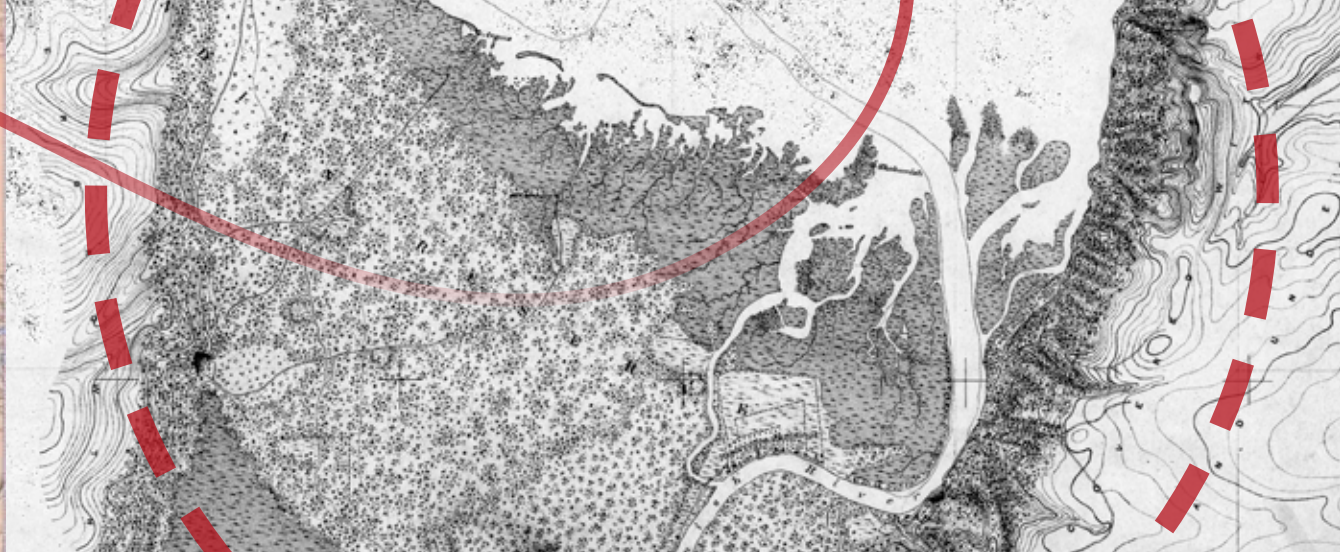


2010 Estuary & Salmon Restoration Program Annual Report

Funding and facilitating community action to protect and restore the nearshore ecosystem

