

Synthesis of the Shore Friendly Program (2019-2025)



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June 2026



ACKNOWLEDGEMENTS

This project has been funded wholly or in part by the United States Environmental Protection Agency under Assistance Agreement CE-01J97401-0 or CE-02J98701-0. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

The authors would like to thank Jenna Jewett (Washington Department of Fish and Wildlife) and Bob Warinner (Recreation and Conservation Office) for all of the data they compiled, questions they answered, comments they provided, and support they provided during the preparation of this report.

The authors would also like to thank all of the local Shore Friendly leads and the others listed below. Your thoughtful comments on earlier drafts of this report significantly improved the final product. The authors are responsible for any errors.

Tish Conway-Cranos (Washington Department of Fish and Wildlife)

Keith Estes (Pierce Conservation District)

Lisa Kaufman (Northwest Straits Foundation)

Christina Kereki (Kitsap County)

Matt Lurie (Washington Department of Fish and Wildlife / Habitat Strategic Initiative Lead)

Kelly McCaffrey (Washington Department of Fish and Wildlife)

Alex Mitchell (Puget Sound Partnership)

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Cover page photo credits (clockwise from upper left): Sydney Fishman, Aimee Kinney, Mason Conservation District, Sydney Fishman



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ACRONYMS AND ABBREVIATIONS

BRGAR	Bluff Recession GIS Analysis for Retreat
BRS GP	Beach Restoration Small Grants Program
CD	Conservation District
DAHP	Washington Department of Archaeology and Historic Preservation
EPA	U.S. Environmental Protection Agency
ESRP	Estuary and Salmon Restoration Program
FFFP	Family Forest Fish Passage Program
HRPP	Habitat Recovery Pilot Program
HSIL	Habitat Strategic Initiative Lead
LIO	Local Integrating Organizations
LO	Lead Organization
MART	Multi-Agency Review Team
MRC	Marine Resources Committee
MSDG	Marine Shoreline Design Guidelines
NEP	National Estuary Program
NFWF	National Fish and Wildlife Foundation
NTA	Near-Term Action
NWSF	Northwest Straits Foundation
PRISM	PRoject Information SysteM
PSAR	Puget Sound Restoration and Acquisition Program
PSNERP	Puget Sound Nearshore Ecosystem Restoration Project
PSP	Puget Sound Partnership
RCO	Washington Recreation and Conservation Office
RFE G	Regional Fisheries Enhancement Group
SAIS	Shoreline Armoring Implementation Strategy
SRFB	Salmon Recovery Funding Board
SHARP	Shoreline Armoring Reduction Project
SITC	Swinomish Indian Tribal Community
WDFW	Washington Department of Fish and Wildlife
WA DNR	Washington Department of Natural Resources
WSU	Washington State University

EXECUTIVE SUMMARY

Shore Friendly provides Puget Sound waterfront landowners with expert advice, technical assistance, and financial incentives to help them voluntarily choose alternatives to shoreline armor. This approach is complementary to regulatory approaches for managing shorelines because it can stimulate stewardship activities not required under law and provide a gentler approach for engaging with property owners.

This report describes and analyzes the first six years (2019-2025) of Shore Friendly as an established program within the Washington Department of Fish and Wildlife (WDFW). It was commissioned by the Puget Sound Partnership and WDFW's Estuary and Salmon Restoration Program (ESRP) Shore Friendly program to compile information from the six local programs, identify program successes and challenges, and provide program management recommendations for the current six-year iteration of Shore Friendly.

Section 1 covers Shore Friendly's early history, current program structure, and foundational social marketing framework to set the stage for content in later sections. Shore Friendly began in 2012 as a pilot effort funded through the National Estuary Program. In 2019, the Washington State Legislature appropriated funding from the state capital budget to ESRP to provide continued financial support for existing local Shore Friendly programs and to expand the program to all Puget Sound counties. Shore Friendly is currently administered by WDFW and the Washington Recreation and Conservation Office (RCO). After a 2019 regional competition, six applicants were selected for agreements to run local programs through 2025. Renewals and funding requests occur every two years, coinciding with the biennial state capital budget. Following a second competition in 2025, all six existing local programs are under agreement to continue their work through 2031.

Sections 2 and 3 provide a snapshot of what happened between 2019 and 2025, covering quantitative program outputs and a discussion of core local program activities. Despite the challenges associated with the Covid-19 pandemic, local programs hosted 92 workshops and events attended by over 1,500 people. They visited 1,381 properties to assess risks and offer advice, then provided follow-up site visits with technical experts for 364 properties. Approximately 46% of site visits occurred on unarmored properties, demonstrating a significant focus on armor avoidance and prevention. Project design assistance was provided to 65 landowners, and permitting assistance was provided to 34 landowners. Local programs completed 19 planting projects, 7 drainage projects, and 9 armor removal projects. An additional 20 projects (17 of which feature armor removal) originating from Shore Friendly recruitment and site assessment efforts were completed or are moving forward with support from other capital funding programs, and 13 more are in the application stage for 2027-2029 funding from other ESRP grant programs. Section 4 compiles information about cumulative Shore Friendly outputs since 2014.

Section 5 describes program outcomes and successes from 2019-2025, while Sections 6 and 7 identify barriers encountered at the local program and regional levels. Section 8 describes

recommendations in detail, while Section 9 summarizes recommendations for the audiences to whom these ideas are directed. Below we summarize some key findings organized by theme.

Program administration

As Shore Friendly successfully expanded to all twelve Puget Sound counties, the program benefited from having a WDFW program manager and RCO grant management staff to support regional coordination and learning, seek and secure additional funding for programmatic needs, facilitate access to shoreline science, and aid the adaptive management of program offerings. WDFW and RCO are not simply passive funders; the agencies are partners in the work and a source of leadership, guidance, and support to local leads.

Shore Friendly is funded with capital dollars. The restrictions on how these funds may be spent creates challenges for the type of work that is necessary to implement the program's vision. Education and outreach are crucial program elements that are not eligible for capital funding. The Habitat Strategic Initiative Lead funding program has continued to provide grant funding to continue outreach and strategic communications. Capital restoration outputs would not be possible without these non-capital investments because project implementation is the result of a series of steps beginning with outreach. These broader education efforts are needed to change attitudes, beliefs, and social norms about armoring. Preparation of grant application materials is another program element that is not eligible for capital funding, so local programs must find other ways to seek supplemental funding to advance implementation of larger restoration projects. This is important because, since 2019, local programs are increasingly leveraging funding from other sources to supplement the core ESRP capital funding for project implementation.

Another challenge associated with the transition to WDFW involved local program reporting. Local programs report progress using a few different mechanisms. RCO's Project Information Management System (PRISM) tracks work completed to ensure accountability; however, it is designed as a project management database for grant managers and not for tracking programs facilitated under single multi-year contracts. WDFW requires local programs to submit narrative reports and site visit tracking spreadsheets to support programmatic decisions. The authors observed discrepancies in the numbers reported via these different mechanisms and found that information about completed projects was difficult to locate. Some PRISM reporting metrics are not clearly defined and other metrics reported in iterations of the program prior to the WDFW-RCO administration are now combined or not included in PRISM. Program administrators should consider whether the lack of this information reduces their capacity to adjust program offerings and respond to questions from the Legislature, the Washington Office of Financial Management, the Shore Friendly Advisory Committee, or coordinating partners such as the Puget Sound Partnership. Local program staff changes, the multiple required reporting mechanisms, and a lack of clarity on what is specifically important to report leads to under-reporting of progress.

Local Shore Friendly programs are small operations, in terms of staff capacity, relative to the size of the portfolios they manage. Naturally, over the course of the six-year agreements local

programs dealt with staff turnover and other capacity constraints. Local programs implemented institutional processes and strengthened their partnerships to address these capacity challenges as best they could, though it has become clear that leads are approaching the ceiling of their capacity to deliver Shore Friendly outputs and advance projects with their current resources.

Project implementation

A core feature of the Shore Friendly model is delivering support to landowners at all phases of a shoreline project, from initial outreach to completed construction. Local programs are observing challenges with moving landowners through this project pipeline. Some factors are outside of Shore Friendly's control: part-time residents, the sale of properties, and landowners that change their mind or need to delay a project due to age, finances, or other reasons like conflicts with neighbors. Other factors are tied to the length of time it takes to bring a project from initial touchpoint to completed construction.

Permitting and cultural resources review: Shore Friendly leads have repeatedly identified perceived and actual barriers related to permitting that impact their ability to complete armor removal projects. In addition to frustration with long timelines, permitting agencies are sometimes unreceptive to needed “give and take” on projects (e.g., wing walls to avoid concerns about erosion impacts on neighboring properties). The Habitat Recovery Pilot Program helped to significantly reduce permitting timelines, complexity, and costs. The sunset of this program and lack of a permanent program to replace it is directly and negatively impacting Shore Friendly. Local program leads report that the tightening of regulations around new armor is making landowners consider alternatives more seriously, but the lack of a smoother permitting pathway for those alternatives means that Shore Friendly cannot capitalize on this opportunity to help persuade landowners.

In 2021, a state Executive Order resulted in new capacity and processes at RCO to more thoroughly implement a 2005 Executive Order requiring consideration of possible project impacts to cultural resources. The result was increased oversight for Shore Friendly vegetation and drainage projects. These changes extended project timelines, raised project costs, and deterred landowners from moving forward with these previously simple projects. Several programs have stopped offering project implementation support for vegetation and drainage projects as a result of cultural resources requirements.

Rising costs: Local program leads are observing rapidly rising project costs across all phases of projects—design, permitting/cultural resources review, materials, labor, and construction. Rising costs reduce the number of projects that Shore Friendly leads can support and exacerbate sticker shock for landowners considering projects. The small number of coastal engineering firms that can design shoreline restoration projects slows down project implementation and drives up costs. As mentioned earlier, local programs have responded by seeking project funding from other sources. But this introduces longer timelines and more complexity, increasing the risk that landowners will reconsider projects and strand past investments of Shore Friendly resources.

Program evaluation

Shore Friendly is more than a construction program. Armor removal, drainage, and vegetation projects can be easily quantified. But the full impact of program activities on unarmored parcels cannot be measured directly because no action can be a desired result. An ongoing challenge for the Shore Friendly program is determining the extent to which landowners are changing their long-term behaviors after receiving Shore Friendly outreach and incentives.

Shore Friendly leads recognize the critical role that landowner feedback plays in assessing program effectiveness and shaping their programming, but they struggle with low survey response rates. Taking a more personalized approach (e.g., personalized emails or phone calls) can improve response rates; this takes staff time but yields a lot of useful responses.

Managing Shore Friendly projects is an endeavor in relationship-building—meeting and building connections with landowners. From addressing concerned neighbors to explaining the intricacies of permitting, local Shore Friendly leads invest significant time into building relationships and trust with shoreline residents, assuaging their fears, and guiding them through complex restoration processes. This effort is hard to quantify; leads are not documenting every phone call, late-night email, or casual swing by a landowner’s property to maintain these relationships. Yet these efforts are what set Shore Friendly apart from other funding programs and open up restoration opportunities that otherwise could go untapped.

Sea level rise

Maintaining the unarmored status of parcels is especially critical, and especially challenging, in the face of rising sea levels and intensifying coastal hazards. Shore Friendly leads across Puget Sound have reported an uptick in questions, concerns, and desire for action from landowners. While it is a positive development that landowners are more open to hearing about sea level rise adaptation, there is a significant risk that the fear of (and actual experience of) intensifying coastal hazards will push some landowners toward armor. An increasing sense of urgency felt by landowners may also increase frustration with long Shore Friendly project timelines.

Shore Friendly leads are responding proactively to landowners’ concerns. Communications and workshops focusing on sea level rise and adaptation topics like home relocation became more common compared to the pre-2019 era. Leads are eager to continue expanding their focus on sea level rise and to collaborate with partners around the region on this pressing and complex issue.

Recommendations

Section 8 provides 41 recommendations stemming from this synthesis to address the wide range of barriers faced by Shore Friendly in the current six-year grant period (2025-2031). Intended audiences for these recommendations are summarized in the following table, which is also provided in Section 9.

Category	Recommendation	Potential Implementer(s) of Shore Friendly recommendations				
		Local Shore Friendly programs	Regional Shore Friendly program	Broader WDFW	Broader RCO	WA State Legislature
Metrics and tracking (Section 8.1)	Provide better training and guidance to leads on how to report metrics in PRISM. (8.1a)	X	X			
	Standardize deliverable naming conventions and attachment types. (8.1b)	X	X			
	Communicate how leads should track Climate Commitment Act versus ESRP capital-funded work under their 2025-2031 agreements. (8.1c)	X	X			
	Develop a standardized method for tracking projects that originated in Shore Friendly but are completed with outside funds. (8.1d)	X	X			
	Rework key metrics to more finely capture the work being performed. (8.1e)	X	X			
	Develop and implement a standardized project fact sheet to document completed armor removal projects. (8.1f)	X	X			
	Consider a programmatic investment to improve user experience and user interface for tracking Shore Friendly activities. (8.1g)	X	X	X		
Landowner recruitment (Section 8.2)	Continue to use available data, and collect additional data when needed, to prioritize parcels for outreach. (8.2a)	X				
	Use results from the WDFW Residential Shoreline Social Survey Report to improve outreach and recruitment offerings. (8.2b)	X	X			

Category	Recommendation	Potential Implementer(s) of Shore Friendly recommendations				
		Local Shore Friendly programs	Regional Shore Friendly program	Broader WDFW	Broader RCO	WA State Legislature
Landowner recruitment (Section 8.2)	Leverage completed Shore Friendly residential projects for outreach. (8.2c)	X	X	X		
	Continue expanding awareness of the Shore Friendly program and Shore Friendly resources with influencers. (8.2d)	X	X			
	Increase focus on recruitment for reach-scale projects. (8.2e)	X	X			
Incentives (Section 8.3)	Consider applying lessons learned about successful implementation incentives across Shore Friendly programs. (8.3a)	X				
	Use results from the Shoreline Revolving Loan Feasibility Study and the WDFW Residential Shoreline Social Survey Report to improve financial and technical assistance incentives. (8.3b)	X	X			
	Advance technical assistance and design guidelines to help make the cost for armor removal and shoreline restoration comparable to the cost of bulkhead replacement. (8.3c)	X	X	X		
	Explore implementing a program-wide cap on design costs. (8.3d)	X	X	X	X	
	Conduct research on the appropriate level of financial contributions from landowners to Shore Friendly projects. (8.3e)		X	X	X	

Category	Recommendation	Potential Implementer(s) of Shore Friendly recommendations				
		Local Shore Friendly programs	Regional Shore Friendly program	Broader WDFW	Broader RCO	WA State Legislature
Permitting (Section 8.4)	Develop or modify tools, such as permitting checklists and communications products, and share these resources across Shore Friendly programs. (8.4a)	X	X			
	Continue early permit coordination efforts with local, state, and federal agencies and the MART. (8.4b)	X				
	Vocalize the need for a permanent state and local permit streamlining program for restoration projects. (8.4c)	X				
Cultural resources (Section 8.5)	Promote Shore Friendly incentives as tools for completing cultural resources studies. (8.5a)	X				
	Explore ways to streamline state agency processes and increase state agency capacity for cultural resources reviews. (8.5b)		X	X	X	X
Sea level rise (Section 8.6)	Incorporate sea level rise considerations into all Shore Friendly outreach and incentives. (8.6a)	X	X			
	Use available studies—and fill data gaps when necessary—to inform changes to Shore Friendly materials and incentives. (8.6b)	X	X			
	Commission research to rigorously explore landowner messaging on sea level rise. (8.6c)	X	X	X		X
	Support development of new financial tools that are outside of, but related to, Shore Friendly that advance climate and habitat resilience. (8.6d)	X	X	X	X	X

Category	Recommendation	Potential Implementer(s) of Shore Friendly recommendations				
		Local Shore Friendly programs	Regional Shore Friendly program	Broader WDFW	Broader RCO	WA State Legislature
Sea level rise	Collaborate with partner organizations to advance shared sea level rise resilience goals. (8.6e)	X	X	X	X	
Program evaluation (Section 8.7)	Continue measuring immediate landowner responses to outreach and incentives. (8.7a)	X				
	Increase efforts to measure impacts of outreach and incentives delivered under previous Shore Friendly agreements. (8.7b)	X	X			
	Leverage the landowners who shared their contact information in the WDFW Residential Shoreline Social Survey Report to conduct program evaluation. (8.7c)	X	X	X		
	Conduct a study to quantify armor avoidance rates on parcels that received Shore Friendly incentives. (8.7d)	X	X	X	X	X
Program advancement (Section 8.8)	Stabilize administrative funding for the WDFW and RCO Shore Friendly staff. (8.8a)			X	X	X
	Ensure local programs have sufficient capacity to run their programs. (8.8b)	X	X	X	X	X
	Secure operations funds to complement capital funds. (8.8c)		X	X	X	X
	Continue exploring whether ESRP is the right programmatic home for Shore Friendly. (8.8d)		X	X	X	
	Regularly update Manual 29 to capture key program resources, guidance, and decisions. (8.8e)	X	X			

Category	Recommendation	Potential Implementer(s) of Shore Friendly recommendations				
		Local Shore Friendly programs	Regional Shore Friendly program	Broader WDFW	Broader RCO	WA State Legislature
Program advancement (Section 8.8)	Invest in updating and centralizing Shore Friendly's online resources. (8.8f)	X	X	X	X	
	Determine and implement appropriate archival processes for Shore Friendly program administration materials. (8.8g)		X			
	Build partnerships with Tribes and local restoration groups to advance shared restoration goals. (8.8h)	X				
Program replication (Section 8.9)	Explore how the Shore Friendly model can be replicated for other geographies in a locally appropriate way. (8.9a)	This recommendation is relevant to audiences beyond the partners working on Shore Friendly, including the broader state agency family, potential public and private funders, and local implementation partners.				
	Explore how the Shore Friendly model can be replicated to address other climate hazards on Puget Sound shorelines and beyond. (8.9b)	This recommendation is relevant to audiences beyond the partners working on Shore Friendly, including the broader state agency family, potential public and private funders, and local implementation partners.				

1. INTRODUCTION

This report describes and analyzes the first six years (2019-2025) of Shore Friendly as an established program within the Washington Department of Fish and Wildlife (WDFW). It was commissioned by the Puget Sound Partnership (PSP) and WDFW's Estuary and Salmon Restoration Program (ESRP) to compile information from the six local programs, identify program successes and challenges, and provide program management recommendations for the current six-year iteration of Shore Friendly (2025-2031).

Section 1 covers Shore Friendly's early history, current program structure, and foundational social marketing framework to set the stage for content in later sections. Sections 2 and 3 provide a snapshot of what happened between 2019 and 2025, including program outputs and a discussion of core local program activities. Section 4 compiles information about cumulative Shore Friendly outputs since 2014, and Section 5 describes program outcomes and successes. Sections 6 and 7 identify barriers encountered at the local program and regional levels. Section 8 provides recommendations for the current six-year Shore Friendly grant period and Section 9 summarizes recommendations for the audiences to whom these ideas are directed.

Information sources reviewed and interpreted to develop this synthesis include local program narrative reports from the 2019-2021 and 2021-2023 biennia; final reports and metrics from the Washington Recreation and Conservation Office's (RCO) Project Information System (PRISM); Manual 29 (RCO 2025a); notes from discussions during monthly Shore Friendly leads meetings; information about 2014-2017 grant rounds from previous synthesis reports; and transcripts from interviews with program leads in Swarbrick (2023) and Blue Coast Engineering (2025).

The authors were provided with access to Shore Friendly program files on the WDFW Box cloud storage system, a spreadsheet from RCO with a summary of PRISM metrics for all of the local programs, and site visit tracking worksheets from each program. The funding and schedule for the contract under which this synthesis was prepared did not allow for interviews, but WDFW, RCO, and local program leads engaged with the authors during a May 2026 meeting. Quotes included in this report originated from local program narrative reports; interview transcripts from Swarbrick (2023) and Blue Coast Engineering (2025); and local program comments on the first draft of this report.

1.1 Genesis and evolution of Shore Friendly

Shoreline armoring is the dominant stressor to Puget Sound beaches (Simenstad et al. 2011). Constructing rigid structures to stabilize shorelines and manage erosion disrupts the sediment delivery and transport processes needed to maintain Puget Sound beaches (Johannessen and MacLennan 2007, Shipman 2010) and impacts the nearshore food web by modifying inputs of terrestrial organic matter to the intertidal zone, reducing the abundance of invertebrate taxa, and burying or degrading habitat for beach-spawning forage fishes (Fresh et al. 2011, Dethier et al. 2016, Penttila 2007). These effects reverberate through higher trophic levels, so protection

of unmodified beaches and restoration of armored beaches is an element of salmon and orca recovery plans.

The Puget Sound Nearshore Ecosystem Restoration Project (PSNERP) at WDFW and the Puget Sound National Estuary Program (NEP) coordinated by PSP recognized the importance of shoreline armor as a stressor and developed several strategies, indicators, and plans to reduce the prevalence of hardened shorelines; these are described later in call-out Boxes 1 and 2. A variety of approaches are used to achieve this goal. Large-scale armor removal projects on public lands, property acquisitions, and strengthening of regulatory programs to discourage hard armor have been and continue to be important ways to protect and restore Puget Sound beaches.

In 2012, an opportunity to develop a novel approach was recognized. Roughly 57% of Puget Sound's shoreline is comprised of small, residential parcels and about half are armored (Colehour + Cohen et al. 2014a). Since the condition of these shorelines is dependent on individual decisions made by almost 45,000 landowners, regional recovery partners utilized social marketing techniques to encourage landowners to voluntarily choose alternatives to hard armor. Exchange-based approaches like social marketing and incentives are complementary to regulatory approaches for managing shorelines because they can stimulate stewardship activities not required under law and provide a gentler approach for engaging with property owners (PSP 2015).

Social marketing applies traditional marketing principles to influence behavior in target audiences. It differs from traditional community outreach and education programs in that it focuses on identifying and addressing specific barriers to, and motivators for, desired actions (PSP 2015). A 2012 grant from the Marine and Nearshore Lead Organization (LO)¹ funded development of a social marketing campaign focused on reducing the amount of armor along Puget Sound shores. The result was Shore Friendly. Figure 1 illustrates the subsequent investments in Shore Friendly described below.

