MARINE MAMMAL COMMISSION

1 July 2019

Program Manager
U.S. Army Corps of Engineers
645 G Street, Suite 100-921
Anchorage, Alaska 99501

Dear Sir/Madam:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the draft environmental impact statement (DEIS) developed by the U.S. Army Corps of Engineers (USACE) for the proposed Pebble Project. The Marine Mammal Protection Act of 1972 (MMPA) established the Commission to provide oversight of and advise federal agencies on policies and activities that may affect marine mammals and the ecosystems upon which they depend.

The Pebble Limited Partnership (PLP) proposed to develop a copper-gold-molybdenum open-pit mine in the Lake and Peninsula Borough and Kenai Peninsula Borough in southwestern Alaska. PLP's Proposed Alternative (Action Alternative 1) is the proposed Pebble Project. It involves construction of a 29-mile road from the mine site to a ferry terminal to be constructed on the north side of Iliamna Lake west of Newhalen and Iliamna; an 18-mile ice-breaking ferry crossing to transport mineral concentrate, fuel, and consumables; a 37-mile road from a ferry terminal to be constructed on the south side of Iliamna Lake west of Kokhanok to a port to be constructed on Cook Inlet at Amakdedori Creek; approximately 11 miles of spur roads to the villages of Iliamna, Newhalen, and Kokhanok; lightering locations in Cook Inlet; an 187-mile natural gas pipeline across Cook Inlet from the Kenai Peninsula to the Amakdedori port and across the transportation corridors and Iliamna Lake to the mine site; and power-generating facilities at the mine and port sites. The mine has a projected operating life of 20 years, with mine closure and monitoring extending for several years thereafter.

The USACE evaluated two additional action alternatives to Pebble Project's Proposed Alternative and a No Action Alternative in the DEIS. Those two additional action alternatives involve—

- Action Alternative 2 (termed the North Road and Ferry Alternative with Downstream Dams): This alternative would route the mine access road north and west of Iliamna to a ferry terminal in Eagle Bay; route the ferry from Eagle Bay to Pile Bay on the northwestern edge of the lake; and route the port access road from Pile Bay to Diamond Point, on the west side of Cook Inlet near Williamsport and north of Amakdedori Creek;

- Action Alternative 3 (termed the North Road Only Alternative): This alternative would eliminate the ferry across Iliamna Lake and instead construct a road to transport materials from the mine site to a port at Diamond Point.

The USACE also evaluated four variants associated with certain alternatives. Those variants included (1) stockpiling concentrate at the mine site and conducting ferry operations only during the summer open-water season, rather than year-round (the Summer-Only Ferry Operations Variant)[1]; (2) relocating the south ferry terminal to east, rather than west, of Kokhanok (the Kokhanok East Ferry Terminal Variant)[2]; (3) constructing a pile-supported dock structure at the port rather than the proposed sheet pile dock structure (the Pile-Supported Dock Variant)[3]; and (4) transporting ore concentrate from the mine site to the port using a 6.25-in steel pipeline, rather than using trucks (the Concentrate Pipeline Variant)[4].

The Commission is concerned that construction and operation of the Pebble Project could have significant long-term impacts on the wildlife and communities of Iliamna Lake, adjacent rivers, and Bristol Bay. Those impacts involve the transportation, use, storage, and disposal of chemicals and other hazardous materials used in construction and operation of the mine and associated facilities (including fuel, lubricants, tires, reagents, and explosives), as well as the transportation, disposal, and accidental release of mining by-products (including contaminated wastewater, leachate, and tailings). Given the long-term and potentially irreversible nature of the impacts, the Commission encourages PLP, USACE, and the State of Alaska to continue consultations with wildlife specialists and with local communities to ensure that concerns regarding potential environmental contamination and its impact on the health of marine mammals, their prey, and the people who consume hunted animals are considered and addressed before final decisions are made regarding the future of the project.

In addition to the broader potential impacts of the Pebble Project, the Commission is concerned that the project, as proposed, has the potential to adversely impact marine mammals that inhabit Iliamna Lake, Cook Inlet, and Bristol Bay. Specifically, the Commission's concerns pertain to impacts of certain project components on—

- freshwater harbor seals that reside year-round in Iliamna Lake;
- sockeye salmon and other fish species that are prey for Iliamna Lake harbor seals and Bristol Bay marine mammals;
- Alaska Native communities that depend on Iliamna Lake harbor seals and other marine mammals for subsistence; and
- sea otters, beluga whales, and other marine mammals that occur near port facilities in Cook Inlet.

