Year 2020 Report on Activities to Implement *Washington State's Water Quality Plan to Control Nonpoint Source Pollution*

May 2021

Purpose of Document

This *Year 2020 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.

COVID-19 immensely changed the way Ecology and many of our partners accomplished our work this year. With the majority of Ecology staff working remotely, staff members had to change the way they performed watershed evaluations, organized meetings, and interacted with stakeholders. Despite these challenges, Ecology staff was able to maintain strong relationships with partners and accomplish many water quality improvement goals over the last year.

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 2020 319 Grant Distribution

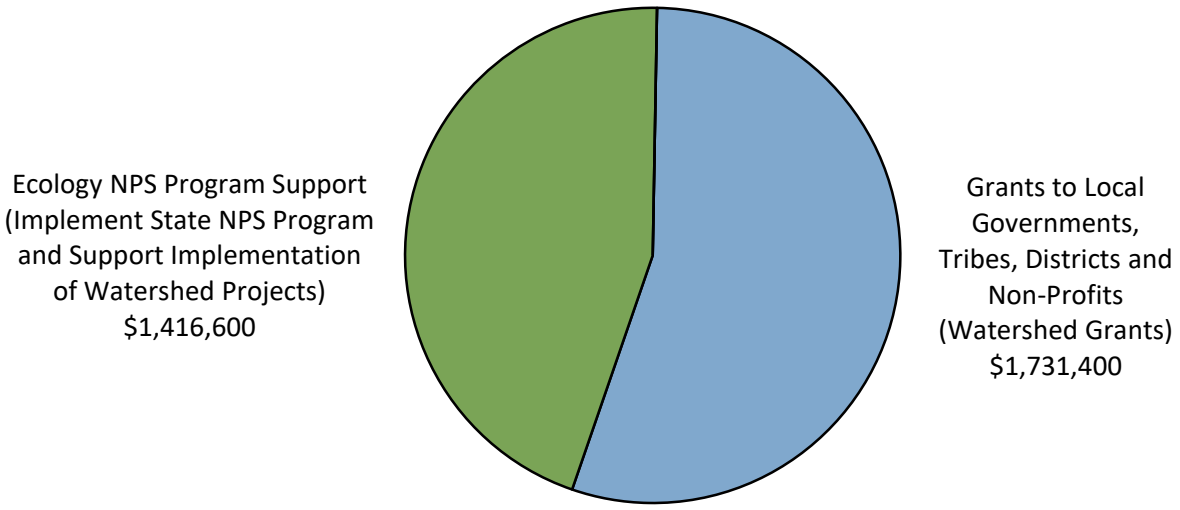
The federal fiscal year (FFY) 2020 Section 319 allocation of $3,148,000 was applied towards state fiscal year (SFY) 2021, and was again distributed among three major work plan elements within Ecology as in SFY2020: Ecology's Nonpoint Program, Direct Implementation Fund, and Water Quality Combined Funding Program.

2.1 Ecology's Water Quality's Nonpoint Program Support

Ecology funded 10.20 staff FTEs in SFY2021 that support the state's nonpoint program with policy development, technical assistance, and project implementation oversight.

SFY 21 Allocation: $3,148,000, **Total EPA: $3,148,000**

Figure 2.1 - 319 Federal Allocations SFY 2021



The above figure shows the distribution of the federal allocation in SFY2021 (FFY19). 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 - (10.2FTE @ $1,416,600)

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

   Ecology is responsible for overseeing and coordinating overall nonpoint plan implementation activities. 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 – **$342,213.**

2. **Financial Administration (.95 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 – **$119,362.**

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 – **$64,605.**

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 – **$155,051.**

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 – **$317,472.**

6. **TMDL and Effectiveness Monitoring (3.05 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 – **$417,897.**

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 319 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 SFY2019).

Ecology works closely with local partner organizations to facilitate implementation, leveraging both DIF and competitive grant programs. The below table lists the DIF projects for 2020.

Direct Implementation Fund (DIF) Projects

Agreement Number	Organization	Project Title	Watershed Plans	Project Short Description	Section 319 Grant
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
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. 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	$76,500

Agreement Number	Organization	Project Title	Watershed Plans	Project Short Description	Section 319 Grant
				acres of existing buffered (reed canary) stream channel will be planted with large(container stock) native trees to improve water quality.	

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:

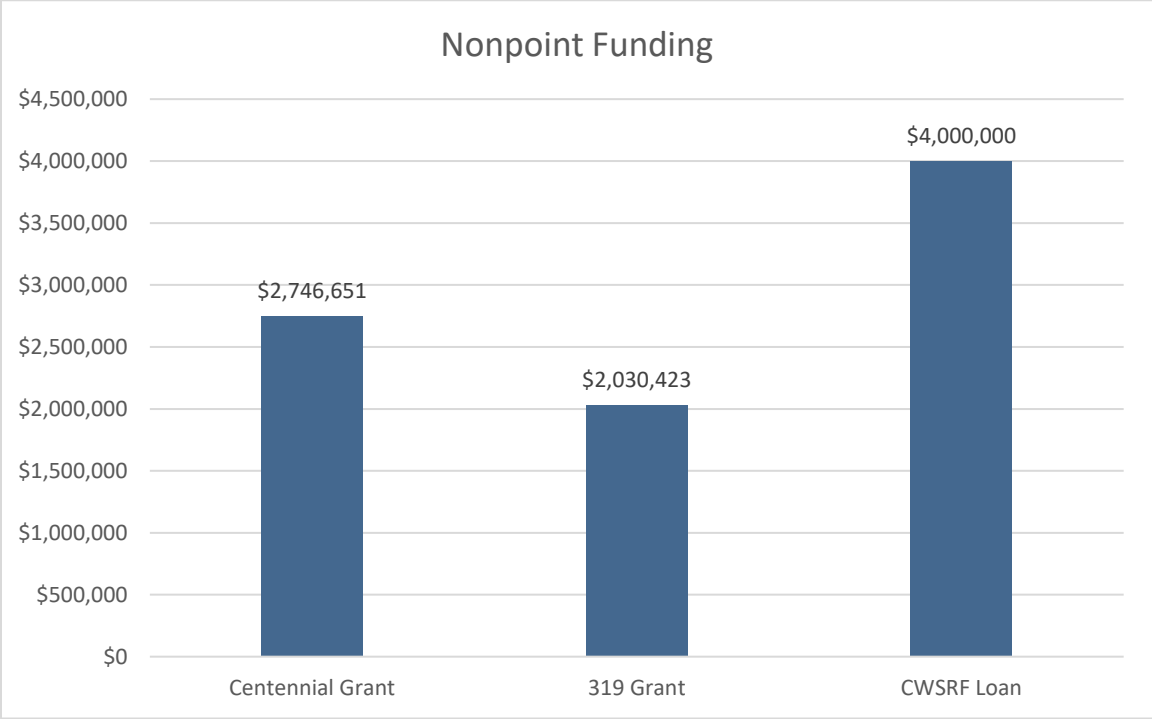
- **Centennial Clean Water Fund** (Centennial) grants for all project types
- **Clean Water Act Section 319** (319) grants for nonpoint
- **Clean Water State Revolving Fund** (SRF) loans for wastewater, nonpoint, and OSS.

    - 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 (SFY2021)

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.

Nonpoint Investments by Funding Source



- $8,777,074 total Ecology investment in nonpoint projects in SFY 2021.
- 9 projects received 319 funding. Two of those projects were offered funding from two sources.
- 8 projects received state funding, in addition to the projects that were identified to satisfy the match requirement for EPA funds.
- 5 projects received matching state funding. Two of those projects were offered funding from two sources.

Project Funding Packages	Number of Projects	319 Offer	Centennial Offer	SRF Offer
Centennial	7		$1,615,002	
Centennial Match	3		$999,364	
CWSRF	1			$3,000,000
Section 319	7	$1,162,708		
Section 319 & Centennial Match	1	$367,715	$132,285	
Section 319 & CWSRF Match	1	$500,000		$1,000,000

Total	**20**	**$2,030,423**	**$2,746,651**	**$4,000,000**

319 Pass-through Funding Summary

- $1,731,400 allocated from EPA for pass-through.
- $2,030,423 awarded
- $2,131,649 identified for state match in SFY 2021. The total two-year projected match amount is $4,112,667.
- This accounts to an over-obligation of $299,023. 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 SFY2021

The following projects were offered funding for the SFY2021 funding cycle. Agreement negotiations began July 1st, 2020.

Application Number	Applicant	Project Title	Watershed Plans	Project Short Description	CWSRF GPR Loan	Centennial Grant	Section 319 Grant
WQC-2021-Adopta-00063	Adopt A Stream Foundation	West Fork Quilceda Creek Water Quality Partnership Tulalip Tribes and AASF	Quilceda/Allen Watershed Management Plan; Snohomish Basin Salmon Conservation Plan; Puget Sound Action Agenda	This project will improve water quality in the West Fork of Quilceda Creek, a 303d listed stream, by installing 12 Large Woody Debris (LWD) and restoring approximately 9.0 acres of native riparian vegetation along 1,880 linear feet of stream. The addition of 9.0 acres of riparian will improve water quality by filtering and absorbing runoff as well as creating a stream canopy. The LWD will scour pools improving ground water interaction and becoming a source of cool water.	$0	$0	$187,454
WQC-2021-Adopta-00064	Adopt A Stream Foundation	Pilchuck River Tributary Buffer Enhancement Partnership; Coon Creek	Pilchuck Temperature and DO TMDL; Lower and Middle Pilchuck River Assessments; Snohomish River Basin Salmon Conservation Plan	The Pilchuck River Tributary Buffer Enhancement Partnership; Coon Creek will improve water quality by restoring approximately 15.0 acres of riparian vegetation along 4,200 linear feet of Coon Creek and an unnamed tributary to the Pilchuck River in Granite Falls, WA. 8 of the 15 acres of this site are dominated by invasive Reed Canary Grass and Japanese Knotweed and 7 of the 15 acres are mostly short-lived early successional deciduous forest which AASF will under-plant with native conifers.	$0	$0	$114,285

Application Number	Applicant	Project Title	Watershed Plans	Project Short Description	CWSRF GPR Loan	Centennial Grant	Section 319 Grant
WQC-2021-BellPW-00017	Bellingham city of - Public Works Department	Padden Creek 24th - 30th: Phase 1 ("Phase 1")	Bellingham Habitat Restoration Technical Assessment; Shoreline Master Plan Restoration Plan; Whatcom, Squalicum and Padden Creeks Temperature TMDL; Puget Sound Action Agenda	The purpose of the Padden Creek 24th-30th Phase 1 project is to improve the water quality and aquatic function of Padden Creek, a lowland urban steam in the City of Bellingham (the "City"), through creating structurally and biologically diverse instream, off-channel, and riparian buffer habitats. This will be accomplished through floodplain widening, riparian buffer enhancement, wetland restoration, large woody debris additions, and the creation of backwaters, side channels, pools, and riffles.	$0	$500,000	$0
WQC-2021-ChCoNR-00127	Chelan County - Natural Resource Department	Lower Icicle Sediment Reduction and Riparian Restoration Implementation	Icicle Creek 2017 Biological Strategy Habitat Improvement; Wenatchee Watershed Planning Phase 4 Detailed Implementation Plan; Icicle Creek TMDLs	This project will implement bioengineered bank stabilization elements and riparian planting on a 730' stretch of denuded, vertically eroding bank that is currently impacting water quality in the Lower Icicle through sediment delivery, lack of shading, and geomorphic processes leading to widening and shallowing of the river. This project will complete construction of BMPs to stabilize the eroding bank, slope back the margins and build planting benches, and plant a riparian buffer of at least 75'.	$0	$174,439	$0

