



September 22, 2011

Hannah Merrill  
DCD Natural Resources Planner  
Clallam County Dept. of Community Development  
223 East 4th Street, Suite 5; Port Angeles, WA 98362-3015

Dear Ms. Merrill:

The Jamestown S'Klallam Tribe (JKT) Natural Resources Department staff and the Point No Point Treaty Council's habitat biologist have completed a preliminary review of the June 2011 draft of Clallam County's Shoreline Inventory and Characterization Report. We understand that the June 2011 draft is expected to change dramatically through time and will be distributed for additional review this September or October. In the current draft, the recommendations are general, non-specific, and do not demonstrate where changes are required to bring the SMP up to current standards. By comparison, Jefferson County's I&C report contained 21 pages of specific recommendations, which we found to be important and necessary. The Clallam I&C report and the SMP update will benefit from that level of detail. Below are our specific comments.

#### **Comments, Draft I&C report, June 2011**

- Pg. 2-7, lines 15-16. It goes against recent experience to assume private-dividable forested shorelines will remain forested and undeveloped in the foreseeable future. Timber companies (e.g. Green Crow) typically have a development arm, and small timber landowners may consider developing their shorelines as their "retirement income." An excellent example is the forestland at Green Point, (your marine example, west side of mouth of Siebert Creek). Six years ago it was a beautiful second-growth forest that locals used as a park, and then it was logged, subdivided and sold for residential lots. Please assume a percentage of these lands will be converted.
- Pg. 3-4, lines 17-20 states, "*When people build bulkheads, construct overwater structures such as piers and docks, remove vegetation or cause other shoreline modifications these processes become altered and the functionality of the nearshore environment is diminished.*" While the preceding discussion of drift cell functions is excellent, this sentence understates the serious consequences that can result from curtailing marine sediment supplies. Please consider adding additional text describing possible impacts. For example, "Where drift cells support important shoreline features such as spits, the loss of sediment recruitment caused by shoreline modifications can have catastrophic impacts. An example is Ediz Hook where massive ongoing publically funded shore-defense projects are required to compensate for the reduction of naturally derived sediment caused by shorelines modifications within the drift cell."

- Pg. 3-5, Table 3. Uplift is occurring at various rates on the Olympic Peninsula, faster at Neah Bay than upon the Miller Peninsula. It's unclear what portion of the Strait of Juan de Fuca shoreline is represented in Table 3 (NW Olympic Peninsula). Please provide additional detail on estimated sea-level rise along the Strait of Juan de Fuca shoreline. Of particular relevance would be predicted rates in eastern Clallam County (Port Angeles to Diamond Point) where the largest concentration of marine shoreline development exists.
- Pg. 3-6, lines 26-28. *"The low level of degradation (PSNERP data) will provide the County with opportunity to achieve multiple goals for environmental protection, restoration, public access and water-related development."* Although much of the County shorelines may retain historic functions, it will be difficult if not impossible to retain that function with future development coupled with current rates of shoreline erosion. In other words, the public that built under the old rules too often constructed their house within reach of shoreline erosion. Eventually they must relocate their structure or armor the shoreline in an attempt to protect their investment. Future development will add more degradation to intact shorelines. A forested, undeveloped shoreline will have some impact from shoreline development. For many of the public, the "low-level of degradation" rating means that much development can occur before environmental harm would begin. Even public access and water-related development can have severe impacts when parking lots, breakwaters, and other infrastructure are built. New, creative measures must be developed and implemented to achieve No Net Loss. We recommend a strong mitigation funding system, where new purchasers of shorelines properties pay into a mitigation account used to purchase or restoration shorelines.
- Pg. 3-10, Table 3-2, Marine Shoreline Metrics. Please add to the "metrics that indicate shoreline alteration" category: percentage of lots with a single-family residence within 200 ft. of the ordinary high water line. The percentage of houses will be directly correlated to present hydromodifications, and will give an indication of the extent for future hydromodifications as well.
- Pg. 3-11, section 3.2.1. A nice job was done using a geomorphic template to delineate reaches for the marine shoreline. Hugh Shipman would be very pleased. This will be very important when looking at restoration opportunities, shoreline environmental designations, etc. We suggest considering a geomorphic template for riparian buffers.
- Pg. 3-16, lines 11-13. *Preliminary data from a Jamestown S'Klallam Tribe study on an 8.5-mile-long segment of the shore west of Dungeness Spit is showing maximum erosion rates of between 1.02 and 3.28 feet per year, but this assessment is still in progress (Personal communication from Randy Johnson to Andrea MacLennan, May 9, 2011).* **This is incorrect and should read,** "Preliminary data from a Jamestown S'Klallam Tribe study on the 8.5-mile-long segment of shoreline west of Dungeness Spit indicates that average erosion rates range from 0.15 to 3.28 feet per year during the time period 1956 to 2010. The largest amount of bluff retreat measured for the 2-year period of 2008 to 2010 was 26.4 feet at a site in Monterra. This assessment is still in progress."
- Pg. 3-17, Table 3-6. For Marine Reach 1 (Diamond Point), the "Feeder Bluff Exceptional" category is shown as zero percent. This is incorrect. Approximately 2 miles of FBE exist in this marine reach, which contains four drift cells: Diamond Point South, Diamond Point North/Thompson Spit, Travis Spit and Paradise Cove Spit. Marine Reach 1 needs to have the feeder bluff categories corrected, and also consider renaming this reach "Miller Peninsula".

