

# IEC



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## Effectiveness of State Programs on Riparian Habitat Protection and Restoration

### Analysis and Recommendations

Final Report | Dec. 1, 2022

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## List of Acronyms and Abbreviations

AMP	Adaptive Management Program
BAS	Best Available Science
BMP	Best Management Practice
CAFO	Concentrated Animal Feeding Operation
CAO	Critical Areas Ordinance
CFR	Code of Federal Regulations
Commerce	Department of Commerce
CBP	Commodity Buffers Program
CMER	Cooperative Monitoring, Evaluation and Research
CMZ	Channel Mitigation Zones
CPDS	Conservation Practice Data System
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
CUP	Conditional Use Permit
CWA	Clean Water Act
CWSRF	Clean Water State Revolving Fund
DFC	Desired Future Condition
DIP	District Implemented Projects
DNMP	Dairy Nutrient Management Program
DNR	Department of Natural Resources
DOH	Department of Health
EAGL	Ecology's Administration of Grants & Loans
EAP	Quality Assurance Monitoring Plan
Ecology	Department of Ecology
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMAT	Forest Ecosystem Management Assessment Team
FOTG	Field Office Technical Guide
FPA	Forest Practices Application/Notification
FPB	Forest Practices Board

FREP	Forestry Riparian Easement Program
FSA	Farm Service Agency
FWHCA	Fish and Wildlife Habitat Conservation Areas
GMHB	Growth Management Hearings Board
GIS	Geographic Information System
GMA	Growth Management Act
GMS	Growth Management Services
GSRO	Governor’s Salmon Recovery Office
HCP	Habitat Conservation Plan
HRCD	High Resolution Change Detection
LHJ	Local Health Jurisdiction
LiDAR	Light Detection and Ranging
NGO	Nongovernmental Organization
NMFS	National Marine Fisheries Service
NMP	Nutrient Management Plan
NOAA	National Oceanic and Atmospheric Administration
NPS	Nonpoint Source
NRI	Natural Resource Investments
NRCS	Natural Resources Conservation Service
OFM	Office of Financial Management
OSG	Overflow and Stormwater Reuse Municipal Grants
OSS	On-site Sewage Systems
OWSA	Office of the Washington State Auditor
PIC	Pollution Identification and Correction
PIP	Practice Incentive Program
PHS	Priority Habitats and Species
PSEMP	Puget Sound Ecosystem Monitoring Program
PSAR	Puget Sound Acquisition and Restoration
PSP	Puget Sound Partnership
QAMP	Quality Assurance Monitoring Plan
RCO	Recreation and Conservation Office
RCW	Revised Code of Washington

RFEG	Regional Fisheries Enhancement Group
RHOSP	Rivers and Habitat Open Space Program
RMZ	Riparian Management Zone
SEPA	State Environmental Policy Act
SHB	Shoreline Hearings Board
SFAP	Stormwater Financial Assistance Program
SRF Board	Salmon Recovery Funding Board
USDA	U.S. Department of Agriculture
USC	United States Code
Salmon – PSAR	Salmon Recovery/ Puget Sound Acquisition and Restoration
SCC	State Conservation Commission
SFLO	Small Forest Landowner Office
SMA	Shoreline Management Act
SMP	Shoreline Master Program
SPTH	Site Potential Tree Height
SPTH <sub>200</sub>	One 200-year Site Potential Tree Height
STI	Straight to Implementation
TMDL	Total Maximum Daily Load
USFWS	U.S. Fish and Wildlife Service
VSP	Voluntary Stewardship Program
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WQC	Water Quality Combined
WSDA	Washington State Department of Agriculture



## EXECUTIVE SUMMARY

Engrossed Substitute Senate Bill 5693, Sec. 130(22) (2022) (the budget proviso) provided an appropriation to conduct an independent evaluation of “the effectiveness, utilization, and outcomes of the voluntary incentive programs for landowners and of existing regulatory programs responsible for protecting and restoring areas along streams and rivers toward achieving a science-based standard for a fully functioning riparian ecosystem.” This report presents the findings and recommendations resulting from that evaluation.

The detailed technical analysis described in this report is founded in data collection and interviews guided by agency staff responsible for implementation of riparian-related voluntary and regulatory state programs. A synthesis of information collected across dozens of core state programs led to 13 key findings that articulate the successes of the existing network of programs, as well as barriers to effectiveness and opportunities for improvements. Based upon those key findings, we offer nine recommendations for consideration. These recommendations address both near and longer-term opportunities that we believe will best serve to further Washington’s progress in protecting and restoring riparian habitats across the state, and toward achieving a fully functioning riparian ecosystem. Table 1 describes how the key findings resulted in identification of the recommendations.

## Recommendations



1 | **DATA** Identify, collect and report a set of cross-program metrics describing riparian habitat protection and restoration achievements.



2 | **PROTECT** Leverage existing programs to facilitate protection and restoration of as much riparian habitat (e.g., acres, stream miles) in the near term as possible.



3 | **IMPLEMENT** Facilitate incorporation of the WDFW Riparian Guidance across regulatory and voluntary programs and assist programs in understanding and planning for Guidance implementation.



4 | **COMPLIANCE** Conduct an evaluation of the effectiveness of compliance and enforcement processes for riparian-related regulatory programs.



5 | **ADAPT** Encourage voluntary and regulatory programs to enhance strategies for adaptive management through additional funding.



6 | **SIMPLIFY** Simplify application and administrative processes and reduce barriers to participation in grant programs.



7 | **COORDINATE** Track and incorporate, as appropriate, ongoing efforts to evaluate the effectiveness of riparian protection and enhancement programs.


















8 | **EVALUATE** Conduct analyses of the roles of tribes, conservation organizations, and federal laws and programs in protecting and restoring riparian areas in Washington.



9 | **PRIORITIZE** Consider developing a prioritization strategy for targeted riparian area protection.

**Table 1. Key Findings and Resulting Recommendations**

Key Finding	Resulting Recommendation			
1   Washington state voluntary and regulatory programs have made significant progress in protection and enhancement of riparian habitat.		PROTECT		
2   Some programs are implementing or intend to implement WDFW’s science-based standard for a fully functioning riparian habitat (SPTH <sub>200</sub> ).		IMPLEMENT		
3   There are substantial existing opportunities for technical and financial assistance to support riparian habitat conservation and restoration.		PROTECT		ADAPT
		SIMPLIFY		PRIORITIZE
		COORDINATE		EVALUATE
4   Riparian habitat protections for managed forests and new development activities are well-established in existing regulations.		PROTECT		COMPLIANCE
5   Existing programs are identifying ways to be more nimble and flexible to increase participation, while ensuring the integrity of riparian habitat protection.		PROTECT		ADAPT
		SIMPLIFY		
6   There are multiple ongoing efforts aimed at understanding Washington’s progress with respect to riparian habitat conservation and restoration.		COORDINATE		PRIORITIZE
		EVALUATE		
7   Regionally focused programs and plans are a key contributor to riparian habitat protection.		PROTECT		
8   Data limitations inhibit understanding of how close the network of existing programs are getting to achieving WDFW’s SPTH <sub>200</sub> standard as well as program goals.		DATA		IMPLEMENT
		COORDINATE		ADAPT

Key Finding	Resulting Recommendation	
9   Program effectiveness is limited by a lack of enforcement and compliance monitoring.	 ADAPT	 COMPLIANCE
10   Inconsistency and insufficiency in levels of funding and program capacity can limit program effectiveness, as well as the ability to measure effectiveness.	 DATA	 PRIORITIZE
	 PROTECT	 ADAPT
	 COMPLIANCE	
11   Regulatory avenues focus on maintaining existing riparian habitat functions rather than creating functional uplift.	 PROTECT	
	 EVALUATE	
12   The complexity and cumbersome nature of regulatory processes can impede rapid integration of new science.	 IMPLEMENT	
13   The duplicative nature of frameworks and objectives across many of the 60+ riparian-related programs may create inefficiencies in the management of riparian areas, as well as competition for limited resources.	 IMPLEMENT	 EVALUATE
	 SIMPLIFY	 PRIORITIZE
	 COORDINATE	

## CHAPTER 1 | Introduction

Engrossed Substitute Senate Bill 5693, Sec. 130(22) (2022) (the budget proviso) provided an appropriation to conduct an independent evaluation of “the effectiveness, utilization, and outcomes of the voluntary incentive programs for landowners and of existing regulatory programs responsible for protecting and restoring areas along streams and rivers toward achieving a science-based standard for a fully functioning riparian ecosystem.” The Office of Financial Management contracted with Plauché & Carr, LLP and its subconsultant, Industrial Economics, Inc., under the budget proviso to perform this work. This report presents the findings and recommendations resulting from that evaluation.

Recognizing the significant past and ongoing effort dedicated to understanding riparian habitat function, conservation and restoration in Washington, the purpose of this analysis is to inform understanding of the extent to which the existing network of state regulatory and voluntary programs are achieving protection and restoration of fully functioning riparian habitats, and to identify barriers and challenges associated with implementing and evaluating these programs. The results of this analysis provide the foundation for recommendations regarding state program effectiveness, use and outcomes. The information provided in this report complements an independent facilitation process engaging tribes, state and local government leadership, and stakeholders from a variety of vital interests to develop recommendations on proposed changes in policy and spending priorities to improve riparian habitat being conducted for the Governor’s Office under Engrossed Substitute Senate Bill 5693 Sec. 117(12).

***“...to evaluate the effectiveness, utilization, and outcomes of the voluntary incentive programs for landowners and of existing regulatory programs responsible for protecting and restoring areas along streams and rivers toward achieving a science-based standard for a fully functioning riparian ecosystem.”***

— Engrossed Substitute Senate Bill 5693 Sec. 130(22)

The definition of “fully functioning riparian habitat” provides a foundational benchmark for this analysis. For the purposes of this analysis, a fully functioning riparian habitat is defined as meeting the standard identified within the Washington Department of Fish and Wildlife’s (WDFW’s) 2020 guidance document on Riparian Ecosystems, Volumes 1 and 2 (WDFW, 2020). That is, a fully functioning riparian habitat is where “protection and restoration of riparian ecosystem functions and value are addressed” within a management zone equal to one 200-year Site Potential Tree Height (SPTH<sub>200</sub>) in forested regions, or SPTH<sub>200</sub> or the width of the riparian vegetation community in dryland ecosystems, with identified exceptions (see Figure 1). Throughout this report we refer to this guidance as “WDFW’s SPTH<sub>200</sub> standard” or “WDFW Riparian Guidance.”

## Defining the Riparian Management Zone

**In forested ecoregions, start with  $SPTH_{200}$ :** At most riparian areas in forested ecoregions, the RMZ is delineated using one  $SPTH_{200}$ . If  $SPTH_{200}$  is less than 100 feet, the RMZ is delineated by the pollution removal function (see below). In highly altered areas where soil data are not available, it may be necessary to estimate  $SPTH_{200}$  values based on nearby soils.

**In dryland ecoregions, start with  $SPTH_{200}$ , if available, or the width of the riparian vegetation community:** If site conditions do not support tree species or  $SPTH_{200}$  is less than 100 feet, then RMZ width is determined by the full extent of all riparian vegetation (the riparian zone) or by the pollution removal function (see below).

**For both ecoregions, use the pollution removal function where appropriate:** Where the  $SPTH_{200}$  and/or the width of the riparian vegetative community is less than 100 feet, a minimum RMZ width of 100 feet is recommended as this provides the width necessary for 95% pollution removal target for most pollutants (approximately 85% for surface nitrogen).

(WDFW, 2020)

### Figure 1. WDFW Riparian Guidance on Defining the Riparian Management Zone

The remainder of this report is organized as follows:

- **Chapter 2** lays out our recommendations to “enhance the effectiveness, utilization, and outcomes of existing voluntary incentive and regulatory programs toward achieving a science-based standard for a fully functioning riparian ecosystem” (Engrossed Substitute Senate Bill 5693 Sec. 130(22)).
- **Chapter 3** describes the methodology employed to identify and evaluate the voluntary and regulatory state programs that protect and restore riparian habitats.
- **Chapter 4** synthesizes the findings of the evaluation process by identifying key findings that emerged from interviews with agency staff and available program data and information, which form the basis for the recommendations presented in Chapter 2.
- **Chapter 5** provides a more detailed evaluation of the effectiveness of 11 voluntary and regulatory programs identified as focal programs central to riparian habitat conservation and restoration in the state.
- **Chapter 6** summarizes recently initiated efforts targeted at improving riparian habitat conservation and restoration and addressing known barriers and challenges to program effectiveness.

## CHAPTER 2 | Recommendations

Engrossed Substitute Senate Bill 5693 Sec. 130(22) seeks recommendations to enhance the effectiveness, utilization, and outcomes of existing voluntary incentive and regulatory programs toward achieving a science-based standard for a fully functioning riparian ecosystem. The detailed technical analysis that follows in Chapters 3 and beyond is founded in data and information collection and interviews guided by key agency staff responsible for implementation of riparian-related voluntary and regulatory state programs. A synthesis of information collected across dozens of core state programs leads to key findings (Chapter 4) that articulate the successes and barriers to effectiveness of the existing network of programs, and opportunities for improvements. Based upon those key findings, we offer the following nine recommendations for consideration by the Office of Financial Management and the Washington State Legislature. These recommendations address both near and longer-term opportunities that we believe will best serve to enhance Washington's progress in protecting and restoring riparian habitats across the state, and toward achieving fully functioning riparian ecosystems.

### **Recommendation #1: Identify, collect, and report a set of cross-program metrics describing riparian habitat protection and restoration achievements.**

Collection and reporting of comparable data across programs will enhance understanding of the geographic scope and distribution of protected and restored riparian habitat by program and across the state, as well as allowing for monitoring effectiveness and progress over time toward achieving a science-based standard for a fully functioning riparian ecosystem. Efforts to monitor effectiveness with respect to both the reach (e.g., participation) and carry through (e.g., success of the riparian protection efforts, including ensuring the ecological integrity of the habitat over time) of the programs should be supported through additional funding to develop systems and methods where needed.

- 1a. Define a set of quantitative metrics specific to riparian habitats that can be tracked across programs. Basic program implementation metrics may include acres, feet, or miles of riparian area protected or enhanced either due to regulation or participation in voluntary programs. In addition, consider metrics demonstrating efficacy of efforts and quality of protected habitat including plant survival, native and invasive cover, or other metrics that can be collected over time to demonstrate maintained habitat quality in the long term. Include a measure of the total quantity of riparian areas across the state by program that are covered by individual regulatory programs or that are eligible for individual voluntary programs. This effort could consider work begun by the Puget Sound Partnership (PSP) and Puget Sound Ecosystem Monitoring Program (PSEMP) to develop a set of common indicators for riparian areas as a basis for developing quantitative metrics.
- 1b. Adopt specific goals at the program level with respect to quantity and quality of riparian habitat restored or protected rather than focusing exclusively on goals related to other endpoints such as water quality or species recovery. The Washington Department of Fish and Wildlife (WDFW) Riparian Guidance explicitly suggests focusing on measuring the extent of protection on-the-ground, recognizing the inherent value of riparian habitat in addition to the other endpoints.
- 1c. Target program funding and training to ensure consistent data collection across riparian-related programs to facilitate aggregating data across programs. In particular, consider supporting these efforts for Conservation Districts, which conduct and oversee much of the riparian conservation within voluntary incentive programs, and for local governments protecting riparian habitats as critical areas.

Agencies such as WDFW, Department of Commerce (Commerce), Department of Ecology (Ecology), and the State Conservation Commission (SCC) are well poised to provide training and technical expertise to those local governments and Conservation Districts.

1d. Provide funding to WDFW, Ecology, Commerce, SCC and/or the Recreation and Conservation Office (RCO) to develop or designate a central repository for storing data related to riparian habitat to facilitate aggregating data across programs. Data collected would include data identified in 1c, above. This repository is especially important for understanding the impact of local Critical Areas Ordinances (CAOs), Shoreline Master Programs (SMPs), Comprehensive Plans and voluntary programs. The existing PRISM platform, managed by RCO, is the most well-developed and maintained existing system that collects and organizes data specific to riparian habitat metrics, and could potentially be expanded or used as a model to accommodate collection and management of riparian metrics across a broad range of programs.

1e. Explore opportunities to digitize and make available the spatial footprints of projects that have protected or restored riparian habitat. For example, develop spatial data for Department of Natural Resources (DNR) forestry data related to riparian areas, including data collected in the Forest Practices Program and the Forestry Riparian Easement Program (FREP).

1f. Increase the use of GIS analysis to provide information on the riparian habitat being treated/protected to help the state understand the footprint of areas protected. Continue PSP coordination<sup>1</sup> or expand efforts to coordinate across ongoing riparian spatial data efforts including: WDFW's High Resolution Change Detection (HRCDD) riparian habitat efforts, Ecology's Channel Migration Zone mapping, Ecology's work to update Washington's Hydrography dataset, and LiDAR updates being conducted by DNR.

1g. Evaluate barriers preventing the sharing of detailed habitat-related project data (e.g., locations, project boundaries) to identify specific data dissemination concerns and potential opportunities to collate, aggregate, and report data in a way that maintains privacy while allowing for understanding of program effectiveness and progress toward fully functioning riparian habitats broadly.

## **Recommendation #2: Leverage existing programs to facilitate protection and restoration of as much riparian habitat (e.g., acres, stream miles) in the near term as possible.**

Existing programs, regardless of their specific current standards and guidelines, offer immediate and critical opportunities to expand protection of riparian habitats. Many are working toward adoption of WDFW's Riparian Guidance, but efforts to increase the reach of these programs in the immediate term should not be delayed.

2a. Provide funding to address existing backlogs and waitlists for voluntary programs such as FREP, the Conservation Reserve Enhancement Program (CREP), and the Natural Resource Investments (NRI) program and ensure sufficient and stable funding is provided to meet and encourage ongoing program interest.

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<sup>1</sup> See <https://pspwa.app.box.com/s/90gn9cqj448u1dgiiez6ff8qcpj7rqc/file/975169497550>.



2b. Provide funding for monitoring of projects implemented under voluntary programs to track project performance over time, including whether riparian habitat improvements are being maintained in the long term, using the riparian metrics and goals developed pursuant to recommendations 1a and 1b.

2c. Consider implementing the following changes to voluntary incentive programs to increase program utilization and riparian habitat protection and restoration:

- Provide supplemental incentives so that the compensation paid under CREP matches market rental rates and commodity pricing and encourage use of programs like the Commodity Buffers Program in more Conservation Districts. The SCC should continue to monitor the Commodity Buffers Program for lessons learned in this attempt to provide more competitive rental rates.
- Offer flexibility in riparian habitat criteria (e.g., buffer width) to increase eligibility and interest while maintaining a rigorous science-based review process to ensure riparian habitat functionality goals are met.
- Provide sufficient funding for landowner outreach and technical assistance. Consider the technical assistance gap analysis provided by the SCC in its November 2019 report: Gap Analysis and Sustainable Farms Budget Proviso (SCC, 2019).
- Where applicable, expand eligibility to include projects to protect or restore riparian habitat on nonfish bearing streams.
- Where applicable, expand eligibility to include projects to protect or restore riparian habitat regardless of whether existing regulatory protections apply.

2d. Conduct an analysis of existing watershed- and regional-level approaches to implementing riparian protections to identify effective localized practices that could be adopted by other regional efforts or expanded statewide. As described in the WDFW Riparian Guidance (Chapter 8.5 Managing Riparian Areas from a Watershed Perspective), the scale of riparian protection is an important consideration. To this end, a targeted evaluation of some of the efforts identified in this review may provide useful insight into how to improve and expand existing regional and statewide efforts or develop new ones. These watershed level efforts include:

- Regional Salmon Recovery Plans and Lead Entity Strategies
- SCC Tucannon River efforts
- Ecology's Office of Chehalis Basin - Aquatic Species Restoration Plan
- DNR's Snohomish Watershed Resilience Action Plan
- Yakima Basin Integrated Plan

2e. Conduct a study to examine compensatory mitigation strategies to address mitigation requirements under Growth Management Act and Shoreline Management Act critical areas provisions (including compensatory mitigation for impacts to riparian habitat) while targeting mitigation actions to improve

riparian ecosystem function. This study should include an evaluation of potential use of riparian and multiuse mitigation banks and other private investments in riparian restoration and protection.

### **Recommendation #3: Facilitate incorporation of the WDFW Riparian Guidance across regulatory and voluntary programs and assist programs in understanding and planning for Guidance implementation.**

Providing opportunities for outreach, training, education, and information sharing with respect to the WDFW Riparian Guidance and targeted strategies for incorporating it into existing program guidelines and standards could expedite its adoption broadly across the programs leading efforts for riparian habitat protection and restoration.

- 3a. Consider directing WDFW to develop a dashboard to gather information and track whether and how the WDFW Riparian Guidance is being implemented across the state. In particular, tracking of whether and how local governments are implementing the WDFW Riparian Guidance into their Critical Areas Ordinances (CAOs) and Shoreline Master programs should be conducted by Commerce and/or Ecology, as appropriate. This effort should measure jurisdictions' implementation of both WDFW Riparian Guidance specific Management Recommendations (Vol. 2) and WDFW's SPTH<sub>200</sub> standard.
- 3b. Offer higher incentives under voluntary programs to projects that meet WDFW's SPTH<sub>200</sub> standard. For examples, see the Skagit Conservation District Riparian Restoration Incentive Pilot program, or the Salmon Recovery – Puget Sound Acquisition and Restoration program's approach that waives matching requirements for projects meeting the SPTH<sub>200</sub> standard.
- 3c. For regulatory and voluntary programs, as applicable, incorporate the WDFW Riparian Guidance including WDFW's SPTH<sub>200</sub> standard for designation of the Riparian Management Zone, recommendations to local jurisdictions (Vol. 2, Section 3.2), riparian management in urban areas (Vol. 2, Section 3.3), and suggested restoration practices (Vol. 2, Section 4.4).
- 3d. Enhance funding for WDFW to provide technical assistance to and coordinate with Commerce and Ecology regarding use of the WDFW Riparian Guidance in critical areas protections.
- 3e. Enhance funding for WDFW, Commerce, and Ecology to provide technical assistance regarding use of the WDFW Riparian Guidance to local jurisdictions updating their critical areas protections, potentially including resources to support workshops or other opportunities for education and information sharing between and across programs on strategies and approaches for effective implementation of the WDFW Riparian Guidance.
- 3f. Consider setting a target date for incorporation of WDFW Riparian Guidance across regulatory programs.
- 3g. Expand areas where riparian management is prioritized to include both fish bearing and nonfish bearing waters, as recommended in the WDFW Riparian Guidance.

### **Recommendation #4: Conduct an evaluation of the effectiveness of compliance and enforcement processes for riparian-related regulatory programs.**

For riparian-related regulatory programs including the Forest Practices Program, Nonpoint Pollution Program, Shoreline Management Act (SMA), and locally implemented critical areas protections, a focused

evaluation of compliance and enforcement policies and practices can identify challenges and opportunities to enable regulatory programs to fully and effectively use their authorities to protect and restore riparian habitats.

4a. Provide funding to conduct a targeted evaluation of the effectiveness of compliance and enforcement processes and to implement recommendations that stem from that evaluation. The evaluation should identify existing compliance and enforcement procedures, authorities and structures, determine which aspects of enforcement and compliance approaches are effective at assessing and achieving compliance (e.g., tools that spur voluntary compliance), identify any barriers (e.g., lack of capacity, lack of clear delineation of responsibilities, cost of litigation), and make recommendations for improvement. Consider how current compliance monitoring such as DNR's efforts to monitor compliance with Forest Practice Rules could be adapted for application in other programs as appropriate.

4b. Track Ecology's efforts to develop a compliance program under the SMA and ensure it includes consideration of the WDFW Riparian Guidance, including the recommendations in the Guidance regarding implementation monitoring and adaptive management to improve the implementation feedback loop for Shoreline Master Programs (SMPs) and the SMP Guidelines.

4c. For Ecology's Wetlands program, continue pursuit of an updated effectiveness study.

#### **Recommendation #5: Encourage voluntary and regulatory programs to develop or enhance strategies for adaptive management through additional funding.**

Adaptive management is recognized as an "essential component of effective natural resource management" in the WDFW Riparian Guidance (Vol. 2, Chapter 5). Adaptive management systems should be developed to allow programs to respond and adjust as new information becomes available through monitoring efforts.

5a. Provide funding for local governments to implement WDFW's adaptive management recommendations for riparian regulations (WDFW, 2020, Vol. 2, Chapter 5).

5b. The Forest Practices Program should continue to address recommendations in the State Auditor's report related to its Adaptive Management Program.

5c. Consider the recommendations of the Collaborative Roadmap Phase III (Commerce, 2022) regarding the state's growth policy framework, in particular those recommendations related to adaptive management.

#### **Recommendation #6: Simplify application and administrative processes and reduce barriers to participation in grant programs.**

Facilitate additional participation in grant programs that provide critical avenues to riparian habitat protection and restoration by identifying the specific administrative barriers inhibiting participation and opportunities to reduce the administrative burden of the grant application process.

6a. Provide funding to enable grant programs to provide technical assistance and conduct outreach to potential recipients and landowners with respect to the application process and administration of the grants following award.

6b. Conduct an evaluation of riparian-related grant and incentive program (e.g., RCO's salmon recovery grants, Ecology's Water Quality Combined Funding program, SCC's voluntary incentive programs) application and grant administration processes and outcomes and identify recommendations to address any specific administrative barriers to participation. The evaluation should consider past work of the Align Grant Coordination Workgroup, the RCO equity review (Prevention Institute, 2022), and other efforts that may be instructive related to funding program challenges, reducing barriers to participation, and redressing equity.

**Recommendation #7: Track and incorporate, as appropriate, ongoing efforts to evaluate and enhance the effectiveness of riparian protection and restoration programs and sustain work to achieve a science-based standard for fully functioning riparian ecosystems.**

New and ongoing efforts are expected to contribute to understanding of the effectiveness of riparian protection and restoration in Washington and to make advancements in achieving riparian goals. Continued pursuit of these efforts and tracking their progress is crucial to increasing understanding of the status of riparian ecosystems and how the state can best protect and improve riparian functions.

7a. A number of programs are actively evaluating or performing work that will assist in assessing effectiveness that will inform future management directions, including the following:

- WDFW's HRCDD work to assess the status of current riparian ecosystems across Washington.
- Ecology's work to develop standardized Channel Migration Zone mapping methodology and provide support for tribes and local jurisdictions to refine existing mapping with local information.
- Ecology's work to identify technologies, methodologies, datasets, and resources needed to perform a statewide update to the Washington National Hydrography Dataset.
- DNR's work to collect and refresh statewide LiDAR data.
- The Forest Practices Board's Cooperative Monitoring, Evaluation and Research (CMER) Committee evaluation currently focused on the effectiveness of the Forest Practices Rules that establish the size of riparian buffers adjacent to nonfish bearing streams (results expected November 2022).

7b. A number of new and emerging programs are actively working to enhance riparian protection and restoration, including those listed below. These programs should also be incorporated into the cross-program monitoring discussed in Recommendation #1.

- Ecology's work to develop Voluntary Clean Water Guidance for Agriculture, including recommended best management practices regarding riparian areas.
- SCC's work to develop a Riparian Plant Propagation program to implement riparian restoration projects meeting WDFW's SPTH<sub>200</sub> standard and provide plants for free or at reduced cost to restoration projects.

- SCC’s work to provide grant funding for riparian restoration projects through the Salmon Recovery Funding program.
- SCC’s Sustainable Farms and Fields program grants to encourage climate-smart practices and projects that increase carbon sequestration and reduce greenhouse gas emissions, including projects to install buffers and plant vegetation.
- DNR’s pilot project to improve salmon habitat and riparian function on state-owned aquatic, commercial, industrial and agricultural lands.
- Ecology’s work to reissue its Concentrated Animal Feeding Operation general permits, including proposed changes related to riparian buffers, vegetated filter strips and setback areas.
- WDFW’s and the Washington Academy of Science’s work to assess how to incorporate a “net ecological gain” standard into state land use and environmental laws and rules.
- The Governor’s Salmon Recovery Office’s work to implement Gov. Jay Inslee’s 2021 Salmon Strategy Update.

7c: Provide sufficient funding to continue the efforts in 7a and 7b and to collect and aggregate data per Recommendation #1 in order to support achieving a science-based standard for fully functioning riparian ecosystems.

**Recommendation #8: Conduct analyses of the roles of tribes, conservation organizations, and federal laws and programs in protecting and restoring riparian areas in Washington.**

Additional consideration of these roles, laws, and programs would complement our report and provide a more complete understanding of the full scope of riparian protection and restoration in Washington.

8a. Our evaluation focuses on state-level programs, and we recognize there are other regulatory and voluntary efforts not fully captured in our report that contribute significantly to the overall picture of riparian habitat protection and accomplishments in the state. We recommend separate analyses to consider the important roles and functions of the work being performed by tribes, conservation organizations, and federal laws and programs across Washington to protect and restore riparian habitat.

8b. Conduct a review of the roles tribes play in existing state-level regulatory and voluntary programs and develop recommendations to enhance and improve tribal roles in project development, prioritization, selection and implementation.

**Recommendation #9: Consider developing a prioritization strategy for targeted riparian area protection.**

Information collected through implementation of evaluations and data collection efforts described in earlier recommendations could support development of a strategy to identify riparian habitat protection locations and actions that would maximize ecological benefits.

9a. Develop factors through a stakeholder process for prioritizing riparian conservation and protection efforts within or between watersheds. For example, factors could include whether or not a waterbody is impaired (i.e., on the 303d list).

9b. Lead with assessment of the relative biological benefits associated with individual locations, types of projects, etc.

## CHAPTER 3 | Methodology

This analysis is based upon a mix of technical and legal, and qualitative and quantitative research regarding riparian habitat protection and restoration in Washington. Legal research was performed to identify and provide information on the broad range of regulatory and voluntary riparian-related programs in the state. Agency interview responses and program data and documents provided in the outreach process are the primary sources of information for IEC's technical analysis, supplemented by the legal research performed by Plauché & Carr. The interview approach to collecting data and information prioritizes the in-depth knowledge and views of state program managers and staff implementing riparian programs. Where program data were provided (e.g., program participation or ecological metrics, such as acres or river miles protected or restored), the technical analysis integrates the relevant information into the program-level findings.

The key research questions guiding this analysis are as follows:

- To what extent are state programs providing riparian protection and/or restoration and what are the mechanisms for doing so?
- To what extent do the identified program activities contribute to achieving fully functioning riparian habitat as defined in the WDFW Riparian Guidance, and WDFW's SPTH<sub>200</sub> standard specifically?
- How effective are the state's riparian protection and restoration programs?
- What are the current barriers to program effectiveness, or the ability to measure the effectiveness of the program?

We address these questions through review of the identified riparian-related programs, with an emphasis on those core programs identified by state agency representatives as being of particular importance with respect to riparian habitat conservation. Overall cross-program key findings of our analysis are summarized in CHAPTER 4 | Synthesis of Results.

Given the large number (38) of core programs (defined below) identified through initial research and interviews with state agencies, we relied upon information from the interviews to focus a more detailed evaluation on 11 programs that are most directly responsible for protecting and restoring riparian areas ("focal programs"). Focal program evaluations are provided in CHAPTER 5 | Analysis of Focal Programs

### Identification and Analysis of State Voluntary and Regulatory Programs

This section describes the process by which we identified and analyzed the broad list of state riparian-related programs, the core programs that were the focus of the outreach and interview effort, and the focal programs selected for more detailed analysis based on information collected during interviews and review of available data.

## Riparian-Related Programs

### Identification

In the initial phase of this effort, Plauché & Carr conducted research to identify voluntary and regulatory state programs and authorities that play a role in the protection and/or restoration of riparian areas in Washington. This investigation was based on previously compiled information provided by the Office of Financial Management (OFM); a review of key documents including the WDFW Riparian Guidance; and independent legal research and investigation. Additional programs identified by interviewees during the interview and outreach phase, as described under core programs, were also added to this list. The 66 riparian-related state programs identified during this investigation are listed in Table 2, below.

This report focuses on state programs. While it includes a discussion of the roles of tribal, local, and federal partners in the implementation of those programs, the focus of the analysis and the key research questions guiding this analysis is on the state's role. Further examinations could be undertaken that conduct deeper analyses of the valuable and significant contributions of tribal, local and federal governments, laws, and regulations to riparian protection and restoration in Washington state, as well as conservation organizations; Chapter 2 of this report includes recommendations addressing this topic.



**Table 2. Riparian-Related Programs**

No	Program	No	Program
1	Agricultural Conservation Easements Program	34	Pesticide Management Division - Dairy Nutrient Management Program
2	Aquatic Lands Enhancement Account	35	Priority Habitats and Species
3	Center for Technical Development	36	Private Lands Scientific and Technical Support
4	Channel Migration Zone Mapping Methodology	37	Puget Sound Ecosystem Monitoring Program
5	Combined Animal Feeding Operation General Permit	38	Puget Sound Riparian Effectiveness Metrics
6	Conservation Districts	39	Puget Sound Nearshore Ecosystem Restoration Project
7	Conservation Reserve Enhancement Program	40	Puget Sound Partnership
8	Environmental Assessment Program	41	Real Estate Excise Tax for Conservation Areas
9	Estuary and Salmon Restoration Program	42	Regional Fisheries Enhancement Groups
10	Family Forest Fish Passage Program	43	Riparian Plant Propagation Program
11	Flood Control Assistance Account Program	44	Rivers and Habitat Open Space Program
12	Floodplains by Design	45	Salmon Recovery / Puget Sound Acquisition Funding
13	Forest Practices	46	Salmon Recovery Funding Board
14	Forest Resilience Division	47	Salmon Recovery Funding Program
15	Forest Resources Division	48	Shorelands and Environmental Assistance Program
16	Forestry Riparian Easement Program	49	Shoreline Management Act
17	Governor's Salmon Recovery Office	50	Snohomish Watershed Resilience Action Plan
18	Growth Management Act	51	State Environmental Policy Act
19	Habitat Program	52	Statewide LiDAR Data Update
20	High Resolution Change Detection	53	Stormwater Financial Assistance Program
21	Hydraulic Project Approval	54	Streamflow Restoration Competitive Grants
22	Improving Salmon Habitat on State-Owned Lands	55	Sustainable Farms and Fields
23	Land and Water Conservation Fund	56	Voluntary Clean Water Guidance for Agriculture
24	National Coastal Wetlands and Conservation Grant Program	57	Voluntary Stewardship Program
25	National Hydrography Dataset Update	58	Washington Coastal Restoration and Resiliency Initiative
26	Natural Resource Investments	59	Washington Conservation Corps
27	Natural Resources Assessment Section	60	Snohomish Watershed Resilience Action Plan
28	Net Ecological Gain	61	Washington Wildlife & Recreation Program – Forest Program
29	Nonpoint Pollution Program	62	Wastewater Management Program - On-Site Septic Systems
30	National Pollution Discharge Elimination System Permitting	63	Water Quality Combined Funding Program
31	Office of the Chehalis Basin	64	Water Quality Program
32	Office of the Columbia River	65	Water Resources Program
33	Open Space Taxation Act / Conservation Futures	66	Wetlands Program

## Analysis

There is a rich and diverse array of state regulatory and voluntary programs whose activities contribute meaningfully to the protection and restoration of riparian habitat in Washington, and each offers important insights into what is working and where there is room to enhance the effectiveness of state efforts to improve riparian habitats. The time and budget scope of the budget proviso did not allow for in-depth analysis of the efficacy and utilization of all the programs identified. However, Plauché & Carr has compiled and presented the following information regarding all identified riparian-related programs, to support this and further evaluations of the restoration and protection of riparian areas in Washington State. This information is summarized in

APPENDIX A | Program Summary Table to this report. A sortable Excel version of this information has been provided to OFM and is available upon request.

- Program Name
- Program Type
- Lead and Other State Agency(ies)
- Authorizing Statutes and Regulations
- Mechanism for Riparian Protection
- Riparian Goals
- Program Description
- Regulated Communities or Program Participants
- Regulated or Participating Uses
- Monitoring and Enforcement Provisions

## Core Programs

### Identification

To identify core programs, Plauché & Carr conducted additional research and outreach to state natural resource agencies to identify and refine a list of key programs, as well as to identify agency staff who could provide data and information regarding those programs. In August and September, IEc and Plauché & Carr conducted interviews with agency staff. The list of programs was further developed and refined based on information provided during and in follow up to interviews.

### Analysis

In August and September 2022, IEc and Plauché & Carr engaged in semi-structured interviews with identified agency staff to identify and obtain data and information relevant to the scope, goals, objectives, and outcomes of the programs to support the program analyses. The interviews explored consistent topics using a pre-determined list of questions that were largely open-ended, allowing interviewees flexibility in sharing the most pertinent information from their unique perspectives but also providing for some comparison across responses. These interview questions are provided in Appendix B. Interview topics included:

- The scope of current initiatives to protect and restore riparian areas.
- The goals and objectives of the program with respect to riparian habitat, including standards used to define and measure healthy riparian habitat, and how/if they are informed by the WDFW Riparian Guidance.
- The effectiveness of riparian protection and restoration programs in Washington state, with respect to meeting program or ecological goals, or measured against WDFW's SPTH<sub>200</sub> standard where possible (see Figure 1).
- Methods and data that are being used to monitor and measure program scope, performance and outcomes.
- Current and future planned updates to relevant programs.

IEc and Plauché & Carr conducted 21 interviews with more than 40 agency staff covering 38 voluntary and regulatory programs that contribute to the protection and restoration of riparian habitats in Washington. Table 3 sets forth the list of identified core programs, which are a subset of the riparian-related programs provided in Table 2. Table 4 provides a summary of interviews conducted.

A summary of this initial phase of work was provided in our Sept. 1, 2022, Preliminary Report on Evaluation of Riparian-Related Programs (preliminary report). The preliminary report, available on [OEM's website](#), includes detailed appendices (preliminary report appendices B and C) summarizing identified programs and listing the data and information collected as a result of outreach and interviews. We shared the preliminary report with state agencies and interviewees with a specific request to ensure preliminary report appendices B and C did not omit any programs that play a central role in protecting or restoring riparian habitat or key data sources that provide information with respect to program performance and outcomes. Feedback received by Plauché & Carr and IEC on additional programs, data, and information are incorporated into this analysis.

**Table 3. Core Programs**

No.	Program	No.	Program
1	Center for Technical Development	20	Office of the Columbia River
2	Conservation Districts	21	Priority Habitats and Species
3	Conservation Reserve Enhancement Program	22	Puget Sound Ecosystem Monitoring Program
4	Estuary and Salmon Restoration Program	23	Puget Sound Partnership
5	Flood Control Assistance Account Program	24	Salmon Recovery / Puget Sound Acquisition Funding
6	Floodplains by Design	25	Salmon Recovery Funding Board
7	Forest Practices	26	Salmon Recovery Funding Program
8	Forest Resilience Division	27	Shoreline Management
9	Forestry Riparian Easement Program	28	Snohomish Watershed Resilience Action Plan
10	Governor's Salmon Recovery Office	29	Stormwater Financial Assistance Program
11	Growth Management	30	Streamflow Restoration Competitive Grants
12	Habitat Program	31	Sustainable Farms and Fields
13	High Resolution Change Detection	32	Voluntary Clean Water Guidance for Agriculture
14	Hydraulic Project Approval	33	Voluntary Stewardship Program
15	Natural Resource Investments	34	Washington Coastal Restoration and Resiliency Initiative
16	Natural Resources Assessment Section	35	Washington Conservation Corps
17	Nonpoint Pollution Program	36	Water Quality Combined Funding Program
18	National Pollution Discharge Elimination System Permitting	37	Water Quality Program
19	Office of the Chehalis Basin	38	Wetlands Program

**Table 4. Summary of Program Interviews**

Agency	Riparian-Related Programs Covered in Interviews	Interviews Completed
State Conservation Commission (including Conservation Districts)	7	3
Department of Ecology	14	9
Recreation Conservation Office – Governor’s Salmon Recovery Office	2	1
Puget Sound Partnership	1	1
Department of Fish and Wildlife	4	3
Department of Natural Resources	4	2
Department of Commerce	1	1
Department of Agriculture	1	1
Recreation Conservation Office, Puget Sound Partnership	2	--
Recreation Conservation Office, Department of Fish and Wildlife, Puget Sound Partnership	1	--
Recreation Conservation Office, Department of Fish and Wildlife, Department of Natural Resources	1	--
<b>TOTAL</b>	<b>38</b>	<b>21</b>

Analysis of core programs included an evaluation of efficacy and utilization based on information provided by interviewees. We also considered the central question of how closely the program is aligned with the WDFW Riparian Guidance on designation and protection of the Riparian Management Zone (RMZ) (see Figure 1), as well as other recommended riparian conservation measures. We addressed this question using information collected during interviews and through review of provided program materials through the following steps:

1. Identify whether the program is already using WDFW’s SPTH<sub>200</sub> standard to identify RMZs or to inform buffer widths or has plans to incorporate that standard.
2. Where they do not, evaluate key examples of standards currently being used by the programs and identify ways in which they differ from the WDFW Riparian Guidance.

Overall cross-program key findings of our analysis are summarized in CHAPTER 4 | Synthesis of Results.

## Focal Programs

### Identification

Given the large number of programs contributing meaningfully to riparian habitat conservation in the state, and the time and budget provided by the budget proviso, we focused further review on the subset of those programs that are particularly relevant to our charge under the proviso. Specifically, these include the programs from which we could draw the most information regarding the status of riparian habitat

protection based on available data and information provided. These included programs that were identified as central and significant to riparian habitat protection and restoration in the outreach process, as well as those for which program materials specifically highlight data and information with respect to riparian habitats. From the list of 38 core programs, we identified a set of 11 “focal programs” for more detailed analysis, which are listed in Table 5.

**Table 5. Focal Programs**

No.	Program	State Agency
1	Conservation Reserve Enhancement Program	State Conservation Commission
2	Forestry Riparian Easement Program	Department of Natural Resources
3	Forest Practices Program	Forest Practices Board, Department of Natural Resources
4	Growth Management Act	Department of Commerce
5	Natural Resource Investments	State Conservation Commission
6	Nonpoint Pollution Program	Department of Ecology
7	Salmon Recovery / Puget Sound Acquisition and Restoration Funding	Recreation and Conservation Office, Puget Sound Partnership
8	Shoreline Management Act	Department of Ecology
9	Voluntary Stewardship Program	State Conservation Commission
10	Water Quality Combined Funding Program	Department of Ecology
11	Wetlands Program	Department of Ecology

## Analysis

For these 11 focal programs, we engaged in additional legal and technical analysis for a deeper understanding of the scope, reach, and/or authorities of the program, the mechanism by which it contributes to riparian habitat, and what available program reporting and data allow us to say about program effectiveness. Analysis of these programs provides important perspective and additional information that supports identification of key findings. For each of the focal programs, we conducted a more detailed and deeper evaluation where available data and information supported such an analysis, centered around the previously described key research questions. Specifically, the focal program analysis included the following steps:

1. Review and evaluate information provided during interviews and in subsequent transmittals.
2. Conduct additional research as needed to address the questions posed for the legal and technical analysis.
3. Document the legal and administrative context underlying each of the programs.

