Estuary and Salmon Restoration Program
Project Summaries

Clallam County

See description under heading "Multiple Counties."

Island County

Island County **Grant Awarded: $300,000**
Providing Incentives to Reduce Shoreline Armoring

Island County will use this grant to offer landowners technical and financial assistance for projects that promote the protection and restoration of shorelines. To complement a financial incentive, the County will educate the community about the impacts of hard armoring, the benefits of soft and natural beaches, and solutions and resources for these options. Visit RCO's online Project Snapshot for more information and photographs of project 24-1300.

More projects in Island County under heading "Multiple Counties."

Jefferson County

Hood Canal Salmon Enhancement Group **Grant Awarded: $272,160**
Planning Restoration of the Little Quilcene River Estuary

The Hood Canal Salmon Enhancement Group will use this grant to complete conceptual and preliminary designs for restoration of the Little Quilcene River estuary. The conceptual design will create three projects, and a preliminary design will be developed for the preferred project. Proposed restoration actions could include removal of a levee, construction of channels for the Little Quilcene River, reconnection of salt marsh habitat, placement of logjams, removal of blockages in fish migration routes, and replanting riverbanks and pastureland. The restoration is expected to benefit Hood Canal summer chum salmon and Puget Sound steelhead trout, both of which are species listed as threatened with extinction under the federal Endangered Species Act. Visit RCO's online Project Snapshot for more information and photographs of project 23-1900.

Estuary and Salmon Restoration Program
Project Summaries (In Rank Order)

Northwest Straits Marine Conservation Foundation **Grant Awarded: $150,000**
Removing the Adelma Beach Bulkhead

The Northwest Straits Marine Conservation Foundation will use this grant to restore Adelma Beach in Discovery Bay in Jefferson County. The foundation will remove a creosote-treated wood bulkhead, two cabins, and non-native and invasive plants, and then replant the area. The work will restore coastal processes and forage fish spawning habitat. Failing and unnecessary armor is burying spawning habitat for surf smelt and sand lance, two critical species eaten by salmon species and birds. The shoreline is used by chum salmon, which is a species listed as threatened with extinction under the federal Endangered Species Act, and by coho salmon. Visit RCO's online Project Snapshot for more information and photographs of project 23-1850.

More projects in Jefferson County under heading "Multiple Counties."

King County

King County **Grant Awarded: $1,150,000**
Removing Shoreline Armor Near the Maury Island Aquatic Reserve

The King County Water and Land Resources Division will use this grant to buy two acres, including a bluff-backed beach, next to the Maury Island Aquatic Reserve on Vashon-Maury Island and restore the area. The County will remove five cabins and creosote-treated wood armoring along the shore. The County also will control blackberries at the site, replant about 1.8 acres of shoreline as a buffer, and uncover about one hundred feet of stream. Visit RCO's online Project Snapshot for more information and photographs of project 24-1182.

Mid Sound Fisheries Enhancement Group **Grant Awarded: $450,000**
Offering Technical Assistance for Shoreline Armor Removal in King County

The Mid Sound Fisheries Enhancement Group will use this grant to offer a technical assistance program, called Shore Friendly King County, to reduce shoreline armor. The program helps homeowners explore alternatives to armoring and stewardship techniques by providing technical assistance and funding. Services include site visits, planning, permitting, and implementation services. Visit RCO's online Project Snapshot for more information and photographs of project 24-1183.

Estuary and Salmon Restoration Program
Project Summaries (In Rank Order)

More projects in King County under heading "Multiple Counties."

