CONFEDERATED TRIBES OF
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City of Coos Bay Planning Commission
500 Central Avenue
Coos Bay, Oregon 97420

SENT VIA EMAIL (hhearley@lcog.org; jcallister@lcog.org; cjohnson@coosbay.org)

RE: Comprehensive Plan Amendment 187-18-00153: Jordan Cove Energy Navigation and Efficiency and Reliability of the Coos Bay Deep Draft Navigation Channel

Dear Members of the Planning Commission:

The Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians ("Tribe") respectfully submits these comments on Comprehensive Plan Amendment 187-18-00153: Jordan Cove Energy Navigation and Efficiency and Reliability of the Coos Bay Deep Draft Navigation Channel (the "Proposal").

1. BACKGROUND

The application proposes dredging, or "Navigational Reliability Improvements" ("NRIs") SR four locations within the Coos Bay Deep Draft Navigational Channel. The dredging is referred to as NRIs. Three of the proposed NRIs are within Coos County and one (Dredge Area #4) is within the City of Coos Bay.

This Proposal is one component of the approval process for the Jordan Cove Energy Project ("JCEP") and the Pacific Connector Gas Pipeline ("PCGP").

The JCEP will involve the construction and operation of a Liquified Natural Gas ("LNG") terminal that would receive a maximum of 1.2 million dekatherms per day of natural gas and produce a maximum of 7.8 million tons of LNG for export each year. The LNG terminal will cool natural gas into its liquid form in preparation for export from Coos Bay. The LNG terminal is composed of Ingram Yard, South Dunes site, the Access and Utility Corridor, and the Roseburg Forest Products property. The LNG terminal and associated facilities would cover 538-acres of land, including 5.2 acres of open water and 169-acres of wetlands.

The Pacific Connector Gas Pipeline, to which this Proposal is a part, involves the construction of a 36-inch underground 229-mile natural gas pipeline from Malin, Oregon to Coos Bay. Over the

229-mile pipeline route, the applicants propose to cross Coos Bay, the South Coast watershed (Coos and Coquille Subbasins), the Umpqua watershed, the Rogue watershed, and the Klamath watershed (Upper Klamath and Lost Subbasins). Overall pipeline construction would impact 30,778-feet (5.83 miles) of wetlands and 3,028-feet of waterways. Approximately 48,675 cubic yards of material would be excavated and discharged into wetlands and 9,519 cubic yards of material would be excavated and discharged into waterways. Within Coos Bay, Jordan Cove proposes to install the 36-inch pipeline across the Bay using two horizontal directional drills ("HDD") of 5,200 and 9,000 feet each.

The actions described in the Proposal before the City are part of a larger regulatory process that necessitates a myriad of federal, state, and local approvals to comments. The JCEP and pipeline, are subject to review and approval by the Federal Energy Regulatory Commission, who can approve the projects only if there is a demonstrated public need for the projects and if the projects can comply with federal, state, and local environmental and cultural resource laws. Both projects must also comply with permitting requirements from the Army Corps of Engineers, the Oregon Department of Environmental Quality, the Oregon Department of State Lands, the Oregon Department of Energy, and others. In addition, there are several permits pending with Coos County and a hearing heard earlier this week with the City of North Bend. All of these federal, state, and local approvals are necessary for the two projects to proceed.

2. POSITION OF THE TRIBE

Before addressing specific concerns, the Tribe would like to strongly concur with proposed Condition of Approval #2, as well as the request of JCEP on page 35 of its Narrative in Support of the Application to adopt terms and requirements of the Memorandum of Agreement ("MOA") and the Cultural Resource Management Plan ("CRPA") as a condition of approval of this proposal in order to satisfy the requirements of CBEMP Policy #18. The MOA is a product of years of negotiations between the Tribe and the applicant, and will serve as the framework through which the Tribe's cultural resources within the Project area are properly identified and protected. We appreciate the applicant's willingness to partner with us to accomplish these important objectives.

The purpose of the MOA and CRPA is to set forth binding, "appropriate measures" to protect cultural, historic, and archaeological resources as required by CBEMP Policy #18, including sites shown on the map of inventoried sites, sites identified by the State Historic Preservation Officer ("SHPO") or Tribal Historic Preservation Officer ("THPO"), and, as stated on page 2 of the MOA, "unknown or unrecorded cultural, archaeological and/or historical sites" that may "be encountered within the Project area."

The importance of Coos Bay to the Tribe and the presence of archaeological and cultural resources through the area impacted by this proposal cannot be understated. The Coos people have continuously used the estuary since time immemorial to the present as demonstrated by archaeological sites, named places in Hanis and Miluk dialects of the Coosan Language, and the presence of prehistoric and historic burials of peoples at former villages and subsistence sites of our people. The Coos Bay estuary is a central feature of Coos culture and identity.

Coos Bay includes hundreds of sites of nearby fish weirs and traps, former villages, and loci of events in the oral literature of the Coos people. We have used the estuarine and shore lands in the area all our lifetimes to fish, gather shellfish, harvest berries, medicines, and plants for consumption or cultural purposes. The main stem was used as a primary transportation route for

the Coos and is still used for fishing and canoeing by Tribal members today as well as for resource gathering and/or ceremonial purposes.

Tribal members have significant connections to the Bay, including named villages, abundant traditional food sources, historic fish weirs, gathering areas and numerous ceremonial and burial sites. And while records capture village areas edging nearly all the shorelines of the Bay the estuary was not static until the jetties were built so it is likely that occupation shifted as water pathways, sand deposits and significant events such as the earthquake and tsunami of the 1700s changed the Bay's shorelines. For example, in October 2017, there was an inadvertent discovery on the edge of the shipping channel that was 25 to 30 feet below the bottom of the Bay (under Corp Permit NWP-2017-41.1- geotechnical pipeline work). In that case, there was a midden discovered that was subsequently radiocarbon dated to approximately 3,000 years ago.

The Tribe has consistently maintained the many cultural resources within Jordan Cove area and the bay should be considered eligible for listing as a Traditional Cultural Property on the National Register of Historic Places. On July 31, 2006, the Tribe passed Resolution No. 2006-097 which designated Jordan Cove and the surrounding area as a TCP. The Tribe reaffirmed this designation on July 29, 2015 in Resolution No. 2015-049. Last year, the Tribe submitted an application to the Oregon SHPO for listing Jordan Cove and Bay of the Coos People (Coos River Estuary), *Q'alay ta Kukwis shichdii me*, as a TCP on the National Register. The Oregon SHPO recently recommended to the National Park Service that the *Q'alay ta Kukwis shichdii me* should be listed in the National Register.

Given the significance of the Bay to the Tribe and its rich cultural resources, it is essential that the MOA and CRPA be adopted as a condition of approval as proposed by JCEP, as agreed by the Tribe, and as required by Policy #18.

The Tribe does not take a position "for" or "against" the Proposal. Instead, the Tribe seeks to ensure that any permits issued for the JCEP LNG terminal and natural gas pipeline comply with all laws applicable to the Project, including proper consideration and protection of cultural and natural resources. The City's review of this proposal is governed by Oregon's Statewide Planning Goals, the Coos Bay Estuary Management Plan ("CBEMP"), and a number of other local and state requirements.

3. SPECIFIC COMMENTS

a. Draft Condition of Approval #3 states, "Prior to the commencement of any dredging associated with an Estuarine and Coastal Shoreline Uses and Activities permit, JCEP shall obtain, and provide evidence to the Coos Bay Community Development Director, of all necessary DSL and Federal Section 404 authorizations. JCEP shall provide the City with copies of these approved authorizations for the record." **This condition should be amended to state, "… all necessary DSL, Clean Water Act approvals, including a Section 404 permit from the Army Corps of Engineers and the 401 Certification from the Oregon Department of Environmental Quality ("ODEQ"), and approval from the Federal Energy Regulatory Commission."**

Statewide Goal 6 provides that the Proposal "maintain and improve the quality of the air, water and land resources of the state." The staff report indicates, "[I]t relies entirely on state and federal regulations for direction and implementation. Staff believe it is reasonable to find that the applicant will comply with federal and state environmental

standards in the future if and when federal and state permits for dredging are secured." Moreover, CBEMP Policy #5 requires this Proposal to be consistent with the objectives of the Estuarine Resources Goal and to otherwise comply with the "requirements of state and federal law." In addition to the permits referenced in the draft condition, this Proposal is subject to a Clean Water Act Section 401 certificate[1] and approval from the Federal Energy Regulatory Commission ("FERC") (FERC reviews applications for the construction and operation of natural gas pipelines to ensure compliance with the Natural Gas Act and ensure compliance with the National Environmental Policy Act and other federal requirements).[2] Because the FERC approval and 401 certificate (both federal requirements) are not addressed in the draft condition, it should be amended as proposed.

b. Statewide Goal 8 provides that the Proposal must not interfere with recreation in Bay. Consistent with this, the Tribe requests that the City and the applicant consider measures to minimize disruption of fishing, fishing, and shellfish gathering during dredging and maintenance dredging thereafter. The attached document illustrates important shellfish areas in the Bay. The Coos Bay region is an important recreational Dungeness crab fishery area. Estimates from the 2007-2011 period found a minimum of 10,661 to a maximum of 15,023 crabbing trips were made in Coos Bay from April to October per year.[3] According to the State, nearly 90 percent of the boat use-days in Coos Bay involved fishing (including angling, crabbing, and clamming). Coos County recreation expenditures, including hunting, fishing, wildlife, viewing, and shell fishing totaled $6.2 million dollars in 2008. Travel-generated expenditures for these activities in Coos County generated $33.5 million dollars in 2008.[4] **Accordingly, the Tribe requests that an additional condition of approval be adopted that specifically requires that notice be provided to the community (including notice at boat launches and other recreation sites) that describes when dredging will occur and areas that may be closed/restriction from boat use during dredging.**

c. CBEMP Policy #5 requires a finding that there is a demonstrated "public need" for the project. Likewise, OAR 660-004-0022(1) provides that the applicant must demonstrate a need for the proposed use/activity. OAR 660-004-0020 (2)(a) states that the exception shall state the "[r]easons [to] justify why the state policy embodied in the applicable goals should not apply." The stated need for the Proposal is that the existing navigation channel is insufficient. However, evidence in the record indicates that this is not the case. In May 2018, the Coast Guard indicated "that the waterway in its current state" is "considered suitable for the LNG marine traffic associated with the proposed project" and can accommodate vessels with a maximum length of 300 meters or approximately 984 feet which is over 200 feet longer than any of the proposed current LNG vessels. *See*

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[1] Information about this process is available on the State's webpage at https://www.oregon.gov/deq/Programs/Pages/Jordan-Cove.aspx.

[2] Information about the FERC process is available on the federal permitting dashboard website at https://www.permits.performance.gov/permitting-projects/jordan-cove-lng-terminal-and-pacific-connector-gas-pipeline.

[3] "The Oregon Recreational Dungeness Crab Fishery, 2007-2011 54, (July 2012) available at https://www.dfw.state.or.us/MRP/shellfish/docs/2012-04.pdf.

[4] "Fishing, Hunting, Wildlife Viewing, and Shellfishing in Oregon - 2008 State and County Expenditure Estimates"; Prepared for the Oregon Department of Fish and Wildlife - Travel Oregon; Dean Runyan Associates; May 2009, available at http://www.dfw.state.or.us/agency/docs/Report 5 6 09--Final%20%282%29.pdf.

Exhibit 4 at 9-10. Additionally, "simulated transits were piloted by the Coos Bay Pilots and witnessed by the USCG…these successful simulations expand the ability for Jordan Cove LNG to use any class of LNG carrier (membrane, Moss, or SBT) with physical dimensions equal to or smaller than observed during the simulated transits." *See* Exhibit 4 at 15. Accordingly, while there may be a desire for greater dredging, there is not a demonstrated need as evidenced by the Coast Guard's statements.

d. CBEMP Policy #5 requires that "adverse impacts" of the project of the Proposal are minimized. This requires that conditions are adopted to minimize impacts of the Proposal.

First, the staff report indicates that the "in-water work window" for the project will be October 1 to February 15 "to reduce impacts to sensitive life stages of fish in the bay." Staff Report at 17. However, as indicated by the photos taken below by the Tribe's Natural Resource Department staff of herring spawn by Fossil Point taken this last February, the Bay serves as an important spawning area for herring.[5] Herring spawning in the Bay occurs during February. **Accordingly, in order to avoid adverse impacts to herring spawning as required by CBEMP Policy # 5, the City must adopt a condition of approval that provides that in-water work should end by February 1.**

[5] ODFW, Natural Resources of Coos Bay Estuary at 40 ("Spawning occurs from January through April, and herring remain in the bay through summer.), available at https://odfw.forestry.oregonstate.edu/freshwater/inventory/pdffiles/Natural%20Resources%20of%20Coos%20%20Estuary%20No.6.pdf. *See also* http://www.clamdigging.info/Pacific%20Herring.html ("Herring occasionally spawn in most all of Oregon's bays but spawn consistently in Coos Bay, Umpqua Bay and Yaquina Bay from February through early April but most consistently during March."); http://www.milebymile.info/Chetco%20Bay.html ("Pacific herring enter the bay to spawn in February, March and into April.").

Second, Coos Bay is a crucial "nursery" habitat for the Dungeness crab and impacts must be minimized. In her statement given to the Department of State Lands at the Public Hearing for Jordan Cove in Salem, Oregon, Professor Sylvia B. Yamada stated that dredging could negatively impact this important nursery habitat for the native species of Coos Bay and its estuary, including the Dungeness crab.[6] According to Professor Yamada, the highest number of juvenile crabs are found in soft sediments and eel grass beds of estuaries, where the young crabs find food and shelter from predators. Indeed, Professor Yamada stated that she herself has consistently trapped an average of 15 young Dungeness crabs per trap in her Coos Estuary study site, located along the Trans Pacific Parkway (adjacent to Jordan Cove). Turbidity associated with in-water activities, such as dredging can adversely impact these crabs and their habitat. In study conducted by Professor Yamada and designed to simulate a dredging operation, she found that between 45 to 85 percent of the Dungeness crabs exposed to the operation died. In order to comply with Policy # 5, conditions of approval should be developed to avoid any discharge of turbidity into habitat areas or destruction of aquatic resources.

The concerns about the impacts of dredging to crab and associated Bay habitat are further echoed in the attached comments from the Oregon Department of Fish and Wildlife ("ODFW") to the Department of State Lands – "The expected hydrological changes at the site due to the project development will potentially result in a number of changes to the biological communities at those locations (e.g. densities, species composition, predatory interactions, etc.). These changes may occur in areas adjacent to or a considerable distance from the project area where there is little or no construction activity." ODFW Comments at 18. "Mobilization of substrates will occur during the initial dredging and with continued regular disturbance associated with maintenance dredging (estimated 360,000 CY in the first 10yrs.; 36,000/yr.) within the project area." *Id.* at 20. "Marked change will occur to the productivity of the dredged portion of the bay and little recovery is expected over time due to the continual need for maintenance dredging. Maintenance dredging for the JCEP will result in a continually disturbed

[6] Public Hearing for Jordan Cove Removal-Fill Permit Application – Salem, OR: Before the Or. Dept. of State Lands (1.15.2019) at 2:17:07, 2:17:19 (statement of Sylvia B. Yamada, Assistant Professor, Senior Research; Dep't of Zoology, Oregon State Univ.), available at https://www.youtube.com/watch?v=aRQATTbaE6k.

condition preventing development of any reliable estuarine production in the affected areas. Additionally, the Port of Coos Bay project will likely dredge substantially more on an annual basis." *Id.* at 6.

The Tribe requests that the City include a condition of approval that requires the monitoring of turbidity and other dredging impacts recommended in the attached ODFW comments at page 20 be adopted as a specific condition of approval by the City in order to minimize adverse impacts of the Proposal.

e. State Goal 5 and CBEMP Policy # 18 both require protection of historic, cultural, and archaeological resources. In order to be compliant, an inventory of cultural resources and natural resources should be done by local municipalities, including the City of Coos Bay. Appropriate mitigation areas should be identified by the City in conjunction with an inventory. Currently, the City of Coos Bay does not have an inventory of these resources and relies on the County's inventory, which is grossly outdated. Directly adjacent to and on either side of the Bay, collectively, are two village sites, four cultural landscape features, and one natural landscape feature including a rock feature that is part of a Coos Myth Tale noted in the TCP nomination and submitted to the SHPO and National Park Service for consideration as a National Register site that is based on information compiled from archaeological investigations and ethnographic informants. The proposed dredging has the potential to both directly and indirectly impact these cultural sites both from the dredging activity itself and from potentially increased shoreline erosion and potential changes to current sediment dispersal patterns. While the CRPA addresses monitoring and mitigation of impacts to these resources when they cannot be avoided, it does not address the City's obligation for inventory and effects determinations under the CBEMP for these resources.

Thank you for consideration of these comments. If you have any questions about these comments, please contact me at mcorvi@ctclusi.org or by phone at 541-435-7151.

Sincerely,

Margaret Corvi
Culture and Natural Resource Director
Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians

cc: JCEP
FERC Docket
SHPO
DSL

ATTACHMENTS (2)

The *Q'alya ta Kukwis shichdii me* Traditional Cultural Property includes parts of the Lower Bay and Upper Bay sub-systems as well as Pony Slough, North Slough, and Haynes Inlet as well as southern sloughs, Isthmus and Coalbank and the commencement of the Coos River (Roye 1979:51). As before mentioned, there have been modifications to the bay with U.S. settlement, but prior to Euro-American settlement, the ecosystem provided an abundant landscape for flora and fauna alike and still is recognized for the resources reflected in this landscape. And the area is still known for plants (huckleberries, shore pine, cedar, etc), boat transportation (motorized and non-motorized), aesthetics (dunes, large bay, subtidal area, etc), fish (salmon, smelt, flounder, lamprey, etc), shellfish (gapers, razors, cockles, butter, etc), crab (red rock and Dungeness), hunting (deer, , birds (duck, osprey, egret, heron, eagle, etc), expansive views (BLM boat ramp, North bend Airport, CTCLUSI Administration, etc) and coastal weather patterns.

The Coos people are culturally and wholly tied to their interrelationship with nature and the landscape. This connection has developed over thousands of years. Those who lived during the time of great change to the bay, between roughly 75 and 125 years ago, are the voices that help give light to history. Coos traditional stories (see Appendix B) document many landmark features, place names, and gathering locations that tribal members re-told and passed down through the generations; many of which are still used and recounted today. Despite historic losses of many subsistence resources, Coos Bay is still vital to the perpetuation of Coos traditional practices, ceremonies and lifeways. There are many other important Coos places, sites and gathering areas that extend beyond the TCP boundary; however, the estuary and adjacent lands represent the core of this nomination.

Lower Bay

The Lower Bay (see Figures 7, 15, 23) starts at the mouth of the Coos River and includes prominent features such as Coos Head at the south jetty, Fossil Point, *la'xai*, *nikkawwaha* and *hanisich* in the old City of Empire that is incorporated into the city of Coos Bay. Historic events and features such as Confederated Tribes of Coos Lower Umpqua and Siuslaw (CTCLUSI) Tribal Hall, Stagecoach line and lifesaving station as well as myth tale sites, other village sites of the Coos are part of the Lower Bay. Cape Arago Highway runs north and south down into Charleston along the edge of the bay water. The North Spit, now a stabilized feature, encloses this section of the bay from the ocean through the expansive dune and wetland formation. Abundant resources on the North Spit include: traditional plant resources such as sedge, eelgrass, tule, spruce, bog blueberry and cranberry all reside on the North Spit as well as shellfish, duck and fish habitats. This area is still used for cultural practices such as plant harvesting and processing, canoeing, storytelling and ceremony.

