Title of report

# Green Shores for Home (GSH) Phase II - Implementation Phase - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This proposal implements Green Shores for Homes (GSH), a voluntary, incentive-based program by providing technical guidance to marine shoreline homeowners, contractors and jurisdictions to develop shore friendly projects. This incentive-based program is identified in SA 3.1 GSH will work with at least two jurisdictions developing a GSH credit framework to help with the review process of shoreline projects. Permit expediting will be tested for GSH certified projects that have been reviewed by independent third-party verifiers based on the technical elements found in the GSH Rating Guide. The effectiveness of the program will be dete...

# Lower Dungeness River Floodplain Restoration - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Realign Army Corps of Engineers' east bank levee of the Dungeness River from RM 0.8 to 1.7. Remove existing levee; reconfigure road; build habitat features such as logjams and side channels to reconnect river and floodplain; provide passive recreation opportunities along realigned levee. Reconnect 0.8 miles of mainstem channel with 110 acres of its floodplain. Reconnect 1 mile of side channel for spawning and rearing of ESA listed Puget Sound Chinook and other salmon species. Restoring Dungeness floodplain is identified as a crucial component of successful salmon recovery by multiple technical studies (Puget Sound Chinook Salmon R...

# Clallam County Ground Water Resources Program Development, Implementation, and Management - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

NTA aligns with CHIN2.1 by designing and implementing a GW resources program in Clallam Co. that ensures sufficient stream flows for fish now and in the future. The initial task is to produce an on-line database of GW data. Knowing current usage and development trends in each watershed allows us to estimate GW needs for the next 20 years in comparison to available water resources. The data is necessary to plan per watershed the long-term population needs while instream flows and Summer Stream Flows needs are met or exceeded.
  
Easily useable GW data will aid Clallam Commissioners and staff to plan for growth while protecting stream health.

# Hydrologic performance monitoring of rain gardens - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Relatively low-cost devices would be installed at 60 rain gardens and operated for 2 years to detect when and for how long: 1) standing water is present and 2) overflow events occur at each rain garden. We would use nearby rain gage data to evaluate storm depth/intensity associated with periods of standing water and the occurrence of overflow and would use a simple hydrologic model in conjunction with the rain data to determine how much water is infiltrating at a rain garden. Performance would be tracked to see if overflow occurs during smaller, less intense rain events over time. The monitoring device is solar-powered and telemet...

# Oak Harbor Marina Stormwater Improvement Project - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project consists of the removal of approx. 700' of the current storm water drainage ditch and installing a new, more natural filtration system (bioswale), and increase the launch ramp angle to reduce pollutants from vehicles that have to be submerged to launch a boat. The standard slope for boat ramps is 12%-15%, the estimated slope of the current boat ramp is 6% - 8%. The goal is to reduce runoff from the asphalt parking lot and the boat ramp to prevent release of toxic chemicals and pollution from entering the bay from vehicles, pesticides and air emissions. The major milestones are design of a new natural storm water filt...

# Oak Harbor Marina Water Shading Reduction Project - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

By removing approximately 46,000 ft2 of overwater structures, including dock piles and overwater structures for boat moorage in the Oak Harbor Marina, light-dependent ecological processes will be improved to this important nearshore environment. Existing overwater structures include 30,000 ft2 of covered moorage, 21 dock fingers and 10 creosote light-blocking pile docks (16,000 ft2).
  
 In addition to assessing direct ecological benefits of the restoration elements, this project will include an outreach component to ensure the public is engaged in the exploration of feasible habitat restoration solutions.
  
  
The City of Oak Harbor...

# Oak Harbor Marina Soft Armoring Project - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Riprap removal will result in immediate gain of upper beach habitat and reconnection of the upland with the beach increasing beach access and restoring drift cell process along this beach transport zone. Beach nourishment will be added to reestablish a natural grade restoring the nearshore processes, greatly improving habitat function for spawning and migrating Chinook and other salmon species and their forage fish. This is a site with low wave energy, therefore soft shore protection techniques are expected to be successful and will increase resiliency for future ecological changes over time.   
The NTA proposal site is located in ...

# Seal Rock Shoreline Armor Removal - Deferred

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The project will remove over 1,000 linear feet of shore armor along 1,200 feet of shoreline. It will also remove scattered angular rock and quarry spall along 1,800 linear feet of shoreline to recover intertidal and backshore beach habitat near the mouth of Dabob Bay. The project includes forwarding a preferred alternative to design, permitting, and construction. Pre- and post-construction monitoring will be implemented using citizen scientists and experts from UW and WDFW. A preliminary investigation and feasibility study are currently underway. Removal of the armor and angular material will restore shoreline processes and cross-s...

# Similk Bay Shoreline Armor Removal Project - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The project will remove over 200 linear feet of shore armor, including a concrete bulkhead, a rock revetment, and concrete rubble and debris along two adjacent privately owned parcels on the western shore of Similk Bay. The project includes final design, bid development, construction, and pre- and post-construction monitoring. Design drawings were completed to permit level in 2016 by Coastal Geologic Services (CGS) and permit applications are in progress.
  
  
Restoration elements include armor and fill removal, re-grading of the beach profile, addition of beach nourishment material, creation of a marine riparian zone, and biological...

# Sustainable Lands Strategy Communication and Outreach - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Sustainable Lands Strategy (SLS) has worked for 8 yrs to bring together stakeholders who live & work in the Stillaguamish & Snohomish watersheds to find solutions that value agriculture, habitat, & flooding concerns on the landscape. Despite strong partnerships, SLS lacks capacity to develop a strategy to adequately promote multi-benefit outcomes in a compelling way. The proposed strategy will focus on:
  
-Riparian landowner social marketing & outreach, providing information about the risk of living in the floodplain & options to protect their land from devt. Will articulate benefits of restoring ecosystem processes to increase comm...

# Clear Creek Restoration and Floodplain Reconnection Project Phase I - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2025 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The proposed work for 2018-2022 is purchasing high priority properties located within the Clear Creek/Puyallup River floodplain, the demolition of structures, and the restoration of critical Spring Chinook habitat. The priority properties total up to 40 acres valued for restoration of habitat and hydrologic function. The identified properties have willing sellers, a high frequency of flooding, and significant habitat restoration potential. The methods for success of this project come from significant stakeholder support in the Floodplains for the Future program (FFTF). Floodplains for the Future is a multi-organizational partnersh...

# Skagit County Fish Passage Barrier Removal Strategy - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project is built upon collaborative planning efforts involving Skagit County, Skagit tribal organizations, and local fisheries enhancement groups. The project is based on the idea that archival fish passage barrier data needed to be updated, isolated habitat needed to be identified, characterized, and prioritized, and barriers needed to be addressed via a systematic and defensible decision structure that also maintains public responsibilities. This concept has led to a framework by which state and local archives have been integrated and high priority barriers have been advanced for project development. This project works to su...

# Skagit Riverine Wetland Assessment - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Once extensive, these essential rearing habitats have been largely lost to diking draining and subsequent land use conversions. While many of these habitats have been isolated or degraded their topographic expression can help restoration practitioners identify and prioritize actions that can bring these aquatic habitats back to life. These habitats play an important role in watershed hydrology by providing connected floodplain refugia and hydraulic capacity during peak winter flows, and conversely they play a role in holding and storing water that provides for low flow contributions during the summer months.
  
  
The recent 2015 LIDA...

# Wiseman Creek Channel & Floodplain Restoration - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA proposes to design and implement restoration actions in the Wiseman Creek Watershed, including Child's and Tank Creeks, to remove barriers to steelhead and coho passage, spawning and rearing productivity. This is a landscape scale project that involves multiple partners that include; Skagit Fisheries Enhancement Group, Skagit County, SRSC, the Wildcat Steelhead Club and several local landowners.

# Shore Stewards - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Shore Stewards program educates and engages shoreline residents, businesses and real estate professionals about decisions and actions that protect and improve shoreline function and water quality. This non-regulatory, voluntary program provides an easy point-of-entry for shoreline landowners who want to be better stewards of their shoreline. Participants agree to consider guidelines for shoreline living (shorestewards.wsu.edu). Workshops, E-newsletters, events, and social media messaging motivating behavior changes using researched social marketing strategies. Shore Steward signs, native plants and other items are used as ince...

# Smokehouse Tidelands Restoration Strategy & Implementation - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2023 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project looks to relocate over 1 mile of dike along Swinomish Channel. Thereby opening approximately 120 acres of historic wetland marsh to tidal processes that help to support the rearing of esturarine and nearshore dependent species such as Chinook Salmon.

# Skagit River Ross Island Reach Restoration Acquisition Strategy - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The origins of this project stem from our long history of working with Skagit Stakeholders to first establish the Skagit Watershed Council (SWC) and then to help co-author guidance for the selection and prioritization of restoration and protection actions in the basin. The SWC Strategy and Application provided a foundation for the application of our conservation science ethic in the basin. In subsequent years our basin approach to the protection elements of this strategy started to adopt a holistic view of land acquisition for the sake of preserving the best remaining habitats via large block grant funding using foundational formu...

# Similk Beach Restoration Design & Implementation - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2023 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

First described in the 2005 Skagit Chinook Recovery Plan , the Similk Beach Restoration project works to restore tidal influence to a isolated 22 acre nearshore wetland within the Skagit Bay nearshore environment. This back beach "pocket estuary" habitat has been isolated from tidal and nearshore processes since being developed near the turn of the Century. Primary isolated by a County roadway the wetland has primarily been used as a portion of a local golf course. Now owned by the Swinomish Tribe, the golf course is being managed with a salmon friendly, whole system vision in mind. Previously funded work has identified a preferre...

# Barnaby Slough Restoration Design & Implementation - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2024 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will complete final design and construction for the project. Tasks include:
  
-- Additional hydraulic modeling to refine project design started in previous project phase
  
-- Complete ground survey, wetland delineation, cultural resources, geotechnical and other field studies needed to finalize the design
  
-- Complete 60%, 90%, and 100% design drawings for review
  
-- Secure all needed environmental permits and landowner agreements
  
-- Continue ongoing coordination with agency staff, stakeholders, and members of the community
  
  
-- Finalize bid package
  
-- Secure agreement with construction contractor
  
-- Project construction, which could be phased over several construction seasons

# Hansen Creek Reach 5 Channel & Floodplain Restoration - Implementation

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| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The goal of this project is to restore the natural process along Hansen and Red Creeks, improve habitat conditions for salmonids, and eliminate the need for ongoing flood control activities in Reach 5 of Hansen Creek. These actions will contribute to ecosystem objectives and restoration values by providing improved foothill tributary habitat through the redevelopment, and subsequent protection, of associated riverine wetlands. Within foothill floodplains of the Skagit these types of habitats on low gradient reaches have been converted to agricultural land uses over the course of the last century. Hansen Creek represents one of the...

# South Fork Dogfish Creek Regional Stormwater Treatment Facility and Habitat Restoration, Construction Phase - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2025 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

A major contribution to SFDC restoration & continued re-certification of Liberty Bay shellfish harvest will result from:
  
1) Constructing a regional stormwater treatment facility to serve a 20-acre urban basin that consists of City streets, SR305, & commercial development.
  
2) Restoring 600-ft of stream channel & floodplain degraded by aggradation & buffer alteration
  
3) Removing an undersized 24-inch culvert that restricts fish passage
  
  
The City has completed numerous habitat & stormwater projects & has the capacity to manage both project design & construction. Prior SFDC restoration includes repair of 5 fish passage barrier...

# Lower Salt Creek Protection and Restoration Project: Phase 1 - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The first phase of this project will provide long-term protection for Salt Creek estuary and nearshore habitat through fee simple and/or conservation easements on Lower Salt Creek properties. Agate Point and Crescent Beach is identified as priority #3 in The Western Strait of Juan de Fuca Salmonid Habitat Conservation Plan, which identified and prioritized habitats most important to salmon and steelhead productivity and survival. The protection efforts in Phase 1 will enable the restoration of up to 22 acres of estuarine habitat for non-natal Puget Sound chinook and restoration of up to 2.5 miles of instream habitat. Restoration a...

# City of Port Orchard Annapolis Creek Fish Passage Enhancement - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The city proposes to replace the Annapolis Creek culvert infrastructure with a fish friendly box culvert or a bridge, effectively removing the pocket estuary barrier and beginning the processes needed to restore Annapolis Creek. The City is currently negotiating with a consultant for generation of an ad ready design that meets fish passage criteria and addresses cultural, biological and municipal needs. This work will improve stream health, ease fish passage restrictions, promote healthier beach and stream habitat and improve floodplain dynamics. This NTA has been ranked by the WSWC West Sound Integration and Synthesis Project as 8th highest for fish passage removal in East Kitsap.

# Using Beaver to Restore Ecosystem Function in the Snohomish Watershed - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Tulalip Beaver Project leverages the ecosystem engineering capabilities of beaver to protect economically and culturally important fish species through habitat and hydrologic process restoration and watershed resilience to climate change upstream of and within the anadromous zone. A GIS model is used to strategically select sites where beavers will be placed to increase the area of in-stream fish habitat. Project staff will provide technical assistance to landowners to trap and relocate "nuisance" beaver families.

# Stormwater Threats and Clean Water Strategies to Conserve and Recover Puget Sound Salmon and their Habitats - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Urban stormwater (SW) runoff has become the foremost water quality threat to aquatic habitats in Puget Sound. Human population growth continues to drive development in watersheds, leading to greater imperviousness and increasing SW runoff. We have recently shown that untreated SW is highly toxic to salmon and has the potential to undermine recovery efforts. We have also shown that green infrastructure (GSI) technologies can remove toxicity. The current project will continue a long-term collaboration between NOAA Fisheries, USFWS, WSU, and the Suquamish Tribe. The specific aim of this project is to identify the aquatic effects & toxics in SW as well as investigate effective GSI technologies.

# Advancing Sea Level Rise Adaptation: Developing Multi-benefit Projects with Vulnerable Neighborhoods - Deferred

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The protection and restoration of nearshore marine habitats and processes are the top marine ecosystem recovery actions for San Juan County. Increased flood and erosion hazards associated with rising sea levels and a changing climate will increase demand for new armor and reduce habitat quantity and quality at already armored sites. Opportunities exist to develop adaptation projects that offer significant nearshore habitat benefits, reduce vulnerability for public and private development, and may also improve public access or recreation. In phase one, partners completed vulnerability assessments, educational workshops, surveys of c...

# Financing Options for Healthy Onsite Sewage Systems (OSS) - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Snohomish County, through the existing Savvy Septic Pilot Program, will provide affordable financing options and education to empower residents in Snohomish County to maintain healthy OSS systems through rebates, low-income grants, technical support, and free septic care workshops for homeowners. Methods for success include:
  
1. Hosting at least 6 free homeowner workshops on best practices for OSS operations and maintenance.
  
2. Provide grants for 40 low-income residents to replace or repair failing OSS, or perform preventative maintenance to prevent failure.
  
3. Provide 450 homeowner rebates for septic system inspections ($100 max) and installation of septic risers ($50 per riser, up to 2).

# Howard Hanson Dam Downstream Fish Passage Facilitation and Coordination - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Create a process for stakeholder and public input in the design and building of a downstream fish passage facility at Howard Hanson Dam, ultimately receiving a federal commitment. Currently the local stakeholders are not involved in the federal process, but should be actively involved in identifying solutions and working with the co-managers to flesh out options. Fish passage at Howard Hanson Dam is a major strategy to recover the Green River fall Chinook salmon population and the steelhead population of the Green River, both threatened species. This NTA would provide the necessary resources for developing a coordinated process amo...

# White River Left Bank Setback River Miles 4.8-4.4 - Planning/Design

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| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2024 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The NTA will consist of an area on the White River between river miles 4.4 and 4.8 being restored through a variety of methods. Much of the area is both developed or undeveloped. The existing levee will be setback, allowing the river channel to be twice as wide. The widened river will give flows a chance to slow down allowing juvenile salmon to better inhabit the reach. Restored riparian area will help create habitat along the river bank for both juvenile salmon and their food sources.

# Enhancing Lowland Anadromous Streams Using Beaver Dam Analogs (BDAs) - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Within the Snohomish-Stillaguamish Watersheds, degraded spawning and rearing habitat are the greatest priority for restoration. Beaver Dam Analogs (BDAs) provide a quick and low-cost alternative to large-scale restoration efforts. These structures are designed to slow flows, increase sediment aggradation, and add stream complexity by mimicking a beaver dam. When strategically placed, BDAs have the ability to create scour and retain water in backfill pools where salmon can successfully rear. Restoration efforts will occur in coordination with multiple agencies to identify and prioritize project sites that are seasonally disconnected from the watershed and lack sufficient spawning areas.

# Mercer Island Riparian and Shoreline Restoration - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project addresses fundamental processes that are degrading water and habitat quality on the shores of Lake Washington. Due to development there has been significant displacement of native vegetation by invasive weeds and landscaped plantings on the shore of the lake and in inland riparian areas. Resulting losses in shade, erosion control and buffering potential of riparian corridors impacts water quality. This project will restore and maintain healthy riparian ecosystem functioning through replacement of invasive weeds with native vegetation. Benefits include enhanced native plant communities, reduced water temperature by incr...

# North Whidbey Island Water Quality Outreach & Best Management Practice Assistance - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will facilitate outreach and technical assistance focused on promoting and supporting landowners in watersheds of north Whidbey Island to implement water quality best management practices (BMPs). A watershed assessment will be conducted to help develop and prioritize focus areas for delivering targeted outreach. Non-targeted outreach will be offered through educational events and online resources offered on WICD's website. Willing landowners will receive BMP technical assistance via site visits, conservation planning, practice designs, and funding guidance to support implementation. Success will be measured by the nu...

# Lower Big Quilcene River Multiple Benefits Restoration and Protection Project - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Hood Canal Salmon Enhancement Group (HCSEG), Jefferson County (County), and The Nature Conservancy (TNC) are partnering on an integrated floodplain protection and restoration project along the lower 3 miles of the Big Quilcene River; the Lower Mile Reach (RM 0 to RM 1.2) and the Moon Valley Reach (RM 2.2 to RM 3). This project will provide multiple benefits including flood risk reduction, improved salmon habitat, compatibility with shellfish resources, enhanced water quality, recreational access, educational opportunities, and economic vitality in the local community. The Lower Big Quilcene River floodplain is a high priority ...

# Data Gap Assessment - Vegetated Land Cover, including Pocket Estuary Habitat - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

We have strategically gathered a group of partners to represent different areas of expertise in land management, GIS, and mapping across the region to work collaboratively to fill a land cover data gap. We will accomplish this by researching and compiling historic and contemporary data for comparison, including possible sources such as 1850s digitized surveys from GLO, 1936 maps of agricultural and forest land by HJ Andrews survey of Western Forests for the US Forest Service, Landsat data, WDFW's HRCD maps, PNPTC's mapping of shoreline changes and coastal habitats using T-sheets, PSNERP data, and additional resources to gain a base...

# Protection and Restoration of Shoreline Process: Training for Shoreline Planners and Contractors - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Coastal planners, contractors, and consultants require training about soft shore techniques. We propose to assess the learning needs of these audiences, develop a targeted training plan, and deliver an initial set of courses consistent with recommendations from the Shoreline Armoring Implementation Strategy Narrative 3.5. Courses will build upon those currently offered by the Coastal Training Program (CTP) and Washington Fish and Wildlife (WDFW) about Marine Shoreline Design Guidelines. Content will be based on existing and new case studies of local "soft shore" projects. An advisory committee consisting of agency representatives f...

# SMP Effectiveness: North Olympic Peninsula - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Shoreline Master Program (SMP) policies and regulations protect shorelines and allow shoreline use, with a goal of No Net Loss (NNL) of ecosystem function. NEP-funded Phase I conducted in Clallam and Jefferson Counties identified NNL indicators, developed SMP policies regulations designed to achieve NNL, and monitored initial results. Phase II evaluates effectiveness of recent adjustments in permit outreach and compliance identified in Phase I (Jefferson) and early compliance and effectiveness (Clallam). Both counties will share results with interested jurisdictions and use the results to improve their SMPs during the next update.

# Oil spill trainings to increase preparedness of the local communities - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Provide 2 free HAZWOPER and 2 free oiled wildlife trainings annually to increase the knowledge and capacity of volunteers to assist in an oil spill response. The trainings will occur in Port Townsend & Port Angeles to expand the effort along the Strait and recruit from Whidbey Island. Provide 1 annual oil spill preparedness workshop for residents to raise the general awareness about oil spills and how residents with no oil spill training can contribute to cleanup efforts. Upload env. data into SoundIQ incl. forage fish data for future GRP update.
  
If fully funded for 4 years the NTA will provide a min. of 400 volunteers with the...

# Connecting Hood Canal communities to conservation through the Hood Canal Watershed Education Network - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA would provide funding to support the coordination of HCWEN and quarterly meetings to bring together scientists, educators, and outreach professionals, with the overall goal of coordinating outreach to leverage collective resources, knowledge, and expertise.
  
Further, this NTA would support efforts to further engage businesses, landowners, and the agricultural community through inclusion in HCWEN, but also through a mini-grant program that, over four years, would provide small grants to assist with the implementation of BMPs that will help to reverse declines in water quality and shellfish populations. Specifically, HCWEN w...

# A Multi-Benefit Restoration of the Lower Duckabush River and Estuary - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Lower Duckabush Restoration Project by partners, HCSEG, WDFW, and the Army Corps of Engineers to engage with community members, Tribes and key stakeholders to further the Duckabush Estuary chapter of the PSNERP. To date, HCSEG has led community and stakeholder outreach and engagement efforts among landowners, treaty tribes, and local agencies to develop a multi-benefit project that will result in restored estuarine habitat supporting summer chum and Chinook salmon while also reducing the impact of flooding through acquisition and restoration. Restoration planning activities will help to inform partners and community on design f...

# Improving elevated water temperatures and low dissolved oxygen in the Lake Washington Ship Canal to reduce barriers to salmon migration and. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Elevated water temperature and decreased dissolved oxygen concentrations in the Lake Washington Ship Canal (LWSC) inhibit the upstream migration of adult Chinook and other salmon, contribute to pre-spawning mortality, amplify the effects of diseases and parasites, and give a competitive advantage to warm-water predators of salmon. Addressing this issue is one of the highest priorities in the Lake Washington/Cedar/Sammamish (WRIA 8) watershed. The Washington Climate Change Impacts Assessment (2009) identified the LWSC as among the most thermally impaired water bodies for salmon in western Washington. The project will seek a lasting ...

# Improving fish passage at the Ballard Locks to reduce mortality and ensure local and regional investment in habitat protection and restorat. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Repairs and upgrades are urgently needed to the Hiram M. Chittenden (aka, Ballard) Locks to improve fish passage and survival for Chinook salmon listed as threatened under the Endangered Species Act and to ensure the local, state, and federal investment in habitat protection and restoration in the Lake Washington/Cedar/Sammamish Watershed (WRIA 8). Much of the machinery to operate the Locks is original and well past its design life, and some critical facilities have already failed. The poor condition of the Locks impedes salmon migration and survival in WRIA 8. Safe passage and survival of salmon depends on the repair and replaceme...

# Improving elevated water temperatures in the Sammamish River to reduce salmon mortality and thermal barriers to migration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Sammamish River is a critical salmon migratory corridor in the Lake Washington/Cedar/Sammamish Watershed (WRIA 8). Chinook salmon use the Sammamish River both as juveniles feeding and growing as they leave the watershed and as adults returning to high priority spawning grounds. The WRIA 8 Chinook Salmon Conservation Plan identifies elevated temperatures in the Sammamish River as a critical barrier to salmon migration and includes a goal of implementing two thermal refugia by 2025. Sustained water temperatures above 20 deg. C (68 deg. F) can be stressful to salmon, increase disease and predation, and pose a thermal barrier to mi...

# Phase III Skagit County Social Marketing Project - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

During Phase III of Skagit County's Social Marketing Project, we propose to follow the recommendations of the Strategic Communications and Outreach Plan created during Phase II. Efforts will result the protection and/or upgrade of 6381 acres of shellfish beds in Samish Bay, Padilla Bay, and S. Skagit Bay.
  
  
Target audiences are recreationists, septic system owners, small farm owners, and pet owners. Desired behaviors include:
  
\* Picking up and proper disposal of animal waste
  
\* Good pasture management, including keeping animals off of wet pastures during fall and spring
  
\* Regular septic system inspection/maintenance, and
  
\* Mana...

# Enhanced OSS in Clallam County's MRA Phase 2 - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Clallam County Expanded Onsite Sewage Management Program 1) educates OSS owners regarding inspection requirements and benefits in the Clallam Marine Recovery Area, 2) incentivizes compliance with inspection requirements through rebates, 3) provides for database maintenance and improvements to track and store both OSS design and inspection records, 4) improves database reporting capabilities, 5) creates automated processes to streamline program management functions where possible, 6) envisions enforcement support to back up both inspection compliance efforts as well as non-conforming system/failure repair correction, and 7) explores stable funding options.

# Clallam County Enhanced PIC Phase 2 - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

"Implement Clallam Co.'s Enhanced PIC Program in the MRA" involves 1) outreach and education to make pollution correction a community effort, 2) long-term ambient water quality monitoring to guide selection of focus areas for pollution correction, 3) targeted water quality sampling of priority sub-basins to identify sources of bacterial pollution, 4) property surveys to assess potential pollution sources, 5) technical and financial assistance to property owners to overcome pollution correction barriers, 6) enforcement to back up pollution correction efforts where voluntary compliance fails, and 7) consideration of novel study desig...

# Conservation Reserve Enhancement Program (CREP) Expansion - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Conservation Reserve Enhancement Program (CREP) is a joint federal and state funded program that restores riparian (streamside) habitat and protects that habitat for 10-15 years. This NTA proposes to expand CREP implementation in the Puget Sound by identifying landowner barriers and motivators to increase program participation - matching landowners who would likely be incentivized to participate with the additional funds required for incentives to inform future budget requests. Three pilot projects are planned based on the above analysis. This proposal addresses the Habitat Strategic Initiative regional priorities and approache...

# Puget Sound Livestock Stewardship for Shellfish - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Shellfish regional priority and approach Shell1.4 is the focus of this NTA. The SCC and Puget Sound conservation districts will expand focused efforts to increase implementation of agricultural best management practices to address runoff from farms to benefit water quality in shellfish growing areas. Specific shellfish growing area watersheds are selected based on data provided by WDOH with local partner input/participation and may include: Samish Bay, Portage Bay, and Hood Canal shellfish growing areas. Expanded efforts include a regionally coordinated education and outreach campaign to increase awareness of livestock's potential ...

# Cedar River Riparian Restoration and Stewardship - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project addresses fundamental processes that are degrading water and habitat quality in the Cedar River. There has been significant displacement of native vegetation by invasive weeds (particularly invasive knotweeds and butterfly bush) in the Cedar watershed. Resulting losses in shade, erosion control and buffering potential of riparian corridors adversely impacts water quality as reflected by TMDL reports. This project will restore and maintain healthy riparian ecosystem functioning through a comprehensive replacement of invasive weeds with native vegetation, both planted and through natural regeneration. Benefits include re...

# Upper Snoqualmie River Riparian Restoration and Stewardship - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project addresses fundamental processes that are degrading water and habitat quality in the headwaters of the Snoqualmie River. There is significant displacement of native vegetation by invasive weeds (particularly invasive knotweeds and butterfly bush) in the Snoqualmie watershed. Resulting losses in shade, erosion control and buffering potential of riparian corridors adversely impacts water quality as reflected by TMDL reports. This project will restore and maintain healthy riparian ecosystem functioning through a comprehensive replacement of invasive weeds with native vegetation, both planted and through natural regenerati...

# Puget Sound Estuary Restoration Resource Guide & Web Platform - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

ESRP and other Puget Sound partner organizations have been working to advance science and understanding of estuary restoration through efforts like our ESRP Learning Program. ESRP will work with partners to assemble best available science, technical design reports, and lessons learned from large scale estuary restoration projects (Qwuloolt, Smith Island, Fir Island Farms, etc) to produce new web-based and print best available science and design resources, technical training modules, short videos, visual products, and project sponsor support information that advances the best and highest quality and efficient estuary restoration pro...

# Dosewallips Floodplain Mid-Hood Canal Chinook Salmon Multiple Benefits Habitat Restoration Plan Phase I: Plan Development, Coordination and. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2023 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Dosewallips River is one of three rivers where mid-Hood Canal Chinook salmon spawn and is a PSP-prioritized floodplain. This project creates a structure to bring diverse interests and expertise together to collaboratively develop an integrated floodplain management and Chinook salmon habitat restoration plan. Task Forces will form to review existing GIS and other information and to identify gaps and prioritize actions, guided by the MHC Recovery Chapter, to recover habitat and ecosystem functions critical to Chinook salmon life history types. The needs of fish will be placed in the context of development, floods, roads, climate...

# GSI at scale: Maintenance and inspection of GSI installations in the Puget Sound - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

There is considerable experience in Western Washington implementing green stormwater infrastructure (GSI) practices. It is now critical that we begin to address whether GSI installations are maintained and work as designed. In this proposed NTA, the team (an economist, a hydrologist, & a social scientist) propose a series of activities that will inform policy actions in the next decade of GSI deployment. These include a) surveys of homeowners on GSI maintenance costs; b) cataloging current inspection protocols used by local implementing agencies in the Puget Sound as well as their costs; c) development of a feasible and scientific...

# Schoolyard Stormwater Management - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The District will coordinate with a group of diverse local partners to provide Mason County students on-site structures for field investigations and place-based curricula to increase awareness of stormwater pollution, surface water infiltration, impervious soils, low impact development (LID) principles, and create knowledge of local stormwater stewardship opportunities. Pacific Education Institute (PEI) will customize the existing "Drain Ranger" curriculum to be Mason County relevant. PEI will train participating teachers the summer prior to implementation on how to incorporate this curriculum in their classroom, emphasizing NGSS s...

# North Sound Riparian Modeling and Monitoring - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will deliver at least four inter-related habitat models to guide habitat restoration and protection in the Skagit.
  
  
1) a riparian shade model, capable of predicting hours of shade on all anadromous reaches, and where shade benefits are most likely.
  
2) a large wood recruitment model that assesses the capacity of all (anadromous) riparian zones to deliver wood to the channel.
  
3) a temperature model based on the shade model inputs and measured thermographs
  
4) a large wood detection procedure that can estimate the amount of instream wood in both open rivers and streams with a closed forest canopy.
  
Focus area will be ...

# Priority Landowner Outreach and Pilot Project Implementation for Multiple Benefits on the Dungeness River Delta - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This action will follow up on a recently completed parcel-scale analysis of flood risk and impacts to ecosystem services (see http://www.jamestowntribe.org/programs/nrs/nrs\_Dungeness\_River\_Delta.html), that prioritized parcels that provide maximum multiple benefits in terms of improving water quality, improving ecosystem function and reducing flood risk. This proposed action will include three activities. First, we will develop a set of locally-relevant strategies and approaches that landowners can use on their parcels to reduce flood risk or enhance ecosystem services. Next we will approach (or continue discussions with - many ...

# Dungeness Off-Channel Reservoir Construction - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Multiple stakeholders are pursuing construction of a nearly 1600 ac/ft off-channel reservoir to store water for late summer irrigation. Water will be diverted from the Dungeness River when flows are high and stored in the reservoir for Aug/Sept irrigation, thus reducing the need for irrigation water diversions from the river by approximately one-half during the period when flows are lowest. This will increase flow and significantly improve habitat for four ESA-listed salmonids. Low late summer stream flow is a major Dungeness River habitat limiting factor for salmonids (WRIA 18 LF). Reducing irrigation diversions is recommended in the D...

# Point Wilson Shoreline Restoration Planning and Design - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This action will include three activities. First, the sponsor will identify individuals who can act as points of contact for key partners (thus far we've identified a list that includes Washington State Parks, US Coast Guard and the Light Keepers Association). We will engage those stakeholders in discussions oriented towards building interest in a landscape-scale restoration on Pt Wilson, and identifying their needs and constraints. Next the sponsor will assemble and analyze relevant site information on historic, present and possible future shoreline conditions and uses, that will be used as a foundation for the design activiti...

# Whatcom County Pollution Identification and Correction (PIC) Program - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Expand successful Whatcom County PIC program to cover additional drainage areas with commercial, tribal, or recreational shellfish closures or declining water quality. Continue PIC program in areas where water quality improvement is still needed.
  
\*Monitor for bacteria; identify hotspots and pollution sources.
  
\*Engage community members in water protection activities through social marketing and focused messaging for specific audiences and bacteria sources.
  
\*Deliver at community workshops information to improve behavior related to managing small farms, septic systems, pet waste, and wildlife feeding.
  
\*Provide technical assistance...

# Expand South Sound Shore Friendly Programs - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2025 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This action empowers waterfront homeowners to learn about shoreline ecology, processes, and management and to adopt Shore Friendly stewardship principles across South Puget Sound. Thurston and Pierce Conservation Districts (CDs) will establish programs based on the successful Mason Conservation District- Shore Friendly Mason model, with education, site visits, and site-specific professional guidance that creates behavior change to protect nearshore habitats and coastal processes, and to increase armor avoidance/removal/adoption of SSP alternatives. The Shore Friendly Mason program will enhance services; refine outreach strategy; us...

# Lower Hoko River Restoration and Protection Project: Phase 2 - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project includes both protection and restoration actions. Acquisition will enable restoration and provide long-term protection for Hoko floodplain habitat through fee simple and conservation easements on Lower Hoko properties, particularly for those parcels identified as priorities in the Western Straits Conservation Plan due to their value as salmon habitat. The restoration is in the planning and design phase. Restoration will accelerate the recovery of natural processes and address salmonid limiting factors through the addition of large wood, removal of abandoned railroad grades and associated infrastructure, and fill impac...

# Snow Creek LWD Restoration Project - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

A significant proportion of the Snow Creek drainage has been historically affected by riparian logging, intentional wood removal from the channel and road impacts. Reductions in large woody debris have led to increased channel incision and subsequent reductions in pool frequency and complexity. Increases in sheer stress on the channel bed associated with reductions of in-channel wood have led to a coarsening of the channel bed and loss of spawning gravels. This project will restore spawning and rearing habitat in Snow Creek for ESA-listed Hood Canal Summer Chum and Puget Sound Steelhead through the installation of large woody debr...

# Snow/Salmon Reconnection Feasibility Project - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Snow and Salmon Creeks used to flow together into an extensive brackish and saltmarsh wetland before entering Discovery Bay. At some point early in the 20th Century, Snow Creek was diverted from it's central location in the valley floor and moved against the eastern edge of the valley floor and then out onto Discovery Bay mudflats. The results have been an unstable and aggrading estuary, incision of stream channel, altered sedimentation and freshwater hydrology, and recurring flooding in the valley as Snow Creek jumps back into it's old channel at high flows. This Feasibility project will determine if the the benefits of restoratio...

# Lower Dungeness Floodplain Restoration: Dungeness Farms Phase - Deferred

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The proposed NTA will include design and restoration activities for the removal of up to 500' of Army Corps of Engineers Dike on the Lower Dungeness River, which will open up river access to approximately 22 acres of Dungeness River estuarine habitat. The dike is privately owned by a landowner that is willing for restoration to take place. NTA activities will include engineering, permitting, and deconstruction of the levee.

# Dungeness River Riparian Recovery Project: Phase 2 - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The project will continue targeted outreach to private and public landowners on the river to promote voluntary stewardship in restoring floodplain forest habitat to a healthy condition for the benefit of salmonids, general water quality and human recreational opportunities. In order to meet the objective, it will take substantial amounts of landowner outreach and a significant amount of time on the ground removing invasive species and planting or seeding native trees and shrubs in their stead. The project will result in up to 150 acres of restored floodplain forest.

# White River RM 2.5-4.2 Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The NTA will consist of an area along the left bank of the White River between river miles 2.5 and 4.2 being restored through a variety of methods. Much of the area is currently former golf course, and agriculture. A setback levee throughout the area will be constructed along with anabranching channels through the flood plain. Large woody debris (LWD) will be installed to help create instream habitat. Riparian plantings will be established with a goal of creating a productive ecosystem to provide future LWD recruitment as well as habitat for different species in the food web to interact with the anadromous fish species. The river c...

# Chimacum Creek Restoration and Protection Project: Phase 2 - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The project will move towards implementing the activities outlined in the Chimacum Creek Protection and Restoration Plan. These include:
  
1. Protection and restoration of high priority parcels that are listed in the strategy
  
2. Site specific management of beaver activity within riparian areas to protect viable farmland and planted buffers
  
3. Implementation of the landowner outreach strategy for Chimacum Watershed
  
4. Management of Reed Canarygrass to promote healthy and functional riparian buffers.

# Pacific Pointbar Setback Levee - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The NTA will consist of an area along the right bank of the White River between river miles 3.9 and 4.5 being restored through a variety of methods. Much of the area has had some development which will be removed. A setback levee throughout the area will be constructed along with a side channel through the floodplain. Large woody debris (LWD) will be installed to help create instream habitat. Riparian plantings will be established with a goal of creating a productive ecosystem to provide future LWD recruitment as well as habitat for different species in the foodweb to interact with the anadromous fish species. ...

# Assessing and improving nutrient management in North Puget Sound Counties - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

WSDA Dairy Nutrient Management Program (DNMP) will protect and improve 10,195 acres of shellfish growing areas by decreasing bacterial pollution from livestock operations by:
  
\*Focused source ID sampling and surveillance to evaluate manure management practices and impacts to surface water in shellfish growing priority areas of Skagit, Snohomish and Whatcom.
  
\*Water quality monitoring at the CA-US border to collect data to support transboundary coordination reducing water quality impacts.
  
\*Enhance GIS tools, such as online WQ results map, online Story Map, and manure application map to increase stakeholder collaboration, communi...

# Water Quality Focused Street Sweeping Program - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2024 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The street sweeping program will be enhanced by adding an FTE and shifting focus on sediment removal. The goal is to implement operating procedures and sweeping routes aimed at reducing pollutants released to surface waters. GIS data and GPS tracking will direct program modifications. Criteria includes land use zoning, street classifications, traffic loads, steep slopes, on-street parking, garbage routes, catch basin cleaning, treatment and flow control facilities, sanding routes, proximity to surface waters and more. Findings from prior sweeping projects in Kitsap County, Tacoma and Seattle will also inform the analysis. The progr...

# Completing and Maintaining Sound-wide Shore Armor Mapping - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This proposed NTA includes updating shore armor mapping incrementally, with priority for shores where existing mapping is low resolution, of low (spatial) accuracy, and data is old (dating back as far as 1999). New armor mapping would be conducted by boat using GPS with a minimum mapping unit of 20 ft following mapping methods developed by CGS for ESRP (CGS 2016). This protocol includes data on armor tidal elevation and condition, with greatly improved spatial accuracy. Each year, coarse/old armor mapping would be updated to produce a fully updated shore armor dataset by 2022. Annual updates from WDFW's HPA database will also be ap...

# Local conservation funding development in Clallam County - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

In the Puget Sound basin, every county (except Mason and Clallam) has created a Conservation Futures program to help secure lands central to their identity and what attracts people to them. The programs provide funds for local governments and community groups to conserve lands and fund maintenance and operations of assets acquired using program funds. Across the region, diverse projects funded by Conservation Futures programs can include community parks, trails, habitat and working lands.
  
  
Under RCW 84.34.200, counties may annually levy up to 6.25-cents per $1,000 of assessed value on all taxable property within the county for su...

# Parish Creek fish barrier removal, habitat restoration design, and construction - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Design the removal of a fish barrier culvert that includes a 45 foot long x 5-foot wide x 5-foot tall concrete channel and weir on Parish Creek (tributary to Gorst Creek) where it crosses W Belfair Valley Road. The undersized culvert restricts flow, causing a backwater effect that promotes sedimentation which has caused stream braiding, upstream of the culvert, and the loss of channel characteristics. When constructed, this project will eliminate the fish barrier, restore natural sediment transport and channel processes, and stream character to match the existing upstream and downstream segments. The project will focus on restorat...

# Kitsap Creek @ Northlake Way fish barrier removal feasibility, and preliminary design - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Kitsap Creek, a tributary to Chico Creek, is the outlet of Kitsap Lake that runs through a 200 foot long 72" culvert, 35 feet below the surface of Northlake Way. The long, steep culvert is undersized & a partial fish barrier (33% passable) with a Priority Index (PI) of 45.61 (WDFW 1/19/01, Whitney), the highest PI in Bremerton's fish barriers. The feasibility analysis will include a geotechnical investigation & preliminary design report that evaluates various options to replace the current culvert/weir system & establish the basis for the next phases of design and construction of the barrier removal. Eliminating this barrier will...

# Barrier Spit and Associated Coastal Wetland Dynamics - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The work will further our ability to predict barrier beach and associated habitat changes to these vulnerable yet heavily developed shores of Puget Sound. The analysis will start with mapping and quantifying past and present erosion/accretion trends (using multiple time steps) and associated nearshore habitat changes from a representative sample of barrier beach systems from the Puget Sound region. New mapping will include Structure for Motion using drones for complete topographic coverage of beach and estuary systems. Analysis will include lineal and aerial rates of change. Outputs will be paired with analysis from the US Geologic...

# Mud Bay Habitat Protection - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2020 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Fee acquisition of both the 15-acre Fox Parcel and 40 acres adjacent to the mouth of McLane Creek (Complex), located in Lower Eld Inlet. The Fox parcel has 4.5 acres of tidal mud flats and 550 feet of shoreline. The Complex parcels have five acres of tidal mud flats and 2,700 feet of shoreline. Acquisition of these properties will protect nearshore habitat for juvenile and adult salmon, including coho, Chinook, steelhead, chum and coastal cutthroat. Under future management objectives there may be opportunity for hiking trails for wildlife viewing.

# Middle Deschutes Habitat Acquisition - Terminated

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This two-phased project seeks to acquire fee simple ownership of 220 acres and 1.5 miles of the Middle Deschutes River, as well as 1,600 feet of Silver Creek, an important thermal refuge, at its confluence with the Deschutes River. This grant request seeks to fund Phase 2, which covers the eastern 144 acres, 4,300 feet of the Deschutes River, and 1,600 feet of Silver Creek, including the confluence. The project site is located near the confluence of Silver Creek and Deschutes River, south of Offutt Lake, in Thurston County. This project will protect habitat for chinook, coho, chum, steelhead, and cutthroat trout.

# Lower Deschutes Habitat Acquisition - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2020 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project seeks to acquire, in fee, a 33-acre undeveloped parcel under single ownership. The project site hosts 1,300 feet of mainstem Deschutes and 1,100 feet of oxbow/off-channel river course, as well as forested wetlands and riparian forest habitat. The property is directly adjacent to another Capitol Land Trust conserved property and would create a 136-acre block of protected land with over 6,800 feet of mainstem Deschutes River. This project provides important off-channel winter refuge habitat for juvenile coho, steelhead and cutthroat in a large off-channel oxbow. The property is located directly east and across the Deschutes River from the Olympia Airport.

# Puyallup Watershed Ecosystem Recovery Plan - Phases II and III - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Phase I of developing Puyallup River Watershed Council's Ecosystem Recovery Plan (ERP) is the development of a written plan with extensive stakeholder outreach, and is underway with funding support from Pierce County and other in-kind project partners. This plan will integrate with the local WRIA 10 Lead Entity's Salmon Recovery Strategy per the guidelines provided by Puget Sound Partnership Phase II of this project will: integrate the plan with PSP's Miradi database and regional taxonomy; develop a web-based GIS tool that integrates the written plan, which project sponsors can use to develop project proposals that align with the W...