[1] This variant was evaluated only for Action Alternatives 1 and 2.
[2] This variant was evaluated only for Action Alternative 1.
[3] This variant was evaluated only for Action Alternative 2; Action Alternative 3 has the same port component.
[4] This variant was evaluated only for Action Alternative 3.

Iliamna Lake harbor seals[5]

Iliamna Lake is habitat for one of only two known entirely freshwater populations of harbor seals in the world[6]. Iliamna Lake harbor seals are part of the Bristol Bay stock of harbor seals, one of 12 stocks of harbor seals identified by the National Marine Fisheries Service (NMFS) that occur in Alaska (Muto et al. 2019). The harbor seal population in Iliamna Lake is thought to be stable (Burns et al. 2016), with abundance estimated at approximately 400 animals (Boveng et al. 2018). Iliamna Lake has access to Bristol Bay via the Kvichak River. Harbor seals have been sighted at various locations along the river, but there is no documented evidence of immigration or emigration of seals to and from Bristol Bay (Burns et al. 2016). Genetic analyses indicate that the harbor seals in Iliamna Lake are distinct from Bristol Bay and other populations of harbor seals based on a comparison of mitochondrial haplotypes and nuclear markers (Burns et al. 2018). Isotope analyses indicate that the harbor seals are year-round residents of the lake that feed on freshwater fish species[7] when young and sockeye salmon as they mature (Burns et al. 2016, Brennan et al. 2019). Iliamna Lake seals use nearshore areas for feeding and islands within the lake for pupping, molting, and resting (Withrow et al. 2011, Burns et al. 2016). Feeding areas are located throughout the lake in spring and summer depending on the location of prey, with winter feeding occurring predominantly in the northeastern part of the lake near Pedro Bay (Burns et al. 2016). Pupping occurs after the ice starts to break up, in June and July, with pups weaned by the end of August (Burns et al. 2016). Seals haul out during these times on islands primarily in the northeastern area of the lake, extending to and including Seal Islands I, II, and III (Burns et al. 2016). Seals generally are less abundant in the southwestern part of the lake, particularly in winter (Burns et al. 2016). During the winter seals remain in the lake, presumably using cracks, nearshore leads, and spaces under the ice for breathing (Burns et al. 2016).

NMFS was petitioned in 2012 to list Iliamna Lake harbor seals under the Endangered Species Act (ESA). NMFS determined in 2013 that the listing may be warranted due to several factors, including the population's small size and its vulnerability to the effects of climate change and construction and operation of the proposed Pebble Project. (78 Fed. Reg. 29098). The Commission agreed with that finding in a 16 August 2013 letter to NMFS. After completing a status review and scientific evaluation of harbor seals in Iliamna Lake (Boveng et al. 2016), NMFS determined that, although the Iliamna Lake population of harbor seals is genetically distinct from harbor seals in Bristol Bay and elsewhere, the seals are not considered ecologically significant to the Pacific harbor seal subspecies and hence do not constitute a distinct population segment. NMFS concluded that an ESA listing therefore was not warranted (81 Fed. Reg. 81074).

Nevertheless, the Commission believes that effective measures to mitigate the impacts of the Pebble Project on Iliamna Lake harbor seals are warranted and necessary because of (1) the discreteness of the Iliamna Lake harbor seal population, (2) its dependence on freshwater fish and salmon as prey, (3) its dependence on ice and island haul-out sites within the lake year-round for resting and pupping habitat, and (4) the reliance of Alaska Native communities on this population of harbor seals for subsistence use.

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[5] This section includes reference to more recent studies that were not included in the DEIS.
[6] The other freshwater harbor seal is found in Lac des Loups Marins and its surrounding water bodies in the Ungava Peninsula of northern Québec, Canada, which is listed as Endangered on the IUCN Red List of Threatened Species (Harvey 2016).
[7] Including Arctic grayling, threespine stickleback, lake trout, and other fish species (Burns et al. 2016).

