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Pebble Project EIS

Draft Environmental Impact Statement

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PEBBLE PROJECT

DRAFT ENVIRONMENTAL IMPACT STATEMENT

VOLUME 4: CHAPTERS 5 – 9

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5.0 MITIGATION

5.1 INTRODUCTION

The Environmental Impact Statement (EIS) serves in part to inform the public and review agencies of mitigation measures, project elements, or other environmental protections that are included to reduce or avoid impacts. This chapter provides an overview of mitigation; describes avoidance and minimization measures incorporated as a component of a proposed project, or as a measure being considered in the course of the National Environmental Policy Act (NEPA) review conducted to support agency decision-making processes; and summarizes avoidance, minimization, and compensatory mitigation under the Clean Water Act (CWA).

5.1.1 Overview of Mitigation

NEPA requires federal agencies to consider appropriate mitigation measures to avoid, minimize, rectify, reduce or eliminate, and/or compensate for specific impacts (Council on Environmental Quality [CEQ] 1981; CEQ 2011). Consideration of project mitigation is a continuous process through completion of the EIS and Record of Decision (ROD). This includes efforts made as part of the project design or standard procedures; best management practices (BMPs), industry standards, or standard permit requirements; and assessment of measures recommended for consideration during the NEPA process.

Additionally, the US Army Corps of Engineers (USACE), pursuant to Section 404 of the CWA, has very specific requirements for mitigation, including a sequence of: 1) impact avoidance; 2) minimization; and 3) compensatory mitigation for unavoidable impacts under their jurisdiction. Mitigation measures are also developed through other processes, such as consultation under Section 106 of the National Historic Preservation Act (NHPA), permit authorization by other federal and state agencies, and monitoring and adaptive management associated with specific permit requirements.

5.1.2 Definitions and Process

A general description of the key terms used in this chapter is provided in Table 5-1. Where mitigation measures are analyzed as part of PLP's proposed alternative (Action Alternative 1 – Applicant's Proposed Alternative), their effectiveness in avoiding or reducing potential impacts has been taken into consideration in assessing potential environmental consequences.

Table 5-1: Terminology Used in the EIS

Term	Description
Mitigation	Measures that avoid, minimize, rectify, reduce over time, or compensate for specific impacts of a proposed action, as outlined in 40 Code of Federal Regulations (CFR) Part 1508.20.
Applicant's Proposed Mitigation	Impact-reducing actions or designs that an applicant has committed to as part of their proposed project. Commonly referred to as avoidance and minimization or design features. These measures would be implemented by Pebble Limited Partnership (PLP) as integral components of the proposed project design.
Best Management Practices and Industry Standards	Best management practices (BMPs) and industry standards are predictable actions necessary to comply with regulations and standard permit requirements that are designed to reduce impacts to the environment. These are typically reflected in the applicant's design, and are analyzed as part of the proposed project. For example, the

Table 5-1: Terminology Used in the EIS

Term	Description
	Construction General Stormwater Permit for Storm Water Discharges for Large and Small Construction Activities (2016 CGP, AKR100000) would require a Storm Water Pollution Prevention Plan (SWPPP).
Agency Considered Mitigation	Relevant and reasonable measures (not already included in the proposed project) that could prevent or minimize damage to the human environment[1]. Note: These measures are not considered part of the proposed project and are not considered in the impact assessments in Chapter 4, Environmental Consequences. Special conditions are added to Department of the Army permits when such conditions are necessary to satisfy legal requirements or to otherwise satisfy the public interest requirement. Permit conditions will be directly related to the impacts of the proposal, appropriate to the scope and degree of those impacts, and reasonably enforceable. The decision document prepared following completion of the EIS will identify those mitigation measures that the federal agencies are adopting and committing to implement (CEQ 2011).
Compensating for Unavoidable Impacts	Compensating for an impact by replacing or providing substitute resources or environments is one way an agency can use mitigation to reduce environmental impacts associated with proposed projects (40 CFR Part 1508.20; CEQ 2011). Compensatory mitigation may be required under the CWA for impacts to waters of the US (WOUS) that cannot be avoided or minimized. Compensatory mitigation requirements are identified in the ROD based on the Final EIS (FEIS).
Monitoring and Adaptive Management	Through monitoring, appropriate data are collected to assess predicted project impacts and the effectiveness of mitigation after initial and ongoing implementation. Mitigation that is not proving effective can be adapted. Adaptive management is often defined as "a structured, iterative process of robust decision-making in the face of uncertainty, with an aim to reducing uncertainty over time via system monitoring." Mitigation monitoring can incorporate elements of adaptive management if monitoring results indicate a basis for changes to a mitigation program.

[1] Human environment is defined by NEPA Regulations (40 CFR Part 1508.14) as: the natural and physical environment and the relationship of people with that environment.

5.2 AVOIDANCE AND MINIMIZATION MEASURES UNDER NEPA

This section describes avoidance and minimization measures that would be incorporated as an integral component of the proposed project, and additional measures identified or recommended during the NEPA process that have been compiled and will be considered by the USACE and cooperating agencies as part of their permit decisions to further minimize project impacts.

5.2.1 Best Management Practices, Industry Standards, and Standard Permit Requirements

Numerous state, federal, and local government permits and approvals are required before development and operation of a mining project in Alaska can begin. Appendix E describes the relevant permits and regulatory requirements for the Pebble Project. These permitting processes and regulatory requirements are established to ensure that projects are designed, operated, and reclaimed in a manner consistent with applicable laws and regulations. Standard BMPs, agency permit requirements, and industry standards applicable to the project are a form of mitigation, and were considered when assessing the impacts of the project on the resources, as described in Chapter 4, Environmental Consequences.

5.2.1.1 Permitting for Large Mine Projects in Alaska

Many of the permits required for approval of the Pebble Project are under the jurisdiction of the State of Alaska. To coordinate state agency permitting and integrate federal and local permitting for large mining projects, the State of Alaska has developed a Large Mine Permitting Team (LMPT) process. The LMPT is an interagency group of regulatory experts that works cooperatively with large mine applicants and operators, federal resource agencies, and the Alaska public to ensure that projects are designed, operated, and reclaimed in a manner consistent with state laws and regulations. The goal of the LMPT process is to coordinate the sequencing and intergovernmental review of the numerous permits required of a large, complex hardrock mine. The following is a summary of the general process the state follows (ADNR 2017b).

Pre-Application. One of the first tasks for the LMPT is to work with the potential applicant to ensure the pending permitting process and regulatory requirements are understood, that appropriate baseline environmental data are collected, to define application information requirements, and develop a realistic schedule.

Permit Application. The applicant submits an application package, typically consisting of the Plan of Operations, Reclamation and Closure Plan, Waste Management Plan, reclamation and closure cost estimates, associated monitoring and management plans, and baseline study reports. The LMPT reviews the package to make sure all the necessary information for a complete review is included.

Review and Analysis. The LMPT collaboratively reviews the proposed plans and supporting documents to inform their respective agencies' permitting decisions, and to ensure the project design complies with all applicable state laws and regulations.

Issues Resolution. The team works with the applicant to resolve issues, usually resulting in modifications to the project design, operations, and monitoring plans.

Public Notice and Permit Issuance. Draft Plan of Operations Approval, Reclamation and Closure Plan Approval, Integrated Waste Management Permit, and financial assurance costs are publicly noticed, together with final proposed plans and supporting documents from the applicant. Public comments are reviewed by the LMPT and incorporated, as appropriate, into final agency approvals, which are then publicly posted on the Alaska Department of Natural Resources (ADNR) Large Mine Project website.

Post-Permit Issuance. Once the permits are issued and construction and operations begin, the LMPT is active in permit maintenance, site inspections, and compliance monitoring.

Reclamation and Final Closure. The LMPT ensures that reclamation and closure objectives are met, including long-term environmental management, and that financial assurances are in place to ensure an orderly and stable closure.

5.2.1.2 Best Management Practices

Pebble Limited Partnership (PLP) would follow BMPs and industry standards required to comply with regulations, and standard permit requirements that are designed to reduce impacts to the environment. A list of standard BMPs, permit requirements, and/or industry standards that would likely be required for the Pebble Project is provided below. This is not intended to be a complete list; rather, it reflects the most predictable actions for this type of project that would be necessary to comply with regulations, and standard permit requirements designed to reduce impacts to the environment. Many of these are also captured in PLP's proposed mitigation measures discussed in the following section.

- Using secondary containment for the storage of all fuel and hazardous chemicals during all phases of the proposed project to prevent potential releases from fuel handling, tank failures, or contaminated stormwater from reaching the aquatic environment.
- Designing and installing culverts and bridges on transportation routes to optimize fish passage.
- Implementation of Storm Water Pollution Prevention Plans (SWPPPs), Erosion and Sediment Control Plans (ESCPs), and use of industry standard BMPs for sediment and erosion control.
- Developing and maintaining Oil Discharge Prevention and Contingency Plans (ODPCPs), Spill Prevention, Control and Countermeasure (SPCC) Plans, and Facility Response Plans (FRPs).
- Using BMPs, such as revegetation planning, watering, and using dust suppressants to control fugitive dust.
- Complying with ADNR Dam Safety requirements through certificates of approval to construct and operate dams to include preparation of Emergency Action Plans and completion of a Failure Modes Effects Analysis.
- Appropriate bonding/financial assurance required by ADNR and ADEC.
- Complying with ADNR Temporary Water Use Authorization conditions for water withdrawal, such as screening requirements to avoid fish entrainment or injury; establishing water withdrawal rates and volumes, and as appropriate; and timing of water withdrawal to avoid fish migration, spawning, and incubating eggs.
- Monitoring water withdrawals to ensure permitted limits are not exceeded.
- Verifying that project vessels are equipped with proper emergency towing equipment in accordance with 18 Alaska Administrative Code (AAC) 75.027(f).
- Applying industry-standard BMPs relating to invasive species prevention and management.
- Developing a Cultural Resources Management Plan as part of the Section 106 process.
- Verifying pipeline integrity with visual and other non-destructive inspections of welds, hydrostatic testing, use of in-line inspection tools, and aerial inspections.
- Monitoring the tailings storage facility (TSF) seepage collection systems and making adjustments in the location of wells or add additional wells or other systems if seepage is escaping the system.

5.2.2 Applicant's Proposed Mitigation Incorporated into the Project

The Applicant-proposed mitigation measures to avoid and minimize impacts are summarized in Table 5-2, as provided to USACE. Similar measures would be employed for the other action alternatives (Action Alternative 2 - North Road and Ferry with Downstream Dams; and Action Alternative 3 – North Road Only), as applicable. The USACE views these elements as part of the project, and considers PLP's proposed mitigation measures as inherent to PLP's proposed alternative (Action Alternative 1 – Applicant's Proposed Alternative), as well as applicable components of the other action alternative descriptions. To the extent possible, these measures, including any potential impacts associated with these measures, were considered when assessing the impacts of the project on the resources, as described in Chapter 4, Environmental Consequences. Where there is insufficient detail to determine effectiveness, the measure could not be incorporated into the impact analysis, but serves to inform the public of PLP's commitments.

A description of PLP's proposed alternative (Action Alternative 1 – Applicant's Proposed Alternative) can be found in Chapter 2, Alternatives. Engineering design and construction, operations, or closure-phase procedures are often preliminary at the time that an EIS is prepared; typically, final engineering designs and construction and operations plans are finalized during the successive state permitting phase.

Table 5-2: Applicant's Proposed Mitigation Incorporated into the Project

Description of Measure	Description of Impact Being Mitigated	Project Component(s)	Project Phase(s)	Primary Resource(s) Affected
Where feasible, mine facilities would be reclaimed in such a manner as to create new wetland areas and ponds.	Reclamation of mine facilities would minimize long-term losses of wetlands and habitat values by restoration of some wetland areas.	General	Closure	Wetlands and Other Waters/Special Aquatic Sites
Overburden removed during construction would be stockpiled for use in reclamation.	Use of native overburden during physical reclamation and closure helps promote establishment of self-sustaining native plant communities, and would eliminate the need for importing soils, thereby minimizing introduction of invasive plant species.	General	Closure	Soils; Vegetation
Cultural resource experts would be retained during construction activities to respond to any potential cultural sites identified during construction.	Use of cultural experts during construction would eliminate or reduce the potential for the loss or destruction of cultural resources during construction activities through quick identification, preservation, and/or curation of artifacts.	General	Construction	Cultural Resources
Access agreements with Alaska Native Claims Settlement Act (ANCSA) Village Corporations would include bidding and employment preferences, revenue sharing, and other benefits to enhance local employment and revenue generation.	Agreements with ANCSA corporations provide revenue to be distributed to shareholders and employment for local residents, increasing income in affected communities and regionally.	General	Construction/ Operations	Needs and Welfare of the People—Socioeconomics; Environmental Justice

Table 5-2: Applicant's Proposed Mitigation Incorporated into the Project

Description of Measure	Description of Impact Being Mitigated	Project Component(s)	Project Phase(s)	Primary Resource(s) Affected
A final Reclamation and Closure Plan (RCP) would be developed during feasibility design work to support state permitting. The RCP and associated bonding would be in place prior to construction commencement, would be updated on a regular basis, and regular site compliance audits would be conducted as required by state regulations. The project would fully bond for reclamation and closure before commencing construction, and the bonding amounts would be updated to address any changes required on a regular basis, including costs associated with premature closure of the site. The RCP would document the plan for long-term closure of the site in a stable condition in compliance with all applicable closure criteria and regulations; and would serve as the basis for the development of the closure cost estimate and associated bonding. The bonding estimate would be developed in compliance with Alaska Department of Natural Resources (ADNR) and Alaska Department of Environmental Conservation (ADEC) requirements using vendor-provided equipment handbook productivity and operating cost information, current quoted equipment rental rates, State of Alaska-determined labor rates, and industry standard methodology and software. The estimate would include all direct and indirect costs for physical site closure and long-term post-closure monitoring and water treatment at the site.	An RCP ensures that state reclamation and closure objectives are met, including long-term environmental management, and that financial assurances are in place to ensure an orderly and stable closure. The RCP and bonding would also minimize potential future financial effects on the land owner, and reduce the likelihood and extent of impacts to downstream water and sediment quality through long-term contact water capture, treatment, and discharge.	General	Construction/ Operations/ Closure	Land Ownership, Management and Use; Health and Safety; Water and Sediment Quality
The project would establish a local advisory committee to facilitate communications and address concerns during construction and operations.	Good communication with residents and local service providers is important to coordinate operations and safety concerns.	General	Construction/ Operations/ Closure	Transportation and Navigation; Subsistence
The project would provide for controlled use of the road corridor and ferry for local residents, improving the supply of goods and reducing the cost of importing goods.	Use of the transportation corridor for supply of goods to local communities can help reduce the cost of living in those areas.	General	Construction/ Operations/ Closure	Transportation and Navigation; Needs and Welfare of the People—Socioeconomics

Table 5-2: Applicant's Proposed Mitigation Incorporated into the Project

Description of Measure	Description of Impact Being Mitigated	Project Component(s)	Project Phase(s)	Primary Resource(s) Affected
The project would implement workforce development programs and training to prepare local residents for employment at the project.	Training programs help local residents get employment with the project, which increases income in the region, and also helps to stop out-migration and school closures.	General	Construction/ Operations/ Closure	Needs and Welfare of the People—Socioeconomics; Environmental Justice
The project would have a no hunting, fishing, or gathering policy for non-local employees to minimize competition for local resources.	A policy for no hunting, fishing, or gathering for non-local employees minimized the competition for local subsistence resources.	General	Construction/ Operations/ Closure	Subsistence; Commercial and Recreational Fisheries
A Fugitive Dust Control Plan (FDCP) would be developed for the project and BMPs would be implemented for fugitive dust management. The FDCP would describe the equipment, methodology, training, and performance assessment techniques that would be used for controlling fugitive dust from site activities and wind erosion. The FDCP would be developed during feasibility design work to support state permitting, and would be in place prior to construction commencement. The objective of the plan would be to address fugitive dust emissions created by construction, operations, and closure activities. Methods would be established to control dust from vehicle travel on unpaved roads, material handling, and wind erosion from disturbed areas. Control measures could include speed limits, use of approved chemical dust suppressants, and application of water.	Implementing a fugitive dust plan would reduce the potential for releases of construction-related dust that degrade air and water quality and impact human health.	General	Construction/ Operations/ Closure	Air Quality; Water and Sediment Quality; Fish Values; Soils; Health and Safety
A Wildlife Management Plan (WMP) would be developed for the project prior to commencement of construction, and the project would use BMPs for wildlife management. The WMP would describe the equipment, methodology, training, and assessment techniques that would be used to minimize the potential for wildlife interaction with project activities, and to minimize impacts to wildlife in the project area.	Implementation of a WMP and use of BMPs for wildlife management would minimize impacts to wildlife.	General	Construction/ Operations/ Closure	Wildlife Values

Table 5-2: Applicant's Proposed Mitigation Incorporated into the Project

Description of Measure	Description of Impact Being Mitigated	Project Component(s)	Project Phase(s)	Primary Resource(s) Affected
The project would use BMPs for prevention, control, and management of invasive species. An invasive species management strategy would describe the equipment, methodology, training, and assessment techniques that would be used to avoid the importation of invasive species into the project area due to project activities during construction, operations, and closure.	Use of BMPs for prevention, control, and management of invasive species would reduce the potential for importation of invasive species into the project area.	General	Construction/ Operations/ Closure	Vegetation; Wetlands and Other Waters/Special Aquatic Sites; Fish Values; Wildlife Values
An Aquatic Resources Monitoring Plan (ARMP) would be developed for the project. The ARMP would be developed in consultation with Alaska Department of Fish and Game (ADF&G) and ADNR as part of the plans of operation during state permitting, and would be in place prior to construction commencement. The ARMP would describe the equipment, methodology, training, monitoring stations and frequency, assessment techniques, and reporting mode and frequency that would be used to monitor the aquatic environment. The objectives of the ARMP would be to 1) monitor for major changes to aquatic communities; 2) monitor for smaller-scale and incremental changes to aquatic communities; and 3) guide results-based refinement of the monitoring program. The plan would include biological monitoring (including fish presence/abundance, fish metals analysis, invertebrate and periphyton [freshwater organisms attached or clinging to plants and other objects projecting above the bottom sediments] sampling), flow monitoring and surface water sampling to characterize fish habitat and passage. The plan would allow for an adaptive management approach to address any impacts defined.	Implementation of an ARMP with the objective of monitoring for change to aquatic communities would allow for adaptive management to address any project-related impacts.	General	Construction/ Operations/ Closure	Wetlands and Other Waters/Special Aquatic Sites; Fish Values; Water and Sediment Quality
The project would propose fish habitat mitigation measures to enhance or create new habitat outside of the immediate project footprint.	Enhancement or creation of fish habitat would help compensate for long-term losses of fish habitat within the project footprint.	General	Construction/ Operations/ Closure	Wetlands and Other Waters/Special Aquatic Sites; Fish Values

Table 5-2: Applicant's Proposed Mitigation Incorporated into the Project

Description of Measure	Description of Impact Being Mitigated	Project Component(s)	Project Phase(s)	Primary Resource(s) Affected
A Cultural Resources Management Plan (CRMP) would be developed for the project. The CRMP would describe the equipment, methodology, training, and assessment techniques that would be used to manage cultural resources on state and private lands impacted by the project. The plan would describe the process for managing effects to these resources, and ensure that agreed-on protocols and procedures are established and followed if any unanticipated cultural resources or human remains are discovered. The CRMP would be developed as part of the Section 106 consultation process.	A CRMP would reduce the impacts to cultural resources by providing specific procedures for handling unanticipated cultural resources if discovered.	General	Construction/ Operations/ Closure	Cultural Resources; Historic Properties
A Project Communications Plan (PCP) would be developed for the project prior to construction commencement. The PCP would establish the methodology and infrastructure that would be used to keep local residents, guides, and other users informed about upcoming and ongoing activity.	Good communication with residents and local service providers is important to coordinate operations and safety concerns.	General	Construction/ Operations/ Closure	Recreation; Subsistence; Transportation and Navigation; Recreational and Commercial Fisheries
Drug and Alcohol Abuse Prevention, Cultural Sensitivity, Safety, and other workplace programs would be developed for all employees. The programs would be designed to provide employees with the training and resources needed to allow for a safe, healthy, and conflict-free workplace. These programs would be implemented for all project staff and contractors prior to construction commencement.	Workplace programs allow for safe and healthy workplaces, while creating a culture of cultural sensitivity and conflict management.	General	Construction/ Operations/ Closure	Needs and Welfare of the People—Socioeconomics
The project would develop a SWPPP and follow BMPs for stormwater management. The SWPPP would describe the BMPs (equipment, methodology, training, and assessment techniques) that would be used for the management of stormwater on the project, in compliance with state and federal requirements, to minimize the transfer of sediment and other pollutants in stormwater associated with project activities. The SWPPP would be developed during detailed design, and would be in place prior to construction commencement.	Development of an SWPPP would provide approved processes for managing stormwater runoff, and thereby reduce the potential for impacts to surface water and sediment quality.	General	Construction/ Operations/ Closure	Water and Sediment Quality

Table 5-2: Applicant's Proposed Mitigation Incorporated into the Project

Description of Measure	Description of Impact Being Mitigated	Project Component(s)	Project Phase(s)	Primary Resource(s) Affected
The project would develop an ESCP and follow BMPs for erosion and sediment control. The ESCP would describe the BMPs (equipment, methodology, training, and assessment techniques) that would be used to minimize erosion and sedimentation associated with project activities. The ESCP would be developed during detailed design, and would be in place prior to construction commencement.	Development of an ESCP would provide processes for managing erosion and sedimentation, and thereby reduce the potential for impacts to surface water and sediment quality.	General	Construction/ Operations/ Closure	Soils; Water and Sediment Quality
A Best Available Control Technology (BACT) analysis would be completed as part of the air permitting program, and BACT would be implemented for emissions sources as required by the BACT analysis.	BACT analysis would ensure, through the air permitting program, that the project design would incorporate the best available technology for maximum achievable reduction of project-related air pollutants (emissions). This would support mitigation of impacts to air quality from project-related emissions.	General	Construction/ Operations/ Closure	Air Quality
Secondary containment would be used for all fuel and hazardous chemical storage, and the project would use BMPs for handling of fuel and hazardous materials.	Use of secondary containment around fuel and chemical storage areas would reduce the risk of uncontrolled release of contaminants to the environment.	General	Operations	Health and Safety; Spill Risk
The project would contract with a Spill Response Organization (e.g., Alaska Chadux Corporation) to provide on-call response services, and would also stockpile spill response equipment at all appropriate locations.	Ready access to a response organization and prepositioned equipment would reduce the response time and minimize the environmental effect of spills, should they occur.	General	Construction/ Operations/ Closure	Spill Risk

Table 5-2: Applicant's Proposed Mitigation Incorporated into the Project

Description of Measure	Description of Impact Being Mitigated	Project Component(s)	Project Phase(s)	Primary Resource(s) Affected
The project would offer to negotiate a Payment in Lieu of Taxes (PILT) to the Lake and Peninsula Borough as an alternative to the borough severance tax, to allow for predictability in annual revenues.	A PILT negotiation allows for predictability in annual borough revenues, which go to infrastructure improvements in the region.	General	Operations	Land Ownership, Management, and Use
A shift schedule would be established to enable local employees to maximize opportunities to remain active in subsistence harvest activities.	A shift schedule allows employees to participate in subsistence activities, many of which require long periods of uninterrupted time.	General	Operations	Subsistence
Use of natural gas and a combined-cycle power plant to generate power would reduce air impacts and remove the need to transport large amounts of diesel fuel.	Using natural gas instead of diesel for power generation reduces air emissions and the risk of diesel spills.	General	Operations/ Closure	Air Quality; Transportation and Navigation
The natural gas pipeline design has been oversized to allow for regional access to gas, which could reduce regional power costs and fuel shipments.	Community access to natural gas can reduce the cost of power, decreasing the cost of living for residents.	General	Operations/ Closure	Needs and Welfare of the People—Socioeconomics
Blasting during construction would be done following the guidelines established in the 2013 ADF&G Technical Report (No. 13-03) Alaska Blasting Standard for the Proper Protection of Fish.	Following BMPs and methods outlined in this report would help minimize impacts to fish from blasting in or near fish-bearing waterbodies.	General	Construction	Fish Values
Dry closure of the bulk tailings storage facility (TSF) reduces both the likelihood and consequence of potential TSF failure post–closure.	Dry closure would eventually result in a stable landform for the bulk tailings, reducing the potential for dam failure and the resulting safety and environmental impacts.	Mine Site	Closure	Spill Risk; Water and Sediment Quality

Table 5-2: Applicant's Proposed Mitigation Incorporated into the Project

Description of Measure	Description of Impact Being Mitigated	Project Component(s)	Project Phase(s)	Primary Resource(s) Affected
At closure, the pit lake would be maintained at a level that promotes hydraulic containment of pit water during closure, protecting site groundwater.	Maintaining a groundwater sink would control the flow of groundwater out of the mine site area, and allow for water to be captured and treated prior to discharge.	Mine Site	Closure	Surface Water Hydrology; Groundwater Hydrology
The pit lake would be maintained at a level that allows for an inward flow of groundwater while providing for additional storage capacity to allow for treatment downtime due to water treatment plant maintenance or other problems, without over-topping.	Maintaining a buffer in containment capacity, while ensuring maintenance of a groundwater sink, would allow for unplanned operational interruption.	Mine Site	Closure	Surface Water Hydrology; Water and Sediment Quality
Both TSF locations and mine facility locations were selected to minimize impacts to spawning habitat in the middle reaches of the South Fork Koktuli (SFK) and Upper Talarik Creek (UTC) watersheds.	The siting of the TSFs and mine facilities minimize impacts to spawning habitat in the middle reaches of the SFK and UTC watersheds.	Mine Site	Construction/ Operations/ Closure	Fish Values
The layout was designed to consolidate the majority of the site infrastructure in a single drainage, the North Fork Koktuli, and avoid the placement of waste rock, tailings, and primary mine infrastructure in the UTC drainage.	Limiting the affected footprint of the mine site would reduce the geographic extent of impacts.	Mine Site	Construction/ Operations/ Closure	Surface Water Hydrology
The project would use only non-pit quarried rock, or non–acid-generating (NAG) pit waste that is confirmed not to be neutral metal leaching, in site construction. PLP has determined from characterization of quarry materials planned for use in construction that they contain negligible sulfide minerals, are non-acid-generating, and contain trace element contents at levels comparable to globally typical values for unmineralized rock. PLP's primary approach to selecting rock achieving the objective of meeting water quality criteria for metals and other parameters without treatment of runoff in perpetuity is to source construction materials from the quarries and test the rock operationally to confirm sulfur and element characteristics. Waste rock that is not suitable would be segregated and directed to the pyritic TSF for storage through operations, and placement in the open pit at closure.	Confirmation and use of NAG material in construction would reduce the risk of impacts to water and sediment quality from acid rock damage (ARD).	Mine Site	Construction/ Operations/ Closure	Water and Sediment Quality

Table 5-2: Applicant's Proposed Mitigation Incorporated into the Project

Description of Measure	Description of Impact Being Mitigated	Project Component(s)	Project Phase(s)	Primary Resource(s) Affected
The project design uses flattened TSF downstream slopes of 2.6 horizontal:1 vertical to improve PLP's proposed static factor of safety (1.9) beyond the industry norm of 1.5.	Use of flatter slopes on the TSF embankment would increase the factor of safety and reduce the risk of a failure.	Mine Site	Construction/ Operations/ Closure	Geohazards
BMPs and design guidelines would incorporate avian protection for all powerlines.	Incorporation of standard BMPs and design guidelines for powerlines would minimize avian impacts.	Mine Site	Construction/ Operations/ Closure	Wildlife Values
Construction laydown areas would be reused as material stockpiles or other storage facilities to minimize project footprint.	Reduces wetlands and vegetation impacts.	Mine Site	Construction/ Operations/ Closure	Vegetation; Wetlands and Other Waters/Special Aquatic Sites
Two separate operations water treatment plants (WTPs) are proposed to avoid co-mingling mine water and contact water, and optimize treated water quality.	Design and use of multiple WTPs would provide increased efficiency, reduced risk of treatment failure, and an increase in the capacity to manage unplanned interruption in operation or unexpected flow increases.	Mine Site	Operations/ Closure	Water and Sediment Quality
Immediate treatment and release of excess water to mitigate flow impacts to fish habitat.	Minimizes impacts to fish habitat	Mine Site	Operations	Fish Values
The project would use pit blasting techniques that minimize the amount of explosives per delay, thereby reducing the overall vibration associated with the blast.	Modifications to blasting process that reduce vibrations would in turn reduce noise effects.	Mine Site	Operations	Noise
Only mining near surface portions of the deposit reduces strip ratio and eliminates the need for a permanent waste rock storage facility.	Near-surface mining minimizes the permanent footprint and potential waste rock effects on water quality.	Mine Site	Operations/ Closure	Vegetation; Wetlands and Other Waters/Special Aquatic Sites; Water and Sediment Quality

Table 5-2: Applicant's Proposed Mitigation Incorporated into the Project

Description of Measure	Description of Impact Being Mitigated	Project Component(s)	Project Phase(s)	Primary Resource(s) Affected
Storage of all potentially acid-generating (PAG) and/or metal leaching waste rock in the pyritic TSF and placement of that waste rock back into the open pit at closure improves the site post-closure surface and groundwater quality by removing the requirement for perpetual management of runoff and seepage resulting from a separate aboveground waste rock storage facility.	Storage of PAG materials in a subaqueous environment during operations and closure would eliminate oxidation and acid generation, thereby reducing the potential for development of acid rock damage (ARD).	Mine Site	Operations/ Closure	Water and Sediment Quality
Segregation of bulk and pyritic tails and placement of pyritic tails back into the open pit at closure improves the site post-closure surface and groundwater quality by removing the need for perpetual management of seepage from the pyritic TSF, and also removes any potential for post-closure failure of the pyritic TSF.	Final storage of PAG materials in a subaqueous environment would eliminate oxidation and acid generation, thereby reducing the potential for development of ARD and removing the potential for embankment failure.	Mine Site	Operations/ Closure	Water and Sediment Quality
The pyritic TSF will be a fully lined facility to minimize water quality impacts during operations and facilitate closure by allowing the complete recovery of pyritic tailings for placement back into the open pit.	Placement of a liner below the pyritic TSF would minimize potential impacts on underlying groundwater quality.	Mine Site	Operations/ Closure	Water and Sediment Quality
Bulk TSF designed as a flow-through facility, reducing pore pressures and allowing for improved tailings consolidation, reducing the impacts of a potential TSF failure.	Reduction of pore water in the tailings impoundment would aid in development of a more stable landform.	Mine Site	Operations/ Closure	Geohazards
Excess water from the bulk and pyritic TSFs would be pumped to the main water management pond to reduce the potential for TSF failure or spills resulting from overtopping.	Reduction of pore water and maintenance of a safety buffer in TSF storage would reduce the risk of embankment failure and overtopping.	Mine Site	Operations/ Closure	Spill Risk

Table 5-2: Applicant's Proposed Mitigation Incorporated into the Project

Description of Measure	Description of Impact Being Mitigated	Project Component(s)	Project Phase(s)	Primary Resource(s) Affected
Three separate discharge points are proposed for the release of treated water with strategic timing of the water release to minimize, or avoid, impacts to fish habitat.	Strategic discharge of treated water would allow for more precise management of effects on nearby surface water flow and quality, and would reduce effects on fish habitat.	Mine Site	Operations/ Closure	Fish Values; Water and Sediment Quality
Settling ponds, bale check dams, and silt fences would be used to prevent sediment from reaching downstream waterbodies.	Use of sediment capture processes and measures would reduce the inflow of sediment to waterbodies, and reduce the effects on water quality and aquatic habitat.	Mine Site	Construction/ Operations	Water and Sediment Quality; Vegetation; Wetlands and Other Waters/Special Aquatic Site; Fish Values
No secondary gold recovery plant, eliminating the need to use cyanide on the project.	Elimination of cyanide from the mining process eliminates the potential for release of cyanide to the environment either from spills during transportation or from residual cyanide in tailings/contact water.	Mine Site/ Transportation Corridor	Operations	Health and Safety; Water and Sediment Quality; Spill Risk; Fish Values
The design of the lake ferry (relative to using standard tug/barge) significantly reduces the risk of grounding or sinking, thereby reducing the risk of any kind of spill.	Reduces the potential for and magnitude of potential releases to Iliamna Lake.	Transportation Corridor	Operations	Spill Risk
Use of diesel electric propulsion for the ferry reduces noise impacts and air emissions.	Use of a diesel electric propulsion system would reduce the noise output and air emissions.	Transportation Corridor	Operations	Noise; Air Quality
The project would work with communities (and supply funding) to provide for the marking and maintenance of snowmachine trails between communities across Iliamna Lake when lake ice is thick enough to support such traffic.	Marked and maintained snowmachine trails provide a safe route for local residents when traveling to other communities or to reach subsistence areas.	Transportation Corridor	Operations	Transportation and Navigation

Table 5-2: Applicant's Proposed Mitigation Incorporated into the Project

Description of Measure	Description of Impact Being Mitigated	Project Component(s)	Project Phase(s)	Primary Resource(s) Affected
Fuel delivery barges would be double-hulled to reduce spill risk.	Double-hulled barges reduce the frequency of oil spills and the quantity of oil released.	Transportation Corridor/Port	Construction/ Operations/ Closure	Spill Risk
Tug and barge speeds in sea otter critical habitat would be controlled to minimize the potential for impacts with sea otters.	Controlled speeds reduce the potential for strikes.	Transportation Corridor/Port	Construction/ Operations/ Closure	Threatened and Endangered Species
Lightering concentrate at Amakdedori port eliminates the need for dredging a deep-water channel.	Would reduce benthic habitat disturbance and prevent increased turbidity from dredging. Would also eliminate the need to construct an onshore dredged material stockpile.	Port	Construction	Water and Sediment Quality
The road includes crossing rivers at a right angle where feasible to minimize impacts in the riparian areas.	Crossing rivers at right angles reduces wetlands, vegetation, and stream impacts and reduces erosion potential.	Transportation Corridor	Construction	Vegetation; Wetlands and Other Waters/Special Aquatic Sites
Culverts and bridges would be designed to optimize fish passage, and the project would use BMPs for design, construction, and maintenance.	Designing culverts and bridges at fish-bearing streams to optimize fish passage would minimize impacts on fish and fish habitat.	Transportation Corridor	Construction	Fish Values

Table 5-2: Applicant's Proposed Mitigation Incorporated into the Project

Description of Measure	Description of Impact Being Mitigated	Project Component(s)	Project Phase(s)	Primary Resource(s) Affected
Material sites for the transportation and natural gas pipeline corridor would be sampled for ARD and metal leaching potential prior to development during detailed design. Material sites that have the potential for ARD or metal leaching would not be used. Fill materials from the sites used in construction would contain negligible sulfide minerals, be non-acid–generating, and contain trace element contents at levels comparable to globally typical values for unmineralized rock. PLP's approach to selecting rock achieving the objective of meeting water quality criteria for metals and other parameters without treatment of runoff in perpetuity is to test the rock prior to construction to confirm sulfur and element characteristics.	The confirmation and use of NAG and non-metal-leaching material in construction would reduce the risk of impacts to water and sediment quality.	Transportation Corridor/Natural Gas Pipeline Corridor	Construction	Water and Sediment Quality
Use of a ferry to cross Iliamna Lake reduces the road length and associated wetlands impacts and other impacts.	Reducing the total access road length would minimize wetlands and vegetation impacts relative to a longer access road around Iliamna Lake.	Transportation Corridor	Construction/ Operations/ Closure	Vegetation; Wetlands and Other Waters/Special Aquatic Sites
Road connections to communities enhance opportunities for local employment while residing at home.	Road connections to communities allow residents to gain employment with the project without relocating. This helps reduce the amount of outmigration in the region.	Transportation Corridor	Construction/ Operations/ Closure	Needs and Welfare of the People—Socioeconomics; Environmental Justice
Road connections to communities enable the use of existing airport facilities, eliminating the need to construct and operate parallel facilities.	Reduces wetlands and vegetation impacts from constructing additional airports.	Transportation Corridor	Construction/ Operations/ Closure	Transportation and Navigation; Vegetation; Wetlands and Other Waters/Special Aquatic Sites

Table 5-2: Applicant's Proposed Mitigation Incorporated into the Project

Description of Measure	Description of Impact Being Mitigated	Project Component(s)	Project Phase(s)	Primary Resource(s) Affected
Road and ferry terminals are sited to avoid private (non-Alaska Native Claims Settlement Act) lands, environmentally sensitive areas, archaeological resources, and areas of known high subsistence use.	Careful siting of project features can be used to avoid impacts to environmentally sensitive areas, archaeological resources, and areas of known high subsistence use.	Transportation Corridor	Construction/ Operations/ Closure	Cultural Resources; Subsistence; Land Ownership, Management, and Use
Use of closed containers to transport concentrate reduces spill potential while trucking, barging, loading, and on the ferry; and eliminates potential for concentrate dust.	Reduces the potential for elevated metals in soils along the transportation corridor.	Transportation Corridor	Operations	Spill Risk; Air Quality
All reagents would be shipped in their original, approved-for-shipping, containers. These original containers would be placed inside steel shipping containers at the factory or consolidation terminal and shipped to the mine site prior to unloading from the steel shipping containers.	Eliminates the potential for release of reagents to the environment from spills during transportation.	Transportation Corridor	Construction/ Operations/ Closure	Spill Risk; Transportation and Navigation
The use of fuel isotainers to transport diesel fill reduces spill potential while trucking and on the ferry.	Reduces the potential for diesel spills.	Transportation Corridor	Operations	Spill Risk; Transportation and Navigation
Co-location of the road and natural gas pipeline alignment reduces wetlands and other impacts and removes the need for a separate corridor.	Co-location of project facilities reduces the overall footprint and minimizes impacts to wetlands and vegetation.	Transportation Corridor/Natural Gas Pipeline Corridor	Construction/ Operations	Vegetation; Wetlands and Other Waters/Special Aquatic Sites
The road/pipeline alignment and material sites were designed to minimize impacts to wetlands.	Siting the road/pipeline alignment to minimize fill in wetlands minimizes the overall project impact on wetlands.	Transportation Corridor/Natural Gas Pipeline Corridor	Construction/ Operations	Wetlands and Other Waters/Special Aquatic Sites
Gas pipeline would be attached to bridge crossings, removing the need for horizontal directional drilling (HDD) under major river crossings, removing the potential for frac-out.	Reduction in the number of required HDD crossings would reduce the potential for frac-out and associated water and sediment quality impacts.	Natural Gas Pipeline Corridor	Construction	Surface Water Hydrology; Fish Values; Water and Sediment Quality

Table 5-2: Applicant's Proposed Mitigation Incorporated into the Project

Description of Measure	Description of Impact Being Mitigated	Project Component(s)	Project Phase(s)	Primary Resource(s) Affected
Detailed HDD plans would be developed during detailed design for all HDDs that are required, and would be in place prior to construction commencement. The HDD plans would ensure that all HDD work is done in compliance with applicable regulations, and would outline measures to be undertaken to avoid the potential for a frac-out, and measures to respond to a frac-out should one occur.	Carefully managed HDD activities would reduce the potential for impacts to water and sediment quality and existing water supply wells.	Natural Gas Pipeline Corridor	Construction	Surface Water Hydrology; Groundwater Hydrology; Fish Values; Water and Sediment Quality
Water used for hydrostatic testing of the pipeline would be obtained from and discharged back to sources local to the section of pipeline being tested, thereby minimizing the potential for mobilization of invasive species.	Limiting movement of water to localized areas would reduce the potential for transportation of invasive species.	Natural Gas Pipeline Corridor	Construction	Water and Sediment Quality; Vegetation; Wetlands and Other Waters/Special Aquatic Sites
The pipeline would use HDD to access deep water from the compressor station area to avoid shoreline impacts from trenching on the Kenai Peninsula.	Use of HDD to construct the portion of natural gas pipeline from onshore Kenai Peninsula to deep water in Cook Inlet would reduce the potential for erosion or other shoreline impacts.	Natural Gas Pipeline Corridor	Construction	Soils; Geohazards

5.2.3 Additional Mitigation Identified for Agency Consideration

Mitigation discussed in this section is used to inform agencies with individual permit reviews and authorizations as an outcome of the NEPA process. Mitigative measures identified or recommended during the NEPA process have been compiled, and will be considered by the USACE and cooperating agencies as part of their permit decisions to further minimize project impacts. However, it is important to note that measures identified during the NEPA process may not be required by the federal agencies in their RODs. For example, the Council on Environmental Quality guidance uses terms such as "reasonable, practicable, and appropriate" when considering potential mitigation and permit conditions. In addition, there may be potential mitigation measures identified through the public process that are not within the federal agencies' authority to require as a condition to a permit. It is also possible that some of the individual mitigation measures listed in this section may be adopted by PLP and incorporated into project plans prior to completion of environmental review. Furthermore, the federal agency decision-makers (USACE, Bureau of Safety and Environmental Enforcement [BSEE], and US Coast Guard [USCG]) may continue to refine mitigation subsequent to completion of the EIS and issuance of their ROD during the permit application review process, and other state permitting agencies may do likewise. Additional mitigation identified during that process may include project modifications that are in part considered feasible from a cost and constructability perspective. The ROD would identify those mitigation measures that the agency has committed itself to adopt, and explain why any other practicable mitigation measures have not been adopted.

