

**2015-2017 FLOODPLAIN MANAGEMENT PROJECT
PRELIMINARY PROPOSAL**

Project Title: Lower Big Quilcene Preliminary Design and Acquisition: A Multiple Benefit Floodplain Project

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1. Project Description:

The Lower Big Quilcene River floodplain is home to the town of Quilcene, including residential areas in the river's flood hazard zone, and is a high priority for restoration to recover ESA-listed salmon species. A coalition led by the Hood Canal Salmon Enhancement Group (HCSEG), Jefferson County (County), and The Nature Conservancy (TNC) is partnering on an ambitious, integrated floodplain restoration project along the lower mile of river that will provide a number of benefits, including flood risk reduction, salmon habitat restoration, channel migration zone protection, shellfish protection, water quality improvements, recreational access, education, and economic vitality.

Following feasibility work completed in 2013, we are proposing to: 1) develop a preliminary design that addresses flood hazard reduction, salmon recovery, and other community needs and priorities; and 2) acquire key floodplain parcels that will be required for restoration. The products described in this phase are distinct deliverables, including preliminary (30%) design, draft permit applications, and acquisition of 1-3 key floodplain properties from willing sellers that are critical in advancing the project toward full design and implementation construction.

The key project tasks (to be completed within two years immediately following funds release) are:

- 1) Develop a model to assess the effects of alternative restoration actions on flood risk and habitat.
- 2) Develop a hydrodynamic model to explore the effect of restoration on shellfish resources.
- 3) Develop a 30% project design that restores floodplain and estuary habitat, reduces flood risk, and is consistent with community needs so that the project provides a suite of benefits to the local community when implemented.
- 4) Develop draft permit applications and an estimate of probable cost for implementation.
- 5) Develop a shellfish, water quality, and sediment monitoring plan so there is agreement on how to monitor and, if necessary, mitigate the potential effects of project implementation.
- 6) Build the case for implementation by communicating with individuals, organizations and governments so that the community, political leaders and funders support project implementation.
- 7) Acquire 1-3 floodplain parcels in highest risk area for flooding, including structure demolition and planting.

Flood Hazard/risk reduction: Along the lower mile of Big Quilcene, over a mile of roads and more than 30 homes are located in the 100-year flood zone including a neighborhood and the commercial access route to Coast Seafood's Quilcene hatchery, which are subject to regular flooding. Coast's hatchery is the second largest employer in Jefferson County and supplies juvenile shellfish internationally. FEMA has identified the Lower Big Quilcene as a site of repetitive loss.

Dikes and armoring on either side of the lower river constrain flows to a single channel. Sediment has settled out in the flat main channel resulting in a riverbed elevation higher than the surrounding floodplain. During high flows, homes in the floodplain are subject to flooding from overtopping dikes, seepage, and backwater conditions created by the Linger Longer Road bridge, located at approximately river mile 0.5. Floodwaters that overtop the north levee cause one or more road closures annually. High groundwater and floods also contribute to septic system failure and water quality issues.

Flood reduction measures, such as dike and levee setback or removal, bridge replacement, and other actions suggested in two county planning documents will be assessed for their effectiveness in reducing flood risk. An

alternative that reduces risk to the maximum extent possible, while also addressing other community needs, will be included in the preliminary design. The County has identified several residential properties in the flood hazard area for buy-out and restoration as part of this project phase.

Ecosystem protection or restoration: There are 3 listed and 3 non-listed salmon species that will benefit from restoration on the Lower Big Quilcene, including ESA-threatened Hood Canal summer chum salmon, which, according to their recovery plan, need at least 800 additional acres of estuary habitat throughout Hood Canal. In an analysis of six Hood Canal estuaries, TNC identified the Lower Big Quilcene as the largest and best opportunity to realize this habitat need and address other community benefits. Restoration in the Lower Big Quilcene will restore natural processes on up to 219 acres of floodplain and estuary, with direct restoration on up to 76 acres (depending on final design), restoring habitat for ESA-listed Hood Canal summer chum, Chinook, and steelhead and non-listed coho, fall chum, and cutthroat.

