Regional (3 or more LIOs including Sno-Stilly) NTAs for the 2018-2022 Action Agenda

NTA ID	NTA Title	NTA Description	Owner Organization	RP Approach		
Column1	Column2	Column3	Column4	Column5	Column6	Column7
2018-0167	**North Sound Chinook Habitat Modeling and Monitoring**	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 canopy closed streams. Focus area will be on the Skagit, with applicability Sound-wide and direct expansion into the Nooksack and Stillaguamish basins. Project findings will be distributed via public presentations, geographic spatial data (GIS), and a summary report.	Skagit River System Cooperative	CHIN 1.3	CHIN 1.8	CHIN 1.5
2018-0181	**Land Application and Manure Management Practices in N. Puget Sound Counties**	To decrease bacterial pollution from livestock operations, the Dairy Nutrient Management Program will: *Use source ID sampling and surveillance to evaluate manure management practices and impacts to surface water with continued focus in Skagit, Snohomish and Whatcom counties. *Manage a ZAPS monitoring unit at the CA-US border to monitor water quality impacts and collect data to support transboundary coordination. *Enhance GIS tools, such as WQ results map, Story Map, and manure application map to increase stakeholder collaboration, communication, and evaluation of manure application practices. *Evaluate manure management BMPs using producer partnerships, field walks, surveys, and agency collaboration. *Provide sub-awards for BMP research to demonstrate reduced bacterial runoff. *Identify barriers to implementing BMPs and generate behavior change	US Department of Agriculture	SHELL 1.3	SHELL 1.4	SHELL 1.5
2018-0226	**Hydraulic Projects Puget Sound Compliance Assurance Program Expanded Pilot**	WDFW will expand the current pilot of a Hydraulic Projects Compliance Assurance Program that relies on compliance inspectors to help Hydraulic Project Approval (HPA) permit holders achieve compliance with permit provisions. Compliance Inspectors will use public education, technical assistance, monitoring and inspections to help the HPA holder achieve compliance, and will implement civil compliance authority when it is determined that technical assistance methods have not worked to achieve compliance. The program will improve protection of fish life by ensuring HPA requirements are implemented and by identifying and correcting violations and the associated damage to habitat. This expanded effort will focus on high-priority areas within the Puget Sound Region, and will coordinate across WDFW, and with local, state, federal and tribal entities. The Compliance Inspector model has been chosen for this effort because HPA holders prefer independent, objective inspections of their projects.	WDFW	CHIN 1.10	CHIN 1.11	SA 2.2
2018-0232	**Fish barrier correction**	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 will work with USFS to design structures that meet both state and federal requirements. Fish barrier correction opens previously unavailable habitat to salmon. The culvert's increased size for correction improves stream function and health by passing peak-flows contributed to runoff from changing land cover or climate change.	WA DNR	CHIN 7.1		

2018-0246	**Riparian Restoration Throughout the Greater Puget Sound**	The objective stated above will be implemented with the following: 1) riparian planting- planting of native trees/shrubs to move riparian and floodplain forests toward a later seral stage and restore ecological function; 2) planting site maintenance- maintenance necessary to ensure long term establishment and success, such as, reducing competition from unwanted vegetation, watering, and replacing plant mortalities; 3) knotweed inventory/control- the systematical inventory and control of knotweed (from the upstream extent to the downstream extent) at the watershed scale; and 4) development of a unified riparian implementation tracking tool- develop, share, and begin utilizing an Access based implementation tracking tool to track a variety of plant/planting characteristics that will allow the creation of adaptive strategies in response to climate change. Our team has been executing this type of restoration work for years and their experience will be invaluable to the success of this NTA.	Mason CD	FP 3.3	LDC 1.1	LDC 3.3
2018-0276	**Re-Tree Snohomish County!**	Increasing forest cover in Snohomish County 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 and rural communities that are not served by our existing planting programs. SCD will conduct site visits with landowners to address elevated water temperatures, nutrient loading, and sediment and fecal inputs. This funding will enable us to market this new program, target high priority watersheds, and provide enough trees to match landowner needs.	Snohomish CD	CHIN 2.3	CHIN 2.5	
