

Planning and Combination (Planning and Acquisition) Project Proposal

Project Number	15-1045
Project Name	Beach Lakes Acquisition and Restoration
Sponsor	Coastal Watershed Institute

- 1. Project Location.** Project is located along 8 approximately 2,070 linear feet of Strait of Juan de Fuca nearshore less than 1/2 mile from the mouth of the Elwha River and directly adjacent to less than 0.4 miles from the current edge of the Elwha River delta (Vicinity Map/Parcel Map/[Photo 1](#)). Project Acquisition site contains approximately 8 acres of the Beach Lake wetland complex, which is-was historically a lagoon hydrologically connected to both the Elwha River mainstem and high flow channels (Figure 3)a remnant mouth of the Elwha River. The beach berm separating Beach Lake from the Strait of Juan de Fuca is periodically breached during storm events providing nearshore pocket estuary habitat and a sea level rise of 2 feet will permanently inundate Beach Lake (Figure 11).
- 2. Brief Project Summary.** Project will acquire and restore a shoreline property to protect natural processes that provide critical nearshore habitat for ESA-listed salmon and forage fish. Fee-simple purchase of 257 acres of shoreline property that contains; --21 acres of tidelands, and 870 linear feet of Strait of Juan de Fuca shoreline and 12 acres of mapped wetlands including the 8 acre Beach Lake complex, a remnant tidal lagoon and high flow channelmouth of the Elwha River ([Figure 3](#)). 21 Acres of the property are within the mapped FEMA 100 year floodway ([Figure 11](#)). 700 linear feet of perennial-Type 4 streams on the property feed Beach Lake. Once parcel is acquired and ownership is transferred to a local conservation partner, livestock will be removed from the property, 9-10 buildings and 0.25 acres of impervious surfacesone tennis court will be removed, at least 2 septic systems will be decommissioned and 10 acres will be revegetated with native trees and shrubs. Parking, and trails and a toilet will be paid for solely with matching funds and will be installed away from the nearshore at the southeast corner of the property to facilitate public beach access. Preliminary-Final engineering designs will be produced and, permits will be secured to remove a multi-decade legacy of failed hard armor structures that currently litter 2,0870 linear feet of the upper and lower intertidal shoreline in front of and adjacent to the project site (Figures 5, 6 and 8). Project partner, North Peninsula Building Association has committed to provide no-cost contractor services to remove rock armor from the beach in front of the Beach Lake property if this proposal is funded (Attached Correspondence, NPBA LOS).
- 3. Problems Statement.**
 - A. Describe the problem including the source and scale.** Post-glaciation, the Beach Lake parcel was a river mouth of the Elwha River;lagoon hydrologically connected to both the mainstem Elwha River and floodplain high flow channels of the Elwha River (Figure 3). Sediment starvation associated with the former in river dams reduced That historic river mouth now exists as the Beach Lake to an isolated wetland complex (Figure 4) that now functions as an occasional pocket estuary. In the 1930's the majority of this parcel was cleared and developed and currently contains cattle, 9-10 structures, 2 septics and a tennis court and paved

driveway - all in close proximity to the marine shoreline and paleo river channel. Excessive beach erosion resulted in shoreline armor placement as early as the 19540's. Over the subsequent decades repeated armor failures lead to serial unsuccessful re-armoring projects that utilized rip rap and roadbed slabs. Continued erosion has distributed this armor material throughout the intertidal zone in front of this property, severely impairing natural habitat forming processes, salmonid migration and forage fish spawning (Figures 45 and 62). Current residential and agricultural use of the parcel has diminished the vegetation buffers that would otherwise buffer the Beach Lake wetland complex and the marine riparian shoreline. Beach Lake is mapped as a freshwater wetland, however continued erosion of the shoreline has resulted in overtopping and breaching of a berm, enabling the historic river mouth to also function as a pocket estuary from time to time. Projected rates of sea level rise will increase this connectivity and permanently inundate Beach Lake by 2100 (Figure 11). If this parcel is not conserved, there is a high probability that a future landowner will seek to re-armor and attempt to yet again protect this property from erosion as recently occurred on the neighboring property to the east (Figure 14). Acquisition of this significant coastal wetland containing a portion of the historic river channel will allow for full site restoration and natural processes unimpeded by anthropogenic alterations on 870 linear feet of marine shoreline and 12 acres of the Beach Lake coastal wetland complex that are contained within the 275 acre parcel located in the historic Elwha River floodplain. The acquisition of this parcel will enable the removal of shoreline armor to facilitate natural beach formation processes unimpeded by interference from derelict armor. Design work and permitting will be completed to plan the removal of an ~2,070 foot stretch of derelict armor in front of and adjacent to the acquisition parcel (Figure 8). Accomplishing this restoration while sediments made available to the nearshore by dam removal are capable of being deposited offers a timely and low cost opportunity to naturally restore the project area shoreline via natural delivery of sediments. Restoration work at this site will be coupled with a concurrent and sediment transport modeling studies done funded and performed by the U.S. Army Corps of Engineers to help fine tune understanding of sediment transport along armored shorelines in the drift cell. The Beach Lake Restoration Project and will provide field validated before/after data on if/how armor removal can improve beach evolution. Theis Beach Lake project site will serve as a demonstration site for armor removal that can be applied to management of 5.5 miles of armored shoreline down drift of the project site (Figure 13).

B. List the fish resources present at the site and targeted by your project.

Species	Life History Present (egg, juvenile, adult)	Current Population Trend (decline, stable, rising)	Endangered Species Act Coverage (Y/N)
Chinook	Adult, Juvenile	decline	Y
Chum	Adult, Juvenile	decline	Y –Hood Canal outmigrants
Steelhead	Adult, Juvenile	decline	Y

Coho	Adult, Juvenile	stable	N
Pink	Adult, Juvenile	decline	N
Sockeye	Adult, Juvenile	decline	N
Bull Trout	Adult, Juvenile	stable	Y
Cutthroat	Adult, Juvenile	unknown	N
Eulachon	Adult, Juvenile, Egg	decline	Y
Sand Lance	Adult, Juvenile, Egg	unknown	N
Surf Smelt	Adult, Juvenile, Egg	decline	N
Longfin Smelt	Adult, Juvenile	unknown	N
Herring	Adult, Juvenile	decline	N
Anchovy	Adult	decline	N
Sardine	Adult	decline	N

a. Describe the limiting factors, and limiting life stages (by fish species) that your project expects to address.