The lower river has aggraded significantly due to dikes and armoring and the Linger Longer Road crossing, which also limit the lower river's movement across the Channel Migration Zone. Restoration actions that provide the river with greater access to the channel migration zone such as setback or removal of up to 1.5 miles of dikes and levees and bridge replacement will be assessed as part of the proposed project and a preferred alternative will be advanced in the preliminary design. Restoration will improve the survival of juvenile chum salmon and non-natal juvenile Chinook by improving access to nursery habitat in the estuary and floodplain wetlands, and allowing for improved acclimatization to the salinity of Hood Canal.

Other Benefits: In addition to flood hazard/risk reduction and ecosystem restoration, this broadly supported project includes: **Compatibility with shellfish, recreational access, water quality, and economic stability.**

Shellfish resources located in Quilcene Bay have been identified by stakeholders as vitally important to the culture and economy of Quilcene. Tidelands owned by WDFW provide shellfish resources for recreational and tribal harvest. Coast Seafoods produces billions of clam, oyster, and mussel larvae at their Quilcene Bay hatchery that are shipped to growers along the Pacific Coast and around the world. Both WDFW and Coast Seafoods have submitted letters of support for the project.

Recreational access to the river and bay are also important community benefits of this project, including improved access and facilities for the terminal coho fishery as well as shellfish harvest, hunting, birding, and walking. Public access and facilities alternatives will be developed to facilitate appropriate access and responsible use of the floodplain

This project also addresses a 303(d) **water quality** listing for temperature in the river and concerns about bacterial pollution. The proposed project will address the root causes of bacterial water pollution by incorporating infrastructure and facilities to support recreational access and by reducing flooding of homes and their septic systems. The project will also restore riparian forests where appropriate, which will reduce water temperatures in the lower river.

Finally, the Quilcene area lost its main economic driver, the logging industry, over 25 years ago and is interested in utilizing its natural features and landscape to regain **economic stability**. The community is interested in improving local employment and revenue generation by making conservation and restoration relevant to job creation and local businesses. Alternative scenarios for economic stability will be developed and one scenario will be selected for further development into an economic enhancement plan.

Cost-effectiveness: To develop realistic project costs for this complex project, a knowledgeable consultant with many years of experience was engaged. The consultant's work included vetting scopes of work with appropriate stakeholders and incorporating their input. Much of the total project cost identified relates to addressing shellfish stakeholder concerns. The support of this interest group is critical because of their influence (they are one of the largest employers in this economically depressed area). A foundation of trust has been built and a path forward addressing their concerns has been identified. While the work identified has increased costs for this phase, it is expected to prove cost-effective over the project lifetime and beyond because of the support of this key stakeholder group, without whom no project here would be possible.

Long-term cost avoidance: Actions considered as part of the pre-construction and acquisition work identified here have the potential to significantly reduce future maintenance, operation, and emergency response costs related to flooding. Setting back or removing dikes and levees and addressing a regularly flooded road and bridge will reduce costs associated with flooding homes and roads currently located in a FEMA repetitive loss area. These actions will also reduce maintenance costs due to flood damage and erosion. In addition, main access routes to homes and the Coast Seafoods Hatchery will be maintained so that emergency service response times are not compromised. Bacterial water pollution caused by recreational user issues and flooded septic systems will be addressed as part of the project, reducing the potential for emergency shellfish closures, which have been an issue in the past and impact businesses and jobs.

Anticipated changes in sea level rise will be incorporated into project modelling and inform decisions about project element configuration in the preliminary design. The project design will accommodate future changes to hydrology, sediment supply and other factors affecting the floodplain and estuary by providing more room for dynamic natural processes unfold while limiting effects to human land uses and activities.