# Urban and Rural Residential Forest Health Management and Stewardship to reduce Stormwater Runoff impacts to Puget Sound - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Trees are the original green stormwater infrastructure (GSI). They provide flow control by intercepting stormwater, reduce toxic pollutants into urban streams. Low tree density reduces capacity to manage flow, contributing to degraded streams. Skagit Conservation District (SCD) will partner with Department of Natural Resources (DNR) to assist communities to improve tree and forest health across the landscape, increasing their functional capacity to mitigate runoff. Roles: DNR Washington Conservation Corps (WCC) crew training in tree care and planting, natural area restoration, and Fire Wise education; NTA administration. SCD: coor...

# Union Avenue Water Quality Retrofit - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The project will retrofit a total of 72 acres draining to the Union Avenue storm main using Ecology General Use Level Designation technology for pretreatment and sized using WWHM2012 modeling. The basin includes approximately 11.9 acres of roadway surface and 12.0 acres of parking. Union Avenue, Jefferson Street and 14th Avenue carry 13,875, 9,443 and 19,513 vehicles per day respectively. This project and similar retrofits of arterial roadways within the City implement the long-term strategy to address water quality problems in Olympia. Specifically, the project proposes to treat runoff from the drainage basin using a Vortech sys...

# Brawne Avenue Basin Water Quality Retrofit - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project would design and construct a stormwater treatment facility near the intersection of Brawne Avenue and West Bay Drive to treat runoff from an approximately 45-acre basin.
  
Runoff from the tributary area currently receives no water quality treatment before discharging directly to Budd Inlet. This project was identified in the West Bay Environmental Restoration Assessment.

# Capitol Way Water Quality Retrofit - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Construct a water quality treatment facility for runoff from an area roughly bounded by Capitol Way, Adams Street, 7th Avenue, and Union Avenue.
  
Justification/Need: The drainage basin, which is tributary to Capitol Lake, currently receives no water quality treatment. The basin's approximately 20 acres are fully developed.

# Martin Way at Mary Elder Water Quality Retrofit - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Design and construct water quality facilities for runoff from Martin Way between Mary Elder Road to Sleater Kinney Road.
  
Martin Way is an arterial roadway located in a High Density Corridor zone. Polluted street runoff from approximately 140 acres of primarily commercial development and more than eight acres of street right-of-way currently flows untreated to Woodard Creek just west of Mary Elder Road.

# Plum Street Water Quality Retrofit - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Design and construct stormwater treatment facilities for runoff from Plum Street and areas east to Quince Street. The approximately 42-acre area, tributary to Moxlie Creek, currently receives no water quality treatment. Plum Street is a high traffic, arterial roadway zoned Downtown Business, Professional Office, High Density Commercial Service, and Residential Mixed Use.

# Fones Road Bioretention Retrofit - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will design and construct a bioretention facility to provide water quality treatment for runoff from approximately 10 acres at Pacific Avenue and Fones Road. The vicinity is commercially developed and includes the second busiest intersection in Olympia. The project will retrofit an existing 750-foot long ditch located on City property.

# Downey Farmstead Side-Channel Restoration, City of Kent - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2018 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Downey project provides rearing and refuge habitat, a key limiting factor identified in the WRIA 9 Salmon Habitat Plan. This project will excavate over 200,000 CY of material to create a side-channel network adjacent to the Green River that will 1) Provide 1,875 LF of side-channel flood refuge habitat for juvenile Chinook salmon accessible during the primary outmigration period (January-June); 2) Provide quality rearing habitat for all salmonids throughout most of the year; 3) Create 130 acre-feet of additional floodplain storage that will lower peak flood elevations by approximately six inches in the surrounding area; and 4)...

# Regional In-stream Flow Coordination for Watershed Restoration and Enhancement Planning - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA is for WRIA 15 Regional Coordination between the multiple watersheds and jurisdictions to facilitate discussions of current and future water needs and availability; and potential impacts to instream flows. Topics of discussion include, but are not limited to:
  
 Roles of the Health Districts in building permit issuance and water use
  
 Roles of and potential expansion of the various water purveyors
  
 Existing water rights and use rates
  
 Locations and usage for permit-exempt wells
  
 Current stream flows
  
 Hydro-connectivity of Aquifers
  
 Prioritized mitigation projects across basins for impacts of consumptive water use.
  
  
...

# Clallam County TMDL Pre-Assessment - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Clallam County TMDL Pre-Assessment aims to evaluate stream segments, with regard to various water quality parameters, where impairment or suspected impairment exists, and looks for links to land-based environmental stressors. Analysis of adjacent parcels flags lands with intact habitat that are protective of water quality while characterizing others where improvements could alleviate water quality impairments. Ideally, this process could intervene before a TMDL becomes necessary or alleviate impairments in already-listed 303(d) waters that have not yet benefited from major cleanup projects.

# Lower Ohop Creek and Floodplain Protection and Restoration - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2018 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Nisqually Land Trust will pursue permanent protection of 200 acres within the Lower Ohop restoration area through fee acquisition of properties along Ohop Creek. These acquisitions will secure opportunities for future phases of creek and floodplain restoration including channel realignment, floodplain connectivity, and reforestation of the valley. This restoration project is a priority in the Nisqually Chinook and Steelhead recovery plans. South Puget Sound Salmon Enhancement Group will coordinate preliminary design for the next phase of the restoration project.

# Assess impacts and develop strategies to reduce impacts from forestry on freshwater quality - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The PSP Vital Sign protection target for the freshwater B-IBI indicator is "100 percent of Puget Sound lowland stream drainage areas ranked as excellent retain excellent scores for the BIBI". B-IBI sites in forested basins are typically among the highest scoring sites in Puget Sound, many of which have been identified as prime candidates for protection. Understanding how forest land management affects freshwater quality and the B-IBI indicator is critical to develop and implement protection plans. King County will use forest harvest records and other relevant forestry data from throughout Puget Sound to retrospectively assess how f...

# Restore Naturally Functioning Riparian Buffers in South Sound - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The culmination of the following will result in improved riparian function:
  
1) riparian planting-establish native trees/shrubs on priority sites identified by the District's prioritization tool, this element involves site preparation, tree/shrub planting, and plant protector installation;2) planting maintenance-perform maintenance on completed planting sites by reducing competition from unwanted vegetation, controlling invasive vegetation, and replanting when necessary; 3) knotweed control and inventory-continue implementation of the treatment plan for Mill/Goldsborough Creek and expand knotweed control to include additional Tie...

# Skokomish Valley Road and Habitat Improvement - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Skokomish Valley Rd runs directly along the right bank of the Skokomish SF, between Swift and Vance Creeks. This is one of the first areas to flood during high flows; flood flows sheet across the road and are routed along the road side ditch. As a result, significant numbers of fish are stranded in the roadside ditch after flooding. Additionally, the existing road conditions restrict floodplain connection to 60 acres of forested wetland. The preferred alternative will 1) create hydraulic connection between the SF Skokomish and the 60 acre forested wetland complex through installation of two culverts and one bridge; and 2)...

# MyCoast: The Statewide Citizen Science Reporting APP. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Washington Department of Natural Resources in partnership with the Northwest Straits Commission and the Snohomish County Marine Resources Committee will launch a statewide version of the MyCoast app. MyCoast is a portal for the collection and analysis of pictures and data related to marine debris and shoreline change. Information collected through the application will be used to visualize the impact of nearshore hazards and to enhance awareness among decision-makers and stakeholders. Information includes documenting creosote-treated marine debris, capturing beach change, evaluating storm surge, tracking abandoned vessels, and t...

# Planting trees to decrease stormwater runoff. - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will produce a regional tree canopy assessment and ecosystem valuation for the urban areas of Central Puget Sound. It will analyze tree canopy within growth boundaries, identify areas of low canopy, and prioritize potential planting sites to increase canopy in areas with a high capacity to mitigate stormwater runoff and provide ecological co-benefits, including carbon sequestration. The analysis will help communities identify high-value sites and prioritize locations where additional trees can provide the most benefits. Financial resources for planting in priority areas will be leveraged through community partnerships. Three year maintenance plans will ensure establishment.

# Bacteria Source Identification and Reduction Program - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Better Coordination: Existing PIC and FC TMDL efforts will be better coordinated among multiple agencies (King County, Cities, State,
  
non-profits) to increase the probability of pollution sources being both identified and successfully eliminated, to achieve goals of
  
cleaner natural waters.
  
New Efforts: Targeted education & outreach to citizens in specific PIC and FC TMDL areas, for better septic system and landscape
  
practices to decrease release of pathogens, detergents, excessive nutrients and other pollutants to surface waters and groundwater.
  
Targeted landscape-scale inspections, leading to site-specific inspections and ci...

# Enhanced Stormwater System Maintenance for Mitigation - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The City of Tacoma made system cleaning a standard procedure after end of pipe stormwater monitoring results showed significant improvement to contaminant levels after system cleaning occurs. Tacoma prioritizes areas to receive enhanced maintenance according to system age, sediment levels and other factors so that the greatest amount of sediment and associated pollutants are collected and thus not allowed to enter the receiving waters. Approximately 100,000 lnft of pipe will be cleaned and inspected for a total of $350,000.
  
  
System cleaning will be accomplished by scouring the pipe and vactoring the sediment. Each pipe cleaned wi...

# Stillaguamish Estuary Habitat and Chinook Resilience Project (Part I) - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will improve marsh foraging access for juvenile salmon at TNC's restoration site and increase marsh resiliency in the Stillaguamish estuary by increasing freshwater and sediment delivery across the delta's seaward edge.
  
Adaptive management actions will be identified using two models: 1) a site-scale allometric channel analysis will determine the number of small blind channels needed for juvenile salmon foraging access; and, 2) an ecosystem-scale 3D hydrodynamic model will inform the best restoration actions on site for reducing salinity stress and increasing sediment delivery to the northern estuary under current and ...

# Lummi Island Quarry Habitat Restoration Project - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The project includes permitting, final design, construction, and pre- and post-construction monitoring. A permit-ready design will be completed in early 2018. Removal of 500 linear feet of armor and fill, regrading of beach profiles, addition of beach nourishment material, and creation of a marine riparian zone will restore shoreline processes and cross-shore connectivity, and increase the abundance of usable shoreline habitat benefitting forage fish spawning and other nearshore species. Shading of kelp and eelgrass beds will be reduced by removal of overwater structures and pilings. In-water construction will be conducted by barge...

# Lowman Beach Park seawall removal - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

A Feasibility Study was completed in December 2017. The next phase of work is to complete the design and permitting and then construct the project (remove the seawall and recreate the beach). The project will need permits from the USACOE, WDFW and the City of Seattle. Construction can be done from land, starting with the removal of an existing tennis court and the bulk of the existing seawall. The northerly most 5-10 feet of the seawall needs to remain as it connects to private property to the north. There is also a portion of Pelly Creek that flows in a pipe and daylights at the existing seawall. This fresh water flow will be inco...

# Myrtle Edwards Park shoreline improvement - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2023 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Begin design work for shoreline armoring removal and beach expansion at Myrtle Edwards Park. Juvenile chinook have been observed using the beach at the Olympic Sculpture Park at the south end of Myrtle Edwards Park. Removing armoring and expanding the subject beach will provide additional habitat opportunities for Chinook along the Elliott Bay near shore. This first phase of the project involves the design or the armor removal and beach expansion. Work includes a survey of the site and an assessment of the habitat opportunities.

# Smith Cove Park Shoreline Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2023 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The east side of Smith Cove Park, facing Smith Cove, at the north end of Elliott Bay, is armored with large rock rip rap except for an area of natural beach at the northeast corner of the site. Smith Cove contains shallow water habitat with a gently sloping beach at the north end. Further off shore are kelp and eel grass beds. The proposal is to remove the rip rap, expand the beach area and transition to soft armoring with logs and planted native riparian vegetation to benefit juvenile Chinook which use the near shore in Elliott Bay.

# Stillaguamish Floodplain Acquisitions and Restoration - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2020 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

We propose to acquire, protect and restore lands within the North Fork Stillaguamish floodplain. This will entail fee simple acquisition of real property, placement of deed restrictions on acquired parcels to prevent future development activities. Acquiring floodplain land is critical for implementing the ecosystem restoration projects (ELJ construction, levee/armoring removal, etc.) detailed in the 2005 Stillaguamish Chinook Recovery Plan and the 2016 Action Agenda. We have been working for ten years on this effort, in the process purchasing over 1000 acres of floodplain land where this important work can take place.

# Shoreline Restoration Effectiveness Monitoring - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA expands data collection to determine shore armor removal effectiveness on improving ecological conditions at local and landscape/regional scales. Assessments include three beach types: restored beaches that have had armor removed; armored beaches; and reference sites. Pre- and post-construction monitoring has occurred at 12 armor removal sites around Puget Sound, however most received only one year of post-construction data collection. This program adds new sites and continues data collection at previously monitored sites. Parameters include: photo points, large woody debris and beach wrack composition, forage fish spawn s...

# Assessment of Bluff Recession Rates in Puget Sound: Implications for the Prioritization and Design of Restoration Projects (Phase 2) - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Coastal bluffs are the most prevalent coastal landform type in the Puget Sound region, totaling over 1,000 miles shoreline. CGS recently measured and analyzed long-term coastal bluff recession rates from 185 bluffs to understand the range and dominant drivers of recession. This study includes measuring more bluff recession rates, integrating new data, comparing recession rates from armored and unarmored bluffs, and a decadal study of a sub-sample of bluffs at higher resolution. The higher resolution analysis will explore how recession rates have changed over the last century and how much of that change is associated with specific d...

# Clallam County Stormwater Management Plan, Regulations, and Outreach - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Clallam County proposes an NTA to update its stormwater and development standards. The County currently uses the 26-year old 1992 Ecology SWMMWW, which is insufficient to address water quality and quantity. Changes in land cover will be addressed in clearing & grading and amendments to landscaping, impervious surface coverage, and critical area codes.
  
Odds of success for this NTA are high due to the recent 2014 Ecology SWMMWW adoption by Port Angeles and Sequim, since local designers are now familiar with its standards. Clallam County will assemble a stakeholder group to prepare the stormwater standards and small project design c...

# Stormwater Retrofit Project for Culverts Direct Discharging to the Strait and Puget Sound - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA decreases toxins in fish and shellfish from stormwater (SW) pollutants by treating SW using LID BMPs before discharge to the Strait & Sound. SW is known to carry pollutants (metals, PAH, fecals, pesticides, etc.) from roads, septics, animals, irrigation, etc. The main tasks:
  
Task 1-Contact & recruit for a work group local & state entities, tribes, & local citizens with knowledge of sites discharging untreated SW from roads & other county infrastructure.
  
Task 2-Field check & assess untreated SW direct discharge from County infrastructure to the Strait & Sound along unincorporated Clallam coast.
  
Task 3-Prioritize disc...

# Clallam County Seawater Intrusion Assessment, Planning, and Implementation - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

NTA plans for future needs in a changing climate while protecting peoples health (drinking water) and restoring ecosystem conditions (LDC1.3). Clallam needs to consider its rapid coastal development. More detailed info about seawater intrusion (SI) impacts is needed to plan for development, with expected sea level rise & storm surge. 1968, 78, & 93 studies indicate seawater intrusion in Sequim Bay & Makah areas. In 2014 the PUDs supply well moved upland due to seawater. This program is a snapshot of Cl levels in wells along the coast to:- determine the location, extent, & severity of SI in comparison to prior studies & use for fut...

# Daylighting Brookhaven Creek: Feasibility Study - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The City wants to address current issues with its storm water system and bring public awareness to water quality and quantity issues in an urban watershed. The steep slope, velocity and pipe size and the current outfall prevents fish access to Brookhaven Creek. WRIA 6s Salmon Strategy lists Brookhaven Creek as having potential to reestablish lost habitat for Cutthroat Trout and potentially Chinook (with further improvements). The site itself presents many challenges, including a narrow lot, an adjacent historic building, public utilities, and the elevation due to the seawall. A feasibility study will receive input from a qualified ...

# King County Shoreline Armor Monitoring - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Current shoreline armor vital sign tracking is not keeping up with armor replacement and repair, and is insufficient to capture essential shoreline characteristics important to nearshore ecosystem health and recovery. Baseline and monitoring data are needed for assessing armoring, soft shore, and restoration project impacts, as well as the planning and prioritization of future protection and restoration efforts intended to improve nearshore ecosystem health. The Department of Ecology will use boat-based lidar to quantitatively map the shoreline features of Vashon and Maury Islands to capture the following attributes: armor length; ...

# A Guide to Streamside Living - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The proposed action would bring together regional partners throughout Puget Sound at various levels to develop a riparian BMP manual for landowners and contractors, such as landscapers. This final product would be similar to the successful guide that WDFW developed for shoreline landowners. With the collaborative development of this riparian manual, partners at all levels throughout Puget Sound could utilize the product in site visits, at outreach events, and in other forms. The end result will be an increased understanding of best management practices specific to native vegetation, stormwater management, and habitat protection. Fu...

# WRIA 1 Integrated Monitoring and Centralized Data Management System - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA brings priority elements of monitoring programs related to Whatcom LIO Ecosystem Recovery Plan vital signs including stream flow, water quality, habitat, and land cover. This NTA brings monitoring related to local recovery plans and land use monitoring together under the WRIA 1 framework and centralizes management and access of that data. The purpose is to provide decision-makers with quantitative information to adaptively manage WRIA 1 recovery plans. The approach includes: a. convening work groups to identify priority objectives under each of the monitoring elements, b. incorporating components of Whatcom Count...

# Simulate Summer Streamflows in Response to Groundwater Pumping and Climatic Effects - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Summer streamflows in the Puget Sound Basin largely are sustained by groundwater that will increase in importance as glaciers continue to shrink. We propose the application of groundwater flow models to simulate the interaction of groundwater and surface water and thereby inform water-management decisions. Two existing models and one proposed new model will be applied, which will cover parts of five different LIO areas. The models will include a streamflow-routing component that interacts with a subsurface groundwater component, but the focus will be on streamflow simulation. Groundwater pumping wells will be simulated to quantify ...

# Fish barrier correction - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

DNR identified 22 USFS-controlled fish barriers on DNR-managed lands for possible remediation. The fish barriers are located in WRIAs 1 (7 barriers), 4 (3 barriers), 5 (2 barriers), 11 (4 barriers), and 16 (6 barriers). DNR plans to prioritize the fish barriers for future work and correct 2 by October 2022. DNR will meet with USFS notifying them of our intent to remediate the identified fish barriers. Together we can prioritize projects based on habitat availability, fish species, or coordination with local entity or other USFS projects. Both agencies will seek funds for the first 2 projects that DNR plans to correct by 2022. DNR w...

# Develop a Non-Fish Stream Crossing Database and pilot projects that address Climate Change. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

DNR anticipates that only 75% of the non-fish stream culverts are captured in our existing culvert database. By systematically evaluating all of our culverts and planning replacements with increased capacity to improve stream function, the results will provide cleaner water for Puget Sound. DNR will redesign the existing database to include additional information on non-fish stream culverts. We will review existing guidelines (NTA 2018-0234) to determine the additional parameters to be evaluated (field/office) and monitored. Additionally, we will conduct a pilot project, using the synthetic stream layer derived from LiDAR to determine total budget and resources needed.

# Update stream-crossing BMPs and develop guidelines to address climate change and sediment delivery. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

DNR needs to update BMPs and guidelines because most currently used information is dated and limited in scope. They do not account for impacts due to the higher frequency and intensity of storm events. The updated BMPs will focus on non-fish streams and their contribution to salmon habitat and overall stream ecology.
  
DNR will research and assess new and advanced methodologies to accommodate impacts from climate change and effects of sedimentation at stream crossings in the forested environment. The research and review process could include working with WDFW and Ecology to incorporate progress and new ideas from those agencies. This NTA will work with NTA 2018-0233.

# Skagit County Compliance Assurance Program - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

We will enhance the existing PIC Program in the Samish and Padilla watersheds by accelerating our existing PIC Program in these watersheds to implement TMDL studies in these areas. This would include the use of chemical tracers sampling to identify sources, storm sampling, source identification investigations, and contacting property owners with problems on their properties to identify and facilitate solutions.
  
  
We propose to expand the PIC Program for 4 years to include the watersheds in Skagit County that contribute water to S. Skagit Bay watershed. We will focus first on pollution issues found in the Big Ditch/Maddox Creek area.

# Determine water quality impacts related to the Hood Canal Bridge and model solutions. - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2020 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Hood Canal Coordinating Council, in coordination with its member jurisdictions and Long Live the Kings, and in consultation with the Department of Transportation, will determine water quality impacts related to the Hood Canal Bridge by conducting fine scale analysis on the Bridge's effects on water circulation in the fjord, and determine any resulting food web impacts. Solutions to increase circulation will then be modeled using this analysis.

# Puget Sound Sand Lance Habitat Characterization and Mapping - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

HPA rules protect documented Sand Lance spawning habitat above +5' MLLW, and WDFW uses beach surveys to document this habitat. WDFW developed new sample processing methods that are more efficient at finding eggs. We will use the new methods to update and improve Sand Lance spawning habitat maps.
  
Sand Lance are unique among forage fish because they burrow in sand to conserve energy and to avoid predators. Recent surveys found that Sand Lance burrow in sediment at elevations of up to +2' MLLW, and that these discrete areas of habitat appear to be used consistently over decades. We will survey nearshore areas to describe Sand Lance b...

# Development of Chemical Indicators to Detect, Track and Assess Treatment of Novel and Emerging Toxic Stormwater Pollutants - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Currently, stormwater treatment performance (e.g TAPE protocols) and optimization is evaluated using suspended solids, metals, nutrients, and pathogens. While effective as a first pass indicator of water quality, issues such as coho pre-spawn mortality, genotoxicity, and impaired immune function (metrics of biological health) indicate that other toxics in stormwater often are driving biological impairment in salmon. Here, we propose to develop a more comprehensive suite of pollutants and toxicants (a broader "measuring stick") to better represent water quality and toxics flows in stormwater. We then propose to survey different sys...

# Duckabush River Acquisition and Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Preserve the last remaining private inholding on the south side of the Duckabush River above the Powerline Reach as well as a few parcels adjacent to existing Land Trust Preserves, and conduct restoration and enhancement projects on the recently acquired preserves on both sides of the river. Action items include:
  
- Engage consultants and engineers to determine restoration plans for Duckabush Riparian Forest.
  
- Conduct cleanup and road decommissioning.
  
- Conduct outreach to several landowners in Duckabush Oxbow and Riparian Forest area.
  
- Pursue acquisitions of fee simple interest or conservation easements from willing sellers.

# Jefferson County On-site Septic System Repair/Abatement Program - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Working with project partners including the Jefferson County Conservation District and Craft3, JCPH will identify low-income residents with failing on-site sewage systems (OSS) to participate in a cost-sharing program for OSS repair, replacement, decommissioning &/or abatement. The following criteria will be used to prioritize OSS in the program: 1.) OSS is failing as per state and local code. 2.)OSS is within the drainage area of a prohibited, threatened or concerned status shellfish growing area. 3.) OSS is located within 200 feet of the marine shoreline or a stream that drains into prohibited, threatened or concerned shellfish g...

# Riparian Restoration Throughout the Greater Puget Sound - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The objective stated above will be implemented with the following: 1) plant native trees and shrubs to restore riparian function to include riparian establishment, buffer expansion, and later seral stage forest facilitation; 2) perform maintenance to ensure project success through reducing competition from unwanted vegetation, invasive control, and replanting when necessary; 3) systematically inventory and control knotweed (from the upstream extent to the downstream extent) at the watershed scale, implementing revegetation strategies when appropriate; and 4) develop, share, and begin utilizing an Access based implementation trac...

# Hood Canal Watershed Comprehensive Riparian and Floodplain Vegetation Management - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

There are multiple tasks of work proposed in this NTA, each contributing to restore riparian and floodplain function: 1) increase the quantity of riparian habitats available by the expanding existing riparian buffers & planting riparian areas that are currently unvegetated; 2) improve the quality of riparian habitats by controlling inv. spp. and replanting with native vegetation; 3) improve the ecological function of riparian areas by facilitating later seral stage forest through implementation of conifer underplantings; and 4) continue landowner outreach & education pertaining to the objective. These 4 tasks will culminate t...

# Skykomish River Riparian Restoration and Stewardship - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project addresses fundamental processes that are degrading water and habitat quality in the south-fork Skykomish River. There has been significant displacement of native vegetation by invasive weeds (particularly invasive knotweeds and butterfly bush) in the Skykomish watershed. Resulting losses in shade, erosion control and buffering potential of riparian corridors adversely impacts water quality as reflected by TMDL reports. This project will restore and maintain healthy riparian ecosystem functioning through a comprehensive replacement of invasive weeds with native vegetation, both planted and through natural regeneration....

# North Fork Stillaguamish Integrated Floodplain Management - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will complement the Skykomish, Snohomish River and Estuary and Mainstem Stillaguamish Reach Scale Plans by adding a North Fork Stillaguamish Reach Scale Plan. The plan will add an overview of the planning area, including land use, hydrology, geomorphology, water quality and salmon habitat. This will help define opportunities for multiple benefit projects that address fish, farm and flood risk reduction goals and objectives. The plan will list specific projects that take advantage of these opportunities as well as a funding strategy to help them get implemented. The plan will produce a template for measuring progress an...

# Aquatic Habitat Restoration Program - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Aquatic Habitat Restoration Program will provide incentives for citizens/landowners to partner with the City of Seattle in improving and restoring aquatic habitat through creek and floodplain reconnection and restoration in priority areas in the City's five salmon bearing creek watersheds (Fauntleroy, Longfellow, Piper's, Taylor, and Thornton). These aquatic ecosystems are significantly impacted by City stormwater drainage systems. Projects will be designed to improve and restore habitat for salmon and other biota, and to buffer flow, sediment, and water quality dynamics within these watersheds. Seattle Public Utilities will en...

# Upper Ohop Valley Protection and Restoration - Terminated

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Nisqually Land Trust will pursue permanent protection of an additional 26 acres in the upper Ohop Valley floodplain immediately adjacent to and upstream of 202 acres of permanently protected land. This property includes the confluence of Ohop Creek and Twenty five-mile Creek and the full width of the floodplain. Funding for acquisition has been awarded through the Pierce County Conservation Futures program.
  
Recently the 26-acre property been used as hay field and pasture. This project will include restoration of native vegetation throughout the floodplain. Funding for planting has not yet been secured.

# Evergreen Rotary Park Nearshore Restoration Construction - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The shoreline at the former Chevron Distribution Center, next to Evergreen Rotary Park, was built into Smith Cove using creosote timber, steel sheet pile, & concrete bulkheads, & concrete debris fill materials for armoring. Bremerton purchased the property in 2005 & has been working to restore it to a natural condition to support salmon & feeder fish spawning as well as human use. The SRFB funded restoration design was completed in July of 2017, with input and review from SRFB, WDFW, DNR, Ecology, West Sound Watershed Council, and Suquamish Tribe. Removal of 600' of bulkhead, 7,000 tons of armoring, fill material, & fractured basa...

# Riparian Forest Enhancement and Restoration in Seattle's Salmon Bearing Creek Watersheds - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

On public land, within the five salmon bearing creek watersheds (Fauntleroy, Longfellow, Piper's, Taylor, and Thornton) in Seattle, SPU will work to restore the health and cover of native conifers within riparian zones through invasive vegetation removal, selective thinning of early successional species where they compete with native conifers, and native conifer plantings. SPU will coordinate with other departments, governmental agencies, NGOs, community and volunteer groups, and professionals. On private land adjacent to the five salmon bearing creeks in Seattle, SPU will engage property owners and residents in improving the healt...

# Puget Sound Spill Kit Program - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

ECOSS will expand the spill kit program through providing outreach and engagement to new businesses, targeting non- or limited English speaking businesses. ECOSS will conduct onsite bilingual training, provide spill clean-up materials, educational visuals, GIS-based site maps of drainage systems, customized spill response plans, hands on training on material handling, storage and disposal and provide resources and referrals.
  
  
ECOSS will utilize The Nature Conservancy's mapping technology and data to develop geographic target areas and outreach strategies. ECOSS will follow-up with businesses to determine changes in behavior, add...

# Enhanced OSS in Clallam County's MRA Phase 3 - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2023 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Clallam County Expanded Onsite Sewage Management Program 1) educates OSS owners regarding inspection requirements and benefits in the Clallam Marine Recovery Area, 2) incentivizes compliance with inspection requirements through rebates, 3) provides for database maintenance and improvements to track and store both OSS design and inspection records, 4) improves database reporting capabilities, 5) creates automated processes to streamline program management functions where possible, 6) envisions enforcement support to back up both inspection compliance efforts as well as non-conforming system/failure repair correction, and 7) explores stable funding options.

# Surface Water Incentive Program - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA proposal expands Snohomish County's Surface Water Incentive Program, which provides cost-share incentives to private landowners for low impact design features that offer water quality protection & infiltration of stormwater runoff. The objective is to expand the Runoff Solutions branch of the program, from the 2018 pilot area to all County rate payers. Runoff Solutions projects include raingardens, rainwater cisterns, depaving, and other runoff reduction techniques. The program has two components, public outreach and on the ground installations. The public outreach consists of design workshops to teach people about low imp...

# Clallam County Enhanced PIC Phase 3 - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2022 |
| Completion Year | 2024 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

PIC Phase Three (3) involves 1) outreach and education to make pollution correction a community effort, 2) long-term ambient water quality monitoring to guide selection of focus areas for pollution correction, 3) targeted water quality sampling of priority sub-basins to identify sources of bacterial pollution, 4) property surveys to assess potential pollution sources, 5) technical and financial assistance to property owners to overcome pollution correction barriers, 6) enforcement to back up pollution correction efforts where voluntary compliance fails, and 7) consideration of novel study design such as artificial sweetener detecti...

# Dungeness WRIA 18 Aquifer Recharge for Flow Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

WWT and project partners seek to improve summer flows for salmonid benefit (see Strait Results Chain ID#G) in the Dungeness and other WRIA 18 streams through development of aquifer recharge (AR) sites. The Dungeness Water Exchange (DWE) utilizes 5 existing AR sites to mitigate for the sustainable allocation of new water uses in the Dungeness Rule Area, with another site operated for streamflow restoration. WWT and project partners would develop an additional 3 aquifer recharge sites to restore summer flows in WRIA 18 streams. The partners would secure land owner agreements, as well as agreements to wheel water to the AR sites.

# Stewart Road Bridge - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2023 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Stewart Road Bridge once replaced will reduce the number of piers in the river, allowing for large woody debris to freely move downstream and be recruited throughout the lower White River which is slated to be restored. The bridge is also being designed with the ability to expand the spread, allowing the river channel to migrate underneath and the bridge to adapt, reducing the need for armoring along the banks underneath.

# South Fork Skokomish Fish Passage Improvement - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

In 2017, a fish passage study was completed for the South Fork Skokomish Canyon. This study was conducted in response to a 1957 Washington Department of Fisheries study that identified four cascades within the gorge as partial barriers to adult Chinook migration.
  
  
The 2017 study evaluated five sites in the canyon, and identified three sites that present a barrier to adult Chinook migration. These evaluations were based on detailed field assessments, topographic surveys, extensive data collection, 2-dimensional hydraulic modeling, evaluation of fish energetics, & professional judgement. The report characterized the sites as cas...

# Tahlequah Creek Estuary Acquisition and Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will purchase .75 acres at the mouth of Tahlequah Creek. This project will remove 110 ft of marine armoring, remove the creek from a 345' long concrete flume, and create a properly functioning natural stream channel and pocket estuary. All structures will be removed including a septic system that is currently inundated during some tides. The site will be replanted with native vegetation. The undersized culvert at Pohl road will also be replaced and will improve fish passage to about 5000' of quality stream habitat. This project is visible form the south Vashon Island Ferry and will involve the community with education...

# Maury Island Aquatic Reserve Armoring Removal 3 - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project removes 450 feet of creosote wood armoring from bluff backed beach in the Maury Island Aquatic Reserve. By removing two cabins built over the intertidal zone, the project will uncover about 7350 square feet of covered or buried intertidal area. The project will also revegetate about .75 acre of shoreline buffer with native vegetation. Pre and post construction monitoring and citizen science projects will occur. Results will be shared with the community and other restoration professionals. The property is owned by King County.

# Implement incentives to encourage soft-shore protection over hard armor by improving permitting processes for appropriate marine projects - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Conflicting regulatory authorities and lengthy permitting timelines have created regulatory disincentives to pursue soft shore protection on marine shorelines below MHHW. We will convene a Multi-Agency Review Team (MART) to: develop and pilot guidance on a team permitting approach; evaluate alternatives to streamline federal permitting processes; and develop recommendations for permit streamlining of appropriate soft shore projects to incentivize soft shore protection over hard armor.

# Development of a residential shoreline loan program to provide financial incentive for removal or modification of shoreline armoring on pri. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Grantees will conduct a feasibility study for the development of a self-sustaining Revolving Loan Fund to provide homeowners with low-interest loans for "Shore Friendly" projects like armor removal, soft-shore stabilization, and elevation of homes.

# Increase Approved Shellfish Acreage Through Expanded On-site Sewage (OSS) System Management in King County Required by RCW 70.118A - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

PHSKC will partner with King County WLRD to identify and reduce fecal pollution sources to maintain and expand the 4481 acres approved for shellfish harvesting and work to upgrade 130 conditionally approved and 549 prohibited acres. TMDL and 303d listed water bodies are also focus areas for fecal pollution reductions. This effort includes educating community members about pollution, conducting fieldwork to identify on-site sewage system (OSS) failures and other fecal sources, providing technical support to homeowners to ensure repairs are completed and pollution sources are eliminated, and conducting enforcement procedures to fix f...

# Snoqualmie River Temperature Study - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This temperature study would help identify where areas of cooler water exist in the Snoqualmie River, including the Carnation reach and Middle Fork Snoqualmie. The Middle Fork can provide up to 60% of the water flow during summer months and is typically hotter than state standard and the Carnation reach is important to understand as it provides thermal refugia to salmonids during hotter summer months. By employing different methods for both temperature monitoring and ground water monitoring this study would help identify areas of cooler water in the Snoqualmie River. This data will be put into a model so we can begin to understand ...

# O&M inspection assistance for low-income residents of Skagit County - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

We propose to develop a financial assistance program based on federal poverty criteria to offer low- and fixed-income residents financial assistance to complete the O&M inspection requirement. Development of this program will include establishing income evaluation methods, education requirements, compliance agreement criteria, certified O&M provider contracts, and expand homeowner inspection policy based on continuing education. Work will include developing internal policies and protocols for each part of the program for consistent and compliant implementation. Our goal is to prevent downgrade of 2260 threatened acres in South Ska...

# Tolt River Mouth & Lower Frew Floodplain Reconnection Design/Construction - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Lower Frew project is located on the right bank of the Tolt River between river mile 0.6 to 1.1. The Tolt Mouth project (also known as Tolt River Left Bank Setback) is on the left bank river mile 0 to 0.5. The two projects will remove and set back one mile of levee that will reconnect and restore up to 44 acres of floodplain habitat.
  
The river is physically and hydrologically disconnected from its floodplain as a result of channel confinement by levees. The project will improve juvenile rearing and adult spawning habitat. The Tolt River supports three ESA-listed fish: Chinook salmon, steelhead, and bull trout. The existing lev...

# Bell Creek Basin Assessment & Restoration Plan - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will prioritize strategic\* stormwater capital improvements for water quality and habitat/floodplain restoration, by:
  
  
1. Assess existing conditions and conduct Hydraulic/Hydrologic (H/H) modeling of surface water
  
 >Collect one wet season continuous flow monitoring.
  
 >Develop H/H model of basin from existing GIS.
  
 >Conduct spawner survey and BIBI assessment.
  
  
2. Conduct basin-scale flow modeling using existing 2008 Ecology Dungeness groundwater model.
  
  
3. Use models to evaluate future scenarios (i.e., growth, climate change, use of Green Infrastructure) and alternative solutions.
  
  
4. Together with all project par...

# Expansion of target areas for O&M compliance implementation. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The O&M compliance program has been focused on the MRAs, primarily leading to Samish Bay and secondarily to other shellfish harvest areas, including Skagit Bay. Previous effort completed as part of NTA 2016-0191 has increased compliance in these MRAs to over 50% currently, which is a substantial increase. The entire county is a Shellfish Protection District. This project would expand compliance efforts to the whole county to reduce coliform bacteria pollution in commercial (6,411 acres) and recreational shellfish beds and waters in the County.

# Ostrich Bay Creek Stormwater Treatment Retrofit Construction - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Install 14 MWS\_Linear Modular Wetland Stormwater Treatment Systems, an Ecology approved water quality treatment system with a "General Use Level Designation" (GULD) for basic, enhanced, and phosphorus stormwater treatment, to treat runoff prior to entering Ostrich Creek. Treatment of runoff from 6.31 acres of urban roadway, and parking lots, and an additional 8.15 acres of pervious lawn and forest surface will help improve water quality in Ostrich and Oyster Bays' (Fecal Coliform TMDL), and Dyes Inlet, all part of Puget Sound. This effort will benefit shellfish beds that are currently open and help restore water quality to support...

# Re-Tree Snohomish County and Camano Island! - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Increasing forest cover in Snohomish County and Camano Island will improve habitat and water quality, but is also a critical action needed to improve our ecosystem's resilience to climate-change. The Snohomish Conservation District (SCD) proposes to launch an ambitious Re-Tree Snohomish County campaign with the goal of planting one million trees by 2025. The three components of this campaign are the SCD's existing riparian buffer restoration program, the Native Plant Sale, and a proposed Free Trees program. This request will support the Free Trees program, which will provide free native trees and shrubs to landowners in both urban ...

# Coordinate with Skagit County Public Works' Pollution Identification and Correction (PIC) program. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The work proposed is a continuation of investigating possible septic system failures, assuring repair of egregious failures, assisting property owners with financial options to repair and replace failing OSS. Our goal is to prevent downgrade of 2260 threatened acres in South Skagit Bay, upgrade 4000 acres in Samish Bay, and sustain a recent upgrade of 151 acres in Padilla Bay.

# Duckabush Oxbow Side Channel Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Duckabush Oxbow Side Channel Restoration project will reconnect existing side channel along the lower Duckabush river, which currently acts as a fish trap after high flow events. Additionally, a floodplain bench comprised of fill material will be removed in order to reconnect historical floodplain. The project site is located on the Duckabush Oxbow and Wetlands Preserve, which is owned by the Jefferson Land Trust. The restored side channel will provide spring-fed backwaters during normal flow levels, which will benefit juvenile salmon. Large wood will be placed in the restored side channel to provide habitat for juvenile salmon...

# Puget Sound Stream Thermalscape - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Spatially continuous predictions of stream temperatures may be used by managers to understand the occurrence and distribution of Chinook salmon, steelhead, and other aquatic biota upon which they depend to maximize restoration efforts. This representation of stream temperatures, termed a thermalscape, will be developed for streams draining to Puget Sound by fitting a statistical model to observed temperatures. The proposed model, a spatial stream network (SSN) model, will account for the influence of the drainage network on stream temperature predictions and incorporate predictor variables hypothesized to influence stream temperatu...

# Stream-type Yearling Chinook Study in the Snoqualmie River - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will help the Snohomish Basin understand the habitat use and spatial distribution of stream-type juvenile Chinook, which could account for up to 30% of returning adults in the Snoqualmie River. Using randomly selected points for Chinook spawning and rearing areas, a hierarchical structure can be used to determine sample site designations, survey lengths, and habitat measurement specifics. Sample events among channel types should occur across winter, spring, summer, and fall periods. Across mainstem sample reaches, juvenile salmonids should be collected along edge habitat using an electrofishing cataraft during evening ...

# Puget Sound Conservation Districts Engineering Support for Habitat Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

PSCDs will expand their capacity to provide habitat restoration engineering services by creating a new environmental engineering staff position for supporting implementation of PSP's salmon, estuary, and shoreline armoring regional priorities. The position will be supervised by the Skagit Conservation District's existing habitat engineering program in Mount Vernon, but will support the needs of all twelve PSCDs. Building on the PSCDs' existing relationships, the engineer will work directly with landowners as well as indirectly through projects managed by our partners in non-profit organizations and tribal and government natural ...

# Nisqually Nearshore Habitat Protection - East Johnson Point - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Nisqually Land Trust will pursue permanent protection of 178 acres of nearshore habitat along the northeast shoreline of Johnson Point. This area contains approximately 1.3 miles of marine shoreline and is predominantly forested.

# Nisqually Nearshore Habitat Protection and Restoration - Anderson and Ketron Islands - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2018 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Nisqually Land Trust will pursue acquisition of 78 acres of nearshore habitat along South Oro Bay on Anderson Island. Acquisition is funded through an award from Pierce Conservation Futures. This property contains over 2000 feet of marine shoreline and 8 acres of wetland and upland forest. The Land Trust will work with regional partners to develop a habitat restoration plan for the property.
  
The Land Trust will also pursue permanent protection of 70 acres on Ketron Island, including over a mile of intact feeder bluff.

# Whitewater Reach - Nisqually River Protection and Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Nisqually Land Trust will pursue permanent protection of an additional 50 acres along the Whitewater Reach. This acquisition will include Nisqually River floodplain that contains oxbow wetlands.

# McKenna Reach - Nisqually River Protection and Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Nisqually Land Trust will pursue permanent protection of up to 100 acres of floodplain along the McKenna Reach of the Nisqually River. Acquisition of this shoreline and fallow fields will provide an opportunity to improve off-channel habitat and develop plans for increasing floodplain connectivity along this reach of the river. Native forest will be restored and enhanced across 40 acres of floodplain and riparian habitat.

# Wilcox Reach - Nisqually River Protection and Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Nisqually Land Trust will pursue permanent protection of an additional 250 acres in the floodplain of the Wilcox Reach of the Nisqually River. Protection will be through fee acquisition of properties that are in areas where active channel migration is changing the dynamics of the river on an annual basis. Management of these lands will focus on allowing the river to function naturally.
  
To enhance and restore riparian and floodplain forests, the Land Trust will plant native trees and shrubs in areas that were previously cleared for recreational and residential activities and supplement early successional forest stands with conifers.

# Middle Reach - Nisqually River Protection and Restoration - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2018 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Nisqually Land Trust will pursue permanent protection of 60 acres in the floodplain through fee acquisition. The Land Trust will work with regional partners to initiate floodplain reforestation throughout this property. In addition, riparian areas that were planted previously will receive supplemental plantings.

# Nisqually River Tributaries Protection and Reforestation - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Nisqually Land Trust will pursue permanent protection of 450 acres along Nisqually River tributary streams. The Land Trust will work with regional partners to plant native trees and shrubs across 50 acres of riparian habitat along these tributaries.

# Martha Creek Pocket Estuary Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will remove the existing tile drain structure which is currently inhibiting anadramous fish access to the stream and impeding natural estuarine water circulation. Pipe removal will fully re-open this area to tidal influence and allow it to return to a functioning pocket estuary. The stream channel will be realigned from its current ditch to more closely resemble a natural geometry. Currently, the tile drain is buried at the beach interface. This project would daylight the stream through the entirety of the reach and reconnect the fluvial and marine environments. Large woody debris will be placed in-stream to encourage ...

