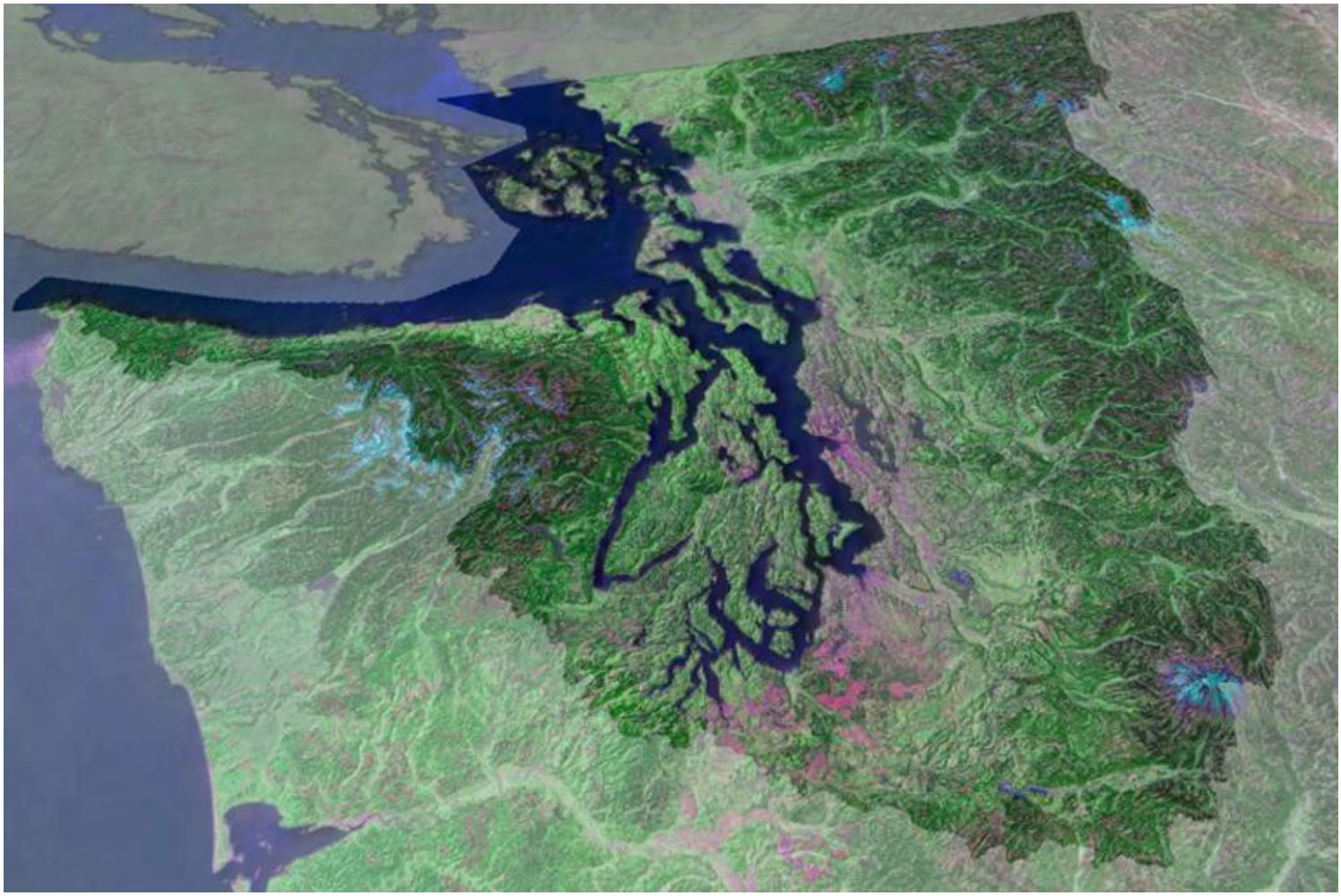

PUGET SOUND FEDERAL TASK FORCE

2017-2021 PROGRESS REPORT

November 2021

FEMA

USGS
science for a changing world

NRCS

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Contents

Executive Summary

On September 30, 2016, the Secretaries of the Department of Interior, Department of Commerce, Department of Agriculture, the Administrator of the Environmental Protection Agency, Under Secretary of the Department of the Army, Assistant Secretary of the Department of Transportation, Assistant Secretary of the Navy, Commander of the U.S. Coast Guard, and Managing Director of the Council on Environmental Quality signed a Memorandum of Understanding creating the Puget Sound Federal Task Force (PSFTF). This was an update of an existing 2008 MOU.

The signatories developed a five-year Action Plan (FY2017-2021), which was accepted for implementation. The purpose of the PSFTF Action Plan (Action Plan) is to capture and communicate Priority Federal Actions to Protect and Restore Puget Sound. These priority actions, in turn, help guide the coordination and leveraging of diverse federal programs toward a healthy and sustainable Puget Sound.

The federal actions in the 2017-2021 PSFTF Action Plan were developed using priorities from the Washington State's 2016 Puget Sound Action Agenda, salmon recovery plans and programs, the Western Washington Treaty Rights at Risk Initiative, Tribal habitat priorities, and the Northwest Indian Fisheries Commission's "2016 State of our Watersheds Report.

This 2021 PSFTF Progress Report provides Success Stories and evaluation results for 127 Priority Federal Actions to Protect and Restore Puget Sound. The Success Stories provide several detailed examples of federal efforts achieving their vision. The evaluation found that 99 of the 127 actions were 'implemented as described', 16 were not. Twelve actions need additional information. To show our evaluation work, this Progress Report includes a tracking table with actions as they were described in the 2017-2021 Action Plan, the status of those actions as of 2021, and an explanation of how federal staff compared the 2017 description with the 2021 status to determine if the action had been implemented as described or not.

In addition to using the 2017-2021 Action Plan to guide efforts, one of the primary benefits of the PSFTF has been regional federal and state leader support for staff participation in the workgroups and subteams established under the Action Plan. Also, regional federal leaders met multiple times with state and tribal leaders, and the PSFTF actively participated in the Puget Sound Management Conference.

Looking forward, the PSFTF plans to use the detailed information presented in this Progress Report; federal administration priorities around climate, environmental justice and treaty rights; engagement with Tribal, state and local partners; and the goals and targets of the Puget Sound Action Agenda, Salmon Recovery Plans, Treaty Rights at Risk Initiative, the Coastal Nonpoint Pollution Control Program and other regional protection and recovery plans to develop the 2022-2026 Action Plan.

Early efforts to develop the 2022-2026 Action Plan have confirmed the overall structure of the PSFTF and its Action Plan and have highlighted the benefits of continuing to focus on the development and implementation of cross-cutting and inter-agency actions. For example, the Multi-Agency Review Team's cross-cutting, inter-agency effort to In addition, and importantly, early efforts have affirmed the need to further develop and enhance the implementation of goals for ongoing priority programs and projects. The ultimate goal is to develop and implement actions that are up to the task of achieving positive environmental trends through appropriate and effective use of federal resources.

2017-2021 Action Plan Evaluation

2017-2021 Action Plan Evaluation Origin, Goal, and Design

The origins of this evaluation include the following Task Force 2016 MOU[1] requirements:

- Provide a "progress report to signatory agency principals, the Office of Management and Budget and others as appropriate."
- Assist the Task Force to "Outline implementation costs and ensure they are achievable within available resources"
- "The Regional Implementation Team will evaluate annually the action plan and modify it as deemed necessary by the parties in order to adapt to new circumstances and events. The action plan should provide consistency and focused federal activity on a rolling five-year basis."

The evaluation underlying this Progress Report aims to answer the question "How is the Puget Sound Federal Task Force and its Action Plan operating in practice?"

The primary evaluation design type used for this Progress Report is performance monitoring. Performance monitoring generally involves the following concepts.[1]

- Purpose and Methodology
    - Ensures accountability for program activities.
    - Demonstrates that resources for the strategy, initiative, or program, are used as intended and managed well.
    - Monitors and reports on progress toward pre-established goals.
    - Provides early warning to funder and management of problems.
- Example performance questions
    - Have activities for the strategy, initiative, or program been conducted as planned?
    - Have products and services provided by the effort been generated as planned?
    - Has the effort accomplished what it set out to do?

Our performance monitoring focused on whether Actions were conducted as planned. Our performance monitoring question was 'Were Actions implemented as described in the 2017-2021 Action Plan?". We used the phrase 'as described' instead of 'as planned' to facilitate a comparison of status reporting information with 2017-2021 Action Plan descriptions.

The actions evaluated in this report come from Section 2 (Priority Federal Actions to Protect and Restore Puget Sound), Section 3 (Science and Monitoring), Section 5 (Governance and Implementation), and Appendix D (Priority Federal Science) of the 2017-2021 Action Plan, and also Appendix A of the 2018 Accomplishments Report.

The steps used to obtain the 'implemented as described' performance monitoring results in this report are as follows.

1. Organize information from the 2017-2021 Action Plan into a consistent logic model format, presented in the Tracking Table "Action" column.
2. Gather reporting information on each action, presented in the Tracking Table "Status" column
3. Compare information in the Action and Status columns to determine whether each Action was implemented as described. Actions 'implemented as described' generally met the targets and goals for resources, activities, outputs and/or outcomes as described in the 2017-2021 Action Plan. Actions 'not

[1] W.K. Kellogg Foundation, "The Step-by-Step Guide to Evaluation", accessed online 4/20/21 at: https://www.wkkf.org/resource-directory/resources/2017/11/the-step-by-step-guide-to-evaluation--how-to-become-savvy-evaluation-consumers

implemented as described' generally did not meet the targets and goals resources, activities, outputs and/or outcomes as described in the 2017-2021 Action Plan.

4. Write a bullet for each Action that includes: (i) our conclusion on whether Action was implemented as described, and (ii) supporting evidence/rationale for our conclusion.

We also used a secondary evaluation approach, appreciative inquiry,[2] to tell Success Stories. Appreciative inquiry is focused on identifying good practices. The emphasis is on positive holistic vision. Questions associated with appreciative inquiry and underlying this Progress Report's Success Stories include:

- What was your vision for what you wanted to achieve?
- As you reflect on your experience with the program, what was a high point?
- What did you feel was most successful?
- What are the most outstanding stories or moments that made you proud?

[2] *Ibid*.

Evaluation Discussion and Proportion of 2017-2021 Actions Implemented as Described

The primary purpose of evaluation results presented in Table 1 and the information gathered in this report is to inform the development of the 2022-2026 Puget Sound Federal Task Force Action Plan. The 2021 status information in this report will directly inform revisions, additions, and other changes for the new Plan. Also, as part of our effort, we re-established connections among inter-agency federal staff, managers, and leaders.

Actions that were implemented as described were resourced and the projected outputs (e.g., policy reports, scientific papers, monitoring results, restoration projects and other on the ground water quality projects) took place. Of the 115 evaluated actions, 99 (86 percent) were implemented as described. The Actions' accomplishments represent a substantial contribution toward the goal of a healthy and sustainable Puget Sound.

Actions not implemented as described were determined as such using a reasonable person standard. This is dependent on whether it is reasonable to conclude that the status reporting information supports that the Action was implemented as described.

Note that 'implemented as described' is not synonymous with 'successfully achieved protection and restoration of Puget Sound'. And 'not implemented as described' is not synonymous with 'failed to achieve protection and restoration of Puget Sound'.

An Action's contribution to protecting and restoring Puget Sound depends on its targets and goals. Implementing ambitious targets and goals that improve our contribution to achieving positive environmental trends for Puget Sound is the best case. Not implementing ambitious targets and goals, due to a variety of factors, may result in a 'not implemented as described' conclusion, but that is not the whole story. Instead, the usefulness of identifying that an Action as 'not implemented as described' is that it flags the Action for further attention.

The existence of Actions 'not implemented as described' can be interpreted as some ambitious targets and goals were not met. We take this finding as evidence that the 2017-2021 Action Plan included several Actions that faced complex circumstances, issues, and factors.

We aim to set federal targets and goals in the Action Plan that are up to the task of achieving positive trends through appropriate and effective use of federal resources. It is difficult to precisely assess whether the combined Actions achieved their expected environmental long-term outcomes. What we can do is collaborate and coordinate among 13 federal agencies and engage dozens of federal staff, managers, and leaders to establish meaningful targets and goals that are informed by 100s of years of combined experience working in Puget Sound. In addition, we can use a reporting mechanism that facilitates accountability by checking whether 'we did what we said we would do' and provides useful information for updating targets and goals on a rolling basis.

PSFTF agencies recognize that more must be done to achieve a healthy Puget Sound. To achieve positive trends, PSFTF agencies will use the results presented in this Progress Report; engagement with Tribal, state and local partners; and the goals and targets of the Puget Sound Action Agenda, Salmon Recovery Plans, Treaty Rights at Risk Initiative, the Coastal Nonpoint Pollution Control Program and other regional protection and recovery plans to develop the 2022-2026 Action Plan.

Table 1. Proportion of 2017-2021 Actions Implemented as Described

Section	*Implemented as Described*	*Not Implemented as Described*	*More information needed*	*Total Actions*
Cross-cutting Actions	2	0	0	2
Fish Passage	9	2	1	12
Floodplains, Riparian and In-stream Habitat	14	6	0	20
Nearshore and Estuary Habitat	9	2	0	11
Stormwater	7	0	0	7
Federal Lands and Facilities	2	0	0	2
Vessel traffic, Pollution Prevention and Response	6	1	0	7
Shellfish	11	0	1	12
Science and Monitoring	25	3	7	35
PSFTF Governance and Action Plan Implementation	10	2	0	12
Actions added in 2018[3]	4	0	3	7
Total Actions	99	16	12	127

[3] See August 2018 PSFTF Accomplishments Report (PDF), Appendix B: Addendum to the Interim Draft Puget Sound Federal Task Force Action Plan FY 2017-2021. Ten Actions were added in 2018, three are tracked under Science and Monitoring.

Cross-cutting Actions

Cross-cutting actions address multiple priorities identified in the 2017-2021 Action Plan.

Success Stories – Cross-cutting Actions

Multi-Agency Review Team

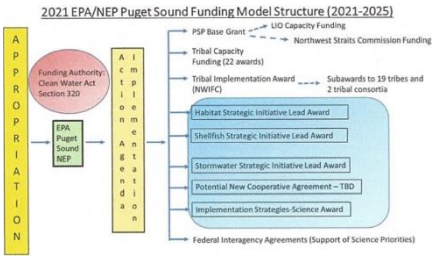
One cross-cutting action is to evaluate existing programmatic or streamlined regulatory tools/processes for activities related to Puget Sound habitat. To achieve this goal, a team of federal, state, and local agency regulatory staff (Multi-Agency Review Team [MART]) was formed to incentivize use of soft shore and other ecologically beneficial approaches (instead of hard armoring where feasible) on marine shorelines by reducing the permitting timelines and complexities (2.2.3.8, 2.2.3.9). The MART held a workshop with shoreline project practitioners to identify problems/barriers in the permitting process and potential solutions. The MART is testing collaborative and efficient permitting procedures identified in the workshop on 3-4 real time ecologically beneficial marine shoreline projects.

BEFORE AND AFTER BEACH RESTORATION USING A SOFT SHORE APPROACH. PHOTO: PUGET SOUND INSTITUTE

EPA's National Estuary Program

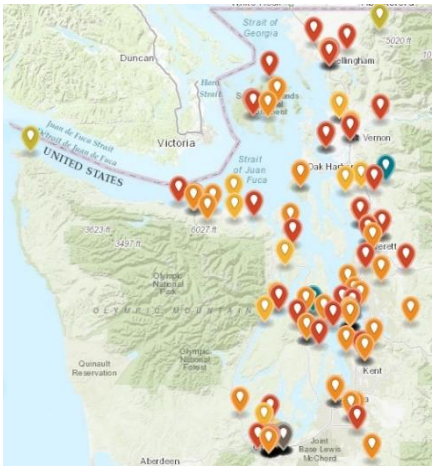
Puget Sound is an economic and cultural engine for the region's more than 4.7 million people, including 19 federally recognized tribes. Federal support of Puget Sound recovery comes from many programs, most of which are administered by EPA, the National Oceanic and Atmospheric Administration, the U.S. Department of Agriculture, U.S. Department of Interior, and the U.S. Army Corps of Engineers.

Since 2010, Congress has appropriated over $350 million in Clean Water Act Section 320 funds for Puget Sound. Under Section 320, EPA has provided National Estuary Program (NEP) and Geographic Program funding and support to help communities make on-the-ground improvements for clean and safe water, protected and restored habitat, thriving species, and a vibrant quality of life for all, while supporting local jobs.



EPA's work with the Puget Sound Partnership, state agencies, tribes and other partners has supported important gains in recovery. Results include, for example:

- comprehensive regional plans to restore the Sound,
- more than $1 billion leveraged for recovery,
- partnerships with 19 federally recognized tribes,
- transboundary collaboration with Canada,
- scientific gains on toxic effects of urban stormwater, and,
- since 2007, a net increase of harvestable shellfish beds



THE PUGET SOUND NEP ATLAS SHARES INFORMATION ABOUT EPA INVESTMENTS

EPA recognizes that more must be done to achieve a healthy Puget Sound. To this end, EPA will continue to enhance Federal Task Force leadership, including a new Action Plan for 2022-2026; cooperation with Canada; fulfillment of National Estuary Program responsibilities, including the approval of a new comprehensive management plan for recovering Puget Sound (the Action Agenda); partnering with tribes; funding and grants, including managing and awarding up to $100 million in projects over the next five years; and scientific support.

Evaluation Results – Cross-cutting Actions

Cross-cutting Actions that were implemented as described in the FY2017-2021 Action Plan include the following.

- Action 2.1.1. "Evaluate existing programmatic or streamlined regulatory tools/processes for activities related to Puget Sound habitat" because the Multi-agency Review Team has been established and has evaluated existing programmatic and streamlined tools/processes.
- Action 2.1.2. "Implement the National Estuary Program for Puget Sound protection and recovery" because funding and support for Puget Sound recovery efforts via a collaborative governance framework has been provided with ~$30 million per year as planned.

Fish Passage

Correcting salmon and steelhead migration barriers caused by culverts and other man-made structures provides immediate benefits to anadromous fish by reconnecting potential spawning and rearing habitat and reestablishing natural stream processes.

Federal agencies with regulatory programs, funding, and land or facilities management responsibilities, have identified numerous fish migration barriers under their jurisdictions and are working with the state, tribes, and NGOs to correct high priority barriers in Puget Sound. Multiple federal programs provide technical assistance and fund fish passage barrier corrections on state, local, Tribal and private ownerships.

Fish passage actions in the 2017-2021 Action Plan can be categorized as inter-agency coordination, ongoing federal programs, or individual projects.

Success Stories – Fish Passage

Pilchuck River Dam Removal

The Pilchuck River originates high in the Cascade Mountains where it eventually flows into the Snohomish River. In 1912 a 60 ft wide by 10 ft tall water diversion dam was built in the river to provide drinking water to the City of Snohomish. More than 100 years later the dam sat in a non-functioning obsolete state cutting off upstream migration of salmon, steelhead, and other resident trout species. Above the dam existed more than 37 river miles of high-quality habitat with cooler water temperatures. Hence, natural production of salmon and steelhead was non-existent in the upper Pilchuck River due to the migration barrier posed by the dam.

In 2020, the Pilchuck River Dam was removed, restoring function to aquatic habitat and opening up access to 36 river miles for Federally listed Chinook salmon and steelhead trout. Other species benefitting from this project are coho, chum, and pink salmon, bull trout and endangered killer whales. The NOAA Restoration Center was a major funder of this project. Other partners involved include Snohomish Conservation District, The Nature Conservancy, Tulalip Tribes of Washington, and Washington State Department of Fish and Wildlife.

PHOTO: NWTREATYTRIBES.ORG 2018

PHOTO: COLUMBIA BASIN BULLETIN AUG 27, 2020. COURTESY STEVE SCHULLER SNOHO.COM

Middle Fork Nooksack River Dam Removal

Since 1961 the Middle Fork Nooksack dam blocked fish passage to its upper reaches. Threatened spring Chinook salmon, steelhead trout, and bull trout were left unable to access the vital rearing and spawning habitat behind the dam. In 2020, Middle Fork Nooksack Dam was removed, opening 26 miles of spawning and rearing habitat for Bull trout and Chinook salmon. Removal of the Middle Fork Nooksack Dam is listed as one of NOAA Fisheries' top recommended actions to recover Puget Sound Chinook salmon populations. Chinook salmon are a vital food source for Southern Resident killer whales. Both the NOAA Community-based Restoration Program (CRP) and USFWS Puget Sound Coastal Program provided funding for this project. Partners in the project included Nooksack Indian Tribe, Lummi Nation, Long Live the Kings, American Rivers, City of Bellingham, Washington Department of Fish and Wildlife, and Paul G. Allen Family Foundation.

BEFORE DAM REMOVAL. PHOTOS: CITY OF BELLINGHAM

AFTER DAM REMOVAL. PHOTOS: CITY OF BELLINGHAM

Evaluation Results – Fish Passage

The FY2017-2021 Action Plan identified 12 fish passage barrier removal actions. Six of the 12 actions were implemented as described, two were not implemented as described.

The following Fish Passage Actions were implemented as described in the FY2017-2021 Action Plan:

- 2.2.1.1. The US Forest Service removed two fish passage barriers on National Forest System Roads and replaced 4 barriers with culverts that meet fish passage standards, improving access to over 6 miles of upstream habitat
- 2.2.1.3. The Navy is upgrading two culverts under the railroad so that they are fish passable.
- 2.2.1.4. The USACE constructed a new fish passage facility at Mud Mountain Dam
- 2.2.1.5. USFWS National Fish Passage Program provided technical assistance and funding for 2 projects, restoring access to 3.5 miles of upstream habitat. Project anticipated in Hood Canal in 2021 will restore access to 15.2 miles of stream habitat.
- 2.2.1.6. NOAA funded fish access through Coastal Ecosystem Resiliency Funding - for example, Kilsut Harbor Channel Restoration, delta dike breach in Stillaguamish River estuary.
- 2.2.1.7. Pacific Salmon Treaty Funds and NOAA Restoration Center funds helped fund removal of the Middle Fork Nooksack River Dam and Pilchuck River Dam in 2020, reconnecting a combined 52 miles of upstream habitat to salmon and steelhead.
- 2.2.1.8. NRCS EQIP program completed 39 contracts for fish passage barrier correction restoring access to 31.6 miles of salmon and steelhead habitat.
- 2.2.1.9. WSDOT used FHWA funds to correct 36 fish passage barriers between 2017 and 2020 in Puget Sound.

- 2.2.1.12 USFS staffing and related financial support from NRCS and USFWS are evidence of federal agency collaboration with the State Fish Passage Removal Board.

The following Fish Passage Actions were not implemented as described in the FY2017-2021 Action Plan:

- 2.2.1.2. Funding was not available for National Park Service Fish Passage projects.
- 2.2.1.11. There is not specific funding from FEMA for fish barrier removal projects

More information needed for 2.2.1.10.

Floodplains, Riparian and In-stream Habitat

Floodplains are dynamic and diverse landscapes that provide invaluable ecosystem services that include critical habitat, for the health, growth, and survival of Pacific salmon and steelhead, flood damage mitigation, improved water quality, vital habitat for a suite of flora and fauna, recreational opportunities, and economically valuable farmlands. As population growth and the associated development needs continue to modify floodplains, the ability of floodplains to provide ecosystem services becomes increasingly impaired, with potentially adverse consequences to people, property, habitats, and the species that depend on floodplains. The Floodplains Vital Sign monitors the protection, loss, and restoration of functional floodplain areas in the 17 major rivers of Puget Sound in support of recovery planning, land use protection, and recovery investments.

A consistent trend identified in the Northwest Indian Fisheries Commission's 2020 State of Our Watersheds Report is that key habitat features, such as riparian vegetation, habitat connectivity and stream flows, continue to be imperiled by human activities. This extensive loss and degradation of habitat, changing climate and ocean conditions threaten salmon, tribal cultures and tribal treaty-reserved rights, wildlife habitat, water quality and western Washington's economy and quality of life.

The floodplain, riparian, and in-stream actions in the 2017-2021 Action Plan were identified as priorities to help move the needle toward recovery. The types of actions include funding for implementation of restoration projects in floodplains, riparian, and in-stream areas, developing implementation strategies and coordination efforts, research, and policies and programs to protect and improve restoration in floodplain, riparian, and in-stream restoration in Puget Sound and Washington State.

Success Stories - Floodplains, Riparian and In-stream Habitat

Riparian Protection and Restoration Initiative

In 2015, the NEP Watershed Lead Organization (LO) began development of a Riparian Protection and Restoration Initiative. The primary goal of the initiative was to permanently protect riparian areas across agricultural landscapes for the benefit of water quality and salmon. Over the past five years, NEP provided $3.5 Million for 8 reach-scale riparian restoration and protection projects and landowner agreements for riparian easements. A total of 280 acres of riparian and associated wetland areas permanently protected including the removal of 12 development rights; 57.5 riparian acres restored representing a total of 9,470 feet (~1.7 miles) of riparian stream bank and 65 acres of improved floodplain storage. Permanent protection of riparian areas concentrated within eight prioritized agricultural stream reaches across Puget Sound, including the Nooksack, Samish, Stillaguamish, Chimicum, Snoqualmie, Newaukum, Skokomish and Nisqually Rivers.

SOUTH FORK STILLAGUAMISH RIVER RIPARIAN RESTORATION
PHOTO: STILLAGUAMISH WATERSHED COUNCIL

Integrated Floodplain and Estuary Management

One of the goals of the EPA National Estuary Program is to use funds to pilot or stimulate innovative and collaborative work across geographic scales, and to transition those projects to alternative funding sources once proven successful. The Floodplains by Design network is an example of this.

In 2016, the Habitat Strategic Initiative further invested $500,000 in the Nature Conservancy to support the acceleration of integrated floodplain management including developing a five-year vision, supporting network expansion, and developing the capacity of floodplain leaders to communicate about integrated floodplain management. Floodplains by Design is now funded by the state at $50 million for the 2021-2023 biennium.

MIDDLE FORK SNOQUALMIE RIVER FLOODPLAIN. PHOTO: KING COUNTY

Overall, these continuing efforts to build and coordinate regional and local integrated floodplain management programs have resulted in the re-connection of thousands of acres of floodplain and the restoration of hundreds of miles of riverine processes.

Lyon Creek Flood Mitigation Project

The City of Lake Forest Park is just north of Seattle. Residents and businesses experienced frequent flooding when heavy rain caused Lyon Creek to overflow into and around the city's primary shopping center and community facilities and onto a four-lane state highway. In addition, public safety was compromised when the city's fire station was isolated by flooding. A 2007 flood causing more than $4 million in damage prompted the City to explore solutions to the frequent flood problem.

LYON CREEK FLOODPLAIN RESTORATION.

In 2012, the City of Lake Forest Park presented FEMA with the Lyon Creek Mitigation Project to restore the creek and increase the natural flood storage capacity. Beyond reducing flooding in this area, the city improved the environment along Lyon Creek in this urban setting. The project benefited the community and environment in numerous ways by:

- Protecting 20+ homes, a fire station, SR 522 and the Town Center from the one percent-annual-chance flood
- Reducing flood insurance premiums for affected homes
- Improving fish habitat by removing barriers to fish passage and installing woody debris in the stream channel
- Re-establishing the floodplain and enhancing wetlands in two public parks.

Evaluation Results - Floodplains, Riparian and In-stream Habitat

The FY2017-2021 Action Plan includes 20 Floodplain, Riparian and In-stream Habitat Priority Federal Actions to Protect and Restore Puget Sound. Fourteen of the 20 Actions were implemented as described in the FY2017-2021 Action Plan.

The following 14 Floodplain, Riparian and In-stream Habitat Actions were implemented as described in the FY2017-2021 Action Plan because:

- 2.2.2.1. Federal partners participated in meetings with Washington State and developed the Floodplains Implementation Strategy to accelerate floodplains recovery.
- 2.2.2.3. Permanent protection of riparian areas was achieved within eight prioritized agricultural stream reaches within Washington State, protecting a total of 280 acres of wetland and riparian habitat, the removal of 12 development rights, 1.7 miles of riparian stream bank restored, and 65 acres of improved floodplains storage.
- 2.2.2.5. The NOAA NWFSC conducted CO2 exposure experiments on several species in Puget Sound to estimate their vulnerability to acidification from 2017-2021, focusing on Dungeness crab, krill, pteropods, oysters, and mussels.
- 2.2.2.7. The Community Rating System (CRS) pilot program aims to improve incentives for moving development away from high-risk areas also important to recovery.
- 2.2.2.8. Puget Sound Coastal Program funded 4-5 projects per year and the National Coastal Wetlands Conservation Grant Program supported salmon recovery through estuary and restoration projects ().
- 2.2.2.9. The Agricultural Conservation Easement Program (ACEP) protected over 106 acres of agricultural and wetland reserve lands.
- 2.2.2.10. Resource Conservation Partnership Program (RCPP) allocated over $5.6 million for 28 contracts on 2,660 acres.
- 2.2.2.11. NOAA Community Based Restoration Program (CRP) funded 28 projects at $15.1 million, resulting in the restoration of 1,517 acres of habitat and reopening of over 20 miles of stream and river to anadromous fish.
- 2.2.2.12. Natural resource damage assessment advanced damage claims and restoration in Commencement Bay, Lower Duwamish/Elliot Bay, Port Gardner, Port Angeles, and Port Gamble.
- 2.2.2.13. NOAA assisted Sustainable Lands Strategy (SLS) group develop integrated floodplain restoration plans including Snohomish Agricultural Resilience Plan, Snohomish Estuary, Lower Skykomish, Lower Snohomish, Lower Skykomish Reach Scale Plans, Nooksack Mainstem Assessment and Floodplain Integrated Plan.
- 2.2.2.14. NOAA and partners developed a continuous improvement prototype with PSP and Align Grant Coordination Workgroup and the draft culvert regulatory application tool to reduce the cost of restoration projects.
- 2.2.2.15. The Floodplain Management Forum developed Floodplains by Design groups and partnership framework.
- 2.2.2.16. The Coordinated Investment Initiative reduced unintended administrative costs and developed broad formal participation in the Align Grant Coordination Workgroup of funding programs worth $250M a year.
- 2.2.2.17. The design of the Skokomish River Ecosystem Restoration Project was fully funded, $21 million in Corps' federal funds for construction have been received and are anticipated to be awarded by the end of fiscal year 2021.

Floodplain, Riparian and In-stream Habitat Actions that were not implemented as described in the FY2017-2021 Action Plan include the following.

