Puget Sound National Estuary Program: Tribal Implementation

Award PA-00J91201: FY14-15

Final report

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Northwest Indian Fisheries Commission

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Introduction

On behalf of the federally recognized tribes of Puget Sound, the Northwest Indian Fisheries Commission (NWIFC) developed a program to administer the Environmental Protection Agency (EPA) National Estuary Program award dedicated to tribal restoration and protection projects in the Puget Sound watershed. These funds were initially awarded under a five-year cooperative agreement (PA-00J32201), under which NWIFC has served as the Lead Organization (LO) for the distribution of these funds. The final two years of this cooperative agreement were granted under a separate award (PA-00J91201) to allow for the full timeline needed to implement Puget Sound recovery projects. This report details the outcomes, successes, and reflections of this award for federal fiscal years 2014-15, which closed December 31, 2019. NWIFC offers a forward-looking approach on the continuation of tribal implementation projects for Puget Sound under this program.

Overview of Approach

As the Lead Organization (LO) for the tribal distribution of the National Estuary Program award for Puget Sound, NWIFC serves as the pass-through agency to administer funding to the tribes using a unique, non-competitive approach to the allocation of this award. The cooperative agreement between NWIFC and EPA Region 10 recognizes the federal government's trust responsibility to each of the federally recognized Indian tribes within the region. Each sovereign tribe, as the region's longest standing environmental stewards and natural resource co-managers, serve a critical role in the protection and restoration of the Salish Sea. NWIFC worked collaboratively with EPA and the tribes on the best approach to manage this award. As recovery must occur within all reaches of Puget Sound, and treaty rights associated with salmon, habitat,

Total for each award

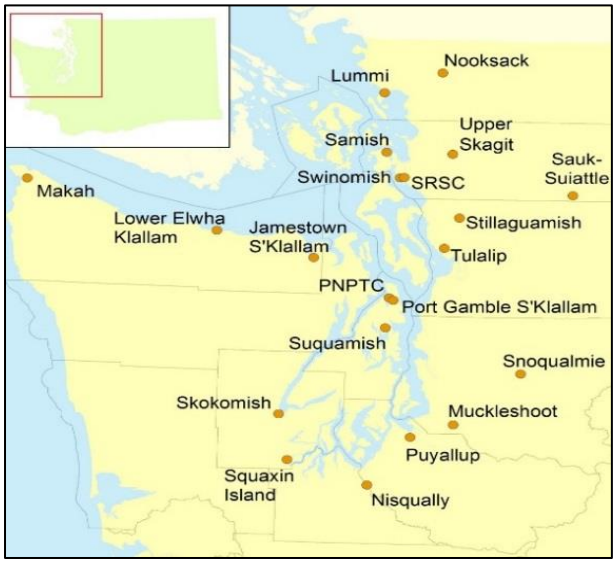
FY14: $2,490,000
FY15: $2,490,000

Total: $4,980,000

Award administration: $262,350 (both years)

Subaward amounts for each tribe

FY14: $112,450
FY15: $112,200



The total award and individual distribution, along with the administration costs of the program (left)
The 21 federally recognized tribes and tribal consortia within the Puget Sound Basin (right)

and water quality are paramount to each tribe, it was decided that funds would be allocated through equal distributions to each of the 21 federally recognized tribes and tribal consortia in the Puget Sound basin. This is modeled after the "no watershed left behind" strategy that has been an essential cornerstone of salmon recovery plan development in each watershed.

In addition to connecting their projects to the Puget Sound Action Agenda, the tribes must demonstrate how their project is of high tribal priority. There are several ways high tribal priorities can be identified:

- Each tribe, as a sovereign nation, prioritizes restoration projects and actions consistent with their own initiatives, recovery documents, and processes.
- Puget Sound Salmon Recovery Plans were developed in collaboration with the tribes. Each watershed group develops a four-year work program update to describe the watershed's accomplishments during the previous year, identify the current status of recovery actions, and to propose future actions in the next four years necessary to implement the Salmon Recovery Plan for each watershed.
- The State of Our Watersheds[1] report is, in collaboration with NWIFC member tribes, developed by the Salmon and Steelhead Habitat Assessment Inventory and Assessment Program of NWIFC. It provides tribes with a basic assessment of the health of their watersheds and gauges progress towards salmon recovery.
- The Treaty Rights at Risk[2] initiative was written and advanced by the tribes and released in 2011. It sets forth a strategy and specific actions that should be taken by the federal government to remedy the erosion of treaty-reserved rights. A central tenet of the initiative is protecting existing habitat from further decline and encouraging the use of restoration techniques where protection alone will not achieve ecosystem recovery goals.
- The Tribal Habitat Strategic Initiative was included in the 2012 Puget Sound Action Agenda, endorsing a statement of priority actions necessary to take to protect and restore salmon habitat in Puget Sound.

Recently, the tribes have also developed the Tribal Habitat Strategy[3] as a unified approach designed to organize and focus work on common landscape-based objectives for protecting tribal treaty rights and resources. It is based on preserving and restoring the processes and functions of riverine, marine, and terrestrial ecosystems. There is a focus on five key targets: riparian, floodplain, water quality and quantity, Puget Sound and nearshore, and the Pacific Ocean. The habitat strategy was completed after the FY14-15 awards were available but can be used to link future awards to tribal priorities.

[1] State of our Watersheds Report: https://nwifc.org/publications/state-of-our-watersheds/
[2] Treaty Rights at Risk: http://treatyrightsatrisk.org/
[3] Tribal Habitat Strategy: https://nwtreatytribes.org/habitatstrategy/

Workplan Objectives and Outputs

For the final two years of this cooperative agreement, NWIFC revised and built on the workplan that was developed for the first four years. The workplan is comprised of tasks, outputs, and outcomes that address program development, award cycle, and program management.

Program Development and Launch

Once funds are awarded, the process starts with updating the Request for Proposals (RFP) from previous years, which was done in close consultation with EPA. The amount of funding for the subawards for each year was determined by allocating an equal distribution after administrative costs were deducted. The RFP invited each of the 21 eligible tribes and tribal consortia to submit a proposal for their projects that addressed all required content, including:

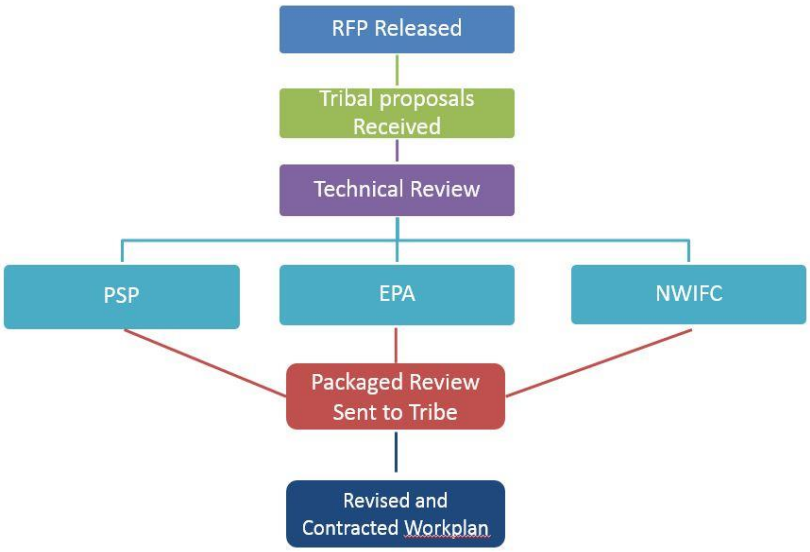
- Defining the need for the project
- Demonstrating connections to the Puget Sound Action Agenda
- Identifying proposed work as a high tribal priority
- Including climate change considerations
- Identifying project tasks and associated outputs, outcomes, and deliverables
- The project timeline
- Identifying project cooperators
- Providing a budget and budget justification

To distribute the RFP, NWIFC used the communication protocol that was developed in previous years. This ensured that each tribe received proper notification of the availability of funding, along with the expectations and process for submitting workplans. The protocol includes a list of tribal project managers at each tribe and tribal consortia, a preliminary communication with a target date for releasing the RFP to all recipients on the established distribution list, and a formal transmittal notice that contained the RFP.

NWIFC continued a coordination plan that included: (1) ensuring that the PSP is aware of tribal Lead Organization funded activities by enlisting them as a key reviewer of these subawards; (2) engaging the EPA Project Officer to discuss the capacity awards that the subrecipient projects are concurrently receiving in order to avoid duplicative funding efforts; (3) engaging in existing processes and groups to disseminate and share subrecipient project information, including the ECB, the Leadership Council, the PSP Salmon Recovery Council, and the PSP/Federal/Tribal Caucus; (4) participating in LO meetings to ensure that other LOs are fully aware of our subrecipient projects and vise versa; (5) updating an existing NWIFC website that is dedicated to information related to the Puget Sound Partnership and Treaty Tribes of Western Washington.