It should also be recognized that many of the permits required for approval of the Pebble Project are under the jurisdiction of the State of Alaska. Specific agencies may have clear compliance standards and requirements for monitoring of environmental conditions; future risks associated with unexpected conditions may also be addressed in specific permitting authorizations. Potential measures put forward for consideration in the EIS are not intended to dictate conditions of state permit approval, but to identify potential measures for consideration as applicable. In assessing whether or not to adopt a mitigation measure in a project permit, agencies may further take into account whether they have adequate resources to enforce mitigation or a source of funding to do so, and measurable metrics in the mitigation measure to assess compliance and performance.

Appendix M includes a list of all mitigation measures suggested by the USACE and cooperating agencies, and those collected during the scoping process. All measures are assessed based on the following factors, with the goal of disclosing the likelihood that the measures would be adopted by the applicant or implemented as a condition in a state, federal, or local permit (CEQ 1981) by the responsible agencies as part of their permit decisions following completion of the NEPA process.

1. Effective: assessment of the measure's effectiveness in reducing the project-related impact. This factor also considers if implementation of the measure is supported by the effects analysis in the EIS.
2. Jurisdiction/Enforcement: assessment of potential agency jurisdiction/authority to require the measure, and if the measure is enforceable by the agency with jurisdiction.
3. Reasonable: assessment of feasibility from a technical and economic standpoint. This assessment also factors in common sense for what is reasonable. For example, a mitigation measure may not be reasonable if there are other technically and economically feasible mitigation measures that would be just as effective at reducing

a potential impact, or if the extra expense is not supported by the effects analysis in the EIS.

See Appendix M for a preliminary assessment of all measures identified during the EIS process. This list will be updated after public review of the Draft EIS (DEIS) for a comprehensive list of all measures identified during the NEPA process.

5.3 AVOIDANCE, MINIMIZATION, AND COMPENSATORY MITIGATION UNDER THE CLEAN WATER ACT

Regulatory standards and criteria for mitigating impacts to aquatic resources that result from work authorized by permit under the USACE Regulatory Program were established on April 10, 2008 by the USACE and the US Environmental Protection Agency (EPA) in a rule, entitled "Compensatory Mitigation for Losses of Aquatic Resources; Final Rule" (33 Code of Federal Regulations [CFR] Part 332 [USACE] and 40 CFR Part 230 [EPA]) (referred to herein as the 2018 mitigation rule). The rule emphasizes the sequence to be followed for mitigating impacts to aquatic resources. All practicable steps to avoid and/or minimize impacts to aquatic resources must be taken before proposing compensatory mitigation to offset project impacts. Once all efforts to avoid and minimize impacts have occurred, remaining impacts may be offset by compensatory mitigation.

Compensatory mitigation can be a critical tool to help the federal government meet the longstanding national goal of "no net loss" of wetland acreage, function, and value; and may be required to ensure that activities requiring a permit comply with CWA Section 404(b)(1) Guidelines. Compensatory mitigation is the restoration (reestablishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources to offset unavoidable adverse impacts. Compensatory mitigation requirements must be commensurate with the amount and type of impact that is associated with a particular Section 404 permit, and may be achieved by purchasing credits through mitigation banks or in-lieu fee (ILF) programs, by permittee-responsible mitigation, or by a combination of the three.

USACE and EPA signed a Memorandum of Agreement (MOA) in June 2018 concerning mitigation sequence for wetlands in Alaska under Section 404 of the CWA (USACE and EPA 2018). In this MOA, the agencies recognize that specific to the State of Alaska:

- Avoiding wetlands may not be practicable where there is a high proportion of land in a watershed or region which is jurisdictional wetlands.
- Restoring, enhancing, or establishing wetlands for compensatory mitigation may not be practicable due to limited availability of sites and/or technical or logistical limitations.
- Compensatory mitigation options over a large watershed scale may be appropriate given that compensation options are frequently limited at a smaller scale.
- Where a proportion of land is under public ownership, compensatory mitigation opportunities may be available on public land.
- Out-of-kind compensatory mitigation may be appropriate when it better serves the aquatic resource needs of the watershed.
- Applying a less rigorous permit review for small projects with minor environmental impacts is consistent with the Section 404 program regulations.

The MOA further specifies that although the USACE considers compensatory mitigation options in the order of: (1) purchase of credits from an approved mitigation bank; (2) purchase of credits from an approved ILF program; and (3) completion of a permittee-responsible mitigation project,

in many parts of Alaska, the first two options may not be available or may not provide the appropriate number of resource type of credits to offset the proposed project impacts. In this case, some form of permittee-responsible mitigation is the only option, and permittee-responsible mitigation developed using a watershed approach is preferred.

Mitigation will be considered throughout the NEPA and permitting processes. The USACE would complete a public interest review and a 404(b)(1) evaluation for compliance with the CWA prior to issuance of the ROD. Specific mitigation conditions would be determined following completion of the environmental review, and would be included in the ROD for any permit that may be issued. The sections below summarize PLP's steps to avoid and/or minimize impacts, and further compensate for unavoidable impacts to waters of the US (WOUS).

5.3.1 Applicant's Proposed Avoidance and Minimization

PLP's description of measures to avoid and minimize impacts to WOUS is included in Tab 23 of the Pebble Project Department of the Army Application for Permit POA-2017-271 (PLP 2019a). Notable measures identified include the following:

- The project plan has been limited to mining the near-surface portion of the Pebble deposit. This has significantly reduced the footprint of the open pit, tailings storage facility (TSFs), and mine facilities, as well as eliminated the need for a permanent waste rock storage facility.
- The layout was designed to consolidate the majority of the site infrastructure in a single drainage, the North Fork Koktuli, and avoid the placement of waste rock or tailings in the Upper Talarik Creek drainage.
- The transportation corridor incorporates a ferry crossing of Iliamna Lake to connect the mine site to a marine port on Cook Inlet, reducing the total access road length and associated impacts relative to a longer access road around Iliamna Lake. The road alignment was further refined to avoid areas of known subsistence and recreational use, and to minimize wetland impacts.
- A natural gas pipeline and gas-fired electrical generation to power the project reduce air emissions and the need to transport and store diesel fuel for power generation.
- The segregated pyritic TSF, a fully lined facility, minimizes water quality impacts and facilitates closure. At closure, pyritic tailings will be backhauled to the pit for sub-aqueous storage in the pit lake and the pyritic TSF will be reclaimed.
- Pyritic waste rock will be stored in the pyritic TSF during operations, after which it will be backhauled to the pit for sub-aqueous storage in the pit lake. This avoids the need for post-closure management of the pyritic TSF or a separate pyritic waste rock facility.
- The use of an advanced surplus water release strategy to distribute water to downgradient streams and reduce the effect of flow changes on fish habitat.

Additionally, many of the Applicant-proposed mitigation measures identified in Table 5-2 relate directly to avoiding and minimizing impacts to aquatic resources.

5.3.2 Applicant's Proposed Compensatory Mitigation

USACE has preliminarily determined that compensatory mitigation for the project is appropriate and has asked the Applicant to evaluate a full suite of available and practicable mitigation options to comply with the provisions of the 2008 mitigation rule and the 2018 MOA. The final

determination of compensatory mitigation requirements would be made by USACE as part of the final permit decision, and would be documented in the ROD.

At this stage in the environmental review process, PLP has prepared a draft conceptual Compensatory Mitigation Plan (CMP) (draft CMP) outlining their proposed approach for compensatory mitigation to offset environmental losses resulting from unavoidable impacts to aquatic resources (see Appendix M). The public review period, as well as extensive agency evaluation, will assist in identifying impacted aquatic resources, as well as watershed priorities for conservation, restoration, and enhancement. The public/agency evaluation will also allow for the review and comment of the draft CMP, after which revised (or even new) mitigation measures may be developed to ensure that the proposed project would adequately offset unavoidable impacts to WOUS. The CMP would be amended in the future to include proposed mitigation plans.

PLP is proposing compensatory mitigation for 3,524 acres of unavoidable impacts to WOUS and aquatic resource functions in the watersheds. PLP is not proposing compensatory mitigation for 513 acres of temporary impacts, as those WOUS and functions would be expected to be reclaimed. The proposed permanent wetland impacts are distributed among six US Geological Survey Hydrologic Unit Code (HUC) 10 watersheds that fall within the five HUC 6 watersheds illustrated in Section 3.1, Introduction to Affected Environment (USGS 2018e). Most of the proposed WOUS impacts (97 percent or 3,421 acres) are in the Headwaters Koktuli River HUC 10 watershed.

According to PLP's draft CMP, the project is not located in the service area of an approved bank or ILF with appropriate credits available. In the absence of mitigation banks or an ILF program in the watersheds, 33 CFR Part 332.3 (b)(4) states that "permittee-responsible mitigation is the only option." Three permittee-responsible mitigation (PRM) options are identified in the 2008 mitigation rule and the MOA. PRM projects using a watershed approach consider the needs of the watershed for advancing and sustaining aquatic resource functions, such as the need for specific habitat enhancements, water quality improvements, or flood control. On-site, in-kind PRM projects replace the specific wetland functions and values that are impacted at or near the proposed impact site. Off-site, out-of-kind PRM projects focus on preserving, creating, restoring, and enhancing WOUS with different functions and values than the impacted WOUS and in watersheds other than the watershed where the impacts would occur.

A watershed analysis was completed as part of the draft CMP to characterize conditions within an analysis area (hereafter, CMP analysis area) that encompasses approximately 1,944,130 acres, and includes seven HUC 10 watersheds. Nearly all of the CMP analysis area is undeveloped, and wetlands and aquatic resources have little to no degradation. The principal sources of land development in the CMP analysis area are those associated with residential housing, fishing and hunting cabins and lodges, sanitation systems, community energy, and the limited transportation infrastructure associated with the villages of Nondalton, Iliamna, Newhalen, Pedro Bay, Pile Bay, Igiugig, and Kokhanok. Development accounts for less than 0.05 percent of the CMP analysis area.

Results of the CMP analysis suggest that: 1) wetlands and aquatic resources in the area are abundant and in a natural state; 2) discharges of fill from the project would impact a small percentage of aquatic resources; 3) Pacific salmon and other fish are an important component of the CMP analysis area aquatic ecosystems and of local economies; and 4) the primary threats to these resources arises from impacts associated with contaminated sites and community sanitary systems. These factors would be considered in planning compensatory mitigation options for the proposed project.

The draft CMP evaluates compensatory mitigation options based on the results of the watershed analysis, and concludes that the watershed approach and on-site and in-kind compensatory mitigation are not practical to meet the project's compensatory mitigation needs, as options for restoration, enhancement, establishment, and preservation of wetlands and aquatic resources are non-existent in the CMP analysis area. Options are non-existent because the limited development has caused negligible degradation to wetlands and other aquatic habitats. Therefore, PLP proposes consideration of off-site, in-kind, or out-of-kind mitigation opportunities, which would necessitate evaluation of mitigation opportunities beyond the HUC 10 watersheds directly impacted by the project. PLP notes that mitigation opportunities may be predominantly limited to wetlands preservation in the surrounding watersheds, or even further afield.

According to the draft CMP, there are potential out-of-kind mitigation opportunities within the directly affected watersheds and surrounding areas, to further enhance aquatic habitat by minimizing environmental impacts and future threats through water quality improvement projects, invasive species identification and eradication, and similar activities. There are also opportunities for fish habitat restoration in directly affected and neighboring watersheds through culvert rehabilitation and other fish passage improvements that have the potential to benefit the greater Bristol Bay and Cook Inlet watershed areas. Consequently, PLP's approach to compensate for the permanent loss of wetlands and aquatic habitat in the CMP analysis area resulting from the project will primarily focus on opportunities that benefit water quality and enhance or restore fish habitat through out-of-kind mitigation. Although the preference is to seek such opportunities within the CMP analysis area, PLP indicated that they will also search for opportunities outside the directly impacted watersheds. If these opportunities are not sufficient, PLP may propose preservation as compensatory mitigation, but that would be the least preferred form.

PLP proposes to use the following factors to evaluate future compensatory mitigation options: watershed health impacts, environmental significance, threat of development, practicability, amount of compensatory mitigation, and location. Future revisions of this CMP would include a list of the mitigation options evaluated. It is possible that given the scale of the proposed project's potential WOUS impacts, more than one compensatory mitigation proposal may be required. Detailed information about each compensatory mitigation opportunity proposed would be included in an attachment to the CMP. Each proposal would have a plan that would include the information required by 33 CFR Part 332.4 (c)(2-14).

5.3.3 Monitoring

PLP proposes to use monitoring measures through the construction, operations, and closure of the proposed project to assess predicted project impacts and the effectiveness of mitigation measures (PLP 2018k). The monitoring requirements would specify the collection of the appropriate data to fully assess impacts and the effectiveness of the required mitigation. If mitigation is not proven to be effective, then adaptive management would be used to identify, assess, and implement changes to the required mitigation measures in consultation with the appropriate regulatory authorities.

Permit-specific mitigation and monitoring requirements would be developed in consultation with the various agencies when the project advances through the permitting phase. PLP would operate the proposed project in compliance with all federal, state, and local requirements, including all mitigation and monitoring requirements identified through the NEPA and permitting processes. For examples, plans prepared to support the state permitting process, such as a Plan of Operations, Integrated Waste Management Plan, and Reclamation and Closure Plan, and their associated approvals (described above) would identify specific monitoring

requirements and /or the requirement for the development a monitoring plan specific to that approval. These documents are updated on a regular interval (typically 5 years) as the authorizations are renewed.

6.0 CONSULTATION AND COORDINATION

This section summarizes the consultation and coordination with agencies, as well as the public involvement opportunities for the Environmental Impact Statement (EIS), through preparation of the Draft EIS (DEIS).

6.1 AGENCY COORDINATION

The US Army Corps of Engineers (USACE) is the lead federal agency for this EIS. Seven federal agencies, the State of Alaska, Lake and Peninsula Borough (LPB), and two tribes are serving as cooperating agencies for this EIS, and are listed below. These cooperating agencies are involved in informing the EIS process and providing early input into certain sections of the EIS, based on specific areas of jurisdiction by law and/or special expertise, to strive for an EIS that provides a full and fair disclosure of the probable impacts of the proposed project, and provides a sound basis for agency permit decisions. The cooperating agencies also informed the alternatives selection process to determine which alternatives would be carried through for analysis (see Chapter 2, Alternatives).

- Advisory Council on Historic Preservation
- US Department of the Interior, Bureau of Safety and Environmental Enforcement
- Curyung Tribal Council
- Lake and Peninsula Borough
- Nondalton Tribal Council
- US Department of the Interior, National Park Service
- US Department of Transportation, Pipeline and Hazardous Materials Safety Administration
- State of Alaska
- US Coast Guard
- US Environmental Protection Agency
- US Department of the Interior, Fish and Wildlife Service

6.1.1 Biological Assessments

Section 7 of the Endangered Species Act (ESA) requires that federal agencies, in consultation with the US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NFMS), ensure that actions funded, authorized, or carried out by federal agencies do not jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of critical habitat. The USACE has determined that the Pebble Project may have the potential to impact threatened or endangered species protected under the ESA, and therefore, the USACE requested initiation of consultation with the USFWS and NMFS on April 20, 2018. Potential impacts to three threatened species managed by USFWS are evaluated in a Biological Assessment (BA) (Appendix G). Potential impacts to four endangered or threatened species managed by NMFS are evaluated in a BA (Appendix H).

6.1.2 Essential Fish Habitat Assessment

Consultation is required if there may be a reduction in the quality or quantity of Essential Fish Habitat (EFH) for species regulated under a federal Fishery Management Plan (FMP). Under the Magnuson-Stevens Fishery Conservation and Management Act, each FMP must describe and identify EFH for the fishery; minimize, to the extent practicable, the adverse effects of fishing on EFH; and identify other actions to encourage the conservation and enhancement of

EFH. Federal agencies must consult with NMFS regarding any action they authorize, fund, or undertake that may adversely affect EFH, and NMFS must provide conservation recommendations to federal and state agencies regarding any action that would adversely affect EFH. The Pebble Project has the possibility to affect EFH for five species of Pacific salmon's habitat that could occur in the project area, including: Chinook, sockeye, coho, chum, and pink salmon. An EFH Assessment is included as Appendix I.

6.2 TRIBAL CONSULTATION AND GOVERNMENT-TO-GOVERNMENT CONSULTATION

The USACE Tribal Consultation Policy (2012) states that "commands will ensure that all Tribes with an interest in a particular activity that has the potential to significantly affect protected tribal resources, tribal rights (including treaty rights) and Indian lands are contacted and their comments taken into consideration." As the lead federal agency for the development of the Pebble Project EIS, the USACE is responsible for government-to-government consultation and coordination with federally recognized tribes that may be impacted by the proposed project.

The government-to-government consultation process for the Pebble Project EIS is designed to provide federally recognized tribes in Alaska that may potentially be impacted by the proposed project with opportunities for meaningful participation in the federal permitting process. Tribes and other Alaska Native stakeholders will have several opportunities throughout the environmental review process to participate and provide input. The USACE developed a list of 35 federally recognized tribes that could be potentially impacted by the proposed project. USACE notified and invited these tribes into government-to-government consultation prior to the submission of the application, and again after the application was determined complete. Information learned through tribal consultation will inform the EIS.

A letter was sent to the tribes on the USACE's list, including basic project information, how tribes may participate in the development of the EIS, and another invitation for formal government-to-government consultation. Regardless of a tribe's acceptance of formal consultation, USACE provided two-way sharing of information through mailings, teleconferences, and regional meetings during the National Environmental Policy Act (NEPA) process, held separately from the public meetings.

To date, the USACE engaged with and consulted with 24 federally recognized tribes. The dates of the meetings and the Tribes that were engaged and National Historic Preservation Act (Section 106) engagement are listed in Table 6-1 below.

Table 6-1: Tribal Consultation and National Historic Preservation Act (Section 106)

Date	Tribe(s)	Attempt/Response	Person Contacted	USACE Attendees
March 15, 2017	31 Bristol Bay/Iliamna Lake Tribes	Non-project specific survey requesting contact and communication information; 13 Tribes responded	Various	
December 6, 2017	31 Bristol Bay/Iliamna Lake tribes and 4 Cook Inlet Tribes	23 Responses from Bristol Bay/Lake Tribes invitation to government-to-government consultation	Various	

Table 6-1: Tribal Consultation and National Historic Preservation Act (Section 106)

Date	Tribe(s)	Attempt/Response	Person Contacted	USACE Attendees
January 12, 2018	31 Bristol Bay/Iliamna Lake tribes and 4 Cook Inlet Tribes	Invitation to government-to-government consultation and copy of Pebble Limited Partnership (PLP) Permit Application	Various	
February 20, 2018	35 Tribes	Invitation for government-to-government consultation / Pre-scoping Package / Permit Application	Various	
February 21, 2018	Iliamna Village Council	Government-to-government engagement	President and Various	Sheila Newman, Shane McCoy
February 21, 2018	Newhalen Tribal Council	Government-to-government engagement	President and Various	Sheila Newman, Shane McCoy
February 21 and 22, 2018	Nondalton Tribal Council	Available – declined twice	Fawn Silas	Sheila Newman, Shane McCoy
March 22, 2018	Various; met with Bristol Bay Native Association	Government-to-government engagement	26 Tribes represented	Mike Montone, Sheila Newman, Shane McCoy, Amanda Andraschko
March 23 and 24, 2018	Curyung Tribal Council	Stated would meet; but tribe did not attend	First Chief Tildon	Sheila Newman, Shane McCoy
March 23 and 24, 2018	Nondalton Tribal Council	Stated would meet; but tribe did not attend	Billy Trefon Jr.	Sheila Newman, Shane McCoy
April 3, 2018	35 tribes	Webinar and teleconference, multiple tribes	Various	Shane McCoy
April 4, 2018	King Salmon Tribal Council	Informal government-to-government consultation - most council members not available	Vice President	Shane McCoy, Amanda Andraschko, Nic Lucore
April 4, 2018	Naknek Tribal Council	Government-to-government consultation	President and various	Shane McCoy, Amanda Andraschko, Nic Lucore
April 10, 2018	Kokhanok Tribal Council Levelok Tribal Council	Government-to-government engagement	Various	Shane McCoy, Katie McCafferty
April 12, 2018	Newhalen Tribal Council	Government-to-government engagement	President and various	Shane McCoy, Katie McCafferty
April 12, 2018	Iliamna Village Council	Government-to-government engagement	President and various	Shane McCoy, Katie McCafferty

Table 6-1: Tribal Consultation and National Historic Preservation Act (Section 106)

Date	Tribe(s)	Attempt/Response	Person Contacted	USACE Attendees
April 13, 2018	New Stuyahok Traditional Council	Available but tribe did not attend. Was on April 12, 2018 Tribal Agenda	Wasillie Gust Sr.	Shane McCoy, Katie McCafferty
April 16, 2018	Nondalton Tribal Council	Asked; declined	Rob Rosenfeld, Wesley Furlong (Native American Rights Fund)	
April 17, 2018	Curyung Tribal Council	Government-to-government consultation	Second Chief and Various	Shane McCoy, Katie McCafferty
April 18, 2018	Igiugig Village Council	Government-to-government consultation	President and various	Shane McCoy, Katie McCafferty
April 24, 2018	Ugashik Village Council	Government-to-government consultation	Steven Alvarez	Shane McCoy, Amanda Andraschko,
May 31, 2018	United Tribes of Bristol Bay – representing 13 federally recognized tribes, in Dillingham	Formal government-to-government consultation	Various; coordinated with Alannah Hurley and Lindsay Layland of United Tribes of Bristol Bay	COL Brooks, Dave Hobbie, Shane McCoy, Amanda Andraschko
June 1, 2018	Curyung Tribal Council in Dillingham	Formal government-to-government consultation	Coordinated with Courtenay Carty, Tribal Administrator. Attended by Tom Tilden, President, Curyung Tribal Council members and staff	COL Brooks, Dave Hobbie, Shane McCoy, Amanda Andraschko
June 12, 2018	Curyung Tribal Council	Government-to-government engagement, USACE staff called in to Tribal Council evening meeting	Courtenay Carty	Shane McCoy, Amanda Andraschko
July 23, 2018	Seldovia Village Tribe	Government-to-government consultation	Crystal Collier, Michael Ophiem	Shane McCoy, Katie McCafferty, Amanda Andraschko
July 27, 2018	Nondalton Tribal Council	Government-to-government consultation	Rob Rosenfeld	LTC Bloedel, Shane McCoy, Amanda Andaschko
Fall 2018 planning	Ekwok		Richard King	COL Borders, Shane McCoy, Amanda Andraschko
August 17, 2018	35 Tribes	Emailed invitations to participate in the Section 106 Process	Various	
August 20, 2018	35 Tribes	Hardcopy letter inviting Tribes to participate in the Section 106 process	Various	

Table 6-1: Tribal Consultation and National Historic Preservation Act (Section 106)

Date	Tribe(s)	Attempt/Response	Person Contacted	USACE Attendees
August 29, 2018	35 Tribes	Teleconference	Various	Shane McCoy, Katie McCafferty, Amanda Andraschko
September 6, 2018	35 Tribes	Additional information regarding the Section 106 process	Various	
September 13, 2018	Nondalton Tribal Council with Native American Rights Fund	Met with Mr. J. Dalton, USACE Director of Civil Works		
September 21, 2018	35 Tribes	Email reminding tribes of our invitation deadline for the Section 106 process		
October 5, 2018	35 Tribes invited	Tribal teleconference		Shane McCoy, Amanda Andraschko, Katie McCafferty, Jesse DeWitt, Brandee Ketchum
October 16, 2018	35 Tribes	Letter requesting preferred method to receive DEIS		
October 17, 2018	Curyung Tribal Council		First Chief Tildon, Second Chief, council members and tribal administrator (via telephone)	COL Borders, Dave Hobbie, Shane McCoy, Jesse DeWitt, Amanda Andraschko
October 30, 2018	35 Tribes	Tribal Teleconference Notification	Various	
October 30, 2018	35 Tribes invited	Section 106 initiation meeting		Shane McCoy, Katie McCafferty, Jesse DeWitt, Samantha Michie
October 31, 2018	Curyung Tribal Council	Formal government-to-government meeting	Thomas Tilden, First Chief; Gayla Hoseth, Second Chief; Jonathan Jeremy Larson, Member Chief; Kenton Woods, tribal member	COL Borders, Commander; Dave Hobbie, Shane McCoy, Amanda Andraschko, Jesse DeWitt
October 31, 2018	Ekwok	Government-to-government Agenda Planning	Richard King	Jesse DeWitt
October 31, 2018	United Tribes of Bristol Bay	Government-to-government, Location Coordination	Alannah Hurley	Jesse DeWitt
November 14, 2018	Ekwok Village Council and New Koliganek Village Council	Government-to-government consultation	Various	COL Borders, Dave Hobbie, Shane McCoy, Jesse DeWitt
November 28, 2018	United Tribes of Bristol Bay	Government-to-government planning	Email and phone call to Alannah Hurley	Shane McCoy

Table 6-1: Tribal Consultation and National Historic Preservation Act (Section 106)

Date	Tribe(s)	Attempt/Response	Person Contacted	USACE Attendees
December 4, 2018	35 Tribes and United Tribes of Bristol Bay	Tribal Teleconference Notification	Various	Jesse DeWitt
December 7, 2018	United Tribes of Bristol Bay	Government-to-government		COL Borders, Dave Hobbie, Shane McCoy, Jesse DeWitt, Brandee Ketchum
December 11, 2018	Nondalton Tribal Council	Government-to-government reschedule	Rob Rosenfeld	Jesse DeWitt
December 11, 2018	Consulting Parties	Section 106 meeting	Various	Katie McCafferty, Jesse DeWitt
December 12, 2018	35 Tribes	DEIS preferred method of receipt verified via phone call	Various	Jesse DeWitt
December 12, 2018	Ekwok Tribal Council	Email and mailed letter of thank you and draft government-to-government notes		Shane McCoy
December 13, 2018	35 Tribes and United Tribes of Bristol Bay	Tribal teleconference	Various	Shane McCoy, Brandee Ketchum, Katie McCafferty, Jesse DeWitt
December 18, 2018	United Tribes of Bristol Bay	Thank you letter with notes and Dr. Alan Boraas presentation	President Heyano; email to Alannah Hurley	Signed by COL Borders

During consultations, the USACE provided the opportunity to discuss traditional ecological knowledge (TEK), information on subsistence, archaeological sites, traditional cultural properties, and any potential environmental, social, and/or economic impacts of concern to the Tribes. See Section 3.1, Introduction to Affected Environment, and Appendix K3.1 for more information on how TEK was collected and incorporated into the EIS.

6.2.1 National Historic Preservation Act, Section 106

In August 2018, the USACE initiated the process for compliance with Section 106 of the National Historic Preservation Act (Section 106). In addition to consulting with the State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation, the USACE is consulting with other parties to inform the Section 106 process. Invitations to participate as consulting parties were sent to 35 federally recognized tribes, 28 village and regional Alaska Native corporations, local governments, and other interested organizations and individuals. An initial meeting was held with the SHPO on October 2, 2018. An initial meeting with consulting parties was held on October 30, 2018 followed by another meeting on December 11, 2018. The process will result in the development of a Programmatic Agreement (PA) for the project. More information on the PA process can be found in Sections 3.8, Cultural Resources, and 4.8, Historic Properties.

6.3 SCOPING AND PUBLIC OUTREACH

Scoping is the first opportunity for public participation, and is conducted to assist in determining the breadth of analysis, significant issues, and alternatives to be analyzed in depth in the DEIS. NEPA requires "scoping," which is described in 40 Code of Federal Regulations (CFR) 1501.7 as "an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action, the process shall be termed scoping…" The scoping process provides an opportunity for the public to express their views and concerns, and to contribute to the completeness of the scope of analysis of the EIS. The scoping period began on April 1, 2018, and continued through June 29, 2018.

The scoping effort for the Pebble Project EIS began with a Notice of Intent (NOI) to develop an EIS level of analysis published in the Federal Register on March 28, 2018. Subsequently, a press release was issued by the USACE, a scoping package was mailed to the 35 federally recognized tribes potentially impacted by the proposed project, a newsletter was mailed to every post office box in potentially affected communities, the project website was developed, and nine public scoping meetings were held, detailed in Table 6-2.

Table 6-2: Scoping Meetings

Date	Community	Location and Time
April 9, 2018	Naknek	Naknek School, 3:30-7:30 PM
April 10, 2018	Kokhanok	Community Hall, 3:30-7:30 PM
April 11, 2018	Homer	Homer High School, 5:00-9:00 PM
April 12, 2018	Newhalen	Newhalen School, 3:30-7:30 PM
April 13, 2018	New Stuyahok	Community Building, 1:00-4:30 PM
April 16, 2018	Nondalton	Tribal Center, 3:30-7:30 PM
April 17, 2018	Dillingham	Middle School, 5:00-9:00 PM
April 18, 2018	Igiugig	Community Building, 3:30-7:30 PM
April 19, 2018	Anchorage	Dena'ina Center, 11:00 AM-9:00 PM

Participation in the scoping process was widespread, with many hours of questions and testimony recorded in transcripts, along with comments submitted via the project website, email, and mail to the USACE. The complete scoping effort and summary of issues are described in Appendix A.

6.4 ONGOING COORDINATION EFFORTS

Coordination with cooperating agencies will continue to occur following the release of the DEIS. Agency expertise will remain important for informing the analysis and addressing critical comments from the public to develop the Final EIS (FEIS). Consultation with the USFWS and NMFS will continue for ESA and EFH assessments.

The USACE remains available for government-to-government consultation with federally recognized tribes as resources allow. Government-to-government consultation is an ongoing effort by the USACE to share information, listen to concerns, and answer questions.

Consultation with consulting parties to resolve adverse effects to historic properties in accordance with Section 106 of the National Historic Preservation Act (NHPA) will continue. Efforts at identifying potentially eligible historic properties and determining eligibility of potential

historic properties will continue following the release of the DEIS. A PA will be developed through discussions with the consulting parties to ensure that the requirements of Section 106 are satisfied. USACE intends to complete the PA around the same time as the FEIS.

A Notice of Availability of this DEIS was published in the Federal Register informing stakeholders and other members of the public that the DEIS is available for comment for 90 days. It is the intent of USACE to host public hearings during the DEIS comment period in the same communities where scoping meetings were held. A second newsletter announced the release of the DEIS, providing information for attending hearings, and instructions on how to comment.

The project website will continue to be updated throughout the EIS process.