The project will protect and restore designated Critical Habitat for ESA listed Puget Sound Chinook. Puget Sound Chinook populations have declined 18 to 90 percent since the 1960s (WDFW, 1993). One cause is the destruction of coastal wetlands and estuaries. 'Ocean-type' Chinook rely on estuarine and nearshore habitat for a significant portion of their juvenile life stage. Otolith data indicates that estuarine residence is important for the success of juvenile chinook salmon surviving later in their life cycle (Beamer et al., 2003, 2005). Out-migrating juvenile summer chum will benefit from removal of shoreline armoring. All migrating juveniles will benefit from increased connectivity between the river delta and adjacent nearshore. Outmigrants depend on this habitat for increasing their size prior to beginning their seaward migration (Fresh & Graeber et al., 2005). Chum exhibit longer residence times in estuaries than all other anadromous salmonids besides ocean type chinook (Dorcey et al. 1978, Healey 1982), and the period of estuarine residence appears to be the most critical phase in the life history of chum salmon and appears to play a major role in determining the size of the subsequent adult runs back to freshwater (Healey 1982, Bax 1983a, Salo 1991). This project will design for the removal of derelict armor to facilitate unimpeded nearshore sediment erosion and deposition processes that will allow for natural processes to continue to evolve and connect Beach Lake to coastal floods and to the expanding Elwha River Delta intermittently reconnect Beach Lake as a pocket estuary. Steelhead and Bull trout migrate along the nearshore, and this project will protect and restore nearshore Critical Habitat. Restoration of the beach at the project site will result in increased abundance of forage fish species which are essential prey for salmonids. Removal of rock armor from the intertidal zone will benefit juvenile and adult salmonids in addition to all intertidal forage fish species of all life stages. Sand lance and ESA-listed Eulachon migrate along the project shoreline. Surf smelt are known to spawn on beaches west of the Elwha River. Given the proximity of source populations, it is anticipated that when shoreline habitat is restored following armor removal that surf smelt will spawn at the project site. Project site is within and will restore Critical Habitat for Chinook, Bull Trout and Eulachon and Proposed Critical Habitat for Steelhead.

C. Project Goals and Objectives.

a. **What are your project's goals?**

Project objective is to acquire in order to Pprotect and restore critical nearshore habitat for ESA-listed Puget Sound Chinook and Coastal/Puget Sound bull trout and in addition to restoring habitat sustaining processes that support rearing and migration of 9 salmonid and char stocks, 5 4 of which are ESA-listedall Puget Sound Salmonids.

Protect and restore forage fish spawning and rearing habitat that benefits all regional forage fish species including ESA listed eulachon.

b. **What are your project's objectives?**

Acquire fee simple title of 275 acres of shoreline property that contains 870 linear feet of nearshore, 12 acres of wetlands and 2 perennial-Type 4 streams.

Remove livestock, 9-10 buildings, 0.25 acres of paved impervious surfaces a tennis-court and decommission at least 2 septic systems.

Revegetate 10 acres of marine and freshwater riparian habitat with native trees and shrubs.

Produce preliminary-final engineering designs, bid documents, restoration specifications and secure permits for the removal of a multi-decade legacy of failed hard armor structures that currently litter 82,070 linear feet of the upper and lower intertidal shoreline in front of and adjacent to the acquisition parcel (Figures 5, 6 and 8). If this project is funded, project partner, North Peninsula Building Association has committed to provide no-cost contractor services to remove rock armor from the beach in front of the Beach Lake property (Attached Correspondence, NPBA LOS).

c. **What are the assumptions and constraints that could impact whether you achieve your objectives?** This project is very straightforward, the only potential delay will be securing match funds that fulfill the full acquisition costs. Acquisition match is being aggressively pursued and CWI expects the majority 7069% of this project's acquisition costs to be funded by a USFWS Coastal Wetland Grant proposal submitted concurrently with this proposal, with funds awarded in Fall-Early 20156. If the Coastal Wetland Grant is unsuccessful, CWI will continue to seek funding for the remainder of funds necessary to acquire and restore this project through partners such as Ecotrust, Ducks Unlimited and The Nature Conservancy.

D. Project Details. *Please answer the questions below and all pertinent supplemental questions at the end of the application form.*

- a. **Provide a narrative description of your proposed project.** As a result of dam removals on the Elwha River, a 100 year supply of beach-sustaining sediment and LWD ~~is~~are being released to the nearshore. To date, ~~~~~approximately 3.5 million cubic yards (of the projected 8 million cubic yards of sand, gravel and cobble capable of beach regeneration) have been deposited-establishing a new river delta at the mouth of the Elwha River. The acquisition~~is~~ parcel is ~~~~~approximately 0.4 miles from the current edge of the new delta (Site Photo 1). The project site has experienced significant erosion as a result of sediment starvation over the past 100 years at a rate as fast as 5 ~~m~~meters per year (landward Figure 8). Approximately 82,070 LF-linear feet of failed armor now litter the project area shoreline in front of the parcel (Figs 5, 6+ and 28).

