

Little Salmon River SBA and TMDL Addendum Implementation Plan for Agriculture (HUC 17060210)



Prepared by the Idaho Soil and Water Conservation Commission
in cooperation with the Adams Soil and Water Conservation District

April 2016



Original Plans: Little Salmon River Subbasin Assessment and TMDL (IDEQ February 2006) and Little Salmon River Total Maximum Daily Load Implementation Plan for Agriculture, Forestry, and Urban/Suburban Activities (November 2008)

Table of Contents

Introduction	2
Goals and Objectives.....	2
Project Setting.....	2
Land Use and Land Ownership	4
Conservation Accomplishments	4
Resource Concerns.....	4
Sediment.....	5
Bacteria	5
Treatment/Priority.....	6
Treatment	6
Priority.....	7
Funding	7
Monitoring and Evaluation	9
Field Level	9
Watershed Level	10
References	11

List of Tables and Figures:

Figure 1. Mud Creek and East Branch Goose Creek Assessment Units Location Map	3
Table 1: BMP Practices installed FY 2012 thru FY 2015 in the Little Salmon Watershed.....	4
Table 2. Streams and Pollutants for which TMDLs were developed (DEQ 2012)	4
Table 3. East Branch Goose Creek 2011 <i>E. coli</i> results (DEQ 2013)	5
Table 4. Recommended BMPs and Estimated Costs	6

Introduction

This plan addresses an addendum to the Little Salmon River Subbasin Assessment (SBA) and TMDL that was written by the Idaho Department of Environmental Quality (DEQ) in 2013 to include East Branch Goose Creek and the lower reach of Mud Creek. Monitoring and assessment for the Five-Year Review showed that East Branch Goose Creek (ID17060210SL010_04) exceeded water quality standards for bacteria and the lower reach of Mud Creek (17060210SL008_03) showed streambank stability below the target of 80%. See Figure 1 for assessment unit locations within the watershed.

The Idaho Soil & Water Conservation Commission (ISWCC) is the agency responsible for preparing the implementation plan for agriculture and grazing. Agriculture is considered a nonpoint pollutant source, therefore implementation efforts are completed on a voluntary basis.

Goals and Objectives

The goal of this plan is to restore and protect beneficial uses on the impaired segments by reducing the amount of pollutants from nonpoint agricultural sources and to provide a framework for local stakeholders to use in reaching TMDL goals. The objective of this plan is to provide guidance and recommendations for the Adams SWCD; partnering agencies such as the Natural Resource Conservation Service (NRCS); and agricultural producers for the implementation of site specific Best Management Practices (BMPs) that will reduce bacteria loads and increase bank stability where feasible. The BMPs outlined in the original TMDL Implementation Plan for Agriculture for riparian areas and pasture/hay lands will remain as the treatment plan for bank stability and bacteria concerns for the newly listed assessment units.

Project Setting

The Little Salmon River subbasin is located in Adams and Idaho Counties. The Little Salmon River drains the subbasin from the south near New Meadows to the north where it enters the main stem Salmon River near Riggins. (DEQ 2008).

Further information and characterization for the subbasin is found in the *Little Salmon River Subbasin Assessment and TMDL* (https://www.deq.idaho.gov/media/455095-water_data_reports_surface_water_tmdls_little_salmon_river_little_salmon_river_entire.pdf) (DEQ 2006), *Little Salmon River Total Maximum Daily Load Implementation Plan for Agriculture, Forestry, and Urban/Suburban Activities* (https://www.deq.idaho.gov/media/455123-water_data_reports_surface_water_tmdls_little_salmon_river_little_salmon_river_imp_plan_entire.pdf) (DEQ 2008) and *Little Salmon River Subbasin Assessment and Total*

Maximum Daily Load Five-Year Review (<https://www.deq.idaho.gov/media/841208-little-salmon-river-sba-assessment-tmdl-five-year-review-0412.pdf>) (DEQ 2012).

