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MEMORANDUM IN SUPPORT OF REQUEST TO PROTECT THE
BRISTOL BAY REGION FROM THE PROPOSED PEBBLE MINE
UNDER SECTION 404(c) OF THE FEDERAL CLEAN WATER ACT

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I. INTRODUCTION

On February 18, 2021, in a letter to the U.S. Environmental Protection Agency (“EPA”), United Tribes of Bristol Bay (“UTBB”)—a consortium of 15 federally-recognized tribes that represent more than 80% of the people in the Bristol Bay region of southwest Alaska—made the following formal request with respect to the Pebble Mine:

The Tribal people of Bristol Bay and those whose livelihoods depend on its waters have dealt with uncertainty from the threat of the Pebble Mine for far too long...Section 404(c) of the Clean Water Act allows the federal government to permanently protect any watershed from the threat of mining. Our Tribes firmly believe, and therefore formally request, that the EPA use this authority under the Clean Water Act and make ending the threat of the Pebble Mine a top priority.¹

On March 8, 2021, on behalf of the Natural Resources Defense Council (“NRDC”) and our more than 3 million members and activists, we wrote to support and amplify UTBB’s request, joining in urging EPA to use its authority under Clean Water Act Section 404(c) (“Section 404(c)”) to protect the Bristol Bay region from the ongoing threat of the proposed Pebble Mine.²

We now submit this memorandum in further support of that request.

The Pebble Mine, if built, would transform an entire region and a way of life. Unprecedented in location, size, and impact, it has generated intense and diverse opposition from Alaska Natives, Tribes, Bristol Bay residents, businesses, fishermen, sportsmen, faith-based organizations, and conservation organizations, citing its environmental, social, and economic risks. For the Yup’ik, Dena’ina, and Alutiiq indigenous communities in Bristol Bay, it is a fight to save their traditional way of life and food supply, and, recognizing this, UTBB³ and the Bristol Bay Native Association (“BBNA”),⁴ a nonprofit tribal consortium representing all 31 tribes in the region, have worked relentlessly to defeat the mine. A survey released by the Bristol Bay Native Corporation (“BBNC”)—the largest landowner in the region, representing over 10,000 shareholders—found that 76 percent of its Native shareholders strongly oppose the mine.⁵ For commercial fishermen and business owners in the region, it is a fight to save their livelihoods. More than 85 percent of

¹ Letter from Robert Heyano, President, United Tribes of Bristol Bay to Michael Regan, Administrator-designate, and Jane Nishida, Acting Administrator, EPA (February 2021) (emphasis added), <https://static1.squarespace.com/static/5bb53bf52727be4aa8071550/t/604183757ae35f02c0a9989a/1614906278594/021-02+UTBB+Letter+to+EPA+re+404c.pdf> (attached hereto as Exhibit 1).

² Letter from Taryn Kiekow Heimer, Senior Advocate, and Joel Reynolds, Western Director, NRDC, to Michael Regan, Administrator-designate, and Jane Nishida, Acting Administrator, EPA (March 8, 2021), <https://www.nrdc.org/sites/default/files/pebble-mine-nrdc-letter-to-epa-utbb-404c-request-20210308.pdf> (attached hereto as Exhibit 2).

³ *Our Work*, United Tribes of Bristol Bay, <http://www.utbb.org/our-work>.

⁴ Bristol Bay Native Association, *Comments on DEIS and CWA Permit for the Proposed Pebble Mine* 1–3 (2019).

⁵ Bristol Bay Native Corporation, *Pebble Mine Polling Update* (2020), <https://www.bbnc.net/wp-content/uploads/2020/01/BBNC-Pebble-Local-Opposition-2020.pdf>. See also United Tribes of Bristol Bay, *Local Polling by Tribes Shows Regional Opposition to Pebble Mine* (July 19, 2018), <http://www.utbb.org/blog/local-polling-by-tribes-shows-regional-opposition-to-pebble-mine>.

commercial fishermen in Bristol Bay oppose the mine,⁶ and more than 80 percent of Bristol Bay residents oppose it. This overwhelming consensus of regional opposition reflects widespread recognition of the substantial negative impacts that the Pebble Mine would have on the region’s ecology, economy, and way of life.

For over a decade, the regional opposition has been supported by an exceptionally broad range of state-wide, national, and international stakeholders, including major businesses and trade associations, jewelers, chefs, recreational fishing and hunting organizations and individuals, conservation and environmental groups and their members, and scientists across relevant disciplines who have confirmed the significant and unavoidable risks that the Pebble Mine—and, more broadly, large-scale mining of any kind—would pose to the natural resources of the Bristol Bay region and to the communities and wildlife that they sustain. As succinctly expressed by Tiffany & Co., “there are certain places where mining should simply never occur. Alaska’s Bristol Bay is one such place.”⁷

On November 20, 2020, the Army Corps of Engineers denied the Pebble Limited Partnership’s (“PLP” or “Pebble”) Clean Water Act permit application.⁸ Because a permit application once denied can be modified and re-filed (by the same company or by some other) months or years later—and indeed the denial of the permit application for the Pebble Mine has been appealed by PLP—this permit denial offers no lasting protection for the region and does little to prevent long-term future threats. It is a temporary reprieve, not a permanent solution. According to BBNA CEO Ralph Andersen:

Although we are relieved that Pebble’s permit application has been denied, our people must be assured that no matter the political winds, our way of life is protected from the threat of mining in our region. This commitment ensures that those who depend on Bristol Bay can continue building a sustainable future free from this threat.⁹

As discussed below, EPA is the federal agency uniquely positioned, through the exercise of its Section 404(c) authority, to provide lasting protection to the Bristol Bay region, its communities, and its wildlife. The agency’s 2014 Bristol Bay Watershed Assessment and the administrative record compiled by the Army Corps since 2017 in its Pebble Mine permit application review contain overwhelming scientific evidence of the unacceptable adverse effects that the project would have on the waters, fisheries, and recreational resources of the region – and of PLP’s consistent failure meaningfully to address that evidence. Further, those records document the

⁶ Bristol Bay Regional Seafood Development Association, Survey: Bristol Bay fishermen strongly opposed to Pebble Mine (June 2011), <http://www.bbrsda.com/survey-bristol-bay-fishermen-strongly-opposed-to-pebble-mine/>.

⁷ Earthworks, Tiffany & Co. Takes a Stand for Protecting Alaska’s Bristol Bay from the Pebble Mine (Feb. 5, 2018), <https://www.earthworks.org/blog/tiffany-co-takes-stand-protecting-alaskas-bristol-bay-pebble-mine/>.

⁸ Army Corps of Engineers, Record of Decision for Application Submitted by Pebble Limited Partnership To: The United States Army Corps of Engineers (Nov. 20, 2020).

⁹ United Tribes of Bristol Bay, Bristol Bay Leaders Release “Call to Protect Bristol Bay” Detailing Regional Vision for Long-Term Protections (Dec. 2, 2020), <http://www.utbb.org/blog/2020/12/2/bristol-bay-leaders-release-call-to-protect-bristol-bay-detailing-regional-vision-for-long-term-protections> (emphasis added).

urgency of the need for EPA action in response—action to safeguard the people and wildlife of the region from the Pebble Mine or other large-scale mining, now and in the future.

Although the Army Corps ultimately denied Pebble’s permit application, the agency’s statutory role as permitting agency under Section 404 of the Clean Water Act—and, as described below, its failures in the accelerated Pebble NEPA review process and resulting FEIS—demonstrate the agency’s incapacity to ensure lasting protection. Nor can the State of Alaska be relied upon to protect the region and its people, since Governor Mike Dunleavy and his Administration have demonstrated a consistent commitment to PLP’s interests in its unrelenting pursuit of the Pebble Mine despite the views of, and the unmitigable risk to, their constituents and their communities in the Bristol Bay region. As documented in numerous emails and other communications, Governor Dunleavy has chosen to act less like a state regulator and more like a member of the Pebble team.

Perhaps most unsettling, absent Section 404(c) safeguards, the mining industry will be undeterred by the Army Corps’ permit denial – whether the applicant is Northern Dynasty or some future, yet unknown mine developer. In a declaration addressing the limited impact of the permit denial on potential large-scale mining in the Bristol Bay region,¹⁰ mining industry expert Richard Borden, former Head of Environment for Rio Tinto’s Copper, Copper & Diamonds and Copper & Coal Product Groups, describes the reality and urgency—the inevitability—of the industry’s continuing interest in the copper and gold that remain embedded in the upper watershed of Bristol Bay, unaffected by the Army Corps’ permit denial. Absent long-term protections, the only real uncertainty about the potential for future development activity in the region is not if but when – “that is, whether this will occur years or decades from today”:

Even in the wake of the recent permit denial by the Army Corps, the Pebble ore body will pose a continuing and nearly irresistible temptation to future developers despite the longstanding, broad-based opposition, technical challenges, and significant, unavoidable environmental impacts that would be associated with the mine. Major, mid-level, and junior mining companies will continue to periodically monitor and review the status of the ore body, looking for a political, economic, and social window of opportunity.¹¹

Since January 2021, recognizing this continuing threat posed by the Pebble Mine or other large scale mining to the Bristol Bay region, over 270 organizations from across a broad spectrum of interests—ideological, political, cultural, occupational, social, economic, and geographic—have endorsed UTBB’s call for EPA action under Section 404(c).¹² This extraordinary consensus of non-traditional allies is premised both on the thoroughly documented scientific record of likely unacceptable adverse effects on one of the world’s great natural ecosystems and communities that

¹⁰ Declaration of Richard K. Borden (April 16,2021) (“Borden Decl.”) (attached hereto as Exhibit 3) (emphasis added).

¹¹ Id. at para. 16 (emphasis added).

¹² See Stop Pebble Mine, Supporters, <https://stoppebbleminenow.org/the-solution>; See also Tyler Thompson, KDLG (Feb. 23, 2021) [Bristol Bay Tribes and entities renew call for permanent watershed protections](https://www.kdlg.org/post/bristol-bay-tribes-and-entities-renew-call-permanent-watershed-protections#stream/0) (Feb.23, 2021), <https://www.kdlg.org/post/bristol-bay-tribes-and-entities-renew-call-permanent-watershed-protections#stream/0>.

it sustains and on a shared understanding of the urgent need to secure its protection beyond the immediate but temporary reprieve provided by denial of the Pebble permit.

Finally, President Biden, too, has unequivocally endorsed the need for permanent protection of the Bristol Bay watershed, because the region is “no place for a mine”:

Bristol Bay has been foundational to the way of life of Alaska Natives for countless generations, provides incredible joy for recreational anglers from across the country, and is an economic powerhouse that supplies half of the world’s wild sockeye salmon. It is no place for a mine. The Obama-Biden Administration reached that conclusion when we ran a rigorous, science-based process in 2014, and it is still true today...As President, I will . . . listen to the scientists and experts to protect Bristol Bay — and all it offers to Alaska, our country, and the world.¹³

The people of Bristol Bay have lived under the shadow of the Pebble Mine for too long. Because of the project’s unacceptable adverse effects on protected resources, the urgency of the continuing threat of large-scale mining to the region, and for all of the reasons discussed in detail below, the time is now for EPA to exercise its Section 404(c) authority and ensure lasting protection of Bristol Bay and its watershed.

II. STATEMENT OF FACTS

A. OVERVIEW OF THE BRISTOL BAY REGION AND THE PEBBLE MINE PROJECT

1. Bristol Bay Region

Bristol Bay is a “national treasure” of unparalleled ecological and economic value.¹⁴ Surrounded by two national parks (Katmai National Park and Preserve and Lake Clark National Park and Preserve), several national wildlife refuges (Togiak National Wildlife Refuge and Becharof National Wildlife Refuge), and the largest state park in the United States (Wood-Tikchik State Park), the Bristol Bay watershed provides habitat for more than 29 fish species (all five species of Pacific salmon found in North America), 40 terrestrial mammal species, and 190 bird species.¹⁵ Then-EPA Regional Administrator Dennis McLerran wrote that the streams, rivers, wetlands, lakes and other waters of Bristol Bay “comprise one of the most productive, pristine, valuable and vulnerable ecosystems remaining in North America today.”¹⁶ The Bristol Bay watershed is an ecosystem of “unparalleled ecological value, boasting salmon diversity and productivity unrivaled

¹³ Joe Biden, My Statement on Bristol Bay (Aug. 8, 2020), <https://medium.com/@JoeBiden/statement-by-vice-president-joe-biden-on-bristol-bay-1a83d60a2986> (emphasis added).

¹⁴ U.S. Department of the Interior, Press Release (Mar. 31, 2010) https://www.doi.gov/news/pressreleases/2010_03_31_release.

¹⁵ U.S. EPA, An Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska, 910-R-14-001A (Jan. 2014), available at https://www.epa.gov/sites/production/files/2015-05/documents/bristol_bay_assessment_final_2014_vol1.pdf [hereinafter Watershed Assessment], at ES-5.

¹⁶ Letter from Dennis McLerran, EPA Regional Administrator, to Thomas Collier, et al (February 28, 2014).

anywhere in North America.”¹⁷ The watershed is a unique, sprawling, permeable, and porous network of creeks and streams that is considered to be an intact eco-region that provides connected habitats from headwaters to ocean.¹⁸

The Bristol Bay watershed is also a “significant resource of global conservation value.”¹⁹ It supports the world’s greatest wild salmon fishery with average runs of 30-50 million fish annually.²⁰ The 2019 Bristol Bay sockeye salmon run totaled 56.5 million fish and was 45% above the 39.0 million average run for the latest 20-year time period.²¹ It was the fifth consecutive year that sockeye salmon runs exceeded 50 million fish.²² 2019 was the second highest harvest of all species of salmon combined, and the highest value of all time.²³ Last year’s return was even better: In 2020, the sockeye salmon run totaled 58.2 million fish, was 46% above the 40.0 million average run for the latest 20-year time period, and was the sixth consecutive year that sockeye salmon runs exceeded 50 million fish.²⁴

Bristol Bay's fishery has sustained indigenous peoples in Alaska for over 4,000 years, and the Yup'ik and Dena'ina are two of the last intact, salmon-based cultures in the world.²⁵ Salmon are the lifeblood of indigenous culture, providing not only food and a subsistence-based livelihood, but a foundation for their language, spirituality, and social structure.²⁶

Salmon are also the linchpin of the region’s economy. An economic report released in 2013 by researchers at the University of Alaska found that the Bristol Bay commercial salmon fishery is worth \$1.5 billion annually, making it the most valuable wild salmon fishery in the world.²⁷ Bristol Bay also supplies half of the world’s sockeye salmon. In addition to supporting 14,000 jobs, Bristol Bay salmon support other vital economic sectors, including sport and subsistence fishing/hunting, tourism, and recreation. Given its location at the headwaters of the Bristol Bay watershed, any economically-feasible mining of Pebble’s copper and gold would put salmon—which are highly sensitive to even the slightest increases in copper—at great risk.

¹⁷ U.S. EPA, Proposed Determination of the U.S. Environmental Protection Agency Region 10 Pursuant to Section 404(c) of the Clean Water Act, Pebble Deposit Area, Southwest Alaska (July 2014),

https://www.epa.gov/sites/production/files/2014-07/documents/pebble_pd_071714_final.pdf, at ES-1.

¹⁸ Pebble Project POA-2017-271 Clean Water Act Section 404 Permit Application, Dec. 22, 2017 [hereinafter “Permit Application”], Attachment D at 4; Proposed Determination at ES-1; see also 79 Fed. Reg. 42314 (July 21, 2014).

¹⁹ Watershed Assessment, *supra*, at 5-31.

²⁰ Alaska Department of Fish and Game, News Release, 2019 Bristol Bay Salmon Season Summary (2019), <https://www.adfg.alaska.gov/static/applications/acfnewsrelease/1114049452.pdf>.

²¹ *Id.*

²² *Id.*

²³ *Id.*

²⁴ Alaska Department of Fish and Game, 2020 Bristol Bay Salmon Season Summary (2020), <https://www.adfg.alaska.gov/static/applications/acfnewsrelease/1224367754.pdf>.

²⁵ Watershed Assessment, *supra*, at ES-8.

²⁶ *Id.*

²⁷ Gunnar Knapp et al., Univ. of Alaska Anchorage Inst. of Soc. & Econ. Research, The Economic Importance of the Bristol Bay Salmon Industry (Apr. 2013), <http://fishermenforbristolbay.org/wpcontent/uploads/2013/02/CFBB-ISER-FINAL-REPORT-5-10-2013.pdf>.

The findings of that report have now been confirmed and updated by McKinley Research Group in a comprehensive study entitled “The Economic Benefits of Bristol Bay Salmon,” released on February 2021 (Exh. 4).²⁸ According to McKinley, the Bristol Bay wild salmon fishery now generates \$2.2 billion in annual revenue, supports 15,000 full time jobs, and supplies 57 percent of the world’s sockeye salmon.²⁹ Bristol Bay wild salmon are an “an abundant, perpetual resource that are a vitally important economic engine, the foundation of indigenous cultural systems, and play a critical role in the regional ecosystem.”³⁰ Bristol Bay salmon provide the foundation of a robust, renewable, and sustainable economy and have sustained Alaska Native communities for thousands of years, providing subsistence food, subsistence-based livelihoods, and the lifeblood of the region’s culture.

2. Pebble Mine Project

PLP and its sole owner Northern Dynasty Minerals (“NDM”) (collectively “Pebble”) plan to build a vast gold, copper, and molybdenum mine at the headwaters of Bristol Bay in southwest Alaska. Located between Katmai National Park to the south and Lake Clark National Park to the north,³¹ the proposed Pebble Mine would be sited 25 miles north of Lake Iliamna—the largest freshwater lake in Alaska, a crucial incubator of Bristol Bay’s wild salmon fishery, and a haven for a rare colony of freshwater seals as well as numerous other species.³² The proposed Pebble Mine would be located in the Nushagak and Kvichak river drainages, rich salmon spawning grounds.

Although the mine planned by PLP and repeatedly proposed by the company’s leadership to potential investors would exceed by an order of magnitude in size (10 billion tons instead of 1.5 billion tons of mining waste) and duration (200 years instead of 20 years) the mine that is currently the focus of PLP’s permit application,³³ even the currently proposed 20-year mine footprint would cover an extensive 8,390 acres, would destroy more than 105 miles of streams and 2,200 acres of wetlands, and would permanently degrade the pristine Bristol Bay environment.³⁴ At either scale—under either conception—the Pebble Mine faces widespread and sustained opposition from Tribal, regional, national, and international stakeholders, including agencies of the federal government.

²⁸ McKinley Research Group, LLC, The Economic Benefits of Bristol Bay Salmon (Feb. 2021), https://stoppebbleminenow.org/wp-content/uploads/2021/03/Final-Economic-Benefit-of-Bristol-Bay-Salmon-3_17_21.pdf.

²⁹ Id. at ES-1 – ES-5, 16.

³⁰ McKinley Research Group, LLC, The Economic Benefits of Bristol Bay Salmon, Summary (Feb. 2021), https://stoppebbleminenow.org/wp-content/uploads/2021/03/Summary-Document-Economic-Benefits-of-Bristol-Bay-Salmon-3_17_2021.pdf.

³¹ The Nature Conservancy, An Assessment of Ecological Risk to Wild Salmon Systems from Large-scale Mining in the Nushagak and Kvichak Watersheds of the Bristol Bay Basin 2 (Ecology and Environment Inc., 2010); Alaska Geographic, Lake Clark National Park and Preserve, <http://www.alaskageographic.org/static/212/lake-clark-national-park-and-preserve>; Alaska Geographic, Katmai National Park and Preserve, <http://www.alaskageographic.org/static/201/katmai-national-park>.

³² David Withrow and Kymberly Yano, National Oceanic and Atmospheric Association: National Marine Fisheries Service, Recent Counts of Freshwater Seals in Alaska’s Lake Iliamna (2008); see also The Nature Conservancy, An Assessment, 2-3.

³³ See discussion *infra* at II.C.1.

³⁴ Pebble FEIS at ES-22.

a) Pebble Deposit Mine Site

The Pebble Deposit is located about “200 miles southwest of Anchorage and 60 miles west of Cook Inlet.”³⁵ Additionally, the “villages of Iliamna, Newhalen, and Nondalton, [are] each approximately 17 miles from the Pebble Deposit” which means that these community members will be directly affected by Pebble’s mining operations.³⁶ The Pebble Mine project under PLP’s proposed plan has four main elements: the mine site, the port site north of Diamond Point in Iliamna Bay, the natural gas pipeline, and the transportation corridor. Once completed, the “mine site will include the open pit, bulk TSF, pyritic TSF, overburden stockpiles, material sites, water management ponds (WMPs), milling and processing facilities, and supporting infrastructure such as the power plant, water treatment plants, camp facilities, and storage facilities.”³⁷ It is clear that this mining operation can reasonably be expected to disturb virtually every aspect of the pristine Bristol Bay ecosystem.

b) The Open Pit Mine

If the Pebble deposit were fully developed—which is PLP’s acknowledged intention—it would likely be “the largest mine of its type in North America.”³⁸ The mine plan proposed for permitting includes an open pit mine to access the ore lying closer to the surface at the Pebble West Deposit.³⁹ As described in the FEIS, the open pit would be “6,800 feet in length, 5,600 feet in width, and 1,950 feet in depth.”⁴⁰ The final footprint of the open pit mine would be 609 acres, which includes: “a conventional drill, blast, truck, and shovel operation with an average mining rate of 70 million tons per year.”⁴¹ The open pit mine is expected to generate significant amounts of dust from its operations due to the blasting, hauling and drilling, and material handling. According to EPA’s Watershed Assessment, the mine “would generate approximately 105 tons of dust per mile” along the proposed transportation corridor alone.⁴²

c) The Tailings and Tailings Dam

Under the currently proposed mine plan, the proposed Pebble Mine would store “1.140 billion tons of bulk tailings in a Bulk Tailings Storage Facility (“TSF”) and 155 million tons of pyritic tailings in a Pyritic TSF.”⁴³ This waste rock, or tailings, will contain sulfides, including pyrite,⁴⁴ which will comprise 12% of the total tailings.⁴⁵ When sulfuric minerals are exposed to air and water, they oxidize and create acid mine drainage, which can, as discussed below, significantly decrease the

³⁵ *Id.* at 5.

³⁶ *Id.* at Cover Letter.

³⁷ Pebble FEIS at N-4.

³⁸ U.S. EPA, An Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska 910-R-14-001ES (January 2014) at 10, available at https://www.epa.gov/sites/production/files/2015-05/documents/bristol_bay_assessment_final_2014_es.pdf.

³⁹ Northern Dynasty, Maps and Models, Distribution of high/low grade mineralization and drilling at the Pebble deposit (August 2020), http://www.northerndynastyminerals.com/ndm/PD_MM.asp.

⁴⁰ Pebble FEIS at N-1.

⁴¹ *Id.* at N-26.

⁴² Watershed Assessment at 10-39.

⁴³ Bristol Bay Native Corporation, The Pebble Final EIS understates impacts and risks to salmon and the people of Bristol Bay and is not adequate to support issuance of a Clean Water Act permit (July 2020), <https://www.bbnc.net/wp-content/uploads/2020/07/FEIS-Inadequate-to-Support-Clean-Water-Act-Permit.pdf>.

⁴⁴ Pyrite is the most common sulfide; when exposed to the atmosphere during mining and excavation, pyrite reacts with oxygen and water, causing acid mine drainage.

⁴⁵ Pebble FEIS at N-36.

pH levels of the watershed and make the affected streams uninhabitable for salmon and other aquatic organisms.⁴⁶

To hold the waste, PLP has proposed to construct the two tailings storage facilities on an unnamed tributary of the North Fork Koktuli River and the upper reaches of the South Fork Koktuli basin. The bulk tailings storage facility in the North Fork Koktuli watershed—holding up to 1.14 billion tons of waste⁴⁷—would encompass 2,797 acres.⁴⁸ This facility is designed to have two embankments, the main and south embankments. The main embankment would reach 545 feet in height, and the south embankment would reach 300 feet.⁴⁹ The bulk TSF would be unlined to “function as a permeable flow-through structure” so that water can seep out to allow the tailings mass to “drain, consolidate, and increase in strength over time.”⁵⁰ The Mount Polley dam in British Columbia had a very similar design to the Pebble bulk TSF “part of which failed in August 2014.”⁵¹

The primary water management pond (“WMP”) would also be located in the North Fork Koktuli watershed and would cover approximately 1,002 acres.⁵² The main WMP would be lined and is “used to store surplus water for milling, or for managing surplus water from other impoundment and seepage structures.”⁵³

The fully lined pyritic tailing storage facility in the South Fork Koktuli watershed—holding up to 155 million tons of waste⁵⁴—would encompass approximately 1000 acres.⁵⁵ The pyritic facility would include a south, north, and east embankment reaching respectively 215, 335, and 225 feet in height.⁵⁶ It is assumed that the pyritic TSF would keep the pyritic tailings “submerged during operations to prevent the oxidation and potential acid generation.”⁵⁷ The potentially acid generating waste would also be stored in the pyritic TSF.

The total TSF capacity would be sufficient to store a 20-year mine life’s worth of tailings, which is 1.44 billion tons of material. However, NDM’s recent mineral resource estimate indicated that the deposit likely contains 11 billion tons of material.⁵⁸ With capacity to hold only 1.44 billion—of the estimated up to 11 billion—tons, the tailings storage facilities would necessarily be expanded to accommodate anticipated increased mining operations.

⁴⁶ The Nature Conservancy, Ecological Risk Assessment, 54.

⁴⁷ Pebble FEIS at N-1.

⁴⁸ Id. at ES-12.

⁴⁹ Id. at N-26.

⁵⁰ Id. at ES-13.

⁵¹ Letter from Chuck Vita Letter, American Multinational Engineering Firm, to Bill Criag, American Multinational Engineering Firm (December 2019).

⁵² Pebble FEIS at ES-12.

⁵³ Id.

⁵⁴ Id. at N-1.

⁵⁵ Id. at ES-12.

⁵⁶ Id. at N-25.

⁵⁷ Id. at ES-13.

⁵⁸ Northern Dynasty Minerals Ltd. New Pebble mineral resource estimate increases US strategic Rhenium sources by 84% (August 2020), https://www.northerndynastyminerals.com/site/assets/files/4851/august_20-_2020_final.pdf.

d) Wastewater Treatment

Due to Bristol Bay’s wet environment, a vast amount of water will require treatment in perpetuity. “Problematic water management issues include but are not limited to 1) water treatment practicability, 2) constructability and performance of water containment structures, 3) groundwater quality impacts, and 4) water treatment requirements during construction.”⁵⁹

Bristol Bay receives an average of 39.9-58.5 inches of precipitation annually.⁶⁰ It is estimated that “Pebble would need to treat more than 38 million gallons of water every day.”⁶¹ To accomplish this task, the mine would have two water treatment plants (“WTP”) during operations. The main WTP—WTP #1—would be “used during operations to treat surplus water from the open pit WMP.”⁶² WTP #2 would be “used during operations to treat surplus water from the main Water Management Pond “WMP”).”⁶³ A third WTP #3 would be constructed specifically “for closure phase 1 to treat water from the open pit, and would be south of the open pit adjacent to the site of operations phase WTP #1.”⁶⁴

Given “the composition of the tainted water at Pebble, this water treatment involves multiple complex processes and equipment, including chemical precipitation, filtration, high pressure membrane filtration, and reverse osmosis.”⁶⁵ According to the FEIS, the main WTP must treat “14 cubic feet per second (cfs)” and WTP #2 would need to treat “46 cfs.”⁶⁶ Combined, the two WTP would treat a total of 60 cfs, which converts to about 39 million gallons of contaminated water to be treated per day. This means approximately 14 billion gallons of water would need to be treated per year.

As proposed, Pebble would far outpace the “level of necessary water treatment [at] other hard rock mines in the United States.”⁶⁷ Although the unprecedented volume of wastewater risks significant impacts on water quality in the Bristol Bay watershed, the advanced technology required to treat the billions of gallons of wastewater is only conceptually addressed in the FEIS. Because in 92% of copper mines in the United States “water collection and treatment systems have failed to control contaminated mine seepage,”⁶⁸ it is reasonable to assume that the Pebble Mine could also fail in this way, threatening irreversible and far-reaching environmental damage.

⁵⁹ Letter from Richard Borden to Shane McCoy, Army Corps of Engineers, Pebble Mine Draft Environmental Impact Statement Summary Comments (June 18, 2019).

⁶⁰ Pebble FEIS at 3.20-10.

⁶¹ Robin Samuelson, Army Corps review shows Pebble is still the wrong mine for Alaska, Anchorage Daily News (August 2020), <https://www.adn.com/opinions/2020/08/23/army-corps-review-shows-pebble-is-still-the-wrong-mine-for-alaska/>.

⁶² Pebble FEIS at ES-13.

⁶³ Id.

⁶⁴ Id.

⁶⁵ Bristol Bay Native Corporation, The Pebble Final EIS understates impacts and risks to salmon and the people of Bristol Bay and is not adequate to support issuance of a Clean Water Act permit (July 2020), <https://www.bbnc.net/wp-content/uploads/2020/07/FEIS-Inadequate-to-Support-Clean-Water-Act-Permit.pdf>.

⁶⁶ Pebble FEIS at ES-13.

⁶⁷ Bristol Bay Native Corporation, supra, <https://www.bbnc.net/wp-content/uploads/2020/07/FEIS-Inadequate-to-Support-Clean-Water-Act-Permit.pdf>.

⁶⁸ Earthworks, U.S. Copper Porphyry Mines: The Track Record of Water Quality Impacts Resulting from Pipeline Spills, Tailings Failures and Water Collection and Seepage Treatment Failures, July 2012 (Rev. Nov. 2012), https://www.earthworks.org/cms/assets/uploads/2012/08/Porphyry_Copper_Mines_Track_Record_-_8-2012.pdf.

e) The Port Site at Diamond Point in Cook Inlet

Pebble’s proposed plan “includes construction of a port site north of Diamond Point in Iliamna Bay.”⁶⁹ The Diamond Point port would have a 55-acre footprint, located in habitat designated as “critical” for highly endangered Cook Inlet beluga whales. The entire port site is composed of “shore-based and marine facilities for the shipment of concentrate, freight, and fuel for the [Pebble] Project.”⁷⁰ The shore-based facilities for removing water from the concentrate and freight storage have a 41-acre footprint.⁷¹ The marine facility, with an “access causeway, marine jetty, and barge loader, “would have a 14-acre footprint and would require extensive dredging to create an access channel.”⁷² This would enable barges to reach the port site to load and transport the copper-gold concentrate.

Ultimately, the “copper-gold concentrate will be loaded onto lightering barges using an enclosed conveyor system at the Diamond Point Port and then transported to the lightering location in Iniskin Bay approximately 8 miles from the port for transfer to bulk carriers.”⁷³ In addition to sedimentation from construction of the port, potential concentrate spills, noise, and increased shipping traffic would have a negative impact on the surrounding environment, including endangered marine mammals.

f) The Transportation Corridor

A transportation corridor would be used to carry mining equipment, personnel, copper-gold concentrate, water, and other materials to and from the mine site. “The transportation corridor consists of a road, concentrate pipeline, and return water pipeline from the mine site to the Diamond Point Port at the entrance to Iliamna Bay on Cook Inlet.”⁷⁴ Under the proposed plan, the two lane, unpaved road would connect “the mine site to the port site north of Diamond Point port in Iliamna Bay.”⁷⁵ The road would stretch for nearly 82 miles⁷⁶ and would leave a 1,077-acre footprint.⁷⁷ The entire “road system would include 17 bridges” ranging from 50 to 510 feet in length.⁷⁸ The concentrate pipeline, fiber optic cable, water return pipeline, and natural gas pipeline would “be buried in a corridor adjacent to the access road.”⁷⁹

g) The Natural Gas Pipeline

During construction, operation, closure, and maintenance, the Pebble Mine would require significant amounts of energy—comparable in demand to that of a major new Alaskan city—which would primarily be supplied by a new 270-megawatt natural gas power plant.⁸⁰ A pipeline, which

⁶⁹ Bristol Bay Native Corporation, supra, <https://www.bbnc.net/wp-content/uploads/2020/07/FEIS-Inadequate-to-Support-Clean-Water-Act-Permit.pdf>.

⁷⁰ Pebble FEIS at ES-38.

⁷¹ Id. at ES-32.

⁷² Id. at N-4.

⁷³ Id.

⁷⁴ Id. at N-3.

⁷⁵ Id. at ES-31.

⁷⁶ Id. at N-1.

⁷⁷ Id. at ES-36.33,

⁷⁸ Id. at ES-37.

