PUGET SOUND FEDERAL LEADERSHIP TASK FORCE

Biennial Report

May 2024

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1.0 Executive Summary

On December 23, 2022, the President signed into law H.R. 7776, the *James M. Inhofe National Defense Authorization Act for Fiscal Year 2023*, which amends the Clean Water Act by adding a Puget Sound Coordinated Recovery section.

The new section establishes a Puget Sound Recovery National Program Office in EPA, the Puget Sound Federal Leadership Task Force (PSFLTF), and requires, every other year, the publication of "…a report that summarizes the progress, challenges, and milestones of the Puget Sound Federal Leadership Task Force relating to the restoration and protection of the Puget Sound."[1] This, the first of the required Biennial Reports, describes progress made, outstanding challenges, and milestones reached by the PSFLTF.

In terms of progress, highlights include streamlining permitting for restoration projects, leading efforts to address 6PPD-q and stormwater runoff, and early and effective use of Infrastructure Investment and Jobs Act funds aligned with Administration priorities for climate and Environmental Justice.

Challenges include federal agency capacity and staffing for permitting, authority for regulatory improvements, and ensuring that Puget Sound restoration and protection activities are as consistent as practicable with ongoing and related Canadian efforts in the Salish Sea.

Milestones for the PSFLTF include working toward full implementation of the 2022-2026 Puget Sound Federal Action Plan over the next two years, including additions to that Plan made through this report.

Overall, this report summarizes progress, challenges, and milestones of the PSFLTF by including the following information.

- Highlights from the State of Washington's 2023 State of the Sound report.
- Links to the key references for understanding progress relative to Salmon Recovery Plans.
- Priorities of the Western Washington tribes' Treaty Rights at Risk Initiative.
- Status updates for the Coastal Nonpoint Pollution Program.
- Detailed Examples of successful efforts related to and consistent with the work of the PSFLTF.
- A summary of progress and recommendations for the PSFLTF Action Plan's 115 (now 126) priority federal actions to protect and restore Puget Sound.

[1] Clean Water Act § 126(e)(1)

2.0 Progress and Recommendations

2.1 Action Agenda

The Puget Sound Coordinated Recovery section of the Clean Water Act requires, every other year, the publication of "…a report that summarizes the progress, challenges, and milestones of the Puget Sound Federal Leadership Task Force relating to the restoration and protection of the Puget Sound."[2] The section further requires a description of "[t]he roles and progress of each State, local government entity, and Federal agency that has jurisdiction in the Puget Sound region relating to meeting the identified objectives and priorities of the Action Agenda".[3]

To meet this requirement, the PSFLTF is incorporating by reference the Puget Sound Partnership's State of the Sound report. The State of the Sound Report 2023 includes information about the health of Puget Sound, the state of the Puget Sound recovery effort, recommendations from the Partnership's leadership and boards and other key details related to the recovery community and our work.

Summary messages in the State of the Sound Report 2023 include:

- The Puget Sound ecosystem is not doing well, but with collective effort, we can restore it to health and make sure it can adapt to climate change and other pressures.[4]
- We see progress in indicators where decision-makers and land managers have direct influence on habitat outcomes, for example, restoring estuaries and floodplains. We are encouraged by improving trends in summer chum salmon and some herring stocks.[5]
- We see the least progress or declines in indicators affected by multiple factors (such as Chinook salmon and orca population abundance) and large-scale forces, such as climate change, and where we rely on decisions made nationally or even globally to create positive change.[6]

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2 Clean Water Act § 126(e)(1)
3 Clean Water Act § 126(e)(1)
4 Puget Sound Partnership, State of the Sound Report 2023, p. 7
5 Puget Sound Partnership, State of the Sound Report 2023, p. 8
6 Puget Sound Partnership, State of the Sound Report 2023, p. 8

2.2 Salmon Recovery Plans

The Puget Sound Coordinated Recovery section of the Clean Water Act requires, every other year, the publication of "…a report that summarizes the progress, challenges, and milestones of the Puget Sound Federal Leadership Task Force relating to the restoration and protection of the Puget Sound."[7] The section further requires a description of "[t]he roles and progress of each State, local government entity, and Federal agency that has jurisdiction in the Puget Sound region relating to meeting the identified objectives and priorities of the…Salmon Recovery Plans".[8]

To meet this requirement, the PSFLTF is incorporating the following resources by reference.

- Puget Sound Info Salmon Vital Sign Website.
- The Washington State Governor's Salmon Recovery Office website State of Salmon in Watersheds.
- NOAA Puget Sound Salmon Recovery Plans.
- NOAA Fisheries Endangered Species Act 5-Year Reviews.
- Lead Entity websites. Lead entities are watershed-based groups that develop strategies to restore salmon habitat and recruit organizations to do the work.
- Puget Sound Partnership Salmon Recovery website.
- 15-year review of the Puget Sound Acquisition and Restoration (PSAR) Program.

SPRING CHINOOK SALMON. PHOTO: USFWS

Summary salmon recovery messages in the 2023 State of the Sound report include:

- Salmon spawner abundance across Puget Sound has changed very little since the baseline period for three of the four indicator species: natural-origin Chinook, coho, and Puget Sound steelhead. For Chinook and steelhead, which are federally listed as threatened, this means we see little to no sign of recovery.[9]
- Hood Canal summer chum salmon have increased since ESA listing in 1999. This good news reflects decades of effort and investments in habitat restoration, reduced harvest rates and revisions in hatchery management.[10]

CHUM SALMON. PHOTO: USFWS

7 Clean Water Act § 126(e)(1)
8 Clean Water Act § 126(e)(1)
9 Puget Sound Partnership, State of the Sound Report 2023, p. 35
10 Puget Sound Partnership, State of the Sound Report 2023, p. 35

2.3 Treaty Rights at Risk Initiative

The Puget Sound Coordinated Recovery section of the Clean Water Act requires, every other year, the publication of "…a report that summarizes the progress, challenges, and milestones of the Puget Sound Federal Leadership Task Force relating to the restoration and protection of the Puget Sound."[11] The section further requires a description of "[t]he roles and progress of each State, local government entity, and Federal agency that has jurisdiction in the Puget Sound region relating to meeting the identified objectives and priorities of the…Treaty Rights at Risk Initiative."[12]

The PSFLTF helps coordinate the federal response to Western Washington Tribes' Treaty Rights at Risk Initiative, the geographic scope of which is larger than the Puget Sound watershed and includes coastal tribes. The PSFLTF helps coordinate the federal response by organizing and supporting leadership engagements, facilitating staff and management level working groups, and working to integrate the priorities of the Treaty Rights at Risk Initiative into the Puget Sound Federal Action Plan. For example, from October 2021 through April 2022, the PSFLTF organized federal-Tribal leadership engagements, facilitated working groups, and worked to integrate Tribal "Required Actions" into the 2022-2026 Puget Sound Federal Action Plan. Tribes' "Required Actions" were transmitted to federal agencies by the Northwest Indian Fisheries Commission as Tribal meeting materials for the November 4, 2021 Regional Federal Leaders and Western Washington Tribal Leaders Meeting.

The Western Washington Treaty Tribes are heartened by the recent amendment to the Clean Water Act that added the Puget Sound Recovery section. However, there is still a lot of work federal agencies need to do to meet the objectives of salmon recovery and uphold their trust responsibility to protect Tribes' treaty rights.

Priorities of the Western Washington Tribes' Treaty Rights at Risk Initiative include the following.

- Ensure that all federal actions affecting habitat contribute to recovery of salmon and orca.[13]
- Require federal funding supporting state programs and pass-through grants to be conditioned so that all funded efforts achieve consistency with state water quality standards and salmon recovery plan habitat objectives.[14]
- Align funding programs to ensure achievement of recovery objectives.[15]
- Unify federal agencies and resolve inter-agency conflicts to support salmon recovery.[16]
- Hold federal agencies accountable for acts or omissions that lead to disparate treatment of treaty tribes or failing to protect treaty reserved rights.[17]
- Direct federal agencies to increase enforcement of their obligations to protect habitat, including the Endangered Species Act and Clean Water Act.[18]
- Harmonize federal actions to ensure consistency and compliance with federal obligations and treaty rights.[19]

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11 Clean Water Act § 126(e)(1)

12 Clean Water Act § 126(e)(1)

13 Treaty Rights at Risk Report, page 15

14 *Ibid*., p. 20

15 *Ibid*., p. 25

16 *Ibid*., p. 25

17 *Ibid*., p. 25

18 *Ibid*., p. 5

19 *Ibid*., p. 5

For determining progress on meeting the objectives and priorities of the Treaty Rights at Risk Initiative, the PSFLTF defers to individual Tribes, and when appropriate, the Northwest Indian Fisheries Commission. Information that supports these efforts can be found in the report State of Our Watersheds and NWIFC Member Tribe websites.

2.4 Coastal Nonpoint Pollution Control Program

The Puget Sound Coordinated Recovery section of the Clean Water Act requires, every other year, the publication of "…a report that summarizes the progress, challenges, and milestones of the Puget Sound Federal Leadership Task Force relating to the restoration and protection of the Puget Sound."[20] The section further requires a description of "[t]he roles and progress of each State, local government entity, and Federal agency that has jurisdiction in the Puget Sound region relating to meeting the identified objectives and priorities of the…Coastal Nonpoint Pollution Control Program."[21]

To meet this requirement, the Puget Sound Federal Leadership Task Force is incorporating the following resources by reference.

- Washington state-specific program findings and approval documents for NOAA's Coastal Nonpoint Pollution Control Program.
- Washington State Department of Ecology's Coastal Zone Management Program and Stormwater & runoff websites.

In summary, EPA approved the 2022 updates to Washington's Water Quality Management Plan to Control Nonpoint Sources of Pollution, and in doing so, provided expectations for continued improvements to Washington's Nonpoint Source Management program. EPA also determined that the State has made satisfactory progress implementing its nonpoint source management program in the preceding year and awarded the next year's CWA Section 319 grant. In addition, EPA and NOAA are preparing to take final action regarding the remaining conditions placed on the State's coastal nonpoint program (CZARA).

2.5 Federal Action Plan

The Puget Sound Coordinated Recovery section of the Clean Water Act requires, every other year, the publication of "…a report that summarizes the progress, challenges, and milestones of the Puget Sound Federal Leadership Task Force relating to the restoration and protection of the Puget Sound."[22] The section further requires, in the Biennial Report "[a] summary of progress made by Federal agencies toward the priorities identified in the Federal Action Plan,"[23] and, "[a] summary of specific recommendations concerning implementation of the Action Agenda and the Federal Action

> "THE ACTIONS BY CONGRESS ACKNOWLEDGE THE NATIONAL SIGNIFICANCE OF PUGET SOUND AND GIVES THE EPA THE OPPORTUNITY TO DOUBLE-DOWN ON OUR EFFORTS TO SUPPORT THE MANY PARTNERS ON THE GROUND WORKING EVERY DAY TO RESTORE PUGET SOUND, AND IMPORTANTLY UNDERSCORES OUR COLLECTIVE EFFORTS TO PROTECT TRIBAL TREATY RIGHTS," - CASEY SIXKILLER, EPA REGIONAL ADMINISTRATOR, SEATTLE TIMES, 12/30/22.

[20] Clean Water Act § 126(e)(1)
[21] Clean Water Act § 126(e)(1)
[22] Clean Water Act § 126(e)(1)
[23] Clean Water Act § 126(e)(2)(D)

Plan, including challenges, barriers, and anticipated milestones, targets, and timelines."[24]

To meet these requirements, Appendix A of this report describes "Progress" and "Recommendations" for the 115 priority federal actions contained in the 2022-2026 Puget Sound Federal Action Plan. Also, through this Biennial Report, the PSFLTF is adding nine new actions.

Summary messages about progress made by federal agencies toward the priorities identified in the Federal Action Plan include:[25]

- Awarding funding from the Infrastructure Investment and Jobs Act (IIJA) for Puget Sound recovery projects that are aligned with Administration priorities on climate and environmental justice. These include some of the earliest expenditures of IIJA funds.
- Salmon recovery plans are being implemented and updated.
- PSFLTF member agencies are strengthening transboundary coordination with their Canadian counterparts.
- Federal agencies fund, support, lead and/or participate in many coordination and collaboration efforts across the Puget Sound recovery community, including stormwater runoff management.
- PSFLTF members are working to ensure that their permitting processes support restoration projects.
- State-led efforts are achieving positive impacts with recently increased federal funding, by implementing their own and other projects.
- Federal inter-agency coordination is prevalent across the effort, including benefits for science and monitoring needs.
- NOAA, U.S. Fish & Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE) and Federal Highway Administration (FHWA) are reducing permitting backlogs through programmatic approaches to facilitate action on the ground.
- Habitat protection and restoration efforts are being increased through inter-governmental coordination and innovative use of funding for riparian habitat.
- Federal agencies are providing technical assistance to both project proponents and a new and growing community of project implementers.
- Federal agencies like the Forest Service are partnering with counties to restore watersheds through an all-lands approach.
- The Navy and Joint Base Lewis McChord (JBLM) are implementing priority and innovative actions to protect and restore Puget Sound while supporting national security interests.
- The Farm Service Agency and JBLM are adding new actions to the PSFLTF 2022-2026 Action Plan through this report.
- The Natural Resources Conservation Service (NRCS) is working with landowners to support activities that maintain working lands, prevent adverse impacts associated with more intensive development and support local jobs and communities.
- EPA is actively addressing 6PPD and other pollutants found in stormwater discharged into the Puget Sound and its tributaries. These efforts are identified as "new actions" in Appendix A of this report.
- Washington State received almost $60M to fix 46 fish passage barriers in the first year of a fundamentally new level of federal contribution to this long-standing challenge.

[24] Clean Water Act § 126(e)(2)(C)

[25] Summarized from information in the "Progress" column of Appendix A.

- Federal agencies are contributing to state and Tribal efforts to monitor and address invasive European Green Crabs, including conducting green crab trapping and removal efforts on federal lands, and coordinating the revision of the national management plan for green crab expected to be finalized in May 2024.

Summary messages about recommendations for federal agencies to act consistently with the priorities identified in the Federal Action Plan include:[26]

- Prioritize efforts to reduce, mitigate, and study the impacts of stormwater pollution.
- Continue implementing available federal funding for state and Tribal led efforts, to support on-the-ground actions by local governments and organizations.
- Continue to improve federal, state, Tribal, and Canadian collaboration.
- Extend assistance with the permitting process to more restoration projects.
- Support permitting efforts at NOAA, USFWS, USACE, and FEMA.
- Coordinate federal-state implementation efforts to enhance riparian habitat, and other issues.
- Speed fish passage projects by considering and addressing inhibiting factors related to eligibility and cost share.
- Work to implement the whole Puget Sound federal action plan, including the science and monitoring actions.

Summary Table of Priority Federal Actions to Protect and Restore Puget Sound by Category

Category	*Number of actions in 2022-2026 PSFLTF Action Plan*	*Number of actions as changed through this Biennial Report*	*Explanatory Note (Recommendations refine existing actions where specified)*
Crosscutting	14	15	1 new for all (transboundary coordination)
Habitat - Crosscutting	8	12	1 new for JBLM, 3 new for NOAA
Habitat - Nearshore and Shoreline	4	5	1 new for USACE
Habitat - Floodplains, Riparian and Estuaries	20	21	1 new for FSA
Habitat - Fish Passage	10	11	1 new for NOAA (IIJA)
Stormwater	12	15	3 new for EPA (6PPD)
Shellfish	13	13	
Science and Monitoring	28	28	
Governance	6	6	
Total	115	126	

2.6 Detailed Examples

2.6.1 Federal, Tribal, and State Leaders Launch Puget Sound Federal Leadership Task Force

On May 4, 2023, Congressman Kilmer, leaders from 16 federal agencies, six state agencies, eight tribes and the Northwest Indian Fisheries Commission kicked-off the first meeting of the Puget Sound Federal Leadership Task Force, mandated by Congress in 2022 to coordinate the federal government's efforts to restore Puget Sound and address Tribal treaty rights.

[26] Summarized from information in the "Recommendations" column of Appendix A.

According to Casey Sixkiller, Regional Administrator of EPA's Region 10 office in Seattle, "The creation of the new Puget Sound Federal Leadership Taskforce will help us to work collaboratively across governments – federal, state and Tribal – to advance policies and restoration projects that reflect this commitment and to ensure our work is both inclusive and equitable moving forward."

"Seattle District has a strong role in Puget Sound Recovery with significant investments in fish passage and ecosystem restoration," said USACE of Engineers Seattle District Commander Col. Alexander Bullock. "We look forward to building upon that portfolio with federal co-chairs EPA and NOAA, other federal partners, and our tribal partners. As the Nation's Engineers, we are ready to provide engineering expertise and water resource stewardship, fulfill our commitments to our tribal partners, and deliver world-class solutions to protect and serve the Pacific Northwest and the Nation."

PUGET SOUND FEDERAL, STATE AND TRIBAL LEADERS. PHOTO: PETER MURCHIE

"Honoring tribal treaty rights means taking action so that salmon, endangered Southern Resident killer whales, rockfish and the ecosystem they depend on are recovering and conserved for generations to come," said Jennifer Quan, Regional Administrator in NOAA Fisheries' West Coast Region. "We are proud to join our federal partners, tribes, and many others who care deeply about the health of Puget Sound to give these critical species the protection and support they need to recover."

"Puget Sound recovery matters to our region's environmental and economic future, to our efforts to recover salmon populations, and to Tribal treaty rights," said Congressman Derek Kilmer. "Federal funding is a vitally important piece of the solution. And so is coordination. We need all boats in the water rowing in the same direction. That's why I'm proud of the progress we are making. It will help make a real difference in the effort to restore and protect Puget Sound. I'll keep at it!"

"This is a historic investment in Puget Sound recovery," said Senator Maria Cantwell. "The creation of the first-ever Puget Sound Recovery National Program office and Puget Sound Federal Task Force will mean that the Puget Sound, salmon, and orcas are poised to receive unprecedented support well into the future. This is critical to conducting the science needed to protect and restore our Sound for future generations."

"The Puget Sound is one of Washington state's greatest treasures: it's central to our state's economy, environment, culture, and Tribal treaty rights—and it's critical we restore and protect it for generations to come," said Senator Patty Murray. "I was proud to secure truly historic new investments in Puget Sound last Congress, and now I'm watching closely to make sure these federal dollars are being put to good use—and as Congress intended—just as I keep fighting to build on this progress in the other Washington."

"Ensuring the future and success of the Puget Sound has been a top priority of mine since my first day in Congress," said Congresswoman Marilyn Strickland. "Today's Task Force launch is a monumental moment for the Puget Sound that will address Tribal treaty rights and encourage necessary agency collaboration to protect and preserve one of the nation's great marine ecosystems."

So, what's next for the Puget Sound Federal Leadership Task Force? The Task Force will continue to improve and increase collaboration with state and Tribal partners to: uphold trust responsibilities to restore and protect resources essential to Tribal treaty rights; provide a venue for dialogue and communication; encourage member agencies to act consistently with the Puget Sound Action Agenda, Salmon recovery plans, Treaty Rights at Risk Initiative (pdf), and, Coastal Nonpoint Pollution Control Program; provide advice and support on scientific and technical issues; and, ensure that Puget Sound restoration and protection activities are consistent with national security interests.

"We have responsibilities to make sure national environmental laws are adhered to when the state is implementing projects, of course, the Endangered Species Act, Section 7—that's where 6PPD-quinone comes in—we're working closely with NMFS and USFWS to figure out how we're going to keep projects moving while also doing something about capturing the tire dust." - Ralph Rizzo, FHWA Washington Division Administrator, PSFLTF Member, at Puget Sound Day on the Sound 10/12/23. Also pictured, David Troutt, Natural Resources Director, Nisqually Indian Tribe

2.6.2 Multi-Agency Review Team Streamlines Permitting for Habitat Restoration at Snow Creek

The Multi-Agency Review Team (MART) is composed of federal and state regulatory staff working to streamline permitting for habitat recovery projects.

One of the projects the MART helped support was at the Snow Creek Uncas Preserve, a stronghold for endangered chinook, coho and summer chum salmon.

The purpose of this project is to restore fish habitat by reconnecting the floodplain. A long-term action is to modify both U.S. highway 101 and local roads to facilitate additional reconnection of historic channels.

With the help of the MART, federal, state, and local permits for the project were obtained in approximately 5 months after the application submittal, which is about 40 percent faster than the average permitting time (federal and state) for similar projects that did not go through the MART. This short timeline was also attributed to partnering with the State's Habitat Recovery Pilot Program, which waives most local and state permits.

SNOW CREEK BEFORE AND AFTER FLOODPLAIN RECONNECTION. PHOTO CREDIT: NORTH OLYMPIC SALMON COALITION.

