Year 2021 Report on Activities to Implement *Washington State's Water Quality Plan to Control Nonpoint Source Pollution*

April 29, 2022

Purpose of Document

This *Year 2021 Report on Activities to Implement Washington State's Water Quality Plan to Control Nonpoint Source Pollution* is intended to meet the requirements of section 319 (h) (8) and (11) of the Federal Clean Water Act (CWA) (33 USC 1329). The report documents the activities and accomplishments of the State of Washington in achieving clean water, and the Department of Ecology's (Ecology) administration of the State's Nonpoint Source (NPS) Pollution Program. As described herein, Washington is making significant progress toward meeting the substantial on-the-ground and policy challenges presented by nonpoint water pollution.

Chapter 1: The Path Towards Clean Water

Nonpoint source (NPS) pollution in our waterways is the greatest water quality challenge facing Washington State today. Ecology's NPS strategy focuses on multiple implementation paths to achieve clean water. However, no matter the approach, we continually strive for greater regulatory clarity and a comprehensive strategy that uses all available tools to control and prevent nonpoint sources of pollution and achieve compliance with water quality standards. In 2021, we made significant progress towards our goal of preventing nonpoint pollution and improving water quality across Washington. Some of our bigger successes include:

- Two TMDLs were approved by EPA in January: the Pilchuck TMDL for dissolved oxygen and temperature and the Lower Spokane TMDL for temperature, dissolved inorganic nitrogen, and total phosphorous. Both TMDLs will both help us in addressing significant nonpoint issues in those watersheds.
- The East Fork Lewis Alternative Restoration Plan for bacteria and temperature was accepted by EPA in November.
- Our Eastern Regional Office made notable progress in addressing fecal coliform, nutrients, temperature and turbidity in the Hangman watershed.
- We successfully added five years of historical data to the Nonpoint & Implementation Tracking System.
- As part of our integrated strategy to control nutrient pollution in Puget Sound, we issued a Nutrient General Permit that applies to 57 wastewater treatment plants that discharge directly to Puget Sound, which will help us in our broader approach for reducing point and nonpoint sources of pollution.
- Initiation of the rule-making process for revising riparian buffer regulations for timber harvesting along the headwater non-fish bearing streams.

Ecology's efforts to manage NPS pollution are underlain by a foundation of strategic policies intended to foster and guide water quality protection efforts. Accordingly, this report highlights some of the policy level advances in our continual effort to map out the nonpoint source regulatory landscape, and subsequently navigate toward a more effective statewide nonpoint source program.

Ecology's nonpoint strategy focuses on promoting the implementation of effective best management practices (BMPs) that support compliance with the water quality standards and prevent pollution discharge. The primary tools Ecology uses to facilitate and guide on the ground implementation are:

- Total Maximum Daily Loads (TMDLs) and associated implementation plans

- Alternative Restoration Projects (i.e. a watershed-based implementation plan)
- Straight to Implementation (STI) projects
- Ecology's Grant and Loan program and associated funding guidelines.

Additionally, when harmonizing social, financial, and technical resource conditions arise in a watershed, Ecology takes advantage of other opportunities to achieve on-the-ground implementation. The Clean Samish Initiative and the Whatcom County Clean Water Program are both examples where we are building on the momentum of concern over shellfish bed closures to promote clean water BMPs. Likewise, Ecology continues to support local Pollution Identification and Correction (PIC) programs. This work targets watersheds in the Puget Sound area where a local entity has taken a key role in identifying pollution concerns and addressing pathogen and nutrient pollution from a variety of nonpoint sources. These sources include on-site sewage systems, farm animals, pets, sewage from boats, and stormwater runoff.

This report also details the significant federal and state water quality protection investments made through our combined funding program. The grants and loans administered by this program are essential for advancing efforts to control NPS pollution. By facilitating the widespread implementation of effective BMPs, such as improved agricultural practices and riparian area restoration, this program is helping to create a paradigm shift in which NPS pollution control is viewed as important and customary by all contributing sectors.

Chapter 2: EPA's 2021 319 Grant Distribution

The federal fiscal year (FFY) 2021 Section 319 allocation of $3,233,000 was applied towards state fiscal year (SFY) 2022, and was again distributed among three major work plan elements within Ecology as in SFY2021: Ecology's Nonpoint Program, Direct Implementation Fund, and Water Quality Combined Funding Program.

2.1 Ecology's Water Quality's Nonpoint Program Support

Ecology funded 10.0 staff FTEs in SFY2022 that support the state's nonpoint program with policy development, technical assistance, and project implementation oversight.

Total EPA SFY 22 Allocation: $3,233,000

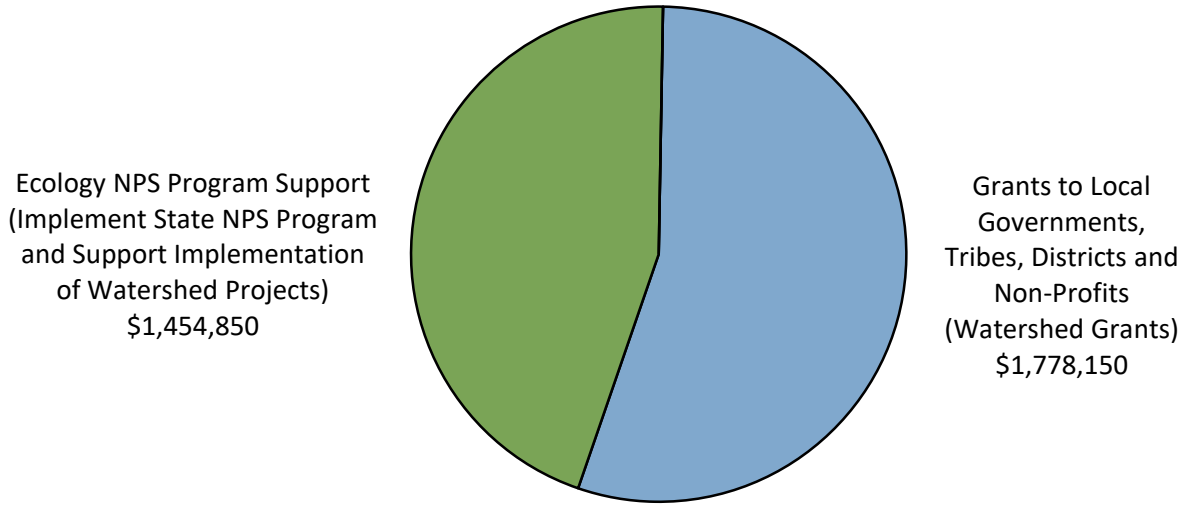


Figure 2.1 - 319 Federal Allocations SFY 2022

The above figure shows the distribution of the federal allocation in SFY2022 (FFY21). Ecology applied 40 percent state matching funds using State Clean Water Fund dollars. See section 2.2 for details.

2.1.1 Water Quality Program Support Projects -(10.0 FTE @ ($1,454,850)

319 Funded WQ Support Projects	FTEs	319 Cost
Nonpoint Policy and Plan Coordination	2.2	$349,334
Financial Administration	1	$128,219
TMDL Nonpoint Education and Outreach	0.5	$65,614
TMDL Development and Implementation	1.2	$157,474
Nonpoint Technical Assistance and Compliance	2.3	$429,181

1. **Nonpoint Policy and Plan Coordination (2.2FTE)**

   Ecology is responsible for overseeing and coordinating overall nonpoint plan implementation activities and policy. Part of that role entails management, monitoring overall status, compiling progress reports and reporting back to EPA, taking the lead in coordinating with other Ecology programs, facilitating inter-state agency work, implementing activities that have statewide applicability, and performing technical outreach about the plan with local governments, tribes, and special purpose districts. In addition, Ecology is responsible for statewide nonpoint policy and planning.

   Estimated cost of this work plan component – **$349,334.**

2. **Financial Administration (1 FTE)**

   Staff of the Water Quality Program's Financial Management Section administer and manage all Section 319 grant funds and match funds passed through to local government entities, Indian tribes, and public not-for-profit groups. Staff ensures that funds are allocated to highest priority projects and are spent in a fiscally responsible manner. Staff also closely tracks projects tasks and data from initiation to completion.

   Estimated cost of this work plan component – **$128,219.**

3. **TMDL Nonpoint Education and Outreach- (.50 FTE)**

Ecology initiates an education and outreach effort as part of every TMDL. The purpose is to ensure that people understand why we are doing a TMDL, what their responsibilities are likely to be, and how they can participate. A successful public process makes TMDL implementation more likely and more effective.

Estimated cost of this work plan component – **$65,614.**

4. TMDL Development and Implementation (1.20 FTEs)

The primary job of a TMDL lead is managing the development of the TMDL and supporting documents for successful submission to and approval by EPA. This element includes knowledge of TMDL concepts and procedures, and the ability to work effectively with diverse groups within and outside Ecology. Other products required from this work element include development of an implementation strategy (IS) to go along with the TMDL, a summary of public involvement, and a water quality (detailed) implementation plan (WQIP). Once these procedures are documented, the TMDL lead coordinates and initiates implementation activities to meet the allocations set in the TMDL. In some cases, the TMDL lead also manages local implementation grants.

Estimated cost of this work plan component – **$157,474.**

5. Nonpoint Technical Assistance and Compliance (2.30 FTEs)

The purpose of this work plan element is to provide technical assistance to landowners, as well as federal, state and local agencies, tribes, forests, and special purpose districts to ensure their activities, projects, and programs meet state water quality laws, regulations, and standards. Areas of technical assistance include forest practices, agricultural activities, riparian restoration, complaint management, inspections, and nonpoint source enforcement. This work plan element will apply in watersheds that implement nonpoint TMDLs, or in watersheds with plans that focus on protection of threatened waters or implementation activities to clean up waters.

Estimated cost of this work plan component – **$325,028.**

6. TMDL and Effectiveness Monitoring (2.80 FTEs)

This part of the plan designs and conducts monitoring studies to determine the effectiveness of nonpoint source management programs. Effectiveness monitoring, and

ground water monitoring capture the success or failure of various voluntary and regulatory efforts. In addition, we will measure the effectiveness of specific implementation activities. Post TMDL monitoring is also conducted to verify that the pollutant controls result in the water body improving or meeting water quality standards. It tests the effectiveness of the implementation management programs/plans.

Estimated cost of this work plan component – **$429,181.**

Appendix E of this report summarizes the specific nonpoint related projects and tasks undertaken by Ecology staff funded by Section 319 dollars as part of the 319 Program 2020-2021 work plan**.**

2.2 Direct Implementation Fund

The Direct Implementation Fund (DIF) is designed to assist Ecology's regional offices to directly address priority nonpoint problems. The DIF program uses unspent/de-obligated dollars from competitive projects, or other sources, to implement on-the-ground practices that will provide a direct and demonstrable water quality benefit by addressing an acute pollution problem at a specific site. Examples include planting riparian buffers, installing livestock exclusion fencing, and waste storage facilities to remove livestock (and associated pollution) from surface waters.

Projects may be proposed for DIF by an Ecology regional office at any time. The project will go through a review process and, if approved, be placed in a queue for when funds are available. If funds become available without projects in the queue, the Nonpoint Funding coordinator may notify all regional offices to solicit proposals. To qualify, the project must address:

1. Identified sources of nonpoint pollution causing the most significant harm to water quality
2. Water bodies that are identified as not meeting water quality standards and/or have a strategic implementation plan (such as a completed TMDL, straight to implementation (STI) or other alternative watershed plan).
3. An actual ability to fix the problem (i.e. can implement the desired change and are ready to proceed and reach completion)
4. Criteria established in the DIF funding guidelines (updated SFY2022).

Ecology works closely with local partner organizations to facilitate implementation, leveraging both DIF and competitive grant programs. The 319 funded DIF projects in the table below

began in 2020, and completed all deliverables and closed in 2021. No additional DIF projects were funded by Section 319 in 2021, however there were 4 state Centennial and Model Toxics Control Act funded DIF projects.

Direct Implementation Fund (DIF) Projects

Agreement Number	Organization	Project Title	Watershed Plans	Project Short Description	Funding
OTGP-2020-SpFaTU-00035	Spokane Falls Trout Unlimited	California Creek Livestock BMPs	Hangman (Latah) Creek Watershed FC, Temp, and Turbidity TMDL Water Quality Implementation Plan	Hangman Creek is 303(d) listed for fecal coliform, temperature, and turbidity. ECOLOGY staff reached out to a farm after observing impacts during the 2018 watershed assessments and receiving a complaint of pollution from livestock (e.g. manure contaminated runoff, damaged riparian vegetation, and bare ground). The landowners own and operate a cattle farm in the Hangman Creek watershed. The farm is located on California Creek approximately 9.0 river miles upstream from the Hangman Creek confluence. The landowners have been very cooperative and met with ECOLOGY staff to discuss site specific plans and potential best management practices (BMPs). This project will eliminate pollution by installing approximately 3,265 feet of livestock exclusion fencing, developing two off-stream watering facilities, and establishing a 50 foot (2.5 acre) vegetated buffer.	$40,500 (Section 319)
OTGP-2020-STOI-00032	Spokane Tribe	Spangle Trib & Upper Hangman Water Quality Improvement Project	Hangman (Latah) Creek Watershed FC, Temp, and Turbidity TMDL Water Quality Implementation Plan	Spangle Creek is located within the Hangman Creek Watershed, which is 303(d) listed for fecal coliform, temperature, and turbidity. At this site, approx. 15-20 horses have full access to a tributary of Spangle Creek, and the riparian corridor is heavily degraded with very little to no native vegetation. This project will restore a 1200 foot reach (2 acres) of Spangle Creek by installing livestock exclusion fencing and riparian plantings.	$76,500 (Section 319)

Agreement Number	Organization	Project Title	Watershed Plans	Project Short Description	Funding
				The second site is located on the mainstem of Hangman Creek in the upper portion of the watershed. Land use on this site is predominately dryland agriculture with tillage up to the banks edge in some areas. This project will restore an 850 foot (1 acre) reach of mainstem Hangman Creek by planting native vegetation and establishing land use setback from the creek. An additional 5.3 acres of existing buffered (reed canary) stream channel will be planted with large(container stock) native trees to improve water quality.	
WQOG-2021-StillTI-00002	Stillaguamish Tribe	Gold Basin Landslide Restoration Project	Stillaguamish Chinook Salmon Recovery Plan, Stillaguamish Temperature TMDL	The Gold Basin project will build a 1,000 foot live crib wall structure to reduce sediment entering the upper South Fork Stillaguamish at approximately river mile 49. The project will remove a portion of the campground that lies within the channel migration zone to restore natural channel process to address the largest single source of fine sediment in the South Fork and severely impacts 49 miles of salmonid habitat for ESA listed populations (Chinook, steelhead, and Bull trout).	$404,900 (MTCA)
WQOG-2021-STOI-00003	Spokane Tribe of Indians	Colville, Little Spokane, and Hangman Watersheds Water Quality Improvements		This project includes riparian restoration, livestock best management practices, cultural review surveys for future restoration sites, and video production to address high priority water quality issues at sites identified by ECOLOGY, within the Hangman, Colville and the Little Spokane Watersheds.	$167,00 (MTCA)

Agreement Number	Organization	Project Title	Watershed Plans	Project Short Description	Funding
WQOG-2021-WhitCD-00001		Palouse River Ranch Buffer Enhancement		The RECIPIENT will lead the implementation of a fence and water trough relocation on the Palouse River to improve water quality. This site has been identified by ECOLOGY as a long-term water quality concern and will continue to enhance land-use setbacks, providing a more robust riparian buffer further protecting water quality from nonpoint pollution issues.	$103,100 (MTCA)

2.3 Ecology's Integrated Grant and Loan Program

Ecology's Water Quality Combined Funding Program (WQC) administers four major funding sources that provide grants and low-interest loans for projects to protect and improve water quality in Washington State. Ecology acts in partnership with local governments, special purpose districts, tribes (Federally recognized), and nonprofits (Section 319 only), by providing financial and administrative support for their water quality efforts. Eligible project types include wastewater, stormwater, nonpoint, and on-site sewage systems (OSS). Ecology manages the four fund sources as one with common guidelines, one funding cycle, application form, and offer list.

The WQC offers funding packages to the highest ranked projects through an annual application process. Funding becomes available and agreement negotiations begin on July 1st every year. The full offer list is available as an interactive map, spreadsheet, and document on the WQC Funding Cycles webpage.

Funding packages may include dollars from:

- **Centennial Clean Water Fund** (Centennial) grants for all project types
- **Clean Water Act Section 319** (319) grants for nonpoint
- **Clean Water State Revolving Fund** (SRF) loans for wastewater, nonpoint, and OSS.

- Low interest loans and the Green Project Reserves (GPR), with the possibility of forgivable principal normally boosts the number of SRF applications for nonpoint source projects.

- **Stormwater Financial Assistance Program** (SFAP) grants
  - The SFAP is designed to fund stormwater projects and activities that have been proven effective at reducing environmental degradation from stormwater, and go above-and-beyond permit requirements. Stormwater facilities and a limited suite of stormwater activities may be funded through SFAP. SFAP-eligible facility projects must reduce stormwater pollution from existing development, and will be reviewed by Ecology to ensure compliance with Ecology's design standards.

2.3.1 Nonpoint Grant and Loan Investments (SFY2022)

Nonpoint projects are evaluated and ranked based on feasibility criteria and water quality benefit, in support of the Washington State Nonpoint Plan and watershed plans. Nonpoint projects may receive a combination of grants and/or loans from 319, Centennial, and/or CWSRF as one funding package.

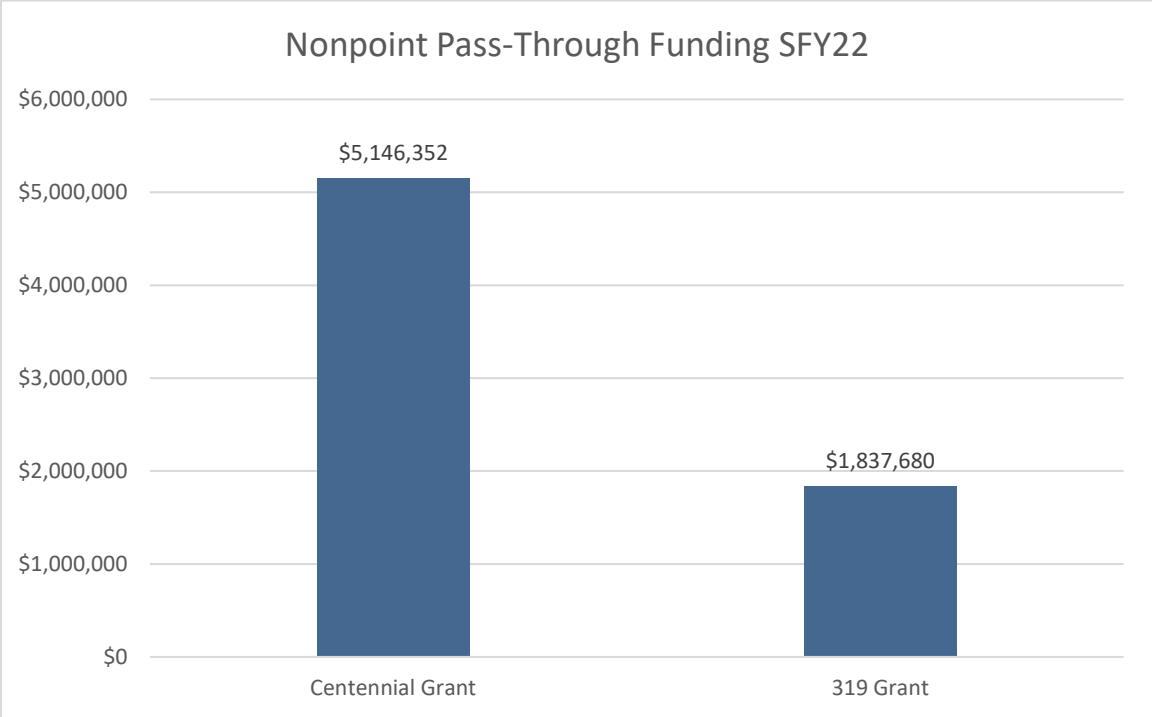


Figure 1 Nonpoint Funding distributed by grant type.

- $9,391,731.50 total Ecology investment in nonpoint projects in SFY 2021.
- 8 projects received 319 funding through the WQC program, and 1 received funding through the DIF program.
- 14 projects received state funding, in addition to the projects that were identified to satisfy the match requirement for EPA funds.

9 projects received matching state funding:

Fund Source	Offer Amount	Number of Projects
Centennial	$5,146,352.00	14
Centennial Match	$2,657,699.50	9
Section 319	$1,837680	9
CWSRF	$0.00	1
Grand Total	**$9,391,731.50**	**32**

319 Pass-through Funding Summary

- $1,778,150 allocated from EPA for pass-through.
- $1,587,680 awarded through the WQC program, $250,000 through the DIF program, for a total of $1,837,680.
- $2,657,699.50 identified for state match in SFY 2022. The total two-year projected match amount is $4,112,667.
- This accounts to an over-obligation of $59,530. This facilitates early project development and implementation and is a safe investment because it falls well below the historical sub project de-obligation amounts within five-year 319 Grants. The state Centennial fund provides backing to fulfill the over-obligation if de-obligations are less than anticipated.

Project descriptions follow on the next pages.

2.3.2 Nonpoint Source Watershed Projects Awarded Grants and Loans in SFY2022

The following projects were offered funding for the SFY2022 Water Quality Combined Funding Program funding cycle. Agreement negotiations began July 1st, 2021.

Application #	Applicant	Project Title	Watershed Plans	Project Description	CWSRF Standard Loan	Centennial Grant	Section 319 Grant
WQC-2022-AsotCD-00136	Asotin Conservation District	Asotin County Water Quality Enhancement Project	Snake River Salmon Recovery Plan, Asotin County Conceptual Restoration Plan	The Asotin County Conservation District (ACCD) will work with landowners to plan and implement Best Management Practices (BMPs) that will reduce water quality issues in streams in Asotin County. BMPs will include streambank stabilization, riparian buffers establishment and enhancement along approximately 40,000 feet of streams, livestock exclusion fencing, off-steam watering and instream habitat structures. There will also be water quality education and outreach materials developed and events.	$0	$250,000	$0
WQC-2022-BellPW-00115	Bellingham city of - Public Works Department	Little Squalicum Estuary Water Quality Improvements	WRIA 1 Salmon Recovery Plan, Early Action #7	The project improves water quality in Little Squalicum Creek and Bellingham Bay by restoring 3.56 acres of coastal wetland on the perimeter of the City of Bellingham. Project elements include constructing a 2.4-acre estuary, enhancing 1.16 acres of forage fish spawning habitat, removing 50 LF of artificial berm, and installing 1.3 acres of riparian plantings. These rare ecological	$0	$500,000	$0

				features will improve dissolved oxygen, fecal coliform, and temperature parameters in an otherwise urban landscape.			
WQC-2022-CascCD-00016	Cascadia Conservation District	Upper Wenatchee Restoration and Education Program	Wenatchee River TMDL, Wenatchee River Riparian Prioritization Final Report, Final Wenatchee Watershed Management Plan	This project is a multi-phase approach to address water quality impairments with planning, implementation, and education. The project combines instream work with targeted education and outreach programs on water quality actions to catalyze improvement of both water quality and stream function. All portions of the project are consistent with actions recommended in locally developed TMDL water quality improvement reports and associated management plans.	$0	$250,000	$0
WQC-2022-ChCoNR-00070	Chelan County - Natural Resource Department	Nason Creek TMDL and Thermal Refuge	Wenatchee River Watershed Temperature TMDL: Water Quality Improvement Report	The project will improve temperatures in Nason Creek through implementation, concept development, monitoring and maintenance, outreach and education. Project implementation will include riparian buffer planting at river mile 2.6 and 6.0 and concept development for two Thermal Refuge projects. Vegetation monitoring and maintenance will continue at RM 2.3 and RM 13.5. Planning and education will inform communities on projects and water quality in the Nason Creek watershed.	$0	$126,692	$0
WQC-2022-ChCoNR-	Chelan County - Natural Resource Department	Chumstick Watershed Phased Riparian and Flow Improvement Project	A Biological Strategy to Protect and Restore Salmonid Habitat in the Upper Columbia Region	The Chumstick Watershed Phased Riparian and Flow Improvement Project will allow for the continuation of a strategy to address a total of 19 temperature, DO, water quantity, and bacteria listings in Chumstick and Eagle	$0	$127,172	$0

				Creeks. Building on WQC-2020-00135 and WQC-2021-00167, this project includes instream, floodplain and vegetation improvements on 1960 stream ft and 2.2 riparian acres, monitoring and maintenance of completed projects and planning of the next phase of water quality restoration.			
WQC-2022-ClarCD-00025	Clark Conservation District	Poop Smart Clark Pollution Identification and Correction Program	East Fork Lewis River Water Cleanup Plan - Bacteria and Temperature Alternative Restoration Plan	Poop Smart Clark is a Pollution Identification and Correction program that uses expertise from partnerships to reduce bacteria in the Lower and Middle East Fork Lewis River (LMEFLR) watershed. Through pollution source identification, targeted outreach, education, and implementation of BMPs, Poop Smart Clark connects residents to information and financial resources to correct pollution, drive social change, and increase adoption of best management practices in the LMEFLR watershed.	$0	$496,977	$0
WQC-2022-Ilwaco-00152	Ilwaco city of	Bear Ridge Community Forest Watershed Protection Project	Ilwaco Source Watershed Control Plan	The City of Ilwaco is looking to acquire land and timber rights within the Indian Creek watershed for the purpose of protecting the drinking water source for the City of Ilwaco. In accordance with the established Forest Stewardship Plan, the city intends to manage the forest with the goal of supporting water quality. This includes prohibiting any future residential or commercial developments within the target acquisition and watershed boundary.	$1,995,000	$500,000	$0

WQC-2022-KCWLRD-00069	King County - Water and Land Resources Division	Cemetery Pond Wetland Protection and Restoration	Puget Sound Action Agenda, Final Adopted May Creek Basin Action Plan	This project will improve water quality in May Creek through protection and restoration of Cemetery Pond, located at SE 128th St and 165th Ave SE in unincorporated King County. Water quality benefits will be achieved through the acquisition of land to secure the restoration site, community outreach to implement/maintain required wetland buffers, and wetland restoration planning and design. The project includes earthwork design to remove historic fill and paving material to restore the wetland.	$0	$500,000	$0
WQC-2022-LandCo-00049	Lands Council the	WRIA 55/57 Restoration through BDAs/PALS, Buffers, and Outreach/Education	Newman Lake Total Phosphorus TMDL and Water Quality Improvement Report	By installing beaver dam analogs and post-assisted log structures, planting riparian buffers, and educating agricultural producers, shoreline homeowners, and local youth in WRIAs 55/57, The Lands Council will achieve water quality and public health benefits by reducing nutrient (phosphorus) and sediment loading, decreasing soil erosion and turbidity, moderating elevated stream temperatures, increasing dissolved oxygen, and controlling pH by trapping and filtering contaminated runoff.	$0	$0	$249,225
WQC-2022-LandCo-00050	Lands Council the	Hangman Creek Watershed Riparian and Wetland Restoration	Hangman (Latah) Creek Watershed Fecal Coliform, Temperature, and Turbidity TMDL—Water Quality Implementation Plan	By installing beaver dam analogs (BDAs) and post-assisted log structures (PALS), planting riparian buffers, and educating agricultural producers and local youth in the Hangman Creek Watershed (WRIA 56), The Lands Council (TLC) will achieve water quality and public health benefits by reducing fecal coliform bacteria, temperature, and turbidity (and its associated nutrients);	$0	$0	$220,950

				increasing dissolved oxygen; and moderating pH.			
WQC-2022-LiCoCD-00042	Lincoln County Conservation District	Lincoln, Palouse, and Adams CD BMP partnership and Regenerative Ag Project	Palouse River Temperature and Fecal Coliform TMDLs	This project addresses nutrient, bacteria, and sediment inputs from agriculture and livestock practices to the Palouse Rivers. The RECIPIENT will partner with Palouse and Adams Conservation Districts to enroll 15 producers in a direct seed cost-share program and administer a regenerative agriculture pilot project. This proposal includes an economic data evaluation, edge-of-field water quality monitoring and outreach and education activities to communicate the project results and implications.	$0	$498,366	$0
WQC-2022-LuInBC-00079	Lummi Indian Business Council	Lower Fobes Phase 2 Restoration Project, South Fork Nooksack River	Puget Sound Action Agenda, South Fork Nooksack River Temperature Total Maximum Daily Load, Salmon and Steelhead Habitat Limiting Factors in WRIA 1, the Nooksack Basin	To improve temperature and habitat complexity for ESA listed salmonids in WRIA 1, Lummi Nation will use this grant to construct 29 engineered logjams (ELJs), plant up to 20 riparian acres, and monitor project effectiveness in a temperature impaired reach of the mainstem South Fork Nooksack River. The goal of this project is to restore natural channel and floodplain processes to maintain salmonid spawning, rearing and holding habitat, while improving late summer flow and reduce water temperature.	$0	$490,208	$0

WQC-2022-MCFEG-00126	Mid-Columbia Fisheries Enhancement Group	Mercer Creek Floodplain and Riparian Restoration Implementation	Middle Columbia River Steelhead DPS Recovery Plan Summary, Habitat Limiting Factors: Yakima River Watershed, Wilson Creek Sub-basin Bacteria Total Maximum Daily Load (TMDL): Detailed Implementation Plan (DIP)	This project will work in tandem with previously awarded 2020–MCFEG–00204 to reduce bacteria delivery & improve water quality in Mercer Cr., an upper Yakima tributary, by removing invasive crack willow, installing an inset floodplain, planting, fencing, and educating area residents about water quality. Mercer Cr. is listed on State's 303 d list for excessive bacterial loads and is included in the 2005 Wilson Creek Sub-Basin Bacteria TMDL. The project area is within the City of Ellensburg.	$0	$0	$242,313
WQC-2022-NoYaCD-00105	North Yakima Conservation District	Naches River Water Quality Restoration Project Phase 3	Salmonid Habitat Limiting Factors Analysis - Yakima River Watershed, Yakima Steelhead Recovery Plan, Upper Naches & Cowiche Temp TMDL	This application continues investments in, and local coordination of restoration and stewardship in the Upper and Lower Naches River to address a stream temperature impairment. This project will: (1) establish and enhance 12 acres and 2,800 feet of streambank along the mainstem Naches River by installing riparian vegetation and establishing a 75-foot buffer (2) provide an additional year of stewardship on Trout Meadows, and (3) conduct outreach and developing a project plan.	$0	$240,786	$0
WQC-2022-OkanCD-00064	Okanogan Conservation District	After the Burn: Protecting surface water from post-fire pollution	Okanogan Watershed Plan, Okanogan Shoreline Master Plan	Okanogan Conservation District will provide planning support and implementation assistance to community members planning erosion control and riparian restoration projects in the Palmer Mountain and Cold Springs burned areas. Staff will conduct water quality monitoring and best management practice planning around Palmer Lake to address algae blooms, fish	$0	$209,960	$0

				habitat, and to reduce post-fire watershed impacts. Five acres of wetland riparian area will be protected and restored.			
WQC-2022-OxCSAE-00062	Oxbow Center for Sustainable Agriculture and the Environment	Upper Snoqualmie River Riparian Enhancement	Snoqualmie River Basin Temperature Total maximum Daily Load, Snohomish Basin Salmon Recovery Forum	This project capitalizes on 7 years of invasive plant control work in the three-forks area of the Snoqualmie River and implements riparian restoration in and around knotweed-affected areas that are in late stages of control. In partnership with landowners, municipalities, and the Snoqualmie Tribe, the project team will carry out follow-up knotweed treatment, comprehensive invasive plant removal, installation of native plants, planting maintenance, and project monitoring.	$0	$0	$201,764
WQC-2022-PaloCD-0005900059	Palouse Conservation District	Full Stream Ahead! Riparian Restoration Innovations on the Palouse River	Palouse River Fecal Coliform Bacteria Total Maximum Daily Load: Water Quality Improvement Report and Implementation Plan,	Riparian buffers improve water quality, yet in artificially-drained agricultural regions, water can bypass riparian soils and plant roots, reducing their capacity to remove nutrients. This multi-approach project will restore 15 ac (1.5 miles), install four beaver dam analogs (BDAs), and construct three saturated riparian buffers, a new conservation practice that facilitates riparian nitrogen removal, to improve water quality in the South Fork Palouse River watershed.	$0	$500,000	$0
WQC-2022-PaloCD-00081	Palouse Conservation District	Supporting Sustainable Ranching on Snake River Tributaries	Steptoe Creek: Straight-to-Implementation Internal Work Plan	The Palouse Conservation District (PCD) will work with livestock producers along Steptoe and Wawawai Creek to install livestock Best Management Practices (BMPs) and riparian projects targeting water quality in the Middle Snake River Watershed (WRIA35).	$0	$500,000	$0

				Additionally, water quality monitoring to quantify project success will allow PCD to adaptively manage these sites by gauging pollutant load reductions, while targeted outreach will engage local livestock producers.			
WQC-2022-PaloCD-00095	Palouse Conservation District	Do the Residue! Promoting Direct Seed Operations on the Palouse	Palouse Watershed Plan approved for WRIA 34	The Palouse Conservation District (PCD) will lead the implementation of five acres of riparian buffers and 9,000 acres of direct seeding to improve water quality in Whitman County streams. A survey of producers will assess direct seed adoption by conservation program participants. Crop residue monitoring and outreach and education programs, including the Alternative Cropping Symposium and Direct Seed Breakfasts, will lead to further water quality improvements in the Palouse River watershed.	$0	$500,000	$0
WQC-2022-PiCoPW-00035	Pierce County - Public Works and Utility Department	Rody Creek Channel Stabilization (Between 80th and 72nd ST E)	Clarks Creek Restoration Plan, Clarks Creek Sediment Reduction Action Plan	The proposed project is located between 80th ST E and 72nd ST E (west of 62nd AVE E). The primary goal of the project is to stabilize eroding slopes and reverse channel incision in Rody Creek. Slash and wood bed-control structures will be constructed to slow instream velocity and reverse channel incision. This will allow sediment to settle in a more stable and natural profile. The project will be designed to address Clarks Creek TMDL water quality sediment goals, more specific to DO deficiency.	$0	$500,000	$0

WQC-2022-SkRiSC-00135	Skagit River System Cooperative	Nookachamps Riparian Restoration Phase II	Nookachamps TMDL	This phase two project aims to improve water quality by restoring native riparian vegetation on 21 acres along Nookachamps Creek, East Fork Nookachamps Creek, and Barney Lake. Phase one restored native riparian vegetation on 54 acres along Nookachamps and Trumpeter Creeks. Restoration of riparian vegetation will address water quality impairments including dissolved oxygen, bacteria, fecal coliform, and temperature by shading the creek and filtering surface water runoff.	$0	$0	$157,486
WQC-2022-SnohCD-00022	Snohomish Conservation District	French Creek Tributary Riparian and Wetland Restoration	French Creek Management Plan	The Snohomish Conservation District will re-forest an unnamed stream and a connected wetland in the French Creek subbasin and construct a livestock exclusion fence to reduce water temperatures, bacterial pollution, and nutrient inputs. A total of 6.6 acres will be planted to improve water quality and habitat in the watershed by increasing riparian forest cover and restoring healthy wetland hydrology.	$0	$170,257	$0
WQC-2022-SnohCD-00083	Snohomish Conservation District	North Fork Stillaguamish Floodplain Riparian Restoration	Stillaguamish River Watershed Temperature Total Maximum Daily Load Study, Stillaguamish Watershed Chinook Recovery Plan	Snohomish Conservation District (SCD) proposes to address impaired water temperatures that threaten ESA-listed Chinook salmon, other salmonids, and aquatic life through invasive species control and riparian reforestation. Water temperature in the North Fork Stillaguamish River frequently exceeds standards and limits salmon productivity. SCD will reforest 6.2 acres of riparian area and control invasive vegetation on 2.6 acres of riparian	$0	$175,725	$0

				and side channel along the North Fork Stillaguamish River.			
WQC-2022-SnohCD-00101	Snohomish Conservation District	Nutrient runoff reduction from agricultural lands in Snohomish County	Stillaguamish River Watershed Temperature Total Maximum Daily Load Study, Stillaguamish Watershed Chinook Recovery Plan	To address Ecology's Puget Sound Nutrient Reduction Strategy, the Snohomish Conservation District will reduce agricultural sources of nutrients in the floodplains of the Stillaguamish and Snohomish Rivers. These two rivers combined contribute 37 of the total riverine nitrogen loading to the Puget Sound. Benefits will be achieved through proper nutrient application assistance and implementation of nutrient retention and filtration best management practices on commercial agricultural lands.	$0	$213,660	$0
WQC-2022-SoSaSo-00004	Sound Salmon Solutions	Ladd Carpenter Creek Riparian Restoration	Woods Creek Action Plan for Riparian Restoration, Snohomish River Basin Salmon Conservation Plan	3.44 acres of invasive vegetation control and 8.94 acres of riparian planting will be completed within a 100-275 foot buffer along 1,200 feet of the headwater reach of Carpenter Creek to improve water quality and salmon habitat.	$0	$0	$118,521
WQC-2022-SoSaSo-00005	Sound Salmon Solutions	Anderson's Bambooland Riparian Restoration Phase I	Snohomish Basin Salmon Conservation Plan, Skykomish River TMDL Development Plan, Lower Skykomish River Reach-scale Plan	Sound Salmon Solutions will control invasive vegetation and install native vegetation on a 150ft wide riparian buffer along 1,850 feet of the right bank Skykomish River to address TMDLs and improve salmon habitat. Community members and students will participate in the restoration process, learning the importance of healthy waterways and ecosystem function to the Snohomish Watershed and greater Puget Sound region.	$0	$0	$148,076

WQC-2022-StePar*-00141	Stewardship Partners	Snoqualmie Stewardship Riparian Restoration and Maintenance	Snohomish River Basin Conservation Plan	The Snoqualmie Stewardship Riparian Restoration and Maintenance project improves water quality by restoring approximately 2,900 linear feet and maintaining approximately 5,700 linear feet of riparian buffer along the mainstem Snoqualmie River with five agricultural landowners. The project promotes Best Management Practices (BMPs) as part of Stewardship Partners voluntary incentive based approach to landowner stewardship.	$0	$0	$249,345
WQC-2022-TPCoHD-00082	Tacoma - Pierce County Health Department	Minter Bay Water Quality Project	DOH Reports refer to Henderson Bay which includes Minter Bay	Tacoma-Pierce County Health Department will assess the Minter Bay portion of the Henderson Bay commercial shellfish growing area for any pollution sources, and develop an enhanced operations and maintenance program in the watershed, and targeted Community Based Social Marketing Campaign. Surface Water is newly reorganized with the Code Enforcement program, which makes new tools such as an administration search warrant process, a FLIR device, and more regular communication possible.	$0	$158,946	$0
WQC-2022-Tumwat-00092	Tumwater city of	Pioneer Park Restoration	Deschutes River Coho Salmon Biological Recovery Plan, Deschutes River, Percival Creek, and Budd Inlet Tributaries Temperature, Fecal Coliform Bacteria, Dissolved Oxygen, pH,	The City of Tumwater is seeking funding to design and construct a riparian restoration project to stabilize the slope and improve riparian conditions along the Deschutes River at River Mile 2.0, located in Pioneer Park. Currently, the roughly 1,000-foot section of unstabilized bank produces over 2,380 cubic yards of fine sediment every	$0	$338,086	$0

			and Fine Sediment Total Maximum Daily Load	year into the Deschutes River, a 303(d) listed water body.			
WQC-2022-WhitCD-00148	Whitman Conservation District	Water Quality Enhancement through Restoration of Function	Middle Snake River Watershed Plan	The Middle Snake River (MSR) Total Maximum Daily Load (TMDL) and Water Quality Assessment Category 5 and 4A listings have specifically listed Alkali Flat Creek as impaired for pH , temperature, dissolved oxygen, and bacteria. To address these issues, the Whitman Conservation District (WCD) has identified multiple project sites for riparian restoration throughout the Alkali Creek Watershed.	$0	$210,000	$0
WQC-2022-WWCoCD-00068	Walla Walla County Conservation District	Last Chance Road Restoration at RM 35.5	Walla Walla Watershed PCBs, Chlorinated Pesticides, Fecal Coliform, Temperature, pH, and Dissolved Oxygen Total Maximum Daily Load Water Quality Implementation Plan	The Walla Walla County Conservation District proposes to install a series of bio-engineered log structures on 0.56 miles of the Walla Walla River to reduce water quality impacts. Installation of strategically placed log structures will reduce streambank erosion and resulting turbidity and increase pooling and subsurface flow, resulting in cooler inputs downstream. Riparian plantings and nutrient management will grow to shade the river, stabilize banks, and reduce agrochemical inputs.	$0	$347,217	$0

2.3.3 Load Reduction Estimates by Project in 2021

Load reduction estimates (for some best management practices) are provided by recipients every January for the previous calendar year. Ecology compiles and enters this data into the GRTs database annually. EPA has inquired about yearly fluctuations in the total load reduction estimates found in this section. Load reduction estimates may differ from year to year based on several factors. Significantly, Washington State implements many BMP projects that may not result in nitrogen, phosphorus, or sediment load reductions because they are intended to reduce temperature and/or fecal coliform—which STEPL cannot currently calculate. Temperature and fecal coliform impairments are of particular concern because of their impacts on shellfish and salmon. Ecology has therefore placed a high priority on implementing BMPs that address these pollutants. Further, implementation of BMPs that target temperature and fecal coliform help address tribal treaty rights at risk. While these efforts may not be adequately captured in the below tables, we believe that they are good investments. We have also included a list of BMP implementations this year (see table in section 2.3.4). These tables, taken together, provide a more accurate picture of the environmental benefits of our investments. Pass through grant project agreements have 3-4 years to complete the scope of work. Load reduction estimates resulting from active projects in 2021 are provided below.

Summary of Load Reductions in 2021

Pollutant	Total Load Reduction Estimate
Biochemical Oxygen Demand (BOD)	122,341 LBS/YR
Nitrogen	73,279 LBS/YR
Phosphorus	25,925 LBS/YR
Sedimentation-Siltation	20,808 TONS/YR

Load Reductions per Project in 2021

Pollutant	State Project No.	Estimated Load Reduction	Unit of Measure
Biochemical Oxygen Demand (BOD)	WQC-2018-LCEP-00122	0.001	LBS/DAY
	WQC-2018-PaloCD-0011	8768.8	LBS/YR
	WQC-2018-PierCD-0016	0.96	LBS/YR
	WQC-2018-SkRiSC-0003	3.5	LBS/YR
	WQC-2018-SpoCoD-0012	50345.5	LBS/YR
	WQC-2019-LCEP-00199	0.001	LBS/YR
	WQC-2019-LiCoCD-0016	3.96	LBS/YR
	WQC-2019-NookIT-0010	53.7	LBS/YR
	WQC-2019-PaloCD-0007	30775.9	LBS/YR

Pollutant	State Project No.	Estimated Load Reduction	Unit of Measure
Biochemical Oxygen Demand (BOD)	WQC-2019-PaloCD-0016	556.4	LBS/YR
	WQC-2020-Adopta-0003	0.1	LBS/YR
	WQC-2020-Adopta-0017	0.1	LBS/YR
	WQC-2020-KooCom-0016	920.8	LBS/YR
	WQC-2020-MSRF-00143	3.6	LBS/YR
	WQC-2020-NoYaCD-0000	404.3	LBS/YR
	WQC-2020-PaloCD-0012	25152	LBS/YR
	WQC-2020-SnohCD-0015	0.2	LBS/YR
	WQC-2020-SoSaSo-0017	3.8	LBS
	WQC-2020-UndeCD-0016	606.4	LBS/YR
	WQC-2021-SJCoPW-0019	267.8	LBS/YR
	WQC-2021-SpoCoD-0019	3866.4	LBS/YR
	WQC-2021-Waters-0000	606.4	LBS/YR
Nitrogen	WQC-2018-LCEP-00122	0.02	LBS/YR
	WQC-2018-PaloCD-0011	4738.2	LBS/YR
	WQC-2018-PierCD-0016	29.63	LBS/YR
	WQC-2018-SoSaSo-0017	35.9	LBS/YR
	WQC-2018-SoSaSo-0022	18.1	LBS/YR
	WQC-2018-SpoCoD-0012	27154.1	LBS/YR
	WQC-2019-Adopta-0000	1.2	LBS/YR
	WQC-2019-LCEP-00199	0.02	LBS/YR
	WQC-2019-LCEP-00205	0.02	LBS/YR
	WQC-2019-LeCoCD-0003	2	LBS/YR
	WQC-2019-LiCoCD-0016	1.77	LBS/YR
	WQC-2019-NookIT-0010	83	LBS/YR
	WQC-2019-PaloCD-0007	15942.5	LBS/YR
	WQC-2019-PaloCD-0016	482.2	LBS/YR
	WQC-2020-Adopta-0003	4.3	LBS/YR
	WQC-2020-Adopta-0017	3.3	LBS/YR
	WQC-2020-KooCom-0016	460.4	LBS/YR
	WQC-2020-MCFEG-00204	0.329	LBS/YR
	WQC-2020-MSRF-00143	4.5	LBS/YR
	WQC-2020-NoYaCD-0000	307.1	LBS/YR
	WQC-2020-PaloCD-0012	12635.2	LBS/YR
	WQC-2020-SnohCD-0015	5.8	LBS/YR
	WQC-2020-SoSaSo-0017	16.7	LBS/YR
	WQC-2020-UndeCD-0016	189.5	LBS/YR
	WQC-2020-WWCoCD-0015	82.7	LBS/YR

Pollutant	State Project No.	Estimated Load Reduction	Unit of Measure
Nitrogen	WQC-2021-MCFEG-00062	0.379	LBS/YR
	WQC-2021-SJCoPW-0019	8870.7	LBS/YR
	WQC-2021-SpoCoD-0019	2019.9	LBS/YR
	WQC-2021-Waters-0000	189.5	LBS/YR
Phosphorus	WQC-2018-LCEP-00122	0.01	LBS/YR
	WQC-2018-PaloCD-0011	1742.6	LBS/YR
	WQC-2018-PierCD-0016	2.12	LBS/YR
	WQC-2018-SkRiSC-0003	5	LBS/YR
	WQC-2018-SoSaSo-0017	6.2	LBS/YR
	WQC-2018-SoSaSo-0022	2.6	LBS/YR
	WQC-2018-SpoCoD-0012	10458.9	LBS/YR
	WQC-2019-Adopta-0000	0.1	LBS/YR
	WQC-2019-LCEP-00199	0.01	LBS/YR
	WQC-2019-LCEP-00205	0.01	LBS/YR
	WQC-2019-LeCoCD-0003	0.1	LBS/YR
	WQC-2019-LiCoCD-0016	0.78	LBS/YR
	WQC-2019-NookIT-0010	18.8	LBS/YR
	WQC-2019-PaloCD-0007	6169.7	LBS/YR
	WQC-2019-PaloCD-0016	122.6	LBS/YR
	WQC-2020-Adopta-0003	0.03	LBS/YR
	WQC-2020-Adopta-0017	0.2	LBS/YR
	WQC-2020-KooCom-0016	360.9	LBS/YR
	WQC-2020-MCFEG-00204	0.36	LBS/YR
	WQC-2020-MSRF-00143	0.9	LBS/YR
	WQC-2020-NoYaCD-0000	94	LBS/YR
	WQC-2020-PaloCD-0012	5034.8	LBS/YR
	WQC-2020-SnohCD-0015	0.4	LBS/YR
	WQC-2020-SoSaSo-0017	2.4	LBS/YR
	WQC-2020-UndeCD-0016	16.9	LBS/YR
	WQC-2020-WWCoCD-0015	31.4	LBS/YR
	WQC-2021-Adopta-0006	0.5	LBS/YR
	WQC-2021-MCFEG-00062	0.374	LBS/YR
	WQC-2021-SJCoPW-0019	1052.9	LBS/YR
	WQC-2021-SpoCoD-0019	782.1	LBS/YR
	WQC-2021-Waters-0000	16.9	LBS/YR
Sedimentation-Siltation	WQC-2018-PaloCD-0011	1370.4	TONS/YR
	WQC-2018-PierCD-0016	0.15	TONS/YR
	WQC-2018-SkRiSC-0003	0.6	TONS/YR

Pollutant	State Project No.	Estimated Load Reduction	Unit of Measure
Sedimentation-Siltation	WQC-2018-SoSaSo-0017	1.7	TONS/YR
	WQC-2018-SoSaSo-0022	0.6	TONS/YR
	WQC-2018-SpoCoD-0012	7865.5	TONS/YR
	WQC-2019-LiCoCD-0016	0.29	TONS/YR
	WQC-2019-NookIT-0010	0.83	TONS/YR
	WQC-2019-PaloCD-0007	4788.9	TONS/YR
	WQC-2019-PaloCD-0016	88.4	TONS/YR
	WQC-2020-KooCom-0016	338.5	TONS/YR
	WQC-2020-MCFEG-00204	0.574	TONS/YR
	WQC-2020-MSRF-00143	0.6	TONS/YR
	WQC-2020-NoYaCD-0000	63.2	TONS/YR
	WQC-2020-PaloCD-0012	3930.9	TONS/YR
	WQC-2020-SoSaSo-0017	0.6	TONS/YR
	WQC-2020-UndeCD-0016	2.15	TONS/YR
	WQC-2020-WWCoCD-0015	33.4	TONS/YR
	WQC-2021-MCFEG-00062	0.535	TONS/YR
	WQC-2021-SJCoPW-0019	1713.6	TONS/YR
	WQC-2021-SpoCoD-0019	604.2	TONS/YR
	WQC-2021-Waters-0000	2.15	TONS/YR

2.3.4 Best Management Practices (BMPs) Implemented in 2021

Pass through grant project agreements have 3-4 years to complete the scope of work. BMPs implemented through active projects in 2021 are provided below.