2018-0347	**Enhancement of GIS tools in support of monitoring, public awareness and behavior change to reduce fecal coliform bacteria in shellfish growing areas.**	Enhanced GIS work in support of source identification, nutrient mapping, data sharing, outreach and education and collaboration of PIC program goals and US/Canada transboundary efforts. It has been identified that some partners lack internal resources for online and field based mapping and property tracking tools. WSDA has the skills to provide additional training and support identified PIC partner needs. This may include working with partner GIS agents to engage them in the results sharing process or to help facilitate data upload to the results map or to share available resources and updates in the story map. WSDA can help create GIS formats for tracking work in priority areas.	US Department of Agriculture	SHELL 1.4	SHELL 1.5	
2018-0349	**Evaluation of field BMP effectiveness to reduce run-off of sediment and bacteria from dairy fields into surface water.**	Sub-awardee to evaluate cover crop, vegetative buffers, and manure application setback BMPs. WSDA collects additional data during investigations and surveillance including forage density, soil saturation and compaction, soil type and rainfall. Share data with sub-awardee as part of an on-going edge of field study. Sub-awardee to research of effectiveness of BMPs. Identify barriers to adoption, educate crop advisors and consultants of effective BMPs with a focus on intrinsic motivators. Research may include dairy storm water treatment of feed areas and non-manured slabs which generate water that may not be contained in on-farm storage. Some engineered treatment systems have not successfully treated water and prevented discharges. Feed area runoff is one of the more common issues identified on Western WA dairy farms. WSDA would provide a sub-award to evaluate treatment systems and barriers to proper maintenance, and recommend effective systems for dairy runoff in NW Washington.	US Department of Agriculture	SHELL 1.4	SHELL 1.5	
2018-0359	**Groundwater Availability for Summer Low Flows**	USGS will generate and compile monthly groundwater budget data and related hydrogeologic information for subbasins underlain by the ~7,200 sq-mi Regional Aquifer System of the Puget Sound lowlands. Data will be compiled or estimated using consistent approaches for approximately 36 subbasins (~2 per WRIA) that cover the lowlands, 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. ﷺWe will capitalize on the wealth of existing expertise and information, including groundwater recharge modeling, streamflow hydrograph analysis, water-use and streamflow data, and WRIA-scale groundwater flow model results.	USGS	FP 1.3	CHIN 2.1	CHIN 2.3

2018-0393	**SnoCo Fish Passage Culvert Inventory and Prioritization**	The County's in-house staff will collect culvert information of 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, downstream barriers, proximity to the focus reaches, etc. This will allow the County to speed up the collection of data and have a better understanding of what needs to be done within the County to speed up salmon recovery.	Snohomish County	CHIN 7.1		
2018-0456	**Implement Model Volunteer Program for Oil Spill Response / Assessment - Phase 2**	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 will develop and pilot the model program in 2018 & 2019, to the Straits, Island and Skagit Counties and sustain the pilot in Snohomish County. The intention is to connect oil spill response agencies with established volunteer programs to maximize access to citizens who can serve in appropriate spill roles. It is expected that the model program will increase first response and assessment time, standardize citizen science nearshore monitoring protocols, and pilot / finalize best ways to engage and support citizens in constructive actions before, during and after a spill.	WSU Extension	CHIN 6.2		
2018-0576	**Characterization of sediment-bound contaminant fluxes for large rivers that feed into the Puget Sound.**	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 SSC, alongside continuous monitoring of river turbidity to create an estimate for continuous SSC. 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 discharge to estimate total and fine particle suspended sediment and associated chemical fluxes.	USGS	CHIN 2.5	TIF 1.1	BIBI 2.1
2018-0608	**Implementation of PSNERP River Delta Projects**	One of the products of the Puget Sound Nearshore Ecosystem Restoration Project (PSNERP) General Investigation study (completed in Dec. 2016) is a list of 36 project sites throughout Puget Sound that propose actions to address degradation of important nearshore processes. Sixteen of these PSNERP-identified projects are located in Puget Sound's major river estuaries. This NTA will advance PSNERP identified river delta projects that have established local and landowner support forward through applicable Army Corps of Engineers project phasing such as engineering, design, and construction.	WDFW	EST 3.3		