Application Number	Applicant	Project Title	Watershed Plans	Project Short Description	CWSRF GPR Loan	Centennial Grant	Section 319 Grant
WQC-2021-ChCoNR-00167	Chelan County - Natural Resource Department	Chumstick Watershed Water Flow Improvement and Riparian Restoration	Wenatchee River Watershed Temperature TMDL; Wenatchee Watershed Basin Fecal Coliform Bacteria; A Biological Strategy to Protect and Restore Salmonid Habitat in the Upper Columbia Region	The Chumstick Water Flow Improvement and Riparian Restoration Project will allow for continuation of a strategy to address temperature, DO, water quantity, and bacteria listings. Building on efforts initiated in WQC-2020-00135, this project includes water storage and vegetation improvements on 4 acres of riparian property, monitoring and maintenance of completed projects, outreach to high school students, and develop the next phase 3 of the project through outreach and prioritization planning.	$0	$109,943	$0
WQC-2021-ClCoPW-00032	Clark County - Public Works Department	Heritage Farm Wetland Restoration	Salmon Creek Temperature TMDL WQ Improvement Report and Implementation Plan	This project will excavate a shallow floodplain bench and provide wetland restoration along a channelized section of Cougar Creek headwaters on Clark County's Heritage Farm property. This project implements a portion of the Heritage Farm master plan and addresses a priority of enhancing and restoring headwater wetlands within the Cougar Creek watershed. Primary benefits are wetland habitat creation, increased infiltration, and maintenance of cool summer baseflows to downstream Salmon Creek.	$0	$132,285	$367,715

Application Number	Applicant	Project Title	Watershed Plans	Project Short Description	CWSRF GPR Loan	Centennial Grant	Section 319 Grant
WQC-2021-ClCoPW-00033	Clark County - Public Works Department	East Fork Lewis River Schriber Riparian Reforestation Project	East Fork Lewis River Water Cleanup Plan	This project will plant trees and shrubs on 12.25 acres of county-owned property stretching nearly 4000 feet along the south bank of the East Fork Lewis River. Portions of the southern bank have a mature Oregon ash component, but the understory is dominated by Reed Canary Grass. Conifer presence is limited, and there are significant open areas. The proposed planting area is identified by the Lower Columbia Fish Recovery Board's EFLR Habitat Conservation Plan as having significant shade deficit.	$0	$170,064	$0
WQC-2021-KCWLRD-00117	King County - Water and Land Resources Division	Newaukum and Big Spring Creek Revegetation	Newaukum Creek TMDL	RECIPIENT will revegetate riparian zones in a degraded reach of Newaukum and Big Spring creeks on public land or conservation easements within an agricultural area. Riparian zones will be revegetated with trees and shrubs to reduce temperatures in Newaukum Creek and to improve fish and wildlife habitat. 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) report.	$0	$375,000	$0

Application Number	Applicant	Project Title	Watershed Plans	Project Short Description	CWSRF GPR Loan	Centennial Grant	Section 319 Grant
WQC-2021-MCFEG-00062	Mid-Columbia Fisheries Enhancement Group	Upper Yakima Forest Restoration	Yakima Basin Steelhead Recovery Plan; Upper Yakima TMDLs	This project aims to reduce sediment, fecal coliform and temperatures in the Upper Yakima River through riparian buffer restoration and protection projects that are new (phase 1), requiring maintenance (phase 2) and projects in development. This project will: install riparian trees in 8 acres along 900 stream feet and exclude livestock on 25 acres along 2,700 stream feet at river mile 160; maintain plants along 3,000 feet at river mile 192; and identify 10 new projects within a 30 mile reach.	$0	$0	$250,000
WQC-2021-PaloCD-00023	Palouse Conservation District	The Water Quality Saga: A Cost-Share-nary Tale	NF Palouse River Dissolved Oxygen and pH Total Maximum Daily Load: Water Quality Improvement Report an Implementation Plan, Palouse Watershed Plan approved in WRIA 34	The Palouse Conservation District (PCD) will lead the implementation of a minimum of ten acres of riparian buffers and 6,750 acres of direct seeding to improve water quality in Whitman County streams. Monitoring efforts will focus on changes in crop residue cover with conservation farming to determine water quality benefits. Outreach and education programs to further improve water quality will include newsletters, articles, educational displays and the Alternative Cropping Symposium.	$0	$500,000	$0

Application Number	Applicant	Project Title	Watershed Plans	Project Short Description	CWSRF GPR Loan	Centennial Grant	Section 319 Grant
WQC-2021-SJCoPW-00190	San Juan County - Public Works Department	False Bay Creek livestock exclusion and riparian planting BMP's - Phase I	False Bay Watershed Restoration Plan: Stream Habitat Assessment Report; San Juan Action Agenda Ecosystem Protection and Recovery Plan; San Juan Islands Salmonid Limiting Factors and Recommended Actions	Lower False Bay Creek is listed as a Category 5, 303d listed-waterbody for bacteria. A rancher runs several hundred cattle on the 750 acre property (Red Mill Farm), where they have free and open access to False Bay Creek. We propose to fence out the cattle, plant native trees and shrubs within a fenced riparian corridor, and provide watering facilities for the rancher's cattle. Red Mill Farm is owned by the San Juan Preservation Trust.	$0	$0	$113,420
WQC-2021-SnohCD-00048	Snohomish Conservation District	Restoring cold water habitat in Lower Pilchuck Creek	Stilliguamish Watershed Chinook Recovery Plan	Snohomish Conservation District will improve 15 acres of riparian habitat along unnamed tributary 5.0080 (Trib 80), a tributary to Pilchuck Creek in the Stillaguamish watershed, and assist with reconnecting the incised stream with its floodplain. Project activities include invasive plant control, planting with native plants, and installation of beaver dam analogs to protect and improve this cold water input to Pilchuck Creek.	$0	$249,364	$0

Application Number	Applicant	Project Title	Watershed Plans	Project Short Description	CWSRF GPR Loan	Centennial Grant	Section 319 Grant
WQC-2021-SnohCD-00113	Snohomish Conservation District	Lower Skykomish River Floodplain Restoration	Lower Skykomish Reach-scale Plan; Snohomish River Basin Salmon Conservation Plan; Puget Sound Action Agenda	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 Lower Skykomish River frequently exceeds standards and limits salmon productivity. SCD will reforest 15 acres of riparian area and control invasive knotweed 40 acres of river floodplain along the Skykomish River.	$0	$204,450	$0
WQC-2021-SoSaSo-00011	Sound Salmon Solutions	Grant Creek Restoration Phase II	Stilliguamish Watershed Chinook Recovery Plan; Stilliguamish Watershed Temperature TMDL Implementation Strategy; Puget Sound Action Agenda	A 100-150 foot-wide riparian buffer will be established along 4,225 feet of the right bank and 3,730 feet of the left bank of an unnamed tributary, and 515 feet of connected side channels to the North Fork Stillaguamish River to address TMDL issues 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 Stillaguamish watershed and greater Puget Sound region.	$0	$0	$187,461

Application Number	Applicant	Project Title	Watershed Plans	Project Short Description	CWSRF GPR Loan	Centennial Grant	Section 319 Grant
WQC-2021-SoSaSo-00200	Sound Salmon Solutions	Bolin Skykomish Riparian Restoration	Skykomish River TMDL Development Plan; Snohomish River Basin Salmon Conservation Plan, WEFD 2017-2019 Strategic Plan	A 100-400 foot-wide riparian buffer will be established along 750 feet of the right bank Skykomish River to address TMDL issues 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	$147,747
WQC-2021-SpoCoD-00178	Spokane Conservation District	Making Conservation Pay	Hangman (Latah) Creek Fecal Coliform, Temperature, and Turbidity TMDL: Water Quality Implementation Plan	The Spokane Conservation District and the Pacific Northwest Direct Seed Association are partnering to bring new technology for soil organic carbon (SOC) testing, Ecosystem Services Management including grain nutrient density testing to farms in Eastern Washington. The program will also provide funding for the Direct Seed Equipment loan program for producers to purchase the necessary direct seed equipment to maintain these great conservation practices.	$3,000,000	$0	$0

Application Number	Applicant	Project Title	Watershed Plans	Project Short Description	CWSRF GPR Loan	Centennial Grant	Section 319 Grant
WQC-2021-SpoCoD-00184	Spokane Conservation District	Hangman Creek Streambank Stabilization RM-17 Phase II	Hangman (Latah) Creek Fecal Coliform, Temperature, and Turbidity TMDL: Water Quality Implementation Plan; Hangman Creek Watershed Management Plan	Hangman Creek and its' streams are impaired by severe turbidity. Ecology and the Spokane Conservation District studied these water quality problems and developed a TMDL report in 2009 with a subsequent Water Quality Implementation Plan in 2011. The plan denoted many issues to be addressed, but 8 of the top 10 water quality issues were sediment from various sources including stream bank erosion. This proposed project will continue work to stabilize 1425' of rapidly eroding stream bank on RM-17.	$0	$250,000	$0
WQC-2021-SpoCoD-00198	Spokane Conservation District	Hangman Creek Agricultural BMP Assistance Project	Hangman Creek Watershed WRIA 56 Detailed Implementation Plan	Hangman Creek suffers from excessive sedimentation from natural and anthropogenic sources. Environmental and regulatory agencies want changes to the annual sediment budget delivered to the Spokane River. This project will increase community awareness, address agricultural sediment pathways, inventory bank erosion contributions, implement 3,000' of stream restoration, and reduce sediment delivery by incentives, cost-share programs and loans.	$1,000,000	$0	$500,000

Application Number	Applicant	Project Title	Watershed Plans	Project Short Description	CWSRF GPR Loan	Centennial Grant	Section 319 Grant
WQC-2021-Waters-00002	The Watershed Alliance	Improving Shade And Temperature Deficits - Middle East Fork Lewis River	LCFRB-East Fork Lewis Sub-basin Plan, East Fork Lewis Water Cleanup Plan	The middle East Fork of the Lewis River and its tributaries have average and 7-DADMax values for temperature that greatly exceed state water quality standards due to high shade deficits. We will improve the shade deficit and thereby reduce temperature along this section of the East Fork by creating a 10 acre, 100 foot wide riparian forest corridor on 2,400 feet of Manley Creek, an important tributary to the East Fork.	$0	$0	$162,341
WQC-2021-YakaNa-00042	Yakama Nation	Little Klickitat River-Carrols Creek Water Quality Improvement Project	Little Klickitat River Watershed TMDL Detailed Implementation Plan; Salmon Recovery Funding Board Klickitat Lead Entity Strategy	The proposed design project will improve water quality conditions on Carrols Creek, a tributary that lies within the implementation area for the Little Klickitat Watershed Temperature Total Maximum Daily Load (TMDL). The project will ultimately deliver cooler water temperatures and greater streamflow during the critical summer season and entails site reconnaissance, ground/surface water monitoring and analysis, alternatives designs, draft conceptual designs, and education and outreach aspects.	$0	$87,900	$0
				TOTAL	$4,000,000	$2,753,445	$2,030,423

2.3.3 Load Reduction Estimates by Project in 2020

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 2020 are provided below.