7.0 COOPERATING AGENCIES AND PREPARERS

Table 7-1: Lead Agency and Cooperating Agencies

Lead Federal Agency	
US Army Corps of Engineers	
Alaska District, Regulatory Division PO Box 6898 Joint Base Elmendorf-Richardson, AK 99506-0898 Sheila Newman, Deputy Chief	
Shane McCoy Program Manager 10 years of experience	
Katherine (Katie) McCafferty Project Manager 13 years of experience	
Cooperating Agencies	
US Fish and Wildlife Service Anchorage Fish and Wildlife Conservation Office 4700 BLM Road Anchorage, AK 99507	Kevin Pendergast Pipeline Right-of-Way Decision Maker, Professional Engineer CPG 18 years of experience Bureau of Safety and Environmental Enforcement 3801 Centerpoint Drive, Suite 500 Anchorage AK 99503-5820
Patty McGrath Mining Advisor US Environmental Protection Agency, Region 10 1200 Sixth Avenue Seattle, WA 98101	John McCall BSEE Petroleum Engineer B.S., Civil Engineering 5 years of experience Bureau of Safety and Environmental Enforcement 3801 Centerpoint Drive, Suite 500 Anchorage AK 99503-5820
Molly Vaughan National Environmental Policy Act Reviewer US Environmental Protection Agency Region 10 Alaska Operations Office 222 W. 7th Avenue #19 Anchorage, AK 99513-7588	Jeffrey Missal National Environmental Policy Act and Environmental Compliance Review, Environmental Protection Specialist 12 years of experience Bureau of Safety and Environmental Enforcement 3801 Centerpoint Drive, Suite 500 Anchorage AK 99503-5820
John Eddins Advisory Council on Historic Preservation 401 F Street NW, Suite 308 Washington, DC 20001	David Seris US Coast Guard 17th District Waterways Management Branch B.S., Applied Science, US Coast Guard Academy 27 years of experience US Coast Guard PO Box 25517 Juneau, AK 99802-5517
Linda Daugherty Office of Pipeline Safety US Department of Transportation Pipeline and Hazardous Materials Safety Administration 1200 New Jersey Avenue, SE Washington, DC 20590	Joan Kluwe, PhD National Park Service Cooperating Agency Representative Ph.D., Natural Resources; B.S. and M.S., Forestry 30 years of experience National Park Service Alaska Regional Office 240 West 5th Avenue Anchorage, AK 99501
David Hassell Office of Pipeline Safety US Department of Transportation Pipeline and Hazardous 188 West Northern Lights Boulevard, Suite 520 Anchorage, AK 99503	Nathan Hill Manager Lake and Peninsula Borough PO Box 495 King Salmon, AK 99613

Table 7-1: Lead Agency and Cooperating Agencies

Cooperating Agencies	
Kyle Moselle Associate Director Alaska Department of Natural Resources Office of Project Management and Permitting PO Box 111030 Juneau, AK 99801	Robert (Bob) Loeffler Consultant to Lake and Peninsula Borough Jade North LLC Anchorage, AK 99517
Courtenay Carty Tribal Administrator Curyung Tribal Council PO Box 216 Dillingham, AK 99576	Nondalton Tribal Council PO Box 49 Nondalton, AK 99640

Table 7-2: List of Preparers

Third Party EIS Preparers (Prime Contractor – AECOM)			
Contributor	**Project Role**	**Education/Background**	**Years of Experience**
Jennifer Frownfelter	Principal-In-Charge	M.S., Public Policy	21
Bill Craig	Project Manager	B.S., Environmental Studies	28
Tara Bellion	Deputy Fiscal Project Manager; Administrative Record; Comment Analysis; Subject Matter Expert - Subsistence	B.S., Marine Science	24
Elizabeth Bella, PhD	Deputy Technical Project Manager	Ph.D., Ecology	19
Jon Isaacs	Social Environment - Discipline Lead; Lead - Public Involvement	B.A., Environmental Studies	42
Cara Wright, CPG	Physical Environment - Discipline Lead	M.S., Economic Geology; Certified Professional Geologist	30
Wes Cornelison	Biological Environment - Discipline Lead	M.S., Biology	18
Nancy Darigo, PG, CEG	Physical Environment - Subject Matter Expert	M.S., Geology; Professional Geologist, Certified Engineering Geologist	31
Bill Killam	Senior Advisor	B.A., Anthropology, Sociology, and Psychology	44
Cecil Urlich, PE	Mining - Subject Matter Expert	M.Sc., Geotechnical Engineering; Professional Engineer	43
Jack Colonell, PE, PhD.	Subject Matter Expert, Oceanography & Surface Water Hydrology	Ph.D, Civil Engineering	51
Anne Baldrige	Senior Advisor	MBA, Finance and Accounting B.S., Geology	40
Taylor Brelsford	Senior Advisor, Subject Matter Expert - Subsistence	M.A., Anthropology	39
Gary Reimer	Senior Advisor	B.A., Political Science Studies	35

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Jessica Evans	Public Involvement – Assistant Lead; Comment Analysis; Social Environment - Assistant Discipline Lead; Lands - Subject Matter Expert	M.S., Bioregional Planning	9
G. Roy Leidy	Senior Advisor – Fish and Aquatic Resources	B.S., Forestry and Resource Management	48
Sasha Forland	Biological Environment - Subject Matter Expert; Project Technical Quality Lead	B.S., Biology	20
Allison Payne	Physical Environment – Subject Matter Expert	M.S. Geology/Volcanology	12
Tom Damiana	Air Quality – Subject Matter Expert	M.S., Aerospace Engineering	21
Linsey DeBell	Air Quality– Subject Matter Expert	M.S., Earth Science	18
James Dietzmann	Surface Water Hydrology - Subject Matter Expert	B.S., Watershed Science	24
Richard Henry	Surface and Groundwater Hydrology – Subject Matter Expert	Ph.D., Geochemistry	41
Paul Myerchin	Soils - Subject Matter Expert	B.S., Geology	20
Burr Neely	Cultural Resources - Subject Matter Expert	M.A., Northern Studies/Cultural Resource Management	18
Jennifer Williams	Engineer – Failure Modes Effects Analysis	Geotechnical Engineer	20
Andrew Fisher	Birds, Wildlife - Subject Matter Expert	B.S., Wildlife, Fish, and Conservation Biology	13
MacNamara Shoulders	Fish, Aquatic Resources and Essential Fish Habitat – Subject Matter Expert	B.S., Biology	36
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Maria Shepherd	Birds, Wildlife, Wetlands, and Vegetation - Subject Matter Expert	B.A., Zoology	31
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Dilip Mathur, PhD Normandeau Associates	Fish, Aquatic Resources and Essential Fish Habitat – Subject Matter Expert	Ph.D., Fisheries Management and Biometrics	50
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Jonathan King Halycon Consulting	Social Environment – Subject Matter Expert	M.S., Natural Resource Economics	22
Dilip Mathur, PhD Normandeau Associates	Fish, Aquatic Resources and Essential Fish Habitat – Subject Matter Expert	Ph.D., Fisheries Management and Biometrics	50
Sue Ban ECO49	Senior National Environmental Policy Act (NEPA) Advisor	M.S., Biological Oceanography	33
Jim Munter, CGWP, CPG	Groundwater Hydrology - Subject Matter Expert	M.S., Geology	39
Joseph Meyer, PhD Applied Limnology Professionals	Toxicology – Senior Advisor	Ph.D., Zoology	42
Edmund “Ned” Gaines Brice Environmental	Archeological Resources – Senior Advisor	M.A., Anthropology	19

8.0 LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF THE STATEMENT HAVE BEEN SENT

8.1 FEDERAL AGENCIES

Advisory Council on Historic Preservation

US Department of the Interior, Bureau of Indian Affairs

US Department of the Interior, Bureau of Ocean Energy Management

US Department of the Interior, Bureau of Safety and Environmental Enforcement

US Army Corps of Engineers

US Coast Guard, 17th District

US Department of the Interior, Fish & Wildlife Service

US Department of Transportation, Pipeline and Hazardous Materials Safety Administration

US Environmental Protection Agency

US Department of the Interior, National Park Service

US National Oceanic and Atmospheric Administration, National Marine Fisheries Service

US Senate Committee on Environment and Public Works

8.2 TRIBAL GOVERNMENT

Aleknagik Traditional Council

Chignik Bay Tribal Council

Chignik Lagoon Village Council

Chignik Lake Traditional Council

Clarks Point Village Council

Cook Inlet Tribal Council

Curyung Tribal Council

Egegik Village Council

Ekuk Village Council

Ekwok Village Council

Igiugig Village Council

Iliamna Village Council

Ivanof Bay Tribal Council

King Salmon Tribal Council

Kokhanok Village Council

Levelock Village Council

Manokotak Village Council

Naknek Village Council
Nanwalek IRA Council
Native Tribe of Kanatak
Native Village of Iliamna
Native Village of Kokhanok
Native Village of NonDalton
Native Village of Pedro Bay
Native Village of Perryville
Native Village of Nanwalek
New Koliganek Village Council
New Stuyahok Traditional Council
Newhalen Tribal Council
Ninilchik Traditional Council
Nondalton Tribal Council
Pedro Bay Village Council
Pilot Point Tribal Council
Port Graham Tribal Council
Port Heiden Village Council
Portage Creek Village Council
Seldovia Village Tribal Council
South Naknek Village Council
Traditional Council of Togiak
Twin Hills Village Council
Ugashik Traditional Council
United Tribes of Bristol Bay
Village Clark's Point
Village of Igiugig

8.3 STATE GOVERNMENT

Alaska Department of Commerce-Division of Community Economic Development
Alaska Department of Environmental Conservation
Alaska Department of Fish and Game (ADF&G)
ADF&G-Division of Commercial Fisheries
ADF&G-Division of Habitat
ADF&G-Division of Sport Fish

ADF&G-Division of Subsistence

ADF&G-Division of Wildlife Conservation

Alaska Department of Natural Resources (ADNR)

ADNR-Division of Agriculture

ADNR-Division of Geological and Geophysical Surveys

ADNR-Division of Mining, Land, and Water

ADNR-Office of History and Archeology

ADNR-Office of Project Management and Permitting

ADNR-State Pipeline Coordinator Services

Alaska Department of Health and Social Services

Alaska Department of Transportation and Public Facilities

8.4 PUBLIC OFFICIALS

8.4.1 Federal Congressional

Office of US Senator Lisa Murkowski

Office of US Senator Dan Sullivan

Office of US Congressman Don Young

8.4.2 State of Alaska

Office of State Governor Mike Dunleavy

Office of State Senator Gary Stevens

Office of State Senator Lyman Hoffman

Office of State Senator Peter Micciche

Office of State Representative Bryce Edgmon

Office of State Representative Mike Chenault

Office of State Representative Louise Stutes

Office of State Representative Paul Seaton

8.4.3 Local Government

Bristol Bay Borough Mayor Daniel O'Hara

City of Alegnagik Mayor Kay Andrews

City of Chignik Mayor Rodney Intagliata

City of Clarks Point Mayor Joseph Wassily

City of Dillingham Mayor Alice Ruby

City of Egegik Mayor Scovi Deigh

City of Ekwok Mayor Luki Akelkok, Sr.

City of Homer Mayor Ken Castor

City of Kenai Mayor Brian Gabriel

City of Kachemak Mayor William Overway

City of Manokotak Mayor Melvin Andrew

City of New Stuyahok Mayor Justin Ashoak

City of Newhalen Mayor Susanna Wassillie

City of Nondalton Mayor Joanna Trefon

City of Pilot Point Mayor Janice Ball

City of Port Heiden Mayor Jeffrey Orloff

City of Togiak Mayor Teodoro Pauk

City of Seldovia Mayor Dean Lent

Kenai Peninsula Borough Mayor Charlie Pierce

Kodiak Island Borough Mayor Daniel Rohrer

Lake and Peninsula Borough Mayor Glen Alsworth, Sr.

Municipality of Anchorage Mayor Ethan Berkowitz

8.4.4 Alaska Native Claims Settlement Act Corporations

Akhiok-Kaguyak, Incorporated

Alaska Peninsula Corporation

Aleknagik Natives Limited

Bay View Incorporated

Becharof Corporation

Bristol Bay Native Corporation

Chignik Lagoon Native Corporation

Chignik River Limited

Choggiung Limited

Chugach Alaska Corporation

Cook Inlet Region Corporation, Incorporated

Ekwok Natives Limited

Far West, Incorporated

Igiugig Native Corporation

Iliamna Natives Limited

Kijik Corporation

Kokhanok Native Corporation

Koliganek Native Limited

Koniag, Incorporated

Levelock Limited

Manokotak Natives Limited

Ninilchik Native Association Corporation

Oceanside Corporation

Olsonville Incorporated

Paug-Vik Incorporated Limited

Pedro Bay Corporation

Pilot Point Native Corporation

Saguyak Incorporated

Seldovia Native Association, Incorporated

Stuyahok Limited

Tanalian Incorporated

The Port Graham Corporation

Togiak Natives Limited

Twin Hills Native Corporation

8.5 APPLICANT

Pebble Limited Partnership

8.6 OTHER ENTITIES

Alaska Association of Historic Preservation

Alaska Historical Society

Alaska Trekking

Alaska Public Media

Alaska Public Radio Network

Alaska Journal

Alaska Journal of Commerce

Alutiiq Museum

Associated Press

Bristol Bay Fisherman's Association

Bristol Bay Economic Development Corporation

Bristol Bay Native Association

Bristol Bay Regional Seafood Development Association

Bristol Bay Subsistence Regional Advisory Council

Center for Alaskan Coastal Studies

Commercial Fishermen for Bristol Bay

Cooper Landing Historical Society

The Cordova Times

Center for Science in Public Participation (CSP2)

Eagle Spirit Studies Corporation

EarthJustice

Earthworks

Fishermen's News

HDR, Inc.

Kasilof Regional Historical Association

Kenai Historical Society

National Resources Defense Council

Nunamta Aulukestai

Pacific Seafood Processors Association

Pratt Museum

Renewal Resources Coalition

SalmonState

Save Bristol Bay (Trout Unlimited)

Soldotna Historical Society

Southcentral Subsistence Regional Advisory Council

Stop Pebble Mine

Trout Unlimited

Trustees for Alaska

Turner

United Fishermen of Alaska

Wild Salmon Center

8.7 LIBRARIES AND UNIVERSITIES

Alaska Resources Library and Information Services, Anchorage

Bristol Bay Borough Libraries (serving King Salmon, Naknek, and South Naknek)

Dillingham Public Library, Dillingham

Georgetown University, Washington, DC

Homer Public Library, Homer

Kenai Community Library, Kenai

Soldotna Public Library, Soldotna

University of Alaska/Alaska Pacific University Consortium Library, Anchorage

Z.J. Loussac Public Library, Anchorage

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9.0 REFERENCES

3PPI (Three Parameters Plus, Inc.). 2011a. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 5: Soils–Bristol Bay Drainages. December 9.

3PPI and HDR (Three Parameters Plus, Inc., and HDR Alaska, Inc.). 2011. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 13, Vegetation, Bristol Bay Drainages. September 8.

3PPI and HDR 2011b. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 14, Wetlands and Waterbodies, Bristol Bay Drainages. September 8.

16 USC (United States Code) Chapter 31: Marine Mammal Protection from Title 16, Conservation. Sections 1361 to 1423h.

55 FR (Federal Register) 49204. 1990. Listing of Steller Sea Lion as Threatened Under the Endangered Species Act. Final Rule. National Marine Fisheries Service. November 26.

58 FR 45269. 1993. Designated Critical Habitat; Steller Sea Lion. Final Rule. National Marine Fisheries Service. August 27.

62 FR 24345. 1997. Listing Rule: Endangered Status for Steller Sea Lion Western Distinct Population Segment. National Marine Fisheries Service. May 5.

62 FR 31748. 1997. Endangered and Threatened Wildlife and Plants; Threatened Status for the Alaska Breeding Population of the Steller's Eider. Final Rule. US Fish and Wildlife Service. June 11.

65 FR 13262. 2000. Endangered and Threatened Wildlife and Plants; Proposed Designation of Critical Habitat for the Steller's Eider. US Fish and Wildlife Service. Proposed Rule. March 13.

65 FR 34590. 2000. Designating the Cook Inlet, Alaska, Stock of Beluga Whale As Depleted Under The Marine Mammal Protection Act (MMPA). May 31.

71 FR 14836. 2006. Endangered and Threatened Wildlife and Plants: Announcement of Initiation of a Status Review of the Cook Inlet Beluga Whale under the Endangered Species Act (ESA). National Marine Fisheries Service. March 24.

72 FR 19854. 2007. Endangered and Threatened Species: Proposed Endangered Status for the Cook Inlet Beluga Whale. National Marine Fisheries Service. April 20.

72 FR 31132. 2007. Protection of Eagles; Definition of "Disturb." Final Rule. US Fish and Wildlife Service. 50 CFR Part 22. June 4.

73 FR 62919. 2008. Endangered and Threatened Species; Endangered Status for the Cook Inlet Beluga Whale. National Marine Fisheries Service. October 22.

74 FR 51988. 2009. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Southwest Alaska Distinct Population Segment of the Northern Sea Otter. US Fish and Wildlife Service. October 8.

76 FR 20180. 2011. Critical Habitat Designation for the Cook Inlet Beluga Whale. National Marine Fisheries Service. April 11.

78 FR 53391. 2013. Endangered and Threatened Wildlife; 90-Day Finding on a Petition to Delist the North Pacific Population of the Humpback Whale and Notice of Status Review. National Marine Fisheries Service. August 29.

81 FR 62260. 2016. Endangered and threatened Species; Identification of 14 Distinct Population Segments of the Humpback Whale (*Megaptera novaengliae*) and Revision of Species-Wide Listing. National Marine Fisheries Service. September 8.

81 FR 91494. 2016. Eagle Permits; Revisions to Regulations for Eagle Incidental Take and take of Eagle Nests. Final Rule. US Fish and Wildlife Service. December 16.

Abdel-Shafy, H. I., and M. S. Mansour. 2016. A review on polycyclic aromatic hydrocarbons: source, environmental impact, effect on human health and remediation. Egyptian Journal of Petroleum 25(1):107–123.

ABR (Alaska Biological Research). 2018a. Image Analysis Preliminary Summary Report Project: Pebble Project Area Iliamna Lake Ice Study. August 1.

ABR. 2018b. Field Summary Report for the Pebble Project Area Marine Wildlife Surveys covering April 15–19, 2018. June 19.

ABR. 2018c. Field Summary Report for the Pebble Project Area Marine Wildlife Surveys covering April 28–May 3, 2018. June 19.

ABR. 2018d. Field Summary Report for the Pebble Project Area Marine Wildlife Surveys covering May 14–19, 2018. July 5.

ABR. 2018e. Field Summary Report for the Pebble Project Area Marine Wildlife Surveys covering June 12–14, 2018. June 18.

ABR. 2018f. Field Summary Report for the Pebble Project Area Marine Wildlife Surveys covering July 7–11, 2018. July 17.

ABR. 2018g. Pebble Project Area Waterbird Surveys, September 4–6, 2018. October 1.

ABR. 2018h. Pebble Project Area Waterbird Surveys, October 6, 2018. October 19.

ABR. 2018i. Pebble Project Area Landbird and Shorebird Surveys, June 1–8, 2018. July 17.

ABR. 2018j. Landbird and Shorebird Surveys in the South Access Road Corridor, Pebble Project, 2018. Surveys Conducted in June 2018. December 4.

ABR. 2018k. Pebble Project Area Coastal Bear Surveys on May 20, May 28, and July 2, 2018. October 28.

ABR. 2018l. Pebble Project Area Raptor Nesting Surveys July 12–14, 2018. October 16.

ABR. 2018m. Pebble Project Area Caribou Surveys on May 28–29, 2018. June 14.

ABR. 2018n. Pebble Project Area Caribou Surveys on October 7, 2018. October 19.

ABR. 2018o. Pebble Project Area Bear Surveys of Salmon Streams, July 14–15, August 16–18, and September 7–8, 2018. October 28.

ABR. 2018p. Bear Den Suitability Mapping in Potential Transportation Corridors for the Proposed Pebble Mine. Draft Report. December 4.

ABR. 2015a. Pebble Project Supplemental Environmental Baseline Document 2004 through 2012. Chapter 16: Wildlife and Habitat—Mammals.

ABR. 2015c. Pebble Project Supplemental Environmental Baseline Document 2004 through 2012. Chapter 44: Marine Wildlife.

ABR. 2013a. Pebble Project Supplemental Environmental Baseline Document 2004 through 2012. Section 41.3: Raptor Nest Platform Surveys.

ABR. 2013b. Pebble Project Supplemental Environmental Baseline Document 2004 through 2012. Section 41.4: Wildlife and Habitat—Waterbirds.

ABR. 2011a. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 16: Wildlife and Habitat Bristol Bay Drainages. July 26.

ABR. 2011c. Pebble Project Environmental Baseline Document. 2008 through 2008 (with updates in 2010). Chapter 41: Terrestrial Wildlife and Habitat, Cook Inlet Drainages. July 25.

ABR. 2011d. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 44: Marine Wildlife, Cook Inlet Drainages. June 21.

ABR. 2011e. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 45: Threatened and Endangered Species and Species of Conservation Concern, Cook Inlet Drainages.

Abrahamson, M. 2011. The Bristol Bay Region: Area Relies on Fishing, Synthesis of Modern, and Traditional. Alaska Economic Trends. November.

ACCS (Alaska Center for Conservation Science). 2018a. Conservation Dataset for Rare Plant Occurrences. Available: http://accs.uaa.alaska.edu/conservation-data.

ACCS. 2018b. Alaska Exotic Plants Information Clearinghouse database. Available: http://aknhp.uaa.alaska.edu/apps/akepic/. Accessed January 16, 2019.

Adams et al. 2007. (Adams, P. N., P. Ruggiero, G. C. Schoch, and G. Gelfenbaum. 2007.) Intertidal sand body migration along a megatidal coast, Kachemak Bay, Alaska. Journal of Geophysical Research: Earth Surface, 112(F2).

ADCCED (Alaska Department of Commerce, Community, and Economic Development). 2018. Alaska Taxable 2017, Municipal Taxation, Rates and Policies, and Full Value Determination Supplement. Available: https://www.commerce.alaska.gov/dcra/DCRARepoExt/RepoPubs/Taxable/2017-AlaskaTaxableSupplement.pdf.

ADCCED (Alaska Department of Commerce, Community, and Economic Development). 2018. Research & Analysis. Division of Community & Regional Affairs. Available: https://www.commerce.alaska.gov/web/dcra/ResearchAnalysis.aspx. Accessed May 14, 2018.

ADCCED (Alaska Department of Commerce, Community, and Economic Development, Division of Community and Regional Affairs). 2017. Community: Homer. Available: https://www.commerce.alaska.gov/dcra/DCRAExternal/community/Details/9c16b6f1-1486-4cf4-a1ff-21a74ecd4967. Accessed May 8, 2018.

ADEC (Alaska Department of Environmental Conservation). 2018a. Village Safe Water Program. Available: https://dec.alaska.gov/water/village-safe-water. Accessed March 2018.

ADEC. 2018b. 18 AAC 70 Water Quality Standards as Amended April 6, 2018. Register 226. Division of Water. Juneau, AK.

ADEC. 2018c. Division of Air Quality Air Permit Program—Permit Information; Industrial Data Summary 031318.xlsx. Available: http://dec.alaska.gov/air/mainair.htm. Last revised January 1, 2017. Accessed March 2018.

ADEC. 2018d. Contaminated Sites. Division of Spill Prevention and Response. Available: http://dec.alaska.gov/spar/csp.aspx. Accessed March 2018.

ADEC. 2018f. Drinking Water Watch. Available: http://dec.alaska.gov/dww/.

ADEC. 2018g. ArcGIS—Drinking Water Protection Areas. Available: http://www.arcgis.com/home/webmap/viewer.html?webmap=13ed2116e4094f9994775af9a62a1e85.

ADEC. 2018h. PPR Spills Database Search. Division of Spill Prevention and Response. Available: https://dec.alaska.gov/Applications/SPAR/PublicMVC/PERP/SpillSearch.

ADEC. 2018i. Prevention and Emergency Response Program. Division of Spill Prevention and Response.

ADEC. 2017a. 18 AAC 75 Oil and Other Hazardous Substances Pollution Control. Department of Environmental Conservation. November 7.

ADEC. 2017b. Guidance on Developing Conceptual Site Models. Division of Spill Prevention and Response Contaminated Sites Program. January.

ADEC. 2016a. State of Alaska 2015 Ambient Air Quality Network Assessment. November.

ADEC. 2016b. ADEC Modeling Review Procedures Manual. May 12.

ADEC. 2016c. Alaska Pollutant Discharge Elimination System General Permit for Discharges from Large and Small Construction Activities (Construction General Permit)—Final, Permit Number: AKR-100000. Available: https://dec.alaska.gov/water/wastewater/stormwater/construction. Accessed September 4, 2018.

ADEC. 2013d. Sediment Quality Guidelines (SQG). Technical Memorandum. July.

ADEC. 2012c. 18 AAC 80 Drinking Water. Amended August 20, 2012.

ADEC. 2011. Amendments to: State Air Quality Control Plan, Vol. II: Analysis of Problems, Control Actions, Section III.K: Areawide Pollutant Control Program for Regional Haze. February 11.

ADEC. 2010. Alaska's Climate Change Strategy: Addressing Impacts in Alaska. Final Report Submitted by the Adaption Advisory Group to the Sub-Cabinet. January 27.

ADEC. 2008a. Alaska Water Quality Criteria Manual for Toxic And Other Deleterious Organic and Inorganic Substances. December 12.

ADEC (Alaska Department of Environmental Conservation) 2018-RFI (Request for Information) 064a. Follow-up to RFI 064 response—Water Quality Criteria. AECOM Request for Information, Alaska Department of Environmental Conservation. November 2.

ADEED (Alaska Department of Education and Early Development). 2018. District Enrollment by Grade as of October 1, 2017. Available: https://education.alaska.gov/stats/DistrictEnrollment/2018DistrictEnrollment.pdf. Accessed March 2018.

ADF&G (Alaska Department of Fish and Game). 2019a. Commercial Fishing by Area: Cook Inlet. Available: https://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareacookinlet.main.

ADF&G. 2019b. Winter Conditions Increase Moose-Vehicle Collision Risks. Press Release. January 14.

ADF&G. 2018a. McNeil River State Game Sanctuary Annual Management Report 2017. Written by T. M. Griffin and E. W. Weiss.

ADF&G. 2018b. McNeil River State Game Sanctuary and Refuge: Area Overview. Available: http://www.adfg.alaska.gov/index.cfm?adfg=mcneilriver.main. Accessed March 24, 2018.

ADF&G. 2018c. McNeil River State Game Sanctuary and Refuge: During Your Stay. Available: http://www.adfg.alaska.gov/index.cfm?adfg=mcneilriver.stay. Accessed March 24, 2018.

ADF&G. 2018d. Alaska Sport Fishing Survey. Available: https://www.adfg.alaska.gov/sf/sportfishingsurvey/index.cfm?ADFG=area.results.

ADF&G. 2018e. McNeil River State Game Sanctuary and Refuge: Permits. Available: http://www.adfg.alaska.gov/index.cfm?adfg=mcneilriver.permits. Accessed March 20, 2018.

ADF&G. 2018f. Transporter Access Permits. Available: http://www.adfg.alaska.gov/index.cfm?adfg=viewingpermits.mcneil_transporter. Accessed March 24, 2018.

ADF&G. 2018h. Fishing in Alaska. Available: http://www.adfg.alaska.gov/index.cfm?adfg=fishing.main. Accessed March 22, 2018.

ADF&G. 2018i. Wood Frog Monitoring Program. Available: http://www.adfg.alaska.gov/index.cfm%3Fadfg%3Dcitizenscience.woodfrog. Accessed May 10, 2018.

ADF&G. 2018j. Commercial Salmon Fisheries: Bristol Bay Management Area. 2011–2017 data. Available: http://www.adfg.alaska.gov/index.cfm?adfg=commercialbyareabristolbay.salmon#fishcounts. Accessed March 2018.

ADF&G. 2018k. Commercial Fisheries: Home Page and Commercial Fishing Links. Available: http://www.adfg.alaska.gov/index.cfm?adfg=fishingCommercial.main.

ADF&G. 2018l. Welcome to the Community Subsistence Information System: CSIS. State of Alaska. Available: https://www.adfg.alaska.gov/sb/CSIS/index.cfm?ADFG=main.home. Accessed October 12, 2018.

ADF&G. 2018m. Prepared by T. Elison, P. Salomone, T. Sands, G. Buck, K. Sechrist, and D. Koster. 2018. 2017 Bristol Bay Annual Management Report. Fishery Management Report No. 18-11, Anchorage.

ADF&G. 2018o. Kachemak Bay—Critical Habitat Area. Available: http://www.adfg.alaska.gov/index.cfm?adfg=kachemakbay.main. Accessed December 4, 2018.

ADF&G. 2018p. Our Agency: Mission. Available: http://www.adfg.alaska.gov/index.cfm?adfg=about.mission. Accessed January 16, 2019.

ADF&G. 2018q. Agency Comments on the Preliminary Draft Environmental Impact Statement, Section 3.6 and 4.6. December 28,2018.

ADF&G. 2018r. Annual Report to the Alaska Board of Game on Intensive Management for Caribou with Wolf Predation Control in Game Management Units 9B, 17B&C, and 19A&B, the Mulchatna Caribou Herd. Prepared by the Division of Wildlife Conservation. February.

ADF&G. 2018r. Food Security and Wild Resource Harvests in Alaska. Division of Subsistence. July. Available: http://www.adfg.alaska.gov/static/home/subsistence/pdfs/food_security_whitepaper.pdf.

ADF&G. 2018s. Cooperating Agency Review_ADFG Comments_rev1. ADF&G comments on Draft Section 3.23. Received by US Army Corps of Engineers on December 28, 2018.

ADF&G. 2018u. Fish Species Information. Available: https://www.adfg.alaska.gov/index.cfm?adfg=animals.listfish.

ADF&G. 2018w. Commissioner Cotten Addresses King Salmon Closures and Restrictions in Northern Cook Inlet. Office of the Commissioner. March 15.

ADF&G. 2018w. Food Security and Wild Resource Harvests in Alaska. July. Available: http://www.adfg.alaska.gov/static/home/subsistence/pdfs/food_security_whitepaper.pdf.

ADF&G. 2017a. 2016 Bristol Bay Area Annual Management Report. Fishery Management Report No. 17-27. Divisions of Sport Fish and Commercial Fisheries. May. Available: http://www.adfg.alaska.gov/FedAidPDFs/FMR17-27.pdf.

ADF&G. 2017b. Alaska Statewide Sport Fish Harvest Survey, 2017. Regional Operational Plan SF.4A.2017.06. Divisions of Sport Fish and Commercial Fisheries. December. Available: http://www.adfg.alaska.gov/FedAidPDFs/ROP.SF.4A.2017.06.pdf.

ADF&G. 2017c. 2017–2020 Cook Inlet Area Commercial Salmon Fishing Regulations. Available: http://www.adfg.alaska.gov/static/regulations/fishregulations/pdfs/commercial/2017_2020_cf_cook_inlet_salmon.pdf.

ADF&G. 2016a. 2016 Kenai River King Salmon Sport Fishing and Upper Cook Inlet Commercial Fishing Outlook. News Release. July 1. Available: http://www.adfg.alaska.gov/sf/eonr/index.cfm?adfg=region.nr&nrid=2286&year=2016.

ADF&G. 2015a. Alaska Wildlife Action Plan. Juneau, AK.

ADF&G. 2015b. Northern Alaska Peninsula Caribou Herd Update. Tier II Hunt to Reopen in 2016.

ADF&G. 2014. Annual Report to the Alaska Board of Game on Intensive Management for Caribou with Wolf Predation Control in Game Management Units 9B, 17B&C, and 19A&B, the Mulchatna Caribou Herd.

ADF&G 2008a. McNeil River State Game Sanctuary Annual Management Report. Written by Thomas M. Griffin and Edward W. Weiss.

ADF&G. 2008c. Matanuska-Susitna Valley & West Cook Inlet King Salmon. Northern Cook Inlet Recreational Fishing Series. Southcentral Region, Division of Sport Fish. Available: http://www.adfg.alaska.gov/static-sf/Region2/pdfpubs/MatSuKingSalmon.pdf. Accessed September 2018.

ADF&G. 1985. Alaska Habitat Management Guide, Southwest Region Map Atlas. Division of Habitat, Juneau, AK.

ADF&G. n.d. Alaska's Economy and Subsistence. Division of Subsistence.

ADF&G (Alaska Department of Fish and Game) 2018-RFI (Request for Information) 089. Supplement Wildlife Harvest and Subsistence Fishing Harvest Data. AECOM Request for Information, Alaska Department of Fish and Game. November 7.

ADHSS (Alaska Department of Health and Social Services). 2018. 2016–2017 Influenza Season Data (12 months).

ADHSS. 2017a. Health Analytics and Vital Records: Alaska Resident Leading Causes of Death—Top Ten by Year (2012–2016).

ADHSS. 2017b. Tuberculosis in Alaska, 2012–2016. State of Alaska Epidemiology Bulletin. Department of Health and Social Services. Bulletin No. 9. April 11.

ADHSS. 2017c. Alaska Facts and Figures: Preliminary Leading Causes of Hospitalizations—Top Ten (2016).

ADHSS. 2015. Technical Guidance for Health Impact Assessment In Alaska. State of Alaska Health Impact Assessment Program, Department of Health and Social Services. Version 2.0.

ADL (Arthur D. Little Inc.). 2001. Sediment Quality in Depositional Areas of Shelikof Strait and Outermost Cook Inlet. OCS Study, MS-2000-024, Anchorage, AK: US Department of the Interior, Minerals Management Service, Alaska Outer Continental Shelf Region.

ADLWD (Alaska Department of Labor and Workforce Development). 2018a. Bristol Bay Fishing and Seafood Industry Data. Available: http://live.laborstats.alaska.gov/seafood/seafoodbristol.cfm.

ADNR (Alaska Department of Natural Resources). 2018a. Well Log Tracking System (WELTS). Available: https://dnr.alaska.gov/welts/#show-welts-intro-template. Accessed August 10, 2010.

ADNR. 2018d. Cook Inlet SPCS Pipeline/Unit Reference Map. State Pipeline Coordinators Section, May 2018. May 1.

ADNR. 2018e. Cook Inlet Areawide Oil and Gas Lease. Preliminary Finding of the Director. June 29.

ADNR. 2017a. Guidelines for Cooperation with the Alaska Dam Safety Program. Prepared by Dam Safety and Construction Unit, Water Resources Section. Division of Mining, Land and Water. July 28.

ADNR. 2015. Fact Sheet: Production Royalty. Division of Mining, Land & Water. June. Available: http://dnr.alaska.gov/mlw/factsht/mine_fs/producti.pdf.

ADNR. 2014a. Early Entry Authorization. Division of Mining, Land and Water. Permit No. ADL 230795. April 10.

ADNR. 2014c. An Overview: The Process for Large Mine Permitting in Alaska. Office of Project Management and Permitting. July.

ADNR. 2013a. Bristol Bay Area Plan for State Lands. Adopted April 2005, revised September 2013. Division of Mining, Land and Water Resource Assessment and Development Section.

ADNR. 2013b. ANCSA 17(b) Easements Information. Division of Mining, Land and Water. Available: http://dnr.alaska.gov/mlw/trails/17b/. Accessed March 21, 2018.

ADNR. 2011. Fact Sheet: Generally Allowed Uses on State Land. Division of Mining, Land, and Water. August.

ADNR. 2008. Fact Sheet: Land for Alaskans. December.

ADNR. 2006. 11 AAC 97.200. Land Reclamation Performance Standards. Available: http://www.touchngo.com/lglcntr/akstats/aac/title11/chapter097/section200.htm. Last modified July 5, 2006. Accessed May 22, 2018.

ADNR. 2005. Nushagak and Mulchatna Rivers Recreation Management Plan: A Component of the Bristol Bay Area Plan. Division of Mining, Land and Water, Resource Assessment

and Development Section. Adopted April 19, 2005. Available: http://dnr.alaska.gov/mlw/planning/mgtplans/.

ADNR. 2001. Kenai Area Plan. Division of Mining, Land and Water Resource Assessment and Development Section.

ADNR. 1990. Bristol Bay Easement Atlas. Division of Land & Water. May.

ADNR (Alaska Department of Natural Resources) 2018-RFI (Request for Information) 073. No Action Alternative. AECOM Request for Information, Alaska Department of Natural Resources. November 13.

ADNR 2018-RFI 073. No Action Alternative. AECOM Request for Information, Alaska Department of Natural Resources. September 27.

ADOL (Alaska Department of Labor and Workforce Development). 2018. Alaska Local and Regional Information. Department of Labor and Workforce Development Research and Analysis website. Available: http://live.laborstats.alaska.gov/alari/index.cfm?r=6&b=16&p=141&goplace=go. Accessed March 2018.

ADOL. 2017a. Alaska Economic Trends, The Cost of Living. July.

ADOL. 2017b. Preliminary Third Quarter Employment and Wages: July–September 2017. Available: http://live.laborstats.alaska.gov/qcew/. Accessed March 2018.

ADOL. 2016. Alaska Population Projections 2015 to 2045. April.

ADOL. 2008. Alaska Economic Trends, The Cost of Living in Alaska. July.

ADOT&PF (Alaska Department of Transportation and Public Facilities). 2018a. Alaska Department of Transportation & Public Facilities Report. Legislative Session 2018, Updated January 2018.

ADOT&PF. 2018b. Alaska Traffic Counts—AADT. Available: http://akdot.maps.arcgis.com/home/webmap/viewer.html?webmap=7c1e1029fdb64d7a86449d55ef05e21c&extent=-179.9757,56.131,-121.8361,70.8937. Accessed March 22, 2018.

ADOT&PF. 2016. Best Management Practices (BMP) Guide for Erosion & Sediment Control. Available: http://www.dot.state.ak.us/stwddes/desenviron/resources/stormwater.shtml. Accessed September 4, 2018.

ADR (Alaska Department of Revenue, Tax Division). 2018. Fiscal Year 2017 Shared Taxes and Fees Annual Report. Available: http://www.tax.alaska.gov/programs/documentviewer/viewer.aspx?1417r.

AECOM. 2019a. Probabilities of Transportation Spill Scenarios, Pebble Mine EIS. Technical Memorandum. January 5.

AECOM. 2019b. Streamflow Change Resulting from Development of Proposed Pebble Mine. Technical Memorandum. January 11.

AECOM. 2018c. Pebble Project Memo: Noise Concepts and Methodology. From Mark Storm, AECOM, to Bill Craig, AECOM. May.

AECOM. 2018d. Pebble Project—Preliminary Estimation of Seiche Oscillation, Iliamna Lake. Technical Memorandum. May 25.

AECOM. 2018f. Pebble Project—Review of Seismic Hazard Analysis. Technical Memorandum. September 17.

AECOM. 2018g. Pebble Project—RFI 054 Technical Report Review. Technical Memorandum. September 24.

AECOM. 2018h. Pebble Project Memo: Site Visit Notes from Discipline Leads, AECOM, to Bill Craig, AECOM. August.

AECOM. 2018i. Pebble Project—Review of Water Treatment Approach. Technical Memorandum. October 25.

AECOM. 2018j. Pebble Project—Preliminary Estimation of Seiche Oscillation, Pile Bay, Iliamna Lake. Technical Memorandum. October 23.

AECOM. 2018k. EIS—Phase FMEA Workshop. AECOM Workshop Notes. October 24–25.

AECOM. 2018l. Pebble EIS—Phase Failure Modes and Effects Analysis Workshop Report. Prepared for US Army Corps of Engineers, Alaska District. EIS–Phase FEMA Report. December.

AECOM. 2018m. Pebble Project—Review of LIDAR Data for Evidence of Lake Clark Fault Activity. Technical Memorandum. November 6.

AECOM. 2018p. Pebble Project—Climate Change in the EIS. Technical Memorandum to US Army Corps of Engineers Re: Climate Change in the EIS. August 27.

AECOM. 2018q. Pebble Project—Final Data Gap Analysis. Technical Memorandum to US Army Corps of Engineers Re: Final Data Gap Analysis. November 19.

AELO (Angry Eagle Lodge & Outfitters). 2018. Exploring Southwest Alaska. Available: http://www.angryeagle.com/recreation/hiking/. Accessed October 8, 2018.

Agler et al 1995. (Agler, B. A., S. J. Kendall, P. E. Seiser, and D. B. Irons. 1995.) Monitoring Seabird Populations in Areas of Oil and Gas Development on the Alaskan Continental Shelf: Estimates of Marine Bird and Sea Otter Abundance in Lower Cook Inlet, Alaska during Summer 1993 and Winter 1994. Final Report. OCS Study MMS 94-0063. Anchorage, AK: US Fish and Wildlife Service. 124 pp.

Agness, A. M. 2006. Effects and Impacts of Vessel Activity on Kittlitz's Murrelet (*Brachyramphus brevirostris*) in Glacier Bay, Alaska. University of Washington, School of Aquatic and Fishery Sciences.

Agness et al. 2008. (Agness, A. M., J. F. Piaatt, J. C. Ha, and G. R. VanBlaricom. 2008.) Effects of vessel activity on the near-shore ecology of Kittlitz's murrelets in Glacier Bay, Alaska. The Auk 123:346–353.

AHRS (Alaska Heritage Resources Survey). 2018. Alaska Heritage Resources Survey database. Managed by the Alaska Office of History and Archaeology.

AHSO (Alaska Highway Safety Office). 2018. Fatality Analysis Reporting System (FARS). Available: http://dot.alaska.gov/stwdplng/hwysafety/fars.shtml. Accessed May 9, 2018.

AirNav. 2018. PAIL, Iliamna Airport, Iliamna, Alaska, USA. Available: http://www.airnav.com/airport/PAIL. Accessed March 14, 2018.