Award Cycle

After proposals have been received from the tribes, the award cycle consists of the review process, finalizing proposals, and issuing subaward contracts. Each proposed workplan went through a technical review by three separate agencies: NWIFC, EPA, and Puget Sound Partnership (PSP). A uniform set of evaluation criteria is used by each agency and, once all internal and external comments are received, NWIFC provides review comments to the tribes. NWIFC works with the tribes on addressing review comments within a revised workplan. NWIFC is responsible for the administration of all review and approval of the final workplans, as well as ensuring compliance with the terms and conditions of the award.



Program Management

Once awards are issued, management of the program includes ongoing support for each subrecipient, project monitoring, biannual reporting, and closing the contracts for all awards. The program is designed to incorporate adaptive management so that the processes can change as needed.

Ongoing support for the subawardees includes assistance with any amendments they need to their contracted workplan. This could include a change in the scope of work because their project needed to change, a budget modification to accommodate actual expenses or to support unforeseen expenses, or contract extensions if their project continued longer than was expected. Major changes to the scope of work were reviewed NWIFC, and EPA reviewed changes as needed. Project tracking sheets are used internally at NWIFC to track all changes to projects, monitor the submission of reports and deliverables, and support the emerging needs of the tribes.

To monitor projects and identify when a tribe might need support or changes to their workplan, NWIFC has a formal practice for subrecipient monitoring to be used for all grant programs. A risk evaluation matrix is used to assess project progress and compliance with award requirements, ranking each tribe for project communication, staff turnover and qualifications, reporting, past performance, subcontracts, Quality Assurance Project Plan (QAPP) compliance, news events, financial communication, invoicing, and NWIFC contractual document and federal audit compliance. Tribes that are identified as a low risk require diminished subrecipient monitoring. Tribes that are identified as a medium or high risk are assessed to see if technical assistance is needed. Those that are identified as the highest risk are flagged, which prompts a programmatic site visit and a potential agreed-upon procedure review, i.e. a federal program specific audit.

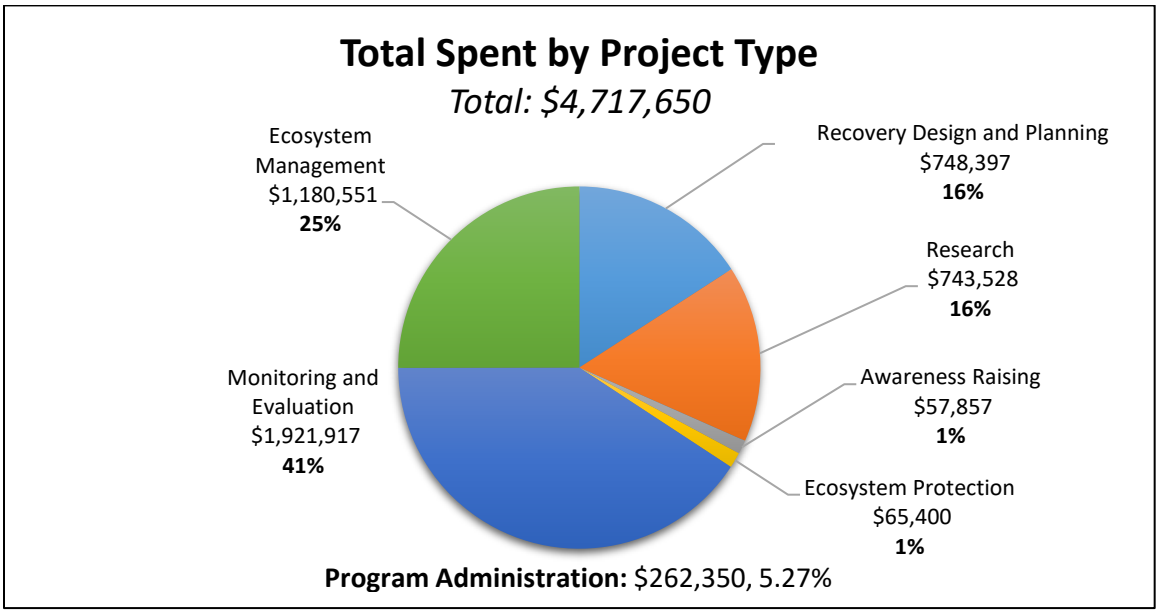
Another tool to monitor the projects of the tribes is the Financial and Ecosystem Accounting Tracking System (FEATS), which is issued by EPA to monitor the progress of tasks and outputs for each project. Reports are submitted to NWIFC twice a year, where they are reviewed for adherence to the scope of work, project timeline, project requirements, and budget invoicing. The FEATS reports are posted to the NWIFC website dedicated to this program so that they are publicly available.

In addition to the internal work of the program, the Puget Sound Recovery Projects Coordinator is in regular contact with the EPA Project Officer, engaging in regular check-ins to clarify EPA proposal reviews and discuss challenges faced within the review process and management of the program. Frequent communication allowed for greater collaboration, facilitated problem solving, and strengthened the relationship between organizations.

Overall Project Composition

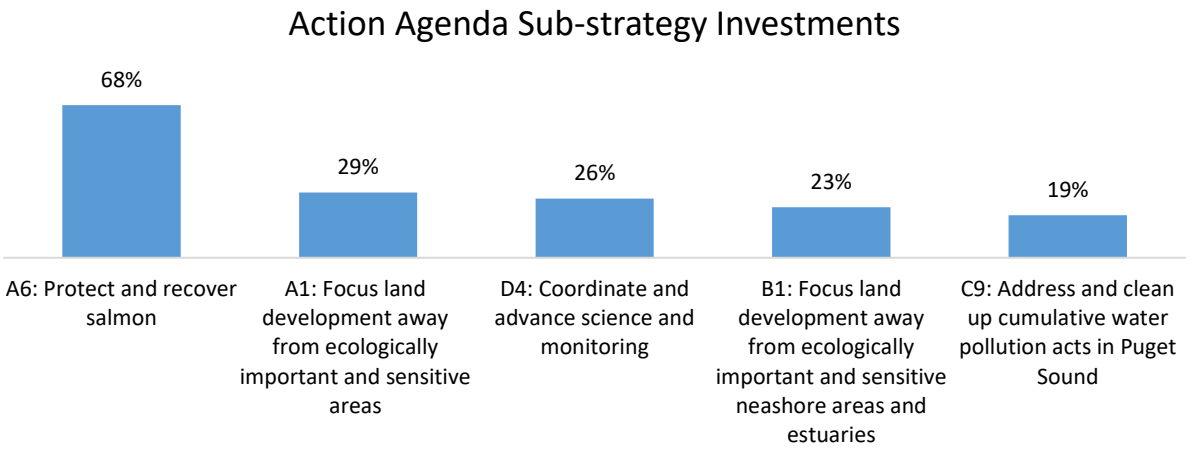
Over the two years of this award, 79 projects were implemented in the Puget Sound watershed. Some tribes implemented projects that lasted over multiple award years, and others completed multiple smaller projects within each award year. The overall priorities of the tribes can be seen by looking at how this funding was allocated. The pie chart on the following page shows how these funds were distributed, based off the project types that are used by the Puget Sound Partnership in the National Estuary Program Puget Sound Atlas[4]. By far, the most funding was spent on monitoring and evaluation (41%), which is not a surprise since opportunities to fund monitoring and post-restoration evaluation are limited. Since this is one of the few sources of Puget Sound restoration funds that allow for this important component of restoration, the tribes saw this as a great opportunity. Ecosystem management was the next highest use of these funds (25%), followed by recovery design and planning and research (16% each).

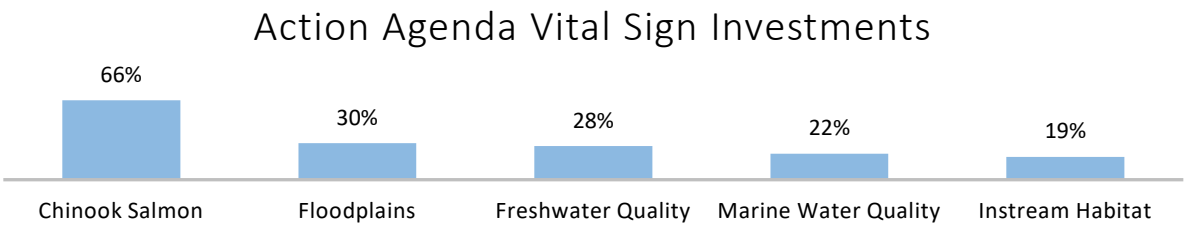
[4] National Estuary Program Puget Sound Atlas: https://psp.wa.gov/gis/NEPAtlas/Home



Although sorting projects by these types can provide a useful analysis, there are limitations to the conclusions that can be drawn. There are many cases where the project types overlap. For instance, most monitoring and evaluation projects are also research projects. And while ecosystem protection is a high tribal priority, it only registers at 1%. Many projects that include ecosystem protection as a priority are also considered to be ecosystem management. Since projects must be sorted into one type, we cannot accurately reflect both the protection and management aspects of these projects.