Summary of Load Reductions in 2020

Pollutant	Total Load Reduction Estimate
Biochemical Oxygen Demand (BOD)	128,996 LBS/YR
Nitrogen	68,085 LBS/YR
Phosphorus	26,978 LBS/YR
Sedimentation-Siltation	21,233 TONS/YR

Load Reductions per Project in 2020

Pollutant	State Project No.	Estimated Load Reduction	Unit of Measure
Biochemical Oxygen Demand (BOD)	WQC-2016-ClaPUD-00374	0.06	LBS/YR
	WQC-2017-ClaPUD-00122	3.60	LBS/YR
	WQC-2017-FoCrCD-00067	1,490.30	LBS/YR
	WQC-2018-LCEP-00122	0.00	LBS/YR
	WQC-2018-PaloCD-00110	35,815.90	LBS/YR
	WQC-2018-PaloCD-00167	60.50	LBS/YR
	WQC-2018-PierCD-00165	0.20	LBS/YR

	WQC-2018-SFEG-00090	0.60	LBS/YR
	WQC-2018-SnohCD-00162	0.30	LBS/YR
	WQC-2018-SpoCoD-00127	29,050.00	LBS/YR
	WQC-2018-TLC-00139	58.50	LBS/YR
	WQC-2019-Adopta-00002	0.30	LBS/YR
	WQC-2019-LCEP-00199	0.00	LBS/YR
	WQC-2019-PaloCD-00077	28,002.60	LBS/YR
	WQC-2019-PaloCD-00165	3,245.50	LBS/YR
	WQC-2019-SnohCD-00063	0.40	LBS/YR
	WQC-2020-ChCoNR-00135	8.80	LBS/YR
	WQC-2020-MSRF-00143	0.05	LBS/YR
	WQC-2020-PaloCD-00128	31,258.50	LBS/YR
Nitrogen	WQC-2016-ClaPUD-00374	1.10	LBS/YR
	WQC-2017-ClaPUD-00122	24.90	LBS/YR
	WQC-2017-FoCrCD-00067	1,551.00	LBS/YR
	WQC-2017-OkanCD-00188	87.50	LBS/YR
	WQC-2017-StePar*-00049	4.00	LBS/YR
	WQC-2018-LCEP-00122	0.02	LBS/YR
	WQC-2018-PaloCD-00110	18,444.50	LBS/YR
	WQC-2018-PaloCD-00167	50.00	LBS/YR
	WQC-2018-PierCD-00165	9.80	LBS/YR
	WQC-2018-SFEG-00090	33.50	LBS/YR
	WQC-2018-SkRiSC-00035	0.01	LBS/YR
	WQC-2018-SnohCD-00162	4.50	LBS/YR
	WQC-2018-SoSaSo-00221	0.01	LBS/YR
	WQC-2018-SpoCoD-00127	15,675.00	LBS/YR
	WQC-2018-TLC-00139	66.00	LBS/YR
	WQC-2019-Adopta-00002	16.90	LBS/YR
	WQC-2019-LCEP-00199	0.02	LBS/YR
	WQC-2019-LCEP-00205	0.02	LBS/YR
	WQC-2019-LeCoCD-00030	1.60	LBS/YR
	WQC-2019-PaloCD-00077	14,516.90	LBS/YR
	WQC-2019-PaloCD-00165	561.50	LBS/YR
	WQC-2019-SnohCD-00063	7.80	LBS/YR
	WQC-2020-Adopta-00032	1.40	LBS/YR
	WQC-2020-ChCoNR-00135	2.20	LBS/YR

	WQC-2020-MSRF-00143	0.06	LBS/YR
	WQC-2020-NoYaCD-00003	815.50	LBS/YR
	WQC-2020-PaloCD-00128	16,148.70	LBS/YR
	WQC-2020-WWCoCD-00151	60.60	LBS/YR
Phosphorus	WQC-2016-ClaPUD-00374	0.54	LBS/YR
	WQC-2017-ClaPUD-00122	3.20	LBS/YR
	WQC-2017-FoCrCD-00067	1,653.60	LBS/YR
	WQC-2017-OkanCD-00188	33.60	LBS/YR
	WQC-2017-StePar*-00049	0.30	LBS/YR
	WQC-2018-LCEP-00122	0.01	LBS/YR
	WQC-2018-PaloCD-00110	7,122.70	LBS/YR
	WQC-2018-PaloCD-00167	13.00	LBS/YR
	WQC-2018-PierCD-00165	0.70	LBS/YR
	WQC-2018-SFEG-00090	2.30	LBS/YR
	WQC-2018-SnohCD-00162	0.40	LBS/YR
	WQC-2018-SpoCoD-00127	6,092.00	LBS/YR
	WQC-2018-TLC-00139	13.70	LBS/YR
	WQC-2019-Adopta-00002	1.20	LBS/YR
	WQC-2019-LCEP-00199	0.01	LBS/YR
	WQC-2019-LCEP-00205	0.01	LBS/YR
	WQC-2019-PaloCD-00077	5,604.20	LBS/YR
	WQC-2019-PaloCD-00165	63.20	LBS/YR
	WQC-2019-SnohCD-00063	0.60	LBS/YR
	WQC-2020-Adopta-00032	0.10	LBS/YR
	WQC-2020-ChCoNR-00135	1.70	LBS/YR
	WQC-2020-MSRF-00143	0.01	LBS/YR
	WQC-2020-NoYaCD-00003	107.50	LBS/YR
	WQC-2020-PaloCD-00128	6,241.40	LBS/YR
	WQC-2020-WWCoCD-00151	22.90	LBS/YR
Sedimentation-Siltation	WQC-2016-ClaPUD-00374	0.01	TONS/YR
	WQC-2017-ClaPUD-00122	0.60	TONS/YR
	WQC-2017-FoCrCD-00067	1,661.50	TONS/YR
	WQC-2017-OkanCD-00188	64.10	TONS/YR
	WQC-2018-PaloCD-00110	5,595.80	TONS/YR

	WQC-2018-PaloCD-00167	10.10	TONS/YR
	WQC-2018-SFEG-00090	0.10	TONS/YR
	WQC-2018-SkRiSC-00035	0.01	TONS/YR
	WQC-2018-SpoCoD-00127	4,540.00	TONS/YR
	WQC-2018-TLC-00139	9.10	TONS/YR
	WQC-2019-PaloCD-00077	4,376.00	TONS/YR
	WQC-2019-PaloCD-00165	18.90	TONS/YR
	WQC-2019-SnohCD-00063	0.10	TONS/YR
	WQC-2020-ChCoNR-00135	2.40	TONS/YR
	WQC-2020-MSRF-00143	0.01	TONS/YR
	WQC-2020-NoYaCD-00003	52.30	TONS/YR
	WQC-2020-PaloCD-00128	4,884.00	TONS/YR
	WQC-2020-WWCoCD-00151	18.30	TONS/YR

2.3.4 Best Management Practices (BMPs) Implemented in 2020

Pass through grant project agreements have 3-4 years to complete the scope of work. BMPs implemented through active projects in 2020 are provided below.

Summary of BMPs Implemented

BMP Type	Total Acres / Linear Feet
Conservation Tillage Residue Management	20,110.54 AC
Fence	0.48 AC 11,327 FT
Invasive Species/Noxious Weed Control	214.89 AC 42,853.81 FT
Riparian Forest Buffer	182 AC 56,656.56 FT
Stream Habitat Improvement and Management	1.26 AC 3,165 FT
Streambank & Shoreline Protection	0.01 AC 461 FT
Tree/Shrub Establishment	9.43 AC 7,656 FT
Wetland Restoration	110 AC 5,280 FT

BMPs Implemented per Project

BMP	State Project No.	Project Title	Installed	Unit of Measure
Conservation Tillage Residue Management	WQC-2017-FoCrCD-00067	Douglas County Agricultural BMPs	2,856	Acres
	WQC-2018-PaloCD-00110	Palouse Direct Seed Partnership Implementation and Monitoring	3,684	Acres
	WQC-2018-SpoCoD-00127	Farmed Smart Certification and Direct Seed Loan Implementation Program	7,483	Acres

	WQC-2019-LeCoCD-00030	No Till-Drill for Sediment Reduction in the Chehalis Basin	134	Acres
	WQC-2019-PaloCD-00077	Thinking Outside the Fertilizer Box: Conservation on Union Flat Creek	3,069	Acres
	WQC-2020-PaloCD-00128	Direct Seed Partnership on the Palouse	2,885	Acres
Fence	WQC-2019-OkHiAl-00204	Triple Creek Water Quality Restoration Project, Phase 2	10,427	Feet
	WQC-2019-PaloCD-00165	Palouse Basin BMP Implementation for Water Quality Improvement	900	Feet
Invasive Species/Noxious Weed Control	WQC-2018-BellPW-00200	Squalicum Creek Reroute Water Quality and Biotic Improvements-Phase 4	1	Acres
			633	Feet
	WQC-2018-PierCD-00165	South Prairie Creek TMDL Response	20	Acres
			2,600	Feet
	WQC-2018-SnohCD-00218	Jennings Park Phase One Riparian Restoration	15	Acres
			2,500	Feet
	WQC-2018-SoSaSo-00176	Stillwater Natural Area Restoration Phase II	1	Acres
			1,100	Feet
	WQC-2018-SoSaSo-00221	Grant Creek Restoration Phase I	12	Acres
			4,430	Feet
	WQC-2019-KCoNWC-00035	King County Riparian Buffer Enhancement through Restoration and Stewardship	123	Acres
	WQC-2019-OkHiAl-00204	Triple Creek Water Quality Restoration Project, Phase 2	2	Acres
			2,385	Feet

	WQC-2019-PaloCD-00165	Palouse Basin BMP Implementation for Water Quality Improvement	9	Acres
			7,656	Feet
	WQC-2019-SnohCD-00146	Restoration at the Riverfront: Snohomish River at RM 13 Restoration Project	4	Acres
			1,677	Feet
	WQC-2020-MCFEG-00204	WQC-2020-MCFEG-00204	1	Acres
			1,200	Feet
	WQC-2020-WWCoCD-00151	WQC-2020-WWCoCD-00151	26	Acres
			18,673	Feet
Riparian Forest Buffer	WQC-2016-ClaPUD-00374	East Fork Lewis - Zimmerly Restoration Project	4	Acres
	WQC-2016-SnohCD-00090	Monroe Wetland Park Restoration Project	4	Acres
	WQC-2017-ClaPUD-00122	East Fork Lewis Knotweed Control Project	6	Acres
	WQC-2017-OkanCD-00188	Okanogan Complex Fire Non-Point Source Pollution Response	2	Acres
			1,140	Feet
	WQC-2017-StePar*-00049	Snoqualmie River Restoration with Salmon-Safe Agricultural Landowners	1	Acres
			315	Feet
	WQC-2018-LCEP-00122	Salmon Creek Stormwater OSPREY Project	4	Acres
			2,000	Feet
	WQC-2018-PaloCD-00167	Palouse Basin Water Quality Improvements	28	Acres
			7,725	Feet
	WQC-2018-PierCD-00165	South Prairie Creek TMDL Response	4	Acres

			2,600	Feet
	WQC-2018-SFEG-00090	Skagit River Rural Community Riparian Stewardship	7	Acres
			1,345	Feet
	WQC-2018-SkRiSC-00035	Lower Skagit Tributaries Riparian Restoration	3	Acres
			1,180	Feet
	WQC-2018-SnohCD-00162	Filbert Creek Riparian Restoration Project	3	Acres
			875	Feet
	WQC-2018-SoSaSo-00176	Stillwater Natural Area Restoration Phase II	4	Acres
	WQC-2018-SoSaSo-00221	Grant Creek Restoration Phase I	4	Acres
			1,900	Feet
	WQC-2018-TLC-00139	Spokane River Watershed Riparian Restoration & Water Quality Education	9	Acres
			2,100	Feet
	WQC-2019-Adopta-00002	Strawberry Fields Riparian Buffer Enhancement Part 2	6	Acres
			2,240	Feet
	WQC-2019-LCEP-00199	Burnt Bridge Creek Stormwater OSPREY Project	3	Acres
			1,000	Feet
	WQC-2019-LCEP-00205	Woodin Creek Stormwater OSPREY Project	4	Acres
			1,100	Feet
	WQC-2019-OkHiAl-00204	Triple Creek Water Quality Restoration Project, Phase 2	1	Acres
			2,385	Feet
	WQC-2019-PaloCD-00165	Palouse Basin BMP Implementation for Water Quality Improvement	6	Acres

			4,056	Feet
	WQC-2019-SnohCD-00063	North Creek Riparian Restoration Project	6	Acres
			1,761	Feet
	WQC-2020-Adopta-00032	Allen - Grace Confluence: A Riparian Reforestation Project	1	Acres
			300	Feet
	WQC-2020-ChCoNR-00135	Chumstick Watershed Riparian Restoration	5	Acres
			1,547	Feet
	WQC-2020-MSRF-00143	Methow Water Quality Restoration and Monitoring Project	5	Acres
			2,975	Feet
	WQC-2020-NoYaCD-00003	Naches River Basin Water Quality Restoration Project PHASE 2	50	Acres
			9,500	Feet
	WQC-2020-SoSaSo-00175	Segelsen Stillaguamish Riparian Restoration	1	Acres
			130	Feet
	WQC-2020-WWCoCD-00151	Canopy Cover Improvements on the Touchet River	14	Acres
			10,483	Feet
Stream Habitat Improvement and Management	WQC-2018-BellPW-00200	Squalicum Creek Reroute Water Quality and Biotic Improvements-Phase 4	780	Feet
	WQC-2019-OkHiAl-00204	Triple Creek Water Quality Restoration Project, Phase 2	1	Acres
			2,385	Feet
Streambank & Shoreline Protection	WQC-2018-PaloCD-00167	Stillwater Natural Area Restoration Phase II	361	Feet
	WQC-2019-PaloCD-00165	Palouse Basin BMP Implementation for Water Quality Improvement	100	Feet