Kitsap County

Kitsap County **Grant Awarded: $700,000**
Offering a Shoreline Armor Removal Program in Kitsap County

Kitsap County, in partnership with the Mid Sound Fisheries Enhancement Group, will use this grant to offer Shore Friendly Kitsap, an incentive-based program to help homeowners reduce shoreline armor. Its overall goal is to protect and improve coastal processes and beach health for Puget Sound species, including Chinook salmon and Southern Resident orcas, both of which are species listed as threatened with extinction under the federal Endangered Species Act. Staff work with landowners to avoid new armor, remove armor, and improve beach stewardship. The program uses a multi-pronged approach to encourage landowners towards shoreline restoration including education to inform them of the benefits of shoreline armor removal; home visits to provide technical guidance and stewardship recommendations; technical support, feasibility assessments, design, project coordination, and permitting assistance for removal projects; and money for construction. Visit RCO's online Project Snapshot for more information and photographs of project 24-1144.

Mid Sound Fisheries Enhancement Group **Grant Awarded: $148,911**
Removing Armor at Bainbridge Island's Battle Point

The Mid-Sound Fisheries Enhancement Group will use this grant to complete final design, permitting, and restoration of private property on central Bainbridge Island. The enhancement group will remove beach armoring along Puget Sound, five groins, a patio, a boat ramp, and a concrete sports court. Then it will replant the area. The shoreline is used by Chinook salmon, which is a species listed as threatened with extinction under the federal Endangered Species Act. Visit RCO's online Project Snapshot for more information and photographs of project 23-1842.

More projects in Kitsap County under heading "Multiple Counties."

Estuary and Salmon Restoration Program
Project Summaries (In Rank Order)

Mason County

Great Peninsula Conservancy **Grant Awarded: $3,300,000**
Conserving the Dewatto Estuary

The Great Peninsula Conservancy will use this grant to buy and permanently protect 240 acres of high-quality shoreline and estuarine habitat in Mason County. Located in a rare open coastal inlet on the eastern shore of Hood Canal, the land includes more than a mile of shoreline, extensive tidelands, a forty-seven-acre estuary, and a mile of river. The project is a rare opportunity to protect a large estuary system, exceptional in its relative intactness and high function. Permanent protection of the site will benefit Hood Canal summer chum salmon, which is a species listed as threatened with extinction under the federal Endangered Species Act. Visit RCO's online Project Snapshot for more information and photographs of project 24-1280.

More projects in Mason County under heading "Multiple Counties."

Pierce County

Pierce Conservation District **Grant Awarded: $650,605**
Removing the DeMolay Sandspit Bulkhead

The Pierce Conservation District will use this grant to complete final design and remove up to 865 feet of concrete armoring and debris at the Tacoma DeMolay Sandspit Nature Preserve on Fox Island in Pierce County. The work will reconnect and enhance the shoreline and restore natural processes that build and maintain the upper beach. This project will extend the preliminary design to include two adjacent parcels being acquired by the Peninsula Metropolitan Park District. The conservation district will remove the armor and debris, reslope portions of the bank, plant native plants, place large woody material on the upper beach, and replenish sediment to the beach. Adding woody materials, such as tree root wads and logs, to the water creates places for fish to rest, feed, and hide from predators. It also slows the water, which reduces erosion and allows small rocks to settle to the bottom, creating areas for salmon to spawn. Finally, it changes the flow of the water, creating riffles and pools, which give salmon more varied habitat. The shoreline is used by Chinook salmon, which is a species listed as threatened with extinction under the federal Endangered Species Act and by the fish they eat. Visit RCO's online Project Snapshot for more information and photographs of project 24-1250.

Pierce Conservation District **Grant Awarded: $150,000**
Removing Filucy Bay Shoreline Armor

The Pierce Conservation District will use this grant to remove bulkheads on two properties on Filucy Bay in Pierce County and return the shoreline to a more nature state. The conservation district will remove about one hundred feet of creosote-treated wood and concrete shoreline armor, re-shape the slope, and replant the shoreline. The wood bulkhead on one property is failing and releasing creosote logs into Puget Sound during storms. A significant portion of the lawn will be planted with a diverse array of native plants and a path will be built into the slope instead of replacing the stairs. The restoration will support Chinook salmon, which is a species listed as threatened with extinction under the federal Endangered Species Act, and by the fish they eat. Visit RCO's online Project Snapshot for more information and photographs of project 23-1890.