Effects of the proposed project on Iliamna Lake harbor seals

The Pebble Project, as proposed in Action Alternative 1, has the potential to disturb Iliamna Lake harbor seals on an on-going basis. The primary source of disturbance is likely to be sound associated with construction of the 'ferry/barge'[8] terminals and the daily round-trip crossings that are expected to involve ice-breaking during the ice-covered season (which could last more than 100 days each year). Sound generated by a vessel during ice-breaking activities could be louder and more variable than sound from an open-water vessel, depending on the type of vessel used and the extent of ice cover. The applicant has estimated that the barge would operate at relatively slow speeds (6 to 11 knots) during daily round-trip crossings. During the open-water season, a round-trip crossing would take approximately three hours; in the ice-covered season, a round-trip crossing would take approximately six hours (Chapter 2.2.2.2 of the DEIS). Neither estimate appears to include time spent at each terminal with engines idling. Increased sound levels associated with vessel operations and the presence of a large vessel near haul-out and feeding areas could result in the interruption of important behaviors such as resting, feeding, and pupping (Jones et al. 2017, Mikkelsen et al. 2019). Ice-breaking activities and increased vessel traffic in the ice-covered season also could lead to seals hauling out at different sites and feeding in different areas. In addition, the presence of a large vessel operating on the lake, especially in ice-covered conditions, would increase the risk of accidental oil spills or other hydrocarbon releases into the lake environment. Even small oil spills have the potential to adversely impact seals, their prey species, and other marine wildlife.

The 'Summer-Only Ferry Operations Variant' would eliminate sound and the increased travel time due to ice-breaking activities, but it would double the number of round trips necessary on a given day during the open-water season, thereby increasing cumulative sound exposure levels and the risk of oil spills. The 'Kokhanok East Ferry Terminal Variant' would move the south terminal to the east (closer to Kokhanok), which would increase the length of the route from 18 to 27 miles. The increased transit time[9] also would increase cumulative sound exposure levels and would route the vessel closer to Seal Island II, where seal pupping occurs during summer (Burns et al. 2016). Action Alternative 2, which would route the barge from Eagle Bay to Pile Bay in the northeastern part of the lake, would lengthen the route from 18 to 29 miles, increasing travel time[10] and sound exposure levels, and would involve travel through the areas of the lake most heavily used by the seals for feeding, resting, and pupping, thereby significantly increasing the potential for disturbance of seals.

Action Alternatives 1 and 2 would involve construction of the terminals and installation of a natural gas pipeline across the lake. Those activities would occur during the open-water season in areas where seals pup, rest, and feed. The potential disturbance of seals at haul-out sites is increased under the 'Kokhanok East Ferry Terminal Variant' of Action Alternative 1 and under Action

[8] Ferries are ships that are typically used to transport people, smaller vehicles, and goods from one port to another, usually on a regular schedule; whereas, barges are large flat-bottomed vessels used for transport of heavy goods or bulk cargo down rivers or across other bodies of water (https://wikidiff.com/ferry/barge). Given the description in the DEIS of how the project-associated vessels would be used to transport ore concentrate and other materials (Chapter 2.2.2.2), the term 'barge' seems more accurate and is used also herein to describe the vessels proposed for lake crossings.
[9] Four additional hours per day in the ice-covered season and two additional hours per day in the open-water season.
[10] Similar to the Kokhanok East Ferry Terminal Variant, this route would result in four additional hours per day in the ice-covered season and two additional hours per day in the open-water season.

Alternative 2, as both include locating the terminals (and pipeline, under Action Alternative 1) closer to seal feeding, resting, and pupping areas.

Effects of the proposed project on other marine mammals in the Bristol Bay region

Indirect effects of the Pebble Project include habitat alteration and decreased water quality in Iliamna Lake due to ferry terminal construction, pipeline installation, contamination by mine tailings and leachate, and vessel traffic associated with barge crossings. Those effects, both short- and long-term, have the potential to result in reduced abundance of sockeye salmon and other harbor seal prey species, and thereby indirectly impacting the seals' fitness and survival. Reduced abundance of sockeye salmon and other salmonids that spawn in Iliamna Lake also could impact the foraging efficiency of several species of marine mammals that feed on salmon in Bristol Bay and the North Pacific Ocean, including beluga whales, harbor seals, and killer whales.