Tree/Shrub Establishment	WQC-2019-PaloCD-00165	Palouse Basin BMP Implementation for Water Quality Improvement	9	Acres
			7,656	Feet
Wetland Restoration	WQC-2019-LiCoCD-00163	Mielke WRP Wetland and Riparian Restoration	110	Acres
			5,280	Feet

2.4 Unliquidated Obligation (ULO)

CWA 319 Grant Balance (Unliquidated Obligations) as of March 31, 2020

Project	Grant #	FY	Project Period		Grant Award Amount (Fed)	Unspent Balance (ULO)	% ULO
FA10	C9-00044909	15	7/1/2015	6/30/2021	$5,872,900.00	$41,394.62	0.7%
FA11	C9-00044910	17	7/1/2017	6/30/2022	$6,139,000.00	$1,099,357.37	17.9%
FA12	C9-00044911	19	7/1/2019	6/20/2024	$6,169,000.00	$3,938,095.37	63.8%

CWA 319 Grant Balance (Unliquidated Obligations)

	Grant #	FY	Project Period		Grant Award Amount (State)	Balance (ULO)	% ULO
WA-FA10	C9-00044909	15	7/1/2015	6/30/2021	$3,915,267.00	$-	0.0%
WA-FA11	C9-00044910	17	7/1/2017	6/30/2022	$4,117,334.00	$ -	0.0%
WA-FA12	C9-00044911	19	7/1/2019	6/20/2024	$4,112,667.00	$-	0.0%

Numbers are based on Grant amount awarded minus expenditures

Chapter 3: Implementation in Action

In 2020, 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.

One of the most significant developments in 2020 was agreeing to a settlement agreement with Northwest Environmental Advocates.[1] This settlement agreement includes several commitments:

- Deadline for updating the Nonpoint Plan-Ecology will submit a Washington State Nonpoint Plan update to the EPA by the end of 2022. The update should include incorporation of the 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 Voluntary Clean Water Guidance Chapters-Washington shall complete the development of five chapters of the agricultural BMP guidance, including the chapter that addresses 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.

[1] The settlement agreement was finalized in 2021 (Case 2:16-cv-01866-JCC, Document 175, filed 01/08/21).

- 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.

Ecology will dedicate resources to implementing this settlement agreement in upcoming years.

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 2020. 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.[2]

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

- 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.

One of Ecology's key nonpoint initiatives identified in the 2015 NPS plan is the development of Voluntary Clean Water Guidance for Agriculture. This guidance will identify BMPs that prevent water pollution and support the achievement of water quality standards in surface waters flowing through agricultural lands. The first BMP chapter of the guidance addresses cropland tillage and crop residue management. A draft was completed in February 2020 and made available to the public. We are accepting feedback on a continual basis until we finalize the next update to the nonpoint plan. Ecology is now working on completing draft chapters for in-field sediment basin control, pasture and rangeland management BMPs, and livestock confinement and waste storage BMPs. We are also planning on continuing work on the riparian buffer chapter in 2021. Significant progress was made on collecting and analyzing information on riparian buffers in early 2020 but we decided to pause work on that chapter in deference to a broader State/Tribal riparian effort. These additional four chapters will complete the first set of agricultural BMP guidance that we are seeking to incorporate into the next NPS plan update.

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).


Whatcom
San Juan
Skagit
Island
Snohomish
Clallam
Jefferson
Kitsap
King
Mason
Grays Harbor
Pierce
Thurston
Pacific
Lewis
Cowlitz
Wahkiakum
Skamania
Clark
Okanogan
Chelan
Douglas
Kittitas
Yakima
Klickitat
Benton
Ferry
Pend Oreille
Stevens
Lincoln
Spokane
Grant
Adams
Whitman
Franklin
Garfield
Columbia
Walla Walla
Asotin
Southwest Region
Northwest Region
Central Region
Eastern Region

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 112 TMDLs. In 2020 Ecology submitted several TMDLs to EPA:

- South Fork Nooksack Temperature TMDL
- Mid Yakima Bacteria TMDL
- Pilchuck Temperature and DO TMDL
- Padilla Bay Bacteria TMDL
- Little Spokane DO/pH TMDL

In the last few years, Ecology has not started new STIs, although there are currently 141 AUs whose STI efforts continued to qualify for a Category 4B status in 2019. The TMDLs and alterative restoration projects currently being developed by Ecology include an implementation plan. These implementation plans are intended to address EPA's requirement that a watershed-based plan be completed in order for grant projects to be eligible for 319 funding. Ecology is currently developing several alternative restoration projects which we anticipate implementing in upcoming years (see below for more information).

Significant continued work was done in 2020 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 2020	Status
Whatcom Creek Bacteria TMDL	Second round of stakeholder review. Alternative Restoration Plan strongly considered to be completed in 2021.

WQ-27 Projects in 2020	Status
South Fork Nooksack Temperature TMDL	Approved by EPA and published Implementation Plan in 2020
Drayton Harbor Bacteria TMDL	New data being incorporated. Ongoing discussions with stakeholders concerning project development. Estimated completion of Implementation Plan is 2021.
Mid Yakima Bacteria TMDL	TMDL completed and approved by EPA in 2020
Moxee Drain Temperature TMDL	Work on Moxee Drain temperature has paused due to complex irrigation water management issues.
Wide Hollow Mulitparameter TMDL	Data collection and analysis complete, report pending
Spring Flat STI	GIS analysis and field work started. On track for strategy to be completed in late 2021.
Alakali Flat STI	Early action implementation underway. On track to start strategy development in 2021
Almota & Little Almota STI	On track to start in 2021
Hangman DP/pH Alternative	Field work completed. Sediment study report underway.
Little Spokane DO/pH TMDL	Draft submitted to EPA in 2020
Pend Oreille Temperature TMDL	Approved by EPA in 2020
French Creek Alternative	Report writing paused pending additional discharge data
Padilla Bay FC TMDL	TMDL completed and Approved by EPA in 2020
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	Model design and calibration in progress
Budd Inlet DO TMDL	Working to finalize technical documents
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 writing replacement TMDLs per CWA requirements.
East Fork Lewis Alternative	Report/Plan writing on track. Final report to be released in 2021
Lacamas Creek Alternative	Awaiting technical resources to initiate the project
Lower White River pH TMDL	Report writing on track

Northwest Regional Office

TMDLs

Three TMDLs were completed in 2020:

- South Fork Nooksack Temperature
- Padilla Bay Fecal Coliform
- Pilchuck River Temperature/DO

During 2020, nonpoint specialists continued early-action work to identify and address livestock-related pollution sources. Due to impacts of Covid-19 response, we switched our focus of field work to completing implementation plans. We resumed work on the draft Padilla Bay Fecal Coliform TMDL and held virtual advisory group meetings in Fall 2020. We completed the TMDL public process, submitted the TMDL to EPA in December, and will continue to meet with Padilla Bay stakeholders in early 2021.

We also held virtual TMDL advisory group meetings for the Pilchuck River Temperature and Dissolved Oxygen (DO) TMDL in spring and summer 2020 and submitted the completed TMDL to EPA in December 2020. In addition to continuing TMDL implementation by promoting riparian restoration, we are excited to begin working with stakeholders on other water cleanup activities identified in the TMDL including increasing summer baseflows and strategically locating and constructing cold-water refuges.

We continued work on the Soos Creek Multiparameter TMDL, Whatcom Creek Fecal Coliform TMDL, and Drayton Harbor Fecal Coliform TMDLs.

Ecology's Environmental Assessment Program has been using a variety of models, including QUAL2Kw and a Shade model to assess temperature and DO impacts of point and nonpoint sources for the Soos Creek Temperature/DO/Bioassessment TMDL. Ecology has also been using a Hydrological Simulation Program—Fortran (HSPF) hydrodynamic model to measure the impairment of benthic invertebrates by fine sediment and stormwater-driven peak flows. This is the first time Ecology is using HSPF modeling to develop a TMDL. Integrating HSPF into the bioassessment portion of the TMDL required Ecology to invest $50,000 of consultant support starting in late 2019 and we have continued that work through 2020.

Ecology continued to shift technical resources to add additional staff to the Soos Creek project to focus on the temperature/DO TMDL and allow our modeler to focus on modeling related to

bioassessment. We completed a Quality Assurance Project Plan (QAPP) addendum and conducted additional fieldwork in 2020 following Covid-specific safe reentry protocols. That fieldwork allowed us to gather data on the new Soos Creek Fish Hatchery and add boundary condition monitoring to better characterize the natural input of low DO groundwater from the extensive wetland complexes in headwater areas. During 2020, we continued reaching out to stakeholders in Soos Creek to promote early-action implementation receiving one grant application to improve riparian vegetation at a King County Parks facility and a stormwater retrofit grant application from the City of Renton.

Our Bellingham Field Office completed the South Fork Nooksack Temperature TMDL in 2019 and submitted it to EPA for approval in early 2020. EPA approved the TMDL on May 6, 2020. The Whatcom Creek bacteria TMDL is under its second round of review. The City of Bellingham is interested in pursuing an Alternative Restoration Plan (ARP) and Ecology and EPA are discussing the potential application of an ARP for the Whatcom Creek watershed to address bacterial listings. We are discussing updates to the Drayton Harbor Bacteria TMDL with local stakeholders. Department of Health upgrades to shellfish harvesting status in Drayton Harbor are increasingly threatened due to bacterial contamination. The TMDL is on track for completion with local input and approval.

Alternative Restoration Projects

Ecology is evaluating the potential to complete both the Sammamish River Temperature/DO and the French Creek Temperature/DO studies as Alternative Restoration Projects (ARP). This would allow for a speedier delivery of technical analysis and solutions to local implementing agencies and the public. Nonpoint sources are the primary sources in these watersheds and the final reports would include data analysis and advisory-group-based implementation plans. These ARPs would address EPA's nine minimum watershed planning elements. We have collected field data for the Sammamish River Temperature/DO TMDL ARP and plan to use this data in future modeling efforts. NWRO requested a small project from Ecology's Environmental Assessment Program to properly document preliminary vegetation and hydrologic study elements and ensure quality assurance and quality controls are in place. These products should be useful in supporting early implementation actions.

We began work on the French Creek ARP in 2019 and discovered incompatibility issues when integrating Snohomish County's HSPF modeling with the Water Quality Analysis Simulation Program (WASP) model. Our technical team has determined that the next best approach is to substitute the QUAL2KW model for WASP. Because of the reallocation of modeling resources to

the Soos Creek Temp/DO TMDL noted earlier, Ecology summarized our current French Creek Alternative Restoration project findings in a technical memo in mid-2020 for when that work resumes in the future.

Watershed modeling work on our third Alternative Restoration Project, the Duwamish River Pollutant Loading Analysis, continued in 2020 along with targeted inspections of industrial facilities. Ecology held one technical advisory group meeting and finalized the update of the project QAPP to reflect approaches related to modeling and management scenarios. We purchased a lifetime license for Dynamic Solutions EFDC, the model we will use to describe hydrodynamic processes and contaminant fate in the receiving water. We also collaborated with King County to calibrate the PLA watershed model to assess toxic pollutant pathways.

Southwest Regional Office

TMDLs

The SWRO continued to make progress on the Budd Inlet TMDL in 2020 and worked to finalize the technical documents that will support the TMDL. Ecology's Environmental Assessment Program finalized the Budd Inlet Model and completed an additional peer review process.

Ecology also supported EPA by supplying data, models, and technical support as they finished sections of the Deschutes TMDL that were disapproved in 2017. Ecology continued work on the Lower White River pH TMDL and is working with watershed partners to finalize the implementation plan and TMDL report.

Alternatives Restoration Projects

Ecology continued to lead the East Fork Lewis River Partnership, an ARP started in 2018. 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 water quality improvement plan addresses EPA's nine minimum watershed planning elements for both bacteria and thermal pollution. It went through internal and external review, with the final report to be released in 2021. Additionally, Ecology completed the Burnt Bridge Creek Watershed Source Assessment characterizing bacteria, temperature, dissolved oxygen and pH impairments in the watershed. The Burnt Bridge Creek ARP development and implementation planning will start in 2021.

