

# Potlatch River Addendum Implementation Plan for Agriculture (17060306)



Prepared by the Idaho Soil and Water Conservation Commission  
In cooperation with the Latah Soil and Water Conservation District

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## Introduction

The purpose of this plan is to address the TMDL addendums and the 5-Year Review for the Potlatch River Subbasin with the goal to help restore designated beneficial uses.

“Pursuant to section 39-3601 et seq., Idaho Code, and IDAPA 58.01.02, Water Quality Standards, the Idaho Soil & Water Conservation Commission (SWCC) is the designated agency for management of nonpoint source pollution on grazing and agricultural land in Idaho and is therefore responsible to lead TMDL implementation activities on grazing and agricultural land in the State.”

The objective of the plan is to outline a process of potential site-specific agricultural best management practices (BMP's) that can be used to help restore the designated beneficial uses by reducing pollutant loads in the Potlatch River subbasin.

## Project Setting

The Potlatch River is the largest tributary to the lower Clearwater River, and drains a subwatershed of the Columbia River Basin. The Potlatch River watershed, comprised of approximately 381,000 acres (594 square miles), is characterized by steep basaltic canyons rimmed by rolling cropland in the lower reaches, and by timbered hills and high meadow terrain in the upper reaches. The Potlatch River originates north of Bovill (Figure 1). The basin ranges in elevation from almost 5,000 feet on Beals Butte to 800 feet at the confluence with the Clearwater River. The Clearwater joins the Snake River, and then the Columbia River. The communities of Bovill, Helmer, Deary, Troy, Juliaetta, and Kendrick are the principal towns within the watershed. The upper reaches of the Potlatch River basin contains the largest contiguous area of forested land cover in the Lower Clearwater River Basin. The Potlatch River enters the Clearwater River several miles southwest of Juliaetta. The Potlatch River is approximately 56 miles long and traverses the southern and eastern portions of Latah County in a southwesterly direction with roughly 1,900 miles of tributary streams. (ISWCC, 2010)