4. Identify the specific mechanism or approach through which the program contributes to the protection and/or restoration of riparian habitat, and the program's specific goals with respect to riparian habitat.
5. Consider how the implementing entity evaluates and reports the effectiveness of the program with respect to riparian habitat protection and document the conclusions they have drawn in recent reports.
6. Evaluate the extent to which the program is contributing to fully functioning riparian habitat as defined by the WDFW SPTH<sub>200</sub> standard (see Figure 1).
7. Analyze program data, if available, to identify what conclusions may be drawn regarding the effectiveness of the program in meeting program goals with respect to riparian habitat and to achieving WDFW's SPTH<sub>200</sub> standard.
8. Describe the current barriers to program effectiveness, and/or the barriers that inhibit the ability to measure program effectiveness.

## Identification of Key Findings

This step of the analysis consisted of a synthesis of data and information collected through interviews, review of program documents, and the detailed evaluation and data analysis of focal programs to identify common themes and key findings across programs. We reviewed and compared information regarding purpose, structure, process, implementation, and effectiveness of the 38 core programs to identify cross-program findings. These findings ultimately inform our recommendations regarding the effectiveness of existing state voluntary and regulatory programs toward achieving a science-based standard for a fully functioning riparian ecosystem.

This synthesis identifies where existing programs have made progress toward riparian habitat protection and restoration, with the goal of identifying how the successful approaches of certain programs may inform opportunities for application to other programs. The synthesis also identifies common areas where programs have encountered barriers to effectiveness, with the goal of identifying opportunities to improve riparian protection and restoration in Washington. We further consider how these findings align with the key recommendations from the WDFW Riparian Guidance (see text box, *Key Findings and Recommendations of Riparian Ecosystems, Volume 2: Management Recommendations*).

### Key Findings and Recommendations of WDFW Riparian Guidance, Volume 2: Management Recommendations

- ❖ Designate riparian ecosystems as critical areas.
- ❖ Include watershed-scale management considerations.
- ❖ Use reference points to locate inner edge of the RMZ.
- ❖ Include Channel Migration Zones in delineation of the RMZ.
- ❖ Establish RMZ widths based on site-specific conditions, generally based on SPTH<sub>200</sub>.
- ❖ Apply the recommended RMZ delineation steps to all streams, whether or not they are fish-bearing.
- ❖ Establish monitoring and adaptive management frameworks.
- ❖ Consider needs of relevant terrestrial species.

(WDFW, 2020)

## CHAPTER 4 | Synthesis of Results

Existing state regulatory and voluntary incentive programs contribute significantly to the protection and restoration of riparian habitat in Washington. Review of these programs' goals, activities, and implementation along with additional analysis of focal program's effectiveness has led to identification of 13 key findings that interviewees raised across programs, and that inform the recommendations resulting from this effort. The sheer number of existing and newly launched state programs involved in protection and enhancement of riparian habitat indicates an awareness and recognition of the importance of riparian habitat.

As outlined further below in the section "Implementation of the WDFW Riparian Guidance," alignment with the WDFW Riparian Guidance varies across programs. Given how recently the WDFW Riparian Guidance was published, only a few programs have been able to implement the guidance explicitly; however, many of the programs indicate they will be incorporating the Guidance in the future as plans and rules are updated. Further, many programs are following prior versions of the WDFW Riparian Guidance or other standards which address the ecological functions outlined in the Guidance explicitly.

As discussed below, a number of barriers contribute to the challenge of effectively measuring program and ecological outcomes with respect to achieving fully functioning riparian ecosystems across the state. Only a subset of the programs have robust monitoring in place, and/or available data to specifically measure how they contribute to riparian habitat protection and/or restoration.

### Cross-Program Key Findings

#### Key Finding #1: Washington state voluntary and regulatory programs have made significant progress in protection and enhancement of riparian habitat.

State agencies, regional entities, and local partners are working tirelessly to ensure that critically important riparian habitats are conserved and restored. Existing programs continue to focus substantial effort on riparian protection and enhancement across the state, and new programs and initiatives are being created to fulfill identified needs. Available data suggest existing programs have made positive and substantial contributions to riparian protection in Washington. While data to specifically quantify achievements with respect to extent of riparian habitat restored or protected by individual programs and collectively are limited (see Key Finding #8), several state programs have clearly documented success in protecting riparian habitat.

The Conservation Reserve Enhancement Program (CREP) has enhanced riparian habitat along 925 stream miles (SCC, 2022d) (about 10% of stream miles eligible for enrollment in CREP (SCC, 2022k)). The WDFW Riparian Guidance notes that CREP is the most successful riparian buffer program in Washington (WDFW, 2020). The Natural Resources Investments (NRI) program also protected 25,561 feet (4.8 miles) of stream during the 2019-21 biennium.

Other programs that have demonstrated their effectiveness in terms of protecting acres of riparian habitat include the Salmon Recovery /Puget Sound Acquisition and Restoration (Salmon – PSAR) Fund and Water Quality Combined Funding program. Between 2017 and 2021, the Salmon – PSAR program funded the acquisition of 1,956 acres of riparian habitat, easement placement on 109 acres, and restoration



treatment on 8,288 acres of riparian habitat along 562 stream miles (RCO 2022a). In the 2017 to 2019 biennium, the Water Quality Combined Funding program supported implementation of riparian buffers on nearly 40 miles of rivers, creeks and stream banks (Ecology 2020a).

Many other programs have provided funding and regulatory processes that have resulted in the creation and protection of extensive riparian habitat. However, a lack of accessible data prevents a comprehensive, state-level assessment of the extent of riparian habitat protected (see Finding #8).

### **Key Finding #2: Some programs are implementing or intend to implement WDFW's science-based standard for a fully functioning riparian habitat (SPTH<sub>200</sub>).**

Adoption of WDFW's SPTH<sub>200</sub> standard across state programs is an important step toward achieving fully functioning riparian habitat. As discussed in the following section of this chapter, "Implementation of WDFW's Riparian Guidance," three of the core programs interviewed are already employing WDFW's SPTH<sub>200</sub> standard in defining their criteria for a functioning riparian ecosystem, and at least eight other core programs are moving toward incorporation of the standard. For other core programs, interviewees either did not specify plans regarding incorporation of the WDFW Riparian Guidance or indicated that the program did not plan to implement the Guidance. Of the programs not planning to implement WDFW Riparian Guidance, most apply conservation standards developed by the Natural Resources Conservation Service (NRCS), which differ in terms of buffer width but do include a range of other riparian conservation measures similar to those recommended in the WDFW Riparian Guidance. The following programs have indicated they have already incorporated or plan to incorporate WDFW's SPTH<sub>200</sub> standard:

- The Recreation and Conservation Office (RCO) Salmon – PSAR funding program defines the criteria for new riparian restoration projects using WDFW's SPTH<sub>200</sub> standard.
- The State Conservation Commission's (SCC) Salmon Recovery Funding programmatic guidelines state "that preference may be given to projects that complement the ... standards relating to 'Riparian Forest Buffers', with management considerations found in the WDFW document" (SCC, 2022i).
- The Department of Commerce's (Commerce's) Growth Management Services' (GMS's) critical areas checklist, developed to guide local governments in updating their plans and regulations under Growth Management Act (GMA), lists the WDFW Riparian Guidance as best available science for consideration in updating county and city regulations to protect fish and wildlife habitat conservation areas. GMS is currently reviewing and updating GMA administrative rules that may include changes to procedural criteria for adopting comprehensive plans and development regulations (Chapter 365-196 WAC); minimum guidelines to classify agricultural, forest and mineral lands and critical areas (Chapter 365-190 WAC); and Best Available Science (Chapter 365-195 WAC).
- The Department of Ecology (Ecology) is actively working to integrate the WDFW Riparian Guidance into the guidance criteria for Water Quality Combined Funding program awards (Email communication with Ecology Water Quality program staff

Oct. 14, 2022). Similarly, Ecology is working with WDFW on incorporation of the new guidance into comprehensive Shoreline Master Program (SMP) updates and Ecology's SMP Guidance documents (including the SMP Handbook). Other Ecology programs including Wetlands and Nonpoint Pollution indicated they are planning to incorporate the WDFW Riparian Guidance as well.

- The Department of Natural Resources' (DNR) Forest Practices Program currently uses SPTH<sub>140</sub> goals and standards for riparian forest buffers, but the program has a process in place for revising their regulatory requirements in accordance with best available science and may update requirements to take into account the WDFW Riparian Guidance through this process. The Forestry Riparian Easement Program (FREP) utilizes the Forest Practices Rules to define eligibility. So, the WDFW Riparian Guidance would ultimately be incorporated in this program as well.
- Numerous counties enrolled in the Voluntary Stewardship Program (VSP) are incorporating certain features of the WDFW Riparian Guidance with respect to their management of critical areas where agriculture activities are conducted. Specifically, counties are incorporating WDFW's recommended VSP Adaptive Management Matrix in their approved VSP Work Plans (WDFW, 2020).
- The Office of the Chehalis Basin indicated that efforts conducted under the Aquatic Species Restoration Plan are planning to utilize the WDFW Riparian Guidance.

### **Key Finding #3: There are substantial existing opportunities for technical and financial assistance to support riparian habitat conservation and restoration.**

Washington offers significant support to individuals and entities seeking financial and technical assistance in protecting and restoring riparian habitats, and these programs are in high demand. At least 24 voluntary state programs provide funding in the form of incentives, grants or loans for projects that protect or improve riparian habitat. At least 19 programs provide some form of technical assistance, including development of scientific guidance related to riparian habitat management. Three state programs focus on funding riparian easements.

Grant and loan opportunities exist for riparian habitat acquisition and easements, restoration projects, implementation of best management practices (BMPs), and project planning, among other activities. Some of these programs target agricultural landowners or forest landowners, specifically. Others provide funding to nonprofit organizations or local public agencies involved in restoration work or, more generally, to individuals seeking assistance to protect and manage riparian habitat. CREP, one of the largest of these voluntary incentive-based programs, has enhanced salmon habitat along 925 stream miles (about 10% of all eligible stream miles) since its inception in 1999.

Many of these programs report insufficient funding to enroll all parties seeking support. For example, the Thurston County Conservation District indicated it has a list of 120 landowners waiting for technical assistance as of August 2022. Also, the Forestry Riparian Easement Program reported a waitlist of 110 small forest landowners as of June 2021.

#### **Key Finding #4: Riparian habitat protections for managed forests and for new development activities are well-established in existing regulations.**

The existing regulatory framework is strong in Washington for the protection of riparian habitat on state and private timberlands through the Forest Practices Program, as well as restricting new development activities in riparian areas through local regulations established under the Growth Management Act (GMA) and Shoreline Management Act (SMA). The Department of Natural Resources' (DNR) Forest Practices Program has a comprehensive regulatory framework in place for protecting riparian habitat on state and private forest lands. Though the specific Forest Practices Rules are not yet implementing WDFW's SPTH<sub>200</sub> standard for fully functioning riparian habitat, the regulatory structure is in place to implement that standard. The GMA and SMA both provide regulatory structures that aim to prevent the net loss of riparian habitat from new development. During updates to critical areas provisions, the WDFW Riparian Guidance will be considered as best available science and the most current, accurate and complete scientific and technical information available, as applicable; future guidance and rule updates may lead to additional protections (Personal communication with Growth Management Services staff Aug. 18, 2022; Email communication with Ecology SMA staff Nov. 1, 2022; Personal communication with Ecology SMA staff Nov. 23, 2022).

#### **Key Finding #5: Existing programs are identifying ways to be more nimble and flexible to increase participation, while ensuring the integrity of riparian habitat protection.**

Many programs are seeking and implementing opportunities to eliminate barriers that are limiting program participation. For example, the Department of Ecology has eliminated the 25% match requirement for nonpoint pollution projects, which include most riparian restoration projects funded under the Water Quality Combined Funding program. Similarly, the match requirement for Salmon Recovery / Puget Sound Acquisition and Restoration (Salmon – PSAR) program grants is waived for all projects that meet WDFW's SPTH<sub>200</sub> standard (Personal communication with Water Quality program Staff Aug. 5, 2022; Salmon Recovery Funding Board, 2022).

Several programs noted that flexibility in riparian buffer requirements can be important to fostering participation. For example, smaller private landowners may have physical or other limitations to implementing buffers that would result in ineligibility under a rigid buffer requirement. However, flexibility must not come at the expense of achieving the goal of fully functioning riparian habitat. Programs such as Salmon – PSAR have in place robust criteria to ensure that projects seeking exemptions to WDFW's SPTH<sub>200</sub> standard will still achieve the desired habitat functions.

#### **Key Finding #6: There are multiple ongoing efforts aimed at understanding Washington's progress with respect to riparian habitat conservation and restoration.**

Reflecting the State's priority of improving the health of riparian habitat to ensure salmon and steelhead recovery, there are several efforts currently underway to aid in understanding how state programs are doing with respect to riparian habitat conservation. These efforts include:

- WDFW's High Resolution Change Detection (HRCDD) work to assess the status of current riparian ecosystems throughout the state. This effort utilizes high resolution imagery to extract information about changes in land cover. It was funded through a proviso in the 2022 budget and should be completed by June 2023.

- Analysis done by Ecology to inform development of Voluntary Clean Water Guidance for Agriculture. Ecology indicated that they are currently developing a summary of all state programs that are active in protecting riparian habitat on agricultural lands; this work is expected to be complete by the end of 2022.

### Key Finding #7: Regionally focused programs and plans are a key contributor to riparian habitat protection.

The WDFW Riparian Guidance recognizes that “[w]atershed-scale management is critical to realizing the full benefits of riparian ecosystem protection and restoration” (WDFW, 2020, Vol. 2, p. 10). Various interviewees described watershed or regional scale plans being implemented with positive results for of riparian habitat. While these plans often had overarching goals that were not exclusive to riparian protection and restoration (e.g., water resource management, forest resilience), the plans included significant efforts to protect and enhance riparian habitat. Programs identified the following plans as examples for which a broader geographic focus had been successful in protecting and restoring riparian habitat:

- **The Chehalis Basin Aquatic Species Restoration Plan** (Aquatic Species Restoration Plan, 2019). Both Ecology’s Office of the Chehalis Basin and the Thurston County Conservation District mentioned this plan. Interviewees believe that the plan was successful because of its multiyear funding approach – projects are designed, installed, and adaptively managed over a longer time frame.
- **Yakima Basin Integrated Plan.** While this is a water resource management plan, it involves a diverse group of entities, and tribal, local, state, and federal agencies working together to achieve success. Many habitat enhancement and agricultural conservation projects, including riparian restoration projects, have been funded under this plan (Ecology, 2022b and 2020b).
- **Tucannon River salmon habitat improvements.** SCC highlighted this watershed level effort where multiple partners worked together to restore salmon habitat as an example of how the Conservation Reserve Enhancement Program (CREP) can be used most effectively. The 2012 CREP Annual Report states “in areas targeted for large-scale riparian restoration using Washington CREP and other programs, water temperatures have cooled (Smith 2012)... In addition, salmon began using 20 miles of habitat in the Tucannon River in Washington State that prior to riparian restoration was too warm for salmonids (Gallinat and Ross, 2011)” (Smith, 2012a, p. 31).
- **Watershed Resilience Action Plan.** A Tree to Sea plan for landscape scale restoration and salmon recovery in the Snohomish Watershed. While this plan has only recently started to be implemented, it is a pilot program for the Department of Natural Resources (DNR) to work collaboratively with tribes and other stakeholders at the watershed level to improve forest habitat and hydrology and to create a more resilient watershed to help communities and salmon thrive (DNR, 2022b).

### **Key Finding #8: Data limitations inhibit understanding of how close the network of existing programs are getting to achieving WDFW's SPTH<sub>200</sub> standard as well as program goals.**

The WDFW Riparian Guidance emphasizes the importance of establishing monitoring frameworks to achieving functioning riparian habitats. However, many of the programs reviewed do not track or report quantitative data for riparian-related metrics or other program implementation metrics. SCC programs (CREP, NRI and VSP) have a database to track best management practices (BMPs); however, the Conservation Districts are inadequately equipped to collect and enter data, resulting in a database that is inconsistent and incomplete.

For programs with geographically dispersed implementation, such as GMA and SMA, the lack of a central repository of information inhibits efforts to understand program accomplishments at large. In other cases, although relevant data may be collected, they are not accessible for information sharing and analysis. For example, the Forest Practices Program has data on individual riparian areas where timber harvesting has been limited and buffers have been established, but the data has not been digitized and would require substantial effort to clean and manage for analytical use.

While several programs produce annual reports identifying quantified program achievements specific to riparian habitat, the data underlying those reports may not be readily available for review or analysis due to privacy concerns, complexity, decentralization of the systems in which data are stored, lack of capacity to respond to data requests, or other limitations. Though WDFW's HRCD system is capable of identifying changes in landcover throughout Washington, none of the programs interviewed provided project footprints, which limits our ability to understand how much habitat is currently protected.

### **Key Finding #9: Program effectiveness is limited by a lack of enforcement and compliance monitoring.**

Limitations in the ability to enforce regulations and monitor compliance with grant requirements is a persistent problem across most voluntary and regulatory programs. Several Conservation Districts reported insufficient funding to verify whether individuals who signed up for voluntary programs (e.g., CREP) are still meeting requirements five to 10 years later. Ecology's Floodplains by Design grant program reported they have no funding to monitor whether grant requirements are being upheld. Ecology's Nonpoint Pollution program has historically been unable to comprehensively track compliance and readily enforce its regulatory requirements.<sup>2</sup> As riparian buffers take years to become self-sufficient, persistent monitoring is fundamental to ensuring the success of riparian restoration efforts.

### **Key Finding #10: Inconsistency and insufficiency in levels of funding and program capacity can limit program effectiveness, as well as the ability to measure effectiveness.**

Funding is a primary driver of program participation and compliance. Adequate funding levels are necessary to support key program functions required for success such as enforcement, monitoring and

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<sup>2</sup> The Nonpoint Pollution Program has recently started to implement broader compliance monitoring, but its capacity for enforcement will likely remain limited.

data collection, and evaluation. At least eight programs identified insufficient and/or inconsistent funding as a central limitation to their effectiveness.

In many instances, regulatory programs like Ecology’s Nonpoint Pollution program lack sufficient resources to enforce rules and fund litigation efforts. Several Conservation Districts reported that interest in SCC’s voluntary programs often outpaced funding for new projects. Another Conservation District reported that biennial volatility in funding levels often required them to close contracts they no longer could financially support, which harmed their reputability with prospective program participants. Thus, while *insufficient* funding limits regulatory enforcement and voluntary participation levels, *inconsistent* funding harms trust and interest in voluntary programs. Funding limitations also inhibit efforts to monitor program effectiveness and collect consistent data describing program accomplishments and outcomes (see Key Finding #8).

### **Key Finding #11: Regulatory avenues focus on maintaining existing riparian habitat functions rather than creating functional uplift.**

Current regulatory structures provide state agencies with the authority to prevent the loss of existing riparian habitat in Washington. That authority does not extend to requiring enhancement or creation of habitat to achieve fully functioning riparian ecosystems. The Growth Management Act requires that critical areas, which include riparian habitat, be designated and protected to maintain existing conditions and does not require enhancement of those areas (*Swinomish Indian Tribal Community v. W. Wash. Growth Mgmt. Hr’gs Bd.*, 161 Wn.2d 415, 427-430 (2007)).

The Shoreline Management Act provides a “no net loss” standard for riparian habitat protection, meaning the existing condition of shoreline ecological functions should remain the same over time (Ecology, 2017b). To satisfy no net loss, local governments must protect ecological functions in the Shoreline Master Program planning process and through appropriate regulation of individual development projects and must develop shoreline restoration plans to identify and prioritize restoration opportunities. While local shoreline planning may ultimately result in improvements, the enhancement of shoreline ecological functions is not required. The Department of Ecology similarly ensures “no net loss” in the amount and function of the state’s wetlands. Without regulatory requirements to improve riparian functions above existing conditions, the expansion of the total quantity of fully functioning riparian habitat in the state is heavily dependent on the success of voluntary programs.

### **Key Finding #12: The complexity and cumbersome nature of regulatory processes can impede rapid integration of new science.**

The existing process for modifying regulations and updating locally implemented regulatory programs can result in long delays in integrating new science. While guidance for voluntary programs, such as the criteria for grant funding, can be updated relatively rapidly (e.g., the Salmon – PSAR program already incorporates the WDFW Riparian Guidance into its grant funding criteria), updates related to regulatory programs can take much longer. This effect is enhanced in processes that require consensus for decision-making, such as for changes to the Forest Practices Rules. For regulatory programs that develop guidance that must be implemented through development of local plans, such as the GMA and SMA, new information is generally only implemented during updates that occur every eight to 10 years. Further, the local nature of those programs can result in differences between jurisdictions, and what is actually required in consideration and incorporation of new guidance and information may be the subject of dispute, including administrative appeals and litigation.



### **Key Finding #13: The duplicative nature of frameworks and objectives across many of the 60+ riparian-related programs may create inefficiencies in the management of riparian areas, as well as competition for limited resources.**

Given the sheer number of programs involved, the statewide effort to protect and enhance riparian habitat is broad and fragmented. Programs are often competing with each other for the same limited resources, especially with respect to state funding for grant and acquisition programs such as PSAR, FREP and others. Often, restoration efforts across various programs are not well-coordinated, and result in geographically dispersed actions that are not implemented with a broader riparian goal in mind. The existence of so many programs with different goals and different data collection methods makes it difficult to understand how the state is performing overall with respect to riparian protection. Operating many small programs in silos not only leads to less effective riparian management and greater difficulty in understanding the overall status of riparian habitats collectively, but also increases the overall administrative burden. There may be opportunities for cross-program coordination to reduce this burden.

### **Implementation of the WDFW Riparian Guidance**

In order to evaluate the effectiveness of existing voluntary and regulatory programs in terms of achieving a science-based standard for a fully functioning riparian ecosystem, we considered whether the 38 core programs are implementing the WDFW Riparian Guidance (WDFW, 2020). Specifically, our interviews and review of program documentation focused on whether focal programs are or were planning to implement the WDFW recommendations related to delineation of Riparian Management Zones based on WDFW's SPTH<sub>200</sub> standard. The WDFW Riparian Guidance contains multiple other recommendations for riparian management, which were also considered in our review. Three of the programs reviewed, the Salmon – PSAR Fund, Salmon Recovery Funding program, and the Growth Management Act, are currently implementing these recommendations. An additional eight programs are actively working toward or planning to implement<sup>3</sup> the Guidance in the future, including:

1. Forest Practices Program
2. Forestry Riparian Easement Program
3. Nonpoint Pollution Program
4. Office of Chehalis Basin (Aquatic Species Restoration Plan)
5. Shoreline Management Act (remaining comprehensive SMP updates will include WDFW Riparian Guidance in incorporation of applicable scientific and technical information)
6. Voluntary Stewardship Program (some counties are incorporating WDFW's recommended VSP Adaptive Management Matrix (WDFW, 2020))
7. Water Quality Combined Funding Assistance Program

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<sup>3</sup> Implementation of the WDFW Riparian Guidance is inherently different for each program based on its scope and authorities. Timeline to implement the Guidance is also dependent on each program's structure and processes.

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## 8. Wetlands Program

Of the remaining core programs, four currently apply the Natural Resources Conservation Service (NRCS) Field Office Technical Guide (FOTG) for riparian habitat. Various SCC programs (CREP, NRI, VSP) as well as other Conservation District activities (e.g., other federally funded activities), apply the NRCS Field Office Technical Guide, making it the most widely used guidance by the programs covered in interviews outside of the WDFW Riparian Guidance. The WDFW Riparian Guidance specifically identifies CREP, which relies upon the NRCS standards, as “the most successful riparian buffer program in Washington.” (WDFW, 2020). In order to better understand how those standards compare to the WDFW Riparian Guidance on riparian management, we reviewed a sample of the NRCS conservation practices and standards related to riparian protection and found:

- Depending on the practice being implemented, buffers vary from 15 to 280 feet (Personal communication with SCC Aug. 30, 2022). For example, the hedgerow best management practice (BMP) requires a minimum buffer of 15 feet (NRCS, 2008); riparian forest buffer BMP minimum is 35 feet (NRCS, 2014). These buffer widths are likely smaller than what would be expected if WDFW’s SPTH<sub>200</sub> standard were applied.
- The NRCS Index of Conservation Practices (NRCS, 2022) indicates that most riparian-related practice standards were written before 2020, thus do not likely take into account WDFW Riparian Guidance.
- Given the site-specific nature of how buffers are delineated under the NRCS and WDFW Riparian Guidance, it is difficult to make a comparison.
- With the exception of delineation of Riparian Management Zones/(buffers), many of the NRCS conservation practices implemented for various SCC programs (including CREP and NRI) align with the suggested restoration practices in the WDFW Riparian Guidance (Vol. 2, Section 4.4). For example, under CREP, riparian plantings focus on native vegetation that provides needed ecosystem functions (e.g., shade, large wood, pollution removal) and fencing is a common BMP applied to exclude livestock from riparian areas. A report on the efficacy of riparian buffers on agricultural lands notes that “scientific literature and historical experience indicate that agricultural impact can be effectively managed using a variety of tools known as Best Management Practices” (GEI Consultants, Inc., 2005, p. 6). That report goes on to explain how various BMPs prescribed by NRCS are effective at preventing or reducing major impacts to riparian areas from agricultural activities.

For other programs that are planning to implement the WDFW Riparian Guidance but may not be able to logistically implement it in the near term, it is difficult to make any generalizations with respect to the differences between the Guidance and existing standards. Specifically, with respect to the Forest Practices Program, the site-specific nature of the riparian management zone dimension requirement under the Forest Practices Rules makes it difficult to make a comparison. The WDFW Riparian Guidance indicates that “[a]lthough not all riparian functions are strongly associated with tree height (e.g., pollution removal), several key functions are, e.g., large wood recruitment, stream shading and litter fall” (WDFW, 2020, vol. 1, p. 273). With respect to wood recruitment in intensively managed forests in particular, the WDFW



Riparian Guidance indicates it is too soon to know if the current forest practice regulations provide sufficient protection (WDFW 2020, p. 161).

Under Ecology's current Shoreline Management Act guidelines (WAC 173-26), the shoreline vegetation/riparian management sections were developed based on both WDFW's 1997 Priority Habitats and Species guidance document as well as the 1994 Forest Ecosystem Management Assessment Team (FEMAT) report that originally developed the Site Potential Tree Height conceptual model. Ecology's rules address the ecological functions in the WDFW Riparian Guidance explicitly, "to provide: shade to maintain cool water, organic inputs critical for aquatic life; bank stability, minimize erosion, and reducing the occurrence of landslides; reducing fine sediment input into the aquatic environment through stormwater retention and vegetative filtering; filtering and vegetative uptake of nutrients and pollutants from ground water and surface runoff; providing large woody debris; regulation of microclimate in the stream-riparian and intertidal corridors; and providing critical wildlife habitat" (Personal communication with Ecology SMA staff Nov. 1, 2022).

## CHAPTER 5 | Analysis of Focal Programs

This chapter provides program-specific analyses for the focal state programs identified for additional analysis as set forth in Chapter 3, Methodology. For each of the focal programs, we conducted a more detailed legal and technical analysis to understand the scope, reach, and/or authorities of the program, the mechanism by which it contributes to riparian habitat, and what available program reporting and data allow us to say about program effectiveness. This evaluation focuses on the programs identified in Table 5.

# Conservation Reserve Enhancement Program

## Part 1: Legal and Administrative Overview

**Funding:** The Capital Budget for the 2021-23 biennium, as revised by the fiscal year 2022 Supplemental Capital Budget, provides \$4.16 million for the Conservation Reserve Enhancement Program (CREP) as follows:

- \$4 million of the State Building Construction Account – State to the State Conservation Commission (SCC) for the 2021-23 CREP, with \$2 million provided solely for technical assistance to private landowners and \$250,000 provided solely for a targeted riparian buffer incentive project (Mount Vernon) (SHB 1080, Sec. 3241).
- \$160,000 of the Conservation Assistance Revolving Account – State to the SCC for the 2021-2023 CREP PIP Loan (SHB 1080, Sec. 3243).
- \$2 million of the General Fund – State Appropriation for fiscal year 2023 and \$5 million for the Salmon Recovery Account – State Appropriation to the SCC solely for the purpose of CREP (SSB 5651, Sec. 307(9)).

**Authorities:**

16 U.S.C. § 3831a

Chapter 89.08 RCW

Title 135 WAC

**Lead State Agency:**

State Conservation Commission

**Other State Agencies:**

Not applicable

**Local Entities:**

Conservation Districts

**Participants:** Private owners of cropland or marginal pastureland, including tribal lands, bordering salmon bearing stream reaches. Lands on nonsalmon bearing waters, lands with existing easements that restrict farming activity, urban lands and public lands, unless leased for the full life of the CREP contract, are ineligible.

**Overview:** The Conservation Reserve Enhancement Program leverages federal and nonfederal funds to target specific state, regional or nationally significant conservation concerns. The primary purpose of CREP in Washington is to restore and protect riparian habitat along salmon bearing streams. The U.S. Department of Agriculture (USDA) Farm Service Agency (FSA) state office administers CREP in conjunction with the State Conservation Commission (SCC) and Conservation Districts. CREP policies are largely set at the national level, with some state policies made by the state FSA office.

In Washington, CREP pays farmers an annual rent for establishing buffers and planting native vegetation, in place of crops, along salmon-bearing streams. The program may also pay for livestock exclusion fencing and watering facilities. These riparian best management practices (BMPs) are preserved under 10- to 15-year renewable contracts. All BMPs must meet USDA Natural Resource Conservation Service (NRCS) standards and specifications and be approved by the FSA.

At the state level, CREP is administered by the SCC, which is the coordinating state agency for all 45 of Washington's Conservation Districts. Conservation Districts are subdivisions of state government that provide community-based natural resource expertise and funding and carry out SCC programs. Together, the SCC and Conservation Districts administer statewide voluntary, incentive-based conservation

programs including CREP, the Voluntary Stewardship program, the Natural Resource Investments program, the Sustainable Farms and Fields program, the Salmon Recovery Funding program, and the Agricultural Conservation Easements program. Conservation Districts work directly with local landowners to determine if their land is eligible for CREP and to design a plan for buffer and vegetation planting.

The SCC also provides training, quality assurance, and consistency across conservation planning through its Center for Technical Development. Conservation Districts also leverage state funds to access federal cost share for project implementation under a variety of programs including the Regional Conservation Partnership program, Partners for Fish and Wildlife program, and the Environmental Qualities Incentives program.

# Conservation Reserve Enhancement Program

## Part 2: Technical Analysis

The Conservation Reserve Enhancement Program (CREP):

- Contributes substantively to the protection and enhancement of riparian habitat on agricultural land. The program has had relatively steady new enrollment over time and each year increases the amount of riparian habitat enhanced on agricultural land. Monitoring of the riparian plantings indicate success in establishing sustainable riparian buffers through this program. In spite of this, over 22 years, only about 10% of the stream miles eligible for the program are enrolled. Key barriers are related to the administrative burden of the program and that rents paid to some landowners do not account for the foregone profits from agricultural production.
- Is an incentive-based program focusing on alleviating problems associated with agricultural activities in riparian corridors while lessening farmers' financial burdens for restoration and conservation.
- The WDFW Riparian Guidance notes that CREP is the most successful riparian buffer program in Washington. Since its inception in 1999, CREP has enrolled 883 contracts that have:
  - Enhanced riparian habitat along 925 stream miles (about 10% of eligible stream miles).
  - Enrolled over 207,000 acres in the program.
  - Planted nearly six million trees.
- For CREP sites overall, buffer width minimum is 50 feet for 70% of the sites, while average buffer width is 142 feet. The CREP program applies Natural Resources Conservation Service (NRCS) conservation practice standards for riparian buffer and other riparian-related conservation practices. It is unclear if SCC intends to incorporate the WDFW Riparian Guidance at this time; however, because CREP is a national program largely funded by the Farm Service Agency under U.S. Department of Agriculture, the NRCS guidance is likely required. Given the site-specific nature of how buffers are delineated under the NRCS and the WDFW Riparian Guidance, it is difficult to make a comparison. With the exception of delineation of Riparian Management Zones (RMZs), many of the NRCS conservation practices align with the suggested restoration practices in the WDFW Riparian Guidance (WDFW, 2020, Vol. 2, pp. 44 - 45).
- Effectiveness measures reported in CREP annual reports do not focus on progress toward an established ecological target but rather are comparing growth of a sample of trees planted by the program to the growth rates of all trees planted by the program in the past.
- Much of the riparian areas eligible for the CREP program are on private property and there can be difficulty in or resistance to limiting the use of those lands. Some Conservation Districts may have already reached the limit of voluntary participation.
- A number of barriers may be limiting program participation including:
  - Foregone profits. Some farmers could make more in crop production than they receive in rent under CREP.
  - Strict FSA contract terms and conditions. Hard to meet the eligibility criteria.
  - Paperwork and complex administration with many agencies and boards approving projects is cumbersome.
- CREP sites have been concentrated in certain areas of the state. The CREP Annual Report from 2006 noted that 23% of the districts account for nearly 80% of the projects (Smith, 2006).
- To get a fuller picture of the extent to which barriers affect the success of the program, it may be useful to conduct additional outreach to more of the 47 Conservation Districts in Washington State.

## What is the mechanism or approach through which the program contributes to the protection and restoration of riparian habitat, and what are the program's specific goals with respect to riparian habitat?

CREP compensates farmers for voluntarily entering into renewable 10- to 15-year contracts to provide a buffer between agricultural activities and salmon streams. CREP funds riparian buffer planting and other BMPs, as well as five years of maintenance. Depending on the conservation practice being implemented, buffers vary from 15 to 280 feet (Personal communication with SCC Aug. 30, 2022). For example, the hedgerow BMP requires a minimum buffer of 15 feet (NRCS, 2008); riparian forest buffer BMP minimum is 35 feet (NRCS, 2014). Landowners also receive rent for the acreage they restore and receive a monetary bonus for enrolling in the program.

The main goal of SCC programs overall is to engage landowners to provide information and education on methods for protecting and restoring natural resources while maintaining agricultural production. CREP in particular is focused on addressing concerns associated with agricultural activities in riparian corridors, including water quality degradation and habitat loss for salmonid species native to Washington that have been either listed or proposed for listing as threatened or endangered species under the federal Endangered Species Act. The program achieves these goals by partnering with landowners and providing incentives to ensure riparian protection and restoration practices are maintained and successful (Personal communication with SCC Aug. 30, 2022).

## How does the implementing entity evaluate and report the effectiveness of the program with respect to riparian habitat protection and restoration?

Program effectiveness is measured in two ways, as follows:

1. **Measuring program implementation.** Implementation data include number of contracts; acres of riparian buffer, filter strip and wetland; length of fence and hedgerow; number of off-stream water installations; and number of stream crossings.
2. **Monitoring the success of riparian plantings funded by the program.** Effectiveness monitoring involves the random selection of 20 or more CREP project sites to measure plant growth, bank erosion, invasive species, canopy cover and plant survival. Monitoring data for planted species include tree growth rates, plant density, diversity, canopy, bank erosion and invasive species.

In addition to reporting high level implementation results on its website, SCC provides more detailed information on CREP in the following reports:

- **CREP Annual Reports**
  - Individual reports are available for the following years: 2000, 2006, 2008-2010, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020-2021.
  - Each report includes the following administrative information:
    - New projects
    - Re-enrolled and expired projects

- Net enrollments
- Financial information
- Each report includes the following effectiveness monitoring information:
  - Age of sample sites
  - Plant growth
  - Bank erosion, invasive species, canopy cover, plant survival
  - Plant density
- **SCC Annual and Biennial Reports**
  - Reports available from 2018, 2019, 2020-2021.
  - Provide high-level statistics for the CREP program, including cumulative information over the life of the program.

Information on BMPs implemented under various SCC programs, including CREP, is entered by Conservation Districts and tracked in the Conservation Practice Data System (CPDS).<sup>4</sup> This data source is the basis for various numbers reported in the publications mentioned above and the limitations of this data source are discussed further below.

## What do the provided documents report about the effectiveness of the program with respect to protection and restoration of riparian habitat?

The WDFW Riparian Guidance notes that CREP is the most successful riparian buffer program in Washington. SCC tracks both the extent of riparian habitat enhanced (e.g., miles, acres, etc.) and how well the enhancement activities (e.g., planting) are working to establish functioning riparian habitat for the protection of water quality and salmon habitats. Per the [CREP website](#), (SCC, 2022d), since its inception in 1999, CREP has:

- Enhanced salmon habitat along over 925 miles of stream.
- Planted nearly 6 million trees.
- Constructed over 280 miles of fence to keep livestock away from salmon streams.
- Enrolled over 207,000 acres in the program.<sup>5</sup>

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<sup>4</sup> CPDS captures data for SCC funded projects only and does not include data for projects funded through other state sources.

<sup>5</sup> There is a major discrepancy in the acres reported on the website and the overall acres reported in the latest CREP Biennial Report for 2020-21. The website reports 207,000 acres while the report indicates the net area (including riparian forest buffer, grass filter strip, and wetland enhancement) totals 13,819 acres. The reason for this discrepancy is unclear.

In terms of the effectiveness of these program activities with respect to enhancing riparian habitats, the website reports that (SCC, 2022d):

- CREP plants are growing and surviving well with growth ranging from 10.6” to 29.3” per year, and site survival averaging 75-90%.
- CREP sites that are 5-10 years old are already averaging 72% canopy cover along small streams.
- In areas with high levels of CREP participation, water temperatures have cooled by as much as 10 degrees Fahrenheit (see text box, *Tucannon River Success Story*).

According to the most recent SCC Biennial Report 2019-2021 during this time period, CREP results included (SCC, 2022a):

- 1,683 additional acres of riparian area enrolled in the program.
- \$9.8 million in federal funding secured through CREP for salmon recovery in Washington.
- 131 estimated jobs created through CREP investments.
- Funding expended for CREP in 2019-2021 state biennium: \$4,404,226.

#### **Tucannon River Success Story**

In this example of CREP accomplishments on the ground, high levels of participation from landowners along the Tucannon River resulted in these outcomes:

- ❖ Summer water temperatures dropped over 10 degrees F.
- ❖ Young salmon use 20 miles of river that had been too warm.
- ❖ Spring Chinook runs increased from 54 in 1995 to 1,777 in 2015.
- ❖ Trees have grown and shade the river.

(SCC, 2022j)

### **Implementation Outcomes**

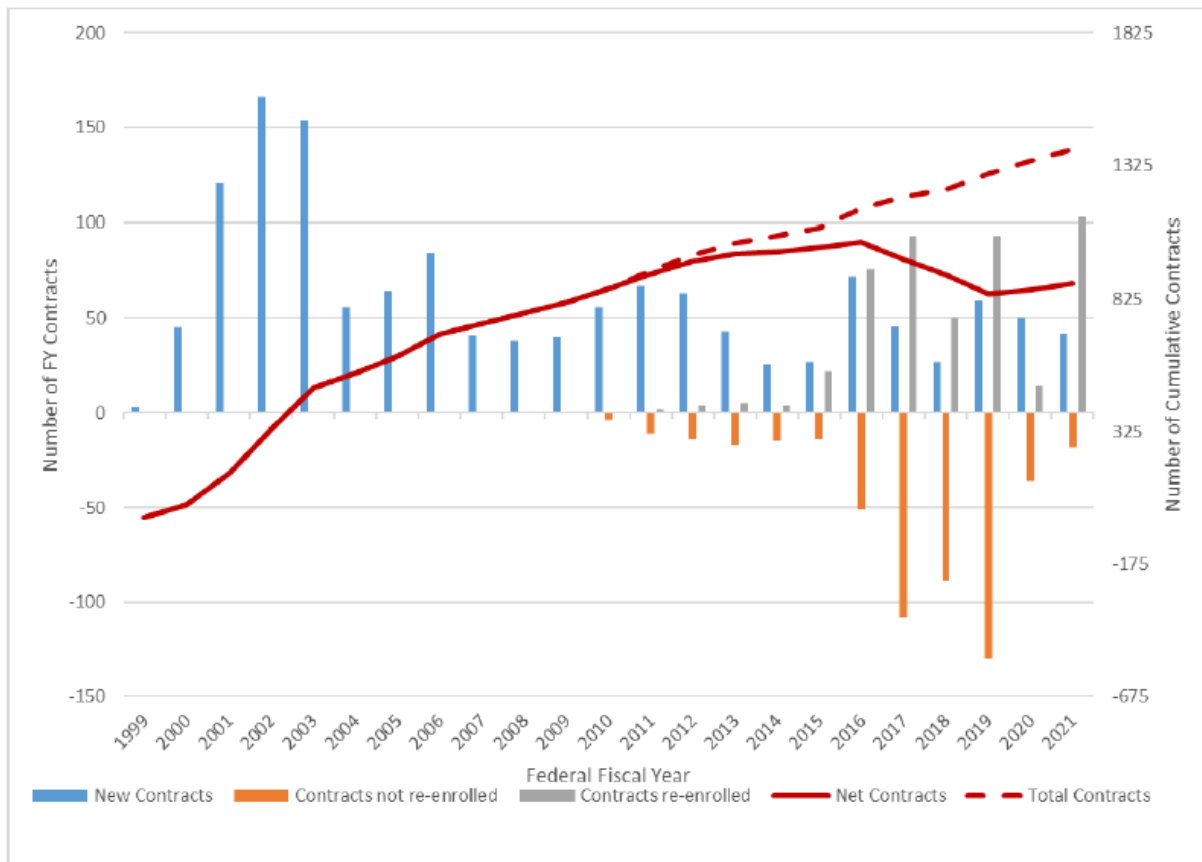
As illustrated in the latest CREP Annual Report, CREP enrolls new landowners at a relatively steady rate over time. As of the end of the federal fiscal year 2021, there were 883 active contracts enrolled in the program (Cochrane, 2022). The graph in Figure 2 illustrates new enrollment and sites that chose not to re-enroll. Since the program began in 1999, there have been a cumulative total of 1,386 contracts. The net enrollment rate has remained steady since 2004, as shown by the dotted line in . The 2015 CREP Annual Report identified the following reasons for un-enrollment from the program (Cochrane, 2016):

- CREP not paying enough
- Not worth the hassle
- Beaver problems and flooding
- Planning on selling or transferring land to children
- No longer eligible
- New owners not interested in continuing in government program

The 2015 CREP Annual Report references data (Chaudiere, 2016) that indicates approximately 80% of commercial land in enrolled in CREP was marginal land (e.g., low productivity, wet, or difficult or



otherwise not economically viable to farm); this is likely because landowners are more inclined to protect riparian habitats in areas that are not viable or cost-effective to farm.