- Pg. 3-19, line 2-4. *“Bulkheads are sometimes used to reduce bluff toe erosion, but that approach has not been widely used in Clallam County”*. We suggest also explaining the problems with toe armoring of tall feeder bluffs. There are numerous instances of failure with attempts to armor these types of bluffs around the world, but we only have to look at the Port Angeles water line for a local example. Not to mention the very real loss of Dungeness spit with the potential armoring of its feeder bluff system, which you mention elsewhere. Please expand the discussion in the text.
- Pg. 3-19, lines 6-7: The sentence, *“Currently, very little of the armoring occurs in areas that are mapped as feeder bluffs (Table 3-8)”* should be changed to read, *“Currently, very little of the armoring occurs in areas that are mapped as feeder bluffs, except in Sequim Bay and Gibson Spit where 12.1% and 4.6% of the feeder bluffs are armored (Table 3-8).”*
- Pg. 3-20, last paragraph. *“Minimizing shoreline armoring is one of the ways Clallam County can protect and maintain shoreline ecological functions.”* This paragraph makes some excellent points, but we request that additional information be provided on the potential impacts that shoreline armoring could have on spits. Eastern Clallam County contains one of the world’s great concentrations of large sand and gravel spits: Ediz Hook and Dungeness, Graveyard, Cline, Travis, Gibson, South, Paradise Cove, and Chicken Coop Spits. These spits, which provide enormous amounts of crucial habitat for fish, shellfish, birds, and mammals, are entirely dependent upon sediment eroding from feeder bluffs for their survival. Consequently, spits are extremely impacted when their feeder bluffs are armored. Ediz Hook serves as an excellent example (the following historical information is taken from the document entitled, *“Ediz Hook Port Angeles, Washington, Report of the Chief of Engineers No. DAEN-CWP-D, Department of the Army, Office of the Chief of Engineers, Washington DC, August 21, 1972”*). In 1930 the first major bulkhead - 2,400-feet long - was constructed near the base of the Ediz Hook feeder bluffs to protect a stretch of the Port Angeles industrial waterline. The waterline bulkhead caused the rate of erosion on the adjacent bluffs to decrease from 3.6 feet per year to 0.7 feet per year. This reduction of sediment input, exacerbated by a coincidental reduction in sediment originating from the Elwha River, caused the Hook to begin eroding at a spectacular rate. In seven years following construction of the waterline bulkhead, erosion had become so severe that the first major shore defense project on Ediz Hook was constructed – 7,000 feet of log-crib bulkhead built by the City of Port Angeles in 1937. In 1945 work to save the Hook entered a phase of furious activity with projects by the Coast Guard (1,350 feet of riprap bulkhead and 6 timber groins built in 1945-46), Crown Zellerbach Corporation (1,900 feet of pile, timber and riprap bulkhead in 1946-47 and 1,800 feet of riprap bulkhead in 1949), and the City, Coast Guard and various industries (4,000 feet of timber and riprap bulkhead in 1951). In 21 years following the construction of bulkheads along a portion of the Hook’s feeder bluffs, it had become necessary to armor virtually the Hook’s entire outer shoreline to prevent Ediz Hook from eroding away. Despite this monumental amount of shoreline armoring, Ediz Hood continued to erode seaward of the bulkheads, causing bulkhead failure and the need for incessant maintenance of the shoreline defense works. Erosion also continued along the waterline west of the Hook, and by 1961 the entire waterline had been riprapped and was being maintained annually. Shortly after enactment of the U.S. Flood Control Act of 1965, the City petitioned the Army Corps of Engineers for assistance in protecting Ediz Hook. Following their evaluation, the Corps stated in their February 1972 *Report of the District Engineer* that, *“Ediz Hook is in an active state of erosion due to a lack of adequate feed material and is in imminent danger of breaching permanently. --- Attempts to prevent such an occurrence by local interests have*

resulted in an annual expenditure of \$55,000 for the past five years with no assurance of success. --- The District Engineer estimates the first cost of his recommended plan at



\$4,890,000.” Annual maintenance costs were estimated at \$140,300. The Corps’ estimated cost for their 2011 maintenance project is \$500,000 to \$1,000,000. The Ediz Hook case history clearly illustrates the swift, catastrophic consequences of armoring feeder bluffs that support important shoreline features.