Significant features within the Lower Bay include several cultural places, fishing and gathering areas, villages, and myth tale sites that are important to the Coos people and have been preserved through ethnographic studies and through being passed down orally from one generation to the next:

Kweyeis Xwamtat Qaimisich/Mountain Going Down to the Bar/Coos Head (see Figure 7) (see Photograph 1) is a bluff located at the mouth of the Coos Bay estuary. A dominant portion of this bluff and surrounding land is owned by the CTCLUSI. Prior to Tribal ownership, the central parcel was a federal military site beginning in 1875 and last managed by the Air National Guard until it was surplused and transferred to CTCLUSI in 2005. It overlooks the North Spit and an expansive sandy beach to the south. Prior to federal ownership, this area was used as a viewpoint for the Coos people, is associated with the conclusion of the Orca Story (see Appendix B) and was likely used as a ceremonial location. Below the bluff is a cave, or *xitlxaldich* (this word translates to "Tunnel Point", which refers to the dim light in the tunnel). After 1875, access to this area became restricted as it was removed from the public domain and placed in the ownership of the U.S. Army until 1957, when the U.S. Navy assumed management authority. In 2005, CTCLUSI regained ownership of the property and is currently planning several development options for the property, which include a cultural gathering area, viewing area, trails for recreation, government offices and interpretative areas. Contributing features of the property for the TCP nomination would include plants and viewsheds important to the ongoing use by Tribal members. Non-contributing features are historic military use buildings and areas on adjacent federal lands.

***Mhmnuu* / Fossil Point** (see Figure 7) is a Point just south of Pigeon Point, or Tarheel Point. (See Photograph 5). The site, partly owned by the CTCLUSI and partially privately owned, is a large sandstone ledge of fossil remains at Barview. Various private, university and county ownership surrounds the point and sub-tidal areas. The upland area near Fossil Point was where Tarheel, a determined Coos cultural leader, lived with his family prior to his removal to the Coast Reservation (see Appendix E, photo 8). The area contains the only naturally occurring rock in the bay and is exposed to continual tidal action. The fossil remains are well-preserved species of fossils that include Pliocene mollusks, as well as Pliocene skulls and bones of whales and sea lions. Fish and shellfish are preserved there as well in brown sandstone (Steere 1955:41; Fisher 2018). Because of the nature of this location, there is a diversity of species found at few other locations; in the algal bed and kelp bed there is a habitat for invertebrates and fishes and a significant spawning site for herring. Fossil Point is the setting of the myth text "The Dangerous Fish Which Poisoned People and Things and Turned them to Stone" (see Appendix B). Coos oral informant Annie Miner Peterson dictated the text, which was then printed in Coos and in English, and is called the *Coos Narrative and Ethnologic Texts* (Harrington 1942).

Today, Fossil Point continues to be a traditional crabbing and shellfish gathering area for tribal members, which dominate the contributing features for the site. Fossil formations also contribute as features for their natural and cultural value. The upland areas around Fossil Point have seen some housing development (non-contributing features) while the lowland area has remained largely unchanged.

***La'xai* Cove** (see Figure 7) is a small cove located on the east side of Coos Bay between Fossil Point on the south and Pigeon Point (Tarheel Point) on the north (see Photograph 2). The ownership of this area is mainly private with submerged state jurisdiction. It is also the location for myth story "He Eats Human Children" an oral literary text of several paragraphs dictated in 1933 by Coos elder Annie Miner Peterson (See Appendix B). The account was an admonitory tale to counsel children to stay close to home and not to go out to play at night. Today only a sandstone knob remains at *la'xai* as a reminder of the Ogres who kidnapped children (Jacobs 1939:57-58). Presently, the upland area has seen some development, while the lowland area remains how it was during prehistoric times. As with Fossil Point to the south, this area is a well-used shellfish gathering area and resource habitats similar to adjacent sites. Features contributing to the village and cove include the shellfish gathering areas, aquatic plant and seaweed gathering areas (see Photograph 6), nearby myth tale features.

Kiwe'et and Nikkawwaha (see Figure 7, 23) are recognized as a traditional story location. *Nikkawwaha* was named after the horsetail plant and was also the location of the 1855 Oregon Coast Treaty Council and temporary reservation where from November, 1855, until January, 1856, Special Indian Agent Socrates Scholfield held the Coos Indians prior to their removal to the Coast Reservation at Fort Umpqua. Fifty-three Coos men signed the unratified treaty of August, 1855, negotiated by Joel Palmer, Superintendent of Indian Affairs (Palmer 1855). Scholfield served as the Special Agent at this site from October, 1855, to April, 1856 (Scholfield 1856). Later in the 1910s, this site was the gathering place for the Coos tribe's annual August meetings, and where the tribe selected a successor to chief Bobby Burns (Anonymous 1913c).

In 1861 James Lawson, of the U.S. Coast and Geodetic Survey, established a triangulation station for his surveys of the bay here. In the immediate vicinity of the station is the only appearance of a bluff along this prairie shoreline (Lawson 1861).

Kiwe'et, meaning sand point (see Appendix A), is situated between *nikkawwaha*, to the south, and *hanisich*, to the north. Jim Buchanan provided a story related to this place about a canoe maker who was murdered and beheaded by someone from the sky and avenged by his son called "The Revenge of the Sky People."

The spit area is largely unchanged other than some natural tidal erosion. Contributing features of this location include traditional stories and historic landmark features as well as traditional use and cultural areas (see Appendix C) such as shellfish gathering areas, viewsheds and associated archaeological features (see Table 2). Residences, yards, gardens, and outbuildings are not associated with the contributing features.

Hanisich (see Figure 7) was one of the most prolific of the Coos villages located at what is now Empire. This area overlooks the lower estuary, North Spit and the Hollering Place. (Harrington 1942). Chief Daloose Jackson, a significant Coos Chief and cultural knowledge holder lived and father of Lottie Evanoff, a prominent Coos informant, prior to the removal and relocation of the Coos from Coos Bay (see Appendix E, photo 14). Jefferson Harney (see Appendix E, photo 6), a Hanis Coos and influential leader, was born at *q'aimisiich* prior to removal. It is the location of a Coos creation story, "*Mi'laq Chanigha*" (See Appendix B) that tells how the land was created from blue clay discs thrown down by two young men carrying arrows from the sky world.

Today, the area is covered by concrete and is zoned mixed use domestic and commercial. An interpretive sign describes the village site and the encounter between Coos People from *hanisich* and the ship wrecked army soldiers of the Captain Lincoln, who survived until their rescue by trading for resources such as food with the Coos people at *hanisich*. Down near the water is a boat ramp and dock that is heavily used by Coos tribal members for crabbing and fishing and occasional seaweed harvesting, such as bull kelp and nori (Pyropia varieties) (see Appendix C)(see Figure 23). Contributing features to this village include archaeological features (see Table 2 and Appendix E, photo 9), *q'aimisiich,* presence of blue clay, the viewshed and "soundshed" associated with *elk'elch* or "Hollering Place" across the bay. Non-contributing features include historic and non-historic existing structures, docks and parking areas.

Tribal Hall Property and Tribal Administration (see Figure 15) are important fixtures in government and cultural practice today. The Tribal Hall Property is the location of Tribal Hall significant building that was listed on the National Register of Historic Places on March 29, 1989 and is located on Tribal reservation land in Coos Bay at 338 Wallace Street (see Figure 23)(see Photograph 7 and 9). In 1940, a small 6.1 acre lot was established and held by the US government for use by the Tribes, and in 1941 the Civilian Conservation Corps, Indian Divisions (CCC, ID) erected a tribal hall on the reservation. The Property has been a place of continued government, social gathering and cultural activities, and currently houses the tribal museum, in addition to it serving as a spiritual location for all CTCLUSI tribal members (National Register # 89000202). The Tribal Hall complex includes other culturally important structures, such as the plank house constructed in 2001 (Photograph 6 and 8) and a sweat lodge that are heavily used by the Coos and other CTCLUSI members and contribute to this TCP. The natural resources (see Appendix C) and buildings, specifically the plank house and sweat lodge, are used to perpetuate the culture and cultural government programming of CTCLUSI which contribute to the TCP.

Kwonait, CTCLUSI Administration (see Figure 15), implement the objectives of the Tribe, under Tribal Council, to provide cultural programming, environmental and resource protection, health services and benefits, housing, investment, and economic resources through a wide range of programming. The Departments under the administration are grounded in culture awareness and focused on protection and enhancement of health, land, water, for the benefit of current and future generations. The viewshed of the Lower Bay is the most noteworthy contributing feature, along with cultural plants (see Appendix C) and government functions.

Wa'alach (see Figure 7) (see Photograph 7, 8 and Appendix E, photo 15) is the birth place of Jim Buchanan, a prominent Coos informant for Coos places and stories. The Tribe acquired *wa'alach* in the early 1990s from the City of Coos Bay, it has remained unchanged for the past 100 years. Near-by residences and non-archeological resources are not contributing

***Jiilch' ala*, Stone Hammer Baby, and Utter Rocks** (See Figure 7) are rock outcroppings located in the channel northwest of Empire (now part of west Coos Bay). The Utter Rocks one time were visible and dangerous to mariners though currently it is unknown if they any still exist. The rocks were specifically in the channel between Barrett's Landing and Henderson Marsh on the North Spit opposite the village of *wu'alach* at the mouth of the Chicksas creek. One notable rock associated among Utter rocks, likely impacted by channel modification, was told to be the top of a rock person's head that started off as a child's rock hammer baby doll turned to life. This myth tale, "Stone Hammer Boy," as dictated by Annie Miner Peterson, an very influential Coos tribal member and cultural knowledge holder, in 1933 to Jacobs (Jacobs 1939[vol 8](1):34-35). told of the origin of these rocks (Utter Rocks) and was recounted as an admonition by elders to Coos children. (See Appendix B). While the contributing features themselves have likely been impacted or destroyed by channel dredging the viewsheds and feeling of the place are retained. To go look for the Stone Hammer Baby is like looking for a mythological character. Any underwater features that are still intact would be contributing even if they cannot be seen above the lowest tide. The altered channel itself does not contribute to the TCP although if altered could further affect this area through increased erosion, removal of what may be left of the stones, and further damage to the association and feeling of this place to Tribal members.

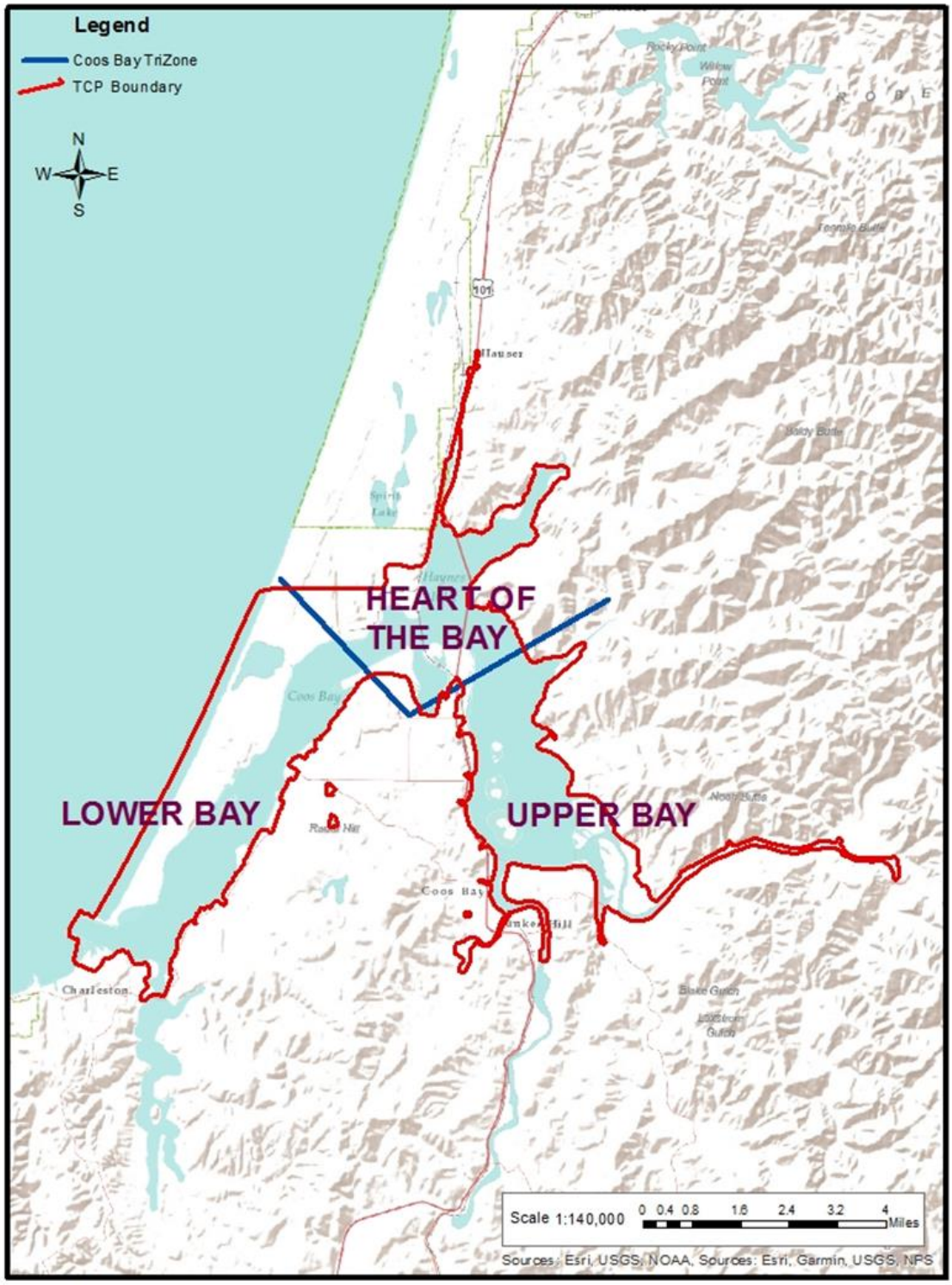
***Xiila'los* or North Spit** (See Figure 7) (see Photograph 2) is a large spit consisting of sand dunes that separate the bay from the Pacific Ocean. The southern portion of the spit may have formed in the later Holocene, with further advances resulting from jetty construction at the bay entrance starting in 1892. A photo from 1920 captures a sand bar with no visible vegetation (see Appendix E, photo 11) North of the spit is an extensive body of dunes of which some may date to the Pleistocene. The dunes constitute one of the largest dune sheets in North America and reach north for nearly sixty miles along the Oregon Coast (Proctor et al. 1980; Schultz 1990). These deposits of sand lie in the Oregon Dunes National Recreation Area (ODNRA), while the US Bureau of Land Management (BLM) manages most of the North Spit. The ODNRA, created by Congress in 1972, is managed by the Siuslaw National Forest. The Army Corps of Engineers has management responsibility for the North Jetty and river and harbor projects in Coos

Bay. Because Coos Bay is navigable, a large part of the bay is administered by the Department of Oregon State Lands, though the state has sold tidelands for docks, sawmills, and commercial development.

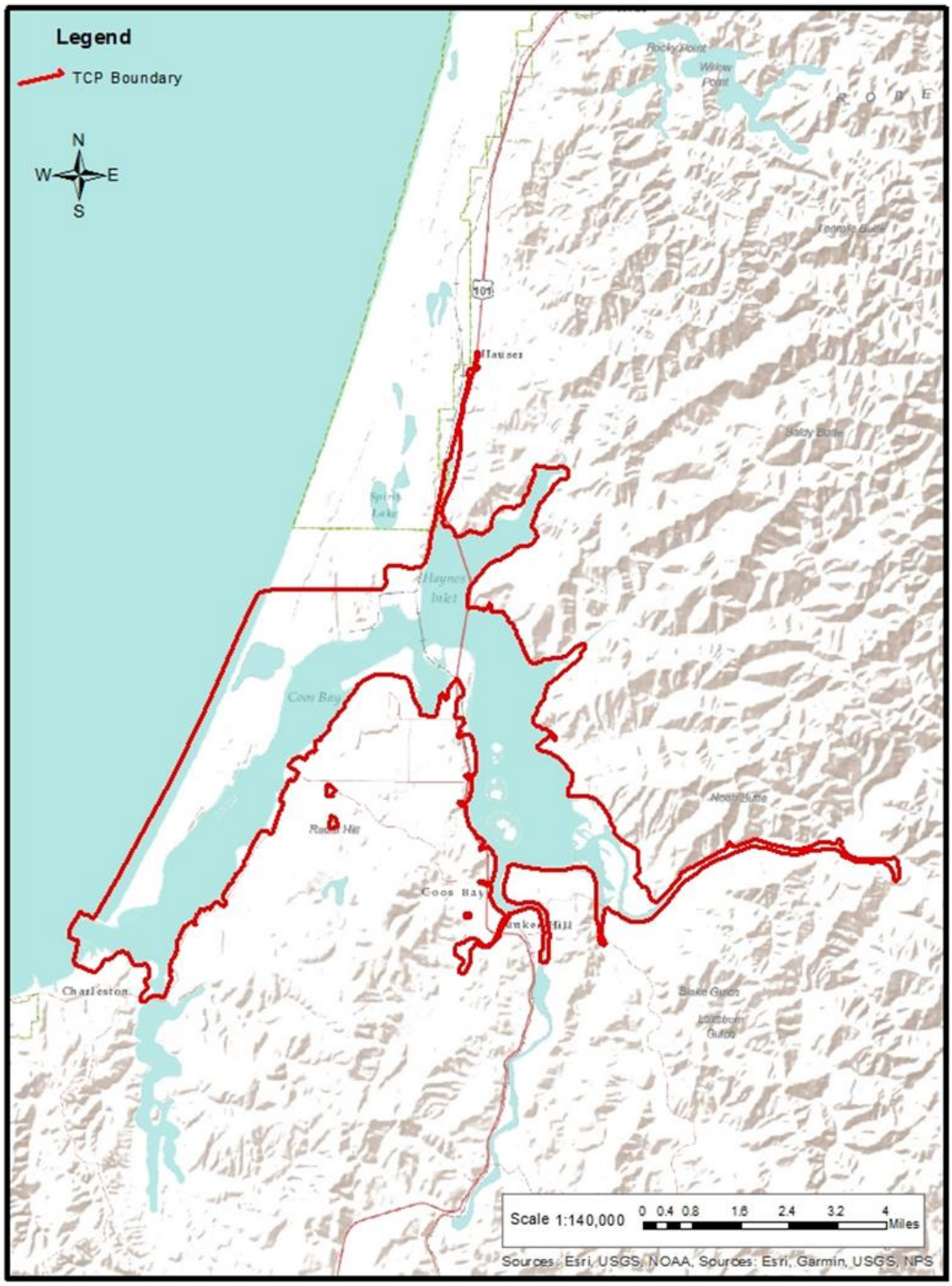
The presence or absence of the spit may have changed through time as well as the location of the mouth of the bay indicated possibly at other location. For instance Jim Buchanan was provided *qaimisani* or “river mouth” as the name at Jarvis landing providing the case for this to have once been the outlet of the bay(see Appendix A). There may be a buried slough near the mouth of the bay that extended north, and other records indicate that the lower bay used to be a lake created when sand was blown in and blocked the channel. (Koch site) (Harrington 1942; Whereat, et al. 2011:44). The shifting nature of the sands and channel through time has revealed some sites and buried others. Today due to the anthropogenic stabilization of the sand dunes with European beach grass, many villages and associated cultural items such as canoes have been buried. While the North Spit has a mixed use of both recreation and isolated commercial industry, tribal members continue to gather traditional foods and basketry material from the plentiful resources on the spit. Contributing resources on the North Spit are predominately those found in Appendix C as it is still an important gathering site for Coos. Additionally, historic or prehistoric features, including viewsheds and associated features identified in Figure 7 and Appendix A would be contributing elements. Noncontributing features are existing industrial and recreational development and non-native plants.

