

# 2008 Performance and Progress Report

**State of Idaho**  
**Nonpoint Source Management Program**  
January 1 through December 31, 2008  
**Idaho Department of Environmental Quality**



## State of Idaho Nonpoint Source Program

Cover photo: The Indian Creek day-lighting and downtown redevelopment project in downtown Caldwell reduces urban runoff within the Lower Boise River watershed.

# 2008 Performance and Progress Report

**State of Idaho Nonpoint Source Management Program**

February 2009

This image and next: As part of the downtown redevelopment project in Caldwell, Idaho, footbridges across Indian Creek were constructed using wooden trusses salvaged from demolished buildings.



## Acknowledgments

The Idaho Department of Environmental Quality would like to acknowledge all who contributed to the development of this report, including all involved federal and state agencies, the project sponsors, and the many individuals whose efforts have helped reduce nonpoint pollution throughout the state.

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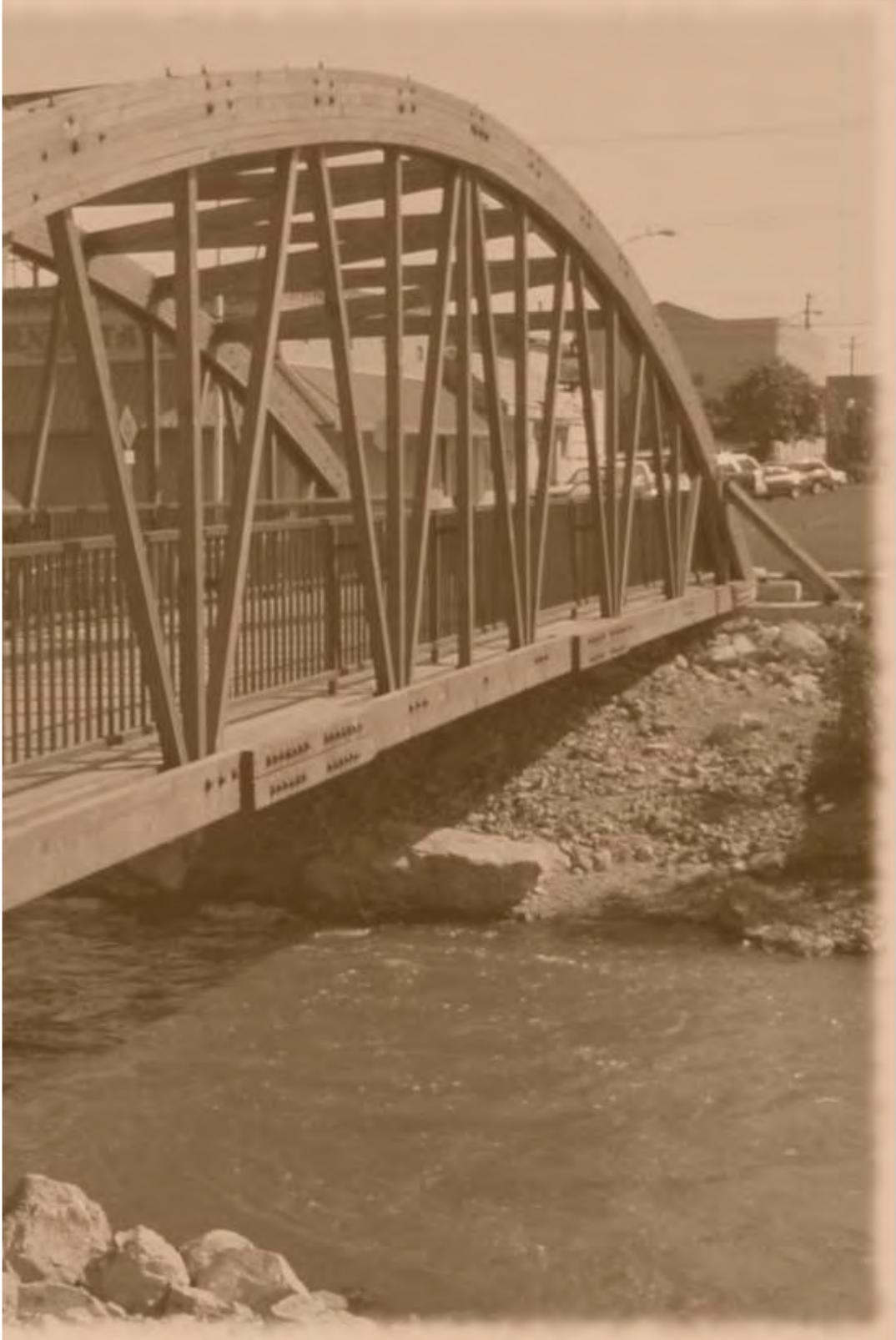
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## Section 1. Overview

This document presents Idaho's Nonpoint Source Management Program 2008 Performance and Progress Report for the period January 1 through December 31, 2008. The Department of Environmental Quality (DEQ) administers the program for the state of Idaho.

### 1.1 Introduction

The Clean Water Act (CWA), Section 319(h), requires the U.S. Environmental Protection Agency (EPA) to make an annual determination of satisfactory progress in meeting the milestones of each state's nonpoint source management plan. A part of this determination is based on an annual report that assesses the program's performance and progress toward meeting the goals of achieving, maintaining, and restoring clean water.

#### Overview of the Idaho Nonpoint Source Program

Congress established the national Nonpoint Source (NPS) Program in 1987, when it amended the CWA with Section 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 assuring that Section 319 funds are directed to on-the-ground projects that prevent, reduce, or eliminate NPS pollution in Idaho's surface water and ground water. In Idaho, NPS funding has resulted in over 220 on-the-ground projects since 1998. While a few of these projects are aimed at statewide pollution reduction education, the great majority are designed to remediate and prevent NPS pollution, resulting in measurable pollution reduction.

#### Scope of the Idaho Nonpoint Source Program

Idaho oversees 70 active, on-going projects, each of which is described through formal subgrant agreements established between DEQ and project *sponsors*. Project sponsors may include federal and state agencies, counties, municipalities, nonprofit organizations, or private individuals.

### 1.2 Assessing Program Performance

The Idaho NPS Program has adopted the goals and objectives of the 1999 Idaho Nonpoint Source Management Plan (Idaho Department of Environmental Quality, 1999), which provide the structure for annual work plans to administer the program.

#### Framework of the Program

The NPS Program operates by doing the following:

- Targeting compliance with water quality standards by following approved guidance, rules, and laws
- Formulating and implementing watershed plans through sound science, as provided through such mechanisms as total maximum daily loads (TMDLs), drinking water and source water protection plans, and ground water management plans

- Evaluating projects and approved watershed plans through water quality and various forms of effectiveness monitoring

### **Program Emphasis and Focus**

DEQ identifies NPS water pollution as primarily occurring within the following categories of activities:

- Agriculture practices
- Mining practices
- Forest practices
- Urban and rural storm water practices
- Transportation practices

The great majority of DEQ projects focus on NPS pollution associated with agriculture.

#### **Measurable Load Reductions**

DEQ stresses the need for measurable calculations of load reductions for sediment, phosphorous, and nitrogen associated with all projects. Most projects are focused at a particular site or stream segment, and every opportunity is taken to ensure that projects are nested within the subwatershed and watershed scales of a given river basin so that pollution load reductions within a watershed can be combined to generate a cumulative load reduction over the entire basin.

#### **Technical Support to Projects**

The NPS Program provides technical support to project sponsors and helps facilitate cooperative engagements with agency partners to implement nonpoint source activities through such actions as the following:

- Acting as the lead agency for facilitating and coordinating implementation of the 1999 NPS Plan
- Implementing consistent approaches aimed at benefiting surface water and ground water for all categories of NPS pollution
- Encouraging the enhancement of natural resource partnerships and interagency collaboration through educational opportunities and information or knowledge transfer and entering into program agreements, such as memoranda of understanding (MOUs)
- Ensuring statewide consistency for base-level implementation activities related to TMDLs, including technical support, education, and information transfer
- Assisting with load reduction estimates for sediment, phosphorus, and nitrogen through a variety of EPA-approved models and methods
- Providing statewide training, as requested
- Managing project funds through appropriate invoicing and reporting

### **Public Participation**

Public participation is a major element of the NPS Program and is achieved through interaction with advisory groups as outlined in Idaho water quality statutes. Both watershed advisory groups (WAGs) and basin advisory groups (BAGs) are required to review and recommend actions necessary for the implementation of all projects.

In addition, coordination with other local, state, tribal, and federal agencies, entities, and governments is critical to the success of all projects. Their support is essential to ensure closing the feedback loop, project-by-project, at the habitat and watershed scales throughout each of the six river basins in the state.

### 1.3 Program and Project Administration

The NPS Program functions include the following tasks, which are measured in terms of “outputs.”

#### 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 Section §319 program requirements.
Milestone:	As needed throughout May 1, 2008 through April 30, 2013
Estimated cost of this work plan component:	\$186,649
Full-time equivalent (FTE)	1.35

#### Task 2: Develop Policies, Processes, and Guidance Materials

Output:	Draft policies and guidance.
Milestone:	As needed throughout May 1, 2008 through April 30, 2013
Estimated cost of this work plan component:	\$74,660
FTE	0.55

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

Output:	Revised MOUs for implementation of the NPS Program plan.
Milestone:	Complete remaining sectors between May 1, 2008 and April 30, 2013
Estimated cost of this work plan component:	\$37,330
FTE	0.27

#### Task 4: Program Implementation

Output 4A:	Promote the NPS Program to all prospective resource agencies. Work with all agencies and entities to focus areas within the state for NPS implementation project development.
Milestone:	Ongoing throughout May 1, 2008 through April 30, 2010
Output 4B:	Provide enhanced program training to BAGs and WAGs and to various local, state, federal, and private resource agencies.

Milestone:	As necessary, and as opportunities arise to meet NPS management plan objectives.
Output 4C:	Support the annual Idaho Water Quality Monitoring and Management Conference: The 19 <sup>th</sup> Annual Water Quality Conference was held January 6-8, 2009 at the Boise State University student union building. Our overall theme was “Preparing for Water Resource Management in an Uncertain Future. Rural, urban, and an Idaho perspectives were provided by three keynote speakers. Topics by 31 additional presenters included reservoir water quality, influences of sediment monitoring frequency, watershed restoration projects, monitoring equipment advances, surface and ground water nutrients, arsenic, temperature, perennial stream modeling and instream flow requirements, fish tissue analyses, surface water monitoring networks and databases. The conference was attended by 118 registered individuals. The 20 <sup>th</sup> annual conference is scheduled for January 5-7, 2010.
Milestone:	January 2009 and January 2010
Estimated cost of this work plan component:	\$186,649
FTE	1.35

**Task 5: Evaluate Approximately Half the Active Nonpoint Source Projects Each Year; Remaining Half Reviewed the Following Year**

Output:	Assess each project’s compliance with work plans and budget.
Milestone:	May thru October, each year
Estimated cost of this work plan component:	\$74,660
FTE	0.55

**Task 6: Support DEQ Water Pollution Control Loan (SRF) Program**

Output:	Review NPS project proposals and assist in their ranking using the integrated priority system guidance.
Milestone:	As requested throughout May 1, 2008 through April 30, 2013
Estimated cost of this work plan component:	\$37,330
FTE	0.27

**Task 7: Provide Statewide/Regional Technical Support, Education, and Information Transfer on Watershed-based Plan and TMDL Implementation Activities**

Output:	Provide base-level support on watershed-based plan and TMDL implementation plan development.
Milestone:	As requested throughout May 1, 2008 through April 30, 2013
Estimated cost of this work plan component:	\$37,330
FTE	0.27

**Task 8: Coordinate Development, Review, and Distribute the Annual Program Performance and Progress Report**

Output:	Submit annual report to EPA Region 10.
Milestone:	March 2009 and March 2010
Estimated cost of this work plan component:	\$37,330
FTE	0.27

**Task 9: Conduct Program Reporting through Grants Reporting and Tracking System (GRTS)**

Output:	Complete entry of project load reductions and other mandatory data into GRTS by EPA deadline.
Milestone:	Ongoing data entry throughout the year, to be completed by February 15, 2009.
Estimated cost of this work plan component:	\$37,330
FTE	0.27