- Pg. 3-20, last paragraph (continued). We recommend that the statement, *“Minimizing shoreline armoring is one of the ways Clallam County can protect and maintain shoreline ecological functions”* be changed to read, *“Minimizing and in some cases prohibiting shoreline armoring is one of the ways Clallam County can protect and maintain shoreline ecological functions”*
- Pg. 3-20, last paragraph (continued). It should be noted that bulkheads are only needed when construction has occurred too close to an eroding shoreline; whether it is a marine bluff or the edge of a river. Landowners’ responses to the threat from erosion are usually influenced by economic factors more than by their possible impacts to ecological functions. A direct correlation exists between 1) the location of a residence relative to Ordinary High Water Mark (OHWM), 2) the geomorphic setting, and 3) whether the landowners will later find it necessary to armor their bank. We suggest adding language stating that landowners are exposing themselves to higher costs in perpetuity if they construct within the portion of the shoreline anticipated to erode.
- Pg. 3-28, Figure 3-13. Alone, these bar charts (also Figure 3-8 and 3-9) are rather dry and meaningless to citizens. We suggest providing a photo or example of what various forested canopy percentages (<10%, 60%, and 90%?) look like. Second, we suggest language that leaving or replanting riparian forests (instead of cutting it for views) protects landowner investment by decreasing potential for erosion (I see it on pg. 3-33, maybe should add a reference pointing them to this list). A worthy goal is to increase the percentage of forested riparian areas in east Clallam County, not just maintain existing levels.
- Pg. 3-30, Table 3-13. This table is confusing. The eye is drawn to the column headers that read, *“Length of Feeder Bluff”*, but the associated numbers seem low. Apparently these columns are listing the *“Length of Feeder Bluff Located on Vacant, Developable Parcels”*. Please amend these headers to accurately represent the quantity being reported. Also, the reach length for Green Point is listed as 11.4 miles. We have measured this reach as being 8.4 miles. Please recheck this measurement.
- Pg. 3-32, line 12. The sentence, *“Only a small percentage of the marine shoreline is armored ---”* should begin, *“Outside of the City of Port Angeles, only a small percentage ---”*. Otherwise readers could easily overlook the fact that the report addresses the entire Strait west of Diamond Point *except* within the City of PA and be misled. Most of the marine shoreline in the

City of PA – a considerable number of miles – is armored. This is particularly relevant, given the Ediz Hook case history.