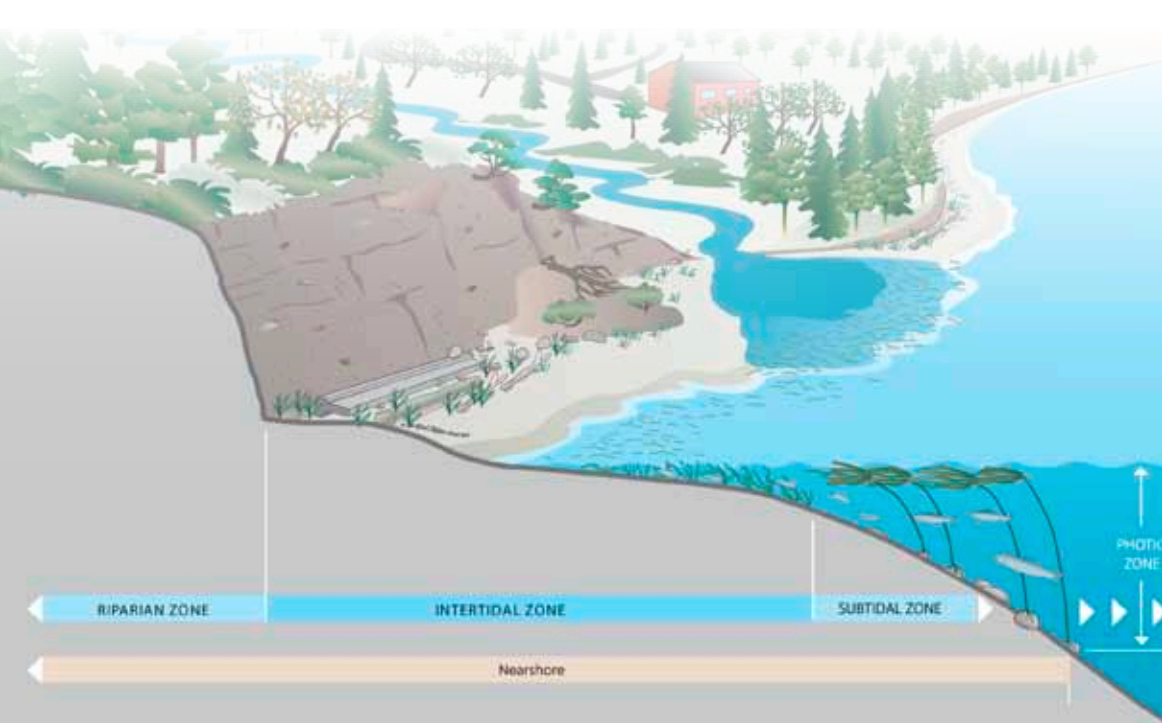


ESRP OVERVIEW

From its verdant river deltas, to its elegant shorelines and its sheltered coastal embayments, people have been drawn to Puget Sound for its unparalleled beauty and its ability to provide economic, ecological and cultural benefits to its inhabitants. Whether it is people farming the land, tending shellfish beds, fishing for salmon, or simply recreating, we are all dependent upon a healthy Puget Sound for our well being and economic vitality.

The nearshore is a critical interface between land and marine waters and plays an important part in sustaining Puget Sound's ability to provide these benefits. However, with over a century of intensive development, significant portions of the nearshore have been severely damaged or lost. The approach used by the Estuary and Salmon Restoration Program (ESRP) in the recovery of the Puget Sound nearshore focuses on the root of the problem: **restoring and protecting the ecological processes that create and maintain nearshore ecosystems.**

This report highlights the vision and accomplishments of ESRP in advancing an ecosystem restoration strategy in Puget Sound to restore the ecosystem processes that are essential for a self-sustaining coastal ecosystem.



History

ESRP provides funding and technical assistance to restore Puget Sound shorelines. Established by the Legislature in 2006, and implemented by the Washington Department of Fish and Wildlife and its partners, ESRP was envisioned as a tactical element of the Puget Sound Nearshore Ecosystem Restoration Project (PSNERP). It was designed to move nearshore restoration from opportunistic project funding to strategic ecosystem restoration. ESRP plays a unique and critical role in ecosystem restoration, and is directly linked to science-driven strategy development and evaluation as a result of the work of PSNERP.

Top Reasons to Invest in ESRP

1 SUPPORTS THE ECONOMY BY CREATING JOBS IN LOCAL COMMUNITIES

ESRP funding for restoration is broadly distributed throughout Puget Sound and supports jobs in multiple sectors from design and engineering to on-the-ground construction.

2 STIMULATES FEDERAL INVESTMENT IN PUGET SOUND RECOVERY

ESRP has been recognized by partners, including the U.S. Army Corps of Engineers, the National Oceanic & Atmospheric Administration, and the U.S. Fish and Wildlife Service, as a model for implementation of restoration projects of all sizes. Our support for project development, aggressive development of regional strategies, and transparent competitive selection mechanisms is the catalyst for attracting new federal investments in Puget Sound.

3 RESTORES PUGET SOUND BY IMPLEMENTING THE ACTION AGENDA

ESRP's robust and transparent technical evaluation process is informed by guidance and strategies from the Puget Sound Nearshore Ecosystem Restoration Project, the nearshore component of the Action Agenda. ESRP is an important mechanism for implementing the Puget Sound Action Agenda.



PHOTO BY HUGH SHIPMAN



PHOTO BY MELINDA MILNER

ESRP's emphasis on ecological nearshore processes

Natural processes, such as tidal flow, the exchange of nutrients, and sediment delivery, have been significantly altered. These changes have affected important functions and services that the nearshore provides; things like: water filtration, essential resting places for young salmon, stop overs for migratory birds and waterfowl, and supplying sediment to maintain Puget Sound beaches.

Restoration of coastal processes is vital to ensure that both existing fish and wildlife habitats and the benefits of complementary restoration efforts, such as salmon recovery, are sustained over time in the face of increasing development pressures and a changing climate.

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Front cover photos: Left: 1994 chart of Puget Sound, courtesy of the NOAA Office of Coast Survey's Historical Map and Chart Collection.

 Top right: An excavator is removing a dike in the Skokomish River estuary, courtesy of Paul Cereghino, NOAA Restoration Center.

 Bottom right: A topographic sheet from the U.S. Coast & Geodetic Survey of the Skokomish River estuary circa 1884, courtesy of the Puget Sound River History Project, University of Washington.

Back cover photo: The first tide is entering into the newly restored Skokomish River estuary, courtesy of Paul Cereghino, NOAA Restoration Center.