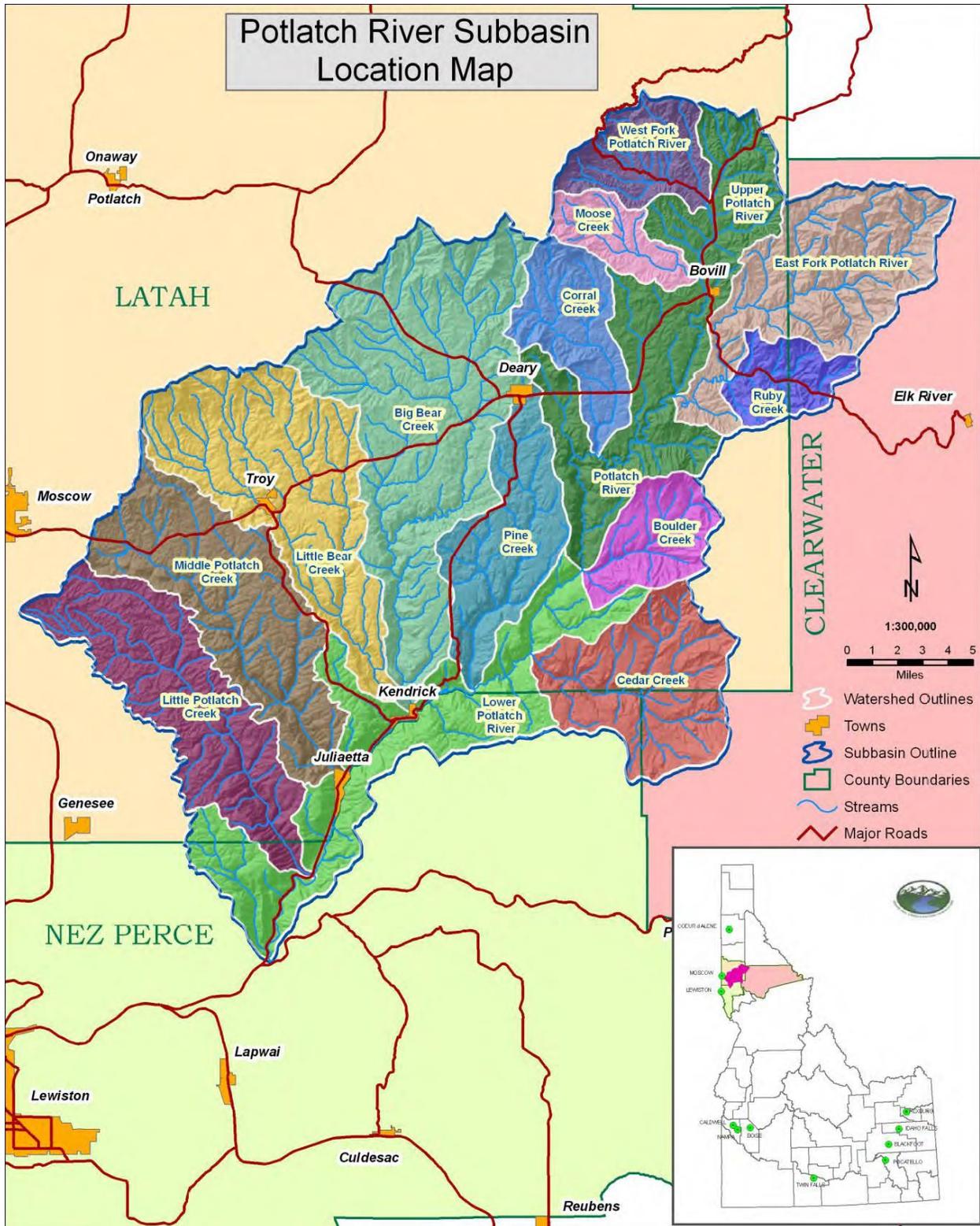


Figure 1. Potlatch River Subbasin and Location (ISWCC, 2010).

## Land Use and Land Ownership

The main land uses in the Potlatch River Subbasin are forestry and agriculture (farming and grazing). There is also a very limited amount of mining activity; increased industrial mineral production is expected in the near future. Outdoor recreation is popular throughout the area, particularly on public lands and commercial timber holdings. (ISWCC, 2010)

Most (78%) of the Idaho portion of the Potlatch River Subbasin are private lands, split largely between cropland, hayland, pasture and forestlands. The Clearwater National Forest (CNF) administers federal forestlands (14%). The State of Idaho manages seven percent of mostly forested subbasin lands. Tribal lands total about 1,000 acres (<0.5%); Bureau of Land Management (BLM) lands comprise roughly the same percentage. Most (85%) of the subbasin is located in Latah County. The southeastern edge of the subbasin (8%) is located in Clearwater County and the southwestern edge of the watershed (7%) is located in Nez Perce County. Towns located within the subbasin are Troy, Deary, Bovill, Juliaetta, Kendrick and Helmer; less than 1,000 people reside in each town. The towns support a sometimes-thriving timber industry in addition to the agricultural community and local residents. (ISWCC, 2010)

## Accomplishments

The “Potlatch River TMDL 5-Year Review” summarizes the implementation work that was done in the Subbasin between 2007 and present (DEQ, 2017). Table 1 below summarizes the BMP projects from the review. Table 2-3 detail additional implementation projects that have been completed in the Potlatch River watershed.

**Table 1. Summary of BMP Projects from Potlatch River TMDL 5-Year Review (DEQ, 2017)**

<b>Project Name</b>	<b>Amount</b>	<b>Units</b>
ID F&G Corral Creek - Habitat Improvement	5	miles
ID F&G Bloom Meadows - Habitat Improvement	1	miles
ID F&G Pine Creek - Habitat Improvement	9	miles
ID F&G Trout-Fry Meadows - Habitat Improvement	0.56	miles
ID F&G Bloom Creek - Habitat Improvement	0.25	miles
USFS Road Decommissioning	16.8	miles
IDL Stream Channel Alteration Projects	43	projects
ITD Culvert Replacement Projects	5	projects

Table 2 details the projects that have been completed by landowners cooperating with the Latah Soil and Water Conservation District.