Effects of the proposed project on Alaska Native subsistence use

Harbor seals in Iliamna Lake are an important subsistence resource for several Alaska Native communities bordering the lake, particularly Iliamna, Newhalen, Kokhanok, Pedro Bay, and Igiugig (Fall et al. 2006, Chythlook et al. 2010, Burns et al. 2016). In a survey of households conducted in several of these communities, 21 to 33 percent of households indicated they hunted seals and 43 to 44 percent of households indicated they use seals for subsistence (Chythlook et al. 2010). Alaska Native households also reported sharing harvested seals with relatives in other communities (Fall et al. 2006, Burns et al. 2016), which underscores the importance of access to seals for subsistence. Hunters typically harvest seals more often in spring, when seals start hauling out on pressure cracks in the ice; however hunting does occur year-round (Burns et al. 2016). Hunters report that they avoid hunting seals in feeding areas or when seals are pupping (Fall et al. 2006). When households were asked about the potential effects of the Pebble Project on subsistence hunting of seals, hunters indicated that barge traffic would disturb seals that are hauled out (Fall et al. 2006). Other community concerns included increased emissions and reduced air and water quality from roads and associated impacts on local residents and the environment.

Given the concerns regarding disturbance to harbor seals and their habitat and prey, the Commission recommends that USACE require LPL to undertake additional and continued studies before construction is initiated to (1) better characterize seasonal habitat-use patterns of Iliamna Lake harbor seals, including pupping, resting, and feeding behavior, (2) better characterize Alaska Native subsistence hunting, use, and sharing of seals, (3) assess the potential for vessel traffic to impact seal habitat use, and (4) determine the expected contributions of sound from vessel traffic and construction activities in the ice-covered and open-water seasons to the overall Iliamna Lake soundscape. The Commission further recommends that USACE require LPL to use the information collected from such studies to further inform project design, mitigation, and the development of the proposed Wildlife Management Plan and associated best management practices to reduce impacts to harbor seals and Alaska Native subsistence hunters and users.

If the Pebble Project goes forward, the Commission recommends that USACE select Action Alternative 3 (the North Road Only Alternative) as the Preferred Alternative rather than Action Alternative 1 due to Alternative 3 being the least likely to have adverse effects on Iliamna Lake harbor seals, their prey, and on Alaska Native subsistence hunting. The Commission further

recommends that USACE implement the 'Concentrate Pipeline Variant' to Action Alternative 3 to reduce the potential for adverse impacts on air and water quality caused by truck traffic on the North Road.

If USACE determines that use of a vessel to transport materials across Iliamna Lake to and from the mine site is necessary, the Commission recommends that USACE select Action Alternative 1 without the 'Kokhanok East Ferry Terminal Variant' to minimize disturbance of harbor seals that haul out north of Kokhanok. In addition, the Commission recommends that USACE investigate further whether to allow operation of the icebreaker vessel in the ice-covered season, with particular focus on the potential to disturb seals and to impact Alaska Natives' access to seals for subsistence use.

Effects of the proposed project activities on sea otters and beluga whales[11] in Cook Inlet

Project activities that have the potential to impact other marine mammals directly include construction of the Amakdedori or Diamond Point port terminals on the west side of Cook Inlet and, to a lesser extent, installation of the natural gas pipeline across Cook Inlet. Of greatest concern are potential impacts on beluga whales and sea otters that may occur in or near the project area.

Cook Inlet beluga whales are listed as endangered under the ESA, and NMFS has identified the Cook Inlet beluga whale as a "Species in the Spotlight" due to its status as one of eight marine species most at risk of extinction in the near future. The beluga whale population in Cook Inlet declined precipitously during the 1990s, presumably due to overharvesting. Although subsistence hunting is no longer occurring, the population continues to decline at a rate of about 0.4 percent annually and currently numbers approximately 328 individuals (Shelden et al. 2017, NMFS 2018). Assessing and managing the effects of human-caused sound in Cook Inlet, including sound from construction, energy production, and vessel traffic, has been identified as a top priority for the conservation and recovery of Cook Inlet beluga whales (NMFS 2016). The proposed Amakdedori Creek and Diamond Point port terminals are located within the southern portion of beluga whale critical habitat, which extends as far south as the mouth of the Douglas River (76 Fed. Reg. 20180). The extent to which the southern portion of critical habitat is currently used by beluga whales appears to be limited in summer (Rugh et al. 2010, Shelden et al. 2017). However, satellite tagging and year-round acoustic monitoring in Cook Inlet suggests a broader distribution of beluga whales in the lower inlet during fall and winter, as far south as Chinitna Bay on the western side of the inlet and the Kenai River on the east (Castellote et al. 2016, Shelden et al. 2018).