CREATING JOBS IN LOCAL COMMUNITIES

Restoration and protection of Puget Sound nearshore is an investment in our future and in the many local communities across the Sound. ESRP funding for restoration is broadly distributed throughout Puget Sound and supports jobs in multiple sectors from technical and clerical support to environmental planning to design and engineering and on-the-ground construction. **As a result of the Skokomish Estuary restoration project**

25 people were employed. At Fisher Slough 20 new jobs were created and over 150 people employed at some point during construction. By supporting job creation and engaging local contractors and volunteers, providing opportunities for environmental education and public access, many restoration efforts play a significant role in building and strengthening local communities.

Case Study 1: Skokomish Estuary



Once the largest contiguous saltmarsh complex in Hood Canal, the Skokomish Estuary, like many estuaries and river deltas in Puget Sound, was converted to farmland during early development. Dikes and levees were built to keep tidal waters out and ditches were built to drain wetlands. These actions disrupted ecological processes such as the flow of tidal water and sediment, blocked fish passage, and reduced a number of ecosystem services such as flood storage, natural water filtration and production of fish and wildlife.

Today this area is undergoing another significant transformation—restoration. The Skokomish Tribe and Mason Conservation District are leading efforts to remove dikes, fill in ditches and eliminate fish passage barriers. Tidal waters are once again flowing into their historic channels across the Skokomish Estuary. New channels are already being created, saltmarsh vegetation is re-establishing and fish and wildlife are returning.

“This project had a significant labor component, which was important in helping Quigg Brothers to provide local jobs for its diverse and specialized workforce.”

John Quigg, Owner, Quigg Brothers Inc.

Area Restored

Phase I (2007) - Skokomish West Bank:	108 acres
Phase II (2010) - Nalley Island:	216 acres
Phase III (2011) - Proposed Skokomish West Bank expansion	525 acres
Total:	849 acres

Restoration Actions: Dike removal, channel creation, and culvert removal.

Case Study 2: Salmon Creek Estuary Fill Removal



Area Restored:
11 acres (22,000 cubic yards of wood waste removed)
Restoration Actions: Fill removal, revegetation.

Along the Strait of Juan de Fuca at the entrance to Puget Sound lies Discovery Bay, one of the 240 coastal embayments that historically existed in Puget Sound. While a safe distance from major urban centers, this area had its own history of development, change and degradation. The Salmon Creek Estuary, which drains into Discovery Bay, is a salmon-bearing stream which once supported a major herring stock. It was also the site of a thriving mill where raw logs were peeled and veneer produced. By mid-century mill operations had filled the estuary with thousands of cubic yards of wood waste resulting in a loss of salt marsh, blocked tidal flow and poor water quality. With support from ESRP and others, the North Olympic Salmon Coalition has begun to restore this estuary by removing wood waste, backfilling the area and re-creating the historic shoreline configuration of the mill site. Coupled with a number of other restoration actions at Salmon Creek, the ecosystem processes that historically supported this site are being restored.

Case Study 3: Fisher Slough Tidal Freshwater Wetland Restoration

Over 100 years ago Europeans settled in the Skagit Valley and dramatically changed the floodplains and deltas. The bay fronts and rivers were diked, wetlands drained, and spruce forests replaced by towns and railroads. Today, the Skagit Delta is a working landscape that contains some of the most productive soils in the world and supports a vibrant agricultural economy. It is also home to the largest and most diverse runs of Chinook and other salmon in Puget Sound and supports a diversity of birds and other wildlife that depend on habitat and a functioning ecosystem for their survival.

At Fisher Slough, located in the heart of this working landscape, an innovative project is being implemented to test how restoration and flood control protection needs can be combined through a collaborative partnership between The Nature Conservancy,

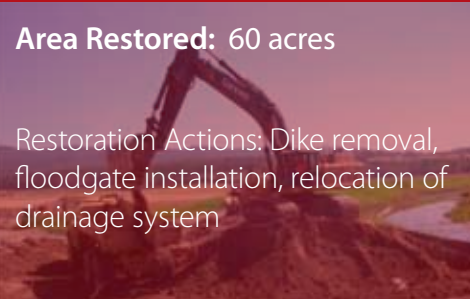
Dike District #3, Drainage District #17, and Western Washington Agricultural Association. This highly complex project has several construction elements which include relocation of a levee and major drainage system, and design and installation of new floodgates.

The project will restore fish passage and improve salmon and wetland habitat while at the same time increasing flood storage capacity which will reduce annual maintenance costs for the dike district and reduce frequency of flooding on adjacent agricultural lands. This is especially important, since more than 85% of the historic freshwater tidal wetlands in Puget Sound have been lost.

This project is a win-win for both the restoration and agricultural communities and creates a model and novel approach that can be replicated by other communities in Puget Sound.

