

**Proposed Pebble Project
Preliminary Draft Environmental Impact Statement
Review Comments**

Reviewer: NARF Technical Team
Date: December 21, 2018
Chapter: Chapter 4: Environmental Consequences
Section: Section 4.23 Wildlife Values
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Comments

Just like Section 3.23 Wildlife Values, this section is solely based on Western science and fails to consider Indigenous knowledge. USACE will need to change this section heading because the only time “values” appears in this section is in reference to Section 3.23. Nowhere in this section does USACE define and address “values.” This impacts analysis is woefully incomplete without the consideration of Alutiiq, Dena’ina, and Yup’ik knowledge on potential impacts to wildlife. USACE needs to address and correct this data gap.

As with Section 3.23, USACE needs to include Alutiiq, Dena’ina, and Yup’ik names for the wildlife discussed in this section. Indigenous names for wildlife are just as valid as Latin and common names.

Whenever an impact is discussed in detail in another section, please provide a brief summary of the impact in this section, so that a reader may obtain a complete overview of the impacts on wildlife without paging back and forth between sections and appendices.

The list provided in this section is actually a list of stressors rather than the impacts that wildlife may experience due to those stressors. For example, fragmentation of habitat is a change to the environment that may result in inability to access a food resource or greater energy expenditure to do so. Noise or disturbance may result in abandonment of nests by birds, reducing breeding success and overall population levels. Each stressor should be linked to impacts on or changes in behavior by individuals, which in turn should be linked to impacts to or changes in populations. These impacts should be estimated quantitatively using the scientific literature for a project of this magnitude, but at a minimum, qualitatively. Traditional and local knowledge of impacts that are already occurring or have occurred due to other infrastructure projects should be integrated into the assessment. Anticipated cumulative impacts related to climate change should also be addressed.

We assume the Wildlife Management Plan and associated mitigation measures will be presented in the Draft EIS, since this is one of the required elements of an EIS.

4.23.2.2 Terrestrial Wildlife. Behavioral Disturbance. What impacts would be expected from the sole presence of the road after operations at the mine ceased? For example, are there species that will avoid crossing a road regardless of whether there is traffic on it? Is there a possibility that the roads would be opened to local traffic once the mine discontinues operations?

Caribou. The specific information provided here on how caribou are impacted by various infrastructure components is helpful in providing a sense of how substantial the impacts may be. Such information would be even more useful to the reader if it could then be placed in context to the project proposal. For example, if caribou experience reduced road-crossing success at somewhere between 6 and 15 vehicles per hour, how does that compare to the traffic expected on the mine access roads? Overall, there is a lot of very general information throughout this section on the types of impacts that can occur to various species, but a lack of detail such as this that would help the reader understand what the magnitude and likelihood of impacts will be for this specific project. Each section discussing impacts to various species should include as much of this specific detail as possible and then relate it to the specifics of the project proposal. Otherwise it is just a general catalog of possible impacts without any sense of scale or degree.

As another example of the above, if caribou are likely to avoid a 6.8- to 8.7-mile radius around the mine site, how many acres is that and what percentage is that acreage of the suitable home range for caribou during various seasons?

Add the following phrase to the last sentence of the third paragraph: ". . . within the transportation corridor." This is necessary since it is apparent that impacts would occur within the mining site. Conclusions, when given, appear to only be for cases where there are no impacts. More specific conclusions also need to be provided whenever impacts are expected, detailing the nature of the impacts, the species impacted, and a quantification of the anticipated impact, since that is the main purpose of this EIS.

Moose. Again, the impacts to moose are partially quantified by detailing the distance surrounding roads in which avoidance may occur, but this needs to be further developed to indicate the total area that may be affected and the impact on local moose populations due to the unsuitability of that habitat.

Bear. Based on the preceding discussion, it is difficult to imagine that there will be any way to mitigate the impacts of busy roads on bears. However, what measures are anticipated should be detailed in the EIS so that their potential efficacy can be evaluated.

Habitat Changes. Caribou. The estimated acreage of impact is helpful, but please add context that would help determine the impact on the caribou population. For example, what portion is this of their current home range? Is there other suitable habitat they can easily shift to without conflict with other established territories?

Bear. If you add the acreage directly removed to the acreage avoided due to the transportation corridors, how does this magnitude of impact change? Do the transportation corridors more directly affect the brown bear's access to streams? A graphic that shows the areas of impact with respect to landscape and project components would be helpful to illustrate this and other impacts.

Behavioral Disturbance. Underwater and Airborne Noise. Another obvious sound impact would be due to vessels using the Amakdedori Port after construction.

