PROGRAMMATIC BIOLOGICAL EVALUATION FOR SHORELINE PROTECTION ALTERNATIVES IN LAKE WASHINGTON

A. Introduction

The shoreline protection alternatives guidance (SPAG) is designed to streamline the federal permit process to replace existing rip rap and concrete bulkhead projects in Lake Washington. The SPAG also provides for a more environmentally appropriate erosion control method and enables direct beach and water access for land owners. In many situations the erosion control methods described in the SPAG may be more cost effective than traditional rip rap bulkhead replacements.

The applicant will fulfill the United States Army Corps of Engineers (COE) permit requirements under the Clean Water Act (CWA) and the Rivers and Harbors Act (RHA) for bulkhead replacement or repair by meeting the design elements in this SPAG. Issuance of a federal permit in Lake Washington includes consultation with the National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) under the Endangered Species Act (ESA) for Puget Sound Chinook (*Oncorhynchus tshawytscha*) and its critical habitat, Puget Sound Steelhead (*O. mykiss*), and Bull Trout (*Salvelinus confluentus*) and its critical habitat. Proposed actions that comply with SPAG and only involve bulkhead replacement will not require additional minimization measures for aquatic species under the ESA, Magnuson Stevens Act (MSA), RHA or CWA.

The three alternative methods for bulkhead replacement described below in this document will fulfill the federal permit process including consultation with NMFS and United States Fish and Wildlife Service (USFWS). All projects that meet the elements of this programmatic will receive a letter and a Nationwide Permit (s) from the COE. If bulkhead replacement projects do not meet this guidance then individual ESA consultation with the COE and the services will be necessary. For projects that involve both pier and bulkhead replacement or remodels, the use of both the SPAG and Regional General Permit (RGP) #3 is encouraged for expedited permitting and for more environmentally functional projects.

Erosion control methods that use ecological principles and techniques to achieve stabilization of the shoreline while enhancing habitat, improving aesthetics and reducing costs should be considered first before any other bank protection method. Where appropriate, rounded gravel, vegetation, wood and other natural materials should be used to protect shorelines and maintain shallow water and shallow gradients to re-establish the integrity of the shoreline. The range of gravel gradation is determined based on site specific conditions such as exposure, wave fetch and slope. Larger gravel is more resistant to higher wave action and will remain more stable on a steeper slope than smaller sized gravel. Because the functional effectiveness of gravel fill increases (and the cost of gravel decreases) as the extent of coverage increases, multiple lot projects are encouraged.

Gravel fill acts like other shore protection structures to prevent erosion of the backshore. At the same time gravel fill provides a shallow slope and substrate that is better for native juvenile salmonids by creating shallow water conditions. A shallow gravel beach is also a safe way for humans to access the water. Depending on site conditions, coarse sand may be retained on the beach, too. We recommend adding gravel fill to attain the shallowest grade possible at the site. We also recommend the addition of beach wood and native plants along the shoreline.

The City of Seattle Park Department has added gravel fill to the shorelines of two public beaches in Lake Washington, Seward Park and Magnuson Park, to improve habitat conditions along the shoreline, to protect the shoreline from erosion, and for the greater enjoyment of the public.

Seward Park Beach (north facing beach)

Magnuson Park Beach (southeast facing beach)