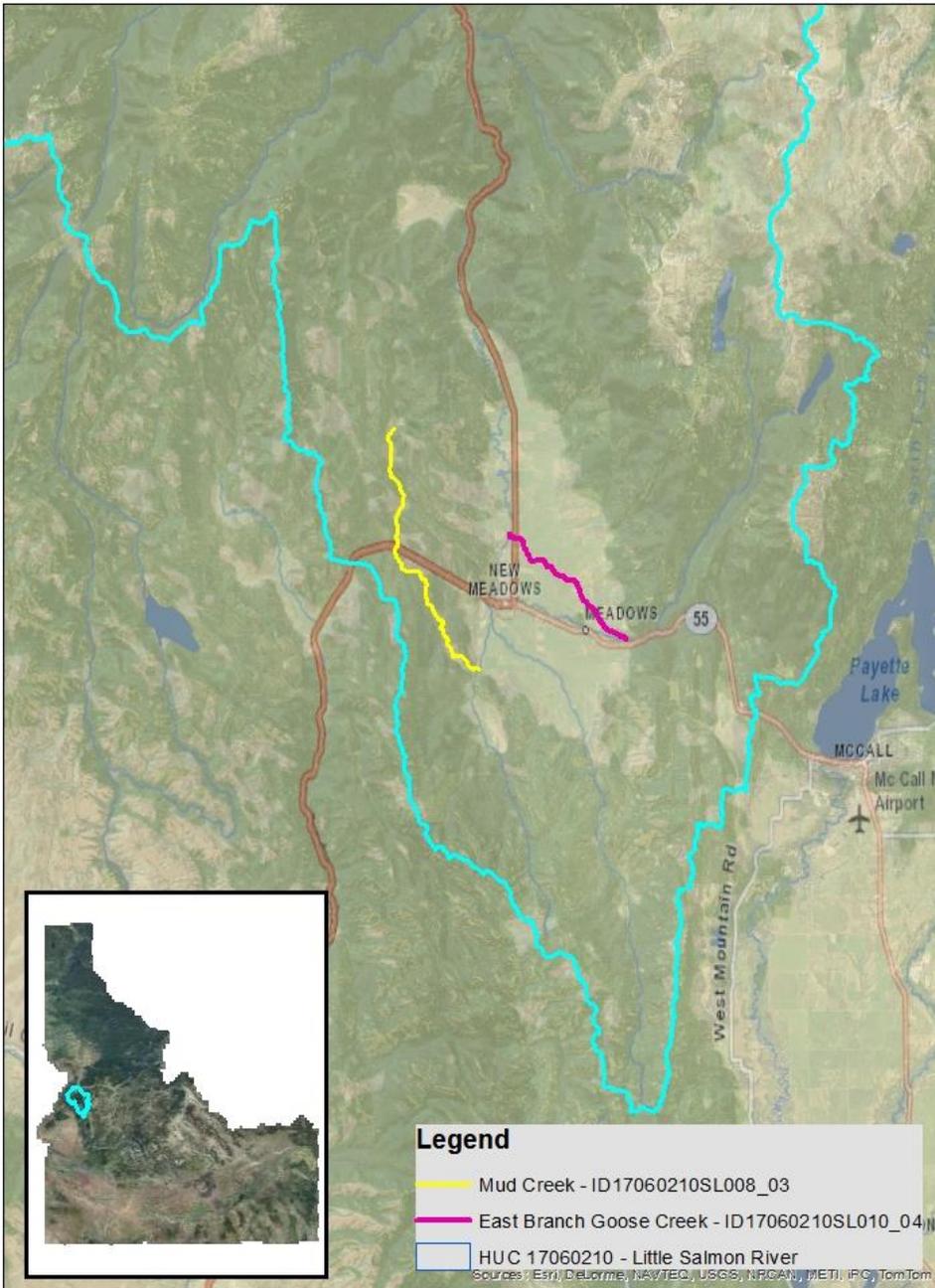


Figure 1. Mud Creek and East Branch Goose Creek Assessment Units Location Map

Land Use and Land Ownership

The Little Salmon River subbasin is approximately 369,000 acres. The primary land use/cover is high elevation forested public lands, with the majority of land managed by the USFS (61%) for timber, wildlife, grazing and recreation. Surface irrigated and dryland pastures/hayfields occur in the lower elevation valley bottoms, mostly near the town of New Meadows. For a detailed description of land use and land ownership, please refer to the original Little Salmon River Implementation Plan.