More projects in Pierce County under heading "Multiple Counties."

San Juan County

See description under heading "Multiple Counties."

Skagit County

Skagit River System Cooperative **Grant Awarded: $174,962**
Developing Guidelines for Placing Woody Materials in Low-Tide Pools

The Skagit River System Cooperative will use this grant to evaluate how woody materials in low-tide pools interact in tidal channels draining into Skagit River delta marshes. Low-tide pools provide important rearing habitat for juvenile Chinook salmon. Adding woody materials, such as tree root wads and logs, to the water creates places for fish to rest, feed, and hide from predators. Wood also slows the water, which reduces erosion and allows small rocks to settle to the bottom, creating areas for salmon to spawn. Finally, they change the flow of the water, creating riffles and pools, which give salmon more varied habitat. The cooperative will measure the accumulation of insects, which salmon eat, as well as the types and abundance of different fish species there. Results will provide guidance for designing placement of large woody materials. Visit RCO's online Project Snapshot for more information and photographs of project 24-1915.

Estuary and Salmon Restoration Program
Project Summaries (In Rank Order)

Swinomish Indian Tribal Community **Grant Awarded: $300,000**
Offering the Swinomish Shore Friendly Program

The Swinomish Indian Tribal Community will use this grant to offer a technical assistance program, called Swinomish Shore Friendly Program, to improve management of residential shorelines. The program provides informational materials, neighborhood meetings, and consultations for shoreline homeowners. Staff also will provide expert guidance on the permitting process, cost-sharing opportunities, and design plans for armor removal and soft-shore solutions, as well as money and other incentives for planting native plants along the water's edge and completing smaller armor removal projects. For larger projects, staff will prepare shovel-ready designs and plans for projects that would be eligible for funding and assistance from other sources. Visit RCO's online Project Snapshot for more information and photographs of project 24-1307.

More projects under heading "Multiple Counties."

Snohomish County

Washington Department of Fish and Wildlife **Grant Awarded: $1,500,000**
Restoring Spencer Island Estuary

The Washington Department of Fish and Wildlife, in partnership with the U.S. Army Corps of Engineers, will use this grant to restore the Spencer Island estuary, a tidally influenced marsh island in the Snohomish delta. Work will include lowering and breaching the dikes, excavating a network of tidal channels, adding fill to plug agricultural ditches, removing two bridges and a tide gate, and planting vegetation along the shoreline. Visit RCO's online Project Snapshot for more information and photographs of project 24-1030.

Thurston County

See description under heading "Multiple Counties."

Estuary and Salmon Restoration Program
Project Summaries (In Rank Order)

Whatcom County

Whatcom Land Trust **Grant Awarded: $369,263**
Conserving California Creek Estuary

The Whatcom Land Trust will use this grant to buy 3.2 acres of tidally-influenced mudflat wetlands at the confluence of California Creek and Drayton Harbor. The purchase will conserve six hundred feet of shoreline along California Creek, improve the water quality for nearby oyster habitat in Drayton Harbor, and enhance the nearby California Creek Estuary Park. The land trust will remove a fire-damaged home and invasive plants, and replant the area. The creek is used by Chinook salmon and steelhead trout, both of which are species listed as threatened with extinction under the federal Endangered Species Act, and by coho and chum salmon and fish eaten by seabirds such as the marbled murrelet, which the State has listed as endangered. Visit RCO's online Project Snapshot for more information and photographs of project 24-1121.

More projects under heading "Multiple Counties."