- Pg. 3-32, lines 36-40, recommendations. *“Protect natural sediment processes and maintain human health and safety, by ensuring that new structures are set back **an adequate distance** from feeder bluffs and other erosion or landslide-prone areas. Setback considerations should take into account the life of the structure, expected erosion for that duration and effects on neighboring or down-drift properties.”* This is excellent. We recommend that the term *“adequate distance”* be defined and provided with criteria so it will provide guidance to the SMP. For channel migration zones the planning horizon is 100 years; we recommend the same for feeder bluffs. In other words, building setbacks on feeder bluffs should be large enough to allow feeder bluff erosion (bluff retreat) for 100 years and still provide sufficient setback (50 feet) for human safety. Therefore, the building setback on feeder bluffs becomes 100 years of erosion plus 50 feet. In the Dungeness Spit drift cell, feeder bluff erosion rates range from 0.5 to 3.3 feet per year, so building setbacks would range from 100 to 380 feet. The average feeder bluff erosion rate for that entire drift cell bluff complex (8.4 miles) is close to 1 foot per year, yielding an average building setback of 150 feet. One hundred years is probably a reasonable predicted building lifespan. On eroding shorelines, use of a 20-year setback would mean by definition that in 20 years homeowners would be faced with either attempting to armor the shoreline or relocate or demolish their house. The no-net-loss criteria would not usually be met under the 20-year rule.
- Pg. 3-32, 1. New residential development in and around feeder bluffs ---. We suggest adding the following recommendation: *“Shoreline armoring and other measures that interfere with natural sedimentary processes are prohibited on those feeder bluffs within the drift cells of the following sand and gravel spits: Dungeness, Graveyard, Cline, Travis, Gibson, South, Paradise Cove, and Chicken Coop.”* The Ediz Hook case history demonstrates the catastrophic impacts that can occur when feeder bluffs are armored. No adequate predictive tools or mitigation measures exist to address the enormous risk to public and private resources that would occur from the armoring of feeder bluff shorelines in these drift cells.
- Pg. 3-33, lines 13-16. *“Set structures back from the shoreline to decrease the potential risks of coastal flooding and tsunami damage and minimize the need for hard shoreline armoring.”* In a warming world, these recommendations are a good start, but they do not provide guidance to the SMP. We recommend a moratorium on building construction within 1 meter vertical height above OHWM (Ordinary High Water Mark) on the FEMA coastal flooding and marine tsunami zones. This is a very modest moratorium to prevent construction of houses certain to be flooded from storm surge in the next several decades within the flooding and tsunami hazard zones.
- Pg. 3-33, lines 28-30. *“Location, design and operation of residential septic systems remain an ongoing challenge so as not to degrade water quality or cause the closure of shellfish beds for recreational and commercial harvest.”* We have learned from the Dungeness Bay commercial shellfish status downgrade and associated source tracking study (Woodruff et al, 2009) that pathogens and nutrients from onsite septic systems (OSS) make their way to fresh and marine waters. Onsite Septic Systems (OSS) have the capacity to negatively affect human and ecological health if the design, location or operation of the system is not properly managed. More stringent setbacks, treatment and monitoring should be required along shorelines where OSS pose an increased risk (listed in the Clallam County Onsite Septic System Management Plan (June, 2007)). Residential development of shorelines where nitrogen may be a contaminant of concern must have the technology to ensure 50% denitrification. Clallam Environmental Health

must have the authority to require this additional treatment on any shoreline development with an OSS.

- Pg. 3-33, lines 32-34. *Limit the length, location and design of new in-water or overwater structures (such as docks).* What strategies can be used to limit dock proliferation? Right now we have a one dock/house capability. We recommend restricting overwater marine docks in areas with priority aquatic habitat designations. In other areas, encourage community docks or sharing of facilities by neighbors. Can Clallam County provide incentives for dock sharing?
- Chapter 3, general comment. We are concerned about the proliferation of docks and mooring buoys in areas with shellfish resources. The State Department of Health has criteria that require a shellfish closure when densities are exceeded (10 boats in a given area). The county should have a map of shellfish resources, areas used currently for commercial shellfish production, and docks and language to limit the proliferation of each (really boats) to prevent shellfish closures or downgrading a growing-area classification. Here is sample language for buoys that will prevent a downgrade in the classification of a shellfish growing area: *“The installation and use of mooring buoys (including commercial and recreational buoys) in marine waters shall be consistent with all applicable state laws, including WAC 246-282, the current National Shellfish Sanitation Program standards (NSSP), and other state Departments of Fish & Wildlife, Health, and/or Natural Resources standards.”*
- Summary comment on recommendations (pg. 3-33) and recommendations for each of the marine reach inventories in Chapter 4. The recommendations in Chapters 3 and 4 are generally non-specific and will not lead to changes to the SMP. We understand this is a first draft. In comparison, the Jefferson County I&C recommendations (*Jefferson County Final Shoreline Inventory and Characterization Report – Revised November 2008*) were tied to shoreline environmental designations, recommended specific buffers, gave specific recommendations for freshwater and marine shoreline environmental designations; in short were quite detailed and covered 21 pages. We hope that the final Clallam I&C report, and the recommendations within, more resembles the Jefferson County I&C report. We wonder if a contributing factor is the lack of a technical committee to provide specific guidance (vs. Jefferson County which had a technical advisory committee).

#### Marine reach inventory

- Pg. 4-1, lines 19-24. Paradise Cove Spit should be added to the shorelines within the tsunami and 100-year floodplains.
- Pg. 4-3, lines 9-11, and Diamond Point. *“There are a substantial number of undeveloped and underdeveloped parcels on this reach. Under current zoning regulations, approximately one-third of the shoreland area has potential for new residential development... Development in these lots could result in relatively dense shoreline development as well as removal of forest cover near the erosive feeder bluffs in this area. Vegetation removal along bluffs tends to accelerate erosion, which can put adjacent homes and other structures at risk.”* Well said, but the recommendations on pg. 4-4 only state: *“Considerations include protection of feeder bluffs and sediment processes, compatibility of development with human health and safety, vegetation management to protect forest cover, adequate road and structure setbacks.”* We suggest specific recommendations that can guide the update. For example, “new residential construction along this reach must be set-back a distance greater than the distance that will erode from OHWM during the next 100 years, plus an additional amount (50 feet) for safety.”
- Pg. 4-4, lines 12-14 Management Issues and Opportunities states, “Protecting these natural shoreline attributes and habitat-forming processes is key to maintaining the overall ecological