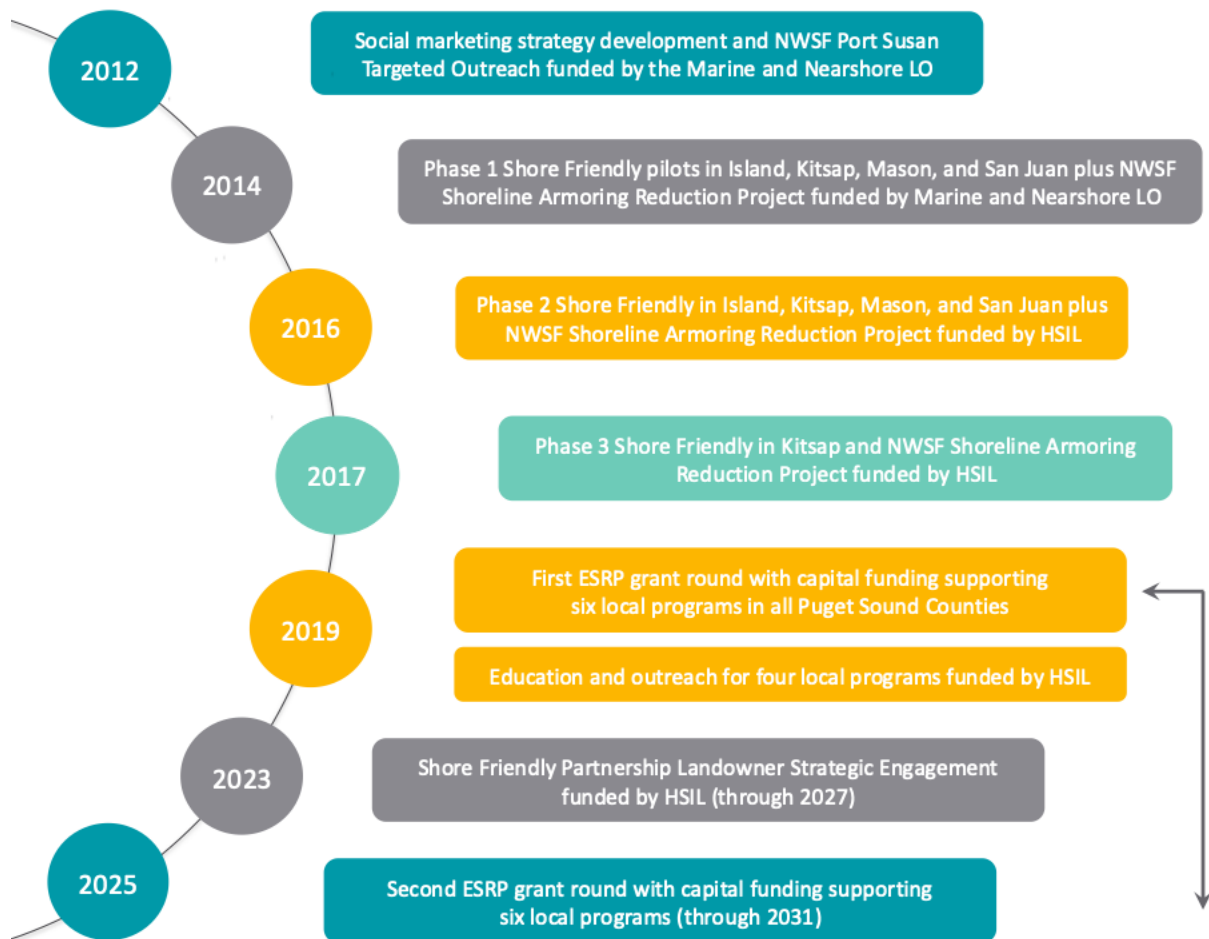
In 2014 and 2016, Marine and Nearshore LO grants supported pilot "Shore Friendly" branded campaigns in four counties (Kitsap, Mason, San Juan, and Island) plus the Northwest Straits Foundation's (NWSF) Shoreline Armoring Reduction Project (SHARP). In 2017, Habitat Strategic Initiative Lead (HSIL) funding continued this work with grants for Shore Friendly Kitsap and a rebranded SHARP program in the Northwest Straits region.

However, Puget Sound NEP and Geographic Funds are not intended for long-term support of existing programs. In 2019, the Washington State Legislature appropriated funding from the state capital budget to the Estuary and Salmon Restoration Program (ESRP) to provide

¹ The U.S. Environmental Protection Agency (EPA) NEP and Geographic Program funding to support Puget Sound recovery is disbursed at the state level by PSP and three cross-agency teams. The Marine and Nearshore Lead Organization was a partnership between WDFW and the Washington Department of Natural Resources (WA DNR). In 2016, the Lead Organization was replaced by the Habitat Strategic Initiative Lead (HSIL).

continued financial support for existing local Shore Friendly programs and to expand the program to all Puget Sound counties.

Figure 1. Shore Friendly timeline



This synthesis covers the awards associated with the horizontal arrow and the time period indicated with the vertical arrow. LO - Lead Organization, NWSF – Northwest Straits Foundation, HSIL - Habitat Strategic Initiative Lead.

The transition to state funding was a result of efforts by HSIL and PSP’s Ecosystem Coordination Board to find a home for Shore Friendly. The issue of shoreline armoring has been a focus for the Puget Sound NEP program since 2011, when a Shoreline Armoring Vital Sign was developed (Box 1). The Shoreline Armoring Implementation Strategy (SAIS) recognized early Shore Friendly program successes and highlighted the need to improve and expand incentives and education for residential property owners (HSIL 2021). Near-term priorities identified in the original 2018 SAIS included securing sustained funding for Shore Friendly to continue and expanding programs to all twelve Puget Sound counties.

Box 1. Vital Signs and the Action Agenda

After PSP was formed in 2007, they developed a portfolio of [Vital Signs](#) to report on and guide assessment of progress toward Puget Sound recovery goals. Each Vital Sign has one or more specific and measurable metrics, called indicators, that monitor trends in ecosystem conditions. Some of these indicators have quantitative, time-bound targets to improve specific ecosystem conditions.

The Shoreline Armoring Vital Sign was comprised of multiple indicators. One tracked net change in length of WDFW-permitted bulkheads or seawalls along Puget Sound marine shorelines. The indicator target was for the total miles of armor removed to exceed total miles of new armor between 2011 and 2020. Other indicators for this Vital Sign measured the use of soft shore protection techniques, removal of existing armor, and armor along feeder bluffs.

PSP completed revisions to the Vital Sign portfolio in 2022. Shoreline armoring is no longer a Vital Sign. It is now part of a new [Beaches and Marine Vegetation Vital Sign](#). Armoring-related indicators and targets for this Vital Sign and related Progress Indicators of human activity are under development.

The Puget Sound [Action Agenda](#) is the region's shared plan for advancing Puget Sound recovery. Implementation Strategies (IS) provide a more detailed road map for achieving targets articulated in the Action Agenda for key species/habitats or threats to them. [Healthy Shorelines](#) is one strategy in the 2022-2026 Action Agenda. Recommended actions for this strategy were derived from the Shoreline Armoring IS. Together, these plans represent an overarching vision and actionable steps to improving the condition of Puget Sound shorelines in pursuit of ecosystem and salmon recovery goals.

The 2022-2026 Action Agenda also included Program Targets to track and report on the accomplishments of regional recovery partners over a four-year period. WDFW had two Shore Friendly Program Targets during the time period covered in this report: number of new site visits and follow-up technical site visits to residential shoreline landowners.

The extent to which Shore Friendly performed relative to IS near-term priorities, Healthy Shorelines key opportunities, and Program Targets is discussed in Section 5.7.

More about the early history of the Shore Friendly program can be found in previous synthesis reports (Table 1). These reports summarize outputs and outcomes from previous Shore Friendly grants, document the program evolution that occurred in response to participant feedback and program evaluations, and provide recommendations for improving program monitoring and evaluation.

Table 1. Previous synthesis reports

Report	Description
Kinney et al. (2015) “Analysis of Effective Regulation and Stewardship Findings”	Covered 14 projects funded by the Marine and Nearshore Grant Program between 2011 and 2013 including: • 2012-2014: Social Marketing Strategy to Reduce Shoreline Armoring (Colehour + Cohen, Social Marketing Services, Futurewise, Coastal Geologic Services, and Applied Research Northwest) • 2012-2014: Targeted Outreach to Reduce Impacts from Shore Hardening in the Port Susan Marine Stewardship Area (Northwest Straits Foundation, Coastal Geologic Services, EE Outcomes Consulting, Island and Snohomish Counties and MRCs) • 2014-2014: Incentives to Help Meet Priority Shoreline Restoration and Protection Objectives (Futurewise)
Kinney and Francis (2019) “Analysis of 2016-2019 Shoreline Armoring Investments”	Covered 12 projects funded by the Marine and Nearshore Grant Program between 2014 and 2017 including: • Shore Friendly in the San Juans (San Juan County, Friends of the San Juans, and San Juan Island Conservation District) – Phase 1 (2014-2017) and Phase 2 (2017-2019) • Landowner Incentives to Reduce Shoreline Armoring in Island County (Island County) – Phase 1 (2014-2016) and Phase 2 (2017-2019) • Social Marketing Campaign to Reduce Shoreline Armor through Incentives (Kitsap County, WSU Kitsap Extension, Futurewise, and Washington Sea Grant) – Phase 1 (2014-2016) and Phase 2 (2016-2019) • Shore Friendly Mason (Mason Conservation District) – Phase 1 (2014-2016) and Phase 2 (2016-2019) • Landowner Incentives to Reduce Shoreline Armoring (Northwest Straits Foundation) – Phase 1 (2014-2016) and Phase 2 (2016-2019)
Swarbrick (2023) “Shore Friendly: A Developmental Evaluation”	Conducted interviews with Shore Friendly local program leads to identify key evaluation themes and ways of improving program monitoring and evaluation. • Identified common responses across local programs pertaining to the themes of barriers to landowner implementation, opportunities for landowner implementation, program needs, desired program outcomes, and program evaluation. • Offered recommendations for embedding evaluation methods and processes into the Shore Friendly program.
Evrard et al. (2024) “Synthesis of Habitat Strategic Initiative Lead 2016-2023 Investments for Puget Sound Recovery”	Covered 97 projects funded by the Habitat Strategic Initiative Lead between 2016 and 2021 including: • Shoreline Armor Reduction Project (Northwest Straits Foundation) – Phase 3 (2017-2019) • Shore Friendly Kitsap (Kitsap County) – Phase 3 (2017-2020) • Education and outreach funding for ESRP Shore Friendly recipients with a 2018 Puget Sound Action Agenda Near Term Action, 2019-2022 (RCO, Pierce Conservation District, Kitsap County, King County, Northwest Straits Foundation, Friends of the San Juans)

1.2 Current Shore Friendly program structure

Shore Friendly has been jointly administered by WDFW and RCO since 2019, when the ESRP held the first regional grant competition to select leads for local Shore Friendly programs. Six applicants were selected for six-year agreements to continue three existing local Shore Friendly programs, expand one program, and create 2 new programs (Table 2). Renewals and funding requests occur every two years, coinciding with the biennial state capital budget. A second six-year grant round in 2025 has continued these programs through 2031.

Table 2. ESRP Shore Friendly awards 2019-2025

Local Program	Sponsor	PRISM #
Island County Shore Friendly Program	Island County	19-1702
Shore Friendly South Sound Initiative	Pierce Conservation District	19-1703
King County Shore Friendly Program	Mid Sound Fisheries Enhancement Group (originally King Conservation District)	19-1704
Swinomish Shore Friendly Program	Swinomish Indian Tribal Community	19-1705
Northwest Straits Shore Friendly Program	Northwest Straits Foundation	19-1706
Shore Friendly Kitsap	Kitsap County	19-1707

WDFW's regional Shore Friendly program manager provides programmatic and policy guidance, facilitates access to regional shoreline science leadership and support tools, manages grant rounds, provides legislative communications support, seeks and secures outside competitive funding opportunities, coordinates regional reporting, facilitates regular local program meetings, and provides trainings. RCO staff lead the legislative process to fund the program, administer the grant round process, execute and administer grant agreements, and manage local program reporting, deliverables, and invoicing. RCO also manages the HSIL award including sub-award management, billing and reporting. Figure 2 illustrates the current program structure.

As part of the ESRP investment plan, the Washington State Legislature appropriates funding from the state capital budget² via the ESRP investment plan to support local Shore Friendly program administration, landowner recruitment, site visits to provide landowners with expert advice, technical assistance for restoration project development (feasibility, design, and permitting), and restoration activities. Education and outreach efforts—a crucial part of the social marketing framework described in Section 1.3—are not eligible for capital funding.

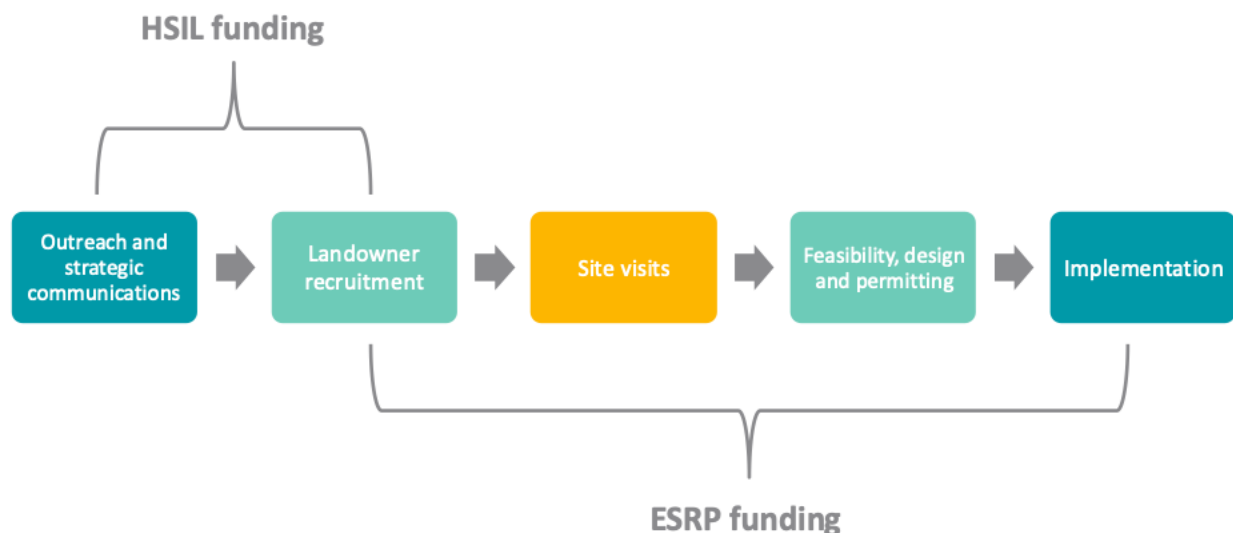
² Every two years, Washington's Legislature sets funding amounts for three separate state budgets: operating, transportation, and capital. The operating budget pays for day-to-day operations of state agencies. The [capital budget](#) includes appropriations for construction projects, including habitat conservation and restoration projects.

Figure 2. Current Shore Friendly program structure



Since the Shore Friendly “project pipeline” (Figure 3) begins with education and communications, HSIL has continued to provide grant funding to support this key program element. A 2019 HSIL interagency agreement with RCO provided funding for general education activities and a [Shore Friendly Living](#) video series. Outputs from this grant are summarized in Evrard et al. (2024); they are not included in this synthesis report. A second landowner strategic engagement agreement in 2023 was competitively awarded to provide additional HSIL funding for education and communications through 2027. The NWSF received funding from the Northwest Straits Commission/Skagit Marine Resources Committee (MRC) and Stillaguamish Tribe to further support video production and outreach training.

Figure 3. The Shore Friendly project pipeline and how program elements are funded



The success of ESRP’s Shore Friendly and Beach Restoration Small Grant Program (BRSGP) in achieving capital restoration outputs would not be possible without these non-capital investments because outreach and education build the pipeline for capital projects. Outreach and education help to establish trust, awareness, and motivation for behavior change. Broader education efforts are also needed to change attitudes, beliefs, and social norms about armoring. These shifts are foundational for changing behavior, which is the ultimate goal as Shore Friendly is more than a construction program. The critical importance of outreach and communication investments cannot be overstated; they are inextricably linked to project implementation.

Between 2019 and 2025, HSIL also funded a Multi-Agency Permitting Team (MART) effort to streamline permitting processes for restoration projects (Washington Department of Ecology et al. 2022), a Shore Friendly loan program feasibility study (Kinney et al. 2021), and a shoreline loan program coordinator position at WDFW to advance innovative financing tools for Shore Friendly projects. These and other projects that supported SAIS (HSIL 2021) priorities are described in Evrard et al. (2024).

Support from WDFW established a model of regional programmatic collaboration, resource sharing, and efficiencies that I haven't experienced elsewhere in 20 years of grant-funded habitat restoration work. WDFW tracked the big picture of funding, advocated for program needs, remained flexible and adaptive, and ensured that communication across the Puget Sound region didn't get dropped because individual programs were too busy. There is no way Shore Friendly would be where it is today without those key staff members who have been invested in this initiative.

- Shore Friendly South Sound Initiative

1.3 The social marketing framework

It is important to understand the Shore Friendly social marketing framework when considering program implementation to date and evolution over time. In 2012, the Marine and Nearshore LO funded a project team consisting of Colehour + Cohen, Applied Research Northwest, Social Marketing Services, Futurewise, and Coastal Geologic Services to develop a social marketing strategy for shoreline armoring. This work drew from the Beach Strategies framework and geodatabase developed as part of PSNERP (Box 2).

Box 2. Beach Strategies

The [Estuary and Salmon Restoration Program](#) was established in 2006 to advance process-based restoration using the [scientific foundation](#) developed by the [Puget Sound Nearshore Ecosystem Restoration Project](#) (PSNERP). Process-based restoration focuses on key natural processes that create and sustain nearshore habitat structure and function. This approach requires strategic identification of specific locations where there is the greatest potential for actions to re-establish degraded nearshore processes. Protection of functioning processes is also crucial.

PSNERP's Nearshore Science Team developed a [series of publications](#) between 2004 and 2007 and a nearshore geodatabase (Simenstad et al. 2011) to support a strategic approach for project development. The culmination of this effort was the Cereghino et al. (2012) strategies report, which identified sets of actions best suited to the level and cause of degradation in a given process unit. These were key inputs for the initial Shore Friendly parcel segmentation (step 1 below). PSNERP management recommendations provided the foundation for the more recent ESRP [Beach Strategies](#) framework and associated geodatabase, which has been updated as new and higher-resolution geospatial datasets became available.

There were four key steps in the social marketing strategy development process:

1. **Audience segmentation** – Audience segmentation is a marketing concept at the center of campaign development. Segments are subgroups within the target audience identified by common characteristics. The project team categorized all Puget Sound residential parcels into nine segments based on combinations of three shoreline conditions: armor status, erosion potential, and presence of a home. A geodatabase developed for the parcel segmentation integrated parcel information with geomorphic data (e.g., shoretype, exposure, erosion potential) and ESRP Beach Strategies metrics (see Box 2). Details can be found in Colehour + Cohen et al. (2014a); the parcel segmentation was later updated by Coastal Geologic Services (2020a). Table 3 provides a summary of the segments, their characteristics, and the number of parcels in each segment.
2. **Selecting and mapping target behaviors** – The project team worked with the Marine and Nearshore LO to identify behavior objectives and desired behaviors for each of the nine audience segments. Eleven behaviors were identified and evaluated according to their feasibility for the parcels and potential to address the LO’s ultimate goal of reducing the amount of hard armor along Puget Sound shorelines. The behaviors were sorted into two groups: primary behaviors directly related to armor removal and supporting behaviors which can reduce the actual and perceived need for armor installation. Most of the supporting behaviors are management actions described in the WDFW’s *Marine Shoreline Design Guidelines* (Johannessen et al. 2014). Detailed information on behavior identification and mapping process can be found in Colehour + Cohen et al. (2014b). Table 3 shows how all the potential behaviors were mapped to each audience segment.
3. **Audience research** – Avoiding assumptions and identifying unique barriers and motivators from the perspective of intended audiences are other concepts at the core of social marketing. The project team gathered information about waterfront landowners through parcel and voter registration data (e.g., occupancy, age, length of residence, market value); one-on one interviews with property owners and influencers³; a literature review; and an online survey about values and beliefs associated with shoreline property ownership, as well as their attitudes and beliefs about armor and armor removal (1,164 landowners responded). Results can be found in Colehour + Cohen et al. (2014c-g).
4. **Developing and testing the campaign** – The project team then used the audience research to define the structure of interventions to be employed, create message strategies, and draft creative concepts for implementation. The resulting incentive tools, messages, and branding were refined after three focus groups with 23 landowners who had completed the survey. An online survey of 32 influencers was also conducted to test marketing concepts. The last step was developing a how-to guide for campaign implementers and an evaluation plan. Products from this part of the project include Colehour + Cohen et al. (2014h-j).

³ Influencers are people who provide information to property owners when they are making shoreline modification decisions. They include: realtors, contractors, county permitting staff, and neighbors.

Table 3. Shore Friendly parcel segmentation (top grid) and potential behaviors (bottom grid)

Parcel segment	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6	Segment 7	Segment 8	Segment 9
Armor status	NO ARMOR				ARMOR				
Home on property	NO HOME		HOME		NO HOME		HOME		
Erosion potential	No	Low-Mod	No	Low-High	No	Low-High	No	Low-Mod	High
Number of parcels (2020)	732	3,513	2,457	14,848	119	1,738	1,128	19,778	675

Behavior objective	PRESERVE UNARMORED CONDITION				REMOVE ARMOR WITHOUT RISKING HOME/PROPERTY				
Leave shore unarmored	x	x	x	x					
Install soft shore on unarmored property	x	x	x	x					
Remove all armor					x	x	x	x	
Remove portion of armor						x		x	x
Replace armor with soft shore						x	x	x	
<i>Build further from shore than regulations allow</i>	x	x			x	x			
<i>Move home further from shoreline</i>				x				x	x
<i>Maintain or plant native vegetation</i>	x	x	x	x	x	x	x	x	x
<i>Address drainage reaching bluff</i>		x	x	x		x		x	x
<i>Obtain expert advice</i>	x	x	x	x	x	x	x	x	x

Adapted from Colehour + Cohen et al. (2014b), with updated parcel numbers from Coastal Geologic Services (2020a).
Primary behaviors are in **bold** and supporting behaviors are in *italics*.

The original Shore Friendly strategy grouped the segments into 3 distinct categories for implementation of interventions. These categories were based on the desired behavior change and common corresponding barriers and motivations.

- The first category was unarmored parcels in Segments 1-4. The primary behavior target is to leave the shore unarmored. In 2020, there were 21,550 parcels (47.9% of residential parcels) in this category. Initially, this category was a lower program priority because it was thought regulatory limitations addressed the primary behavior. However, subsequent compliance monitoring investigations have revealed that unpermitted armor installation occurs frequently (King County 2014, Windrope et al. 2016, Faulkner et al. 2018, Cook et al. 2019, King County 2019, Friends of the San Juans 2022, Herrera Environmental Consultants, Inc. 2024). Local programs have delivered substantial technical and project assistance to these segments, as described in Sections 2 and 3. Much of this project assistance encourages supporting behaviors like vegetation and drainage management. Another shift from the original strategy involves soft shore protection projects. They are not encouraged as a supporting behavior for properties in these segments.
- The second category was armored parcels in Segments 5-8. The primary behaviors are to remove all or a portion of their armor and/or to replace armor with soft shore protection if needed. In 2020, there were 22,763 parcels (50.6%) in this category. This category was initially identified as the top priority for social marketing efforts, but it was acknowledged that barriers for the desired behaviors are very high.
- The third category was armored parcels in Segment 9. These armored parcels have high erosion potential. In 2020, there were 675 parcels (1.5%) in this category. It was initially recommended that this segment be excluded from social marketing efforts because alternative shore protection techniques are likely to underperform, leading to negative word-of-mouth. The development of new target behaviors may expand options for reaching this category.

The 2014 social marketing strategy did not address sea level rise; at that time the project team felt that waterfront landowners were not yet ready for messages about emerging risks (A. MacLennan, pers. comm.). Since then, extreme water level events have become more common and local Shore Friendly programs report that they are hearing growing concern about coastal flooding and bluff retreat hazards associated with climate change. A 2021 feasibility study for development of a Shore Friendly loan program focused on two climate adaptation behaviors for the Shore Friendly toolbox: elevating homes to protect from coastal flooding and relocating homes to protect from bluff recession (Kinney et al. 2021).

As part of the feasibility study, Coastal Geologic Services (2020b) built on the Shore Friendly parcel segmentation to identify shores potentially exposed to flooding and bluff retreat. This analysis used shoretype as a proxy for hazard exposure. Coastal flooding risk was associated with low elevation shoretypes and retreat risk was associated with bluff shoretypes. A new “sub-segment” scheme was introduced to quantify the number of parcels potentially at risk of flooding or bluff erosion. Coastal Geologic Services (2020b) identified a total of 11,210 parcels as potential opportunities for elevation and 10,964 parcels as potential opportunities for

relocation. These target behaviors may provide an avenue to engage with Segment 9 landowners and make other landowners more comfortable with armor removal as an option for their property.

Further discussion of sea level rise and other coastal hazards as an emerging issue for Shore Friendly is provided in Section 7.3.2. WDFW's shoreline loan program coordinator was able to obtain a National Fish and Wildlife Foundation (NFWF) grant that funded a new survey of waterfront landowners conducted in 2025 (discussed further in Section 6.3.3). Perceptions about sea level rise and interest in adaptation behaviors were included in this survey.

2. SUMMARY OF 2019-2025 OUTPUTS

2.1 Quantitative metrics

Table 4 summarizes data reported by local Shore Friendly programs in narrative reports, PRISM, and PSP Program Target reporting. When numbers conflicted or a metric was not reported, local program leads were consulted to ensure accuracy or obtain missing information. However, only half of the programs responded to our request to review a draft version of Table 4, so some numbers are not confirmed. The activities tracked generally correspond to the project pipeline depicted in Figure 2. Project implementation is the result of a series of steps beginning with landowner recruitment, site assessment, feasibility and design services, permitting assistance, financial support, and construction assistance. Narrative descriptions and discussion of these activities are provided in Section 3.

However, Shore Friendly is more than a construction program. Armor removal projects on parcels in Segments 5-8 are easily quantified. Projects involving supporting behaviors like drainage improvement and native plantings on unarmored parcels can also be quantified. However, the full impact of program activities in Segments 1-4 cannot be measured directly. For the *preserve unarmored condition behavior* objective, no action can be a desired result. Site visit reports are a valid program endpoint because they provide expert advice and recommendations that can alleviate landowner concerns about erosion.

When reviewing Table 4, keep in mind that each local Shore Friendly program has a unique scope of work, based on their proposal and award amount. This was expected; Colehour + Cohen et al. (2014i) intended for local programs to differ based on community needs. Also, the number of residential parcels within the service areas of the different programs varies significantly—from 222 for the Swinomish Indian Tribal Community (SITC) program to 14,774 for the NWSF program. The NWSF offered workshops on behalf of the SITC program. Some programs were already established in 2019, while others were building new programs.

Table 4. Local program outputs attributable to ESRP Shore Friendly funding (2019-2025)

	Total	Island	South Sound	King	Swinomish	NW Straits	Kitsap
Landowner contacts ⁽¹⁾	49,309	1,500	5,947	2,692	600	33,451	5,119
Workshops/events	92	6	36	17	0	24	9
Workshop/event participants	1,530	180	432	217	0	518	183
Initial site visits	1,381	189	384	82	76	494	156
Follow-up technical site visits	364	15	143	23	57	78	48
Site visit reports	>142	Not reported	Not reported	24	53	Not reported	65
Landowners receiving design cost-share or assistance	65	14	14	5	4	24	4
Landowners receiving permit cost-share or assistance	34	14	5	2	1	6	6
Planting plans	>37	Not reported	Not reported	Not reported	24	13	Not reported
Drainage plans	>3	1	Not reported	Not reported	Not reported	2	Not reported
Armor removal feasibility studies ⁽²⁾	62	3	30	12	0	12	5
Armor removal conceptual design ⁽³⁾	20	3	10	5	0	2	0
Armor removal preliminary design ⁽⁴⁾	19	2	8	2	1	3	3
Armor removal final designs	10	1	5	1	0	3	0
Completed planting projects ⁽⁵⁾	19	6	4	0	4	5	0
Completed drainage projects	7	1	2	0	3	1	0
Linear feet enhanced ⁽⁵⁾	>1,278	508	770	0	Not reported	Not reported	0
Acres enhanced ⁽⁵⁾	>4.86	Not reported	4.36	0	Not reported	0.5	0
Completed armor removal projects	9	1	3	1	0	3	1
Linear feet restored	>580	30	390	80	0	Not reported	80

Notes:

Color bands correspond to the project pipeline phases: landowner recruitment; site visits, feasibility, design, and permitting; and project implementation

(1) Contacts = mailings, emails, calls, requests for information outside of workshops

(2) Armor removal feasibility studies include a mix of scoping reports, site surveys and geotechnical, environmental, and cultural resources assessments

(3) Leads report that there is not much of a distinction between conceptual design and preliminary design reporting metrics

(4) 30% engineering design ready for permitting

(5) Native vegetation establishment and/or invasive species removal not in conjunction with armor removal



Shore Friendly isn't a classic construction program. The combination of investment in preventative actions and restoration projects makes Shore Friendly unique and critical. The inherent value in proactive stewardship to avoid new armor is far more cost-effective than construction projects to reverse impacts down the line.
- Shore Friendly South Sound Initiative

2.2 Restoration projects originating from Shore Friendly

In addition to the projects captured in Table 4, there are 17 other restoration projects involving armor removal and 3 other acquisition or restoration projects that originated from Shore Friendly recruitment and site assessment efforts but were completed (Table 5) or are moving forward (Table 6) with support from other capital funding programs for additional design, permitting, and construction. Collectively these projects are expected to result in at least 4,289 linear feet (0.81 mile) of armor removal. An additional 13 projects are in the application stage for 2027-2029 ESRP funding through the Beach Restoration Small Grants Program (BRSGP).

Major funding sources for these originating projects include: the Puget Sound Restoration and Acquisition Program (PSAR), the Salmon Recovery Funding Board (SRFB), and ESRP BRSGP. An unknown number of projects have also received support from sources outside of the purview of RCO that are not tracked in PRISM. These sources include foundations (e.g., Rose Foundation, Kitsap Community Foundation), Pacific Marine and Estuarine Fish Habitat Partnership, Washington State Conservation Commission, U.S. Fish and Wildlife Service Coastal Program, Brian Abbott Fish Barrier Removal Board, and King County Flood Control District. Tribes have also funded and/or provided staff support for some projects.

Supplemental funding was sought when project construction costs exceed the Shore Friendly \$15,000 per residence limit for project cost share (this limit is now \$30,000). The cost for most of these projects exceeded \$100,000. Even motivated landowners are not willing or able to fund these projects on their own (Kaufman 2019). Preparation of grant application materials is a program element that is not eligible for capital funding, so local programs must find other ways to seek and secure supplemental funding from other programs.

Table 5. Projects originating from Shore Friendly (2019-2025) but funded by other programs – complete or underway/imminent

Sponsor	Project	PRISM Number	Funding Source	Linear feet of armor removed	Funding (Grant Award and Sponsor Match Total)	Status (June 2026)
Mid Sound Fisheries Enhancement Group	Rose Point Nearshore & Estuary Restoration	20-1016 20-1525	PSAR SRFB FFFPP ESRP BRS GP	770	\$1,986,026	Restoration complete
San Juan County Land Bank	Judd Cove Shoreline Enhancement Project	20-1505	PSAR	55	\$76,776	Restoration complete
Thurston Conservation District	Zangle Cove Bulkhead Removal	20-1517	SRFB BRS GP	195	\$113,073	Restoration complete
Mason Conservation District	Oyster Bay Shoreline Restoration Project - Kikuchi	20-1552	BRS GP	108	\$158,469	Restoration complete
Friends of the San Juans	Armor Removal at Shaw Island's Broken Point	20-1562	SRFB PSAR BRS GP	235	\$263,355	Restoration complete
Pierce Conservation District	Henderson Bay Armor Removal	22-1300	ESRP	500	\$504,155	Restoration complete
Mason Conservation District	Bulkhead Removal & Estuary Restoration, Case Inlet	22-1144	BRS GP	172	\$228,292	Restoration complete
Thurston Conservation District	Lower Eld Bulkhead Removal	22-1201	BRS GP	100	\$178,900	Restoration complete
Friends of the San Juans	Neck Point Pocket Beach Habitat Restoration	22-1421	PSAR ESRP	180	\$239,124	Restoration complete
San Juan Preservation Trust	North Shore Conservation Easement	22-1439	PSAR	n/a	\$3,628,115	Easement complete
Kitsap County	Dyes Inlet Lagoon Bulkhead Removal Project	24-1148	SRFB	514	\$410,085	Restoration imminent
Friends of the San Juans	Lower Cascade Creek Riparian Restoration Project	24-1657	SRFB	n/a	\$47,702	Restoration underway

TOTAL 2,829 \$7,834,072

Table 6. Projects originating from Shore Friendly seeking funding or funded by other programs – in planning, design, and/or permitting

Sponsor	Project	PRISM Number	Funding Source	Linear feet of armor proposed for removal	Funding (Grant Award and Sponsor Match Total)	Status (June 2026)
Mid Sound Fisheries Enhancement Group	Skunk Bay Armor Removal	22-1202	BRSGP	60	\$43,268	Closed incomplete
Northwest Straits Marine Conservation Foundation	Sorensen Shoreline Armor Removal Project	22-1418	SRFB BRSGP	160	\$320,000	Permitting
San Juan County Department of Environmental Stewardship	Weeks Point Way County Shoreline Restoration	23-1173	SRFB PSAR	60	\$100,513	Design review
Friends of the San Juans	Eastsound Waterfront Beach Restoration	23-1271	SRFB	450	\$176,504	Delayed due to landowner negotiations
Mid Sound Fisheries Enhancement Group	Battle Point Smith Armor Removal and Riparian	23-1842	BRSGP	100	\$258,083	Design and permitting
Northwest Straits Marine Conservation Foundation	Adelma Beach Bulkhead Removal and Restoration	23-1850	BRSGP	530	\$287,491	Design and permitting
Pierce Conservation District	Filucy Bay Shoreline Armor Removal	23-1890	BRSGP	100	\$214,286	Design and permitting
Friends of the San Juans	Davis Bay & Richardson Marsh Rest. & Resiliency	24-1656	PSAR	n/a	\$167,092	Planning
TOTAL				1,460	\$1,567,237	

2.3 Other program outputs

This section describes activities and products by WDFW and local programs that do not correspond to Shore Friendly project pipeline activities summarized in Table 4 and discussed Section 3.

2.3.1 Monthly lead meetings

Programmatic support from WDFW has allowed for increased regional collaboration and cross-sharing of knowledge between programs. Monthly Shore Friendly leads meetings facilitated by the Shore Friendly program manager include topics suggested by local programs as well as new regional collaboration opportunities. These meetings provide an opportunity for local programs to learn from one another, discuss challenges and problem solve, access shared resources, and develop a shared understanding of lessons learned. They also allow WDFW to identify cross-program efficiency opportunities.

2.3.2 Manual 29

WDFW and RCO developed Manual 29 (RCO 2025a), a Shore Friendly Grant Program Guidance document for local programs with information about program elements and eligibility, grant agreements and procedures, program deliverables and expectations, and a compilation of resources to support local program implementation. This manual, effective October 2025, is expected to result in more consistency across local programs and ensure compliance with program requirements.

2.3.3 Drainage guidance

WDFW partnered with local programs to complete the first phase of a synthesis of shoreline drainage practices to be included in future *Marine Shoreline Design Guidelines* updates. This synthesis supports the local leads in armor avoidance drainage projects for landowners. Future phases may include an additional review of drainage projects, a determination of best practices, and the development of communications materials and trainings for landowners, installers, and local planners.

2.3.4 Geographic prioritization

Most local programs utilize the parcel segmentation database, Beach Strategies Data Explorer, and other datasets to focus their landowner recruitment activities. Geographic and project prioritization is an eligible expense under the landowner recruitment task (RCO 2025a). By identifying parcels where armor prevention is critical and armor removal is most feasible, programs can allocate resources for maximum impact.

Some programs uploaded reports documenting this work to PRISM (Hagerty 2021, Blue Coast Engineering 2024), one uploaded the criteria used and tier structure for parcel prioritization (King), and others mentioned prioritization activities in narrative reports (Kitsap). This lack of reporting consistency made it difficult to determine what work had been completed.

The NWSF, which had prioritized shoreline reaches during earlier grants, commissioned an assessment to identify and prioritize bluff properties in four counties that may be good candidates for building relocation (Herrera Environmental Consultants, Inc. 2025). This pilot Bluff Recession GIS Analysis for Retreat (BRGAR) product is notable because it helps set the stage for informed discussions about adaptation to coastal hazards associated with sea level rise.

2.3.5 Restoration project monitoring

Several local programs monitor armor removal project sites before and after construction to assess project performance. Implementation monitoring is an eligible expense, but some local program leads also supplement with other funding sources. Standardized protocols from the [Shoreline Monitoring Toolbox](#), developed by Washington Sea Grant and the University of Washington School of Aquatic and Fisheries Sciences with funding from HSIL, are used by the NWSF and South Sound programs. A benefit of this approach is that resulting data can be uploaded for broader regional analysis. Shore Friendly Kitsap developed their own monitoring protocol (Coastal Geologic Services 2023). It uses standardized methods from the Shoreline Monitoring Toolbox as well as new methods based on the *Marine Shoreline Design Guidelines* (Johannessen et al. 2014). These new methods focused on increasing understanding about long-term project performance, gathering information about project maintenance needs, and improving project designs. During an engagement for this report, one local program lead indicated it would be helpful to have regional guidance on what local programs should be monitoring at their project sites.

3. DISCUSSION OF LOCAL PROGRAM ACTIVITIES 2019-2025

This section provides a narrative description of the program activities corresponding to the Shore Friendly project pipeline depicted in Figure 2.

3.1 Landowner recruitment

Local programs market their services through mailings, websites, social media, signage, workshops, and webinars. Landowner recruitment costs are capped at 15% of a local program's overall budget (RCO 2025a).

Programs use both general postcards and strategic mailings targeting specific properties. Programs use parcel segmentation data and geographic prioritization analyses (Section 2.3.4) to identify areas of high priority for armor removal project development and/or areas where technical assistance should be concentrated to protect habitat functions from modification. Some programs also send welcome packets to new owners when a shoreline property is sold. Many programs also receive a significant number of word-of-mouth referrals. This indicates that past participants and influencers view local programs as a trusted resource in their communities.

Virtual and in-person workshops typically cover local geology, coastal processes, habitat impacts of hard armor, vegetation management, drainage management, and permitting.

Popular formats include expert-led beach walks, tours of restoration sites, and sessions led by contractors (e.g., arborists). Content and workshops focusing on sea level rise and adaptation topics like home relocation became more common compared to the pre-2019 era. Since the Island and SITC programs are located within NWSF's geographic area, these programs coordinate on advertising and workshops.

The strong and ongoing response of landowners to outreach and education highlights the importance of continuing Shore Friendly programming across the region.

- Northwest Straits Shore Friendly Program

The Pierce, Thurston, and Kitsap programs have reduced their marketing efforts due to very high demand and limited capacity to take on more projects. When interest exceeds capacity, local programs communicate that the timeline for site visits and technical assistance is long in order to set realistic expectations.

There was notably less information about post-workshop surveys of attendees in PRISM project records compared to the deliverable files for earlier Marine and Nearshore LO and HSIL grants. Several program leads indicated they have stopped sending post-event surveys due to low response rates and funding limitations for communications. Providing paper copies of surveys and asking participants to fill them out before leaving and in-person event has been the only reliable way for programs to obtain structured feedback.

Results from earlier surveys document changes in participant awareness and understanding of coastal processes and the value of natural shorelines. This type of data is extremely valuable for assessing less tangible program outcomes like changes in beliefs and attitudes (see Section 7.2.2 for further discussion).

3.2 Site visits

All local programs offered on-site assessments to provide landowners with information about their property and management recommendations. The one-on-one engagement that occurs during site visits help to build relationships and increase homeowner confidence in management strategies that avoid hard armor.

The structure of this incentive varied among the local programs. Some programs have staff trained to conduct initial site visits; a follow-up visit by a consultant occurs only if a landowner seems likely to pursue a project or if complex issues like slope stability are identified. Other programs send a consultant for an initial property assessment. Some programs pre-screen site visit requests to assess property owner motivations.⁴ Other programs offer site visits to any

⁴ This is necessary because some landowners have no intention of changing their behavior. There have been reports of landowners using site visits or technical assistance products like geotechnical reports to justify armor installation or obtain feedback and validation for their completed projects.

shoreline landowner that requests one. Demand for site visits remains high. Several programs report a backlog of site visit requests.

After an initial site visit, some programs send a simple summary email or technical assistance memo that may include priority recommendations, long-term management suggestions, and handouts about their specific interests and needs. A more detailed technical site visit report would be provided after a second visit. If the initial site visit is conducted by a consultant, a technical site visit report may be provided to the landowner after the first visit. These memos and site visit reports are key program outputs that either move landowners forward on the project pipeline or make landowners more comfortable in the decision to leave their shore unarmored.

Homeowners I've met find vegetation such a digestible topic which opens the door to other 'harder to talk about' topics.

- Northwest Straits Shore Friendly Program

Armor prevention is a big part of Shore Friendly. Technical assistance to sites that don't yet have armor is critical, especially for new shoreline landowners after they experience an erosion event.

- Shore Friendly South Sound Initiative

Table 7 conveys the extent to which programs are working with landowners of armored versus unarmored properties, based on data provided in site visit worksheets. Partially armored properties are included in the armor line. This demonstrates the program's significant focus on armor avoidance and prevention.

Table 7. Percent of site visits to unarmored versus armored properties

Parcel status	Average	Island	South Sound	King	Swinomish	NW Straits	Kitsap
Unarmored	46%	63%	42%	23%	Not reported	65%	36%
Armored	54%	37%	58%	77%	Not reported	35%	64%

Some programs follow up with landowners 3-6 months after site visits both to check in about progress addressing recommendations and maintain the relationship with program participants.

Ongoing relationship means we continue to provide input on actions and therefore know they are taking action. They often call as they implement recommendations and new questions arise. For example: hiring contractors or an arborist, where to source native plants, how to deal with planting on slopes.

- Shore Friendly South Sound Initiative

There were discrepancies observed in the number of site visits reported in narrative reports, PRISM records, and PSP Program Target tracking. In some cases, the cause could be identified as an error in how numbers for the different biennia were entered into PRISM “Current Agreement” and “Final” columns (e.g., a cumulative total for the three biennia was not entered). Another potential cause was identified in Kinney and Francis (2019): the number of site visits may not reflect the total number of parcels visited if multiple neighbors participated in a single site visit.

Some programs uploaded their site visit worksheet logs and site visit reports to PRISM, but others did not. PRISM does not have a dedicated Project Attachment Type for site visit reports, so it was difficult to identify them in PRISM. File names and PRISM deliverable categories were not used consistently, both across and within programs. At least one program uploaded some site visit reports as a “Conceptual design” Attachment Type. Some programs may have specifically avoided uploading worksheets and site visit reports to PRISM to protect the privacy of their participants. These deliverables include landowner names and addresses. Most PRISM Project Attachments are viewable by the general public, unless RCO staff manually change a setting or create an attachment type that defaults to private.

There was also less information about post-site visit surveys in project records compared to the deliverable files for previously funded Marine and Nearshore LO and HSIL grants. Similar to post-workshop surveys, some programs have stopped sending post-site visit surveys due to lack of participating landowner responses and funding limitations for communications. The NWSF program has increased response rates with personalized emails and phone calls (Section 7.2.2). During an engagement for this report, local program leads indicated it would be helpful to have guidance about participant surveys to increase consistency across programs.

3.3 Feasibility, design, and permitting

Assessing sites for armor removal feasibility, then designing and permitting projects, is a long and complex process involving professionals from several disciplines. Developing planting plans and designing drainage projects also requires expert assistance and regulatory support. Local programs provided several types of technical assistance for landowners, including surveys,

geotechnical assessments, wetland and ordinary high water mark delineations, engineering designs, permitting assistance, and construction documents. These services are a major motivator for participants to move forward along the project pipeline.

Most programs hire and manage consultants to complete necessary project development work. Shore Friendly Kitsap provides financial support for landowners to hire consultants. Feasibility and design elements are not cost-limited (RCO 2025a). Program leads indicate that design costs have escalated very quickly, making it difficult for local programs to budget and meet demand for these services.

Navigating complex project permitting requirements is crucial for project success, and permit assistance is a program element highly valued by landowners. Regulatory requirements are a well-known barrier to restoration projects discussed in the SAIS (HSIL 2021). The Multi-Agency Review Team (MART) and Habitat Recovery Pilot Program (HRPP) were efforts that launched during this program period to streamline federal and state regulatory review processes. The MART was an HSIL-funded project to evaluate permit processes for restoration projects and identify ways to reduce permitting timelines for marine shoreline restoration projects. Their work resulted in an amendment to the Hydraulic Code ([RCW 77.55.480](#)) that created the HRPP and new dedicated staff positions focused on restoration project permitting.

The framework where all the permitting entities are organized externally to come together and review a project, versus program leads pulling people in to review a project in a piecemeal fashion, is a huge lift.

- Shore Friendly South Sound Initiative

Local programs reported that the MART and HRPP helped to significantly reduce permitting timelines, but unfortunately the HRPP expired in 2025 and bills to extend the program failed during the 2024 and 2025 Legislative sessions. PSP (2025) is continuing to explore opportunities for reappropriation. The MART is still operating and focuses on facilitating interagency coordination for permit review (PSP 2024).

A general increase in local program emphasis on project development for vegetation and drainage projects was observed during this period relative to the Marine and Nearshore LO and HSIL grant periods. This change may be associated with a general shift towards encouraging supporting behaviors in Segments 1-4, which represent 48.6% of the target audience. However, a new challenge has emerged for these types of projects.

Cultural resources review for vegetation and drainage projects received new emphasis during this agreement period. The 2021 Executive Order 21-02 (Office of the Governor of Washington State 2021) updated how state agencies using state funds consider possible impacts of projects to cultural resources under Executive Order 05-05 (Office of the Governor of Washington State 2005). After the 2021 order, agencies had an improved understanding of project review expectations from the Department of Archaeological and Historic Preservation (DAHP) and Tribes. Subsequent RCO capacity and process changes, combined with improved clarity on the

types of activities that required consultation, resulted in more of these types of projects undergoing cultural resources review. This change had significant impacts on the timing and cost of previously easy, low-cost Shore Friendly projects.⁵ RCO (2022) describes cultural resources survey requirements and provides information on cost, which can range from \$2,000 to \$50,000 depending on the scope of the project and the risk of presence of subsurface artifacts. Shorelines are generally considered high risk for culturally significant artifacts.

Cultural resources surveys can be cost-prohibitive for local programs, particularly relative to the cost of planting and drainage projects. In addition, the time needed to meet cultural resources review requirements can be very frustrating for landowners wanting to implement what they would consider a simple project.



Cultural resources
consumes all the
grant funding.
- Shore Friendly
Kitsap

Even when state funds are not provided for shoreline improvements on private property, cultural resources review often comes into play during local or State Environmental Policy Act permit requirements. Shore Friendly provides an opportunity to educate private landowners on Washington's rich cultural history and obligation to honor and respect those who inhabited our region before European colonization, and why it is necessary to notify and give opportunity for comments to Tribes and the DAHP of proposed actions before implementation. This issue is discussed further in Section 7.1.4.

PRISM includes two metrics for feasibility, design, and permitting activities: (1) landowners receiving design cost-share or assistance and (2) landowners receiving permit cost-share or assistance. This combination of technical assistance and financial incentive metrics is a departure from how outputs were reported for Marine and Nearshore LO and HSIL grants. Previously, programs reported on the number of landowners receiving financial incentives separately. Very little information about the amount of funding disbursed to landowners was available in PRISM and narrative reports.

Local program leads noted that the conceptual, preliminary, and final design categories in PRISM are not well-defined and that there is often overlap between conceptual and preliminary designs for armor removal projects. They also indicated that different consultants sometimes provide different products for similarly named deliverables. Guidance on what should be included for each phase could be helpful. These categories may also not be a good fit for drainage and planting projects; we obtained some information about planting and drainage plans from narrative reports because they were not included in PRISM wrap-up metrics.

⁵ This change did not impact armor removal projects to the same extent. Projects needing a federal Clean Water Act Section 404 permit are required to undergo National Historic Preservation Act Section 106 review.

There is also confusion among leads about whether cultural resources work should be reported as a feasibility task or a permitting task. PRISM allows either option, so a regional decision should be made and communicated to ensure consistency among local programs.

3.4 Implementation

Local Shore Friendly programs support landowners with armor removal, vegetation, and drainage project implementation by managing contracting and construction directly and/or with financial incentives. Local programs were allowed to contribute up to \$15,000 per residence for project implementation; this limit was increased to \$30,000 starting in 2025 (RCO 2025a).

Support for planting and invasive control projects is in-demand where it is offered. Shore Friendly Thurston piloted a “crew share” program in response to growing frustration about the difficulty of finding knowledgeable contractors to help with shoreline vegetation management. The landowner was responsible for purchasing plants using a Shore Friendly Thurston-generated planting plan, and Thurston Conservation District would provide up to four days of restoration crew labor to implement the planting and weed control. This support was extremely popular among landowners, but the cost of cultural resources surveys associated with the projects made the cost/benefit ratio unfavorable for the program.

During the 2014-2019 era, local programs expanded the use of financial incentives for project implementation (Kinney and Francis 2019). This trend has since shifted, and local programs are deemphasizing financial incentives for smaller projects. The cost and long timeline associated with cultural resources review is one factor for vegetation projects; the use of state funding triggers requirements that do not apply if a landowner implements a project without a financial incentive. Other factors noted by local program leads include the management burden on staff and long, process-intensive timelines for releasing funds or reimbursements that can cause landowner frustration.

Since 2019, there has also been a reduction in the number of armor removal projects implemented entirely by local programs. Local program leads have indicated that the high cost of construction means that the program cap is often not enough money to make a large enough difference in landowner costs to motivate them to implement a project. Instead of being implemented through local Shore Friendly programs with landowner contributions, larger projects now compete for implementation (and in some cases design/permitting) funding from other sources as described in Section 2.2. Earlier HSIL grants supported local program work to help landowners secure other sources of project funding. This is not allowed with capital funding and could be a barrier to implementation of originating projects with outside sources of money.

With respect to project implementation reporting in PRISM, acreage treated and miles treated were very difficult to assess. There appeared to be issues with the current period versus cumulative total across the three biennia, as occurred for site visit numbers. Also, miles

restored is an imprecise metric for parcel-scale projects; just about everything ends up being reported as 0.01 mile.

Very little information about the amount of funding disbursed to landowners was available in PRISM and narrative reports. There is no PRISM category for “Number of landowners receiving project implementation cost-share or assistance.” It is difficult to know if the lack of data on funding disbursed was a reporting issue or if no funding was disbursed. This was a departure from previous Marine and Nearshore LO and HSIL reporting and may affect ESRP’s ability to make decisions about how funding for incentives should be allocated and what program funding limits should be. Program administrators should consider whether the lack of this information reduces their capacity to respond to questions from the Legislature, the Washington Office of Financial Management, the Shore Friendly Advisory Committee, or coordinating partners such as PSP.

4. CUMULATIVE PROGRAM OUTPUTS

Table 8 provides data on cumulative Shore Friendly outputs since 2014. Data sources for the 2014-2020 grants are Kinney and Francis (2019) and Evrard et al. (2024), which were based on review of individual grant deliverables.

Table 8. Cumulative Shore Friendly outputs 2014-2025

Metric	LO and HSIL 2014-2020	WDFW and RCO 2019-2025	Cumulative Total
Workshops and events	35	92	127
Workshop participants	983	1,530	2,513
Preliminary site visits	297	1,381	1,678
Technical site visits	374	364	738
Design services	28	65	93
Permitting services	26	34	60
Completed planting projects	5	19	24
Completed drainage projects	20	7	27
Armor removal projects	22	9 ⁽¹⁾	31
Linear feet removed	1,467	>580	>2,047

(1) Does not include the 30 originating projects discussed in Section 2.2

5. SUMMARY OF 2019-2025 OUTCOMES AND SUCCESSES

5.1 Shore Friendly programming expanded Sound-wide and new program structure was established

The 2019-2025 agreements saw the expansion of Shore Friendly programming to all twelve counties in the Puget Sound region. To accomplish this expansion, several new Shore Friendly local programs established partnerships and collaboratives to accomplish their goals. This included the South Sound collaboration between Mason, Thurston, and Pierce Conservation Districts; the King County program led by King Conservation District and later Mid Sound Fisheries Enhancement Group; and the partnerships between the established Northwest Straits Foundation Shore Friendly program and Friends of the San Juans, and the Island County and Swinomish Indian Tribal Community programs.

In addition to collaboration within these formal partnerships, the 2019-2025 agreements saw effective regional coordination across Shore Friendly programs. Regional collaboration allows for sharing of resources, materials, and knowledge, and was identified as a recommendation in the Kinney and Francis (2019) analysis. One key example of regional collaboration is the monthly Shore Friendly leads meetings where all Shore Friendly leads gather to share updates on outreach events and implementation projects, and to seek advice on challenges they are facing. This monthly meeting was a new element added to the Shore Friendly program under ESRP. Shore Friendly leads have confirmed that these monthly calls are a helpful opportunity to hear what other programs are doing and to troubleshoot challenges together, and that new Shore Friendly programs found these calls especially helpful (Swarbrick 2023).

Notably, with Shore Friendly housed under ESRP, WDFW and RCO staff played a critical role in establishing the program structure and facilitating regional coordination. WDFW and RCO are not simply passive funders; the agencies are partners in the work and a source of guidance and support to local leads. WDFW and RCO's active involvement in the administrative, technical, and programmatic decision-making was a key to the success of Shore Friendly's expansion.

5.2 Holistic shoreline management approach was offered to landowners

The Shore Friendly model conceptualizes habitat health and restoration broadly, allowing landowners to see themselves as important, active participants in shoreline management and improvement. Human health and safety are key components of Shore Friendly messaging. While grounded in the need to protect and restore habitat processes, the program's foundation in social marketing ensures it is centered on people's needs and seeks to find the shared goals between people and habitat.

Furthermore, local programs are presenting a range of alternatives to landowners that vary in cost and complexity. Available incentives are scaled to support this range of options. Landowners can take initial steps toward improving their shorelines while continuing to mull over larger projects, all with support and guidance from knowledgeable local leads. Landowners

influence each other and build an interest and trust in armor alternatives at the community scale.

There is a growing sense of stewardship and environmental responsibility, with homeowners taking initiative to improve their shorelines. This cultural shift is evident in the increasing number of referrals through word-of-mouth and neighbors sharing postcard mailers. We have even heard anecdotes of neighbors exchanging technical management information they have learned through Shore Friendly, such as English ivy control methods, which is a testament to the program's success in fostering a community of engaged stewards.

- Swinomish Shore Friendly Program

5.3 Project pipeline supported landowners from start to finish

A core feature of the Shore Friendly model is delivering support (i.e., incentives) to landowners at all phases of a shoreline project (Figure 2), from initial outreach to completed construction. During the 2019-2025 agreements, local Shore Friendly programs used a variety of funding sources to offer the full suite of Shore Friendly incentives. State capital grant funding through ESRP provided the backbone of funding, while the HSIL award provided additional funds for broader outreach at the beginning stage of the pipeline. Additionally, several program host organizations applied for additional habitat recovery and restoration grants to fund construction projects that originated in the Shore Friendly pipeline (Tables 5 and 6). Shore Friendly programs demonstrated creativity and resourcefulness in leveraging additional funding to supplement the core capital funding for the program.

While on-the-ground construction and implementation is a major goal of the program, Shore Friendly leads consistently highlight outreach as a critical step in the pipeline to achieve this desired end state. Furthermore, outreach and education are important end goals in themselves, as they empower landowners to make more informed management decisions regardless of future participation in Shore Friendly. Outreach and education also build social expectations and norms around fostering ecosystem health and resilience.

The technical assistance incentives are equally important and well received. Shore Friendly programs across Puget Sound see consistently high levels of interest in site visits, property reports, and design and permitting services. As evidenced by the barriers highlighted in later sections, these intermediate steps in the pipeline can make or break projects. Shore Friendly technical assistance bridges the gap between initial landowner desire to make a change on their property and the actual implementation of that change.

It's great to always be able to provide technical assistance no matter the homeowner's situation. It has led to a lot of new connections between Shore Friendly and homeowners due to positive conversations happening between neighbors. We have gotten a lot of good feedback about the value of the technical assistance.

- Swinomish Shore Friendly Program

5.4 Armor avoidance received significant attention

Preventing the installation of new armor on currently unarmored properties is just as important to the Shore Friendly mission as the removal of existing armor. As demonstrated in the parcel segmentation study that underpins all Shore Friendly work, armor avoidance is a key behavior that is desired for several parcel segments (Colehour + Cohen et al. 2014b; Table 3).

Although armored properties were initially identified as the top priority for social marketing efforts (Section 1.3), there has been growing recognition of the cost-effectiveness of preventative action. This pivot is reflected in the allocation of Shore Friendly resources.

The 2019-2025 agreement period saw a significant investment of Shore Friendly resources and staff time into unarmored properties. For example, approximately 46% of site visits occurred on unarmored properties (Table 7). Additionally, local programs prepared more than 37 planting plans, implemented 19 planting projects, and implemented 7 drainage projects (Table 4).

As discussed in Section 7.2.2 below, a remaining barrier is tracking the long-term status of these properties to understand whether they are remaining unarmored. Local program leads note that ownership changes necessitate repeat visits on parcels over time to help maintain their unarmored status.

5.5 Outside funding was leveraged to amplify Shore Friendly work

As discussed in Section 5.3 and shown in Figure 2, Shore Friendly leads are working with landowners at all phases of potential projects. While some implementation is funded under the Shore Friendly ESRP awards, many projects originating in Shore Friendly are highly competitive for other grant programs (Section 2.2).

During the 2019-2025 agreements, an additional \$7,834,072 of external grant funding and sponsor match supported implementation or construction of protection and restoration projects that originated from local Shore Friendly site assessments (Table 5). During the 2019-2025 agreements, an additional \$1,567,237 of external grant funding and sponsor match was secured for projects to undergo planning, design, or permitting (Table 6). The total value of all Shore Friendly 2019-2025 ESRP agreements between WDFW and the local program leads was \$7,604,512 which was leveraged to secure an additional \$9,401,309 (Tables 5 and 6) for Puget Sound shoreline protection and restoration.

This trend is expected to continue. As of May 2026, 13 projects that originated in Shore Friendly have been invited to submit full proposals for 2027-2029 BRSGP funding.⁶ The total value of requested funding for these 13 projects is \$3,579,000. While it is unlikely that all projects will be funded, this demonstrates the high demand for funding to support Puget Sound restoration and the major role that local Shore Friendly programs play in identifying restoration opportunities and advancing restoration projects.

5.6 Agreements were adaptively managed

Successful programs learn and adapt as they mature, and this was the case for the Shore Friendly programs during the 2019-2025 agreements. Some local Shore Friendly programs had experience with running their programs, while the new Shore Friendly programs were establishing their own protocols and determining which incentives, programming, and processes under the Shore Friendly umbrella worked for their local needs. Learning, knowledge-sharing, and growth were promoted by the regional collaboration described in Section 5.1.

One area of adaptive management was the growth in focus on vegetation and drainage projects for unarmored shorelines. According to the Shore Friendly leads, these types of projects received increasing attention and support over the six-year agreements because they recognized the high levels of interest and need from landowners.

Shore Friendly financial incentives were another focus of adaptive management. Shore Friendly Kitsap found that the \$5000 financial incentives were insufficient to drive demand and meet landowner needs, so they increased the value to \$7000 and saw greater interest and success with landowners. Island County found that financial incentives were helpful, but people were not aware of them, so they focused additional efforts on promoting their financial incentives. Meanwhile, due to the reasons outlined in Section 3.4, the Shore Friendly South Sound Initiative decided to stop offering financial incentives for project implementation and instead focused on developing a crew-share program and seeking outside funding—to great success.

⁶ A total of 14 projects were invited for full proposal to BRSGP for the 2027-2029 funding round, meaning that all but one of the projects invited for full proposal originated in Shore Friendly.

As Shore Friendly matures, we need to retain the flexibility to adapt rather than becoming increasingly rigid in structure; that flexibility has been key to being able to understand which strategies work and which do not.

- Shore Friendly South Sound Initiative

These examples of adaptive management highlight a key feature of the regional success of Shore Friendly: within the overarching shared goals of armor avoidance and armor removal and the limitations of the ESRP agreements, local programs have the flexibility to run their programs as they see fit to best meet local conditions and needs. Therefore, it is no surprise that program offerings evolve as the leads better understand the Shore Friendly incentives, their local needs, and evolving conditions.

5.7 Regional plans, priorities, and targets were advanced

Table 9 illustrates how Shore Friendly efforts between 2019 and 2025 have advanced specific near-term priorities identified in the Shoreline Armoring Implementation Strategy (SAIS), as well as Program Targets from the 2022-2026 Action Agenda.

This work was consistent with several of the actions and key opportunities identified in the 2022-2026 Action Agenda [Healthy Shorelines Strategy](#), as they were derived from the SAIS. WDFW's work facilitating monthly meetings of local program leads and Washington Sea Grant's facilitation of the Shore Friendly Advisory Committee were particularly important in the context of the following key opportunity: *Increase coordination among regional and local partners to ensure that existing knowledge and resources are leveraged, and that related programs are funded appropriately for the long-term.*

The work of Shore Friendly is complementary to the work of Lead Entities for salmon recovery, as demonstrated by the success of some⁷ local programs in receiving SRFB and PSAR funds through the Lead Entity grant award process. Shore Friendly's work to identify and develop restoration projects extends the impact and reach of other Puget Sound recovery efforts and grant programs.

Shore Friendly also broadly advances several strategies in [WDFW's 25-Year Strategic Plan \(2020-2045\)](#). The program *proactively addresses conservation challenges* by supporting landowners to go above and beyond regulatory requirements, resulting in net ecological gain. Shore Friendly *engages communities through recreation and stewardship* by effectively communicating with residents and offering incentives. Local programs also *deliver science that*

⁷ Where salmon recovery plans do not emphasize marine shorelines, beach projects are less competitive for the purposes of threatened and endangered salmon recovery. In these areas, the ESRP BRSGP is especially important.

informs Washington's most pressing questions with science communication that results in greater use of WDFW science to affect conservation outcomes.

Table 9. Progress made towards regional priorities and targets

Priority or target	Progress or performance 2019-2025
Shoreline Armoring IS near-term priority: Secure sustained funding for incentive and outreach programs. Strategy goal was to identify a more stable funding source that can ensure program longevity.	• State-funded home at WDFW/RCO significantly reduced reliance on NEP grants. • Capital appropriations in 2019-2021, 2021-2023, 2023-2025, and 2025-2027 supported local program staff capacity and project funding. • WDFW funding supported regional program development and coordination. • Current 6-year agreements continue local programs through 2031.
Shoreline Armoring IS near-term priority: Continue and expand site visit programs to provide technical assistance. Strategy goal was to expand geographic coverage to include all 12 Puget Sound counties.	• Coverage for all 12 counties was achieved with expansion of Shore Friendly Mason to Thurston and Pierce counties and new programs at King Conservation District and the Swinomish Indian Tribal Community.
Shoreline Armoring IS near-term priority: Expand financial incentive alternatives available to property owners. Strategy goal was to expand existing mini-grant programs and identify other options to provide financial support	• All local programs included financial incentives in their toolbox. • ESRP Beach Restoration Small Grants Program enabled parcel-scale projects originating from Shore Friendly. • Local programs helped landowners secure other types of restoration grants.
Shoreline Armoring IS near-term priority: Support use of MSDG and develop additional guidance	• WDFW partnered with local programs to begin developing a synthesis of shoreline drainage practices to be include in future MSDG updates. This work supports local program efforts for armor avoidance.
Action Agenda Program Target: Collectively complete 914 initial site visits 2022-2026	• Local programs exceeded this target, with 1,079 site visits (PSP 2025).
Action Agenda Program Target: Collectively complete 331 follow-up site visits 2022-2026	• Local programs were below target, with 285 follow-up technical site visits. This was an accelerated target, but the additional Climate Commitment Act funding to support it was not available until 2025.

6. BARRIERS ADDRESSED AND LESSONS LEARNED

Throughout the 2019-2025 agreement period, local Shore Friendly programs encountered a variety of barriers to their work. This section provides an overview of those barriers that were successfully addressed during this agreement period.

6.1 Organizational and logistical barriers addressed

6.1.1 Time needed to ramp up work

While some Shore Friendly programs had existed under other grants prior to 2019, other programs were initiated in 2019 under ESRP. Like at the beginning of any new venture, these programs needed time to hire staff, become proficient in Shore Friendly history and concepts, develop materials, and build a base of landowners through outreach. Additionally, Shore Friendly outreach requires technical competence—program staff need to become proficient and confident in discussing nearshore geology, ecology, hazards, and more with landowners. These steps cannot be rushed or shortcut, though feedback from Shore Friendly leads confirms that the support and sharing between programs, and the support from WDFW and contracted consultants, were critical to making this learning period as efficient as possible.

To account for this ramp-up period, as well as the emerging barriers discussed in Section 7.1.1, WDFW and RCO were flexible with funding and allowed some carry-over between biennial awards under the 2019-2025 agreements. Looking ahead to the biennial awards under the 2025-2031 agreements, WDFW and RCO anticipate that local programs will use their experiences to more appropriately scale their anticipated program outputs. The expectation is that they will be able to fully spend each biennial award.

The program outputs detailed in Tables 4, 5, 6 and 8 demonstrate that all Shore Friendly programs across Puget Sound have successfully ramped up their work. Furthermore, the projects submitted for 2027-2029 ESRP funding (Section 5.5) show how earlier seeds planted through outreach are continuing to bear the fruit of tangible projects and reflect a continued (and increasing) investment from Washington State.

6.1.2 Covid-19 pandemic

Just as local programs were getting their feet under them, the Covid-19 pandemic upended the Shore Friendly model of incentive delivery. The pandemic halted in-person workshops and site visits, caused work stoppages, and created project delays. Additionally, some local programs saw budget and staffing cuts.

In the face of these challenges, local programs got creative. They focused their attention on delivering engaging virtual workshops, providing virtual site visits, improving their websites, and sharing Shore Friendly content through social media. This increased Shore Friendly's digital presence and put more tools in local leads' toolboxes. Even as in-person gatherings returned, local programs continued to benefit from their diversified programming and digital platforms they had cultivated out of necessity during the pandemic.

6.1.3 Staff capacity and lack of staff redundancy

Several local programs experienced staffing changes during the 2019-2025 agreement period. Shore Friendly programs are small operations without redundant capacity, so losing staff to new positions, organizational shifts, or budget cuts (see Section 6.1.2) meant that Shore Friendly outreach work and administrative work was delayed. Even in local programs that are set up as partnerships (e.g., King County Shore Friendly), the small size of each organization means that people are reliant on one another and one person's departure can disturb workflows. Additionally, there are external impacts from staff changes, as losing a Shore Friendly coordinator can hinder trust-building with landowners.

As the different leads experienced these pressures, they implemented internal changes to address them. Several organizations implemented better internal systems for tracking and documenting work. Recognizing that staffing changes are inevitable and work needs to be centrally and consistently documented, these systems made it easier for remaining staff to cover for the vacant position and for the new hire to get up to speed.

Additionally, Island County's challenges with having a part-time Shore Friendly coordinator made it clear that local programs need a full-time person to run the Shore Friendly program. The responsibilities cannot be added on to an existing role. For example, Island County found that financial incentives were not moving efficiently through the County's fiscal processes, causing delays to landowners. Having a full-time Shore Friendly lead to shepherd financial incentives through the various approval processes resulted in faster issuance to landowners.

These lessons demonstrate the importance of developing durable systems at local programs to prepare for inevitable staff turnover or leaves of absence and to ensure dedicated attention to Shore Friendly operations.

Island County has recognized that the in-depth work needed to foster, grow, and maximize program effectiveness necessitates a full-time, dedicated Shore Friendly Coordinator. The turnover experienced over the years when losing numerous part-time coordinators, along with the vacancies left and difficulties filling the position as part-time, was a huge detriment to program and project continuity, community trust, institutional knowledge, and document and file management.

- Island County Shore Friendly Program

6.2 Implementation barriers addressed

6.2.1 External grant funding

While not all barriers with external grant funding were addressed between 2019-2025 (see Section 7.1.6), local leads and WDFW made numerous changes to improve grant funding prospects for Shore Friendly projects.