Central Regional Office

In 2020, the Central Regional Office (CRO) continued ongoing TMDL development work for Upper Naches-Cowiche Creek TMDL, Tieton- Lower Naches TMDL, and Wide Hollow Creeks TMDL. The Mid Yakima Bacteria TMDL was completed and approved by the EPA.

No new TMDL projects were initiated in 2020, but we did begin scoping for a Bacteria Water Cleanup Project in the White Salmon River. An effectiveness monitoring project for the Upper Yakima Suspended Sediment TMDL was completed in 2019 and the report is pending. Myron Lake was listed for not meeting ammonia water quality standards. After the installation of a siphon to improve mixing in the lake, water quality has improved and CRO staff expect a delisting of Myron Lake from the 303(d) list on the next Water Quality Assessment report (303(d)-305(b)). We are continuing work on an STI project for Giffen Lake and are working on the Lower Yakima Pesticides Reduction Plan. We have paused our work on the Moxee drain due to complex irrigation water management issues.

Eastern Regional Office

Ecology's Eastern Regional Office continues to focus on TMDL and STI implementation. We prioritized our resources in 2020 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 completed in late 2020 and we submitted it to EPA in December 2020 for approval and has since be 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 some of the initial GIS and field work. We intend to initiate 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 nearly 200 problem reaches in 2020 and prioritized 25 of those for proactive help. Offers of technical and financial assistance have been made to the landowners. These sites are in varying stages of project development and implementation.

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. We held a public comment period from Oct. 12, 2020 through Nov. 12, 2020. We also hosted an online public workshop on Oct. 20, 2020.

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 wide spread 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 report. 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 2021 with partners on developing and implementing an implementation 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 and Almota Creek

In 2020, the Eastern Regional Office (ERO) also scoped three streams for STIs, our typical eastern Washington TMDL alternative. ERO performed some of the initial GIS work and field work for Spring Flat Creek. ERO plans to develop STI strategies in 2021 for two rural watersheds with non-point pollution issues. The non-point 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, and bacteria.

Statewide Projects

Puget Sound Nutrient Source Reduction Project

Ecology continued making significant progress on our Puget Sound Nutrient Source Reduction Project in 2020, and continued development of the Marine Water Quality Implementation Strategy for Puget Sound recovery under the National Estuary Program. We continued engaging regional stakeholders through a process called the Puget Sound Nutrient Forum (Forum) with the objective of having dialogue with the regulated community, tribes, and all levels of government, industry, academics, and local implementers about the effect of nutrient over-enrichment in the Sound and nutrient reduction solutions to improve marine water quality.

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 late 2022. Stakeholders at the Forum also provide input on the details of Salish Sea Model scenarios that our team of engineers and modelers are testing. More project information can be found on the Puget Sound Nutrient Reduction Project webpage.

Specific activities completed in 2020 include:

- Organized and hosted 4 Nutrient Forums:
    - General Permit Announcement
    - Nutrient Reduction Plan Outline
    - Nutrient Source Reduction Project update
    - General Permit Advisory Committee update and Emerging Nutrient Technologies.
- All Forum meetings were held virtually and typically 150-170 people attended these meetings. Five Forums will take place in 2021 to provide information and updates on 2020-2021 Salish Sea modeling results, provide an opportunity for input on the next phase of Salish Sea modeling, and to discuss strategies for addressing nutrients in watersheds.
- Developed new communication materials, including blog posts, focus sheets, and webpage updates
- Continued Salish Sea modeling efforts to evaluate scenarios that will help us better understand the significance of anthropogenic marine and watershed sources. Scenarios were chosen based on feedback from the Nutrient Forum. We will publish the results of this latest modeling round in spring 2021 and begin the final scheduled year of modeling in summer 2021. Our team of engineers and modelers are putting in a tremendous effort to evaluate:
    - 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

In January, we announced our decision to move forward with a Nutrient General Permit for Puget Sound. This year, we convened a Nutrient General Permit Advisory Committee, representing domestic wastewater treatment plants, environmental groups, state agencies,

EPA, and Tribes. The committee met 7 times throughout the year and developed a Recommendations document for Ecology in writing the draft permit. A preliminary draft permit was released and opened for public comment in early 2021. We expect to release the draft general permit in spring 2021. This is arguably the most 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.

Photo 1 Ecology staff announces Nutrient General Permit decision at Nutrient Forum meeting in January 2020.

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 last several workshops in the IS development process were held in 2020 to complete the development of the situation analysis, strategies to reduce excess anthropogenic nutrient loads and advance new science and research, and recommend actions to implement the strategies through the

2022-2026 Puget Sound Action Agenda and Science Work Plan. Writing of the MWQ IS narrative began in Fall of 2020 and carries through into 2021 when the draft MWQ IS narrative will be reviewed and begin the process of transitioning to the Stormwater Strategic Initiative to implement the MWQ strategies and 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)

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
    - Pilchuck Working Group doing early implementation of our temperature/DO TMDL
    - PIC programs, including the Stillaguamish and Vashon
    - 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.
    a. Ecology's outreach and technical assistance contributed to the submission of 16 applications to our Combined Funding Program to support our nonpoint cleanup efforts. Twelve new water cleanup projects were prioritized to start receiving Ecology funding in FY 2021.
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.
6. Conduct watershed assessments to identify and correct nonpoint pollution sources generated by land use practices that may compromise surface water quality.

In 2020 staff continued to participate in King County's Fish, Farm, Flood 2.0 process, Snohomish County's Sustainable Land Strategy, and the Snohomish/Stillaguamish Local Integrating Organization activities to help promote more and better nonpoint implementation projects.

To support orca recovery, the Washington State legislature authorized the addition of two new full time permanent nonpoint water quality specialists in Ecology's NWRO. We hired new staff in 2019 who focused primarily on the Skagit Watershed and a second position was filled in early 2020. New staff have received some cross training in the field and regularly engage in several statewide workgroups sharing strategies on addressing nonpoint pollution. In late 2020 they began responding to complaints from the Environmental Response Tracking System (ERTS).

For the Lake Whatcom TMDL Implementation, Whatcom County continues to control non-point sources in Whatcom County by voluntarily applying relevant portions of the MS4 program required under their NPDES stormwater permit throughout the watershed. Jurisdictional non-point work is coordinated through the Lake Whatcom Management Program and includes a prescriptive work plan updated on a five-year cycle.

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.

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 II program.

In 2020 our South Skagit Bay work was significantly reduced due to the state Covid-19 response. Our watershed evaluation work in two small watersheds flowing into South Skagit Bay included a second wet season field condition evaluation to verify our high priority properties for offering direct technical assistance. Ecology staff from BFO and NWRO continued a water sampling program to characterize watershed bacteria levels and assist in identifying sources of pollutants. Outreach to stakeholders and the public included the following activities:

Ecology staff led or attended meetings on the following dates:

- February 2020 – "Duck Shacks" coordination – Snohomish County stakeholders.
- January 2021 – Proposed West Pass Sample Sites - Stillaguamish PIC Phase 3 team mtg.

Additional activities included:

- Monthly ambient water quality sampling at 15 sites with additional source identification monitoring at 13 sites.
- Addition of storm event sampling at 8 sites began in October 2019. As of March 2020, four storm events were targeted in 2019 and four storm events were targeted in 2020.
- Organization of stakeholders on sanitary waste management at the "duck shacks" in Snohomish County.
- Nonpoint Specialists continued performing roadside evaluations during the wet season and entering data and observations into the "Collector App."
- Properties with an elevated potential to pollute were highlighted for future technical assistance.
- During summer/fall 2020, SSB team scoped potential sampling locations in West Pass and Fisher/Carpenter Creek subbasins in preparation for the next phase of watershed evaluation.

Going forward into 2021, we plan to update our communications plan to add outreach strategies in an effort to increase project awareness. Some of those strategies include, but are not limited to:

- 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 partnering organizations could post on our behalf.

We expect to begin contacting prioritized properties to provide technical assistance in spring 2021 and continue renewed efforts to characterize local water quality through both 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. Working with local tribes, Skagit County, state and local conservation districts, two fisheries enhancement groups, agricultural stakeholder groups and representatives, and others we developed the "Lower Skagit Temperature TMDL Strategy." Two NWRO staff guided the initial implementation efforts in 2020 as detailed below.

Our Skagit Nonpoint Specialist began 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. Ecology will evaluate the survey responses in early 2021 to guide more in-depth community-based social marketing (CBSM) research as resources become available. We will use these early survey results as appropriate in messaging during 2021. The following education and outreach tools are still under development and should be completed by Fall 2021:

- An educational four-part video series on water temperature conditions and solutions in the Skagit River Watershed.
- A quarterly newsletter to 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.
- A web-based ESRI Storymap to facilitate information sharing between implementation partners and the public on improving water temperatures in the Skagit River Watershed.

Summer field work in East Fork Nookachamps could not be completed as originally planned due to complications created by the state's Covid-19 response. However, NWRO staff prepared a Quality Assurance Project Plan (QAPP) for that work to start identifying opportunities for cold-water refuge creation and summer baseflow augmentation in the East Fork Nookachamps Creek. That QAPP allowed us to quickly respond to a request for technical assistance in Turner Creek in association with a combined drainage maintenance/restoration project led by Drainage District 21 and the Upper Skagit Indian Tribe.

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
Nooksack River/Portage Bay/Drayton Harbor	95	4	1

During 2020, Ecology nonpoint staff 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 early spring of 2020, Ecology participated in planning the WCWP spring outreach and messaging strategy. Due to staffing reductions, however, Ecology continued to focus on source identification and landowner contacts, rather than producing general outreach materials. Along with the Ecology staff member working with the Clean Samish Initiative, Bellingham Field Office nonpoint staff focused on developing Ecology's role as the regulatory backstop in the respective PIC programs. They participated in a series of discussions with WCWP and CSI partners along with Ecology's policy staff and managers around improving the clarity, efficiency and effectiveness of our referral process and role as regulatory backstop.

While COVID-19 restrictions severely limited fieldwork during the spring and early summer, the WCWP partnership continued pollution prevention work, focusing on inter-agency collaboration, and contacting landowners with previously identified pollution concerns. When fieldwork resumed, staff took systematic surveys to take stock of the watersheds Ecology works in, and pre-emptively contacted landowners about preparing their properties for the coming rains to minimize the risk of discharging polluted runoff. This effort identified previously unknown livestock sites, and tracked changes in conditions at previously identified sites. The Whatcom County manure application ordinance is currently being updated to improve enforceability and water quality protection efficacy.

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. WCWP partners conduct storm sampling, 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" (WTG), to implement our three-year plan to address high concentrations of fecal coliform bacteria crossing the border in Bertrand and Fishtrap creeks. We are implementing the Three-Year Work Plan approved in August 2018. BC Ministry of Environment implement components of the plan that include 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 2019-2020 Annual Report was completed in July, 2020. The Technical Collaboration Group (TCG) report summarizes data and evaluations of transboundary sub-basins, the larger lower Nooksack River watershed, and the Portage Bay Shellfish Growing Area. British Columbia Ministry of Environment and Climate change also worked with local Canadian partners to draft a detailed bacteria flux analysis of Bertrand and Fish trap waterways. The draft study identified the degree of influence on the Nooksack River and Portage Bay bacterial loading. Problematic reaches with elevated pollution were identified in British Columbia. This international collaboration has allowed for continued coordination of sampling efforts, information sharing of pollution control strategies, and collaboration identification of areas for improvement or extended watershed protection. International collaboration allows for dissemination of crucial information regarding the water quality of the transboundary watershed.