⁷⁹ Id.

⁸⁰ Id. at N-41.

would connect “the mine site and the [Diamond Point] port site to the Cook Inlet gas supply infrastructure,”⁸¹ is proposed to extend 164 miles from the Kenai Peninsula to the compressor station and then across Cook Inlet to the project site.⁸² The portion of the pipeline that crosses Cook Inlet will be a “75-mile subsea pipeline” installed via drilling.⁸³ After crossing Cook Inlet, the pipeline would come ashore at Ursus Cove and then “cross Ursus Head and Cottonwood Bay before reaching the port site north of Diamond Point.”⁸⁴

The pipeline would parallel most of the length of the transportation corridor “before diverging from the road to cross directly to the power plant.”⁸⁵ The pipeline “will be designed to provide a gross flow rate of approximately 50 million standard cubic feet per day.”⁸⁶ Additionally, a fiber optic cable would be installed directly next to the pipeline.

B. SUMMARY OF REGULATORY OVERSIGHT

1. EPA Review

EPA began its regulatory oversight of the Pebble Mine in 2011, when, at the direct request of federally-recognized Tribes from Bristol Bay, EPA Region 10 initiated the “Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska” (“Watershed Assessment”).⁸⁷ The Watershed Assessment came as a response to petitions submitted by Alaska Native Tribes, BBNC, commercial fishermen, and other stakeholders urging EPA to use its Clean Water Act authority under Section 404(c) to stop the Pebble Mine.⁸⁸

Specifically, the Tribes expressed concern for the Bristol Bay drainages, which “are critical to the wild commercial salmon fisheries, subsistence fisheries, internationally famous sport fisheries, and abundant wildlife,” given the “magnitude of a potential Pebble mine.”⁸⁹ Their letter questioned “where, how and whether the vast volume of waste [generated by the mine] can be safely and permanently handled”⁹⁰ and raised additional concerns about secondary adverse effects stemming

⁸¹ Id. at N-2.

⁸² Id. at N-2.

⁸³ Id. at N-51.

⁸⁴ Id.

⁸⁵ Id. at N-19.

⁸⁶ Id. at N-51.

⁸⁷ See PEBBLEWATCH, THE PEBBLE DEPOSIT: A TIMELINE (2017), https://pebblewatch.com/wp-content/uploads/2017/06/NewPWTimeline_2017sm.pdf. This extensive evaluation resulted in issuing the Watershed Assessment. See EPA, Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska (2014), available at https://www.epa.gov/sites/production/files/2015-05/documents/bristol_bay_assessment_final_2014_vol1.pdf.

⁸⁸ See EPA, About EPA’s Proposal to Protect the Bristol Bay Watershed, <https://www.epa.gov/bristolbay/about-epas-proposal-protect-bristol-bay-watershed#next>. See also A Joint Letter From Six Federally-recognized Tribes in the Kvichak and Nushagak River Drainages of Southwest Alaska, to Lisa P. Jackson, EPA Administrator, and Dennis J. McLerran, EPA Regional Administrator, Region 10 (May, 2, 2010), <https://static1.squarespace.com/static/5bb53bf52727be4aa8071550/t/5d3f63d7915075000116f63c/1564435428572/010-05-02+-+Original+Tribal+Petition.pdf>.

⁸⁹ A Joint Letter From Six Federally-recognized Tribes in the Kvichak and Nushagak River Drainages of Southwest Alaska, supra, at 3.

⁹⁰ Id. at 4.

from associated facilities and other sulfuric mines.⁹¹ BBNC and other Tribes in the region also voiced concerns,⁹² and EPA received supporting letters from the Alaska Independent Fishermen’s Marketing Association, the Bristol Bay Regional Seafood Development Association, the National Council of Churches, and a wide range of sportsmen and conservation groups, including NRDC.⁹³

EPA convened a team of scientists with expertise in fisheries biology, mining, geochemistry, hydrology, and anthropology, among other disciplines, in order to adequately assess the Bristol Bay watershed and address the concerns raised regarding the Pebble Mine.⁹⁴ The comprehensive risk assessment developed and drafted over the ensuing three years underwent two separate scientific peer reviews and two rounds of public comment, with almost one million comments submitted in support of EPA action. Based on this Watershed Assessment, EPA concluded in 2014 that, even under the most conservative scenario, mining the Pebble deposit would result in the loss of “streams, wetlands, lakes, and ponds” that “could result in unacceptable adverse effects” on the Bristol Bay fishery, including potentially catastrophic impacts.⁹⁵

The Watershed Assessment thoroughly documents that large-scale mining in Bristol Bay would irrevocably devastate one of the most highly functioning and productive salmon ecosystems remaining anywhere in the world, as well as the communities, wildlife, and local economy that it supports. The Assessment found that large-scale mining would cause (i) inevitable destruction and modification of salmon habitat and populations, as well as harm to the wildlife and native communities that rely on them; (ii) likely habitat fragmentation and extirpation, and chemical, acid, and metal exposure, and (iii) significant risk of catastrophic tailings dam failure. More specifically, it found that even in a “best-case scenario,” experiencing no failures, a mine much smaller than the currently proposed Pebble Mine would destroy a minimum of 24 miles of streams, eliminate a minimum of 1,200 acres of wetlands, ponds, and lakes, and significantly impact fish populations in streams around the mine site.⁹⁶ “[T]he infrastructure necessary to mine the Pebble deposit jeopardizes the long-term health and sustainability of the Bristol Bay ecosystem.”⁹⁷

These findings established that the mine would result in “unacceptable adverse effects” to fishery areas, recreational areas, and wildlife, satisfying the statutory trigger to invoke Section 404(c).⁹⁸

⁹¹ Id. at 4-5.

⁹² Letter from Jason Metrokin, BBNC, to Dennis McLerran, EPA Region 10 (Aug. 12, 2010).

⁹³ See, e.g., Letter from Alaska Independent Fisherman Marketing Association to Lisa P. Jackson, Administrator of the EPA (May 13, 2010); Letter from Bob Waldrop, Executive Director of the Bristol Bay Regional Seafood Development Association to Lisa P. Jackson, Administrator of the EPA (June 20, 2010). EPA received additional letters the vast majority of which supported the agency’s action under section 404(c).

⁹⁴ See EPA, Why We Studied the Bristol Bay Watershed, <https://www.epa.gov/bristolbay/why-we-studied-bristol-bay-watershed>.

⁹⁵ EPA Region 10, Proposed Determination Pursuant to Section 404(c) of the Clean Water Act: Pebble Deposit Area, Southwest Alaska (July 2014) [hereinafter EPA Proposed Determination] at ES-5, ES-6, https://www.epa.gov/sites/production/files/2014-07/documents/pebble_pd_071714_final.pdf.

⁹⁶ Id. at ES-4.

⁹⁷ Proposed Determination to Restrict the Use of an Area as a Disposal Site; Pebble Deposit Area, Southwest Alaska, 79 Fed. Reg. 42314, 42316 (July 21, 2014).

⁹⁸ 33 U.S.C. § 1344(c).

In July 2014, based on the findings of the Watershed Assessment, EPA issued a Proposed Determination under Section 404(c) of the Clean Water Act to restrict the use of certain waters in the Bristol Bay watershed for disposal of dredged or fill material associated with developing the Pebble Mine.⁹⁹ Specifically, EPA proposed prohibiting the discharge of dredged or fill material that would result in any of the following conditions:

1. Loss of streams:
 - a. The loss of 5 or more linear miles of streams with documented anadromous fish occurrence; or
 - b. The loss of 19 or more linear miles of streams where anadromous fish are not currently documented, but that are tributaries of streams with documented anadromous fish occurrence; or
2. Loss of wetlands, lakes and ponds:
 - a. The loss of 1,100 or more acres of wetlands, lakes, and ponds contiguous with either streams with documented anadromous fish or tributaries of those streams; or
3. Streamflow alterations:
 - a. Streamflow alterations greater than 20% or more of daily flow in 9 or more linear miles of streams with documented anadromous fish occurrence.¹⁰⁰

Notably, the Proposed Determination was not based on a specific mine plan, but rather proposed to restrict any mining that would cause certain thresholds of adverse impact to the watershed, deeming those impacts unacceptable.

After the Watershed Assessment was published, PLP filed three lawsuits against EPA.¹⁰¹ In one of those lawsuits, PLP was granted a preliminary injunction on November 25, 2014, which forced EPA Region 10 to temporarily halt its Section 404(c) review process pending resolution of the litigation.¹⁰²

President Trump took office in 2017. Following the change in administration, EPA promptly reversed course on the Pebble Mine—a move transparently driven neither by science nor by the best interests of the Bristol Bay region, but by politics. In a closed-door meeting on May 1, 2017 with PLP’s CEO, then-Administrator Scott Pruitt agreed to terms for settlement of the company’s lawsuits against the agency.¹⁰³ After the meeting, and without consulting EPA’s technical staff, Pruitt directed staff to “initiate a process to propose to withdraw the Proposed Determination.”¹⁰⁴

⁹⁹ Proposed Determination, *supra*.

¹⁰⁰ *Id.* at 5-1.

¹⁰¹ Proposal To Withdraw Proposed Determination To Restrict the Use of an Area as a Disposal Site: Pebble Deposit Area, Southwest Alaska, 82 Fed. Reg. 33,123, 33123 (July 19, 2017) [hereinafter Proposal to Withdraw Proposed Determination], <https://www.govinfo.gov/content/pkg/FR-2017-07-19/pdf/2017-15181.pdf>.

¹⁰² *Id.*

¹⁰³ *Id.*

¹⁰⁴ Proposal To Withdraw Proposed Determination, 82 Fed. Reg. 33,123. *See also* Drew Griffin, Scott Bronstein & John D. Sutter, EPA Head Met With a Mining CEO—and Then Pushed Forward a Controversial Mining Project, CNN (Oct. 24, 2017), <https://www.cnn.com/2017/09/22/politics/pebble-epa-bristol-bay-invs/index.html>.

The settlement agreement also limited EPA’s ability to move forward with the Section 404(c) review if PLP submitted a permit application to the Army Corps of Engineers within thirty months from the date of settlement.¹⁰⁵ In agreeing to these terms, the Administrator derailed the safeguards that the Obama-Biden Administration had proposed for protection of the Bristol Bay watershed, its people, and its wildlife.

Pursuant to the settlement agreement, EPA initiated a formal process to withdraw the July 2014 Proposed Determination in July 2017.¹⁰⁶ However, following public notice and comment, and to the surprise of many, Administrator Pruitt reversed course. In January 2018, without finalizing the Proposed Determination, EPA opted to leave it in place based on the agency’s evaluation of the relevant statutory authority and regulations, input from tribes in Bristol Bay, and more than one million public comments of which over 99% supported keeping the Proposed Determination in place.¹⁰⁷ Pruitt explained that “any mining projects in the region likely pose a risk to the abundant natural resources that exist there” and that “[u]ntil we know the full extent of that risk, those natural resources and world-class fisheries deserve the utmost protection.”¹⁰⁸ He acknowledged that, in light of the potential for significant harm to Bristol Bay, “for EPA not to express an environmental position at this stage would be disingenuous.”¹⁰⁹

PLP submitted its Pebble Mine Clean Water Act permit application to the Army Corps of Engineers in December 2017—an application for a mine plan almost six times larger than the smallest scenario previously evaluated by EPA and predicted to permanently destroy more than 105 miles of streams and 2,200 acres of wetlands.^{110 111} EPA participated in the permitting process as a cooperating agency and, in that role, raised numerous significant substantive concerns about the project’s potential impacts and the inadequacy of the administrative record. In July 2019, EPA challenged the robustness of the Corps’ analysis of PLP’s permit application, concluding that, far from supporting a finding that the proposed discharges could comply with governing regulations, the evidence supported the opposite conclusion: that PLP’s proposed mining “may have substantial

¹⁰⁵ Proposal To Withdraw Proposed Determination, *supra*, at 33,123.

¹⁰⁶ *Id.*, at 33,124.

¹⁰⁷ Notification of Decision Not To Withdraw Proposed Determination to Restrict the Use of an Area as a Disposal Site; Pebble Deposit Area, Southwest Alaska, 83 Fed. Reg. 8,668, 8,668 (Feb. 28, 2018) [hereinafter Notification of Decision Not To Withdraw Proposed Determination], available at <https://www.govinfo.gov/content/pkg/FR-2018-02-28/pdf/2018-04092.pdf>. See also Taryn Kiekow Heimer, EPA Kills Bristol Bay Protections, Cozies Up to Pebble Mine, NRDC (July 30, 2019), <https://www.nrdc.org/experts/taryn-kiekow-heimer/epa-kills-bristol-bay-protections-cozies-pebble-mine>.

¹⁰⁸ EPA, News Release, EPA Administrator Scott Pruitt Suspends Withdrawal of Proposed Determination in Bristol Bay Watershed, Will Solicit Additional Comments (Jan. 26, 2018), <https://archive.epa.gov/epa/newsreleases/epa-administrator-scott-pruitt-suspends-withdrawal-proposed-determination-bristol-bay.html>.

¹⁰⁹ *Id.*

¹¹⁰ U.S. Army Corps, Final Environmental Impact Statement for Pebble Mine (POA-2017-271) (July 2020) [hereinafter Pebble FEIS], Executive Summary at 92.

¹¹¹ The Pebble Partnership, Pebble Project Department of the Army Application for Permit (POA-2017-271), (Dec. 2017) [hereinafter Pebble Permit Application], available at http://www.pebblescience.org/pdfs/12_22_2017_POA_2017-271_DA_Application_Pebble_Limited_Partnership.pdf.

and unacceptable adverse impacts on fisheries resources in the project area watersheds, which are aquatic resources of national importance.”¹¹²

Nevertheless, in August 2019, without further public comment, EPA reversed course again, withdrawing the prior administration’s Section 404(c) Proposed Determination. This decision followed a well-publicized meeting between President Trump and Alaska’s Governor Dunleavy on Air Force One, on the tarmac in Anchorage.¹¹³ In its notice of withdrawal, EPA based its latest change of direction on its stated desire to allow the record to develop further through the Army Corps permitting process—significantly, not on “technical consideration or judgments about whether the mine proposal will ultimately be found to meet the requirements of the 404(b)(1) Guidelines or results in ‘unacceptable adverse effects’ under CWA section 404(c).”¹¹⁴ Thus, by its terms, the agency’s decision to withdraw the Proposed Determination was dictated by neither science nor consideration of the unacceptable adverse impacts of large-scale mining on the Bristol Bay region.

EPA’s withdrawal decision appeared to contradict the agency’s notification the previous month to the Corps on July 1, 2019 that it was initiating the dispute resolution process prescribed by a Memorandum of Understanding under Section 404(q)¹¹⁵ of the Clean Water Act.¹¹⁶ EPA’s letter to the Corps stated that “this project as described in the PN [Public Notice] may have substantial and unacceptable adverse impacts on fisheries resources in the project area watersheds, which are aquatic resources of national importance.”¹¹⁷ Ultimately, however, ignoring these stated concerns, the agency subsequently declined to pursue the elevation of this issue within the Corps.¹¹⁸

The withdrawal also contradicted EPA’s highly critical comments on the Draft Environmental Impact Statement (“DEIS”) and the CWA 404 permit for Pebble, submitted to the Corps that same month. EPA pointed out the risks of potential impacts to critical headwater habitats, stating that “[e]liminating and degrading the headwater habitats within the NFK, SFK, and UTC watersheds could reduce the diversity, productivity, and stability of the remaining habitats, and the species

¹¹² Letter From Christopher W. Hladick, EPA Regional Administrator, Region 10, to Col. Phillip J. Borders, Commander, Alaska Dist., U.S. Army Corps of Eng’rs, at 3 (July 1, 2019) [hereinafter Hladick Letter], https://www.epa.gov/sites/production/files/2019-07/documents/epa-comments-draft-404-permit-pebble-project-07-01-2019_0.pdf.

¹¹³ Scott Bronstein, et al., EPA Dropped Salmon Protection After Trump Met With Alaska Governor, CNN (Aug. 9, 2019), <https://www.cnn.com/2019/08/09/us/epa-alaska-pebble-mine-salmon-invs/index.html>.

¹¹⁴ See Notification of Decision to Withdraw the Proposed Determination To Restrict the Use of an Area as a Disposal Site: Pebble Deposit Area, Southwest Alaska, 84 F.R. 45,749, 45,752-53, 45,756 (Aug. 30, 2019), <https://www.govinfo.gov/content/pkg/FR-2019-08-30/pdf/2019-18596.pdf> [hereinafter Notification of Decision to Withdraw the Proposed Determination].

¹¹⁵ MEMORANDUM OF AGREEMENT BETWEEN E.P.A. AND DEP’T OF THE ARMY, https://www.epa.gov/sites/production/files/2015-03/documents/1992_moa_404q.pdf.

¹¹⁶ Hladick Letter, *supra*, at 3.

¹¹⁷ *Id.*

¹¹⁸ See Letter From Christopher W. Hladick, EPA Regional Administrator, Region 10, to Col. David Hibner, Alaska District Eng’r, U.S. Army Corps. Of Eng’rs (May 28, 2020), <https://www.epa.gov/sites/production/files/2020-05/documents/bristol-bay-404q-supplemental-comments-5-28-2020.pdf>.

they support.”¹¹⁹ EPA cautioned that, due to “the nature and extent of the proposed discharges”—which are “highly significant and complex discharge activities with the potential for serious adverse impact”—“the level of information, evaluation, and documentation necessary for [the] project to demonstrate compliance with the [404(b)(1)] Guidelines is significant.”¹²⁰ EPA stated that the “[Public Notice], DEIS, and supporting documents do not contain sufficient information to address the factual determinations required by 40 C.F.R. § 230.11 and to make a reasonable judgment that the proposed discharges will comply with the Guidelines.”¹²¹

EPA raised significant concerns about the project’s impacts on the region’s waters and fisheries:

The current record likely underestimates the extent, magnitude, and permanence of the adverse effects of the Pebble Project’s discharges of dredged or fill material to streams, wetlands, lakes, ponds, and marine waters, and the fisheries resources they support.¹²²

Citing information necessary to the Corps’ determination of the “least environmentally damaging practicable alternative”—or LEDPA¹²³—EPA noted that the DEIS “may substantially underpredict potentially significant impacts to water”¹²⁴ and that “the current record lacks sufficient information necessary to make a reasonable judgment that the discharges of dredged or fill material will not cause or contribute to significant degradation of the aquatic ecosystem.”¹²⁵ EPA stated that “[g]iven the substantial potential impacts and risks of the proposed project and weaknesses in the DEIS, the DEIS likely underestimates adverse impacts to groundwater and surface water flows, water quality, wetlands, fish resources, and air quality.”¹²⁶

Finally, EPA made clear in its comment letters that the project as proposed “may have substantial and unacceptable adverse impacts on fisheries resources in the project area watersheds”:

The EPA has concerns regarding the extent and magnitude of the substantial proposed impacts to streams, wetlands, and other aquatic resources that may result, particularly in light of the important role these resources play in supporting the region’s valuable fishery resources ... this project as described in the [Public Notice] may have substantial and unacceptable adverse impacts on fisheries

¹¹⁹ EPA Comments on the National Environmental Policy Act Draft Environmental Impact Statement for Pebble Mine (POA-2017-00271), at 9 (July 1, 2019) [hereinafter EPA Comments on Draft EIS], available at https://www.epa.gov/sites/production/files/2019-07/documents/epa-comments-draft-404-permit-pebble-project-07-01-2019_0.pdf.

¹²⁰ Id.

¹²¹ Id. at 12.

¹²² Id. at 12-13.

¹²³ Id. at 44. This included comments on: mine site component locations; bulk TSF liner; concentrate pipeline; transportation corridors; and potential additional transportation corridor terminating at Iniskin Bay.

¹²⁴ Id. at 48

¹²⁵ Id. at 49.

¹²⁶ Letter from Chris Hladick, Reg’l Adm’r EPA Region 10, to Shane McCoy, Program Manager, Alaska Dist., U.S. Army Corps of Eng’rs, at 58 (July 1, 2019) [hereinafter EPA Letter on Draft EIS], <https://www.epa.gov/sites/production/files/2019-07/documents/epa-comments-draft-eis-pebble-project-07-01-2019.pdf>.

resources in the project area watersheds, which are aquatic resources of national importance.¹²⁷

Despite the regulatory import of its critique, EPA ultimately failed either to elevate its concerns within the Corps as part of the EIS review process or to use its own independent authority under Section 404(c).

2. Army Corps Review

PLP submitted an application for a Section 404 permit to the Army Corps in December 2017, and the Final EIS (“FEIS”) was released on July 24, 2020.¹²⁸ During its two and a half year process, the Army Corps conducted a hasty and deficient review of the proposed mine plan under the National Environmental Policy Act (“NEPA”) that credited incomplete or outmoded science, failed to address significant data gaps, ignored uncontroverted evidence of economic infeasibility, and dismissed the critical comments of Bristol Bay’s indigenous peoples and Tribes and a wide range of other stakeholders. Even by the Corps’ estimate—and even assuming the integrity of Pebble’s permit application based on a 20-year mine plan that addresses only an estimated ten percent of the ore body—the direct and indirect impacts of the Pebble Mine and its transportation corridor and port site would impact 3,285 acres of wetland, 363.7 acres of open waters, and 165 miles of streams.¹²⁹ Notably, these staggering numbers failed to consider the omission from the FEIS of an evaluation of impacts of a large-scale tailings containment failure, despite repeated requests from numerous commenters for such an evaluation.

During the course of the Army Corps’ review, however, it became undeniably clear that the 20-year mine proposal evaluated by the Army Corps is in fact not representative of PLP’s true intentions for the Pebble Mine. Undercover videotapes secretly recorded by the DC-based non-profit Environmental Investigation Agency (“EIA”)¹³⁰ dealt a virtual death blow to the project’s long suspect integrity when they were released on September 21, 2020. The tapes documented the underlying duplicity of Pebble’s application for a 20-year mine permit when, in fact, as the tapes confirmed through the words of Pebble’s own top executives, the company’s true intentions have always been for *a mine plan of 180 to 200 years*. Under the company’s *actual* plan, the environmental consequences of that 200-year mine plan would never be meaningfully examined as, little by little over the years, the initial 20 year mine would be expanded by an order of magnitude. Two days later, PLP’s CEO resigned.¹³¹

¹²⁷ Letter from Chris Hladick, Reg’l Adm’r EPA Region 10, to Colonel Phillip Borders, Alaska District Engineer, U.S. Army Corps of Eng’rs, at 3 (July 1, 2019) (hereafter EPA Letter on CWA 404 Permit Public Notice (PN)), https://www.epa.gov/sites/production/files/2019-07/documents/epa-comments-draft-404-permit-pebble-project-07-01-2019_0.pdf.

¹²⁸ Pebble Permit Application, *supra*.

¹²⁹ Letter from David Hobbie of the U.S. Army Corps of Engineers to James Fueg of the Pebble Limited Partnership (Aug. 20, 2020).

¹³⁰ Environmental Investigation Agency, Pebble Tapes, <https://eia-global.org/reports/20200921-the-pebble-tapes>

¹³¹ See Juliet Eilperin, Alaska mining executive resigns a day after being caught on tape boasting of his ties to GOP politicians, Washington Post (Sept. 23, 2020), <https://www.washingtonpost.com/climate-environment/2020/09/23/pebble-mine-secret-tapes/>.

This extraordinary revelation followed the Army Corps' public release of a letter dated August 20, 2020 notifying PLP that a favorable Record of Decision ("ROD") could not be issued in light of still unresolved concerns about insufficient mitigation for the project's potential impacts on, and significant degradation of, aquatic resources in the region. To address these concerns, the Corps informed the applicant that "in-kind compensatory mitigation within the Koktuli River Watershed would be required to compensate for all direct and indirect impacts caused by discharges into aquatic resources at the mine site"—which total 2,825 acres of wetlands, 132.5 acres of open waters, and 129.5 miles of streams.¹³² The Corps directed PLP to submit a revised Compensatory Mitigation Plan ("CMP") within 90 days.

Although PLP purported to comply by submitting a revised CMP on November 4, 2020,¹³³ the agency found on November 9, 2020 that this plan, too, failed to meet regulatory standards.¹³⁴ Specifically, the Army Corps identified numerous significant deficiencies, including in the following specific respects:

- "the level and detail of the mitigation plan is not commensurate with the scale and scope of the impacts;"
- "no restoration, establishment, or enhancement [for the preservation of aquatic resources] were proposed" and no justification for a waiver was submitted;
- "no compensatory mitigation was provided . . . to offset impacts from the port site";
- site protection plan deficient in numerous respects, including that "justification not provided as to why a perpetual conservation easement . . . is not practicable" and "a site protection instrument was not provided";
- "no maintenance plan was submitted";
- "no ecological performance standards were submitted";
- only one monitoring event was proposed, which is "not sufficient to demonstrate that the compensatory mitigation project has met and maintained performance standards";
- "no long term endowment mechanism was submitted," and "no supporting information was submitted for cost estimate"; and
- "no financial assurances were provided."¹³⁵

On November 20, 2020, the Army Corps issued its Record of Decision ("ROD") denying the permit application for the Pebble Project.¹³⁶ According to the District Engineer:

¹³² Letter from David Hobbie, Regional Regulatory Division Chief, Army Corps of Engineers, to James Fueg, Pebble Limited Partnership (Aug. 20, 2020).

¹³³ *Id.* See also United States Army Corps of Engineers, Record of Decision for Application Submitted By Pebble Limited Partnership (Nov. 20, 2020) [hereinafter PLP ROD], at Attachment B5.

¹³⁴ U.S. Army Corps of Engineers, Memorandum for the Record. Compliance Review of Final Report, Pebble Project Compensatory Mitigation Plan in accordance with 33 C.F.R. 332, POA-2017-00271 (Nov. 9, 2020) (Available as attachment B6 in the Record of Decision).

¹³⁵ *Id.*

¹³⁶ U.S. Army Corps of Engineers, PLP ROD, *supra*.

As documented in Attachment B of this ROD, I have determined that the proposed discharge does not comply with the 404 (b)(1) Guidelines because the proposed project will result in significant degradation of the aquatic ecosystem.

I have concluded that the benefits of the proposed elimination and alteration of wetlands, streams and other waters within the USACE jurisdiction do not outweigh the detriments that would be caused by such eliminations and alterations, based upon the information contained with the FEIS, the extensive public comments received, and the analysis of the public interest review factors. As those eliminations and alterations would be necessary to realize any benefits from the proposed project, I have found that the proposed project is contrary to the public interest.¹³⁷

On January 19, 2021, PLP filed a Request for Appeal, which the Corps accepted on February 24, 2021. PLP's action, along with numerous statements by the company's leadership in press releases, articles, and industry conference presentations, have confirmed the company's firm commitment in pursuit of its sole asset—the Pebble project—and demonstrated the continuing urgency of additional measures to ensure the permanent protection of Bristol Bay.

C. THE ARMY CORPS CANNOT ENSURE LASTING PROTECTION OF THE BRISTOL BAY WATERSHED

In contrast to EPA and its Section 404(c) authority, the Army Corps' primary role under Section 404 is as the permitting agency for dredge and fill activities. When a permit application is filed, it is the Corps' responsibility to review it. Unlike EPA, the Corps does not have legal authority to ensure permanent protection of Bristol Bay from the Pebble Mine or other large-scale mining.

Beyond this division of regulatory authority, however, the Corps' oversight of the permit application for the Pebble Mine has provided additional justification for EPA action. While in denying the Pebble permit the Army Corps ultimately arrived at the only factually and legally defensible conclusion under the Clean Water Act and supporting regulatory guidelines, important flaws dictated by PLP in the agency's NEPA review and FEIS—repeatedly challenged by other stakeholders—were allowed and even endorsed by the Army Corps. This unlawful acquiescence by the permitting agency to the interests of the applicant attests to the need for EPA's intervention now under Section 404(c) to provide long-term protection for Bristol Bay from future large-scale mining in the region—by PLP or by any other mining company.

1. The Army Corps Failed to Require that PLP Disclose and Assess the True Scale and Duration of the Proposed Project

PLP submitted—and the Army Corps evaluated—a false and inaccurate mine proposal the ultimate purpose of which was to (1) secure a permit for a project of just ten percent of the ore body and thereby (2) circumvent a meaningful and legally required permitting review of the exponentially larger project whose scope and true environmental consequences were neither revealed to nor assessed by the Army Corps.

¹³⁷ Id. at 7.1.

Although suggested by comments repeatedly made by the Company to potential investors and, through the EIS process, by unrefuted evidence of the proposed project's economic infeasibility,¹³⁸ this fact was confirmed in the "Pebble Tapes" released in September 2020 by EIA.¹³⁹ Covering a wide range of issues related to the Pebble Mine, EIA's undercover videotapes revealed extensive conversations between former PLP CEO Tom Collier, Northern Dynasty CEO Ronald Thiessen, and EIA investigators posing as potential investors.

Directly addressing the question of scale and duration of the Pebble project, for example, Thiessen and Collier repeatedly confirmed that PLP's 20-year mine plan submitted to the Corps for permitting was only a small fraction in scale and duration of the 180- to 200-year mine actually planned:

Investigator: So, you mean that essentially once we are in, once the mine is starting producing [sic] employment, development, after that nobody's gonna stop it?

Thiessen: No. Correct. And then those numbers from 2011–

Investigator: Do you think it's gonna be unstoppable?

Thiessen: Yes. Well who's gonna stop a mine that has 180—at a 160,000 metric tons per day, the first deposit that we've discovered at Pebble – and there will be more – but the first one lasts 180 years.¹⁴⁰

Investigator: So the likelihood is pretty much 100 percent almost?

Collier: Yes Yes we'll need to get a federal permit and a state permit. We'll need to go through those processes, but the processes will not be as intense nor as long as this process because you can build on what we've already done. Well I'm just saying that based on a 180,000 short tons a day of processing capacity, and we have 10 billion tons, that's 180-year mine life. And we know that there's more ore there so it's probably gonna be more than 200 years.¹⁴¹

Investigator: So all is already contained, all the expansion, all the key elements of the expansion are already contained in the current project.

Thiessen: Yes

Investigator: And that's the plan? That's really the objective?

Thiessen: That is the plan, and that's because the northern corridor plan that was submitted as part of the Pebble permitting process really came out of effectively the work that was done to accommodate the PEA, so it already has that capacity in it.¹⁴²

¹³⁸ See discussion infra at II.C.2.

¹³⁹ Environmental Investigation Agency, Pebble Tapes, <https://eia-global.org/reports/20200921-the-pebble-tapes>.

¹⁴⁰ PEBBLE TAPES "SCALE OF MINE" TRANSCRIPT, PEBBLE TAPE NO. 1 (August 2020), <https://content.eia-global.org/assets/2020/08/pebbletapes/Pebble+Tapes+1++Scale+of+Mine+-+Transcript.pdf>.

¹⁴¹ Id.

¹⁴² Id.

Thiessen: Once the mine is finished, and remember this mine is not gonna be finished for 180, 200 years. So it [water treatment facilities] will be there.¹⁴³

Investigator: Yea, that's exactly what I was about to say. So that would be, say, three, four – in reality what's at stake here is three, four mines for a century in the region?

Thiessen: Yes

Investigator: Have you shared your plan or what the plan is about of having several other mines in pebble with the Army Corps? What have they said about that?

Thiessen: So... Yes, we have. More about the extension of the original mine to subsequent years. They took a look at downstream, the kinds of things that would need to be considered and they did take some of that into account but because we are only applying for a 20-year mine life most of this will be addressed sometime in the next 20 years.

Investigator: Mhmm. And it's important to not make it public now I understand.

Thiessen: Yes. So we've, with respect to other mines, typically we share that information under the NDA with the other potential partners It's a picture of the 425 square miles and it's got a bunch of dots on it. Each one of those little dots represents potentially another mine site.

Investigator: And so the army corp when they made their decision, they took into account that. Its not Public but

Thiessen: Yes

Investigator: —ah. I understand So they are already thinking along your side guys on the big development expansion and are planning in this way?

Thiessen: Yes. Yes. . . .¹⁴⁴

In the face of these admissions by Pebble's own leadership, the 20-year Pebble Mine plan analyzed in the FEIS cannot credibly be considered the actual plan intended by PLP, the actual project required to be accurately described and objectively assessed in the FEIS, or a project with independent utility unconnected to future planned expansion—all of which NEPA requires. Under these circumstances, a permit could not legally be granted. These flaws in the Corps' NEPA review reflect the agency's inability to ensure lasting protection for Bristol Bay.

¹⁴³ PEBBLE TAPES "WATER TREATMENT" TRANSCRIPT, PEBBLE TAPE NO. 9 (August 2020), <https://content.eia-global.org/assets/2020/08/pebbletapes/Pebble+Tapes+9+-+Water+Treatment+-+Transcript.pdf>.

¹⁴⁴ PEBBLE TAPES "MORE MINES" TRANSCRIPT, PEBBLE TAPE NO. 12 (August 2020), <https://content.eia-global.org/assets/2020/08/pebbletapes/Pebble+Tapes+12+-+More+Mines+-+Transcript.pdf>.

2. The Army Corps Failed to Require that PLP Analyze the Economic Feasibility of the Proposed Project

The revelations in the Pebble Tapes underscore how important consideration of the project's economic viability is in the permitting process. The secret videotapes provide unrefuted evidence in the NEPA record that the Pebble project as proposed is economically infeasible. Yet PLP steadfastly refused to meaningfully address the issue—and the Army Corps agreed—despite the fundamental implications of the omission for the integrity of the agency's NEPA review.

Although raised without success by a number of stakeholders during the EIS process, long-time Rio Tinto mining expert Richard Borden addressed the matter comprehensively in a seven-page comment letter to the Army Corps on March 28, 2019.¹⁴⁵ His comments were informed by 23 years with Rio Tinto and his participation in more than twenty financial and technical assessments of new major capital projects and potential acquisitions. He has performed environmental and permitting work at over fifty mines, projects and operations, including over seven years as Head of Environment for Rio Tinto's Copper, Copper & Diamonds and Copper & Coal Product Groups.

Borden identified a range of significant financial factors for the current Pebble Mine plan, including potential capital construction costs, operational and closure costs, water treatment costs, infrastructure funding, project ore feed and contained metal, sensitivity of the setting, and, at a conceptual level, the project's estimated net present value. He characterized the Pebble project as “an extremely large and risky capital investment” and made a number of observations significantly at odds with Pebble's assertion that the project is financially viable:

- “The EIS mine plan will make roughly 15 billion dollars less profit from the sale of concentrate than the smallest 2011 mine scenario¹⁴⁶ and is likely to have a strongly negative net present value (NPV)” of \$3 billion.
- “Pebble's assumed construction costs of \$4.7 billion are anomalously low compared to other large copper mines that have been studied or built over the past five to ten years.” (Borden cited, for example, Oyu Tolgoi copper mine in Mongolia (\$6.0 billion), Las Bambas copper mine in Peru (more than 7.0 billion), Cobre Panama copper mine (about \$6.0 billion), and Donlin gold mine in Alaska (\$7.0 billion).)
- “Part of the apparent discrepancy in capital cost can be attributed to the removal of \$1.3 billion in capital” based on the assumption that the transportation corridor (port

¹⁴⁵ Letter from Richard K. Borden, to Shane McCoy, United States Army Corps of Engineers—Alaska District (Mar. 28, 2019), <https://www.nrdc.org/sites/default/files/mccoy-pebble-mine-economics-letter-20190328.pdf>.

¹⁴⁶ Wardrop Engineering Inc., a Tetra Tech Company (“Wardrop”), Preliminary Assessment of the Pebble Project, Southwest Alaska (Feb. 17, 2011), report to Northern Dynasty Minerals Ltd. (reviewing engineering and technical studies undertaken by PLP and Northern Dynasty and describing the potential economic value of three mine development cases comprising 25, 45 and 78 years of open pit mining). Deviating from clear industry standards and practice, Pebble has not published any preliminary or economic feasibility studies. The 2011 Wardrop Report is the only assessment addressing economics issued by the company.

and road) and the power plant would be paid through unspecified “strategic partnerships,” perhaps assuming speculative public funding.

- Actual construction costs “could be significantly greater than six billion”—perhaps up to 10 billion. “In every analogue case cited above, 1) the design ore throughput is less than what was proposed in the 2011 study at Pebble, 2) the analogues in many cases are located closer to existing infrastructure, and, perhaps most importantly, 3) none of them is located in as sensitive an environmental setting as Pebble.”
- “The value per ton of ore mined by the 20-year EIS plan is about 21% lower than the average ore mined in the [2011] 25-year plan. The total mass of all copper, gold and molybdenum produced is almost half. This has a profound negative impact on the likely economics of the mine being evaluated by the EIS.”
- “The mine currently being evaluated in the EIS process makes \$15 billion less profit from concentrate sales. When this difference is apportioned by year and a discount rate of seven percent per year is applied, this equates to a five billion dollar reduction in NPV between the 25-year plan evaluated in 2011 and the 20-year EIS case.”
- “By necessity, Pebble has proposed a very costly and complex multistage water treatment process which to my knowledge has not been attempted for such high flows anywhere else in the world. . . . Applying a seven percent discount rate to these values during operation and to the first hundred years after closure yields an NPV cost which is approximately \$400 million higher for the life of mine project than assumed in 2011.”
- “When the higher construction costs; higher operational and closure expenditures for water treatment; and much lower revenue from concentrate sales are factored into the Wardrop study’s 25-year mine plan economic evaluation, the 20-year mine plan being considered by the Pebble EIS has a negative NPV of approximately three billion dollars.”
- If the base case mine plan assumed for the EIS is not economic, then the entire permitting process risks being compromised because the impacts and risks being evaluated are much smaller than those required for a full-scale economically viable project.¹⁴⁷

Borden explained that disregard of economic feasibility is not just an academic concern but has important practical implications for potential developers of the project, leading necessarily to expansion of the project, its impacts, and its risk:

¹⁴⁷ Letter from Richard K. Borden, *supra* at 1-5, available at <https://www.nrdc.org/sites/default/files/mccoy-pebble-mine-economics-letter-20190328.pdf>.

[In] order to create a profitable operation they would either need to 1) immediately begin a new EIS for a larger economically viable mine plan or 2) knowingly permit, fund and build an uneconomic mine in the hopes that a later EIS and permitting process would allow a larger, economically viable operation.¹⁴⁸

If the base case mine plan assumed for the EIS is not economic, then the entire permitting process risks being compromised because the impacts and risks being evaluated are much smaller than those required for a full-scale economically viable project. In other words, the EIS is not evaluating the “least environmentally damaging practicable alternative.”

At a minimum relative capital costs for different development and design options need to be evaluated by the Army Corps of Engineers so a meaningful options analysis can be conducted on practicable alternatives.¹⁴⁹

All of this evidence from an unimpeachable mining industry source—evidence that the applicant refused to address—underscores the need for the Army Corps to require, as a condition of permitting, that an applicant provide an objective and credible financial assessment of its proposed project. In the case of the Pebble Mine, the Army Corps allowed PLP to ignore significant evidence of the project’s infeasibility, and, as a result, the FEIS was fatally compromised as the basis for issuance of a permit. This failure, too, attests to the Corps’ inability to ensure lasting protection of the Bristol Bay region.

3. The Army Corps’ NEPA Review Failed Bristol Bay Tribes and the Region’s Indigenous Peoples

For over a decade, PLP has ignored the overwhelming opposition of Alaska Native Tribes to the Pebble Mine and failed meaningfully to hear their concerns. PLP has ignored their opposition precisely because its project—its sole asset – unavoidably threatens the fisheries and waters that for thousands of years have sustained Bristol Bay’s Tribes and Indigenous Peoples, their culture, their wildlife, and their way of life. As recently expressed by UTBB’s President Robert Heyano in a letter to the Army Corps:

The Alaska Native culture, economy, and traditional ways of life are directly tied to a subsistence lifestyle. The salmon fisheries have supplied food since Native people first inhabited what is now Alaska. Salmon are the lifeblood of Bristol Bay’s Native people, serving not just deeply held religious and cultural significance, but also as the primary present day economic resource for many Native communities. Any disruption to the fisheries, such as Pebble Mine’s projected destruction of more

¹⁴⁸ *Id.* at 5.

¹⁴⁹ *Id.*

than 80 miles of streams and 3,500 acres of wetlands, would instantly devastate the livelihood of local Alaska Native communities.¹⁵⁰

In its November 2020 Record of Decision, the Army Corps correctly concluded that, without a credible, verifiable, and enforceable compensatory mitigation plan, the Pebble Mine would endanger the fisheries that are vital to the Tribes of the Bristol Bay region. Throughout its NEPA review process, however, the Corps failed to accord to the Tribes, Tribal communities, Alaska Native corporations, and other Bristol Bay Native stakeholders the special deference and respect that federal law requires—beyond that accorded to any other member of the public.

Alaska Native Tribes are sovereign governments recognized as self-governing under federal law,¹⁵¹ and the U.S. government has a “trust responsibility” to those Tribes. As the Ninth Circuit has held, the federal government has special fiduciary obligations to protect Alaska Native resources and uphold the rights of indigenous peoples to govern themselves on tribal lands.¹⁵² In carrying out this duty, federal officials are “bound by every moral and equitable consideration to discharge the federal government’s trust with good faith and fairness.”¹⁵³ The trust doctrine includes duties to manage natural resources for the benefit of Tribes and individual landowners, and the federal government has in some cases been held liable for damage caused by mismanagement.¹⁵⁴

The unique legal status of Native American and Alaska Native Tribes creates an important requirement for governmental entities (and other stakeholders) to understand that the federal government must consult directly with Tribal governments when contemplating actions that may affect Tribal lands, resources, members, and welfare.¹⁵⁵ Executive Order 13175 mandates that all executive agencies recognize and respect Tribes’ sovereign status.¹⁵⁶ The order also requires agencies to establish policies and procedures to ensure meaningful and timely consultation with Tribes when actions affect tribal interests.¹⁵⁷ Tribal sovereignty is undermined when, in a conventional public participation process, federal government agencies and departments attempt to treat Tribes in the same manner as any other interested members of the public.¹⁵⁸ Rather, in

¹⁵⁰ Robert Heyano, UTBB, Letter to Colonel Kirk Gibbs, ACOE (April 7, 2021) (emphasis added).

¹⁵¹ Worcester v. Georgia, 31 U.S. 515 (1832).

¹⁵² Eric v. Sec’y of U. S. Dep’t of Hous. & Urban Dev., 464 F. Supp. 44 (D. Alaska 1978).

¹⁵³ United States v. Payne, 264 U.S. 446, 448 (1924); accord Yukon Flats School Dist. v. Native Village of Venetie Tribal Gov’t, 101 F.3d 1286 (9th Cir. 1996) rev’d on other grounds 522 U.S. 520 (1998); see also 84 Fed. Reg. 1200–01 (Feb. 1, 2019) (including 229 Alaska Native entities in the list of tribes recognized as having the immunities and privileges of “acknowledge Indian tribes by virtue of their government-to-government relationship with the United States”).

¹⁵⁴ See United States v. Mitchell, 463 U.S. 206 (1983) (holding that the Department of the Interior was liable for monetary damages for mismanaging timber resources of the Quinault tribe in violation of the agency’s fiduciary duty).

¹⁵⁵ Exec. Order No. 13,175, 65 Fed. Reg. 67,249, 67,249–50 (Nov. 6, 2000) (mandating that agencies “respect Indian tribal self-government and sovereignty” when “formulating and implementing policies” that affect tribal interests).

¹⁵⁶ Id.

¹⁵⁷ Id.

¹⁵⁸ Letter from George Alexi, President, Nondalton Tribal Council, to Lieutenant General Todd T. Semonite, Commanding General and Chief of Engineers, U.S. Army Corps of Engineers, at 2–3 (Sept. 27, 2019).

recognition of their status as sovereign nations, the federal government should collaborate directly with Tribal governments in a consultative process, which leads to informed decision-making.

In the NEPA process for the Pebble Mine application, Tribal governments were not meaningfully consulted. In contrast to Executive Order 13175 and the fiduciary responsibility that lies at the heart of the trust relationship, the Corps ignored Tribal concerns, withheld information from Tribes, refused to meet on a government-to-government basis, and treated Tribes like stakeholders instead of sovereign Nations.¹⁵⁹ In a letter to the Army Corps, leaders of the Curyung Tribal Council, a cooperating agency in the Pebble review process, expressed their “acute” frustration:

[F]rom the beginning the Corps sought to artificially limit the input of cooperating agencies to narrow issues, especially including limiting the role of tribal participants. The Corps also rejected, also without understandable justification, requests for more time for cooperating agency review and input of critical NEPA documents (including due to the current National Emergency). And on the substance, the Corps seems to equate the act of listening to issues raised by cooperating agencies with meaningfully addressing those issues. Time and again, including as reflected in the notes from the recent technical meetings, the Corps would only acknowledge as action items those issues which can be addressed without impact on its desired schedule, and reject or gloss over any suggestions that would threaten that desired schedule. Along with other tribes from the region, we are the experts on Bristol Bay, and yet the Corps’ repeatedly shunted aside our input. Our frustration is acute.¹⁶⁰

In comments submitted on behalf of the Nondalton Tribal Council, also a cooperating agency, Ridolfi Environmental identified a range of specific deficiencies in the mandatory consultation process with Tribal governments:

The USACE is required by Executive Order 13175 and U.S. Department of Defense American Indian and Alaska Native Policy (DoD Instruction 4710.02 – DoD Interactions with Federally Recognized Tribes) to meaningfully consult with tribal governments Simply providing updates, teleconferences including all tribes, and general opportunities to comment does not rise to the level of required consultation, particularly when suggestions and input provided are not incorporated. Meaningful negotiations with individual tribal governments and Alaska Native Corporations are required, above and beyond consideration that would be given to the general public or state and local agencies. Consultation must

¹⁵⁹ Id.

¹⁶⁰ Letter from Curyung Tribal Council to Colonel Phillip Borders and Shane McCoy, ACOE (March 23, 2020), at 2 (emphasis added).

occur at a level and on a timeframe that is reasonable and appropriate for tribal governments and takes into consideration traditional decision-making processes.¹⁶¹

By overwhelming numbers, the Bristol Bay Tribes, business leaders, and indigenous peoples of Bristol Bay have long opposed the Pebble Mine, based on their conviction that a massive open-pit copper and gold mine at the headwaters of the Bristol Bay ecosystem poses too great a threat to their families, their culture, their way of life, and the \$2.2 billion fishing economy and 15,000 jobs that the ecosystem sustains.¹⁶² Throughout the Pebble Mine permitting process, those Tribes repeatedly argued that mine waste disposal in the Bristol Bay watershed is a direct threat to the Yup'ik, Dena'ina, and Alutiiq cultures and traditional way of life,¹⁶³ as well as the exceptional wild salmon habitat that supports their culture and the Bristol Bay fishery.¹⁶⁴

The Alutiiq, Yup'ik and Dena'ina are part of the last intact, sustainable salmon-based cultures in the United States.¹⁶⁵ The Tribes and their peoples have lived a subsistence way of life for over 4,000 years¹⁶⁶ and consider Bristol Bay's land and waters their sacred homeland.¹⁶⁷ These communities built their language, spirituality, and social relationships around the gathering of wild foods, particularly sockeye salmon,¹⁶⁸ which is the most important subsistence species for Alaska Native residents.¹⁶⁹ Disruption of subsistence activities is likely to affect social and kinship ties, many of which are based on the harvesting, distribution, and consumption of subsistence resources.¹⁷⁰ A significant loss of salmon would result in negative stress on a culture that is highly reliant on this resource¹⁷¹—its economic engine and the heart of the region's way of life.¹⁷²

¹⁶¹ PFEIS Response to Technical Memorandum No. 3 (June 1, 2019) Technical Review of the Preliminary Final Environmental Impact Statement (PFEIS) for the Proposed Pebble Project, NARF Technical Team and Ridolfi Environmental on behalf of Nondalton Tribal Council (Mar. 16, 2020), <https://www.bbnc.net/wp-content/uploads/2020/05/BBNC-Compendium-Pebble-PFEIS-Expert-Agency-Critique-May-6-2020.pdf> (emphasis added).

¹⁶² Stop the Pebble Mine, Save Bristol Bay, NRDC, <https://www.nrdc.org/stop-pebble-minesave-bristol-bay>.

¹⁶³ Letter from George Alexi, President, Nondalton Tribal Council, to Lieutenant General Todd T. Semonite, Commanding General and Chief of Engineers, U.S. Army Corps of Engineers, at 2–3 (Sept. 27, 2019).

¹⁶⁴ Notably, the Supreme Court has repeatedly acknowledged that Alaskan fisheries are of highest importance to Alaska Natives. See, e.g., Alaska Pacific Fisheries v. United States, 248 U.S. 78 (1918); accord Metlakatla Indian Community v. Egan, 369 45 (1962) (upholding the power of the Secretary of the Interior to authorize the use of fish traps by Tribes in contravention of state law in part because of the important of fishing to Alaska Native culture and subsistence).

¹⁶⁵ This is especially significant as other Pacific Northwest salmon-based cultures struggle with degraded resources. See Watershed Assessment at 5-36.

¹⁶⁶ Watershed Assessment at 1-1, 5-36.

¹⁶⁷ Alan S. Boraas & Catherine H. Knott, Traditional Ecological Knowledge and Characterization of the Indigenous Cultures of the Nushagak and Kvichak Watersheds, Alaska [hereinafter "Boraas & Knott"] (Oct. 13, 2013).

¹⁶⁸ Boraas & Knott, at 137.

¹⁶⁹ DEIS at 3.9-5.

¹⁷⁰ Watershed Assessment at 12-16.

¹⁷¹ Id. at 12-14.

¹⁷² What's at Stake, Stop Pebble Mine, <https://stoppebbleminenow.org/whats-at-stake/>; See also Our Work, UNITED TRIBES OF BRISTOL BAY, <http://www.utbb.org/our-work>.

Speaking before Congress in 2019, Executive Director of United Tribes of Bristol Bay¹⁷³ Alannah Hurley, representing 80 percent of the people in the region, summed up the underlying problem this way:

Why is it that Bristol Bay’s First People, to whom this federal government owes a sacred trust responsibility, are continually treated as second class citizens by agencies of the United States.... This is a human rights issue. This is an indigenous people’s issue. This is an environmental justice issue for our people. If our land and water are devastated, our people are devastated. The Army Corps is not listening, . . . [and Pebble is] dismissive of our people’s concerns.¹⁷⁴

Following release by the Army Corps of the FEIS in July 2020, Bristol Bay Tribal leaders issued a unified statement, pointing out the disregard for Tribal concerns in the Pebble permitting process:

[T]he Final EIS completely fails to adequately assess the impacts of Pebble on Bristol Bay’s waters, salmon, and people. This comes as no surprise to the people of Bristol Bay who have been silenced and steam-rolled throughout the two-and-a-half-year process that advanced at unprecedented speeds. Not only has the Corps ignored the voices of Bristol Bay but also the concerns from major state and federal scientific agencies and a congressional directive to address the concerns with the major pitfalls in the assessment. The FEIS fails to address those concerns and it wildly underestimates and ignores the devastating impacts Pebble will have on Bristol Bay.... Our cultures, communities and economies rely on our clean water and protecting this for generations to come is far more important than short-term profits. The project would permanently destroy thousands of acres of wetlands and more than one hundred miles of streams, forever devastating our region. Industrial mining is simply not compatible with our vision for the future in Bristol Bay.¹⁷⁵

In perhaps the most telling example of the Corps’ disrespect for Tribal interests and input, the Army Corps acquiesced in its FEIS to Pebble’s unsanctioned plan for use of indigenous lands – usage that has been affirmatively refused by Tribal owners. Igiugig Village Council is the majority owner of Diamond Point Quarry, a critical component of the “North Road” alternative that, in the

¹⁷³ United Tribes of Bristol Bay (UTBB) is a tribally chartered consortium of fifteen federally recognized tribes in Bristol Bay. UTBB’s member Tribes include: Aleknagik Traditional Council, Chignik Lake Tribal Council, Clark’s Point Village Council, Curyung Tribal Council, Ekuk Village Council, Levelock Village Council, Manokotak Village Council, New Koliganek Village Council, New Stuyahok Traditional Council, Nondalton Village Council, Pedro Bay Village Council, Pilot Point Tribal Council, Portage Creek Village Council, Togiak Traditional Council, and Twin Hills Village Council. Each is a federally recognized Indian tribe. Indian Entities Recognized by and Eligible to Receive Services From the United States Bureau of Indian Affairs, 84 Fed. Reg. 1,200, 1,204–05 (Feb. 1, 2019).

¹⁷⁴ Alannah Hurley, Executive Director, United Tribes of Bristol Bay, [Testimony](https://transportation.house.gov/news/videos/watch/alannah-hurley-executive-director-united-tribes-of-bristol-bay-testimony), <https://transportation.house.gov/news/videos/watch/alannah-hurley-executive-director-united-tribes-of-bristol-bay-testimony>.

¹⁷⁵ UTBB, [Final Pebble environmental review fails to address any local concerns or criticisms raised](https://www.utbb.org/press-releases-archive/final-pebble-environmental-review-fails-to-address-any-local-concerns-or-criticisms-raised) (Jul. 23, 2020), <https://www.utbb.org/press-releases-archive/final-pebble-environmental-review-fails-to-address-any-local-concerns-or-criticisms-raised>; See also James Marshall et al., [BRISTOL BAY: Pebble gets the green light, no “measurable effect” on fishery](https://www.eenews.net/stories/1063621863) (Jul. 24, 2020), <https://www.eenews.net/stories/1063621863>.

FEIS, the Army Corps deemed the “Least Environmentally Damaging Practicable Alternative” (“LEDPA”)¹⁷⁶ In response to Pebble’s plan to access their land for the project, Igiugig Village Council released the following statement:

Igiugig has been very clear that Diamond Point is not available for Pebble’s use. As stated last month, our Tribe has existing plans for our Diamond Point site that are and will not be compatible with Pebble’s plans, and we have informed both the Army Corps and Pebble of this fact. Their insistence on pushing this impractical route forward, which is reliant on lands not open to Pebble development, disrespectfully ignores our Tribal sovereignty. IVC is committed to the sustainability and health of future generations and Pebble does not fit into our vision for a thriving future.¹⁷⁷

Likewise, Pedro Bay Corporation (“PBC”) has unequivocally rejected Pebble’s plans for use of PBC lands:

PBC lands would be directly impacted ..., with approximately 800 acres of corporation lands required for construction of the transportation corridor, access roads, a 12-inch natural gas pipeline, a ferry terminal, and a possible mine concentrate pipeline. Moreover, any expansions of the Pebble Mine beyond the current 20-year mine plan would also require the construction of a road, concentrate pipeline, and diesel pipeline across Pedro Bay Corporation lands. PLP does not have permission, much less an agreement, to access our lands for the purpose of a transportation corridor north of Lake Iliamna.¹⁷⁸

As owner of subsurface lands and resources proposed to be taken by Pebble’s transportation corridor, BBNC, too, has denied access, stating that “PLP does not have BBNC’s permission to trespass our subsurface lands or utilize our subsurface resources for the construction of a transportation corridor anywhere around Lake Iliamna.”¹⁷⁹

Neither the Army Corps nor PLP was deterred by any of this when, for the FEIS, they identified the LEDPA and the Preferred Alternative, respectively. This disregard of Tribal opposition and basic property rights is further evidence of the need for EPA intervention under Section 404(c) to secure lasting protection of the Bristol Bay watershed and the Tribal communities that it sustains.

¹⁷⁶ See Pebble FEIS.

¹⁷⁷ Press Release, Owners of Diamond Point deny Pebble use of property, INDIANCOUNTRYTODAY.COM, (May 27, 2020) <https://indiancountrytoday.com/the-press-pool/owners-of-diamond-point-deny-pebble-use-of-property-kRrzNGoNTkq4aWoezGuPIQ>.

¹⁷⁸ Rayn Aaberg, Pebble Limited Partnership Lacks Permission from Pedro Bay Corporation to Cross its Lands, Pedro Bay Corp (Feb. 22, 2019), <https://www.facebook.com/1930733980401001/posts/in-response-to-the-recent-draft-environmental-impact-statement-deis-for-pebble-m/2822354891238901/>.

¹⁷⁹ Bristol Bay Native Corporation, Our Corporation – Pebble Mine, <https://www.bbnc.net/ourcorporation/pebble-mine/>.

4. The Army Corps Unreasonably Accelerated Its NEPA Review to Accommodate PLP's Schedule

From the outset of the permitting process—from filing of the application to scoping to DEIS to FEIS—PLP demanded and the Army Corps consistently accommodated an unreasonably accelerated schedule that undermined public participation in the NEPA review.¹⁸⁰ Neither the size and controversy of the project, the complexity of the issues and scientific information, the undeniable risks of the project to critical resources and communities, nor even the myriad obstacles to participation associated with the COVID-19 global pandemic¹⁸¹ – none of this deterred the Army Corps from Pebble's preferred schedule. Predictably, the integrity of the NEPA process was a casualty, sabotaged by the lack of essential and accurate scientific information, limited in the soundness of its analysis and conclusions, and ultimately deprived of the credibility that Congress designed the EIS process to provide.

A project of Pebble's size, complexity, and magnitude understandably produced deep concern among those who rely on the Bristol Bay fishery for their lives, culture, and livelihood. Under these circumstances, a reasonable permitting schedule was clearly warranted consistent with industry practice, as former Rio Tinto mining expert Richard Borden explained at length in comments submitted to the Army Corps on March 4, 2019.¹⁸² Drawing on his experience in the permitting of over 50 mines, projects, and operations around the world, he expressed his “deep concern” about the “extraordinarily short time lines” in the Pebble NEPA process that resulted in the “completion of a draft EIS in only eleven months”:

These short time frames are unprecedented for such a large, complex mining project which will have unavoidable, material and long-term impacts to a sensitive globally significant ecosystem. I believe these short time lines will almost certainly compromise the technical rigor and reliability of the EIS outcomes.

In my professional opinion, given the site's sensitive environmental setting and the complexity of the necessary management strategies to ensure its responsible development, the extremely short EIS time lines are insufficient to ensure the selection of technically rigorous and defensible solutions to the range of environmental issues and impacts described above.¹⁸³

¹⁸⁰ Bristol Bay Coalition, Letter to Tom Collier, CEO Pebble Limited Partnership (January 23, 2019), at 2-3, https://www.nrdc.org/sites/default/files/bristol-bay-response-to-bbnc_plp-letters-jan-23-2019.pdf.

¹⁸¹ See Joel Reynolds, *Pebble Mine Permit Application Can Wait*, NRDC (April 6, 2020), at 1. As explained by then-PLP CEO Collier, “[w]hile it feels like the entire world has come to a halt because of COVID-19, . . . we are doing everything necessary to ensure that the project schedule published by the USACE of a Final EIS and a ROD by mid-2020 remains on track.”

¹⁸² Letter from Richard Borden, Midgard Environmental Services LLC, to Shane McCoy, Project Manager, U.S. Army Corps of Engineers (March 4, 2019), <https://www.nrdc.org/sites/default/files/borden-pebble-permitting-timeline-03042019.pdf>.

¹⁸³ *Id.* at 1, 3.

According to Borden, the range of significant environmental impacts and risks at Pebble dictates a landscape of information requiring effort and time to collect and assess, including baseline data, lab analytics, modelling, management strategies, and options analysis:

In order to successfully design, develop and operate the Pebble Mine, potential environmental impacts and risks that will need to be controlled will almost certainly include: mineral waste environmental geochemistry; groundwater and surface water quality; dewatering and discharge impacts to in-stream flow regime; direct disturbance to land and water resources within the mine and transportation corridor footprints; geotechnical stability of tailings, open pits and waste rock piles; minimization of other upset conditions such as spills of reagents, hydrocarbons and concentrate; air emissions and noise; construction-specific impacts; ferry and port operations; and a complex and costly mine closure that will likely require permanent care and maintenance. Each of these areas requires the collection of baseline data, but generally also laboratory analytical characterization, numeric modelling predictions, management strategy development and detailed options analysis.¹⁸⁴

To illustrate standard industry practice for the mine permitting, Borden contrasted the Pebble Mine schedule (Record of Decision expected in less than three years) with the schedule of other recent mine projects (*e.g.*, Rosemont, Gold Rock, Donlin, and Resolution mines), all with time-lines ranging from more than four years to nine years.¹⁸⁵ According to Borden, the Pebble Mine is more complex and located in a more sensitive environmental setting than any of these other mines, and yet its NEPA process was significantly more accelerated.

An applicant's preferred schedule does not justify acceleration of NEPA's review process to the detriment of public participation. The failure of the Army Corps to adopt a reasonable permitting schedule for the Pebble Mine permit application, consistent with meaningful public participation and development of a record that accords with established scientific standards, resulted in an FEIS legally and factually insufficient to support the issuance of a Clean Water Act permit.

D. THE GOVERNOR OF ALASKA AND HIS ADMINISTRATION WILL NOT ENSURE LASTING PROTECTION OF THE BRISTOL BAY WATERSHED

Alaska Governor Mike Dunleavy and his Administration have consistently supported PLP and actively facilitated its reckless mining project despite overwhelming opposition from the people of the Bristol Bay region. The public record reflects that, working hand in hand with PLP, the Governor has allowed Pebble staff members "to draft letters, write talking points, schedule him for meetings on the company's behalf, provide assurances to potential investors, and even enlist his personal assistance to advocate with President Trump and Vice President Pence for White

¹⁸⁴ *Id.* at 2.

¹⁸⁵ *Id.*

House political intervention.”¹⁸⁶ Rather than committing to a fair and transparent permitting process, Governor Dunleavy has been a partner to Pebble, working behind the scenes to elevate the interests of a private company over the people of Alaska.

As discussed above, in September 2020, EIA released undercover video recordings—the “Pebble Tapes”—showing Pebble’s leadership boasting to potential investors about influence over Alaskan government officials to promote a massive 200-year Bristol Bay mining scheme disguised for federal permitting as a 20-year mine.¹⁸⁷ In those same conversations, then-Pebble CEO Tom Collier bragged to would-be investors (in fact, EIA investigators) about his proximity to and influence over Alaska’s congressional delegation, state elected officials (including Governor Dunleavy), and federal and state regulatory officials:¹⁸⁸

I meet with the two senators, the congressman, the governor on a regular basis and they welcome me as someone they know supports the Republican Party.”¹⁸⁹

Specifically with regard to preparation of the revised compensatory mitigation plan demanded by the Army Corps in late August 2020, Collier had this to say about his close coordination with the Governor:

And we would not be able to respond positively to this [August 20] letter we got today [from the Army Corps] if the state weren’t there as our partner moving forward with this plan. And they are, ok? And just to put a fine, fine note on that, just between us guys, I had a two-hour one-on-one meeting with the governor when all of this came up about a month ago to walk him through this, to get his commitment that they would be there and now we’re working with his department of natural resources and they are being very cooperative in working this through with us.¹⁹⁰

With regard to the Alaska Legislature, Collier described his successful efforts to ensure support from a majority of its members:

So I organized, I was one of a number of organizers of a business group, we got together, raised money, we put together a campaign and we defeated them all! We changed nine out of, there are let’s see 40 uh, 50 seats that were up for election and out of that 50 we threw out nine people that had not been supporting the governor and that had not been supporting Pebble.¹⁹¹

¹⁸⁶ Joel Reynolds, *Alaska’s Governor Dunleavy: A Puppet for the Pebble Mine*, NRDC (Jan. 9, 2020), <https://www.nrdc.org/experts/joel-reynolds/alaskas-governor-dunleavy-puppet-pebble-mine>; See also Curt Devine, Scott Bronstein, & Drew Griffin, Exclusive: Controversial Mining Company Coached Alaska’s Governor to Lobby White House, CNN (Dec. 20, 2019), <https://www.cnn.com/2019/12/19/politics/pebble-mine-alaska-governor-controversy-invs/index.html>.

¹⁸⁷ See generally, *The Pebble Tapes – EIA Global* (2020), <https://eia-global.org/reports/20200921-the-pebble-tapes>; See also discussion infra at II.C.1.

¹⁸⁸ *Id.* at Tape 3.

¹⁸⁹ *Id.* at Tape 7.

¹⁹⁰ *Id.* at Tape 3.

¹⁹¹ *Id.* at Tape 7.

