Scoping Comments for the Proposed Gateway Pacific Coal Terminal
Phoebe Rosoff
November 6th, 2012

Introduction:

Being one of the few deep-water marine environments on the West Coast that is currently not home to a coal export terminal, Cherry Point in Whatcom County, Washington is a unique and vital habitat that supports a variety of plant and animal species in a delicate balance that has already been subjected to human intrusion and degradation. The Gateway Pacific Terminal proposal would greatly increase the magnitude to which this ecosystem has been disrupted and altered by human activities. Changes to wetland and marine environments will affect keystone and commercial fish species through wetland removal, railway construction, and disturbances from large vessels. It is imperative that the EIS scoping takes into account the immediate and future impacts that the terminal and its infrastructure would subject the marine environment to, as well as all surrounding bays, rivers, streams, lakes, soils, and air associated with this project.

Keystone Species: Herring

Cherry point herring, a population of keystone fish species living around the area of the proposed Gateway Pacific Terminal, are a unique population of herring that spawn in the spring instead of winter. Over the past 20 years, the herring stock that spawn there have undergone a dramatic decline due to a variety of stressors and disease including exploitation, habitat alteration, and climate change (Landis et al. 2004). Added disturbances to their marine habitat could negatively affect the delicate herring populations further, disrupting an important food chain that would affect salmon and other species as well.

Herring behaviors in response to vessels have been analyzed in Norway by Vaboe et al (2002). In the study it was found that herring had avoidance reactions to vessels as a function of depth. Herring spawn in shallower waters, which is where they have been observed to have greater avoidance behavior to vessels. Increased vessel traffic of large coal ships will be a disturbance that can further limit their ability to spawn, thus lowering their numbers even more. Please investigate how the proposed Gateway Pacific Terminal would affect herring spawning habitat and future herring populations in this area.

Additionally, please assess the risk of a ship releasing coal or oil, and the effects of this deposition into these near-shore marine habitats. Adverse effects to salmon and herring eggs from exposure to 1 µg/L or less of aqueous total polycyclic aromatic hydrocarbons have been observed by Page et. Al. (2012). In the event of a collision or other accidental release of toxins, the near shore environment can be contaminated. What are the measures that will be taken to protect the vulnerable life stages of these keystone species should this occur?

Salmon

The proposed increase in railways necessary for the Gateway Pacific Terminal can pose a hazard to salmon populations by threatening the abundance and survival of smolt. Disturbance and reduction of freshwater habitat essential for juvenile salmon is

caused by sedimentation due to erosion (indirectly linked to road density). Road density in one study had a negative correlation with smolt abundance in Washington, but this was largely due to outlying points in the data set (Sharma and Hilborn 2001). It is necessary to further study the effects of the construction of these railways on sedimentation of freshwater salmon habitats in order to determine the link between road density and smolt abundance. Risking degradation of their freshwater habitat in combination with the fragile herring population can pose a large threat to the survival of young salmon, and subsequently their adult populations in the Western Washington area. Please investigate the impacts that increased rail lines and roadways will have on juvenile salmon habitat near the Gateway Pacific Terminal.

Wetland Impacts

Building the infrastructure necessary to complete the proposed Gateway Pacific Terminal and associated rail lines will impact wetlands both temporarily and permanently. It is expected that the direct permanent wetland impacts will total 140.6 acres of filling and grading, or cutting (Pacific International Terminals, Inc. 2011). Wetlands are a key source of biodiversity, and are very difficult to rebuild. Destruction of wetlands is a concern for surrounding ecosystems as well given that they play a role in water filtration. These wetlands will be especially important for mitigating the effects of chemical and sediment release near marine habitats where there will be pollution from rail traffic and coal dust. When these types of habitats are lost, their functions (e.g buffering the effects of disturbances) may also be lost. Replacing wetlands can amplify biotic homogenization, decreasing biodiversity and effecting marine environments. The effect of habitat loss can extend well into other habitats and scale up to affecting whole coastal regions and processes (Airoldi et al 2008). Without functioning wetlands, issues involving water purification can become worse for Cherry Point and the watersheds surrounding the bays. Please investigate the impacts to coastal and inland wetlands in the areas near the terminal as well as near proposed railways, and the changes that may occur to marine systems temporarily and in the long-term due to loss of wetland area and biodiversity.

Summary and Conclusion:

Cherry Point herring, an already stressed and diminished population and food source, are at risk for further decline due to destruction and disturbance of spawning habitat. Salmon that feed on herring can be affected by further reduction in this part of their diet. Salmon are also at risk in their juvenile stage as freshwater habitat is at risk by sediment contamination through increased railway construction. Both marine and freshwater habitat will be affected by the construction of the Gateway Pacific Terminal through disturbance by large vessels, railway additions, and wetland removal. The biodiversity in the region near Cherry Point will be compromised as a result of the construction and function of the coal terminal.

Please investigate the short and long term effects on the health and populations of the key fish species mentioned above, as well as the health and biodiversity of the wetlands affected by construction, and also in the event of a release of oil or coal pollution into these delicate environments.

Sources:

Airoldi, L., Balata, D., and Beck, M. W. "The Gray Zone: Relationships Between Habitat Loss and Marine Diversity and their Applications in Conservation." *Journal of Experimental Marine Biology and Ecology.* 366.1-2 (2008): 8-15. Web 3 Nov. 2012.

Landis, Wayne et al. "A Regional Retrospective Assessment of the Potential Stressors Causing the Decline of the Cherry Point Pacific Herring Run." *Human and Ecological Risk Assessment: An International Journal.* 10.2 (2004): 271-297. Web. 4 Nov. 2012.

Pacific International Terminals, Inc. "Preliminary Conceptual Compensatory Mitigation Plan." Published by Pacific International Terminals, Inc. Seattle, WA. 28 Feb. 2011. https://secureaccess.wa.gov/ofm/iprmt24/site/alias__1357/22894/review_documents.aspx. Web. 4 Nov 2012.

Page, D. et al. "A Perspective on the Toxicity of Low Concentrations of Petroleum-Derived Polycyclic Aromatic Hydrocarbons to Early Life Stages of Herring and Salmon." *Human and Ecological Risk Assessment: an International Journal.* 18.2 (2012): 229-260. Web. 4 Nov. 2012.

Sharma, R., Hilborn, R. " Empirical Relationships Between Watershed Characteristics and Coho Salmon (Oncohynchus kisutch) Smolt Abundance in 14 Western Washington Streams." *Canadian Journal of Fish & Aquatic Sciences*. (2001). Web. 4 Nov. 2012.

Vaboe, R., Olsen, K., and Huse, I. "The Effect of Vessel Avoidance of Wintering Norwegian Spring Spawning Herring." *Fisheries Research.* 58.1 (2002): 59-75. Web 3 Nov. 2012.