

Pebble EIS Draft Commercial and Recreational Fisheries and Fish Values Sections
EPA Comments
12/21/18

The EPA appreciates the opportunity, as a cooperating agency, to provide you with these comments on the preliminary draft Commercial and Recreational Fisheries Sections 3.6, K3.6, and 4.6 (11/9/2018 review draft) and Fish Values Sections 3.24, K3.24, and 4.24 (November 2018 review draft) of the Pebble EIS. Our comments are provided in table format below. Our public comments on the Draft EIS may include additional concerns or recommendations. These interagency comments or portions thereof may be protected by the deliberative process privilege.

Page	Section	Existing text (if applicable)	Recommendation
3.6-2	Table 3.6-1		We recommend presenting actual values, rather than a percentage, in this table.
3.6-12	Table 3.6-8		We recommend that the document clarify if “resident” refers to watershed resident or Alaska resident.
3.6-13	3.6.1.1	“Theories as to why permits have left Bristol Bay include...”	We recommend adding overall population decline in the region as a possible explanation.
3.6-14	Table 3.6-9		We recommend including the sample size for each group/year combination and clarifying the number of vessels that values are based on in each category.
3.6-16	3.6.1.2	“Collective watershed resident wages averaged \$1 million per year...”	We recommend clarifying if per worker wages decreased over the period (if have fewer workers, may not see per worker decrease).
3.6-17	Table 3.6-11		We recommend including the number of workers for each category (not just the percentage) and wages per worker for each category, not just total amounts.
3.6-18	Figure 3.6-11		Please clarify what “H&G” means in the legend.
3.6-19	3.6.1.2	“In 2016 and 2017, the ex-vessel of the fishery was \$156 and \$216 million respectively (see Table 3.6-13).”	Table 3.6-13 does not contain 2016 or 2017 data; we recommend correcting the reference.
3.6-19, 3.6-20	Table 3.6-13		In the table, the 6 th row is labelled “lower bound estimate of fishers’ tax obligation,” but the text (p 3.6-19) refers to the \$6.83 million value as a processors tax amount paid. We recommend including whichever reference is the correct one.
	3.6.2		We recommend that Section 3.6.2 Cook Inlet Commercial Fisheries include additional detail, considering that there is a significant groundfish fishery there and that it crosses a wide variety of “complex fisheries.”
3.6-25	Table 3.6-14, 3.6-15		We recommend presenting data on total number of surveys returned.

3.24-11	3.24.1.1	"The corridor, including access roads, would cross a total of which 44 rivers and streams documented to support fish."	We recommend adding information to the DEIS about miles of stream in proximity to roads, as well as those streams being crossed by roads (e.g., the mine access road to the North Ferry Terminal runs along a stream).
3.24-11	3.24.1.1	Last paragraph: "Table 3.24-3 summarizes..."	We recommend specifying how much sampling has been conducted in this region. Please clarify whether streams have been sampled and found not to have anadromous fishes, or if few streams have been sampled along the transportation corridor.
3.24-12	3.24.1.1	Table 3.24-3	We recommend specifying how mileage was calculated (e.g., total mileage upstream of crossing).
3.24-12	3.24.1.1	Table 3.24-3	It appears the table referenced in footnote 1 should be 3.24-4. We recommend making this correction.
3.24-13	3.24.1.1	First sentence in South Access Road section	It appears the cited figure should be 3.24-5. We recommend making this correction.
3.24-14	3.24.1.2		Throughout, we recommend providing absolute abundance for fish, not just relative distribution and abundance.
3.24-19	3.24.1.2		If 1+ age sockeye salmon were observed in SFK, we recommend clarifying where they overwinter. For example, are some sockeye juveniles stream-rearing type, or are they using Frying Pan Lake?
3.24-23	3.24.1.2	"Clams are abundant along many Cook Inlet beaches."	We recommend that this section be moved into 3.24.1.3 "Aquatic Invertebrates".
3.24.-23	3.24.1.3		We recommend renaming this section to reflect that both invertebrate and algae data are presented.
3.24-24	3.24.1.3	"...were calculated from macroinvertebrate data collected using the ASCI method and the Surber method."	We recommend that the DEIS clarify whether this means "sampled using a Surber sampler". As worded, this is confusing because ASCI is an index, Surber is a type of sampler, neither is a method per se.
3.24-24	3.24.1.3	"The overall results for both the Surber method..."	We recommend presenting actual abundance data.
3.24-24	3.24.1.3	"CTI reflects aquatic habitat quality..."	We recommend specifying the possible range of values and what they mean (e.g., is high good quality?).
3.24-25	3.24.1.3	"The sampling results for the mine site indicate low-percent EPT, high-percent Chironomidae..."	We recommend presenting the data so the validity of this statement can be assessed; this likely reflects other limitations rather than poor stream health (e.g., need for short generation times), and this statement contradicts a later statement "the presence of these sensitive species is indicative of the

