

National Park Service Comments – Pebble Project Preliminary Draft EIS, Section 3.24 - Fish Values

Agency	Comment Number	Section, Paragraph, and Page #	Relevant Text/Subject	Comment	Response
NPS	1	3.24.1.1, pg: 1	Throughout most of its length, the mainstem NFK is a low-gradient (mostly 0.1 to 0.8 percent), unconfined, meandering, single-thread channel bordered by shrub and dwarf shrub riparian species dominated by willows (R2 et al. 2011).	NPS staff with significant field time in this region respond to this description with the following: “the North Fork Koktuli is not a single-thread channel, rather it is a highly diverse system containing braided sections, wetlands, floodplains, beaver complexes, and during spring and fall, when it floods, this system joins with the Upper Talarik system headwaters.”	Comment addressed. Text revised to more accurately describe the NFK baseline conditions.
NPS	2	3.24.1.1, pg: 1	Beaver ponds and other off-channel habitats are widely distributed throughout most of the NFK (Table 3.24-1). Off-channel habitats, which include side channels, percolation channels, alcoves, isolated ponds, riverine wetlands, and beaver ponds, are hydrologically connected to the NFK via surface flows or groundwater upwelling	This supports the fact that the the NFK is not a single channel.	Comment addressed. See previous response.
NPS	3	3.24.1.1, pg: 1	Instream cover for fish rearing is relatively scarce in the mainstem NFK due to the absence of large riparian trees and associated woody debris; but cobble substrates, undercut banks, and overhanging vegetation provide some refugia	Fish, particularly age 1 and 2 Chinook Salmon, rear throughout the mainstem NFK as well as in the abundant off channel ponds and tributaries that were not studied.	Comment acknowledged. Mainstem and off-channel rearing is discussed in Sections 3.24 and 4.24, Fish Values. Significant effort over multiple years was allocated to sampling off-channel habitat in “intensive study areas” in each of the 3 subbasins. Sampling included fish utilization. Results from intensive study areas were then extrapolated to remaining off-channel habitat along each mainstem reach (R2 et al. 2011, R2 et al. 2018).

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NPS	4	3.24.1.1, pg: 2	Chinook salmon spawning habitat occurs throughout the lower 20 miles of the NFK below the mine site, and extends into the upper NFK adjacent to Big Wiggly Lake. The majority of spawning habitat occurs in the first 10 miles of the NFK approximately 20 miles downstream from the mine site	The study conducted by R2 was not sufficiently rigorous or quantitative to determine where the majority of location by species. Their studies only focused on the mainstem away from the mine site, excluded all tributaries and off channel habitats, used varying methodology, does not provide a clear picture of salmon and therefore subsistence species use of the habitats in that area. Their biological models were based on very few observations.	Spawning surveys were conducted via aerial overflights over 6 years (2004-2009) with multiple surveys (at 1-3 week intervals) during spawning seasons for 4 species of salmon. Spawning surveys included mainstem reaches of all 3 subbasins as well as several primary tributaries (R2 et al. 2011, R2 et al. 2018). There were 235 surveys conducted in mainstem reaches and 156 surveys covered tributary reaches. Surveys followed accepted protocols for index counts and are considered sufficient in scope and effort to assess relative distribution and abundance throughout the majority of the study area.
NPS	5	3.24.1.1, pg: 2	Preferred coho spawning habitat appears to be in the 10 miles of mainstem immediately downstream of the mine site based on field observations (R2 et al. 2011).	No defensible quantitative habitat "preference" studies were conducted to support such a statement. Studies were conducted on portions of the 3 mainstem rivers well away from the mine impact zone; smaller tributaries that occur throughout the watersheds and extend into the proposed mine site and support Coho, Sockeye, Chum, and Chinook spawning and Coho, Sockeye, and Chinook rearing as well as resident species were not studied.	Comment acknowledged. Spawning surveys in the NFK and UTC did extend to reaches proximal or upstream of the mine site and also included principal tributaries to each of the 3 mainstem reaches. Surveys in the NFK extended above the mine site including Big Wiggly Lake for sockeye and extended into headwater reaches for coho. UTC surveys for sockeye in 2009 extended to headwater reaches above the mine site. Spawning surveys in the SFK did not extend upstream of Frying Pan Lake due to the rarity of juvenile salmon observed in that area.

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NPS	6	3.24.1.1, pg: 2	Groundwater studies indicate that surface waters percolating into the NFK groundwater remain in the NFK subbasin, and do not transfer to either the SFK or UTC subbasins. Emerging groundwater	During flood events in spring and fall the NFK, SFK and UTC can all be joined at the headwaters and the wetland complex unites into one very large wetland. This indicates that there can be mixing and potential transference among basins. Groundwater transfers from SFK to UTC; This should be mentioned. See EBD.	Comment acknowledged. Connection between the SFK and UTC via groundwater transfer is discussed under “Upper Talarik Creek”.
NPS	7	3.24.1.1, pg: 4	Table 3.24-1	How was this estimated and where can the data be found? NPS was unable to locate the reference.	Data from R2 et al. 2011, as noted in the footnote. Habitat proportions were based on mesohabitat mapping surveys conducted in mainstem reaches, and in off-channel study sites.
NPS	8	3.24.1.1, pg: 4	² Other off-channel habitats include beaver pond outlets, alcoves, isolated ponds, side channels, and percolation channels. Source: R2 et al. 2011	Please provide source, unavailable to verify.	Data from R2 et al. 2011, as noted in the footnote.
NPS	9	3.24.1.1, pg: 5	Loss of surface flow in this reach is due to thick, permeable glacial deposits and an average transfer of 22 cfs from the SFK basin into the UTC basin via groundwater exchange. Groundwater remaining in the SFK basin re-emerges at the downstream end of the dry reach 20 miles above the NFK confluence (Knight Piésold et al. 2011).	However, fish move among available habitats during spring and fall especially, when floods occur and connect all three basins.	Comment acknowledged.

