



# Harper Estuary

The Harper Estuary is a small embayment located near Port Orchard on the east shoreline of the Kitsap Peninsula. A brick mining and manufacturing facility was built in the southwest portion of the estuary in early 1900s on top of the salt marshes and beach. Roadway embankments and SE Olympiad Drive have restricted tidal influence to a small culvert, which has created an isolated freshwater wetland in the southern portion of the estuary. The proposed restoration would restore tidal inundation to the Harper Estuary by removing SE Olympiad Drive. Relict bulkheads, debris, and fill associated with the abandoned brick facility would be removed to re-establish estuary habitats and native vegetation would be planted.



IMAGE: Washington State Department of Ecology (2006)

## Processes Restored

- Movement of sand and gravel along shorelines.
- Natural erosion and accretion of beaches.
- Natural formation of tidal channels in estuaries.
- Unrestricted movement of saltwater through tidal channels in estuaries.
- Accumulation and retention of organic material from plants and aquatic animals.
- Unrestricted movement and migration of fish and wildlife.
- Natural exposure to wind and wave action.

## Conditions Improved

- Restored coastal embayment that provides valuable nursery habitat for threatened species of juvenile salmon such as Chinook, increasing their survival and supporting population recovery in Puget Sound.
- Re-established intertidal and shallow subtidal areas to encourage the growth of kelp and eelgrass, increasing nearshore productivity for fish, birds and other marine species.
- Improved connectivity between nearshore and adjacent uplands.
- Increased area, length, and complexity of shoreline.



Image above depicts major project features. See design report for additional details.

SOURCE: ESA (2011); Bing Maps (2009)

### Key Design Elements

The restoration would completely remove SE Olympiad Drive and associated fill to allow unrestricted tidal exchange throughout the entire estuary. A gravel boat launch would be removed to restore beach and estuary habitat. Relict brick piles and other debris would be removed from the estuary. Tidal channels would be excavated in the southern portion of the estuary and riparian vegetation would be planted in restored areas.

### Site Summary Statistics

- Area of Restored Process: 6 acres
- Total Project Cost: \$12.2 million

*For more detailed information regarding this conceptual design, please visit our website at [www.pugetsoundnearshore.org/cdr.html](http://www.pugetsoundnearshore.org/cdr.html).*