- 2.2.2.2. EPA only convened a working group to coordinate riparian science, and corridor protection and restoration during 2018, it was discontinued in early 2019.
- 2.2.2.4. USFWS did not contribute to the development of a floodplain mapping and prioritization tool.
- 2.2.2.6. National Flood Insurance Program (NFIP) Jeopardy Biological Opinion (BiOp) for Puget Sound Habitat Assessment Technical Guidance workshops were held in FY2020, but other workshops were put on hold due to COVID19; FEMA Full-Time Equivalent (FTE) achieved 1.5 but NOAA FTE reduced to 0.1 from 0.5.
- 2.2.2.18. The Green/Duwamish River Ecosystem Project because the project was not funded.

- 2.2.2.19. The Dungeness River Ecosystem Restoration Feasibility Study was funded by the Corps but was terminated by the Jamestown S'Klallam Tribe before significant work was undertaken.
- 2.2.2.20. BIA focuses on water quantity adjudications for Tribes and not on advancing work on establishing the relationship between streamflow levels and fish habitat.

Nearshore and Estuary Habitat

Nearshore and estuary habitats are some of the most productive ecosystems on earth. Freshwater from Western Washington rivers flow into salty waters of Puget Sound to form a nutrient-rich soup that nourishes plankton and plants, which in turn, nourish oysters, clams, crabs, salmon, and birds. Estuaries also serve as buffers to protect shorelines from erosion and flooding, and filter pollutants to improve water quality. Nearshore habitats provide nursery and feeding grounds for numerous ecologically and economically valuable fish and shellfish species.

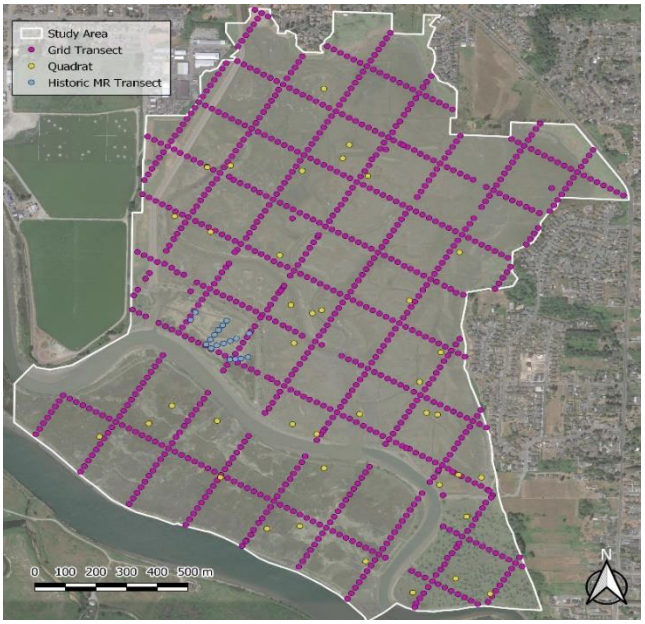
Nearshore and estuary habitat are particularly vulnerable to land use and development pressures and have not been spared from the pressures of rapid population and economic growth, which is expected to increase in the decades to come.

The nearshore and estuary habitat actions in the 2017-2021 Action Plan were identified as priorities to help move the needle toward recovery. The types of actions include funding for implementation of restoration projects in marine shorelines and estuaries, monitoring and evaluation of these projects and estuary characteristics, and policies or programs to protect and improve restoration in nearshore and estuary habitat in the Puget Sound and Washington State.

Success Stories - Nearshore and Estuary Habitat

NOAA Funded Snohomish River Estuary Monitoring Plan

Since 2010, NOAA NWFSC has partnered with the Tulalip Tribes and Snohomish County to develop a comprehensive sampling program for Chinook salmon in the Snohomish River estuary (2.2.3.4). The primary goal of the collaborative research program is to evaluate Chinook salmon use of estuarine habitats and response to multiple restoration projects throughout the delta. Through comprehensive monitoring of biological and physical conditions across the estuary, the program aims, specifically, to characterize spatial and temporal variability in Chinook salmon distribution, assess relationships between fish use and habitat conditions/availability, and document changes due to restoration within the delta. A key outcome of this successful collaboration was the development of the *Snohomish River Estuary Monitoring Plan*.[4] The monitoring plan establishes a framework and describes detailed protocols for intensive and extensive monitoring of topography (elevation, accretion), hydrology



MAP SHOWING GRID POINTS AND TRANSECTS FOR RTK SURVEYS OF SURFACE ELEVATION. FIGURE 17. SNOHOMISH ESTUARY MONITORING

[4] https://salishsearestoration.org/wiki/Snohomish_Delta_Ecosystem_Monitoring_and_Evaluation

(temperature, salinity), vegetation, invertebrates, and fish at the site and landscape scales. The monitoring plan includes both core and supplemental components that can be tailored to evaluate fish-habitat interactions and Chinook salmon response to current and future estuary restoration projects in tidal deltas throughout Puget Sound.

Evaluation Results - Nearshore and Estuary Habitat

The FY2017-2021 Action Plan includes 11 nearshore and estuary habitat actions. Nine of the 11 actions were implemented as described in the FY2017-2021 Action Plan, two were not.

The following Nearshore and Estuary Priority Federal Actions to Protect and Restore Puget Sound were implemented as described in the FY2017-2021 Action Plan because:

- 2.2.3.1. The Puget Sound Nearshore Ecosystem Restoration Project has been fully funded for design phase and is moving successfully.
- 2.2.3.4. The Snohomish Estuary Restoration Evaluation Program reported findings from 10 years of monitoring the effects of large-scale estuary restoration on salmon distribution and rearing was completed.
- 2.2.3.5. The Puget Sound Coastal Program allocated $966,103 for North Puget Sound coastal restoration and barrier removal projects including contributions for the Nooksack Dam removal.
- 2.2.3.6. The National Coastal Wetland Conservation Grant Program protected over 4,276 acres in the Puget Sound from FY17-FY20.
- 2.2.3.7. The National Fish Passage Program funded two fish passage projects that restored 3.5 linear miles and 14 acres of potential aquatic salmonid rearing habitat.
- 2.2.3.8. Under Protection of the coastal ESA habitat NOAA is developing a Nearshore Programmatic permit that incentivizes nearshore habitat restoration and protection of ESA species.
- 2.2.3.9. The Coastal Improvement Team established a Multi-Agency Review Team (MART) to evaluate and improve permitting efficiencies and agency coordination to restore coastal habitats.
- 2.2.3.10. Regional Conditions for 2017 USACE Nationwide Permits program strengthened nearshore habitat protection.
- 2.2.3.11. Under the Shoreline Management Act (SMA) implementation and permitting action, federal coordination, and collaboration with state agencies on shoreline restoration project permitting occurred through the Multi-Agency Review Team (MART) (see 2.2.3.9). This supports the SMA No Net Loss of Ecological Function mandate.

The following Nearshore and Estuary Priority Federal Actions to Protect and Restore Puget Sound were not implemented as described in the FY2017-2021 Action Plan because:

- 2.2.3.2. To date no federal funds have been received for the Puget Sound Master Plan implementation.
- 2.2.3.3. No significant funding has been received for Estuary Restoration Act Projects in the 2017-2021 planning cycle.

Stormwater

Diffuse (or non-point) sources of pollution are a significant water quality threat to coastal watersheds, estuaries, and nearshore marine habitats throughout the United States. Land-based stormwater runoff is one of the most pervasive transport pathways for sediments, nutrients, and other conventional non-point source pollutants. Moreover, human population growth and development pressures are accelerating broad geographic trends towards land conversion, whereby exurban development replaces forests, rangelands, and farmlands with roads, parking lots, building structures (e.g., roofs) and similar hardscapes do not readily absorb rainfall, but rather shunt rainwater into surface flows that mobilize and transport contaminants to rivers, lakes, and other receiving waters. The Puget Sound region is expected to add more than 1.6 million people by 2030 and exemplifies many of the challenges that stormwater poses across socioeconomic sectors – e.g., growth management, transportation, natural resource (e.g., salmon and Southern Resident killer whale) conservation, and environmental justice.

Stormwater threats are generally divided into two distinct but interrelated categories: water quantity and water quality. The problems associated with high runoff volumes and public safety (water quantity) have been well understood for decades and are the basis for much of the existing "grey" infrastructure currently in place in Puget Sound – e.g., storm drains, detention ponds, underground conveyance systems, and outfalls. Challenges related to stormwater quantity are generally in the civil engineering domain and seek to prevent or redress problems such as flooding (property damage, transportation risks) and adverse physical impacts on aquatic habitats via scour, sedimentation, and similar hydrologic processes.

Relative to water quantity, the challenges associated with stormwater quality can be much more complex, particularly in urbanizing watersheds where runoff contains dynamic mixtures (i.e., changing in space and time) of thousands of distinct compounds, the vast majority of which have not been identified or characterized in terms of adverse environmental effects. This represents a growing challenge because major federal clean water statutes (e.g., the Clean Water Act) have not kept pace with the 80,000+ chemicals currently in societal production, a number that does not include related transformational processes in the environment (e.g., bacterial metabolism, abiotic photo-modification) that can further change chemical structure and potential toxicity. Thousands of these chemicals originate from motor vehicles alone (brake pads, exhaust, tire wear, leaking oil and grease, etc.), and thus stormwater runoff from the transportation grid represents a major emerging environmental health threat to salmon and other keystone species in Puget Sound, such as marine forage fish and Southern Resident killer whales.

THE COHO URBAN RUNOFF TOXICITY SYNDROME. TOP PANEL: TYPICAL TRAFFIC ON SR520, THE SOURCE OF ROADWAY RUNOFF FOR MANY NEP-SUPPORTED TOXICITY AND GREEN INFRASTUCTURE STUDIES. RUNOFF IS COLLECTED FROM DOWNSPOUTS TO THE NOAA NORTHWEST FISHERIES SCIENCE CENTER (AT RIGHT IN PHOTO; CREDIT JULANN SPROMBERG, NOAA). MIDDLE PANEL: AN ADULT COHO RETURNING TO SPAWN IN A SMALL PUGET SOUND STREAM (PHOTO CREDIT: KEN KING, USFWS). FOCUSED STORMWATER SCIENCE HAS SHOWN THAT COHO ARE PARTICULARLY VULNERABLE TO THE ACUTELY LETHAL EFFECTS OF UNTREATED URBAN RUNOFF. BOTTOM PANEL: EXAMPLE OF COHO PRE-SPAWN MORTALITY IN A REPRESENTATIVE URBAN STREAM (LONGFELLOW CREEK, WEST SEATTLE; CREDIT JANA LABENIA, NOAA). RATES OF ANNUAL COHO LOSSES TO THE URBAN MORTALITY SYNDROME ARE BASED PRIMARILY ON FIELD COUNTS OF DEAD, UNSPAWNED FEMALES.

Unlike temperature, sediments, nutrients, dissolved oxygen, and other conventional water quality parameters, there are at present no aquatic life criteria to guide the management of these toxic inputs to Puget Sound. Similarly, interactions between chemicals in numerically complex mixtures, or interactions between toxics and parallel habitat stressors (pathogens, ocean acidification, surface water warming) are largely unknown. In the face of this uncertainty, and accelerating growth and development trends in the region, the PSFTF is focused on identifying and implementing strategies to mitigate the adverse ecological impacts of untreated stormwater, particularly in the form of green stormwater infrastructure methods to capture and remove pollutants from runoff using biofiltration and similar methods.

Priority federal actions involving stormwater are generally intended to minimize flooding (water quantity) and ecological decline (water quality). They involve the management of runoff on federal facilities, using a combination of traditional grey and more novel green infrastructure methods. Federal partners are also funding state-level innovations in stormwater management, in close coordination with Washington State agencies, the tribes, and other regional stakeholders. Finally, federal scientists are at the forefront of targeted research on stormwater toxicity and the effectiveness of pollution reduction strategies, primarily focusing on salmon and marine forage fish as sentinel species for the health of Puget Sound freshwater and marine ecosystems, as well as the effectiveness of regional strategies to reduce nonpoint-source pollution.

Success Stories - Stormwater

Puget Sound Federal Stormwater Research Collaborative – Identifying Toxic Threats

Urban stormwater runoff has become the foremost water quality threat to aquatic habitats in Puget Sound. Human population growth continues to drive development and land conversion in coastal watersheds. Increased development reduces opportunity for water to filter through vegetation and soils, increasing the loading of toxic chemicals in stormwater runoff and into Puget Sound. This can have extensive negative impacts on the health and survival of salmon, as well as the levels of contaminants in both freshwater and marine food webs.

Over the last decade, EPA funding has supported a collaboration among National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, and the Washington State Stormwater Center. The Puget Sound Stormwater Science Team (PSSST) consists of researchers and students from NOAA's Northwest Fisheries Science Center, USFWS (WFWO), WSU's Puyallup Research & Extension Center, and UW-Tacoma's Center for Urban Waters.

EPA-supported collaborative research on stormwater threats to Puget Sound have shown that:

- Motor vehicles are major sources of toxic contaminants in roadway runoff routinely discharged to streams, rivers, lakes, and nearshore marine habitats
- There are thousands of distinct chemicals in urban stormwater, and the toxicological impacts of most remain poorly understood
- Coho salmon are sensitive to untreated stormwater, which consistently causes mass mortality events that vary in severity across a gradient of urbanization in Puget Sound
- The urban mortality syndrome poses a threat to other threatened salmonid species, including Puget Sound steelhead
- Toxic threats to aquatic habitats scale in proportion to pavement and other impervious surfaces within large watersheds (e.g., the Snohomish River Basin), a basis for prioritizing green infrastructure mitigation efforts
- Common petroleum-derived compounds in stormwater are also found in crude oil (e.g., the 1989 Exxon Valdez spill) and cause nearly identical developmental defects in the embryos of herring and other shore-spawning marine forage fish.

Puget Sound Federal Stormwater Research Collaborative – Reducing Toxic Impacts

EPA-supported collaborative research on stormwater and toxics reduction strategies have shown that conventional green infrastructure methods involving bio-infiltration effectively remove pollutants and reduce or eliminate toxic impacts to salmon, forage fish, and invertebrates.

RAIN GARDENS AT THE WASHINGTON STORMWATER CENTER ON WSU'S PUYALLUP CAMPUS

Overall, the ongoing stormwater science in Puget Sound is defining the nature and extent of toxic threats to salmon and other priority species, identifying practical solutions for local communities, engaging the public and informing adaptive responses to the dynamic and shared conservation goals of the Federal Task Force. As an example of outreach, the Puget Sound Stormwater Science Team created a story map[5] that describes research on stormwater and Puget Sound salmon, with materials to support local citizen science and access to the team's most recent publications.

Read about how scientists tracked down the deadly chemical killing coho salmon (in the New York Times): https://www.nytimes.com/2020/12/03/climate/salmon-kill-washington.html

Building Green Cities: Low Impact Development Guidance for Local Jurisdictions

EPA Puget Sound funds enabled the Washington State Department of Commerce and Puget Sound Regional Council to create and provide guidance and tools for local jurisdictions. This guidance helps local jurisdictions incentivize developers to incorporate more low impact development in their projects than is required by municipal stormwater regulations.

The Building Green Cities guidebook is intended for municipal staff, specifically those involved in permitting, stormwater management, green infrastructure, and incentive programs. The guidance provides staff resources to facilitate conversations with private developers, engineers, and property owners about low impact development and provides information on how to determine, develop, and implement incentive programs. The guidance is also valuable to developers who are proactively seeking low impact development information, training, and partnership opportunities.

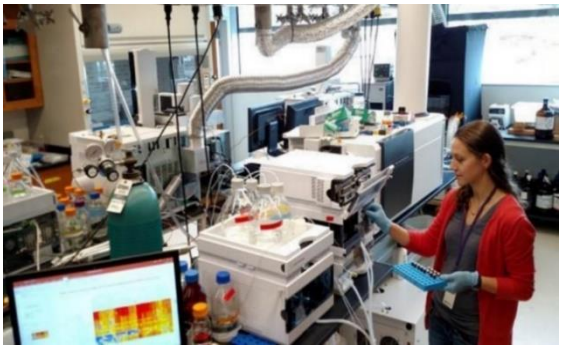
This guidance and efforts like it are important because Washington's Puget Sound region is one of America's fastest growing areas. Local jurisdictions direct new development primarily into urban growth areas due to geographic constraints and Growth Management Act policies. While this growth brings many benefits to the region, it can also strain the environment's resilience and protection functions by increasing the risk of polluted stormwater runoff that threatens local waterways. To protect the health of our streams, rivers, lakes, and the Puget Sound, local jurisdictions can build cities that more effectively manage stormwater runoff while increasing density and

[5] Accessed online 8/9/21 at: https://fws.maps.arcgis.com/apps/MapSeries/index.html?appid=5dd4a36a2a5148a28376a0b81726a9a4

livability for our growing population. Low Impact Development is a green infrastructure approach to stormwater management. It integrates on-site natural features with distributed stormwater best management practices (e.g., rain gardens, cisterns, trees and plants, permeable pavement, and green roofs). These practices can slow stormwater runoff at its source, infiltrate water into the soil, and mitigate toxics through treatment by soil microorganisms.

Stormwater Chemical Characterization and Watershed

With support from EPA Puget Sound funds, researchers at the University of Washington Tacoma and the Center for Urban Waters collected more than 140 water samples in 15 Puget Sound creeks during storm events in fall 2017 through spring 2019. They used these samples to identify sources, watersheds, and time periods responsible for high levels of stormwater pollution that are killing returning coho salmon before they can spawn.



USING HIGH-RESOLUTION MASS SPECTROMETRY TO IDENTIFY ORGANIC CONTAMINANTS LINKED TO URBAN STORMWATER MORTALITY SYNDROME IN COHO SALMON

Using state-of-the-art analytical equipment, these award-winning researchers prioritized Puget Sound watersheds most impacted by urban runoff and characterized "polluto-graphs" to measure pollutant flows in urban creeks. One major finding from this work is that leachate from automobile tires contribute to coho pre-spawn mortality. Coho salmon are an important indicator species for stormwater pollution since they are particularly sensitive to stormwater's toxic effects.

Using EPA Stormwater Strategic Initiative funding, the UW Center for Urban Waters continues to expand their study and partner with local jurisdictions to continue this high impact chemical characterization work.

Depave Puget Sound: Reimagining Overly Paved Spaces

With the help of EPA Puget Sound funds, Pierce Conservation District created an important replicable model: a program aimed at healthy transformation of landscapes.

Depave is a movement to improve the health of cities and the environment in Puget Sound. In Depave projects, communities come together to re-think the landscape around them, transforming areas that are unnecessarily paved into places where nature and people can thrive. For example, the District used their EPA grant to transform the Holy Rosary Bilingual Academy's asphalt play area into a green space for kids.

VOLUNTEERS GET READY TO HAUL AWAY PIECES OF ASPHALT DURING A DEPAVING EVENT AT A SCHOOL IN TACOMA. (DEPAVE PUGET SOUND/ CARAVANLAB)

Each Depave project brings local benefits and improves quality of life in the communities where they take place.

Taken together, Depave projects in our region provide benefits for us all. Cleaner water, cleaner air, and improved habitat for local wildlife are just a few of the many outcomes of the Depave movement.

Permeable Pavement Standards

Rain turns into stormwater runoff with all the pollutants it contacts, such as yard chemicals, oil, grease, pet waste, street dirt, and heavy metals. As in most cities, Tacoma's stormwater flows untreated to the Puget Sound.

POROUS ASPHALT AND PERVIOUS CONCRETE

Permeable pavements have been proven as a cost-effective solution to managing stormwater. Permeable pavement allows water to soak in while providing some level of filtration. But can permeable pavement measurably improve Puget Sound water quality? Is it strong enough to withstand weather and traffic?

Industry standards are imperative to the long-term success of permeable pavements. This requires a solid set of specifications and reliable material testing. With the support of EPA Puget Sound funds and other partners, the City of Tacoma is testing new material and studying exactly how different permeable pavements filter contaminants out of stormwater runoff.

This work could be a game-changer in reducing stormwater pollution in Puget Sound.

Evaluation Results - Stormwater

The following Stormwater Priority Federal Actions to Protect and Restore Puget Sound were implemented as described in the FY2017-2021 Action Plan.

- 2.3.1. Targeted research on stormwater threats and green infrastructure solutions (NOAA/USFWS/WSU): the actions were implemented as described, resulting in > 10 peer-reviewed scientific studies. Communication of major research findings to key Puget Sound stakeholders is ongoing.
- 2.3.2. Support stormwater management on Federal and Tribal lands (EPA): the actions were directly implemented by EPA using existing authorities and collaboration. New general and MS4 permits have been established, a draft Biological Evaluation has been completed, and four additional MS4 tribal permits have been drafted and are currently under review.
- 2.3.3. Regional transportation improvements to reduce toxic runoff from state highways (FHWA): the actions were implemented through funding via the FHWA Washington Division Office for regional highway retrofits to improve stormwater management.
- 2.3.4. Refine methods for prioritizing stormwater retrofits (EPA) was implemented as described because Stormwater Retrofit Prioritization Methodology refined and being utilized by end of FY19.
- 2.3.5. Regional Stormwater Monitoring Program (RSMP)/Action Monitoring (SAM) (EPA/USGS/USFWS): the actions were implemented as planned, including new recommendations for improving baseline and green infrastructure effectiveness monitoring. Projects are published or in the final phases of data analysis and writing.
- 2.3.6. Support for source control programs (EPA) was implemented as described because it was EPA funded through 2019 and the state's Pollution Prevention Assistance Partnership is ongoing.
- 2.3.7. development of guidance for non-point sources on agricultural lands (EPA/USDA/NOAA): the activity was partially implemented. The project overall has been delayed by litigation and a settlement agreement negotiated by Ecology. One chapter providing guidance on tillage practices is complete, and the effort will continue as originally planned through 2025.

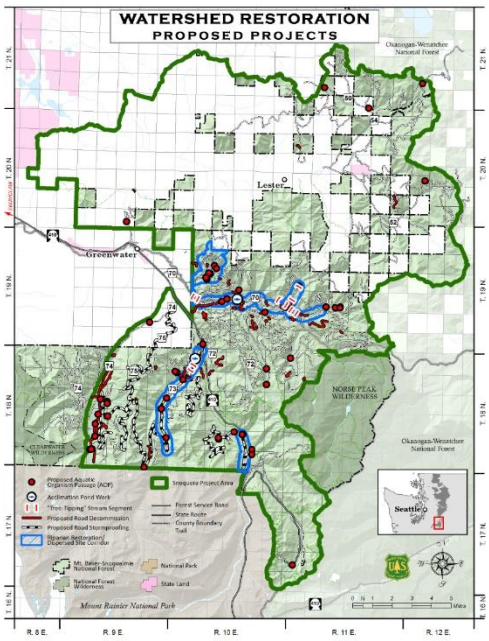
Federal Lands and Facilities

This section of the 2017-2021 Action Plan includes two Priority Actions: Decommission and stabilize National Forest System Roads (2.4.1) and Protect aquatic habitat on National Forest System Lands (2.4.2).

Success Stories – Federal Lands and Facilities

Snoquera Landscape Analysis Integrated Restoration Planning – USFS

An integrated, whole watershed/landscape approach to management of aquatic and terrestrial systems is needed to promote resiliency to climate change for fish, wildlife, plants, forest users, and for Trust responsibilities with Tribes. In developing a strategy to identify restoration opportunities across the forest to prioritize areas where active management would contribute to restoring ecological patterns and processes at the subwatershed scale, the Mt. Baker-Snoqualmie National Forest (MBS) completed a hierarchical analysis of 22 resource metrics. Considering aquatic and terrestrial ecosystem factors, these metrics were integrated into a single model to develop a restoration opportunity score for each of our 150 subwatersheds. Guided by what later became the MBS Forest Restoration Strategy, the Snoquera Landscape Analysis area in the upper White River and upper Green River included eight of the top ten subwatersheds having the greatest restoration opportunity values. Most of these areas support federally listed Chinook salmon, steelhead and bull trout plus their designated critical habitats, as well as coho, pink and chum salmon, and coastal cutthroat and rainbow trout.



The Snoquera Landscape Analysis area included 116,000 acres on National Forest System lands in all or portions of 15 subwatersheds. The aquatics team used whole watershed design procedures (Vacirca et al. 2015) to complete an assessment for the upper White River subwatersheds where proposed activities would have the most influence due to contiguous National Forest management. The analysis resulted in improved aquatic and riparian conditions including: 24 miles of road decommissioning, 6 miles of storage treatments, and 54 miles of storm proofing in the upper White watershed (which overlies a 2017 decision to decommission 18 miles and store 68 miles of roads in the Greenwater priority watershed); 53 aquatic organism passage sites; riparian restoration at dispersed sites within five designated dispersed camping corridors totaling 24 miles; tree-tipping, the low-cost approach to instream wood enhancement to increase floodplain complexity; and variable density thinning of up to 5000 acres in Riparian Reserves to help restore riparian function, including for shade and future large wood recruitment.

Navy Land Preservation

Under the Department of Defense Readiness and Environmental Protection Integration (REPI) program, the Navy has spent $61.8 M, combined with Partner contributions of $31 M to protect over 24,000 acres in the Pacific Northwest. Navy REPI partners include the Trust for Public Lands, Jefferson Land Trust, the Washington Department of Natural Resources, and the Whidbey Camano Land Trust. The Navy's partnerships support working forests and help further and develop local agribusiness, while protecting the watershed and the Navy mission.

OVERVIEW OF REPI PROJECTS NEAR HOOD CANAL

The Navy continues to work toward an end goal of protecting 55,000 acres.

In the Hood Canal partnership, the DoD/ Navy has spent $39.8M preserving over 15,458 acres to date, leveraging $22M in additional funds provided by partners and donors. Notable accomplishments include significant protections of the Dosewallips and Duckabush estuaries and watersheds. Many of these lands will remain as working lands in forestry and agriculture; others are being preserved as natural areas.

The Navy and Whidbey Camano Land Trust have been partnering since 2007, and in 2017 alone, completed 10 land transactions that protected 544 acres (using $6M in Navy funds and $1.7M from the land trust). Notably, transactions including acreage at Dugualla Bay, Crockett Lake, and Swan Town all contributed to protection of wetlands, island aquifers and natural drainage courses. In the case of the Dugualla Bay partnership, coordination on restoration projects ensures that habitat restoration does not create Bird Aircraft Strike Hazards for Navy aircraft.

Evaluation Results - Federal Lands and Facilities

Two of two Federal Lands and Facilities Priority Federal Actions to Protect and Restore Puget Sound were implemented as described in the FY2017-2021 Action Plan.

- 2.4.1. Decommission and stabilize National Forest System roads, because The Olympic National Forest decommissioned 6.4 miles of road between 2017 and 2020. The Mt Baker Snoqualmie Nation Forest Decommissioned and closed (“stored”) 28.2 miles of road between 2017 and 2020.
- 2.4.2. Protect aquatic habitat on National Forest System Lands - because fisheries biologists and hydrologists analyzed baseline conditions in sub-watersheds in project areas between 2017 and 2020.

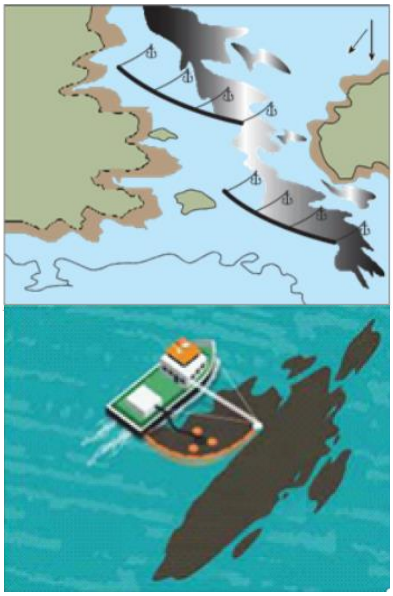
Vessel Traffic, Pollution Prevention and Response

The U.S. Coast Guard works collaboratively with the Canadian Coast Guard to identify the specific processes whereby both Coast Guards communicate, consult and coordinate vessel traffic management and the ability to respond to discharge or threat of discharge of pollution into the contiguous waters of interest of both Canada and the United States. An integrated Coast Guard approach to safety, environmental protection, waterways management and maritime security ensures the long-term success of the global maritime transportation system and maintain ecological sustainment of wildlife in the region.

Success Story – Vessel Traffic, Pollution Prevention and Response

Oil Spill Response Endangered Species Act Consultation

Federal agencies involved in oil spill response are required to comply with environmental laws, including the Endangered Species Act (ESA). In 2021, after years of complex effort, the USCG and EPA concluded ESA oil spill response consultations with the National Marine Fisheries Service and U.S. Fish and Wildlife Service. Completing ESA consultation on federal agency oil spill response has resulted in updated and clarified Conservation Measures that will reduce the risk of adverse impacts to endangered species and critical habitat from response actions such as oil spill booming operations, vessel decontamination, staging area establishment, solid and liquid waste management, constructing temporary berms and dams, culvert blocking, collection and removal of oil, surface washing agents, chemical dispersion, *in situ* burning, and natural attenuation.



Evaluation Results - Vessel Traffic, Pollution Prevention and Response

Six of the seven Vessel Traffic and Pollution Prevention and Response Priority Federal Actions to Protect and Restore Puget Sound were implemented as described in the FY2017-2021 Action Plan.

The following Vessel Traffic and Pollution Prevention and Response Actions were implemented as described in the FY2017-2021 Action Plan.

- 2.5.2. *Implementation of new inspection regulations.* New inspection regulations were implemented on towing vessels that have not previously been inspected.
- 2.5.3. *Implementation of Commercial Fishing Vessel (CFV) compliance program.* This action was initially planned to be compulsory by federal regulations but was made voluntary in the interim due to implementation concerns nationally.
- 2.5.4. *Effectively manage vessel activities.* This ongoing program continued as planned.
- 2.5.5. Effectively manage vessel traffic and coordinate joint prevention and response activities, because the Ports and Waterways Safety System – which allows better visualization of vessel movements – is fully functional and has replaced the earlier system.
- 2.5.7. *Develop plans and interagency cooperation for pollution response.* The Coast Guard maintained both a Regional Contingency Plan with EPA and a US Coast Guard Coastal Zone Area Contingency Plan and actively worked on associated ESA Section 7 consultation related to oil spill and hazardous material response actions.

- 2.5.8. *Coordinate international cooperation for preparedness and response activities*. The Coast Guard continues to plan and prepare for transboundary oil spills with Canada – including sponsoring the 2022 CANUSPAC Joint Response Team Exercise.

The following Vessel Traffic and Pollution Prevention and Response Actions were not implemented as described in the FY2017-2021 Action Plan.

- 2.5.6. *Support multi-agency effort to develop vessel traffic risk assessment.* This action to be removed due to the state's preemptive legal concerns.