health of the reach, and minimizing loss of barrier beach habitat.” Two extremely important and fragile shorelines features – Travis and Paradise Cove Spits – are located within this marine reach and should be specifically mentioned here. We recommend adding the following statement. “In addition to their extremely high value as fish and wildlife habitat, Travis Spit and Paradise Cove Spit significantly protect Sequim Bay’s shorelines from wave energy and increased erosion. Yet these spits will persist only as long as their sediment supply remains undiminished. Preventing the construction of bulkheads within their drift cells is a high priority.”

- Pg. 4-5, lines 4-5, Sequim Bay Summary of Baseline Conditions. “one-third of the total reach shoreline is classified as feeder bluffs.” We believe that the percentage is higher. Please recheck this number. Most of the “bluff-backed beach” category in Sequim Bay is erodible and eroding; albeit at much different rates. For example the spit in front of the Jamestown S’Klallam Tribes’ office (we call it Chicken Coop spit) has been stable through 100 years of mapping. It is supplied by bluff backed beach erosion on the east side of Sequim Bay. Pitship Point is another example for the west side of the bay.
- Pg. 4-5, lines 5-6, the statement, “northward net shore-drift within the reach” is not accurate. Chicken Coop Spit is the product of southward net shore-drift.
- Pg. 4-5, lines 35-40, Sequim Bay. “*There are no impaired water quality listings for the marine waters of Sequim Bay...*” This is incorrect; Sequim Bay is on the 2008 303-d list (Category 2) for low dissolved oxygen. Furthermore, monitoring since the last marine assessment and impaired list has revealed elevated nutrients in Sequim Bay, primarily as various forms of nitrogen and phosphorous. (unpublished data, Jamestown Tribe). Elevated nutrients are likely to be largely anthropogenic in source (e.g. wastewater treatment plants and failing septic systems, chemical fertilizers, agricultural practices, urban runoff, and the burning of fossil fuels). In a marine system with relatively low circulation such as Sequim Bay, nutrient enrichment may cause a cascade of negative ecological effects, such as harmful algal blooms, fish kills, and outbreaks of shellfish poisonings, loss of seagrass and bottom shellfish habitat, and hypoxia/anoxia.
- Pg. 4-5, not included. One of our concerns is mooring buoys stated earlier.
- Pg. 4-6, line 14, Sequim Bay. “*Approximately 15% of the shoreline in the reach is publicly owned.*” This seems high. Are you adding Jamestown S’Klallam Tribe land in as public? If so, please remove. The Tribe has reservation land and fee-simple land within the 200 ft. shoreline zone, but neither is public land. The public land would be three small pieces owned by WDFW and WSDOT at the south end, the old Dawley property owned by USFWS, and Sequim Bay State Park.
- Pg. 4-6, lines 32-33, Sequim Bay. “*Given the prevalence of docks in the bay, landowners without docks may wish to build them.*” We request a moratorium on docks in Sequim Bay (instead of “*limits on the location, length, and design*”, pg. 4-7, line 9) to help protect vital salmon rearing and migration habitat found in Priority Aquatic Habitat areas.
- Pg. 4-6, lines 16-18, Sequim Bay. We agree that soft bank armoring can be less environmentally harmful than riprap and other hard bulkhead material. However, soft bank bulkheads placed along feeder bluffs will eliminate sediment recruitment just as completely as hardened bulkheads. We recommend that new residential construction be set back from OWHM a minimum of 100-years of erosion plus 50 feet.
- Pg. 4-7, Reach 3, line 31. The “barrier beach” should be identified as South Spit.
- Pg. 4-8, line 13. It should be noted that Graysmarsh is a paleo-mouth of the Dungeness River.
- Pg. 4-10, line 17-18: states, “---key to maintaining the overall ecological health of the reach and minimizing loss of barrier beach habitat.” It should also be stated that the loss of Gibson Spit barrier beach habitat would lead to the immediate loss of Washington Harbor.