Despite sediment and LWD made available by dam removal, we have not observed any deposition of sediment or LWD on armored beaches at the project site, however significant erosion behind derelict armor has occurred (Figs 37 and 84). The strategic timing of the acquisition of this parcel enables a significant restoration potential presented by a one-time opportunity to remove armor and better enable this shoreline to retain sediments made available by dam removal while supporting habitat sustaining nearshore sediment transport processes. Further, the site contains Beach Lake, a relic channel of the Elwha river (an ~~~~~approximately 8 acre wetland complex that is primarily open water and forested wetland and occasional pocket estuary). 210 Acres of the parcel and all structures are in the mapped 100 year floodway, suggesting an excellent opportunity to restore additional wetland acreage (Figure 11). There are approximately 9-10 structures, one tennis court, impervious driveways and several two septic systems-septics which will be removed from sensitive wetland buffers to restore dynamic natural processes at the project site (Site Plan).

Conservation of this parcel and removal of rock armor from the beach in front of and adjacent to will allow the shoreline to naturally evolve without restriction to interact with Beach Lake. At present, Beach Lake is breached several times each winter. Sea level is projected to increase by 6" at the project site by 2050 (NAS, 2012). Coupling sea level rise projections with increased storm frequency suggests that saltwater connectivity of Beach Lake will be even more frequent in the future. Protection of Beach Lake and removal of rock armor from the beach in front of the lake will allow unimpeded physical processes that allow Beach Lake to function and evolve as valuable salmonid nursery and refugia habitat now and well into in the future.

- b. **Provide a scope of work.**

December-February <u>2015-6</u>	Stewardship plan for property
January-April <u>2016</u>	Purchase of property
January-June <u>2016</u>	Demolition permits secured
February-June <u>2016</u>	Engineering consultant hired to produce restoration designs
<u>April-September</u> <u>2016</u>	Removal of buildings and impervious surfaces,

_____ septic
 _____ decommissioning
 July-December 2016 Preliminary engineering designs completed
 November 2016 _____ Revegetation of project site
 December-February 2016 Final engineering designs complete
 February-May 2017 Permits Secured
 July-October 2017 Beach armor rock removed from acquisition parcel
 _____ shoreline by project partner North
 _____ Peninsula Building Association

c. Explain how you determined your cost estimates.

Cost estimates have been developed based on experience managing similar projects and consultation with project partners and professional experts.

d. How have lessons learned from completed projects or monitoring studies informed your project?

Monitoring efforts by USGS and SeaGrant have indicated that armor in the vicinity of the project site is interrupting the beach nourishing deposition of sediment (Figs 4 and 57-9). Studies throughout saltwater areas have indicated that shoreline armor is an impediment to sediment transport, LWD deposition and forage fish spawning. Monitoring work conducted by Coastal Watershed Institute has indicated that new beaches in the vicinity of the project site that formed since associated with dam removal now support surf smelt spawning and we therefore hypothesize that once armor is removed and the beach is restored, shorelines at the project site will be capable of supporting forage fish spawning. It is well understood that removal of anthropogenic impediments to natural processes and establishment of large buffers surrounding marine shorelines and wetlands improve the functionality of these habitats and increase the resiliency of coastal ecosystems. Moving forward, a new U.S. Army Corps of Engineers funded and managed drift cell-scale study on transport of dam removal sediments along the shoreline that includes the project area shoreline by the U.S. Army Corps of Engineers will allow the project site to serve as a proof of concept demonstration site for armor removal in the drift cell and will also help to refine model predictions once the armor is removed from the beach (Figure 13).

E. If your project includes an assessment or inventory N/A

F. If your project includes developing a design:

a. Will your project be designed by a licensed professional engineer?

Yes

G. Will you apply for permits as part of this project's scope? Yes,

demolition permits will be secured for building demolition and removal and all R-restoration permitting

will be completed ~~for armor removal, at a later point in time after future final engineering designs are completed using other funding sources~~

H. If your project includes a fish passage or screening design: N/A

I. Context within the Local Recovery Plan.

a. Discuss how this project fits within your regional recovery plan and/or local lead entity's strategy to restore or protect salmonid habitat

The proposed project is represented twice on the North Olympic Peninsula Lead Entity for Salmon's 2015 3-year workplan. Elwha Nearshore Restoration ranks #29 on the 3-year workplan. The Beach Lakes parcel is the ~~#78~~ priority parcel for conservation in the Elwha watershed as identified by North Olympic Land Trust (NOLT, 2015). NOLT's Elwha Watershed Prioritization is a component of the Elwha Acquisition and Restoration project which is ranked #6 on the NOPL 2015 3-year workplan. Work undertaken in the Elwha watershed receives ~~a the highest~~ watershed score of 5 and work undertaken in the nearshore receives a watershed score of 4.27. A strong case could be made that by the time funds are in place to initiate restoration work that the Elwha delta will have expanded to contain ~~this parcel~~ the project area, thus assigning a watershed score of 5 to this project. Armor removal and nearshore restoration are specifically called out for the project site in multiple local and regional assessments (WRIA 18 Limiting Factors Analysis, 1999; Clallam SMP Restoration Plan Draft, 2013; NOAA Elwha Fish Restoration Plan, 2008; Elwha-Dungeness Watershed Plan, 2005; North Olympic Peninsula Lead Entity Salmon Recovery Strategy, 2011; Elwha Nearshore Consortium Proceedings 2015, Nature's Value in Clallam County, 2013). Restoration at this project site will benefit all anadromous fish stocks of the Elwha watershed, outmigrating salmonids originating from throughout the Salish Sea and coastal rivers in addition to the forage fish that they depend upon.

b. Explain why it is important to do this project now instead of later.

Severe degradation of the nearshore at the project site is partially attributable to sediment and LWD starvation from 2 dams that interrupted sediment and LWD transport to the nearshore for a century. Dam removal has restored habitat for riverine life stages of Elwha River salmonids, however, the nearshore remains severely impaired. This proposed project will couple river restoration with restoration of nearshore Limiting Factors for the benefit of early saltwater life stages of salmonids originating from the Elwha River in addition to Salish Sea and coastal outmigrants that access the Elwha River estuary. Now that the dams are gone and sediment and LWD ~~hasve~~ begun to ~~land on~~ arrive in the nearshore, it is time to ensure that naturally available beach forming materials are capable of being deposited on downdrift beaches. Approximately 40% of beach forming material made available by dam removal has arrived in the nearshore, expanding the Elwha delta by ~~~approximately~~ 80 acres since dam removal (Site Photo 1). The current edge of the Elwha delta is ~~less than 0.4 miles from~~ directly adjacent to the project site (Figure 2) and will continue to

dynamically expand and adjust based on natural processes. No permanent deposition of dam removal sediments or LWD has yet occurred at the project site (Fig 732) and erosion has increased in armored shoreline areas, including the project site (Figure 48).