# Building Green Cities, Phase 2 - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

To test effectiveness of incentives to include LID treatments in urban growth center redevelopment projects:
  
1. Identify and work with three jurisdictions with designated regional growth centers (PSRC 2040) that have:
  
 a. adopted regulations that incorporate LID,
  
b. differing runoff and flow control issues, and
  
 c. willing developers
  
  
  
2. Monitor and assess the results
  
(lessons learned, effective incentives)
  
3. Write addendum to Building Green Cities Guidance document to include findings
  
4. Share results with other Puget Sound cities and counties.

# Tahuya River Watershed Assessment and Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Proposal includes four successional phases. Phase 1 Watershed assessment: This assessment will diagnose impaired habitat and identify appropriate restoration actions necessary to restore habitat-forming processes. The assessment will include a qualitative geomorphic assessment, hydrologic modeling, habitat surveys, and a climate change vulnerability assessment. The climate change assessment will synthesize existing local climate change projections with information gathered during the assessment and will be reviewed with a stakeholder group. Phase 2 Acquisition and Project Design: Phase includes acquisition efforts and project desig...

# Investigation of nutrients, phytoplankton and food web interactions in the Eastern Strait of Juan de Fuca and Admiralty Inlet - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Jamestown S'Klallam Tribe proposes to add phytoplankton and nutrient monitoring onto the existing zooplankton monitoring efforts of the Salish Sea Marine Survival Project at their sampling sites in Admiralty Inlet and the Eastern Strait of Juan de Fuca. Understanding how the composition of the phytoplankton community influences the availability and quality of prey, such as copepods, has important ramifications for how the base of the food web impacts salmon survival. HABs, such as Heterosigma akashiwo can also directly lead to salmon mortality. Collecting nutrient data will also help our understanding of bottom up controls on p...

# Barfuse/Hafner Floodplain Reconnection Design and Construction - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The two adjacent floodplain reconnection projects are located along the lower Snoqualmie River at rivermile 34.5. The Barfuse project will remove and set back 2000 feet of levee which will reconnect and restore up to 45 acres of floodplain habitat. The Hafner project will remove and set back 1000 feet of levee which will reconnect and restore up to 55 acres of floodplain habitat.
  
The river is physically and hydrologically disconnected from its floodplain as a result of channel confinement by levees on both sides of the river. The projects will improve juvenile rearing and adult spawning habitat for three ESA-listed fish: Chinook...

# Pacific Right Bank Project - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Key project objectives include 1) flood-risk reduction 2) removal of artificial fill and armoring and 3) reconnection of up to 30 acres of riverine wetlands and floodplain for the restoration and enhancement off-channel juvenile salmon rearing and refuge habitat, including federally listed species such as White River spring and fall Chinook, steelhead and bull trout. The project will also restore riparian forested areas for future wood recruitment and to improve water quality along a 303(d)-temperature-listed waterbody, assess the remediation potential of a former dumpsite within the project area along the White River, and consider...

# Illahee Creek Stormwater Retrofit Project - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

In 2008, a watershed assessment was conducted for Illahee Creek which identified problem areas within the watershed. Among the problems identified was excessive runoff coming from the upper watershed, located in the residential area of Kariotis north of McWilliams Ave. The area drains directly to the headwaters of Illahee Creek with little stormwater control or treatment.
  
In 2014 the Stormwater Division expanded & upgraded an existing stormwater pond in the Kariotis neighborhood to increase water quality to Illahee Creek with funding from the Department of Ecology (phase I of the project). An additional site for stormwater flow-c...

# BMPs for stormwater outfalls - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project involves developing a systematic inventory of stormwater outfalls to natural water bodies to determine opportunities for water quality and flow control benefits. This categorized inventory of outfalls will enable prioritization of outfalls to rectify erosive outfall, remove outfalls to increase infiltration through dispersion/wetlands/stream buffers, and seek out additional water quality and flow control scenarios associated with outfalls.

# Comprehensive Fish Passage Assessment of 4 high priority subbasins - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

There is incomplete data on fish passability of known structures in King County. There are also indications that WDFW's current estimate of the number of fish passage structures within KC is well below the actual number. This effort would undertake comprehensive surveys of 4 stream systems using WDFW's fish passage assessment protocols to document all fish passage structures and their condition, irrespective of owner. Based on discussions with salmon recovery interests, initial suggested creek systems are: Griffin Creek in WRIA 7, Bear Creek in WRIA 8, Soos Creek in WRIA 9 and Fisher Creek on Vashon Island.
  
This work will require...

# 30% Design of Priority Estuary Restoration Projects in the West Central Action Area - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

To achieve the successful implementation of four high priority barrier/pocket estuary restoration projects identified by the "West Sound Nearshore Integration and Synthesis of Chinook Salmon Recovery Priorities" report, a phased feasibility and design approach is needed. The proposed projects are in County ROWs within the Steele Creek, Sacco Creek and Ollala Creek estuaries.
  
  
The project phases include:
  
1. Cost-benefit analysis of crossing widths (bridge size openings) to assess size impacts on ecological processes (e.g. tidal inundation, salinity mixing) in relation to costs. To make effective decisions about crossing widths ...

# Agricultural BMP Implementation Program - Deferred

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2025 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Several tributaries of the Green river, in south King County, are impaired by pollutants, such as nutrients and bacteria, originating from agricultural practices, septic systems, and other non-point sources, but there is no cohesive, multiagency program focused on achieving measurable improvements to water quality.
  
  
This NTA would leverage existing relationships to eliminate sources of pollution and seek funding for the installation of Best Management Practices.

# Green Stormwater Infrastructure Incentive Program for Unincorporated Areas - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

In order to address stormwater issues in unincorporated areas, King County will develop and implement a private property rebate or cost-share program modeled after Seattle Public Utilities and Wastewater Treatment Division's RainWise Program. The program will be a Surface Water Management Fee- funded program that incentivizes private property owners in unincorporated King County to allow implementation of Low Impact Development (LID) Best Management Practices on their property and agree to the long term maintenance of this Green Stormwater Infrastructure. In addition to rain gardens and cisterns, which is the focus of the RainWise ...

# Flow Monitoring in MS4 - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The NPDES Permit requires King County to prohibit non-stormwater discharges through the MS4 and implement controls to reduce discharge into surrounding waterways. Field investigations of flow and turbidity require an intense amount of staff time and can sometimes have limited success at detecting transient flows. In addition, modeled catchments for flow and turbidity may be limited in accuracy, therefore, the installation of flow monitoring equipment into the MS4 is an efficient way at collecting accurate flow and turbidity data.

# Engaging the community to address air pollution in the Duwamish Valley - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Air pollution in the Duwamish Valley is both a storm water and a human health concern. Storm water pollutants need to be addressed to avoid re-contamination after cleaning up the sediment in the Duwamish River.
  
The community has long-prioritized air quality and attendant health hazards, particularly asthma. This project will listen to the community; create a community monitoring program to test for air pollutants that are creating deposition on the ground and in homes (using Next Generation Air Monitors), engage and educate the community on low-cost actions to combat unhealthy air quality and provide information to government deci...

# Characterization of novel contaminants, including a suite of chemicals of emerging concern (CECs), in salmon rearing and spawning habitats - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This study will assess the presence of CECs in critical freshwater salmon habitat. Results will provide a better understanding of the potential risks to endangered salmon that may be exposed to these compounds. This approach will be used to first understand if CECs are present in surface waters, and if so, at what levels. The sampling focus will be in lower watershed streams/rivers where salmon are known to reside. Study site selection will be coordinated with WRIA fish biologists to focus on areas of concern. A literature review will summarize toxicity information to provide context regarding the potential impacts of these chemica...

# Poverty Bay Bacterial Source Tracing - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2018 |
| Completion Year | 2030 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Work proposed includes mapping and reconnaissance of sampling sites, accessing locations and taking periodic samples in upland creeks. An analysis of the sampling data will provide guidance on where to conduct the source tracing activities. Work will most likely include a partnership with local jurisdictions to implement source tracing methodology in the stormwater system.

# Habitat Value of Large Wood in Soft Shore Techniques - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Soft shore techniques are encouraged as a preferred alternative to armoring in Puget Sound. The Puget Sound Partnership prioritizes the use of techniques such as large wood placement, and evaluation is emphasized in the Shoreline Armoring Implementation Strategy. With more information on habitat value we could better design the use of wood placements, often anchored logs, to maximize ecological function and erosion control. This information is necessary to fulfill goals, as current implementation is below the 2020 target, and progress is limited by insufficient data. Methods for success will include monitoring of fish, birds, inver...

# Shoreline Hardening Removal and Restoration on San Juan County Properties - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

San Juan County is seeking to resolve shoreline hardening on all of its properties throughout the islands to improve nearshore habitat conditions and processes. This will be achieved through active removal of hardened areas along roads, parks, and conserved properties where it is safe and feasible to do so. The County will utilize the recently completed prioritization documented in the Pulling It All Together II (Whitman, 2017) report to identify sites that offer the greatest benefit for funds spent. This comprehensive analysis considered physical shoreform, known spawning and rearing habitats, land ownership, site and landscape...

# Developing a Natural Resources Asset Management Program - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This action would place a value to ecosystem services, with consideration for location and function. It includes an ecosystem services and life-cycle cost analysis; includes the framework development and subsequent determination of proper methods for identification and quantification of services; and includes variations for urban and rural areas. This will ensure that these functions receive first consideration in planning and review, and lead to an improved development planning and review system that maintains the functional values of the natural environment with other Growth Management Act standards for land use, housing, and eco...

# Shore Friendly Kitsap - Reduction in Marine Shoreline Armoring - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Shore Friendly Kitsap continues to improve nearshore health by empowering landowners to take the restoration action appropriate for their shorelines. The suite of actions includes removing bulkheads, building soft-shore protection, and restoring marine riparian habitats.
  
  
Continued program efforts will:
  
-Provide technical, financial and permitting assistance to shoreline landowners to remove or soften shoreline armoring
  
-Collaborate with partners to do effective outreach using locally proven methods: demonstration tours, citizen-to-citizen interaction
  
-Facilitate contractor/consultant workshops that connect landowners with ...

# Coupeville outfall study - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The north two blocks of the Town will need to be surveyed along with the shoreline of Penn Cove to determine the elevations, locations and current stormwater facilities including pipes, ditches and outfalls. Water samples at the outfalls would need to be collected and analyzed to determine to what extent the current ditch system treats the stormwater. Once the survey is done plans for mitigation would need to be evaluated with regard to the physical constraints of installing water quality treatment facilities. Engineering drawings would need to be prepared for the construction phase which will be done at a later date once funding for construction is secured.

# Dungeness Feeder Bluff Conservation - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Work with willing landowners to conserve unarmored feeder bluff exceptional shorelines in the Dungeness Spit Drift cell by purchasing bluff edge parcels, relocating homes landward, purchasing conservation easements on unarmored parcels and purchasing development rights of undeveloped bluff parcels. Monitor shoreline and provide education, technical assistance and conservation incentives to landowners

# Penn Cove Water Quality Improvement -Coupeville Sewer Extension - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Penn Cove was recently threatened with a downgrade in classification for residential and commercial shellfish harvest due to water quality impairments. Currently there are 60 +parcels which have on-site septic systems (OSS) on Parker Road which boarders Penn Cove; many of these OSS's are not current on their operation and maintenance inspections and may not be adequately treating the liquid waste. Replacing the OSS with connection to sewer would reduce the bacteria and nutrients eliminated into Puget Sound.

# Puget Sound Critical Areas Monitoring and Adaptive Management Program - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Local governments need a feedback loop to help determine whether goals of critical areas protection in Puget Sound are being met, and if the goals are not being met, how to improve the process. Many jurisdictions are interested in building adaptive management programs but lack resources. The Washington State Departments of Commerce, Ecology, and Fish and Wildlife would provide technical assistance and resources to cities and counties to develop or enhance monitoring and adaptive management of critical areas permit implementation and effectiveness. The program would incorporate guidance from a new chapter in Commerce's Critical Area...

# Stormwater Ditch BMP Retrofits - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Phase II of a 2016 funded NTA:
  
The road drainage systems are a significant part of the surface hydrology in San Juan County. It carries runoff from the roads & development in the County. The necessity was identified in the 2014 San Juan County Stormwater Basin Planning report. The Plan has been presented to the County Council. Ditch retrofits, will occur in priority watersheds first.
  
Poorly designed ditches increase stormwater velocity, which causes erosion that can adversely affect downstream water quality. County ditches were constructed in a V-shape. V-shaped channels have high shear velocities near and erode. Parabola ...

# Elwha River Estuary/Nearshore/Drift Cell Conservation and Restoration - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2016 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The project goals are; 1. Conserve western estuary and nearshore of the Elwha drift cell by working with willing landowners to purchase historic estuary properties and secure conservation easements that prohibit shoreline armor 2. Now that uncertainties associated with dam removal have subsided, define options to modify the place levee to reconnect ~ 6 acres of formerly productive estuary habitat while maintaining existing level of flood protection 3. Remove nearshore process impeding armor and 4. Conduct shoreline change and bluff erosion monitoring, provide landowner education, provide technical assistance and landowner incentives.

# Catchment Wide Ditch Maintenance Retrofit Project - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This proposal consists of reviewing outcomes from the first phase of this project, and developing a Quality Assurance Project Plan to study how certain maintenance efforts influence water quality and flow control at a small scale (catchment).  
  
Preliminary work would include finding similar sized catchments with similar surrounding land use and impervious cover, implementing a ditch maintenance regime in each catchment and using remote sensors to measure the influence the maintenance regimes have on peak flows and the transport of sediment.  
  
The outcomes from the study could influence the way capital projects are sized and how much they cost to build.

# Stormwater Treatment Retrofits for Eastsound UGA - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Eastsound is the most urbanized location in San Juan County's jurisdiction. The Urban Growth Areas (UGAs) has insufficient stormwater treatment systems due to the fact the installation of stormwater treatment has been driven mainly by private development. The Eastsound UGA discharges to East Sound, a long, shallow nearshore areas. By retrofitting UGAs, stormwater will receive better treatment prior to discharge. The goal is to construct green infrastructure low-intensity-development (LID) treatment systems (primarily biofiltration swales) similar to those proposed for the Prune Alley complete streets reconstruction project, the Ma...

# Evaluation of Exposure to Endocrine Disrupting Compounds in Marine Mussels through a Combination of Chemical and Biological Measures - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Understanding the exposures and effects of endocrine disrupting compounds (EDCs) is a regional priority for marine monitoring. In response, this NTA will characterize EDC exposures and biological response in mussels, leveraging a species already in use for contaminant monitoring, collected at priority Puget Sound nearshore locations. We will gain chemical exposure information through high-resolution mass spectrometry methods, allowing a broad characterization of the occurrence of organic compounds, including EDCs, in tissue samples. We will evaluate endocrine disruption by measuring a suite of genetic biomarkers identified as impor...

# Sub-Pavement Infiltration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Permeable pavement is effective because it provides a reservoir below the pavement that can store water and allow it to infiltrate into the subgrade (i.e., sub-pavement infiltration (SPI)), but pavement integrity and maintenance demands often compromise the BMP. Also, infiltration directly to the subgrade provides no water quality treatment flowpath. This project would replace the current permeable pavement in a 600 LF subdivision road section with conventional pavement and develop water quality treatment systems (e.g. bioretention, sand/media filters) that collect runoff, treat it and deliver it to the reservoir, reducing pavement...

# Snohomish Basin Floodplain Acquisition Strategy - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The goal of the Snohomish Basin Floodplain Acquisition Strategy is to create a corridor of protected lands along the Snohomish River and its major tributaries, where riverine processes are allowed to function naturally. This will accelerate project implementation as outlined in the Snohomish River Basin Salmon Conservation Plan, while protecting the floodplain from development. The creation of a protected floodplain corridor will also ameliorate flood risks, increasing human safety and reducing flood damage claims.
  
  
In the initial phase, the Strategy will be developed to include a GIS tool to prioritize floodplain areas for con...

# Evaluation of Retrofit Funding Strategies - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Funding is critically lacking relative to the need for stormwater retrofitting of unmitigated developed surfaces in KC. Mitigation of these unmitigated developed surfaces represent a huge challenge and opportunity to improve and recover stream systems that have been degraded by increased flows and pollutants from development. Strategies will be surveyed and evaluated for feasibility in meeting goals for funding retrofit efforts.

# Estimate of Nooksack Chinook HOS and NOS Productivity from Smolt Trap Catch Analysis - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The lower river smolt trap effort will be increased for a period of three years to provide tissues from a representative sample of natural origin sub yearling Chinook for SNPs DNA stock identification and parentage determination. Parentages will be compared similar SNPs DNA parentage characterization of tissues sampled from natural spawning fish a year earlier to identify the relative success of hatchery origin and natural origin parents in producing successful smolt migrants, and provide data for parental based tagging estimates of the total numbers of smolts by stock and origin. These estimates will be compared with estimat...

# Orcas Village Stormwater Treatment - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Orcas Village is a designated growth and activity center under the County's comprehensive plan. Because of the ferry landing, it is a main traffic center on the island with businesses and parking areas. Traffic in the village is dominated by vehicles idling in ferry holding lanes and cold engine starts from parked vehicles and vehicles unloading from arriving ferries.
  
The only stormwater treatment system in Orcas Village is an oil-water separator, installed for the ferry holding lanes. Almost all stormwater from the Village is collected into pipes and conveyed through this separator, which means that it is likely undersized.
  
...

# Ferry Landing Stormwater Treatment Improvements - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Washington State Ferry (WSF) system is the main method for travel to the County and only method for vehicular access to the islands. It is believed stormwater runoff from the WSF holding lanes, parking, and ramps are significant sources of pollutants. The Dept. of Ecology stormwater permit to the WSF requires them to meet the requirements of the stormwater permit for the local jurisdiction, in this case nonregulated MS4s. Therefore, there are no end-of-pipe treatment standards or sampling requirements. This NTA would conduct an assessment of the current stormwater treatment systems for the four island ferry terminals, determine...

# Deschutes River Mile 21 Large Wood & Riparian Planting Implementation - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The overarching goal is to rehabilitate aquatic habitat and address the recently Ecology adopted TMDLs for temperature, dissolved oxygen, and fine sediment in a priority reach of the Deschutes River. This site was identified in the Raines (2007) report as one of the top contributors to the fine sediment load; the TMDL identifies a fine sediment reduction target of 41%. This construction project seeks to implement large wood and riparian restoration designs completed in 2017 with Salmon Recovery Funding Board funds. The preferred design alternative includes placement of 8 large woody material (LWM) structures along the eroding bank.

# Deschutes River Mile 33 Large Wood Installation - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This construction project application seeks to implement large wood and riparian restoration designs completed in 2017 with Salmon Recovery Funding Board (SRFB) funds. The preferred design alternative includes placement of 8 large woody material (LWM) structures at strategic locations, placement of a channel spanning structure in the mainstem Deschutes and 25 small structures in a created backwater cove. The overarching goal is to rehabilitate aquatic habitat and address the recently Ecology adopted TMDLs for temperature, dissolved oxygen, and fine sediment. This site was identified in the Raines (2007) report as one of the top con...

# Budd Inlet Tributaries Fish Passage Implementation Project - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

In 1996 WDFW conducted a barrier culvert inventory on public roads in Thurston County which included developing a Priority Index and ranking of barriers. These projects ranked 5, 6, 7 and 8; the four culverts that ranked higher have been replaced. This project seeks to replace the three highest ranked culverts with larger passable structures, opening 7.4 miles of spawning and rearing habitat. Each of these culverts will be replaced with WDFW stream simulation culverts that will provide unimpeded access to juvenile and adult salmonids including coho, chum, cutthroat and steelhead. In addition to providing spawning and rearing habit...

# Radio Tag Evaluation of Survival, and Migration of Adult Early Chinook in the Nooksack River - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

For a period of 3 years, as part of the Lummi Nation selective fishery in the lower Nooksack River, from March through August each year radio tags will be applied to a representative sample of returning mature SNPs stock assigned Chinook moving up river. The progress of the fish will be tracked using fixed and mobile receivers. Data on the location of the individual fish over time will be analyzed to characterize behavior by stock and parentage and their ultimate fate. The analysis of data will provide a better understanding of the entry timing and migration behavior of the two different stocks over time and under different f...

# Technical Leadership for Developing an Implementation Strategy for Summer Stream Flows - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Hydrologists from the USGS will provide technical leadership and assistance in developing an Implementation Strategy for Summer Stream Flows. Contributions will come from our combined knowledge and expertise gained through multiple recent and on-going assessments of groundwater availability, groundwater use, and low flows in streams and rivers, including preliminary results from the 2016-18 NTA 2016-0103 Groundwater Availability for Summer Low Flows. In particular, we will collaborate with LIO and tribal partners, SI Leads, the EPA, and others to propose and evaluate elements of an Implementation Strategy that can minimize the im...

# Effect of a neonicotinoid mixture on the aquatic invertebrate community - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The experiment will be run in outdoor aquatic microcosms. An aquatic community will be created in late spring, by adding well water, dry leaf litter and pond water (as a source of phytoplankton and zooplankton). Insects will be allowed to naturally colonise the microcosms. However, common invertebrate predators, such as, water bugs, backswimmers, water boatmen, and dragonfly larvae, collected from nearby ponds, will be added into the pools. One week after the addition of the predators in the system, three neonicotinoid insecticides, plus their mixture will be applied at concentrations measured in wetlands adjacent to agricultural f...

# Our Green/Duwamish Watershed Wide Stormwater Strategy - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Our Green/Duwamish proposes to advance years of work dedicated to improving stormwater management in the Green/Duwamish watershed by solidifying an organizational/collaborative structure of engaged watershed partners and developing an implementation plan. The project will help stakeholders create a multi-jurisdictional watershed-based approach to stormwater management that will help increase programmatic and fiscal efficiencies and collectively improve watershed conditions. Actions will be focused on pollution reduction and prevention, source control, infrastructure operations and maintenance and partnership development. The implem...

# Thurston County Urban Septic to Sewer Conversion - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Implement a regional septic to sewer conversion program for high risk septic systems in the urban and urban growth areas of Olympia, Lacey & Tumwater to protect and reopen shellfish beds. This next project phase is to conduct extensive public outreach about the septic to sewer conversion project, develop the necessary codes and policies to implement the program, and for each city to develop their plan for sewer line extensions which can then be incorporated into their Capitol Facilities Plans. The 3 cities, LOTT, and the county
  
  
Major Tasks
  
&#65533; Extensive coordinated public outreach including clear messages about maintai...

# Puget Sound Integrated Coastal Flooding Modeling and Mapping using the USGS Coastal Storm Modeling System (PS-CoSMoS) - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

PS-CoSMoS is a comprehensive coastal hazards modeling system that captures the complex, dynamic interactions between sea level rise, storm-driven winds, waves, and surge, tidal anomalies, and wave run-up to predict high-resolution (2-m) coastal overland flooding. Model results are served up in an interactive, web-based tool to visualize scenario-based maps of local flooding events. Predicted coastal flooding outputs can be linked to other models, including river flooding (higher intensity rain events), changing groundwater tables, sediment dynamics, and socioeconomic impacts models, to model integrated coastal flooding, period of ...

# Scheuerman Creek riparian and marine shoreline restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA would develop conceptual designs and Class 5 cost estimates to:
  
1. Remove a perched culvert where Scheuerman Creek confluences with Puget Sound on the north side of Discovery Park in Seattle. The culvert is located beneath a private garage located partly on City ROW and is a current fish passage barrier. A feasibility study is needed to determine if the culvert could be removed and the mouth of Scheuerman Creek restored to allow for fish passage. Currently the culvert outfalls on riprap and is perched several feet above the shoreline.
  
2. Remove or replace 2 other small culverts within the Park that are also fish passa...

# Groundwater Availability for Summer Low Flows - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2020 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Under the 2016 NTA, USGS is generating monthly groundwater budget data and related hydrogeologic information for subbasins throughout Puget Sound. Data are being compiled using consistent approaches for approximately 50 subbasins, and will include groundwater recharge, use (withdrawals and consumptive use), discharge to streams and rivers, and discharge directly to Puget Sound. In addition, current surface-water withdrawals and streamflows will be compiled at a similar scale to allow a holistic comparison of water demands, summer low flows in streams, and groundwater availability in different hydrogeologic settings of Puget Sound. ...

# Thurston Shellfish Growing Areas OSS Pollution Prevention - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Implement effective strategies to ensure that all on-site sewage system owners in shellfish growing areas are inspecting their systems at least every 3 years, and taking actions to repair, maintain, and pump as needed. Strategies to achieve OSS inspections include:
  
\* Reminder mailings
  
\* Septic maintenance workshops
  
\* Incentives such as riser rebates, low-income financial aid
  
\* Multi-media outreach: display, articles, print & social media
  
The health department will work with policy makers and the community to determine whether implementation is best accomplished by a voluntary or mandatory program. Our Shellfish Protection D...

# Duwamish Basin Steward - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Duwamish Basin Steward will develop and implement Chinook salmon habitat restoration projects in the Duwamish estuary, in coordination with willing landowners, WRIA 9 salmon recovery team, and WRIA 9 partners. Salmon recovery priorities in the Duwamish include restoring juvenile salmon rearing habitat, planting native riparian vegetation, and eliminating sources of contamination. The position would lead efforts to acquire and restore 40 acres of shallow water rearing habitat by 2025, including leveraging additional funding sources to maximize the environmental benefit of NRDA-driven habitat projects within the Duwamish sub-wate...

# Accelerate development and implementation of innovative water treatment technologies - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Aqualyst Accelerator program (launched in 2017) accelerates the pace and success of water technology development and solution implementation. Aqualyst was created through an EDA grant, but requires ongoing funding to maintain future operations. Aqualyst is an immersive, 14-week program for water technology companies, designed to catalyze their businesses and place their product in the market faster and more intelligently. The program caters specifically to each water technology company, providing resources and mentorship that is unique to their concept and needs. Our program serves as the hub, connecting innovators with exactly...

# Development of a Washington State Stormwater Resources Library - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The project includes the planning, technical development, and initial population of a Stormwater Resources Library. The Library will serve as a streamlined system to collect, organize, and more efficiently share valuable stormwater tools, best practices, lessons, etc. being actively produced (but not efficiently shared) among the stormwater community. The system will also include a simple, searchable forum where users can discuss common issues, discuss Library content, and share solutions. Key functions of the Library are to:
  
--Bring the large volume of available stormwater resources together for easy identification, promotion, an...

# Bear Creek Watershed Plan Priority Catchment Feasibility Planning - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Bear Creek Watershed Plan recommended to focus restoration efforts on identified high priority catchments in order to observe results early in the plan timeframe and test efficacy of the recommended strategies. The identified high priority Mackey Creek catchment has multiple water quality and flow problems combined with identified opportunities for cost effective restoration projects. This effort will use desk top analyses followed by field investigation and soil testingto determine feasible locations for restoration projects including flow control BMPs (bioretention, drywells, etc.); detention and water quality ponds; and tree planting for shade.

# Jakeway Creek Forest, Farm and Fish - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Jefferson Land Trust is working with landowners interested in preserving their farm and forest parcels located at the head of Quilcene Bay. The landowners are interested in selling a conservation easement that will restrict development, preserve large forested buffers along Jakeway Creek headwaters, protect working forest and agricultural values and water quality in Jakeway Creek, a coho and cutthroat stream that is a tributary to Donovan Creek and Quilcene Bay. The preservation of the two properties will result in a contiguous corridor of protected habitat from the forested headwaters all the way to Quilcene Bay, one of the most p...

# Duwamish Estuary Acquisitions - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Acquire high priority land to restore shallow water rearing habitat for Chinook salmon within the Duwamish River. Out-migrating salmon rely on transition zone habitat (river mile 1-10) as they undergo the physiological transition from fresh to saltwater. The industrialized area has lost more than 97% of its historical habitat as a result of diking, dredging, and realignment of the river channel. The Green/Duwamish Salmon Habitat Plan identifies transition zone habitat as a limiting factor for productivity and establishes a goal of restoring 40 acres by 2025. The Duwamish Blueprint (2014) outlines priority areas for acquisition and ...

# Flow and Water Quality Monitoring of Pilot Polishing Layer for the Swale on Yale Water Quality Project - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

SPU will monitor the water quality performance of an innovative new feature, known as a
  
polishing layer, to be installed in two new stormwater biofiltration swales as part of the next phase of the
  
Capitol Hill Water Quality Project (aka Swale on Yale). SPU completed monitoring one of the first two project
  
swales in 2016 and found the stormwater treatment performance exceptional for most water quality
  
parameters except for the nutrients phosphorus and nitrogen - the swale added or exported these
  
nutrients. The nutrient source is attributed to the compost in the bioretention media. Therefore the two new swales will
  
have a polis...

# Green Stormwater Infrastructure for Faith Based Organizations - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

A project to incentivize the installation of green stormwater technologies, including bioretention and pervious pavements on private properties owned by faith-based organizations. Success metrics will include: the number of installations sited; the amount of stormwater controlled by a given site or technology; and participation of faith-based community participants in siting GSI on their privatel properties.

# Don't Drip and Drive : Vehicle Leaks Education and Behavior Change Program - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA uses a social marketing approach to increase awareness and motivate car owners to get leaks fixed. Key strategies include:
  
Partnership with auto repair shops to voluntarily offer free visual leak inspections and discount coupons for repairs.
  
Partnership with quick lube shops to conduct free leaks inspections during routine oil changes; notify customers, and provide campaign materials to encourage them to fix the leaks.
  
Free Auto leaks inspection workshops for vehicle owners held at technical training centers, given by trainers at that facility.
  
Leak Check events at public parking places where vehicle owners receive ...

# Evaluating recontamination of restored salmon habitat in the Duwamish estuary. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Tissue chemistry data indicate salmon are bioaccumulating contaminants in the Duwamish and Lower Green River at levels associated with adverse health effects to juvenile Chinook. This project will assess whether sediment recontamination could undermine investments in salmon habitat restoration and the results will help prioritize and sequence future investments during the scheduled Superfund cleanup process. Sediment sampling would be conducted at previously restored sites to help evaluate the potential impacts of recontamination on juvenile Chinook. Sediment sampling would be conducted at North Winds Weir, Cecil Moses, Turning Bas...

# Green Stormwater Infrastructure in Urban Villages - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

SPU is launching a new capital program to identify areas within urban villages for implementing GSI retrofit projects. This program will include planning, community outreach, working with project partners (such as Seattle Parks or private developers), design, & construction of urban retrofit projects. Planning will include GIS analysis, geotechnical evaluation for infiltration feasibility, monitoring and modeling of flows, and design of the projects. Projects will be determined successful where they reduce existing water quality problems, provide green space for the community, & set precedents for urban GSI applications.

# Estimation of Hatchery Origin and Natural Origin early Chinook on Nooksack Spawning Grounds - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The co-manager spawning ground survey effort will be increased for a period of 3 years to ensure a more thorough collection data from the spawning ground surveys and to support the analysis of samples collected from carcasses including SNPs DNA stock assignment, parental history of spawners from the hatchery program, otolith and scale analyses for growth and rearing history. The normal spawning ground protocols will be followed to count redds, and sample carcasses for sex, length, scales, otoliths, CWT status, ad clip status and spawning success. Analyses will allow characterization of age, and sex of spawners, compare growth ...

# Predation by Resident Chinook and Coho in Puget Sound - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Approximately 30% of Puget Sound Chinook become residents. Predation by resident Chinook impose 10-50% mortality on subyearling hatchery & wild Chinook.
  
We will live-sample resident Chinook & Coho salmon via micro-trolling for 3 years in representative regions of greater Puget Sound, collect distribution, size, scale-based growth, diet, and tissue samples to quantify predation on juvenile Chinook, & identify factors that contribute to resident strategies.
  
Salmon predators except Orcas rely primarily on vision to feed. Dusk & dawn are peak predation periods, but artificial light pollution has created perpetual twilight expanding...

# Accelerating Riparian Restoration in Thurston County - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Thurston County, South Sound Salmon Enhancement Group, Thurston Conservation District, and other partners will develop a program of incentives to motivate the voluntary restoration of riparian areas on private land. The goal of this program is to improve water quality and mitigate impacts from stormwater and nonpoint pollution, restore habitat, increase resiliency to floods and droughts, and support recreational use of streams. Tasks include:
  
1. Identify priority reaches for restoration from existing plans. (Pilot area: Middle Deschutes River; secondary: McLane Creek basin)
  
2. Work with landowners to identify concerns, preferences and restoration incentives

# Develop and test solutions to decrease steelhead mortality at the Hood Canal Bridge - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2025 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Hood Canal Coordinating Council, in coordination with its member jurisdictions and Long Live the Kings, and in consultation with the Department of Transportation, will develop and test solutions to decrease steelhead mortality (and potentially other salmon mortality) associated with the Hood Canal floating bridge. Solutions will be determined based on the findings of the ongoing Hood Canal Bridge Ecosystem Impact Assessment.

# Hood Canal and Eastern Strait of Juan de Fuca Summer Chum Salmon Recovery Status of Threats - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

HCCC will assess the threats and limiting factors of sub-populations of Hood Canal summer chum to determine their status and need for additional actions. The focus of this evaluation will be on core sub-populations and on meeting spatial structure population viability criteria. This approach will assist HCCC in determining specific actions needed to achieve healthy and sustainable populations of summer chum that will ultimately lead to delisting of the ESU. Delisting will require that the population viability criteria be met as well as certainty that the threats that originally caused the need for listing have been adequately abated.

# Hood Canal Steelhead Recovery Plan Development - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

An initial effort was completed by Long Live the Kings and the Puget Sound Partnership in 2014 to facilitate the development of technical frameworks for the four designated steelhead populations in Hood Canal. This initial focus was on the compilation and analysis of technical data. NOAA Fisheries, working with Long Live the Kings (LLTK) and the Puget Sound Partnership is in the process of conducting an analysis of Hood Canal steelhead viability. HCCC is proposing to build on these initial efforts to develop a Hood Canal Steelhead Recovery Plan that can nest within the larger Puget Sound Steelhead Recovery approach being pursued by the Puget Sound Partnership, LLTK, and other partners.

# Mid-Hood Canal Chinook Salmon Recovery Strategy - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The mid-Hood Canal Chinook population(s) are in need of further investigation and analyses to determine population status and approach for the development of recovery goals and strategies. Priority actions for this NTA would include the following: 1) Address uncertainty in the identification of the mid Hood-Canal Chinook historical independent population, 2) Coordinate forum meetings, 3) Identify technical needs, 4) Develop experimental concepts, and 5) Update recovery goals and strategies. The HCCC Board of Directors will be apprised of the status of the mid-Hood Canal Chinook recovery chapter update and will engage with appropriate partners and collaborators.

# Hood Canal Shellfish Initiative - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

HCCC will convene the Hood Canal shellfish community in a collaborative and inclusive process to develop an action plan with multi-beneficial approaches to support Hood Canal's shellfish culture. The effort will include a comprehensive review of the barriers and opportunities to sustain robust shellfish resources that support a range of ecological and social values and result in an actionable workplan to achieve desired ecological and social outcomes, including: support of sustainable shellfish operations, and conservation of shellfish populations.

# HCCC Integrated Watershed Plan-Adaptive Management and Monitoring - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

HCCC will advance and adaptively manage IWP elements utilizing Open Standards for the Practice of Conservation tools to keep up to date on implementation progress, adapted approaches, changes in ecosystem status, and progress toward goals for the following ecosystem components selected because of their importance to local communities, their emphasis in numerous conservation plans, and their links to other ecosystem components (see Hood Canal LIO Recovery Plan):
  
- Forests
  
- Beaches and Nearshore
  
- Deltas & Estuaries
  
- Rivers & Floodplains
  
- Marine and Deepwater
  
- Physical Health
  
- Psychological Wellbeing
  
- Cultural Wellbeing
  
- Governance
  
- Social Wellbeing
  
- Economic Wellbeing

# Hood Canal Landscape Assessment & Prioritization Tool - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

HCCC will develop a decision-support tool to assess the effectiveness of the policies, programs, protection and restoration efforts employed across the Hood Canal landscape, to empower HCCC and its partners with multi-dimensional information to identify highest priority ecological functions and areas, articulate desired social and ecological outcomes in those areas, and evaluate comprehensive solutions to achieve those outcomes.
  
  
HCCC will engage partners to identify key areas throughout Hood Canal that provide significant ecological function and value necessary to achieve Hood Canal Integrated Watershed Plan salmon recovery, shellfish production and water quality goals.

# Surface to Ground Water Conversions - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Conduct a feasibility analysis for approximately three potential partners to transfer from surface to groundwater and outline the potential costs of each project. For each of the potential partner, the individual plans will include an analysis of the value to stream flow enhancement and cost effectiveness. A cost-share program will be offered to each interested landowner estimated at 50%-75%, capped at a maximum. The maximum amount will be developed based on the feasibility analysis per project partner. Funds will be paid for engineering and capital improvements to facilitate the preparation of change/transfer applications for two ...

# Culvert Replacement near 1321 268th St NW - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The existing culvert under 268th St NW are twin 18" diameter concrete culverts. These culverts are a fish barrier and limit the movement of salmonids in Secret Creek. In 2016 WSDOT replaced a barrier culvert under SR 532 which is 100-feet D/S of the proposed culvert replacement. Due to limited County funds, culverts that are either failing or causing roadway flooding are addressed first as they are a public safety concern and because this culvert doesn't meet either of those concerns the priority for replacement is lower than other culverts within the County. Past data has shown that Secret Creek is a cold-water input with a good v...

# Culvert Replacement on E Sunday Lake Rd and 4th Ave NW - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The existing culverts under 4th Ave NW and E Sunday Lake Rd are a fish passage barriers and limit the movement of salmonids along the stream channel for migration/rearing. In 2016 WSDOT replaced a barrier culvert under SR 532 which is U/S of the E Sunday Lake Rd culvert. Due to limited County funds, culverts that are either failing or causing roadway flooding are addressed first as they are a public safety concern and because these culverts don't meet either of those concerns the priority for replacement is lower than other culverts within the County. Past data has shown that Secret Creek is a cold-water input with a good vegetativ...

# SnoCo Fish Passage Culvert Inventory and Prioritization - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The County's in-house staff will collect culvert information of unknown barrier status culverts on fish bearing streams to determine if the culverts are barriers per WDFW guidelines. If the culvert is determined to be a barrier a process of prioritizing that culvert will be performed by first determining a priority index (PI) number per WDFW guidelines. The PI numbers will allow the County to rank the culverts in order of priority based on WDFW guidelines. However, the County will then proceed with additional internal/external discussions to refine the prioritization based on other factors such as impervious area upstream, downstre...

# Kingston Recycled Water Feasibility Study - Completed

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2019 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Kitsap County has identified an opportunity to restore the natural water cycle in the vicinity of the Kingston Wastewater Treatment Plant by significantly reducing the discharge of treated wastewater into Puget Sound. Previous work identified the beneficial uses of producing recycled water at the KWTP for summertime irrigation at the White Horse Golf Course and wintertime infiltration to enhance streamflow in Grover Creek. In addition to reducing nutrients in the Sound and supporting the Grover Creek fisheries, this project also reduces groundwater withdrawals. The scope of work includes 1) field studies for the evaluation of wa...

# Tolt River Upper Frew Floodplain Reconnection Feasibility/Design - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Conduct feasibility and design to remove and setback 2,500 feet of existing levee on the right bank levee on the Tolt River between river miles 1.1 and 1.6. The project will reconnect up to 23 acres of historic floodplain to create rearing and refuge habitat for juvenile salmon.

# Pilchuck River Dam and Armoring Removal Restoration Project - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The final objective of this restoration project is full removal of the City of Snohomish Diversion Dam and associated armoring on the Pilchuck River to restore natural processes and unimpeded fish access to over 37 miles of high quality priority habitat for listed fish species. This dam has consistently been an impediment to upstream fish migration for chinook, steelhead, bull trout, coho, chum, pink, cutthroat, and other species. The City of Snohomish has committed to the cessation of water withdrawals at this location, allowing full dam removal. A current effort is underway for planning and design to expand analyses, generate ...

# Makah Hake Plant Above Ground Storage Tank Clean Up - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2020 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

To achieve our objective for this NTA we will follow a remediation plan that was produced from Phase 3 of this project and drafted by Herrera Environmental Consultants. This plan includes removal and disposal of an estimated 30 cubic yards of soil contaminated with Bunker C fuel oil (high in PAH) and heavy metals, residual infrastructure such as concrete slabs and discarded pipes, and complete removal of the supply pipe associated with the above ground storage tank. The supply pipe has asbestos containing insulation and possible residual material inside. During remediation of all contamination confirmation samples will be collected...

# Integrated Hydraulic and Hydrologic Modeling in the Snohomish River and Stillaguamish River Watersheds - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Perform regional hydrologic modeling of future scenarios related to climate change in the Snohomish River and Stillaguamish River watersheds to develop projections of future stream flows at individual locations in the modeled watersheds and develop summary statistics of changing weather patterns for the Snohomish County region. Develop 2-D hydraulic models of the Snohomish River, Stillaguamish River, and the associated floodplains to better describe/delineate flooding extents across varying levels of flood events and better describe realistic flow pathways in the floodplains for both existing conditions and future conditions as des...

# Coho Creek Relocation and Enhancement Project - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Tulalip Tribes propose to relocate and restore stream habitat conditions along approximately 650 feet of Coho Creek (WRIA #07-0048), a type 3 tributary to Quilceda Creek, on the Tulalip Reservation. In 1999, a culvert that blocked fish passage, just below the project area was replaced, improving fish access to over 2 miles of ditch and stream channels. Enhancing ditched sections of the stream system has a potential to measurably increase Coho and Chum salmon production. Since 2001, 2,500 feet of Coho Creek has been restored resulting in increased spawning and rearing production. Coho and Chum salmon spawning has averaged 39 and 167 respectively.

# Regional (WRIA 1-Wide) Water Supply and Management Plan - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Approach for developing a WRIA1-wide Regional Water Supply Plan will include:
  
  
1. Coordinate a water supply technical work group. Additional stakeholders are invited to participate as identified for agenda topics and to participate in review of data and options for management solutions. 2. Consolidate and quantify water availability, water use, and water supply needs. Coordinate with salmon recovery and habitat technical staff to consolidate and review information on instream needs. 3. Identify, evaluate and support solutions for meeting water supply needs. 4. Provide water supply information for connecting water availabilit...

# Shelton Green Stormwater Infrastructure Program Development - Phase 1 - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This action supports development of the City of Shelton's new stormwater program. It proactively integrates a Green Stormwater Infrastructure (GSI) framework into future planning, project development, and public engagement. In collaboration with Mason Conservation District, Shelton will consider hydrology and land cover to identify, assess, and enhance sites using green stormwater strategies. Tools such as tree canopy mapping and augmentation, urban green space expansion and protection, and integration of LID stormwater practices will be identified to address peak flow reduction, to protect groundwater, and to enhance public space.

# Municipal Stormwater Pollution Accountability Project - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2020 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Building on the 2017 release of "Nature's Scorecard" and the cooperative resolution of a legal action to enforce the Municipal Stormwater NPDES permit, Puget Soundkeeper will keep the momentum going and execute the additional work necessary to complete the project & achieve its goals. Methods for success include: 1) Outreach to community, partners & leaders to share results of "Nature's Scorecard", 2) Engagement with municipalities identified as "green star leaders" to reinforce positive accountability, 3) Tracking impacts of "Nature's Scorecard", 4) Updating "Nature's Scorecard" to reflect improvements & progress, 5) Engaging with municipalities to achieve permit compliance.