- Pg. 4-15, Reach 6, line 14 states, “The “Green Point” reach contains 11.4 miles of marine shoreline,”. Our calculations indicate that this reach is 8.4 miles in length.
- Pg. 4-18, line 27 states, “---thus putting Dungeness Spit at risk.” We suggest adding the adjective “extreme”, “grave” or “dire” to risk. The Ediz Hook case history is supremely relevant to Dungeness Spit.
- Pg. 4-18, lines 36 to 38 states, “In order to protect natural sediment movement processes, as well as human health and safety, new structures should be set back an adequate distance to account for the potentially rapid rate of erosion. We recommend that “adequate” be defined as 100-years’ erosion plus 50 feet.
- Pg. 4-1, Reach 7, lines 19 to 21, states, “There are reports of a pipeline along the base of the feeder bluffs to feed the mill in this reach which may have implications for sediment supply to Ediz Hook (Personal Communication R. Johnson). This issue needs further investigation.” Technically speaking, this reach does not have a pipeline along the base of the bluffs. A very well known pipeline does run along the base of the bluff for a distance of about 1.7 miles, ***beginning immediately west of the Reach 7 boundary***. This pipeline is mentioned earlier in this letter in the Ediz Hook case history and should be acknowledged in the report.

#### Freshwater shorelines

- Pg. 5-3, figure 5-2. This is an 11x17 map; the labels are too small to be put on a half-page.
- Pg. 5-5, lines 21-26. Maybe mixing apples and oranges here. The studies cited were predominately from small streams, shorelines of the state are larger streams and rivers. For example in the Dungeness, where is the edge? Ordinary high water mark (OHWM) or the edge of the channel migration zone (CMZ)? The Dungeness can avulse hundreds of feet in one flood event, so the talk about wood recruitment distances is better suited for smaller streams where avulsion is not a dominant process.
- Pg. 5-6, Figure 5-4. Please use a better photo of large woody debris.
- Pg. 5-7, Figure 5-5a-d. This figure is confusing. Does it recommend use of riprap to protect homes? Please consider using a more effective graphic.
- Pg. 5-8, Figure 5-6. This seems to suggest we are writing off McDonald, Siebert, and Morse Creeks to development. They support ESA-listed steelhead, along with numerous other salmon populations, and are the focus of substantial restoration efforts by Jamestown S’Klallam Tribe, North Olympic Salmon Coalition, and others. We strenuously disagree and object to the watershed characterization relative to these streams.
- Pg. 6-2, lines 28-30. These sockeyes are strays and do not successfully reproduce. There has never been a sockeye smolt recorded at the WDFW screw trap (Pete Topping, WDFW).
- Pg. 6-2, lines 34-40. As an FYI, the JCL summer chum broodstock program at Hurd Creek has ended, and there was an inaccuracy with your wording on Elwha Chinook. Please replace the current wording with the following. “Two fish hatcheries operated by WDFW are located on the Dungeness River—the Dungeness Hatchery at RM 10.6 and the Hurd Creek hatchery, a satellite facility located on a lower river tributary. The two hatcheries are managed jointly to produce coho salmon for release into the Dungeness River, maintain a small run of locally adapted hatchery steelhead, supplement late-timed (lower river spawners) wild pink, supplement wild Dungeness Chinook production, and incubate Chinook eggs for the Elwha River.”