***Elk’elch* or “Hollering Place”** (See Figure 7), is located on the North Spit across from Empire. It was named “Hollering Place” because it was a place where one could holler for a canoe if transportation was needed from the North Spit to another area. Traditional stories tell that canoes would cross the bay from modern day Empire to retrieve someone from the spit. Like, *Hanisich*, the soundshed and viewshed strongly contribute to this area.

Overview of Coos Bay, Oregon

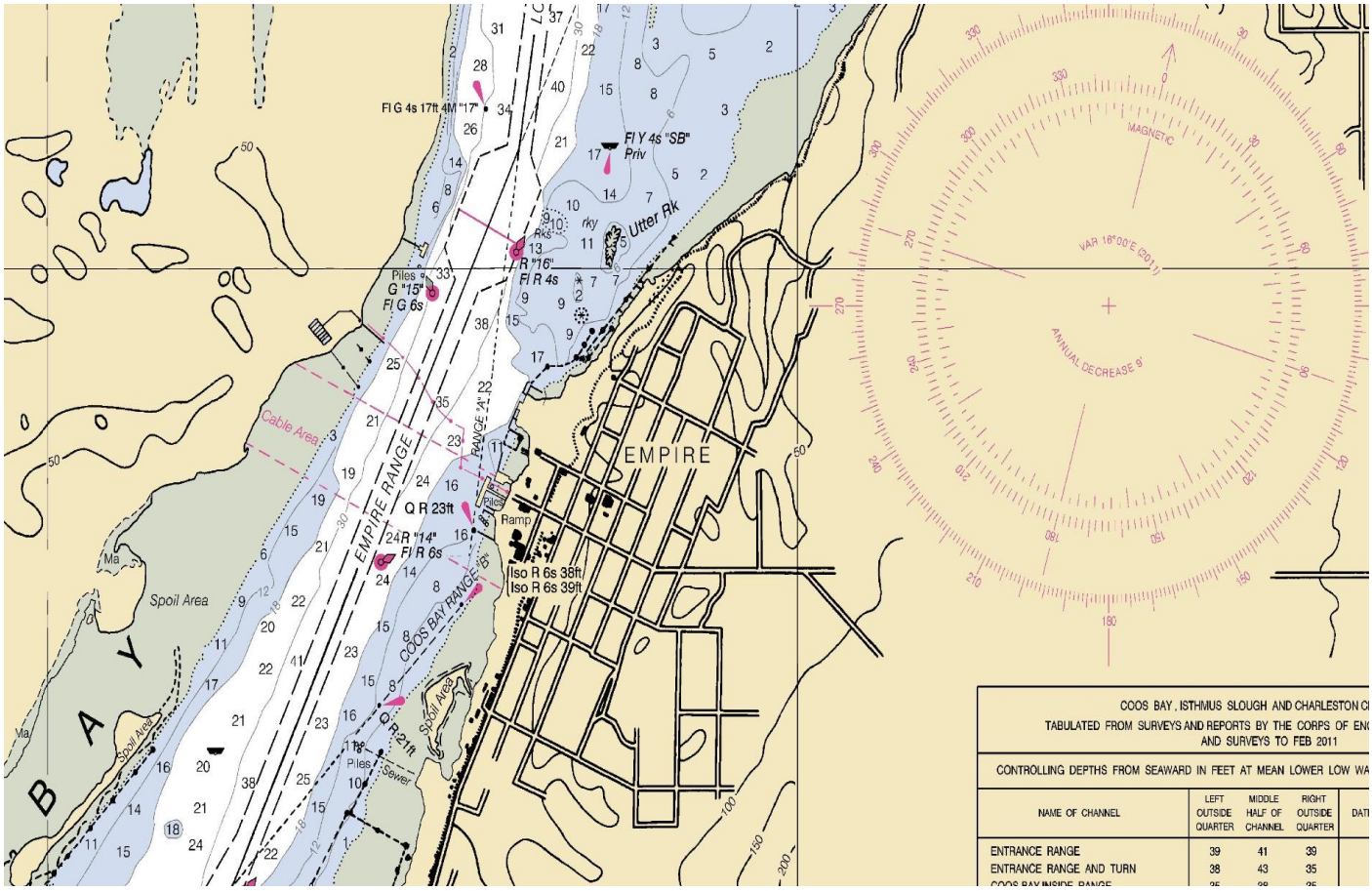


Overview of Coos Bay, Oregon
CTCLUSI TCP Boundary



Utter Rocks used to extend out into the bay but previous dredging and channel modification work has damaged and destroyed some of these rocks but there are still numerous rocks present giving it integrity and the connection to this place from Coos myth tales for the Coos people continues today.

Above 1895 Nautical Map and below is the 2011 Nautical Map- NOAA (https://historicalcharts.noaa.gov/#map)



CONFEDERATED TRIBES OF
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April 25, 2019

City of Coos Bay Planning Commission
500 Central Avenue
Coos Bay, Oregon 97420

SENT VIA EMAIL (hhearley@lcog.org; jcallister@lcog.org; cjohnson@coosbay.org)

RE: Additional Comments on Comprehensive Plan Amendment 187-18-00153: Jordan Cove Energy Navigation and Efficiency and Reliability of the Coos Bay Deep Draft Navigation Channel

Dear Members of the Planning Commission:

The Confederated Tribes of Coos, Lower Umpqua, and Siuslaw Indians ("Tribe") respectfully submits these additional comments to supplement the written comments provided on March 21, 2019 and the oral testimony on Comprehensive Plan Amendment 187-18-00153: Jordan Cove Energy Navigation and Efficiency and Reliability of the Coos Bay Deep Draft Navigation Channel (the "Proposal").

1. **Compliance with CBEMP Policy # 18.**

As previously stated, the Tribe strongly concurs with proposed Condition of Approval #2, as well as the request of JCEP on page 35 of its Narrative in Support of the Application to adopt terms and requirements of the Memorandum of Agreement ("MOA") and the Cultural Resources Protection Agreement ("CRPA") as a condition of approval of this proposal in order to satisfy the requirements of CBEMP Policy #18.

As stated by the Land Use Board of Appeals ("LUBA"), "CBEMP Policy 18 provides in relevant part that a development proposal involving a cultural, archeological or historical site shall include a site plan application showing all areas proposed for excavation, clearing, and construction, and submit that site plan to the Tribes for a 30-day review period. The county must then conduct a review of the site plan and approve or deny based in part on whether the Tribes and the applicant have agreed on "appropriate measures" to protect cultural, archeological or historical resources." *Oregon Shores v. Coos County*, LUBA No. 2016-095 at 16 (Final Decision and Order, Nov. 27, 2017). Only if the Tribe and an applicant are unable to reach agreement will

a hearing be conducted to "determine by preponderance of evidence whether the development project may be allowed to proceed, subject to any modifications deemed necessary by the governing body to protect the cultural, historical, and archaeological values of the site." CBEMP Policy # 18.

CBEMP Policy # 18 requires protection of both archaeological and cultural resource sites – Policy # 18 does not define either. An archaeological site is defined by the National Park Service ("NPS") as "the location of a significant event, prehistoric or historic occupation or activity, or building or structure, where the location itself possesses historic, cultural, or archaeological value."[1] An archaeological site has horizontal and vertical dimensions that are complex, containing diverse elements or components, each of which may represent a different activity. All site components can share relationships to one another and all components, including buildings and landscapes, need to be studied in order to understand the way of life at that location. Newer archaeological practices (distributional archaeology) try to look at the landscape by looking at surface material to understand human activities and interactions between humans and their environment around village sites rather than just the location of the village site itself as a single element. A cultural site as defined by the NPS includes "a property based on its associations with the cultural practices, traditions, beliefs, life ways, arts, crafts, or social institutions of a living community. TCPs are rooted in a traditional community's history and are important in maintaining the continuity cultural identity of the community."[2]

Here, the MOA and CRPA represent "appropriate measures" to protect both cultural and archaeological resources as required by the CBEMP Policy # 18. Currently, the City of Coos Bay does not have an inventory of these resources and relies on the County's inventory, which is grossly outdated. Directly adjacent to and on either side of the Bay, collectively, are two village sites, four cultural landscape features, and one natural landscape feature including a rock feature that is part of a Coos Myth Tale noted in the TCP nomination and submitted to the SHPO and National Park Service for consideration as a National Register site that is based on information compiled from archaeological investigations and ethnographic informants.[3] The dredge line will impact fish weirs that are located throughout the Coos Bay Estuary and Kentuck Slough that are noted on the SHPO database and Goal 5 map and most have been either determined eligible for listing on the National Register or are listed on the National Register of Historic Places already. Impacts to these sites can be mitigated by the adoption of the MOA and CRPA as a condition of approval.

Moreover, Attachment B, an excerpt of the nomination application for the Proposed *Q'alya ta Kukwis shichdii me* (Jordan Cove and the Bay of the Coos People) Traditional Cultural Property Historic District describes cultural resource sites throughout the Bay that will be impacted by this proposal. These are sites that are included for designation as a Traditional Cultural Property

[1] *See* https://www.nps.gov/nr/publications/bulletins/nrb15/nrb15_4.htm.
[2] *See* https://www.nps.gov/history/tribes/Documents/TCP.pdf.
[3] Attachment A contains a list of sites impacted by the Proposal. This list is not subject to public disclosure because it contains information regarding the location of archaeological and cultural resource sites.

("TCP").[4] A map of the proposed TCP boundary is available from Coos County Planning at http://www.arcgis.com/home/webmap/viewer.html?webmap=1be7dbc77f8745d78fc5f3e8e85fc05e&extent=-124.8585,42.6536,-122.6914,43.6326.

As Attachment B indicates, the *Q'alya ta Kukwis shichdii me* TCP is an area of significance and continued use by the Coos people and is tied to their cultural identity. There are village sites, cultural landscape features, and natural landscape features that includes rock features that have associated Coos myth tales as discussed in the TCP. The TCP also discusses view sheds and in general the aesthetic quality of the bay, as referenced in the Final Coos Bay Channel Deepening Environmental Impact Statement Feasibility Report (1994) on pg. 3-69, "The aesthetic character of Coos Bay is a mixture of the natural and the human in all aspects of sight, sound, smell, and character…. Other areas, such as the lower bay, are dominated by natural amenities, particularly by views of the bay and the north spit. This part of the bay also contains the South Slough Sanctuary, a natural preserve where one be can be totally absorbed in surroundings of water, forest, and wildlife." There will be both direct and indirect impacts as well as cumulative impacts to these resources and effects determination should consider all of the types of impacts to cultural resources within the TCP. Mitigation for resources should be appropriate and not in itself cause further adverse effects to cultural resources within the TCP. The MOA and attached CRPA will provide the framework through which cultural resources impacts will be specifically identified and avoided or mitigated.

In order to protect these known sites, the Tribe requests that the City adopt proposed Condition of Approval #2, as a condition of approval.

2. **The Fish Window needs to be adjusted.**

CBEMP Policy #5 requires conditions to be adopted that minimize "adverse impacts" of the Proposal.

The applicant has indicated that the "in-water work window" for the project will be October 1 to February 15 "to reduce impacts to sensitive life stages of fish in the bay." Staff Report at 17. However, herring spawning in the Bay occurs during the entire month of February.[5]
Accordingly, in order to avoid adverse impacts to herring spawning as required by CBEMP Policy # 5, the City must adopt a condition of approval that provides that in-water work should end by February 1.

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[4] Traditional Cultural Properties as defined by the NPS as "a property based on its associations with the cultural practices, traditions, beliefs, life ways, arts, crafts, or social institutions of a living community. TCPs are rooted in a traditional community's history and are important in maintaining the continuity cultural identity of the community." *See* https://www.nps.gov/history/tribes/Documents/TCP.pdf.

[5] ODFW, Natural Resources of Coos Bay Estuary at 40 ("Spawning occurs from January through April, and herring remain in the bay through summer.), available at https://odfw.forestry.oregonstate.edu/freshwater/inventory/pdffiles/Natural%20Resources%20of%20Coos%20%20Estuary%20No.6.pdf. *See also* http://www.clamdigging.info/Pacific%20Herring.html ("Herring occasionally spawn in most all of Oregon's bays but spawn consistently in Coos Bay, Umpqua Bay and Yaquina Bay from February through early April but most consistently during March."); http://www.milebymile.info/Chetco%20Bay.html ("Pacific herring enter the bay to spawn in February, March and into April.").

3. There is not a demonstrated need for the Proposal.

OAR 660-004-0022(1) provides that the applicant must demonstrate a need for the proposed use/activity. OAR 660-004-0020 (2)(a) states that the exception from meeting applicable Goals and Policies[6], including CBEMP Policy #5, shall state the "[r]easons [to] justify why the state policy embodied in the applicable goals should not apply." Regardless of whether CBEMP Policy #5 applies, JCEP must demonstrate a need for the exception and the City must find that there is sufficient evidence to support that request.

JCEP argues that an "extremely restrictive, unavoidable turn" associated with the proposed NRI site as the "special features or qualities that necessitate its location on or near the proposed exception site." However, evidence in the record indicates that this is not the case. In May 2018, the Coast Guard indicated "that the waterway in its current state" is "considered suitable for the LNG marine traffic associated with the proposed project" and can accommodate vessels with a maximum length of 300 meters or approximately 984 feet which is over 200 feet longer than any of the proposed current LNG vessels. *See* Exhibit 4 at 9-10. Additionally, "simulated transits were piloted by the Coos Bay Pilots and witnessed by the USCG…these successful simulations expand the ability for Jordan Cove LNG to use any class of LNG carrier (membrane, Moss, or SBT) with physical dimensions equal to or smaller than observed during the simulated transits." *See* Exhibit 4 at 15.

In 1994, the Army Corps of Engineers completed its Navigation Improvements Final Feasibility Report and Environmental Impact Statement, which similarly question the need for widening of the channel or turning basins:

- Page 39: "During the last several years, about 300 deep draft vessels have used the channel annually. This number is not expected to increase over the life of the project to a point where there would be a general need to design for two-way deep draft traffic." Today there are fewer ships around 60 annually, which is a significant drop from the numbers recorded around 1994 during this study and even with the LNG vessel traffic of approximately 120 vessels annually would not match what was observed during this Corp EIS analysis.
- Page 39: "Even with the trend toward larger vessels, the pilots indicate that the existing width of the entrance channel is sufficient"
- Page 39: "The lower channel to RM 9 is nominally 300 feet wide, but it varies considerable because of the use of wideners at bends. The pilots are satisfied with the existing width of the lower channel and do not recommend any changes.

[6] While JCEP asserts it need not show the "need" for the Proposal under CBEMP Policy #5, it must show a need under OAR 660-004-0020 to "justify" the exception. So regardless, the City must consider the need for the Proposal.

- Pg. 40: “The pilots indicate that there have been little difficulties in operating within the existing turning basins and there have been no accidents associated with turning maneuvers.”
- Pg. 40: Minimal delays: “The actual time recorded for the turning maneuver was 7 minutes.”

Thank you for consideration of these comments. If you have any questions about these comments, please contact me at mcorvi@ctclusi.org or by phone at (541) 435-7151.

Sincerely,

Margaret Corvi
Culture and Natural Resource Director
Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians

cc: JCEP
FERC Docket
SHPO

ATTACHMENTS (2)

Coos Bay Shellfish Areas

Coos Bay is the largest estuary entirely in Oregon and provides many opportunities for clamming and crabbing. The lower bay (west of the railroad bridge) is "marine dominated", meaning there is little freshwater influence. These stable high salinities contribute to the lower bay being ideal habitat for clams and crabs. Upper bay areas (east of the railroad bridge) tend to have more freshwater influence and popular bay clam species and adult Dungeness crab are not found.

North Spit:

The western side of lower Coos Bay features popular and productive boat crabbing and bay clam digging.

Access is difficult (4x4 road or boat only). Paved road ends at the former aquaculture facility (access point #6).

Gaper and butter clams are found densely throughout. Other bay clam species are found sparsely, and harvested less often.

Strawberry Island (SI):

This is the only vegetated island in lower Coos Bay. Gaper and butter clams are found throughout; large butter clams can be dug in the gravelly beds east of the island. Access is by boat or wading from the beach at a good low tide.

Clam Island (CI):

This "island" emerges at a +2' or lower tide and is only accessible by boat. Clam Island features the highest densities of gaper and butter clams in Coos Bay. Adjacent shoreline flats boast excellent clamming as well.

Aptly named "Hungrymans cove" is a small alcove that separates the shoreline with the island, a good place to crab on a windy day.

Training Jetty (TJ):

This tideflat constrained between the shoreline and the "training jetty" is known to have large gaper clams, though they are often deeply dug in.

Charleston area:

Clamming in Charleston is excellent throughout, access is easy.

Point Adams (PA):

Large cockles can be raked along the sandy beach at a very low tide. Gapers occasionally recruit to the beach southeast of the point.

Charleston Triangle (CT):

Gapers and butters are abundant. Easily accessed from parking areas south of docks (access point #1).

Charleston Flat (CF):

Gapers and butters can be dug throughout the areas south of the South Slough Bridge. Cockles can be raked toward the south end of this area. Access is from the Charleston Visitor Center (access point #2)

Barview (BV):

Butter clams throughout in good numbers. Gapers and native littlenecks are also found.

South Slough (SS):

Further up South Slough, all tideflats up to Valino Island are excellent for gaper, butter, and cockle clams. Access is exclusively by boat.

Lower Coos Bay crabbing:

Beyond the edges of the navigational channel, look for depths of 15-35'. Boat traffic can be high in this area. Be legal and considerate by placing gear outside of channel and by using sinking crab line.

Charleston crabbing:

Commercial boat docks provide good access. Try to avoid sea lions.

Mid to Upper Coos Bay:

These areas of Coos Bay may be more difficult to access but may be worthwhile for digging softshell clams

Upper Coos Bay (UC):

The areas "up bay" of the railroad bridge are soft and muddy. Softshell clams can be found throughout, but finding firm walking substrate is challenging. Areas around Trans Pacific Parkway and North Slough are occasionally used.

Airport (AP):

Extensive clam beds, west of the runway, are rarely accessed, but very productive. Gapers and cockles are found. Access is by boat only.

Empire:

The areas on the east side of lower Coos Bay are excellent for butter and gaper clamming and easily accessed.

Empire (EP):

Parking and access is at a city parking area opposite of Fulton Avenue (access point #5).

Pigeon Point (PP):

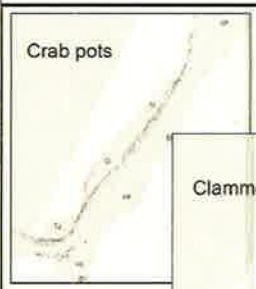
This expansive clam bed is productive and easily accessed. A butter clam bed can be found directly west of the county easement area opposite of Grinnell Road (access point #4).

Further down the bay, the Fossil Point area has good beds of butter and gaper clams. Digging can be a little more difficult as substrates include shell, cobble and gravel, wear gloves.
Access is northward of a parking area at Beacon Lane (access point #3).