Demonstration of need and support: Restoration of the Lower Big Quilcene River for salmon recovery and flood risk reduction has been identified in numerous planning documents: **1)** Lower Big Quilcene River Comprehensive Flood Hazard Management Plan, 1998 **2)** Big Quilcene River Linger Longer Reach Feasibility Study and Action Plan, 2005 **3)** Channel Migration Zone Study, Jefferson County, Washington: Duckabush, Dosewallips, Big Quilcene and Little Quilcene Rivers, 2004 **4)** Site of repetitive loss under FEMA (lower Big Quilcene) **5)** 2012/2013 Puget Sound Action Agenda **6)** Hood Canal and Eastern Strait of Juan de Fuca Summer Chum Salmon Recovery Plan, 2005 **7)** Hood Canal Watershed Strategic Plan, 2009 **8)** Hood Canal Integrated Watershed Plan, 2013 **9)** Hood Canal Coordinating Council Community Engagement Strategy, 2012 **10)** Ecology 303(d) and waters of concern listings for the Big Quilcene River and Quilcene Bay, 2012.

Stakeholder outreach to the local community has been central to work of project partners. One critical stakeholder is Coast Seafoods, which is the largest employer in the area and operates a regionally significant shellfish hatchery operation in Quilcene Bay. Coast was engaged from the inception of the project. Outreach has also included other local leaders. Letters of support have been provided by HCSEG, the County, Coast Seafoods, Hood Canal Coordinating Council (lead entity for Hood Canal), Port Gable S'Klallam Tribe, Jefferson Land Trust, Quilcene Conversations (local citizens group), TNC, and WDFW.

Readiness to Proceed: The project is **immediately ready to proceed** upon notice of funding. Deliverables will be completed within two years. Stakeholder groups are in place, and a scope of work has been prepared to complete next steps. HCSEG has a portion of the project funding in hand, and the County, HCSEG and TNC have the necessary staff in place to begin work.

Pilot project and leverage opportunities: The issue of floodplain and estuary restoration potentially affecting the critical shellfish industry in Hood Canal is affecting plans for restoration and/or flood risk reduction at five other rivers in Hood Canal. As this project proceeds, it will be an important pilot looking at how to effectively address flooding issues and restore natural functions in these areas while protecting the resource base for this important industry in an area hit hard by economic decline.

Floodplain by Design funds would leverage investments made by project partners, including: 1) the feasibility work funded by the National Fish and Wildlife Foundation and the Laird Norton Family Foundation; 2) \$200,000 in Salmon Recovery Funding Board (SRFB) funding and \$40,000 in USFWS funds to contribute to the preliminary design; 3) land acquisitions within the floodplain for the purpose of benefiting salmon and flood control, funded by SRFB and Title III of the Secure Rural Schools and Community Self Determination Act (SRSCDA).

2. Estimated Budget:

Amount requested from Ecology	\$844,346
Non-state matching funds, including source	\$70,000 federal grants \$141,086 private funding
Total Project Cost	\$1,055,432

This preliminary design and acquisition phase is an important early step in an ambitious project that seeks to integrate flood risk reduction, ecosystem restoration, and a large number of community benefits in a large project along the lower mile of the Big Quilcene River. There are several key reasons why costs are higher for this project than others might be at this phase: 1) The in-depth scope and budget development behind each of the project elements described here was extremely thorough leading to very realistic expectations of project cost, and reducing the likelihood that costs will be added as work progresses; 2) Stakeholder concerns and questions are taken into account here at this stage. This gives the project the ability to address any issues early and in a thorough way with the stakeholders at the table. By addressing these questions at an early stage, this reduces the likelihood of issues emerging in later project phases, when changes to the design, permits, or construction documents would be much more costly; 3) The large number of community benefits provided here is an exciting opportunity to do more with this project while engaging much of the Quilcene community, and each benefit adds to the overall project cost. While the cost increases are much less than separate projects addressing each benefit would require, they are more than a single-benefit project would require as well. As mentioned previously, the shellfish considerations included in this project are more than important, they are essential. Without the support of this interest group, a project at this location and at this scale would not be possible.

Budget detail:

Description	DOE Request	Matching Funds	Total
Develop 30% design, draft permit applications and probable cost, including community coordination for integration of multiple benefits.	460,163	211,086	671,249
Acquire 1-3 floodplain parcels including structure demolition and planting.	342,030		342,030
Grant Management	26,537		26,537
Subtotal Project Costs	828,730	211,086	1,039,816
Indirect Costs	15,617	-	15,617
Total Project Costs	844,346	211,086	1,055,433
Matching Percentage		20.00%	