At the local program level, leads recognized that two-year funding cycles were too short to assess, design, and permit Shore Friendly projects, let alone complete construction. The Shore Friendly South Sound Initiative addresses this challenge by phasing their work. They use ESRP Shore Friendly dollars to fund project design and permitting, setting them up for successful future applications to a later ESRP competition or other external grant programs. This phased approach to project scoping, design, and construction is becoming more common in the habitat protection and coastal resilience fields (e.g., NFWF 2025). Grant agencies and applicants recognize that dedicated time and funding are needed for design, but that design and construction are usually not feasible in a single grant award, so splitting or phasing the project across multiple grant rounds results in greater success for the applicants and the funder. Shore Friendly leads are taking advantage of grant programs that offer this phased approach and are designing their workflows accordingly.

At the state level, WDFW made several adjustments to ESRP to better accommodate projects like those emerging from Shore Friendly. First, ESRP developed the Small Grants Program in 2016, now called the Beach Restoration Small Grants Program (BRGSP), to focus on parcel-scale armor removal projects. This was to address the fact that small projects like those emerging from Shore Friendly were not competitive with the large projects seeking funding under ESRP's Restoration and Protection Program. As a result, Shore Friendly projects were going unfunded. While large restoration projects are important, Shore Friendly is aimed at the decision-making scale of individual landowners and parcels. Just as Puget Sound was armored incrementally, parcel by parcel, the process of restoring the shoreline needs to occur in similar increments as individual landowners are willing to take action. By focusing grant funding on smaller armor removal projects, ESRP provided a funding stream whose target projects were more aligned with the project scale and cost of Shore Friendly projects.

Additionally, WDFW addressed multiple issues related to funding projects beginning in the 2027-2029 grant round (RCO 2025b, WDFW 2025a). Match requirements for ESRP grants were eliminated, and the BRSGP funding limits per residence increased from \$150,000 to \$350,000.⁸ The need for match hindered the marketability of ESRP grants to landowners who did not perceive imminent bulkhead issues (and therefore little urge to spend money on a project) but were good candidates for bulkhead removal. This makes it easier for local leads to bring landowners on board and reduces the burden on local leads to generate match funding through other avenues. The BRSGP funding limit increase was in response to the rising project costs

⁸ This change to the match requirement at ESRP is part of a larger trend of eliminating match across Washington state-funded grant programs. For example, SRFB has eliminated its match requirement for most projects.

noted across most proposals and Puget Sound restoration programs. In a strategic effort to boost habitat connectivity benefits, and to create cost and administrative efficiencies, the BRS GP worked with Shore Friendly leads to encourage reach-scale projects and allowed unlimited parcels to be included within proposals. The result is that 5 of the 13 Shore Friendly-originated projects currently under review by the BRS GP include multiple parcels.

6.2.2 Managing landowner interpersonal dynamics

Though it is impossible to fully address the complexities and challenges of interpersonal relationships, the Shore Friendly leads have become much more adept at recognizing and managing relationships and conflicts between landowners. These conflicts can occur when one landowner is doing Shore Friendly work on their parcel and neighboring landowners become concerned about potential impacts to their parcels. Conflicts can also occur on multi-parcel projects as neighbors work together on a shared project.

These interpersonal disputes can have real impacts on projects. In the single-landowner case, the landowner might slow down or pull out of the work for fear of upsetting the neighbors. In multi-landowner projects, the success of engineered designs often hinges on continuous stretches of beach; if one landowner backs out, the whole project falls apart. Potential inadvertent impacts to adjacent properties need to be addressed, which can increase project costs and decrease the physical area restored (e.g., when wing walls are needed⁹).

When it comes to a major shoreline restoration project, happy neighbors are informed neighbors. Neighbor partnership likely trumps construction funding as the single most important element determining the stalling or implementation of a restoration design.

- King County Shore Friendly Program

Over time, Shore Friendly leads have become skilled at identifying points of tension and working to address them proactively. In single-landowner projects, leads work with the landowner to engage neighbors, hear the neighbors' concerns, and make adjustments to project designs and construction plans whenever feasible (though see Section 7.1.5 for ongoing barriers with this).

On multi-landowner projects, leads have realized the need to identify early on whether there is polarization within the group; recognizing sources of conflict early can help them get ahead of issues. Having Shore Friendly staff capacity to meet with individual owners and groups of owners repeatedly, discussing their concerns and adapting the project to respond to them, not only advances the particular project but builds trust for future projects and a positive reputation in the community. Focusing time on bringing neighbors' varying perspectives and concerns to light early in the process reduces the chances of conflicts later. Furthermore, leads

⁹ WDFW and RCO have determined that wing walls are an allowable project element to address concerns and liability related to neighboring bulkheads.

have highlighted the need to identify the “champions” within landowner groups—the neighbor who is willing to spend extra time on the project, and who is trusted by their peers to speak for them. All of this is made easier when the local program has a dedicated, consistent staff person who can build trust and become familiar with the nuances of the landowner group (see Section 6.1.3).

It’s easy to give the blanket recommendation to start neighborhood conversations early; I also think it’s important to try and read the neighborhood for polarization early, as well as discover who in the neighborhood are the local advocates and champions. I think having a local champion who can diffuse tension and is trusted by others to understand perspectives could be key to neighborhood cooperation. It is a fine balance—balancing the desires of the landowner, assessing the level of risk (of property change) to neighboring landowners, and accommodating/acknowledging the desires of neighboring landowners (when the subject property is not theirs).

- Shore Friendly Kitsap

6.3 Information barriers addressed

6.3.1 Clarity around allowable projects

Each Shore Friendly project presents unique challenges in terms of site-specific geology, existing development, and landowners’ desires for their properties. As local leads encountered more landowners and discussed more projects, the number of questions about what is allowable with Shore Friendly funds grew.

As described in Section 5.1, the WDFW and RCO Shore Friendly staff played a key role in helping local leads understand what was allowable under their agreements. Over the course of the 2019-2025 agreements, some questions became frequently asked so responding to them became less time consuming. However, WDFW and RCO staff still spent significant time working alongside local leads to address complex cases. The monthly Shore Friendly leads meetings were an additional source of feedback and collective knowledge-sharing.

Manual 29, which is available for leads to use under their 2025-2031 agreements, has been designed to help answer common questions about allowable project types and expenditures (RCO 2025a).

6.3.2 Data gaps for planning landowner outreach

Kinney and Francis (2019) identified the need to continue refining the parcel segmentation database (Colehour + Cohen et al. 2014a). Several local programs recognized the need for more data beyond the parcel segmentation report to prioritize their outreach. These programs conducted or commissioned additional geospatial studies that they used for targeting their Shore Friendly outreach efforts more efficiently (described in Section 2.3.4).

Leads from these programs reported successful outreach stemming from this research and ongoing usage of these geospatial studies, indicating that the time and money spent on these studies has filled a need and benefitted Shore Friendly efforts.

6.3.3 Outdated landowner formative research data

Since the foundational social marketing data was collected in 2014 (Colehour + Cohen et al. 2014d), Shore Friendly had not updated its landowner survey data. Evrard et al. (2024) identified the need to update the landowner survey. Additionally, Kinney et al. (2021) and Shore Friendly staff at WDFW, RCO, and the local programs recognized two key issues with the 2014 survey that were hindering the program. First, the 2014 survey did not differentiate between grants and loans when asking about landowner interest in financial incentives; this was hindering the assessment of a possible shoreline loan program to support Shore Friendly projects. Second, the 2014 survey did not ask about climate change or sea level rise, which is a growing topic of interest and urgency (see Section 7.3.2).

In 2024, WDFW contracted with the Washington State University (WSU) Social and Economic Sciences Research Center to conduct a new survey of Puget Sound shoreline landowners. The survey was designed specifically to study landowner interest in financial incentives and landowner perceptions of climate risks. While it was not part of the 2019-2025 ESRP agreements, the survey will directly inform Shore Friendly work. The survey was completed in late 2025; results are forthcoming at the time of this synthesis report and are expected to be published as the WDFW Residential Shoreline Social Survey Report (WDFW 2026) and associated documents (Van Deynze 2026, WSU 2026a, WSU 2026b).

7. REMAINING AND EMERGING BARRIERS

Local Shore Friendly programs also encountered barriers during the 2019-2025 agreement period that have either remained since from earlier iterations of the program or that have emerged during this agreement period.

7.1 Implementation barriers remaining and emerging

7.1.1 Converting from initial outreach to project implementation

As mentioned by several program leads, Shore Friendly programs are observing challenges with moving landowners through the project pipeline (Figure 2). Shore Friendly programs are highly successful in their initial outreach to landowners (see Table 4 demonstrating extensive site visits and other contacts) but observe delays and reluctance in landowners to move forward with projects. Many leads have shared the reflection that it can take years for a landowner to move from initial outreach to a project being installed. Shore Friendly leads offered several possible, and likely compounding, factors.

For those landowners who do choose to engage in a project, the time it takes even with full support from NWSF or Friends of the San Juans to get to implementation is a point of frustration however we are getting better at defining the obstacles, timelines, and benefits of working with NWSF and the Shore Friendly program to reach our shared goals.

- Northwest Straits
Shore Friendly Program

Some factors are outside of Shore Friendly's control: Many landowners are only at their shoreline residences part-time, so timelines are naturally stretched out. Several Shore Friendly programs reported instances where the landowner sold the parcel or passed away, which at best delays the work and at worse means that Shore Friendly investments are stranded if the project is cancelled. Landowners can also change their minds about pursuing a project or feel the need to delay the project due to age, finances, or other personal reasons. All other barriers aside, it is unreasonable to expect a landowner to learn about Shore Friendly one week and decide to undertake an expensive bulkhead removal project the following week.

Other factors are tied to barriers posed by Shore Friendly program processes—these are covered in more detail throughout Section 7. Ultimately, landowners struggle with the length of time it can take to bring a Shore Friendly project from initial touchpoint to completed construction. NWSF highlighted the barrier they face of effectively communicating to landowners that projects are going to take a long time (setting up their expectations properly) while also communicating that working with Shore Friendly is an effective way to get their goals

accomplished. It is challenging to be realistic with landowners without scaring them at the outset.

We continue to strive to refine our approach and work with landowners to understand all the complexities including that a project could realistically take four to six years to complete from concept to implementation as well as many years of stewardship.

- Northwest Straits Shore Friendly Program

Throughout the 2019-2025 agreements, leads worked to ameliorate these barriers. Financial and technical assistance incentives have helped move projects forward. Local programs adaptively managed their incentives as they gained a better understanding of landowner needs (Section 5.6). Additionally, WDFW and RCO have made the decision to allow landowner re-engagement activities (i.e., revisiting the same landowners for additional communications) under the Landowner Recruitment task. This helps address the time it takes landowners to consider their options and allows for additional touchpoints to re-engage them.

It is a testament to the persistence and patience of Shore Friendly leads that, over time, so many landowners have committed to projects on their properties, even if that decision takes months or years. However, leads are observing that landowners still find the costs and permitting timelines to be insurmountable barriers to undertaking Shore Friendly projects.

7.1.2 Patterns of land use, land ownership, and existing development

Shore Friendly projects are frequently constrained by existing site and neighborhood conditions. When speaking with landowners and designing projects, leads must navigate a host of challenges, including:

- A residential development landscape that evolved piecemeal, rather than in a coordinated fashion, resulting in inconsistent water and wastewater delivery methods.
- Reliance on septic systems for wastewater treatment, which can limit options for armor removal or home relocation at a site.
- Past land use codes, or the issuance of variances from those codes, that have allowed homes and other structures to be built with small setbacks from the water and lot lines. This increases the risk of coastal hazards to these homes.
- Homeowners Association covenants that conflict with environmental regulations and best management practices for the nearshore environment.
- Easements on private property and access constraints that Shore Friendly projects must work around.

- Lack of hazard disclosure to new landowners prior to purchasing a property. Often landowners are caught by surprise at the risks they face on their properties, which can spark the desire for quick fixes like armor.
- Installation of unpermitted shoreline structures by prior landowners that complicate Shore Friendly options for the new landowners.

While these challenges are outside Shore Friendly’s direct sphere of influence, local leads have developed messaging and resources to communicate with landowners about these pre-existing conditions on their properties. Additionally, leads have been highlighting the urgent need to address these issues with their respective local governments.

7.1.3 Rising project costs

Leads are observing rapidly rising project costs across all phases of projects—design, permitting, materials, and construction. Leads observe that doing armor removal and avoidance projects can cost just as much as new armor. Rising costs reduce the number of projects that Shore Friendly leads can support and exacerbate sticker shock for landowners considering projects.

In addition to background inflation, materials supply constraints, and other economic factors causing cost increases, there are causes specific to Shore Friendly. One issue repeatedly identified by leads, including in interviews for Swarbrick (2023), is the lack of developed markets for engineering, construction, and labor services. Site-specific, bespoke designs are usually required for armor removal and restoration projects. The small number of coastal engineering firms that can design shoreline restoration projects slows down project implementation and drives up costs. Landowners may balk at how much more Shore Friendly projects cost compared to projects that use less qualified construction contractors who may be completing projects without designs or permits.

When I started doing Shore Friendly work back at Mason Conservation District, we were able to design a project for under \$50,000. Now consultants tell us that \$85,000 is insufficient. Some consultants are telling program staff they need \$95,000 just for preliminary design, not 100%. We are at the mercy of a small group of consultants. The risk is that they price restoration design out of practical achievability. If we have to spend over \$100,000 just for design, and then \$200,000 to remove 100 linear feet of armor, where are we? Is that sustainable?

- Shore Friendly South Sound Initiative

The need to provide match for grants has been a barrier for landowners, though the match requirement for ESRP grants (as well as SRFB grants, in most cases) has been removed (see Section 6.2.1). But for other grant opportunities that still require a percentage of match, rising overall project costs only increases this barrier for landowners since a larger amount of match must be acquired.

The trend of rising wages across economic sectors also directly impacts Shore Friendly project implementation. Note that projects using state funds must, with some exceptions, pay prevailing wages to subcontractors (RCO 2025a). This requirement applies to Shore Friendly leads and to landowners using state funds (e.g., Shore Friendly financial incentives) to implement projects by hiring contractors on their own. Leads shared that tracking and reporting compliance with this law takes their staff additional time. Additionally, leads have highlighted that there is a compliance barrier for landowners, as there is no mechanism in place for landowners to report how they are paying prevailing wages.

7.1.4 Cultural resources review

As discussed in Section 3.3, Executive Order 21-02 (Office of the Governor of Washington State 2021) clarified how state agencies using state funds must consider possible impacts of projects to cultural resources. Project types that trigger compliance with Executive Orders 05-05 and 21-02 include new construction, demolition, ground disturbance, and land acquisition (DAHP n.d.). This is in addition to federal cultural resources protections through Section 106 of the National Historic Preservation Act, which is triggered when projects have a federal nexus, which includes being located on federal land, using federal funds, or needing a federal permit (RCO 2025a).

The result of this state Executive Order was a dramatic increase in the number of Shore Friendly projects, especially vegetation and tree planting projects, receiving cultural resources review. Revegetation and tree planting are key behaviors for armor avoidance. While the leads agree that strong protections for cultural resources are important, they cannot ignore that these requirements are raising project costs (especially for previously low-cost vegetation projects), reducing their ability to provide incentives, extending project timelines, and deterring landowners from projects—resulting in fewer beneficial Shore Friendly projects on Puget Sound shorelines.

The cultural resources requirements directly raise vegetation and drainage project costs and extend project timelines because a study from a cultural resources professional is often needed even if other permits are not required. Leads have had some success with using financial incentives to help landowners cover this cost, but this removes the availability of this incentive for other project costs. Indirectly, leads have observed that cultural resources agencies are severely backed up, which can delay cultural resources consultation and raise project costs due to increased staff time spent tracking the review processes. This also raises a communication challenge with landowners, as leads cannot feel confident estimating how long the consultation process will take.

Landowners are responding negatively to the realities of increased costs and uncertain timelines. Additionally, some leads have observed a specific aversion that landowners have to archaeological investigations on their property. For example, NWSF noted that landowners worry that discovering cultural resources on their property through a Shore Friendly project could affect their plans for future upland development. As a result, they choose not to pursue the Shore Friendly project.

The barriers created by cultural resources review requirements are among the most frequently raised concerns at monthly leads meetings. While leads are working with the state to begin addressing these challenges while upholding their requirements to respect and protect these resources, this remains a major cost, time, and landowner communications barrier.

7.1.5 Permitting and a shifting regulatory environment

Shore Friendly leads have repeatedly identified perceived and actual barriers related to permitting that impact their ability to complete shoreline projects.

Regarding perceptions, landowners often have some awareness of shoreline permitting and come to Shore Friendly conversations with preconceived notions about the difficulties of permitting. Unfortunately, many of these preconceived notions are grounded in reality and are only strengthened as landowners learn more about the permitting required for Shore Friendly projects. Shore Friendly Thurston has noted that landowners express the sentiment of being so overwhelmed by permitting that, without Shore Friendly, they would not even consider taking on the project by themselves. While Shore Friendly leads are working to improve their communications with landowners to accurately set expectations early, the reality of these expectations can be an inherent deterrent to participation.

Shore Friendly leads are well versed in the challenges related to permitting, having advanced numerous projects through local, state, and federal review. Most Shore Friendly programs serve multiple local jurisdictions, each of which has slightly different regulations and permitting processes, adding complexity to the leads' project management. As noted previously, the steps of assessing, designing, and permitting a project often take longer than two years. Agencies are facing staffing shortages and quoting long review timelines, especially for federal permits. Depending on the number of permits required, costs can also pose a barrier to landowners or require financial incentives.

Like many other restoration practitioners in Washington, Shore Friendly leads have highlighted the irony that environmental regulations pose a barrier to restoration projects. NWSF has faced issues with permitting agencies being unreceptive to some "give and take" on projects that would be needed for a landowner to engage and to realize habitat benefits. For example, one common point of contention between neighbors (see Section 6.2.2) is the fear that one landowner's actions will worsen erosion for the neighbors. One solution is to build small wing walls at the edges of the project to minimize any possible erosion. Yet NWSF has found some permitting agencies unwilling to allow the wing walls, despite the much greater habitat gains

that would come from the project moving forward. As a result, the landowner disengages from the project and a restoration opportunity is lost.

Leads have worked with landowners who were initially interested in pursuing Shore Friendly projects but eventually dropped out due to frustration with long permitting timelines. NWSF has noted that the time it takes to get a project from start to finish is often the determining factor in a landowner's decision path. If they can get a bulkhead designed and installed more quickly than going through Shore Friendly, they will trend toward that option. Shore Friendly Thurston highlights that while the tightening of regulations around new armor is making landowners consider alternatives more seriously (and therefore increasing interest in Shore Friendly), the inability of Shore Friendly to follow a smoother permitting pathway means that Shore Friendly cannot capitalize on this window of opportunity to persuade landowners.

For Shore Friendly staff it is practically a full-time job, so how will a regular homeowner tackle that level of complexity and bureaucracy? Shore Friendly can't lead every armor removal project. How do we change things so that homeowners can do these projects without subsidies? It has to be a streamlined permitting process among other things.

- Shore Friendly South Sound Initiative

This issue has been heightened by the sunset of the Habitat Recovery Pilot Program (HRPP) for restoration projects (WDFW 2025b). Shore Friendly leads have been amongst the many restoration practitioners advocating for permit streamlining for years, and input from leads was important in the development of HRPP. Shore Friendly leads availed themselves of HRPP's permit streamlining for state and local permits. Several Shore Friendly leads remarked that HRPP reduced permitting time, complexity, and costs.

The sunset of the pilot program and lack of a permanent program to replace it is directly and negatively impacting Shore Friendly. Leads indicate they are already feeling the loss of HRPP as they now need to organize multiple site visits for the same project. For now, Shore Friendly leads will continue early project engagement with the relevant local, state, and federal permitting agencies and the Multi-Agency Review Team (MART), which the leads have found to be a helpful resource for interagency coordination, especially for federal permits (Washington Department of Ecology et al. 2022, PSP 2024).



Streamlining the permit process for bulkhead removal projects through the MART and HRPP were invaluable. These programs made significant improvements to moving projects faster and seamlessly through the permitting process. The termination of the HRPP is a true setback for Shore Friendly and will make our work more inefficient in the future.

- Shore Friendly Kitsap

7.1.6 External grant funding

While many grant funding barriers were successfully addressed between 2019 and 2025 (see Section 6.2.1), some barriers remain. The simple fact that grant funding is often needed to implement these projects introduces longer timelines and more complexity, and this creates a higher risk that the landowner will lose interest, be influenced by neighbor concerns or perceptions, sell the property, or pass away, stranding the past investments of Shore Friendly resources. Grant cycles happen on predictable, rigid schedules, yet landowner decision-making does not often follow these schedules. Leads are forced to submit projects for funding as soon as they have landowner buy-in, even if the project is not fully designed, lest they miss the funding window and risk losing the landowner commitment in the interim.

The removal of the match requirement for programs such as ESRP and SRFB has been hugely helpful, but the need for match for other grant programs hinders marketability of projects to landowners, especially those landowners who are not facing an imminent issue with their armor but who are good candidates for an armor removal project. NWSF notes that while Shore Friendly programs can offer cost-share, the available cost-share is usually too small on its own to entice landowners to participate. NWSF can then pursue grants to cover more of the project costs, but finding the money to meet the match requirements for these grants causes delays.

The availability of ESRP BRS GP has likewise been hugely helpful to funding Shore Friendly projects, but the level of demand generated by Shore Friendly (Section 2.2) is currently outpacing the supply of funding. Shore Friendly is tapping into a funding need that current grant programming—especially grant programming targeted to the scale and type of projects like those emerging from Shore Friendly—is unable to fully fill. As a result, project timelines extend, Shore Friendly leads must take on additional work of cobbling together funding, and landowners grow frustrated with delays.

Grant cycles continue to be a bit of a challenge. Project opportunities arise when they arise, regardless of funding cycles—so I have found myself applying more than once for construction funding without a full preliminary design completed, much less a final design. I rightly receive pushback from reviewers who have to rank projects, and I understand that there is a lot of uncertainty involved in what the final project design could look like. However, from the perspective of keeping projects moving and restoration occurring on a timeline that allows homeowners to remain involved (3-4 years instead of 4-6 years), we feel it's imperative to apply for funds when we are certain a project is a "go" and when we know design and permitting will be completed before the construction funding would end.

- Shore Friendly South Sound Initiative

7.2 Information barriers remaining and emerging

7.2.1. Inconsistent metrics tracking

The need for standardized metrics and cross-program consistency in tracking has been previously identified in Kinney and Francis (2019) and later in Swarbrick (2023). While the introduction of PSP Program Targets provided consistency in tracking some metrics, it became apparent in preparing this synthesis that consistent, standardized tracking has not been achieved for all metrics.