Originally formed to help streamline permitting in shoreline restoration, the MART has expanded its scope to an array of restoration projects, like the one described above, and plans to continue to do so to help move the Puget Sound area further toward the goals listed in the 2022-2026 Action Agenda. Some of the work on the team's to-do list involves exploring ways to implement a permitting process that would streamline permitting of similar types of multi-benefit projects like floodplain restoration in a priority subwatershed; expanding collaboration with the Habitat Recovery Pilot Program (HRPP) to further expedite salmon recovery permits; and working with FEMA to develop a joint federal-state strategy to help streamline the process for flood development permitting for habitat recovery projects.

2.6.3 Salish Sea Nearshore Endangered Species Act Section 7 Programmatic Consultation

Nearshore marine habitats, including estuaries provide some of the most valuable habitat for Puget Sound salmon, steelhead, and other fish/wildlife. Endangered Southern Resident killer whales depend on these salmon for prey, making this habitat important for the whales also. Nearshore habitat is a keystone of the regional economy, supporting fishing, shellfish farming, tourism and more.

PHOTO: PORT OF TACOMA DOCK REPAIR

Most marine nearshore habitat in Puget Sound is no longer in its natural condition, with more than

90 percent of tidal wetlands lost to development. That leaves salmon with only a fraction of the essential nursery habitat they need to attain the size and strength required to survive in the open ocean. This is especially concerning for Puget Sound Chinook salmon, which is listed as threatened under the Endangered Species Act (ESA).

In January 2022, the National Oceanic and Atmospheric Administration (NOAA) and the Department of the Army signed a memorandum that addresses how to assess the effects of infrastructure and maintenance projects. Building on the January 2022 memorandum, NOAA, USACE, and USFWS worked collaboratively on programmatic ESA biological opinions for the Salish Sea nearshore (Salish Sea Nearshore Programmatic, SSNP). These biological opinions, provide streamlined pathways for projects in the marine nearshore to undergo ESA review by NOAA and the USFWS and receive permits in a more-timely manner. The programmatic approach has enabled agencies to efficiently process a substantial backlog of projects, address incoming projects, and obtain additional conservation. The SSNP programmatic facilitates NOAA, USFWS, and the US Army Corps of Engineers working together to ensure habitat and species conservation while permitting sustainable development in Puget Sound.

2.6.4 Puget Sound Stormwater and Transportation Charter Group Poised for Action

The Puget Sound Stormwater and Transportation Charter Group comprises subject matter experts from the federal family (EPA, NOAA, USDOT, USGS), Washington State Agencies (WSDOT, Ecology, Puget Sound Partnership), Western Washington Tribes and other natural resource management agencies. The group will proactively address stormwater pollution from the regional transportation system – i.e., toxic runoff from highways, roads, parking lots and similar impervious surfaces.

The Charter Group initially convened in July of 2023 and has active subgroups to make progress on 1) near-term low risk, high reward transportation infrastructure stormwater retrofit projects,[27] 2) large outfalls with inadequate stormwater treatment, and 3) science, monitoring and prioritization.

The Charter Group will work to address, prioritize, and fund stormwater treatment in key locations to protect salmon and treaty rights.

Urban stormwater runoff is a major non-point source pollution threat to Puget Sound aquatic species, communities, habitats, and ecosystems. Motor vehicles are a primary source of contaminants, contributing metals and polycyclic aromatic hydrocarbons (PAHs), which are known to be toxic to salmon and their supporting aquatic food webs. In addition, new research has revealed hundreds of uncharacterized chemicals in roadway runoff, many originating from tires. This includes 6PPD-q, the

[27] Stormwater retrofit projects involve installation of storm water best management practices in areas where none previously existed, or improvement of existing storm water management practices so that they provide a water quality function.

causal agent in a widespread urban mortality syndrome in coho, steelhead and possibly other Puget Sound salmonids. Current rates of coho mortality in some urban watersheds are unsustainable. Moreover, habitat conditions are expected to decline further with climate change and population growth, which will significantly influence risks from urban runoff. Stormwater impacts, if unaddressed, are likely to contribute to undermining the long-term clean water and salmon recovery goals of the participating Charter Group agencies and Tribal co-managers.

Addressing stormwater toxics will necessitate a multi-prong approach including source control (e.g., a phaseout of 6PPD in tires), green infrastructure for stormwater filtration and contaminant removal, landscape and land use modeling to better understand chemical exposure, environmental monitoring to track habitat trends and assess mitigation effectiveness, and targeted ecotoxicological studies to establish thresholds for adverse health outcomes for both familiar (PAHs) and emerging (6PPD-q) contaminants. The rapid pace of science in the stormwater domain necessitates a nimble, adaptive, and highly coordinated effort across the Puget Sound natural resource management community.

In the context of the Puget Sound Federal Leadership Task Force Action Plan, the expanding transportation grid and climate change are interconnected, ecosystem-scale stressors and are therefore a priority for ongoing federal investments in Puget Sound (e.g., recent IIJA and Inflation Reduction Act (IRA) supplemental appropriations).

Here, we present recommendations from the Charter Group as well as our own leadership and actions as federal agency leads (see Appendix A for details on agency actions).

Puget Sound watersheds provide cool, clean water for healthy salmon populations for generations to come. Future development patterns, spurred in part by ongoing federal investments in the regional transportation grid, will not undermine salmon recovery or Tribal treaty rights. Practical yet effective pollution reduction strategies are identified and shared across all Puget Sound stakeholder networks to avoid or minimize project delays, economic costs, and related burdens for state and local governments.

In the next two years, work with partners to identify priority transportation systems and salmon reaches for stormwater treatment. Develop plans and secure funding to integrate stormwater management on new projects in those areas and retrofit as needed in roadways that impact salmon and treaty rights.

Over the next two years, the Charter Group will work to implement the following.

1. Define the scope of the challenge, using a watershed-scale approach to evaluate pollution inputs to freshwater and estuarine habitats, as they overlap the habitat range for highly migratory salmonids in Puget Sound – at present, and with future climate change.
2. Prioritize lower-cost, high-yield opportunities for stormwater retrofits and other pollution reduction strategies for the existing and future transportation grid.
3. Use vulnerability analysis to identify where healthy/productive salmon habitats are likely to be most impacted by future expansions of the transportation grid, as focus areas for clean water investments using green infrastructure and similar approaches.
4. Coordinate and leverage resources across Charter organizations and their respective partners (including academic researchers and local governments), for maximal alignment and impact.
5. Coordinate closely with regional and related technical working groups, including the PSFLTF Science and Monitoring group, the Puget Sound PSEMP workgroup, Stormwater Strategic Initiative, and others.

6. Produce cost estimates for high priority retrofits and green infrastructure installations across salmon-supporting watersheds, as well as long-term operations and maintenance, as a basis for Congressional reporting and future federal and state budget planning.
7. Proactively pursue funding for high priority retrofits and green stormwater infrastructure.
8. Develop studies (research, monitoring, and/or synthesis) to focus the shared expertise and resources across the Charter group on the most pressing salmon conservation and recovery information gaps, in support of adaptive management.
9. Review the emerging science on green infrastructure methods, demonstration projects, and effectiveness monitoring, and make recommendations for best practices.

The Charter Group recognizes the importance of 6PPD-q as an emerging dimension of the larger regional stormwater threat to Puget Sound salmon recovery, and will support efforts by the EPA, Ecology, and others to eventually replace 6PPD in tires. These parallel efforts include, for example, EPA's TSCA program, ongoing 6PPD-q reviews in Washington and California, and cooperative engagements with industry and the national ITRC 6PPD team. Progress updates for these areas are reported elsewhere in this Biennial Report (see Appendix A).

The Charter Group recognizes that salmon recovery cannot be successful in Puget Sound without addressing 6PPD-q. We must take steps to reduce 6PPD (or 6PPD-q) from getting into our environment and our waters, especially where we fish and swim. However, since stormwater is such a complex chemical mixture with many different types of toxicants, mitigating 6PPD-q alone will not be sufficient. Fortunately, bioinfiltration (like rain gardens or bioswales) produces water that does not cause acute toxicity to salmon, and is a solution that can be implemented in the near term to treat the suite of stormwater pollutants, including 6PPD-q.

Thus, this Charter Group is focusing on how we can be as strategic as possible using green stormwater infrastructure to improve water quality and salmon health.

The primary science and monitoring focus of this Charter Group will be to determine where stormwater treatment installations will be most effective to protect salmon and water quality, and to ensure that they work as intended.

However, the Charter Group recognizes that additional science will be necessary. This should include development of EPA approved analytical methods and a benchmark for working toward aquatic life criteria for 6PPD-q that is protective of sensitive species like coho salmon (See Appendix A). The Charter Group also emphasizes the need for fast-tracked ESA section 7 consultations that are protective of species exposed to stormwater and that can be incorporated into regulatory and funding decisions. NOAA, EPA and USGS will support additional science to learn more about why in 6PPD-q is so toxic to fish, as well as sublethal effects (see action 2.5.3 for more detail).

The Charter Group also recognizes the need for Tribal capacity funding to engage in this effort because it directly affects tribal treaty rights. Stormwater funding is important more broadly to ensure that water quality and toxic pollution are considered in salmon recovery and transportation funding decisions; for example, making sure that water quality is sufficient to support salmonid health and does not create ecological traps. The Charter Group recommends working with NOAA and the Salmon Recovery Funding Board to ensure that contaminants such as 6PPD-q, PAHs, and PCBs can be explicitly considered when making salmon habitat investment decisions (not just conventional pollutants such as temperature and sediment), including projects to treat stormwater to remove toxics (raised in NOAA PCSRF action 2.2.2).

2.6.5 Tributary to Greenwater River at FSR 7030 – Aquatic Organism Passage Restoration Project

During the flood of February 2020, high flows coupled with debris overwhelmed the Forest Service Road 7030 crossing of an unnamed tributary to Greenwater River. (Greenwater River supports native salmon, bull trout and coastal cutthroat trout). The result was an almost total loss of the road, diversion of the stream further down the road, direct road sediment discharge into Greenwater River and severe impacts to aquatic habitat.

Pre-construction Condition

With the help of EPA funding (per the EPA-USFS Legacy Roads Partnership), Mount Baker Snoqualmie National Forest Engineers (Claribel Orellana and Bri Celeya), Fisheries Biologists (Karen Chang and Richard Vacirca) and Hydrologist (Jen Ford) collaborated on completing the stream simulation design, contract award and oversight and construction.

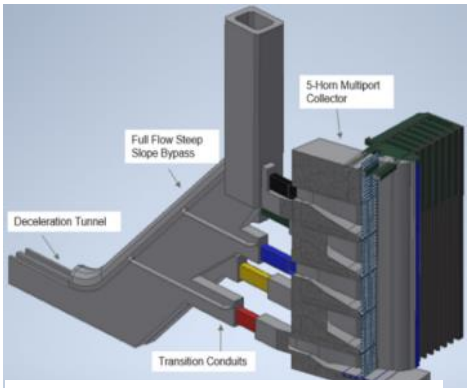
Project Completion

On August 1, 2023, project construction was completed, restoring stream habitat function, aquatic organism passage and the roadway, including safe vehicle access through this area. Small tributaries to main stem rivers such as this one provide off-channel habitat for rearing salmonids.

This project under USFS Watershed Condition Framework is an essential project specified in the Lower Greenwater River Watershed Restoration Action Plan. It was one project of a larger sub-set of aquatic restoration actions covered in the Snoquera Landscape Restoration EA. Future projects in the Snoquera Landscape are slated for 2024, 2025 and 2026 which will be led by MBS NF partners Trout Unlimited and Conservation Northwest and paid for by USFS Legacy Roads and Trails and Washington State Puget Sound recovery related grant funding. See https://www.washingtontu.org/ for a video featuring this project!

2.6.6 Howard A. Hanson Fish Passage Project

Howard A. Hanson Dam is located 35 miles southeast of Seattle on the Green River and provides flood risk management for the populated areas of Kent, Auburn, Tukwila, and South Seattle, including over $25 billion in infrastructure. It is challenging to design downstream fish passage facilities at high head dams that can collect small out-migrating salmon from the water surface even while the water surface elevation changes 100 feet over the year. Although this project was originally authorized for construction in 1999, that construction was halted in 2011, when it was clear the proposed fish passage facility could not be completed within the Congressionally authorized cost limit.



MODEL OF NEW FISH PASSAGE FACILITY. PHOTO: USACE

Completion of a downstream fish passage facility at the dam, in concert with the already completed upstream fish passage facility constructed by Tacoma Public Utilities, will open approximately 45% of the Green River watershed (221 square miles) including about 100 miles of stream and river habitat. The Upper Green is a closed watershed to protect potable water supply, and therefore the habitat is high quality. The area will support populations of Endangered Species Act (ESA)-listed threatened Puget Sound Chinook Salmon, threatened Puget Sound Steelhead, threatened Bull Trout, and by extension, support endangered Southern Resident killer whales.

AERIAL VIEW OF HOWARD A. HANSON DAM AND UPSTREAM HABITAT THAT IS CURRENTLY INACCESSIBLE TO ESA LISTED SALMON. PHOTO: USACE

In 2019, NMFS issued a Jeopardy Biological Opinion requiring construction on the downstream fish passage facility by 2030. Since that time, USACE has convened regional experts from NMFS, USFWS, WDFW, TPU and the Muckleshoot Indian Tribe to complete a validation study, which supported Congressional re-authorization of the increased cost in the Water Resources Development Act of 2022. USACE continues to work with those regional partners in the design phase and has received $220 million in IIJA funding to complete design and start construction.

2.6.7 Skokomish River Ecosystem Restoration

The Skokomish watershed is the ninth largest freshwater basin in Puget Sound and the largest tributary to the Hood Canal. From its headwaters in Olympic National Park and national forest, the north and south forks flow through managed timberlands into the agricultural landscape of the Skokomish River floodplain. The watershed currently supports fall chinook, coho, summer and fall chum, pink salmon and steelhead, and recently re-introduced spring chinook and sockeye salmon populations. The Skokomish River delta is located within the Skokomish Indian Tribes reservation.

SKOKOMISH RIVER RESTORATION AT RIVER MILE 5
PHOTO: NORTHWEST INDIAN FISHERIES COMMISSION

Development of the Skokomish Watershed lowlands converted large portions of the Skokomish River estuary and the lower watershed floodplains into farmland. Dikes, ditches, and tide gates were constructed to keep out the tides and drain the area so it could be used for grazing and growing crops. Forest lands were cleared, levees were constructed to hold back floodwaters, and side channels were filled to provide for agricultural development. The structures served their purpose by keeping water out of the fields, but they also prevented salmon and other fish species from accessing habitat, led to impaired water quality, and restricted ecological function needed for aquatic resources to grow and thrive.

Agricultural use of the land diminished substantially over time. However, the remaining structures continued to block access for fish. Skokomish estuary restoration projects were completed in three phases from 2007-2012 with the assistance of USACE, NOAA and many other state and local partners. The estuary habitat benefitted immediately, and the ecological function continues to improve. Aquatic and terrestrial resources have demonstrated a positive response to the availability of the restored habitat.

The Skokomish Indian Tribe, Mason County, and the USACE with funding and support from federal and state agencies prepared an ecosystem restoration plan for the mainstem of the Skokomish River, upstream of river mile 6.5. USACE has obtained $13 million to restore 277 acres of the mainstem floodplain in the area upstream of river mile 6.5 in the near future. The State of Washington is providing $6 million dollars in match for the USACE funds. The project is in the process of acquiring the necessary real estate interests to begin construction.

The Tribe is also actively working on restoring instream, floodplain, and riparian habitat in the reaches of the Skokomish River upstream of the estuary and downstream of river mile 6.5. The Weaver Creek Side Channel, the River Mile 5 Side Channel, and the River Mile 5 Large Woody Debris Phase I projects have recently been completed. Obtaining project construction permits required before grant funds expired was facilitated by federal and state agencies utilizing the MART process to expedite permitting. Restoration also occurs in the upper watershed, the most recent project completed in the summer of 2022. The Skokomish Indian Tribe, USFS, and Mason Conservation District installed 39 log jams in a 2-mile-long reach of the Upper South Fork Skokomish River to slow the river's velocity and create habitat for fish to rest, feed, spawn, and hide from predators. This project will benefit listed Chinook, Steelhead, bull trout, and Cutthroat trout. The Tribe is continuing to implement the priority restoration projects

identified in the Skokomish river ecosystem restoration plan. Federal and state agencies are continuing to provide funding and streamlined permitting assistance for these projects through the MART.

2.6.8 Elwha River Salmon and Steelhead on the Road to Recovery

The Elwha River flows north from the heart of the Olympic Mountains within Olympic National Park into the Strait of Juan de Fuca. The river marks the western boundary of the Puget Sound Chinook and Puget Sound Steelhead populations. The removal of two dams on the river, completed in 2014, represents the single largest salmon recovery action within the jurisdiction of the Puget Sound Action Agenda and the world's largest dam removal project to date.

Now, nearly 10 years following dam removal, salmon and steelhead populations in the Elwha River are on the road to recovery. All species of anadromous salmonids (Chinook, Coho, Chum, Pink, Sockeye, Steelhead, Bull Trout and Cutthroat Trout) have been observed above former dam sites, while Chinook, Steelhead and Bull Trout have been documented in the headwaters of the river. Of particular note, Summer Steelhead, which are rare elsewhere in the Puget Sound basin, are abundant in the Elwha River. This year over 300 Summer Steelhead, representing just a portion of the total population, were observed above the former Glines Canyon Dam site.

This summer also saw healthy return of pink salmon to the Elwha River, buoyed by the strong pink salmon return to all of Puget Sound. For the first time in more than 50 years, the number of pink salmon in the river will exceed the number of Chinook salmon; it is expected that between 5,000 and 10,000 pink salmon will have spawned by the end of September. While this is just a fraction of the river's pink salmon potential, this year's return will form a strong base for future growth of the population.

CHINOOK SALMON REDD IN THE FORMER LAKE MILLS. PHOTO:

NATIONAL PARK SERVICE BIOLOGIST SURVEYS THE UPPER ELWHA RIVER AT THE CONFLUENCE OF THE GOLDIE RIVER. PHOTO: JOSH GEFFRE

2.6.9 Climate Ready Coasts Initiative and Fish Passage Barrier Removal

PHOTO: NOAA OFFICE OF HABITAT CONSERVATION

As part of the Investing in America agenda, the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA) announced funding opportunities to support climate resilience under IIJA and the Inflation Reduction Act (IRA). These awards are part of NOAA's nearly $6 billion total investment under IIJA and IRA.

In Puget Sound, more than $45 million was awarded across 9 cooperative agreements to complete a massive portfolio of work, including restoration and targeted support for tribal and underserved communities (see 2.2.11 and 2.2.12). An additional $2.3 million is supporting restoration near the Padilla Bay National Estuarine Research Reserve, and $300,000 was awarded to support capacity building.

This funding is anticipated to improve conditions over several thousand acres of floodplain and estuary habitat in Puget Sound, with well over a dozen projects across the Nooksack, Skagit, Stillaguamish, Snohomish and Quilcene watersheds. It also includes the largest award in the more than 30-year history of the NOAA Restoration Center. The Tulalip, Stillaguamish and tribes of the Skagit River Systems Cooperative are collaborating with Snohomish County, Snohomish Conservation District, The Nature Conservancy and The Adopt-a-Stream Foundation to complete a portfolio of projects in the Whidbey Basin in a partnership convened by the Washington State Department of Fish and Wildlife.

NOAA's Climate-Ready Coasts initiative is focused on investing in high-impact projects that create climate solutions by storing carbon; build resilience to coastal hazards such as extreme weather events, pollution, and marine debris; restore coastal habitats that help wildlife and humans thrive; build the capacity of underserved communities and support community-driven restoration; and provide employment opportunities.

Additional funds under IIJA and IRA have also been dedicated to locally led removals of dams and other in-stream barriers. Included in this is dedicated funding for U.S. federally recognized tribes and tribal organizations to implement fish passage work and build tribal organizational capacity. Puget Sound received approximately $11 million for projects to remove over 15 fish passage barriers restoring fish passage to more than 30 miles of stream habitat. These projects will assist in sustaining our nation's fisheries and contributing to the recovery of threatened and endangered species and are also administered by the well-established NOAA Community-based Restoration Program.

This ability to scale up work in response to increased federal funding is not by chance. Federal support for the Snohomish Sustainable Lands Strategy began with federal restoration technical assistance beginning around 2011 (see 2.2.3.14) and was propelled by state and federal investments in integrated floodplain management (see 2.2.3.1). These collaborations created the conditions that enabled the Whidbey Basin proposals. These long-term commitments to relationships and to landscape restoration are what makes scaling up possible. The Whidbey project portfolio represents the tip of the iceberg of the potential restoration economy.

2.6.10 South Fork Nooksack River Recovery

PHOTO: LUMMI INDIAN NATION

The Nooksack Tribe and Lummi Nation staff jokingly call it "log-a-palooza," but the decadal effort building engineered log jams on the South Fork Nooksack River is no joke. The valley and river were stripped of old-growth timber, and since then the channel of the South Fork Nooksack has become wider, hotter, and more unstable, with fewer cool sheltered pools for spring Chinook salmon to rest before spawning. This population and others in the basin are imperiled, and in 2021, 2,500 adult Chinook died from heat-driven disease before they could spawn, triggering a tribal declaration of emergency.