The southwest Alaska distinct population segment (DPS) of the northern sea otter is listed as threatened under the ESA. Sea otters have relatively small home ranges[12] and feed on benthic invertebrates in the subtidal and intertidal zones in waters less than 40 m deep (Fish and Wildlife Service (FWS) 2014). Both the Amakdedori and Diamond Point port terminals are located within the designated critical habitat for the southwest Alaska DPS (74 Fed. Reg. 51988). Aerial surveys of sea otters in lower Cook Inlet have identified the location of both of the proposed ports as being in high density sea otter areas, with sea otters sighted regularly in nearshore waters west of Augustine Island and in Kamishak Bay (Garlich-Miller et al. 2018).

[11] This section includes reference to more recent studies that were not included in the DEIS.
[12] Adult female sea otters range from a few to 24 km^2 and adult males range from 4 to 11 km^2 (FWS 2014).

Pile driving and pipeline installation activities have the potential for short-term harassment of marine mammals through acoustic disturbance. Sound levels associated with port construction would vary depending on the type of pile-driving method used (impact vs. vibratory vs. both) and the duration of pile-driving activities (per day and also number of days). Similarly, impacts from pipeline installation would vary depending on installation method and duration. As noted below, PLP should work with the appropriate federal agency (NMFS for whales, porpoises, seals, and sea lions or FWS for sea otters) to develop robust mitigation measures to reduce sound associated with port construction (specifically pile driving) and pipeline installation activities to minimize potential impacts to beluga whales, sea otters, and other nearshore marine mammals in Cook Inlet.

MMPA incidental take requirements

All marine mammals are protected under the MMPA. Any operator proposing to engage in activities that have a reasonable likelihood of taking any marine mammal (e.g., by harassment[13]) needs to obtain an incidental take authorization, in accordance with section 101(a)(5)(A) or (D) of the MMPA, before commencing activities that could result in the taking of marine mammals.[14] Those provisions require that the taking be limited to "small numbers" of marine mammals, have no more than a negligible impact on such species or stocks, and not have an unmitigable adverse impact on the availability of marine mammals for subsistence use by Alaska Natives. In addition, the MMPA requires that any such taking authorization include means of effecting the least practicable adverse impact on marine mammal species and stocks and their habitat, particularly rookeries, mating grounds, and areas of similar significance.

To minimize the potential for adverse impacts on marine mammals during the proposed activities, the Commission recommends that USACE require lessees and operators to obtain incidental harassment or take authorizations from NMFS (for whales, porpoises, seals, and sea lions) or FWS (for sea otters) for all activities that have the potential to injure or disturb marine mammals or adversely impact important marine mammal habitat. Inasmuch as such authorizations need to include appropriate mitigation measures to minimize potential adverse impacts, the EIS should discuss those requirements, factor them into the selection of the Preferred Alternative, and provide additional details regarding their proposed implementation in the Wildlife Action Plan and Best Management Practices.

[13] Harassment, as defined by section 3(18) of the MMPA, includes actions that have "the potential to injure a marine mammal or marine mammal stock…" or that have "the potential to disturb a marine mammal or marine mammal stock…by causing disruption of behavioral pattern…."

[14] The issuance of an incidental harassment or take authorization by NMFS or FWS for any ESA-listed species also would require consultation under section 7 and issuance of an incidental take statement under section 7(b)(4) of the ESA.

The Commission appreciates the opportunity to comment on the DEIS and hopes that USACE finds our recommendations helpful. Please contact me if you have any questions concerning the points raised in this letter.

Sincerely,

Peter O. Thomas, Ph.D.,
Executive Director

cc: NMFS Protected Resources Division, Alaska Regional Office
FWS Office of Marine Mammals Management, Alaska Region

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