AirportIQ™ 5010. 2018. Airport Master Record and Reports. Available: https://www.gcr1.com/5010web/airport.cfm?Site=ILI&AptSecNum=2. Accessed September 2018.

Alaska Journal (Alaska Journal of Commerce). 2002. Red Dog's New Trucks Keep Tight Seal on Dust. January 27. Available: http://www.alaskajournal.com/community/2002-01-28/red-dogs-new-trucks-keep-tight-seal-dust#.XEvLuC7waos.

Allen, B. M. 1994. Holocene tephra and tsunami deposits along western Nushagak Bay, southwestern Alaska (abs.). Geological Society of America Abstracts with Programs 26(3):2.

Allen and Angliss 2012. (Allen, B. M., and R. P. Angliss. 2012.) Alaska Marine Mammal Stock Assessments, 2011. US Department of Commerce, National Oceanic and Atmospheric Administration Technical Memorandum NMFSAFSC-234. 297 pp.

Allen and Angliss 2015. (Allen, B. M., and R. P. Angliss. 2015.) Alaska Marine Mammal Stock Assessments, 2014. US Department of Commerce, National Oceanic and Atmospheric Administration Technical Memorandum. NMFS-AFSC-301, 313 pp.Allison and Allison 2005. (Allison, J. D., and T. L. Allison. 2005.) Partition Coefficients for Metals in Surface Water, Soil, and Waste. EPA/600/R-05/074. Washington, DC: US Environmental Protection Agency, Office of Research and Development.

Andrew, R. 2017. I Saw the Lake Iliamna Monster. The Delta Discovery. Available: http://deltadiscovery.com/i-saw-the-lake-iliamna-monster/. Last updated August 15, 2017. Accessed March 23, 2018.

ANTHC (Alaska Native Tribal Health Consortium). 2018. About LEO Network: The Eyes, Ears, and Voice of Our Changing Environment. Available: http://leonetwork.org/en/docs/about/about.

ANTHC. 2017a. Alaska Native Health Status Report—Second Edition. Alaska Native Epidemiology Center. August.

ANTHC. 2017b. Statewide Data—Life Expectancy. Alaska Native Epidemiology Center. February 1.

ANTHC. 2017c. Statewide Data—Dental Care. Alaska Native Epidemiology Center. January 10.

ANTHC. 2017d. Statewide Data—Adult Tooth Loss. Dental Care. Alaska Native Epidemiology Center. January 10.

ANTHC. 2017e. Statewide Data—Adult Mental Health. Dental Care. Alaska Native Epidemiology Center. January 10.

ANTHC. 2017f. Statewide Data—Suicide Mortality. Dental Care. Alaska Native Epidemiology Center. February 1.

ANTHC. 2017g. Statewide Data—Adult Binge Drinking. Dental Care. Alaska Native Epidemiology Center. January 10.

ANTHC. 2017h. Statewide Data—Alcohol Abuse Mortality. Dental Care. Alaska Native Epidemiology Center. September 26.

ANTHC. 2017i. Statewide Data—Leading Causes of Death. Dental Care. Alaska Native Epidemiology Center. September 26.

ANTHC. 2017j. Statewide Data—Unintentional Mortality. Dental Care. Alaska Native Epidemiology Center. September 26.

ANTHC. 2017k. Statewide Data—Chlamydia. Dental Care. Alaska Native Epidemiology Center. February 22.

ANTHC. 2017l. Statewide Data—Gonorrhea. Dental Care. Alaska Native Epidemiology Center. February 22.

ANTHC. 2017m. Statewide Data—Childhood Immunizations. Dental Care. Alaska Native Epidemiology Center. March 27.

ANTHC. 2017n. Statewide Data—Rural Water & Wastewater Services. Dental Care. Alaska Native Epidemiology Center. February 22.

ANTHC. 2017o. Statewide Data—Cancer Mortality. Dental Care. Alaska Native Epidemiology Center. February 1.

ANTHC. 2017p. Statewide Data—Heart Disease Mortality. Dental Care. Alaska Native Epidemiology Center. February 1.

ANTHC. 2017q. Statewide Data—COPD Mortality. Dental Care. Alaska Native Epidemiology Center. February 1.

ANTHC. 2017r. Statewide Data—Adult Overweight. Dental Care. Alaska Native Epidemiology Center. January 10.

ANTHC. 2017s. Statewide Data—Adult Obesity. Dental Care. Alaska Native Epidemiology Center. January 10.

ANTHC. 2017t. Statewide Data—Adult Physical Activity. Dental Care. Alaska Native Epidemiology Center. January 10.

ANTHC. 2017u. Statewide Data—Adult Current Smoking. Dental Care. Alaska Native Epidemiology Center. January 10.

ANTHC. 2017v. Statewide Data—Adult Smokeless Tobacco Use. Dental Care. Alaska Native Epidemiology Center. January 10.

ANTHC. 2016a. Statewide Data—Adequate Prenatal Care. Dental Care. Alaska Native Epidemiology Center. March 31.

ANTHC. 2016b. Statewide Data—Infant Mortality Rate. Alaska Native Epidemiology Center. March 31.

ANTHC. 2016c. Statewide Data—Teen Birth Rate. Alaska Native Epidemiology Center. March 31.

ANTHC. 2016d. Statewide Data—Hospitalizations. Alaska Native Epidemiology Center. December 17.

ANTHC. 2015. Statewide Data—Unintentional Injury Hospitalization. Alaska Native Epidemiology Center. May 22.

APC (Alaska Peninsula Corporation). 2018. Who We Are. Available: https://www.alaskapeninsulacorp.com/about. Accessed April 1, 2018.

Apgar-Kurtz, B. 2012. Factors Affecting Local Permit Ownership in Bristol Bay and an Evaluation of the BBEDC Loan Program: An Analysis of Based on Interviews with Local Residents. M.S. thesis, University of Washington.

ARCADIS. 2013. Environmental Evaluation Document. Donlin Gold Project. Prepared for Donlin Gold. May.

Arctos (Arctos Database). 2018. Collaborative Collection Management Solutions. Available: https://arctos.database.museum/.

Armes, C. J. 1996. Comparison of Holocene tsunami and modern storm-overwash deposits, northern Bristol Bay, southwestern Alaska (abs.). Geological Society of America Abstracts with Programs 28(3):35.

ASCE (American Society of Civil Engineers). 2018. 2017 Alaska Infrastructure Report Card. Available: https://www.infrastructurereportcard.org/state-item/alaska/. Accessed March 2018.

ASCE. 2017b. ASCE 7-16 Tsunami Design Zone Maps for Selected Locations. Abstract available: https://ascelibrary.org/doi/book/10.1061/9780784480748.

ASRC (ASRC Energy Services). 2017. Cultural Resources Desktop Study: Lake Iliamna Region. Prepared for Pebble Limited Partnership.

Athey 2017 and Werdon. (Athey, J. E., and M. B. Werdon. 2017.) Alaska's Mineral Industry 2016. Alaska Division of Geological & Geophysical Surveys Special Report 72. Available: http://doi.org/10.14509/29748.

Atkinson et al. 2009. (Atkinson, S., D. St. Aubin, and R. M. Ortiz. 2009.) Endocrine Systems. *In* Encyclopedia of Marine Mammals, eds. W. F. Perrin, B. Wursig, and J. G. M. Thewissen, 375–383. Salt Lake City, UT: Academic Press.

Atlas et al. 1983. (Atlas, R. M., M. I. Venkatesan, I. R. Kaplan, R. A. Feely, R. P. Griffiths, and R. Y. Morita. 1983.) Distribution of hydrocarbons and microbial populations related to sedimentation processes in lower Cook Inlet and Norton Sound, Alaska. Arctic 36:251–261.

ATSDR (Agency for Toxic Substances and Disease Registry). 1999. Mercury—Tox-FAQS™. Available: https://www.atsdr.cdc.gov/toxfaqs/tfacts46.pdf.

Auerbach 1997. (Auerbach, N. A., M. D. Walker, and D. A. Walker. 1997.) Effects of roadside disturbance on substrate and vegetation properties in Arctic tundra. Ecological Applications 7(1):218–235.

Ausenco (Ausenco Engineering). 2018. Response to US Army Corps of Engineers RFI 065 Summer Only Ferry Operations. Pebble Project Port Site—Project Memorandum. Document Number 102101-04-MEM-004-RA. September 7.

Australian Government Publishing Service. 1995. Sodium Ethyl Xanthate, Priority Existing Chemical No. 5. Full Public Report. May.

Authman et al 2015. (Authman, M. M. N., M. S. Zaki, E. A. Khallaf, and H. H. Abbas. 2015.) Use of fish as bio-indicator of the effects of heavy metals pollution. Journal of Aquatic Resource Development 6:328. doi:10.4172/2155-9546.1000328.

Avis et al. 2011. (Avis, C. A., A. J. Weaver, and K. J. Meissner. 2011.) Reduction in areal extent of high-latitude wetlands in response to permafrost thaw. Nature Geoscience 4(7):444.

AVO (Alaska Volcano Observatory). 2018a. Alaska Volcano Map. Available: https://avo.alaska.edu/volcanoes/.

Bailey, R. G. 1995. Descriptions of Ecoregions of the United States. US Forest Service, Rocky Mountain Research Station.

Baker et al. 1983. (Baker, C. S., L. M. Herman, B. G. Bays, and G. B. Bauer. 1983.) The Impact of Vessel Traffic on the Behavior of Humpback Whales in Southeast Alaska: 1982 Season. Report submitted to the National Marine Mammal Laboratory, National Marine Fisheries Service, Seattle, WA. May 17.

Baker et al. 1998. (Baker, C. S., L. Medrano-Gonzalez, J. Calambokidis, A. Perry, F. Pichler, H. Rosenbaum, J. M. Straley, J. Urban-Ramirez, M. Yamaguchi, and O. von Ziegesar. 1998.) Population structure of nuclear and mitochondrial DNA variation among humpback whales in the North Pacific. Molecular Ecology 7:695–707.

Baker et al. 1992. (Baker, C. S., J. M. Straley, and A. Perry. 1992.) Population characteristics of individually identified humpback whales in southeastern Alaska: summer and fall 1986. Fishery Bulletin 90:429–437.

Ballachey et al. 1994. (Ballachey, B. E., J. L. Bodkin, and A. R. DeGange. 1994.) An Overview of Sea Otter Studies. *In* Marine Mammals and the Exxon Valdez, ed. T. R. Loughlin, 47–60. San Diego, CA: Academic Press.

Barberopoulou et al. 2004. (Barberopoulou, A., A. Qamar, T. L. Pratt, K. C. Creager, and W. P. Steele. 2004.) Local amplification of seismic waves from the Denali Earthquake and damaging seiches in Lake Union, Seattle, Washington. Geophysical Research Letters 31(3).

Barbour et al. 1999. (Barbour, M. T., J. Gerritsen, B. D. Snyder, and J. B. Stribling. 1999.) Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish. Second edition. EPA/841-B-99-002. Washington, DC: US Environmental Protection Agency, Office of Water.

Barten, N. L. 2015. Mulchatna Herd Caribou, Units 9B, 17, 18 South, 19A, and 19B. *In* Caribou Management Report of Survey-Inventory Activities 1 July 2012–30 June 2014, eds. P. Harper and L. A. McCarthy, 3-1 through 3-22. Species Management Report ADF&G/DWC/SMR-2015-4. Juneau: Alaska Department of Fish and Game.

Bash, J., C. Berman, and S. Bolton. 2001. Effects of Turbidity and Suspended Solids on Salmonids. Seattle: University of Washington, Center for Streamside Studies. November.

BBNC (Bristol Bay Native Corporation). 2018. Land & Resource Policy. Available: https://www.bbnc.net/our-corporation/land/land-policy/. Accessed April 1, 2018.

BBRSDA (Bristol Bay Regional Seafood Development Association). 2018. Funded Projects, 2014–2018. Available: https://www.bbrsda.com/funded-projects/.

Becker, E. 2003. Brown Bear Line Transect Technique Development. Alaska Department of Fish and Game, Division of Wildlife Conservation. Research Final Performance Report. September.

Becker, E.F. 2010. Preliminary Final Report on Monitoring the Brown Bear Population Affected by Development Associated with the Proposed Pebble Mine Project. Anchorage: Alaska Department of Fish and Game. 31 pp.

Begét, J. E., and J. Kienle. 1992. Cyclic formation of debris avalanches at Mount St. Augustine volcano. Nature 356(6371):701.

Begét et al. 2008. (Begét, J., C. Gardner, and K. Davis. 2008.) Volcanic tsunamis and prehistoric cultural transitions in Cook Inlet, Alaska. Journal of Volcanology and Geothermal Research 176(3):377–386.

Bella, E. 2009. Invasive Plant Species Response to Climate Change in Alaska: Bioclimatic Models of Current and Predicted Ranges. Prepared by HDR Alaska. Prepared for US Fish and Wildlife Service. April.

Bennett, A. J. 1996. Physical & Biological Resource Inventory of the Lake Clark National Park–Cook Inlet Coastline, 1994–96. Lake Clark National Park & Preserve, Kenai Coastal Office.

Bettridge et al. 2015. (Bettridge, S. C., C. S. Baker, J. Barlow, P. J. Clapham, M. Ford, D. Gouveia, D. K. Mattila, R. M. Pace, P. E. Rosel, G. K. Silber, and P. R. Wade. 2015) Status Review of the Humpback Whale (*Megaptera Novaeangliae*) under the Endangered Species Act. NOAA Technical Memorandum. March.

BGC (BGC Engineering Inc.). 2014. Donlin Gold Project Numerical Hydrogeologic Model. Final. BGC Document No.: ER-0011165.0029 A. Prepared for Donlin Gold. July 18.

BGC 2011. Tailing Storage Facility Design. Donlin Creek LLC. Donlin Creek Gold Project Feasibility Study Update II. Document Number DC11-025. Project Number 0011-111-30. July 22.

Billmeier, C. 2015. Traditional Knowledge and 150 Miles of Alaskan Tundra and Ice. Available: https://medium.com/synapse/traditional-knowledge-and-150-miles-of-alaskan-tundra-and-ice-c06995edf4a. Accessed March 1, 2018.

Blackwell, S. B., and C. R. Greene Jr. 2003. Acoustic Measurements in Cook Inlet, Alaska during August 2001. Greeneridge Report 271-2. Report from Greeneridge Sciences, Inc., Santa Barbara, CA, for National Marine Fisheries Service, Anchorage, AK. 43 pp.

Blanchard, A. L., and H. M. Feder. 2003. Variations of Benthic Fauna Underneath an Effluent Mixing Zone at a Marine Oil Terminal in Port Valdez, Alaska. Proceedings from Extreme Events: Understanding Perturbations to the Physical and Biological Environment. Fairbanks, AK: Arctic Science Conference.

BLM (US Bureau of Land Management). 2013. Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands. First Edition.

BLM. 2009. ANCSA 17(B) Easements. Available: https://www.blm.gov/programs/lands-and-realty/regional-information/alaska/17b_easements. Accessed March 17, 2018.

BLM. 1986. Manual 8431—Visual Resource Contrast Rating. REL. 8-30, January 17.

Blodgett and Zhang 2018. (Blodgett, R.B., and N. Zhang. 2018.) Application of the Alaska Paleontological Database for Geological Studies (www.alaskafossil.org).

Blodgett et al. 1995. (Blodgett, R. B., R. E. Weems, and F. H. Wilson. 1995.) Upper Jurassic reptiles from the Naknek Formation, Alaska Peninsula; A glimpse into Alaska's own Jurassic Park. Geological Society of America, Abstracts with Programs 27(5):6.

BOEM (Bureau of Ocean Energy Management). 2016. Cook Inlet Planning Area Oil and Gas Lease Sale 244, in the Cook Inlet, Alaska Final EIS. OCS EIS/EA BOEM 2016-069. US Department of the Interior, Bureau of Ocean Energy Management, Alaska Outer Continental Shelf Region. December.

BOEM. 2016b. Draft Environmental Impact Statement, Alaska Outer Continental Shelf, Cook Inlet Planning Area Oil and Gas Lease Sale 224. Volume 2, Chapters 5–7 and Appendices.

BOEM. 2012. Outer Continental Shelf Oil and Gas Leasing Program: 2012–2017. Final Programmatic Environmental Impact Statement. OCS EIS/EA BOEM 2012-030. Anchorage, AK: US Department of the Interior, Bureau of Ocean Energy Management, Alaska Outer Continental Shelf Region.

Bogan et al. 2012. (Bogan, D., R. Shaftel, and D. Rinella. 2012.) Baseline Biological Surveys in Wadeable Streams of the Kvichak and Nushagak Watersheds, Bristol Bay, Alaska. Prepared by Alaska Natural Heritage Program, University of Alaska, Anchorage, AK, for Alaska Department of Environmental Conservation, Anchorage.

Boggs et al. 2016. (Boggs, K., L. Flagstad, T. Boucher, T. Kuo, D. Fehringer, S. Guyer, and M. Aisu. 2016.) Vegetation Map and Classification: Northern, Western, and Interior Alaska. Second Edition.

Boraas and Knott (2013). (A. S., and C. H. Knott. 2013.) Traditional Ecological Knowledge and Characterization of the Indigenous Cultures of the Nushagak and Kvichak Watersheds, Alaska. Submitted to the Bristol Bay Assessment: US Environmental Protection Agency. October 13. 154 pp.

Borden, L. 2018. Alaska Department of Fish and Game. Personal communication (email) between Lee Borden (ADF&G) and Jessica Evans of AECOM Requesting information from ADF&G. September 13.Bortle, J. E. 2001. Introducing the Bortle Dark Sky Scale. Sky and Telescope, February 2001.

Boulanger, J., and G. B. Stenhouse. 2014. The impact of roads on the demography of grizzly bears in Alberta. PloS One 9(12), e115535.

Boulanger et al. 2012. (Boulanger, J., K. G. Poole, A. Gunn, and J. Wierzchowski. 2012.) Estimating the zone of influence of industrial developments on wildlife: a migratory caribou *Rangifer tarandus groenlandicus* and diamond mine case study. Wildlife Biology 18(2):164–179.

Boveng et al. 2012. (Boveng, P. L., J. M. London, J. M. Ver Hoef, and A. O. C. S. Region. 2006.) Distribution and Abundance of Harbor Seals in Cook Inlet, Alaska. Task III: Movements, Marine Habitat Use, Diving Behavior, and Population Structure, 2004–2006.

Boyce et al. 2010. (Boyce, M. S., J. Pitt, J. M. Northrup, A. T. Morehouse, K. H. Knopff, B. Cristescu, and G. B. Stenhouse. 2010.) Temporal autocorrelation functions for movement rates from global positioning system radiotelemetry data. Philosophical Transactions of the Royal Society of London B: Biological Sciences 365(1550):2213–2219.

Brabets et al. 1999.(Brabets, T. P., G. L. Nelson, J. M. Dorava, and A. M. Milner. 1999.) Water-Quality Assessment of the Cook Inlet Basin, Alaska: Environmental Setting. (No. 99-4025.) US Department of the Interior, US Geological Survey, Branch of Information Services [distributor].

Bradley et al. 2005. (Bradley, M. J., S. J. Kutz, E. Jenkins, and T. M. O'Hara. 2005.) The potential impact of climate change on infectious diseases of Arctic fauna. International Journal of Circumpolar Health 64(5):468–477.

Bray, J. D. 2013. Liquefaction Effects on Structures. University of California, Berkeley, Presentation at 2013 Peck Lecture at Geo-Congress, San Diego, CA. August 27.

Bray, J. D., and T. Travasarou. 2007. Simplified procedure for estimating earthquake induced deviatoric slope displacements. Journal of Geotechnical and Geoenvironmental Engineering 133(4):381–392. April.

Brinson, M. M. 1993. A Hydrogeomorphic Classification for Wetlands. Wetlands Research Program Technical Report WRP-DE-4. Vicksburg, MS: US Army Corps of Engineers Waterways Experiment Station.

Brna, P. J., and L. A. Verbrugge. (eds.) 2013. Wildlife Resources of the Nushagak and Kvichak River Watersheds, Alaska. Final Report. Anchorage, AK: US Fish and Wildlife Service, Anchorage Fish and Wildlife Field Office. 177 pp.

Brooker, H. 2011. Tsunami Impact on Fuel Storage Containers. Lehigh University NEES REU Program. August.

Brookover, T., R. E. Minard, and B. A. Cross. 1997. Overview of the Nushagak-Mulchatna Chinook Salmon Fisheries, with Emphasis on the Sport Fishery. Alaska Department of Fish and Game, Regional Informational Report No. 2A97-35.

BSEE (US Department of the Interior, Bureau of Safety and Environmental Enforcement). 2018. Letter to James Fueg, PLP. April 9.

Buchman, M. F. 2008. NOAA Screening Quick Reference Tables. NOAA OR&R Report 08-1. Seattle, WA: National Oceanic and Atmospheric Administration, Office of Response and Restoration Division. 34 pp.

Buckland et al. 2001. (Buckland, S. T., D. R. Anderson, K. P. Burnham, J. L. Laake, D. L. Borchers, and L. Thomas. 2001.) Introduction to Distance Sampling: Estimating Abundance of Biological Populations. Oxford University Press.

Buell, J. W. 1991. Pebble Copper Prospect—Baseline Fisheries Investigations. Technical Memorandum to Cominco Alaska. Portland, OR: Buell and Associates, Inc.

Burbank, D. C. 1977. Circulation Studies in Kachemak Bay and Lower Cook Inlet. *In* Environmental Studies of Kachemak Bay and Lower Cook Inlet, eds. L. L. Trasky, L. B. Flagg, and D. C. Burbank, Volume III. Alaska Department of Fish and Game, Marine/Coastal Habitat Management.

Burn, D. M. 1994. Boat-Based Population Surveys of Sea Otters in Prince William Sound. *In* Marine Mammals and the Exxon Valdez, ed. T. R. Loughlin, Chapter 4, 61–80. San Diego, CA: Academic Press.

Burns et al 2014. (Burns, C. M. B., J. A. Olin, S. Woltmann, P. C. Stouffer, and S. S. Taylor. 2014.) Effects of oil on terrestrial vertebrates: predicting impacts of the Macondo Blowout. BioScience 64(9):820–828.

Burns et al. 2013. (J. M. Burns, H. Chythlook, C. Gomez, D. Withrow, and T. Askoak. 2013.) Integrating Local Traditional Knowledge and Subsistence Use Patterns with Aerial Surveys to Improve Scientific and Local Understanding of Iliamna Lake Seals. Anchorage: University of Alaska.

Burns et al. 2016. (Burns, J., J. Van Lanen, D. Withrow, D. Holen, T. Askoak, H. Aderman, G. O'Corey-Crowe, G. Zimpelman, and B. Jones. 2016.) Integrating Local Traditional Knowledge and Subsistence Use Patterns with Aerial Surveys to Improve Scientific and Local Understanding of the Iliamna Lake Seals. Technical Paper No. 416. June.

Butler, L. 2015. Caribou Annual Survey and Inventory. Federal Aid Annual Performance Report. The Status of Alaska Caribou and Factors Influencing Their Populations in Region IV. Period: 1 July 2014–30 June 2015. 11 pp.

Butler, L. G. 2006. Unit 9 Moose Management Report. *In* Moose Management Report of Survey and Inventory Activities, 1 July 2003–30 June 2005, ed. P. Harper, 107–115. Juneau: Alaska Department of Fish and Game, Division of Wildlife Conservation.

Butler, L. G. 2007a. Unit 9 Brown Bear Management Report. *In* Brown Bear Management Report of Survey and Inventory Activities, 1 July 2004–30 June 2006, ed. P. Harper,

109–120. Juneau: Alaska Department of Fish and Game, Division of Wildlife Conservation.

Butler, L. G. 2007b. Units 9C and 9E Caribou Management Report. *In* Caribou Management Report of Survey and Inventory Activities, 1 July 2004–30 June 2006, ed. P. Harper, 33–42. Juneau: Alaska Department of Fish and Game, Division of Wildlife Conservation.

Butler, L. G. 2008. Unit 9 Moose Management Report. *In* Moose Management Report of Survey and Inventory Activities, 1 July 2005–30 June 2007, ed. P. Harper, 116–124. Project 1.0. Juneau: Alaska Department of Fish and Game.

Calef et al. 2015. (Calef, M. P., A. Varvak, A. D. McGuire, F. S. Chapin III, and K. B. Reinhold. 2015.) Recent Changes in Annual Area Burned in Interior Alaska: The Impact of Fire Management. Earth Interactions 19: Paper 5.

Calkins, D. G. 1979. Marine Mammals of Lower Cook Inlet and the Potential for Impact from Outer Continental Shelf Oil and Gas Exploration, Development and Transport. *In* Environmental Assessment of the Alaskan Continental Shelf, Final Reports of Principal Investigators, Volume 20 (1983), 171–263. Boulder, CO: US Department of Commerce, Bureau of Land Management/National Oceanic and Atmospheric Administration.

Calkins, D. G., E. Becker, T. R. Spraker, and T. R. Loughlin. 1994. Impacts on Steller Sea Lions. *In* Marine Mammals and the Exxon Valdez, ed. T. R. Loughlin, 119–140. London: Academic Press.

Caltrans (California Department of Transportation). 2015. Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish. Sacramento, CA. November.

Caltrans. 2009. Technical Noise Supplement. Division of Environmental Analysis. November. Available: http://www.dot.ca.gov/hq/env/noise/pub/tens_complete.pdf. Accessed May 8, 2018.

Cardwell et al. 2013. (Cardwell, R. D., D. K. DeForest, K. V. Brix, and W. J. Adams. 2013.) Do Cd, Cu, Ni, Pb, and Zn biomagnify in aquatic ecosystems? Reviews of Environmental Contaimination and Toxicology 226:101–122.

Carretta et al. 2004. (Carretta, J. V., K. A. Forney, M. M. Muto, J. Barlow, J. Baker, and M. Lowry. 2004.) US Pacific Marine Mammal Stock Assessments: 2003. NOAA-TM-NMFS-SWFSC-358. March.

Carver et al. 2008. (Carver, G., J. Sauber, W. Lettis, R. Witter, and B. Whitney. 2008.) Active faults on northeastern Kodiak Island, Alaska. Active Tectonics and Seismic Potential of Alaska, 167–184.

CASA (Community and Systems Analysis). 1982. Skagway Coastal Management Program, Concept Approval Draft. Bainbridge Island, WA. September.

CBJ (City/Borough of Juneau, Alaska's Capital City). 2018. Emergency Management—Tsunamis and Seiches. Available: https://beta.juneau.org/emergency - a page that

CDC (Centers for Disease Control and Prevention). 2016. Smokeless Tobacco Use in the United States. Available: https://www.cdc.gov/tobacco/data_statistics/fact_sheets/smokeless/use_us/index.htm. Accessed March 28, 2018.

CDC. 2006. Cyanide: Public Health Statement. Available: https://www.atsdr.cdc.gov/PHS/PHS.asp?id=70&tid=19

CEQ (Council on Environmental Quality). 2014. Draft NEPA Guidance on GHG Emissions and Climate Change. Washington, DC. December.

CEQ. 1997. Environmental Justice: Guidance under the National Environmental Policy Act. Washington, DC: Executive Office of the President.

CFEC (Commercial Fisheries Entry Commission). 2018. Fishery Statistics—Participation & Earnings. Available: https://www.cfec.state.ak.us/fishery_statistics/earnings.htm.

CH2M Hill. 2013. Port of Anchorage Intermodal Expansion Project Suitability Study. Final Summary Report. Prepared for Port of US Army Corps of Engineers, Alaska District. February 14.

Chambers, D. M., and B. Higman. 2011. Long Term Risks of Tailings Dam Failure. October.

Chapin and Trainor 2014. (Chapin, F. S. III, S. F. Trainor, P. Cochran, H. Huntington, C. Markon, M. McCammon, A. D. McGuire, and M. Serreze. 2014.) Chapter 22: Alaska. *In* Climate Change Impacts in the United States: The Third National Climate Assessment, eds. J. M. Melillo, T. C. Richmond, and G. W. Yohe, 514–536. US Global Change Research Program. doi:10.7930/J00Z7150.

Ciminello et al. 2012. (Ciminello, C., R. Deavenport, T. Fetherston, K. Fulkerson, P. Hulton, D. Jarvis, B. Neales, J. Thibodeaux, J. Benda-Joubert, and A. Farak. 2012.) Determination of Acoustic Effects on Marine Mammals and Sea Turtles for the Atlantic Fleet Training and Testing Environmental Impact Statement/Overseas Environmental Impact Statement. NUWCNPT Technical Report 12,071. Newport, RI: Naval Undersea Warfare Center Division.

CIRI (Cook Inlet Region, Inc.). 2018. Our Lands: Unlocking the Potential of Our Lands, Building a Strong Future for Our People. Available: http://www.ciri.com. Accessed April 1, 2018.

City of Dillingham. 2010. Dillingham Comprehensive Plan Update and Waterfront Plan.

Clark et al. 2010. (Clark, R., A. Ott, M. Rabe, D. Vincent-Lang, and D. Woodby. 2010.) The Effects of a Changing Climate on Key Habitats in Alaska. Special Publication No. 10-14. Alaska Department of Fish and Game, Divisions of Sport and Commercial Fisheries, Habitat, and Wildlife Conservation. September.

Clewley et al. 2015. (Clewley, D., J. Whitcomb, M. Moghaddam, K. McDonald, B. Chapman, and P. Bunting. 2015.) Evaluation of ALOS PALSAR data for high-resolution mapping of vegetated wetlands in Alaska. Remote Sensing 7(6):7272–7297.

Colonell et al. 1992. (Colonell, J. M., B. J. Gallaway, and A. W. Niedoroda. 1992.) Environmental Effects of Beaufort Sea Causeways. *In* Coastal Engineering Practice, 958–974. ASCE. March.

Colville (Colville Transport). 2018. Personal communication (phone call) between Allison Payne of AECOM and Dave Pfeifer of Colville Transport to obtain fuel trucking information for Section 4.27. September 13.

Conant, B., and D. J. Groves. 2005. Alaska-Yukon Waterfowl Population Survey, May 15 to June 7, 2005. Juneau, AK: US Fish and Wildlife Service.

Consiglieri, L. D., H. W. Braham, M. E. Dahlheim, C. Fiscus, P. D. McGuire, C. E. Peterson, and D. A. Pippenger. 1982. Seasonal Distribution and Relative Abundance of Marine Mammals in the Gulf of Alaska. Research Unit 68.

Cook, J. A., and S. O. MacDonald. 2004a. Mammal Inventory of Alaska's National Parks and Preserves: Lake Clark National Park and Preserve. Anchorage, AK: National Park Service, Southwest Alaska Network Inventory and Monitoring Program. 34 pp.

Cook, J. A., and S. O. MacDonald. 2004b. Mammal Inventory of Alaska's National Parks and Preserves: Katmai National Park and Preserve. Annual Report 2004. Anchorage, AK: National Park Service, Southwest Alaska Network Inventory and Monitoring Program.

Costa, D. P., and G. L. Kooyman. 1984. Contribution of specific dynamic action to heat balance and thermoregulation in the sea otter *Enhydra lutris*. Physiological Zoology 57:199–203.

Cowardin et al. 1979. (Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979.) Classification of Wetlands and Deepwater Habitats of the United States. Publication FWS/OBS-79/31. Washington, DC: US Fish and Wildlife Service, Office of Biological Services.

Crawford, P. L. 1987. Tsunami Predictions for the Coast of Alaska Kodiak Island to Ketchikan. (No. CERC-TR-87-7.) Vicksburg, MS: Coastal Engineering Research Center.

Cristescu et al. 2016. (Cristescu, B., G. B. Stenhouse, and M. S. Boyce. 2016.) Large Omnivore Movements in Response to Surface Mining and Mine Reclamation. Scientific Reports 6, 19177; doi: 10.1038/srep19177.

Curran et al., 2016. (Curran, J. H., N. A. Barth, A. G. Veilleux, and R. T. Ourso. 2016.) Estimating Flood Magnitude and Frequency at Gaged and Ungaged Sites on Streams in Alaska and Conterminous Basins in Canada, Based on Data through Water Year 2012. US Geological Survey Scientific Investigations Report 2016–5024. 47 pp. Available: http://dx.doi.org/10.3133/sir20165024.

Czyewski et al. 2014. (Czyzewski, K., F. Tester, N. Aaruaq, and S. Blangy. 2014.) The Impact of Resource Extraction on Inuit Women and Families in Qamani'tuaq. Nunavut Territory, Rapport Présenté à la Fondation Canadienne des Femmes, Ottawa, Pauktuutit (Inuit Women of Canada) et Vancouver. University of British Columbia, School of Social Work. January.

Dann, T. Alaska Department of Fish and Game Fish Geneticist. Personal communication.

Davies, M. P. 2002. Tailings impoundment failures: Are geotechnical engineers listening? Waste GEOTechnics. September.

Day, S., and B. Rees. 2006. Geochemical Controls on Waste-Rock Dump Seepage Chemistry at Several Porphyry Mines in the Canadian Cordilleran. 7th International Conference on Acid Rock Drainage (ICARD), March 26–30, 2006, St. Louis, MO, ed. R. I. Bamhisel. Lexington, KY: American Society of Mining and Reclamation.

Day et al. 1997. (Day, S., G. Hope, and W. Kuit. 1997.) Waste Rock Management Planning for the Kudz Ze Kayah Project, Yukon Territory. Predictive Static and Kinetic Test Work. *In* Proceedings of the Fourth International Conference on Acid Rock Drainage, Vancouver, BC, Canada. May 31–June 6.

Day et al. 2005. (Day, R. H., A. K. Prichard, J. R. Rose, and A. A. Stickney. 2005.) Migration and Collision Avoidance of Eiders and Other Birds at Northstar Island, Alaska, 2001–2004. ABR, Incorporated, Environmental Research & Services.

Demma, N. 2011. Status, Range Use, and Survival of the Mulchatna Caribou Herd (MCH). PowerPoint Presentation.

DePauw et al. 2006. (De Pauw, N., W. Gabriels, and P. L. M. Goethals. 2006.) River Monitoring and Assessment Methods Based on Macroinvertebrates. *In* Biological Monitoring of Rivers, eds. G. Ziglio, M. Siligardi, and G. Flaim. West Sussex, England: Wiley Press.

Detterman, R. L., and B. L. Reed. 1980. Stratigraphy, Structure, and Economic Geology of the Iliamna Quadrangle, Alaska.

Detterman, R. L., and B. L. Reed. 1973. Surficial Deposits of the Illiamna Quadrangle, Alaska. US Geological Survey Bulletin 1368-A.

Deur, D. 2008. Alagnak Wild River Visitor Use Project: Alagnak Wild River Resident Users Study. Pacific Northwest Cooperative Ecosystem Studies Unit. University of Washington.

Diavik. 1999. Review of Diavik Diamonds Project Socio-Economic Environmental Effects Report: Impacts on Women and Families. March 5.

Dickins. 2018. Pebble Project Ice Database 1997–2016. Final Report. Prepared for the Pebble Limited Partnership. August 27.

Dischner, M. 2015a. By Road, Lake and River: Boats Make their Way to Bristol Bay. Published by Peninsula Clarion. June 20. Available: https://www.peninsulaclarion.com/news/2015-06-20/by-road-lake-and-river-boats-make-their-way-to-bristol-bay/.

Dischner, M. 2015b. AK: The Journey to Bristol Bay's Fishing Grounds. Published by Alaska Public Media. June 26. Available: https://www.alaskapublic.org/2015/06/26/ak-the-journey-to-bristol-bays-fishing-grounds/.

DNR (Alaska Department of Natural Resources). 2001. Kenai Area Plan, West Side of Cook Inlet South of Redoubt Bay.

Dolbeer et al. 2013. (Dolbeer, R. A., S. E. Wright, J. Weller, and M. J. Begier. 2013.) Wildlife Strikes to Civil Aircraft in the United States 1990–2012. Federal Aviation Administration, National Wildlife Strike Database Serial Report Number 19. September.

Dooling, R. J., and A. N. Popper. 2007. The Effects of Highway Noise on Birds. Prepared by Environmental BioAcoustics LLC. Prepared for the California Department of Transportation, Division of Environmental Analysis. September 30.

DOWL. 2016. Southwest Alaska Transportation Plan Update. Prepared for the Alaska Department of Transportation and Public Facilities.

Duffield et al. 2007. (Duffield, J., D. Patterson, and C. Neher. 2007.) Economics of Wild Salmon Watersheds: Bristol Bay, Alaska. Revised Final Report. Prepared for Trout Unlimited, Alaska. February.

Dunbar, D. 2013. Modeling of Pit Lakes. *In* Acidic Pit Lakes—The Legacy of Coal and Metal Surface Mines, eds. W. Geller, M. Schultze, R. Kleinmann, and C. Wolkersdorfer, Chapter 3, 186–224. Berlin and Heidelberg, Germany: Springer-Verlag.

Durham University. 1997. Earthworks. Available: http://community.dur.ac.uk/~des0www4/cal/roads/earthwk/earthwk.html. Last updated February 25, 1997.

Earthquake Spectra. 2008. Special Issue on the Next Generation Attenuation Project. Volume 24, No. 1.

eBird. 2018. eBird: An Online Database of Bird Distribution and Abundance [web application]. Ithaca, NY: Cornell Lab of Ornithology. Available: http://www.ebird.org. Accessed May 8, 2018.

Eley, W. D. 2012. Cook Inlet Vessel Traffic Study. Report to Cook Inlet Risk Assessment Advisory Panel. Juneau, AK: Cape International, Inc. January 12. 86 pp. Available: http://www.cookinletriskassessment.com/documents/120206CIVTSvFINAL.pdf.

Elison, T. et al. 2018. (Elison, T., P. Salomone, T. Sands, G. Buck, K. Sechrist, and D. Koster. 2018.) 2017 Bristol Bay Annual Management Report. Fishery Management Report No. 18-11. Anchorage: Alaska Department of Fish and Game.