**Table 2. The Latah Soil and Water Conservation District worked with cooperators to install the following BMP projects.**

#	PROJECT SITE	Units	Amount	Units	Amount
1	City of Troy Dutch Flat Dam Removal, Habitat Restn	ac	2.8	mi	0.17
2	IDL Bloom Creek Road Rocking, Culvert Install	mi	0.93	no	8
3	IDL Bob's Creek Bridge Install	no	1		
4	IDL Brush Creek Road Rocking	mi	1.3		
5	IDL Corral Creek Livestock Pond, NW of Tee Meadow	no	1		
6	IDL Corral Creek Livestock Pond, Tee South	no	1		
7	IDL Corral Creek Livestock Pond, Sorority Flats	no	1		
8	IDL Upper East Fork Potlatch Bridge Install	no	1		
9	IDL East Fork Potlatch Double-Pipe Replacement	no	1		
10	IDL Upper East Fork Potlatch Road Abandonment	mi	0.4		
11	IDL Elk Slough Livestock Pond	no	1		
12	IDL Fry Creek Road Abandonment	mi	0.81		
13	IDL Fry Creek Perched Culvert Replacement	no	1		
14	IDL Fry Creek Road Rocking, Culvert Installs	mi	1.6	no	18
15	IDL Jackson Creek Bridge Install	no	1		
16	IDL Jackson Cr. Recreation Site Access Road Rocking	mi	0.25		
17	IDL Jackson Creek Road Rocking	mi	1		
18	IDL Jackson Creek Class 1 culvert replacement	no	1		
19	IDL Moose Creek Livestock Pond	no	1		
20	IDL Pivash Creek Pipe Removal	no	1		
21	IDL Purdue Creek Culvert Replacement	no	1		
22	IDL Purdue Creek Culvert Removal	no	1		
23	IDL Purdue Creek Road abandonment	mi	0.33		
24	IDL Purdue Creek Road Spur Obliteration	mi	0.3		
25	IDL Purdue Creek Road Rocking	mi	1.6		
26	IDL Rogers Creek Culvert Replacement	mi	1		
27	IDL Ruby Creek Road Rocking	mi	0.8		
28	IDL Schwartz Creek Bridge Install	no	1		
29	IDL Schwartz Creek Tributary Culvert Replacement	no	1		
30	IDL Schwartz Creek Culvert Replacement	no	1		
31	IDL Schwartz Creek Road Rocking	mi	1.2		
32	IDL Upper East Fork Potlatch Trib Culvert Install	no	1		
33	NLCHD Deer Road Culvert Install	ac	0.15	mi	0.03
34	NLCHD WF Little Bear Cr. Culvert Replacement #12	no	1		

#	PROJECT SITE	Units	Amount	Units	Amount
35	NLCHD WF Little Bear Cr. Culvert Replacement #17	no	1		
36	NLCHD WF Little Bear Cr. Culvert Replacement #30	no	1		
37	NLCHD WF Little Bear Cr. Culvert Replacement #31	no	1		
38	NLCHD WF Little Bear Cr. Culvert Replacement #33	no	1		
39	PFH Bloom Creek Culvert Replacement	no	1		
40	PFH Baker Lake Road Rocking, Culvert Installs	mi	0.85	no	8
41	PFH Bob's Creek Road Rocking, Culvert Installs	mi	1.87	no	9
42	PFH EF Potlatch Experimental Rd Rocking, Culverts	mi	1.5	no	6
43	PFH/NLCHD Fry Creek Crossing Culvert Install	no	1		
44	PFH Jackson Creek Crossing Culvert; rocking	no	1	mi	0.25
45	PFH Jackson Creek Road Rocking	mi	1		
46	PFH Jones Creek Road Rocking	mi	0.88		
47	PFH Mallory Basin Culvert Replacement	no	1		
48	PFH Mallory Basin Road Rocking	mi	0.6		
49	PFH Mallory Creek Bridge, Culverts Removed	no	1	no	2
50	PFH Mallory Creek Road Abandonment	mi	0.5		
51	PFH Mallory Creek Road Rocking and culvert installs	mi	2.0	no	11
52	PFH Mallory Cr. Branch Road Rocking & culvert	mi	1	no	1
53	PFH Pivash Creek Culvert Replacement	no	1		
54	PFH Pivash Creek Road Rocking	mi	1.65		
55	PFH Rogers Creek / Corduroy Channel Stabilization	ac	2	mi	0.11
56	PFH Rogers Creek / Corduroy Road Rocking	mi	3.3		
57	USFS Bronson Livestock Pond	no	1		
58	USFS Smith Meadow Livestock Pond	no	1		
59	USFS West Fork Potlatch Livestock Pond	no	1		
60	USFS Vassar Livestock Pond	no	1		
61	IDL Shea Meadows Crossing Bridge Install - 2017	no	1		
62	Mason Meadow Project 1	ac	20	mi	0.36
63	Upper Big Bear Creek Road Rocking, Culverts	mi	1		
64	KCA / IDL Livestock Exclusion Fencing	ac	22.94	mi	1.11
65	Corral Creek – BDAs installed, Phase 1	no	25		
66	Corral Creek – BDAs installed, Phase 2	no	10		
67	Corral Creek Race Track BDAs installed	no	17		
68	Corral Creek Exclusion Fencing Mini East Fork JCH	ft	3,679	ac	4.42
69	Corral Creek Exclusion Fencing Mini East Fork USFS	ft	3,161	ac	3.72
70	Corral Creek Exclusion Fencing Historic East Fork	ft	6,351	ac	15.03
71	Corral Creek Exclusion Fencing Colby Wetland Cells	ft	2,915	ac	2.64
72	Corral Creek Exclusion Fencing Horseshoe Bend	ft	1,558	ac	2.14