We see this again in the distribution of projects as they relate to the Puget Sound Action Agenda (see chart on the following page). In the reporting system for the Puget Sound Partnership, it was possible to assign projects to multiple sub-strategies and vital signs. It is abundantly clear that the major priority of tribes is to protect and recover salmon populations. The following charts identify the top five sub-strategies and vital signs that were addressed through the investments that were made by the tribes through this program. In both charts, salmon recovery and wild Chinook are at 80%.





Outcomes from the Logic Model

As part of the workplan that NWIFC submitted to EPA for the management of this award, a logic model was included to outline each task, output and outcome. The tasks and outputs are described in detail in the above sections on the development and management of the program. The outcomes from the logic model include longer range goals that have been determined by tribes to be of high priority. The ongoing funding and management of this program will continue to sustain these tribal priorities. Some of the long-term outcomes in the workplan include:

- The development of appropriate indicators and benchmarks of the health of the Puget Sound ecosystem, including the linkages to recovery goals established by resource managers.
- Identification of existing land-use regulations that fail to provide adequate protection for natural resources. Identified failures will be targeted for reform.
- The development of better management and monitoring systems for toxics, and to identify sources and reduction methods so that tribal rates of fish and shellfish consumption are safe.
- Implementation of on-the-ground projects that maintain natural hydrologic processes and flows.

To highlight some of the work that has been carried out by the tribes, examples of these outcomes are below.

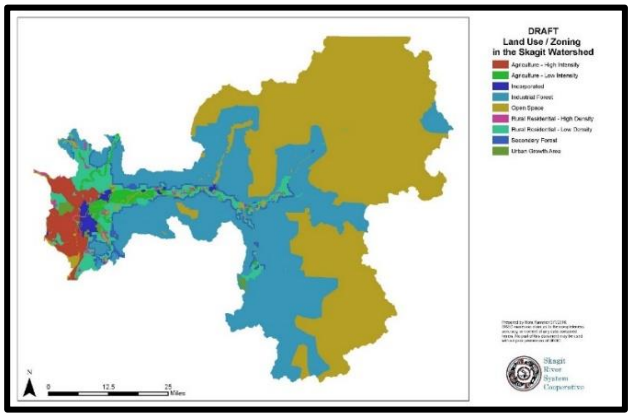
The development of appropriate indicators and benchmarks of the health of the Puget Sound ecosystem, including the linkages to recovery goals established by resource managers.

Upper Skagit Indian Tribe
Freshwater Productivity and Diversity of Skagit River Steelhead
FY14-15, $224,650

The Upper Skagit Indian Tribe continued research from previous years on the freshwater abundance, age-class composition, juvenile growth and survival of steelhead smolts by operating rotary screw traps in two tributaries of the Skagit River, Illabot and Hansen creeks. Focusing their primary juvenile objectives to the tributary scale, they have combined their adult monitoring return component. This is designed to enumerate steelhead encountered in the Skagit River that were tagged as smolts in the initial years of study. This project supported the Tribe's long-term vision of building a monitoring program focused in tributaries of the Skagit River that draws relationships between adult abundance, juvenile production, and habitat metrics, thereby promoting a watershed scale estimate of steelhead population dynamics that are critical to both harvest management and recovery planning. This work produced two annual reports, building on research from previous years, and will inform where the tribe will focus restoration investments.

Identification of existing land-use regulations that fail to provide adequate protection for natural resources. Identified failures will be targeted for reform.

Skagit River System Cooperative
Skagit River Steelhead Recovery Plan Development
FY14-15, $224,650



The Skagit River System Cooperative has developed and produced the technical basis, methods, analysis, and collaboration necessary to generate a draft recovery strategy of the Skagit Steelhead Recovery Plan for submission to area wide stakeholders. Urban and suburban

land use practices that impact salmonid populations are a component of this plan. This project resulted in a draft recovery plan that is modeled off the Skagit Chinook Recovery Plan, but was written with the collaboration of a technical team to include integration and application of the modeling approach, a gap analysis, the impacts of climate change, development of research modules, and soliciting input from regional stakeholders on the implementation strategy. The resulting draft provides direction to the research and actions needed to recover Skagit Steelhead populations, which will help guide recovery efforts.

The development of better management and monitoring systems for toxics, and to identify sources and reduction methods so that tribal rates of fish and shellfish consumption are safe.

Stillaguamish Tribe of Indians
Stillaguamish Human Health assessment and a Tribal Shellfish Consumption Advisory
FY14-15, $80,754

In 2013, the Stillaguamish Tribe investigated the presence of toxicants in estuarine habitat with Polar Organic Chemical Integrated Samplers (POCIS). The next step of this project was to investigate the actual risk from consuming marine shellfish in Port Susan. The Tribe monitors for harmful algal bloom (HAB) species by collecting and identifying phytoplankton using light microscopy, following protocols established by the Sound Toxins program. If any species of concern is detected above action threshold concentrations, the Tribe collects additional samples and sends them to Sound Toxins for chemical analysis. This project surveys for algal species that can produce Paralytic Shellfish Poisons, Diarrhetic Shellfish Poisons, and Amnesic Shellfish Poisons and helps to protect human health as well as tribal, recreational, and commercial interests in Port Susan. An early-warning system is implemented for shellfish consumption and human safety.

Implementation of on-the-ground projects that maintain natural hydrologic processes and flows.

Puyallup Tribe of Indians
Swan Creek Channel and Bed Stabilization Project
FY15, $99,000

Swan Creek upper and lower valley reaches are substantially incised due to historic land use practices in the basin, most recently urbanization. This has resulted in an imbalance of sediment supply and sediment transport capacity, resulting in significant

amounts of sediment washed downstream to the floodplain reaches. The excessive sediment from channel and bank erosion contributes substantially to poor habitat conditions limiting salmonid abundance and distribution. This project involved field walks to identify geomorphic conditions and the development of the engineering and design plans for channel and bank stabilization and restoration in the valley reaches using large woody debris.

Reflections on the Program

Successes

In addition to the individual successes of the projects funded by this award, there have been broader impacts that have resulted from leveraging larger scale partnerships with other agencies and organizations. With the consistent source of funding for projects selected by the tribes, tribal priorities have become integrated into the Puget Sound Management Conference. Examples of multi-year projects that incorporate broad collaboration include:

- **Port Gamble S'Klallam Tribe: Hood Canal and Admiralty Inlet Nearshore Assessment** The Port Gamble S'Klallam Tribe has continued a project they initiated three years prior under this award to better understand the Hood Canal, Admiralty Inlet and San Juan Archipelago nearshore systems as they relate to juvenile salmonids and forage fish. This project is part of a broader undertaking to understand the fish passage impacts associated with of the Hood Canal Bridge. Under the FY14 award, the Tribe mapped nearshore nodal habitats, tracking juvenile salmonid out-migration timing and habitat utilization in relation to seawater characteristics and prey abundance. For the FY15 award, the Tribe mapped fish distribution and density within the vicinity of the Hood Canal Bridge. This ongoing work is conducted through a partnership that includes the Tribe, Long Live The Kings, the Northwest Fisheries Science Center, the University of Washington School of Aquatic and Fisheries Science, the Point No Point Treaty Council, and the Hood Canal Coordinating Council.

- **Samish Indian Nation: San Juan Island Creosote Removal and Beach Clean Up Project** The Samish Indian Nation continued to partner with Washington Department of Natural Resources (WDNR) in this multi-year project to remove creosote and trash from San Juan Island beaches. In addition to transporting Puget Sound Corps crews to these locations, Samish conducted additional creosote piling removal efforts with WDNR and Friends of the San Juans to provide location and photo documentation of creosote piling removal sites for the purpose of allowing contractors to effectively bid on piling removal activities. Samish performed marine debris surveys and clean-up activities on state owned beaches throughout the San Juan Archipelago. This work has been mapped using GIS and a Storymap is available online to share the story.