**Task 10: Update Idaho Nonpoint Source Management Plan**

Output:	Compile Idaho Nonpoint Source Management Plan
Milestone:	December 31, 2009
Estimated cost of this work plan component:	\$37,330
FTE	0.27

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**Table 1. Budget summary for projects active during 2008, including projects that were closed during 2008.**

Subgrant	Project Name	Organization Sponsor	Begin Date	End Date	Budget (dollars)	Total Spent (dollars)	Balance as of 12/31/2008 (dollars)
<b>2008</b>							
S231	Dry Creek Streambed Protection-Patterson Property	Ada Soil and Water Conservation District	3/17/2008	10/1/2010	58,365.67	58,365.67	0
S245	Lanny Holbrook-Upper Portneuf River Riparian Fence	Trout Unlimited	6/9/2008	1/31/2009	19,318	0	19,318
S246	Croy Creek Wetland Restoration	Wood River Land Trust	6/15/2008	3/15/2013	99,419	48,657	58,761
S247	Little Weiser R. Stream Bank Protection	Adams Soil & Water Conservation District	6/15/2008	3/15/2013	201,050	87,120	113,930
S248	S. Fork Palouse R. Riparian Restoration	Palouse-Clearwater Environmental Institute	6/30/2008	3/20/2013	158,971	0	158,971
S249	Teton Creek Restoration Project	Friends of Teton River	06/15/2008	03/15/2013	144,425	78,400	66,025
S250	N. Idaho AFO Implementation Phase IV	Idaho Assoc. of Conservation District	6/20/2008	3/20/2013	215,086	0	215,086
S251	Lawyer Creek Water Quality Project	Lewis Soil Conservation District	6/20/2008	3/20/2013	250,000	29,300	220,700
S252	E. Coulee Drain Elimination Project	Balanced Rock Soil Conservation District	6/30/2008	6/30/2012	204,500	0	204,500
S254	Salmon Falls Watershed TMDL	Idaho Soil Conservation Commission	07/15/2008	12/31/2008	16,820	10,000	6,819
S255	W. Mtn Road Improvement French Creek	Valley County Road Dept	07/07/2008	7/31/2012	104,992	2,500	102,492
S273	Mosquito Flat Reservoir Project	Custer Soil & Water Conservation District	9/1/2008	9/30/2012	65,201	0	65,201
S274	N. Fork Payette River Stream Bank Stabilization	Friends of Cascade Water Park	09/01/2008	4/1/2012	43,320	0	43,320
S278	Wildhorse River Restoration	DEQ	9/16/2008	12/31/2012	9,878	0	9,878
S279	Tammany Road erosion Reduction Phase II	Nez Perce Soil & Water Conservation District	10/1/2008	12/31/2011	185,247	0	185,247
S280	American/Red River Project	Framing Our Community, Inc.	10/15/2008	12/21/2012	247,943	110,000	137,943
S282	Water Quality Improvement Project (Guthries property)	Portneuf Soil and Water Conservation District	11/17/2008	12/31/2008	24,633	18,859	5,774
<b>2007</b>							
Internal	Beartop Mill Removal	DEQ	7/6/2007	10/23/2007	390,915	390,915	0
S195	Indian Creek Stormwater Runoff Project Phase 2	City of Caldwell	2/28/2007	12/2/2007	79,383	79,383	0
S196	Burke Canyon Wastewater Improvement Project	DEQ	4/1/2007	11/30/2007	220,000	145,855	74,145
S207	Thomas Fork Stream Stable (Hillier property)	Bear Lake Regional Commission	7/15/2007	1/30/2012	54,000	36,959	17,040
S208	Thomas Fork Stream Stable (Boehme property)	Bear Lake Regional Commission	7/15/2007	1/30/2012	46,000	3,000	43,000
S209	Flannigan Creek Riparian Restoration Project	Palouse-Clearwater Environmental Institute	7/15/2007	1/31/2012	96,046	67,213	28,832
S211	Lower NF Clearwater TMDL Project 3	Clearwater Soil and Water Conservation District	7/1/2007	1/30/2012	248,709	159,809	88,899
S212	American River Water Quality Improvement	Framing Community Inc.	7/9/2007	1/30/2012	238,242	170,599	67,643
S213	Owyhee Restoration Incentive	Owyhee Watershed Council	7/16/2007	2/27/2012	201,785	87,410	114,375
S214	Elk Creek and Mores Creek Sediment Reduction Floodplain Restore	West Central Highlands	8/15/2007	1/31/2012	100,000	60,000	40,000

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### Overview

Subgrant	Project Name	Organization Sponsor	Begin Date	End Date	Budget (dollars)	Total Spent (dollars)	Balance as of 12/31/2008 (dollars)
S215	Copper Creek Restoration Project	Lava Lake Land & Livestock	8/15/2007	1/30/2012	150,000	0	150,000
S216	Stormwater Treatment Demonstration, South Shore Hayden Lake	Lakes Hwy District	7/16/2008	1/30/2012	40,000	0	40,000
S217	Island Ranch Bank Stabilization Project	Island Ranch	8/20/2007	1/30/2012	12,590	6,949	5,641
S219	Big Lost River Temperature and Sediment Reduction	Trout Unlimited	8/27/2007	1/30/2012	112,200	0	112,200
S220	West Mountain Rd. Water Quality Implementation, Campbell Creek	Valley Soil and Water Conservation District	10/1/2007	1/30/2012	99,000	99,000	0
S221	Bear River Basin Water Quality Improvements, Jenkins, Densmore, Weston, Pegram Creeks	Franklin Soil and Water Conservation District	10/3/2007	12/31/2007	59,163	59,163	0
S223	Marsh Creek Watershed Project Phase I	Portneuf Soil and Water Conservation District	10/15/2007	12/15/2012	250,000	76,194	173,806
S224	Shoshone Water Quality Improvement Project	Twin Falls Soil and Water Conservation District	10/20/2007	12/31/2010	85,780	64,237.90	21,542.10
S225	Snake River Drain Nutrient/Sediment Reduction Project	Snake River Soil and Water Conservation District	11/9/2007	1/31/2012	67,100	0	67,100
S226	Northwest Owyhee County Water Quality Improvement	Owyhee Soil Conservation District	11/14/2007	1/31/2012	249,543	95,044	154,499
S227	Lindsay Creek Riparian Management Project	Palouse-Clearwater Environmental Institute	12/10/2007	1/31/2012	149,774	66,141	83,633
<b>2006</b>							
S175	Palouse River Water Quality Improvement Project	Latah Soil and Water Conservation District	5/15/2006	12/31/2009	215,491	128,127	87,364
S176	Fishhook Slide Stabilization Project	Benewah Soil and Water Conservation District	5/15/2006	12/31/2008	35,714	18,924	16,789
S177	Lower Payette River TMDL/ PH 2	Gem Soil and Water Conservation District	5/15/2006	02/28/2010	234,793	98,200	136,593
S178	West/Middle Fork St. Maries TMDL	Benewah Soil and Water Conservation District	5/16/2006	12/30/2008	97,200	89,609	7,590
S180	SF Clearwater, Kirtner Project	Palouse-Clearwater Environmental Institute	5/15/2006	5/30/2008	181,435	125,077	56,357
S181	North Idaho AFO Implementation Phase 3	Idaho Association of Soil Conservation Districts	5/15/2006	12/31/2008	199,969	101,309	98,659
S182	Deep Creek Stabilization, Espy Property	Palouse-Clearwater Environmental Institute	5/15/2006	1/31/2008 1/31/11	68,407	68,406.70	0.30
S183	Soldier Creek Rocking Project	Benewah Soil Conservation District	5/15/2006	1/31/2011	196,862	177,454	19,407
S184	Camas Prairie Ground Water Nitrate/ Priority Area, Phase II	Lewis Soil Conservation District	6/1/2006	5/31/2009	213,224	188,606	24,618
S187	Salmon Falls Pump-back Project	Balanced Rock Soil Conservation District	7/1/2006	7/1/2008	52,321	52,321	0
S189	St. Charles Creek Watershed Restore	Bear Lake Regional Commission	7/10/2006	12/30/2008	250,061	215,326	34,734
S190	Bear River Dingle CAFO	Bear Lake Soil and Water Conservation District	8/1/2006	12/31/2008	120,250	108,200	12,050
<b>2005</b>							
S139	O-Coulee Treatment Drain	Snake River Soil and Water Conservation District	4/23/2005	12/28/2007	31,150	31,150	0
S144	Butcher/Three Mile Creek TMDL	Idaho Soil & Water Conservation District	03/30/2005	1/15/2010	248,736	207,879	40,856

Subgrant	Project Name	Organization Sponsor	Begin Date	End Date	Budget (dollars)	Total Spent (dollars)	Balance as of 12/31/2008 (dollars)
S145	Middle Snake-Payette Clean Water Project.	Payette Soil and Water Conservation District	04/01/2005	6/30/2009	263,680	263,421.09	258.91
S146	Twentymile Creek Habitat Restoration	Boundary Soil Conservation District	4/30/2005	12/31/2007	85,500	80,889	4,610
S148	Bear Paw Rd. Sediment Reduction	Bonner County Road Department	05/30/2005	12/31/2007	23,349		23,349
S149	Lower North Fork Clearwater Phase II	Clearwater Soil and Water Conservation District	05/30/2005	1/28/2009	349,973	248,133	101,839
S168	Ydrain and Y9 drain Clover Creek	Northside Canal Company	10/1/2005	11/30/2007	136,463	136,463	0
S170	Phase 2 Cascade Reservoir Watershed	Valley Soil and Water Conservation District	10/01/2005	12/31/2008	175,000	157,500	17,500
S171	Bear River AFO Demo Project	Franklin Soil and Water Conservation District	10/15/2005	10/15/2007	121,302	0	121,302
S185	Weiser Water Quality Phase 2	Weiser Soil Conservation District	6/1/2006	5/31/2008	190,547	92,030	98,517
S186	Bonner County Milfoil Treatment Project	Tri-State Water Quality Council	6/6/2006	6/30/2008	20,241	14,849	5,391
<b>2004</b>							
S104/ S232	Boise River Side Channel Reconstruction	Trout Unlimited	04/01/2004	12/31/2008	159,525	157,087	2,438
S105	Cow Creek Water Quality Improvement	Latah Soil and Water Conservation District	04/01/2004	12/31/2007	240,966	215,221	25,744
S106	Potlatch Water Quality Improvement	Latah Soil and Water Conservation District	04/01/2004	12/31/2008	233,024	208,277	24,746
S107	Ashton Groundwater Protection	Yellowstone Soil Conservation District	04/01/2004	12/31/2008	237,200	205,130	32,069
S111	Lower North Fork Clearwater TMDL Implementation	Clearwater Soil and Water Conservation District	05/15/2004	1/31/2008	235,946	235,946	0
S129	Bliss Nitrate Priority Area BMP	Gooding Soil Conservation District	10/2005/2004	2/29/2008	73,047	73,047	0
S130	Indian Creek LID Demo Caldwell, Phase I	City of Caldwell	11/1/2004	2/28/2007	28,668	22,617	6,051
<b>2003</b>							
S193	Kline Mountain Road Restoration	Boise National Forest, Cascade Ranger District	9/15/2006	3/15/2008	45,000	45,000	0
<b>2001</b>							
S179	Burley/Marsh Creek	West Cassia Soil and Water Conservation District	5/22/2006	5/30/2008	157,809	157,809	0

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## Section 2. 2008 Project Field Evaluations

This section summarizes the 2008 field evaluations. Individual project evaluations for 2008 can be found in Section 3.

### 2.1 Introduction

As of December 31, 2008, DEQ oversaw 70 projects in Idaho (Figure 1), including 22 projects that were closed out. Thirty projects were evaluated in 2008 (Figure 2).