Late in 2023, fast-moving funding from the IIJA (NOAA Transformational Habitat Restoration and Coastal Resilience grant) triggered the construction of engineered log jams on the Lower Fobes Reach. Both Lummi and Nooksack teams were awarded funding through a national competition and received a

combined $9.4 million to support six projects in the South Fork Nooksack River, building on over a decade of incremental engineered log jam installation and learning. This funding will also support collaboration between USGS, Whatcom County, NOAA, and local tribes to design large-scale wetland restoration that will help store water in the ground and increase the resilience of low summer flows in the South Fork Nooksack under climate change. These initial investments lay the groundwork for the possibility of future large-scale ecosystem recovery in the South Fork Nooksack.

Engineered log jams restore the roughness of the floodplain and encourage the formation of deep cool pools and narrow channels among forested islands. These are the habitats in which salmon evolved. These engineered projects provide a stopgap to stabilize the health of the river until the forest can regrow and natural log jam formation resumes (see 2.1.3 and 2.2.3 for discussion of regulatory protection efforts).

However, increasing the roughness of the floodplain affects flood elevations, which triggers federal floodplain requirements designed to protect floodplain communities. These projects may move floodwater into wetlands to recharge groundwater and can steer floodwaters away from vulnerable communities. The Fish Trap Reach project - being designed by the Nooksack Tribe with IIJA funding (NOAA Transformational Habitat Restoration and Coastal Resilience grant) - weaves through the town of Acme, which has experienced repeated flood damage. Initial designs aim to reduce flood vulnerability are being developed with county flood officials. This more integrated floodplain management approach (see 2.2.3.1) is supported by federal restoration technical assistance (2.2.3.14). Part of this federal work plan is to explore how to make FEMA regulations nimble enough to accommodate incremental river restoration (see 2.2.1). It takes a whole-team approach to restore a river.

2.6.11 Blue Heron Slough Restoration in the Snohomish Estuary

On August 9, 2022, excavators dug the first of a series of breaches in the dike surrounding North Ebey Island in the Snohomish River Estuary. With the rising tide, floodwaters poured into farmland that had subsided below sea level over the years. Construction crews had prepared the 353-acre island for this flood for the last two years, and the Blue Heron site contributes to more than 1,500 acres of restoration across the Snohomish Estuary. This restoration story has deep roots, across multiple federal programs.

PHOTO: WILDLANDS INC

A tipping point for the project was during the settlement negotiations for the Port Gardner natural resource damage assessment case (NRDA; see 2.2.3.10), when the Port of Everett led other parties in throwing their weight behind the restoration of these lands, with the support of federal, state, and tribal natural resource trustees.

The site is also a pioneering example of a multi-currency conservation bank. In addition to NRDA settlements, up front investments in the project by private investors will be paid back over time by local

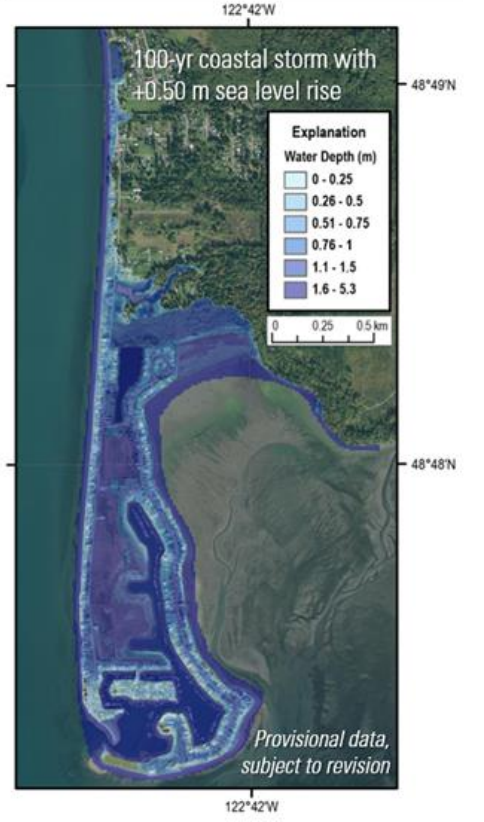
parties who need to offset impacts to endangered species, so the project carefully resolves different environmental liabilities at the same site. This emerging conservation marketplace (see 2.2.2.3) depends on systems of ecosystem service quantification (see 2.1.5) that were delivered at this site through federal technical assistance (see 2.2.3.14). The design of the project is informed by the results of the evaluation of past restoration (see 2.2.3.12) and the whole package depends on the scientific evidence used to validate the underlying habitat models (2.5.25). A regional conservation marketplace is rapidly emerging and will require investments in institutional infrastructure.

This effort, however, could only be completed with the leadership of key local partners. In addition to the Port of Everett's foresight in acquisition, the Tulalip Tribes of Washington and Snohomish County have worked for over a generation to build the vision and create the enabling conditions for estuary restoration. Ultimately, projects like this require a close combination of local vision and effort that can be matched by federal capabilities.

2.6.12 Science and Monitoring Workgroup Supports New Effort to Predict Future Coastal Flooding Under Sea Level Rise and Climate Change

The Federal Science and Monitoring Workgroup, made up of several agencies within the government family (EPA, USGS, NOAA, USFWS, USACE, and the U.S. Navy), was created to coordinate and promote Federal inter-agency participation in the broad science collaborative that supports Puget Sound ecosystem recovery. The Federal Science and Monitoring Work Group coordinates across the numerous Federal Science Centers within Task Force member agencies, drawing on the diverse inter-disciplinary scientific expertise, capabilities, research infrastructure and science programs. An important function of the Federal Science and Monitoring Workgroup is to develop and promote Science Actions within the Puget Sound Federal Action Plan.

Projected flood extent and depth from the USGS Coastal Storm Modeling System for 0.5 meters of sea-level rise with a 100-year storm at Sandy Point (Whatcom County, Washington).



Many of the multi-agency science actions are underway, drawing on a diverse set of federal funding sources across the member agencies. One important contribution from the EPA Puget Sound National Program Office is to fund five high-priority Science Actions through new inter-agency agreements with the USGS and NOAA. An example of an EPA funded Science Action is the Puget Sound Stormwater Modeling System (PS-CoSMoS). Developed by the USGS, the modeling system makes detailed predictions of coastal flooding due to both future sea-level rise and storms over large geographic areas. Outputs are delivered as flood hazard maps for sea-level rise scenarios from 0.25 to 3 meters, in combination with daily, annual, 20-year, and 100-year storms. A system of this magnitude would be crucial for the Puget Sound area where over 100,000 people and $100 billion worth of property is predicted to be impacted by sea level-rise and coastal flooding by 2100. With help in funding from the EPA and data and assistance from other agency partners, the USGS will provide a foundational resource for adapting to

climate change and sea-level rise throughout the Puget Sound area. The products enable federal, state, Tribal and local land use planners, coastal resource managers, restoration managers, hazard mitigation planners and many more to identify areas at risk and plan for climate-driven coastal hazards.

In addition, the Science and Monitoring Workgroup has been focusing on ways to improve science and monitoring coordination and collaboration across Federal agencies, and with the non-Federal science and monitoring community supporting Puget Sound ecosystem recovery, including academic, State agency, Tribal agency, local agency and NGO scientists. The group hopes to work with existing science and monitoring coordination efforts, including the Puget Sound Partnership Science Panel, the Puget Sound Ecosystem Monitoring Program, Strategic Implementation Lead teams, topic-specific working groups and others. Ultimately, the group seeks to promote a fully integrated Puget Sound "Federal science and monitoring program" that supports ecosystem recovery across all partners engaged in implementing the Action Agenda, Salmon Recovery plans, the Western Washington Tribal Treaty Rights at Risk Initiative and the PSFLTF Action Plan.

2.6.13 VELMA Team Workshop Partnerships

The EPA ORD VELMA team provided advanced training in watershed modeling for several Puget Sound tribal partners. Many of these partners are already using VELMA to proactively identify practical watershed restoration strategies that can be initiated now to help reduce near and long-term impacts of land use and climate change on tribal communities and the salmonid populations essential to their sustenance, health, and culture. Tribal participation included representatives of these tribal partners: the Tulalip, Suquamish, Snoqualmie, Nooksack and Squaxin Island Tribes and the Nisqually River Foundation. Other participants included collaborators with both Washington and Oregon Department of Fish and Wildlife, Pacific Northwest National Laboratory, University of Washington Tacoma, Thurston County WA and Northwest Watersheds, LLC. All attendees showed great interest in using VELMA for reducing climate and fire effects on stream flow and temperature – key variables affecting salmonid spawning and rearing success. The workshop took place Sept. 19-21 in Tacoma, WA, at the Center for Urban Waters.

2.6.14 VELMA Team Stormwater 6PPD-quione Partnerships

The EPA ORD VELMA team collaborated with EPA Region 10, University of Washington Tacoma and WA Department of Ecology partners to model fate and transport of the stormwater contaminant 6PPD-quinone, a recently discovered breakdown byproduct of the globally ubiquitous tire rubber preservative 6PPD. 6PPD-q recently has been demonstrated to be the cause of urban runoff mortality syndrome affecting coho salmon in Washington's Puget Sound National Estuary. This discovery has prompted new research by EPA into potential green stormwater infrastructure mitigation solutions and rapid bioassays to detect toxicity to fish of possible alternative tire-preserving chemicals.

Pre-spawn mortality in female coho salmon in Longfellow Creek, WA
All images credit NOAA Fisheries

Details of the hydrological and biogeochemical processes controlling spatial and temporal dynamics of 6PPD-q transport from roadway points of deposition to stream and estuarine habitats are poorly understood. In collaboration with Region 10 and the Washington Department of Ecology, EPA ORD is deploying the VELMA model to help inform community, tribal, state and federal decision making concerning where, what types and how much green stormwater infrastructure – bioswales, rain gardens, pervious pavements – are required to remediate impacts of 6PPD-q on Puget Sound coho. EPA is using VELMA to integrate diverse watershed, stormwater infrastructure, and toxicological data to model, map, and visually communicate green infrastructure best practices for limiting 6PPD-q transport to urban streams, where for decades coho salmon had been dying mysteriously before they could spawn during their annual upstream migration from the estuary.

VELMA results from this ongoing research highlight the importance of locating green stormwater infrastructure at modeled 6PPD-q roadway hotspots, typically below high-traffic locations but above stormwater drains emptying to urban streams. VELMA hotspot maps enable municipal stormwater managers to more efficiently and cost-effectively locate green infrastructure installations to protect Puget Sound's rapidly declining coho population. In combination with other state, federal, and university 6PPD-q research, VELMA is helping to better protect coho and other sensitive salmonid species into the future, in accordance with the Clean Water Act, Endangered Species Act, tribal treaty rights and state regulations.

2.6.15 VELMA Team Puget Sound Integrated Modeling Framework (PSIMF) Partnerships

EPA-ORD's VELMA model is a component of the multi-partner Puget Sound Integrated Modeling Framework (PSIMF), a network of computer models looking at how different factors such as urban growth and climate change will influence the health of the Puget Sound National Estuary and its watershed.

PSIMF, led by the University of Washington Puget Sound Institute, is the most comprehensive endeavor so far undertaken to simulate environmental conditions connecting Puget Sound's land and water. The result is a type of virtual ecosystem, combining terrestrial and marine ecosystem models that integrate data across the 12,000 square mile basin. Other research partners include NOAA's Northwest Fisheries Science Center (NWFSC), Long Live the Kings (LLTK), the Pacific Northwest National Laboratory (PNNL), and Commonwealth Scientific and Industrial Research Organization (CSIRO) and others.

ORD's VELMA (which stands for Visualizing Ecosystem Land Management Assessments) is tracking transport and fate of toxic chemicals and excess nitrogen across the basin. This will help planners identify the best placement of rain gardens and other green infrastructure, for example. However, VELMA was not designed to directly help scientists follow pollutants after they enter Puget Sound.
Now, within PSIMF, analyses from VELMA are being fed into the PNNL's Salish Sea Model, which incorporates WDFW contaminant data to simulate how pollutants circulate and transform within the estuary. In turn, NOAA's Atlantis marine food web model completes the circle by analyzing how salmon, orca and other species might react to pollutants.

In summary, VELMA assists PSIMF's watershed modeling goals to promote systems thinking that can inform local and regional decision-makers seeking to:

- Improve terrestrial ecosystem resilience to changes in climate and land use.
- Reduce nutrient & contaminant loads to the Puget Sound estuary.
- Promote recovery of endangered salmon and orca
- Reduce increasingly frequent extreme flood events through floodplain reconnection, wetland restoration, fewer impervious surfaces.
- Develop Puget Sound land use planning alternatives that can limit impacts of rapid population growth on both terrestrial and marine ecosystem services.

PSIMF website

Appendix A: Federal Action Plan Progress and Recommendations

ID	Action Title	Progress	Recommendations
Section Action #/ID Lead Agencies (Other Agencies)	ID# and Action Titles come from 2022-2026 Federal Action Plan. *New Actions* have new ID#s and Titles.	"…progress made by Federal agencies toward the priorities identified in the Federal Action Plan."[28]	"…specific recommendations concerning implementation of the Action Agenda and the Federal Action Plan, including challenges, barriers, and anticipated milestones, targets, and timelines."[29]
Crosscutting 2.1.1 EPA	Puget Sound National Estuary Program	Examples of progress on the priorities identified in the 2022-2026 Federal Action Plan include: • $7M grant competed "Ensuring Environmental Justice, Human Wellbeing, and Ecosystem Recovery in Puget Sound" • $30M grant awarded "Climate Resilient Riparian Systems Lead" • *Ongoing grant*: "Tribal Implementation Lead 2.0" • Increase FY21 $4.4M to FY22 $7M for Tribal Capacity • EPA funding for SILs and PSP ongoing at elevated funding levels since FY22 • New agreements and funding with EPA ORD, USGS and NOAA for priority Puget Sound science needs • Approved the 2022-2026 Action Agenda as the CCMP for Puget Sound • *New:* Co-leading a national/cross-EPA workgroup on 6PPD • Staffing and supporting the Puget Sound Federal Leadership Task Force and federal	Recommendations and targets include: • Continue and increase prioritization of capacity to effectively manage increased funding, including substantial involvement in EJ and climate awards. • Finalize re-organization for Puget Sound Recovery National Program Office • Continue co-coordinating the PSFLTF and federal response to the Treaty Rights at Risk Initiative. Organizational location: Puget Sound National Recovery Office, EPA R10, Water Division, Geographic Programs Section

[28] Clean Water Act § 126(e)(1)
[29] Clean Water Act § 126(e)(1)

ID	Action Title	Progress	Recommendations
Section Action #/ID Lead Agencies (Other Agencies)	ID# and Action Titles come from 2022-2026 Federal Action Plan. *New Actions* have new ID#s and Titles.	"…progress made by Federal agencies toward the priorities identified in the Federal Action Plan."[28]	"…specific recommendations concerning implementation of the Action Agenda and the Federal Action Plan, including challenges, barriers, and anticipated milestones, targets, and timelines."[29]
		response to the Treaty Rights at Risk Initiative	
Crosscutting 2.1.2 NOAA	Recovery Planning for Threatened & Endangered Species	NOAA and our partners are implementing three final recovery plans for three ESA listed species in Puget Sound: Puget Sound Chinook, Puget Sound Steelhead and Hood Canal Summer Chum. Each of the plans identified specific limiting factors that need to be ameliorated to support species recovery. Tribal, state, and local watershed teams are updating their plans and implementing priority recovery actions.	NOAA's Northwest Fisheries Science Center completed 5-year status reviews for listed species including the three Puget Sound salmon and steelhead species. All three were determined to be at moderate risk of extinction. Continuing to use available funds and implement priority recovery actions is critical.
Crosscutting 2.1.3 NOAA – WCR	Endangered Species Act Regulation	NOAA works with Action Agencies to ensure actions that are federally funded, authorized, or carried out comply with the Endangered Species Act. Agencies work with us under Section 7 (a)(1) and Section 7(a)(2) of the ESA. We also engage in ESA consultations pursuant to other regulatory program authorities such as the Federal Power Act (FPA).	Continue to work with Action Agencies to implement the ESA, including incorporation of the NOAA mitigation policy. Work with hydropower project operators to ensure ESA consultations for FPA relicensing projects support ESA-listed species recovery, particularly under the specter of climate change and long-term license agreements.

ID	Action Title	Progress	Recommendations
Section Action #/ID Lead Agencies (Other Agencies)	ID# and Action Titles come from 2022-2026 Federal Action Plan. *New Actions* have new ID#s and Titles.	"…progress made by Federal agencies toward the priorities identified in the Federal Action Plan."[28]	"…specific recommendations concerning implementation of the Action Agenda and the Federal Action Plan, including challenges, barriers, and anticipated milestones, targets, and timelines."[29]
Crosscutting 2.1.4 EPA, NOAA, USFWS, FEMA, USACE, USCG, USFS, NRCS, FHWA, FTA	Federal Coordination - Infrastructure Investment and Jobs Act and other funding	Progress: The PSFLTF is building capability to provide timely and accurate information to partners, such as the state and tribes and interested entities. The PSFLTF, through leadership communications and engagements, is encouraging and enabling member agencies toward a preference for natural infrastructure and multi-benefit approaches in the Puget Sound Region. Some examples of shared regional priorities funded in part because of strong federal coordination include $220M for the Howard Hanson fish passage project, and $11M to support ongoing construction of the Mud Mountain fish passage project. Agency example, NRCS: IJA funding has been committed and no funds remain for new projects. There was $589.5 million allocated toward PL-566 WFPO and REHAB program.	Target: Federal agencies provide funding information to partners through Puget Sound Partnership's New Funding Announcement Tool Lead: Puget Sound National Recovery Office
Crosscutting 2.1.5 NOAA (EPA)	Ecosystem Service Quantification	Ecosystem service quantification methods developed in natural resource damage assessment and restoration (see 2.2.3.10) are being used to foster a marine conservation marketplace (see 2.2.2.3). This work is	Encourage standard approaches to science synthesis as part of science funding, that incorporate regulatory interactions, so that science efforts also support the practical

ID	Action Title	Progress	Recommendations
Section Action #/ID Lead Agencies (Other Agencies)	ID# and Action Titles come from 2022-2026 Federal Action Plan. *New Actions* have new ID#s and Titles.	"…progress made by Federal agencies toward the priorities identified in the Federal Action Plan."[28]	"…specific recommendations concerning implementation of the Action Agenda and the Federal Action Plan, including challenges, barriers, and anticipated milestones, targets, and timelines."[29]
		supported by incremental improvement of the best available science (see 2.5.25). Agencies are reviewing the 2023 CEQ guidance on ecosystem service quantification to refine existing systems.	application of ecosystem service quantification (see 2.5.25).
Crosscutting 2.1.6 EPA, USACE, FEMA, NOAA	Coordinated Technical Assistance and Resources for Most Vulnerable Populations and Community-Based Organizations	Agencies are developing and implementing new guidance on environmental justice and with that clarity, there is increased opportunity to identify coordinated resources across federal agencies. NOAA Office of Habitat Conservation encouraged applications from tribes or underserved communities in our IIJA/IRA funding opportunities and encouraged other applicants to propose projects that demonstrate strategies to achieve meaningful engagement with tribes and underserved communities. NOAA is committed to learning how we work toward this goal and adapting how we evaluate and implement meaningful engagement to ensure project benefits flow back to tribes and underserved communities.	Identify a PSFLTF lead for coordination on this priority action.

