques; and (3) constructing and reconnecting 21,000 square feet of floodplain and wetlands along the river. The project manager will maintain all BMPs. A public education effort will continue throughout the life of the project. The project manager intends to follow the South Fork Palouse WAG's TMDL Implementation Plan.

**Project Status:**

Some BMPs have been implemented, while others have been either partially implemented or have yet to be started. All BMPs are expected to be implemented within the term provided in the subgrant.

**Outcome To-Date:** Ongoing.



An overview of project sites as excerpted from the South Fork Palouse River TMDL Implementation Plan for agricultural lands.



Excavation activities to install a culvert and a catchment for field runoff.



The streambank was laid back and resloped to a more natural angle of repose to reduce the amount of runoff and sediment transport.



A bioengineered control fabric was set in place to secure the riparian vegetation. A wetland and field runoff area and a new culvert were installed (seen on the far bank).

### 3.20 Middle Eighteen Mile Creek Habitat Improvement

**Subgrant:** S555      **Latitude and Longitude:** 44.640510      -113.29374

**Description:**

The goal of this project is to reduce the sediment load and water temperature, and improve flow in the creek. Middle Eighteen Mile Creek does not support its designated beneficial uses of cold water aquatic life and salmonid spawning due to flow alterations, sedimentation/siltation, and water temperature. As part of the 1999 subbasin assessment, a TMDL was drafted for sediment. In a 2013 addendum another TMDL was drafted for temperature. This project is part of the Lemhi River subbasin TMDL effort and the Upper Salmon Basin Watershed Program's effort to improve flow.

**Project Status:**

The project was proposed in 2016 and funded in 2017. One of the tasks in the initial work plan was to negotiate the sale of a private water right to the Lemhi SWCD. After months of negotiation, the parties were unable to arrive at a deal, and the effort to continue negotiations ended. The SWCD contacted DEQ and proposed a new project located in the same watershed. The proposal was to implement a suite of BMPs consistent with the terms of the TMDL and implementation plan. Agreement on the new proposal was reached in early 2019, and the district was provided an extension to complete work by October 2019. The project is now in the early stages of planning and implementation. Significant progress is expected by the extension's expiration date, but 2018 field evaluation was not completed. A full evaluation will take place in 2019.

**Outcome To-Date:** The 2018 on-site evaluation was not completed for the reasons outlined above. No photographs were collected.

### 3.21 Continued Treasure Valley BMP Implementation

**Subgrant:** S563    **Latitude and Longitude:** 43.72149    -116.842346

**Description:**

The goal of this project is to improve water quality in the 450,000-acre lower Boise River watershed. Efforts will focus on reducing instream concentrations of sediment, nutrients, and bacteria. This project is a continuation of a successful nonpoint source strategy started several years ago. Three previous \$319 grants were funded in that time. The results estimated a lifetime reduction of 69,000 tons of sediment, 54.4 tons of total phosphorus, and a savings of 6,200 acre feet of water. The main objectives for the project continue to be: (1) provide financial assistance to landowners interested in implementing BMPs (2) demonstrate feasible and effective solutions to nonpoint source pollution and (3) promote coordination of efforts between landowners and government agencies.

**Project Status:**

Two subprojects were evaluated. The first project was located off the Conway drain in the lower Boise subbasin. The drain is one of the largest contributors of sediment and phosphorus to the Boise River during periods of high flow and during crop irrigation periods. The 2015 addendum to the Lower Boise River TMDL requires the total phosphorus load in the drain to be reduced by 83%. This project resulted in eliminating flood irrigation on 134 acres of Tier 1 agricultural lands and replacing it with drip and sprinkler irrigation. Conway drain water is pumped into a large settling basin before being withdrawn and used to sprinkle and drip irrigate cropland. A sediment basin, pumps, and irrigation equipment were implemented as part of this subproject. The new irrigation system uses agricultural runoff water from the Conway drain rather than Boise River water. The subproject is complete. The second subproject was located on Tier II agricultural lands and involved converting 160 acres of flood-irrigated land to drip irrigation. This subproject required the purchase of a pump, filter station, and other field equipment; including related installation costs. The subproject is complete.

**Outcome To-Date:**

Both subprojects funded under this subgrant are complete. Final reporting and invoicing remain to be done to close out the subgrant.



The Conway drain receives agricultural return water containing sediment and nutrients. The water is pumped from the drain into a large settling basin for conditioning before land irrigation use.



The basin keeps sediment and bound phosphorus from entering the river.



The new sediment basin, filter, and irrigation system will result in more efficient nutrient and pesticide application, benefiting both ground and surface water.