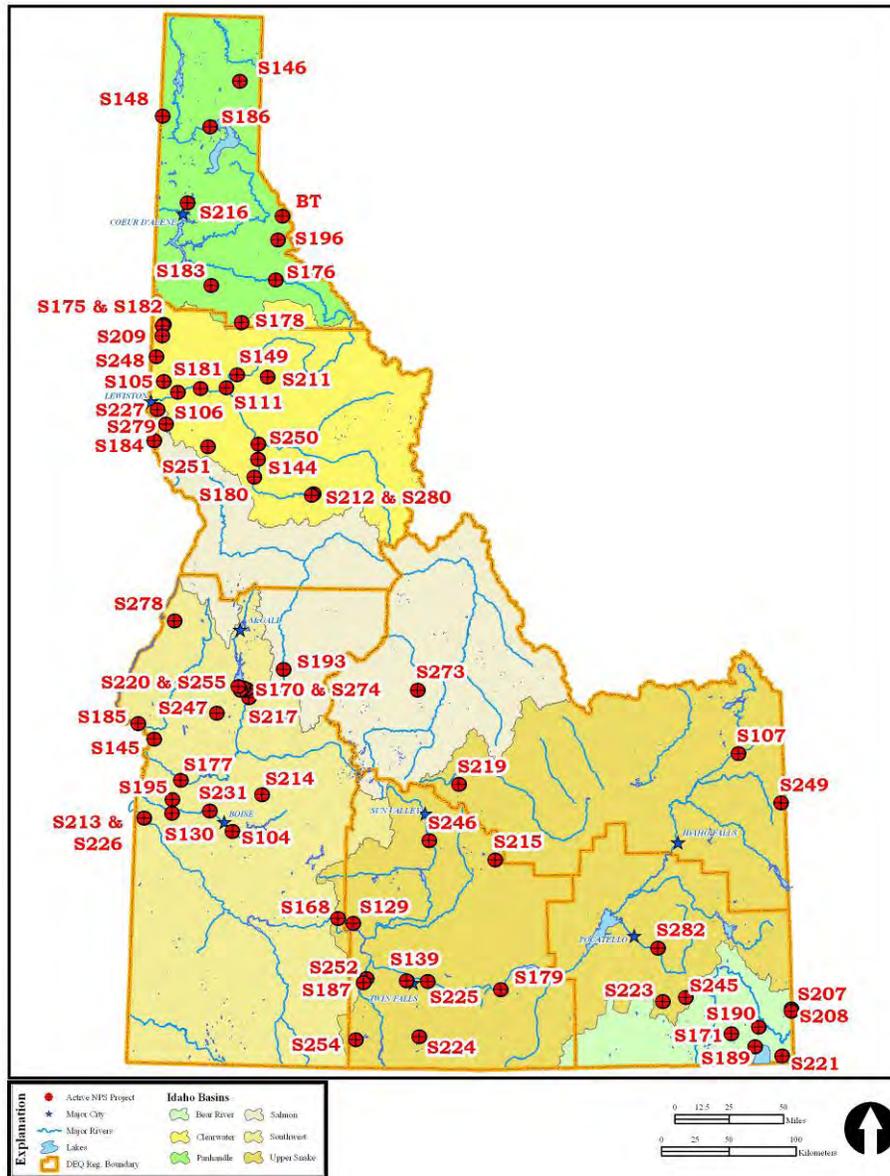


Figure 1. Current active or recently closed Nonpoint Source projects, as of December 31, 2008.

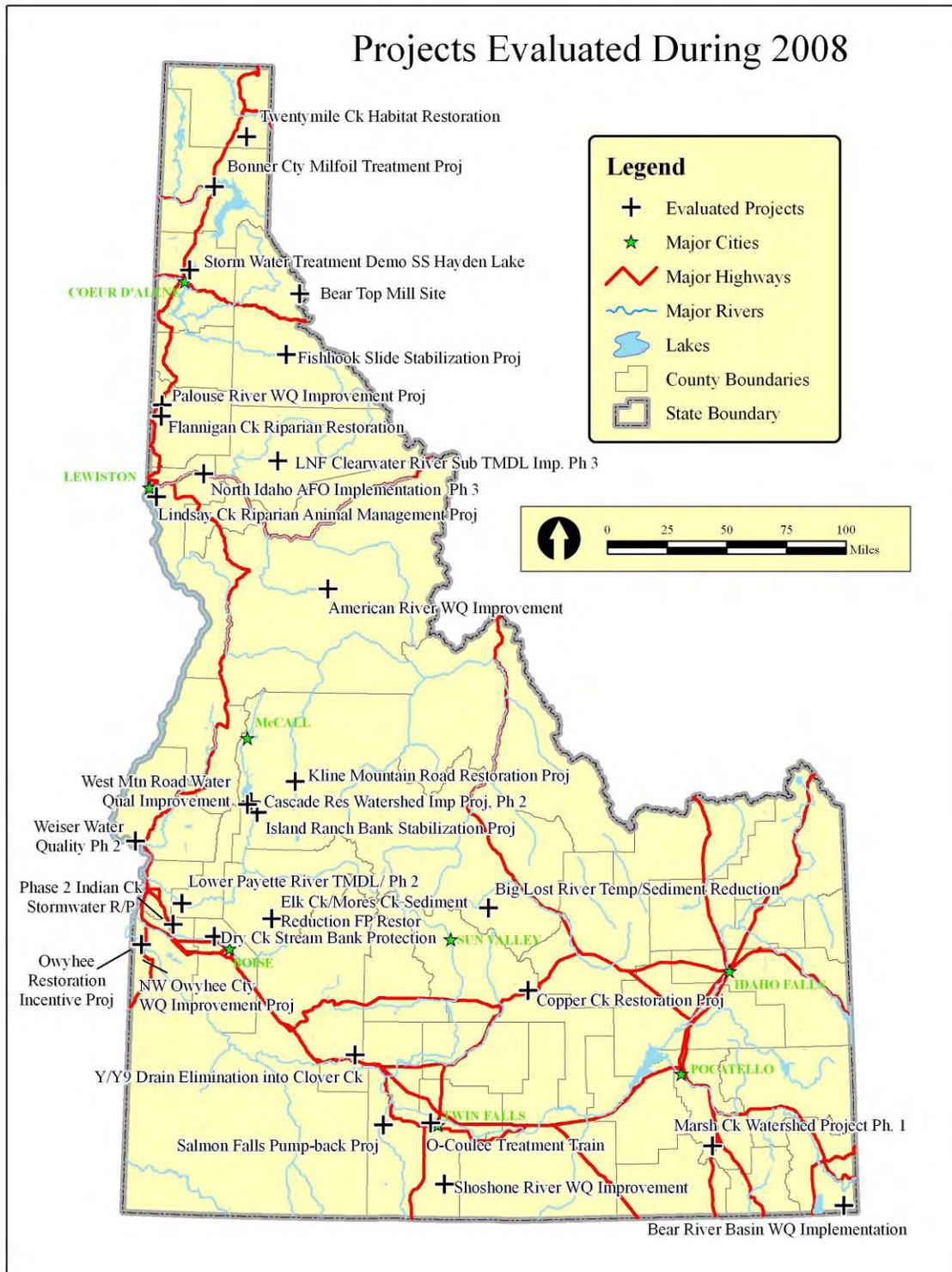


Figure 2. Locations of nonpoint source projects evaluated during 2008.

## 2.2 Field Evaluation Process

For each evaluation, program staff carefully review the project's subgrant agreement and accompany the project manager, DEQ regional office staff, and any stakeholders to the field. In all cases, a standard evaluation form is used as a guide to assure that NPS requirements are being met for each project.

## 2.3 Results

Table 2 lists and briefly describes all the active and recently completed NPS projects that were field-evaluated during the summer and fall of 2008. Figure 3 illustrates how much time each project has been underway, in comparison to the overall project schedule, and Figure 4 shows total expenses, through December 31, for each project in comparison to the subgrant amount.

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**Table 2. Active or recently completed nonpoint source projects field-evaluated during 2008.**

No.	Subgrant Number	Project Name	Comments	Category	DEQ Region
1)	Internal	Beartop Mill Site	The project reduces sediment and trace metal pollution from former mining sites.	Mining	Coeur d'Alene
2)	S139	O Coulee Treatment Train	The project removes pollutants to benefit recreation and wildlife. O Coulee discharges to Rock Creek.	Agriculture	Twin Falls
3)	S146	Twentymile Creek Habitat Restoration	The project includes stream channel stabilization structures and a bridge to reconnect salmonid spawning habitat and improve habitat for bull trout.	Forest	Coeur d'Alene
4)	S168	Y and Y9 Drain Elimination	The project eliminates irrigation return flow into Clover Creek. Using return flow to irrigate crops removes 72.66 tons of sediment and 964 pounds of phosphorus per year.	Agriculture	Twin Falls
5)	S170	Cascade Reservoir Watershed Phase 2	The project addresses issues with dissolved oxygen, nutrients, and pH. A 37% total phosphorus reduction is needed to improve water quality in Cascade Reservoir.	Agriculture	Boise
6)	S175	Palouse River Water Quality Improvement Project	The project focuses on implementation of BMPs in riparian restoration, agriculture/rangelands/pasturelands, and rural roads.	Agriculture	Lewiston
7)	S176	Fishhook Slide Stabilization Project	The project reduces sediment loadings to a tributary to the St. Joe River.	Transportation	Coeur d'Alene
8)	S177	Lower Payette River TMDL Implementation Phase 2	The project reduces bacteria ( <i>E.coli</i> ), phosphorus, sediment, and pesticides to help meet Lower Payette TMDL Implementation Plan goals of decreasing nonpoint pollutants by 30%.	Agriculture	Boise
9)	S181	North Idaho AFO Implementation, Phase 3	The project improves water quality on Section 303(d)-listed water bodies and other locally prioritized segments and tributaries contributing loads to the Clearwater, Palouse, Salmon, and Snake Rivers.	Agriculture	Lewiston
10)	S185	Weiser Water Quality Protection Project, Phase 2	The project reduces nitrate fertilizer application rates to levels consistent with state guidance.	Agriculture	Boise
11)	S186	Bonner County Milfoil Treatment	The project demonstrates effectiveness of non-chemical control of Eurasian milfoil.	Transportation	Coeur d'Alene
12)	S187	Salmon Falls Pump-back Project	This project implements BMPs in the Salmon Falls Creek drainage and the Snake River and has the potential to benefit threatened and endangered snails.	Agriculture	Twin Falls
13)	S193	Kline Mtn Road Restoration	The project improves water quality and fisheries habitat by reducing sediment delivery while providing for public safety and continued access to a high-use recreational area.	Transportation	Boise
14)	S195	Indian Creek Storm water Phase 2	The project applies low impact development (LID) concepts over a 1,600-foot section of Indian Creek in downtown Caldwell.	Storm water	Boise
15)	S209	Flannigan Creek Riparian Restoration	The project reduces erosion by stabilizing 1,500 feet of stream bank to reduce sediment loading to the Palouse River.	Agriculture	Lewiston
16)	S211	Lower NF Clearwater River TMDL Phase 3	The project implements BMPs in the Reeds Creek subwatershed. Pollutant loading reductions are aimed at restoring full support status to designated beneficial uses.	Forest	Lewiston
17)	S212	American River Water Quality Improvement	The project reduces NPS loading for American River, Big Elk Creek, and Little Elk Creek, using unemployed mill workers and regional contractors to address TMDL issues in headwaters of the South Fork Clearwater River.	Agriculture	Lewiston