Alaska State Representatives Bryce Edgmon and Louise Stutes, joined by a coalition of Bristol Bay community leaders, wrote a letter to Governor Dunleavy citing the duplicity and political manipulation that PLP has engaged in throughout the permitting process and implored him to cease his active engagement in support of the Pebble Project.¹⁹²

As revealed in national media, you have communicated with administration officials using, essentially verbatim, letters written by PLP that parroted PLP's position on the permitting process for the proposed mine. Further, public records reveal an intense joint effort between you and PLP to remove environmental protections for Bristol Bay, easing the way for Pebble permitting. As recently reported in Alaska media, your administration 'operated almost like a division of the company and the governor like an employee.'¹⁹³

In his response, Dunleavy simply doubled down on his support of the Pebble Project,¹⁹⁴ suggesting that he—not the people of Bristol Bay—knows what is best for the region. Dunleavy asserted that Pebble Mine “would transform the lives of Alaskans living in the region” and reiterated that he will continue to “advocate for responsible resource development projects.”¹⁹⁵

UTBB Executive Director Alannah Hurley condemned the Governor's “insulting” statement¹⁹⁶ and, in a comment to E&E News, called his position “a slap in the face to the people of Bristol Bay. We have a clear vision for our future, determined by our own people, and we will not allow any governor to say what's best for us.”¹⁹⁷

Representative Edgmon, joined once again by leaders from BBNC, UTBB, BBNA, and the Bristol Bay Economic Development Corporation, summed up the region's view of Governor Dunleavy's position:

As history has shown, you cannot uplift a region by ignoring its people and undercutting their culture. The people of Bristol Bay have repeatedly and soundly rejected Pebble as the panacea you claim it would be. Regretfully, it appears that despite your insistence on local control and decision making on other matters, in this instance, despite overwhelming and unyielding opposition by areawide residents, you and your administration seem determined to give the project every benefit of the doubt.¹⁹⁸

¹⁹² Letter from Representative Bryce Edgmon and Representative Louise Stutes, to Alaska Governor Michael Dunleavy (September 29, 2020).

¹⁹³ Id.

¹⁹⁴ Letter from Alaska Governor Michael Dunleavy to Representative Bryce Edgmon and Representative Louise Stutes (October 6, 2020).

¹⁹⁵ Id.

¹⁹⁶ Tim Sohn, What the Hell Is Going on with the Pebble Mine? Outside (Oct. 28, 2020), <https://www.outsideonline.com/2418304/pebble-mine-tapes-election-explainer>.

¹⁹⁷ James Marshall et al., BRISTOL BAY: Alaska Governor Defends Pebble In Spat With Legislature (Oct. 27, 2020), <https://www.eenews.net/stories/1063717169>.

¹⁹⁸ Letter from Representative Bryce Edgmon, et al., to Alaska Governor Michael Dunleavy (October 26, 2020).

Given the Governor’s immovable support for the Pebble project, it is reasonable to doubt that, when it comes to the Pebble Mine, the State of Alaska will regulate in the best interests of the people of Bristol Bay. The EPA has already determined that this mine would cause unacceptable adverse effects in Bristol Bay.¹⁹⁹ There has been sustained, bipartisan, and popular opposition to the mine for a decade.²⁰⁰ And, in denying PLP’s application for a permit, the Army Corps has found that the project “is not in the public interest.” Yet, Governor Dunleavy and his Administration remain unmoved in their commitment to the Pebble Mine, and, as a result, they cannot be relied upon to ensure lasting protection of Bristol Bay.

E. ABSENT LASTING PROTECTION, THE MINING INDUSTRY IS CERTAIN TO PURSUE LARGE-SCALE MINING IN THE BRISTOL BAY WATERSHED

Although the Army Corps’ November 2020 Record of Decision denying the Pebble Mine permit has stopped the project for now, it has not eliminated the risk of future development of the ore body — by Pebble or by some other mining company. Only permanent protection measures — taken now — will prevent the eventual return of yet another mining scheme to Bristol Bay.

Based on his over 35 years of experience in the mining and consulting industries, former Rio Tinto Head of Environment Richard K. Borden has addressed the urgency of the risk in his April 2021 declaration.²⁰¹ The Pebble deposit still lies at the heart of the Bristol Bay watershed. It is still located in one of the most sensitive, globally significant and challenging environmental settings of any project imaginable. It will remain extremely difficult, if not impossible, to construct, operate and successfully close a mine under these conditions that does not significant harm the world’s most important wild salmon fishery and the communities and wildlife that it sustains.

But as Borden explains, the ore body still contains, by Northern Dynasty’s estimate,²⁰² over 50 billion pounds of copper and 70 million ounces of gold contained in more than six billion tons of rock – a “significant inducement for large-scale mining in the region.”²⁰³ Because at today’s copper

¹⁹⁹See generally, Watershed Assessment.

²⁰⁰ Donald Trump Jr. (@DonaldJTrumpJr), TWITTER (Aug. 4, 2020, 2:58 PM), [https://twitter.com/DonaldJTrumpJr/status/1290723762523045888?ref_src=twsrc%5Etfw%7Ctwcamp%5Etweetembed%7Ctwterm%5E1290723762523045888%7Ctwgr%5E%7Ctwcon%5E1 &ref_url=https%3A%2F%2Fwww.npr.org%2F2020%2F08%2F24%2F905587879%2Fnew-hurdle-for-major-alaska-gold-mine-after-donald-trump-jr-tweets-opposition](https://twitter.com/DonaldJTrumpJr/status/1290723762523045888?ref_src=twsrc%5Etfw%7Ctwcamp%5Etweetembed%7Ctwterm%5E1290723762523045888%7Ctwgr%5E%7Ctwcon%5E1&ref_url=https%3A%2F%2Fwww.npr.org%2F2020%2F08%2F24%2F905587879%2Fnew-hurdle-for-major-alaska-gold-mine-after-donald-trump-jr-tweets-opposition) (“As a sportsman who has spent plenty of time in the area I agree 100%. The headwaters of Bristol Bay and the surrounding fishery are too unique and fragile to take any chances with. [#PebbleMine](#)”).

²⁰¹ Borden Decl., *supra* (Exhibit 3).

²⁰² Northern Dynasty is careful to caveat its estimates. See, e.g., Northern Dynasty Minerals, Form 40-F, U.S. Securities and Exchange Commission (March 31, 2021), at 3-4:

Accordingly, you are cautioned not to put undue reliance on ... forward-looking statements ... [which] include, among others, statements regarding: ... our expectations regarding the exploration and development potential of the Pebble Project Some of the risks and uncertainties that could cause our actual results to differ materially from those expressed in our forward-looking statements include: ...an inability to establish that the Pebble Project may be economically developed and mined or contain commercially viable deposits of ore based on a mine plan for which government authorities are prepared to grant permits; [and] ... the pre-development stage economic viability and technical uncertainties of the Pebble Project and the lack of known reserves on our Pebble Project....

²⁰³ Borden Decl., *supra*, at para. 11.

and gold prices the potential value of the mine “equates to over \$200 billion,”²⁰⁴ it remains “an irresistible temptation to future developers”:

Even in the wake of the recent permit denial by the Army Corps, the Pebble ore body will pose a continuing and nearly irresistible temptation to future developers despite the longstanding, broad-based opposition, technical challenges, and significant, unavoidable environmental impacts that would be associated with the mine. Major, mid-level, and junior mining companies will continue to periodically monitor and review the status of the ore body, looking for a political, economic, and social window of opportunity.²⁰⁵

And whether Northern Dynasty succeeds or not on its pending appeal of the permit denial is essentially irrelevant to the continuing risk:

Even if Northern Dynasty eventually divests its stake in the Pebble Mine, it is a virtual certainty that another developer will eventually acquire mining rights to the deposit and attempt to permit and develop it. In addition to the size and estimated economic value of the ore body, its location in a politically stable, pro-mining jurisdiction will guarantee continuing development interest for decades to come.²⁰⁶

Citing specific examples of recently opened mines following long histories of development and permitting uncertainty—the Safford copper mine in Arizona, Oyo Tolgoi copper mine in Mongolia, Las Bambas copper mine in Peru, and Combre Panama copper mine in Panama—Borden states that this is to be expected in the mining industry, where a predictable set of considerations will determine a company’s decision whether to pursue development:

This is a very common pattern in ore body exploration and development. Large-scale open pit or block cave copper mine development typically takes several decades, multiple developers and multiple attempts before the favorable economic, financial, political, technical, and scientific conditions align — and production can begin.²⁰⁷

Among the considerations typically of greatest importance, Borden cites the following, all of which, over time, could potentially align in Bristol Bay:

Strategic issues that may align in the short to intermediate term for some future developer include: a) a spike in copper prices due to global insecurity and lack of supply during some future crisis; b) an imbalance between world copper demand and supply; c) a political alignment of both state and federal governments that prioritize mineral development over other concerns; and d) a temporary decline in local and regional opposition due to economic stress or fatigue. Almost certainly, one or more companies will eventually identify a perceived opportunity for permitting and development of the Pebble deposit.²⁰⁸

²⁰⁴ Id.

²⁰⁵ Id. at para. 16.

²⁰⁶ Id. at para. 12.

²⁰⁷ Id. at para. 13.

²⁰⁸ Id. at para. 17.

Considering (1) this well-established pattern and mining industry practice for making development decisions and (2) the fact that Northern Dynasty is already engaged in efforts to overturn the denial of its permit application, Borden concludes that permanent protection is required now:

While the Corps' decision has stopped the project for now, it has not eliminated the likelihood of, and extreme risk posed by, future development of the ore body – by Pebble or by some other mining company. Northern Dynasty has appealed the Army Corps' denial. Although given the circumstances discussed above its likelihood of success in overturning the permit denial may be low, I believe, based on my 35 years of experience in the mining and consulting industries, that permanent protection measures will be required to prevent future mine development in the Bristol Bay watershed.²⁰⁹

While it is true that, over the past decade, four global mining companies have decided to abandon the Pebble project in light of its economic, technological, environmental, social, and legal challenges, Borden believes nevertheless it is reasonable to expect that “some unwary or unscrupulous company” will eventually apply for a mining permit and, if it is granted, that the permittee or some other company “will unquestionably attempt to develop” the project:

Without permanent protection of the Bristol Bay watershed, some future developer can be expected to attempt permitting and construction of a much larger mine at Pebble than the destructive, ill-considered plan currently proposed for permitting by Northern Dynasty. The only uncertainty is precisely when – that is, whether this will occur years or decades from today. Most strategic and responsible developers will avoid the resource as a bad investment, but some unwary or unscrupulous company can reasonably be expected to pursue an application once again. If permitted, the permittee or some other company will unquestionably attempt to develop the mine.²¹⁰

With this mining industry perspective in mind, it defies reason to believe that the Army Corps' permit denial is more than a temporary respite from the threat of unacceptable adverse effects that the Pebble Mine has posed for decades. The mining industry's interest in the Pebble deposit will remain a fact of life in the Bristol Bay region for as long as large-scale development remains a legal option. EPA's intervention under Section 404(c) remains essential, therefore, to secure lasting protection from large-scale mining for the people and wildlife of Bristol Bay.

F. BROAD SUPPORT EXISTS FOR PERMANENT PROTECTION OF BRISTOL BAY

Over the past decade, the Pebble Mine has generated an exceptional level and diversity of non-traditional bipartisan opposition. Indeed, Pebble may be the most widely condemned mining project anywhere today.

²⁰⁹ *Id.* at para. 10.

²¹⁰ *Id.* at para. 18.

1. History of Opposition

Opposition among Tribal communities in the Bristol Bay region reaches 80 percent.²¹¹ Within the commercial and recreational fishing industries, opposition exceeds 85 percent.²¹² State-wide in Alaska the project is opposed by over 65 percent of voters, and in the lower 48 states 77 percent of those polled oppose it.²¹³

From 2011 to 2014, when EPA provided multiple opportunities for public comment on petitions by Bristol Bay Tribes for action under Section 404(c) for protection from the Pebble Mine, support for agency action was overwhelming. Of the 1.1 million comments submitted during two rounds of public comment, almost 900,000 endorsed EPA action.²¹⁴

More broadly, in 2016, the World Conservation Congress voted virtually unanimously to condemn the project and urged the United States government not to permit it.²¹⁵ Four global mining companies have abandoned it—Mitsubishi Corporation (2011), Anglo American (2013), Rio Tinto (2014), and First Quantum Minerals (2018), leaving Northern Dynasty – with no other assets – as the 100 percent owner.²¹⁶ Leading financial institutions have divested or dissociated from the project and Northern Dynasty, including industry giants Blackrock (2018), Morgan Stanley (2020), and Cantor Fitzgerald (2020).²¹⁷ Investment analysts Kerrisdale Capital (2017)²¹⁸ and J

²¹¹ United Tribes of Bristol Bay, Local Polling by Tribes Shows Regional Opposition to Pebble Mine (July 19, 2018), <http://www.utbb.org/blog/local-polling-by-tribes-shows-regional-opposition-to-pebble-mine> (polling results for Bristol Bay region showing nearly 80% of residents oppose Pebble Mine).

²¹² Bristol Bay Regional Seafood Development Association, Survey: Bristol Bay fishermen strongly opposed to Pebble Mine (June 20, 2011), <https://www.bbrsda.com/survey-bristol-bay-fishermen-strongly-opposed-to-pebble-mine> (polling showing 85% of Bristol Bay commercial fishermen oppose Pebble; 90% say that the mining industry is not capable of protecting salmon in Bristol Bay).

²¹³ Joel Reynolds, Pebble Mine: Still Crazy After All These Years, NRDC (May 8, 2020), <https://www.nrdc.org/experts/joel-reynolds/pebble-mine-still-crazy-after-all-these-years>; see also Press Release, Nat. Res. Def. Council, New Poll: Majority of Americans Oppose Construction of Alaskan Mega-Mine (Dec. 6, 2011), <https://www.nrdc.org/media/2011/111206> (polling results from lower 48 showing 77% of respondents opposed Pebble Mine).

²¹⁴ Taryn Kiekow Heimer, EPA Study Finds Pebble Mine Could Devastate Alaska's Bristol Bay, NRDC (Jan. 15, 2014) (noting that two rounds of public comment generated over 1.1 million individual comments. During the first comment period, over 90 percent of the 233,000 comments received supported EPA's assessment. During the second comment period, over 650,000 people wrote to EPA explicitly supporting the Watershed Assessment and asking the agency to protect Bristol Bay; 73 percent of all comments, 84 percent of individual comments from within Alaska and a staggering 98 percent of individual comments from within Bristol Bay supported EPA action.), <https://www.nrdc.org/experts/taryn-kiekow-heimer/epa-study-finds-pebble-mine-could-devastate-alaskas-bristol-bay>.

²¹⁵ Joel Reynolds, Earth To Pebble Mine: Stay Away From Bristol Bay. World Conservation Congress Registers Overwhelming International Opposition to Mega-Mine That Threatens Bristol Bay's Wild Salmon Fishery, NRDC (Aug. 31, 2016), https://www.huffpost.com/entry/earth-to-pebble-mine-stay_b_11778434.

²¹⁶ Joel Reynolds, Another Major Investor Leaves the Pebble Mine, NRDC (June 11, 2018), <https://www.nrdc.org/experts/joel-reynolds/another-major-investor-leaves-pebble-mine>.

²¹⁷ Joel Reynolds, Pebble Mine 2020 in Review: A Win for the Soul of the Earth (Dec. 22, 2020), <https://www.nrdc.org/experts/joel-reynolds/pebble-mine-2020-review-win-soul-earth>.

²¹⁸ Taryn Kiekow Heimer, Pebble Mine is "Doomed." "Not Commercially Viable" (Feb. 14, 2017), <https://www.nrdc.org/experts/taryn-kiekow-heimer/pebble-mine-doomed-not-commercially-viable>; Kerrisdale Capital, Northern Dynasty Minerals Ltd. (NAK). Cu at Zero, <https://www.kerrisdalecap.com/wp-content/uploads/2017/02/Northern-Dynasty-Minerals-NAK.pdf>.

Capital Research (2020)²¹⁹ have condemned the project as “doomed,” “not commercially viable,” and a “money-losing” plan based on extensive analysis of the project’s finances. And for over a decade Tiffany & Co. and scores of other major jewelry companies have endorsed the “No Pebble Pledge,” vowing not to source from the Pebble Mine if it is ever built, because Bristol Bay is one of Earth’s special places that “should simply not be mined.”²²⁰

In December 2017, in a bipartisan statement published in the Washington Post, former EPA Administrators from the Presidencies of Nixon, Reagan, George H.W. Bush, and George W. Bush, as well as former Secretary of the Interior to President Clinton, announced their opposition to the Pebble Mine. Under the heading “Pebble Mine is the wrong mine in absolutely the wrong place,” their 500-word statement concluded:

The Pebble Mine is fundamentally flawed—it’s the wrong mine in the wrong place. And the choice is simple. Protect the greatest salmon fishery on the planet. Protect Alaskans and the Bristol Bay watershed.²²¹

In June 2019, they reiterated their opposition and amended the statement to explicitly urge the Trump Administration to reject the project: “We oppose issuance of a permit by the U.S. Army Corps of Engineers for development of the Pebble Mine.”²²²

2. Congressional Opposition

Setting the tone in Congress over a decade ago, the late Senator Ted Stevens (R-AK) said of Pebble in 2008 that “I am not opposed to mining, but it is the wrong mine for the wrong place.”²²³ Since then, members of Congress from both sides of the aisle have followed his lead — in legislation, committee reports, hearings, and letters to EPA and the Army Corps.

In June 2019 and again in 2020, for example, the U.S. House of Representatives passed appropriations legislation that included amendments blocking funding for the Pebble Mine permitting process in light of significant federal agency concerns about the accelerated pace and its impact on the adequacy of the review.²²⁴ Representative Jared Huffman (D-CA), co-sponsor

²¹⁹ Taryn Kiekow Heimer, New Report Finds Pebble Mine Is “Gaslighting Investors” (Sept. 10, 2020), <https://www.nrdc.org/experts/taryn-kiekow-heimer/new-report-finds-pebble-mine-gaslighting-investors>; JCap, Pretend and Extend: The No-Return Deposit, https://www.jcapitalresearch.com/uploads/2/0/0/3/20032477/2020_09_09_nak.pdf.

²²⁰ Bonnie Gestring, Earthworks, Tiffany & Co. Takes a Stand for Protecting Alaska’s Bristol Bay from the Pebble Mine (Feb. 5, 2018), <https://www.earthworks.org/blog/tiffany-co-takes-stand-protecting-alaskas-bristol-bay-pebble-mine/>.

²²¹ Taryn Kiekow Heimer, Pebble Mine: Check Out This Ad in the Washington Post (Dec. 12, 2017), <https://www.nrdc.org/experts/pebble-mine-check-out-our-ad-washington-post>.

²²² Letter from William Ruckelshaus, William K. Reilly, Christine Todd Whitman, and Bruce Babbitt to Shane McCoy, Program Manager, U.S. Army Corps of Engineers (June 24, 2019).

²²³ Paul Greenberg, Mark Kurlansky, Carl Safina & John Waldman, ‘The Wrong Mine for the Wrong Place,’ N.Y. TIMES (May 6, 2019), <https://www.nytimes.com/2019/05/06/opinion/pebble-mine-alaska-trump.html>.

²²⁴ H. Amdt. 384 to H.R. 2740, 116th Cong. (2019) (amending appropriations bill for several federal agencies, including Army Corps of Engineers); U.S. House of Representatives, Amendment to the Division C of Rules Committee Print 116–60 Offered by Mr. Huffman of California, available at [https://amendments-rules.house.gov/amendments/HUFFCA_108_xml%20\(1\)72320160843843.pdf](https://amendments-rules.house.gov/amendments/HUFFCA_108_xml%20(1)72320160843843.pdf).

of the amendments, noted in urging passage that, “[w]hile a thorough and rigorous review would clearly show that it is the wrong mine and the wrong place, the Federal permitting process for the Pebble Mine has been wholly insufficient.”²²⁵ In June 2019, fifty-four members of the House warned in a letter to the Army Corps that the project “threatens” Bristol Bay’s “people, its salmon, and the multimillion-dollar economy it supports.”²²⁶ In October 2019, after chairing a subcommittee hearing on Pebble’s permitting process, Transportation and Infrastructure Chair Peter DeFazio (D-OR) called the project “an abomination” and the Corps’ NEPA process a “sham.”²²⁷

In September 2019, Alaska Senator Lisa Murkowski (R-AK) made clear that “[i]f a mine cannot stand on its own without negative impact to the fishery resource, then that mine should not be permitted.”²²⁸ Noting specifically the “strong criticism” from the EPA, Department of Interior, National Marine Fisheries Service (“NMFS”), and State of Alaska on the Pebble Mine DEIS,²²⁹ she said that if “the science . . . that has been raised by these agencies can’t demonstrate that you can have a successful mining project in an area that is as sensitive as the Bristol Bay watershed, then a permit should not issue.”²³⁰ At her urging, the Senate Appropriations Subcommittee on Interior, Environment, and Related Agencies addressed the issue in its 2019 report on appropriations, first noting federal agency concerns and then urging Interior, EPA, and NMFS to act:

To the extent [they] are not satisfied with the Army Corps’ analysis of the project, [these agencies] are encouraged to exercise their discretionary authorities . . . to ensure the full protection of the region . . . includ[ing] EPA’s enforcement authority under the Clean Water Act.²³¹

In December 2019, Senator Joe Manchin (D-WV), a longtime friend of the mining industry, cited the Pebble Mine as “a perfect example” of a mining project that should not go forward:

There’s no way, shape or form that the Pebble Mine should go forward when you are basically going to have the chance at ruining one of the greatest fisheries in the

²²⁵ 165 CONG. REC. H4,747 (daily ed. June 18, 2019) (statement of Rep. Huffman).

²²⁶ Letter from Rep. Jared Huffman, et al., to R.D. James, Assistant Sec’y of the Army for Civil Works, and Col. Phillip J. Borders, Commander, Alaska Dist., U.S. Army Corps of Eng’rs, at 1 (June 11, 2019).

²²⁷ Press Release, Rep. Peter DeFazio, Chair of House Comm. on Transp. & Infrastructure, DeFazio Exposes Proposed Pebble Mine Project as a Sham (Oct. 23, 2019), <https://defazio.house.gov/media-center/press-releases/defazio-exposes-proposed-alaska-pebble-mine-project-as-a-sham>.

²²⁸ Alex DeMarban, Murkowski Says Pebble Mine Shouldn’t Be Permitted Unless Data ‘Gaps’ Get Explained, ANCHORAGE DAILY NEWS (Sep. 24, 2019), <https://www.adn.com/alaska-news/2019/09/24/murkowski-says-pebble-mine-shouldnt-be-permitted-unless-data-gaps-get-explained/> (quotation transcribed from video embedded in webpage).

²²⁹ S. Rep. No. 116-123 at 87, 116th Cong. (2019).

²³⁰ Id.

²³¹ Id.

world. That doesn't make any sense to me at all. The reward is just not there. Why would we do it?²³²

The release by the Army Corps on July 24, 2020 of the Pebble FEIS generated both widespread attention and an immediate increase in the intensity and breadth of opposition,²³³ including renewed calls for action under Section 404(c). Representatives Huffman and DeFazio, joined by thirty-four fellow House members, urged then-EPA Administrator Andrew Wheeler to “use your authority under Section 404(c) of the Clean Water Act to protect Bristol Bay from the proposed Pebble Mine.”²³⁴ This suggestion was reinforced once again by Senator Murkowski’s appropriations subcommittee in its report,²³⁵ which called for protection of “the world-class ecosystem and salmon fishery in the Bristol Bay region from unavoidable adverse impacts.”²³⁶ Citing the Corps’ August 20, 2020 letter to PLP on the need for additional compensatory mitigation, the subcommittee endorsed the agency’s conclusion that “the project, as proposed, cannot be permitted.”²³⁷

In October 2020, Senators Murkowski and Dan Sullivan (R-AK) eliminated all ambiguity from their opposition to the Pebble Mine. In an address to the Alaska Federation of Natives, Murkowski observed succinctly that “this is the wrong mine, in the wrong place.”²³⁸ Senator Sullivan issued a public statement that was even more blunt: “I oppose Pebble Mine. No Pebble Mine.”²³⁹ When the Army Corps denied Pebble’s Clean Water Act permit in November 2020, Senators Murkowski and Sullivan issued a joint press release praising the decision and endorsing a definitive end to the project.²⁴⁰

²³² Jeremy Dillon, Q&A: Manchin on Climate, Impeachment and One Mine He Opposes, E&E DAILY (Dec. 13, 2019), <https://www.eenews.net/stories/1061796039>.

²³³ A growing chorus of prominent Republican voices joined the opposition, including Nick Ayers, former chief of staff for Vice President Mike Pence, and Donald Trump, Jr. See Juliet Eilperin, Ashley Parker and Steven Mufson, Republican push to block controversial Alaskan gold mine gains the White House’s attention, Washington Post (Aug 20, 2020), <https://www.washingtonpost.com/climate-environment/2020/08/20/republican-push-block-controversial-alaskan-gold-mine-gains-white-houses-attention/>. These voices were echoed by national celebrities like Jane Fonda, Jimmy Kimmel, Zac Brown, and Fox News host Tucker Carlson. See Save Bristol Bay, High Profile Tweets Show that Stopping Pebble Transcends Political Party Lines, <http://www.savebristolbay.org/bloghost/2020/8/10/high-profile-tweets-show-that-stopping-pebble-transcends-political-party-lines>.

²³⁴ Letter from Rep. Jared Huffman and Peter DeFazio, et al., to Andrew Wheeler, EPA Administrator (Aug. 31, 2020), <https://huffman.house.gov/imo/media/doc/8.31.20%20Letter%20to%20EPA%20Pebble%20Mine.pdf>.

²³⁵ See generally U.S. Senate, Explanatory Statement for the Department of the Interior, Environment, and Related Agencies Appropriations Bill, 2021, at 93, available at <https://www.appropriations.senate.gov/imo/media/doc/INTRept.pdf>.

²³⁶ Id. at 93.

²³⁷ Id.

²³⁸ Sean Maguire, Murkowski on Pebble Mine at AFN Convention: ‘Wrong Mine, in the Wrong Place’, ALASKA’S NEWS SOURCE (Oct. 15, 2020), <https://www.alaskasnewsresource.com/2020/10/16/murkowski-on-pebble-mine-at-afn-convention-wrong-mine-in-the-wrong-place/>.

²³⁹ Rachel M. Cohen, Locked in Tight Race, GOP Sen. Dan Sullivan Caught in Environmental Scandal, THE INTERCEPT (Oct. 12, 2020), <https://theintercept.com/2020/10/12/alaska-republican-senator-dan-sullivan-pebble-mine/>.

²⁴⁰ Press Release, Murkowski and Sullivan: Army Corps Right to Reject Pebble Permit (Nov. 25. 2020), <https://www.murkowski.senate.gov/press/release/murkowski-and-sullivan-army-corps-right-to-reject-pebble-permit>.

3. Bristol Bay's Call and UTBB's Formal Request to EPA

Following the Army Corps' permit denial on the eve of Thanksgiving, and recognizing the continuing need for permanent protection of the region, UTBB, BBNA, and the Bristol Bay Economic Development Corporation issued a "Call to Protect Bristol Bay,"²⁴¹ urging (1) EPA action under Section 404(c) and (2) congressional action to create a National Fisheries Reserve in the Bristol Bay watershed. In the ensuing months, over 270 Tribal, fishing, hunting, conservation, and business groups have joined the Call.²⁴²

When in February 2021 UTBB submitted to EPA its formal request for action under Section 404(c),²⁴³ that request was soon seconded not only by NRDC²⁴⁴ but by a wide array of stakeholders, including on March 1, 2021 by commercial fishermen,²⁴⁵ on March 11, 2021 by Representatives DeFazio and Huffman,²⁴⁶ on April 7, 2021 by investors and fund managers representing \$105 billion in assets under management,²⁴⁷ on April 15, 2021 by 37 regional, state, national, and international conservation and environmental organizations representing millions of supporters,²⁴⁸ and on April 26, 2021 by 26 entities representing outdoor recreation businesses and hundreds of thousands of American hunters, anglers, and outdoor enthusiasts.²⁴⁹

Throughout a period in our nation's history burdened by pervasive political division, the consensus of opposition to the Pebble Mine has remained broad-based, diverse, and bipartisan. Even the Trump Administration has recognized the irreparable harm that Pebble Mine would cause to the

²⁴¹ BBNA, UTBB, and BBEDC, *A Call to Protect Bristol Bay*, available at <https://files.constantcontact.com/a98f14e0801/88a51f7e-1399-498a-a89e-10a7213c50ea.pdf>; See also Taryn Kiekow Heimer, *NRDC Proudly Supports the Call to Protect Bristol Bay* (Dec. 2, 2020), <https://www.nrdc.org/experts/taryn-kiekow-heimer/nrdc-proudly-supports-call-protect-bristol-bay>.

²⁴² Stop Pebble Mine, *Supporters*, available at <https://stoppebbleminenow.org/supporters/>.

²⁴³ Letter from Robert Heyano, President, United Tribes of Bristol Bay to Michael Regan, Administrator-designate, and Jane Nishida, Acting Administrator, EPA (February 2021), <https://static1.squarespace.com/static/5bb53bf52727be4aa8071550/t/604183757ae35f02c0a9989a/1614906278594/2021-02+UTBB+Letter+to+EPA+re+404c.pdf>. See also Taryn Kiekow Heimer, *Bristol Bay Tribes Target Pebble Mine in New Ad; Full-page Ad in Politico Urges President Biden to Permanently Protect Bristol Bay* (Feb. 24, 2020), <https://www.nrdc.org/experts/taryn-kiekow-heimer/bristol-bay-tribes-target-pebble-mine-new-ad>.

²⁴⁴ Letter from Taryn Kiekow Heimer, Senior Advocate, and Joel Reynolds, Western Director, NRDC, to Michael Regan, Administrator-designate, and Jane Nishida, Acting Administrator, EPA (March 8, 2021), <https://www.nrdc.org/sites/default/files/pebble-mine-nrdc-letter-to-epa-utbb-404c-request-20210308.pdf> (attached hereto as Exhibit 2).

²⁴⁵ Letter from Commercial Fishermen for Bristol Bay to Michael Regan, Administrator-designate, and Jane Nishida, Acting Administrator, EPA (Mar. 1, 2021), <http://fishermenforbristolbay.org/wp-content/uploads/2021/03/CFBB-letter-to-EPA-March-2021.docx-1.pdf>.

²⁴⁶ Letter from Rep. Jared Huffman, Chair of the House Natural Resources Water, Oceans, and Wildlife Subcommittee and member of the Transportation and Infrastructure Committee, and Rep. Peter DeFazio, Chair of the House Transportation and Infrastructure Committee, to Michael Regan, EPA Administrator (Mar. 11, 2021), https://huffman.house.gov/imo/media/doc/2021-03-11_Letter%20to%20EPA%20Administrator%20Regan_Pebble%20Mine_Final.pdf.

²⁴⁷ Letter from Trillium Asset Management et al. to EPA and Members of Congress (Apr. 7, 2021), <https://www.trilliuminvest.com/news-views/letter-to-the-epa-pebble-mine>.

²⁴⁸ Letter from 37 groups to Michael Regan, EPA Administrator, (Apr. 15, 2021), <https://www.nrdc.org/sites/default/files/pebble-mine-letter-20210415.pdf>.

²⁴⁹ Letter from 26 groups to President Joseph R. Biden (Apr. 26, 2021).

communities and wildlife of Bristol Bay and, citing provisions of the Clean Water Act, denied a permit for the project. In the wake of President Biden’s election—with the President already on record recognizing that Bristol Bay “is no place for a mine”²⁵⁰—that broad foundation of support presents a singular opportunity for EPA to enact lasting protections through its well established authority under Section 404(c).

III. STATUTORY AND REGULATORY BACKGROUND

A. CLEAN WATER ACT BACKGROUND

The purpose of the Clean Water Act is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”²⁵¹ To that end, Congress made it “the national goal that the discharge of pollutants into the navigable waters be eliminated”²⁵² Significantly, the statute also provides that “it is the national goal that wherever attainable, an interim goal of water which provides for the protection and propagation of *fish, shell fish, and wildlife and provides for recreation in and on the water* be achieved. . . .”²⁵³

Section 404 of the Clean Water Act delegates to the Corps the authority to review and issue permits for discharge of dredged or fill material into navigable waters, subject to conditions outlined in Section 404 and binding guidelines developed by EPA in conjunction with the Corps, codified at 40 C.F.R. pt. 230 (“Section 404(b)(1) Guidelines”).²⁵⁴ The Section 404(b)(1) Guidelines generally prohibit the permitting of any discharge of dredged or fill material if, among other factors, the discharge will cause or contribute to “significant degradation” of the environment.²⁵⁵

Section 404 also empowers EPA to protect ecologically sensitive and valuable areas from future projects and to override permitting decisions by the Corps.²⁵⁶ Through its Section 404(c) authority, EPA may prohibit, withdraw, restrict, or deny dredge and fill projects that pose an “unacceptable adverse effect” on the environment.

EPA may initiate a Section 404(c) process “whenever” it “has reason to believe after evaluating the information available . . . that an ‘unacceptable adverse effect’ could result.”²⁵⁷ Following public notice of a proposed determination, EPA must provide for a public comment period.²⁵⁸ Then, EPA withdraws the proposed determination or prepares a recommended determination.²⁵⁹ EPA’s regulations set deadlines for choosing one of these options, but EPA may extend them for

²⁵⁰ The Associated Press, [Biden Vows to Block Pebble Mine Project if Elected](https://www.alaskapublic.org/2020/08/09/biden-vows-to-block-pebble-mine-project-if-elected/), ALASKA PUB. MEDIA (Aug. 9, 2020), <https://www.alaskapublic.org/2020/08/09/biden-vows-to-block-pebble-mine-project-if-elected/>.

²⁵¹ 33 U.S.C § 1251(a).

²⁵² *Id.* § 1251(a)(1).

²⁵³ *Id.* § 1251(a)(2) (emphasis added).

²⁵⁴ *Id.* § 1344.

²⁵⁵ 40 C.F.R. § 230.10(c).

²⁵⁶ See [Mingo Logan Coal Co. v. EPA](#), 714 F.3d 608, 612–14 & n.2 (D.C. Cir. 2013) (describing flexibility afforded by the Clean Water Act regarding when EPA can exercise its Section 404(c) powers).

²⁵⁷ 40 CFR § 231.3(a).

²⁵⁸ *Id.* § 231.4(a).

²⁵⁹ *Id.* § 231.5(a).

“good cause.”²⁶⁰ Any recommended determination is finalized by the EPA Administrator, who has authority to “affirm[], modify[], or rescind[].”²⁶¹

The Corps and EPA may concurrently undertake their respective processes, but EPA retains “the *final say*” under Section 404(c).²⁶²

Congressional intent for the protection of the “Nations’ waters” is clear. Through the goals and purposes enumerated by Congress, Congress established a national goal of protecting fish, shellfish, wildlife and water-based recreation – the very resources that Section 404(c) was enacted to protect. Other Clean Water Act provisions, too, focus on that language, indicating that Congress considered protection of those enumerated resources to be especially important.²⁶³ Through Section 404(c), EPA is able to uphold this congressional mandate by taking meaningful action to prevent unacceptable harm to these resources.

B. SECTION 404(c)

1. “Unacceptable Adverse Effects”

EPA may act pursuant to Section 404(c) if a future discharge is reasonably likely to cause “an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas.”²⁶⁴ As one court succinctly put it, “[EPA’s] authority to veto to protect the environment is practically unadorned.”²⁶⁵ The agency’s use of that authority is informed, however, by regulations governing the Army Corps’ permitting of discharges of dredge and fill material.²⁶⁶

a) EPA Need Only Find a Reasonable Likelihood of “Unacceptable Adverse Effects”

EPA is not required to find with complete certainty that a potential discharge would cause adverse environmental effects. Rather, the agency need only find a *reasonable likelihood* that unacceptable adverse environmental effects will occur. By regulation, EPA has defined “unacceptable adverse effect” as an “impact on an aquatic or wetland ecosystem which is *likely to result* in significant degradation of municipal water supplies (including surface or ground water) or significant loss of or damage to fisheries, shellfishing, or wildlife habitat or recreation areas.”²⁶⁷ As the agency explained in defense of that regulation, “absolute certainty is *not* required. Because 404(c) determinations are by their nature based on predictions of future impacts, what is required is a *reasonable likelihood* that unacceptable adverse effects will occur — not absolute certainty but more than mere guesswork.”²⁶⁸

²⁶⁰ *Id.* §§ 231.5(a), 231.8.

²⁶¹ *Id.* § 231.6.

²⁶² See *Mingo Logan Coal Co. v. EPA*, 714 F.3d 608, 614 (D.C. Cir. 2013).

²⁶³ See, e.g., 33 U.S.C. §§ 1326(a), 1330(a) & 1343(c).

²⁶⁴ 33 U.S.C. § 1344(c).

²⁶⁵ *James City County v. EPA*, 12 F.3d 1330, 1336 (4th Cir. 1993).

²⁶⁶ 40 C.F.R. § 231.2(e).

²⁶⁷ 40 C.F.R. fl 231.2(e) (emphasis added).

²⁶⁸ Denial or Restriction of Disposal Sites; Section 404(c) Procedures, 44 Fed. Reg. 58076, 58078 (Oct. 9, 1979) (emphasis added).

**b) Section 404(b)(1) Guidelines Direct EPA’s Determination of
“Unacceptable Adverse Effects”**

EPA’s rules governing Section 404(c) provide that “[i]n evaluating the unacceptability of such impacts, consideration should be given to the relevant portions of the Section 404(b)(1) Guidelines (40 CFR part 230).”²⁶⁹ Although EPA and the Army Corps have jointly promulgated the Section 404(b)(1) Guidelines at 40 C.F.R. § 230 in order to provide consistent standards rooted in science for the Corps’ permitting of dredge and fill projects, those guidelines also figure prominently in the 404(c) context. As EPA explained when it published its 404(c) regulations, “[w]hile Congress had faith in the Corps’ administrative experience, it recognized EPA as the ‘environmental conscience’ of the Clean Water Act.”²⁷⁰ One of the congressional purposes in enacting Section 404(c) was to make clear that EPA retains the responsibility to oversee the Army Corps’ administration of the Section 404 permit program, including to ensure its exercise of sound environmental judgment.

The regulations promulgated pursuant to Section 404(b)(1) are expansive, relating to the environment, human health, practicable alternatives, water quality, indigenous communities, and economics. In considering whether to issue a permit, the Army Corps is permitted to consider the wide array of factors found in those guidelines, both environmental and non-environmental.²⁷¹ In contrast, in deciding whether to exercise its authority under Section 404(c), EPA may consider only the portions of those rules relevant to evaluating adverse effects on the Section 404(c) resources.

Nonetheless, EPA has found the following 404(b)(1) Guidelines relevant to its 404(c) analysis:

- Significant degradation of waters of the United States (40 C.F.R. § 230.10(c))²⁷²
- Secondary effects (40 C.F.R. § 230.11(h))²⁷³
- Cumulative effects (40 C.F.R. § 230.11(g))²⁷⁴

Those guidelines have directed EPA’s decision-making under Section 404(c), informing the agency as to the types of factual determinations that it must make before reaching a decision.

²⁶⁹ 40 C.F.R. § 231.2(e).

²⁷⁰ Denial or Restriction of Disposal Sites; Section 404(c) Procedures, 44 Fed. Reg. at 58081.

²⁷¹ James City County v. EPA, 12 F.3d 1330, 1335 (4th Cir. 1993) (“Congress obviously intended the Corps of Engineers in the initial permitting process to consider the total range of factors bearing on the necessity or desirability of building a dam in the Nation’s waters, including whether the project was in the public interest.”).

²⁷² Spruce No. 1 Mine Veto, Final Determination.

²⁷³ See, e.g., id. at 83 (“The adverse secondary effects discussed . . . include substantial changes in aquatic communities, such as loss of fish and salamander diversity and sensitive mayfly and stonefly taxa, as well as shifts to more pollution-tolerant taxa.”).

²⁷⁴ See, e.g., Everglades (Rem, Becker & Senior Corp.) Veto, 53 Fed. Reg. 30,093-094 (Aug. 10, 1988) (veto based in part on cumulative impacts as described at 52 Fed. Reg. 38,519 (Oct. 16, 1987)); See also Jack Maybank Veto, 50 Fed. Reg. 20,291 (May 15, 1985) (veto based in part on cumulative impacts to the area, including functional losses in the St. Helena Sound ecosystem, as described at 49 Fed. Reg. 30,112, 30,114 (July 26, 1984)); Sweedon Swamp Veto, 51 Fed. Reg. 22,977, 22,978 (June 24, 1986).

(1) Significant Degradation

The Section 404(b)(1) guidelines provide that no discharge of dredged or fill material shall be permitted if the discharge will cause or contribute to significant degradation of waters of the United States.²⁷⁵ The guidelines state that impacts leading to “significant degradation” considered “individually or collectively” include:

- (1) Significantly adverse effects of the discharge of pollutants on human health or welfare, including but not limited to effects on municipal water supplies, plankton, fish, shellfish, wildlife, and special aquatic sites;
- (2) Significantly adverse effects of the discharge of pollutants on life stages of aquatic life and other wildlife dependent on aquatic ecosystems, including the transfer, concentration, and spread of pollutants or their byproducts outside of the disposal site through biological, physical, and chemical processes;
- (3) Significantly adverse effects of the discharge of pollutants on aquatic ecosystem diversity, productivity, and stability. Such effects may include, but are not limited to, loss of fish and wildlife habitat or loss of the capacity of a wetland to assimilate nutrients, purify water, or reduce wave energy; or
- (4) Significantly adverse effects of discharge of pollutants on recreational, aesthetic, and economic values.²⁷⁶

Regulations provide that in evaluating those categories of harm, EPA should engage in a range of specific factual determinations, including how the proposed discharge would impact the “physical substrate” of the water body,²⁷⁷ “[w]ater circulation, fluctuation, and salinity,”²⁷⁸ turbidity,²⁷⁹ contaminant levels,²⁸⁰ and the “aquatic ecosystem and organisms.”²⁸¹ An element in each of these specific determinations is the “[p]ossible loss of environmental values.”²⁸²

²⁷⁵ 40 C.F.R. § 230.10(c).

²⁷⁶ *Id.*

²⁷⁷ *Id.* § 230.11(a) (“Determine the nature and degree of effect that the proposed discharge will have, individually and cumulatively, on the characteristics of the substrate at the proposed disposal site.”).

²⁷⁸ *Id.* § 230.11(b) (“Determine the nature and degree of effect that the proposed discharge will have individually and cumulatively on water, current patterns, circulation including downstream flows, and normal water fluctuation. Consideration shall be given to water chemistry, salinity, clarity, color, odor, taste, dissolved gas levels, temperature, nutrients, and eutrophication plus other appropriate characteristics.”).

²⁷⁹ *Id.* § 230.11(c) (“Determine the nature and degree of effect that the proposed discharge will have, individually and cumulatively, in terms of potential changes in the kinds and concentrations of suspended particulate/turbidity in the vicinity of the disposal site.”).

²⁸⁰ *Id.* § 230.11(d) (“Determine the degree to which the material proposed for discharge will introduce, relocate, or increase contaminants.”).

²⁸¹ *Id.* § 230.11(e) (“Determine the nature and degree of effect that the proposed discharge will have, both individually and cumulatively, on the structure and function of the aquatic ecosystem and organisms. Consideration shall be given to the effect at the proposed disposal site of potential changes in substrate characteristics and elevation, water or substrate chemistry, nutrients, currents, circulation, fluctuation, and salinity, on the recolonization and existence of indigenous aquatic organisms or communities.”)

²⁸² *Id.* § 230.11(a)-(e).

(2) Secondary Effects

In assessing impacts on Section 404(c) resources, EPA should consider not only the direct impacts of the disposal of dredge and fill material into the disposal site, but also the secondary impact on the surrounding landscape. According to the Section 404(b)(1) guidelines:

(1) Secondary effects are effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material. Information about secondary effects on aquatic ecosystems shall be considered prior to the time final section 404 action is taken by permitting authorities.

(2) Some examples of secondary effects on an aquatic ecosystem are fluctuating water levels in an impoundment and downstream associated with the operation of a dam, septic tank leaching and surface runoff from residential or commercial developments on fill, and leachate and runoff from a sanitary landfill located in waters of the U.S. Activities to be conducted on fast land created by the discharge of dredged or fill material in waters of the United States may have secondary impacts within those waters which should be considered in evaluating the impact of creating those fast lands.²⁸³

This interpretation of secondary effects requires that EPA take a broad view of the environment when it evaluates the impacts associated with a potential discharge.

(3) Cumulative Effects

The Section 404(b)(1) guidelines require that factual findings be made regarding cumulative effects on the surrounding landscape and that those findings be considered in determining whether a particular discharge would result in unacceptable adverse effects on the environment.²⁸⁴ The section 404(b)(1) guidelines describe the factual findings that must be made with respect to cumulative effects as follows:

(1) Cumulative impacts are the changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual discharges of dredged or fill material. Although the impact of a particular discharge may constitute a minor change in itself, the cumulative effect of numerous such piecemeal changes can result in a major impairment of the water resources and interfere with the productivity and water quality of existing aquatic ecosystems.

(2) Cumulative effects attributable to the discharge of dredged or fill material in waters of the United States should be predicted to the extent reasonable and practical. The permitting authority shall collect information and solicit information from other sources about the cumulative impacts on the aquatic ecosystem. This information shall be documented and considered during the decision-making

²⁸³ Id. § 230.11(h).

²⁸⁴ Id. § 230.11(g).

process concerning the evaluation of individual permit applications, the issuance of a General permit, and monitoring and enforcement of existing permits.²⁸⁵

In practice, EPA uses the cumulative effects analysis to take into consideration other projects, proposed or authorized, that may contribute to additional adverse environmental effects in the vicinity of the particular discharge in question.²⁸⁶ EPA will also look at past or present projects that may have affected the current baseline conditions of the region.²⁸⁷ In other words, when the agency evaluates the potential effects of a particular project, it also considers the consequences of those impacts in combination with proximate past or future discharges.

IV. ARGUMENT

A. THE PEBBLE MINE WOULD RESULT IN UNACCEPTABLE ADVERSE IMPACTS ON, AND CAUSE SIGNIFICANT DEGRADATION TO, THE BRISTOL BAY ENVIRONMENT AND SHOULD THEREFORE BE VETOED

In denying a permit to PLP for the Pebble Mine, the Army Corps relied heavily on its findings that the discharges from the project “would cause unavoidable adverse impacts to aquatic resources which would result in Significant Degradation to aquatic resources” and “is contrary to the public interest.”²⁸⁸ In a November 25, 2020 letter from David Hobbie, Chief, ACOE Regional Regulatory Division, to PLP, the Corps summarized its decision as follows:

The United States Army Corps of Engineers, Alaska District, Regulatory Division (USACE) completed a substantive analysis under the 404(b)(1) Guidelines and determined discharges of fill material from the proposed project would cause unavoidable adverse impacts to aquatic resources which would result in Significant Degradation to aquatic resources. In a letter dated September 20, 2020,²⁸⁹ USACE identified specific compensatory mitigation requirements that are required to compensate for those impacts. On November 4, 2020, PLP provided a compensatory mitigation plan that was not compliant with rule (33 CFR Part 332

²⁸⁵ *Id.* § 230.11(g).

²⁸⁶ *See, e.g.,* Spruce No. 1 Mine Veto, Final Determination at 78 (“EPA considered cumulative effects to the Coal River subbasin . . . and the Headwaters Spruce Fork sub-watershed . . . if the Spruce No. 1 Mine is constructed . . . and other reasonably foreseeable (proposed and/or authorized but not constructed) surface mining projects within the Coal River sub-basin are constructed.”); *see also* Jack Maybank Veto, Final Determination of the Assistant Administrator for External Affairs Concerning the Jack Maybank Site on Jehossee Island, South Carolina Pursuant to Section 404(c) of the Clean Water Act (April 5, 1985) at 19, <https://www.epa.gov/sites/production/files/2015-05/documents/maybankfd.pdf>. (“Direct wetland loss and associated impacts on fish, shellfish, and wildlife resulting from the proposed project are magnified when considered in the context of previous wetland alteration in the area of the Maybank Site.”).

²⁸⁷ *Id.* (“This cumulative effects analysis also takes into consideration the past and present mining projects within the sub-basin and sub-watershed, and the extent to which they have affected the current baseline conditions within the sub-basin and sub-watershed.”)

²⁸⁸ U.S. Army Corps of Engineers, Record of Decision for Application Submitted by Pebble Limited Partnership To: The United States Army Corps of Engineers (Department of the Army Permit # POA-2017-00271) (Nov. 20, 2020) [Hereinafter “ROD”].

²⁸⁹ Letter from David Hobbie, Regional Regulatory Division Chief, Army Corps of Engineers, to James Fueg, Pebble Limited Partnership (Aug. 20, 2020).

and 40 CFR 230) and therefore does not ensure the activities requiring a section 404 permit comply with the 404(b)(1) Guidelines.

Additionally, USACE evaluated the probable impacts, including cumulative impacts, of the proposed project and its intended use on the public interest. The benefits of the project were evaluated with consideration of the reasonably foreseeable detriments. The outcome of the public interest review resulted in the determination that the project is contrary to the public interest.

The district engineer has determined that issuance of a permit for the proposed project described in your June 8, 2020 application would not comply with the 404(b)(1) Guidelines and would be contrary to the public interest. Accordingly, the district engineer is denying your application for a DA permit.²⁹⁰

In so doing, the Army Corps was guided by, and complied fully with, the 404(b)(1) guidelines, and its decision was solidly grounded in the administrative record—both in the record’s wealth of scientific evidence of potential significant adverse impacts and in PLP’s pervasive failure meaningfully to address that evidence. Its findings are entirely consistent with the action requested under Section 404(c) by UTBB and supported by NRDC.

Although the Army Corps provided detailed findings in its ROD (including Attachment B to the ROD), the administrative record compiled through the permit process provides a wealth of supporting evidence for the Corps’ action. As we discuss below, if the proposed Pebble Mine is built, it will cause unacceptable adverse effects to local fisheries, wildlife, and economic livelihoods—three key areas that Section 404(c) is designed to protect.²⁹¹ The mine and its associated infrastructure would carve out huge swaths of land from the region, alter water flows, rivers, and wetlands in the area, and severely pollute downstream watersheds.

PLP’s mine plan would also facilitate extensive future expansion of the Pebble Mine and enable development of other large-scale mines in the region, including related transportation infrastructure, pipelines, stream crossings, toxics, energy infrastructure, and port facilities. As then-PLP CEO Tom Collier observed, “in America, there’s not a single major mine . . . that didn’t start out smaller than it has grown . . . and that’s what would happen here.”²⁹² Similarly, Ron Thiessen, CEO of Northern Dynasty Minerals, has spoken at length about how Pebble would facilitate development of “three to four” additional mines in the region:

Investigator: Yea, that’s exactly what I was about to say. So that would be, say, three, four – in reality what’s at stake here is three, four mines for a century in the region?

Thiessen: Yes

²⁹⁰ Letter from David Hobbie, Regional Regulatory Division Chief, Army Corps of Engineers, to James Fueg, Pebble Limited Partnership (Nov. 25, 2020).

²⁹¹ Our focus on these factors is meant not to suggest that the effects of the mine with respect to other 404(c) factors—such as shellfish beds and recreation—are irrelevant, but only to emphasize that the impacts to local fisheries and wildlife will be particularly severe. Furthermore, the available research particularly stresses the impacts to fisheries and wildlife, many of which also adversely affect recreation.

²⁹² Environment Investigation Agency, Pebble Tapes 1 - Scale of Mine (2020), <https://vimeo.com/459804434>.

Investigator: Mhmm. And it's important to not make it public now I understand.

Thiessen: Yes. So we've, with respect to other mines, typically we share that information under the NDA [non-disclosure agreement] with the other potential partners It's a picture of the 425 square miles and it's got a bunch of dots on it. Each one of those little dots represents potentially another mine site.

Investigator: And so the army corp when they made their decision, they took into account that. Its not Public but

Thiessen: Yes

Investigator: —ah. I understand So they are already thinking along your side guys on the big development expansion and are planning in this way?

Thiessen: Yes. Yes. . . .²⁹³

Thus, the proposed Pebble Mine, including planned expansion and development of other mines in the region conceded by PLP's leadership, would adversely impact aquatic ecosystems, precipitating serious declines in the region's salmon population. Declining salmon populations would impair the productive Bristol Bay sockeye salmon fishery and damage the complex aquatic and terrestrial ecosystems of the region, which depend on salmon for nutrients. Reduced genetic diversity of salmon populations would further stress regional ecosystems, threatening fragile fish and wildlife populations.

Simply stated, if the proposed Pebble Mine is built, it will dramatically alter the ecology and the character of the region and unquestionably cause "unacceptable adverse effects" to both salmon and wildlife, with associated and inevitable adverse effects on regional livelihoods and economic stability. As detailed below, the regulatory standard of a reasonable likelihood of unacceptable adverse effects on resources protected by Section 404(c) is clearly satisfied.

²⁹³ Id. at Tape 12, <https://content.eia-global.org/assets/2020/08/pebbletapes/Pebble+Tapes+12+--+More+Mines+-+Transcript.pdf>.

1. Pebble Mine Would Seriously Impact Regional Fisheries

a) Metal Leaching and Acid Mine Drainage will Severely Impact Salmon.

Metal leaching and acid rock drainage are “the most costly and potentially environmentally damaging issues facing the mining industry.”²⁹⁴ The rock associated with most metal mines, including the Pebble deposits, contains iron and other metal sulfides, which generate sulfuric acid when exposed to air and water.²⁹⁵ Sulfuric acid acidifies nearby surface waters and dissolves metals in the surrounding rock, mobilizing them into solution. Some of these metals, such as arsenic, cadmium, copper, and lead, enter the food chain and can threaten entire ecosystems.²⁹⁶ Others such as aluminum, iron, and manganese can “diminish[] or destroy[] stream habitats.”²⁹⁷ Metal leaching and acid rock drainage can originate from various aspects of the mine, including mine waste rock, tailings, and mine structures such as open pits.²⁹⁸

(1) Acid Rock Drainage

The threat of acid rock drainage is not limited to periods of construction and operation of the mine but persists in perpetuity. Acid rock drainage can be triggered when mines are abandoned and water is no longer pumped out of them, allowing precipitation or groundwater to enter.²⁹⁹ Acid rock drainage can have long lasting impacts: for instance, mines in Europe that were established over 1,500 years ago continue to leach today.³⁰⁰ When the costs and obligations of mitigation or remediation are passed from the mining companies to public agencies (for example, as has happened when several recent large-scale mines in the U.S. have declared bankruptcy),³⁰¹ taxpayers assume the cost of ongoing management, including the treatment of polluted water and the maintenance of mine integrity, “in perpetuity.”³⁰²

²⁹⁴ William A. Price, List of Potential Info. Requirements in Metal Leaching & Acid Rock Drainage Assessment and Mitigation Work 4-23 (2005), at 4,

http://www.pebblescience.org/pdfs/MEND_5_10E_Price_%20Final_Report.pdf.

²⁹⁵ Wild Salmon Center and Trout Unlimited, Bristol Bay’s Wild Salmon Ecosystems and the Pebble Mine: Key Considerations for a Large-Scale Mine Proposal (January 2012) at 27-32, <https://www.wildsalmoncenter.org/wp-content/uploads/2016/02/PM-Report.pdf>; See also Geoffrey Y. Parker et al., Pebble Mine: Fish, Minerals, and Testing the Limits of Alaska’s “Large Mine Permitting Process” 25 AK Law Rev. 1 (2008), at 15-16, available at <https://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=1058&context=alr>.

²⁹⁶ Id.

²⁹⁷ Watershed Assessment at 8-21.

²⁹⁸ U.S. Env’tl Prot. Agency, Acid Mine Drainage Prediction (1994) at 2, available at <https://www.epa.gov/sites/production/files/2015-09/documents/amd.pdf>.

²⁹⁹ Ecology and Env’t, Inc., An Assessment of Ecological Risk to Wild Salmon Systems from Large-scale Mining in the Nushagak and Kvichak Watersheds of the Bristol Bay Basin 1-133 (2010) at 54, <https://www.nature.org/content/dam/tnc/nature/en/documents/ecological-risk-assessment-bristol-bay-alaska.pdf>.

³⁰⁰ S.R. Jennings et al., Acid Mine Drainage and Effects on Fish Health and Ecology: A Review, Reclamation Research Group Publ’n 1-26 (2008) at 4, https://easternbrooktrout.org/resources/science-publications/acid-mine-drainage-and-effects-on-fish-health-and-ecology-a-review/at_download/file.

³⁰¹ Id. Examples include the Zortman Landusky Mine in Montana, the Summitville Mine in Colorado, and the Brohm Mine in South Dakota.

³⁰² Id.

Mitigating acid rock drainage faces numerous challenges,³⁰³ and its track record for success is questionable.³⁰⁴ Despite this, acid rock drainage’s potential for harm is often overlooked. One 2006 study, which examined acid rock drainage in 25 hard rock mines in the United States, found that nearly all the mines that subsequently developed acid drainage had underestimated or ignored the potential for acid drainage.³⁰⁵ Furthermore, when the mine was near surface or ground water and there was a high potential for acid drainage—as would be true for the Pebble deposit—contamination of the surrounding waters was overwhelmingly likely.³⁰⁶

In the case of the Pebble deposit, as EPA’s Watershed Assessment acknowledges,³⁰⁷ the mine would exhibit significant potential for acid mine drainage.³⁰⁸ The likelihood of such drainage is predicted by measuring the ratio of rocks containing acid-forming minerals to rocks containing neutralizing minerals.³⁰⁹ In one analysis, over 95% of 399 samples taken from the proposed Pebble Mine area were found to be acid-generating.³¹⁰ Similarly, EPA’s Watershed Assessment found that acid-forming waste rocks at the Pebble site also have “high copper concentrations in test leachates, and would require 2,900- to 52,000-fold dilution to achieve water quality criteria.”³¹¹

According to a Request for Information cited in Pebble’s FEIS, both Pebble’s copper and molybdenum concentrates “are expected to be potentially acid generating and susceptible to leaching of their component elements.”³¹² The FEIS further states that “a large number of samples [of Pebble’s tailings] are considered PAG [potentially acid generating]”.³¹³ The Pebble deposit is also located in an area with “complex and highly interconnected surface and subsurface hydrology,”³¹⁴ which “amplifies the risk that acid generating mine waste... could escape into the aquatic ecosystem during construction and operation as well as into perpetuity... after any mine at

³⁰³ Among other factors, mitigation requires large amounts of data collection and must continue forever. This means mine structures are subject to extreme design, monitoring, maintenance, and repair requirements. See William A. Price, The Mitigation of Acid Rock Drainage: Four Case Studies from British Columbia 1-11 (2003) at 1, <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.578.76&rep=rep1&type=pdf>.

³⁰⁴ James R. Kuipers and Ann S. Maest, Comparison of Predicted and Actual Water Quality at Hardrock Mines: The reliability of predictions in Environmental Impact Statements (2006) at ES-15, <https://pebbleprojecteis.com/files/81bbe585-36ce-49d3-a782-ea43a574f09f>.

³⁰⁵ Id. at ES-9.

³⁰⁶ Id. at ES-12

³⁰⁷ Watershed Assessment, at 4-2.

³⁰⁸ Kendra Zamzow, Acid Rock Drainage and Metal Leaching at the Pebble Mine, Pebble Science at 2, http://www.pebblescience.org/pdfs/Pebble_acid_mine_drainage.pdf.

³⁰⁹ Jennings, supra, at 8.

³¹⁰ Ecology and Env’t, Inc., 2010, supra, at 55.

³¹¹ Watershed Assessment at ES-15.

³¹² Allison Payne, PLP 2018-RFI 045: Concentrate Containers – Spill and Integrity Data (2018) at 5, <https://pebbleprojecteis.com/files/e4db0628-a803-44f5-b93e-b8a0d01ec4c2> (cited at Pebble FEIS, 4.27-58).

³¹³ Pebble FEIS at K3.18-17.

³¹⁴ EPA Region 10, EPA Comments on U.S. Army Corps Draft Clean Water Act Section 404 Permit to Pebble Limited Partnership 55 (2019), available at https://www.epa.gov/sites/production/files/2019-07/documents/epa-comments-draft-404-permit-pebble-project-07-01-2019_0.pdf.

the site is closed.”³¹⁵ The surface waters in the Bristol Bay region have “low buffering capacity,” meaning that “a small addition of acid would decrease stream pH rapidly.”³¹⁶

Acid drainage, along with metal leaching, presents a significant threat to ecosystems near mines. Acid drainage can decrease the pH of receiving waters to as low as 2.0-4.5, making them about as acidic as vinegar.³¹⁷ Even moderately acidic streams are typically poor in taxa richness and abundance, and fish distributions in streams with a pH of 4.5-5.5 (about as acidic as black coffee) can be “severely impacted.”³¹⁸ Fish completely die off in 90% of streams in waters with a pH of 4.5, and these effects become more severe as the pH decreases.³¹⁹ Even at higher pHs of 5.5–6.5, “fish behavior is affected, the reproductive capacity of adults is impaired, and the viability of eggs, alevins, and fry is reduced.”³²⁰ According to at least one analysis, instream pH levels below 5 “would be possible up to 30 miles downstream” of the proposed Pebble Mine site.³²¹

(2) Metal Leaching

Metal leaching may perhaps be an even “greater concern” than acid drainage,³²² and increased metal concentrations in aquatic environments can harm both salmon and the resources they depend on. Copper and other heavy metals injure fish through direct exposure and through contamination of their food resources.³²³

While copper is essential to living organisms, even a tiny increase in copper availability or exposure can be highly toxic to salmon at extremely low levels. For example, copper can be acutely toxic at just a few parts per billion: elevated levels of copper can damage salmonid olfaction at concentrations as low as 2 parts per billion, inhibiting the ability of some fish to find food and avoid predators.³²⁴ Chronic exposure in the parts per trillion range can also cause long-term effects.³²⁵ An increase of just two to eight parts per billion in copper can negatively impact a salmon’s olfaction, making it difficult for the fish to avoid predators, find mates, and return to their spawning grounds.³²⁶ Exposure to elevated levels of copper can reduce salmon viability, increase

³¹⁵ *Id.*

³¹⁶ Kendra L. Zamzow, Investigations of Surface Water Quality in the Nushagak, Kvichak, and Chulitna Watersheds, Southwest Alaska 2009-2010, Nature Conservancy (2011), <https://www.nature.org/content/dam/tnc/nature/en/documents/scientific-investigations-of-bristol-bay-surface-water-quality.pdf>, at 31.

³¹⁷ Jennings, *supra*, at 5.

³¹⁸ Ecology and Env’t, Inc., 2010, *supra*, at 105.

³¹⁹ Jennings, *supra*, at 5.

³²⁰ Bristol Bay’s Wild Salmon Ecosystems and the Pebble Mine: Key Considerations for a Large-Scale Mine Proposal, Wild Salmon Center (2012) at 52, <https://www.wildsalmoncenter.org/wp-content/uploads/2016/02/PM-Report.pdf>.

³²¹ Ecology and Env’t, Inc., 2010, *supra*, at 112-113.

³²² Parker et al., *supra*, at 16.

³²³ Ecology and Env’t, Inc., 2010, *supra*, at 114.

³²⁴ Dr. Carol Ann Woody and Sarah O’Neal, Effects of Copper on Fish and Aquatic Resources, The Nature Conservancy (June 2012), at 12, <https://www.conservationgateway.org/ConservationByGeography/NorthAmerica/UnitedStates/alaska/sw/cpa/Documents/W2013ECopperF062012.pdf>.

³²⁵ Ecology and Env’t, Inc., 2010, *supra*, at 59.

³²⁶ Zamzow, *supra*, at 1.

susceptibility to infections, and increase death rates.³²⁷ Copper can also impair brain function, create breathing difficulties, and alter blood chemistry and metabolism.³²⁸

Other metals in the mine would also cause environmental harm. Several metals present at the Pebble deposit are on EPA's list of priority pollutants, including antimony, arsenic, chromium, lead, nickel, selenium, and zinc.³²⁹ Some of these other metals can also cause serious problems for fish: for example, dissolved aluminum can precipitate and form mucus that clogs fish gills.³³⁰ Another example is "yellow boy," which is formed when previously soluble iron precipitates as iron hydroxide.³³¹ Yellow boy has many effects on streams including oxygen removal, acidification, and depletion of the water's buffering capacity.³³² Furthermore, additional interactions among metals (like copper and zinc) can produce synergistic effects, further damaging the ecosystem.³³³

In Pebble's case, metal leaching is likely. Even under routine operations, as EPA's 2014 Watershed Assessment notes, "some leachate would escape collection, supernatant water may be spilled from tailings storage facilities... and some treatment failures would be expected to occur."³³⁴ Leachate which is uncollected "would elevate instream copper levels and cause direct effects on salmonids ranging from aversion and avoidance of the contaminated habitat to rapidly induced death of many or all fish."³³⁵ EPA's Watershed Assessment also describes that copper and other metals in parts of the South Fork Kaktuli River would make these areas acutely toxic to salmonids, while parts of the North Fork Kaktuli and Upper Talarik would be highly toxic to invertebrates, a primary food source for salmonids.³³⁶

According to the Watershed Assessment, even taking into account wastewater treatment "assumed to meet all state standards and national criteria,"³³⁷ increased levels of copper could ultimately result in "avoidance of streams by salmonids... in 24 and 34 to 57 km... of streams" in the Pebble 2.0 and 6.5 scenarios, respectively (the scenarios in which Pebble is producing 2.0 billion tons of ore over 25 years or 6.5 billion tons of ore over 78 years).³³⁸ Indeed, the Watershed Assessment further found that in the mine expansion scenario, "greater than 99% capture efficiency would be required to prevent exceedance of the copper criteria for the South Fork Kaktuli River."³³⁹ This

³²⁷ Ecology and Env't, Inc., 2010, supra, at 62.

³²⁸ WSC, Bristol Bay's Wild Salmon Ecosystems and the Pebble Mine, supra, at 51-60.

³²⁹ Ecology and Env't, Inc., 2010, supra, at 58-59.

³³⁰ Kendra Zamzow, Acid Rock Drainage and Metal Leaching at the Pebble Prospect, Pebble Science, http://pebblescience.org/Pebble-Mine/acid_drainage.html.

³³¹ Ecology and Env't, Inc., 2010, supra, at 105.

³³² Id. at 105-106.

³³³ WSC, Bristol Bay's Wild Salmon Ecosystems and the Pebble Mine, supra, at 51-60.

³³⁴ Watershed Assessment, at 8-1.

³³⁵ Id. at ES-15

³³⁶ Id. at 8-47.

³³⁷ Id. at ES-15.

³³⁸ Id. at ES-15-16.

³³⁹ Id. at ES-15.

would require advanced technology not identified in the DEIS.³⁴⁰ Tom Collier, former Pebble CEO, has said “we have 10 billion tons” of ore at Pebble, so these may well be low estimates.³⁴¹

While the FEIS outlines some of the systems planned to collect and control leachate, EPA’s comments on the DEIS make clear that the details provided “do not fully support the DEIS assumption that 100% of the seepage would be captured.”³⁴² This skepticism is supported by historical evidence: at 13 of 14 copper mines “representing 89% of U.S. copper production in 2010,” a report found that “water collection and treatment systems have failed to control contaminated mine seepage, resulting in significant water quality impacts.”³⁴³ And in the event of a spill, even if control measures functioned perfectly, leaching would still be possible, and in some cases, would by design be inevitable. In one spill scenario examined in the FEIS, a rupture along the concentrate slurry pipeline would—with the automated leak detection, pipeline shutoff, and personnel response systems all working as intended—result in the release of 27 tons of concentrate slurry from the pipeline.³⁴⁴ According to EPA’s comments on spill risk in the DEIS, a spill of concentrate particles would have the potential to exert “long-term influence... in the watershed... due to their continual leaching.”³⁴⁵

Indeed, as a whole, the FEIS tends to understate the potential impact of metal leaching on salmonid populations in the region. EPA emphasized this concern in a comment letter to the Army Corps, noting that the FEIS must address “1) potential impacts of increased metal loading to fish; and 2) how increases in loading, especially of copper and selenium, would affect fish downstream of the discharge points.”³⁴⁶ While the FEIS states that “[t]reatment prior to discharge would achieve the copper discharge limit” and that “site-related changes in copper concentrations in surface waterbodies would not be sufficient to cause adverse impacts to invertebrates and fish species,”³⁴⁷ this claim is supported by little to no data, and there still has been no testing of the proposed treatment system. The treatment system described in the FEIS involves “multiple complex processes and equipment, including chemical precipitation, filtration, high-pressure membrane filtration, and reverse osmosis—” a process never before attempted in mine water treatment.³⁴⁸

The FEIS has a similarly cursory statement for selenium concentrations, declaring that leachate would be treated and therefore “aquatic impacts to invertebrates and fish species would not be

³⁴⁰ *Id.* at ES-15-16.

³⁴¹ Joel Reynolds, [Pebble Mine Tapes Confirm Risk of Disaster in Bristol Bay](https://www.nrdc.org/experts/joel-reynolds/pebble-mine-tapes-confirm-risk-of-disaster-in-bristol-bay), NRDC (Sept. 22, 2020), <https://www.nrdc.org/experts/joel-reynolds/pebble-mine-tapes-confirm-risk-of-disaster-in-bristol-bay>.

³⁴² EPA Comments on Draft EIS, at 3.

³⁴³ Earthworks, [Copper Mines: Track Record of Accidental Spills, Tailings Dam Failures and Failure to Capture Mine Seepage](https://earthworks.org/cms/assets/uploads/2019/02/Pebble-spills-tailings-seepage-fact-sheet-2.pdf) 1–2, at 1, <https://earthworks.org/cms/assets/uploads/2019/02/Pebble-spills-tailings-seepage-fact-sheet-2.pdf>.

³⁴⁴ Pebble FEIS at 4.27-75.

³⁴⁵ EPA Comments on Draft EIS, at 82.

³⁴⁶ EPA Comments on Draft EIS, at 58.

³⁴⁷ Pebble FEIS at K4.24-5.

³⁴⁸ Bristol Bay Native Corporation, [The Pebble Final EIS Understates Impacts and Risks to Salmon and The People of Bristol Bay and Is Not Adequate to Support Issuance of a Clean Water Act Permit](https://www.bbnc.net/wp-content/uploads/2020/07/FEIS-Inadequate-to-Support-Clean-Water-Act-Permit.pdf) (July 2020) at 3, <https://www.bbnc.net/wp-content/uploads/2020/07/FEIS-Inadequate-to-Support-Clean-Water-Act-Permit.pdf>.

expected to occur due to project-related changes in surface water selenium concentrations.”³⁴⁹ This leachate capture system—which has neither been tested nor proven—would have to be one of the most effective in the world to reach the results described.

Without testing, “conclusions in the FEIS showing a lack of harm to downstream receiving water quality are not technically defensible.”³⁵⁰ The purely conceptual treatment technology is being proposed to treat unprecedented amounts of water in Bristol Bay’s only safeguard against toxic mining metals.

b) Water Reductions and Wetlands Destruction Caused by the Mine Will Further Damage Fisheries

The proposed Pebble Mine will severely impact water flow in the region. To begin with, the direct destruction of pristine wetlands and waters would irrevocably impact the region. According to Pebble’s FEIS, Pebble Mine would permanently destroy more than 105 miles of streams and 2,200 acres of wetlands, rising to 330 miles and 8,750 acres, respectively, in the Pebble Expansion Scenario.³⁵¹ An additional 79 miles of streams and 1,600 acres of wetlands would be indirectly impacted from the mine’s development.³⁵²

As part of the documentation for its 2006 water permit applications, NDM also requested the use of approximately 32 billion gallons of water each year.³⁵³ The effect of this use would be to redirect all surface and ground water within the area of the mine to the mine’s use.³⁵⁴ According to EPA’s Watershed Assessment, water use at the mine site is estimated to result in reductions in water flows of nearly 26 million cubic meters a year around the mine site.³⁵⁵ Additionally, another estimated 15.4 million cubic meters of water annually will need to be captured and treated before discharge.³⁵⁶ Treated discharges “might not be discharged to the same streams that were dewatered,”³⁵⁷ and could therefore also result in some streams becoming much less hospitable to salmon. These flow reductions, divergences, and extractions would greatly influence groundwater in the region, which is particularly important because the upper sections of the streams in the region are “gaining” streams, meaning much of their water supply comes from groundwater sources.³⁵⁸ Groundwater is especially critical for these streams during summer and winter low flow periods.³⁵⁹

³⁴⁹ *Id.* at 3

³⁵⁰ Press Conference with Richard Borden, United Tribes of Bristol Bay (July 2020).

³⁵¹ Pebble FEIS, at 4.22-111.

³⁵² Pebble FEIS, at 4.22-111.

³⁵³ Robert Moran, Water-Related Impacts at the Pebble Mine, Pebble Science, <http://pebblescience.org/Pebble-Mine/water-impact.html>.

³⁵⁴ Ecology and Env’t, Inc., 2010, *supra*, at 15. For a full discussion of the effects of the proposed Pebble Mine on surrounding waters, see Wild Salmon Center and Trout Unlimited, Bristol Bay’s Wild Salmon Ecosystems and the Pebble Mine: Key Considerations for a Large-Scale Mine Proposal (January 2012), 51-67, <https://www.wildsalmoncenter.org/wp-content/uploads/2016/02/PM-Report.pdf>.

³⁵⁵ Watershed Assessment, at 6-16.

³⁵⁶ *Id.* at 6-16.

³⁵⁷ *Id.* at 6-27.

³⁵⁸ Ecology and Env’t, Inc., 2010, *supra*, at 18.

³⁵⁹ *Id.*

These flow reductions would also be detrimental to salmon survival. Upstream from the mine, fish stocks would be destroyed. Downstream from the mine, stream flows would be reduced, diminishing and degrading fish habitats.³⁶⁰ According to the FEIS, for example, development of the mine site would “permanently remove 22 miles of fish habitat,”³⁶¹ with an additional 35 miles destroyed in the expansion scenario.³⁶² Since the quality and quantity of habitat available determines the number of fish produced, a loss of flow is likely to directly cause reductions in resident and anadromous fish populations.³⁶³ The elimination of streams caused by the mine and the corresponding decrease in flow volumes downstream would also result in additional fish losses resulting from greater competition for resources—especially food and cover.³⁶⁴

Several additional factors associated with low flow conditions would further stress salmon populations. First, low flow conditions lead to greater temperature fluctuations. Since temperature is a major controlling factor of fish survival and reproduction, temperature fluctuations pose a particular threat to salmon.³⁶⁵ Temperature also influences the amount of dissolved oxygen in streams, with lower flow rates generally leading to less dissolved oxygen, which is a key limiting factor for fish survival.³⁶⁶ Second, low flow conditions would also degrade streams in several ways. They would cause an overall reduction in water velocity, negatively impacting salmon,³⁶⁷ decrease dissolved oxygen in the substrate,³⁶⁸ and increase sediment deposition downstream, decreasing water quality.³⁶⁹ Overall, it is likely that the mine’s water flow reductions would limit salmon growth and survival, lead to increased infection rates among salmonids, and cause crowding, leading in turn to increased competition and predation.³⁷⁰

Furthermore, the FEIS likely understates the probability and magnitude of changes to regional waterflow. EPA made clear that nondetectable low flow conditions must be supported as well as any downstream flow-related impacts of the project fully explained.³⁷¹ As the EPA made clear in their comments on the DEIS:

The DEIS states that “[o]nce the mainstem of the Kuktuli is reached, flow changes would not be detectable” (pg. 4.24-13). The EPA’s review finds that the DEIS does not contain any support for this conclusion, and that the DEIS does not define ‘detectable.’³⁷²

³⁶⁰ William J. Hauser, Potential Impacts of the Proposed Pebble Mine on Fish Habitat and Fishery Resources of Bristol Bay 1-20 (2007) at 7, http://www.pebblescience.org/pdfs/Pebble_Fish_Habitat_Report-Hauser_Sept07.pdf.

³⁶¹ Pebble FEIS at 4.24-1.

³⁶² Id. at 4.24-64.

³⁶³ Ecology and Env’t, Inc., 2010, supra, at 15.

³⁶⁴ Id. at 26.

³⁶⁵ Id. at 39-40.

³⁶⁶ Id. at 40.

³⁶⁷ Id. at 37.

³⁶⁸ Id. at 37-40.

³⁶⁹ Id. at 39.

³⁷⁰ Id. at 37-39.

³⁷¹ EPA Comments on Draft EIS, at 57.

³⁷² Id.

The FEIS, however, merely repeats the same conclusion using slightly different wording. The FEIS states that “[a]fter the flows combine at the confluence of the NFK and SFK rivers, discernable changes in flow would be unlikely and are expected to be within historic and seasonal variation in the Koptuli River.”³⁷³ This assumption, however, remains unsupported.

c) The Mine Risks Damage to Fisheries From a Wide Range of Chemicals Spills

The proposed Pebble Mine would likely also impact aquatic ecosystems through chemical spills. Mines use a wide variety of ecologically harmful substances, such as explosives, fuels, oils, antifreeze, water treatment chemicals, herbicides, pesticides, and road de-icing compounds, any of which might be released into surface and ground water.³⁷⁴ Spills could cause “critical” impacts if they occurred in spawning or rearing habitats,³⁷⁵ or cause additional harm when occurring simultaneously with other mine impacts.

It is highly likely that waste products from the mine site containing a variety of heavy metals could contaminate water supplies through a spill, with catastrophic impacts on water quality in fish habitats. In a 2018 report prepared by a PLP contractor, the mine was estimated to generate “an average of 6.8 billion gallons per year of waste water during operations and 11.8 billion gallons per year during closure, requiring capture and treatment” in perpetuity.³⁷⁶ The massive size of this operation would likely raise the probability of an accident: the water collection, treatment, and discharge plan is “unprecedented, far surpassing the capture and treatment volumes for any other U.S. mining operation, including the nation’s largest Superfund mining sites.”³⁷⁷ Likewise, the fact that treatment and storage would need to continue indefinitely means that even an extremely low, but non-zero chance of a spill would inevitably result in eventual contamination. Accurate risk assessment is extremely challenging under these circumstances.

As EPA’s own Watershed Assessment put it, “it is impossible to evaluate the success of such long-term collection and treatment systems for mines. No examples exist, because [Pebble’s] timeframes exceed both existing systems and most human institutions.”³⁷⁸ However, past experiences do indicate that contamination of local water supplies is likely in the foreseeable future: “in a 2012 review of operating U.S. Copper mines that account for 89% of U.S. copper production, 92% failed to capture and treat mine waste water.”³⁷⁹ In this case, according to EPA’s Watershed Assessment, the unprecedented complexity of the treatment system means that “there are innumerable ways in which wastewater treatment could fail in the mine scenarios.”³⁸⁰ Indeed, a simple failure of the pumping system, according to one study, would cause the 20-year mine’s

³⁷³ Pebble FEIS at 4.16-11–12.

³⁷⁴ Moran, *supra*.

³⁷⁵ Ecology and Env’t, Inc., 2010, *supra*, at 65.

³⁷⁶ Earthworks, *Pebble Mine: Unprecedented Waste Water Treatment Requirements* (2019), <https://earthworks.org/cms/assets/uploads/2019/02/Pebble-WTP-fact-sheet.pdf>.

³⁷⁷ NRDC DEIS Comments, at 47-48.

³⁷⁸ Watershed Assessment, at 6-27.

³⁷⁹ Earthworks, 2019, *supra*.

³⁸⁰ Watershed Assessment at 8-15.

pit lake to “irreversibly overtop within 3 to 4 years,”³⁸¹ leading 35 miles downstream to concentrations of cadmium that would exceed water quality criteria by a factor of approximately 50–100, and concentrations of copper that would exceed water quality criteria by a factor of 500–1000.³⁸²

Finally, pipelines would be constructed along the transportation corridor to move copper-gold slurry,³⁸³ return water,³⁸⁴ diesel,³⁸⁵ and natural gas³⁸⁶ between the mine to port site, a distance of approximately 82 miles.^{387 388} Potential effects from slurry pipeline breaks and spills can be serious. These breaks and spills occur frequently in mining operations. One review of 14 operating porphyry copper mines in the United States (excluding those operating for less than five years) “found that all had experienced pipeline spills or accidental releases.”³⁸⁹ EPA calculates the risk of failure for the concentrate pipeline at approximately .001 per kilometer per year,³⁹⁰ which, at roughly 131 km of slurry pipeline yields a yearly spill probability somewhere along the pipeline of ~13.1%.

A pipeline break could lead to thousands of gallons of slurry entering sensitive anadromous streams, carrying metals and other harmful compounds.³⁹¹ Physical effects of a spill could include the embedding of slurry in salmon habitat and spawning areas, as well as increased stream turbidities.³⁹² A spill could also lead to long-term bio-uptake and transfer of metals within the food chain.³⁹³ “Depending on the size, time and location of a pipeline spill, a slurry pipeline break could impact thousands to hundreds of thousands of adult salmon and high-value resident fish, and hundreds of thousands to millions of juvenile fish.”³⁹⁴

Additionally, the risks of spills are underexamined and unjustifiably minimized in the FEIS. EPA’s Watershed Assessment and DEIS comments both raised the concern of significant spill risks. EPA’s DEIS comments noted that the FEIS must include a detailed analysis of the risks associated with spilled concentrate and tailings in order to gain a better understanding of how these spills may interact with the surrounding environment.³⁹⁵ The FEIS claimed that a spill of concentrated solids or slurry “would not result in any measurable impacts on future salmon populations or the wildlife that depend on salmon.”³⁹⁶ The FEIS further claimed that “[a]ny metals leached from concentrate spilled into a waterway would be produced very slowly over years to decades...so that no

³⁸¹ Ann Maest, Robert Prucha & Cameron Wobus, Hydrologic and Water Quality Modeling of the Pebble Mine Project Pit Lake and Downstream Environment after Mine Closure, 10 Minerals 727 (2020), at 1.

³⁸² Id. at 19.

³⁸³ Pebble FEIS at 2-8.

³⁸⁴ Id.

³⁸⁵ Id. at 4.27-169.

³⁸⁶ Id. at K2-35.

³⁸⁷ Id. at 2-141.

³⁸⁸ Id. at K2-35.

³⁸⁹ Watershed Assessment, at 11-6.

³⁹⁰ Id. at 11-9.

³⁹¹ Ecology and Env’t, Inc., 2010, supra, at 86.

³⁹² Id. at 89.

³⁹³ Id.

³⁹⁴ Id. at 85.

³⁹⁵ EPA Comments on Draft EIS, at 80-87.

³⁹⁶ Pebble FEIS, at ES-102.

measurable impacts would occur.”³⁹⁷ These assertions are unsupported, and the FEIS failed to fix the issues identified by EPA.

d) Fugitive Dust Generated by the Mine Will Degrade Aquatic Habitats Damaging Fisheries

As proposed, the Pebble Mine would negatively impact the ecology of the region through the generation of fugitive dust. Fugitive dust can be blown from many mine surfaces, including the mine itself, access roads, and tailings ponds, and it can also be generated by moving and storing mine materials.³⁹⁸ The FEIS states that 588 acres of wetlands and 24.1 miles of streams (1,093 acres of wetlands and 15 miles of streams in the expansion scenario) will be affected by fugitive dust at the mine site.³⁹⁹ Another study predicted “conservatively” that fugitive dust would impact over 33 square miles surrounding the mine, but also commented that the effects could be much wider.⁴⁰⁰ Over the life of the mine, this area would be “significantly degraded,” and the dust would impact both streams and vegetation.⁴⁰¹ The FEIS also anticipates that fugitive dust along the transportation corridor will impact an additional 745 acres of wetlands and 48.5 miles of streams.⁴⁰²

Impacts caused by fugitive dust can be long-lasting, and ecosystems may be slow to recover.⁴⁰³ When fugitive dust is generated, it covers surrounding vegetation, causing increased mortality in plants. This can result in de-vegetation of large areas surrounding the mine, including areas that support salmon.⁴⁰⁴ When vegetation is lost, surface runoff increases, which in turn leads to increased stream turbidity and sedimentation. Fugitive dust can also settle in water and smother both salmon eggs and organisms that serve as food for salmon.⁴⁰⁵ Furthermore, fugitive dust can transport heavy metals into the surrounding water, air, and soil. This can be especially problematic in an area that is also exposed to acid mine drainage, which increases the bioavailability of copper and harms sensitive salmon.⁴⁰⁶

As the mine ages, copper from fugitive dust could affect benthic invertebrates, including mayflies, caddis flies, and stoneflies.⁴⁰⁷ Impacts to these populations would be “crucial” and most likely “long term.”⁴⁰⁸ These species are important food resources for salmon and other fish, so declines in these populations will invariably negatively impact salmon species. Furthermore, copper dispersed by dust could accumulate to concentrations that would cause acute or chronic effects in salmon directly.⁴⁰⁹ As one study found: “a certainty exists that, even with mitigation measures

³⁹⁷ Id.

³⁹⁸ Ecology and Env’t, Inc., 2010, supra, at 49-50.

³⁹⁹ Pebble FEIS at 4.22-27.

⁴⁰⁰ Ecology and Env’t, Inc., 2010, supra, at 53.

⁴⁰¹ Id.

⁴⁰² Pebble FEIS at 4.22-98.

⁴⁰³ Ecology and Env’t, Inc., 2010, supra, at 65-66.

⁴⁰⁴ Id. at 50.

⁴⁰⁵ Hauser, supra, at 1.

⁴⁰⁶ Ecology and Env’t, Inc., supra, at 78.

⁴⁰⁷ Id. at 73.

⁴⁰⁸ Id. at 53.

⁴⁰⁹ Id. at 73.

employed at the mine, copper and other metals will likely be mobilized in runoff or leached into the surface and/or groundwater” over the life of the mine.⁴¹⁰

The risks posed by fugitive dust are vastly underestimated in the FEIS. The EPA issued this critique in their DEIS comments: “fugitive dust deposition calculations appear[ed] to underestimate the impacts to streams, wetlands, lakes, and ponds.”⁴¹¹ Specifically, selenium inputs to surface waters from fugitive dust “could result in an exceedance of water quality standards and violations of the CWA.”⁴¹² EPA urged that “[Selenium] in the effluent from the WTP be further reduced through treatment methods available, to ensure that surface water quality standards are met” and that the FEIS should “draft [a] fugitive dust control plan...that specifies the control measures that would be used.”⁴¹³ The FEIS failed to do so. Without further analysis, the FEIS summarily concluded that metals deposited in waters as a result of dust deposition “would not result in exceedances of the most stringent water quality criteria” even though there is a lack of evidence.⁴¹⁴ This lack of examination combined with the potential risks of fugitive dust for the Bristol Bay watershed supports the use of EPA’s 404(c) authority.

e) Habitat Fragmentation of Salmon Populations Would Occur Due to Road Construction

The transportation corridor would severely impact salmon through habitat fragmentation. The FEIS describes plans to construct an 82-mile access road and a pipeline connecting the mine to the proposed port at Diamond Point on Cook Inlet.⁴¹⁵ According to the FEIS, the road would cross water bodies 205 times, impacting 54 fish streams.⁴¹⁶ Connecting roads and spur roads would also likely be built, requiring still more stream crossings not included in the FEIS’ analysis.⁴¹⁷ Many of these artificial stream crossings will be culverts instead of bridges. Culverts “commonly fail to allow free passage of fish.”⁴¹⁸ and can “restrict or eliminate fish movement to upstream habitat and isolate or modify populations.”⁴¹⁹

Such habitat fragmentation increases the chance that fish populations will be extirpated due to a lack of genetic diversity or chance events.⁴²⁰ Culverts can stop or interfere with fish movement by creating excessive water velocities and extreme turbulence, or because the water running through the culvert is too shallow for fish to traverse. Culverts can further block fish movement via weirs, baffles, or debris caught in the culvert. Finally, even if fish can physically swim through a culvert, there may be “behavioral barriers” that prevent fish from attempting passage, as fish will often avoid long culverts, darkness, confined spaces, and shallow depths.⁴²¹

⁴¹⁰ *Id.* at 84.

⁴¹¹ EPA Comments on Draft EIS at 35.

⁴¹² *Id.* at 28.

⁴¹³ *Id.* at 92.

⁴¹⁴ Pebble FEIS at 4.24-27.

⁴¹⁵ *Id.* at 2-151-152.

⁴¹⁶ *Id.* at 4.24-5.

⁴¹⁷ Hauser, *supra*, at 14.

⁴¹⁸ Watershed Assessment, at ES-16.

⁴¹⁹ Ecology and Env’t, Inc., 2010, *supra*, at 41.

⁴²⁰ *Id.*

⁴²¹ *Id.* at 41-42.

Even if culverts initially comply with fish passage guidelines when installed, they may become impassable in the future.⁴²² Without “continual and proper” maintenance, culverts fail and become barriers to fish movement.⁴²³ EPA’s Watershed Assessment characterized the risk of long-term culvert blockage as low. However, this relied on an assumption that each of the culverts would undergo daily inspections in perpetuity. Realistically, daily inspections of culverts will not occur forever—if at all; if these inspections were to stop at some point, EPA’s assessment estimates that 30-61% of the culverts would become impassable to fish.⁴²⁴

Pebble intends to install a total of 222 culverts, 73 of which will be in fish-bearing streams.⁴²⁵ The Watershed Assessment states that, “[a]ssuming typical maintenance practices after mine operations,” the vast majority of these culverted streams “would likely not be able to support long-term populations of resident species.”⁴²⁶ This is further supported by regional statistics: of the 244 culverts examined in the Copper River, Alaska region, 64% were classified as impassable by fish, 32% “may or may not be passable,” and only 4% were deemed passable.⁴²⁷ The effects of impassibility on the regional salmon population would be dire: “Culverts and other road crossings that do not provide free passage between upstream and downstream reaches can fragment populations into small population isolates vulnerable to extinction... [entirely or partially blocked] streams would likely not be able to support long-term populations of resident species.”⁴²⁸

f) The Mine Presents a Risk of Catastrophic Damage

After ore is removed from a deposit, it is pulverized and mixed with water and chemicals before the copper, gold, and other metals are separated out. These “tailings” are stored in perpetuity within large impoundments.⁴²⁹ PLP is proposing to extract 1.4 billion tons of ore over a 20-year period.⁴³⁰ However, public news releases, along with more recent statements from Pebble’s former CEO, indicate that the deposit contains nearly 11 billion tons of ore.^{431 432} Since mines are commonly expanded after operations begin, it is probable that PLP will seek to extract much more than the planned initial 1.4 billion tons from Pebble Mine—and perhaps even more than the latest, much

⁴²² *Id.* at 45.

⁴²³ Hauser, *supra*, at 12.

⁴²⁴ Watershed Assessment at 14-5.

⁴²⁵ The Pebble Partnership, Pebble Project Department of the Army Application for Permit (2017) Att. B, Page 55.

⁴²⁶ Watershed Assessment at 14-5.

⁴²⁷ Ecology and Env’t, Inc., 2010, *supra*, at 46.

⁴²⁸ Michael Kravitz & Greg Blair, On Assessing Risks to Fish Habitats and Populations Associated with a Transportation Corridor for Proposed Mine Operations in a Salmon-rich Watershed, 64 *Environmental Management* 107–126 (2019), at 114-117.

⁴²⁹ Moran, *supra*.

⁴³⁰ Pebble FEIS at 2-13.

⁴³¹ Pebble Partnership, Updated Mineral Resource Estimate for Pebble Prospect (Feb. 1, 2010) at 1, https://www.sec.gov/Archives/edgar/data/1164771/000116477110000002/ndm6k_020110.htm

⁴³² Joel Reynolds, Pebble Mine Tapes Confirm Risk of Disaster in Bristol Bay, NRDC (Sept. 22, 2020), <https://www.nrdc.org/experts/joel-reynolds/pebble-mine-tapes-confirm-risk-disaster-bristol-bay>.

larger estimates of between 10 and 11 billion tons. Whatever the volume of ore mined, however, over 99% of it will become waste material requiring storage in tailings facilities forever.⁴³³

Tailings management is often considered the “most significant environmental challenge associated with mining projects.”⁴³⁴ Tailings impoundment dams fail at about a hundred times the rate of traditional water storage dams,⁴³⁵ and the number of failures has actually doubled in the last 20 years.⁴³⁶ Additionally, since 1960, there has been “an emerging and pronounced trend...toward a higher incidence of ‘serious’ and ‘very serious’ failures.”⁴³⁷ At the Pebble Mine, the proposed dams would face several specific risks.

First, the area lies within a zone of sporadic permafrost.⁴³⁸ Permafrost can cause underground movement, which may pose major problems for tailings impoundments.⁴³⁹ One study also found that permafrost thaw was “deeper” next to roads and could “affect road structure detrimentally.”⁴⁴⁰ This could clearly lead to accidents and spills along the proposed road and adjacent pipeline system. Other mines in Alaska have faced significant costs and wastewater treatment challenges associated with permafrost impacts to tailings storage facilities. The Red Dog Mine near Noatak, for example, has been prevented from discharging treated wastewater into nearby streams because of melting permafrost, “causing water to back up in its tailings reservoir.”⁴⁴¹ Teck Resources, Red Dog’s operator, has already spent nearly \$20 million on “an array of steps to keep water levels in the [tailings] reservoir from getting too high,” including discharging “hundreds of millions of gallons of water” into the active mine pit itself, impairing Teck’s ability to mine high-grade ore.⁴⁴²

⁴³³ Dave Chambers, Robert Moran, Lance Trasky, Bristol Bay’s Wild Salmon Ecosystems and the Pebble Mine: Key Considerations for a Large-Scale Mine Proposal, Wild Salmon Center & Trout Unlimited (Jan. 2012) at 17, <https://www.wildsalmoncenter.org/wp-content/uploads/2016/02/PM-Report.pdf>.

⁴³⁴ T.E. Martin et al., Stewardship of Tailings Facilities, 20 Mining Minerals and Sustainable Development 2, 1 (April 2002), http://www.pebblescience.org/pdfs/tailings_stewardship-1.pdf.

⁴³⁵ Zongjie Lyu et al., A Comprehensive Review on Reasons for Tailings Dam Failures Based on Case History, Advances in Civil Engineering, 2019 Advances in Civ. Eng. 1 (2019), at 2, available at <https://www.hindawi.com/journals/ace/2019/4159306/> (“In the reported 18,000 mines around the world, the failure rate [of tailings dams] in the past 100 years is estimated at 1.2%. The failure rate of the traditional water storage dam is 0.01%.”). See also HR Wallingford, A Review of the Risks Posed by the Failure of Tailings Dams (2019), <https://damsat.org/wp-content/uploads/2019/01/BE-090-Tailings-dams-RI-Secured.pdf> (“The failure rate of tailings dams over the last one hundred years is estimated to be more than two orders of magnitude higher than the failure rate of conventional water retention dams.”).

⁴³⁶ Margaret Armstrong, Renato Petter & Carlos Petter, Why Have So Many Tailings Dams Failed In Recent Years?, 63 Resources Policy 101412 (2019), at 1, available at <https://www.sciencedirect.com/science/article/abs/pii/S030142071830610X>.

⁴³⁷ Lindsay Newland Bowker and David M. Chambers, The Risk, Public Liability and Economics of Tailings Storage Facility Failures (Jul. 2015), https://www.earthworksaction.org/files/pubs-others/BowkerChambers-RiskPublicLiability_EconomicsOfTailingsStorageFacilityFailures-23Jul15.pdf, at 1.

⁴³⁸ Northern Dynasty Mines Inc., Tailings Impoundment A – Initial Application Report, 9; Northern Dynasty Mines Inc., Tailings Impoundment G – Initial Application Report, 9, available at <http://dnr.alaska.gov/mlw/mining/largemine/pebble/water-right-apps/index.cfm>.

⁴³⁹ Earle A. Ripley, Robert E. Redman, & Adele A Crowder, Environmental Effects of Mining 65 (1996).

⁴⁴⁰ Watershed Assessment at 10-39.

⁴⁴¹ Nathaniel Herz, As Arctic warming accelerates, permafrost thaw hits Red Dog mine with \$20 million bill, Alaska Public Media (Sep. 1, 2020), <https://www.alaskapublic.org/2020/09/01/as-arctic-warming-accelerates-permafrost-thaw-hits-red-dog-mine-with-20-million-bill>.

⁴⁴² Id.

Second, dams at the mine site would face a particularly serious threat from earthquakes. The mine is located 125 miles from the Alaska Aleutian megathrust fault,⁴⁴³ which has been responsible for several of the largest earthquakes ever recorded, including the 1964 Prince William Sound earthquake (magnitude 9.2) and the Aleutian earthquake (magnitude 9.1). Earthquakes originating elsewhere could have far reaching impacts. In 2002, for example, the 7.9 Denali earthquake ruptured surfaces over 200 miles away, and caused shocks 2,000 miles away.⁴⁴⁴ Risk assessment and seismic mapping of the Pebble area is incomplete, and there is evidence that the nearest fault may be less than five miles from the mine.⁴⁴⁵

The project's current design standards also have serious issues that increase the risks. According to the most recent study undertaken to determine Pebble's potential vulnerability to earthquakes, "[t]he seismic studies conducted for the Proposed Pebble Mine are obsolete... Pebble's tailings dam stability analysis drastically understates the risk related to dam stability because it falsely locates the water table in an impossible location."⁴⁴⁶ Specifically, these studies suggest, "without any scientific justification, that the water table at the TSF embankment is much lower than evidence would indicate. As a result... [they] drastically overstate[] the stability of the Proposed Pebble Mine's critical infrastructure to earthquakes."⁴⁴⁷ And because the tailings facilities will need to contain waste in perpetuity, over the course of hundreds or thousands of years, the likelihood that they will face one or multiple earthquakes near the higher end of the predicted range is much greater than for facilities with a more conventional lifespan.