Shellfish

Protect, restore and facilitate sustainable cultivation and harvest of molluscan shellfish resources.

Shellfish have been harvested for thousands of years from Puget Sound. The region's Tribes rely on shellfish for cultural, subsistence and commercial purposes. Shellfish have been farmed in Puget Sound for over a hundred years with the industry providing many jobs and economic benefits, especially in rural communities. Recreational shellfish harvest also provides economic benefits, as well as a strong sense of place for residents of Washington. Shellfish are part of the solution to protecting and restoring the health of Puget Sound because they are a key part of our marine ecosystem, provide habitat and help filter and clean water.

However, Puget Sound shellfish are threatened by pollution from pathogens and biotoxins that can make them unsafe to harvest as well as ocean acidification that impacts their shells. Federal agencies are leading and funding work to restore native Olympia oyster populations and to monitor and protect water quality in Puget Sound to help ensure shellfish are safe to harvest. From examining the ecological functions of shellfish aquaculture, writing permits for shellfish aquaculture to take place, conducting native shellfish genetic risk assessments to developing an online story map about pathogenic Vibrio predictive models for shellfish harvesters,[6] Puget Sound's federal agencies have stepped up to the challenge.

Success Stories - Shellfish

NOAA Scientists Lead Effort to Understand how Shellfish Farming Practices Affect Marine Life

Shellfish farming is one of the most valuable parts of the Northwest aquaculture industry. It generated close to $100 million annually for the regional economy and provided close to 1,500 jobs prior to the pandemic. Shellfish farms occupy more than 25,000 acres in the Northwest.

Researchers and managers want to understand how Shellfish farming practices affect marine life in the shallow and highly productive nearshore waters where oysters and other shellfish grow. Scientists from NOAA Fisheries' Northwest Fisheries Science Center have collected video of marine life in different types of habitat, including eelgrass beds and bare sediment with and without shellfish gear to compare species use and feeding rates in the different surroundings. They want to assess how marine life uses, and may even benefit from, habitat in and around farms growing oysters and other shellfish. They are teaming up with Microsoft to use computers and artificial intelligence to scan hours of video within seconds for different species of interest.

"We've collected hundreds of hours of video, and it is time consuming to analyze the images, so we are teaming up with the Microsoft Artificial Intelligence for Good program to develop tools to automate the fish species data collection and analysis," said Northwest Fisheries Science Center research scientist Peter Kiffney.

TWO CAMERAS STAND ABOVE A SECTION OF AN OYSTER FARM IN SAMISH BAY, WASHINGTON, AT LOW TIDE. THEY BECOME SUBMERGED AT HIGH TIDE AND COLLECT UNDERWATER VIDEO OF MARINE LIFE INHABITING THE AREA. PHOTO BY NORTHWEST FISHERIES SCIENCE CENTER.

[6] Accessed online 8/9/21 at: https://storymaps.arcgis.com/stories/16e2f8f808f94046bafbfef9d193c50d

Computers will rapidly scan video to locate fish or crabs. This will streamline the analysis by focusing on video segments with fish and crabs, quickly identifying their species and behavior.

Understanding what species and life stages of fish and crabs are using the habitat is a first step. Researchers also plan to analyze the diet of fish and crabs from the sites. This will allow them to better understand how shellfish farming affects the nearshore food web compared to sites without farming. “We’ve seen basically all of the fish you’d expect in the nearshore—herring and other forage fish, varieties of perch and sculpin, juvenile salmon, along with diving ducks, harbor seals and more,” said lead researcher Beth Sanderson. “There’s an amazing variety of life in the shallows of the Pacific Northwest, and we are seeing for the first time how many of these species use habitats within and near shellfish farms.”

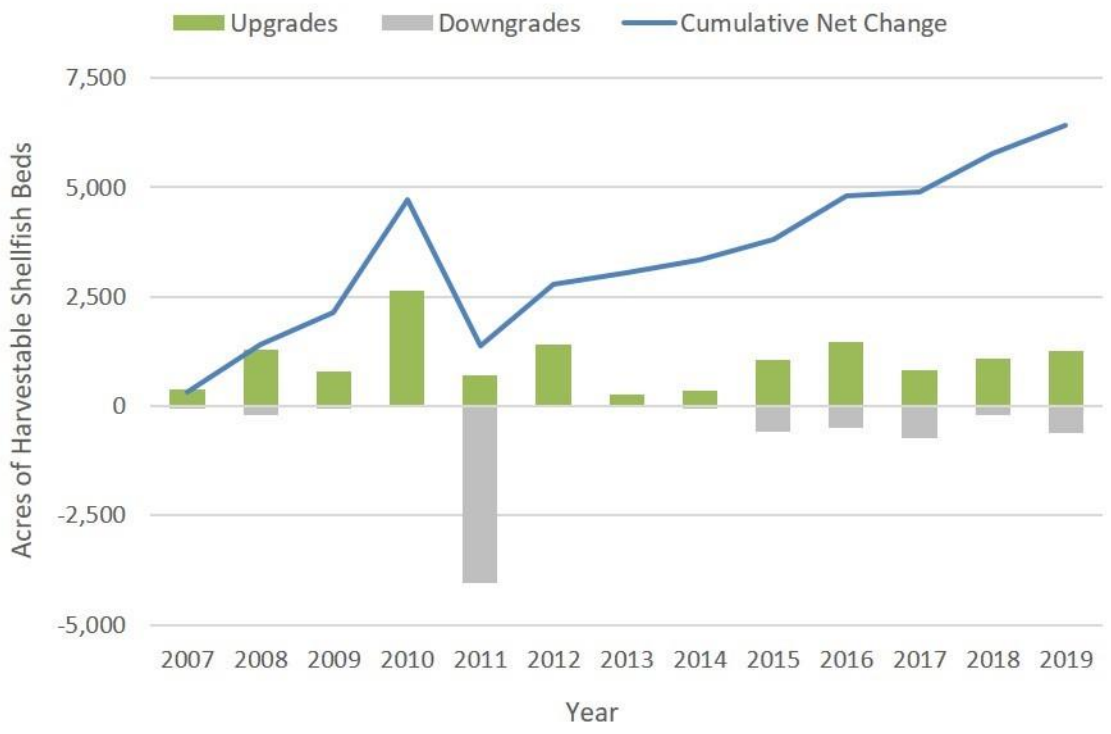
EPA-funded Shellfish Strategic Initiative

The EPA-funded Shellfish Strategic Initiative aims to protect and restore shellfish beds by reducing fecal bacteria and pathogens in waterways that flow to shellfish growing areas. Project funding supports planning and research, as well as components of pollution identification and correction (PIC) programs. PIC programs include water quality monitoring, education and outreach, technical assistance, financial incentives, agriculture best management practice implementation, and regulatory compliance.

Fecal bacteria from human and animal waste can pollute water and lead to shellfish harvest closures. Preventable bacteria pollution sources include improperly managed farm animal manure, unmanaged pet waste, failing septic systems, sewer cross connections, and human waste from boaters and other recreationalists.

The Shellfish Strategic Initiative Lead is the Washington State Department of Health in partnership with the Washington State Department of Ecology and Washington State Department of Agriculture.

Net Increase in Commercial Shellfish Acreage



EPA funds have supported local water quality staff throughout Puget Sound and helped protect 159,288 acres of shellfish beds so they can be safe to harvest. EPA funds helped restore 13,529 acres of shellfish beds, resulting in a net increase in 6,418 acres of harvestable Puget Sound shellfish beds since 2007. A net increase of harvestable shellfish beds is particularly notable given increasing population and development across the region.

Protecting and restoring shellfish areas is important to Puget Sound's rural economy. Each acre of commercial Pacific oyster beds produces between $10,000 and $20,000 per year. Shellfish harvest contributes roughly $180 million to Washington State's economy per year, and 3,200 direct and indirect jobs. Shellfish are also an essential food source and treaty-protected resource for Puget Sound tribes.

Shellfish beds are protected and restored through the creation of shellfish protection districts, development and implementation of closure response plans, effective Pollution Identification and Correction programs, on-site sewage system management plans, agricultural best management practices, and control of boaters' waste.

Pollution Identification and Correction: Supporting Local Government Efforts to Keep Pathogens out of Shellfish Beds

EPA's Puget Sound National Estuary Program Shellfish Strategic Initiative has been instrumental in supporting PIC programs in all 12 Puget Sound counties.

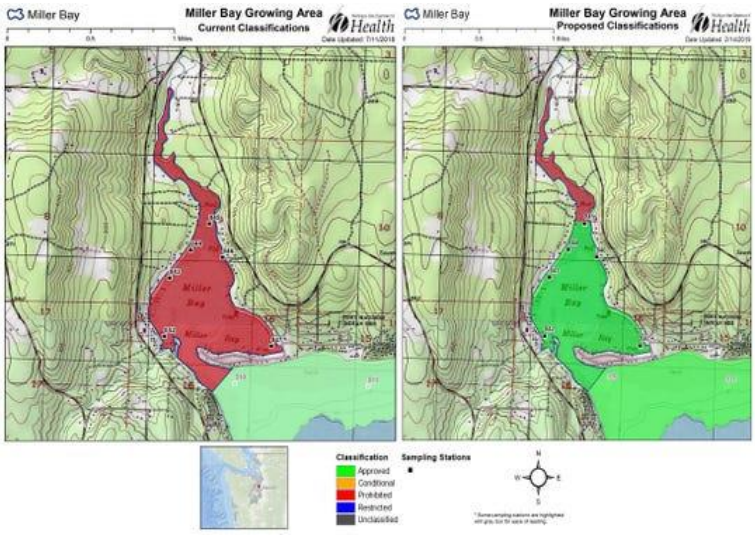
PIC programs survey watersheds and offer education, technical, and financial assistance to help community members manage septic systems, farm animal manure, pet waste, urban wildlife, and boater/recreationalist waste to prevent pollution to waterways.

PIC programs are an important tool for local partners to protect and restore shellfish beds and protect people from water-borne pathogens.

WHATCOM CONSERVATION DISTRICT IN SUPPORT OF THE WHATCOM CLEAN WATER PROGRAM (PIC)

Kitsap County - Miller Bay

EPA Puget Sound funds have contributed to Kitsap County's efforts to find and fix sources of fecal bacteria pollution that have impacted shellfish beds, including Miller Bay, a historically important shellfish harvest area for the Suquamish Tribe.



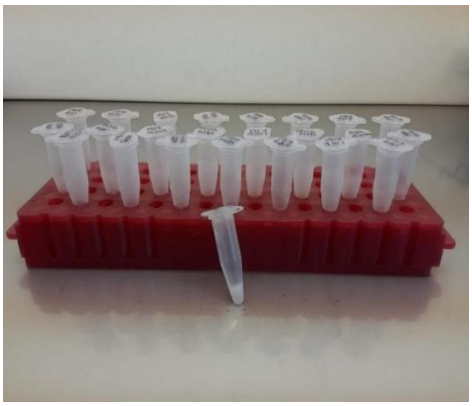
Kitsap County's PIC program staff conduct records reviews, field inspections, and sampling/dye testing to verify septic system issues and help correct confirmed septic system failures. Over the last few years, they've spoken to almost every home and agricultural property owner about best management practices to make sure fecal bacteria don't enter the water. EPA also funds the Kitsap Conservation District, which provides technical assistance and funding to help agricultural landowners employ best management practices.

Because of measurable water quality improvements, the Department of Health has determined it is safe to upgrade the harvesting status of 236 acres of Miller Bay from "prohibited" to "approved."

EPA Laboratory Support for Microbial Source Tracking

EPA Region 10's Manchester Environmental Laboratory provides important scientific support through microbial source tracking for counties' Pollution Identification and Correction programs. For example, the lab recently completed a microbial source tracking analysis of all the fecal bacteria impaired streams in Kitsap County to shed light on sources of pathogens in hotspots.

Water quality teams sample streams and ditches and use DNA analysis methods to help evaluate whether the fecal bacteria are more likely from dogs, humans, cattle, or other animals. This information sheds light on trouble spots, and helps the counties hone their management actions (e.g., whether to focus on onsite sewage systems or pet waste).



MICROCENTRIFUGE TUBES AT THE EPA LAB CONTAINING THE EXTRACTED, PURIFIED DNA FROM MST SAMPLES (STEPHANIE BAILEY)

Advancing Research and Restoration for Olympia oysters, pinto abalone, basket cockles, sea cucumbers and native kelp species throughout Puget Sound

Since 2017, NOAA has provided nearly $450,000 to support a variety of research, restoration and operations associated with kelp, including activities at the hatchery. EPA's Puget Sound Shellfish Strategic Initiative is providing $100,000 to support climate change research related to cockles and Olympia oysters.

PUGET SOUND RESTORATION FUND WASHINGTON CONSERVATION CORPS TEAM MEMBER, JACKELYN GARCIA, TENDING TO THE OLYMPIA OYSTER SPAT ON BAGS OF PACIFIC OYSTER SHELL AT THE CHEW CENTER.

Puget Sound Restoration Fund (PSRF) operates a conservation hatchery, called the Kenneth K. Chew Center for Shellfish Research and Restoration, with funding support and in collaboration with NOAA's Northwest Fisheries Science Center. The Chew Center is dedicated to research and production of native shellfish and other Pacific Northwest living marine resources and serves as the hub and the engine for several critical rebuilding efforts for marine species in Puget Sound. One success story is our recent production of Olympia oyster spat-on-shell in early 2021. The Chew Center produced over 3 million oysters which will be used for restoration in Central Puget Sound.

This work has advanced research and restoration efforts for Olympia oysters, pinto abalone, basket cockles, sea cucumbers and native kelp species throughout Puget Sound, and implemented multiple recommendations of the Blue Ribbon Panel on Ocean Acidification and the Washington Shellfish Initiative.

Restoration of Olympia Oysters in Liberty Bay - NRCS

USDA's NRCS Environmental Quality Incentive Program, has assisted the Puget Sound Restoration Fund, a non-profit organization to reach their 100-acre goal in October of 2020 with the installation of 15 acres of clean oyster shell on a tide flat in Liberty Bay, Poulsbo, Washington. According to Betsy Peabody, Executive Director for PSRF, "the most critical aspect of this part of the project is making sure the shell is deposited in the right place, where conditions can support oysters long-term."

The Salish Sea is the nation's third largest estuary and home to the Pacific Northwest's only native oyster, with an historic range from British Columbia to Baja California. In the Salish Sea alone, circa 1850, Olympia oysters covered 10,000 to 20,000 acres of intertidal area. Unfortunately, due to over harvesting, pollution from early pulp mills, and habitat degradation, only 4% of the dense historic population remains.

A BARGE PLACES OLYMPIA OYSTER SHELLS IN LIBERTY BAY NEAR POULSBO, WASH., OCT. 7, 2020. (PHOTO NRCS)

Restoring these oysters and their habitat provides many ecosystem services benefits. As their populations grow and spread, the tideland substrate stabilizes and becomes more resilient to wave action. In turn, these areas become a haven for smaller aquatic species in the nearshore, which provides necessary habitat for forage fish and salmon, several species of which are threatened and endangered. Increasing habitat for young salmon is a key component to recovering salmon populations. Olympia oysters are also extremely effective at cleaning and filtering pollutants from water.

The Olympia oyster has a strong connection to local Native American Tribes, who have lived in the Puget Sound region for thousands of years. The Olympia oyster is not only a staple food source but is also a culturally significant species to local Tribes. The Suquamish Tribe, along with others, have been working closely with the Natural Resources Conservation Service (NRCS) and PSRF on restoration efforts.

Evaluation Results - Shellfish

The following Shellfish Actions were implemented as described in the FY2017-2021 Action Plan.

- 2.6.1: EPA "Water quality protection and Pollution Identification and Correction (PIC) Programs" was implemented as described since EPA provided $4.2 million to the Shellfish Strategic Initiative, much of which funded Puget Sound PIC programs.
- 2.6.2: EPA "Puget Sound 'No Discharge Zone' (NDZ)" was implemented as described because the WA Department of Ecology's NDZ (Chapter 173-228 WAC) was adopted on April 9, 2018.
- 2.6.3: NRCS "Environmental Quality Initiative Program (EQIP)" was implemented as planned because EQIP funds were provided to 6 tribes and 1 NGO for implementation of habitat restoration and native Olympia oyster fisheries improvements (Total funding obligated FY17-FY20=$640,265).
- 2.6.5: NOAA "Ocean Acidification Monitoring" was implemented as described because NOAA's OA technology development specific to the California Current Large Marine Ecosystem was ongoing.
- 2.6.6: NOAA "Harmful Algal Bloom (HAB) detection and prediction" was implemented as described since it produced the Pacific Northwest HAB Bulletin, online predictive tools for shellfish harvest to reduce Vibrio, and published results of utility of water monitoring for Vibrio in shellfish beds.

- 2.6.7: NOAA "Pathogenic vibrio detection and prediction" was implemented as described, plus in FY20, approximately $125K (staff & supplies) was allocated to provide emergency Vibrio surveillance of WA shellfish beds during COVID-19.
- 2.6.8: NOAA: "Native shellfish genetic risk assessment" was implemented as described by University of Washington researchers since funding was received from NOAA Sea Grant and Saltonstall Kennedy for molecular genetic analysis and model development.
- 2.6.9: USACE, NOAA, USFWS "Implement aquaculture regulatory framework" was implemented as described because 900 permits were issued under the framework.
- 2.6.10: NOAA "Habitat value of shellfish" was implemented as described because the Northwest Fisheries Science Center is working in collaboration with regional partners to examine the ecological functions of shellfish aquaculture habitats and adjacent eelgrass and mudflat habitats. Current projects are focusing on species use of habitats (underwater video) and species behaviors (e.g., feeding and energy flow) in these habitats.
- 2.6.11: NOAA "Native Shellfish Hatchery" was implemented as described because: Since 2017, NOAA has provided nearly $450,000 to support a variety of research, restoration and operations associated with kelp, including activities at the hatchery. EPA's Puget Sound Shellfish Strategic Initiative is providing $100,000 to support research related to cockles and Olympia oysters.
- 2.6.12: NRCS "Native Oyster Restoration Projects" was implemented as described (see 2.6.3 – these are duplicative).

The following Shellfish Actions need more information.

- 2.6.4: USCG, NOAA "Oil spill preparedness and planning"

Science and Monitoring

Credible and salient scientific information and technical support are needed at the regional, sub-regional, and local levels to support recovery planning and implementation processes, address policy barriers, and inform the best next steps for recovery. Within the broader community of partners, federal agencies have extensive scientific expertise, capabilities, and assets to support Puget Sound ecosystem recovery, including planning and implementation activities related to the Puget Sound Federal Action Plan, the Puget Sound Action Agenda, salmon recovery, watershed recovery and protection and other related efforts. Federal agencies also have access to extensive national and regional programs, assets, and human capital, collectively representing significant potential fundamental science and monitoring capacity.

The PSFTF recognizes the responsibilities of Federal agencies to coordinate scientific activities and priorities across Federal agencies and with non-Federal partners, including the National Estuary Program Management Conference participants, the Puget Sound Action Agenda Strategic Initiative Leads, state and Tribal partners, the Puget Sound Ecosystem Monitoring Program (PSEMP), and others. While there are significant efforts to coordinate science and monitoring activities through the Puget Sound Partnership Science Panel, the Puget Sound Ecosystem Monitoring Program, and other forums, federal agencies have tended to coordinate through as individual agencies in support of their respective missions. The problem recognized by the PSFTF is that improved inter-agency federal coordination of science and monitoring activities and programs was essential to: (1) meeting the broad federal responsibilities and goals supporting Puget Sound ecosystem recovery and Tribal Treaty rights and (2) meeting federal responsibilities and goals to coordinate science and monitoring effectively with state, Tribal, and local partners.

The 2017-2021 Federal Action Plan called for increased coordination across Federal agencies through the establishment of a Puget Sound Federal Science and Monitoring work group. The Action Plan specifically called for improved cross-agency prioritization of Federal science activities and programs and for developing options for a future Puget Sound Federal Science Program, contingent on federal authorization and appropriation. In

Appendix D, the Action Plan provided a list of on-going and planned high-priority science activities to support Puget Sound recovery.

Evaluation Results - Science and Monitoring

Priority federal science and monitoring actions are described in 3.0 (Science and Monitoring), 5.0 (Governance and Implementation), and Appendix D (Priority Federal Science and Monitoring for Puget Sound) of the 2017-2021 Action Plan. Also, the PSFTF 2018 Accomplishments Report added three science and monitoring actions. The 2017/2018 descriptions and 2021 reporting information is in Appendix A (Tracking Table) of this Progress Report.

Together, our evaluation shows that – of the 35 total federal science and monitoring actions from the above sources – 25 were implemented as described, 7 were not implemented as described, and additional information is needed for 3.

Treaty Rights at Risk

The Treaty Rights at Risk (TRAR) Initiative refers to the July 2011 report from the treaty tribes of western Washington, "Treaty Rights at Risk: Ongoing Habitat Loss, the Decline of Salmon Resource, and Recommendations for Change". In response, in September 2011, CEQ directed regional leaders for NOAA, EPA and USDA to co-lead an effort to improve agency coordination and outcomes for salmon and their habitat. In May 2012, Regional leaders provided CEQ the first Puget Sound Federal Action Plan and created a Tribal-Federal Forum to resolve local habitat problems of concern to treaty tribes in Puget Sound and the Washington Coast.

In 2015, a subset of Federal Task Force agencies committed to address six priority tribal treaty rights issues raised by Western Washington Treaty Tribes. Some of these issues, or approaches to address these issues, are addressed by Priority Federal Actions to Protect and Restore Puget Sound in the FY2017-2021 Puget Sound Federal Action Plan. Also, from 2017-2019 regional leaders for NOAA, EPA, USDA and the Corps met 17 times as the "TRAR Principals". At least four of these meetings included Tribal leaders. The TRAR Principals reconvened in April 2021.

Puget Sound Federal Task Force Governance and Action Plan Implementation

The Governance structure for the Puget Sound Federal Task Force and process for Action Plan development and reporting is established in the MOU. Nine of 11 governance and implementation actions were implemented as described in the FY2017-2021 Action Plan.

The following governance and implementation actions were implemented as described in the FY2017-2021 Action Plan.

- The Puget Sound Federal Task Force Regional Implementation Team met regularly, implemented the Action Plan and reported on progress in the 2018 Accomplishments Report and this 2021 Progress Report.
- Members of the Regional Implementation Team met at least once a year with the Tribal Management Conference to review Federal priorities and receive input.
- Members of the Federal Task Force worked to address Treaty Rights at Risk issues through, in part, 17 Treaty Rights at Risk Principals meetings (Regional Leaders for EPA, NOAA, the Corps, and NRCS) – at least four of these major meetings included Tribal Leaders.
- Regional Implementation Team Co-Chairs (Regional Managers for EPA and NOAA) coordinated regularly with the Puget Sound Partnership
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- The Federal Task Force coordinated as needed with the Puget Sound Partnership on Puget Sound Leadership Council Business
- Puget Sound Salmon Recovery Council information and priorities were shared with the federal Regional Implementation Team is to help ensure appropriate federal agency policy, funding, and program alignment to support salmon, steelhead and habitat protection and restoration.
- The Puget Sound Federal Task Force coordinated federal actions to support local entity work to recover Puget Sound at the local level.
- The Puget Sound Federal Task Force coordinated with other management conference partners (local governments, non-profit organizations, universities, others) on the implementation of this Action Plan.

The following governance and implementation actions were not implemented as described in the FY2017-2021 Action Plan.

- The Puget Sound Partnership Director was not invited to participate in Regional Implementation Team meetings biannually.
- Members of the Regional Implementation Team did not participate in Strategic Initiative Advisory Teams, and Implementation Strategy development teams

Appendix: Puget Sound Federal Task Force Progress Report - Tracking Table 2017-2021

ID	***Title***	***Action*** *From FY2017-2021 Action Plan*	**Status** As of Spring 2021
Section *Action #/ID* *Lead Agencies* *Other Agencies*	*From 2017-2021 Action Plan*	***Information from the 2017-2021 Action Plan*** ***Outcomes (why?)**: Change in environmental condition, behavior or knowledge.* ***Outputs (what?)**: Federal products and service.* ***Activities (how?)**: Processes, tools, efforts.* ***Resources**: Federal human, financial, organizational resources*	For comparison to 'Action' column

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
Crosscutting Actions *2.1.1* *NOAA, EPA* *(USACE, USFWS)*	*Evaluate existing programmatic or streamlined regulatory tools/processes for activities related to Puget Sound habitat*	***Outcomes:*** *Enable applicants, including agencies and Tribes, to move forward with restoration and other projects which conform to programmatic criteria more quickly, predictably, and with greater regulatory certainty.* ***Outputs:*** *Identify any critical gaps in regulatory tools/processes, and in cooperation with the State, ensure information on how to utilize existing tools is accessible at the Governor's Office for Regulatory Innovation and Assistance.* ***Activities:*** *Evaluate restoration actions such as culvert replacements, floodplain, and estuarine restoration activities* ***Resources:*** *No additional resources needed at this time. If new tools/processes are identified for development, additional resources may be necessary.*	**Outcomes:** Improved marine shoreline habitat; More ecologically beneficial marine shoreline projects implemented; increased use of streamlined or programmatic regulatory tools/processes by agencies and applicants. **Outputs:** Shorelines Workgroup meetings and materials; Established federal and State Multi-agency Review Team (MART) to pilot test a collaborative, coordinated permitting process for ecologically beneficial marine shoreline projects; In Spring 2020, MART held a workshop identifying barriers/problems and solutions to permitting ecologically beneficial marine shoreline projects to inform testing a modified, streamlined permit process. Evaluated and described permitting issues for 10 completed projects in a report; Test modified, streamlined permitting process for 2-3 pilot projects in real time. Interim and Final reports documenting findings of MART pilot permitting program. **Activities:** MART evaluated permitting problems of existing shoreline projects in workshop, tested collaborative permitting process on pilot projects, and develops recommended guidelines on effective permitting processes. **Resources:** new funding and FTE requested FY 2018; additional work for ~9 federal staff to participate in Multi-Agency Review Team. **Implemented as Described: Yes.** "Evaluate existing programmatic or streamlined regulatory tools/processes for activities related to Puget Sound habitat" because the Multi-agency Review Team has been established and has evaluated existing programmatic and streamlined tools/processes.
Crosscutting Actions *2.1.2*	*Implement the National Estuary Program for Puget Sound protection and recovery*	***Outcomes:*** *Improved implementation of the Puget Sound Action Agenda* ***Outputs:*** *Fund Strategic Initiative Leads, Tribal Lead Organization, Tribal capacity, and the Puget Sound*	**Outcomes:** As planned **Outputs:** As planned **Activities:** As planned

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
EPA		*Partnership; Support backbone coordination for Puget Sound Recovery, Implementation Strategies, science and monitoring; Approve the Puget Sound Action Agenda* ***Activities:*** *Funding and support* ***Resources:*** *~$30M per year EPA Puget Sound Geographic Funds*	**Resources:** As planned **Implemented as Described: Yes.** "Implement the National Estuary Program for Puget Sound protection and recovery" because funding and support for Puget Sound recovery efforts via a collaborative governance framework has been provided with ~$30 million per year as planned.
Habitat *Remove fish passage barriers* *2.2.1.1* *USFS*	*Correct salmon and steelhead culvert fish passage barriers on National Forest System roads*	***Outcomes:*** *Reconnect spawning and rearing habitat (~19 miles of anadromous streams), reestablish natural stream processes* ***Outputs:*** *Anticipated correcting and/or removing 8 (1 Olympic NF, 7 MBS NF) of 26 (1 Olympic, 25 MBS NF) known fish passage barrier culverts on salmon and steelhead streams. Additional culvert removal dependent on additional funding and capacity to design and implement projects.* ***Activities:*** *Culvert barrier project prioritization and planning, securing funding* ***Resources:*** *$1.2M/yr needed to correct known barriers. When Action Plan was written, only 1 culvert barrier correction was planned for funding over the next three years.*	**Outcomes:** Reconnected 6.3 miles of anadromous spawning and rearing habitat and natural process reestablishment **Outputs:** Between 2017 and 2020 1 Aquatic Organism Passage (AOP) project and 2 barrier removals occurred on the Olympic NF and 4 AOP projects occurred on the Mt Baker Snoqualmie NF**.** Culverts were removed (2) or replaced (4) with structures that meet fish passage standards. **Activities:** Project planning, project management and funding activities **Resources:** ERFO funded 4 salmon and steelhead benefiting road crossing/fish passage barrier corrections: 4065 Road (SF Stillaguamish River – 1 crossing); and 63 Road (NF Skykomish River – 2 crossings). FS funded the 25 Road (Straight Creek; Suiattle River – 1 crossing), the Pysht removals were funded partially by the NF and partially by partners EPA ($352,678) and USFWS ($162,800), the Dosewallips tribe AOP was funded partially by EPA ($15,000). **Implemented as Described: Yes.** The US Forest Service removed two fish passage barriers on National Forest System Roads and replaced 4 barriers with culverts that meet fish passage standards, improving access to over 6 miles of upstream habitat

Habitat *Remove fish passage barriers* *2.2.1.2* *NPS*	*Correct salmon and steelhead culvert fish passage barriers on National Park Service roads*	***Outcomes:*** *Reconnect spawning and rearing habitat, reestablish natural stream processes* ***Outputs:*** *NPS submitted proposals to correct and/or permanently remove 13 fish passage barrier culverts on salmon and steelhead streams before 2027 (4 at North Cascades National Park and 9 at Mt. Rainier National Park)* ***Activities:*** *Culvert barrier project prioritization and planning, securing funding. There are 18 priority fish passage culvert barriers that block passage for salmon and steelhead within Olympic (OLYM), North Cascades (NOCA), and Rainier (MORA) National Parks (5 on OLYM, 4 on NOCA, 9 on MORA). Altogether the 18 priority culverts limit accessibility and production from approximately 6.34 miles of anadromous streams on National Park Service units (5.64 miles OLYM, 0.2 miles NOCA, 0.5 miles MORA). The parks are correcting culvert barriers by replacing the defective structures with appropriate fish passage designs as funding allows. Additional fish passage surveys are needed at OLYM where more than 100 culverts have been identified on fish-bearing streams in the park.* ***Resources:*** *$100K/year is needed to correct the 9 identified salmon and steelhead culvert barriers at MORA within the 5-year period. Additional resources will be needed to correct the barriers at OLYM and NOCA. Annual needs will vary depending on the specific projects selected. The National Park Service is pursuing funding to implement fish passage culvert barrier corrections provided through the Federal Lands Recreation Enhancement Act, Federal Lands Transportation Program (FLTP), the EPA's Salmon Habitat Improvement Fund, and grants from the Washington State Salmon Recovery Funding Board. At this time, proposals have been submitted for 13 culvert barrier corrections that could be completed over the next ten years. Additional funding to accelerate important fish passage restoration accomplishments will increase the rate of barrier corrections. Accomplishments will be proportional to available funding.*	**Outcomes:** - **Outputs:** The nine fish passage barrier culverts on the Mt Ranier NP were not replaced. One culvert is tied to a federal highways project, the others are tied to a campground upgrade. Feedback from Action Contacts is that Olympic NP and North Cascades NP have minimal if any barrier culverts remaining in the Puget Sound Region. **Activities:** Culvert barrier project prioritization and planning, securing funding, project implementation **Resources:** Funding was not available. **Implemented as Described:** No. Funding was not available for National Park Service Fish Passage projects.