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No.	Subgrant Number	Project Name	Comments	Category	DEQ Region
18)	S213	Owyhee Restoration Incentive	The project provides technical and financial assistance to landowners in the Middle Owyhee, Upper Owyhee, Mid-Snake Succor, and Jordan Subbasins to implement restoration projects, demonstrate solutions to water quality concerns, promote coordination between organizations/agencies, and promote BMPs to address water quality concerns.	Agriculture	Boise
19)	S214	Elk Creek Mores Creek Sediment Reduction	The project restores natural processes within the Mores Creek watershed.	Mining	Boise
20)	S215	Copper Creek Restoration Project	The project improves water quality, establishes perennial flow, and improves habitat conditions on a 3-mile segment of Copper Creek at Lava Lake Ranch.	Agriculture	Twin Falls
21)	S216	Storm Water Treatment Demo Hayden Lake	The project pilot-tests technology to treat storm water runoff for sediment and nutrients, specifically phosphorous. With the information gained, the scope of a project necessary to remove phosphorous will be developed.	Storm water	Coeur d'Alene
22)	S217	Island Ranch Bank Stabilization	The project reduces sediment loading due to bank erosion.	Agriculture	Boise
23)	S219	Big Lost River Temperature and Sediment	The project reduces sediment and thermal inputs and stabilizes banks in and along the East Fork of the Big Lost River.	Agriculture	Idaho Falls
24)	S220	West Mountain Road Improvement Project	The project eliminates infiltration of phosphorus, sediment, and other pollutants to Cascade Reservoir from native road surfaces.	Transportation	Boise
25)	S221	Bear River Basin Water Quality Improvement	The project improves riparian habitat and reduces sediment and nutrient loading to impaired tributaries of the Bear River.	Agriculture	Pocatello
26)	S223	Marsh Creek Watershed Project Phase 1	The project eliminates runoff from animal feeding operations and improves riparian habitat and grazing management in the watershed.	Agriculture	Pocatello
27)	S224	Shoshone Water Quality Improvement Project	The project reduces cattle encroachment on Shoshone Creek and Hopper Gulch and protects water quality by routing water from Whirl Spring to 22 watering troughs.	Agriculture	Twin Falls
28)	S226	Northwest Owyhee County Water Quality Improvement Project	The project implements nutrient and irrigation water management to control nutrient concentrations within crop root zones and avoid nutrient leaching, specifically nitrates, into culinary water supplies.	Agriculture	Boise
29)	S227	Lindsay Creek Riparian Animal Management Project	The project helps ensure safe water for secondary contact recreational uses and adequate support for coldwater aquatic life.	Agriculture	Lewiston
30)	S231	Dry Creek Stream Bank Protection, Patterson Property	The project reduces erosion and sediment delivery to Dry Creek.	Agriculture	Boise

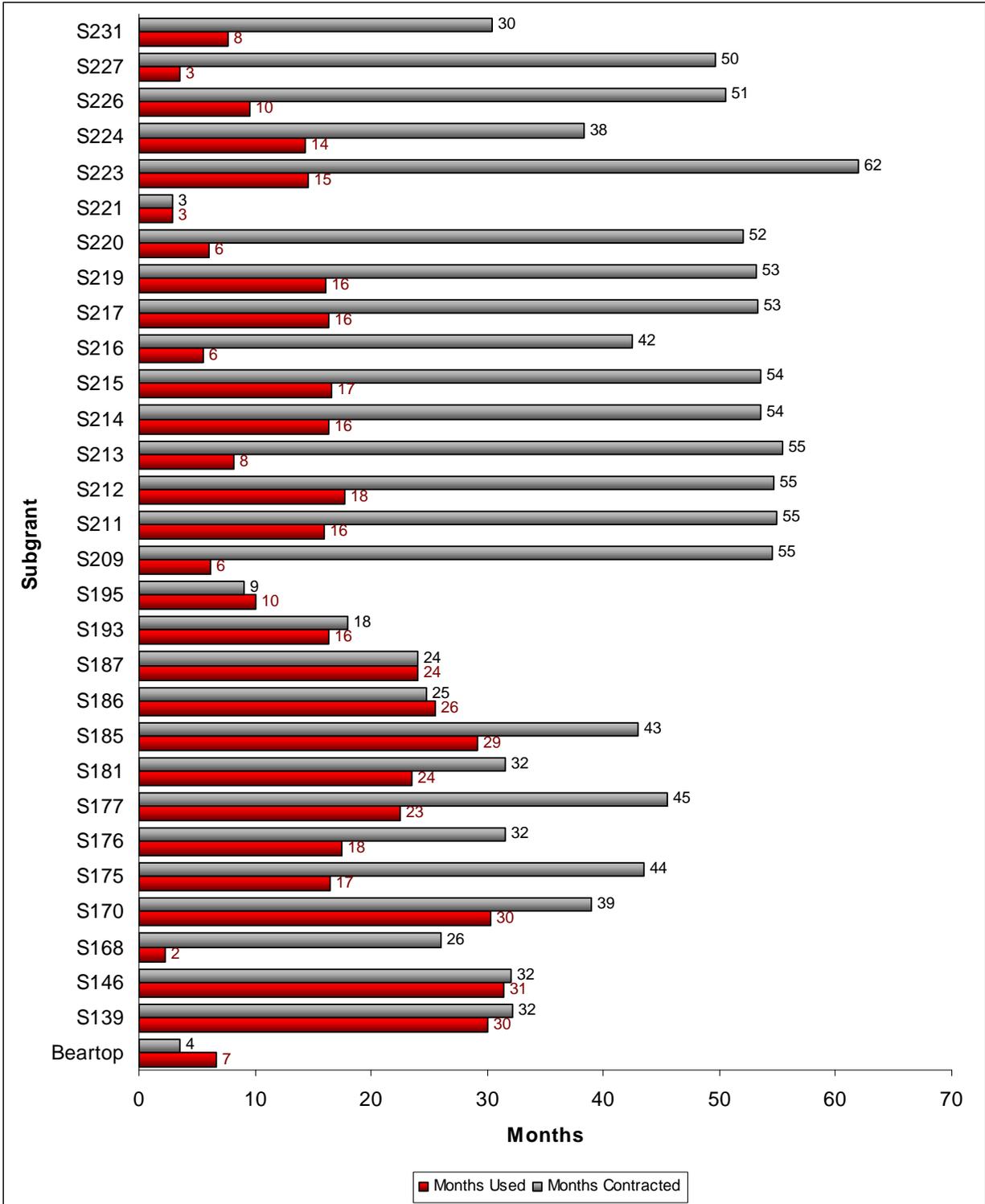


Figure 3. Schedule usage by evaluated project. The gray bars show the number of months contracted for each project, and the red bars show the number of months the project has been underway.

**State of Idaho Nonpoint Source Program**  
**2008 Project Field Evaluations**

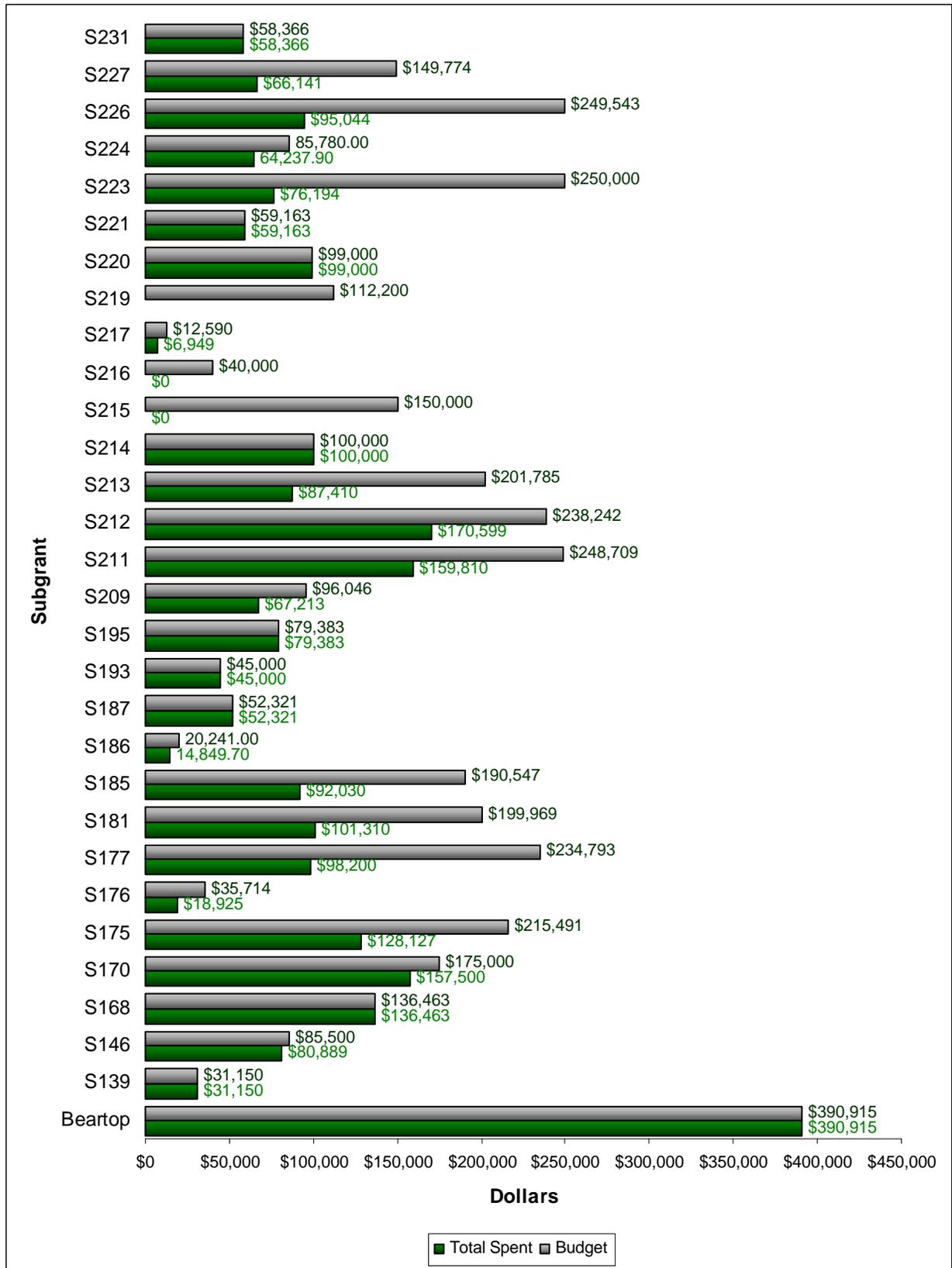


Figure 4. Budget usage by evaluated projects. The gray bars show the total budget available for each project, and the green bars show total expenditures through December 31.

## Section 3. 2008 Evaluation Reports

From May through October of 2008, DEQ staff traveled to 30 project sites across Idaho to evaluate and document NPS projects. NPS categories for these projects were distributed as follows:

- ❖ Twenty projects (approximately 67%) focus on a variety of BMPs for water quality protection related to agriculture.
- ❖ Four projects (approximately 13%) focus on transportation.
- ❖ Two projects (approximately 7%) focus on urban and rural storm water treatment.
- ❖ Two projects (approximately 7 %) deal with forest practices.
- ❖ Two projects (approximately 7 %) deal with mining.

The following evaluation report summaries provide concise information about each project; detailed evaluation reports are available from DEQ.

## Beartop Mill Site (Internal Project)

Subgrant	N/A	Location	HUC 170301-3500, but is more accurately located as 2.8 acres in the Simmons and Bear Placers located in the southwest one-quarter of section 6, T49N R5E, BPM.
Description	Beartop Mill site was a source of sediment and trace metals (cadmium, copper, lead, and zinc) contamination to Prichard Creek, a Section 303(d)-listed stream. Contamination sources from this metals mining and milling site, and others in the watershed (Paragon, Monarch, and Terrible Edith), are being sequentially addressed by the U.S. Forest Service and DEQ. The Forest Service is addressing sites on their managed lands, while DEQ is addressing sites on private land that have no viable responsible party. Mine wastes at Beartop were removed with a mix of Section 319 and DEQ funds and placed in the engineered Monarch cell of the Eagle Creek Repository. After cap, topsoil replacement, and hydroseeding, the repository was closed on October 23, 2007. A full closure report was distributed on January 25, 2008.		
Anticipated completion	Field work completion, October 23, 2007; project completion, January 25, 2008.		
Features evaluated	The project is completed, and no BMPs remain in place at the site except for the bridge over Bear Gulch Creek installed as a truck crossing. During project implementation, 1) silt fence and/or hay bales were placed along key reaches of Bear Gulch Creek, 2) work was completed during the low discharge and low precipitation period of the year, 3) a moveable bridge was used for all truck and excavator crossings of the stream, 4) all trucks and equipment leaving the removal site or repository site were decontaminated, and 5) all trucks traveled in a fully "tarpred" mode.		
Project status	The project was completed on schedule.		
TMDL	The project removed the third, and final, nonpoint source of metals identified by earlier monitoring of the Prichard Creek watershed and specified by the draft metals TMDL for removal. One additional significant point discharge of metals remains: the Terrible Edith Mine Adit.		



