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Attn:  
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**Re: Jordan Cove Energy Project, L.P.: Application to Amend (83 FR 17406)**

Whale and Dolphin Conservation (WDC) is the leading global charity dedicated to the conservation and protection of whales, dolphins, and their habitats worldwide. We remain opposed to the Jordan Cove LNG Terminal and Pacific Connector Pipeline Project (the Project) for the reasons listed in previous comments submitted July 9, 2017 and included as an attachment here. We ask that the Office of Fossil Energy of the Department of Energy deny the application for amendment to increase the LNG export volume of the Project.

In addition to the negative impacts pipeline construction would have on salmon habitat and river systems in Oregon, the increased amount of vessel traffic resulting from the Project would harm the critically endangered Southern Resident killer whale (orca) population, now numbering just 76 individuals.

The Southern Resident killer whale (SRKW) population is threatened by prey depletion, toxic contamination, and acoustic and physical disturbance. Sound is critical to the daily life and survival of the SRKWs, who use acoustics and echolocation to forage, communicate, and navigate. Anthropogenic ocean noise has increased dramatically in the last century from a variety of sources – commercial shipping, industrial activities, sonar, seismic testing, and more. From shipping alone, noise at low frequencies has increased by an estimated 12-15 dB since the 1960s.<sup>1</sup> Acoustically-oriented species like whales and dolphins have been negatively impacted – research shows that the SRKWs increase their call amplitude by 1 dB for every 1 dB increase in background noise.<sup>2</sup> Chronic noise levels can cause auditory masking, reduce echolocation range, impair hearing, increase stress, disrupt social contact and acoustically-coordinated behaviors, and can displace whales from preferred foraging grounds.<sup>3</sup> Recent research on noise produced by large vessels found that they increase noise above ambient levels by 20-30 dBs at low frequencies (100-1,000 Hz) and 5-13 dBs at high frequencies (10,000-40,000 Hz).<sup>4</sup> The rise in ambient noise levels resulting from vessel traffic harms the coastal environment, salmon, and the SRKWs.

The application to increase export volume of the Project includes no information about the estimated number or size of vessels needed for transport. An increase in proposed export will almost certainly result in a proportional increase in the number and frequency of vessels transiting the Oregon coast, and will increase noise and threat of ship strike in the habitat of the SRKWs.

<sup>1</sup> Hildebrand JA. 2009. "Anthropogenic and natural sources of ambient noise in the ocean." *Mar Ecol Prog Ser* 395:5-20; Ocean Noise and Marine Mammals. 2003. National Research Council (US) Committee on Potential Impacts of Ambient Noise in the Ocean on Marine Mammals. Washington DC, National Academies Press.

<sup>2</sup> Holt M.M. et al. 2009. Speaking up: killer whales (*Orcinus orca*) increase their call amplitude in response to vessel noise. *The Journal of the Acoustical Society of America*, 125:27-31, DOI 10.1121/1.3040028.

<sup>3</sup> DFO (Fisheries and Oceans Canada). 2011. Recovery Strategy for the Northern and Southern Resident Killer Whales (*Orcinus orca*) in Canada. Species at Risk Act Recovery Strategy Series, Fisheries & Oceans Canada, Ottawa, ix +80pp; National Marine Fisheries Service (NMFS) 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). NMFS, Northwest Region, Seattle, Washington

<sup>4</sup> Veirs S, V. Veirs, and J.D. Wood. 2016. Ship noise extends to frequencies used for echolocation by endangered killer whales. *PeerJ* 4:e1657; DOI 10.7717/peerj.1657.

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numbers just 78 individuals (Center for Whale Research). They are the only population of the Resident ecotype that is part of the California Current ecosystem and are considered one of the most endangered marine mammal populations living in US waters (Krahn et al. 2004, Reynolds et al. 2009). The SRKWs range as far south as Monterey, California, and the outer coastal waters of Oregon, Washington, and California are important habitat and foraging grounds for over half the year (DFO 2011, Hanson et al. 2013, NMFS 2008, NMFS 2014).

Top threats to their survival and recovery have been identified as prey depletion, toxic contamination, and vessel impacts including noise and harassment (NMFS 2008). It has been well established that the SRKWs predominantly depend on salmon, chiefly Chinook, as their primary food source (Ford and Ellis 2006, Ford et al. 2010a and 2010b, Ford 2012, Ford et al. 2016, Hanson et al. 2010, Ward et al. 2009). Over a decade of dedicated research indicates that they rely on salmon from all west coast rivers – particularly from California and Oregon rivers during the winter and early spring months (Mongillo et al. 2016, NMFS 2014, Zamon et al. 2007). As wild salmon populations have decreased on the west coast, the SRKWs have similarly declined. Research has shown that SRKW mortality and birth rates are correlated with coast-wide salmon abundance (See Figure 1; Ford et al. 2005, Ward et al. 2009), and a recent publication links nutritional stress in the SRKWs to increased instances of reproductive failure (Wasser et al. 2017).