Recent bathymetric and topographic data (USGS, SeaGrant, 2015) have shown that existing armor updrift of within the project site has altered sediment cross-shore sediment transport and is restricting the ability of shorelines to receive sediment made available by dam removal (Fig 954), this may explain the absence of new beach material deposition on the upper intertidal zone at the project site. The massive volume of sediments soon to be made available to the project area by recent dam removals on the Elwha River provides the best low cost opportunity to remove shoreline armor and allow natural processes to distribute beach forming material to restore a natural beach at the project site. Immediate acquisition of this parcel and subsequent removal of armor will allow us to enable natural recovery of this shoreline before the pulse of dam removal sediments and LWD has passed through the system.

- c. **If your project is a part of a larger overall project or strategy, describe the goal of the overall strategy, explain individual sequencing steps, and which of these steps is included in this application for funding.** This project is coupled with the Elwha River Ecosystem Restoration-a major undertaking to remove 2 dams for the benefit of salmon. Linking nearshore restoration to watershed restoration will be essential to ensuring that the largest intentional dam removal ever undertaken by humankind not only benefits fluvial salmonid life stages, but also benefits early saltwater life stages. This parcel is the #78 priority for conservation in the Elwha watershed, as determined by North Olympic Land Trust's 2015 Elwha Acquisition and Restoration Project (ranked #6 on NOPL's 2015 3-year workplan). This project is a component of the Elwha Nearshore Restoration project, (ranked number 29 on NOPL's 2015 3-year workplan) a project that will identify and implement nearshore restoration opportunities along 7 miles of eastern Elwha drift cell shoreline. This proposed project will acquire and restore a key parcel for shoreline restoration at a time that maximizes the opportunity to improve the shoreline with sediments made available by dam removal. Restoration of the project site is specifically called out in the Elwha Fish Restoration Plan (NOAA, 2008), a document that developed a strategy to ensure that dam removal successfully benefitted salmon populations.

J. Project Proponents and Partners.

- a. **Describe your experience managing this type of project.**
Jamie Michel has nine years of experience researching, managing, monitoring and implementing restoration projects. Jamie has funded and managed 4 estuary and nearshore habitat restoration projects of similar complexity on the Northern Olympic Peninsula including 3 Crabs, Dawley Shoreline, Hoko Estuary and Kilisut Harbor. The 3 Crabs project included property acquisition achieved through the same matching USFWS funding programs. Jamie also sits on the NOLT conservation committee and is well versed in property acquisition for conservation

of habitat. The Coastal Watershed Institute (CWI) has a strong and successful track record in nearshore restoration prioritization, research, and management and will work collaboratively with stakeholders and restoration partners to successfully implement this project.

b. **List all landowner names.** Rick Phillips, Beach Lakes LLC, [Washington State Department of Natural Resources](#)

c. **List project partners and their roles and contributions to the project.**

North Olympic Land Trust-technical assistance with acquisition and stewardship-potential owner of property

Clallam County-potential owner of the property

Lower Elwha Klallam Tribe-potential owner of the property

[Ecotrust-technical assistance, funding and potential owner of the property](#)

Ducks Unlimited-technical assistance with acquisition

U.S. Army Corps of Engineers-technical assistance with restoration planning/match funding

WDFW-technical assistance with restoration planning

WDNR-technical assistance with restoration planning

WDOE-technical assistance with restoration planning

Surfrider foundation-technical assistance with site stewardship/~~cash match for sanican until toilet is installed~~

USFWS-technical assistance and potential project funder

[North Peninsula Builder's Association-in-kind labor donation for building deconstruction, trail building, fence, parking, toilet installation and removal of armor rock from beach](#)

[Built Green of Clallam County- in-kind labor donation to recycle/repurpose building materials](#)

d. **Stakeholder Outreach.**

[CWI has worked with numerous local and regional experts to help develop the Beach Lake Acquisition and Restoration Project to ensure successful collaborative implementation.](#)

Sponsor is not aware of any opposition or barriers to successful implementation. Public outreach is a key component of Coastal Watershed Institute's mission. In February of 2015 we hosted the 9th annual Elwha Nearshore Consortium (ENC). The ENC is a 2-day event comprised of technical presentations by scientists engaged in researching the Elwha nearshore, coupled with a public sessions and field tours to educate our community about ecosystem interactions and engage the public in the discussion of shoreline management and restoration. The 2015 ENC had over 200 participants. [If this parcel is conserved, future ENC shoreline landowner outreach events could be held onsite at one of the most dynamic regions of shoreline influenced by dam removal.](#) ~~CWI has worked with numerous local and regional experts to help develop the Beach Lakes Acquisition and Restoration Project to ensure successful collaborative implementation.~~

Supplemental Questions

Acquisition Project Supplemental Questions

Applies to acquisition/planning combination projects. Answer the following supplemental questions (these are not included in the ten-page limit):

A. Provide a detailed description of the property.

Project Acquisition property contains the following: 2.1 acres of tidelands adjacent to 2 acres of state owned intertidal habitat armor littered with failed remnants of armor associated with this property intertidal habitat. 8 acres of the Beach Lake complex which are mapped as a freshwater pond and forested wetland, however, it should be noted that Beach Lake is regularly breached by wave energy and therefore also functions as a pocket estuary. A 4 acre freshwater emergent wetland and 2 perennial-Type 4 streams totaling 700 linear feet that connect to Beach Lake. Buffers to streams, shoreline and wetlands are denuded of vegetation. The entire 2.75 acres are less than 15 feet above sea level- low enough elevation to be inundated during a 100-year flood. Acquisition property has 870 feet of derelict armor in front of it and adjacent property owned by the Lower Elwha Klallam Tribe contains and additional 1,200 feet of derelict armor in front of it. Nearly all armor is located on DNR tidelands. The 2,070 foot stretch of derelict armor being planned for removal is directly adjacent to the Elwha River delta. The project acquisition site is currently 0.4 miles from the edge of the Elwha River delta, however the delta will continue to grow as dam removal sediments reach the shoreline. It is highly likely that within the next several years the shoreline of the acquisition property will be located within the Elwha River estuarine delta as the delta continues to grow with the delivery of sediments and LWD liberated by dam removal. Current land use is residential and agricultural.