Summary of BMPs Implemented 2021

BMP Type	Total Acres / Linear Length
Conservation Tillage Residue Management	1,273,071.20 Acres
Fence	14.7 Miles
Filter Strip	41.65 Acres 6.9 Miles
Heavy Use Area Protection	.26 Acres
Invasive Species/Noxious Weed Control	10,879.42 AC 7,823.9 Miles
Riparian Forest Buffer	1,403.33 Acres 85.12 Miles
Stream Habitat Improvement and Management	15 Acres
Stream Channel Stabilization	39.73 Acres 14.07 Miles
Tree/Shrub Establishment	2,178.03 Acres 33.56 Miles
Watering Facilities	8 Units
Wetland Restoration	235 Acres 2 Miles

BMPs Implemented per Project 2021

BMP	State Project No.	Project Title	Installed	Unit of Measure
Conservation Tillage Residue Management	WQC-2018-PaloCD-0011	Palouse Direct Seed Partnership Implementation and Monitoring	60,839.80	AC
	WQC-2018-SpoCoD-0012	Farmed Smart Certification and Direct Seed Loan Implementation Program	771,176.00	AC
	WQC-2019-LeCoCD-0003	No Till-Drill for Sediment Reduction in the Chehalis Basin	1,462.20	AC

BMP	State Project No.	Project Title	Installed	Unit of Measure
	WQC-2019-LeCoCD-0003	No Till-Drill for Sediment Reduction in the Chehalis Basin	2,400.00	FT
	WQC-2019-PaloCD-0007	Matching: Thinking Outside the Fertilizer Box: Conservation on Union Flat Creek	340,772.40	AC
	WQC-2020-PaloCD-0012	Direct Seed Partnership on the Palouse	97,820.80	AC
	WQC-2021-SpoCoD-0019	Hangman Creek Agricultural BMP Assistance Project	1,000.00	AC
Fence	WQC-2019-LiCoCD-0016	Mielke WRP Wetland and Riparian Restoration	4,000.00	FT
	WQC-2019-PaloCD-0016	Palouse Basin BMP Implementation for Water Quality Improvement	18,900.00	FT
Filter Strip	WQC-2018-PaloCD-0011	Palouse Direct Seed Partnership Implementation and Monitoring	41.65	AC
	WQC-2018-PaloCD-0011	Palouse Direct Seed Partnership Implementation and Monitoring	36,309.00	FT
Heavy Use Area Protection	WQC-2019-PaloCD-0016	Palouse Basin BMP Implementation for Water Quality Improvement	5,250.00	SQUARE FEET
	WQC-2021-SJCoPW-0019	False Bay Creek livestock exclusion and riparian planting BMP's - Phase I	0.12	AC
	WQC-2021-SpoCoD-0019	Hangman Creek Agricultural BMP Assistance Project	720.00	SQUARE FEET
Invasive Species/Noxious Weed Control	WQC-2018-PierCD-0016	South Prairie Creek TMDL Response	149.52	AC
	WQC-2018-PierCD-0016	South Prairie Creek TMDL Response	23,800.00	FT
	WQC-2018-SoSaSo-0017	Stillwater Natural Area Restoration Phase II	62.84	AC
	WQC-2018-SoSaSo-0017	Stillwater Natural Area Restoration Phase II	5,970.00	FT
	WQC-2018-SoSaSo-0022	Grant Creek Restoration Phase I	49.32	AC
	WQC-2018-SoSaSo-0022	Grant Creek Restoration Phase I	17,720.00	FT

BMP	State Project No.	Project Title	Installed	Unit of Measure
	WQC-2019-KCoNWC-0003	King County Riparian Buffer Enhancement through Restoration and Stewardship	5,775.36	AC
	WQC-2019-KCoNWC-0003	King County Riparian Buffer Enhancement through Restoration and Stewardship	40,763,362.56	FT
	WQC-2019-KCoNWC-0003	King County Riparian Buffer Enhancement through Restoration and Stewardship	4,042.69	AC
	WQC-2019-LCEP-00199	Burnt Bridge Creek Stormwater OSPREY Project	9.00	AC
	WQC-2019-LCEP-00199	Burnt Bridge Creek Stormwater OSPREY Project	3,000.00	FT
	WQC-2019-PaloCD-0016	Palouse Basin BMP Implementation for Water Quality Improvement	701.61	AC
	WQC-2019-PaloCD-0016	Palouse Basin BMP Implementation for Water Quality Improvement	412,524.00	FT
	WQC-2019-SnohCD-0014	Restoration at the Riverfront: Snohomish River at RM 13 Restoration Project	8.08	AC
	WQC-2019-SnohCD-0014	Restoration at the Riverfront: Snohomish River at RM 13 Restoration Project	3,353.62	FT
	WQC-2020-MCFEG-00204	Mercer Creek Floodplain and Riparian Restoration	15.00	AC
	WQC-2020-MCFEG-00204	Mercer Creek Floodplain and Riparian Restoration	24,000.00	FT
	WQC-2020-UndeCD-0016	White Salmon River Watershed Water Quality Implementation	38.00	AC
	WQC-2020-UndeCD-0016	White Salmon River Watershed Water Quality Implementation	12,080.00	FT
	WQC-2020-WWCoCD-0015	Canopy Cover Improvements on the Touchet River	37,398.44	FT

BMP	State Project No.	Project Title	Installed	Unit of Measure
	WQC-2021-Waters-0000	Improving Shade and Temperature Deficits - Middle East Fork Lewis River	28.00	AC
Invasive Species/Noxious Weed Control	WQC-2021-Waters-0000	Improving Shade and Temperature Deficits - Middle East Fork Lewis River	7,200.00	FT
Livestock Stream Crossing	WQC-2019-PaloCD-0016	Palouse Basin BMP Implementation for Water Quality Improvement	630.00	FT
	WQC-2019-PaloCD-0016	Palouse Basin BMP Implementation for Water Quality Improvement	9,450.00	SQUARE FEET
Riparian Forest Buffer	WQC-2018-LCEP-00122	Salmon Creek Stormwater OSPREY Project	24.00	AC
	WQC-2018-LCEP-00122	Salmon Creek Stormwater OSPREY Project	12,300.00	FT
	WQC-2018-PaloCD-0016	Palouse Basin Water Quality Improvements	32.15	AC
	WQC-2018-PaloCD-0016	Palouse Basin Water Quality Improvements	8,205.00	FT
	WQC-2018-PaloCD-0016	Palouse Basin Water Quality Improvements	0.01	AC
	WQC-2018-PierCD-0016	South Prairie Creek TMDL Response	14.92	AC
	WQC-2018-PierCD-0016	South Prairie Creek TMDL Response	10,400.00	FT
	WQC-2018-SkRiSC-0003	Lower Skagit Tributaries Riparian Restoration	49.00	AC
	WQC-2018-SkRiSC-0003	Lower Skagit Tributaries Riparian Restoration	5,960.00	FT
	WQC-2018-SoSaSo-0017	Stillwater Natural Area Restoration Phase II	29.10	AC
	WQC-2018-SoSaSo-0017	Stillwater Natural Area Restoration Phase II	3,380.00	FT
	WQC-2018-SoSaSo-0022	Grant Creek Restoration Phase I	31.10	AC
	WQC-2018-SoSaSo-0022	Grant Creek Restoration Phase I	12,662.00	FT
	WQC-2019-Adopta-0000	Strawberry Fields Riparian Buffer Enhancement Part 2	24.02	AC
	WQC-2019-Adopta-0000	Strawberry Fields Riparian Buffer Enhancement Part 2	10,414.00	FT
	WQC-2019-LCEP-00199	Burnt Bridge Creek Stormwater OSPREY Project	36.00	AC
	WQC-2019-LCEP-00199	Burnt Bridge Creek Stormwater OSPREY Project	12,000.00	FT
	WQC-2019-LCEP-00205	Woodin Creek Stormwater OSPREY Project	14.00	AC

BMP	State Project No.	Project Title	Installed	Unit of Measure
	WQC-2019-LCEP-00205	Woodin Creek Stormwater OSPREY Project	4,400.00	FT
Riparian Forest Buffer	WQC-2019-LiCoCD-0016	Mielke WRP Wetland and Riparian Restoration	28.00	AC
	WQC-2019-NookIT-0010	South Fork Nooksack Temperature TMDL Implementation	407.40	AC
	WQC-2019-NookIT-0010	South Fork Nooksack Temperature TMDL Implementation	54,330.00	FT
	WQC-2019-PaloCD-0016	Palouse Basin BMP Implementation for Water Quality Improvement	175.98	AC
	WQC-2019-PaloCD-0016	Palouse Basin BMP Implementation for Water Quality Improvement	137,802.00	FT
	WQC-2019-SnohCD-0014	Restoration at the Riverfront: Snohomish River at RM 13 Restoration Project	9.00	AC
	WQC-2019-SnohCD-0014	Restoration at the Riverfront: Snohomish River at RM 13 Restoration Project	3,400.00	FT
	WQC-2020-Adopta-0003	Allen - Grace Confluence: A Riparian Reforestation Project	6.00	AC
	WQC-2020-Adopta-0003	Allen - Grace Confluence: A Riparian Reforestation Project	2,680.00	FT
	WQC-2020-Adopta-0017	Sammamish River Restoration at Swamp Creek	6.00	AC
	WQC-2020-Adopta-0017	Sammamish River Restoration at Swamp Creek	1,460.00	FT
	WQC-2020-KooCom-0016	Improving Water Quality in Yellowhawk Creek and W. Little Walla Walla River	27.56	AC
	WQC-2020-KooCom-0016	Improving Water Quality in Yellowhawk Creek and W. Little Walla Walla River	12,008.00	FT
	WQC-2020-MCFEG-00204	Mercer Creek Floodplain and Riparian Restoration	15.00	AC
	WQC-2020-MCFEG-00204	Mercer Creek Floodplain and Riparian Restoration	12,000.00	FT
	WQC-2020-MSRF-00143	Methow Water Quality Restoration and Monitoring Project	23.28	AC
	WQC-2020-MSRF-00143	Methow Water Quality Restoration and Monitoring Project	11,475.00	FT
	WQC-2020-NoYaCD-0000	Naches River Basin Water Quality Restoration Project PHASE 2	180.00	AC

BMP	State Project No.	Project Title	Installed	Unit of Measure
	WQC-2020-NoYaCD-0000	Naches River Basin Water Quality Restoration Project PHASE 2	38,000.00	FT
	WQC-2020-SnohCD-0015	Jennings Park Phase Two Riparian Restoration Project	10.48	AC
	WQC-2020-SnohCD-0015	Jennings Park Phase Two Riparian Restoration Project	2,461.36	FT
	WQC-2020-SoSaSo-0017	Segelsen Stillaguamish Riparian Restoration	21.80	AC
	WQC-2020-SoSaSo-0017	Segelsen Stillaguamish Riparian Restoration	2,360.00	FT
	WQC-2020-UndeCD-0016	White Salmon River Watershed Water Quality Implementation	72.00	AC
	WQC-2020-UndeCD-0016	White Salmon River Watershed Water Quality Implementation	19,200.00	FT
	WQC-2020-WWCoCD-0015	Canopy Cover Improvements on the Touchet River	52.44	AC
	WQC-2020-WWCoCD-0015	Canopy Cover Improvements on the Touchet River	58,339.94	FT
	WQC-2021-Adopta-0006	Pilchuck River Tributary Buffer Enhancement Partnership; Coon Creek	0.40	AC
	WQC-2021-Adopta-0006	Pilchuck River Tributary Buffer Enhancement Partnership; Coon Creek	200.00	FT
	WQC-2021-MCFEG-00062	Upper Yakima Forest Restoration	50.48	AC
	WQC-2021-MCFEG-00062	Upper Yakima Forest Restoration	4,400.00	FT
	WQC-2021-SJCoPW-0019	False Bay Creek livestock exclusion and riparian planting BMP's - Phase I	27.20	AC
	WQC-2021-Waters-0000	Improving Shade and Temperature Deficits - Middle East Fork Lewis River	36.00	AC
	WQC-2021-Waters-0000	Improving Shade and Temperature Deficits - Middle East Fork Lewis River	9,600.00	FT
Roof Runoff Management	WQC-2021-SpoCoD-0019	Hangman Creek Agricultural BMP Assistance Project	1.50	AC
Stream Channel Stabilization	WQC-2020-MCFEG-00204	Mercer Creek Floodplain and Riparian Restoration	12,000.00	FT
	WQC-2021-MCFEG-00062	Upper Yakima Forest Restoration	12.00	AC
	WQC-2021-MCFEG-00062	Upper Yakima Forest Restoration	9,600.00	FT

BMP	State Project No.	Project Title	Installed	Unit of Measure
Stream Exclusion Fencing	WQC-2020-MCFEG-00204	Mercer Creek Floodplain and Riparian Restoration	12,000.00	FT
	WQC-2021-MCFEG-00062	Upper Yakima Forest Restoration	64.00	AC
	WQC-2021-MCFEG-00062	Upper Yakima Forest Restoration	28,800.00	FT
	WQC-2021-SJCoPW-0019	False Bay Creek livestock exclusion and riparian planting BMP's - Phase I	14,400.00	FT
Stream Habitat Improvement and Management	WQC-2020-MCFEG-00204	Mercer Creek Floodplain and Riparian Restoration	15.00	AC
Streambank & Shoreline Protection	WQC-2018-PaloCD-0016	Palouse Basin Water Quality Improvements	361.00	FT
	WQC-2019-PaloCD-0016	Palouse Basin BMP Implementation for Water Quality Improvement	0.21	AC
	WQC-2019-PaloCD-0016	Palouse Basin BMP Implementation for Water Quality Improvement	28,350.00	FT
	WQC-2020-MCFEG-00204	Mercer Creek Floodplain and Riparian Restoration	12,000.00	FT
	WQC-2021-MCFEG-00062	Upper Yakima Forest Restoration	27.52	AC
	WQC-2021-MCFEG-00062	Upper Yakima Forest Restoration	12,000.00	FT
Tree/Shrub Establishment	WQC-2018-PierCD-0016	South Prairie Creek TMDL Response	1,956.00	AC
	WQC-2018-PierCD-0016	South Prairie Creek TMDL Response	13,400.00	FT
	WQC-2019-LCEP-00199	Burnt Bridge Creek Stormwater OSPREY Project	9.00	AC
	WQC-2019-LCEP-00199	Burnt Bridge Creek Stormwater OSPREY Project	3,000.00	FT
	WQC-2019-PaloCD-0016	Palouse Basin BMP Implementation for Water Quality Improvement	198.03	AC
	WQC-2019-PaloCD-0016	Palouse Basin BMP Implementation for Water Quality Improvement	160,776.00	FT
	WQC-2020-MCFEG-00204	Mercer Creek Floodplain and Riparian Restoration	15.00	AC
Watering Facility	WQC-2019-PaloCD-0016	Palouse Basin BMP Implementation for Water Quality Improvement	5,250.00	SQUARE FEET
Wetland Restoration	WQC-2019-LiCoCD-0016	Mielke WRP Wetland and Riparian Restoration	220.00	AC

BMP	State Project No.	Project Title	Installed	Unit of Measure
	WQC-2019-LiCoCD-0016	Mielke WRP Wetland and Riparian Restoration	10,560.00	FT
	WQC-2020-MCFEG-00204	Mercer Creek Floodplain and Riparian Restoration	15.00	AC

2.4 Unliquidated Obligation (ULO)

CWA 319 Grant Balance (Unliquidated Obligations) as of March 31, 2022

Project	Grant #	FY	Project Period		Grant Award Amount (Fed)	Unspent Balance (ULO)	% ULO
FA11	C9-00044910	17	7/1/2017	6/30/2022	$6,139,000.00	$450,688	7.34%
FA12	C9-00044911	19	7/1/2019	6/20/2024	$6,169,000.00	$2,561,497	41.52%
FA13	C9-00044912	20	7/1/2021	6/30/2026	$3,233,000	$2,287,934	29.23%

CWA 319 Grant Balance (Unliquidated Obligations)

	Grant #	FY	Project Period		Grant Award Amount (State)	Balance (ULO)	% ULO
FA11	C9-00044910	17	7/1/2017	6/30/2022	$4,117,334	$ - 0	0.0%
FA12	C9-00044911	19	7/1/2019	6/20/2024	$4,112,667	$1,285,368	31.25%
FA13	C9-00044912	20	7/1/22021	6/30/2026	$3,233,000	$3.122,876	99.38%

Numbers are based on Grant amount awarded minus expenditures

Chapter 3: Implementation in Action

In 2021, Ecology continued our internal and external efforts to achieve nonpoint pollution reduction goals in accordance with the state Nonpoint Pollution Management Plan. In addition to providing on-going guidance to our own staff, we have continued to build on external partnerships and use our nonpoint authority to make progress in cleaning up the state's waters.

In 2020, we reached a settlement agreement with Northwest Environmental Advocates, which included several commitments. Ecology is dedicating resources to implementing this settlement agreement in upcoming years and has included some of the progress in this annual report. Some of the commitments for the coming year include:

- Deadline for updating the Washington State Nonpoint Plan to EPA by the end of 2022. The update will incorporate agricultural BMPs identified to date, and a commitment: to use the BMPs for Washington's CWA section 319 grant funding program, to develop and implement Total Maximum Daily Loads (TMDLs) and TMDL alternatives, including but not limited to Straight to Implementation projects, with nonpoint components, and for technical assistance work. Ecology will complete the next update by the end of 2025.
- Deadline for completing five chapters of the Voluntary Clean Water Guidance, including addressing riparian areas on agricultural lands, on or before December 31, 2022. The remaining chapters will be completed before December 31, 2025.
- Reporting requirements: Annually Ecology will identify the priority watersheds in which Ecology will focus its non-grant implementation efforts (e.g., TMDL implementation, other nonpoint source control implementation) and will include a description of priority actions to be conducted in each priority watershed. In the annual report Ecology will include the following information: Update about the status and progress of BMP guidance development; Description of updates to Washington funding guidelines based on BMP guidance development; Use of BMP guidance for technical assistance; Use of BMP guidance in new TMDLs and TMDL implementation plans, TMDL implementation, and TMDL alternatives; BMP outreach materials developed and training provided to field staff; Number of watershed evaluations conducted per watershed; and Number of complaints received and summary of complaint types.
- Update Funding Guidelines: As agricultural BMP guidance chapters are developed for each practice category, Washington shall update its grant funding guidelines (for BMP project eligibility) to reflect the recommendations of the guidance.

- Commitment to use Agriculture BMP guidance in other areas of our work- Washington shall include recommended suites of BMPs in TMDLs or TMDL implementation plans to meet load allocations. If watershed specific information requires more protective BMPs or suites of BMPs than the guidance, TMDLs or TMDL implementation plans shall include modified BMPs to reflect the load allocations in the TMDL. We will also incorporate the use of the guidance into our watershed evaluation, complaint response and technical assistance.

Chapter 3 is divided into five sections that align with goals identified in the 2015 Nonpoint Pollution Management Plan:

1) Clean up impaired waters and meet water quality standards
2) Ensure clear standards
3) Develop and strengthen partnerships
4) Monitor waters for nonpoint sources impairments and program effectiveness
5) Administer the Nonpoint Source Program as effectively and efficiently as possible

The summaries within each section include activities that supported the Nonpoint Management Plan goals during calendar year 2021. Within these goals, significant progress has been made statewide to reduce nonpoint source pollution, including:

- Multiple Total Maximum Daily Load (TMDL) and TMDL-alternative development efforts, including the Puget Sound Nutrient Source Reduction Project.
- Implementing nonpoint TMDLs and alternative efforts through a combination of grants/loans and enforcement tools.
- Continued application of NMFS riparian buffers guidelines for Ecology-funded nonpoint grant and loan projects.[1]
- Ongoing coordination with important partners such as the WA Department of Agriculture, the Agriculture and Water Quality Advisory Committee, and the WA Forest Practices Board.
- Working with conservation districts, local governments, and nonprofit organizations on nonpoint education and outreach efforts.

[1] More information on Ecology's funding programs and guidelines can be found on the Ecology Water Quality Combined Funding Program webpage.

- Continuing development of the Voluntary Clean Water Guidance for Agriculture, which will identify BMPs that prevent water pollution and support the achievement of water quality standards in surface waters flowing through agricultural lands.

Many sections of this chapter are divided into progress at the regional scale due to how regional staff work in and with different counties, watersheds, and regional partners. The below map shows the areas where regional staff dedicate their time. Our regional offices are divided in to the Southwest Regional Office (SWRO), including the Vancouver Field Office, Northwest Region Office, including the Bellingham Field Office (NWRO), the Central Regional Office (CRO), and the Eastern Regional Office (ERO).

3.1 Goal 1: Clean-up impaired waters and meet water quality standards

3.1.1 Development of Watershed Clean-Up Plans: Total Maximum Daily Loads (TMDL), Alternative Restoration Projects and Straight to Implementation (STI) programs

Between 2015 and 2019, EPA approved five watershed TMDLs (covering 115 individual TMDLs). In 2020 Ecology submitted five watershed TMDLs to EPA (covering 97 individual TMDLs), and in 2021, two of these watershed TMDLs were approved:

- Pilchuck Temperature and DO TMDL (covers 13 individual TMDLs).
- Little Spokane TMDL for temperature, dissolved inorganic nitrogen, and total phosphorous (covers 34 individual TMDLs).

Ecology is starting three new STI projects: Alkali Flat Creek, Almota Creek and Spring Flat Creek. In 2021 we started initial watershed evaluations in these watersheds to collect information on problem sites and started to connect with local partners. We plan on completing the associated plans for these STIs in 2022. The TMDLs and alterative restoration projects we are currently developing include implementation plans, which are intended to address EPA's requirement that watershed-based plans be completed for grant projects to be eligible for 319 funding. Ecology is currently developing several alternative restoration projects which we anticipate implementing in coming years (see below for more information).

In 2021, we completed significant work on our WQ-27 priority projects, including the development of a milestones checklist to track progress and status for each of the water improvement projects (TMDLs, alternative restoration projects, STIs). Most projects appear to be on track for completion by the 2022 deadline. The table below lists the status of each WQ-27 project. Additional information about these projects is provided in the remaining portion of this section.

WQ-27 Projects in 2021	Status
Whatcom Creek Bacteria TMDL	Second round of stakeholder review. TMDL planned to be completed in 2022.

WQ-27 Projects in 2021	Status
Drayton Harbor Bacteria TMDL	New data being incorporated. TMDL planned to be completed in 2022.
Wide Hollow Mulitparameter TMDL	Data collection and analysis complete, report pending. Load allocations being developed, report writing in progress to be completed post 2022.
Spring Flat STI	GIS analysis completed. Started drafting plan and coordinating with stakeholders. On track for strategy to be completed in June 2022.
Alakali Flat STI	Early action implementation underway. Outline developed, strategy planned to be completed June 2022.
Almota & Little Almota STI	Outline developed as of December 2021.
Hangman DO/pH Alternative	Field work completed. Sediment study draft completed. On tract to begin drafting plan in late 2022.
Little Spokane DO/pH TMDL	Approved by EPA in 2021.
French Creek Alternative	Stakeholder outreach ongoing. Planning for technical modeling report/source assessment by December 2022.
Pilchuck Temp/DO TMDL	Submitted to EPA in 2020 and approved by EPA in 2021.
Sammamish Alternative	Project on pause, waiting on model development.
Soos Creek MP TMDL	The fine sediment/bioassessment TMDL has been split from the temp/DO TMDL. Model design and calibration in progress for the sediment TMDL. WQ Management recently approved the restart of the temp/DO TMDL.
Green Duwamish Watershed Pollutant Loading Assessment	Model design and calibration in progress.
Budd Inlet DO TMDL	Working to finalize technical documents. Planned to submit to EPA June 2022.
Burnt Bridge Creek Alternative	Completed watershed source assessment. Implementation planning to start in 2021
Deschutes Multiparameter TMDL	EPA approved the temperature pieces. EPA disapproved the rest and is wrote replacement TMDLs per CWA requirements.
East Fork Lewis Alternative	Final ARP report accepted in October 2021

WQ-27 Projects in 2021	Status
Lacamas Creek Alternative	Awaiting technical resources to initiate the project
Lower White River pH TMDL	Report writing on track. Will be submitted to EPA in 2022.

Northwest Regional Office

During 2021, we continued develop four TMDLs, while also focusing on implementation of our 26 bacteria and temperature TMDLs. Although there is some point source water cleanup required to resolve these impairments, the solutions are largely nonpoint related. We participated in six of the nine salmon recovery forums and associated technical workgroups in an effort to integrate water cleanup activities into ESA-listed species recovery work and managed approximately 50 grants to support TMDL implementation. Our nonpoint specialists continued to respond to ERTS complaints and assisted in education/outreach and pollution source identification activities.

In January 2021, we received EPA approval of the Pilchuck River Temperature and Dissolved Oxygen (DO) TMDL. In addition to promoting riparian restoration in the Pilchuck, we started working with stakeholders to increase summer baseflows through strategic location of stormwater retrofits in lowland areas, beaver reintroductions in upper watershed areas, and constructing cold-water refuges in the mainstem river.

In October 2021, we conducted a scoping workshop to discuss potential new TMDL projects for the Snohomish Watershed. Two projects that rose to the top of the list include the Skykomish River watershed temperature, dissolved oxygen and pH TMDL and the Quilceda/Allen Creeks dissolved oxygen and pH TMDL.

We continued work on Whatcom Creek Fecal Coliform TMDL and Drayton Harbor Fecal Coliform TMDL and decided to divide the Soos Creek Multiparameter TMDL into two separate studies: a fine sediment TMDL to address impairments to benthic macroinvertebrate habitat and a temperature/DO/bacteria TMDL. Ecology secured continued consultant support for the Environmental Assessment Program, which is using a Hydrological Simulation Program Fortran (HSPF) hydrodynamic model for the first time to estimate the impairment of benthic invertebrates from fine sediment and stormwater-driven peak flows.

Based on data collected in 2020, we reevaluated the Soos Creek temperature/DO TMDL study in 2021. The data showed that water quality standards may not be met even after

implementation actions due to natural conditions for both temperature and DO. To answer questions related to natural conditions rigorously, the Water Quality Program made the decision to collect a suite of parameter data for a full calendar year and apply a dynamic model to simulate current conditions and management scenarios. The temperature/DO TMDL will also be a test case to build a performance-based approach to establish natural conditions thresholds in the watershed.

We started the Whatcom Creek E.coli bacteria TMDL review by stakeholders and EPA in 2021, which will complete in February 2022 and be ready for public comment in April. We are drafting an update of the Drayton Harbor Bacteria TMDL in 2022. At the request from local stakeholders, the TMDL technical study conducted in 2008 will be updated with trend analysis, streamflow modeling, and TMDLs based on 2021 conditions. Department of Health upgrades to shellfish harvesting status in some areas of Drayton Harbor have been conditionally down-graded due to bacterial contamination. The TMDL has slipped off-track for completion due to additional local input, which added complexities to the analysis when updating the 2008 study. Completion of the TMDL and implementation plan is anticipated by Fall 2022.

We proposed five projects at an annual Ecology meeting that we would like to prioritize in 2022:

- Skykomish Watershed Temperature, DO and pH TMDL;
- Restart of the Soos Creek Temperature, Dissolved Oxygen and Bacteria TMDL;
- Mid-project scoping for the Green-Duwamish Toxics Pollutant Loading Assessment
- Quality assurance review of the Drayton Harbor Bacteria TMDL;
- A request for a science-based explanation into why many of our smaller floodplain waterbodies have brown water in the summer.

Alternative Restoration Project Development

Watershed modeling work on the Green Duwamish Watershed Pollutant Loading Analysis (PLA) continued in 2021 along with targeted inspections of industrial facilities. Ecology held two PLA technical advisory group meetings. In 2021 we approached near-completion of the PLA HSPF watershed model and started the development of the EFDC receiving water model. We will use EFDC to describe hydrodynamic processes and contaminant fate in the receiving water and connect it with a food-web model to assess the impacts on toxics concentrations in resident fish and shellfish tissue.

Southwest Regional Office

TMDLs

The SWRO continued to make progress on the Budd Inlet TMDL in 2021 and finalized the technical documents that will support the project. Ecology is completing the final draft of the TMDL report and preparing the document for internal and external review. Ecology also continued work on the Lower White River pH TMDL, completing a final draft of the implementation plan and TMDL report which is currently under review by external partners.

Alternatives Restoration Projects

Ecology completed the East Fork Lewis River Alternative Restoration Project (ARP) in 2021, which was submitted to and accepted by EPA. Ecology worked with local, state, federal, and tribal governments, non-profits, and private landowners to develop goals, management measures, and implementation actions to address water quality impairments. The alternative restoration plan addresses EPA's watershed planning elements for both bacteria and thermal pollution. Additionally, Ecology started the Burnt Bridge Creek TMDL ARP and convened a working group to begin developing the water quality restoration plan. Water quality monitoring was also completed on the Lacamas Creek Watershed ARP, with the Source Assessment to be worked on in 2022.

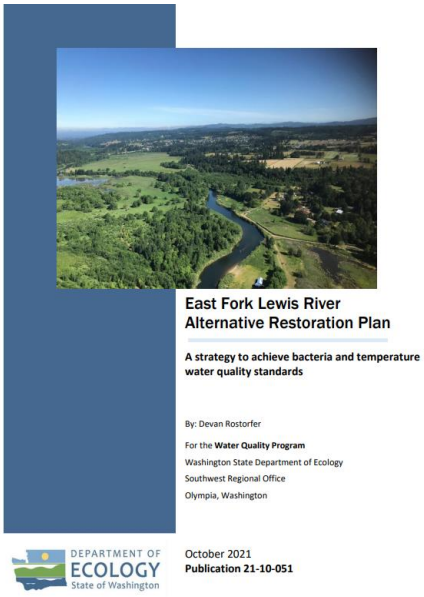


Photo 1 East Fork Lewis River Alternative Restoration Plan

Central Regional Office

In 2021, the Central Regional Office (CRO) continued ongoing TMDL development work for the Tieton- Lower Naches TMDL and Wide Hollow Creek TMDLs. In 2021, an addendum was completed for the Upper Naches-Cowiche Creek Temperature TMDL. The Mid Yakima Bacteria TMDL was completed and approved by the EPA in 2020 and in 2021 we worked toward developing a detailed implementation plan with input from watershed stakeholders, which will continue in 2022.

No new TMDL projects were initiated in 2021. Scoping for a Bacteria Water Cleanup Project in the White Salmon River was completed and reviewed and we will soon begin data collection. An effectiveness monitoring report for the Upper Yakima Suspended Sediment TMDL was published in July 2021, assisting in prioritizing work to meet the goals of the TMDL. Due to successful implementation activities to reduce ammonia at Myron Lake, the site was removed from the 303(d) listing on the 2018 candidate Water Quality Assessment (303(d)-305(b)) report. Review of the Lower Yakima Pesticides Reduction Plan in 2021 has shown the need to move this project forward as a TMDL. The Lower Yakima Pesticides TMDL is proposed to be scoped as a TMDL to identify additional data needs and other information elements to move the project forward. We have suspended our work on the Moxee drain due to complex irrigation water management issues. We are continuing work on an STI project for Giffen Lake nutrients.

Eastern Regional Office

Ecology's Eastern Regional Office continues to focus on TMDL and STI implementation. We prioritized our resources in 2021 toward achieving on-the-ground actions that get to clean water rather than new TMDL development. That said, the Little Spokane River DO and pH TMDL was approved in January 2021. Furthermore, the Pend Oreille River Temperature TMDL was approved by EPA in December 2020.

A Straight-to-Implementation (STI) strategy was started for Spring Flat Creek. Ecology staff completed the initial riparian land use GIS analysis, began coordinating with stakeholders, and began drafting the plan. We initiated STI work for Alkali Flat and Almota Creeks in 2021.

Much of ERO's implementation work is guided by annual watershed evaluations. Every spring, Eastern regional staff perform watershed evaluations which help identify sources of water quality problems. These surveys assess the health of the streams, document where improvements have been made and identify new nonpoint pollution problems. Staff then

follow up with landowners to offer technical and financial assistance to reduce sources of nonpoint pollution. This evaluation process is crucial to the work in the eastern region to identify water quality problems and work with landowners to make improvements that reduce pollution sources.

Through these evaluations, priority pollution sites in specific TMDL and STI watersheds are identified. Priorities are set based on considerations of factors that include: apparent risk to water quality; available evidence of those risks; geographic location; availability of staff and partners to address problem sites, and sometimes the history of land management at a site. The eastern region identified 229 problem reaches in 2021 and prioritized 31 of those for proactive compliance. Offers of technical and financial assistance have been made to the landowners. These sites are in varying stages of project development and implementation. Staff continued to follow-up with sites contacted in previous years that still remain out of compliance.

TMDLs

Little Spokane River

The Little Spokane River is a vital tributary to the Spokane River and is impaired by multiple pollutants. In 2012, EPA approved a TMDL on the Little Spokane River watershed for fecal coliform, temperature, and turbidity. A second TMDL was completed for the Little Spokane River to address dissolved oxygen, total phosphorus, and pH was prepared in 2020. In January 2021, the Environmental Protection Agency (EPA) approved the Little Spokane River Dissolved Oxygen and pH Total Maximum Daily Load (TMDL) water quality improvement plan.

Looking forward, we will work with key partners, including tribes, conservation organizations, and local agencies, to implement the Lower Spokane cleanup plan. The majority of the pollution in the Little Spokane River comes from nonpoint sources including timber harvest, agriculture, and development. As a result, the cleanup plan focuses on improving stream health by protecting and restoring riparian areas. Additionally, implementing widespread use of conservation tillage techniques (i.e. direct seed) will be critical to meet water quality standards. Eliminating these pollution sources will create functional habitat for important aquatic species, like the mountain whitefish and redband trout, and ensure safe swimming, fishing, and boating.

Pend Oreille River

On December 31, 2020, EPA approved the Pend Oreille River Temperature Total Maximum Daily Load. The TMDL addresses water temperatures within the Pend Oreille River in response to observations of chronically elevated temperatures at levels exceeding the river's specific criteria. Elevated temperatures result in impacts to salmonid spawning, rearing, and migration, which is the designated use established for the river and protected by the water quality standards. The TMDL water quality improvement report was initially submitted to EPA in 2011.

Two hydroelectric facilities in Washington have the greatest influence on temperature in the Pend Oreille River. Box Canyon Dam is a run-of-the-river dam with very little active storage capacity. Boundary Dam is operated for peak load-following and providing operating reserves, meaning water is most often released during the day and the reservoir refills at night. Therefore, reservoir levels experience fluctuations.

Now that the report is approved, Ecology will be working in 2022 with partners on developing and implementing a strategy to reduce river temperatures. The principle partners will be Seattle City Light (Boundary Dam), the Pend Oreille Public Utility District (Box Canyon Dam), the Pend Oreille Conservation District, and the Kalispell tribe.

STI Development

Spring Flat Creek, Alkali Flat Creek, and Almota Creek

In 2021, the Eastern Regional Office (ERO) also scoped three streams for STIs. ERO completed the initial GIS riparian land use analysis, and began coordinating with stakeholders and drafting the STI for Spring Flat Creek. Staff began GIS analysis for both the Alkali Flat and Almota Creek STIs and began drafting the Alkali Flat Creek plan. ERO plans to develop STI strategies in 2022 for two rural watersheds with nonpoint pollution issues. The nonpoint pollution is associated with agricultural land-use in the riparian areas including livestock grazing and feeding and dryland farming. The STIs will address 12 Category 5 and Category 2 listed segments for temperature, dissolved oxygen, pH, and bacteria.

Statewide Projects

Puget Sound Nutrient Source Reduction Project

Ecology continued making significant progress on our Puget Sound Nutrient Source Reduction Project in 2021, and continued development of the Marine Water Quality Implementation Strategy for Puget Sound recovery under the National Estuary Program.

Ecology is developing the Puget Sound Nutrient Reduction Plan as an alternative to address low dissolved oxygen (DO) in Puget Sound caused by nutrient over-enrichment from regional human sources. We are engaging communities, tribes, stakeholders, and local implementing organizations, in discussions about the problems caused by nutrient over-enrichment and potential solutions at the Nutrient Forum. The Puget Sound Nutrient Reduction Plan will follow EPA's 9-key elements and lay out a plan to address both point and nonpoint nutrient sources. We expect to release a preliminary draft of this plan in 2023. More project information can be found on the Puget Sound Nutrient Reduction Project webpage.

Stakeholder engagement

We continue to engage with the Nutrient Forum, our stakeholder engagement group, comprised of the regulated community, tribes, and all levels of government, industry, environmental groups, academics, and local implementers. We organized two virtual Nutrient Forum meetings this year, which 150-170 people attended:

- March 2021: Regulatory models and Salish Sea model development
- September 2021: Salish Sea modeling results: Optimization Tech Memo

We plan to host multiple Forum meetings in 2022, which will focus on presenting and receiving feedback on future Salish Sea modeling efforts and discussing strategies for addressing nutrients in watersheds.

Education and outreach

We use a variety of tools beyond the Nutrient Forum to communicate issues about nutrient pollution, as well as progress in the Puget Sound Nutrient Reduction Project. This includes blog posts, focus sheets, and educational meeting materials.

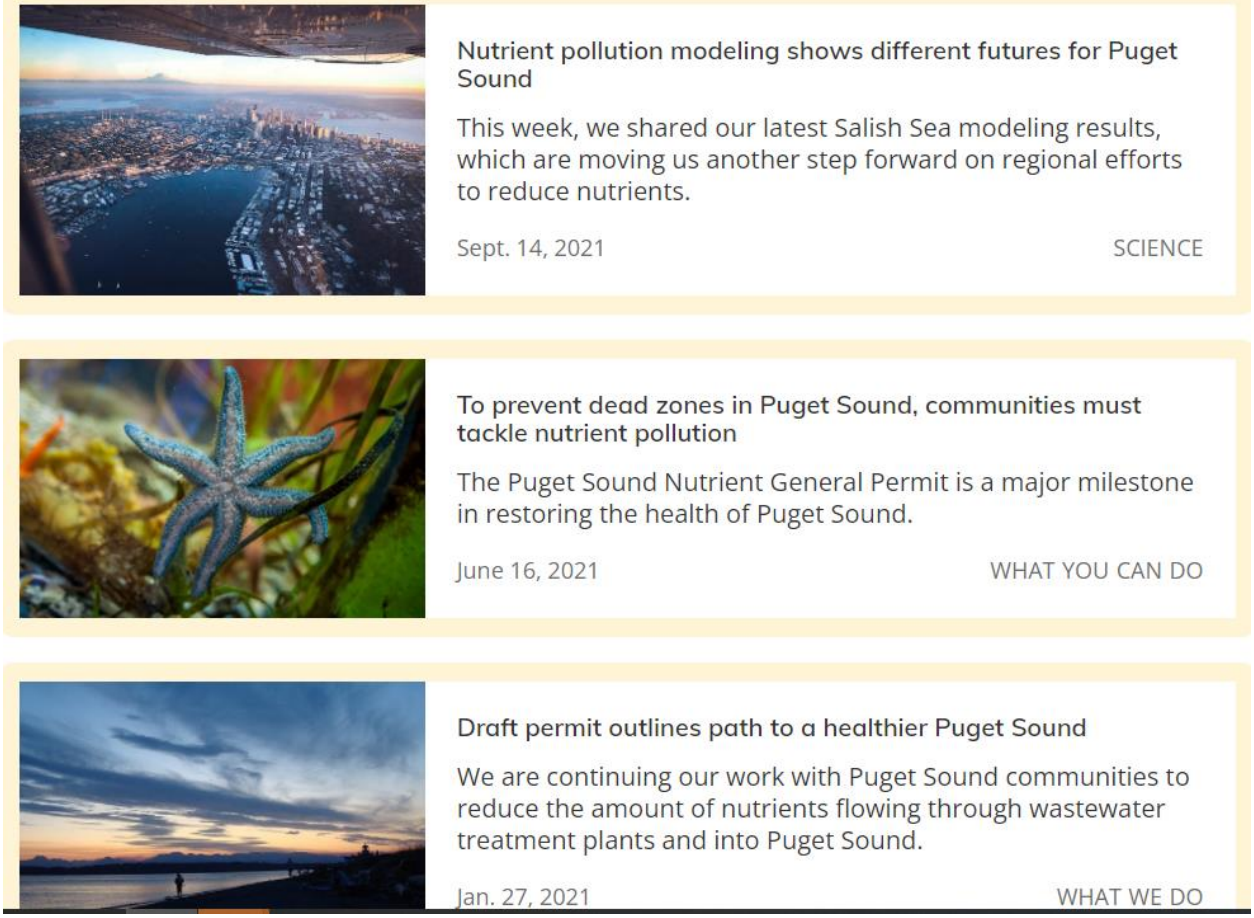


Photo 2 Ecology's blog featured multiple posts about addressing nutrients in Washington.

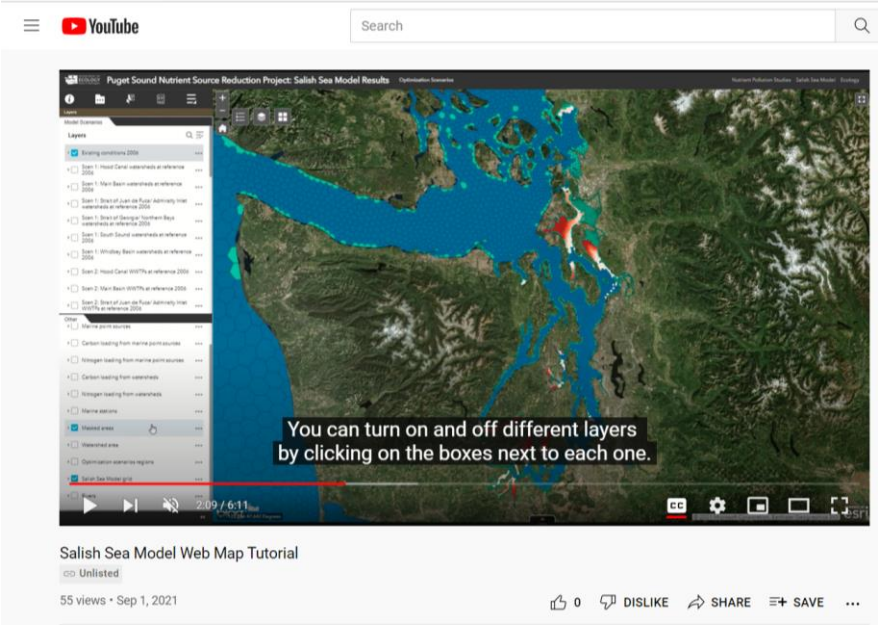
Salish Sea Modeling efforts

In 2021, we made significant progress in advancing our Salish Sea modeling, most notably the publication of the Optimization Scenario Tech Memo. These results include evaluations of different nutrient reduction scenarios, including:

- The spatial impacts of nutrient loading from marine point sources and watershed sources grouped by Puget Sound basin
- The impact of seasonal versus annual nutrient reductions
- Future population growth
- Combinations of marine and watershed nutrient reductions to meet water quality standards

To aid in communicating our latest modeling results, we hosted a Nutrient Forum to present the results and published a series of communication materials:

- A Salish Sea modeling results webmap that visually displayed results
- A YouTube tutorial on how to use the Salish Sea WebmapYouTube tutorial on how to use the Salish Sea Webmap



- Developed new communication materials, including blog posts, focus sheets, and webpage updates

Nutrient General Permit Issuance

After announcing our decision to move forward with a Nutrient General Permit for Puget Sound in January 2020, we convened a Nutrient General Permit Advisory Committee, representing domestic wastewater treatment plants, environmental groups, state agencies, EPA, and Tribes. A preliminary draft permit was released and opened for public comment in early 2021, followed by a formal draft general permit in summer of 2021. On Dec. 1, 2021, we issued the Puget Sound Nutrient General Permit. The permit is effective on Jan. 1, 2022. The Nutrient General Permit applies to 58 domestic WWTPs discharging to marine and estuarine waters of

Washington waters of the Salish Sea. This permit is a significant step towards reducing the burden of excess nutrients on marine water quality. However fully protecting Puget Sound will require both wastewater treatment improvements and correcting nonpoint source nutrient problems in watersheds.

Marine Water Quality Implementation Strategy

We also led the development of the Puget Sound Partnership's Marine Water Quality Implementation Strategy (MWQ IS), a collaborative effort with a team of regional, interdisciplinary subject matter experts. This effort supports and informs the Puget Sound Action Agenda, and is funded in part by the National Estuary Program. The initial draft MWQ IS Narrative Report was completed and reviewed by the MWQ Core and Interdisciplinary Team members. The draft report was updated based on that feedback, and is awaiting final approval by Ecology before the Stormwater Strategic Initiative team begins to implement the MWQ strategies that will improve DO and other eutrophication impacts in Puget Sound.

3.1.2 Implementation of TMDLs, STIs, Nonpoint Enforcement Efforts

Ecology continues to promote water cleanup activities across Washington State with an emphasis in our TMDL, STI and Alternative Restoration Project watersheds. Each of our regional offices have chosen selected areas where we are attempting to increase the pace of BMP implementation to address nonpoint pollution. The following are focus watersheds for our regional staff's implementation efforts and are part of continuing multi-year efforts (focal issues in parentheses):

1. Samish River (bacteria TMDLs)
2. South Skagit Bay (Watershed Evaluation)
3. Lower Skagit Tributaries (temperature TMDL)
4. Nooksack River/Drayton Harbor drainages (bacteria TMDLs)
5. Upper Chehalis- Newaukum River (bacteria TMDLs)
6. Puyallup River- Boise, Pussyfoot and Second Creeks (bacteria TMDLs)
7. Key Peninsula (nonpoint enforcement- bacteria)
8. Henderson and Eld Inlets (bacteria TMDLs)
9. Hangman Creek (bacteria, dissolved oxygen, nutrients, pH, temperature, turbidity TMDLs)
10. North Fork and South Fork Palouse River (bacteria, temperature TMDLs)
11. Alpowa, Deadman/Meadow Creeks (bacteria, dissolved oxygen, pH, temperature STI)
12. Steptoe, Alkali Flat, Almota Creeks (bacteria, dissolved oxygen, pH, temperature STI)

13. Asotin Creek (Temperature STI)
14. Upper and lower Yakima River watersheds (sediment, bacteria, temperature TMDLs)
15. Ohop Creek (Nisqually bacteria TMDL)
16. Skokomish River (nonpoint enforcement - bacteria, pH, dissolved oxygen, ammonia)
17. North Oakland Bay (bacteria, temperature, dissolved oxygen TMDL)
18. East Fork Lewis River (bacteria, temperature ARP)
19. Lacamas River (bacteria, pH, temperature, dissolved oxygen ARP)

Northwest Regional Office

Ecology's Northwest Office has nearly 50 TMDLs, Alternative Restoration Projects, and Watershed Evaluations in development or completed. The primary tools for accomplishing implementation include the following strategies:

1. Participate in multiple salmon recovery forums (executive committee meetings, technical workgroups, implementation committees, etc.) to promote implementation in areas of shared interest (riparian plantings, cold water refuge creation, etc.).
2. Participate in stakeholder groups focused on TMDL implementation, including:
    - Green the Green: a King County-led group that focuses on implementing the Green River Temperature TMDL
    - King County Fish, Farm, Flood: a King County-led group focusing on multi-benefit projects in the Snoqualmie Watershed with special emphasis on participation in the Buffer Task Force and Implementation Oversight Committee.
    - Sustainable Lands Strategy: a Snohomish County-led group focusing on multi-benefit (Fish/Farm/Flood) efforts in both the Snohomish and Stillaguamish Watersheds.
    - Community Floodplain Solutions: a Snohomish County-led group also focused on multi-benefit efforts aimed for now at the lower Skykomish Watershed. This is a relatively new group that we started evaluating in 2021.
    - Stillaguamish and Snohomish Local Integration Organizations: These groups help the Puget Sound Partnership build the Action Agenda and prioritize local water cleanup and salmon recovery projects supported by National Estuary Program (NEP) funding.
    - Pilchuck Working Group: assists implementation of our temperature/DO TMDL
    - PIC programs focusing on the lower Stillaguamish Watershed, and Vashon Island marine areas, and Poverty Bay (limited participation)
    - Whatcom Clean Water Program
    - Clean Samish Initiative (CSI)

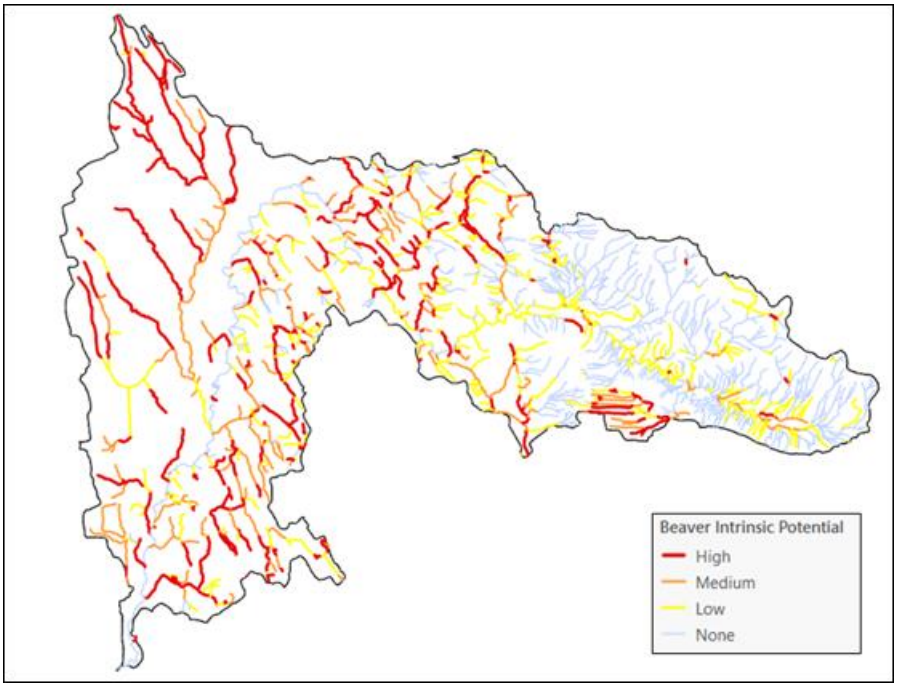
3. Encourage and guide participation in Ecology's Combined Funding Program and manage those grants and loans.
    - Ecology's outreach and technical assistance contributed to the submission of 17 applications to our Combined Funding Program to support our nonpoint cleanup efforts. Eleven new water cleanup projects were prioritized to start receiving Ecology funding in FY 2023.
4. Targeted monitoring, source identification, outreach/education, and technical assistance in watershed evaluation areas.
5. Augment nonpoint water cleanup efforts with TMDL-related NPDES permit requirements for 16 municipalities.
6. Conduct watershed assessments to identify and correct nonpoint pollution sources generated by land use practices that may compromise surface water quality.

Priority Watershed actions and other specific implementation efforts associated with NWRO water cleanup activities are discussed below.

Snohomish Watershed TMDLs

Our Snohomish/Stillaguamish Water Cleanup Team participates in 10 different groups directing and supporting water quality and salmon recovery efforts in the Snohomish Watershed where we are implementing five approved TMDLs. Our implementation efforts include management of about 20 grants in this large watershed comprised of rural, residential, and urban areas. Special topic work in 2021 focused on starting dialogue with Snohomish County and WDNR on augmenting summer baseflows in the Pilchuck River. We had initial meetings with Snohomish County, the Tulalip Tribes, and several representatives of WDNR. We created a local version of the Beaver Intrinsic Potential Model and began agency-to-agency dialogue on coordinating with WDNR on their Snohomish Watershed "Trees to Seas" Initiative.

Our meetings with Snohomish County began the conversation on the strategic locating of stormwater retrofits to increase Pilchuck River summer baseflows. These projects are both new concepts that we will explore further in 2022 with the goal of having partners begin using their resources along with the submission of grant applications to get pilot projects developed and funded.


Beaver Intrinsic Potential
High
Medium
Low
None

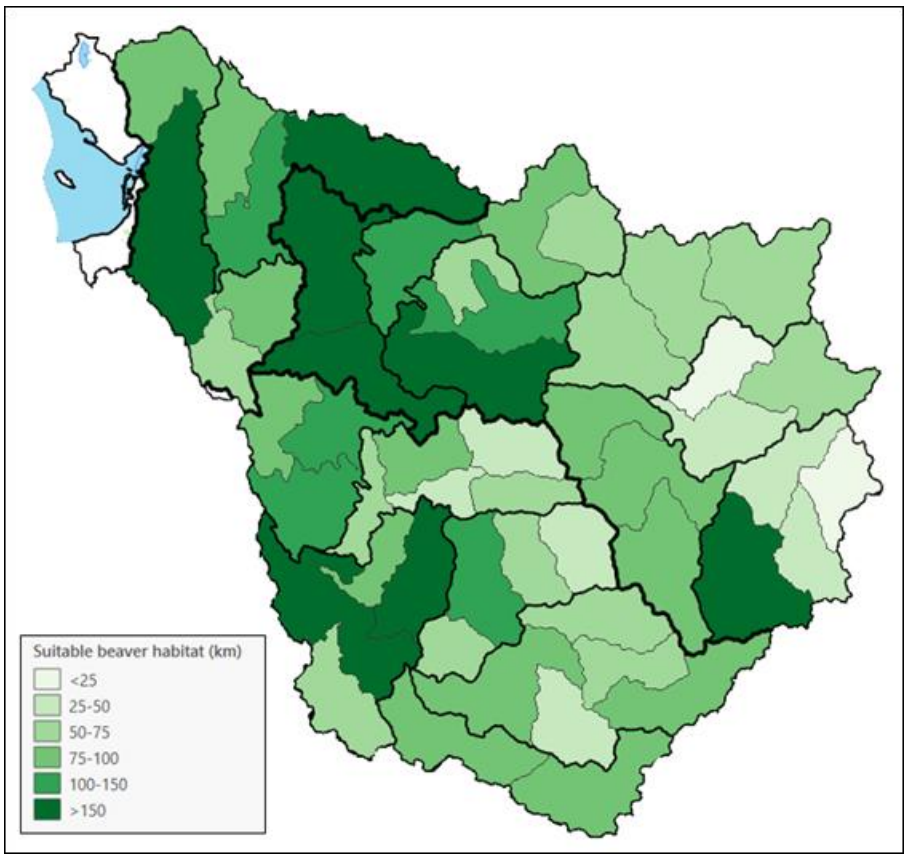


Figure 2 Beaver Intrinsic potential model. As part of the Pilchuck Temperature and Dissolved Oxygen TMDL Implementation Plan, we analyzed the beaver intrinsic potential (BIP) model to assess which areas of the Pilchuck watershed might be most suitable.