- **Sauk-Suiattle Indian Tribe: Eradicate Knotweed from Sauk and Suiattle Watersheds** When this funding first became available, the Sauk Suiattle Tribe built on a partnership to address invasive knotweed in the Sauk and Suiattle watersheds. The knotweed had taken control of parts of the watershed, which is a threat to native plants that create habitat for salmonids. The Tribe continued to use this funding with the FY14 and FY15 awards to support this ongoing work with an additional crew for summer eradication efforts. In collaboration with the Skagit Coordinated Weed Management Area working group, they have engaged in outreach to landowners to gain access for this effort. Of the 4,500 acres of knotweed patches surveyed through this project, 79% were either confirmed to be dead or showed no sign of resurgence. Those involved in the working include the Tribe, the Skagit Fisheries Enhancement Group, the Washington Conservation Corps, and Snohomish County.

These projects offer examples of the many partnerships that have been built by tribes as they work as co-managers in the restoration and protection of Puget Sound.

Building Relationships

In addition to the partnerships built through the Tribes' strategic leveraging of this award, relationships are also grown and maintained through the administration of this program. The Puget Sound Recovery Projects Coordinator works directly with project coordinators for all subawardees on an ongoing basis, providing technical assistance and review of workplans, conducting site visits to learn more about the projects, and making connections to broader efforts in Puget Sound recovery. The annual award process has brough NWIFC, EPA, and the Partnership together as a team of reviewers. While capacity to maintain this review process has waned over the years, these organizations are currently evaluating how to best engage with one another to stay apprised on the progress and successes of tribal implementation projects.

The annual list of projects is shared with the Award Coordination group, which includes EPA and the other Lead Organizations: Puget Sound Partnership and the Departments of Ecology, Health, Fish & Wildlife, Natural Resources, and Commerce. The Award Coordination group met regularly to share ideas and support the work of all Lead Organizations. These early conversations were formative for all Lead Organization awards. NWIFC has also presented to the Ecosystem Coordination Board to share successes and lessons from the program. Additionally, both staff from this program volunteered to support the Estuary and Salmon Restoration Program with technical review in their award process.

Challenges and Lessons Learned

The major challenge experienced in funding years FY14 and FY15 pertains to the year-to-year budgeting for this program. With the transition to a new cooperative agreement for funding

years FY16 through FY20 (#PA-01J27601), NWIFC was designated as the Tribal Implementation Lead to continue to administer a program that manages funding for tribal implementation projects. While this is a separate agreement with EPA, it reflects a continuation of the program as described in this report. As such, the budget in our annual workplans with EPA reflected annual programmatic costs, including personnel expenses.

NWIFC expected to fully draw down these programmatic costs from the current award before beginning to draw down from the new award, which is aligned with our internal grant policies and our workplan with EPA. However, because a separate competitive bidding process was conducted for the new cooperative agreement, EPA determined that NWIFC must draw down personnel costs from each award to reflect time spent on two separate projects. Significant work was conducted to reestablish our budget for this program to reflect a "winding down" of PA-00J91201 and a "ramping up" of PA-01J27601. This included reevaluating how much time was spent on each task in the grant lifecycle, resubmitting timesheets from several months to draw down from two separate awards, and changing our annual budget to a three-year timeline. NWIFC still views Puget Sound tribal implementation funding to be a continuation of work funded through the lead organization model, rather than a notable change of program into the tribal implementation model.

Other challenges arose on occasion with individual tribes when navigating the terms and conditions of their awards, especially as it relates to environmental data entry, quality assurance, and riparian buffer requirements. As these challenges arose, NWIFC worked collaboratively with the EPA project officer to understand the issues and find solutions.

Conclusion

This award for tribal implementation of restoration and protection projects in Puget Sound has been a crucial component in ongoing recovery efforts. We are now into our 11th year of the program with FY20 funding and continue to adaptively manage the program to maximize the benefit for Puget Sound. Tribes have proven to be integral co-managers of natural resources, and this program allows them the opportunity to fund projects that are of highest tribal priority. We appreciate the commitment of federal funders and the staff at EPA who have continued this program over the years. We also acknowledge the Puget Sound Partnership for providing the match required for this federal award, which is necessary due to the economic hardship this would create for tribes if they were required to provide match on their own. Continued funding under this model will support the ongoing success of this program, including the development of long-term partnerships that are essential to the recovery goals for the Puget Sound watershed.

Appendix A

FY14 Tribal Implementation Projects (award amount: $112,450)

This appendix provides a summary of each project for FY14. For deliverables and progress reports, please go to http://blogs.nwifc.org/psp/

Tribe/Tribal Consortium	*Project Title*
Nooksack Indian Tribe	Nooksack Tribe Implementation of High Priority Salmon Recovery Projects: Farmhouse Reach Phase 2a and Downstream of Hutchinson Reach Phase 2a
Lummi Nation	Middle Fork Porter Creek Reach Phase 1 Restoration Project
Samish Indian Nation	San Juan Island Creosote Removal and Beach Clean Up Project and Central Weaverling Spit Beach Enhancement Project: Phase 3 Forage Fish Habitat and Bank Restoration
Upper Skagit Indian Tribe	Freshwater Productivity and Diversity of Skagit River Steelhead – Year 4
Swinomish Indian Tribe	Non-Point Pollution Public Information and Education Initiative – Year 5; Swinomish Shelfish Program
Skagit River System Cooperative	Skagit River Steelhead Recovery Plan Development
Sauk-Suiattle Indian Tribe	Sauk-Suiattle Restoration and Research – Year 5; Barnaby Reach Habitat Study
Stillaguamish Tribe of Indians	Stillaguamish Tribe Restoration and Protection Priorities
Tulalip Tribes	Monitoring Ecosystem Response to Restoration and Climate Change in the Snohomish River Estuary and Monitoring Water Resources on the Tulalip Reservation
Snoqualmie Indian Tribe	Sammamish River Corridor Habitat Enhancement – Reach 4 and Tolt MacDonald Park Riparian Habitat Restoration
Muckleshoot Indian Tribe	Soos Creek Juvenile Salmonid Outmigration Monitoring
Puyallup Tribe of Indians	Ground-Based Topographic Survey to Enhance Plans, Specifications and Estimates for Constructing Upper Clarks Creek Bank Stabilization Projects and Clarks Creek Riparian and Upland Planting Project
Nisqually Indian Tribe	Salish Sea Marine Survival Project and Nisqually Community Forest Planning
Squaxin Island Tribe	Biological Recovery of Coho in Skookum Creek – Year 2
Skokomish Tribal Nation	Skokomish Estuary Restoration Monitoring – Year 5 and Weaver/Purdy Creek Channel Floodplain Connectivity
Suquamish Tribe	East Kitsap Forage Fish Survey and Monitoring Project
Port Gamble S'Klallam Tribe	Hood Canal and Admiralty Inlet Nearshore Assessment – Year 5 and Salish Sea Marine Survival Support Project
Point No Point Treaty Council	Indian Island Forage Fish Monitoring Study – Year 5
Jamestown S'Klallam Tribe	Continued Nutrient Monitoring and Analysis for Sequim Bay; and Continued Implementation of Lower Dungeness River Floodplain Restoration
Lower Elwha Klallam Tribe	Elwha Floodplain and Fisheries Monitoring Support – Year 5
Makah Tribe	Consistent and Vocal Policy Presence on Freshwater/Terrestrial Issues and Integration of Regional Research/Recovery Priorities – Year 5

Nooksack Indian Tribe

The Nooksack Indian Tribe will construct historic-scale log jams in the North and South Forks of the Nooksack River, including the Farmhouse and downstream of Hutchinson Reaches. Project tasks include project administration, log jam construction, re-vegetation of log jams and disturbed areas, and implementation and effectiveness monitoring. Log jams will be designed to address factors most limiting Nooksack early Chinook and other salmonid populations and will ultimately lead to restored habitat conditions and habitat-forming processes in project reaches, with associated improvements in abundance and productivity of Nooksack early Chinook. These populations are essential for ESU delisting and recovery to sustainable harvest levels is the highest natural resources priority for the Nooksack Tribe.

Lummi Nation

The Lummi Nation will construct 11 engineered log jams (ELJs) in the mainstem Middle Fork Nooksack River, consisting of three Type I, two Type II, and six Type III ELJs. Endangered early spring Chinook salmon and bull trout will benefit from 11 new primary pools and more pools may develop indirectly as increased roughness causes dynamic equilibrium. Scour pools provide thermal refugia (holding pools) from elevated Middle Fork water temperatures during summer spawning months, in addition to pools for juvenile overwintering (rearing pools). All features are focused on enhancement of endangered spring Chinook habitat by maximizing natural habitat-forming processes inherent in this reach of river.