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
Habitat *Remove fish passage barriers* *2.2.1.3* *U.S. Navy*	*Correct salmon and steelhead culvert fish passage barriers on U.S. Navy property*	***Outcomes:*** *Reconnect spawning and rearing habitat, reestablish natural stream processes* ***Outputs:*** *Complete fish passage assessment reports, replace culverts with fish passable culverts on Navy property* ***Activities:*** *Investigate funding for culvert projects, assess and prioritize culverts, develop design and cost estimates, implement projects* ***Resources:*** *Staff time to investigate how to fund prioritize, and implement culvert projects*	**Outcomes:** As planned. **Outputs:** Maintenance performed in 2018 to remove fish passage barrier to coho salmon and cutthroat trout on Cranberry Creek (MP 6.91). In 2020 replaced two 18-inch culverts on an unnamed tributary to Beaver Creek (Manchester) improving access to coho salmon and resident trout. Habitat improvement projects on the Shelton-Bangor Railway, Bangor and Jim Creek are in process pending conclusion of consultations and permitting actions. **Activities:** Investigate funding for culvert projects, assess and prioritize culverts, develop design and cost estimates, implement projects **Resources:** Staff time to investigate how to fund prioritize, and implement culvert projects **Implemented as Described: Yes.** The Navy is upgrading two culverts under the railroad so that they are fish passable.
Habitat *Remove fish passage barriers* *2.2.1.4* *USACE*	*Design and construct improved fish passage at Mud Mountain Dam*	***Outcomes:*** *Pass up to 60,000 fish/day including ESA listed Chinook and Bull Trout in accordance with NOAA and USFWS Biological Opinions.* ***Outputs:*** *Anticipated new operational fish passage facility by Dec. 2020* ***Activities:*** *Project management*	**Outcomes:** As planned **Outputs:** New fish passage facility - largest trap and haul facility in the US, possibly in the world - operational in Dec 2020 per BiOp and settlement agreement requirement. **Activities:** Design, contract acquisition, and construction phases all accelerated by half in order to meet the deadline.

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
		Resources: *Total cost over $100M. Annual resource needs vary.*	Successful coordination between federal agencies, as well as Tribes and other key stakeholders. **Resources:** Total project cost, including planning and design phase, over $150M. **Implemented as Described: Yes.** The USACE constructed a new fish passage facility at Mud Mountain Dam
Habitat *Remove fish passage barriers* *2.2.1.5* *USFWS*	*National Fish Passage Program*	***Outcomes:*** *Reconnect and re-open habitat for fish and aquatic species* ***Outputs:*** *Provide technical assistance on project development and funding for native fish and aquatic species barrier correction projects through National Fish Passage Program* ***Activities:*** *Technical assistance and funding.* ***Resources:*** *Western Washington National Fish Program typically receives $100K annually, dependent upon Congressional allocations. 25% cost share requested.*	**Outcomes:** As planned **Outputs:** Two fish passage projects were implemented to restore a total of 3.5 linear miles and 14 acres of potential aquatic rearing habitat. USFWS anticipates funding a project in the Hood Canal that will open 15.2 linear miles of stream habitat in 2021 with National Fish Passage Program funds. **Activities:** As planned **Resources:** The two projects received $198,000 for implementation over multiple fiscal years. Western Washington National Fish Passage Program typically receives $100K annually, dependent upon Congressional allocations. 25% cost share requested. **Implemented as Described: Yes.** USFWS National Fish Passage Program provided technical assistance and funding for 2 projects, restoring access to 3.5 miles of upstream habitat. Project anticipated in Hood Canal in 2021 will restore access to 15.2 miles of stream habitat.
Habitat *Remove fish passage barriers* *2.2.1.6*	*Coastal Ecosystem Resiliency Funding Community Based Restoration (NOAA Restoration Center)*	***Outcomes:*** *Functional lift for ecosystem and community* ***Outputs:*** *Fund community restoration projects for 3-5 years per cooperative agreements.*	**Outcomes:** As planned **Outputs:** Fish access and habitat improvement in deltas, estuaries, and floodplains via dike and levee breaching. A few recent projects include Kilisut Harbor Channel restoration (~$550k in FY17), and delta dike breaching in the Stillaguamish River (~$1M in FY16).

ID	Title	Action *From FY2017-2021 Action Plan*	Status As of Spring 2021
NOAA		***Activities:*** *Support salmon and steelhead barrier correction projects through Coastal Ecosystem Resiliency funding, Community Based Restoration Program* ***Resources:*** *Total $18M; $10M for National Competition Resiliency; $8M for Community-based Restoration National Competition*	**Activities:** As planned **Resources:** ~$550k in FY17, ~$1Million in FY16 **Implemented as Described: Yes.** NOAA funded fish access through Coastal Ecosystem Resiliency Funding, e.g, Kilsut Harbor Channel Restoration, delta dike breach in Stillaguamish River estuary.
Habitat *Remove fish passage barriers* *2.2.1.7* *NOAA*	*Salmon recovery efforts through local, state and regional organizations and the Salmon Recovery Funding Board (SRFB)*	***Outcomes:*** *Restored habitat. Improved fish passage and understanding of salmon populations.* ***Outputs:*** *Habitat restoration projects, population assessments and monitoring, and fish passage projects including culvert upgrades per state and NMFS criteria.* ***Activities:*** *Project management, funding, assessment, and monitoring* ***Resources:*** *Annual Pacific Coastal Salmon Recovery Fund award to Washington State: $18.5M for FY16; $18.8M for FY17*	**Outcomes:** In 2020, 52 miles of habitat became accessible to anadromous fish with. **Outputs:** In 2020, the removal of the Middle Fork Nooksack River and Pilchuck River Dams. The Pilchuck River Dam removal ($715,000) was a major milestone for steelhead and reconnected 36 miles of habitat upstream of the dam. Pacific Salmon Treaty funds ($2,000,000) and NOAA restoration Center funds ($860,000) helped fund the removal of the Middle Fork Nooksack River Dam in 2020. **Activities:** Dam removal activities **Resources:** Washington's awards: $18.8M for FY17, $23.8M ($18M state, $5.8M tribes) for FY 2018 of the state portion, about $7,232,000 went to Puget Sound, $23.3M for 2019 Puget Sound allocation about $7,232,000, $22.7M for 2020 Puget Sound allocation about $7,232,000 **Implemented as Described: Yes.** Pacific Salmon Treaty Funds and NOAA Restoration Center funds helped fund removal of the Middle Fork Nooksack River Dam and Pilchuck River Dam in 2020 reconnecting a combined 52 miles of upstream habitat to salmon and steelhead.

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
Habitat *Remove fish passage barriers* *2.2.1.8* *NRCS*	*Environmental Quality Incentive Program (EQIP)*	***Outcomes:*** *Improve soil, water, plant, animal, air and related natural resources on agricultural land and non-industrial private forestland. Average of 10 miles of stream habitat opened for each year of dedicated Farm Bill Program funding.* ***Outputs:*** *Financial Assistance Programs* ***Activities:*** *Provide financial and technical assistance to owners of land in agricultural or forest production to plan and implement conservation practices* ***Resources:*** *A combined total of $5.5M dedicated financial assistance for salmon recovery received for 3 years (2012, 2013, & 2016) in Puget Sound with additional funding requested for FY17.*	**Outcomes:** 31.6 miles of restored access for salmon and steelhead. **Outputs:** 42 contracts (32 Private, 7 Tribal, 3 NGO). FY17-FY20 Completed 39 contracts for barrier correction. EQIP funds to 6 Tribes and 1 Non-Government Organization. 5 Tribes planned to use funds for Olympia Oyster Restoration Program. **Activities:** Barrier Correction, ELJs, SRTs. 5 Tribes planned to use funds for Olympia Oyster Restoration Program. **Resources:** $3.4 Million EQIP & $1.7 Million Resource Conservation Partnership Program (RCPP) EQIP. EQIP funding was $300,000 in 2018 **Implemented as Described: Yes.** NRCS EQIP program completed 39 contracts for fish passage barrier correction restoring access to 31.6 miles of salmon and steelhead habitat.
Habitat *Remove fish passage barriers* *2.2.1.9* *FHWA – WA Division*	*Salmon and steelhead barrier correction projects on Federal-aid eligible roadways*	***Outcomes:*** *Improved fish passage* ***Outputs:*** *Removal of fish barriers in Washington State, in particular, the 818 barriers identified in the Tribal lawsuit injunction for removal by 2030.* ***Activities:*** *Exercise oversight over the Federal-aid Highway program.* ***Resources:*** *The Federal-aid program is funded through 2020. Washington State receives over $600M in Federal-aid Highway funding annually. Additional Emergency Relief funds are provided in response to natural disasters.*	**Outcomes:** Provide/improve access to salmon freshwater habitat. **Outputs:** WSDOT and Local Agencies may use Federal-aid funds in the correction of fish barriers on the Federal-aid system in Washington State. WSDOT's program of fish passage improvement is described here: https://wsdot.wa.gov/Projects/FishPassage/default.htm. Corrected 36 fish passage barriers between 2017 and 2020 in the Puget Sound. **Activities:** Funding of projects which include fish barrier removal. WSDOT determines where their Federal-aid funds are spent. These types of projects are generally eligible for FHWA federal-aid funds, but many are state-funded. **Resources:** annual $600M in federal-aid highway funding for state of WA; additional emergency relief after natural

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
			disasters (this does not include the WFLHD funding described in 2.2.1.10). **Implemented as Described: Yes.** WSDOT used FHWA funds to correct 36 fish passage barriers between 2017 and 2020 in Puget Sound.
Habitat *Remove fish passage barriers* *2.2.1.10* *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)*	***Outcomes:*** *Improve fish passage* ***Outputs:*** *Removal of fish barriers on Federal, Tribal and publicly owned land.* ***Activities:*** *Specific projects are chosen by the federal land management agencies, states, and tribes.* ***Resources:*** *The Federal Lands Transportation Program (FLTP) is an available funding source for federally owned routes. The Federal Lands Access Program (FLAP) is an available funding source for a public road or transit system that is located on, is adjacent to, or provides access to Federal lands, for which title or maintenance responsibility is vested in a State, county, town, township, tribal, municipal, or local government. The Tribal Transportation Program (TTP) is an available funding source for tribal owned and tribal designated publicly owned roads. FLTP projects compete for funding nationwide. FLAP projects compete for funding within the state (approximately $13M annually in Washington State). TTP projects are designated by the tribes.*	**Outcomes:** As planned. **Outputs:** The number of fish passage projects is not currently tracked for these programs – Fish barrier correction projects on federal lands (FLAP) and Tribal Lands (TTP funds) **Activities:** The WSFLs are collaborating with MBS NF on the design of 6 ERFO road crossing sites that will be required to meet aquatic organism passage criteria; There are 14 ERFO sites that will improve floodplain and channel features. FHWA-WFLHD looked at the STIP and there were no WFLHD projects in the STIP and some potential projects that have applied for FLAP funding, but these projects are several years out and tentative. FHWA Fed Aid funded fish passage projects. **Resources:** - **Implemented as Described: Yes.** WSDOT used FHWA funds to correct 36 fish passage barriers between 2017 and 2020 in Puget Sound.
Habitat *Remove fish passage barriers* *2.2.1.11*	*Pre-disaster hazard mitigation and post-disaster recovery/ mitigation fish passage related*	***Outcomes:*** *Recover from disaster impacts and prepare for possible disasters.* ***Outputs:*** - ***Activities:*** *FEMA can help support fish passage barrier removal priorities via apprising state*	**Outcomes:** *FEMA can help support fish passage barrier removal priorities via apprising state agencies and other partners* **Outputs:** -

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
FEMA	*actions requested by applicants*	*agencies and other partners of planned actions to be funded via FEMA so that: a) others can potentially seek additional support from other entities to repair or replace with an alternate structure (i.e. a betterment); or b) change priorities for other funding based on knowledge of what FEMA plans to fund.* ***Resources:*** *Varies annually based on disaster declarations and on budgets allocated for those grants that are not dependent on disaster declarations.*	**Activities:** Applicants propose actions, often following disaster declarations, but some via competitive grants. Number of fish passage projects is unknown. **Resources:** State emergency management agencies can apply for funds through FEMA's hazard mitigation grant programs - Building Resilient Infrastructure and Communities (BRIC), Flood Mitigation Assistance (FMA), and the Hazard Mitigation Grant Program (HMGP); available funds vary annually and applicants should follow guidelines set in each program's administrative requirements regarding the annual funding opportunity. **Implemented as Described: No.** There is not specific funding from FEMA for fish barrier removal projects.
Habitat *Remove fish passage barriers* *2.2.1.12* *NOAA, USFWS/ NRCS, FHWA, USFS*	*Collaborate with State Fish Passage Removal Board (FPRB)*	***Outcomes:*** *Improve coordination between federal agency activities and progress with FPRB to improve data sharing, partnership opportunity awareness, outreach, funding collaboration.* ***Outputs:*** *-* ***Activities:*** *Collaborate with FPRB to help prioritize and fund fish passage projects.* ***Resources:*** *"See actions 2.1.1.6 through 2.1.1.11"*	**Outcomes:** As planned. **Outputs** • USFS lead for Fish Passage sub-group attended various Board monthly meetings to a) stay informed of broad scale strategic approaches being considered and implemented; and b) pass on important information to PSFTF RIT and sub-group participants. • Financial support from NRCS and USFWS has gone directly to WDFW to fund barrier assessments in Puget Sound and matching funding for Board supported fish barrier correction projects. These efforts stem from coordination between Federal agencies and WDFW. **Activities:** Information sharing; Discussion of strategic opportunities for Federal agencies to contribute towards Board fish passage program emphases; Leveraging federal funding programs for Board priority fish passage projects;

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			From 2017-2021, USFS staff lead Federal Task Force fish passage sub-group with active participants/key staff from NOAA Fisheries, NRCS, USFWS, WDFW (Board Director) and WSDOT. **Resources** • NOAA, USFS and NRCS staff • Related financial support from NRCS and USFWS **Implemented as Described: Yes.** USFS staffing and related financial support from NRCS and USFWS.

ID	Title	Action *From FY2017-2021 Action Plan*	Status As of Spring 2021
Habitat *Floodplains, and in-stream and riparian* *2.2.2.1* *EPA/USACE, NRCS, FEMA*	*Engage with Washington State to support and update the Floodplains Implementation Strategy*	***Outcomes:*** *Accelerate progress towards the floodplain vital sign target in the Puget Sound Action Agenda.* ***Outputs:*** *A coordinated state and federal floodplains implementation strategy.* ***Activities:*** *The Washington State Floodplains Implementation Strategy is an integrated federal, state, tribal, local approach* ***Resources:*** *Federal FTE to participate in meetings. The combined estimated cost for reducing flood risk and restoring salmon habitat over the next 10 to 20 years is over $3 billion, with approximately $2.2 billion associated with flood risk reduction projects and $120 M per year associated with salmon recovery to define federal role in elements of the implementation strategy.*	**Outcomes:** Partial restoration (e.g., improvement), or full restoration of floodplain function; The relevant goal was: 'By 2020, restore, or have projects underway to restore or improve function to 15 percent of degraded Puget Sound floodplain area (42,386 acres); modernize floodplain management; protect, reconnect and improve floodplain and habitat functions while reducing flood-related hazards; Floodplains Implementation Strategy is intended to accelerate progress toward floodplain restoration; **Outputs:** To date, at least 188 floodplain improvement projects have been completed; Updated integrated, regional strategy that supports effective, local-scale actions for achieving the associated Puget Sound Vital Sign target. An estimated 8,162 acres (33 square kilometers) of floodplain was improved or restored. **Activities:** Inter-governmental, inter-disciplinary collaboration to develop Implementation Strategy; Implementation Strategy calls for local and large-scale efforts **Resources:** Financial support from EPA's National Estuary Program and Geographic Program funds. Grant programs investing in improving floodplain function: • Floodplains by Design • Puget Sound Acquisition and Restoration (PSAR) fund • Estuarine and Salmon Restoration Program (ESRP) • Washington State Department of Ecology Floodplain Management **Implemented as Described: Yes.** Federal partners participated in meetings with Washington State and developed the Floodplains Implementation Strategy to accelerate floodplains recovery.

ID	Title	Action *From FY2017-2021 Action Plan*	Status As of Spring 2021
Habitat *Floodplains, and in-stream and riparian* *2.2.2.2* *EPA*	*Convene working group to coordinate riparian science, and corridor protection and restoration*	***Outcomes:*** *More collaborative approach to riparian work* ***Outputs:*** *Collaborative approach to riparian protection and restoration including a demonstration project for riparian reach scale protection and restoration.* ***Activities:*** *Federal agencies will coordinate with state agencies, tribes, and others on riparian buffer science, collaborate with state agencies, tribes and others on an approach to riparian corridor protection and restoration, and will explore a demonstration project for the approach.* ***Resources:*** *0.1 – 0.2 FTE / Agency*	**Outcomes:** Improve understanding of the current status and objectives of the specific lines of work supporting riparian protection and restoration **Outputs:** In 2018, the Riparian subteam focused on accelerating actions to improve riparian habitat by reviewing the current "tool box", with the goals to: • Identify specific policy, science or program needs that, if addressed, would catalyze additional riparian protection or restoration efforts. • Identify specific local watersheds where coordinated investment in riparian protection/restoration would most benefit specific resource recovery objectives (Chinook, shellfish, etc.). • Convene a workshop to vet identified watershed and program priorities and to offer coordinated implementation support in areas where local efforts are ready to receive and help guide that support. The Riparian subteam did not continue after early 2019. **Activities:** Study panel of technical staff, cross-agency collaboration **Resources:** 0.1 – 0.2 FTE / Agency, started fall 2018 **Implemented as Described: No.** EPA only convened a working group to coordinate riparian science, and corridor protection and restoration during 2018, it was discontinued in early 2019.

ID	Title	Action *From FY2017-2021 Action Plan*	Status As of Spring 2021
Habitat *Floodplains, and in-stream and riparian* *2.2.2.3* *EPA/NRCS, NOAA*	*Reach scale planning and riparian easements and restoration in priority stream reaches*	***Outcomes:*** *Protect stream buffers and improve landowner collaboration* ***Outputs:*** *Complete eight reach-scale projects and eight landowner agreements for riparian easements annually* ***Activities:*** *Landowner outreach, Riparian Easements* ***Resources:*** *$3.0M Puget Sound geographic Funds pass through to Washington State*	**Outcomes:** Reach scale approach focused on both salmonid habitat and drainage management in priority agricultural landscapes. Responsive to treaty rights at risk concerns. Permanent protection of riparian areas concentrated within eight prioritized agricultural stream reaches across Puget Sound, including the Nooksack, Samish, Stillaguamish, Chimicum, Snoqualmie, Newaukum, Skokomish and Nisqually Rivers. **Outputs:** Desktop GIS analysis to support prioritization of reaches, buffer segments and parcels. Parcel level designs. Cost estimates and real estate analyses. Sub-award and easement agreements. A competitive solicitation to identify eight focus areas for conducting reach scale riparian planning and conservation implementation. Development of eight supporting reach scale plans for identifying focused implementation activities. Implementation agreements with landowners. A total of 280 acres of riparian and associated wetland areas permanently protected including the removal of 12 development rights; 57.5 riparian acres restored representing a total of 9,470 feet (~1.7 miles) of riparian stream bank and 65 acres of improved floodplain storage **Activities:** Convening of a supporting advisory group of subject matter experts to identify and direct prioritization of project options. Heavy emphasis on technical assistance to sub-awardees and development of formal supporting agreements. Implementation of prioritized activities. Develop solicitation and select focus areas; conduct reach-scale planning in those areas; conduct landowner outreach and respond to initial interest and final agreements; follow-up

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			with implementing actions via conservation easements and restoration actions. **Resources:** ~$6,200,000 Puget Sound Geographic Funds via Cooperative Agreement between EPA and Washington State Department of Ecology **Implemented as Described: Yes.** Permanent protection of riparian areas was achieved within eight prioritized agricultural stream reaches within Washington State, protecting a total of 280 acres of wetland and riparian habitat, the removal of 12 development rights, 1.7 miles of riparian stream bank restored, and 65 acres of improved floodplains storage.
Habitat *Floodplains, and in-stream and riparian* *2.2.2.4* *USGS, USFWS*	*Assist state and local partners in completing the development of a floodplain mapping and prioritization tool*	***Outcomes:*** *Define extent and condition of Puget Sound floodplains for the purpose of guiding and tracking of the progress of Puget Sound floodplain protection and restoration* ***Outputs:*** *Improved (more precise) data sets and maps at the local and reach scales in order to assess specific opportunities to meaningfully contribute towards recovery of local floodplain functions across the Puget Sound basin.* ***Activities:*** *Securing funding, floodplain prioritization, floodplain mapping; Assist state and local partners in completing a tool for floodplain mapping and prioritization for recovery* ***Resources:*** *$300K, FTE to participate in technical meetings*	**Outcomes:** - **Outputs:** - **Activities:** USFWS is not currently involved in this action. **Resources: -** **Implemented as Described: No.** USFWS did not contribute to the development of a floodplain mapping and prioritization tool.
Habitat	*Improve community resilience through climate change*	***Outcomes:*** *Improved climate change modeling and resiliency planning and implementation.* ***Outputs:*** *Modeling tools.*	**Outcomes:** Increase understanding of the effect of acidification from climate change on the PS food web

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
Floodplains, and in-stream and riparian *2.2.2.5* *NOAA / EPA*	*science, modeling, and response*	***Activities:*** *Continue and expand support for climate change modeling and resiliency planning and implementation, including agricultural and fisheries sciences. Expand watershed-based modeling tools such the Coastal Resilience planning tool (The Nature Conservancy) by funding local agencies and non-profits, and dedicating federal staff time for collaborative efforts. Continue and expand agricultural research for climate change resilience.* ***Resources:*** *TBD*	**Outputs:** USFWS LCC completed projects in the last few years with various partners: 1) WDFW (6/30/15) - integration of climate change into design and permitting of water crossing structures; 2) Nooksack Tribe (12/31/15) - climate change vulnerability assessment, restoration planning, and adaptation plan; 3) Friends of the San Juans (9/20/15) - sea level rise adaptation tools; 4) The Nature Trust of British Columbia (3/31/16) - cross-boundary planning for resilience and restoration of endangered Oak Savannah and coastal Douglas-Fir ecosystems. USFWS LCC continues to support the Cascadia Partner Forum with funding for planning purposes and project expansion. The USFWS LCC Steering Committee most met in March 2017 to discuss their shared conservation targets for 2017-2021, which (tentatively) include: terrestrial connectivity, aquatic connectivity, and healthy and resilient coastal communities. **Activities:** Modeling. Starting in 2017, the NOAA NWFSC has been conducting CO2 exposure experiments on a number of species in Puget Sound to estimate their vulnerability to acidification. The species we have focused on are Dungeness crab, krill, pteropods, oysters and mussels. That work is continuing for the current year. The NWFSC is using ecosystem models to identify how changes in the parts of the food web (including zooplankton) that are considered to be directly vulnerable to acidification will affect the entire food web in Puget Sound. **Resources:** Federal staff time **Implemented as Described: Yes.** The NOAA NWFSC conducted CO2 exposure experiments on a number of species in Puget Sound to estimate their vulnerability to acidification from 2017-2021, focusing on Dungeness crab, krill, pteropods, oysters, and mussels.

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
Habitat *Floodplains, and in-stream and riparian* *2.2.2.6* *FEMA, NOAA*	*Continue to implement the National Flood Insurance Program (NFIP) Jeopardy Biological Opinion (BiOp) for Puget Sound*	***Outcomes:*** *Improved floodplain and riparian area ecosystem functions. Increased federal engagement in and contribution to regional floodplain strategy. Increased federal collaboration with local entities and tribes.* ***Outputs:*** *Four annual workshops for participating communities. NOAA participation in Community Assistance Visits. Annual BiOp implementation report. Updated/new guidance documents* ***Activities:*** *Provide public outreach and technical assistance. Provide technical assistance for Habitat Assessment review. Improve guidance documents. Encourage "Door 2" compliance option* ***Resources:*** *2.0 FTE FEMA, .5 FTE NOAA*	**Outcomes:** As planned. **Outputs:** Workshops were temporarily on hold due to COVID-19 constraints but will resume in FY2021 with improved guidance documents and a revised virtual format. FEMA staff (resources identified in 2.2.2.6) incorporate BiOp compliance discussions into Community Assistance Visits, however NOAA participation is limited to occasional technical support. Annual reporting is on hold due to Paperwork Reduction Act (PRA) restriction, but FEMA plans to pursue PRA approval in FY21-22. Guidance documents are undergoing updates to improve explanations of community compliance requirements. Habitat Assessment technical guidance workshops in FY2020 (Nov/Dec 2019) included presentations to inform community NFIP practitioners of NMFS' development of a Nearshore Programmatic for Puget Sound and Washington Coasts. Floodplain administrators who return for multiple sessions of the training indicates its usefulness. **Activities:** Public outreach and technical assistance impacted by COVID-19 and other resource limitations, but intention is to develop improved public outreach, technical assistance, training opportunities, and guidance documents in FY21-22. FEMA continues to encourage "Door 2" (programmatic assessments of ESA impacts of floodplain management) compliance option when working with local governments. **Resources:** FEMA hired 2 FTE in 2019 to carry out ESA-related tasks. NMFS staff time reduced to approx. 0.1 FTE **Implemented as Described: No.** National Flood Insurance Program (NFIP) Jeopardy Biological Opinion (BiOp) for Puget Sound Habitat Assessment Technical Guidance workshops held in FY2020, but other workshops on hold due to COVID19; FEMA Full-Time Equivalent (FTE) achieved at 1.5 but NOAA FTE reduced to 0.1 from 0.5.

ID	Title	Action *From FY2017-2021 Action Plan*	Status As of Spring 2021
Habitat *Floodplains, and in-stream and riparian* *2.2.2.7* *FEMA*	*Improve community resilience by increasing incentives to move development away from high-risk areas also important to recovery/FEMA subprogram to encourage beneficial functions*	***Outcomes:*** *Improve the Community Rating System credit opportunities to provide incentives for resilient community floodplain development projects* ***Outputs:*** *CRS Coordinators Manual Updates to incorporate additional credit opportunities for communities that recognize and act upon knowledge of ESA listed species habitat within community jurisdictions.* ***Activities:*** *Provide local support to national ESA 7(a)1 approach. FEMA will examine Community Rating System (CRS) Credits to determine where enhancements can be made to provide incentives or better advertise incentives offered through the CRS Program to communities that conduct creditable activities (i.e., preservation of open space, acquisition projects, etc.) that lead to more resilient communities.* *FEMA has already produced a document that highlights current activities (as of the 2007 CRS Coordinators Manual): This document will be updated over the next year to reflect changes made in the 2013 CRS Coordinators Manual. The document will then be presented to the CRS Task Force for adoption. FEMA will then socialize the document and produce additional guidance propaganda to accompany the document focused on local communities taking action.* ***Resources:*** *TBD*	**Outcomes:** As planned. **Outputs:** Conduct a Community Rating System (CRS) Pilot Project to promote existing CRS ESA 7(a)1 related activities and identify additional activities and approaches for Threatened and Endangered species conservation The CRS Pilot Project activity is incorporated into the 2021 CRS Addendum – Additional credit is available to communities under CRS Activity 510 (Natural Functions Plan) that pursue a Floodplain Species Assessment (FSA) or Floodplain Species Plan (FSP). Monroe, WA participated as a test community during development of the pilot program; analysis of the local natural resources identified opportunities for Monroe to expand their already established activities to promote community awareness of ESA-listed species presence and efforts to conserve natural floodplain function. **Activities:** FEMA staff consulted on Pilot Project; Public outreach via webinars, engagement with participating communities by CRS coordinators and FEMA's CRS Task Force **Resources:** National ESA Section 7(a)1 program activities supported by FEMA regional staff (resourced under 2.2.2.6) **Implemented as Described: Yes.** The Community Rating System (CRS) pilot program aims to improve incentives for moving development away from high-risk areas also important to recovery.