Several of the issues identified in Section 3 involve reporting program outputs in PRISM, which is a project management database meant for RCO to administer grant agreements. PRISM is not well suited for tracking programs. Additionally, Shore Friendly's structure creates a unique set of circumstances that would be difficult to track in almost any grant management database, as it seeks avoidance of certain activities and does not have discrete projects defined at the time that funds are awarded.

Regardless of the collection system, accurate data requires that staff fully understand what to report and do so correctly. Frequent staff changes, the multiple required reporting mechanisms, and a lack of clarity results in under-reporting of progress. Some reporting metrics are not clearly defined (e.g., conceptual and preliminary designs) and other distinct metrics are combined (e.g., number of landowners receiving technical assistance and cost-share). When projects originating from Shore Friendly are ultimately implemented through other programs, there is no contractual obligation to report those phases to the Shore Friendly program, even if the program provided early support necessary for successful project implementation.

Inconsistent program and project tracking constrains our ability to identify outcomes and provide information needed to address some of the challenges identified in Section 7.1 (e.g., rising costs, long permitting timelines). As the Shore Friendly programs enter the next phase of six-year agreements, we expect the number of incentives offered to landowners to grow. Accurately capturing this growth is important for showing the evolution of Shore Friendly to agency decision-makers and the Legislature. We also anticipate that leads will experiment with new incentives to meet landowners' needs, and these offerings will need to be appropriately categorized and tracked.

7.2.2 Quantifying immediate and long-term shifts in landowner perceptions and behaviors

One ongoing barrier to understanding landowner perceptions is that several local programs are experiencing low response rates to post-outreach-event and post-site-visit surveys. Colehour + Cohen et al. (2014j) and Swarbrick (2023) identified the importance of collecting feedback directly from Shore Friendly program participants. This feedback is critical for program evaluation and adaptive management of program offerings (Section 5.6).

In response to this challenge, NWSF staff sent personalized emails to attendees and made phone calls to encourage people to provide feedback via online surveys or through other means. This greatly increased the response rate on surveys, revealing largely positive feedback on NWSF programming and revealing useful insights for improving future outreach. While this personalized approach generated useful information, NWSF acknowledged that this took significant staff time and is not a sustainable approach. Other leads shared that they do not have capacity—and are not currently funded under their Shore Friendly agreements—to undertake this type of evaluation effort.

Program evaluations by landowners continue to be challenging to obtain. Throughout Spring 2025, rather than requesting this information through bulk emails, we made 98 phone calls and in addition to 163 targeted emails and received 33 survey responses. The responses were overwhelmingly positive and provided us with great insights into future site visits and recruitment for follow-up visits.
- Northwest Straits Shore Friendly Program

Another remaining barrier for the Shore Friendly program is determining the extent to which landowners are changing their long-term behaviors after receiving Shore Friendly outreach and incentives. In other words, how do we quantify whether, and to what extent, the Shore Friendly program efforts are leading to the desired program outcomes?

For armored properties, it can take years before a seed planted during a beach walk or educational workshop germinates into an armor removal project. It is challenging to capture the evidence that exposure to Shore Friendly resulted in behavior change. NWSF will be studying this during the 2025-2031 agreement period (see Recommendation 8.7b).

For unarmored properties, it is difficult to know the extent to which landowners have avoided armor over many years following exposure to Shore Friendly, especially since key armor avoidance strategies like vegetation management and drainage improvements can later be modified or reversed with armor. Quantifying this would likely require a dedicated analysis of Shore Friendly outreach data, permit data, and armoring presence data (see Recommendation 8.7d).

7.3 Programmatic barriers emerging

7.3.1 Ensuring armor avoidance is durable

A key challenge for the future of Shore Friendly is ensuring that shoreline landowners who have received incentives for armor avoidance maintain an unarmored shoreline. Shore Friendly invests significant resources into currently unarmored properties (Table 7), and preventing the installation of new armor is critical for reducing the overall miles of armoring in Puget Sound. Yet as discussed in Section 7.2.2, key behaviors for armor avoidance (such as drainage improvements and vegetation management) can be easily reversed by landowners. An emerging option that often leads to long-term armor avoidance—home relocation—promises to be a more durable action yet is orders of magnitude more expensive and more complex. Long-term success of Shore Friendly, and of habitat protection and restoration broadly, requires that the positive changes made with public and private funds continue serving people and the environment for years after the projects and grant cycles conclude.

7.3.2 Responding to landowner urgency around sea level rise

Maintaining the unarmored status of parcels is especially critical, and especially challenging, in the face of rising sea levels and intensifying coastal hazards. Kinney and Francis (2019) identified the need to develop resources and incentives for landowners to address sea level rise, and leads have been aware of the challenges ahead with adaptation since the 2016 grant period. Over the course of the 2019-2025 agreements, Shore Friendly leads across Puget Sound have reported an uptick in questions, concerns, and desire for action from landowners. While it is a positive development that more landowners are seeking information about sea level rise adaptation, there is a significant risk that the fear of (and actual experience of) intensifying coastal hazards will push some landowners toward armor. An increasing sense of urgency felt by landowners may also increase frustration with Shore Friendly project timelines. Shore Friendly needs to respond proactively to landowners' concerns to maintain their trust. This highlights several Shore Friendly needs: better data on which landowners to approach with sea level rise messaging, better outreach materials that address sea level rise, and a better suite of shoreline management options that fit into the Shore Friendly framework and address the range of climate hazards on landowners' properties.

There's an inherent tension in the Shore Friendly messaging when we talk about risk management and the urgency of doing the right thing for habitat and resiliency, but then say it is going to take 3-6 years to complete the project. For homeowners, those timeframes are contradictory, and a scary commitment to make to a government process. I had an owner ask me why he should take so long to do the right thing when he could get his traditional plans approved and constructed in under a year. As the Shoreline Management Act pushes sea level rise awareness, this tension is going to increase as landowner sense of urgency and risk increase but our processes can't keep pace.

- Former local program co-lead now at PSP

7.3.3 Making restoration gains at the reach scale

As Shore Friendly has matured across Puget Sound, WDFW and local leads have recognized the need to shift programmatic attention from the parcel scale to the reach scale. Many leads have expressed the idea that the program has “picked the low-hanging fruit” of parcels where armor removal is straightforward. To keep advancing restoration, the program needs to tackle larger, more complex projects, which often span multiple parcels. Projects coupling habitat restoration and sea level rise adaptation will be most effective at the reach or neighborhood scale (see Recommendation 8.6d). Working across multiple parcels under one project generates efficiencies from economies of scale as well as increased habitat function and resilience. Additionally, projects with a large, transformative scale are more attractive to grant funders than projects at the individual parcel scale.

However, working at larger scales raises additional challenges. Working to align multiple landowners under a single project vision requires careful relationship management between each landowner and Shore Friendly, and the management of landowner interpersonal dynamics (see Section 6.2.2). Larger projects will take even longer to develop as leads build trust with many parties, complete a greater number of studies, deal with additional land use covenants and increased permitting complexity, and seek larger sums of grant funding. Despite these challenges, many leads are eager to take on multi-parcel and reach-scale projects. With the BRSGP now allowing an unlimited number of parcels to be included under one grant application, there are new funding options available to these larger projects.

7.3.4 Responding to continued attention on shoreline compliance and unpermitted armor

Shore Friendly is recognized in the Puget Sound recovery community and across Washington as a leading example of a successful voluntary, incentive-based program (Morgan 2025). It has

never been intended to be a compliance tool; using it as such would risk violating the trust between landowners and local programs that is critical to engaging landowners and maintaining the success of the Shore Friendly brand (Colehour + Cohen et al. 2014b, Morgan 2025).

At the same time, there is a growing interest among staff and leaders at Tribes, local governments, and state agencies to address unpermitted and under-permitted shoreline armor. Shore Friendly staff at WDFW and local programs must balance the regional attention on addressing unpermitted armor with the need to maintain the integrity and the unique non-regulatory, landowner-behavior-change focus of the Shore Friendly program to ensure its continued success.

7.3.5 Addressing the current limitations posed by ESRP as Shore Friendly's home

As mentioned above, Shore Friendly is recognized as a successful program for advancing voluntary armor avoidance and removal (Morgan 2025). Despite the many successes that came with ESRP adopting the program through the 2019-2025 agreements, Shore Friendly's home under ESRP has raised some management challenges for the program.

A major issue for Shore Friendly is that funding through ESRP alone cannot support all the elements of the Shore Friendly project pipeline (Figure 2). ESRP is funded with state capital dollars, meaning that the budget for Shore Friendly landowner recruitment activities is capped at 15%. To fund all aspects of the pipeline, including outreach and general communications, Shore Friendly is piecing together funding from different sources. Inconsistent funding and gaps also create a significant administrative burden for WDFW and RCO staff and local programs. Seeking, securing, managing, and reporting for multiple grants and contracts with varying timelines creates additional work for all involved, and has created confusion in terms of the actual needs of the program to funders.

The Shore Friendly program sought additional HSIL funding to supplement and complement ESRP capital funds, which has positively expanded Shore Friendly's reach. However, there are two major challenges posed by relying on HSIL funds for this work. First, HSIL funding is intended to catalyze new work, not to cover ongoing efforts. It is unclear whether Shore Friendly would be successful in securing future HSIL funding to continue these lines of work. Second, this new funding source means that Shore Friendly is managing additional contracts. This has introduced additional tracking and reporting requirements to WDFW, RCO, and local program staff, increasing their administrative burden and worsening the issue of having a large number of reporting requirements (see Section 7.2.1). We echo the conclusion drawn in Evrard et al. (2024): *"Work remains to develop a stable, longer-term funding source for Shore Friendly education and outreach program elements."*

Another funding challenge has been the Legislature's cuts to ESRP administrative funding, which supports WDFW and RCO Shore Friendly staff. For the 2025-27 biennium, the administrative funding rate to support WDFW ESRP staff was reduced from 7% to 3%, which effectively reduced overall administrative capacity by over a third. As described in Section 5.1,

the active involvement of WDFW and RCO staff throughout the six-year Shore Friendly agreements was critical to the local programs' success. Cuts to administrative funding are compromising WDFW and RCO's ability to coordinate and guide the local programs, ultimately compromising the success of Shore Friendly.

We need to figure out how to fund ESRP support or continue diversified funding. No other program is invested in the nearshore like ESRP. It has been a standout champion of nearshore ecology, processes, and research. ESRP has uniquely maintained a brilliant level of flexibility and openness to feedback and adaptation. Furthermore, ESRP is inherently based on research, learning, collaboration, and looking towards the future. Shore Friendly is an odd misfit in all the habitat restoration buckets but aligns best with ESRP, in my opinion.

- Shore Friendly South Sound Initiative

7.3.6 Maintaining and improving Shore Friendly's online presence

WDFW's information technology staff have informed the WDFW Shore Friendly Program Manager that the ShoreFriendly.org website will need to be updated within the next year or two for security and support reasons. Currently the ShoreFriendly.org website—which is supposed to be the centralized resource for Shore Friendly information—is outdated and not mobile-friendly. Maintaining a modern, functional, and mobile-friendly website is critical, especially in a post-Covid era when many Shore Friendly resources have been made digital and new offerings like YouTube videos have expanded the reach of Shore Friendly messaging (see Section 6.1.2). Some local programs, such as NWSF, saw the need to update their own program websites to better serve landowners (NWSF launched their updated website in 2025). The WDFW-maintained ShoreFriendly.org website must remain functional into the future. The looming need to update the website presents an important opportunity to centralize Shore Friendly resources, reduce the need for local programs to host duplicative information and spend their own funds on websites, and provide much better support to landowners and to the local programs. ShoreFriendly.org website development and updates are not currently supported through WDFW administrative support which resulted in staff seeking additional competitive grant funds to meet this need.

8. RECOMMENDATIONS

All six local programs have agreements with ESRP to continue their work from 2025-2031 (Table 10), subject to capital budget awards. Based on the analysis in this synthesis, we offer the following recommendations to maintain Shore Friendly’s track record of success, address ongoing barriers, and continue growing and adaptively managing the program to meet emerging needs.

Table 10. ESRP Shore Friendly awards 2025-2031

Local Program	Sponsor	PRISM #
Island County Shore Friendly Program	Island County	24-1300
Shore Friendly South Sound Collaborative	Thurston Conservation District	24-1207
Shore Friendly King County Program	Mid Sound Fisheries Enhancement Group	24-1183
Swinomish Shore Friendly Program	Swinomish Indian Tribal Community	24-1307
Shore Friendly - Northwest Straits	Northwest Straits Foundation	24-1291
Shore Friendly Kitsap	Kitsap County	24-1144

8.1 Metrics and tracking recommendations

As identified in Kinney and Francis (2019), Swarbrick (2023), and Section 7.2.1 of this report, there is a continued need for clear metrics and consistent tracking across programs. Below are several recommendations informed by input from Shore Friendly leads and by the authors’ experience gathering data for this synthesis report.

- **8.1a: Provide better training and guidance to leads on how to report metrics in PRISM.** It is a known issue that the standard PRISM metrics are not always well aligned with Shore Friendly metrics, and it seems that leads are having difficulty with reporting in PRISM consistently. An example is how numbers for the different biennia were entered into PRISM “Current Agreement” and “Final” columns (e.g., a cumulative total for the three biennia was not entered). Prior to reporting deadlines, host training sessions to review reporting expectations and answer leads’ questions. Seek feedback from leads on key training needs and incorporate reporting guidance into Manual 29. This training and guidance will be especially important in the interim until the following recommendations can be implemented, though it should also continue after improved reporting processes are implemented.
- **8.1b: Standardize deliverable naming conventions and attachment types.** For example, we found that site visit reports seemed to be called several different names, even by a single local program, and were appearing as different categories of deliverables in PRISM. Also consider adding a new PRISM deliverable type for participant surveys and feedback; these are extremely important program evaluation tools that were not readily available in project files reviewed for this analysis. Additionally, as deliverables and reports are added to PRISM, RCO staff can double-check that attachments are named consistently and categorized

appropriately and provide feedback to leads. Some deliverables (such as site visit worksheets and landowner agreements) contain landowners' personal information and may not be appropriate to share publicly. RCO staff can modify which deliverables uploaded to PRISM are publicly viewable. We recommend standardizing which deliverables can be publicly accessed on PRISM. Seek feedback from leads on how to standardize deliverables and incorporate guidance on this topic into Manual 29.

- **8.1c: Communicate how leads should track Climate Commitment Act versus ESRP capital-funded work under their 2025-2031 agreements.** The 2025-2031 agreements specify target numbers of program activities to be delivered with ESRP capital funding versus Climate Commitment Act funding.¹⁰ Therefore, it is important that programs track and report how they are spending each bucket of funding. Share interim guidance at a monthly Shore Friendly leads meeting and incorporate this guidance into Manual 29. As leads continue to track outputs, seek their feedback and incorporate adjustments to the guidance into Manual 29.
- **8.1d: Develop a standardized method for tracking projects that originated in Shore Friendly but are completed with outside funds.** We found that these projects were not reported in PRISM, and for this synthesis the information was provided by the WDFW Shore Friendly Program Manager. These data are critical for tracking overall Shore Friendly impacts, transparency in the use of state funds, and progress towards Puget Sound recovery goals outlined in the Action Agenda and other related plans. Seek feedback from leads on this methodology and incorporate guidance into Manual 29.
- **8.1e: Rework key metrics to more finely capture the work being performed.** We identified challenges with understanding incentive delivery with the following two metrics: "Landowners Receiving Design, Cost Share, or Assistance" and "Landowners Receiving Permit Cost Share or Assistance." We were unable to disentangle how many landowners received cost share incentives (or what exactly that term means) and how many received technical assistance. We recommend hosting a discussion with all leads about ways to redesign reporting metrics, with the following serving as key suggestions for revised metrics:
 - Number of landowners receiving in-kind project implementation assistance.
 - Number of landowners receiving financial assistance, including whether the financial incentive is provided as an upfront incentive or reimbursement.
 - Number of landowners receiving design assistance.
 - Number of landowners receiving permitting assistance.
 - For each project phase, the percentage of the total cost paid with Shore Friendly funds versus other sources such as landowner match or external grants.

¹⁰ Climate Commitment Act funding was awarded to ESRP in FY2024 and passed through to local programs in 2025. This money was provided by the Washington State Legislature to accelerate the work of the Shore Friendly program by supplementing the maintenance level ESRP capital funding provided to local programs under the 2025-2031 agreements.

- 8.1f: Develop and implement a standardized project fact sheet to document completed armor removal projects.** Seek feedback from leads on this proposed product and incorporate guidance on project fact sheets into Manual 29. We believe this product would be helpful for documenting, tracking, and summarizing the years of work and sources of funding that culminate in a completed armor removal project. Internally, fact sheets would aid in metrics tracking, future synthesis efforts, and program evaluation. Externally, fact sheets would support communications with landowners, the Legislature, and others interested in how Shore Friendly works. We recommend that a project fact sheet include the following elements:
 - Project description, including linear feet of armor removed.
 - Cost of each project phase and source(s) of the funds.
 - Shore Friendly incentives (financial and non-financial) provided.
 - Timeline of each project phase and documentation of the overall process.
 - Lessons learned.
 - Before and after photos of the site.
- 8.1g: Consider a programmatic investment to improve user experience and user interface for tracking Shore Friendly activities.** According to Swarbrick (2023), “One way to increase reliability, consistency and shareability of program metrics tracking would be to enhance the user experience and database user interface. An up-front investment in [user experience] and [user interface] can provide intuitive data collection forms for getting data in, while facilitating regional data collection and custom reporting for presenting data out.” Developing tracking tools that are more appropriate for Shore Friendly activities (as compared to PRISM) could improve consistency across programs and ease of roll-up reporting. This could potentially involve the addition of a reporting widget when the ShoreFriendly.org website update occurs (see Recommendation 8.8f). Options to provide consistent data gathering by programs and consultants could be explored (e.g., the ArcGIS [Survey 123](#) form currently used by some local programs). Any expanded or new systems should prioritize efficiency, balance the need to capture standardized data while also allowing leads to capture unique aspects of each project, and ideally be non-proprietary. Feedback from leads will be critical when researching options and developing any new systems.

8.2 Landowner recruitment recommendations

- 8.2a: Continue to use available data, and collect additional data when needed, to prioritize parcels for outreach.** Over the course of the 2019-2025 agreements, local programs used available data (e.g., the parcel segmentation study, Beach Strategies metrics) to inform their outreach. Several programs commissioned additional studies to further refine their audience segmentation and target their outreach (see Section 2.3.4). We encourage programs to continue using the available data, including the new Department of Ecology [shoreline condition survey data](#), to refine their outreach strategies and to invest in additional data collection that will make outreach more targeted and efficient. Note that desktop

prioritization must always be verified on the ground and balanced with the realities of landowner willingness and site conditions that strongly influence where projects can occur.

- **8.2b: Use results from the WDFW Residential Shoreline Social Survey Report to improve outreach and recruitment offerings.** We anticipate survey results (WDFW 2026) will inform updates to outreach materials, responses to frequently asked questions, targeted recruitment strategies, and other Shore Friendly outreach practices.
- **8.2c: Leverage completed Shore Friendly residential projects for outreach.** Leads have frequently reported that landowners appreciate seeing successful completed projects and are especially moved by residential examples. As Shore Friendly matures and more projects are completed, the number of examples around Puget Sound will grow. Additionally, one of the deliverables for the 2023 HSIL grant award is a “project showcase” methodology and showcasing of at least 10 Shore Friendly projects. We believe this deliverable will jump-start a collection of completed projects that all local programs can contribute to and benefit from. During project implementation, leads should emphasize to their landowners the importance of sharing results with other property owners and should fully utilize any grant provisions that support sharing of completed projects. Completed projects could be featured on the updated ShoreFriendly.org website (Recommendation 8.8f) and shared through project fact sheets (Recommendation 8.1f). Additionally, Shore Friendly projects completed through the BRSGP should continue to complete coordinated communication plans and serve as demonstration sites for the Shore Friendly program to inspire future landowners with nearby examples of successful projects.
- **8.2d: Continue expanding awareness of the Shore Friendly program and Shore Friendly resources with influencers.** Using HSIL funds, many local programs have engaged influencer audiences (see Section 1.3) who hold sway with shoreline landowners. While these activities are not eligible under the 2025-2031 agreements, we recommend they continue, as they support the desired outcomes of the ESRP agreements. Local programs could consider offering tours of completed Shore Friendly projects to elected officials, local planners, and state agency staff to help build relationships and garner broader political support for the program.
- **8.2e: Increase focus on recruitment for reach-scale projects.** Leads already observe that group beach walks and neighborhood-focused outreach events generate high participation. Leads can focus their messaging on developing neighborhood-scale or reach-scale work. Leads can include messages about how neighborhood-scale work can improve habitat health and sea level rise resilience.

8.3 Incentives recommendations

All Shore Friendly programs have existed for at least six years now, and some even longer. Programs are maturing, learning lessons, and adapting their incentives to meet their project implementation goals. However, as noted in Section 7.1, implementation barriers—especially around project costs—persist. We offer the following recommendations to address barriers,

improve incentives, and continue advancing projects toward implementation (i.e., construction or other action on the ground).

- **8.3a: Consider applying lessons learned about successful implementation incentives across Shore Friendly programs.** A hallmark of the Shore Friendly program is the ability for leads to design local programs according to what works best in their geographies. For instance, some local programs still offer small financial incentives while others have moved away from this. However, many local programs have similar challenges with advancing projects toward implementation, and some local programs are adapting their financial and technical assistance incentives to hopefully drive more projects forward. Local programs have a track record of successful adaptive management (see Section 5.6), and we encourage continued adaptive management when leads identify a need and an appropriate way to pivot their work. Below are adaptations incorporated into 2025-2031 agreements that may be relevant for other programs to consider:
 - **Providing larger financial incentives.** For example, Island County Shore Friendly will provide up to \$30,000 per project (i.e., the new allowable limit for implementation incentives).
 - **Expanding the services covered with financial incentives,** with special attention to project phases that are especially challenging for landowners (e.g., some leads are now covering the costs of cultural resources reports).
 - **Using Shore Friendly funds for outreach, design, and permitting while shifting construction costs to other grant programs.** The idea is to dedicate Shore Friendly funds to what Shore Friendly is uniquely poised to do—landowner recruitment, relationship management, and dedicated technical assistance—while seeking other funding for construction. NWSF and the South Sound Shore Friendly Collaborative are already seeing success with this approach, and additional local programs (e.g., Swinomish Shore Friendly Program, Shore Friendly King County) intend to try this approach under their 2025-2031 agreements. This will require careful tracking of outside funds to ensure we capture the full impact of Shore Friendly work and the capacity needed for leads to manage these grants (see Recommendations 8.1d and 8.8b).
 - **Using a two-tiered approach to develop armor removal and restoration projects identified during technical site visits, according to project alignment with Shore Friendly goals.** Shore Friendly Kitsap will fully fund feasibility and design services for approximately two higher-priority projects and will provide financial incentives via reimbursements for up to five lower-priority projects. Then Shore Friendly Kitsap will provide permitting services and implementation (construction) incentives for projects in either priority tier, and will potentially sponsor higher-tier projects for other grant programs' funding.
- **8.3b: Use results from the Shoreline Revolving Loan Feasibility Study and the WDFW Residential Shoreline Social Survey Report to improve financial and technical assistance incentives.** We anticipate that WDFW and RCO Shore Friendly staff, as well as local leads, will find the parcel sub-segments and survey results (Kinney et al. 2021, WDFW 2026) useful for designing and delivering financial and technical assistance incentives.