Conservation Accomplishments

The “Little Salmon River Subbasin Assessment and TMDL Five-Year Review” (DEQ 2012) summarizes the implementation work that was done in the Little Salmon River watershed between 2007 and 2011. The table below includes the practices installed in 2012-2015.

Table 1: BMP Practices installed FY 2012 thru FY 2015 in the Little Salmon Watershed

Practice Name	Amount	Units
Channel Bank Vegetation	.5	Acres
Fence	5281	Feet
Prescribed Grazing	1208.1	Acres
Woody Residue Treatment	35	Acres
Integrated Pest Management	60	Acres
Forest Stand Improvement	35	Acres

Resource Concerns

The Five-Year Review of the Little Salmon River Subbasin TMDL by DEQ found two additional impairments (summarized below) in the watershed for which TMDLs were developed.

Table 2. Streams and Pollutants for which TMDLs were developed (DEQ 2012)

Stream	Pollutant(s)	Pollutant Reduction (%)
Mud and Little Mud Creeks	Sediment (bank stability)	22
East Branch Goose Creek	Bacteria (<i>E. coli</i>)	57

Sediment

DEQ uses a water quality target of 80% bank stability. This target rate is presumed to be close to natural background loading rates and meet the goal of the TMDL to restore full support of designated beneficial uses. Data in the five year review found that Mud Creek had an average of 77% bank stability with many sections characterized as severely eroding (DEQ 2013).

The original Little Salmon River TMDL indicates that sediment may originate from natural causes such as bank erosion, landslides, forest or brush fires, high flow events: or anthropogenic sources such as urban/suburban storm water runoff or erosion from roadways, agriculture lands, grazing, and construction sites (DEQ 2012).

Bacteria

The geometric mean concentration for *E. coli* bacteria for East Branch Goose Creek during the sampling period was 264 cfu/100 ml, above the water quality criteria of 126 cfu/100 ml (DEQ 2013). The sources for bacteria in this assessment unit are likely livestock, wildlife and other domestic animals. Another potential source in rural and agriculture areas is failing septic systems adjacent to the stream. DNA testing was discussed by the Little Salmon River Watershed Advisory Group, but they concluded it was cost prohibitive and unwarranted (DEQ 2013).

Table 3. East Branch Goose Creek 2011 *E. coli* results (DEQ 2013)

Date	<i>E. Coli</i> (cfu)
8/30/2011	146.7
9/5/2011	290.9
9/11/2011	387.3
9/18/2011	117.8
9/22/2011	663
Geometric Mean	264

Note: colony-forming unit (cfu)

Treatment/Priority

Site specific BMPs will be chosen based on a variety of factors, but typically reflect the landowner's objectives in conjunction with the resource concerns identified by the assisting agency. Implementation priority should focus on the critical areas that have the greatest potential for pollutant transport. However, implementation priority will likely be based on landowner interest and available funding.

Treatment

Individual conservation planning will determine the most appropriate BMP and quantity needed. Some of the voluntary BMPs that may be implemented for both assessment units would include fence, offsite watering, prescribed grazing, riparian herbaceous cover and tree and shrub establishment. Riparian planting and restoration techniques will stabilize the streambanks and make them resistant to water flow. Fencing off portions of these creeks would improve bank stability and allow for vegetation re-growth and new growth establishment. The riparian fencing could be installed to temporarily exclude livestock during recovery and then allow the area to be part of a managed grazing system controlling the timing, frequency, duration and intensity of grazing. Offsite watering facilities, where feasible, would help to remove animal traffic and reduce erosion on the streambanks. Recommended BMPs and their estimated installation costs are listed below in Table 4.