Lake Whatcom TMDL

As part of implementation the Lake Whatcom TMDL, Whatcom County and the City of Bellingham continues to control non-point sources in Whatcom County by voluntarily applying relevant portions of the MS4 program required under their NPDES stormwater permit. Ecology is working with the City of Bellingham and Whatcom County to update Appendix 2 requirements that are related to the MS4 NPDES permit renewal by 2024. Jurisdictional non-point work is coordinated through the Lake Whatcom Management Program and includes a prescriptive work plan updated on a five-year cycle. The TMDL implantation plan adaptive management strategy includes a TMDL model update to reduce uncertainty and help guide implementation efforts. The model update is scheduled to be complete in late 2022.

Implementation of the Nooksack River bacteria TMDL continues through involvement from local project partners:

- Whatcom County
- Whatcom County Conservation District
- Cities of Ferndale and Lynden
- Lummi Nation
- British Columbia
- WA State Department of Agriculture and Department of Health

Ecology coordinates and conducts stormwater sampling along with routine ambient monitoring to identify pollution sources.

Clean Samish Initiative (CSI):

As part of the Clean Samish Initiative, Ecology staff in the Bellingham Field Office worked with Skagit County Public Works, the Skagit Conservation District, and Washington State Department of Agriculture to identify and correct sources of fecal coliform pollution in the Samish basin. Padilla Bay is also a focus area for the Skagit County PIC program and Ecology contacts landowners when sources of pollution are identified in Padilla Bay.

Working collaboratively with Skagit County staff, we updated our database with current site conditions for every known livestock property in the Samish basin and quantified the data with numbers and types of livestock. Jointly, Ecology and County staff regularly conduct source identification sampling and effectiveness monitoring, windshield surveys, and site visits. This level of coordination helps to build trust and strong relationships among our PIC partners.

New sampling investigations, aerial and roadside observations, and complaints, led to the identification of potential sources of bacterial pollution in a number of sites previously identified by Clean Samish Initiative partners in 2019. These sites have lacked followed up due to staff turnover in 2018.

Areas of Focus	Contacts with Property Owners	Warning Letter	Notices of Violation
Samish	31	1	0
Padilla	5	0	0

Additional activities included:

- Working with the Skagit Conservation District and landowners to ensure that BMPs implemented in the past continue to be maintained, and that adaptive management occurs when need to protect water quality.
- Coordinating water-sampling efforts with Skagit County, WSDA, Samish Tribe, and volunteers to track sources of fecal coliform pollution in the Samish and Padilla Bay Watersheds during runoff events.
- Coordinating with Washington Department of Agriculture (WSDA) and Skagit County on aerial surveys to identify high-risk site conditions that are not visible from public roads.
- Providing quarterly updates to the CSI executive committee and participating in the CSI Project Development Team, comprised mainly of field staff from Ecology and our partners from Skagit County, WSDA and Skagit CD.

While not directly in the CSI project area, Skagit County PIC program efforts continue in the Padilla Bay area. Since Ecology completed the Padilla Bay Fecal Coliform TMDL December of 2020, we have continued to meet with Padilla Bay stakeholders in early 2021. Additional monitoring is ongoing in the Little Indian slough portion of the Padilla Bay watershed to identify and reduce bacterial pollution.

South Skagit Bay:

The South Skagit Bay Watershed Evaluation Planning effort was finalized in late 2017 after meetings with both the WA State Water Quality and Agricultural Advisory Committee and major agricultural, government, and business stakeholders in Skagit County. Coordination in the southern lobe of the evaluation area occurred as a team member of Stillaguamish PIC Phase III program.

In 2021, our South Skagit Bay work was significantly reduced due to the state Covid-19 response. Our watershed evaluation work did however expand into the Old Stillaguamish channel area, and we continued to assess the Big Ditch/Maddox Slough watershed. Ecology staff from BFO and NWRO resumed a water sampling program in August to characterize watershed bacteria levels and assist in identifying sources of pollutants. Ecology is also developing a new QAPP with support of EPA staff to include microbial source tracking (MST) as part of or South Skagit Bay work starting in spring of 2022. Outreach to stakeholders and the public included the following activities:

Ecology staff led or attended meetings on the following dates:

- January 2021 – Proposed Old Stillaguamish Sample Sites - Stillaguamish PIC Phase 3 team meeting.
- April 2021 – Meeting with regional stakeholder to discuss previous results, expansion to additional watershed, and explore the use of MST in the project area.
- December 2021 – Meeting with Snohomish Health District, Tulalip Tribes, Snohomish County and Stillaguamish/Snohomish LIO to discuss onsite septic systems.

Additional activities included:

- Monthly ambient water quality sampling at 13 sites with additional source identification monitoring at 5 sites.
- Addition of storm event sampling at 10 sites began in August 2021. As of December 2021, five storm events were sampled.
- Discussed outreach efforts at “duck shacks” in Snohomish County at Stillaguamish PIC III meetings.
- Nonpoint Specialist continued performing roadside evaluations during the wet season and entering data and observations into the “Collector App.”
- Livestock rearing properties with an elevated potential to pollute were highlighted for future technical assistance. Onsite septic systems in the Old Stillaguamish drainages and selected areas of Port Susan were evaluated for the potential to pollute, mapped, and discussed at Stillaguamish PIC III meetings.
- Developed and mailed an informational post card sent to 672 property owners in the expanded South Skagit Bay project area.

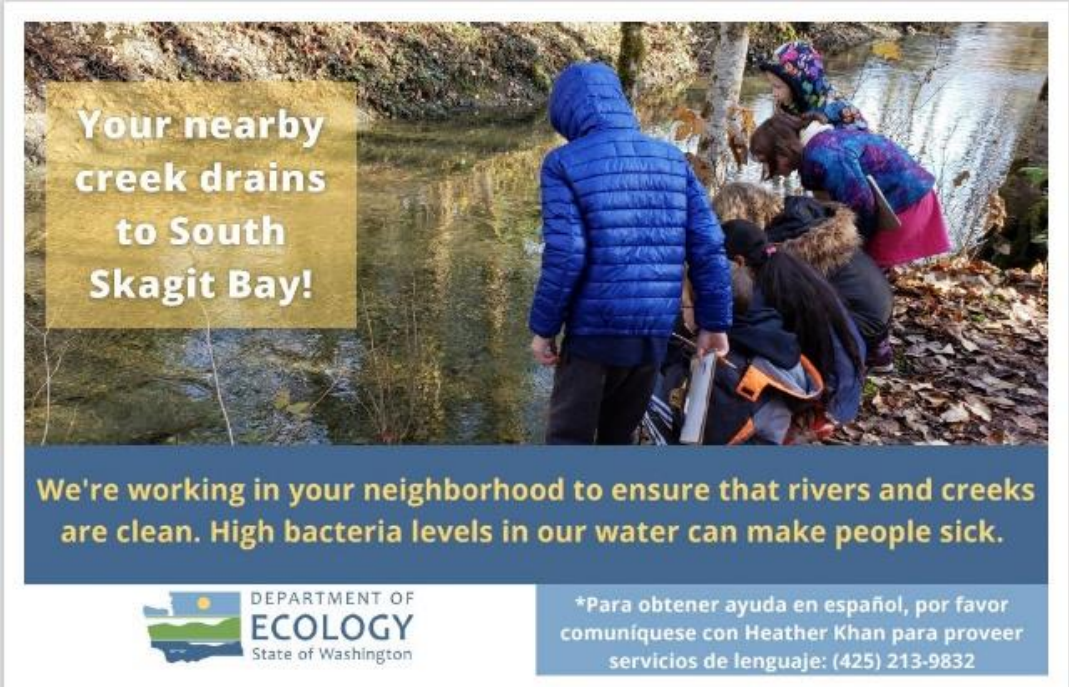


Photo 3 Postcard mailer sent to streamside landowners in the South Skagit Bay project area.

Going forward into 2022, we plan to update our communications plan to add outreach strategies in an effort to increase project awareness. Some of those strategies include:

- Regular progress updates posted to our website and in presentations to stakeholders.
- Published articles in conservation district newsletters and local newspapers.
- Social media posts that partner organizations could post on our behalf.

As we identify priority properties, we expect to begin contacting and offering technical assistance. We will also continue to characterize local water quality through regular monthly sampling combined with storm event sampling at new and key sampling locations.

Lower Skagit Tributaries

The NWRO began a targeted effort to reinvigorate implementation of the Lower Skagit River Tributaries Temperature TMDL in summer 2019. Our goal is to greatly increase the pace of restoration activities and create a model for expanded and accelerated temperature TMDL implementation. In 2021, Ecology began collaborating closely with the Skagit Conservation District in a community based social marketing research and implementation scoping project using Direct Implementation Funding. The social research effort incorporates the use of focus

groups to identify community barriers and motivators. This information will be used to investigate the use of incentives, easements, and other programs to increase implementation. This effort also includes working with project partners to help scope the scale of implementation and identify partners most suited and capable to supporting new programs.

Our Skagit-focused staff continued working closely with the Skagit Community Engagement Committee on new education and outreach and information sharing tools identified in the Strategy. Ecology designed and conducted an initial survey of Skagit public knowledge of and interest in the local water temperature conditions and concerns. This effort helped us design the "Skagit Valley's Warming Waters" Storymap, which was launched in May 2021 as part of Skagit Water Weeks events. The following education and outreach tools are still under development and should be completed by Fall 2022:

- An educational four-part video series on water temperature conditions and solutions in the Skagit River Watershed.
- Quarterly meetings with TMDL implementation partners to facilitate information sharing.
- A Skagit-focused restoration resource directory (funding sources, technical assistance providers) for use by implementation partners and the public.
- Continued support for the web-based ESRI Storymap developed to facilitate information sharing between implementation partners and the public on improving water temperatures in the Skagit River Watershed.

Photo 4 NWRO's storymap of "Skagit Valley's Warming Waters"tell the story of how and why Skagit waters are increasing in temperature and solutions for the problem.

Additionally, water quality data is being collected on Turner Creek, a TMDL tributary, to evaluate the effectiveness of a drainage and fish habitat enhancement project. This effort is being coordinated with the Upper Skagit Indian Tribe and Drainage District 21. Additional planned efforts include the development of East Fork Nookachamps Watershed plan, which will include reach-scale project sequencing and planning. Ecology staff will work closely with the Upper Skagit Tribe to provide technical assistance and data analysis.

Whatcom Clean Water Program:

In cooperation with Whatcom Clean Water Program (WCWP) partners, Ecology nonpoint staff worked in the Nooksack River, Jordan Creek, Sumas River, and Drayton harbor watersheds to identify and address nonpoint sources of pollution.

Areas of Focus	Contact with Property Owners	Warning Letter	Notices of Violation	Administrative Order
Nooksack River/Portage Bay/Drayton Harbor	21	1	1	2

We coordinated closely with WCWP partner agencies to identify confirmed or suspected pollution sources, contact landowners, and improve livestock management practices in our watersheds. Strategic planning occurs annually involving sampling plan updates, coordination, information sharing, communications, and areas of improvement or direct needs. During winter, we focused on source identification and providing technical assistance to livestock operators. During the dry months, staff's focus shifted to follow-up on problems identified during the rainy season, surveying conditions, and developing longer-term strategy along with our PIC partners.

In spring of 2021, Ecology staff were largely focused on developing several formal enforcement cases in Whatcom County. Two of them were Administrative Orders issued by Ecology to small farm operators who had a history of high-risk practices leading to pollution, and who had failed to meet their commitments to reduce pollution risk. Working with Ecology HQ staff to develop the details of these Orders took a great deal of staff time. Ecology staff also worked to support the CAFO program in investigating a potential small CAFO operation that had a very concentrated discharge of fecal coliform in early 2021. This site eventually received a Notice of Violation, and appears to have resolved the problem.

In collaboration with WCWP partners, Ecology staff helped to review past issues and develop a proactive strategy for contacting landowners and responding to problems in Fall 2021. This strategy included focused joint outreach letters by partner agencies to the agricultural community, followed by proactive Technical Assistance letters to operators with known or suspected pollution issues. As part of this effort, Ecology contacted 14 operators. In general, we saw fewer pollution problems in the summer and fall than in 2020, with several significant pollution sources that Ecology staff contacted in 2020 seeming to remain resolved.

The WCWP continues to focus on water quality hotspots to address reaches with chronic issues. Ecology staff participate by conducting source ID sampling, storm sampling, and windshield surveys. In 2021, In part to fulfill a grant requirement, Ecology staff conducted thorough windshield surveys of the Dakota Creek watershed. WCWP partners conduct targeted studies and routine ambient monitoring. Information sharing and data reporting continues. The Whatcom County Conservation District administers the WCWP water quality database, which includes a public-facing map and query tool.

In August 2018, BFO worked with our WCWP partners, British Columbia Ministry of Environment and Climate Change, and Ministry of Agriculture, under the title "Nooksack River Transboundary Technical Collaboration Group", to implement our three-year plan to address high concentrations of fecal coliform bacteria crossing the border in Bertrand and Fishtrap creeks. Between August 2018 and July 2021 we implemented the Three-Year Work Plan. During this period BC Ministry of Environment implemented components of the plan, including monitoring water quality, educating property owners, identifying sources of pollution, implementing pollution prevention practices and conducting enforcement when necessary. The final version of the Nooksack River Transboundary Technical Collaboration Group 2020-2021 Annual Report was completed in July, 2021. The Technical Collaboration Group (TCG) report summarizes progress during the three-year project, but concludes that resources for BC participants will not be available after July 31, 2021. Some limited monitoring will occur, but most other monitoring will be conducted by volunteers. Since July 2021, high concentrations of fecal coliform bacteria continue to occur during heavy rains and runoff events at the border stations. Project partners lead by the BC Ministry of Environment are drafting a study to quantify bacteria loading from the Canadian portion of the watershed and the effect of water quality in Portage Bay. The Transboundary work may continue to some degree through project partners under the Shared Waters Alliance, which is an informal working group that primarily addresses bacteria pollution in the marine and fresh waters shared by Canada and the United States along the BC and WA nexus.

Southwest Regional Office

Upper Chehalis- Stearns Creek:

Beginning in 2019, nonpoint staff worked in partnership with the Confederated Tribes of the Chehalis Reservation (CTCR) Water Quality staff to identify bacteria pollution inputs to Stearns Creek, a 303(d) listed tributary to the Chehalis River. Ecology and Tribal staff utilized bracket sampling to identify bacteria source locations. Nonpoint staff shared these results with local residents, prompted many to voluntarily install BMPs at problem locations. This voluntary implementation resulted in 3,000 feet of new fencing along Stearns Creek, preventing cattle from directly accessing the creek. Land managers adapted their land use practices, incorporating rotational grazing and refining their manure application methods. Staff identified potential septic system failures and referred these properties to the Lewis County Environmental Health Department for repair. These voluntarily water quality improvements were highlighted as an EPA Nonpoint Success Story in 2021.

CTCR staff have sampled Stearns Creek from 2017 through 2021 (Figure 3). With several years of bracket sampling, it is apparent that the voluntary efforts implemented by land managers have greatly decreased the fecal coliform peaks in this area of Stearns Creek. However, there are still annual exceedances. Nonpoint staff will continue to coordinate with CTCR and Lewis County staff to identify and correct bacteria pollution sources.

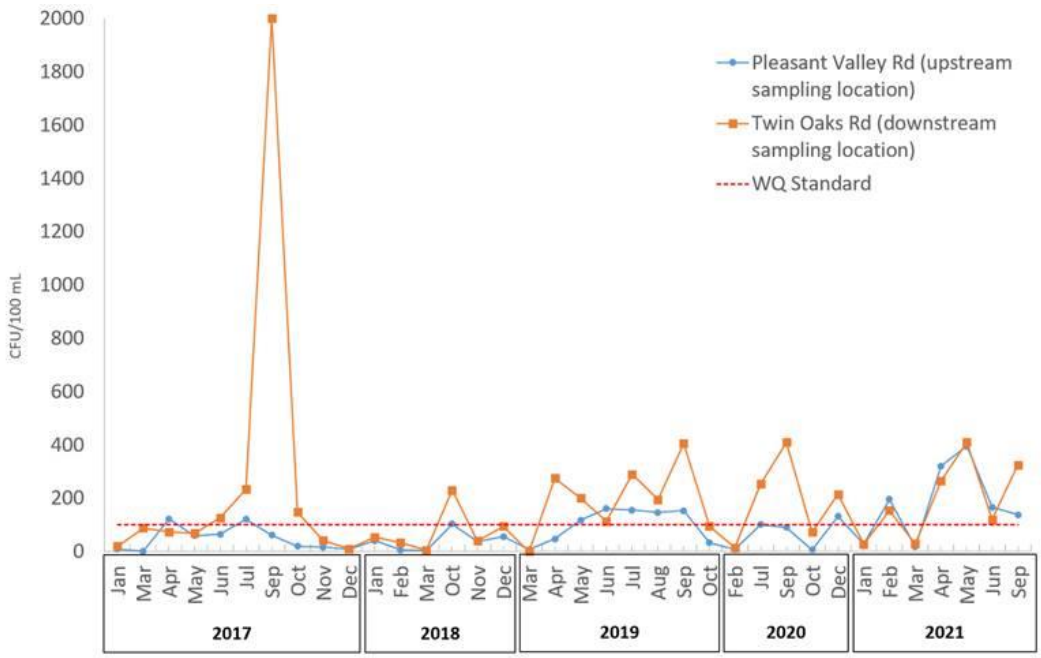


Figure 3 Results of fecal coliform samples (colony forming units (CFU)/ 100mL) collected by the Confederated Tribes of the Chehalis Basin from 2017 to 2021.

East Fork of the Lewis River

In 2020, SWRO staff conducted water quality sampling to identify and prioritize stream segments for further investigation. During this round of sampling, significant water quality improvements were documented in the upper reaches of McCormick Creek. Other locations with high bacteria levels were located in the City of La Center. Staff worked with the City to develop and implement an illicit discharge detection and elimination project to address sources of bacterial pollution entering their storm water system. This effort has isolated pollution sources to one section of the system, and Clark County staff will provide support with technical assistance on microbial source tracking.

Ecology staff also supported development of a new Pollution Identification and Correction program in Clark County called “Poop Smart Clark”. This program has been awarded $496,977 in grant funding from Ecology after legislative approval of the 2021 budget. Additional funding is available through a federal RCPP grant from NRCS.

Enumclaw Plateau (Boise Creek, Pussyfoot Creek, Second Creek and White River):

Ecology finished sending Technical Assistance Letters to all 50 sites of concern on the Enumclaw Plateau tributaries to the White River in March of 2020. Throughout the fall of 2020, SWRO staff continued work on the Plateau by sending letters, following-up with drive-by evaluations, and re-evaluating sites of concern. The re-evaluation process included updating drainage maps, incorporating water quality results from local partners, and reviewing updated dairy information provided by WSDA and resulted with the identification of 70 sites of concern, including two former dairies. Partnerships with King County, WSDA, King Conservation District, and City of Enumclaw were integral for the assessment and prioritization and this re-iterative process will continue in to 2022 and future years.

Henderson and Eld Inlets:

The Henderson and Eld Inlets in Thurston County contains two sites of concern from livestock-related complaints and partner referrals in 2020 and 2021. Initial windshield surveys were conducted in the summer of 2020 during the dry season, and wet weather windshield continued in the fall of 2020 and 2021 and are ongoing. A joint site visit was conducted with Thurston Environmental health staff at the first site where many pet poultry were housed within proximity to a wetland. Significant improvements were made, additional recommendations were given, and Thurston County Environmental Health continue to monitor. After a referral from our same partners due to elevated counts in Swift Creek, Ecology staff conducted a site visit at the second site and manure management educational materials were received.

Key Peninsula:

The Key Peninsula area within Pierce County contains two sites of concern identified in 2020. Staff conducted field surveys in dry and wet weather and are ongoing. One site involved manure storage where pollution could be running off the property. In 2021, we contacted this property owner through a combination of TA letters and phone calls to their business and determined that changes to manure management practices were protective of water quality. Ecology jointly responded to the second site with Tacoma-Pierce County Health Department partners and determined that sufficient livestock management practices were in place.

Oakland Bay:

Oakland Bay is a shallow tidal estuary where shellfish harvesting dominates the marine use and is an economic staple for communities throughout the area. Staff responded to four referrals from local partners along the northern shoreline of Oakland Bay in 2021. Staff conducted site visits for all of these sites, three of which involved livestock operation activities posing risks to the streams in proximity to their operations and the bay that they lead to. One site was referred back to and resolved by the local health department, the operator for one site changed his practices and continues to make improvements with the help of the local conservation district, and one site where livestock are confined on saturated ground is currently moving through the compliance process. After some changes to their operation were made on the final parcel without improvements to water quality, approximately 40% of the downstream shellfish growing areas were closed due to the bacteria input from this particular operation. Ecology issued an administrative order, and with the help of the local conservation district, the operators were able to make the necessary improvements to mitigate the discharge and allow the shellfish growing areas to be re-opened.

Lacamas River Watershed

Water quality data collection was completed in the Lacamas watershed in fall of 2021. Ecology will use this data to develop a source assessment report to identify critical areas for water quality improvement. Nonpoint staff will work with partners (Clark County, City of Camas, WSDA, Watershed Alliance, Clark CD, and NRCS) to develop outreach materials about water quality concerns for the watershed and assist with identifying properties in need of BMPs.

Photo 1 Ecology staff collecting water quality samples in the Lacamas Creek Watershed, October 2021

Ohop Creek Watershed

Ecology began working with three landowners, with livestock, along the banks of Ohop Creek in 2021. Ecology Staff were first alerted to water quality concerns in Ohop Creek through complaints, received through Ecology's ERTS system, about livestock with direct access to Ohop Creek. Staff successfully connected two of the landowners with local partners (Pierce Conservation District and Nisqually Land Trust) to establish long term solutions to protect water quality. Ecology is currently working with the third landowner to establish best management practices.

Nonpoint Enforcement Efforts

In 2021, SWRO Nonpoint staff issued two formal enforcement actions for nonpoint pollution after exhausting proactive compliance measures through education and technical assistance. The first was an Administrative Order issued to an agricultural landowner with horses accessing Ohop Creek, a highly productive salmon-bearing stream. Staff are currently monitoring this property for compliance. The second was an Administrative Order issued to an agricultural landowner/operator in Oakland Bay with livestock accessing waters of the state. The landowner attempted to make some changes to their operation; however, these were not protective of water quality and resulted in approximately 40% of the downstream shellfish growing areas closing due to the bacteria input from this operation. Ecology issued an Administrative Order,

and with the help of the local conservation district, the operators were able to make the necessary improvements to address the discharge and allow the shellfish growing areas to be re-opened. The landowner/operators are currently implementing the Required Corrective Actions outlined in the Order.

Central Regional Office

Implementation activities continued support of the Upper Yakima Suspended Sediment TMDL in 2021. This work included continued efforts on technical assistance before considering potential enforcement actions. Implementation activities in the lower Yakima drainage for the Granger Drain bacteria TMDL continued in coordination with the Washington Department of Agriculture.

Eastern Regional Office

ERO staff continue to implement projects for the Walla Walla Watershed TMDL Water Quality Implementation Plan (PCBs, Chlorinated Pesticides, Fecal Coliform, Temperature, pH, & Dissolved Oxygen). Ecology partnered with the nonprofit, Kooskooskie Commons, to install riparian buffers with extensive plantings throughout the primarily residential Yellowhawk Creek, a complex area with many different stakeholders. ERO also partnered with the Walla Walla County Conservation District with a grant targeted to reduce turbidity, temperature, and dissolved oxygen impacts in the Walla Walla River through riparian restoration and bank stabilization.

With multiple STI plans in place around the Snake River watershed, ERO has partnered with local conservation districts to further improve water quality. Staff have continued to work with two landowners in the Steptoe Creek watershed in order to implement the STI strategy. A plan was developed in partnership with the Palouse Conservation District in 2019 with all livestock exclusion fencing installed along nearly three miles of stream. The plan will continue to incorporate off-stream watering, livestock crossing, and corral implementation to further protect Steptoe Creek. Some of these steps were completed in 2020 and 2021 and will be finished in 2022. In addition, plans for another approximately two miles of riparian restoration were developed for Steptoe Creek. We are working with the Palouse CD to get additional projects implemented in 2022.

The Asotin Creek has seen significant improvement over the last few years since the completion of the Asotin Creek STI. In 2021, the Asotin County Conservation District implemented more

livestock exclusion fencing in the watershed. Planting projects were also incorporated throughout Asotin Creek and its tributaries. Conservation tillage projects are also being implemented in the watershed that reduce erosion and protect water quality. ERO continued to partner with the Asotin Conservation District on an additional grant that will continue to implement riparian BMPs across Asotin County and provide additional maintenance to previous restoration efforts, which will start in 2022.

With the Deadman and Meadow Creek 4b projects, ERO staff have been collaborating with the Pomeroy Conservation District to implement projects in 2021 in Garfield County. Staff partnered with the Pomeroy CD to protect water quality along the stream corridor of Deadman Creek that includes over 2.5 miles of exclusion fencing, planting, and off-stream watering. Using the Coastal Protection Account (Terry Husseman) funds the CD were able to provide a reliable source of off-stream watering and in partnership with the Conservation Reserve Enhancement Program (CREP), fencing and planting will continue in 2022.

Snake River tributaries in Whitman County continued to see implementation efforts in 2021. ERO partnered with the Whitman Conservation District to install riparian BMPs throughout the Alkali Flat Creek watershed which is identified on the 303(d) list for impairments of temperature, bacteria, pH, and dissolved oxygen. This included livestock exclusion fencing, off-stream watering, plantings, and in-stream structures to encourage floodplain connection. In addition, multiple sites that were contacted through technical assistance letters have seen livestock BMPs installed in 2021 in the Alkali Flat watershed.

ERO began scoping for watershed cleanup plans in the Spring Flat, Almota and Alkali Flat watersheds in 2020. These regions are primarily agriculturally driven, that have been dominated by livestock grazing and conventional tillage practices for decades. Ecology hopes to have plans drafted and finalized in 2022 for Spring Flat Creek and Alkali Flat watersheds, and begin working on the Almota plan.

Priority Watershed -- Hangman Creek TMDL Implementation

Hangman Creek is a major tributary to the Spokane River and suffers from low oxygen, high nutrients, high temperatures, and very high levels of suspended sediment. It has been designated as a priority watershed in Ecology's Eastern Region for focusing resources to address sources of non-point pollution. In 2015, the Spokane Riverkeeper challenged EPAs approval of the 2009 Hangman Creek TMDL. In early 2018, the Department of Ecology settled with the Riverkeeper, agreeing to take certain implementation actions. Our agreement with the

Riverkeeper is to study, identify and fix pollution sources, and track progress. Over 80% of the land-use in the watershed is agriculture, so addressing agricultural pollution is a significant aspect of the agreement. Elements of the Riverkeeper Agreement staff have been working on include the riparian assessment, watershed evaluation, site prioritization, landowner contact, offers for technical and financial assistance, and the education and outreach strategy. Ecology has also developed a watershed-based project plan to address the nonpoint pollution sources for Hangman Creek.

Per the Agreement, Ecology must identify and prioritize 10 tillage sites and 5 livestock sites for BMP implementation, annually for 10 years. In 2021, Ecology contacted 10 tillage sites and 5 livestock sites. As of December 2021, 40 priority tillage sites and 20 priority livestock sites have been contacted as part of the agreement. Extensive technical assistance was provided to the landowners. To date, 14 of the 40 tillage sites and 9 of the 20 livestock sites are being actively addressed with partners. Actions at these sites include conservation tillage practices such as direct seed that result in a Soil Tillage Intensity Rating (STIR) of 30 or less. Once fully implemented these sites will represent more than 50 miles of stream restored and 10,000 acres of conservation tillage.

Implementation partners include the Spokane Riverkeeper, Spokane Conservation District, Spokane Tribe of Indians, Spokane County Parks Department, the Lands Council, Spokane Riverkeeper, and Spokane Falls Trout Unlimited. The education and outreach strategy final draft was completed in 2019 and several actions were implemented in 2020. Those actions included an interpretive sign at the Latah Valley Golf Course and signs at bridge crossings along state highways in the watershed, and a farmers barriers to riparian buffers forum. A regional Hangman Creek stakeholder meeting, Spokane School District River Education Workshops, and residential survey were postponed due to the Covid pandemic. .

Additionally, the Spokane Conservation District, Spokane Riverkeeper, and Spokane Tribe of Indians worked with Ecology to apply for approximately $600k in grant funds that if funded, will assist with addressing non-point issues in the Hangman Creek Watershed. The funds look to provide riparian restoration, livestock BMPs, and water quality education.

The Eastern region also worked with the Spokane Conservation District using the Coastal Protection Account (Terry Husseman grants) on an livestock BMP project along a tributary to Hangman Creek.

Ecology and several partners worked on a unique way to use de-obligated 319 funds to make major water quality improvements in the Hangman Creek Watershed. Ecology regional staff submitted a proposal for $1M to establish the Hangman Riparian Restoration and Conservation Program – a hybridized riparian incentive program that builds upon existing conservation programs and producer-reported barriers to participation. This program will provide competitive rental rates with long-term contracts for agricultural riparian land taken out of production, and utilizes an existing federal program for implementation costs and rental payment match. Ecology partnered with Spokane Conservation District, Farm Service Agency, and Natural Resources Conservation Service on the program. The proposal was funded in 2021 and outreach for enrollment will begin in 2022.

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Photo 2 Watershed evaluations allow Ecology staff to see water quality issues in the field, like this erosion along Hangman Creek, which contributes sediment to the waterbody, particularly during high flows.

Eastern Region Watershed Evaluations & Compliance

In order to effectively implement non-point improvements in eastern Washington TMDLs, Eastern regional staff every spring perform watershed evaluations which help identify sources of water quality problems. These surveys assess the health of the streams, document where improvements have been made and identify new nonpoint pollution problems. Staff then follow up with landowners to offer technical and financial assistance to reduce sources of

nonpoint pollution. This evaluation process is crucial to the work in the eastern region to identify water quality problems and work with landowners to make improvements that reduce pollution sources.

In 2021, the eastern regional staff focused on five main watersheds or areas where data shows water pollution problems are present. Staff focused on evaluating livestock grazing and agricultural tilling impacts to steams. This includes sloughing stream banks, bare ground from over grazing, manure piles, rills or gullies, turbid runoff, farming in stream corridors, and an overall lack of riparian vegetation.

Evaluations were conducted in the following areas:

- Direct Whitman County Tributaries to the Snake River (Steptoe, Wawawai, Penawawa, Alkali Flat, and Almota)
- Walla Walla watershed
- Blue Mountain tributaries (Tenmile, Couse, Asotin, Alpowa, Deadman/Meadow)
- Palouse River watershed including Union Flat Creek
- Hangman Creek watershed
- Little Spokane River watershed

Staff identified 229 pollution problem sites and contacted a total of 31 landowners as the next step follow up from the watershed evaluations. More specifically, five livestock and ten tillage sites were contacted in the Hangman watershed, five livestock sites in the Little Spokane watershed, and eleven other livestock sites within the tributaries to the Snake River and the Palouse River watershed were contacted. Extensive technical assistance and planning work with these landowners was coordinated to local partners in 2021. Staff continue to work with these landowners to meet and discuss practical conservation practices for implementation to work towards greater water quality.

The ERO issued four formal enforcement actions for livestock management in 2021. Two of the actions were in Hangman Creek (January and November 2021), one was in the North Fork Palouse River watershed (January 2021), and one in the Alpowa Creek watershed (November 2021). All were Administrative Orders requiring landowners to exclude livestock from surface water and protect the stream corridor. The two January administrative orders were appealed and are at different stages of being reviewed by the Pollution Control Hearing Board. The other two are currently working with ERO on implementing changes.

3.1.3 Complaint Response

Nonpoint specialists across the state use a similar approach to complaint response as does our watershed evaluation work. We first verify the complaint in the field by confirming the water quality problem. We then document the water quality problems and reach out to the owner of the site offering technical and financial assistance to implement appropriate fixes. Our regulatory tools serve as a backstop if water quality pollution problems cannot be addressed with proactive assistance

During 2021, Ecology responded to a multitude of nonpoint source pollution related complaints received by our agency. Complaints, and follow-up to complaints, were tracked in the agency's Environmental Reporting and Tracking System (ERTS). Ecology received a variety of complaints on a wide range of activities including:

- Livestock
- Dairy/Waste
- Debris/Garbage
- Mud/silt/sediment/turbidity
- Herbicide/pesticide application
- Fertilizer
- Manure
- Tillage Pollution
- Stream Dredging

In total, Ecology responded to 225 ERTS complaints across the state. The numbers and types of complaints received vary by region:

Regional Office	# of ERTS complaint responses
Northwest, Bellevue Office	34
Northwest, Bellingham Office	16
Southwest	117
Central	28
Eastern	30
Total ERTS complaints	225

Photo 3 NWRO staff worked to remove pigs from a facility in the Snoqualmie watershed. As vegetation restores, our goal is restored agricultural uses and water quality.

3.1.4 Pollution Identification and Correction Programs and Regulatory Backstop for PIC Programs

Locally led Pollution Identification and Correction (PIC) programs identify and address pathogen and nutrient pollution from a variety of nonpoint sources, including on-site sewage systems, farm animals, pets, sewage from boats, and stormwater runoff. Ecology staff typically participate in regularly scheduled PIC advisory group meetings and outreach events. As needed, Ecology provides a regulatory enforcement backstop for counties to help implement the agriculture-related components of their programs.

During 2021, Ecology inspectors and/or TMDL Leads coordinated with PIC programs in the following counties:

- Mason
- Pierce
- Snohomish (Stillaguamish PIC Phase II)
- King (Poverty Bay, Quartermaster Harbor)
- Skagit (Samish River/Bay)
- Whatcom (Whatcom Clean Water Program)
- Island
- San Juan
- Clallam
- Thurston
- Clark

Northwest Regional Office

Nonpoint specialists and TMDL leads participate regularly in the Stillaguamish Phase III PIC, Whatcom Clean Water Program, and Clean Samish Initiative. We also provide limited support (as needed) to the Poverty Bay, Vashon Quartermaster Harbor, Island, and Kitsap PIC programs.

Stillaguamish Phase III PIC continued in 2021 led by the Snohomish Conservation District. Ecology staff contributed to the PIC by working through septic records to identify parcels near surface waters that had onsite septic systems (OSSs) with an elevated potential to pollute. We presented the results of that work at a Phase III advisory group (which includes the Snohomish Health District) in early 2021. Later in 2021, we performed a similar exercise for selected marine shoreline areas along Port Susan. We conducted multiple meetings with Tulalip Tribes, which

later incorporated the Stillaguamish/Snohomish LIO to coordinate onsite septic mapping efforts. We (along with project partners – Tulalip Tribes, Snohomish County, and Stillagumish/Snohomish LIO) met with Snohomish Health District and presented that information in December 2021. Our work was recognized by the recently "revamped" OSS division of SHD, who recently added two staff to increase their focus on finding and fixing failing septic systems. We will present this information to Stillaguamish PIC III partners in January 2022.

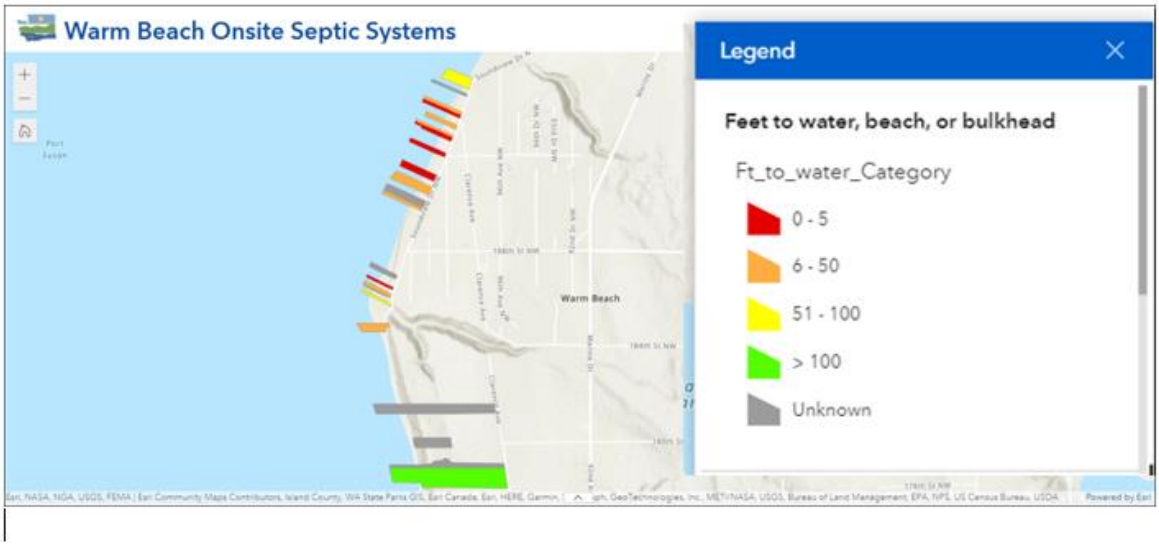


Figure 4 Map of onsite septic systems with an elevated potential to pollute. As part of the Lower Stillaguamish PIC III program, we worked with our partners to assess onsite septic system (OSS) information (e.g. drainfield location, age, last inspection date)

Southwest Regional Office

Ecology's Southwest Regional nonpoint staff work closely with PIC Programs in Mason, Pierce, Thurston, Clark, and Clallam counties by participating in periodic meetings with local partners to strategize how to and who should respond and address ERTS complaints, coordinate and provide support when needed. Additionally, water quality monitoring data may also lead efforts to proactively focus in areas where water quality standards are not being met. Our staff also supported development of a new PIC program in Clark County called "Poop Smart Clark", which has been awarded $496,977 in grant funding from Ecology for the identification and correction of on-site septic system issues, technical assistance to livestock owners, and BMP implementation in four identified watersheds. A $1.4 million Regional Conservation Partnership Program (RCPP) grant through USDA's Natural Resource Conservation Service (NRCS) was awarded to Clark County Conservation District (CD). This funding supports the implementation of targeted on-the-ground projects.

Mason County created a new PIC partnership, Mason County Clean Water District, where stakeholders gather to work to address nonpoint source inputs in shellfish growing areas.

3.1.5 Support Market-Based Programs that Help Meet WQ Standards and Support Compliance with State Law

Farmed Smart

The Farmed Smart Certification program was developed by the Pacific Northwest Direct Seed Association (PNDSA) and a conservation farming technical stakeholder committee comprised of farmers, conservation districts, Ecology, researchers with Natural Resource Conservation Service (NRCS), and Washington State University. It is a voluntary program that promotes growing dryland crops in an environmentally friendly and sustainable way.

Certified farms have the flexibility to choose which practices best fit producers' needs while protecting environmental values. Certified farms are applying agricultural practices including:

- Planting practices like direct seed significantly reduce erosion and keeps soil in the fields.
- Buffers and grass filter strips on streams and rivers to protect water quality and aquatic habitat.
- Precision agriculture technology reduces chemical and fertilizer use and reduces the potential for those chemicals to reach water systems.

Ecology entered into a MOU with PNDSA in 2016, which provides that certified farms have safe harbor from formal water quality enforcement actions as authorized by the state Water Pollution Control Act RCW 90.48.

Our NWRO continued to provide grant funding to support the work of Stewardship Partners, whose market-based approach promotes "Salmon-safe" farming. Twelve farms in the Snohomish Watershed currently participate in the Salmon Safe program.

Additional information can be found on the Direct Seed Organization webpage.

3.1.6 Support No Discharge Zone Implementation for Puget Sound

In 2021, Ecology continued to implement the Puget Sound Vessel Sewage No Discharge Zone (NDZ) rule, which was adopted on April 9, 2018 and became effective May 10, 2018 (Chapter 173-228 WAC). The NDZ includes marine waters of Washington State inward from the line between New Dungeness Lighthouse and the Discovery Island Lighthouse to the Canadian border, and fresh waters of Lake Washington, Lake Union, and the connecting waters between and to Puget Sound.

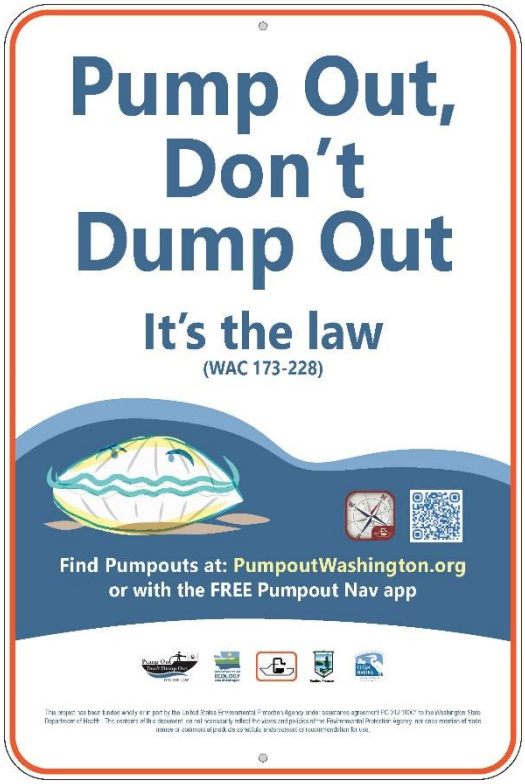


Photo 4 No Discharge Zone sign used to educate boaters accessing Puget Sound.

The NDZ means that vessels cannot discharge sewage (toilet water/blackwater) anywhere within the zone, whether treated or not. All boats and vessels have to store their sewage until they can safely dispose of it at an onshore or mobile pumpout facility, or hold it until it can be discharged outside the NDZ and beyond three miles from shore. Certain commercial vessels have until May 10, 2023 to comply due to the more extensive retrofits and costs. These include tug boats, commercial fishing boats, small commercial passenger vessels and NOAA research and survey vessels.

Ecology leads two committees to help implement the NDZ, and continues to work closely with committee partners to get the word out on the NDZ. In 2019, Ecology, with input from the NDZ Education and Outreach Committee, prepared a Request for Proposal and awarded the contract for a social marketing research study to identify barriers to NDZ compliance and inform the development of a coordinated multi-media campaign creating a more effective branding identity for the NDZ going forward. The research study was conducted during 2020 and involved focused interviews and two separate online surveys, culminating in a set of recommendations to Ecology. In 2021, Ecology's NDZ Project Team updated the NDZ Implementation Plan to include actions informed by the 2020 study and implemented a considerable number of those actions throughout 2021. Ecology rolled out the Pump Out, Don't Dump Out campaign over the spring and summer of

2021, which included sharing the new NDZ logo, webpage, infographics (visually describing why the NDZ matters), a video, magazine ads, social media posts, a blog post and the existing Pumpout Nav app that was updated to include the NDZ boundary. Ecology also provided information about the NDZ at a number of virtual events, such as water quality meetings in Skagit and Jefferson Counties. The 2020 study determined that the most effective method for reminding recreational boaters about the NDZ and how to manage vessel sewage would be through placed-based signage. Therefore, in early 2021 Ecology created, and had printed, over 300 aluminum signs of various sizes (plus large magnets and decals) with the intention to install then at boat launches and marinas, where boaters will see them before boarding a vessel. The team then coordinated with marinas, cities and counties across Puget Sound to find good sign locations and deployed almost the entire set of signs over the Summer and Fall. The signs were free for the entities installing them since Ecology was able to use NEP funds to print them. Due to the supply chain issues experienced globally in 2021, cargo/container vessels experienced long delays entering Ports. This was also the case in Puget Sound and Ecology found that large vessels were waiting outside the Port, within the NDZ, for weeks before being able to access a terminal and unload. This is concerning because within that waiting period, vessel workers are onboard and sewage holding tank capacities diminish. This situation led Ecology to develop a new Focus Sheet aimed at ensuring cargo vessels, Port authorities, and terminal agents are aware of the NDZ, what they can do to manage their vessel sewage if delays occur, and how to arrange for pumpout services.

In 2021, Ecology finalized the first NDZ Enforcement Strategy which includes an Enforcement Plan, supporting documents such as an example County marine sewage ordinance, and suggestions for how each partner agency could play a role. Ecology also provided training to our SWRO and NWRO ERTS Coordinators so they are better equipped to ask vessel-specific questions when documenting a report of potential or actual vessel sewage discharge within the NDZ.

On November 30, 2020, the United States District Court Judge for the District of Columbia remanded the administrative record to EPA for further consideration on the American Waterways Operator's appeal of EPA's determination that allowed the establishment of the Puget Sound NDZ. The District Court ordered EPA to further analyze cost and treatment considerations within 90 days. The District Court also ruled that the NDZ will continue to be in place while EPA gathers the additional information.). As a result of the court order, Ecology worked diligently in December 2020 to prepare the additional information requested by EPA, which focused on the treatment of pumped vessel sewage and on costs associated with pumping and disposal. On March 1, 2021, EPA filed a status report informing the Court that it had completed its further consideration of the issues set forth in the summary judgment order. Based on that further consideration, EPA reaffirmed its determination that adequate facilities for the safe and sanitary removal and treatment of sewage from all vessels are reasonably available in Puget Sound. More information on the reaffirmation of EPA's determination can be found at: EPA's Final Determination on "No Discharge Zone" for Puget Sound.

More information about the Puget Sound NDZ, including guidance for recreational and commercial boaters, can be found on the NDZ webpage.

Photo 5 New No Discharge Zone logo created by Department of Ecology.

Photo 6 NDZ Sign recipients at Port of Poulsbo (above) and Semiahmoo Marina (below)

3.1.7 Support implementation of other state authorities and promote consistency with the WQ Standards

Support implementation of the Dairy Nutrient Management Program; Ecology and WSDA continue to work on the gaps identified in the Dairy Nutrient Management Act

The Department of Ecology (Ecology) and Washington State Department of Agriculture (WSDA) continued to operate under a Memorandum of Understanding (MOU) to address livestock related water quality issues. The MOU was established as a coordinating document because Ecology and

WSDA have overlapping regulatory responsibilities for water quality compliance related to livestock activities.

In 2021, the WSDA Dairy Nutrient Management Program continued to notify Ecology Nonpoint staff when former dairy facilities have cancelled their milking license. This allows Ecology to provide follow-up technical assistance to ensure management of livestock and manure on the sites is adequate to protect nearby surface water. In addition, both agency staff shared GIS resources to improve collaboration.

3.1.8 Support education and outreach and support for voluntary programs.

One notable education and outreach (E & O) tool that Ecology utilizes is an interactive webmap which shows the public the active and completed water quality protection projects throughout the state that have received financial support through Ecology's combined funding Program. As noted earlier in section 3.1.2, NWRO began development of a four video series and public-facing Storymap in 2020 that we expect to complete in Fall 2021. Ecology continually plans and implements education and outreach efforts focused on nonpoint source pollution management.

The SWRO nonpoint team creates and distributes a monthly Nonpoint Newsletter to conservation partners throughout the region. The newsletter includes grant funding opportunities, ERTS numbers, hot topics, and regional staff contact information.

3.2 Goal 2: Ensure Clear Standards

3.2.1 Identify best management practices (BMPs) and measures designed to comply with the Water Quality Standards and contribute to the protection of beneficial uses of the receiving waters, and ensure compliance with state and federal law. Utilize best available science.

Implementation of forest practices rules statewide; periodic reviews of the Forest Practices Rules adaptive management program and the Clean Water Act Assurances

Ecology helps ensure that the Forest Practices Rules are effective in protecting water quality and meet federal and state water quality standards. These rules help protect streams, wetlands, and other bodies of water in or near forest areas and in-stream fish habitat.

Ecology provides:

- Field inspectors to help the Department of Natural Resources ensure rules are followed.

- Forest practices effectiveness monitoring and policy analysts who participate in the Forest Practices' adaptive management program.[2]

The Forest Practices Rules provide standards to:

- Preserve trees in streamside areas to keep the water cool.
- Improve in-stream fish habitat by providing woody debris and controlling pesticide use near water bodies.
- Encourage proper construction and care of forest roads to prevent silt from entering water.

Regional staff/inspectors engaged in the following activities to support the implementation and enforcement of the forest practice rules:

- Participated in field review and data collection of forest practice activities to determine compliance with the rules. Inspectors worked throughout all six DNR Regions. Prior to field visits inspectors conducted in-office FPA reviews.
- Reviewed individual forest practice applications.
- Reviewed and provided input on Compliance Monitoring Program reports and documents and participated in site-compliance inspections.
- Participated in meetings and work sessions to implement a stream typing prioritization plan and procedures for coordinating between landowners and reviewers prior to stream protocol surveys.
- Performed field inspections of selected streams, providing concurrence or recommendations for alternate points to be used to define where fish habitat exists, and where the end of perennial water occurs in order to apply different harvest prescriptions.
- Provided staff to assist DNR in evaluating readiness of counties to assume jurisdiction for forest practices within their urban growth boundaries.
- Collaboratively participated with DNR, and WDFW staff and representatives of affected Indian tribes, to identify the need for and participate in multidisciplinary ID teams and field inspections for conducting site-specific evaluation of compliance with the forest practices rules.

Agricultural – Voluntary Clean Water BMP Guidance

The development of clear, standalone, clean water BMP guidance for agricultural sources will be a key enhancement for our nonpoint source (NPS) pollution program. The Voluntary Clean Water

[2] Covered below in section 3.2.2.

Guidance is intended to be a technical resource for the agricultural community and to complement existing guidance on agricultural conservation practices, such as the Natural Resources Conservation Service (NRCS) Field Office Technical Guides (FOTGs). Compared to other guidance documents, its focus is on how BMPs can protect water quality and support meeting the Washington state water quality standards.

Ecology's goal is to run a process that interested parties and stakeholders believe is fair, inclusive, and respectful, that will result in robust, scientifically-based guidance which farmers will be amenable to implement, that will meet water quality standards by preventing pollution discharge at the parcel level. We are developing the guidance in a series of chapters with ongoing collaboration from an advisory group. The advisory group include representatives from the National Resource Conservation Service (NRCS), Conservation Districts, Washington State Department of Agriculture, State Conservation Commission, Washington State University, farmers, dairies, cattle groups, US Environmental Protection Agency, the Washington State Department of Fish and Wildlife, the Northwest Indian Fisheries Commission and other agricultural and conservation experts.

The guidance's focus is on inventorying existing BMPs, refining those BMPs (if needed), and then assembling the BMPs into combinations that adequately address all sources of pollutants for a particular land use. The guidance will cover a range of conservation practices and include topics, such as nutrient management, sediment control, water management, livestock management, and riparian buffers. Each chapter will address different conservation practices and provide information on:

- Practices that best prevent water pollution and protect water quality
- How well BMPs perform in reducing specific pollutants
- Considerations for when implementing BMPs, such as costs and equipment requirements

In 2021 we made significant progress on the guidance. We finalized a draft of the effectiveness evaluation section of the Sediment Basin Chapter. Sediment basins, are intended to address sediment erosion in various agricultural settings. The implementation workgroup started work on that section of the chapter and we anticipate a draft of the chapter to be ready for public review in summer 2022.

Photo 7 An aerial image showing four sediment basins designed to hold a permanent pool of water. Credit: Google Maps Imagery.

Work on the riparian buffer chapter continued to be on hold in deference to a larger State/Tribal effort related to riparian areas. We plan restarting work on the riparian buffer chapter in 2022.

We continued work on guidance for livestock pasture and rangeland BMPs and livestock confinement area/waste storage BMPs. This included an extensive search and review of scientific literature, development of a draft bibliography and draft preliminary findings. Research focused on evaluating the water quality impacts associated with these types of agricultural activities and practices that can be used to prevent nonpoint source pollution and their efficacy. For pasture and rangeland BMPs, research focused on the impacts of grazing to riparian areas, uplands, stream geomorphology and water quality, and best management practices to address these impacts.

We also held multiple advisory group meetings in 2021 and presented information about each practice including draft findings. We plan to release drafts of the livestock related BMPs and sediment control BMP in 2022. We will include completed volumes of the guidance in the next update to the Nonpoint Plan.

Forest Practices

Under Washington state law (Chapter 90.48 RCW) forest practices rules are to be developed to achieve compliance with the state water quality standards and the federal Clean Water Act

(CWA). Ecology established Clean Water Act assurances (CWA assurances) for the state's forest practices program in 1999 as part of the Forests and Fish Report (FFR) and subsequent legislation known as the Forests and Fish Law. This legislation amended the existing Forest Practices Act (Chapter 76.09 RCW).

The CWA assurances established that the state's forest practices rules and programs, as updated through a formal adaptive management program, would be used as the primary mechanism for bringing and maintaining forested watersheds into compliance with the state water quality standards.