- **8.3c: Advance technical assistance and design guidelines to help make the cost for armor removal and shoreline restoration comparable to the cost of bulkhead replacement.** A perennial issue for Shore Friendly is that fact that armor removal and restoration projects usually require site-specific, bespoke designs, whereas bulkheads have a more standardized design. This drives costs up for Shore Friendly projects and affects the number of incentives leads can provide. Recently, leads have informed WDFW guidance products on project design, including a forthcoming drainage guidance manual and an update to the *Marine Shoreline Design Guidelines*. Documenting and publicizing design guidance for Shore Friendly techniques will help standardize designs for these projects and will advance the program's ability to deliver technical assistance and financial incentives to landowners. This guidance could be hosted on the updated ShoreFriendly.org website (see Recommendation 8.8f).
- **8.3d: Explore implementing a program-wide cap on design costs.** As discussed in Section 7.1.3, rising project costs are becoming a major barrier to project implementation. One possible mechanism for standardizing and controlling costs would be to implement a cap on architectural and engineering costs. For example, SRFB caps administrative, architectural, and engineering expenses at 30 percent of construction costs (RCO 2026).
- **8.3e: Conduct research on the appropriate level of financial contributions from landowners to Shore Friendly projects.** While Shore Friendly projects generate public benefits by restoring the environment and serving as demonstration sites, they also generate benefits for private landowners. As we expect that the demand for Shore Friendly incentives will continue to grow, the available public funds for restoration and protection will be spread more thinly; landowner contributions will play an increasingly important role in advancing projects. We need to determine the value of the private benefits generated by Shore Friendly and factor that value into what is expected from landowners participating in the program. We recommend conducting research and identifying relevant literature and case studies from other programs and states to determine what an optimal level of financial contribution from landowners should be for Shore Friendly projects. As our region develops new financial tools (see Recommendation 8.6d), we anticipate that landowners will have more options for contributing private funds to Shore Friendly projects.

8.4 Permitting recommendations

- **8.4a: Develop or modify tools, such as permitting checklists and communications products, and share these resources across Shore Friendly programs.** Multiple leads identified the need for permitting checklists as a suggestion in their reporting under the 2019-2025 agreements. We also identified a need for communications products for landowners that demystify permitting (including cultural resources review) and help set expectations for project timelines. For example, it would be helpful to have visuals comparing the permitting steps and timelines for various Shore Friendly project types versus the armor installation process. These resources could be hosted on the updated ShoreFriendly.org website (see Recommendation 8.8f).

- **8.4b: Continue early permit coordination efforts with local, state, and federal agencies and the MART.** Leads have found these efforts helpful in the past, and we anticipate pre-application meetings and interagency coordination to be especially important in the absence of a state and local permit streamlining program.
- **8.4c: Vocalize the need for a permanent state and local permit streamlining program for restoration projects.** Several leads have reported the benefits of HRPP to their work and the risks posed by it sunseting without a permanent replacement. Leads should continue to document and share these impacts to demonstrate the value and importance of state and local permit streamlining efforts.

8.5 Cultural resources recommendations

- **8.5a: Promote Shore Friendly incentives as tools for completing cultural resources studies.** In addition to providing landowners with financial incentives to complete these studies (see Recommendation 8.3a), Shore Friendly leads can also incorporate the management of cultural resources review into their suite of technical assistance offerings to landowners. This is another tool to reduce the perception of landowners that Shore Friendly projects are too burdensome. The Shore Friendly South Sound program does this and encourages the approach.
- **8.5b: Explore ways to streamline state agency processes and increase state agency capacity for cultural resources reviews.** At the April 2026 monthly leads meeting, several leads shared that internal agency steps for processing cultural resources reports are a source of delays. It was highlighted that leads must send their completed reports to RCO, and then RCO is responsible for sending these reports to DAHP. WDFW and RCO should investigate whether this process between RCO, DAHP, and the Tribes can be streamlined. For example, we recommend WDFW and RCO Shore Friendly staff initiate exploratory conversations around programmatic consultations on cultural resources for Shore Friendly vegetation projects, recognizing that implementation of a programmatic consultation would require buy-in from RCO and DAHP leadership as well as all affected Tribes. Additionally, WDFW and RCO Shore Friendly staff should share the impacts of long state agency timelines with RCO and DAHP leadership to highlight the potential need for additional capacity at these agencies.

8.6 Sea level rise adaptation recommendations

- **8.6a: Incorporate sea level rise considerations into all Shore Friendly outreach and incentives.** Several Shore Friendly programs are already doing this and will broaden their efforts under the 2025-2031 agreements. NWSF has a managed retreat strategy document and is distributing sea level rise-focused materials to relevant landowners. Additionally, they are introducing landowners to these topics in workshops and finding that landowners are responding positively to these messages and demonstrating excitement around healthy, resilient shorelines. Island County Shore Friendly is also bringing sea level rise adaptation into their programming by listing raising or moving a home as an eligible project type in their

2025-2031 agreement. We recommend all programs undertake or expand work to bring sea level rise adaptation into all Shore Friendly programming and encourage sharing of best practices and lessons learned across programs.

- **8.6b: Use available studies—and fill data gaps when necessary—to inform changes to Shore Friendly materials and incentives.** We recommend WDFW and all local programs utilize the forthcoming results from the WDFW Residential Shoreline Social Survey Report (WDFW 2026) to better understand audience perceptions of coastal climate hazards. We also recommend all programs use the parcel segmentation data to reevaluate outreach to Segment 9 parcels, which have historically been deprioritized in Shore Friendly outreach due to their high erosion potential. With more regional attention being devoted to home relocation as a risk reduction strategy and a precursor for armor removal, there is potential to advance climate adaptation and habitat improvements on these parcels.

The BRGAR study commissioned by NWSF is an example of filling data gaps when necessary to understand potential hazards to landowners (Herrera Environmental Consultants, Inc. 2025). An expanded BRGAR study with Sound-wide coverage is now underway, funded by ESRP and Local Integrating Organizations (LIOs), with results expected by the end of the current biennium (A. MacLennan, pers. comm. May 19 2026). We recommend other local programs incorporate this new information into their work. NWSF has also identified the need to better understand all the steps and costs involved in moving a home so they can accurately inform landowners about these projects. We encourage NWSF to fill this information gap and share findings with fellow leads.

Finally, we recommend using recently published and forthcoming coastal hazards products to inform studies and materials for Shore Friendly. Two notable coastal hazards products to consider using are the Puget Sound Parcel-scale Sea Level Rise Vulnerability Assessment (Miller et al. 2023, Washington Coastal Hazards Resilience Network n.d.) and the Coastal Storm Modeling System (Washington Coastal Hazards Resilience Network 2026). Both products have a Puget Sound-wide scope and can be used to understand exposure and vulnerability to sea level rise at a localized scale. End users can access support for these products through the Washington Coastal Hazards Resilience Network. We specifically recommend that existing studies that are being used to develop Shore Friendly resources, such as the flooding and bluff retreat sub-segments delineated as part of the Shoreline Revolving Loan Feasibility Study (Kinney et al. 2021), are updated with these more recently published hazards products.

- **8.6c: Commission research to rigorously explore landowner messaging on sea level rise.** The WDFW Residential Shoreline Social Survey Report and anecdotal evidence from Shore Friendly leads strongly suggests that landowners are aware of climate hazards, are concerned about the risks to their properties, and want to take action (WDFW 2026). Shore Friendly can fill that information gap as a trusted source, but past successes with the Shore Friendly model suggest that the program still needs more research on landowner messaging.

Putting a finer point on Recommendations 8.6a and 8.6b: while local programs already incorporate sea level rise messaging into their materials and workshops, we see an opportunity to test and fine-tune these messages to best serve the interests of landowners

and Puget Sound recovery. Local programs or WDFW could engage a marketing and design firm, or a firm that runs focus groups, to conduct messaging research similar to that conducted prior to the launch of Shore Friendly (Colehour + Cohen 2014h). Puget Sound shoreline landowners appear to be a receptive audience, so Shore Friendly should invest in messaging that resonates with this audience and empowers landowners to take appropriate actions.

- **8.6d: Support development of new financial tools that are outside of, but related to, Shore Friendly that advance climate and habitat resilience.** Rising seas will transform our shorelines at an unprecedented scale, and at unprecedented costs. Our region needs new financial tools to fund these changes, with the goal of being proactive in the face of these hazards. Recent research efforts, including the Shoreline Revolving Loan Feasibility Study and the WDFW Residential Shoreline Social Survey Report, have started exploring how these tools might be structured (Kinney et al. 2021, WDFW 2026). Many others around Washington and the United States are exploring [special purpose districts](#), [local improvement districts](#), and similar structures as mechanisms for generating dedicated funds for adaptation projects (K. McCaffrey, pers. comm. May 22 2026). While these new financial tools will likely not develop under the Shore Friendly program, they will certainly support Shore Friendly’s mission. We encourage WDFW, RCO, and local leads to support development of these tools, injecting the Shore Friendly perspective into formative conversations to ensure these tools meet Shore Friendly’s needs. Having more financial tools available to landowners will open doors for home relocation and armor removal projects, can help advance reach-scale restoration efforts, and will provide more mechanisms for landowners to contribute funds toward Shore Friendly projects that benefit them (see Sections 7.3.3 and Recommendations 8.2e and 8.3e).
- **8.6e: Collaborate with partner organizations to advance shared sea level rise resilience goals.** Shore Friendly alone cannot achieve sea level rise resilience; the problem is much larger than Shore Friendly’s purview. This is made clear by the dozens of entities—spanning Tribal, federal, state, local, academic, nonprofit, and private organizations—working on the issue. Yet Shore Friendly plays a key role in shaping the adaptation actions that the tens of thousands of Puget Sound shoreline landowners may take. We recommend that WDFW, RCO, and local Shore Friendly staff continue to engage in partnerships within their respective agencies and with outside groups to find opportunities for broadening this shared work.

To highlight just one example where shared interests and benefits align, Shore Friendly can collaborate with local health districts, the state Department of Health, LIOs, and others on the issue of septic systems. Increased flooding and rising groundwater threaten to break septic systems, rendering homes unlivable and releasing contaminants into Puget Sound. Moving a septic system is costly, and many parcels simply do not have room for septic relocation (see Section 7.1.2). The [LIO On-Site Sewage System Action Plan](#) identifies much work to be done on mapping at-risk systems Sound-wide, supporting landowners in moving septic systems when feasible, and developing alternative waste management systems when on-site septic’s feasibility is threatened by rising seas. This is just one example of how

continued collaboration, partnership, and sharing of lessons learned will be critical for achieving shared goals.

8.7 Program evaluation recommendations

We recommend that Shore Friendly invests in efforts to understand the full impact of its programming, from better understanding participant feedback to outreach through understanding the long-term outcomes of Shore Friendly investments.

- **8.7a: Continue measuring immediate landowner responses to outreach and incentives.** This recommendation includes the continuation of participant feedback surveys following outreach programming and incentive delivery, and measures to address the observed low response rates to some surveys (e.g., by NWSF). Leads may find it necessary to send personalized emails or make phone calls to collect this valuable feedback. Leads can also consider asking for feedback at the end of workshops and beach walks while they still have landowners' attention; as noted in Section 3.1, this has been found to be the only consistent way to obtain landowner feedback. Leads may need additional money in their budgets to ensure capacity to undertake these efforts (see Recommendation 8.8b). We believe these efforts are worth it to evaluate how landowners are responding to outreach and incentives. With feedback from leads, develop standardized survey elements and incorporate guidance into Manual 29. Consider using the updated ShoreFriendly.org website (Recommendation 8.8f) as a platform for collecting feedback.
- **8.7b: Increase efforts to measure impacts of outreach and incentives delivered under previous Shore Friendly agreements.** As noted in Section 7.1.1, it can take years for an initial contact with landowners to blossom into a project; this makes tracking any actions taken as a result of outreach challenging. In their 2025-2031 agreement, NWSF has an objective to "Measure the impact of past expert site visits to help understand the success of armor reduction efforts." We support this investigation and we encourage other programs to undertake similar evaluation efforts and to share best practices and lessons learned.
- **8.7c: Leverage the landowners who shared their contact information in the WDFW Residential Shoreline Social Survey Report to conduct program evaluation.** Approximately 2000 survey respondents indicated interest in supporting additional WDFW research and engagement on shoreline incentives (K. McCaffrey, pers. comm. February 5 2026). We recommend engaging with this group as one way to evaluate Shore Friendly's effectiveness and to conduct other research identified throughout these Recommendations.
- **8.7d: Conduct a study to quantify armor avoidance rates on parcels that received Shore Friendly incentives.** As noted in Section 7.3.1, long-term armor avoidance is the goal of Shore Friendly investments in unarmored properties. We recommend conducting a study to quantify long-term armor avoidance rates on parcels that received Shore Friendly incentives versus a control group that did not receive incentives. We believe the necessary data are available through Shore Friendly's records, local permit data, and the Department of Ecology's armor presence geospatial database to conduct a desktop assessment. The change analysis developed as part of an upcoming LIO shoreline compliance study could also be

compared to local program site visit worksheets to assess the extent to which unarmored parcels have remained unarmored.

8.8 Program advancement recommendations

- **8.8a: Stabilize administrative funding for the WDFW and RCO Shore Friendly staff.** Staff at these state agencies provide critical support and services to the Shore Friendly leads throughout the ESRP agreement cycle (see Section 5.1). Recent legislative cuts to administrative funding have threatened this support. Long term, we recommend WDFW and RCO continue to share the importance of administrative funding when bringing ESRP Investment Plans to the Legislature. In the meantime, we recommend that WDFW and RCO fill this funding gap with other sources to ensure that the investment of state funds into the local Shore Friendly work has the state support needed for success.
- **8.8b: Ensure local programs have sufficient capacity to run their programs.** The need for sufficient capacity within local programs has been highlighted throughout this synthesis. Adequate capacity for local program staff allows for shorter response times to site visit requests, reduces risks posed by staff turnover, allows for greater relationship-building with landowners, and allows leads to invest time in program evaluation (see Sections 3.1, 6.1.3, 6.2.2, 7.2.2, and Recommendation 8.7a). Adequate capacity will also be critical if we want more programs to leverage outside funding for project implementation (Recommendation 8.3a). Shore Friendly South Sound has shared that their strategy of seeking outside funding to implement projects, while successful in many regards, has placed significant administrative burdens on their staff—their Shore Friendly staff are having to balance the demands of applying for and managing multiple restoration grants with all their other Shore Friendly duties, meaning that the number of grant-funded projects they support at a time is limited by their staff capacity rather than the need. Additionally, administrative capacity at local programs is necessary to quickly disburse financial incentives and prevent landowner frustrations with receiving promised resources.

While the administrative and programmatic capacity needs for each local program will vary, we recommend that WDFW and RCO thoroughly evaluate local programs' funding requests to ensure they are budgeting for sufficient capacity within their programs. Long-term, WDFW and RCO may need to increase local programs' budgets to account for general rising costs, expansion of services provided by local programs, and other demands on local programs' capacity.

- **8.8c: Secure operations funds to complement capital funds.** Currently the Shore Friendly program is lacking stable funding to support the education and outreach activities that are not eligible for capital funds. Additionally, there is an emerging need for local programs to assist landowners with obtaining grant funding for project implementation. Grant application assistance has been key to the success of projects moving forward, but it is not an eligible expense for capital funds (though it would be with operations funds). If ESRP received operations dollars for Shore Friendly, work spanning the entire Shore Friendly pipeline (Figure 2) could be completed under one contract. This would be more efficient for RCO staff and leads to manage and could potentially reduce tracking and reporting

challenges that are currently arising due to multiple grants being used to fund Shore Friendly activities. Landowner recruitment and other outreach (that currently cannot be funded with capital dollars) are critical for achieving Shore Friendly outcomes; the core funding for the program should support the full spectrum of the work.

- **8.8d: Continue exploring whether ESRP is the right programmatic home for Shore Friendly.** While the outcomes of the 2019-2025 agreements clearly demonstrate that Shore Friendly has found success under ESRP, the past six years have revealed some limitations to its home under ESRP. The reduction in administrative funding and the limitations posed by capital funds are two upfront examples. But more broadly speaking, ESRP is a construction funding program that operates on a two-year grant cycle, whereas Shore Friendly operates on longer timelines and has many other facets of programming besides construction. ESRP's capital investment programs and Shore Friendly each work well, but they do not fit perfectly together. However, Shore Friendly has benefitted from the administrative structure provided by ESRP and by the close connection to the ESRP BRS GP, which is now funding a significant number of projects emerging from Shore Friendly. Any changes to Shore Friendly's program structure should not be taken lightly and should only be done with the guarantee that the many successful elements of the program will remain intact.
- **8.8e: Regularly update Manual 29 to capture key program resources, guidance, and decisions.** Manual 29 was developed to answer common questions from leads and increase consistency between programs. We recommend that WDFW and RCO invest in keeping Manual 29 updated with answers to emerging questions. Recommendations from this synthesis for updates to Manual 29 include improvements to metrics and tracking processes (Recommendations 8.1a-f), standards for evaluating landowner responses to outreach and incentives (Recommendation 8.7a), and standards for monitoring completed projects (see Section 2.3.5). WDFW and RCO should work collaboratively with leads to identify areas for updates to Manual 29 so it remains an authoritative and useful resource for leads.
- **8.8f: Invest in updating and centralizing Shore Friendly's online resources.** All partners working on Shore Friendly would benefit from an update to ShoreFriendly.org to modernize this key resource clearinghouse. The technical need to update the website provides a key opportunity to centralize Shore Friendly's videos and other public-facing resources. This is an opportunity to efficiently use Shore Friendly funds, as updating ShoreFriendly.org will support local programs' needs for a strong digital presence but avoid the need for them to each invest in major website updates. It will make their work more accessible to landowners and create consistency across the region. Completed Shore Friendly projects, project design guidance, permitting resources, a landowner feedback form, and the latest version of Manual 29 could all be featured on the updated website (see Recommendations 8.1f, 8.2c, 8.3c, 8.4a, 8.7a, and 8.8e).

As outlined in Recommendation 8.1g, we also suggest exploring reporting functionalities for local programs as part of the ShoreFriendly.org updates. Once PRISM reporting issues are addressed (see Recommendations 8.1a-e), there could be an opportunity to develop a data

visualization tool that celebrates program accomplishments, similar to the [PSAR Accomplishments Dashboard](#).

- **8.8g: Determine and implement appropriate archival processes for Shore Friendly program administration materials.** The process of drafting this synthesis revealed that not all program materials were archived in a publicly accessible way. Some materials, such as past ESRP Request for Proposal documents, could not be located online. We recommend that the WDFW and RCO Shore Friendly staff work together, and with other staff at their agencies as needed, to establish a file structure and process for archiving key program materials.
- **8.8h: Build partnerships with Tribes and local restoration groups to advance shared restoration goals.** Where needed, work first to increase awareness of Shore Friendly and develop relationships between Shore Friendly leads and their counterparts at other restoration-focused entities. For example, NWSF has begun engaging with relevant Tribes across their Shore Friendly coverage area as a bottom-up means to increase Tribes' familiarity with Shore Friendly work and develop staff-level relationships between Tribes and NWSF. This engagement and relationship-building in no way replaces the formal government-to-government consultations between RCO and Tribes on specific Shore Friendly projects. These relationships lay the groundwork for future partnerships, project opportunities, and funding contributions. Success will depend on other entities' capacity and interest, which may be limited. We recommend continued sharing of best practices and lessons learned with other local programs.

8.9 Program replication recommendations

Given the Shore Friendly program's reputation of success, it is understandable that people working in other facets of Puget Sound recovery, and in other habitat types around Washington, have suggested Shore Friendly expand to cover other types of shorelines, upland habitats, and other hazards. To keep Shore Friendly true to its foundational social marketing research and to highlight best practices for developing voluntary behavior change programs for other habitats and hazards, we instead recommend the following. WDFW and RCO Shore Friendly staff can act as resources to support those who are exploring the Shore Friendly model for their own goals (though note that this is dependent on their capacity).

- **8.9a: Explore how the Shore Friendly model can be replicated for other geographies in a locally appropriate way.** To achieve success similar to what Shore Friendly has achieved for Puget Sound marine shorelines, new programs need a foundational social marketing study that is specific to their target populations and geographies at the outset. The messages that work for Puget Sound marine shoreline landowners might not apply to landowners in other geographies. Outreach and incentive programs intended to serve those geographies will be most successful if they have research and resources dedicated to their unique needs.
- **8.9b: Explore how the Shore Friendly model can be replicated to address other climate hazards on Puget Sound shorelines and beyond.** We believe that the Shore Friendly model—grounded in social marketing research and theories of behavior change—could be applicable to addressing other hazards, such as riverine flooding, wildfires, and heat.

Notably, any new program would need to conduct foundational research that is appropriate to the target geography and population. There are likely opportunities to bolster existing programs by developing outreach and incentives tools to support individuals and communities.

9. NEXT STEPS FOR IMPLEMENTING RECOMMENDATIONS

In Section 8, we identified 41 recommendations stemming from this synthesis to address the wide range of barriers faced by Shore Friendly. Some barriers may need to be addressed through efforts under multiple recommendations. Some recommendations may be in service of addressing multiple barriers. We acknowledge that for some barriers, none of the recommendations in Section 8 are suited for addressing said especially challenging issues. We look forward to continued discussions with everyone who has a stake in Shore Friendly's success to work toward solutions to these challenges.

To conclude this synthesis with a call to action, Table 11 attempts to identify the relevant audience or audiences for each recommendation in Section 8. These are the entities we believe are best positioned to, or are specifically responsible for, implementing each of the 41 recommendations. We encourage readers of this synthesis to identify additional audiences who may have a role to play in improving the Shore Friendly program.