**Figure 2. Conservation Reserve Enhancement Program Enrollment Since 1999**

Source: Cochrane, 2022.

Total riparian habitat acreage in CREP changed very little from federal fiscal year 2019 to end of federal fiscal year 2021 (added 6.86 acres); however, there were changes in the type of planting over that time. Riparian forest buffer and hedgerow acreage decreased 1,677 acres while grass filter strips gained 1,451 acres and wetland enhancement gained 233 acres (see Table 6).<sup>6</sup>

<sup>6</sup> The 2016 Annual Report (Cochrane, 2017) provides more detail on overall practice types and measurement metrics for the program. For context, as of September 30, 2016, CREP reported its projects overall had resulted in: 13,416.5 acres of riparian forest buffer, 32.5 acres of hedgerow, 308.9 acres of wetland enhancement, 12.7 acres of filter strip, 817.3 miles of stream length (one side) treated, 296.5 miles of fence installed, 5,224,173 trees and shrubs planted, and 219 watering facilities.

**Table 6. Conservation Reserve Enhancement Program Metrics Federal Fiscal Years 2019-2021**

Metric	Net, end of FFY2019	New in FFY 2020 and 2021	Net, end of FFY2021
Number of Contracts	845	92	883
Area of Riparian Forest Buffer and Hedgerow (acres)	12,611	-1,676.90	10,934.10
Area of Grass Filter Strip (acres)	8.74	1,450.80	1,459.50
Area of Wetland Enhancement (acres)	308.9	233	541.9
Source: Cochrane, 2022			

To date, SCC reports that for CREP, buffer width minimum is 50 feet for 70% of sites, while the program average buffer width is 142 feet (Personal communication with SCC Aug. 30, 2022).

### Effectiveness Monitoring

Overall, the effectiveness measures included in the CREP annual reports are not compared to a particular ecological target, but rather, assessed in terms of change over time. The most recent CREP Annual Report (Cochrane, 2022) reports the following statistics with respect to program effectiveness:

- **Growth rate:** CREP plantings are providing biological function to offset agricultural impacts in the form of a future source of large woody debris, bank stabilization, stream shade, and a buffer between agricultural activities and the stream. In 2020/21, plant types (conifer, deciduous, shrub) at each of the 33 project sites sampled were predominantly growing at similar rates to those that have been planted on the relevant side of the state through CREP in the past (Cochrane, 2022).
- **Bank erosion:** Monitoring is conducted to make sure CREP activities are not contributing to increased bank erosion over time (Smith, 2012). SCC notes that the latest sample shows that most sampled CREP sites are stable with respect to bank erosion. However, a quarter (eight of the 33) sites sampled did show evidence of bank erosion (Cochrane, 2022).
- **Invasive species:** Invasive species generally reduce riparian function; thus, CREP projects may include planting fast-growing native plants to control for invasive plants (Smith, 2012). This is aligned with the suggested restoration practices in the WDFW Riparian Guidance. For all sampled transects in 2020 and 2021, 60% are relatively free of invasive plants, with percent invasive species at or below 10%. Median percent invasive species was 10%, compared to 25% reported for federal fiscal year 2019 and compared to 3% for all data collected for the period 2014 through 2018. Lower percent invasive species are observed for sites younger than five growing seasons and older than 18 growing seasons. This suggests that SCC-sponsored maintenance is keeping weed pressure down, but once that ends, some sites are not able to adequately shade out competition for the level of maintenance provided by the landowner until the sites “mature” after greater than 18 growing seasons (Cochrane, 2022, p. 10).

- **Plant Density:** Density at all sites ranged from 59.9 plants per acre to 678.4 plants per acre, with a mean of 271.2 plants per acre. This is consistent with previous CREP report densities of less than 100 plants per acre to greater than 600 stems per acre with a mean near 250 plants per acre.
- **Canopy Cover:** Increasing canopy cover results in shade which is an effective way to decrease water temperatures and improve conditions for salmon (Smith, 2012). CREP monitoring is only conducted at smaller, wadable streams. Average canopy cover on the five sites measured was 39%, consistent with the lower end of what has been previously reported (83% for federal fiscal year 2019, 35% for federal fiscal year 2018, 72% for federal fiscal year 2016, 68% for federal fiscal year 2014). A review of why so few measurements of canopy cover were taken over the last two years found that:

“Reporting since 2014 has focused on recording canopy measurements when the project canopy is contributing to stream shade. A review of the notes as to why canopy wasn’t measured at 29 sites (of 34) shows four (4) categories of projects for which CREP doesn’t influence canopy and benefits of CREP buffers for stream temperature (via canopy) may be overstated, at least in the relative short term offered by CREP compared to site potential tree height timeframes of 100 and 200 years” (Cochrane, 2022, p. 12).

The review found that there were four types of situations where the CREP project was not able to provide beneficial canopy (see text box *Types of Sites Where Canopy Cover is not Measured*). In some cases, shade is already provided by existing trees. In others, CREP buffers still provide many other desirable functions, including: separation of agricultural activity from water’s edge, bank stabilization, runoff interception, large woody debris source, wildlife corridors, carbon sequestration and litter generation.<sup>7</sup> In some of these four instances, it is possible that with larger buffers,

#### Types of Sites Where Canopy Cover is not Measured

- ❖ **Mature existing trees are retained at the water’s edge.** Thus, CREP project contributes little additional shade until the existing trees die and the CREP trees are large enough to contribute additional shading.
- ❖ **Incised Streams.** Initial shade is provided mostly by the walls of the incision, and the addition of trees from the CREP project does not add to the shade provided by the incision.
- ❖ **Channel has moved away from CREP buffer.** Flood activity takes the summer low flow channel away from the CREP buffer and the summer low flow channel is surrounded by gravel.
- ❖ **CREP buffer is planted along a large river with significant heat capacity.** Due to large water volume and width, even if mature, the CREP buffer cannot shade the water adequately to prevent temperature gain or, ideally, provide cooling as it would along a smaller stream.

(Cochrane, 2022)

<sup>7</sup> The WDFW Riparian Guidance, Vol. 1, states: “[s]tudies show that restoration of riparian areas, especially restoration of incised channels, can alter vegetation type, increase shading, and reduce water temperatures. How spatial variation in vegetation type and consequent shading currently affects salmonid habitat regionally is also unknown. Ecologists lack a map of current and potential riparian vegetation types across the Columbia Plateau that would enable managers to assess impacts on fish-bearing streams from insolation” (WDFW, 2020b, p. 220).

more canopy cover could be provided if WDFW’s SPTH<sub>200</sub> standard were applied; however, given the site-specific nature of how buffers are delineated under the NRCS and WDFW guidance, it is difficult to make a generalized comparison.

## What data are available that allow for analysis of the effectiveness of the program at protecting and restoring riparian habitat?

Despite the multiple data sources available, it is difficult to get a clear picture of how effective CREP has been at protecting riparian habitat. The data provided do not allow for a full understanding of the magnitude of the various types of practices that CREP has implemented on the ground at specific locations. This limitation is in part due to privacy concerns, as well as other issues with the available data, as discussed further below.

SCC provided the following data for purposes of our evaluation:

- GIS information for the location of CREP sites (SCC, 2022g)
- CPDS data on BMPs for various SCC programs including CREP (SCC, 2022b)
- Numbers of contracts enrolled, re-enrolled and unenrolled since 1999 (SCC, 2022e)
- Excel file containing effectiveness monitoring data (SCC, 2022f)

The CPDS dataset includes the following 10 fields: Conservation District, BMP Name, Completion Date, Measurements, Value, Units, Amount Spent to Date, Final Project Cost, Awarded Amount and Program (SCC, 2022b). These data have the following limitations:

- The CPDS data provided do not include any unique identifying information that could tie each record to a site or project, due to Farm Service Agency privacy protections. Thus, it is difficult to aggregate the data because multiple records may be related to the same project and data may be double counted.<sup>8</sup>
- SCC notes that data included in the CPDS system are often incomplete and inconsistent across the Conservation Districts. A multitude of measurements are used to report on the BMPs and SCC reports that this makes synthesis and analysis of these data very difficult.

In its annual CREP reports, SCC notes that the CPDS data are difficult to reconcile with GIS information compiled by the FSA, and earlier versions of the CPDS system; thus, it is difficult to obtain accurate data for aggregation over time. The following annual report excerpts demonstrate these challenges:

- The 2019 CREP Annual Report provides the following caveat: “Implementation data was sourced from four databases: a report from FSA’s data system for all Conservation Reserve Program contracts for the federal fiscal year (Hamilton, 2020), GIS data

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<sup>8</sup> For example, the amount funded to date appears to be a cumulative number that is included in each record, when a treatment is applied at a site.

supplied by FSA following the end of the federal fiscal year (Schettler, 2019), SCC's legacy Conservation Practice Data System (CPDS), and SCC's "new" CPDS that debuted in May 2018. As noted in last year's report, the change in CPDS has been problematic bringing historic metrics forward, so some metrics (practice name, average buffer width, length of stream protected, number of trees and shrubs planted) need [updating] in the new CPDS system. The lack of agreement between the FSA GIS data and state systems has compounded the difficulty of extracting accurate information. The following analyses of new projects, re-enrolled projects, and net enrollment is an estimate based on all three datasets. Top priority for federal fiscal year 2020 should be to resolve and clean up the respective records" (Cochrane, 2020).

- The 2020/2021 CREP Annual Report states, "Implementation data was sourced from two databases: GIS data supplied by FSA following the end of the federal fiscal year (Schettler, 2021), and SCC's Conservation Practice Database System (CPDS). Neither system is complete: the FSA GIS data tracks acres by FSA practice type, so no distinction is made between riparian forest buffer and hedgerow, nor does it contain information about ancillary practices and metrics such as length of stream protected, average buffer width, length of fence associated with the project or whether off-stream water or a stream crossing was provided as a part of the project. CPDS on the other hand, does not show all projects entered by FSA staff when contract information isn't shared, most notably in Whitman County where many filter strip projects were enrolled by FSA from expired CRP contracts without communicating to the local districts, or if communicated, weren't entered into CDPS. CPDS also shows contracts that don't show up in the FSA GIS data, likely a result of how the GIS data is queried, as it's hard to understand how the district data would show a contract and the participant not be in the FSA system. The lack of agreement between the FSA GIS data and state systems has and continues to compound the difficulty of extracting accurate information" (Cochrane, 2022).

In addition to the CPDS data, SCC provided a database of all the CREP plantings that have been sampled (SCC, 2022f). These data allow SCC to evaluate the growth of the sampled plants each year compared to the entire population of similar types of plantings on the relevant side of the state (Eastern or Western) over the life of the program. The data on growth rates of plantings funded by CREP appears to have been well analyzed in the context of the annual reports. These data demonstrate that plantings by CREP have grown at consistent rates throughout the program when compared to other CREP sites on the relevant side of the state.

## What insights can be gained from available data with respect to the effectiveness of the program at protecting and restoring riparian habitat?

GIS information provided by SCC illustrates the eligible streams and the locations of CREP sites throughout the state (see Figure 3). As shown on this map, CREP sites have been concentrated in certain areas of the state.

Overall, there are approximately 9,530 miles of CREP eligible streams. In comparison, the CREP website reports that the program has resulted in enhanced salmon habitat along 925 miles of stream; this is approximately 10% over a 22-year period. We are unable to validate the 925 miles of stream that have been treated under CREP with the data provided.<sup>9</sup>

Available data indicates that the CREP program has funded riparian habitat enhancement across 10% of the eligible stream miles (925 stream miles total) (IEc analysis and SCC, 2022a). While this percentage is increasing over time, a number of barriers are likely limiting widespread participation (e.g., some Conservation Districts may be at the limit of voluntary participation and farmers may be unwilling to accept rental payments that are lower than commodity prices).

***“Although the Washington CREP has been very successful at establishing healthy riparian buffers, the overall success of the program could be improved. Twenty-three percent of the districts account for nearly 80% of the projects’ (CREP database, Whatcom Conservation District).”***

— CREP 2006 Annual Report (Smith, 2006)

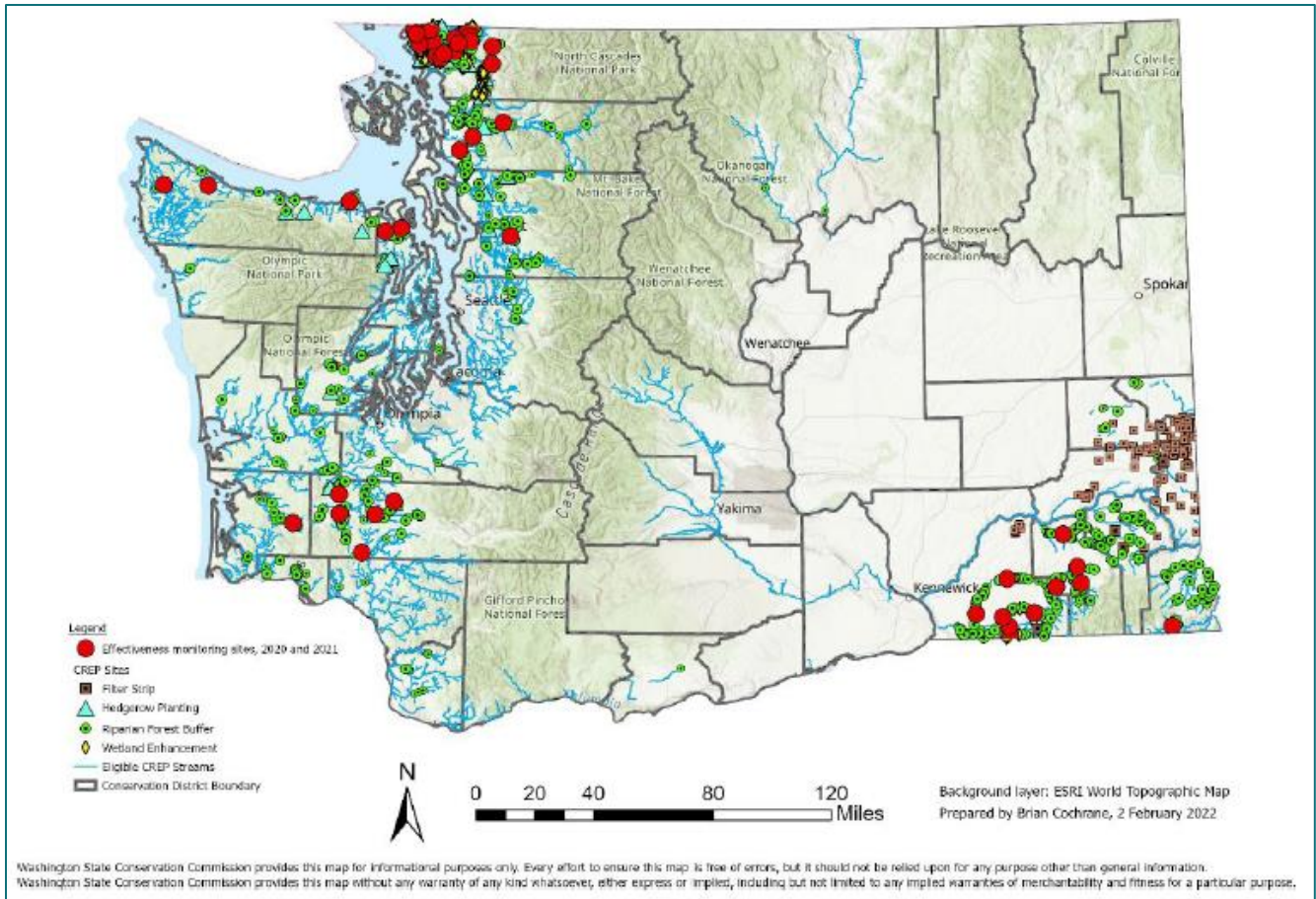
As discussed above, the CPDS data do not allow for aggregation. For more in-depth analysis of specific riparian BMPs, it may be possible to obtain a different dataset from CPDS that would allow for better understanding of the amount of area that has been treated using each of the various riparian related BMPs, by Conservation District, including the following:

- Critical Area Planting
- Filter Strip
- Hedgerow Planting
- Riparian Forest Buffer
- Stream Habitat Improvement and Management
- Streambank and Shoreline Protection
- Tree/Shrub Establishment

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<sup>9</sup> There appears to be a significant discrepancy between May 2022 FSA enrollment data (13,313 acres enrolled) and the CREP website which reports 925 miles and 207,000 acres have been enrolled. The reason for this discrepancy is unclear.





**Figure 3. Location of Conservation Reserve Enhancement Program Sites**

Source: Cochrane, 2022.

**What are the current barriers to program effectiveness, or the ability to measure the effectiveness of the program?**

Interviews with program staff and the process of developing this assessment identified the following as key barriers to program effectiveness or the ability to measure effectiveness of this program:

- Inconsistent and insufficient state funding to support Conservation District outreach to landowners and development of potential projects and installation of BMPs. Conservation Districts need adequate and sustained funding to make the voluntary programs successful. As a cost share program, FSA provides 80% of funding (while the state provides 20%), and FSA limits on installation costs are insufficient to cover project costs.
  - In 2019, a joint SCC and Washington State Department of Agriculture (WSDA) report to the state Legislature provided gap analyses assessing the need for technical assistance and cost-share assistance for existing conservation grant programs. The report provided the estimated unmet financial need for technical assistance of a single biennium is \$17

million (Smith, 2019). The report also provided that approximately 1.42% of statewide agricultural operations participated in a cost-share project in the 2017-2019 biennium and that \$5,370,000 to \$39,380,000 would be needed to increase participation to 5% or \$10,737,000 to \$78,738,000 to increase participation to 10%.

- In outreach with several Conservation Districts, we heard the following regarding current funding barriers:
  - Districts have to spend too much time piecing things together to figure out best funding for landowners to pay for riparian protection measures (Personal communication with Conservation Districts August 2022).
  - Funding needs to cover not only the full project costs but also outreach and education to promote riparian buffers and build relationships with landowners (Clallam Conservation District, 2022).
  - Funding timeline is too short. Long-term maintenance funding is needed. “Installing a buffer takes time, many years, in fact, from conception to a point where the trees can grow unmaintained successfully on their own. Funding needs to be available for longer periods of time to ensure success” (Clallam Conservation District, 2022).
- Complex administration involving multiple agencies and elected boards in approving each project is cumbersome.
- Rental rates are not competitive with commodity prices. Low rental rates are a major limitation of the program in Eastern Washington where rental rates do not adequately cover irrigation costs and taxes.
  - Washington is leading development of a Commodity Buffers Program (CBP), started by the Spokane Conservation District, which makes annual payments to agricultural producers at or above adjacent crop rotation values in return for installing riparian buffers (see the [Spokane Conservation District website](#)).
- In Western Washington, development pressure has led to reduced parcel size. Smaller parcels pose challenges for CREP as current buffer requirements may be more difficult to meet on smaller properties, making the program less attractive to landowners. Also, the paperwork requirements associated with CREP projects increases with the number of parcels, meaning that the administrative workload to conserve acres across several small parcels is much greater than the workload to conserve the same number of acres on one large parcel. SCC notes “[a] different program would be better for small parcels,



and this program ideally should have much simpler paperwork, such as a state plan that doesn't rely on federal approvals" (Smith, 2006).

- Clallam Conservation District notes they lost out on planting approximately 37 acres of riparian area and 21,400 feet of stream mostly due to large buffer requirements (Clallam Conservation District, 2022).
- FSA contract terms and conditions are very strict; some producers back out after learning all they could be responsible for.
  - Very few properties meet the eligibility requirements and strict guidelines have also resulted in many landowners not being eligible (Clallam Conservation District, 2022).
  - Multiple uses not allowed. Program constraints do not permit any agriculture to occur in the areas enrolled in CREP, which may make some landowners less likely to enroll, although there could be an ecological benefit if multiple uses were allowed (Personal communication with SCC program staff, August 2022).
- Changed hydrology over time and adherence to rigid standards rather than biological outcomes may limit the program's effectiveness; CREP does not focus on biological outcomes.
- Early CREP marketing encouraged "no touch"; landowners are disconnected from projects and management. Greater involvement and buy-in of landowners could improve outcomes.
- Much of the riparian areas are on private property, and there can be difficulty in or resistance to limiting the use of those lands; some Conservation Districts may have already reached the limit of voluntary participation.
- Effectiveness measures reported in CREP annual reports are not compared to a particular ecological target; rather, they are compared to past results of the program. This approach does not allow for an understanding of how successful CREP is at protecting riparian habitat.

The CREP Annual Report from 2006 noted that "[a]lthough the Washington CREP has been very successful at establishing healthy riparian buffers, the overall success of the program could be improved. Twenty-three percent of the districts account for nearly 80% of the projects (CREP database, Whatcom Conservation District)" (Smith, 2006). Review of the map of CREP sites indicates that CREP sites are highly concentrated in certain areas.

# Forestry Riparian Easement Program

## Part 1: Legal and Administrative Overview

**Funding:** The Capital Budget for the 2021-23 biennium (SHB 1080) provides total of \$6 million from the State Building Construction Account – State for the Department of Natural Resources (DNR) Forestry Riparian Easement Program (FREP) (Sec. 3325).

The fiscal year 2022 Supplemental Operating Budget (ESSB 5693) provides an additional \$5 million of the Salmon Recovery Account – State Appropriation for DNR to purchase easements under FREP (Sec. 310(44)).

**Authorities:**  
RCW 76.13.120  
Chapter 222-21 WAC

**Lead State Agency:**  
Department of Natural Resources

**Participants:** To qualify, an individual, partnership, corporation or other nongovernmental for-profit legal entity must be a small forestland owner:

1. in actual control of a parcel larger than 20 contiguous acres or more than 80 forested acres, and who owns the land and timber or has rights to the timber for at least 50 years;
2. that has no outstanding violations of the Forest Practices Act (RCW 76.09) or Forest Practices Rules (Title 222 WAC);
3. that harvested an average of less than 2 million board feet each year for the last three years; and
4. that does not expect to harvest more than 2 million board feet in any year during the following 10 years except to pay a compelling and unexpected obligation (e.g., estate taxes).

(RCW 76.13.120(2)(b) and (d); WAC 222-21-010(6)).

To qualify, forest trees on the property must:

1. be covered by a forest practices application that the owner is required to leave unharvested under the Forest Practices Act or Forest Practices Rules or that is made uneconomic to harvest by those rules;
2. be within or border a commercially reasonable harvest unit, or for which an approved forest practices application for harvest cannot be obtained because of rule restrictions; and
3. be located within or affected by Forest Practices Rules pertaining to riparian or other sensitive aquatic areas, Channel Migration Zones, or areas of potentially unstable slopes or landforms.

(RCW 76.13.120(2)(c); WAC 222-21-010(7)).

**Overview:** The Forestry Riparian Easement Program is a voluntary program that reimburses small forest landowners for the value of the trees they are required to leave to protect fish habitat through 50-year easements providing a minimum of 50% timber value. FREP was established to protect small forest landowners in recognition of the potential disproportionate financial effect of the riparian elements of the Forest Practices Rules on them, as well as to prevent conversion of forest lands to nonforestry uses and protect aquatic resources (WAC 222-21-005). The Washington legislature has allocated funding for the program since 2002.

The Department of Natural Resources (DNR) provides technical assistance to small forest landowners to help them meet riparian protection and other forest practice requirements, including through use of programs like FREP. DNR's Small Forest Landowner Office (SFLO) determines eligibility for FREP as well as the compensation amount (WAC 222-21-045). Applications must, at minimum, include documentation to show that the owner is a qualifying small forest landowner, the identification of location and types of qualifying timber, previous forest practices applications, documentation that qualifying timber cannot be harvested because of forests and fish rule restrictions or is uneconomical because of such rules, and, where applicable, notification of completion of harvest (RCW 76.13.120(6)).

The Rivers and Habitat Open Space Program (RHOSP) (formerly, the Riparian Open Space Program) also acquires conservation easements on private forestlands (RCW 76.09.040; Chapter 222-23 WAC). However, easements under RHOSP are permanent and open to owners of forest lands of any size as long as they include critical habitats of threatened or endangered species, listed in WAC 222-16-080,<sup>10</sup> or unconfined Channel Migration Zones (CMZs), as defined in WAC 222-23-010(2)(a). Per DNR's 2021 Forest Practices Habitat Conservation Plan Annual Report, RHOSP has protected 1,146 acres of CMZ and 144 acres of critical habitats since 2002.

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<sup>10</sup> I.e., gray wolf, grizzly bear, mountain caribou, Oregon silverspot butterfly, sandhill crane, Northern spotted owl, Pacific pond turtle, and marbled murrelet.

## Part 2: Technical Analysis

The Forest Riparian Easement Program (FREP):

- ❖ Incentivizes protection of riparian habitat on managed timberland owned by small forestland owners. FREP protects riparian habitat, helping to ensure small forestland owners keep the land forested, by paying for rights to timber harvest in riparian areas for 50 years. FREP defines the eligible timber using the Forest Practices Rules. These rules provide for management of timber harvest within riparian buffers towards a 140-year SPTH goal and likely result in a different Riparian Management Zone (RMZ) than WDFW's SPTH<sub>200</sub> standard which applies a 200-year SPTH. However, the magnitude and direction of this difference is unclear given the site-specific nature of the rules.
- ❖ Prevents conversion of forest lands to non-forestry uses thereby protecting aquatic resources.
- ❖ Funded 435 conservation easements since 2001; 21 easements were purchased in fiscal year 2021.
- ❖ Participation is limited by available funding and there is a consistent backlog of applications for interested landowners. As of June 30, 2021, 110 easement applications were on the FREP funding waiting list.
- ❖ Given the site-specific nature of the RMZ dimension requirements under the Forest Practices Program, it is difficult to compare the potential outcomes of FREP protections with WDFW's SPTH<sub>200</sub> standard (140- versus 200-year SPTH).
- ❖ Data were not available for this analysis on the extent of riparian easements (e.g., in terms of acres or stream miles) eligible for the program and currently under easement through the program.

### What is the mechanism or approach through which the program contributes to the protection and restoration of riparian habitat, and what are the program's specific goals with respect to riparian habitat?

The Forestry Riparian Easement Program protects riparian habitat by reimbursing small forest landowners for the value of the trees they are required to leave under the Forest Practices Rules (Title 222 WAC). FREP helps small forestland owners meet these riparian restrictions and prevents conversion of the land to nonforestry uses. FREP pays for an easement under which small forest landowners give up their rights to timber harvest in riparian areas for 50 years.<sup>11</sup> The program provides compensation for a minimum of 50% of the timber value as well as compliance and reimbursement costs (but no more than \$50,000 during any biennial funding period for timber located on potentially unstable slopes).

FREP applies to “qualifying timber” within Riparian Management Zones. “Qualifying timber” includes those trees that the landowner is required to leave unharvested in the riparian zone because of the Forest Practices Rules, or that is made uneconomic to harvest because of those rules, including trees adjacent to streams, wetlands, seeps or unstable slopes (Rodgers, 2021).

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<sup>11</sup> Eligible small forest landowners for FREP must own either a parcel larger than 20 contiguous acres or more than 80 forested acres in Washington state and harvest less than 2 million board feet of timber on average, per year.

## How does the implementing entity evaluate and report the effectiveness of the program with respect to riparian habitat protection and restoration?

Administrative metrics are reported in Washington's Forest Practices [Habitat Conservation Plan \(HCP\) annual reports](#). Each annual report includes information and statistics about FREP, including:

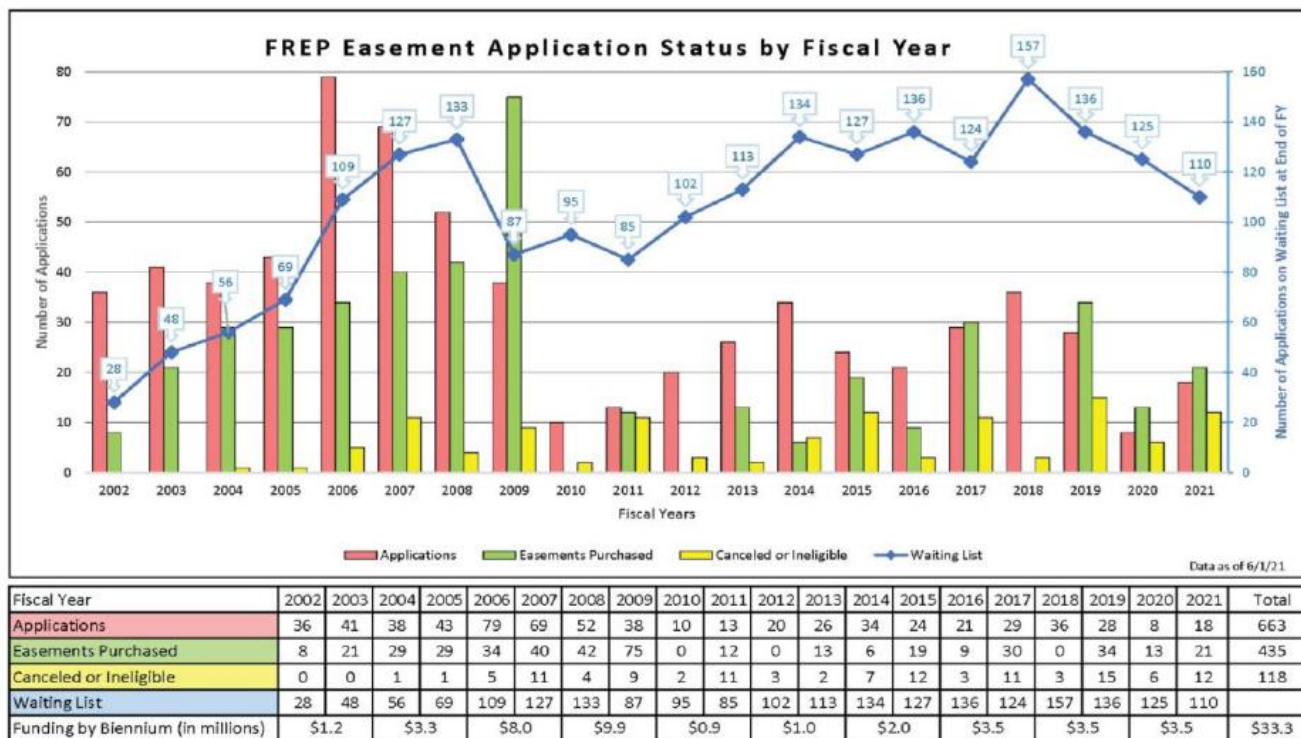
- number of easements purchased that year
- number of new applications
- the backlog of applications

Information on ecological metrics to assess the effectiveness of FREP, such as the acreage or stream miles of habitat protected, is not readily available.

## What do the provided documents report about the effectiveness of the program with respect to protection and restoration of riparian habitat?

In the 2021 HCP Annual Report, DNR reports that 21 FREP easements were purchased and 18 new applications were received during fiscal year 2021. Figure 4 illustrates the trends in application status over time. Since 2002, the state has purchased 435 conservation easements under FREP. As of June 30, 2021, 110 easement applications were on the FREP funding waiting list. In a 2021 Small Forest Landowner Demographic Report to the state Legislature, DNR noted that the agency submitted a funding request of \$10.4 million for FREP for the 2021-23 biennium to purchase 118 50-year easements, including the entire backlog of FREP applications at the time.

In general, the number of FREP applications per year has grown over time, although the past four years have seen a declining trend. The number of new applications in fiscal year 2021 was well below the average number of 30 applications per year dating back to 2001. DNR notes that this could be due to the COVID-19 pandemic.



**Figure 4. Forestry Riparian Easement Program Activity by Fiscal Year**

Source: Rodgers, 2021.

### What data are available that allow for analysis of the effectiveness of the program at protecting and restoring riparian habitat?

The data available for this analysis focuses on administrative metrics. Additional follow-up with the Small Forest Landowner Office may be useful to confirm whether data on the amount of timber or acreage of timberlands enrolled may be aggregated to assess effectiveness of the program.

### What are the current barriers to program effectiveness, or the ability to measure the effectiveness of the program?

For FREP, the primary barrier to success is that there has not been enough funding to fulfill all the requests for program participation. As discussed above, FREP has a consistent backlog of landowners interested in participating in the program.

A recent study of small forest landowners in Washington made the following observations (University of Washington, 2021):

- FREP is only useful if the owner is willing to grant the state an easement. “Easements entail a contract with the State that some owners will simply not want to consider. In the open comments field asking respondents why they have not applied for FREP, almost 30 respondents specifically said they do not want to grant an easement to the state. Although these data indicate being paid for FREP mitigates the most negative perceptions of Washington’s riparian forest regulations, there will be a portion of

SFLOs [small forest land owners] who will probably never consider applying to FREP.” (University of Washington, 2021, p. 237).

- Funding all of the easement applications on the waiting list “would help mitigate the perceived negative impact of riparian regulations in general” (University of Washington, 2021, p. 17).
- With respect to effectiveness in terms of protecting riparian habitat, the study states “...the lack of FREP funding has not likely resulted in the loss of riparian habitat. However, in the counterfactual sense, the program does help retain lands in forestry and open space uses” (University of Washington, 2021, p. 17).

This study made the following observations with respect to addressing FREP’s application backlog and funding needs: “[a]ssuming continuation of the current Adaptive Management Program for riparian regulations, additional funding for FREP will help retain land in forest and open space use as well as mitigate the perceived negative impacts of riparian regulations for affected SFLOs [small forest landowners]. Alternatively, the creation of riparian regulations specific to SFLOs that allow for more harvesting relative to status quo regulations, will alleviate the need for additional FREP funding.” (University of Washington, 2021, p. 18).



# Forest Practices Program

## Part 1: Legal and Administrative Overview

**Funding:** The Operating Budget for the 2021-23 biennium, as revised by the fiscal year 2022 Supplemental Operating Budget, provides \$46.2 million to the Department of Natural Resources (DNR) for the Forest Practices Program, as follows:

- \$17.2 million of the General Fund -State Appropriation (FY 2022)
- \$11.1 million of the General Fund -State Appropriation (FY 2023)
- \$117,000 General Fund -Federal Appropriation
- \$2.1 million of the Forest Practices Application Account – State Appropriation
- \$10.8 million of the Forest and Fish Support Account – State Appropriation
- \$4.1 million of the Model Toxics Control Operating Account – State Appropriation

**Authorities:**  
Chapter 76.09 RCW  
Title 222 WAC

**Lead State Agency:**  
Forest Practices Board; Department of  
Natural Resources

**Participants:** Parties conducting forest practices such as road construction, timber harvesting, thinning, and tree planting on private and public forest lands.

**Overview:** Washington’s regulation of riparian areas within forestlands derives from a stakeholder process in the mid-to-late 1990s. This process was convened to develop protective measures and administrative processes for nonfederal, nontribal forestlands to restore and maintain riparian habitat to support a harvestable supply of fish, ensure consistency with the Endangered Species Act and Clean Water Act, and keep the timber industry economically viable. The stakeholder process included representatives from state agencies, tribes, forestland owners, conservationists, counties and federal agencies. An outcome of this process was the 1999 Forests and Fish Report, which was then legislatively approved and adopted into the Forest Practices Rules and a state-developed and federally approved Forest Practices Habitat Conservation Plan (HCP) under Section 10 of the Endangered Species Act. Washington implements the HCP through the operation of the Forest Practices Program.<sup>12</sup>

Today, forest practices are regulated under the Forest Practices Act (Chapter 76.09 RCW) and the Forest Practices Board (Board) develops Forest Practices Rules (Title 222 WAC) under the Act. The Board is a legislatively created state agency and includes membership from several other state agencies, including the DNR, the Department of Commerce (Commerce), the Washington State Department of Agriculture (WSDA), the Department of Ecology (Ecology), the Department of Fish and Wildlife (WDFW), as well as representatives from local governments, timber products unions, and six members of the general public

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<sup>12</sup> Commercial forestry operators with approved individual HCPs are subject to the conditions of their individual HCP, which are not necessarily the same as the Forest Practices HCP conditions. In general, large forestland owners and operators have individual HCPs.



appointed by the governor, at least one of whom is a small forestland owner and one who is an independent logging contractor.

Forest Practices Rules and guidance are reviewed through an Adaptive Management Program (WAC 222-12-045), which provides science-based recommendations and technical information to assist the Board in determining if and when to make adjustments. The Adaptive Management Program includes two key committees. First, the Cooperative Monitoring, Evaluation and Research (CMER) Committee conducts monitoring and advances science needed to support adaptive management to ensure Forest Practices Rules and guidance are effective at achieving Forest Practices Program resource goals and objectives. Second, the Timber, Fish, and Wildlife Policy Committee considers scientific and technical findings of CMER and makes policy recommendations to the Board in updating rules and guidance. The Forest Practices Board has adopted guidelines for the Adaptive Management Program, including processes to consider proposals, scientific peer review and dispute resolution.

Forest Practices Rules are implemented by DNR, which accepts forest practices applications and provides technical and financial assistance to small forestland owners. DNR also has authority to ensure compliance with the rules, including inspection of forest practices and enforcement related to violations. DNR's Compliance Monitoring Program provides post-harvest monitoring and data collection to inform whether timber harvest and road construction are conducted in compliance with the Forest Practices Rules. DNR may address violations through stop work orders (RCW 76.09.080) or notices of failure to comply (RCW 76.09.090), including correction instructions. Operators in violation of the rules and unauthorized landowner conversions of forestland are subject to financial, civil and criminal penalties. DNR also provides technical and financial assistance through its Forest Stewardship Program and Small Forest Landowner Office.

The Forest Practices Rules provide specific provisions to protect riparian areas adjacent to streams, wetlands, lakes and ponds. Under the rules, riparian protections are established according to water type. The Forest Practices Rules provide for four classifications of water type, including Type S (shorelines of the state per RCW 90.58.030), Type F (fish bearing), Type Np (nonfish bearing, perennial), and Type Ns (nonfish bearing, seasonal) (WAC 222-16-030). In General, Type S and F waters are afforded greater protections than the nonfish bearing Type Np and Ns waters.

The Forest Practices Rules establish Riparian Management Zones (RMZs) for all Type S and F waters, which determine limitations on forest practices within riparian areas. RMZ dimensions are site-specific and vary depending on the site class of the land, the management harvest option, the bankfull width of the stream, and Channel Migration Zones (CMZs). Further, RMZ dimensions are different for Western and Eastern Washington (WAC 222-16-010).

In both Eastern and Western Washington, RMZ width is determined by site class, a method of classifying the timber-growing potential of soil. Site class is, in turn, determined by a location's site index, which is a species-specific measure of the quality of a site based on the height of dominant trees at a specific age (50 or 100 years for purposes of the Forest Practices Rules). Site class is divided into five levels (I-V), from highest to lowest site index (tree height), and correspond to RMZ widths, with the largest widths for Site Class I and the smallest for Site Class V. The Forest Practices Rules divide RMZs into three zones establishing different requirements and limitations for commercial forest practices within riparian areas. The three zones include, from most to least restrictive: (1) the core zone, which is closest to the water, (2) the inner zone, which is the middle zone, and (3) the outer zone, which is furthest from the water. Further,

separate requirements apply within these zones for Western (WAC 222-30-021) and Eastern (WAC 222-30-022) Washington.

In both geographies, the rules generally prohibit timber harvest or construction within an RMZ's core zone (on the Westside, 50 feet and on the Eastside, 30 feet, measured horizontally from the outer edge of bankfull width or the CMZ, whichever is greater). The rules provide limitations on timber harvest within an RMZ's inner and outer zones depending on factors such as habitat type, basal area and density. Parcels of 20 contiguous acres or less owned by landowners with less than 80 total forested acres are exempt from RMZ requirements but must meet other riparian management measures.

RMZs are managed to reach a long-term riparian forest goal of desired future condition (DFC). DFC means "the stand conditions of a mature riparian forest at 140 years of age, the midpoint between 80 and 200 years" (WAC 222-16-010). In Western Washington, timber harvest is prohibited within an RMZ's inner zone unless consistent with stand requirements<sup>13</sup> to reach DFC targets (WAC 222-30-021). Where timber exceeds stand requirements, harvest within the inner zone may be conducted through one of two DFC options: (1) thinning from below, or (2) leaving trees closest to the water. In Eastern Washington,<sup>14</sup> timber harvest is prohibited in the inner zone unless stands meet certain basal area or density thresholds.

In addition to RMZ requirements, shade must be provided per WAC 222-30-040 and Section 1 of the Forest Practices Board Manual. The Board Manual, an advisory technical supplement to the Forest Practices Rules, also provides guidelines for implementing the RMZ rules in Section 7. Board Manual revisions are prepared and submitted by DNR in cooperation with WDFW, Ecology, other agencies, tribes and interested stakeholders.

The Forest Practices Act restricts local governments from adopting forest practices regulations with certain exceptions (RCW 76.09.240(6)). For instance, counties and cities planning under the Growth Management Act (Chapter 36.70A RCW) must provide for regulation of forest practices located within urban growth areas and of Class IV – General forest practices (i.e., forest practices on lands that have, are being, or are likely to be converted to another use) (RCW 76.09.240). WDFW Riparian Guidance recommends timber harvests not be allowed within SPTH<sub>200</sub> where conversion to nonforest use occurs. The Shoreline Management Act (Chapter 90.58 RCW) also applies where shorelines are being converted to nonforest uses, as well as to forest practices that are considered substantial development (WAC 173-26-241(3)(e)).<sup>15</sup> Even so, local jurisdictions developing shoreline master programs are encouraged to rely on the Forest Practices Act and rules and the Forest and Fish Report as adequate management of forest practices within shoreline jurisdiction.

The Forest Practices Act interacts with other state laws. For instance, Hydraulic Code (Chapter 220-660 WAC) requirements are integrated into the Forest Practices Rules (WAC 222-16-025) and do not apply to forest practices hydraulic projects (RCW 77.55.361). DNR and WDFW follow a concurrence review

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<sup>13</sup> In Western Washington, stand requirement is the number of trees per acre, basal area, and proportion of conifer needed in the combined inner and core zones so that growth of trees would meet DFCs. The basal area target to meet DFC is 325 square feet per acre. WAC 222-30-021(1)(b).

<sup>14</sup> And in Eastern Washington for high elevation timber habitat type. WAC 222-30-022(1)(b)(iii).