Figure 5. 17,809 tons of tailings, containing 236 tons of zinc and 96 tons of lead, were removed from this streambed.



Figure 6. Where possible, lead and zinc tailings were removed down to the original streambed.



Figure 7. This bridge was constructed and used for heavy equipment and truck access.



Figure 8. U. S. Forest Service archeologists determined that this pile of rubble, where the Beartop Mill once existed, is of historic significance and could not be removed.

## O Coulee Treatment Train (S139)

Subgrant	139	Location	HUC 17040212-012 or the Lower Rock Creek watershed. Decimal latitude and longitude: 42.5792, -114.5200.
Description	The project is removing a high percentage of the pollutants from this irrigation return flow stream, benefiting water quality for both recreation and wildlife. O Coulee irrigation flow discharges to Rock Creek just west of the Magic Valley Regional Medical Center in Twin Falls, Idaho.		
Anticipated completion	February 28, 2007		
Features evaluated	Sediment retention ponds. The O Coulee routes runoff from fields through a human made wetland pond to settle out sediment and sediment-associated nutrients. The constructed wetland pond serves as a biological treatment and filtration system. Numerous riparian plants were planted around and in the pond.		
Project status	This project was completed on schedule.		
TMDL	This section of Rock Creek carries TMDL limits under the Upper Snake Rock TMDL: less than 0.100 milligrams per liter (mg/L) of phosphorus, less than 52.0 mg/L of suspended sediment, and less than 126 colony-forming units per 100 milliliters (cfu/100 mL) of bacteria ( <i>E. coli</i> ).		



Figure 9. This project is a typical Section 319 group effort.



Figure 10. Contaminant-laden irrigation return flow leaving the first settling pond.



Figure 11. Water enters the second settling pond for further cleaning.



Figure 12. The first wetland pond takes up many of the nutrients in the water.

## Twentymile Creek Habitat Restoration (S146)

Subgrant	146	Location	HUC 17010104
Description	The project includes approximately eight stream channel stabilization down-drop structures and a bridge to replace an existing eroding culvert and fish barrier. The stream channel structures stabilize the channel and banks and create pools to allow fish passage into and through the new bridge. Expected benefits include reconnecting salmonid spawning habitat and improving habitat for bull trout within the Twentymile Creek watershed and Deep Creek. This is also a demonstration project for the community and schools, to promote enhanced fish habitat type projects; the Boundary Soil Conservation District will conduct field tours with local schools and agencies.		
Anticipated completion	December 31, 2007		
Features evaluated	Bridge, stream channel stabilization, stream bank stabilization, channel vegetation		
Project status	This project was completed on schedule.		
TMDL	A TMDL for Deep Creek was written and submitted to EPA in 2004, and Twentymile creek is a major contributing source to Deep Creek.		

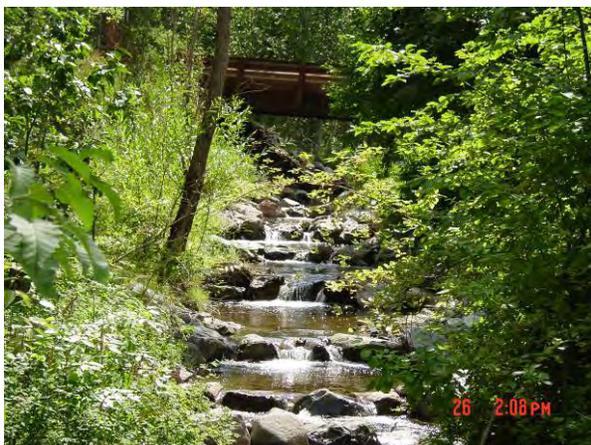


Figure 13. Drop structures below the new bridge preserve the stream gradient and allow fish passage.



Figure 14. Each drop structure was keyed into the stream bank.



Figure 15. The bridge foundation was constructed to receive a prefabricated steel bridge.



Figure 16. The result was a fish-friendly bridge that can withstand storms and spring runoff.

## Y and Y9 Drain Irrigation Return Flow Elimination (S168)

Subgrant	168	Location	HUC 17040212 (Upper Snake) and 17040212-01(Lower Clover Creek)
Description	The main purpose of this project is to eliminate a major irrigation return flow into Clover Creek, which is Section 303(d) listed. This return flow provided a substantial amount of pollutants (sediment, phosphorus, and bacteria) that eventually discharged to the Snake River, which is also 303(d) listed. Irrigation return flow is captured and stored in two separate 3-acre ponds. The load reduction estimate for sediment is 72.66 tons per year. Total phosphorus is reduced by 964 pounds per year. Any bacterium in the return flow is also being captured.		
Anticipated completion	The project was completed ahead of schedule in April 2006.		
Features evaluated	When the project was first evaluated on June 26, 2006, BMPs visited included two large holding ponds, the conveyance canals, and head gates. An evaluation on September 4, 2008 looked at 2,000 acres of irrigated lands.		
Project status	This project was completed ahead of schedule.		
TMDL	This project is the TMDL implementation plan for Clover Creek and is part of the implementation plan for the upper Snake River.		



Figure 17. Lower holding pond.



Figure 18. 2000 acres of cropland are sprinkler irrigated with captured irrigation return flow—a more efficient use of water that prevents return flow discharging back to the Snake River.



Figure 19. Cattle have free access to the cropland after harvest. Since there is no return flow to the Snake River, water pollution has been eliminated.



Figure 20. This aerial photograph shows cattle (tiny black dots) feeding on silage left in harvested fields adjacent to the confined irrigation water.

## Cascade Reservoir Watershed Phase 2 (S170)

Subgrant	170	Location	HUC 17050123
Description	The water quality of Cascade Reservoir/Lake Cascade is impaired due to violations of water quality standards for dissolved oxygen, nutrients, and pH. Nuisance algae growth resulting from excess phosphorus loading has impaired beneficial uses of the reservoir, specifically fishing, swimming, boating, and agricultural water supply. A 37% total phosphorus reduction has been determined to be necessary for the watershed to improve water quality in Cascade Reservoir. BMPs implemented include no-till farming, gravel application on dirt roads, livestock exclusionary fencing, and storm water treatment BMPs.		
Anticipated completion	October 1, 2007		
Features evaluated	The original evaluation was conducted on June 2, 2006; a reevaluation was conducted on July 8, 2008 after additional work was completed. At the time of our original evaluation, fieldwork had just commenced on this 2005 project. The project is now complete.		
Project status	This project was completed on schedule.		
TMDL	This project is part of the Cascade Reservoir TMDL Implementation Plan.		



Figure 21. This storm water catchment basin will treat snow and rain runoff from an adjacent golf course and public boat ramp parking area. Cascade Reservoir is in the background.



Figure 22. The golf course is in the foreground, and the boat ramp parking area is shown on the right.



Figure 23. Storm water is filtered through a grease trap and sand filter system prior to discharge to Cascade Reservoir.



Figure 24. Prior to implementing this storm water BMP, large volumes of untreated snow melt and rainwater discharged directly into Cascade Reservoir.

## Palouse River Water Quality Improvement Project (S175)

Subgrant	175	Location	HUC 17060108
Description	The project focuses on BMPs in three categories: riparian restoration, agriculture/rangelands/pasturelands, and rural roads. This evaluation only deals with the riparian restoration category of the overall subgrant; the other two categories are scheduled for evaluation next year.		
Anticipated completion	December 31, 2009		
Features evaluated	Riparian restoration was the only aspect evaluated during this trip. Agriculture/rangelands/pasturelands and rural roads will be evaluated in the future.		
Project status	This project has been delayed but could still finish on schedule.		
TMDL	TMDLs were developed for six watersheds within the Palouse River basin: Big Creek, Deep Creek, Flannigan Creek, Gold Creek, Hatter Creek, and Rock Creek. TMDLs were developed for temperature, sediment, bacteria, and nutrients.		



Figure 25. Site of future 5,000 square foot settling pond to capture and treat storm water runoff from a corral and cultivated field.



Figure 26. This horse corral will drain directly to the settling pond.



Figure 27. This bank will be cut back to a sustainable slope and revegetated. Exclusionary fencing, a filter strip, and a settling pond will assure riparian restoration will survive.



Figure 28. Runoff from this entire area will be treated by the BMPs listed in this evaluation.

## Fishhook Slide Stabilization Project (S176)

Subgrant	176	Location	HUC 17010304 - 3608
Description	The project focuses on implementing BMPs to reduce sediment loadings to the Fishhook Creek drainage, a tributary to the St. Joe River. The BMPs will be an ongoing effort to meet water quality standards and full support status of designated beneficial uses. One goal of the project involves mitigating a road cut that produces landslides; rather than attempting to prevent landslides, the project allows for safe, easy removal of debris that will inevitably build up.		
Anticipated completion	May 30, 2008		
Features evaluated	Removal of overburden, installation of rock structures/barriers and sediment traps, seeding, and mulching.		
Project status	This project was completed on schedule.		
TMDL	The project is a priority for the draft St. Joe/St. Maries TMDL Implementation Plan currently being written.		



Figure 29. Sedimentary rocks have been geologically compressed into anticlines and synclines that dip steeply to the left in this photograph.



Figure 30. When the road was cut, it created a landslide area, so the logging company installed a debris trap that can be easily and safely cleaned out with a small loader.



Figure 31. Looking up the dip of this anticline, one can see why this area will continue to produce landslides in the future.

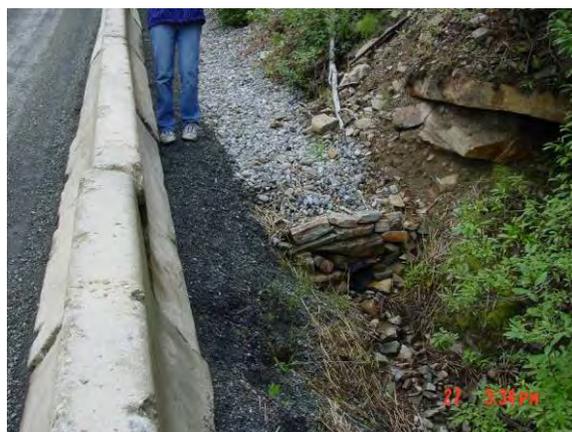


Figure 32. A French drain was installed to prevent water buildup and catch sediment.

## Lower Payette River TMDL Implementation Phase 2 (S177)

Subgrant	177	Location	HUC 17050122-0400
Description	The main goal of this project is continued implementation of BMPs that reduce sources of pollutants of concern ( <i>E.coli</i> , phosphorus, sediment, and pesticides) to assist in meeting the Lower Payette TMDL Implementation Plan goals of decreasing nonpoint sources by 30%. Monitoring before and after BMP implementation illustrates the impact to the Lower Payette TMDL Implementation Plan and provides public education.		
Anticipated completion	May 30, 2009		
Features evaluated	Three project sites were visited to evaluate BMPs: 1) Reed Ditch, where 3,729 feet of fence keep cattle from accessing the drain, reducing both bacteria and erosion; 2) Bissel Creek, where 920 feet of fencing also keep cattle from accessing the creek; and 3) Bissel Creek, where conversion from siphon tube irrigation to a wheel line system reduces irrigation runoff and the resultant sediment load by more than 100 tons/year.		
Project status	An extension has been granted, and the project appears to be on target for timely completion.		
TMDL	The project will focus on the same treatment units identified in the Lower Payette River TMDL Implementation Plan and will add one additional treatment unit in line with the goals of the project.		



Figure 33. Three thousand seven hundred twenty-nine feet of exclusionary fencing, where cattle previously roamed at will, kept 72 tons of sediment out of the Payette River.



Figure 34. Nine hundred twenty feet of exclusionary fencing restored vegetation along Bissel Creek.