# Strait NTA Implementation Assistance: A Pilot Action - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Solely at the direction of the Strait ERN LIO Steering Group, this pilot NTA will provide key services to help owners accomplish their existing or develop new Local NTAs for the Strait Action Area, and the balance of eastern Jefferson County, where appropriate. It will also serve as a model for other LIOs and the Puget Sound region to consider. These long-needed key services, more fully described within the Activities section, include seeking funding from new or existing sources; facilitation and other services; and later, developing new NTAs to fill gaps to implement the Strait Ecosystem Protection and Recovery Plan. Using a set o...

# Seattle Public Utilities (SPU) fish passage barrier replacement projects - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Seattle Public Utilities (SPU) owns and manages over 54 culverts on the 5 main salmon streams in the City of Seattle. Many of these structures are beyond their useful life and/or are undersized for flow and fish passage. This NTA is focused on completing Options Analysis and Design for 3 SPU fish passage barriers including two on Fauntleroy Creek and one on Thornton Creek. These culverts are high priorities for SPU and the City given their age, condition, and barrier status. The two SPU culverts on Fauntleroy Creek (45th Ave SW and California Ave SW) are the only remaining human-made barriers in this mostly protected watershed. We are starting on Fauntleroy Creek culverts.

# Restoring Riparian Forest along the Green-Duwamish River - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2025 |
| Completion Year | 2025 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The goal of this NTA is to implement revegetation goals identified in WRIA 9's 2016 Re-Green the Green Riparian Revegetation Strategy. Summertime temperatures in the Green River frequently exceed the lethal threshold for salmonids and fail to meet state water quality standards (Green River Temperature TMDL, 2011). This NTA directly addresses high water temperatures by restoring riparian forest to target Green-Duwamish shorelines with a critical need for shade.
  
  
This NTA will fund revegetation of 30 acres along the mainstem of the Duwamish and Lower Green River. This work will be accomplished by convening a group of key partners,...

# West Sound Eelgrass Monitoring Program - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2020 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA continues monitoring to document the status and trend of eelgrass beds in the East Kitsap nearshore. This program utilizes methods standardized by Washington Department of Natural Resources Submerged Vegetation Monitoring Program (SVMP). Sampling and analysis being completed now will provide a baseline to measure trends in eelgrass conditions at both a site and sub-regional (East Kitsap) scale. This effort supplements existing and planned future sampling by WDNR's Submerged Vegetation Monitoring Program (SVMP) by increasing the number of sites sampled in the East Kitsap nearshore, thereby increasing significantly the ce...

# Orcas Love Raingardens - a pilot program to make the connection between raingardens and orca conservation for generations to come - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Southern Resident orcas are considered the most polluted marine mammals in the world. Researchers have found dangerously high toxic loads that can cause several health problems. Pollution also impacts the orcas' main prey: salmon. The biggest source of toxics in Puget Sound comes from stormwater runoff. We can reduce the amount of stormwater entering Puget Sound, by installing raingardens. Orcas Love Raingardens has three goals: 1. Coordinate stakeholders in Tacoma to install and manage raingardens in public places, particularly schools and parks; 2. Educate students and community members about the role raingardens play in the cons...

# South Fork McCarty Reach - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Implement a feasibility and design project to restore wetlands, floodplain and in-channel habitat on the
  
left side of the South Fork downstream of the BNSF railroad bridge. The first stage is for design of an
  
instream and tributary restoration project. An engineering consulting firm will create a design under the
  
guidance of LNR and WRIA 1 co-managers. McCarty Creek reach lies in a highly productive chinook
  
spawning grounds. The reach could benefit from additional logjams to provide cover and to alleviate any
  
incision. Project to provide feasibility and design in an area restore wetlands, floodplain and in-channel
  
habitat on ...

# Effects of PCB exposure on juvenile Chinook salmon survival. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Chinook fry rearing in the Duwamish estuary experience extremely low survival, limiting productivity in the Green/Duwamish watershed. Limited tissue chemistry data indicate juvenile Chinook are bioaccumulating contaminants while in the Duwamish and that PCB exposure may be causing adverse health effects. However, effect thresholds are sparse or lacking for evaluating chemical contaminants. Effect thresholds provide context for evaluating chemical toxicity to salmon and can be highly variable depending on assumptions used in their development. This project will use the WRIA 9 stakeholder process to establish assumptions, including s...

# Mud Bay, Sucia Island Salt Marsh and Beach Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2020 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Mud Bay is on Sucia Island, a State Marine Park in San Juan County (SJC). Mud Bay has a 2.2 acre salt marsh and a pocket beach that is a documented surf smelt spawning beach. Sucia Island is located along a major juvenile salmon migratory pathway and is ranked within the top 3% of SJC's shorelines for salmon recovery. Along the salt marsh/beach interface, there is a 300 ft low-lying road, armor, fill, and a perched, narrow culvert; these modifications block fish passage and tidal exchange and bury beach habitat. Wetland, hydrology, coastal processes, and cultural resources research are complete; the restoration design is 95% comple...

# Nooksack River Forks Riparian Conditions Analysis - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2020 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

In coordination with Western Washington University, inventory riparian conditions using remote sensing (lidar and high resolution aerial photography) and field sampling to determine the successional stage of the stand for the mainstem and three forks of the Nooksack River. A sample of individual stands will be modeled using growth models to estimate the time to target conditions. This information will be used to identify stands that are not on a trajectory toward recovery and prioritize enhancement actions. Past conifer underplanting sites, a common strategy in the Nooksack Watershed, will also be evaluated for success. Coordinate ...

# Puget Sound Conservation Districts: Regional Shoreline Program Expansion - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This action incentivizes landowner adoption of Shore Friendly principles across Puget Sound through direct collaboration with professionals. Twelve collaborative Conservation Districts (CDs) will provide (1) technical assistance, (2) outreach/workshops, and (3) cost-share funds to facilitate behavior change actions that protect marine shoreline habitats, coastal processes & resiliency. The CDs will provide site-specific guidance and incentives to increase armor avoidance, removal, use of SSP alternatives; to discuss SLR and stewardship; to enable on-the-ground action. 3 existing programs will expand services using local prioritizat...

# Study to Improve Understanding and Increase Effective Engagement in Reducing Impacts from Vessel Traffic - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Regional Priority Approach CHIN6.1 (Assess and implement additional preventative and proactive measures to reduce the risk of vessel collision and grounding) is challenging to address given the continuous changes to vessel traffic volumes, cargoes, and associated oil spill risks and other vessel traffic impacts and threats to high value habitats and species including the Southern Resident Killer Whales.
  
The study will:
  
- Provide a framework for understanding the region's major US terminals and refineries; past changes and projected vessel traffic volumes, cargoes, and impacts; the permitting processes and regulatory changes;...

# Transboundary Water Quality Coordination - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Establish transboundary partnership to coordinate water quality monitoring and pollution identification and correction (PIC) activities to reduce bacteria levels impacting shellfish growing areas in Portage Bay and Boundary Bay/Drayton Harbor. Work will build upon Transboundary Water Quality Task Group recommendations and be coordinated with successful Whatcom Clean Water Program (WCWP) to find and fix causes of bacterial pollution. Activities will include:
  
\* Establish transboundary collaboration plan.
  
\* Conduct ambient and source identification monitoring; share results among US/Canada partners.
  
\* Share successful PIC outreach...

# Strait Oil Spill Prevention, Preparedness, and Response NTA: Regional Collaboration and Involvement - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Solely at the direction of the Strait ERN LIO Steering Group, this NTA will work to enhance oil spill prevention, preparedness, & response by implementing the Tribal & Local Collaboration and Involvement portion of our oil spill local strategy (see Strait Results Chain ID#L). Specifically, this NTA would help improve collaboration and involvement of Strait ERN LIO member organizations in oil spill issues by: a) Participating on an appropriate regional oil spill organization (e.g., NWAC/RRT; Harbor Safety Committee, etc.) to both support efforts of our member Tribes & to improve coordination with state, federal, & international part...

# Knotweed Biocontrol in the Samish/Skagit River Floodplain - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Invasive knotweeds negatively impact salmonid spawning habitat by colonizing and stabilizing gravel bars and affect floodplain habitat by creating monocultures along the riparian corridor. The infestations preclude native trees and shrubs from colonizing the site and knotweed plant litter is an inferior quality in comparison to natives. The sap-sucking psyllid, Aphalara itadori, is currently under review by USDA APHIS PPQ for approval as a biological control agent and field releases may be available as early as 2019. The WSU-Integrated Weed Control Project would identify potential psyllid release sites and conduct pre-release moni...

# Addressing Ocean Acidification in Washington: Monitoring, Forecasting, Biological Response Experiments, and Regional Coordination - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

1) Sustain the ocean acidification monitoring network to a) measure trends in acidification conditions throughout Puget Sound and b) investigate biological responses to ocean acidification conditions in Puget Sound.
  
2) Ensure continued water quality monitoring at six shellfish hatcheries and rearing areas to enable real-time management of hatcheries under changing pH conditions.
  
3) Sustain the real-time short-term forecasts of corrosive conditions for application to shellfish hatcheries, growing areas and other areas of concern and ensure public access to forecasts, allowing shellfish growers and managers to track acidificat...

# Marine Shoreline Technical Assistance - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The goals of this NTA are to accelerate and expand shoreline protection and enhancement on private property by 1)Provide technical site visits to assess resource conditions and produce associated action plans with management recommendations for Puget Sound shoreline landowners who have participated in KCD Where the Water Begins workshops since 2006. Site visits and associated management recommendations will address natural resource concerns related to bulkheads, vegetation structure and composition, stormwater runoff, and aquatic and upland fish and wildlife habitat. 2) Increase implementation of marine shoreline enhancement pro...

# Implement a No Discharge Zone within Puget Sound - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will do two things:
  
a). Increase sewage pumpout options for commercial vessels in Puget Sound.
  
b). Implement an integrated vessel sewage behavior change campaign to increase awareness and understanding about pollution problems caused by sewage, educate boaters about No Discharge Zone requirements and motivate them to comply with the rule.
  
  
  
Methods
  
-Establish a grant process, issue and manage grants to install pumpouts.
  
-The NDZ Education and Outreach Committee and Enforcement committee will work with partners to:
  
 -Review and update educational and outreach materials and resources needed to reach the target audie...

# Koch Creek Regional Stormwater facility - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project includes enlarging and reconstructing a small existing storm pond. The new larger facility will collect stormwater runoff from 53 acres of housing, industrial areas and roads. The pond will capture and release runoff gradually over time, reducing the flow of water entering Koch Creek, located in the Dyes Watershed of Kitsap County, and allowing pollutants to settle out. These pond improvements will reduce flooding during storm events and improve water quality to Koch Creek.

# Chico Creek Culvert (Golf Club Hill Road) and Floodplain Restoration - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Chico Creek is one of the most productive salmon and steelhead streams in Kitsap County, and in all of WRIA 15. There is a considerable amount of high quality habitat in the watershed, with wild populations of coho, winter steelhead, cutthroat, fall chum and occasional Chinook present.
  
  
The culvert under Golf Club Hill Road was identified in the early 2000's as a priority for salmon recovery and has been in various planning stages since then. Design for removal of the culvert and associated floodplain restoration is complete and permitting has begun. The project costs are beyond the capacity of County Road funds and construction...

# National Hydrography Dataset Update - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Identifying critical habitat is vital to stopping the decline of Chinook salmon populations. The first step is to correct the National Hydrography Dataset (NHD) using accurate spatial records. The NHD is the foundation for many strategic maps but a significant proportion of Puget Sound streams are incorrectly mapped. We will compile spatial data from ~1435 miles of surveyed Puget Sound streams to update the NHD and develop a new tool to assist prioritizing fish passage barriers for correction.

# East Kitsap Forage Fish Monitoring - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This continues work is currently being conducted in collaboration with WDFW following an approved quality assurance project plan (QAPP) using well established sampling protocols, sample processing methods, and sample analysis procedures. This NTA would continue this work.
  
  
Using a random approach, sediments will be sampled monthly along beaches in the West Sound area from Foul Weather Bluff to Southworth to further refine the timing and distribution of spawning by surf smelt and sand lance. Sediment samples are processed to separate eggs. Eggs are counted and recorded by species and developmental stage. Data is summarized in ...

# Juanita Creek Instream Pond Evaluation - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2023 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Develop guidelines for evaluating instream ponds for their water quality and flow control functions using the Juanita Watershed as a pilot watershed. Three instream ponds were constructed in Juanita Creek per recommendations of a 1978 Juanita Creek Watershed Plan. It is unclear if these ponds are currently providing water quality or flow control benefits beyond what would be provided by an unmaintained floodplain, and maintenance requires significant disturbance of the stream channel. This study would use sediment sampling and flow monitoring, to determine whether these ponds are providing significant water quality or flow contr...

# Microbial Source Tracking in Little Bear Creek (WRIA 8) - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Fecal coliform contamination in surface waters of Little Bear Creek exceed State water quality criteria and several of these sub-drainage reaches occur on the 303d list. Microbial Source Tracking (MST) in the Little Bear Creek drainage identify differences between bacterial contaminants contributed by humans versus wildlife. This NTA proposes to use MST to identify the dominant source of bacteriological contributions and this information used to select Capital Improvement Projects that control and reduce microbial contamination to meet water quality standards. Placement of CIPs have a greater chance of facilitating rapid improvemen...

# Uncertainty Fellow - Addressing priority analysis gaps in support of the development and execution of Implementation Strategies - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The development and execution of Implementation Strategies for Puget Sound recovery is supported by a foundation of the best available science. Applicable reports, publications, and data are synthesized at the beginning of the development process, and key questions and uncertainties are recorded and evaluated throughout. The result is a selection of key uncertainties which are critical to the execution of the identified strategies. Some of these priorities are classified as "resolvable" indicating that they can be addressed with a few weeks of concerted effort. However, these have heretofore been left unaddressed due to the lac...

# South Prairie Creek (RM 4.0-4.5) Floodplain Project Phase 2 - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project focuses on floodplain treatments to restore side channel and off-channel complexity and floodplain connectivity for flood attenuation and refuge, ground water recharge, and forested wetland vegetation. Project methods include: placement of 1 channel spanning structure in the main channel to tie into phase 1 project actions, removal of accumulated sediments and pasture vegetation from 2,600 linear feet of relic side channel along the right bank to connect base flows from South Prairie Creek and intercept groundwater and hyporheic flow, installation of up to 55 floodplain and side channel wood structures as well as up to...

# Effectiveness of regulatory mitigation to preserve critical salmon habitat in Puget Sound - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Projects that affect the nearshore environment often require mitigation to achieve no net loss of habitat function. However, there is little information on the effectiveness of mitigation measures, especially as it pertains to preserving critical salmon habitat in Puget Sound.
  
We will develop a database of past and current projects that require eelgrass mitigation and then will survey a sample of these projects to determine mitigation success over varying spatial and temporal extents throughout the Sound. Eelgrass is a valuable habitat for out-migrating Chinook salmon in Puget Sound. Scientific literature indicates that eelgrass m...

# Determining seasonality in nutrient cycling, organic-matter mineralization, alkalinity fluxes, and oxygen consumption rates in Puget Sound . - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Puget Sound sediment cores and overlying water will be collected at 4 stations in north, central, and south Puget Sound on six dates over the course of one year. Cores will be incubated and change over time in nutrient content, N2:Ar, alkalinity, and dissolved oxygen levels will be measured to:
  
1) Determine rates of nutrient cycling, denitrification, organic-matter mineralization, alkalinity flux, and oxygen consumption.
  
2) Quantify spatial and seasonal variation of these rates in different geographic areas of Puget Sound.
  
3) Provide spatial and temporal data to scientists developing the Salish Sea Model/Sediment Diagenesis Mo...

# Making a comprehensive set of stream biological metrics publically available. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Create & document a public & comprehensive Washington database for reporting 629 biological metrics that describe stream health based on macroinvertebrate, periphyton, and fish/amphibian communities. These metrics would have easy access and display. They would be hard-coded for repeatability and calculation methods would be described in detail for transparency.

# The Beach Environmental Assessment, Communication, and Health (BEACH) Program Bacterial Assessment at Recreational Swim and Shellfish Beach. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The BEACH Program will conduct two years of weekly monitoring for fecal indicator bacteria at public saltwater swimming and shellfish beaches from Memorial Day through Labor Day. Bacteria data collected will provide information on the status of recreational shellfish beds, including information on improving or worsening bacterial levels. Bacterial water quality in recreational harvest areas are indicative of bacterial water quality in commercial and tribal shellfish harvest areas since the majority of recreational shellfish beaches are adjacent to these harvest areas. BEACH Program staff and local BEACH Partners will conduct weekly...

# South Fork Groundwater Model Development - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Develop a groundwater flow model and evaluate the influence of various restoration scenarios on temperature and baseflow in the South Fork Nooksack River.

# Respiration measurements in the Salish Sea - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Salish Sea Model will be employed to assist with the development of nutrient management and water quality strategies for the Puget Sound. This project will help optimize model performance, and minimize uncertainty in predicted dissolved oxygen levels. Model uncertainty depends on the availability of relevant observations and the proposed expenses will allow us to leverage an existing study for sampling. This project proposes to measure the key parameter of the rate of oxidation organic carbon (respiration), which is an integral calibration parameter in the Salish Sea Model. It is well recognized that organic carbon loadings i...

# Implement salmon habitat recovery in Quartermaster Harbor - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Quartermaster Harbor (QMH) is a shallow, semi-enclosed system that supported extensive herring spawning and provided habitat for Chinook; both populations in decline. The head of QMH has a history of water quality degradation, which coincides with documented declines in eelgrass beds, a critical habitat for both salmon and herring.
  
  
We will conduct test transplants over a spatial gradient through QMH to identify optimal conditions for eelgrass performance and both salmon and herring habitat recovery. We will measure water quality parameters along with nutrient levels and plant performance, to identify factors that inhibit eelgras...

# Puget Sound Watershed Continuous Nitrogen Monitoring - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This continuous nutrient data collection from these six river systems will give us a better understanding of watershed nutrient flux and yield to improve model performance and reduce uncertainty for watershed loadings in the Salish Sea Model. We are focused on major watersheds that can contribute overall significant loads, as well as rivers that may directly impact conservation or active restoration areas. In addition, collection of a complimentary suite of parameters at other established sites on a monthly basis, along with targeted sampling of those same parameters during peak flows will create the robust dataset needed to imp...

# Youth Corps Spartina Survey & Eradication in the Skagit River Delta - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Spartina threatens salmonid habitat because it outcompetes native salt marsh plants, colonizes mud flats and accretes sediments changing the structure, function and biology of an estuary. In Skagit Bay, 641 acres of Spartina have been eliminated over more than 1,100 acres. However, thousands of individual Spartina plants and seedlings are hidden throughout the estuary salt marsh. This NTA would expand the Spartina eradication efforts in the Skagit estuary in non-surveyed areas.

# Steamboat Slough Invasive Cattail Control - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Invasive cattail tolerates higher salinity and water depths than the native cattail and outcompetes native vegetation to create monocultures. Invasive cattail has colonized approximately 927 acres of delta habitat on the South Fork of the Skagit River. This NTA would control 454 acres invasive cattail over 1,123 acres of estuary around Steamboat Slough to return the structure and estuarine function to the site and improving salmonid habitat.

# North Fork Tributary Fish Barrier - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2023 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Whatcom County Public Works has included this project on the 2019-2024 Six-year Transportation Improvement Program project list and Annual Construction Plan approved by the Whatcom County Council and Whatcom County Executive in 2018. Fish Barrier Removal Board design funding has been authorized and is in the grant agreement approval process. WCPW will conduct site assessments and then prepare an alternatives analysis to identify a preferred approach to providing full, year-round passage for Chinook, steelhead, bull trout, coho and other salmonids to 1.5 miles of habitat in Kenney Creek, a tributary to the North Fork Nooksack River. The existing county road culvert ...

# Latino Stormwater Pollution Awareness and Behavior Change Campaign - Phase 2 - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA expands NTA 2016-0162 (Phase 1) in which Latino outreach and social marketing techniques were piloted in four target communities. 12,000 Latinos in eight new communities with significant Latino populations in South / Central Snohomish County and north King County will learn about stormwater pollution impacts and sources and implement low cost, relatively easy Low Impact Development (LID) techniques, such as use of rain barrels and Natural Yard Care techniques using social marketing approaches honed in Phase 1. Phase 1 communities (those reached under NTA 2016-0162) will experience more extensive and continued outreach, m...

# Implement Model Volunteer Program for Oil Spill Response / Assessment - Phase 2 - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

With over 20 billion gallons of oil and other hazardous chemicals moving through Puget Sound annually, the threat of a spill is very real, with potential for catastrophic impacts to habitats and wildlife and fish populations . Fast and effective assessment, data on resource conditions and appropriate and adequate response will be necessary to reduce damage. This NTA expands the 2016-0315 NTA which develops and pilots the model program in 2018 / 2019 to northern Olympic Peninsula and Island Counties, plus one more area. The intention is to connect oil spill response agencies with established volunteer programs to maximize access ...

# North Fork Nooksack River Boyd Creek Reach Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2022 |
| Completion Year | 2023 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Design, construct and monitor chinook habitat restoration project in the North Fork Nooksack River (RM 62-63); potential restoration components include relocation of river-adjacent road to reconnect floodplain and remove fish passage barriers and placement of engineered log jams to restore habitat and habitat-forming processes. Activities include: develop reach-specific habitat objectives; identify landowner and stakeholder constraints; conduct alternatives analysis; select preferred alternatives and develop designs; acquire materials; go out to bid for and oversee construction by qualified contractor (up to two construction phase...

# Pollution Prevention, Identification and Correction - Thurston County - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Effectively reduce fecal coliform pollution by shifting from complaint driven pollution enforcement to pro-active pollution prevention, identification & correction building on the pilot project in Henderson Shellfish Protection District.
  
- Add up to 12 additional routine monitoring locations in Totten, Eld, Budd, Henderson & Nisqually watersheds to identify water quality pollution problems. Follow Thurston County PIC protocol to identify pollution sources where hot spots occur
  
- Refer agricultural issues to Thurston Conservation District for technical assistance, including farm plans and BMP implementation
  
- Investigate & corr...

# North Fork Nooksack River Maple Creek Reach Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2023 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Design, construct and monitor chinook habitat restoration project in the North Fork Nooksack River (RM 49.8-50.6); potential restoration components include engineered log jams and removal of bank hardening. Activities include: develop reach-specific habitat objectives; identify landowner and stakeholder constraints; conduct alternatives analysis; select preferred alternatives and develop designs; acquire materials; go out to bid for and oversee construction by qualified contractor (up to two construction phases); and conduct implementation and post-project effectiveness monitoring.

# Novel and Emerging Contaminant Detection and Source Identification in Water, Fish and Shellfish - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Humans are discharging substantial loads of contaminants, including many poorly described chemicals, into receiving waters. Such chemicals directly affect the health of exposed organisms, yet many pollutants and their major sources remain unidentified, particularly for urban stormwaters. To better understand and mitigate pollutant loadings to aquatic ecosystems, we propose to survey water, fish and shellfish samples from some key sites for the occurrence of both legacy and emerging contaminants, particularly those described elsewhere (SF Bay, SoCal Bight) but not reported in Puget Sound. Additionally, via detection of co-contamina...

# Leque Island Estuary Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project is located on Leque Island near Stanwood. The project area is historic tidal marsh that is currently disconnected from tidal processes by a perimeter dike on the 250-acre portion that is south of Highway 532. On the 26-acre portion north of the highway, the perimeter levee has breached in one location but tidal processes are muted. Phase 1 construction was completed in summer of 2017, which involved preparing the site for dike removal by filling ditches and excavating new channels. Phase 2 is anticipated for 2019 and will involve removing the perimeter levee to reconnect the tide to the south portion of the site an...

# South Fork Nooksack River Fish Camp (Tseq) Reach Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2023 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Design, construct and monitor chinook habitat restoration project in the South Fork Nooksack River (RM 9.1-9.6); potential restoration components include engineered log jams and removal or setback of bank hardening. Activities include: develop reach-specific habitat objectives; identify landowner and stakeholder constraints; conduct alternatives analysis; select preferred alternatives and develop designs; acquire materials; go out to bid for and oversee construction by qualified contractor (up to two construction phases); and conduct implementation and post-project effectiveness monitoring.

# Identification of a marker of fecal bacterial contamination from raccoons. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Regional pollution identification and correction (PIC) programs are challenged with identifying sources of bacterial contamination on beaches and shellfish beds. Potential sources include failing septic systems, agricultural runoff, pet waste, and wildlife. Traditional tools are non-specific and often do not inform on sources, but advanced molecular methods are capable. We will build tools to identify contamination specifically from raccoons; one does not currently exist.
  
  
Raccoons are common in the drainages of the Puget Sound lowlands and may be responsible for waste contributions in moderately-developed watersheds. Identifying...

# Chemical Action Plans for Endocrine Disrupting Chemicals (EDCs) - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

In the last two decades there has been a growing awareness of the possible adverse effects in humans and wildlife from exposure to chemicals that can interfere with the endocrine system. These effects can include developmental malformations, interference with reproduction, increased cancer risk, and disturbance in the immune and nervous system functions. Clear evidence exists that some chemicals cause these effects in wildlife.
  
  
Objectives include:
  
- Convene stakeholders & produce a draft EDC CAP within 3 yrs.
  
- Identify priority EDCs.
  
- Follow the 170-333 WAC CAP process.
  
- Develop recommendations & budget.
  
- Implement ...

# South Fork Nooksack River Black Slough Reach Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Design, construct and monitor chinook habitat restoration project in the South Fork Nooksack River (RM 1.9-3.2); potential restoration components include engineered log jams and floodplain roughness. Activities include: complete designs; acquire materials; go out to bid for and oversee construction by qualified contractor (up to two construction phases); and conduct implementation and post-project effectiveness monitoring.

# Comprehensive, Easy-to-Use Site Productivity Map for Puget Sound Basin - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

WDFW's new PHS management recommendations for riparian ecosystems encourages local governments to adopt stream buffer widths equal to the site-potential tree height (SPTH) of 200 year old conifers. Outside of commercial forest lands, information on SPTH is available through an internet site posted by the Natural Resources Conservation Service (NRCS), however, this information is difficult to use and has substantial gaps in its spatial coverage. This NTA would correct those shortcomings. This NTA would create a new internet site that: 1) merges SPTH information from DNR and NRCS, 2) makes this information easy to use, and 3) elimi...

# Upper White River Watershed Assessment: Restoration and Resiliency Planning - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Evaluate the upper White River Basin from river mile 33 to the National Park boundary including major tributaries (up to 70 stream miles) utilizing the following methods:
  
1) Map channel plan-form evolution in response to past disturbance and forecast response to increased magnitude and frequency of peak flow events, glacial recession, and decreased snow pack to evaluate effects to formation and maintenance of critical habitat. 2) Install temperature loggers at tributary confluences and collect thermal imagery of mainstem river channels to map cold water refugia and thermal diversity. 3) Evaluate existing and future flow dynamics...

# Fireproof Killer Whales: Reducing Flame Retardant Contaminants to Puget Sound - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Conduct flame retardant testing, surveillance and monitoring to better understand which toxic chemicals are currently being used in products that bioaccumulate in people as well as Orcas to reduce sources.
  
  
Flame retardants are release from households to wastwater treatment plants as a major pathway to Puget Sound. Atmospheric deposition and surface runoff have been identified as pathways for PBDE contamination in aquatic systems.
  
  
The project will:
  
1) Focus on impacted communities through environmental justice actions, including screening upholstered furniture in home that may contain flame retardants, including take back programs.
  
  
2) Inform consumers in multiple languages.

# Upgrading WDFW's Priority Habitats and Species program to better protect Chinook and other salmon - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will (1) create/prototype a data system that outputs (a) soundwide 3-tiered maps of what WDFW views as "Fish and Wildlife Habitat Conservation Areas" per GMA for Chinook and other salmon by Inner Riparian Management Zone (RMZ) and Outer RMZ, (b) maps of areas currently designated as Critical Areas by local jurisdictions, (2) create guidance for how to delineate and protect RMZs consistent with WDFW's 2018 PHS riparian document, and (3) provide for WDFW staff to train and engage local jurisdictions and LIOs regarding these maps and guidance. This project will result in counties/cities receiving maps, training, and guida...

# Clean Cars Alternatives Assessments - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Alternatives assessments are are rigorous, scientific comparisons of the toxicity, cost and performance of potential alternatives to a chemical of concern.
  
  
This NTA leverages the research findings from the Puget Sound Clean Cars Stormwater Partnership (NTA 2016-0284). Addressing more priority chemicals and having dedicated funding to implement recommendations will give manufacturers and consumers an incentive to switch to safer chemical alternatives, and is a critical line of defense in protecting human health and the environment, and avoiding future cleanup or stormwater management costs.
  
  
The results include conducting two...

# PCBs in Building Products - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will implement the following PCB CAP recommendations to: 1) work with building owners to prevent PCBs currently in building materials from being released into the environment; 2) Provide education and outreach on BMPs to building owners, local governments and those in the building trades; and 3) Promote the EPA PCB Facility Approval Streamling Toolbox (FAST): Streamling the Cleanup Approval Process.
  
  
The actions include partnering with EPA Region 10 to enforce current TSCA regulations and provide BMPs to school districts and building owners.
  
  
Partners: EPA Region 10 TSCA Program, Industry, local governments, tri...

# Local Source Control Implementation - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Ecology contracts with local governments to offer small businesses technical and regulatory assistance to prevent spills, identify illicit wastewater discharges, correct problems with oil/water separators, ensure storm drains are protected, and protect their employees through properly storing and labeling chemicals and hazardous wastes.
  
  
1) Fund at least five local source control specialists to conduct small business site visits to reduce polluted stormwater and toxic threats to Puget Sound. Local Source Control (LSC) he outcome is to conduct at least 1,500 site visits annually.
  
  
2) Add 2- 3 new local source control programs i...

# Skagit County Pasture Management Outreach & Technical Assistance Program - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

We propose to greatly expand the pasture management outreach currently available to landowners in the Samish Bay, Padilla Bay, and S. Skagit Bay watersheds to address ongoing pasture management problems in these watersheds. Outreach would include:
  
  
- Design of new mailers, brochures, signs, or other leave-behind materials to fill any informational gaps in currently available materials, and provide materials with consistent design and messaging.
  
- Hold workshops on a variety of pasture management topics offered several times a year (beyond what is currently available) to provide landowners with more opportunities to attend
  
- Adv...

# City Habitats: Alternative Approaches to Accelerate Stormwater Investment - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The project is designed to drive the collaboration, investments and science required to install green infrastructure in critical locations and at the scale needed to address Puget Sound's stormwater.
  
1) Use science and data to identify the locations with the most significant impact on salmon bearing and critical waterways. Develop and deploy tools to support fast, smart decisions to reduce runoff, including a Sound-wide stormwater pollutant heat map and decision support tool.
  
2) Pilot alternative compliance demonstration projects that use a private development company and performance-based contracts. Conduct a market and policy a...

# Making the Most of What You Already Got, Part 2: Exploring Relationships between Chinook Stock Productivity and Watershed Condition - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

One of the great unanswered questions regarding freshwater salmon habitat are the exact relationships between watershed-scale changes in land use and consequent changes in salmon spawner abundance. The ultimate goal of this NTA is accurate information for decision makers about the effects of land use on Chinook and steelhead spawner abundance. With geo-referenced historical data for adult spawner abundances in a WRIA, we will develop statistical relationships between Chinook and steelhead abundances and watershed conditions. We will develop local relationships separately for each WRIA in the Puget Sound basin where the salmon dat...

# Template for Biennial Tracking Land Cover Change - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will create a template for tracking the amount and rate of biennial land cover change. Through a facilitated process, representatives of counties, cities, tribes, and state agencies will develop a cooperative process for tracking jurisdiction-scale status and trends in land cover change as identified through WDFW's High Resolution Change Detection data. The template will summarize change within critical areas, including riparian ecosystems as described by the jurisdiction and WDFW's recent update to the riparian management recommendations under the Priority Habitats and Species (PHS) program.

# South Fork Upper Cavanaugh-Fobes Instream Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This multi-phased project will include design and construction for up to 24 engineered logjams to restore habitat in the South Fork Nooksack River. To achieve this goal, this project will seek to improve connectivity with off-channel habitat, increase available thermal refuge for salmonids during summer months, and increase key habitat quantity by creating pools associated with logjams as areas of refuge for salmonids.
  
Provide for occupancy of the Cavanaugh Island side channel by raising bed elevations downstream from its inlet. Side channels provide chinook redds a higher survival rate than mainstem channels.
  
Increase thermal re...

# Increasing regulatory effectiveness by closing loopholes (exemptions) in state and local regulations - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Describe common exemptions in structure and detail. Show site specific cases of exemptions including the type of habitat loss from tribal habitat data bases. If possible determine the magnitude of habitat loss from state and local databases, if that is not possible develop a method of tracking habitat loss from these exemptions. Develop recommendations to policy makers on regulatory changes that would stop habitat loss through exemption.

# Identification of a chemical tracer for boat-related wastewater discharges to Puget Sound - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Boat-based discharges are an important source of bacterial contamination to Puget Sound. Boat waste, however, is only one of a number of sources; others include CSOs, poorly functioning septic systems, and surface runoff. Reliable methods to differentiate bacterial loading from these sources are critical to effective management, yet options are limited. Traditional bacteria indicators do not differentiate between source organisms (e.g., human vs. wildlife) or activities.
  
We propose to address the issue by identifying a suite of chemical tracers specific to boat-related wastewater, and then characterizing their occurrence in th...

# South Fork Camp 18 Instream Restoration Project - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Restore salmonid (focusing on Chinook, steelhead, coho, and bull trout) spawning, rearing, and holding habitat in the South Fork Camp 18 Reach in order to recover self-sustaining salmonid runs to harvestable levels by addressing limiting factors including temperature, channel incision, and habitat diversity and quantity.To restore salmon habitat in WRIA 1, this project will complete a final design, obtain permits and construct five engineered log jams (ELJs) in the mainstem South Fork Nooksack River, consisting of three Type I ELJs (30x60ft), two Type II ELJs (Log reinforced riffle, channel spanning logjams consisting of forty-thre...

# South Fork Nooksack Elk Flats Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The restoration approach for Elk Flats is to utilize ELJs to increase floodplain occupancy on the floodplain opposite from a large sediment-producing landslide. The ELJs will promote aggradation and portions of the floodplain will be graded to encourage channel occupancy. Many ELJs will be installed near areas of known groundwater surplus, to cool water temperatures through natural scouring. All of the ELJs will create deep pools, which are much cooler at the bottom; areas where adult salmon can hold and reserve energy as they make their way upstream to their spawning grounds.
  
Floodplain activation will reduce hydraulic energy in ...

# Culvert replacement at the Lyre Conservation Area - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Our overall goal is to advance restoration at the Lyre Conservation Area by removing a fish-blocking culvert on a tributary to Nelson Creek, which is a tributary of the Lyre River, and restore fish passage, opening up over half a mile of habitat. Additionally, this project will stop the spread of noxious weeds through consultation with Clallam County's Noxious Weed Program, and removal by the Washington Conservation Corps. With any remaining funding, the goal is to educate the public on the area's environmental significance and why it was prioritized for conservation.

# Middle Fork Nooksack Porter Creek Reach Instream Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will construct 51 engineered log jams (ELJs) in the mainstem Middle Fork Nooksack River, consisting of 3 Type I ELJs (42x80x6'), 15 Type II ELJs (30x60x6'), and 33 Type III ELJs (34x75x4'). Endangered early spring Chinook salmon and bull trout will benefit from 48 new primary pools; more pools may develop indirectly as increased roughness causes dynamic equilibrium. Phase 1 was fully implemented in 2017, while Phase 4 is being implemented in 2018. The next phase for funding and implementation is Phase 2, just downstream from Phase 1.
  
In Phase 2, cool, productive Peat Bog and Bear Creeks flow over 1,000 feet along the ...

# Stormwater System Maintenance Outreach Effort - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Design and implement a coordinated public outreach effort to residential and commercial stormwater system owners, specifically working with Home Owner Association boards and business owners. The intent of the outreach is to clarify and explain the aspects of privately owned stormwater system maintenance and operations, the private owners' responsibilities under Snohomish County Code and County's municipal obligations under the NPDES Phase I Municipal Stormwater Permit. This includes providing educational materials and training on Best Management Practices (BMPs) and maintenance standards. The county has developed a homeowner's guid...

# Lyre River Watershed Protection and Restoration Phase II - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

In 2014, Phase I was completed through acquisition of 280 acres, now known as the Lyre Conservation Area. That property was critical to anchor future efforts. In future phases, North Olympic Land Trust will conserve additional privately-owned parcels along the Lyre River, along Nelson Creek, and along the Strait of Juan de Fuca, through fee-simple acquisition or conservation easement, and pursue restoration including undoing the channelization of the lower river and adding large wood to further improve existing salmon habitat.

# North Fork Nooksack River Farmhouse Reach Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Complete design, construct and monitor chinook habitat restoration project in the North Fork Nooksack River (RM 46.4-49.4); restoration involves placement of engineered log jams to promote floodplain forest development, restore stable side channels for spawning, and increase habitat diversity. Activities include: complete designs; acquire materials; go out to bid for and oversee construction by qualified contractor (Phase 3 and Phase 4 construction); and conduct implementation and post-project effectiveness monitoring.

# Protection and Restoration of Indian Creek Campground - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The goal is to acquire and conserve this property, enabling the restoration of the mouth of Indian Creek to its historic location. The Indian Creek Campground property encompasses 0.23 miles of Indian Creek, and the confluence with Indian Creek's alluvial fan, near the confluence with the main stem of the Elwha River.

# Strategic West Central Water Type and eDNA Assessment - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Wild Fish Conservancy (WFC) will expand watertype and eDNA assessments to include prioritized West Central LIO watersheds to address data gaps crucial to the effective implementation of critical areas ordinances, habitat restoration, and species recovery planning. Methods for these assessments are provided within WAC 222-16-031 and Section 13 of the Forest Practices Board Manual. Project eDNA methodologies are those developed by the USFS Rocky Mountain Research Station's National Genomic Center, a project partner and collaborator.

# Conserve high-quality agricultural lands - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2018 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Between 2018 & 2022, NOLT hopes to conserve farmland in the Sequim-Dungeness Valley, particularly those in NOLT's 2018-2023 Conservation Plan. In January of 2017, the community completed a vision for the Clallam County Agricultural Sector, which identified some key challenges that need to be overcome. Land was one of the challenges, & a primary goal was to "Permanently protect high-quality agricultural lands from development through the purchase of development rights and other conservation methods".

# Monitoring pollutants in benthic invertebrates and their associated sediments in Puget Sound urban bays: A missing link in the salmon-rela. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Sediments will be collected from three replicates at one station in each of three Puget Sound urban bays. Stations will be selected from PSEMP sediment monitoring locations where sediment contamination has been measured in the past. Benthos will be sieved from the bulk sediment samples, and both sediments and tissues will be analyzed to determine concentrations of metals, hydrocarbons, PAHs, PCBs, PBDEs, and phthalates. Data will be compared to existing contaminant data sets for sediments, macroinvertebrates, and epibenthic and pelagic fish from these urban bays to better understand the contribution of benthos to contaminant transfer through the food web.

# Measurement of Pharmaceuticals, Personal Care Products, and Perfluoroalkyl Substances in Budd Inlet and Port Gardner Bay sediments - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Sediments will be collected from Budd Inlet and Port Gardner/Everett Harbor for the Dept of Ecology's Puget Sound Sediment Monitoring Program, part of the Puget Sound Ecosystem Monitoring Program. Samples will be sent to an appropriate analytical laboratory for quantification of a broad suite of PPCPs and PFASs. A set of baseline data will be established, and they will be comparable to those collected in sediments in four other major urban bays and ten long-term stations in Puget Sound. All data will be reviewed for appropriate quality assurance and quality control, summarized, and electronically archived. Comparisons of detect...

# Jefferson County Parks Shoreline Armor Removal - Deferred

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Jefferson County MRC will work in partnership with the Northwest Straits Foundation's SHARP program and Jefferson Co. Parks Department to arrange for site visits by coastal geologists at four County Parks on Hood Canal and Strait shorelines to complete initial site feasibility assessments for shoreline armor removal: East Beach (48.056510, -122.683499), Indian Island/Lagoon Beach (48.026602N, -122.721096), Hicks Shine (47.868139, -122.634951) and North Beach Parks (48.142318, -122.782032.) Two of these sites (Indian Is/Lagoon and East Beach) were identified as potential project sites in previous studies. We will develop conceptual ...

# Reducing plastic pollution, and associated toxic chemicals, in the Salish Sea region - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Micro- and macroplastics have been documented to be ingested by aquatic species including salmon, other fish and shellfish and birds in Salish Sea waters and by plankton elsewhere. This plastic pollution may be an important contributor of toxic chemicals to these species due to the chemicals in the plastics themselves and the adsorbed chemicals picked up from the water column (including EDCs, PCBS, etc.). This NTA supports a collaborative effort to quantify plastics in watersheds through litter assessments using EPA's new protocol, development of an online app that displays the data, reporting, and creation of source control messag...

# South Fork Nooksack River Homesteader Reach Restoration - Planning/Design

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| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Design, construct and monitor chinook habitat restoration project in the South Fork Nooksack River (RM 6.0-6.4); potential restoration components include engineered log jams and floodplain roughening structures and removal or setback of bank hardening. Activities include: develop reach-specific habitat objectives; identify landowner and stakeholder constraints; conduct alternatives analysis; select preferred alternatives and develop designs; acquire materials; go out to bid for and oversee construction by qualified contractor (up to two construction phases); and conduct implementation and post-project effectiveness monitoring.

# Upper South Fork Effectiveness Monitoring - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Identify changes in habitat and geomorphic conditions and how these conditions are addressing spring chinook habitat limitations of sediment, temperature, habitat quality and diversity. Assessment of changes to habitat and geomorphic conditions from completed and planned restoration projects sponsored by the LNR. Green LiDAR acquired/processed in year 1 will provide elevations and bathymetry to be input into 2D hydraulic modeling. Hydraulic modeling, habitat and fish snorkel surveys and monitoring/assessment report with project recommendations in year 2. The LNR and the engineering consultant are developing a fish presence study pl...

# Chemicals of Emerging Concern (CECs), including endocrine disrupting compounds (EDCs), in marine and freshwater fish in King County - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Local fish are exposed to many chemicals that may impact their health and survival, but data on CECs in local fish are extremely limited. Very few studies have evaluated CECs in fish tissue in the Puget Sound Region, and none have included freshwater fish. The current King County tissue monitoring program includes annual collection and analysis of a wide range of freshwater fish species (from major lakes/rivers) and marine fish/shellfish species from Puget Sound, but does not include CEC analysis. The proposed NTA will add CEC analysis to the existing program for 2 years to provide a cost-effective way to establish a baseline to tr...

# Low English Proficiency Outreach Tool Kit - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

While many organizations working on environmental challenges throughout the region now recognize that equity is lacking, this is new and unfamiliar work and how to do it effectively is a significant knowledge gap. The District has been working to embed equity into our organizational culture since 2016, working with a consulting firm to help change our hiring practices, our program delivery and more. With a 2016 grant from the USDA, our Urban Agriculture program piloted a Low-English Proficiency Outreach program with six non-English speaking communities in Tacoma to support food access. This project would take the lessons learned fr...