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NPS	10	3.24.1.1, pg: 6	Chinook salmon spawning habitat has been documented from the SFK/NFK confluence upstream to Frying Pan Lake (Table 3.24-2), although more recent sampling indicated preferred spawning habitat occurs in the lower 20 miles of the SFK (R2 et al. 2011).	If more rigorous spawning preference studies have been conducted for this region please share with cooperating agencies.	See response to comment No. 5.
NPS	11	3.24.1.1, pg: 6	Chinook habitat does not extend into the upper SFK basin above Frying Pan Lake or in the footprint of the mine site. However, rearing habitat occurs throughout the mainstem below Frying Pan Lake, and in the lower 4 miles of SFK Tributary 1.19, which drains the southern side of Kaskanak Mountain.	Chinook Salmon are documented in the mine footprint, see the AWC.	Text will be revised to specify the “footprint within the SFK drainage”, where only coho have been observed at a single location in 2008, at the south edge of the mine pit (AWC).
NPS	12	3.24.1.1, pg: 12	Arctic char are also known to inhabit the Newhalen River between Sixmile Lake and Iliamna Lake.	Arctic Grayling, Lake Trout, Northern Pike, Humpback Whitefish and many other species used for subsistence also occur in this region.	Comment acknowledged.
NPS	13	3.24.1.1, pg: 13	Juveniles and adults of all five salmon species use the lake habitat as a migration corridor between Bristol Bay and Iliamna Lake, via the Kvichak River.	Should Lake Clark be included here? A significant proportion of the Kvichak run returns to Lake Clark National Park and also uses Iliamna Lake as a migration corridor (and may even rear there).	Comment acknowledged. Definitions of the mine site and transportation corridor analysis areas were inserted into the introduction to Section 3.24. Lake Clark is outside of the EIS analysis area.
NPS	14	3.24.1.1, pg: 13	South Access Road	It is highly probable that more streams are anadromous along this proposed road corridor. Should this alternative be selected further identification of anadromous bodies of water would need to occur.	Intensive fish sampling was conducted along the Port (South) Access Road in 2018, including 72 sites between Kokhanok and the Amakdedori port site. Results from these surveys, which did identify additional anadromous waters, have been added to the DEIS.

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NPS	15	3.24.1.1, pg: 14	Mine Site North Fork Koktuli River	Relative to the Mine Site itself, there is abundant fish survey data (ADFG Anadromous Waters Catalog and Fresh Water Fish Information Database) indicating subsistence species that occur in the potential mine impact zone. This information can be downloaded from ADFG and published in this document to better inform the public of subsistence fishery trade-offs. For example, Chinook, Coho, Sockeye and Chum Salmon all occur in the proposed mine impact area, both spawning and rearing. A GIS map showing the known distribution of these species would assist subsistence users in understanding potential trade-offs.	The AWC was extensively queried and utilized in all fish-related sections of this EIS (as noted in the beginning of Section 3.24.1.1), including the mileages listed in Table 3.24-2 and in the various species lists by subbasin or transportation corridor site. Figures 3.24-2, -3, and -4 show the relative composition of anadromous and resident fish species in the 3 subbasins. Additional details on resident species distributions can be found in the EBD (R2 et al. 2011).
NPS	16	3.24.1.1, pg: 14	Pink salmon (<i>Oncorhynchus gorbuscha</i>) are documented in the mainstem Koktuli River and the UTC, but do not occur in the NFK.	Recommend changing to "are not documented" since observations are too limited to say Pink Salmon actually don't occur.	Comment acknowledged. Text will be revised.
NPS	17	3.24.1.1, pg: 14	Adult sockeye have been documented entering the NFK as early as July 5, with peak documented spawner counts occurring in a 1-week window between July 27 and August 4.	Run timing into Bristol Bay as well as mainstem rivers and tributaries has changed over the years since the EBD studies were conducted almost a decade ago. These run timing studies should be repeated to verify what the new range of run timing is relative to both changing salmon densities and thermal regimes as it combined with mining can impact subsistence users.	Comment acknowledged. The timing of fish runs is variable and dependent on several variables. Run times are considered approximate. The requested information would not be essential to make a reasoned choice among alternatives.
NPS	18	3.24.1.1, pg: 17	Table 3.24-5: Estimated Life Stage Periodicities of Select Fish Species within NFK, SFK and UTC Waterbodies	Because the original pebble EBD is so limited e.g. to primarily mainstem sections of 3 tributaries away from the proposed mine impact zones, this data chart should be proofed against ADFG databases for accuracy.	Comment acknowledged. Table 3.24-5 has been updated in the DEIS.
NPS	19	3.24.1.1,	Juvenile sockeye salmon were	This statement does not make sense, if they	Comment acknowledged. Text will be

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		pg: 20	observed in April, July, and August; and based on length frequency, distributions indicate two age classes: young-of-the year, and 1+ age fish. Juvenile densities were low throughout the UT, suggesting typical downstream migration to lake-rearing habitat soon after emergence.	are migrating downstream after emergence, then you would not have two age classes. Also, river populations of Sockeye Salmon will rear in sloughs and off channels.	modified to clarify that, although some older juveniles rear in the UTC, most 0+ juveniles emigrate downstream to Iliamna Lake soon after emergence.