Table 11. Potential Implementer(s) of Shore Friendly recommendations

Category	Recommendation	Potential Implementer(s) of Shore Friendly recommendations				
		Local Shore Friendly programs	Regional Shore Friendly program	Broader WDFW	Broader RCO	WA State Legislature
Metrics and tracking	8.1a: Provide better training and guidance to leads on how to report metrics in PRISM.	X	X			
	8.1b: Standardize deliverable naming conventions and attachment types.	X	X			
	8.1c: Communicate how leads should track Climate Commitment Act versus ESRP capital-funded work under their 2025-2031 agreements.	X	X			
	8.1d: Develop a standardized method for tracking projects that originated in Shore Friendly but are completed with outside funds.	X	X			
	8.1e: Rework key metrics to more finely capture the work being performed.	X	X			
	8.1f: Develop and implement a standardized project fact sheet to document completed armor removal projects.	X	X			
	8.1g: Consider a programmatic investment to improve user experience and user interface for tracking Shore Friendly activities.	X	X	X		
Landowner recruitment	8.2a: Continue to use available data, and collect additional data when needed, to prioritize parcels for outreach.	X				

Category	Recommendation	Potential Implementer(s) of Shore Friendly recommendations				
		Local Shore Friendly programs	Regional Shore Friendly program	Broader WDFW	Broader RCO	WA State Legislature
Landowner recruitment	8.2b: Use results from the WDFW Residential Shoreline Social Survey Report to improve outreach and recruitment offerings.	X	X			
	8.2c: Leverage completed Shore Friendly residential projects for outreach.	X	X	X		
	8.2d: Continue expanding awareness of the Shore Friendly program and Shore Friendly resources with influencers.	X	X			
	8.2e: Increase focus on recruitment for reach-scale projects.	X	X			
Incentives	8.3a: Consider applying lessons learned about successful implementation incentives across Shore Friendly programs.	X				
	8.3b: Use results from the Shoreline Revolving Loan Feasibility Study and the WDFW Residential Shoreline Social Survey Report to improve financial and technical assistance incentives.	X	X			
	8.3c: Advance technical assistance and design guidelines to help make the cost for armor removal and shoreline restoration comparable to the cost of bulkhead replacement.	X	X	X		
	8.3d: Explore implementing a program-wide cap on design costs.	X	X	X	X	

Category	Recommendation	Potential Implementer(s) of Shore Friendly recommendations				
		Local Shore Friendly programs	Regional Shore Friendly program	Broader WDFW	Broader RCO	WA State Legislature
Incentives	8.3e: Conduct research on the appropriate level of financial contributions from landowners to Shore Friendly projects.		X	X	X	
Permitting	8.4a: Develop or modify tools, such as permitting checklists and communications products, and share these resources across Shore Friendly programs.	X	X			
	8.4b: Continue early permit coordination efforts with local, state, and federal agencies and the MART.	X				
	8.4c: Vocalize the need for a permanent state and local permit streamlining program for restoration projects.	X				
Cultural resources	8.5a: Promote Shore Friendly incentives as tools for completing cultural resources studies.	X				
	8.5b: Explore ways to streamline state agency processes and increase state agency capacity for cultural resources reviews.		X	X	X	X
Sea level rise	8.6a: Incorporate sea level rise considerations into all Shore Friendly outreach and incentives.	X	X			
	8.6b: Use available studies—and fill data gaps when necessary—to inform changes to Shore Friendly materials and incentives.	X	X			
	8.6c: Commission research to rigorously explore landowner messaging on sea level rise.	X	X	X		X

Category	Recommendation	Potential Implementer(s) of Shore Friendly recommendations				
		Local Shore Friendly programs	Regional Shore Friendly program	Broader WDFW	Broader RCO	WA State Legislature
Sea level rise	8.6d: Support development of new financial tools that are outside of, but related to, Shore Friendly that advance climate and habitat resilience.	X	X	X	X	X
	8.6e: Collaborate with partner organizations to advance shared sea level rise resilience goals.	X	X	X	X	
Program evaluation	8.7a: Continue measuring immediate landowner responses to outreach and incentives.	X				
	8.7b: Increase efforts to measure impacts of outreach and incentives delivered under previous Shore Friendly agreements.	X	X			
	8.7c: Leverage the landowners who shared their contact information in the WDFW Residential Shoreline Social Survey Report to conduct program evaluation.	X	X	X		
	8.7d: Conduct a study to quantify armor avoidance rates on parcels that received Shore Friendly incentives.	X	X	X	X	X
Program advancement	8.8a: Stabilize administrative funding for the WDFW and RCO Shore Friendly staff.			X	X	X
	8.8b: Ensure local programs have sufficient capacity to run their programs.	X	X	X	X	X
	8.8c: Secure operations funds to complement capital funds.		X	X	X	X
	8.8d: Continue exploring whether ESRP is the right programmatic home for Shore Friendly.		X	X	X	

Category	Recommendation	Potential Implementer(s) of Shore Friendly recommendations				
		Local Shore Friendly programs	Regional Shore Friendly program	Broader WDFW	Broader RCO	WA State Legislature
Program advancement	8.8e: Regularly update Manual 29 to capture key program resources, guidance, and decisions.	X	X			
	8.8f: Invest in updating and centralizing Shore Friendly's online resources.	X	X	X	X	
	8.8g: Determine and implement appropriate archival processes for Shore Friendly program administration materials.		X			
	8.8h: Build partnerships with Tribes and local restoration groups to advance shared restoration goals.	X				
Program replication	8.9a: Explore how the Shore Friendly model can be replicated for other geographies in a locally appropriate way.	This recommendation is relevant to audiences beyond the partners working on Shore Friendly, including the broader state agency family, potential public and private funders, and local implementation partners.				
	8.9b: Explore how the Shore Friendly model can be replicated to address other climate hazards on Puget Sound shorelines and beyond.	This recommendation is relevant to audiences beyond the partners working on Shore Friendly, including the broader state agency family, potential public and private funders, and local implementation partners.				

10. REFERENCES

- Blue Coast Engineering. 2024. Shore Friendly Stewardship and Restoration Feasibility Assessment Report. Prepared for the Swinomish Indian Tribal Community.
<https://secure.rco.wa.gov/prism/search/ProjectSnapshotAttachmentData.aspx?id=628722>
- Blue Coast Engineering. 2025. Shore Friendly Program Audit and Charter. Prepared for Island County Department of Health.
- Cereghino, P., J. Toft, C. Simenstad, E. Iverson, S. Campbell, C. Behrens, and J. Burke. 2012. Strategies for nearshore protection and restoration in Puget Sound. Puget Sound Nearshore Report No. 2012-01. Published by Washington Department of Fish and Wildlife, Olympia, Washington, and the U.S. Army Corps of Engineers, Seattle, Washington.
https://wdfw.wa.gov/sites/default/files/publications/02182/wdfw02182_0.pdf
- Coastal Geologic Services. 2020a. Updated Shore Friendly Parcel Segmentation. Prepared by L. Øde-Giles and J. Johannessen for the Estuary and Salmon Restoration Program.
- Coastal Geologic Services. 2020b. Shore Friendly Revolving Loan Program – Market Estimates. Prepared by L. Øde-Giles and A. Maverick.
https://www.eopugetsound.org/sites/default/files/features/resources/Appendix_1-MarketEstimates.pdf
- Coastal Geologic Services. 2023. Shore Friendly Kitsap Monitoring Protocols.
<https://shorefriendlykitsap.com/wp-content/uploads/2025/06/Kitsap-SF-Mon-Memo-CGS-Report-FINAL-23-05-11.pdf>
- Colehour + Cohen, Applied Research Northwest, Social Marketing Services, Futurewise, and Coastal Geologic Services. 2014a. Puget Sound Parcel Segmentation Report. Prepared by MacLennan, A., J. Waggoner, and J. Johannessen as part of the Social Marketing to Reduce Shoreline Armoring Project for the Washington Department of Fish and Wildlife.
- Colehour + Cohen, Applied Research Northwest, Social Marketing Services, Futurewise, and Coastal Geologic Services. 2014b. Identifying Behaviors and Mapping Decisions to Reduce Shoreline Armoring. Prepared as part of the Social Marketing to Reduce Shoreline Armoring Project for the Washington Department of Fish and Wildlife
- Colehour + Cohen, Applied Research Northwest, Social Marketing Services, Futurewise, and Coastal Geologic Services. 2014c. Puget Sound Shoreline Parcel Owner Characteristics. Prepared by Futurewise as part of the Social Marketing to Reduce Shoreline Armoring Project for the Washington Department of Fish and Wildlife.

Colehour + Cohen, Applied Research Northwest, Social Marketing Services, Futurewise, and Coastal Geologic Services. 2014d. Survey of Shoreline Property Owners Report. Prepared by Applied Research Northwest as part of the Social Marketing to Reduce Shoreline Armoring Project for the Washington Department of Fish and Wildlife.

Colehour + Cohen, Applied Research Northwest, Social Marketing Services, Futurewise, and Coastal Geologic Services. 2014e. Barriers and Motivations Literature Review. Prepared as part of the Social Marketing to Reduce Shoreline Armoring Project for the Washington Department of Fish and Wildlife.

Colehour + Cohen, Applied Research Northwest, Social Marketing Services, Futurewise, and Coastal Geologic Services. 2014f. Evaluating Barriers and Motivators for Shoreline Armor. Prepared as part of the Social Marketing to Reduce Shoreline Armoring Project for the Washington Department of Fish and Wildlife.

Colehour + Cohen, Applied Research Northwest, Social Marketing Services, Futurewise, and Coastal Geologic Services. 2014g. Research Synthesis and Audience Map. Prepared as part of the Social Marketing to Reduce Shoreline Armoring Project for the Washington Department of Fish and Wildlife.

Colehour + Cohen, Applied Research Northwest, Social Marketing Services, Futurewise, and Coastal Geologic Services. 2014h. Shoreline Armor Focus Group Findings. Prepared by Applied Research Northwest as part of the Social Marketing to Reduce Shoreline Armoring Project for the Washington Department of Fish and Wildlife.

Colehour + Cohen, Applied Research Northwest, Social Marketing Services, Futurewise, and Coastal Geologic Services. 2014i. Social Marketing How-To-Guide for Shore Friendly Campaign Implementers. Prepared by Applied Research Northwest as part of the Social Marketing to Reduce Shoreline Armoring Project for the Washington Department of Fish and Wildlife.

Colehour + Cohen, Applied Research Northwest, Social Marketing Services, Futurewise, and Coastal Geologic Services. 2014j. Performance Evaluation Plan. Prepared as part of the Social Marketing to Reduce Shoreline Armoring Project for the Washington Department of Fish and Wildlife.

Cook, A.E., T.L. Scott, and R.L. Thurston. 2019. WDFW Hydraulic Project Approval Program Hood Canal Compliance Pilot - Final Report. Puget Sound Marine and Nearshore Grant Program.

Department of Archaeology and Historic Preservation. n.d. Governor's Executive Order 21-02. <https://dahp.wa.gov/2102>

Dethier, M.N., W.W. Raymond, A.N. McBride, J.D. Toft, J.R. Cordell, A.S. Ogston, S.M. Heerhartz, and H.D. Barry. 2016. Multiscale impacts of armoring on Salish Sea shorelines: Evidence for cumulative and threshold effects. *Estuarine, Coastal, and Shelf Science* 175: 106-117. <https://doi.org/10.1016/j.ecss.2016.03.033>

Evrard, R., A. Kinney, and C.W. Wright. 2024. Synthesis of Habitat Strategic Initiative Lead 2016-2023 Investments for Puget Sound Recovery. Puget Sound Institute, UW Tacoma.

https://www.pugetsoundinstitute.org/wp-content/uploads/2024/03/Final_HSIL1.0_Synthesis_Report_03.25.24.pdf

Faulkner, H., T.L. Scott, and R.L. Thurston. 2018. WDFW Hydraulic Project Approval Program Hood Canal Compliance Pilot – Puget Sound Marine Shoreline Surveys. Prepared by the Washington Department of Fish and Wildlife for the Puget Sound Marine and Nearshore Grant Program.

Fresh K., M. Dethier, C. Simenstad, M. Logsdon, H. Shipman, C. Tanner, T. Leschine, T. Mumford, G. Gelfenbaum, R. Shuman, and J. Newton. 2011. Implications of Observed Anthropogenic Changes to the Nearshore Ecosystems in Puget Sound. Prepared for the Puget Sound Nearshore Ecosystem Restoration Project. Technical Report 2011-03.

http://www.pugetsoundnearshore.org/technical_reports.html

Friends of the San Juans. 2022. Changes in Shoreline Armoring in San Juan County, WA 2009-2019: Mapping, Analysis and Regulatory Review. Prepared by Tina Whitman. Funded by the National Estuary Program and the Puget Sound Partnership NTA 2018-0828.

https://sanjuans.org/wp-content/uploads/2022/08/SanJuanCountyArmorChangeAnalysisandRegulatoryReviewProject_2022_FriendsoftheSanJuans.pdf

Habitat Strategic Initiative. 2021. Narrative – 2021 Update. Shoreline Armoring Implementation Strategy 2021 Update. Washington Department of Fish and Wildlife and Washington Department of Natural Resources.

<https://pspwa.app.box.com/s/dmgq6qkz5p6mol02v1h2jii4twzmgtx9>

Hagerty, S. 2021. Shore Friendly Parcel Prioritization Memo for 2019-2021. Mason Conservation District.

<https://secure.rco.wa.gov/prism/search/ProjectSnapshotAttachmentData.aspx?id=494263>

Herrera Environmental Consultants, Inc. 2024. Island County 2023 Shoreline Armor Survey – Methods and Results (Phase 1 and Phase 2). Prepared for the Island County Marine Resources Committee by Lauren Ode-Giles and Andrea MacLennan.

<https://www.islandcountymrc.org/media/oqidnhsh/071724-shoreline-armoring-survey-and-permit-analysis.pdf>

Herrera Environmental Consultants, Inc. 2025. Bluff Recession GIS Analysis for Retreat - Pilot Project. Prepared by Andrea MacLennan, Lauren Ode-Giles, and Keeley Chiasson for the Northwest Straits Foundation.

<https://secure.rco.wa.gov/prism/search/ProjectSnapshotAttachmentData.aspx?id=681042>

Johannessen, J. and A. MacLennan. 2007. Beaches and Bluffs of Puget Sound. Puget Sound Nearshore Partnership Report No. 2007-04. Published by Seattle District, U.S. Army Corps of Engineers, Seattle, Washington. http://www.pugetsoundnearshore.org/technical_reports.html

Johannessen, J., A. MacLennan, A. Blue, J. Waggoner, S. Williams, W. Gerstel, R. Barnard, R. Carman, and H. Shipman. 2014. Marine Shoreline Design Guidelines. Washington Department of Fish and Wildlife, Olympia, Washington. <https://wdfw.wa.gov/publications/01583>

Kaufman, L. 2019. Shoreline Armoring Reduction Project Final Report. Northwest Straits Foundation deliverable for NTAs 2016-0001 and 2018-0707.

King County. 2014. The WRIA 9 Marine Shoreline Monitoring and Compliance Pilot Project. Prepared by Kollin Higgins, Water and Land Resources Division. <https://www.govlink.org/watersheds/9/pdf/2014-MarineShorelineMonitRppt.pdf>

King County. 2019. WRIA 9 Marine Shoreline Monitoring and Compliance Project Phase 2 Final Report. Prepared by Kollin Higgins, King County Water and Land Resources Division. Seattle, Washington. <https://your.kingcounty.gov/dnrp/library/2019/kcr3021/kcr3021.pdf>

Kinney, A., T. Francis, and J. Rice. 2015. Analysis of Effective Regulation and Stewardship Findings: A Review of Puget Sound Marine and Nearshore Grant Program Results, Part 1. Prepared by Puget Sound Institute for the Washington Department of Fish and Wildlife. https://www.pugetsoundinstitute.org/wp-content/uploads/2023/10/AnalysisOfEffectiveRegulationAndStewardshipFindings_FINAL_2015-12-14.pdf

Kinney, A. and T. Francis. 2019. Analysis of 2016-2019 Shoreline Armoring Investments: A Review of Puget Sound Marine and Nearshore Grant Program Results, Part 4. Puget Sound Institute. Tacoma, WA. <https://pspwa.box.com/s/fjyhw9voezv1c6j1wftt5edmvh0qc1t>

Kinney, A., J. Johannessen, M. Fisher, A. Maverick, L. Øde-Giles, and B. Lane. 2021. Residential shoreline loan program feasibility study: Developing a new Shore Friendly incentive to help Puget Sound homeowners finance beach restoration and sea level rise adaptation. University of Washington Tacoma, Puget Sound Institute. <https://www.eopugetsound.org/article/residential-shoreline-loan-program-feasibility-study-developing-new-shore-friendly>

Miller, I., Maverick, A., Johannessen, J., Fleming, C., & Regan, S. 2023. A Data-Driven Approach for Assessing Sea Level Rise Vulnerability Applied to Puget Sound, Washington State, USA. *Sustainability*. 15(6): 5401. <https://doi.org/10.3390/su15065401>

Morgan, A. 2025. Bridging Policy and Public Perception: Effective Communication of Shoreline Armoring Trade-Offs in Coastal Communities. Puget Sound Institute, UW Tacoma. https://www.pugetsoundinstitute.org/wp-content/uploads/2025/10/Morgan_2025_Effective-Communication-of-Shoreline-Armoring-Trade-Offs.pdf

National Fish and Wildlife Foundation. 2025. National Coastal Resilience Fund 2025 Request for Proposals. <https://www.nfwf.org/programs/national-coastal-resilience-fund/national-coastal-resilience-fund-2025-request-proposals>

Office of the Governor of Washington State. 2005. Executive Order 05-05. Archaeological and Cultural Resources. https://governor.wa.gov/sites/default/files/exe_order/eo_05-05.pdf

Office of the Governor of Washington State. 2021. Executive Order 21-02: Archaeological and Cultural Resources. https://governor.wa.gov/sites/default/files/exe_order/eo_21-02.pdf

Penttila, D. 2007. Marine Forage Fishes in Puget Sound. Puget Sound Nearshore Partnership Report No. 2007-03. Published by Seattle District, U.S. Army Corps of Engineers, Seattle, Washington. http://www.pugetsoundnearshore.org/technical_reports.html

Puget Sound Partnership. 2015. Considerations for Social Strategies in Planning, Strategic Initiatives, Implementation Strategies, and Near-Term Actions. Prepared by D. Ward, E. Sanford, A. Doty, N. Lee, S. Richards, L. Clark, M. Knackstedt, J. Greer, and C. Cochrane. <https://pspwa.box.com/s/baopzogbuff8ze6koeyockd9z8de1oru>

Puget Sound Partnership. 2024. Multi-Agency Review Team. <https://psp.wa.gov/MART.php>

Puget Sound Partnership. 2025. State of the Sound. <https://stateofthesound.wa.gov/>

Recreation and Conservation Office. 2022. Cultural Resources for Applicants and Sponsors. <https://rco.wa.gov/wp-content/uploads/2022/06/GRANTS-CulturalResSponsors.pdf>

Recreation and Conservation Office. 2025a. Manual 29: Shore Friendly Grant Program. <https://rco.wa.gov/wp-content/uploads/2025/09/ESRP-Manual29.pdf>

Recreation and Conservation Office. 2025b. Beach Restoration Small Grants Program Request for Project Proposals. <https://rco.wa.gov/wp-content/uploads/2025/10/Beach-Restoration-Small-Grants-RFP-2027-29.pdf>

Recreation and Conservation Office. 2026. Manual 18: Salmon Recovery Grants. <https://rco.wa.gov/wp-content/uploads/2019/05/SAL-Manual18.pdf>

Simenstad, C.A., M. Ramirez, J. Burke, M. Logsdon, H. Shipman, C. Tanner, J. Toft, B. Craig, C. Davis, J. Fung, P. Bloch, K. Fresh, S. Campbell, D. Myers, E. Iverson, A. Bailey, P. Schlenger, C. Kiblinger, P. Myre, W. Gerstel, and A. MacLennan. 2011. Historical Change of Puget Sound Shorelines: Puget Sound Nearshore Ecosystem Project Change Analysis. Puget Sound Nearshore Report No. 2011-01. Published by Washington Department of Fish and Wildlife, Olympia, Washington, and U.S. Army Corps of Engineers, Seattle, Washington. http://www.pugetsoundnearshore.org/technical_reports.html

Shipman, H. 2010. The Geomorphic Setting of Puget Sound: Implications for Shoreline Erosion and the Impacts of Erosion Control Structures. In Shipman, H., M.N. Dethier, G. Gelfenbaum, K.L. Fresh, and R.S. Dinicola, eds. 2010. Puget Sound Shorelines and the Impacts of Armoring—Proceedings of a State of the Science Workshop. U.S. Geological Survey Scientific Investigations Report 2010-5254. <https://pubs.usgs.gov/sir/2010/5254/>

Swarbrick, K. 2023. Shore Friendly: A Developmental Evaluation. Master’s capstone project, Oregon State University Department of Fisheries, Wildlife, and Conservation Sciences. <https://www.eopugetsound.org/article/shore-friendly-developmental-evaluation>

Van Deynze, Braeden. 2026. Discrete Choice Modeling for Puget Sound Shoreline Management Decisions: Preliminary Results [report in preparation].

Washington Coastal Hazards Resilience Network. n.d. Puget Sound Parcel-scale Sea Level Rise Vulnerability Assessment. <https://wacoastalnetwork.com/puget-sound-parcel-scale-sea-level-rise-vulnerability-assessment/>

Washington Coastal Hazards Resilience Network. 2026. USGS Coastal Storm Modeling System (CoSMoS). <https://wacoastalnetwork.com/resources/tools/cosmos/>

Washington Department of Ecology, Washington Department of Fish and Wildlife, Environmental Protection Agency. 2022. Evaluating a Multi-Agency Review Team (MART) Approach to Streamline Permitting of Beneficial Marine Shoreline Projects. Puget Sound National Estuary Program Grant No. PC-01J22301.

Washington Department of Fish and Wildlife. 2019. Hydraulic Project Approval Program Hood Canal Compliance Pilot Final Report. Puget Sound Marine and Nearshore Grant Program. <https://wdfw.wa.gov/sites/default/files/2019-08/20190507%20HPA%20Compliance%20Pilot%20Final%20Report.pdf>

Washington Department of Fish and Wildlife. 2025a. ESRP grant round opens Oct. 2, 2026. Estuary and Salmon Restoration Program Newsletter dated October 1 2025. <https://content.govdelivery.com/accounts/WADFW/bulletins/3f51089>

Washington Department of Fish and Wildlife. 2025b. Habitat Recovery Pilot Program. <https://wdfw.wa.gov/licenses/environmental/hpa/types/pilot>

Washington Department of Fish and Wildlife. 2026. WDFW Residential Shoreline Social Survey Report [report in preparation].

Washington State University Social & Economic Sciences Research Center. 2026a. Puget Sound Residential Shoreline Managers Survey, Data Report #25-023.

Washington State University Social & Economic Sciences Research Center. 2026b. Puget Sound Residential Shoreline Managers Survey, County Level Analysis, #25-047

Windrope, A.H., T. Quinn, K.L. Fresh, and J.K. Gaydos. 2016. Marine Shoreline Management – A 35-Year Evaluation of Outcomes in San Juan County, Washington, US. *Coastal Management*. 44(6): 1-24. DOI: 10.1080/08920753.2017.1237242.
https://www.researchgate.net/publication/309714745_Marine_Shoreline_Management-A_35-Year_Evaluation_of_Outcomes_in_San_Juan_County_Washington_US