# Nature's Value in the Salish Sea: Identifying the Economics Behind a Healthy Puget Sound - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The natural resources found in and around the Salish Sea provide local communities, and beyond, with important goods and services such as food, jobs, and recreation, among other intangible benefits, like water and air filtration. Yet, the natural resources of the Salish Sea are under threat from pollution, development, and unsustainable management practices. To help stakeholders understand the importance of protecting and restoring the Salish Sea, Earth Economics will conduct an economic assessment, known as an ecosystem services valuation, to demonstrate the value of healthy Salish Sea ecosystems. This valuation will establish a b...

# King County Marine Shoreline Stabilization Regulatory Reform Project - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

King County's SMP code for shoreline armoring is relatively protective, emphasizing the least impactful stabilization methods. However, it is frequently not clear how to implement for permit staff or the public, especially how to document when and where soft shoreline stabilization approaches are appropriate. This project would undertake several tasks to improve implementation of shoreline stabilization permit processes, including: 1 Retrospective evaluation of previously permitted stabilizations to quantify different aspects of what softer approaches could have been implemented. 2 Using #1, create a robust and transparent procedu...

# Shoreline Monitoring Toolbox: Data Analysis and Interpretation - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Shoreline Monitoring Toolbox (wsg.washington.edu/toolbox) provides standardized approaches to monitor shorelines in Puget Sound. The online toolbox was launched in 2014 and includes more than 15 protocols for physical and biological monitoring, such as beach profile, sediment size, breach wrack, birds, insects, fish, and wrack invertebrates. A database is being developed through NTA 2016-0119 that will house data in a central location. Upon completion, this will provide recommendations on next steps in using the database to assess restoration effectiveness and the benefits of shoreline armor removal, and to support toolbox user...

# The Economic Benefits of the Southern Resident Killer Whales - Completed

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| --- | --- |
| Implementation Start Year | 2018 |
| Completion Year | 2019 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Restoration activities needed to prevent the collapse of the Southern Resident Killer Whale (SRKW) population, such as Chinook salmon habitat restoration, are hindered by a lack of funding. Earth Economics proposes a study to quantify the economic contribution of the SRKW population to Washington's state economy, changing the public's and elected officials' understanding of why funding to preserve the SRKW is critical, and drawing a connection between a healthy SRKW population and a healthy economy.

# Deschutes River Estuary Restoration - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Phase 1 will quantify existing sediment trapped behind the dam in Capitol Lake as well as in Budd Inlet in front of the Dam. An analysis will be conducted for predicated sediment quantities and movement after the Dam is removed. A transport model and report detailing sediment management will be produced. This represents that last step necessary to decide on estuary restoration alternatives.
  
  
Phase 2 will use information from phase 1 and previous efforts and will consist of removal of accumulated sediment behind the 5th avenue dam and in Budd Inlet. Once this is complete the Dam will be removed. The project will restore 275 acre...

# Using Holistic Benefit Cost Analysis to Prioritize Salmon Habitat Restoration Projects - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Benefit-cost analysis evaluates a multitude of stakeholder interests and perspectives in a single comprehensive analysis. Earth Economics will use such an analysis to evaluate a selection of completed salmon habitat restoration projects, using a holistic approach that accounts for economic, environmental, and social impacts. The results of this analysis can be used to support future restoration efforts by facilitating project prioritization throughout the Puget Sound region. Earth Economics' holistic benefit cost analysis method will reveal which salmon habitat restoration projects yield the greatest return on investment.

# Infill - Land use planning to direct growth into the UGA - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project includes analysis to identify infill sites within current UGA boundaries, infill sites associated with planning for light rail and use of TDR to transfer growth potential from rural/resource lands into the urban areas.
  
Growth and infill potential will be evaluated within all urban areas within the county but the primary focus will be the SW UGA, one of the fastest growing areas in the state. This evaluation will identify vacant land, under-developed sites and sites with re-development potential. The amount of infill needed, and the location, is directly related to expected demand based on population and job growth for...

# Bear Creek Riparian Improvement Program - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will enhance the ecological functions of the riparian corridor of Bear Creek and its tributaries. Since the program was introduced to the watershed in its current form in 2016, 87 landowners have provided permission for Forterra to access their lands for noxious weed survey and control; knotweed has been controlled across 68 acres of riparian land along the mainstem of Bear Creek; and creek banks in four private properties have been revegetated. This NTA will expand on these efforts through 2018 to 2022 to: engage additional creekside landowners; control invasive species along the length of Bear Creek and upper tributa...

# Making Space For Water Initiative: Water storage projects to restore salmon habitat, improve hydrology, and build climate resilience in the. - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Snohomish Conservation District will lead a collaborative partnership that will develop a prioritized water storage project implementation strategy to reduce the projected impact of climate change on hydrology, salmon habitat, agriculture, and human infrastructure. This proposal will fund a hydrologic and hydraulic assessment to identify and prioritize specific locations and actions for protection or restoration to store and infiltrate water to increase summer low flows, reduce water temperatures, reduce flood risks, and improve stream and wetland habitat complexity. The technical team will develop a multi-benefit approach to s...

# Meadowdale Beach Park and Estuary Restoration Project - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Approximately 130 LF of hard armored railroad embankment and the 6-foot wide culvert will be removed and replaced with a five-span pre-cast railroad bridge, allowing for a widened creek meander of nearly 90 feet, improved sediment delivery to the beach, and a separate ADA-compliant path for beach access. Nearly 17,000 CY of fill will be removed for estuary restoration providing essential rearing habitat for non-natal juvenile Chinook, and other fish species. The project is located within BNSF Railroad right-of-way. BNSF is cooperating in the process and is currently drafting the multi-party agreement. Stakeholders, Tribes, permitti...

# Puget Sound Starts Here - A Regional awareness and behavior change campaign - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Many personal behaviors contribute to stormwater pollution. This NTA will use Puget Sound Starts Here brand to roll out a three-year region-wide social marketing multi-media campaign built around incremental, targeted, consistent, and widely dispersed messages for select behaviors and target audiences to increase public awareness of the Sounds health and motivate residents to adopt behaviors that reduce toxic pollution in stormwater. The Stormwater Outreach for Regional Municipalities (STORM), a coalition of 84+ NPDES permittees, state agencies and non-profits created the regional Puget Sound Starts Here brand as a common unifying ...

# Spencer Island Estuary Restoration - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The project is located on a 330+ acre property, with the north end managed by WDFW and south end managed by Snohomish County Parks. The property is historic intertidal marsh with a perimeter levee partially restricting tidal processes on the site. There have been at least two previous restoration projects, and two events that naturally breached the levee on the property. This project would involve evaluating the need, and then potentially designing and constructing a project to more fully connect the site with surrounding delta. This project is one of thirty-six projects in Puget Sound with conceptual designs developed as part of the Puget Sound Nearshore Ecosystem Restoration Project.

# Acquisition and restoration of priorities identified in the Elwha Watershed prioritization - Implementation

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| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

In 2016, NOLT and the Lower Elwha Klallam Tribe completed a prioritization of parcels in the Elwha River watershed, including Indian Creek and Little River. The project partners believe that long-term conservation strategies for the Elwha River can be best addressed by protecting the best existing salmon habitat and ecosystem function while identifying and treating limiting factors on private land. Limiting factors include habitat degradation and loss, floodplain modification, channel conditions, riparian conditions, water quality, and biological processes (Habitat Limiting Factors for WRIA 18). In 2019 and 2020, we have partial funding to conserve priorities #4 and #10.

# Morse Creek Acquisition and Restoration - Implementation

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| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will conserve up to approximately 800 acres of high quality habitat in the Morse Creek watershed. Currently the City of Port Angeles owns several parcels along Morse Creek that total approximately 800 acres. The parcels start near RM 3.5 and extend up to near RM 9 where it meets the Olympic National Park boundary.

# Sekiu and Clallam Bay Property Acquisitions - Implementation

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| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

There are a number of current opportunities in the Sekiu and Clallam Bay vicinity, many of which are high priorities in the Western Strait of Juan de Fuca Salmonid Habitat Conservation Plan. Negotiations with landowners and partner organizations has already begun, so success is likely. Priorities #33 and 58 are proposed as a conservation easement. Other acquisitions would likely be fee-simple. The following acquisitions in the Clallam Bay vicinity are priorities in the Western Strait of Juan de Fuca Salmonid Habitat Conservation Plan - priorities #3, #26, #28, #33, #35, #41, #58, and #61. We currently have partial funding for priority #3 through PSAR (18-1293).

# Twin Rivers Acquisition - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The conservation project will protect over 1/2 mile of critical, Strait of Juan de Fuca shoreline & more than 16 acres of nearshore habitat critical to out-migrating salmon, with eelgrass beds surf smelt spawning beaches. There are 2.6 miles on the west side of the West Twin River and tributaries, and the Twin Rivers is one of the most important coho and steelhead systems in the Strait of Juan de Fuca.

# Pysht Floodplain Acquisition and Restoration Phase IV - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

These acquisitions would be pursued as part of Phase IV and future phases. Phase IV and other phases will protect additional floodplain and riparian habitat along the Pysht River, by means of conservation easements and fee simple acquisition, particularly those properties identified as priorities in the Western Straits Conservation Plan (priorities #11, 14, 17, 18, 20, 22, 23, 34, 37, 39, 42, 44, 50, 54, 56, 63, 67, and 71). This project aims to protect a highly utilized reach of Pysht River that is annually used for spawning habitat by multiple salmonid species. The Pysht River system supports chinook salmon, coho salmon, chum salmon, coastal cutthroat trout, and steelhead/rainbow trout.

# Acquisition of Priorities identified in the Western Strait of Juan de Fuca Salmonid Habitat Conservation Plan - Planning/Design

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| --- | --- |
| Implementation Start Year | 2018 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will conserve the highest priority parcels identified in The Western Strait of Juan de Fuca Habitat Conservation Plan. The Plan identifies and prioritizes aquatic and riparian habitat within WRIA 19 that are important to salmon and steelhead productivity and survival. Protection of land with the best existing salmon habitat and ecosystem function on private land can only happen through voluntary conservation tools such as conservation easements. Acquisition of priority parcels will protect ecosystem function for salmonids in WRIA 19. In 2019, we have funding to conserve Priority #3.

# Water Supply and Growth in the Rural/Resource Areas - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Lead by Snohomish County Planning and Development Services and Surface Water Management, this NTA is for coordination between the multiple watersheds (WRIA 5 and 7) and jurisdictions to facilitate discussions of current and future water needs and availability; and potential impacts to hydrology stream flows. This coordination among jurisdictions will inform watershed planning, including identifying priority areas (i.e. sub-basins) for stream flow protection. The plan will evaluate existing studies and data in order to identify gaps (i.e small tributaries), and include recommendations for projects and actions that will measure, prot...

# Floodplains by Design: Accelerating multi-benefit actions at the local level. - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Conflicting interests in floodplains often slow progress toward Puget Sound recovery. This NTA will link local watershed needs with solutions that remove barriers, accelerate actions and lower costs through an integrated technical team that supports multi-benefit planning, design and implementation in four areas: 1) Adapting to climate change, 2) Overcoming barriers, 3) Buildng capacity, and 4) Empowering design teams.

# Blackjack Watershed Protection & Restoration Feasibility Plan - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will build on the 2017 "Blackjack Creek Watershed Assessment, Protection, and Restoration Plan", and identify the highest priority tax parcels for protection or restoration based on a systematic evaluation of their value to salmon recovery. This evaluation will include a literature review of existing studies and GIS desktop analysis to identify the riparian and wetland habitats with the most value to salmon, highest connectivity to other salmon habitat, and greatest threat of development. The project will use this evaluation to rank parcels, and conduct outreach to landowners of the highest ranked parcels to determine ...

# Nooksack Watershed Steelhead Recovery Planning - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will develop the Nooksack chapter of the Puget Sound Steelhead Recovery Plan, including:
  
1. Work with NOAA and Puget Sound Partnership to apply local chapter guidance.
  
2. Develop and vet work plan for development, review, and adoption of local chapter.
  
3. Draft technical chapter sections (e.g. population descriptions and limiting factors).
  
4. Develop management chapter sections (recovery strategies and actions, implementation plan, monitoring and adaptive management) and evaluate benefits (progress towards recovery) of proposed actions using steelhead life cycle model.
  
5. Solicit technical and policy review of work products.
  
6. Adopt steelhead recovery chapter.

# New Ruralism - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Evaluation and rural land use planning to support existing and new agricultural uses in the rural area and identify potential lands in both rural and urban growth areas suitable for agriculture to offset losses to the agricultural land base through conversion, sea-level rise, floodplain and estuary restoration projects. The evaluation would also examine trends toward smaller farms, examine the need for support services, and include development of programs/initiatives to incentivize farming at any scale, as well as development of code amendments as appropriate. This project would provide multi-benefits for agriculture and fish as well as implementation of GMA goals.

# Assessing Pacific Sand Lance Subtidal Habitats and Biomass in Regards to Salmon Foraging in the San Juan Archipelago - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Observations in the Salish Sea and SE Alaska indicate that salmon regularly feed on PSL and dive into the sediment in pursuit of the fish. The recent collapse of PSL in Alaska is impacting salmon recovery,and should be of concern to the fisheries in San Juan County as well. The focus of our research is sand wave fields (dynamic bedforms) and other sedimentary bodies that support elevated densities of buried PSL. Field collections will utilize the highest resolution bathymetry of the Salish Sea, to determine sample locations and sampling periodicity, as well as where salmon that feed on PSL are concentrating. Seafloor sediment and P...

# Ebey Island Land Management and Land Use Coordination Plan - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

WDFW currently owns 1,237 acres on Ebey Island in the Snohomish River delta. Historically, this acreage was intertidal estuary prior to construction of dikes that protect farmland and homes. In 2009, an estuary restoration feasibility study concluded that a larger footprint of land would need to be secured to make a large estuary project cost effective because of the length of setback dike required. Approximately 800 acres of the land that WDFW currently owns is only accessible to the public by boat, and the poor condition of infrastructure makes farming and recreation difficult. The planning process proposed here will document ex...

# Floodplains by Design: Inspiring a healthy rivers movement through a strategic communications and learning network - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will build on the strong foundation of the Floodplains by Design (FbD) Partnership to:
  
(1) Implement a strategic engagement campaign including workshops, events, social marketing, media, videos, etc. to increase support and engagement of stakeholders and decision makers in integrated floodplain management to improve floodplain health and resiliency.
  
(2) Create a training program to prepare and challenge a cohort of local leaders to accelerate river restoration and flood/climate risk reduction. Leaders will be exposed to and learn innovative techniques to bridge the technical and social aspects inherent in large-scale r...

# Evaluation of current-use pesticides in King County - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The effort builds on previous research by USGS and local jurisdictions to characterize presence and risk of current-use pesticides in 3 King County streams. Phase 1 will review available usage data and scientific literature to characterize current pesticide use in King County and potential aquatic life impacts. The information will be used to prioritize pesticide analysis in Phase 2 and can be used to guide future pesticide monitoring in the region. Phase 2 includes pesticide analysis in sediment and water samples collected during storm events from 3 salmon-bearing streams. Pesticide concentration data will be compared to toxicity ...

# Drainage-Based Management Planning - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The drainage based management planning approach will address water quality, water supply, instream flow, and habitat. Developing these drainage-scale watershed plans include establishing targets for each of the elements using interdisciplinary subbasin teams. The entities involved will depend on the pilot area selected and will include but is not limited to Whatcom County, Ag Water Board, Watershed Improvement District, Tribes, and WRIA 1 Salmon Staff Team. Steps include: a. Select pilot subbasins for developing drainage-based management plans (DBMP); b. Identify and establish team of stakeholders and partners for developing...

# Natural Yard Care Behavior Change Campaign - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Natural Yard Care uses topics that engage and inform residents on clean water practices. Themes cover reducing chemical and fertilizer use, smart watering, healthy soil, right plants. These messages reach audiences at key behavior change moments: purchasing first homes, having families, or phasing out of larger homes. Professional landscapers show how to apply practices at home, building interest in and understanding of how to work with natural systems. We will recruit and train multilingual gardeners to offer similar workshops for their communities, although models may change to reflect cultural interest. Garden Hotline and profes...

# Communication Best Practices with Underserved Audiences - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Ethnic media are overlooked bridges to regional communities. Media participants will be recruited for mutual awareness-building on source control and stormwater issues. The emphasis will be on experiencing infrastructure, source control, stormwater, hazardous waste, and habitat projects. Examples of individual and business pollution prevention practices and connections to the larger Puget Sound vital signs will be shared. Feedback on terminology, how BMPs may be perceived in communities, insights into barriers, practices, partnerships or other background will help deliver better behavior change programs. Participants will create c...

# Floodplains by Design: Assessing social vulnerability to current and future flood risk - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The impact of environmental hazards, such as floods, depend greatly on the socioeconomic conditions of the population exposed to the hazard. This NTA will assess the current socioeconomic conditions within Puget Sound floodplain communities. Additionally, with intense population growth projected for the Puget Sound region over the next decade, it is critical to ensure vulnerable populations &#65533; based on socio-economic status, native language, education level and minority status, are not pushed into higher flood risk areas. This NTA will expand definitions of exposure risk to areas where future flood risk is expected to incr...

# Skagit Forks Britt Slough Restoration (East Cottonwood) - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Concisely the project entails the reconnection of an off channel wetland to Britt Slough flow. This will provide rearing habitat for Skagit Chinook as well as other salmonid species while maintaining the open water wetland year round. Historically Britt Slough flowed through an off channel open water wetland that outletted into the South Fork Skagit River. Off channel tidal delta habitat has been determined to be a critical habitat for rearing Skagit Chinook. There are few opportunities left on public land in the Delta and this project has been identified in several forums as a significant and cost effective action for recovery. As...

# Strategies for Pinniped Predation on Salmon: Managing Protected Species Interactions - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Long Live the Kings (LLTK) proposes to convene scientists & managers to advance guidance regarding pinniped predation on salmon. Recent studies suggest growing pinniped populations have resulted in increased mortality of Puget Sound salmon, including ESA-listed Chinook & steelhead. Pinnipeds are also federally protected, requiring specific management considerations. LLTK will support efforts to synthesize, review & report the state of science regarding the level & distribution of pinniped predation in Puget Sound. A review of factors that may exacerbate predation (infrastructure, haul-outs, hatchery strategies, presence/absence for...

# Citizen Action Training School - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

A handful of Puget Sound fishery enhancement groups are working towards implementing another series of the Citizen Action Training School sessions. CATS utilizes a proven approach to increase citizens' science-based knowledge and environmental literacy and facilitates behavior change that is beneficial to Puget Sound (PS) health. All CATS instruction will be solution-oriented and focused on actions. Past CATS sessions have engaged approx. 20 citizens in each area, with most showing an increased awareness of environmental issues and how to be part of the process. This free 12-week program culminates with a final service project in w...

# Harper Estuary Bridge - Planning/Design

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| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2025 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Harper Estuary restoration project, including the bridge, will restore unimpeded tidal influence and habitat processes to a small (11 acre) estuary currently impacted by an undersized culvert, road and historic fill. The project builds on past nearshore habitat restoration feasibility studies and conceptual design work over the past decade.
  
  
The replacement of the existing culvert with a full span bridge is part of the suite of actions that includes restoration work by the WDFW. The WDFW tasks will include construction of a tidal channel and other improvements to enhance natural habitat. The bridge will re-establish tidal ...

# Puget Sound-Wide Zooplankton Monitoring Program - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The 12 entity, collaborative Puget Sound-Wide Zooplankton Monitoring Program provides local resource managers with best available science to guide decision making and implements a critical component of a coordinated, integrated ecosystem monitoring program. Zooplankton monitoring is a cost effective, efficient means to understand how changes in the local vs. oceanic physical environment translate up the food web. The program is also already being utilized to improve forecasting tools and as guidance towards management decisions to set harvest expectations and optimize recovery strategies. Continued sub-basin monitoring is necessary...

# Suspended sediment-bound toxic chemical fluxes from large rivers to Puget Sound. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Follow the model of work we have established at the Duwamish River to train PSP LIOs. Specifically, how to collect width- and depth-integrated water samples to determine suspended sediment concentrations, alongside continuous monitoring of river turbidity to create an estimate for continuous suspended sediment concentrations. How to collect width- and depth-integrated water samples and analyze them for contaminants. How to collect pumped water samples and use portable centrifuges to compile suspended sediment that can be analyzed for particle size and contaminants sorbed to the sediment. Demonstrate the use of continuous river disc...

# Fish Park Regional Stormwater Treatment Facility and Floodplain Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The project consists of 3 elements:
  
1) Construct a regional stormwater treatment facility on upland portions of the site to treat runoff from a 20-acre urban basin that currently discharges untreated stormwater to Dogfish Creek and Liberty Bay. The facility would serve the high ADT (Average Daily Trip) intersection of two State highways. The new facility would be integrated into the landscape to provide a natural appearance appropriate for the setting and site.
  
2) Restore approximately 1.5 acres on the Dogfish Creek floodplain which was previously developed and is now City-owned.
  
3) Protect and enhance over 500 feet of ripa...

# Salmon Buffers for Regional Conservation Partnership Program - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Pierce Conservation District and partners have secured a 5-year grant to conserve ~1,000 acres of prime farmland in Pierce County with ~$900,000 of the funding dedicated to installing best management practices on working lands. However, the parameters of the funding source do not allow for NOAA recommended 200-foot riparian buffers to support salmon recovery or outreach and education to help recruit additional landowners into the program. This project will fill gaps in the existing funding by providing additional match for implementation of 200ft riparian buffers and development and implementation of an outreach campaign that will ...

# Love Where You Live: celebrating and promoting responsible land use and stewardship on the North Olympic Peninsula. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Through strategic community engagement and outreach, the Land Trust aims to work with other community groups to: cultivate a responsible community land ethic, enhance civic pride in the nature of place, build direct relationships and connect people with local lands, initiate and support communication surrounding land-use actions, increase awareness and understanding of local land-use needs and explore methods for addressing them, and strengthen community partnerships to achieve greater success. Specific methods include targeted outreach to influential individuals and entities within related sectors, such as healthcare, realtors, an...

# Developing Strategies and Accompanying Web Tool for Science-Based Beach Restoration and Protection - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Most Puget Sound shores consist of drift cell beach systems, where sediment from eroding feeder bluffs sustains down-drift shoreforms and habitats. This project will build on new geospatial datasets and thorough collaborative meetings with regional nearshore experts and stakeholders, will create new prioritization metrics to identify targets for restoration and protection of beach ecosystems. These recommendations and data tools will be incorporated into a web-based tool, housed by WDFW. The resulting updated beach strategies will offer improved accuracy and resolution to more effectively restore and protect Puget Sound beach systems.

# Snohomish River Estuary Derelict Vessel Removal - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project provides support to the overall recovery of the Snohomish River Estuary, a critical habitat for salmon populations, by addressing and removing derelict vessels. Derelict vessels negatively affect salmon population by producing point sources of pollution; both toxics and nutrients. This project will also remove harmful structures from critical riparian habitat salmon population utilize on the Snohomish River. Snohomish County Marine Resources Committee (MRC) will work with Department of Natural Resources (DNR) under RCW 79.100 to prioritize and remove derelict vessels. This project addresses the Chinook Vital Sign 7.1.

# Long-term MS4 Planning to Protect and Restore Water Quality: Strategies, guidance and innovative approaches for lowland streams and Puget S. - Completed

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2019 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA supports development of long-term Municipal Separate Storm Sewer System (MS4) planning with the goal of protection and restoration of the beneficial uses of receiving waters. To help meet this purpose, the Stormwater Management Manual for Western Washington (SWMMWW) update in 2019 will include guidance to support a prioritization and planning process on a watershed scale that results in targeted investments in BMPs and capital actions that contribute to preventing and reducing impacts to receiving waters. These investments will reduce discharge of polychlorinated biphenyls (PCBs) and other toxics to Puget Sound, benefitin...

# Skagit HDM Priority Projects - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Skagit HDM project identified a suite of restoration projects that are well supported to achieve the long-term viability of Chinook salmon, estuary habitat and reduce community flood risk in a manner that protects and enhances agriculture and drainage. This NTA will support continued facilitation of the 3FI group and the work necessary to develop a framework by which WDFW and our partners will reach out to key stakeholders to plan projects that fit within the multi-benefit model at the scale of the Skagit delta.
  
  
Specifically, this NTA will support the continued outreach needed to develop partnerships to advance estuary resto...

# Snohomish River Estuary Creosote Piling Removal Planning, Prioritization, and Removal - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project provides support to the overall recovery of the Snohomish River Estuary, a critical habitat for salmon populations, by addressing and removing creosote pilings. Creosote pilings negatively affect salmon population by producing point sources of pollution; including over 300 chemicals such as PAH's. This project will also remove harmful structures from critical riparian habitat salmon population utilize on the Snohomish River, ultimately increasing and improving habitat for salmon. Snohomish County Marine Resources Committee (MRC) will work to create planning team to assess creosote pilings in the Snohomish River Estuar...

# Chinook habitat restoration decision support tool- Predicting Chinook growth improvements using an integrated temperature, flow, and bioene. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Currently, few tools are available for managers to predict the improved fish growth that comes from restoration actions, such as riparian acquisitions, riparian planting or levee setbacks. Managers need tools that can predict salmonid growth potential given different decision scenarios. Chinook recovery can be evaluated via a stream temperature, flow, and fish bioenergetics model that is calibrated to and then predicts, Chinook growth under different remediation strategies. Considered strategies could include changes to riparian habitat, instream flows, and terrestrial food supply. Such a modeling tool would allow both screening-le...

# Watertyping The North Olympic Peninsula - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA involves local field work and groundtruthing of streams listed as Non-Fish bearing on state maps. Evidence has shown that 40-60 percent of these maps are in error, which limits effective habitat protections on these streams. This results in lessened buffers and non-protection of these streams and the fish using them. Local governments in Washington state frequently use these WDNR water type maps, but do not have the resources to validate their accuracy in land use planning and permitting. These WDNR maps were done years ago, with older technology and tools and no groundtruthing. The tools existing today are much more sophi...

# Citizen Science and Stewardship of Aquatic Reserves in the Salish Sea - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2023 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Citizen Stewardship Committees (CSCs) (www.aquaticreserves.org) have conducted important baseline monitoring in WA DNR Aquatic Reserves since 2012. While volunteer participation in citizen science projects is strong, the citizen committees lack the resources to manage and share data and to coordinate regionally with other volunteer groups. This NTA expands current monitoring work by building capacity for data sharing and increased
  
citizen science coordination throughout Puget Sound.

# West Poulsbo Regional Stormwater Treatment Facility and Shoreline Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2024 |
| Completion Year | 2025 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

1) Acquire (in process) 3.2 acres of undeveloped property on the west shoreline of Liberty Bay in the City of Poulsbo.
  
2) Construct a regional stormwater treatment facility on upland portions of the property outside of the buffer zone to treat runoff from a 50-acre urban basin that currently discharges untreated stormwater to Liberty Bay. The new stormwater treatment system will be integrated into the landscape to provide a natural appearance appropriate for the setting and site.
  
3) Preserve intact estuarine shoreline habitat by permanently protecting the functional nearshore area of the property.
  
4) Restore degraded uplan...

# A comprehensive survey of salmon habitat in nearshore areas of WRIA8 and WRIA9 - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2018 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Assessing the spatial distribution of submerged aquatic vegetation is critical for quantifying the effectiveness of regulatory measures for protecting nearshore salmon habitat. We will comprehensively survey eelgrass, kelp and other macroalgae in WRIAs 8 and 9. Results will describe two key vegetation attributes: areal extent and depth distribution. These data will form a baseline for understanding current distribution and assessing change in salmon habitat over time in response to stressors, restoration, and other management actions. This will allow managers to avoid impacts during project review and assess regulatory effectiveness of the Shoreline Master Program.

# Farm Plans and CAO Regulatory Flexibility Assessment - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

During King County's Critical Area Ordinance update process in 2004, the county provided regulatory flexibility to farmers if they get a farm plan from the King Conservation District. The intent was that while the County was giving up certain ecological protections within a specific regulatory area, it would gain more environmentally by having the District engaging with farmers to create individualized plans for how to improve their farms. This flexibility was applied to several regulatory issues like Agricultural Drainage Assistance Program and the Livestock Management Ordinance fencing buffer width requirements. The CAO Best Av...

# Incorporation of Salish Sea Marine Survival Project findings and recommendations into local Recovery Plans - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Support lead entities with incorporation of Salish Sea Marine Survival Project results into their local Salmon Recovery Plans and supporting documents. Many Lead Entities updating their Recovery Plans in 2018-2019. Integrating new science and recommendations from the marine survival project will bring in new strategies and actions to expedite recovery. Adopting new strategies and developing new project types requires understanding and buy-in from the local restoration community. LLTK will host a regional workshop to relay the findings to local technical committee members; watersheds may then choose to incorporate the information on...

# Social Marketing to Improve Forest Health through Private Property Stewardship - Deferred

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

A social marketing campaign in the Snoqualmie and WRIA 8 Watersheds will aim to increase private property owner support for salmon habitat projects and increase participation in stewardship activities on private lands to complement and help protect investments made to restore salmon habitat. The campaign will engage the public in reducing the invasive "seed rain" spreading from private lands to rivers, streams and forests by removing invasive plants from their properties and replacing them with native species. The campaign will identify barriers to participation and develop incentives, messages and resources to help property owners...

# Puget Sound Atlantis Ecosystem Modeling - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Long Live the Kings and NOAA's NWFSC propose to implement the Puget Sound Atlantis ecosystem/socio-economic model to evaluate problems and ID best solutions for Puget Sound salmon and ecosystem recovery. A primary goal is to integrate Atlantis with EPA's terrestrial ecohydrological model (VELMA) and the ocean circulation & biogeochemistry model (Salish Sea Model). This will result in a whole-basin system that dynamically simulates biophysical interactions and nutrient & contaminant transfer across terrestrial-marine boundaries. The linked models will better capture the propagation of impacts throughout the terrestrial-marine ecosys...

# Local Coordination to Advance PSNERP-identified projects - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Puget Sound Nearshore Ecosystem Restoration Project (PSNERP) has been a multi-year, multi-agency effort to identify problems and opportunities associated with Puget Sound's nearshore zone. 36 conceptual projects across Puget Sound were identified for process-based ecosystem restoration. Army Corps of Engineers authorities allow them to provide federal funds towards 24 of the identified projects. Half are "river delta" projects. Other 12 projects address coastal inlets, beaches, and barrier embayments. Phase 1 (EST2.1) of this NTA will be to work within the restoration community and the public to communicate the opportunities ...

# West Bay Park Shoreline Restoration - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The 13-acre site is a legacy waterfront industrial site and former railroad corridor along the western shore of West Bay in Budd Inlet directly north of the outlet of the Deschutes River/Capitol Lake. The project aims to restore the shoreline through daylighting of two small creek estuaries on the site, expanding salt marsh and potentially freshwater wetlands, restoring natural shoreline slope and substrate appropriate for the site, and removing historic fill and large sections of a mostly buried creosote-treated railway trestle and berm. In addition, upland and riparian areas will be planted with native riparian vegetation and co...

# Coordination on Transportation and Estuary Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Many small and large estuaries along Puget Sound's shoreline are impacted by roadway infrastructure (bridges, fill, causeways, armor, etc.). Restoring habitat in these locations can be achieved by vacating and removing the infrastructure that is causing the habitat degradation. But in many locations, the roadway is necessary infrastructure for commerce and/or it is an emergency access route. In these instances, modifying or relocating the roadway infrastructure are the only viable options to achieve the intended habitat restoration goals. This NTA would work with partners to evaluate current state and federal policies and fundin...

# Developing tools for multi-benefit project selection and sequencing in the Snohomish River Basin - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Implementation of restoration projects in the mainstem rivers of the Snohomish have been lagging behind other restoration benchmarks (reference upcoming status update spring 2018). One component of this is due to the complex network of land ownership and competing floodplain uses. In the Skagit system there have been extensive efforts underway to further refine the way in which restoration projects are selected by using complex modeling and clear measures of success from multiple communities (see Skagit HDM work).
  
  
Work is proposed to further our flood understandings in the Snohomish (developing 2D modeling). Extensive work has ...

# Implementing Green Stormwater in Port Angeles: GreenLink Phase II - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project is implementation of the watershed-based planning and engagement associated with the GreenLink Watershed Plan for Port Angeles Creeks. The GreenLink Plan (Phase I) is being done in close collaboration with the local jurisdiction and developing programmatic and site-specific projects at a watershed scale for integrated networks of green space and green infrastructure (GI) strategies. The outputs will be recommended priority projects and policies that improve surface water quality, habitat, and community assets. This NTA (Phase II) will support implementation of key projects that are prioritized in the GreenLink Plan; ...

# Puget Sound Stream Simulation Culvert Effectiveness Monitoring - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

WDFW protects Chinook habitats by regulating the construction of both new and replacement culverts. To determine whether new culverts perform as intended, WDFW has initiated a monitoring program to advance our understanding of culvert designs based on a geomorphic approach (stream simulation). This approach is intended to maintain channel processes through the entire structure over its entire service life. This NTA would build on the program by coordinating with local governments to monitor new culverts. For example, Snohomish County is partnering with WDFW on how to best assess stream simulation culvert performance in a repeatable...

# Watershed Engagement for Decision Makers WRIAs 5 & 7 - Terminated

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Moving forward with the resources developed thus far and lessons learned, we are proposing to implement a Watershed Engagement for Decision Makers program in WRIAs 5 & 7 targeting elected officials and other leaders from Tribes, federal, state, county, and municipal government, and special purpose districts. 5 (or more) tours of project sites exemplifying on-the-ground projects that improve water quality, salmon habitat, and/or shellfish habitat will be organized and held in WRIAs 5 & 7 for decision makers lead by local experts in watershed management. One tour will conclude with a shellfish/salmon dinner where decision makers will...

# Stormwater Assessment, Outreach, and Assistance to Jurisdictions in the Snohomish Basin (WRIA 7) - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

In coordination with WDFW and NOAA's NW Fisheries Science Center, the project team (King County, the Tulalip Tribes, and others) will conduct fall spawner surveys in prioritized streams near urban lands and roads across the Snohomish basin to determine rates at which adult coho returning to spawn die before spawning due to water pollution (coho urban runoff syndrome, aka pre-spawn mortality (Feist et. al., 2017)). The rates and locations will be used to identify areas for water pollution prevention actions, including stormwater retrofits and green stormwater infrastructure. Results will be shared with stormwater professionals and t...

# WRIA 1 Integrated Program Outreach and Engagement - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Develop and implement a coordinated and integrated outreach and communication strategy that leverages existing outreach efforts, identifies and addresses the needs of specific target audiences through a small grant program, and provide capacity to the Whatcom EcoNet to implement coordinated outreach. The areas of focus relate to the Whatcom LIO Ecosystem Recovery Plan ecosystem components including water supply, water quality, floodplains, Chinook, and stream flow. Information and events that are outcomes of an integrated and coordinated outreach and communication strategy will improve the community's understanding of pressure...

# Puyallup River Watershed Juvenile Salmon Production Assessment Projects - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2020 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

A rotary screw trap(s) will be installed, maintained and fished by staff from Puyallup Tribe Fisheries Department. A report detailing catch totals, biological data and other pertinent details collected throughout the migration year, will be completed. The trap will be operated similar to other trapping projects in the state. The tribe currently operates the two rotary screw trap projects, so it is familiar with the needs of the project including permitting, fish handling and trap operation. The Puyallup River project has been in operation since 2000, so a long-term data set has been established, the White River project started in 2016 and is just beginning data collection.

# WRIA 1 Integrated Program Implementation - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Coordinate implementation of actions under the WRIA 1 Watershed Management Board that serves the function of the salmon recovery lead entity and local integrating organization. A subset of actions from the existing WRIA 1 Salmonid Recovery Plan, WRIA 1 Watershed Management Plan, and Whatcom LIO Ecosystem Recovery Plan are being incorporated into a five year implementation plan. The implementation focus is on an integrated monitoring and research approach that supports decision-making, implements a groundwater model that will inform discussions for in stream and out of stream water management solutions, developing a WRIA 1 wide wa...

# Geomorphic Flood Hazard Risk on the Lower Skykomish River - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA includes tasks for geomorphic assessment, infrastructure assessment of levees and riprap, geomorphic flood hazard mapping, and public outreach/meetings. Methods of success include describing the 50-year future condition of the river, its infrastructure, and flood hazards in addition to the existing geomorphic condition. This would facilitate a more sustainable economic and ecological approach to river management as compared to traditional approaches such as bank stabilization or dredging. Where possible, providing more space for rivers to migrate and flood naturally appears to be the obvious approach to sustainable managem...

# Utilizing passive integrated transponder (PIT) technology to assess juvenile Chinook use of and survival within habitat improvement project. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project would utilize cutting edge PIT tag technology to examine habitat use, survival, and migration patterns within habitat restoration projects, flood risk reduction projects, and other habitats throughout the lower Green River. Screw traps have proven to be ineffective in the lower Green due to the low gradient and velocity, and monitoring methods (i.e. electrofishing, seining) cannot accurately quantify survival or residence time. To achieve the project objective, antenna arrays designed for large rivers (West Fork Env. FIN array, Biomark floating array) would be installed in conjunction with the use of 8-12mm PIT tags (c...

# Characterization of sediment bound pollutants as a function of particle size and effect on stormwater best management practice effectiveness - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

We will collect stormwater runoff and road solids from a range of land uses (industrial, commercial, low and high residential) to characterize the amount of sediment bound pollution (PCBs, PAHs, PBDEs, metals) as a function of particle size. This sediment characterization data will be used with new and existing data on sediment particle size distribution from paired inlet-outlet flow data at stormwater BMPs to identify the effectiveness of these BMPs at removing sediment-bound toxics. This information will be used to examine a range of stormwater BMPs (retention ponds, rain gardens, wetlands, retrofits) to determine what technologi...

# Budd Inlet bulkhead removal and shoreline softening - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The DNR Marine Facility is located on Budd Inlet in South Puget Sound. The U.S. Army Corps of Engineers constructed the facility in 1957 for Maritime Administration "Mothball Fleet" ship maintenance. The State purchased the facility in 1977 and DNR currently uses it to support marine science and shellfish management. The existing infrastructure and buildings are severely outdated, deteriorated, and without adequate space or functionality to support DNR's modern requirements. Moreover, the facility is built over a large fill area containing soldier-pile bulkheads, creosote-treated wood-piles and timbers, and a rock revetment frontin...

# Lower French Creek Fish Passage Improvements - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project is the final design and permitting of modifications to the lower 1.2 miles of creek (reach 1, 2 and 3). Reach 1 generally mimics the existing channel cross-section and will serve as a sediment capture reach. The cross section of Reaches 2 and 3 has two benches. The first bench creates a low-flow channel during the summer months. This low flow channel has a 12 ft bottom width, 2H:1V side slopes and a bench at a depth of 2.4 feet. The second bench is designed to be inundated to a level and duration capable of supporting vegetation for partial shade benefits. These improvements are paired with future pump station operatio...

# WRIA 1 Culvert Strategic Needs and Priority Barrier Correction - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Multiple public agencies, non-profit organizations, and private landowners own drainage structures that create barriers to fish passage in WRIA 1. A mechanism is needed to assist with project planning and coordination across owners to advance sites with the greatest fish benefit, to leverage scheduled work, and to assist in meeting individual drainage structure owner mandates. Anticipated changes in hydrology due to climate change will be factored into project designs; this will provide greater resiliency in maintaining fish passage and managing drainage into the future.

# Lower Blackjack Creek Stormwater Facility Retrofits - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will begin with an assessment of existing stormwater facilities located within the lower Blackjack Creek basin. The assessment will determine each facilities current condition and potential impacts that the facility may have on Blackjack Creek, such as water quality and quantity impacts. From this information the identified facilities will be prioritized in order of importance and a retrofit plan will be created. Retrofits will then be implemented
  
following the priority list. Retrofits will include the following components:
  
1. Disconnection of direct "piped" systems into Blackjack Creek, reconnecting them into dispersion...

# Nooksack River Floodplain Acquisitions - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Existing and future floodplain development poses increased flood risk while traditional protective measures to reduce risk to life, safety and infrastructure can impair habitat forming processes essential for healthy, sustainable salmon populations in the Nooksack River. WRIA 1 flood risk reduction and salmon recovery planning processes have identified areas in the forks and lower reaches of the Nooksack River where acquisition of key floodplain parcels from willing landowners can directly reduce flood risk by getting people "out of harm's way", substantially reduce the need for emergency response and expensive long-term repairs, and secure properties key to future restoration.

# Tulalip Shoreline Landowner Outreach and Education Campaign - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Based on the results of the shoreline armor removal assessment for the entire Tulalip shoreline, this NTA will direct outreach and education via targeted mailings and workshops to shoreline areas where armor removal would restore physical processes to benefit the nearshore ecosystem and to describe climate change impacts. Social marketing techniques will be used to determine attitudes, barriers & opportunities for landowners. Permitting and other regulatory incentives to remove hard shore armor and climate change retreat strategies will be evaluated. A demonstration project on the Tulalip shoreline will show the feasibility of hard...

# Riparian/Land Cover Change Analysis and Decision Support System - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Riparian/Land Cover Change Analysis and Decision Support System (DSS) will be a GIS-based tool to support protection and restoration of riparian corridors, floodplains, and nearshore habitats in WRIA 10. It will assess riparian habitat, allowing for prioritizing acquisitions/actions to reduce stream temperatures, and to assess effectiveness of, and inform future updates of CAOs, SMPs, etc. The model will include WDFW High Resolution Aerial Imagery Change Detection (HRCD) data. Other modeling efforts (NetMap,VELMA) will be investigated for potential integration into the DSS. It will be used to help stakeholders track changes in habitats important to salmonids.

# Island County Stormwater Technical Assistance and Outreach Network - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This multi-faceted proposal draws on the expertise and volunteer base of local organizations including Whidbey Island and Snohomish Conservation Districts (CDs), Sound Water Stewards, WSU Master Gardeners, and others. A coordinated effort among these groups will increase local capacity to deliver consistent messaging and incentivize public engagement in county-wide stormwater management. CDs will provide technical assistance and training for volunteers, emphasizing installation, maintenance, and evaluation of rain gardens, to promote stormwater best management practices within the community. Contractor training will also be promo...

# Discovery Bay Shoreline Armor Removal - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project, located on the southeast shore of Discovery Bay will result in removal of direct burial of the mid-upper intertidal and backshore beach, re-creation of potential forage fish spawning areas, re-creation of a natural backshore with drift logs and salt-tolerant backshore vegetation, less wave reflection and beach scour. Shore armor and scattered debris will be removed by barge along 300-350 linear feet of shoreline. The project also includes grading down the railroad revetment to allow for natural backshore and marine riparian vegetation planting and regrowth, and landward translation of habitats and species to accommoda...

# Hood Canal Regional Pollution Identification & Correction Program - Phase 4 - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

HCRPIC uses the proven, on-the-ground PIC approach to investigate and correct fecal pollution sources along prioritized Hood Canal shorelines. It provides a framework for organizing and funding surface water assessment, protection, and nonpoint pollution restoration efforts. The regional program provides efficiencies in administrative capacity, information sharing between partners, and collaborative problem solving across state, county and tribal jurisdictions to achieve fecal pollution source corrections. The program incorporates a strong educational element to prevent future fecal pollution. Planning and implementation phases were completed in 2014 and 2017. Phase three is in progress.