B. List type (fee title or conservation easement) and acreage of acquisitions proposed. 2.75 Acre fee title acquisition.

C. Do you hold an option or purchase and sale agreement for the property? Not yet, however we hope to hold an option in by fall-May 2015 when SRFB funds are committed to this project. A property valuation will was be conducted on April 21, 2015. The seller is strongly supportive of conservation of this property and is willing to take the property off of the market until grant funds are secured awarded in January 2016 if the valuation is satisfactory and if given a \$50,000 non-refundable purchase option. We are currently working to acquire the purchase option amount to ensure that this parcel is conserved and ultimately restored. parcel has been on the market for 1.5 years and seller reports that no potential buyers have an option. If sellers are interested, we would consider putting an earnest deposit on the property for a purchase option.

D. Describe adjacent land uses. The Western boundary is the Lower Elwha Klallam

Tribe, the Northern boundary is WDNR state-owned aquatic lands and the Eastern boundary is protected by a conservation easement held by North Olympic Land Trust. Lower Elwha Road forms the Southern property boundary (Vicinity Map/Parcel Map).

- E. **If uplands are included on the property, state their size and explain why they are essential for protecting salmonid habitat.** Approximately 46 of the 257 acres on the property are outside of the mapped 100 year floodway (Figure 1146). However, LiDAR data reveals that the entirety of the 275 acres are less than 15 feet above sea level - low enough elevation to be susceptible to flooding. Under future sea level rise scenarios the entirety of this property falls in the flood hazard zone. Areas that are mapped as "upland" are low enough to be classified in the 100 year floodway -and will be acquired as a component of this project and so that livestock and septic contaminants can be eliminated from the nearshore and Beach Lake. These areas -will then be revegetated to expand buffering of existing wetlands. Acquisition of this parcel will allow for the removal of built infrastructure and subsequent removal of shoreline armor restoration which will enables restore unimpeded shoreline evolution to support self-sustaining habitat forming processes at the lowest elevation developed coastal floodplain parcel in the historic Elwha River floodplain. Sea level is projected to rise by almost 2 feet at the acquisition property by 2100, permanently inundating Beach Lake (Figure 11).
- F. **What percentage of the total project area is intact and fully functioning habitat?** Beach Lake which encompasses an 8 acre wetland complex that comprises ~30% of the project area. None, the entirety of the project area has been altered by sediment and LWD starvation, armoring and residential/agricultural development. Beach Lake occasionally functions as an armored pocket estuary whereas it formerly was an estuarine lagoon and river high flow channel.
- G. **Is the site in need of restoration that is not part of this grant application?** No, this project will identify restoration actions and produce preliminary-final engineering designs and permits for full site restoration, with armor removal provided at no cost by project partner North Peninsula Building Association.
- H. **List structures (home, barn, outbuildings, fence, levees, bank armoring, other infrastructure) on the property and any proposed modifications.** A total of 9-10 structures and a tennis court 0.25 acres of impervious surfaces will be removed. Structures include; cabin, farmhouse, doublewide, singlewide, horse barn, tack house, shed, pumphouse and outbuilding. All associated septs will be pumped and decommissioned. Remnants of several failed armor projects that litter 2,070 feet of the upper and lower intertidal shoreline with large rock and former road surfaces will be planned for removal (Site Plan).

I. **Describe the:**

1. **Zoning/land use** Rural Character Conservation 3
2. **Shoreline Master Plan designation** Rural Shoreline
3. **Portion of site within 100-year floodplain** Approximately 21 acres are within the mapped 100 year floodplain (Figure 64), however the entirety of the 275 acres are located within the historic Elwha River floodway. LiDAR data confirms that the entire parcel is located at less than 15 feet above sea level-an elevation within the 100 year floodplain. Future sea level rise predictions further increase the flood risk to the entire 275 acre parcel.
4. **Portion of site within designated floodway.** Although not in designated floodway, the entire 257 acres of the parcel fall within the historic Elwha River floodway.

J. **Explain why federal, state, and local regulations are insufficient to protect the property from degradation.** Local regulations would allow grandfathered use of all 9-10 building sites on the project property. Local regulations would allow the landowner to repair and maintain existing armor on the property. If another individual purchased the property, new larger structures would likely be built and armor would be repaired at a larger scale to protect infrastructure. Critical area buffers are minimal and acquisition and restoration will enable a significant expansion of vegetatively buffered marine and freshwater riparian habitat.

K. **For water rights and water savings projects:**

1. **Describe the mechanism that you intend to use to conserve water (trust, etc.) and explain why this is the preferred approach.** Existing well water rights will be ~~extinguished and the allocation will be~~ placed in trust or given to the Lower Elwha Klallam Tribe who holds a senior water right.
2. **Which steps in the water conservation process will be completed under this project proposal?** Water rights will be placed in trust or given to the Lower Elwha Klallam Tribe.
3. **How much water, if any, will be saved as a result of this project? By what methods are you calculating the amount of water conserved?** Unknown, but ~~allocation existing well~~ currently supports agriculture and 4 residences.