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Habitat *Floodplains, and in-stream and riparian* *2.2.2.8* *NOAA, USFWS*	*Support Salmon Recovery*	***Outcomes:*** *Improvement in habitat limiting factors by enhancing channel and floodplain form and function, increasing channel complexity for spawning and cover, creating off-channel habitats for juveniles, improving channel and floodplain stability for water quality and alleviating impacts from nonnative fishes or other aquatic and riparian species. Improving in-stream habitat will enhance salmon and steelhead trout populations throughout the Puget Sound where streams and rivers have been highly modified but are still essential to the species survival.* ***Outputs:*** *Continued funding to restore nearshore and coastal habitat in Puget Sound that also supports salmon recovery.* ***Activities****: Support updates of Puget Sound Chinook watershed chapters and completion and implementation of the Puget Sound Steelhead Recovery Plan. Engage with Watershed, Lead Entity recovery planning strategies to identify and develop essential actions for salmon and steelhead recovery. Incorporate other federal agency planning mechanisms, such as the Puget Sound Partnership Chinook Implementation Strategy and the US Forest Service Watershed Condition Framework into informing and supporting in-stream habitat improvements.* ***Resources:*** *Support for Pacific Coastal Salmon Recovery Fund, $65M in FY 2016 (NOAA). Sustain funding for Puget Sound Coastal Program (USFWS), Wetlands Reserve Easements Program (NRCS). Federal programs, such as the Federal Lands Transportation Program (FLTP), Federal Lands Access Program (FLAP) and the Tribal Transportation Program (TTP) can fund*	**Outcomes:** Continued funding to restore nearshore and coastal habitat in Puget Sound that also supports salmon recovery. **Outputs:** *Refer to 2.2.3.5 for Puget Sound Coastal Program-related support/accomplishments and 2.2.3.6 for National Coastal Wetland Conservation Grant Program-related support/accomplishments. USFWS staff contributed to a recent publication (e.g., https://science.sciencemag.org/content/371/6525/185) highlighting transportation-related causes of Coho salmon mortality in Puget Sound **Activities:** USFWS Puget Sound Coastal Program continues to support Puget Sound recovery, and USFWS funds approximately 4-5 projects per year related to restoring/preserving aquatic habitat and salmon in Puget Sound. The USFWS National Coastal Wetlands Conservation Grant Program also supports salmon recovery efforts through estuary and restoration projects. Additionally, USFWS is engaged in continuing science development and monitoring that informs salmon recovery and conservation in Puget Sound. MBS NF completed WCF Priority Watershed essential actions in Big Creek and Circle Creek sub-watersheds (Suiatlle River – Upper Skagit River) and is one project from completing Tenas Creek Priority sub-watershed (Suiattle River). MBS NF completed WCF assessments and whole watershed restoration planning in Greenwater River Priority Watershed. OLY NF continued implementation of WCF Priority Watershed essential actions in Middle Dungeness River Watershed. Many of the essential actions contribute to decreasing sedimentation and restoring stream functions for Federally listed fishes, such as chinook salmon and steelhead trout. **Resources:** USFWS annual allocations and pass-through funding

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			Implemented as Described: Yes. Puget Sound Coastal Program funded 4-5 projects per year and the National Coastal Wetlands Conservation Grant Program supported salmon recovery through estuary and restoration projects ().
Habitat *Floodplains, and in-stream and riparian* *2.2.2.9* *NRCS*	*Continue to implement the Agricultural Conservation Easement Program (ACEP)*	***Outcomes**: Conserve agricultural lands and wetlands and their related benefits.* ***Outputs**: Financial agreements, easements.* ***Activities**: ACEP provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits. Under the Agricultural Land Easements (ALE) component, NRCS helps American Indian tribes, state and local governments and non-governmental organizations protect working agricultural lands and limit non-agricultural uses of the land. Under ALE, NRCS provides a portion of the acquisition cost to an eligible partner entity. Under the Wetlands Reserve Easements (WRE) component, NRCS helps to restore, protect and enhance enrolled wetlands. Under WRE, NRCS provides 100% of the funding for easement acquisition and restoration cost.* *WRE can remove fish barriers in estuary wetland areas through the removal and replacement or full removal of non-fish friendly tide gates. It is also possible to remove sea levees and set them back away from the tidal fringe areas. ALE priority for funding will protect or enhance threatened and/or endangered species if identified in the development of the conservation plan that will be tied to the easement.* ***Resources:** $1.8M annually Statewide for ALE easements and almost $1M available for WRE acquisition and wetland restoration practice implementation. Ongoing program through the current Farm Bill which will expire in 2018. It is*	**Outcomes**: Land protected by agricultural land easements provides additional public benefits, including environmental quality, historic preservation, wildlife habitat and protection of open space. Agricultural Land Easements protect the long-term viability of the nation's food supply by preventing conversion of productive working lands to non-agricultural uses. **Outputs**: FY17 ACEP-ALE 66.2 ac---NRCS obligated $50,000. FY18 ACEP-WRE 40.0 ac-NRCS obligated $204,000. Over 106 acres protected. **Activities**: Agricultural and wetland reserve lands protected **Resources**: NRCS's overarching easement program provides financial and technical assistance to help conserve agricultural lands and wetlands and their related benefits. $1.5 mill FLTP grant in 2016 for Baker Lake Road Relocation Project; $65M in FY 2016 (NOAA) **Implemented as Described: Yes.** The Agricultural Conservation Easement Program (ACEP) protected over 106 acres of agricultural and wetland reserve lands.

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		expected that ACEP will be reauthorized in the next Farm Bill.	
Habitat *Floodplains, and in-stream and riparian* *2.2.2.10* *NRCS*	*Resource Conservation Partnership Program (RCPP)*	***Outcomes**: Increased conservation* ***Outputs**: Partnership and easement agreements, program contracts.* ***Activities**: RCPP promotes coordination between NRCS and its partners to deliver conservation assistance to producers and landowners. NRCS provides assistance to producers through partnership agreements and through program contracts or easement agreements. The NRCS contribution is a portion of the total project cost for technical and financial assistance. Partner match leverages NRCS Farm Bill program dollars.* ***Resources**: Ongoing program through the current Farm Bill which will expire in 2018. New partnerships for FY 2017 with Regional Conservation Partnership Program (RCPP) including $1.5 million with the Whatcom Conservation District and the Washington Department of Fish and Wildlife. Additional partnerships could be secured dependent on Partner proposal application process.*	**Outcomes**: Ecosystem-wide process for targeting high priority areas to improve water quality and habitat for at-risk species, including Chinook salmon, bull trout, and steelhead **Outputs**: Large number of contracts addressing water quality improvement and habitat in the Puget Sound. FY20 obligated 28 contracts on 2,660 acres. **Activities**: Fish barrier removal, water quality practices. Provide financial and technical assistance to owners of land in agricultural production to plan and implement conservation practices. Within focus areas, a farmer-to-farmer approach will be used to increase participation and ensure buy-in from the local community **Resources:** Over $5.6 million allocated. FY17-FY20. Obligated over $5.4 million. **Implemented as Described: Yes.** Resource Conservation Partnership Program (RCPP) allocated over $5.6 million for 28 contracts on 2,660 acres.
Habitat *Floodplains, and in-stream and riparian* *2.2.2.11* *NOAA*	*NOAA Community-based Restoration Program (CRP)*	***Outcomes:** Acres of habitat restored. Increase economic and ecological resilience* ***Outputs:** Volunteer hours. Community benefit measures.* ***Activities:** Through strategic application of technical assistance and funding in target locations, CRP aims to remove barriers to restoration and stewardship of the nation's fisheries, and, increase the economic and ecological resilience of coastal communities.*	**Outcomes:** Increased juvenile salmonid rearing capacity and migration habitats in the Puget Sound nearshore; Increased community resilience to flooding. Increased integrated planning capability **Outputs:** Puget Sound projects under the CRP program are brought through a national competition. Over the last workplan, we supported 28 actions in Puget Sound with $15.1M of funding, resulting in the restoration of 1,517 acres

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		Resources: *Ongoing appropriations*	of habitat and reopening of over 20 miles of stream and river to anadromous fish. We are completing contracting on FY18 funding within existing cooperative agreements. We anticipate issuing a new RFP for FY19 agreements, which will include a new cycle of 3-year agreements. **Activities:** Cooperative agreements, technical assistance **Resources:** Technical assistance efforts are managed by 6 regional staff (also working on NRDA below). **Implemented as Described: Yes.** NOAA Community Based Restoration Program (CRP) funded 28 projects at $15.1 million, resulting in the restoration of 1,517 acres of habitat and reopening of over 20 miles of stream and river to anadromous fish.
Habitat *Floodplains, and in-stream and riparian* *2.2.2.12* *NOAA, USFWS*	*Natural resource damage assessment (NRDA)*	***Outcomes:*** *Increased habitat function to compensate the public for damages from unpermitted releases of toxins. Acres of habitat restored, or value of damages recovered.* ***Outputs:*** *Consent Decrees, Restoration Plans, Projects Completed. Long-term stewardship systems.* ***Activities:*** *Under authority of the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§ 9601 et seq. ("CERCLA") and other laws, federal, state, and tribal governments collaborate to form a natural resource trustee council to: assess and quantify injuries to natural resources from oil spills or releases of hazardous substances at particular sites; pursue damages claims against potentially responsible parties ("PRPs") through negotiation or litigation; and restore habitats to make the public whole. Federal agencies should develop a mechanism for responding to concerns that nationwide guidance or*	**Outcomes:** Private liability for unpermitted toxin releases is resolved through equivalent private funding for compensatory habitat restoration. Increased habitat function to compensate the public for damages from unpermitted releases of toxins. **Outputs:** Six settlements were completed for damages in Lake Washington, Lower Duwamish, Commencement Bay, and Port Gardner. Generated $18.7 Million for compensatory habitat restoration in these basins. Development of innovative long-term stewardship program at Commencement Bay. **Activities:** Advancing damage claims and restoration in Commencement Bay, Lower Duwamish/Elliot Bay, Port Gardner, Port Angeles, and Port Gamble. Damage assessment and restoration planning, sometimes including legal actions

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		policy unnecessarily restricts the ability of Trustees to reach settlements with PRPs at sites in the Puget Sound region, particularly where tribal treaty resources are affected. This approach could expedite implementation of NRD restoration projects that address Puget Sound priorities, particularly in cases where opportunities exist to coordinate remedial (cleanup) activities concurrently with NRD restoration project implementation. *Settlement negotiations underway at Port Angeles Harbor, Port Gamble Bay, and Port Gardiner sites.* ***Resources:** Ongoing appropriations. Funding for restoration projects and Trustee participation provided by PRPs through settlement or adjudication. Settlement timing varies by case.*	**Resources:** Coordinated contributions from approximately 8 federal staff at NOAA and USFWS. **Implemented as Described: Yes.** Natural resource damage assessment advanced damage claims and restoration in Commencement Bay, Lower Duwamish/Elliot Bay, Port Gardner, Port Angeles, and Port Gamble.
Habitat *Floodplains, and in-stream and riparian* *2.2.2.13* *NOAA, USFWS, NRCS*	*Support integrated floodplain corridor project planning and implementation*	***Outcomes:** Collaborative watershed planning and implementation, increased funding leverage through coordinated investments, maintained and improved agricultural viability, improved ecological function and habitat quality, and restored floodplains through integrated, watershed-wide strategies, funding, and project implementation. Successful implementation of integrated projects for the benefit of farms, fish, and flood requires buy-in and collaboration from farmers, tribes, community members, and resources agencies.* ***Outputs:** -* ***Activities:** Support, encourage, and engage in integrated corridor project planning and implementation that increases floodplain connectivity, improves agriculture viability, improves instream and riparian habitat, and increases the flood resilience of communities. Support planning, engineering, and project implementation. Provide funding for professional facilitators; local, state, tribal, and*	**Outcomes:** Increased scale and efficacy of floodplain restoration for the benefit of fish, farms and flood hazard reduction. Increased development of integrated floodplain efforts in Nooksack, and Stillaguamish and Snohomish watersheds **Outputs:** Coherent reach-scale plans that integrate the needs of local communities. Integrated floodplain restoration plans, strategies, and integrated workgroups. Snohomish Agricultural Resilience Plan, SLS Reach Scale Plans (Snohomish Estuary, Lower Skykomish, Lower Snohomish, Lower Skykomish), Nooksack Mainstem Assessment and Floodplain Integrated Plan, Lower Stillaguamish Implementation Team, Floodplain by Design applications for Lower Skykomish and Lower Stillaguamish Rivers. **Activities:** cooperative agreements, technical assistance. **Resources:** Support from two staff, funding from competitive cooperative agreements with TNC and WDFW.

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		federal staffing; stipend or grant money for participating farmers/agricultural representative in support of initiatives/forums/planning entities that focus of multiple benefit projects (e.g. Snohomish County Sustainable Lands Strategy, Snoqualmie Farm, Fish, and Flood Initiative, Skagit Tidegate and Fish Initiative, Floodplains by Design). *Providing support for professional facilitators, agency staffing at local, state, and federal level, and stipend or grant money for participating farmers or agricultural representatives will increase the success of watershed scale planning efforts and lead to faster implementation of better projects.* ***Resources:** FTE, funding*	**Implemented as Described: Yes.** NOAA assisted Sustainable Lands Strategy (SLS) group develop integrated floodplain restoration plans including Snohomish Agricultural Resilience Plan, Snohomish Estuary, Lower Skykomish, Lower Snohomish, Lower Skykomish Reach Scale Plans, Nooksack Mainstem Assessment and Floodplain Integrated Plan.
Habitat *Floodplains, and in-stream and riparian* *2.2.2.14* *NOAA*	*Collaborate with tribes, and state and local organizations to govern the Snohomish Coordinated Investment (CI) Initiative*	***Outcomes:** This action will insure cross agency collaboration on three high value actions that require interaction between the Federal Task Force, Results Washington Goal Council, and the Puget Sound Ecosystem Coordination Board.* ***Outputs:** interagency coordination prototypes* ***Activities:** The CI initiative aims to improve state and federal business practices to accelerate ecosystem recovery and integrate the local, state and federal authorities over habitat restoration, farmland and water supply protection, and flood hazard mitigation that overlap within local communities. We are developing a structure for increasing information flow between local actors, and the governments that affect their operating environment, based on "Lean" business practices. Projects were identified as feasible proof of concept efforts by local, state, tribal and federal partners, including: A floodplain management forum, Snohomish County regulatory coordination, and funding coordination actions.*	**Outcomes:** Reduced cost to implement restoration caused by state-federal funding and regulatory systems. **Outputs:** Interagency coordination prototypes. Draft culvert regulatory application tool. Culvert supplemental application Discrete improvement projects, continuous improvement processes, synthesis of gaps and barriers literature, continuous improvement analyses. Continuous improvement prototype with PSP and Align Grant Coordination Workgroup (see below). **Activities:** Technical assistance **Resources:** Part-time work by one staff. dependent on staff availability **Implemented as Described: Yes.** NOAA and partners developed Continuous Improvement prototype with PSP and Align Grant Coordination Workgroup and draft culvert regulatory application tool to reduce cost of restoration projects.

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		Resources: *Coordination and collaboration are already the mandate of named institutions*	
Habitat *Floodplains, and in-stream and riparian* *2.2.2.15* *NOAA, FEMA*	*Coordinate with state and local partners on the Floodplain Management Forum*	***Outcomes:*** *Increased development of integrated floodplain planning and information exchange among floodplain partners.* ***Outputs:*** *Social and technical exchange events among federal, state, and local agencies involved in floodplain management.* ***Activities:*** *cooperative agreements, technical assistance. Floodplain management affects multiple state and federal agencies address to flood hazards, with impacts critical habitats, food security and public infrastructure. A short-lived technical work group will evaluate how federal and state activities and assets could better support multiple-benefit floodplain projects.* *This effort will investigate how programs at the federal, state, and local level, that all affect flood hazard management, and can support large floodplain projects that provide diverse benefits to communities. Areas targeted by the local Snohomish Sustainable Lands Strategy will be used as a test of concept, with support from innovative floodplain managers from nearby watersheds, and the Floodplains by Design partnership.* ***Resources:*** *0.50 FTE or equivalent over 2 years, to serve as liaison between federal agencies and local partners would strengthen follow through*	**Outcomes:** As planned **Outputs:** Charter, events, agreements, policy proposals. Establishment of FbD Charter. dependent on staff availability and competitive cooperative agreement awards. Development of Floodplains by Design Action (FbD) Groups, and FbD partnership framework **Activities:** Cooperative agreements, technical assistance **Resources:** Part-time involvement of 1 staff; NOAA competitive cooperative agreement with TNC. **Implemented as Described: Yes.** The Floodplain Management Forum developed Floodplains by Design groups and partnership framework.
Habitat	*Test Improvements in funding coordination*	***Outcomes:*** *Coordinated reduction in unintended administrative costs for restoration*	**Outcomes:** Increased tools for administrative cost reduction; Gradual production of a continuous improvement culture within the funding system.

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Floodplains, and in-stream and riparian *2.2.2.16* *NOAA*	*(Coordinated Investment Initiative)*	***Outputs:*** *1) Draft project budget and task structure for Leque Island to support combined funding, 2) State-Federal multi-benefit project funding schedule and update mechanism* ***Activities:*** *Test Improvements in funding coordination (Coordinated Investment Initiative). Three tasks are anticipated to accelerate local projects and reduce costs: 1) defining a project budget structure that allows project managers to reduce administrative waste when managing multiple state and federal grants, 2) maintaining a federal and state funding opportunity schedule to support multi-benefit projects, and 3) evaluating process inefficiencies when using federal, state and local funds to acquire properties that lead to multi-benefit projects.* ***Resources:*** *0.5 FTE Federal funding liaison to the State Water and Salmon Grant Coordination Group would accelerate implementation.*	**Outputs:** Improvement projects; Policy initiatives, Development of broad formal participation in Align Grant Coordination Workgroup of funding programs worth $250M a year, coordinated budget standard, analysis of gap and barrier literature **Activities:** facilitation, technical assistance, project management, research, and presentation **Resources:** Part time involvement of two staff (NOAA and PSP) **Implemented as Described: Yes.** The Coordinated Investment Initiative reduced unintended administrative costs and developed broad formal participation in Align Grant Coordination Workgroup of funding programs worth $250M a year.
Habitat *Floodplains, and in-stream and riparian* *2.2.2.17* *USACE, NRCS*	*Skokomish River Ecosystem Restoration Project*	***Outcomes:*** *Completion of over 275 acres of riverine and nearshore restoration, restore year-round fish passage to the South Fork Skokomish River.* ***Outputs:*** *Complete the design and construction phases of this large project.* ***Activities:*** *Design, contract acquisition, construction* ***Resources:*** *65% Federal share of $20M in partnership with the Skokomish Tribe and Mason County, annual resource needs will vary. NRCS will support implementation phase where existing program authority allows.*	**Outcomes:** Anticipated completion of 277 acres of habitat restoration and restoration of year-round fish passage to the South Fork. **Outputs:** Awaiting real estate acquisition from Mason County/NRCS prior to construction contract award. Anticipated award by the end of FY21. **Activities:** Design, contract acquisition **Resources:** Design fully funded. $21M in federal funds for construction received. **Implemented as Described: Yes.** The Skokomish River Ecosystem Restoration Project because the design was fully

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			funded, $21 million in Corps' federal funds for construction have been received and are anticipated to be awarded by the end of fiscal year 2021.
Habitat *Floodplains, and in-stream and riparian* *2.2.2.18* *USACE*	*Green/Duwamish River Ecosystem Project*	***Outcomes:*** *Ecosystem restoration* ***Outputs:*** *Restore habitat at up to 45 distinct sites along the degraded Green/Duwamish River (3-5) years per project.* ***Activities:*** *Continued completion of discrete restoration actions under this authority. Additional restoration sites are ready to proceed with design and construction once cost control questions have been addressed.* ***Resources:*** *65% Federal share in partnership with King County and various local governments, annual resource needs will vary*	**Outcomes:** Habitat restoration supporting ESA listed species recovery **Outputs:** A cost management report was completed and approved in 2019, but the project has not been funded. Project became eligible for funding again in 2019. **Activities:** Design, contract acquisition, construction. **Resources:** Authorized for $113M, $20M received to date in the completion of 7 projects. **Implemented as Described: No.** The Green/Duwamish River Ecosystem Project because the project was not funded.
Habitat *Floodplains, and in-stream and riparian* *2.2.2.19* *USACE, EPA, NRCS, NOAA*	*Dungeness River Ecosystem Restoration Feasibility Study in partnership with the Jamestown S'Klallam Tribe*	-	This feasibility study was funded by the Corps, but was terminated by the Jamestown S'Klallam Tribe before any significant work was undertaken. **Implemented as Described: No.**
Habitat *Floodplains, and in-stream and riparian habitat*	*Establish reliable relationships between stream flow levels and fish habitat*	***Outcomes:*** *Develop data for negotiating federally reserved instream flow water rights for tribal governments* ***Outputs:*** *Outputs such as reports have not been specified*	**Outcomes:** none to date **Outputs:** none to date **Activities:** *ad hoc* efforts by tribes to develop data to support instream flow recommendations

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2.2.2.20 *BIA*		***Activities:*** *Conduct technical work to establish reliable relationships between stream flow and fish habitat for key fish species and life stages. In watersheds where reliable relationships between stream flow and fish habitat exist, engage with state and tribal partners on federally reserved instream flow water rights for tribal governments.* ***Resources:*** *Resources listed as to be determined*	**Resources:** Dedicated resources are not available to support this item **Implemented as Described: No.** BIA focuses on water quantity adjudications for Tribes and not on advancing work on establishing relationship between streamflow levels and fish habitat.
Habitat *Nearshore Habitat and Estuaries* *2.2.3.1* *USACE*	*Puget Sound Nearshore Ecosystem Restoration Project (PSNERP)*	***Outcomes:*** *Restore nearshore habitat restoration in 3 major river deltas/estuaries.* ***Outputs:*** *Design and initiate construction of first of 3 authorized sites by FY21. Three sites include 2,100 acres of nearshore restoration in the Nooksack River Delta, North Fork Skagit Delta, Duckabush River Estuary, including removal of 28,860 linear feet of shoreline stressors.* ***Activities:*** *Funding nearshore/estuarine restoration* ***Resources:*** *65% Federal share of $452M project overall in partnership with WDFW*	**Outcomes:** Restore nearshore habitat restoration in major river deltas/estuaries **Outputs:** Design plans for the Duckabush River Estuary started. Design in partnership with WDFW and WSDOT. **Activities:** Nearshore restoration program coordinated between USACE and WDFW **Resources:** Almost $5M in federal funds received for design phase **Implemented as Described: Yes.** The Puget Sound Nearshore Ecosystem Restoration Project has been fully funded for design phase and is moving successfully.
Habitat *Nearshore Habitat and Estuaries* *2.2.3.2* *USACE*	*Puget Sound Master Plan Implementation of projects from the Corps' Puget Sound Restoration Tiered Implementation Strategy, as established by the Puget Sound Nearshore*	***Outcomes:*** *Restore nearshore and estuarine habitat in major river deltas/estuaries* ***Outputs:*** *A subset of the 21 projects could be completed in 5 years; nearly 6,000 acres of nearshore restoration.* ***Activities:*** *Prioritization and provision of shared funding for nearshore and estuary restoration projects under Corps' authorities (Puget Sound and Adjacent Waters (§544), Continuing Authorities Program (§206), and General Investigations)*	**Outcomes:** Restore nearshore and estuarine habitat in major river deltas/estuaries **Outputs:** A total of 36 sites were sorted into categories in the tiered implementation strategy based on a workshop with USACE, NOAA, WDFW, PSP, and others. 24 sites were identified for USACE implementation (3 authorized for construction under PSNERP, 9 require more study prior to construction authorization, 8 for implementation under the USACE Continuing Authorities Program (CAP), and 4 for implementation under the USACE Puget Sound and Adjacent Waters (PSAW) (Sec 544) authority. Spencer Island estuary

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	Ecosystem Restoration Study	***Resources:*** *50-65% Federal share for each $5-$15M project depending on the project phase, annual resource needs will vary*	and Twanoh Beach restoration project are prioritized for future restoration. WDFW is ready to proceed with two projects under PSAW and have provided non-federal matching funds. **Activities:** planning, prioritization, funding of design and construction of nearshore/estuary restoration projects **Resources:** To date no federal funds have been received for projects under CAP or (PSAW) **Implemented as Described: No.** To date no federal funds have been received for the Puget Sound Master Plan implementation.
Habitat *Nearshore Habitat and Estuaries* *2.2.3.3* *USACE, NOAA, EPA, USFWS, USDA*	*Estuary Restoration Act Projects*	***Outcomes:*** *Restore nearshore and estuarine habitat in Puget Sound* ***Outputs:*** *Implement smaller estuary habitat projects that may not rise to the funding level with other funding sources.* ***Activities:*** *Provide financial and technical assistance for smaller estuary habitat restoration projects (under $1M). Develop and enhance monitoring and research capabilities.* ***Resources:*** *Annual project-specific requirements will vary*	**Outcomes:** Restore nearshore and estuarine habitat in Puget Sound **Outputs:** No new USACE projects under this authority. Past projects have included Puget Sound eelgrass restoration with WADNR and work on the Skokomish estuary restoration with the Skokomish Tribe and Mason County. **Activities:** Restoration project implementation. Continued work (USACE with WA DNR) on the eelgrass project. **Resources:** This is a jointly held authority for small projects that has not received significant funding in the 5-year cycle. **Implemented as Described: No.** No significant funding has been received for Estuary Restoration Act Projects in the 2017-2021 planning cycle.
Habitat *Nearshore Habitat and Estuaries*	*Snohomish Estuary Restoration Evaluation*	***Outcomes:*** *Improve effectiveness of nearshore and estuarine restoration projects in Snohomish Estuary and Puget Sound through evaluation and quantification of the population effects of restoration.*	**Outcomes:** Evaluate effects of large-scale restoration on salmon distribution and rearing in estuary systems. Improve understanding of estuary systems, salmonid use and distribution, and effects of changing conditions due to climate change on salmonids.

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2.2.3.4 *NOAA, USGS*		***Outputs:*** *Federal, state and local partners are investing approximately $60M to restore 1400 acres of the Snohomish Estuary, 30% of the recovery target. An ad hoc unfunded effort by federal, tribal, state, and local partners is positioned to verify how this effort is affecting endangered salmon populations.* ***Activities:*** *NOAA supports/collaborates monitoring program and research in Snohomish Estuary, compares to other estuaries in Puget Sound.* ***Resources:*** *~$200,000 per year*	**Outputs:** Design, coordinate, facilitate a Snohomish estuary condition and fish distribution monitoring program. NOAA provides technical assistance to County and Tulalip Tribe to conduct monitoring and provide summary results. Snohomish Estuary Monitoring report completed by NOAA, Snohomish County, and Tulalip Tribe in 2019. Comparative evaluation of restoration in Nisqually, Snohomish, Skagit, and Nooksack deltas. Evaluated salmon distribution in these estuaries and compared across estuaries of Puget Sound (submitted report to ESRP). Also, prepared peer reviewed, published manuscripts. **Activities:** Cooperative agreements, technical assistance, design and establish research program with Tribes and Snohomish County, advising, coordination, some implementation **Resources:** ~$200,000 per year, 0.5 FTE NOAA staff, field equipment, Partnership with Snohomish County, Tulalip Tribe. Funding also through State grant programs, restoration project contracts, NRDA work in the system, and through the Veterans Conservation Corps **Implemented as Described: Yes.** The Snohomish Estuary Restoration Evaluation Program reported findings from 10 years of monitoring the effects of large-scale estuary restoration on salmon distribution and rearing was completed.
Habitat *Nearshore Habitat and Estuaries* *2.2.3.5*	*Puget Sound Coastal Program*	***Outcomes:*** *Restore nearshore and coastal habitat in Puget Sound* ***Outputs:*** *Usually fund 4-5 projects/year* ***Activities:*** *Funding coastal restoration projects in Puget Sound*	**Outcomes:** Restore nearshore and coastal habitat and fish passage in Puget Sound to support recovery of salmonids. **Outputs:** The USFWS Puget Sound Coastal Program focused projects in the North Puget Sound and Hood Canal. Accomplishments from FY17-FY20 were: protection of 0.4 riparian miles, 3.95 riparian miles restored; protection of 108

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USFWS		***Resources:*** *~$250K /year,*	wetland acres, 387 wetland acres restored; 10 acres of upland protected, 28.6 upland acres restored. Three aquatic organism barriers removed. USFWS funded a portion of removal of Nooksack Dam, which opens 26 miles of spawning and rearing habitat for Bull Trout and Chinook Salmon, accomplishing a Recovery Plan goal. **Activities:** Provide technical assistance and funding for riparian, wetland, and upland restoration/protection projects as well as aquatic organism barrier removal projects. **Resources:** These projects received approximately $966,103 allocated to the Puget Sound Coastal Program. In general, $275,000-300,000 is annually allocated as pass through funding to Long Live the Kings and the Hood Canal Salmon Enhancement Group. In FY20, USFWS passed through $137,632 to Long Live the Kings and the Hood Canal Salmon Enhancement Group. **Implemented as Described: Yes.** The Puget Sound Coastal Program allocated $966,103 for North Puget Sound coastal restoration and barrier removal projects including contributions for the Nooksack Dam removal.
Habitat *Nearshore Habitat and Estuaries* *2.2.3.6* *USFWS*	*National Coastal Wetland Conservation Grant Program*	***Outcomes:*** *Protection/restoration of nationally or regionally declining coastal wetlands* ***Outputs:*** *Acres of nationally or regionally declining coastal wetlands protected/restored* ***Activities:*** *Grant program. Assist state agencies with acquisition (fee or easement), or restoration of coastal wetlands and adjacent uplands.* ***Resources:*** *+$20M nationally, up to $1M per project*	**Outcomes:** Protection/restoration of nationally or regionally declining coastal wetlands **Outputs:** The National Coastal Wetland Conservation Grant Program acquired, restored, and protected over 4,276 acres in the Puget Sound from FY17-FY20. NCWCGP provided $20,372,881 to Puget Sound projects. **Activities:** Grants awarded and managed; The Grant Program provided federal funds to project sponsors. **Resources:** As planned

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			Implemented as Described: Yes. The National Coastal Wetland Conservation Grant Program protected over 4,276 acres in the Puget Sound from FY17-FY20.
Habitat *Nearshore Habitat and Estuaries* *2.2.3.7* *USFWS*	*National Fish Passage Program*	***Outcomes:*** *Restore native fish and other aquatic species to self-sustaining levels by reconnecting habitat. Priority based upon the benefits to species and the geographical area.* ***Outputs:*** *Miles/Acres reopened to aquatic species.* ***Activities:*** *Securing funding, Annual Grant program* . ***Resources:*** *$15-$80K per project*	**Outcomes:** Reconnect and re-open habitat for fish and aquatic species. 3.5 linear miles and 14 acres of potential aquatic rearing habitat were restored. **Outputs:** Two Puget Sound funded projects with FY2014 funds will create 3.2 miles of upstream habitat **Activities:** Provide technical assistance and funding for barrier correction projects. **Resources:** The two projects received $198,000 for implementation over multiple fiscal years (FY14, FY18 FY19). Western Washington National Fish Passage Program typically receives $100K annually, dependent upon Congressional allocations. 25% cost share requested. **Implemented as Described: Yes.** The National Fish Passage Program funded two fish passage projects that restored 3.5 linear miles and 14 acres of potential aquatic salmonid rearing habitat.
Habitat	*Protection of ESA habitat landward*	***Outcomes:*** *Coordinate federal and state agencies to develop options to protect ESA habitat and species in upper tidal zone.*	**Outcomes:** Improve federal permitting efficiencies and agency coordination to protect nearshore and coastal habitat and species. Easier to acquire properties at risk of