ID	Action Title	Progress	Recommendations
Section Action #/ID Lead Agencies (Other Agencies)	ID# and Action Titles come from 2022-2026 Federal Action Plan. *New Actions* have new ID#s and Titles.	"…progress made by Federal agencies toward the priorities identified in the Federal Action Plan."[28]	"…specific recommendations concerning implementation of the Action Agenda and the Federal Action Plan, including challenges, barriers, and anticipated milestones, targets, and timelines."[29]
Crosscutting 2.1.7 BIA	Tribal Fish, Wildlife, and Recreation Program	In 2023, $6.3 million was awarded to 21 Tribes for various hatchery maintenance projects. The Endangered Species Program awarded $1.4 million to protect species and restore habitats. The BIA also received $10 million for tribal hatchery construction projects. EPA anticipates awarding up to $7 million over four years for the sub-award grant program "Ensuring Environmental Justice, Human Wellbeing, and Ecosystem Recovery in Puget Sound".	The BIA will continue to work closely with Tribes on natural resource priorities and projects.
Crosscutting 2.1.8 FTA, FHWA (NOAA, USFWS)	Planning, Review, and Funding to Reduce Transportation Impacts on the Environment	Over the past year, NMFS has been meeting regularly with the Federal Highway Administration (FHWA), Washington State Department of Transportation (WSDOT) and the US Fish and Wildlife Service (USFWS) to address stormwater concerns related to road projects in Washington. We have worked with WSDOT to incorporate new science on stormwater contaminants into their biological assessment manual, and to take a more conservative approach for the protection of aquatic species with regards to the fate and transport of stormwater contaminants. We are also actively working together to develop	

ID	Action Title	Progress	Recommendations
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		tools to identify and implement opportunistic stormwater retrofits, and to improve programmatic monitoring of BMP effectiveness. In July 2023, FHWA submitted a request for the re-initiation of the programmatic Endangered Species Act consultation, identifying new stormwater science specific to 6PPD, to the NMFS. We continue to work closely with FHWA, WSDOT and USFWS to complete this consultation using the best available science and best management practices to address stormwater inputs. Additionally, Sound Transit has funded a reimbursable term position (serving both NMFS and USFWS) for up to 5 years to ensure timely review and consultations for expanding the regional light rail commuter system, enhancing an efficient alternative transportation option in the Puget Sound Region.	
Crosscutting 2.1.9 EPA (PSFLTF agencies)	Transboundary Coordination on Restoring and Protecting the Salish Sea	Outcomes • "[E]nsure that Puget Sound restoration and protection activities are as consistent as practicable with ongoing restoration and protection and related efforts in the Salish Sea that	

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		are being conducted by Canadian authorities, the Pacific Salmon Commission, and the International Joint Commission" (CWA Section 126) Outputs • Continue to actively promote staff level federal transboundary connections in PSFLTF activities (E.g., potentially include Canadian counterparts in the PSFLTF state-federal working groups; substantive matchmaking at the staff and technical roles; explore, select, and implement mechanisms for incentivizing consideration of transboundary connections in charter groups.) • Grow and increase U.S. Federal participation in relevant Canadian initiatives such as "Salish Sea Strategy" (which goes through 2026) where doing so can strengthen implementation of the Puget Sound Action Agenda • Continue to encourage scientific collaboration (e.g., PSEMP has demonstrated some robust transboundary scientific collaboration and communication on monitoring, research, and management) • Increased attention to supporting appropriate engagement in environmental review processes with potential for major impacts to Salish Sea (e.g., Robert's Bank 2.) • Continue to support existing and potential new areas of transboundary collaboration (e.g., State of the Salish Sea report, World Cup / green sports) • PSFLTF work to help member agencies be responsive to federal coordination requests associated with the October 2023 Framework for Collaborative Transboundary Flood Management in the Nooksack and Sumas Watersheds. Resources • Led by PSFLTF, staff support from EPA, engagement from all PSFLTF agencies	

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Crosscutting 2.1.10 EPA (Environment and Climate Change Canada)	Implement the Canada – U.S. Cooperation in the Salish Sea 2021-2024 Action Plan	• EPA Puget Sound Tribal Capacity Program (PSTCP) grants continue to include transboundary work as eligible activity (supports PAI 4). An example of this is use of PSTCP funding to pursue clam garden restoration and traditional practices, in connection with First Nations knowledge-holders. • EPA co-leadership of the new Puget Sound Management Conference Transboundary Caucus, supports SoC PAI 5 • Two SOC working group meetings in 2022-2023, including spotlighting transboundary science collaborations (e.g., around marine bird research). • In 2023, PSFLTF, PSP and EPA coordinated to secure U.S. participation in Transport Canada's "Salish Sea Strategy", which is aimed at addressing impacts from marine vessel traffic (supports SOC PAI 5 and 6) • In Nov. 2021, PSFLTF coordinated initial connection between NOAA and DFO. Initial connection pending leadership-level conversations among Canadian federal agencies.	• Continue to implement Priority Action Items (PAIs) within SOC Action Plan • Conduct SOC Action Plan renewal process (EPA and ECCC lead, with support of SOC Working Group Advisory Members) • Continue to make effort to coordinate among SOC Working Group, PSFLTF, and Puget Sound Management Conference Transboundary Caucus to sustain attention of involved agencies on transboundary coordination. • Consider adding "under the ECCC-EPA Statement of Cooperation on the Georgia Basin-Puget Sound Ecosystem (SOC)" to the Action Title Lead: Puget Sound National Recovery Office

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		• EPA and ECCC continue to advance transboundary Indicators to recognize climate and Indigenous knowledge.	
Crosscutting 2.1.11 USCG	Implement the Puget Sound Area Contingency Plan	Signed by the USCG COTP/FOSC in May 2023. The Sector Puget Sound ACP is reviewed and updated annually.	Strengthen the Sector Puget Sound Area Committee via interagency support and a designated committee to manage and update the ACP. Continued engagement with tribes and increased representation and membership at the SPS area committee. Remove EPA as co-lead.
Crosscutting 2.1.12 USCG (Canadian Coast Guard, EPA, NOAA, Department of Interior)	Coordinate International Cooperation for Preparedness and Response Activities	2023 marked the 50th year of international response planning and cooperation by the Canada-United States (CANUS) Joint Marine Contingency Plan (JCP). In 2022, USCG D13 led the Canada – United States – Pacific (CANUSPAC) bi-annual exercise. In 2024, Canada will lead the CANUSPAC bi-annual exercise that will consist of a two-day	Continue Joint Response Team (JRT) meetings between Canada and the USCG. Review and update the 2016 CANUSPAC annex to the JCP. USCG looks forward to continuing to participate in future meetings coordinated by Canada's PACMAR and the PSHSC.

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		workshop with a focus on marine pollution response after a mass casualty incident. In support of navigation safety and maintaining the pristine environment of the Puget Sound, Strait of Juan de Fuca and the Salish Sea, including the recovery of the Southern Resident Killer Whales, the USCG continues to work closely and daily with our Canadian partners (Canadian Coast Guard and Transport Canada) via the Cooperative Vessel Traffic System agreement of 1979. In accordance with our authorities and responsibilities, the USCG regularly participates in the Puget Sound Harbor Safety Committee and looks forward to continuing to participate in future meetings coordinated by Canada's Pacific Coast Marine Review Panel (PACMAR) and the Puget Sound Harbor Safety Committee (PSHSC).	
Crosscutting 2.1.13 USCG (Canadian Coast Guard)	Vessel Traffic Management System	Public Law 117-263, James M. Inhofe National Defense Authorization Act for Fiscal Year 2023, Section 11304 mandated the Coast Guard to carry out a four-year pilot program to establish and operate a Cetacean Desk within	Continued effort to stand up and implement an initial version of the Cetacean Desk. Continued improvements to AIS to monitor and manage vessel traffic.

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		Sector Puget Sound's Vessel Traffic Service (VTS). The Cetacean Desk is tasked to engage vessel operators in areas where large cetaceans have been seen or could reasonably be present, to reduce the impact of vessel traffic on these animals. As a result, Sector Puget Sound continues to coordinate with our Canadian, tribal, federal, and state partners and is investigating various methods and modes of communication with respect to receiving and forwarding information to mariners. Included in the ongoing coordination and operations are the following: • ECHO Vessel Operators Committee • Quiet Sound Leadership Committee • State's RCO Intergovernmental SRKW Workgroup led by Tara Galuska • Be Whale Wise: annual July-September multi-unit boater education and outreach operation	
Crosscutting 2.1.14 USCG	Towing vessel inspection regulations	Towing vessel inspection regulations have been implemented, and all applicable towing vessels have been inspected or were required to be removed from service as a towing vessel	Ongoing monitoring of the program.

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		as of July 2022. The USCG District Thirteen zone has a very high compliance rate. Implementing the towing vessel inspection regulations substantially improved the oversight and safety of this segment of the maritime industry.	Maintain and conduct towing vessel outreach meetings and continued fostering of ongoing relationships. Transparency with stakeholders and ensure consistency throughout the Coast Guard.
Crosscutting 2.1.15 USFS, EPA (USGS, NRCS, NOAA, others)	Integrate the Green-Duwamish Urban Waters Federal Partnership with Puget Sound Recovery	*Increase Integration*: Urban Waters official integrated into PSP South Central LIO. *Increase Integration*: Supporting Salmon and Stormwater nexus efforts in permit management. *Application Across PS*: Stipend program exportation begun. *Involvement of 10-12 New Orgs/Communities in PS Recovery*: Completed gap analysis of watershed organizations not currently engaged. *Involvement of 10-12 New Orgs/Communities in PS Recovery*: Identified 14 organizations of focus and 4 communities of focus. *Align 6-10 Efforts with PS Recovery*: Re-launching Waterlines with direct recovery applications and considerations. *Align 6-10 Efforts with PS Recovery*: Alignment of Regreen the Green efforts with PS recovery.	

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		Align 6-10 Efforts with PS Recovery: Re-launching Green Cities Good Health webtool with direct recovery applications and considerations. *3-5 Programs Transferred Across PS*: Moss community science curriculum transfer. *3-5 Programs Transferred Across PS*: Community water temp curriculum transfer in progress.	
Habitat Crosscutting 2.2.1 NOAA – WCR/RC, EPA, USACE, FEMA, USFWS	Habitat Restoration Regulation Efficiency	• Staff from federal agencies including USACE, USFWS, FEMA have had active participation in the MART since 2019. • USACE has set up an internal agency team led by a Section Chief that works on permit streamlining for restoration projects in Washington State. Three of this team are active dedicated representatives on the MART. • NOAA has provided staff for the MART, when possible, but has been unable to have full participation due to limited capacity. • Washington Department of Fish and Wildlife and Washington Department of Ecology have continued to be active participants in the MART since 2019.	• Increase the number of MART projects going through the process. • To ensure the continuation and success of the MART, federal agency staff at USACE, NOAA, and possibly FEMA that are dedicated to permitting restoration and multi-benefit projects. Explore possibilities for funding such as through PSP under a WRDA 214 agreement for funded designated federal staff and other mechanisms. • Continued CEQ and EPA headquarters' support. • EPA provide a full-time staff member to facilitate, lead, and support the MART. • Publish MART website.

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		• 16 Projects have been brought into the MART process for permitting, of which 6 have been permitted and then constructed. • Since January of 2022, MART has worked in close coordination with State Habitat Recovery Pilot Program to further streamline the permitting process of restoration projects. • EPA continues to facilitate the MART work. • MART continues to track emerging expedited permit pathways and programmatic permits and promotes their use where appropriate for MART-assisted projects. • Continues to be support for MART work from regional federal leaders and their partner leaders at the State and tribes. • National level support from CEQ, EPA, USACE, NOAA, and FEMA, has increased especially since IIJA and IRA funds have been available to implement restoration and multi-benefit projects.	• Prepare and use other tools, such as tracking spreadsheets, to improve the efficiency of the MART intra-agency communication and coordination and to track progress of the MART. • Expanding collaboration with the Habitat Recovery Pilot Program (HRPP) to further expedite salmon recovery project permits. • Explore ways to implement a permitting process that would streamline permitting of similar types of multi-benefit projects like floodplain restoration in priority subwatersheds. • Work with FEMA to develop a joint federal-state strategy to help streamline the permitting process flood development permitting for habitat recovery projects while also reducing flood risk. FEMA continue to engage on win-win solutions.
Habitat Crosscutting	Pacific Coastal Salmon Recovery Fund (PCSRF)	Coastwide, up to $160 million (including $34.4M from the Infrastructure Investment	Use PCSRF competitive grant funding for habitat restoration and collaborative

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2.2.2 NOAA		and Jobs Act) were competed in 2023 for a 5-year award period. Awards support Puget Sound and tribal habitat restoration projects, population assessments and monitoring, and fish passage projects including culvert upgrades per state and NMFS criteria. Continued funding for salmon recovery efforts through the Salmon Recovery Funding Board administered by the Recreation and Conservation Office, tribal commissions, and individual tribes. Resources: Annual Pacific Coastal Salmon Recovery Fund awards to Washington State, the Northwest Indian Fisheries Commission, and Western Washington Tribes	partnerships for project implementation and monitoring. The PSFLTF Stormwater/Transportation Charter Group recommends working with NOAA and the Salmon Recovery Funding Board to ensure that contaminants such as 6PPD-q, PAHs, and PCBs can be explicitly considered when making salmon habitat investment decisions (not just conventional pollutants such as temperature and sediment).
Habitat Crosscutting 2.2.3 EPA	Habitat Strategic Initiative Implementation Lead	1. To remove barriers to shoreline habitat protection and restoration, HSIL has funded an FTE at Washington Department of Fish and Wildlife to develop a Shore Loan program focused on increasing the suite of financial incentives for shoreline property owners to make "shore friendly"	There is a lot of momentum across state agencies, across Strategic Initiative and partners to engage and support local jurisdictions in updating comprehensive plans in ways that can more holistically integrate ecosystem recovery. Continuing to build and sustain engagement with local jurisdictions,

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		choices in managing their property. The program development achieved to-date includes evaluating statutory authority, building an advisory team, Shore Friendly program coordination, developing funding and fiscal implementation strategies, and evaluating intersections with new federal programs. 2. To remove barriers to habitat restoration, HSIL investments under the HSIL 2.0 2022 RFP included supporting local, tribal, conservation districts and NGO capacity to develop and implement restoration and acquisition projects (Stillaguamish Tribe of Indians, Lummi Nation with Nooksack Indian Tribe, Whatcom County, Northwest Straits Foundation, San Juan Island Conservation District). 3. To remove barriers to marine vegetation habitat protection and restoration, HSIL has worked closely with a coalition of partners to identify and address key information gaps on distribution, stressors, and effective restoration techniques. HSIL funding through Fall 2022 will continue to advance research,	supporting local forums, and coordinating state partnerships partners is critical. Continuing to develop incentive programs and increase the diversity of financial incentives while also increasing regulatory compliance through technical assistance are complementary approaches growing at state and local levels.

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		communicate findings, and inform management next steps. 4. To improve habitat protection regulations and manage land development to prevent further degradation of local aquatic ecosystems and habitat loss, the HSIL led the update process for the Sound Choices Checklist and is leading communication and outreach efforts to local jurisdiction planners and executives in Puget Sound to promote the use of the Checklist. Action Agenda Strategy 1 and the Land Development and Cover Implementation Strategy both refer to actions that improve Growth Management Act (GMA) implementation within local jurisdictions' land use planning and decisions. The Sound Choices Checklist is a tool that aligns the Puget Sound recovery strategies and actions with the comprehensive plan elements. The HSIL also funded a planner with the WDFW Land Use and Conservation Policy Section to develop resources, training, and support for WDFW biologists to support local jurisdictions to implement best available science, particularly for riparian	

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		management zones, in comprehensive plan updates and critical area ordinances. A Riparian Management Zone Checklist for Critical Areas Ordinances and checklist addendum were developed and are being shared with local jurisdiction planners. 5. To support the development of funding and integration of actions identified in respective Vital Sign Implementation Strategies, the HSIL led an RFP process resulting in the investment of $14 million of Puget Sound Geographic Program funds in activities that advance critical needs of the habitat implementation strategies between 2023-2027. Funded partners include tribes and tribal consortia, local governments, NGOs, state agencies, and academia. The HSIL has funded a soon to be completed HSIL 1.0 synthesis by the UW-Puget Sound Institute to draw lessons learned and identify future opportunities for advancing strategic activities from the 100 subawards made by the HSIL 1.0 program.	
Habitat Crosscutting	Environmental Quality Incentives Program (EQIP)	NRCS worked with 185 different producers to implement EQIP Contracts, resulting in these	USDA/NRCS, EPA and NOAA will continue to work together and with state and tribal

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2.2.4 NRCS		accumulated achievements: 13 Waste storage facilities; 80 acres of brush management; 56 acres treated for Herbaceous weed treatment; 7 acres of conservation crop rotation; 521 acres of cover crop; 800 feet of windbreak/shelterbelt establishment; 4.6 acres of woody residue treatment; 35 acres of riparian forest buffer; 43 acres of stream habitat improvement & management; 11.2 miles of Aquatic Organism Passage; 1.6 acres of wildlife habitat plantings; 4122 feet of livestock pipelines; 37,000 sq feet of pond sealing or lining; 16 acres of prescribed grazing; 10 pumping plants; 18 roof runoff structures; 270 feet of streambank & shoreline protection; 7 structures for water control; 2,213 acres of nutrient management; 22.5 acres of tree & shrub establishment; 10 watering facilities; 4,500 feet of underground outlet; 2 acres of waste recycling; 20 waste transfers; 19 acres of wetland wildlife habitat management.	partners to align federal programs that accelerate improved riparian habitat for salmon, support the implementation of the Coastal Nonpoint Pollution Control Program, ecosystem recovery and tribal treaty rights.
Habitat Crosscutting 2.2.5 USFWS	Washington Coastal Program (aka. Puget Sound Coastal Program)	In FY23, the Washington Coastal Program awarded $524K in funds to 6 recipients. This included Congressionally directed pass thru awards to Long Live the Kings and the Hood	Increase support to further evaluate feasibility and effectiveness of eelgrass seeding as a viable restoration method.

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		Canal Salmon Enhancement Group. Non-federal match totaled $378K. Field Office directed discretionary awards included funding to the San Juan Island Conservation District and UW Friday Harbor Labs to support eelgrass seed cultivation, spring planting, and summer harvest preparation. Growing eelgrass from seed, instead of by transplanting mature plants, may prove a more cost-effective method that can scale up quickly, effectively, and affordably.	
Habitat Crosscutting 2.2.6 U.S. Navy	Readiness and Environmental Protection Integration (REPI) Program	The DOD REPI program continues to play a vital role in protecting the Puget Sound Region. Since 2009 the Department of Defense and the United States Navy spent$91.2M through the REPI program on efforts to protect the Puget Sound Region. • $84M REPI buffering easements • $5M REPI Challenge –Establishment of pre-Compliance Mitigation Bank • $2.2M REPI Sikes Act–NFWF's Endangered Species Efforts (Southern Resident Killer Whale, forage fish/salmon, marbled murrelets)	The Navy plans to spend approximately $20M in FY 23 executing additional REPI projects.

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		The Navy currently partners with seven Pacific Northwest organizations to identify habitat priority. To date, these partnerships have protected 38,739 acres from incompatible development. REI Sikes Act The Navy, U. S. Fish and Wildlife Service, and the National Marine Fisheries Service, are collaborating to improve the environmental baseline for species listed under the Endangered Species Act, as amended. This coordination primarily addresses the conservation and recovery of the Southern Resident killer whale distinct population segment, marbled murrelet, and Puget Sound Chinook salmon evolutionarily significant unit. The Initiative supports implementation of conservation actions that focus on promoting recovery and increasing salmonid and forage fish abundance through habitat protection and restoration, thereby increasing prey availability for ESA-listed species. Through this collaborative effort, priority conservation	

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		actions may be identified and executed via various funding sources, such as the REPI program. In FY22 and FY23, the Navy coordinated with National Fish and Wildlife Foundation and awarded REPI funding of $ 2.2M via a Department of Defense Cooperative Agreement to support this effort.	
Habitat Crosscutting 2.2.7 U.S. Navy	Readiness and Environmental Protection Integration (REPI) Program Mitigation Bank Partners	The United States Navy awarded a $5M REPI challenge grant for a pre-Compliance mitigation bank. The Navy does not own the mitigation bank.	The Navy continues to evaluate and pursue mitigation strategies consistent with Navy mission requirements.
Habitat Crosscutting 2.2.8 USFS, NPS, FHWA (USFWS)	Utilize flexibility within the Emergency Relief for Federally Owned Roads Program (ERFO)	Under the Federal Highway Administration, Western Federal Lands Highway Division (FHWA - WFLHD) ERFO program, in locations where a culvert is required to be replaced or significantly modified, WFLHD will design for a replacement that provides Aquatic Organism Passage (AOP). The FHWA WFLHD does not prescribe a single design approach, but typically will follow local approaches that are widely accepted by local	

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		managing and permitting agencies. However, approaches should include site specific design alternatives that consider capital costs and risks, while addressing other economic, engineering, social and environmental concerns. The determination that a culvert needs to be an AOP will be made by the WFLHD Environment team. WFLHD pursues the lowest cost environmentally acceptable solution when designing emergency repairs under the ERFO program.	
Habitat Crosscutting 2.2.9 JBLM *New Action*	ESA 7(a)(1) Conservation Plan Pilot for JBLM	Outcomes • Greater flexibility in the use of installation lands to support Military readiness. • A more predictable and streamlined regulatory process. • Greater conservation outcomes for at-risk and listed species and habitats. Outputs • Introduce and utilize Structured Decision Making and Rapid Prototyping to DoD. • Invest in the species science driven by the military mission to gather data that will inform decision support models and improve outcomes for the ESA listed species on and off military installations. • Revising the current funding model and schedule to support long-term science programs on the ground. • The development of policy innovations under the ESA Section 7(a)(1) that promote a more systematic way of thinking about what needs to be done for the conservation of species and their habitats.	