Figure 35. Conversion of farmland from siphon tube irrigation to a wheel line system reduced sediment deposition to the Payette River by 107.16 tons/year.



Figure 36. Converting this field from siphon tube irrigation to wheel line irrigation reduced sedimentation by 70.3 tons/year.

## North Idaho AFO Implementation Phase 3 (S181)

Subgrant	181	Location	All ten subprojects within Phase 3 include Clearwater (HUC 17060306, 17060305, 17060304), Palouse (HUC 17060108), Salmon (HUC 17060209, 17060210, 17060207), and Snake (HUC 17060103, 17060101).
Description	The goal of Phase 3 is continuation of BMP implementation on animal feeding operations (AFOs) throughout north-central Idaho in an effort to improve water quality on Section 303(d)-listed water bodies and other locally prioritized segments and tributaries contributing pollutant loads. Phase 3 seeks additional BMP cost-share funding to support the effective and efficient program that has been built over the past three years and successfully implements voluntary water quality improvement projects throughout the region. Because the 10 subprojects are spread over a large span of central Idaho, this evaluation only includes one of the 10 subprojects.		
Anticipated completion	December 31, 2008		
Features evaluated	Fence, spring development, watering development, heavy-use area protection, pipeline, watering facility.		
Project status	A time extension was granted through December 31, 2008. This project may need an additional extension to complete all of the tasks.		
TMDL	Within the Lewiston Regional Office of DEQ, numerous TMDLs and related implementation plans have been completed with the assistance of local WAGs. Many of these reduce pollutant loads for sediment, temperature, bacteria, and nutrients in watersheds with private-land cattle operations. Implementation of BMPs in cattle operations has the potential to affect all water quality parameters.		



Figure 37. Three water troughs keep cattle out of the nearby riparian areas and creek.



Figure 38. Sixteen hundred feet of buried pipe delivers water to the troughs.



Figure 39. A spring, developed near the center of the trees shown in this photograph, supplies water.



Figure 40. Uppermost of the three troughs.

## Weiser Water Quality Protection Project Phase II (S185)

Subgrant	185	Location	HUC 17050201
Description	This project lowers nitrates in ground water by reducing nitrate fertilizer to levels consistent with state guidance. Although most producers in the area apply 300-400 pounds of fertilizer per acre for onions, the state standard suggests 180 pounds per acre. Five-acre demonstration plots located within producers' fields provide a direct comparison of yields at the two different fertilization rates.		
Anticipated completion	December 31, 2009		
Features evaluated	BMPs include nutrient management and irrigation water management methods. Cost-sharing incentives ensure rapid installation of nutrient and irrigation management BMPs within the first year of the project. In addition to Section 319 funding, participants with irrigation needs may also seek funding through the Environmental Quality Incentives Program.		
Project status	This project has been extended from May 31, 2008 to December 31, 2009 to have sufficient time to conduct the crop yield comparisons.		
TMDL	Elevated nitrate levels led to the establishment of the Scott Creek – Mann Creek Aquifer near Weiser as the number one nitrate priority area in Idaho. Attainment of project goals will protect ground water quality.		



Figure 41. Project manager Sharona Olson describes how moisture sensors alert farmers when to apply irrigation water.



Figure 42. Natural Resources Conservation Service (NRCS) Conservationist Mike Raymond describes how sugar beets, beans, and onions are being used to determine if reduced fertilizer can result in improved crop yield.



Figure 43. (Left and right) It is still early in the growing season, but reduced fertilizer application rates appear to be resulting in at least average crop yields. Actual results will not be available until harvest time.

## Bonner County Milfoil Treatment Project (S186)

Subgrant	186	Location	HUC 17010214
Description	This two-year project, which demonstrates the effectiveness of non-chemical controls in treating Eurasian milfoil, consists of (1) developing site criteria for use of chemical and non-chemical treatments, (2) selecting and implementing non-chemical treatments at key sites, (3) installing a power wash station to remove milfoil fragments from boats and boat trailers at a heavily-used public boat launch site, (4) preparing a report that documents results of non-chemical treatments and reductions of chemical applications to control Eurasian milfoil, and (5) preparing public information materials to educate and encourage participation in non-chemical treatments.		
Anticipated completion	June 30, 2008		
Features evaluated	Other BMPs that could be undertaken include mechanical cutting, mechanical harvesting, rotoation, and biological controls (milfoil weevil and grass carp). These practices may be tested in the future, but at this time are considered too expensive or too likely to exacerbate the spread of milfoil.		
Project status	This project was completed on schedule.		
TMDL	The Pend Oreille River was added to Idaho's 1996 Section 303(d) list. Pollutants of concern are temperature, sediment, and total dissolved gas, and results of river monitoring conducted in 2004 indicate that nutrients may also be a problem. Work currently underway is being coordinated with the State of Washington to determine and model the extent of temperature and nutrient impacts across the two-state waterbody. Because of the efforts taking place between DEQ and the Washington Department of Ecology to coordinate TMDL development, the Pend Oreille River is considered a high regional priority.		



Figure 44. Boat wash site.

## Salmon Falls Pump-back Project (S187)

Subgrant	187	Location	The project is in HUC 17040213, but it discharges directly into the Middle Snake River and has been defined and described under the Upper Snake Rock TMDL, HUC 17040212.
Description	This pump-back and wetland project is necessary because the 4C lateral, which carries irrigation water from 1,500 acres of cropland, also carries pollutants, such as sediments, phosphorus, and bacteria to Salmon Falls Creek. The project, which is finished and provides an important step in the agricultural TMDL implementation plan for Salmon Falls Creek, also has the potential to benefit fish and other aquatic species.		
Anticipated completion	July 1, 2008		
Features evaluated	Pump-back system to eliminate up to 30% of the irrigation return flow, removing a major portion of fine sediment and nutrients. Wetland complex to remove bacteria (as <i>E. coli</i> ) before entering Salmon Falls Creek drainage.		
Project status	The project was completed on schedule.		
TMDL	Although further than a mile from the Middle Snake River corridor, the project provides a direct conduit to Salmon Falls Creek and the Snake River. This 4C drain is considered a high priority corridor under the Upper Snake Rock TMDL due to its strategic location. It carries instream water quality limits of less than 0.100 mg/L total phosphorus, less than 52.0 mg/L of total suspended sediment, and less than 126 cfu/100 mL of bacteria ( <i>E. coli</i> (geometric mean)). These limits may be modified under the Salmon Falls Creek TMDL.		



Figure 45. The newly constructed holding pond (just beyond cattle) captures about 30% of irrigation return flow from 1,500 acres.



Figure 46. Overflow from the holding pond is recycled to the croplands.



Figure 47. This pump recycles irrigation return flow to the fields.

## Kline Mountain Road Restoration (S193)

Subgrant	193	Location	South Fork Salmon River HUC 17060208; Upper South Fork Salmon River HUC 1706020811
Description	The purpose of the project is to improve water quality and fisheries habitat by reducing sediment delivery while providing for public safety and continued access to a high-use recreational area.		
Anticipated completion	March 15, 2008		
Features evaluated	The following activities, primarily designed to reduce and eliminate sediment delivery to the South Fork Salmon River, were evaluated: stabilizing fill; installing retaining walls and ditch relief culverts and repairing damaged culverts; installing downpipes and splash aprons; placing aggregate on roadway and ditch lines; replacing dirt berms with aggregate berms at the top of fill slopes; removing cut bank overhangs; seeding and mulching all disturbed areas; and providing erosion control during construction activities.		
Project status	This project was completed on schedule.		
TMDL	The project supports the South Fork Salmon River TMDL. No specific allocations were made as part of the 1991 TMDL; instead, the TMDL relied upon instream parameters for depth fines and cobble embeddedness as target parameters to be obtained. An implementation plan was completed after the TMDL was established. Recent review of the biological data and sediment impacts to aquatic habitat indicates that the historical habitat conditions within the subbasin are in the process of becoming reestablished.		

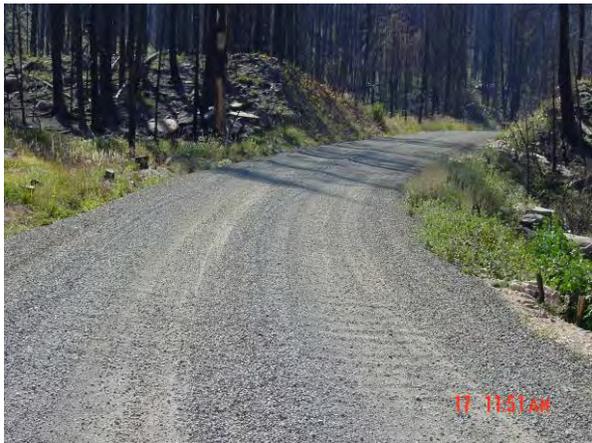


Figure 48. The project involved reconstruction of 1.9 miles of U. S. Forest Service road through highly erosive geology.



Figure 49. Gabion walls were used in two areas where historic landslides were a problem.



Figure 50. Some culverts required small barricades to prevent falling rock from plugging or damaging them.



Figure 51. Down pipes and splash aprons, used at the lower end of some culverts, prevent erosion and undermining.

## Indian Creek Storm water Phase 2 (S195)

Subgrant	195	Location	HUC 17050114 (Lower Boise River Watershed)
Description	The project applies low impact development (LID) concepts over a 1,600-foot section of Indian Creek in downtown Caldwell, building on existing efforts in the Indian Creek watershed, including the 2002 redevelopment design charette and the Ecosystem Sciences Urban Ecology Design Manual for the Lower Boise River.		
Anticipated completion	The Section 319-funded portion of this project was completed by December 2, 2007.		
Features evaluated	There are five storm water treatment and infiltration BMPs scattered over the span of this project, including 3,200 feet of stream bank stabilization BMPs that provide an excellent demonstration of how other small and large cities along the lower Boise River watershed can enhance urban stream corridors while effectively treating storm water.		
Project status	The project was delayed due to the Section 319-funding schedule and the complex nature of the project, involving multiple city, county, state, and federal agencies. Ultimately, it was completed within budget.		
TMDL	The 1,290-square-mile basin that drains the Lower Boise River contains one-third of the state's population and is the most complex watershed in the state. Land uses include urban, industrial, irrigation, agricultural, and rangeland activities that influence the watershed as it drains to the Boise River between Lucky Peak Reservoir and the Snake River. The TMDL implementation plan has been completed, and the priority for obtaining funds to implement this plan is high. Indian Creek has been identified as a high priority subwatershed to the Lower Boise River because of its loads of sediment and bacteria.		



Figure 52. One of five storm water petrochemical separating systems incorporated in this project.



Figure 53. This section of Indian Creek used to be buried in a concrete tunnel beneath downtown Caldwell.



Figure 54. One of two footbridges constructed of wooden trusses salvaged from buildings demolished to uncover Indian Creek.



Figure 55. Some of the old buildings along Indian Creek are being restored and preserved as part of Caldwell's heritage.

## Friends of Flannigan Creek Riparian Restoration Project (S209)

Subgrant	209	Location	HUC 17060108
Description	The project is located in the upper Flannigan Creek watershed on private property and is considered a critical target area for sediment reduction and temperature due to the intensive impacts from agriculture, ranching, and residential development in the watershed. The project is reducing erosion by stabilizing approximately 1,500 feet of stream bank. To complete the project, stream banks were resloped, and approximately 22,500 square feet of variable riparian buffer was installed. Bank stabilization is reducing sediment loading to the Palouse River, and the regrowth of the riparian vegetation is providing shade to the creek, leading to a decrease in elevated summer water temperatures.		
Anticipated completion	January 31, 2012		
Features evaluated	Stabilization of stream banks with erosion control fabric and revetment materials; restoration of the natural riparian area plant community; enhanced and human made wetland filter ponds and swales; and involvement of community members, students, and volunteers.		
Project status	This project is on schedule.		
TMDL	The project reflects priorities developed by the Palouse River Tributaries Watershed Advisory Group during the creation of the Palouse River tributaries TMDL. Restoration work reduced sediment, bacteria, nutrients, and temperature. Sediment loading to Flannigan Creek is 23 times greater than background levels and 8 times greater than the estimated load capacity, requiring a 67% load reduction in sediment. Nutrient load reduction for Flannigan Creek is between 0.004 lbs per day and 0.275 lbs per day in the lower watershed. Bacteria data evaluated under the TMDL showed numerous exceedances above the state standard for secondary contact recreation.		