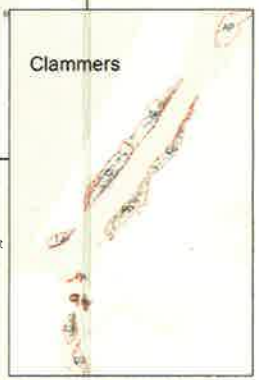
Empire pier crabbing:

The pier next to the Empire boat ramp can be good summer to fall.

Shellfish use survey results: In 2012 and 2013 ODFW staff performed surveys, noting exact location of crab pots and clammers on selected days. Each dot represents an observed crab buoy or clammer.



Boat crabbing is most popular on the west side of lower Coos Bay.



Clamming is spread out throughout the lower bay, however is most popular right near Charleston.

Legend

- Clamming areas
- Crabbing areas
- Shore crabbing
- Boat ramps

N

0 0.5 1 2 Miles

A shellfish license is required for all harvesters 14 years or older.

Shellfish regulations, species ID and more can be found at www.dfw.state.or.us/MRP/shellfish

This chart can be found at: www.dfw.state.or.us/MRP/shellfish/maps/Coos.asp or by scanning the adjacent QR code.

Design and photographs by Scott Groth.

Oregon
Kate Brown., Governor

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February 3, 2019

Robert Lobdell, Aquatic Resource Coordinator
Department of State Lands
775 Summer St. N.E., Ste 100
Salem, OR 97301

RE: Jordan Cove Energy Project Removal-Fill Application # APP0060697 Revised

Mr. Lobdell,

The Oregon Department of Fish and Wildlife (ODFW) appreciates the opportunity to provide comment to the Department of State Lands (DSL) on the Jordan Cove Energy Project (the project) application (#APP0060697) for removal and fill activity in wetlands and waterways. The Jordan Cove Energy Project proposes construction of a liquefied natural gas export terminal to be located on the North Spit of Coos Bay (Jordan Cove LNG Terminal; JCEP) and a 229-mile pipeline extending from the intersection of the GTN and Ruby pipelines to Coos Bay (the Pacific Connector Gas Pipeline; PCGP). It is the policy of the state of Oregon to manage fish and wildlife to prevent serious depletion of indigenous species and to provide the optimum recreational and aesthetic benefits for present and future generations of the citizens of this state (ORS 496.012, ORS 506.109). In accordance with our mission, ODFW has reviewed this removal-fill application and offers the following comments and recommendations. Should you have any questions or require any further detail, please contact Sarah Reif, ODFW Energy Coordinator, at 503-947-6082 or sarah.j.reif@state.or.us.

ODFW Comment History

ODFW has been providing assessment and comment on the project since it was first proposed in 2008. Although the project has changed somewhat in scope and location, the proposal includes the same components as originally proposed. The comments provided herein are largely a carry-forward of those submitted by ODFW in previous years, and those most recently submitted by ODFW to the US Army Corps of Engineers for the Jordan Cove Energy project 404/408 Permit Application (NWP-2017-41), to the Oregon Department of Environmental Quality for their Section 401 Water Quality Certification, and to the Federal Energy Regulatory Commission for their 2017 Notice of Intent to Prepare and Environmenal Impact Statement for Docket No. PF 17-4-000. Given the scale of the project and the complexity of the application's 3300 pages, ODFW welcomes additional coordination with DSL if more site-specific recommendations would be needed or helpful.

General Comment on Economic Benefit

ODFW recognizes the project is anticipated to provide immediate economic benefits to the local communities of Coos County and other counties within the range of the pipeline portion of the project. However, this benefit should be evaluated in the context of both the potential adverse environmental effects and negative impacts to the long-standing current and future economically important industries (e.g. commercial fishing, recreational fishing and hunting, aesthetics, wildlife viewing, and aquaculture) that depend on healthy and abundant fish, wildlife, and habitats. Fish and wildlife recreational expenditures in 2008 accounted for 2.5 billion in income for the state of Oregon (Runyan and Associaated 2009). In Oregon, the commercial crabbing fishery is a tremendous economic engine with potential to be impacted by this project. For example, the 2017-2018 Dungeness crab season (December to August) generated $74 million in ex-vessel value (see https://www.dfw.state.or.us/MRP/shellfish/commercial/crab/docs/Crab%20Newsletter_2018_final.pdf, and https://www.dfw.state.or.us/MRP/shellfish/commercial/crab/news_publications.asp) . Like many other important fisheries, Dungeness crab use Coos Bay and the surrounding nearshore area for nursery habitat that may be affected by this project's proposed dredging activity, and the Coos Bay fishing fleet relies heavily on crab for its profits.

Oregon Fish Passage Law Compliance and Consistency

ORS 509.585 (Oregon Fish Passage Law) applies to all project components that cross waters of the state where native migratory fish species are or were historically present. ODFW administers fish passage rules and regulations. The project proposes numerous components that will cross waters of the state, which are defined in OAR 635-412-0005(46). These waterway crossing components and corresponding construction methods include LNG pipeline construction techniques (horizontal directional drilling, conventional boring, dry or wet open cut trenching), new or temporary access roads, and tidegate construction/modification. The extensive road network necessary to access, construct, and maintain the project will cross multiple streams or waterways and will use a variety of road-stream crossing construction techniques and methods (culverts, fords, bridges). In order to mitigate potentially significant environmental harm to the state's fish and wildlife resources, these project components must be designed, constructed, and maintained consistent with Oregon fish passage law and policies.

To fulfill this statutory requirement and ensure the project is designed and constructed consistent with Oregon's fish passage policy, the applicant should submit specific stream crossing design details at each project component that will cross waters of the state of Oregon. The expectation and goal of these design details are to specifically identify and depict how each waterway crossing proposed by the project will meet fish passage rules and regulations. To date the applicant has met with ODFW to discuss conceptual design details, however the applicant has not formally submitted its fish passage plans for ODFW review and approval. ODFW anticipates frequent, interactive coordination with the applicant to complete the fish passage approvals prior to construction.

Oregon In-water Blasting Permits

In-water blasting has the potential to injure aquatic fish and wildlife due to percussive shock waves produced by the energy associated with the explosion. This percussion can cause direct injury and stressors

including bursting of swim bladder, hemorrhage, damage to sensory organs, and trigger displacement behavior in fish species.

As required by OAR 635-425-0000 through 0050 (In-water Blasting Permits) the project shall apply for in-water blasting permits at any stream crossing locations where the use of explosives is desired in the course of removing any obstruction in any waters of this state, in constructing any foundations for dams, bridges, or other structures, or in carrying on any trade or business (OAR-635-425-0005). Further, it is the policy of the Oregon Fish and Wildlife Commission to discourage in-water blasting unless it is the only practicable method to accomplish project goals. ODFW may issue in-water blasting permits only if they contain conditions for preventing injury to fish and wildlife and their habitat (OAR 635-425-0015).

The applicant has engaged ODFW in discussions regarding the need for and intent to apply for in-water blasting permits before construction begins. However, specific locations and plans have not yet been discussed. ODFW understands the applicant has not been able to physically access all stream crossing locations preventing the collection of necessary site-specific geotechnical information necessary to demonstrate in-water blasting is the only practicable method to accomplish project goals at certain locations. ODFW anticipates that frequent and iterative coordination with the applicant subsequent to physical access to in-water blasting location(s) will result in the applicant obtaining blasting permit approval from ODFW for all sites where this construction method is necessary and considered the least impactful method (to fish, aquatic wildlife, and their habitats). The applicant should only submit in-water blasting permit application after obtaining access to site locations and having collected necessary site-specific information to complete applications.

<u>In-Water Work Windows</u>

The application indicates in some sections of the document an intent to follow the ODFW Guidelines for Timing of In-Water Work To Protect Fish and Wildlife Resources (see https://www.dfw.state.or.us/lands/inwater/Oregon_Guidelines_for_Timing_of_%20InWater_Work2008.pdf). However, in other parts of the document the applicant refers to FERC guidelines for wetland and waterbody procedures (Part 2 Attachment P.6). The FERC default in-water work windows identified in this attachment do not align with ODFW recommended work windows and are not adequate to fully protect Oregon's fishery resources at the site-specific scale. Further, Oregon law does not recognize the terms used in the FERC guidance such as "minor waterbody", "intermediate waterbody", or "major waterbody". A FERC "minor waterbody" might be important habitat for threatened or endangered fisheries or other wildlife and warrant greater protections than the generic conditions outlined in the FERC document. The FERC document also provides differing guidance for work in "coldwater" fisheries, however Oregon does not designate waterbodies using these terms. Application of the FERC waterbody procedures will likely create conflict with the definitions and Oregon's Fish Passage Laws and In-Water Blasting Laws, therefore ODFW recommends Oregon's in-water work guidelines be applied to native fish-bearing waterways throughout the project. ODFW recommends that any needed variation from the recommended work windows be discussed with the applicable ODFW Fish District to ensure impacts to fish and aquatic resources are minimized.

Fish and Wildlife Habitat Mitigation Policy Consistency

ODFW recommends that impacts to fish and wildlife habitats be addressed consistent with the ODFW Fish and Wildlife Habitat Mitigation Policy (OAR 635-415-0000 through 0025). This rule governs ODFW's provision of biological advice and recommendations concerning mitigation for losses of fish and wildlife habitat caused by development actions. Based on standards in the rule, ODFW determines the appropriate category to apply to land or water where a development action is proposed. If ODFW determines that such habitat is Category 1, ODFW must recommend that impacts to the habitat be avoided. If impacts cannot be avoided, ODFW must recommend against the development action. If ODFW determines that such habitat is Category 2, ODFW must recommend that impacts to the habitat be avoided. If impacts cannot be avoided, ODFW must recommend a high level of mitigation (as specified in more detail in the rule). If such mitigation is not required, ODFW must recommend against the development action. Subsequent specific mitigation goals follow for habitats determined to be Category 3, 4, 5 and 6, and for which impacts cannot be avoided.

In this comment letter and those submitted to the other state and federal agencies involved in the permitting of this project, ODFW has recommended a coordinated, interagency habitat mitigation plan for the entire project including both the LNG terminal and the pipeline. At this time it is not clear how the applicant intends to approach mitigation beyond what is proposed in the Compensatory Wetland Mitigation Plan (Attachment I to this application, as well as an updated version posted to the FERC docket #CP17-494-000 on 1/29/2019). However, it may be notable to DSL that the applicant and ODFW will be meeting in the coming weeks of February 2019 to provide clarification on their proposed approach to habitat mitigation.

ODFW offers the following analysis and recommendations to address impacts not only to wetlands and waterways, but also to upland habitats. It is ODFW's perspective that upland impacts have the potential to affect habitat functions and values within the wetland and waterways.

When DSL and the applicant are prepared to discuss these comments, ODFW can provide more detailed, site-specific recommendations which have been collected by ODFW District Biologists throughout the years of the project in its various iterations.

JORDAN COVE LIQUEFIED NATURAL GAS (JCEP) FACILITY PROJECT COMPONENT

Introduction

The proposed JCEP project is large in scope, will have ecological impacts, and have legacy implications for aquatic habitats of Coos Bay and upland habitats on the North Spit. The North Spit is one of the only ocean peninsula land features in the state with estuarine, ocean, wetland, and upland habitats available for fish and wildlife within a very small geographical area. This unique landform and bay provide a number of strategic benefits for production of fish and wildlife. Coos Bay is the largest estuary located entirely in Oregon and supports populations of fish and shellfish that contribute to large commercial and recreational fisheries. The aquatic and upland habitats encompassed by JCEP and workforce housing project area have been subjected historically to a number of landscape and waterway alterations including: dredging, rip-rap installation, leveling, and removal of native coastal pine forest, filling of wetlands, and other development related impacts. These habitats historically would have been primarily characterized as

Category 2 or 3 habitats, (providing essential, important, and/or limited habitat function for fish and wildlife) under the ODFW Habitat Mitigation Policy. Although negatively impacted historically, much of the tidal, subtidal, and upland habitats at the proposed project site have received only minimal disturbance in the past two decades and substantial recovery of ecological function has occurred.

Aquatic Estuarine Discussion

According to the DSL removal-fill application, the LNG terminal and associated facilities would permanently impact 22.5 acres of estuarine wetland habitat (identified in the application as those acres requiring mitigation) and an additional 58+ acres of deep subtidal wetland habitat. These subtidal, tidal, intertidal, and shoreline features provide critical habitat for a number of culturally and economically important game and non-game species including, but not limited to: Dungeness crab (*Cancer magister*), red rock crab *(Cancer productus*), cockles (*Clinocardium nuttallii*), gapers (*Tresus capax)*, butter clams (*Saxidomus giganteus)*, littleneck clams (*Protothaca staminea*), rockfish (*Sebastes spp.*), lingcod (*Ophiodon elongates*), greenling (*Hexagrammos decagrammus*), California halibut (*Paralichthys californicus*), English sole (*Parophrys vetulus*), Pacific sand dabs (*Citharichthys sordidus*), ghost shrimp (*Callianassa californiensi*), mud shrimp (*Upogebi pugettensi*), starry flounder *(Platichthys stellatus)*, smelts (Osmeridae family), (Engraulidae family), sardines (Clupeidae family), fall run Chinook salmon *(Oncorhynchus tshawytscha)*, green sturgeon *(Acipenser medirostris)*, white sturgeon *(A. transmontanus)*, (OC) ESA threatened coho salmon *(O. kisutch)*, and possibly Pacific lamprey (*Entosphenus tridentata*). There is some potential that Pacific smelt (eulachon) (*Thaleichthys pacificus)* may be found in the JCEP area of Coos Bay. Additionally, the mudflats in the JCEP area support a commercial ghost shrimp fishery.

Dredging of the Bay and Channel

The JCEP project will dredge materials from North Spit and Coos Bay in order to create the slip for ships to load liquefied natural gas (LNG) and navigate along the Coos Bay channel to the ocean. According the application, dredging of the access channel will remove 1.9 million cubic yards (mcy) of material, which is then proposed for disposal at Ingram Yard, South Dunes site, Roseburg site, and the Kentuck Mitigation Project site. Dredging of the Navigational Reliability Improvements (NRIs) will remove an additional 590,000 cubic yards (CY) of material, which is then proposed for disposal at APCO Sites 1 and 2.

The Port of Coos Bay has also proposed a navigation channel modification project that will convey benefit to the JCEP project both in terms of financial savings and through increased transport efficiency. Accordingly, ODFW contends that the Jordan Cove Energy Project and the Port of Coos Bay navigation channel modification project are connected actions and should be evaluated by all permitting authorities as such. Some of the impacts of the combined projects include:

- Deepening and widening of the existing Coos Bay navigational channel to 37’ deep and 300’ wide
- Expansion of the Coos Bay navigational channel to 45’ deep and 450’ wide from the channel entrance to River Mile 8.2
- Alteration of the hydrodynamic characteristics of the Coos Bay estuarine tidal basin in response to deepening and widening, including:
    - Physical changes in the intrusion of marine waters, coupled with alteration of the salinity regime, conductivity, exchange volume, tidal prism, tidal currents, and other parameters

  - Shifts in the location, configuration, and spatial extent of marine-dominated, estuarine, and freshwater-tidal habitats
  - Changes in the composition of ecological communities that reside within the water column, marine-dominated, estuarine, and freshwater-tidal habitats
  - Changes in the location and potential for rearing of juvenile fish
- Disposal of dredge material at upland sites on the JCEP project lands located southwest of the OR Highway 101 bridge at the APCO Sites, and disposal of dredged material at the Kentuck Project Site;
- Impacts to the ocean floor outside the mouth of Coos Bay where a large quantity of dredged material (estimated at 18-25 million CY) will be deposited at an ocean disposal site, or multiple sites, that have not been fully identified;
- Deposition of dredged materials on the ocean floor will alter the physical characteristics of the benthic habitat due to both the substantial modification of the bottom topography and the anticipated characteristics of the dredged material (e.g. estimated 8.5 million CY of sandstone and siltstone debris);
- Deposition of dredged materials on the ocean floor will impact the benthic communities of resident marine fish and invertebrates, as well as transient species of concern including green sturgeon (*Acipenser medirostris*);
- Dredged materials transported away from the deposition sites have the potential to negatively affect important nearby rocky reef habitats;
- Disposal of dredged materials may occur in areas of heavy Dungeness crab commercial fishing activity, potentially interfering with crab habitat and fishing vessels; and
- Excessive mounding of sediments can alter the wave climate, creating enhanced risk to commercial fishing vessels that navigate nearshore waters during stormy conditions.
- Installation of a large rock apron at the toe of the North Jetty at the entrance to Coos Bay;
- Excavation of a new vessel turning basin with a length of 1400 feet, width 1100 feet at -37 feet deep (constructed approximately between River Miles 7.3 to 7.8);
- Disposal of 590,000 CY of dredged material through mechanical or hydraulic methods (24 inch pipeline laid on bottom of Coos Bay 8.3 miles) then distributed between the APCO 1 and 2 disposal sites;
- Significant impacts to subtidal habitat within Coos Bay that is important for production of species such as Dungeness crab (*Cancer magister*), white sturgeon (*Acipenser transmontanus*), and California halibut (*Paralichthys californicus*).

Marked change will occur to the productivity of the dredged portion of the bay and little recovery is expected over time due to the continual need for maintenance dredging. Maintenance dredging for the JCEP will result in a continually disturbed condition preventing development of any reliable estuarine production in the affected areas. Additionally, the Port of Coos Bay project will likely dredge substantially more on an annual basis.

ODFW recommends DSL consider how the proposed "slip" will create a new deepwater alcove backwater likely resulting in a number of significant biological effects (e.g. change to water flow patterns in the vicinity, salinity patterns, turbidity associated with initial and repeated dredging, and shallow water conversion to deep water). While hydrodynamic models provide some insight into the physical changes that the site and bay may undergo, biological changes should be studied in situ to accommodate unknown

variables. The actual JCEP longer-term, indirect impacts to the larger estuary may not be accurately predicted prior to construction.

No less important are the wildlife resources in the uplands that will be displaced by this complete conversion of upland habitat to a new deep-water terminal/zone and long-term daily disturbance factors attributable to project activities. The magnitude and long-term severity of these potential impacts may be difficult to estimate through models and best professional judgment. ODFW recommends carefully planned and executed long term monitoring of these changes to the bay and estuary for the life of the project. ODFW recommends the monitoring program inform an adaptive management approach to confirm estimates of both impact and mitigation to ensure habitat functions as are fully restored or compensated for commensurate to the actual shorter or longer term impacts of the action.

Upland Habitat Discussion

A notable portion of the impacted uplands at the JCEP site will be converted from terrestrial habitats to aquatic habitats, in order to construct a slip moorage for vessels. ODFW recommends the applicant and DSL address these potential impacts to upland species who would likely lose habitat in the conversion to jurisdictional waterway. Columbian black-tailed deer (*Odocoileus columbianus)* use the flats and vegetated sand dunes within the project area year long. Black bear (*Ursus americanus*) and coyotes (*Canis latrans)* also use upland habitats at the site. There are also 11 species of amphibians (8 salamanders, 3 frogs) at least 10 species of reptiles that have been found to occur on the North Spit. Avian wildlife on the proposed project area are generally diverse and include great blue heron (*Ardea herodias*), snowy egret (*Egretta thula),* and osprey (*Pandion haliaetus)* among many others. Two species that were formerly on the Endangered Species list, bald eagles (*Haliaeetus leucocephalus)* and peregrine falcons *(Falco peregrinus),* use the site seasonally or on occasion.