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		Resources • Conservation resource budgets are currently used to manage species habitat and conduct species surveys; revising the current funding model to a more investment focused model would allow for long-term advancement into species science aimed at improving species abundance and environmental baselines. • Additional scientific support from USGS, and collaboration with NOAA, USFWS, WA Dept. of Fish and Wildlife, U.S. Navy, and Tribal partners.	
Habitat Cross-cutting 2.2.10 NOAA *New Action*	NOAA Mitigation Policy for Trust Resources	Outcomes • Conserve and restore trust resources. Outputs • Implement newly adopted, first comprehensive policy on mitigation to conserve and restore trust resources. • Use effective mitigation principles to reach our program objectives, expand best practices across the country, and incentivize private-sector investments in mitigation banks. • The policy emphasizes collaborating with underserved communities and stakeholders to incorporate social equity objectives into mitigation planning. • Mitigation is a conservation tool that includes avoiding, minimizing, or compensating for negative impacts to natural resources and their habitats resulting from regulated actions (such as federal permits) or injury (such as an oil spill). This policy support NOAA's mission to conserve and restore marine, estuarine, and freshwater resources and the ecosystems that support them. Resources	

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		• Support the interagency labor necessary to foster a marine conservation marketplace (see 2.2.2.3)	
Habitat Cross-cutting 2.2.11 NOAA *New Action*	NOAA Transformational Habitat Restoration and Coastal Resilience	Through the well-established Community-based Restoration Program, NOAA quickly and efficiently awarded IIJA funding to five cooperative agreements that provided almost $43M to well over a dozen projects across the Nooksack, Skagit, Stillaguamish, Snohomish, and Quilcene watersheds. These large-scale efforts are anticipated to advance efforts to improve conditions over several thousands of estuary and floodplain habitats. Proposal development and project execution is supported by federal restoration technical assistance to facilitate funding, regulatory compliance, and other areas of need among local teams (see 2.2.3.14)	
Habitat Cross-cutting 2.2.12 NOAA *New Action*	NOAA Coastal Habitat Restoration and Resilience Grants for Tribes and Underserved Communities	NOAA developed a new funding opportunity in the well-established Community-based Restoration Program to support the coastal habitat restoration priorities of tribal and underserved communities. The first wave of funding resulted in four cooperative agreements in Puget Sound for more than $2.7M, supporting community-driven habitat restoration and helping build the capacity of underserved communities to more fully participate in restoration activities. (See 2.2.3.14)	
Habitat Nearshore and Shoreline 2.2.2.1 USACE	USACE Puget Sound and Adjacent Waters Restoration Program	The Spencer Island Restoration Project has received full federal funding of $9M for feasibility, design, and construction in partnership with WDFW.	Implementation of Spencer Island and identification of the next priority within the Puget Sound and Adjacent Waters Restoration Program.
Habitat Nearshore and Shoreline	Coastal Ecosystem Resiliency Funding Community Based	See 2.2.11 and 2.2.12	Remove line, replaced by cross-cutting 2.2.11 ad 2.2.12, projects incorporate nearshore, shoreline, floodplain, estuary, and riparian.

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2.2.2.2 NOAA	Restoration (NOAA Restoration Center)		
Habitat Nearshore and Shoreline 2.2.2.3 NOAA, EPA	Foster the Development of a Marine Conservation Marketplace	Through collaborative implementation of the Salish Sea Nearshore Programmatic consultation, federal and state agencies and regional habitat mitigation/conservation banks and individual habitat projects. Ongoing establishment of a conservation marketplace for marine nearshore and shoreline habitat restoration is underway.	Implementation of the SSNP (See also 2.2.10 Mitigation Policy)
Habitat Nearshore and Shoreline 2.2.2.4 USACE, NOAA, USFWS	Complete the Salish Sea Nearshore Programmatic (SSNP) ESA Consultation	Completed SSNP ESA consultation 2022 in coordination with USACE. Under the program an estimated 2,024 tons of creosote has been removed and 118,500 square feet of riparian plants have been installed. Since completion of the SSNP programmatic consultation, NOAA and USFWS approved ESA authorization for substantially increased number of projects in the marine nearshore environment of Puget Sound using the program. USACE has issued permits for close to half of the backlogged projects based on the completed ESA consultations.	• Finalize peer review of the calculator • Continued emphasis on review and approval of additional mitigation banks • Expanding project types supported by credits. • Explore opportunities for collaboration by NOAA, USFWS, Action Agencies and partners to expand opportunities for programmatic consultation approaches

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Habitat Nearshore and Shoreline 2.2.2.5 EPA, USACE, NOAA *New Action*	Beneficial Use of Dredged Material Workgroup	The working group will study existing dredged material management in Puget Sound with the goal of increasing beneficial use of dredged material. The working group will explore projects in the Snohomish River geographic area. Benefits could include ecological lift, enhanced nearshore transport processes and coastal resiliency, supporting tribal interests, public access enhancements, sustainable river management, and improved dredging project efficiency. Working with state, tribal and local partners, the working group will study and address BUDM challenges in the Snohomish region, identify and support progress on BUDM project(s) (e.g., Everett to Mukilteo shoreline nourishment), and develop a model for pursuing new project ideas and opportunities in this and other watersheds.	
Habitat Floodplains, Riparian and Estuaries 2.2.3.1 NOAA, USFWS, NRCS, FEMA, USACE, EPA	Federal Coordination on Integrated Floodplain Management	NOAA: NOAA Restoration Center continues to support local, state, and federal efforts to develop and streamline integrated floodplain management strategies, facilitated by the state Floodplains by Design program. Several key IIJA and IRA awards (see 2.2.11) build on pioneering efforts in the Stillaguamish and Snohomish watersheds and specifically leverage state investments from the Floodplains by Design program in the Community Floodplains Solution efforts of Snohomish County. This work is enabled by multi-purpose federal funding that recognizes the value of flood	NRCS: Opportunities for coordinated floodplain management exist through the PL-566 Water and Floodplain Prevention Operations (WFPO), however funding is oversubscribed. FEMA • Meet with and provide technical assistance to project proponents regarding Hydraulic & Hydrologic analyses of multiple projects at reach scale. • Assist project proponents with developing a process for FEMA to complete batched CLOMR/LOMR reviews of multiple projects within river reach.

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		hazard reduction, agricultural production, and natural resource services. FEMA: Regional FEMA staff have begun conversations with tribes, agencies, and project proponents regarding efficiencies in the CLOMR review process. See FEMA actions under 2.2.1 Habitat Restoration Regulation Efficiency	• Develop updated guidance for reconciling modeling between FEMA models and project proponent modeling. • Develop and implement new trainings/technical assistance for local jurisdictions and/or project proponents on floodplain development permitting including CLOMR reviews within one year. • Develop policies that allow for expedited FEMA CLOMR review for restoration projects. • FEMA work with state agencies to develop guidance on permitting efficiencies for restoration projects. • To ensure the success of these actions, an increase in FEMA regional staff is needed. • Communicate to federal, state, and local agencies the timeline of the NFIP update, particularly elements that relate to restoration projects, nature-based solutions, and Endangered Species Act compliance. • FEMA will participate in the MART (see Action 2.2.1) to continue to work on integrated floodplain management.

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Habitat Floodplains, Riparian and Estuaries 2.2.3.2 FEMA, NOAA	Integration of ESA Compliance into Local NFIP Floodplain Management		FEMA: Promptly complete integration of ESA compliance into NFIP Floodplain Management Standards for Land Management and Use and communicate that integration to local floodplain managers. Recommendations for better integration include: • Identify and incorporate natural ecological functions into NFIP. • Increase resources to support NFIP/ESA integration. • Delegate authority to the State of Washington to develop floodplain management programs that meet jointly developed floodplain management goals. • Allow and encourage new methods for assessing risk that do not require static maps. (E.g., utilize mapping standards that assess variability in flood flows and erosion rates). Increase staffing levels within FEMA NFIP to accelerate deployment of federal funding for habitat restoration work.

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Habitat Floodplains, Riparian and Estuaries 2.2.3.3 NRCS, USFWS, FEMA, USFS, NOAA, EPA, USACE	Federal Coordination - Riparian Habitat	State and Federal work group established to better coordinate riparian activities. NRCS developed and launched its EQIP riparian buffer program in FY22. In FY 23 NRCS continues to promote and grow this emerging subset of an existing program. EPA announced and awarded Climate Resilient Riparian Systems Lead funding to a coalition formed by the state Department of Ecology and Conservation Commission.	Ensure regular participation in State-Federal Riparian Habitat Work Group by all federal agencies named in the Federal Action Plan. Identify and implement regulatory and permitting solutions that safeguard critical infrastructure from unacceptable flood risk while accelerating deployment of federal funds for riparian habitat restoration. Solicit public comment on new proposed stream maps. Expand CREP eligibility for Puget Sound agricultural lands, utilizing improved state-led riparian mapping efforts and re-negotiating the CREP agreement with FSA. Ensure federal and state funding programs for riparian habitat link to and leverage each other to maximize riparian restoration and protection.
Habitat Floodplains, Riparian and Estuaries 2.2.3.4	Protection and Restoration of Riparian Areas in Priority Reaches	NRCS Developed and launched its EQIP riparian buffer program in FY22. In FY 23 we are continuing to promote and grow this emerging subset of an existing program.	

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EPA, NRCS		Additionally, NRCS is engaged with in a State and Federal work group to better coordinate riparian activities. Also, Our Wetland Reserve Criteria and Guidelines charter document provide prioritized areas for wetland easements which includes all lands surrounding and contributing to the Puget sound waters.	
Habitat Floodplains, Riparian and Estuaries 2.2.3.5 USACE	Puget Sound Nearshore Ecosystem Restoration Project (PSNERP)	The Duckabush River Restoration project, the first of three authorized sites under PSNERP is well into design phase in partnership with WDFW and WADOT.	Continue design work.
Habitat Floodplains, Riparian and Estuaries 2.2.3.6 NOAA, USFWS	Improve ecological resilience through climate change science, modeling, and response.	No update as of Dec. 13, 2023.	No update as of Dec. 13, 2023.
Habitat Floodplains, Riparian and Estuaries 2.2.3.7 NRCS	Address Natural Resource Concerns on a Watershed Scale	NRCS is currently engaging with the state and federal riparian work groups. We continue to promote our riparian EQIP program opportunity in addition to other conservation programs, such as the Wetland Reserve	

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		Easement component of the Agricultural Conservation Easement Program (ACEP-WRE) and the Regional Conservation Partnership Program (RCPP).	
Habitat Floodplains, Riparian and Estuaries 2.2.3.8 USFWS, NOAA	Pacific Coast Salmon Recovery Fund	See 2.2.2 above. This is a repeat of 2.2.2	Delete this action from next Action Plan. This is a repeat of 2.2.2
Habitat Floodplains, Riparian and Estuaries 2.2.3.9 NOAA – RC	Restoration and Resilience Awards	See 2.2.11 and 2.2.12	Remove line, replaced by cross-cutting 2.2.11 ad 2.2.12, projects incorporate nearshore, shoreline, floodplain, estuary, and riparian.
Habitat Floodplains, Riparian and Estuaries 2.2.3.10 NOAA, USFWS, Justice	Natural Resource Damage Assessment and Restoration	NOAA, USFWS, and Department of Justice collaborate to pursue compensation for damages to public trust resources. We are pursuing claims or managing restoration programs in response to oil spills and at waste sites at approximately 10 aquatic sites across Puget Sound, including large complex sites such as the Lower Duwamish and Commencement Bay.	Continue support for cross-agency natural resource damage assessment and restoration efforts.

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		The Blue Heron Restoration profiled in short stories is a just-completed 353-acre NRDA-supported large-scale restoration and mitigation project which also fosters the development of a marine conservation marketplace (see 2.2.2.3)	
Habitat Floodplains, Riparian and Estuaries 2.2.3.11 NOAA (EPA, NRCS, FEMA)	Ecosystem Grant Coordination	As part of its restoration technical assistance, NOAA supported the redevelopment of the state led Align Grant Coordination Workgroup between 2015 and 2022. The group has now secured funding and expanded its scope of operations under a 2023 MOU, now including the Puget Sound Partnership, to better coordinate state funding administration to empower local restoration teams.	With the onset of IIJA and IRA funding NOAA is unable to sustain contact with and support for the Align Grant Coordination Workgroup as a nexus for state-federal funding coordination. Increase state-federal coordination through Puget Sound Partnership Efforts. (see 2.1.4)
Habitat Floodplains, Riparian and Estuaries 2.2.3.12 NOAA, USGS	Snohomish Estuary Restoration Evaluation	A major report published in 2021 continues to result in technical papers. Ongoing work in the Snohomish will be tracked as part of evaluating benefits of estuary restoration (2.5.26) Completed Phase I of ESRP funded project to evaluate hydrologic conditions before and after restoration actions. Report summarizes changes in temperature and salinity after large	Continue through broader work on evaluating benefits of estuary restoration (2.5.26)

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		restoration actions in the lower delta. Data used to calibrate hydrodynamic model for planning and prioritization of future restoration actions while accounting for effects of climate change.	
Habitat Floodplains, Riparian and Estuaries 2.2.3.13 USFWS	National Coastal Wetland Conservation Grant Program	The National Coastal Wetland Conservation Grant Program funded 7 priority coastal wetland protection/restoration projects in Washington State in FY23. $6.7M in federal funds were matched with $3.4M non-federal funds. Puget Sound sites included: • Port Susan Bay (150 ac estuarine marsh restoration) • Samish Bay (128 ac wetland/riparian protection) • Tarboo Creek (35 ac wetland/riparian protection) • Hudson Cove (228 ac estuary protection) • Kennedy Creek (215 protection /230 ac restoration riparian, wetland, floodplain forest, and upland habitat) • Keystone Farm and Forest (3,500 ft. shoreline, 210 ac. riparian/coastal forest protection)	WDFW, WDNR, and Ecology are eligible to apply for National Coastal Wetland Conservation Grant awards. In addition to acquiring lands for State management, agencies have a proven track record of working with local entities to pass thru funds for qualifying projects. State agencies and USFWS should continue to prioritize collaboration on Coastal Grant proposals.

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		Washington State continues to deliver competitive proposals to this National program, with approximately 35% of the $18.9 M FY23 allocation directed towards Washington projects.	
Habitat Floodplains, Riparian and Estuaries 2.2.3.14 NOAA - RC	Federal Restoration Technical Assistance	NOAA Restoration Center provides a mixture of project-based and landscape-scale technical assistance efforts to support development of the Puget Sound restoration system. These dynamic efforts locate and fill gaps. Efforts largely completed in this reporting period include the development of new shoreline data to support ecosystem service calculation, publication of likely pocket estuary locations, improvement of the Salish Sea restoration platform, quantification of habitat service value at Manchester Environmental Laboratory, support for the Salish Sea Nearshore Programmatic, development of a new riparian volunteer program, completion of two science synthesis efforts describing salmon use of small coastal streams and the efficacy of beach nourishment while sustaining support during application, review, and contracting of infrastructure funding.	Continue implementation of Community-based Restoration Model

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Habitat Floodplains, Riparian, and Estuaries 2.2.3.15 USACE, NRCS, EPA	Skokomish River Ecosystem Restoration Project	USACE has obtained $13 million for a 277-acre estuary restoration project. The design has been completed but is still awaiting the necessary real estate for project construction from Mason County.	Proceed with construction once Mason County provides the real estate.
Habitat Floodplains, Riparian, and Estuaries 2.2.3.16 USACE	Green/Duwamish River Ecosystem Project	USACE has obtained $2M in 2023 to initiate and complete design and construction of Turley Levee Element.	
Habitat Floodplains, Riparian and Estuaries 2.2.3.17 NRCS	Agricultural Conservation Easement Program (ACEP)	NRCS: No recent easements have closed in the Puget sound area. However, our ACEP-WRE criteria and guidelines document provides prioritization toward wetlands adjacent to the Puget sound. Additionally, Puget Sound area easements have closed under RCPP, and those are noted under the RCPP section of this document.	
Habitat Floodplains, Riparian and Estuaries 2.2.3.18 NRCS	Resource Conservation Partnership Program	NRCS enrolled three agricultural land easements under the Regional Conservation Partnership (RCPP) in fiscal year 2022. These easements are part of the Whatcom County Working Lands Conserving Watersheds RCPP (RCPP 1680), which was established under the	

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		fiscal year 2018 RCPP Notice of Funding Opportunity. These easements protect 124.96 acres of prime and unique agricultural land and contribute to soil and water quality, climate change mitigation, and prevention of agricultural land loss. The RCPP partnership includes Whatcom County, Whatcom Land Trust, the Agricultural Water Board, and Whatcom Conservation District. Two of the three easements successfully closed in July 2023 and the third in October 2023. NRCS funded a proposal under the fiscal year 2022 RCPP Notice of Funding Opportunity that utilizes entity-held easements to achieve project goals. This RCPP is in Whatcom County and is known as the Whatcom County Conservation Easement Program (RCPP 2725). The project leverages the County's existing farm and forestland preservation program in anticipation of protecting up to six eligible parcels. The project partners will utilize standard easement transactions to protect	

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		both agricultural and habitat conservation values, as well as a buy-protect-sell easement transaction to protect a parcel for its agricultural values. NRCS is currently working with the project partners to establish the easement supplemental agreements. RCPP PROJECT: 2243: WRIA 1 Salmon Recovery & Water Quality Improvement, this was a renewal of a prior successful RCPP Project, and extends from 2021 to 2025. It has successfully implemented projects for fish passage and habitat to the degree that it will likely use all of its funds and finish early. RCPP Project: 1344: WRIA 1 Salmon Recovery & Water Quality Improvement, this RCPP was originally from 2016 to 2021 it was extended one year to 2022. Resource goals were At Risk species habitat, water quality and soil health. The bulk of the work focused on fish passage projects as well as riparian habitat to benefit salmon, specifically chinook salmon in the WRIA 1 watershed. RCPP Project 1633: Puyallup Watershed Partnership is an RCPP that went from 2017 to	

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		2022. It was extended one year into 2023. The primary resource concern was Soil Quality Degradation, other concerns in agreement are Water Quality Degradation and Climate Change. A large portion of the RCPP was focused on establishing easements. The EQIP funds in the RCPP agreement have focused on farms in the Puyallup watershed and Pierce County area to aid in nutrient management and soil health practices. RCPP Project 0464: Precision Conservation for Salmon and Water Quality in the Puget Sound. It focused on working with Partners to address water quality and wildlife habitat in the Puget Sound Watershed. The lead partner worked with additional partners to target watersheds around the Puget Sound area. It was one of the first RCPP agreements in Washington. While the RCPP agreement ended in 2021 several of the Producer Contracts are still active and continue to be implemented. Projects such as manure storage and nutrient management were a large part of planned work, but riparian plantings, and other habitat projects were funded as well.	

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Habitat Floodplains, Riparian and Estuaries 2.2.3.19 USFS	Decommission and Stabilize National Forest System roads	In 2023, the Olympic NF decommissioned two miles of road in the upper Dungeness watershed, (FSR 2878-108, 2878-109, and 2870-250). Approximately 1,100 cubic yards of road fill were removed associated with stream crossing removals. These stream crossing removals were on tributaries to the Dungeness and Gray Wolf Rivers – which are designated Critical Habitat for Puget Sound Chinook and steelhead, and Coastal bull trout. Project implementation was funded by the EPA.	
Habitat Floodplains, Riparian and Estuaries 2.2.3.20 USFS	Protect Aquatic Habitat on National Forest System lands	MBS NF is in the process of conducting design and permitting for the Deadhorse Road Relocation Project. The project is part of a large chinook recovery action in the NF Nooksack River basin. MBS NF is working directly with the Nooksack Tribe (co-project leaders) to design and eventually construct all aquatic habitat project elements. The project restores the NF Nooksack River floodplain, in-river habitat processes and reclaims administrative and public access on National Forest System Road 37. The project is funded by State SRFB and Federal Disaster Relief funding.	For Deadhorse Road Relocation Project, MBS NF and Nooksack Tribe anticipates construction occurring in 2025 and 2026. For Tenas Creek Restoration Project, MBS NF, SRSC and Upper Skagit Tribe will complete environmental planning (NEPA, ESA consultation, SHPO Sec. 106, etc.) in 2024; complete design and permits by mid-2025; and initiate construction by 2026 or 2027 (subject to available funding).