More evidence should be provided for the statement that noise from vessel operations at the Amakdedori Port will have minimal effects on marine mammals. The effects of underwater noise pollution have been more widely studied recently, and in the Salish Sea, has resulted in changes to vessel design, speed limits, and routes to minimize the cumulative effects of all the vessels transiting the area on resident marine mammals, especially whales.

The impacts of noise pollution would not be limited to the project area but would extend throughout the area in which vessels may be transiting to and from the port. The increase in vessel traffic should be considered cumulatively with existing vessel traffic, particularly as the Port is planned for a relatively unused area that may currently provide a refuge from large vessel traffic. Evidence indicates that increased noise pollution impacts the ability to forage, causes additional energy expenditure to avoid noisy areas, and impacts communication among family and social groups.

Physical Presence (Vessel and Aircraft). Again, this statement of no impact requires more quantitative support. Impacts of vessel traffic (whether noise or presence) are cumulative. The increase in vessel traffic expected to occur due to this project should be quantified and the effects of developing a currently undeveloped area and subjecting it to vessel traffic should be determined. If there is substantial vessel traffic and disturbance in other areas, this area currently may be a refuge from such activities that would be eliminated due to construction and operation of the Port.

Please describe the evidence that existing high levels of vessel traffic have not had detrimental effect on marine mammals in the area. Overall, these conclusions need better support and a more quantitative estimate of the increase in vessel traffic expected due to the currently proposed project as well as the cumulative increase with the RFFAs.

General. The Wetlands, Wildlife, Fish, and Vegetation sections provide an incomplete, inadequate, and narrow discussion for a project of this size that spans a large landscape encompassing several watersheds and will have impacts to multiple aquatic and terrestrial species in Bristol Bay and Cook Inlet. Additionally, the use of “Values” in the titles is odd. It would be more appropriate to just use “Terrestrial Resources” to include a discussion of habitat and wildlife and instead of “Fish Values”, it would be more appropriate to use “Aquatic Resources” to include a discussion of habitat and fish and other aquatic species.

The proposed project will require intact streams, tributaries, wetlands, and ponds to be removed, altered, discharged into, dredged, and filled in a mostly pristine, wild, and functioning watershed for over 25 years, resulting in removal of an interconnected ecosystem and loss of the biodiversity and functional habitat and services provided to the watersheds that aquatic and terrestrial resource rely on. Mitigation or restoration on this scale has never been attempted. Re-creating a functioning watershed is virtually impossible. Humans cannot improve intact ecosystems. Removing streams, tributaries, wetlands, and ponds from a watershed for over 25 years will result in loss of natural process and function and will adversely impact inputs to downstream areas, such as sediment transport, loss of interstitial spaces due to lack sediment transport, compaction of substrates, detritus, nutrients, water chemistry, macroinvertebrates, prey, high and low flow regimes, groundwater upwelling, aquifer recharge, hyporheic function, hydrological and geomorphological processes and function, temperature regimes, physical and biological processes, riparian and terrestrial habitat, soil ecology, etc.

In addition, constructing and operating a mine of this size with its associated infrastructure, combined with altering, filling, dredging, disposal of wastewater, and discharging into streams, tributaries, wetlands, and ponds in watersheds for over 25 years will impact, irrevocably damage, and will probably eradicate distinct anadromous and resident fish populations found in the smaller tributaries. These smaller and unique stocks are important to the overall health of fisheries because they provide genetic diversity that improves resiliency throughout the watershed. The proposed project would cover and otherwise adversely impact large areas of the upper watersheds, resulting in severe fragmentation of habitat that’s vitally important to aquatic and terrestrial species (salmon in particular) and other anadromous and resident fish.

The EIS must evaluate direct, indirect, and cumulative impacts to all aquatic and terrestrial species. The EIS must also evaluate direct, indirect, and cumulative impacts to the prey resources that fish rely on during all life history phases. A robust evaluation of this type needs to be based on statistically sound scientific baseline data and existing conditions information as well as the Traditional Ecological Knowledge and Wisdom (TEKW) of Alaska Native communities.

Without figures and maps it is not possible to do an in-depth and specific review of these sections. Suffice it to say, aside from the proposed mine itself having a massive footprint across several watersheds, the infrastructure required to support the mine will stamp a large destructive footprint across a large mostly pristine and wild geographic areas including close to 70 miles of roads and additional spur roads with 97 river and stream crossings, 11 bridges, and 88 culverts. The roads will cross through and over several watersheds and large fish bearing rivers, streams, tributaries and through a mosaic of wetlands, lakes, ponds, bogs, marshes, riparian and upland areas.