Taken in total, the forest practices Adaptive Management Program (AMP) provides a substantial framework for ensuring forest practices are complaint with the water quality standards. In 2009, as part of a review of the AMP, Ecology concluded it is in the best interests of water quality, and is consistent with legislative intent, to work together with cooperating agencies and stakeholders to make needed improvements to the existing program. Ecology therefore conditionally extended the CWA assurances with the intent to stimulate the needed improvements to the forest practices program and AMP.

Ecology, in consultation with key stakeholders, established specific corrective milestones. The extension of these assurances was conditioned on meeting these administrative and research milestones by the specific target dates described. With these corrective milestones in place, Ecology extended the CWA assurances until 2019.

Progress towards completing the remaining corrective milestones has remained slower than intended but continues to move forward. The causes of not meeting the scheduled target dates include, new and competing priorities; such as, the additional work related to ensuring forestry is not increasing the risk of mass wasting, work on a large proposal to establish separate requirements for small forest landowners, and a renewed focus on developing field methods for identifying points on streams that represent the end of fish habitat (with fish habitat receiving higher protection under the rules).

On December 2, 2019 Ecology Director Bellon sent a letter to the Forest Practices Board (available upon request) granting a second extension for two years (ending December 2021) based on the completion or near completion of several key Type N research projects providing enough information for the board to consider new rulemaking with regard to riparian buffers on non-fish bearing waters. As the result of the completion and acceptance of one of the studies a workgroup was convened to develop recommended harvest prescriptions to help inform rule making. The workgroup completed its work and presented the final report to TFW Policy at the June 2021 Policy meeting.

On February 23, 2021, the Washington State Auditor's Office issued a performance audit report describing issues that continue to plague the AMP. The Auditor's Office concluded that the program is not "operating as intended" and that, without needed changes, the "program would continue to languish." The Audit Report contains a number of recommendations designed to get the program on track so that it can perform its functions as intended. The Forest Practices Board (Board) has committed to addressing many of these recommendations and the Department of Natural resources has included a funding request in this year's budget.

In consideration of the continued progress at Policy and the Boards commitment to the Auditors Report Ecology Director Watson issued in a memo to the Board (Appendix A), an additional one year extension of the CWA Assurances. This extension is contingent on the AMP making measurable progress on implementing the 2021 Audit Report and Policy making a final recommendation on Type Np buffer prescriptions to the Board, with the Board directing staff to develop a rule package and prepare a CR102.

Despite financial constraints created through the COVID-19 pandemic, funding has been able to be maintained at the current level for the AMP, guaranteeing continued research by Cooperative Evaluation, Monitoring, and Research Committee.

3.3 Goal 3: Develop and Strengthen Partnerships

3.3.1 Strengthen Relationships and Receive Input from Stakeholders

Ecology recognizes the need for strong partnerships and input from stakeholders to effectively implement our nonpoint source program. Many of those efforts are detailed in other sections of this report. We are looking to highlight our activities related to key groups and partners:

Agriculture and Water Quality Advisory Committee

The Agriculture and Water Quality Advisory Committee was established to provide the Ecology Director with a direct line to producers and producer groups and discuss how we can both support a healthy industry and protect clean water. The committee provides input to help guide the director's efforts to improve Ecology's relationship with the agricultural community and inform us on how we can do our work to better respond to concerns from producers. A broad array of agriculture stakeholders participate on our committee. The committee has open dialogue about issues affecting the industry and how they intersect with our work to prevent water pollution.

This committee provides an open forum for agriculture producers and environmental interest groups to meet our staff and learn about our work. They provide valuable feedback as we tackle the challenge of insuring that working lands keep working in an environmentally friendly way.

In 2021, the committee met virtually on March 30th and October 5th. The committee has been successful at further improving our agencies relationship with agriculture and creating a more positive environment to implement our nonpoint program including increased acceptance and support for our watershed evaluation and TMDL implementation work, and support for the creation of the Voluntary Clean Water Guidance for agriculture.

During the March meeting, the agenda included:

- Review history of advisory committee and achievements. We also started a discussion about future priorities for the group.
- Discussed the State and Tribal Riparian Initiative.

At the October meeting, the agenda included:

- Watershed evaluations and implementation in Eastern Washington
- Shellfish Farms, Clean Water Act 401 Certifications and CZM Consistency
- Concentrated Animal Feeding Operation General Permit
- Washington's 2018 Water Quality Assessment

You may view more detailed information on each meeting and the committee on the Agriculture and Water Quality Advisory Committee webpage.

Financial Assistance Council (FAC) and Water Quality Partnership (WQP)

The FAC and WQP continue to be key forums for informing stakeholders on our nonpoint program. These groups continue to be successful in helping us coordinate and build relationships with key stakeholders.

FAC meetings were held on April 21st and November 17th, 2021.

We held four WQP meetings in 2021 on March 25, June 24, September 30, and December 16. Please visit the Water Quality Partnership webpage for more information on meetings.

Puget Sound Nutrient Forum (Forum) and Marine WQ Implementation Strategy (MWQ IS)

Both of these efforts focus on building and strengthening relationships with regional stakeholders, tribes, the regulated community, industry, and the public. Nutrient management efforts in other large U.S. coastal estuaries have emphasized the importance of focused stakeholder engagement to build a common understanding of nutrient over-enrichment problems and potential solutions. We believe that a successful outcome for Puget Sound will rely in large part upon this engagement process, and the feedback we have received from attendees has been largely positive.

We held two Forums in 2021 and have multiple meetings planned for 2022. For more information on the Forum meetings, please visit:
https://www.ezview.wa.gov/DesktopDefault.aspx?alias=1962&pageid=37106

3.3.2 Strengthen Relationships with Federal and State Agencies and Local Governments and Special Purpose Districts

We continued to strengthen partnerships with federal and state agencies, as well as, local governments and special purpose districts. Examples of coordination efforts with local governments and special purpose districts (highlighted above), include working with local government PIC programs, working with Conservation Districts (CDs) during our eastern region's watershed assessments and implementation efforts, collaborating with CDs in support of PNDSA's Farmed Smart Certification Program, partnering with local heath jurisdictions, counties, and CDs on the Clean Samish Initiative and Whatcom Clean Water Program.

Examples of coordination with Drainage Districts include:

- NWRO assisted Drainage District 21 and the Upper Skagit Tribe to better understand local groundwater characteristics in support of a combined drainage maintenance/fish habitat restoration project.

Examples of coordination with partners include:

- Our NWRO continued to explore new areas of partnership with the Snohomish Conservation District in 2020. Working with our Watershed Planning Unit at headquarters, we helped the district develop an early-action grant proposal to address nutrient discharges from agricultural areas. The project is an excellent starting point for working with CDs in the Puget Sound Watershed in support of the Puget Sound Nutrient Reduction Project. This project is now on the FY 2022 Ecology Combined Funding Program

Draft Offer list along with two other Snohomish CD projects that support TMDL-related nonpoint water cleanup efforts.

- Asotin County CD continues to partner with Ecology to water quality improvements along several streams in their district. Because of a positive working relationship and great water quality progress already being made, we are able to use a straight to implementation (STI) approach to make progress on meeting water quality standards on several streams in Asotin County, including Asotin Creek. We were able to get right to work improving water quality and fish habitat. The district has received funding to implement BMPs that are effective at addressing pollution problems in their district. Their extensive riparian buffer and direct seed work has transformed these STI watersheds, dramatically improving water quality and habitat for ESA listed fish. In 2019, the Asotin County CD completed several non-point projects including an effort to protect two miles of mainstem Asotin Creek with fencing and a livestock crossing bridge. Thousands of trees and shrubs were also planted in the riparian area.

- Moses Lake was closed in the summer of 2018 to recreation due to toxic algae blooms. High levels of toxicity were also recorded and the lake needed to be posted with warnings in the summer of 2019. Many residents have voiced their frustration with the poor water quality in the lake. In partnership with Grant County Conservation District, we have formed the Moses Lake Watershed Council. Continuing through 2020, the Council meets at least quarterly to pursue nutrient reduction strategies and look for immediate on-the-ground actions that can be implemented to reduce nutrient pollution to the lake. We have funded the development of a Lake Management Plan to reduce nutrient loading. At this time, it is uncertain as to whether or not this plan will be equivalent to a watershed-based plan. We have also identified livestock pollution issues along the lake and worked to fund BMPs such as fencing and stockwater along the lake. A Carp Removal Pilot project has also been funded to evaluate strategies to remove invasive Carp. Carp stir up lake bottom sediments and resuspend nutrients in the water column. They also damage shoreline aquatic vegetation.

- National Water Quality Initiative – Is a partnership effort between the Palouse CD, Ecology, and NRCS. Union Flat Creek has been selected for an intensive monitoring and implementation effort. Ecology is providing funding to the Palouse CD to help implement this exciting new effort on the Palouse. Monitoring and non-point BMP implementation work was temporarily paused in 2020 due to Covid-19, however has since resumed and is underway.

- Hangman Creek Stakeholder Engagement and Project Funding – Ecology continues to work on diversifying and energizing stakeholders in the Hangman watershed. In 2021 Ecology worked with three stakeholders to apply for water quality improvement grants including the Spokane Conservation District, Spokane Tribe of Indians, and Spokane Riverkeeper, the

latter two being their first Ecology Water Quality Program grant applications. Ecology's Eastern Region also submitted a $1M proposal to launch a riparian restoration and rental program specific to Hangman watershed agricultural producers that operate on perennial streams – this program partnered with Spokane Conservation District, Farm Service Agency, and Natural Resources Conservation Service.

- The East Fork Lewis River Partnership continues to collaborate on issues to address bacteria and temperature concerns in the watershed. During 2020, several organizations formed the "Poop Smart Clark" pollution identification and correction program to reduce bacteria in the East Fork Lewis River watershed and watersheds in Clark County. The group has been approved for $496,977 in grant funding from Ecology.
- Efforts focused on the Enumclaw Plateau to address the Puyallup River Multi-parameter TMDL has resulted in a partnership with King CD, King County, City of Enumclaw, WSDA, NRCS, and Tribes to assess the impacts agricultural activities may have on water quality in the Lower White River and its tributaries (Boise, Pussyfoot, and Second Creeks. Ecology nonpoint staff coordinates two annual meetings with area partners to discuss work that has been done the previous year and to identify areas to focus on for the upcoming year. Ecology also leads quarterly partner meetings to provide a venue to share water quality information. This last year, King County initiated a monthly Peer-to-Peer engagement meeting with all of the area partners to work to build a network of outreach and educational opportunities for land owners seeking to implement BMPs.
- Renewed efforts in the Skokomish Valley connected Ecology staff with various partners working in the watershed and facilitated collaborative partnerships and continued to build a working relationship with the Mason Conservation District.
- Shellfish Protection Districts-Partnerships with WSDOH, County DOH, Tribes, County Stormwater Management Services, local CD, and residents
    - Key Peninsula: Burley Lagoon, Filucy Bay, Rocky Bay, Vaughn Bay
    - Henderson Inlet & Nisqually Reach
    - Mason County Clean Water Partners
    - Clallam Clean Water Workgroup

  Regular contact and information exchange with WADOH, County DOH, County Stormwater Management Services, local CD, and residents is ongoing. Continued watershed assessments in SPDs outlined in our joint NEP grant with WADOH has led to staff collaborated with local health departments and CDs to create letters for outreach and technical assistance purposes. These letters are used to convey the SWRO nonpoint specialist's presence and goals while working in the watershed, educate residents about

sources of bacterial pollution, and give them tools and resources to prevent and mitigate pollution on their property.

Regional Conservation Partnership Program

Ecology staff are active partners in the Greater Spokane watershed and Palouse watershed RCPP efforts. The Regional Conservation Partnership Program (RCPP) promotes coordination of NRCS conservation activities and Environmental Quality Incentives Program (EQIP) funding. Partners provide both time and funding to expand the collective ability to address on-farm, watershed, and regional natural resource concerns. RCPP projects are five-year efforts that look to fund millions of dollars of conservation work.

In 2021, more than a dozen riparian restoration and conservation tillage projects were implemented. We received confirmation in 2019 that the Palouse RCPP project would be extended for an additional 5 years and 11 million dollars - this new RCPP has been delayed but is planned to be launched in 2022. We also requested a renewal for the Spokane project in 2021, which was not funded unfortunately, but the Conservation Stewardship Program (CSP) for the existing RCPP was continued with over $1M in available funds – CSP enrollment will open early 2022.

These partnerships can be very successful. Over the last six years (including 2021), the Palouse RCPP has implemented 354 acres of riparian buffers; 77,265 acres of conservation tillage; and 1,049 acres of conservation easements on working farmland through ACEP RCPP and 540 acres of permanent Palouse prairie protection.

Ecology has agreements with both Spokane and Palouse RCPP partnerships to prioritize sites Ecology identifies through watershed evaluations. In essence, If Ecology identifies the pollution problem through its prioritization process, these sites move to the front of the line for technical assistance and RCPP funding.

A $1.4 million Regional Conservation Partnership Program (RCPP) grant through USDA's Natural Resource Conservation Service (NRCS) was awarded to Clark County Conservation District (CD). This funding supports the implementation of targeted on-the-ground projects.

Additionally, in 2021 Ecology continued supporting the Lower Yakima Valley Yakima GWMA (Groundwater Management Area) as a member of the GWMA Implementation Committee, which meets monthly to address resource needs, discuss progress, and prioritize recommended actions defined in the implementation plan (see https://ecology.wa.gov/Water-Shorelines/Water-quality/Groundwater/Protecting-aquifers/Lower-Yakima-Valley-groundwater) and field staff attended CD board meetings across the state.

At the state level, in addition to coordination with the state Department of Agriculture (MOU) and the Department of Natural Resources (Forest Practices) as detailed above, we continued to work with the state Department of Health on shellfish issues and in support of PIC programs, supported the Puget Sound Partnership's Puget Sound Action Agenda, and supported the State Conservation Commission in our role as a commission member.

In 2021, Ecology continued to work toward strengthening our partnership with the USDA Natural Resources Conservation Service (NRCS). NRCS staff have participated on our Voluntary Clean Water Guidance advisory group. As highlighted above we worked with NRCS and Palouse CD to expand the NWQI to Union Flat Creek.

Furthermore, we have continued to partner on the Palouse watershed Regional Conservation Partnership Program (RCPP) project. The first Palouse watershed RCPP was wrapped up last year. They were awarded a second RCPP which will be active for another five years beginning with implementation in 2022.

The Greater Spokane watershed RCPP wrapped up last year. The renewal for the Spokane RCPP was not funded, but the Conservation Stewardship Program (CSP) for the previous RCPP was extended with over $1M in available funds for 2022 – CSP enrollment will open early 2022 and close in spring 2022.

Finally, Ecology continues to participate on the NRCS State Technical Advisory Committee.

3.3.3 Strengthen Relationships with Tribes

Coordination between tribal, state, and local governments is important to the successful management of resources, including water quality. We have met with tribal natural resources staff at a meeting hosted by the NWIFC (Coordinated Tribal water quality program meetings) to discuss the Puget Sound Nutrient Strategy. Letters have been sent to tribes regarding the process, and inviting them to participate in the development of the Clean Water Guidance for Agriculture. An employee with the NWIFC is a member of the Voluntary Clean Water Guidance advisory group.

In 2021, we continued to respond to the Swinomish Tribes request that we focus resources on improving water temperatures in the Skagit River Tributaries through implementation of the Lower Skagit Tributaries Temperature TMDL Strategy (discussed earlier in section 3.1.2). We share an interest in achieving water quality improvements in the Skagit watershed that support healthy populations of salmon. To do this we need to increase the pace of efforts to implement riparian restoration that would improve water temperatures.

Ecology's NWRO continued to maintain strong relationships with the Tulalip, Muckleshoot, Stillaguamish, and Snoqualmie Tribes in 2021. We communicate regularly through participation the Snohomish, Cedar, Green, Stillaguamish, and Skagit salmon recovery forums and technical teams. Our staff are managing one Ecology grant with the Tulalip Tribes and will be negotiating a new grant contract with the Skagit River Systems Cooperative in 2021. As noted earlier in Section 3.1.2, we also assisted the Upper Skagit Tribe in a project on Turner Creek in 2020. We also worked closely with the Tulalip Tribes during development and finalization of the recently approved Pilchuck River Temperature/Dissolved Oxygen TMDL.

Ecology's Bellingham Field Office continued to partner with Lummi Nation and Nooksack Tribes on TMDL and nonpoint related projects through 2021. Lummi Nation tracks bacterial pollution sources to the Portage Bay shellfish growing areas and coordinates efforts through the Whatcom Clean Water Program. Along with Lummi Nation and project partners, Ecology coordinates sampling efforts, information sharing, and project planning. The Nooksack Tribe and Lummi Nation continues restoration through instream habitat improvements and riparian planting throughout the Nooksack watershed. Among the many activities, the Nooksack Tribe works with local land and water trust to improve and protect conditions in the South Fork Nooksack River watershed. Ecology began meeting regularly with researchers and the Nooksack Tribes.

Through 2021, The Muckleshoot Indian Tribe Fisheries staff continue to coordinate with Ecology's nonpoint and TMDL staff to identify sources of high bacteria in the Enumclaw Plateau by conducting water quality monitoring at two sites within the Boise Creek watershed. Working through a grant provided by the EPA, the Skokomish Tribe DNR staff continue to monitor the area. These efforts continue to provide Ecology staff with valuable information regarding bacterial levels in the Skokomish Valley. Nonpoint staff continue to participate in the Nisqually River Council monthly meetings, provide support, and present program information.

Ecology's Eastern Regional Office continues to strengthen relationships with the Spokane Tribe of Indians. Ecology has partnered with the Tribe on several water quality improvement projects in the Little Spokane watershed, Colville watershed, and Hangman watershed.

State and Tribal Riparian Efforts

Under Governor Inslee's direction, a state-tribal workgroup planned a coordinated process to make statewide progress on riparian habitat protection and restoration. Healthy riparian habitat is critical to salmon recovery, overall watershed health and climate resiliency. Governor Inslee first committed to do more to help protect and restore riparian areas during the 2019 Centennial Accord. State and tribal staff meet throughout 2020.

This resulted in a State and Tribal partnership which is working to identify both challenges and opportunities while developing recommendations on actions that could result in fully functioning

riparian ecosystems statewide, this is called the 5 pathways. At the 2020 Centennial Accord the Governor reiterated his commitment to this effort and the 5 pathways approach. A discussion of this topic can be found at the 1 hour and 3 minute mark at this link: https://register.gotowebinar.com/recording/932225742726231311. The pathways groups started meeting at the end of 2020 and met on a regular basis during 2021. Collaborative partnerships will be central to the accomplishment of durable riparian ecosystems.

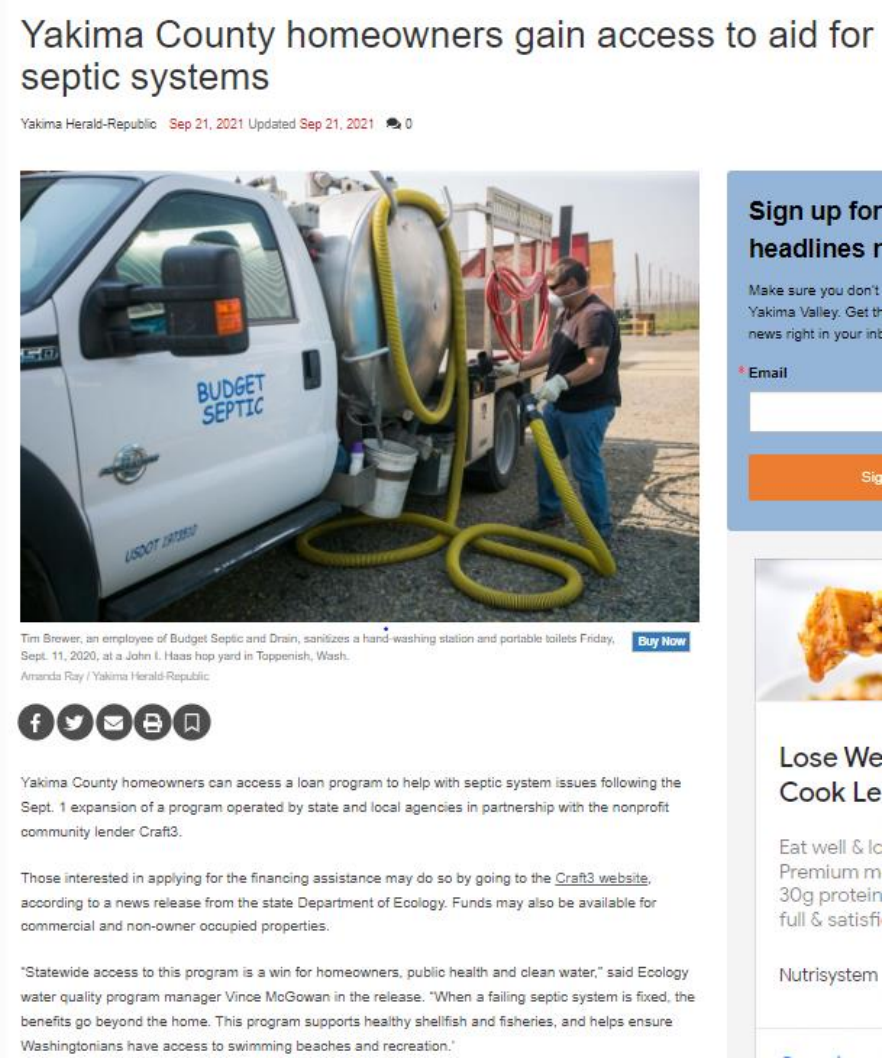
The 5 Pathway workgroups stopped meeting in Fall 2021 and the Governor's office worked with state representatives to introduce legislation to address the need for riparian buffers. As of Winter 2022 that legislation had not moved forward. The legislature did provide additional funding to the Salmon Recovery Office and the State Conservation Commission support riparian restoration efforts. Additionally, funding was provided to the Governor's office to complete a legislative report by November 2022 to provide recommendations on how to improve Washington's approach to supporting salmon recovery. The budget proviso states:

> *State appropriation for fiscal year 2023 are provided solely for the governor to invite federally recognized tribes, legislative leadership, local governments, agricultural producers, commercial and recreational fisher organizations, business organizations, salmon recovery organizations, forestry and agriculture organizations, and environmental organizations to participate in a process facilitated by an independent entity to develop recommendations on proposed changes in policy and spending priorities to improve riparian habitat to ensure salmon and steelhead recovery.*
> *(a) The recommendations must include:*
> *(i) Ideas for improvements to land use planning and development that ensure the protection and recovery of salmon; (ii) Standards to protect areas adjacent to streams and rivers; (iii) Standards to restore areas adjacent to streams and rivers; (iv) Financial incentives for landowners to protect and restore streamside habitat; (v) Recommendations to improve salmon recovery program coordination among state agencies; and (vi) Recommendations for additional changes when voluntary measures and financial incentives do not achieve streamside protection and restoration.*
>
> *(b) Preliminary recommendations shall be submitted to the legislature and governor by October 1, 2022, with a final report by November 1, 2022.*

3.3.4 Communicating nonpoint successes

As part of overall nonpoint pollution prevention efforts, Ecology also focuses work efforts on using social media, working with local news outlets and finding creative ways to promote local programs and engage with communities across the state. Below are a few highlights of nonpoint communication successes in 2021:

Photo 8 To promote an educational sign on the Hangman Creek, Ecology created a video and posted it on its Twitter and Facebook pages. As of December 2021, the video had been viewed 800 times on Twitter.



Yakima County homeowners gain access to aid for septic systems

Yakima Herald-Republic Sep 21, 2021 Updated Sep 21, 2021 0

Tim Brewer, an employee of Budget Septic and Drain, sanitizes a hand-washing station and portable toilets Friday, Sept. 11, 2020, at a John I. Haas hop yard in Toppenish, Wash.
Amanda Ray / Yakima Herald-Republic

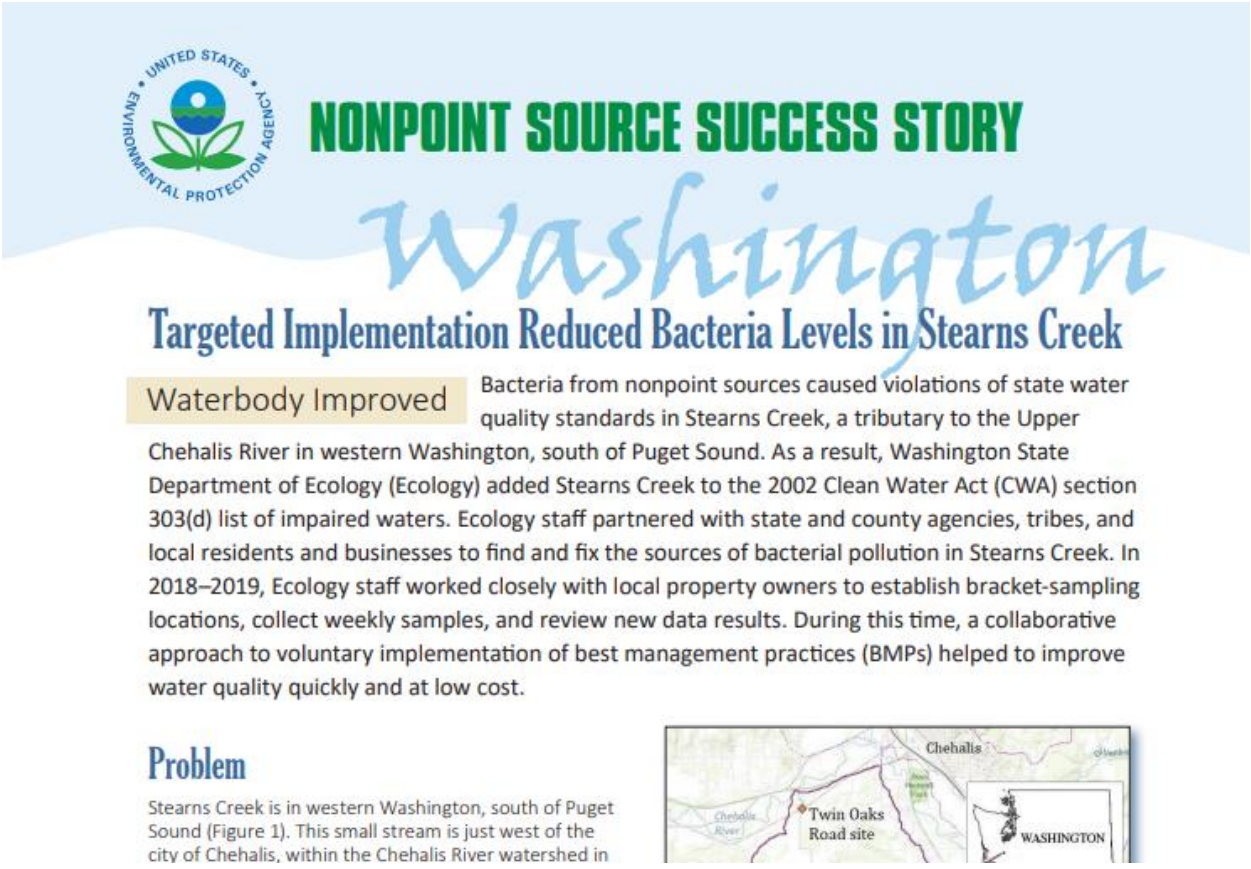
Buy Now

Yakima County homeowners can access a loan program to help with septic system issues following the Sept. 1 expansion of a program operated by state and local agencies in partnership with the nonprofit community lender Craft3.

Those interested in applying for the financing assistance may do so by going to the Craft3 website, according to a news release from the state Department of Ecology. Funds may also be available for commercial and non-owner occupied properties.

"Statewide access to this program is a win for homeowners, public health and clean water," said Ecology water quality program manager Vince McGowan in the release. "When a failing septic system is fixed, the benefits go beyond the home. This program supports healthy shellfish and fisheries, and helps ensure Washingtonians have access to swimming beaches and recreation."

Photo 9The Yakima Herald Republic wrote an article about financial assistance that the Water Quality Program offers to homeowners in Washington. Local media highlights are a successful way in promoting nonpoint pollution prevention assistance that Ecology offer


NONPOINT SOURCE SUCCESS STORY

Washington

Targeted Implementation Reduced Bacteria Levels in Stearns Creek

Waterbody Improved

Bacteria from nonpoint sources caused violations of state water quality standards in Stearns Creek, a tributary to the Upper Chehalis River in western Washington, south of Puget Sound. As a result, Washington State Department of Ecology (Ecology) added Stearns Creek to the 2002 Clean Water Act (CWA) section 303(d) list of impaired waters. Ecology staff partnered with state and county agencies, tribes, and local residents and businesses to find and fix the sources of bacterial pollution in Stearns Creek. In 2018–2019, Ecology staff worked closely with local property owners to establish bracket-sampling locations, collect weekly samples, and review new data results. During this time, a collaborative approach to voluntary implementation of best management practices (BMPs) helped to improve water quality quickly and at low cost.

Problem

Stearns Creek is in western Washington, south of Puget Sound (Figure 1). This small stream is just west of the city of Chehalis, within the Chehalis River watershed in

Photo 10 EPA published a Success Story of water quality improvement in Stearns Creek.

3.4 Goal 4: Monitor waters for nonpoint source impairments, and program effectiveness

3.4.1 Continue Monitoring Efforts/ Effectiveness Monitoring

Water Quality Program staff continued to perform ambient stream monitoring to support several Watershed Evaluation projects. Targeted storm event sampling and ERTS related investigative sampling were key components of Ecology activities in the Whatcom Clean Water Program. Due to the state Covid-19 response, Ecology suspended most fieldwork related to the South Skagit Bay Watershed Evaluation including routine and source identification monitoring. Working in tandem with our NPDES permitting program, eleven cities and two counties were required to do additional ambient sampling for fecal coliform bacteria. These monitoring efforts complimented the existing sampling networks performed by Snohomish, Island, King, and Skagit Counties, along with sampling done by the Stillaguamish Tribe of Indians.

Photo 11 Ecology nonpoint staff taking water quality samples in northwest Washington.

In September 2021, Ecology completed the of the Snohomish Tributaries Fecal Coliform TMDL Effectiveness Monitoring project. Our agency and local partners have invested considerable effort encouraging the use of best management practices (BMPs) for livestock as well as bacteria control strategies for municipal separate stormwater systems. Working in partnership with Ecology's Environmental Assessment Program (EAP), our NWRO continued collecting and mapping BMP data from Snohomish County, Snohomish Conservation District, several nonprofit organizations, and seven cities. A project dashboard displaying results as they are being collected is available at this link. The final report is expected to be completed in 2022.

Ecology's effectiveness monitoring effort in Boise, Pussyfoot, and Second Creeks that began July 2019 continued through 2021. The purpose of the monitoring effort is to a) provide information on general status/trends over the 10-year implementation period, b) provide enhanced monitoring at intervals to inform adaptive management and c) provide source tracing resources to aid nonpoint staff in their corrective action efforts. The project is being led by SWRO monitoring staff, with the assistance by EAP. The project has already provided valuable insights as to the general location of pollution sources and possible/likely contributing land uses. A project web site has been finalized and is located here: Puyallup River tributaries - Washington State Department of Ecology

Currently EAP has several active effectiveness monitoring projects across the state. These include studies in Deschutes River in Thurston County, Railroad Creek in Chelan County, and the Yakima River in eastern Washington, as well as Puyallup River in Pierce County and Boise, Pussyfoot, and Second creeks in Enumclaw, King County. All projects are long-term and are expected to continue until the waterbodies meet state water quality standards.

In 2020, the Walla Walla River Basin Effectiveness Monitoring (EM) study was completed. This study compared 2014-2015 instream water quality data to the 2002-2003 Total Maximum Daily Load (TMDL) study data. The TMDL set interim fecal coliform bacteria (FC) and nutrient reduction targets for 2014 to improve the basin's water quality. From July 2014 through June 2015, lower basin sites and sites in and below cities and towns, continued to have high FC counts, low daily minimum dissolved oxygen (DO), and high daily maximum pH. Trend tests showed declining lower-basin FC and nutrient loads since the TMDL. The final report for this project is available here: Walla Walla River Basin Bacteria, pH, and Dissolved Oxygen Total Maximum Daily Load: Water Quality Effectiveness Monitoring Report

The Environmental Assessment Program (EAP) continued to develop a Quality Assurance Monitoring Plan (QAMP) for assessing effectiveness of pollution control plans in Washington State during 2021. The QAMP will include all standard operating procedures for collecting, analyzing, and reporting of data that will be collected for effectiveness monitoring studies. It will also outline the framework for both a statewide and watershed level study design for assessing both programmatic and regional effectiveness of actions and plans. The statewide design will assess programmatic effectiveness using a statistical survey design that is compatible with EAPs watershed health and EPA's national water quality survey. The target population for this design are all 303(d) category 4A and 4B listed streams in Washington State.

3.5 Goal 5: Administering the Nonpoint Source Program effectively and efficiently as possible

3.5.1 Align the nonpoint program with other relevant programs

Critical Aquifer Recharge Areas and Onsite Sewage Systems

Critical Aquifer Recharge Areas

We opened the Critical Aquifer Recharge Area Guidance for public comment in spring of 2021, which included hosting a workshop for stakeholders to answer questions. Ecology's response to comments will be attached as an appendix as we work to finalize the guidance. To draft the guidance, Ecology used comments from the needs assessment and worked with many partners, including other Ecology programs, State agencies (Department of Commerce, Department of

Health Office of Drinking Water, Department of Agriculture, Washington State Conservation Commission), EPA, and local city governments and planners.

The newly revised guidance included more information about:

- Nonpoint sources of pollution
- Regulatory examples of how local government addresses nonpoint pollution
- Nonpoint Program information: Ecology's Nonpoint Program, PIC programs, Washington State Department of Agriculture programs (pesticides, fertilizer, dairy nutrients), the Voluntary Stewardship Program
- Information on onsite sewage systems (OSS)

Ecology continues to work with local jurisdictions on their Critical Aquifer Recharge Area plans and ordinances on request when resources allow.

Onsite Sewage Systems

The Washington Department of Health (WDOH) Wastewater Division paused some work on revising the Onsite Sewage System (OSS) rule during early 2021 and started to pick up the planning process again later in the year. The rule adoption process is expected to pick back up in 2022. In 2020, Ecology participated on the Rule Committee to discuss changes to the rule proposed rule language to address higher risk loading by requiring environmental impact assessments for sensitive areas, including groundwater with known nitrate issues, lakes at risk from nutrients, and shellfish beds at risk from fecal coliform.

Washington Nitrate Project

In 2020, Ecology began the process of automating data updates for the Washington Nitrate Project. The purpose of the project is to compile groundwater nitrate sample results from Ecology's EIM data system, the federal Water Quality Portal, and the WDOH Public Water System database. All of this data is now summarized and displayed in The Nitrate Project Storymap, which continues to be an important tool in 2021 for addressing nitrate in groundwater. The storymap presents information to protect problem areas and to help residents and local jurisdictions become informed about risks. Users can find and view .

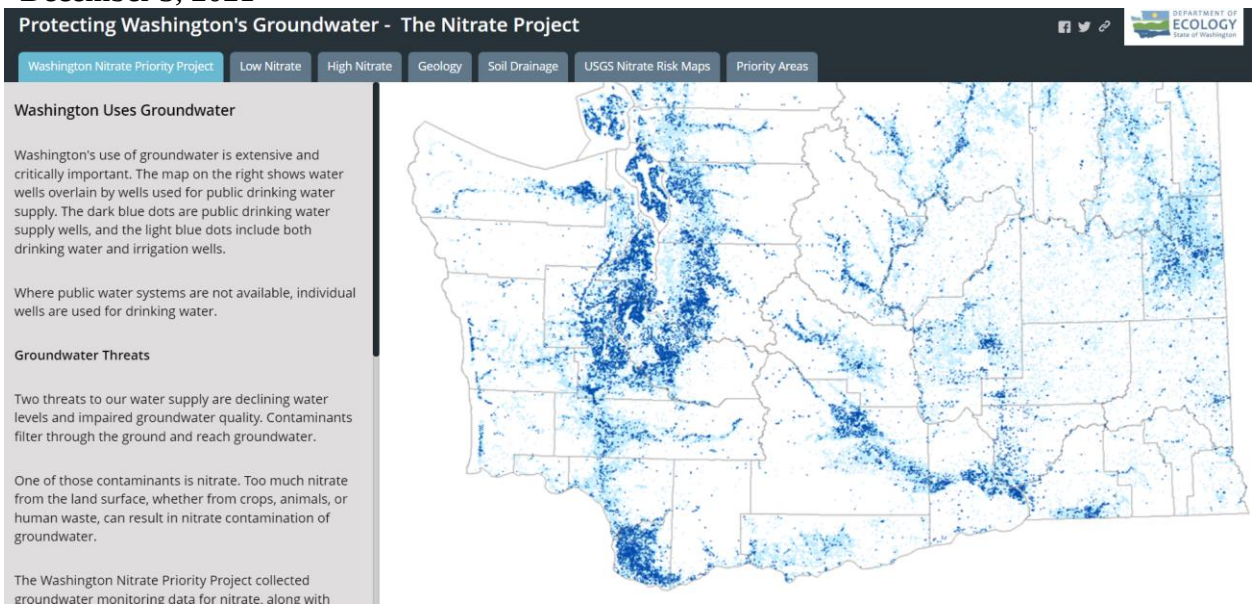


Photo 12The Washington Nitrate Project Storymap allows users to see areas where nitrate has been elevated and any associated time series graphs and includes sample records, graphs, and links to the original database records..

3.5.2 Promote Accountability

Nonpoint & Implementation Tracking System

In support of Ecology's efforts to address nonpoint sources of pollution and develop and implement TMDLs, field staff routinely conduct windshield surveys in priority watersheds to assess conditions that may be negatively affecting water quality. These staff also respond to water quality related environmental complaints from the public.

When field staff conduct windshield surveys and complaint responses, they typically collect a variety of site information such a field notes and photographs. These efforts also require staff to manage additional information such as communications with property owners and related documents such as letter or other correspondences. To meet both staff and programmatic needs to better collect, store and track nonpoint data in a consistent and streamlined manner and manage data in a way that can be integrated with other water quality efforts such as TMDLs, the Program invested in the development of a state-wide system to collect and store nonpoint data.

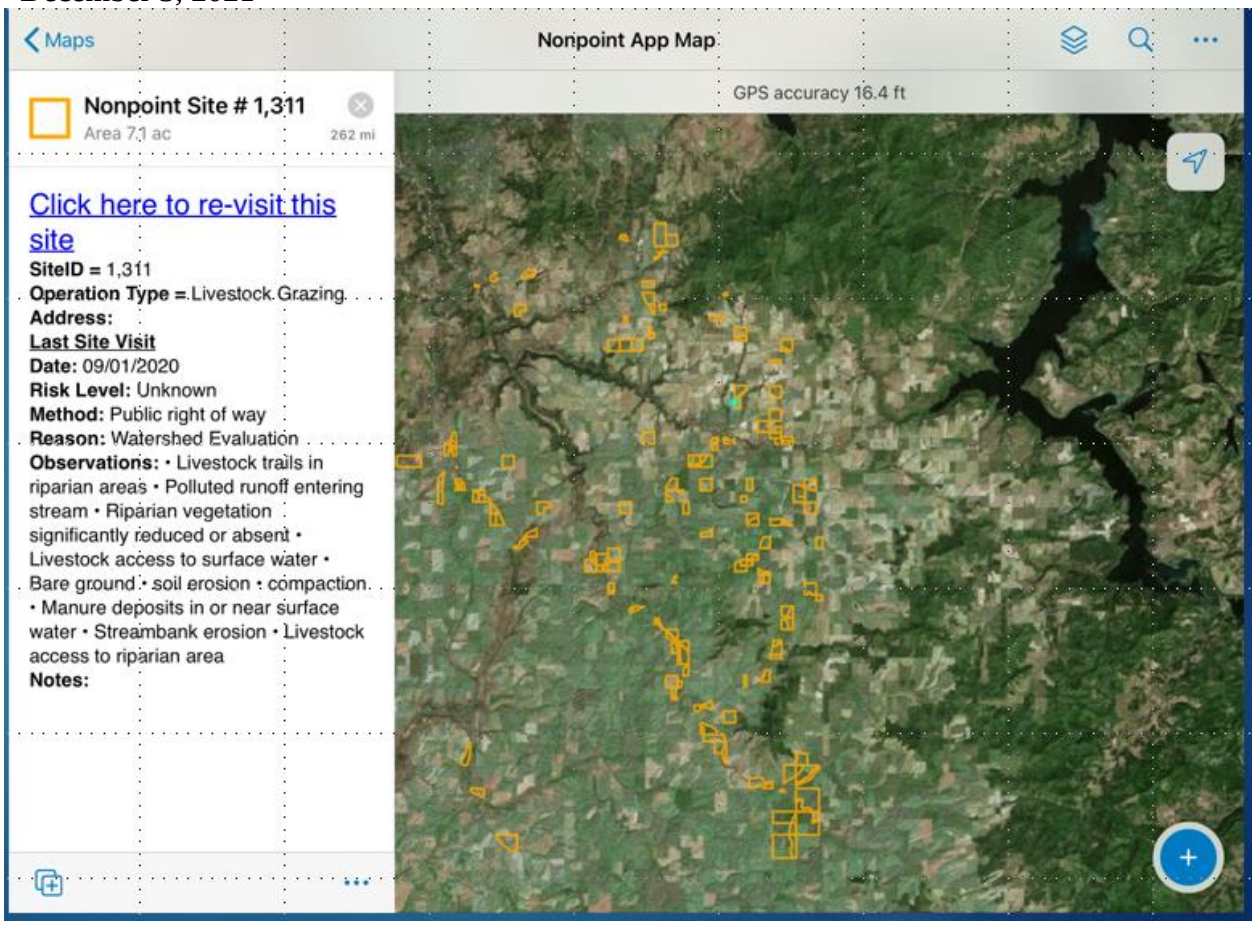


Photo 13 Screen view of the Nonpoint Collector Application shows how Ecology staff can track site visits at particular locations.

The statewide system includes the following components:

1. Mobile applications to view, collect and submit data in the field via cloud-based services
2. Web application to view, manage, track and report data
3. Internal database to store all records/data

Key nonpoint data to be collected and managed includes:

- Field observations and notes
- Photographs (geo-located)
- Communications with property owners
- Best management practice implemented

Benefits of this system are:

- Streamlined data collection in the field & reduction in equipment needed
- Increased data quality and consistency (across all regional offices)

- Simplified data management including data automation
- Field access to important information
- Ability to input, store and manage all nonpoint data in a single Ecology database
- Centralized location for pulling nonpoint data and information
- Improved ability to track efforts, produce reports and evaluate progress
- Increased ability to utilize, integrate and synthesize data e.g. spatial information
- Elimination of the need for long-term, cloud-based data storage

The Water Quality Program has completed and deployed the nonpoint data management system and field staff have been trained and are using the system as their primary tool for data collection and management. Additionally, we successfully added over five years of previously collected data to the statewide system including spatial locations, site level observations and photos.

Having a single, statewide single system used by all nonpoint staff has many clear advantages. It supports better data consistency and quality, creates predictability in the way nonpoint field work is conducted and significantly increases data accessibility to both staff and management. It also helps with continuity and gaps when staff turnover occurs. Equally important is the actual data that is collected and managed. This information allows users to better assess changes over time at the site and watershed levels to determine if water quality is improving, and can easily be integrated into other watershed level activities such as TMDLs, effectiveness monitoring, source identification monitoring and other project planning and implementation efforts. The system also helps us collect information necessary to meet our reporting requirements found in the settlement agreement.

Future enhancements to the system are planned in the coming year and will focus on increasing our ability to utilize and share data including with external partners.

3.5.3 Administer grants and loans

Chapter 2 of this report includes information on our program administration and identifies funded activities and BMPs related to our Section 319 Grant. Please review that chapter for more information on the progress we made on Goal 5. Additionally, information has been reported through the Grants Reporting and Tracking System (GRTS). This interactive map demonstrates where we have SFY21 combined funding projects.

3.5.4 Coordinated Strategic Investment

The mission of the coordinated strategic investment effort is to create an interagency forum to increase coordination and collaboration among Washington State grant programs that benefit

water quality and salmon recovery while recognizing the unique roles and authorities of each agency.

The goal is to enhance communication and collaboration among state agency water quality and salmon recovery grant program managers by:

- Sharing grant guidelines, policies and best practices where possible;
- Aligning grant program data, metrics, reporting, and timelines when possible;
- To search for ways that agencies can help grant recipients save time, conserve resources, and improve project management by improving coordination across elements and phases of a common project, or, projects in the same reach or bay (this includes state, federal and NGO grant sources).

Specific efforts or achievements over this past year include:

- Quarterly coordination meetings with report oust to respective agency's executive leadership teams regarding our efforts.
- Identified areas of our respective grant/loan programs for which we can coordinate our efforts to ensure our customers – recipients of state/federal funds – experience consistency among the funding programs.
- Shared annual funding lists from partner agencies and programs to review for overlap and coordinated use of resources.
- Finalized Washington Water and Salmon Fund Finder (WWSFF), a single portal that is filterable and sortable, and is housed at fundfinder.wa.gov. The portal provides entry to available Washington state water and salmon funding opportunities and a front splash page with a link to workgroup participants, and a workgroup library.
- Aligned guidance policies. We are currently engaged in reviewing the RCO Acquisition Manual for consistency. ECY-WQP is facilitating an internal acquisition workgroup that is using RCO acquisition manual as a starting point for ECY funding programs (for all ECY environmental programs that do land acquisition). We will eventually adopt portions of the RCO manual that pertains to each funding program.
- Began mapping investments with the goal of mapping annual project lists on a single ArcGIS map.

Chapter 4: Conclusions

In 2021, the State of Washington made considerable progress in protecting water quality from nonpoint source pollution. In Washington State one of our greatest strengths is that we have dedicated staff and partners who are committed to working collaboratively to reduce the scope and scale of NPS pollution. This cooperative, solution-oriented environment encourages innovation and adaptation in addressing both longstanding and emerging water quality challenges.

Throughout our NPS management strategy, there is a focus on implementation and clear standards. Moreover, there is an increased emphasis on greater regulatory clarity around what actions are necessary to prevent pollutants from reaching state waters and ensure compliance with the water quality standards.

As EPA is well aware, water quality protection efforts inherently face significant ongoing social, financial and technical challenges. We are continuing to better refine the right balance of technical assistance, financial assistance, and the use of enforcement tools. For example, watershed evaluations are becoming more standardized around the state and we are utilizing this proactive approach to not only eliminate pollution sources, but also educate the public about the role they play in protecting water quality to the benefit of their communities. Similarly, we have increased our regulatory backstop to support our proactive technical assistance and financial assistance efforts. In 2021, Ecology issued several warning letters and administrative orders to agricultural producers with long track records of noncompliance and an unwillingness to take advantage of technical and financial assistance resources.

The enormity of the NPS pollution problem in Washington State requires that we continually strive to improve our programs, policies, and tools. The many advancements outlined in this report show that we are on the right track. In 2022, we look forward to continuing our nonpoint efforts through monitoring, watershed evaluations, water cleanup implementation, and moving towards a few major milestones for our program. Over the next year, we will be updating our Statewide Nonpoint Plan, as well as publishing four additional chapters of the Voluntary Clean Water Guidance. Moving forward, this guidance will serve as an important asset in efforts to reduce NPS pollution form agricultural sources and we look forward to completing an entire set of these chapters by 2025.

The clean water guidance for agriculture is moving forward with a goal of producing guidance on the first set of BMPs to be completed in 2022, followed by more chapters completed by 2025. This process has gained the support and participation of a diverse group of stakeholders.

Our funding program continues to be successful, responsibly managed and a model for using public dollars to facilitate the implementation of the most effective BMPs. We will continue our efforts in aligning our funding guidelines with our new guidance and BMP recommendations. Finally, we are taking key actions to protect water quality in the Puget Sound from nutrient and bacteria pollution. We made significant progress in establishing a no discharge zone in the Puget Sound. Additionally, we continued Puget Sound Nutrient Source Reduction Project as a strategy to control nutrient discharges to Puget Sound and will move towards the next phase of developing a watershed strategy for reducing human sources of nutrients to Puget Sound.

Nevertheless, we can and will do more to advance water quality protection in Washington State. We know that opportunities exist to build on our successes and we continue to work towards improving the following elements of our nonpoint program:

- Better communicate our strategy and goals to the public
- Further refine the tools we use to document and track water quality problems in watersheds
- Improve the strategies we use to achieve clean water goals in priority watersheds
- Better communicate the successes achieved by our NPS management program in order to facilitate further acceptance and adoption of effective NPS pollution controls throughout the state.

In all these regards, the continued financial and technical support we receive from EPA has been and will remain critical to supporting both the staff and the actions needed to implement our Nonpoint Source Management Plan and achieve clean water goals throughout the State of Washington.

Documented Problems with the Adaptive Management Program

On October 9, 2009, Ecology conditionally extended the Clean Water Act Assurances for a ten-year period. The extension was conditioned on the AMP meeting a scheduled set of milestones for program improvements and research development.

A detailed set of findings accompanied the 2009 extension decision. Those findings identified a number of existing problems with the adaptive management process:

> *The CWA assurances were established on the condition that an effective adaptive management process (AMP) would be established and maintained. A healthy and effective AMP is central to the ability of Ecology to offer the CWA assurances. The AMP needs to provide a scientific framework for testing whether the forest practices rules are effective in protecting water quality, and for identifying any changes needed to rules not found effective. Substantial progress has been made through establishing the structure and formal operational procedures of the AMP. An AMP board manual was developed to further outline how the program should operate, and significant funding and effort has occurred to get scientific studies underway to test various portions of the rules and guidelines governing forest practices.*
>
> *In spite of these substantial efforts, the AMP has not completed any studies that directly test the effectiveness of the rules in protecting water quality. The science arm of the AMP has also been largely unsuccessful in providing research findings the Forest and Fish Policy Committee (Policy) and the Forest Practices Board (Board) will reliably use to validate or to revise the forest practices regulations and guidance. There are significant problems with the ability of the policy and science arms of the AMP to work together to test and revise the rules in a timely and effective manner. Part of the problem is simply inherent in a program that seeks to develop consensus among stakeholders with competing interests. But the problems also seem rooted in the foundation of the AMP itself. AMP participants frequently disagree about the appropriate roles of science and policy, as well as what role the initial negotiated forests and fish rules should play in evaluating the acceptability of future changes. These disagreements appear in part to stem from a lack of clarity in the underlying rules and guidance. Combined with poor communication between the science and policy arms of the program, this is compromising the AMP's effectiveness. To the credit of its participants, strategic planning efforts are underway with the intention of identifying and correcting the shortcomings of the program. The Policy committee has developed a strategic plan…with five broad goals supported by multiple objectives and specific tasks designed to revitalize the adaptive management program. There is also general understanding that testing the effectiveness of the rules for protecting water quality must be a top priority if Ecology is to continue the assurances.*
>
> *The state legislature (RCW 76.09.370) directed that forest practices rules covering aquatic resources only be adopted or changed by the Board where those changes are consistent with recommendations resulting from a scientifically based adaptive management process. The stated purpose of having the adaptive management process is to make adjustments as quickly as possible to portions of the forest practices rules that are not achieving resource objectives. Both as a participant and a reviewer, Ecology has concluded that fundamental improvements are needed to ensure the rules and associated programs will be tested and revised in a timely manner based on scientific inquiry, as intended by the legislature and consistent with CWA assurances.*

On February 23, 2021, the State Auditor issued a performance audit report describing the significant issues that continue to plague the AMP. The Auditor's Office concluded that the program is not "operating as intended" and that, without needed changes, the "program would continue to languish." The Auditor's Office recognized that, while the program was "designed to allow nimble changes to forest practices rules," the program has in fact only resulted in two science-based rule revisions since 2006.
The Audit Report contains a number of recommendations designed to get the program on track so that it can perform its functions as intended.

Ecology is aware that the Forest Practices Board has submitted a budget request to address some of the recommendations contained in the Audit Report, and Ecology commends the Board's clear commitment to doing so. In addition, Ecology is grateful that the Public Lands Commissioner is convening a meeting of TFW principals so that we can address these issues at the highest levels of accountability within our respective organizations. Of course, the TFW stakeholders themselves must also commit to program improvement. This will necessarily entail an openness to changing current aspects of the program, such as revisiting the unanimous voting requirement and/or streamlining the dispute resolution process.
Because fixing problems with the AMP is so integrally tied to the Clean Water Act Assurances, making clear and measurable progress toward addressing the Auditor's recommendations is necessary to provide Assurances that the forest industry is making progress towards protecting water quality.

