Arrowhead Lagoon Restoration

Arrowhead Lagoon (AL) is a nearshore pocket estuary located along the north shore of Camano Island. The lagoon is located along the path of currents from the Skagit and Stillaguamish Rivers, thereby providing refuge, foraging, and rearing opportunity for fry migrant Chinook, as well as a nursery and nearshore habitat for other estuarine/marine fish species.

Skagit River System Cooperative (SRSC), in cooperation with local landowners, proposes to restore approximately 2.0 acres of intertidal habitat within the eastern portion of AL. Currently natural ecosystem function is impaired due to manmade constrictions within the inner lagoon. Actions will include removal of trail fill, a failing culvert, and a short bridge; construction of a new bridge; removal of fill along the northern interior PE shoreline; and revegetation in selected areas.

This restoration proposal is timely because local landowners, represented by the Eagle Tree Estates Property Owners' Association (ETEPOA), have requested assistance for a failing culvert in the existing beach access trail fill. Removal of fill and construction of a spanning bridge would result in significant ecological improvement compared to the proposed culvert replacement alone. SRSC will work closely with the property owners to address beach access concerns and maximize restoration

The site consists of approximately 5.0 acres of intertidal lagoon area bordered by a dike to the west, a steep bluff to the south, and gravel/sand spit to the north (Figure2). The historic lagoon consisted of approximately 15-16 acres of intertidal and marsh area. An access trail and short bridge exist near the eastern end of the lagoon (photos 1 & 2). Several areas along the inner northern shoreline appear to be fill (based on aerial photo comparisons). Beyond the dike to the west, the sand spit is developed by a residential community called Arrowhead Beach. The former tidal lagoon area was cut off by the dike and now appears to be predominately freshwater wetland.
Spartina began to invade the lower intertidal area in the eastern lagoon in the mid 1990's. From 1997 to 2000, Spartina increased from less than one acre of scattered coverage to 10 acres of solid cover. Active management by Wild Lands over the last few years has nearly eradicated this invasion (personal communication with Steve Worth, Wild Lands). Spartina is being monitored and control is ongoing as needed.

Arrowhead Lagoon is a pocket estuary that receives freshwater influence from groundwater and surface runoff from the adjacent upland area to the south and southwest. The site also receives seasonal freshwater influence from the Skagit and Stillaguamish River discharges which are located approximately 2.5-3 miles to the east.

OBJECTIVES

● Remove approximately 350 cubic yards of trail fill from the inlet tidal channel.

● Remove the existing bridge and support structures from the tidal channel.

● Remove approximately 2.0 acres (13,520 cu. yds.) of fill from the northern shoreline of the inner lagoon.

● Construct a new bridge that spans the tidal channel, maximizing tidal exchange and habitat area, and provides property owner access (including small emergency vehicles such as an ATV) to the outer beach.

● Work closely with ETEPOA and communicate with the adjacent landowners in Arrowhead Beach Community during planning, design, and project implementation.

COMMENTS

? There seems to be 2 fills of significance here, one associated with the homeowners access trail and another that bisects the lagoon. It is difficult to tell from the proposal what the linkage is between these two levees and why the larger levee is not currently planned for removal. Consequently it is difficult to gather what constraints the existing lagoon levee has on this restoration project.

? Assuming no significant constraints from the lagoon levee, this project seems to have most aspects of a restoration project covered with the exception of perhaps information on the hydraulic characteristics likely to be established when completed. The design of the bridge needs to be clearly justified prior to construction and the proposal doesn't shed much light on how the determination of bridge size will be made.