Earthquakes can cause dam failures in multiple ways. They can cause a dam to collapse outright due to shaking, or cause the dam to overflow due to a landslide.⁴⁴⁸ Earthquakes can also induce static liquefaction: a process by which soil loses its strength and behaves like a fluid, seriously damaging or causing the collapse of structures on top of it.⁴⁴⁹ Earthquakes can additionally cause "subsidence near underground mine workings,"⁴⁵⁰ risking collapse or leakage. Finally, the cumulative effects of smaller earthquakes can also lead to problems over time.⁴⁵¹

Dam failures could also be triggered by other causes, including high rain events, hurricanes, or rapid snow melt or ice accumulation,⁴⁵² and impoundments are also susceptible to erosion and

⁴⁴³ Northern Dynasty Mines Inc., Tailings Impoundment an Initial Application Report 5.

⁴⁴⁴ Bretwood Higman, Seismic Risk at the Pebble Mine, Pebble Science, http://pebblescience.org/Pebble-Mine/seismic_risk.html.

⁴⁴⁵ Id.

⁴⁴⁶ Bristol Bay Native Association et al., New Technical Information Relevant to the Environmental Review for the Pebble Mine (June 25, 2020) at 1, https://www.dropbox.com/sh/szyq8sxaim9qtrj/AAA9UTSxJqPImJI_BTvQasdIa?dl=0&preview=2020-0625+Ltr+to+USACE+re+new+technical+info+re+environmental+review+of+Pebble+Mine.pdf.

⁴⁴⁷ Id. at 7.

⁴⁴⁸ Higman, supra.

⁴⁴⁹ Institute of Professional Engineers of New Zealand, Liquefaction 1 (March 2011), <https://web.archive.org/web/20120926161116/http://www.ipenz.org.nz/ipenz/forms/pdfs/ChChFactSheets-Liquefaction.pdf>.

⁴⁵⁰ Higman, supra.

⁴⁵¹ Hauser, supra, at 15.

⁴⁵² Ecology and Env't, Inc., 2010, supra, at 91.

landslides.⁴⁵³ Furthermore, although the process is not well understood, static liquefaction can occur even in the absence of seismic activity.⁴⁵⁴

In the last two decades, tailings dam failures in the United States alone have caused an average annual volume of 83 million gallons of spillage each year.⁴⁵⁵ Even if a containment dam remains relatively stable, the facility can still fail from an environmental perspective: dams can generate significant amounts of dust and can impact groundwater quality due to seepage.⁴⁵⁶ In the case of Pebble Mine, expert review of tailings management systems described in the FEIS characterizes the “stability” of the tailings facilities as “questionable,”⁴⁵⁷ and the tailings management plans as “impracticable.”⁴⁵⁸

The impacts from tailings failures at mines like Pebble can be far-reaching. As of 2012, a failure at Bingham Canyon Mine—a copper, gold, and molybdenum mine similar to, but much smaller than the proposed Pebble Mine—had contaminated a full 72 square miles of groundwater.⁴⁵⁹ EPA’s Watershed Assessment describes the potential devastation of a dam failure at Pebble in detail: “suitable spawning and rearing habitat for salmon and other native fishes would be eliminated in the North Fork Kootenai River downstream of the tailings dam,” and recovery of the habitat “would likely take decades.”⁴⁶⁰ “Fish could be literally smothered and buried in the slurry... Fish would be likely to avoid these streams or experience lethality, reduced growth, or reduced abundance [in the future].... There can be little doubt that, during and in the years immediately following a tailings dam failure, suspended sediment concentrations would be sufficient to reduce fish populations for many kilometers downstream of a failed tailings dam.”⁴⁶¹

Ignoring the Watershed Assessment’s dire predictions, the FEIS only examined the water quality impacts of relatively small spills, omitting meaningful discussion of a full-scale tailings facility failure.⁴⁶² Examination of some of these smaller releases, however, makes clear that even a relatively minor spill would have significant impact: for example, the FEIS’s analysis of a rupture in the 82-mile-long concentrate slurry pipeline, concludes that even “this scenario causes elevated metals levels in downstream waters that would likely exceed water quality criteria.”⁴⁶³

While the FEIS failed to meaningfully evaluate impacts from a large-scale tailings containment failure—despite repeated requests to do so from Tribes, cooperating agencies, independent

⁴⁵³ Moran, *supra*.

⁴⁵⁴ Michael P. Davies, *Tailings Impoundment Failures: Are Geotechnical Engineers Listening?*, *Geotechnical News*, 31, 32 (Sept. 2002), available at http://www.pebblescience.org/pdfs/Dam_failuresDavies2002.pdf, at 32-33.

⁴⁵⁵ WISE Uranium Project, *Chronology of major tailings dam failures* (2020), <https://www.wise-uranium.org/mdaf.html>.

⁴⁵⁶ Martin, *supra*, at 10.

⁴⁵⁷ Cameron Wobus, *Comments on Pebble Project Final EIS*, Lynker Technologies (Aug. 2020), at 6.

⁴⁵⁸ *Id.* at 8.

⁴⁵⁹ Bonnie Gestring, *U.S. Copper Porphyry Mines : The Track Record of Water Quality Impacts Resulting From Pipeline Spills, Tailings Failures and Water Collection and Treatment Failures*, *Earthworks* (July 2012) at 7, https://www.earthworks.org/publications/us_copper_porphyry_mines/.

⁴⁶⁰ Watershed Assessment at 9-22-23.

⁴⁶¹ *Id.*

⁴⁶² Cameron Wobus, *Comments on Pebble Project Final EIS*, Lynker Technologies (Aug. 2020), at 2.

⁴⁶³ Pebble FEIS, at 4.27-77.

scientists, and stakeholders—EPA’s model of a failure of this magnitude at just one of the storage facilities indicates that the resulting flood “would dwarf the peak flows of even the largest rivers in the region,”⁴⁶⁴ potentially “scour[ing] the channel and floodplain... bury[ing] the existing channel and floodplain under [up to 20] meters of fine-grained sediment.”⁴⁶⁵ “For years after a tailings dam failure, settled tailings would be resuspended and carried downstream.”⁴⁶⁶ Potentially toxic constituents “would not settle out,” but instead would mix with river water and flow downstream to Bristol Bay.⁴⁶⁷

In summary, dam failure would likely cause significant or catastrophic effects for watersheds in the region, and recovery could take many years to decades,⁴⁶⁸ if indeed, “recovery” is even possible after such a devastating event. Independent expert analysis of a large-scale tailings dam failure reached similar conclusions, determining that “tailings from a dam breach would travel more than [~50 miles] downstream,”⁴⁶⁹ depositing tailings in at least 155 miles of streams currently mapped as salmon habitat, and an additional 435 miles of streams “identified as potentially suitable for salmon spawning and/or rearing.”⁴⁷⁰ According to the expert analysis, “it is extremely likely that these tailings would continue to Bristol Bay... clean-up would be unrealizable... [and] natural attenuation would likely take decades.”⁴⁷¹ The failure to consider the impacts of a large-scale catastrophic dam failure, said Rio Tinto’s former Head of Environment, “ignores one of the largest environmental risks posed by the project,” “cannot be justified,” and threatens “profound, permanent negative impact on downstream aquatic ecosystems and fisheries”:

By ignoring all potential catastrophic failure events, the release scenarios evaluated by the DEIS are anomalously small, representing only 1) 0.004% of produced bulk tailings that must be contained on-site forever; 2) 0.6% of produced pyritic tailings that must be contained on-site during operation; and 3) 0.4% of untreated process water that must be contained on-site during operation. Even a release of just five percent of the bulk or pyritic tailings is likely to have profound, permanent negative impact on downstream aquatic ecosystems and fisheries.⁴⁷²

EPA reiterated its concerns about the potential for a tailings dam failure in its DEIS comments to the Army Corps. EPA’s primary concern was the failure to “evaluate the potential release of tailings from the bulk TSF due to a dam breach or failure.”⁴⁷³ As a result, the DEIS underestimated the potential impacts from such a failure. In addition to assessing impacts from a potential tailings dam failure, EPA also recommended that “seismic safety factors and potential earthquake induced

⁴⁶⁴ Watershed Assessment at 9-16.

⁴⁶⁵ *Id.*

⁴⁶⁶ *Id.* at 9-28.

⁴⁶⁷ *Id.* at 9-32.

⁴⁶⁸ Ecology and Env’t, Inc., 2010, *supra*, at 99.

⁴⁶⁹ Cameron Wobus, *A Model Analysis of Flow and Deposition from a Tailings Dam Failure at the Proposed Pebble Mine*, Lynker Technologies (Mar. 2019), https://www.bbrsda.com/s/Lynker_TSFS_Pebble_Model-Final-Report-2je3.pdf, at a.

⁴⁷⁰ *Id.* at b.

⁴⁷¹ *Id.*

⁴⁷² Richard Borden, *Pebble Mine Draft Environmental Impact Statement Summary Comments*, at 4 (June 18, 2019).

⁴⁷³ EPA Comments on Draft EIS, at 2, 5.

stability impacts be assessed for these dams” to determine how the dams may be impacted by an earthquake.⁴⁷⁴

EPA also raised additional concerns over the risk of the tailings seepage and made plain that data was needed to support the conclusion that all the seepage would be collected and treated.⁴⁷⁵ The FEIS acknowledges that “[m]odeling of a catastrophic, very low-probability tailings release was requested by commenters, but [was] deemed inappropriate based on the Applicant’s permeable, flow-through design for the bulk tailings storage facility (TSF) main embankment.”⁴⁷⁶ The FEIS did not address the possibility of a tailings dam failure “based on the assertion that a tailings storage facility they haven’t designed yet will work.”⁴⁷⁷

This blatant disregard for analyses required by EPA is unacceptable and provides more than enough reason for EPA to exercise its 404(c) authority.

g) Impacts Will Act Cumulatively to Further Degrade Bristol Bay Fisheries

Each impact described above would occur simultaneously, creating effects and risks which would compound each other.⁴⁷⁸ Each stressor would reduce salmon resilience,⁴⁷⁹ acting in combination with others to reduce the suitability of salmon habitat, lower the availability of food resources, increase metal bioavailability, and impair genetic variability and disease resistance.⁴⁸⁰ Because salmon are crucial players in ecosystem health, these impacts taken together could severely limit ecosystem productivity.

In addition, the impacts of Pebble Mine on the Bristol Bay fisheries are larger than they may seem at first glance. While the mine will outright eliminate some populations of salmon, many aspects of the mine—such as the mine site itself, the access road, and the pipelines—will fragment the habitat of the overall salmon population.⁴⁸¹ Smaller populations are less genetically diverse and more vulnerable to extirpation,⁴⁸² magnifying the impact of other mining activities on local salmon subpopulations. The cumulative effects of eliminating many of these small populations of salmon across the region would have crucial effects on the overall health of the Bristol Bay fishery.

Bristol Bay’s salmon fishery is made up of many distinct, locally adapted populations,⁴⁸³ and the success and health of the Bristol Bay fishery depends on the fact that different populations do well in different years, smoothing local trends, ensuring a reliable return for the local economy, and

⁴⁷⁴ Id.

⁴⁷⁵ Id. at 3-5.

⁴⁷⁶ Pebble FEIS at ES-2.

⁴⁷⁷ Press Conference on Pebble FEIS with Dr. Cameron Wobus, United Tribes of Bristol Bay (July 2020).

⁴⁷⁸ Ecology and Env’t, Inc., 2010, supra, at 115.

⁴⁷⁹ Id. at 116.

⁴⁸⁰ Id.

⁴⁸¹ Hauser, supra, at 12.

⁴⁸² Ecology and Env’t, Inc., 2010, supra, at 41.

⁴⁸³ Ray Hilborn et al., Biocomplexity and Fisheries Sustainability, 100 PNAS 6564, 6564 (2003), available at <http://www.pnas.org/content/100/11/6564>.

guaranteeing relative predictability of food supplies in the region.⁴⁸⁴ Estimates strongly suggest that Bristol Bay salmon return is over twice as stable due to this diversity than if it was made up of only one population.⁴⁸⁵ Genetic diversity and thriving local populations are thus “critical” for keeping the fishery resilient, consistent, and productive.⁴⁸⁶ The proposed Pebble Mine has the potential to greatly reduce this diversity.

2. Pebble Mine Would Cause Unacceptable Adverse Effects to Bristol Bay Wildlife

a) If Salmon Fisheries Are Degraded, Degradation of the Entire Ecosystem Will Follow

Salmon are the foundation of “much of the coastal ecosystem,” and have been called a “keystone” species⁴⁸⁷ and a “cornerstone” resource⁴⁸⁸ because of their importance to the region’s environment. Because many animals feed on salmon⁴⁸⁹—and because salmon hugely affect ecosystem productivity and regional biodiversity through nutrient transportation⁴⁹⁰—what harms salmon also harms the wildlife that depend on them.

Salmon are invaluable to the ecosystem as a food source. Numerous species consume salmon at all life stages, from salmon eggs to spawned-out carcasses.⁴⁹¹ Salmon provide food sources to all types of terrestrial mammals, including carnivores like bears, “herbivores,”⁴⁹² many types of birds,⁴⁹³ and a wide variety of fish.⁴⁹⁴ Furthermore, salmon are an important food resource for several marine species as well, including beluga whales and sea lions, which will follow salmon hundreds of kilometers upstream.⁴⁹⁵ Salmon are important to more than megafauna; algae, fungi, bacteria, and many populations of invertebrates feed on salmon carcasses, and these species in turn sustain the ecosystem.⁴⁹⁶

⁴⁸⁴ Christopher Habicht et al., Genetic and Ecological Divergence Defines Population Structure of Sockeye Salmon Populations Returning to Bristol Bay, Alaska, and Provides a Tool for Admixture Analysis, 136 Transactions of the American Fisheries Society 82, 82 (2007), available at https://www.researchgate.net/publication/250020036_Genetic_and_Ecological_Divergence_Defines_Population_Structure_of_Sockeye_Salmon_Populations_Returning_to_Bristol_Bay_Alaska_and_Provides_a_Tool_for_Admixture_Analysis.

⁴⁸⁵ Daniel E. Schindler et al., Population Diversity and the Portfolio Effect in an Exploited Species, 465 Nature 609, 609 (2010), available at <http://www.nature.com/nature/journal/v465/n7298/abs/nature09060.html>. (Population Diversity)

⁴⁸⁶ Id.

⁴⁸⁷ Hauser, supra, at 5.

⁴⁸⁸ Mary F. Willson et al., Fishes and the Forest: Expanding Perspectives on Fish-Wildlife Interactions, 48 BioScience 455, 456 (1998), available at <https://academic.oup.com/bioscience/article/48/6/455/217861>. (Fish-Wildlife)

⁴⁸⁹ Hauser, supra, at 5.

⁴⁹⁰ Mary F. Willson and Karl C. Halupka, Anadromous Fish as Keystone Species in Vertebrate Communities, 8 Conservation Biology 489, 490 (1995), available at <http://www.jstor.org/stable/2386604>. (Keystone Species)

⁴⁹¹ Id. at 492.

⁴⁹² Id.

⁴⁹³ Id.

⁴⁹⁴ Id.

⁴⁹⁵ Id. at 493.

⁴⁹⁶ Willson et al., Fish-Wildlife, supra, at 457.

Scientists believe that the presence of salmon and the seasonal nature of their availability have shaped the evolution of aquatic and terrestrial consumers and that in many cases there has been co-evolution between predators and prey.⁴⁹⁷ Special effects of salmon consumption have been demonstrated in species as diverse as brown bears, mink, and bald eagles.⁴⁹⁸

Salmon are also crucial to the ecosystem because they transport nutrients into freshwater ecosystems. Salmon serve as a “conveyor belt,” carrying nutrients to freshwater ecosystems.⁴⁹⁹ Salmon accumulate over 95% of their biomass in the ocean,⁵⁰⁰ and when they return to freshwater, a “large fraction” of their marine-derived nutrients is incorporated into freshwater and terrestrial food webs.⁵⁰¹ Because salmon can migrate over 1,000 kilometers inland, these nutrient gains are felt throughout a wide geographical area.⁵⁰² Salmon-based nutrients are particularly important because in aquatic salmon ecosystems “primary production is often severely nutrient-limited.”⁵⁰³ Salmon provide a plentiful supply of both phosphorus and nitrogen.⁵⁰⁴ Furthermore, any reduction in salmon populations might severely impact this conveyor belt, as it has been predicted that the presence of salmon creates a positive feedback loop. Nutrients brought by spawning salmon enhance juvenile salmon growth and survivorship; declining numbers of spawning salmon can thus lead to reduced survival of juvenile salmon, which can in turn further reduce nutrients in affected ecosystems.⁵⁰⁵

Salmon-derived nutrients also make their way into nearby terrestrial ecosystems. For example, bears can transport extremely high proportions of salmon into terrestrial habitats.⁵⁰⁶ In addition to mammals, other animals are also responsible for transporting salmon away from streams, such as birds and insects.⁵⁰⁷ Once a carcass is transported into the terrestrial ecosystem, it is consumed by a variety of scavengers.⁵⁰⁸ Nutrients leach into the soils by excretion and decomposition, and are taken up by the vegetation,⁵⁰⁹ and it is thought that salmon play a “significant role” in the overall productivity of riparian ecosystems.⁵¹⁰

⁴⁹⁷ Id.

⁴⁹⁸ Willson and Halupka, Keystone Species, supra, at 493.

⁴⁹⁹ Daniel E. Schindler et al., Pacific Salmon and the Ecology of Coastal Ecosystems, 1 Frontiers in Ecology and the Environment 31, 31 (2002), available at <http://www.jstor.org/pss/3867962>. (Pacific Salmon)

⁵⁰⁰ Id., at 32.

⁵⁰¹ M. Ben-David et al., Fertilization of Terrestrial Vegetation by Spawning Pacific Salmon: The Role of Flooding and Predator Activity, 83 Oikos 47, 47 (1998), available at <https://www.jstor.org/stable/pdf/3546545.pdf>.

⁵⁰² Scott M. Gende et al., Pacific Salmon in Aquatic and Terrestrial Ecosystems, 52 BioScience 917, 918 (2002), available at <https://academic.oup.com/bioscience/article/52/10/917/355062?login=true>.

⁵⁰³ Robert J. Naiman et al., Pacific Salmon, Nutrients, and the Dynamics of Freshwater and Riparian Ecosystems, 5 Ecosystems 399, 401 (2002), available at <https://link.springer.com/content/pdf/10.1007/s10021-001-0083-3.pdf>.

⁵⁰⁴ Id., at 402; Schindler et al., Pacific Salmon, supra, at 32.

⁵⁰⁵ Schindler et al., Pacific Salmon, supra, at 32-33.

⁵⁰⁶ C. Jeff Cederholm et al., Pacific Salmon Carcasses: Essential Contributions of Nutrients and Energy for Aquatic and Terrestrial Ecosystems, 24 Fisheries Vol. 10, 6, 11 (1999), available at <https://afspubs.onlinelibrary.wiley.com/doi/pdf/10.1577/1548-8446%281999%29024%3C0006%3APSC%3E2.0.CO%3B2>.

⁵⁰⁷ Gende et al., supra, at 919.

⁵⁰⁸ Schindler et al., Pacific Salmon, supra, at 34.

⁵⁰⁹ Id.

⁵¹⁰ Cederholm et al., supra, at 12.

Salmon's ecosystem contributions are far-reaching. For example, since bear densities are correlated with salmon availability, and bears are important seed dispersers, the presence of salmon leads to better dispersal of seeds.⁵¹¹ As another example, salmon can lead to higher densities of insectivorous birds along salmon streams. Insectivorous birds eat insects that destroy vegetation, so increased salmon often leads to increased riparian vegetation.⁵¹²

Finally, salmon act as ecosystems engineers. They are an important source of mechanical energy, and intensively and regularly disturb benthic communities. This alters the composition of sediments and changes the topography of the substrate, which has many effects on the ecosystem, including increasing the survival of salmon eggs.⁵¹³

b) The Proposed Port Presents a Significant Threat to Endangered Cook Inlet Beluga Whales

Another threat the proposed Pebble Mine presents is to Cook Inlet beluga whales—a highly endangered, genetically distinct, and geographically isolated species. The mine's port would be built in Cook Inlet's Iliamna Bay—designated critical habitat for the Cook Inlet beluga.⁵¹⁴ This population has declined from as many as 1,300 in the late 1970s to an estimated 279 whales in 2018.⁵¹⁵ When Cook Inlet belugas were listed under the Endangered Species Act in 2008, the National Marine Fisheries Service ("NMFS") predicted that beluga whales had a 26% chance of extinction within 100 years and a 68% chance of extinction within 300 years.⁵¹⁶ More recent studies have placed the 100-year extinction risk between 0–14%, and the risk of population decline between 41–72%.⁵¹⁷ Because the Cook Inlet population is so isolated, if the current population of beluga whales disappears, it "would be 'highly unlikely' that other belugas would repopulate Cook Inlet."⁵¹⁸

NMFS listed Cook Inlet beluga whales as endangered under the Endangered Species Act in 2008, and designated critical habitat for the species in 2011.⁵¹⁹ NMFS designated more than 3,000 square

⁵¹¹ Gende et al., *supra*, at 923.

⁵¹² *Id.*

⁵¹³ Schindler et al., *Pacific Salmon*, *supra*, at 33.

⁴⁹⁴ *Cook Inlet Beluga Whale: Federally Endangered Critical Habitat*, Alaska Department of Fish and Game, <http://www.adfg.alaska.gov/index.cfm?adfg=specialstatus.fedhabitat&species=cookinletbeluga>.

⁵¹⁵ K.E.W. Sheldon and P.R. Wade, *(Delphinapterus leucas) in Cook Inlet, Alaska, June 2018*, NOAA Fisheries Cetacean Assessment and Ecology Program (December 2019), available at <https://apps-afsc.fisheries.noaa.gov/documents/PR2019-09.pdf>.

⁵¹⁶ National Marine Fisheries Service, *Conservation Plan for the Cook Inlet beluga whale (Delphinapterus leucas)* 1 (2008), available at <https://repository.library.noaa.gov/view/noaa/18275>. (Conservation Plan)

⁵¹⁷ Roderick C. Hobbs, Paul R. Wade & Kim E. W. Sheldon, *Viability of a small, geographically-isolated population of beluga whale, Delphinapterus leucas: effects of hunting, predation, and mortality events in Cook Inlet, Alaska*, 77(2) *Marine Fisheries Rev.* 59–88 (2015) at 59, available at <https://spo.nmfs.noaa.gov/sites/default/files/pdf-content/mfr7724.pdf>.

⁵¹⁸ National Marine Fisheries Service, *Conservation Plan*, *supra*, at 1.

⁵¹⁹ 73 Fed. Reg. 62927 (Oct. 22, 2008); 76 Fed. Reg. 20180 (Apr. 11, 2011).

nautical miles of Cook Inlet “critical” to the species’ survival, including the vast majority of Iliamna and Iniskin Bays.⁵²⁰ The mine threatens these whales in several critical ways.

First, the dredging necessary to create the port has the potential to re-suspend contaminants in the water. Significantly less dredging in other places than proposed here has “seriously impacted” other local populations of belugas, such as the Saint Lawrence beluga whale population, which was subject to dredging of only “up to 600,000 cubic meters of sediments.”⁵²¹ Here, “1,100,000 cubic yards [841,000 cubic meters] of material are anticipated to be initially removed for construction of the channel and turning basin, and an additional 700,000 cubic yards [535,000 cubic meters] of material would be removed during maintenance dredging” over the first twenty years of the mine’s operations.⁵²² This would add to significant dredging already occurring further north in Cook Inlet—a yearly average of 168,000 cubic meters of dredging in the Port of Anchorage between 2010 and 2015.⁵²³

Second, the port will cause higher traffic in the area, leading to increased water pollution and contaminants, vessel traffic, and noise. In addition to the increased risk of ship strikes on belugas, which is associated with significantly increased vessel traffic, the noise generated by this increase—resulting both from engine noise and cavitation around the propeller—is a particular threat because belugas have sensitive hearing and depend for their survival on their ability to hear and be heard. For example, beluga whales have been observed to react to ice breaking ships at distances of over 80 km, and were affected for up to two days following the event.⁵²⁴ Belugas use sound to communicate, navigate, breed, locate prey, and avoid predators, and the inevitable increase in both ambient noise and acute exposure to noise associated with port construction and operation poses a serious risk to this already endangered population.⁵²⁵

The FEIS determined that “[u]nderwater noise from vessels and aircraft would exceed disturbance (Level B) acoustic harassment thresholds; underwater noise from pile-driving would exceed injury (Level A) and disturbance (Level B) harassment thresholds,”⁵²⁶ and while “temporary construction-related noise levels would be monitored to reduce and minimize potential impacts... there would be a localized permanent increase in underwater noise.”⁵²⁷

⁵²⁰ 76 Fed. Reg. at 20180. See also <https://www.fisheries.noaa.gov/resource/map/beluga-whale-cook-inlet-dps-critical-habitat>.

⁵²¹ National Marine Fisheries Service, Conservation Plan, *supra*, at 55.

⁵²² Pebble FEIS, at 4.18-42.

⁵²³ US Army Corps. of Engineers, Environmental Assessment and Finding of No Significant Impact: Transition and Maintenance Dredging, Anchorage Harbor, Anchorage, Alaska (2017) at 11, available at <http://www.poa.usace.army.mil/Portals/34/docs/civilworks/publicreview/PortofAnchorageMaintenanceDredgingEAandFONSIMarch2017.pdf>.

⁵²⁴ National Marine Fisheries Service, Conservation Plan, *supra*, at 58-59.

⁵²⁵ *Id.*, at 58.

⁵²⁶ Pebble FEIS at 4.25-18.

⁵²⁷ *Id.*

3. Pebble Mine Would Cause Additional Future Impacts to the Ecology of the Region

All of the impacts discussed above relate directly to the proposed mine itself. However, if the Pebble Mine is built, it would inevitably attract additional mining and industrial development in the area, resulting in still larger impacts to the region.

First, it is common in the mining industry to secure a permit for a smaller mine and then later request permits for expansion.⁵²⁸ All indications are that Pebble Mine will be no different. As former PLP CEO Tom Collier put it, “we’ll come in at some point in the future and request an extension of the time and probably an expansion of how much we are producing on a daily basis.”⁵²⁹ Similarly, the CEO of NDM, Ronald Thiessen, said that “during [the first] 20 years, you’re going to make the application to continue for another 20... The first deposit that we’ve discovered at Pebble—and there will be more... lasts 180 years.”⁵³⁰ As such, it is reasonably foreseeable—indeed highly probable—that the mine will expand far beyond the initial 1.4 billion tons. Furthermore, once the mine is built—introducing critical infrastructure for development—it will open the region for industrial-scale mining even beyond the Pebble Mine project.⁵³¹

Second, development of the mine, and the infrastructure associated with it, would open broader access to the region, through roads, pipelines, energy infrastructure, and port facilities. It is foreseeable that the proposed roads will generate a wide range of increased traffic in the area, in the form of industrial, commercial, and other development and attendant activities, including other major mining projects.⁵³² These indirect effects will likely be cumulative and lead to the construction of still more roads and trails—which will in turn lead to more stream crossings, increased human and vehicle waste, increased competition for fish and wildlife, and increased demand for groundwater.⁵³³

Beyond the direct harm to the region posed by the proposed Pebble Mine, therefore, the potential indirect impacts of the project pose additional, significant threats to the resources of the region that section 404(c) was enacted to protect.

B. EPA SHOULD EXERCISE ITS AUTHORITY UNDER SECTION 404(c) AND VETO THE PEBBLE MINE

The best available science provides a compelling and legally sufficient factual basis for EPA to find that “unacceptable adverse effects” within the meaning of section 404(c) will occur in the Bristol Bay watershed if the Pebble Mine is developed. EPA should immediately use its authority under Section 404(c) to veto the Pebble Mine and permanently protect Bristol Bay.

⁵²⁸ Ecology and Env’t, Inc., 2010, *supra*, at 120-21.

⁵²⁹ Environmental Investigation Agency, *Pebble Tapes 1 - Scale of Mine* (2020), <https://vimeo.com/459804434>.

⁵³⁰ *Id.*; See also discussion *infra* at II.C.1.

⁵³¹ Hauser, *supra*, at 16.

⁵³² See discussion *infra* at VI.B.1.b and II.E.

⁵³³ Hauser, *supra*, at 14.

1. The Discharges Associated with the Pebble Mine Would Violate the Section 404(b)(1) Guidelines and, as a Consequence, Support a 404(c) Veto

EPA’s regulations provide that “[i]n evaluating the unacceptability of [404(c)] impacts, consideration should be given to the relevant portions of the section 404(b)(1) guidelines.”⁵³⁴ This regulation regarding “significant degradation on water of the United States” has figured prominently in EPA’s past section 404(c) actions. Other guidance regarding “secondary effects” and “cumulative effects” further inform the agency’s consideration of unacceptability under section 404(c). Consistent with the substantive criteria provided in those regulations and guidelines, EPA should find that the effects of the proposed Pebble Mine—or indeed any large-scale mine in the area—would result in “unacceptable adverse effects” on the fisheries, wildlife, and recreational economy of the Bristol Bay watershed within the meaning of section 404(c).

a) The Pebble Mine Would Cause Significant Degradation to the Waters of the United States, which Supports a Finding of Unacceptability Under Section 404(c)

The analysis under the “significant degradation” regulation includes four types of effects: 1) “[s]ignificantly adverse effects of the discharge of pollutants on human health or welfare”; 2) “[s]ignificantly adverse effects of the discharge of pollutants on life stages of aquatic life and other wildlife dependent on aquatic ecosystems”; 3) “[s]ignificantly adverse effects of the discharge of pollutants on aquatic ecosystem diversity, productivity, and stability;” and 4) “[s]ignificantly adverse effects of discharge of pollutants on recreational, aesthetic, and economic values.”⁵³⁵ Here, each of the enumerated effects supports a finding of “significant degradation” under section 404(c). Indeed, the Army Corps acknowledged this when it determined that Pebble would result in “significant degradation” and therefore “cannot be permitted under section 404 of the Clean Water Act.”⁵³⁶

(1) The Significant Adverse Effects on the Life Stages of Aquatic Life and Other Wildlife Dependent Species Are Unacceptable Under Section 404(c)

The combined effects of acid mine drainage, high levels of copper and other contaminants, and reduced stream flow will disrupt the life cycles of the aquatic species and the terrestrial wildlife

⁵³⁴ 40 CFR § 230.10(c) states in relevant part:

- (2) Significantly adverse effects of the discharge of pollutants on life stages of aquatic life and other wildlife dependent on aquatic ecosystems, including the transfer, concentration, and spread of pollutants or their byproducts outside of the disposal site through biological, physical, and chemical processes; and . . .
- (3) Significantly adverse effects of the discharge of pollutants on aquatic ecosystem diversity, productivity, and stability. Such effects may include, but are not limited to, loss of fish and wildlife habitat or loss of the capacity of a wetland to assimilate nutrients, purify water, or reduce wave energy.

⁵³⁵ 40 C.F.R. § 230.10(c).

⁵³⁶ US Army Corps, [Army finds Pebble Mine project cannot be permitted as proposed](https://www.army.mil/article/238426/army_finds_pebble_mine_project_cannot_be_permitted_as_proposed) (Aug. 24, 2020), https://www.army.mil/article/238426/army_finds_pebble_mine_project_cannot_be_permitted_as_proposed.

that depend on them. Bristol Bay is home to the world's largest run of sockeye salmon and Alaska's largest run of Chinook salmon. Both species are critically important to the health and survival of other species in the region, and both species are particularly sensitive to the kinds of impacts associated with large-scale metallic sulfide mining generally—and Pebble Mine specifically. Moreover, because of its proposed location at the headwater streams of the Nushagak and Kvichak drainages, the project presents an especially acute threat. Those streams are important spawning grounds for the region's salmon. Reduced flow downstream would impact all life stages, including the migration of adults, the viability of eggs, the emergence of fry, and the timing of smolt migration. As discussed in detail above, these impacts would reverberate through the ecosystem and disrupt a wide variety of other species.

The relationship between salmon and other wildlife in the region is complex and highly evolved. Growth rates, litter size, and reproductive success of a variety of species are determined in part by the robustness of the salmon population. For example, the scientific literature suggests that brown bears are larger in the Bristol Bay watershed due to their high-protein salmon-based diets, minks time their reproduction with the availability of salmon, and bald eagles experience greater reproductive success because of these fisheries.⁵³⁷ Because substantial scientific evidence establishes that the effects of large-scale metallic sulfide mining would endanger the life processes of aquatic and terrestrial species in the watershed, EPA should use its 404(c) authority to veto the Pebble Mine and protect Bristol Bay.