Rulemaking for Type Np Streams

The maintenance of forested buffers is critical to protect water quality. Under current rules, non-fish bearing perennial streams (Type Np) receive less forested buffers than fish bearing streams. As a result, the 2009 findings recognized that "the prescriptions associated with the Type Np rules have the greatest potential risk of violating the water quality standards."

On December 2, 2019, Ecology issued another conditional extension of the Clean Water Act Assurances. In doing so, Ecology concluded that the Type Np Hard Rock study[2] clearly demonstrates the need to strengthen the Type Np riparian rules to protect water quality. Ecology noted that the TFW Policy Committee and the Forest Practices Board "recently agreed to a workgroup process aimed at developing new rule prescriptions." [3] In light of this commitment to rulemaking by TFW stakeholders, Ecology extended the Assurances for an additional two years so that the Board would have ample time "to reach an agreement on the Type N rules." As evidence that the Adaptive Management Program was working, Ecology noted that there would need to be a CR101 filing in the summer of 2021 and a draft CR102 distributed for public review by the end of November 2021.

While we are pleased that the Board directed staff to issue a CR101 at its November 2021 meeting, Washington Department of Natural Resources (DNR) staff have not distributed a draft CR102, and there is no feasible pathway for them to distribute a draft by the end of this year. It is clear that the Board did not meet the conditions included in Ecology's 2019 extension of the Assurances insofar as DNR has not issued a draft CR102. Nevertheless, I have spoken with representatives of the TFW stakeholders and perceive a genuine commitment to moving this rulemaking forward. Despite this commitment, it is

[2] *"Effectiveness of Experimental Riparian Buffers on Perennial Non-fish-bearing Streams on Competent Lithologies in Western Washington", McIntyre et al, September 2018, CMER #18-100*
[3] Timber Fish and Wildlife Policy Technical Type N Prescriptions Charter – March 7, 2019

evident that we cannot make progress without meaningfully addressing the issues identified in the 2021 Audit Report. Achievement of our objectives will require a concerted effort by all TFW stakeholders in the TFW process over the next several months.

Clean Water Act Assurances

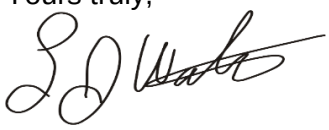
Ecology has determined that it is appropriate to allow time for the AMP to make measurable progress implementing the 2021 Audit Report recommendations and for Policy to make a final recommendation on Type Np buffer prescriptions to the Board, with the Board directing Board staff and DNR to develop a rule package and prepare the CR102. Achievement of these objectives during this extension of the assurances for an additional year will help all of us continue to meet the obligations we committed to when we signed onto the groundbreaking Forests and Fish Agreement.

By December 31, 2022, Ecology must submit to EPA and the National Marine Fisheries Service/United States Fish and Wildlife Service (Services) an updated statewide non-point source pollution management plan under Section 319 of the Clean Water Act. EPA and the Services will review the non-point plan under both the Clean Water Act and Endangered Species Act following its submittal at the end of 2022.

The performance of the Forests and Fish Agreement and associated Forest Practices Rules are key components of the non-point plan regarding the protection of water quality on forest lands. Therefore, the achievements over the next year will help us evaluate the effectiveness of the AMP as we complete the plan. In the plan, Ecology must document whether the rules are effective in protecting Washington's waters, and this determination is key to the Clean Water Act Assurances. If the rules are not achieving the resource objectives, Ecology must document the steps it will take instead to address the protection of water quality.

My sincere hope is that the TFW stakeholders will use the next year to demonstrate that we can work together to improve the Adaptive Management Program so that forest lands are managed in a way that protects water quality now and into the future. I look forward to working with all TFW stakeholders to accomplish our important shared mission of providing regulatory certainty for the industry while protecting our cherished natural resources.

Yours truly,



Laura Watson Director

cc: Hilary Franz, Commissioner of Public Lands, DNR
Michelle Pirzadeh, Acting Regional Administrator/Deputy Regional Administrator, EPA Region 10

Forest Practices Board
Members
December 3, 2021

Appendix A

Maintenance of Effort (MOE) List for State Fiscal Year 2021 per CWA Section 319(h)(9)

Statement of Maintenance of Effort (MOE) related to Section 319(h)

MOE Base Level: Based on available Ecology data from 1985 and 1986, the average level of annual pass through awards for nonpoint source control projects focused on improving water quality was $480,254. Projects were funded using state Referendum 39 funds.

MOE Maintenance: Ongoing pass through funding for nonpoint source projects focused on restoration and protection of water quality has far exceeded the MOE Base Level, mostly through resources provided through the Washington State Centennial Clean Water Fund and the Clean Water State Revolving Fund (CWSRF).

Between 1988 and 2017 Ecology has awarded an average of $4 million per year in state nonpoint source project funding. These funds were not used as Section 319 or other federal match.

In State Fiscal Year 2021 Ecology is offering $1,615,002 in state funds not used as Section 319 or other federal match from our Centennial Grant Program and $3,000,000 from Clean Water State Revolving Fund non-federal funds.

	Final Non Point and On-Site Projects Excluding 319 Matching Projects						
ECY Project Number	Applicant	Project Title	Project Category	County	Centennial Grant	CWSRF Standard Loan	Short Description

WQC-2021-ChCoNR-00127	Chelan County - Natural Resource Department	Lower Icicle Sediment Reduction and Riparian Restoration Implementation	Non Point Source Activity	Chelan	$174,439.00		On the lower Icicle Creek, restoration efforts on 850 feet of bank will improve water quality through reduction of hydraulic pressure and sediment delivery, increase of shade, and by addressing geomorphic processes that lead to widening and shallowing of the river. This project will specifically slope back the banks, build planting benches, and plant a riparian buffer of at least 75 feet. The project will also conduct public outreach regarding this restoration effort and its benefits.
WQC-2021-ChCoNR-00167	Chelan County - Natural Resource Department	Chumstick Watershed Water Flow Improvement and Riparian Restoration	Non Point Source Activity	Chelan	$109,943.00		This project will continue to address temperature, Dissolved Oxygen (DO), water quality, and bacteria listings in the Chumstick Watershed. Building on efforts initiated in WQC-2020-ChCoNR-00135, this project

							includes water storage and vegetation improvements on four acres of riparian property, monitoring and maintenance of completed projects, outreach and training for high school students, and development of one project plan through outreach and prioritization planning.
WQC-2021-ClCoPW-00033	Clark County - Public Works Department	East Fork Lewis River Schriber Riparian Reforestation Project	Non Point Source Activity	Clark	$163,270.16		The RECIPIENT will restore approximately 13.23 acres of riparian buffer located on Clark County-owned property stretching nearly 3,500 feet along the south bank of the East Fork Lewis River. The project site is prioritized by the Lower Columbia Fish Recovery Board's EFLR Habitat Conservation Plan and the East Fork Lewis River Water Cleanup Plan as having significant shade deficit contributing to increased water temperatures.

WQC-2021-KCWLRD-00117	King County - Water and Land Resources Division	Newaukum and Big Spring Creek Revegetation	Non Point Source Activity	King	$375,000.00		The RECIPIENT will plant trees and shrubs on several properties to reduce temperatures and improve fish and wildlife habitat in a degraded reach of Newaukum Creek. This project continues a 14-year effort to improve water quality and habitat along this stream and implements recommendations of ECOLOGY's Newaukum Creek Total Maximum Daily Load (TMDL).
WQC-2021-PaloCD-00023	Palouse Conservation District	The Water Quality Saga: A Cost-Share-nary Tale	Non Point Source Activity	Whitman	$500,000.00		The RECIPIENT will continue to improve water quality in Whitman County streams by implementing a minimum of ten acres of riparian buffer and 6,750 acres of direct seeding. The RECIPIENT will conduct monitoring efforts on changes in crop residue cover with conservation farming practices and implement an outreach and education program to

							further improve water quality awareness throughout Whitman County.
WQC-2021-SnohCD-00113	Snohomish Conservation District	Lower Skykomish River Floodplain Restoration	Non Point Source Activity	Snohomish	$204,450.00		The RECIPIENT will reforest 15 acres of riparian forest and control knotweed on 40 acres of floodplain forest along the lower Skykomish River. The project will restore critical habitat for Chinook salmon and provide shade that will reduce water temperature and improve dissolved oxygen. The project is located along 2,275 feet of the left bank of the Skykomish River and 2,025 feet of a partially-connected side channel to the Skykomish River; an unnamed stream also flows into the side channel.

WQC-2021-SpoCoD-00178	Spokane Conservation District	Making Conservation Pay	Non Point Source Activity	Multiple (Adams, Asotin, Benton, Chelan, Columbia, Douglas, Ferry, Franklin, Garfield, Grant, Kittitas, Klickitat, Lincoln, Okanogan, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman, Yakima)		$3,000,000.00	The project will reduce soil erosion from agricultural tillage practices by providing a low cost loan program for farmers in 14 eastern Washington counties to purchase direct seed equipment. The program will prioritize producers in the Spokane River and Palouse River Watersheds (excluding the Hangman Watershed).
WQC-2021-YakaNa-00042	Yakama Nation	Little Klickitat River-Carrols Creek Water Quality Improvement Project	Non Point Source Activity	Klickitat	$87,900.00		This project will address historic channelization and floodplain disconnection along Carrols Creek, a tributary of the Little Klickitat River. The project will restore historic conditions across a 21-acre meadow and surrounding areas, improving watershed function and increasing infiltration to benefit streamflow during the critical

							summer season. This phase includes reconnaissance; water quality monitoring and analysis; alternative, 30%, and 60% designs; site preparation; and education.
					$1,615,002.16	$3,000,000.00	

Appendix B: Priority watershed workplans by region

ERO Priority Watersheds

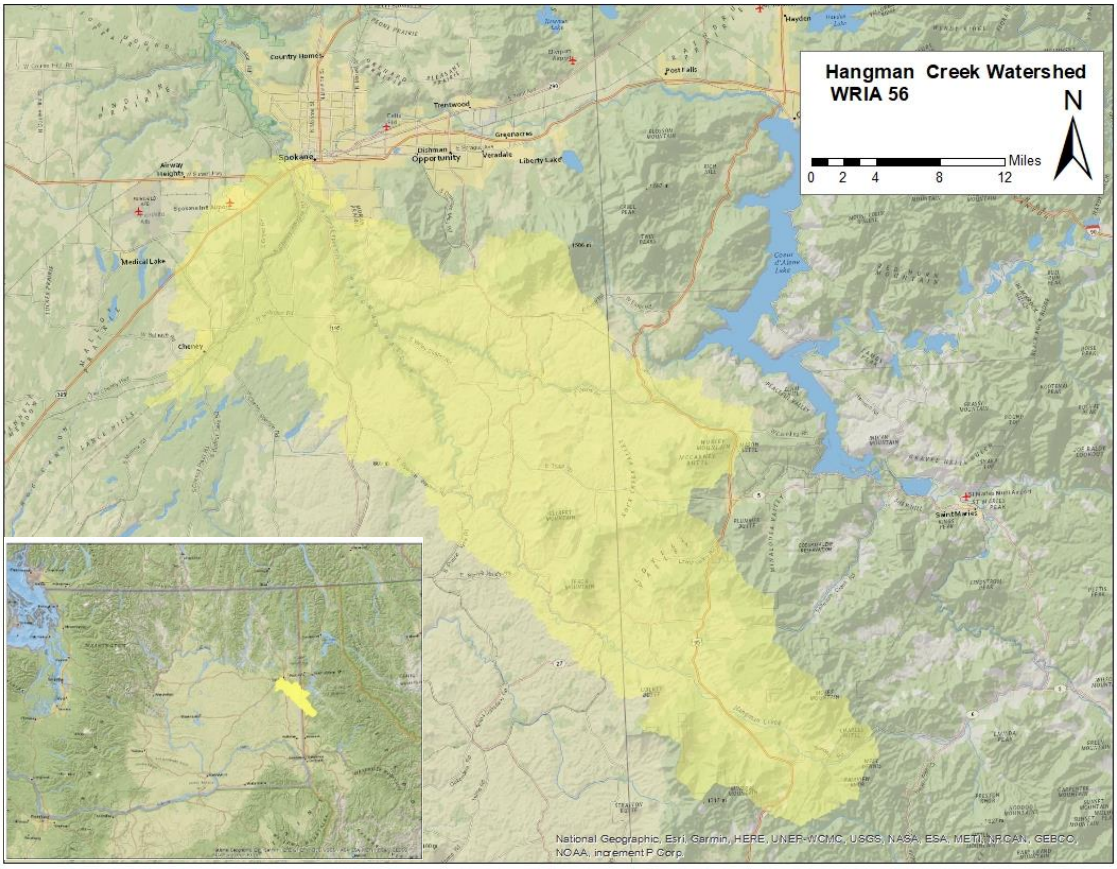


Figure 5. Map of the Hangman Creek watershed

Priority Watershed Name: Hangman Creek

Implementing: Hangman Creek Multi-Parameter TMDL/Hangman Watershed Settlement Agreement

Summary/Context Info:

Streams in the Hangman Watershed are impaired by excess bacteria, turbidity, and elevated water temperatures. The watershed is dominated by agricultural nonpoint sources. The watershed was studied to develop a TMDL report and ultimately a TMDL implementation plan. The implementation plan was completed in 2011. The Spokane Riverkeeper challenged the EPA

approval of the TMDL. EPA, Ecology, and Riverkeeper negotiated a 10-year agreement that identifies and priorities specific actions to reduce pollution and ultimately make progress towards water quality improvements within the Hangman watershed. The agreement was signed in 2018 and Ecology is actively implementing.

Priority Actions:

Education and Outreach

- **Install Interpretive Sign at the Latah Valley Golf Course**: Ecology will work with the Spokane County Parks, Recreation and Golf Department to fund and develop an interpretive sign about redband trout and water quality for the Latah Valley Golf Course (formerly the Hangman Valley Golf Course). The sign will be installed spring 2021.
- **Draft Public Survey with Spokane Riverkeeper:** Ecology will work with Spokane Riverkeeper to draft the public survey listed in the Hangman Settlement Agreement. We plan to finalize the survey in 2021 for the rollout and distribution in early 2022.
- **Install Creek Name Signs at Highway Crossings:** Through an FY18 water quality grant, Ecology worked with The Lands Council and WSDOT to develop seven creek name signs to be installed throughout the watershed. The signs will be installed by 9/30/21.
- **Hold Agricultural Producer Interviews and Listening Sessions:** Ecology will work with The Lands Council and social scientists from the University of Idaho to conduct one-on-one interviews and two listening sessions to understand producers' perceptions of riparian vegetation and identifying barriers to implementing riparian restoration on agricultural waterways. A summary report with findings and recommendations will be provided to The Lands Council by fall 2021.
- **Install Hangman Creek Interpretive Signs Along Centennial Trail:** Ecology, in partnership with the Spokane RiverKeeper and Friends of the Centennial Trail will install interpretive signs providing water quality and aquatic habitat information about Hangman Creek along the Centennial Trail at the confluence of the Spokane River and Hangman Creek.
- **Produce Direct Implementation Fund Project Video**: Ecology will report on each project implemented using DIF funding in ERO, including the Murphy Creek project in the Rock Creek watershed.

Financial Assistance

- **Implement the Hangman Creek DIF Project ($100,000):** The Department of Ecology is partnering with the Spokane Tribe to implement riparian buffers at four high priority properties in the Hangman watershed. Ecology expects these projects to be completed by summer 2021.

- **Implement the Spokane CD, *Making Conservation Pay* Project ($3,000,000):** This loan from State Revolving Funds will allow Spokane County Conservation District to expand their Direct Seed Equipment Loan program to 13 counties in Eastern Washington. This program allows producers to purchase the necessary direct seed equipment to practice low disturbance, direct seed conservation tillage. This loan helps to convert acres in the Hangman Creek farmed with conventional tillage techniques to direct seed.
- **Implement the Spokane CD, *Hangman Creek Streambank Stabilization RM-17 Phase II* Project ($333,333)**: This project builds upon and continues work along Hangman Creek at river mile 17 to stabilize banks, plant riparian buffers and install irrigation systems to improve plant survival. The second phase of the project will prevent an estimated 16,000 tons of sediment from reaching the Spokane River.
- **Implement the Spokane CD, *Hangman Creek Agricultural BMP Assistance* Project ($1,500,000):** This project will increase community awareness, address agricultural sediment pathways, inventory bank erosion contributions, implement 3,000 feet of stream restoration and reduce sediment delivery through producer incentives, cost-share programs and loans. The funding will allow the Spokane CD to support producers by focusing implementation at high priority sites identified during Ecology watershed evaluations.
- **Implement the Spokane CD, *Hangman Creek Water Quality Protection* Project ($46,050):** The project will implement various Best Management Practices to improve water quality in Hangman Creek at a high priority site. BMPs include installation of 3,200 feet of exclusionary riparian fencing, re-location of two off-creek watering facilities, installation of one heavy use protection area and one hardened livestock crossing, construction of one waste storage facility, implementation of drainage solutions and riparian forest buffer (native plantings) and development of a pasture management plan for 10 acres. The project will improve riparian habitat, protect stream banks and reduce erosion.
- **Implement the Lands Council, *Hangman Creek Watershed Riparian and Wetland Restoration* Project ($220,950):** This project will continue The Land Council's work in the Hangman Watershed by installing Beaver Dam Analogues (BDAs), planting riparian buffers and educating agricultural producers and local youth in the watershed.
- **Implement the Murphy Creek DIF Project**: By summer 2021, Staff will work with the Spokane Conservation District to implement BMPs at a high priority site on Murphy Creek. Ecology will use $75,000 of DIF funds to exclude cattle a minimum of 50 feet from the ordinary high water mark, provide off-stream water, and plant native trees and shrubs.

Partner Coordination

- **Host Quarterly Update Meetings with The Spokane Riverkeeper**: Keep the Spokane Riverkeeper up to speed on work in the Hangman Creek Watershed.
- **Host Quarterly Partner Meetings with The Spokane Conservation District**: Meet with the Spokane CD to fund and implement riparian protection and restoration at priority water quality problem sites.
- **Host Coordination Meeting with the Spokane Tribe**: Meet with the Spokane Tribe to fund and implement riparian protection and restoration at priority water quality problem sites.
- **Participate in Coordination Meeting with the Lands Council**: Meet with the Lands Council to discuss restoration projects in the watershed.
- **Participate in Field Tour with Conservation Farmers**: Staff will meet with a farmer dedicated to conservation farming to understand what they are doing and perceptions of barriers to conservation practice adoption.

Pollution Identification/Watershed Evaluating

- **Perform Comprehensive Watershed Evaluation:** Ecology staff will document at least 40 non-point pollution problems in the watershed using the eastern Region evaluation process. A minimum of five of these sites will be prioritized using site specific criteria, such as the length of stream impacted and the severity of riparian damage.
- **Prioritize Sites for Technical and Financial Assistance:** 10 tillage sites and 5 livestock sites will be prioritized for further follow up and technical assistance per the Settlement Agreement.

Compliance Activities

- **Contact at Least 15 New Priority Pollution Sites:** At least 15 non-point pollution sites will be prioritized and then contacted both via phone and by certified letter. Staff will offer technical and financial assistance to the landowner to proactively achieve compliance.
- **Contact At least 20 Existing Priority Pollution Sites:** Many sites in the Hangman watershed have been previously contacted but have yet to make the needed changes to protect water quality. Ecology will contact at least 20 of those landowners and again offer technical and financial assistance.
- **Perform Priority Site Field Visits at 25 Properties and Make Recommendations:** Visit at least 25 properties with non-point pollution problems in the watershed to explain water quality problems and steps needed to achieve compliance.

- **Develop 20 Water Quality Protection Plans for Priority Sites:** Develop plans for at least 20 sites to implement BMPs sufficient to fully protect water quality.
- **Implement Water Quality Protection Plans:** Protect and restore at least 8 miles of stream in the Hangman Creek Watershed.
- **Follow Up On Non-Point Complaint Sites:** Contact valid compliant sites with non-point pollution issues and schedule site visits to provide technical and financial assistance.
- **Issue and Enforce the Administrative Order issued to Murphy Creek Livestock Operation:** In January 2021, Ecology issued an Order requiring a landowner to exclude cattle a minimum of 50 feet from Murphy Creek. The timelines in the order require that the order be implemented by summer 2021.
- **Take Additional Formal Enforcement in Hangman Creek:** Ecology staff will send approximately 10 warning letters and likely issue an additional Administrative order in fall 2021.

Monitoring Activities

- **Establish Photo Monitoring Points**: Staff will establish photo monitoring points at pollution problem sites and document riparian condition improvements over time.
- **Tracking Non-point BMP implementation:** Ecology staff will be tracking a number of numeric criteria including acres of riparian area planted, linear feet of stream restored, feet or miles of exclusion fencing, acres of conservation tillage. Staff will also be tracking and reporting on the success of the watershed evaluation efforts including number of sites contacted, number of plans developed, number of sites brought into compliance, etc.

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Priority Watershed Name: Little Spokane River

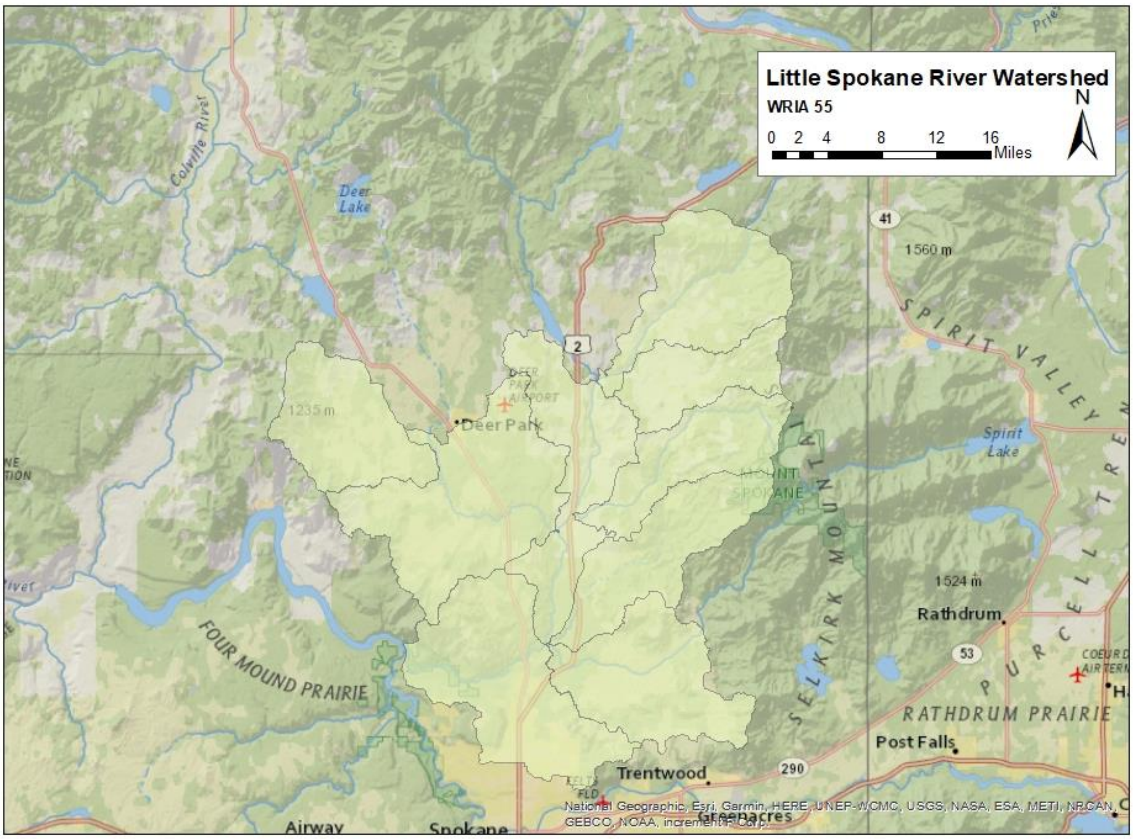

Figure 6. Map of the Little Spokane River watershed

Implementing: Little Spokane River TMDLs for bacteria, temperature, dissolved oxygen, total phosphorus, and pH

Summary/Context Info:

Ecology finalized the Little Spokane River DO, TP, and pH TMDL and submitted it to EPA in December 2020. The TMDL was approved by EPA in January 2021. Ecology is now focused on implementing this TMDL and the 2012 fecal coliform, temperature, and turbidity TMDL. The water quality impairments in the Little Spokane are primarily due to non-point pollution problems. The TMDL identifies riparian health as a key to meeting water quality standards. Implementation work is focused on protecting and restoring riparian areas and upland farming practices that deliver sediment to surface water.

Forest Practices Board
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Priority Actions:

Education and Outreach

- **Perform Comprehensive GIS Evaluation of Riparian Health**: Using aerial imagery, staff will describe current riparian condition for each parcel adjacent to a stream in the watershed. As improvements are made, staff will update the map and track improving riparian health.
- **Produce Direct Implementation Fund Project Video**: Ecology will report on each project implemented using DIF funding in ERO, including the Edison project on the Little Spokane mainstem.
- **Perform Outreach with Friends of Little Spokane:** Ecology staff will partner with the non-profit to share information with their organization members on water quality goals and stream restoration funding opportunities.
- **Little Spokane Website Update**: Transition website information from TMDL development information to TMDL implementation tracking and reporting. Ensure website is regularly updated with information on implementation progress.

Financial Assistance

- **Implement the Edison DIF Project**: By summer 2021, Staff will work with the Spokane Tribe to implement BMPs at a high priority complaint site on mainstem Little Spokane. Ecology will use $75,000 of DIF funds to exclude cattle a minimum of 75 feet from the ordinary high water mark, provide off-stream water, and plant native trees and shrubs.
- **Partner with Spokane CD and Spokane Tribe to Request Funding**: Work to ensure funding is available via the state Centennial/319 program or other sources. The goal will be to support landowners to implement riparian and tillage BMPs when sites are identified and prioritized via the Little Spokane Watershed Evaluation.

Partner Coordination

- **Host Quarterly Update Meetings with The Spokane Riverkeeper**: Keep the Spokane Riverkeeper up to speed on work in the Little Spokane Watershed.
- **Host Quarterly Partner Meetings with The Spokane Conservation District**: Meet with the Spokane CD to fund and implement riparian protection and restoration at priority water quality problem sites.
- **Host Coordination Meeting with the Spokane Tribe**: Meet with the Spokane Tribe to fund and implement riparian protection and restoration at priority water quality problem sites.

- **Participate in Coordination Meeting with the Lands Council**: Meet with the Lands Council to discuss restoration projects in the watershed.
- **Participate in Field Tour with Conservation Farmer**: Staff will meet with a farmer dedicated to conservation farming to understand what they are doing and perceptions of barriers to conservation practices.

Pollution Identification/Watershed Evaluating

- **Perform Comprehensive Watershed Evaluation:** Ecology staff will document at least 40 non-point pollution problems in the watershed using the eastern Region evaluation process. A minimum of five of these sites will be prioritized using site specific criteria, such as the length of stream impacted and the severity of riparian damage.

Compliance Activities

- **Contact at Least Five Priority Pollution Sites:** At least five non-point pollution sites will be prioritized and then contacted both via phone and by certified letter. Staff will offer technical and financial assistance to the landowner to proactively achieve compliance.
- **Perform priority site field visits and make recommendations:** Visit at least five properties with non-point pollution problems in the watershed to explain water quality problems and steps needed to achieve compliance.
- **Develop Water Quality Protection Plans for priority Sites:** Develop plans for at least five sites to implement BMPs sufficient to fully protect water quality.
- **Implement Water Quality Protection Plans:** Protect and restore at least two miles of stream in the Little Spokane Watershed.
- **Follow up on non-point complaint sites:** Contact valid compliant sites with non-point pollution issues and schedule site visits to provide technical and financial assistance.
- **Take Formal Enforcement at Peone Creek:** A livestock site in this watershed has been sent multiple technical assistance letters and a warning letter and no progress has been achieved. Ecology may need to pursue formal enforcement to achieve compliance at the site.

Monitoring Activities

- **Tracking Non-Point BMP Implementation:** Ecology staff will be tracking a number of numeric criteria including acres of riparian area planted, linear feet of stream restored, feet or miles of exclusion fencing, acres of conservation tillage. Staff will also be tracking and reporting on the success of the watershed evaluation efforts including number of sites contacted, number of plans developed, number of sites brought into compliance, etc.

- **Establish Photo Monitoring Points**: Staff will establish photo monitoring points at pollution problem sites and document riparian condition improvements over time.

Priority Watershed Name: Blue Mountain Snake River Tributaries

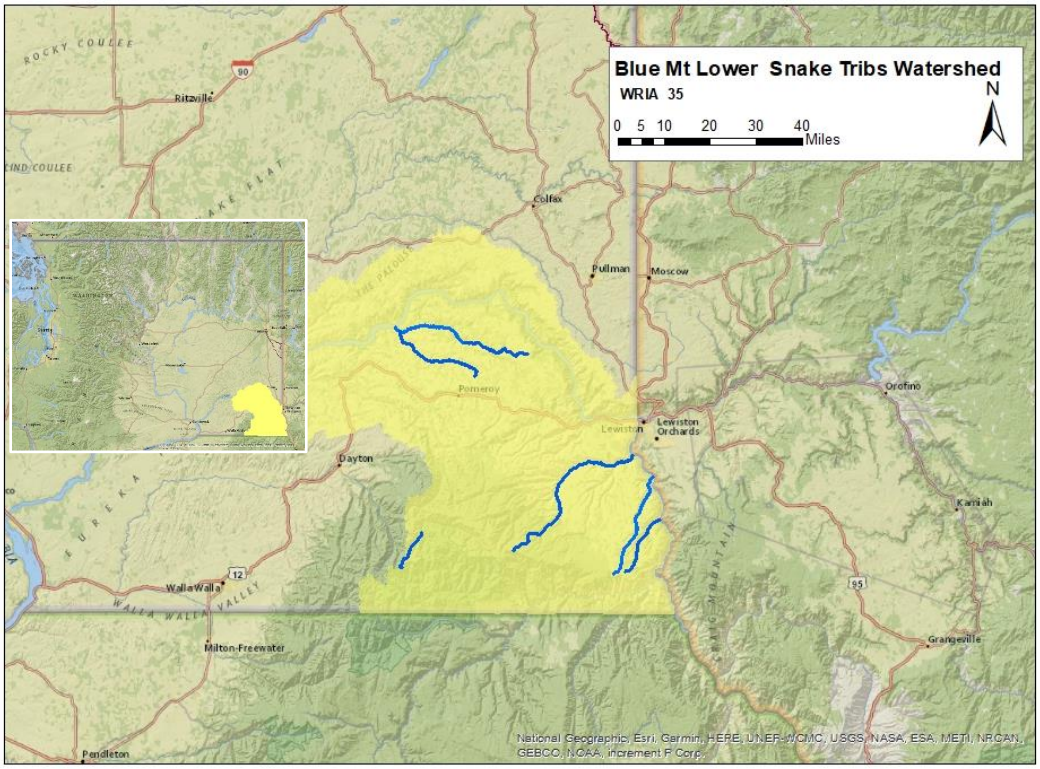

Figure 7. Map showing Snake River Tributaries (Asotin Creek, Alpowa Creek, Deadman Creek, Meadow Creek, Tenmile Creek and Couse Creek)

Implementing: Asotin Creek STI and Alpowa Creek, Deadman and Meadow Creeks, Tenmile Creek, and Couse Creek 4b projects

Summary/Context Info:

The Blue Mountain/Lower Snake tributaries comprise all the Snake River tributaries ranging across Columbia, Garfield and Asotin Counties except for the Tucannon River. These drainages primarily originate in the Blue Mountains or foothills surrounding the region. The headwaters and upstream sections are often forested with minimal land-use and switching to agriculturally dominated lower reaches. Livestock grazing still remains an ongoing concern throughout the watershed. Ecology has initiated 4b Straight to Implementation strategies in these watersheds,

provided the lack of point sources and significant progress is being made to address well understood nonpoint pollution issues. Ecology is actively working in these watersheds to continue to implement projects and work with stakeholders to address these issues.

Priority Actions:

Education and Outreach

- **Attend Two Conservation District Board Meetings:** The CD boards are made up of area farmers and ranchers. Staff will attend two board meetings to inform the CD board of on-going water quality work in the Blue Mountains, collaborate on project implementation, and answer questions on efforts to implement STI and 4b projects.

Financial Assistance

- **Implement the Asotin County Conservation District Riparian Enhancement Project ($250,000):** This grant is currently implementing various BMPs across Asotin County including riparian buffers, streambank stabilization, livestock exclusion, and direct seeding. The project supports implementation at priority sites identified via Ecology watershed evaluations.
- **Implement the Blachly Deadman Creek CREP Partnership Project ($29,500):** Staff will partner with the Pomeroy CD to address a long-term livestock issue in the Deadman Creek watershed. The site had received multiple technical assistance contacts and a warning letter from Ecology. These funds will be utilized along with CREP funding to exclude livestock from 2 miles of stream and provide livestock watering to further protect water quality along Deadman Creek.

Partner Coordination

- **Host Quarterly Asotin County Conservation District Coordination Meetings:** Ecology works closely with the staff at Asotin CD to identify issues, coordinator plan/projects, and provide technical assistance to the public in Asotin County.
- **Host Quarterly Pomeroy Conservation District Coordination Meetings**: Ecology works closely with the staff at Columbia CD to identify issues, coordinator plan/projects, and provide technical assistance to the public in Columbia County.
- **Partner with the Columbia Conservation District:** New staff has been hired at the Columbia CD. Ecology expects to develop a working relationship with CD staff to identify issues, coordinator plan/projects, and provide technical assistance to the public in Columbia County.

- **Participate on the Snake River Salmon Recovery Board RTT:** Ecology consistently works with various stakeholders involved in salmon recovery efforts in the region. As a lead entity voting member and a member of the Regional Technical Team, Ecology assists with the SRSRB annual grant round and provides technical assistance for water quality issues as they relate to salmon recovery and habitat restoration.
- **Participate in Snake River Local Working Group Meeting**: Ecology staff participate in this basin wide working group focused on challenges and solutions to the greater Snake River watersheds.

Pollution Identification/Watershed Evaluating

- **Perform Comprehensive Watershed Evaluation**: Annual surveys will be conducted during the early spring season to identify livestock water pollution issues. Work will be focused on a majority of Snake River tributaries including the Tucannon River, Pataha Creek, Deadman Creek, Meadow Creek, Alpowa Creek, Asotin Creek, Tenmile Creek, Couse Creek, and associated tributaries.

Compliance Activities

- **Contact at Least Five Priority Pollution Sites**: Approximately 5 new landowners with livestock water quality issues will be contacted via technical and financial assistance letters. All letters are followed up with multiple phone calls (if contact number is available) throughout the year to ensure continued communication with the landowner.
- **Follow-Up on Previous Years Priority Sites**: Landowners who have received technical assistance letters in previous years (same numbers as mentioned above), and who remain out of compliance, will be contacted through additional phone calls and follow-up technical/financial assistance letters.
- **Develop Water Quality Protection Plans for Priority Sites:** Staff will set up site visits and work to develop BMP plans for at least five sites. The plans will include riparian buffers designed to fully protect water quality.
- **Implement Water Quality Protection Plans:** Protect and restore at least three miles of stream in the Blue Mountain Tributaries.
- **Send Warning Letters to Priority Sites**: If a landowner has received multiple letters and continues to remain out of compliance, Ecology will escalate to a warning letter with an expectation of response within 30 days. Ecology anticipates sending warning letters to approximately five sites.
- **Take Formal Enforcement Action**: The eastern region expects that one formal enforcement action will be issued in the Blue Mountain tributaries to address non-point pollution at a high priority site.

- **Follow-up on Non-point WQ Complaints:** Staff will continue to respond to any water quality complaints received from the public. Phone calls and/or letters may follow after staff have confirmed a water quality issue exists.

Monitoring Activities

- **Establish Photo Monitoring Points**: Staff will establish photo monitoring points at pollution problem sites and document riparian condition improvements over time.
Perform Asotin Creek Temperature Monitoring: Partner with Asotin CD to monitor temperature at sites identified in the STI strategy. Monitoring helps evaluate effectiveness of BMP implementation.

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Priority Watershed Name: Whitman Snake Tributaries

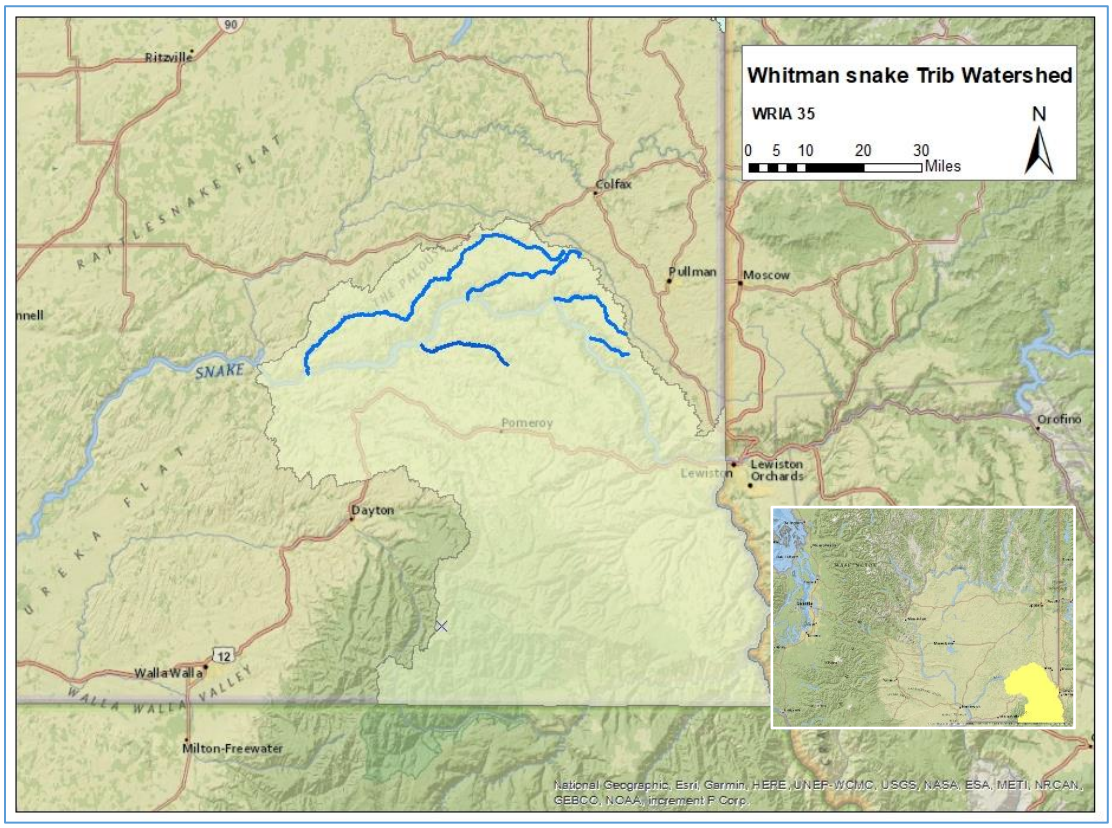

Figure 8. Map showing Snake River Tributaries (Steptoe Creek, Almota Creek and Alkali Flat Creek)

Implementing: Steptoe Creek STI, Early Implementation Actions for Almota Creek and Alkali Flat Creek STIs (In development)

Summary/Context Info:

A number of northern Snake River tributaries in Whitman County have been identified as Category 5 on the Water Quality Assessment. Some watersheds currently have established Straight to Implementation Strategies in place (Steptoe Creek) and others currently in development (Almota Creek and Alkali Flat Creek). These northern tributaries are largely dominated by agricultural land-use with livestock issues often impacting the riparian habitat. Ecology has continued to work with local stakeholders through project implementation and technical assistance to further combat these issues.

Forest Practices Board
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Priority Actions:

Education and Outreach

- **Partner with the Palouse Conservation District on Conservation Tillage Education:** Through grant funds PCD hosts various presentations, tours, and outreach materials for local producers on conservation tillage and riparian buffers. PCD has utilized multiple Ecology grants to develop a conservation tillage cost-share program which is well advertised throughout the district's footprint and beyond.
- **Partner with the Whitman Conservation on Outreach to Students:** District staff visit K-12th grade classrooms giving presentations on restoration practices while university students participate in volunteer planting events.

Financial Assistance

- **Implement the Whitman Conservation District, *Water Quality Enhancement through Restoration of Function Project* ($210,000)**: This grant was identified on the FY2022 funding offer list. If funded, will continue to work off previous efforts to continue to exclude livestock, establish riparian buffers, and install instream structures, to improve water quality throughout the Alkali Flat Creek watershed.
- **Implement the Palouse Conservation District, *Supporting Sustainable Ranching on Snake River Tributaries* ($500,000)**: The PCD will work with livestock producers along both Steptoe Creek and Wawawai Canyon to install livestock BMPs, increase monitoring, and provide education/outreach to local livestock producers. The grant provides funding to help install riparian buffers at livestock priority pollution sites identified by Ecology staff.

Partner Coordination

- **Host Quarterly Meetings with the Whitman Conservation District:** Ecology works closely with the staff of Whitman CD to identify issues, coordinator plan/projects, and provide technical assistance to the public in the region.
- **Host Quarterly Meetings with the Palouse Conservation District**: While much of the work the Palouse CD revolves around the Palouse Watershed, their district falls within the boundaries of both Steptoe Creek and Wawawai Canyon. Ecology works heavily with PCD staff through various project implementation, technical assistance, and events.
- **Participate with the Snake River Salmon Recovery Board:** Ecology consistently works with various stakeholders involved in salmon recovery efforts in the region, including Walla Walla. As a lead entity voting member and a member of the Regional Technical Team, Ecology assists with the SRSRB annual grant round and provides technical

assistance for water quality issues as they relate to salmon recovery and habitat restoration.

- **Participate with the Snake River Local Working Group**: Ecology staff participate in this basin wide working group focused on challenges and solutions to the greater Snake River watersheds.
- **Attend at least two CD board meetings:** CD boards are composed of farmers and ranchers in that district. Staff will participate in board meetings to inform them of our on-going non-point pollution work and answer questions.

Pollution Identification/Watershed Evaluating

- **Perform Comprehensive Watershed Evaluation**: Annual surveys will be conducted during the early spring season to identify livestock water pollution issues. Work will be focused on a majority of Snake River tributaries including Alkali Flat Creek, Penawawa Creek, Almota Creek, Wawawai Canyon, and their associated tributaries.
- **Prioritize Sites for Technical and Financial Assistance:** Sites are evaluated along with all other Snake River and Palouse watershed tributaries to determine roughly 5 new technical and financial letters.
- **Respond to Non-Point Complaints:** ERO responds to all water quality related complaints in the watershed. If pollution site is identified to be of concern, ERO will send a follow-up technical assistance letter to further address the water quality concern.

Compliance Activities

- **Contact at Least Five New Priority Sites:** Staff will contact landowners with livestock water quality issues via technical and financial assistance letters. All letters are followed up with multiple phone calls (if contact number is available) throughout the year to ensure continued communication with Ecology and landowner.
- **Contact at Least Five Existing Priority Pollution Sites:** Follow-up with landowners who have received technical assistance letters in previous years and who remain out of compliance. May continue to contact through additional phone calls and follow-up technical/financial assistance letters.
- **Send Warning Letters to Approximately Three Landowners:** If a landowner has received multiple letters and continues to remain out of compliance, ERO will send a warning letter. The warning letter is the last offer of proactive assistance prior to a formal enforcement action.
- **Perform Priority Site Field Visits at Five Properties and Make Recommendations:** Visit at least 5 properties with non-point pollution problems in the watershed to explain water quality problems and steps needed to achieve compliance.

- **Develop 5 Water Quality Protection Plans for Priority Sites:** Develop plans for at least 5 sites to implement BMPs sufficient to fully protect water quality.
- **Implement Water Quality Protection Plans:** Protect and restore at least 2 miles of stream in the Whitman Direct Tribs Watersheds.
- **Ensure Final Steptoe Order Implementation:** An administrative order was sent to a landowner in the Steptoe Creek Watershed in 2019 addressing ongoing livestock pollution issues. Since the order was sent, Ecology, along with the partnership of the Palouse CD have developed a plan to address the site. Most of the riparian buffer and Order elements have been implemented. A final step will be completed in fall 2021.
- **Take One Formal Enforcement Action**: The eastern region expects that one formal enforcement action to address non-point pollution will be taken in the Whitman Direct Tribs in 2021.

Monitoring Activities

- **Partner with the Palouse Conservation District to monitor in Steptoe Creek**: Monitoring will help ensure livestock BMPs implemented in the watershed work to fully protect water quality. This will help adaptive management in the watershed.
- **Perform Ambient Monitoring in Almota and Alkali Flat Creek:** Ecology has a monitoring location established at Almota Creek. That station is likely to move to Alkali Flat Creek in the fall of 2021.
- **Establish Photo Monitoring Points**: Staff will establish photo monitoring points at pollution problem sites and document riparian condition improvements over time.

Priority Watershed Name: Palouse River

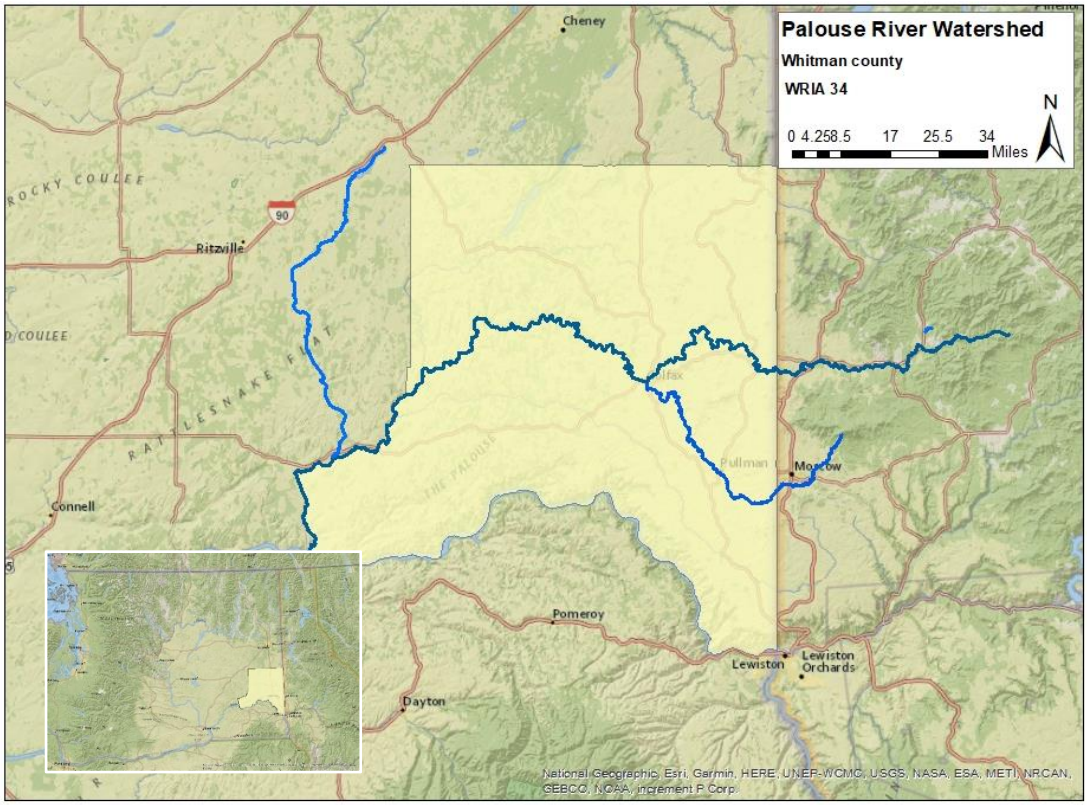

Figure 9. Map of the Palouse River watershed

Implementing:

North Fork Palouse Fecal Coliform Bacteria, DO, and pH TMDL; Palouse River Fecal Coliform Bacteria TMDL; Palouse River Temperature TMDL; Palouse River Toxics TMDL; South Fork Palouse Ammonia TMDL; South Fork Palouse DO, pH, and temperature TMDL; and South Fork Fecal Coliform TMDL.

Summary/Context Info:

Streams in the Palouse Watershed are impaired by excess bacteria, DO, pH, toxics, and elevated water temperatures. The watershed is dominated by agricultural nonpoint sources. The watershed and its sub basins have been studied several times and multiple TMDL reports and subsequent implementation plans have been developed.

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Priority Actions:

Education and Outreach

- **Attend Three Conservation District Board Meetings:** The CD boards are made up of area farmers and ranchers. Staff will attend three board meetings to inform the CD board of on-going water quality work in the Palouse River watershed, collaborate on project implementation, and answer questions on efforts to implement projects.

Financial Assistance

- **Implement the Palouse Rock Lake Conservation District Eastern Washington Low Disturbance Direct Seed Demonstration Project ($299,000):** This project currently provides producers with low disturbance direct seed cost-share opportunities to rent direct seed drills or hire custom seeding with direct seed drills. The project will enroll a minimum of 10 producers in a direct seed program capturing 13,500 acres in high residue direct seed practices.
- **Implement the Palouse Conservation District the Water Quality Saga: A Cost-Share-nary Tale Project ($666,666):** This project will continue to improve water quality in Whitman County streams by implementing a minimum of ten acres of riparian buffer and 6,750 acres of direct seeding. The project will conduct monitoring efforts on changes in crop residue cover with conservation farming practices and implement an outreach and education program to further improve water quality awareness throughout Whitman County.
- **Implement the Palouse Conservation District Cart before the horse: Restoring the North Fork Palouse River Watershed Project ($333,333):** Conservation programs in the North Fork Palouse River watershed have had moderate success at meeting needs of landowners while improving water quality. This project currently addresses shortfalls by engaging landowners, community organizations, and local schools in the Cedar Creek, Silver Creek and Clear Creek sub-watersheds by developing and implementing conservation outreach and educational programs, restoring a minimum of 7 acres of riparian areas, and monitoring water quality improvement efforts.
- **Implement the Palouse Conservation District Direct Seed Partnership on the Palouse Project ($666,666):** This project currently builds on partnerships developed in the Palouse Watershed Regional Conservation Partnership Program (RCPP) by implementing Best Management Practices (BMP) on agricultural lands in Whitman County. The project will install 9,000 acres of direct seeding (including 750 acres of fallow), implement riparian buffers, monitor water quality, and provide educations/outreach programs to further improve water quality in the Palouse River watershed.

- **Implement the Palouse Conservation District Direct Paradise Creek Riparian Restoration Project ($333,333):** This project will continue to improve nonpoint pollution issues throughout the creek by installing riparian buffers, monitoring water quality, and providing education and outreach programs to maximize restoration efforts along this Palouse watershed subbasin.
- **Implement the Palouse Conservation District Direct Seed Partnership Implementation and Monitoring Project ($625,000):** This project will continue to implement four miles of riparian buffers and 13,500 acres of direct seeding to improve water quality in the Palouse River watershed. The project will monitor the effects of riparian restoration and converting from conventional tillage to direct seeding to determine effects on stream water quality.
- **Implement the Palouse Conservation District Watershed Planning for Optimal BMP Placement and NPS Pollution Reduction Project ($333,333):** This project will use a tested BMP effectiveness tool in collaboration with district planners to identify critical source areas and the greatest pollution reduction. District planners and landowners will be educated on advanced BMP implementation strategies. Water quality monitoring will be used to assess watershed scale effectiveness.
- **Implement the Palouse Conservation District Palouse Basin Water Quality Improvements Project ($666,500):** This project will implement riparian restoration and bank stabilization across a minimum of 30 acres within the North and South Fork Palouse River to provide nonpoint source pollutant control, bank stability, lower stream temperatures, and reduced soil erosion. This project will also have water quality monitoring and education/outreach components.
- **Implement the Palouse Conservation District Thinking outside the Fertilizer Box: Conservation on Union Flat Creek Project ($666,666):** This project will implement 8.5 acres of riparian buffers and 9,000 acres of direct seeding to improve water quality in the Palouse River Watershed. Effects of riparian restoration and conversion from conventional tillage to direct seeding will be monitored to determine effects on stream water quality. This project will also implement a demonstration project for precision nutrient management on 1,200 acres, providing outreach and education with field days, workshops, and curriculum development.
- **Implement the Palouse Conservation District Palouse Basin BMP Implementation for Water Quality Improvement ($666,500):** This project will continue to address and improve water quality issues identified at multiple sites in the Palouse River watershed on both the North and South Fork Palouse River and on Union Flat Creek. Riparian restoration activities will reduce nonpoint source pollution, regulate water temperature, decrease soil erosion, and increase bank stability. Additional livestock best management practices (BMPs) will be implemented as needed including exclusion fencing, off-stream watering, and livestock crossings.