Figure 56. Eight hundred riparian plants were placed along 1,500 linear feet (22,500 square feet) of Flannigan Creek after the area had been resloped and underlain with fabric.



Figure 57. For the first several years, each woody plant was protected with PVC collars to reduce damage from browsing elk, deer, and beaver.

## Lower North Fork Clearwater River Subbasin TMDL Implementation Phase 3 (S211)

Subgrant	211	Location	HUC 17060308
Description	BMPs in this project are the building blocks of the Lower North Fork Clearwater River Subbasin TMDL Implementation Plan. The cohesive effort and dedication to natural resource improvement by all of the supporting entities and landowners have been very successful. By implementing the necessary BMPs needed for work in the Reeds Creek subwatershed, the pollutant loading reductions will be met and will hopefully restore full support status to the designated beneficial uses.		
Anticipated completion	January 30, 2012		
Features evaluated	Road transportation management aimed at the reduction of sediment transport and reductions in stream bank erosion, improved riparian and stream channel habitat, management of timber stands to foster the temperature regime needed for water quality improvements, improved fish and wildlife habitat, and BMP effectiveness monitoring.		
Project status	This project is on schedule for completion prior to the subgrant expiration date.		
TMDL	The goal of the Lower North Fork Clearwater River Subbasin TMDL Implementation Plan is to focus on implementing BMPs that reduce sediment, bacteria, and temperature loadings to the seven listed streams. Phase 3 focuses on the Snake Creek drainage, which is a tributary to Reeds Creek. To meet water quality standards and full support status of the designated beneficial uses, we will concentrate our efforts on implementing BMPs that will improve the road infrastructure.		



Figure 58. Project Manager Kelli Rosellini stands beside sections of a bridge to be assembled at a creek crossing.



Figure 59. Culverts are being removed, and stream banks are being sloped and seeded along closed logging roads.



Figure 60. New logging roads and older roads still in use are being raised to higher standards to reduce sediment erosion.



Figure 61. Culverts installed on logging roads are fish-friendly and sized to handle heavy spring runoff and major storms.

## American River Water Quality Improvement Project, Phase 1 (S212)

Subgrant	212	Location	HUC 17060305
Description	Framing Our Community, a grassroots nonprofit organization, is using a watershed approach to reduce NPS loading of TMDL-listed pollutants and meet TMDL targets and Idaho water quality standards for American River, Big Elk Creek, and Little Elk Creek. The approach is being implemented by training and employing capable, unemployed mill workers and regional contractors in jobs that address TMDL issues. Federal and state agencies are assisting in the training.		
Anticipated completion	January 30, 2012		
Features evaluated	BMPs visited include riparian restoration, rangelands/pasturelands, and rural roads.		
Project status	This project is on schedule.		
TMDL	The project was designed under the guidance of the South Fork Clearwater River Watershed Advisory Group to address mitigation of pollutants in the South Fork Clearwater River TMDL Implementation Plan. In 2005, TMDLs were developed for the South Fork Clearwater River watershed to address temperature, sediment, bacteria, and nutrients.		



Figure 62. Nonprofit organization Framing Our Communities is the project sponsor.



Figure 63. Cabins will be built in the foreground; Section 319 funding will assist in paying for exclusionary fencing along the creek that flows through the middle of this valley.



Figure 64. Exclusionary fencing keeps cattle and elk out of riparian vegetation that is being restored.



Figure 65. With the help of exclusionary fencing, riparian vegetation is coming back nicely.

## Owyhee Restoration Incentive (S213)

Subgrant	213	Location	HUC 17050107 (Middle Owyhee), 17050104 (Upper Owyhee), 17050103 (Mid-Snake Succor), and 17050108 (Jordan).
Description	The overall goals of the program include providing technical and financial assistance to landowners in the Middle Owyhee, Upper Owyhee, Mid-Snake Succor, and Jordan Subbasins for the implementation of on-the-ground restoration projects; demonstrating feasible and effective solutions to water quality concerns; promoting coordination between local, state, and federal organizations; promoting specific BMPs; implementing a single cooperative demonstration project to showcase; and increasing public awareness of local water quality issues, as well as local actions being taken to address those issues.		
Anticipated completion	February 27, 2012		
Features evaluated	BMPs visited during this evaluation included buffer strips, filter strips, grassed waterways, irrigation land leveling, tailwater recovery systems, mulching, pasture management, planned grazing systems, sediment basin, pumping plants, and irrigation pipelines.		
Project status	This project appears to be on schedule to be completed by February 27, 2012.		
TMDL	The Middle Owyhee Subbasin TMDL Implementation Plan, completed in early 2002, addresses the Upper Owyhee TMDL, Mid-Snake Succor TMDL, and Jordan Subbasin TMDL.		



Figure 66. This new sprinkler irrigation system replaced surface flood irrigation, reducing irrigation return.



Figure 67. This former irrigation return flow has been greatly reduced by conversion to sprinkler irrigation.



Figure 68. This large animal feeding operation has been isolated from storm water and irrigation flow by installation of 300 feet of pipeline.



Figure 69. This pump, screen, and pipeline take irrigation water to a newly installed sprinkler system.

## Elk Creek/Mores Creek Sediment Reduction Floodplain Restoration (S214)

Subgrant	214	Location	HUC 1705011207
Description	The project is part of a three-phase restoration of the Mores Creek watershed floodplain. Project partners have developed a 5-year plan to restore natural processes for 9 miles of Mores Creek, 17 miles of Grimes Creek, and 3 miles of Elk Creek. A grant has been submitted to Bonneville Power Administration, requesting three million dollars to complete the entire watershed project.		
Anticipated completion	January 31, 2012		
Features evaluated	Slopes were stabilized adjacent to the highly impacted "Gold Hill" by placing water-spreading structures on the rills. Wattles, rock dams, and logging slash were placed where they diffuse and dissipate overland flow and reduce sediment delivery to Elk Creek. Additional diversion of water away from bare slopes and stabilization and revegetation of bare slopes prevent further erosion. Restoration of streamside riparian vegetative buffers is filtering out typical storm water pollutants.		
Project status	This project was on schedule, but there is a shortage of funding to complete the project at this time. DEQ is in the process of trying to find additional Section 319 funding.		
TMDL	This project reduces sediment and peak flows in Mores Creek, which is on the Section 303(d) list for temperature. Mores Creek and Elk Creek are included within the Wildland Fire Mitigation Plan for Boise County (IDL 2003).		



Figure 70. Placer gold mining spoils were resloped and stabilized. Root wads were placed and vegetation was planted.



Figure 71. Much of the vegetation shown here was planted by local high school volunteers.



Figure 72. Root wads and larger rocks were brought in and placed as shown.



Figure 73. Hundreds of willow trees were planted.

## Copper Creek Restoration Project (S215)

Subgrant	215	Location	HUC 17040209
Description	The project improves water quality, reestablishes perennial flow, and improves habitat conditions on a three-mile segment of Copper Creek. The new landowner, Lava Lake Land & Livestock, LLC, in conjunction with multiple partners, including the Idaho Department of Fish & Game, U.S. Fish & Wildlife Service, The Nature Conservancy, the Office of Species Conservation, and the North American Grouse Partnership, is conducting riparian restoration and protection, wetland expansion and protection, and restoration of adjacent upland habitat.		
Anticipated completion	January 30, 2012		
Features evaluated	Wetlands, spring areas, and riparian zones excluded from grazing; habitat rehabilitation in the areas that will no longer be farmed; water gaps and off-stream watering for livestock; implementation of managed light grazing; elimination of grazing over 120 acres of riparian habitat; livestock exclusionary fencing; and wetland restoration.		
Project status	This project is on schedule.		
TMDL	The project is within the Lake Walcott watershed, which has an approved TMDL in place. Degradation in the project area has embedded the streambed substrate with sediment, destroyed natural native vegetation, and created an unnatural ephemeral condition on a historically perennial waterbody.		



Figure 74. Before the new landowners went to work, Copper Creek had suffered decades of abuse from uncontrolled grazing, poor crop planting, and use as a landfill.



Figure 75. The previous landowner allowed livestock to have uncontrolled access to Copper Creek and all its tributaries.



Figure 76. The new landowners are removing rubble, knocking down vertical stream banks, and reinstating a meandering stream channel.

## Storm Water Treatment Demonstration Project, South Shore Hayden Lake (S216)

Subgrant	216	Location	HUC 170305-7555
Description	The project is a pilot to test a technology to capture and treat storm water runoff from existing hard surfaces for sediment and nutrients, specifically phosphorous. Measurement of phosphorous removal will provide estimates of phosphorous removal capability for a specific treatment process. With this information, the scope of a project will be developed to remove a significant portion of the phosphorus (more than 700 kilograms per year) attributed to the south shore area.		
Anticipated completion	January 30, 2012		
Features evaluated	Measures will be taken to protect water quality as construction is implemented. Road construction BMPs and guidelines will be implemented for all work on the road surfaces and berm areas. All construction will occur during the dry summer construction season. Silt fences will forestall migration of soils of disturbed areas. Excavations will be kept precise and limited. All disturbed areas will be revegetated with grass or native plants capable of holding the soil intact.		
Project status	This project appears to be on schedule to be completed by January 30, 2012.		
TMDL	The Hayden Lake Phosphorous TMDL requires a phosphorous loading reduction of 709 kilograms per year. The Hayden Lake Management Plan sets a 10-year average total phosphorous goal of 7 micrograms per liter ( $\mu\text{g/L}$ ). The current ten-year average is 7.75 $\mu\text{g/L}$ . Sediment abatement from storm water from the south shore is a high priority. Phosphorous reduction required from storm water sources is 258 kilograms per year; a reduction of 155 kilograms per year would be expected from the south shore area.		



Figure 77. Recent construction produces large volumes of sediment currently being discharged to Hayden Lake.



Figure 78. Hayden Lake as seen from the south shore.



Figure 79. A storm water infiltration, treatment, and discharge system will be installed beneath this road.

## Island Ranch Bank Stabilization Project (S217)

Subgrant	Location	HUC 17050123
Description	Sediment has been identified as impairing beneficial uses in the North Fork Payette River drainage below Cascade Dam (North Fork Payette River TMDL, DEQ 2004). The project is one of the first in this watershed to address this problem by reducing sediment loading due to bank erosion.	
Anticipated completion	January 30, 2012	
Features evaluated	The bank stabilization practice used in this project and the riparian fencing are listed in the Compendium of Best Management Practices to Control Polluted Runoff (DEQ 2003) as well as the Cascade Reservoir Phase II Implementation Plan (SCC 2000). Log revetments as a stream stabilization technique are highlighted in Stream Corridor Restoration: Principles, Processes, and Practices by the Federal Interagency Stream Restoration Working Group (2001).	
Project status	This project is on schedule to be completed well before the subgrant end date of January 30, 2012.	
TMDL	Since the sediment TMDL for the North Fork Payette River is written in terms of bank stability, water quality improvement projects that focus on improving bank stability are of highest priority. Channel erosion from the North Fork Payette River contributes more bank sediment than any individual tributary or other source, so this project is very cost effective in providing pollutant reduction for each dollar spent per linear foot of bank stabilization.	



Figure 80. Nine thousand feet of exclusionary fencing is being installed on private grazing land along the Payette River.



Figure 81. Log revetments are made from whole tree trunks, laid parallel to the bank and cabled to piles or deadman anchors.



Figure 82. The anchor system consists of double-strand wire tied to whole tree trunks and pinned to the shore with steel fence posts.



Figure 83. Nearly vertical stream banks created by cattle traffic had been caving in. After several months of log revetment protection, this section is beginning to stabilize.