# Floodplains by Design: New state guidance on planning for Integrated Floodplain Management - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

We will work with EMD, FEMA, PSP, TNC, and others to modernize the state's guidance for developing Comprehensive Flood Hazard Management Plans. CFHMPs are the primary vehicle by which communities plan for flooding and floodplain uses, but the existing (1991) guidance does not encourage communities to jointly plan for miltiple community needs (e.g. salmon recovery) or climate change. Further, CFHMPs are separate from FEMA/EMD hazard mitigation plans and other floodplain plans and associated funding programs. This NTA will modernize and integrate outdated programs, enabling communities to unify efforts to better leverage resources. T...

# Improved Landowner Development Decisions to Protect Critical Areas and Manage Stormwater - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

By the time landowners apply for a building permit they have already made many decisions. Attempts by permit staff to reduce negative impacts are often resisted by applicants and are viewed as barriers. Consultations with staff early in the design process prove useful in reducing conflict, protecting resources, and improving site design. Those consultations, however, are a minority of permit applications.
  
  
This NTA will emphasize better landowner decisions early in the design process. Kitsap County will reach out proactively to prospective applicants, before a firm vision of the property is formed and key decisions are made regar...

# West Oakland Bay Estuary Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The proposed NTA will decrease contaminates by removing 686 creosote pilings associated with an abandoned marine railroad and remove a 0.25 mile long intertidal dike at the mouth of Goldsborough Creek that is constraining natural hydrologic processes.
  
  
The project will re-introduce lost saltmarsh and add natural physical structure for salmonid adults, juveniles and their prey by restoring the south saltmarsh lobe at the mouth of Goldsborough Creek. We will place clean fill at appropriate elevations up over 28.6 acres. Saltmarsh revegetation will be based upon experience natural recruitment of plants as well as strategic planting of target species to provide a natural seed bank.

# Task Force for Natural Resource Damage Assessment and Restoration (NRDAR) pre-coordination and planning - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

In addition to being prepared to protect and clean-up from an oil spill in Puget Sound, we must also be prepared to restore natural resources injured by oil. The NRDAR regulations require injured natural resources be restored to pre-spill levels based on scientifically and legally defensible data that demonstrate damages from the specific oil discharge. Collection of ephemeral data to support an oil spill NRDAR, before the opportunity is lost, is critical to appropriately scale injured resources to necessary restoration. Currently, ephemeral data collection planning for an oil spill in Puget Sound is haphazard at best due to limite...

# Measuring Habitat Project Effectiveness - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will expand project monitoring implemented after project completion (or pre-project monitoring) in order to extend the time frame over which project actions and outcomes are evaluated. This action will focus on channel re-connection, LWD installation (including flood fencing), changes in floodplain functions and channel morphology, riparian functions, and water quality or biological responses (i.e. fish use and/or B-IBI). For monitoring, site surveys, aerial photo interpretation, land cover analyses, temperature monitoring and other methods will be used to compare results among years and sites. Project monitoring goals are...

# Ecological Integrity Assessments as an approach to prioritize protection and restoration actions and monitor progress in the Puget Sound Re. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Ecological Integrity Assessments (EIAs) measure the condition of ecosystems using standardized metrics to categorize sites into condition classes.
  
We propose to complete a Level 1 EIA (GIS based) across the Puget Sound Region to assess current conditions of undeveloped areas and identify the locations of ecologically important lands. Level 2 (rapid ground-based) EIAs would be conducted at sites identified through the Level 1 EIA to identify and prioritize areas for restoration and protection. This classification system can also be used to set restoration targets and measure progress. We will also train land managers on using EIAs for conservation/restoration assessment and monitoring.

# Dungeness River Floodplain Restoration - Hurd Creek Phase - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Relocate WDFW's imperiled Hurd Creek Hatchery outside of the Dungeness River floodplain. Purchase private floodplain properties immediately upstream and downstream of the hatchery. Restore and permanently conserve the properties along approximately 0.7 mile of river and its tributary, Hurd Creek. Restoration activities will include the removal of 1) buildings, 2) infrastructure, and 3) shoreline armoring. Reforest previously cleared areas within the floodplain and riparian areas. Relocate 3,000 feet of county road (Ward Road) that is currently located within the channel migration zone (CMZ) and severely constrains river migrat...

# Salish Sea Modeling Support to complete MWQ/Nutrient IS - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The use of the Salish Sea Model (SSM) is essential to develop the MWQ IS. Excess nutrient loads degrade water quality with clear potential to impact salmonid survival in marine waters. Ecology has assumed responsibility to develop the MWQ IS, however, no money is currently allocated for continued application of the SSM beyond the current funding end date of June 30, 2019. Use of the SSM in conjunction with the workings of the IDT is essential beginning July 1, 2019 June 30, 2021, and includes modeling costs to validate impacts and approaches suggested by the IDT. While model input files and post processing is completed by Ecology, ...

# Skookum Valley Conservation - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Skookum Creek is a priority salmon stream that is highly productive for coho and two runs of fall chum. The stream also allows has the highest concentration of coastal cutthroat spawners of any studied stream in Deep South Puget Sound. The proposal will purchase and permanent protection the three highest rated parcels in the lower watershed.
  
  
Parcel 1 is in the streams estuary and consists of ? mile of stream front and totals 23 acres- 7 of which are saltmarsh and 11 riparian.
  
  
Parcel 2 is 109 acres with ? mile of stream front, 17 acres of wetlands and 85 acres are riparian.
  
  
Parcel 3 is 365 acres with over 3...

# Strengthening STORM for Improved Local Capacity to Manage Stormwater Programs - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

STORM, a coalition of NPDES Permittee outreach and education staff, has been a successful collaboration to improve stormwater outreach and education throughout Puget Sound. STORM builds capacity for Permittee by leveraging resources to create regional messages and programs to promote awareness of stormwater issues and motivate public stormwater protective behavior.
  
  
In order to improve the effectiveness of this coalition, this NTA will hire a coordinator responsible for:
  
  
-facilitating communication between members
  
-supporting the development of new consistent, regional messaging and social marketing programs
  
-coordinating wi...

# Puget Sound Watershed Characterization mid-scale modeling Phase II - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Ecology is developing a new set of models to evaluate hydrologic condition in watersheds where growth is planned. The project is building off of methods developed by King County scientists to evaluate Critical Areas Ordinance effectiveness. The models will assess hydrologic condition using indicators such as stream flashiness or low-flows based upon a combinations of factors such as land cover, geology, and distance to stream and will consider climate change projections. Tools will be developed to facilitate alternative futures scenario building by local planners whereby they can locate spatially where new development in a watershe...

# Nisqually River-Wilcox Reach Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project is a large-scale river and floodplain restoration project along nearly one mile of river shoreline within the Wilcox Reach of the Nisqually River. The project area represents one of the largest available restoration sites on the Nisqually River, a priority in the Nisqually Chinook Recovery Plan and Steelhead Recovery Plan. Current constraints at the site include flood control berms and shoreline armoring that have constrained the Nisqually River for several decades, resulting in a simplified channel alignment, disconnection from the floodplain, disconnected off-channel habitat, degradation of spawning habitat, and ove...

# Middle Dungeness Road Decommissioning and Storage - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Work would include removal of large stream crossing fills, culverts, and unstable side-cast material; decompaction of road surfaces to allow infiltration; recontouring to restore hillslope profile; creating cross-drains, swales, and other natural drainage features; blocking vehicular access by constructing berms; and seeding, mulching, and reestablishing native vegetation to minimize erosion and sediment transport. Trees and other vegetative material cleared at the site during excavation would be scattered on the decommissioned road prism to prevent soil erosion and enhance the soil productivity with organic matter. Treatments wou...

# West Central Coordination of Freshwater Habitat and Flow Data - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2023 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Kitsap County will convene West Central LIO members to oversee this work.
  
A qualified consultant will be hired.
  
Geographic (GIS) and water data for the LIO area will be collected and collated to establish the current baseline data of freshwater habitat, water quality and quantity. Data will be collected from local jurisdictions, tribes, water purveyors, state and federal agencies. The data will be used to establish and/or update goals for instream flow and net accessible stream miles for salmonids.

# Hood Canal Natural Resource Economic Assessment - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Hood Canal communities are closely connected to natural resources. By better understanding the relationships between Hood Canal industries, the community, and environmental recovery actions, we can work toward better multi-benefit outcomes.
  
  
Hood Canal Natural Resource Economic Assessment results will be incorporated into the Hood Canal Integrated Watershed Plan's adaptive management, to build on existing human wellbeing indicator data. HCCC has initiated this assessment by compiling trend data on many economic metrics. The next phase will include further data collection and analysis to determine how natural resource industries contribute to Hood Canal Communities

# Hood Canal Climate Vulnerability Assessment - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Hood Canal Climate Vulnerability Assessment will convene a project workgroup of HCCC partners who will inform the compilation and integration of existing climate assessments from Hood Canal entities and relevant climate research, to identify gaps, assess vulnerabilities and focus efforts to address saltwater intrusion, sediment processes changes, water supply, ocean acidification, risks associated with storm events and sea level rise, and opportunities for adaptation interventions. A vulnerability assessment will be conducted to inform the identification of habitat areas and processes most vulnerable, understand uncertainties, and develop adaptive strategies to integrate into planning.

# Shoreline armoring monitoring and characterization of chinook salmon rearing capacity in edge habitats of Snohomish-Stilly LIO rivers using. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2024 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will inventory river bank conditions in the Snohomish-Stillaguamish LIO and describe the extent and locations of shoreline armoring (maps). This river bank conditions information will be used to identify potential restoration actions, evaluate risk to local stakeholders, and compare to armoring identified in 2002/2003. Additionally, the information will be used to estimate Chinook salmon rearing capacity by river using edge conditions including bank type (bar, bank, backwater), edge cover, water depth, substrate size and flow velocity at out-migrant rearing timing. Continuously variable parameters will allow for modeling f...

# Watershed Characterization Technical Assistance Team - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will continue the interagency collaboration between the Washington State Departments of Ecology, Fish and Wildlife, and Commerce called the Watershed Characterization Technical Assistance Team (WCTAT). WCTAT staff support local governments in planning activities such as those which are required under the Growth Management Act, including Comprehensive Planning and Critical Areas Ordinance updates. Using a set of indices developed by the Puget Sound Watershed Characterization project, the WCTAT brings consideration of important watershed processes and habitats as local governments plan for growth and land use. The WCTAT has...

# McSorley Creek Pocket Estuary Restoration Project at Saltwater State Park - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2022 |
| Completion Year | 2023 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will remove the rip-rap at the creek's mouth and create a "pocket estuary" to make the creek more accessible to fish including juvenile Chinook salmon. The project also removes the bulkhead along the shoreline north of the creek to reconnect the feeder bluff with the nearshore and reestablish natural shoreline sediment transport processes, which result in re-creation of forage fish habitat. Finally, recreational amenities will be redesigned in the areas impacted by the restoration or rebuilt at a higher elevation to reduce the risk of flooding, which is expected to occur more frequently in the future with sea level rise.

# A framework and guidance for sub-tidal habitat monitoring in Puget Sound - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The activities proposed as part of this action include: 1) Facilitate collaboration among entities conducting sub-tidal SCUBA-based monitoring of habitat characteristics at sites in Puget Sound, either via a stand-alone workshop, a special session at the Salish Sea Ecosystem Conference, or via remote, on-line network facilitation tools. This collaboration would be used to develop a comprehensive map of existing sub-tidal monitoring sites in Puget Sound, to cross-walk methods and data types collected at those sites, and to assess how sub-tidal monitoring can be optimized to support Puget Sound restoration 2) Develop a set of habi...

# Camp 2nd Chance Habitat Restoration & Stewardship Education - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This program engages members of the sanctioned homeless encampment at Camp 2nd Chance on Myers Way, West Seattle, in storm water education and water quality improvement activities, to keep the storm water overflow areas free of trash, vehicle fluids, and other pollutants. This addresses the Freshwater Quality vital sign, prioritized recovery efforts of Puget Sound. The project consists of stormwater education, engaging encampment residents in environmental stewardship activities - improving native habitat, and reducing pollutants in stormwater. The improved habitat slows down surface water runoff, allows for improved water absorpt...

# Prioritizing Sea Level Rise Exposure and Habitat Sensitivity Across Puget Sound - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Washington Coastal Resilience Project team is developing localized sea level rise (SLR) projections in a probabilistic framework for Washington State. This action will couple those SLR projections with elevation data and a parcel layer in a GIS to assess SLR exposure for parcels in Puget sound. We will then map habitat characteristics and infrastructure at parcel scales in order to assess and rank sea level rise vulnerabilities in Puget Sound. Finally, we will either build a dedicated web-based portal for serving the parcel exposure and vulnerability attributes, along with other sea level information, OR part...

# Stormwater Management Education and Technical Assistance for Farmers and Ranchers - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Agriculture is the largest non-point source for water pollutants in rivers and streams, and there is an opportunity for targeted outreach, education, and technical assistance to Puget Sound farmers and ranchers around implementing best practices to manage stormwater runoff and reduce pollution.
  
  
This project builds on Tilth's existing community ties to increase the ability of area farmers to participate meaningfully in reducing pollution and improving the health of Puget Sound through developing public awareness of water quality and pollution issues with existing and newly developed partnerships, and by empowering farmers with s...

# Dosewallips Floodplain Mid-Hood Canal Chinook Salmon Multiple Benefits Habitat Restoration Plan Phase II: Implementation of Restoration Pla. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will implement Phase I (18-0164), a floodplain and habitat plan to support MHC Chinook salmon recovery in the Dosewallips River while providing additional benefits for local communities and fish. NTA activities listed are placeholders pending the new plan to restore ecosystem functions and to specifically create, expand, restore and diversify habitat for MHC Chinook salmon in ways that support the diverse life histories for fish. This project will implement best coordinated approaches to growth pressures; agriculture, forestry, transportation and recreation needs; flood risk and prevention; water quantity and water quality...

# Enhance Code Enforcement Effectiveness on the Tulalip Reservation - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Due to overlapping jurisdictions, Tulalip Tribes and Snohomish County operate separate land use code enforcement programs within the Tulalip Reservation. These programs could benefit from increased communication and opportunities to share resources, such as training, information and staff. There are growing problems of homelessness and development pressures in our region. A backlog of open enforcement cases has grown longer. These problems cause degradation of Tribal waters and destroy fish habitat through unpermitted development and environmental damage. With 4 county code enforcement officers for all of unincorporated Snohomish C...

# The Triad Restoration Project for Blackjack Creek - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Kitsap Conservation District will focus 3 district programs on Blackjack Creek watershed in Port Orchard. This NTA addresses Stormwater issues in the following ways:
  
  
1) Stream Restoration/Wetland Enhancement: 3 properties in Ruby Creek drainage are design-ready to construct in 2019. Culvert replacement, habitat restoration, floodplain reconnection, water filtration, and water storage are elements of these designs. Funding for construction needed.
  
2) Agricultural PIC Project: Preventing stormwater/nutrient runoff from small farms is part 2 of this NTA. KCD will inventory, assess, and correct runoff and surface water pollution. ...

# Map Viewer of ecologically important areas in the Puget Sound basin - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will build on the Wetlands of High Conservation Value Map Viewer, used by the US EPA, WA Dept of Ecology, WA Natural Heritage Program, county planners, and others, by adding the locations of rare and high quality upland ecosystems and rare plant species in the Puget Sound Region. This project will also add the Ecological Integrity Assessment (a method to systematically assess the current status, including composition and function, of an ecosystem) score of each ecosystem, thus increasing knowledge of the current condition of rare and high quality ecosystems.
  
This information will improve knowledge of ecologically important lands and the ability to identify knowledge gaps.

# Big Buffers on Pilchuck River and French Creek - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Pilchuck River and French Creek once supported highly productive populations of salmon and are critical sub-basins for the recovery of salmon populations in the Snohomish River basin. The Big Buffers project continues implementation of a riparian stewardship Action Plan for the Lower and Middle Pilchuck River and French Creek sub-basins that aims to improve water quality and restore and protect high priority riparian lands. Snohomish Conservation District and partners are implementing reach-scale riparian conservation actions to restore salmon habitat, protect or create cold water inflows, and enhance hydrologic processes. To a...

# Greater Nooksack River Basin Strategic Conservation Plan Development and Implementation - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Three-phase process to be completed in two distinct subareas, Lowlands and Uplands:
  
1. Build community capacity through 2 workshops bringing people together on the shared learning needed to develop a green infrastructure plan and to discuss ecosystem stewardship;
  
2. Evaluate the findings of the workshops, the 2017 Ecosystem Report, Birch Bay's Watershed Characterization, and other relevant datasets and studies. Assess data gaps and implement watershed scale field assessment of current conditions; and
  
3. Execute the Strategic Conservation Plan to identify, evaluate, and recommend regulatory and non-regulatory protection and ste...

# Status and trends of Skagit Chinook salmon abundance, life history diversity, and productivity in response to recovery plan actions and env. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Current funding for the Skagit River Intensively Monitored Watersheds (IMW) project only covers field data collection of wild juvenile Chinook salmon as they migrate from the mainstem Skagit River through the estuary/delta, and then to offshore marine areas and is inadequate to cover the level of coordination and analyses required to detect whether there has been a population level response to estuary restoration. Within the Skagit River system, a multi-agency collaborative effort has resulted in the accumulation of life stage specific abundance of Chinook salmon. We propose to use this comprehensive dataset to develop a modelling...

# Salish Sea Marine Survival Project: Synthesis and solutions testing - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Salish Sea Marine Survival Project is a US-Canada effort to determine the primary factors affecting the survival of juvenile salmon and steelhead in our combined marine waters of Puget Sound and Strait of Georgia. Long Live the Kings, Pacific Salmon Foundation and our partners raised over $20 million to conduct the exploratory research needed to build focus around factors to address or manage. Research concludes in early 2019. Through 2019, we propose to finish synthesizing project results, then identify and recommend specific management & recovery actions at a regional scale. Synthesized results will be communicated to manager...

# Forest Health Management for Reduced Stormwater Runoff and Land Conversion (Phase I) - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Private, rural forest lands are at risk of conversion due to high development pressure. This NTA will help small acreage forest landowners protect forest areas from land conversion, meet ecosystem restoration priorities, and improve stormwater quantity and quality through services from conservation districts in priority ecosystem conservation areas. Priority areas will be identified for delivery of forest health management technical assistance. Services will be marketed and provided to landowners so that they gain knowledge, receive Forest Stewardship Plans, access incentives for restoration activities (such as weed control, forest...

# Optimizing Green Stormwater Infrastructure (GSI) Placement in South Puget Sound - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

We will develop a ridge-to-stream, landscape-level method to optimizing GSI placement. The South Sound region includes fish habitat, tribal lands, agricultural and urban areas, and commercial and underserved neighborhoods. We will survey representative sections of the population to assess how people perceive stormwater, their attitudes towards GSI, and their priorities regarding stormwater management. We will develop a geographic information system to map areas most suited for GSI and the most appropriate type of GSI based on hydrologic and topographic conditions. A better understanding of critical factors governing GSI placement a...

# Shoreline Armoring Reduction and Prevention Program - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

NWSF, local MRC's and partners propose outreach and services to incentivize shoreline landowners to reduce impacts and facilitate removal of armor in Whatcom, Skagit, Island, Jefferson, Snohomish, and Clallam counties. NWSF will support efforts of Friends of the San Juans and San Juan CD in San Juan County. Activities and services include: 1) Landowner workshops and community forums focusing on coastal processes, SLR, coastal resiliency, benefits of natural shores, use of native vegetation for slope stability, examples of armor removal and soft shore protection techniques; 2) Technical site visits with coastal geologists and native...

# Performance Evaluation of Engineered Hyporheic Zones for In-Stream Water Quality Improvement in Urban Creeks - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Scientific studies and biological indicators clearly show that urban stormwater is toxic and unhealthy for aquatic organisms. Recently, Thornton Creek (Seattle) was restored by installing hyporheic design elements (HDEs) into the creek bed. These HDEs, used to improve water quality and habitat, accomplish in-stream treatment by creating preferential flow paths for water in the shallow subsurface. Thus, instead of flowing on the surface, a substantial fraction of water also travels through the creek bed which removes toxic pollutants, nutrients and carbon. However, the treatment performance and effectiveness of HDEs for habitat an...

# Gilliam Creek Fish Passage Improvements - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The project would add habitat enhancements and a self-
  
regulating tidegate at or near the existing creek outlet, which
  
currently consists of a 9' diameter flapgate and apron that prevent
  
fish passage. The project would add stream gravel, riparian vegetation, and large woody
  
debris, enhancing approximately 2,000 linear feet of the
  
Creek.
  
 Gilliam Creek drains approximately 1,900 acres. The urbanized Gilliam Creek watershed is
  
subject to poor water quality, erosion of the stream
  
banks, and siltation within the stream corridor. Prior to project design and implementation, the City will undertake water quality testing and wil...

# Riverton Creek Flapgates Removal Project - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will improve habitat conditions along the lower 1,200 lineal feet of Riverton Creek and restore fish access between the creek and the Duwamish River by removing two twin culverts and flapgates. A new pedestrian bridge for the Green River Trail and structural modifications to the adjacent roadway (Tukwila International Blvd) bridge will be required. The creek will provide off-channel rearing habitat for salmonids, including the ESA listed Chinook salmon, steelhead, and bull trout. Large woody debris will be placed, invasive species removed and native plants installed along 1,200 feet of stream bank. Additionally, 400 lf of the Duwamish R. shoreline will be planted.

# Dungeness River Floodplain Restoration - Kinkade Phase - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Purchase, restore, and permanently conserve private floodplain properties along approximately one mile of river within the Kinkade Reach (RM 9.5-10.5). Restoration actions will include the removal of 1) buildings, 2) infrastructure, and 3) shoreline armoring. Areas previously cleared within the floodplain and riparian areas will be reforested.

# Effectiveness Monitoring of regulations regarding shoreline, critical areas, and stormwater requirements: Measure, report, and validate th. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2028 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This is a phased action that includes 1) identifying priority indicators 2) development of metrics and methodology for monitoring, 3) data collection based upon the determined methodology, and 4) implementation of an analysis regarding the effectiveness of the Kitsap County Shoreline Master Program, Critical Areas Ordinance, stormwater regulations, and the Natural Resource Asset Management Program (NTA2018-0321).

# Integrating climate resilience into farm-fish-flood project packages in the Snohomish and Stillaguamish River floodplains - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Predicted climate changes to local hydrology, water quality and habitat threaten the efforts of restoration practitioners and planners to develop resilient multi-benefit project packages in the floodplains of the Stillaguamish and Snohomish Rivers. The members that comprise the Sustainable Lands Strategy (conservation district, agencies, non-profits, tribes, and farmers) have worked with the University of Washington Climate Impacts Group, Washington State University, and professional consultants to model specific impacts of climate change on flooding, sea level rise, groundwater levels, agricultural drainage, and local crops in Sno...

# Snohomish County Enhanced Conservation Reserve Enhancement Program Pilot Project - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Snohomish CD will develop an enhanced incentive program by increasing landowner sign-up bonuses within the Conservation Reserve Enhancement Program (CREP). Target reaches will be chosen based on prioritization work already completed within the Stillaguamish and Snohomish River watersheds focused on addressing limiting factors in ecologically important sub-basins. This Enhanced CREP pilot project will work with agricultural landowners to identify incentives that will encourage voluntary adoption of habitat enhancement practices to increase enrollment in ecologically important sub-basins, linear connectivity of projects and width of riparian buffers.

# Nelsen Side Channel - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This isolated remnant channel was created by WSDOT when it realigned the Green River as part of the construction of I-405. By reconnecting the remnant channel with the mainstem of the Green River, this project will create approximately 1 acre of off channel salmonid rearing and refuge habitat. In addition, approximately 300 lineal feet of blackberry-covered mainstem shoreline just upstream of the sidechannel will be laid back and restored to provide additional storage and shallow-water habitat. WRIA 9 has identified this project as a proposed action in the Salmon Habitat Plan.
  
The project will involve DNR lands and private land...

# Duwamish Riverbank Stabilzation @ S. 104th St - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2022 |
| Completion Year | 2026 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will remove all 900 lineal feet of S 104th Street along the right bank of the Duwamish River, and replace the adjacent armored section of riverbank with a laid back, vegetated bank. Removing the roadway will allow the bank to be reconfigured and bioengineered to provide shallow water refugia and native vegetation and habitat features along the edge of the channel. The purchase of adjacent private properties would convert approxmiately 3.5 acres of pavement into off-channel rearing and refuge habitat for Chinook salmon wiithin the tranistion zone of the Duwamish River. The City will reach out to its partners to try to obtain funding.

# Dungeness River Large Wood Restoration - Upper Dungeness/Gray Wolf Phase 2 - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Build 12-14 engineered log jams. These will be helicopter-placed Type 2 ELJs, which have a good track record of success in the Gray Wolf River (2016 project).

# Engagement of state and local governments in basin-scale Puget Sound modeling and restoration planning - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Local restoration planners face the difficult challenge of extrapolating impacts of restoration actions over time & space. Similarly, modelers attempting to extrapolate long-term impacts of human activities on the Puget Sound ecosystem often lack detailed knowledge of local stressors & remediation plans. This NTA seeks to bring together restoration planners & modelers to build model scenarios based on actual ecosystem management plans. Restoration planners will include Puget Sound LIOs. The modeling team will apply the LIO scenarios to a terrestrial-marine modeling framework supporting local to basin-scale Puget Sound restoration p...

# San Juan County Select Watersheds Instream Flow study - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The San Juan Islands watersheds are heavily managed for water, with numerous ponds for agriculture, hobby farms, and drinking water. In the late 1800's, the San Juan Islands were the breadbasket for Puget Sound with many ponds constructed over 100 years ago. How much water is needed for salmon has already been identified as a data gap in the "Recovery of select salmonid habitat" study in process (NTA 2016-0136). We propose to do in-stream flow studies for seven of our nine focal watersheds (NTA 2016-0136). We will work with the WDFW in-stream flow team to ensure we select good sites and use appropriate methodologies.

# Complete a site management plan for DNR's Dabob Bay Natural Area in Hood Canal to implement integrated strategies for protection and restor. - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Conduct community-based management planning for state-owned lands at Dabob Bay Natural Area, which includes and protects high quality salt marsh and tidelands, nearshore forested slopes and ecosystem processes, salmonid rearing streams and headwaters, and tidally influenced ecological processes important to the maintenance of habitats and water quality in Dabob Bay, Tarboo Bay and northern Hood Canal. Community-based management planning will include area landowners and land trusts, county and state officials, and connection to existing planning in Hood Canal and Jefferson County. This plan will include explicit conservation objecti...

# Puget Sound Regional Riparian Cover Mapping Standards and Implementation - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

ESA developed an approach and methodology for mapping riparian cover and assessing riparian conditions using a combination of remotely-sensed data in combination with high-resolution local data and regional data layers as a part of a riparian assessment for the Skagit Watershed Council. This NTA would build off of work completed in the Skagit Watershed to develop a standardized approach and to extend riparian cover mapping to other watersheds in the Puget Sound and would leverage WDFW's High Resolution Land Cover Mapping and WDNR's Photogrammetry team. With support from the Puget Sound Partnership, ESA and project partners would ...

# Feasibility Analysis of Priority Nearshore Restoration Projects on Public Lands - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Many of the highest ranking public, nearshore restoration opportunities identified by the West Sound Nearshore Prioritization Tool are located on federal property, namely the U.S. Navy, as well as State and City property. These opportunities include six potential projects that address fish passage, sediment transport and tidal flow processes by removing shoreline armor and fill. For example some sites are in Keyport, Beaver Cr., Blake Island, Little Clam Bay. To determine the true potential for developing restoration projects on these challenging sites, a concerted outreach effort to Federal and State Departments, and Cities is nee...

# Middle Dungeness Storm Damage Risk Reduction - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Work would include removal of large stream crossing fills, culverts, and unstable side-cast material; decompaction of road surfaces to allow infiltration; recontouring to restore hillslope profile; creating cross-drains, swales, and other natural drainage features; blocking vehicular access by constructing berms; and seeding, mulching, and reestablishing native vegetation to minimize erosion and sediment transport. Trees and other vegetative material cleared at the site during excavation would be scattered on the decommissioned road prism to prevent soil erosion and enhance the soil productivity with organic matter. Treatments wou...

# Floodplain Recovery Target Refinement: Application to Watersheds - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Under a currently-funded NTA (2016-0401), Ecology and PSP, with support from ESA are establishing the foundation to assess, monitor, and report information regarding the Floodplain Implementation Strategy and Vital Sign indicator target. As part of the current effort, pilot assessments of three Puget Sound watersheds are being conducted. This proposal would extend the findings of the current project to other major Puget Sound watersheds. Ecology and PSP will develop a scalable method and process to select additional watersheds through a collaborative selection process or complete all of the remaining 14 major Puget Sound watershe...

# FSR 2870000 Road Decommissioning and Tubal Cain Trailhead relocating - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Work would include removal of large stream crossing fills, culverts, and unstable side-cast material; decompaction of road surfaces to allow infiltration; recontouring to restore hillslope profile; creating cross-drains, swales, and other natural drainage features; blocking vehicular access by constructing berms; and seeding, mulching, and reestablishing native vegetation to minimize erosion and sediment transport. Trees and other vegetative material cleared at the site during excavation would be scattered on the decommissioned road prism to prevent soil erosion and enhance the soil productivity with organic matter. Treatments wou...

# River sediment delivery to Puget Sound delta and nearshore environments - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The proposed NTA will provide data on sediment delivery to large river estuaries. Quantifying the magnitude and timing of sediment transport to estuary ecosystems is central to their maintenance and protection. Potential study rivers are those with limited or no sediment load data and a high probability of future estuary restoration activities (e.g., Snohomish, Duckabush, and Big Quilcene R). Instruments for monitoring suspended sediment are coupled with discrete field sampling at USGS gauges to measure sediment flux. Detailed riverbed bathymetric surveys will yield understanding of sediment routing through the intertidal zone and ...

# Dungeness Watershed Road Decommissioning, Closure, and Storage - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Work would include removal of large stream crossing fills, culverts, and unstable side-cast material; decompaction of road surfaces to allow infiltration; recontouring to restore hillslope profile; creating cross-drains, swales, and other natural drainage features; blocking vehicular access by constructing berms; and seeding, mulching, and reestablishing native vegetation to minimize erosion and sediment transport. Trees and other vegetative material cleared at the site during excavation would be scattered on the decommissioned road prism to prevent soil erosion and enhance the soil productivity with organic matter. Treatments wou...

# Integrated Mapping and Decision Tools for Land Use Planning in Puget Sound - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA would develop a web-based portal with alternatives analysis tools to help local governments balance land planning and environmental goals under GMA. The web tool would integrate maps from local governments, agencies, and organizations, and would add tools to evaluate multiple scenarios and their effects on land use, critical areas, and regional Puget Sound targets (at multiple scales and across jurisdictions). We would build upon existing partnerships from the original project, and would collaborate with end users, Puget Sound Partnership, and resource agencies to provide an added-value, user-friendly, decision making tool...

# Stormwater park retrofits for water quality, compact development and human health - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will interview staff in jurisdictions that have built multi-benefit stormwater parks to learn how these programs are best replicated. The information will be documented and will help develop criteria to guide a GIS analysis to identify stormwater retrofit locations with potential to improve water quality, habitat, and park access. To identify potential locations, data on site suitability (soils, ownership, land costs); level of need (impervious surfaces, existing stormwater infrastructure, water quality, salmon distribution); level of park access; and urban center designation will be used. Using a scoring matrix, suita...

# Recovery of select freshwater salmonid habitat in the San Juan Islands, Phase II False Bay Creek - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The goal of the above assessment was to "develop a clear plan of action to restore hydrologic flow and habitat function in the False Bay Watershed". A two pronged approach outcome of the study is to manage flow (from Zylstra Lakes) to augment existing conditions in False Bay Creek, accompanied by actions that will improve current stream conditions for salmonids (Wones et. al. 2017). The focus of this funding request is the in-stream and riparian habitat restoration actions in False Bay and San Juan Valley Creek downstream of Lake Zylstra. The flow augmentation will be addressed elsewhere. Restoration recommendations are, and th...

# Developing a Pacific Northwest Regional Trash Monitoring Coalition - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This action provides a framework of support to Salish Sea communities that monitor micro or macro debris. Understanding the distribution and persistence of plastic pollution throughout the Salish Sea is increasingly important as macro-plastics production continues to experience exponential growth and the breakdown of escaped plastics into microplastic particles continues to occur. With the help of external partners, EPA will standardize aquatic trash assessment and coalesce an interconnected monitoring network on a region-wide, trans-boundary scale. The network will include groups monitoring both macro and micro debris in freshwate...

# Clean Water for Salmon: Accelerating market shift to Salmon-Safe development & land management - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Clean Water for Salmon scales up the implementation of Salmon-Safe's standards for new construction and green infrastructure with the goal of transitioning development projects or site redevelopment to design that helps recover Puget Sound. Building on more than a decade of local work, we will implement strategic outreach and recruitment to apply our standards for both large-scale development and zero lot line urban sites in central Puget Sound and the Seattle area with the goal of incentivizing beyond compliance stormwater management, habitat conservation, and water quality protection in 25 high impact sites. In addition, we will ...

# Invertebrate supplementation as restoration action in select B-IBI basins - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2018 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This is a resubmittal of a partially funded NTA that will test the novel strategy of invertebrate supplementation, or "bug seeding". In 2018, King County will seed invertebrates in four streams to assess if supplementation can be used to help recolonize sites that have lower than expected B-IBI scores due to isolation from a source of colonists. Full funding for this NTA would support seeding in five to six additional streams and enhance the ability to evaluate effectiveness. Additional funds - for work beyond the current funded effort - are needed to seed additional streams and assess long-term success of this unique strategy. Str...

# Integrating Climate Change in Multi-Objective Floodplain Management - Deferred

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

New efforts to coordinate across flood, farm, and fish interests in Puget Sound's floodplains have the potential to dramatically increase the pace and effectiveness of restoration efforts while also bringing about economic and social benefits in the region. Yet rivers are also a focal point of climate change impacts -- affected by declining snowpack, heavier rain events, rising sea levels, and a host of other changes. Current efforts to address climate change are piecemeal, lack coordination, and continue to be stymied by a lack of capacity and resources for stakeholders. The purpose of this NTA is to increase the capacity for clim...

# Assessment of stormwater management effectiveness on freshwater quality and the B-IBI indicator - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

King County will retrospectively assess how stormwater management in King County may be affecting stream macroinvertebrate communities and corresponding B-IBI scores. Using existing macroinvertebrate data, King County staff will analyze how trends over time are correlated with stormwater management actions that have been implemented within selected King County basins. Stormwater management includes actions and infrastructure designed to treat and control stormwater, and these have increasingly been implemented throughout the county as well as the region. It is unclear, however, if these efforts are having the intended effects on re...

# Squalicum Creek Reroute Phase 3 - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Squalicum Creek Reroute Phase 3 contributes to a comprehensive restoration and multi-benefit plan for the Squalicum watershed. Squalicum Cr is the largest watershed in the City of Bellingham, provides habitat for ESA listed Chinook and steelhead, and offers recreational opportunities. However, the system lacks riparian cover, has a fragmented floodplain, does not meet water quality standards, and has declining salmon populations. Building on prior award-winning restoration, this project expands riparian cover and rehabilitates floodplain processes in and around Bug Lake, one of the largest contributors to watershed impairment.
  
  
P...

# Squalicum Creek Reroute Phase 4 - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Squalicum Creek Reroute Phase 4 contributes to a comprehensive restoration and park plan for the Squalicum watershed. Squalicum Cr is the largest watershed in the City of Bellingham, provides habitat for ESA listed Chinook and steelhead, and offers recreational opportunities. However, the system has a fragmented floodplain, does not meet water quality standards, and has declining salmon populations. Building on prior award-winning restoration, this project rehabilitates floodplain processes to improve water quality and salmon habitat downstream of Bug Lake.
  
  
Phase 4 leverages $7.8 million in prior investments to design and constr...

# Conserve vital riparian, estuary, wetland and forest habitat within the greater Dewatto Watershed in Hood Canal and restore ecologically im. - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The proposed NTA is a new action that will be led and coordinated by DNR to acquire, restore, and protect key forestland, shoreline, estuaries, and wetlands that are essential habitat and important for Hood Canal salmon recovery, specifically summer chum. DNR along with our partners at the Trust for Public Land, Hood Canal Salmon Enhancement Group, and Great Peninsula Conservancy, are proposing a new NRCA to ensure conservation of important Puget Sound features for enjoyment by future generations. NRCA boundary delineation is an administrative action that allows DNR to seek funding for purchase of private lands from willing sellers...

# Protection and restoration of select B-IBI basins, Phase III - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA addresses the recovery and protection targets related to freshwater quality and the B-IBI indicator. Previously, King County developed a process to select B-IBI sites/basins for restoration and protection. In 2017, Phase II was initiated to identify stressors and develop basin-specific plans for 14 basins (NTA 2016-0382). The proposed NTA is the next phase in which basin-specific and site-level designs will be developed and finalized. This is the critical step between the assessment/planning stage (Phase II) and implementation (Phase IV).
  
Work will include designing components of the basin-specific plans developed in Pha...

# Soft Shore Protection: A Review of Project Performance and Additional Guidance - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Quantitative monitoring and analysis of soft shore protection project performance in meeting goals for erosion control is mostly limited to data in the Marine Shoreline Design Guidelines (MSDG; Johannessen et al. 2014). The MSDG survey data was up to 2012 at only 13 sites. New work will address a key strategy in the Armor Implementation Strategy: "Compile existing information to develop guidance to complement and help implement the MSDG". Data from protocols such as the Shoreline Monitoring Toolbox will be evaluated and used if appropriate, but is mostly inadequate within core project areas. Other existing survey quality data at a ...

# Implementation of protection and restoration actions in B-IBI basins, Phase IV - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA addresses recovery and protection targets related to freshwater quality and the B-IBI indicator. This NTA will implement restoration and protection actions designed for 14 select BIBI basins in NTA 2018-0744. Likely actions include, but are not limited to, install and retrofit stormwater controls, control sources of pollutants and sediment, restore and reconnect riparian areas, purchase or conserve forested lands, and implement education and outreach programs. Actions would be implemented within stream basins selected in previous phases of the project. These may include actions in the following creek basins: Margaret, Weis...

# North Sequim Bay Drift Cell Conservation - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Permanent conservation of these important drift cells will be accomplished using conservation easements, property purchases, and state land management planning. Protected habitat will include 5.2 miles of feeder bluff shoreline, 23,560 feet of spit shoreline, 269 acres of marine shallow water and estuarine habitat, and the productive 10-mile shoreline of the 3,200-acre Sequim Bay. Preserving the health of these spits is essential for the continued existence of WA Harbor, Paradise Cove and the productive geomorphology of Sequim Bay. The project will occur in the following phases: 1) measure bluff erosion rates, (complete) 2) develop...

# Incorporating Climate Change into the Design of Culverts Prioritized for Replacement to Improve Fish Passage in King County - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will build on a methodology created in 2016 by the Washington Department of Fish and Wildlife (WDFW) and the UW Climate Impacts Group (CIG) to incorporate projected changes in extreme precipitation due to climate change into the design of water crossing structures. The project uses new hourly precipitation data, produced for King County by CIG for the period 1970-2099, combined with additional regional climate model runs being produced by UW Prof. Cliff Mass to model projected site-specific changes in bankfull width of streams in King County, which is an important determinant of culvert size and the potential for impac...

# Assessment and Prioritization of Contaminants of Emerging Concern Impairing the Health of Chinook salmon - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

A recent pilot study of contaminants of emerging concern (CECs) in juvenile Chinook salmon measured CEC levels high enough to potentially impair salmon health and possibly their marine survival, while rearing in some Puget Sound watersheds. These CECs are an unaddressed threat inhibiting Chinook salmon recovery. Chinook salmon are currently monitored for legacy pollutants as part of the Toxics in Fish Vital (TIF) Sign, but not CECs. This study will evaluate and track complex CEC patterns in Chinook salmon across Puget Sound by identifying in which watersheds and habitats (freshwater, estuarine, nearshore marine) salmon are expose...

# Phthalates Research for Source Control (Phase II) - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

In this project, under guidance of a technical advisory committee, we will test exterior-use products such as paints, traffic control materials, vinyl signs, and more in order to reduce the amount of phthalates in stormwater pathways to waterways, thus reducing the potential for recontamination after sediment sites are cleaned up in Puget Sound. In Phase I, existing data were compiled and sites were assessed (via interviews) to identify common outdoor products. A suite of products was tested for phthalate content, matching the Ecology analyte set. In Phase II, we will test additional products in order to complete the assessment and..

# Shellfish Growing Area Water Quality Improvement - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Washington State Department of Health (DOH) will use their growing area classification information to evaluate current marine water quality information and potential pollution sources in the watersheds to create a prioritized list of impacted shellfish harvesting areas. DOH will work with state, local, and tribal partners to develop coordinated pollution identification and correction projects within these areas, where gaps exist. DOH will develop a solicitation for eligible state agencies, local agencies, and tribes to implement projects aimed at identifying and correcting pollution sources in the impacted areas.

# Tacoma to Puyallup Multi-Modal Trail Connection - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2030 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Decision-makers from communities along the Tacoma to Puyallup Connection alignment convened in a MasterClass in Denmark and Sweden in August 2018 to experience successful examples of multimodal connections and collectively determine how to move forward in designing and constructing the Tacoma to Puyallup Connection. The local leaders are now collaborating on how to make this trail a reality, including analyzing potential alignments, engaging with the community to determine the route and design for this trail corridor, exploring cost estimates and developing strategies to fund the design and construction of the trail.

# Shellfish Growing Area Water Quality Protection - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Washington State Department of Health (DOH) will use their growing area classification information to evaluate current marine water quality information and potential pollution sources in the watershed to create a prioritized list of shellfish harvesting areas threatened with a classification downgrade. DOH will work with state, local, and tribal partners to develop coordinated projects within these areas aimed at maintaining and fixing treatment systems and finding and fixing pollution sources to assure shellfish harvesting areas are not downgraded. DOH will develop a solicitation for state agencies, local agencies, and tribes to implement projects within the impacted areas.

# Perform upland landuse characterization to identify upland land activities that can contribute to the degradation of an area leading to pro. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

To identify effects upland management activities can have on aquatic habitats, perform an upland landuse characterization of the PS drainage basin in relation to sensitive aquatic habitats and shellfish harvesting areas. Landuse activities can contribute to the slow degradation of an area that cause prohibition of shellfish harvesting, limit recreational activities, and damage aquatic environments. This landuse characterization would include an analysis of classifications that would be relevant to land disturbing activities and possible contribution of pollutants that could affect aquatic land health. The result of the landuse c...

# Interagency Coordinating Committee: Planning, planting and managing trees as green stormwater infrastructure and for the co-benefits they p. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Rapid development in the Puget Sound has resulted in reduced tree canopy and the benefits provided by trees, including stormwater mitigation. Many state agencies support tree planting, but without careful planning, the intended long-term benefits of trees may not be realized, and community investments are lost. DNR will convene and facilitate an interagency team of state agencies that support planting trees to develop agreed-upon best management practices. Agencies will learn to plan, plant, and manage trees and other green infrastructure to assure a resilient, sustainable urban forest canopy that contributes to the health of communities and the Puget Sound.

# Dungeness River Riparian Habitat Protection - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Through the purchase of property and conservation easements, permanently conserve high quality riverine forest habitat, particularly those areas with floodplains, anabranches, and side channels. Properties needed for floodplain restoration projects are an especially high priority.