<sup>15</sup> Timber cutting is not considered development for purposes of the Shoreline Management Act.

process established for certain forest practices hydraulic projects and the agencies coordinate closely on hydraulic projects submitted under the Forest Practices Program (RCW 76.09.490; WAC 220.660.060). Also, Forest Practices Rules designed to protect water quality must be approved by Ecology (RCW 76.09.040). Where Ecology determines that an operator has failed to comply with Forest Practices Rules relating to water quality, Ecology must inform DNR (RCW 76.09.100) but retains authority to take enforcement action if needed to prevent impacts to water quality (RCW 90.48.420(4)).

## Part 2: Technical Analysis

### The Forest Practices Program:

- ❖ Directly addresses protection of riparian habitat in state- and privately managed forests across the state. The program limits harvest of trees in riparian buffers according to the 140-year SPTH. This differs from WDFW's SPTH<sub>200</sub> standard in that in general the average site potential tree height (and by extension the width of the RMZ) will be smaller for a shorter timeframe (140 vs 200 years). However, given the site-specific nature of the RMZ dimension requirement under the Forest Practices Program and the WDFW guidance it is difficult to make a comparison. While limited data are available to quantify implementation and effectiveness of the program, DNR is currently engaged in program evaluation regarding the effectiveness of the program in protecting riparian habitat, among other ecological goals. Results are expected in November 2022.
- ❖ Compliance monitoring indicates high compliance with the forest practices rules.
- ❖ Data are not available in digital format to map where riparian areas are being protected from timber harvest.
- ❖ Updating the Forest Practice Rules is cumbersome, based on a collaborative, consensus-based process that is deliberate but slow.
- ❖ Working to incorporate recommendations from the Office of the Washington State Auditor (OWSA) after a review cited concerns that the Adaptive Management Program (AMP) to measure effectiveness and respond is not operating as intended and that the Forest Practice Rules may not be meeting some of the requirements of the HCP.
- ❖ Operates under institutionalized collaborative decision making, which results in a deliberative, time-consuming process to make changes to update the rules. As a result, the program has produced only two science-based rule revisions since 2006. DNR is working on implementing the State Auditor's recommendations to improve the AMP process.

## What is the mechanism or approach through which the program contributes to the protection and restoration of riparian habitat, and what are the program’s specific goals with respect to riparian habitat?

Washington’s Forest Practices Rules protect fish and wildlife habitat on the 12 million acres of state-owned and private forestlands (DNR, 2022a). In addition to the state regulations, the Forest Practices Program implements the federally approved Forest Practices Habitat Conservation Plan under Section 10 of the Endangered Species Act.<sup>16</sup> The Forest Practices Program has four broad goals (Personal communication with DNR Aug. 19, 2022):

1. Comply with the Endangered Species Act
2. Maintain harvestable supply of fish
3. Comply with the Clean Water Act
4. Maintain a viable timber industry

While not solely focused on riparian habitat, these broad goals serve to protect riparian areas. In order to meet these goals, the Forest Practices Rules include specific provisions related to riparian areas. These provisions include restrictions on timber harvesting activities within RMZs, as described in the Forest Practices Program Legal and Administrative Overview. Discussions with program staff indicate that the Forest Practices Program is considering incorporating WDFW’s SPTH<sub>200</sub> standard. However, given the extensive stakeholder consensus-driven process for changing the Forest Practices Rules, changes are not likely to occur in the near term.

***“Past forest practices are known to have severely degraded instream wood (Bilby and Ward 1991; Ralph et al. 1994), but current forest practice regulations are expected to improve instream wood (WDNR, 2005). Whether current regulations will result in enough instream wood to create fish habitats that meet policy goals is unknown, and resolving that issue will be difficult until riparian areas attain their desired future conditions a century or more from now.”***

— (WDFW, 2020, Vol. 1, p. 61)

Given the site-specific nature of RMZ dimensions and riparian protections, it is difficult to compare riparian protections under the Forest Practices Rules with the WDFW Riparian Guidance. The WDFW Riparian Guidance states that “[a]lthough not all riparian functions are strongly associated with tree height (e.g., pollution removal), several key functions are, e.g., large wood recruitment, stream shading and litter

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<sup>16</sup> The Forest Practices HCP is a programmatic HCP because it is based on the Washington Forest Practices Program (Forest Practices Rules, legal, and administrative framework). In 2006, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service issued 50-year Incidental Take Permits to Washington state. In doing so, the services provided assurances to the state that the full implementation of the Forest Practices Program would satisfy the requirements of the ESA (see Legal Overview above and <https://www.dnr.wa.gov/programs-and-services/forest-practices/forest-practices-habitat-conservation-plan>).

fall” (WDFW, 2020). With respect to wood recruitment in intensively managed forests in particular, the WDFW Riparian Guidance indicates it is too soon to know if the current forest practice regulations provide sufficient protection (WDFW, 2020, p. 61). Regardless, DNR will eventually be considering incorporation of the WDFW Riparian Guidance into the Forest Practices Rules, under their existing process for revising their regulatory requirements in accordance with best available science (Personal communication with DNR staff August 2022).

## How does the implementing entity evaluate and report the effectiveness of the program with respect to riparian habitat protection and restoration?

The Forest Practices Program addresses effectiveness through its Compliance Monitoring Program and Adaptive Management Program. The Compliance Monitoring Program produces biennial compliance monitoring reports, focused on monitoring whether the Forest Practice Applications are in compliance with the rules. DNR selects a sample of applications to review each biennium. Compliance reports include:

- Biennial compliance monitoring reports, available for 2006-07, 2010-11, 2012, 2012-13, 2014, 2014-15, 2016-17, 2018-19, 2020-21 (see <https://www.dnr.wa.gov/CMP-Biennium-Reports> and <https://www.dnr.wa.gov/programs-and-services/forest-practices/rule-implementation>).
- A GIS Storymap titled “Understanding Forest Practices Rule Compliance” which provides an overview of compliance efforts and summarizes compliance rates for prescriptions sampled in the program’s latest effort (see <https://storymaps.arcgis.com/stories/37d0912f9e58421592db8b9917871a85>).

Under the AMP, effectiveness studies are conducted periodically. In support of the AMP, the Forest Practices Board (Board) established the Cooperative Monitoring, Evaluation, and Research Committee to oversee research necessary to determine the effectiveness of contemporary Forest Practices Rules in meeting aquatic and riparian resource targets. CMER’s two most recent studies are focused on evaluating the effectiveness of rules that establish the size of Riparian Management Zone buffers required adjacent to perennial watercourses that are not fish habitat.<sup>17</sup> The two studies, provided below, were provided to the Board in July 2022, but the full analysis results will not be presented until November 2022 (Jawad, 2022):

- Effectiveness of Forest Practices Buffer Prescription on Perennial Non-fish-bearing Streams on Marine Lithologies in Western Washington (Soft Rock Study)

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<sup>17</sup> It does not appear that there are any other recent studies of the Forest Practices Rules effectiveness related to riparian protection where conclusions are readily available. As a result of a 2012 Settlement agreement related to the HCP, in 2015 CMER developed a master project schedule of science and adaptive management projects. The studies included on that schedule relate to: fish habitat modeling to explore enhancing establishment of the regulatory break between fish- (Type F) and non-fish (Type N) waters; effectiveness of Type F and Type N riparian prescriptions; monitoring to evaluate status and trends of indicators of resource condition across lands covered by the Forest Practices HCP; evaluation of landforms regulated as unstable slopes; effectiveness of road best management prescriptions to reduce surface erosion; and timber harvest effects on forested wetlands, remote mapping of wetlands, and effectiveness of wetland buffers. DNR (2021) summarizes the current status of these projects.

- Effectiveness of Experimental Riparian Buffers on Perennial Non-fish-bearing Streams on Competent Lithologies in Western Washington– Phase 2 (Nine Years after Harvest)

These studies are intended to address concerns that the current buffer requirements may not meet Clean Water Act standards for temperature. In addition, the AMP requested and recently received the results of a performance-based audit conducted by the Washington State Auditor’s Office (Office of the Washington State Auditor, 2021).

DNR also reports annually on compliance with the 2005 Forest Practices HCP, which covers more than 9 million acres of nonfederal and nontribal forestlands in Washington. HCP Annual Reports are available from 2011 – 2021 (see <https://www.dnr.wa.gov/programs-and-services/forest-practices/forest-practices-habitat-conservation-plan#HCP%20Sections>). As discussed below, these reports provide a summary of accomplishments for this program as well as a much broader suite of programs related to forest practices.

### What do the provided documents report about the effectiveness of the program with respect to protection and restoration of riparian habitat?

Below, we provide a brief summary of our review of each of the four data sources considered in this analysis: compliance monitoring reports, the effectiveness studies, the State Auditor’s report, and HCP Annual reports.

DNR’s compliance monitoring group examines whether forest practices are being conducted in compliance with the Forest Practices Rules (i.e., whether these rules are correctly implemented in the field). For monitoring purposes, individual Forest Practice rules are grouped into categories of similar rules called “prescriptions.” In terms of compliance, based on the monitoring efforts for the 2020-21 biennium, rule prescription compliance rates range from 88% to 98%, (see Table 7) indicating generally high compliance with the grouped Forest Practices Rules selected for monitoring (Westreich, 2022a).



**Table 7. 2020-2021 Compliance with Forest Practices Rules**

Prescription Type	Total Forest Practices Rules Assessed	Compliant Rules	Rules with Deviation	% Compliant
Riparian Protection: Desired Future Condition Option 1 (DFC1)	126	116	10	92.1%
Riparian Protection: Desired Future Condition Option 2 (DFC2)	93	91	2	97.8%
Riparian Protection: No Inner Zone Harvest	77	74	3	96.1%
Riparian Protection: Nonfish Bearing Perennial Waters (Np)	110	102	8	92.7%
Riparian Protection: Nonfish Bearing Seasonal Waters (Ns)	27	26	1	96.3%
Wetland Protection: Type A and B Wetlands	900	888	12	98.7%
Wetland Protection: Forested Wetlands	28	27	1	96.4%
Road Construction, Maintenance and Abandonment	171	169	2	98.6%
Source: Westreich, 2022b.				

The effectiveness studies presented to the Forest Practices Board in July 2022 are still being analyzed to make conclusions regarding how effective the Forest Practices Rules are in maintaining key aquatic conditions; the available documents present the results of the controlled study, but do not discuss any implications of the results with respect to effectiveness of current forest practices. Analysis of the results will be provided to the Board in November 2022.

The results of the State Auditor’s report indicate that the AMP is not operating as intended and changes are needed to make the AMP more efficient and effective in its decision making (OWSA, 2021). While the findings are not specific to activities to protect riparian habitat, the audit found that “[t]he program is falling behind on meeting Clean Water Act milestones, and is not meeting requirements of the Habitat Conservation Plan” (Office of the Washington State Auditor, 2021, p. 5). A more recent report discusses DNR’s progress on the State Auditor’s recommendations (DNR, 2021). Overall, DNR is looking to obtain funding to make improvements to the AMP program such as hiring a facilitator, providing logistical support, improving research project transparency, and providing training for new members of the Timber, Fish and Wildlife Policy Committee and CMER.

The HCP Annual Report for 2020-21 (Rodgers, 2021) primarily reports on administrative metrics for the Forest Practices Program (e.g., 4,297 Forest Practices Applications/Notifications (FPAs) were processed, eight guidance documents were issued). The HCP Annual report also reports on enforcement activities, but it is unclear if these activities are related to riparian areas. Per the report, there were 12,440 active (non-expired) FPAs at the end of the reporting period. During this reporting period, DNR issued 51 Notices to



Comply and 12 Stop Work Orders. Of these enforcement actions, 54 were for violations of the Forest Practices Rules.

## What data are available that allow for analysis of the effectiveness of the program at protecting and restoring riparian habitat?

The Forest Practices Program reports that data are not available in digital or tabular format to understand the location of different stream types and where riparian areas are being protected from timber harvest. To date, the program has operated largely using paper forms for FPAs, making aggregation of data difficult.

## What are the current barriers to program effectiveness, or the ability to measure the effectiveness of the program?

Interviews with Forest Practices Program staff and the process of developing this assessment identified the following as key barriers to program effectiveness or the ability to measure effectiveness:

- The program operates under institutionalized collaborative decision making, which results in a deliberative, time-consuming process to make changes to update the Forest Practices Rules and inhibits program effectiveness. Both the CMER and the Timber, Fish and Wildlife Policy Committee operate by consensus, which can result in delays as the caucuses work to get to agreement. This stumbling block to effectiveness of the program is echoed in the State Auditor's AMP Audit which states "Although designed to allow nimble changes to Forest Practices Rules, the program has produced only two science-based rule revisions since 2006. The requirement for unanimous voting, paired with the members' reluctance to use the dispute resolution process, results in little action by the board" (Washington Office of the State Auditor, 2021).
- Stakeholder involvement is critical to this program, but makes efficient decision making a challenge as the committees struggle with how to balance diverse perspectives.
- Data to understand the status of implementation of the program is not available in a digitized format.
- The new effectiveness studies should help address where improvements can be made with respect to riparian habitat protection and enhancement; however, the findings will still need to be incorporated into the rules.

***"Although designed to allow nimble changes to forest practices rules, the program has produced only two science-based rule revisions since 2006. The requirement for unanimous voting, paired with the members' reluctance to use the dispute resolution process, results in little action by the board. "***

— Washington Office of the State Auditor, 2021

# Growth Management Act

## Part 1: Legal and Administrative Overview

**Funding:** The Operating Budget for the 2021-23 biennium, as revised by the fiscal year 2022 Supplemental Operating Budget, provides \$16.3 million to the Department of Commerce (Commerce) for growth management as follows:

- \$5.8 million of the Growth Management Planning and Environmental Review Fund – State Appropriation (ESSB 5693, Sec. 129).
- \$225,000 in fiscal year 2022 and \$225,000 in fiscal year 2023 of the General Fund – State Appropriation to convene a task force to make recommendations regarding needed reforms to the state’s growth policy framework, including the Growth Management Act (GMA), State Environmental Policy Act, and other statutes related to growth, change, economic development, housing, social equity, and environmental conservation to build upon the findings, concepts and recommendations in recent state-funded reports, including the “Road Map to Washington’s Future” issued by the William D. Ruckelshaus center in 2019, the report of the Environmental Justice Task Force issued in 2020, and “Updating Washington’s Growth Policy Framework” issued by the University of Washington in 2021 (ESSB 5092, Sec. 129(101)).
- \$10 million of the General Fund – State Appropriation for fiscal year 2023 solely for grants for updating and implementing comprehensive plans and development regulations in order to implement the requirements of the GMA, including funding to local governments, growth management policy research and development or to assess the ongoing effectiveness of existing growth management policy (ESSB 5693, Sec. 128(129)).

**Authorities:**

Chapter 36.70A RCW

Chapters 365-185, 365-190, 365-195, 365-196, 365-197, 365-198, and 365-199 WAC

**Lead State Agency:**

Department of Commerce

**Other State Agencies:**

Department of Fish and Wildlife, Department of Ecology

**Local Entities:**

Counties and cities

**Participants:** The Growth Management Act directs local governments to prepare Comprehensive Plans, designate and protect natural resource lands, and adopt ordinances for the protection of critical areas including riparian areas. Covered land uses and activities include development and natural-resource-based activities such as agriculture, forestry and mining.

**Overview:** The Growth Management Act (Chapter 36.70A RCW) requires certain cities and counties to develop comprehensive plans to manage population growth and requires all local governments in Washington to designate and take steps to protect natural resource lands and adopt Critical Areas Ordinances (CAOs) to protect designated critical areas. These critical areas include, among others, Fish and Wildlife Habitat Conservation Areas (FWHCAs) and wetlands (RCW 36.70A.030(5)). FWHCAs are defined as “areas that serve a critical role in sustaining needed habitats and species for the functional

integrity of the ecosystem, and which, if altered, may reduce the likelihood that the species will persist over the long term” (WAC 365-190-030(6)(a)).

Commerce administers the GMA; provides minimum guidelines for critical area classification, designation and protection; and recommends local governments establish buffer zones to protect riparian ecosystems. Commerce’s Growth Management Services (GMS) program assists and guides local governments, state agencies, and others to manage growth and development consistent with the GMA. GMS offers direct assistance, grants, training and education, guidebooks, and review of GMA implementation actions. GMS also provides best practices, guidance (including the Critical Areas Handbook), tools, and other resources to enhance monitoring and adaptive management efforts for critical areas. GMS reviews but does not have approval authority over local GMA plans (WAC 365-196-040; WAC 365-196-630) and counties and cities are not otherwise required to report to GMS on activities performed under their local plans and regulations (e.g., permit decisions).

Local governments are required to include best available science (BAS) in the development of CAOs to protect all functions and values of critical areas, and to give special consideration to protection measures necessary to preserve or enhance anadromous fisheries (RCW 36.70A.172). These measures largely apply to new or modified uses and activities and do not apply to existing, legally established ones. Provisions to protect riparian areas include the adoption of vegetative buffer widths based on categories of streams or water flow, setbacks, Riparian Management Zones, and compensatory mitigation requirements for unavoidable impacts. For example, Yakima County has adopted variable vegetated buffers in its CAO, ranging from 0 to 200 feet depending on stream and wetland type (Yakima County Code 16C.06.16, updated 2017). Pierce County has also enacted buffers ranging from 65 to 150 feet based on stream or wetland type (Pierce County Code 18E.40.060, updated 2022).

WDFW is the lead state agency for advising local governments on Fish and Wildlife Habitat Conservation Areas and is responsible for designating Priority Habitats and Species (PHS) that form the basis of conservation areas (WAC 365-190-130). WDFW has designated Riparian Areas as one of 20 Priority Habitats in Washington. WDFW’s PHS program provides direct scientific and technical expertise and information about designated PHS and develops management recommendations to assist local governments. Local governments are encouraged to use information provided through the PHS program to guide Critical Area Ordinance updates and inform other land use policies, plans and regulations.

WDFW has developed best available science and management recommendations for Riparian Areas. Specifically, WDFW recommends local jurisdictions consider the WDFW Riparian Guidance Vol. 1 as best available science and use the policy-based management recommendations in Vol. 2 to inform the management of Riparian Areas. To further assist local jurisdictions, the PHS program has also developed a Riparian Ecosystems Online Site Potential Tree Height Map Tool and High Resolution Change Detection data products displaying land use change, land cover, tree canopy and visible surface water. Local jurisdictions must consider the WDFW Riparian Guidance as BAS in developing and updating CAOs; the

scope of this consideration is an unsettled area of the law and incorporation of the Guidance is likely to vary from jurisdiction to jurisdiction.<sup>18</sup>

The Department of Ecology is the lead state agency advising local governments on the protection of wetlands. See the Wetlands program analysis provided later in this chapter for a discussion of Ecology's Wetlands program, including the support it provides to local governments in their implementation of the GMA. Ecology also oversees local critical areas protections within shoreline jurisdiction under the Shoreline Management Act, as discussed later in this chapter.

The Voluntary Stewardship Program (VSP) provides an alternative pathway for protecting critical areas, including riparian areas, on agricultural lands (RCW 36.70A.060). VSP has been adopted in 27 counties. Both WDFW and Ecology provide assistance to VSP watersheds to achieve compliance with clean water requirements and to protect and restore critical areas. See the Voluntary Stewardship Program analysis provided later in this chapter for a discussion of VSP.

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<sup>18</sup> In March, the Western Washington Growth Management Hearings Board found that the City departed from Best Available Science without reasoned justification in updating its CAO when it established a minimum 50-foot buffer width for all streams contrary to the WDFW Riparian Guidance and the City's own Stream Buffer Best Available Science Review recommending larger buffers to protect riparian habitat functions (*Munce/Evergreen Islands v. City of Anacortes*, GMHB No. 21-2-0002c (Final Decision and Order) (March 21, 2022)). The Board remanded the CAO to the City of Anacortes and has set a compliance hearing date of Dec. 9. In September, the Eastern Washington Growth Management Hearings Board found that Kittitas County sufficiently considered and included BAS, including the WDFW Riparian Guidance, in updating its CAO even though it did not directly adhere to WDFW recommendations regarding Riparian Management Zone delineation. (*Confederated Tribes and Bands of the Yakama Nation v. Kittitas Cty*, GMHB No. 22-1-0002 (Final Decision and Order) (September 7, 2022)). The Yakama Nation has petitioned Thurston County Superior Court for judicial review of the Board's decision. (*Confederated Tribes and Bands of the Yakama Nation v. Kittitas Cty, et al*, Case No. 22-2-02784-34 (filed October 7, 2022)). An assignment for trial setting is scheduled for Feb. 10, 2023.

## Part 2: Technical Analysis

### The Growth Management Services (GMS) Program:

- ❖ Provides funding and technical assistance to city and county governments to periodically update growth management plans and regulations. These plans and regulations include protection of riparian habitat through Critical Areas Ordinances. GMS endeavors to ensure the WDFW Riparian Guidance, and other guidance, is integrated into regulation as cities and counties update their growth management plans and CAOs over time.
- ❖ Identifies that most local governments do not have capacity or resources to measure effectiveness of their growth management regulations, including CAOs; in 2021, GMS provided training to help local governments develop monitoring and adaptive management programs for critical areas management.

### What is the mechanism or approach through which the program contributes to the protection and restoration of riparian habitat, and what are the program's specific goals with respect to riparian habitat?

Growth Management Services provides technical assistance to help local governments implement Growth Management Act goals and requirements. The GMA is the state planning framework that governs how local governments regulate growth, and determines what regulatory and nonregulatory tools they may employ to address development. The GMA requires local governments to adopt regulations that protect designated critical areas, which include riparian areas. These Critical Areas Ordinances may include riparian buffers, setbacks or RMZs. The aim of RMZs is to avoid development activities in riparian areas with certain exceptions and corresponding mitigation requirements.<sup>19</sup>

Every county and city in the state is required to conduct a periodic update of their respective CAOs every 10 years;<sup>20</sup> GMS provides resources for completing the periodic updates. Out of 320 total jurisdictions total in the state, the 86 Puget Sound jurisdictions will complete updates first, in 2024, with the other regions following in 2025 through 2027.<sup>21</sup> These updates will incorporate the WDFW Riparian Guidance

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<sup>19</sup> The Voluntary Stewardship Program (VSP) provides an alternative to regulation of agricultural activities under the GMA in 27 counties; the VSP is described separately in this report.

<sup>20</sup> New 2022 legislation changed the periodic update cycle from eight to ten years (HB 1241).

<sup>21</sup> The Puget Sound Region includes four counties and 82 municipalities; in 2025, the updates will include 10 counties and 48 municipalities from the Olympic Peninsula and Western Washington; the 2026 updates include 10 counties and 48 municipalities primarily in the middle of the state and the 2027 updates include 15 counties and 93 municipalities (Commerce, 2022a).

(WDFW, 2020); GMS is working with local governments to incorporate the Guidance into updates as best available science (BAS) (Personal communication with GMS staff Aug. 18, 2022).

The GMA has three general goals related to habitat protection, which do cover riparian areas, including:

1. Protect environment and enhance high quality of life;
2. Retain open space, conserve fish and wildlife habitat; and,
3. Reduce development of undeveloped land into low density development.

In its role in providing technical assistance to the local jurisdictions developing CAOs and comprehensive plans, GMS also has an implied goal of helping implement the best available science related to riparian management, which has been identified as the WDFW Riparian Guidance.

### How does the implementing entity evaluate and report the effectiveness of the program with respect to riparian habitat protection and restoration?

GMS does not measure its own effectiveness as a program, or with respect to riparian habitat protection. Local governments may evaluate and report on the effectiveness of their plans and regulations, including their CAOs; however, they are under no obligation to report to Commerce. According to Commerce, many counties do not have sufficient capacity or resources to measure effectiveness. GMS is working to find ways to give local governments more tools and examples to accomplish effectiveness analyses within the means of their resources. In 2021, Commerce and project partners from WDFW and Ecology provided technical assistance and resources to cities and counties to help develop or enhance monitoring and adaptive management programs to effectively protect critical areas (Commerce, 2021a).

The fastest growing counties (seven, including: Clark, King, Kitsap, Pierce, Snohomish, Thurston and Whatcom counties) submit Buildable Lands reports every eight years. The Buildable Lands Program requires annual collection of data on environmental regulations including critical areas, stormwater, shoreline and tree retention; however, data collection methods are not prescribed by the state. Thus, each jurisdiction has its own method.<sup>22</sup>

### What data are available that allow for analysis of the effectiveness of the program at protecting and restoring riparian habitat?

While Commerce did not provide any data allowing for analysis of the effectiveness of the program at protecting riparian habitat, a recent report did review riparian conditions within CAO jurisdictions in the Puget Sound Region (Waldo, 2022).

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<sup>22</sup> Buildable Lands reports should be available on county websites; data provided in these reports may be indicative of program or riparian protection effectiveness and could be reviewed in more detail in the future but may be difficult to unify where incompatible data collection methods are used.

## What insights can be gained from available data with respect to the effectiveness of the program at protecting and restoring riparian habitat?

While data are not available to evaluate the GMS program and the effectiveness of CAOs in protecting riparian habitat statewide, the analysis of riparian conditions within CAO jurisdictions in the Puget Sound Region identified the following (Waldo, 2022):

- “Riparian Condition is variable within CAO lands across the Puget Sound watersheds. Some jurisdictions appear to be in poor to concerning condition, while other jurisdictions appear to be in better condition.”
- “The varying degrees of riparian forest cover between CAO jurisdictions within a watershed is impacting spatial connectivity of riparian habitat at the watershed scale. Spatial connectivity is critical to the effectiveness of riparian habitat for fish and wildlife species.”
- “Riparian zones are currently dominated by trees smaller than historical conditions throughout the Puget Sound.”

The current High Resolution Change Detection work being conducted by WDFW should allow for better analysis of the effectiveness of CAOs across the state in the future. This and other recent efforts are discussed in Chapter 6.

## What are the current barriers to program effectiveness, or the ability to measure the effectiveness of the program?

GMS program staff identified the following barriers:

- ***The program’s biggest challenge is determining how best to advise local governments on riparian protection.*** For the upcoming periodic updates to regulations, GMS is assisting local governments with incorporating the WDFW Riparian Guidance into regulations; this will involve a shift away from establishing riparian buffers to applying the concept of RMZs. This effort has been difficult, in part because Commerce is largely reliant on its partner agency, WDFW, for assistance in understanding the complex Riparian Guidance, which may have recently been limited due to turnover at WDFW that has led to understaffing of WDFW habitat policy leads. GMS staff also indicate that it is difficult to make progress on riparian protection and restoration on a permit-by-permit basis. While GMS is largely providing technical advice, ultimately the local comprehensive plans are the basis for building permitting programs.
- ***The bottom-up approach to growth management and to meeting buildable lands program requirements makes it difficult to understand the wider effectiveness of growth management policies on riparian habitat.*** As the state does not prescribe metrics for analyses, the analyses performed across the jurisdictions are different and do not lend themselves to aggregate reporting. In addition, because only seven counties are required to perform the buildable lands analyses, other counties likely do not provide this



type of effectiveness measurement/reporting on implementation of GMA policies and regulations.

Further, recent efforts funded by the state Legislature attempt to identify and address needed updates in growth management that may ultimately improve effectiveness or ability to measure effectiveness with respect to riparian protection. The Collaborative Roadmap Phase III, an ongoing series of projects funded by the state Legislature, builds on several past studies to develop recommended changes to the state's growth policy framework. In 2021, this effort made recommendations to the state Legislature including, of relevance, the following:

1. That the state should provide at least \$10 million for updates to local plans and regulations (result: \$10 million per year approved in the budget);
2. That the legislature should make permit data gathering requirements easier and that annual permit data be required to be sent to Commerce and published each year (result: partially addressed); and
3. That the legislature should amend the GMA to include an option process for voluntary Commerce approval and defense of certain elements of countywide planning policies, comprehensive plans, and development regulations and consider how to ensure the process does not result in de facto minimum standards (result: partially addressed).

The Collaborative Roadmap Phase III's Final Scope and Recommendations provides a scope of proposed topics for additional recommendations in the 2023 legislative session, including adaptive planning recommendations on state statutes to identify conflicts or disconnects and how to reduce gaps, conflicts and redundancies (Commerce, 2022a, pp. 11-12).



# Natural Resource Investments

## Part 1: Legal and Administrative Overview

**Funding:** The Capital Budget for the 2021-23 biennium provides \$4 million for the Natural Resource Investments program (SHB 1080, Sec. 3244).

**Participants:** Private owners or lessees of urban or rural farms and ranches within Conservation District boundaries and identified for eligible projects.

**Overview:** The Natural Resource Investments (NRI) program is a cost-share program funded by the State Conservation Commission (SCC) and used by Conservation Districts to offer local, incentive-based programs empowering landowners to voluntarily install best management practices (BMPs). BMPs advance natural resource objectives, including those pertaining to salmon recovery, climate resilience and water quality.

NRI funds are allocated to Conservation Districts at the beginning of each biennium. Funds are allocated based on submitted applications to the SCC. Each district is eligible to receive an equal share based on legislative appropriation levels.

NRI provides capital funding, which must be used to support structural BMP projects. BMPs must also meet U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) requirements.

Projects may span multiple properties and cost-share is available to participants on public lands. A maximum of 25% of the total funding award of NRI funds may be used for technical assistance activities including, for example, planning, project design, engineering, permitting, implementation oversight, project management and administration, travel and reporting. Administrative goods and services, and education and outreach costs are ineligible.

Maximum cost-share per landowner per fiscal year is \$50,000 and up to 50% for publicly owned lands. Projects must have a practice design life of greater than one year (e.g., cover crop or reduced tillage BMPs are ineligible) and must be completed by the end of each funding timeframe (each biennium). Project monitoring is conducted by Conservation Districts within the project timeframe.

NRI funds may be implemented through landowner implemented cost-share projects or district implemented projects (DIPs). DIPs are projects where the Conservation District is both the lead planner and implementer, as may be the case with implementing an identified practice with multiple landowners at the same time (e.g., installing riparian buffers on several consecutive properties along a creek).

### Authorities:

RCW 89.08

### State Agency:

State Conservation Commission

### Local Entities:

Conservation Districts

## Part 2: Technical Analysis

### The Natural Resources Investments Program:

- ❖ Provides capital funding to SCC for Conservation Districts to work with landowners to implement projects that may include riparian habitat restoration or enhancement. Conservation Districts offer NRI as a “cost-share” incentive for local communities, non-governmental organizations (NGOs), and private landowners to complete voluntary projects that address local and state natural resource priorities.
- ❖ In the 2019-21 biennium, NRI expended approximately \$3.5 million, planted 25,118 trees and shrubs, and protected 25,561 feet of stream (SCC, 2022a).
- ❖ NRI applies guidance from the NRCS Field Office Technical Guide to guide site planning and BMP decisions; depending on the BMP, minimum riparian buffers can range from 15 to 35 feet (NRCS, 2008; NRCS, 2014). Given the site-specific nature of how buffers are delineated under the NRCS and the WDFW Riparian Guidance, it is difficult to make a comparison. With the exception of delineation of Riparian Management Zones (RMZs), many of the NRCS conservation practices align with the suggested restoration practices in the WDFW Riparian Guidance (Vol. 2, Section 4.4).
- ❖ From fiscal year 2018 to fiscal year 2022, approximately 20% of BMPs implemented under NRI were riparian-related.

### What is the mechanism or approach through which the program contributes to the protection and restoration of riparian habitat, and what are the program’s specific goals with respect to riparian habitat?

The Natural Resource Investments program funds capital projects that install BMPs that may protect or restore riparian areas. NRI funds are appropriated to the SCC for Conservation Districts to complete cost-share projects with landowners to address natural resource concerns for the enhancement and protection of renewable natural resources. Projects address a variety of needs, including but not limited to riparian habitat and water quality/quantity. Funded projects often include BMPs that protect or restore riparian habitat, such as critical area planting, hedgerow planting, fencing, large woody debris structure, riparian forest buffers, and streambank and shoreline protection.

NRI uses the USDA NRCS Field Office Technical Guide (FOTG) to assist district staff and the landowner in evaluating the current conditions of the natural resource and riparian areas. The FOTG informs decisions related to which BMPs to use at a site to meet resource objectives. The FOTG includes standards and practices for riparian areas. Depending on the practice being implemented, buffers vary from 15 to 280 feet (Personal communication with SCC Aug. 30, 2022). For example, the hedgerow BMP requires a minimum buffer of 15 feet (NRCS, 2008); riparian forest buffer BMP minimum is 35 feet (NRCS, 2014). Given the site-specific nature of how buffers are delineated under the NRCS and the WDFW Riparian Guidance, it is difficult to make a comparison. With the exception of delineation of RMZs, many of the NRCS conservation practices align with the suggested restoration practices in WDFW’s Riparian Guidance (see Vol. 2, Section 4.4).

## How does the implementing entity evaluate and report the effectiveness of the program with respect to riparian habitat protection and restoration?

SCC reports on NRI program effectiveness at a high level in its Biennial Reports. The information reported is aggregated across the program statewide and does not separately identify outcomes or results for activities occurring in riparian areas.

## What do the provided documents report about the effectiveness of the program with respect to protection and restoration of riparian habitat?

While available documents do not specify whether projects are located within riparian areas, based on the SCC Biennium Report (SCC, 2022a) for 2019-21, NRI outcomes included:

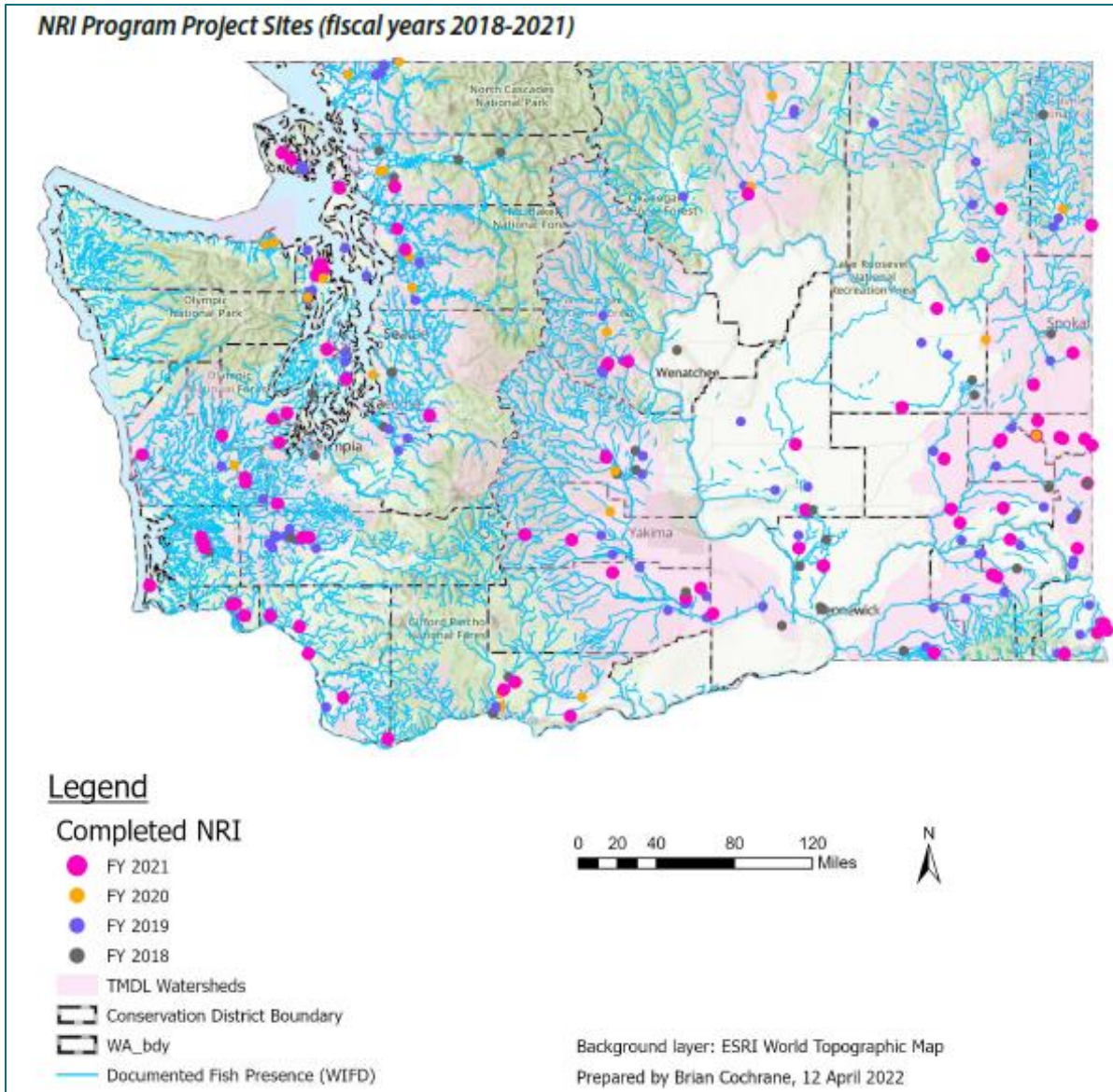
- \$3,521,564 in funding expended
- 153 BMPs implemented
- 25,118 trees and shrubs planted
- 25,561 feet of stream protected

While it is unclear whether all planting was conducted within riparian areas, given the funding guidelines, it is likely much of the work accomplished under NRI projects is riparian-related.

***"Districts are encouraged to prioritize projects implemented in areas with identified pollution inputs with particular focus on areas with 303(d) listings, projects implementing an Ecology TMDL implementation plan, projects addressing habitat for Chinook salmon, and projects implementing a local resource plan."***

— (SCC, 2021, p. 5)

NRI projects are spread throughout the state as shown in the map below (Figure 5).



**Figure 5. Map of Natural Resource Investments Projects**

Source: SCC, 2022h

### What data are available that allow for analysis of the effectiveness of the program at protecting and restoring riparian habitat?

According to the NRI Updated Guidelines, SCC utilizes the Conservation Practice Data System (CPDS) to compile metrics on accomplishments for capital funded programs including NRI (SCC, 2021). Conservation Districts are required to fill out CPDS in order to receive funds from SCC. SCC provided an Excel file with data from CPDS that includes information on BMPs for several SCC programs including NRI for purposes of this evaluation (SCC, 2022b). There are 10 fields included in the data: Conservation District, BMP Name, Completion Date, Measurements, Value, Units, Amount Spent to Date, Final Project Cost, Awarded Amount and Program. In order to meet NRCS confidentiality requirements, the dataset provided was heavily redacted to ensure project locations and landowners could not be identified. These

confidentiality measures resulted in the limitations that made it difficult to accurately aggregate the data. In particular:

- The CPDS data provided do not include any unique identifying information that could tie each record to a site or project, due to privacy concerns. Thus, it is not possible to aggregate the data because multiple records may be related to the same project, leading to double counting of information. For example, within one Conservation District, there are multiple entries that have the exact same value for length of stream protected and awarded amount; it is unclear if these are separate projects or if summing these values for the feet of stream protected would lead to double counting for a particular site/project.
- Further, according to SCC, data included in the CPDS system are often incomplete or reported inconsistently across Conservation Districts.

Data on locations of NRI BMPs implemented from fiscal year 2018 to fiscal year 2022 were also provided (SCC, 2022c). This dataset included the following fields: BMP Name, Status, Latitude, Longitude, Conservation District, Participant ID, Program, Completion Date and Fiscal Year. This dataset did not include information on acres or stream miles protected or other metrics associated with the BMPs, but was a cleaned up set of data with unique participant identifiers allowing for some data aggregation.

## What insights can be gained from available data with respect to the effectiveness of the program at protecting and restoring riparian habitat?

The data supplied identify the number of instances when riparian-related BMPs were implemented during fiscal year 2018 through fiscal year 2022.<sup>23</sup> Table 8 provides a summary of instances of implementing riparian-related BMPs across the state by fiscal year. Of 439 BMPs implemented under NRI during this time, 94 are considered riparian-related. Additional data allowing for a more in-depth evaluation of program outcomes with respect to riparian habitat restoration and protection are not readily available. SCC staff identified data collection and standardization across Conservation Districts and programs as a major limitation to evaluating effectiveness of their programs.

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<sup>23</sup> We note that the number of BMPs implemented under NRI that are included in this database for fiscal year 2020 and fiscal year 2021 total 172; it is unclear why this number does not match the 153 BMPs implemented reported in the 2019-21 Biennium Report.

**Table 8. Best Management Practices Implemented under Natural Resource Investments Program: Riparian-Related and Total**

Riparian-Related BMP Name	Fiscal Year 2018	Fiscal Year 2019	Fiscal Year 2020	Fiscal Year 2021	Fiscal Year 2022	Total
Conservation Cover	-	-	-	1	-	1
Critical Area Planting	2	3	2	-	-	7
Fence	2	15	3	13	3	36
Filter Strip	2	1	-	1	1	5
Hedgerow Planting	1	1	-	1	-	3
Herbaceous Weed Control	1	-	-	1	-	2
Riparian Forest Buffer	2	8	1	2	-	13
Riparian Herbaceous Cover	-	-	-	1	-	1
Streambank and Shoreline Protection	1	2	1	1	-	5
Tree/Shrub Establishment	5	4	1	3	-	13
Tree/Shrub Pruning	-	3	-	-	-	3
Tree/Shrub Site Preparation	-	1	-	2	-	3
Vegetative Barrier	1	-	-	-	-	1
Woody Residue Treatment	-	1	-	-	-	1
<b>Total Riparian-Related BMPs</b>	<b>17</b>	<b>39</b>	<b>8</b>	<b>26</b>	<b>4</b>	<b>94</b>
<b>Total All BMPs</b>	<b>57</b>	<b>197</b>	<b>30</b>	<b>142</b>	<b>13</b>	<b>439</b>

Source: SCC, 2022c

## What are the current barriers to program effectiveness, or the ability to measure the effectiveness of the program?

Interviews with program staff and the process of developing this assessment identified the following as key barriers to program effectiveness or the ability to measure effectiveness of this program:

- The NRI program only provides capital funding; maintenance funding is not included and is an important component for successful riparian planting.
- Inconsistent and insufficient state funding to support Conservation District outreach to landowners and development of potential projects.
- The amount of funding for this program has been fairly limited; as such, the reach of this program with respect to riparian protection has not been as consequential as other programs such as the Conservation Reserve Enhancement Program (CREP).
- Program data are not currently aggregated in an accessible format for use in presenting summary statistics or to quantify riparian protection provided by the program over time.
  - Standardization of data across Conservation Districts has been a significant challenge.

- Much of the riparian areas are on private property, and there can be difficulty in or resistance to limiting the use of those lands; some Conservation Districts may have already reached the limit of voluntary participation.



# Nonpoint Pollution Program

## Part 1: Legal and Administrative Overview

**Funding:** Ecology’s 2021-23 Budget & Program Overview<sup>24</sup> lists \$6.69 million of the total Water Quality Operating Budget to Reduce Nonpoint Source Water Pollution.