Southwest Regional Office

Upper Chehalis- Stearns Creek:

In 2019, nonpoint staff worked with landowners to identify sampling locations so the team could conduct sampling on various segments of Stearns Creek to identify potential sources of pollution. The nonpoint team took 48 water quality samples to identify a trend in loading concentrations. After engaging with landowners and discussing best management practices, water quality monitoring data showed reduced bacteria concentrations in Stearns Creek. Landowners were provided with sampling results and a map of results for the area during each visit the nonpoint team completed. Two landowners installed fencing to restrict cattle access,

and one landowner agreed to receive technical assistance from the conversation district. The combined BMPs installed resulted in over 3,000 feet of fencing installed on Stearns Creek. Moreover, the Chehalis Tribe continues monitor the upstream and downstream locations on Stearns Creek and provides monthly data to Ecology. This sharing of this information has been extremely successfully because it has allowed the nonpoint team to develop a trend analysis for the watershed area.

In 2020 additional sampling was conducted to isolate pollution sources on a tributary where high concentrations of bacteria had been found previously. The investigation has involved collaboration with Lewis County environmental health staff and local land owners. Once the source has been found and corrected, further water quality improvements are anticipated.

East Fork of the Lewis River

In 2020, SWRO 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 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 pending 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 2021 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 2019 and 2020. Initial windshield surveys were conducted in the summer of 2020 during the dry season, and wet weather windshield continued in the fall and are ongoing. One site was closed due to a change of ownership of the parcel in questions and livestock no longer present on site. A joint site visit was conducted with Thurston Environmental health staff at the second site where significant improvements were made and additional recommendations were given.

Key Peninsula:

The Key Peninsula area within Pierce County contains three sites of concern identified in 2019 and one site of concern identified in 2020. Staff conducted field surveys in dry and wet weather to assess the current status of the sites from 2019, which are no longer sites of concern. One site is a marina leased on DNR land which will not be renewed, and two sheep farms are cooperating with Pierce Conservation District on Farm Plans and BMP implementation. The site identified in 2020 involved manure storage where pollution could be running off the property. We contacted this property owner through a combination of TA letters and phone calls to their business.

Nonpoint Enforcement Efforts

In 2020, SWRO Nonpoint staff issued two formal enforcement actions for nonpoint pollution. One of these was Administrative Order issued to an agricultural landowner for discharge of bacteria and other pollutants (pre-consumer waste) to waters of the state from his agricultural property in Buckley. The second was an Agreed Order to protect water quality and restore wetlands after unpermitted site development, where there was discharge of sediment and the rerouting of 700 feet of stream channel on a tributary of the Cowlitz River in Lewis County.

Central Regional Office

Implementation activities continued support of the Upper Yakima Suspended Sediment TMDL in 2020. 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.

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 implemented 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 will be finished in 2021. 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 2021.

The Asotin Creek has seen significant improvement over the last few years since the completion of the Asotin Creek STI. In 2020, the Asotin County Conservation District implemented more livestock exclusion fencingin 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

With the Deadman and Meadow Creek 4b projects, ERO staff have been collaborating with the Pomeroy Conservation District to implement projects in 2020 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 in partnership with the Conservation Reserve Enhancement Program (CREP), a priority reach with of Deadman Creek significant pollution problems was protected and restored.

ERO began scoping for watershed cleanup plans in the Spring Flat, Almota and Alkali Flat watersheds in 2019. 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 for Spring Flat Creek and early GIS and field work completed for Almota and Alkali Flat watersheds.

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 2020, Ecology contacted 10 tillage sites and 5 livestock sites. As of December 2020, 30 priority tillage sites and 15 priority livestock sites have been contacted as part of the agreement. Extensive technical assistance was provided to the landowners. To date, 12 of the 20 tillage sites and 5 of the 10 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, 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 was recently awarded approximately $1.75 million in grant and loan funds that will assist with addressing non-point issues in the Hangman Creek Watershed. The funds look to provide low interest loans for no-till or direct seed equipment for farmers, water quality education, and cost-share for riparian restoration and conservation tillage.

Regional staff also partnered Ecology helped to fund using our Centennial/319 funds a major restoration effort called the River Mile 17 project in the Lower Hangman Valley. The project pulled back eroding banks and planted them with native vegetation. The project restored nearly a mile of stream with 4000 native plants, and kept many tons of sediment out of the creek. The Eastern region also participated with the Spokane County Parks Department using the Coastal Protection Account (Terry Husseman grants) on an effort to remove Latah Valley Golf Course fairway turf grass and plant native trees and shrubs along Hangman Creek.

Hangman Creek Direct Implementation Fund (DIF) Pilot

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.

Project Name	BMPs	Waterbody	Partner	Description
Loucks Tillage	Riparian Planting	Hangman Mainstem	Spokane Tribe	Riparian buffer established along Hangman Creek near Idaho border. 3,000 feet of mainstem Hangman was protected and 600 larger native trees were planted.
Scott Cattle	Fencing, off-stream water planting	California Creek	Trout Unlimited and Couer	Riparian buffer established along California Creek. . More than 2500 feet of stream was protected and 850 larger native trees were planted.

Upper Columbia Horses	Fencing, off-stream water planting	Spangle Creek	Spokane Tribe	Stream buffer and livestock management BMPs were implemented on Spangle Creek. More than 1200 feet of stream was protected and 600 native plants were planted.
Howard Cattle	Fencing, off-stream water, planting, Heavy use protection	Cottonwood Creek	Spokane RiverKeeper	A buffer was installed along Cottonwood Creek. Livestock exclusion fencing and covered heavy use protection was also constructed. More than 2100 linear feet of stream was protected and 1200 trees and shrubs were planted.

Table 1. Hangman Creek watershed projects implemented using Direct Implementation Funds in 2020

In 2020, Ecology worked to target the implementation funds toward four of the most severe non-point pollution problems in the watershed. Plans were completed to use an additional $135,000 in funding will to implement BMPs at these problem sites identified by Ecology during watershed evaluations. Livestock pollution is the concern at three of the sites and one site has severe erosion from tillage practices. More than four miles of livestock exclusion fence was installed and approximately 25 acres of riparian area were restored using DIF funds in 2020.

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 2020, the eastern regional staff focused on five main watersheds or areas where data shows water pollution problems are present. Because of the Covid pandemic, staff were forced to perform much of the evaluation work in the fall instead of spring. 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)

- Walla Walla watershed
- Blue Mountain tributaries (Tenmile, Couse, Asotin, Alpowa, Deadman/Meadow)
- Palouse River including Union Flat Creek
- Hangman Creek

Staff identified more than 200 pollution problem sites and contacted a total of 25 landowners as the next step follow up from the watershed evaluations. More specifically, five livestock and ten tillage sites were contacted in the Hangman, and ten 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 2020. Staff continue to work with these landowners to meet and discuss practical conservation practices for implementation to work towards greater water quality.

The Eastern Regional Office prepared two formal enforcement actions for livestock management in 2020. One of the actions was in Hangman Creek and the other was in the North Fork Palouse River watershed. Both were Administrative Orders requiring landowners to exclude livestock from surface water and protect the stream corridor.

3.1.3 Complaint Response

During 2020, 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

In total, Ecology responded to 289 ERTS complaints across the state. The numbers and types of complaints received vary by region:

Regional Office	# of ERTS complaint responses
Northwest, Bellevue Office	14
Northwest, Bellingham Office	16
Southwest	169
Central	>20
Eastern	70

Northwest Regional Office

Ecology hired two new nonpoint specialists; one in late 2019 focused primarily on the Skagit Watershed and one in Spring 2020 focused primarily in the Snohomish and Stillaguamish Watersheds. These positions promote water cleanup activities that support orca recovery. Unlike previous nonpoint field specialists working out of NWRO Bellevue, these staff work with the basin-specific Water Quality Specialists to address the full range of impairments that affect salmon recovery. Complaint response remains a primary responsibility for these new staff.

Complaint response training for both of these new staff was delayed due to the state Covid-19 response. However, by the end of 2020 both NWRO Nonpoint Field Specialists began responding to complaints, primarily bacteria- and nutrient-pollution related problems. Local partners such as the Whatcom County, Whatcom County Conservation District, the City of Bellingham, and Washington State Department Agriculture coordinated ERTS responses based on jurisdiction and area of expertise.

2020 complaint responses:

- 14 ERTS complaints at NWRO Bellevue Office
- 16 ERTS complaints at NWRO Bellingham Office, 2 in Skagit County and 14 in Whatcom County

Southwest Regional Office

Southwest Regional Office SWRO Nonpoint staff responded to 169 ERTS complaints in 2020. These involved a combination of concerns about water quality, agriculture, livestock, sediment and other types of discharges. SWRO staff often coordinated with our local, state, and federal partner agencies in the investigation and response. Three of these resulted in formal enforcement, with Ecology issuing Notice of Violation letters.

Eastern Regional Office

During 2020, the Eastern Region responded to more than 70 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
- Tillage Pollution
- Stream Dredging
- Dairy Waste
- Debris and Garbage
- Mud/silt/sediment/turbidity
- Herbicide/pesticide application
- Fertilizer
- Manure
- Yard Waste

The eastern region uses a similar approach to complaint response as it 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 address with proactive assistance. For instance, ERO received three complaints regarding stream dredging in 2020. These complaints involved streams dredged in order to reduce riparian soil moisture so farms can continue to till to the edge of streambanks. Staff worked with landowners to plan buffers along dredged streams to both mitigate the water quality impacts of the dredging and reduce the need for future dredging activities. In 2020, the eastern region was able to address a priority problem site where we have received multiple complaints regarding a livestock operation on the North Fork of Deep Creek in Stevens County. In partnership with the Friends of Deep Lake, the Department of Natural Resources, and the Stevens County Conservation District, the Eastern Region excluded cattle and restored a portion of the stream. A livestock barrier made of logs was installed in lieu of fencing and phase 1 planting was completed at the site.

Central Regional Office

Central Regional Office During 2020, the Central Region responded to more than 20 nonpoint source pollution related complaints received by our agency. Ecology received a variety of complaints on a wide range of activities including:

- Livestock
- Suction Dredging
- Dairy Waste
- Debris and Garbage
- Mud/silt/sediment/turbidity
- Herbicide/pesticide application
- Yard Waste

The Central Region primarily conducts complaint response in place of watershed evaluations due to a vacant nonpoint position. We verify complaints 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 address with proactive assistance.

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 2020, 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

Northwest Regional Office

Nonpoint specialists and TMDL leads participate regulatory in the Stillaguamish Phase II 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 II PIC wrapped up in late 2019/early 2020. Stillaguamish Phase III PIC officially kicked off in summer 2020, newly led by the Snohomish Conservation District. After a comment arose during Phase II about unmaintained septic systems in Old Stillaguamish Channel area, Ecology staff worked through septic records to prioritize parcels and presented the results of that work at a Phase III advisory group meeting in early 2021.

Southwest Regional Office

Ecology's Southwest Regional nonpoint staff work closely with PIC Programs in Hood Canal, and Pierce, Thurston, and Clallam counties by participating in periodic meetings with local partners to strategize how to and who should respond and address ERTS complaints. 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 pending legislative approval of the 2021 budget.

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.

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

3.1.6 Support No Discharge Zone Designation for Puget Sound

In 2020, 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.

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.

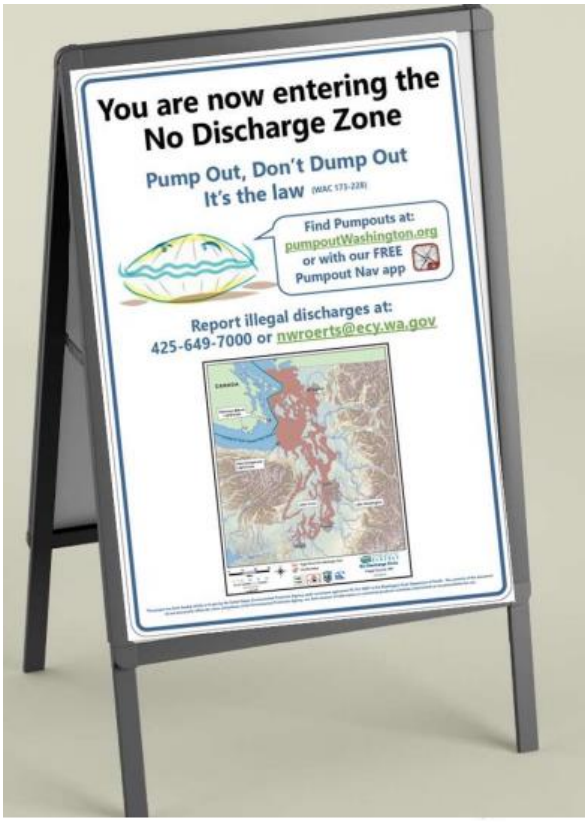


Photo 3. No Discharge Zone display board used for outreach at Puget Sound harbors and marinas.