# McNeil Island Shoreline Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2018 |
| Completion Year | 2019 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The DNR Aquatic Restoration Program and Department of Fish and Wildlife are collaborating to remove shoreline armoring and debris along the shores of McNeil Island. The barge landing site is located on the southernmost tip of the island. The project consists of the removal of all the debris from the beach that was built as a staging yard and boat launch. Removal includes ecology blocks, crushed quarry spalls, concrete boat launch, 15 voided slab bridge sections, and approximately 50 log piles forming a wall that an access road runs along. This project will restore 14,375 square feet of shoreline. Restoration of other sites around t...

# Evaluate Use of MS2 Coliphage as Viral Pathogen Indicator in Shellfish Tissue and Water - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will develop capacity for Health and its partners to evaluate temporal, geographic, and interspecies variability of viral indicator concentrations in shellfish tissue and marine waters. This NTA consists of three parts:
  
  
  
  
1. Provide funds for start-up costs of running test at Public Health Lab (PHL) in Shoreline.
  
2. Conduct a limited number of studies in areas of Puget Sound deemed vulnerable to contamination from human sewage, as well as background areas where no potential human sewage impacts are expected.
  
3. Evaluate viral loading from selected wastewater facilities...

# Integration of intense monitoring practices at a watershed scale: Monitoring water quality and quantity from headwaters to estuary to bette. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

D&H proposes to install monitoring equipment measuring water quality and quantity in two priority watersheds located in Kitsap County. Each watershed will have a monitoring site located at headwaters, mid-reach, mouth and estuary. Each in-stream site will be measuring the following parameters: stage, temperature, dissolved oxygen, pH, conductivity, ORP and turbidity. Each estuarine site will be measuring temperature, dissolved oxygen, chlorophyll, salinity and turbidity. Monitoring sites will include automated samplers to collect event driven discrete samples during storm, low flow and environmentally sensitive conditions. Discret...

# Accelerating shoreline protection and recovery - incentives and accountability (Nature's Scorecard) - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Nature's Scorecard (naturesscorecard.com) is an accountability tool that evaluates how well local governments are adopting best practices required under state or federal programs such as the state Shoreline Management Act and federal Clean Water Act. Most recently applied to municipal stormwater program elements required by permits, objective criteria evaluate how well local governments perform, then the scorecard interprets and shares hard-to-find information. Outreach uses a social marketing approach to showcase regional leaders, with the goal of incentivizing other governments to improve. After a refresh with updated information...

# Monitoring and management of piscivorous fish populations in the Lake Washington Ship Canal - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Consumption of juvenile salmon by piscivorous fishes inhabiting the Lake Washington Ship Canal (LWSC) is considered a key bottleneck to salmon productivity in the Cedar/ Sammamish/ Lake Washington (WRIA 8) watershed. The combination of native piscivores (chiefly northern pikeminnow and cutthroat trout) and growing numbers of non-native warm-water piscivores (smallmouth, largemouth and rock bass, yellow perch, and others) creates a deadly gauntlet for juvenile salmon migrating from Lake Washington to Puget Sound. This NTA would establish a working group of agency scientists and resource managers to craft a monitoring program and pis...

# Dungeness Watershed Road Storm Damage Risk Reduction - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Work would include removal of large stream crossing fills, culverts, and unstable side-cast material; recontouring to restore hillslope profile; creating cross-drains, swales, and other natural drainage features; and seeding, mulching, and reestablishing native vegetation to minimize erosion and sediment transport. Treatments would vary based on site-specific conditions, like depth to bedrock, and the potential for the road to adversely affect fish or wildlife habitat.

# City Habitats: A Regional Partnership for Stormwater Innovation - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will expand upon the established City Habitats public/private partnership to:
  
1. Accelerate implementation of stormwater solutions by developing a network of practitioners unified under a strong vision. This will enable practitioners across multiple sectors to identify and address the most significant barriers to installation of green stormwater infrastructure.
  
2. Significantly increase investment in stormwater management from traditional and nontraditional sources. Materials for decision makers and improved public funding sources will catalyze increased investment in stormwater.
  
3. Strengthen public demand for sustain...

# Commercial Property Engagement through Parking Lot Retrofits in Bear/Little Bear Watersheds - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Commercial properties represent one of the most challenging yet impactful audiences to engage. Their contributing areas rival that of public roads, yet few organizations have successful models to address them. This NTA proposes to create that model in a priority watershed, which can be shared and replicated through partner groups like the DePave Regional Committee, to better engage business communities across the region. This project will conduct social marketing research with both commercial property owners and managers- many of whom are of multi-cultural backgrounds. Secondly, this project will provide stewardship opportunities t...

# June is Orca Month - Grow public support for orca recovery, including abundant salmon, reduced toxics, and decreased vessel interference - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

For more than a decade, Washington's Governor has declared June as Orca Month to celebrate the iconic Pacific Northwest animal and recognize the species' endangered status. In 2017, more orca deaths prompted Governor Jay Inslee to explore mechanisms to accelerate orca recovery. Public support and political will are needed, and the existing Orca-Salmon Alliance (OSA) will host Orca Month activities that trigger action by new audiences:
  
(1) Strengthen connections between people and orcas
  
(2) Publicize threats facing the Southern Resident population
  
(3) Connect orca and Chinook salmon recovery
  
Events engage new audiences and incre...

# Design and feasibility study for a multi-criteria adaptive framework for assessing ecologically important lands - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA proposes the development of a multi-tiered ecologically important lands framework that would provide an improved assessment of statutorily protected lands and a system for identifying and discussing lands of intrinsic ecological value. The system would integrate three types of land assessment, simple protection based on ownership, regulatory protection for described locations (shorelands, wetlands, critical area ordinances, etc.) and the results of regional ecological models which address importance from myriad different perspectives. Such analyses include Gap analyses, Watershed Characterization, HRCD, the WA Connectivity...

# Stillaguamish Estuary Habitat and Chinook Resilience Project (Part II) - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Five years of monitoring at TNC's Port Susan Bay Preserve indicate that marsh ecosystems are rapidly eroding due to salinity stress, wind shear, and snow goose herbivory. Future climate projections indicate less freshwater availability to the estuary in summer, thereby increasing salinity stress at TNC's preserve and along the entire Stillaguamish delta face, including the newly restored Leque Island and zis-a-ba.
  
  
We will partner with local stakeholders and tribes to ensure restoration options, such as the lower Stillaguamish Reach Scale Plan priorities, achieve multi-benefit goals including those that promote estuarine marsh r...

# Update Chinook Recovery Strategy in several key Puget Sound watersheds - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Develop an adaptive management plan and framework that will facilitate adjustment of actions and priorities based on best available science, including, but not limited to, results from the local and regional research, WA Coast Resilience Project, ESRP Learning Program projects, and the PS Ecosystem and Monitoring Program projects. The act of incorporating new information and revising conceptual models or pressures assessments will demonstrate how adaptive management can work in each watershed. As strategies are updated and prioritized, a formal adaptive management system will be documented by a neutral third party (conservation co...

# Little Squalicum Estuary Restoration Project - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The project removes shoreline armoring to restore a lost barrier embayment in an urban environment close to the Nooksack River. The project's goals are to improve water quality and increase available habitat for juvenile salmonids utilizing Bellingham Bay, Squalicum Creek, and the Nooksack River. Species utilizing this area include all five species of native salmon, including Chinook, bull trout and steelhead. In addition, the project increases nearshore resilience critical for climate change.
  
  
The project creates an approx. 2-acre estuary, removes contaminated soils, eliminates a fish barrier, and creates vegetated saltmarsh/mud...

# Improving the resilience of natural resources and communities on the Kitsap Peninsula to the effects of a changing climate. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Kitsap County will coordinate with agencies, tribes, and stakeholders to complete a climate change vulnerability assessment and adapt existing plans (e.g. Ecosystem Recovery Plans, Countywide planning policies, Comprehensive Plans, Shoreline Master Programs, Critical Areas Ordinances, capital improvement plans, etc) and ongoing practices (e.g. restoration, protection, regulations, capital improvements/maintenance, etc) to improving the resilience of communities and natural resources to the effects of a changing climate. Existing planning processes required under the Growth Management Act, Shoreline Management Act, and ecosystem/salmon recovery will be utilized as much as possible.

# Watershed-based planning model for the Kitsap Peninsula - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Kitsap County will collaborate with agencies, tribes and community organizations to develop and implement a GIS model for watershed-based planning on the Kitsap Peninsula. The model will be used to assess the cumulative effects of existing land use plans (e.g. Comprehensive Plans, Shoreline Master Programs, subarea plans) and development regulations on ecologically important lands for three time horizons (existing conditions, 20-year GMA planning period, & build out). The model will likewise be used to inform and assess future planning proposals to minimize impacts of growth on ecologically important lands.

# Sources and pathways of persistent organic pollutants in Puget Sound's pelagic food web from low trophic levels to Chinook salmon and Orca - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This work proposes to identify whether POPs are entering the pelagic food web directly from Duwamish River surface water discharge. Puget Sound's pelagic food web and Chinook salmon are contaminated with POPs, resulting in POP levels high enough to predict impaired health of Chinook, and apex predators such as killer whales. This project will use synoptic sampling of biota and passive samplers to measure POPs along a distance gradient from the Duwamish River, through Elliott Bay, and over a depth gradient passing through water density gradients. The intent is to track movement of POPs from their river sources into marine waters, al...

# Upper Puyallup River Watershed Assessment: Protection and Resiliency Planning - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Evaluate the Upper Puyallup River Basin from river mile 33 near Electron to the National Park boundary at river mile 49 including major tributaries (up to 43 stream miles) utilizing the following methods:
  
  
1) Map channel plan-form evolution in response to past disturbance and forecast response to future climate impacts to evaluate risk to formation and persistence of critical habitat. 2) Install temperature loggers at tributary confluences and collect thermal imagery of mainstem river channels to map cold water refugia. 3) Evaluate existing and future flow dynamics and model bed/redd scour and sediment deposition. 4) Evaluate e...

# Middle Fork Nooksack River Fish Passage - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will complete the final design, secure permits, and construct a project that will remove the Middle Fork Nooksack diversion dam and restore habitat connectivity to 16 miles of pristine habitat for three ESA-listed threatened species (spring Chinook Salmon, Steelhead, Bull Trout). Project work includes: moving the existing water intake just upstream of its existing location to eliminate the need for the dam; installation of a bypass and fully compliant fish screens to protect migrating juvenile fish; removal of the dam, and channel restoration.

# Puget Sound Funding Portfolio - past, present, and future - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Puget Sound protection and recovery currently involves direct and indirect funding from tribal, federal, state, regional, and local government; philanthropy and nonprofit sectors; business and institutional sectors; and individual and other private investments. However, a significant funding gap remains for the three strategic initiatives identified for Puget Sound recovery. Several organizations and coalitions have discussed mechanisms for filling at least portions of the funding gap.
  
  
This NTA would provide a meta analysis beginning with a strategically small yet diverse group of organizations representing major current funding...

# Improving Climate Change Resilience for Chinook Salmon During Summer Low Flows - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Many of the major watersheds in the Puget Sound are expected to have summer low flows that are significantly impacted by climate change, but fine-scale information identifying specific streams or reaches of large rivers that are likely to be most affected is lacking in most basins. Such information would assist watershed groups and agencies in prioritizing restoration and flow augmentation projects to protect salmonids and increase salmonid resilience to changing climate conditions. We propose combining hydrologic models with regional climate model projections to create a forecasting tool for the Puget Sound that estimates the impa...

# Beyond "I heart Puget Sound" - engaging the public in Puget Sound recovery - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

A healthy Puget Sound remains popular with the public, surrounding communities, and with economic sectors that depend on Puget Sound and the Salish Sea. While science is never done, we do know as a region what best practices we should pursue and which poor practices we should change. However, even with that general support and knowledge, our region is not sufficiently supporting Puget Sound recovery and threats are increasing.
  
  
This NTA will scope and implement an engagement campaign that includes all communities, including tribes and communities of color. The program will build on existing information and programs, such as Puget...

# Source Identification of Toxics Impacting Juvenile Chinook Salmon in Two Major Puget Sound Rivers - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2023 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Approximately 30% of all juvenile Chinook salmon recently sampled by WDFW contained levels of contaminants high enough to induce sublethal effects, potentially affecting their marine survival. The implication of these findings is that juvenile Chinook are accumulating sublethal amounts of toxics from urbanized and developing watersheds that have undergone habitat restoration efforts, but continue to receive stormwater and wastewater containing toxic chemicals.
  
  
We will resolve sources and pathways of chemicals by measuring polybrominated biphenyl ethers (PBDEs) and polychlorinated biphenyls (PCBs) in water (using passive samplers...

# Habitat Evaluation Procedures Program - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA includes the following steps with step 6 being the main method for success:
  
1) Develop a mitigation measuring program and model to ensure that no net loss (NNL)of ecological function is achieved through the administration of the Shoreline Master Program (SMP) regulations.
  
2) Develop a cost-per-habitat unit for all Lake Washington shorelines and update the cost-per-habitat unit for Lake Union and the Ship Canal. 3) Engage Army Corps for approval of a payment in-lieu program for all Seattle shorelines using existing and new analyses. 4) Conduct public outreach within Seattle so that citizens, business owners and developers...

# Whatcom County Focused - Community Based K-12 Shellfish Education, and Stewardship: Meeting Washington Shellfish Initiative Goal 7: Educate. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Provide K-12 shellfish education targeting schools in priority shellfish recovery areas. NTA supports development and delivery of shellfish based curricula, such as Garden of the Salish Sea Curriculum (GSSC). Whatcom based GSSC is affiliated with Olympia based Pacific Shellfish Institute (PSI). NTA will train educators to broaden shellfish education and stewardship programs. Shellfish are used as a vehicle to teach pollution prevention centered on hands-on learning through intertidal field experience. By interacting with shellfish and inter-tidal organisms in their habitat, students are inspired to practice watershed healthy habit...

# Clarks Creek Restoration Plan, Dispute Resolution Agreement: A focused Plan to protect Core Salmonid Habitat - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Clarks Creek Plan represents an innovative water quality crediting and pollutant load reduction accounting system approved by the State. The Plan has created modeling tools to exact the quantitative relationship between Chinook (and other salmonids) beneficial use protection, water quality standards attainment and the amount of pollution reduction required through engineering and technology. This novel framework confirms the quantifiable link between a stormwater facility's (i.e. structural BMP) engineering and the water quality treatment (pollutant load reduction) it can reliably provide if consistently maintained. The Plan p...

# Snohomish Confluence Project - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Tulalip Tribes and partners propose to restore and enhance floodplain connection, abandon side channels and connections to Riley Slough just upstream of the junction of the Skykomish and Snoqualmie rivers, in the Skykomish. These actions have the potential to measurably increase rearing and spawning habitats for Chinook, Steelhead, Coho, Pink and Chum salmon. Bank protection upstream and adjacent to the project area in the Skykomish river and changing flow conditions in Riley Slough have contributed to abandonment of side channels and portions of lower Riley Slough. Over the last 25 years dramatic reductions in coho salmon production in Riley Slough has occurred because of these changes.

# Strawberry Creek culvert replacement Silverdale Loop Rd, Silverdale, WA - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Strawberry creek culvert has been identified by Washington Department of Fish & Wildlife (WDFW) and the Suquamish Tribe as the most significant fish-passage barrier on Strawberry creek. This project proposes to install a new culvert designed to WDFW fish passage standards. The design will provide flood control, stormwater treatment and include enhancement of floodplain, instream and riparian habitat adjacent to the stream road crossing. Additionally low impact development (LID) or "green" stormwater solutions will be utlized to encourage infiltration and water quality treatment.

# Feeding Salmon and Orca through Shoreline Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

As a primary food source for salmon, healthy forage fish spawning beaches are essential for regional salmon and orca recovery efforts. Shoreline modifications, like armoring and tidal barriers, damage natural shoreline functions, bury forage fish spawning habitat, block fish passage, and limit prey for rearing juvenile salmon. This program will support the development of shoreline modification removal projects. Project activities include securing landowner commitments, cultural resources research, pre-project biological surveys, and conceptual and preliminary restoration designs. With landowner commitments and preliminary designs i...

# Floating Treatment Wetlands Reduce Contaminants & Nutrients in Urban Stormwater Runoff - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Phase I of this project is funded by the King County Council and will take place in 2018. Phase II - 1) test 2nd sample of coho for mortality from direct stormwater with and without FTW&#65533;s
  
2) determine which PNW native emergent species perform the best with regard to metal and nutrient uptake (phytoremediation) and which continue to grow into the fall when coho return
  
3) determine if harvesting the above water surface and below water surface plant material will assist in providing removal of nutrients and metals from the water body
  
4) examine the fate of metals and nutrients (plant roots, shoots, biofilm)
  
  
Phase III &#6...

# Tribal Oil Spill Caucus - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

A Tribal Caucus is timely and needed given the recent efforts of First Nations (i.e. Heiltsuk Nation) and WA Tribes to build their capacity to plan for, prevent, and respond to oil spills in the Salish Sea. The Caucus will provide a regional forum for: sharing issue-related experience and knowledge among Tribes & First Nations; organizing participation in advisory & regulatory bodies; and establishing shared priorities for actions to improve vessel traffic and spill response systems. Initial efforts of the Caucus will be to increase tribal participation in the Regional Response Team 10 (which sets regional/state/federal oil spill r...

# Green-Duwamish Problem Design Lab; Meeting Academic Standards in the Secondary Classroom in Context of Improving Puget Sound Vital Signs - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This is a joint proposal of the WRIA 9 Watershed Ecosystem Forum and Sustainability Ambassadors. Our model is already being developed in collaboration with five school districts in the Green-Duwamish Watershed. We provide stipends for Teacher Fellows to generate tools, templates and tracking systems that align problem-based learning with the WRIA 9 Salmon Recovery Plan, Green-Duwamish Watershed Strategy, and Vital Signs. Embedding new curriculum pathways in school bureaucracies takes several years. These NTA actions, if funded, will expand our proof of concept and invite watershed-wide collaboration. Our approach includes: 1) conve...

# Permanent Shoreline Habitat Protection in San Juan County - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Protection of intact nearshore marine habitats and processes is the top salmon recovery strategy for San Juan County. Identification and ranking of sites for strategic protection efforts through easement and/or acquisition has been completed, including an assessment of sea level rise resiliency. Phase one efforts that are in progress include landowner outreach in top protection areas, and cultivation and implementation of easements at multiple sites. Partners are working to implement protection actions.
  
  
Phase two will allow partners to expand strategic engagement efforts with waterfront property owners in the most important pro...

# Bainbridge Island Groundwater Management Plan - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Project methods follow guidelines promulgated in WAC Chapter 173-100. A groundwater advisory committee (GAC) of planning agencies; health agencies; water purveyors; domestic well owners; social and health services; local, state and federal agencies; Tribal governments; business; industry; public and special interest groups; and citizens will be convened. GAC will create a plan that characterizes jurisdictional boundaries, historic and projected land and water use, hydrogeology, and quality and quantity; defines land and water use activities affecting quality or quantity; identifies goals and objectives; formulates land and water us...

# Growth and life history strategies of Salish Sea Chinook salmon as it relates to marine survival, habitat condition, and population recovery - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Using otolith microchemistry we propose to evaluate the contribution of fry, parr and yearling life histories to adult Chinook returns while enumerating the success of these strategies in relationship to habitat availability/condition and early marine survival. We will evaluate the life history contribution of natural origin Chinook populations from south, mid and northern Puget Sound as well as Hood Canal and the Strait of Juan de Fuca. This work will inform restoration efforts (as it relates to life history expression and run size) while also highlighting populations that may benefit from increasing life history diversity (throu...

# Stream and Lakeside Landowner Education and Assistance Program - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

We propose a full outreach approach to increase education and on-the-ground actions by private stream & lake residents in key basins. The project employs a three-tier strategy including: workshops, landowner visits, and incentives for shoreline restoration. Workshops focus on OSS, natural yard care, & stream ecology/shoreline management and have successfully resulted in pollution-reducing actions or improved shorelines. Workshops also provide a path to engage residents in site visits. Streamside visits will focus on riparian management. Lake visits will also integrate, LakeWise, a property certification program to implement polluti...

# Protect and Restore Habitat: Enhance Family Forest Fish Passage Program (FFFPP) - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA seeks funding for FFFPP at $5M for 2 FTEs. This will result in correction of an estimated 44 fish passage barriers, opening an estimated 101 miles of stream habitat.
  
  
FFFPP is voluntary and allows small forest landowners to sign up to eliminate fish passage barriers on their road crossings with financial assistance from the program. FFFPP is uniquely focused on private lands which are often not inventoried by resource agencies and tend to coincide with some of the most productive salmon habitat within watersheds. As such, FFFPP is closely tied to the shared regional priority of implementing prioritized structural barrier...

# Nonpoint Water Quality Specialists to Protect, Re-open, and Upgrade Shellfish Growing Areas - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA focuses six Ecology nonpoint water quality specialists on protecting, re-opening, and upgrading shellfish growing areas, supporting the Vital Sign Indicator Target of 10,800 new acres of harvestable shellfish acres by 2020.
  
  
The specialists will protect shellfish resources by implementation of TMDL/watershed cleanup plans, promoting voluntary and incentive-based programs, and increasing compliance with environmental laws, regulations and permits. Emphasis on the following Vital Sign Regional Priorities:
  
-Upgrade the Samish and Portage Bay shellfish growing areas
  
-Re-open or upgrade shellfish growing areas
  
-Protect...

# Protect and Restore Habitat: Enhance the Forestry Riparian Easement Program (FREP) - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

FREP helps to keep small working forests on the landscape by purchasing conservation easements for working forestlands disproportionately affected by the Forests and Fish law. Funding FREP at $3.5M for 3 FTEs will purchase 30 conservation easements and determine the easement values of 20 applications.
  
  
FREP serves to deter conversion to non-forestry uses in areas of immediate risk. FREP supports efforts outlined in the Land Development and Cover priorities by protecting essential riparian habitat adjacent to fish bearing streams and engaging private land owners in Puget Sound protection and recovery. FREP increases acquisition ...

# Tenas Creek Floodplain Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2023 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Tenas Creek is currently isolated from a large portion of its alluvial fan floodplain by a levee, riprap armored banks, an active US Forest Service road, and relic forest roads. The goal is to remove the levee and riprap to allow Tenas Creek to access historic floodplain and relic channels. Early investigations indicate this would require either relocation of the US Forest Service road, or additional conveyance pathway(s) via new bridge(s). Additional actions could address floodplain forest condition and impacts from relic/decommissioned roads that may impact floodplain function or future channel dynamics. In addition to the US For...

# Protect and Restore Habitat: Fund Small Forest Owner Assistance - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Funding this request at $500,000 for 2 FTEs within the DNR Small Forest Landowner Office (SFLO) will allow staff to educate and enroll small forest landowners into programs like Family Forest Fish Passage Program (FFFPP) and Forest Riparian Easement Program (FREP).
  
  
This request will provide small forest landowners with forestry technical assistance, including explaining forest practices application preparation and assisting with forest road repair and maintenance issues with a focus on reducing introduction of sediment into watercourses. Informing small forest landowners of incentive programs such as FFFPP to solve fish passage...

# Tarboo-Dabob Bay Shoreline Aquisition and Restoration Project - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

NWI will acquire and restore the Pederson Property, a 16 acre feeder bluff shoreline property consisting of 3 adjoining parcels, for permanent protection and restoration as part of the Dabob Bay Natural Area. The property contains the largest remaining bulkheaded shoreline within the Dabob Bay Natural Area. The existing houses and nearly 400 foot long bulkhead and shoreline fill will be removed and the shoreline restored. The property is currently listed for sale and the owner is very interested in a conservation sale as soon as possible. Potential funding and match sources are still be explored with project partners, especially DN...

# Nisqually Community Forest - Acquisition and Stewardship - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2018 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The mission of the Nisqually Community Forest is local ownership and management of Nisqually Watershed forests for sustainable economic, environmental, and social benefits. Over the next four years, the Community Forest will pursue acquisition of commercial forest lands in the Mashel River watershed and initiate management of 1,920 acres acquired in 2016, 2017, and 2018 along Busy Wild Creek. The Mashel River is the largest tributary to the Nisqually River and provides critical habitat to ESA-listed Chinook and steelhead.

# Puget Sound Fish Community Survey - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Puget Sound has a wide range of marine habitats and species that require a variety of survey techniques to be sampled effectively. Often surveys are designed to be species specific or site specific, resulting in data that may be biased toward certain habitat types, times, and/or species groups, often missing potentially important species interactions. The purpose of this NTA is to provide data about the Puget Sound fish community and food web dynamics that will provide context for research and monitoring programs by improving the spatial and temporal coverage of fish surveys in Puget Sound. Special attention will be given to sampli...

# Trans-boundary Vessel Traffic Safety Conference - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will: prevent & reduce the risk of major oil spills in the Salish Sea; increase protection for treaty rights at risk and for Puget Sound's natural resources. The existing treaty establishing the Canadian/US Cooperative Vessel Traffic Service requires comparable vessel safety and oil spill prevention & response standards in WA and BC. Currently there is no forum to evaluate comparability or to set strategic priorities for system improvements or transboundary cooperation. Several Tribes, industry groups, state & federal agencies, and stakeholders have recently expressed interest in establishing such forum. The summit will em...

# WA Department of Natural Resources (DNR) citizen science and K-12 education program to monitor local aquatic habitat effects from climate c. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

DNR's Aquatic Assessment and Monitoring Team (AAMT) has recruited volunteers to help maintain uninterrupted continuous data collection for the Acidification Nearshore Monitoring Network (ANeMoNe). This requires a dedicated group to regularly visit the sites located from Nisqually to Cherry Pt, check sensors, unbury those covered in sediment, clean biological fouling, and check deployment lines & anchors. Deployed sensors need to be swapped out quarterly with calibrated, cleaned sensors & charged batteries. Spring-fall, eelgrass density, shorebird habitat use, shellfish spat settlement, and water samples will be collected. We curren...

# Quantifying effects of environmental variation and management actions on salmon and associated species across an existing observation netwo. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

WA DNR established ANeMoNe to measure the progress of ocean acidification and climate change in nearshore environments. We propose to capitalize on existing investments in ANeMoNe by exploring how salmon and associated species respond to environmental variation and to management actions. By analyzing eDNA in field samples, we can estimate abundance and occupancy for salmon and their prey, predators, and competitors. ANeMoNe sites span Puget Sound and the outer coast, covering a wide range of environmental conditions; we will compare water quality and eDNA data to understand current and future trends in salmon response. Furthermore,...

# Springbrook Creek and Manzanita Creek Watershed Planning - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Watershed-scale planning in two highest priority salmon-habitat basins on Bainbridge Island, working in collaboration with stakeholders through the Bainbridge Island Natural Resources Management Team (City departments of planning and public works, Kitsap County planning, WDFW, local Land Trust, local Watershed Council, Puget Sound Restoration Fund, Mid Sound Fisheries Enhancement Group, Metro Parks and Recreation, Suquamish Tribe, Kitsap Conservation District, and Kitsap Public Health District). To achieve the highest probability of success in protecting and restoring watershed ecology, the team will use Puget Sound Characterization Model to identify areas for restoration.

# Technical Assistance Program for San Juan County Shoreline Landowners - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

San Juan County's 412 miles of shoreline provides habitat and nearshore resources that are vital to the health and recovery of endangered marine species. While much of this habitat is unaltered and in healthy condition, there is a trend of degradation. Individual development activities (armoring, removal of marine riparian vegetation, increases in impermeable surfaces, and overwater structures) are harming the nearshore resources that are vital to the health and recovery of the Salish Sea. To prevent future habitat loss and degradation and restore naturally functioning marine shorelines, the San Juan Islands Conservation District a...

# Flexible and Cost-Effective Infiltration Testing Methods for Evaluating Shallow and Deep Infiltration Feasibility - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The NTA includes the following elements:
  
1) Refining the borehole permeameter (BP) method to address a broad range of infiltration test configurations, and allow evaluation of real-world conditions, such as layered soil conditions, seasonal variability, and groundwater mounding.
  
2) Shallow and deep infiltration testing to demonstrate and validate the BP approach. This testing will be conducted in new test facilities within the City of Tacoma and Kitsap County and existing facilities owned by King County. 3) Review of drafts and products by project partners and other stakeholders and incorporation of relevant comments. 4) Prepara...

# San Juan County Shoreline Armor Change Analysis 2009 to 2019 - Implementation

|  |  |
| --- | --- |
| Implementation Start Year | 2019 |
| Completion Year | 2020 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

In San Juan County (SJC) there are known and likely many more unknown occurrences of unpermitted new, expanded, and replacement armor degrading natural shoreline functions and habitats. In 2009, Friends of the San Juans completed a spatially explicit, boat-based inventory of modifications along SJC's extensive, widely distributed, and often vegetated marine shorelines. Using this detailed survey as a baseline, partners will document changes in the location, size, material, and condition of shoreline armoring. With solid methodology and mapping of baseline conditions the project provides the most efficient and effective method for i...

# Scientific framework for coordinated avian monitoring associated with estuary habitat and restoration in Puget Sound - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Audubon Washington in partnership WDFW will lead the development of a scientific framework for coordinated avian monitoring in estuaries with the goal to inform adaptive habitat management and bird conservation. The process will engage collaborators across stakeholder interests to ensure the framework has broad support and utility.
  
  
Restoration efforts in estuaries has been driven by salmon recovery needs, with unknown impacts on birds. Puget Sound estuaries provide critical habitats for millions of migratory and resident waterfowl, shorebirds, and others, as evidenced by multiple bird conservation designations. An inventory of r...

# Improving understanding of pinniped predation on juvenile and adult Chinook salmon Puget Sound and implications for salmon and Orca recovery - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Harbor seals are known predator of Chinook and other salmon smolts and adults, and predation is thought to limit Chinook and killer whale recovery (Chasco et al. 2017). Our proposed research will improve estimation of the magnitude and spatial variability of harbor seal predation to support the development of spatially-appropriate management actions.  
Goals: 1) Bring in recently-collected seal abundance and diet data to update the Chasco et al. (2017) model,  
2) Use the updated model to identify when and where seal predation is greatest for Chinook,  
3) Develop spatially-explicit seal "hotspot" maps to inform management actions,  
4...

# Riparian Characterization, Outreach, Technical Assistance and Microbial Source Tracking (MST) in Northern Snohomish County Subbasins to Red. - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Phase 1: Surface Water Management (SWM) is proposing to delineate land use, vegetated buffer widths and canopy height within the 200' riparian buffer in northern unincorporated Snohomish County (WRIAs 3 & 5). Subbasins, prioritized by riparian livestock presence, will be selected for outreach events and technical assistance from SWM and the Conservation District in order to reduce FC pollution. Phase 2: Microbial source tracking will be used to prioritize subbasins for future investigations of FC pollution. These efforts will help upgrade the status of 350 acres of downgraded commercial shellfish beds in Port Susan and improve habitat and water quality conditions in the Stillaguamish basin.

# Titlow Estuary Restoration Project - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The primary goal of the project is to restore fish access and tidal wetland processes to >10 acres of tidal wetlands. The proposed methods to accomplish this are to remove a 4-foot gated culvert and replace it with a 96' span rail bridge over a 30' (channel bottom width) open tidal channel, and remove shoreline armor and fill to restore fish passage, tidal hydrology, sediment transport, and wetland function to the site. Project actions will create a self-sustaining embayment with an open tidal channel passing under a rail ridge, vegetated wetland buffers, improved wetland hydrology and water quality, reduced beach sediment grain si...

# Enhancing soil health in a changing climate for hydrologic, habitat, and agricultural benefits - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Soil health is rarely addressed in a holistic manner yet it is key to our hydrologic, habitat, water quality, and agricultural health. In a changing climate where these functions are even more important for resilience of ecosystems, this program will develop and implement a holistic soil health program on agricultural lands throughout Snohomish County. Goals of the program are to reduce runoff from working lands, increase resilience to climate change, and increase productivity through outreach, education, technical assistance, payment for practices, and implementation assistance. It will include a focus on underserved communities o...

# Implementing a Strategic Watershed based Stormwater Facilities Retrofit Plan and Projects - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Stage 1 selects watershed after reviewing existing information, priorities, data gaps, and water quality/drainage problems for multiple watersheds, and prioritizes based on need and opportunity.
  
Stage 2 prioritizes the most important subwatersheds within priority watersheds. To do this sample locations are established to collect water quality samples, channel condition metrics, B-IBI and hydrologic data.
  
Stage 3 prioritizes catchments within priority subwatersheds with the highest treatment need and opportunity for improvement. To do this GIS data and stormwater pollutant data are analyzed to identify areas of greatest polluta...

# Outreach and assessment for acquisition and restoration within the Dabob Bay Natural Area - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Northwest Watershed Institute staff, in coordination with DNR, will assess and prioritize approximately 150 remaining unprotected private parcels owned by 100 separate landowners within the boundaries of the Dabob Bay Natural Area for the purpose of identifying highest priority parcels for protection and restoration, including assessing habitat conditions and landowner interest. NW will conduct GIS analysis, landowner contact (mailed letters and follow up meetings), and field review to prioritize parcels based on the quality and quantity of existing and potential habitat, ecological functions, degree of development, potential for r...

# Working buffers for water quality, wildlife habitat, and agricultural resilience on agricultural lands - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

A "working buffer" extends the width of a traditional riparian buffer to provide multiple benefits and climate change resilience to both natural resources and the farmer through use of agroforestry practices. Benefits to the farmer include product diversification, increased soil health and moisture, improved nutrient cycling, and renovation of degraded land. Water quality and habitat benefits include carbon sequestration, wildlife habitat, and improved surface water infiltration. The Conservation District will promote and implement working buffers on agricultural lands where they widen an existing or planted native riparian buffer....

# Sound Horsekeeping - controlling mud and manure on horse properties in the Snohomish and Stillaguamish River watersheds and Camano Island - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Snohomish County and Camano Island have one of the largest and diverse horse owning populations in the United States. While larger livestock operations such as dairies receive more regulatory attention and financial assistance, the Conservation District has concluded that the cumulative effect of thousands of over-stocked and degraded equestrian properties may have a larger, more sustained impact on water quality in this area. The purpose of the Sound Horsekeeping program is to educate and encourage horse owners to implement Best Management Practices that reduce the impact their horses have on water quality, soil health, and ripari...

# South Sound Nearshore Restoration Strategy - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Nearshore restoration often occurs on an opportunistic basis, depending on landowner willingness, funding, and multiple variables. While large-scale restoration is emphasized by the science and planning communities, the socio-economic issues with shoreline armor often lead to spotty or poor long-term restoration. This project will take a long view in terms of strategy and implementation. Several priority nearshore restoration reaches will be identified using existing prioritization tools. A comprehensive landowner outreach campaign will then refine possible restoration sites within each reach. A site-scale feasibility analysis will...

# Protecting Channel Migration Zones in Puget Sound - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

We propose to work with local governments in 1-3 Puget Sound Counties to develop and test procedures for delineating channel migration zones (CMZs) on fish-bearing streams (less than 20 cfs mean annual flow) using existing topographic and LiDAR maps, remote sensing technologies for creating new digital elevation products, and application of existing field methods (WA Depts. of Natural Resources and Ecology). By demonstrating cost effective methods, we can meet the intent of the PHS guidance and remove barriers to implementation of best available science to protect aquatic systems under the Growth Management Act. Further, WDFW can b...

# Anderson Creek and Shoreline Restoration Project - Phase II - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

In coordination with project partners, Northwest Watershed Institute will conduct weed control, supplemental planting, and overall project monitoring, as needed to ensure full re-vegetation of this large shoreline restoration project completed in 2018 with ESRP and NCWC grant funding. The property is owned and permanently protected by DNR as part of the Dabob Bay Natural Area. Annual monitoring will include field assessments as well as contracted drone photography to document the shoreline restoration process. NWI has a signed land use license agreement with DNR to conduct this restoration project (attached).

# Advanced distillation treatment - optimizing a new approach to dairy manure processing for clean water and nutrient management - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Advanced Vapor Recompression Distillation technology, being developed in the Puget Sound area, processes dairy manure into clean water and fertilizers. This system will largely remove the need for manure storage lagoons, thus eliminating the potential of fecal coliform contamination of surface waters and shellfish beds from lagoon overtopping or poor timing of manure application to fields. This project is designed to demonstrate the usability, affordability, durability, and profitability of this system at a full-scale dairy farm in the Stillaguamish River valley. The processor will produce clean water and pathogen-free liquid and s...

# Mitigating Contamination to Nearshore Habitat from Creosote Pilings - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

San Juan County owns and utilizes some in-water infrastructure with creosote pilings. Pilings with structural integrity are likely to remain in use for some time to come. The toxic creosote leaches into the water, and in particular the piling that is above the water line may be of greater concern for leaching due to the higher temperatures to which it is exposed. Methods have been developed to create a barrier between the piling and the water, with variable success. The County has been informed that in some British Columbia herring spawning areas, netting has been installed to keep eggs off of the pilings and reduce direct impact ...

# Upper White River Watershed Juvenile Salmon Assessment Project - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Muckleshoot Tribe will operate screw traps in the major tributaries of the upper White River Watershed (Clearwater River, Greenwater River, Huckleberry Creek, and West Fork of the White River) in order to produce estimates of natural salmon production within the upper White River basin for each outmigration year in operation. The data will be used to document migration timing and fish condition, and egg-to-emigrant survival. State and tribal fisheries co-managers will consider the information resulting from this project to optimize salmon production, help determine limiting factors, identify trends in juvenile salmon abundance...

# You should have seen the fishing in the old days; stories from San Juan Islands elders to guide future actions - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Stories from the past inform of conditions that may no longer exist in the San Juan Islands. When we have forgotten how "it used to be," we no longer manager for those conditions; this is termed "Shifting Baselines." This information from these interviews will help guide how we proceed with education, outreach, restoration, and protection. The idea is to video elders with a set of questions to start the interview; the final product is professionally edited. These videos can be a powerful way to introduce newcomers to the San Juan Islands and help instill a conservation ethic.

# Development of supported materials, guidance, and ongoing development of stakeholder participation of Pollution, Identification, and Correc. - Planning/Design

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| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

PIC programs include tasks to identify and correct bacterial sources to the watershed. PIC work is challenging, time consuming, and many jurisdictions are encountering problems that they are unable to solve and cannot find the support and guidance needed to move forward. This study will gather information of the PIC programs around the PS drainage area to identify source techniques and BMP implementation that have been effective in the opening of shellfish harvest area or have provided improvements to the receiving waterbody. Coordinators of PIC programs are encountering problems that they are unable to solve and having trouble fin...

# Ephemeral Sediment Data Collection to Establish Baseline Sediment Conditions for NRDAR - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Conduct analyses of sediment samples taken from 21 locations across seven DNR Aquatic Reserves and from five high risk sites on DNR managed lands located outside of the Reserves (see map below). This baseline data will be used to establish the foundation for a NRDA case in the event of a major oil spill impacting one and/or several of these areas.
  
A secondary goal of this project is to contribute sediment data to DNR's Aquatic Reserve's science monitoring program.

# West Hills Sewerage Facilities Feasibility, Design and Construction (Part of WC26) - Terminated

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Oyster & Ostrich Bays have a fecal coliform TMDL & Ostrich Creek is posted no contact by Kitsap Health due to elevated fecal coliform. A feasibility study will evaluate options, identify funding sources. Design & construction of the sewer system extension will provide service for properties with failing septic systems in this area. Eliminating septic effluent in the creek will improve water quality of the creek & Oyster & Ostrich Bays & support the TMDL plan. The Wastewater Infrastructure Taskforce identified the need for sanitary sewers in their final report published May, 2009. There are 289 parcels in the UGA & 75 parcels withi...

# Marine Drive Sewer System Design and Construction - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Design & construct a wastewater collection system to serve more than 300 properties on Marine Drive that will replace aged & failing on-site septic systems. Bremerton has seed funds to start design of the system in 2018/19 but needs support to construct the new system. An inventory & map of potential septic failures on Marine Dr was developed by KHD to identify the location of known failures.
  
  
Extending public sewer systems aligns with the Shellfish Beds Vital Sign & regional priorities: Protection & restoration of important current tribal, commercial & recreational shellfish harvesting areas" by eliminating fecal coliform & o...

# Oyster and Ostrich Bay Watershed Assessment to Identify Protection and Restoration Actions - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Develop a plan to recovery for Ostrich Creek & Ostrich & Oyster Bays that can be used to prioritize stormwater, wastewater, habitat, acquisition & conservation easement projects to obtain the greatest benefit for the time & expense. This watershed has a FC TMDL & is impacted by Bremerton, Kitsap County & WSDOT activities so a partnership will be developed to begin the process. Many water quality studies, data collection efforts, & partial assessments have been completed but not consolidated or widely known. The plan will collect & collate completed work, identify gaps, develop strategies & actions to protect, preserve, & restore w...

# Agate Beach County Park, Lopez Island, shoreline armor removal and restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2021 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Agate Beach County Park is fronted by MacKaye Harbor Rd, a San Juan County road. This road is the sole access to Iceberg Point, San Juan Islands National Monument; a Bureau of Land Management ecological area. San Juan County Public Works is applying for a federal roads grant (FLAP) to move the road to behind (east of) the Park. In concert with that project, this design will remove the shoreline armor in front of the Park, restoring forage fish spawning habitat. This is a surf smelt spawning beach, and is a Tier I prioritized project by the San Juan County Salmon Recovery Lead Entity. The shoreline armor is occupying documented...

# Ecological Responses to Nearshore Restoration in South Puget Sound - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This research and monitoring project continues a multi-year effort to document ecological responses after nearshore restoration in S. Puget Sound. We will continue extensive and on-going monitoring at the Edgewater Beach restoration site, add two more sites to initiate baseline trends monitoring, and will compile a strategy to add monitoring to future restoration sites. This on-going study will fold into larger studies on the effects of armor on Puget Sound shorelines, contributing to the body of emerging science for future policy and restoration strategies. Ecological parameters that will be studied include biological ones, such a...

# Oil Spill Dispersant Use in San Juan County Waters - Dispersant Alternatives - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Studies document that more effective and less toxic oil dispersants than Corexit 9500 are available, but are not currently stocked for use in Washington. A Dept of Ecology representative stated that she was not aware of the reasons why only Corexit 9500 is stockpiled in WA. Potential contributing factors are the availability of alternative dispersants in the marketplace and the cost of different equipment that may be necessary to deploy it. Also relevant is that only Corexit 9500 currently is approved for use in Canada, the reasons for which should be understood. This action would address this data gap identified in the Phase 1 ...

# South Sound Shellfish Recovery - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will fund actions which implement a comprehensive, coordinated Shellfish Protection Program/Pollution Prevention, Identification, and Correction in South Puget Sound. The program follows guidance developed by the Washington State Department of Health for Shellfish Closure Response Plans.
  
  
Major Tasks:
  
1. Planning, Coordination & Reporting
  
2. Water Quality Monitoring Activities
  
3. Control Onsite Septic System Sources
  
4. Control Agricultural Sources
  
5. Control Stormwater Sources
  
6. Control Point Sources
  
7. Education and Outreach
  
8. Research & Program Evaluation
  
  
Implementation of a similar program in Pierc...