The Operating Budget for the 2021-23 biennium (ESSB 5092), as revised by the fiscal year 2022 Supplemental Operating Budget (ESSB 5693), provides \$587.51 million to the Department of Ecology (Ecology) from the accounts, below, which contribute to the Water Quality program. A portion of these funds is used for Ecology’s Nonpoint Pollution program.

- \$49.81 million of the Water Quality Permit Account – State Appropriation.
- \$101.2 million of the General Fund – Federal Appropriation.
- \$44.94 million of the General Fund – State Appropriation (FY 2022).
- \$55.19 million of the General Fund – State Appropriation (FY 2023).
- \$27.55 million of the General Fund – Private/Local Appropriation.
- \$290.42 million of the Model Toxics Control Operating Account – State.
- \$8.5 million of the Model Toxics Control Stormwater Account – State Appropriation.
- \$5.46 million of the Water Pollution Control Revolving Administration Account – State Appropriation for Ecology.
- \$4.44 million of the Reclamation Account – State Appropriation.

The Capital Budget for the 2021-23 biennium, as revised by the fiscal year 2022 Supplemental Capital Budget, provides \$633 million for the Department of Ecology from the accounts, below, which may contribute to the Nonpoint Pollution program.

### Authorities:

Chapter 90.48 RCW

Chapters 173-200, 173-201A, and 173-216 WAC

33 U.S.C. §1251 et seq.

### Lead State Agency:

Department of Ecology

### Other State Agencies:

Department of Agriculture, Forest Practices Board, Department of Health

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<sup>24</sup> Ecology’s 2021-23 Budget & Program Overview is available at: <https://apps.ecology.wa.gov/publications/documents/2101005.pdf>.



- \$75 million of the Model Toxics Control Stormwater Account – State for the 2021-23 Stormwater Financial Assistance Program (SHB 1080, Sec. 3083).
- \$225 million of the Water Pollution Control Revolving Fund – State for the 2021-23 Water Pollution Control Revolving Program (SSB 5651, Sec. 3003).
- \$75 million of the Water Pollution Control Revolving Fund – Federal for the 2021-23 Water Pollution Control Revolving Program (SSB 5651, Sec. 3003).
- \$18 million of the Water Pollution Control Revolving Fund – State for the 2021-23 State Match – Water Pollution Control Revolving Program (SSB 5651, Sec. 3004).
- \$200 million of the Water Pollution Control Revolving Fund – State for the 2022 Water Pollution Control Revolving Program (SSB 5651, Sec. 3009).
- \$40 million of the Model Toxics Control Capital Account – State for the 2021-23 Centennial Clean Water Program (SSB 1080, Sec. 3089).

**Participants:** Activities that generate nonpoint source pollution, including development and land use activities causing runoff from streets, farms, forest lands, habitat alteration and atmospheric deposition.

**Overview:** The Department of Ecology’s Water Quality program performs a variety of functions to achieve water quality compliance and improvements under the federal Clean Water Act (CWA) (33 U.S.C. §1251 et seq.) as well as the State Water Pollution Control Act (Chapter 90.48 RCW), including regulatory and nonregulatory actions to address nonpoint sources (NPS) of pollution. The Water Quality program sets state water quality standards (e.g., for temperature, dissolved oxygen, pollutants), assesses water bodies and identifies those not meeting standards in the state’s Section 303(d) list, implements water quality improvement projects and Total Maximum Daily Load (TMDL) plans for 303(d) impaired waters, provides clean water financial assistance, and uses its authorities and permitting system to address both point and nonpoint sources of pollution.

The Nonpoint Source Pollution program uses these regulatory and nonregulatory tools to ensure activities generating nonpoint source pollution comply with water quality standards (WAC 173-201A-210(30)). Ecology’s existing nonpoint source pollution plan (Ecology, 2015c) outlining the state’s approach to addressing water quality impacts from NPS pollution is currently being updated. The plan includes the following strategies for addressing NPS pollution: watershed cleanup programs (e.g., TMDLs); monitoring; Ecology grant and loan programs; complaint response and inspection; education and outreach; voluntary programs; locally led water cleanup programs (e.g., Pollution Identification and Correction programs); implementation of key regulatory programs (i.e., forest practices, agricultural, on-site septic, water quality permits); partnerships with tribal, state, local, and federal agencies and other public and private interests; and other tools and state initiatives.

A primary means of addressing nonpoint source pollution is through the TMDL process. Per CWA requirements, Ecology completes assessment of the state’s rivers, lakes, and marine water bodies every two years and places assessed waters into categories characterizing water quality and any necessary clean up.

Water bodies not meeting state water quality standards are categorized as impaired and make up the 303(d) list, prioritizing them for cleanup.

Ecology develops a water cleanup plan (TMDL) for impaired waters on the 303(d) list. The TMDL process entails an initial study to determine the total maximum daily load value for pollutants, monitoring to help identify sources and amounts of pollutants impacting water quality, and a technical analysis to determine the pollution reductions needed for each source. This work is used to develop a variety of measures as well as an implementation plan to prevent, reduce, or clean up pollution as well as a monitoring plan to demonstrate the effectiveness of implementation. Upon the U.S. Environmental Protection Agency's (EPA's) approval, TMDLs are implemented and, when state water quality standards are met, the water body can be recategorized and removed from the 303(d) list. The TMDL process includes coordination with tribal, state and local governments, community members, and others and provides opportunity for public comment.

The TMDL process identifies actions to address nonpoint source pollution, including riparian buffers and other BMPs protecting or restoring riparian habitat. Ecology offers significant financial and technical assistance to implement these actions, in particular through its Water Quality Combined Funding program. Ecology is currently developing Voluntary Clean Water Guidance for Agriculture, discussed in Chapter 6, that will describe recommended best management practices (BMPs) to protect water quality.

At certain points in the cleanup process, Ecology provides effectiveness monitoring for water quality improvement projects to identify additional pollutant sources, refine BMPs, and determine progress in meeting water quality goals. TMDL monitoring includes on-site observations to confirm whether BMPs are installed and maintained and does not include water quality measurements. Guidance for Effectiveness Monitoring of TMDLs in Surface Water (Ecology, 2013a) provides that surface water response time to BMPs varies widely. For example, BMPs for livestock exclusion fencing may result in immediate reductions in fecal coliform levels whereas BMPs for riparian planting and protection may not result in stream temperature reductions for decades. Cumulative, rather than individual, BMP effectiveness may be evaluated through instream monitoring.

Another primary means to require compliance with water quality standards for these activities is through BMPs in Ecology's waste discharge permits, rules, orders and directives (WAC 173-201A-510(3)(a)). BMPs are physical, structural, or managerial practices that can be used singularly or in combination to prevent nonpoint source pollution and can include livestock exclusion from riparian areas, riparian area planting, and maintenance of riparian buffers (WAC 173-201A-501(3)(c)). Ecology provides financial assistance to install and implement BMPs through Section 319 and Centennial funding programs within the Water Quality Combined Funding program described in detail later in this chapter. These grant programs include minimum riparian buffer width requirements ranging from 35 to 100 feet.

While Ecology focuses on voluntary compliance for nonpoint sources of pollution, the agency has authority to require a nonpoint source polluter to implement BMPs and to take other actions to achieve compliance with water quality standards. (Ecology, 2004). Washington's Water Pollution Control Act prohibits the unauthorized discharge of pollutants to "waters of the state" and provides for the regulation

of both point sources and nonpoint sources of pollution (RCW 90.48.030; *Lemire v. State Dep 't of Ecology & Pollution Control Hearings Bd.*, 178 Wn.2d 227 (2013)). The Act grants Ecology jurisdiction to control and prevent pollution of waters of the state, and authority to issue corrective action for actual violations as well as actions that “create a substantial potential to violate” the Act (RCW 90.48.030, .120). The Act defines “pollutant” as any “contamination, or other alteration of the physical, chemical or biological properties, of any waters of the state, including change in temperature, taste, color, turbidity or odor of the waters...” (RCW 90.48.020).

Within riparian areas, clearing of vegetation or altering of such areas can result in sediment, turbidity, and temperature pollution that would be subject to regulation under the Act. For example, in *Hunt v. Department of Ecology* (No. 32207-6-II, 2015 WL 1143087 at \*4 (Wash. Ct. App. March 12, 2015) (unpublished)), the court upheld a penalty and order requiring corrective action issued to a landowner for clearing trees along an irrigation ditch connected to Manastash Creek where evidence demonstrated the removal of trees and vegetation loosened ground and removed shade and allowed discharges of heat and sediment. Also, in *Smith v. Ecology* (PCHB No. 08-060 (Findings of Fact Conclusions of Law and Order) (Oct. 26, 2009)), the Board found a serious violation and upheld a penalty issued to a landowner where clearing of vegetation and grading adjacent to and through a salmon-bearing stream resulted in discharges of turbid stormwater.

Ecology provides internal guidance specific to nonpoint source pollution compliance and enforcement in its Nonpoint Source Pollution Deskbook (Ecology, 2017a). This guidance details the tools used and processes followed to ensure compliance in both responding to complaints and in evaluating watersheds, typically through the nonpoint portion of TMDLs or Straight to Implementation (STI) projects. These processes include steps to identify, verify and document compliance concerns, encourage compliance and provide assistance, and escalate to informal and formal enforcement as appropriate. Generally, enforcement is an option of last resort and action is usually only escalated where assistance and other efforts to support voluntary compliance are unsuccessful. Per Ecology’s Compliance Assurance Manual, a determination of when and how to escalate levels of enforcement considers the following factors: (1) seriousness of the violation, (2) violations in overburdened communities, (3) whether the violation was knowing or willful, (4) history and responsiveness of the violator, and (5) resources available for compliance such as financial assistance (Ecology, 2021a, p. 10). Water quality standards with regard to certain agricultural activities, forest practices and on-site sewage systems are implemented by other agencies, as follows:

- The Washington State Department of Agriculture’s (WSDA’s) Dairy Nutrient Management Program (DNMP) administers the Dairy Nutrient Management Act (RCW 90.64) and requires all grade “A” licensed dairies to prevent discharges to waters of the state and to develop a nutrient management plan (NMP) that describes how manure and process wastewater will be managed. The DNMP implements an inspection program to monitor NMP implementation, and to identify recordkeeping violations and water quality violations. A Memorandum of Understanding between Ecology and WSDA in administering the DNMP recognizes WSDA as lead in all

compliance activities against nonpermitted dairies. Ecology remains responsible for CWA compliance for Concentrated Animal Feeding Operations (CAFOs) and retains authority under the Water Pollution Control Act to take compliance actions on any livestock operations where human health or environmental damage has or may occur due to potential or actual discharges.

- Forest Practices Rules (Title 222 WAC) establish protection standards for forest practices activities, as required by the Forest Practices Act (RCW 76.09) and discussed earlier in this chapter. The rules are designed to protect public resources, including water quality, while maintaining a viable timber industry. Ecology must concur with proposed rules involving water quality protection before adoption by the Forest Practices Board. The Department of Natural Resources (DNR) implements the Forest Practices Rules, approves Forest Practices Applications, and has authority to inspect forestry operations and enforce all Forest Practices Rules. However, Ecology retains authority to take enforcement action if needed to prevent impacts to water quality.
- Small on-site sewage systems (OSS) are regulated by the Department of Health (DOH) (WACs 246-272A and 246-272B; RCWs 70.118A, 43.20, 70.05). Local Health Jurisdiction (LHJ) codes must be consistent with and at least as stringent as state law and must designate and create enhanced plans for marine areas where OSSs pose a risk to public health or water quality. DOH may take enforcement action if an LHJ fails to regulate OSS in compliance with state law and Ecology may take enforcement action where there is a discharge to state waters.

# Nonpoint Pollution Program

## Part 2: Technical Analysis

### The Nonpoint Pollution Program:

- ❖ Develops plans to clean up impaired watersheds, and provides technical assistance to landowners addressing nonpoint pollution impacts on water quality. These plans and projects include a suite of BMPs, including development of riparian buffers that help protect and enhance riparian habitat.
- ❖ Ecology is reviewing the WDFW Riparian Guidance for integration into future nonpoint pollution program and water quality grant funding guidance. In general, the application of the Guidance will likely result in wider buffers than those presently recommended. However, the WDFW Riparian Guidance contains a range of recommendations, which include some flexibility, and given the site-specific nature of the BMPs Ecology currently implements for nonpoint pollution projects, comparing the differences between the current and future riparian protections is challenging.
- ❖ Beyond development of plans, many of the activities implemented to address nonpoint source pollution are funded through the Water Quality Combined Funding program, which is addressed later in this chapter.
- ❖ Available documents do not report on the effectiveness of nonpoint pollution projects with respect to protecting riparian habitat.

### What is the mechanism or approach through which the program contributes to the protection and restoration of riparian habitat, and what are the program's specific goals with respect to riparian habitat?

Ecology has the authority to regulate nonpoint source pollution, which it implements by cleaning up impaired watersheds, completing watershed evaluations to identify NPS pollution issues, and implementing suites of BMPs to address identified pollution sources and ensure compliance with the water quality standards (Ecology, 2015a). Ecology considers the condition of riparian habitat when providing technical assistance and developing plans for cleaning up impaired watersheds and completing watershed evaluations to identify NPS pollution issues.

In implementing cleanup plans, the Nonpoint Pollution program works with landowners to identify funding to implement a suite of BMPs. BMPs that are utilized to protect water quality include riparian buffers. Buffer widths are dependent on site-specific factors and the funding source for the project.

For example, many of the activities implemented to address nonpoint source pollution are funded through the Water Quality Combined Funding program (discussed later in this chapter). In general, these grant programs currently reference guidance from the National Marine Fisheries Service (NMFS) and WDFW's Stream Habitat Restoration Guidelines (Ecology, 2022e). However, some projects may receive funding through U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) programs; these programs often use their own Field Office Technical Guidance to determine what BMPs to apply.

Ecology's Water Quality program is currently undertaking an effort that will define BMPs as part of developing Voluntary Clean Water Guidance for Agriculture. Ecology Water Quality staff indicate that the riparian BMPs under this effort will be completed by the end of the year.<sup>25</sup> Ecology has indicated that they are reviewing the WDFW Riparian Guidance and that it will be integrated into future funding program guidance (Ecology, 2022e). In general, the application of the WDFW Riparian Guidance will likely result in wider buffers than what is presently recommended. However, the Guidance contains a range of recommendations, which include some flexibility, and given the site-specific nature of the BMPs Ecology currently implements for NPS pollution projects, comparing the differences between the current and future riparian protections is challenging.

## How does the implementing entity evaluate and report the effectiveness of the program with respect to riparian habitat protection and restoration?

The Nonpoint Pollution program primarily measures and reports on water quality metrics and improvement of impaired waterbodies. Program accomplishments are discussed in annual reports (Ecology, 2020c; Ecology, 2022g) developed to meet the requirements of Section 319(h)(8) and (11) of the CWA (33 U.S.C. § 1329). These accomplishments primarily relate to cleanup activities funded by various grant programs, discussed separately in this chapter related to the Water Quality Combined Funding program.

In terms of monitoring the effectiveness of the Nonpoint Pollution program's activities, Ecology's Environmental Assessment Program (EAP) has been developing a Quality Assurance Monitoring Plan (QAMP) for assessing effectiveness of pollution control plans in Washington during 2021. The QAMP will include 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.

## What do the provided documents report about the effectiveness of the program with respect to protection and restoration of riparian habitat?

As discussed above, the Nonpoint Pollution program activities related to protection of riparian habitat are generally undertaken with funding from various water quality grant programs. The effectiveness of activities funded by the various water quality grant programs is discussed separately under the Water Quality Combined Funding program.

## What data are available that allow for analysis of the effectiveness of the program at protecting and restoring riparian habitat?

Data reporting effectiveness of the Nonpoint Pollution program with respect to protecting riparian habitat, specifically, are not readily available. For BMPs, effectiveness monitoring largely includes data confirming whether a specific BMP was implemented and whether the BMP has remained in place over

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<sup>25</sup> For more information on this effort see: <https://ecology.wa.gov/About-us/Accountability-transparency/Partnerships-committees/Voluntary-Clean-Water-Guidance-for-Agriculture-Adv>.



time. For all impaired waterways in the state, Nonpoint Pollution program effectiveness monitoring is focused on water quality measurement of bacteria, pH and dissolved oxygen.

Ecology staff describe that the “Nonpoint database” includes data collected from regional staff through a collection app. This database and app are used to collect information from staff for individual sites; the database tracks communications and information on which BMPs are implemented at each site. This tool has only been in use the last three or four years and data collection has been variable and inconsistent across regions. These data were not requested because interviewed staff did not believe they had utility for identifying the scope of or understanding the effectiveness of riparian BMPs (Personal communication with Washington Department of Ecology Water Quality staff Aug. 25, 2022). While the tool focuses on water quality metrics, riparian protection and restoration can be a part of clean up strategies to move rivers toward compliance with water quality standards (i.e., removal from the 303(d) list of impaired streams).

## What are the current barriers to program effectiveness, or the ability to measure the effectiveness of the program?

Nonpoint Pollution program staff identified the following barriers:

- ***The reactive nature of the program with respect to dealing with nonpoint source pollution from agricultural activities.*** Rather than proactively prescribing a set of BMPs to be followed in the riparian zone, the nonpoint program follows a stepwise process to first work with agricultural landowners/operators to obtain voluntary compliance before using regulatory enforcement mechanisms. This approach is considered by some to be a less effective or delayed means to protect riparian habitat. Much of the riparian areas are on private property, and there can be difficulty in or resistance to limiting the use of those lands; for this reason, some landowners do not take advantage of financial and technical assistance.
- ***The lack of consistent data collection with respect to program activities in riparian habitat.*** The database and app referenced above that have been put into practice to collect and track BMP implementation over the past three to four years is not used consistently across regions; thus, data are not available statewide. This inconsistency is due in part to staff turnover.

# Salmon Recovery and Puget Sound Acquisition and Restoration Funding

## Part 1: Legal and Administrative Overview

**Funding:** Operating Budget for the 2021-23 biennium (ESSB 5092), as revised by the fiscal year 2022 Supplemental Operating Budget (ESSB 5693 Sec. 305), provides a total appropriation of \$119.24 million and total state appropriation of \$75 million of the Salmon Recovery Account to the Recreation and Conservation Office (RCO), including as follows:

- \$50 million of the Salmon Recovery Account – State Appropriation solely for the Salmon Recovery Board to provide grants for watershed projects valued at greater than \$5 million each that will benefit salmon recovery.
- \$25 million of the General Fund – State Appropriation solely for the Salmon Recovery Board to provide grants for watershed projects valued at less than \$5 million each that will benefit salmon recovery.

**Authorities:**

Chapter 77.85 RCW Title 420 WAC

**Lead State Agency:**

Recreation and Conservation Office, Puget Sound Partnership

**Other State Agencies:**

Not applicable

**Local Entities:**

Not applicable

**Participants:** Local agencies, special purpose districts (e.g., Conservation Districts, port districts), state agencies, tribes, private landowners, nonprofit organizations and Regional Fisheries Enhancement Groups.

Salmon recovery projects may include in-stream fish passage restoration, in-stream and floodplain habitat, upland riparian area revegetation, shoreline armoring removal, logjam installation, estuary restoration, pristine habitat acquisition and future project design completion.

**Overview:** The Salmon Recovery and Puget Sound Acquisition and Restoration (Salmon – PSAR) funding program provides competitive grant opportunities for projects designed to restore and protect salmon habitat, including riparian habitat. The Salmon Recovery Funding Board (SRF Board) oversees the Salmon – PSAR fund and administers state and federal funds to achieve statewide and regional salmon recovery. The SRF Board, within RCO, consists of 10 members, including five appointed by the governor as well as the agency leads for the Washington Department of Fish and Wildlife (WDFW), The State Conservation Commission (SCC), the Department of Ecology (Ecology), the Department of Natural Resources (DNR), and the Secretary of Transportation.

Salmon – PSAR funding comes from federal and state sources. Federal funding is provided by the National Oceanic and Atmospheric Administration (NOAA) Pacific Coastal Salmon Recovery Fund. State funding is provided by the PSAR program. PSAR was created to help implement habitat protection and restoration priorities for salmon recovery in the Puget Sound region.

PSAR is co-managed by RCO and the Puget Sound Partnership (PSP). PSP leads the state's efforts to protect and restore Puget Sound. To that end, PSP coordinates between partners to implement an Action



Agenda for Puget Sound regional recovery. Notably, PSP’s Puget Sound Ecosystem Monitoring Program (PSEMP) provides a network of experts who collaborate to track ecosystem conditions that directly address management and science questions critical to Puget Sound recovery. Among other items, PSEMP assesses effectiveness of and provides recommendations regarding recovery efforts, including riparian habitat projects.

Applications for salmon recovery grants must demonstrate how the proposed project addresses the goals and actions defined in regional salmon recovery plans or watershed-level strategies. The Governor’s Salmon Recovery Office (GSRO) works with regional recovery organizations (e.g., the Hood Canal Coordinating Council) and watershed-based organizations (called “lead entities”) to provide regional recovery plans and watershed-level strategies that implement the statewide salmon recovery strategy. These regional recovery plans meet the requirements of Washington’s Salmon Recovery Act (Chapter 77.85 RCW) and are submitted by the GSRO to NOAA Fisheries for federal approval and adoption pursuant to the Endangered Species Act (16 U.S.C. § 1531 et seq.). GSRO advises the SRF Board and tracks and reports on salmon recovery progress in the biennial State of the Salmon in Watersheds report to the legislature.

In Washington, there are seven regional recovery organizations representing eight salmon recovery regions:

- Hood Canal
- Lower Columbia River
- Middle Columbia River
- Northeast Washington
- Puget Sound
- Snake River
- Upper Columbia River
- Washington Coast

Regional recovery organizations are made up of representatives from local, state and federal agencies, tribes and citizens and coordinate their policy, implementation, and monitoring efforts through the Council of Regions. Regional organizations advise lead entities to implement habitat protection and restoration projects under the regional plans and ensure watershed-level strategies align with regional plans. Regional Fisheries Enhancement Groups (RFEGs) are common grant applicants for Salmon – PSAR funding and are often also represented on lead entity committees.

GSRO recently published a 2023-25 biennial work plan to implement Inslee’s 2021 Salmon Strategy Update to save salmon, which is discussed in Chapter 6.

# Salmon Recovery and Puget Sound Acquisition and Restoration Funding

## Part 2: Technical Analysis

The Salmon Recovery and Puget Sound Acquisition and Restoration Funding Program:

- ❖ Funds restoration and conservation of salmon habitats, including riparian habitat, to promote salmon recovery.
- ❖ Has adopted WDFW's SPTH<sub>200</sub> standard as the requirement for riparian planting projects, with some exceptions.
- ❖ Where exceptions to established riparian habitat standards are made, ensures full function is still achieved using a science-based review process.
- ❖ Distributes funding regionally based on conservation status of salmon populations, and within regions based on regional recovery plan goals and priorities.
- ❖ Detailed data describing riparian habitat actions and outcomes, including acres restored and stream miles treated, are collected and available through RCO's PRISM database.
- ❖ Between 2017 – 2019:
  - ❖ Resulted in the acquisitions of 1,956 acres of riparian acres;
  - ❖ Funded placement of easements over 109 acres of riparian habitat; and
  - ❖ Resulted in the treatment of 8,288 acres of riparian habitat along 562 miles of stream.
- ❖ Funding available outpaces capacity within the regions and locally to develop grant applications.

### What is the mechanism or approach through which the program contributes to the protection and restoration of riparian habitat, and what are the program's specific goals with respect to riparian habitat?

The Salmon Recovery and Puget Sound Acquisition and Restoration (Salmon – PSAR) program is focused on restoring degraded salmon habitat and protecting existing high-quality habitat, with the goal to increase the number of salmon (RCO, 2022c). The program issues grants to state and local agencies, tribes, private landowners, nonprofit organizations, and Regional Fisheries Enhancement Groups to implement land acquisition, restoration, and project planning that contribute to recovery of salmon populations (RCO, 2022c). These projects may include, but are not limited to, protection and restoration of riparian habitat.

When riparian habitat planting is identified as the focus of a project to be funded by the Salmon – PSAR program, RCO requires minimum buffer widths consistent with WDFW's SPTH<sub>200</sub> standard for forested and dryland ecoregions, and incentivizes the use of those standards (Salmon Recovery Funding Board, 2022).<sup>26</sup> Limited exceptions exist, recognizing that important partners such as landowners may not be able

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<sup>26</sup> In forested ecoregions, this equates to a buffer width of SPTH<sub>200</sub> (if available), while in dryland ecoregions it should be either SPTH<sub>200</sub>, the width of the riparian vegetation community, or in cases where either would result in a width of less than 100 feet, the pollution removal function. See Figure 1.

to implement buffers of the requisite width, but could still provide valuable contributions to riparian habitat restoration. For impaired streams (i.e., on the 303d list) where the minimum buffer width cannot be met due to an existing site constraint (e.g., presence of a structure, road, railway, etc.), an exception may be granted. When an exemption is being sought for reasons other than a site constraint, the project applicant must demonstrate that the project still achieves restoration of riparian function, with support from a qualified biologist (Salmon Recovery Funding Board, 2022).

The Salmon Recovery Funding Board is responsible for approving and funding Salmon – PSAR grants. Salmon Recovery grant funds are allocated across salmon recovery regions based on a pre-determined allocation formula that considers needs related to salmon recovery (see text box *Salmon Recovery Funding Board Regional Funding Allocation Formula*).<sup>27</sup> Within the available funding allocation in a given region, Salmon Recovery Lead Entities and other regional organizations work together at the regional level to prioritize proposed projects based on the goals and priorities identified in their approved recovery plans (Salmon Recovery Funding Board, 2020).<sup>28</sup> The Salmon Recovery Funding Board then approves grants based upon each region’s prioritized project list. PSAR grant funding is focused on Puget Sound and Hood Canal regions and is allocated based on a distribution formula to ensure all watersheds are included and that prioritizes salmon recovery (Salmon Recovery Funding Board, 2020).

Regional recovery plan goals and priorities include specific short-term and long-term objectives related to identified limiting factors, including habitat. Habitat-related objectives do not generally identify specific quantified metrics or goals but focus on broad objectives which often include the protection and restoration of riparian habitat (see, for example, Upper Columbia Salmon Recovery Board, 2007).

#### Salmon Recovery Funding Board Regional Funding Allocation Formula

- ❖ Puget Sound Partnership (38%)
- ❖ Lower Columbia Fish Recovery Board (20%)
- ❖ Upper Columbia Salmon Recovery Board (10.31%)
- ❖ Washington Coast Sustainable Salmon Partnership (9.57%)
- ❖ Yakima Basin Fish and Wildlife Recover Board (9.38%)
- ❖ Snake River Salmon Recovery Board (8.44%)
- ❖ Hood Canal (2.4% plus share of Puget Sound allocation)
- ❖ Northeast WA (1.9%)

(Salmon Recovery Funding Board 2021)

## How does the implementing entity evaluate and report the effectiveness of the program with respect to riparian habitat protection and restoration?

According to the Governor’s Salmon Recovery Office, RCO staff evaluate several factors with respect to the effectiveness of the grant program on protecting riparian habitat including the following:

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<sup>27</sup> The allocation formula considers factors including the number of listed and non-listed salmon stocks, number of Evolutionarily Significant Units, number of Watershed Resource Inventory Areas, and salmon shoreline miles (Salmon Recovery Funding Board, 2020).

<sup>28</sup> For a detailed description of Lead Entities and their role in salmon recovery, please visit <https://rco.wa.gov/salmon-recovery/managing-organizations/lead-entities/#:~:text=Lead%20entities%20develop%20strategies%20that,are%20leveraged%203%20to%201.>

- Comparing planned versus actual restored riparian habitat;
- Plant survival for riparian plantings; and
- Number of trees per acre installed (Personal communication with GSRO staff Aug. 8, 2022).

RCO also prepares an annual Salmon Recovery Grant Funding Report describing the process used to review applications and develop recommendations for the Salmon Recovery Funding Board's consideration, as well as information regarding the projects funded by the grant program.

The collective accomplishments of the numerous programs dedicated to funding salmon recovery statewide, including but not limited to the Salmon – PSAR program, are reported annually in the State of Salmon in Watersheds Report. This report describes the accomplishments of all grant programs collectively, including their collective achievements with respect to riparian habitat protected and restored.

## What do the provided documents report about the effectiveness of the program with respect to protection and restoration of riparian habitat?

Outcomes and achievements of the projects funded by Salmon – PSAR are provided primarily in two reports:

- Annual Salmon Recovery Grant Funding reports
- The State of the Salmon Report

The annual Salmon Recovery Grant Funding reports provide metrics describing program accomplishments, but reported figures include all project types and are not limited to riparian projects. The Salmon Recovery Funding Reports focus on the project application and review process, and describe the projects selected through that process and the distribution of applications (not limited to funded projects) by regions and across project types (e.g., restoration versus acquisition). The report identifies the total amount of funding distributed (\$1.2 billion) and number of projects funded (3,000) as program accomplishments (Salmon Recovery Funding Board, 2021).

The State of Salmon in Watersheds Report describes how well the state is doing overall toward recovery of salmon populations but does not attempt to attribute improvements to specific programs. The report highlights that between 2005 and 2020, RCO habitat restoration efforts collectively (not limited to Salmon – PSAR) resulted in 20,013 acres of riparian habitat areas treated (GSRO, 2022).<sup>29</sup>

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<sup>29</sup> Riparian habitat “treatment” is the term used by RCO to describe habitat that has undergone some form of restorative activity to improve its function such as removal of invasive species, planting of native species, and other activities (Email communication with RCO staff October 27, 2022).

## What data are available that allow for analysis of the effectiveness of the program at protecting and restoring riparian habitat?

Two data sources provide detailed project-specific information related to the location, project type, size, activities and costs of funded projects:

- GSRO's PRISM Database
- The Salmon Recovery Portal

GSRO's PRISM database includes both administrative and ecological metrics associated with all projects funded through RCO's grant programs, including Salmon – PSAR (Email communication with RCO staff September and October 2022; RCO, 2022b). PRISM tracks project-level metrics of relevance to this analysis<sup>30</sup> (RCO, 2022a), as follows:

- Acquisition projects:
  - Acreage of riparian habitat acquired or over which an easement was placed
  - Cost of acquisition
- Restoration projects:
  - Area or stream length of riparian habitat protected, treated or planted
  - Width of riparian buffer
  - Project cost

The Salmon Recovery Data Portal is a GIS-based online tool that allows users to access detailed information on salmon recovery projects by location (RCO, U.S. Fish and Wildlife Service, and GSRO, 2022). This database includes all projects funded through RCO grant programs as well as numerous other projects related to salmon recovery (Personal communication with RCO staff Sept. 19, 2022). For Salmon – PSAR projects, the database provides similar information to what is available in PRISM, with the benefit of geographic display.<sup>31</sup> Geographic data are point locations of projects rather than the footprint of the actual project area, and the provided geographic location is not necessarily the location of the project itself (Personal communication with RCO staff Sept. 19, 2022).<sup>32</sup>

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<sup>30</sup> Although SPTH is a field identified in the data, that information is not provided for any of the included projects (presumably because this is a newer requirement that did not apply to projects captured in the available data).

<sup>31</sup> Because information is accessible only by individually selecting a project, tabular data outputs from PRISM are more suitable for analysis.

<sup>32</sup> For example, the displayed geographic location may be based on the mailing address of the project sponsor.

## What insights can be gained from available data with respect to the effectiveness of the program at protecting and restoring riparian habitat?

Data provided through PRISM allow for a description of program accomplishments over time with respect to acres or stream length of riparian habitats restored, improved, or protected through restoration and acquisition, as well as the cost of those actions.

Since 2017, Salmon – PSAR has provided funding to support completion of 215 individual restoration and/or acquisition projects that include a riparian habitat restoration or protection component.<sup>33</sup> The geographic distribution of individual projects that included a riparian component between 2017 and 2021 are identified in

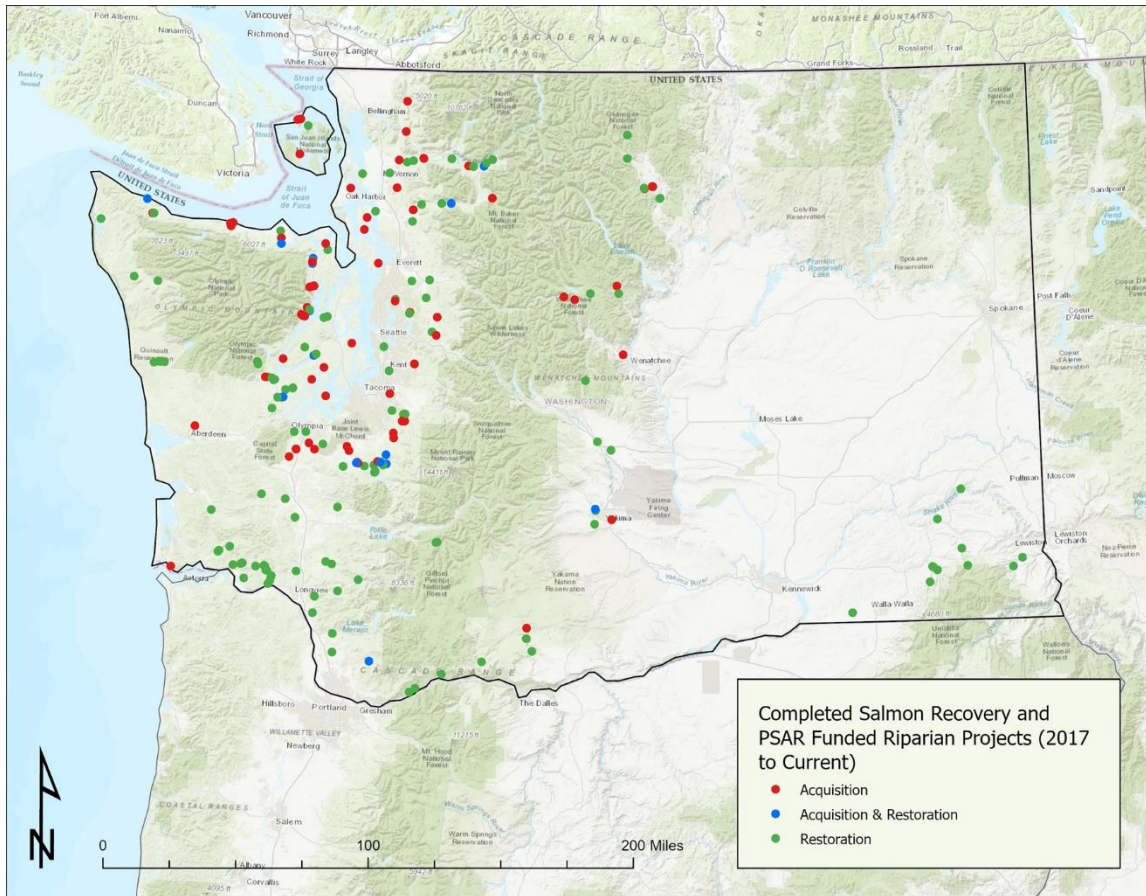
Figure 6. That the highest concentrations of funded projects are in Puget Sound and Southeast Washington (Lower Columbia) reflects that Puget Sound is the sole beneficiary region of PSAR funds, and these two regions receive the greatest shares of Salmon Recovery Grant funds.

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<sup>33</sup> Includes projects with identified Grant Funding Source of “Salmon State Projects,” “Salmon Federal Projects,” “Salmon State Activities,” and “Puget Sound Acq. & Restoration.”

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**Figure 6. Map of Salmon Recovery and Puget Sound Acquisition and Restoration Funded Projects with Riparian Component, 2017-Current**

Source: IEC analysis of PRISM data (RCO, 2022a)

### Acquisition and Easement Projects

As shown in Table 9 between 2017 and 2021, Salmon – PSAR funding:

- Provided \$33 million in funding for 69 projects that included protection of riparian habitat through acquisition or easements;
- Resulted in the acquisitions of 1,956 acres of riparian acres; and
- Funded placement of easements over 109 acres of riparian habitat.

During this time period, the total amount of funding annually dedicated to these projects has fluctuated from a high of \$8.2 million in 2019 to a low of \$4 million in 2020, presumably to some extent reflecting prioritization of other types of projects during years when lower funding levels were dedicated to these types of projects. The total number of riparian acres protected through acquisition and easements has similarly fluctuated year to year, though not entirely in line with the level of funding dedicated to these projects. This is reflected in the real property cost/acre calculation, which shows that the cost per acre of

riparian habitat acquisition and easements has been inconsistent, with a high of \$20,101 per acre in 2018, and a low of \$12,753 per acre in 2019. These changing values may reflect changes in real estate prices, or differences in the location, value, or other features associated with the specific riparian acreage being acquired or protected.

As shown in Figure 6, riparian acquisition and easement projects funded between 2017 and 2021 (identified as “Acquisition” in the figure) are primarily concentrated around Puget Sound. This reflects the high level of funding available for projects in the region, including all PSAR funds and, in 2021, 38% of Salmon Recovery Funds.

**Table 9. Salmon Recovery and Puget Sound Acquisition and Restoration Funded Projets with Riparian Land Acquisition Component, 2017-2021**

Year Completed	Project Count	Real Property Cost Total (2021\$)	Riparian Acres Acquired	Riparian Acres Easement	Riparian Acres Protected	Cost /Acre Protected
2017	14	\$6.9 million	321	22	343	\$20,117
2018	17	\$8.0 million	389	9	398	\$20,101
2019	14	\$8.2 million	606	37	643	\$12,753
2020	12	\$4.0 million	298	14	312	\$12,821
2021	12	\$5.5 million	342	28	370	\$14,865
<b>Total</b>	<b>69</b>	<b>\$33 million</b>	<b>1,956</b>	<b>109</b>	<b>2,065</b>	<b>\$15,981</b>

Source: IEC analysis of PRISM data (RCO, 2022a).

Notes:

1. Values may not sum due to rounding.
2. Easement acres may be double counted as acquired acres in some instances.

## Restoration Projects

As shown in Table 10 between 2017 and 2021, Salmon – PSAR:

- Provided \$12 million in funding for 125 projects that included a riparian habitat restoration component; and
- Resulted in the treatment of 8,288 acres of riparian habitat along 562 miles of stream.

Funding for riparian habitat restoration projects was highest in 2017 (\$4.3 million) and lowest in 2018 (\$1.7 million), again potentially reflective of project type priorities identified by the regional organization in different years. The riparian habitat acreage treated each year has not fluctuated dramatically, generally ranging between 1,000 and 2,000 acres per year, while the miles of stream treated has ranged from 77 to just over 200 (RCO, 2022a). There does not appear to be a direct correlation between the acres of habitat



restored and the miles of stream over which that restoration occurred, potentially reflecting differences in the widths of riparian habitat restored along those miles (see Figure 7).

The amount of funding dedicated to riparian restoration does not correlate directly with the acres or miles of habitat treated, as reflected in the cost per acre figures calculated in Table 10. Cost per acre of restoration has ranged from \$854 per acre to nearly \$3,000 per acre, with an average cost per acre of approximately \$1,500. The basis for these differences is unknown but may be attributable to the types of activities undertaken or changes in costs of materials.

Figure 6 displays the geographic distribution of riparian habitat improvement projects. Compared to riparian acquisition and easement projects, these projects are distributed more widely across the state. Although many projects are still located in the Puget Sound Region (again due to high funding allocation to the region), there are also significant numbers of projects occurring in the southwestern (Lower Columbia) and southeastern (Snake River) parts of the state, as well as on the eastern slopes of the Cascade Mountains (Yakima Basin), suggesting that these types of projects are being prioritized even in areas with more limited funding.

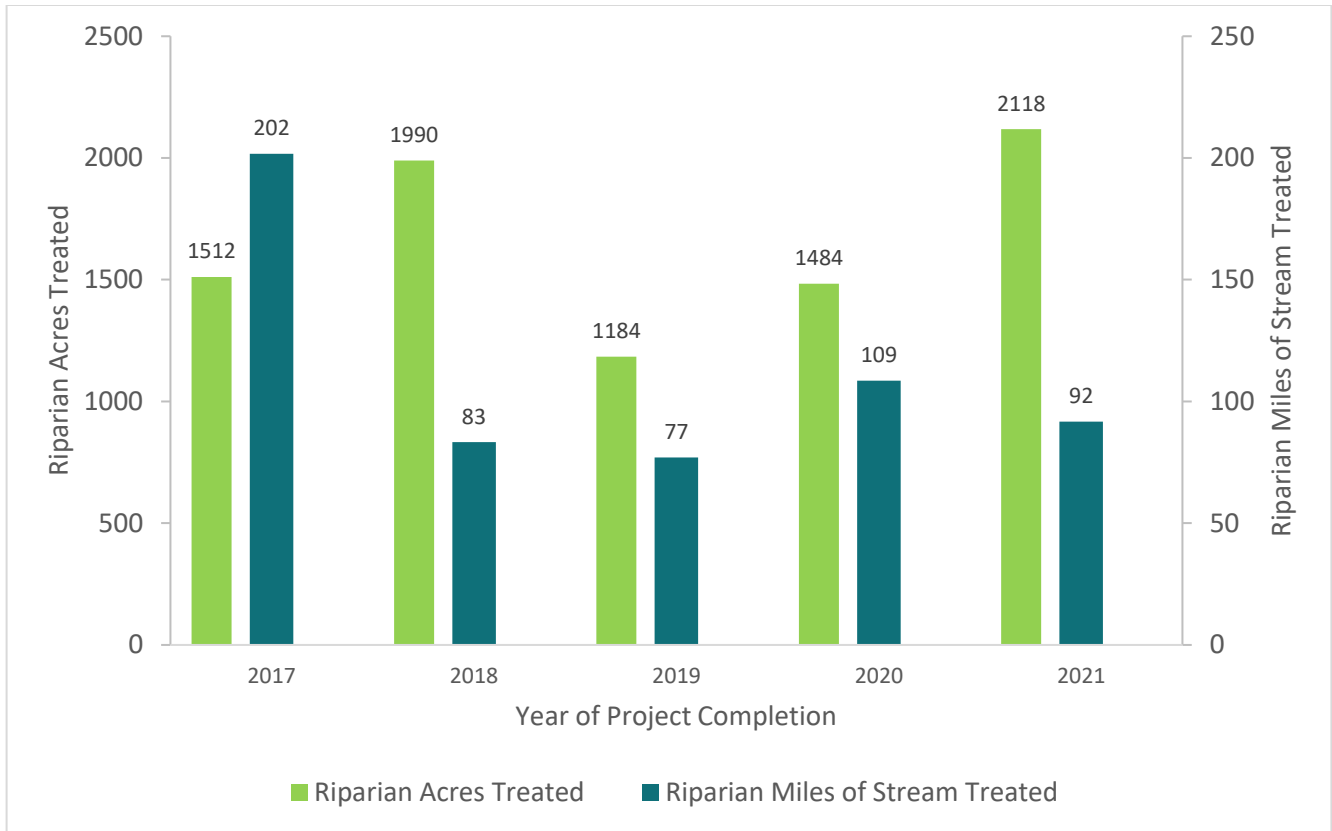
**Table 10. Salmon Recovery and Puget Sound Acquisition and Restoration Funded Projects with Riparian Restoration Component, 2017-2021**

Year Completed	Project Count	Riparian Habitat Restoration Cost (2021\$)	Riparian Miles of Stream Treated	Riparian Acres Treated	Cost/Acre of Riparian Habitat Treated (2021\$)
2017	33	\$4.3 million	201.8	1,512	\$2,846
2018	25	\$1.7 million	83.3	1,990	\$854
2019	21	\$1.8 million	77	1,184	\$1,520
2020	24	\$2.5 million	108.6	1,484	\$1,685
2021	22	\$1.9 million	91.8	2,118	\$897
<b>Total</b>	<b>125</b>	<b>\$12 million</b>	<b>562</b>	<b>8,288</b>	<b>\$1,448</b>

Source: IEC analysis of PRISM data (RCO, 2022a)

Notes:

1. Values may not sum due to rounding.
2. Riparian miles of stream treated are the total miles of stream along which some form of riparian restoration work was performed.
3. Riparian acres treated are the total acres within which some form of riparian restoration work was performed.
4. Riparian miles of stream treated and riparian acres treated are two different measurements of the same project.