Samish Indian Nation

The Samish Indian Nation will fund two projects: (1) continuing to partner with WDNR to provide transportation to remote San Juan Island beaches for the purpose of creosote removal and trash removal from those beaches. In addition to transporting Puget Sound Corps crews to these locations, Samish will also conduct additional creosote piling removal efforts with WDNR and Friends of the San Juans to provide location and photo documentation of creosote piling removal sites for the purpose of allowing contractors to effectively bid on piling removal activities. Samish will also perform marine debris surveys and clean-up activities on state owned beaches throughout the San Juan Archipelago; and (2) creating a beach enhancement design for habitat restoration and beach enhancement of 1,760 feet along Fidalgo Bay. The proposed design will build on work completed in 2009 and 2012 and will replenish the lost sediment supply by rebuilding a natural beach profile that will reduce the effects of bigger storm surges and provide increased shade and habitat for forage fish.

Upper Skagit Indian Tribe

The Upper Skagit Indian Tribe (USIT) will continue research on the freshwater abundance, age-class composition, juvenile growth and survival of steelhead smolts by operating rotary screw

traps in two tributaries of the Skagit River, Illabot and Hansen creeks. Based on results from the spring 2012 and 2013 outmigration study, USIT refocused their primary objectives in 2014 to the tributary scale and added an adult return component designed to enumerate steelhead encountered in the Skagit River that were tagged as smolts in the initial years of study. USIT's long term vision is to build a monitoring program focused in tributaries of the Skagit River that draws relationships between adult abundance, juvenile production, and habitat metrics, thereby promoting a watershed scale estimate of steelhead population dynamics that are critical to both harvest management and recovery planning.

Swinomish Indian Tribe

The Swinomish Indian Tribe will continue to engage in two projects. The first project will engage in the 2015 Tribal Water Quality Project, an ongoing project to gather water quality data across the Salish Sea during the annual Inter-tribal Canoe Journey, in order to map out spatial patterns at multiple scales to detect large-scale oceanographic/climate and site-scale land-use influences.

The Swinomish Fisheries Department has been monitoring shellfish populations on Reservation beaches for over a decade, yet to date there have been limited efforts to determine the factors influencing year to year population variability. Populations of some economically and culturally-important hardshell clam species (butter clams, *Saxidomus gigantea*) have remained relatively stable over the survey period while others (most notably native littleneck clams, *Leukoma staminea*) have experienced dramatic declines. Nearshore environments along the Swinomish Reservation have experienced subtle changes over the years in terms of beach substrate composition (from local and landscape-scale land use changes), timing and magnitude of freshwater events (including river discharge and precipitation), and most recently an increase in the number of significant storm events. Through this proposal we will build upon existing shellfish restoration and research programs at Swinomish by advancing shellfish habitat and population dynamics research. Specifically, we will examine the hydrodynamics that drive larval transport and post-settlement survival of shellfish species and target future shellfish restoration based on survey results.

Skagit River System Cooperative

The Skagit River System Cooperative will continue to develop and produce the technical basis, methods, analysis and collaboration necessary to generate a draft recovery strategy of the Skagit Steelhead Recovery Plan for submission to area wide stakeholders in early 2016. Specific objectives include: (1) facilitation of technical team coordination, collaboration, assignments, products, and review; (2) integration and application of modeling approach; (3) generation of modeling inputs and population of model; (4) conducting gap analysis and developing research, monitoring, and adaptive management modules based on results; and (5)

submitting to area and regional stakeholders a draft implementation strategy for the recovery of Skagit Steelhead populations for their review and contribution.

Sauk-Suiattle Indian Tribe

The Sauk-Suiattle Indian Tribe will continue to engage in three projects: (1) reinforcement of a multiagency partnership to eradicate knotweed from the Skagit River watershed and its major tributaries, focusing its efforts on the Sauk and Suiattle rivers, both of which feature key spawning and rearing habitat for Puget Sound salmonids; (2) partnership with the U.S. Geological Survey to determine how the timing, quantity, and sources of sediment in the Sauk and Suiattle rivers are impacting sensitive fish runs; and (3) partnering with the Skagit Climate Science Consortium, the Swinomish Indian Tribal Community, and the University of Washington to project future streamflows under different global warming scenarios for the Skagit watershed, with funding from this grant focusing on the Sauk River watershed, the Skagit's main tributary.

A new project in their workplan is the Barnaby Reach Habitat Study. The project will characterize existing hydraulic and geomorphic conditions along the Barnaby Reach of the Skagit River in support of a larger existing project to reconnect a significant area of floodplain to the mainstem river. The purpose will be to develop a detailed description of the hydrology, geomorphology, and floodplain conditions within the project reach and to communicate findings with a group of stakeholders and the public.

Stillaguamish Tribe of Indians

Stillaguamish Tribe of Indians will continue to fund three projects: (1) support of the Tribe's education and outreach program that is designed to educate local residents and youth on the life history and habitat requirements of salmon and watershed health. It provides stewardship opportunities for the public, workshops, educational field trips, and permits the Tribe to participate in regional outreach events; (2) monitoring of water quality related to shellfish, salmon, and human health with the operation and maintenance of a marine buoy in Port Susan and harmful algal bloom surveys; and (3) controlling 2.5 acres of non-native, invasive vegetation and completing native planting on tribally-owned land.

Tulalip Tribes

The Tulalip Tribes will engage in two projects: (1) continuing to support Snohomish River estuary-wide biological monitoring with particular emphasis on fish and zooplankton assemblages and genetic assessment of DNA samples to assess salmonid origin and stock contribution (Skykomish vs. Snoqualmie vs. out of basin); and (2) monitoring hydrologic conditions and flows on the Tulalip Reservation, which is critical to help assess climate change

impacts and to project water use, availability, and surface water budgeting needed to manage water resources.

Snoqualmie Indian Tribe

The Snoqualmie Tribe will continue its path of implementing priority watershed restoration and salmon recovery actions on traditional lands in the Snohomish and Sammamish River Basins. The impetus for this work aligns with both regional and local conservation strategies while also embodying the Tribe's current resource management goals and objectives of enhancing degraded habitat, improving water quality, restoring and sustaining indigenous plant communities and promoting community stewardship. Critical habitat restoration highlights for this multi-partnership project include 11 acres of critical main river riparian buffer habitat restored and enhanced by removing and controlling 13 acres of non-native invasive plant species and re-establishing 15,000 native riparian plant species.

Muckleshoot Indian Tribe

The Muckleshoot Indian Tribe will engage in the installation and operation of a rotary screw trap in lower Soos Creek (also called Big Soos Creek), the largest sub-basin in the Middle Green-Duwamish River. Project objectives include: (1) estimating the juvenile abundance and productivity of out-migrant Chinook and coho salmon in the Soos Creek basin; (2) describing the timing, health, and condition of salmonids emigrating from the Soos Creek basin; and (3) obtaining baseline data to help assess the cumulative effects of habitat trends and recovery actions on juvenile salmon abundance, health, and productivity over time.

Puyallup Tribe of Indians

The Puyallup Tribe of Indians will engage in two projects: (1) conducting both main stem and tributary bank stabilization ground-truthing topographic surveys in upper Clarks Creek watershed to improve the accuracy of plans, specifications, and estimates for construction, developing the SEPA checklist and coordinating with permitting agencies including Corps of Engineers and project partners, building physical structural model of restoration features, and collaborating with project partners; and (2) riparian and uplands planting on recent acquisition of a 5+ acre parcel on Clarks Creek by the Puyallup Tribe. Planting will provide riparian shade in an important salmon-bearing stream located on the Puyallup Reservation, provide a food base for salmon, and provide additional bank stability to reduce bank erosion.

Nisqually Indian Tribe

Nisqually Indian Tribe will fund two projects: (1) continuing to partner with Long Live the Kings (LLTK), the lead in coordinating the development and implementation of research activities within Puget Sound that are part of the Salish Sea Marine Survival Project, a U.S.-Canada

research effort to identify the most significant factors affecting juvenile salmon and steelhead survival in the Salish Sea marine environment. LLTK will provide facilitation support for coordinating, technical, and research teams; maintain links between the project and other Puget Sound-region initiatives; and maintain a public website and create other materials for project communications; and (2) evaluating the Mashel sub-basin for prioritization of future purchases by the Nisqually Community Forest. Parcels will be analyzed to determine the opportunity for the greatest conservation benefit for listed salmon species. Initial management recommendations for the parcels will also be created.

Squaxin Island Tribe

The purpose of this grant project is to support treaty rights by contributing to the recovery of lost coho productivity in Skookum Creek. Skookum Creek is a Tier 1 high priority stream as designated by the Water Resource Inventory and Assessment (WRIA) 14 technical and citizens committee's which has Tribal representation. This designation is based upon stream size, health, and runs of cutthroat trout as well as coho and chum salmon. Skookum Creek is the only salmon stream running through the Reservation and has been declared a priority by Tribal Council and the Natural Resources Department. The Tribe will identify reaches used by rearing coho and produce a basin wide hydrological model with the goal of providing information that will be needed in creating an integrated Squaxin Island Tribe Skookum Creek Watershed Action Plan during future grant rounds.