Engelhardt, F. R. 1987. Assessment of the Vulnerability of Marine Mammals to Oil Pollution. *In* Fate and Effects of Oil in Marine Ecosystems, eds. J. Kiuper and W. J. Van Den Brink, 101–115. Boston, MA: Martinus Nijhoff Publishing.

EPA (US Environmental Protection Agency). 2018a. Search for Superfund Sites Where You Live. Available: https://www.epa.gov/superfund/search-superfund-sites-where-you-live. Accessed March 2018.

EPA. 2018b. Clean Air Status and Trends Network (CASTNET) for Denali National Park (site DEN417). Available: http://views.cira.colostate.edu/fed/SiteBrowser/Default.aspx. Accessed March 2018.

EPA. 2018c. Visibility and Regional Haze. Available: http://www.epa.gov/visibility. Accessed March 2018.

EPA. 2018d. National Recommended Water Quality Criteria. Available: https://www.epa.gov/wqc/national-recommended-water-quality-criteria. Last updated December 20, 2018. Accessed January 25, 2018.

EPA. 2018d. Technical Review of a Threshold-Based Approach for Determining Significant Degradation in Alaska. July 5.

EPA. 2017c. Drinking Water Contaminants—Standards and Regulations. Available: https://www.epa.gov/dwstandardsregulations.

EPA. 2016. Ecological Toxicity Information. Available: https://archive.epa.gov/reg5sfun/ecology/web/html/toxprofiles.html. Accessed December 17, 2018.

EPA. 2016a. Promising Practices for EJ Methodologies in NEPA Reviews, Report of the Federal Interagency Working Group on Environmental Justice & NEPA Committee. A NEPA Committee and EJ IWG Document. March.

EPA. 2014. An Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska, Bristol Bay Wild Salmon Ecosystem: Baseline Levels of Economic Activity and Values. EPA 910-R-14-001. Region 10, Seattle, WA. January.

EPA. 2013k. State-Specific Water Quality Standards Effective under the Clean Water Act (CWA). Available: https://www.epa.gov/wqs-tech/state-specific-water-quality-standards-effective-under-clean-water-act-cwa. Accessed October 8, 2014.

EPA. 2007. Factors for Identifying and Assessing Disproportionate Environmental Health Impacts. EPA Archive Document.

EPA. 2007b. Aquatic Life Ambient Freshwater Quality Criteria—Copper. EPA-822-R-07-001. CAS Registry Number 7440-50-8. February.

EPA. 2005. Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities. EPA520-R-05-006. Washington, DC: Office of Solid Waste and Emergency Response.

EPA. 2002. Summary of Biological Assessment Programs and Biocriteria Development for States, Tribes, Territories, and Interstate Commissions: Streams and Wadeable Rivers. EPA-822-R-02-048. Washington, DC: Office of Environmental Information and Office of Water.

EPA. 1999b. Understanding Oil Spills and Oil Spill Response. EPA 540-K-99-007. Washington, DC: Office of Emergency and Remedial Response.

EPA. 1994. Alaska Wetlands Initiative Summary Report. Alaska Wetlands Initiative. May 13.

EPA. 1978. Protective Noise Levels Condensed Version of EPA Levels Document. EPA 550/9-79-100. Washington, DC: Office of Noise Abatement & Control. November.

Erbe, C., and D. M. Farmer. 2000. Zones of impact around icebreakers affecting beluga whales in the Beaufort Sea. Journal of the Acoustical Society of America 108:1332–1340.

Erikson, D. 1977. Distribution, Abundance, Migration and Breeding Locations of Marine Birds—Lower Cook Inlet, Alaska, 1976. Alaska Department of Fish and Game, Marine/Coastal Habitat Management. Environmental Studies of Kachemak Bay and Lower Cook Inlet. Volume VIII.

ERM. (Environmental Resources Management) 2018a. Pebble Project Supplemental Environmental Baseline Document 2004–2012. Section 9.1, Surface Water Quality.

ERM. 2017. Dutch Harbor to Bethel Fuel Barge Oil Spill Risk Assessment. Final. Prepared for Donlin Gold, LLC. January.

Esler et al. 2002. (Esler, D. T., D. Bowman, K. A. Trust, B. E. Ballachey, T. A. Dean, S. C. Jewett, and C. E. O'Clair. 2002.) Harlequin duck population recovery following the 'Exxon Valdez' oil spill: Progress, process and constraints. Marine Ecology Progress Series 241:241–271.

Etkin, D. S. 2006. Risk Assessment of Oil Spills to US Inland Waterways. Environmental Research Consulting.

Evanoff, K. E. (ed.). 2010. Dena'ina Elnena: A Celebration. Lake Clark National Park, Anchorage, AK.

Evans et al. 2013. (Evans, S., M. Kukkonen, D. Holen, and D. S. Koster. 2013.) Harvests and Uses of Wild Resources in Dillingham, Alaska, 2010. Alaska Department of Fish and Game, Division of Subsistence Technical Paper No. 375.

Ezer et al. 2013. (Ezer, T., J. R. Ashford, C. M. Jones, B. A. Mahoney, and R. C. Hobbs. 2013.) Physical-biological interactions in a Subarctic estuary: How do environmental and physical factors impact the movement and survival of beluga whales in Cook Inlet, Alaska? Journal of Maritime Systems 111–112, 120–129, doi:10.1016/j.jmarsys.2012.10.007.

FAA (Federal Aviation Administration). 2018. IFR Enroute Low Altitude—Alaska. Effective November 8, 2018, to January 3, 2019. FAA Product ID: ELAK3.

Fahrig, L., and T. Rytwinski. 2009. Effects of roads on animal abundance: an empirical review and synthesis. Ecology and Society 14(1):21. Available: http://www.ecologyandsociety.org/vol14/iss1/art21/.

Falchi et al. 2016a. (Falchi, F., P. Cinzano, D. Duriscoe, C. C. M. Kyba, C. D. Elvidge, K. Baugh, B. A. Portnov, N. A. Rybnikova, and R. Furgoni. 2016a.) The new world atlas of artificial night sky brightness. Science Advances 2016:2.

Falchi et al. 2016b. (Falchi, F., P. Cinzano, D. Duriscoe, C. C. M. Kyba, C. D. Elvidge, K. Baugh, B. Portnov, N. A. Rybnikova, and R. Furgoni. 2016b.) Supplement to: The New World Atlas of Artificial Night Sky Brightness. GFZ Data Services. Available: http://doi.org/10.5880/GFZ.1.4.2016.001.

Fall et al. 2006. (Fall, J. A., D. L. Holen, B. Davis, T. Krieg, and D. Koster. 2006.) Subsistence Harvests and Uses of Wild Resources in Iliamna, Newhalen, Nondalton, Pedro Bay, and Port Alsworth, Alaska, 2004. Technical Paper No. 302. Alaska Department of Fish and Game, Division of Subsistence.

Fall et al. 2009. (Fall, J. A., T. M. Krieg, and D. L. Holen. 2009.) An Overview of the Subsistence Fisheries of the Bristol Bay Management Area. Alaska Department of Fish and Game, Division of Subsistence.

Fall et al. 2000. (Fall, J. A., V. Vanek, L. A. Brown, G. Jennings, R. J. Wolfe, and C. Utermohle. 2000.) Wild Resource Harvests and Uses by Residents of Selected Communities of the Kenai Peninsula Borough. Technical Paper No. 253. Alaska Department of Fish and Game, Division of Subsistence

FAO (Food and Agriculture Organization of the United Nations). 2018. Fishery and Aquaculture Statistics. Global Production by Production Source 1950–2016 (FishStatJ—Software for Fishery Statistical Time Series). Fisheries and Aquaculture Department. Rome, Italy. Available: www.fao.org/fishery/statistics/software/fishstatj/en.

FAO. 2006. Food Security. Policy Brief, June 2006, Issue 2. Available: http://www.fao.org/fileadmin/templates/faoitaly/documents/pdf/pdf_Food_Security_Cocept_Note.pdf.

Fast, A. 2018. Flood Recedes from Williamsport–Pile Bay Portage Route. Alaska Public Media, KDLG. June 20. Available: https://www.kdlg.org/post/flood-recedes-williamsport-pile-bay-portage-route#stream/0. Accessed September 2018.

Feder et al. 2005. (Feder, H. M., S. C. Jewett, and A. Blanchard. 2005.) Southeastern Chukchi Sea (Alaska) epibenthos. Polar Biology 28:402–421.

Fell et al. 2015. (Fell, R., P. MacGregor, D. Stapledon, G. Bell, and M. Foster. 2015.) Geotechnical Engineering of Dams. London: CRC Press.

FEMA (Federal Emergency Management Agency). 2018. FEMA Flood Map Service Center: Search by Address. Available: https://msc.fema.gov/portal/search. Accessed June 14, 2018.

FERC (Federal Energy Regulatory Commission). 2017. Guidance Manual for Environmental Report Preparation for Applications Filed under the Natural Gas Act, Volume 1. Office of Energy Projects. February.

Ferguson, M. C., C. Curtice, and J. Harrison. 2015. Biologically important areas for cetaceans within US waters—Gulf of Alaska Region. Aquatic Mammals 41(1):65–78.

FHWA (Federal Highway Administration). 2006. FHWA Roadway Construction Noise Model User's Guide. Final Report. January.

Fitzgerald et al. 2009. (Fitzgerald, D., R. Nicholson, and L. Regoli. 2009.) Environmental Management Criteria for Molybdenum and Selenium: A Review Relevant to the Mining Industry.

FLAG (Federal Land Managers' Air Quality Related Values Work Group). 2010. Phase I Report Revised.

Foster, H. L., and T. N. Karlstrom. 1967. Ground breakage and associated effects in the Cook Inlet area, Alaska, resulting from the March 27, 1964 earthquake. US Government Printing Office.

Fox et al. 1997. (Fox, A. D., C. Mitchell, G. Henriksen, E. Lund, and B. Frantzen. 1997.) The conservation of Steller's eider *Polysticta stelleri* in Varangerfjord, Finnmark, Norway. Wildfowl 48:156–165.

Francis et al. 2009. (Francis, C. D., C. P. Ortega, and A. Cruz. 2009.) Noise pollution changes avian communities and species interactions. Current Biology 19:1415–1419.

Frimer, O. 1994. The behaviour of moulting King Eiders *Somateria spectabilis*. Wildfowl 45(45):176–187.

Frissel, C. A. 2014. An Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska. Volume 3, Appendix G: Foreseeable Environmental Impact of Potential Road and Pipeline Development on Water Quality and Freshwater Fishery Resources of Bristol Bay, Alaska. Report to University of Alaska, Anchorage. Environment and Natural Resources Institute and Alaska Natural Heritage Program.

Frost et al. 2005. (Frost, K. J., L. F. Lowry, J. M. Ver Hoef, and S. J. Iverson. 1997.) Monitoring, Habitat Use, and Trophic Interactions of Harbor Seals in Prince William Sound, Alaska. Exxon Valdez Oil Spill Restoration Project Annual Report, Restoration Project 96064 Annual Report. Fairbanks, AK, and Halifax, NS, Canada. June.

FTA (Federal Transit Administration). 2006. Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. May.

Gabora et al. 2014. (Gabora, M., N. Martin, and N. Clements. 2014.) Application of the Null Space Monte Carlo Method in a Groundwater Flow Model of Mine Pit Dewatering. ISBN 978-7-5646-2437-8.

Garlich-Miller et al. 2018. (Garlich-Miller, J. L., G. G. Esslinger, and B. P. Weitzman. 2018.) Aerial Surveys of Sea Otters (*Enhydra lutris*) in Lower Cook Inlet, Alaska, May 2017. Technical Report MMM 2018-01. Anchorage, AK: US Fish and Wildlife Service. 22 pp.

GeoEngineers. 2018a. Pebble Port Alternatives Baseline Studies 2017 Chemistry Data Report, Amakdedori Beach and Iliamna Lake Cook Inlet, Alaska. Prepared for Pebble Limited Partnership. October 8.

GeoEngineers. 2018d. 2018 Fisheries Studies Data Summary Report. Port Alternatives and Transportation Studies Amakdedori Beach; Third Party EIS Support, Southcentral Alaska. File No. 22802-001-01. Report to The Pebble Partnership. Redmond, WA.

GeoEngineers. 2018b. Environmental Baseline Studies. 2018 Field Sampling Plan—Marine, Amakdedori Beach, Cook Inlet, Alaska. Report to The Pebble Partnership.

GeoEngineers. 2018c. Synthesis of Nearshore Habitats of Current and Proposed Port Alternatives for the Pebble Mine Project. Cook Inlet, Alaska. Report to The Pebble Partnership. October 5.

Gervaise, C., Y. Simard, N. Roy, B. Kinda, and N. Ménard. 2012. Shipping noise in whale habitat: Characteristics, sources, budget, and impact on belugas in Saguenay–St. Lawrence Marine Park hub. Journal of the Acoustical Society of America 132(1):76–89.

Ghoul, A., and C. Reichmuth. 2014. Hearing in sea otters (*Enhydra lutris*): audible frequencies determined from a controlled exposure approach. Aquatic Mammals 40(3):Online First.

Ghoul, A., and C. Reichmuth. 2012. Sound Production and Reception in Southern Sea Otters (*Enhydra lutris nereis*). *In* The Effects of Noise on Aquatic Life, eds. A. N. Popper and A. Hawkins, 157–159. Springer Science.

Gill, R. E. Jr., and T. L. Tibbitts. 1999. Seasonal Shorebird Use of Intertidal Habitat in Cook Inlet, Alaska. Final Report. US Geological Survey Biological Resources Division, Alaska Biological Science Center, Minerals Management Service, Alaska Outer Continental Shelf Region. September.

Gill et al. 2009. (Gill, V. A., A. M. Doroff, and D. M. Burn. 2009.) Aerial Surveys of Sea Otters (*Enhydra lutris*) in Kachemak Bay, Alaska, 2008. Anchorage, AK: US Fish and Wildlife Service, Marine Mammals Management Office. 21 pp.

Gillis et al. 2009. (Gillis, R. J., D. L. LePain, K. D. Ridgway, and E. S. Finzel. 2009.) A Reconnaissance View of an Unnamed Fault Near Capps Glacier, Northwestern Cook Inlet Basin, and its Potential as a Regional-Scale, Basin-Controlling Structure. Preliminary Interpretive Report 3. Alaska Department of Natural Resources, Division of Geological and Geophysical Surveys.

Giroud, J. P., and R. Bonaparte. 1989. Leakage through liners constructed with geomembranes—Part I. Geomembrane Liners. Geotextiles and Geomembranes 8(1):27–67.

Glass, R. L. 2001. Ground-water Quality in the Cook Inlet Basin, Alaska, 1999. US Geological Survey.

Glosten (The Glosten Associates). 2012. Cook Inlet Maritime Risk Assessment: Spill Baseline and Accident Casualty Study. File No. 11054.01. Seattle, WA. Prepared in collaboration with Environmental Research Consulting, Cortland Manor, NY. Prepared for Nuka Research & Planning Group, LLC, Seldovia, AK. June 29.

Goetz et al. 2012. (Goetz, K. T., P. W. Robinson, R. C. Hobbs, K. L. Laidre, L. A. Huckstadt, and K. E. W. Shelden. 2012.) Movement and Dive Behavior of Beluga Whales in Cook Inlet, Alaska. AFSC Processed Report 2012-03. 40 pp. Seattle, WA: Alaska Fisheries Science Center, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. March.

Gough et al 1979. (Gough, L. P., H. T. Shacklette, and A. A. Case. 1979.) Element Concentrations Toxic to Plants, Animals, and Man. An Appraisal of the Toxicity Hazard to Plants, Animals, and Man from Natural and Manmade Element Concentrations of Environmental Concern. US Department of the Interior, Geological Survey Bulletin 1466.

Gould, N. C. 2003. Understanding the Language of Seismic Risk Analysis. International Risk Management Institute, Inc. Available: https://www.irmi.com/articles/expert-commentary/understanding-the-language-of-seismic-risk-analysis. Accessed March 21, 2018.

Gracz, M. 2017. Wetlands of Cook Inlet Basin, Alaska: Classification and Contributions to Stream Flow. University of Minnesota Digital Conservancy. Available: http://hdl.handle.net/11299/188829.

Gracz, M. 2013. Cook Inlet Wetlands. Prepared by the Kenai Watershed Forum. December. Available: http://cookinletwetlands.info/. Accessed March 2018.

Greer et al. 2010. (Greer, R. D., R. H. Day, and R. S. Bergman. 2010.) Literature Review, Synthesis, and Design of Monitoring of Ambient Artificial Light Intensity on the OCS

Regarding Potential Effects on Resident Marine Fauna. Prepared for Minerals Management Service. July.

Gregory, R. S., and C.D. Levings. 1996. The effects of turbidity and vegetation on the risk of juvenile salmonids, Oncorhynchus spp., to predation by adult cutthroat trout, O. clarkii. Environmental biology of fishes, 47(3), 279-288.Gregr, E. J., and A. W. Trites. 2008. A novel presence-only validation technique for improved steller sea lion *Eumetopias jubatus* critical habitat descriptions. Marine Ecology Progress Series 365:247−261.

Grossman, J. N. 1998. National Geochemical Atlas: The Geochemical Landscape of the Conterminous United States Derived from the Stream Sediment and Other Soil Sample Media Analyzed by the National Uranium Resource Evaluation (NURE) Program (Version 3.0.1). US Geological Survey 98-622. Available: https://mrdata.usgs.gov/metadata/nurehssr.faq.html.

Groves, D. J. 2018. A Survey of Trumpeter Swans on Alaskan Summering Habitats, 2015. US Fish and Wildlife Service, Migratory Bird Management, Waterfowl Section. April.

Groves, D. J., and J. I. Hodges. 2013. A Survey of Trumpeter Swans on Alaskan Summering Habitats, 2010. US Fish and Wildlife Service, Migratory Bird Management, Waterfowl Management Branch. May.

Gustine et al. 2017. (Gustine, D., P. Barboza, L. Adams, B. Griffith, R. Cameron, and K. Whitten. 2017.) Advancing the match-mismatch framework for large herbivores in the Arctic: Evaluating the evidence for a trophic mismatch in caribou. PloS One 12(2), e0171807.

H&H Alaska Outfitters. 2018. Alaskan Brown Bear Hunts. Available: http://www.hhalaskanoutfitters.com/alaska_brown_bear_hunts.html. Accessed October 8, 2018.

Haeussler, P. J., R. W. Saltus, and J. P. Galloway. 2004. 26 km of Offset on the Lake Clark Fault since Late Eocene Time. US Geological Survey in Alaska. US Geological Survey Professional Paper 1709-A.

Haeussler, P. J., and C. F. Waythomas. 2011. Review of the Origin of the Braid Scarp near the Pebble Prospect, Southwestern Alaska. (No. 2011-1028.) US Geological Survey.

Haeussler et al. 2000. (Haeussler, P. J., R. L. Bruhn, and T. L. Pratt. 2000.) Potential seismic hazards and tectonics of the Upper Cook Inlet Basin, Alaska, based on analysis of Pliocene and younger deformation. GSA Bulletin 112(9):1414–1429.

Hall et al. 1994. (Hall, J. V., W. E. Frayer, and B. O. Wilen. 1994.0 Status of Alaska Wetlands. Anchorage: US Fish and Wildlife Service, Alaska Region.

Hamilton, T. D., and R. F. Klieforth. 2010. Surficial Geologic Map of Parts of the Iliamna D-6 and D-7 Quadrangles, Pebble Project Area, Southwestern Alaska. Alaska Division of Geological & Geophysical Surveys Report Investigation 2009-4. 19 pp., 1 sheet, scale 1:50,000.

Hammarstrom, L. F., and E. G. Ford. 2009. 2008 Lower Cook Inlet Annual Finfish Management Report. Fishery Management Report No. 09-28. Alaska Department of Fish and Game, Divisions of Sport Fish and Commercial Fisheries. 153 pp. June.

Handel, C. M., and M. N. Cady. 2004. Alaska Landbird Monitoring Survey, Protocol for Setting Up and Conducting Point Count Surveys. Boreal Partners in Flight. May.

Hart Crowser, Inc. 2015a. Pebble Project Supplemental Environmental Baseline Document 2004–2012. Chapter 34: Oceanography and Marine Water Quality. Cook Inlet Drainages. August.

Hart Crowser, Inc. 2015b. Pebble Project Supplemental Environmental Baseline Document 2004–2012. Chapter 43: Nearshore Fish & Invertebrates, Cook Inlet Drainages. Report to The Pebble Partnership.

Hassol, S. 2004. Impacts of a Warming Climate. Arctic Climate Assessment. New York: Cambridge University Press. 139 pp.

Haugen, S., D. Busch, and W. Rice. 2003. Flyfisher's Guide to Alaska ~Includes Light Tackle~. Belgrade, MT: Wilderness Adventurers Press, Inc.

Hauser et al. 2008. (Hauser, D. D., C. S. Allen, H. B. Rich Jr., and T. P. Quinn. 2008.) Resident harbor seals (*Phoca vitulina*) in Iliamna Lake, Alaska: summer diet and partial consumption of adult sockeye salmon (*Oncorhynchus nerka*). Aquatic Mammals 34(3):303.

Havlin, J. 1987. Motorways and Birds. Folia Zoologica 36.

HDR. 2019a. Operations Phase Water Treatment Plant Engineering. Memorandum. January 11.

HDR. 2019b. Mine Closure Water Treatment Plant Engineering. Memorandum. January 11, 2019.

HDR. 2019c. Pebble Mine Closure Phase 3, Seepage Collection Pond Water Treatment Plant. Memorandum. Project: Pebble Mine Water Treatment Plant Engineering. January 21.

HDR. 2019d. Pebble Mine—Open Pit WTP—Closure Phase 4—Year 105 _ Mass Balance Summary, Revision 1. Memorandum. January 25.

HDR. 2018a. Pebble Base-Case Water Treatment Plant Engineering Revision. Memorandum. October 1.

HDR. 2018c. Pebble Project, Preliminary Jurisdictional Determination Report (Revision 1). Prepared for US Army Corps of Engineers, Alaska District. January.

HDR Alaska. 2011a. Pebble Project Environmental Baseline Document 2004 through 2008. Appendix B. Iliamna Lake Study. Report to The Pebble Partnership.

HDR Alaska and 3PPI (HDR Alaska, Inc. and Three Parameters Plus). 2011a. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 38: Vegetation, Cook Inlet Drainages. July 22.

HDR Alaska and 3PPI. 2011b. Pebble Project Environmental Baseline Document 2004 through 2008 (with Updates through 2010). Chapter 39: Wetlands, Cook Inlet Drainages. December 15.

Hem, J. D. 1985. Study and Interpretation of the Chemical Characteristics of Natural Water. US Geological Survey Water-Supply Paper 2254. US Government Printing Office.

Himes-Cornell et al. 2013. (Himes-Cornell, A., K. Hoelting, C. Maguire, L. Munger-Little, J. Lee, J. Fisk, R. Felthoven, C. Geller, and P. Little. 2013.) Community Profiles for North Pacific Fisheries—Alaska. Volume 8. National Oceanic and Atmospheric Administration Technical Memorandum NMFS-AFSC-259. November. Available: https://www.afsc.noaa.gov/Publications/AFSC-TM/NOAA-TM-AFSC-259/VOLUME%208.pdf. Accessed April 1, 2018.

Hobbs et al. 2005. (Hobbs, R. C., K. E. W. Shelden, D. J. Rugh, and S. A. Norman. 2008.) 2008 Status Review and Extinction Risk Assessment of Cook Inlet Belugas. AFSC Processed Report 2008-02, 116 pp. Seattle, WA: Alaska Fisheries Science Center, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

Hobbs et al. 2005. (Hobbs, R. C., K. L. Laidre, D. J. Vos, B. A. Mahoney, and M. Eagleton. 2005.) Movements and area use of belugas, Delphinapterus leucas, in a Subarctic estuary. Arctic 58(4):331–340.

Hoefler (Hoefler Consulting Group). 2010a. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 2: Climate and Meteorology, Bristol Bay Drainages. December 17.

Hoefler. 2010b. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 26: Climate and Meteorology, Cook Inlet Drainages. December.

Hoek, E. 2012. Blast Damage Factor D. Technical Note for RocNews. Winter 2012 Issue. February 2.

Holen, D., and T. Lemons. 2012. An Overview of the Subsistence Fisheries of the Bristol Bay Management Area. Special Publication No. BOF 2012-05. Anchorage: Alaska Department of Fish and Game, Division of Subsistence. Available: http://www.adfg.alaska.gov/specialpubs/SP2_SP2012-005.pdf.

Holen et al. (2011). (Holen, D., T. M. Krieg, and T. Lemons. 2011.) Subsistence Harvests and Uses of Wild Resources in King Salmon, Naknek, and South Naknek, Alaska, 2007. Technical Paper No. 360. Alaska Department of Fish and Game, Division of Subsistence.

Holen et al. (2012). (Holen, D., J. Stariwat, T. M. Krieg, and T. Lemons. 2012.) Subsistence Harvests and Uses of Wild Resources in Aleknagik, Clark's Point, and Manokotak, Alaska, 2008. Technical Paper No. 368. Alaska Department of Fish and Game, Division of Subsistence.

Holland, L. E. 1986. Effects of barge traffic on distribution and survival of ichthyoplankton and small fishes in the upper Mississippi River. Transactions of the American Fisheries Society 115:162–165.

Hollander, Z. 2017. Mat-Su to Spend Another $1.6 Million on Failing Port MacKenzie Barge Dock. Anchorage Daily News. June 23.

Hollowell et al. 2016. (Hollowell, G., E. O. Otis, and E. Ford. 2017.) 2016 Lower Cook Inlet Area Finfish Management Report. Fishery Management Report No. 17-26. Anchorage: Alaska Department of Fish and Game.

Hong et al. 2012. (Hong, J. H., Y. M. Chiew, I. Susanto, and N. S. Cheng. 2012.) Evolution of Scour Induced by Propeller Wash. *In* Proceedings of the 6th International Conference on Scour and Erosion (ICSE6), Paris, France, 27–31 August.

HRSA (Health Resources & Services Administration). 2018. HRSA Data Warehouse. Data printed March 23, 2018.

Hughes et al. 2014. (Hughes, B. B., M. D. Levey, J. A. Brown, M. C. Fountain, A. B. Carlisle, S. Y. Litvin, and M. G. Gleason. 2014.) Nursery Functions of US West Coast Estuaries: the State of Knowledge for Juveniles of Focal Invertebrate and Fish Species. Arlington, VA: The Nature Conservancy.

Huntington et al. 2015. Huntington, H. P., R. Daniel, A. Hartsig, K. Harun, M. Heiman, R. Meehan, G. Noongwook, L. Pearson, M. Prior-Parks, M. Robards, and G. Stetson. 2015. Vessels, risks, and rules: Planning for safe shipping in Bering Strait. Marine Policy 51:119–127.

ICOLD. 2018. (International Commission on Large Dams) Publications: Tailings dams: risk of dangerous occurrences: lessons learnt from practical experiences (Vol. 121). United Nations Publications. https://www.icold-cigb.org/

ICSG (International Copper Study Group). 2018. Copper Market Forecast 2018/2019. Press Release. April 27.

IFC (International Finance Corporation). 2007. Guidance Note 4: Community Health, Safety, and Security. July 31.

IHS. 2013. IHS Global Insight, The Economic and Employment Contributions of a Conceptual Pebble Mine to the Alaska and United States Economies (May 2013).

Illinworth & Rodkin. 2007. Compendium of Pile Driving Sound Data. Prepared for California Department of Transportation. September 27. Available: http://www.dot.ca.gov/hq/env/bio/files/pile_driving_snd_comp9_27_07.pdf.

IMPROVE (Interagency Monitoring of Protected Visual Environments). 2018a. Views 2.0 Database for Data Collected at Tuxedni (site TUXE1). Available: http://vista.cira.colostate.edu/Improve/aqrv-summaries/. Accessed March 2018.

IMPROVE. 2018b. Views 2.0 Database for Data Collected at Denali NP (site DENA1). Available: http://vista.cira.colostate.edu/Improve/aqrv-summaries/. Accessed March 2018.

INNEC (INN Electric Cooperative, Inc.). 2012. Our History. Available: http://innelectric.com/our-history.html.

Ireland et al. 2016. (Ireland, D. S., L. Bisson, S. B. Blackwell, M. Austin, D. E. Hannay, K. Bröker, and A. M. Macrander (eds.). 2016.) Comprehensive Report of Marine Mammal Monitoring and Mitigation in the Chukchi and Beaufort Seas, 2006–2015. LGL Alaska Draft Report P1363-E. Report from LGL Alaska Research Associates, Inc., Greeneridge Sciences, Inc., and JASCO Applied Sciences Ltd., for Shell Gulf of Mexico, Inc., National Marine Fisheries Service, and US Fish and Wildlife Service. 558 pp. plus appendices.

Irvine, J. R., and M. Fukuwaka. 2011. Pacific salmon abundance trends and climate change. ICES Journal of Marine Science 68(6):1122–1130. doi:10.1093/icesjms/fsq199.

IXOM. 2017. Safety Data Sheet—Methyl Isobutyl Carbinol. Version 6. Issued February 13.

Jahoda et al. 2003. (Jahoda, M., C. L. Lafortuna, N. Biassoni, C. Almirante, A. Azzellino, S. Panigada, and G. N. Di Sciara. 2003.) Mediterranean fin whale's (Balaenoptera physalus) response to small vessels and biopsy sampling assessed through passive tracking and timing of respiration. Marine Mammal Science 19(1):96–110.

Jansen et al. 2010. (Jansen, J. K., P. L. Boveng, S. P. Dahle, and J. L. Bengtson. 2010.) Reaction of harbor seals to cruise ships. Journal of Wildlife Management 74:1186–1194.

Jernigan, Kevin (ed.). n.d. A Guide to the Ethnobotany of the Yukon-Kuskokwim Region. Available: https://www.uaf.edu/anlc/resources/yk_ethnobotany/YK_Ethnobotany.pdf.

Johnson et al. 1989. (Johnson, C. S., M. W. McManus, and D. Skaar. 1989.) Masked tonal hearing thresholds in the beluga whale. Journal of Acoustical Society of America 85(6):2651–2654.

Johnson, J., and B. Blossom. 2018. Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes—Southwestern Region, Effective June 1, 2018. Alaska Department of Fish and Game, Divisions of Sport Fish and Habitat Special Publication No. 18-06, Anchorage.

Jones, B., and M. L. Kostick (eds.). 2016. The Harvest and Use of Wild Resources in Nikiski, Seldovia, Nanwalek, and Port Graham, Alaska, 2014. Technical Paper No. 420. Alaska Department of Fish and Game, Division of Subsistence.

Jorgenson, M. T., K. Yoshikawa, M. Kanevskiy, Y. Shur, V. Romanovsky, S. Marchenko, and B. Jones. 2008. Permafrost characteristics of Alaska. *In* Proceedings of the Ninth International Conference on Permafrost (Vol. 3, pp. 121-122). Fairbanks: University of Alaska. June.

JTC (Joint Technical Committee of the Yukon River US/Canada Panel). 2018. Yukon River Salmon. 2017 Season Summary and 2018 Season Outlook. Alaska Department of Fish and Game. Division of Commercial Fisheries, Regional Information Report 3A1801-01, Anchorage. Available: http://www.adfg.alaska.gov/FedAidPDFs/RIR.3A.2018.01.pdf.

Kabiri-Samani, A. R. 2013. Natural frequencies of seiche in a closed trapezoidal basin with internal barriers. Journal of Civil Engineering Research 3(1):22–34.

Kaiser, M. S., and E. K. Fritzell. 1984. Effects of river recreationists on green-backed heron behavior. Journal of Wildlife Management 48(2):561–567.

Kari, J., and P. R. Kari. 1982. Dena'ina Elnena: Tanaina Country. Fairbanks: Alaska Native Language Center, University of Alaska.

Kari, P., J. Kari, and A. Balluta. 1986. Dena'ina place names in the Lake Clark National Park and Preserve study area. *In* Lake Clark Sociocultural Study, Phase I, ed. L. J. Ellenna, 7-1 to 7-70. US National Park Service, Lake Clark National Park and Preserve, Alaska.

Karlstrom, T. N. 1964. Quaternary Geology of the Kenai Lowland and Glacial History of the Cook Inlet Region, Alaska (No. 443). US Government Printing Office.

Kaseloo, P. A., and K. O. Tyson. 2004. Synthesis of Noise Effects on Wildlife Populations. Report No. FHWA-HEP-06-016. Virginia State University. September 8.

Kasischke et al. 2010. (Kasischke, E. S., D. L. Verbyla, S. T. Rupp, D. A. McGuire, K. A. Murphy, R. Jandt, J. L. Barnes, E. E. Hoy, P. A. Duffy, M. Calef, and M. R. Turetsky. 2010.) Alaska's changing fire regime—implications for the vulnerability of its boreal forests. Canadian Journal of Forest Research 40:1313–1324, doi:10.1139/X10-098.

KBNERR (Kachemak Bay National Estuaries Research Reserve). 2016. Kachemak Bay National Estuaries Research Reserve. University of Alaska Anchorage, Alaska Center for Conservation Science. Available: http://accs.uaa.alaska.edu/kbnerr/.

Keller, V. E. 1991. Effects of human disturbance on eider ducklings *somateria mollissima* in an estuarine habitat in Scotland. Biological Conservation 58(2):213–228.

Kevin Waring and Associates. 2015a. Pebble Project Supplemental Environmental Baseline Data Report 2004–2012. Chapter 25: Recreation, Bristol Bay Drainages. August.

Kevin Waring and Associates 2015d. Pebble Project Supplemental Environmental Baseline Document 2004–2012. Chapter 53: Recreation.

Kevin Waring & Associates. 2011b. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 19: Recreation.

Kevin Waring and Associates. 2011b. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 25: Recreation.

Kevin Waring & Associates. 2010b. Pebble Project Environmental Baseline Document 2004 through 2008 (with updates in 2010). Chapter 19: Transportation.

Kilduff et al. 2015. (Kilduff, D. P., E. Di Lorenzo, L. W. Botsford, and S. L. Teo. 2015.) Changing Central Pacific El Niños Reduce Stability of North American Salmon Survival Rates. Department of Wildlife, Fish and Conservation Biology, University of California, Davis; and School of Earth & Atmospheric Sciences, Georgia Institute of Technology, Atlanta.

Killgore et al. 2011. (Killgore, K. J., L. E. Miranda, C. E. Murphy, D. M. Wolff, J. J. Hoover, T. M. Kevin, S. T. Maynord, and M. A. Cornish. 2011). Fish entrainment rates through towboat propellers in the Upper Mississippi and Illinois Rivers. Transactions of the American Fisheries Society 140:570–581.

Klein, K. 2018. Personal communication (email) notes between Kimberley Klein, USFWS and Willow Hetrick, Fairweather Sciences. Sea Otter Density. February 6.

Klein et al. 2005. (Klein, E., E. E. Berg, and R. Dial, 2005.) Wetland drying and succession across the Kenai Peninsula lowlands, south-central Alaska. Canadian Journal of Forest Research 35:1931–1941, doi:10.1139/x05-129.

Knapp, G., M. Guettabi, and S. Goldsmith. 2013. The Economic Importance of the Bristol Bay Salmon Industry. Prepared for the Bristol Bay Regional Seafood Development Association. April.

Knight Piésold. 2019a. Re: RFI 106 Response. January 11.

Knight Piésold. 2018a. Pebble Project Pebble Mine Site Operations Water Management Plan. July 6.

Knight Piésold. 2018b. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 4: Physiography.

Knight Piésold. 2018c. RE: RFI 008 Response—Embankment Static and Seismic Stability.

Knight Piésold. 2018d. Pebble Project Pebble Mine Site—Closure Water Management Plan. September 21.

Knight Piésold. 2018d. Pebble Mine Site Closure Water Management Plan. September 21.

Knight Piésold. 2018e. Re: RFI 19 Part 3: Groundwater Withdrawal Wells. File No.: BA101-00176/57-A.01. Cont. No.: VA18-01185. July 6.

Knight Piésold. 2018f. Information for Response to Follow-Up Questions to RFI 19 a—Water Management Plan. File No.: VA101-00176/57-A.01. Cont. No.: VA18-01740. September 27.

Knight Piésold. 2018g. Pebble Project Hydrometeorology Report. VA101-176/57-2. September 6.

Knight Piésold. 2018i. Pebble Project: RFI 019 Part 2 Estimated Mine-affected Streamflow Values (with and without treated water) at End of Mine. File No.: VA101-00176/57-A.01 Cont. No.: VA18-01336. September 28.

Knight Piésold. 2018j. Pebble Project: RFI 019 Part 2 Estimated Mine-affected Streamflow Values (with and Without treated water) at Post-Closure (Phase 4). File No.: VA101-00176/57-A.01. Cont. No.: VA18-01487. September 28.

Knight Piésold. 2018m. Re: Updated Synthetic Temperature and Precipitation Series for Pebble 1. MEMORANDUM. File No.: VA101-00176/57-A.01, Cont. No.: VA18-00250. May 1.

Knight Piésold. 2018n. Re: RFI 19c Response. File No.: VA101-00176/57-A.01. Cont. No.: VA18-01901. October 3.

Knight Piésold. 2018o. Pebble Project: EIS-FMEA Failure Scenario for the Bulk Tailings Storage Facility. December 13.

Knight Piésold. 2018p. Pebble Project: EIS FMEA Failure Scenario for the Pyritic Tailings Storage Facility. December 12.

Knight Piésold. 2018q. Pebble Project: EIS-FMEA Failure Scenario for the Main Water Management Pond. December 7.

Knight Piésold.2018r. RE: Pebble Project - Operations Water Balance and Water Quality Model Sensitivity Analysis. Letter from A. Shawn, MASc, PE; and J. Cathcart, Ph.D., P.E., to J. Fueg, PLP. File No.: VA101-00176/57-A.01 Cont. No. VA18-02369. December 20,

Knight Piésold. 2015a. Pebble Project Supplemental Environmental Baseline Document 2004–2012. Chapter 6: Geotechnical Studies, Seismicity, and Volcanism, Bristol Bay Drainages. March.