L. **For acquisition projects intending to purchase multiple properties within an**

area, identify the target parcels and how you will prioritize the parcels. N/A

Comments

Response to Site Visit Comments

This proposed project would acquire 27 acres of land with 870 feet of shoreline and develop preliminary designs for restoration activities. Most of the proposed acquisition is upland with little direct benefit to fish habitat. In the past, the SRFB Review Panel has proposed that grant requests for acquisitions be proportional to the amount of benefit to fish. The current grant request is for approximately 33% of the total acquisition cost. In this case, the shoreline area and a marine riparian buffer of 200 feet (about 4 acres or 15% of the total acquisition) might be a more appropriate area to consider for fish benefit.

Project sponsor believes that the opportunity to conserve and restore this shoreline results in fish benefits that extend well beyond the parcel boundaries and will offer significant positive influence on the evolution of the future Elwha River delta and estuary.

Due to erosion of shoreline, the parcel is actually 25 acres and not the 27 acres stated in the real estate listing. Project scoping and budgeting have been modified to include full restoration designs and permits. 4 of 25 acres are upland, however fish benefits will result from the removal of all existing infrastructure from these uplands, which then enables removal of derelict armor and eliminates any future placement of armor along this 870 foot stretch of shoreline. Further fish benefits include removal of livestock from nearshore and lake/pocket estuary buffers and elimination of septic contamination of Beach Lake and the nearshore. Conservation of this parcel and subsequent removal of rock armor from the beach will allow the shoreline to naturally evolve without restriction as it interacts with Beach Lake. At present, Beach Lake is breached by saltwater surges several times each winter. Sea level is projected to increase by 6" at the project site by 2050 (NAS, 2012). Coupling sea level rise projections with increased storm frequency suggests that saltwater connectivity of Beach Lake will be even more frequent in the future. Sea level is projected to rise by almost 2 feet at the acquisition property by 2100, permanently inundating Beach Lake (Figure 11).

This parcel is situated in an area soon to be encompassed within the Elwha River delta as sediments released by dam removal continue to arrive to the nearshore. The opportunity to purchase this parcel now will not only conserve and but will also allow for maximum restoration potential associated with ecosystem benefit of dam removal sediments to be achieved. by rRemoving derelict armor rock from the beach in front of and updrift of the property t will allow unimpeded physical processes that allow for estuary expansion and allow Beach Lake to function and evolve as valuable salmonid nursery and refugia habitat now and well into the future. Removal of infrastructure and revegetation of buffers will allow for adaptable shoreline habits that are capable of moving landward as sea level rises.

Grant budgeting has been modified such that 310% of the acquisition costs will be paid for by RCO and 7069% are paid by USFWS.

If this parcel is not conserved now, it is very likely that the legacy of failed armor attempts will continue to plague this shoreline for generations to come while also impeding the opportunity to naturally restore this shoreline with sediments made available by dam removal; resulting in an armored impaired estuary. This parcel is a low lying former river mouth and is the lowest developed parcel in the coastal floodplain of the Elwha River. Sea level rise will inundate this parcel first and conservation and removal of infrastructure provides an opportunity to ensure adaptable shorelines that continue support salmon as nearshore habitat moves landward.

The primary concern for the Review Panel will be the costs of the project relative to the benefits provided for threatened salmon, steelhead, and bull trout. Any benefits to fish will only be realized with the removal of large angular rock from the failed armoring along the shoreline- yet the \$500,000 grant request from the SRFB only pays for land acquisition and design. Moreover, the benefits of removing the shoreline rock are significantly reduced by the presence of large and extensive shoreline armoring on the property to the south. Please justify the costs of \$165,000 to complete the preliminary design for restoration work. Again, the benefits to fish are primarily from the proposed shoreline rock removal, which should require only minimal design and engineering work.

Project design costs have been refined to an absolute minimum after more detailed discussions with design engineers. Design budget is now \$1317,0500 and will produce final designs, bid documents and all permits required to make armor removal of 2,070 feet of continuous derelict armor "shovel ready". Although all developed infrastructure on the Beach Lake parcel will be removed, the engineering design effort for rock removal will require extensive hydraulic analysis to ensure that rock removal does not increase erosion or flood risk to inhabited properties adjacent to the Beach Lake parcel. SRFB request is \$446.85029,424 for acquisition and \$116,87599,450 for final restoration design with \$1,000,000 in match from USFWS. Project partnership with the North Peninsula Builders Association (NPBA) provides additional leverage that will reduce the following ~~project costs; building demolition costs, parking, trails and toilet installation~~. NPBA has also offered to remove the armor rock from the beach at no cost if this project is funded (see attached letter of support). Acquisition of this parcel is the catalyst for restoration of the project site and will result in removal of septic contaminants, impervious surfaces and livestock from marine riparian buffers.

Acquisition will also offer an incredible opportunity for public access and education as the public engages with and learns from the physical and biological changes unfolding as a result of ecosystem scale restoration associated with the salmon restoration project to remove the Elwha River dams. The removal of in river dams has restored freshwater life history for threatened salmonids, however early saltwater life stages remain impaired due to chronic armoring and oversteepened beaches deprived of sediment. This project couples watershed-scale restoration with beach restoration actions that better enable this

shoreline to naturally repair itself and achieve life-history restoration for nearshore and estuary dependent salmonids.

The shoreline armoring recently placed on the property east (downdrift) of the project site (Figure 14) is currently under review as a federal, state and county violation and some portion, if not all, will likely need to be removed. It is anticipated that removal of armor at the Beach Lake project site may become a demonstration site for best shoreline management practices and serve as a model for improved shoreline stewardship on adjoining properties. Removal of an additional 1,200 linear feet of derelict armoring on adjacent updrift tidelands properties will be incorporated into engineering designs to remove a total of 2,070 feet of derelict rock from intertidal beaches in front of and updrift of Beach Lake. if the Lower Elwha Klallam Tribe is amenable to that investigation (Fig 4). If all opportunities come together, the Beach Lake shoreline restoration could be synchronized and coordinated with armor removal efforts on all adjoining armored parcels to remove the majority of the only ½ mile of armoring in along the 2.5 mile stretch of shoreline extending east from the Elwha River mouth to Dry Creek.