Skokomish Tribal Nation

The Skokomish Tribal Nation will engage in two projects: (1) continued research and monitoring efforts to assess the effectiveness of the Skokomish Estuary Restoration Project. Continuing project tasks include: monitoring the relative abundance, distribution, residence time, feeding behavior, and species diversity of salmonids and other fish species; and monitoring sediment transport and estuarine mixing; and (2) improving fish access, flow dynamics, habitat quality and quantity, water quality, and flood relief by creating a connection channel from Weaver Creek to Purdy Creek. This proposed channel will be approximately 750 foot long and will allow for a more natural drainage pattern by providing a channel to carry water downstream to Purdy Creek instead of backing upstream to the distributary during high flows, and preventing stagnant conditions during summer low flows. Large woody debris will also be installed in the connection channel to further improve habitat conditions.

Suquamish Tribe

The Suquamish Tribe will develop and implement a monitoring plan to survey and document the location and extent of forage fish spawning in East Kitsap County. This project will utilize the

methods and the systematic and comprehensive sampling strategy currently in use by the Washington Department of Fish and Wildlife (WDFW) on the outer Washington Coast and elsewhere in Puget Sound. This effort is intended to comprehensively update data collected by WDFW since 1972 and improve the accuracy of distribution (both spatial and temporal) of beach spawning forage fish East Kitsap County. Washington State has designated forage fish spawning areas as Saltwater Habitats of Special Concern and has applied "no net loss" provisions to protect them. State and local regulatory programs for protection of these habitats depends on accurate and up-to-date mapping of the location and timing of spawning.

Port Gamble S'Klallam Tribe

The Port Gamble S'Klallam Tribe will engage in two projects: 1) conducting a cumulative review of data collected during the past four years of intensive fish capture and hydroacoustic survey events in the Hood Canal and Admiralty Inlet to analyze the relationship between salmonid abundance, prey resources, and water quality conditions; and 2) providing hydroacoustic support for a portion of the Salish Sea Marine Survival Project: *Juvenile salmon: Diagnosing Critical Growth Periods.* The Tribe will conduct hydroacoustic surveys in conjunction with partner purse seining efforts to analyze site-specific timing and size class distributions of juvenile salmonids and forage fish inhabiting the nearshore, and estimate relative abundance by site and species composition.

Point No Point Treaty Council

The Point No Point Treaty Council will continue supporting this multi-year project to develop field sampling methods that can be used to efficiently assess spawn deposition by Pacific sand lance and surf smelt on Puget Sound beaches, conduct intertidal forage fish surveys for spawn deposition of surf smelt and Pacific sand lance using these protocols, and then produce quantifiable measures of the annual spawn deposition for both species. Fifth year project tasks include: (1) continue sampling beach index sites at Indian Island to confirm location and spawn timing and analyzing samples to quantify spawn deposition of surf smelt and Pacific sand lance; (2) sampling established beach index sites on Marrowstone Island/Port Townsend Bay and Port Gamble Bay within Hood Canal to confirm location and spawn timing outside of Indian Island; (3) collecting data on surf smelt/sand lance incubation and larval emergence using sampling procedure developed during the second year of study; and (4) disseminating project results to professional forums.

Jamestown S'Klallam Tribe

The Jamestown S'Klallam Tribe will conduct two projects: (1) conducting nutrient source investigation and determination for the Sequim Bay watershed and research into ameliorating harmful algal blooms (HABs) and preventing illnesses from shellfish biotoxins in Sequim Bay. The increased presence of HABs pose a risk to and have impaired ecosystem and human health,

and have resulted in lost economic opportunities for both the shellfish industry and Puget Sound Tribes; and (2) engaging in noxious weed control of 85 acres of Lower Dungeness floodplain plantings, an integral part of jumpstarting a riparian canopy and providing root cohesion to improve channel stability in preparation of the Army Corps of Engineer levee setback.

Lower Elwha Klallam Tribe

The Lower Elwha Klallam Tribe will continue to engage in floodplain and fisheries monitoring activities during the historic removal of the two mainstem hydroelectric dams on the Elwha River. Project tasks include: (1) assessing juvenile salmon community composition and spatial distribution at 10 to 15 new sites in the upper Elwha through juvenile snorkel surveys, electrofishing, and mark-recapture. Juvenile surveys will be conducted up to four times per year and will be focused in side-channels and tributaries in the former Mills reservoir and upstream in Geyser Valley up to the Elwha Grand Canyon; and (2) collecting data on habitat conditions at each study reach, including width, length, depth, and velocity, wood accumulations, boulder cover, and overhead cover.

Makah Tribe

The Makah Tribe will engage in four projects: (1) continuing to provide a consistent and vocal local and regional Makah presence on freshwater/terrestrial issues for the western Strait of Juan de Fuca to further the Puget Sound Action Agenda; (2) creation of an air, water, and meteorological data management project to help assess, catalog, and georeference all available data within the region to ease ecosystem assessments; (3) continuing to maintain the long-term Washington Department of Ecology streamflow monitoring stations on the Clallam and Sekiu Rivers, with flow data used to: develop relationships of streamflow magnitude, duration, and frequency with other drainages; continue drainage trend analysis; and relate changes in suspended sediment concentration to fluctuations in stream discharge; and (4) continuing to maintain the real-time meteorological station in the Hoko river drainage for increased accuracy of western Strait of Juan de Fuca climatic patterns.

Appendix B

FY15 Tribal Implementation Projects (award amount: $112,200)

This appendix provides a summary of each project for FY15. For deliverables and progress reports, please go to http://blogs.nwifc.org/psp/

Tribe/Tribal Consortium	*Project Title*
Nooksack Indian Tribe	Nooksack Tribe Implementation of High Priority Salmon Recovery Projects: Farmhouse Reach Phase 2b
Lummi Nation	South Fork Nooksack River Skookum-Edfro Restoration Project
Samish Indian Nation	San Juan Island Creosote Removal and Beach Clean Up Project; Prairie Bald Habitat Assessment Pilot Project; Secret Harbor Estuary and Salt Marsh Restoration Monitoring of Fresh and Marine Ecosystems
Upper Skagit Indian Tribe	Freshwater Productivity and Diversity of Skagit River Steelhead
Swinomish Indian Tribe	Skagit Floodplain LiDAR Acquisition
Skagit River System Cooperative	Skagit River Steelhead Recovery Stakeholder Engagement and Implementation
Sauk-Suiattle Indian Tribe	Sauk-Suiattle Restoration and Research
Stillaguamish Tribe of Indians	Stillaguamish Tribe Marine Monitoring Project
Tulalip Tribes	Monitoring Ecosystem Response to Restoration and Climate Change in the Snohomish River Estuary; Evaluating the Use of Beaver Relocation as an Ecosystem Tool in Headwater Steams of the Snohomish River Basin
Snoqualmie Indian Tribe	Lake Sammamish Native Kokanee Habitat Project and Kimball Creek Restoration Phase III
Muckleshoot Indian Tribe	Soos Creek Juvenile Salmonid Outmigration Monitoring
Puyallup Tribe of Indians	Swan Creek Channel and Bank Stabilization – Engineering Design
Nisqually Indian Tribe	Salish Sea Marine Survival Project and Nisqually Community Forest Planning Best Management Practices
Squaxin Island Tribe	Biological Recovery of Coho in Skookum Creek
Skokomish Tribal Nation	Skokomish Estuary Restoration Monitoring; South Fork Fish Passage and Floodplain Assessments
Suquamish Tribe	East Kitsap Eelgrass Monitoring Project
Port Gamble S'Klallam Tribe	Hood Canal and Admiralty Inlet Nearshore Assessment with a focus on Hood Canal Bridge Fish Distribution
Point No Point Treaty Council	Indian Island Forage Fish Monitoring Study
Jamestown S'Klallam Tribe	Continued Nutrient Monitoring and Analysis for Sequim Bay; Continued Implementation of Lower Dungeness River Floodplain Restoration; European Green Crab Monitoring and Eradication
Lower Elwha Klallam Tribe	Elwha Floodplain and Fisheries Monitoring Support
Makah Tribe	Consistent and Vocal Policy Presence on Recovery Issues; Integration of Regional Research and Recovery Priorities

Nooksack Indian Tribe

Nooksack Tribe Implementation of High Priority Salmon Recovery Projects: Farmhouse Reach Phase 2b

The Nooksack Indian Tribe will construct historic-scale log jams in the North Fork of the Nooksack River in the Farmhouse Reach. Project tasks include project administration, permitting and bid solicitation, acquisition of materials, log jam construction, re-vegetation of log jams and disturbed areas, and implementation monitoring. Log jams will be designed to address factors most limiting Nooksack early Chinook and other salmonid populations and will ultimately lead to restored habitat conditions and habitat-forming processes in project reaches, with associated improvements in abundance and productivity of Nooksack early Chinook. These populations are essential for evolutionary significant unit (ESU) delisting and recovery to sustainable harvest levels is the highest natural resources priority for the Nooksack Tribe.