2018-0673	**Preparing for sea level rise in Central Puget Sound cities and counties.**	This project will leverage efforts to form a Central Puget Sound climate change collaborative to assist marine shoreline jurisdictions prepare for sea level rise. This project will include development of model land use code and examples of public asset preparedness plans. The project will include multiple workshops with staff and leaders from Central Puget Sound jurisdictions to explore ways to coordinate sea level rise preparedness.	King County	SA 2.1	LDC 2.1	
2018-0705	**Forest Stewardship Education and Technical Assistance to Maintain and Enhance Forest Cover and Function on Nonindustrial Private Forest Lands**	WSU Extension, WA DNR, and local conservation districts will implement a coordinated education and outreach program for nonindustrial private forest owners. Key tenets will be multi-week forest stewardship planning and practices trainings; succession planning and transfer of development rights workshops; and on-the-ground technical assistance from public service foresters. Through this program, landowners will create their own written forest stewardship and land succession plans; receive the technical knowledge and on-site support to implement those plans using best management practices; become eligible for reduced property taxes as an increased incentive for forest retention; become eligible for federal and state cost share grants for otherwise cost-prohibitive conservation projects, and become eligible for 3rd-party certification of sustainable forest practices (e.g. ATFS, FSC).	WSU Extension	LDC 3.1	BIBI 3.1	BIBI 4.1

2018-0707	**Shoreline Armoring Reduction and Prevention Program**	NWSF, local MRCs and partners propose outreach and services to incentivize shoreline landowners to reduce impacts and facilitate removal of shore 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 small 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 plant specialists to provide site specific recommendations and preliminary assessment of erosion protection needs; 3) Engineering design services to remove hard armor; 4) Permitting assistance for armor removal and/or soft shore replacement; 5) GIS/ground-truthing analysis to identify feasible armor removal sites along priority shoreline reaches.	NW Straits Foundation	SA 3.1	SA 3.3	
2018-0741	**Integrating Climate Change in Multi-Objective Floodplain Management**	New efforts to coordinate across disparate objectives in floodplain management 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 climate-resilient floodplain management by working directly with stakeholders to raise awareness about climate change impacts, identify information needs, pilot the integration of existing science in plans and projects, and coordinate priorities for new science. The work will be focused on the WRIA 1 (Whatcom), Snohomish/Stillaguamish, and South Central Action Area LIOs.	University of Washington	FP 1.5	FP 2.2	FP 3.1
2018-0744	**Protection and restoration of select B-IBI basins, Phase III**	This NTA addresses the recovery and protection targets related to freshwater quality and the B-IBI indicator. Previously, in Phase I of the Restore and Protect project, King County established 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 13 basins. This NTA represents the next phase in which basin-specific and site-level designs are developed and finalized. This is the critical step between the assessment/planning stage (Phase II) and implementation (Phase IV). The type of work proposed in this NTA is similar to work proposed in other NTAs, but the target basins are different. King County Stormwater Services has proposed an NTA to implement restoration plans in the Bear Creek basin and begin retrofit planning/design in the Mill Creek basin. This NTA will focus on sub-basins outside of these areas, with the exception of Stensland Creek in the Bear Creek basin.	King County	BIBI 5.1	LDC 2.1	LDC 3.2
2018-0746	**Implementation of protection and restoration actions in B-IBI basins, Phase IV**	This NTA addresses recovery and protection targets related to freshwater quality and the B-IBI indicator. In Phases I-III of the Restore and Protect project (Phase II currently underway), King County selected 3 basins in need of restoration and 10 in need of protection. Once completed, design plans will be developed for those actions. Phase IV is the implementation step. This NTA will ensure planning completed in previous phases is put into action. The final phase (V) includes effectiveness monitoring. The type of work proposed in this NTA is similar to that proposed in other NTAs: however, the target basins are different. King County Stormwater Services has proposed to implement restoration plans in the Bear Creek basin. With the exception of Stensland Creek, this NTA will focus on sub-basins outside of the Bear Creek basin. Restoration work conducted in Stensland Creek as part of this NTA will be coordinated with other restoration actions planned for the that sub-basin.	King County	BIBI 5.1	LDC 2.1	LDC 3.2