**Figure 7. Salmon Recovery and Puget Sound Acquisition and Restoration Funded Projects with Riparian Restoration Component**

Source: IEc analysis of PRISM data (RCO, 2022a)

For projects that include a riparian planting element, PRISM tracks the reported widths of riparian habitat (see Table 11). Although Salmon – PSAR currently relies on WDFW’s SPTH<sub>200</sub> standard, it is likely that the standard was not yet in place when the projects included in the 2017 to 2021 dataset were planned and funded. The average riparian widths of Salmon – PSAR funded projects has ranged between 121 and 198 feet, with the lowest average width reported in 2021. Minimum reported widths include widths as low as seven and 15 feet, suggesting that some flexibility in required buffer widths may have been granted due to site-specific considerations.

**Table 11. Widths of Salmon Recovery and Puget Sound Acquisition and Restoration Funded Projects with Riparian Restoration Component, 2017-2021**

Year Completed	Average Riparian Width (ft)	Minimum Riparian Width (ft)	Maximum Riparian Width (ft)
2017	135	7	400
2018	198	50	1,200
2019	167	20	900
2020	121	15	300
2021	133	35	450
<b>2017-2021</b>	<b>171</b>	<b>7</b>	<b>1,200</b>

Source: IEC analysis of PRISM data (RCO, 2022a)

Note:

Averages are calculated by weighting each project width equally regardless of the overall size of the project. For projects that report multiple widths, each width is counted individually within the calculation.

## What are the current barriers to program effectiveness, or the ability to measure the effectiveness of the program?

The effectiveness of this program is impeded by the following barriers:

- There exists a lack of capacity to undertake the outreach needed to work with landowners to encourage participation in restoration and riparian habitat protection actions (Personal communication with GSRO staff Aug. 8, 2022).
- There is a lack of administrative capacity for potential grant recipients to write grants and support the permitting process needed for projects to be implemented. There is a general need to “scale up” administrative capacity on the part of grantees to keep pace with the increasing amount of funds that are available for riparian restoration projects (Personal communication with GSRO staff Aug. 8, 2022). Administrative challenges and capacity barriers are also highlighted in a 2022 memorandum (see text box, *2022 Memorandum to the Puget Sound Leadership Council*) (Cereghino, 2022) and in our outreach with Conservation Districts for purposes of this evaluation (Personal

### 2022 Memorandum to the Puget Sound Leadership Council

A 2022 memorandum to the Puget Sound Leadership Council regarding funding system improvement provided an assessment of administrative and decision-making challenges within Puget Sound recovery funding systems and described a pathway to support improvement (Cereghino, 2022). The memorandum includes several proposals to improve cross-agency funding system performance, and references the work of the [Align Grant Coordination Workgroup](#) and several information sources related to grant administration streamlining, coordination, and standardization.

communication with Conservation District staff Aug. 8, 2022).

- Compliance with grant terms of project plans is measured at sample sites, but not comprehensively, making it difficult to confirm that projects were constructed as agreed to and are being maintained (Personal communication with GSRO staff Aug. 8, 2022).
- Despite significant funding provided to implement habitat-related elements identified in regional salmon recovery plans, as of 2020, the State of Salmon in Watersheds report provided that only 22% of the funding needed has been invested (as of 2020, \$1 billion invested versus \$5 billion projected costs to achieve recovery).

The ability to understand the effectiveness of this program is hindered by a lack of geospatial information. Although the level of project-specific data available for this program is high compared to other programs, GIS data identifying the specific footprint of the projects are not available, making it difficult to consider the overall coverage of funded projects relative to riparian habitat areas across the state and regions.

# Shoreline Management Act

## Part 1: Legal and Administrative Overview

**Funding:** Ecology’s 2021-23 Budget & Program Overview<sup>34</sup> lists \$14.1 million of the total Shorelands and Environmental Assistance Program Operating Budget to Protect and Manage Shorelines in Partnership with Local Governments.

The Operating Budget for the 2021-23 biennium (ESSB 5092, Sec. 302), as revised by the fiscal year 2022 Appropriations (ESSB 5693 Sec. 302), provides \$523.64 million for the Department of Ecology (Ecology) from the accounts, below, which contribute to the Shorelands and Environmental Assistance Program. A portion of these funds is used for administration of Ecology’s Shoreline Management Act (SMA) responsibilities.

- \$290.42 million of the Model Toxics Control Operating Account – State Appropriation.
- \$44.94 million of the General Fund – State Appropriation for fiscal year 2022.
- \$55.19 million of the General Fund – State Appropriation for fiscal year 2023.
- \$101.2 million of the General Fund – Federal Appropriation.
- \$27.55 million of the General Fund – Private/Local Appropriation.
- \$4.19 million of the Flood Control Assistance Account – State Appropriation.
- \$150,000 of the Aquatic Lands Enhancement Account – State Appropriation.

**Participants:** Local entities preparing or updating Shoreline Master Programs. Local plans regulate certain uses, development and modifications within shorelines (e.g., aquaculture, boating facilities, commercial and residential development, mining, shoreline stabilization, piers and docks), typically new activities.

**Overview:** The Shoreline Management Act (RCW 90.58) requires counties and cities to develop Shoreline Master Programs (SMPs) including locally tailored policies and regulations for managing and protecting state shorelines, including adjacent shorelands (RCW 90.58.020, .030). The SMA applies in all 39 Washington counties and over 250 cities with stream, river, lake or marine shorelines. The SMA applies to

### Authorities:

RCWs 90.58

WACs 173-18, 173-20, 173-22, 173-26, 173-27

### Lead State Agency:

Department of Ecology

### Other State Agencies:

Shoreline Hearings Board

### Local Entities:

Counties and cities

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<sup>34</sup> Ecology’s 2021-23 Budget & Program Overview is available at: <https://apps.ecology.wa.gov/publications/documents/2101005.pdf>.

all shorelines of the state, including marine waters along the Pacific Ocean and Puget Sound, streams and rivers with an annual mean flow of more than 20 cubic feet per second, lakes greater than 20 acres in size, shorelands adjacent to these water bodies (typically, within 200 feet of the water body), and associated wetlands (RCW 90.58.030(g)). As such, implementing rules and regulations affect the operation and protection of riparian areas throughout the state. Each SMP contains maps and legal descriptions officially delineating shoreline jurisdiction.

The Department of Ecology reviews SMPs and has approval authority to ensure consistency with the SMA and SMP guidelines (RCW 90.58.090, .100; *Citizens for Rational Shoreline Planning v. Whatcom Cty*, 155 Wn. App. 937, 943 (2010), *aff'd* 172 Wn. 2d 384 (2011)). SMP amendments or adoptions may be appealed to the Growth Management Hearings Board (GMHB) (for Growth Management Act (GMA) jurisdictions) or the Shoreline Hearings Board (SHB) (for nonGMA jurisdictions) (RCW 90.58.190). If the GMHB or SHB determines that an SMP rule, regulation or guideline is clearly erroneous, in violation of the SMA, arbitrary and capricious, developed without fully considering all material submitted during public review, or not adopted in accordance with required procedures, it may direct the local jurisdiction to adopt a new rule, regulation, or guideline consistent with its decision (RCW 90.58.180).

In addition to SMP review and approval, the Shorelands and Environmental Assistance Program (Shorelands Program) at Ecology develops the SMP Guidelines (Chapter 173-26 WAC). The SMA requires Ecology to periodically review and update the SMP Guidelines, but limits amendments to ones either addressing technical or procedural issues that result from the review and adoption of SMPs or issues of guideline compliance with statutory provisions (RCW 90.58.060). As part of the amendment process, Ecology must also “compile information concerning the effectiveness and efficiency of these guidelines and the master programs adopted pursuant thereto with regard to accomplishment of the policies of the Shoreline Management Act and the corresponding principles and specific requirements set forth in these guidelines” (WAC 173-26-171(3)(d)).

The SMP Guidelines direct that SMPs must include policies and regulations designed to achieve “no net loss” of shoreline ecological functions (WAC 173-26-186). To achieve adequate protection of the shoreline environment, SMPs must include many protective provisions including standards for the conservation of shoreline vegetation and protection of riparian areas and associated uplands (WAC 173-26-186(8)(b), -221). SMPs may prohibit certain activities (e.g., offices and multifamily housing) in some or all shoreline environments but, more commonly, include provisions regulating certain uses within shoreline jurisdiction that assure “no net loss” and that require authorization through one of the following three permit processes: (1) substantial development permits, (2) conditional use permits, or (3) variances.

The SMP Guidelines further address requirements for shoreline buffers, setbacks, and vegetation conservation in SMPs (Chapter 173-26 WAC). For example, SMPs must identify how existing shoreline vegetation provides ecological functions and determine methods to protect those functions (WAC 173-26-201(3)(d)(viii)). Methods may include, of relevance, buffer requirements, critical area regulations, clearing and grading regulations, conditional use requirements for specific uses or areas, mitigation requirements, and incentives and nonregulatory programs.

Development and expansion within buffers is not prohibited by the SMP Guidelines, but SMP policies and regulations, including those for buffers, setbacks, vegetation conservation and mitigation measures, must assure no net loss of ecological functions (WAC 173-26-221(5)(a)). Local SMP buffers and setbacks are tailored to local shoreline ecological conditions and vary among jurisdictions, but each jurisdiction works to manage uses within shoreline jurisdiction such as clearing, cutting or elimination of vegetation. For example, Spokane County sets minimum buffers ranging from 150 to 200 feet depending on the designated shoreline use, compared to 100 to 150 feet in Kittitas County.

The interaction between the GMA and SMA is complex, and critical areas protections under the SMA are subject to additional and different requirements than Critical Areas Ordinances (CAOs) (RCW 36.70A.480; RCW 90.58). SMPs must include standards protecting critical areas, such as wetlands and Fish and Wildlife Habitat Conservation Areas (FWHCAs), within shoreline jurisdiction that are at least equal to a local jurisdiction's CAO (RCW 90.58.090(4); WAC 173-26-220, -221) and must also meet SMP Guidelines standards. Local governments may not rely on buffers in their CAOs and must establish buffers specific to shorelines in their SMPs (WAC 173-26-221(2)). However, SMPs may allow residential and appurtenant structures that were legally established and are used for a conforming use but that do not meet the standards for setbacks or buffers to be considered conforming structures (RCW 90.58.620).

SMPs must also identify and protect Channel Migration Zones (CMZs) which are generally included in frequently flooded critical areas (WAC 173-26-201(3)(c)(vii), -221). CMZs are “the area along a river within which the channel(s) can be reasonably predicted to migrate over time as a result of naturally and normally occurring hydrological and related processes when considered with the characteristics of the river and its surroundings” (WAC 173-26-020(7)). Ecology provides Best Available Science (BAS) and technical assistance related to CMZ mapping and is currently developing a standardized mapping methodology, as discussed in Chapter 6.

Approximately 20 years ago, the SMA was amended to require local governments to undertake comprehensive updates to their SMPs, many of which had not been significantly changed since the SMA's enactment in the 1970s. Among other requirements, local governments must use the most current, accurate and complete scientific information available. RCW 90.58.100(1); WAC 173-26-201. All but 24 jurisdictions have completed these comprehensive updates (Personal communication with Ecology SMA staff Nov. 23, 2022). Following the comprehensive updates, at least once every eight years, SMPs must be periodically reviewed to assure consistency with the SMA and SMP Guidelines and with the local government's comprehensive plans and development regulations adopted under the Growth Management Act (Chapter 36.70A RCW), and to reflect changed circumstances, new information or improved data (RCW 90.58.080(4); WAC 173-26-090). The Shorelands Program provides guidance (the SMP Handbook) and technical and financial assistance to aid local governments in developing or updating SMPs (Ecology, 2017b).

The SMA exempts several types of development from substantial development permitting requirements under local SMPs, including, among other things: single family residences, normal maintenance or repair of



existing structures and development, protective bulkheads common to single-family residences, normal agricultural activities, emergency construction necessary to protect property from damage by the elements, construction or modification of navigational aids, and placement of property markers (RCW 90.58.030(e)). Activities exempted from permitting requirements must still comply with all substantive policies and regulations of local SMPs. Forest practices that are considered development are subject to regulation under the SMA and local governments are encouraged to rely on the Forest Practices Act, Forest Practices Rules, and the Forest and Fish Report as adequate management of commercial forest uses within shoreline jurisdiction (WAC 173-26-241(4)(e)). The SMA also prevents SMPs from requiring modification of or limiting agricultural activities occurring on agricultural lands. However, the SMA requires that SMPs address new agricultural activities on nonagricultural lands, as well as conversion of agricultural lands to other uses and development not meeting the definition of agricultural activities (RCW 90.58.065).

Permits for substantial development, conditional uses, and variances must be consistent with the SMA and the local SMP (WAC 173-27-160, -170). Ecology and local jurisdictions have authority to take a variety of enforcement actions where uses or activities are not authorized through a permit or variance, or where they are inconsistent with the SMP or SMA (WAC 173-27-240 to 300). Local enforcement programs commonly encompass many functions, including complaint response, field inspection, determining SMA and SMP compliance, documenting and recordkeeping, interagency coordination, determining corrective action or restoration, negotiating with violators, pursuing enforcement actions, providing support for appeals, and education of the public and regulated community (Ecology, 1995, pp.7-8). The Shoreline Hearings Board hears appeals of local shoreline permit decisions and penalties issued jointly or separately by Ecology and local governments (RCW 90.58.170). In one instance, the SHB upheld Ecology's issuance of a \$55,000 penalty for the unauthorized clearing of riparian forest area including 80 trees within 200 feet of the shoreline in *San Juan County. Orca Dreams LLC v. Department of Ecology*, SHB No. 14-015 (Findings of Fact Conclusions of Law and Order) (Nov. 17, 2015).

## Part 2: Technical Analysis

### The Shoreline Management Act (SMA) Program:

- Regulates the uses of shorelines, by requiring local governments to develop Shoreline Master Programs; SMPs must be approved by the Department of Ecology. SMPs include requirements for the management and protection of riparian habitat. SMPs typically protect existing riparian areas with buffers and setbacks.
- Recommendations for vegetated buffers included in the SMP Handbook were based on guidance available from WDFW at the time – “Management Recommendations for Washington’s Priority Habitats – Riparian” (WDFW 1997). Ecology is working with WDFW to ensure incorporation of applicable scientific and technical information, which includes the WDFW Riparian Guidance, into the remaining comprehensive SMP updates. Ecology is also coordinating with WDFW to incorporate recommendations from the Guidance into Ecology’s own guidance documents, including the No Net Loss guidance chapter of the SMP Handbook.
- Proactive compliance monitoring is limited. While SMPs typically protect existing riparian areas with a 150’ buffer for vegetated areas that historically supported trees, local jurisdictions’ and Ecology’s enforcement of SMP regulations has been limited, in part due to insufficient resources and capacity. Additional funding is needed to provide ongoing capacity for developing and maintaining local systems that will allow monitoring of permit implementation.
- Does not currently collect or aggregate data statewide in order to track the extent to which SMPs protect riparian functions. Once the new SMA Compliance Program is up and running, additional information regarding program effectiveness statewide should be available.
- Has had insufficient funding for local jurisdictions to complete timely updates of all SMPs. Success of the program hinges on SMPs being updated to include best available science. Out of 258 SMPs statewide, there are 24 that currently need to be updated (as of November 2022).
- Is focused on no net loss. Permitting programs, such as those under the SMA, are inherently forward looking. To effectively restore and protect riparian areas, programs may need to consider goals that incorporate net gains.

### What is the mechanism or approach through which the program contributes to the protection and restoration of riparian habitat, and what are the program’s specific goals with respect to riparian habitat?

The Shoreline Management Act requires local governments to develop and adopt Shoreline Master Programs for the management and protection of shorelines and adjacent shorelands. Under the SMA, planning for larger rivers, lakes and marine shorelines must address specific state interests in state waters and on state shorelands (commonly 200 feet from the water’s edge or from the edge of a floodway).

Ecology rules direct SMPs to “ensure No Net Loss of Ecological Functions necessary to sustain shoreline resources.”<sup>35</sup> SMPs must be approved by Ecology.

In developing SMPs, local governments identify how existing shoreline vegetation provides ecological functions and determine methods to ensure protection of those ecological functions. Methods can include protective setbacks and buffer requirements, critical area regulations, clearing and grading regulations, conditional use requirements, mitigation requirements and nonregulatory programs. Buffer widths and setbacks within SMPs vary among the jurisdictions as they are tailored to local shoreline ecological conditions.

Riparian protections included in SMPs include riparian buffers and setbacks, impervious surface limits, and restrictions on uses that are not water-dependent or preferred under the SMA. For vegetated areas that historically supported trees, SMPs typically protect existing riparian areas with a 150’ buffer – an estimate derived from Site Potential Tree Height (SPTH) (Ecology, 2022c). The Shoreline Master Program Handbook (SMP Handbook) outlines general recommendations for setting buffer widths, which ranges from roughly 30 to 60 feet for small-lot residential development in highly developed areas to 150 to 200 feet along undeveloped shorelines with largely intact ecological functions (Ecology, 2017b).

The recommendations for vegetated buffers included in the SMP Handbook were based on guidance available from WDFW at the time – “Management Recommendations for Washington’s Priority Habitats – Riparian” (WDFW, 1997) as well as the work done by the Forest Ecosystem Management Assessment Team (FEMAT) (FEMAT, 1993). Ecology is working with WDFW to ensure incorporation of applicable scientific and technical information, which includes the WDFW Riparian Guidance (WDFW, 2020), into the remaining comprehensive SMP updates. Ecology is also coordinating with WDFW to incorporate recommendations from the WDFW Riparian Guidance into Ecology guidance documents, including the No Net Loss guidance chapter of the SMP Handbook.<sup>36</sup>

## How does the implementing entity evaluate and report the effectiveness of the program with respect to riparian habitat protection and restoration?

Ecology indicated that the agency’s primary measure of success for the SMA program is whether SMPs are comprehensively updated. New efforts to improve compliance should inform SMP amendments and help the jurisdictions know what needs to be done in the future. A document describing the new compliance program includes a graph displaying total shoreline permits per year from 2010 to 2019. Currently, Ecology does not have any data about how often and to what extent riparian protections are required under the SMPs. The compliance program currently in development will collect this information, but that program has not been launched yet.

Ecology developed guidance for local jurisdictions to monitor and adaptively manage their SMPs and CAOs; training [webinars on this topic](#) were conducted in 2021 (Commerce, 2021a). In addition, in 2022, funding was allocated for six new ongoing shoreline compliance positions to work with local governments.

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<sup>35</sup> RCW 90.58.020; WAC 173-26-186(8); WAC 173-26-201(2)(c).

<sup>36</sup> Ecology noted that the SMA limits their authority to amend the SMP guidelines; however, information that will be collected as part of their new compliance program can provide the basis for amending the rules in the future.

These efforts may allow for better data at the local level regarding the effectiveness of SMPs and CAOs in protecting riparian habitat.

***In 2018, Commerce, WDFW and Ecology developed guidance and tools for monitoring and adaptively managing both SMPs and CAOs. In 2021, the agencies worked with local partners to create an 11-part webinar series built on the guidance."***

—Ecology, 2022.

When an SMP is updated, the local government must conduct a cumulative impacts analysis to demonstrate that if the rules are implemented, they will achieve no net loss. These analyses appear to be a mechanism for evaluating the effectiveness of SMPs; however, aggregated data are not available from these analyses, and local jurisdictions conduct evaluations to varying degrees.<sup>37</sup>

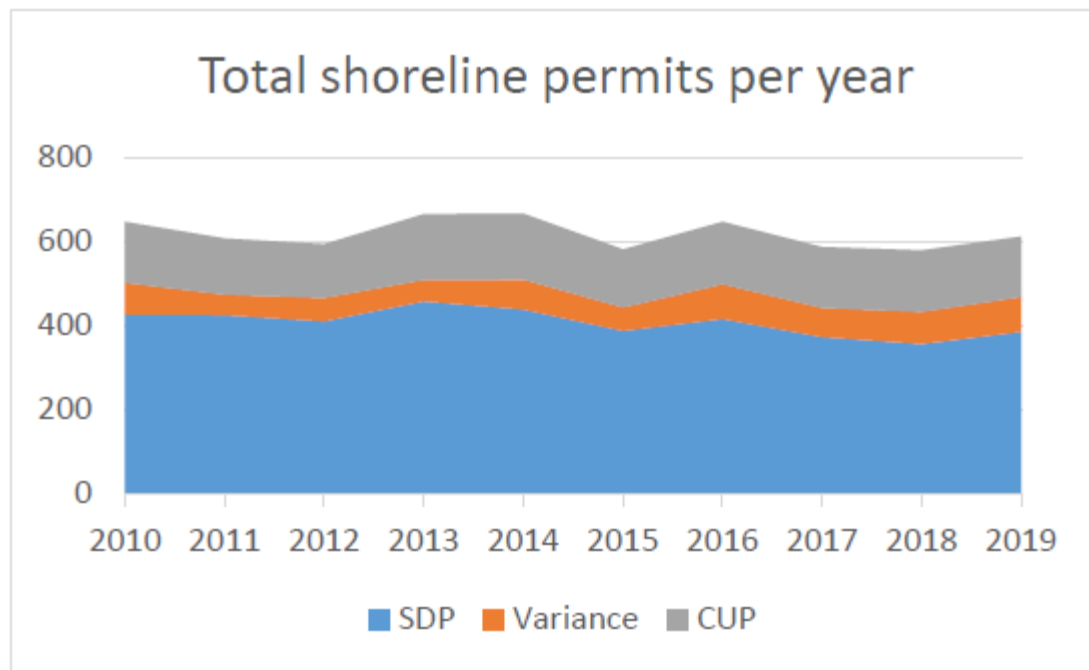
## What do the provided documents report about the effectiveness of the program with respect to protection and restoration of riparian habitat?

Additional outreach with Ecology SMA staff indicated that out of 258 SMPs statewide, there are 24 that currently still need to be comprehensively updated as of November 2022 (Personal communication with Washington Department of Ecology representatives on Nov. 23, 2022).

The document titled “New Shoreline Master Program Compliance Program: Ensuring No Net Loss” (Ecology, 2022c) provides information on the number and type of shoreline permits granted per year. On average from 2010 to 2019, approximately 400 substantial development permits, roughly 50 variances, and around 150 conditional use permits were issued each year (see Figure 8). While the number of permits alone does not help us understand the effectiveness of SMPs at protecting riparian habitat, it does give an indication of the scale of permitted shoreline development in the state and how that development is being managed according to SMPs that we expect will be implementing the WDFW Riparian Guidance in the future.

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<sup>37</sup> Ecology staff noted that the City of Kirkland’s SMP is a good example of one that is being monitored/tracked at the local level in detail; additional research into effectiveness of local SMPs could provide examples of useful ways to measure effectiveness with respect to riparian protection and restoration.



**Figure 8. Number of Shoreline Permits Issued, 2010-2019**

Source: Ecology, 2022c. Note: SDP means substantial development permit, CUP means conditional use permit.

### What are the current barriers to program effectiveness, or the ability to measure the effectiveness of the program?

Through the interview with the SMA program and interviews with other agencies involved in the SMP/CAO programs (e.g., WDFW), the following barriers to program effectiveness were identified:

- Each SMP is evaluated to a “no net loss” standard. Program goals (e.g., No Net Loss) that aim to “hold the line” on new impacts to riparian areas are inherently forward looking and do not serve to restore or create additional riparian habitat.
  - Some interviewees believe that “no net loss” has generally not yielded desired outcomes under the SMA and that the state should consider how to develop programs designed toward a “net gain” in ecological functions.
- Funding provided to local governments has been insufficient for timely updates of all SMPs. Completing the updates was indicated as a measure of success; however, the deadline for completing updates for a number of SMPs was extended due to a lack of funding (Ecology, 2021b).

A number of barriers to program effectiveness, or the ability to measure the effectiveness of SMA protections were identified in the document outlining the new Compliance Program. In particular, this

document highlights that enforcement of SMPs has been limited by local jurisdiction and Ecology available resources and capacity. These limitations in turn curb the effectiveness of enforcement as a deterrent mechanism for ensuring effectiveness of the regulatory program. Issues identified in the document include the following:

- **Enforcement is expensive.** “When someone damages riparian buffers or aquatic habitat in violation of an SMP it is expensive and time-consuming to follow all the necessary enforcement steps to restore the damage. Ultimately it is far cheaper and more efficient to invest in education and technical assistance that avoids the need for enforcement in the first place. However, the deterrent effect of enforcement programs is well documented” (Ecology, 2022c, p. 3).
- **Proactive compliance monitoring is lacking.** “Currently Ecology and local government enforcement actions are driven almost entirely by complaints. Enforcement tasks have historically been combined with the essential day-to-day duties of our shoreline specialists. Enforcement is an intense focused workload that pulls staff from core review duties and requires different skills and knowledge” (Ecology, 2022c, p. 3).
- **Additional funding is needed to provide ongoing capacity for developing and maintaining local systems that will allow monitoring of permit implementation.** There is currently no ongoing state grant source for local governments that is focused on improving SMA implementation. Ecology currently has approximately \$3 million per biennium to pass through for local governments, but the primary purpose is to fund statutorily mandated periodic reviews of SMPs. As Ecology notes, “[l]ocally-administered SMPs are key mechanisms for protection of riparian areas. Yet most local permit systems are designed for project review and issuing permits, and do not include mechanisms for follow-through on compliance with permit conditions” (Ecology, 2022c).

We note that the new SMP Compliance Program is being developed to address these barriers; in 2022, six additional shoreline compliance positions were funded.

# Voluntary Stewardship Program

## Part 1: Legal and Administrative Overview

**Funding:** The Operating Budget for the 2021-23 biennium, as amended by the fiscal year 2022 Supplemental Operating Budget, provides \$8.46 million of the Public Works Assistance Account – State Appropriation for the State Conservation Commission (SCC) for implementation of the Voluntary Stewardship Program (VSP) (ESSB 5693, Sec. 307(4)).

The Supplemental Capital Budget for fiscal year 2022 provides \$3 million from the State Building Construction Account – State for VSP (SSB 5651, Sec. 3052).

**Participants:** Participating counties (27 out of the 39 Washington counties); local agricultural landowners in participating counties with approved workplans.

**Overview:** The Voluntary Stewardship Program, administered by the State Conservation Commission, is a voluntary and incentive-based program to protect and enhance state critical areas<sup>38</sup>, including Fish and Wildlife Habitat Conservation Areas (FWHCAs) and wetlands, where agricultural activities are conducted while maintaining and improving the long-term viability of agriculture and reducing conversion of farmland to other uses (RCW 63.70A.705; WAC 365-196-832). Since 2011, VSP has provided counties the option to meet Growth Management Act (GMA) requirements to protect critical areas on agricultural lands by developing local plans that use voluntary, incentive-based tools, instead of regulations. Agricultural landowners participating in VSP are presumed to be working toward the protection and enhancement of critical areas (RCW 36.70A.750).

Among other items, the SCC establishes VSP policies and procedures for implementation, administers funding for counties to develop and implement VSP work plans, and administers the program’s technical assistance funds and coordinates among state agencies and other entities for VSP implementation (RCW 36.70A.705). Counties opting into VSP must designate a watershed group (which may be local Conservation Districts or other existing integrating organizations) responsible to develop a VSP work plan to protect critical areas and maintain agricultural viability in the watershed. While there is significant flexibility in plan development, the SCC Executive Director has approval authority (RCW 36.70A.725). In considering VSP work plans and reports, the Executive Director obtains a recommendation for approval or rejection by a technical panel including representatives from the Department of Ecology (Ecology), Washington Department of Fish and Wildlife (WDFW), and Washington State Department of Agriculture (WSDA), as well as the SCC.

### Authorities:

RCW 36.70A.700 et seq.

WAC 365-196-832

### Lead State Agency:

State Conservation Commission

### Other State Agencies:

Department of Ecology, Department of Fish and Wildlife, Department of Agriculture

### Local Entities:

Conservation Districts

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<sup>38</sup> Critical areas include fish and wildlife habitat conservations areas as well as wetlands, areas with a critical recharging effect on aquifers used for potable water, frequently flooded areas, and geologically hazardous areas (RCW 36.70A.030).



VSP work plans identify critical areas and agricultural activities and establish measurable benchmarks for program and resource results. Benchmarks are designed to be met within 10 years after receipt of funding (RCW 26.70A.720(1)(e)). VSP plans are evaluated by the SCC every five years and counties are required to take action if progress to meet benchmarks is not achieved. Potential consequences of failing to meet benchmarks include reverting to a regulatory approach (RCW 36.70A.735). However, VSP counties are not required to implement their programs until adequate funding is provided (RCW 36.70A.710(9)). Agricultural operators voluntarily participate in VSP through implementation of individual stewardship plans consistent with VSP work plans and may withdraw at any time (RCW 36.70A.760).

Starting in 2017 and every five years thereafter, the SCC must also conduct a review of VSP and report its findings to the legislature. The SCC consults on VSP development and operation with a statewide advisory committee including representatives from county government, tribal governments, agricultural organizations, and environmental organizations (RCW 36.70A.745).

# Voluntary Stewardship Program

## Part 2: Technical Analysis

### The Voluntary Stewardship Program:

- ❖ Provides funding for counties to establish voluntary programs and develop plans to address agricultural activities in critical areas, including riparian habitat. Out of 39 counties in the state, 27 are participating in VSP. Each county establishes its own benchmarks for riparian protection, and SCC has approval of the plans. Projects conducted under VSP work plans are funded by a variety of grant sources, often through Conservation Districts. In less than five years, counties have implemented numerous projects under VSP, however aggregate statistics are not available.
- ❖ Relies on guidance from the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) to determine best management practices (BMPs) to apply to meet benchmarks established in county-specific VSP work plans.
- ❖ Data to evaluate program-level effectiveness with respect to riparian habitat restoration and protection are not readily available. Lack of data collection and standardization across VSP work plans is a major limitation to evaluating effectiveness.
- ❖ VSPs likely lack sufficient monitoring to determine effectiveness of habitat protection measures being implemented. Additional funding is needed for monitoring; SCC recently developed new monitoring guidance for VSP.
- ❖ While VSPs may be meeting benchmarks set in their work plans, benchmarks may be insufficient to protect and restore riparian habitat.
- ❖ An assessment of the effectiveness of the Skagit County VSP found that the VSP is not effectual at achieving fully functioning riparian ecosystems and that VSP goals should be based on ecological function or contain a minimum buffer width requirement (Clifton 2022, p.6).

### What is the mechanism or approach through which the program contributes to the protection and restoration of riparian habitat, and what are the program's specific goals with respect to riparian habitat?

The Voluntary Stewardship Program was created as a means for counties to meet requirements under the Growth Management Act to protect critical areas (including wetlands, frequently flooded areas, aquifer recharge areas, geographically hazardous areas and FWHCAs), by developing local plans that use voluntary, incentive-based tools, rather than regulations, to address agricultural activities. The goals of VSP are to protect and enhance critical areas where agricultural activities are conducted, maintain and improve the long-term viability of agriculture in Washington, and reduce conversion of farmland to other uses. With respect to riparian habitat, the goal of VSP is to encourage the greatest number of landowners to participate along the riparian area, by working at a sub-basin level to protect critical areas identified by counties in their GMA planning, in particular addressing riparian areas important for salmon.

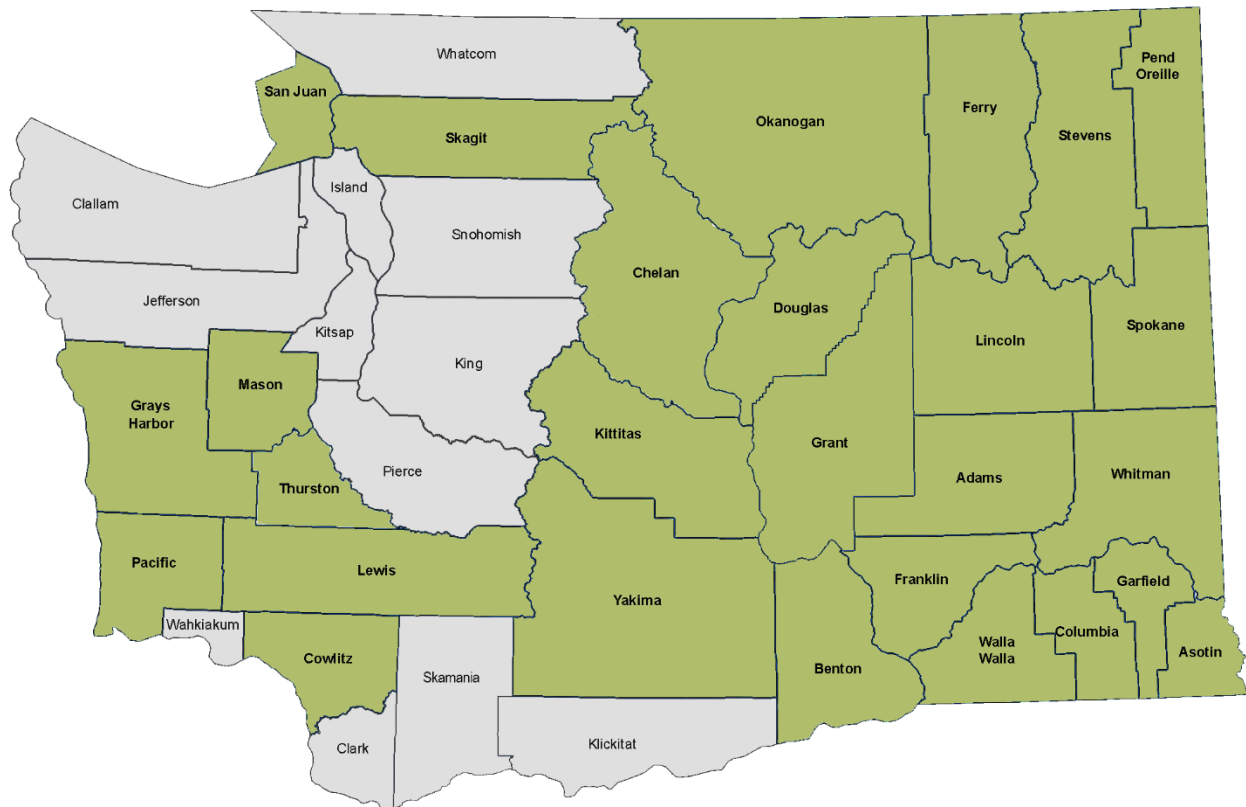
Under the VSP, 27 of 39 Washington counties have voluntarily developed work plans to protect critical areas; these plans may include development of riparian buffers and/or other riparian protection and

restoration measures. SCC provides funding to the counties to develop plans, and implementation of projects is funded by a variety of grant sources, often through Conservation Districts.

VSP uses the Natural Resources Conservation Service Field Office Technical Guide (FOTG) to assist district staff and the landowner in evaluating the current condition of the natural resource and riparian condition. The FOTG will then help guide in the decisions of which best management practice (BMP) to use at the site to meet resource objectives. The FOTG includes standards and practices for riparian areas. Depending on the practice being implemented, buffers vary from 15 to 280 feet (Personal communication with SCC Aug. 30, 2022). For example, the hedgerow BMP requires a minimum buffer of 15 feet (NRCS, 2008); riparian forest buffer BMP minimum is 35 feet (NRCS, 2014). See the section in Chapter 4 discussing implementation of the WDFW Riparian Guidance for more information on how the NRCS standards compare to WDFW's SPTH<sub>200</sub> standard. Given the site-specific nature of how buffers are delineated under the NRCS FOTG and WDFW Riparian Guidance, it is difficult to make a comparison of the differences in riparian protection outcomes. With the exception of delineation of Riparian Management Zones, many of the NRCS conservation practices align with the suggested restoration practices in the WDFW Riparian Guidance (Vol. 2, Section 4.4).

### **How does the implementing entity evaluate and report the effectiveness of the program with respect to riparian habitat protection and restoration?**

The SCC produces annual and biennial reports on its activities, including VSP. In its most recent Biennial Report, the SCC reports that 27 of 39 WA counties are enrolled in VSP (see Figure 9), and that a review of their progress concurred that all are on track to meet their VSP work plan goals and benchmarks to protect critical areas while maintaining agricultural viability.



**Figure 9. Counties Enrolled in the Voluntary Stewardship Program**

Source: SCC, 2022l.

VSP requires monitoring and adaptive management to maintain and enhance critical areas, including riparian ecosystems, and directs workgroups to monitor at the watershed or sub-watershed scale. According to the SCC, few projects been completed so far and none of the results have been aggregated across counties to allow for evaluation of effectiveness at a program level. While the program was created by the Legislature in 2011 and 27 counties opted in, funding for development of work plans was not available for most counties until 2015, and work plans were not approved until 2017 or 2018.

While many of the VSPs did not have five years of implementation, in 2020 most of the 27 VSP counties submitted five-year reports, which were reviewed by the VSP Technical Panel (including, Ecology, WDFW, WSDA and the SCC). There are no set standards for the VSPs to implement; and as such, programs are monitoring and reporting on how they are meeting county-specific benchmarks as identified in their workplans.

A VSP monitoring framework is currently being developed (SCC, 2022m) and trainings are being conducted through June 2023 (see <https://www.scc.wa.gov/vsp/implementation>). As part of these trainings, SCC has hosted VSP monitoring symposiums quarterly to provide technical assistance to counties to implement monitoring with respect to participation, effectiveness, implementation and agricultural viability. New VSP monitoring guidance was produced by SCC in May 2022 (SCC, 2022m). In addition, WDFW notes that “numerous counties have utilized WDFW’s recommended VSP Adaptive Management Matrix in approved VSP Work Plans” (WDFW, 2020).

While not conducted by SCC, one assessment of the effectiveness a specific county’s VSP was provided by the Northwest Indian Fisheries Commission’s Riparian Working Group. Specifically, the Swinomish Indian Tribal Community commissioned an assessment of the effectiveness of the Skagit County VSP. The assessment, conducted by the Skagit River System Cooperative (SRSC), was presented in a memorandum dated July 7, 2022 (Clifton, 2022).<sup>39</sup>

## What do the provided documents report about the effectiveness of the program with respect to protection and restoration of riparian habitat?

To evaluate the effectiveness of the VSP program with respect to riparian habitat protection, we reviewed a sample of the VSP technical panel reviews of five-year status reports. This review indicated that program effectiveness and reporting varies across VSPs. While each VSP’s work plan required approval by SCC (with input from the technical panel), there are no set standards/benchmarks for the VSPs to implement outlined in the GMA. As such, each county has established its own benchmarks with respect to how it plans to protect critical areas. VSPs each monitor how they are meeting specific benchmarks identified in their workplans. For example, the SCC evaluation of the Kittitas VSP five-year report states “[m]onitoring insufficient to demonstrate that practice implementation is having desired outcome on critical area functions and value” (VSP Technical Panel, 2021b). Similarly, for the Cowlitz VSP five-year report, SCC reports “[w]atershed scale monitoring did not report enough information, results or field verification to determine whether VSP was effective at protecting/enhancing critical area functions and values” (VSP Technical Panel, 2021a).

***“ Monitoring insufficient to demonstrate that practice implementation is having desired outcome on critical area functions and value.”***

— (VSP Technical Panel, 2021b) Review of Kittitas VSP Five-Year Report

SCC found that several counties were doing good work to implement VSP. For example, in its review of the Douglas County VSP five-year report, SCC states “[g]ood job on implementation and good start on watershed monitoring” (VSP Technical Panel, 2021c). Review of the Garfield County VSP five-Year report stated that “[i]mplementation levels more than met; good implementation monitoring. outreach/participation levels adequate (~27% participation). Monitoring clear and where not, being adaptively managed” (VSP Technical Panel, 2021d). Given the potential for variation in the benchmarks for riparian protection across the VSPs, implementation and participation outcomes do not necessarily

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<sup>39</sup> The Skagit County Board of Commissioners (Board), which initiated the County’s participation in VSP, provided a letter to Plauché & Carr, dated November 4, 2022, in response to the SRSC memorandum. In its review of SRSC’s assessment, the Board contends that SRSC overstates the amount of impaired streams and riparian buffer area required for restoration in the Skagit Basin. In particular, the letter provides that 40 miles of stream in the Basin are impaired for purposes of Ecology’s 303(d) listing (compared to SRSC’s estimate of 112 miles of temperature impaired salmon streams) and that temperature reduction can be addressed through narrower buffers than SRSC suggests. The letter also provides that the Skagit County VSP, if appropriately funded, is the best pathway to achieve substantial additional riparian enhancement on private lands in the Skagit Basin. The letter provides that the VSP has exceeded its benchmarks despite insufficient funding, that the program is attractive to landowners due to its flexibility in achieving solutions, and that landowners have greater willingness to work with the County than other enhancement groups.

indicate success in terms of ecological metrics. Without further detailed review of the work plans and status reports, it is difficult to understand how effective the VSPs are at protecting riparian areas.