Knight Piésold. 2015b. Pebble Project Supplemental Environmental Baseline Document 2004–2012. Chapter 7: Surface Water Hydrology.

Knight Piésold. 2013. Report on Seismicity Assessment and Seismic Design Parameters. Pebble Limited Partnership Pebble Project. VA101-176/44-1 Rev B. August 14.

Knight Piésold. 2013b. Pebble Project Supplemental Environmental Baseline Document 2004–2012. Chapter 7: Surface Water Hydrology, Bristol Bay Drainages. Report to The Pebble Partnership.

Knight Piésold. 2012. Hydrometeorology. Prepared for Pebble Limited Partnership. VA101-176/40-1 Rev. 0. February 24.

Knight Piésold. 2011a. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 3: Geology and Mineralization Bristol Bay Drainages. May 9.

Knight Piésold. 2011b. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 4: Physiography Bristol Bay Drainages. May 10.

Knight Piésold. 2011c. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 6: Geotechnical Studies, Seismicity, and Volcanism. Bristol Bay Drainages. December 6.

Knight Piésold. 2011d. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 27: Geology and Mineralization.

Knight Piésold. 2011g. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 31: Surface Water Hydrology.

Knight Piésold 2009. Climate at the Pebble Project Site. Prepared for the Pebble Limited Partnership. VA101-176/28-1, Revision 1. September 21.

Knight Piésold, et al. 2011a. (Knight Piésold, ABR, 3PPI, and Bristol Environmental & Engineering Services Corp. 2011a.) Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 7: Surface Water Hydrology, Bristol Bay Drainages. May 5.

Koehler, R. D. 2010. Technical Review of a Trench Across Potential Fault Scarp Feature East of Lower Talarik Creek, Lake Iliamna Area, Southwestern Alaska. Alaska Department of Natural Resources, Division of Geological & Geophysical Surveys.

Koehler, R. D., and R. D. Reger. 2011. Reconnaissance Evaluation of the Lake Clark Fault, Tyonek Area, Alaska. Alaska Department of Natural Resources, Division of Geological & Geophysical Surveys.

Koehler, R. D., P. A. C. Burns, and J. R. Weakland. 2013. Digitized Faults of the Neotectonic Map of Alaska (Plafker and others, 1994).

Koehler, R. D., R.-E. Farrell, P. A. C. Burns, and R. A. Combellick. 2012. Quaternary Faults and Folds in Alaska: A Digital Database.

Kolden, K. D., and C. Aimone-Martin. 2013. Blasting Effects on Salmonids. Prepared by Alaska Seismic and Environmental, LLC and Aimone-Martin Associates, LLC, for Alaska Department of Fish and Game, Juneau. 31 pp.

Korschgen, C. E., and R. B. Dahlgren. 1992. Human Disturbances of Waterfowl: Causes, Effects, and Management. *In* Waterfowl Management Handbook. Fort Collins, CO: US Fish and Wildlife Service, 1992. Available: http://www.nwrc.usgs.gov/wdb/pub/wmh/contents.html.

Korschgen, C. E., L. S. George, and W. L. Green. 1985. Disturbance of diving ducks by boaters on a migrational staging area. Wildlife Society Bulletin 13(3):290–296.

KPB (Kenai Peninsula Borough). 2017. Kenai Peninsula Borough Comprehensive Plan 2018 Update. Public Review Draft. December 15.

KPB. 2014. All-Hazard Mitigation Plan. Section 2.0: Floods and Erosion.

KPB. 2005. Kenai Peninsula Borough Comprehensive Plan. June.

Krieg et al. (2009). (Krieg, T. M., D. L. Holen, and D. S. Koster. 2009.) Subsistence Harvests and Uses of Wild Resources in Igiugig, Kokhanok, Koliganek, Levelock, and New Stuyahok, Alaska, 2005. Alaska Department of Fish and Game, Division of Subsistence.

Krieg et al. 2003. (Krieg, T., M. Chythlook, P. Coiley-Kenner, D. Holen, K. Kamletz, and H. Nicholson. 2003.) Subsistence Fisheries Assessment: Kvichak River Watershed Resident Species. Federal Subsistence Fishery Monitoring Program, Final Project Report No. FIS 02-034. US Fish and Wildlife Service, Office of Subsistence Management, Fisheries Resource Monitoring Program, Fishery Information Service, Anchorage, AK.

Krieger, K. J., and B. L. Wing. 1986. Hydroacoustic Monitoring of Prey to Determine Humpback Whale Movements. National Oceanic and Atmospheric Administration Technical Memorandum NMFS/NWC-98. 62 pp.

Kuan et al. 2012. (Kuan, W. K., G. Jin, P. Xin, C. Robinson, B. Gibbes, and L. Li. 2012. Tidal influence on seawater intrusion in unconfined coastal aquifers. Water Resources Research 48(2).

Kugo, Y. (ed.). 2017. Local Travel Routes, Oral Narratives, and Place Names in the Iliamna Lake Area. Iliamna, AK: Iliamna Village Council.

Kuletz et al. 2011. (Kuletz, K. J., S. G. Speckman, J. F. Piatt, and E. A. Labunski. 2011.) Distribution, population status and trends of Kittlitz's murrelet *Brachyramphus brevirostris* in Lower Cook Inlet and Kachemak Bay, Alaska. Marine Ornithology 39:85–95.

Laidre et al. 2000. (Laidre, K. L., K. E. W. Shelden, D. J. Rugh, and B. A. Mahoney. 2000.) Beluga, *Delphinapterus leucas*, distribution and survey effort in the Gulf of Alaska. Marine Fisheries Review 62:27–36.

Larned, W. W. 2006. Winter distribution and abundance of Steller's eiders (*Polysticta stelleri*) in Cook Inlet, Alaska, 2004–2005. US Fish and Wildlife Service.

Larned, W. W. 2005. Aerial Survey of Lower Cook Inlet to Locate Molting Flocks of Steller's Eiders and Mergansers. Trip report, 14.

Laurian, C., C. Dussault, J. Ouellett, R. Courtois, M. Poulin, and L. Breton. 2008. Behavior of moose relative to a road network. The Journal of Wildlife Management 72:1550–1557. doi:10.2193/2008-063.

Lee, E. M., P. G. Fookes, and A. B. Hart. 2016. Landslide issues associated with oil and gas pipelines in mountainous terrain. Quarterly Journal of Engineering Geology and Hydrogeology. 13 May. Available: https://doi.org/10.1144/qjegh2016-020.

Legagneux, P., and S. Ducatez. 2013. European birds adjust their flight initiation distance to road speed limits. Biology Letters 9(5):20130417. Available: http://dx.doi.org/10.1098/rsbl.2013.0417.

Lerczak et al. 2000. (Lerczak, J. A., K. E. W. Shelden, and R. C. Hobbs. 2000.) Application of suctioncup-attached VHF transmitters to the study of beluga, *Delphinapterus leucas*, surfacing behavior in Cook Inlet, Alaska. Marine Fisheries Review 62(3):99–111.

Lesage et al. 1999. (Lesage, V., C. Barrette, M. C. S. Kingsley, and B. L. Sjare. 1999.) The effect of vessel noise on the vocal behavior of belugas in the St. Lawrence River estuary, Canada. Marine Mammal Science 15:65–84.

Liebezeit et al. 2012. (Liebezeit, J., E. Rowland, M. Cross, and S. Zack. 2012.) Assessing Climate Change Vulnerability of Breeding Birds in Arctic Alaska. A report prepared for the Arctic Landscape Conservation Cooperative. Bozeman, MT: Wildlife Conservation Society, North America Program. 167 pp.

Lill, A. 2017. Alaska Peninsula Caribou Herds Increasing, Says Area Management Biologist. Article from KDGL, Public Radio for Alaska's Bristol Bay. Available: http://www.kdlg.org/post/alaska-peninsula-caribou-herds-increasing-says-area-management-biologist#stream/0.

Limpinsel et al. 2017. (Limpinsel, D. E., M. P. Eagleton, J. L. and Hanson. 2017.) Impacts to Essential Fish Habitat from Non-fishing Activities in Alaska. EFH 5 Year Review: 2010 through 2015. US Department of Commerce, National Oceanic and Atmospheric Administration Technical Memorandum. NMFS-F/AKR-14. 229 pp.

Lipscomb et al. 1994. (Lipscomb, T. P., R. K. Harris, A. H. Rebar, B. E. Ballachey, and R. J. Haebler. 1994.) Pathology of Sea Otters. *In* Marine Mammals and the Exxon Valdez, ed. T. R. Loughlin, 265–279. San Diego, CA: Academic Press.

Lloyd, D. S. 1987. Turbidity as a water quality standard for salmonid habitats in Alaska. North American Journal of Fisheries Management 7:34–45.

LM (LyncMigration). 2010. TERRA SW Hybrid Fiber Optic-Microwave Broadband Network Easement ADL #230875. Skype for Business Industry News Article. November 18.

Lockyer, E. 2016. Port Mackenzie Repairs Spread Mat-Su Budget Thin. Alaska Public Media. December 30. Available: https://www.alaskapublic.org/2016/12/30/port-mackenzie-repairs-spread-mat-su-budget-thin/.

Loeffler, B., and J. Schmidt. 2017. Local Jobs and Income from Mineral Exploration: A Case Study of the Pebble Exploration Project. January.

London et al. 2012. (London, J. M., J. M. Ver Hoef, S. J. Jeffries, M. M. Lance, and P. L. Boveng. 2012.) Haul-out behavior of harbor seals (*Phoca vitulina*) in Hood Canal, Washington. PloS One 7(6), e38180.

Longcore, T., and C. Rich. 2016. Artificial Night Lighting and Protected Lands: Ecological Effects and Management Approaches. Natural Resource Report NPS/NRSS/NSNS/NRR—2016/1213. Fort Collins, CO: National Park Service.

Look, B. 2007. Handbook of Geotechnical Investigation and Design Tables. Leiden, The Netherlands: Taylor & Francis/Kalkema.

Lorax Environmental. 2018. Pebble Project Pit Lake—Water Quality Predictions. Technical Memorandum. Project #A501-1. October 31.

LPB (Lake and Peninsula Borough). 2018a. Other Adventurous Tours, Berry Picking, Clam Digging, and More. Available: http://www.lakeandpen.com/visitors/things_to_do/other_alaska_adventures. Accessed March 24, 2018.

LPB. 2018b. Guide Tax and Bed Tax Revenues FY 2015–2018. Personal Communication. September 11.

LPB. 2018d. Lake and Peninsula Borough Regular Assembly Meeting Notice and Agenda. February 20.

LPB. 2012. Lake and Peninsula Borough Comprehensive Plan Update. Public Review Draft Plan. September.

LPB. 2015. Lake and Peninsula Borough Lease Availability. Map produced by HDR in cooperation with Lake and Peninsula Borough. November 3.

Major et al. 2001. (Major, E. B., B. K. Jessup, A. Prussian, and D. Rinella. 2001.) Alaska Stream Condition index: Biological Index Development for Cook Inlet 1997–2000 Summary. Prepared by Environment and Natural Resources Institute, University of Alaska, Anchorage, and Tetra Tech, Inc., for Alaska Department of Environmental Conservation. August.

Makdisi, F., and B. Seed. 1977. A Simplified Procedure for Estimating Earthquake-Induced Deformations in Dams and Embankments. Report No. UCB/EERC-77/19. August.

Malm, W. C. 1999. Introduction to Visibility. Cooperative Institute for Research in the Atmosphere. ISSN 0737-5352-40.

Mann et al. 2011. (Mann, R. M., M. G. Vijver, and J. G. M. Peignenburg. 2011.) Metals and Metalloids in Terrestrial Systems: Bioaccumulation, Biomagnification and Subsequent Adverse Effects. *In* Ecological Impacts of Toxic Chemicals, eds. F. Sánchez-Bayo, P. J. van den Brink, and R. M. Mann, Chapter 3. Bentham Books.

Marine Management Organization. 2018. Displacement and Habituation of Seabirds in Response to Marine Activities. A report produced for the Marine Management Organization. MMO Project No. 1139. May. 69 pp.

Markon et al. 2018. (Markon, C., S. Gray, M. Berman, L. Eerkes-Medrano, T. Hennessy, H. Huntington, J. Littell, M. McCammon, R. Thoman, and S. Trainor. 2018.) Alaska. *In* Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II, Chapter 26, eds. D. R. Reidmiller, C. W. Avery, D. R. Easterling,

K. E. Kunkel, K. L. M. Lewis, T. K. Maycock, and B. C. Stewart. Washington, DC: US Global Change Research Program, doi: 10.7930/NCA4.2018.

Marshall et al. 2014. (Marshall, C. D., K. Rozas, B. Kot, and V. A. Gill. 2014.) Innervation patterns of sea otter (*Enhydra lutris*) mystacial follicle-sinus complexes. Frontiers in Neuroanatomy 8(121). 8 pp.

Martin et al. 2017. (Martin, A., C. Fraser, D. Dunbar, S. Mueller, and N. Eriksson. 2017.) Pit Lake Modeling at the Aitik Mine Northern Sweden: Importance of Site-Specific Model Inputs and Implications for Closure Planning. 13th Annual Mine Water Association Congress, Rauha-Lappeenranta, Finland, June 25–30.

Martinez, C. T. 1994. Selenium Levels in Selected Species of Aquatic Birds on Imperial National Wildlife Refuge. Master's Thesis, University of Arizona.

Mazet et al. 2001. (Mazet, J. A. K., I. A. Gardner, D. A. Jessup, and L. J. Lowenstine. 2001.) Effects of petroleum on mink applied as a model for reproductive success in sea otters. Journal of Wildlife Diseases 37(4):686–692.

McDowell Group. 2018a. Socioeconomics—Bristol Bay Drainages, Updated Detailed Cumulative Baseline Data (2000–2018). Prepared for The Pebble Partnership. May 8.

McDowell Group. 2018b. Human Health Cumulative Baseline Data: Bristol Bay Drainages (2000–2018). Prepared for The Pebble Partnership. July.

McDowell Group. 2018c. The Economic Benefits of Alaska's Mining Industry. Prepared for Alaska Miners Association. 66 pp. March.

McDowell Group et al. 2011a. McDowell Group, Jim Buell, and Stephen R. Braund & Associates. 2011a.) Pebble Project Environmental Baseline Document 2004 through 2008 (with updates in 2009). Chapter 21: Socioeconomics.

McGarr et al. 1968. (McGarr, A., and R. C. Vorhis. 1968.) Seismic Seiches from the March 1964 Alaska Earthquake. The Alaska Earthquake, March 27, 1964: Effects on the Hydrologic Regimen. Geological Survey Professional Paper 544-E. August 14.

McLellan, B. N., and D. M. Shackleton. 1988. Grizzly bears and resource extraction industries: effects of roads on behavior, habitat use, and demography. Journal of Applied Ecology 25:451–460.

MEND (Mine Environment Neutral Drainage Program). 2017. Study of Tailings Management Technologies. MEND Report 2.50.1. October.

Merritt, R. W., and K. W. Cummins. 1996. An Introduction to the Aquatic Insects of North America. Dubuque, IA: Kendall/Hunt.

Meyer and DeForest 2018. (Meyer, J. S., and J. K. DeForest. 2018.) Protectiveness of Cu water quality criteria against impairment of behavior and chemo/mechanosensory responses: an update. Environmental Toxicology and Chemistry 37(5):1260–1279. January.

Michael Minor & Associates, Inc. 2010. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 12: Noise, Bristol Bay Drainages. August 24.

Michel, J., and N. Rutherford. 2013. Oil Spills in Marshes. Planning and Response Considerations. National Oceanic and Atmospheric Administration. American Petroleum Institute. September.

Midnight Sun Court Reporters 2018. Pebble Project Scoping Meetings Transcripts—Igiugig, Alaska. April 18.

Mikola et al. 1994. (Mikola, J., M. Miettinen, E. Lehikoinen, and K. Lehtila. 1994.) The effects of disturbance caused by boating on survival and behavior of velvet scoter *Melanitta fusca* ducklings. Biological Conservation 67(2):119–124.

Miles et al. 2007. (Miles, A. K., P. L. Flint, K. A. Trust, M. A. Ricca, S. E. Spring, D. E. Arrieta, T. Hollmen, and B. W. Wilson. 2007.) Polycyclic aromatic hydrocarbon exposure in Steller's eiders (*Polysticta stelleri*) and harlequin ducks (*Histronicus histronicus*) in the eastern Aleutian Islands, Alaska, USA. Environmental Toxicology and Chemistry 26(12):2694–2703.

Minard et al. 1992. (Minard, R. E., M. Alexandersdottir, and S. Sonnichsen. 1992.) Estimation of Abundance, Seasonal Distribution, and Size and Age Composition of Rainbow Trout in the Kvichak River, Alaska, 1986 to 1991. Alaska Department of Fish and Game, Fishery Data Series No. 92-51.

Mizroch et al. 2009. (Mizroch, S. A., D. W. Rice, D. Zwiefelhofer, J. Waite, and W. L. Perryman. 2009.) Distribution and movements of fin whales in the North Pacific Ocean. Mammal Review 39(3):193–227.

Montgomery et al. 2007. (Montgomery, R. A., J. V. Hoef, and P. L. Boveng. 2007.) Spatial modeling of haul-out site use by harbor seals in Cook Inlet, Alaska. Marine Ecology Progress Series 341:257–264.

Moore et al. 2006. (Moore, S., K. Stafford, D. Mellinger, and J. Hildebrand. 2006.) Listening for large whales in the offshore waters of Alaska. BioScience 56(1):49–55.

Moore et al. 2000. (Moore, S. E., K. E. W. Shelden, L. L. Litzky, B. A. Mahoney, and D. J. Rugh. 2000.) Beluga, *Delphinapterus leucas*, habitat associations in Cook Inlet, Alaska. Marine Fisheries Review 62:60–80.

Morgenstern et al. 2015. (Morgenstern, N. R., S. G. Vick, and D. Van Zyl. 2015.) Report on Mount Polley Tailings Storage Facility Breach: Independent Expert Engineering Investigation and Review Panel. Available: https://www. mountpolleyreviewpanel. ca/sites/default/files/report/ReportonMountPolleyTailingsStorageFacilityBreach.pdf.

Morrow, J. E. 1980. The Freshwater Fishes of Alaska. Anchorage: Alaska Northwest Publishing Company. 248 pp.

Morstad, S. 2003. Kvichak River Sockeye Salmon Spawning Ground Surveys, 1955–2002. King Salmon, AK: Alaska Department of Fish and Game, Division of Commercial Fisheries. Available: http://www.sf.adfg.state.ak.us/FedAidPDFs/RIR.2A.2002.32.pdf.

Mosbech, A., and D. Boertmann. 1999. Distribution, abundance and reaction to aerial surveys of post-breeding king eiders (*Somateria spectabilis*) in western Greenland. Arctic 52(2):188–203.

Muench, R. D., and J. D. Schumacher. 1980. Physical Oceanographic and Meteorological Conditions in the Northwest Gulf of Alaska. National Oceanic and Atmospheric Administration Technical Memorandum ERL PMEL-22. Seattle, WA: Pacific Marine Environmental Laboratory. October.

Mulherin et al. 2001. (Mulherin, N. D., W. B. Tucker III, O. P. Smith, and W. J. Lee. 2001.) Marine Ice Atlas for Cook Inlet, Alaska (No. ERDC/CRREL-TR-01-10). Hanover, NH: Engineer Research and Development Center, Cold Regions Research and Engineering Lab.

Murphy et al. 1998. (Murphy, M. L., R. A. Heintz, J. W.Short, M. L. Larsen, and S. D. Rice. 1998.) Recovery of pink salmon spawning areas after the *Exxon Valdez* oil spill. —

Exxon Valdez Oil Spill restoration Project Final Report (Restoration Project 97194), U. S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries, Service, Auke Bay Laboratory, Juneau, Alaska.

Muto et al. 2018. (Muto, M. M., V. T. Helker, R. P. Angliss, B. A. Allen, P. L. Boveng, J. M Breiwick, M. F. Cameron, P. J. Clapham, S. P. Dahle, M. E. Dahlheim, B. S. Fadely, M. C. Ferguson, L. W. Fritz, R. C. Hobbs, Y. V. Ivashchenko, A. S. Kennedy, J. M. London, S. A. Mizroch, R. R. Ream, E. L. Richmond, K. E. W. Shelden, R. G. Towell, P. R. Wade, J. M. Waite, and A. N. Zerbini. 2018.) Alaska Marine Mammal Stock Assessments, 2017. US Department of Commerce, National Oceanic and Atmospheric Administration Technical Memorandum NMFS-AFSC-378, 382 pp.

Muto et al. 2017. (Muto, M. M., V. T. Helker, R. P. Angliss, B. A. Allen, P. L. Boveng, J. M. Breiwick, M. F. Cameron, P. J. Clapham, S. P. Dahle, M. E. Dahlheim, B. S. Fadely, M. C. Ferguson, L. W. Fritz, R. C. Hobbs, Y. V. Ivashchenko, A. S. Kennedy, J. M. London, S. A. Mizroch, R. R. Ream, E. L. Richmond, K. E. W. Shelden, R. G. Towell, P. R. Wade, J. M. Waite, and A. N. Zerbini. 2017.) Alaska Marine Mammal Stock Assessments, 2016. US Department of Commerce, National Oceanic and Atmospheric Administration Technical Memorandum NMFS-AFSC-355, 366 pp. doi:10.7289/V5/TM-AFSC-355.

NADP (National Atmospheric Deposition Program). 2018 National Trends Network for Data Collected at Denali National Park (site AK03). Available: http://views.cira.colostate.edu/fed/SiteBrowser/Default.aspx. Accessed March 2018.

National Audubon Society. 2014. Important Bird Areas of Alaska. Ecological Associations. August 20.

National Audubon Society. 2013a. Important Bird Areas in the US Kamishak Bay. Available: http://netapp.audubon.org/iba/Reports/4421. Accessed March 19, 2018.

National Audubon Society. 2013b. Important Bird Areas in the US: Amakdedulia Cove. Accessed March 19, 2018.

National Audubon Society. 2013c. Important Bird Areas in the US: Contact Point. Accessed March 19, 2018.

National Weather Service. 2012. National Oceanic and Atmospheric Administration Atlas 14 Volume 7 Version 2.0, Precipitation-Frequency Atlas of the United States, Alaska. Silver Spring, MD: National Oceanic and Atmospheric Administration, National Weather Service.

Nautilus Environmental. 2012. Pebble Mines Corp Toxicity Testing Program 2011—Gold Plant Process Water and Non-Gold Plant Process Water. Final Toxicity Test Report. April 23.

Nawrocki et al. 2013. (Nowacki, G., P. Spencer, T. Jorgenson, M. Fleming, T. Jorgenson. 2000.) Narrative Descriptions for the Ecoregions of Alaska and Neighboring Territories. Prepared by US Geological Survey, US Forest Service, National Park Service, and ABR, Inc. Final Draft. June 1.

NCES (National Center for Education Statistics). 2018. Revenues and Expenditures for Public Elementary and Secondary Education: School Year 2014–15 (Fiscal Year 2015). January.

NDM (Northern Dynasty Minerals). 2013. Northern Dynasty Announces National Economic Impact Study of Alaska's Pebble Project. News Releases. May 30.

NDM. 2005. Draft Environmental Baseline Studies 2005 Study Plan. June.

NDM. 2004. Pebble Gold Copper Project, Draft Environmental Baseline Studies Proposed 2004 Study Plan. July.

Nedwell, J. R., and B. Edwards. 2004. A Review of Measurements of Underwater Man-made Noise Carried Out by Subacoustech Ltd., 1993–2003. Subacoustech Report ref: 534R0109. September.

NEI (Northern Economics, Inc.). 2018. 2017 Bristol Bay Processor Survey. Prepared for the Bristol Bay Regional Seafood Development Association.

NEI. 2014. Possible Design and Economic Outcomes of a Permit Buyback Program in the Bristol Bay Salmon Drift Gillnet Fishery. Prepared for the Bristol Bay Regional Seafood Development Association.

NEI. 2009. The Importance of the Bristol Bay Salmon Fisheries to the Region and its Residents. Prepared for the Bristol Bay Economic Development Association.

Neilson, J. L., C. M. Gabriele, A. S. Jensen, K. Jackson, and J. M. Straley. 2012. Summary of reported whale-vessel collisions in Alaskan waters. Journal of Marine Biology, Article ID 106282.

Nelson, G. L., and P. R. Johnson. 1981. Ground-water Reconnaissance of Part of the Lower Kenai Peninsula, Alaska (No. 81-905). US Geological Survey.

Nemeth et al. 2007. (Nemeth, M. J., C. C. Kaplan, A. M. Prevel-Ramos, G. D. Wade, D. M. Savarese, and C. D. Lyons. 2007.) Baseline Studies of Marine Fish and Mammals in Upper Cook Inlet, April through October 2006. Final report prepared by LGL Alaska Research Associates, Inc., Anchorage, AK, for DRven Corporation, Anchorage, AK.

Newcombe, C. P., and J. O. Jensen. 1996. Channel suspended sediment and fisheries: a synthesis for quantitative assessment of risk and impact. North American Journal of Fisheries Management 16:693–727.

Newmark, N. M. 1965. Effects of Earthquakes on Dams and Embankments. Fifth Rankine Lecture. University of Illinois.

NMFS (National Marine Fisheries Service). 2018a. Manual for Optional User Spreadsheet Tool (Version 2.0) for: 2018 Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts. Silver Spring, MD: Office of Protected Resources.

NMFS. 2018b. 2018 Revisions to: Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts. US Dept. of Commerce, National Oceanic and Atmospheric Administration. National Oceanic and Atmospheric Administration Technical Memorandum NMFS-OPR-59, 167 pp.

NMFS. 2017a. Endangered Species Act—Section 7 Consultation Biological Opinion. Consultation No. SER-2015-15985. Juneau, AK.

NMFS. 2017b. Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion. Kodiak Transient Float. NMFS Consultation Number: AKR-2016-9596. Juneau, AK.

NMFS. 2017c. Endangered Species Act (ESA) Section 7(a)(2) Biological Opinion for Lease Sale 244, Cook Inlet, Alaska 2017-2022. Endangered Species Act Section 7—Biological Opinion: Bureau of Ocean Energy Management (BOEM) and Bureau of Safety and

Environmental Enforcement (BSEE). NMFS Consultation Number: AKR-2016-9580. 307 pp.

NMFS. 2016a. Impacts to Essential Fish Habitat from Non-fishing Activities in Alaska. D2 EFH Non-Fishing Effects, NMFS Report. November 21.

NMFS. 2016b. Recovery Plan for the Cook Inlet Beluga Whale (*Delphinapterus leucas*). Alaska Region, Protected Resources Division, Juneau.

NMFS 2015. Environmental Assessment of Issuance of Incidental Harassment Authorization to SAExploration Inc. for the Take of Marine Mammals Incidental to Seismic Surveys in Cook Inlet, Alaska. Environmental Assessment. US Department of Commerce, National Oceanic and Atmospheric Administration. May 8.

NMFS. 2013a. Biological Opinion for 3-D Seismic Surveys of Cook Inlet, Alaska by Apache Alaska Corporation. Alaska Region. February 14. Available: http://www.nmfs.noaa.gov/pr/permits/incidental_take_pdfs/apache_revised_biop_final_14feb2013.

NMFS. 2013b. Occurrence of Western Distinct Population Segment Steller Sea Lions East of 144° W. Longitude. Alaska Region, Juneau. 3 pp.

NMFS. 2011a. Impacts to Essential Fish Habitat from Non-fishing Activities in Alaska. Alaska Region, Juneau.

NMFS. 2010. ESA Section 7—Biological Opinion on the Alaska Groundfish Fisheries (p. 472). Juneau, AK.

NMFS. 2010b. Recovery Plan for the Fin Whale (*Balaenoptera physalus*). Silver Spring, MD. 121 pp.

NMFS. 2008a. Final Conservation Plan for the Cook Inlet Beluga Whale (*Delphinapterus leucas*). National Marine Fisheries Service, Juneau, AK.

NMFS. 2008c. Recovery Plan for the Steller Sea Lion (*Eumetopias jubatus*). Revision. Silver Spring, MD. 325 pp.

NMFS. 2005a. Draft Conservation Plan for the Cook Inlet Beluga Whale. Protected Resource Division, Alaska Region, Juneau. 149 pp.

NMFS. 2005b. Endangered Species Act (ESA) Section 7 Consultation—Biological Opinion Kensington Gold Project Operations. 166 pp.

NMFS. 2003. Supplement to the Endangered Species Act Section 7 Consultation—Biological Opinion and Incidental Take Statement of October 2001. June 19.

NMFS. 1991. Recovery Plan for the Humpback Whale (*Megaptera novaeangliae*). Prepared by the Humpback Whale Recovery Team. Silver Spring, MD. 105 pp.

NOAA (National Oceanic and Atmospheric Administration). 2019a. How Oil Spills Affect Fish and Whales. Office of Response and Restoration. Available: https://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/how-oil-spills-affect-fish-and-whales.html. Last revised January 17, 2019.

NOAA. 2018. FAQs: 2018 Status of Salmon Stocks. National Oceanic and Atmospheric Administration, NOAA Fisheries West Coast Region. Available: https://www.westcoast.fisheries.noaa.gov/fisheries/salmon_steelhead/faqs_2018_status_of_salmon_stocks.html.

NOAA. 2018a. NDBC—Station AUGA2 Recent Data Augustine Island, AK. Available: https://www.ndbc.noaa.gov/station_page.php?station=auga2. Accessed June 14, 2018.

NOAA. 2018b. Essential Fish Habitat—Data Inventory. Available: https://www.habitat.noaa.gov/protection/efh/newInv/index.html. Accessed March 2018.

NOAA. 2018c. United States Coast Pilot 9, Alaska: Cape Spencer to Beaufort Sea. 36th Edition.

NOAA. 2018d. Fisheries Figures, Boundaries, Regulatory Areas, EFH, and Critical Habitat. Available: https://alaskafisheries.noaa.gov/maps. Accessed September 2018.

NOAA. 2018e. No Tsunami Warning, Advisory, Watch or Threat. US Tsunami Warning Centers. Available: http://wcatwc.arh.noaa.gov/. Accessed May 23, 2018.

NOAA. 2018f. Datums—NOAA Tides & Currents. Available: https://tidesandcurrents.noaa.gov/datums.html.

NOAA. 2018h. NOAA Fisheries ShoreZone tool. Available: https://www.fisheries.noaa.gov/resource/data/shorezone-maps-video-images. Accessed June 26, 2018.

NOAA. 2018i. Office of Response and Restoration. Small Diesel Spills (500–5,000 Gallons): Effects on Wildlife and Plants. Available: https://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/resources/small-diesel-spills.html. Accessed November 19, 2018.

NOAA. 2017. Alaska: Cape Spencer to Beaufort Sea. United States Coast Pilot 9 2017 (35th) Edition. May 27, 2018.

NOAA. 2015. Alaska—South Coast Cook Inlet Southern Part. Chart 16640. 25th edition, October 2011; last correction October 19, 2015.

NOAA. 2014b. How Oil Harms Animals and Plants in Marine Environments. Available: http://response.restoration.noaa.gov/oil-and-chemical-spills/oil-spills/how-oil-harms-animals-and-plants-marine-environments.html. Accessed July 14, 2014.

NOAA. 2006. Small Diesel Spills (50–5,000 Gallons). Seattle, WA: Office of Response and Restoration.

NOAA. 2002. Office of Response and Restoration. Environmentally Sensitive Index Summary Maps for Cook Inlet and Kenai Peninsula. Available: https://response.restoration.noaa.gov/maps-and-spatial-data/download-esi-maps-and-gis-data.html.

NOAA. n.d. Habitat Blueprint, Habitat Focus Area: Kachemak Bay. Available: https://www.habitatblueprint.noaa.gov/habitat-focus-areas/kachemak-bay-alaska/.

Nobmann et al. 2005. (Nobmann, E. D. R. Ponce, C. Mattil, R. Devereux, B. Dyke, S. O. E. Ebbesson, S. Laston, J. MacCluer, D. Robbins, T. Romenesko, G. Ruotolo, C. R. Wenger, and B. V. Howard. 2005.) Dietary intakes vary with age among Eskimo adults of northwest Alaska in the GOCADAN Study, 2000–2003. The Journal of Nutrition 135(4):856–862. Available: https://doi.org/10.1093/jn/135.4.856.

Nokleberg et al. 1994. (Nokleberg, W. J., G. Plafker, and F. H. Wilson. 1994.) The Geology of North America. Volume G-1, The Geology of Alaska. Chapter 10: Geology of South-Central Alaska. The Geological Society of America.

Norris, F. 2002. Alaska Subsistence: A National Park Service Management History. Anchorage: US Department of the Interior, National Park Service, Alaska Support Office. September.

Northrup et al. 2012. (Northrup, J. M., J. Pitt, T. B. Muhly, G. B. Stenhouse, M. Musiani, and M. S. Boyce. 2012.) Vehicle traffic shapes grizzly bear behavior on a multiple-use landscape. Journal of Applied Ecology 49:1159–1167.

NPS (National Park Service). 2018a. Alaska: Directory of Commercial Visitor Service Providers. Lake Clark National Park and Preserve. Available: https://www.nps.gov/locations/alaska/services-lake-clark.htm.

NPS. 2018b. Alaska Ecoregions: Tundra and Taiga. Available: https://www.nature.nps.gov/air/studies/criticalLoads/Ecoregions/AK_Taiga_Tundra.cfm. Accessed March 2018.

NPS. 2018c. Visitor Use in Lake Clark. January. Available: https://irma.nps.gov/DataStore/DownloadFile/598459.

NPS. 2018d. Visitor Use in Katmai. January. Available: https://irma.nps.gov/DataStore/DownloadFile/598458.

NPS. 2018e. Annual Park Recreation Visitation (1982–2017), Lake Clark National Park and Preserve and Katmai National Park. Available: https://irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Annual%20Park%20Recreation%20Visitation%20(1904%20-%20Last%20Calendar%20Year)?Park=LACL. Accessed December 4, 2018.

NPS. 2017d. Lake Clark National Park & Preserve: Birdwatching. Available: https://www.nps.gov/lacl/planyourvisit/birdwatching.htm. Last updated September 6, 2017. Accessed March 24, 2018.

NPS. 2017e. Lake Clark National Park & Preserve: Day Hikes—Lake Clark. Available: https://www.nps.gov/lacl/planyourvisit/day-hikes.htm. Last updated November 16, 2017. Accessed March 24, 2018.

NPS. 2017f. Lake Clark National Park & Preserve: Eating & Sleeping. Available: https://www.nps.gov/lacl/planyourvisit/eating-sleeping.htm. Accessed March 24, 2018.

NPS. 2017g. Sport Hunting. Available: https://www.nps.gov/lacl/planyourvisit/hunting.htm. Accessed March 24, 2018.

NPS. 2017h. Lake Clark National Park & Preserve: Power Boating. Available: https://www.nps.gov/lacl/planyourvisit/power-boating.htm. Accessed March 24, 2018.

NPS. 2016a. Hunting. Available: https://www.nps.gov/alag/planyourvisit/hunting.htm. Accessed March 24, 2018.

NPS. 2016b. Katmai National Park & Preserve: Backcountry Hiking and Camping. Available: https://www.nps.gov/katm/planyourvisit/backcountry-hiking-and-camping.htm. Last updated September 30, 2016. Accessed March 24, 2018.

NPS. 2016c. Katmai National Park & Preserve: Flight Seeing Tours. Available: https://www.nps.gov/katm/planyourvisit/flightseeing-tours.htm. Last updated September 30, 2016. Accessed March 24, 2018.

NPS. 2016d. Lake Clark National Park & Preserve: Biking. Available: https://www.nps.gov/lacl/planyourvisit/biking.htm. Last updated November 10, 2016. Accessed March 24, 2018.

NPS. 2016f. Measuring Lightscapes. Available: https://www.nps.gov/subjects/nightskies/measuring.htm. Accessed January 2019.

NPS. 2016g. Night Sky Monitoring Report Metrics and Glossary of Terms. Available: https://www.nps.gov/subjects/nightskies/skydata.htm. Accessed January 2019.

NPS. 2015a. Alagnak Wild River Boating webpage. Available: https://www.nps.gov/alag/planyourvisit/boating.htm. Last updated April 14, 2015. Accessed March 24, 2018.

NPS. 2014b. Guide to Evaluating Visual Impact Assessments for Renewable Energy Projects (DOI 10.13140/2.1.3216.5767). Available: https://www.researchgate.net/publication/264977788_Guide_To_Evaluating_Visual_Impact_Assessments_for_Renewable_Energy_Projects?enrichId=rgreq-43ac36e54ce290429a437522cce1b971-XXX&enrichSource=Y292ZXJQYWdlOzI2NDk3Nzc4ODtBUzoxMzM3NjE0NzU4MTMzNzZAMTQwODkwMjYyOTQ1NA%3D%3D&el=1_x_3&_esc=publicationCoverPdf. Accessed October 2018.

NPS. 2013b. Night Sky Quality Monitoring Report: Lake Clark National Park and Preserve. Available: http://www.sierranights.com/nightsky/reports/LACL130405.html. Accessed January 2019.

NPS. 2009a. Katmai National Park and Preserve, Aniakchak National Monument and Preserve, Alagnak Wild River Long-Range Interpretive Plan. December.

NPS. 2009b. Denali National Park Acoustic Monitoring Report—2008. October. Available: https://irma.nps.gov/DataStore/DownloadFile/434768. Accessed May 8, 2018.

NPS. 2009c. Lake Clark National Park and Preserve Foundation Statement. October. Available: https://www.nps.gov/lacl/getinvolved/portfolio-of-management-plans.htm.

NPS. 2009d. Katmai National Park and Preserve Foundation Statement. December. Available: https://www.nps.gov/katm/learn/management/upload/KATM_Foundation_Statement_December2009.pdf.

NPS. 1984. Lake Clark General Management Plan and Environmental Assessment. August.

NPS. 1983. Alagnak Wild River Management Plan. November.