Finally, the connection between the remaining rock along the shoreline and lack of sediment deposition on the beach is tenuous. Since the site is along the outskirts of recent sediment deposition from Elwha dam removal, more time may simply be needed to observe sediment accumulation along this portion of the shoreline. The recent erosion noted along the shoreline may just reflect the loss of armoring, rather than a situation that prevents cross-beach deposition of sediment.

There is no certainty that more time will result in dam removal sediments overcoming existing armor to mend the shoreline. There is certainty that an 82,070-foot long shoreline littered with a 20-foot wide band of derelict armor offers no habitat benefit to salmonids or forage fish and rather offers prime habitat for predators (Fig 26). Recent studies by USGS and SeaGrant have revealed that no permanent deposition of dam removal sediments has yet occurred along any portion of the upper intertidal beaches of the project site and adjacent armored shoreline (Fig 37)-likely due to increased hydraulic energy associated with wave breakup by the derelict armor. Recent observations at the project site have recorded erosion rates at ~5m/year landward behind the derelict armor (Fig 48). It is very probable that the high wave energy and exposed aspect of this shoreline channels and compresses waves from both the west and east behind the derelict intertidal armor, thus accelerating erosion landward of the armor. Further, recent surveys by USGS and SeaGrant have shown that the remnant armor appears to be preventing cross shore transport of beach forming materials (Fig 59).

A new study on transport of dam removal sediments along the project area shoreline by the U.S. Army Corps of Engineers will allow the project site to serve as a demonstration site for armor removal in the drift cell and will also help to refine model predictions once the armor is removed from the project site beach (Figure 13). Implications of this work have the potential to provide proof of concept for other areas of the 5.5 mile-long heavily armored portion of the drift cell east of Dry Creek to improve understanding of sediment transport and identify other suitable locations at which armor may removed to increase

shoreline capability to retain sediments made available by littoral transport of dam removal sediments before these sediments pass through the system.

Post Application Review Panel Comments

10-13-15

Project Sponsor Response to Review Panel Concerns

Beach Lake Acquisition & Restoration

PRISM Project # 15-1045

1.SRFB Review Panel Comment: *The project has a high cost relative to the anticipated benefits and the project sponsor failed to justify the costs to the satisfaction of the review panel.*

1A.Project Sponsor Response: We understand and share the Review Panel's concern of keeping costs to a minimum and are working hard to do so. Purchasing shoreline property is expensive. However, this project is cost effective when looking at what is being protected for salmon and forage fish along the Strait of Juan de Fuca shoreline now and into the future and the nearshore habitat improvements resulting from the removal of significant infrastructure from the nearshore.

It is also beneficial when compared with what the detrimental, environmental costs would be if this property was further developed, with additional armoring needed, plus the lost ecosystem functions resulting in further damage to this important anadromous fish habitat.

Habitat Restoration Manager Mike McHenry of the Elwha Klallam Tribe and also of the North Olympic Peninsula Lead Entity's Technical Team, indicates that this area is a known migration corridor used by ESA-listed Elwha Chinook and Puget Sound steelhead, as well as other salmon species in the Elwha including coho, pinks, and chum. The Tribe and other's work shows that many of the Elwha stocks leave the Elwha River Delta and turn right or eastward towards this shoreline property. Armored shorelines tend to harbor predators which feed on young salmon, negatively impact availability of salmonid prey for foraging and negatively impact eelgrass beds which juvenile salmon use for resting, feeding, protection and shelter.

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This project now has a total SRFB request of \$484,750. That is \$61,550 less than the \$546,300 previously requested. This includes the cost of 25 acres of prime nearshore habitat at an approximate cost of \$39,000 an acre, including infrastructure. Research indicates the average per acre cost of comparable shoreline properties in Puget Sound is \$45,000 an acre. Other project costs include the demolition and removal of 10 structures, decommissioning of 2 septic systems, removal of roads, etc.

The project design costs have been greatly reduced to \$75,000 for engineering design and permitting (was \$177,000 in original proposal, down to \$117,000 after site visits) for removal of 870 feet of derelict rock armoring along the acquisition parcel. More detail is provided below in answer 3A.

The project footprint has been expanded to also include another 1,200 feet of up drift derelict rock armor on DNR tidelands in front of the Lower Elwha Klallam Tribe Reservation. This project will design for removal and correction of the entire 2,070 foot run of derelict armor impairing the project site.

In addition, significant design and administrative costs have also now been reduced. That is further detailed in answers 2A and 3A.

2.SRFB Review Panel Comments: If the project is a POC, identify the changes that would make this a technically sound project:

The grant request for acquisition costs would need to be reduced to be more proportional to the 15% of the property with direct benefits for ESA-listed salmon and steelhead. The proposed assessment and design elements would also need to be removed.

2A.Project Sponsor Response: As indicated earlier, we have now reduced the overall project ask by \$61,550 from \$546,300 to \$484,750. The acquisition request has been reduced by \$25,850 from \$446,850 to \$421,000. The acquisition budget includes a \$25,850 overall reduction in costs with administrative costs reduced from \$63,800 to \$30,000. Minor increases have been added to; fencing, revegetation boundary survey and relocation fees. There are two tenants who currently have residential and agricultural leases to use and live on the property who will need to be relocated. We need to ensure there is enough money to cover these costs. We have increased this budget item

based on research gained and information shared by the Jamestown S’Klallam Tribe’s based on their work for a current Dungeness Floodplain acquisition project.

Please note that \$484,750 in grant funds are being requested from RCO, while \$1,000,000 is being requested from a Coastal Wetlands Grant offered through the U.S. Fish & Wildlife Service. That federally-funded program requires a 25 % match (\$333,000) from non-federal funding sources which state RCO funds will provide. Additional scoring points are given by the U.S. Fish & Wildlife Service for projects that surpass the minimum required match, thereby increasing project competitiveness.