“The benefits gained for habitat and dike and drainage infrastructure made this an easy project to get behind with full support.”

Mike Shelby, Executive Director, Western Washington Agricultural Association



Area Restored: 60 acres
Restoration Actions: Dike removal, floodgate installation, relocation of drainage system



INVESTING STRATEGICALLY IN THE PUGET SOUND NEARSHORE

ESRP is not simply a grant program but a tactical element of a larger, nationally recognized ecosystem restoration program—the Puget Sound Nearshore Ecosystem Restoration Project (PSNERP). It is directly linked to science-driven strategy development and evaluation. This science foundation and ecosystem-scale approach ensures that ESRP’s investment decisions are strategic and maximize benefits to Puget Sound nearshore.



Change Analysis

Using historic data and the science and technology of the 21st century, PSNERP developed a comprehensive “Change Analysis” of all 2,500 miles of Puget Sound’s shorelines to show how the nearshore has changed by:

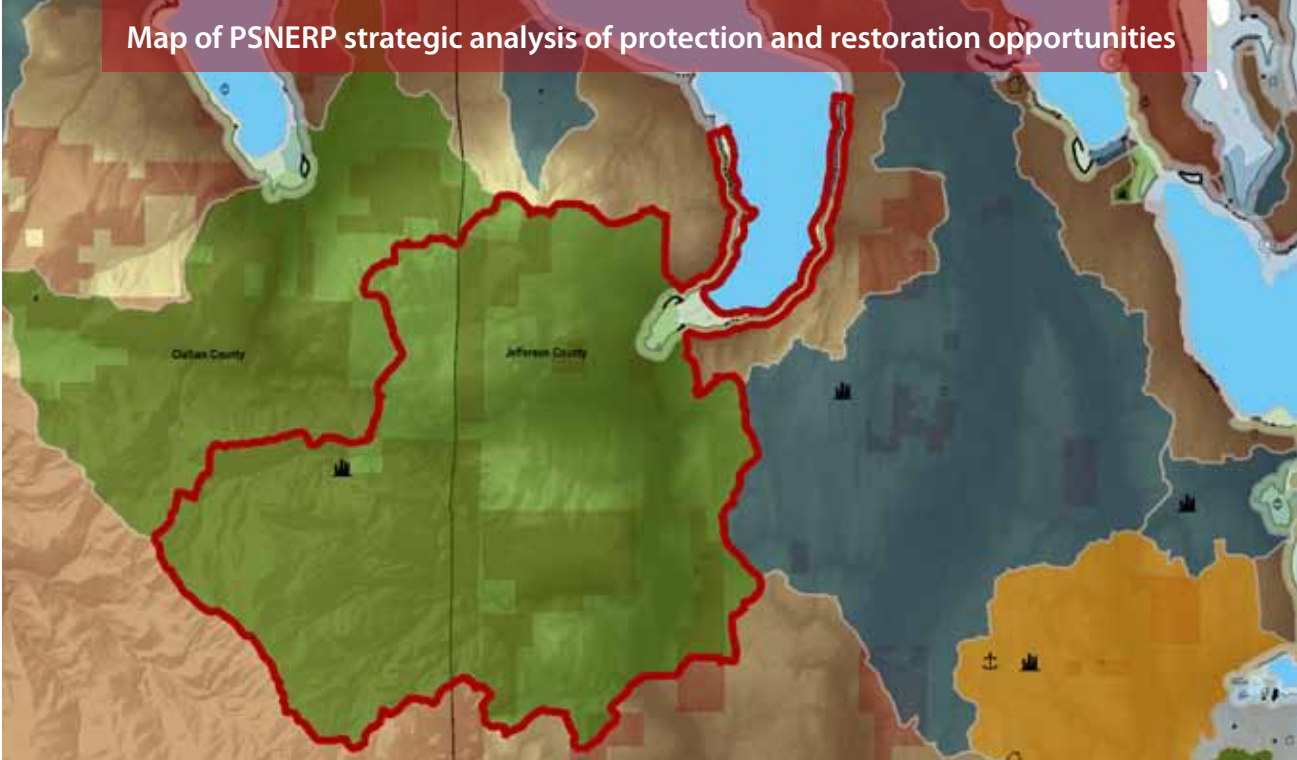
- I. Defining the historic condition and extent of the nearshore environment
- II. Defining the current condition of the nearshore environment.
- III. Documenting and analyzing physical alterations to the nearshore and capturing the results in a geodatabase.