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 inform the development of a coordinated multi-media campaign creating a more effective branding identify for the NDZ going forward. The research study was conducted during 2020 and involved focused interviews and two separate online surveys. Ecology, with assistance from some members of the NDZ Education and Outreach Committee, reviewed the study findings and recommendations and developed a list of follow-up actions and outreach materials to prioritize for early 2021. This included the finalization of a new NDZ slogan (Pump Out, Don't Dump Out), logo, signage, a video, and magazine ads, among other products. Due to the COVID-19 pandemic, boating events across the Puget Sound were canceled throughout 2020, limiting boater engagement opportunities. However, Ecology communicated about the NDZ using other means, such as providing NDZ rule email updates for County health departments and including NDZ-related slides in online webinars that our partners carried out for marinas. The Pumpout Nav app was also updated in 2020 to include pumpouts across Puget Sound, and Ecology supported getting the word out to boaters via multiple social media posts. In 2020, the NDZ Enforcement Committee convened to discuss illegal discharge reporting options and the potential enforcement process. Ecology developed a draft Enforcement Strategy which included an Enforcement Plan, supporting documents such as an example County marine sewage ordinance, and suggestions for how each partner agency could play a role.

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.

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 2020, 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.

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.[3]

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.

[3] Covered below in section 3.2.2.

In 2020, we had six regional staff act as field inspectors. 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.

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.

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 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 2020 we made significant progress on the guidance. We completed a draft of the first chapter of the guidance: Tillage and Residue Management. We have made the draft available for the public and will finalize the chapter when we update the nonpoint plan in 2022.

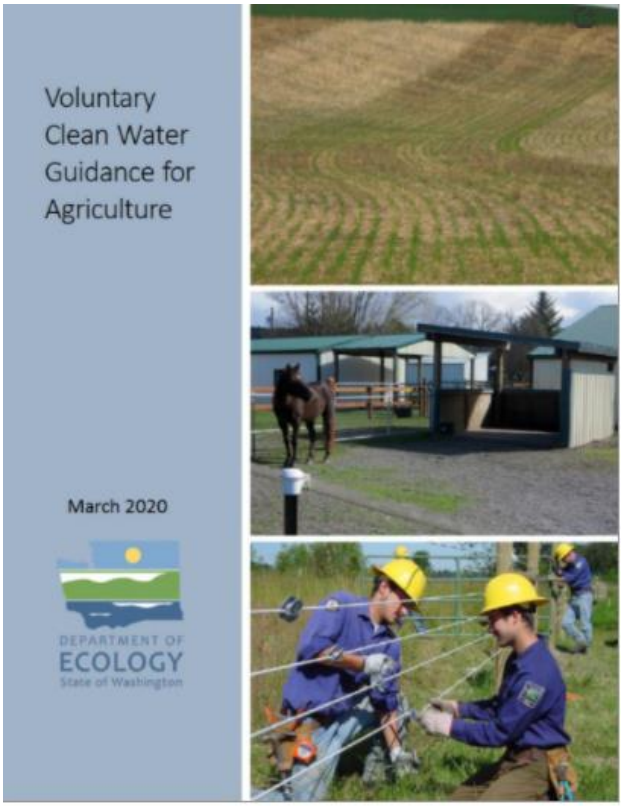


Photo 4 The first draft chapter of the Voluntary Clean Water Guidance for Agriculture was published for open comment in April 2020.

We continued work on guidance for riparian buffers. Which included further literature searches and refinement of a draft bibliography focused on the effectiveness of buffers at preventing the delivery of sediment, nitrogen, phosphorus, pathogens, heat, and toxics into streams from agricultural related activities. We also made substantial progress on developing an annotated bibliography for each of the primary literature sources (i.e. a detailed summary of each journal article). Work on the riparian buffer chapter was put on hold in deference to a larger State/Tribal effort related to riparian areas. We plan restarting work on the riparian buffer chapter in 2021.

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 started the development of guidance for a new practice, structural sediment control basins, which is intended to address sediment erosion at various agricultural settings. This included similar literature searches and reviews conducted for other practices. We also held multiple advisory group meetings in 2020 and presented information about each practice including draft findings. We plan to release drafts of the livestock related BMPs and sediment control BMP in

2021. 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).

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 program provides a substantial framework for bringing forest practices into compliance with the water quality standards. In 2009, as part of a review of the forestry program, 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 (which were set to expire in 2019) with the intent to stimulate the needed improvements to the forest practices and adaptive management programs.

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. These milestones serve as a corrective action plan necessary to retain the assurances into the foreseeable future.

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 previous 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 two 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. A workgroup was convened to develop recommended harvest prescriptions to help inform rule making. While the work is ongoing with a report expected in April, it is estimated that new rule development will not be complete until at least May 2022. Additionally, by the end of 2019 a more permanent funding sources was put in place for the Adaptive Management Program, guaranteeing continued research by CEMR.

Appendix A shows a table of corrective milestones and their status as was reported to the Washington Forest Practices Board at their April 2021 meeting.

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. Director Laura Watson has since filled the Director role and decided to keep continue the committee. 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 2020, the committee met virtually on July 22nd, and October 15th. 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 July meeting, the agenda included presentations and discussions on the following topics:

- Pollution Identification and Correction Programs
- Watershed Evaluations in the Hangman Watershed
- Updates on Ecology programs: Voluntary Clean Water Guidance, CAFO, regional updates

At the October meeting topics included:

- Pollution Identification and Correction Programs
- Watershed Evaluations
- Covid-19 Impacts

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 August 5th and November 18th, 2020.

WQP meetings were held on June 17th, September 17th, and December 10th, 2020. 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 4 Forums in 2020 and have another 5 Forums planned for 2021. For more information on the Forum meetings please visit:
https://www.ezview.wa.gov/DesktopDefault.aspx?alias=1962&pageid=37106

In 2020, Ecology staff worked with MWQ IS core and Interdisciplinary teams (including subject matter experts in wastewater, agriculture and aquaculture, stormwater, urban planning, and nonpoint implementation) and hosted several workshops in the IS development process.

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 CDs 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. In 2019, Ecology, NRCS, and the Palouse CD met to launch as well as report on this initiative. Monitoring and non-point BMP implementation work was temporarily paused in 2020 due to Covid-19.

- Kamiache Creek and Thorn Creek Paired Water Quality Study – The Palouse-Rock Lake and the Palouse CDs partnered with the Ecology to fund conservation tillage and buffer projects in the Kamiache Creek watershed and then monitor to see if we could tell a difference in water quality between Kamiache Creek and nearby stream that did not conservation tillage and buffer projects implemented. In addition to cost-share funding, Ecology provided EAP resources. The results of the study demonstrated that sediment delivery can be significantly reduced in the Palouse region through the implementation of conservation tillage in combination with buffers. In 2019, the Department of Ecology worked with the Palouse-Rock Lake CD and the Palouse CD to dedicate additional implementation funds toward Thorn Creek, a significant source of sediment pollution.
- 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, pending legislative approval of the 2021 budget.
- Prioritizing efforts in the Enumclaw Plateau to address the Puyallup Fecal Coliform TMDL has resulted in a partnership with King CD and the King County Livestock Program to assess the impacts agricultural activities may have on water quality in the Lower White River and its tributaries (Boise, Pussyfoot, and Second Creeks). In addition, an interagency team, convened by Ecology, consists of the local, state, federal, and tribal representatives. This team discusses water quality data, potential sources, and corrective actions needed to reduce FC contributions.
- Renewed efforts in the Skokomish Valley connected Ecology staff with various partners working in the watershed and facilitated collaborative partnerships and re-established lines of communication 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
    - Anna's Bay

  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 2020, 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. We also requested a renewal for the Spokane project in 2020, and have not yet heard from NRCS regarding that request. These partnerships can be very successful. Over the last six years (including 2020), the Palouse RCPP has implemented 354 acres of riparian buffers; 61,395 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.

Additionally, in 2020 Ecology continued supporting the Lower Yakima Valley Yakima GWMA (Groundwater Management Area) as a member of the GWMA Advisory Committee (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 2020, 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 two Regional Conservation Partnership Program (RCPP) projects, the Palouse River and the Spokane River funded by NRCS.

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 2020, 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. We are also broadening our temperature improvement toolbox by conducting a thermal and habitat survey in East Fork Nookachamps in 2021.

Ecology's NWRO continued to maintain strong relationships with the Tulalip, Muckleshoot, Stillaguamish, and Snoqualmie Tribes in 2020. 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 2020. 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.

In 2020, the Confederated Tribes of the Chehalis River Environmental Program staff and the SWRO nonpoint team continued to collaborate on finding and fixing sources of pollution in the Chehalis River watershed. The water quality staff for the tribe conducts routine water quality monitoring of the watershed. The tribe has shared exceedances with the nonpoint team, who then conducts a watershed assessment of the area to identify sources of pollution and ways to correct it.

Through 2020, 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 continues TMDL water sampling efforts initiated by Ecology in 2001. These efforts continue to provide Ecology staff with valuable information regarding bacterial levels in the Skokomish Valley.

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 will meet on a regular basis during 2021. Collaborative partnerships will be central to the accomplishment of durable riparian ecosystems.

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 5 Ecology nonpoint staff taking water quality samples in northwest Washington.

In 2020, Ecology developed and finalized the QAPP for Effectiveness Monitoring of the Snohomish Tributaries Fecal Coliform TMDL. 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. Monitoring at selected sites began in October of 2020 and is expected to continue through September of 2021. A project dashboard displaying results as they are being collected is available at this link.

Ecology's effectiveness monitoring effort in Boise, Pussyfoot, and Second Creeks that began July 2019 continued through 2020. 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, EAP will began a one year monitoring study in the Snohomish River watershed to assess the effectiveness of the 1996 TMDL at reducing bacteria levels in the tributary streams. The water quality program has been actively compiling implementation information that will be used in the final report. A project web site is expected to be completed to support local stakeholder groups.

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 Environmental Assessment Program (EAP) continued to develop a Quality Assurance Monitoring Plan (QAMP) for assessing effectiveness of pollution control plans in Washington State during 2020. 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

In 2019 and 2020, three key developments occurred associated with efforts to protect groundwater resources from nonpoint contamination: updates to the Critical Aquifer Recharge Area Guidance, the revision of the Onsite Septic System Rule, and the Washington Nitrate Project.

Critical Aquifer Recharge Areas

In 2020, the Critical Aquifer Recharge Area Guidance public review draft was completed and will be open for public comment from March-May 2021. After the comment period, Ecology will respond to comments and 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 includes 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 continued to work on revising the Onsite Sewage System (OSS) rule during 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. Ecology continued to provide technical and policy consultation, such as reviewing documents used to determine limits on loading and by estimating loading to groundwater with alternative technologies or minimized land areas. WDOH is working on the requirement for a hydrogeological assessment and nitrogen balance for developments of a certain threshold size. WDOH is consulting with stakeholders, Local Health Directors, Ecology, and environmental interests to resolve differences. The rule is expected to be adopted in the fall of 2021.

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. The data are summarized and displayed on a Story Map, so that the location of elevated levels of nitrate can be viewed. In addition, graphs are made of sample records with at least four samples, with at least one concentration at 5 mg/L as N or above. The sample summaries, graphs, and links to the original database record for the well are all displayed as popups in the Story Map. This enables a user to see where nitrate has been elevated, what the most recent sample value is, and (if there is a graph), whether the time series graph shows increasing or decreasing nitrate levels.

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.