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		MBS NF is in the process of working with Skagit System Cooperative (SRSC) on restoration of lower Tenas Creek (Suiattle River watershed). SRSC are the representatives of Sauk-Suiattle Tribe and Swinomish Tribe natural and cultural resources. Upper Skagit Tribe also has high interest in the project and are an active partner. The project will restore Tenas Creek floodplain and channel/aquatic habitat processes for chinook salmon, steelhead trout, bull trout and other native salmonids. The project also has a large infrastructure project element – replacement of the Forest System Road 26 bridge with a much larger bridge to accommodate restoration of floodplain processes. In 2022, the Olympic NF partnered with the Mason Conservation District and Skokomish Tribe in the completion of the South Fork Skokomish Large Wood Enhancement Phase 5 Project. Log jams were constructed over approximately 1.5 miles of river and floodplain of the upper South Fork Skokomish watershed. The Olympic NF provided approximately 1,260	

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		trees for the large wood structures to improve habitat for steelhead, bull trout and other native fish. The project was funded by SRFB grants.	
Floodplains, Riparian and Estuaries 2.2.3.21 FSA *New Action*	CREP CP22	Outcome: Improve salmon habitat by installing forested riparian areas on agricultural lands. Outputs • New CREP CP22 enrollments for 2505 acres in Puget Sound counties in 2022 and 2023. • Total CREP CP22 enrollments for 3,094 acres in Puget Sound counties • Improving program integrity, and communicating options for impacted landowners to keep forested riparian acres forested. • Farm Bill uncertainty is a challenge. Resources	
Habitat Fish Passage 2.2.4.1 NOAA, USFWS, FHWA, NRCS, Navy, USFS, NPS, USACE, FEMA, FTA	Collaborate with Washington State Brian Abbott Fish Barrier Removal Board (FBRB)	NRCS utilizes FBRB data to evaluate potential projects. NRCS is represented on the fish passage sub-committee as well, as we serve shared customers on these lands. Opportunity exists for the state to develop an RCPP project proposal to target specific watersheds throughout the state.	

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Habitat Fish Passage 2.2.4.2 NRCS	Collaborate with WDFW Fish Screening and Passage Division	NRCS supports the WDFW division which is doing outreach w/private landowners up and downstream of state-owned crossings associated w/the culvert case and bringing new and potential customers to NRCS.	
Habitat Fish Passage 2.2.4.3 USFWS	National Fish Passage Program	In FY2023, the USFWS National Fish Passage Program funded a project with the Lower Elwha Klallam Tribe near Port Angeles, WA. This project is design/engineering only. The goal is to conduct engineering analysis using a consultant to provide design plans and cost estimates to replace the culverts on E. Ennis Road with a bridge. Design will include geotechnical, hydrologic, bridge design, construction methods and traffic control necessary to support bid documents for future construction. In FY2022, the USFWS National Fish Passage Program funded a project in the lower Puget Sound in Chambers Bay. South Puget Sound Salmon Enhancement Group (SPSSEG) is the lead on this project, working in close partnership with the Puyallup Tribe, the Nisqually Tribe, the Squaxin Island	

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		Tribe, Pierce County, and Forterra NW. SPSSEG is a non-profit organization and one of 14 Regional Fisheries Enhancement Groups across the state of Washington specializing in salmon habitat restoration. The main project focus is to remove or replace three fish passage barriers in Chambers Bay through project design and permitting efforts at this current project stage. The project actions include removal of Chambers Creek Dam and replacement of the bridge on Chambers Creek Road immediately upstream of the dam, and replacement of two barrier culverts in Chambers Bay downstream of the dam at the mouths of Garrison Springs and an unnamed spring creek tributary, both under Chambers Creek Road.	
Habitat Fish Passage 2.2.4.4 FHWA (NOAA, USFWS)	National Culvert Removal, Replacement, and Restoration Grant Program	For the first year of this program, Washington State received applications totaling $58,218,424. This included 1 WSDOT project, 16 Local Agency projects, and 6 Tribal projects. These 23 grants will fix a total of 46 barriers. These projects are not all in the Puget Sound watershed. Four will be managed by FRA, and tribal projects will be handled by FHWA's Office of Tribal Transportation. The link to the	Consider whether statutory changes would be desirable, as Task Force members identified issues that may have inhibited applications to the Program, including: • Requirement that projects have already completed the NEPA process • Exclusion of the state's salmon recovery regions, lead entities, regional fisheries enhancement groups, Conservation

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		Culvert AOP program is: Aquatic Organism Passage- Federal Highway Administration (dot.gov) which provides information on all recipients. At a national level, NOAA provides technical assistance to support the FHWA program. Additionally, there is approximately $100M in FHWA PROTECT formula funding (across FFY23-26) going to the state, of which $25M will go to tribal projects and $75M will be utilized by FBRB nominated projects.	Districts, and NGO's from being eligible applicants • Requirement that the local governments provide no less than 20% on the project cost • Reimbursable grant structure that requires the state or local government to provide project costs upfront
Habitat Fish Passage 2.2.4.5 FHWA	Salmon and Steelhead Barrier Correction Projects on Federal-aid Eligible Roadways	Many of these projects are state-funded, but they are all on Federal-aid eligible roadways. This is an excerpt from WSDOT's 2023 Fish Passage Performance Report: "Statewide there are 4,017 highway crossings on fish bearing waters. Of those, 2,086 are documented fish passage barriers, including 2,052 culverts. Of these, 1,536 block a significant amount of upstream habitat (>200 meters). WSDOT completed 15 fish passage projects in 2022, opening 29.11 miles (46.85 kilometers) of potential upstream habitat. Fourteen of the 15 barriers corrected were	

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		Federal Court Injunction barrier culverts. Since 2013, WSDOT has worked to comply with the requirements of a U.S. District Court injunction to correct barriers to salmon and steelhead within the case area. As of June 1, 2023, WSDOT has corrected 114 injunction barrier culverts and opened 501.71 miles (807.42 kilometers) of blocked salmon and steelhead habitat."	
Habitat Fish Passage 2.2.4.6 FHWA WFLHD	Fish passage barrier correction projects on roads that access Federal and Tribal lands and on roads owned by Federal and Tribal entities (WFLHD)	Federal Lands Transportation Program - FLMA Fish Biologists identify streams that require fish passage. Typically, the FLMA fish biologist coordinates with the State Fish and Wildlife fish biologist on fish passage. Federal Lands Access Program – WFL coordinates with local, state, and federal agencies -- usually NMFS, USFWS, and the State Dept of Fish and Wildlife fish biologist to determine fish passage.	
Habitat Fish Passage 2.2.4.7 USACE (USFWS, NOAA)	Design and Construct a new downstream fish passage facility at Howard Hanson Dam	The project was reauthorized in WRDA 2022 based on a validation study completed in partnership with NMFS, USFWS, WDFW, Muckleshoot Tribe, and Tacoma. The project	Anticipate construction starting in 2026 and completing by 2030.

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		received $220 million from IIJA spend plan and $50 million from the 2024 appropriations act.	
Habitat Fish Passage 2.2.4.8 USFS	Correct salmon and steelhead culvert fish passage barriers on National Forest System roads	MBS NF completed an aquatic organism passage (fish passage) restoration project on Forest Service Road 7030-tributary to Greenwater River crossing. In 2022 via IIJA funding (USFS Legacy Roads and Trails program) MBS NF moved funding to one of its key partners in watershed restoration, Trout Unlimited (TU). TU will lead design and construction on 6 fish passage projects in the Greenwater and Upper Green river watersheds. MBS NF via IIJA funding (USFS Legacy Roads and Trails program) anticipates completion of design and construction for the All Creek Aquatic Organism Passage (fish passage) project. This project is on NFS Road 2510 at a tributary to All Creek (Suiattle River). This project links to other salmon recovery/aquatic habitat restoration projects in the Suiattle River in partnership with Tribes.	MBS NF and TU expects 6 fish passage project designs to be completed in 2024 with construction occurring in 2025 and 2026. MBS NF expects design and construction to be completed in 2024 for All Creek fish passage project.

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Habitat Fish Passage 2.2.4.9 NPS	Correct salmon and steelhead culvert fish passage barriers on National Park Service roads	The NPS, Mount Rainier National Park (MORA), is currently partnering with the USFWS and focusing on improving fish spawning habitat and monitoring impacts on fish populations within the park. The eight fish passage culvert barriers identified in 2016 remain as concerns, but removals have been postponed due to prohibitive costs and greater management efficacy in other park sites. Originally, in 2016, one was set to be repaired as part of an FHWA project that did not move forward and the others were part of a project to improve campsites and recreational opportunities that became cost prohibitive. Fish passage barrier priorities are being reviewed and reprioritized within the park.	
Habitat Fish Passage 2.2.4.10 U.S. Navy	Correct salmon and steelhead culvert fish passage barriers on U.S. Navy property	Culvert repair and replacement to support salmonid habitat restoration throughout the Puget Sound Region is an ongoing priority for the Navy. Since 2003, the Navy has replaced ten culverts to benefit fish passage and restoration efforts to support estuarine marsh habitat along the Bremerton Navy Railroad, Naval Base Kitsap Bangor, Naval Radio Station Jim Creek, Manchester Fuel Department, and	The Navy will continue to prioritize the repair or replacement of culvert fish passage barriers on Navy property as funding becomes available.

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		Naval Air Station Whidbey Island. Navy continues to support further culvert repair and replacement efforts. The Navy spent approximately $20M on culvert designs, repair, maintenance, monitoring and construction in FY22 and FY23.	
Habitat Fish Passage 2.2.4.11 NOAA *New Action*	NOAA Restoring Fish Passage through Barrier Removal Grants	As part of its first-year funding authorized by the IIJA and focused on fish passage barriers removal, NOAA awarded approximately $11M over three cooperative agreements that are anticipated to remove over 15 fish passage barriers, restoring fish passage to more than 30 miles of stream habitat to contribute to the recovery of threatened and endangered species. Continue implementation of the Community-based Restoration model.	
Stormwater 2.3.1 NOAA, USFWS (HUD, DOT)	Integrating stormwater science into ESA Section 7 compliance	NOAA-F (NWFSC) and EPA (R10) have finalized a new, four-year interagency agreement to support targeted stormwater science in Puget Sound. A primary objective will be to identify and then address critical information gaps for future federal consultations, primarily at the intersection of the ESA and CWA. This coordination effort is expected to benefit other federal agencies involved in ESA Section 7 compliance, such as FHWA, FEMA, DoD, and others.	

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Stormwater 2.3.2 EPA	Support the Puget Sound Stormwater Strategic Initiative (WA Dept of Ecology, in partnership with the WA Stormwater Center and WA Dept of Commerce)	Stormwater SIL is staffing the Puget Sound Stormwater and Transportation Charter Group Puget Sound Stormwater Strategic Initiative staff operationalized the Toxics in Fish, B-IBI Freshwater Stream Quality, and Marine Water Quality Implementation Strategies to prevent toxics from impacting Puget Sound aquatic life, protect and restore Puget Sound freshwater streams, address nutrient pollution in Puget Sound. To achieve Puget Sound Action Agenda stormwater goals, the SIL funded new projects addressing strategic priorities and created plans to allocate $18.6 million in funding through a series of targeted solicitations. The team continues to manage an additional 28 Puget Sound stormwater grants. These funded projects and planned investments prioritize and promote green and nature-based infrastructure as a stormwater, climate adaptation, carbon sequestration, and human wellbeing solution—with a specific focus on environmental justice during planning, project selection and implementation. Newly funded projects include: A social marketing strategy for Low Impact	Continue to support Stormwater SIL's facilitation of the PSFLTF stormwater and transportation charter group. Implement the Stormwater Strategic Initiative's investment plan and the Toxics in Fish, B-IBI Freshwater Stream Quality, and Marine Water Quality Implementation Strategies. 2023 SILs Joint Investment Plan October 2023.pdf | Powered by Box

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		Development (LID) and Green Stormwater Infrastructure (GSI) ($450k); Identifying and addressing priority hotspots—Funding for local transportation retrofit planning to address toxics, fish passage and other transportation-related pressures ($1.6m); funding for research into emerging chemicals ($2.2m) and funding to implement state Chemical Action Plans ($3.3m) Planned investments include: Improving regulatory frameworks, support and removing barriers to watershed-scale integrated (stormwater and land use) planning and implementation support for the Sound Choices Checklist ($4.2m); planning support for multi-benefit stormwater parks ($1m); local government grants for climate resilient stormwater systems ($1m); support to local governments including a model policy and ordinance clearinghouse and technical assistance program, developing recommendations for enhanced stormwater system maintenance, and implementing previously funded social marketing strategy ($1.4m); addressing toxic hotspots with innovative stormwater infrastructure ($1.5m);	

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		addressing wastewater management recommendations to address toxics and nutrients ($1m) Coordination, Engagement and Building Social Infrastructure: Recruited and convened a Strategic Initiative Advisory Team (SIAT) to advise in Stormwater Strategic Initiative decision-making and to develop two annual investment plans based on strategic priorities. Provided funding for Implementation Strategy staff leads for the Toxics in Fish, B-IBI, and Marine Water Quality Implementation Strategies and formed technical/policy workgroups to develop, refine, adaptively manage, and operationalize Implementation Strategies and inform the SIAT's annual investment planning. These working groups have been successful venues to incorporate input from Local Integrating Organizations, Tribes, state and local government staff and NGOs and represent a breakthrough for inclusive and transparent planning processes. The Stormwater Strategic Initiative Lead continues to contribute to the PSP and National Estuary Program (NEP) Management Conference processes and work groups as well	

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		as proactively coordinate with tribes and Local Integrating Organizations and tribal partners to accomplish stormwater and ecosystem recovery work. The SIL also facilitates the PSFLTF Stormwater/Transportation Charter Group. Resources: $35M EPA funding for FY2022-2026. $18,050,000 in EPA funding since May 2022.	
Stormwater 2.3.3 FHWA (NOAA, USFWS, EPA)	Stormwater Treatment as Part of Transportation Projects	FHWA: Agencies updating and incorporating new standards in statewide programmatic ESA Section 7 consultations to ensure treatment of stormwater pollutants in runoff is supportive of salmon recovery. The Stormwater and Transportation state/federal/tribal charter group initially convened in July of 2023 and has active subgroups to make progress on: 1) low risk, high reward retrofits for stormwater treatment for in the near term, 2) large outfalls with inadequate stormwater treatment, and 3) science, monitoring, and prioritization.	Agencies proactively implement recommendations of the PSFLTF Stormwater/Transportation charter group. Convene conversations between FHWA, EPA, NOAA, USFWS and other partners who are involved in the regulation, funding, and standard setting functions and activities of the federal government as it relates to impervious surfaces that are tributary to Puget Sound. The FHWA will continue to promote collaborative consultation and restorative project implementation with Resource and transportation agencies and Tribes.

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		FHWA/WSDOT, NOAA, and USFWS ESA Technical Working Group has been meeting every other month regarding ESA Section 7 consultations on Federal-aid transportation projects funded by FHWA in Washington.	EPA and NOAA: Implement landscape level analysis of salmon, stormwater, and climate change impacts, taking into account fish passage barrier removals and the regional transportation system to help guide where stormwater mitigation installations will be most effective to treat stormwater hotspots. Goals of the Stormwater Transportation Charter Group 1. Define the scope of the challenge, using a watershed-scale approach to evaluate pollution inputs to freshwater and estuarine habitats, as they overlap the habitat range for highly migratory salmonids in Puget Sound – at present, and with future climate change. 2. Prioritize lower-cost, high-yield opportunities for stormwater retrofits and other pollution reduction strategies for the existing and future transportation grid. 3. Use vulnerability analysis to identify where healthy/productive salmon habitats are likely to be most impacted by future expansions of the transportation grid, as focus areas for clean water investments

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			using green infrastructure and similar approaches. 4. Coordinate and leverage resources across Charter organizations and their respective partners (including academic researchers and local governments), for maximal alignment and impact. 5. Coordinate closely with regional and related technical working groups, including the PSFLTF Science and Monitoring group, the Puget Sound PSEMP workgroup, Stormwater Strategic Initiative, and others. 6. Produce cost estimates for high priority retrofits and green infrastructure installations across salmon-supporting watersheds, as well as long-term operations and maintenance, as a basis for Congressional reporting and future federal and state budget planning. 7. Proactively pursue funding for high priority retrofits and green stormwater infrastructure. 8. Develop studies (research, monitoring, and/or synthesis) to focus the shared expertise and resources across the Charter group on the most pressing salmon

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			conservation and recovery information gaps, in support of adaptive management. 9. Review the emerging science on green infrastructure methods, demonstration projects, and effectiveness monitoring, and make recommendations for best practices.
Stormwater 2.3.4 EPA, NOAA, USFWS	NPDES Stormwater Permitting	EPA submitted amended BE to NMFS in May 2023 re: renewal of JBLM MS4 permit –NMFS' Biological Opinion expected in Fall 2023. We expect NMFS to provide input to EPA on its 6PPD-q- specific provisions in the JBLM MS4 Permit. EPA submitted BE for draft Tulalip MS4 and 3 MS4 permits for PS Navy facilities to Services in October 2019; EPA met with USFWS in July 2023 to discuss feedback & EPA awaits formal FWS comment letter as result. EPA has not received a response from NMFS on the 2019 MS4 BE; these permits are now up for renewal. EPA continues to work on completing its BE for MS4 Permits (3) for discharges to lower Puyallup River: WSDOT/Pierce Co./Tacoma.	EPA will continue to consider the evolving science regarding mitigation and assessment of 6PPD-q and commits to adapt and revise permit approaches in stormwater permits EPA directly issues (direct implementation), and commits to comment on State permits where 6PPD-q is potentially a concern. EPA will continue to prioritize the review of draft Washington Department of Ecology and other state issued stormwater permits in Region 10 to encourage the inclusion of improved, appropriate controls, and to include provisions for adaptive management. Improved coordination and alignment of interests around ESA consultation for EPA-issued NPDES permits is an opportunity to leverage shared interests. Timely agreement on scope of consultation and the resultant

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		EPA began staff level consultation with Tulalip Tribes regarding their draft MS4 permit. EPA has formed an internal group to evaluate how our NPDES permits are currently addressing 6PPD-q and consider other tools to include in future permits to reduce 6PPD-q in stormwater discharges. EPA expects to publish a draft permit for public comment for discharges from Puget Sound Naval Shipyard that includes stormwater discharges in 4th Quarter 2023.	timely issuance of incrementally strengthened and improved permits ensures that permitted jurisdictions have the regulatory requirements in-hand that drive actual improvements (i.e., investments in stormwater parks and stormwater infrastructure). Recommend: The Services and EPA collaborate to develop approaches that result in reduced stormwater pollution in Puget Sound and its tributary streams and rivers.
Stormwater 2.3.5 EPA, NOAA, USFWS	NPDES Wastewater Permitting for Federal and Tribal facilities	EPA submitted a BE for four tribal POTWs discharging to Puget Sound (Lummi Sandy Point WWTP, Lummi Gooseberry Point WWTP, Tulalip WWTP, and Suquamish WWTP) to NMFS and USFWS in October 2021. USFWS had already concurred on NLAA finding for the Suquamish permit in an earlier consultation and issued concurrence for the other three permits in December 2021. At this time NMFS shared a statement of non-concurrence and EPA requested formal	EPA will endeavor to issue and reissue permits without delay to achieve the incremental water quality improvements intended by five-year permits. This is important because more stringent performance requirements serve as a basis for improvements in plant capability (i.e., upgrades). Improved plant capability typically has beneficial impacts beyond the removal of the pollutant that drove the upgrade. For instance, more stable plant operations for a range of discharge pollutants may result.

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		consultation on December 15, 2021. NMFS shared a draft BiOp with EPA in February 2023 EPA continues to work with NMFS to come to an agreement on the conditions in the BiOp, with an interest in ensuring implementation is feasible.	Recommend: The Services collaborate to support EPA's endeavor to reissue permits on five-year cycles.
Stormwater 2.3.6 EPA	NPDES Permitting state oversight	EPA is maintaining real time review of state permits on public notice, including a detailed review of Ecology's proposed MS4 permits. EPA is also finalizing the Permit Quality Review Report.	
Stormwater 2.3.7 EPA	Clean Water State Revolving Fund, Overflow and Stormwater Grant Program, Clean Water Indian Set-Aside Program	EPA is using the newly established Clean Water Act Emerging Contaminants funding to support Washington Department of Ecology's investment in stormwater infrastructure that improves the removal of pollutants known to be toxic to salmonid species. Washington State's 2022 Intended Use Plan (i.e., spending plan) includes projects that invest in stormwater infrastructure, including a project in Seattle's South Thornton Creek drainage basin which will remove pollutants from nearly 9 million gallons of urban stormwater runoff that discharges into the salmon-bearing Thornton Creek, and will also deliver co-	EPA Region 10 plans to continue to engage with Washington State Department of Ecology to encourage investment of Emerging Contaminant funding to improve stormwater quality. EPA will support Ecology by providing eligibility reviews for projects under the new Emerging Contaminants funding. EPA will also support Ecology in soliciting for projects specific to the new Emerging Contaminants funding.