Drip systems allow irrigation water to be used more efficiently. Precise application results in less nutrient and chemical leaching and can help increase yields. This producer is using drip irrigation on pepper plants. The annual rotation on this field for the next 5 years will be peppers, onion, corn, peppers, and wheat.

### 3.22 Lower Payette River TMDL Implementation–Phase V

**Subgrant:** S564    **Latitude and Longitude:** 43.55496027    116.34527656

**Description:**

The goal of the project’s fifth-phase is to continue improving water quality in the Lower Payette watershed by providing financial incentive and technical expertise to landowners who are interested in implementing BMPs on their land. The project will target improving water quality by meeting the TMDL load reductions identified in the Lower Payette River and Bissel Creek TMDLs.

One subproject planned for the Bissel Creek involves assisting a landowner with converting up to 100 acres of surface irrigated cropland to a center pivot irrigation system. Under current practices, estimates show the field losing 845 tons/year when planted in corn. A pivot system would eliminate runoff and, under low pressure, keep nitrates from leaching to ground water as rapidly as they do with flood.

A second planned subproject involves converting a pasture from surface to center pivot irrigation. The conversion will eliminate bacteria and nutrient transport to nearby Squaw Creek. A component of the subproject includes restoring a rapidly eroding section of Squaw Creek streambank to reduce the amount of sediment ending up in the creek.

**Project Status:**

To date, one of the three subprojects proposed in the subgrant has been completed. The two remaining subprojects have already been engineered and permitted and implementation is scheduled to begin this fall.

The completed subproject involved converting 74.5 acres of agricultural land located adjacent to Bissel Creek from flood to pivot irrigation. The new pivot and solid set sprinklers were installed in the fall 2017. This irrigation conversion has prevented soil and nitrates from discharging to Bissel Creek.

**Outcome To-Date:**

One of the three subprojects targeted by this subgrant is complete. The two remaining subprojects have been engineered and permitted with implementation to begin this fall.



Bissel Creek is located in the forested area visible near the center of this photograph.



In addition to environmental benefits, pivot irrigation provides reliable and precise water delivery and improves yield.



Willows will be harvested from this location and later placed between barbs to dissipate energy and stabilize soils. Gravel will be excavated from the point bar as seen on the inside bend in this photo. Rock barbs will be installed on the outside bend to deflect flow.

### 3.23 Mica Creek Sediment Reduction Project (state funded)

**Subgrant:** S566    **Latitude and Longitude:** 47.597380    -116.938288

**Description:**

Mica Creek, a major tributary at the northern end of Coeur d’Alene Lake, has a TMDL for sediment and bacteria. The goal of this project is to reduce the amount of sediment entering the creek by stabilizing 360 feet of bank and applying specific vegetation management practices to an additional 600 feet. The creek is currently encroaching on exclusion fencing in several places and alders growing in the riparian area require pruning. The objective is to remove collapsed vegetation from the channel and plant willows in the riparian area. Rock armor will be placed along the bank to protect the bank from scour. This project is a continuation of stream restoration work that began in 2001. The earlier work on this 680-acre property included installing 3 miles of riparian exclusion fencing, developing off-stream watering sources, hardening crossings, and stabilizing almost one-half mile of streambank.

**Project Status:**

A cofferdam was built in the creek to prevent excessive turbidity during periods of construction. Vegetation management practices were implemented, collapsed vegetation was removed from the channel and the riparian area, and alders threatening the stability of the streambank were pruned. Healthy alders were left standing to provide shade on the creek and recruit a steady supply of organic debris. The rock used to armor the bank was carefully placed in areas between trees and around roots below the waterline to protect the bank from scour. Fast growing willows were planted in areas along the bank where vegetation was sparse to ensure some vegetation could be quickly established. The landowner’s efforts resulted in applying vegetation management practices on 1,600 linear feet of bank and stabilizing another 810 feet of bank.

**Outcome To-Date:**

The project is complete.



Decaying alders along the bank and in the riparian area were pruned before work to stabilize the bank started.



Healthy alders were left in place to provide shade on the creek and supply of organic debris.



Willows were thriving along a previously restored stretch of bank.



Outside of the project site, a stretch of streambank was collapsing and threatening the exclusion fencing.

### 3.24 Continued Treasure Valley BMP Implementation (state funded)

**Subgrant:** S567      **Latitude and Longitude:** 43.72149      -116.842346

**Description:**

The goal of this project is to reduce sediment, nutrient, and bacteria pollutant loads in the lower Boise River and its tributaries. TMDLs for the watershed establish sediment and phosphorus reduction targets for irrigated agriculture. Treasure Valley farmers are increasingly interested in implementing BMPs to meet the goal. The project sponsor will direct state funding to two vetted and preapproved subprojects ready to start construction. One subproject will take place at the City of Middleton’s Mill Slough. The plan for this project is to redirect agricultural and urban drainage water for reuse on the land. Runoff will be collected and treated to reduce sediment before discharging to the Boise River. The second subproject continues work that started earlier on the Conway drain under subgrant S563.

