



Nooksack River Delta

The Nooksack River Delta is a large system that encompasses both the Nooksack and Lummi River estuaries, which drain the majority of Whatcom County. The delta has experienced extensive modification that has reduced the amount and quality of river, floodplain and nearshore habitats. Prior to 1860, most fresh water flowed west of the Lummi Peninsula through the Lummi River. By around 1860, removal of large wood, draining, diking, levee construction and damming redirected almost all flow from Lummi Bay to Bellingham Bay, which allowed substantial agricultural use and residential development. Today the mainstem Nooksack River flows into Bellingham Bay on the east side of the Lummi Peninsula. The west side of the delta currently receives much less freshwater flow from the Nooksack River and has been separated from tidal flows by a levee system. The proposed restoration is complex and includes many interrelated elements such as removal and setback of levees along the Nooksack River to restore natural river channel and floodplain dynamics. The site encompasses several thousand acres and would reconnect the Lummi and Nooksack Rivers as they once existed.



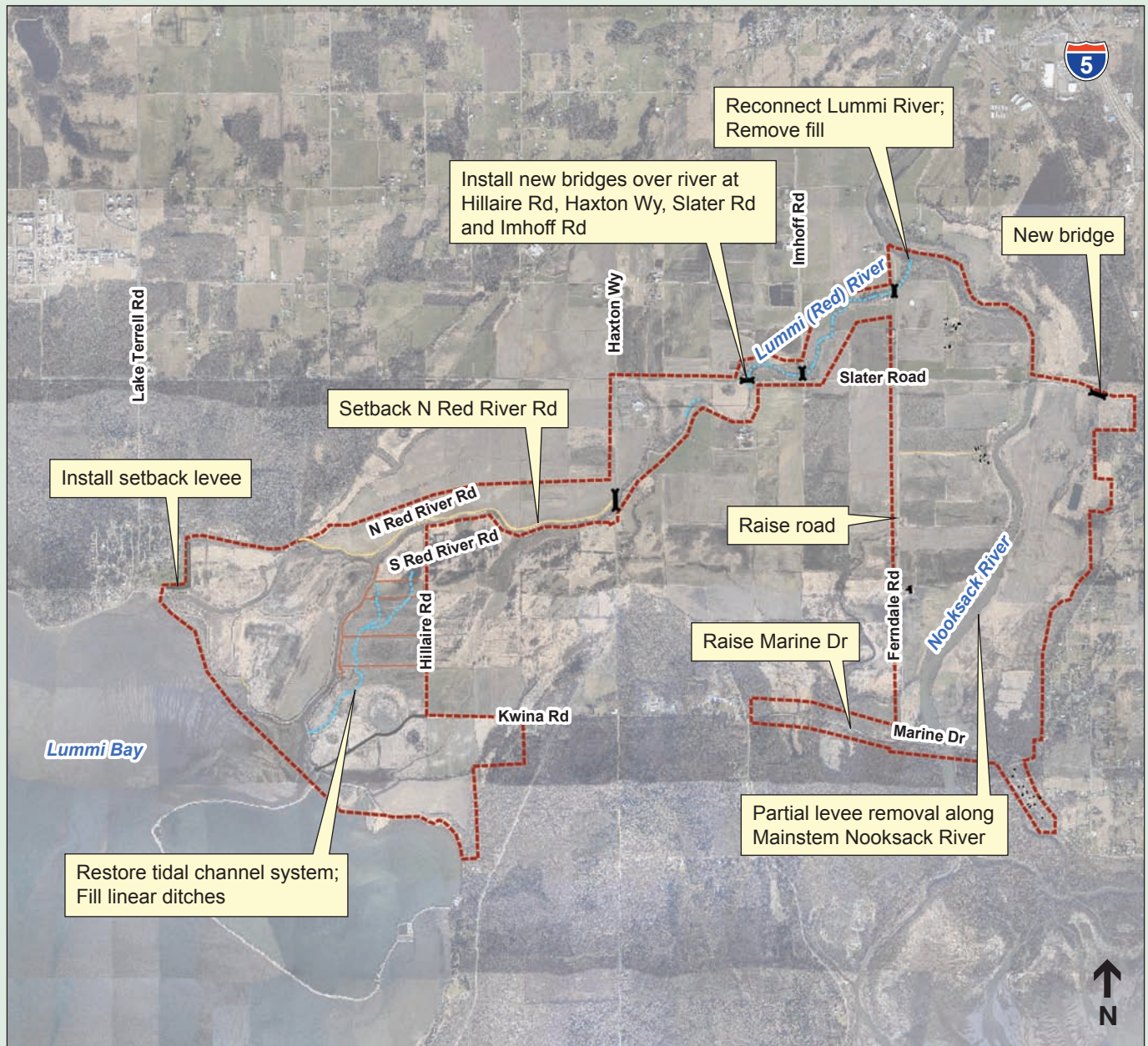
IMAGE: Google Earth (2011)

Processes Restored

- Natural erosion and accretion of beaches.
- Natural formation of tidal channels in estuaries.
- Unrestricted flow of freshwater rivers and streams into estuaries.
- Unrestricted movement of saltwater through tidal channels in estuaries.
- Accumulation and retention of organic material from plants and aquatic animals.

Conditions Improved

- Restored large river delta 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.
- Improved resiliency of the shoreline to respond to changes in the environment such as rising sea levels and increasing frequency of storm events.



SOURCE: ESA (2011); USDA-NAIP (2009)

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

Key Design Elements

The restoration includes partial levee removal along both banks of the Nooksack River and levee setbacks on North Red River Road and at the mouth of the Nooksack estuary. The Lummi River channel would be dredged and graded to reconnect it to flows from the Nooksack River. Old agricultural ditches would be filled and tidal channels recreated. Several roads would be raised on bridges to allow more tidal flows across the delta. Some residences in the floodplain would need to be relocated.

Site Summary Statistics

- Area of Restored Process: 1,324 acres
- Total Project Cost: \$414.6 million

For more detailed information regarding this conceptual design, please visit our website at www.pugetsoundnearshore.org/cdr.html.