Lummi Nation

South Fork Nooksack River Skookum-Edfro Restoration Project

The Lummi Nation will construct 16 engineered log jams (ELJs) in the mainstem South Fork Nooksack River, consisting of five "woody knarl" and eleven "rackster" ELJs. The project will also augment three existing engineered logjams constructed in 2010, remove 600 feet of riprap to provide additional opportunities for woody cover, and place floodplain roughening structures to prevent flooding. Endangered early spring Chinook salmon and bull trout will benefit from 16 new primary pools and more pools may develop indirectly as increased roughness causes dynamic equilibrium. Scour pools provide thermal refugia (holding pools) from elevated South Fork water temperatures during summer spawning months. All features are focused on enhancement of endangered spring Chinook (*Oncorhynchus tshawytscha*) habitat by maximizing natural habitat-forming processes inherent in this reach of river.

Samish Indian Nation

San Juan Island Creosote Removal and Beach Clean Up Project; Prairie Bald Habitat Assessment Pilot Project; Secret Harbor Estuary and Salt Marsh Restoration Monitoring of Fresh and Marine Ecosystems

In addition to the continuation of the Secret Harbor Cypress Island monitoring project, the Samish Indian Nation will fund two other projects: (1) continuing to partner with WDNR to provide transportation to remote San Juan Island beaches for creosote removal and trash removal from those beaches. In addition to transporting Puget Sound Corps crews to these locations, Samish will also conduct additional creosote piling removal efforts with WDNR and Friends of the San Juans to provide location and photo documentation of creosote piling removal sites for allowing contractors to bid on piling removal activities. Samish will also perform marine debris surveys and clean-up activities on state owned beaches throughout the San Juan Archipelago; and (2) a new project that will develop and implement a Prairie Bald assessment program starting with locations on Cypress and San Juan Islands with WDNR.

Upper Skagit Indian Tribe

Freshwater Productivity and Diversity of Skagit River Steelhead

The Upper Skagit Indian Tribe (USIT) will continue research on the freshwater abundance, age-class composition, juvenile growth and survival of steelhead smolts by operating rotary screw traps in two

tributaries of the Skagit River, Illabot and Hansen creeks. Focusing their primary juvenile objectives to the tributary scale they have combined their adult monitoring return component designed to enumerate steelhead encountered in the Skagit River that were tagged as smolts in the initial years of study. USIT's long term vision is to build a monitoring program focused in tributaries of the Skagit River that draws relationships between adult abundance, juvenile production, and habitat metrics, thereby promoting a watershed scale estimate of steelhead population dynamics that are critical to both harvest management and recovery planning.

Swinomish Indian Tribe

Skagit Floodplain LiDAR Acquisition

The Swinomish Indian Tribe, assisted by the Skagit River System Cooperative and through USGS's 3D Elevation Program (3DEP), will start a new project that will acquire high-resolution LiDAR in the Skagit River floodplain and tributaries inhabited by steelhead. Through collaboration with other agencies, Swinomish efforts are amplified and spatial overlap is omitted– resulting in the high-resolution LiDAR coverage of the Skagit basin that could not be afforded by any one agency alone. LiDAR could be put to many uses in the Skagit, by the tribes and many others. The Skagit River System Cooperative (SRSC), a natural resources affiliate of the Swinomish and Sauk-Suiattle tribes, would use LiDAR as a basis for the steelhead recovery plan currently under development, and for writing updates to the existing Skagit Chinook recovery plan (SRSC and WDFW 2005). High resolution LiDAR models would allow a riparian analysis of shade and large wood contribution to streams. LiDAR maps, particularly of existing and former side channels on the floodplain, greatly enhance the planning, prioritization, and grant funding of instream restoration projects. Similarly, LiDAR data could be used to delineate the Skagit floodplain and channel migration zone (CMZ), and lead to better implementation of the FEMA biological opinion for Chinook habitat protection. LiDAR data could be used to more accurately delineate small streams and agricultural ditches, to better regulate water rights, irrigation withdrawals, and water quality impacts in Skagit lowlands. By collaborating with other agencies, a more complete LiDAR map of the Skagit basin would allow studies on dwindling snowpack, glacial retreat, climate change, sea level rise, coastal change detection, and many other uses both on and off reservation.

Skagit River System Cooperative

Skagit River Steelhead Recovery Stakeholder Engagement and Implementation

The Skagit River System Cooperative will continue efforts for the recovery for Skagit River Steelhead to now adopt and implement a recovery strategy. The Skagit River System Cooperative (SRSC) together with its member tribes (Sauk-Suiattle Indian Tribe, Swinomish Indian Tribe) propose to use this funding to begin the process of vetting a Technical Draft of the Skagit Steelhead Recovery Plan with area wide stakeholders. This project also includes resources for beginning plan implementation. Specific objectives include: (1) facilitation of stakeholder review and comment; (2) regional vetting and plan integration with NOAA; and (3) plan adoption and implementation.

Sauk-Suiattle Indian Tribe

Sauk-Suiattle Restoration and Research

The Sauk-Suiattle Indian Tribe will continue to engage in three projects: (1) reinforcement of a multiagency partnership to eradicate knotweed from the Skagit River watershed and its major tributaries, focusing its efforts on the Sauk and Suiattle rivers, both of which feature key spawning and rearing habitat for Puget Sound salmonids; (2) building off the previous 5-year sediment study and continuing the partnership with the U.S. Geological Survey on a new project to measure the sediment contributions from smaller sub-basins in the Suiattle watershed to examine the influence of land-use variables and natural factors that might explain sediment production; and (3) will be a study to determine the timing of gravel movement at the depth of salmon redds in the Sauk River, to see at what flow rates scouring of those redds begins.

Stillaguamish Tribe of Indians

Stillaguamish Tribe Marine Monitoring Project

Stillaguamish Tribe of Indians will continue to engage in three projects: (1) monitoring of water quality related to shellfish, finfish, and human health with the operation and maintenance of a remote marine hydrolab sensor system in Port Susan and harmful algal bloom surveys; (2) a human health assessment and tribal shellfish consumption advisory project where composite samples of naturally occurring shellfish in Pt. Susan will be collected and analyzed for a broad suite of contaminants. This information will be used to develop a local shellfish consumption advisory; and (3) exploring the potential of using floating mussel rafts in Pt. Susan for the purpose of wave energy attenuation and sediment retention.

Tulalip Tribes

Monitoring Ecosystem Response to Restoration and Climate Change in the Snohomish River Estuary; Evaluating the Use of Beaver Relocation as an Ecosystem Tool in Headwater Steams of the Snohomish River Basin

The Tulalip Tribes will engage in two projects: (1) continuing to support Snohomish River estuary-wide biological monitoring with particular emphasis on physical and water chemistry. Scientific information that provides foundational understanding of this ecosystem and its response to management actions (e.g., restoration) and anthropogenic alteration (e.g. climate change) is critical for adaptive management; (2) monitoring hydrologic conditions and flows on the Tulalip Reservation, which is critical to help assess climate change impacts and to project water use, availability, and surface water budgeting needed to manage water resources; and (3) assess observed ecological benefits to identify the value of reintroducing beavers into unoccupied forested areas. Project goals include monitoring ecological impacts of beaver relocation, and evaluating relocation strategies.

Snoqualmie Indian Tribe

Lake Sammamish Native Kokanee Habitat Project and Kimball Creek Restoration Phase III

The Snoqualmie Tribe will engage in two restoration projects for the Kimball Creek and Lake Sammamish Native Kokanee habitat areas. Efforts will include working with partners on designing a fish passage barrier removal project with forwarding the East Lake Sammamish parkway culvert replacement project and restoring riparian function through native species reforestation and revegetation. The continuation of the Kimbal Creek project by removing invasive plants, restoring native riparian floodplain vegetation,

and re-grading the over-steepened creek banks to a gentler slope on private property along lower Kimball Creek. Critical habitat restoration highlights for this multi-partnership project include addressing a priority fish passage barrier for the imperiled native Lake Sammamish kokanee salmon population and restoring a minimum of 7 acres of critical riparian forest buffer habitat by controlling aggressive non-native plant species and re-establishing 8,000 native riparian plant species.