Adjacent to the slip is a large dune occupied by a mature shore pine vegetation community that is potential habitat for the coastal marten (*Martes caurina*), a State Sensitive species and one that has recently been petitioned for listing on the federal Endangered Species Act list (Federal Register 2015; USFWS deemed the Humboldt coastal marten a distinct population segment but found a listing was not warranted). While information regarding distribution, connectivity of habitat, and abundance is still largely unknown at this time, a group of conservation organizations has also petitioned the Oregon Fish and Wildlife Commission to consider listing the coastal marten on the State of Oregon Endangered Species List. Currently ODFW considers the coastal marten a State Sensitive Species and an Oregon Conservation Strategy Species because of the limited extent of its preferred habitat (late successional mixed conifer forest and apparent association with shore pine) and its apparent low survival rate in fragmented forests elsewhere in the United States. ODFW recommends DSL consider the potential impacts to habitat connectivity for the coastal marten in its review of the habitat conversion at the slip. ODFW is considering this patch of forested dune habitat Category 2 according the ODFW Fish and Wildlife Habitat Mitigation Policy.

Aquatic Freshwater Discussion

In previous versions of the project, ODFW worked with the applicant's consultant to categorize freshwater habitats at the LNG terminal site according to the ODFW Fish and Wildlife Habitat Mitigation Policy. These wetland habitats provide functionally important ecological features on North Spit as they contribute to nutrient cycling where the sandy soil types are very limited in primary nutrients, and are freshwater

refugia within a short distance to saline habitats. The wetlands and open water ponds are important for production of a number of amphibians including rough skinned newts (*Taricha granulosa*), red-legged frogs *(Rana aurora),* as well as several species of tree frog (i.e. Pacific tree frog *Pseudacris regilla*). Three-spined stickleback *(Gasterosteus aculeatus)* occupy a number of the ponds and deeper wetlands. Numerous waterfowl species transition through these ponds including mallards (*Anas platyrhynchos*), greater scaup (*Aythya marila*), wood ducks (*Aix sponsa*), and Canada geese (*Branta Canadensis*).

COMPENSATORY WETLAND MITIGATION PLAN (CWMP)

The comments in this section are applicable to both the JCEP terminal and PCGP pipeline components of the project.

It should be noted that the numbers for waterbody crossings vary across documents. ODFW found differing numbers in the applicant's Compensatory Wetland Mitigation Plan as compared to the FERC Applicant Prepared Biological Assessment and those differed again from the numbers reported in the FERC Resource Reports. Recognizing that project design shifts over time while documents remain static depending on time of publication, it does make it difficult to assess impacts without consistent numbers as well as inconsistent definitions of waterbody (as opposed to the normal terminology used by the state for 'waterway' and 'wetland').

With regard to avoidance and minimization measures discussed in the plan, ODFW appreciates the applicant's efforts to co-locate facility components with existing infrastructure and previously disturbed areas where possible. ODFW supports the minimization measures and best management practices identified in the CWMP, but also directs DSL and the applicant's attention to the comments provided throughout this letter that would further help to minimize impacts to fish and wildlife habitats.

ODFW requests a determination from DSL as to whether the applicant's treatment of temporary versus permanent impacts meets applicable DSL removal-fill statutes and guidance. The applicant notes that while DSL treats any impact duration longer than two-years as permanent, the US Army Corps of Engineers does not define temporary. The applicant states that for the sake of consistency, the Compensatory Wetland Mitigation Plan only addresses 'actual' permanent impacts and temporary impacts will be addressed in a separate site restoration plan. ODFW interprets this to mean that the applicant is considering anything less than a permanent impact to be temporary and therefore not requiring a mitigation offset. This interpretation does not meet the ODFW Fish and Wildlife Habitat Mitigation Policy which directs ODFW to consider the nature, extent, and ***duration*** of impacts and that offsets should persist for the life of the impact. Because of the 'duration' language in the mitigation policy, ODFW bases its recommendations not only on the physical loss of habitat, but also the length of time for which that habitat is unavailable to fish and wildlife (referred to as temporal loss of habitat). Impacts that the applicant might consider temporary in nature might actually result in temporal loss of habitat that should be mitigated in order to prevent depletion of a species with short generational turnover, and to meet the mitigation policy's goal of 'no net loss'. ODFW contends that unavoidable impacts, greater than DSL's 24-month guideline, ought to be addressed in the CWMP.

ODFW seeks confirmation from DSL that out-of-proximity mitigation for freshwater wetland impacts will meet the DSL removal-fill statutes and guidelines. It is ODFW's understanding that mitigation for the unavoidable impacts to freshwater wetlands along the 229-mile pipeline will be consolidated into the

uppermost 10 acres of the Kentuck Mitigation Site in Coos Bay. ODFW reviewed the section of the CWMP that discussed the reasoning for consolidation (page 2). The ODFW Fish and Wildlife Habitat Mitigation Policy recommends in-proximity mitigation for impacts to habitat categories 2 and 3. Since the CWMP did not provide a categorization of habitats according to the ODFW mitigation policy, ODFW is reliant upon DSL's determination that in-proximity mitigation options were considered and found to be untenable or that the Kentuck option provided greatest overall net benefit to Oregon's wetland resources.

ODFW requests confirmation from DSL that permanent and intermittent streams impacted by the project will not reach the volume threshold for inclusion in this removal-fill application. It does not appear that the CWMP addressed impacts to perennial and intermittent streams. It is possible that volume thresholds were not met. But it is also possible the applicant considered those impacts to be temporary (as per their interpretation, see above) and therefore did not include them in the CWMP. However, ODFW contends that some streams may take longer than 24 months to recover their pre-disturbance function and values and should have been considered in the CWMP. As such, ODFW requests DSL confirmation of concurrence with the applicant's determination, otherwise work collaboratively with ODFW and the applicant to rectify this omission.

Kentuck Mitigation Site

The Kentuck mitigation site is approximately 100 acres, with the uppermost 10 acres planned for freshwater wetland habitats and the remainder planned for estuarine wetland habitats. The current mitigation plan proposes a network of tidal channels and removal of a segment of East Bay Drive in order to connect these channels to Coos Bay tidal inflow/outflow. Additionally a portion of Kentuck Creek streamflow will be guided through the new channel network using a modestly complex configuration of culverts and tidegates. The habitats at the Kentuck site have been diked, drained, tidegated, cultivated, grazed, and stream networks channelized since the late 1800's resulting in substantial degradation of the ecological productivity. Historically the site would have been defined as Category-2 intertidal Algae/Mud/Sand habitats, under ODFW Habitat Mitigation Policy, however, currently the function for native fish and wildlife species is considered Category-4 and 5 in some locations. Mitigation restoration will reestablish natural hydrologic regimes to a substantial degree at the site, although the entrance of tidal flow will be truncated partially due to the limited opening through East Bay Drive and partial reintroduction of Kentuck Creek flow. Historically full volume flood flows from Kentuck Creek would have been able to support a broader range of euryhaline conditions for native fish and wildlife. Additionally, tidal flows would have been a combination of sheetflow and channel flow prior to installation of East Bay Drive. The mitigation restoration will establish tidal channel flow, however, without full removal of the length of East Bay Drive (which ODFW is not suggesting as an option), sheetflow will not be re-established.

Algae-mud-sand habitats are considered Category 2 under ODFW Habitat Mitigation Policy. Saltmarsh habitats are also considered Category 2 in function. The JCEP project impacts to intertidal habitats includes primarily: Category 2 Intertidal Unvegetated Sand; Category 2 Shallow Subtidal; Algae/Mud/Sand; Category 2 eelgrass; and Category-3 Deep Subtidal. The majority (very roughly 82 acres; based on LiDAR evaluation) of the Kentuck within the proposed mitigation area is currently below elevation 5.0ft MLLW. Excavation of a tidal channel through East Bay Drive with the current elevations within the mitigation area would allow nearly all lands within the site to be inundated with the majority of tides. The JCEP project proposes using the Kentuck Mitigation site for dredge material disposal

(300,000 CY) that would elevate a substantial proportion of the project area above elevation 5.0ft MLLW decreasing the land area that will be inundated regularly. ODFW recognizes that following placement of fill, the higher elevation areas will eventually vegetate to saltmarsh ecotype, which is considered high in value and limited in Coos Bay. Overall, ODFW supports the applicant's proposal for restoration at Kentuck Slough because, if successful, the project will improve the quality and diversity of rare estuarine habitats.

Eelgrass Mitigation

The proposed project includes construction of a marine terminal slip and dredging of an access channel. These activities will permanently destroy about 1.9 ac of established native eelgrass (*Zostera marina*).

Dredging in the intertidal and shallow subtidal zones within the project area is expected to have significant deleterious effects on native eelgrass habitats and the species found therein. Eelgrass is recognized by ODFW as a Category 2 Habitat and as a Strategy Species by the ODFW Nearshore Strategy (marine and estuarine component of the ODFW Oregon Conservation Strategy). Beds of eelgrass occur at several locations throughout the Coos Bay tidal basin where they provide numerous ecological functions, including heterogeneous habitat for a number of fish and wildlife species, nursery habitat for invertebrates and fish, forage areas for shorebirds and waterfowl, primary production and a source of organic-rich detritus, stabilization of unconsolidated sediments, trapping of suspended sediments, and contribute to improvements to estuarine water quality (Thom et al. 2003; Kentula and DeWitt 2003). In particular, the emergent blades and rhizomes of eelgrass beds provide complex and heterogeneous multi-dimensional habitat within the unconsolidated soft-sediments in the intertidal and shallow subtidal zones. In many cases, the abundance and species composition of macroinvertebrate, shellfish, and fish communities differ within eelgrass beds in comparison with un-vegetated areas where eelgrass is absent. Eelgrass beds are known to provide habitat for numerous species of invertebrates, including polychaete worms, cockles, gaper clams, butter clams, littleneck clams, Dungeness crab, grass shrimp and epibenthic invertebrates such as harpacticoid copepods, isopods, and gammerid amphipods, In addition, eelgrass beds also provide habitat for a diverse community of fishes, including juvenile salmonids, sculpin, English sole, shiner perch, lingcod, rockfish, pipefish, and herring.

Long-term efforts to remove root wads, large woody debris, and other natural structures embedded in the un-vegetated soft sediment of Coos Bay in order to facilitate commercial shipping and recreational boating have greatly exacerbated the lack of structural complexity along the shoreline and further increase the ecological importance of eelgrass beds. The heterogeneous canopies of eelgrass beds provide both primary complexity and an ecological edge effect that presents an important biophysical transition zone for fish and invertebrates that forage in adjacent un-vegetated habitats.

Native eelgrass is recognized by ODFW as a Category 2 Habitat, and the ODFW goal is no net loss of either habitat quantity or quality and to provide a net benefit of habitat quantity or quality (OAR 635-415-0025). To achieve the mitigation goal, ODFW recommends avoidance of the impacts through alternatives to the proposed development action, or mitigation of the impacts (if unavoidable) through reliable in-kind, in proximity habitat mitigation to achieve no net loss of either pre-development habitat quantity or quality.

In order to offset the loss of 1.9 ac of eelgrass the JCEP includes a proposed eelgrass mitigation plan that relies on the "best case scenario" for full success by creating 6.03 ac of eelgrass (3:1 ratio) within a 9.34

ac site in the intertidal zone near the impact area. ODFW has noted a number of potential issues associated with the proposed eelgrass mitigation plan that have not been considered/addressed fully by the applicant.

The eelgrass mitigation plan does not demonstrate that serious consideration has been given to avoidance of the impacts to eelgrass beds. In this regard, the plan should describe the alternative sites that were considered, characterize the location, species composition, and abundance of the eelgrass and other submerged aquatic vegetation at the alternative sites, and provide the rationale for rejection of the alternative sites and acceptance of the proposed site. The existing plan is incomplete because it does not provide a full description of the steps that were taken to avoid adverse impacts to existing eelgrass beds in Coos Bay.

The proposed eelgrass mitigation plan does not give adequate consideration to the difference in habitat quality that is anticipated between the eelgrass impact area and the eelgrass mitigation site. The plan proposes to excavate 9.34 ac of existing algae/mud-sand algae habitat located in the intertidal zone near the North Bend Airport to an elevation of -2.00 ft NAVD, and to convert the algae/mud-sand habitat into 6.03 ac of eelgrass. The proposed conversion of algae/mud-sand habitat to eelgrass habitat is problematic because algae-mud-sand is recognized as Category-2 value habitat under ODFW Fish and Wildlife Mitigation Policy (OAR 635-415). Eelgrass habitat and algae/mud-sand are both considered as Category-2 habitat, but they provide different functions and values. Accordingly, diminishing the quantity and quality of algae/mud-sand habitat in order to offset the loss of eelgrass habitat is not 'in kind' and does not create a 'net benefit', and therefore does not meet the ODFW Fish and Wildlife Mitigation Policy goals for Category 2 habitat.

Earlier attempts to mitigate for the damage or loss of eelgrass beds have met with limited success in Pacific Northwest estuaries. For example, Thom et al. (2008) conducted a review of 14 eelgrass mitigation and transplant projects, and they concluded that it is sometimes possible to restore eelgrass under favorable site conditions and when the reason for the initial loss of eelgrass is understood and corrected. The authors also noted, however, that eelgrass restoration science is hampered by knowledge gaps which reduce restoration success. The underlying mechanisms for recent eelgrass loss in the Pacific Northwest region are not obvious, which suggests that the scientific understanding of eelgrass biology and ecosystem conditions is currently inadequate to fully support environmental management actions (Thom et al. 2008).

There are often hydrologic flow regime complexities that affect potential for success in eelgrass restoration:

- Habitat conditions created through excavation or filling are often ephemeral and subject to subsequent deposition/erosion that results in movement of conditions outside of the range of preferred variability for eelgrass.
- Flow regimes including severity of wave action and current speed contribute to the potential success of a site for eelgrass establishment and growth. Sites that are created through excavation or fill are an artificial modification of conditions that have formed through the geomorphological features that drive flow regimes. Factors such as water depth reflect deposition/erosion rates from water transported sediments. Excavation or filling to a specific elevation is attempting to alter the natural elevation conditions in relation to hydrologic conditions for many sites that might serve as potential mitigation. Resultantly there is limited potential for success of projects that modify water depth/elevation of the substrates for

creating conditions appropriate for eelgrass mitigation unless the site chosen has substrate elevation that has been artificially created from previous disturbance or the conditions are dominated by factors other than hydrology.

- Use of eelgrass sites immediately adjacent to or within the mitigation area for obtaining plants/shoots results in impacts to these locations, potentially weakening the vigor of eelgrass at these locations which is counter to goals.
- Excavation of locations adjacent to existing eelgrass beds can result in hydrologic changes such as erosion of surrounding substrates resulting in impacts to currently productive stands.
- The monitoring plan should include more robust methods such as diver or low tide visual count surveys with established known planting densities at time-0 and subsequent measurable surveys with quantifiable methods.
- Due to the potential for minimal success the eelgrass mitigation ratio is likely insufficient to offset impacts.

For all of the reasons listed in the discussion above, ODFW recommends the eelgrass mitigation strategies be re-evaluated to favor avoidance.

PACIFIC CONNECTOR GAS PIPELINE (PCGP) PROJECT COMPONENT

Introduction

The following narrative is intended to set the general context for the specific comments and recommendation in the table below.

The PCGP removal-fill application to DSL proposes construction of a 36" steel gas pipeline from the North Spit of Coos Bay, Oregon (229 miles) to Malin, OR in order to connect the JCEP export facility to the Ruby LNG pipeline carrying gas primarily from the Rocky Mountain region. The PCGP would affect multiple perennial and/or intermittent waterways along the pipeline route. The applicant proposes to utilize horizontal directional drilling (HDD) for the crossing of the Coos Bay estuary, Coos River, Rogue River, and Klamath River. The applicant would use dry open-cut crossing methods where HDD methods are not planned. These actions will have temporary and permanent impacts to aquatic fish and wildlife which ODFW recommends be addressed consistent with the ODFW Fish and Wildlife Habitat Mitigation Policy, be performed consistent with ODFW In-Water Work Windows, and be permitted where applicable via ODFW In-Water Blasting and ODFW Fish Passage Authorizations.

ODFW recommends careful review be performed by DSL to consider the potential direct impacts to fish and wildlife habitat, as well as the indirect impacts to water quality associated with an increase in watershed runoff caused by this project, particularly in areas where the pipeline is proposed on slopes exceeding 50%, and where vegetation will be removed from riparian corridors. PCGP has the potential to cause negative direct impacts to fish and wildlife, and negative indirect impacts to water quality, within the Coos, Coquille, South Umpqua, Upper Rogue, Upper Klamath, and Lost River watersheds.

Please see the above discussions for Oregon Fish Passage Laws, In-Water Blasting, and ODFW Fish and Wildlife Habitat Mitigation Policy because they are all particularly relevant to the PCGP portion of the project and have yet to be formally addressed by the applicant.

Aquatic Discussion

The aquatic habitats in Coos Bay have been impacted historically from dredging, rip-rap installation, upland and tidal mudflat leveling, filling of tidal wetlands/saltmarsh, and other development/utilization impacts, However, substantial recovery of ecological potential has occurred due to improvements in forest management (reducing sediment inputs) and regulations conserving wetlands and waterways. The current and desired future condition of the waterbodies that will be affected by the pipeline is predominantly linked to management actions in the riparian habitats and adjacent uplands. Many of the streams that will be impacted by the pipeline have been ecologically degraded historically by a number of human impacts including: removal of native coastal riparian forest, road construction with subsequent chronic sediment contribution, and debris torrent/mass-wasting events related to forestry activities. The majority of these streams, many of which are critical for native salmon, trout, sculpin, lamprey, and other aquatic species production, are in a gradual trend of recovery following management guidelines and Best Management Practices implemented from 1970-1992 through agency and private ownership coordinated efforts (Oregon Coast Coho Conservation Plan; ODFW 2007). Actions such as pipeline construction and maintenance with associated long-term disturbance introduce an added burden inhibiting ecological recovery. Pipeline stream crossings have the potential to negatively affect watercourse ecosystems through alteration of channel beds and banks, increasing total suspended solids (TSS), alteration of substrate size and quantity in the reach and changes to the immediate area benthic community. These changes could have negative impacts for fish due to decreased food availability, changes in foraging range increasing predation, aquatic habitat simplification, and decrease in overall health.

Please see the estuarine aquatic impacts discussion in the JCEP section above, as those species and habitats listed therein are also relevant to the proposed pipeline sections of the Coos Bay estuary not included in the areas planned for horizontal directional drilling.

ODFW recommends careful evaluation of the risks of long-distance horizontal directional drilling (HDD) across the Coos Bay estuary, the Coos River, Rogue River, and Klamath River as well as the direct pipe crossing proposed for the South Umpqua River. ODFW recommends emergency preparedness plans be developed to address unforeseen failures (see the table below for further discussion of risk).