Quick Facts about Puget Sound:

The shoreline of Puget Sound is shorter and simpler:

- 56% of wetlands in Puget Sound estuaries are lost
- 10% of the shoreline is now considered “artificial” as a result of intense development
- 27% of the shoreline is armored, restricting sediment transport needed to re-nourish beaches
- Hundreds of coastal embayments have been eliminated, including 40% of pocket estuaries
- 62% of river delta areas is now developed land

With this Change Analysis data and the Principles for Strategic Conservation and Restoration developed by PSNERP (see technical report 2010-01) we can identify restoration needs across Puget Sound and strategically advance those projects that best meet these needs.



STRATEGY 1:

STRATEGY 2:

STRATEGY 3:

STRATEGY 4:



RIVER DELTAS



BEACHES



BARRIER EMBAYMENTS



COASTAL INLETS

Applying Strategies

Puget Sound is a highly diverse landscape where the interplay of geology and natural processes has led to the development of a variety of shoreforms from large river deltas, to coastal inlets, lagoons and marshes, to mudflats and sandy beaches (see also the PSNERP technical report, 2008-01 A Geomorphic Classification of Puget Sound Nearshore Landforms). Each of these groups or shoreforms is similar in terms of the natural processes which create them and the types of human alterations that degrade them.

To address this natural variability, ESRP relies on strategies to provide a general sense of protection and restoration needs in these different systems:

1. **River Deltas:** Protect and restore freshwater input and tidal processes where major river floodplains meet marine waters.
2. **Beaches:** Protect and restore sediment input and transport processes which create and sustain beaches.
3. **Barrier Embayments:** Protect and restore tidal flow, as well as the sediment input and transport processes, which sustain the beach segments that enclose barrier embayments.
4. **Coastal Inlets:** Protect and restore tidal flow processes in coastal inlets, and protect and restore freshwater input.

These strategies can help us figure out where and how to strategically invest in habitat restoration or protection.

By effectively reducing or eliminating the underlying causes of degradation, we can move the nearshore environment towards a more natural, self-sustaining state.