#	PROJECT SITE	Units	Amount	Units	Amount
73	Corral Creek Livestock Exclusion Fencing Avulsion	ft	3,695	ac	8.51
74	Corral Creek Livestock Exclusion Fencing Race Track	ft	3,317	ac	6.23
75	Corral Creek Passage Barrier Removal Restoration	ac	4.5	mi	0.04
76	Corral Creek Road Abandonment Muddy Mess	mi	0.77		
77	Corral Creek Road Abandonment Avulsion	mi	0.35		
78	Corral Creek Road Abandonment Half-Round	mi	0.38		
79	Corral Creek Road Relocation & Bridge Install	mi	1.72		
80	Corral Creek Road Rocking Pioneer, Culverts	mi	1.34	no	8
81	Corral Creek Road Rocking Turnpike, Culverts	mi	0.38	no	2
82	Corral Creek Road Rocking Colby to Highway	mi	2.49		
83	Corral Creek Road Rocking Race Track Road	mi	0.38		
84	Corral Creek Road Rocking Hatley Creek Road	mi	0.91		
85	Corral Creek Road Rocking North 40 Road	mi	0.46		
86	Corral Creek Meadow Restoration Avulsion / Round	ac	16.75	mi	1.50
87	Corral Creek Meadow Restoration Race Track	ac	7.5	mi	0.25
88	Corral Creek Meadow Restoration Tee / Colby	ac	44	mi	0.50
89	Tourmaline Habitat Restoration, Phase 1, Cell 3	ac	1.7	mi	0.16
90	Tourmaline Habitat Restoration, Ph. 1, Cells 1 and 2	ac	9.8	mi	0.16
91	USFS Meadow Restoration Upper Corral Creek	ac	75	mi	1.83
92	Corral Creek Off-Channel Livestock Water, Pond 1	no	1		
93	Corral Creek Off-Channel Livestock Water, Pond 2	no	1		
94	Corral Creek Off-Channel Livestock Water, Pond 3	no	1		
95	Nora Creek Meadow Restoration	ac	24	mi	1.41
96	Erickson Meadow Restoration	ac	24.39	mi	0.96
97	Erickson Meadow BDAs installed, Phase 1	no	18		
98	Big Bear Creek Livestock Exclusion Fencing	ac	4.25	ft	1,561
99	Two Mile Meadow Road Rehabilitation and Rocking	mi	1.4		
100	Riparian Plantings	no	224,156		

**Latah SWCD & Cooperators BMPs Installed Totals:**

***233 riparian acres treated***  
***7.18 stream miles treated***  
***36.1 miles of forest roads rocked***  
***12 livestock ponds installed***  
***39,127 feet of livestock exclusion fence installed***  
***71.3 riparian acres excluded from grazing***  
***224,156 native stock planted***  
***70 beaver dam analogs installed***

The Natural Resource Conservation Service (NRCS) applied practices within the Potlatch River Watershed between 2010 and Oct 2016 as listed in Table 3.