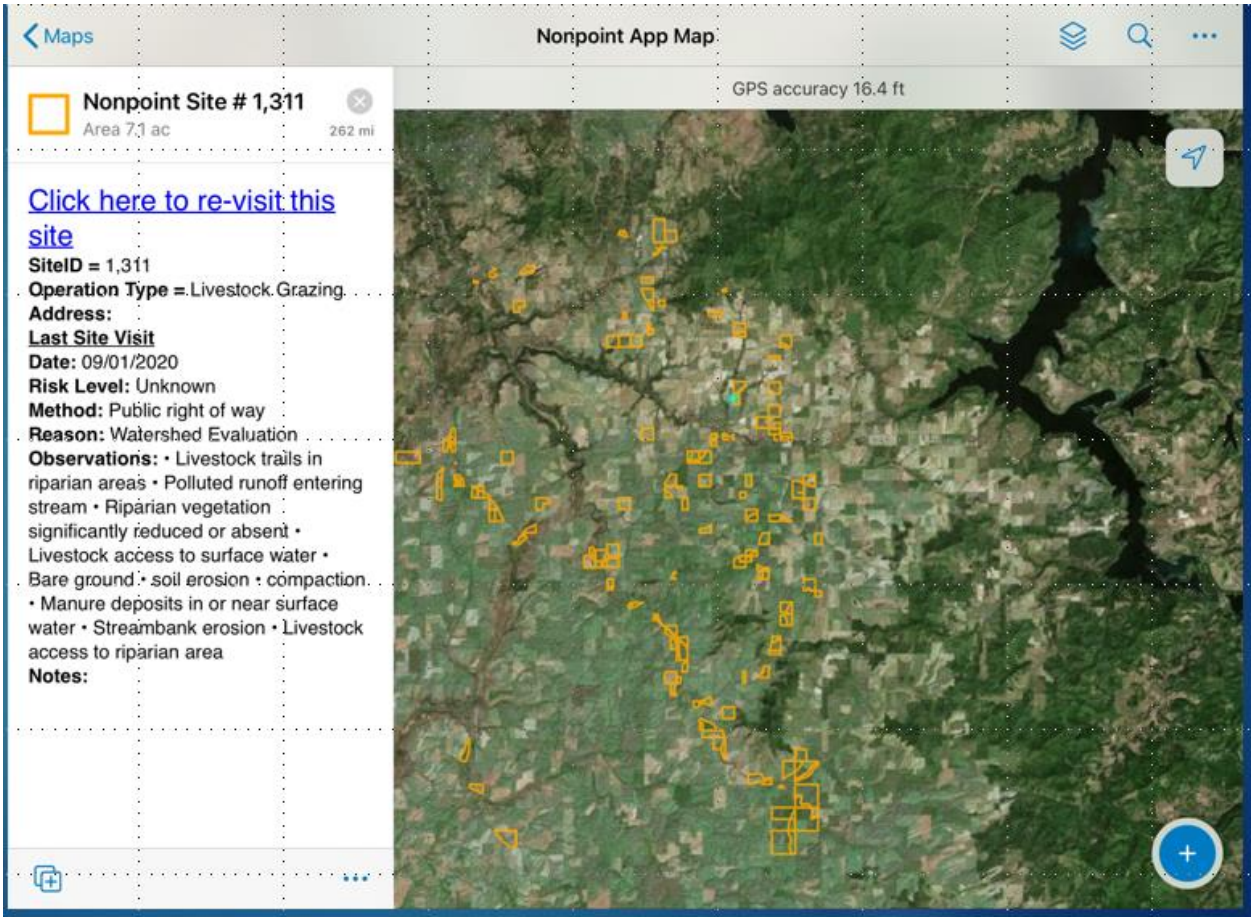


Photo 6 Screen view of the Nonpoint Collector Application shows how Ecology staff can track site visits at particular locations.

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 system will also help us collect information and meet reporting requirements found in the settlement agreement.

The Water Quality Program has completed and deployed the mobile applications needed to collect, submit and view data in the field (using mobile devices) and also released a working version of the web-application to view, edit, add and manage data in a desktop environment. Enhancements to the web application are planned in the coming year, which will include additional data tracking and reporting functionalities. Future focus will be on system enhancements to meet any additional staff and manager's needs and on-going training.

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 (for grant applications submitted in 2019).

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 2020, the State of Washington made considerable progress in protecting water quality from nonpoint source pollution. However, as EPA is well aware, water quality protection efforts inherently face significant ongoing social, financial and technical challenges. Fortunately, 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. Response to COVID-19 dramatically changed how we work in Washington, including delays to fieldwork and watershed evaluations and adjusting to remote work across the state. Despite COVID-19 changing the way many of our staff were able to do their work, we were able to accomplish considerable work in nonpoint pollution prevention and water quality protection.

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.

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.

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. 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 2021. This process has gained the support and participation of a diverse group of stakeholders. Moving forward, this guidance will serve as an important asset in efforts to reduce NPS pollution form agricultural sources. Our funding program continues to be successful, responsibly managed and a model for using public dollars to facilitate the most effective BMP implementations. 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.

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: we can better communicate our strategy and goals to the public; we can further refine the tools we use to document and track water quality problems in watersheds; we can improve the strategies we use to achieve clean water goals in priority watersheds; and we can 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.

Appendix A

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

April 26, 2021

TO: Forest Practices Board

FROM: Brandon Austin,

Forest Policy LeadSUBJECT:

Clean Water Act

Milestone Update

The Washington State Department of Ecology (Ecology) committed to provide the Forest PracticesBoard (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 in May 2019. Since that time the Director of the Department of Ecology sent the attached letter to the Forest Practices Board extending the assurances until December 2021. In addition to the expectation the rules are updated address completed science from the Cooperative Monitoring, Evaluation and Research Committee (CMER), the letter stated that continued progress on the milestones is critical, especially those research milestones that showwhether the rules are achieving water quality.

Under state law (RCW 90.48.420(1)) the adoption of “forest practices rules pertaining to water quality by the forest practices board shall be accomplished after reaching agreement with the director of the department *(Ecology)* or the director's designee on the board… so that compliancewith such forest

practice[s] rules will achieve compliance with water pollution control laws". This directive is integral to meeting legislative intent to use the Forest Practices Rules affecting water quality protection to satisfy requirements of section 208, 209, and 305 of the federal CleanWater Act, as regards silvicultural activities (RCW 90.48.425) and to achieve compliance with all applicable requirements of federal and state law with respect to nonpoint sources of water pollution from forest practices" (RCW 76.09.010(2)).

The Forests and Fish Report (FFR), adopted by the Board under direction of RCW 77.85, includes the goal to meet the requirements of the Clean Water Act for water quality on non-federalforest lands and using the Adaptive Management Program (AMP) to revise the rules as needed.The FFR, with this goal and the performance target of meeting the state standards, was subsequently incorporated into the HCP (Introduction and Implementation Agreement clause 10.1).

As part of the FFR, Ecology recognized the proposed rules would improve water quality protectionand may meet water quality standards long term, reducing the urgency to develop TMDLs.
Ecology provided assurances to landowners that the new regulations would be relied on to protect water quality for a 10-year period (until July 1, 2009) while the rules were tested. This was believed to provide adequate time to determine if the rules are effective in achieving water quality.

In 2009 Ecology completed our review of the implementation of the rules and concluded that we could not state that the rules were achieving water quality. Based on the belief the AMP was still capable of testing the rules we established these corrective milestones to serve as benchmarks that if met, would provide us with a level of confidence that the rules were working. Ecology decided to extend the Clean Water Act Assurance for an additional 10 year period, to 2019. The 2009 corrective milestones were established to create a framework for making steady progress in gathering information critical for assessing the effectiveness of the rules in protecting water qualityas mandated by state law. Equally important was the intention to stimulate changes that would result in a more effective research program to test the rules consistent with adaptive management and adjust the rules in a timely fashion, through Policy and Board action.

The Assurances are based on the premise that given the mandates in state law (RCW 76.09.370(7))Ecology and the EPA can rely on the AMP to use sound

scientific principles to test the effectiveness of the FFR-based rules in meeting water quality standards, and "to make adjustmentsas quickly as possible to forest practices" if they are ineffective. It has been more than 20 years since the Assurances were first granted, but water quality aspects for many of the rules remain untested.

In 2019, based on the charter timeline and formation of the *Timber Fish and Wildlife Policy Technical Type N Prescriptions Workgroup*, Ecology granted an additional 2 year extension of theAssurances with the expectation a CR 101 be filed by this summer and a draft CR 102 would be available for public review by the end of the year. At the November 2020 Board meeting, DNR staff presented a work schedule that did not contain the CR 102. Ecology voted no on acceptance of this work schedule. A timeline for rule making has since been developed but does not meet the expectations stated in the 2019 Ecology memo to this Board. Ecology will need certainty the AMPcan be relied on to meet the expectations previously stated, and the expectations of the legislature.

In addition this memo from the Ecology Director stated the following:

> *Ecology believes that, in addition to committing to rulemaking to protect water temperature on Type N streams, improvements to the Adaptive Management Program Process are necessary to create a program that participants can rely on to test the effectiveness of the rules in protecting water quality and to finally modify those rules as science dictates. Therefore, we urge the Board and the Adaptive Management ProgramCooperators to identify and implement system improvements, over this two year period,and to continue to prioritize the completion of the remaining uncompleted research milestones identified in the 2009 Assurances review.*

Enclosed are two tables showing the milestones and their current status. Points of note arehighlighted in red and reflect changes since our last briefing in 2019:

- Table 1 shows the CMER Research Milestones. Scoping, study design, implement and complete (final report) are used to indicate the different steps of a CWA project and occur indifferent calendar years. A CWA project may have completed scoping and study design butbe delayed of off-track for implementation or completion.
- Table 2 shows the non-CMER project milestones. These milestones are

implemented outsideof 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.Enclosure

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

CMER Research Milestones		
Description of Milestone		**Status as of January 2021**
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 January 2021**
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 projects with the first project sent to ISPR 2018, project 2 completed ISPR in 2020.
	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	**Underway** **February 2017** Unexpected permit delayed the start of study to Spring 2019. Additional issues were encountered with monitoring equipment. Replacement/repairs have pushed the projected completion estimated to 2029.
	Scope: Type F Experimental Buffer Treatment	**Scoping Completed** December 2015 Study was originally expected to proceed to implementation without a pilot study phase. It was later determined that a pilot study was needed. Since, a pilot study has been completed. Scoping for the full study has been completed. Completion of study scheduled for 2028.

CMER Research Milestones		
Description of Milestone		**Status as of January 2021**
	Implementation: Examine the effectiveness of the RILs in representing slopes at risk of mass wasting	**Earlier Stage Underway** Complete project 2 with final report in 2021. 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** Study design approved by CMER December 2019 and presented to Policy in August 2020. 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** 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)	**Off Track** Project is being re-scoped, expected in 2021.
2017	Study design: Watershed Scale Assess. of Cumulative Effects	**Off Track** Discussed above for 2015 scoping. Study design expected 2029.
	Study Design: Amphibians in Intermittent Streams (Phase III)	**Off Track** Scoping scheduled for 2021. Study design expected in 2028.
2018	Complete: Roads Sub-basin Effectiveness	**Not Progressing** Project to be re-scoped in 2029 with completion in 2032.

CMER Research Milestones		
Description of Milestone		**Status as of January 2021**
	Implement: Watershed Scale Assess. of Cumulative Effects	**Off Track** Discussed above for 2015 scoping. Implementation scheduled to start 2030.
	Complete: Type N Experimental in Incompetent Lithology	**On Track** Report is currently in ISPR with an expected completion summer 2021.
2019	Complete: Eastside Type N Effectiveness	**Earlier Stage Underway** Discussed for 2013 implementation. 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 January 2021[1]**
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 AMP funding was believed to be secured through the FFSA but came in under expectations for the 2019/21 biennium and additional cuts due to expected revenue shortfalls.
	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

Non-CMER Project Milestones		
	Summarized Description of Milestone	**Status as of January 2021[1]**
	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
	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** Draft State Auditor Office report presented to the Board February 2021

Non-CMER Project Milestones		
	Summarized Description of Milestone	**Status as of January 2021[1]**
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
2012	October 2012: Reassess if the procedures being used to track enforcement actions at the individual land owner level provides sufficient information to potentially remove assurances or otherwise take corrective action.	**Completed** June 2012
	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.	**Off Track** 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 50% complete. Completion expected in 2021.

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 incompleting the milestone, or 3) attempt at solution was inadequate and no further effort at developing an acceptable solution is planned.

Appendix B

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	