Multiple Counties

Clallam, Island, Jefferson, Skagit, San Juan, Snohomish, and Whatcom Counties

Northwest Straits Marine Conservation Foundation **Grant Awarded: $1,775,000**
Offering Technical Assistance for Shoreline Armor Removal

The Northwest Straits Marine Conservation Foundation will use this grant to offer a technical assistance program called Shore Friendly-Northwest Straits to encourage landowners to reduce shoreline armoring. The foundation will host workshops and community forums to recruit landowners and offer technical assistance including site visits, expert guidance, feasibility assessments, designs, and permitting. The goals are to reduce barriers to restoring natural shores, alleviate landowners' concerns about erosion by providing resources and technical experts, and measure the impact of past site visits to help understand the success of armor reduction efforts. Visit RCO's online Project Snapshot for more information and photographs of project 24-1291.

Estuary and Salmon Restoration Program
Project Summaries (In Rank Order)

King, Kitsap, and Snohomish Counties

King County **Grant Awarded: $216,099**
Assessing Juvenile Chinook Salmon Use of Non-natal Streams

The King County Water and Land Resources Division will use this grant to identify and collect habitat and fish data in forty streams along the central Puget Sound shoreline. The County is trying to assess the role these streams play in the lives of young Chinook salmon. Usually, salmon rear in natal streams, then migrate to an estuary to grow further before heading to the ocean. Recently, juvenile Chinook have been seen passing through estuaries to the ocean and temporarily returning to freshwater or the estuary. This use has been seen in the Whidbey basin and it is unclear if this is happening in other areas. Central Puget Sound has lost much of its natural estuary habitat, so non-natal streams may be important rearing habitats. The County wants to quantify the extent of non-natal stream rearing by juvenile Chinook and explain variations to provide information for future restoration projects. Visit RCO's online Project Snapshot for more information and photographs of project 24-1902.

Mason, Pierce, and Thurston Counties

Pierce Conservation District **Grant Awarded: $1,475,000**
Offering Shore Friendly Programs in Southern Puget Sound

The Pierce Conservation District will use this grant to support the Shore Friendly South Sound collaborative, which provides technical assistance programs at Mason, Pierce, and Thurston Conservation Districts to reduce shoreline armor. Each conservation district offers its own program that provides customized technical assistance and funding to help homeowners avoid armoring their shorelines, remove armor, and improve stewardship. The goal is to proactively reduce armor installation, increase shoreline stewardship, and help ongoing armor removal projects across south Puget Sound. Visit RCO's online Project Snapshot for more information and photographs of project 24-1207.

Pierce and Thurston Counties

South Puget Sound Salmon Enhancement Group **Grant Awarded: $250,000**
Assessing Fish Use Between Large River Deltas

The South Puget Sound Salmon Enhancement Group will use this grant to assess embayments and small stream deltas on the eastern shore of Puget Sound between the

Puyallup and Nisqually River deltas. Nearly thirty miles of shoreline connects these two large river deltas, yet little is known about how fish use the area. This assessment will establish a baseline, which will provide valuable information on how fish use the area and the prey there. Future restoration plans for the area include efforts by the Burlington Northern Santa Fe railroad to restore small coastal streams in its right-of-way and removal of the Chambers Bay Dam. Visit RCO's online Project Snapshot for more information and photographs of project 24-1901.

Puget Sound Wide

Cramer Fish Sciences **Grant Awarded: $390,780**
Studying Armor Removal's Effect on Salmon

Cramer Fish Sciences will use this grant to conduct a four-year study of the effect on fish of removing shoreline armoring. The Puget Sound shoreline has been changed significantly by construction of bulkheads, fill, and other structures to support waterfront development and prevent flooding and erosion. The study will evaluate whether armor removal projects increase the number of salmon and other fish. Visit RCO's online Project Snapshot for more information and photographs of project 24-1916.