**Table 3: NRCS Installations 2010 – 2016**

<b>Practice Code</b>	<b>Practice Name</b>	<b>Practice Unit</b>	<b>Amount</b>
313	Waste Storage Facility	no	5
315	Herbaceous Weed Control	ac	184
317	Composting Facility	no	3
324	Deep Tillage	ac	792
327	Conservation Cover	ac	7
329	Residue and Tillage Management, No-Till	ac	3,613
338	Prescribed Burning	ac	460
340	Cover Crop	ac	7,241
342	Critical Area Planting	ac	26
345	Residue and Tillage Management, Reduced Till	ac	5,965
367	Roofs and Covers	no	5
378	Pond	no	3
382	Fence	ft	56,433
384	Woody Residue Treatment	ac	910
386	Field Border	ac	1
391	Riparian Forest Buffer	ac	9
410	Grade Stabilization Structure	no	24
412	Grassed Waterway	ac	7
472	Access Control	ac	30
490	Tree/Shrub Site Preparation	ac	127
512	Forage and Biomass Planting	ac	505
516	Livestock Pipeline	ft	11,510
528	Prescribed Grazing	ac	10,662
533	Pumping Plant	no	1
558	Roof Runoff Structure	no	3
560	Access Road	ft	5,260
574	Spring Development	no	8
578	Stream Crossing	no	4
584	Channel Bed Stabilization	ft	1,575
587	Structure for Water Control	no	2
590	Nutrient Management	ac	18,620
595	Integrated Pest Management (IPM)	ac	10,467
606	Subsurface Drain	ft	6,300
612	Tree/Shrub Establishment	ac	1,486
614	Watering Facility	no	14

620	Underground Outlet	ft	24,013
638	Water and Sediment Control Basin	no	7
642	Water Well	no	1
660	Tree/Shrub Pruning	ac	30
666	Forest Stand Improvement	ac	758
710	Wetland Vegetation Establishment	no	2
777	Residue Management -Direct Seed	ac	396
798	Seasonal High Tunnel System for Crops	sq ft	8,878

## Resource Concerns

According to the 5-year review of the Potlatch River TMDL there are six AU's being recommended to move from Category 4a to Category 2 for bacteria (Table 4). Details information on the beneficial uses can be found in the Potlatch River TMDL – 5-Year Review (DEQ, 2017).

**Table 4. AU's Recommended to move from category 4a to category 2.**

TMDL	TMDL Status	Pollutants	Assessment Unit Recommendation
<i>Potlatch River Subbasin Assessment and TMDLs</i> (DEQ 2008)	Approved by EPA in February 2009	<i>E. coli</i> bacteria, nutrients, sediment, and temperature	Move AUs from Category 4a to 2 in Integrated Report for bacteria and contact recreation: ID17060306CL049_03 ID17060306CL056_04 ID17060306CL056_05 ID17060306CL061_02 ID17060306CL062_02 ID17060306CL062_03

## E. coli Bacteria

Table 5 outlines the *E. Coli* bacteria load reductions that were determined for the 5-year Review. The daily load allocation for nonpoint and point sources alike is 126 cfu/100 mL, the geometric mean concentrations currently allowed by Idaho's water quality standards.

**Table 5. Seasonal E. Coli loads (cfu/100mL). (DEQ. 2017)**

Stream Name	Assessment Unit Number	Spring		Summer		Fall	
		Existing Load	Load Red. (%)	Existing Load	Load Red. (%)	Existing Load	Load Red. (%)
Boulder Creek - 3rd Order	ID17060306CL047_03	33	0	145	13	46	0
Potlatch River - Headwaters	ID17060306CL049_02	9	0	129	2	597	79
Potlatch River - 3rd Order	ID17060306CL049_03	5	0	107	0	23	0
Potlatch River - 4th Order	ID17060306CL049_04	37	0	138	9	112	0
Ruby Creek - 3rd Order	ID17060306CL052_03	7	0	99	0	108	0
Moose Creek - Headwaters	ID17060306CL053_02	6	0	137	8	63	0
Moose Creek - 3rd Order	ID17060306CL053_03	8	0	324	61	96	0
Big Bear Creek - 4th Order	ID17060306CL056_04	12	0	13	0	40	0
Big Bear Creek - 5th Order	ID17060306CL056_05	4	0	20	0	54	0
West Fork Little Bear Creek - 1st and 2nd Order	ID17060306CL061_02	7	0	NA	NA	14	0
West Fork Little Bear Creek - 3rd Order	ID17060306CL061_03	30	0	91	0	206	39
Middle Potlatch Creek - Headwaters	ID17060306CL062_02	19	0	8	0	8	0
Middle Potlatch Creek - 3rd Order	ID17060306CL062_03	16	0	82	0	25	0