Table 4. Recommended BMPs and Estimated Costs

Recommended BMPs	NRCS Practice Code	Estimated Cost
Fence – Barbed/Smooth Wire	382	\$2.42/foot
Fence – Buck and Pole	382	\$5.08/foot
Riparian Herbaceous Cover	390	\$4,586.80/acre
Tree and Shrub Establishment	612	\$1,669.44/acre
Watering Facility	614	\$1,430.00/each
Livestock Pipeline	516	\$2.44/foot
Spring Development	514	\$3,469.34/each
Prescribed Grazing	528	\$10.02/acre

Notes: Estimated costs are based on the 2016 Idaho NRCS payment schedule.

Priority

Site specific BMPs will be chosen based on a variety of factors, but typically reflect the landowner's objectives in conjunction with the resource concerns identified by the assisting agency. Implementation priority should focus on the critical areas that have the greatest potential for pollutant transport. However, implementation priority will likely be based on landowner interest and available funding.

Funding

Financial and technical assistance for installation of BMPs may be needed to ensure success of this implementation plan. The Adams Soil and Water Conservation District can assist interested landowners in actively pursuing potential funding sources to implement water quality improvements on private agricultural and grazing lands. The SWC and NRCS can provide technical assistance when needed. Many of these programs can be used in combination with each other to implement BMPs. These sources include (but are not limited to):

CWA 319 –These are Environmental Protection Agency funds allocated to Tribal entities and the State of Idaho. The Idaho Department of Environmental Quality (DEQ) administers the Clean Water Act §319 Non-point Source Management Program for areas outside the Tribal Reservations. Funds focus on projects to improve water quality and are usually related to the TMDL process.

http://www.deq.idaho.gov/water/prog_issues/surface_water/nonpoint.cfm#management

Resource Conservation and Rangeland Development Program (RCRDP) –The RCRDP is a loan program administered by the ISWCC for implementation of agricultural and rangeland best management practices or loans to purchase equipment to increase conservation. <http://www.scc.state.id.us/programs.htm>

Environmental Quality Incentives Program (EQIP): EQIP provides financial and technical assistance to agricultural producers in order to address natural resource concerns and deliver environmental benefits such as improved water and air quality, conserved ground and surface water, reduced soil erosion and sedimentation or improved or created wildlife habitat. <http://www.nrcs.usda.gov/programs/eqip/>

Regional Conservation Partnership Program (RCPP) - RCPP promotes coordination between NRCS and its partners to deliver conservation assistance to producers and landowners. NRCS provides assistance to producers through partnership agreements and through program contracts or easement agreements.

<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/farmbill/rcpp/>

The Agricultural Conservation Easement Program (ACEP) – ACEP provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits. Under the Agricultural Land Easements component, NRCS helps Indian tribes, state and local governments and non-governmental organizations protect working agricultural lands and limit non-agricultural uses of the land. Under the Wetlands Reserve Easements component, NRCS helps to restore, protect and enhance enrolled wetlands.

<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/easements/acep/>

Conservation Technical Assistance (CTA) –The CTA provides free technical assistance to help farmers and ranchers identify and solve natural resource problems on their farms and ranches. This might come as advice and counsel, through the design and implementation of a practice or treatment, or as part of an active conservation plan.

<http://www.nrcs.usda.gov/programs/cta/>

National Grazing Lands Coalition (NatGLC) –The National Grazing Lands Coalition promotes ecologically and economically sound management of grazing lands. Grants are available that facilitate the following: (1) demonstration of how improved soil health affects grazing lands sustainability (2) establishment of conservation partnerships, leadership and outreach, (3) education of grazing land managers, professionals, youth and the public (4) enhancement of technical capabilities, and (5) improvement in the understanding of the values and multiple services that grazing lands provide.