Outside of the estuary, there are numerous critical concerns with placement of the pipeline on steep slopes and direct routing parallel to the slope. Coastal sandstone soils are highly susceptible to mass-wasting when undercut and generally disturbed. A relatively extensive access road network will be created to access the pipeline installation and facilitate pipeline maintenance, which will further create potential for mass-wasting slope failures and general sediment production over the current condition. Stream health related to anadromous fish production has largely been assessed to be predominantly "Poor" (Scale: "Very Poor"; "Poor; Fair"; "Good"; "Excellent") in the Coos and Coquille River basins, with similar stream health conditions in the South Umpqua River basin. This "Poor" condition rating is largely related to upland disturbance increasing sediment loading and loss of riparian forest since 1900. Additionally, the proposed access road networks will likely have long-term chronic effects to fish and wildlife unless seeded, mulched, and closed. Sediment transport to streams is considered a substantial factor currently suppressing recovery of OC Endangered Species Act (ESA) threatened Coho salmon. Extensive research has documented the impacts of sediments to salmonids. Work to reduce sediment input into coastal and inland streams that will be impacted by the pipeline is foundationally critical for

enhancing spawning and rearing habitat for fall Chinook salmon, Oregon Coast (OC) threatened Coho salmon, Pacific lamprey (*Entosphenus tridentata*), winter steelhead (*O. mykiss irrideus)* and coastal cutthroat trout (*O. clarki clarki)* as water quality is directly linked to hatch rates and food available for these species. Sediment loading above natural background levels contributes to embedding of substrates, which often results in reduced hatch rates for eggs in redds, inability of fry to emerge from redds, inhibited production of macroinvertebrates (invertebrates largely live in the interstitial spaces of gravels), and impacts on the ability of fish to obtain food due to the nature of salmonids to feed predominantly by using their sight (Burns 1970; Hall and Lanz 1969; Weiser and Wright 1988; Suttle et al. 2004; Tripp and Poulin 1992; Waters 1995).

The applicant should be aware that Oregon Department of Forestry (ODF) fish presence/absence surveys represent "present conditions", and although highly useful do not completely represent historical fish usage as some watersheds have culvert barriers, man-made dams, etc. that are as of yet undocumented. The State of Oregon Fish Passage Rules (OAR 635-412-0005 through 0040) are based on maintaining fish passage throughout historical and currently accessible habitat.

Upland Discussion

To the extent that DSL can consider how impacts to uplands affect waterways and water quality, ODFW encourages efforts to understand, protect, and restore/mitigate for impacts to the bay, upslope habitats, riparian corridors, and streams with the goal of minimizing reductions to the capacity of upland an aquatic habitats to produce fish and wildlife. In that context ODFW has the following desired outcomes for the DSL processes:

- Documentation and categorization of aquatic and upland habitats (consistent with OAR 635-415-0000 through 0025) that will be disturbed through the PCGP project in collaboration with ODFW staff including:
    - Numerical habitat quantity and quality assessments (acreage assessments, streams crossed, upland) by habitat category.
    - Identification of the avian, mammalian, and amphibian wildlife that will be affected by the project.
    - Identification of the aquatic vertebrate species that will primarily be impacted by the project.
- Development of an upland habitat mitigation plan in collaboration with ODFW, the U.S. Fish and Wildlife Service (USFWS), NOAA Fisheries, US Forest Service, and US Bureau of Land Management with the goal of avoiding, minimizing, and fully mitigating any residual impacts of the project to fish and wildlife resources and their habitats.
- Development of permit conditions that call for protection of fish and wildlife and the habitat they depend on during all construction, operation, maintenance, and decommissioning phases off project implementation.
- Development of a monitoring plan that would guide assessment of the benefits or lack thereof for all restorative actions and mitigation.

In the attachment below you will find a comprehensive review and comment from a number of ODFW Fish and Wildlife District Biologists whose districts would be occupied by the JCEP and PCGP projects. A list of references used in the development of this comment letter is also included in the attachment. Again, ODFW thanks the Oregon Department of State Lands for the opportunity to provide comment. We

recognize the length and complexity of these comments, and we stand ready for any follow-up discussion or additional site-specific review you may require.

Sincerely,

Sarah Reif

Sarah Reif
Energy Coordinator, Wildlife Division

ATTACHMENT TO THE ODFW FEBRUARY 2, 2019 COMMENT LETTER TO OREGON DEPARTMENT OF STATE LANDS REMOVAL-FILL APPLICATION #APP0060697

SPECIFIC COMMENTS FROM OFDW FISH AND WILDLIFE DISTRICTS

The tables below provide additional comments from ODFW fish and wildlife district staff, with an attempt not to repeat comments provided elsewhere in this letter. These comments have been accumulating over the years of Jordan Cove applications, and are based on this DSL removal-fill application #APP0060697, the US Army Corps of Engineers Public Notice NWP-2017-41, the Oregon DEQ Public Notice for Section 401 Water Quality Certification, JCEP's Resource Reports 1, 2, 3, 8, and 10, and PCGP's Resource Reports 1, 2, 3, 6, and 8. Some references to the FERC 2014 Environmental Impact Statement may also be found in these comments, as some comments have been carried forward from previous reviews given their continued relevance. For each issue identified (left column), ODFW attempted to provide a suggested resolution (right column).

JCEP – Estuarine Aquatic Concerns from ODFW Fish and Wildlife Districts

(see following page)

Issue Identification	Recommended Resolution
Port will maintain access channel depth. Will this become part of the Port's Unified Dredging Permit, which maintains the depth of several access channels and vessel berths connected to, but outside of, the navigational channel?	**Port will maintain access channel depth.** ODFW recommends clarification of whether the access channel dredging and maintenance dredging will be part of Unified Permit or not. ODFW recommends all dredging of the portions of the project outside of the footprint of the current Federal Navigation channel or within the current upland and fully isolated from the bay by the proposed soil berm occur only with in the ODFW' in-water work window: http://www.dfw.state.or.us/lands/inwater/ Minor exception: At this particular site there is some potential that Pacific smelt (eulachon) may be in this reach of the bay from January 15 until April annually. Although the presence of eulachon is considered highly unlikely, as a precautionary measure ODFW recommends adjusting the normal In-Water Work window to October 1 to January 31.
Direct Construction and Maintenance Dredging Impacts: Lethal and non-lethal impacts to marine fish, crab, shrimp, bivalves, juvenile Chinook salmon, white sturgeon; ESA listed coho salmon, green sturgeon, and Pacific eulachon; as well as non-listed Pacific lamprey, and other species may occur: • Through entrainment in the hydraulic dredge at the time of the initial construction. • Be impacted by entrainment during future maintenance dredging required to keep the berth and access to the berth serviceable. • Become attracted to the alcove and away from natural habitats, introducing risk of industrial impacts to these species (e.g. metabolic expenditure from disturbance; entrainment into cooling intakes, entrainment into ship ballast water intakes). • The access channel from navigational channel to terminal is approx. 30 acres; with the proposed dredging turbidity will likely last for 4-6 months. Four to six months could affect the life history of several estuarine species (fish	**Direct Construction and Maintenance Dredging Impacts:** During the initial dredging and excavation, monitoring of the dredge output at the storage site, ODFW recommends the applicant access/estimate the magnitude (quantification of organisms in the dredge spoils) of impact to shellfish and non-game/game fishes. **Conduct biological recovery assessments:** ODFW recommends a biological assessment of the JCEP deepwater access and slips be completed following construction to determine the degree that production of shellfish/gamefish will recover and stabilize. ODFW recommends this recovery assessment be scaled based on to productivity in undisturbed regions in the Bay (reference sites). ODFW recommends this information be provided to ODFW, other natural resource agencies, local tribes, and other interested parties within one calendar year after construction of the slip and berth is completed and annually thereafter for a period of 10 years. **Mitigation/Monitoring/Adaptive Management:** While the direct impacts of initial construction are clearly identifiable, post-project indirect impacts are likely not. ODFW recommends the Applicant address appropriate monitoring/study plans for the

and invertebrates), depending on timing. ODFW IWWW is shorter than six months long. • Port of Coos Bay channel access improvement project will dredge another 18 MCY from channel with annual maintenance dredging. Actions will produce nearly year-long need for dredging actions in various reaches of the bay. • Risk of direct collision with marine mammals, or indirect disturbance in whale communication from dredging activities and ship engine noise	project area and mitigation sites be developed by and formally agreed upon by the Applicant and pertinent stakeholders. The expected hydrological changes at the site due to the project development will potentially result in a number of changes to the biological communities at those locations (e.g. densities, species composition, predatory interactions, etc.). These changes may occur in areas adjacent to or a considerable distance from the project area where there is little or no construction activity (see Deepwater Zone recommendations below). Long-term monitoring/study (i.e. majority of the FERC certificate duration) is appropriate to understand/mitigate for ecological and biological changes associated with the project. Clarify whether or not extension of IWWW would be requested. Issue is similar to Port's Unified Dredging Permit extension request, which ended with DSL issuing extension despite ODFW's recommendation of dredging only within the recommended IWWW.
Invasive Species: Invasive species are expected to flourish within the slip as with a result of disturbance. Throughout the world, aquatic invasive species are found most prominently in locations with low velocity or no current where transient ships dock. ODFW has some concern that this slip will be an invasive species vector within the bay (given it will have low current, stable salinity, and hard substrate – sheet pile walls), and will continue over time to have the potential to vector new species into the Bay (e.g. fouling from ships).	**Invasive Species:** Invasive species can be transported in ballast water and/or through attachment to the hulls of vessels. Ballast water management guidelines are a first line defense to prevent vectoring of invasives to Coos Bay. Adherence to these guidelines is of utmost importance in order to maintain the integrity of the Coos Bay ecosystem. ODFW recommends the Applicant address how the slip and berth will be monitored for colonization by invasives. ODFW recommends that if invasives are detected, the natural resource agencies be consulted on ecological risk and recommend measures that will be taken for elimination or control and changes to operations necessary to prevent future colonization should be implemented.
Ballast/Cooling Water Uptake/Discharge: ODFW understands	**Ballast Water Management Plan:** ODFW recommends that JCEP be required to develop a site-

that primarily ballast water will be discharged at the site as a result of the conversion of the project to an LNG export facility. However, if ballast water is be pumped onto vessels for any reason, potential for entrainment of fish and shellfish species (particularly during a planktonic larval life history stage) remains a Department concern. Additionally, engine cooling water will also be taken up and released in the berth. There is concern that uptake of water at the site will result in entrainment of fish into the ballast water intake system or ship engine intakes and ultimately cause mortality (take) of these individuals. Take of plankton will occur at the site, but has been discarded by the Applicant as not of significant importance. ODFW notes information collected by the Applicant-initiated plankton study (Shanks et al. 2010); indicating that uptake of plankton will have little impact on the Bay. However, ODFW continues to encourage efforts to address concerns for potential entrainment of organisms. Describes treatment of ballast water to be discharged while in berth, but does not specify what that treatment consists of. Cooling water uptake for ships in berth is est. 6.1 million gallons per visit; screen size is 24 mm (approx. 1"); this is not ODFW/NMFS criteria; juvenile fish are likely to be entrained.	specific ballast water management plan for all vessels servicing the JCEP LNG plant prior to issuance a removal/fill permit. ODFW recommends that the plan include effective methods for preventing, controlling, and eliminating recognized invasive species. **Ballast/Cooling Water Uptake:** Given that: 1) take of plankton has been identified as significant and 2) ODFW's most critical concerns on this subject relate to nekton such as juvenile fish, crab megalope, and uptake of salmonids, ODFW recommends the following actions to address direct and indirect effects: • Clarify treatment methodology for discharged ballast water while in berth. • Clarify minimization measures to prevent uptake of nekton should ballast water intake occur. **Screening of Water During Uptake:** The water that is taken in by vessels for cooling and released or taken up as ballast must be screened consistent with Oregon Department of Fish and Wildlife fish screening criteria. Development of screening methodologies can be coordinated with department Screening Coordinator Alan Ritchey (541) 947-6229; Alan.D.Ritchey@state.or.us. There are important concerns for managing ballast water as release of ballast water at the site is considered as highly negative. Screening Criteria is included in the NOAA Passage Facility Design Criteria under section 11 starting on page 86 of http://www.nwr.noaa.gov/Salmon-Hydropower/FERC/upload/Fish-Passage-Design.pdf**.** The ODFW screening criteria is available from the following website: http://www.dfw.state.or.us/fish/screening/index.asp **Stakeholder Involvement:** ODFW recommends the applicant reconvene stakeholders to provide the input necessary to assess if the original goals of the plankton study (Shanks et al. 2010 already completed) have been met and if new direction would better address the concerns.

Hydrological/Water Quality Changes: ODFW points to three anticipated changes in the hydrology/water quality of the site that will impact fish and wildlife due to project development: A) Turbidity; B) Salinity intrusion; and C) Water temperature changes. **Turbidity:** Mobilization of substrates will occur during the initial dredging and with continued regular disturbance associated with maintenance dredging (estimated 360,000 CY in the first 10yrs.; 36,000/yr.) within the project area. Turbidity will increase over an unknown portion of the Coos Bay during construction and when maintenance dredging is conducted. It is ODFW's understanding from previous project materials that dredging will occur on the regular two year interval when the remainder of the shipping channel is dredged. However, the slip and berth represent additional acreage that will be impacted over current levels and may require an increased dredging frequency. Additionally, the hydrodynamic modeling indicates the slip will become an alcove, likely collecting sediments at a greater rate than the main shipping channel. Increased turbidity levels can result in suppression of primary production, affecting a number of ecological factors: • Survival and growth of estuarine plankton (Cloern 1987; Irwin and Claffey 1966). • Potential effects to feeding capability and subsequent reduction in planktivorous organisms (Carter et al. 2009; Horppila et al. 2004; Bash et al. 2001). • Survival and growth of species such as eelgrass are affected by factors that decrease total solar input and	**Hydrological/Water Quality Changes:** **Turbidity:** Further information is needed to determine if increased salinity intrusion has the potential to change the ecological conditions in Coos Bay to a notable degree. Further information is needed to determine if discharged cooling water will impact aquatic resources in the slip due to temperature changes. **Long-Term Biological and Hydrological Monitoring:** ODFW recommends a monitoring/study plan be developed. This plan should include: • Biological information (e.g. abundance, species composition, behavior; for both native and invasive species) project in the bay. • Hydrological information (turbidity, salinity intrusion, water temperature changes) and specifically address ecological impacts related to the deepening of the site due to dredge activities. • Modeling that has been conducted by the Applicant to date has been informative. However, it may not accurately and precisely predict what actual post-construction hydrologic and ecological condition will be. The study should use an experimental design that includes before and After Controlled Impact techniques aimed at elucidating changes in shallow and deepwater communities, correlations between biological indices, and hydrological changes. ODFW recommends that all three factors A) Turbidity; B) Salinity intrusion; and C) Water temperature changes are monitored and addressed in the following ways: **Predictive Hydrologic Model:** ODFW recommends the Applicant(s) consultant(s) develop of a predictive hydrologic model to estimate how creation of the slip and maintenance dredging of the main Coos River channel will affect salinity intrusion into the bay *(ODFW recognizes the efforts of the Applicant that have been completed to date, however, these focus primarily on hydraulic flow*

depth to which light penetrates into the water column.

- Potential reduction in production of mollusks, Dungeness crab, juvenile coho, Chinook salmon and other species.

Salinity Intrusion: The current proposal may require elevated levels of maintenance dredging to the slip and berth. The Port of Coos Bay project to improve the Navigation Channel will likely have the largest impact on Salinity Intrusion since Coos Bay was originally dredged in the early 1900's. Applicant noted that hydrologic modeling has indicated sediments will likely accumulate at an accelerated rate in the berth area. To date, ODFW is not aware of any modeling of salinity intrusion into Coos Bay and the effects to residence time of highly saline waters.

Increased salinity intrusion likely would affect Category 2 habitats in the project area, but also in an unknown portion of the remainder of the bay. Effects may include:

- Ecotone boundary changes altering aquatic plant growth patterns and distribution.
- Distribution changes for plant and animal organisms vulnerable to salinity levels.
- Changes to the available zones for reproductive success (e.g. Dungeness crab, striped bass Morone saxatilis).
- Phytoplankton community productivity change related to nutrient regime shifts (i.e. the time of year freshwater dominates for a given reach of the Bay).

Saline intrusion associated with increased dredging in the 1980's was thought to have had an impact on several species in the

rather than salinity patterns). This model should be developed and distributed for review to the natural resource agencies prior to initiation of construction at the site.

Inclusion of Hydrologic Factors in the Monitoring Plan: ODFW recommends the Applicant develop a monitoring plan (in combination with the biological monitoring plan as described above) in collaboration with ODFW and natural resource agencies to study/quantify/qualify: Turbidity effects;

- Salinity intrusion effects;
- Water temperature issues at the site.

Studies outlined in the plan should be completed for a time period necessary to meet the goals.

Data Sonde Network: As part of the monitoring plan, ODFW recommends:

- A network of data sondes be deployed to collect data on A) Turbidity; B) Salinities; C) Water temperature both at the surface and depth.
- If salinity intrusion, thermal changes, or turbidity are determined to impact fish and wildlife resources, mitigation should be appropriately identified by the applicant, ODFW, and other relevant natural resource agencies as consistent with OAR 635-415-0000 through 0025.

Bay including striped bass and American shad (*Alosa sapidissima*), although study results were inconclusive. The impacts that this intrusion would have on native shellfish and finfish species such as fall Chinook, coho salmon, Dungeness crab, and native oysters cannot be modeled and would only be detectable through real-time monitoring. Productive commercial oyster farms, which occur in euryhaline waters upstream of the project site, are currently protected from many fouling organisms and predators that occur in more stable salinities. Further intrusion of salt water will contribute to more stenohaline waters thus presenting new risk to a currently economically viable industry. Water Temperature: Ships loading at the facility will discharge heated engine cooling water that may be as much as 3°C warmer than the surrounding water. Fish that come in direct contact with this plume will experience stress. ODFW recognizes that significant cooling of this water will occur soon after it is released from the vessel and sees this issue as less concerning, however, remains interested in potential for deleterious effects.	
Species Omissions: Previous documentation has omitted Northern Anchovy (Engraulis mordaxas) species present in Coos Bay. For marine mammals, California sea lions (*Zalophus californianus*) are also present near Jordan Cove.	**Species Omissions:** Include Northern Anchovy as species present in Coos Bay and add California Sea lions to list of marine mammals near the project.
Deepwater Zone Biological Communities: Construction of the LNG slip and offloading site will create a new deepwater zone that is 25+ft in depth:	**Deepwater Zone:** It is critically important to understand what impacts the development of a large "alcove" deepwater zone at the project site will have on finfish and shellfish populations. Changes may occur to life-history patterns, movements, concentrations, overall abundance, and perhaps

This new deepwater zone will be constructed at 90˚ to the axis of the river channel forming a type of alcove morphologic feature that currently does not exist in Coos Bay. Deepwater zones that exist in Coos Bay tend to attract specific species compositions (e.g. white sturgeon, Dungeness crab, California halibut). However, these deepwater zones are in line with the main flow of the channel. Due to the location and hydrologic patterns associated with this new alcove, there needs to be monitoring to determine the species benefitted and or detrimental effects. The slip area will be highly disturbed during dredging and recover slowly, with re-disturbance at regular intervals associated with maintenance dredging. Installation of rip-rap and sheet-pile in the berth are expected to maximize the simplicity of the zone inhibiting the productive capacity for fish and wildlife. Consequently, there is concern with how construction of this site will affect life cycle patterns, population concentrations, overall abundance, and movements of certain affected species in Coos Bay. Specifically, e.g. will additional deepwater zone in this region of the bay affect the following: • Finfish/shellfish species densities in the area and other regions of the bay. If change occurs, how will this affect production of affected species in relation to current levels (e.g. predator-prey relationships with avian predation of salmonids, seal and sea lion predation to salmonids; avian predation to finfish)? • Competitive interactions associated with the value or lack of value of the slip. Additionally, it is of concern if the slip will become a zone of higher density of predatory fishes.	reproductive aspects of affected organisms in the Bay. Identifying these changes will be essential to development of a mitigation plan to compensate for negative impacts as they occur and are detected. ODFW recommends that specific studies be designed through coordination with ODFW and other natural resource agencies to determine these changes or lack thereof. **Include created "Deepwater Zones" as a Main Factor in Monitoring Study:** As described above long-term monitoring is critical to define the effects of this substantial proposed change to habitats in Coos Bay. ODFW recommends study of the effects be conducted on an on-going basis through the majority of the permit period. ODFW recommends this study attempt to document changes to populations including, but not limited to: change in species diversity, abundance, behavior, distribution, and species composition caused by the project. ODFW recommends Before and After Control Impact (BACI) study methods be used to provide before, after, and control structure for the investigations. ODFW recommends the Applicant receive guidance from ODFW and other natural resource agencies for methods and timing (beginning, sampling frequency, and ending) for these studies. Study results should be distributed annually to natural resource agencies, other interested agencies/parties. **Biological recovery assessments:** ODFW recommends a biological assessment of the deepwater access and slips be completed following construction to determine the degree that production of shellfish/finfish will recover and stabilize.