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Nearshore Habitat and Estuaries *2.2.3.8* *NOAA, EPA*	*of the Corps' Clean Water Act jurisdictional boundary*	***Outputs:*** *Consider options in coordination with federal and state partners that may be implemented to protect ESA species and habitat in the upper intertidal zone.* ***Activities:*** *Establish programs, policies to coordinate federal and state partnerships to protect and restore ESA species and nearshore habitat.* ***Resources:*** *1-2 FTEs/year in the beginning of the coordination process*	development, ripe for restoration, critical to shoreline processes. Reduced barriers to land acquisition. **Outputs:** USACE has expanded its regulatory protection of the nearshore through extending the line from Mean High High Water (MHHW) to High Tide Line (HTL). Nearshore protection/restoration is being completed by establishing a federal-state Multi-agency Review Team (MART) evaluating collaborative and streamlined approach to permit ecologically beneficial marine shoreline projects. Efficiencies in land acquisition workshop with Nature Conservancy; Summary of solutions report completed June 2018; Developing nearshore programmatic for ESA compliance; NOAA Debit/Credit Calculator tool as part of developing the Nearshore Programmatic and starting establishment of mitigation/restoration marketplace for ESA compliance **Activities:** Establish programs, policies to coordinate federal and state partnerships to protect and restore ESA species and nearshore habitat. **Resources:** 1-2 FTEs/year **Implemented as Described: Yes.** Under Protection of the coastal ESA habitat NOAA is developing a Nearshore Programmatic permit that incentivizes nearshore habitat restoration and protection of ESA species.
Habitat *Nearshore Habitat and Estuaries* *2.2.3.9* *EPA, NOAA*	*Coastal Improvement Team*	***Outcomes:*** *Enhance coastal resiliency and habitat. Increased education and awareness by shoreline property owners of the implications of hard shoreline armoring. Increased bulkhead removal and restoration projects as well as increased living shoreline protection methods.* ***Outputs:*** *Increase federal support for additional pilots for green infrastructure (e.g., green/living shorelines) in support of enhanced coastal resiliency and habitat. Set up team in FY 2017 through FY 2020.*	**Outcomes:** Evaluate and improve permitting efficiencies and agency coordination to protect and restore nearshore and coastal habitat and species **Outputs:** Multi-agency Review Team (MART) formed in late 2018. MART evaluates permitting issues of existing shoreline projects in workshop, generate list of issues and solutions, evaluate permitting issues for 10 completed projects, permit and evaluate 2-3 ecologically-beneficial shoreline pilot projects in real time through a modified/streamlined

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		Activities: *Federal support for green/living shorelines.* ***Resources:*** *0.5 FTE/year/agency*	permitting process. Shorelines Workgroup meetings and materials; Multi-agency Review Team (MART) to pilot 1-3 projects under a modified, streamlined permitting process. Focus to improve federal permitting. **Activities:** Multi-agency evaluation of shoreline permitting processes; permitting of ecologically-beneficial marine shoreline projects through a pilot program **Resources:** NEP grant for 0.25 FTE/year for WDFW, Ecology. Staff time EPA, NOAA, USACE, FEMA, WDFW, Ecology **Implemented as Described: Yes.** The Coastal Improvement Team established a Multi-Agency Review Team (MART) to evaluate and improve permitting efficiencies and agency coordination to restore coastal habitats.
Habitat *Nearshore Habitat and Estuaries* *2.2.3.10* *USACE, EPA, NOAA*	*2017 Nationwide Permit Regional Conditions*	***Outcomes:*** *Appropriate regional conditions that are based on consideration of the cumulative impacts of bank stabilization in Puget Sound* ***Outputs:*** *Revised 2016 NWPs Regional Conditions including conditions for bank stabilization based on a cumulative impact analysis of Puget Sound.* ***Activities:*** *Review of Nationwide permit Regional Conditions for projects in Washington State* ***Resources:*** *Staff time*	**Outcomes:** Modify NWPs to improve permitting efficiency, resulting in either greater or in some cases lesser environmental protection of aquatic resources. **Outputs:** Final 2016 NWPs and Regional Conditions have been released. Subsequently, in 2020, some NWPs were reauthorized. **Activities:** Review of environmental permits for projects in Washington State **Resources:** Staff time **Implemented as Described: Yes.** Regional Conditions for 2017 USACE Nationwide Permits program strengthened nearshore habitat protection.
Habitat	*HPA enforcement, SMA implementation and permitting*	***Outcomes:*** *Coordinated implementation and enforcement of state laws, a clear, scientifically based definition of No Net Loss of ecological function for the Shoreline Management*	**Outcomes:** Improve permitting efficiencies and agency coordination to protect nearshore and coastal habitat and species; increase ecologically beneficial shoreline and nearshore projects in Puget Sound

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Nearshore Habitat and Estuaries *2.2.3.11* *EPA, NOAA, USACE, FEMA*		*Guidelines implemented by the Department of Ecology and local governments.* ***Outputs:*** *Scientifically based definition of No Net Loss of ecological function for the Shoreline Management Guidelines implemented by the Department of Ecology and local governments.* ***Activities:*** *Support state agencies regarding HPA enforcement, SMA implementation, streamlined permitting of restoration projects to increase shoreline management effectiveness and other strategies* ***Resources:*** *Existing staff time + 0.25FTE/ for WDFW and Ecology for the first two years*	**Outputs:** Coordinate permitting efforts between Federal and State agencies through the MART (see 2.2.3.9 regarding MART) and other shorelines workgroup efforts. Educate State and Federal agencies on each other's permitting requirements and processes. Focus to improve federal permitting for ecologically beneficial shoreline projects. **Activities:** Evaluate shoreline project permitting processes, develop guidelines/permitting processes. **Resources:** ~0.25FTE for ~2-3 federal staff; funded 0.25FTE/ for WDFW and Ecology for 2 years **Implemented as Described: Yes.** Under the Shoreline Management Act (SMA) implementation and permitting action, federal coordination, and collaboration with State agencies on shoreline restoration project permitting occurred through the Multi-Agency Review Team (MART) (see 2.2.3.9). This supports the SMA No Net Loss of ecological function mandate.
Stormwater *2.3.1* *EPA*	*Implement research advancing practical solutions for stormwater management*	***Outcomes:*** *Understanding the toxic effects of stormwater on salmonid populations and the effectiveness of green infrastructure.* ***Outputs:*** *Successful execution of Interagency Agreements guided by results of previous scientific findings.* ***Activities:*** *Collaborative science* ***Resources:*** *$500K in federal funding annually over next five years*	**Outcomes:** Scientific studies exploring the conservation threats that untreated stormwater discharges pose to the Puget Sound ecosystem, with an emphasis on salmon, steelhead, and nearshore-spawning marine forage fish (salmon prey). Additional studies evaluated the effectiveness of green infrastructure methods to infiltrate and filter stormwater, to remove toxic pollutants and protect the integrity and productivity of aquatic habitats. Collectively, the targeted science is contributing to an adaptive management framework that cuts across federal, state, local, and tribal jurisdictions **Outputs:** New publications in scientific journals; targeted and rigorous (i.e., peer-reviewed) research to support federal decision making related to the Clean Water Act, the Endangered Species Act, and other relevant federal statutes;

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			extensive stakeholder and public outreach; tribal engagement; direct incorporation of new scientific findings into west coast salmon recovery efforts by NOAA and the USFWS, as well as state and local agencies. **Activities:** Targeted (applied) scientific research, led by regional federal partners (NOAA, Northwest Fisheries Science Center and USFWS, Western Washington Office) in collaboration with WSU-Puyallup and the WA Stormwater Center. Activities include project planning, data collection and analysis, review and publication, and the broad dissemination of major findings. Public interest in the work remains high, and the extended team engaged in extensive outreach across all stakeholder sectors to meet this demand. **Resources:** Funding awarded as planned; in-kind leveraging of resources across the collaborative network (e.g., ongoing annual NOAA funding for west coast salmon recovery). Importantly, the resourcing of this task has yielded major new scientific discoveries, and these in turn have spurred substantive parallel investments in stormwater science and management, regionally and nationally. This is evidenced, in part, by the number of organizations developing new surface water surveillance capabilities in FY21, for monitoring the recently discovered “smoking gun” for regional coho spawner mortalities (6-PPD quinone). **Implemented as Described: Yes.** Targeted research on stormwater threats and green infrastructure solutions (NOAA/USFWS/WSU): the actions were implemented as described, resulting in > 10 peer-reviewed scientific studies. Communication of major research findings to key Puget Sound stakeholders is ongoing.

Stormwater *2.3.2* *EPA*	*Facilitate and support effective storm water management on Federal and Tribal lands/facilities under EPA's Clean Water Act jurisdiction*	***Outcomes:*** *Improved stormwater management on federal and Tribal lands and facilities.* ***Outputs:*** *Completion of all required National Pollutant Discharge Elimination System (NPDES) storm water discharge permits for regulated Department of Defense and Tribal areas within the urbanized portion of the Puget Sound basin. Complete associated ESA consultations.* ***Activities:*** *Use direct implementation and existing oversight authorities, funding incentives, collaboration, and other tools. Engage neighboring local jurisdictions.* ***Resources:*** *1 – 2 FTE/year, in the form of permitting and technical staff at EPA, and USFWS/NOAA to complete permit development and technical analysis, including appropriate coordination, negotiation, and consultation with all regulated entities. ~$250,000/year in grants or discretionary funding to assist regulated Tribal governments within the Urbanized Area with capacity development and implementation of their local storm water management program.*	**Outcomes:** As planned This action reflects ten (10) stormwater (SW) permits (total) **Outputs:** EPA completed five (5) of nine (9) outstanding NPDES stormwater permits for DoD and Tribal areas located in urbanized Puget Sound. EPA began renewal process for one (1) existing SW permit. - EPA drafted four (4) of the 9 outstanding permits for Tribal areas and began required coordination with these Tribes. - EPA began, but has not yet completed, ESA consultation for four (4) of these 9 permit actions. <u>*Final Permits Renewed/Reissued (2):*</u> Multi-Sector General Permit for Industrial SW from Federal facilities & Indian Country in WA (FY2021) Construction General Permit for SW from Federal facilities & Indian Country in WA (FY17, FY19) <u>*Final Permits Issued (3):*</u> Naval Air Station Whidbey Island MS4 (FY2021) Naval Base Kitsap MS4 (FY2021) Naval Station Everett MS4 (FY2021) <u>*Draft SW Permits Under Development &/or Tribal Consultation (5):*</u> Tulalip Tribes MS4 MS4 Permits (3) for Discharges to lower Puyallup River: WSDOT/Pierce Co./Tacoma Joint Base Lewis-McChord MS4 (permit renewal) <u>ESA Consultation:</u> -Submitted a BE for U.S. Navy MS4 NPDES Permits and Tulalip Tribes' MS4 NPDES Permit to complete Endangered Species Act (ESA) Section 7 Consultation (FY2019) **-**BE for 3 Puyallup River MS4 Permits is under development

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			Activities: EPA used direct implementation, existing authorities, and collaboration to develop & issue the permits above; to collaborate with Puget Sound Tribes via CWA Sec. 401 certifications and govt-to-govt consultations; collaborate with WA Ecology via CWA Sec. 401 certifications; and collaborate with NOAA/USFWS re: facility-level ESA consultation for industrial & construction stormwater discharges under MSGP & CGP. **Resources:** At least 5 - 6 FTE annually (from multiple EPA regional and HQ programs/offices) were required to complete this work during FY 2017-2021. EPA also used approximately $25K in discretionary contract money to support BE development, but ultimately EPA staff did the BE work in-house. USFWS/NOAA Fisheries FTE devoted completing ESA consultation on these actions. **Implemented as Described: Yes.** Support stormwater management on Federal and Tribal lands (EPA): the actions were directly implemented by EPA using existing authorities and collaboration. New general and MS4 permits have been established, a draft Biological Evaluation has been completed, and four additional MS4 tribal permits have been drafted and are currently under review.
Stormwater *2.3.3* *FHWA- WA Division, FTA*	*Stormwater treatment as part of transportation projects*	***Outcomes:*** *Improvement in water quality in Puget Sound watersheds through improved stormwater treatment for existing impervious surfaces.* ***Outputs:*** *Multiple highway projects implemented by WSDOT annually, many that improve stormwater management.* ***Activities:*** *Project management, stormwater management part of highway projects.*	**Outcomes:** Infrastructure upgrades to manage stormwater flooding risks and reduce toxic runoff from the Puget Sound regional transportation grid. **Activities:** FHWA funding via the Washington Division Office (Olympia), including the specific projects listed below: - I-5/SB Lake Samish Vic - Stormwater Retrofit - I-90/Coal Mine Wall Vicinity to Soderman Creek Vicinity - Stormwater Retrofit - SR 203/Deer Creek Bridge Vicinity - Stormwater Pipe Replacement

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
		USDOT funds many projects which treat stormwater runoff from previously untreated impervious surfaces, or improve existing stormwater treatment to current standards. *All federally funded transportation projects must meet applicable stormwater standards. Federal-aid projects managed by the FHWA Washington Division in Washington State comply with WSDOT's Highway Runoff Manual, which has been determined by the Washington Department of Ecology to be equivalent to Ecology's Stormwater Manual* ***Resources:** $600 Million annually Federal-aid highway funds. Washington State receives approximately $600M in Federal-aid highway funds per year. Projects are chosen by WSDOT and local public agencies to address safety and capacity needs on the highway and ferry systems. FTA spends at least $100M per year on capital projects. Most of these projects include stormwater treatment, and most treat some amount of runoff from existing pavement as well as all runoff from new pavement.*	- SR 507/Skookumchuck River Bridge to S of 184th Ave - Stormwater Retrofit - SR 8/E of Summit Lk Rd to W of Old Olympic Hwy - Stormwater Retrofit **Resources:** As planned **Highlight**: Federal Highway Administration (FHWA) federal-aid funding supported transportation projects which include stormwater retrofits and other improvements to the Puget Sound highway system by WSDOT and local agencies. These activities are guided by regional stormwater management strategies (e.g., the WSDOT Highway Runoff Manual, the Ecology Stormwater Manual) and informed by the emerging science on stormwater threats to salmon and green infrastructure solutions in Project 2.3.2. **Implemented as Described: Yes.** Regional transportation improvements to reduce toxic runoff from state highways (FHWA): the actions were implemented through funding via the FHWA Washington Division Office for regional highway retrofits to improve stormwater management.
Stormwater *2.3.4* *EPA*	*Refine and implement Stormwater Retrofit Prioritization Methodology*	***Outcomes:** Document an approach for evaluating and ranking retrofit projects based on both environmental impact (with respect to Stormwater Implementation Strategies in the Action Agenda) and cost effectiveness. Improved water quality in Puget Sound* ***Outputs:** Completed Stormwater Retrofit Prioritization Methodology available and applied basin-wide, which ultimately will generate a ranked list to help in any future funding decisions.* ***Activities:** Program or initiative management, team development and management of Stormwater Retrofit Prioritization Methodology.*	**Outcomes:** As planned **Outputs:** Stormwater Retrofit Prioritization Methodology refined and being utilized by end of FY19 **Activities:** As planned **Resources:** As planned **Implemented as Described: Yes.** Refine methods for prioritizing stormwater retrofits (EPA) was implemented as described because Stormwater Retrofit Prioritization Methodology refined and being utilized by end of FY19.

ID	Title	Action *From FY2017-2021 Action Plan*	Status As of Spring 2021
		Resources: *Combined 1 FTE from multiple team members over a five-year period*	
Stormwater *2.3.5* *EPA, USGS, USFWS*	*Regional Stormwater Monitoring Program (RSMP)/ Stormwater Action Monitoring (SAM)*	***Outcomes:*** *Improved baseline information regarding water quality of receiving waters. Develop recommendations for a monitoring strategy specific to agricultural runoff. Improved water quality due to feedback from monitoring.* ***Outputs:*** *Finalized recommendations package for agricultural runoff monitoring presented to RSMP.* ***Activities:*** *Continued support (in-kind match) for RSMP scientific research. Continued membership of federal caucus of RSMP. Program management, monitoring of stormwater quality* ***Resources:*** *~0.25 annual FTE total, minimum $100K federal funding annually*	**Outcomes:** Improved baseline information regarding water quality of receiving waters. Improved water quality due to feedback from monitoring. **Outputs:** In 2017, all SAM receiving water studies were in data analysis and writing phases. Final reports for bacteria and the first round of mussel monitoring were completed. The second round of mussels were deployed in December. The streams and nearshore sediment reports will be published in early 2018. Eight SAM effectiveness studies will continue monitoring and/or analysis into 2018, and one study was completed. Five new studies will begin in 2018. The first SAM symposium was held in June. A new SAM website was launched with new communication products (project fact sheets, newsletters, and "About SAM' video), individual project pages, final reports, and more. Ecology.wa.gov/SAM **Activities:** Program management, monitoring of stormwater quality **Resources:** As planned. **Implemented as Described: Yes.** Regional Stormwater Monitoring Program (RSMP)/Action Monitoring (SAM) (EPA/USGS/USFWS): the actions were implemented as planned, including new recommendations for improving baseline and green infrastructure effectiveness monitoring. Projects are published or in the final phases of data analysis and writing.

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
Stormwater *2.3.6* *EPA*	*Invest and Support Source Control Programs*	***Outcomes:*** *Improved water quality due to improved source control. Successful execution of Interagency Agreements guided by results of previous scientific findings.* ***Outputs:*** *Expanded federal investment in the Puget Sound Local Source Control Partnership supports pollution prevention specialists that bring technical knowledge of hazardous waste and stormwater management to the doorstep of small businesses.* ***Activities:*** *Invest and support source control programs* ***Resources:*** *$300K federal funding annually over five years*	**Outcomes:** The state's Pollution Prevention Assistance Partnership (new title for Puget Sound Local Source Control Partnership). Pollution Prevention Assistance Partners, expanded with EPA resources, are crucial to implementation of the state's Product Replacement Program - an innovative, results-based approach that reduces toxic chemicals and heavy metals in the environment. **Outputs:** - **Activities:** As described, through 2019. EPA's 2013-2015 NEP funding enabled this state program to substantially expand. **Resources:** EPA funding ended in 2019 **Implemented as Described: Yes.** Support for source control programs (EPA) was implemented as described because it was EPA funded through 2019 and the state's Pollution Prevention Assistance Partnership is ongoing.
Stormwater *2.3.7* *EPA/NRCS, NOAA*	*Coordinate to support state development of water quality guidance for nonpoint sources on agricultural lands*	***Outcomes:*** *Reduce nonpoint source water pollution* ***Outputs:*** *Share technical information with State on water quality protection based on federal studies, research, expertise* ***Activities:*** *Coordinate to support state development of water quality guidance for nonpoint sources on agricultural Lands* ***Resources:*** *One FTE annually*	**Outcomes:** Reduce nonpoint source water pollution, primarily in the form of stormwater runoff and return flows from agricultural lands. **Outputs:** An advisory group to Ecology completed technical guidance on Tillage & Residue Management, one of several chapters planned. **Activities:** NRCS and EPA participated in a state-led advisory group that evaluates how effective BMPs are at reducing specific pollutants and considerations or barriers for implementation of the BMPs. **Resources:** Modest to date; progress delayed due to litigation. **Implemented as Described: Yes.** development of guidance for non-point sources on agricultural lands

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
			(EPA/USDA/NOAA): the activity was partially implemented. The project overall has been delayed by litigation and a settlement agreement negotiated by Ecology. One chapter providing guidance on tillage practices has is complete, and the effort will continue as originally planned through 2025.
Federal Lands and Facilities *2.4.1* *USFS*	*Decommission and stabilize National Forest System roads*	***Outcomes:*** *Reduce aquatic impacts from National Forest system roads in priority watersheds* ***Outputs:*** *Decommission and/or storing of 30 miles of roads that pose high risk to aquatic resources in following priority watersheds: Dungeness River, Suiattle River, Upper White River/ Greenwater River, and North Fork Nooksack River.* ***Activities:*** *Road decommissioning* ***Resources:*** *$800,000/year for the identified road treatments, $430,000 from USFS Legacy Roads and Trails funding to Olympic and Mt Baker Snoqualmie National Forests, additional funding depending on the specific projects selected; $336K awarded in FY17 to ONF and $334 awarded in FY17 to MBS (noted in tracking table)*	**Outcomes:** Reduce aquatic impacts from National forest system roads **Outputs:** The Olympic National Forest decommissioned 6.4 miles of road between 2017 and 2020. The Mt Baker Snoqualmie Nation Forest Decommissioned and closed ("stored) 28.2 miles of road between 2017 and 2020. **Activities:** Road decommissioning **Resources:** The total expenditure for Olympic National Forest Road decommissioning was $514,684. USFS $252,438, Fish and Wildlife Service $162,800, EPA $95,000, Drinking Water Providers Partnership $4446. The total expenditure for the Mt Baker Snoqualmie National Forest was $828,143. $59,000 was funded by Conservation Northwest, and $769,143 was funded from USFS **Implemented as Described: Yes.** Decommission and stabilize National Forest System roads, because The Olympic National Forest decommissioned 6.4 miles of road between 2017 and 2020. The Mt Baker Snoqualmie Nation Forest Decommissioned and closed ("stored") 28.2 miles of road between 2017 and 2020.
Federal Lands and Facilities *2.4.2* *USFS*	*Protect aquatic habitat on National Forest System lands*	***Outcomes:*** *Collect information on watershed conditions to better protect aquatic habitat on National Forest Lands.* ***Outputs:*** *The Olympic and Mt. Baker-Snoqualmie National Forests are managed under their respective Forest Plans and the NWFP Aquatic Conservation Strategy. Appropriated*	**Outcomes:** Collect information on watershed conditions to better protect aquatic habitat on National Forest Lands. **Outputs:** Fisheries biologists and hydrologists analyzed baseline conditions in sub-watersheds in project areas between 2017 and 2021. Resources were managed and

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
		agency funds provide support for aquatic specialists to provide input and monitor activities effecting aquatic habitats. The capacity of Forests to monitor watershed conditions, develop partnerships, and implement restoration projects will be proportional to the funding available. Over the next 5-year period increase the National Watershed Condition Framework score from "At Risk" to "Fully Functioning" for 2 watersheds (1 watershed each for the OLY and the MBS). Over 80% of management activities would meet Best Management Practices. ***Activities:*** *Program management and natural resource management* ***Resources:*** *$1.2 M/year*	appropriate conservation measures were applied following Forest Plans and the NWFP Aquatic Conservation Strategy. 2021 National Forests are reassessing subwatershed attribute scores for physical and biological processes. This assessment will take into consideration additional data/monitoring, restoration projects, wildfire and other management activities that could warrant changes in watershed classification indicators and attributes. **Activities:** Forest service watershed management activities including recreation, vegetation management, road management, and special uses. **Resources:** As planned **Implemented as Described: Yes.** Decommission and stabilize National Forest System roads, because The Olympic National Forest decommissioned 6.4 miles of road between 2017 and 2020. The Mt Baker Snoqualmie Nation Forest Decommissioned and closed ("stored") 28.2 miles of road between 2017 and 2020.
Vessel Traffic and Pollution Prevention and Response *2.5.1* *FHWA, USFS*	*Utilize flexibility within the Emergency Relief for Federally owned Roads (ERFO)*	***Outcomes:*** *Improve structure performance, reduce stream impacts, reduce potential fish passage concerns, reduce potential for same site to fail again.* ***Outputs:*** *Replaced, repaired failed road crossings and road shoulders that meet current standards as opposed to "out of date standards"* ***Activities:*** *Utilize flexibility within the ERFO program; Federal land management agencies and tribes can supplement ERFO funds to change the scope of the ERFO eligible repairs.* ***Resources:*** *Emergency Relief funds; Additional resources necessary to fund modifications to improve structure performance will be dependent on the number and*	**Outcomes:** As planned **Outputs:** Six road crossings that will require aquatic organism passage criteria identified. 14 sites that will require the design to incorporate floodplain and channel design features. **Activities:** Identify road crossing and road should failures eligible for funding. Project design to meet aquatic organism passage. Project funding. **Resources:** In 2018, ERFO program on the MBSNF was $4M

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
		magnitude of storm damage sites and annual congressional appropriations	
Vessel Traffic and Pollution Prevention and Response *2.5.2* *USCG*	*Implementation of new inspection regulations*	***Outcomes:*** *Reduce pollution from towing vessels; Greater oversight of vessel design, machinery, firefighting and other parts of the vessel; Increased awareness of operations; increase awareness of the condition of the towing vessel fleet; Greater participation in the VTS system allows for better monitoring and assistance to prevent incidents in Puget Sound.* ***Outputs:*** *Inspection standard and regulations for towing vessels that have not previously been inspected; Requirements for a Safety Management System, Pilothouse Resource Management, enhanced manning and increased mariner credentialing.* ***Activities:*** *Vessel inspection; Implement 46 CFR Subchapter M; Create standard and regulations for towing vessels* ***Resources:*** *No additional resources needed at this time.*	**Outcomes:** As planned **Outputs:** As planned **Activities:** As planned **Resources:** As planned **Implemented as Described: Yes.** Implementation of new inspection regulations - because new inspection regulations were implemented.
Vessel Traffic and Pollution Prevention and Response *2.5.3* *USCG, (NOAA)*	*Implementation of Commercial Fishing Vessel (CFV) voluntary compliance program*	***Outcomes:*** *Decrease the number of incidents and help in a better response to oil that is spilled; Increase in compliance and vessel safety for the Commercial Fishing fleet in Puget Sound* ***Outputs:*** *None in 2017-2021 Action Plan* ***Activities:*** *Implement commercial fishing vessel inspection program.* ***Resources:*** *No additional resources needed at this time.*	**Outcomes:** - **Outputs:** - **Activities:** - **Resources:** - **Implemented as Described: Yes.** This action was initially planned to be compulsory by federal regulations but was made voluntary in the interim due to implementation concerns nationally.

ID	Title	Action *From FY2017-2021 Action Plan*	Status As of Spring 2021
Vessel Traffic and Pollution Prevention and Response *2.5.4* *USCG (Canadian Coast Guard)*	*Effectively manage vessel activities*	***Outcomes:*** *Improved prevention of collisions, groundings, maritime casualties and ensuing environmental damage; Increased in visibility of vessels within the Vessel Traffic System allowing for greater awareness of operators in congested waterways. Vessels that use Automatic Information System (AIS) will have better information for collision avoidance decreasing the number of incidents and gain greater visibility of the locations of vessels that are carrying Certain Dangerous Cargos. The addition of fishing vessels that carry AIS will help us identify potential conflicts for vessels operating in the same area.* ***Outputs:*** *Vessel Traffic Management System.* ***Activities:*** *The purpose of Vessel Traffic Service Puget Sound is to function as an integral part of the Coast Guard waterways management efforts by facilitating the safe and efficient transit of vessel traffic to assist in the prevention of collisions, groundings, maritime casualties and ensuing environmental damage. Carefully trained military and civilian watch standers monitor and communicate with vessels in the Strait of Juan de Fuca, San Juan Islands, and Puget Sound. The Coast Guard will monitor the doubling the number of vessels required to use AIS carriage onboard vessels that have previously not been required to broadcast AIS. This includes smaller passenger, towing, and fishing vessels as well as dredging operations inside or near shipping lanes.* ***Resources:*** *Staff time*	**Outcomes:** As planned **Outputs:** As planned **Activities:** As planned **Resources:** As planned **Implemented as Described: Yes.** This ongoing program continued as planned.
Vessel Traffic and Pollution Prevention and Response *2.5.5*	*Effectively manage vessel traffic and coordinate joint prevention and response activities*	***Outcomes:*** *More effective vessel traffic management throughout Puget Sound to decrease the number of vessel interaction preventing pollution incident. Improve ability to respond quickly to incidents with precise vessel location and communication decreasing the impact to the environment. Continued work with Canada to ensure safe vessel operations within our respective waters.*	**Outcomes:** As planned **Outputs:** As planned **Activities:** As planned **Resources:** As planned

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
USCG		***Outputs:*** *Vessel Traffic Management System.* ***Activities:*** *Transition from Coast Guard Vessel Traffic System (CGVTS) to Ports and Waterways Safety System (PAWSS). The Coast Guard is transitioning from an older CGVTS to the PAWSS which will allow better visualization of vessel movements. The Coast Guard works closely with Canada to ensure compatibility with the system that they are using for the seamless handout of vessels between the two countries and hold joint meetings between Canada and the PSVTS to improve communications between the two systems and develop better practices for operations.* ***Resources:*** *Staff time; Supporting Agency: Canadian Coast Guard.*	**Implemented as Described: Yes.** The PWSS is fully functional and has replaced the earlier system.
Vessel Traffic and Pollution Prevention and Response *2.5.6* *USCG, (Corps, NOAA)*	*Support multi-agency effort to develop vessel traffic risk assessment*	***Outcomes:*** *Work collaboratively with WA Department of Ecology and local maritime industry stakeholders to provide waterways management and vessel traffic system guidance and recommendation for the 2015 Vessel Traffic Risk Assessment (VTRA) Study.* ***Outputs:*** *Update 2015 Vessel Traffic Risk Assessment (VTRA) Study.* ***Activities:*** *Collaborate with WA Department of Ecology and local maritime industry stakeholders to provide waterways management and vessel traffic system guidance and recommendation for the 2015 Vessel Traffic Risk Assessment (VTRA) Study.* ***Resources:*** *Staff time*	**Outcomes:** As planned **Outputs: -** **Activities:** The USCG provide waterways management and vessel traffic system guidance and recommendation for the 2015 VTRA and conducted a USCG led Ports and Waterways Safety Assessment (PAWSA) in 2016. The previous PAWSA in the Puget Sound area was conducted in 2002. **Resources:** As planned **Implemented as Described: No.** This action to be removed due to State's preemptive law legal concerns.
Vessel Traffic and Pollution Prevention and Response	*Develop plans and interagency*	***Outcomes:*** *Protect public health and safety and the environment by ensuring coordinated, efficient, and effective support of the federal, state, tribal, local, and international responses to significant oil and hazardous*	**Outcomes:** As planned **Outputs:** As planned

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2.5.7 *USCG*	*cooperation for pollution response*	*substance incidents within the USCG Thirteenth District Area of Responsibility that is Endangered Species Act (ESA) Section 7 compliant with respects to critical habitat or endangered species.* ***Outputs:*** *ESA Section 7 Consultation.* ***Activities:*** *The U.S. Coast Guard will maintain a robust Area Contingency Plan to better prepared and respond to oil and hazardous substance incidents. The Northwest Area Contingency Plan provides for orderly and effective implementation of response actions to protect the people, natural resources in the Pacific Northwest. It promotes the coordination of and describe the strategy for a unified and coordinated federal, state, tribal, local, potential responsible party, response contractor, response cooperative, and community response to a discharge or substantial threat of discharge of oil or a release or substantial threat of a release of a hazardous substance from inland and marine sources. Regional planning and coordination of preparedness and response actions shall be accomplished through the Regional Response Team (RRT). The standing RRT is co-chaired by EPA and USCG District 13. The role of the standing RRT includes evaluation of communication systems and procedures, planning, coordination, training, evaluation, preparedness, and related matters on a region-wide basis. In the Northwest Area, these activities are conducted concurrent with the Area Committee.* ***Resources:*** *The USCG and EPA are cost sharing ESA Section 7 Consultation on the Northwest Area Contingency Plan at the cost of $200,000. The USCG and EPA, through a subcommittee of the National Response Team, is working with NOAA and DOI at the headquarters lever and in consultation with field offices to find ways to reduce cost and improve collaboration in the field.*	**Activities:** As planned **Resources:** As planned **Implemented as Described: Yes.** The Coast Guard maintained a Coastal Zone Area Contingency Plan and actively worked on associated ESA Section 7 consultation.