			comparatively optimal conditions at the site...”
3.24-25	3.24.1.3	“Of the Diptera taxa, the Orihocladiinae...”	It appears this should be changed to Orthocladiinae.
3.24-25	3.24.1.3	“Taxa richness was greater in ASCI samples (15 to 16 taxa) than compared with Surber and drift samples (five and seven taxa, respectively). The difference in taxa richness indicates that most of the macroinvertebrate taxa diversity is to be found in habitats other than riffle/cobble habitat. “	We recommend specifying how sampling was conducted in each case, in order to support this statement. (It appears more likely that drift samples were not collected at relevant times).
3.24-29	3.24.2.1	Figure 3.24-6	We do not recommend citing the EPA on these maps; instead, the document should cite the raw data that the EPA used to generate their maps.
3.24-36-37	3.24.3.5	3.24.3.5 Climate Change	Other sections do not have similar subsections on climate change. This information also has implications beyond fish populations and habitat, therefore we recommend that climate change considerations also be addressed in other sections of the DEIS (e.g., water management on site).
3.24-37	3.24.3.5	Last paragraph: “populations of Pacific salmon species...)	This paragraph touches on genetic diversity of Bristol Bay salmon populations, and we recommend that this needs to be considered in much more depth. For example, we recommend addressing how potential loss of genetic diversity will affect populations, and the ability to adapt to changing conditions.
	3.24	General comment	It will be important to discuss the potential for hydrologic connectivity via groundwater within and among the subbasins, and the implications for transfer of impact. We recommend that this discussion be added to the DEIS. The hydrologic connectivity between SFK and UTC is mentioned at 3.24-7. The potential for this type of connectivity elsewhere within the study area should be discussed, along with a consideration of what this may mean for transfer of hydrologic, water chemistry/quality, or other impacts across and within sub-basins via groundwater.
	3.6/4.6	General Comment	We recommend including precise definitions of the economic terms used, as well as a discussion of any data gaps or limitations of the available data and any assumptions used in the calculations. We also recommend that the document include some discussion on the

			screening process used to identify the impacts presented in the analysis.
	3.6/4.6	General Comment	We recommend that the DEIS include a discussion of how the affected sectors link to other parts of the wider economy.
	3.6/4.6	General Comment	We recommend that the DEIS acknowledge that the total economic value of the resource in a cost-benefit framework is not being considered in this assessment. This assessment is more narrowly focused on a few of the many sources of value and places a value of zero on passive use, existence, and bequest values. In addition, for the recreational fishery, expenditures represent the cost of accessing the resource, and do not reflect the consumer surplus or willingness-to-pay for a day of recreational or sport fishing. This is an important source of economic value.
	4.6	General Comment	The economic impacts presented are limited to the direct impacts on commercial permit holders, the processing sector, and include some information on fiscal contributions to state and local governments. The impacts presented here do not include the downstream impacts that would typically be part of an economic impact analysis. (See Knapp, G., Guetttabi, M. and Goldsmith, S., 2013. The Economic Importance of the Bristol Bay Salmon Industry. Institute of Social and Economic Research. University of Alaska. for a more comprehensive assessment.) These omissions could have large effects on the analysis; therefore, we recommend that the DEIS explain the basis for the analysis area and the impact indicators.
	4.6	General Comment	There is little discussion of how changes in the fishery could affect local households. The section on recreational fisheries is limited to information on the number of trips and days spent fishing. The expenditure estimates come from a single study conducted in 2007 [see Duffield et al. (2007)]. We recommend including discussion on how those numbers are derived, whether they are still applicable, and any limitations of the data.
	4.6	General Comment	We recommend that the analysis in Section 4.6 address the following additional potential impacts of the proposed project:

			<ul style="list-style-type: none"> • Potential impacts of long-term tailing storage on fisheries and subsequent impacts on commercial and recreational activities; • How many temporary workers will be required to live and work in the area, and the impacts this temporary boost in population would have on the area and subsequent effects on commercial fishing and recreation; • The magnitude of the increased traffic as a function of the mine size. This could have significant effects on recreational activity; and • Potential impacts on the recreational fishery from increased shipping across Iliamna Lake. In addition to increased road traffic, increased boat traffic on Lake Iliamna during the summer and winter could affect local boat traffic, subsistence harvests, recreational fishing and other local activities.
4.6-1	4.6	...change in consumer willingness to pay...	Use of the term consumer willingness to pay may be misused in this case. Consumer demand (as a function of brand identification) or brand premium/discount is probably more appropriate here and we recommend that this adjustment be considered in the DEIS
4.6-2	4.6	<p>Recreational Fisheries. With recreational fisheries, the potential effects of the proposed project are:</p> <ul style="list-style-type: none"> • Direct loss of angling days on portions of the North and South Fork of the Koktuli River and Upper Talarik Creek, which are located in the project area. • A reduction in angling days downstream of the project area if the project reduces fish populations in downstream waters. • Reduction in angling days caused by the quality of opportunities on waterbodies affected by the selected transportation routes. • An increase in angling days caused by an increase in the number of opportunities through expansion of the local road network or an increase in regional population. 	We recommend that the DEIS explain how the four potential effects on recreational fisheries were identified.

4.6-3	4.6.1.2		It is mentioned that one of the impacts to the recreational fishery will be a change in fishing 'experience' and the surrounding 'environment', although this type of value is not captured with the expenditures data. This value is part of the consumer surplus or WTP for a day of recreational fishing in the area. Expenditures data are separate, representing the cost of accessing these sites. We recommend that this difference be discussed and analyzed in the DEIS.
4.6-6	4.6.2.2		Under scenario 1, it is hypothesized that there are plenty of substitute sites for the Gibraltar River. It would be helpful to include a description and a discussion of its equivalence to the hypothesized impacted river in more detail.
4.6-11	4.6.6.1	This study does not estimate fish population changes associated with cumulative effects of the RFFAs.... Cumulatively, the more development, the greater likelihood of declining number of fish.	The cumulative effects discussion is inadequate because it does not analyze the cumulative effects of the Pebble Project Buildout RFFA. We recommend that the DEIS include this analysis so that the full extent and magnitude of cumulative effects are disclosed.
	4.24	General comment	At various points, statements are made to the effect that controls and best management practices would be in place to limit adverse impacts from various activities. We recommend that the DEIS discuss the certainty that BMPs and controls will be effective over the lifespan of the project.
	4.24	General comment	We recommend that the DEIS include a summary of data gaps (if any), assumptions, and uncertainties, which is helpful for communicating relative confidence in any analysis and is relevant here.
4.24-2	4.24.2.1	Table 4.24-1	We recommend that the DEIS present data on total stream miles affected (this is impossible to calculate from the table, given overlap between categories).
4.24-2	4.24.2.1	"The mine site area is one of the few areas in the Bristol Bay drainage where numerous small channels and tributaries have been surveyed for salmon."	We recommend that the DEIS state what % has been sampled and explain what this means for estimates of streams affected along the transportation corridor (most likely a significant underestimate).
4.24-2	4.24.2.1	"...approximately 2.3 miles of Tributary 1.19 mainstem and sub-tributary stream channels would remain free-flowing."	It is not clear how this is possible, if tributary is blocked downstream. We recommend that the DEIS clarify this point for agency decision makers and the public by showing this reach on a map.