## Upper Big Lost River Temperature and Sediment Reduction (S219)

Subgrant	219	Location	East Fork Big Lost River - HUC 1704021806
Description	Trout Unlimited proposed to reduce sediment input, reduce thermal input, and stabilize banks in and along the East Fork of the Big Lost River by fencing a private portion and planting willows. BMPs that reduce stream bank erosion and increase riparian shading involve riparian grazing management to periodically protect riparian vegetation from grazing impacts and exclude cattle from the stream channel to prevent direct physical alteration. Concurrent with a period of rest from grazing, riparian plantings increase stream bank stability while increasing the shade. A mixture of woody trees and shrubs gives the best combination of stability and shading. After a period of resting and revegetation, grazing can resume under a management regime ensuring continued improvement.		
Anticipated completion	January 30, 2012		
Features evaluated	BMPs visited include off-channel watering, cattle exclusion fences, and vegetative improvements.		
Project status	This project is on schedule.		
TMDL	Mountain whitefish populations have declined over the past 20 years and are a priority for recovery prior to a possible listing under the federal Endangered Species Act. DEQ considers the East Fork of the Big Lost River as the highest priority of Section 303(d)-listed waters within the Big Lost River that have TMDLs written for them. This is a high priority within the Idaho Falls DEQ region because of high angler use and severe water quality concerns.		



Figure 84. Approximately 2.4 miles of Upper Big Lost River will be fenced off to allow only limited grazing.



Figure 85. This upstream section of the river will have closely monitored grazing.



Figure 86. Approximately 200 log weirs were installed by the U. S. Forest Service 20 years ago to stabilize the stream bed.



Figure 87. Many log weirs are beginning to fail. With natural conditions stable, they will be removed and the stream closely monitored during runoff events.

## West Mountain Road Improvement Project (S220)

Subgrant	220	Location	HUC 17050123
Description	This project eliminates infiltration of phosphorus, sediment, and other pollutants to Cascade Reservoir from native road surfaces near the reservoir. The water quality of Cascade Reservoir has been identified as impaired under Section 303(d) (1998) of the Clean Water Act, due to violations of water-quality standards for dissolved oxygen, nutrients, and pH. The reservoir was listed as a high priority for TMDL development.		
Anticipated completion	January 30, 2012		
Features evaluated	Features evaluated include transportation, straw wattles, silt fence, straw mulch, and reseeding with a blend of grass seed.		
Project status	This project was completed ahead of schedule.		
TMDL	Unimproved roads within the Cascade Reservoir Watershed have been identified by the Cascade Reservoir TMDL as sources of phosphorus and sediment due to poor road conditions or locations with close proximity to the reservoir or its tributaries.		



Figure 88. This project involved reconstruction of 1 mile of roadbed adjacent to Cascade Reservoir.



Figure 89. The new roadbed consists of geofabric overlain with 18 inches of crushed, very coarse, angular basalt, topped with angular basalt gravel.



Figure 90. Fish-friendly oversized culverts were installed as needed.



Figure 91. Large chunks of very fine-grained clay were highly vulnerable to erosion.

## Bear River Basin Water Quality Improvement (S221)

Subgrant	221	Location	Densmore and Weston Creeks are located in the Middle Bear Basin (HUC 16010202), Pegram Creek is located in the Central Bear Basin (HUC 16010102), and Jenkins Creek is in HUC 16020309.
Description	The project improves riparian habitat and reduces excess sediment and nutrient loading to these impaired tributaries of the Bear River: Pegram Creek, Densmore Creek, and Weston Creek. Installing riparian fencing, improving existing watering facilities, and developing new springs and wells for off-site watering provide better riparian management and contribute to improved water quality.		
Anticipated completion	December 31, 2007		
Features evaluated	Exclusion fencing, well and spring developments, pipeline, water storage facilities, and off-site watering troughs.		
Project status	This project was completed on schedule.		
TMDL	In 2006, TMDLs were written and approved for Densmore and Weston Creeks. Although a TMDL has not been written for Pegram Creek, it is also considered a high priority stream by the Bear Lake Soil and Water Conservation District because it has been designated an impaired waterbody by DEQ. All three creeks are tributaries to the mainstem Bear River that has sediment and nutrient TMDLs associated with these particular areas.		



Figure 92. Jenkins Creek subproject includes 1,900 feet of buried pipeline and several troughs. Vegetation is beginning to reestablish itself because cattle prefer to drink from troughs rather than from the creek.



Figure 93. One of several troughs installed along Jenkins Creek.



Figure 94. This solar panel supplies power for the pump that supplies water to the troughs on Jenkins Creek.



Figure 95. At the Westin Creek subproject, 1,500 feet of exclusionary fencing were installed.

## Shoshone Water Quality Improvement Project (S224)

Subgrant	224	Location	17040213
Description	The purpose of the project is to reduce cattle encroachment on Shoshone Creek and Hopper Gulch. A grazing management plan is being written at this time. The project is collecting water from Whirl Spring and storing it in a 10,000-gallon holding tank before being gravity-fed to 22 watering troughs located along Shoshone Creek. Planned conservation components include 21,600 feet of 1.5" high-density polyethylene (HDPE) pipe to deliver water to the troughs; twenty-two 1,000-gallon water troughs; and one 10,000-gallon water-holding tank. Metal pipe was used to sleeve the HDPE pipe at three road crossings.		
Anticipated completion	December 31, 2010		
Features evaluated	The project was 90% complete when visited on September 5, 2008. Eleven thousand feet of pipeline; a 10,000-gallon water storage tank; and 11 off-stream watering troughs are being installed initially.		
Project status	This project was delayed because the original fencing project at Rock Creek was canceled. This substitute project was approved by the Basin Area Group and the DEQ Twin Falls Regional Office and is now on schedule for completion prior to the subgrant expiration date of December 31, 2010.		
TMDL	The Salmon Falls Creek TMDL is under public comment at this time. There is a proposed sediment reduction on Shoshone Creek of 65%. The TMDL limits total phosphorous to less than 0.100 mg/L. Shoshone Creek is also listed for temperature. Cattle degradation in this reach of Shoshone Creek and Hopper Gulch is contributing to the sediment load in the system. Vegetation reduction from cattle is apparent, and getting the cattle off the stream will help reestablish vegetation and therefore decrease the temperature of the streams.		



Figure 96. New 10,000-gallon tank installed to collect water from nearby Whirl Spring.



Figure 97. An HDPE waterline that can hold up to cattle hooves and sun will be placed from the tank to 22 water troughs.



Figure 98. Initial section of HDPE line. Another 21,600 feet of line will be added.

## Northwest Owyhee County Water Quality Improvement Project (S226)

Subgrant	226	Location	Densmore and Weston Creeks are located in the Middle Bear Basin (HUC 16010202), and Pegram Creek is located in the Central Bear Basin (HUC 16010102).
Description	The project implements nutrient and irrigation water management to best control nutrient concentrations within crop root zones and avoid nutrient leaching, specifically nitrates, into culinary water supplies. The Owyhee Soil Conservation District has nutrient management agreements with farmers to eliminate thousands of pounds of nitrogen and phosphorous fertilizer.		
Anticipated completion	January 31, 2012		
Features evaluated	BMPs, including soil sampling and fertilizer application rate adjustments, implemented over 3,441 acres in coordination with other Owyhee Soil Conservation District BMPs, including exclusionary fencing and settling pond installations, sponsored through Water Quality Program for Agriculture (WQPA) funding.		
Project status	On schedule. It will take five years to show reduction of nitrogen/phosphorous availability in soil.		
TMDL	This project is specifically designed to reduce nitrate contamination of the Marsh Creek aquifer, in compliance with Idaho policies regarding the Safe Drinking Water Act and the Clean Water Act. The project also addresses goals of the Idaho Ground Water Quality Plan, Agricultural Ground Water Quality Protection Program for Idaho, State of Idaho Nonpoint Source Management Plan under the Clean Water Act, Idaho Agricultural Pollution Abatement Plan, 1997 Idaho Ground Water Rule, and the DEQ Nitrate Policy and the Northwest Owyhee County Ground water Quality Advisory Committee Management Plan for addressing nitrate pollution.		



Figure 99. Project Coordinator Delwyne Trefz demonstrates soil sample collection at one- and two-foot intervals.



Figure 100. Battery powered sensors tell the farmer when it is time for more irrigation.



Figure 101. (Left and right) Fertilizer and irrigation rates are being controlled through this project, and WQPA funds are being used for settling ponds, filterstrips, and stream bank stabilization BMPs along Jump Creek, behind the distant trees.

## Lindsay Creek Riparian Animal Management Project—Walton Property (S227)

Subgrant	227	Location	17060103
Description	The project, which reduces sediment, bacteria, and nutrients and improves riparian habitat, is the first of several high-profile stream restoration activities on adjacent properties on the outskirts of the city of Lewiston, where the stream has been seriously degraded due to overgrazing and general neglect. This work will help ensure safe water for secondary contact recreational, and adequate support for coldwater aquatic life.		
Anticipated completion	January 31, 2012		
Features evaluated	Fieldwork has not yet begun on this project. Work will include removing car bodies and rubble that has accumulated over many decades. Reclamation will include limited resloping and stabilization of stream banks with erosion control fabric and revetment materials. Livestock will have minimum access to a small watering area.		
Project status	This project was initially delayed but still could be completed by the subgrant end date of January 31, 2012.		
TMDL	The project is based on watershed priorities and goals derived from the Lindsay Creek TMDL. Restoration work is designed to reduce sediment, the pollutant for which the TMDL was established.		



Figure 102. Lindsay Creek has suffered down-cutting and bank erosion due to improper livestock access for decades.



Figure 103. Car bodies and other rubble have been dumped into and along the creek.



Figure 104. The landowner is interested in cleaning up the mess but intends on keeping cattle, including buffalo, in close proximity to the creek.



Figure 105. The project is located on the edge of Lewiston, in a high-traffic area.

## Dry Creek Streambed Protection (S231)

Subgrant	231	Location	HUC 17050114
Description	Landowner Heidi Patterson is committed to resolving the erosion and sediment delivery from this site on Dry Creek. She intends to improve the vegetative component in and around the stream banks and water control structure that needs repair. The U.S. Department of Agriculture Natural Resources Conservation Service is providing substantial planning and design assistance. Ada Soil and Water Conservation District is providing technical and administrative assistance.		
Anticipated completion	October 1, 2010		
Features evaluated	Channel bank vegetation, channel bank stabilization, clearing and snagging, critical area planting, dam and diversion, riparian herbaceous cover, stream habitat improvement and management, stream bank and shoreline protection, and tree and shrub establishment.		
Project status	Work plan milestones include design completion by March 2008 (done), contract selection by May 2008 (done), construction completion by July 2008 (will be complete by August 2008), and weed control (on target).		
TMDL	This project supports the Lower Boise River TMDL. By eliminating this source of stream bank erosion, there will be significant reductions in the sediment load in Dry Creek and improved water quality where Dry Creek enters the Boise River, near the western edge of the city of Eagle.		



Figure 106. Concrete diversion structure placed in the late 1960s. In 1997, a flood pushed the creek (in the foreground) around the structure. The trees in front of and downstream of the diversion will be cut down.



Figure 107. This project begins at the diversion and goes about 230 feet upstream. The soil embankment will be replaced, armored and rip-rapped, and planted.



Figure 108. (Left and right) The area is sandy and significantly incised. The big tree to the left of the diversion will likely be cut down.

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## Acronyms and Abbreviations

µg	Micrograms per Liter
AFO	Animal Feeding Operation
BAG	Basin Advisory Group
BMP	Best Management Practice
CAFO	Confined Animal Feeding Operation
cfu	colony-forming units
CWA	Clean Water Act
DEQ	Idaho Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
FTE	Full-Time Equivalent
GRTS	Grants Reporting and Tracking System
HDPE	High-Density Polyethylene
LID	Low Impact Development
mg/L	Milligrams per Liter
MOU	Memorandum of Understanding
NPS	Nonpoint Source
Section 303(d), 303(d) list	Impaired waters, or the list of impaired waters required by Section 303(d) of the Clean Water Act
Section 319	Section 319(h) of the Clean Water Act
TMDL	Total Maximum Daily Load
WAG	Watershed Advisory Group
WQPA	Water Quality Program for Agriculture

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