- Pg. 6-4, lines 14-17. The Corps, in partnership with the County, is engaged in a Corps levee-setback feasibility study. Jamestown S'Klallam Tribe is leading a concurrent effort to plan for channel and floodplain restoration with levee setback. The Bureau is not active on this project at this time.
- Pg. 6-4, lines 34-37. There are two reaches with substantially levees, below RM 2.6 (not RM 4.5 as stated in the text), and from RM 7.5-10.0.
- Pg. 6-5, management issues and opportunities. There are several other opportunities: update the channel migration zone map with the Jamestown S'Klallam Tribes' 2008 study and enforce current regulations (protection would be greatly improve by simply erring on the side of protecting critical areas instead of the DCD promoting development of critical areas), promoting riparian conservation with landowners, and create a Channel Migration Taxing District so landowners can get funds to move threatened houses instead of armoring their bank and harming the river.
- Pg. 6-5, line 36. This restoration activity needs to be clarified to be relevant. There is a long history of gravel extraction in the river which had highly negative effects to fish habitat. Please replace with the following: "Limit road and development-related fine sediment sources throughout the watershed through enactment of a clearing and grading ordinance in the lower watershed and road decommissioning in the upper watershed."
- Page 6-6, lines 11-17. McDonald Creek has a bar-bound estuary where for at least half the year, longshore drift blocks the creek mouth. It is not that it lacks an estuary because it is confined; rather it is confined at the mouth because the impoundment caused by the bar limits the stream's energy to erode the adjacent bluffs. Just upstream, the creek is moderately confined which is its character up to near Hwy 101.
- Page 6-6, line 26. Fall chum are extirpated on McDonald Creek.
- Page 6-6, lines 28-31. Agnew water is put in at approx. RM 5.2 and removed at approx. RM 3.2. The diversion dam partially blocks upstream adult and juvenile fish migration. The dam and outtake infrastructure artificially confine this reach, making it a high-energy-lethal reach to rearing or migrating salmon.
- Pages 6-7, lines 5-10. For the developable lots described, are the portions of the lots between the bluffs developable? With roughly 60 ft. bluffs, houses located on top are not an issue, but any houses potentially located down on the floodplain are a great concern. Currently there is no development within the riparian corridor, other than transportation.
- Page 6-8, lines 14-18. An Elwha Chinook broodstock project is underway in Morse creek. The objective is to establish an Elwha Chinook to return to Morse Creek as insurance in case the Elwha River becomes temporarily inhospitable. Pink in Morse Creek are at very low levels. Please communicate with Mike McHenry or Larry Ward at LEKT for more accurate details.
- Page 6-9, lines 15-19. A large habitat restoration project was completed in 2009 on the WDFW property south of Hwy 101, reintroducing the ditched and leveed river into its 1930's channel.
- Chapter 7. What are the specifics in how regulations for county, state and federal governments apply to the SMP update? We think this chapter should be full of details. Here's a few that jump out immediately:
  1. What are your recommendations for shoreline buffers? In the Dungeness, Clallam County has major and minor development categories. Minor development is only a 75 ft setback from OHWM. Our research from a few years ago demonstrated most houses qualified for minor development. With this rule and the inadequate channel migration area boundaries in place, too many new houses have been placed at risk because they were allowed to construct where they are reachable by the river. This is a liability to the

county and certainly the landowners. For example, a few years ago, a landowner invited Byron Rot and several county staff to review his development plan. He was within the CMZ we delineated in 2008, but not the existing channel migration area used by Clallam County. When he found out the CMZ 2008 update had not yet been adopted by Clallam County, he refused to listen to anything else. We tried to explain that he lived on an island that was created by the river, to no avail. Even before his daughter's house was completed, it was in danger of falling into the river (it is now less than 70 ft from the river edge). That same landowner had to armor his bank to prevent his house from falling in. We instead requested he move his house. This is a familiar theme with river residents. Recommendation

- Drop the minor development category for the Dungeness and other migrating rivers.
  - Adopt the 2008 CMZ update.
  - Create a notebook for the DCD desk, full of photos of houses falling into the river, photos of healthy riparian forests (that will protect your house), etc. We have photos we can contribute.
  - The buffer on the Dungeness should be 150 ft. from OWHM or the 2008 CMZ edge plus 50 ft., whichever is greater.
2. What is the buffer recommendation for marine bluffs? We recommend it vary by geomorphic type, importance as a shoreform, and erosion rate, but have a minimum of 150 ft.
  3. The clearing and grading/stormwater ordinance (pg. 7-2, line 18-19) will feed into what specific parts of the SMP?

### Maps, June 2011

- Map 1a. The SSHIAP database layer is incorrect. Based on historical data gathered during the CMZ update a few years ago, the Dungeness River is unconfined from Canyon Creek downriver to the mouth.
- Map 2a. Hazard areas. We understand the Dungeness "channel migration area" is the old channel migration area data that is currently on the county website. We suggest using the updated channel migration zone delineation supplied to the County several years ago (Rot and Edens, 2008. Delineation of the Dungeness River Channel Migration Zone River Mouth to Canyon Creek) for the I&C report. We also suggest that as part of the SMP, Clallam County update their old channel migration area delineation with the 2008 study (it is after all Best Available Science).
- Map 2a. Hazard areas. We understand the area behind the Dungeness Meadows levee would be considered part of the FEMA 100-year floodplain since the dike is not publically maintained. Same for the area behind the upper and lower Haller levees, Kinkade Island levee, and Beebe levee.
- Map 3a and 4a, marine and freshwater ecological characteristics. We assume the fish icon states the upper limit of spawning/migration? If so, fish distribution in the Dungeness is inaccurate, we suggest a new start.
  - a. Chinook spawning has occurred up to Gold Creek on the Dungeness although it generally stops about 1 mile downstream of Gold Creek (½-way between Gold Creek and the old East Crossing campground). Chinook spawning on the Gray Wolf usually

extends to 2-mile campground, although it has occurred up to the Slab Camp trail crossing.