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		benefits to the community. This treatment will remove 6PPD and 6PPD-q from stormwater. For fiscal year 2022, the emerging contaminants funding to Washington equals $1.626 million. $3,735,000 of fiscal year 2023 funding is available for Washington State to utilize for Emerging Contaminants, and EPA is awaiting Washington's application and intended use plan.	
Stormwater 2.3.8 EPA, NOAA	Federal Oversight of CZARA in Washington State	EPA has approved the 2022 updates to Washington's Water Quality Management Plan to Control Nonpoint Sources of Pollution. EPA has also determined that the State has made satisfactory progress implementing its nonpoint source management program in the preceding year and awarded the next year's CWA Section 319 grant.	EPA and NOAA are preparing to take final action regarding the remaining conditions placed on the State's coastal nonpoint program (CZARA).
Stormwater 2.3.9 EPA	CWA Section 319 and 106 Funding	Tribal 319 - Work plans negotiated through PPG - Federal funds $863,304. Tribal 106: Work plans negotiated through PPG - Federal funds $1,689,685.	Recommend separating 319 and 106 into separate actions. Recommend moving 319 and 106 to Cross-cutting.

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		As of 2023, EPA HQ increased the 319 base amount from 30k or 50k depending on reservation size to 45k, 50k, 55k or 70k depending on reservation size. Additional base funding allocations for Tribes are subject to congressional funding for 319 program. All tribes in PS get 106 funding except Nisqually. Most tribes get 319 (expect Nisqually, PGST, Lower Elwha, Muckleshoot)	
Stormwater 2.3.10 EPA	Human Health Criteria	Complete. The final federal rule restoring protective Human Health Criteria for Washington was completed on 11/15/22.	
Stormwater 2.3.11 EPA (NOAA, USFWS)	Aquatic Life Criteria	On May 25, 2023 EPA made an Administrator's Determination that new and revised aquatic life criteria are necessary to protect aquatic life in WA for the following pollutants: acrolein, aluminum, arsenic, cadmium, copper, cyanide, mercury, nickel, and selenium. In addition, on June 22, 2022, the Washington State Department of Ecology began its rulemaking to update aquatic life criteria. We understand Ecology will propose the revised criteria in Spring 2024.	EPA will continue to support the state's effort to update its aquatic life criteria while fulfilling the agency's CWA obligations to propose the nine criteria included in the Administrator's Determination.

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Stormwater 2.3.12 EPA	Contaminants of Emerging Concern (CECs) in Stormwater: Technical Assistance to States and Tribes on Improved Stormwater Management and BMP Effectiveness	No update as of Dec. 13, 2023.	No update as of Dec. 13, 2023.
Stormwater 2.3.13 EPA *New Action*	Cross-EPA 6PPD coordination	In November 2022, EPA formed a cross-EPA 6PPD workgroup to coordinate on 6PPD and 6PPD-q actions across the agency. The workgroup includes leadership from: Office of the Administrator/Office of Policy, Office of Water, Office of Chemical Safety and Pollution Production, Office of Water, Office of Research and Development, Office of Environmental Justice and External Civil Rights, Office of Air and Radiation, Office of International and Tribal Affairs, Office of Land and Emergency Management. EPA Region 10 staffs and co-leads the cross-EPA 6PPD workgroup. The cross-EPA 6PPD workgroup will continue to coordinate on actions to address 6PPD and 6PPD-q using EPA's funding, science, and regulatory programs, as well as convening (e.g. a national tribal 6PPD-q listening session on November 14, 2023, in partnership with tribes and other federal agencies). Link to EPA 6PPD-q website: https://www.epa.gov/chemical-research/6ppd-quinone Contact: Catherine Gockel	
Stormwater 2.3.14	Take action on 6PPD under TSCA	On August 1, 2023, the U.S. Environmental Protection Agency (EPA) received a petition submitted on behalf of the Yurok Tribe, the Port Gamble S'Klallam Tribe, and the Puyallup Tribe of Indians,	

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EPA *New Action*		requesting that EPA "establish regulations prohibiting the manufacturing, processing, use, and distribution of N-(1,3-Dimethylbutyl)-N'-phenyl-p-phenylenediamine ("6PPD"), CASRN 793-24-8, for and in tires under EPA's Toxic Substances Control Act (TSCA) Section 6(a) authority, 15 U.S.C. § 2605(a), with such regulation to take effect as soon as practicable, in order to eliminate the unreasonable risk 6PPD in tires presents to the environment." EPA has granted this petition. EPA intends to publish an advanced notice of proposed rulemaking under Section 6 of TSCA by Fall 2024 in order to gather more information that could be used to inform a subsequent regulatory action. EPA also plans to finalize a rule under Section 8(d) of TSCA to require manufacturers (including importers) of 6PPD to report lists and copies of unpublished health and safety studies to EPA by the end of 2024. Read EPA's response to the petition. EPA coordinates with WA Ecology and CA Department of Toxic Substances and Control and their respective 6PPD hazard criteria/alternatives analysis processes, as well as other federal agencies (e.g., USDA, DOT) and with the chemical and tire industries and the Interstate Technology Regulatory Council (ITRC) national 6PPD team. The Stormwater/transportation charter group recommends that federal agencies work to accelerate finding and vetting an alternative to 6PPD and that EPA use its TSCA program to regulate 6PPD in tires.	
Stormwater 2.3.15 EPA	Convene tribes, stakeholders and researchers about	April 2023, EPA Office of Water's Trash Free Waters Program published "Where the Rubber Meets the Road: Opportunities to Address Tire Wear Particles in Roadways" following the spring 2022 convening. See https://www.epa.gov/trash-free-waters/science-case-studies	

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New Action	mitigating tire particle pollution and 6PPD-q	EPA staff and scientists actively participate in the 6PPD ITRC team, including the national meeting in Seattle October 2023. https://itrcweb.org/teams/active/6ppd-q November 14, 2023, EPA's Office of International and Tribal Affairs convened a national tribal listening session on 6PPD-q. EPA is engaging with tribes on 6PPD-q via its National Tribal Operations Council and other EPA/Tribal Partnership programs. Scientists from EPA collaborated with colleagues from academia and state organizations to author a state of the science paper on "Tires as a Complex Pollutant." The paper was submitted to a peer-reviewed journal in 2023. EPA Region 10 is convening a stormwater/transportation state/federal/tribal charter group (with NOAA, DOT, WA Ecology, PSP, tribes, etc.) Continue to convene on this topic as the science and policy solutions evolve.	
Shellfish 2.4.1 EPA	Shellfish Strategic Initiative funding to reduce fecal pathogens and upgrade harvestable shellfish beds	Outcomes: No net change of harvestable shellfish acreage between May 2022 – October 2023, but a positive 188 acres of net improvement in the past six months. Outputs: Identified at least 64 fecal pollution hotspots and funded follow-up.	Continue to prioritize reduction of fecal pathogens in Puget Sound so that shellfish are safe to harvest. Continue to implement the Shellfish Strategic Initiative's investment plan: 2023 SILs Joint Investment Plan October 2023.pdf | Powered by Box

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		Identified 200 onsite sewage system (OSS) failures and corrected at least 98 failures since May 2022. Provided over 1,450 rebates/financial incentives to homeowners, mostly for OSS inspections, pumping, risers and maintenance rebates. Provided support to a boaters' waste mobile pumpout station in one county. Convened regional Pollution Identification and Correction (PIC) quarterly workshops. Funded at least 41 farm plans and provided technical assistance to at least 1,867 landowners for manure management and OSS issues. Funded 14 agricultural BMPs and the pre-implementation work for at least 10 more that were funded by other resources. Funded the land survey and engineering design work phase of a project to repair and possibly transition 55 low-income senior community member households on a failing	

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		large OSS to have a competitive plan to apply for funds to connect to a nearby sewer line. Supported underrepresented communities and environmental justice by translating materials on the importance of OSS maintenance for linguistically diverse audiences on webpages, postcards, letters, flyers, social media postings in up to five languages. Developed Investment Plans with Shellfish Investment Priorities as identified by the Shellfish Strategic Initiative Advisory Team (SIAT). 2023 SILs Joint Investment Plan October 2023.pdf | Powered by Box Awarded a total of $9.1 million to 14 new subrecipients, with an additional $4.5 million soon to be awarded. Updated Shellfish Implementation Strategy Supporting development of pilot progress indicators on OSS. Participated in PSP and National Estuary Program Management Conference processes	

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		and work groups as well as proactively coordinate with Local Integrating Organizations and tribal partners to accomplish shellfish recovery work. See https://pugetsoundestuary.wa.gov/what-we-do/funded-projects/ for a list of projects funded by EPA's Shellfish Strategic Initiative to date. Supported subrecipients to reengage with Transboundary conversations/coordinated sampling plans as pollution levels south of the border increased again the last two winters. Resources: An increase to $9.95 million of EPA Puget Sound Geographic FFY2023 funds was awarded to the Washington Department of Health's Shellfish Strategic Initiative 2.0 (most of this funding is distributed as subawards for on-the-ground actions throughout Puget Sound).	
Shellfish 2.4.2 NOAA	Implement ESA and EFH aquaculture regulatory framework	In FY 22, 23 and 24 NOAA funded a contract position dedicated to providing timely reviews through ESA/EFH authorities of aquaculture projects in Washington state	Use available funds to support timely reviews of aquaculture projects in Washington State.

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Shellfish 2.4.3 NOAA	Ocean Acidification Monitoring	During FY22–23, Puget Sound ocean acidification data from 2008–2018 were archived at NOAA's National Centers for Environmental Information (NCEI, links below). NOAA's Ocean Acidification Program continued to support the J-SCOPE model, which provides seasonal forecasts of ocean acidification and hypoxia (OAH) conditions in Pacific Northwest (PNW) coastal waters. The NOAA-funded scientists co-leading the Puget Sound OAH sampling and PNW coastal modeling efforts collaborate closely with the Washington Ocean Acidification Center (WOAC, funded by the Washington state legislature) and the University of Washington scientists funded by WOAC to run LiveOcean, a daily forecast model of circulation and OAH conditions in Puget Sound. Two manuscripts are presently in review for publication at Earth System Science Data and Biogeosciences (links also below). All of the observations, data products, and model outputs reflect a combination of Washington state and federal funding. Data Products: https://www.ncei.noaa.gov/access/ocean-carbon-acidification-data-	During FY24–25, sustained support for the federal–state partnership to monitor and model ocean acidification within Puget Sound will be critical to ensuring we can continue to provide shellfish growers and other fisheries organizations with the latest understanding of how OAH is affecting Puget Sound marine resources. With continued support, the 2019–2023 Puget Sound OAH observations will be added to the existing data products and updated at NCEI.

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		system/oceans/SalishCruise_DataPackage.html Manuscripts in open review: https://essd.copernicus.org/preprints/essd-2023-239/ https://bg.copernicus.org/preprints/bg-2023-181/	
Shellfish 2.4.4 NOAA, EPA	Harmful Algal Bloom Detection and Prediction	SoundToxins, run by Washington Sea Grant at the University of Washington, is actively providing near real time monitoring of harmful algal bloom monitoring in Puget Sound. New monitoring sites in Whatcom County in Central Puget Sound have been added to the monitoring network.	
Shellfish 2.4.5 NOAA	Pathogenic Vibrio Detection and Prediction	Vibrio predictive models: https://products.coastalscience.noaa.gov/vibrioforecast/pacificnw/default.aspx	
Shellfish 2.4.6 NOAA	Conservation Genetic Risk Assessment	Three native Olympia oyster populations produced by the Puget Sound Restoration Fund and the Kenneth K. Chew Center for Shellfish Research and Restoration hatchery were compared to wild stock. Staff participate in monthly hatchery meetings to provide science and advice on issues. Reference	

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		samples are being collected and archived from temporal recruitment stations in Puget Sound for future work to evaluate if the populations of Olympia oysters are experiencing local adaptation or genetic drift. The work to analyze the samples to determine local adaptation or genetic drift requires additional funding (around $100K).	
Shellfish 2.4.7 NOAA	Habitat Value of Shellfish	The project has resulted in many outcomes to date including 3 manuscripts published/in press. For example: https://doi.org/10.3354/meps14248. And two manuscripts in review. One large collaborative project in progress: https://marinesanctuary.org/nearshore-save/	A new project is underway in FY 24 to assess the habitat functions and ecosystem effects of shellfish aquaculture in Puget Sound. Use available funds to monitor carbon stores in shellfish aquaculture and link aquaculture ecological functions to permitting.
Shellfish 2.4.8 NOAA	Native Shellfish Hatchery	• 1,400 bags of Olympia oyster spat-on-shell seed produced and outplanted to accelerate Olympia oyster recovery at priority sites at Samish Bay, Squaxin Island, Port Gamble Bay, and near Tulalip • Nearly 1 million single Olympia oysters produced and outplanted to sites in North	

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		Puget Sound to test spillover benefits of conservation aquaculture • 11,995 juvenile pinto abalone outplanted (produced in 2020-2022), and nearly 2.5 million larval abalone settled (2022, 2023) • Completion of the Kelp Lab, establishment of bull kelp seed bank, propagation of bull kelp for restoration and research in central Puget Sound and at Squaxin Island • Operation of Dungeness crab light trap as part of region-wide monitoring network • 3 peer-reviewed publications, several ongoing shellfish and kelp research projects on ocean acidification, temperature tolerance, facilitative role of coralline algae for abalone survival and settlement, and population genomics • Celebration of the 10-year anniversary of the Chew Center • Conducting outreach events and tours for school groups, congressional delegations, and visiting researchers.	
Shellfish 2.4.9 NRCS	Native Oyster Restoration Projects	NRCS funded one EQIP contract for $115k to promote the restoration of rare and declining habitats.	

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		NRCS is sending a representative to west coast shellfish conference to increase exposure, awareness and to conduct outreach.	
Shellfish 2.4.10 NOAA	Support Shellfish Aquaculture Readiness	NOAA has funded several projects to further assess shellfish/submerged aquatic vegetation interactions and shellfish aquaculture gear thresholds.	Recommendation: Continue to support projects that further the aims of this project category.
Shellfish 2.4.11 EPA	Microbial Source Tracking (MST) of Fecal Pollution - Analytical and Technical Laboratory Support	Outcomes: Better informed Puget Sound Pollution Identification and Correction (PIC) programs. Outputs: EPA Region 10's Manchester Environmental Laboratory provides in-kind analytical and technical support for MST to Puget Sound counties' PIC programs. Local water quality teams collect marine and/or freshwater samples, delivering them to the Manchester Laboratory where molecular methods are used to identify the source(s) of fecal pollution. Current capability can identify contributions from human, dog, ruminant, and cattle sources.	Recommendation: Continue to support local water quality programs by providing in-kind analytical and technical support for MST.

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		This information sheds light on trouble spots, and helps the local governments hone their management actions (e.g., whether to focus on onsite sewage systems, agricultural best management practices or pet waste). Since 2021 EPA Region 10's lab has supported three WQ programs in Puget Sound with MST analytical/technical support and two other Puget Sound programs with MST technical-only support. Resources: 1 laboratory FTE	
Shellfish 2.4.12 EPA (NOAA, USFWS)	Washington Sea Grant European Green Crab Monitoring	USFWS is conducting monitoring for European green crab on refuge lands and waters using standardized protocols in coordination with state-wide monitoring conducted by Tribal, State, local, and other Federal partners. In Washington this includes monitoring within the Dungeness National Wildlife Refuge, Willapa Bay NWR, and Grays Harbor NWR. Data are shared with Washington Sea Grant, University partners, and others, contributing to a variety of products in 2023 including management coordination meetings, quarterly and annual reports, research, and outreach	This work is ongoing following Washington Department of Fish and Wildlife (WDFW) Washington State European Green Crab Emergency Response Strategic Action Plans for Fiscal Year (FY) 2023 & FY 2024.

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		presentations. USFWS also serve on the Washington Invasive Species Council. The Council helps facilitate coordination with other agencies across Washington on invasive species issues including European Green Crab monitoring and control efforts.	
Shellfish 2.4.13 NOAA, USFWS, BIA	European Green Crab Control – in field	In coordination with state-wide invasive species emergency measures with Tribal, State, local, and other Federal partners in Washington, USFWS conducted control trapping efforts within Dungeness National Wildlife Refuge (NWR), Willapa Bay NWR, and Grays Harbor NWR in 2023. Quarterly reports summarizing state-wide trapping data and response efforts are compiled and shared through the Washington State Department of Fish and Wildlife Service website: (https://wdfw.wa.gov/species-habitats/invasive/carcinus-maenas#conservation). As of December 31, 2023, this multi-agency trapping effort has removed 361, 449 individual EGC from coastal habitats in Washington including 6,063 in the Puget Sound. USFWS also serves as part of the Multi-Agency Coordination	This work is ongoing following Washington Department of Fish and Wildlife (WDFW) Washington State European Green Crab Emergency Response Strategic Action Plans for Fiscal Years (FY) 2023 & FY 2024. Capital funding for replacement of the tide gate for the Lummi Sea Pond will be necessary in the near term to support containment of EGC larvae and the natural resource management interests of the Lummi Nation.

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		(MAC) Group, activated as part of the Incident Command System in support of Governor Jay Inslee's emergency proclamation #22-02 to address EGC in the Salish Sea and Coastal marine regions of Washington state. The BIA continues to provide funding support for tribal EGC trapping and monitoring efforts; $420,000 was awarded in 2023. The BIA also serves on the MAC Group.	
Science and Monitoring 2.5.1 USGS, NOAA, EPA (Navy, USFWS, USACE, others)	Federal Puget Sound Science Coordination	USGS, EPA, and NOAA are co-chairing the Federal Science & Monitoring Workgroup of the Puget Sound Federal Leadership Task Force. Other Federal agencies are participating in this workgroup, as needed.	
Science and Monitoring 2.5.2 NOAA, EPA	Stormwater Toxics Studies	NOAA-F (NWFSC) is actively investigating the toxicity of motor vehicle-derived contaminant in urban stormwater runoff, with an emphasis on petroleum compounds (PAHs) and emerging tire chemicals (e.g., 6PPD-q). These investigations are primarily focused on the health of salmon and marine forage fish and are expected to yield several new publications in FY24 & F25. The toxicity studies are supported by a new EPA-NOAA Interagency Agreement (FY23-26).	

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		Resources: $2 million EPA funding, $2 million NOAA funding.	
Science and Monitoring 2.5.3 EPA, NOAA, USGS	6PPD-quinone and 6PPD Toxicology Research	In the current EPA Office of Research and Development (ORD) Strategic Research Action Plan (2023-26), there are multiple efforts which focus solely or in part on further investigation of 6PPD-q, including work on fate and transport, ecotoxicity, and green infrastructure solutions for stormwater contamination. In addition, EPA ORD will continue leveraging regional partnerships to better understand the hazard and potential exposure to 6PPD-q. NOAA-F (NWFSC) and the USGS (WFRC) have each initiated several studies with EPA funding to determine the toxicity of 6PPD and 6PPD-q to salmon and other priority Puget Sound species. Shared goals included an improved understanding of toxic mechanisms, thresholds for adverse health impacts, and interactions with other habitat stressors (chemical and non-chemical), the latter including temperature (climate change, NOAA) and pathogens (USGS).	Current EPA ORD-regional partnerships include a project investigating high-throughput hazard screening methods for 6PPD-q. Work on the project has completed, and publication of results are forthcoming. In addition, EPA ORD continues to identify, assemble, and curate 6PPD and 6PPD-q toxicity data for ecologically relevant species for risk assessment, including incorporation of this data into the ECOTOX Knowledgebase (https://cfpub.epa.gov/ecotox/). Lastly, EPA ORD continues to develop the Visualizing Ecosystem Land Management Assessments (VELMA) Modeling tool, which allows users to model green infrastructure (GI) scenarios for protecting water quality. (https://cfpub.epa.gov/si/si_public_record_report.cfm?dirEntryId=354355&Lab=CPHEA&simplesearch=0&showcriteria=2&sortby=pubDate&searchall=6ppd&timstype=&datebeginpublishedpresented=10/19/2021)

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			Continue to adaptively manage emerging 6PPD-q science and coordinate across agencies and institutions to inform research agendas and collaboration.
Science and Monitoring 2.5.5 USGS, EPA	Coupled Monitoring and Modeling of Sediment Fluxes in Puget Sound Estuaries	EPA provides funding through an Interagency Agreement with USGS. USGS has completed two years of a 3-year project to implement coupled monitoring & modeling for compound flooding and associated sediment dynamics in the Snohomish estuary and delta.	This coupled monitoring and modeling approach should be applied in other major Puget Sound estuaries/large-river-deltas to better support joint ecosystem-recovery and flood protection planning under future sea-level rise and changing hydrology.
Science and Monitoring 2.5.6 USGS, EPA	Puget Sound Coastal Storm Modeling System (PS-CoSMoS)	EPA provides funding through an Interagency Agreement with USGS. USGS has begun the first year of a five-year project to develop the PS-CoSMoS model to all Puget Sound shorelines, provide online tools to use coastal flooding scenario predictions to support coastal resilience planning, and provide outreach and engagement support to users. Washington Sea Grant is a collaborator on the project, providing support for engagement and outreach.	Additional support to maximize use and impact of the PS-CoSMoS model and tools through training, engagement, and outreach is recommended. PS-CoSMoS can be used in conjunction with other models to explore habitat change under sea-level rise, hydrologic change, and changing sediment dynamics. Support for partners to use PS-CoSMoS in "back-end" modeling/analyses is recommended.
Science and Monitoring 2.5.7 NOAA, EPA, USGS,	Puget Sound Herring Research Program to Support Recovery	EPA and NOAA-F (NWFSC) are collaboratively assessing toxic risks to Puget Sound herring populations, from both oil spills and land-	Updated action number.