## Nutrients

In Idaho, narrative criteria are used for nutrients (IDAPA 58.01.02.200.06). The TMDL 5-Year Review (DEQ, 2017) states that phosphorus is the limiting nutrient. The assessment unit pollutant loads for total phosphorus are listed in Table 6.

**Table 6. Assessment unit pollutant loads for TP (DEQ,2017).**

Assessment Unit Name	Assessment Unit	Average Daily Flow (cfs)	Average Daily Concentration (mg/L)	Load Capacity (kg/day)	MOS (kg/day)	Load Allocation (kg/day)	Existing Load (kg/day)
Pine Creek	ID17060306CL055_02	0.463	0.069	0.113	0.011	0.102	0.078
Pine Creek	ID17060306CL055_03	1.16	0.083	0.284	0.028	0.256	0.235

Notes: cfs = cubic foot per second; kg/day = kilogram per day; mg/L = milligram per liter

## Sediment

According to the Potlatch TMDL 5-Year Review, sediment targets for the Potlatch River were developed using the Guide to Selection of Sediment Targets for Use in Idaho TMDLs (DEQ 2003). Based on the information contained in the guidance, a 50 mg/L TSS monthly target, not to exceed 80 mg/L daily, was used to develop the sediment

TMDL. The average monthly target and maximum daily limit are within the range identified by the European Inland Fisheries Advisory Commission and the Committee on Water Quality Criteria from the Environmental Studies Board of the National Academy of Science and National Academy of Engineers as supporting a moderate fishery (DEQ 2003). Additionally, these targets are consistent with targets applied in other sediment TMDLs addressing TSS in the Lower Clearwater River subbasin. Load allocations are given in Tables 7 through 14.

**Table 7. Daily TSS load for Potlatch River – 6<sup>th</sup> Order (ID17060306CL044\_06) (DEQ, 2017)**

<b>Sample Date</b>	<b>Flow (cfs)</b>	<b>TSS (mg/L)</b>	<b>Existing Load (lb/day)</b>	<b>Load Capacity (lb/day)</b>	<b>MOS (lb/day)</b>	<b>Load Allocation (lb/day)</b>
5/20/2016	92	ND	N/A	39,670.4	3,967.0	35,703.4
5/24/2016	158	ND	N/A	68,129.6	6,813.0	61,316.6
6/7/2016	61	ND	N/A	26,303.2	2,630.3	23,672.9
6/22/2016	34	ND	N/A	14,660.8	1,466.1	13,194.7
7/11/2016	35	ND	N/A	15,092.0	1,509.2	13,582.8

Notes: N/A = not applicable; ND = non-detect

**Table 8. Daily TSS load for Cedar Creek – 4<sup>th</sup> Order (ID17060306CL046\_04) (DEQ, 2017)**

<b>Sample Date</b>	<b>Flow (cfs)</b>	<b>TSS (mg/L)</b>	<b>Existing Load (lb/day)</b>	<b>Load Capacity (lb/day)</b>	<b>MOS (lb/day)</b>	<b>Load Allocation (lb/day)</b>
5/20/2016	5.58	3.4	102.3	2,406.1	240.6	2,165.5
5/24/2016	7.62	2.77	113.8	3,285.7	328.6	2,957.2
6/7/2016	1.82	3.38	33.2	784.8	78.5	706.3
6/22/2016	1.57	9.46	80.1	677.0	67.7	609.3
7/11/2016	1.164	1.89	11.9	501.9	50.2	451.7