• Recreational opportunities related to current finfish/shellfish distributions (e.g. alteration of the distribution of Dungeness crab; salmon movement changes; influx of larger rockfish; etc.). • Incorrect Ecology: • Juvenile salmonids migrating would will likely be in main channel, not off-channel slip. Juvenile salmonid use of estuary includes feeding, rearing, foraging, in off-channel wetlands, sloughs, and other slow water areas. These fish may seek out low-velocity areas, including the terminal slip. • Previous documents have incorrectly not made note that killer whales, porpoises, and pinnipeds could be found in Coos Bay. They are present…pinnipeds frequently, cetaceans occasionally but commonly. Other species of whale have been rare visitors to Coos Bay, a few even travelling up-bay to the City of Coos Bay and beyond.	This recovery assessment should be scaled on a percentage basis compared to productivity in undisturbed regions in the Bay. ODFW recommends reports be completed annually and information provided to ODFW, natural resource agencies, local tribes, and other interested parties within one calendar year after construction of the slip and berth is completed and annually thereafter for a period of 10 years. **Incorrect Ecology:** • Previous documents have not noted the potential for use of the slip by juvenile salmonids and other fish or invertebrate species and monitor, and mitigate for use of terminal slip impacts to these species. • Acknowledge and consider presence of Killer Whales and other whales to be confirmed and consider potential impacts to marine mammals in the analysis and environmental protection measures
Recreational Users: It is ODFWs understanding that the U.S. Coast Guard typically requires exclusion zones of up to 500 yards surrounding LNG tankers that would transit the bay and potentially while at dock for safety and national security purposes. The application does not address this very serious potential impact to recreational and commercial boat and/or bank use of Jordan Cove and the surrounding bay areas. Any such actions by the US Coast Guard would likely result in a severe impact to public recreation for fishing, shellfish, or hunting which should be analyzed as part of the cumulative impacts of the project and fully mitigated for should they occur: Increased LNG ship traffic in Coos Bay has the potential to negatively impact public recreation because:	**Recreational Users:** ODFW recommends the Applicant clarify safety/security requirements for recreational boaters when LNG ships are in transit within the K Buoy to terminal zone, specifically including any such future safety or national security exclusion zones likely to be implemented by the U.S. Coast Guard or any other state of federal enforcement agency. ODFW recommends the DSL and Applicant consider recreational value of the Jordan Cove and Coos Bay estuary; specifically consider impacts to salmon fishery, crabbing, and other boating during construction, dredging, and LNG ship transit, specifically within the context of the above described U.S. Coast Guard restrictions likely to occur. ODFW recommends that the DSL direct the Applicant to complete an economic analysis of the shellfish (crabbing/clamming) and finfish (rockfish, salmon, steelhead) fisheries in Coos Bay, their

• Recreational use of the Bay has increased, with greater numbers of crabbers, clammers, and anglers participating. • The area from the jetties to Jordan Cove is a high-use area for crabbing and salmon angling from boats. • It is uncertain whether or not USCG security/safety measures will require boats to completely leave the area, or simply require boats to clear the navigational channel to allow the ship to pass. Applicant and DSL need to recognize Coos Bay as an important recreation area (hunting, fishing, clamming, crabbing, boating, paddle surfing, surfing, etc.). According to OSMB 2008 report, most recreational boating in Coos Bay occurs in summer--possibly more boating now in fall (salmon angling/crabbing). **Socioeconomics—**The LNG ships will be passing within 500 yards of Charleston Marina/Boat Ramp, Empire Boat Ramp, BLM North Spit Boat Ramp, and the entire Coos Bay is a recreational area. Construction, dredging, and LNG vessel transit will have impacts on recreational areas and facilities. Overcrowding currently occurs at lower Bay boat ramps during peak of salmon fishery. Displacement of boating/launches during LNG vessel transit or construction could exacerbate boat launch overcrowding.	contribution to the economics of Coos County and Southwest Oregon and address the potential impacts of the project. The economic impact to these recreational opportunities and the local businesses that depend on them is directly related to this environmental concern. ODFW recommends DSL require that any such loss of recreational access and associated economic impact to local business and the local economy from the resulting lost recreational opportunity be fully mitigated by the Applicant. ODFW recommends that JCEP allow safe harbor access to recreational boaters using Coos Bay in the event weather conditions require a boater to leave the ocean.
Kentuck Mitigation Site: The former Kentuck golf course lands have been identified by the Applicant for restoration. These lands would be reestablished as estuary in order to provide mitigation for the dredging impacts that will occur at the slip and access channel. The Kentuck golf course lands currently are degraded wetlands that were historically de-watered through diking and tidegate management,	**Kentuck Mitigation Site:** In order to maximize the ability of the Kentuck mitigation site to provide compensation for ecological and recreational resources impacted at the JCEP project area location, ODFW offers the following guidance: **Public Access:** ODFW recommends public access be made available and encouraged at the Kentuck mitigation site in order to attempt to provide

eliminating the connection with the estuary. Although there may be sufficient acreage at this site to meet the DSL 3:1 restoration ratio for dredging impacts at the site, a number of potential impacts (e.g. salinity gradient issues, changes in bay turbidity, creation of a deepwater zone) that will occur at the will not be compensated In-kind as the salinity gradients are out of the range that is present at the project location. **Public Access:** Is currently allowed at the Kentuck Mitigation site and on the water at the JCEP project area of the bay. Recreational access to the estuary and shoreline habitats of the bay is an important component of the local economy. It is expected that the security zone in the JCEP project area following construction will significantly reduce public use of the bay and adjacent uplands. The mitigation site will need to accommodate the elimination of public access at the JCEP site through allowing open public access. Saline waters will move upstream into the Kentuck mitigation site via restoration actions allowing more viability of mariculture (i.e. Pacific oyster farming). The effective area available for expansion of mariculture will not only be within the new mitigation site, but there will also be an increase in the particle range (i.e. drift of Oyster spat) of these operations up bay. Although it will likely be practical for oyster cultivation on the mitigation site, this would be counter-productive to the intended goals of mitigating for fish and wildlife.	compensatory opportunities in replacement for loss or reduction of access at the JCEP project site. ODFW recommends construction of a public parking area off of East Bay Drive as part of the mitigation site development. There is opportunity to develop parking without filling wetlands at the site. Provision for recreational opportunities at the Kentuck golf course site, although not precisely In-Kind, may partially compensate for losses at the JCEP site and should be fully investigated. ODFW recommends, specifically, that opportunities for hunting, recreational shellfish harvest and wildlife viewing be identified and implemented in collaboration with local constituents. **Restrict Commercial Oyster Cultivation:** ODFW recommends careful consideration of restricting commercial oyster cultivation from the Kentuck mitigation site as a condition of the DSL permit. The spread of the footprint of mariculture operations just down Bay (defined as within ¼ mile) from the mitigation site may retard the creation of this restored estuarine habitat in Kentuck Slough. These types of mitigation may not be effective in the context of future expansion of mariculture which would likely defeat mitigation goals. **Additional Coordination:** ODFW requests that the Applicant/affiliate coordinate during the development/construction of the Kentuck Mitigation site, so that ODFW will be able to provide the Applicant with recommendations for specific on-site adjustments and actions to maximize ecological function.

JCEP – Upland and Freshwater Concerns from ODFW Fish and Wildlife Districts

Issue Identification	Recommended Resolution
Capping Piling to Prevent Perching: Predatory piscivorous birds strategically perch around industrial facilities on piling that do not have measures to eliminate the ability of these birds to perch/roost. Ecologically the relevance is related to an increased capacity to feed within the area and impact species such as fall Chinook, coho salmon, and steelhead juveniles. If additional perch locations are created for piscivorous birds as a result of the proposed project, predation on resident and juvenile fish will likely increase along the project, and would be of particular concern in the vicinity of the project terminus at Coos Bay and near larger rivers such as the South Coos River, South Umpqua, and Rogue.	**Capping Piling to Prevent Perching:** For both the JCEP and PCGP project ODFW recommends fitting any new pilings with devices to prevent perching of piscivorous birds. This is a standard request from ODFW to Applicants on Fill/Removal permits when the Applicant installs pilings. These caps are readily available.

PCGP - Aquatic and Upland Concerns from ODFW Fish and Wildlife Districts

Issue Identification	Recommended Resolution
Subsurface Boring and Drilling Stream Crossing Methodologies: ODFW's experience with other pipeline construction projects has shown that stream crossings and overland disturbance can be damaging to watercourses if not carried out with extreme diligence. During construction of the Coos County Gas Pipeline horizontal directional drilling (HDD) was stated as being "clean and not impacting streambeds", however, "frac-outs" occurred and incurred environmental damage caused by drilling fluids leaking into fish-bearing streams.	**Recommendations Specific to Subsurface Boring and Drilling Stream Crossing Methodologies:** Pipeline crossings using HDD or other subsurface methodologies may cause frac-outs in Coos County geology and possibly throughout the project. The Applicant should be prepared for construction stoppages, cleanup, and remediation of damages caused by frac-outs. For that reason, crossings construction timing should occur during ODFW's recommended in-water timing guidance or as otherwise approved by ODFW in writing. HDD and other subsurface boring or drilling crossing design locations should pro-actively address the risks associated with the potential for a "Frac out" or inadvertent loss of drilling fluid to the extent practicable:

Drilling fluids can be water or oil-based and can include other additives. Although the bentonite base is claimed to be a benign ingredient, ODFW is unaware of what the other additives are and how harmful they can be to fish and aquatic wildlife. Between August and October of 2003 MasTec North America, Inc. was cited by DEQ for a series of water quality violations. The violations were a result of frac-outs during the horizontal drilling work for the construction of a natural gas pipeline under the North Fork of the Coquille River in Coos County. If similar frac-out related turbidity discharge impacts were to occur at the proposed Rogue River crossing, they would likely impact the significant spawning habitat for spring-run Chinook salmon in the Rogue River Basin. It is known that ESA-listed fish species and or State Sensitive species will be present at the South Coos, North Fork Coquille, and East Fork Coquille river crossings include OC Coho salmon. State Sensitive-Vulnerable species include Coho salmon (coastal coho salmon SMU/Oregon Coast ESU). Winter steelhead (Oregon Coast ESU/coastal winter steelhead SMU) are considered Sensitive-Vulnerable in the Coquille River basin, however, not in the Coos River basin. Pacific lamprey (*Entosphenus tridentata*) are considered Sensitive-Vulnerable in the Coos River, Coquille River, and Umpqua River basins making turbidity concerns heightened throughout in these watersheds, in addition to the concern within the Rouge River watershed.	ODFW recommends DSL condition the project certificate such that the Applicant is required to complete consultation with ODFW including submittal of any risk assessment and geotechnical documentation for any stream crossing which are proposed as subsurface boring or drilling stream crossing actions. Submittals should also include descriptions of alternate or contingency crossing methods should the primary method result in an inadvertent loss of drilling fluid, otherwise known as a ”frac-out” or otherwise fail as a successful crossing action. ODFW further recommends DSL condition the project certificate such that the Applicant is required to: • Conduct adequate geotechnical analysis to ensure frac-outs will not occur (e.g. identify vulnerable geologic issues, adjust the depth of drilling, etc.). • Provide a list of the additives used in drilling fluids and their potential effects on the aquatic environment. • Implement specific drilling BMPs to ensure constant monitoring of drilling fluid return volume so that drilling can cease immediately if drilling fluid is not returning at the expected/standard volume for a successful HDD attempt. • Identify measures that will be taken to minimize impacts of a frac-out if a frac-out occurs and mitigation that will be implemented if a frac-out occurs as cleanup is not feasible and attempts will create additional damage. Mitigation could include: Placement of LWD; placement of clean washed spawning gravel; road drainage improvements (cross drains, improved surfacing); road decommissioning. • Establish performance bonds and/or require performance bonds of drilling subcontractor to ensure adequate funding is immediately available to address/mitigate a frac-out or other drilling failure which

	results in damage to fish, wildlife, or the habitats they depend on. <u>HDD Actions in the Lost River Drainage.</u> The Klamath Fish District of ODFW requests that drilling any HDD activities are implemented between July 1, and October 31, or as soon as water conditions are deemed uninhabitable by fish due to poor water quality. Shortnose suckers (*Chasmistes brevirostris*), Lost River sucker (*Deltistes luxatus*) and redband trout (*Oncorhynchus mykiss*) inhabit this stretch of river from November to July; poor water quality triggers migration to upstream refuge habitats. Fish are highly sensitive to sound waves that could be caused by drilling disturbances and sound waves could act as a migration barrier.
Non-fish Bearing Stream Crossings and Other Storm Water Drainage Conveyance Structures: Although non-fish bearing stream crossings and stormwater conveyance infrastructure are not subject to the same design criteria identified above for fish bearing stream, ODFW remains concern with regard to sizing and instillation of these types of infrastructure. Culverts or other crossing infrastructure should be sized in excess of hydraulic capacity need to help facilitate wildlife connectivity between habitats and minimize potential downstream water quality impacts such as turbidity sedimentation transport resulting from scour at undersize infrastructure.	**Non-fish Bearing Stream Crossings and Other Storm Water Drainage Conveyance Structures:** ODFW recommends that all streams be considered fish bearing unless documented to be absent of fish. If a stream crossing or storm water conveyance structure is determined to be non-fish bearing, ODFW still recommends the work be completed according to the standard In-Water Work timing guidance document or if the stream or storm water conveyance structure is dry. ODFW recommends the Applicant consider oversizing the infrastructure and installing it in such a manner to maximize its performance as a suitable wildlife crossing structure and to minimize potential for downstream water quality impacts such as turbidity sedimentation transport resulting from scour at undersize infrastructure.
Site Specific River/Stream Crossing Concerns: The resource plans do not address or mitigate for all impacts associated with stream crossings under ODFW's Fish and Wildlife Habitat Mitigation Policy. ODFW encourages both the Applicant and DSL to acknowledge the potential	**Site Specific River/Stream Crossing Concerns**: ODFW recommends site specific coordination and consultation between the Applicant and ODFW staff to fully identify unique site specific resource concerns at these crossing locations. ODFW anticipates that significant resource impact avoidance and minimization can be realized through collaboration with local Department staff

for severe impacts to fish, aquatic wildlife, and the habitats they depend on by ensuring the above recommendations become conditions of any permits for the PCGP project.	throughout the crossing design, construction, and restoration/mitigation recovery phases at these river crossing locations. Lost River Crossing- See above specific timing recommendation Klamath River Crossing - ODFW does not support open trench methods at this location. In the event of a catastrophic spill or release, a contingency plan should include an evaluation of needs for dilution flows and dewatering. Flows from upstream can be manipulated by the Bureau of Reclamation and downstream irrigation canals can be manipulated by irrigation districts for dewatering. Rogue River Stream Crossing- Pacific Connector states that if HDD of the Rogue River is unsuccessful Direct Pipe (DP) methods would be a potential option. Previously wet, open-cut crossing were also proposed. ODFW does not consider a wet, open-cut to be an acceptable contingency method. South Umpqua Direct Pipe Technique Site #1 at MP 71.3), and South Umpqua Open Cut Site #2 at MP 94.73 - This proposed crossing occurs at an ecologically important site. A gravel bar is located approximately 300 m downstream. There is no information provided in resource reports for Fate Creek. The gravel bar at this site provides river complexity, high flow refugia and summer slow water habitats which are considered to provide both essential and limited habitat function for a variety ESA-listed fish, state-sensitive listed fish and aquatic wildlife.
Herbicide Use Near Streams/Wetlands: The current public notices do not address herbicide use, if applicable.	**Herbicide Use Near Streams/Wetlands:** ODFW recommends against general use of herbicides and pesticides in wetlands. ODFW recommends any use be judicious and meet federal, state, and local, regulatory requirements.

Small Stream Temperature Issues: It is unclear how the PCGP project intends to classify streams and address water temperature fluctuations associated with project work.	**Small Stream Temperature Issues:** ODFW recommends DSL condition the certificate to direct the Applicant to treat all intermittent waterbodies within the Coast, Umpqua, and Rogue basins the same as perennial streams and provide these streams the same level of protection as streams on Federally managed lands.
Large Woody Debris (LWD) as Mitigation: The public notices do not adequately describe the impacts of the project on water quality factors such as shade and nutrients or habitat factors such as predatory cover.	**Large Woody Debris (LWD) as Mitigation:** ODFW recommends a stream habitat mitigation plan be developed for every fifth field watershed crossed in order to effectively mitigate for the life-long impacts of the project. In addition the Applicant should fully mitigate for the multiple impacts at stream crossing sites including, but not limited to: • Access roads and associated sediment production to streams. • Loss of riparian canopy that increases solar input. • Elimination of much of the filtering capacity of the RMA due to removal most other lost habitat values/benefits of riparian habitat as well. • Destabilization of stream channels and streambanks. ODFW recommends that in addition to placement of LWD at stream crossing sites the following restoration and mitigation actions may greatly complement the functional habitat benefits provide by LWD placement : • Placement of forest vegetation (limbs, small woody debris, etc.) scattered on bare soils following disturbance within 50ft. of each pipeline approach to streams. This material will be readily available due to land clearing efforts • Conservation of riparian areas within the HUC 6 watershed. ODFW has a compiled list of a number of mitigation options, and welcomes the opportunity to provide those suggestions to DSL and the applicant. • Placement of washed spawning gravel at all stream crossing impact sites in the Coastal Zone and considered on a site by site basis for all other stream locations.