PROGRAM ACCOMPLISHMENTS

Includes NOAA Restoration Center funding

Completed phase

Underway

Not applicable

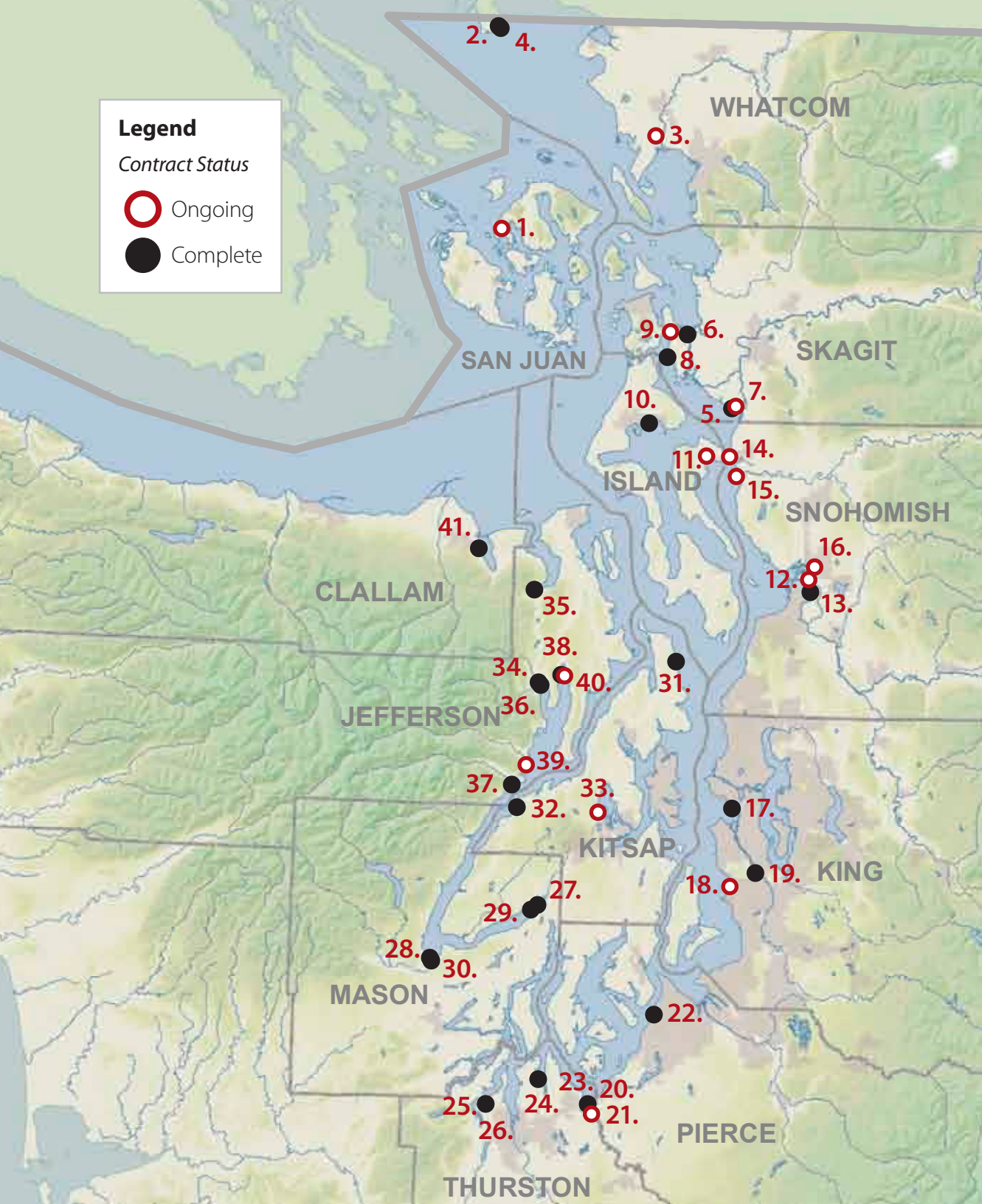
#	Project Name	Sponsor	Total Award	System	Shoreform Type	Parcel ID	Negotiation	Protection	Feasibility	Design	Implementation	Evaluation
						San Juan County						
1	Deer Harbor Bridge Replacement Feasibility	People for Puget Sound	\$153,741	Embayment	Open coastal inlet	Completed	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
						Whatcom County						
2	Lily Point Acquisition	Whatcom Land Trust	\$1,750,000	Beach	Bluff-backed beach	Completed	Completed	Completed	Not applicable	Not applicable	Not applicable	Not applicable
3	Smugglers Slough Tidal Reconnection	Lummi Nation	\$438,000	River delta	River-dominated delta	Completed	Completed	Completed	Completed	Completed	Completed	Completed
4	Lily Point Acquisition & Restoration	The Nature Conservancy	\$810,000	Beach	Bluff-backed beach	Completed	Completed	Completed	Completed	Completed	Completed	Completed
						Skagit County						
5	Wiley Slough Dike Removal	Skagit River System Coop	\$619,348	River delta	River-dominated delta	Completed	Completed	Completed	Completed	Completed	Completed	Completed
6	Swinomish Channel Fill Removal	Skagit River System Coop	\$118,803	Embayment	Open coastal inlet	Completed	Completed	Completed	Completed	Completed	Completed	Completed
7	Fisher Slough Freshwater Tidal Wetland Restoration	The Nature Conservancy	\$416,900	River delta	River-dominated delta	Completed	Completed	Completed	Completed	Completed	Completed	Completed
8	Lone Tree Lagoon Adaptive Management	Skagit River System Coop	\$35,701	Embayment	Barrier estuary	Completed	Completed	Completed	Completed	Completed	Completed	Completed
9	Turner's Bay Design Implementation	Skagit River System Coop	\$150,000	Embayment	Open coastal inlet	Completed	Completed	Completed	Completed	Completed	Completed	Completed
						Island County						
10	Crescent Harbor Tidal Reconnection	Skagit River System Coop	\$522,971	Embayment	Barrier lagoon	Completed	Completed	Completed	Completed	Completed	Completed	Completed
11	Livingston Bay Nearshore Acquisition & Restoration	The Nature Conservancy	\$1,350,000	Embayment	Barrier lagoon	Completed	Completed	Completed	Completed	Completed	Completed	Completed
						Snohomish County						
12	Qwuloolt Marsh Restoration	Tulalip Tribes of Washington	\$433,306	River delta	River-dominated delta	Completed	Completed	Completed	Completed	Completed	Completed	Completed
13	Union Slough Dike Breach	Everett Public Works Department	\$215,000	River delta	River-dominated delta	Completed	Completed	Completed	Completed	Completed	Completed	Completed
14	Leque Island Dike Setback	Ducks Unlimited	\$295,158	River delta	River-dominated delta	Completed	Completed	Completed	Completed	Completed	Completed	Completed
15	Port Susan Bay Dike Removal	The Nature Conservancy	\$380,013	River delta	River-dominated delta	Completed	Completed	Completed	Completed	Completed	Completed	Completed
16	Smith Island Estuarine Restoration Project	Snohomish County	\$2,600,000	River delta	River-dominated delta	Completed	Completed	Completed	Completed	Completed	Completed	Completed
						King County						
17	Olympic Sculpture Park Pocket Beach	Seattle Public Utilities	\$213,212	River delta	Artificial	Completed	Completed	Completed	Completed	Completed	Completed	Completed
18	Seahurst Park N Shoreline Feasibility	City of Burien	\$1,100,000	Beach	Bluff-backed beach	Completed	Completed	Completed	Completed	Completed	Completed	Completed
19	Duwamish Gardens Acquisition	City of Tukwila	\$394,000	River delta	Artificial	Completed	Completed	Completed	Completed	Completed	Completed	Completed
						Pierce County						
20	Red Salmon Slough Revegetation	Nisqually Indian Tribe	\$75,566	River delta	River-dominated delta	Completed	Completed	Completed	Completed	Completed	Completed	Completed