**Table 9. Daily TSS load for Pine Creek – Headwaters (ID17060306CL055\_02) (DEQ, 2017)**

Sample Date	Flow (cfs)	TSS (mg/L)	Existing Load (lb/day)	Load Capacity (lb/day)	MOS (lb/day)	Load Allocation (lb/day)
5/20/2016	0.48	6.49	16.8	207.0	20.7	186.3
5/24/2016	0.9	6.77	32.8	388.1	38.8	349.3
6/7/2016	0.009	4.85	0.2	3.9	0.4	3.5
6/22/2016	Dry	N/A	N/A	N/A	N/A	N/A
7/11/2016	Dry	N/A	N/A	N/A	N/A	N/A

Notes: N/A = not applicable

**Table 10. Daily TSS load for Pine Creek – 3<sup>rd</sup> Order (ID17060306CL055\_03) (DEQ, 2017)**

Sample Date	Flow (cfs)	TSS (mg/L)	Existing Load (lb/day)	Load Capacity (lb/day)	MOS (lb/day)	Load Allocation (lb/day)
5/20/2016	1.42	7.11	54.4	612.3	61.2	551.1
5/24/2016	2.80	1.95	29.4	1,207.4	120.7	1,086.6
6/7/2016	0.69	3.22	12.0	297.5	29.8	267.8
6/22/2016	0.43	5.75	13.3	185.4	18.5	166.9
7/11/2016	0.46	4.46	11.1	198.4	19.8	178.5

**Table 11. Daily TSS load for West Fork Little Bear Creek – 1<sup>st</sup> and 2nd Order (ID17060306CL061\_02) (DEQ, 2017)**

Sample Date	Flow (cfs)	TSS (mg/L)	Existing Load (lb/day)	Load Capacity (lb/day)	MOS (lb/day)	Load Allocation (lb/day)
5/20/2016	1.02	2.82	15.5	439.8	44.0	395.8
5/24/2016	1.96	21.6	228.2	845.2	84.5	760.6
6/8/2016	0.59	13.2	42.0	254.4	25.4	229.0
6/23/2016	0.2	1.41	1.5	86.2	8.6	77.6
7/11/2016	0.2	1.48	1.6	86.2	8.6	77.6

**Table 12. Daily TSS load for West Fork Little Bear Creek – 3rd Order (ID17060306CL061\_03) (DEQ, 2017)**

Sample Date	Flow (cfs)	TSS (mg/L)	Existing Load (lb/day)	Load Capacity (lb/day)	MOS (lb/day)	Load Allocation (lb/day)
5/20/2016	2.71	3.31	48.3	1,168.6	116.9	1,051.7
5/24/2016	4.69	3.58	90.5	2,022.3	202.2	1,820.1
6/8/2016	0.94	4.09	20.7	405.3	40.5	364.8
6/23/2016	0.52	3.27	9.2	224.2	22.4	201.8
7/11/2016	0.50	5.15	13.9	215.6	21.6	194.0

**Table 13. Daily TSS load for Middle Potlatch Creek – Headwaters (ID17060306CL062\_02) (DEQ, 2017)**

Sample Date	Flow (cfs)	TSS (mg/L)	Existing Load (lb/day)	Load Capacity (lb/day)	MOS (lb/day)	Load Allocation (lb/day)
5/20/2016	0.18	2.81	2.7	77.6	7.8	69.9
5/24/2016	0.22	2.02	2.4	94.9	9.5	85.4
6/8/2016	0.026	1.54	0.2	11.2	1.1	10.1

**Table 14. Daily TSS load for Middle Potlatch Creek – 3<sup>rd</sup> Order (ID17060306CL062\_03) (DEQ, 2017)**

Sample Date	Flow (cfs)	TSS (mg/L)	Existing Load (lb/day)	Load Capacity (lb/day)	MOS (lb/day)	Load Allocation (lb/day)
5/20/2016	3.22	1.84	31.9	1,388.5	138.8	1,249.6
5/24/2016	3.85	2.215	46.0	1,660.1	166.0	1,494.1
6/7/2016	1.61	2.04	17.7	694.2	69.4	624.8
6/22/2016	1.03	ND	N/A	444.1	44.4	399.7
7/11/2016	0.85	23.8	109.0	366.5	36.7	329.9

Notes: N/A = not applicable; ND = non-detect

## **Agricultural Inventory and Evaluation**

As projects are implemented the existing shade levels should be documented before implementation of practices to verify the PNV aerial photo interpretation of the site.