	Spawning gravel is often a limited quantity habitat feature in the Coastal Zone and placement will augment productive capacity of reach impacted for salmonids. • Gravels should consist of washed drain rock from an upland source (such as the Elk River Pit in Langlois, OR) • Gravels should consist of 1.5 inch diameter washed drain rock for Coho and steelhead spawning streams; 0.75 inch washed drain rock for streams where only cutthroat trout are present. • Gravels should be applied at the rate of 8.0 inch depth over the reach impacted to the width of the ACW and up the banks 2.0 feet (which will reduce bank instability). Thus if a 40 foot reach of stream channel is disturbed and the ACW is 8 feet wide, then the quantity needed would be 40.0 feet x (8.0 feet ACW+ (2x2 banks)) x 0.67 ft. (8.0 inches) or a total of 321 cubic feet or roughly 12.0 cubic yard (CY).
Sedimentation Impacts from Clearing and Grubbing Large sections of ROW: The application does not describe how vegetation adjacent to waterways would be cleared and grubbed. Lessons learned from the ODOT's Pioneer to Eddyville project (in the Coast Range Mountains) include the need to limit the amount of ground cleared of vegetation at any one time. The pipeline will cross the Coast Range, so special care should be taken to limit erosion and sediment loss in this section as well as any other areas of significant rainfall with steep slopes	**Sedimentation Impacts from Clearing and Grubbing Large sections of ROW:** Given the known instability and potential precipitation levels in the Coast Range Mountains ODFW recommends: ODFW recommends that the Applicant develop a detailed written plan that identifies the maximum amount of land cleared and grubbed at one time. The plan should also identify (1) areas of high, medium, and low levels of risk for sediment escape and impacts to water bodies. Based on slope and proximity to water bodies, and (2) include a re-vegetation section that ensures re-establishment of vegetation in high and medium risk areas prior to the fall rains. The timing of the pipeline construction should allow for ground clearing to occur after the spring rainy season and any areas opened up should be seeded and vegetation established before the fall rains. Distance and slope can be taken into account regarding the amount of land cleared and grubbed, i.e. the greater the distance from a creek and the flatter slope, the less concern for down slope

	sediment escape and erosion that can ultimately impact water bodies.
.**Pipeline Steep Slope Concerns and Roads (implications for Water Quality – turbidity, sedimentation):** A number of miles of the pipeline will be constructed on slopes that exceed 50%. Tyee sandstone geology in the Coos and Coquille River basins and the geology of the Rogue Basin to a lesser degree are highly prone to landslides if the supporting matrix is disturbed. Additionally numerous access roads will be built to harvest timber and access construction of the PCGP. Mass wasting debris torrents and general erosion are considered substantial threat to water quality and to habitat quality in waterways for ESA listed and non-ESA listed salmonids as well as amphibians. Extensive research has documented the impacts of sediments to salmonids. Work to reduce sediment input into coastal and inland streams that will be impacted by the pipeline is foundationally critical for enhancing spawning and rearing habitat for fall Chinook salmon, Oregon Coast (OC) threatened Coho salmon, Pacific lamprey (*Entosphenus tridentata*), winter steelhead (*O. mykiss irrideus)* and coastal cutthroat trout (*O. clarki clarki)* as water quality is directly linked to hatch rates and food available for these species. Sediment loading above natural background levels contributes to embedding of substrates which often results in reduced hatch rates for eggs in redds, inability of fry to emerge from redds, inhibited production of macroinvertebrates (invertebrates largely live in the interstitial spaces of gravels), and impacts on the ability of fish to obtain food due to the nature of salmonids to feed predominantly by using their sight	**Pipeline Steep Slope Concerns and Roads:** Pipeline Steep Slope Concerns: Stabilization/erosion control of upland slopes following pipeline construction will be nearly as important as stabilization/erosion control in riparian areas adjacent to streams. Some extremely steep slopes will be encountered in the Coos County portion of the pipeline. ODFW recommends the following for locations where the pipeline will traverse or the route will be placed on slopes which qualify as High Landslide Hazard Locations (HLHL as defined in *Oregon Dept. of Forestry Technical note 2.0 vers 2.0; (ODF Jan 1, 2003)*; in Tyee Sandstone over 65% slope on headwall locations and 75% ridges): ODFW recommends the pipeline construction route incorporate cross slope trenching as opposed to routing parallel to the slope whenever possible to reduce the risk of soils moving laterally in the trench downslope (mass wasting slides). Placement of erosion control matting has been outlined as an upland soil disturbance control measure. This, in combination with cross slope placed large wood, stumps, and other wood material, is considered a modestly reasonable attempt for erosion control. ODFW recognizes that pipeline corridor management strategies are not likely to allow for placement of large wood in pipeline corridors. ODFW recommends rock or other structures be placed across the pipeline trench at a 90˚ angle and be embedded in the undisturbed walls of the trench a minimum of 4ft. to prevent free movement of soil in the disturbed pipeline trench. These structures should be placed at 100ft. intervals. Steep slope pipeline locations should receive additional efforts with seeding and mulching. Additionally these segments of the pipeline route

(Burns 1970; Hall and Lanz 1969; Weiser and Wright 1988; Suttle et al. 2004; Tripp and Poulin 1992; Waters 1995).	should have cross slope structures and drainage networks to reduce failure risk. ODFW recommends the road network: • Have surfacing that is sufficient to accommodate travel loading and prevent erosion of the road surface through all months. • Have cross drains installed at a density/spacing that is equivalent or exceeds to recommendations in the ODF Forest Practices Technical Note Number 8 vers.1 (ODF Jan 2003). • Have mitigation for sedimentation/mass wasting issues clearly identified in-proximity regardless of ownership (federal or non-federal) as these locations have the greatest potential for measurable improvements in reducing sediment loading to streams impacted.
Emergency Response: Emergency plans, including immediate notification of turbidity exceedances, frac-outs, spills, and pipeline leaks for both the JCEP facility and PCGP, are considered critically important. Sensitive fish and wildlife habitats can be severely impacted by these types of occurrences. However, impacts can be greatly minimized if remediation actions are initiated quickly upon discovery of an incident.	**Emergency Response:** ODFW recommends that emergency plans include immediate notification of: • Turbidity exceedances, frac-outs, and spills and pipeline leaks for both the JCEP facility and PCGP. • ODFW recommends that emergency plans include surveys for fish and wildlife kills immediately following a frac-out, spill, or gas release. Should an incident like those described above occur, the project must contact Oregon Emergency Response System immediately (1-800-452-0311) in the case of leaks during pipeline operation or offloading or loading at the JCEP facility or along the PCGP route. **Natural Gas Pipeline Shut-Off Valves-LNG Control at Large Rivers:** ODFW recommends that options to have shut-off valves on each side of large stream crossings such as the Coos, South Umpqua, Rogue, and Klamath Rivers be evaluated.
Hydrostatic Testing:	**Hydrostatic Testing:**

ODFW understands that hydrostatic testing will be performed along the pipeline. Hydrostatic testing will have substantial impact on fish and wildlife resources, especially during periods of low flow and poor water quality. Transport of invasive species is a substantial concern with transport of water from a source basin and release at another point in an adjacent watershed. Damage and control costs of invasive species in the United States are estimated to be more than $138 billion annually and 80% of endangered species are deleteriously impacted by these species through predation or competition (Pimental et. al). Impacts from invasive fish species alone cost $6.03 billion annually (Cusack et. al.). It is ODFW's understanding that testing will immediately follow pipeline construction in late summer and early fall. Potential adult anadromous migration during these times includes fall Chinook, coho, winter steelhead, coastal cutthroat trout and Pacific lamprey. Also, this can be the period of lowest stream flow, and water for hydrostatic testing may be unavailable unless purchased from existing available water sources such as reservoirs. Inter-basin mixing of water could adversely affect migration of adult anadromous fish (salmon, steelhead and lamprey) to their natal streams through a phenomenon known as false attraction. Supplying water from an Oregon Department of Environmental Equality 303(d) TMDL Water Quality limited waterbody to a basin of higher water	ODFW recommends: • ODFW recommends an erosion control plan • In addition, the project proponents need to continue to incorporate methods to eliminate the possibility of spreading invasive species (such as New Zealand mud snails, smallmouth bass fry) especially given that the pipeline will convey water between non-hydraulically connected basins and in some instances, be "cascaded" across the landscape to be used for the next segment. Minimizing the risk, as discussed in the plan, is not adequate. Water diverted will need to be tested along with water at the nearest discharge waterbody to see if stream pathologies are similar or measures taken to ensure water released is sterilized. • NMFS-approved screening on diversions is required and fish passage at these locations must be maintained. • In addition, test water should not be allowed to drain into waters of the State and chlorinated water should not be used for the testing unless the release location will not enter a stream, wetland, or waterway. • ODFW recommends continued efforts to develop the Hydrostatic Testing Plan as well as a Hydrostatic Monitoring protocol with the intent of approval of the plan by ODFW, other state and federal agencies. The survey will monitor ramping, fish stranding, and water temperature at pumping and release sites, salvage fish, and document fish losses. The project proponents should conduct the surveys with competent biological staff. • A summary report of monitoring would be submitted to the agencies, along with compensation for losses to fish and wildlife resources.

quality may result in reduced water quality in the source watershed. Hydrostatic testing will require additional staff and noise disturbance on the pipeline route. It is uncertain if and how noises associated with this activity will impact nesting Northern Spotted Owls and other sensitive species.	
Impacts to Water Quality and Habitat Quality in Wetlands and Waterways: The project is anticipated to produce substantial turbidity to wetlands adjacent to the pipeline channel and road networks associated with the project. Major wetland functions include water storage, carbon sequestration, slow water release, maintenance of high water tables, temperature regulation, nutrient cycling, sediment retention, accumulation of organic matter, filtration, and maintenance of plant (by provision of substrate for plant colonization) and animal communities. Measures need to be taken to eliminate the risk of spreading invasive plants and noxious weeds.	**Impacts to Water Quality and Habitat Quality in Wetlands and Waterways:** ODFW recommends more detailed plans be described for addressing turbidity risk, non-native species invasion risk, and monitoring plans for mitigation sites that include contingency plans if restoration attempts are not successful.
Amphibian Direct Mortality and Long-Term Passage: The PCGP project is anticipated to incur notable mortality to amphibians resulting from proposed construction methods in riparian areas, stream adjacent wetlands, and perched wetlands. Amphibians range in mobility from highly mobile to extremely limited. Installation of crossings where there is currently stream/wetland connectivity can result in increased predation and reduced capacity of amphibians to	**Amphibian Direct Mortality and Long-Term Passage:** ODFW recommends that surveys are completed for both amphibians and reptiles. Additionally: • ODFW recommends that final constructed designs provide for amphibian passage along the pipeline route (i.e. installing cross drains under access roads that connect wetlands). Installation of culverts with stream simulation design is considered to fully provide for amphibian passage. There will be a number of locations where fish are not present that passage for amphibians may need to be provided on a case by case basis.

access needed habitats. This is critical where wetland are ephemeral. Additionally, noise from hydrostatic testing will likely impact amphibian populations, potentially disrupting breeding cycles.	• ODFW recommends the PCGP project staff consult for all wetland locations >0.1 acre in size with Department staff at least 1.0 months prior to disturbance to determine methodologies to reduce impacts to amphibians and identify if salvage is necessary.
ODFW's Scientific Take Permits: Scientific take permits are relevant to coordinate salvage and movement of fish and wildlife species impacted during a project.	**ODFW's Scientific Take Permits:** ODFW recommends a condition be included for the Applicant to apply for and comply with state scientific taking permits. • ODFW recommends that the pipeline staff report quantified known injuries and mortalities by species during construction of the project. • ODFW recommends that the PCGP staff report injuries and mortalities of fish and wildlife by species associated with operation of the pipeline or in an emergent condition.
Riparian Habitat Impact/Mitigation Concerns: Riparian vegetation within the Riparian Management Area (RMA) zone near streams, wetlands, and waterways is critically important for the health of Oregon's native fish populations, especially in the drier parts of the pipeline corridor such as the Rogue and Klamath watersheds. Fish in the state are predominantly cold water species that evolved in stream conditions that were in most cases related to climax or second growth hardwood and conifer forest, thus near maximum shade that the stand would produce. The Oregon Dept. of Environmental Quality has identified 303d temperature listed streams including numerous streams through the pipeline route. These listings relate directly to removal of riparian vegetation since the 1800's.	**Riparian Habitat Impact/Mitigation Concerns:** ODFW recommends that riparian vegetation buffers that meet or exceed State and local government requirements be implemented on non-federal lands. All disturbed areas need to be replanted with native vegetation. ODFW recognizes that the proposed crossing locations may be on lands where private landowners may not allow the full setback to be replanted. In these situations, ODFW does not object if mitigation for permanent riparian impacts occurs off-site provided that it occurs within proximity within the same HUC 6 watershed and on private lands. Thinning as Mitigation: ODFW recommends this treatment should be used only on a very limited basis with clearly defined objectives that address location specific limiting factors.
Forest and Vegetation Impacts: In the context of described limits to revegetation of the ROW, the currently	**Forest and Vegetation Impacts:** To adequately evaluate watershed activities that impact wetlands and waterways associated with

proposed impacts to riparian areas may result in net loss of habitat function. ODFW assumes some percentage of riparian stream crossings will remain in an unvegetated or low-vegetation state requiring moving/cutting maintenance.	this project, ODFW recommends DSL consider the risks of erosion along pipeline corridors associated with vegetation removal and ground construction. ODFW also recommends: • Additional development of BMP's and a robust revegetation plan be developed for pipeline disturbance areas • Encourage use of native herbaceous (grass/forb), shrub, and tree species for revegation of disturbed sites unless natives will be unsuitable for site stabilization or specific species of non-natives are recommended to wildlife forage value. The establishment of vegetation using native grasses, trees and shrubs (although preferable in most instances) may prove ineffective if there is a lack of understanding of local conditions and their influence on vegetation growth, poor plant/seed selection, inappropriate soil management practices and inadequate vegetation management plans. • Work collaboratively with ODFW and other natural resource agencies to develop a revegetation plan with robust success criteria and clearly identified remedial actions if success criteria are not met
Species Occurrence/Status Species Corrections: The application does not discuss how state listed and state sensitive species will be addressed by this project.	**Species Occurrence/Status Species Corrections:** ODFW recommends the Applicant consult with ODFW to receive best available information regarding locations of sensitive/listed species, and that plans be developed to avoid, minimize, and mitigate impacts to those species. Species of particular relevance in the wetland and waterway environment will include (but are not limited to) western pond turtle, Oregon spotted frog, bald eagle nests, great blue heron rookeries, etc..
Noxious Weeds/Invasive Plants: Invasive species (e.g. noxious weeds) have been identified as one of the seven key conservation issues (threats to conservation) in Oregon in the Oregon Conservation Strategy (ODFW 2016). Hundreds of thousands of	**Noxious Weeds/Invasive Plants:** ODFW recommends that the Applicant complete a more comprehensive noxious weed control plan to prevent spread in aquatic environments or uplands associated with waterways.

dollars are expended annually on both public and private lands to combat invasion and expansion of noxious weeds and their negative effects on fish, wildlife, and their habitats. Specific invasive concerns include: • Gorse in the Coos Bay region has had substantial negative impacts on elk production in the Coastal frontal zone. • Scotch broom is considered a substantial factor decreasing production of elk and deer forage across the Coast range and some of the interior locations of Oregon. • Himalayan blackberry will likely be a factor within the right of way • Cheatgrass and medusahead are invasive species of concern for the eastern more arid portions of the project	ODFW recommends broad scale monitoring for noxious weeds, for the life of the project. ODFW recommends that performance metrics be included in a weed control plan, and that additional mitigation be undertaken if the final state of the pipeline is not satisfactory regarding avoidance, prevention, and minimization of noxious weeds. ODFW recommends wash stations for equipment be set up to handle aquatic invasive species as well. Equipment should be cleaned between individual subbasins at the HUC 6 level or if the machinery has been in a known area with invasive/noxious weeds. ODFW recommends that DSL include conditions outlining that the noxious weed plan have specific strategies (i.e. cleaning of equipment, monitoring, and control measures) for the JCEP project and individual reaches of the PCGP project. Mowing is considered a preferential treatment to herbicides when effective. ODFW recommends the Applicant acknowledge that the risk of invasion of noxious weeds on the pipeline route and mitigation sites is likely high and ensure the following: • ODFW recommends the Applicant fund an Oregon Dept. of Agriculture (ODA) weed extraction teams within the affected counties • ODFW recommends the PCGP project include ODFW in the list of agencies consulted and include our comments for noxious weed management. • ODFW recommends the Applicant describe the experience/qualifications of the staff used to conduct noxious weed surveys. • ODFW recommends the PCGP project should provide some level of assurance that environmental inspectors will have the capacity in their schedule to ensure

	noxious weed management concerns are addressed. • ODFW recommends that EI's should inspect new equipment arriving on site. Any protections given to federal lands should also be given to non-federal lands • ODFW recommends the PCGP project develop an incentive/dis-incentive program to greatly increase the likelihood the potential for a contractor driven inspection system (with random EI investigations) to function effectively. • ODFW recommends a buffer should be applied to known noxious weed infestation areas. Accordingly soil should not be moved out of these sites. These sites should be treated to prevent spread of noxious weeds to uninfested areas. • ODFW recommends that protection measures for federal lands should also be applied to non-federal lands. • ODFW recommends the PCGP project needs to provide extended monitoring at known infestation sites, dewatering stations, and all other high-risk sites on private lands as well. Monitoring the ROW only likely inadequate. ODFW recommends that PCGP employ independent consultant noxious weed specialists to conduct periodic on-going monitoring to maintain a sufficient level of certainty that noxious weed issues are addressed. Periodic monitoring needs to be completed for the life of the project on all disturbed ground with special emphasis at known infestation, dewatering stations, and equipment cleaning locations.
Capping Piling to Prevent Perching: Predatory piscivorous birds strategically perch around industrial facilities on piling that do not have measures to eliminate the ability of these birds to perch/roost. Ecologically the relevance is related to an increased capacity to feed within the area and	**Capping Piling to Prevent Perching:** For both the JCEP and PCGP project ODFW recommends fitting any new pilings with devices to prevent perching of piscivorous birds. This is a standard request from ODFW to Applicants on Fill/Removal permits when the Applicant installs pilings. These caps are readily available.

impact species such as fall Chinook, coho salmon, and steelhead juveniles. If additional perch locations are created for piscivorous birds as a result of the proposed project, predation on resident and juvenile fish will likely increase along the project, and would be of particular concern in the vicinity of the project terminus at Coos Bay and near larger rivers such as the South Coos River, South Umpqua, and Rogue.	
Environmental Inspectors: Properly trained environmental inspectors are able to greatly increase the potential for maximizing habitat conservation measures.	**Environmental Inspectors:** ODFW recommends that the PCGP project have environmental inspectors on all active construction segments of the pipeline project.
Public Communications: There is currently a significant need for a representative of the JCEP/PCGP project to serve as a public communications specialist to the project area constituents. Additionally there is a need for planning regarding how recreational users of fish and wildlife resources in Coos Bay and along the pipeline route will obtain information concerning the project: e.g. will recreation be restricted at the JCEP site, mitigation site access, pipeline route access; access to the PCGP corridor during construction, etc.) Restrictions to recreational accessibility can result in substantial impacts to the local economic conditions of affected communities.	**Public Communications:** The JCEP/PCGP project needs to develop a project communication plan in collaboration with ODFW to consult with and inform fishing groups and other recreational users on construction actions on a real time basis. Including but not limited to: • Will recreation (clamming, crabbing, and duck hunting) be restricted at the JCEP site during construction/following construction? • Will mitigation sites be open to public recreation, hunting, and fishing access during construction/following construction? • Will the pipeline route be open to access for fishing and hunting (the route will cross major salmon and steelhead fishing streams as well as historical hunting locations) during construction/following construction? • How and where will any residual impact to public access or recreational opportunities be fully mitigated?

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HEARLEY Henry O

From: Margaret Corvi <MCorvi@ctclusi.org>
Sent: March 21, 2019 10:02 AM
To: HEARLEY Henry O; CALLISTER Jacob (LCOG); cjohnson@coosbay.org
Cc: Jennifer Findlay; CURRAN Chrissy * OPRD; WALKER Vicki; Krug, Tyler J CIV USARMY CENWP (US); Scott Wheat; Rick Eichstaedt; Alexis Barry; Stacy Scott
Subject: Comprehensive Plan Amendment 187-18-00153
Attachments: Comprehensive Plan Amendment 187-18-00153 Attachment A.pdf; Comprehensive Plan Amendment 187-18-00153 Attachment B.pdf; 2019-03-21_CCB_187-18-00153.pdf

Attn: City of Coos Bay Planning Commission

Please find the comments attached from the Confederated Tribes of Coos, Lower Umpqua and Siuslaw regarding the proposed Comprehensive Plan Amendment 187-18-00153.

We will be at the meeting this evening to provide these comments also.

Respectfully,
Margaret

Margaret Corvi
Culture and Natural Resource Director
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