In support of their five-year reports, 11 VSP counties are currently utilizing WDFW High Resolution Change Detection (HRCDD) data in their analyses (WDFW, 2022). HRCDD data is being produced to assist VSP coordinators in understanding how critical areas, as well as their county as a whole, is changing over time; the HRCDD GIS tool is one means to measure the changes in riparian areas that may become a valuable tool once more time has passed and VSP has been implemented over a longer time frame. Based on a limited review of the five-year reports, it is clear there is variation in the outcomes and monitoring across VSPs, and additional work is needed to understand the effectiveness of the program statewide.

An assessment of the Skagit County VSP, conducted by the Skagit River System Cooperative, considered the program's effectiveness in achieving fully functioning riparian ecosystems, and found as follows:

The VSP is an ineffective tool to revegetate unforested buffer areas along Skagit River basin temperature polluted streams. Between 2011 and 2020, the Skagit VSP met its enhancement benchmarks despite insufficient funding. But the enhancement benchmarks are insufficient to revegetate the 2208 acres of impaired habitat in a timely manner. Furthermore, the VSP focus area excludes a third of the temperature polluted streams in the basin and VSP buffer widths are out of alignment with scientific standards. Small buffers provide inadequate function, so VSP goals should be based on ecological function or contain a minimum width requirement.

The Skagit County Natural Resources Stewardship program and the Skagit Conservation District CREP collaborate with private landowners and 97.6% of the unforested buffers along temperature polluted streams are on private lands. But landowner willingness limits these program's ability to plant the acreage needed to make progress on temperature polluted streams. The VSP current cumulative enrollment metrics are too low, and more focus needs to be placed on landowner incentives. For example, current CREP rental payments and financial incentives total less than half of what it costs to install and maintain riparian vegetation.

(Clifton, 2020).

Soon after VSP was implemented, Ecology published an issue paper titled, "The Voluntary Stewardship Program and Clean Water" which reviewed the effectiveness of VSP with respect to protecting water quality (Department of Ecology, 2013b). While some of the findings are dated, one finding remains relevant. Ecology notes that the state water quality regulations were intended to provide a regulatory backstop.

The paper notes:

Improved compliance with state and federal law is needed because the VSP does not require county governments to have a local regulatory backstop that could ensure that needed protection of critical areas is provided in cases where a landowner rejects voluntary and incentive approaches. For wetlands,

Ecology will continue to regulate conversions of wetlands in agricultural areas under the state Water Pollution Control Act to ensure that wetlands and their functions are protected and maintained. Additionally, continued and improved implementation of TMDLs and increased use of Ecology’s nonpoint enforcement authority under state law can provide protection to fish and wildlife habitat and CARAs [Critical aquifer recharge areas].”

(Department of Ecology, 2013b).

## What data are available that allow for analysis of the effectiveness of the program at protecting and restoring riparian habitat?

The SCC provided data from the Conservation Practice Data System (CPDS), which includes information on BMPs for several SCC programs including VSP (SCC, 2022b). There are 10 fields included in the data: Conservation District, BMP Name, Completion Date, Measurements, Value, Units, Amount Spent to Date, Final Project Cost, Awarded Amount and Program. The dataset provided was heavily redacted to ensure project locations and landowners could not be identified. In particular:

- The CPDS data provided do not include any unique identifying information that could tie each record to a site or project, due privacy concerns. Thus, it is difficult to aggregate the data because multiple records may be related to the same project, and due to the structure of the database, we could potentially be double-counting some information. For example, the amount funded to date appears to be a cumulative number that is included in each record entered when a treatment is applied at a site.

According to SCC, data included in the CPDS system are often incomplete or reported inconsistently across Conservation Districts. A multitude of measurements are used to report on the BMPs and SCC reports that this makes analysis of these data very difficult.

## What are the current barriers to program effectiveness, or the ability to measure the effectiveness of the program?

Interviews with program staff and the process of developing this assessment identified the following as key barriers to program effectiveness or the ability to measure effectiveness of this program:

- Insufficient funding. SCC reports that to date VSP has not received enough funding to be effective.
  - The timing and availability of program funding has delayed the implementation of VSP projects on the ground. As noted, funding for most counties was not available until 2015, so work plans were not developed until 2018.
  - Additional funding is needed for monitoring. Adaptive management is not successful when programs do not have funding to meet their goals let alone monitor their progress.



- Program data are not currently aggregated in an accessible format for use in presenting summary statistics or to quantify riparian protection provided by VSPs over time.
  - Standardization of data has been a significant challenge. The VSPs all have different action plans and different data.
- Difficult to measure against a baseline – hard to know what would have happened in the absence of VSP if the counties had to develop regulations under GMA.
- Much of the riparian areas are on private property, and there can be difficulty in or resistance to limiting the use of these lands; some counties may have already reached the limit of voluntary participation.

# Water Quality Combined Funding Program

## Part 1: Legal and Administrative Overview

**Funding:** \$380 million in fiscal year 2021-2023 from combined federal and state sources.

The Operating Budget for the 2021-23 biennium (ESSB 5092), as revised by the fiscal year 2022 Supplemental Operating Budget (ESSB 5693), provides \$587.51 million to the Department of Ecology (Ecology) from the accounts, below, which contribute to the Water Quality program. A portion of these funds is used for Ecology's Water Quality Combined Funding (WQC) program.

**Authorities:**

33 U.S.C. §1251 et seq.

Chapters 70.146, 90.48, 90.50A.020 RCW

Chapters 173-95A, 173-98 WAC

**Lead State Agency:**

Department of Ecology

- \$49.81 million of the Water Quality Permit Account – State Appropriation.
- \$101.2 million of the General Fund – Federal Appropriation.
- \$44.94 million of the General Fund – State Appropriation (FY 2022).
- \$55.19 million of the General Fund – State Appropriation (FY 2023).
- \$27.55 million of the General Fund – Private/Local Appropriation.
- \$290.42 million of the Model Toxics Control Operating Account – State.
- \$8.5 million of the Model Toxics Control Stormwater Account – State Appropriation.
- \$5.46 million of the Water Pollution Control Revolving Administration Account – State Appropriation for Ecology.
- \$4.44 million of the Reclamation Account – State Appropriation.

The Capital Budget for the 2021-23 biennium, as revised by the fiscal year 2022 Supplemental Capital Budget, provides \$633 million for the Department of Ecology from the accounts, below, which may contribute to the WQC program.

- \$75 million of the Model Toxics Control Stormwater Account – State for the 2021-23 Stormwater Financial Assistance Program (SHB 1080, Sec. 3083).
- \$225 million of the Water Pollution Control Revolving Fund – State for the 2021-23 Water Pollution Control Revolving Program (SSB 5651, Sec. 3003).
- \$75 million of the Water Pollution Control Revolving Fund – Federal for the 2021-23 Water Pollution Control Revolving Program (SSB 5651, Sec. 3003).
- \$18 million of the Water Pollution Control Revolving Fund – State for the 2021-23 State Match – Water Pollution Control Revolving Program (SSB 5651, Sec. 3004).

- \$200 million of the Water Pollution Control Revolving Fund – State for the 2022 Water Pollution Control Revolving Program (SSB 5651, Sec. 3009).
- \$40 million of the Model Toxics Control Capital Account – State for the 2021-23 Centennial Clean Water Program (SSB 1080, Sec. 3089).

### Participants:

- Depending on funding source, eligible applicants include Conservation Districts; counties, cities and towns; federally recognized tribes; institutions of higher education (if the project is not a statutory responsibility); irrigation districts; local health jurisdictions; nonprofit organizations; port districts; quasi-municipal corporations; and sewer districts.
- Depending on funding source, eligible projects include, among other categories, wastewater facilities, reclaimed water and reuse, on-site and large sewage systems, stormwater facilities, stormwater management plans, nonpoint pollution source activities, agricultural best management practices (BMPs), land acquisitions, pollution identification and correction (PIC) programs, restoration planning and implementation, water quality monitoring and watershed planning.

**Overview:** The Department of Ecology’s Water Quality Combined Funding program, within the Water Quality program, combines state and federal clean water funding sources and provides an annual single-application process to apply for funding from these multiple sources for eligible projects that benefit water quality. The following five funding sources are included in the WQC program: the Clean Water Act Section 319 Nonpoint Source federal grant program (Section 319), the Centennial Clean Water Program (Centennial), the Washington State Water Pollution Control Revolving Fund Program (CWSRF), the Stormwater Financial Assistance Program (SFAP), and the Sewer Overflow and Stormwater Reuse Municipal Grants Program (OSG).

Stream restoration and riparian habitats and buffers are eligible projects under multiple of these funding sources. Ecology sets minimum riparian buffer requirements for nonpoint pollution source projects consistent with National Marine Fisheries Service (NMFS) buffer guidance, ranging from 35 to 100 feet depending on water body type, historical use of the water body by Endangered Species Act (ESA) listed fish species, and location East or West of the Cascade Mountains. Ecology is currently considering the WDFW Riparian Guidance with respect to these buffer requirements. Ecology also requires applicants to submit a project monitoring plan. The agency may add conditions or increase monitoring, and has authority to withhold funds, terminate the grant award, and deny or condition future awards for recipients who fail to meet the conditions in their financial agreement.

In August 2022, the Water Quality program issued funding guidelines for the WQC program for fiscal year 2024. Ecology accepts WQC applications on an annual basis and reviews and ranks projects and assigns funding based on project rank and available funding. Ecology expects to award approximately \$380 million in new water quality grants and loans and to continue to manage approximately 600 active grants and loans this biennium.

Applicant and project eligibility is different for each of the funding sources within the WQC program, as provided below:

- Section 319 Program: All entities listed as participants above for nonpoint pollution source activity projects.
- Centennial Program: All entities listed as participants above except for nonprofit organizations and all listed projects except stormwater facilities.
- CWSRF: All entities listed as participants above except for nonprofit organizations and all listed project types.
- SFAP: Counties, cities, towns, and port districts for nonpoint pollution source activities related to urban runoff, stormwater projects, and proposals to retrofit stormwater facilities.
- OSG: All entities listed as participants above except for nonprofit organizations and all listed projects except for nonpoint pollution source activities and on-site sewage systems.

## Part 2: Technical Analysis

### The Water Quality Combined Funding Program:

- ❖ Provides grants and loans for a broad array of projects focused on improving water quality, including riparian habitat improvements. Most projects funded under the category of “nonpoint pollution” include some extent of riparian restoration.
- ❖ Ecology is incorporating the WDFW Riparian Guidance into their Funding Guidelines, which will align with the forthcoming Voluntary Clean Water Guidance for Agriculture.
- ❖ Implementation of WDFW’s SPTH<sub>200</sub> standard where feasible will generally result in wider buffer widths than are implemented under the existing requirements but grant recipients with site constraints will be offered an alternative that may result in wider or narrower buffers depending on the site.
- ❖ During the most recently reported biennium, 2017 to 2019:
  - Riparian buffer implementation was conducted on nearly 40 miles of rivers, creeks, and stream banks
  - Over 340,000 riparian plants were planted through program funding
- ❖ Detailed metrics for riparian habitat improvements are collected but are not readily accessible in a format suitable for analysis.
- ❖ Upcoming changes to the program’s Funding Guidelines mean a retrospective analysis of program effectiveness would not be indicative of the program’s future trajectory of program contributions to fully functioning riparian ecosystems.

### What is the mechanism or approach through which the program contributes to the protection and restoration of riparian habitat, and what are the program’s specific goals with respect to riparian habitat?

The Water Quality Combined Funding program provides grants and loans for projects that improve or protect water quality, which can include but are not limited to riparian habitat projects. WQC is an integrated program that collectively manages several state and federal funding sources to match recipients, including local and tribal governments, special purpose districts, Conservation Districts, and nonprofit organizations, with funding for projects (Ecology, 2022f). Specific funds managed under the program relevant to riparian habitat protection include the Centennial Clean Water Program, Clean Water Act Section 319 Program, and the Clean Water State Revolving Fund (Personal communication with Department of Ecology Water Quality program staff Aug. 5, 2022).

Of the four categories of water quality improvement work funded by the program, the “nonpoint” category encompasses much of the riparian habitat protection. Program staff estimate that 80% to 90% of the projects funded under the “nonpoint” category are focused on riparian habitat protection (Personal communication with Department of Ecology Water Quality program staff Aug. 5, 2022).

Appendix J of the State Fiscal Year 2024 Funding Guidelines describes requirements for riparian restoration, stream restoration, bank stabilization, or riparian planting projects that address nonpoint pollution (Ecology, 2022e). Projects must be consistent with the 2012 WDFW Stream Habitat Restoration Guidelines, which recommended minimum riparian buffer widths of between 150 and 250 feet for stream habitats depending on identified Type (WDFW, 2012 Section 5.3). Current requirements also dictate minimum buffer widths of between 35 and 100 feet depending on the category of surface water adjacent to the riparian habitat and whether the project is east or west of the Cascade Mountains, based on guidance from the National Marine Fisheries Service (Ecology, 2022e). Where WDFW's Stream Habitat Restoration Guidelines recommend a larger buffer than what is dictated in the funding guidelines, Ecology recommends deferring to WDFW buffer widths. Ecology may grant exemptions to minimum buffer width requirements where site conditions constrain achievable buffer width (Ecology, 2022e).

Ecology is presently updating the funding guidelines to incorporate WDFW's SPTH<sub>200</sub> standard as the preferred option for future riparian projects (Email communication with Ecology Water Quality program Staff Oct. 18, 2022). After the funding guidance has been updated, WDFW's SPTH<sub>200</sub> standard will be used to guide future riparian projects under this program (Email communication with Ecology Water Quality program staff Oct. 14, 2022). The change in guidelines will generally result in wider buffers than what is presently required where projects implement WDFW's SPTH<sub>200</sub> standard. For projects opting to employ the alternative "three zone option" due to site constraints, the resulting buffer may be wider or narrower compared to existing standards depending on the specific site (Email communication with Ecology Water Quality program Staff Oct. 18, 2022).

## How does the implementing entity evaluate and report the effectiveness of the program with respect to riparian habitat protection and restoration?

Water Quality program staff described difficulties in identifying and tracking appropriate metrics to understand program effectiveness with respect to riparian habitats. Individual riparian project effectiveness is generally considered relative to the stated guidelines, with a project being considered successful and effective if it has achieved the relevant guidelines with respect to buffer widths and other characteristics (Personal communication with Ecology Water Quality program staff Aug. 5, 2022). Biennium outcomes reports are the key document reporting programwide accomplishments and outcomes across all related grant programs. However, outcomes are reported at a high level (e.g., all nonpoint activities collectively, rather than with a focus specifically on riparian habitat projects) and reported outcomes with respect to riparian habitat outcomes are highly aggregated.<sup>40</sup>

## What do the provided documents report about the effectiveness of the program with respect to protection and restoration of riparian habitat?

The purpose of the Water Quality Combined Funding program is to improve water quality, which it targets through a wide variety of project types and other activities (e.g., outreach, education). The nonpoint projects under which the majority of riparian habitat restoration work is conducted are just one of many types of projects and activities funded by the program and summarized within annual program reports.

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<sup>40</sup> Fund specific reports, such as the Annual Report on Activities to Implement Washington State's Water Quality Plan to Control Nonpoint Source Pollution (i.e., CWA 319 program) describe important program accomplishments, but do not specifically identify metrics related to improvements in riparian habitats achieved through this funding (Ecology, 2022g).

Achievements with respect to riparian habitat improvements are highlighted within the annual biennium outcomes reports, but at a highly aggregated level.

With respect to riparian habitat, the 2017-2019 Biennium Report describes that:

- Riparian buffer implementation was conducted on nearly 40 miles of rivers, creeks and stream banks;
- Over 340,000 riparian plants were planted through program funding; and
- Program awards supported installation of 13 miles of exclusion fencing (Ecology, 2020a).

Nonpoint projects funded by the program are not exclusively focused on riparian habitat protection and restoration, but program staff indicate that riparian habitat restoration is a primary avenue through which water quality improvements are achieved through the nonpoint component of the program (Personal communication with Ecology Water Quality program staff Aug. 5, 2022). Between 2017 and 2019, the Water Quality Combined Funding program provided \$12.3 million in funding (\$10.74 million in grants and \$1.5 million in loans) to complete 61 nonpoint projects (Ecology, 2020a). This represents an increase in the number of projects since the prior biennium (2015-17) (from 50 projects to 61 projects), but a reduction in funding dispersed (from \$17.6 million in 2015-17 to \$12.3 million in 2017-19).

During the 2017-19 biennium, WQC Nonpoint projects achieved 23,000 acres of habitat improvements via implementation of agricultural BMPs and riparian buffer implementation and restoration. However, this reported acreage includes a broad variety of activities, and does not separately identify the specific acreage of riparian buffers installed. Other reported program accomplishments include:

- Provided over 1,570 landowners with technical assistance;
- Engaged over 2,054 volunteers and received over 3,570 volunteer hours; and
- Conducted at least 113 student education events, including classroom visits and field trips.

## What data are available that allow for analysis of the effectiveness of the program at protecting and restoring riparian habitat?

Data allowing for a more in-depth evaluation of program outcomes with respect to riparian habitat restoration and protection are not readily available. Available program tracking data (Final Offer Lists) includes project category (i.e., wastewater, stormwater, nonpoint source and on-site sewage), relevant county and funding amount, and an online mapping tool depicting the location of these projects is also available (See Figure 10, below). However, these data do not identify whether projects included riparian habitat protection and do not include any biophysical metrics related to the project implementation (i.e., acres improved or protected, trees planted, etc.). Program staff do collect data on some biophysical metrics and this information is aggregated in the Biennial Reports (e.g., number of plants installed, acres of riparian buffer created). However, although detailed, project-specific data describing riparian habitat outcomes may be contained within existing sources, they are not currently collected and organized in a



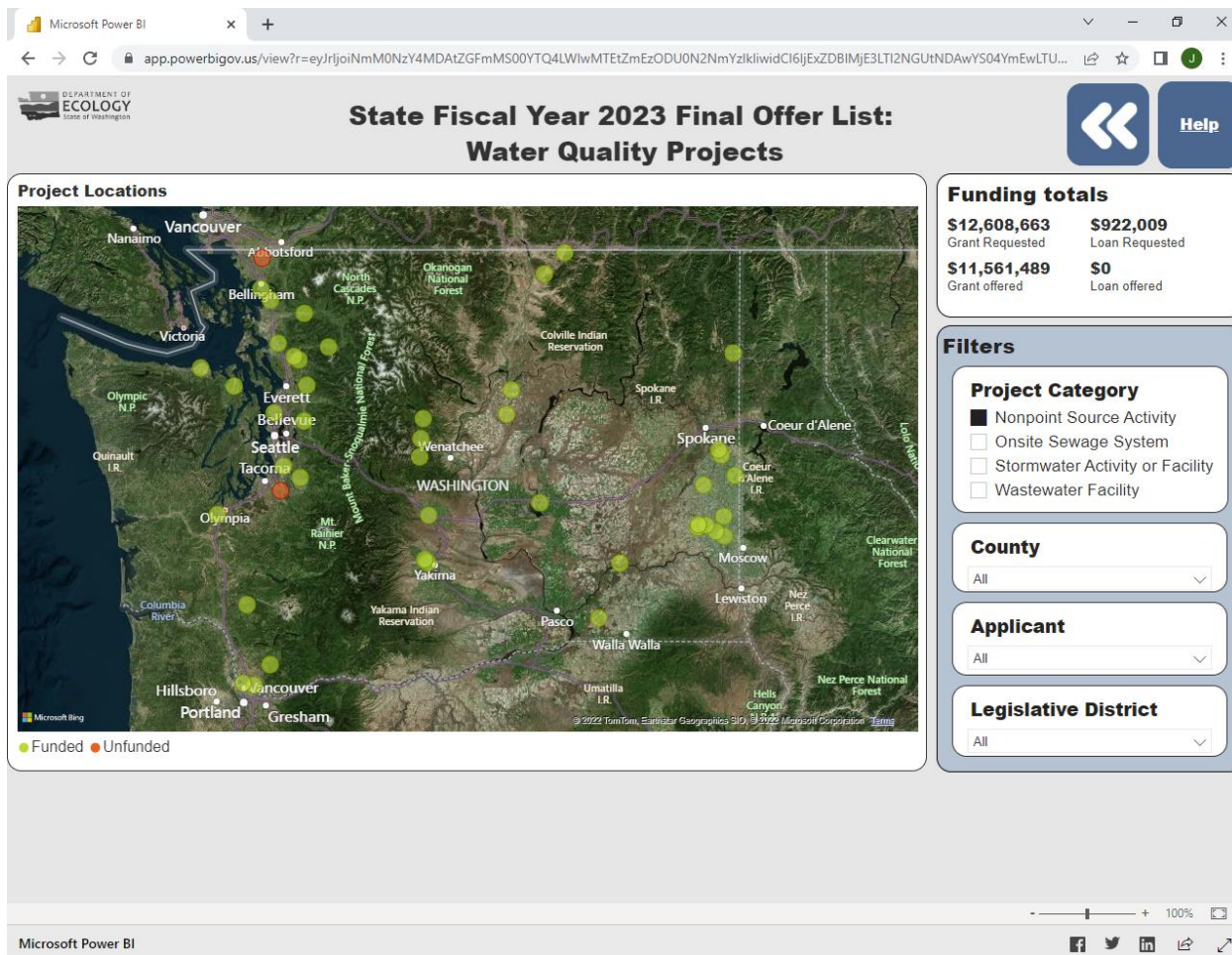
manner that readily supports analysis and doing so would require substantial effort of program staff (Email communication with Water Quality program staff Oct. 7, 2022).<sup>41</sup>

Geospatial data identifying point locations for funded projects are available via online mapping tools such as Ecology's Administration of Grants & Loans (EAGL) and 2023 Final Offer List map (see Figure 10). However, projects are identified as point locations and do not identify the footprint of the riparian habitat restored or protected, limiting an understanding of the extent and distribution of riparian habitats protected through this program across the landscape.

Readily available data do not allow for detailed analysis of program outcomes with respect to riparian habitat beyond what is provided in existing program reports. The 2023 Final Offer List Map (Figure 10) suggests that for the most recent funding cycle, there was a relatively high concentration of funded nonpoint source projects (many of which contain riparian habitat components) within the Puget Sound region, and in the eastern part of the state, with the balance of projects scattered throughout Central Washington.

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<sup>41</sup> Alternate sources such as Ecology's Administration of Grants & Loans (EAGL) mapping tool (Ecology, 2022e) and EPA's Grants Reporting and Tracking System (GRTS) do collect and present certain information on nonpoint restoration projects funded by the Water Quality Combined Funding program. However, they similarly lack the level of detail necessary to understand project accomplishments relative to riparian habitat specifically.



**Figure 10. State Fiscal Year 2023 Final Offer List: Water Quality Projects (Nonpoint Source)**

Source: Ecology, 2022d

## What are the current barriers to program effectiveness, or the ability to measure the effectiveness of the program?

Interviews with program staff and the process of developing this assessment identified the following as key barriers to program effectiveness or the ability to measure effectiveness of this program:

- Participants are self-selected and it can be challenging to solicit high levels of voluntary participation.
- Most funding for nonpoint work is on private property, and there can be difficulty in or resistance to limiting the use of these lands.
- Limitations in available space/acreage on private properties and smaller parcels may prohibit potential projects from meeting buffer width requirements, and lack of flexibility in buffer size could eliminate potential projects and participation.

- Program data are not currently aggregated in an accessible format for use in presenting summary statistics or to quantify riparian protection provided by the WQC program over time.
- While a retrospective analysis may provide some insight into the effectiveness of this program, the potential change in applicable buffer width guidelines to WDFW's SPTH<sub>200</sub> standard means that it would not be indicative of the program's future trajectory in contributing to the goal of a fully functioning riparian habitat.

Recent changes within the program to address previously identified barriers included elimination of funding match requirements in certain circumstances and reduction of interest rates charged for loan programs.

## Part 1: Legal and Administrative Overview

**Funding:** Ecology’s 2021-23 Budget & Program Overview lists \$14.82 million of the total Shorelands and Environmental Assistance Program Operating Budget to Protect, Restore and Manage Wetlands.

The Operating Budget for the 2021-23 biennium (ESSB 5092), as revised by the fiscal year 2022 Supplemental Operating Budget (ESSB 5693), provides \$587.51 million to the Department of Ecology (Ecology) from the accounts, below, which contribute to the Water Quality program. A portion of these funds is used for Ecology’s Wetlands program.

- \$49.81 million of the Water Quality Permit Account – State Appropriation.
- \$101.2 million of the General Fund – Federal Appropriation.
- \$44.94 million of the General Fund – State Appropriation (FY 2022).
- \$55.19 million of the General Fund – State Appropriation (FY 2023).
- \$27.55 million of the General Fund – Private/Local Appropriation.
- \$290.42 million of the Model Toxics Control Operating Account – State.
- \$8.5 million of the Model Toxics Control Stormwater Account – State Appropriation.
- \$5.46 million of the Water Pollution Control Revolving Administration Account – State Appropriation for Ecology.
- \$4.44 million of the Reclamation Account – State Appropriation.

The Capital Budget for the 2021-23 biennium, as revised by the fiscal year 2022 Supplemental Capital Budget, provides \$633 million for the Department of Ecology from the accounts, below, which may contribute to the Wetlands program.

- \$75 million of the Model Toxics Control Stormwater Account – State for the 2021-23 Stormwater Financial Assistance Program (SHB 1080, Sec. 3083).
- \$225 million of the Water Pollution Control Revolving Fund – State for the 2021-23 Water Pollution Control Revolving Program (SSB 5651, Sec. 3003).

### Authorities:

Chapters 90.48 and 90.58 RCW

Chapters 173-27, 173-200, 173-201A, 173-225, 173-700, and 365-196 WAC

33 U.S.C. §1251 et seq.

### Lead State Agency:

Department of Ecology

### Other State Agencies:

Numerous state agencies are involved in wetland protection and management

### Local Entities:

Local governments (counties and cities)

- \$75 million of the Water Pollution Control Revolving Fund – Federal for the 2021-23 Water Pollution Control Revolving Program (SSB 5651, Sec. 3003).
- \$18 million of the Water Pollution Control Revolving Fund – State for the 2021-23 State Match – Water Pollution Control Revolving Program (SSB 5651, Sec. 3004).
- \$200 million of the Water Pollution Control Revolving Fund – State for the 2022 Water Pollution Control Revolving Program (SSB 5651, Sec. 3009).
- \$40 million of the Model Toxics Control Capital Account – State for the 2021-23 Centennial Clean Water Program (SSB 1080, Sec. 3089).

**Participants:** Projects and activities, including development, with potential to impact wetlands.

**Overview:** The Department of Ecology is the lead wetland regulatory state agency and protects wetlands under Section 401 of the Clean Water Act, the State Water Pollution Control Act (Chapter 90.48 RCW), and the Shoreline Management Act (SMA) (Chapter 90.58 RCW). Ecology also uses the State Environmental Policy Act (SEPA) (Chapter 43.21C RCW) to identify potential wetland issues and impacts in the environmental review and permitting process. For federally regulated wetlands, Ecology reviews and issues Section 401 water quality certifications. For federally and nonfederally regulated wetlands, Ecology requires avoidance and minimization of impacts to wetlands as well as mitigation for unavoidable impacts to ensure no net loss in the amount and function of wetlands. Applicants must identify potential wetland impacts and proposed mitigation in the permit application.

Ecology also advises and provides technical assistance to local governments on protection and management of wetlands as critical areas protected under the Growth Management Act (GMA). The agency’s Wetlands program reviews wetland chapters of draft Critical Areas Ordinances (CAOs) and provides technical assistance and scientific information to local governments under both the GMA and SMA. The Wetlands program has developed Wetland Guidance for CAO Updates, including versions for Eastern and Western Washington (updated October 2022), including recommendations for wetland protection based on best available science, such as wetland buffers based on a wetland’s category, functions, types of adjacent land uses, and the environmental characteristics of the buffer. To assist local governments in meeting GMA and SMA requirements, the Wetlands program, in partnership with the Washington Department of Fish and Wildlife (WDFW), has also produced documents providing best available science on wetlands and guidance for wetland protection and management. In 2016, Ecology also performed a wetlands inventory to map wetlands resources in the state that is available to local land use decision makers and the public.

Wetland mitigation can include projects that improve riparian areas. Ecology’s mitigation guidance, *Wetland Mitigation in Washington Part 1: Agency Policies and Guidance*, provides information regarding perimeter buffer widths. Mitigation may include one or a combination of wetland mitigation banking (where impacts are offset by purchasing credits from an approved wetland bank where wetlands have been restored, created or enhanced); in-lieu fee mitigation (where impacts are offset through payment of a fee to a third party used to finance a wetland mitigation project); and advance mitigation (also known as

permittee-responsible compensatory mitigation, where impacts are offset by an applicant through a wetland mitigation in advance of a permitted wetland impact). Wetlands mitigation plans include a monitoring plan, which are generally required for a period of 10 years.

The Department of Ecology works with local governments, and federal agencies, as appropriate, to ensure wetland mitigation compliance through site visits and review of monitoring reports. Ecology also has an enforcement team that focuses on unpermitted impacts to wetlands. Violations can be identified through Ecology's Environmental Report Tracking System or third party, Ecology, or other state or federal agency or local government personnel reporting. Ecology does not have a program that proactively seeks out violations.

## Part 2: Technical Analysis

### The Wetlands Program:

- ❖ Provides technical assistance to local governments developing and implementing wetlands regulations under the Growth Management Act. As riverine wetlands are part of riparian ecosystems, wetland regulations help advance riparian habitat protection. Additional research is needed to understand the extent to which wetlands regulatory programs are effectively contributing to protection of riparian habitat.
- ❖ Has a goal of no overall net loss in acreage and function of Washington's remaining wetlands base, which serves to protect riparian ecosystems which encompass riverine wetlands.
- ❖ Reviews local ordinances to determine fidelity to current wetland guidance, finding approximately 90% align with current guidance.
- ❖ Has not conducted any recent effectiveness studies. Program staff stated that based on the last effectiveness study conducted in the early 2000s, an average of 50% of sites reviewed were not doing well. Recent improvements in compliance monitoring have likely improved this outcome. An updated study is planned for 2025.
- ❖ Data related to number of permits issued, compliance actions, and enforcement actions are available and could be requested for additional analysis of program implementation effectiveness.

### What is the mechanism or approach through which the program contributes to the protection and restoration of riparian habitat, and what are the program's specific goals with respect to riparian habitat?

The overall goal for wetland resource management in the state is "...to achieve no overall net loss in acreage and function of Washington's remaining wetlands base. It is further the long-term goal to increase the quantity and quality of Washington's wetlands resource base" (Governor Executive Order 89-10). This goal is designed to avoid the loss of overall wetland habitat, function and condition, and improve these features over time through restoration and mitigation. Given that wetlands are considered part of the riparian ecosystem, these goals are serving to provide riparian habitat protection as well.<sup>42</sup>

The Growth Management Act requires counties and municipalities to regulate wetlands within their jurisdictions. Thus, Ecology looks to local jurisdictions to include wetlands regulations in their Critical Area Ordinances, while Ecology provides guidance and technical assistance. During GMA updates of local ordinances, the Wetlands' program Critical Areas Ordinance Coordinator determines whether local entities' regulations match current wetlands guidance and provides comments through the update process.

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<sup>42</sup> As noted in WDFW 2020, riverine wetlands are usually considered part of riparian ecosystems. WDFW states "our definition of riparian ecosystem includes the active floodplain, including riverine wetlands, and the terraces or adjacent uplands that directly contribute organic matter or large wood to the active channel or active floodplain" (WDFW, 2020, page 4).



Ecology has approval authority over wetland regulations included in local Shoreline Master Plans adopted under the Shoreline Management Act.

With regard to permitting of development projects, if wetlands are present on a property, developers or applicants must submit a request to Ecology for an administrative order outlining potential impacts to the wetland and how the applicant will mitigate or compensate for those impacts. Mitigation can include various riparian enhancement projects. Ecology's Wetland Mitigation in Washington Part 1: Agency Policies and Guidance document also includes recommendations for perimeter buffer widths including wider buffers for fish bearing streams and associated riparian areas (Washington State Department of Ecology, U.S. Army Corps of Engineers Seattle District, and U.S. Environmental Protection Agency Region 10, 2021, pp. 152-153).

### **How does the implementing entity evaluate and report the effectiveness of the program with respect to riparian habitat protection and restoration?**

Ecology's Wetlands program staff indicate one of the primary ways they ensure program effectiveness is to review local ordinances to ensure that they are aligned with Ecology's current wetlands guidance. Program effectiveness, in terms of how wetland mitigation sites were doing from an ecological standpoint, was last studied in the early 2000s. There is a plan to apply for funding to do an effectiveness study in 2025 which will review results since a compliance program was implemented.

Staff indicated that another place they report program accomplishments is in the Wetland program Plan (Ecology, 2015a). This plan was last updated in 2015; an update is currently underway which will provide an annotated implementation schedule looking back at high priority accomplishments of the program. The draft plan is currently under review, with plans to submit to the U.S. Environmental Protection Agency (EPA) by the end of the year.

Finally, Ecology indicated there is a Monitoring and Assessment group within the Wetlands program; however, this is more a group that gathers to discuss and share results of current monitoring and assessment efforts in the field. This group is not focused on program-level results and outcomes.

### **What do the provided documents report about the effectiveness of the program with respect to protection and restoration of riparian habitat?**

When reviewing local ordinances to determine fidelity to current wetland guidance, Ecology staff indicate that the vast majority (approximately 90%) match current guidance. Program staff stated that based on the last effectiveness study done nationwide in the early 2000s, an average of 50% of sites reviewed were not doing well in terms of meeting their mitigation requirements. Ecology anticipates that this has improved with the addition of more mitigation compliance staff and improvements to the mitigation compliance program since the early 2000s. Ecology hopes to be able to conduct an effectiveness study in 2025 if they receive funding.

### **What data are available that allow for analysis of the effectiveness of the program at protecting and restoring riparian habitat?**

The Wetlands program staff indicate that they track the number of sites they are visiting to ensure compliance; they also indicate that data are collected in the Shoreline Permitting Tracking Database and

the [Environmental Reports Tracking System](#) related to number of permits issued, compliance actions and enforcement actions. These are not directly related to measuring impact on riparian habitat.

Some GIS mapping of wetland habitats exists. Ecology contracted with the National Oceanic and Atmospheric Administration (NOAA) to carry out a [2016 Wetlands Inventory](#) to map wetlands resources in the state (Ecology, 2016). However, Ecology indicates development projects continue to require site-specific wetland delineation.

## What are the current barriers to program effectiveness, or the ability to measure the effectiveness of the program?

Through the interview with the Wetlands program, the following barriers to program effectiveness were identified:

- **Lack of data.** Given the Wetlands program's focus on technical assistance and working with local jurisdictions to implement and enforce regulations, aggregate data are not available describing the effect of wetlands regulations (such as locations and acres of riparian habitat where mitigation has occurred, types of mitigation – buffers applied, etc.) that would allow for evaluation of the effectiveness of the program at protecting riparian habitat.
- **Regulatory agency roles are unclear.** With respect to enforcement, Wetlands program staff indicated that when issues are reported, there is often confusion regarding jurisdiction between the Army Corps of Engineers, the local jurisdiction and other state agencies. Often Ecology takes the lead to work with the local authorities to strive for voluntary compliance before issuing administrative orders requiring compliance with local wetland regulations.
- **Application of mitigation can be inconsistent.** Washington does not have a scientific, replicable way to identify riparian habitat, which leads to differences in mitigation when the habitat type is similar. Ecological outcomes could be improved by applying a more scientific approach to identifying wetlands and riparian areas. Staff suggested that a review of the methods used in Oregon (Stream Function Assessment Method) could be worthwhile (Oregon Department of State Lands, 2022).

## CHAPTER 6 | New Programs and Initiatives

This chapter provides information regarding several new and ongoing programs and initiatives related to riparian protection or restoration that were identified in the course of our investigation. These parallel efforts are expected to positively contribute to riparian protection and restoration and to provide important information for evaluating state progress toward achieving a science-based standard for a fully functioning riparian ecosystem, but are either not yet completed or, in the case of programs, have not been in place for long enough to evaluate their efficacy and utilization.

### Riparian Plant Propagation Program

In 2022, the state Legislature appropriated funds to the State Conservation Commission (SCC) to develop a riparian plant propagation program of native trees and shrubs for the purpose of implementing riparian restoration projects that meet riparian zone requirements established by the WDFW Riparian Guidance (WDFW's SPTH<sub>200</sub> standard). Plants produced by the program are to be made available for free or at a reduced cost to restoration projects (ESSB 5693 Sec. 307(8)).

### Salmon Recovery Funding Program

In 2022, the state Legislature appropriated funds to the State Conservation Commission to provide grants for riparian restoration projects with landowners (ESSB 5693 Sec. 307(14)). In response, the SCC established the Salmon Recovery Funding program, releasing final programmatic guidelines in July 2022. The program offers grant funding opportunities to the state's Conservation Districts for riparian restoration projects with landowners and prioritizes projects in watersheds with critical salmon habitat needs.

The Skagit Conservation District has developed a riparian restoration incentive pilot program to implement the funding provided by the Salmon Recovery Funding program. The pilot program offers staggered incentives to install and maintain larger riparian buffers over a 15-year period. Incentives provided may include reimbursement of up to 100% of project material and installation costs; payment equivalent to Conservation Reserve Enhancement Program (CREP) rental rates per acre over a five-year period; and bonus incentives for riparian plantings meeting target buffer widths. Bonus incentives include a 20% bonus of the CREP rental rate for widths of 100 feet or greater and a 40% bonus of the CREP rental rate for widths meeting WDFW's SPTH<sub>200</sub> standard. The pilot program aims to target areas where salmon riparian restoration is of critical need, where outreach and engagement with landowners through traditional programs has not been effective in gaining participation, and where incentive payments would lead to implementation of restoration.

### Sustainable Farms and Fields

The State Conservation Commission's Sustainable Farms and Fields program, started in 2020, provides grant funding opportunities to Conservation Districts and other public entities to encourage farmers and ranchers to implement climate-smart practices and projects that increase carbon sequestration and reduce greenhouse gas emissions (RCW 89.08.615). The program may fund projects that benefit riparian areas by installing buffers and planting vegetation. Under the program, landowners may receive free services (e.g., on-farm consultations, farm plans) and financial assistance to help cover the cost of projects, equipment, seed for cover crops, and other expenses.

The Washington State Department of Agriculture (WSDA), Washington State University and the U.S. Department of Agriculture's (USDA's) Natural Resources Conservation Service (NRCS) consult with the State Conservation Commission to prioritize Sustainable Farms and Field program grant applications. Prioritization is based on, among other factors, creation of riparian buffers or other fish habitat enhancements.

### Voluntary Clean Water Guidance for Agriculture

The Department of Ecology is in a multiyear process to develop and issue Voluntary Clean Water Guidance for Agriculture. Once completed, the guidance will include a series of chapters outlining recommended best management practices, including practices regarding riparian areas, for agricultural producers to meet state water quality standards. Ecology will presume an agricultural operation following the Guidance is adequately protecting water quality. Ecology will also use the Guidance to develop nonpoint source pollution funding program guidelines, inform water quality cleanup plans (e.g., Total Maximum Daily Loads), provide technical assistance, and assist in education and outreach efforts. Ecology also hopes that producers will use the Guidance in planning their farms and with Conservation Districts to support water quality protection projects with landowners. Ecology identifies and implements these best management practices (BMPs) with the assistance of an Advisory Group, including representatives from the USDA NRCS, Conservation Districts, WSDA, Washington State University, agricultural producer groups, environmental groups, the U.S. Environmental Protection Agency, SCC, and the Northwest Indian Fisheries Commission.

Ecology plans to complete the guidance in two phases. Phase One will be completed by the end of 2022, including a chapter titled Riparian Areas and Surface Water Protection. Phase Two will be completed by 2025. Once final, each phase will become a part of Ecology's updated 2022 statewide Nonpoint Plan.

### Channel Migration Zone Mapping Methodology

In 2022, the state Legislature appropriated funds to Ecology to develop a standardized channel migration zone (CMZ) mapping methodology and offer support for tribes, counties, and local jurisdictions to refine existing CMZ maps with local information (ESSB 5693 Sec. 302(43)).

### National Hydrography Dataset Update

Funded by the state Legislature in 2022, Ecology is conducting a two-year pilot project in the Stillaguamish watershed to identify technologies, methodologies, datasets, and resources needed to refine and maintain the accuracy of the National Hydrography Dataset for the state to better monitor the health of riparian buffers (ESSB 5693 Sec. 302(44)). Project results will inform funding needed to perform a statewide update to the Washington National Hydrography Dataset.

### High Resolution Change Detection

Funded by the state Legislature in 2022, the Washington Department of Fish and Wildlife is undertaking an assessment of the status of current riparian ecosystems, including identifying any gaps in vegetated cover relative to a science-based standard for a fully functioning riparian ecosystem through High Resolution Change Detection (ESSB 5693 Sec. 308(57)).

## Improving Salmon Habitat on State-Owned Lands

Funded by the state Legislature in 2022, the Department of Natural Resources is undertaking a pilot project to improve salmon habitat and riparian function, including through riparian planting and set-asides, on state-owned aquatic, commercial, industrial and agricultural lands (ESSB 5693 Sec. 310(39)).

## Puget Sound Riparian Effectiveness Metrics

The Puget Sound Partnership's (PSP's) Puget Sound Ecosystem Monitoring Program (PSEMP) provides a network of experts who collaborate to track ecosystem conditions that directly address management and science questions critical to Puget Sound recovery. Among other items, PSEMP assesses effectiveness of and provides recommendations regarding recovery efforts, including riparian habitat programs. PSEMP is working to define riparian effectiveness metrics for monitoring toward a protocol to be incorporated into PSP programs.

## Statewide LiDAR Data Update

Funded by the state Legislature in 2022, the Department of Natural Resources is collecting and refreshing statewide LiDAR data (ESSB 5693 Sec. 310(35)).

## Combined Animal Feeding Operation General Permits

In response to a Washington State Court of Appeals decision, Ecology is currently in a process to reissue its Concentrated Animal Feeding Operation (CAFO) general permits. The draft permits, provided for public comment between June and August 2022, included proposed changes related to riparian buffers, vegetated filter strips and setback areas. Ecology plans to issue a decision on permit reissuance by the end of 2022.

## Net Ecological Gain

In 2022, the state Legislature appropriated funds to the Washington Department of Fish and Wildlife to assess how to incorporate a "net ecological gain" standard into state land use, development, and environmental laws and rules, including the Growth Management Act, Shoreline Management Act, Hydraulic Code and Model Toxics Control Act. The agency must report back to the legislature by Dec. 1 with its findings, including recommendations on funding, incentives, technical assistance, legal issues, monitoring, and use of scientific data (ESSB 5693 Sec. 308 (56)).