# Vessel Traffic Oil Spill Risk Consequences - Expanded Assessment - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Phase 1 NTA is performing an assessment of Vessel Traffic Oil Spill Risk Consequences, specifically economic and environmental consequences of a large oil spill on the west side of San Juan Island (Turn Point/Haro Strait) to San Juan County. The funding was limited to the locally-directed funding available and the assessment is expected to include a number of assumptions and data gaps, which can be addressed in this Phase 2 NTA. It is intended to support decision making on additional preventative measures to be implemented of importance to SJC including an Emergency Rescue Towing Vessel for Haro Strait and Boundary Pass. Othe...

# Green Innovation: Reducing Impacts of Microplastics in the Marine Environment - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Conduct green chemistry research, awards and incentive programs to foster the development of sustainable plastics.
  
  
- Characterizing microplastics in the marine environment through a literature review.
  
- Recommend test methods that can be used to screen for truly degradable plastics in the marine environment.
  
- Research chemical selection and additives.
  
- Explore waste management options to mitigate microplastics from textiles.
  
- Research strategies for reducing plastics to water bodies by summarizing the top plastics emitted to water, types of products associated with those plastics and opportunities to substitute...

# Innovative Bioretention Design for Improved Nutrient Removal Efficiency, Performance and Cost Reduction. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project examines innovative approaches for optimizing bioretention performance. Lab-scale models will be constructed with each model containing the same volume of compost-based bioretention soil and vertical underdrains. The sumps of the vertical underdrains will be filled with a variety of polishing media types and volumes. Polluted stormwater with known concentrations of TSS, CU, Zn, TP and nitrate will be measured at the inlet & outlet. The hydrologic function of the vertical underdrain will be observed over time, including hydraulic mounding & flow rates. The flow through the polishing layer will be upward rather than down...

# Natural Yard Care for Latino Professionals - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA proposes to address a gap in current Natural Yard Care programming, by educating Latino landscape professionals and their clients. This project will incorporate lessons learned from other professional-level trainings, like EcoPro, and create a sustainable model for program delivery to the underserved Latino population which comprises a large percentage of landscape providers. Through this engagement, the demand and the capacity will be built for Natural Yard Care practices, thereby reducing stormwater runoff to urban waterways.

# Stillaguamish Valley Protection Initiative - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Stillaguamish Valley is home to a thriving commercial agricultural industry that is facing challenges associated with development pressure, increased flooding and sea level rise. A collaboration of partners, local farmers, land trusts, and the Conservation District will work with farmers to protect high priority farmland in the valley through removal of development rights. This valley was chosen as a focus for protection work through a farmland viability prioritization process that will be updated with forthcoming flood and groundwater level climate predictions. Funding requested will support outreach efforts to farmers, integr...

# Snohomish County Farmland Protection Initiative - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

A collaboration of partners including Snohomish Conservation District, PCC Farmland Trust, The Nature Conservancy, Forterra, and Snohomish County will work with local farmers to protect high priority farmland in Snohomish County through removal of development rights. A prioritized map of viable farmland at risk of conversion has been created and will be updated using forthcoming flood and groundwater level climate predictions. Funding requested will support outreach efforts to local farmers and integration into multi-benefit floodplain planning efforts through the Sustainable Lands Strategy. Funding will also support transaction co...

# Monitoring effectiveness of multi-benefit floodplain project implementation in Snohomish and Stillaguamish Rivers - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Using the Index of Floodplain Health created by the Pierce Conservation District and partners, Snohomish County's Sustainable Lands Strategy partners will develop a similar monitoring framework to evaluate the effectiveness of multi-benefit planning and project implementation in the Stillaguamish and Snohomish River floodplains. Implementation and effectiveness indicators will be developed to include ecological, economic and social metrics. The results of this monitoring effort will be used to inform the success of the multi-benefit approach as well as necessary modifications to design approaches. Funding will be used to develop th...

# McNeil Island Estuary Restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

McNeil Island provides a diverse set of high quality habitats such as bluff-backed beaches, barrier spits, and estuarine wetlands. Eelgrass and kelp are found offshore and surf smelt and Pacific sand lance spawn on the northwest and southern beaches of the island. McNeil Island is closed to the public providing a natural protection for wildlife resources. Most of the shoreline consists of these natural conditions, however development related to the historic use of the island for the federal penitentiary resulted in some locations being highly impacted and has left relict structures and debris. Three estuaries located on the norther...

# Acceleration of shoreline armoring removal in Central Puget Sound priority reaches - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Work with partners in King County and Kitsap County to compile and synthesize the most up to date analyses of their marine shorelines to identify priority areas on privately-owned shoreline properties armoring removal. Once that synthesis is complete a GIS based model will be developed that would then analyze design parameters (e.g. water access, bulkhead type, proximity to structure, aesthetics, views) that are likely to resonate with shoreline property owners. The analysis will categorize potential project sites into bins that would then inform a targeted landowner outreach campaign and subsequent project development work for pro...

# Targeted stormwater retrofits to improve water quality and flow in WRIA 8 and 9 salmon habitat - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Mid Sound Fisheries Enhancement Group will work with partners in the Green Duwamish and Cedar-Sammamish watersheds using the best available information to identify targeted areas for green infrastructure stormwater retrofit projects on private property that will reduce the input of toxics and improve water quality and stream flow in high priority salmon areas. Mid Sound will then work with partners to implement the retrofit projects in a way that complements and accelerates other existing efforts.

# Lake Washington Green Shorelines retrofits - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Work with landowners in prioritized shoreline areas of Lake Washington to develop and implement green shorelines projects that restore critical salmon habitat.

# Soos Creek water quality and habitat restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Work with partners to conduct community and landowner outreach to engage landowners in projects to restore habitat and improve water quality on Soos Creek.

# Reducing health risks of shellfish-associated illnesses in a changing climate through PIC program workshops, peer knowledge exchange and me. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

We will help pollution identification and control (PIC) programs adapt to demographic, social, land use, and climatic changes anticipated over the next 20 years throughout Puget Sound that are expected to affect the sources and types of fecal contamination and other pollutants harming shellfish bed health. These changes will affect the activities and messaging that PIC programs will need to conduct. We will convene public health experts, planners, climate and environmental scientists, demographers, social marketers, and others, together with PIC coordinators in local workshops to facilitate understanding of changes in pollution sou...

# A Regional Outreach Model for Privately Managed Stormwater Facilities - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will model, test and evaluate outreach methods for communicating stormwater facility maintenance information to property owners and managers. Through social marketing research, a suite of outreach strategies and maintenance materials will evaluated for their effectiveness across a range of Puget Sound communities. This project will create customizable, regionally applicable residential stormwater maintenance resources, as well as replicable delivery strategies through Stormwater Outreach for Regional Municipalities (STORM) and Puget Sound Conservation Districts (PSCD). Final deliverables will be dictated by the testing...

# Washington Sea Grant Crab Team - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Washington Sea Grant's Crab Team, launched in 2015, fulfills the Washington Department of Fish & Wildlife (WDFW) mandate to monitor for European green crabs along inland Washington shorelines. We partner with more than 200 volunteers and dozens of agency and tribal staff to monitor a regional network of 52 sites that are highly suitable for invasion. Standardized citizen science protocols were designed in collaboration with regional green crab experts to increase the probability of detecting green crab at very low abundances and are implemented monthly April through September by trained monitors. Crab Team's network of sites focuse...

# Environmental Stewards - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

ECOSS will provide multilingual outreach and education to individuals and families, targeting immigrant and refugees about stormwater pollution. Utilizing our community partners and leaders, we will develop culturally relevant strategies to reach an audience who face language, technology and access barriers to environmental information and resources.
  
  
ECOSS staff will provide educational workshops, conduct home assessments and provide information on green stormwater infrastructure, removal of invasive weeds, planting of native species, natural lawn care, improved soil and food production. Participants will work with ECOSS on spe...

# Revegetating the Elwha - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Following the removal of two dams, the newly uncovered floodplains were giant mud flasts. It was important to replant and revegetate these 800 acres of floodplain habitat to help stabilize those areas and reduce unnecessary erosion to support the newly free-flowing Elwha River. A Revegetation Plan guides efforts to accelerate the recovery of floodplain habitats characterized by islands and side channels. This plan accelerates the recovery of woody plant communities. Revegetation has occurred for the past few years, but additional planting and stewardship to ensure healthy riparian floodplains is needed but there is no funding for s...

# Stormwater Solutions for Lake Ballinger - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Through collaborative partnerships, this NTA will demonstrate a cost-effective model for residential stormwater solutions in the TMDL area of Lake Ballinger Watershed Forum. Several jurisdictions that lie within this watershed have past, current, or planned investments in private landowner incentive programs. This project will work to optimize that funding through coordinated outreach (with equity goals), subsidized construction labor through the Veteran Conservation Corps, and homeowner contributions.

# Support Additional Reach-Scale Planning Efforts for Riparian Protection and Restoration in Puget Sound Agricultural Landscapes - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Watershed LO manages an innovative riparian grant program, supporting the development of reach-scale plans to prioritize protection and restoration of riparian areas in agricultural landscapes in Puget Sound. Upon completion of reach-scale plans, the recipients are then eligible for pre-allocated implementation funds to acquire fee-simple interest or conservation easements for riparian areas, and to restore function of priority areas in these landscapes.
  
  
We will select the 3 new partners for this program by managing a competitive solicitation for proposals. We will use the lessons learned in implementing the grant program to...

# Marine Shoreline Design Guidelines: Engineering Technical Assistance, Training & Outreach 2020-22 - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Marine Shoreline Design Guidelines (MSDG) describes site analysis and selection of appropriate shore protection, when needed at all. WDFW encourages use of the MSDG to assure the range of options are considered, specific to the characteristics of the site. This NTA will increase capacity of partners to use MSDG tools to assist landowners in considering appropriate options for bank protection through collaborative workshops, training sessions, technical assistance, and supporting materials.

# Further Investment in Implementing Riparian Protection and Restoration in Puget Sound Agricultural Landscapes - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Watershed LO manages an innovative riparian grant program, supporting the development of reach-scale plans to prioritize protection and restoration of riparian areas in agricultural landscapes in Puget Sound. Upon completion of plans, recipients are eligible for implementation funds to acquire land or conservation easements in riparian areas, and to restore function of priority areas. A separate NTA will establish 3 additional focus areas that would also be eligible for implementation funding.
  
  
Several of our grant recipients have identified more properties for protection than we can purchase with current funding. Through thi...

# Capacity Building for Strategic Project Funding in the Snohomish-Stillaguamish LIO - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will build capacity to explore and develop a funding strategy to more strategically target funding sources and enhance the ability to fund resource protection/restoration projects in the Snohomish-Stillaguamish LIO. Many LIO partners have project ideas, but lack the capacity to strategically craft competitive grant proposals and match the project with the appropriate funding source(s). This NTA will develop an integrated funding strategy for the LIO and Salmon Recovery Lead Entity; to include a sequenced list of projects for funding, a cost-benefit-analysis of the projects to demonstrate the value to funders/the community,...

# Watershed Improvement District Technical Assistance - Terminated

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The six Whatcom County/WRIA 1 Watershed Improvement Districts (WID) have spent the last few years setting goals, meeting with stakeholders and developing action plans. The plans include activities primarily devoted to preserving the productivity of agricultural lands and to enhancing watershed ecosystem functions. Typical activities include drainage maintenance, fish passage improvements, riparian planting and other similar practices. The WIDs have local funding and are continually seeking additional funding to implement site specific enhancement projects. The WIDs do not have the staff or technical expertise to plan, permit,...

# Forage Fish Habitat Tidal Range - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This study will enhance our understanding of surf smelt and sand lance spawning beaches by quantifying environmental parameters associated with spawn abundance, distribution and egg survival. We will resample a subset of sites, based on prior spawn detections, representing a range of high and low egg presence and survival rates across a wide variety of environmental conditions. We will evaluate environmental parameters such as tidal range, beach sediment, beach slope, beach width, aspect, fetch, upland encroachment, and shoreline use (i.e. infrastructure) at the site, reach and drift cell to advance our understanding of how shoreli...

# Nooksack Chinook Life Cycle Modeling - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

A quantitative life cycle model will be developed to inform recovery planning, including establishment of habitat targets:
  
1. Work with Nooksack co-manager stock assessment biologists to refine estimates of spawning escapement and smolt outmigration for North/Middle Fork Nooksack early chinook and South Fork Nooksack early chinook.
  
2. Quantify habitat capacity by life stage under current and historic conditions.
  
3. Quantify habitat productivity/survival by life stage.
  
4. Develop integrated quantitative life cycle model.
  
5. Develop and run restoration and land use scenarios.
  
6. Incorporate information into adaptive management of WRIA 1 Salmonid Recovery Plan.

# Bear Creek in stream restoration - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Bear Creek is designated as a Tier 1 stream in the WRIA 8 Chinook Recovery Plan. A priority salmon recovery strategy for this creek is the restoration of rearing habitat through in stream restoration projects. Mid Sound will work with partners to identify, develop and implement targeted in stream restoration projects in priority reaches of the stream.

# Curley Creek prioritized restoration - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

In November 2017 the Suquamish Tribe released a completed watershed assessment and protection and restoration plan for Curley Creek, one of the three high priority freshwater streams in the East Kitsap shoreline. This NTA proposes to use this plan to work with partners to identify which of the high priority protection and restoration actions are feasible to move forward to implementation and then to carry out that work.

# Shoreline Armor Implementation, Compliance and Effectiveness Monitoring - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Our objective is to advance current marine shoreline armor HPA monitoring to improve best available science that informs shoreline decision-making and nearshore recovery. With the use of digital and remote sensing devices, we will improve efficiencies in project evaluation to increase number of projects surveyed, advance survey efforts to better characterize infrastructure location and dimensions, and expand capacity of habitat field surveys to better quantify beach environments in response to shoreline armoring. Enhanced information will provide best-available direction to policy, planning and restoration of Puget Sound's shorelines.

# Water Typing / eDNA Assessments - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Wild Fish Conservancy (WFC) will expand water type and eDNA assessments to include prioritized watersheds in WRIA's 05 and 07 crucial to the effective implementation of CAOs, habitat restoration efforts and prioritization, and species recovery planning. Methods for these assessments are described in WAC 222-16-31 and Section 13 of the Forest Practice Board Manual. Project eDNA methodologies are those developed by the USFS Rocky Mnt Research Stations National Genomic Center, a project partner and collaborator. Watersheds will be chosen based on input from the Snohomish and Stillaguamish Technical Advisory Groups. WFC shares resul...

# Nooksack Watershed Habitat Viability Assessment and Effectiveness Monitoring - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This action will expand and update the Nooksack chinook habitat viability assessment completed during development of the Nooksack chinook monitoring and adaptive management framework in 2014 and incorporate lessons learned into the WRIA 1 Salmonid Recovery Plan update. Specific tasks include:
  
1. Review and update the WRIA 1 habitat viability indicators for consistency with Chinook Common Indicators and NOAA's Puget Sound Salmon Habitat Status and Trends monitoring program and build habitat balance sheet.
  
2. Assess current (and update historic) viability by indicator and incorporate into habitat balance sheet.
  
3. Monitor rest...

# WRIA 1 Salmonid Recovery Plan Update - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will update the WRIA 1 Salmonid Recovery Plan to incorporate best available science as follows:
  
1. Update and expand the salmon population descriptions, including population status and trends, life histories, and distribution.
  
2. Update the limiting factors chapter to incorporate life cycle modeling, habitat viability assessment, marine survival work (from Salish Sea Marine Survival Project), and climate change vulnerability assessment.
  
3. Update management strategies and actions (and near-term action plan) to incorporate refined understanding of limiting factors and project and program effectiveness information, adding...

# Clear Choices for Clean Water - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Clear Choices for Clean Water has existed in the Henderson and Nisqually Shellfish Protection Districts (SPDs) since 2004. Through this NTA, we propose to expand direct education about local impacts to water quality on shellfish production, human health, & recreation to citizens and communities beyond these SPDs. This expanded education & outreach will grow participation in the program & thus the impact of resulting positive behavioral changes. We will continue the practices of rewarding those who commit to make positive changes (such as picking up pet waste or having their septic tank inspected) with physical tools & incentives to do those actions.

# Puget Sound Conservation District Stormwater Action Team Phase II - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Through this NTA, the Puget Sound Conservation Districts (PSCD) will complete their region-wide, coordinated service model of providing stormwater outreach, technical and financial assistance to diverse landowners across Puget Sound. This project will focus on the South and West Sound conservation districts of Clallam, Jefferson, Kitsap, Mason, Thurston, and Pierce - building strength from a few districts that currently exhibit strong LID programs, and raising the capacity of others. This NTA will deepen the existing partnership with the Dept. of Veteran Affairs, and enhance on-the-ground action through the addition of a second Vet...

# Tidal Water Crossing Structure Barrier Assessment, Prioritization and Design Guidelines Phase 2 - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Restoration priorities associated with fish passage barrier corrections along transportation corridors are largely based on proper identification of barriers to fish movement and a rapid assessment tool to allow comparison of barriers throughout the State. While these criteria are well developed for freshwater systems, application of similar criteria for intertidal is problematic. Therefore, prioritization of fish passage barrier remediation in the intertidal lags behind freshwater due to the difficulties both identifying and prioritizing barrier status, and developing appropriate design for remediation. Intertidal fish passage ...

# Nearshore Geospatial Framework 2 - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The 2017 Nearshore Geospatial Framework, completed by Coastal Geologic Services and Western Washington University's Spatial Institute for the Puget Sound Partnership, suggested future directions to expand the project. This project demonstrated a systematic and semi-automated method for delineating marine bluff crests that will be used to map the entire Puget Sound region. Bluff heights will be referenced from LiDAR elevation data, and digitized buildings will enable setback distance calculations. Further data harmonization will create eelgrass and forage fish mapping that is both up-to-date and usable for spatial analysis. Real est...

# Ranges of Woody Debris Frequency and Volume for Stream Habitat Restoration in King County and Other Puget Sound Lowland Areas. - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Currently available data portraying in-stream woody debris loading rates in western Washington may not be representative of conditions (historic habitat types and geomorphology) in small- to mid-sized streams in unincorporated King County and other Puget Sound lowland areas. The purpose of this NTA is to develop in-stream woody debris loading targets that can improve the effectiveness and success of future stream-habitat restoration projects by King County and other resource management partners. King County will administer the contract of a consulting specialist to determined the range of historic in-stream woody debris loading r...

# George Davis Creek Habitat Assessment - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The project proposal includes a detailed habitat assessment of George Davis Creek, a tributary to Lake Sammamish in central King County. The habitat assessment will determine the extent, quantity, and quality of potential spawning and rearing habitats for aquatic species, especially for native kokanee and other salmonids. The habitat assessment is also expected to complement and support informed decision-making for fish passage restoration proposals on George Davis Creek. The stream length of the survey will be at least 11,000 feet. Specific data that will be collected through the habitat assessment include: longitudinal profil...

# Squalicum Creek Reroute at Wandering Wood - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Squalicum Cr Reroute at Wandering Wood contributes to a comprehensive restoration plan for the Squalicum watershed. Squalicum Cr is the largest watershed in the City of Bellingham, provides habitat for ESA listed Chinook and steelhead, and offers recreational opportunities for citizens. However, the system has a fragmented floodplain, does not meet water quality standards, and has declining salmon populations. Leveraging $9.7 million in prior award-winning restoration, this project protects and designs floodplain restoration to improve water quality, salmon habitat, and flood conveyance in the Hannegan Valley.
  
  
Prior development ...

# Sustaining School Green Stormwater Infrastructure - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

For both newly built and retrofitted schools, GSI systems have varying levels of functionality because of overdue maintenance and a lack of ongoing awareness. This NTA proposes to identify and address barriers that limit the long-term sustainability and learning potential of these systems, and create a replicable framework for both large and small school districts to manage them. All of the schools in Snohomish County with existing GSI will be provided an inspection and maintenance guidance. Though projects are usually spearheaded at the teacher or parent level, this NTA will focus on school district administration, grounds staff, ...

# Marine and Nearshore Restoration Implementation in WRIA 1 - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Very few restoration efforts have been implemented along the WRIA 1 nearshore due to lack of project readiness and support. In 2013, CGS assessed the WRIA 1 nearshore and estuary and prioritized 133 different opportunities, 60 of which include process-based restoration projects. Many of these projects are only conceptual and require additional work to evaluate feasibility and ready projects toward implementation. Phase 1 will include landowner outreach, refined feasibility, and forming project partnerships to gain support for feasible opportunities that will provide the greatest benefit. Phase 2 will include conceptual to final res...

# Water Quality Infrastructure Prioritization - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The study will identify and prioritize necessary improvements in the stormwater utility network. The study will use Ecology-approved sampling and testing protocols to locate areas of most concern, both in pollutant type and concentrations, and score and rank these locations. The City will contract with a consultant, in partnership with our State-Accredited Water Quality Laboratory, to design the study, collect field samples, and evaluate results. The final report will include information that characterizes the entire City stormwater network including those that drain to marine waters. This characterization will identify where pollu...

# Coastal Groundwater Impact Assessment for Coordinated Investment Planning - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Despite that coastal groundwater levels and salinity that currently challenge farming and storm water management are expected to increase with sea-level rise and more intense precipitation quantitative data are sparse or lacking to advance and validate models for predicting future impacts. Initial studies in Skagit, Snohomish, Island Counties and Duwamish estuary indicate that tides propagate inland several kilometers to affect groundwater levels that are commonly < 1 m below the land surface. This work will establish cross-shore groundwater level monitoring arrays and integrate emerging models of the impacts of sea-level rise, sto...

# Stormwater Retrofit Design Project - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Stormwater Retrofit Design project will build upon a Water Quality Infrastructure Prioritization study that will identify and prioritize necessary improvements in the stormwater utility network. The study will use Ecology-approved sampling and testing protocols to locate areas of most concern, both in pollutant type and concentrations, and score and rank these locations. Based on the findings of the Prioritization study, a project(s) will be selected designed. The intent of this NTA is to seek funding for the design of a project(s).

# Stormwater Retrofit Construction Project - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Stormwater Retrofit Construction project will build upon strategic work undertaken by the City of Bellingham to turn studies and plans into action for water quality. Specifically, this work will follow a water quality infrastructure prioritization study (NTA2018-0928) identifying necessary improvements and an engineered design (NTA#2018-0932) specifically focused on the pollutants of concern found in the study. All phases will use Ecology-approved sampling, monitoring, and design principles. Using the findings of the prioritization study and based on the design of a top priority project(s), this project(s) will be constructed.

# Engaging the Community in Ecosystem Recovery Phase 2 - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will guided by an advisory committee comprised of relevant Strait ERN project proponents and members. The project will engage formal and informal educators in the region in the Strait ERN priority recovery efforts, as well as provide youth programs that are integrated with Strait ERN restoration efforts. 4 - 40 hour training programs will be provided to residents of Clallam and Jefferson Counties focusing on how they can assist with recovery efforts and improved stormwater management, and subsequently engaging them in relevant projects. In addition, the NOSC middle school program will expand to serve 4 schools in Jeffers...

# Conserving Species of Greatest Conservation Need in Imperiled Ecosystems: Prairie and Oak Woodlands of the Puget Sound Region - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The prairie and oak woodland ecological systems of Puget Sound contain over 20 WDFW wildlife Species of Greatest Conservation Need. Three species are federally listed under the Endangered Species Act, and several species are proposed or petitioned with merit. In order to protect from conversion and restore these unique and imperiled systems, we need good maps, and technical information on how to select sites to emphasize for species groups and species diversity. The project will provide a region wide mapping effort to 1) update current maps using both remote sensing and orthoimagery, 2) add areas missed or not mapped, and 3) tie...

# Freshwater mussel eDNA collection to identify ecologically important areas in Puget Sound. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Freshwater mussels are long lived, filter feeders inhabiting streams feeding Puget Sound. They improve conditions for salmon and other native fish by enhancing water quality. As they feed, they filter suspended solids, plankton, and pathogens. Mussel beds stabilize and enrich bottom sediments. Freshwater mussels are one of the most imperiled groups of animals due to habitat destruction, pollution, and changes to water quantity. Their life histories are dependent on native fish species including salmon. These characteristics make them ideal to inventory as indicators of stream health and to identify ecologically important areas. We ...

# Intertidal Habitat and Riparian Vegetation Model to Prioritize Recovery Planning - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

A synthesis and classification of existing and new data will be integrated with a 1-m digital elevation model of the Salish Sea planned for completion by USGS in summer 2018. Remote sensed and field mapping of vegetation (plant species/assemblages, density, height) and substrate metrics (type, elevation, roughness, drag coefficient) will help resource managers qualify metrics and quantify the extent that nearshore shoreforms currently provide spawning, nursery and rearing functions for Chinook and other salmonids, forage fish, Dungeness crab, oyster, clam, mussels, and diverse wildlife. Better quantification of these habitat and v...

# West Cemetery Creek Water Quality Improvements - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This project will improve water quality and documented salmon habitat by addressing excessive sediment transport in West Cemetery Creek. Sediment transport is currently degrading downstream water quality and threatening existing salmon restoration projects. It also increases flood risk for existing residences.
  
  
This project implements two top priority actions identified in a 2013 prioritization: 1) Stabilizing 2,300 feet of stream by installing natural bed and bank features to slow stream velocities, reduce erosion, and demobilize sediment and
  
2) Stabilizing slopes and facilitating dispersion at two roadways (Lakeway Dr/Old Lak...

# Pursue Long-Term Funding for Nonpoint Water Quality Specialists to Protect and Improve Fresh and Marine Water Quality - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA focuses on securing long-term funding for Ecology nonpoint water quality specialists to protect and improve fresh and marine water quality to restore and protect shellfish beds, improve Benthic Index of Biotic Integrity scores of lowland Puget Sound streams and improve watershed health to support salmon recovery.
  
  
Reducing nonpoint source pollution through improved compliance and implementation of BMPs is crucial to Puget Sound recovery as highlighted in multiple priority Vital Signs and Regional Priorities.
  
  
Ecology might decide to pursue long-term funding options to for staffing levels necessary to fully address k...

# Development of a predictive tool for morphologic change and sediment transport rates on gravel beaches - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Work includes compilation of existing beach topography, grain size distribution and wind/wave data, collection of new data, and beach morphology change modeling. Data will be used alone and in combination with model results to:
  
- Validate the model and develop protocols for using the model to assess future performance of proposed shoreline projects.
  
- Update data collection and analysis protocols and engineering design guidelines for efficiently and effectively using beach
  
 morphology modeling to improve performance of armor removal, soft shoreline solutions, and barrier estuary restoration in Puget Sound.
  
- Update monitoring...

# Develop an outfall strategy for Puget Sound - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA would develop a coordinated framework between State agencies charged with protecting environmental resources to prioritize sewage and stormwater treatment improvements for decision makers. An "Inter-Agency Permit Streamlining Document" was developed in 1995 between the Departments of Health, Ecology, Natural Resources, and Fish & Wildlife "to explain how agencies will utilize existing regulatory authority to provide the coordinated and focused regulatory and/or proprietary attention necessary to maintain and enhance Washington's shellfish harvesting areas". This interagency agreement would be re-evaluated and revised in ...

# Whatcom Creek Estuary Enhancement, Holly to Roeder - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Whatcom Creek is an important habitat for fish and wildlife, including Chinook salmon. However, the estuary is highly degraded with a history of industrial and commercial use. In 1999, the City restored the upper estuary by removing contaminated material and expanding shoreline habitat. The lower estuary between Holly and Roeder Streets remains degraded. However, a 2013 WRIA 1 prioritization study ranked the Whatcom estuary as a top restoration site and BBAT included the project on their prioritized project list. In 2014, the City completed a feasibility analysis that identified enhancement actions.
  
  
This project would build on ...

# Port Hadlock Urban Growth Area (UGA) Sewer System / Water Reclamation Facility Plan Implementation - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2021 |
| Completion Year | 2023 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Port Hadlock Sewer Planning Area (PHSPA) is served by 100's of private septic systems of various ages and conditions. This project would result in construction of a sewer collection system, treatment plant, and discharge/reuse system. It will be sized to provide capacity matching growth and minimizes potential harm to the environment. Under Sect. 303(d) of the federal Clean Water Act, the DOE identified Chimacum Creek as not meeting water quality standards for temperature and fecal coliform. Through the adopted Sewer Facility Plan for the Port Hadlock UGA, the County took a major step to satisfy a major GMA requirement for a public sewer system and decommission septic systems i...

# Salmon Heroes: Field Based Education Program for Improved Water Quality - Implementation

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| --- | --- |
| Implementation Start Year | 2018 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Salmon Heroes is an education and stewardship program that reaches low-income families in south King County. It uses salmon recovery as a framework to educate 4th-12th grade students on water quality and polluted stormwater. Students participate in a pre-field classroom presentation, an in-depth field study along stream/river where salmon spawn, and a post-field classroom presentation. Students collect water quality data and analyze their results. Students make personal pledges to make positive behavior changes to improve salmon habitat and stormwater quality. Teachers can also participate in additional stewardship projects to help local habitats.

# Rural Property Surface Water Management Tools and Training - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Utilizing stakeholder input, WSU Extension and the Washington Stormwater Center will develop peer reviewed guidance tools and provide training to agency staff to improve rural stormwater management. Guidance materials, including web based fact sheets and short videos, will be developed for a range of rural surface water management situations and the strategy options available to address them. These materials will be made available sound wide. Training will be provided to staff from Clallam, Kitsap, Jefferson, Mason County environmental health, community development and public works departments; conservation districts, tribes in t...

# Northern Puget Sound Regional Salmon Habitat Model and Atlas - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Recent empirical studies of juvenile Chinook salmon have revealed detailed spatial patterns of estuary and nearshore habitat use in San Juan, Whatcom, Skagit, Snohomish, and Island Counties (Beamer et al. 2006, 2013, 2016; Beamer and Fresh 2012). Data from these separate projects will be combined with recent nearshore mapping in these areas (e.g., geomorphic shoretypes) and synthesized into a regional evaluation of marine habitat connectivity. This process will identify data gaps in salmon habitat research and opportunities to validate and refine this model, to explore its predictive power. Results from the final model will be pack...

# Phase 2 Municipal Level Climate Action Planning for the North Olympic Peninsula - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The Climate Change Preparedness Plan for the North Olympic Peninsula, funded by the NEP in 2014, identified and ranked the key vulnerabilities to climate change in the region. That project, an NTA in the 2014-2015 Action Agenda, also identified and scored adaptive strategies. As a next phase, this NTA develops multi-benefit Climate Action Plans for Clallam County and potentially 1-2 additional municipalities on the North Olympic Peninsula to assess, prioritize and implement climate strategies specific for the given jurisdiction. Implementation will vary based on the municipality's priorities, additional funding sources, etc.
  
  
...

# Roadway retrofit to include swales to reduce untreated stormwater going directly into marine waters. - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The City of Port Townsend has approximately four direct discharge stormwater outfalls in our downtown area alone which receives untreated stormwater runoff from our roadways. The City would like to improve the water quality going into the outfall by providing stormwater treatment upstream from the outfall locations. The retrofitting of the roadway would use low impact development techniques to improve water quality and infiltration. The retrofit project would provide water quality by reducing pollutes of concern (i.e. sediment, oil, grease, coli-forms and hydrocarbons).

# Second and Pussyfoot Creeks Community Project - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will implement a four-year community-based, sub-basin focused model to engage landowners within the Pussyfoot and Second Creek basins (WRIA 10) and address land management practices that contribute fecal coliform to the watershed.
  
This NTA will reduce pollutants, and improve water quality by bringing 1) focused outreach services to Pussyfoot/Second basin 2) identifying areas disproportionately contributing pollutants associated with livestock management and 3) working with land managers in the areas to implement BMPs and eliminate pollutants. Additionally, KCD will work with water quality monitoring partners in the basin...

# Farm Friendly Communities: Agricultural Education for Change - Terminated

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Puget Sound recovery relies upon conscious societal support of ecosystem values. Properly stewarded farmland can deliver many essential values. Unfortunately, as our region grows in population, farmland is disappearing. The disconnect between working lands that sustain us and our urbanizing communities is increasing. Mounting blame and distrust between farmers, urban residents and indigenous tribes now contribute to the exodus of farmers as they feel unwelcome.
  
This NTA will demonstrate how a fractured community can be mended through an agricultural education program built on a strong foundation of social science. Through mult...

# Willowmoor Floodplain Restoration Project - Planning/Design

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| --- | --- |
| Implementation Start Year | 2022 |
| Completion Year | 2023 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The King County Flood Control District proposes to complete final design and construction of the Willowmoor Floodplain Restoration Project. The project will enhance Chinook salmon habitat in the Sammamish River through floodplain reconnection, restoring juvenile rearing habitat and adult resting pools with thermal refugia at critical points in the salmon life cycle. The project will also benefit other native migratory and resident fish including Sockeye/Kokanee, Coho, Steelhead, Cutthroat trout and Lamprey. The following ecological benefits will be achieved: reconnecting the Sammamish River channel to the adjacent left bank floodpl...

# Lower Stillaguamish PIC Phase III - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Snohomish County will continue working with partner agencies to expand and enhance the Lower Stillaguamish Pollution Identification and Correction (PIC) effort to include additional focus areas for proactive targeted water quality monitoring, pollution source tracking, regulatory compliance coordination, education and outreach, technical assistance, and cost share incentives. This work will help Snohomish County fully implement the Port Susan Pollution Response Plan that the County will adopt and begin implementing in March 2019 as required by the Washington Department of Health due to the 2017 downgrade of 190 acres and 2019 downgrade of 350 acres of the Port Susan shellfish growing area.

# Harmonization for Salmon Habitat Protection and Restoration - Phase I: Methods and Tools - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Develop a modular tool to support salmon recovery at multiple scales. NOAA's life-cycle fish population model (Beechie, 2019) and a classification of geomorphically-defined landscape units will develop spatially explicit analytical modules (replicable across basins) to calculate quantifiable estimates of the effect of development/recovery actions on salmon and cross-sector indicators under climate and population scenarios. Tasks: 1) identify key salmon and cross-sector indicators 2) link habitat to landscape level processes; 3) apply EMDS. Indicators will be calculated in two applications: effects of aggregated restoration actions in Lower Skykomish and culvert upgrades in Snoqualmie Basin.

# Phase 2: Implementation of Recommendations from the Coastal Streams and Embayments Prioritization Along Puget Sound Shores with a Railroad - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Nearly 125 miles of Puget Sound shoreline has a railroad within 200 feet. This major modification disrupts natural processes and degrades important rearing habitat for juvenile Chinook salmon. This proposed phase will build off the progress being made in NTA 2016-0198 which prioritizes coastal streams and embayments for restoration. This phase will focus on advancing implementation of prioritization recommendations by working with diverse partners in including BNSF and state/local agencies. The project will develop 30% design for three scenarios for tidally influenced crossings. Designs will be used to generate planning level res...

# Harmonization for Salmon Habitat Protection and Restoration - Phase 2: Application of methods and tools developed in Phase I for. - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Phase 1 will run a second iteration of the decision tool to update indicators, incorporate new data/models and apply the analyses developed by each pilot in Phase 1 to the other. The Lower Skykomish Phase 2 application of the module focuses on salmon habitat analyses and indicators to estimate the influence of climate change on landscape processes identified in Phase 1. The Phase 2 culvert upgrade application in unincorporated King County will focus on estimating the effects over time of alternative portfolios of culvert projects and refining the spatial analytical information and indicator models supportive of permit review, policy/planning, and formats for sharing the   
 information.

# Urban Tree and Forest Canopy Cover Toolkit (Phase II) - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA is Phase II of NTA 2016-0343. King Conservation District (KCD) & partners will develop a web-based toolkit for PS communities on urban trees & forest canopy (UF&TC) so that PS jurisdictions have gap-filling resources to implement urban forestry programs that strategically enhance stormwater management & habitat functions, and address E&SJ & human health priorities. Initially this NTA will serve jurisdictions collaborating with KCD/SCD/PCD on UF&TC retention, expansion and restoration efforts to reduce stormwater impacts and improve habitat & human health, and will be marketed to other cities across PS. Toolkit elements inc...

# Strategic outreach to encourage owners of priority King County Land Conservation Initiative properties to enroll in PBRS/CUT - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

PBRS and CUT can provide both short-term protection (high-risk properties until permanent protection funding is secured) and long-term protection (low-risk properties may only need PBRS/CUT to ensure protection from conversion). Parcels are currently enrolled into PBRS or CUT at the request of landowners, with County approval and action. If we are going to take advantage of the incentives afforded landowners and focus program resources on LCI priorities, we will need to develop a prioritization program and increase staff capacity for a targeted outreach program.

# Harmonization for Salmon Habitat Protection and Restoration - Phase 3: Operationalizing harmonization methods, tools and data fr. - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Phase 3 of a 3-phased project to harmonize assessment for salmon protection and restoration actions operationalizes the EMDS framework and associated tool set, for use and integration with existing permit review processes and policy and planning applications. Workshops with regulatory and policy/planning staff will be used to share the results of Phase 2 and to refine the methods, tools, and reporting functions for sharing spatial information and analytical outputs. A third iteration of the harmonization decision tool will be run to generalize the EMDS Open Framework for use in broader regional applications in Puget Sound. In conju...

# Forest Management for Water and Climate Preparedness: assessing alternative forest actions individually and in aggregate for estimates of e. - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Review literature, identify case studies/models such as VELMA that address the linkage between forest stand age, soil moisture, and in-stream hydrology during summer low flows and peak flood events. Use Netmap or similar groundwater models to predict where in the Snohomish Basin to focus actions to increase water storage and groundwater recharge. Utilize the Ecosystem Management Decision Support Open Framework to prioritize forest management alternatives that address future hydrologic changes affecting salmon and co-benefits effecting hazard reduction from landslides, floods and wildfire. Identify opportunities to pilot different ...

# Farm and forest plan implementation and barriers to adopting best management practices. - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

WLR staff have worked with KCD, WSU Extension and others to assist private landowners with development and approval of over 1,000 farm and forest plans in King County. Those plans often provide landowners with some regulatory relief in return for the anticipated management actions. The goal of most plans is to restore or enhance land cover condition, which often has a direct nexus to water quality. We propose to reach out to a subset of landowners with approved management plans to assess the rate of implementation of recommended actions and barriers to full implementation. Data collected will help us develop a long-term outreac...

# Implementation of the top recommendations generated by the Snoqualmie Valley Fish Farm Flood advisory committee - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

FFF 1.0 generated a suite of recommendations that addressed the immediate needs of each caucus group (fish, farm and flood stakeholders). To ensure that there was equitable progress on both the fish and farm priorities, two key recommendations were bundled and there was a commitment to move immediately forward on each recommendation. The two bundled recommendations were 1) accelerating the pace of implementation of large capital habitat restoration projects and 2) developing a comprehensive drainage maintenance program that addresses practical, financial and regulatory hurdles faced by farmers. We need to increase staff and fina...

# SoundToxins: Partnership for Monitoring Harmful Algae in Puget Sound - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

The goal is a cost-effective monitoring program to provide sufficient warning of HAB events to enable early or selective harvesting of seafood, thereby minimizing risks to human health and reducing economic losses to Puget Sound fisheries.
  
  
To accomplish this, seawater samples are collected weekly by participants throughout Puget Sound with additional sites being added at new sites of importance. The samples are analyzed for salinity, temperature, nutrients, chlorophyll, phytoplankton species, and marine biotoxins. Phytoplankton species diversity is described and the four target HAB species are specifically identified and enumera...

# Suspended sediment-bound toxic chemical fluxes from the Snohomish and/or Stillaguamish River to Puget Sound. - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Toxic chemicals, such as PAHs, sorb to sediment rather than dissolve in water. Therefore, traditional water-quality (WQ) monitoring analysis of water samples likely underestimates total chemical concentrations to which Chinook salmon and other aquatic species are exposed. The USGS developed a new field centrifugation method to quantify suspended sediment-bound chemical concentrations and fluxes. We will follow the model of work established at the Duwamish River, including continuous river flow and turbidity, discrete measurements of WQ, suspended sediment concentration and particle-size distribution, and centrifugation for suspende...

# Skokomish River USACE Project Support - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will support 5 ecosystem restoration actions being led by the U.S. Army Corps of Engineers through: Acquisition of necessary real estate, completion of final designs, and construction. These actions are located in the Skokomish Valley and were identified as projects of national importance when authorized by Congress following completion of the Skokomish General Investigation. The actions are designed to maintain year-around fish passage throughout the reach, increase channel capacity, reconnect large and contiguous floodplain areas, and reconnect critical side channel habitat through: Levee removal, levee setbacks, LWD in...

# Skokomish Watershed LWD Treatments - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Several strategic LWD projects have been constructed, designed, and/or planned in the Skokomish to address habitat degradation and severe sediment aggradation at a watershed scale. Previously implemented LWD treatments have been very successful at meeting the intended goals. These LWD treatments are designed to sequester sediment in the upper watershed to prevent further aggradation of the lower valley or store sediment, reduce width to depth ratios, and promote normative channel patterns and sediment processes in the lower valley. All LWD projects within the watershed play a strategic role in comprehensive ecosystem restoration....

# Skokomish Watershed Restoration Project Development and Agricultural Coordination - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

This NTA will develop 11 projects identified during the 2015 Skokomish General Investigation (GI) led by the US Army Corps of Engineers. Project development will include landowner outreach, feasibility and project scoping, and design process to final when appropriate. Restoration benefits include: side channel reconnection, floodplain capacity improvements, floodplain connectivity, salmonid flood escapement, tidal fill removal, and channel/floodplain LWD installation. These projects are spread throughout the Skokomish Valley, many of which located within the agricultural community. This NTA also includes continued coordination a...

# Vance Creek Watershed Restoration Assessment - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Vance Creek is the largest tributary to the Skokomish River, and was historically a major contributor to salmonid production in the Skokomish system. Extensive planning has been completed, and is ongoing, in the Skokomish south fork and mainstem. Vance Creek suffers from the same symptoms being addressed in the Skokomish (including massive aggradation), but very little planning has been conducted to address these deficiencies in Vance Creek. This is a critical missing component to the overall Skokomish watershed restoration efforts.
  
This NTA will develop a restoration plan for Vance Creek that identifies specific actions neede...

# Dungeness Off-Channel Reservoir Land Acquisition - Planning/Design

|  |  |
| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Multiple stakeholders are pursuing construction of a nearly 1,600 ac/ft off-channel reservoir to store water for late summer irrigation. This NTA seeks to acquire land for reservoir.Water will be diverted from the Dungeness River when flows are high & stored in the reservoir for Aug/Sept irrigation, thus reducing the need for irrigation water diversions from the river by approximately one-half during the period when flows are lowest. This will increase flow and significantly improve habitat for four ESA-listed salmonids. Low late summer stream flow is a major Dungeness River habitat limiting factor for salmonids (WRIA 18 LF). Reducing irrigation diversions is recommended in the Dungeness.

# Dungeness Off-Channel Reservoir Design and Permitting - Planning/Design

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| --- | --- |
| Implementation Start Year | 2020 |
| Completion Year | 2022 |
| Project Status |  |
| Approval Date |  |
| Submission Date |  |

## Description

Multiple stakeholders are pursuing construction of a nearly 1600 ac/ft off-channel reservoir to store water for late summer irrigation. Water will be diverted from the Dungeness River when flows are high and stored in the reservoir for Aug/Sept irrigation, thus reducing irrigation water diversions from the river by approximately half during the period when flows are lowest. This will increase flow and significantly improve habitat for four ESA-listed salmonids. Low late summer stream flow is a major Dungeness River habitat limiting factor for salmonids (WRIA 18 LF). Reducing irrigation diversions is recommended in the Dungeness Comprehe...