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
Vessel Traffic and Pollution Prevention and Response *2.5.8* *USCG*	*Coordinate international cooperation for preparedness and response activities*	***Outcomes:*** *Ensure the response to marine pollution or threat of marine pollution is consistent with the Canadian Coast Guard Marine Spills Contingency Plan - Pacific Region and the Northwest Area Contingency Plan (USCG) in an effort to best manage an international/ transboundary oil spill and, among other things, protect endangered species and critical habitat.* ***Outputs:*** *Contingency Planning, Transboundary Oil Spill Exercises, International/Interagency collaboration/coordination.* ***Supporting Agency:*** *Canadian Coast Guard, EPA, NOAA, DOI, WA ECY.* ***Activities:*** *In the spirit of preparedness and ability to respond to oil spills that may impact, or initiate from Canada, the U.S. Coast Guard will plan and prepare for transboundary oil spills with Canada. The U.S. Coast Guard will identify specific processes whereby both the USCG and Canadian Coast Guard communicate, consult, and coordinate in response to discharge or threat of discharge of pollution into the contiguous waters of interest of both Canada and the United States. The Canada - US Joint Marine Pollution Contingency Plan (JCP), and a Geographic Annex for the Pacific Coast, also known as CANUSPAC, will present the basic information necessary to execute an efficient and effective response operation in the contiguous waters to which the CANUSPAC applies to include Straits of Juan de Fuca, Haro, and Georgia Straits as well as Boundary Passage. The CANUSPAC Joint Response Team (JRT) members facilitate the movement of response personnel and equipment across the borders and can activate other federal agencies as needed.* ***Resources:*** *Staff time*	**Outcomes:** As planned. **Outputs:** As planned. **Supporting Agency:** As planned. **Activities:** As planned. **Resources:** As planned **Implemented as Described: Yes.** Coordinate international cooperation for preparedness and response activities - because the Coast Guard continues to plan and prepare for transboundary oil spills with Canada – including sponsoring the 2022 CANUSPAC Joint Response Team Exercise.

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
Shellfish *2.6.1* *EPA*	*Water quality protection and Pollution Identification and Correction (PIC) Programs*	***Outcomes:*** *More sustainable cultivation and harvest of shellfish resources.* ***Outputs:*** *Award grant, achieve goal of 10,000 acres upgraded by 2020* ***Activities:*** *Provide support to implement the Puget Sound Partnership Action Agenda's Shellfish Strategic Initiative through the National Estuary Program and associated pass through programs to the state. Continue to support state, local and tribal work to protect and restore water quality in shellfish growing areas, specifically as related to the five barriers identified in the initiative's Shellfish Bed Implementation Strategy: (1) lack of effective and sustainable local nonpoint pollution programs; (2) insufficient farm waste management; (3) limited control of boater's waste; (4) difficulty implementing on-site sewage system management and repair programs; (5) wastewater treatment plant outfalls to Puget Sound.* *Ensure laws to protect water quality are adequately enforced.* ***Resources:*** *$5M/year Puget Sound Geographic Program funds passed through support to state agencies*	**Outcomes:** More effective and sustainable local nonpoint pollution programs; Improved farm waste management; improved control of boater's waste; strengthened on-site sewage system management and repair programs; better managed wastewater treatment plant outfalls to Puget Sound. Net increase in harvestable shellfish acres in Puget Sound, including upgraded shellfish beds in Hood Canal, Drayton Harbor, Birch Bay, and Vashon Island. Through cooperative agreements with the Washington Department of Health, the EPA Puget Sound program has supported PIC onsite sewage system (aka septic system) programs in all 12 Puget Sound counties. **Outputs:** Funding support of PIC and onsite sewage programs, dairy and nonpoint source inspectors especially in North Puget Sound, conservation district support to agricultural landowners upstream of shellfish growing areas, water quality monitoring. Improved water quality has prompted Washington state health officials to open 760 acres of commercial shellfish beds in Liberty Bay in Puget Sound. Funding from the EPA Puget Sound National Estuary Program supported Kitsap County's pollution identification and correction program to conduct this work. **Activities:** Agricultural BMPs and technical assistance to landowners to assist with manure management; outreach and education campaigns to maintain septic systems, clean up pet waste, shoreline surveys and windshield surveys to support water quality monitoring efforts. **Resources:** $1.5 Million annually **Implemented as Described: Yes.** EPA "Water quality protection and Pollution Identification and Correction (PIC) Programs" was implemented as described since EPA provided

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			$4.2 million to the Shellfish Strategic Initiative, much of which funded Puget Sound PIC programs.
Shellfish *2.6.2* *EPA*	*Puget Sound 'No Discharge Zone' (NDZ)*	***Outcomes:*** *If the recently (Nov 2016) proposed Puget Sound NDZ is implemented it is estimated that 700 acres of commercial harvest shellfish areas could be upgraded to harvestable status.* ***Outputs:*** *Ecology implement NDZ* ***Activities:*** *Ecology has proposed to establish a "No-Discharge Zone" for Puget Sound which would prohibit the discharge of vessel sewage - both treated and untreated - into Puget Sound waters. Ecology's petition concluded that there is sufficient need for establishing a No-Discharge Zone to protect water quality and the related ecological, economic, and recreational benefits provided by Puget Sound. EPA funding could provide support to continue to improve pump out facilities in Puget Sound.* ***Resources:*** *$500K/year through the Puget Sound National Estuary Program*	**Outcomes:** Washington Department of Health lifted the prohibition of 700 acres of shellfish beds located near marinas due to the NDZ. **Outputs:** Subawardee outreach events at the Northwest Marine Trade Association's Marina and Boatyard Conference, and the Seattle Boat Show. Presented the Clean Marina Program to an audience of approximately 150 stakeholders and handed out 7 applications to interested marinas at the conference. Spoke to 2,000 boaters at the boat show where they handed out 200 spill kits, 150 pumpout adapters, 200 Sea Grant fuel bibs, 300 boaters guides, and 250 NDZ and BMP rack cards. **Activities:** EPA subawardee presence at boater events to raise awareness for recreational vessels, plus other outreach efforts to help boaters understand their responsibilities on pumping out vessel sewage. EPA Shellfish Strategic Initiative pass through funds support Clean Marina program certification, plus boater outreach and education about pumping out vessel sewage. The No Discharge Zone (Chapter 173-228 WAC) was adopted on April 9, 2018, after a five year public process. The rule became effective May 10, 2018. **Resources:** $300k over the 2017-2021 period **Implemented as Described: Yes.** EPA "Puget Sound 'No Discharge Zone' (NDZ)" was implemented as described because the WA Department of Ecology's NDZ (Chapter 173-228 WAC) was adopted on April 9, 2018.

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Shellfish *2.6.3* *NRCS*	*Environmental Quality Initiative Program (EQIP)*	*See 2.2.1.8*	See 2.2.1.8 **Implemented as Described: Yes.** NRCS "Environmental Quality Initiative Program (EQIP)" was implemented as planned because EQIP funds were provided to 6 tribes and 1 NGO for implementation of habitat restoration and native Olympia oyster fisheries improvements (Total funding obligated FY17-FY20=$640,265).
Shellfish *2.6.4* *USCG, NOAA*	*Oil spill preparedness and planning*	***Outcomes:*** *Shellfish growing, and harvest areas are adequately included in oil spill planning and response.* ***Outputs:*** *Provide support for the Washington Shellfish Initiative Goal 1.6 to ensure shellfish growing and harvest areas are adequately included in oil spill planning and response.* ***Activities:*** *Implementation of Washington Shellfish Initiative Oil Spill Preparedness and Planning action items.* ***Resources:*** *0.25 FTE/year*	**Outcomes:** - **Outputs:** - **Activities:** Work with WA Dept of Ecology (NWAC Co-Vice Chair) to assess any need to update GRPs and that they are updated with shellfish growing and harvest areas adequately included in oil spill planning and response. **Resources: -** **Implemented as Described: More information needed.** USCG, NOAA "Oil spill preparedness and planning"
Shellfish *2.6.5* *NOAA*	*Ocean acidification monitoring*	***Outcomes:*** *Carbon chemistry of Puget Sound waters monitored to support sound management of living marine resources and adequate reporting for Clean Water Act regulations. Sufficient data on carbon chemistry of source waters of Puget Sound provided to modelers of Puget Sound chemistry, who support decisions about nutrient management.* ***Outputs: -*** ***Activities:*** *Maintain existing ocean acidification (OA) monitoring and advance the adoption of new subsurface ocean acidification monitoring technologies to better assess changes in the oceanic source waters feeding into Puget Sound. Continue to promote modeling capabilities which*	**Outcomes:** Improved knowledge and understanding of California Current Large Marine Ecosystem (CCLME). **Outputs:** Numerous publications on status and biological impacts of ocean acidification in CCLME. Reporting by NOAA authors on ocean acidification observations via Puget Sound Marine Waters annual overviews. Data from state-funded efforts, which are leveraged by NOAA efforts, are publicly available via NOAA's National Centers for Environmental Information. **Activities:** Sustained observing and modeling efforts in CCLME ongoing.

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
		allow for seasonal forecasting of potentially corrosive conditions entering into Puget Sound. Provide technical expertise to Washington entities and tribes to support ongoing monitoring of OA in Puget Sound. ***Resources:*** *$275K/year in support of validation and OA product enhancement of J-SCOPE forecast system for Washington and Oregon coastal waters; total needed is 16% Federal share of ~$1.7M/year NOAA investment towards sustained monitoring, data quality assurance and synthesis, and advanced OA technology development specific to the California Current Large Marine Ecosystem.*	**Resources:** Washington State funding supported ongoing Puget Sound monitoring and modeling efforts that parallel those of the NOAA-funded coastal observing and modeling efforts, with partnership from a NOAA-funded principal investigator (~0.5 FTE). Direct federal support for NOAA Ocean Acidification Monitoring in support of Puget Sound shellfish was on the order of $20K/yr 2017–2019 from NOAA related to a NOAA-University of Washington partnership with Washington state private shellfish hatcheries.
Shellfish *2.6.6* *NOAA*	*Harmful Algal Bloom (HAB) detection and prediction*	***Outcomes:*** *These tools are used to forecast harvest closures due to high levels of HABs.* *This early warning system enables shellfish to be harvested in advance of closures protecting human health and reducing economic loss. Early warning of events that cause closure of shellfish harvest, enhancing shellfish safety for commercial, recreational and tribal consumers along the 2500 miles of Puget Sound shoreline.* ***Outputs:*** *The Sound Toxins Program provides biweekly HAB sampling throughout the Puget Sound. The Environmental Sample Processor provides automated daily HAB sampling at sentinel sites producing real-time data.* ***Activities:*** *Fund sampling activities* ***Resources:*** *$90K/year (Sound Toxins at $40K/year; the Environmental Sample Processor at $50K/year, for 5 years); total needed is 10% Federal share of ~$5M project in partnership with WA Department of Health, WA Sea Grant, tribes, shellfish growers, environmental learning centers, tribes, and private citizens*	**Outcomes: -** **Outputs:** Produced the Pacific Northwest HAB Bulletin, online predictive tools for shellfish harvest to reduce Vibrio, and published results of utility of water monitoring for Vibrio in shellfish beds. **Activities: -** **Resources: -** **Implemented as Described: Yes.** NOAA "Harmful Algal Bloom (HAB) detection and prediction" was implemented as described since it produced the Pacific Northwest HAB Bulletin, online predictive tools for shellfish harvest to reduce Vibrio, and published results of utility of water monitoring for Vibrio in shellfish beds.

ID	Title	Action *From FY2017-2021 Action Plan*	Status As of Spring 2021
Shellfish *2.6.7* *NOAA*	*Pathogenic vibrio detection and prediction*	***Outcomes:*** *Reduction in shellfish bed closures and illnesses due to pathogenic Vibrios* ***Outputs:*** *tools to accurately monitor for pathogenic Vibrios and predictive models to optimize harvest timing* ***Activities:*** *To reduce risk of unnecessary shellfish bed closures and to reduce risk of human illnesses, develop tools to accurately monitor for pathogenic Vibrios and predictive models to optimize harvest timing. These tools are priority needs identified by the Food and Drug Administration and the Interstate Shellfish Sanitation Conference for the Pacific Northwest.* ***Resources:*** *$80K/year for three years, $50K/year for two years for work in partnership with WA Department of Health, commercial harvesters, and tribes; NOAA Fisheries supports this effort at ~$86K/year, subject to Congressional appropriations*	**Outcomes:** Reduction in risk of unnecessary shellfish bed closures & risk of illnesses due to pathogenic Vibrios **Outputs:** 1) Emergency assistance to WA Dept of Health to provide pathogenic Vibrio surveillance in high risk months (6/20 - 9/20) due to re-direction of WA Public Health Lab to COVID-19 activities. 2) Peer-reviewed publication on utility of water vs tissue monitoring for pathogenic Vibrio (Nilsson et al 2019, doi: 10.1093/femsec/fiz027). On-line story map about Vibrio predictive models (including one for Puget Sound) for harvesters : https://storymaps.arcgis.com/stories/16e2f8f808f94046bafbfef9d193c50d **Activities:** 1) Transfer data on substrate: temperature relationships to NCCOS/NOS for predictive model incorporation (Interstate Shellfish Safety Commission funding). 2) Transfer data on strain-specific growth curves to NCCOS/NOS & FDA for post-harvest storage calculator development (NOAA Aquaculture Program funding). 3) Provide lab training to NCCOS/NOS for molecular detection methodologies. 4) Participate in Pathogens technical team for NOAA's Ecological Forecasting Roadmap to support on-line predictive tool development by NCCOS/NOS. **Resources:** In FY20, approximately $125K (staff & supplies) was allocated to provide emergency Vibrio surveillance of WA shellfish beds during COVID-19. **Implemented as Described: Yes.** NOAA “Pathogenic vibrio detection and prediction” was implemented as described, plus in FY20, approximately $125K (staff & supplies) was allocated to provide emergency Vibrio surveillance of WA shellfish beds during COVID-19.

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Shellfish *2.6.8* *NOAA*	*Conservation genetic risk assessment*	***Outcomes:*** *Management strategy evaluation to evaluate genetic risks to wild populations from native shellfish aquaculture.* ***Outputs:*** *Decision support tool and management strategies for 3 native shellfish species* ***Activities:*** *Develop genetic risk assessment tools and evaluate management strategies to inform best management practices for culture and enhancement of native shellfish in Puget Sound.* ***Resources:*** *$100K/year; in partnership with WA Department of Fish and Wildlife and other collaborators.*	**Outcomes:** Shellfish health and population recovery improvement. Population structure of two shellfish species. **Outputs:** A workshop was convened in September 2018 to collect data on current practices of growing native shellfish. Empirical data for two shellfish species, data on manager attitudes. **Activities:** Survey of current aquaculture practices, collection of empirical population genetic data from two species, development of population genetic model. Model almost completed, empirical data and interviews available as basis of the model **Resources:** $100K/year; in partnership with WA Department of Fish and Wildlife and other collaborators. Also, $300K provided by NOAA via the Saltonstall-Kennedy Grant Program **Implemented as Described: Yes.** NOAA: "Native shellfish genetic risk assessment" was implemented as described by University of Washington researchers since funding was received from Funding from NOAA Sea Grant and Saltonstall Kennedy for molecular genetic analysis and model development.
Shellfish *2.6.9* *USACE, NOAA, USFWS*	*Implement aquaculture regulatory framework*	***Outcomes:*** *Streamlined, transparent, and predictable regulatory process.* ***Outputs:*** *FY 2017 - FY 2018. Establish and communicate a process for shellfish aquaculture applicants to apply for verification for Department of Army Permits including NWP48 (Aquaculture)* ***Activities:*** *Regulatory process evaluation and design* ***Resources:*** *No additional resources required at this time*	**Outcomes:** As planned. **Outputs:** New streamlined regulatory framework implemented June 2017. Approximately 900 2017 NWP 48s for shellfish aquaculture were verified as a result. In June 2017, the Seattle District regulatory branch implemented a strategy to help shellfish farm applicants and the Corps quickly assess verification under 2017 NWP48 including significant outreach with public/growers and coordination with NOAA/USFWS. **Activities:** Approximately 900 2017 NWP 48s for shellfish aquaculture (AQ) were vacated in WA pursuant to District

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			Court order. Existing 2017 NWP 48 permittees must submit a new application for an individual permit. Process new and previously verified 2017 NWP 48 applications for commercial shellfish aquaculture as individual permits. Ongoing outreach activities to public and growers. **Resources:** In-kind USACE staff time. USACE HQ funded a reinforcement team of 8 project managers and an additional team lead to manage the effort. **Implemented as Described: Yes.** USACE, NOAA, USFWS "Implement aquaculture regulatory framework" was implemented as described because 900 permits were issued under the framework.
Shellfish *2.6.10* *NOAA*	*Habitat value of shellfish*	***Outcomes:*** *Improved quantification of habitat value* ***Outputs:*** *Documentation of fish use and prey availability of shellfish aquaculture habitat compared to eelgrass habitat. Host a workshop with scientific experts and regulators to share study results and state of the science resulting in the development of consistent management strategies.* ***Activities:*** *Accurately quantifying the habitat value of shellfish and associated gear in the marine environment compared to existing habitats is required for proper management. Currently three studies are underway comparing shellfish aquaculture and eelgrass habitats.* ***Resources:*** *$100K/year for five years*	**Outcomes:** As planned. **Outputs:** Baseline project initiated in 2017 and draft analysis of bivalve-eelgrass completed in FY18. In 2017, completed a draft global meta-analysis examining bivalve-eelgrass interactions, deployed GoPro cameras 111 times in shellfish aquaculture habitats and nearby reference sites in Puget Sound, analyzed 16+ hours of underwater video, developed partnerships with shellfish growers and engaged with scientists, managers and industry about the functional role of shellfish aquaculture and natural habitats. Additional funding will be required to complete this action. **Activities:** As planned **Resources:** Additional planned project work dependent on future funding **Implemented as Described: Yes.** NOAA "Habitat value of shellfish" was implemented as described because the Northwest Fisheries Science Center is working in collaboration with regional partners to examine the ecological functions of shellfish aquaculture habitats and

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			adjacent eelgrass and mudflat habitats. Current projects are focusing on species use of habitats (underwater video) and species behaviors (e.g., feeding and energy flow) in these habitats.
Shellfish *2.6.11* *NOAA*	*Native shellfish hatchery*	***Outcomes:*** *Restored oyster habitat and rebuilt pinto abalone populations.* ***Outputs:*** *2,500 bags of Olympia oyster seed to accelerate Olympia oyster recovery at priority sites. Produce 5,000 juvenile abalone and 2 million larval abalone for outplanting* ***Activities****: NOAA and the Puget Sound Restoration Fund are working with state, tribal and industry partners in WA to restore 100 acres of oyster habitat by 2020 and rebuild sustainable populations of pinto abalone. The Kenneth K. Chew Center for Shellfish Research and Restoration produces the science and juvenile shellfish required for this restoration.* ***Resources:*** *$320K/year (funding for full time FTE at $200K/year; continued operations and maintenance at $120K/year); total needed is 25% federal share of $5M project in partnership with state agencies, tribes and other collaborators.*	**Outcomes:** Advancement of research and restoration efforts for Olympia oysters, pinto abalone, basket cockles, sea cucumbers and native kelp species throughout Puget Sound, and implementation of multiple recommendations of the Blue Ribbon Panel on Ocean Acidification and the Washington Shellfish Initiative. **Outputs:** • Produced 1,979 shell bags set with over 6 million Olympia oysters as spat on shell, and 307,000 single oysters from 5 brood groups for multiple sites in Puget Sound • Produced and reared over 10,013 juvenile pinto abalone that were outplanted at restoration sites throughout the San Juan Islands, with another 10,000 produced, reared and scheduled for outplant in April-May 2021 • Propagated and outplanted bull kelp (4,950 linear feet of seeded twine) and sugar kelp (9,000 feet) for the purpose of developing bull kelp restoration techniques and researching the ameliorative effects of kelp on ocean acidification • Commenced a 3-year study to better understand the effect of kelp growth on seawater carbonate chemistry to augment a 5-year investigation of seaweed cultivation conducted in Hood Canal • Cultivated over 1,000 juvenile sea cucumbers to support research on the ability of mussel waste and decaying macroalgae to serve as high quality food sources

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			• Cultured ~1 million juvenile cockles to support indigenous subsistence harvest on tribal beaches, and establish new methods to screen broodstock for presence of disseminated neoplasia • Reconfigured and relocated an expanded ocean acidification treatment system with the capacity to accommodate 4 treatment groups (2 temperature; 2 pH) • Continued development of new genetic markers for Olympia oysters and pinto abalone (using next-generation RAD-sequencing) to understand the genetic population structure of wild remnant populations and characterize the genetics of outplanted individuals in relation to wild broodstock • Continued producing healthy, disease-free seed, with no reportable diseases detected in 5 years of seed production • Completed a new, 80-tank abalone nursery building with associated plumbing, heating and water quality control and monitoring systems • Constructed an expanded dedicated kelp lab facility for production of bull and sugar kelp for research and restoration • Hosted an intensive seaweed farming workshop with Washington Sea Grant and NOAA Vet Corps to capture lessons learned during the 5-year seaweed investigation in Hood Canal • Hosted tours, produced videos, updated webpages, and publicized hatchery work through social media and multiple in-depth articles documenting the use of hatchery reared seed and juveniles for restoration and research efforts • Joined collaboratively with federal, state, and local agencies, Tribes, shellfish growers, Marine Resources Committees, researchers, academics, Marine Science

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			Centers, and foundations to harness conservation hatchery capabilities to rebuild and research native marine species and habitats in Puget Sound. **Activities:** Operation of a hatchery, nursery, greenhouse, kelp lab, floating upwelling system, ocean acidification research system, intertidal nursery, and a flow-through trough system to support research and restoration outputs and outcomes. **Resources:** Since 2017, NOAA has provided nearly $450,000 to support a variety of research, restoration and operations associated with kelp, including activities at the hatchery. EPA's Puget Sound Shellfish Strategic Initiative is providing $100,000 to support research related to cockles and Olympia oysters. Since 2017, the State has provided $448K each biennium, 2017-2019 and 2019-21, to support hatchery operations. **Implemented as Described: Yes.** NOAA "Native Shellfish Hatchery" was implemented as described because: Since 2017, NOAA has provided nearly $450,000 to support a variety of research, restoration and operations associated with kelp, including activities at the hatchery. EPA's Puget Sound Shellfish Strategic Initiative is providing $100,000 to support research related to cockles and Olympia oysters.
Shellfish *2.6.12* *NRCS*	*Native Oyster Restoration Projects*	***Outcomes:*** *Habitat restoration and native Olympia Oyster fisheries improvements. NRCS will continue to expand a collaborative effort with the tribes, NGO Puget Sound Restoration Fund, WDFW, and the Washington Shellfish Growers Association to contribute towards implementing the native Olympia Oyster Restoration Plan.* ***Outputs:*** *Two new restoration sites and enhancement of two existing populations of oyster will be implemented on eligible private and tribal aquaculture operations through EQIP.*	**Outcomes:** 48.7 acres habitat implementation total. Assisted Puget Sound Restoration Fund (PSRF) with reaching the 100-ac restoration goal by October 2020 **Outputs:** EQIP funds to 6 Tribes and 1 Non-Government (NGO). 5 Tribes and 1 NGO used $640,259 funds for 46.7 acres of improved habitat within the Olympia Oyster Restoration Program. Funds for implementation of shell and seeded cultch. 9 EQIP Program contracts

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		Activities: *Collaborate, fund.* ***Resources:*** *Annual request for funding of this program has been supported by NRCS through the EQIP program.*	**Activities:** In 2018 four EQIP contracts with tribes in Sequim Bay, Port Gamble Bay, Tulalip and Barlow Bay, and South Hood Canal have been developed. Outreach to seven other Tribes and the NW Indian Fisheries Commission to reach out to all Tribes in the Puget Sound waters was undertaken. Ongoing program with contracts set for three years. **Resources:** Total funding obligated FY17-FY20=$640,265. Total funding for 3 years (2012, 2013, 2016) $5.5 M. EQIP funding was $300,000 in 2018. **Implemented as Described: Yes.** NRCS "Native Oyster Restoration Projects" was implemented as described (see 2.6.3 – these are duplicative).
Habitat *2.2* *A (2018)* *NOAA*	*Timely approval of Hatchery and Genetic Management Plans (HGMPs)*	***Outcomes:*** *Completed HGMPs may be used for regional fish production and management planning; Decreased ESA legal risk for hatchery programs* ***Outputs:*** *ESA approvals for hatchery programs* ***Activities:*** *Review and approve hatchery programs.* ***Resources:*** *Additional staff to support the review process*	**Outcomes:** Completed HGMPs may be used for regional fish production and management planning; Decreased ESA legal risk for hatchery programs; Ensuring hatchery programs operated such that they protect ESA listed species **Outputs:** All submitted HGMPs are either approved or actively being worked on. Approved HGMPs in Puget Sound include for the Straits of Juan De Fuca, Hood Canal (minus Skokomish River) Green River, Snohomish, and Stillaguamish basin programs. The backlog has been reduced. This is true everywhere. All submitted HGMPs are either approved or actively being worked on. **Activities:** Review and approve hatchery genetic management plans. **Resources:** Additional staff were hired to support review process.
Habitat *2.2*	*Readiness and Environmental Protection*	***Outcomes:*** *Protection of tens of thousands of acres for preservation of watershed and estuarine processes. In some cases, working farms and forest lands will be preserved,*	**Outcomes:** As planned. **Outputs:** Approximately $40M in Navy and DOD funds with an equal or greater cost share from partners, collectively

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B (2018) *U.S. Navy*	*Integration (REPI) Program*	*while also protecting wetland functions, aquifer recharge areas, and natural drainage courses.* ***Outputs:** Funding and Navy staff support to plan and execute real estate transactions.* ***Activities:** the U.S. Navy Region Northwest has formal multiyear partnerships with the Trust for Public Land, Jefferson Land Trust, the Washington Department of Natural Resources and the Great Peninsula Conservancy in Hood Canal and Jefferson County, and the Whidbey Camano Land Trust in Island County, to conserve lands and protect waterways adjacent Puget Sound. The U.S. Navy's partnerships support working forests and helps further and develop local agribusiness, while protecting the watershed and the U.S. Navy mission, the local economy and is consistent with the visions of the local comprehensive land use plans* ***Resources:** U.S. Navy funds allocated from annual appropriations as projects are developed and submitted to DoD*	approximately $80M in the areas of Hood Canal, the Olympic Peninsula and Whidbey Island. **Activities:** Partnering, collaboration, funding. **Resources:** The Navy has approximately 7 staff engaged in supporting this effort part time, partners with 4 land trusts and 1 state agency also staff the transactions taking place and contribute funds. Of note, numerous willing property owners agreed to sell interests in their lands in support of these efforts. The Navy has requested approximately $14M to continue transactions in FY22, and partners are applying for grants and funding in approximately the same amount. In the Puget Sound area, the U.S. Navy has received $39.8M, spending $30.2M since 2011 (as of July 2021), and has preserved over 15,458 acres to date, leveraging additional funds provided by partners and donors. Partners invested approx. an equal amount in cost sharing, doubling the impact of Navy dollars. Navy planning for approximately $6M additional dollars investment for 2021, with similar amounts from partners.
Habitat *2.2* *B (2020)* *U.S. Navy*	*Readiness and Environmental Protection Integration (REPI) Program - Mitigation Bank Partnership*	***Outcomes:** The Navy entered a cooperative agreement (Sikes Act) with the Waterman Mitigation Partners who will develop and operate a regional mitigation bank in Kitsap and Mason counties. Seed money came from the Navy REPI program and will be matched 4:1 by Waterman's private investment. State and federal regulators will be engaged in the development of the bank to ensure that it meets requirements.* ***Outputs:** This bank will help support the anticipated Navy modernization of the Puget Sound Naval Shipyard by*	**Outcomes:** Pre-compliance mitigation bank that will create mitigation solutions to enable on time construction work for PSNS modernization and other work at NBK, with technical and legal concurrence from regulatory agencies. **Outputs:** Regional mitigation bank. **Activities:** Partnering, collaboration, funding. **Resources:** $5M in Navy / DOD REPI funding, and staffing support through project realization. Partner funding up to $21M, and primary staffing.

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		facilitating the permitting process for in water and near shore work. ***Activities:*** *Solicited proposals, entered Sikes Act cooperative agreement with identified responder, and competed for the DoD REPI Challenge program to secure funding. Working with project partner to review and facilitate work.* ***Resources:*** *Funding from Navy $5M, from Waterman up to $21M. Navy planning, procurement and environmental staff have been engaged part-time.*	
Habitat *Floodplains, and in-stream and riparian* *2.2.2* *C (2018)* *NOAA, FEMA*	*Floodplains by Design Partnership*	***Outcomes:*** *Streams and rivers reconnected to thousands of acres of floodplains providing multiple benefits for salmon, farmers, and flood-prone residents.* ***Outputs:*** ***Activities:*** *Federal agencies participate in multi-stakeholder discussions* ***Resources:*** *Ongoing appropriations from NOAA and state.*	**Outcomes:** Improve the resiliency of floodplains to protect local communities and the health of the environment and salmon, maintaining agricultural production, water quality, and open space/recreation in floodplains **Outputs:** Federal agencies collaborate with State to implement Public-private partnership led by Ecology, PSP, and Nature Conservancy. The program was kick-started by EPA funding in both 2012 and 2014 and with technical support from USGS and FEMA. Due to its great success, Washington State provided over $165 million in capital funding since 2013. In FY 2019-21, the State provided $50 million for 10 FbD projects. FEMA provides technical assistance. NOAA participates in floodplains management forum groups (see *2.2.2.15*). **Activities:** FEMA provides technical assistance on project permitting, NOAA and EPA provide funding and participate in multi-stakeholder meetings regarding FbD projects. **Resources:** FEMA staff time, EPA funds PSP Floodplains by Design work; Ongoing appropriations from NOAA and state.