An 18-mile ice breaking ferry route will require ferry terminals and a port with associated offices, storage facilities, power plants and extensive road causeways built over and into the marine environment. A 187-mile gas pipeline with associated fiber optics going overland and under Cook Inlet and Iliamna Lake. The project will require extraction of major quantities of water from rivers, streams, lakes, and ponds.

The EIS Analysis Area must include not just the areas of actual ground disturbance but all adjacent and connected areas. The EIS Analysis Area must include all areas of the four major projects (mine, roads, gas pipeline/utilities, port/ferry terminals) and their components in the Bristol Bay and Cook Inlet Watersheds as well as those areas bordering these watersheds including nearby national parks and refuges (particularly Katmai bears and McNeil River bears) that will be impacted by impaired migratory routes, reduced populations of fish and wildlife, etc. The EIS Analysis Area must be expanded to include aquatic and terrestrial migratory corridors for all aquatic and terrestrial species in fresh, estuarine and marine waters.

Bristol Bay and Cook Inlet support important salmonid species that will be irrevocably impacted by the proposed project including Chinook salmon, coho salmon, chum salmon, pink salmon, sockeye salmon, and steelhead trout (Chambers et al., 2012; USEPA, 2014a). Other important fish species that are used by local people include rainbow trout, arctic char, Dolly Varden, grayling, and whitefish. Important non-salmonid species, like pike and suckers, are also used by local people. These fisheries are an integral part of the aquatic food web and provide an abundant biomass and prey resource for several aquatic and terrestrial species in the freshwater and marine areas of Bristol Bay and Cook Inlet watersheds as well as in the other waters including

the Pacific Ocean. The EIS must quantify and evaluate the impacts related to the loss of this large prey resource that sustains aquatic and terrestrial species within the project area and across all areas of their adult migratory routes.

The baseline information in these sections is inadequate and at times contradicts itself (as in the case of caribou populations). The documents state that caribou are not in the area so won't be impacted, but then it goes on to say that ADFG culls wolves to protect the caribou herds and that the tribes are concerned with caribou populations and have seen a reduction in numbers.

The EIS must provide sufficient baseline data and existing conditions information. Relying on the insufficient baseline data collected by the project proponent and presented in the 2004-2008 environmental baseline report and the 2009-2013 supplemental baseline data reports does not provide sufficient information for the aquatic and terrestrial species that rely on this large landscape. These reports alone do not provide adequate information to establish baseline conditions for the area to evaluate direct, indirect and cumulative impacts to natural resources.

Baseline studies conducted for this project in 2004-2008, including the methods used to collect and analyze data for fish use and presence more than likely differ greatly from the methods that are being used now in 2018. The EIS must use up-to-date methods to adequately evaluate aquatic and terrestrial resources. Extensive habitat models exist to evaluate the presence and habitat use of aquatic resources. These methods must be used to further evaluate the direct, indirect and cumulative impacts of the proposed project to aquatic resources and fish and fish productivity in the watersheds. Additionally, it is unclear what fish tissue criteria were used. This information should be provided so that the reviewer can determine if the appropriate criteria were used.

These watersheds and geographic regions and their aquatic and terrestrial species have been and continue to be studied by local, private, and nonprofit entities, and resource agencies at the state and federal level including tribes. The EIS must incorporate information from these other sources and studies, new data collected as part of the EIS evaluations and from models that evaluate species, habitat, biological and physical watershed processes. The EIS must also incorporate Traditional Ecological Knowledge and Wisdom (TEKW) in all evaluations and when developing the information for baseline and existing conditions.

Additionally, extensive habitat models exist from the Kenai Peninsula using resource selection functions to evaluate the effect of development on brown bears. The EIS must use these methods to further evaluate the direct, indirect and cumulative impacts of the proposed project to wildlife and terrestrial resources.

The climate change discussion in these sections is far too general for a project of this size and timeframe. The discussion should be far more specific and include information from the new Intergovernmental Panel on Climate Change (IPCC) report that was recently issued. Information on the impacts of sea level rise should be included. Catastrophic events such as landslide, flood, avalanche, major weather should be discussed. Loss of carbon sequestration due to major removal of vegetation and how this impacts greenhouse gas (GHG) emissions should be included. Loss of habitats and shifting migration patterns should be discussed for both aquatic and terrestrial species.

It seems that the whole affects analyses for both aquatic and terrestrial species and habitats is aimed at trivializing the impacts a project of this size will have. Most information is reduced to a paragraph or two. It is misleading to say this is a 20-year project when the buildout will occur over 78 years. And several other mining projects would use the proposed Pebble Project infrastructure. Based on probable ultimate size of the proposed project and other projects that intend to use the Pebble infrastructure, this project will be there forever. It is unclear how the EIS can claim that a project of this size will result in an increase of rearing habitat for juvenile salmonids.