Partner Coordination

- **Host Quarterly Palouse Conservation District Coordination Meetings:** Ecology works closely with the staff at Palouse CD to identify issues, coordinate on plan/projects, and provide technical assistance to the public in Whitman County.
- **Host Quarterly Palouse Rock Lake Conservation District Coordination Meetings**: Ecology works closely with the staff at Palouse Rock Lake CD to identify issues, coordinate on plan/projects, and provide technical assistance to the public in Whitman County.
- **Host Quarterly Whitman Conservation District Coordination Meetings**: Ecology works closely with the staff at Whitman CD to identify issues, coordinate on plan/projects, and provide technical assistance to the public in Whitman County.
- **Partner with the Pine Creek Conservation District:** Ecology would like to develop a working relationship with Pine Creek CD staff to identify issues, coordinator plan/projects, and provide technical assistance to the public in Whitman County.
- **Participate on the Palouse Regional Conservation Partnership Program (RCPP):** Ecology has been an active participant in the first Palouse RCPP (2016-2021), and the renewal of that RCPP has been approved (2021-2027). Combined, the two RCPPs will have contributed over $14 million towards conservation practices in the Palouse watershed.

Pollution Identification/Watershed Evaluating

- **Perform Comprehensive Watershed Evaluation**: Annual surveys will be conducted during the early spring season to identify livestock water pollution issues. Work will be focused on a majority of the North and South Fork Palouse and tributaries.

Compliance Activities

- **Contact at Least Five Priority Pollution Sites**: Approximately 5 new landowners with livestock water quality issues will be contacted via technical and financial assistance letters. All letters are followed up with multiple phone calls (if contact number is available) throughout the year to ensure continued communication with the landowner.
- **Follow-Up on Previous Years Priority Sites**: Landowners who have received technical assistance letters in previous years (same numbers as mentioned above), and who remain out of compliance, will be contacted through additional phone calls and follow-up technical/financial assistance letters.
- **Develop Water Quality Protection Plans for Priority Sites:** Staff will set up site visits and work to develop BMP plans for at least five sites. The plans will include riparian buffers designed to fully protect water quality.

- **Implement Water Quality Protection Plans:** Protect and restore at least three miles of stream in the Palouse River watershed.
- **Send Warning Letters to Priority Sites**: If a landowner has received multiple letters and continues to remain out of compliance, Ecology will escalate to a warning letter with an expectation of response within 30 days. Ecology anticipates sending warning letters to approximately five sites.
- **Take Formal Enforcement Action**: The eastern region expects that one formal enforcement action will be issued in the Palouse River watershed to address non-point pollution at a high priority site.
- **Follow-up on Non-point WQ Complaints:** Staff will continue to respond to any water quality complaints received from the public. Phone calls and/or letters may follow after staff have confirmed a water quality issue exists.

Monitoring Activities

- **Establish Photo Monitoring Points**: Staff will establish photo monitoring points at pollution problem sites and document riparian condition improvements over time.
- **Continue to partner with Palouse CD on Monitoring work**: Palouse CD has taken the lead on monitoring efforts in the Palouse watershed. Ecology will continue to partner with Palouse CD on that effort.

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Priority Watershed Name: Walla Walla Watershed

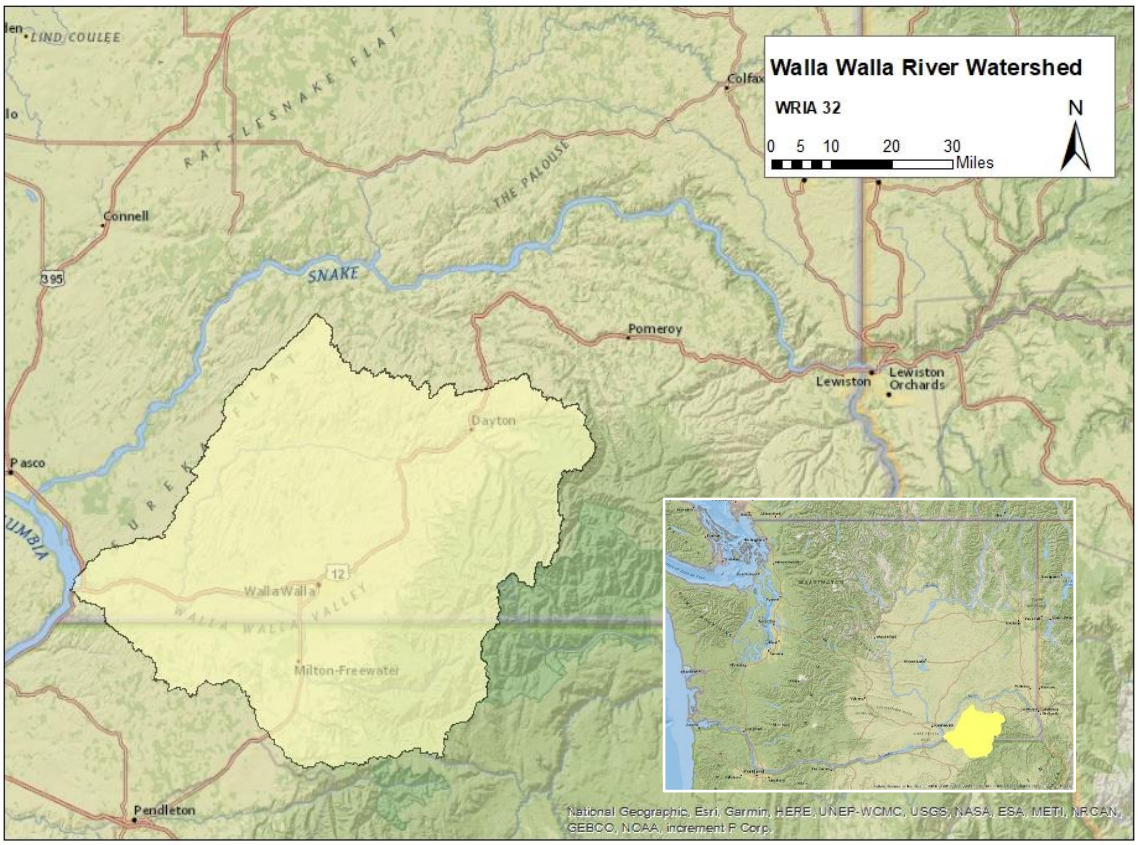

Figure 10. Map of the Walla Walla River Watershed

Implementing: Walla Walla River Watershed Multiparameter TMDLs (Bacteria, Temperature, pH, DO, Toxics)

Summary/Context Info:

The Eastern Region is continuing to implement the Walla Walla Watershed Multiparameter TMDL Water Quality Implementation Plan. A recent effectiveness monitoring study was completed in the watershed which will soon be published in 2021. Ecology has been active throughout the watershed through collaborating with stakeholders, funding restoration projects, and identifying new and ongoing water quality concern sites through annual watershed evaluations. The evaluations identify parcels with pollution problems. Regional staff then work with landowners and local partners to implement appropriately sized riparian buffers.

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Priority Actions:

Education and Outreach

- **Partner with Kooskooskie Commons on Farm BMP Outreach:** Ecology will partner on enhanced technical assistance outreach for environmental farm practices and riparian buffer management in the Walla Walla watershed. Kooskooskie Commons and Ecology will hold various meetings, workshops, and tours in the region.
- **Install Touchet River Riparian Signs**: Walla Walla County Conservation district and Ecology will install educational signs along the Touchet River where newly established buffer are implemented.

Financial Assistance

<u>Funded Projects in Progress for Implementation</u>

- **Partner to implement the Walla Walla County Conservation District, Canopy Cover Improvements on the Touchet River Project ($170,604):** This currently active grant will continue to improve riparian habitat and water quality along the Touchet River by removing invasive false indigo and planting 3 miles of stream, further improving temperature issues.
- **Partner to Implement the Kooskooskie Commons, Improving Water Quality in Yellowhawk Creek and W. Little Walla Walla River Project ($159,691):** This grant will implement riparian buffers along Yellowhawk Creek and the West Little Walla Walla River to address temperature and fecal coliform impairments. In addition, the funding will continue to monitor water quality throughout the watershed and perform education and outreach in the Walla Walla region.
- **Partner to Implement the Walla Walla County Conservation District, Last Chance Road Restoration at RM 35.5 Project ($347,217):** This grant was identified on the FY2022 funding offer list. The project will continue to restore the Walla Walla River by installing bio-engineered structures to increase pooling and planting trees to cool the water temperature in the reach.

Partner Coordination

- **Host Quarterly Meetings with the Walla Walla County Conservation District**: Ecology staff work closely with the conservation district staff in planning and implementing Ecology grant funded projects.
- **Participate on the Snake River Salmon Recovery Board Technical Team:** Ecology works with various stakeholders involved in salmon recovery efforts in Walla Walla. As a lead

entity voting member and a member of the Regional Technical Team, Ecology assists with the SRSRB annual grants and provides technical assistance to the group for water quality issues.

- **Participate in the Mill Creek Working Group:** Ecology staff participates in the monthly working group focused on the Mill Creek Watershed and the flood control zone of Mill Creek operated by the Army Corps of Engineers.
- **Participate in the Snake River Local Working Group:** Ecology staff participate in this basin wide working group focused on challenges and solutions to the greater Snake River watersheds.

Pollution Identification/Watershed Evaluating

- **Perform Annual Watershed Evaluations:** Surveys will be conducted during the early spring season of 2021 to identify livestock water pollution issues. Work will be focused on the Walla Walla River main stem and various tributaries including Pine Creek, Mud Creek, West Little Walla Walla River, East Little Walla Walla River, Garrison Creek, Cottonwood Creek, Russel Creek, Dry Creek, Spring Creek, Coppei Creek, Touchet River, and Patit Creek.
- **Prioritize Pollution Sites for Assistance**: Sites are evaluated along with all other Snake River and Palouse watershed tributaries to determine new technical and financial letters to be sent out to landowners with water quality pollution issues.

Compliance Activities

- **Contact at Least 5 New Priority Pollution Sites for Assistance:** Approximately five new landowners with livestock water quality issues will be contacted via technical and financial assistance letters. All letters are followed up with multiple phone calls (if contact number is available) throughout the year to ensure BMP plans are developed and implemented.
- **Follow-Up with Landowners of Previous Priority Sites:** Landowners who have received technical assistance letters in previous years and who remain out of compliance will be contacted again through additional phone calls and follow-up technical/financial assistance letters. If landowner has received multiple letters and continued to remain out of compliance, ERO may send a warning letter.
- **Follow up on non-point complaint sites:** Contact valid compliant sites with non-point pollution issues and schedule site visits to provide technical and financial assistance. Phone calls and/or letters will follow with the goal of developing a plan for water quality protection and implementing the plan.

Monitoring Activities

- **Complete the Walla Walla River Basin Bacteria, pH, and Dissolved Oxygen TMDL: Water Quality Effectiveness Monitoring study:** This utilized data collected from 2014-2015, but was delayed multiple years due to staffing issues. The study will be published in 2021 and continue to demonstrate the need for further implementation throughout the watershed.
- **Partner with Kooskooskie Commons to Collect Baseline Water Quality Data:** Yellowhawk Creek, Caldwell Creek, Russell Creek, Whitney and Lasiter Spring Creek, and the West Little Walla Walla Creek will be monitored. The hope is to continue examining this unique watershed and spring upwelling effects on temperature, DO, pH, conductivity, turbidity, and fecal coliform.

Priority Watershed Name: Moses Lake

Figure 11. Map of the Moses Lake Watershed

Implementing: Other Locally Led Partnership

Summary/Context Info:

Ecology is a member of the Moses Lake Watershed Council (MLWC). The Grant County Conservation District (GCCD) leads the collaborative entity, formed in 2018 with the purpose of facilitating locally-led water quality improvements in the Moses Lake Watershed. The MLWC has grown to include a diverse group of local, state, and federal stakeholders, including the Washington State Department of Ecology (Ecology), Moses Lake Irrigation and Rehabilitation District, Grant County Health District, City of Moses Lake, and the U.S. Bureau of Reclamation, along with representation from local tourism, businesses, and concerned citizens.

The MLWC was formed in direct response to persistent harmful algal blooms during summer months that impairs the public's use of Moses Lake and poses a great risk to public health and the health of pets and livestock. The MLWC is building on several decades of efforts studying Moses Lake's poor water quality. Work conducted by the University of Washington and the EPA

Clean Lakes Project in the 1980's generated a large body of data and recommendations for improving water quality. However, long-term management plans for the lake and watershed were not developed or implemented. Ecology issued a draft Total Maximum Daily Load (TMDL) plan in 2002, but the TMDL process was suspended in 2004 due to a lack of political and community support. Instead of resuming the TMDL process that failed in 2004, stakeholders, including state legislators, committed to supporting a collaborative, locally-driven effort to address sources of phosphorus pollution and improving lake water quality.

Priority Actions:

Education and Outreach

- **Develop and Implement Public Information and Outreach Plan:** Ecology and partners will develop and implement an Information and Outreach Plan, including developing a website with information on cyanobacteria and how to report an algae bloom, along with information and resources for residents to take action to protect the lake. Work on the plan began in February 2021 and implementation will begin prior to the summer season. The website is planned to go live in spring 2021.
- **Develop and Install Lake Signage:** The MLWC is supporting Grant County Tourism's collaboration with the Grant County Health District to design and install informational signage for lake access points that will complement the Health District's mandatory signage for confirmed toxic algae blooms.

Financial Assistance

- **Implement Moses Lake Cyanobacteria Management Plan (Ecology FY 21 Freshwater Algae Control Grant Program):** GCCD will develop an overall lake model and plan to inform proper management decisions. The plan will provide guidance to address the nutrient loading, particularly total phosphorus, and improvement to water quality within the watershed. Project is funded from July 1, 2020 to June 30, 2022.
- **Implement Assessment of the groundwater recharge sources of phosphorus in Rocky Ford Springs (USGS Cooperative Groundwater Study):** A portion of the FY21 Moses Lake Cyanobacteria Management Plan grant funding supports a Phase I USGS Cooperative Groundwater Study to delineate groundwater pathways through which phosphorus is transported to Moses Lake. A final report is anticipated to be delivered by the end of 2021.
- **Implement WaterSMART: Cooperative Watershed Management Program Phase I Grant Application Technical Proposal (If Awarded):** Ecology worked closely with GCCD to submit an application for the Bureau of Reclamation's WaterSmart Cooperative Watershed Management Phase I Grant Program in January 2021. GCCD submitted the

application on behalf of the MLWC and proposed to develop a watershed management plan for the larger Moses Lake Watershed. USBR will announce their selections in the summer of 2021. If awarded, funding will be available in fall 2021 for project implementation over two years.

Partner Coordination

- **Participate in the Moses Lake Watershed Council:** The MLWC meets monthly. Subcommittees meet outside the regular meeting schedule to evaluate emerging technologies, data and monitoring, information and outreach, grants, and legislative activities.

Compliance Activities

- **Respond to Non-Point Complaints:** Ecology will investigate complaints received through the Environmental Reporting System (ERTS) to confirm a pollution source. If confirmed, Ecology will contact landowners by phone and letter. After we send letters offering financial and technical assistance to landowners, the ERO team works to get on-site meetings with producers. These meetings are an opportunity to learn from landowners, identify key BMPs to protect water quality on the site, and discuss potential project plans and designs.
- **Implement Livestock Exclusion Project on Moses Lake Shoreline:** In 2019, Ecology contacted a lakeside landowner after receiving a report of cattle in the lake. Ecology worked with GCCD to identify funding to install cattle exclusion fencing and an alternative water source. Work on the project began in 2020. The project is expected to be completed in spring 2021 before the lake level rises and cattle return for summer grazing.
- **Ensure Trout Lodge Agreed Order is Implemented:** Ecology is working with Troutlodge Fish Hatchery to implement a 2020 Agreed Order. The Agreed Order requires Troutlodge to take certain actions for the purposes of assessing potential sources of nutrient loading to Rocky Ford Creek.

Monitoring Activities

- **Partner on Lake Cyanobacteria Monitoring:** GCCD will conduct monitoring activities as part of the Cyanobacteria Lake Management Plan project starting the summer of 2021. A Quality Assurance Project Plan (QAPP) was submitted to Ecology for review in early 2021.
- **Partner on Groundwater Nutrient Monitoring**: Four sampling events occurred from September 2020 through February 2021. October and December 2020. During these sampling events, groundwater and surface water data was recorded and water samples

collected in the watershed up-gradient of Moses Lake, including Crab Creek and Rocky Ford Creek drainages. Samples were collected simultaneously with the Bureau of Reclamation to compare results, and if found to be equivalent, validate use of Reclamation-collected data in future project analyses.

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CRO Priority Watersheds

Priority Watershed Name: Lower Yakima River (WRIA 37)

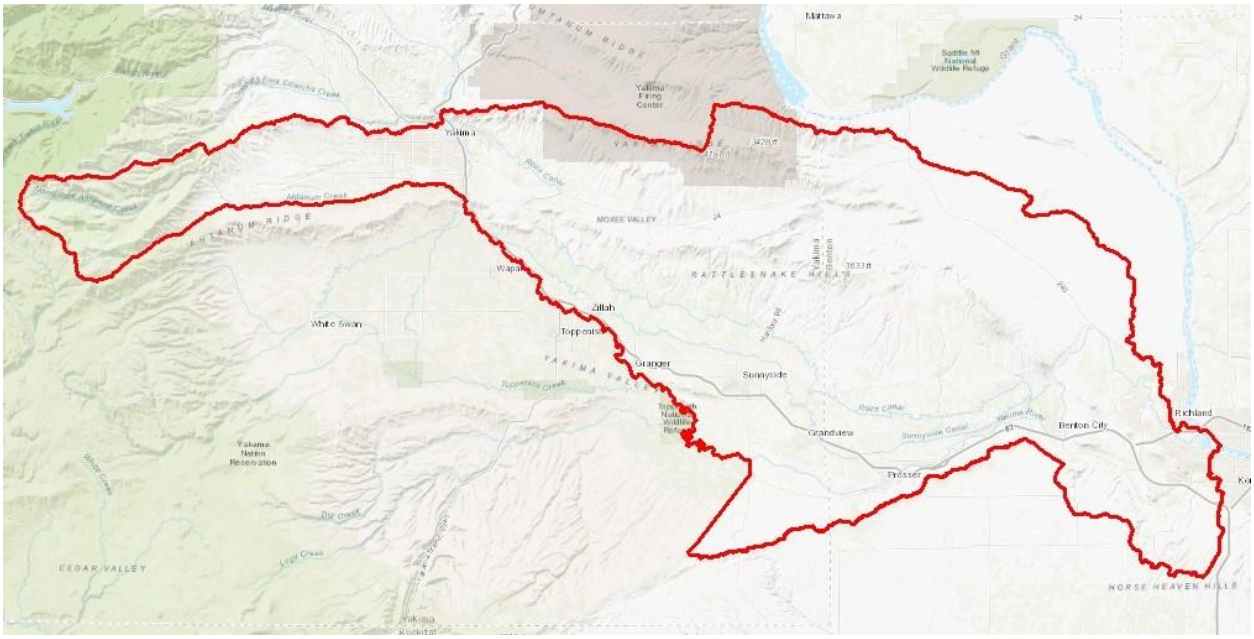

Figure 12. Map of the Lower Yakima River Watershed

Implementing: Lower Yakima Suspended Sediment TMDL

Summary/Context Info:

The ongoing implementation of the Lower Yakima Suspended Sediment TMDL has greatly improved the water quality discharged to the Lower Yakima River, meeting and maintaining the water quality goals of the TMDL remain as the project goals. The existing strong partnership with Roza and Sunnyside Valley Irrigation Districts is instrumental in the current and future successes seen in this watershed. Ecology WQ staff continue to coordinate closely with irrigation district staff to identify additional opportunities for additional water quality improvement.

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Priority Actions:

Financial Assistance

- Financial assistance opportunities will be coordinated through the watershed partners including the conservation districts and grant eligible NGOs.

Partner Coordination

- Communication with the Roza and Sunnyside Valley Irrigation districts will be on an as needed basis and depend on field schedules and pollution reports. Contact will be monthly or more frequently if needed.
- Communication with the North Yakima, South Yakima and Benton County conservation districts will be monthly or more frequently as needed to address pollution sources.

Pollution Identification/Watershed Evaluating

- Ecology staff will visit the Lowey Yakima watershed periodically with an emphasis during the irrigation season and, through field monitoring of turbidity, seeking to identify segments that turbidity loading to be addressed through TMDL implementation.
- Coordination with watershed partners, including irrigation districts, conservation districts, in the watershed monitoring and identification of turbidity sources, focusing on the summer irrigation season.

Compliance Activities

- Initial identification of high turbidity discharges will be shared with the Irrigation Districts to determine if coordinated outreach to land managers can bring the discharge into compliance with TMDL goals through technical assistance.
- Information developed during the field site visits and monitoring will be used to support Ecology's escalation of enforcement as needed.
- Suspended sediment transport is rapid when released to waterways. Field collected data will be relayed rapidly to gain engagement with the responsible landowners and gain water quality improvements in the short term with long term expectations being set forth in documentation.

Monitoring Activities

- Ecology Staff will be visiting the watershed every other week in the irrigation season to conduct visual observations and turbidity sampling with turbidity meter.

- Ecology will respond to reports of elevated turbidity from our watershed partners and from the public. These watershed visits will supplement the regular site visits to the watershed.

Priority Watershed Name: White Salmon River (WRIA 29)

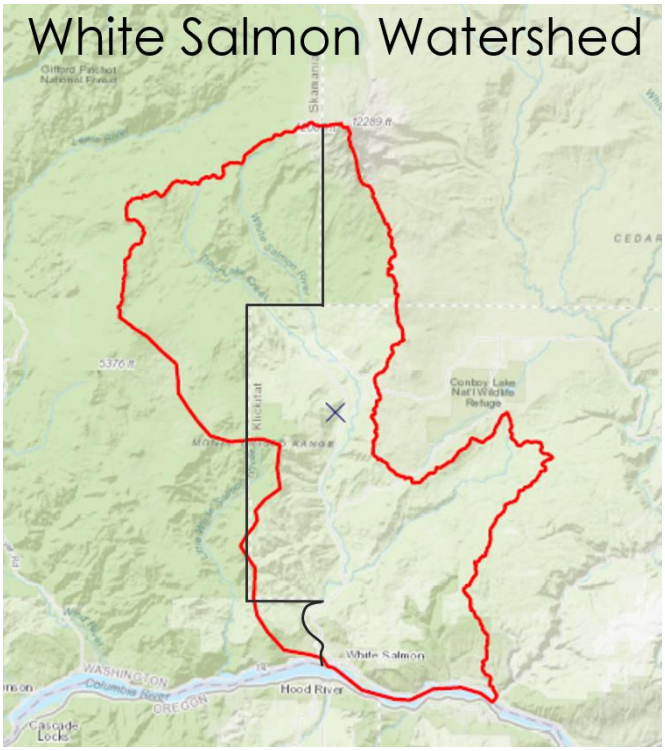

Figure 13. Map of the White Salmon River watershed

Implementing: STI

Summary/Context Info:

Ecology is working on a water cleanup project for the White Salmon watershed to address identified water quality impairments for bacteria. Stakeholders in the watershed greeted ecology's entrance into the watershed with interest and support. Some of the local water quality interest extend beyond the bacteria pollution problems.

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Priority Actions:

Education and Outreach

- Ecology staff are working with the US Forest Service on outreach to the recreational boaters. Ecology staff work with the USFS staff to have water quality information included in the 2021 USFS recreational boating permit (USFS annual recreational boater permit for Wild and Scenic River segment).
- Ecology staff are working with Underwood Conservation District, Mid-Columbia Fisheries, and the Yakama Nation on an educational project for the local school district addressing stream health for stream on school property.

Financial Assistance

- Underwood Conservation District is continuing to apply grant funding from Ecology to implement water quality improvement projects in the White Salmon watershed.

Partner Coordination

- Coordination with USFS, Underwood Conservation District (monthly), Yakama Nation, Friends of the White Salmon, Adventure Scientists, Mid-Columbia Fisheries, USGS, Xerces Society and Trout Lake city council.
- Ecology staff participate in Skype meetings and intend to return to face to face meetings when it is safe to do so (meetings are quarterly or as needed).

Pollution Identification/Watershed Evaluating

- Coordinating with CD on Bacterial Sampling plans, filling in data gaps, while preparing the White Salmon Bacteria cleanup plan.
- Ecology conducts complaint responses as needed and will have Monthly field visits to the White Salmon for Pollution Identification work.

Compliance Activities

- No cases needing compliance follow up have been identified. Future cases needing compliance actions will begin with technical assistance and follow Ecology's policies on escalating enforcement.

Monitoring Activities

- The Adventure Scientists volunteer group is conducting monitoring routine monitoring of WQ in the White Salmon. The Adventure Scientists have coordinated with Ecology on development of a Quality Assurance Project Plan.
- Underwood Conservation District is conducting monitoring for bacteria other WQ parameters in the White Salmon Watershed.
- Ecology has an Ambient WQ monitoring station is active in the watershed this year.

Priority Watershed Name: Wilson Creek watershed

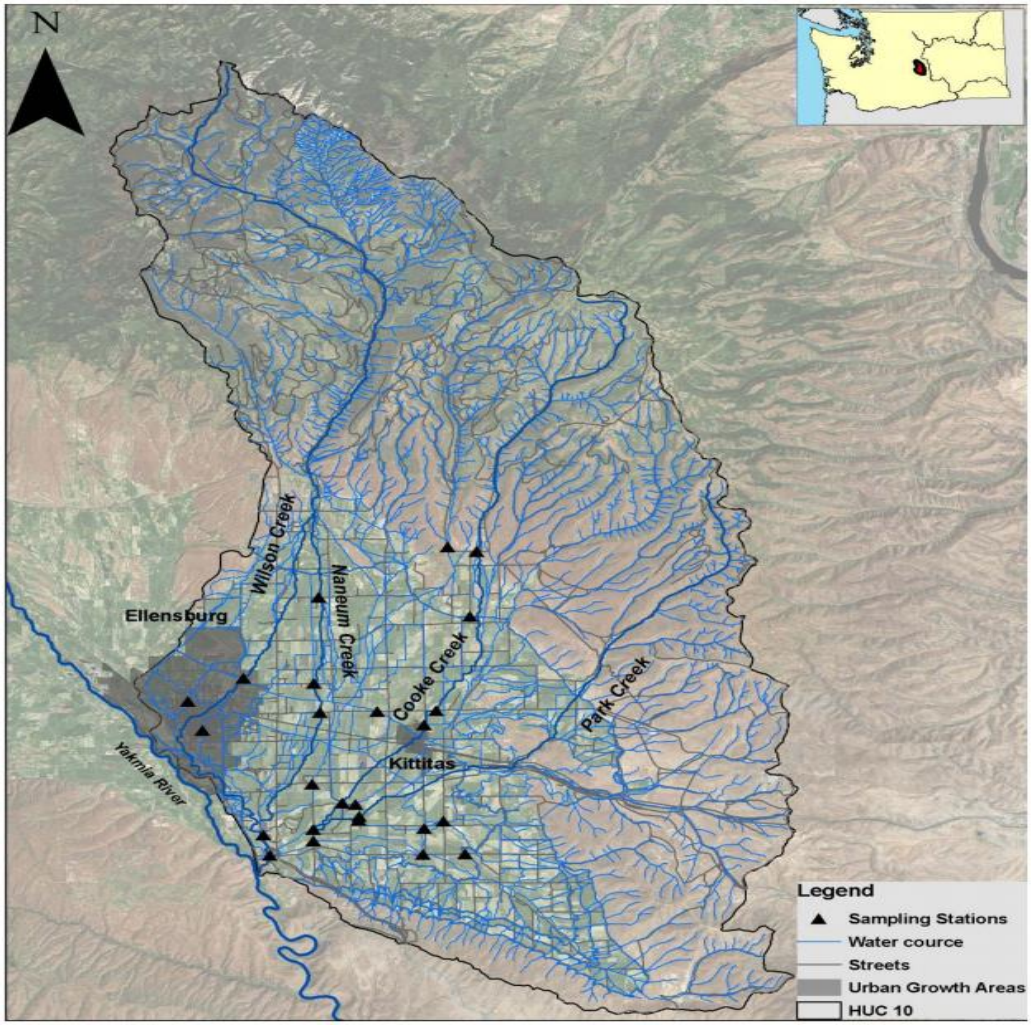

Figure 10. Map of the upper Yakima River Watershed

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Implementing: Upper Yakima Basin Suspended Sediment, Turbidity and Organochlorine Pesticide Total Maximum Daily Load and the Wilson Creek Sub-basin Bacteria Total Maximum Daily Load

Summary/Context Info:

Improvements to water quality in the Wilson Creek watershed have been remarkable, but have not met the goals set by the TMDL.

Priority Actions:

Education and Outreach

- Outreach to irrigation district(s) (Spring 2021 and quarterly through 2022)
- Outreach to Kittitas County Conservation District (Spring 2021 and quarterly through 2022)

Financial Assistance

- Financial assistance opportunities will be coordinated through the watershed partners including the conservation district and grant eligible NGOs

Partner Coordination

- Communication with the Irrigation water purveyors will be on an as needed basis and depend on field schedules and pollution reports. Contact will be monthly or more frequently if needed.
- Communication with the Kittitas County conservation district will be monthly or more frequently as needed to address pollution sources.

Pollution Identification/Watershed Evaluating

- Ecology staff will be visiting the watershed during the irrigation season and, through field monitoring of Turbidity, seeking to isolate the stream segments that are receiving pollution.

- Coordination with watershed partners, including irrigation purveyors and the conservation district, in the watershed in monitoring and identifying pollution sources, focusing on the summer irrigation season.

Compliance Activities

- Landowners and land managers identified for the stream reaches receiving pollution loading will receive direct in-person outreach and/or mailings to identifying Ecology's WQ concerns and the need to address continuing pollution loading.
- Information developed during the field site visits and monitoring will be used to support Ecology's escalation of enforcement as needed.
- Pollution transport is rapid when released to waterways. Field collected data will be relayed rapidly to gain engagement with the responsible landowners and gain water quality improvements in the short term with long term expectations being set forth in documentation.

Monitoring Activities

- Ecology Staff will be visiting the watershed every other week to conduct visual observations and turbidity sampling with turbidity meter.
- Ecology will respond to reports of elevated turbidity from our watershed partners and from the public. These watershed visits will supplement the regular site visits to the watershed.

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SWRO Priority Watersheds

SWRO now has five nonpoint staff covering WRIAs 12 counties.

Staff work with local partners often including municipal and county government agencies, interagency resource specific workgroups, Pollution Identification and Collection (PIC) teams, local tribes, conservation districts and local watershed groups. Information is shared with our partners during workgroup meetings, monthly conservation district board meeting and distribution of our SW Region's monthly newsletter. This newsletter highlights recent nonpoint activities, areas of growing concern, new research, environmental complaints and funding opportunities.

In an effort to encourage and assist our partners to draft successful grant proposals, we provide feedback prior to the grant submittal deadline. Nonpoint staff provide landowners with resource specific water quality education material (e.g., onsite-septic systems maintenance, agriculture BMPs for water quality protection, etc.), site evaluations, explanations of water quality data, referrals to county programs and information regarding financial assistance through cost-share programs and grants.

Each staff member conducts watershed evaluations based on pollution concerns, complaints and continued monitoring needs. Water quality samples are taken to help identify areas for further investigation and to monitor potential improvements.

Staff respond to complaints submitted in Ecology's ERTS system and coordinate with local agencies to resolve the issue. Identified nonpoint source pollution sites of concern are recorded in our Nonpoint Inspection (NPI) database and we follow the Nonpoint Desk Book Manual and compliance flow chart timelines. Landowners are provided educational material and technical assistance by phone, email, or letter within two weeks after deeming the site a priority concern to water quality.

Watershed's we are currently focusing on are highlighted below.

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Priority Watershed Name: Boise, Pussyfoot, and Second Creeks; Enumclaw Plateau

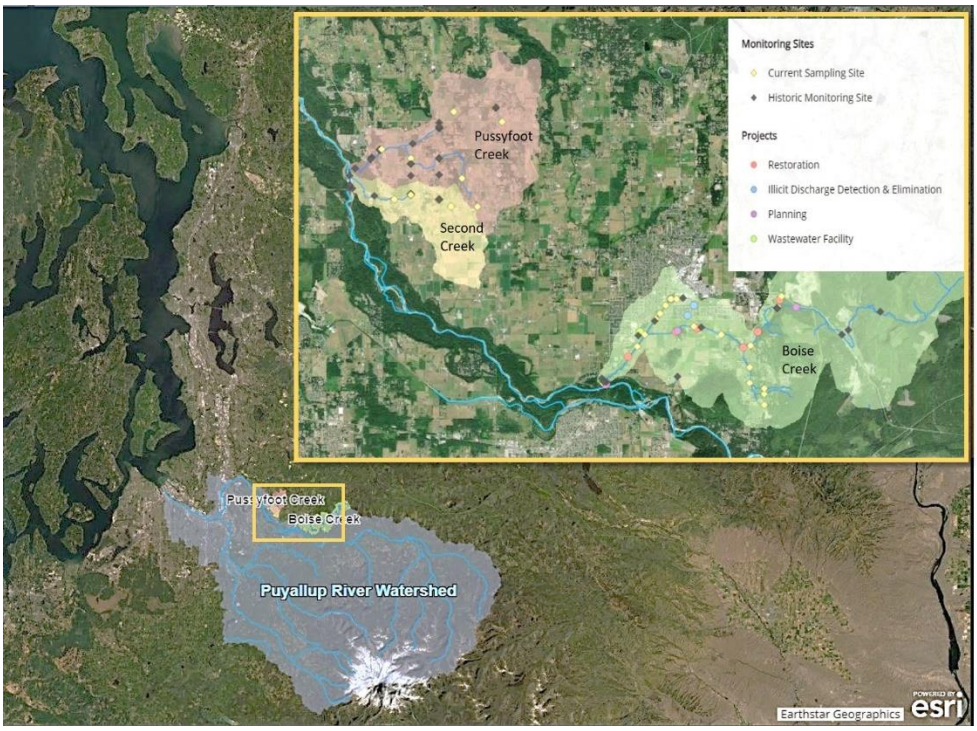

Figure 11. Map showing projects and monitoring sites for Boise, Pussyfoot and Second Creeks.

Implementing: Puyallup Watershed Fecal Coliform TMDL, including Temperature, Dissolved Oxygen, Bacteria, and pH impairments along the Boise, Pussyfoot, and Second Creek tributaries.

Summary/Context Info:

Since 2014, Ecology nonpoint staff have been collaborating with other state and local partners to monitor, identify, and address pollution issues within the Enumclaw MS4 and the surrounding areas. Ecology identified three tributaries within the Enumclaw plateau as priority watersheds: Boise Creek, Pussyfoot Creek, and Second Creek. Nonpoint pollution inputs within these watersheds significantly increase during the wet season due to the poor drainage throughout the plateau. External Partners include Muckleshoot Tribe, U.S. Natural Resources Conservation Services, Washington State Department of Agriculture, King County Livestock, King County Public Health, King County Department of Water and Land Resources, King County Public Health, King Conservation District, City of Enumclaw, Enumclaw Community Association.

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Priority Actions:

Education and Outreach

Completed

- **Creation of educational materials:** In 2021, Ecology Collaborated with Ecology staff, WSDA, and King County to create educational presentations on Enumclaw Hydrology and Enumclaw Aquatic Species and Habitats. Staff will work to get the accessible versions published online in 2022.

Ongoing

- **Participate in Enumclaw's annual iSTEAM event (post-pandemic activity):** Enumclaw school's foundation and School District features exhibits to get students excited about Science Technology, Engineering, Arts, and Math related careers. Ecology presents an Environscape Model to teach students about runoff pollution.
- **Distribute outreach materials at the King County Fair:** Ecology staff will work to interact with and distribute outreach materials to livestock owners at the King County Fair in July (should Covid restrictions relax).
- **Provide partners with input and educational materials**. Work with our partners involved in the peer-to-peer program to provide input and direction regarding available technical assistance and general water quality education/outreach for landowners on the Enumclaw plateau. We will also work with our partners to actively receive feedback regarding our outreach efforts and messaging.

Projected

- **Post educational videos online:** Staff will work to get the accessible versions of educational presentations on Enumclaw Hydrology and Enumclaw Aquatic Species and Habitats published online in 2022.
- **Create Enumclaw Story map:** To compliment other education and outreach by our partners, Ecology will create outreach materials that specifically address water quality laws and regulations, including links that direct landowners to external sites with technical and financial assistance.
- **Plateau-wide mailer distribution:** Coordinate and evaluate plateau-wide distribution (WRIA 9 and WRIA 10) of fall mailers in 2022.

Financial Assistance

Completed

- **Feedback and review:** Worked with County and NGO partners to review grant proposals, and provide feedback on available funding sources.

Ongoing

- **Provide partners with front-end feedback on grant proposals:** In an effort to encourage and assist our partners to draft successful grant proposals, we will provide grantees with the option to submit a notice of intent and receive feedback prior to the fall submittal deadline.
- **Provide information to landowners**: We will continue to provide information about technical and financial assistance available to landowners as they move forward with BMP implementation.

Partner Coordination

Completed

- **Communicated and coordinated reported concerns through the ERTS system:** Worked with area partners to identify appropriate response to ERTS complaints.
- **Large operations and CAFO permitting:** Facilitated partner discussion regarding process and impacts of CAFO permits on large livestock operations on the plateau.

Ongoing

- **Continue to hold annual site of concern prioritization meetings with State and local partners and stakeholders:** Coordinate and facilitate meeting(s) with partners directly involved with BMP implementation on the plateau in order to discuss and receive feedback about future and ongoing enforcement activities.
- **Hold quarterly meetings to facilitate sharing of water quality monitoring data:** Will continue to hold quarterly meetings with tribal, federal, state and local water quality monitoring staff in order to coordinate field efforts and communicate results.

- **Hold Annual Puyallup Multiparameter Improvement Project Partner Meetings:** Coordinate and facilitate 2 half-day sessions for this annual meeting in an effort to review and discuss water quality trends, implementation and outreach efforts, and to strategize for the following year.
- **Continue to participate in monthly King County Peer-to-peer engagement meetings:** Provide feedback and direction to the peer-to-peer engagement group that is working to: identify homeowners and entities that can serve as peer educators on the plateau; distribute surveys in order to understand successful engagement strategies; and create a plan for plateau wide education and outreach.

Pollution Identification/Watershed Evaluation:

Completed

- **Drainage mapping:** Refined the maps of the major drainages on the plateau**.**

Ongoing

- **Continue to identify Sites of Concern:** Continue to work in the field and within the community to identify additional sites of concern that have not been prioritized.
- **Continue to identify new unmapped ephemeral drainages:** Continue to work with King County to identify and map new ephemeral drainages and ditches. Continue to map-out drainages on parcels with drain tiles.
- **Utilize monitoring data to refine nonpoint efforts:** Continue work to collect and parse-out available water quality monitoring data, and take opportunistic and bracketed samples when appropriate.
- **Identify linkages between dairy and nondairy operations:** Continue to work to identify and understand the manure distribution system between dairy and nondairy operations.

Projected

- **Update Nonpoint Inspection (NPI) database:** Systematically identify and document sites of concern in the NPI database. Migrate nonpoint investigations from the Collector database into NPI.

Compliance/Technical Assistance Activities

Completed

- **Compliance activities:** Ecology has worked with landowners to take steps to comply with water quality laws in 2021. Steps taken include: 1 property owner who is working to install a manure storage bin; 1 land owner who is selling their property due to incompatibility with livestock/land use desires; 2 property owners who have installed exclusion fencing; 1 property owner who halted heifer operations; and 4 property owners who are working with KCD to create or modify farm plans in order to be protective of water quality.
- **Provided technical assistance and letters to landowners:** Hand delivered technical assistance information to 9 landowners living in the priority section of Pussyfoot creek. Sent out 4 letters and carried-out 11 site visits.

Ongoing

- **Compliance Follow-up:** Follow-up and continue technical assistance efforts with landowners who have received letters from Ecology.
- **Send technical assistance letters to properties in focus area:** Continue to systematically send out technical assistance letters to identified "high risk" properties along the Pussyfoot main stem drainage and work to address pollution concerns throughout 2021. Estimated 12 site visits/year
- **Evaluate and respond to incoming ERTS complaints:** Continue to respond directly to or coordinate with WSDA, King County and Enumclaw staff to address livestock or OSS related pollution sources.

Projected

- **Pussyfoot focus area engagement:** Staff plan to actively engage with an additional three landowners in the priority section of Pussyfoot Creek in 2022.
- **Move to engage in priority sections of the Second Creek drainage:** Continue working in the Second Creek area, utilizing the water quality sampling data from King County Storm Water Services to and expand the number of properties in that focus area.

Monitoring Activities

Completed

Monitoring pollution inputs: Identified drainages associated with large operations and collected samples to better understand their contributions to water pollution on the plateau.

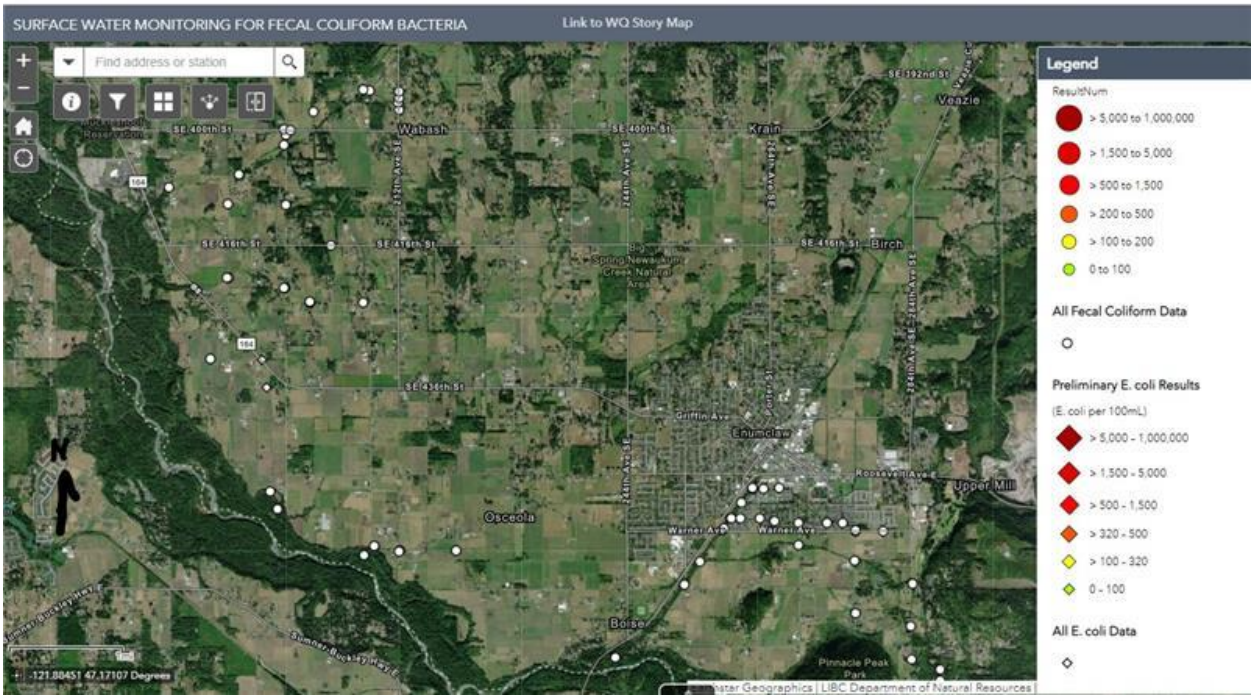

Figure 1. *Story Map displaying Water Quality data points collected by state and local entities and made publicly available. LINK to Whatcom CD's Surface Water Monitoring for Fecal Coliform Bacteria StoryMap.*

Ongoing

- **Continue Monitoring in Boise, Pussyfoot, and Second Creek Drainages:** SWRO staff will continue monitoring efforts in the Boise, Pussyfoot, and Boise Creek Drainages and continue to make the information publically available for landowners via Whatcom CD's Surface Water Monitoring webmap.
- **Pussyfoot focus area:** Continue to bracket-sample the upstream and downstream portions of the focus area to better understand timing and seasonal influence on pollution in that wetland complex.

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Priority Watershed Name: East Fork Lewis River

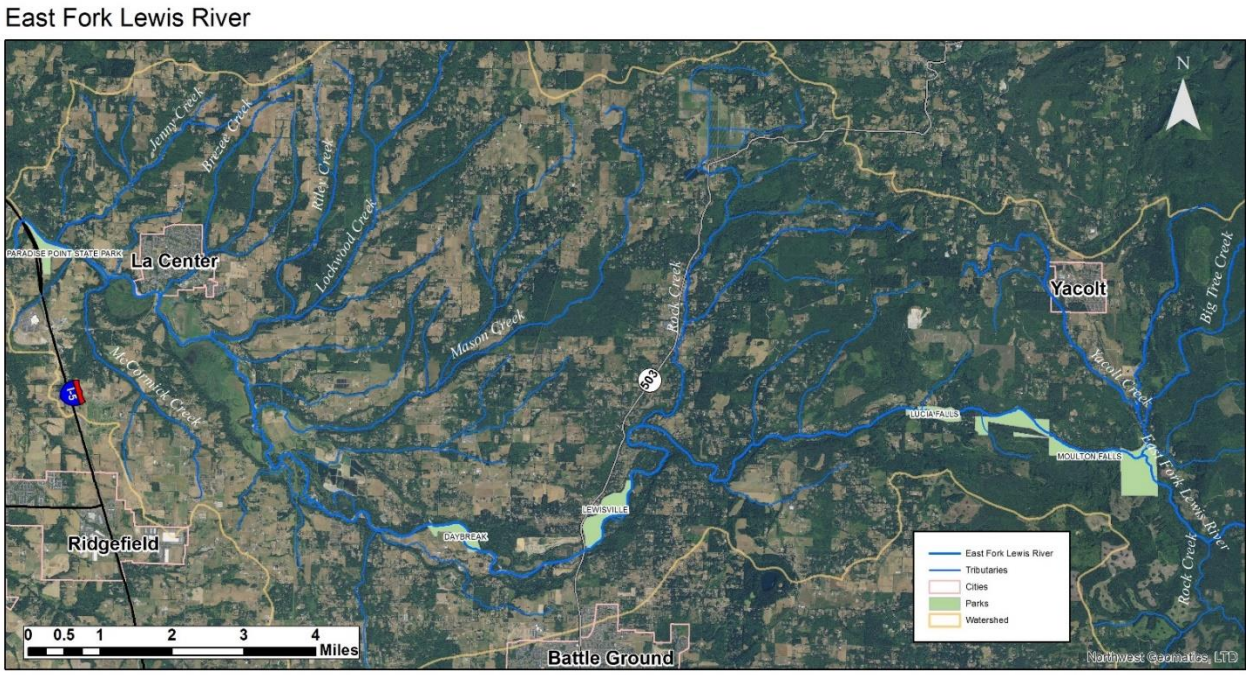

Figure 12. Map of the East Fork Lewis River and surrounding areas.

Implementing: East Fork River Alternative Restoration Plan

Summary/Context Info:

The East Fork Lewis River (EFLR) Alternative Restoration Plan was approved by EPA in 2021 to address temperature and bacteria impairments. The EFLR watershed is home to both the fastest growing city in Washington State, and five high priority populations of Endangered Species Act (ESA) listed salmon and steelhead. The watershed has seen a 47 percent increase in human population since 2000, and provides recreation, timber, agriculture, and water resources for this rapidly growing region of the State. At the same time, the watershed is key to the recovery of ESA-listed salmon and steelhead that rely on the mainstem and tributaries for critical spawning and rearing habitat. External partners include Clark County Conservation District, Clark Public Utilities, Washington State University Extension, Clark Co. Public Health, Lower Columbia Estuary Partnership, and the Watershed Alliance of Southwest Washington.

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Priority Actions:

Education and Outreach

Ongoing

- **Public Events:** Ecology staff will continue to coordinate with WSU Extension, Clark County Conservation District, Clark Co. Public Health and Clark Public Utilities on water quality workshops and participate in public outreach events, when appropriate.
- **Landowners:** We will continue to provide water quality related educational materials to landowners within the watershed with an estimated 15 site visits per year.

Financial Assistance

Completed

- **Funding:** Ecology assisted with securing funding for:
    - NRCS's Regional Conservation Partnership Program to contribute $1.4 million for outreach and implementation of direct on-the-ground projects.
    - Clark Conservation District to work in work in four selected sub-watersheds addressing livestock and onsite nonpoint pollution concerns through their Poop Smart Clark PIC program, Ecology award = $496,977.

Ongoing

- **Information sharing**: Ecology staff continue to provide landowners with financial assistance opportunities for BMP implementation on their properties and assist local partners with grant funding opportunities.

Partner Coordination

Completed

- **IDDE Project:** In 2020, staff worked with the City of La Center to develop and implement an illicit discharge detection and elimination project to address sources of bacterial pollution entering their stormwater system.

- **PIC Program:** In 2021, staff supported the development of a new Pollution Identification and Correction (PIC) program in Clark County called "Poop Smart Clark".

Ongoing

- **Conservation District:** SWRO staff will continue to attend monthly Clark Conservation District Board Meetings and coordinate with CD staff on addressing pollution concerns.
- **PIC:** We will continue to participate in monthly PIC "Poop Smart" meetings and provide updates on compliance activities.
- **Municipal:** We will continue to coordinate with the City of La Center to identify the bacterial sources to Brezee Creek.

Projected

- **IDDE Project:** Staff will encourage the City of La Center to pursue funding through the Stormwater Financial Assistance Program to help implement an illicit discharge detection and elimination project to address sources of bacterial pollution entering their stormwater system.

Pollution Identification/Watershed Evaluating

Completed

- **Watershed Evaluation:** Ecology staff utilized monitoring data to identify properties along segments with high bacteria concentrations, and prioritized them based on land use and septic data from Clark Co. Public Health.

Ongoing

- **Watershed Evaluation:** SWRO staff will continue to conduct site visits to assess potential pollution sources, provide technical assistance to residents, and refer landowners to Clark Conservation District when appropriate. Nonpoint staff estimate 15 site visits per year.
- **Compliant Response:** Staff will continue to respond to verified nonpoint reported concerns in the area submitted through Ecology's complaint system (ERTS).

Compliance Activities

Ongoing

- **Source ID:** Staff will continue to work with the City of La Center in order to identify and correct sources of bacterial pollution impacting their stormwater system.

Monitoring Activities

Completed

- **Source Tracking:** In 2020, staff conducted additional sampling to identify and prioritize other stream segments for further investigation. During this round of sampling significant water quality improvements were documented in the upper reaches of McCormick Creek. Other locations with high bacteria levels were found coming from the City of La Center. Staff used this data to guide future implementation efforts.

Projected

- **Investigatory:** If appropriate, staff will collect samples when responding to reported concerns or referrals.

