

2024 ESRP Learning Objectives

The following learning objectives reflect our program's current assessment of what kinds of learning efforts are likely to improve our program efficiency and effectiveness. We will accept and review all eligible proposals. We have organized these objectives around geomorphic shoreform. For all shoreforms, strong proposals will:

1. Identify how results associated with near-term restoration projects may affect decision making around later projects.
2. Develop evidence that can be used to improve restoration decision making in other delta systems.
3. Integrate and leverage the resources and activities of partners.
4. Have specific deliverables that affect decision-making.
5. Make good use of the sequence and scope of planned restoration treatments to isolate factors that affect restoration effectiveness.

RIVER DELTA OBJECTIVES. Delta project work has been focused on the removal or modification of levees and dikes. We anticipate that management of freshwater distributary flows may be critical to future restoration of delta systems. The following learning project topics will receive additional attention in the 2024 learning project review:

D1. Delta System Scale Analysis of Habitat Function. Some of the effects of restoration, such as hydrodynamics, sediment distribution, and salmon growth and survival, are best observed at the scale of a whole river delta system. A strong system-scale learning project will use analysis of system dynamics to inform the design and configuration of restoration efforts. Of particular interest are investigations that seek to understand and predict the relative benefit of alternate restored system configurations for salmonid rearing, and/or the resilience of system restoration strategies to sea level rise and future climatic conditions.

D2. Critical Design Decisions Surrounding Dike/Levee Removal or Connectivity Improvements. Levee and dike removal is our preferred management measure for delta restoration ([Clancy et al. 2009](#)) and increasing connectivity is a key objective of many delta restoration projects. There are multiple design decisions that affect project cost and are based on assumptions about how habitats will evolve following dike removal. A strong proposal would:

1. Leverage and synthesize existing regional and national work.
2. Result in specific tools or guidance to inform design.
3. Make use of variable or phased restoration treatments or natural experiments to isolate the effects of specific design elements.

D3. Planning for Multiple Benefits from Delta Restoration. We lack agreement within agricultural deltas about desired future delta condition. Different community partners may have competing interests in flood risk management, development, agricultural viability, or restoration. We are interested in learning projects that:

1. Create opportunities for community interested parties to clarify their objectives.

2. Lead to economic, physical or ecological analyses of delta landscape management alternatives.
3. Result in restoration strategies that integrate restoration, flood management, and the resilience of agricultural economies within river floodplains.

A strong effort would result in a set of viable and broadly endorsed restoration projects. A strong proposal will be finite in scope and endorsed by diverse community partners.

BEACH OBJECTIVES. A limited but growing number of restoration actions restore beach sediment supply and are funded through the ESRP program. The majority of beach project funding has been used to acquire parcels with feeder bluffs prior to development, at a high cost. The following general topic will receive additional attention in the 2024 learning project review:

B1. Identification of Beach System Targets. Prior work has begun to integrate existing shoreline data to allow for more data-driven identification of beach systems most suitable for specific management measures and purposes (see [Beach Strategies hub site](#)). Further development of this approach will help project sponsors to identify actions, and funders to evaluate projects. We would like to support research that informs the development of beach decision support models that may consider:

1. The specific tools to be employed.
2. The specific services that we aim to protect and restore.
3. The relative importance of different beach ecosystems for providing these services.
4. The anticipated effects of sea level rise and global climate change.
5. Factors that create risk of failure of restoration actions to meet their objectives

A strong effort will both leverage best available spatial data and be compatible with the ESRP [beach strategies](#). We further encourage efforts that investigate the connection between drift cell characteristics and measures of ecological function including forage fish, eelgrass, and invertebrate abundance.

EMBAYMENT OBJECTIVES. A number of ESRP actions involve the restoration of coastal inlets and barrier embayments. Local assessments provide our primary basis for project selection. We have no tools for tracking our work compared to historical losses, or to estimate the relative value of different actions in the embayment landscape. The following learning project topics will receive additional attention in the 2024 learning project review:

E1. Inventory and characterization of Puget Sound sub-estuaries for restoration.

Puget Sound has been identified as a single estuary of national significance. Within the Puget Sound are thousands of creek mouths, embayments, and inlets, each of which can be considered a sub-estuary within Puget Sound. Existing data provides the foundation for identifying and characterizing protected coastal wetlands and their associated watersheds. An inventory of sub-estuaries and their relationship with adjoining beach systems and watersheds are necessary steps in developing sound-wide assessment methods or tracking restoration progress and potential. A strong proposal would:

1. Build on existing polygonal representation of Puget Sound sub-estuaries.

2. Relate these units to characteristics of [related beach systems](#) and watersheds.
3. Characterize these units using best available data to support assessment for restoration.

E2. Identification of Embayment System Targets. Initial work has begun to integrate existing shoreline data to allow for more data-driven identification of beach systems most suitable for specific management measures and purposes for beach systems (see [Beach Strategies wiki page](#)) and we would like to expand this work to include embayments to help project sponsors identify actions and to help funders evaluate embayment projects. We would like to support research that informs the development of embayment decision support models that consider:

1. The specific tools to be employed.
2. The specific services we aim to protect and restore.
3. The relative importance of different beach ecosystems for providing these services.
4. The anticipated effects of sea level rise and global climate change.
5. Factors that increase the risk of restoration actions failing to meet their objectives.

A strong effort will leverage best available spatial data, be compatible with ESRP [beach strategies](#), and engage a range of community partners that are concerned about the beach services in question. We further encourage efforts that investigate the relative importance of different embayments for nearshore salmonid rearing services as well as the role of connectivity with upland ecosystems and other embayments in contributing to ecological function.