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Habitat *Floodplains, and in-stream and riparian* *2.2.2* *D (2018)* *JBLM*	*Stream Habitat Management Program*	***Outcomes:*** *improve riparian habitat, enhance spawning habitat, improve fish passage and control invasive non-native species (primarily reed canary grass). Increased length of functioning in-stream and riparian area on Muck Creek for salmon spawning and rearing.* ***Outputs:*** *-* ***Activities:*** *Converting culverts to three-sided box culverts, treating reed canarygrass in spawning habitat and adding spawning gravels, and planting riparian vegetation along several miles of the creek.* ***Resources: -***	**-**
Stormwater *H (2018)* *USFWS*	*Tribal Nations Research Forum and Round Table*	***Outcomes:*** *Ultimately, this could lead to requirements for widespread use of these or similar techniques (i.e., green infrastructure) on a project-by-project basis.* ***Outputs:*** *Participate in a NWIFC summit. Tribal pilot projects to test the solutions to lethal and sublethal stormwater effects on salmon species.* ***Activities:*** *Discuss, in a summit format, mechanisms of stormwater's adverse impacts to tribally important species and communities, and solutions that prevent or reduce stormwater's adverse impacts. Future discussions will explore opportunities where tribes could partner with researchers to identify and develop pilot projects, and to monitor and evaluate effectiveness of potential solutions.* ***Resources:*** *No additional needed, science communication effort.*	**Outcomes:** Enhanced communication and coordination between federal researchers (together with academic, state, and other partners) and tribal natural resource managers. Identification of the most pressing information gaps related to regional urban growth, toxic runoff, and the long-term health of coastal watersheds and nearshore habitats. Much of what we know about the impacts of urban runoff to coho salmon would not be possible without Tribal cooperation and collaboration. This includes, for example, directly supporting studies at the Suquamish tribal hatchery (led by NOAA, USFWS, and WSU-P). These important connections were highlighted at the summit. **Outputs:** A two-day summit (September 20-21, 2018) organized by the NWIFC Coordinated Tribal Water Quality Program and the Washington Stormwater Center (WSU and UW), at the Point Hotel and Casino, Kingston, WA. Principal investigators (e.g., Nat Scholz, NOAA and Jay Davis, USFWS) from the PSFTF were among the presenters (> 100 tribal attendees).

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			Activities: As planned. The summit focused on major stormwater threats to salmon recovery (Day 1) and green infrastructure solutions to mitigate ecological impacts (Day 2). Tribal feedback from this summit and other meetings is being directly incorporated into future planning for federally-funded stormwater science in Puget Sound. **Resources:** Not a resource-intensive activity, but important to continue regular science updates with the NWIFC, given the current pace of regional land use change and the evolving nature of the science.
Stormwater *I (2018)* *JBLM*	*Municipal Separate Storm Sewer System (MS4) Stormwater Program*	- ***Resources:*** *3 FTE currently supporting Stormwater program implementation through internal funding.*	- **Resources:** FY19 funding request (internal) was submitted for USGS support to install and monitor two gaging stations equipped with direct read water quality meters on Clover Creek for continuous
Shellfish *J (2018)* *JBLM*	*Operations Plan for new wastewater treatment plant at Joint Base Lewis McChord*	***Outcomes:*** *Achieve performance metric for Inorganic Nitrogen* ***Outputs:*** *Complete operational plans and procedures.* ***Activities:*** *Project work to complete operational plans and procedures needed to meet performance metric of 3 mg/l Total Inorganic Nitrogen. Management practices for all dischargers to the collection system.* ***Resources:*** *4 hours a week of in-house environmental engineer operational support*	-
Science and Monitoring *3.0*	*Science enterprise*	***Outcomes:*** *More effective integration of federal science and monitoring*	**Outcomes:** Improved understanding of what is needed to better integrate federal science and monitoring in support of Puget Sound recovery

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		Outputs: *1) determine interim steps that could be taken to help address this critical gap with current resources and capacity; 2) develop a process for prioritizing current and planned federal science and monitoring activities that are consistent with Puget Sound recovery needs; and 3) collaboratively develop options for developing a Federal Puget Sound Science Program that brings to bear federal scientific and technical expertise and capacity to support collaboration, leveraging, and science needs for Puget Sound recovery.* ***Activities:*** *coordination, convening* ***Resources:*** *Science and Monitoring Workgroup*	**Outputs:** Compilation of Federal science & monitoring projects, studies, programs, grants, and other relevant activities that support Puget Sound recovery; Internal draft scope for Interagency Puget Sound Science and Monitoring body, "Federal Puget Sound Science Program". **Activities:** Actively engaged PSFTF Science & Monitoring Work Group **Resources:** Individual agency mission-consistent resources; EPA Puget Sound funding for Interagency Agreements.
Science and Monitoring *Appendix D* *USFWS*	*'Stormwater toxics'*	*Assess stormwater runoff impacts in urban/urbanizing watersheds of Puget Sound by identifying the highest priority toxic stormwater runoff threats to salmonids and their habitats.* ***Resources:*** *FY16 $300K, FY17-21 TBD*	**Outcomes:** The highest priority toxics were characterized. **Outputs:** Reports, publications (https://doi.org/10.1016/j.aquatox.2020.105654; https://science.sciencemag.org/content/371/6525/185) and presentations. Future publications are coming soon. The chemical 6PPD-quinone has been identified as the "smoking gun" behind coho death in freshwater streams (https://science.sciencemag.org/content/371/6525/185) **Activities:** Habitats are continuing to be evaluated in the Snohomish Basin, and forage fish toxicity is continuing to be assessed. Publication regrading relative sensitivities among salmonids is pending. **Resources:** EPA grant; ongoing collaborations with NOAA, WSU, UW Tacoma. FY 17-21 $3 million. **Implemented as described?** Yes.

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Science and Monitoring *Appendix D* *USFWS*	*'Green stormwater strategies'*	*Develop & implement green stormwater strategies to ensure the ecological integrity of salmon habitats by identifying mitigation strategies to aid long-term habitat conservation and restoration.* ***Resources:** FY16 $300K, FY17-21 TBD*	**Outcomes:** Bioretention soil media have been developed and tested. **Outputs:** Reduction in toxicity has been observed. **Activities:** Zebrafish toxicity results forthcoming. **Resources:** EPA grant and Stormwater Action Monitoring (SAM). FY17-21 $3 Million. **Implemented as described?** Yes.
Science and Monitoring *Appendix D* *USGS*	*'Coastal Storm Modeling System'*	*Implement the Coastal Storm Modeling System (CoSMoS) at the scale of Puget Sound to model the combined impacts of sea level rise, increased winter river flooding, and storm surge on large storm-related coastal flood events* ***Resources:** $1M/yr*	**Outcomes:** Regional off-shore model completed; Several active projects to implement high-resolution over-land flooding components. Outreach to partners to raise visibility, encourage and promote use for integrated coastal flooding, restoration planning. **Outputs:** Developed model components and partial coverage of outputs. Partner workshops, including WA Sea Grant outreach project. New King County high-resolution project being funded in FY21 **Activities:** Current results are being presented in public and partners meetings. **Resources:** USGS internal funding, EPA funding, project partner funding **Implemented as described?** Yes.
Science and Monitoring *Appendix D* *USGS*	*'Nearshore and delta sediment dynamics'*	*Assess and monitor the delivery and routing of sediment to prioritized large river deltas and nearshore environments to aid restoration and floodplain protection efforts and characterize the resilience of these environments to climate change and sea level rise.*	**Outcomes:** Improved understanding of importance of sediment dynamics in nearshore and delta ecosystem recovery projects, demonstrating multi-benefit integrated approaches to flood control and ecosystem recovery planning.

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		Resources: *FY16 $400,000 / Habitat Strategic Initiative, USGS Programmatic Funds, other partners, FY17-21 $300K*	**Outputs:** Early stages of model development and monitoring planning. **Activities:** Integrated monitoring and high-resolution process-based modeling of sediment dynamics in deltas, connected floodplains, and estuarine environments. **Resources:** Funding from EPA Interagency Agreement in process, as a first phase in a larger project, beginning in late FY21 or early FY22. **Implemented as described?** Yes.
Science and Monitoring *Appendix D* *USGS*	*'Groundwater and water use'*	*Generate and compile data and information on groundwater resources and water use to assist development of WRIA and regional-scale water-resource management strategies that are protective of summer low flows while ensuring adequate water supply for domestic, agricultural, and other out-of-stream uses.* ***Resources:*** *FY16 $350,000 / Habitats Strategic Initiative & USGS programmatic funds, FY17-21 $350,000/year*	**Outcomes:** Project successfully completed. **Outputs:** Regional database of groundwater resources and water use. **Activities:** - **Resources:** As planned. **Implemented as described?** Yes.
Science and Monitoring *Appendix D* *USGS*	*'Stream temperature'*	*Compile Puget Sound basin stream temperature data from multiple sources to include newer data (post-2013) and data for currently data-poor areas, model the data, and map stream temperature/cold water refugia at finer scales than the existing NorWEST tool* ***Resources:*** *FY16 $150K/TBD, FY17-21 $100K/year*	**Outcomes:** Improved Puget Sound basin-scale predictions for continuous stream temperature mapping in Puget Sound, addressing previous limitations due to data scarcity. **Outputs:** USGS Thermalscape model pilot and initial mapped predictions. **Activities:** - **Resources:** USGS Regional funding, FY16-17 **Implemented as described?** Yes.

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Science and Monitoring *Appendix D* *USGS*	*'Elwha sediment studies'*	*Continue post-dam removal sediment studies in the Elwha River system, including studies of ecosystem responses to changes in the sediment-regime.* ***Resources:** FY16 $200,000 / USGS programmatic funds & USEPA IAG, FY17-21 $150K/year*	**Outcomes:** Improved understanding of the geomorphological and ecological impacts of the Elwha Dam removal project. **Outputs:** Published results of post-dam removal sediment and ecological responses (https://www.usgs.gov/centers/pcmsc/science/usgs-science-supporting-elwha-river-restoration-project?qt-science_center_objects=0#qt-science_center_objects) **Activities:** - **Resources:** As planned. **Implemented as described?** Yes.
Science and Monitoring *Appendix D* *NOAA*	*'Thornton Creek studies'*	*Conduct comprehensive retrospective study of Thornton Creek (Seattle) restoration outcomes (water quality, stream flow, and biotic responses), synthesizing longer term monitoring activities from USGS (NAWQA "Urban Indicator" site), WA Dept of Ecology, and other agencies. This project will serve as a model of synthesizing different monitoring program data as a model for effectiveness monitoring.* ***Resources:** FY16 $150K, FY17-21 $150K*	**Resources:** Funding not obtained. **Implemented as described?** No.
Science and Monitoring *Appendix D* *NOAA*	*'Habitat status and trends'*	*Develop and implement a basin-scale habitat status and trends assessment for watersheds and associated marine nearshore.* ***Resources:** $215,000/NOAA programmatic funds and TBD*	**Outcomes:** Contributes to Puget Sound Partnership workgroups on vital signs or analyses for stream, estuary, and nearshore habitats. **Outputs:** Habitat information for 5-year status reviews of salmon and steelhead. **Activities:** - **Resources:** As planned. **Implemented as described?** Yes.

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
Science and Monitoring *Appendix D* *NOAA*	*'ecosystem model for Puget Sound'*	*Develop an ecosystem-scale model for Puget Sound in collaboration with the Marine Survival Project. Atlantis is the platform for ecosystem scale model.* ***Resources:** FY16 $150,000/NOAA programmatic funds and Marine Survival Project, FY17-21 $300K*	**Outcomes:** Improved understanding of individual and cumulative stressors on early marine survival of Chinook and coho salmon **Outputs: -** **Activities: -** **Resources:** As planned. **Implemented as described?** Yes.
Science and Monitoring *Appendix D* *NOAA*	*'juvenile growth and survival tools'*	*Develop hindcast and forecast tools to assess juvenile marine survival of ESA-listed Pacific salmon coupled with process studies on growth and survival.* ***Resources:** FY16 $600,000 for 2 years, $250,000 long term/TBD, FY17-21 $150,000 TBD*	**Outcomes:** Improved forecasting/process studies on growth and survival **Outputs: -** **Activities: -** **Resources:** As planned. **Implemented as described?** Yes.
Science and Monitoring *Appendix D* *NOAA*	*'forage fish and eel grass process studies'*	*Conduct hypothesis-based process studies for forage fish and eel grass.* ***Resources:** FY16 $152,000/NOAA programmatic funds and TBD, FY17-21 $300,00 need in years 1- 2; $250,000 annually after that, TBD*	**Outcomes:** Improved understanding of fish community usage of eelgrass and aquaculture habitats, restoration effectiveness, and impacts of urbanization on forage fish. **Outputs: -** **Activities: -** **Resources:** As planned. **Implemented as described?** Yes.

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
Science and Monitoring *Appendix D* *NOAA*	*'eDNA monitoring for outmigration'*	*Assess next-generation monitoring tools such as eDNA for use in monitoring juvenile salmon outmigration in large rivers.* ***Resources:** FY16 $125,000/NOAA programmatic funds and TBD, FY17-21 $125,000 TBD*	**Outcomes:** Demonstrated the utility of eDNA to assess biomass and distribution of out-migrating salmonids. **Outputs: -** **Activities:** eDNA studies in Skagit River estuary **Resources:** As planned. **Implemented as described?** Yes.
Science and Monitoring *Appendix D* *NOAA*	*'zooplankton monitoring'*	*Continue annual zooplankton monitoring program through a distributed network approach with multiple collaborators* ***Resources:** FY16 $340,000/TBD, FY17-21 $150,000 TBD*	**Outcomes:** Improved understanding of annual variability, improved incorporation of zooplankton into Vital Signs framework. **Outputs:** - **Activities:** - **Resources:** As planned. **Implemented as described?** Yes.
Science and Monitoring *Appendix D* *NOAA (USGS, NPS)*	*'Elwha ecological response monitoring'*	*Continue collaborative monitoring of the Elwha watershed post dam removal.* ***Resources:** FY16 $479,000/NOAA programmatic funds and partnership, FY17-21 $350,000 TBD*	**Outcomes:** Improved understanding of the ecological response to dam removal. **Outputs:** - **Activities: -** **Resources:** As planned. **Implemented as described?** Yes.
Science and Monitoring *Appendix D*	*'urbanization impact on marine ecosystems investigations'*	*Conduct investigations on the impact of urbanization on marine ecosystems and on water quality (stormwater) and potential mitigation options*	**-** **Implemented as described?** More info needed.

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
NOAA (USGS, NPS)		***Resources:*** *FY16 $350,000/NOAA programmatic funds and TBD, FY17-21 $450,000 TBD*	
Science and Monitoring *Appendix D* *NOAA (USGS, NPS)*	*'Federal Shellfish Research Program'*	*Federal Shellfish Research Program.* ***Resources:*** *FY16 $325,000 (over next Four years)/programmatic funds and TBD, FY17-21 $300,000 TBD*	**-** **Implemented as described?** More info needed.
Science and Monitoring *Appendix D* *NOAA* *(Washington Sea Grant)*	*'harmful algae bloom and Vibrios advanced monitoring'*	*Early warning system for harmful algae blooms and Vibrios* ***Resources:*** *FY16 $158,000/NOAA programmatic funds and TBD, FY17-21 $325,000 NOAA programmatic funds over three additional years, then TBD*	**Outcomes:** Advanced monitoring for biotoxin detection and on-line predictive tools for management. **Outputs:** In 2017, USFS completed AREMP monitoring synthesis, which provides current status and trends of aquatic and riparian resources across Northwest Forest Plan area. See: Miller et al 2017. Northwest Forest Plan – The First 20 Years of (2004-2013): Watershed Condition Status and Trends. **Activities: -** **Resources:** As planned. **Implemented as described?** Yes.
Science and Monitoring *Appendix D* *USFS*	*'habitat assessment as part of AREMP'*	*Continue to implement watershed-scale habitat status and trends assessment for watersheds and aquatic habitats as part of the Aquatic and Riparian Effectiveness Monitoring Program (AREMP) and the National Watershed Condition Framework.* ***Resources:*** *$150,000/yr TBD*	**-** **Implemented as described?** More info needed.
Science and Monitoring	*'CEAP participation'*	*NRCS has requested participation in the Conservation Effects Assessment Project (CEAP) for Puget Sound. CEAP assessments are carried out at the field, watershed and*	NRCS did not participate in CEAP. **Implemented as described?** No.

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
Appendix D *NRCS*		*landscape scale and include analysis of the cumulative effects and benefits of conservation practices on the natural resources and environment.* ***Resources**: none listed.*	
Science and Monitoring *Appendix D* *NRCS*	*'Edge of Field Monitoring'*	*Edge of Field Monitoring contracts. NRCS anticipates obligating four contracts with individual producers to quantify the impacts of conservation work on water quality.* ***Resources:** FY16 $460,000, FY17 $400,000*	**Implemented as described?** Yes
Science and Monitoring *Appendix D* *NRCS*	*'Regional Stormwater Monitoring Program support'*	*The Regional Stormwater Monitoring Program (RSMP) is a collaborative monitoring program with western Washington municipal stormwater permittees, federal and state agencies to measure the effectiveness of stormwater management actions and communicate widely applicable information on the finding.* ***Resources:** FY16 $400,000 (under EQIP); $10,000 staff, FY17-21 $500,000 (under EQIP) $10,000 staff*	NRCS did not provide funding to the Regional Stormwater Monitoring Program **Implemented as described?** No.
Science and Monitoring *Appendix D* *EPA*	*'VELMA modeling'*	*VELMA project to model effectiveness of riparian buffers and other watershed management practices* ***Resources:** FY16 $60,000, FY17-21 $60,000*	**Outcomes:** Improved understanding and predictive capabilities supporting riparian management. **Resources:** As planned. **Implemented as described?** Yes
Science and Monitoring *Appendix D* *EPA*	*'federal science budget alignment'*	*Develop and implement a strategy for budget alignment among the federal agencies for science & monitoring activities in Puget Sound.* ***Resources:** .2 -.3 FTE*	**Outcomes:** Improved Federal budget alignment for science & monitoring. **Outputs: -** **Activities: -**

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
			Resources: As planned. **Implemented as described?** Yes
Science and Monitoring *Appendix D* *EPA*	*'scope Federal Puget Sound Science Program'*	*Support the Science and Monitoring Work Group's design and development of a formal Puget Sound Science Program tasked with providing the best possible scientific information to inform recovery decisions.* ***Resources:** .2 - .3 FTE*	**Outcomes:** Draft scope in development, contingent on Federal legislation and resources. **Outputs: -** **Activities: -** **Resources:** As planned. **Implemented as described?** Yes
Science and Monitoring *Appendix D* *EPA*	*'inter-governmental science support'*	*Support increased coordination between federal, tribal, state, local, and academic science and monitoring programs and activities.* ***Resources:** .2 - .3 FTE*	**Outcomes:** Increased coordination. **Outputs: -** **Activities: -** **Resources:** As planned. **Implemented as described?** Yes
Science and Monitoring *Appendix D* *Science and Monitoring Workgroup*	*'integrated inter-governmental research plan'*	*Develop an integrated Federal/State/private research plan to support long-term ecosystem recovery in Puget Sound that includes a process for updates at an appropriate frequency. An important part of this research plan would involve the development and communication of a conceptual model of the linked social ecological complex systems that can serve as the foundation for many science activities, including linked ecosystem models, the development of hypothesis-based monitoring systems, and supporting an interdisciplinary (natural and social sciences) research program across the many institutions active in Puget Sound.*	**-** **Implemented as described?** More information needed.

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
Science and Monitoring *E (2018)* *EPA/ORD*	*Nisqually Community Forest VELMA modeling to inform salmon recovery planning – An EPA-NCF collaboration*	***Outcomes:*** *Better management decisions on forest practices to improve stream health for salmon and other wildlife. inform salmon recovery planning at the watershed scale. The model will provide forest management scenarios on streamflow and salmon habitat.* ***Outputs:*** *model* ***Activities:*** *ORD Nisqually Community Forest collaboration. Model development* ***Resources:*** *0.5 FTE*	- **Implemented as described?** More information needed.
Science and Monitoring *F (2018)* *EPA/ORD*	*Tolt River Watershed Salmon Recovery Modeling*	***Outcomes:*** *Best use of limited resources for riparian and floodplain restoration to improve salmon habitat and recovery. help prioritize restoration efforts for maximum salmon recovery benefits.* ***Outputs:*** *VELMA model* ***Activities:*** *Model development* ***Resources:*** *0.5 FTE*	- **Implemented as described?** More information needed.
Science and Monitoring *G (2018)* *EPA/ ORD, NOAA*	*Develop and apply an integrated terrestrial-marine modeling framework*	***Outcomes:*** *Help planners visualize how local to regional restoration decisions will impact Puget Sound Vital Signs. a systems approach model to help local governments and NGOs, tribes and restoration managers make informed planning decisions for better Puget Sound recovery outcomes.* ***Outputs:*** *Integrated Environmental and Human Systems Modeling Framework for Puget Sound Restoration Planning* ***Activities:*** *Once the framework is developed, directly engage local communities, tribes and restoration managers and planners in applying the terrestrial-marine modeling*	- **Implemented as described?** More information needed.

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
		framework across the Puget Sound Basin. Collaborative effort with federal, state and NGO cooperation ***Resources:*** *4-5 FTEs (2018-2021)*	
Governance *5.0* *Science*	*Puget Sound Partnership Science Panel and Puget Sound Ecosystem Monitoring Program*	*Establish a liaison between the PSP Science Panel and the Science and Monitoring working group of the Puget Sound Federal Task Force to facilitate information sharing and cooperation.*	**Outcomes:** Improved coordination between Science Panel and Federal Science and Monitoring Work Group through over-lapping membership and communication. **Resources:** As planned. **Implemented as described?** Yes.
Governance *5.0* *Science*	*Puget Sound Partnership Science Panel and Puget Sound Ecosystem Monitoring Program*	*In collaboration with the PSP Science Panel and PSEMP, conduct an evaluation of the coordinated monitoring programs of other Federal/State coastal ecosystem recovery efforts, including the San Francisco Bay Delta, the Great Lakes, Chesapeake Bay, the Lower Columbia Estuary, and other relevant efforts. The evaluation would focus on lessons learned and provide a wider perspective on approaches to conducting ecosystem-scale monitoring programs in support of long-term ecosystem recovery.*	**Outcomes:** Better understanding of approaches used in other major ecosystem restoration efforts. **Outputs:** Science Enterprise Workshop Proceedings (2017) **Resources:** As planned. **Implemented as described?** Yes.
Governance *5.0* *Science*	*Puget Sound Partnership Science Panel and Puget Sound Ecosystem Monitoring Program*	*Evaluate the PSEMP gap analysis for science and monitoring activities that the PSFTF could address. Identify high-priority critical gaps.*	As planned. **Implemented as described?** Yes.
Governance *5.0* *Science*	*Puget Sound Partnership Science Panel and Puget Sound Ecosystem*	*Establish a working relationship with PSEMP that includes the use of the Puget Sound Federal Task Force as a "forum" for presenting PSEMP goals, approaches, and needs to federal agencies. For example, this forum could be used to scope the PSEMP gap analysis evaluation*	**Outcomes:** Improved coordination and information sharing between PSEMP and the PSFTF. **Resources:** As planned.

ID	Title	Action *From FY2017-2021 Action Plan*	Status As of Spring 2021
	Monitoring Program		**Implemented as described?** Yes.
Governance *5.0*		*The Puget Sound Federal Task Force Regional Implementation Team will implement the Action Plan and report progress on implementation of the plan as outlined in the MOU.*	The Puget Sound Federal Task Force Regional Implementation Team met regularly, implemented the Action Plan and reported on progress in the 2018 Accomplishments Report and this 2021 Progress Report.
Governance *5.0*		*The Regional Implementation Team will meet regularly to implement and track implementation of the Action Plan and established in the MOU, work in partnership with the Puget Sound federally recognized tribal governments, State of Washington, diverse stakeholders and Canadian partners in the implementation of this Action Plan.*	Members of the Regional Implementation Team met at least once a year with the Tribal Management Conference to review Federal priorities and receive input.
Governance *5.0* *Tribes*	*Puget Sound Federal Task Force engagement with Puget Sound Tribes*	*As outlined in the MOU, the Task Force will convene an annual meeting between the Federal Regional Implementation Team and Tribal Management Conference to review Federal priorities and receive input on the Federal work plan.*	Members of the Regional Implementation Team met at least once a year with the Tribal Management Conference to review Federal priorities and receive input.
Governance *5.0* *Tribes*	*Puget Sound Federal Task Force engagement with Puget Sound Tribes*	*…where Treaty Rights at Risk are raised by Puget Sound Tribes, the Federal Task Force will work to address them. If those Treaty Rights at Risk issues cannot be resolved with the Puget Sound Tribes and the Puget Sound Federal Task Force the Tribes can elevate those issues to the established national Treaty Rights at Risk CEQ/Federal Deputies resolution process.*	Members of the Federal Task Force worked to address Treaty Rights at Risk issues through, in part, 17 Treaty Rights at Risk Principals meetings (Regional Leaders for EPA, NOAA, the Corps, and, NRCS) – at least four of these major meetings included Tribal Leaders.
Governance *5.0* *Management Conference*	*Puget Sound Federal Task Force engagement in the Puget Sound Management Conference*	*The Puget Sound Federal Task Force will engage with the Puget Sound Partnership and Puget Sound Management Conference boards and committees in the implementation of the Action Plan*	Regional Implementation Team Co-Chairs (Regional Managers for EPA and NOAA) coordinated regularly with the Puget Sound Partnership

ID	Title	Action From FY2017-2021 Action Plan	Status As of Spring 2021
Governance *5.0* *PSP*	*Puget Sound Partnership and the Action Agenda*	*The Puget Sound Federal Task Force (PSTFTF) will coordinate with the Puget Sound Partnership regularly to share information on Federal Task Force activities and to discuss Task Force activities support the Action Agenda and Management conference activities.*	Regional Implementation Team Co-Chairs (Regional Managers for EPA and NOAA) coordinated regularly with the Puget Sound Partnership
Governance *5.0* *PSP*	*Puget Sound Partnership and the Action Agenda*	*The Puget Sound Partnership Director will be invited to attend Puget Sound Federal Task Force Regional Implementation Team meetings at least biannually.*	The Puget Sound Partnership Director was not invited to participate in Regional Implementation Team meetings biannually.
Governance *5.0* *PSP*	*Puget Sound Partnership and the Action Agenda*	*The Puget Sound Federal Task Force Regional Implementation Team will participate in Strategic Initiative Advisory Teams, Implementation Strategy development teams*	Members of the Regional Implementation Team did not participate in Strategic Initiative Advisory Teams, and Implementation Strategy development teams
Governance *5.0* *ECB*	*Puget Sound Ecosystem Coordination Board (ECB)*	*The federal agency ECB representatives are: U.S. EPA, U.S. Army Corps of Engineers, and NOAA Fisheries. These agencies will regularly attend ECB meetings, and provide updates to the ECB on PSFTF activities as well as raise ECB matters at PSFTF meetings.*	Federal agency ECB representatives (EPA, U.S. Army Corps of Engineers, and NOAA Fisheries) regularly attended ECB meetings, and provided updates to the ECB on PSFTF activities and raised ECB matters at PSFTF meetings
Governance *5.0* *Leadership Council*	*Puget Sound Leadership Council*	*The Puget Sound Federal Task Force does not have representation on the Puget Sound Leadership Council but will coordinate with the Puget Sound Partnership as needed on Puget Sound Leadership Council business.*	The Federal Task Force coordinated as needed with the Puget Sound Partnership on Puget Sound Leadership Council Business
Governance *5.0* *PSSRC*	*Puget Sound Salmon Recovery Council (PSSRC)*	*The objective of sharing PSSRC information and priorities within the federal Regional Implementation Team is to ensure appropriate federal agency policy, funding, and program alignment to support salmon, steelhead and habitat protection and restoration.*	Puget Sound Salmon Recovery Council information and priorities were shared with the federal Regional Implementation Team is to help ensure appropriate federal agency policy, funding, and program alignment to support salmon, steelhead and habitat protection and restoration.

ID	***Title***	***Action*** *From FY2017-2021 Action Plan*	**Status** As of Spring 2021
Governance *5.0* *Local and other*	*Local Governments, non-profit organizations and other management conference partners*	*The Puget Sound Federal Task Force will coordinate and partner with other management conference partners (local governments, non-profit organizations, universities, others) on the implementation of this Action Plan. The Puget Sound Federal Task Force will seek to coordinate federal actions to support local entity work to recover Puget Sound at the local level.*	The Puget Sound Federal Task Force coordinated with other management conference partners (local governments, non-profit organizations, universities, others) on the implementation of this Action Plan

List of 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
AQ	Aquaculture
AREMP	Aquatic and Riparian Effectiveness Monitoring Program
BIA	Bureau of Indian Affairs
BiOp	Biological Opinion
BMP	Best Management Practices
CAP	Continuing Authorities Program (§206)
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
CI	Coordinated Investment
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
DoD	United States Department of Defense
DOI	United States Department of Interior
ECB	Ecosystem Coordination Board

ECY	Washington State Department of Ecology
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
FHWA	Federal Highway Administration
FLAP	Federal lands Access Program
FLTP	Federal Lands Transportation Program
FPRB	Fish Passage Removal Board
FTA	Federal Transit Administration
FY	Fiscal Year
GRP	Geographic Response Plan
HAB	Harmful Algal Bloom
HGMP	Hatchery and Genetic Management Plan
HPA	Hydraulic Project Approval
HQ	Headquarters
LO	NEP Watershed Lead Organization
LCC	Landscape Conservation Cooperatives
MART	Multi-Agency Review Team
MBSNF / MBS	Mount-Bake 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

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
NEP	National Estuary Program
NERR	National Estuarine Research Reserve
NF	National Forest
NFIP	National Flood Insurance Program
NFPP	National Fish Passage 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 Resource 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
OCNMS	Olympic Coast National Marine Sanctuary
ORD	EPA Office of Research and Development
OLYM	Olympic National Park
PAWSS	Ports and Waterways Safety System
PCSGA	Pacific Coast Shellfish Growers Association
PIC	Pollution identification and correction
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
PSVTS	Puget Sound Vessel Traffic Service
RAD	Restriction-site Associated DNA sequencing
RCPP	Resource Conservation Partnership Program
REPI	Readiness and Environmental Protection Integration Program
RSMP	Regional Stormwater Monitoring Program
RRT	Regional Response Team
SAM	Stormwater Action Monitoring
SLS	Sustainable Lands Strategy
SMA	Shoreline Management Act
STIP	State Transportation Improvement Program
SW	Stormwater
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
UW	University of Washington
VTRA	Vessel Traffic Risk Assessment
VTS	Vessel Traffic Service

WA	Washington State
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington Department of Natural Resources
WDOL	Washington Department of Licensing
WFLHD	Western Federal Lands Highway Division
WFWO	U.S. Fish and Wildlife Service Washington Fish and Wildlife Office
WRE	Wetlands Reserve Easements
WRIA	Water Resource Inventory Area
WSDOT	Washington State Department of Transportation
WSU	Washington State University