Priority Watershed Name: Greater Key Peninsula

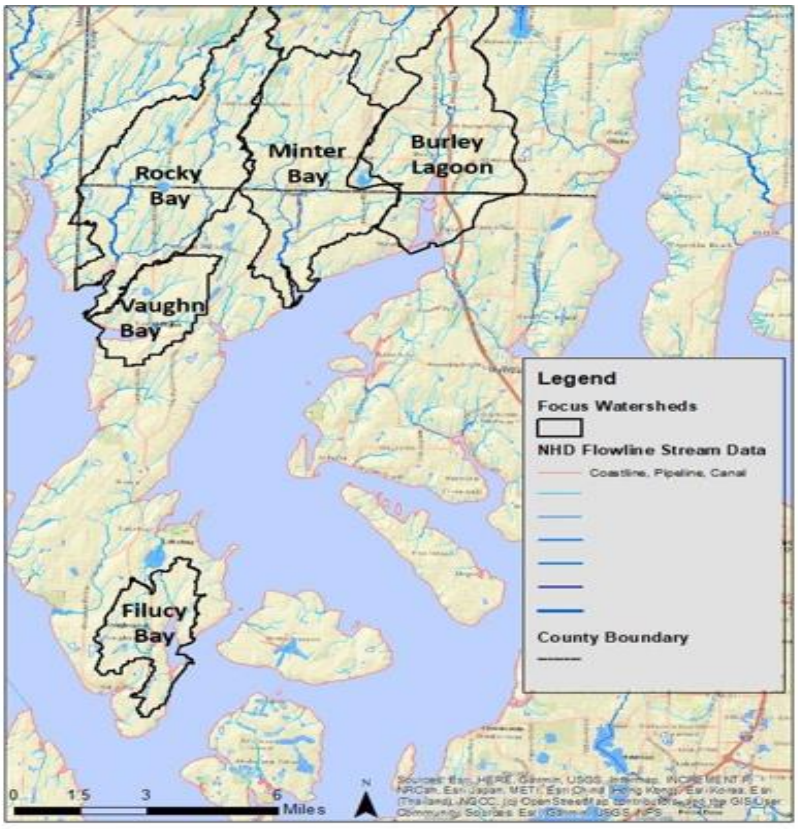

Figure 13. Map of five sub-watersheds of the Key Peninsula.

Implementing: Puget Sound Partnership Action Agenda

Nonpoint work within these five sub-watersheds is funded by a National Estuary Program (NEP) grant that is overseen and administered through the Washington Department of Health. Nonpoint staff work with local partners, Tacoma-Pierce County Health Department, Pierce County Planning and Public Works Department, Pierce Conservation District, Pierce County Code Enforcement, Kitsap Public Health, as well as landowners to reduce nonpoint sources of bacterial pollution originating from agricultural activities.

Summary/Context Info:

The entire Key Peninsula is 16 miles long and extends southward from the Kitsap Peninsula into the South Puget Sound, flanked by Case and Carr Inlets. The Greater Key Peninsula project area includes Pierce County drainages from Rocky Bay, Vaughn Bay, Filucy Bay, Burley Lagoon, and Minter Bay. These shallow, tidally influence bays are known for low flushing rates, abundant shellfish, and continual shellfish closures due to elevated levels of fecal bacteria. Growing areas in these five sub-watersheds have been closed periodically for decades and local PIC work have been coordinating responses.

Land use patterns on the Key Peninsula range from small scale agriculture and forest lands to residential and vacation homes presenting a variety of sources of nonpoint pollution. . Nonpoint staff work with local partners to identify the nature of pollution sources (e.g. livestock or on-site septic systems) and respond where our partners' jurisdiction does not extend. These often include addressing agricultural sources. Staff also function as a regulatory back-stop when local partners' authority is unable to bring about changes that adequately protect water quality.

Priority Actions Completed in 2021 and Projected for 2022:

Education and Outreach

Completed:

- **Create and Distribute Joint Mailer:** Staff worked with partners (local county, environmental health, and conservation district) to create a joint mailer as an outreach and technical assistance tool to introduce watershed assessment efforts, describe water quality concerns, and provide information regarding technical assistance opportunities. These mailers were distributed to Vaughn Bay and Filucy Bay residents. A total of 292 mailers have been distributed to date in the Greater Key Peninsula Priority area.

- **Mailer Responses:** Staff received 20 responses from landowners and performed 2 follow-up site visits. No high priority sites were identified.

Projected:

- **Joint Mailer Distribution:** Staff will systematically distribute mailers throughout the 1 of the remaining sub-watersheds.
- **Mailer Response:** In an effort to monitor mailer response, staff will track and respond to phone calls, e-mails, and requests for site visits from landowners who received the mailer. Staff will provide educational materials to residents, landowners and operators and refer them to appropriate partner agency when needed.

Financial Assistance

Ongoing:

- **Information Sharing**: Staff will provide information to:
    - Landowners regarding financial assistance opportunities through local partners (i.e. conservation district cost share programs).
    - Local partners regarding grant funding opportunities.

Partner Coordination

Completed:

- **Partner Meetings:** Staff participated in 12 PIC meetings and 7 additional multi-partner meetings to coordinate efforts to address specific pollution concerns. Staff attended 6 Pierce CD board meetings to provide updates and serve as a bridge between the two agencies.

Ongoing:

- **Sites of concern response**: Ecology will continue to coordinate with local partners on parcels that have been identified as sites of concern.

Projected

- **Partner Meetings:** Staff will participate in 4 quarterly PIC and water quality/shellfish meetings and provide updates on compliance activities.

Pollution Identification/Watershed Evaluating

Completed:

- **Watershed evaluation:** Staff conducted Shoreline evaluations in Vaughn and Filucy Bay jointly with local and state partners. Staff conducted a windshield survey in Vaughn Bay.
- **Complaint/Referral Response:** Staff coordinated with local partners to respond to the potential downgrade of DOH station 650 by gathering relevant data and contacting landowner's within proximity of the drainage. Staff responded to 2 referrals from partners where livestock management practices were reported to elevate risks to water quality.

Ongoing:

- **Complaint/Referral Response:** Staff will respond to verified nonpoint reported concerns in the area submitted through Ecology's complaint system (ERTS).

Projected:

- **Watershed evaluation:** In an effort to identify nonpoint sources of pollution, watershed assessments will be conducted primarily during the wet seasons. Windshield surveys will also take place if monitoring data show areas of exceedances. We will complete at least one assessment Dec. 2022.

Compliance Activities

Completed:

- **Technical assistance and compliance follow-through:** Staff issued 1 technical assistance letter, delivered 3 door hangers, and conducted 3 evaluations of sites of concern from public right-of-ways. Staff resolved 2 priority sites of concern by observing livestock management practices to protect water quality had been put in place.

Ongoing:

- **Compliance Follow-up:** Staff are working with local partners to follow up on 3 sites of concern that were identified and addressed in 2020
- **Responding to Responsible Parties:** Ecology Staff will utilize the Nonpoint Desk Book Manual and compliance flowchart timelines to respond to sites identified during watersheds assessments or via reported concerns. If local partners are not currently

working with the responsible party, staff will respond by phone, email, or letter within two weeks after deeming the site a priority of concern to protect water quality.

Monitoring Activities

Completed:

Investigatory Collection: Staff collected 2 samples in the Vaughn Bay watershed in response to manure management practices potentially contributing to a threatened marine sampling station in the Bay downslope of the site of concern.

Ongoing:

- **Source Identification**: Staff will sample higher in the watershed when partner ambient sites show exceedances downstream.
- **Investigatory Collection**: Staff will take opportunistic samples when responding to complaints or referrals on a per-case basis.

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Priority Watershed Name: Eld Inlet, Henderson Inlet, & Nisqually Reach

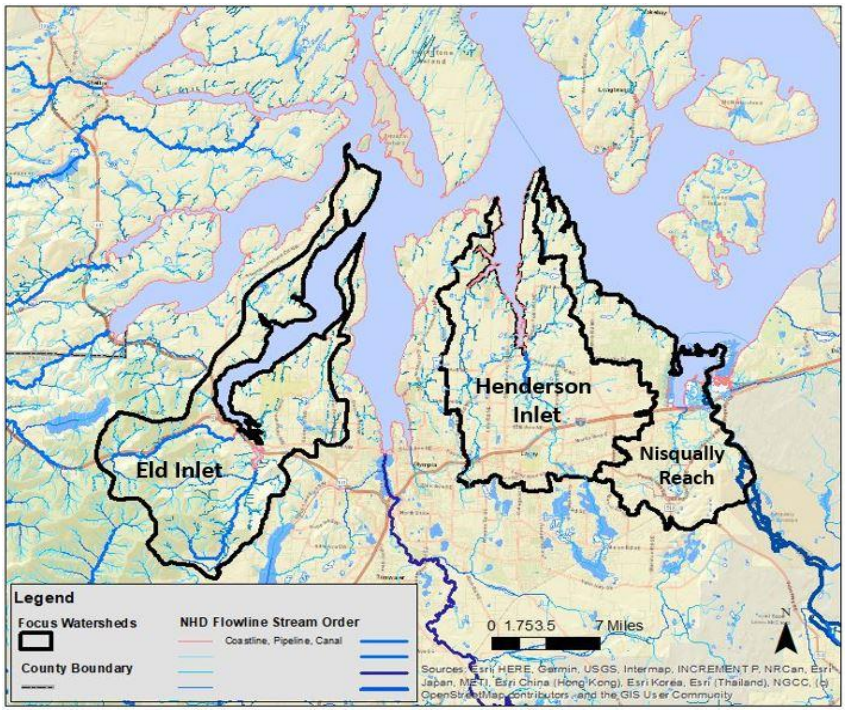

Figure 14. Map showing locations of all three priority watersheds in South Puget Sound

Implementing: Puget Sound Partnership Action Agenda

Nonpoint work within these three sub-watersheds is funded by a National Estuary Program (NEP) grant that is overseen and administered through the Washington Department of Health. Nonpoint staff work with local partners Thurston County Public Health and Social Services, Thurston Conservation District, Thurston County Code Enforcement, Henderson Inlet/Nisqually Reach Shellfish Protection District, as well as landowners to reduce nonpoint sources of bacteria pollution originating from domestic and agricultural activities.

Summary/Context Info:

The Eld and Henderson Inlets' and the Nisqually Reach drainage areas are located within the South Puget Sound, known for low flushing rates and abundant shellfish habitat. These watersheds have shellfish growing areas identified by DOH as at risk of closure due to elevated marine fecal coliform levels. These watersheds also support salmon habitat in rural, suburban and urban areas and the majority of land use is residential with a low density of small

agricultural sites. SWRO staff have been coordinating nonpoint efforts in these watersheds in concert with local partners' outreach and PIC work.

Priority Actions Completed in 2021 and Projected for 2022:

Education and Outreach

Completed:

- **Create and Distribute Joint Mailer:** Staff worked with partners (local county environmental health and conservation district) to create a joint mailer as an outreach and technical assistance tool to introduce watershed assessment efforts, describe water quality concerns, and provide information regarding technical assistance opportunities. These mailers were distributed to Henderson Inlet and Woodland Creek landowners. A total of 320 mailers have been distributed to date.
- **Mailer Responses:** Staff received 11 responses from landowners and performed 7 follow-up site visits. 1 high priority site was identified and resolved.

Projected:

- **Create and Distribute Joint Mailer:** Mailers will be distributed to the Nisqually Reach sub-watershed residents and landowners. These mailers will reinforce local partners' PIC work within the area.
- **Mailer Response:** Staff will track and respond to phone calls, e-mails, and requests for site visits from landowners who received the mailer to provide educational materials and refer to appropriate partner agencies as appropriate.
- **Create Horse Manure Informational Flyer:** Staff will work with partners to create a comprehensive handout for resources and locations for horse manure disposal. This will allow staff to connect hobby farms with services and bring a full understanding of risks and solutions to their manure management practices.

Financial Assistance

Ongoing:

- **Information Sharing**: Staff will provide information to:
    - landowners regarding financial assistance opportunities through local partners (i.e. conservation district cost share programs).
    - local partners regarding grant funding opportunities.

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Partner Coordination

Completed:

- **Quarterly Partner Meetings: Staff participated and facilitated four Pollution, Identification and Correction (PIC) meetings with local partners to coordinate efforts, provide updates, and address specific pollution concerns.**
- **Monthly Partner Meetings: Staff participated in eight Thurston Conservation District board meetings, providing guidance and support to local partners.**

Ongoing:

- **Sites of concern response:** Staff coordinate with partners to facilitate working with parcels that have been identified as potential pollution sources.
- **Informal meetings:** SWRO nonpoint staff will continue to meet with local staff to discuss sources of nonpoint pollution and watershed assessments.

Projected:

- Partner Meetings: Staff will continue to participate in quarterly PIC meetings, yearly Shellfish Protection District meetings, and monthly Thurston Conservation District meetings to provide updates on compliance activities.

Pollution Identification/Watershed Evaluating

Completed:

- **Watershed evaluation:** Staff conducted a windshield survey in Dobbs and Fleming Creek and remote watershed evaluation for the Henderson Inlet watershed utilizing resources such as aerial imagery, lidar and county parcel data.
- **Complaint/Referral Response:** Staff coordinated with local partners to respond to elevated counts detected by Thurston County Public Health. Staff responded to one referral from a partner where livestock management practices were reported to elevate risks to water quality.

Ongoing:

- **Complaint/Referral Response:** Staff respond to verified nonpoint reported concerns in the area submitted through Ecology's complaint system (ERTS).

Projected:

- **Watershed evaluation:** Watershed assessments will be conducted primarily in the wet season. Windshield surveys will also take place if monitoring data show areas of exceedances. At least 1 watershed assessment will be completed by Dec. 2022.

Compliance Activities

Completed:

- **Technical assistance and compliance follow-through:** Staff issued 1 technical assistance letter, delivered 3 door hangers, and conducted 3 evaluations of sites of concern from public right-of-ways. Staff resolved 2 priority sites of concern by observing livestock management practices to protect water quality had been put in place.

Ongoing:

- **Compliance Follow-up:** 1 site of concern was identified and addressed through partner referrals and a joint site visit in 2020 that involved livestock access to waters of the state and manure management. Staff are working with local partners to follow up.
- **Responding to Responsible Parties:** Ecology Staff will utilize the Nonpoint Desk Book Manual and compliance flowchart timelines to respond to sites identified during watersheds assessments or via reported concerns. If local partners are not currently working with the responsible party, staff will respond by phone, email, or letter within two weeks after deeming the site a priority of concern to protect water quality.

Monitoring Activities

Ongoing:

- **Source identification**: Staff will sample higher in the watershed when partner ambient sites show exceedances downstream
- **Investigatory collection**: Staff will take opportunistic samples when responding to complaints or referrals on a per-case basis

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Priority Watershed Name: Oakland Bay & Johns Creek

Implementing: Puget Sound Partnership Action Agenda

Nonpoint work within these sub-watersheds is funded by a National Estuary Program (NEP) grant that is overseen and administered through the Washington Department of Health. Nonpoint staff work with local partners, Mason County Environmental Health Department, Mason Code Enforcement, Mason Conservation District, Squaxin Island Tribe, as well as landowners to reduce nonpoint sources of bacteria pollution originating from agricultural activities. After responding to multiple ERTS and partner referrals within these watersheds/sub-watersheds, staff observed multiple parcels where livestock operations had the potential to contribute to bacteria pollution.

Summary/Context Info:

Oakland bay is a shallow, poorly flushed embayment connected to the South Puget Sound, with a history of poor water quality and an extremely productive shellfish industry. Because of its poorly flushed nature, shallow waters, and increasing population, Oakland Bay continues to experience declining water quality. Johns Creek enters Oakland Bay at its north western shore.

Multiple water quality parameters in Johns Creek have impairments, including bacteria, temperature, and dissolved oxygen. Nonpoint staff have identified agricultural operations and residential onsite septic systems that are impacting the water of both Oakland Bay and Johns Creek.

Priority Actions Completed in 2021 and Projected for 2022:

Education and Outreach

Projected:

- **Collaborate with partners to create educational outreach mailers:** staff will work with Mason County Environmental Health Department and other area partners to develop educational mailer with list of available resources.
- **Mailer Response:** Staff will track and respond to phone calls, e-mails, and requests for site visits from landowners who received the mailer. Provide educational materials and refer to appropriate partner agency.

Financial Assistance

Ongoing:

- **Information Sharing**: Staff will provide information to:
    - Landowners regarding financial assistance opportunities through local partners (i.e. conservation district cost share programs).
    - Local partners regarding grant funding opportunities.

Partner Coordination

Completed:

- **Partner Meetings:** Staff participated in 3 PIC meetings and 10 additional multi-partner meetings to coordinate efforts to address specific pollution concerns. Staff attended 3 Pierce CD board meetings to provide updates and serve as a bridge between the two agencies.

Ongoing:

- **Sites of concern response:** Staff will continue to coordinate with partners to facilitate working with identified parcels with potential pollution sources.

Projected

- **Partner Meetings:** Staff will participate in quarterly Pollution, Identification, and Correction and water quality and shellfish meetings and provide updates on compliance activities.

Pollution Identification/Watershed Evaluating

Completed:

- **Watershed evaluation:** Staff conducted a windshield survey in Johns Creek in response to the continued observations taken while responding to ERTs reports. Staff conducted remote watershed evaluation for the Johns Creek watershed utilizing resources such as aerial imagery, lidar and county parcel data.
- **Complaint/Referral Response:** Mason County Environmental Health (MCEH) identified a drainage that had elevated counts of bacteria polluting shellfish growing areas in Oakland Bay. MCEH referred the operation in question to Ecology. Nonpoint staff quickly took a lead role and coordinated a response with MCEH and the Department of Health to address water quality concerns. Additionally, staff responded to four referrals from partners and two observations where livestock management practices were presenting elevated risks to water quality.

Ongoing:

- **Complaint/Referral Response:** SWRO staff will continue to respond to verified nonpoint reported concerns in the Oakland Bay/John's Creek area via partner referrals or submitted through Ecology's complaint system.

Compliance Activities

Completed:

- **Technical assistance and compliance follow-through:** Staff issued six technical assistance letters, delivered two door hangers, and conducted seven evaluations of sites of concern. Staff resolved two priority sites of concern by observing livestock management practices to protect water quality had been put in place.

Ongoing:

- **Responding to Responsible Parties:** Ecology Staff will continue to utilize the Nonpoint Desk Book Manual and compliance flowchart timelines to respond to sites identified as sites of concerns through windshield assessments or reported from a third party. If local partners are not currently working with the responsible party, staff will respond by phone, email, or letter within two weeks after deeming the site a priority of concern to protect water quality.
-

Monitoring Activities

Ongoing:

- **Source identification**: Staff will sample higher in the watershed when partner ambient sites show exceedances downstream.
- **Investigatory collection**: Staff will take opportunistic samples when responding to complaints or referrals on a per-case basis.

Priority Watershed Name: Skokomish Valley & Annas Bay

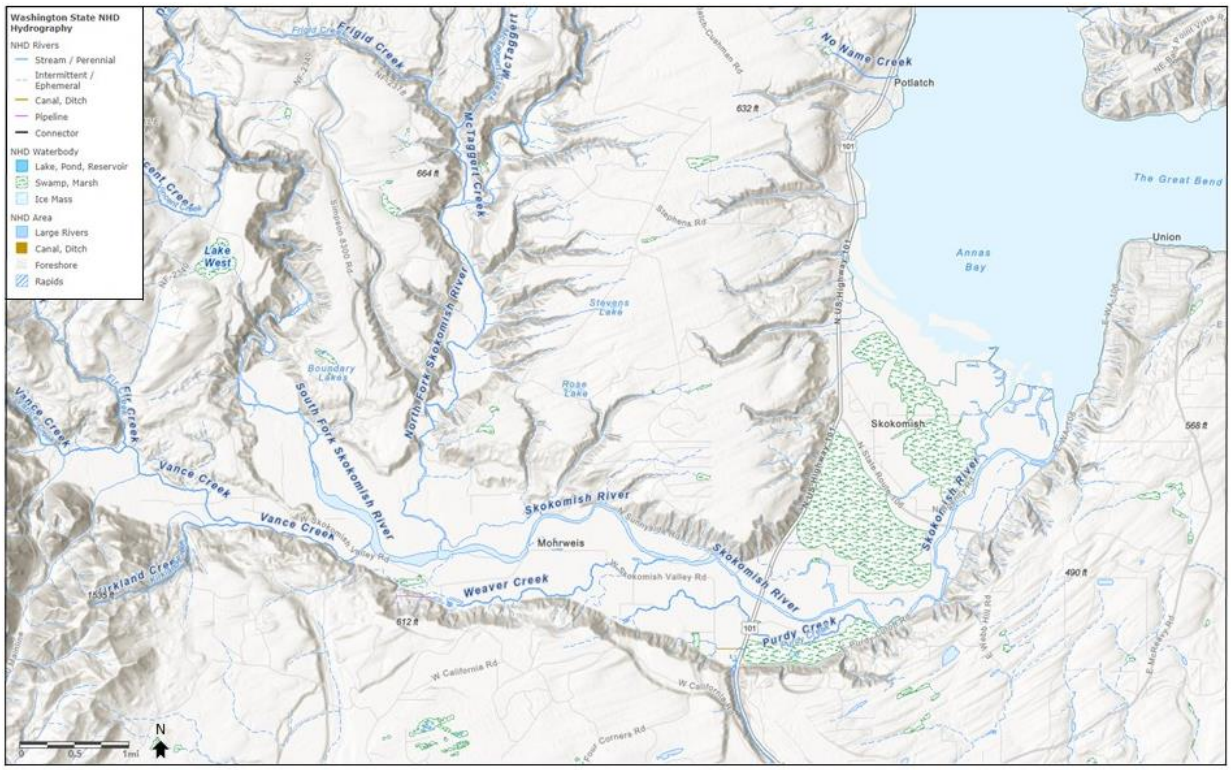

Figure 15. Map showing Skokomish River watershed and Annas Bay.

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Implementing: Puget Sound Partnership Action Agenda

Nonpoint work within this watershed is funded by a National Estuary Program (NEP) grant that is overseen and administered through the Washington Department of Health. Nonpoint staff work with local partners, Mason County Environmental Health Department, Mason Code Enforcement, Mason Conservation District, Skokomish Tribe, as well as landowners to reduce nonpoint sources of bacteria pollution originating from agricultural activities. After responding to multiple ERTS and partner referrals within these watersheds/sub-watersheds and the risk of shellfish growing areas downstream elevating so that closures of those growing areas became apparent, staff observed multiple parcels where livestock operations had the potential to contribute to bacteria pollution.

Summary/Context Info:

The Skokomish River and the Delta boasts hundreds of acres of tidal flats used for shellfish harvest and is home to numerous species of fish and wildlife including ESA listed Coho and threatened stocks of Chinook. Flooding events in the Valley magnify the water quality impacts of livestock operations and Ecology is working address the pollution inputs of this small community.

Priority Actions:

Education and Outreach

Ongoing:

- **Collaborate with partners to coordinate messaging for educational/outreach mailers:** Staff will continue working with Mason County Environmental Health Department and other area partners to develop future educational mailers in order to provide landowners with up-to-date information regarding available technical and financial resources.
- **Work to develop and distribute wet season reminder mailers:** Continue to distribute informational mailers to Valley livestock owners regarding wet/flood season best management practices.

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Financial Assistance

Completed:

- **Provide landowner(s) with information regarding available financial and technical assistance:** Worked with 2 landowners to identify specific sources of financial assistance available for their operations and worked to connect the land owner(s) directly to NRCS and MCD.

Ongoing:

- Provide partners with front-end feedback on grant proposals: **In an effort to encourage and assist our partners to draft successful grant proposals, we will provide grantees with the option to submit an NOI and receive feedback prior to the fall submittal deadline.**
- **Information sharing**: Staff will provide information to landowners regarding financial assistance opportunities through local partners (e.g., conservation district cost share programs).

Partner Coordination

Completed:

- **Reported concerns:** Nonpoint staff communicated and coordinated with area partners to identify appropriate responses to ERTS complaints.

Ongoing:

- **Continue working to rebuild relationship with Mason Conservation District (MCD):** Continue to facilitate staff-to-staff meetings to keep MCD abreast of our outreach and enforcement efforts and continue to attend MCD board meetings.
- **Attend quarterly PIC meetings:** Staff will continue to attend Hood Canal Pollution Identification and Correction meetings to coordinate response efforts to identified water quality concerns.
- **Attend MCD meetings:** Staff will continue to attend monthly MCD board meetings in order to better communicate and coordinate where needed.
- **Participate in quarterly Skokomish Watershed Action Team (SWAT) meetings:** Staff will continue to participate in quarterly SWAT partner meetings to stay abreast of area restoration projects and Federal/State/Local habitat and water quality issues within the Skokomish area.

Pollution Identification/Watershed Evaluation:

Completed:

- **Livestock operation sites of concern:** Worked to identify and map-out livestock operations within the valley in order to begin addressing water quality concerns arising from those operations.
- **Identification of issues along the River:** Worked with area partners to identify pollution and livestock access issues along Skokomish River access points.

Ongoing:

- **Utilize monitoring data to continue nonpoint efforts:** Continue work to collect and parse-out available water quality monitoring data, and take opportunistic and bracketed samples when appropriate.
- **Work to identify sites of concern:** Continue to conduct field observations and document properties where livestock have access to streams and riparian areas.

Compliance/Technical Assistance Activities

Completed:

- **Technical Assistance:** Ecology staff sent watershed-evaluation informational letters and first contact letters (with Ecology's Clean Water and Livestock Operations enclosure) to 19 Skokomish Valley agricultural property landowners adjacent to impaired waters.
- **Site Visits:** Ecology staff made over 2 dozen observations in the field and conducted 9 site visits in the Valley.
- **Follow-up letters:** Ecology sent 4 follow-up letters to land owners in the Valley.
- **BMP implementation/ financial assistance:** One Skokomish Valley landowner requested assistance from CD or other entity to assist with riparian habitat restoration; One received grant funds for nose pumps, installed temporary fencing, and worked to establish riparian grass buffer; One indicated that they would no longer raise livestock in the valley (although this has yet to be verified).

Ongoing:

- **Continue to follow up with properties that have received technical assistance letters:** Follow-up and continue technical assistance efforts with landowners that have received letters to address identified water pollution concerns.
- **Evaluate and respond to incoming ERTS complaints:** Respond directly to, or work with area partners to or respond directly to livestock or OSS related complaints.

Projected:

- **Enforcement activities:** Begin enforcement actions on at least 2 landowners within the Skokomish Valley.

Monitoring Activities

Completed:

- **Targeted monitoring:** In an effort to communicate pollution concerns to a local Skokomish Valley landowner, staff worked to sample, report, and discuss water quality data resulting from runoff pollution pathways and livestock manure.

Ongoing:

- **Work with partners to augment water quality monitoring activities:** Staff will continue to work with Washington State Department of Health and Fish and Wildlife Services to identify ways that we can work together to establish a pipeline for environmental DNA collection and processing for the purpose of microbial source tracking for the Hood Canal region. The challenge for this upcoming year will be to establish and deliver validated and functional qPCR assays to the lab in addition to finding funds to troubleshoot assay issues.

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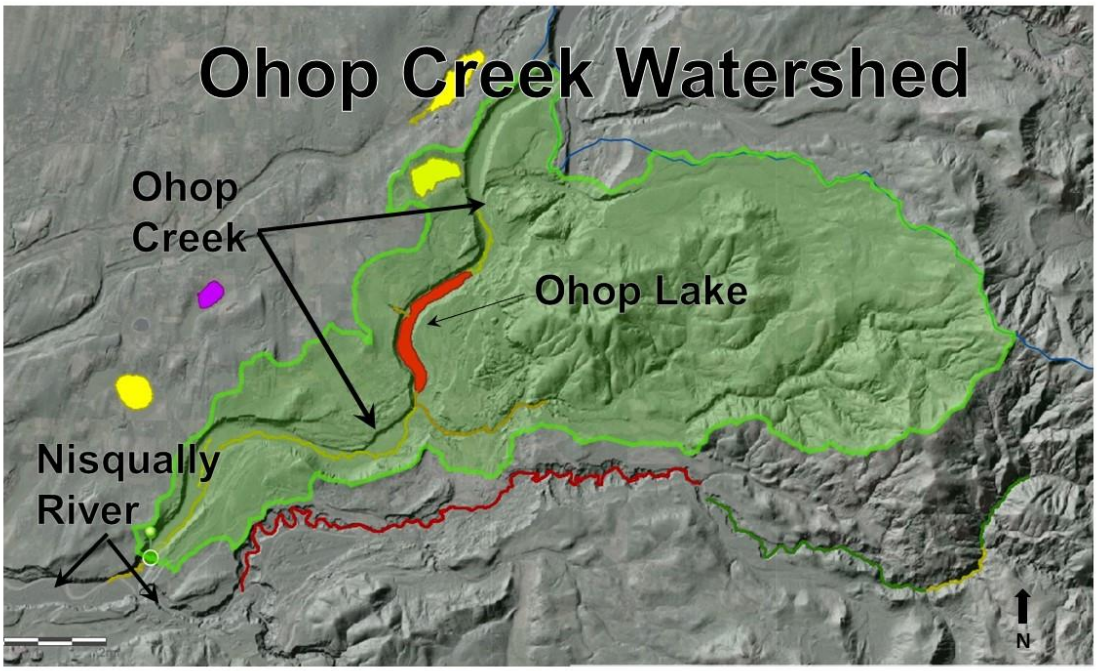
December 3, 2021

Priority: Nisqually River & Ohop Creek



Implementing: Nisqually River watershed bacteria and dissolved oxygen TMDL

Summary/Context Info:

As one of the least degraded major watersheds in the Puget Sound, the Nisqually River and its tributaries continue to be critically important spawning and rearing habitat to ESA listed salmonid species. In 2005 the EPA approved a TMDL in the Nisqually River watershed and the Henderson inlet basin. In this study, Ohop Creek was identified, by Ecology, to be a primary area of interest. Partners: Nisqually Land Trust, Nisqually River Council, Nisqually Indian Tribe, Pierce Conservation District, and Pierce County Public Works.

Priority Actions:

Education and Outreach

Completed

- **Ohop Valley Outreach:** Within the Ohop Valley focus area, we sent letters to and subsequently communicated with five of the surrounding Ohop area neighbors.

Projected

- **Hand out informational material to landowners:** Ecology staff will hand out educational material and talk with landowners about water quality issues in the Ohop Watershed.

Financial Assistance

Completed

- **Communicated with landowners about financial assistance opportunities:** Ecology worked with landowners to connect them with financial resources for BMP installation.

Projected

- Provide partners with front-end feedback on grant proposals: **In an effort to encourage and assist our partners to draft successful grant proposals, we will provide grantees with the option to submit an NOI and receive feedback prior to the fall submittal deadline.**
- **Information sharing**: Staff will provide information to landowners regarding financial assistance opportunities through local partners (i.e. conservation district cost share programs).

Partner Coordination

Ongoing

- **Continue to attend the monthly partner meetings:** Ecology will attend Nisqually River Council and Pierce Conservation District meetings providing guidance and support in water cleanup efforts.
- **Addressing water quality concerns:** Continue to work with area partners to address ERTS complaints.
- **Enforcement updates:** Continue to communicate with partners about the status of landowner BMP implementation and enforcement actions.

Pollution Identification/Watershed Evaluation:

Completed

- **Documentation:** Ecology identified sites of concern and documented observations in the Nonpoint Investigation database.

Ongoing

- **Utilize monitoring data to continue to identify areas of concern:** Continue work to collect and parse-out available water quality monitoring data, and take opportunistic and bracketed samples when appropriate.
- **Work to identify properties with livestock:** Continue to conduct field observations and document properties where livestock have access to streams and riparian areas.

Compliance/Technical Assistance Activities

Completed

- **Provided technical assistance to area livestock owners:** Ecology worked with three neighboring landowners in the Ohop Valley to provide technical assistance on BMP's which would allow their land use practices to be protective of water quality.
- **Compliance:** Ecology sent out four Technical Assistance letters, two Warning letters, and one Administrative Order.

Projected

- **Provide technical assistance to area livestock owners:** Ecology will work to connect with and communicate with area livestock owners to provide technical assistance. landowners
- **Compliance Follow-up:** Follow-up and continue technical assistance efforts with landowners that have received letters to address identified water pollution concerns.
- **Evaluate and respond to incoming ERTS complaints:** Respond directly to, or work with area partners to or respond directly to livestock or OSS related complaints.

Monitoring Activities

Ongoing:

- **Work with partners to identify water quality issues:** Continue to work with area partners to identify potential areas with water quality issues.

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Priority Watershed Name: Lacamas Creek

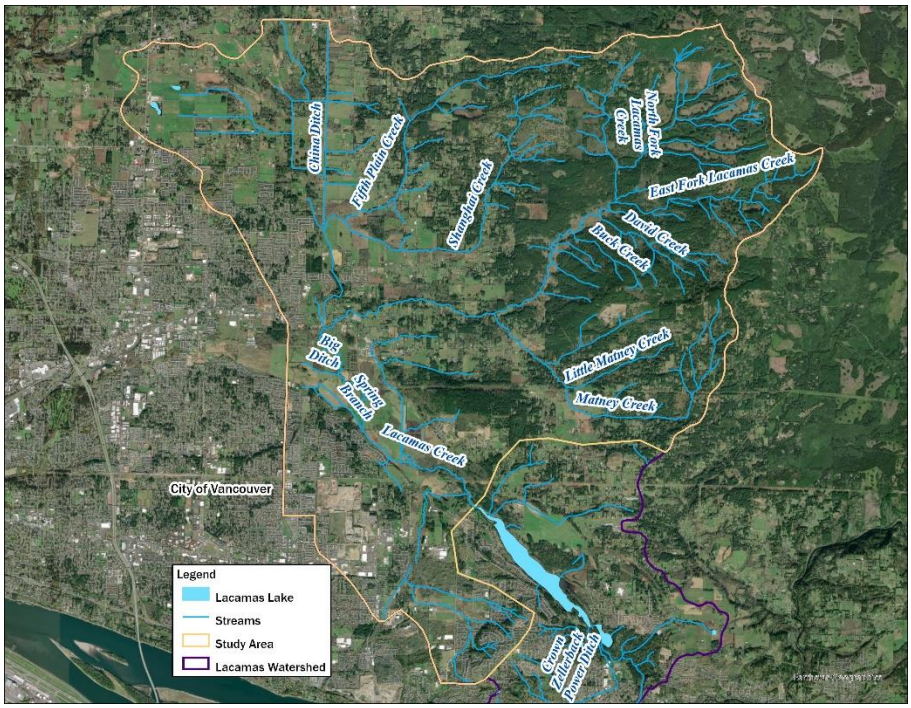

Figure X. Map of the Lacamas Creek watershed and surrounding areas.

Summary/Context Info:
The Lacamas Creek watershed has a number of water quality impairments including temperature, bacteria, dissolved oxygen, and pH. Among the concerns that result from these upstream impairments are the persistence of algal blooms and invasive aquatic species in Lacamas Lake. Additional water quality samples were collected in the Lacamas watershed during the fall of 2021. Ecology will use this information to develop a source assessment report in order to identify critical areas for water quality improvement. Nonpoint staff will work with partners (Clark County, City of Camas, WSDA, Watershed Alliance, Clark CD, and NRCS) to develop outreach materials that describe water pollution issues in the watershed, and to assist with identifying properties in need of BMPs.

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Priority Actions:

Education and Outreach

Completed

- **Partners**: During 2021, Ecology staff facilitated the development of the Lacamas Partnership for Clean Water. Supporting partners include Clark County, City of Camas, WA Department of Agriculture, USDA National Resource Conservation Service, Clark Conservation District, and Watershed Alliance of Southwest Washington.
- **Sampling**: Ecology staff reached out to neighboring landowners, of the sample sites, about water quality concerns within the watershed and shared data with interested landowners.

Ongoing

- **Partners:** Ecology staff will continue to facilitate and disseminate water quality data through partners within the Lacamas Creek Partnership.

Projected

- **Partner Outreach:** Nonpoint staff will work with partners (Clark County, City of Camas, WSDA, WDFW, Watershed Alliance, Clark CD, and NRCS) to develop outreach materials about water quality concerns for the watershed and assist with identifying properties in need of BMPs.

Financial Assistance

Completed

- **Funding:** Ecology assisted with securing funding $1.4 million through NRCS's Regional Conservation Partnership Program to aid in outreach and implementation of direct on-the-ground projects in Clark County, including the Lacamas Creek watershed.

Pollution Identification/Watershed Evaluating

Completed

- **Monitoring**: Ecology staff completed bacteria sampling at 24 locations within the watershed.

Ongoing

- **Assessment**: Water quality data is being reviewed by Ecology staff to determine critical areas for nonpoint source pollution identification.

Projected

- **Plan**: After an analysis of water quality data collected in 2021, Ecology staff will develop a Water Cleanup plan. To develop this plan, the Lacamas Creek Partnership, led by Ecology, will work collaboratively with local, state, federal, and tribal governments, non-profits, watershed groups, and private landowners to develop and implement the Plan, focused on implementation of best management practices (BMPs) for water quality.

Compliance Activities

Ongoing

- **Compliance Response:** Ecology Staff will utilize the Nonpoint Desk Book Manual and compliance flowchart timelines to respond to sites identified during watersheds assessments or via reported concerns. If local partners are not currently working with the responsible party, staff will respond by phone, email, or letter within two weeks after deeming the site a priority of concern to protect water quality.

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Pic X Ecology staff collecting water quality samples in Lacamas Creek Watershed.

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NWRO Bellevue Priority Watersheds

Priority Watershed Name: Lower Skagit Tributaries

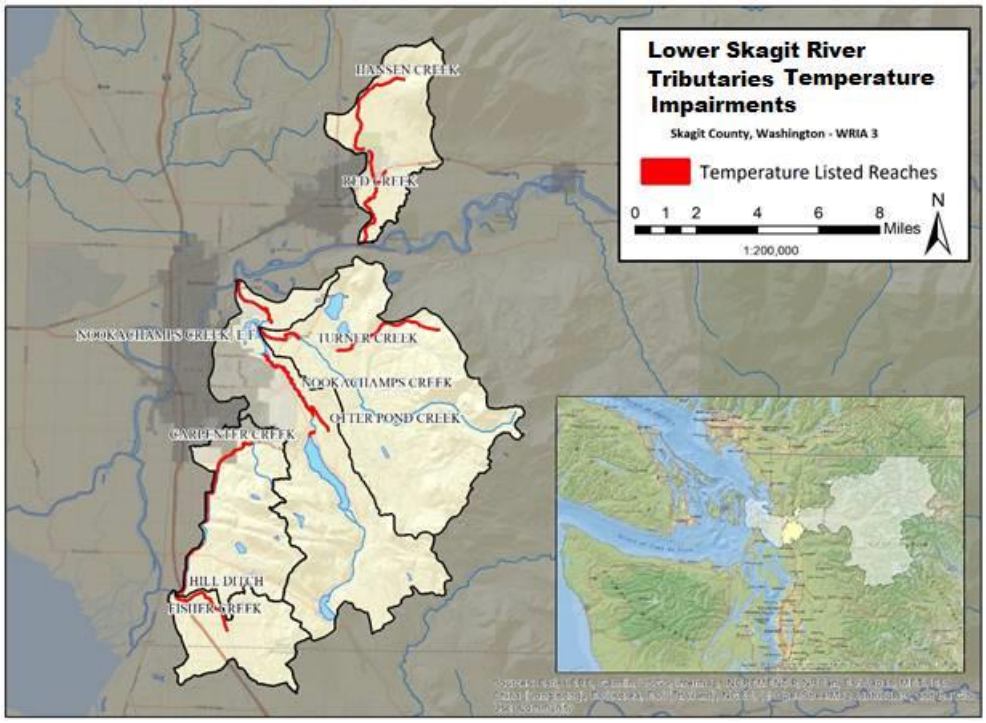

Figure 16. Lower Skagit Tributaries Temperature TMDL area.

Implementing: Lower Skagit Tributaries Temperature TMDL

Summary/Context Info:

Ecology is piloting several new region-driven efforts to increase the pace of riparian restoration in the Lower Skagit Tributaries. The activities are a result of the Lower Skagit Tributaries Temperature TMDL Implementation "Strategy" developed in coordination with stakeholders and implementation partners during 2019.

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Priority Actions:

Education and Outreach

- **Complete Skagit Temperature Story map:** Educational interactive website to inform the public about the status of warm water conditions in the Skagit River Tributaries. Includes links to resources to take action. Story map to be updated regularly after initial release. Release date May 2021.
- **Complete Skagit Water Temperature Video Series:** Educational series of four videos describing the status of warm water conditions in Skagit River Tributaries. Focus will be on landowners taking action and ways for the public to be involved in the solution. Release date Fall 2021.
- **Complete Resource List/Directory:** Informational resources that will provide landowners with links and descriptions of programs and funding opportunities to encourage voluntary riparian restoration. Release date Fall 2021.
- **Propose continued CBSM Efforts:** Request funds to support outside facilitation of focus groups to refine messaging and gather data on barriers and motivators. Data will be used for developing effective educational products and improve relationship with the community. Completion date TBD if funded, complete as soon as possible.
- **Direct Landowner Outreach:** NWRO staff will work directly with Peter Janneke and other riparian landowners to gain support and access to streamside areas for the East Fork Nookachamps Summer Field Work detailed below under Pollution Identification/Watershed Evaluation section.

Financial Assistance

- **Request CBSM Funding:** Prepare presentation to management requesting funding for outside facilitator to assist CBSM efforts. Presentation date March 2021.

Partner Coordination

- **Continue Coordination with Skagit Community Engagement Committee (CEC):** Continue to attend the monthly CEC meetings on general outreach efforts in the Skagit.
- **Hold Monthly Meetings of the Skagit Video Workgroup:** Comprised of members of the CEC, this group specifically focuses on the development of Ecology's Skagit Warm Water videos.

- **Hold Quarterly Meetings of the Lower Skagit Temperature Strategy Workgroup:** Continue to interface with key implementation partners and stakeholders on a regular basis.
- **Participate in Skagit Watershed Council Meetings:** Actively participate in technical committee and Council meetings to promote awareness of the Lower Skagit Temperature TMDL, encourage grant applications to Ecology's Combined Funding Program, and prioritize Salmon Recovery Funding Board projects supporting water quality/temperature improvements.
- **Field Partner Outreach:** NWRO will reach out to local tribes to participate in the East Fork Nookachamps Summer 2021 field work to strengthen partnerships and increase interest in future implementation actions.

Pollution Identification/Watershed Evaluation

- **East Fork Nookachamps Temperature TMDL Implementation Field Study:** Revise the Lower Skagit Tributaries QAPP and perform detailed flow balancing and wood count survey. NWRO staff will contact landowners for stream access and examine the stream to promote creation of cold-water refuges and summer baseflow augmentation projects. Complete QAP addendum by July 1 and complete field work by October 30. Analysis of data to continue into Winter 2021-2.

Compliance Activities

- **Evaluate ERTS Complaints for Riparian Vegetation Removal:** Track ERTS complaints for violations of Critical Areas Ordinance violations and follow up on efforts to restore damaged areas.

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Priority Watershed Name: South Skagit Bay

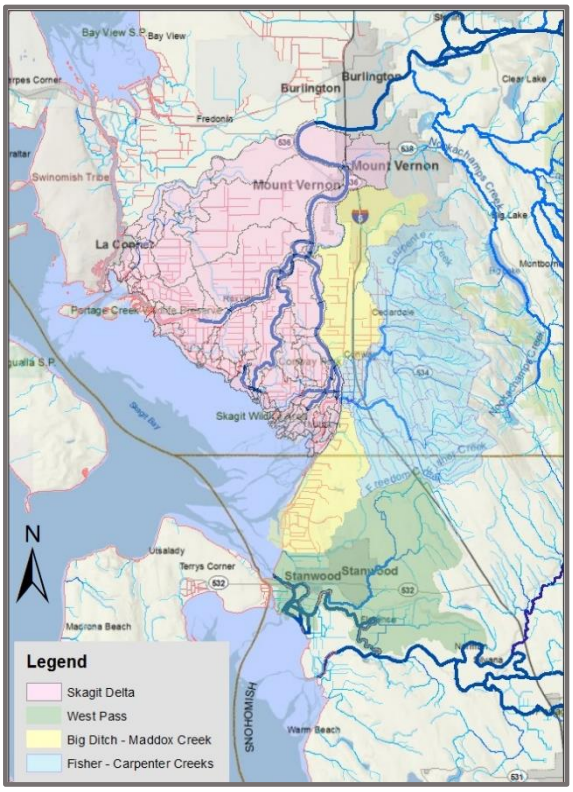

Figure 17. South Skagit Bay Direct Drainage area.

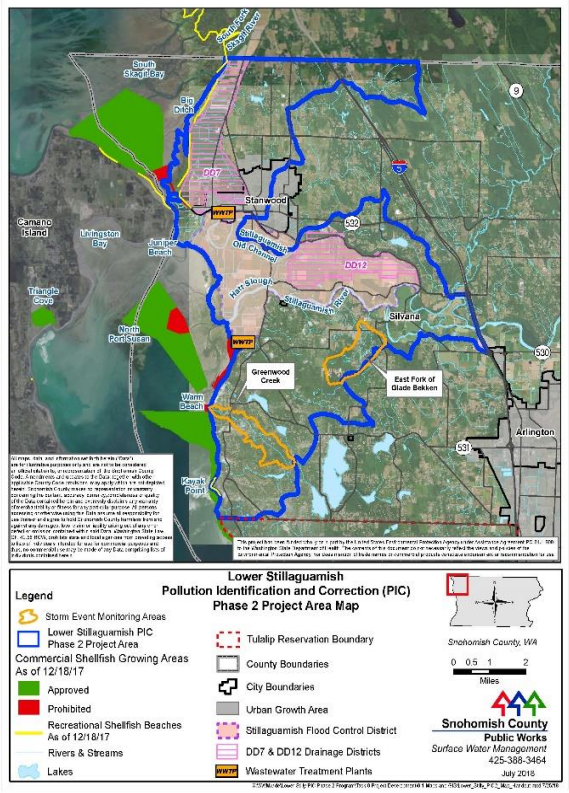

Figure 18. Port Susan/South Skagit Bay Drainage area.

Implementing: South Skagit Bay Watershed Evaluation

Summary/Context Info:

South Skagit Bay (SSB) has actively harvested shellfish areas at risk of closure due to marine fecal coliform levels that hover at the “threatened” level. NWRO Bellevue and NWRO BFO have been collaborating in the Big Ditch/Maddox Creek subbasins (Figure 15) performing routine characterization monitoring, storm event monitoring, source tracing monitoring, and field surveys to identify pollution sources. We are also coordinating with the Stillaguamish Pollution Identification and Correction (PIC) efforts since SSB receives water via the Old Stillaguamish Channel via West Pass.

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Priority Actions:

Education and Outreach

- **Update SSB website:** Provide progress report update of work done to date. Update interactive map feature and update broken links.
- **Examine feasibility of distributing mailers:** We will evaluate the process to develop spring/fall mailers to property owners in Spring/Summer 2021.
- **Participate in partner outreach events if COVID restrictions lift**: We may participate in outreach events such as the Stanwood Shellfish Dinner if partners are able to organize for 2021.

Partner Coordination

- **Participate in Stillaguamish PIC III Interagency meetings:** Our Snohomish/Stillaguamish Water Cleanup Team (Heather Khan/Marty Jacobson) both participate in these meetings. Our team will continue to assist the PIC III team on the development of OSS survey techniques.
- **Presentations to Stillaguamish Watershed Council:** Assist in several presentations to the watershed council as part of an interagency update about the Stillaguamish PIC III work.
- **Hold South Skagit Bay Stakeholder meetings:** Re-engage our South Skagit Bay Stakeholder Group on a regular basis following a lull in communications during the Covid-19 response period. Conduct at least one meeting with all partners from both the Snohomish County side and Skagit County side.
- **Examine use of EPA Manchester resources to perform MST:** Following initial discussions with EPA on Microbial Source Tracing (MST) resources available through the Puget Sound Program, we will evaluate how this resource could complement our source identification efforts during Spring 2021. If discussions are fruitful, we will update our QAPP and begin some level of dry season monitoring. This work will require coordination with the PIC III team.

Pollution Identification/Watershed Evaluating

- Snohomish Conservation District livestock survey information to be evaluated/used for source ID tracking.
- **Windshield surveys**: Surveys will be conducted during the wet season to assess livestock presence in priority subbasins and identify sites of concern that are likely to

discharge bacteria pollution for future outreach, technical assistance, and possible enforcement action.

Compliance/Technical Assistance Activities

- **Prioritize ERTS Complaints relating to bacterial pollution:** Continue to respond directly or coordinate with WSDA and Snohomish County compliance staff addressing livestock or OSS related bacterial pollution sources.
- **Send out the first round of technical assistance letters to priority properties:** Send out technical assistance letters for priority properties identified during the first phase of the assessment in the Big Ditch/Maddox Slough subbasin.

Monitoring Activities

- **Continue Monitoring in SSB Direct Drainages:** NWRO Bellevue staff will continue ambient and storm event monitoring in several previous characterization areas. We will continue monitoring within the Big Ditch/Maddox Creek subbasins and begin new monitoring in West Pass. QAPP revisions should be completed by July 1 to enable summer dry weather monitoring to begin. We estimate that the sampling costs come to around $14,000.00 for ambient and storm event sampling runs. Since we are moving into a new subbasin in West Pass, we would like to ensure we gather enough bacteria data.

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Priority Watershed Name: Snohomish Basin

Figure 19. WRIA7, Snohomish Basin

Implementing: Pilchuck River Temperature/DO TMDL, Snoqualmie River Temperature/DO/Fecal Coliform TMDLs

Summary/Context Info:

Ecology identified reduced baseflows in the Pilchuck River watershed as a key contributing factor to higher water temperatures and reduced dissolved oxygen levels during the summer dry season. In the Snoqualmie watershed, we believe existing agricultural drain tiles, as well as future new or replaced drain tiles, similarly affect the ability to maintain summer baseflows and thus reduce water quality. There is great interest in the local salmon recovery community to introduce and manage beavers to improve summer baseflows in both upland and lowland locations. Strategic retrofitting of inadequate stormwater treatment facilities is another technique that needs additional evaluation to help increase summer baseflows in more developed areas with the potential to support significant fisheries resources.

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Priority Actions:

Education and Outreach

- **Attend Statewide Beaver Workgroups:** Marty Jacobson will represent Ecology at the statewide workgroup meetings, which are currently hosted by the local Tulalip Tribes. It is important for attendees to understand the importance of increasing and maintaining baseflows to achieve important water quality benefits.
- **Outreach to Snohomish County:** To better characterize and plan for the anticipated benefits of strategic stormwater retrofitting to improve baseflows, staff will reach out to Snohomish County Surface Water Management. Our plan is to encourage them to apply for Ecology Stormwater Financial Assistance Funds and possibly Ecology Water Resources Streamflow Restoration Grant funds to study the feasibility of strategic retrofitting in coordination with local cities (Granite Falls, Snohomish, Lake Stevens).
- **Outreach to the Snoqualmie Valley Water Improvement District (WID):** Previous work several years ago with the WID resulted in a managed drain tile pilot project. Resource constraints prevented Ecology for continuing work with the WID on that project. During summer 2021 we will re-engage with the WID to explore the successes and challenges experienced as part of their pilot work.

Partner Coordination

- **Review Snoqualmie Agricultural Strategic Plan:** Produced as part of King County's Fish/Farm/Flood (FFF) 2.0 efforts, we expect the first draft of this plan to be released for review and comment. NWRO staff will review this document with respect to future drainage projects with the FFF Fish Caucus and NWRO Regional Director Tom Buroker, who is the Ecology representative on the FFF Implementation Oversite Committee.
- **Improve Coordination with Key Implementation Partners:** Previous interest by the Tulalip Tribes and early TMDL implementation outreach to the Snohomish Conservation District on the value of beaver reintroductions has already yielded two pilot efforts, one focused on work in the Pilchuck uplands and the other the Pilchuck lowlands. Both projects are funded through the Streamflow Restoration Grants managed by Ecology's Water Resources Program. We will engage with both partners to learn from these projects and evaluate them for possible future work funded by Ecology's Combined Funding Program, Salmon Recovery Funding Board, or Floodplains by Design. Where this work can provide water quality benefits, we will be encouraging the export of this technique to other watersheds.
- **Increase Coordination with Ongoing Beaver Reintroduction Efforts:** Both the Tulalip Tribes and the Snohomish Conservation District have Watershed Restoration and Enhancement grants to reintroduce beaver into the lower and upper Pilchuck River. We

will reach out directly to those project leads to learn more about their progress and attempt to grow their programs where useful and feasible.