NPS. n.d. Lake Clark National Park and Preserve: Tanalian Trails. Trail map and information.

NPS. n.d. Katmai National Park Map.

NRCS (US Natural Resources Conservation Service). 2018. United States Department of Agriculture Website. Available: https://www.nrcs.usda.gov/wps/portal/nrcs/site/national/home/.

Nuka and Pearson (Nuka Research and Planning Group, LLC, and Pearson Consulting, LLC). 2015. Cook Inlet Risk Assessment, Final Report. Revision 1. January 27.

NWI (National Wetlands Inventory). 2018. Wetlands Mapper. US Fish and Wildlife Service. Last updated October 17, 2018.

Ober, H. K. 2010. Effects of Oil Spills on Marine and Coastal Wildlife. Department of Wildlife Ecology and Conservation, University of Florida. May. Available: http://www.wec.ufl.edu/Effects%20of%20oil%20spills%20on%20wildlife.pdf.

Ohlberger et al. 2016. (Ohlberger, J., Scheuerell, M.D., and Schindler, D.E., 2016.) Population Coherence and Environmental Impacts across Spatial Scales: a Case Study of Chinook Salmon. Seattle, WA: School of Aquatic and Fishery Sciences, University of

Washington, and Fish Ecology Division, Northwest Fisheries Science Center, National Marine Fisheries Service, National Oceanic and Atmospheric Administration.

Olefeldt et al. 2016. (Olefeldt, D., S. Goswami, G. Grosse, D. Hayes, G. Hugelius, P. Kuhry, and M. R. Turetsky. 2016.) Circumpolar distribution and carbon storage of thermokarst landscapes. Nature Communications 7:13043.

Olson, T. L., and J. A. Putera. 2007. Refining Monitoring Protocols to Survey Brown Bear Populations in Katmai National Park and Preserve and Lake Clark National Park and Preserve. Alaska Region Natural Resources Technical Report. NPS/AR/NRTR-2007-66. November.

Ortega, C. P. 2012. Chapter 2: Effects of Noise Pollution on Birds: A Brief Review of our Knowledge. Ornithological Monographs 74:6–22.

Oswood et al. 1995. (Oswood, M. W., J. G. Irons, and A. M. Milner. 1995.) River and Stream Ecosystems of Alaska. *In* River and Stream Ecosystems, eds. C. E. Cushing, K. W. Cummins, and G. W. Minshall, 9–32. New York, NY: Elsevier.

Ott, A. G., and W. A. Morris. 2008. Aquatic Biomonitoring at Red Dog Mine, 2007. National Pollution Discharge Elimination System Alaska Department of Natural Resources, Office of Habitat Management and Permitting. Permit No. AK-003865-2 Technical Report No. 08-02. May.

Otter Tail Environmental. 2010. Evaluation of the Effects of Potential Increases in Barge Traffic on Juvenile Salmon Stranding in the Kuskokwim River, Alaska.

Ove Arup & Partners. 2002. Environmental Impact Assessment Report for Shenzhen Western Corridor-Investigation and Planning. Appendix 9B. Bird Collisions with Man-made Structures with Reference to the Proposed Shenzhen Western Corridor. September.

Owen, B., D. Argue, H. Furchtgott-Roth, G. Hurdle, and G. Mosteller. 1995. The Economics of a Disaster: The Exxon Valdez Oil Spill. Westport, CT: Quorum Books.

Owl Ridge (Owl Ridge Natural Resource Consultants, Inc.). 2018. US Fish and Wildlife Service Biological Assessment—Section 7. Prepared for Pebble Limited Partnership and US Army Corps of Engineers. December.

Owl Ridge. 2018b. National Marine Fisheries Service Biological Assessment—Section 7. Revision v0.0. Prepared for Pebble Limited Partnership and US Army Corps of Engineers. December.

Owl Ridge. 2018c. Maritime Oil Spill Risk Assessment for the Pebble Project. Memorandum. September 12.

Owl Ridge. 2014. Cosmopolitan State 2013 Drilling Program, Marine Mammal Monitoring and Mitigation 90-day Report. Prepared for BlueCrest Alaska Operating LLC.

Owl Ridge et al. 2019. (Owl Ridge Natural Resource Consultants, Inc., R2 Resource Consultants, Inc., Paradox Natural Resources, and GeoEngineers. 2019.) Essential Fish Habitat Assessment. Draft report to US Army Corps of Engineers, Alaska District. January.

Pace, R. M., III. 2011. Frequency of Whale and Vessel Collisions on the US Eastern Seaboard: Ten Years Prior and Two Years Post Ship Strike Rule. NOAA/NEFSC Reference Document 11-15.

Palka, D. L. 1993. Estimating Density of Animals When Assumptions of Line-transect Surveys are Violated. Ph.D. dissertation. University of California, Scripps Institute of Oceanography, San Diego. 169 pp.

Panigada et al. 2006. (Panigada, S., G. Pesante, M. Zanardelli, F. Capoulade, A. Gannier, and M. T. Weinrich. 2006.) Mediterranean fin whales at risk from fatal ship strikes. Marine Pollution Bulletin 52(10):1287–1298. Available: https://doi.org/10.1016/j.marpolbul.2006.03.014.

Paradox (Paradox Natural Resources). 2018a. Summary of 2018 Nearshore Fish Sampling in Iliamna Lake. Report to Pebble Limited Partnership.

Paradox. 2018b. Summary of 2018 Surveys of Beach Geomorphology in Iliamna Lake. Report to Pebble Limited Partnership.

Paradox. 2018c. Summary of 2018 Snorkel Surveys in Iliamna Lake. Report to Pebble Limited Partnership.

Paradox. 2018d. Summary of 2018 Surveys of Adult Sockeye Salmon in Iliamna Lake. Report to Pebble Limited Partnership.

Pardieck, K. L., D. J. Ziolkowski Jr., M. Lutmerding, and M.-A. R. Hudson. 2018. North American Breeding Bird Survey Dataset 1966–2017, version 2017.0. US Geological Survey, Patuxent Wildlife Research Center. Available: https://doi.org/10.5066/F76972V8.

Parr, B. L. 2018. 2013 Alaska Trapper Report: 1 July 2013–30 June 2014. Wildlife Management Report ADF&G/DWC/WMR-2018-1. Alaska Department of Fish and Game, Division of Wildlife Conservation.

Patenaude, N. J., W. J. Richardson, M. A. Smultea, W. R. Koski, G. W. Miller, B. Wursig, and C. R. Greene. 2002. Aircraft sound and disturbance to bowhead and beluga whales during spring migration in the Alaskan Beaufort Sea. Marine Mammal Science 18:309–335.

Pearson et al. 2006. (Pearson, W. H., J. R. Skalski, K. L. Sobocinski, M. C. Miller, G. E. Johnson, G. D. Williams, J. A. Southard, and R. A. Buchanan. 2006.) A Study of Stranding of Juvenile Salmon Stranding by Ship Wakes Along the Lower Columbia River Using a Before-and-After Design: Before-Phase Results. Prepared by Pacific Northwest National Laboratory for the US Army Corps of Engineers, Portland District, Portland, OR, under a Related Services Agreement with the US Department of Energy. Contract DE-AC05-76RL01830.

Peninsula Reporting. 2018. Pebble Project Scoping Meeting—Homer, Alaska. Transcript of Proceedings April 11.

Pentec. 2005. 2004–2005 Marine Fish and Benthos Studies—Port of Anchorage. Anchorage, AK. Prepared for Integrated Concepts and Research Corporation. #12618-01. November 15.

Pentec Environmental/Hart Crowser and SLR. 2011. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 34: Oceanography and Marine Water Quality. Cook Inlet Drainages. August 3.

Pentec Environmental/Hart Crowser. 2011a. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 36: Marine Nearshore Habitat, Cook Inlet Drainages. Report to the Pebble Partnership.

Pentec Environmental/Hart Crowser. 2011b. Pebble Project Environmental Baseline Document 2004 through 2008. January 27.

Pentec Environmental/Hart Crowser, Inc. 2011b. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 43: Nearshore Fish & Invertebrates, Cook Inlet Drainages. Report to the Pebble Partnership.

Perry, S. L., D. P. DeMaster, and G. K. Silber. 1999. The great whales: History and status of six species listed as endangered under the US Endangered Species Act of 1973. Marine Fisheries Review 61(1):1–74.

Person, D. K. 2001. Alexander Archipelago Wolves: Ecology and Population Viability in a Disturbed, Insular Landscape. University of Alaska, Fairbanks.

Petavratzi, E., S. Kingman, and I. Lowndes. 2005. Particulates from mining operations: A review of sources, effects and regulations. Minerals Engineering 18(12):1183–1199.

Petersen, M. R. 1981. Populations, feeding ecology and molt of Steller's eiders. The Cooper Ornithological Society. Condor 83:256–262.

Peterson, T., T. Karl, J. Kossin, K. Kunkel, J. Lawrimore. J. McMahon, R. Vose, and X. Yin. 2014. Changes in weather and climate extremes: State of knowledge relevant to air and water quality in the United States. Journal of the Air and Waste Management Association 64(2).

Peterson, C. H., S. D. Rice, J. W. Short, D. Esler, J. L. Bodkin, B. E. Ballachey, and D. B. Irons. 2003. Long-term ecosystem response to the Exxon Valdez oil spill. Science 302(5653):2082–2086.

Petticrew, M., S. Cummins, L. Sparks, and A. Findlay. 2007. Validating health impact assessment: prediction is difficult (especially about the future). Environmental Impact Assessment Review 27(1):101–107.

PHMSA (Pipeline and Hazardous Materials Safety Administration). 2018. Data Statistics Overview. Available: https://www.phmsa.dot.gov/data-and-statistics/pipeline/data-and-statistics-overview.

Piatt et al. 2007. (Piatt, J. F., K. J. Kuletz, A. E. Burger, S. A. Hatch, V. L. Friesen, T. P. Birt, M. L. Arimitsu, G. S. Drew, A. M. A. Harding, and K. S. Bixler. 2007.) Status Review of the Marbled Murrelet (*Brachyramphus marmoratus*) in Alaska and British Columbia. US Geological Survey Open-File Report 2006-1387. 258 pp.

Piteau Associates. 2018a. Pebble Project Groundwater Conditions at end of Mining and Post Closure. Project 3832-R01. July.

Plafker, G., and R. Kachadoorian. 1966. Geologic Effects of the March 1964 Earthquake and Associated Seismic Sea Waves on Kodiak and Nearby Islands, Alaska. US Government Printing Office.

Plafker et al. 1994. (Plafker, G., L. M. Gilpin, and J. C. Lahr. 1994.) Neotectonic Map of Alaska. Plate 12. Geology of Alaska. Volume G-1 of the Geology of North America (GNA-G1).

Plante et al. 2018. (Plante, S., C. Dussault, J. H. Richard, and S. D. Côté. 2018.) Human disturbance effects and cumulative habitat loss in endangered migratory caribou. Biological Conservation 224:129–143.

Platte, R. M., and W. I. Butler, Jr. 1995. Water Bird Abundance and Distribution in the Bristol Bay Region, Alaska. US Fish and Wildlife Service Migratory Bird Management Project. February 1.

PLP (Pebble Limited Partnership). 2018a. Pebble Project Supplemental Environmental Baseline Data Report (2004-2012). Chapter 11: Geochemical Characterization, Bristol Bay Drainages. May 2018.

PLP. 2018b. Pebble Project Supplemental Environmental Baseline Document (2004–2012). Chapter 15: Fish and Aquatic Invertebrates. May.

PLP. 2018c. Pebble Project—Response to Request for Information 009. August.

PLP. 2018d. The Pebble Project Description. December.

PLP. 2018e. Who Lives There? Pebble Limited Partnership. Available: https://pebblepartnership.com/people-culture/. Accessed October 9, 2018.

PLP. 2018f. Technical Note on Updates to PLP's Proposed Project. May 11.

PLP. 2018g. Technical Note on Project Options and Screening Criteria. March 20.

PLP. 2018h. Project GIS Update from PLP. November 1.

PLP. 2018i. Bridge Locations, Potentially Navigable Rivers, Northern Access Alternative and Bridge Locations, Potentially Navigable Rivers, Proposed Project. Submission from PLP to the US Coast Guard, November 21.

PLP. 2018j. Lined Bulk Tailings Overview. December 18.

PLP. 2018j. Personal Communication from James Fueg, PLP to Sasha Forland, AECOM. Regarding Clarification on Current Project Description and GIS please respond by 12/26 (UNCLASSIFIED)—WES roads. Email. December 21. Attachment: WES_Material Sites_181221.zip.

PLP. 2018k. Personal Communication from James Fueg, PLP to Sasha Forland, AECOM. Regarding Clarification on Current Project Description and GIS please respond by 12/26 (UNCLASSIFIED). Email. December 19. Attachments: WES_Material Sites_181219.zip; Updated Reagent Table.doc.

PLP. 2017. Pebble Project Department of the Army Application for Permit. POA-2017-271. December.

PLP. 2013a. Pebble Project Supplemental Environmental Baseline Data Report 2004-2012. Chapter 3: Geology and Mineralization, Bristol Bay Drainages. The Pebble Partnership. August.

PLP. 2011a. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 1: Introduction. Pebble Limited Partnership. September 8.

PLP 2019-RFI 106. Additional Water Quality Data. AECOM Request for Information, Pebble Limited Partnership.

PLP 2019-RFI 107. Access Roads to Water Extraction Sites. AECOM Request for Information, Pebble Limited Partnership. January 2, 2019.

PLP 2019-RFI 111. Water Quality Statistics. AECOM Request for Information, Pebble Limited Partnership. January 14, 2019.

PLP 2018-RFI 005. Stability of Port Structures. AECOM Request for Information, Pebble Limited Partnership. May 14, 2005.

PLP 2018-RFI 006. Seepage Analysis. AECOM Request for Information, Pebble Limited Partnership. September 12, 2006.

PLP 2018-RFI 006a. Follow-up Questions on Seepage Analysis. AECOM Request for Information, Pebble Limited Partnership. September 12, 2018.

PLP 2018-RFI 007. Air Quality Emission Inventories. AECOM Request for Information, Pebble Limited Partnership. October 8, 2018.

PLP 2018-RFI 009a. Follow-up to RFI 009 Response: Dispersion and Deposition Modeling. AECOM Request for Information, Pebble Limited Partnership. November 2, 2018.

PLP 2018-RFI 010. Tailings Characteristics. AECOM Request for Information, Pebble Limited Partnership. September 12, 2018.

PLP 2018-RFI 011. Pipeline HDD and Bluff Erosion. AECOM Request for Information, Pebble Limited Partnership. September 12, 2018.

PLP 2018-RFI 012. Air Quality Related Values. AECOM Request for Information, Pebble Limited Partnership. November 11, 2018.

PLP 2018-RFI 013. Iliamna Lake and Pipeline Landfall Hazards. AECOM Request for Information, Pebble Limited Partnership. September 12, 2018.

PLP 2018-RFI 014. Mine Site Geotechnical Data: GIS Layers and TSF Coverage. AECOM Request for Information, Pebble Limited Possible. May 14, 2018.

PLP 2018-RFI 015. TSF Quarries. AECOM Request for Information, Pebble Limited Partnership. May 11, 2018.

PLP 2018-RFI 015b. Follow-up Question on RFI 015 Response—TSF Quarries. AECOM Request for Information, Pebble Limited Partnership. September 24, 2018.

PLP 2018-RFI 019. Water Balance, Groundwater Model and Streamflow Reduction. AECOM Request for Information, Pebble Limited Partnership. November 2, 2018.

PLP 2018-RFI 019a. Follow-up Questions on RFI 019—Water Management Plan. AECOM Request for Information, Pebble Limited Partnership. November 12, 2018.

PLP 2018-RFI 019c. Follow-up Requests on RFI 019—Groundwater Modeling Report. AECOM Request for Information, Pebble Limited Partnership. November 2, 2018.

PLP 2018-RFI 021b. Follow up Request on RFI 021—Water Quality Modeling. AECOM Request for Information, Pebble Limited Partnership. October 2, 2018.

PLP 2018-RFI 021c. Follow-up Questions on Water Quality Predictions at Mine Site. AECOM Request for Information, Pebble Limited Partnership. November 2, 2018.

PLP 2018-RFI 022. Water Withdrawals, Roads and Pipeline. AECOM Request or Information, Pebble Limited Partnership. September 12, 2018.

PLP 2018-RFI 022a. Water Extraction and Supply at Port Facilities. AECOM Request for Information, Pebble Limited Partnership. June 27, 2018.

PLP 2018-RFI 023a. Follow-up Questions on RFI 023 Pit Wall Stability. AECOM Request for Information, Pebble Limited Partnership. October 2, 2018.

PLP 2018-RFI 024. Plans for Reclamation and Restoration. AECOM Request for Information, Pebble Limited Partnership. September 12, 2018.

PLP 2018-RFI 025. Cultural Resources Survey Data. AECOM Request for Information, Pebble Limited Partnership. May 10, 2018.

PLP 2018-RFI 027. Pebble Project EIS, Project Logistics and Employment for Socioeconomic and Transportation. AECOM Request for Information, Pebble Limited Partnership. May 10, 2018.

PLP 2018-RFI 027a. Follow-up Questions on RFI 027—Aircraft and Noise. AECOM Request for Information, Pebble Limited Partnership. June 26, 2018.

PLP 2018-RFI 027b. Additional Transportation Information. AECOM Request for Information, Pebble Limited Partnership. September 24, 2018.

PLP 2018-RFI 028. TSF IDF and Freeboard. AECOM Request for Information, Pebble Limited Partnership. October 1, 2018.

PLP 2018 2018-RFI 028a. Follow-up Questions on RFI 028—IDF, Freeboard, Precipitation Inputs, and Spillways. AECOM Request for Information, Pebble Limited Partnership. August 24, 2018.

PLP 2018-RFI 028b. Follow-up Questions on RFI 028a—Climate Change Inputs to IDF/Freeboard. AECOM Request for Information, Pebble Limited Partnership. October 1, 2018.

PLP 2018-RFI 032. Conceptual Design and Feasibility Information for Options in March 20, 2018 Technical Note. AECOM Request for Information, Pebble Limited Partnership. September 12, 2018

PLP 2018-RFI 032a. Follow-up Request on RFI 032—Conceptual Design and Feasibility Information for Options in March 20, 2018 Technical Note. AECOM Request for Information, Pebble Limited Partnership. July 9, 2018.

PLP 2018-RFI 034a. Visual Resource Data. AECOM Request for Information, Pebble Limited Partnership. August 10, 2018.

PLP 2018-RFI 034d. Visual Resources Clarification. AECOM Request for Information, Pebble Limited Partnership. November 5, 2018.

PLP 2018-RFI 035. Material Sites Details and Blasting Information. AECOM Request for Information, Pebble Limited Partnership. September 12, 2018.

PLP 2018-RFI 036. Waterbody Substrate and Turbidity. AECOM Request for Information, Pebble Limited Partnership. September 6, 2018.

PLP 2018-RFI 037. Construction Schedule and Site Access During Construction. AECOM Request for Information, Pebble Limited Partnership. May 25, 2018.

PLP 2018-RFI 039. Amakdedori—Oceanographic Data. AECOM Request for Information, Pebble Limited Partnership. June 12, 2018.

PLP 2018-RFI 041. Airport Air Traffic Data. AECOM Request for Information, Pebble Limited Partnership. June 26, 2018.

PLP 2018-RFI 045. Concentrate Containers—Spill and Integrity Data. AECOM Request for Information, Pebble Limited Partnership. September 12, 2018.

PLP 2018-RFI 047. Mine-related Changes in Water Temperatures in Project Area Tributaries. AECOM Request for Information, Pebble Limited Partnership. November 5, 2018.

PLP 2018-RFI 051. HDD Water Handling. AECOM Request for Information, Pebble Limited Partnership. September 12, 2018.

PLP 2018-RFI 052. Incident Risk Assessment for Ice Breaking Ferry. AECOM Request for Information, Pebble Limited Partnership. July 24, 2018.

PLP 2018-RFI 054. Dry Stack Tailings. AECOM Request for Information, Pebble Limited Partnership. October 2, 2018.

PLP 2018-RFI 055. PAG-Pyritic Tailings Storage Facility, Construction and Closure. AECOM Request for Information, Pebble Limited Partnership. October 1, 2018.

PLP 2018-RFI 055a. Follow-up to Response to RFI 055 PAG/Pyritic TSF. AECOM Request for Information, Pebble Limited Partnership. October 1, 2018.

PLP 2018-RFI 059. Project Optimization Study Cited with Regard to Throughput in PLP Technical Note on Project Options and Screening Criteria. AECOM Request for Information, Pebble Limited Partnership. September 12, 2018.

PLP 2018-RFI 060. Diesel Hauling by Truck, Ferry, and Marine Vessel—Transport and Spill Data. AECOM Request for Information, Pebble Limited Partnership. July 27, 2018.

PLP 2018-RFI 062. Scenario for Expanded Development of Pebble. AECOM Request for Information, Pebble Limited Partnership. September 6, 2018.

PLP 2018-RFI 063. Diamond Point Port Water Depth and Pipeline Alignment. AECOM Request for Information, Pebble Limited Partnership. September 12, 2018.

PLP 2018-RFI 065. Summer Only Ferry Operations. AECOM Request for Information, Pebble Limited Partnership. October 18, 2018.

PLP. 2018-RFI 065a. Follow-up Questions on Summer Only Ferry Operations. AECOM Request for Information, Pebble Limited Partnership. January 8, 2019.

PLP 2018-RFI 066. Concentrate Pipeline Concept Description. AECOM Request for Information, Pebble Limited Partnership. October 18, 2018.

PLP 2018-RFI 069. Tailings Disposal Options. AECOM Request for Information, Pebble Limited Partnership. October 1, 2018.

PLP 2018-RFI 071. Mitigation for Analysis in EIS. AECOM Request for Information, Pebble Limited Partnership. September 21, 2018.

PLP 2018-RFI 071a. Follow-up on RFI 071 Response—Mitigation for Analysis in the EIS. AECOM Request for Information, Pebble Limited Partnership. September 25, 2018.

PLP 2018-RFI 072. Pile Supported Dock Concept Description. AECOM Request for Information, Pebble Limited Partnership. October 1, 2018.

PLP 2018-RFI 074. Ferry Terminal Site East of North Shore Site. AECOM Request for Information, Pebble Limited Partnership. October 1, 2018.

PLP 2018-RFI 075. Downstream Dam for the Bulk TSF. AECOM Request for Information, Pebble Limited Partnership. September 21, 2018.

PLP 2018-RFI 075. Pile Supported Dock Concept Description. AECOM Request for Information, Pebble Limited Partnership. October 1, 2018.

PLP 2018-RFI 075a. Follow-up Questions on Downstream Dam for the Bulk TSF. AECOM Request for Information, Pebble Limited Partnership. November 2, 2018.

PLP 2018-RFI 078. Kokhanok East Ferry Terminal Site. AECOM Request for Information, Pebble Limited Partnership. October 2, 2018.

PLP 2018-RFI 079. North Shore East Ferry Terminal Site. AECOM Request for Information, Pebble Limited Partnership. October 1, 2018.

PLP 2018-RFI 080. North Access Natural Gas Pipeline Route. AECOM Request for Information, Pebble Limited Partnership. November 2, 2018.

PLP 2018-RFI 081. Anchoring Plan for Lightering Locations. AECOM Request for Information, Pebble Limited Partnership. November 2, 2018.

PLP 2018-RFI 082. Wetlands Temporary and Indirect Impacts. AECOM Request for Information, Pebble Limited Partnership. October 16, 2018.

PLP 2018-RFI 084. Transportation Corridor Construction/Blasting. AECOM Request for Information, Pebble Limited Partnership. September 27, 2018.

PLP 2018-RFI 085. 2018 Field Data/Biological Resources. AECOM Request for Information, Pebble Limited Partnership. October 13.

PLP 2018-RFI 086. Fish/Waterbody Crossings. AECOM Request for Information, Pebble Limited Partnership. October 18, 2018.

PLP 2018-RFI 087. Surface Water Runoff and Treated Water Management and Outfalls: Ferry Terminals and Amakdedori Port. AECOM Request for Information, Pebble Limited Partnership. September 28, 2018.

PLP 2018-RFI 088. Traditional Routes and Trails. AECOM Request for Information, Pebble Limited Partnership. October 3, 2018.

PLP 2018-RFI 090. In Pit Crushing and Conveying. AECOM Request for Information, Pebble Limited Partnership. October 29, 2018.

PLP 2018-RFI 091. Bulk TSF Cover Options. AECOM Request for Information, Pebble Limited Partnership. October 18, 2018.

PLP 2018-RFI 092. Tailings Treatment Options. AECOM Request for Information, Pebble Limited Partnership. October 18, 2018.

PLP 2018-RFI 093. Dimensions of Proposed Project and Area of Proposed Impacts to Navigable WOUS. AECOM Request for Information, Pebble Limited Partnership. October 11, 2018.

PLP 2018-RFI 094. Alternative Option to Develop Pebble East Using Underground Mining. AECOM Request for Information, Pebble Limited Partnership. October 19, 2018.

PLP 2018-RFI 097. Cultural and Subsistence Figures Request. AECOM Request for Information, Pebble Limited Partnership. November 1, 2018.

PLP 2018-RFI 098. TSF Options, Mine Area. AECOM Request for Information, Pebble Limited Partnership. November 3, 2018.

PLP 2018-RFI 099. Diamond Point Port Terminal Location. AECOM Request for Information, Pebble Limited Partnership. October 30, 2018.

Poetter, A. D., and A. Tiernan. 2017. 2016 Kuskokwim Area Management Report. Alaska Department of Fish and Game, Fishery Management Report No. 17-50. Available: http://www.adfg.alaska.gov/FedAidPDFs/FMR17-50.pdf.

Polacheck, T., and L. Thorpe. 1990. The Swimming Direction of Harbor Porpoise in Relationship to a Survey Vessel.

Port of Alaska. 2018. Expansion Project Archives. Available: https://www.portofalaska.com/modernization-project/expansion-archives/. Accessed April 10, 2018.

Powell, A. N., and S. Backensto. 2009. Common Ravens (*Corvus corax*) Nesting on Alaska's North Slope Oil Fields. Final Report. OCS Study MMS 2009-007. February.

Powers, B., and D. Sigurdsson. 2016. Participation, Effort, and Harvest in the Sport Fish Business/Guide Licensing and Logbook Programs, 2014. Alaska Department of Fish and Game, Fishery Data Series No. 16-02. Anchorage.

R2 Resource Consultants. 2018. HABSYN Methods Closure Update. 2173.24. September 27.

R2 et al. 2011a. (R2 Resource Consultants, HDR Alaska, EchoFish, Inter-Fluve, and Pacific Hydrologic, Inc. 2011.) Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 15: Fish and Aquatic Invertebrates, Bristol Bay Drainages. Anchorage, AK. August 31.

R2 Resource Consultants, Inc. and HDR Alaska Inc. 2011. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 40: Freshwater Fish & Aquatic Invertebrates, Cook Inlet Drainages. Report to The Pebble Partnership.

Ralph et al. 1995. (Ralph, C. J., S. Droege, and J. R. Sauer. 1995.) Managing and Monitoring Birds using Point-counts: Standards and Applications. *In* Monitoring Bird Populations by Point-counts, eds. C. J. Ralph, J. R. Sauer, and S. Droege, 162–168. US Department of Agriculture, US Forest Service General Technical Report PSW-GTR-149.

Rattner et al. 2008. (Rattner, B. A., J. C. Franson, S. R. Sheffield, C. I. Goddard, N. J. Leonard, D. Stang, and P. J. Wingate. 2008.) Sources and Implications of Leadbased Ammunition and Fishing Tackle to Natural Resources. Wildlife Society Technical Review. Bethesda, MD: The Wildlife Society.

R Development Core Team. 2012. A Language and Environment for Statistical Computing. Vienna, Austria: R Foundation for Statistical Computing. Available: http://www.R-project.org.

Read, J., and P. Stacey. 2009. Guidelines for Open Pit Slope Design. CSIRO Publishing.

Redwood et al. 2008. (Redwood, D. G., E. D. Ferucci, M. C. Schumacher, J. S. Johnson, A. P. Lanier, L. J. Helzer, L. Tom-Orme, M. A. Murtaugh, and M. L. Slattery. 2008.) Traditional foods and physical activity patterns and associations with cultural factors in a diverse Alaska Native population. International Journal of Circumpolar Health 67(4):335–348. Available: 10.3402/ijch.v67i4.18346.

Regar, D. R. 1980. Archaeological Reconnaissance along the Kamishak Embayment. On file at the Alaska Office of History and Archaeology, Anchorage.

Reger, R. D., and W. A. Petrik. 1993. Surficial Geology and Late Pleistocene History of the Anchor Point Area, Alaska. Alaska Division of Geological & Geophysical Surveys.

Rember, R. D., and J. H. Trefry. 2005. Sediment and organic carbon focusing in the Shelikof Strait, Alaska. Marine Geology 224 (2005):83–101.

Renner et al. 2017. (Renner, M., K. J. Kuletz, and E. Labunski. 2017.) Seasonality of Seabird Distribution in Lower Cook Inlet. OCS Study BOEM 2017-011. US Department of the Interior, Bureau of Ocean Energy Management, Alaska Outer Continental Shelf Regional Office, Anchorage. 46 pp.

Richardson, W. J., and C. I. Malme. 1993. Man-Made Noise and Behavioral Responses. *In* The Bowhead Whale, eds. J. J. Burns, J. J. Montague, and C. J. Cowles. Special Publication of The Society for Marine Mammalogy 2, 631–700. Lawrence, KS: The Society for Marine Mammalogy.

Richardson et al. 1995a. (Richardson, W. J., C. R. Greene, C. I. Malme, and D. H. Thomson. 1995.) Marine Mammals and Noise. San Diego, CA: Academic Press, Inc.

Rico et al. 2008. (Rico, M., G. Benito, A. R. Salgueiro, A. Díez-Herrero, and H. G. Pereira. 2008.) Reported tailings dam failures: A review of the European incidents in the worldwide context. Journal of Hazardous Materials 152(2):846–852.

Riedman, M., and J. A. Estes. 1990. The sea otter (*Enhydra lutris*): behavior, ecology, and natural history. Biological Report (USA) No. 90 (14).

Rieger et al. 1979. (Rieger, S., D. B. Schoephorster, and C. E. Furbush. 1979.) Exploratory Soil Survey of Alaska. US Department of Agriculture, Soil Conservation Service.

Rinella, D. J., and D. L. Bogan. 2007. Development of Macroinvertebrate and Diatom Biological Assessment Indices for Cook Inlet Basin Streams. Final report. Prepared for Alaska Department of Environmental Conservation, Division of Air and Water Quality, Anchorage.

Rinella et al. 2018. (Rinella, D., R. Shaftel, and D. Athons. 2018.) Salmon Resources and Fisheries. *In* Bristol Bay Alaska: Natural Resources of the Aquatic and Terrestrial Ecosystems, ed. C. A. Woody, Chapter 18. Plantation, FL: J. Ross Publishing.

Riordan et al. 2006. (Riordan, B., D. Verbyla, and D. A. McGuire. 2006.) Shrinking ponds in subarctic Alaska based on 1950–2002 remotely sensed images. Journal of Geophysical Research 111, G04002, doi:10.1029/2005JG000150.

Roach et al. 2011. (Roach, J., B. Griffith, D. Verbyla, and J. Jones. 2011.) Mechanisms influencing changes in lake area in Alaskan boreal forest. Global Change Biology 17:2567–2583, doi:10.1111/j.1365-2486.2011.02446.x.

Robards et al. 1999. (Robards, M. D., J. F. Piatt, A. B. Kettle, and A. A. Abookire. 1999.) Temporal and geographic variation in fish communities of lower Cook Inlet, Alaska. Fishery Bulletin 97(4):962–977.

Robinette, J. 2015. Assessing the Vulnerability of Western Alaska Ecosystems and Subsistence Resources to Non-native Plant Invasion. Western Alaska Landscape Conservation Cooperative Project WA22011_11.

Rodgers et al. 2007. (Rodgers, A. R., A. P. Carr, H. L. Beyer, L. Smith, and J. G. Kie. 2007.) HRT: Home Range Tools for ArcGIS. Version 1.1. Thunder Bay, ON, Canada: Ontario Ministry of Natural Resources, Centre for Northern Forest Ecosystem Research.

Rone et al. 2017. (Rone, B. K., A. N. Zerbini, A. B. Douglas, D. W. Weller, and P. J. Clapham. 2017.) Abundance and distribution of cetaceans in the Gulf of Alaska. Marine Biology 164:23, doi: dx.doi.org/10.1007/s00227-016-3052-2.

Rosenberg et al 2016(Rosenberg, D. H., M. J. Petrula, D. Zwiefelhofer, T. Hollmen, D. D. Hill, and J. L. Schamber. 2016.) Seasonal Movements and Distribution of Pacific Steller's Eiders (*Polysticta stelleri*). Final Wildlife Research Report ADF&G/DWC/WRR–2016–7. Alaska Department of Fish and Game, Division of Wildlife Conservation.

Rover et al. 2012(Rover, J., L. Ji, B. K. Wylie, and L. L. Tieszen. 2012.) Establishing water body areal extent trends in interior Alaska from multi-temporal Landsat data. Remote Sensing Letters 3:595–604, doi:10.1080/01431161.2011.643507.

Rugh et al. 2010. (Rugh, D. J., K. E. W. Shelden, and R. C. Hobbs. 2010.) Range contraction in a beluga whale population. Endangered Species Research 12:69–75.

Rugh et al. 2007. (Rugh, D. J., K. T. Goetz, J. A. Mocklin, B. A. Mahoney, and B. K. Smith. 2007.) Aerial Surveys of Belugas in Cook Inlet, Alaska, June 2007. Unpublished National Marine Fisheries Service report. 16 pp.

Rugh et al. 2006. (Rugh, D. J., K. T. Goetz, C. L. Sims, and B. K. Smith. 2006.) Aerial Surveys of Belugas in Cook Inlet, Alaska, August 2006. Unpublished National Marine Fisheries Service report. 9 pp.

Rugh et al. 2005. (Rugh, D. J., K. E. W. Shelden, C. L. Sims, B. A. Mahoney, B. K. Smith, L. K. Litzky, and R. C. Hobbs. 2005.) Aerial Surveys of Belugas in Cook Inlet, Alaska, June 2001, 2002, 2003, and 2004. National Oceanic and Atmospheric Administration Technical Memorandum. National Marine Fisheries Service, Alaska Fisheries Science Center.

Rugh et al. 2004. (Rugh, D. J., B. A. Mahoney, and B. K. Smith. 2004. Aerial Surveys of Beluga Whales in Cook Inlet, Alaska, between June 2001 a)nd June 2002. US Department of Commerce, NOAA Technical Memorandum NMFS-AFSC-149.

Rugh et al. 2000. (Rugh, D. J., K. E. Shelden, and B. A. Mahoney. 2000.) Distribution of belugas, *Delphinapterus leucas*, in Cook Inlet, Alaska, during June/July 1993–2000. Marine Fisheries Review 62(3):6–21.

Rui et. al. 2011. (Rui, Z., P. A. Metz, D. B. Reynolds, G. Chen, and X. Zhou. 2011.) Historical pipeline construction cost analysis. International Journal of Oil, Gas and Coal Technology 4(3):244–263.

Russell et al. 2017. (Russell, C. W., J. Botz, S. Haught, and S. Moffitt. 2017.) 2016 Prince William Sound Area Finfish Management Report. Fishery Management Report No. 17-37. Anchorage: Alaska Department of Fish and Game. Available: http://www.adfg.alaska.gov/FedAidPDFs/FMR17-37.pdf.

Rumble et al. 2016. (Rumble, J., E. Russ, and C. Russ. 2016.) Cook Inlet Area Groundfish Management Report, 2012–2015. Fishery Management Report No. 16-29. Anchorage: Alaska Department of Fish and Game.

Rumble et al. 2016b (Rumble, J., M. Wessel, R. Russ, K. J. Goldman, P. Shields, and C. Russ. 2016b.) Cook Inlet Area and Prince William Sound Commercial Fisheries for Dungeness Crab, Shrimp, and Miscellaneous Shellfish through 2014. Fishery Management Report No. 16-24. Anchorage: Alaska Department of Fish and Game.

Ruthrauff et al. 2007. (Ruthrauff, D. R., T. L. Tibbitts, R. E. Gill Jr., and C. M. Handel. 2007.) Inventory of Montane-nesting Birds in Katmai and Lake Clark National Parks and Preserves. Unpublished final report for National Park Service. US Geological Survey, Alaska Science Center, Anchorage. June.

Ruthrauff et al. 2013. (Ruthrauff, D. R., R. E. Gill Jr., and T. L. Tibbitts. 2013.) Coping with the cold: an ecological context for the abundance and distribution of rock sandpipers during winter in upper Cook Inlet, Alaska. Arctic 66(3):269–278.

Salden, D. R. 1993. Effects of Research Boat Approaches on Humpback Whale Behavior off Maui, Hawaii, 1989–1993. Page 94. Tenth Biennial Conference on the Biology of Marine Mammals, Galveston, TX.

Sandy, M. R., and R. B. Blodgett. 2000. Early Jurassic Spiriferid brachiopods from Alaska and their paleogeographic significance. Geobios 33(3):319–328.

Saupe et al 2005. (Saupe, S. M., J. Gendron, and D. Dasher. 2005.) The Condition of Southcentral Alaska Coastal Bays and Estuaries. A Statistical Summary for the National Coastal Assessment Program, Alaska Department of Environmental Conservation. March 15, 2006.

SBS (Silver Bay Seafoods). 2018. Our Facilities: Naknek. Available: https://www.silverbayseafoods.com/. Accessed October 2018.

Schindler et al. 2010. (Schindler, D. E., R. Hilborn, B. Chasco, C. P. Boatright, T. P. Quinn, L. A. Rogers, and M. S. Webster. 2010.) Population diversity and the portfolio effect in an exploited species. Nature 465(7298):609.