21	Red Salmon Slough Levee Removal	Nisqually Indian Tribe	\$65,000	River delta	River-dominated delta	Completed	Completed	Completed	Completed	Completed	Completed	Completed
22	Titlow Beach Pocket Estuary Feasibility & Design	South PS Salmon Enhancement Group	\$56,860	Embayment	Barrier estuary	Completed	Completed	Completed	Completed	Completed	Completed	Completed
						Thurston County						
23	Nisqually Refuge Restoration	Ducks Unlimited	\$2,000,000	River delta	River-dominated delta	Completed	Completed	Completed	Completed	Completed	Completed	Completed
24	Woodard Bay Restoration Feasibility	WA Department of Natural Resources	\$150,000	Embayment	Open coastal inlet	Completed	Completed	Completed	Completed	Completed	Completed	Completed
25	Snyder Cove Culvert Modification	People for Puget Sound	\$85,433	Beach	Bluff-backed beach	Completed	Completed	Completed	Completed	Completed	Completed	Completed
26	Snyder Cove Bulkhead Feasibility	People for Puget Sound	\$14,250	Beach	Bluff-backed beach	Completed	Completed	Completed	Completed	Completed	Completed	Completed
						Mason County						
27	Belfair State Park Berm Removal	Hood Canal Salmon Enhancement Group	\$200,000	Beach	Bluff-backed beach	Completed	Completed	Completed	Completed	Completed	Completed	Completed
28	Skokomish West Bank Dike Removal	Mason Conservation District	\$940,380	River delta	River-dominated delta	Completed	Completed	Completed	Completed	Completed	Completed	Completed
29	Klingel Marsh Restoration	Hood Canal Salmon Enhancement Group	\$54,000	Embayment	Open coastal inlet	Completed	Completed	Completed	Completed	Completed	Completed	Completed
30	Skokomish-Nalley Island Dike Removal	Mason Conservation District	\$90,000	River delta	River-dominated delta	Completed	Not applicable	Not applicable	Completed	Completed	Completed	Completed
						Kitsap County						
31	Pilot Point Acquisition	Kitsap County	\$500,000	Beach	Bluff-backed beach	Completed	Completed	Completed	Not applicable	Not applicable	Not applicable	Not applicable
32	Stavis NRCA Barrier Estuary Restoration	WA Department of Natural Resources	\$131,745	Embayment	Barrier estuary	Completed	Completed	Completed	Completed	Completed	Completed	Completed
33	Chico Estuary Restoration Project	Suquamish Tribe	\$215,000	Embayment	Open coastal inlet	Completed	Completed	Completed	Completed	Completed	Completed	Completed
						Jefferson County						
34	Little Quilcene Estuary Rehabilitation	Hood Canal Salmon Enhancement Group	\$200,000	River delta	River-dominated delta	Completed	Completed	Completed	Completed	Completed	Completed	Completed
35	Salmon Creek Fill Removal	North Olympic Salmon Coalition	\$340,000	Embayment	Open coastal inlet	Completed	Completed	Completed	Completed	Completed	Completed	Completed
36	Big Quilcene Ring Dike Removal	Hood Canal Salmon Enhancement Group	\$200,000	River delta	River-dominated delta	Completed	Completed	Completed	Completed	Completed	Completed	Completed
37	Duckabush Robinson Road Levee Setback	Hood Canal Salmon Enhancement Group	\$112,000	River delta	Fan delta	Completed	Completed	Completed	Completed	Completed	Completed	Completed
38	Tarboo/Dabob Bay Acquisition	The Nature Conservancy	\$504,500	Beach	Bluff-backed beach	Completed	Completed	Completed	Completed	Completed	Completed	Completed
39	Lower Dosewallips Floodplain Restoration	Wild Fish Conservancy	\$609,875	River delta	Fan delta	Completed	Completed	Completed	Completed	Completed	Completed	Completed
40	Tarboo-Dabob Bay	Northwest Watershed Institute	\$228,880	Beach	Bluff-backed beach	Completed	Completed	Completed	Completed	Completed	Completed	Completed
						Clallam County						
41	Pitship Barrier Estuary Reconnection	North Olympia Salmon Coalition	\$76,268	Embayment	Barrier estuary	Not applicable	Not applicable	Not applicable	Completed	Completed	Completed	Completed
			Total									
												\$18,845,910