2018-0750	**Assessment and Prioritization of Contaminants of Emerging Concern Impairing the Health of Chinook salmon and Other Marine Fish**	A recent pilot study of CECs in juvenile Chinook salmon measured CEC levels high enough to potentially impair salmon health and possibly reduce their marine survival, suggesting CECs are likely an unaddressed threat inhibiting the recovery of Puget Sound. This study will measure CECs in fish and shellfish from freshwater, estuarine, nearshore and marine habitats. Emphasis will be on indicator species currently monitored for the Toxics in Fish Vital Sign, including, juvenile and adult Chinook salmon, Pacific herring, and English sole and bay mussels. These species are currently monitored for legacy pollutants but not CECs. This study is designed to evaluate and track complex CEC contamination patterns across Puget Sound by identifying which areas have elevated levels of particular CECs for indicator species representing a wide range of feeding strategies, movement patterns, and habitats, information necessary to remediate the CEC effects on multiple species, including Chinook salmon.	WDFW	TIF 1.1	CHIN 4.2	
2018-0751	**Implementation of the central Puget Sound Open Space Conservation Plan**	Currently, Puget Sound Regional Council (PSRC) is nearing completion of a Regional Open Space Conservation Plan (ROSCP) for the four counties in central Puget Sound. The ROSCP provides the blueprint for a regional approach to open space protection that will rely on a multi-sector, multi-discipline regional partnership to successfully implement the work articulated in the plan. For that, PSRC is looking to the Emerald Alliance for People, Nature and Community, a new regional collaborative formed in 2017, that provides a platform for a broad coalition of organizations involved in open space protection to amplify their efforts. The Emerald Alliance aims to accelerate open space conservation by supporting partners'efforts and connecting their place-based work to the overall ROSCP strategy; a scale that more effectively meets the region's most pressing priorities: ecological recovery and diversity, human health, climate resiliency, economic development, and social equity.	The Bullitt Foundation	LDC 2.1		
2018-0899	**Shoreline Restoration Monitoring, Phase II**	In Phase II of Shoreline Restoration Monitoring in Puget Sound, we will pair our 2015-2017 pre and as-built field surveys of project sites with additional post-restoration surveys 2-10 years after armor removal, to describe the long-term effects of shoreline restoration. With additional surveys at restoration sites, we can tease out near-term responses from long-term effects to improve our understanding of how shoreline restoration efforts influence nearshore structure and function. Phase II will also encourage continued collaboration of WDFW with existing and new monitoring partners, and support long-term partnerships to cultivate standard metrics and methods of data collection and storage for Puget Sound nearshore science. This information provides managers and planners with evidence on which to base future restoration planning and funding decisions, and helps regulatory agencies assess the impacts of shoreline armoring and armor removal.	WDFW	SA 1.1	SA 3.4	
2018-0950	**Northern Puget Sound Regional Salmon Habitat Model and Atlas**	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 packaged for GIS users and as a cartographic atlas illustrating juvenile Chinook habitat utilization and connectivity. This crucial information will further enable prioritization of Chinook salmon marine habitat restoration and protection, as well as assist in outreach and education about our region's salmon.	Coastal Geologic Survey	CHIN 1.3	CHIN 4.3	CHIN 4.6
2018-0965	**Phase 2: Implementation of Recommendations from the Coastal Streams and Embayments Prioritization Along Puget Sound Shores with a Railroad**	Nearly 125 miles of the 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 implementation of the prioritization recommendations by working with diverse partners in the region including BNSF and state/local agencies, creating planning level restoration budgets for priority projects, developing tools to inform and engage BNSF (e.g., 'advanced mitigation' scenarios documenting mitigation value to BNSF of participating in restoration projects), and building an implementation plan. Numerous partners will be engaged to ensure the efforts capitalize on existing relationships, is supportive of ongoing activities, and is consistent with other regional, state, and local planning interests.	Confluence	EST 3.3	CHIN 7.1	