The property is listed for sale at \$990,000 and combined, these two grant sources will complete the due diligence, conservation purchase and infrastructure removal from the property. It is not possible to purchase solely the coastal portion of this property, nor would that protect the pocket estuary habitat that Beach Lake offers. During winter storm events, the 8 acre wetland complex of Beach Lake is breached, such that it functions as pocket estuary habitat and high flow refugia. Sea level rise will increase the frequency of this connectivity and conservation of this entire parcel ensures unimpeded natural evolution and function of this shore form.

When considering Beach Lake pocket estuary habitat and the marine riparian habitat as salmonid habitat, approximately 12 acres of the 25 acre parcel function as habitat utilized by salmonids. That equates to 48% of the habitat. The acquisition purchase request to SRFB is for 30% of the purchase costs. 21 acres (84%) of this property fall within the 100 year floodplain. This acquisition is similar to projects which purchase river floodplain habitat and remove infrastructure to allow for natural evolution associated with river flood events, except at this property we are purchasing coastal floodplain in anticipation of future coastal flood events and sea level rise

The opportunity to conserve and restore this shoreline provides benefits for salmon and forage fish that extend well beyond the parcel boundaries and will offer significant positive influence on the continued evolution of the Elwha River

delta and estuary, which is used by ESA-listed Elwha Chinook, Puget Sound Steelhead and other salmon species. Evidence for the future benefits offered by Beach Lake to all estuary-dependent salmonids are revealed when the history of Beach Lake evolution is considered.

Prior to dam implementation, Beach Lake was a tidal channel connected directly to the mainstem of the Elwha River. Sediment and LWD deprivation after dam construction reduced the extent of Beach Lake by over 70% and disconnected it from the river estuary complex. Now that the supply of beach forming LWD and sediment has been restored by dam removals and as the delta is pushed toward Beach Lake by prevailing wind and wave transport of beach forming sediments, the potential exists for Beach Lake to reconnect once again directly to the Elwha River estuary complex as estuarine salmonid nursery and refugia habitat. The acquisition of this property enables the removal of infrastructure and livestock from the remainder of the property to establish a buffer that safeguards functional ESA-listed salmon and steelhead habitat now and well into the future as shorelines move landward.

The acquisition of this property enables the removal of 870 feet of derelict armor directly in front of the acquisition property. The project footprint has been extended to include full engineering design and permitting for the removal of an additional 1,200 feet of adjacent updrift derelict armor. This 2,070 foot length of derelict armor encompasses the entirety of derelict intertidal armor along the expanding Elwha River delta. Complete removal of all derelict Elwha shoreline armor could not be accomplished without the purchase of this property. The owner has been approached but would not agree to derelict armor removal without the property being purchased.

The SRFB request will purchase the Beach Lake property and engineer for the removal of a total of 2,070 feet of shoreline armor. **Then, once the property is acquired and permitted; project partner North Peninsula Builders Association will remove the 870 feet of derelict armor from in front of the Beach Lake property at no cost to SRFB. The value of this removal will be determined during the engineering process.**

The benefits to salmon associated with this acquisition and restoration design project will eliminate predation upon salmon associated with derelict armor, improve juvenile salmonid migration and rearing, improve forage fish availability, and will positively influence the development of the Elwha River delta/estuary by removing derelict armor that impedes natural beach forming processes.

3.SRFB Review Panel Comments: *The project sponsor has not sufficiently justified the need for these assessments to support the removal of failed rock armoring along the shoreline. Addressing the eroded rock along the shoreline should not require extensive hydraulic analysis since it does not affect flood risk and is no longer serving as bank armoring. The project should be relatively straightforward and require minimal assessment work to support development of permit applications and to implement rock removal.*

3A.Project Sponsor Response:

The proposed assessment has been removed and there is more information below about required engineering associated with this project.

Although derelict rock armor is barely functioning as bank armoring, it may provide a “perceived” sense of flood or erosion protection for adjacent shoreline landowners. An assessment of shoreline impacts of derelict armor removal upon adjacent coast floodplain landowners has been removed from the design scope entirely and the budget has been adjusted accordingly.

However, as part of the design process; the hired engineer will need to produce a No-rise Certification to ensure Federal Emergency Management Agency (FEMA) compliance with the Section 60.3 (d) (3) - Floodway Requirement of the National Flood Insurance Program.

This requirement states: “Any project in a floodway must be reviewed to determine if the project will increase flood heights. An engineering analysis must be conducted before a permit can be issued. The community's permit file must have a record of the results of this analysis, which can be in the form of a No-rise

Certification. This No-rise Certification must be supported by technical data and signed by a registered professional engineer.”

It is worthwhile to note that the landowner adjacent to (down drift of) the Beach Lake property recently placed unpermitted armor along 800 feet of shoreline. That action is under review by the appropriate government authorities. The reason that the previously proposed assessment of shoreline rock removal upon coastal processes of adjacent landowners was included in the original budget, was to provide “due diligence” work completed prior to project implementation so the Beach Lake Restoration project could not be blamed if there were increased levels of erosion on the adjacent property such that the unpermitted armor was allowed to remain.

This assessment, which has been removed from this proposal; was also intended as problem avoidance to document that any future property damage at adjacent coastal properties from future winter storm events occurring during king tides could not be blamed on recently completed restoration work associated with the Beach Lake Restoration Project.

The high energy nature of this shoreline, coupled with the fact that the mostly derelict rock armor is dispersed over a 20-30 foot-wide band of the intertidal zone waterward of Mean Higher High Water (MHHW); necessitates engineering plans that precisely locate tidal elevations of derelict rock and specify work windows during which specific portions of the beach can be safely accessed with minimal impact to both the environment and the contractor.

Engineering designs will define project sequencing, provide bid documents for the contractor and are needed in order to obtain the required state, federal and county permits. The design budget has been further reduced by \$42,000 from \$117,000 to \$75,000 to produce final engineering designs, bid documents and secure permits. The SRFB request covers \$63,750 of the design engineering cost.

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