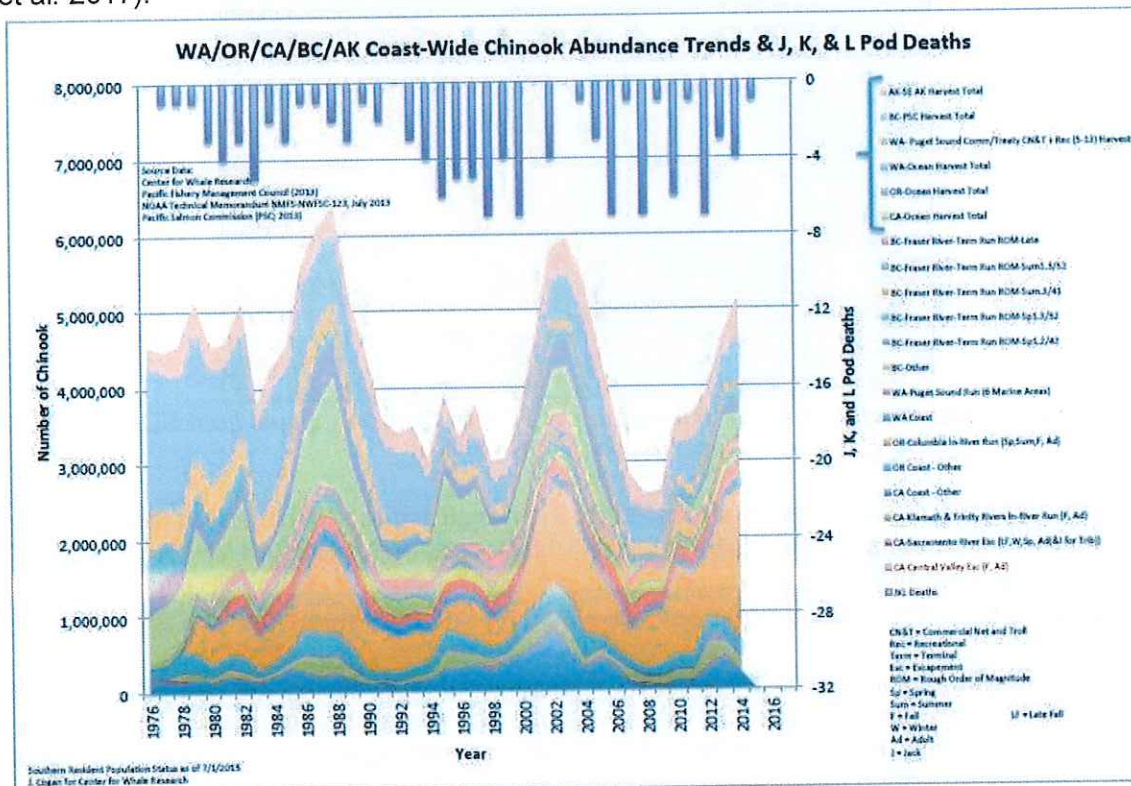


Figure 1: Mortality rates in the SRKW population are correlated with coast-wide Chinook abundance. (Image: Jane Cogan, Center for Whale Research)

The expected impact of the Project on salmon populations and habitat in Oregon will have far-reaching effects, as multiple species, including killer whales, depend on salmon as an important food source. These ecosystem impacts must be considered in developing an EIS for the Project. Salmon populations in the Northwest hover at fractions of their historic abundance, following a century of overharvest and habitat loss from dam construction, development, and deforestation. Wild salmon populations now return at less than 3% of their historic numbers each year (Lackey 2000). The Project would construct nearly 400 waterway crossings in Oregon, including significant salmon rivers such as the Klamath,



within the SRKWs' designated critical habitat indicates that the presence of large vessels (approximately 20 per day) increases noise above ambient levels by 20-30 dBs at low frequencies (100-1,000 Hz) and 5-13 dB at high frequencies (10,000-40,000 Hz) (Veirs et al. 2016). The EIS must consider the effect of increased numbers of large vessels and the resulting rise in ambient noise levels to the coastal environment, salmon, and the SRKWs.

The ecosystem consequences, including those on the SRKWs, of the Project must be considered in the development of this EIS. The top three threats to the SRKWs – prey depletion, toxic pollution, and vessel effects – act in a negative feedback loop (DFO 2011, NMFS 2008). With declining stocks of salmon, they must use more energy and dedicate more time to searching for an increasingly scarce food source. But as their habitat becomes noisier, it becomes even harder to forage and communicate, and salmon becomes even more difficult to find. Precious energy stores are burned as the whales struggle to find food, and toxins that were stored in energy-rich blubber are metabolized into the bodies of the whales, causing further impacts to their immune, endocrine, and reproductive systems (Krahn et al. 2007, Krahn et al. 2009, Lundin et al. 2016).

WDC wishes to reiterate that the Jordan Cove Project application has already been denied by FERC, and so this process is redundant and unnecessary. However, we urge the staff at FERC to fully consider the ecosystem impacts resulting from the construction and operation of this project, including the significant effects on the Southern Resident killer whales and their prey, salmon.

We appreciate the opportunity to provide comments, and hope that the staff of FERC will reach out to us with any additional questions or for more information.

Regards,



Colleen Weiler  
Rekos Fellow for Orca Conservation  
Whale and Dolphin Conservation

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