Learning from Projects

ESRP continually strives to improve program effectiveness and efficiency to ensure increasingly scarce public dollars deliver anticipated project benefits. Our Learning Strategy is designed to reduce the risk and uncertainty associated with restoration practices. By investing in project learning we can identify better projects and advance those that are most cost-effective and have the least risk of failure.



Through project learning, we also strive to identify the social barriers that can impede implementation and look for solutions that ensure funded projects move forward. For instance, through project monitoring, we can better understand how hydrologic modifications, such as self-regulating tidegates, affect the development and functioning of river channels and how fish accessibility and flooding on adjacent lands is altered. Or, we can study how saltmarsh vegetation develops in restored sites to better predict how a site may respond as sea-levels rise.



PROVIDING BENEFITS TO PEOPLE, PLACES AND COMMUNITIES

Healthy, functioning ecosystems provide local communities with a range of valuable ecosystem goods such as abundant fish and shellfish, clean water, public access and swimming beaches, as well as ecosystem services such as flood and erosion control, water filtration, carbon sequestration and nutrient exchange. As Puget Sound's nearshore has been altered, its ability to provide the same level of ecosystem goods and services has decrease. However, by strategically focusing restoration actions on key ecosystem processes we can restore the nearshore to a more vibrant and resilient condition for all its inhabitants.

Before & After | Infrastructure Upgrades



Restoration projects not only provide jobs but they also provide an opportunity to bring communities together to develop creative solutions to community problems. Through open dialogue and thoughtful planning many restoration projects can directly incorporate elements into the design that address both ecological and social needs such as flood storage, upgrades to failing infrastructure (roads, culverts, bridges or tidegates), improved access to the nearshore; recreational opportunities and resiliency to climate change.



Before & After | Improved public access and recreation

Improved flood control



Resiliency to climate change

“The Estuary and Salmon Restoration Program funds high quality habitat protection and restoration in Puget Sound that make it one of the most active and productive EPA partnerships with our Puget Sound National Estuary Program.”

Michael Rylko, Puget Sound National Estuary Program, Environmental Protection Agency



STAVIS NATURAL AREA: BEFORE RESTORATION

Stimulating Federal Investment

ESRP has been recognized by federal partners including the U.S. Army Corps of Engineers, the National Oceanic and Atmospheric Administration (NOAA) and U.S. Fish and Wildlife Service as a model for implementing restoration projects of all sizes. ESRP builds on the nationally recognized Puget Sound Ecosystem Restoration Project, combining regional science-based strategy with transparent and competitive project selection to attract new federal investments in Puget Sound. ESRP’s strategic funding of engineering and design prepares projects for winning national competitions for federal construction resources.

A Partnership in Community Based Restoration

The NOAA Restoration Center works across the nation to inspire and sustain local efforts to advance coastal habitat restoration. Through its Community-based Restoration Program, the Restoration Center develops multi-year agreements with regional partners to advance projects that offer a broad range of ecological, socioeconomic, and stewardship benefits to coastal communities.

In 2007, stimulated by ESRP’s strategic approach, NOAA’s Restoration Center entered into a three year partnership with Washington Department of Fish and Wildlife that brought over \$1.1 million dollars in federal funds to Puget Sound projects. This partnership increased collaboration between NOAA and state staff, and brought NOAA technical assistance to bear on Puget Sound restoration priorities. A second three-year agreement using ESRP’s competitive selection mechanism was signed with the Puget Sound Partnership in 2011.

“The Estuary and Salmon Restoration Program delivers Puget Sound coastal projects that are ready to compete for NOAA funds and are aligned with program goals. ESRP is a vital pipeline for developing capital projects of national stature.”

Jennifer Steger, NW/AK Region Supervisor
NOAA Restoration Center



STAVIS NATURAL AREA: A LOST EMBAYMENT, RESTORED BY THE DEPARTMENT OF NATURAL RESOURCES

“Our Puget Sound Coastal Program fully supports this program and looks forward to continued participation in ESRP planning and project implementation.”

Tom McDowell, Manager, Division of Environmental Assessment and Restoration
Washington Fish and Wildlife Office, U.S. Fish and Wildlife Service

“The Leadership Council supports the ESRP process and project list. Projects like these get people working while helping achieve our shared goal of a healthy Puget Sound”

Martha Kongsgaard, Chair of the Leadership Council, Puget Sound Partnership