## Governor's Salmon Strategy Update

Inslee's 2021 Salmon Strategy Update outlines several recommendations to save salmon and outlines how recommendations will be achieved. The update's first recommendation is to protect and restore vital salmon habitat through better enforcement and expansion of land use regulatory protections for habitat, establishing a statewide approach for fully functioning riparian habitat, establishing a permanent funding source to fully fund salmon recovery plans, improving habitat conditions on agricultural lands, and maintain and improve the Forest and Fish agreement to support salmon recovery. The update provides that recommendations will be implemented through biennial work plans. The 2023-2025 biennial work plan, published Oct. 31, 2022, provides legislative, policy, and budget proposals from the nine natural resource agencies. Proposals to implement protection and restoration of vital salmon habitat include the following: additional funding for GMA technical assistance to incorporate salmon recovery plans into comprehensive plans and regulations; integration of a net ecological gain standard into state land use,

development, and environmental laws and rules; an assessment identifying priority streams for conservation; and funding for state voluntary incentive and grant programs contributing to salmon recovery; among other items.

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## APPENDIX A | Program Summary Table

Table begins on the following page.



Program / Initiative	Type	Lead State Agencies	Covered in Interviews	Authorizing Statutes and Regulations	Mechanism for Riparian Protection	Riparian Goals	Description	Regulated Communities / Program Participants	Regulated / Participating Activities	Monitoring and Enforcement
Agricultural Conservation Easements Program	Voluntary - Easements	SCC		RCW 89.10.010; RCW 89.08.530	Grant program that provides funding for land acquisition or easements that could include riparian habitat.	To protect food production, prevent agricultural land conversion to non-agricultural uses, conserve wildlife habitat, including riparian areas and protect water resources.	Agricultural conservation easements add restrictions on development and subdivision to property titles and provide a plan to protect conservation values of the land.	Agricultural and forest landowners.	Agricultural lands and forestland.	The SCC has authority to monitor projects to ensure compliance with the terms of the easement. SCC guidance provides that easement areas should be inspected annually. Inspections may be conducted by the SCC and/or Conservation Districts. Easement monitoring reports are completed and submitted to the SCC.
Aquatic Lands Enhancement Account	Voluntary - Grants	RCO, DNR		RCW 79.105.150; Chapter 286-13 WAC	Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To protect and enhance aquatic lands for the public, including through riparian habitat protection and improvement.	Uses money generated from aquatic lands to offer grant funding to projects that enhance access to aquatic lands and protect and enhance those lands, including through projects that restore or preserve fish and wildlife habitat.	Tribes, local and state agencies with projects for acquisition or restoration of aquatic lands, or development or renovation of public resources for conservation and outdoor recreation.	Acquisition, improvement, or protection of aquatic lands for public purposes, including tidelands, shore lands, harbor areas and beds of navigable waters.	None identified. Projects must be for permanent outdoor recreational use.
Center for Technical Development	Technical Assistance / Support	SCC	X		Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To ensure consistency across conservation planning.	Provides training, quality assurance, and consistency across conservation planning by working with Conservation Districts statewide.	Conservation Districts		
Channel Migration Zone Mapping Methodology	Technical Assistance / Support - New Program / Initiative	Ecology		ESSB 5693 Sec. 302(43).	Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To support mapping of channel migration zones, which include riparian areas.	Develop standardized channel migration zone mapping methodology and offer support for tribes, counties, and local jurisdictions to refine existing channel migration zone maps with local information.			
Combined Animal Feeding Operation General Permit	Regulatory - New Program / Initiative	Ecology		33 U.S.C. §1251 et seq.; RCW 90.48; Title 173 WAC	Fulfillment of regulatory requirements may include protection of riparian areas.	To protect water quality from manure and waste material generated on Concentrated Animal Feeding Operations, including through protection and improvement of riparian areas.	Reissuance of general permit to protect water quality from discharges to surface and groundwater from Concentrated Animal Feeding Operations, including proposed changes related to riparian buffers, vegetated filter strips and setback areas.	Concentrated Animal Feeding Operations, typically large commercial operations, using the general permit.	Commercial or industrial operations involving the holding of large groups of livestock or poultry in a concentrated area.	Draft permit monitoring conditions include operator visual inspections and water quality sampling and assessment. Ecology has authority to enforce the terms and conditions of the permit. Violation may result in permit revocation. Willful violation is a crime.
Conservation Districts	Voluntary	SCC	X	Chapter 89.08 RCW; Title 135 WAC	Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To implement voluntary and incentive-based programs to meet natural resource and environmental objectives, including protection and enhancement of fish and wildlife habitat.	Provide community-based natural resource expertise and funding and carry out SCC programs (e.g., CREP) that may include riparian protection on private lands.	Washington landowners, depending on Conservation District and program eligibility.	Activities on private lands.	Depends on program.
Conservation Reserve Enhancement Program	Voluntary - Incentives	SCC	X	16 U.S.C. § 3831a; RCW 89.08.550	Grant program that provides funding for projects that have a substantial focus on riparian habitat improvement.	To restore and protect riparian habitat along salmon bearing streams	Pays farmers annual rent for establishing buffers and planting native vegetation, in place of crops, along salmon-bearing streams under 10- to 15-year renewable contracts.	Private owners of cropland or marginal pastureland, including tribal lands, bordering salmon bearing stream reaches. Lands with existing easements that restrict farming activity, urban lands and public lands (unless leased for the full life of the CREP contract) are ineligible.	Projects to establish buffers and plant native vegetation, in place of crops.	Project implementation monitoring tracks acres treated, stream miles restored, number of contracts, feet of fencing, and number of plantings and is submitted regularly to OFM, the state Legislature and the USDA FSA. Effectiveness monitoring involves the random selection of 20 or more project sites to measure plant growth, bank erosion, invasive species, canopy cover and plant survival.

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Environmental Assessment Program	Technical Assistance / Support	Ecology			Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To study and monitor environmental conditions and communicate findings to guide agency decisions.	Provides a range of scientific studies and modeling and data tools, including freshwater studies monitoring habitat. Habitat monitoring includes stream biological, watershed health and forest practices effectiveness monitoring.			
Estuary and Salmon Restoration Program	Voluntary - Grants	RCO, WDFW, PSP	X		Grant program that provides funding for projects that have a substantial focus on riparian habitat improvement.	To restore and conserve nearshore areas in the Puget Sound, including riparian areas.	Provides grant funding and technical assistance for projects using the scientific foundation developed by the Puget Sound Nearshore Ecosystem Restoration Project to conserve and restore nearshore areas in the Puget Sound.	Local, state and federal agencies, tribes, nonprofit organizations, private institutions, universities and colleges.	Acquiring nearshore habitat, restoring salmon habitat, removing bulkheads, removing fill, among other activities, as well as project design.	Project implementation monitoring is required to ensure projects are completed as planned. Implementation monitoring, but not effectiveness monitoring, is eligible for funding under the program.
Family Forest Fish Passage Program	Voluntary - Grants	DNR		RCW 76.13.150	Grant program that provides funding for projects that have a substantial focus on riparian habitat improvement.	To assist small forestland owners with removing and replacing fish passage barriers.	Provides cost-share funding for replacement of fish passage barriers for small forestland owners.	Small forestland owners with forestland including culverts and other fish passage barriers on fish-bearing streams.	Removal and replacement of culverts and other structures posing a barrier to fish to reaching upstream habitat.	
Flood Control Assistance Account Program	Voluntary - Grants	Ecology	X	RCW 86.26.007; Chapter 173-145 WAC	Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To assist local comprehensive floodplain management planning and identifying implementing actions to control flooding, including planning for riparian protection and restoration.	Provides grant funding for development of integrated floodplain management plans and to identify actions to reduce flood hazards and flood damages.	Tribes, local jurisdictions, flood control districts and Conservation Districts.	Developing comprehensive flood hazard management plans and emergency flood response and recovery work.	Where projects involve monitoring, data must be submitted to Ecology.
Floodplains by Design	Voluntary - Grants	Ecology	X		Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To accelerate re-establishment of floodplain functions in Washington's major river corridors and reduce flood risk.	Provides grant funding for projects reducing flood hazards and restoring habitat, including conservation and restoration of fish habitat, that help meet community needs.	Local jurisdictions, tribes, flood control zone districts, flood control and diking and draining districts, Conservation Districts and nonprofits.	Projects to reduce flood hazards and involving ecosystem restoration, including project design and construction, land acquisition, and riparian and wetland restoration.	Pre and post project assessment during the grant period are eligible for funding. Where projects involve monitoring, data must be submitted to Ecology.
Forest Practices	Regulatory	Forest Practices Board, DNR	X	Chapter 76.09 RCW; Chapter 222-30 WAC	Fulfillment of regulatory requirements must include protection of riparian habitats.	To protect public resources while maintaining a viable forest products industry.	Protects riparian areas through regulation of forest practices within riparian zones.	Parties engaging in forest practices unless covered by a separate HCP.	Forest practices such as road construction, timber harvest, and thinning on private and public lands.	DNR's Compliance Monitoring Program provides post-harvest monitoring and data collection to inform whether harvest and road construction are conducted in compliance with the forest practices rules. DNR has authority to ensure compliance, including inspection of forest practices and enforcement related to violation. The Adaptive Management Program and its committees review forest practices to ensure rules are effective.
Forest Resilience Division	Technical Assistance / Support	DNR	X	RCW 76.04.511	Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To study and monitor forest ecosystems and provide technical assistance to small forestland owners to inform land management decisions, including as they relate to conservation of riparian areas.	Performs science, monitoring and planning regarding forest ecosystems. Provides technical assistance to small forestland owners to help them make informed decisions for managing their land, including use of the Forestry Riparian Easement Program to meet forest practice requirements.	Small forestland owners.		

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Forest Resources Division	Technical Assistance / Support	DNR			Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To balance sustainable production of revenue from state trust lands, protect public resources and natural habitats.	Performs earth sciences consultation and monitoring for state lands leasing activities, administers silvicultural bidding process, and performs the state sustainable harvest calculation.			
Forestry Riparian Easement Program	Voluntary - Easements	DNR	X	RCW 76.13.120; Chapter 222-21 WAC	Grant program that provides funding for land acquisition or easements that include riparian habitat.	To protect small forestland owners and prevent conversion of forestlands to non-forestry uses and to protect aquatic resources.	Reimburses small forestland owners for the value of the trees they are required to leave to protect fish habitat.	Small forestland owners with forest trees required to leave unharvested under forest practices rules within riparian areas.	Easements for the value of trees required to be left to protect fish habitat.	
Governor's Salmon Recovery Office	Technical Assistance / Support	RCO	X	Chapter 77.85 RCW; Title 420 WAC	Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To develop and implement the state's salmon recovery strategy.	Works with regional recovery organizations and watershed-based "lead entities" to provide regional recovery plans and watershed-level strategies that implement the statewide salmon recovery strategy consistent with the Salmon Recovery Act (RCW 77.85) and the Endangered Species Act (16 U.S.C. § 35). Advises the Salmon Recovery Funding Board on administration of salmon recovery funding to achieve statewide and regional recovery plans.			Tracks and reports on salmon recovery progress and factors including habitat and water quality in the State of the Salmon in Watersheds report.
Growth Management Act	Regulatory	DOC	X	Chapters 36.70A, 36.70B, 36.70C RCW; Chapters 365-185, 365-190, 365-195, 365-196, 365-197, 365-198, 365-199 WAC	Fulfillment of regulatory requirements must include protection of riparian habitats.	To plan for growth and development in the state to protect environment, economic development and quality of life.	Requires local governments to develop comprehensive land use plans to regulate development and land use activities, including requirements for the identification and protection of critical areas containing riparian habitat.	Local entities preparing Comprehensive Plans or enacting provisions to meet Growth Management Act (Chapter 36.70A RCW) requirements.	Local plans regulate development and land use activities, in particular new activities, subject to locally adopted categorical exemptions.	Enforcement of local Comprehensive Plans and Critical Areas Ordinances is largely locally led. The Growth Management Hearings Board considers petitions regarding local jurisdiction compliance with Growth Management Act requirements.
Habitat Program	Regulatory - Technical Assistance / Support - Voluntary	WDFW	X	Title 77 RCW; Title 220 WAC	Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To protect and preserve habitat, including riparian habitat, for fish and wildlife.	Administers several habitat-focused programs including Farm Bill programs, Priority Habitats and Species program, High Resolution Change Detection (HRCD) project, among others.			
High Resolution Change Detection	Technical Assistance / Support - New Program / Initiative	WDFW	X	ESSB 5693 Sec. 308(57).	Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To create and share High Resolution Data Products to inform land cover changes over time, including for riparian areas.	Develops High Resolution Data Products, including land change detection, tree canopy, visible surface water and land cover. Undertaking an assessment of the status of current riparian ecosystems, including identifying any gaps in vegetated cover relative to a science-based standard for a fully functioning riparian ecosystem.			

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Hydraulic Project Approval	Regulatory	WDFW	X	Chapter 77.55 RCW; Chapter 220-660 WAC	Fulfillment of regulatory requirements may include protection of riparian areas.	To protect fish and wildlife habitat, including riparian habitat.	Regulates hydraulic projects, including review, permitting, and enforcement of the Hydraulic Code (Chapter 220-660 WAC) for projects including construction or performance of work that will use, divert, obstruct, or change the natural flow or bed of marine or fresh waters.	Private or public entities proposing hydraulic projects.	Construction or performance of work by private or public entities that will use, divert, obstruct, or change the natural flow or bed of any of the salt or fresh waters of the state, including, for example, shoreline stabilization, docks and piers, boat ramps and launches, culverts and bridges, marinas and terminals, dredging, utilities and mining. Subject to exemptions including placement of boundary markers, derelict fishing gear removal, removal of certain invasive species, use of scientific measurement devices, forest practices hydraulic projects, and installation or maintenance of aquaculture facilities, among others.	Compliance biologists conduct site inspections during construction and/or upon completion for some but not all projects. Inspections are focused on those projects with the greatest potential to harm fish and their habitat.
Improving Salmon Habitat on State-Owned Lands	Technical Assistance / Support - New Program / Initiative	DNR		ESSB 5693 Sec. 310(39)	Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To improve salmon habitat on DNR lands.	Pilot project to improve salmon habitat and riparian function on DNR's aquatic, commercial, industrial and agricultural lands, including riparian planting and set-asides on state-owned lands.			DNR must report on pilot project cost, monitoring, and effectiveness of investments in salmon habitat improvements by June 20, 2023.
Land and Water Conservation Fund	Voluntary - Grants	RCO		54 U.S.C. § 2003; Chapter 286-13 WAC	Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To acquire and develop public outdoor recreation areas and facilities.	Administers program to fund acquisition, development, and renovation of public outdoor recreation areas and facilities. Eligible projects may provide benefits to riparian areas.	Local jurisdictions, tribes, park and recreation districts, school districts, state agencies, and some special purpose districts with authority to acquire and develop public open space, habitat or recreation facilities.	Acquisition, development, or renovation of outdoor recreational areas and facilities.	Grant-assisted areas and facilities must be inspected every 5 years.
National Coastal Wetlands and Conservation Grant Program	Voluntary - Grants	Ecology		16 U.S.C. §3954	Grant program that provides funding for projects that have a substantial focus on riparian habitat improvement.	To protect and restore coastal wetlands.	Administers program to fund acquisition, restoration, enhancement or management of coastal wetlands.	State agencies, which may partner with tribes, local governments, land trusts, and other state and federal agencies.	Acquisition, restoration, enhancement, or management of coastal wetlands ecosystems.	Project monitoring to meet program purposes is required and may be eligible to receive funds under the grant.
National Hydrography Dataset Update	Technical Assistance / Support - New Program / Initiative	Ecology		ESSB 5693 Sec. 302(44)	Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To refine and maintain accuracy of the National Hydrography Dataset for the state to better monitor the health of riparian buffers.	Conduct a two-year pilot project identifying technologies, methodologies, datasets, and resources needed to refine and maintain the accuracy of the National Hydrography Dataset for the state to better monitor the health of riparian buffers.			
Natural Resource Investments	Voluntary - Incentives	SCC	X	Chapter 89.08 RCW; Title 135 WAC	Grant program that provides funding for projects that have a substantial focus on riparian habitat improvement.	To advance natural resource objectives, including salmon recovery.	Offers local, incentive-based programs empowering landowners to voluntarily install best management practices including the following practices related to riparian area protection or improvement: critical area planting, hedgerow planting, fencing, large woody debris structure, riparian forest buffers, and streambank and shoreline protection.	Private owners or lessees of urban or rural farms and ranches within Conservation District boundaries and identified for eligible projects.	Best management practices including critical area planting, hedgerow planting, fencing, large woody debris structure, riparian forest buffers, and streambank and shoreline protection.	Project monitoring is conducted by the local Conservation District within the project timeframe.

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Natural Resources Assessment Section	Technical Assistance / Support	WSDA	X		Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To work with the agriculture industry and regulators to protect natural resources.	Provides scientific studies and expertise, monitoring and analytical tools to identify, evaluate, and mitigate impacts of agricultural chemicals on the environment and water resources, including with regards to riparian ecosystems. Provides expertise and input on state agency boards (e.g., SCC) and advisory groups (e.g., Ecology's Agriculture and Water Quality Advisory Committee).			
Net Ecological Gain	Regulatory - New Program / Initiative	WDFW		ESSB 5693 Sec. 308(56)	Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To achieve better statewide performance on endangered species recovery and ecological health.	Assess how to incorporate a "net ecological gain" standard into state land use, development, and environmental laws and rules.			WDFW must report its findings and recommendations to the state Legislature by Dec. 1, 2022.
Nonpoint Pollution Program	Regulatory	Ecology	X	33 U.S.C. §1251 et seq.; Chapter 90.48 RCW; Chapters 173-200, 173-201A WAC	Fulfillment of regulatory requirements may include protection of riparian areas.	To achieve water quality compliance and improvements related to nonpoint sources of pollution including through protection or improvement of riparian areas.	Nonpoint source pollution compliance with water quality standards is primarily achieved through best management practices in permits, rules, orders and directives, including practices for maintenance of riparian buffers and livestock exclusion from riparian areas. Provides funding opportunities and technical assistance to implement best management practices designed to meet water quality standards.	Parties conducting development or land use activities which generate nonpoint source pollution.	Activities which generate nonpoint source pollution, including development and land use activities causing runoff from streets, farms, forest lands, habitat alteration and atmospheric deposition.	The Water Quality program performs a biennial assessment of water bodies and submits a list of those not meeting surface water quality standards (the "303(d) list") to the US EPA for approval. Also, at certain points in the cleanup process, Ecology provides effectiveness monitoring for water quality improvement projects to determine progress. Ecology has authority to require a nonpoint source polluter to implement BMPs and take other corrective actions to achieve compliance with water quality standards, including through issuance of orders and penalties.
National Pollution Discharge Elimination System Permitting	Regulatory	Ecology	X	33 U.S.C. §1251 et seq.; Chapter 90.48 RCW; Chapter 173-220 WAC	Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To achieve water quality compliance and improvements related to point sources of pollution.	Point source pollution regulation is achieved through National Pollutant Discharge Elimination System (NPDES) permits. Municipal stormwater permits may involve riparian habitat restoration, tree planting, and other project types to help meet water quality standards.	Dischargers of point source pollution into surface waters.	Point sources of pollution, including direct discharges into surface waters by municipal, commercial, and industrial uses and municipal stormwater.	Most water quality permits require outfall or discharge monitoring for pollutants, conducted by permittees and reported to Ecology through Discharge Monitoring Reports.
Office of the Chehalis Basin	Regional	Ecology	X	RCW 43.21A.730	Grant program that provides funding for land acquisition or easements and projects that have a substantial focus on riparian habitat improvement.	To pursue long-term flood damage reduction and aquatic species restoration in the Chehalis River Basin, including through protection or improvement of riparian areas.	Pursues implementation of the Chehalis Basin Strategy and administers funding to address flooding and aquatic species restoration in the Chehalis River Basin.	State, local and federal agencies, tribes, irrigation districts, agricultural interests and nonprofits	Chehalis Basin Strategy projects and activities.	
Office of the Columbia River	Regional	Ecology	X	Chapter 90.90 RCW	Grant program that provides funding for land acquisition or easements and projects that have a substantial focus on riparian habitat improvement.	To pursue current and future water needs solutions for people and the environment, including through protection or improvement of riparian areas.	Pursues implementation of the Yakima Basin Integrated Plan and Columbia River Water Management Program to address water needs in the Columbia River Basin.	State, local and federal agencies, tribes, irrigation districts, agricultural interests and nonprofits	Yakima Basin Integrated Plan projects and activities.	



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Open Space Taxation Act / Conservation Futures	Tax	DOR		Chapter 84.34 RCW; Chapter 458-30 WAC	Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To conserve and enhance natural resources and protect streams and water quality.	Provides for landowners to apply for an open space, agricultural land or timberland classification, which permits the assessed value of property to be based on "current" rather than "highest and best" use. Once classified, agricultural and timber lands are also exempt from special benefit assessments primarily applicable to urbanized areas (e.g., storm sewerage service), for as long as the land remains classified. Priority consideration is given to lands used for riparian buffers that are planted with or primarily contain native vegetation. Also, authorizes local governments and nonprofit organizations to acquire permanent rights to future development of any open space, agricultural land, or timberland through a Conservation Futures program. Counties are encouraged to use Conservation Futures as a tool for salmon recovery.	Owners of designated open space land or any land that, by preserving its present use, would conserve and enhance natural or scenic resources, and owners of farm and agricultural or timber land. Also, local governments and nonprofit organizations in counties offering a Conservation Futures program.	Classification of land for tax value assessment purposes, and acquisition of developments rights of classified lands.	
Pesticide Management Division - Dairy Nutrient Management Program	Regulatory	WSDA		Chapters 90.64, 90.48 RCW; Chapters 16-611, 173-200, 173-201A WAC	Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To protect water quality from livestock nutrient discharges.	Requires all grade "A" licensed dairies to prevent discharges to waters of the state and to develop a nutrient management plan that describes how manure and process wastewater will be managed.	Grade "A" licensed dairies.	Livestock nutrient management.	Implements an inspection program to monitor nutrient management plan implementation and to identify recordkeeping and water quality violations. While WSDA is lead in compliance activities against non-permitted dairies, Ecology may take compliance actions on any livestock operations where human health or environmental damage has or may occur due to potential or actual discharges.
Priority Habitats and Species	Technical Assistance / Support	WDFW	X	Chapter 36.70A RCW; WACs 365-190-040, 365-190-030, 173-26-221(5)	Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To provide expertise and information important to the protection of habitats and ecosystems to local land use decision makers.	Provides scientific and technical expertise to local agencies and land use decisionmakers and issues guidance regarding priority habitats and species, including riparian habitat, designed for use in meeting Growth Management Act and Shoreline Management Act critical areas requirements.			
Private Lands Scientific and Technical Support	Technical Assistance / Support	WDFW			Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To assist Farm Bill wildlife conservation projects on private lands.	Provides scientific and technical support for Farm Bill conservation projects on private lands, including through the USDA Conservation Reserve Program, Working Lands program, Easement programs and Regional Conservation Partnership programs.	Private landowners	Activities on private lands.	
Puget Sound Ecosystem Monitoring Program	Technical Assistance / Support	PSP	X	RCWs 90.71.060, 90.71.290	Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To monitor and assess ecosystem conditions that address management and science questions critical to Puget Sound Recovery.	Network of subject matter experts from monitoring organizations in the Puget Sound region who assess, synthesize, and communicate scientific information and make recommendations regarding monitoring, data collection and science needs.			
Puget Sound Riparian Effectiveness Metrics	Technical Assistance / Support - New Program / Initiative	PSP			Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To provide recommendations on riparian metrics to assess PSP program effectiveness.	To define riparian effectiveness metrics for monitoring toward a protocol to be incorporated into PSP programs			

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Puget Sound Nearshore Ecosystem Restoration Project	Regional	WDFW			Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To describe challenges, opportunities, and federal interests in the Puget Sound nearshore ecosystem.	Identifies and implements restoration actions in Puget Sound nearshore ecosystems, including projects benefitting riparian areas.		Nearshore restoration projects identified by PSNERP.	
Puget Sound Partnership	Regional	PSP	X	Chapter 90.71 RCW; Title 400 WAC	Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To restore and protect Puget Sound.	Coordinates between partners to implement an Action Agenda for Puget Sound recovery, including protection and restoration efforts involving riparian areas.	Local, state and federal agencies, tribes, citizens and nonprofits.		
Real Estate Excise Tax for Conservation Areas	Tax	DOR		RCW 82.46.070; Chapter 458-61A WAC	Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To protect and maintain conservation areas.	Provides for counties to impose an additional excise tax on each sale of real property (rate not to exceed 1% of selling price) exclusively for the acquisition and maintenance of conservation areas, which may include riparian habitat.	Counties (San Juan County is the only county to participate to date).	Acquisition and maintenance of conservation areas.	
Regional Fisheries Enhancement Groups	Technical Assistance / Support	WDFW		Chapter 77.95 RCW; Chapter 220-630 WAC	Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection. Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To enhance state salmon and steelhead resources, including riparian habitat.	Lead community development of restoration, education, and monitoring projects and maximize volunteer efforts and private donations toward the state's salmon recovery efforts.	14 regional fisheries enhancement groups, in partnership with state and local agencies, tribes, businesses, landowners and community members.	Salmon recovery projects including restoration, education and monitoring.	
Riparian Plant Propagation Program	Voluntary - New Program / Initiative	SCC		ESSB 5693 Sec. 307(8)	Grant program that provides funding for projects that have a substantial focus on riparian habitat improvement.	To implement riparian restoration projects.	Develop a riparian plant propagation program of native trees and shrubs to implement riparian restoration projects that meet riparian zone requirements established by WDFW guidance. Plants will be made available for free or at reduced cost to restoration projects.			
Rivers and Habitat Open Space Program	Voluntary - Easements	DNR		RCW 76.09.040; Chapter 222-23 WAC	Grant program that provides funding for land acquisition or easements that could include riparian habitat.	To acquire riparian open space and critical habitat for threatened and endangered species.	Acquires permanent forestland conservation easements on private forestland with critical habitat or unconfined channel migration zones.	Private forestland including critical areas or unconfined channel migration zones.		
Salmon Recovery / Puget Sound Acquisition Funding	Voluntary - Grants	RCO, PSP	X	Chapter 77.85 RCW; Title 420 WAC	Grant program that provides funding for projects that have a substantial focus on riparian habitat improvement. Grant program that provides funding for land acquisition or easements that could include riparian habitat.	To restore and protect salmon habitat, including riparian habitat.	Provides competitive grant opportunities for projects designed to restore and protect salmon habitat, including riparian habitat, per the goals and actions identified in regional salmon recovery plans and watershed-level strategies.	Local agencies, special purpose districts (e.g., Conservation Districts, port districts), state agencies, tribes, private landowners, nonprofit organizations and regional fisheries enhancement groups.	Salmon recovery projects include in-stream fish passage restoration, in-stream and floodplain habitat, upland riparian area revegetation, shoreline armoring removal, logjam installation, estuary restoration, pristine habitat acquisition and future project design completion.	The Governor's Salmon Recovery Office tracks and reports on salmon recovery progress in the biennial State of the Salmon in Watersheds report to the legislature.



Program / Initiative	Type	Lead State Agencies	Covered in Interviews	Authorizing Statutes and Regulations	Mechanism for Riparian Protection	Riparian Goals	Description	Regulated Communities / Program Participants	Regulated / Participating Activities	Monitoring and Enforcement
Salmon Recovery Funding Board	Voluntary - Grants	RCO, PSP	X	Chapter 77.85 RCW; Title 420 WAC	Grant program that provides funding for projects that have a substantial focus on riparian habitat improvement. Grant program that provides funding for land acquisition or easements that could include riparian habitat.	To achieve statewide and regional salmon recovery.	Administers the Salmon Recovery / Puget Sound Acquisition and Restoration Fund for salmon recovery projects, which may include protection or restoration of riparian habitat.	Salmon Recovery / Puget Sound Acquisition and Restoration Fund applicants.	Salmon recovery projects.	
Salmon Recovery Funding Program	Voluntary - New Program / Initiative	SCC	X	RCW 77.85.170	Grant program that provides funding for projects that have a substantial focus on riparian habitat improvement.	To encourage salmon habitat restoration on agricultural lands.	Offers grant funding opportunities to the state's Conservation Districts for riparian restoration projects with landowners and prioritizes projects in watersheds with critical salmon habitat needs.	Conservation Districts implementing riparian projects with landowners. Owners of land including riparian areas, with preference for lands within watersheds with critical salmon habitat needs.	Salmon habitat restoration projects.	
Shorelands and Environmental Assistance Program	Regulatory - Technical Assistance / Support - Voluntary	Ecology		RCW 90.58; WAC 173	Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection. Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To provide guidance for best management, technical assistance, and regulation to improve and protect the environment.	Administers several shoreline and coastal programs, including shoreline and coastal planning, natural hazards management, ocean management, wetlands and SEPA, among other programs that may involve protection, improvement or management of riparian areas. Develops Shoreline Master Program Guidelines to assist local governments in meeting the requirements of the Shoreline Management Act, which addresses shoreline buffers, setbacks and vegetation conservation.			
Shoreline Management Act	Regulatory	Ecology	X	Chapter 90.58 RCW; Chapters 173-18, 173-20, 173-22, 173-26, 173-27 WAC	Fulfillment of regulatory requirements must include protection of riparian areas.	To protect and manage all shorelines in the state, including adjacent riparian areas, to assure "no net loss" of ecological functions	Requires local governments to develop Shoreline Master Programs to regulate uses within shoreline jurisdiction, including requirements for the protection of critical areas containing riparian areas.	Local entities updating or reviewing Shoreline Master Programs.	Local plans regulate certain uses, development and modifications within shorelines (e.g., aquaculture, boating facilities, commercial and residential development, mining, shoreline stabilization, piers and docks), typically new activities.	Enforcement of local Shoreline Master Programs is largely locally led, but both Ecology and local government have authority to take enforcement action. Ecology has approval authority over local Shoreline Master Programs.
Snohomish Watershed Resilience Action Plan	Regional	DNR	X		Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To maximize work and investments to protect and restore salmon habitat at a watershed scale in a way that provides community benefits.	Comprehensive watershed-level plan to protect and restore aquatic habitat, forests and riparian habitat, revitalize urban forests and streams, engage communities and address climate change.	Tribes; watershed, regional and statewide salmon networks; federal, state and local government; environmental nonprofit organization; private sector and non-traditional salmon partners.		
State Environmental Policy Act	Regulatory	Ecology		Chapter 43.21C RCW; Chapter 197-11 WAC	Fulfillment of regulatory requirements may include protection of riparian areas.	To ensure potential environmental impacts are considered in agency actions.	Requires state and local agencies to conduct an environmental review before carrying out agency actions, approvals or proposals not specifically exempted. SEPA provides agencies the authority to impose conditions to mitigate significant adverse environmental impacts or deny projects with significant impacts that cannot be mitigated. Depending on the proposal, this may result in permit conditions to protect riparian areas such as buffers or other mitigation measures.	State and local governments.	State and local government decisions, including issuance of permits for private projects, constructing public facilities or adopting regulations, policies and plans. Subject to exemptions including, but not limited to, forest practices, sale of real property, cell towers, emergencies, minor new construction).	

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Statewide LiDAR Data Update	Technical Assistance / Support - New Program / Initiative	DNR		ESSB 5693 Sec. 310(35)	Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To refresh statewide LiDAR data	Collecting and refreshing statewide LiDAR data.			
Stormwater Financial Assistance Program	Voluntary - Grants	Ecology	X	RCW 70A.305.200	Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To reduce water quality impacts from urban infrastructure and development.	Funds facilities and activities that reduce stormwater impacts to water quality from urban infrastructure and development and may include projects with riparian benefits.	Local governments, port districts.	Stormwater facilities and activities, including projects to be included in a municipal stormwater permit.	Ecology requires applicants submit a project monitoring plan and may add conditions or increase monitoring. Ecology has authority to withhold funds, terminate the grant award, and deny or condition future awards for recipients who fail to meet the conditions in their financial agreement.
Streamflow Restoration Competitive Grants	Voluntary - Grants	Ecology	X	Chapter 90.94 RCW; Chapter 173-566 WAC	Ancillary benefits to riparian habitat through programs focused on intended and enumerated outcomes (benefits may include water quality, stormwater, pesticides, floodplains, flood control).	To enhance streamflow.	Provides grant funding for projects enhancing streamflow, including watershed function, riparian and fish habitat improvements.	Tribal, state, and local governments and nonprofit organizations.	Streamflow restoration projects, including water right acquisitions, water storage projects, altered water management or infrastructure, environmental monitoring, feasibility studies and watershed function, riparian and fish habitat improvements.	Environmental monitoring is eligible for funding. Where projects involve monitoring, data must be submitted to Ecology.
Sustainable Farms and Fields	Voluntary - New Program / Initiative	SCC	X	RCW 89.08.615	Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To encourage farmers and ranchers to implement climate-smart practices and projects that increase carbon sequestration and reduce greenhouse gas emissions.	Provides grant funding opportunities to Conservation Districts and other public entities to encourage farmers and ranchers to implement climate-smart practices and projects that increase carbon sequestration and reduce greenhouse gas emissions and may fund projects that benefit riparian areas by installing buffers and planting vegetation.	Public entities with expertise to provide technical assistance and/or capacity to implement climate-smart practices, including Conservation Districts, state agencies, colleges, universities and extension offices, tribes, local governments and special purpose districts. Agricultural landowners or operators.	Climate-smart best management practices, technical assistance, supplies and shared equipment.	SCC, WSDA, or the Washington State University may monitor results of projects, including collecting soil samples.
Voluntary Clean Water Guidance for Agriculture	Voluntary - New Program / Initiative	Ecology	X	33 U.S.C. §1251 et seq.; Chapter 90.48 RCW; Chapters 173-200, 173-201A WAC	Develops scientific guidance and/or provides technical expertise regarding riparian habitat protection.	To provide technical resources to agricultural producers on best management practices to protect water quality.	Providing recommended best management practices for agricultural producers to meet state water quality standards, including practices to establish riparian buffers. Agricultural operations following the guidance will be presumed to be adequately protecting water quality.	Agricultural operators.	Agricultural activities.	
Voluntary Stewardship Program	Voluntary - Incentives	SCC	X	RCW 36.70A.700, et seq.; WAC 365-196-832	Grant program that provides funding for projects that have a substantial focus on riparian habitat improvement.	To protect and enhance state critical areas, including fish and wildlife habitats and wetlands containing riparian areas, where agricultural activities are conducted while maintaining and improving the long-term viability of agriculture and reducing conversion of farmland to other uses.	Provides counties the option to meet Growth Management Act requirements to protect critical areas on agricultural lands by developing local plans that use voluntary incentive-based tools, instead of regulations.	Participating counties (27 out of the 39 Washington counties). Local agricultural landowners in participating counties with approved workplans.	Agricultural activities.	Local VSP plans are evaluated by the SCC every five years and counties are required to take action if progress to meet benchmarks is not achieved. Potential consequences of failing to meet benchmarks include reverting to a regulatory approach. Counties are not required to implement VSP programs until adequate funding is provided.

Program / Initiative	Type	Lead State Agencies	Covered in Interviews	Authorizing Statutes and Regulations	Mechanism for Riparian Protection	Riparian Goals	Description	Regulated Communities / Program Participants	Regulated / Participating Activities	Monitoring and Enforcement
Washington Coastal Restoration and Resiliency Initiative	Regional	RCO	X		Grant program that provides funding for projects that have a substantial focus on riparian habitat improvement.	To protect and restore the natural processes that create and sustain Washington's coastal ecosystems and provide community resilience benefits.	Provides grant funding for protection and restoration projects in Washington's coastal areas that have a substantial focus on riparian habitat improvement.	Tribes, local governments, state and federal agencies, Conservation Districts, public or private corporations, regional fisheries enhancement groups, nonprofit organizations and special purpose districts.	Projects must address local economic growth through job creation and address high priority ecosystem protection or restoration needs, including water and land-based habitat restoration, habitat protection, invasive species treatment and education activities.	Projects must permit RCO access to the site for inspection, maintenance and monitoring. Projects must provide an Acquisition Stewardship Plan describing monitoring and maintenance.
Washington Conservation Corps	Technical Assistance / Support	Ecology	X	Chapter 43.220 RCW	Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To create future leaders through community involvement and mentorship.	Washington Conservation Corps members and staff perform work to restore critical habitats, including riparian and wetland restoration, build trails, and respond to local and national disasters.			
Washington Wildlife & Recreation Program – Farmland Program	Voluntary - Grants	RCO		Chapter 79A.15.060; Chapter 286-13 WAC	Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To protect agricultural lands and restore natural functions.	Provides funding for purchase of development rights on farmlands to ensure they remain available for farming in the future and to restore natural functions, including replanting riparian areas, to improve the land's viability for farming.	Local governments, environmental nonprofit organizations, SCC.	Acquisition of a conservation easement on farmland, habitat enhancement or restoration, and stewardship plans.	Projects must permit RCO access to the site for inspection and monitoring.
Washington Wildlife & Recreation Program – Forest Program	Voluntary - Grants	RCO		Chapter 79A.15.060; Chapter 286-13 WAC	Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To protect forestlands and restore natural functions.	Provides funding for the purchase or lease of conservation easements and to restore habitat, including replanting riparian areas among other restoration activities.	Local governments, environmental nonprofit organizations, SCC.	Acquisition of a conservation easements on forestland, and habitat enhancement or restoration.	Projects must permit RCO access to the site for inspection and monitoring.
Wastewater Management Program - On-Site Septic Systems	Regulatory	DOH		Chapters 70A.110, 43.20, 70.05 RCW; Chapter 246-272A WAC	Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To provide for the safe treatment and dispersion of domestic, non-industrial wastewater in areas not served by municipal sewage treatment works.	Regulates on-site septic systems, including those near or within riparian areas, to protect public health and prevent discharge to state waters. Local Health Jurisdiction codes must be consistent with state on-site septic system rules.	Homeowners with on-site septic systems.		DOH may take enforcement action where a Local Health Jurisdiction fails to regulate on-site septic systems in compliance with state law. Ecology may take enforcement action where there is a discharge to state waters.
Water Quality Combined Funding Program	Voluntary - Grants	Ecology	X	33 U.S.C. §1251 et seq.; Chapters 70A.135, 90.48, 90.50A RCW; Chapters 173-95A, 173-98 WAC	Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To benefit water quality, including through protection and improvement of riparian habitat.	Combines multiple state and federal clean water funding sources and provides an annual single-application process to apply for funding for projects that benefit water quality. Stream and riparian habitat restoration and buffers are eligible projects. Water quality grants include minimum buffer width requirements based on recommendation by NOAA Fisheries.	Depending on funding source, eligible applicants include Conservation Districts; counties, cities and towns; tribes; institutions of higher education (if the project is not a statutory responsibility); irrigation districts; local health jurisdictions; nonprofit organizations; port districts; quasi-municipal corporations; and sewer districts.	Depending on the funding source, eligible projects include, among other categories, wastewater facilities, reclaimed water and reuse, on-site and large sewage systems, stormwater facilities, stormwater management plans, nonpoint pollution source activities, agricultural best management practices, land acquisitions, pollution identification and correction programs, restoration planning and implementation, water quality monitoring and watershed planning.	Ecology requires applicants submit a project monitoring plan and may add conditions or increase monitoring. Ecology has authority to withhold funds, terminate the grant award, and deny or condition future awards for recipients who fail to meet the conditions in their financial agreement.
Water Quality Program	Regulatory	Ecology	X	33 U.S.C. §1251 et seq.; Chapter 90.48 RCW; Title 173 WAC	Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To prevent and reduce water pollution and protect and restore water quality.	Administers several water quality programs, including water quality permitting, regulation of nonpoint source pollution and stormwater, wastewater regulation, state 303(d) assessment, and Total Maximum Daily Load processes, among other items.			

Program / Initiative	Type	Lead State Agencies	Covered in Interviews	Authorizing Statutes and Regulations	Mechanism for Riparian Protection	Riparian Goals	Description	Regulated Communities / Program Participants	Regulated / Participating Activities	Monitoring and Enforcement
Water Resources Program	Regulatory	Ecology		Chapter 90.42 RCW; Chapter 173-500 WAC	Ancillary benefits to riparian habitat through programs focused on other outcomes (e.g., water quality, stormwater, pesticides, floodplains, flood control).	To meet present and future water needs of people and the environment.	Administers several water resource management activities, including authorizing water rights, performing adjudications, regulation of wells, and watershed planning for streamflow restoration. Also, establishes instream flow rules, regulates dams and permits water recovery solutions.			
Wetlands Program	Regulatory	Ecology	X	33 U.S.C. §1251 et seq.; Chapter 90.48 RCW; Chapters 173-201A, 173-700 WAC	Fulfillment of regulatory requirements must include protection of riparian habitats.	To ensure "no net loss" in the amount and function of wetlands.	Protects wetlands through permitting of activities that may impact wetlands and requiring avoidance and minimization of impacts as well as mitigation for unavoidable impacts. Also, advises local governments on protection and management of wetlands, which are critical areas protected under the Growth Management Act and the Shoreline Management Act.	Developers or other applicants undertaking projects and activities with potential to impact wetlands.	Projects and activities, including development, with potential to impact wetlands.	Ecology has authority to take corrective actions to achieve compliance with wetlands protection, including through issuance of orders and penalties.

## APPENDIX B | Interview Guiding Questions

### Washington State Riparian Protection Programs

#### Guiding Interview Questions

1. What are the main goals and objectives of your program with respect to conservation or enhancement of riparian habitats?
  2. What standards does your program employ to define a healthy riparian habitat?
  3. What elements of riparian habitats/ecosystems does your program target?
  4. What does your program do/how is it administered? Please describe the activities undertaken to achieve the program objectives.
  5. How is your program funded?
  6. What is the scope of your program?
    - a. What geographic region(s) does your program cover?
    - b. What land ownership and/or land uses does it cover?
    - c. Are there any exemptions or exclusions?
    - d. What types of riparian habitats does it cover (e.g., mainstem rivers, smaller tributaries, etc.)?
    - e. Are there other parameters that define the scope of your program?
  7. How do you monitor and evaluate the effectiveness of your program? What metrics and data do you use (including both ecological and administrative endpoints)?
  8. Are there any reports, data, or other evaluations pertaining to the performance of your program that you can share with us?
  9. Does your program depend on or interact with any other riparian programs or regulations? Are you aware of any evaluations that have considered the effects of your program in a broader context/with other programs?
  10. What challenges or limitations have you encountered in meeting the goals of your program? Have you faced any issues related to monitoring the effectiveness of your program? Do you have any recommendations for improving the effectiveness of your program?
  11. Are there any current or future planned updates (i.e., guidance or rulemaking) related to your program that we should be aware of?
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