- b. Pink spawning on the Dungeness occurs from near the mouth up to and within Gold Creek. Pink have spawned up to the 3 Forks on the Gray Wolf. There are two pink runs, early (upper watershed) and normal (Dungeness hatchery downstream).
  - c. Coho juveniles were found on the Gray Wolf (one of the side channels at about RM 1.0 is called "coho channel") to RM 2.0 (Rot 2003, The evolving Dungeness River...). Coho were also found in the Gray Wolf mainstem to RM 2.0 (the upper limit to survey). In the Dungeness our most upstream survey point was the old East Crossing campground. We found coho juveniles at all the sites. To date we have not surveyed the upper watershed for coho spawning due to the difficulty in access during the winter.
  - d. Steelhead/cutthroat trout juveniles were found in all the same sites as coho. Our recent steelhead spawning surveys have found redds almost to Gold Creek confluence on the Dungeness and up to 2-mile on the Gray Wolf (most steelhead spawn below the cascades on the Gray Wolf). We did not survey steelhead above 2-mile.
- Map 3a and 4a. Siebert Creek appears to be mislabeled "McDonald" (McDonald Creek is east of Siebert and is the creek shown as shorelines of the state). There are two coho and two winter steelhead icon on McDonald, which is confusing. We are not aware of summer steelhead in McDonald Creek. Cutthroat trout will exist at least to the steelhead boundary and likely far upstream. SSHIAP should have that estimate of upper extent.
  - Map 5a, land use. Is a wetland lumped into the "dividable" category, or do these categories have critical areas already removed? If wetlands (for example) are considered buildable, this over-represents the potential area of developable shorelines. This would get back to pg 3-6, lines 26-28 "the low level of degradation will provide the County with opportunity to achieve multiple goals for environmental protection, restoration, public access and water-related development". Too many salt-marsh wetlands have already been filled for single-family houses, a few illegally in the past 10 years.
  - Map 6a, shoreline modifications. You show the Beebe levee at approx. RM 1.8-2.7 as a hydromodifications (it is across from the Corps dike). While the Beebe levee is private and thus not recognized by FEMA, it has a large impact to the river, floodplain, and salmon habitat. Since several other private levees are categorized under the "levee" banner (e.g. Dungeness Meadows, Upper and lower Haller, Kinkade), this should be there as well. As a better alternative, we suggest two categories, publically maintained and private (not federally recognized) levees.
  - Marine & Freshwater reach sheets do not have page numbers (including reach sheet explainer and individual reaches). Please add page numbers for ease of reference.
  - Marine Reach Sheet Explainer (page 2 in PDF document, but no page number exists): In the description of "Onshore Vegetation", reference to the Point No Point Treaty Council's land cover classification is inaccurate in the second sentence. Please change description to the following: "The Point No Point Treaty Council (PNPTC, 2011) identified areas of closed canopy forest, other natural vegetation, non-forest (areas with human influence such as roads, agriculture, houses, lawns, etc.), freshwater (i.e. lakes) and areas known to be off-shore. This analysis was performed using high-resolution aerial photography (NAIP photos), repeatability analysis and some field surveys. This project is funded by the US EPA. Additional categories described in the following pages were not assessed by the PNPTC. The ESA Consultants further annotated the general categories mentioned above into more detailed categories as follows: herbaceous shrub, lawns/landscaping, aquatic bed vegetation, etc., using their own methods."

In the text it describes a category called “non-vegetated shores” which is not one of the categories in our analysis.

- Please update the “Freshwater Reach Explainer” (pg. 2), with the aforementioned text.
- General Comment about the riparian vegetation dataset: We want to ensure that the dataset is being used properly. For example, in places where “agriculture” is defined, we were not able to assess this in the time frame needed to provide the data. We would be interested in learning more about the methods used for further refining categories that were developed through ESA. Also, we can provide you with a detailed description of what our categories are and our methods, which we provided to EPA for this original project. It is good to see that the dataset is being used.
- General Comment about the maps: Please include a legend and north arrow for ease of reference.
- Pg. 8-6. Are you including all datasets in your reference list? Please include the PNPTC, 2011, Riparian Land Cover Dataset in this list.
- General Comment about map data sources (i.e. Reach Sheet Explainers and/or references list): Where possible, could you include a url that links to the datasets use. We would be particularly interested in the link to the PSNERP dataset.

Thank you for the opportunity to review and comment on the draft I&C report. We look forward to reviewing the revised draft in the upcoming months.

Sincerely,



Randy Johnson  
Habitat Restoration Planner