**Project Status:**

**Conway Drain:**

During high flows Conway Gulch is one of the largest contributors of sediment and phosphorus to the Boise River. Conway drain water contains runoff from irrigated agricultural lands. The 2015 lower Boise River TMDL requires the total phosphorus load in Conway Gulch return water to be reduced by 83%. Water from the drain is pumped into a large settling basin and then sprinkled and dripped on cropland. The water is later collected, treated, and discharged back into the Boise River. This project resulted in eliminating flood irrigation on 134 acres of Tier 1 agricultural land. Construction of a sediment basin, pumps, and other irrigation equipment were funded by this subproject. The subproject is complete.

**Mill Slough:**

The City of Middleton and Drainage District No.2 are working together on this multiphase project with the goal to improve the quality of the water in Mill Slough. The slough is one of 12 Boise River tributaries identified in the 2015 lower Boise River TMDL as needing to reduce sediment, bacteria, and nutrient loads. To meet the TMDL target, the total phosphorus load in the slough water must be reduced by 66%. To meet these goals, an automated weir was constructed to divert agricultural and urban drain water from the slough. The weir functions to increase the water level in the slough to the highest extent possible without causing upstream flooding. Sediment and nutrients in the water that ponds behind the automated diversion settle in Mill Slough. The water then flows across city property before discharging into the Boise River. The drainage district and city are working together to remove the sediment for reuse on city land. The subproject is ongoing.

**Outcome To-Date:**

The project is scheduled for completion in 2019.



Irrigation pivots provide a more efficient method for water use, reduce labor, and can increase yield.



The flume gate is a measurement and control device that regulates flow in open canals. It automatically controls water flow by varying the gate position to maintain desired pool levels both up and downstream.



Mill Slough discharges to the Boise River near Middleton Road in Canyon County.

### 3.25 Red Rock Creek AFO Implementation Project (state funded)

**Subgrant:** S569    **Latitude and Longitude:** 46.087698    -116.162739

**Description:**

The Red Rock Creek watershed is 26,482 acres in size. The TMDL calls for a 64% reduction in sediment, 50% reduction in temperature, and additional reductions of 89% dissolved oxygen, 93% phosphorus, and 67% pathogens. Two landowners have agreed to implement the following BMPs on their properties: livestock access, off-stream watering facilities, roof run-off, spring development, and overland flow through feedlots.

**Project Status:**

The BMPs that have been implemented include 2 access roads, 2,397 feet of exclusion fencing, 12 heavy use pads, 100 feet of pipeline, 2 watering facilities, 4 extension aprons, and 1 culvert. All BMPs are functioning as intended. The estimated load reduction is 99% bacteria and 20 tons/ year sediment in 3,000 feet of effected stream segments.

**Outcome To-Date:**

The project is complete..



A recently constructed and rocked access road and a new culvert will help reduce the sediment load in Red Rock Creek.



A concrete cattle-feeding facility will provide protection and ease waste cleanup at this heavy use area.



A trench leading from a developed spring to a watering facility was excavated to lay pipe in.



A concrete pad at this feeding facility was constructed to provide for easier waste cleanup.

### 3.26 Fernan Lake Phosphorus Reduction Project

**Subgrant:** S571    **Latitude and Longitude:** 47.674342    -116.727193

**Description:**

The Fernan Lake TMDL states that the lake is impaired due to a high nutrient level and is not meeting its recreation beneficial use. A 35% reduction in total phosphorus is needed to meet the target. The primary goal of the project is to reduce the concentration of total phosphorus to a level supporting the lake’s beneficial use. The objective is to employ BMPs on a stretch of mostly bare, eroding shoreline. The BMPs under consideration are straw wattles, erosion-control matting, and seeding and planting drought-tolerant native grasses, shrubs, and tree species on the eroding shoreline.

**Project Status:**

After a failed early attempt to meet the objective of the project, a renewed effort was successful. Under the supervision of a landscape architect 300 feet of bank was resloped and stabilized. As part of the process, rills and channels were removed to provide better conditions for seeds and plants to grow. Volunteers were recruited to spread topsoil, add compost, and plant the native seeds and vegetation. Pine needles were spread across the site for water retention and weed control. The remaining stretches of shoreline within the project site were also planted with native seeds.

**Outcome To-Date:**

The project is ongoing.