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		based (urban stormwater) runoff. The NWFSC expects to publish several new papers on herring environmental health in FY24, including new data on delayed-in-time toxicity and population-level effects.	
Science and Monitoring 2.5.8 USGS, EPA	Puget Sound Salmon Habitat Scenarios: Future Stream Temperatures, Stream Flows, and Salmon Habitat Suitability Under Climate Change		This science action requires resources to begin. Updated action number.
Science and Monitoring 2.5.9 EPA, PNNL	Estuarine Pathogens Modelling	EPA provides funding through an Interagency Agreement with PNNL. PNNL has developed a fecal bacteria module (SSM-fb) integrated with water quality model in Salish Sea Model. SSM-fb has been applied in Samish Bay, Portage Bay, and Drayton Harbor for shellfish beds fecal bacteria exposure assessment. The model demonstrated the capacity in predicting fecal bacteria levels in the marine environment and identify the major sources of fecal bacteria contamination impacting critical shellfish habitats. EPA resources: $600,934	

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Science and Monitoring 2.5.10 USGS, EPA, PNNL	Updating and improving nutrient loading and source predictions of Puget Sound Rivers	Initial efforts are underway, leveraging some existing projects.	Continue to work to effectively connect USGS (SPARROW model), EPA (0 model), and PNNL (Salish Sea Model) to support regional applications. Updated action number.
Science and Monitoring 2.5.11 EPA, USGS	Address the Health of Puget Sound Species by Understanding the Distinct and Interacting Effects (Immunotoxicity) of Contaminants and Pathogens (Salmon and tire dust; Orca and PCBs)	EPA provides funding through an Interagency Agreement with USGS, which involves in-kind contributions from USGS. USGS has begun the first year of a two-year project. USGS developed salmon cell line (*in vitro*) workflow that can be used for assessing potential toxicity of stormwater components including tire wear transformation products. USGS recently published a manuscript describing potential modes of action for 6PPD-q in coho salmon, including vascular permeability. Additional studies include assessing sublethal effects of 6PPD-q on host immune system. USGS has developed primary cell lines for Orca (from Transient killer whales) dermal	This work is part of a larger collaboration between EPA, NOAA, USGS, UW, USFWS, and other partners to investigate stormwater ecotoxicology. Supporting this collaboration is important to address important needs described in the Stormwater Section. Updated action number.

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		fibroblasts. Ongoing studies being coordinated with EPA, NOAA and USGS. EPA resources: $356,080 total Puget Sound funding for the two-year interagency agreement to USGS; $110,000 for EPA's modeling and assessment of stormwater bioactivity in Puget Sound tributaries.	
Science and Monitoring 2.5.12 EPA	Development of toxicity benchmarks to support protection and recovery of sensitive Puget Sound species (e.g. coho salmon)	Develop a 6PPD screening value and 6PPD-q sensitive salmonid screening value, based upon the literature to-date. Such a screening value can then be available for states and tribes to consider in their water quality protection programs. Review state and authorized tribes' draft proposed aquatic life criteria for 6PPD-q, where requested.	Updated action number.
Science and Monitoring 2.5.13 EPA, NOAA	Develop Analytical Method for 6PPD-quinone	A draft 6PPD-q analytical method for surface water/stormwater will be posted on the EPA website in winter 2023/2024. EPA Region 10 convenes monthly state/federal/tribal round tables to coordinate on 6PPD-q analytical method development across agencies.	EPA will work to validate and finalize the 6PPD-q surface water/stormwater method, and work towards development of additional analytical methods for 6PPD and 6PPD-q for matrices which are not yet underway (e.g. wastewater, fish tissue, sediment, and groundwater) in order to have the tools available for Clean Water Act programs.

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		NOAA-F (NWFSC) is finalizing method development for analyzing 6PPD and 6PPD-q in multiple matrices (water, tissue, sediment). These methods will align with broader federal efforts (e.g., EPA), and serve as the basis for chemical analyses, as a component of multiple NOAA research studies over the next four years, under a new EPA-NOAA joint agreement.	This is also a recommendation of the Stormwater/Transportation charter group. Updated action number.
Science and Monitoring 2.5.14 EPA	6PPD Pollution Prevention and Alternatives Analysis	EPA's Small Business Innovation Research program ran a competition for "Rubber anti-degradant technologies for tires and other rubber products that are lower concern for human health and the environment." Reviews are currently underway.	Continue to promote innovation to find an alternative to 6PPD in tires. Updated action number.
Science and Monitoring 2.5.15 USGS, USFWS	Adapting to Climate Change with an Aquatic Disease Rapid Response Program		Resources are needed to begin this science action. Updated action number.
Science and Monitoring 2.5.16	Improved Early Detection and Monitoring Supporting Control of European Green Crab in Puget Sound	EPA provides funding through an Interagency Agreement with USGS. USGS has begun the first year of a two-year project to develop improved approaches for monitoring	This work supports prioritized actions within the Washington Department of Fish and Wildlife (WDFW) Washington State European Green Crab Emergency Response Strategic

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NOAA, EPA, USGS, BIA, USFWS, BIA, NOAA, USGS, PNNL		European Green Crab (EGC) in Puget Sound. USGS is using $500K in internal programmatic funding to augment this project and is seeking other funding sources to expand the scope. BIA awarded $420K for EGC monitoring and trapping efforts.	Action Plans for Fiscal Years (FY) 2023 & FY 2024. Updated action number.
Science and Monitoring 2.5.17 NOAA, USGS	Population Effects of Freshwater Restoration	Continuing life-cycle modeling efforts throughout the Puget Sound Basin to understand restoration benefits at the population level. NOAA-F (NWFSC, Ecotoxicology Program) is currently completing a third round of Puget Sound land use modeling, to assess population-scale vulnerabilities for coho salmon across urbanizing watersheds. We anticipate completion of the updated vulnerability maps in the second half of FY24.	Updated action number.
Science and Monitoring 2.5.18 USGS, USFWS	Aquatic Visual Ecology and Artificial Light at Night	USGS is attempting to find internal support for this action. In 2021, staff from USFWS (WWFWCO), USGS, NOAA, and others authored a paper titled "Artificial lights with different spectra do not alter detrimental attraction of young Chinook	Updated action number.

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		salmon and sockeye salmon along lake shorelines" based on work in Lake Washington. Staff from the WWFWCO have conducted research on this topic since the early 2000s and published several articles.	
Science and Monitoring 2.5.19 USGS	Modeling and Monitoring to Support Instream Flow and Water Availability Assessments in Support of Tribal Treaty Rights	EPA provides funding through an Interagency Agreement with USGS. USGS has begun the first year of a three-year project. USGS is seeking internal funding to provide long term support for the new stream gages required for this project.	Long-term support for the water gages installed as part of this project is essential for the success of this effort. Updated action number.
Science and Monitoring 2.5.20 NOAA	Salmon Life Cycle Models to Identify Priority Habitat Restoration Actions and Climate Resilience Strategies	Completed Phase 2 Chinook salmon life cycle model for the Stillaguamish watershed, including climate change projections, alternative restoration scenarios, and hatchery influences on abundance of natural-origin Chinook spawners. Draft final report complete. Initiated habitat data acquisition and analysis for the Habitat Assessment and Restoration Planning (HARP) Model for upper Columbia basin Chinook salmon and Steelhead (Wenatchee, Entiat, and Methow subbasins).	Updated action number.

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Science and Monitoring 2.5.21 NOAA	5-Year Biological Review of Yelloweye and Bocaccio Rockfishes in Puget Sound/Georgia Basin Rockfishes in Puget Sound/Georgia Basin		Updated action number.
Science and Monitoring 2.5.22 NOAA	Improved Framework to Determine how ESA-Listed Species are Responding to Climate Change and other Stressors	NOAA-F (NWFSC) is developing a conceptual framework to integrate multi-stressor habitat science, with an emphasis on regional population growth (toxic runoff) and climate change (temperature). This approach is focused on the cardiorespiratory systems of ESA-listed salmon as well as marine forage fish, and will benefit from new IRA investments in the NOAA investigative platform for physiological research. The strategy is intrinsic to the new EPA-NOAA cooperative agreement for stormwater science.	Updated action number.
Science and Monitoring 2.5.23 USGS	Puget Sound Fish Disease Ecology Program	USGS is using internal programmatic resources to support this major effort.	Updated action number.

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Section Action #/ID Lead Agencies (Other Agencies)	ID# and Action Titles come from 2022-2026 Federal Action Plan. *New Actions* have new ID#s and Titles.	"…progress made by Federal agencies toward the priorities identified in the Federal Action Plan."[28]	"…specific recommendations concerning implementation of the Action Agenda and the Federal Action Plan, including challenges, barriers, and anticipated milestones, targets, and timelines."[29]
Science and Monitoring 2.5.24 NOAA	Puget Sound Habitat Status and Trends Monitoring	Completed updates to delta and overwater structure data layers. Final report complete and data are publicly available on the web.	Updated action number.
Science and Monitoring 2.5.25 NOAA	Freshwater and Estuarine Habitat Equivalency Analysis (HEA) Science Development	This coordinated science effort supports the practical application of ecosystem service quantification (see 2.1.5), intending to foster a marine conservation marketplace (see 2.2.2.3) and expanding that work into estuarine and freshwater landscapes. An early effort was completed in 2022-23 with federal financial and technical assistance leveraging state science funding to complete two science synthesis efforts evaluating juvenile fish use of shorelines and small coastal streams, and the efficacy of beach nourishment. This work was innovative in its inclusion of regulatory staff in the scoping and review process, to ensure the practical applicability of scientific evidence.	Updated action number. Science development for both freshwater and estuarine HEA is targeted for available NOAA IRA funding. Encourage standard approaches to science synthesis as part of science funding, that incorporate regulatory interactions, so that science efforts support the practical application of ecosystem service quantification.
Science and Monitoring 2.5.26 NOAA	Evaluating Benefits of Estuary Restoration	Completed studies of population response of juvenile Chinook salmon to estuary restoration in the Skagit Watershed. Also completed a study of carryover effects of cumulative	Updated action number.

ID	Action Title	Progress	Recommendations
Section Action #/ID Lead Agencies (Other Agencies)	ID# and Action Titles come from 2022-2026 Federal Action Plan. *New Actions* have new ID#s and Titles.	"…progress made by Federal agencies toward the priorities identified in the Federal Action Plan."[28]	"…specific recommendations concerning implementation of the Action Agenda and the Federal Action Plan, including challenges, barriers, and anticipated milestones, targets, and timelines."[29]
		estuary restoration on smolt-adult survival in several Puget Sound watersheds. Draft chapters complete for final report due to ESRP in March 2024	
Science and Monitoring 2.5.27 USGS, USFWS, NOAA, USFS	Puget Sound Culvert and Forest Road Science and Monitoring	USGS and USFS have proposed initial tasks that should be implemented to support this science action. Funding has not yet been allocated to these tasks.	Consider utilizing culvert monitoring protocols developed by WDFW. Potential options include resources under already funded IAs, or new IAs. Updated action number.
Science and Monitoring 2.5.28 NOAA, USGS	Science Centers and Facilities – Infrastructure	Some progress has been made in securing funding to meet longstanding facility limitations, but significant issues remain, particularly the need for state-of-the-art research equipment. In FY24, NOAA (NWFSC) anticipates a strategic investment of >$500K in new IRA funding for the work under Task 2.5.20.	Updated action number.
Governance 3.1 PSP	Puget Sound Partnership and the Action Agenda	PSP Executive Director attended May 4, 2023 Puget Sound Federal Leadership Task Force Initial Meeting as member of State Advisory Committee.	Continue to ensure at least annual PSP Executive Director – PSFLTF engagement. PSFLTF support for PSP's Funding Tool.

ID	Action Title	Progress	Recommendations
Section Action #/ID Lead Agencies (Other Agencies)	ID# and Action Titles come from 2022-2026 Federal Action Plan. *New Actions* have new ID#s and Titles.	"…progress made by Federal agencies toward the priorities identified in the Federal Action Plan."[28]	"…specific recommendations concerning implementation of the Action Agenda and the Federal Action Plan, including challenges, barriers, and anticipated milestones, targets, and timelines."[29]
		PSP and PSFLTF staff meet regularly on aligning federal activities in support of the Action Agenda.	
Governance 3.2 Tribes	Treaty Rights at Risk	The PSFLTF is providing direct support to national TRAR/CEQ engagements, including a series of high-level meetings on November 15 and 16, 2022.	Continue to utilize the PSFLTF as a reinforcing coordination mechanism for the federal response to Western Washington tribes' Treaty Rights at Risk Initiative.
Governance 3.3 ECB	Puget Sound Ecosystem Coordination Board (ECB)	EPA PSFLTF Regional Implementation Team Co-Chair regularly attends and provides updates to ECB on PSFLTF activities, and raises ECB matters at PSFLTF meetings.	PSFLTF could consider seeking ECB feedback on federal agency participation in ECB workplans
Governance 3.4 Leadership Council	Puget Sound Leadership Council	PSFLTF coordinates with Puget Sound Partnership as needed on LC business. The chair of the Leadership Council has been appointed as chair of the State Advisory Council, established under statute.	Through PSFLTF-State Advisory Council coordination (at least one meeting per year, and engagement on official PSFLTF actions), continue state-federal leadership coordination opportunities.
Governance 3.5 PSSRC	Puget Sound Salmon Recovery Council (PSSRC)	EPA PSFLTF Regional Implementation Team Co-Chairs regularly attends and provides updates to PSSRC on PSFLTF activities and raises ECB matters at PSFLTF meetings.	

ID	Action Title	Progress	Recommendations
Section Action #/ID Lead Agencies (Other Agencies)	ID# and Action Titles come from 2022-2026 Federal Action Plan. *New Actions* have new ID#s and Titles.	"…progress made by Federal agencies toward the priorities identified in the Federal Action Plan."[28]	"…specific recommendations concerning implementation of the Action Agenda and the Federal Action Plan, including challenges, barriers, and anticipated milestones, targets, and timelines."[29]
Governance 3.6 Local, Non-profits, and Universities	Local Governments, Non-profit Organizations, and Universities	PSFLTF coordination with USFS and Ruckelshaus Center (at University of Washington) on Recreation Impacts on Treaty Rights. PSFLTF coordination on "Infrastructure and Other Funds" (see above) is coordinating federal actions to support local government, non-profit organizations.	

Acronyms

Action Agenda	Puget Sound Action Agenda
Action Plan	Puget Sound Federal Task Force Action Plan
ACEP	Agricultural Conservation Easement Program
AIS	Automatic Identification System
ALE	Agricultural Land Easements
AOP	Aquatic Organism Passage
AREMP	Aquatic and Riparian Effectiveness Monitoring Program
B-IBI	Benthic Index of Biotic Integrity
BIA	Bureau of Indian Affairs
BiOp	Biological Opinion
BMP	Best Management Practices
CAP	Continuing Authorities Program (§206)
CCMP	Comprehensive Conservation and Management Plan
CEC	Contaminant of Emerging Concern
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CFV	Commercial Fishing Vessel
CGP	Construction General Permit
CGVTS	Coast Guard Vessel Traffic System
CANUSPAC	Canada – U.S. Joint Marine Pollution Contingency Plan Pacific Geographical Annex
CEAP	Conservation Effects Assessment Project
CoSMoS	Coastal Storm Modeling System
CRP	NOAA Community Based Restoration Program
CRS	Community Rating System
CWA	Clean Water Act
CWSRF	Clean Water State Revolving Fund

CWISA	Clean Water Indian Set-Aside
CZARA	Coastal Zone Act Reauthorization Amendments
DoD	United States Department of Defense
DOH	Washington State Department of Health
DOI	United States Department of Interior
ECB	Ecosystem Coordination Board
ECY	Washington State Department of Ecology
EGC	European Green Crab (*Carcinas maenas*)
EFH	Essential Fish Habitat
EPA	Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
ERFO	Emergency Relief for Federally Owned Roads
ESA	Endangered Species Act
ESRP	Estuary and Salmon Restoration Program
FbD	Floodplains by Design
FDA	United States Food and Drug Administration
FEMA	Federal Emergency Management Agency
FFFPP	Family Forest Fish Passage Program
FHWA	Federal Highway Administration
FLAP	Federal lands Access Program
FLTP	Federal Lands Transportation Program
FPRB	Fish Passage Removal Board
FTA	Federal Transit Administration
FTE	Full Time Equivalent
FY	Fiscal Year
GMO	Genetically Modified Organism
GRP	Geographic Response Plan

HAB	Harmful Algal Bloom
HARP	Habitat Assessment and Restoration Planning Model
HEA	Habitat Equivalency Analysis
HGMP	Hatchery and Genetic Management Plan
HHC	Human Health Criteria
HPA	Hydraulic Project Approval
HRPP	Habitat Recovery Pilot Program
HQ	Headquarters
IFCB	Imaging Flow Cytobot
LO	NEP Watershed Lead Organization
LCC	Landscape Conservation Cooperatives
LIO	Local Integrating Organization
MART	Multi-Agency Review Team
MBSNF / MBS	Mount-Baker Snoqualmie National Forest
MS4	Municipal Separate Storm Sewer System
MSGP	Multi-Sector General Permit
MORA	Mount Rainier National Park
MOU	Memorandum of Understanding
MRC	Marine Resources Committee
NAMs	New Approach Methodologies
NCCOS/NOS	National Centers for Coastal Ocean Science/National Ocean Service
NCF	Nisqually Community Forest
NCWCGP	National Coastal Wetland Conservation Grant Program
NDZ	No Discharge Zone
NOAA - RC	NOAA Restoration Center
NEP	National Estuary Program
NERR	National Estuarine Research Reserve

NF	National Forest
NFIP	National Flood Insurance Program
NGO	Non-governmental organization
NOAA	National Oceanic and Atmospheric Administration
NOAA MDP	National Oceanic and Atmospheric Administration Marine Debris Program
NOCA	North Cascades National Park
NP	National Park
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRDA	Natural Resource Damage Assessment
NWAC	Northwest Area Committee
NWFSC	NOAA Northwest Fisheries Science Center
NWIFC	Northwest Indian Fish Commission
NWP	Nationwide Permit
OA	Ocean Acidification
OCNMS	Olympic Coast National Marine Sanctuary
OLY	Olympic National Park
ORD	EPA Office of Research and Development
OSG	Sewer Overflow and Stormwater Reuse Municipal Grants
PAWSS	Ports and Waterways Safety System
PCSGA	Pacific Coast Shellfish Growers Association
PIC	Pollution identification and correction
PNNL	Pacific Northwest National Laboratory
PSAW	Puget Sound and Adjacent Waters (§544)
PSEMP	Puget Sound Ecosystem Monitoring Program
PSFTF	Puget Sound Federal Task Force

PSNERP	Puget Sound Nearshore Ecosystem Restoration Project
PSP	Puget Sound Partnership
PSRF	Puget Sound Restoration Fund
PSSST	Puget Sound Stormwater Science Team
PSSRC	Puget Sound Salmon Recovery Council
PSVTS	Puget Sound Vessel Traffic Service
RAD	Restriction-site Associated DNA sequencing
RCPP	Resource Conservation Partnership Program
REPI	Readiness and Environmental Protection Integration Program
RFA	Request for Applications
RIT	Regional Implementation Team (of the Puget Sound Federal Leadership Task Force)
ROV	Remote Operated Vehicle
RSMP	Regional Stormwater Monitoring Program
RRT	Regional Response Team
SAM	Stormwater Action Monitoring
SIAT	Strategic Initiative Advisory Team
SLS	Sustainable Lands Strategy
SMA	Shoreline Management Act
STIP	State Transportation Improvement Program
SW	Stormwater
SRFB	Salmon Recovery Funding Board
TNC	The Nature Conservancy
TRAR	Treaty Rights at Risk
TTP	Tribal Transportation Program
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USDA	United States Department of Agriculture

USDOT	United States Department of Transportation
USFS / FS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UW	University of Washington
VELMA	Visualizing Ecosystem Land Management Assessments
VTRA	Vessel Traffic Risk Assessment
VTS	Vessel Traffic Service
WA	Washington State
WAC	Washington Administrative Code
WDOH	Washington Department of Health
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WDOL	Washington Department of Licensing
WFLHD	Western Federal Lands Highway Division
WFRC	USGS Western Fisheries Research Center
WFPO	NRCS Watersheds Protection and Floodplain Prevention Operations
WFWO	USFWS Washington Fish and Wildlife Office
WRE	Wetlands Reserve Easements
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation
WDVA	Washington State Department of Veterans Affairs
WSU	Washington State University
WWFWCO	Western Washington Fish and Wildlife Conservation Office