Muckleshoot Indian Tribe

Soos Creek Juvenile Salmonid Outmigration Monitoring

The Muckleshoot Indian Tribe will continue their efforts in the installation and operation of a rotary screw trap in lower Soos Creek (also called Big Soos Creek), the largest sub-basin in the Middle Green-Duwamish River. Project objectives include: (1) estimating the juvenile abundance and productivity of out-migrant Chinook and coho salmon in the Soos Creek basin; (2) describing the timing, health, and condition of salmonids emigrating from the Soos Creek basin; (3) obtaining baseline data to help assess the cumulative effects of habitat trends and recovery actions on juvenile salmon abundance, health, and productivity over time; and (4) conducting spawning surveys to identify the number, location, and timing of Chinook redds. Along with recording the incidence of pre-spawning mortality based on female carcass egg retention, spawning surveys will provide data to generate egg-to-emigrant survival estimates.

Puyallup Tribe of Indians

Swan Creek Channel and Bank Stabilization – Engineering Design

Swan Creek upper and lower valley reaches are substantially incised due to historic land use practices in the basin, most recently urbanization. This has resulted in an imbalance of sediment supply and sediment transport capacity, resulting in significant amounts of sediment washed downstream to the floodplain reaches. The excessive sediment from channel and bank erosion contributes substantially to poor habitat conditions limiting salmonid abundance and distribution. This project involves field walk to identify geomorphic conditions and development of the engineering and design plans for channel and bank stabilization and restoration in the valley reaches using large woody debris.

Nisqually Indian Tribe

Salish Sea Marine Survival Project and Nisqually Community Forest Planning Best Management Practices

Nisqually Indian Tribe will fund two projects: (1) Continuing to partner with Long Live the Kings (LLTK), the lead in coordinating the development and implementation of research activities within Puget Sound that are part of the Salish Sea Marine Survival Project, a U.S.-Canada research effort to identify the most significant factors affecting juvenile salmon and steelhead survival in the Salish Sea marine environment. LLTK will provide facilitation support for coordinating, technical, and research teams; maintain links between the project and other Puget Sound-region initiatives; and maintain a public website and create other materials for project communications; and (2) build on the evaluation of the Mashel sub-basin for prioritization of future purchases by the Nisqually Community Forest. Best Management Practices for forestry in the Nisqually will be developed. These practices will be created for implementation on

Nisqually Community Forest lands and will be also communicated to other forest landowners in the Mashel sub-basin.

Squaxin Island Tribe

Biological Recovery of Coho in Skookum Creek

The Squaxin Island Tribe will support treaty rights by contributing to the recovery of lost coho productivity in Skookum Creek. The Water Resource Inventory and Assessment (WRIA) 13 technical and citizens committees, both including Tribal representation, have designated Skookum Creek as a Tier-1 High Priority stream. This designation is based upon stream size, health, and runs of cutthroat and steelhead trout as well as coho and chum salmon. Skookum Creek is the only salmon stream running through the Squaxin Island Tribe Reservation and has been declared a priority by Tribal Council and the Natural Resources Department. The Tribe will identify reaches used by rearing coho and produce a basin-wide hydrological model with the goal of providing information that will be needed in creating an integrated Squaxin Island Tribe Skookum Creek Watershed Action Plan.

Skokomish Tribal Nation

Skokomish Estuary Restoration Monitoring; South Fork Fish Passage and Floodplain Assessments

The Skokomish Tribal Nation will engage in three projects: (1) continued research and monitoring efforts to assess the effectiveness of the Skokomish Estuary Restoration Project. Continuing project tasks include: monitoring the relative abundance, distribution, residence time, feeding behavior, and species diversity of salmonids and other fish species; and monitoring sediment transport and estuarine mixing; (2) The Upper South Fork Skokomish channel/floodplain assessment seeks to improve habitat conditions for all life stages of Chinook (as well as other secondary species) throughout the 12-mile long project area, as well as downstream habitats improved by restoring sediment processes, through the development of a prioritized list of large wood treatments/projects and associated designs in response to a loss in structural and habitat diversity. The identified treatments and associated designs will direct appropriate large wood placement in order to facilitate sediment storage, sediment processing, normative channel patterns, and stable vegetated islands as appropriate; and (3) determining the barrier status and development of design recommendations for corrective actions of four identified potential barrier cascades in the South Fork Skokomish Canyon through data collection and development and calibration of hydraulic models.

Suquamish Tribe

East Kitsap Eelgrass Monitoring Project

The Suquamish Tribe will continue a monitoring plan to document the status and trends of eelgrass beds in the East Kitsap nearshore. In addition to documenting the current status (distribution and abundance) of eelgrass, the monitoring plan will prescribe methods to complete periodic surveys for documenting trends in distribution and abundance of eelgrass at both a site and regional (East Kitsap) scale. This

project is a highly prioritized project and near-term action within the Puget Sound Partnership 2014/2015 Action Agenda.

Port Gamble S'Klallam Tribe

Hood Canal and Admiralty Inlet Nearshore Assessment with a focus on Hood Canal Bridge Fish Distribution

The Port Gamble S'Klallam Tribe will continue their work within the Hood Canal and Admiralty Inlet marine and nearshore systems. This year's project phase will focus on near field fish behavior associated with the Hood Canal Bridge and how it relates to steelhead smolts, other juvenile salmonids, and forage fish. The goals of the projects are to map fish distribution and density within the vicinity of the Hood Canal Bridge. This project is part of a broader undertaking to understand the fish passage impacts associated with the Hood Canal Bridge.

Point No Point Treaty Council

Indian Island Forage Fish Monitoring Study

The Point No Point Treaty Council will continue supporting this multi-year project to develop field sampling methods that can be used to efficiently assess spawn deposition by Pacific sand lance and surf smelt on Puget Sound beaches, conduct intertidal forage fish surveys for spawn deposition of surf smelt and Pacific sand lance using these protocols, and then produce quantifiable measures of the annual spawn deposition for both species. Sixth year project tasks include: (1) continue sampling beach index sites at Indian Island to confirm location and spawn timing and analyzing samples to quantify spawn deposition of surf smelt and Pacific sand lance; (2) sampling established beach index sites on Marrowstone Island/Port Townsend Bay and Port Gamble Bay within Hood Canal to confirm location and spawn timing outside of Indian Island; (3) collecting data on surf smelt/sand lance incubation and larval emergence using sampling procedure developed during the second year of study; and (4) disseminating project results to professional forums.

Jamestown S'Klallam Tribe

Continued Nutrient Monitoring and Analysis for Sequim Bay; Continued Implementation of Lower Dungeness River Floodplain Restoration; European Green Crab Monitoring and Eradication

The Jamestown S'Klallam Tribe will conduct four projects: (1) supporting the Tribal-NOAA collaboration on the NOAA funded Management and Event Response for harmful algal blooms (MERHAB) project by management and monitoring lipophilic shellfish toxins in Washington State. The goals of the project are to develop a robust monitoring and management program for these types of shellfish toxins in Washington State that will allow for the export of shellfish to the European Union; (2) enhanced monitoring of fecal coliform pollution in northern Dungeness Bay ; (3) continued implementation of Lower Dungeness River Floodplain Restoration through riparian plant maintenance of 115 acres floodplain plantings; and (4) the monitoring and eradication of invasive European green crabs.

Lower Elwha Klallam Tribe

Elwha Floodplain and Fisheries Monitoring Support

The Lower Elwha Klallam Tribe will continue to engage in floodplain and fisheries monitoring activities during the historic removal of the two mainstem hydroelectric dams on the Elwha River. This project year proposes to spatially expand the monitoring efforts to area above Glines Canyon Dam. Project tasks include: (1) assessing juvenile salmon community composition and spatial distribution at an additional 5 to 10 new sites in the upper Elwha through juvenile snorkel surveys, electrofishing, and mark-recapture. Juvenile surveys will be conducted up to four times per year and will be focused in side-channels and tributaries in the former Mills reservoir and upstream in Geyser Valley up to the Elwha Grand Canyon; and (2) collecting data on habitat conditions at each study reach, including width, length, depth, and velocity, wood accumulations, boulder cover, and overhead cover.

Makah Tribe

Consistent and Vocal Policy Presence on Recovery Issues; Integration of Regional Research and Recovery Priorities

The Makah Tribe will engage in four projects: (1) continuing to provide a consistent and vocal local and regional Makah presence on freshwater/terrestrial issues for the western Strait of Juan de Fuca to further the Puget Sound Action Agenda; (2) project development and investigation of the ground contamination at the Hake Plant above ground storage tank (AST); (3) continuing to maintain the long-term Washington Department of Ecology streamflow monitoring stations on the Clallam and Sekiu Rivers, with flow data used to: develop relationships of streamflow magnitude, duration, and frequency with other drainages; continue drainage trend analysis; and relate changes in suspended sediment concentration to fluctuations in stream discharge; and (4) continuing to maintain the real-time meteorological station in the Hoko river drainage for increased accuracy of western Strait of Juan de Fuca climatic patterns.