(Schlumberger Water Services). 2015a. Pebble Project Supplemental Environmental Baseline Document 2004 through 2012. Chapter 8: Groundwater Hydrology, Bristol Bay Drainages. Report to The Pebble Partnership. March.

Schlumberger. 2015b. Pebble Project Supplemental Environmental Baseline Document 2004–2012. Section 9.2: Groundwater Quality.

Schlumberger. 2011. Pebble Project Environmental Baseline Data Report 2004–2008. Chapter 8: Groundwater Hydrology. Bristol Bay Drainages. June.

Schlumberger et al. 2011a. (Schlumberger Water Services, Piteau Associates, SLR Alaska Inc., Bristol Environmental and Engineering Services, HDR Alaska Inc. 2011a.) Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 9: Water Quality.

Schoen et al 2017. (Schoen, E. R., M. S. Wipfli, E. J. Trammell, D. J. Rinella, A. L. Floyd, J. Grunblatt, M. D. McCarthy, B. E. Meyer, J. M. Morton, J. E. Powell, A. Prakash, M. N. Reimer, S. L. Stuefer, H. Toniolo, B. M. Wells, and F. D. W. Witmer. 2017.) Future of Pacific salmon in the face of environmental change: lessons from one of the world's remaining productive salmon regions. Fisheries 42:538–553. doi:10.1080/03632415.2017.1374251.

Schwanke, C. J. 2007. Koktuli River Fish Distribution Assessment. Fishery Data Series No. 07-78. Anchorage: Alaska Department of Fish and Game.

Schwartz et al. 2004. (Schwartz, J. A., B. M. Aldridge, B. L. Lasley, P. W. Snyder, J. L. Stott, and F. C. Mohr. 2004.) Chronic fuel oil toxicity in American mink (*Mustela vison*): systemic and hematological effects of ingestion of a low-concentration of Bunker C fuel oil. Toxicology and Applied Pharmacology 200(2):146–158.

Schwemmer et al. 2011. (Schwemmer, P., B. Mendel, N. Sonntag, V. Dierschke, and S. Garthe. 2011.) Effects of ship traffic on seabirds in offshore waters: implications for marine conservation and spatial planning. Ecological Applications 21:1851–1860.

Science Applications, Inc. 1977. Environmental Assessment of the Alaskan Continental Shelf. Prepared for National Oceanic and Atmospheric Administration. December. 174 pp.

Shacklette et al. (1969). (Shacklette, H. T., L. W. Durrell, J. A. Erdman, J. R. Keith, W. M. Klein, H. Krog, H. Persson, H. Skuja, and W. A. Weber. 1969.) Vegetation of Amchitka Island,

Aleutian Islands, Alaska. Geological Survey Professional Paper 648. Washington, DC: US Government Printing Office.

Shanley, C. S., and S. Pyare. 2011. Evaluating the road-effect zone on wildlife distribution in a rural landscape. Ecosphere 2, Issue 2.

Shannon et al. 2016. (Shannon, G., M. F. McKenna, L. M. Angeloni, K. R. Crooks, K. M. Fristrup, E. Brown, K. A. Warner, M. D. Nelson, C. White, J. Briggs., S. McFarland, and G. Wittemyer. 2016.) A synthesis of two decades of research documenting the effects of noise on wildlife. Biological Reviews 91:986–1005.

Sharma, G. D., and D. C. Burrell. 1970. Sedimentary environment and sediments of Cook Inlet, Alaska. AAPG Bulletin 54(4):647–654.

Sharma et al 2009. (Sharma, S., S. Couturier, and S. D. Cote. 2009.) Impacts of climate change on the seasonal distribution of migratory caribou. Global Change Biology 15(10):2549–2562.

Shelden et al. 2017. (Shelden, K. E. W., R. C. Hobbs, C. L. Sims, L. V. Brattström, J. A. Mocklin, C. Boyd, and B. A. Mahoney. 2017.) Aerial Surveys, Abundance, and Distribution of Beluga Whales (*Delphinapterus leucas*) in Cook Inlet, Alaska, June 2016. AFSC Processed Report 2017-09, 62 pp. Seattle, WA: Alaska Fisheries Science Center, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

Shelden et al. 2016. (Shelden, K., K. Goetz, D. G. Rugh, D. Calkins, B. Mahoney, and R. Hobbs. 2016.) Spatio-temporal changes in beluga whale, *Delphinapterus leucas*, distribution: Results from aerial surveys (1977–2014), opportunistic sightings (1975–2014), and satellite tagging (1999–2003) in Cook Inlet, Alaska. Marine Fisheries Review 77:1–31. 10.7755/MFR.77.2.1.

Shelden et al. 2015. (Shelden, K. E. W., C. L. Sims, L. Vate Brattström, K. T. Goetz, and R. C. Hobbs. 2015.) Aerial Surveys of Beluga Whales (*Delphinapterus leucas*) in Cook Inlet, Alaska, June 2014. AFSC Processed Rep. 2015-03, 55 pp. Seattle, WA: Alaska Fisheries Science Center, National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

Shelden et al. 2013. (Shelden, K. E. W., D. J. Rugh, K. T. Goetz, C. L. Sims, L. Vate Brattström, J. A. Mocklin, B. A. Mahoney, B. K. Smith, and R. C. Hobbs. 2013.) Aerial Surveys of Beluga Whales, *Delphinapterus leucas*, in Cook Inlet, Alaska, June 2005 to 2012. US Department of Commerce, National Oceanic and Atmospheric Administration Technical Memorandum. NMFS-AFSC-263. 122 pp.

Sherard, J. L., and L. P. Dunnigan. 1985. Filters and Leakage Control in Embankment Dams. *In* Seepage and Leakage from Dams and Impoundments, 1–30. ASCE. May.

Shideler, R. T. 1986. Impacts of Human Developments and Land Use on Caribou: A Literature Review, Volume II: Impacts of Oil and Gas Development on the Central Arctic Herd. Alaska Department of Fish and Game Technical Report No. 86-3. January.

Shields, P., and A. Frothingham. 2018. Upper Cook Inlet Commercial Fisheries Annual Management Report, 2017. Fishery Management Report No. 18-10. Anchorage: Alaska Department of Fish and Game.

Sigurdsson, D., and B. Powers. 2014. Participation, Effort, and Harvest in the Sport Fish Business/Guide Licensing and Logbook Programs, 2013. Fishery Data Series No. 14-23. Anchorage: Alaska Department of Fish and Game.

Sigurdsson, D., and B. Powers. 2013. Participation, Effort, and Harvest in the Sport Fish Business/Guide Licensing and Logbook Programs, 2012. Fishery Data Series No. 13-37. Anchorage: Alaska Department of Fish and Game.

Sigurdsson, D., and B. Powers. 2012. Participation, Effort, and Harvest in the Sport Fish Business/Guide Licensing and Logbook Programs, 2011. Fishery Data Series No. 12-27. Anchorage: Alaska Department of Fish and Game.

Simton, M. 2018. 2M Gallons of Diesel Barged to North Slope for First Time. KTVA. Available: https://www.ktva.com/story/39042938/2m-gallons-of-diesel-barged-to-north-slope-for-first-time.

SL Ross Environmental Research, Alun Lewis Oil Spill Consultancy, Bercha Group, and PCCI. 2003. Persistence of Crude Oil Spills on Open Water. Minerals Management Service OCS Report 2003-047. 74 pp.

SLR (SLR International Corporation). 2018. Fuel Oil Spill Trajectory Modeling Report for the Pebble Project. September.

SLR. 2015a. Pebble Project Supplemental Environmental Baseline Data Report 2004–2012. Chapter 2: Climate and Meteorology, Bristol Bay Drainages. Prepared by Hoefler Consulting Group. August 2013 (minor edits March 2015).

SLR. 2013a. Pebble Project Supplemental Environmental Baseline Document 2008–2012. Chapter 26: Climate and Meteorology Cook Inlet Drainages. Prepared by Hoefler Consulting Group. August.

SLR and Pentec Environmental/Hart Crowser. 2011b. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 35: Trace Elements and Other Naturally Occurring Constituents.

SLR et al. 2011a (SLR Alaska, Bristol Environmental, Engineering Services Corporation, and HDR Alaska. 2011a.) Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 10: Trace Elements and Other Naturally Occurring Constituents, Bristol Bay Drainages. July 1.

Smith, M. C. T. 1991. Wildlife Reconnaissance Assessment, Pebble Copper Project. Draft report to Cominco Alaska Exploration. Anchorage, AK: Terra Nord.

Smith, M., N. Walker, C. Free, M. Kirchhoff, and N. Warnock. 2012. Marine Important Bird Areas in Alaska, Identifying Globally Significant Sites Using Colony and At-Sea Survey Data. Audubon Alaska. September.

Smith, K. S. 2007. Strategies to predict metal mobility in surficial mining environments. Reviews in Engineering Geology 17:25–45.

Smith et al. 2017. (Smith, M. A., M. S. Goldman, E. J. Knight, and J. J. Warrenchuk. 2017.) Ecological Atlas of the Bering, Chukchi, and Beaufort Seas. 2nd edition. Anchorage: Audubon Alaska.

Smultea et al. 2008. (Smultea, M. A., J. R. Mobley Jr., D. Fertl, and G. L. Fulling. 2008.) An unusual reaction and other observations of sperm whales near fixed-wing aircraft. Gulf and Caribbean Research 20(1):75.

SNAP (Scenarios Network for Alaska and Arctic Planning). 2018. SNAP Data Portal. Available: https://www.snap.uaf.edu/tools/data-downloads. Accessed August 15, 2018.

SNAP and EWHALE. 2012. Predicting Future Potential Climate-Biomes for the Yukon, Northwest Territories, and Alaska. Prepared by the Scenarios Network for Arctic

Planning and the EWHALE Lab, University of Alaska, Fairbanks. Prepared on behalf of The Nature Conservancy Canada, Government Northwest Territories.

Sobek, A. A. 1978. Field and Laboratory Methods Applicable to Overburdens and Minesoils. US Environmental Protection Agency, Office of Research and Development, Industrial Environmental Research Laboratory.

SRB&A (Stephen R. Braund & Associates). 2018. Pebble Project Subsistence Data Review. September 19.

SRB&A. 2018b. Pebble Project Draft 2013 Cultural Resource Interview Results: Tables and Maps. Prepared for the Pebble Limited Partnership, Anchorage, AK.

SRB&A. 2015a. Pebble Project Supplemental Environmental Baseline Document 2004–2012. Chapter 22: Cultural Resources.

SRB&A. 2015b. Pebble Project Supplemental Environmental Baseline Document 2004–2012. Chapter 50: Cultural Resources.

SRB&A. 2014. Cultural Resources Pebble Project, Cultural Resources Field Survey, 2013 Progress Report. Prepared for the Pebble Limited Partnership. On file at the Alaska Office of History and Archaeology, Anchorage.

SRB&A. 2011a. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 22: Cultural Resources.

SRB&A. 2011b. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 23: Subsistence Uses and Traditional Knowledge.

SRK (SRK Consulting). 2018a. Geochemical Source Terms for Water Treatment Planning Pebble Project—Operational Phase. Project No. 1CP016.010. August.

SRK. 2018b. Independent Technical Report for the Pyramid Copper—Molybdenum Project, Alaska Peninsula, Alaska. Prepared for CopperBank Resources Corporation. January.

SRK. 2018c. PFS Geotechnical Stability Assessment of the Pebble West Pit. Memorandum. Project No. 2CP018.007. August 9.

SRK. 2018d. Initial Geochemical Testing of Quarry Rock, Pebble Project. Memorandum. Project No. 1CP016.010. September 12.

SRK. 2018f. Pebble Project EIS Response to PLP Action Item from Water-Focused Technical Meeting on December 17, 2018. Draft Memorandum. Project No. 1CP016.010. December 24.

SRK. 2011a. Pebble Project Environmental Baseline Document 2004 through 2008. Chapter 11: Geochemical Characterization.

SRSD (Southwest Region School District). 2009. Our Communities. Available: http://www.swrsd.org/home/index.php?option=com_content&view=category&id=66&Itemid=132. Accessed October 16, 2018.

Stafford, K. M., D. K. Mellinger, S. E. Moore, and C. G. Fox. 2007. Seasonal variability and detection range modeling of baleen whale calls in the Gulf of Alaska, 1999–2002. The Journal of the Acoustical Society of America 122(6):3378–3390.

Stankowich, T. 2008. Ungulate flight responses to human disturbance: a review and meta-analysis. Biological Conservation 141(9):2159–2173.

Stanley, K. W. 1968. Effects of the Alaska Earthquake of March 27, 1964 on Shore Processes and Beach Morphology. Washington, DC: US Government Printing Office.

State of Alaska. 2017. Community: Bristol Bay Borough. Division of Community and Regional Affairs. Available: https://www.commerce.alaska.gov/dcra/DCRAExternal/community.

Statistica. 2018. US Average Price of Milk per Gallon 1995–2017. The Statistics Portal, Statistics and Studies from more than 22,500 Sources. Available: https://www.statista.com/statistics/236854/retail-price-of-milk-in-the-united-states/. Accessed August 2018.

Stehn, R., and R. Platte. 2000. Exposure of Birds to Assumed Oil Spills at the Liberty Project. US Fish and Wildlife Service, Migratory Bird Management. Unpublished report prepared for Minerals Management Service. September 19.

Stevens, D. A. S., and P. Craw. 2003. Geologic Hazards in and near the Northern Portion of the Bristol Bay Basin. Alaska Department of Natural Resources.

Stewart, D., and R. Knox. 1995. What is the Maximum Depth Liquefaction Can Occur? Third International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, Missouri University of Science and Technology. April 2–7.

Stolen, E. D. 2003. The effects of vehicle passage on foraging behavior of wading birds. BioOne 26(4):429–436.

Stone and Webster Engineering Corp. 1987. Investigation of Landslide-Induced Wave in Bradley Lake. Bradley Lake Hydroelectric Project, Alaska Power Authority. Federal Energy Regulatory Commission Project No. 8221-000. December.

Suleimani et al 2005. (Suleimani, E. N., R. A. Combellick, D. Marriott, R. A. Hansen, A. J. Venturato, and J. C. Newman. 2005.) Tsunami Hazard Maps of the Homer and Seldovia Areas, Alaska. Alaska Division of Geological & Geophysical Surveys, http://dx.doi.org/10.14509/14474.

Swaisgood, J. R. 2003. Embankment Dam Deformations Caused by Earthquakes. 2003 Pacific Conference on Earthquake Engineering. Paper number 014.

SWAMC (Southwest Alaska Municipal Conference). 2018. Dillingham Census Area Regional Profile. Available: https://swamc.org/regional-profile/dillingham-census-area/. Accessed January 2019.

Swank, C.-A., and W. Gardner. 2004. Molybdenosis and Moose at Highland Valley Copper. Collection of the British Columbia Mine Reclamation Symposium. doi: http://dx.doi.org/10.14288/1.0042450.

Szarzi et al. 2010. (Szarzi, N. J., C. M. Kerkvliet, B. J. Failor, and M. D. Booz. 2010.) Recreational Fisheries in the Lower Cook Inlet Management Area, 2008–2010, with Updates for 2007. Alaska Department of Fish and Game, Divisions of Sport Fish and Commercial Fisheries. October.

Tape et al. 2016. (Tape, K. D., D. D. Gustine, R. W. Ruess, L. G. Adams, and J. A. Clark. 2016.) Range expansion of moose in Arctic Alaska linked to warming and increased shrub habitat. PLoS ONE 11(4):e0152636. Available: https://doi.org/10.1371/journal.pone.0152636.

Tchakalova, B. 2018. Is There Any Liquefaction Potential in the Depth? Bulgarian Academy of Sciences, response to ResearchGate web chatter. March.

Tetra Tech, Inc. 2009. Red Dog Mine Extension Aqqaluk Project Final Supplemental Environmental Impact Statement. Volume 1. Prepared for US Environmental Protection Agency. Seattle, WA.

Thomson, H. 2008. HIA forecast: cloudy with sunny spells later? European Journal of Public Health 18(5):436–438.

Thurston, D. K., and D. R. Choromanski. 1994. Quaternary Geology of Lower Cook Inlet, Alaska. ICAM-94 Proceedings: Regional Terrane.

Travel Alaska. 2018. Iliamna. Available: https://www.travelalaska.com/destinations/communities/iliamna.aspx. Accessed March 22, 2018.

TRCA (Toronto and Region Conservation Authority) 2010. Horizontal Directional Drill Guidelines. July.

TSB Canada (Transportation Safety Board of Canada). 2018. Marine Transportation Occurrence Data. Available: http://www.bst-tsb.gc.ca/eng/stats/marine/index-ff.asp. Date Last modified December 18, 2018. Accessed January 25, 2019.

Uhen, M., and M. Kwon. 2007. Distribution and migration of whales in the northeastern part of the Pacific Ocean, Bering and Chukchi Seas. Soviet Research on Marine Mammals. Original citation: Berzin, A. A., and A. A. Rovnin. 1966. [In Russian.] Iszv. Tikhookean. Nauchno. Issled. Inst. Ryb. Khoz. Okeanogr. 58:179–208. Transferred to electronic format and edited by M. Uhen and M. Kwon, Smithsonian Institution.

URS. 2007. Port of Anchorage Marine Terminal Development Project Underwater Noise Survey Test Pile Driving Program Anchorage, Alaska. Prepared for US Department of Transportation Marine Administration, Port of Anchorage, and Integrated Concepts & Research Corporation. December.

USACE (US Army Corps of Engineers). 2018. Formerly Used Defense Sites (FUDS) per State. As of September 30, 2015. Available: https://www.usace.army.mil/Missions/Environmental/Formerly-Used-Defense-Sites/.

USACE. 2018b. Navigable Waters of Alaska. Alaska District. Available: https://www.poa.usace.army.mil/Missions/Regulatory/Recognizing-Wetlands/Navigable-Waters/. Accessed November 9, 2018.

USACE. 2018d. Donlin Gold Project Final Environmental Impact Statement. April.

USACE. 2017. Determination to Conduct an EIS Level of Analysis for Department of the Army Permit Application POA-2017-271, Lead Agency Determination, and Scope of Analysis. Memorandum for Record. Department of the Army, Alaska District. December 26.

USACE. 2013. Environmental Assessment and Finding of No Significant Impact—Maintenance Dredging Cook Inlet Navigation Channel, Alaska. Environmental Resources Section Public Notice. Document Identification No. ER-13-02. January 4.

USACE. 2012. Point Thomson Environmental Impact Statement. Available: https://www.federalregister.gov/documents/2012/07/27/2012-18372/notice-of-availability-of-the-final-environmental-impact-statement-for-the-proposed-point-thomson.

USACE. 2009a. Alaska Baseline Erosion Assessment: Erosion Information Paper—Iliamna, Alaska. Alaska District.

USACE. 2008. Alaska Baseline Erosion Assessment: Erosion Information Paper—Anchor Point, Alaska. Alaska District.

USACE. 2007a. Alaska Baseline Erosion Assessment: Erosion Information Paper—Kenai, Alaska. Alaska District.

USACE. 2007b. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0), eds. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-07-24. Vicksburg, MS: US Army Engineer Research and Development Center.

USACE. 2004. General Design and Construction Considerations for Earth and Rock-Fill Dams. EM 1110-2-2300. July 30.

USACE. 2002. Engineering and Design Coastal Engineering Manual. Manual No. 1110-2-1100.

USACE. 1995. Navigation Channel Feasibility Report and Environmental Assessment: Williamsport. Department of the Army. December.

USACE. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. Vicksburg, MS: US Waterways Experiment Station.

USCB (US Census Bureau). 2018. US Census Bureau, American Community Survey, ACS 2012–2016. Available: https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml. Accessed January 2019.

USCB. 2018a. Anchor Point CDP, Alaska. Available: https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml#. Accessed May 9, 2018.

USCB. 2018c. Kokhanok CDP, Alaska. Available: https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml#. Accessed May 9, 2018.

USCG (US Coast Guard). 2018. National Response Center. Available: http://www.bst-tsb.gc.ca/eng/stats/marine/index-ff.asp.

USDA (US Department of Agriculture). 2017. Part 633 Soils Engineering National Engineering Handbook. Chapter 26: Gradation Design of Sand and Gravel Filters. August.

USDA. 2006. Keys to Soil Taxonomy. Tenth Edition. Natural Resources Conservation Service.

USDA. 2005. Soil Survey of Western Kenai Peninsula Area, Alaska. Natural Resources Conservation Service.

USDOI (US Department of the Interior). 2018. Natural Resources Revenue Data, Alaska—Land Ownership.

USDOI BOEM (US Department of the Interior, Bureau of Ocean Energy Management). 2015. Alaska Outer Continental Shelf: SAExploration, Inc., 3D Cook Inlet 2015 Geological and Geophysical Seismic Survey, Lower Cook Inlet, Alaska. Environmental Assessment. Alaska Outer Continental Shelf Region. February.

USDOI, MMS (US Department of the Interior, Minerals Management Service). 2003. Alaska Outer Continental Shelf: Cook Inlet Planning Area, Oil and Gas Lease Sales 191 and 199 Final Environmental Impact Statement. OCS EIS/EA MMS 2003-055. Anchorage: Alaska Outer Continental Shelf Region. Available: http://www.boem.gov/About-BOEM/BOEM-Regions/AlaskaRegion/Environment/Environmental-Analysis/CIsV1.aspx.

US Fish and Wildlife Service (USFWS). 2016a. Alaska Maritime National Wildlife Refuge: For the Birds. Available: https://www.fws.gov/refuge/Alaska_Maritime/visit/birders.html. Last updated September 29, 2016. Accessed March 16, 2018.

USFWS. 2016b. Incidental Take During Specified Activities by BlueCrest Alaska Operating LLC. Proposed Incidental Harassment Authorization for Northern Sea Otters from the Southcentral Stock in Cook Inlet, Alaska. Federal Register Volume 81, Number 93. Available: https://www.fws.gov/policy/library/2016/2016-11426.html. Accessed May 13, 2016.

USFWS. 2016d. Letter Re: POA-2015-529 Quintillion Subsea Project consultation letter from Robert J. Henszey, USFWS to with John Sargent, US Army Corps of Engineers. April 11.

USFWS. 2015. US Army Corps of Engineers Consultation on Activities Affecting Sea Otters in Southwest Alaska (Consultation #2013-0016). August 3.

USFWS. 2015b. Biological Opinion for the Alaska Federal/State Preparedness Plan for Response to Oil & Hazardous Substance Discharges/Releases Consultation with US Coast Guard and Environmental Protection Agency. February 27.

USFWS. 2014a. Alaska Maritime National Wildlife Refuge: Hunting. Available: https://www.fws.gov/refuge/alaska_maritime/visit/hunting.html. Last updated May 15, 2014. Accessed March 16, 2018.

USFWS. 2014d. Northern Sea Otter (*Enhydra lutris kenyoni*) Southwest Alaska Stock. Anchorage, AK. Available: http://www.fws.gov/alaska/fisheries/mmm/stock/Revised_April_2014_Southwest_Alaska_Sea_Otter_SAR.pdf.

USFWS. 2014e. Biological Opinion for Port Heiden and Iliamna GCI Towers (Consultation Number 2014-0122). September 12.

USFWS. 2013a. Alaska Maritime National Wildlife Refuge: About the Refuge. Available: https://www.fws.gov/refuge/Alaska_Maritime/about.html. Last updated September 17, 2013. Accessed March 24, 2018.

USFWS. 2013b. Southwest Alaska DPS of the Northern Sea Otter (*Enhydra lutris kenyoni*) 5-Year Review: Summary and Evaluation. Region 7. 18 pp.

USFWS. 2013c. Southwest Alaska Distinct Population Segment of the Northern Sea Otter (*Enhydra lutris kenyoni*)—Recovery Plan. Region 7. 171 pp.

USFWS. 2012a. Threatened and Endangered Species Steller's Eider (*Polysticta stelleri*). May.

USFWS. 2012b. Seabirds: North Pacific Seabird Colony Database. Last updated February 24, 2012. Accessed October 19, 2018, and January 24, 2019.

USFWS. 2012d. Waterfowl Reports on Expanded Aerial Surveys of Waterfowl in Alaska. Migratory Bird Management Alaska Region. Available: https://www.fws.gov/alaska/mbsp/mbm/waterfowl/surveys/ebpsare.htm. Accessed May 7, 2018.

USFWS. 2012g. Biological Opinion for Diamond Point Granite Rock Quarry. Consultation with US Army Corps of Engineers. Prepared by Anchorage Fish and Wildlife Field Office.

USFWS. 2012h. Biological Opinion. The Effects of Construction of a New Addition to the Harbor in Sand Point, Alaska, on the Threatened Steller's Eider (*Polysticta stelleri*).

USFWS. 2011a. Land Protection Plan for Alaska Maritime National Wildlife Refuge. August.

USFWS. 2011a. Steller's Eider (*Polysticta stelleri*) Fact Sheet. Available: https://www.fws.gov/alaska/fisheries/fieldoffice/anchorage/endangered/pdf/factsheet_stei .pdf. Accessed August 2011.

USFWS. 2011c. Golden Eagles. Status Fact Sheet. February.

USFWS. 2010. Effects of Oil on Wildlife and Habitat. Fact Sheet. June. Available: https://www.fws.gov/home/dhoilspill/pdfs/DHJICFWSOilImpactsWildlifeFactSheet.pdf.

USFWS. 2008a. Birds of Conservation Concern 2008. Arlington, VA: Division of Migratory Bird Management. 85 pp. Available: http://www.fws.gov/migratorybirds/.

USFWS. 2008b. Kokhanok Wind-Diesel Project (consultation number 2009-0016). December 9.

USFWS. 2007. Final Biological Opinion on the Effects of the Construction of a Harbor at Little South America—South, Unalaska, Alaska, on the Threatened Steller's Eider (*Polysticta stelleri*). Revised June 6, 2007 (endangered species consultation number 202026).

USFWS. 2002. Steller's Eider Recovery Plan. Fairbanks, AK.

USGCRP (US Global Change Research Program). 2017. Climate Science Special Report: Fourth National Climate Assessment, Volume I, eds. D. J. Wuebbles, D. W. Fahey, K. A. Hibbard, D. J. Dokken, B. C. Stewart, and T. K. Maycock. Washington, DC. 470 pp., doi: 10.7930/J0J964J6.

USGS (US Geological Survey). 2018a. Earthquake Hazards Program. Available: https://earthquake.usgs.gov/earthquakes/.

USGS. 2018c. Daily Streamflow Conditions. USGS National Water Information System: Web Interface. Available: https://waterdata.usgs.gov/ak/nwis/rt.

USGS. 2018d. Mineral Commodity Summaries 2018. 200 pp. Available: https://doi.org/10.3133/70194932.

USGS. 2018e. Science in Your Watershed. Available: https://water.usgs.gov/wsc/reg/19.html. Accessed February 15, 2018.

USGS. 2018f. Routine United States Mining Seismicity State-by-State List of Mining Regions. Available: https://earthquake.usgs.gov/data/mineblast/sources.php.

USGS. 2005. North American Amphibian Monitoring Program Protocol. USGS Patuxent Wildlife Research Center. Available: https://www.usgs.gov/centers/pwrc/science/north-american-amphibian-monitoring-program?qt-science_center_objects=0#qt-science_center_objects.

USGS. 1999. Hydrologic Units. US Department of the Interior, Information Sheet. February.

USGS. 1967. Seldovia (D-5) Quadrangle Map. 1:63,360 September 21.

Van Lanen, J. 2012. Iliamna Lake Seals Local and Scientific Understanding. *In* Alaska Fish & Wildlife News. Alaska Department of Fish and Game. May. Available: http://www.adfg.alaska.gov/index.cfm?adfg=wildlifenews.view_article&articles_id=553. Accessed March 16, 2018.

Van Lanen, J. M. 2018. Local Knowledge of the Mulchatna Caribou Herd and Habitat Change in Southwest Alaska. *In* Alaska Fish & Wildlife News. May.

Verrier, M., and P. Kirchner. 2016. Lake Ice Phenology of Southwest Alaska. National Park Service. September 16.

Viereck et al. 1992. (Viereck, L. A., C. T. Dyrness, A. R. Batten, and K. J. Wenzlick. 1992.) The Alaska Vegetation Classification. US Department of Agriculture, Pacific Northwest Research Station. Technical Report PNW-GTR-286.

Wahrhaftig, C. 1994. Map of Physiographic Divisions of Alaska. Scale 1:2,500,000, 1 sheet. Boulder, CO: Geological Society of America.

Wahrhaftig, C. 1965. Physiographic Divisions of Alaska. US Geological Survey Professional Paper 482. 52 pp. US Government Printing Office.

Wakamatsu, H., and T. Miyata. 2017. Reputational damage and the Fukushima disaster: an analysis of seafood in Japan. Fish Science 83:1049–1057.

Wakamatsu, H., and T. Miyata. 2015. Do radioactive spills from the Fukushima disaster have any influence on the Japanese seafood market? Marine Resource Economics 31(1):27–45.

Walker, D. A., and K. R. Everett. 1987. Road dust and its environmental impact on Alaskan taiga and tundra. Arctic and Alpine Research 19(4):479–489.

Walker et al. 1987 (Walker, D. A., P. J. Webber, E. F. Binnian, K. R. Everett, N. D. Lederer, E. A. Nordstrand, and M. D. Walker. 1987.) Cumulative impacts of oil fields on northern Alaskan landscapes. Science 238(4828):757–761.

Waller, R. M. 1966. Effects of the Earthquake of March 27, 1964, in the Homer Area, Alaska. Geological Survey Professional Paper 542. US Government Printing Office.

Ward, D. H., and R. A. Stehn. 1989. Response of Brant and Other Geese to Air Craft Disturbance at Izembek Lagoon, Alaska Anchorage. Final Report. US Fish and Wildlife Service, Alaska Fish and Wildlife Research Center.

Warnock, N. 2017. The Alaska WatchList 2017. Anchorage: Audubon Alaska.

Watkins, W. A. 1986. Whale reactions to human activities in Cape Cod waters. Marine Mammal Science 2(4):251–262.

Waythomas, C. F., and C. A. Neal. 1998. Tsunami generation by pyroclastic flow during the 3500-year B.P. caldera-forming eruption of Aniakchak Volcano, Alaska. Bulletin of Volcanology 60:110–124.

Weber-Scannell, P. K. 1991. Influence of Temperature on Freshwater Fishes: a Literature Review with Emphasis on Species in Alaska. Technical Report No. 91-1. Fairbanks: Alaska Department of Fish and Game, Division of Habitat. 47 pp.

Weems, R. E., and R. B. Blodgett. 1996. The Pliosaurid Megalneusaurus: A Newly Recognized Occurrence in the Upper Jurassic Naknek Formation of the Alaska Peninsula. Geologic Studies in Alaska by the US Geological Survey 1994.

Wehr, J. D., and R. G. Sheath (eds.). 2003. Freshwater Algae of North America: Ecology and Classification. Academic Press.

Wei et al 1995. (Wei, Z. Q., P. Egger, and F. Descoeudres. 1995.) Permeability predictions for jointed rock masses. International Journal of Rock Mechanics and Mining Sciences & Geomechanics Abstracts 32(3):251–261. Pergamon. April.

Wesson et al. 2007. (Wesson, R. L., O. S. Boyd, C. S. Mueller, C. G. Bufe, A. D. Frankel, and M. D. Petersen. 2007.) Revision of Time-Independent Probabilistic Seismic Hazard Maps for Alaska (No. 2007-1043). US Geological Survey.

Whitfield, A. K., and A. Becker. 2014. Impacts of recreational motorboats: A review. Marine Pollution Bulletin 83:24–31.

WHO (World Health Organization). 2018. World Health Statistics: Monitoring Health for the Sustainable Development Goals. Available: http://apps.who.int/iris/bitstream/handle/10665/272596/9789241565585-eng.pdf?ua=1.

WHO. 2016. Ambient (Outdoor) Air Quality and Health. Available: http://www.who.int/en/news-room/fact-sheets/detail/ambient-(outdoor)-air-quality-and-health. Updated May 2, 2018.

WHO. 1999. Guidelines for Community Noise. Available: http://apps.who.int/iris/handle/10665/66217. Accessed May 8, 2018.

Wibbenmeyer, M., J. Grunblatt, and L. Shea. 1982. User's Guide for Bristol Bay Land Cover Maps. Bristol Bay Cooperative Management Plan. Anchorage: Alaska Department of Natural Resources and Alaska Department of Fish and Game.

Williams, T. E., and R. W. Davis (eds.). 1995. Emergency Care and Rehabilitation of Oiled Sea Otters: A Guide for Oil Spills Involving Fur Bearing Animals. Fairbanks: University of Alaska Press. 279 pp.

Williams et al. 1988. (Williams, T. M., R. A. Kastelein, R. W. Davis, and J. A. Thomas. 1988.) The effects of oil contamination and cleaning on sea otters (*Enhydra lutris I.*) thermoregulatory implications based on pelt studies. Canadian Journal of Zoology 66:2776–2781.

Williamson, F. S. L., and L. J. Peyton. 1962. Faunal Relationships of Birds in the Iliamna Lake Area, Alaska. Biological Papers of the University of Alaska, No. 5.

Wilson et al. 2012. (Wilson, F. H., C. P. Hults, H. R. Schmoll, P. J. Haeussler, J. M. Schmidt, L. A. Yehle, and K. A. Labay. 2012.) Geologic Map of the Cook Inlet Region, Alaska. US Geological Survey Scientific Investigations Map 3153.

Wilson et al. 2015. (Wilson, F. H., C. P. Hults, C. G. Mull, and S. M. Karl. 2015.) Geologic Map of Alaska. Scientific Investigations Map 3340 (electronic).

WISE (World Information Service on Energy Uranium Project). 2018. Chronology of Major Tailings Dam Failures. Available: http://www.wise-uranium.org/mdaf.html. Last updated August 29, 2018. Accessed October 31, 2018.

Wolfe et al. 2010 (Wolfe, R. J., C. L. Scott, W. E. Simeone, C. J. Utermohle, and M. P. Pete. 2010.) The "Super-Household" in Alaska Native Subsistence Economies. Report to the National Science Foundation, ARC 0352611.

Wolken et al 2011. (Wolken, J. M., T. N. Hollingsworth, T. S. Rupp, F. S. Chapin III, S. F. Trainor, T. M. Barrett, P. F. Sullivan, A. D. McGuire, E. S. Euskirchen, P. E. Hennon, E. A. Beever, J. S. Conn, L. K. Crone, D. V. D'Amore, N. Fresco, T. A. Hanley, K. Kielland, J. J. Kruse, T. Patterson, E. A. G. Schuur, D. L. Verbyla, and J. Yarie. 2011.) Evidence and implications of recent and projected climate change in Alaska's forest ecosystems. Ecosphere 2(11), Article 124. doi:10.1890/ES11-00288.1.

Wolla, S., and J. Sullivan. 2017. Education, Income and Wealth. Page One Economics. Federal Reserve Bank of St. Louis. Available: https://files.stlouisfed.org/files/htdocs/publications/page1-econ/2017-01-03/education-income-and-wealth_SE.pdf.

Wolt et al. 2012. (Wolt, R. C., F. P. Gelwick, F. Weltz, and R. W. Davis. 2012.) Foraging behavior and prey of sea otters in a soft- and mixed-sediment benthos in Alaska. Mammalian Biology 77:271–280.

Woolington, J. D. 2009. Mulchatna Caribou Management Report, Units 9B, 17, 18 South, 19A & 19B. *In* Caribou Management Report of Survey and Inventory Activities 1 July 2006–30 June 2008, ed. P. Harper. Alaska Department of Fish and Game, Division of Wildlife Conservation, Juneau, AK.

Woolington, J. D. 2007a. Mulchatna Caribou Management Report, Units 9B, 17, 18 South, 19A & 19B. *In* Caribou Management Report of Survey and Inventory Activities, 1 July 2004–30 June 2006, ed. P. Harper, 14–32. Alaska Department of Fish and Game, Division of Wildlife Conservation, Juneau, AK.

Woolington, J. D. 2007b. Unit 17 Furbearer. *In* Furbearers Management Report of Survey and Inventory Activities, 1 July 2003–30 June 2006, ed. P. Harper, 197–217. Alaska Department of Fish and Game. Project 7.0. Juneau, AK.

Woolington, J. D. 2006. Unit 17 Wolf Management Report. *In* Wolf Management Report of Survey and Inventory Activities, 1 July 2002–30 June 2005, ed. P. Harper, 118–125. Alaska Department of Fish and Game. Project 14.0. Juneau, AK.

Woolington, J. D. 2003. Mulchatna Caribou Management Report. *In* Caribou Management Report of Survey and Inventory Activities, 1 July 2000–30 June 2002, ed. C. Healy, 34–52. Juneau: Alaska Department of Fish and Game, Division of Wildlife Conservation.

WRCC (Western Regional Climate Center). 2018. Western US Historical Summaries (Iliamna Airport). Available: http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?wy2685. Accessed March 2018.

WSDOT (Washington State Department of Transportation). 2013. Maximum Considered Depth for Liquefaction. *In* WSDOT Geotechnical Design Manual, M 46-03.09, Section 6.1.2.3. December.

WSM (World Stress Map). 2018. The World Stress Map Project—A Service for Science and Earth System Management. Available: http://www.world-stress-map.org/. Last updated February 26, 2017. Accessed November 12, 2018.

Yost, A. C., and R. G. Wright. 2001. Moose, caribou, and grizzly bear distribution in relation to road traffic in Denali National Park, Alaska. Arctic 54(1):41–48.

Zerbini et al. 2006. (Zerbini, A. N., J. M. Waite, J. L. Laake, and P. R. Wade. 2006.) Abundance, trends and distribution of baleen whales off Western Alaska and the central Aleutian Islands. Deep Sea Research Part I: Oceanographic Research Papers 53(11):1772–1790.

Zonge International. 2017. Final Report, Seismic Survey, Pebble Port Project Amakdedori Beach, Alaska. #17035. Prepared for Pebble Limited Partnership. October 13.

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