

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

Reviewer: NARF Technical Team
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Chapter: Chapter 3: Affected Environment
Section: Section 3.23 Wildlife Values
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Comments

Section 3.23 Wildlife Values. It is unclear why this section is titled “*Wildlife Values*” and why Section 3.24 is titled “*Fish Values*.” These titles indicate that some kind of numerical value is being placed on the wildlife and fish—monetary values, Natural Resources Damage Assessment (NRDA) thresholds, or some other valuation of the resource. Yet, these uses and human values are described in other sections. Simply titling these sections “Wildlife” and “Fish” might be more appropriate.

It is odd to have fish disconnected from the other aquatic life discussed in this section, such as marine mammals. Terrestrial invertebrates and aquatic invertebrates (benthic and epibenthic species) seem to be missing from the discussion, even though these organisms form the foundation of the food chain and will certainly be impacted by the proposed project.

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 chapter is in the title. Nowhere in this section does USACE define and address “values.”

Priscilla Russell, in her 1995 paper *Some Large Game Animal Traditions of the Inland Dena’ina*, describes some of the Inland Dena’ina’s wildlife values and spiritual connections to this wildlife this way:

The Inland Dena’ina have a strong spiritual connection to the natural world of which they believe themselves to be a part. They believe that large game animals and other non-human entities have spirits as do human beings. Because all beings have spirits, they are sacred and should be respectfully treated. (page 14)

Dr. Duer, Karen Evanoff, and Jamie Herbert address Inland Dena’ina wildlife values, respect, and spirituality in their 2018 report “*Respect the Land – It’s Like Part of Us*” *A Traditional Use Study of*

Inland Dena'ina Ties to the Chulitna River and Sixmile Lake Basins, Lake Clark National Park and Preserve:

... animals are traditionally understood to be sentient, and to possess a spirit or something closely analogous to that concept. So too, it must be understood that game species are also traditionally seen as being provided as a gift by the Creator or, at least, creative spiritual forces that reward good behavior and punish bad behavior. While Russian Orthodoxy eclipsed some of these beliefs and values, many aspects of this traditional belief system remain remarkably durable; in some respects, they have been woven seamlessly into Orthodox practice.

Reflecting these underlying beliefs and values, some modern tribal members report that people with special training and abilities can spiritually "connect with animals." They can monitor them remotely through spiritual means. They have dreams of animals that can reveal the animal's movements and motivations—guiding hunting activities, but also sometimes causing hunters to pause such activities in defense of certain animals. They also can engage with animals to the point that they can "ride along with them" in spiritual form, traveling with walking moose or flying birds, for example. It is suggested that such skills were formerly more common, aiding in shamanic efforts but also in hunting as people became more intimately familiar with animals, their habits, the motivations, and their identities. A small number of individuals report participating in such practices today. (Pages 93-94)

These quotes are specific to Inland Dena'ina wildlife values. USACE will also need to address Alutiiq and Yup'ik wildlife values. It is unfortunate USACE chose not to include Indigenous values in this section. USACE will need to correct this error of omission.

After addressing "values," USACE needs to include Alutiiq, Dena'ina, and Yup'ik names for the wildlife discussed in this chapter. Indigenous names for wildlife are just as valid as Latin and common names.

Section 3.23.1 Action Alternative 1 – Applicant's Proposed Alternative. 3.23.1.1 Mine Site.

Birds. The terminology in this subsection should be revised to refer not to birds "within the mine site" but to birds in the area affected by the proposed project. The proposed mine site does not yet exist, and the potential effects of the proposed project on birds will range well beyond the proposed mine site.

The Public Review Draft EIS should be self-sufficient and should not rely on documents to which the reader may not have access. At a minimum, key lists and maps from the reports referenced should be included in the section to give an overview of the presence, distribution, and conservation status of birds and other species.

A single set of surveys conducted to support the proposed Pebble Project should not be considered a comprehensive compendium of information. Historical surveys should be reviewed to determine whether they add to the body of knowledge regarding distribution, use, and status of birds in the area.

Habitat value maps and lists are good examples of the types of information that should be brought forward into the EIS. More comprehensive versions of studies and reports should be provided in a technical appendix and informative maps in the main section of the EIS.

Raptors. Results. Beginning in this subsection, maps are referred to that would be very helpful to review; however, none of these maps have been provided for review.

Waterbirds. It is difficult to imagine how baseline surveys conducted for only a couple of years that are now more than 12 years out of date could be a better resource than USFWS surveys conducted twice annually. Comprehensive and long-running data sets are generally better to evaluate long-term averages and trends and identify important outliers.

Surveys such as those conducted by the USFWS should be reviewed to identify the additional information these surveys could provide, particularly on recent trends in bird populations and birds use of the area. The USFWS distribution maps would be useful and should be included in an appendix.

There is generally an overreliance throughout the EIS on specific baseline studies conducted for the proposed Pebble Project that do not include long-term monitoring and often do not represent current conditions within the area affected by the proposed project.

Results. Lists of species (including common names) should be included in the main text or in an appendix. Such lists would allow individuals living in nearby communities to check the lists based on their personal knowledge of the area and evaluate the accuracy and comprehensiveness of this information.

Terrestrial Mammals. In the same way as for birds, maps of habitats and habitat suitability for mammal species should be included in the EIS.

Large Mammals. Caribou. It is good to see some observations in this section from elders and community members living in the region to round out survey observations. Often those living closest to the wildlife have insights into distribution, behavior, and trends that cannot be determined from limited surveys. Other discussions in this section could benefit from more input based on local traditional knowledge—particularly when surveys don't yield sufficient information for species such as for black bear and small terrestrial vertebrates.

Section 2.23.1.2 Transportation Corridor and Natural Gas Pipeline Corridor. Birds. Landbirds and Shorebirds. A table is recommended to show the species of conservation concern and their abundance and status for each of the three areas.

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 of 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 impossible 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 ADF&G 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 using resource selection functions to evaluate the effect of development on brown bears on the Kenai Peninsula. 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.