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Bellingham Field Office (BFO) Priority Watersheds

Lower Nooksack River

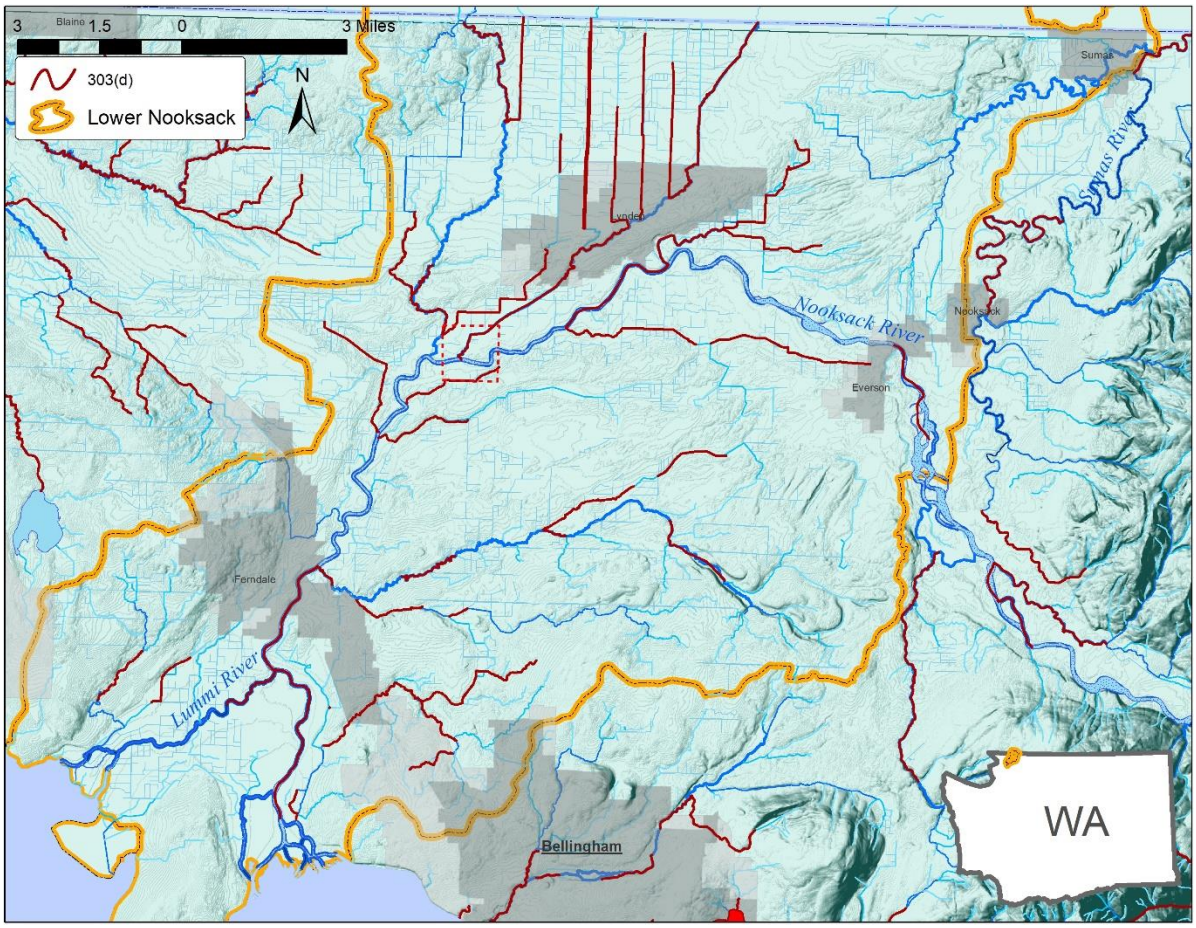

Figure 20. Map of Lower Nooksack River watershed

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Implementing: Lower Nooksack River Fecal Coliform TMDL

Summary/Context Info:

Partner Coordination

- **Whatcom Clean Water Program (WCWP):** Although actions promulgated by the Lower Nooksack River Fecal Coliform (FC) TMDL have led to water quality improvements in the Lower Nooksack basin (Figure 18), continued efforts to reduce FC pollution is necessary. Ecology staff cooperate with state and local agencies in the Whatcom Clean Water Program (WCWP), funded in part by an EPA National Estuary Program Grant, to address FC pollution from dairies, non-dairy livestock operations, On-Site Septic (OSS) systems and other sources. This partnership is the primary source for shared water quality monitoring information, and for coordinated pollution control activities from state and local stakeholders. In October, 2020 Ecology was awarded an NEP grant project focused on reducing FC bacteria discharges from non-dairy livestock operators in the lower Nooksack River watershed, continuing our important role in the WCWP through fall 2022.
- **Nooksack River Trans-Boundary Technical Collaboration Group (TCG):** A three-year coordinated implementation effort with BC counterparts (TCG) led to new source identification and pollution prevention activities in the upper Bertrand and Fishtrap Creek watersheds. The BC program is set to expire in July 2021, however, and Ecology is actively trying to extend their participation. The receiving marine waters of Portage Bay includes critical shellfish growing areas for the Lummi Nation, but recurring high levels of FC is threatening the downgrade of portions of the growing area.

Priority Actions:

Education and Outreach

- Ecology Staff will participate in four meetings (one per quarter) or other activities of the Portage Bay Shellfish Advisory Committee.
- BFO Staff will send outreach letters to leaders of local agricultural organizations when issuing informal and formal enforcement actions to operators in the lower Nooksack watershed. The purpose is to increase awareness of our compliance work, build trust and develop cooperative relationships. In selected cases local ag. leaders may contact

operators facing compliance actions for observed or potential discharge violations, and offer peer to peer support and assistance in addressing their high risk behaviors.
- BFO Nonpoint Staff will initiate and participate in two outreach events and educational activities (summer and fall 2021).
- BFO Nonpoint Staff will send an educational postcard or flyer to non-dairy livestock operators, fall 2021 or spring 2022.

Financial Assistance

- As a potential pilot project, seek one operator/properties that qualifies for 319 Direct Implementation Funds for BMPs that prevent discharges of manure.
- **WCWP Fall 2021 Fall Strategy:** During fall 2021 BFO's Whatcom County Nonpoint Specialist will collaborate with WCWP partners to develop and implement a lower Nooksack pollution prevention strategy. BFO Staff will reach out to operators with letters to inform and educate or offer technical assistance (TA), and to remind them of their statutory responsibilities to prevent discharges of livestock manure in runoff to state waters.
- **Monthly meetings with Whatcom Clean Water Program (WCWP) members:** Project partners coordinate to identify areas with elevated bacteria levels and follow up pollution control. Water quality data collected in partnership are available through an interactive online map administered by the Whatcom County Conservation District. Sampling efforts incorporate ambient and targeted events, and experimental studies. Recent analysis relating *E. coli* to fecal coliform is underway while continuing to assess bacterial loading to Portage Bay along with tributaries to the main stem.

Pollution Identification/Watershed Evaluation

- **Watershed Assessments:** BFO Staff will conduct at least two watershed assessments between October 1, 2021 and March 31, 2022 to identify high priority sites for possible compliance action. Results will be shared with partners.
- **Complaints and Referrals:** BFO staff receive cases through watershed assessments, complaints by citizens, or through referrals from our partners. We expect to receive three to five new cases during the winter rainy season (Oct. 1 – Mar. 31), and one or two more during the dry season.
- **Follow-up from previous years:** BFO Staff will likely need to re-engage from two to five livestock operators from previous winter, starting next fall. Will also send a reminder post-card or some other contact next fall, reminding them to take action to avoid discharge violations, and follow up on those contacts as needed.
- **Enforcement:** Although Ecology does not establish targets for enforcement actions, we typically send five to ten warning letters and one to four formal enforcement actions per

year, to operators in the lower Nooksack basin. (Notices of Violation, Immediate/Administrative Orders and Notices of Penalty).

Lower Nooksack Monitoring Activities

- BFO field staff conduct routine sample runs to identify streams or reaches that have high FC concentrations, and collect samples from streams, ditches and runoff from properties to identify sources of manure-contaminated runoff.
- BFO Staff will collect and analyze for FC about 120 water samples in the lower Nooksack watershed during the next year.

Drayton Harbor Tributaries

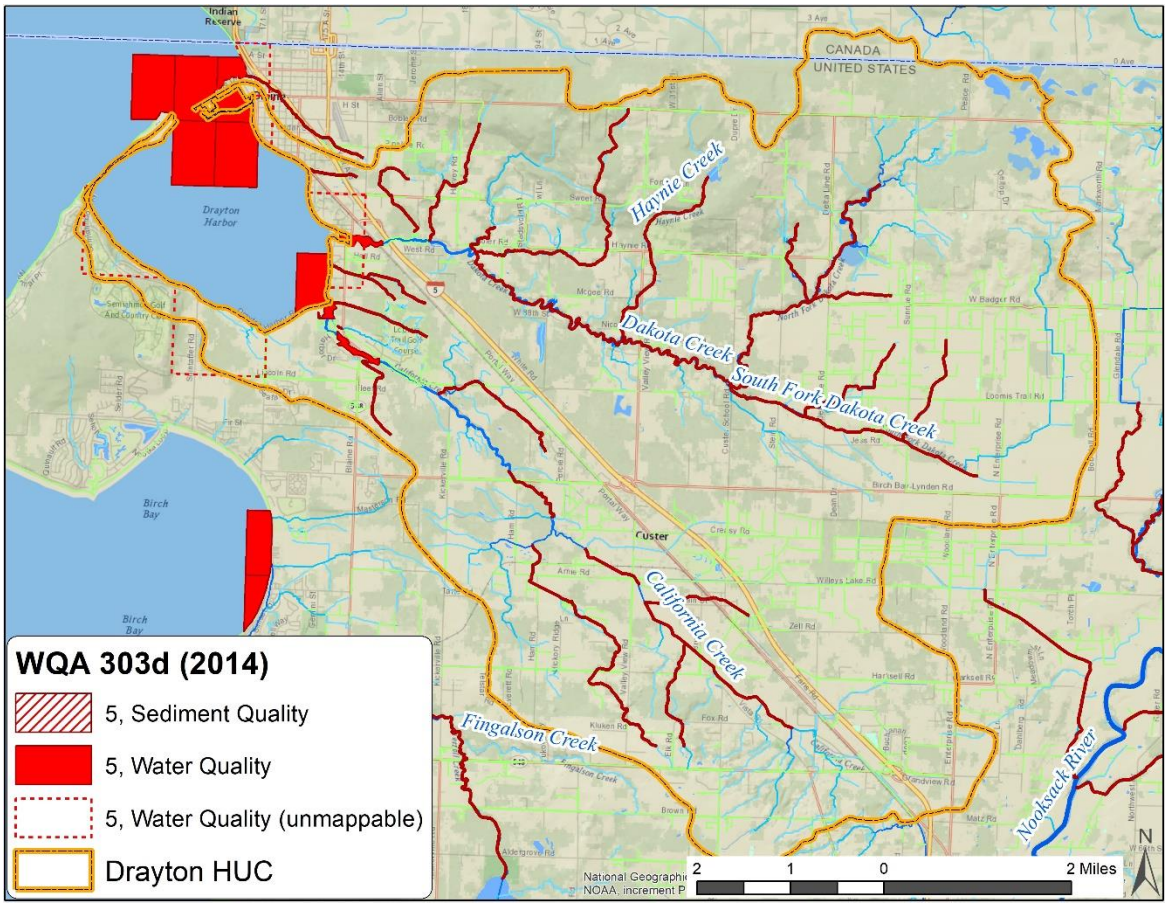

Figure 21. Map of Drayton Harbor watershed

Updating/Implementing: Drayton Harbor proposed bacteria TMDL

Summary/Context Info:

In 1988, Washington State Department of Health began closing the shellfish growing areas in Drayton Harbor based on a trend of deteriorating water quality (Figure 19). The closures ultimately resulted in the entire harbor being closed for harvest by 1999. Local concerns from local stakeholder prompted clean up actions that began the interest in conducting a bacteria TMDL. Ecology completed the draft TMDL technical study in 2009 indicating the need to continue to reduce bacteria pollution to protect shellfish harvest beneficial use in Drayton Harbor. Since 2004, approximately 2,150 acres of shellfish growing area were upgraded to

"approved" status for harvest. The work of project partners proves the efficacy of pollution control actions, however, freshwater tributaries (primarily Dakota and California creeks) currently do not meet contact recreation criteria. In 2020, Ecology began collaborating with stakeholders to complete the TMDL Implementation Plan. The TMDL is on EPA's WQ-27 priority list. Ecology's current efforts to reduce FC pollution Drayton Harbor tributaries is funded through the same NEP grant project employed in the lower Nooksack basin.

Partner Coordination

- **Whatcom Clean Water Program (WCWP):** As with the Lower Nooksack basin, WCWP partners coordinate to identify areas with elevated bacteria levels and follow up pollution control. Water quality data collected in partnership are available through an interactive online map administered by the Whatcom Conservation District (WCD). Sampling efforts incorporate ambient and targeted events, and experimental studies. BFO's TMDL Coordinator is evaluating the existing Drayton Harbor FC TMDL, and, with input from WCWP partners and others, is considering updating the plan. Recent analysis relating *E.coli* to fecal coliform is underway. Additional discussion of pursuing an Alternative Restoration Plan, or similar Pollution Control Plan will:
    - Detail effective and continued water quality improvement actions;
    - Identify trends water quality trends;
    - Identify segments and statement of problem causing the impairment;
    - Describe pollution controls and how they will achieve water quality standards;
    - Estimate the time when water quality standards will be met;
    - Schedule the continued implementation of pollution controls;
    - Endorse continued monitoring to track effectiveness of pollution controls; and
    - Commit to revise pollution controls, as necessary.

Priority Actions:

Education and Outreach

- BFO's TMDL Lead has consulted with WCWP partners, local Tribes, the Drayton Harbor Shellfish Protection District and others seeking feedback on the proposed TMDL update. Most of those contacted were supportive, but several had concerns about the need, the cost, and/or the scope of the project.

Financial Assistance

- **General Sources:** Actions are currently funded through local and state government, some of which rely on federal programs such as NEP.

- **Other Federal and State:** Additional funding such as 319 and Centennial grants will be utilized upon EPA approval of the pollution control plan currently in progress.
- By completing the Drayton Harbor TMDL might improve eligibility or competitiveness for grant funding aimed at implementing measure that would reduce fecal coliform and improve stream habitat.

Partner Coordination

- **Quarterly meetings with shellfish advisory committees:** BFO TMDL and Nonpoint staff will participate in Drayton Harbor Shellfish Protection District meeting and events will to meet with the WCWP partnership. Project partners engage local landowners to identify and prevent bacterial pollution.

Pollution Identification/Watershed Evaluating

- We will conduct two Watershed Assessments during the reporting period, primarily in areas where livestock operations are numerous, during the fall and winter.
- We will conduct source identification surveys and site visits during the fall and winter 2021-2022, primarily during wet periods with water is running off field and intermittent streams and ditches.

Compliance Activities

- **Watershed Assessments:** BFO Staff will conduct at least 1 watershed assessment between October 1, 2021 and March 31, 2022 to identify high priority sites for possible compliance action. Results will be shared with partners.
- **Complaints and Referrals:** BFO staff receive cases through complaints by citizens, or through referrals from our partners.
- **Follow-up from previous years:** As part of the WCWP fall strategy, BFO Staff typically contact from five to ten non-dairy livestock operators from the previous winter, reminding them to take action to avoid discharge violations, and follow up on those contacts as needed.
- **Enforcement:** Although Ecology does not establish targets for enforcement actions, in DH tribs. we typically send two to four warning letters and one or two formal enforcement actions per year. (Notices of Violation, Immediate/Administrative Orders and Notices of Penalty).

Monitoring Activities

- BFO field staff conduct routine sample runs to identify streams or reaches that have high FC concentrations, and collect samples from streams, ditches and runoff from properties to identify sources of manure-contaminated runoff.
- BFO Staff will collect and analyze for FC about 60 samples from the Drayton Harbor tribs. over the next year.

Samish River and Samish Bay

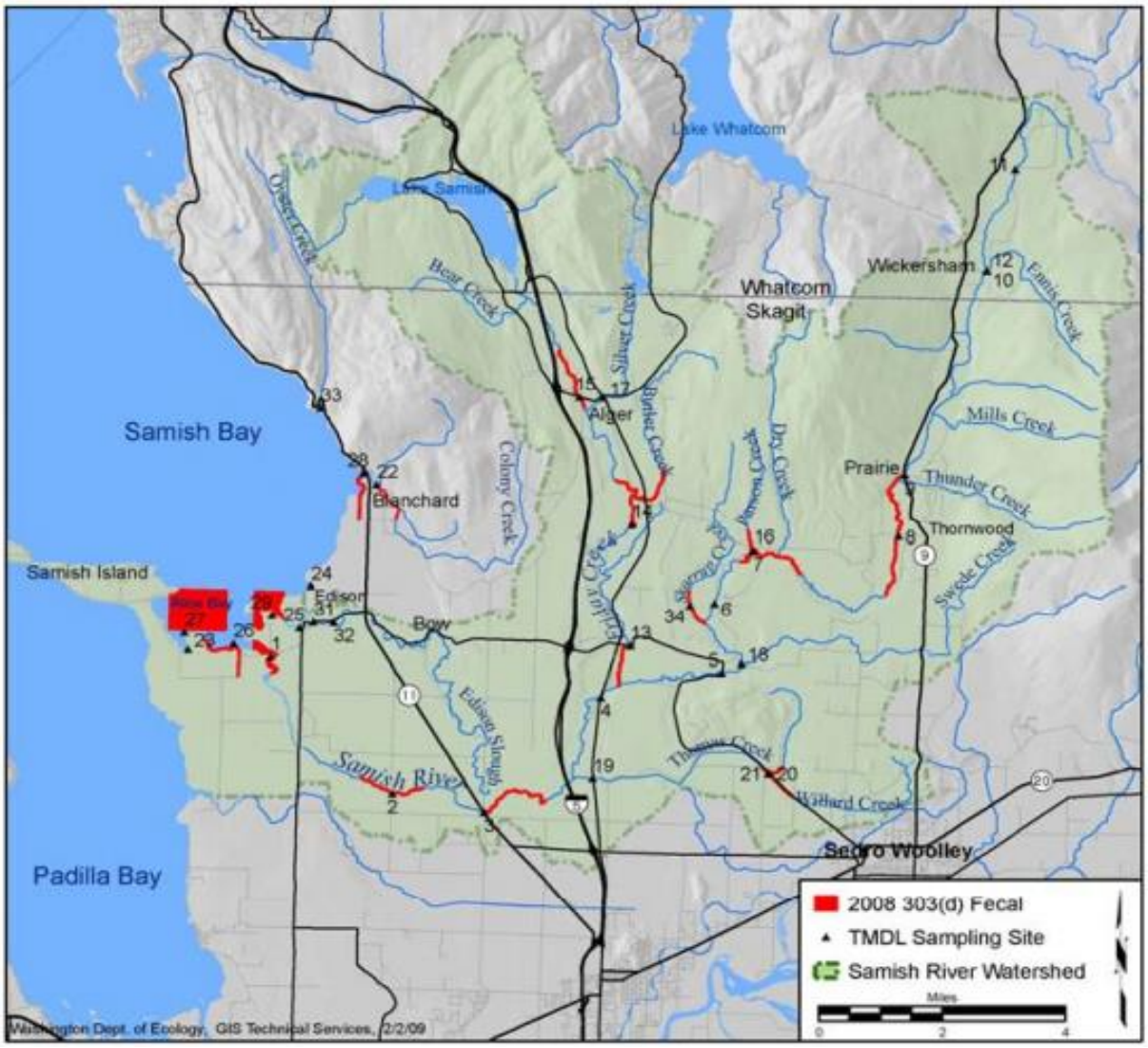

Figure 22. Map of Samish Bay Watershed

Implementing the TMDL: Samish River Fecal Coliform TMDL – 2009

Summary/Context Info:

The Samish River is the main water body flowing into Samish Bay. Samish Bay supports several of the largest and most productive shellfish growing areas in north Puget Sound, including several commercial growers of oysters and clams that depend upon clean water for their livelihoods.

The Samish River FC TMDL was published in 2009 because the Samish River and its tributaries were discharging too much fecal coliform bacteria to meet state water quality standards. Bacterial pollution degrades the marine waters of Samish Bay and limits the area open for safe commercial shellfish harvest and recreational uses. The Clean Samish Initiative (CSI) was formed in 2010, and in 2012 Skagit County received NEP funding to form a PIC program in cooperation with local and state partners.

After four years of focused work CSI reduced the number of pollution closures in Samish Bay from about ten per year to two from 2015 through 2018 (Figure 20). With similar effort, it has been difficult to get to zero closures, as the most obvious and egregious examples of poor livestock and manure management have been identified and addressed. The situation with OSS compliance has evolved on a similar course.

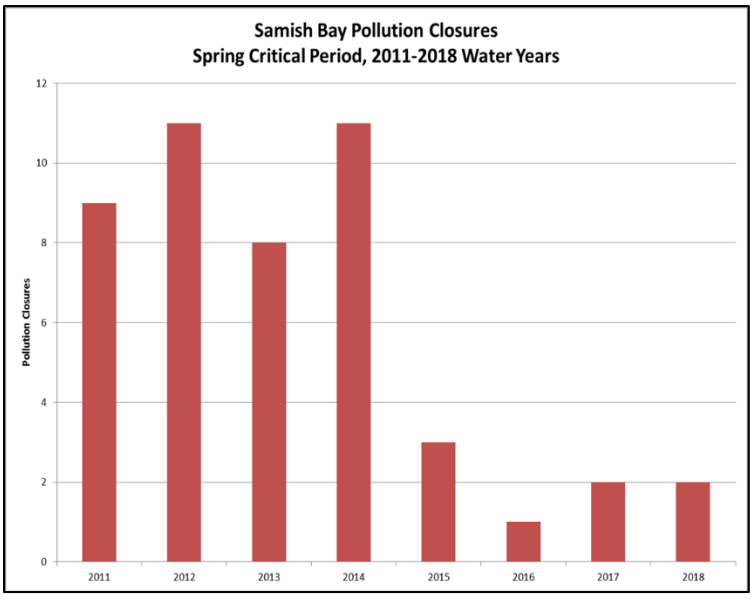

Figure 23. Number of pollution closures in Samish Bay (2015-2018)

Priority Actions:

Education and Outreach

- BFO Nonpoint Staff will initiate and participate in two outreach events and educational activities (summer and fall 2021), in cooperation with CSI partners.
- BFO Staff will send outreach letters to leaders of local agricultural organizations when issuing informal and formal enforcement actions to operators in the lower Nooksack watershed. The purpose is to increase awareness of our compliance work, build trust and develop cooperative relationships.
- Ecology staff will participate in four CSE Executive Committee meetings per year, where we discuss water quality trends, set overall priorities, review important cases, and set funding goals.

Financial Assistance

- In Skagit County financial assistance for livestock operators in the Samish basin comes primarily from the Skagit Conservation District (SCD). When BFO Nonpoint Compliance staff discuss discharge violations with landowners, we typically offer them the option of contacting SCD for technical and financial assistance with funds from the Washington State Conservation Commission and Natural Resources Conservation Service (NRCS). We will be working to provide additional options for landowners with funding for BMPs through Ecologies Detailed Implementation Fund (DIF) or other Ecology programs, such as 319 and Centennial grants.

Partner Coordination

- As with the WCWP, BFO Nonpoint Staff collaborates with CSI local, state and federal partners to address FC pollution from dairies, non-dairy livestock, OSS Systems, and wildlife. We will continue to engage non-dairy livestock operators that are discharging or at high risk of a discharge, through technical assistance, referrals to partners, warnings, or formal compliance actions.

Pollution Identification/Watershed Evaluating

- **Watershed Assessments:** BFO Staff will conduct one to two watershed assessments in the Samish watershed between October 1, 2021 and March 31, 2022 to identify high

priority sites for possible compliance action. Monitoring data is pooled and summarized by CSI and displayed on an updated on Skagit County's web site.

Compliance Activities

- **Complaints and Referrals:** BFO staff receive cases from ERTs complaints, through complaints by citizens, or through referrals from our partners.
- **Follow-up from previous years:** BFO Staff typically contact from ten to twenty non-dairy livestock operators from the previous winter, reminding them to take action to avoid discharge violations, and follow up on those contacts as needed. About half of our complaints/referrals each year are from operators we have worked with before.
- **Enforcement:** Although Ecology does not establish targets for enforcement actions, we typically send five to ten warning letters and one to two formal enforcement actions per year. (Notices of Violation, Immediate/Administrative Orders and Notices of Penalty).

Monitoring Activities

- BFO field staff conduct routine sample runs to identify streams or reaches that have high FC concentrations, and collect samples from streams, ditches and runoff from properties to identify sources of manure-contaminated runoff.
- FO Staff will collect and have analyze for FC about 50 water samples in the Samish watershed in the next year.

Whatcom Creek

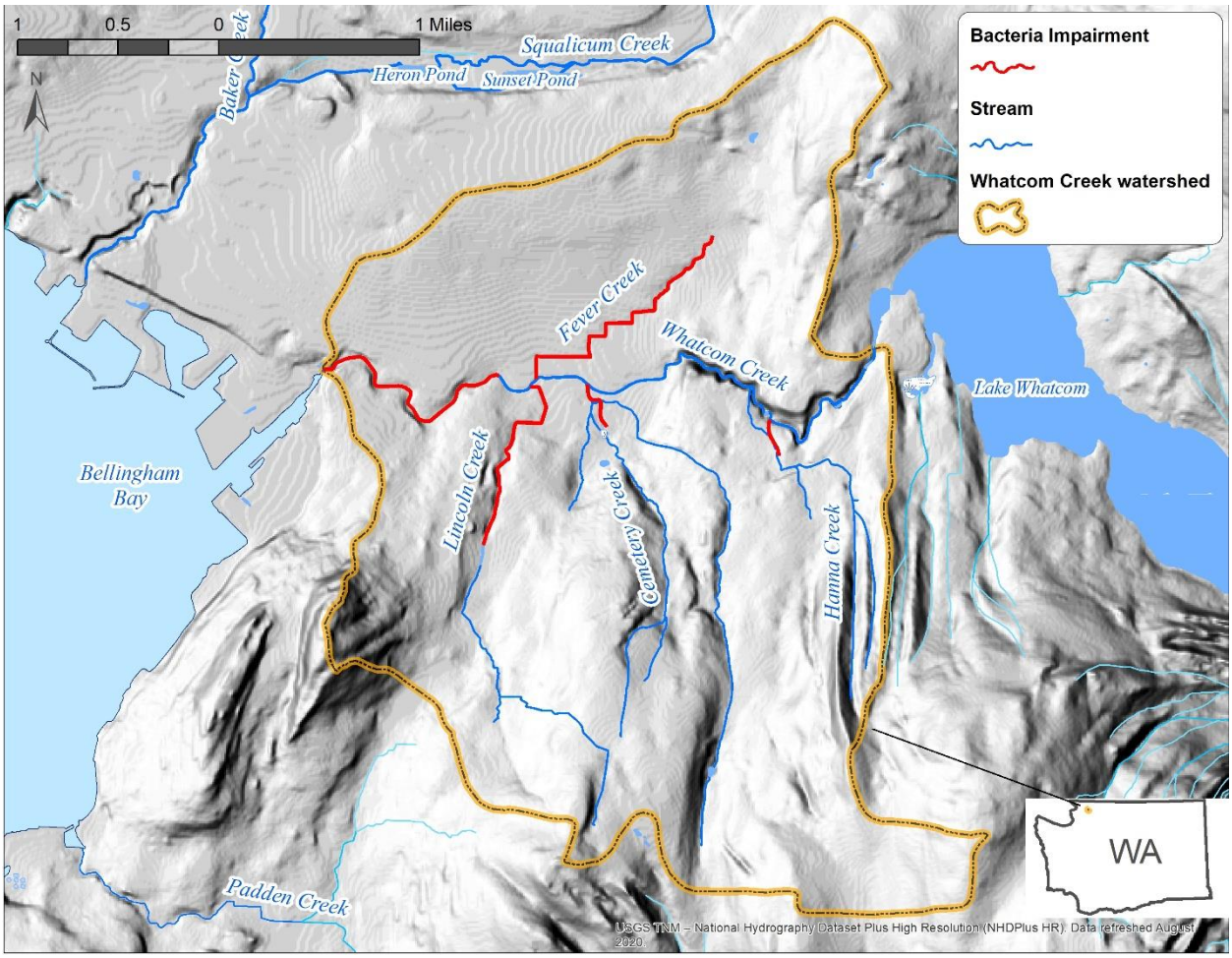

Figure 24. Whatcom Creek watershed with assessment units identified — impaired 303(d) for bacteria

Implementing: Whatcom Creek proposed bacteria TMDL

Summary/Context Info:

In 2001 the City of Bellingham and Ecology worked together to produce a TMDL technical report for informed implementation (Figure 22). Since 2001, the City of Bellingham water quality monitoring indicates improving water quality trends in many locations throughout the Whatcom Creek watershed. Improving trends are largely attributed to effective actions

required by MS4 general stormwater NPDES permit holders. Actions carried out through MS4 permit requirements are the primary mechanisms that reduce bacterial pollution. In 2020, Ecology began collaborating with stakeholders to complete the TMDL Implementation Plan. The TMDL is on EPA's WQ-27 priority list.

Priority Actions:

Education and Outreach

- **Pet Waste:** The City of Bellingham plans to conduct additional public surveys aimed at pet owners to better understand waste handling practices and prioritize watershed areas with the greatest risk of associated pollution problems.
- **Stormwater Pollution Prevention:** The City will also increase efforts to educate citizens of stormwater related pollution prevention activities.

Financial Assistance

- **Local:** Actions are generally funded through local governmental programs.
- **State and Federal:** Additional funding such as 319, Centennial, and Stormwater Financial Assistance Program grants will be utilized upon EPA approval of the pollution control plan currently in progress.

Partner Coordination

- **Local and State:** Project partners including the City of Bellingham and Whatcom County have reviewed the draft TMDL Implementation Plan.
- **State and Federal:** Ecology and the EPA are coordinating the best approach to the Implementation Plan with an approval date no later than 2022. Confirming the nature and use of the fecal coliform to *E. coli* relationship is will be complete in 2021.

Pollution Identification/Watershed Evaluating

- **Annual Reporting:** The City of Bellingham identifies and evaluates through the requirements of the MS4 stormwater NPDES permit and Habitat Restoration Program.

Monitoring Activities

- **Urban Stream Monitoring Program:** The City of Bellingham Urban Streams Monitoring Program collects monthly water quality samples throughout the watershed. The Program is popular and favorable to continue.
- **Fecal Coliform and *E. coli*:** The City is coordinating additional fecal coliform and *E. coli* sampling for 2021. Paired bacterial indicator sampling builds off of the technical TMDL and addresses the change in indicators from fecal coliform to *E. coli* for freshwater contact recreation.
- **Microbial Source Tracing:** By 2022, the City of Bellingham plans to identify the type of animal contributing to bacterial pollution in their jurisdictional watersheds. The information will be used to target and prioritize pollution prevention actions.

Appendix C

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April 21, 2022

TO: Forest Practices Board

FROM: Brandon Austin, Forest Policy

Lead SUBJECT: Clean Water Act

Milestone Update

The Washington State Department of Ecology (Ecology) committed to providing the Forest Practices Board (Board) with periodic updates on progress being made to meet corrective milestones established for retaining the Clean Water Act 303(d) Assurances (Assurances) for the Forest Practices Rules (Title 222 WAC) and Programmatic Habitat Conservation Plan (HCP, 2006). The last update to the Board was at the May 2021 Board meeting. Since that time Ecology's Director sent the attached letter to the Board extending the Assurances until December 2022.

In 2009, Ecology reviewed the Forest Practice Rules and concluded the Adaptive Management Program (AMP) needed to provide more information on the effectiveness of the rules in protecting water quality. Corrective milestones were developed for both research development and program improvements within the AMP and a 10-year extension to the Assurances was granted. Ecology granted a second extension of the Assurances in 2019, to December 2021. The decision to extend was largely based on the completion of *Effectiveness of Experimental Riparian Buffers on Perennial Non-fish-bearing Streams on Competent Lithologies in Western Washington (McIntyre et al, September 2018. CMER #18-100)* and the charter timeline development and formation of the *Timber Fish and Wildlife Policy Technical Type N Prescriptions Workgroup*. A third extension, to December 2022, was granted based on the Boards direction to issue a CR101, TFW Policy's work towards recommending Type Np rule prescriptions, and the AMP's establishing a process to address the concerns raised in the State Auditor's review of the program.

Ecology continues to support the AMP and track the progress of the corrective milestones. Five research milestones remain, with four projects currently underway and one project off-track. Of the original program implementation milestones, one is

currently underway with completion expected in 2022 and one is not progressing (awaiting development of the water typing rule and associated Board Manual).

In the last year CMER completed and delivered final reports to TFW Policy for the following projects:

- *Effectiveness of Experimental Riparian Buffers on Perennial Non-fish-bearing Streams on Competent Lithologies in Western Washington– Phase 2 (Nine Years after Harvest) – July 2021*
- *Effectiveness of Forest Practices Buffer Prescriptions on Perennial Non-fish-bearing Streams on Marine Sedimentary Lithologies in Western Washington – August 2021*
- *Identifying Distribution Boundaries at the Upper Extent of Fish in Streams Using Environmental DNA – May 19, 2021*
- *Wetland Intrinsic Potential (WIP) Tool – May 20, 2021*

Enclosed are two tables showing the milestones and their current status. Points of note are highlighted in red and reflect changes since our last briefing in 2021:

- Table 1 shows the CMER Research Milestones. Scoping, study design, implement and complete (final report) are used to indicate the different steps of a Clean Water Act (CWA) project and occur in different calendar years. A CWA project may have completed scoping and study design but be delayed or off-track for implementation or completion.
- Table 2 shows the non-CMER project milestones. These milestones are implemented outside of the Cooperative Monitoring, Evaluation, and Research (CMER) program and are largely within the control of the Forest Practices Operations Section of the Department of Natural Resources (DNR) or the Timber Fish and Wildlife Policy Committee (Policy).

Please contact me if you have any questions or concerns (360) 890-5882.

Enclosures: Table 1. Summary CMER Research Milestones and their current status

Table 2. Summary Non-CMER Project Milestones and their current status. Director Watson letter to the Forest Practices Board – December 3, 2021

Table 1. Summary CMER Research Milestones and their current status.

CMER Research Milestones		
Description of Milestone		**Status as of March 2022**
2009	Complete: Hardwood Conversion – Temperature Case Study (Completed as data report)	**Completed** June 2010
	Study Design: Wetland Mitigation Effectiveness	**Completed** October 2010
2010	Study Design: Type N Experimental in Incompetent Lithology	**Completed** August 2011
	Complete: Mass Wasting Prescription-Scale Monitoring	**Completed** June 2012
	Scope: Mass Wasting Landscape-Scale Effectiveness	**Milestone Eliminated**
	Scope: Eastside Type N Effectiveness	**Completed** November 2013
2011	Complete: Solar Radiation/Effective Shade	**Completed** June 2012
	Complete: Bull Trout Overlay Temperature	**Completed** May 2014
	Implement: Type N Experimental in Incompetent Lithology	**Completed** October 2017
	Study Design: Mass Wasting Landscape-Scale Effectiveness	**Milestone Eliminated**
2012	Complete: Buffer Integrity-Shade Effectiveness	**Completed** November 2018
	Literature Synthesis: Forested Wetlands Literature Synthesis	**Completed** January 2015
	Scoping: Examine the effectiveness of the RILs in representing slopes at risk of mass wasting.	**Completed** April 2017
	Study Design: Eastside Type N Effectiveness	**Completed** March 2018

CMER Research Milestones		
Description of Milestone		**Status as of March 2022**
2013	Scoping: Forested Wetlands Effectiveness Study	**Completed** December 2016
	Wetlands Program Research Strategy	**Completed** January 2015
	Scope: Road Prescription-Scale Effectiveness Monitoring	**Completed** March 2016
	Study Design: Examine the effectiveness of the RILs in representing slopes at risk of mass wasting.	**Underway** Study is being designed and implemented in five separate projects.
	Implement: Eastside Type N Effectiveness	**Underway** Study is in implementation with harvests planned for summer/fall 2021. Implementation through 2027. Study should be complete by 2028.
2014	Complete: Type N Experimental in Basalt Lithology	**Completed** August 2017
	Study Design: Road Prescription-Scale Effectiveness Monitoring	**Completed** February 2017
	Scope: Type F Experimental Buffer Treatment	**Completed** December 2015 Projected completion of study 2028.
	Implementation: Examine the effectiveness of the RILs in representing slopes at risk of mass wasting	**Underway** Complete project 2 with final report in 2022. Complete work projects 3 & 4 with final reports in 2025. Complete project 5 in 2026 with final report in 2027.
	Study Design: Forested Wetlands Effectiveness Study	**Complete** Implementation expected to start spring 2022.
2015	Complete: First Cycle of Extensive Temperature Monitoring	**Completed** April 2019.

	Scope: Watershed Scale Assess. of Cumulative Effects	**Off Track**

CMER Research Milestones		
Description of Milestone		**Status as of March 2022**
		Project intended to follow other effectiveness monitoring studies which are behind schedule. Funding to begin in 2029.
	Scope: Amphibians in Intermittent Streams (Phase III - renamed: Water Temperature and Amphibian Use in Type Np Waters with Discontinuous Surface Flow Project)	**Underway** Expected April 2022
2017	Study design: Watershed Scale Assess. of Cumulative Effects	**Off Track** Expected 2029.
	Study Design: Amphibians in Intermittent Streams (Phase III - renamed: Water Temperature and Amphibian Use in Type Np Waters with Discontinuous Surface Flow Project)	**Underway** Expected in 2025.
2018	Complete: Roads Sub-basin Effectiveness	**Not Progressing** Project to be re-scoped in 2029 with completion in 2032.
	Implement: Watershed Scale Assess. of Cumulative Effects	**Off Track** Implementation in 2030.
	Complete: Type N Experimental in Incompetent Lithology	Complete August 2021
2019	Complete: Eastside Type N Effectiveness	**Earlier Stage Underway** Projected completion in 2028.

Table 2. Summary Non-CMER Project Milestones and their current status.

Non-CMER Project Milestones		
	Summarized Description of Milestone	**Status as of March 2022**
2009	July 2009: CMER budget and work plan will reflect CWA priorities.	**Completed** October 2010
	September 2009: Identify a strategy to secure stable, adequate, long-term funding for the AMP.	**Completed** October 2010
	October 2009: Complete Charter for the Compliance Monitoring Stakeholder Guidance Committee.	**Completed** December 2009
	December 2009: Initiate a process for flagging CMER projects that are having trouble with their design or implementation.	**Completed** November 2010 Process not being used in Policy or CMER.
	December 2009: Compliance Monitoring Program to develop plans and timelines for assessing compliance with rule elements such as water typing, shade, wetlands, haul roads and channel migration zones.	**Completed** March 2010
	December 2009: Evaluate the existing process for resolving field disputes and identify improvements that can be made within existing statutory authorities and review times.	**Completed** November 2010
	December 2009: Complete training sessions on the AMP protocols and standards for CMER, and Policy and offer to provide this training to the Board. Identify and implement changes to improve performance or clarity at the soonest practical time.	**Completed** May 2016
2010	January 2010: Ensure opportunities during regional RMAP annual reviews to obtain input from Ecology, WDFW, and tribes on road work priorities.	**Completed** September 2011
	February 2010: Develop a prioritization strategy for water type modification review.	**Completed** March 2013
	March 2010: Establish online guidance that clarifies existing policies and procedures pertaining to water typing.	**Completed** March 2013

	June 2010: Review existing procedures and recommended any improvements needed to effectively track compliance at the individual landowner level.	**Completed** November 2010

Non-CMER Project Milestones		
	Summarized Description of Milestone	**Status as of March 2022**
	June 2010: Establish a framework for certification and refresher courses for all participants responsible for regulatory or CMP assessments.	**Completed** September 2013
	July 2010: Assess primary issues associated with riparian noncompliance (using the CMP data) and formulate a program of training, guidance, and enforcement believed capable of substantially increasing the compliance rate.	**Completed** August 2012
	July 2010: Ecology in Partnership with DNR and in Consultation with the SFL advisory committee will develop a plan for evaluating the risk posed by SFL roads for the delivery of sediment to waters of the state.	**Completed** December 2018
	July 2010: Develop a strategy to examine the effectiveness of the Type N rules in protecting water quality at the soonest possible time that includes: a) Rank and fund Type N studies as highest priorities for research, b) Resolve issue with identifying the uppermost point of perennial flow by July 2012, and c) Complete a comprehensive literature review examining effect of buffering headwater streams by September 2012.	**Not Progressing** Part 'b' to be addressed after water typing system rule and Board Manual work is completed.
	October 2010: Conduct an initial assessment of trends in compliance and enforcement actions taken at the individual landowner level.	**Completed** November 2010
	October 2010: Design a sampling plan to gather baseline information sufficient to reasonably assess the success of alternate plan process.	**Completed** December 2014
	December 2010: Initiate process of obtaining an independent review of the Adaptive Management Program.	**Completed** February 2021
2011	December 2011: Complete an evaluation of the relative success of the water type change review strategy.	**Completed** March 2013
	December 2011: Provide more complete summary information on progress of industrial landowner RMAPs.	**Completed** September 2011

201 2	October 2012: Reassess if the procedures being used to track enforcement actions at the individual land owner level provides sufficient information to	**Completed** June 2012

Non-CMER Project Milestones		
	Summarized Description of Milestone	**Status as of March 2022**
	potentially remove assurances or otherwise take corrective action.	
	Initiate a program to assess compliance with the Unstable Slopes rules.	**Completed** October 2017
2013	November 2013: Prepare a summary report that assesses the progress of SFLs in bringing their roads into compliance with road best management practices, and any general risk to water quality posed by relying on the checklist RMAP process for SFLs.	**Underway** State, Tribal, and Small Landowner caucus staff cooperatively developed a plan to conduct online and field surveys to inform the condition of SFL roads. Implementation began in 2019. Due to the COVID-19 Pandemic the field survey is about 83% complete. Completion expected in 2022.

Status terminology:

"Completed" - milestone has been satisfied (includes those both on schedule and late). **"On Track"** - work is occurring that appears likely to satisfy milestone on schedule. **"Underway"** - work towards milestone is actively proceeding, but likely off schedule.

"Earlier Stage Underway" – project initiated, but is at an earlier stage (off schedule) then the listed milestone.

"Not Progressing" - no work has begun, or work initiated has effectively stopped.

"Off Track" - 1) No work has begun and inadequate time remains, 2) key stakeholders are not interested in completing the milestone, or 3) attempt at solution was inadequate and no further effort at developing an acceptable solution is planned.

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December 3, 2021

Forest Practices Board Members
Sent by email only: patricia.anderson@dnr.wa.gov

Dear Forest Practices Board Members:

Twenty-two years have passed since the adoption of the 1999 Forests and Fish Report. During the intervening years, the Department of Ecology (Ecology), with the support of the U.S. Environmental Protection Agency (EPA), has maintained the commitment to provide the Clean Water Act Assurances (Assurances) for forest practices in Washington State. The Assurances provided promised state and federal guarantees covering both the Clean Water Act as well as the Endangered Species Act, to serve as a predictable and a consistent regulatory framework for the forest industry.

The Assurances require Ecology's considered determination that the Adaptive Management Program (AMP) established under the Timber, Fish, and Wildlife (TFW) agreement is effective at improving water quality in the short term and meeting water quality standards in the longer term. For Ecology to continue to uphold the assurances, we must determine that the AMP is functioning as originally envisioned in order to meet these objectives.

As a result of Forests and Fish, we have seen improvements across lands covered by the Forest Practices Act. Through the Road Maintenance and Abandonment Planning (RMAP) requirement, nearly all RMAP plans were completed by the October 31, 2021, deadline, resulting in more than 8,300[1] fish passage barriers corrected, opening more than 5,100 miles of fish habitat. The Washington Department of Natural Resources (DNR) is working with landowners to make sure the few remaining obligations are completed. The Cooperative Monitoring, Evaluation, and Research Committee has completed many studies. The Policy Committee and the Board have implemented and refined the Desired Future Conditions as well as provided two template alternate plans for small forest landowners.

Washington's AMP serves as a model for others. Stakeholders in Oregon have recently committed to a similar process to address regulatory practices within the forestry industry. The Board's motion to direct staff to file a CR-101, to notify the public of their intent to amend existing rules related to non-fish bearing perennial steams (Type Np riparian buffers) in Western Washington, is an encouraging signal to me that the TFW stakeholders are committed to water quality, TFW, and the AMP.

However, there is still much work that remains to be done. The TFW parties must consider process improvements to ensure that the AMP functions effectively and efficiently into the future. It is also imperative that the parties move expeditiously to develop a proposal for Type Np buffer prescriptions. Because I believe the parties are committed to accomplishing both things, Ecology has concluded that it

[1] 2020 Forest Practices Habitat Conservation Plan Annual Report, Chapter 11

is appropriate to allow time for the adaptive management process to demonstrate measurable progress over the next year.

Documented Problems with the Adaptive Management Program

On October 9, 2009, Ecology conditionally extended the Clean Water Act Assurances for a ten-year period. The extension was conditioned on the AMP meeting a scheduled set of milestones for program improvements and research development.

A detailed set of findings accompanied the 2009 extension decision. Those findings identified a number of existing problems with the adaptive management process:

> *The CWA assurances were established on the condition that an effective adaptive management process (AMP) would be established and maintained. A healthy and effective AMP is central to the ability of Ecology to offer the CWA assurances. The AMP needs to provide a scientific framework for testing whether the forest practices rules are effective in protecting water quality, and for identifying any changes needed to rules not found effective. Substantial progress has been made through establishing the structure and formal operational procedures of the AMP. An AMP board manual was developed to further outline how the program should operate, and significant funding and effort has occurred to get scientific studies underway to test various portions of the rules and guidelines governing forest practices.*
>
> *In spite of these substantial efforts, the AMP has not completed any studies that directly test the effectiveness of the rules in protecting water quality. The science arm of the AMP has also been largely unsuccessful in providing research findings the Forest and Fish Policy Committee (Policy) and the Forest Practices Board (Board) will reliably use to validate or to revise the forest practices regulations and guidance. There are significant problems with the ability of the policy and science arms of the AMP to work together to test and revise the rules in a timely and effective manner. Part of the problem is simply inherent in a program that seeks to develop consensus among stakeholders with competing interests. But the problems also seem rooted in the foundation of the AMP itself. AMP participants frequently disagree about the appropriate roles of science and policy, as well as what role the initial negotiated forests and fish rules should play in evaluating the acceptability of future changes. These disagreements appear in part to stem from a lack of clarity in the underlying rules and guidance. Combined with poor communication between the science and policy arms of the program, this is compromising the AMP's effectiveness. To the credit of its participants, strategic planning efforts are underway with the intention of identifying and correcting the shortcomings of the program. The Policy committee has developed a strategic plan…with five broad goals supported by multiple objectives and specific tasks designed to revitalize the adaptive management program. There is also general understanding that testing the effectiveness of the rules for protecting water quality must be a top priority if Ecology is to continue the assurances.*
>
> *The state legislature (RCW 76.09.370) directed that forest practices rules covering aquatic resources only be adopted or changed by the Board where those changes are consistent with recommendations resulting from a scientifically based adaptive management process. The stated purpose of having the adaptive management process is to make adjustments as quickly as possible to portions of the forest practices rules that are not achieving resource objectives. Both as a participant and a reviewer, Ecology has concluded that fundamental improvements are needed to ensure the rules and associated programs will be tested and revised in a timely*

manner based on scientific inquiry, as intended by the legislature and consistent with CWA assurances.

On February 23, 2021, the State Auditor issued a performance audit report describing the significant issues that continue to plague the AMP. The Auditor's Office concluded that the program is not "operating as intended" and that, without needed changes, the "program would continue to languish." The Auditor's Office recognized that, while the program was "designed to allow nimble changes to forest practices rules," the program has in fact only resulted in two science-based rule revisions since 2006. The Audit Report contains a number of recommendations designed to get the program on track so that it can perform its functions as intended.

Ecology is aware that the Forest Practices Board has submitted a budget request to address some of the recommendations contained in the Audit Report, and Ecology commends the Board's clear commitment to doing so. In addition, Ecology is grateful that the Public Lands Commissioner is convening a meeting of TFW principals so that we can address these issues at the highest levels of accountability within our respective organizations. Of course, the TFW stakeholders themselves must also commit to program improvement. This will necessarily entail an openness to changing current aspects of the program, such as revisiting the unanimous voting requirement and/or streamlining the dispute resolution process. Because fixing problems with the AMP is so integrally tied to the Clean Water Act Assurances, making clear and measurable progress toward addressing the Auditor's recommendations is necessary to provide Assurances that the forest industry is making progress towards protecting water quality.

Rulemaking for Type Np Streams

The maintenance of forested buffers is critical to protect water quality. Under current rules, non-fish bearing perennial streams (Type Np) receive less forested buffers than fish bearing streams. As a result, the 2009 findings recognized that "the prescriptions associated with the Type Np rules have the greatest potential risk of violating the water quality standards."

On December 2, 2019, Ecology issued another conditional extension of the Clean Water Act Assurances. In doing so, Ecology concluded that the Type Np Hard Rock study[2] clearly demonstrates the need to strengthen the Type Np riparian rules to protect water quality. Ecology noted that the TFW Policy Committee and the Forest Practices Board "recently agreed to a workgroup process aimed at developing new rule prescriptions." [3] In light of this commitment to rulemaking by TFW stakeholders, Ecology extended the Assurances for an additional two years so that the Board would have ample time "to reach an agreement on the Type N rules." As evidence that the Adaptive Management Program was working, Ecology noted that there would need to be a CR101 filing in the summer of 2021 and a draft CR102 distributed for public review by the end of November 2021.

While we are pleased that the Board directed staff to issue a CR101 at its November 2021 meeting, Washington Department of Natural Resources (DNR) staff have not distributed a draft CR102, and there is no feasible pathway for them to distribute a draft by the end of this year. It is clear that the Board did not meet the conditions included in Ecology's 2019 extension of the Assurances insofar as DNR has not issued a draft CR102. Nevertheless, I have spoken with representatives of the TFW stakeholders and perceive a genuine commitment to moving this rulemaking forward. Despite this commitment, it is

[2] *"Effectiveness of Experimental Riparian Buffers on Perennial Non-fish-bearing Streams on Competent Lithologies in Western Washington", McIntyre et al, September 2018, CMER #18-100*
[3] Timber Fish and Wildlife Policy Technical Type N Prescriptions Charter – March 7, 2019

evident that we cannot make progress without meaningfully addressing the issues identified in the 2021 Audit Report. Achievement of our objectives will require a concerted effort by all TFW stakeholders in the TFW process over the next several months.

Clean Water Act Assurances

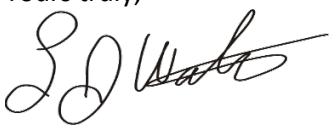
Ecology has determined that it is appropriate to allow time for the AMP to make measurable progress implementing the 2021 Audit Report recommendations and for Policy to make a final recommendation on Type Np buffer prescriptions to the Board, with the Board directing Board staff and DNR to develop a rule package and prepare the CR102. Achievement of these objectives during this extension of the assurances for an additional year will help all of us continue to meet the obligations we committed to when we signed onto the groundbreaking Forests and Fish Agreement.

By December 31, 2022, Ecology must submit to EPA and the National Marine Fisheries Service/United States Fish and Wildlife Service (Services) an updated statewide non-point source pollution management plan under Section 319 of the Clean Water Act. EPA and the Services will review the non-point plan under both the Clean Water Act and Endangered Species Act following its submittal at the end of 2022.

The performance of the Forests and Fish Agreement and associated Forest Practices Rules are key components of the non-point plan regarding the protection of water quality on forest lands. Therefore, the achievements over the next year will help us evaluate the effectiveness of the AMP as we complete the plan. In the plan, Ecology must document whether the rules are effective in protecting Washington's waters, and this determination is key to the Clean Water Act Assurances. If the rules are not achieving the resource objectives, Ecology must document the steps it will take instead to address the protection of water quality.

My sincere hope is that the TFW stakeholders will use the next year to demonstrate that we can work together to improve the Adaptive Management Program so that forest lands are managed in a way that protects water quality now and into the future. I look forward to working with all TFW stakeholders to accomplish our important shared mission of providing regulatory certainty for the industry while protecting our cherished natural resources.

Yours truly,



Laura Watson
Director

cc: Hilary Franz, Commissioner of Public Lands, DNR
Michelle Pirzadeh, Acting Regional Administrator/Deputy Regional Administrator, EPA Region 10