**References for Stillaguamish Letter on NWP RGCs Submitted by the Stillaguamish Tribe Natural Resources Department, August 18, 2016.**

*The following refer to documentation of shoreline hardening in the Stillaguamish Usual and Accustomed Area as well as plans calling for restoration and/or remedial actions necessary for Puget Sound ecosystem health and recovery. Franchesca Perez, biologist,* *fperez@stillaguamish.com**.*

Freshwater Shoreline

The Stillaguamish River is 26% modified (or 35.7 miles), with a goal of restoring a minimum of 4.1 miles by the year 2025, as noted in:

 Stillaguamish Watershed Chinook Salmon Recovery Plan 2005. Stillaguamish Implementation Review Committee. Published by Snohomish County Department of Public Works, Surface Water Management Division. Everett WA.

**Insignificant change since 2005. For updated miles of armoring see:**

 Shoreline Inventory Status Report. 2010. Published by Snohomish County Department of Public Works, Surface Water Management Division. Everett WA.

Marine shoreline

Stillaguamish nearshore consists of 33.9 miles of marine shoreline, with 3.2 miles Unmodified and 91% modified; delta shoreline reduced from historical conditions by 21%.

 PSNERP website and technical report: Simenstad et al. 2011. Historical Change of Puget Sound Shorelines: Puget Sound Nearshore Ecosystem Project Change Analysis. Puget Sound Nearshore Report No. 2011-01. Published by Washington Department of Fish and Wildlife, Olympia, Washington, and U.S.Army Corps of Engineers, Seattle, Washington.

 2016 State of Our Watersheds. Northwest Indian Fisheries Commission, Olympia WA. Pp. 260, 263-264 documenting disconnection of Stillaguamish floodplain and estuary by dikes, levees, and bank armor.

Bank hardening is identified as the top threat across all ecosystem targets in the Stillaguamish Delta, Port Susan, with primary objective to “protect 100% of remaining natural shoreline. Where instances of armoring are legally permissible under the single-family exemption in State law, encourage softshorearmoring.” A strategic action to actually reduce armoring is also listed.

 Port Susan Marine Stewardship Area Conservation Action Plan, Phase II. Massaua et al. 2012. This plan was created and supported by Stillaguamish Tribe, Tulalip Tribe, Island County, Snohomish County, and the Northwest Straits Commission.

##### Shoreline armoring is a Vital Sign Indicator for the Puget Sound Partnership (PSP), the state agency leading the region’s collective effort to restore and protect Puget Sound, whose mission it is to “Accelerate the collective effort to recover and sustain the Puget Sound.” From 2011 to 2020, the Partnership’s target is that the total amount of armoring removed should be greater than the total amount of new armoring in Puget Sound (total miles removed is greater than the total miles added). As of 2016, a net 1.1 miles of new armoring has been Added to Puget Sound, and an unknown quantity of freshly built armored has been installed for the purposes of Maintenance. (From the PSP website).

**Additional references:**

Listed as in letter as Dethier et al 2011:

Fresh, K., M. Dethier, C. Simenstad, M. Logsdon, H. Shipman, C. Tanner, T. Leschine, T. Mumford, G. Gelfenbaum, R. Shuman, J. Newton. 2011. Implications of Observed Anthropogenic Changes to the Nearshore Ecosystems in Puget Sound. Prepared for the Puget Sound Nearshore Ecosystem Restoration Project. Technical Report 2011-03.Dethier, M.N., Raymond, McBride, A.N., Toft, J.D., Cordell, J.R., Ogston, A.S., Heerhartz, S.M., Berry, H.D. Multiscale impacts of armoring on Salish Sea shorelines: Evidence for cumulative and threshold effects. 175 Journal of Estuarine, Coastal and Shelf Science (2016) 106-117.

Simenstad, C. A., M. Ramirez, J. Burke, M. Logsdon, H. Shipman, C. Tanner, C. Davis, J. Fung, P. Bloch, K. Fresh, D. Myers, E. Iverson, A. Bailey, P. Schlenger, C. Kiblinger, P. Myre, W. Gerstel, and A. MacLennan. 2011. Historic Change of Puget Sound Shorelines: Puget Sound Nearshore Ecosystem Project Change Analysis. Puget Sound Nearshore Report No. 2011-01, Published by Washington Department of Fish and Wildlife, Olympia, Washington, and U.S. Army Corps of Engineers, Seattle, Washington.

Williams, G.D., R.M. Thom, J.E. Starkes, J.S. Brennan, J. P. Houghton, D. Woodruff, P.L. Striplin, M. Miller, M. Pedersen, A. Skillman, R. Kropp, A. Borde, C. Freeland, K. McArthur, V. Fagerness, S. Blanton, and L. Blackmore. 2001. Reconnaissance Assessment of the State of the Nearshore Ecosystem: Eastern Shore of Central Puget Sound, Including Vashon and Maury Islands (WRIAs 8 and 9). J.S. Brennan, *Ed*. Report prepared for King County Department of Natural Resources, Seattle, WA.

WDFW. 2016. Puget Sound Shoreline Armoring Trends. Circulated in summer 2016 by the Puget Sound Partnership: