

*Enhancement of the Habitat Restoration Prioritization Framework for the Lower Columbia River*

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Since the mid 1800s, the lower Columbia River has been altered by a variety of anthropogenic impacts. Collectively, these factors have significantly reduced the quantity and quality of habitat available for juvenile salmonids and other species. In the last decade the Lower Columbia River Estuary Partnership (Estuary Partnership) and its partners have restored approximately 16,235 acres of the habitat that has been lost. However, much remains to be accomplished and the next phase of habitat restoration in the estuary will likely require larger, more complicated projects that demand a more focused, scientifically-based, regional strategy. Various tools and products have been developed to aid in the restoration process. While these have assisted organizational efforts aimed at restoring particular locations, at this time there is no overarching, unifying regional strategy that evaluates potential restoration projects within a larger ecosystem based context where structure and function of the larger scale landscape are considered.

The Estuary Partnership, in collaboration with Pacific Northwest National Laboratory, has been working towards such a strategy, with the development of its Restoration Prioritization Framework. This is a multi-tiered approach for evaluating restoration potential over a broad range of spatial scales, within an ecosystem based context. Tier 1 of this project provides a geospatial assessment of the level of current anthropogenic disturbance to the landscape, and suggests best restoration practices based on level of disturbance. Tier 2 consists of a scoring system that can be used to rank a particular set of restoration proposals. Tier 3, the focus of this project, provides further enhancement to the existing framework. In this tier, a habitat suitability index will be generated to evaluate habitat opportunities for salmonids. In addition, a historical landscape assessment will provide information about changes in the quality, complexity, and diversity of habitats and habitat forming processes that have occurred over time. Combining information from these two datasets can then help to identify potential target areas for restoration within the overall ecosystem. When completed, the Prioritization Framework will serve as an effective tool to advance an ecosystem based strategy for habitat restoration, with a specific goal of restoring endangered salmonids. In conjunction with additional restoration tools, it can be combined into a multiple lines of evidence approach to identify key restoration locations and select projects that have the highest probability of meeting performance objectives.