An early attempt to install erosion control matting on the shoulder of the road failed. As a result the shoreline was not stabilized and continued to erode.



Straw wattles were laid but not maintained. Due to the lack of maintenance, they were clogged with sediment and no longer functioning as intended. Stakes were exposed and the integrity of the wattles was compromised. The wattles were later removed.



A rock installed on the bank stairway prevented erosion caused by heavy foot traffic descending on the slope.



The bank was resloped, and a soil amendment applied before planting the native vegetation.

### 3.27 Stargazer Water Quality Project (state funded)

**Subgrant:** S575    **Latitude and Longitude:** 43.311456    -114.263922

**Description:**

The goal of this project is to reduce sediment, nutrient, and bacteria levels in irrigation return water from the H and I Coulees and the J Coulee lateral. Rock Creek is §303(d) listed as not supporting the beneficial use of cold water aquatic life due to high levels of TSS and TP. The 64% pollutant load reduction target for sediment corresponds to 545 tons annually. There is no reduction estimate for bacteria in the water that will be discharged into Rock Creek. Primary contact recreation is not supported due to the concentration of *E.coli* in the water. The objective of the project is to construct four 40 x 150-foot cleaning cells and a large finishing pond to reduce pollutant levels before the irrigation water is discharged into Rock Creek. The Twin Falls Canal Company (TFCC) will maintain the cleaning cells. Work on the finishing pond will proceed to retain as many existing trees in the area as possible and maximize wildlife habitat. TFCC will use soil excavated during the construction process to fill low spots in a nearby pasture to allow for better irrigation and grass production. The TFCC will seed 2.5 acres of reclaimed land with pasture grasses to provide forage for livestock. The area at the edge of the property will be fenced, as agreed to in a negotiated easement. A buffer and filter strip will be placed on site to reduce the amount of nutrient and bacteria entering the site from an adjoining pasture and provide wildlife with better accessibility to the site.

**Project Status:**

The cells and pond were constructed and are operating as intended. A head tube was installed to provide a better option for irrigating, rather than flooding. Approximately 2.5 acres of reclaimed area was fenced to the edge of the property and seeded with pasture grasses, as described in the easement.

**Outcome To-Date:** The project is complete.



The J Coulee inlet to the cleaning cells.



Two of the four cleaning cells constructed on the site.



The combined outflow from the cleaning cells before discharged to the finishing pond.



The finishing pond and fence, with new pasture located adjacent to the pond.

### 3.28 Trout Creek AFO Project

**Subgrant:** WW1201a **Latitude and Longitude:** 42.449090 -111.70776

**Description:**

The goal of the project is to reduce sediment, nutrient, and phosphorus loads in Trout Creek, a tributary to the Bear River. The project will proceed under the guidelines for treating high priority streams in the Northern/Middle Bear River TMDL implementation plan. Work will also adhere to the BMP goals set in the Caribou SCD's 5-year plan. The objective of the project will be to remove a manure lagoon and retaining wall, stabilize the streambank, relocate corrals, install a waste containment pond and a solar-powered off-stream watering system, provide heavy use protection, a wind break, and a fuel waste storage facility. Work will also include replanting a heavily used feed area to pasture and controlling noxious weeds along the stream corridor. While the funding to implement the project will come from the SRF, administration of the project will be handled by §319 grant program staff according to established practices and procedures.

**Project Status:**

An old dairy facility on the property was razed and converted to a feedlot. Corrals, a cement lagoon, and a water gap were removed. A cement retaining wall along the bank and cattle loafing barns was also removed. New corrals, including 1,500 feet of new fencing and containment, were built upslope and farther from the creek than the original site. Rock was placed and 600 willows and dogwoods were planted to provide shade and stability to 300 feet of bank. A 450-foot windbreak was built to minimize the impact of prevailing winds on the site in the winter. All BMPs were inspected and certified to meet standards. The original timeline was shortened, and some of the BMPs were not installed. The landowner plans to implement the remaining BMPs on a later date using his own resources.

**Outcome to-date:**

The project is complete.



Trout Creek, after the waste containment and cement wall were removed. Willows and other vegetation are establishing themselves along the bank.



Steel pipe was used as fence on the new corral.



A tire water trough is located at the fence line between two pens. Placing the trough in this manner allows livestock in each pen to drink from the same trough.



A feed bunk is located along one side of the corral.

## References

Clean Water Act §319(h)

DEQ (Idaho Department of Environmental Quality). 2015. *Idaho Nonpoint Source Management Plan*. Boise, ID: DEQ.

Idaho Code. 2017. “Declaration of Policy and Statement of Legislative Intent.” Idaho Code §39-3601.