These before values should be compared to shade levels after implementation to determine actual shade increases of each project. This process will help evaluate the approach that was used in developing the temperature TMDL.

## Treatment

Agricultural lands that contribute excessive pollutants to waterbodies were defined as critical areas for BMP implementation. Critical areas are prioritized based on proximity to the waterbody; potential for transport and delivery of pollutant to the waterbody; and water quality impact. Critical areas are those areas where treatment is considered necessary to address the resource concerns affecting water quality. The Latah Soil and Water Conservation District has planned the implementation projects outlined in Table 15 to work toward TMDL goals. Idaho Fish and Game projects are outlined in Table 16.

**Table 15. LSWCD Future Potlatch Restoration Projects**

Basin	Location	Treatment	Project Name	Project year	Anticipated stream treated (km)
Lower	Nora Creek	Riparian/Meadow restoration	Nora Creek	2017	2.4
Lower	Big Bear Creek (BBC)	Riparian/Meadow restoration	Big Bear Creek Riparian/Meadow (H)	2019	2.5
Lower	BBC	Riparian/Meadow restoration	Big Bear Creek Riparian Restoration Project (O)	2019	0.9
Lower	BBC	Riparian/Meadow restoration	Tourmaline Habitat Restoration, Phase 2-4	2020-2022	3.2
Lower	BBC	Riparian/Meadow restoration	Big Bear Creek Riparian Restoration Project (C&DL)	2018	0.4
Lower	BBC	Riparian/Meadow restoration	West Fork Big Bear Meadow Restoration (P&DM)	2020	0.4
Lower	BBC	Riparian/Meadow restoration	Big Bear Creek Meadow Complex (Wheatland)	2023	0.7
Upper	East Fork Potlatch	Riparian/Meadow restoration	Two Mile Meadow	2018	3.5
Upper	East Fork Potlatch	Barrier Removal	Mallory Creek	2017	1.3

**Table 16. ID F&G Future Potlatch Restoration Projects**

<b>Basin</b>	<b>Location</b>	<b>Treatment</b>	<b>Project Name</b>	<b>Project year</b>	<b>Anticipated stream treated (km)</b>
Lower	Big Meadow Creek	Habitat restoration	Big Meadow Habitat Restoration	2019	2.2
Upper	East Fork Potlatch	Floodplain/ steelhead habitat	Dammerman	2017	1.05
Upper	East Fork Potlatch	Floodplain/ steelhead habitat	Stower	2018	

## **Funding**

Financial and technical assistance for installation of BMPs may be needed to ensure success of this implementation plan. The Latah 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](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>

**Pacific Coast Salmon Recovery Fund (PCSRF):** PCSRF is a cost-share program administered through Office of Species Conservation (OSC). The program targets the restoration of anadromous fish habitat.

**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/farmland/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/>

**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>

**Idaho Transportation Department** – Idaho transportation department has partially funded projects in the baso as part of their wetland mitigation program. <http://itd.idaho.gov/funding/>

Ecotrust – Ecotrust has provided matching funds on projects in the past that focus on restoration. <https://ecotrust.org/our-programs/water/>

## **Maintenance, Monitoring, Evaluation**

DEQ will continue to monitor the watersheds as per Idaho Code 39-3611, using BURP protocol. Additional monitoring of BMP’s and the maintenance of BMP’s installed will be performed by the designated management agency or the agency that funded the BMP installations. The Latah Soil and Water Conservation District monitors BMP installations to ensure proper maintenance of the practices. Typically, when a volunteer approaches the district for BMP assistance the district evaluates the current site-specific resource concerns. Individual conservation planning with willing landowners will determine the most appropriate BMPs to install on a case by case basis.

## References

DEQ (Idaho Department of Environmental Quality). 2003. Guide to Selection of Sediment Targets for Use in Idaho TMDLs. Boise, ID: DEQ.

DEQ (Idaho Department of Environmental Quality). 2017. *Potlatch River Watershed – TMDL Five-Year Review*. Lewiston, ID: DEQ.

Idaho Code § 39.3611. Development and implementation of total maximum daily load or equivalent processes.

Idaho Soil and Water Conservation Commission (ISWCC). 2010. Potlatch River Subbasin Total Maximum Daily Load Implementation Plan for Agriculture. Moscow, ID.