<http://www.glci.org/>

Conservation Reserve Program (CRP) –The CRP is a land retirement program for blocks of land or strips of land that protect the soil and water resources, such as buffers and grassed waterways <http://www.fsa.usda.gov/programs-and-services/conservation-programs/conservation-reserve-program/index>

Conservation Innovation Grants (CIG) –CIG is a voluntary program to stimulate the development and adoption of innovative conservation approaches and technologies for agricultural production.

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/cig/>

State Revolving Loan Funds (SRF) –These funds are administered through the IDEQ. <https://www.deq.idaho.gov/water-quality/grants-loans/water-system-construction-loans.aspx>

Conservation Security Program (CSP) –CSP is a voluntary program that rewards the Nation's premier farm and ranch land conservationists who meet the highest standards of conservation environmental management.

<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/alphabetical/csp/>

Habitat Improvement Program (HIP) – This is an Idaho Department of Fish and Game program to provide technical and financial assistance to private landowners and public land managers who want to enhance upland game bird and waterfowl habitat. Funds are available for cost sharing on habitat projects in partnership with private landowners, non-profit organizations, and state and federal agencies.

<http://fishandgame.idaho.gov/cms/wildlife/hip/default.cfm>

Partners for Fish and Wildlife Program in Idaho – This is a U.S. Fish and Wildlife program providing funds for the restoration of degraded riparian areas along streams, and shallow wetland restoration. <http://www.fws.gov/partners/pdfs/ID-needs.pdf>

Monitoring and Evaluation

Field Level

During the conservation planning process with individual participants, planned BMPs will be evaluated for effectiveness in addressing water quality. Erosion is predicted using the *Revised Universal Soil Loss Equation (RUSLE)* to estimate sheet and rill erosion and the *Surface Irrigation Soil Loss (SISL)* model to estimate irrigation-induced erosion. The *Water Quality Indicators Guide* is utilized to assess nitrogen, phosphorus, sediment, and bacteria contamination from agricultural land.

Participants who install BMPs in conjunction with a state or federal cost-share incentive program will be responsible for following NRCS standards and specifications and for maintaining the installed BMPs for the practice life span. The contract and/or conservation plan will outline the responsibility of the participant regarding operation and maintenance (O&M) for each BMP. Annual status reviews of contracts will be conducted to insure the contract is on schedule and BMPs are being installed as planned.

BMP effectiveness monitoring will be conducted following installation to determine the relative effectiveness of implemented BMPs in reducing water quality impacts. These BMP effectiveness evaluations will be conducted according to the protocols outlined in the *Agriculture Pollution Abatement Plan* and the *ISWCC Field Guide for Evaluating BMP Effectiveness*.

Idaho's *OnePlan CAFO/AFO Assessment Worksheet* can be used by participants to evaluate and manage livestock waste, feeding, storage, and application areas.

Watershed Level

At the watershed level, there are governmental agencies such as the ISDA and IDEQ involved with water quality monitoring. Water quality monitoring is a key component in determining the results of implementation efforts and tracking progress towards achieving water quality standards. Trends are an important factor in determining whether or not standards are achievable given the level of effort expended.

IDEQ uses the Beneficial Use Reconnaissance Protocol (BURP) to collect and measure key water quality variables that aid in determining the beneficial use support status of Idaho's water bodies. Their determination reports if a water body is in compliance with water quality standards and criteria. In addition, DEQ conducts five-year TMDL reviews to update implementation and monitoring efforts.

References

DEQ (Idaho Department of Environmental Quality). 2008. Little Salmon River Total Maximum Daily Load Implementation Plan for Agriculture, Forestry and Urban/Suburban Activities. Boise, ID:DEQ

DEQ (Idaho Department of Environmental Quality). 2013. Little Salmon River Subbasin Assessment and Total Maximum Daily Load 2013 Addendum. Boise, ID:DEQ

DEQ (Idaho Department of Environmental Quality). 2012. Little Salmon River Subbasin Assessment and Total Maximum Daily Load Five Year Review. Boise, ID:DEQ

DEQ (Idaho Department of Environmental Quality). 2006. Little Salmon River Subbasin and Total Maximum Daily Load. Boise, ID:DEQ