4.24-2	4.24.2.1	"...changes in riparian wetlands would likely not be detectable downstream for the mine site."	We recommend that the DEIS provide evidence that supports this statement.
4.24-2	4.24.2.1	South Fork Kaktuli section	We recommend that the DEIS clarify whether Figure 2.24-1 includes all the streams in the SFK footprint.
4.24-4	4.24.2.2	"Sockeye salmon are known to use shoreline habitat..."	We do not recommend citing the EPA report to support the statement that spawning areas are >0.5 miles from ferry terminals; sampling was not done to test this statement.
4.24-6	4.24.2.3		We recommend that the DEIS clarify why a net reduction in streamflow is predicted. The text explains how water may be captured and stored and released at different times, but it does not explain why water is lost. (e.g., is some water being exported from basins via some other process?)
4.24-7		"Treated water releases from mine site facilities would be optimized to benefit priority species and life stages for each month and stream."	We recommend that the DEIS specifically explain how this would be done, for each species and for each stream. Without details, it is not possible to evaluate the effectiveness of the strategic treated water discharge system and, therefore, the extent to which it would reduce impacts.
4.24-8		"Throughout the mine site area in average precipitation years, Chinook and coho spawning habitat would be reduced, which chum, sockeye, rainbow..."	We recommend that the DEIS provide evidence/data that supports this statement.
4.24-8	Table 4.24-3		We recommend that the DEIS provide information on how values were calculated. We also note that habitat area is discussed as proportions or stream miles in Chapter 3, but here switches to areal estimates, which is confusing. We recommend presenting the information in a consistent manner across Chapters 3 and 4.
4.24-9	Table 4.24-3		We recommend clarifying whether changes in available habitat for different species (e.g. Table 4.24-3) are being calculated downstream of the footprint only, or whether the calculations also incorporate losses due to the project footprint. We recommend clarification of this point in tables and text, as the reader may interpret these as net changes to habitat, with all sources considered, and it is not clear if that is the case.
4.24-11	4.24.2.4	"The extent or scope of the loss of	This sentence lacks the necessary supporting

		riparian productivity would likely be limited to waters in the vicinity of the mine site footprint, and may not be measurable or detectable downstream from the affected stream channel."	data or information. We recommend also clarifying more specifically what this sentence conveys (e.g., "extent," "scope," "limited to waters in the vicinity of the mine site footprint," and "downstream from the affected stream channel".) so that decision makers and the public can better understand the impacts of the project.
4.24-16	4.24.2.4	Water temperature	We that the DEIS discuss the methods for the analysis of expected water temperature changes in Section 4.24.2.7 or provide information on where those methods can be found.
4.24-25	4.26.6		We recommend that the DEIS clarify how cumulative stream miles blocked or captured by the proposed activities was calculated.
4.24-26	4.24.6		We recommend that this section include actual estimates for additional stream miles and wetland acres affected by the buildout, as well as how this may affect fish habitat and population. This information will help to support existing, more general, text.
4.24-25	4.24.6		The cumulative effects section contains many relative and imprecise terms regarding potential effects. We recommend providing additional detail to clarify statements of increases or decreases. As discussed above, statements without indication of geographic extent, magnitude, or significance, make it very difficult for the reader to evaluate the differences among and importance of the various potential impacts from this project.
4.24-25	4.24.6		The cumulative effects analysis does not fully discuss induced development; that is, the likely enhanced potential for multiple human uses and expansion into the study region and associated impacts. The induced development impacts from the project may include, but not be limited to, increased potential for spills and the introduction of invasive species. We recommend including additional analysis of what development of this region would mean for fish values into the future.