Ecostudies Institute **Grant Awarded: $275,000**
Studying Birds to Help Design Estuary Restoration Projects

The Ecostudies Institute will use this grant to monitor birds to help determine the best designs for restoration of estuaries. Birds are an ideal indicator species in estuaries. They occupy a range of microhabitats, occur in all seasons, and are conspicuous, making them easy to sample. Scientists lack baseline knowledge about the relationships of many bird species to estuaries-knowledge that is key to understanding the impacts of restoration actions and helping planning efforts. The institute will use the Salish Sea Estuaries Avian Monitoring Framework to establish standardized protocols for elucidating fine-scale avian habitat relationships in low marsh habitats of estuaries. The result will establish a baseline of habitat characteristics associated with bird use, which will help generate recommendations for estuary restoration design. Visit RCO's online Project Snapshot for more information and photographs of project 24-1905.

Estuary and Salmon Restoration Program
Project Summaries (In Rank Order)

Environmental Science Association **Grant Awarded: $174,600**
Recommending Inlet Widths for Best Tidal Flow

The Environmental Science Association will use this grant to evaluate the widths of estuaries at coastal inlets and stream mouths throughout Puget Sound to recommend sizes for optimal tidal connectivity. This work fills a significant gap in information about the appropriate width of small estuaries at a given location between the head-of-tide and the estuary outlet. The work will focus on collecting data in the field, measuring estuary transects, mapping the ordinary high-water mark, and evaluating the soil type. Visit RCO's online Project Snapshot for more information and photographs of project 24-1903.

Herrera Environmental Consultants **Grant Awarded: $154,820**
Analyzing Bluff Erosion

Herrera Environmental Consultants, in partnership with the Washington State Department of Ecology's Applied Coastal Research and Engineering section and the Northwest Straits Foundation, will use this grant to identify bluffs at risk of becoming armored and armored bluffs that could be restored. Erosion of shoreline bluffs builds beaches. Landowners often armor shorelines to prevent this erosion and save the house, roads, or buildings on top of the bluffs. The partnership will identify intact but eroding bluffs that are at risk of becoming armored and armored bluffs that may be candidates for restoration after structures are moved. The study will compile, refine, and augment existing Puget Sound-wide bluff erosion rates to create erosion buffers over timespans, and identify developed land that is vulnerable to bluff erosion and prioritize those properties for relocation support. Visit RCO's online Project Snapshot for more information and photographs of project 24-1904.

Skagit River System Cooperative **Grant Awarded: $88,482**
Developing Restoration Guidelines for Natural Channel Levees

The Skagit River System Cooperative will use this grant to quantify natural levee form and structure in large river deltas throughout Puget Sound such as the Dosewallips, Nisqually, Nooksack, and Skagit Rivers. The results will provide guidance for designing channels in tidal marsh restoration projects. The geometry of natural levees that are formed when sediment is deposited on riverbanks during floods can influence the types of plants that root there, fish access to marshes, and distribution of prey for fish. Visit

Estuary and Salmon Restoration Program
Project Summaries (In Rank Order)

RCO's online Project Snapshot for more information and photographs of project 24-1914.

Washington Department of Ecology **Grant Awarded: $119,982**
Analyzing Beach Changes

The Department of Ecology's Applied Coastal Research and Engineering Section will use this grant to analyze surveys of beaches done at sixteen sites across Puget Sound and then pick eleven sites for a more comprehensive look at changes. The department is looking for changes in ecological features in front of shoreline armor and how restoration projects affect those over time. The results will help managers when prioritizing sites for restoration. Visit RCO's online Project Snapshot for more information and photographs of project 24-1907.

Washington Department of Ecology **Grant Awarded: $86,914**
Sharing Map Data Online

The Washington State Department of Ecology's Applied Coastal Research and Engineering section will use this grant to evaluate online data infrastructures and repositories and develop a web map for distributing high-resolution topographic and bathymetric datasets to the public. The department has collected this data along Puget Sound shorelines since 2012. The data are shared only upon request and there is no streamlined system for public distribution. Sharing the information online will allow scientists, engineers, planners, and restoration practitioners to visualize coverage, interact with different data types, and download quality-controlled topographic datasets. Visit RCO's online Project Snapshot for more information and photographs of project 24-1912.