(2) The Significant Adverse Effects on Aquatic Ecosystem Diversity, Productivity, and Stability Are Unacceptable Under Section 404(c)

The significant habitat destruction, compromised water quality, and reduced water quantity associated with the proposed Pebble Mine will dramatically impact the aquatic ecosystem's diversity, productivity, and stability. According to the FEIS, Pebble would permanently destroy more than 105 miles of streams and 2,200 acres of wetlands, rising to 330 miles and 8,750 acres, respectively, in the Pebble Expansion Scenario.⁵³⁸ An additional 79 miles of streams and 1,600 acres of wetlands would be indirectly impacted from the mine's development.^{539 540} The sheer magnitude of the proposed mine and the vulnerability of a keystone species place the Bristol Bay watershed at a high risk of significant adverse effects. Accordingly, EPA should initiate action under section 404(c) to protect Bristol Bay.

⁵³⁷ Willson and Halupka, *Keystone Species*, *supra*, at 493; The Nature Conservancy of Alaska, *Alaska Peninsula and Bristol Bay Basin Ecoregional Assessment* 15 (2003), [https://www.conservationgateway.org/ConservationPlanning/SettingPriorities/EcoregionalReports/Documents/Alaska Peninsula and Bristol Bay Basin Ecoregional Assessment.pdf](https://www.conservationgateway.org/ConservationPlanning/SettingPriorities/EcoregionalReports/Documents/Alaska%20Peninsula%20and%20Bristol%20Bay%20Basin%20Ecoregional%20Assessment.pdf) at 75, 103.

⁵³⁸ Pebble FEIS at 4.22-111.

⁵³⁹ *Id.*

⁵⁴⁰ Hauser, *supra*, at 5.

(3) The Significant Adverse Effects on Human Health or Welfare Are Unacceptable Under Section 404(c)

It is appropriate to consider the effects of the proposed Pebble Mine on human health to the extent that the effects are tied to one of the section 404(c) factors. Here, human health and welfare are inextricably tied to the availability of a productive salmon fishery and healthy wildlife in and around Bristol Bay. Alaska Natives and Bristol Bay residents in the watershed depend—and have for millennia—on salmon for their subsistence, and reduced salmon stocks will seriously threaten their health, their way of life, and the survival of their communities. This connection between the indigenous people, the fish, and the wildlife of the Bristol Bay region and the threat to it posed by the Pebble Mine is not only relevant to a determination under section 404(c), but it implicates the federal government’s trust responsibilities and raise significant environmental justice concerns. As EPA’s Watershed Assessment notes, “the region’s salmon resources have supported Alaska Native cultures in the region for at least 4,000 years and continue to support one of the last intact wild salmon-based cultures in the world.”⁵⁴¹ And “[b]ecause the Alaska Native cultures in the Bristol Bay watershed have significant ties to specific land and water resources that have evolved over thousands of years, it is not possible to replace the value of any subsistence use areas lost to mine operations elsewhere... compensatory mitigation, restoration, or replacement in the case of a failure would be difficult, if not impossible.”⁵⁴²

Under these circumstances, EPA can properly find that the adverse environmental effects of the Pebble Mine will significantly jeopardize human health and welfare, and it should immediately use its authority under Section 404(c) to stop the Pebble Mine.

(4) The Significant Adverse Effects on Economic and Recreational Values Are Unacceptable Under Section 404(c)

Pebble Mine’s unacceptable adverse effects on the economic and recreational value of the natural resources in the Bristol Bay region will be significant. Bristol Bay is the world’s most valuable salmon fishery, supplying 57% of the world’s wild sockeye, generating \$2.2 billion in annual economic activity, and supporting 15,000 jobs in 2019.⁵⁴³ Equally as important, in 2017 subsistence fishers caught approximately 116,303 salmon—an estimated 503,890 pounds of usable fish—with a \$5-\$10 million replacement value for Alaska households.⁵⁴⁴ This translates to about \$4,500 to \$9,000 in nutritional value to each participating household.⁵⁴⁵ Subsistence fishing is a critical part of the local economy, allowing residents of the region to avoid food insecurity and limit the costs associated with food importation.⁵⁴⁶

⁵⁴¹ Watershed Assessment, at 5-31.

⁵⁴² *Id.* at 14-13.

⁵⁴³ McKinley Research Group, LLC, *The Economic Benefits of Bristol Bay Salmon* (Feb. 2021) at ES-1 to ES-5, 16, https://stoppebbleminenow.org/wp-content/uploads/2021/03/Final-Economic-Benefit-of-Bristol-Bay-Salmon-3_17_21.pdf.

⁵⁴⁴ *Id.* at ES-1.

⁵⁴⁵ *Id.*

⁵⁴⁶ McKinley Research Group, LLC, *The Economic Benefits of Bristol Bay Salmon, Summary* (Feb. 2021) at 3, https://stoppebbleminenow.org/wp-content/uploads/2021/03/Summary-Document-Economic-Benefits-of-Bristol-Bay-Salmon-3_17_2021.pdf.

Similarly, recreation in the region provides significant economic value: “While in Bristol Bay, sportsmen spend millions and contribute to the employment of lodge owners, guides, pilots, and other staff.”⁵⁴⁷ According to a recent study, Bristol Bay tourism generated \$155 million in economic output for Alaska in 2019, including more than 2,300 seasonal jobs and \$67.9 million in labor income.⁵⁴⁸ Roughly 90 lodges and camps in the region cater to tourists, with a primary focus on sportfishing and bear viewing.⁵⁴⁹ Indeed, that study estimated that, during the last five years, more than 20,000 sportsmen fished in Bristol Bay annually.⁵⁵⁰ An estimated 20,000 people participated in bear viewing during trips to Katmai National Park and Preserve and Lake Clark National Park and Preserve in 2019.⁵⁵¹ A reduction in quality salmon habitat, as described in previous sections, would have major implications for Bristol Bay’s desirability as a sport fishing destination. Likewise, degraded water quality and poorer fishing stock would irreparably harm the region’s wildlife, including several species of charismatic megafauna like bears, which are a magnet for hunters and tourists to the region.

The harm to these vital Alaskan industries caused by the threatened degradation to fisheries, wildlife, and local ecosystems described in previous sections would be substantial. EPA has more than enough evidence to justify a finding that Pebble Mine’s adverse environmental effects would significantly and unacceptably endanger economic and recreational value in the region.

b) The Pebble Mine Would Cause Significant Adverse Cumulative Effects, which Support a Finding of Unacceptability Under Section 404(c)

The cumulative effects of the discharges directly associated with the proposed Pebble Mine—and the additional development that would necessarily accompany large-scale metallic sulfide mining in the region—would be significant and adverse. Building the Pebble Mine would inevitably and irrevocably open the region to significant industrial development inconsistent with the sustainable use and conservation of its natural resources.

EPA should anticipate and consider cumulative effects, including the discharges that may result from building a power plant to run Pebble Mine, the roads and culverts over which trucks will travel, the pipelines carrying slurry, natural gas, and diesel, and the dredging and infrastructure required to build a port. The agency should also consider the likelihood that Pebble Mine will expand as the ore body is developed, causing greater impacts than current projections estimate. Finally, EPA should consider the numerous other mining claims that currently have been staked but whose success or failure are dependent on the industrial foundation that Pebble Mine would provide in this pristine, now-undeveloped region.

⁵⁴⁷ Bristol Bay Native Corporation, Economic Value of Bristol Bay: A National Treasure, <https://www.bbnc.net/wp-content/uploads/2017/05/BBNC-Pebble-Mine-Economic-Value-of-Bristol-Bay.pdf>.

⁵⁴⁸ McKinley Research Group, LLC, The Economic Benefits of Bristol Bay Salmon, Summary (Feb. 2021) at 6, https://stoppebbleminenow.org/wp-content/uploads/2021/03/Summary-Documents-Economic-Benefits-of-Bristol-Bay-Salmon-3_17_2021.pdf.

⁵⁴⁹ Id.

⁵⁵⁰ Id.

⁵⁵¹ Id.

2. Vetoing Pebble Mine is Consistent with EPA's Past Section 404(c) Actions

Vetoing Pebble Mine to provide lasting protection of Bristol Bay and its wild salmon ecosystem would be consistent with EPA's past exercise of its section 404(c) authority. The agency has intervened under section 404(c) on thirteen prior occasions,⁵⁵² and in every case its intervention has been upheld.⁵⁵³ In this case, the scale and scope of the potential significant adverse impacts of the Pebble Mine substantially exceed all but one example of impacts threatened by the projects the agency has vetoed in past 404(c) determinations.⁵⁵⁴ This precedent, coupled with the overwhelming evidence that mining in the pristine Bristol Bay watershed will have devastating and unavoidable consequences, strongly favors EPA intervention under section 404(c) to stop the Pebble Mine and protect Bristol Bay.

a) The Fisheries Impacts Would Surpass Those EPA Has Addressed in Prior 404(c) Determinations and Warrant a Finding of Unacceptability.

A project's impact on fisheries has been an important consideration in EPA's past actions under section 404(c).⁵⁵⁵ In several cases, the agency has focused on the diversity of fish species affected, recreational fishing considerations, the monetary value of the fishery, the health of the existing fish populations, and the effect on headwater streams.⁵⁵⁶ The salmon of Bristol Bay sustain a commercial fishery worth \$2.2 billion annually, offer significant recreational value, and support Alaska Natives who hunt and fish for their subsistence.⁵⁵⁷ Never before has EPA considered a 404(c) action that was so compelling due to the scale and seriousness of the adverse impacts or so fully supported by the precedent of past 404(c) actions.

⁵⁵² Riley and Yocum, Mining the Pebble Deposit: Issues of 404 compliance and unacceptable environmental impacts, at 39-41, Table 3.

⁵⁵³ EPA, Chronology of CWA Section 404(c) Actions (2015), <https://www.epa.gov/cwa-404/chronology-cwa-section-404c-actions> (showing that 404(c) has been used on thirteen prior occasions: Spruce Mine No. 1 (6.6 miles of streams affected), Yazoo Backwater Area Pumps Project (66,941 acres of wetland), Two Forks Water Supply Impoundments (299 acres of wetland, 30.1 miles of streams), Big River Water Supply Impoundment (794 acres of wetland), Ware Creek Supply Impoundment (381 acres of wetland, 44 acres of open waters), Lake Alma Impoundment (1,155 acres of wetland), Henry Rem (432 acres of wetland), Russo Development Corporation Site (57.5 acres of wetland), Sweedens Swamp Site (45 acres of wetland), Bayou Aux Carpes Site (3000 acres of wetland), Jack Maybank Site (900 acres of wetland), M.A. Norden Company Site (25 acres of wetland), North Miami Landfill Site (103 acres of wetland)).

⁵⁵⁴ Id.; Letter from David Hobbie of the U.S. Army Corps of Engineers to James Fuego of the Pebble Limited Partnership (Aug. 20, 2020) (stating that the direct and indirect impacts of Pebble Mine will total 3285 acres of wetland, 363.7 acres of open waters, and 165 miles of streams).

⁵⁵⁵ See, e.g., M.A. Norden Veto, 29 Fed. Reg. 29,142 (July 18, 1984); U.S. Env'tl. Prot. Agency, Final Determination of the EPA's Assistant Administrator for External Affairs concerning the Bayou Aux Carpes Site in Jefferson Parish, Louisiana Pursuant to Section 404(c) of the Clean Water Act, 11 (1985) (Nov. 15, 1985) (noting the presence of at least 15 species that were important to commercial and sport fishers.)

⁵⁵⁶ Id.

⁵⁵⁷ NRDC, Stop the Pebble Mine, Save Bristol Bay, <https://www.nrdc.org/stop-pebble-minesave-bristol-bay>.

For example, in the first ever 404(c) action, the North Miami Landfill veto, EPA expressed concern regarding adverse effects from potential future leaching of toxic chemicals into lakes, adjacent wetlands, the water table, and Biscayne Bay and their effects on Florida's shellfish and fishery areas.⁵⁵⁸ The Corps issued a permit for the North Miami Landfill contingent on adherence to state environmental standards and a with bond that would protect both the state's environmental interests and provide funds if corrective work became necessary.⁵⁵⁹ Despite these reassurances, EPA vetoed the permit under 404(c) because EPA felt that potential future leaching would have significant adverse effects on freshwater and saltwater fish and invertebrates.⁵⁶⁰ In deciding to veto the permit, EPA explicitly stated:

North Biscayne Bay is an important recreational fishing area. It also supports commercial fisheries for bait shrimp and bait fish. Portions of the Bay, including the mangrove wetlands, serve as essential nursery grounds for marine fish and invertebrates which play an important role in the food web which supports such fisheries. The Bay and its mangroves also serves as a major feeding area for numerous colonial nesting birds and other wildlife.⁵⁶¹

Similarly, if “Bristol Bay” and “salmon” were substituted for “North Biscayne Bay” and “bait shrimp and bait fish,” the rationale for vetoing the Miami Landfill could be transposed into a veto for Pebble Mine. Biscayne Bay and Bristol Bay both support vitally important commercial and recreational fisheries. Further, in the case of Pebble Mine, the risks are even larger than what was at risk in Florida. In the North Miami Landfill action, only 103 acres of wetlands were affected. With Pebble, which will impact more than 3,000 acres of wetlands, the damage will be more than 30 times as large in terms of wetlands impacts alone, not even considering the additional impacts to open waters and streams that are part of the proposed Pebble Mine.⁵⁶²

In its most recent 404(c) action, the Spruce No.1 Surface Mine in 2011, EPA vetoed the Corps' approval of a mining project after permitting had been completed—and five years after construction and operation had begun. The proposed site for the Spruce No. 1 Mine was within the headwaters of the Spruce Fork of the Little Coal River. Throughout the permitting process, EPA raised numerous concerns about the project that mirror the concerns raised about Pebble. These concerns included adverse effects on water quality, uncertainty with the proposed mitigation, potential environmental justice issues, and inadequate consideration of cumulative effects.⁵⁶³ In particular, EPA noted the importance of headwater streams that perform important ecological

⁵⁵⁸ U.S. Env'tl. Prot. Agency, Final Determination Of The Administrator Concerning The North Miami Landfill Site Pursuant To Section 404(c) Of The Clean Water Act 5-10 (Jan. 19, 1981) [hereinafter MIAMI EPA FINAL DETERMINATION], summarized in 46 Fed. Reg. 10,203 (Env'tl. Prot. Agency Feb. 2, 1981).

⁵⁵⁹ See Letter from Michael Blomenfeld, Assistant Secretary, Dep't of the Army, to Barbara Blum, Deputy Administrator, Env'tl. Prot. Agency (June 18, 1990).

⁵⁶⁰ Miami EPA Final Determination, *supra*, at 8.

⁵⁶¹ Id. at 10.

⁵⁶² Compare, Letter from David Hobbie, *supra*, (stating that the direct and indirect impacts of Pebble Mine will total 3285 acres of wetland, 363.7 acres of open waters, and 165 miles of streams), with Miami EPA Final Determination (stating the North Miami Landfill will impact 103 acres of wetlands).

⁵⁶³ U.S. ENVTL. PROT. AGENCY, FINAL DETERMINATION OF THE U.S. ENVIRONMENTAL PROTECTION AGENCY PURSUANT TO § 404(C) OF THE CLEAN WATER ACT CONCERNING THE SPRUCE NO. 1 MINE, LOGAN COUNTY, WEST VIRGINIA 18-19 (Jan. 13, 2011) [Hereinafter SPRUCE EPA FINAL DETERMINATION].

functions, including processing and transport of nutrients and habitat diversity for a wide range of animals.⁵⁶⁴ EPA also emphasized the difficulties of mitigating the loss of those streams.⁵⁶⁵ Ultimately, EPA vetoed the project five years after permitting had been completed, citing unacceptable adverse impacts to fish and wildlife due to the loss of 6.6 miles of headwater streams and the negative effects those losses would cause downstream.⁵⁶⁶

EPA's rationale for vetoing the Spruce No. 1 Mine also supports a 404(c) veto here. Indeed, here the concerns are magnified given that Pebble will impact 165 miles of streams (versus Spruce Mine's impact of just 6.6 miles of streams).⁵⁶⁷ Just as Spruce Mine was located at the headwaters, so too is the Pebble Mine: at the headwaters of the planet's greatest wild salmon fishery.⁵⁶⁸ For Spruce Mine, EPA noted the loss of habitat for "84 taxa of macroinvertebrates, up to 46 species of amphibians and reptiles, 4 species of crayfish, and 5 species of fish, as well as birds, bats, and other mammals."⁵⁶⁹ EPA has already determined that Pebble would similarly cause loss of habitat for coho salmon, sockeye salmon, Chinook salmon, rainbow trout, and Dolly Varden as well as countless invertebrates.⁵⁷⁰ For Spruce Mine, EPA spotlighted the important ecosystem functions that would be lost downriver.⁵⁷¹ For Pebble, the EPA has likewise already determined that "[i]ndirect effects of stream and wetland losses would include reductions in the quality of downstream habitat for coho salmon, sockeye salmon, Chinook salmon, rainbow trout, and Dolly Varden."⁵⁷²

Although these indirect effects cannot be quantified, such effects would be expected to diminish fish production downstream of the mine site because fish depend on these habitats.⁵⁷³ Further, EPA research predicts the "[n]ear-complete loss of North Fork Kaktuli River fish populations downstream of the [Pebble Mine] and additional fish population losses in the mainstem Kaktuli, Nushagak, and Mulchatna Rivers" as a result of habitat loss caused by the mine.⁵⁷⁴ EPA rightfully utilized its 404(c) authority in the Spruce No. 1 Mine case and should do so for Pebble—which not only raises similar concerns as Spruce Mine but also at a much greater magnitude.

The salmon of Bristol Bay sustain a commercial fishery worth \$2.2 billion annually, offer significant recreational value, and support Alaska Natives who hunt and fish for their subsistence.⁵⁷⁵ Central to the cultural heritage of the people who live in the region, salmon are also an irreplaceable keystone species that play an equally critical role in defining the ecological characteristics of the region. In addition, Bristol Bay is one of the last places on earth to produce

⁵⁶⁴ *Id.* at 6-7.

⁵⁶⁵ *Id.* at 21.

⁵⁶⁶ Spruce No. 1 Mine, 76 Fed. Reg. 3126 (Jan. 19, 2011) (final determination).

⁵⁶⁷ Letter from David Hobbie, *supra*.

⁵⁶⁸ NRDC, *Stop the Mine, Save Bristol Bay*, <https://www.nrdc.org/stop-pebble-mine-save-bristol-bay>.

⁵⁶⁹ Spruce No. 1 Mine, 76 Fed. Reg. 3126, 3127 (Jan. 19, 2011).

⁵⁷⁰ Watershed Assessment at ES-14–ES-15.

⁵⁷¹ Spruce No. 1 Mine, 76 Fed. Reg. 3126, 3127–28 (Jan. 19, 2011)..

⁵⁷² Watershed Assessment at ES-14.

⁵⁷³ *Id.*

⁵⁷⁴ *Id.*

⁵⁷⁵ McKinley Research Group, LLC, *The Economic Benefits of Bristol Bay Salmon, Summary* (Feb. 2021), <https://stoppebbleminenow.org/wp-content/uploads/2021/03/Summary-Documents-Economic-Benefits-of-Bristol-Bay-Salmon-3-17-2021.pdf>.

abundant sockeye salmon runs. The circumstances here are therefore even more compelling than those considered in other section 404(c) proceedings where fisheries impacts were comparatively small. Never before has EPA had to consider the fate of such a culturally and ecologically important fishery like Bristol Bay. The special significance of salmon to the Bristol Bay watershed, its people, and its wildlife – and the threat to all of them if the proposed Pebble Mine is permitted – strongly support EPA action in this case.

b) The Size and Scope of the Project Support a Finding of Unacceptability Under Section 404(c)

The sheer size and scope of Pebble Mine surpass all but one project EPA has reviewed under section 404(c).⁵⁷⁶ One way to compare the proposed Pebble Mine with past cases is by measuring the area of inundated surface directly impacted by the proposed dredge and fill. According to the FEIS, the proposed Pebble Mine would impact 165 miles of streams.⁵⁷⁷ In EPA's final determination in the Spruce Mine case, the agency placed significant weight on the many miles of streams in jeopardy. In that case, EPA stated in the final determination:

The filling in and complete destruction of the 6.6 miles of streams at issue here is a large impact and clearly adverse to the wildlife that will be buried under thousands of tons of excess spoil.⁵⁷⁸

Here, Pebble Mine will impact twenty-five times more miles of streams than what, in the past, has been enough to trigger Section 404(c) action.

In addition, the Pebble Mine is expected to impact 3,285 acres of wetlands.⁵⁷⁹ In other cases, EPA has concluded that the destruction of less than 1,000 acres of inundated wetlands could support a determination of unacceptability.⁵⁸⁰ For example, in the Sweedens Swamp case, EPA vetoed a project that would have impacted just 32 acres of wetland because EPA concluded that although the swamp was not “a unique wetland [or] habitat for endangered species,” it warranted protection because of its value as a healthy functioning wetland.⁵⁸¹ In another case, EPA vetoed a project that would have impacted 432 acres of wetlands, because EPA determined the project would result in lost fish and wildlife habitat, food chain production, and pollution filtration systems.⁵⁸²

⁵⁷⁶ Letter from David Hobbie, supra.

⁵⁷⁷ Id.

⁵⁷⁸ EPA, Final Determination of the U.S. Environmental Protection Agency Pursuant to § 404(c) of the Clean Water Act Concerning the Spruce No. 1 Mine, Logan County, West Virginia, at 20 (2011).

⁵⁷⁹ Letter from David Hobbie, supra (stating that the direct and indirect impacts of Pebble Mine will total 3285 acres of wetland, 363.7 acres of open waters, and 165 miles of streams).

⁵⁸⁰ See, e.g., Big River Veto, 55 Fed. Reg. 10,666 (Mar. 22, 1990) (575 acres of wetland); Sweedens Swamp Veto, reported at 51 Fed. Reg. 22,977, 22,978 (June 24, 1988) (32 acres of wetland); Jack Maybank Veto, 50 Fed. Reg. 20,291 (May 15, 1985) (900 acres of wetland).

⁵⁸¹ EPA, Final Determination of the Assistant Administrator for External Affairs Concerning the Sweedens Swamp Site in Attleboro, Massachusetts Pursuant to Section 404(C) of the Clean Water Act, 8 (May 13, 1986).

⁵⁸² Henry Rem Estate, Marion Becker, et al. and Senior Corporation, 53 Fed. Reg. 30,093, 30,094 (Env'tl. Prot. Agency Aug. 10, 1988)

The impacts from the proposed Pebble Mine would far surpass the impacts in past projects that EPA vetoed under 404(c). The Pebble Mine would impact 3,285 acres of wetlands—an impact 100 times greater than what was vetoed in Sweedens Swamp. In other words, the size of the proposed Pebble Mine project is unprecedented in comparison to past section 404(c) proceedings. Coupled with the enormity of the impacts of the mine are the same environmental concerns that have spurred EPA action in the past, such as lost functioning wetland, fish and wildlife habitat, food chain production, and pollution filtration systems. If those past projects supported action under 404(c), then Pebble demands it. The magnitude of the impacts is clear. 404(c) precedent plainly supports EPA’s veto of the Pebble Mine.

A mere calculation of the number of inundated acres affected, however, does not fully capture the scope of what is at stake in the case of Pebble Mine. Not only does such a measure ignore the many cumulative and secondary effects of large-scale mining in the region – detailed at length above – but it ignores the pristine quality and enormous scale of the ecosystem that Pebble Mine would jeopardize. Never before has a potential discharge so manifestly threatened such an abundance of pristine wilderness at once.

c) The Impacts on Headwater Streams Are Significant and Support a Finding of Unacceptability Under Section 404(c)

Headwater streams provide numerous services that are essential to ecosystems and are key to sustaining fish downstream.⁵⁸³ When the natural flows of headwater streams are altered – as proposed here – downstream water quality is impaired.⁵⁸⁴ In the Spruce Mine proceeding, EPA emphasized that the discharges at issue would have impacted important headwater streams in the region.⁵⁸⁵ Just as important as the project’s size was the agency’s recognition of the important function headwater streams provide in a healthy, functioning ecosystem. Taking note of the science, EPA wrote:

Many studies now point to the role headwater streams play in the transport of water, sediments, organic matter, nutrients, and organisms to downstream environments; their use by organisms for spawning or refugia; and their contribution to regional biodiversity Additionally, destruction or modification of headwater streams has been shown to affect the integrity of downstream waters, in part through changes in hydrology, chemistry and stream biota⁵⁸⁶

At least as devastating as what was proposed at the Spruce Mine in West Virginia, Pebble Mine would appropriate ground and surface waters within the proposed area of the mine, including the headwaters of the North and South Forks of the Koktuli River and the Upper Talarik Creek.⁵⁸⁷ Those headwaters would be subject to mine use over the entire life of the mine – severely limiting the extent to which salmon can return to their upstream spawning area and jeopardizing important

⁵⁸³ NRDC, Comments on the Draft Environmental Impact Statement and Permit Application (POA-2017-00271) for the Proposed Pebble Project (July 19 2020), at 55.

⁵⁸⁴ Id.

⁵⁸⁵ Watershed Assessment, at 11.

⁵⁸⁶ Id.

⁵⁸⁷ Watershed Assessment.

aquatic and riparian habitats.⁵⁸⁸ If EPA carefully considers the effects on headwater streams, it must find, as it did in 2014 in the Watershed Assessment, that the proposed Pebble Mine poses unacceptable environmental impacts to the Bristol Bay watershed.

V. EPA MAY NOT ENGAGE IN A COST-BENEFIT ANALYSIS UNDER CLEAN WATER ACT SECTION 404(c)

EPA’s consideration of costs when exercising 404(c) authority became a point of contention in *Mingo Logan*.⁵⁸⁹ Although the majority opinion held that Mingo Logan had forfeited the argument that EPA was required to consider costs before “veto[ing]” the permit,⁵⁹⁰ then-Judge Kavanaugh, in dissent, argued that EPA was obligated to consider the cost of this veto to the mining company. Judge Kavanaugh’s argument, however, ignores the congressional intent evidenced by the legislative history of Section 404(c) and EPA’s own interpretation of the factors it is permitted to consider—which notably does *not* include costs.

EPA’s power under 404(c) is both wide in its discretion and narrowly focused on the environmental priorities of the Clean Water Act. Section 101 of the Clean Water Act establishes the objective to “restore and maintain the chemical, physical, and biological integrity of the Nations’ waters.”⁵⁹¹ To achieve this objective, the Act prioritizes the goal of protecting fish, shellfish, and recreation on water.⁵⁹² Section 404(c) does so, too, and notably it contains no reference to, or authority for considering, the potential economic impact of exercising 404(c) authority. Economic considerations are irrelevant and may not be considered.

Although costs may not be considered by EPA in its exercise of 404(c) authority, this factor is not completely excluded from consideration throughout the Section 404 permit application process. Appropriately, costs and economic impacts are considered by the Army Corps. The Army Corps must consider an array of factors bearing on the practicability and desirability of permitting the construction of a dam – or in issuing any dredge and fill permit under section 404 – including whether the project is in the public interest.⁵⁹³ On the other hand, EPA’s authority under Section 404(c) is narrowly focused on the considerations of the adverse impacts to the environment, as evidenced by courts’ interpretation of EPA’s role.

For example, the Court of Appeals for the Fourth Circuit has considered the relationship between the Army Corps’ role in the Section 404 permitting process and EPA’s 404(c) authority. Significantly, it concluded that Section 404(c) allows EPA to consider the environment at the exclusion of other values.⁵⁹⁴ Because EPA’s authority to veto is based only on its obligation to

⁵⁸⁸ *Id.*

⁵⁸⁹ *Mingo Logan Coal Co. v. EPA*, 829 F.3d 710, 719-20 (2016).

⁵⁹⁰ *See id.*

⁵⁹¹ 42 U.S.C. §1251(a).

⁵⁹² *Id.* § 1251(a)(2). *See also City of Alma v. United States*, 744 F. Supp. 1546, 1562 (S.D.Ga.1990) (“[T]he CWA grants EPA wide discretion to employ section 404(c) as it deems appropriate.”)

⁵⁹³ *James City County v. EPA*, 12 F.3d 1330, 1336 (4th Cir. 1993).

⁵⁹⁴ *Id.*

protect the environment,⁵⁹⁵ the Court of Appeals observed that EPA’s authority “is practically unadorned,” holding that the agency may rest its decision to intervene under Section 404(c) solely on a finding of unacceptable adverse effects to the environment.⁵⁹⁶

Additionally, the D.C. District Court similarly concluded that “the [EPA] Administrator’s exercise of discretion [as to whether to exercise 404(c) authority] must relate to whether the permit will ‘have an unacceptable adverse effect *on municipal water supplies, shellfish beds and fishery areas..., wildlife, or recreational areas.*’”⁵⁹⁷ Relying on any factors outside those statutorily mandated by Congress, such as the economic impact of exercising 404(c) authority, is arbitrary and capricious.⁵⁹⁸ Economic factors are properly addressed by the Army Corps during the course of permitting, and are irrelevant factors for EPA to consider when considering whether to exercise its 404(c) authority.

Section 404(c)’s legislative history suggests that Congress intended the section to serve purely as an environmental check on the Army Corps’ permitting authority under Section 404. An early House amendment to the bill would have given the Army Corps the power to administer the permitting of dredged or fill material without EPA oversight. Instead, the Army Corps would have been, by itself, “required to determine that the discharge would not unreasonably degrade or endanger human health, welfare, or amenities or the marine environment, ecological systems, or *economic potentialities.*”⁵⁹⁹ That scheme for the Section 404 permit program did not survive the House and Senate conference committee. According to the conference committee report:

The conferees agree that the Administrator of the Environmental Protection Agency shall have authority to prohibit specification of a site and deny or restrict the use of any site for the disposal of any dredge or fill material which he determines will adversely affect municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas.⁶⁰⁰

It was this formulation of Section 404(c) that made its way into the final version of the bill. The decision to abandon the language of economics and rest the oversight authority with EPA suggests what courts and EPA have always understood: that Section 404(c) was intended to fulfill the

⁵⁹⁵ Id.; see also Nat’l Mining Ass’n v. Jackson, 816 F. Supp. 2d 37, 44 (D.D.C. 2011) (“The statute is... not ambiguous, as it establishes the Corps as the principal player in the permitting process, and then specifies certain roles for the EPA to play in that process. Thus, if a responsibility involving the permitting process has not been delegated to the EPA by Congress, that function is vested in the Corps as the permitting authority.”). Congress has given specific instructions about the factors EPA must consider in exercising 404(c) authority. Unenumerated factors should not be considered by EPA. The statute is clear—“Congress obviously intended the Corps of Engineers in the initial permitting process to consider the total range of factors bearing on the necessity or desirability of building a dam in the Nation’s waters.” James City County, 12 F.3d, at 1335. Thus, it is appropriate that cost considerations are vested in the Corps as the permitting authority, whereas the only consideration delegated to EPA by Congress are adverse effects to the environment.

⁵⁹⁶ James City County, 12 F.3d at 1336.

⁵⁹⁷ Alliance to Save the Mattaponi v. United States EPA, 606 F. Supp. 2d 121, 140 (D.D.C. 2009)

⁵⁹⁸ Id.

⁵⁹⁹ JOINT EXPLANATORY STATEMENT OF THE COMMITTEE OF CONFERENCE, Pub. L. No. 92-500 reprinted in 1 Legislative History of the Federal Water Pollution Control Act Amendments of 1972, at 324 (1973)(emphasis added).

⁶⁰⁰ Id. at 325.

environmental and ecological priorities of the Clean Water Act.

EPA itself has supported the position that 404(c) mandates the consideration of only environmental factors. The agency has defined “unacceptable adverse effect” as “impact on an aquatic or wetland ecosystem which is likely to result in significant degradation of municipal water supplies (including surface or ground water) or significant loss of or damage to fisheries, shellfishing, or wildlife habitat or recreation areas.”⁶⁰¹ In EPA’s statement of purpose accompanying the rulemaking establishing this definition, the agency explained that:

[S]ection 404(c) does not require a balancing of environmental benefits against non-environmental costs such as the benefits of the foregone project. This view is based on the language of 404(c) which refers only to environmental factors. The term “unacceptable” in EPA’s view refers to the significance of the adverse effect—e.g. is it a large impact and is it one that the aquatic and wetland ecosystem cannot afford.⁶⁰²

EPA emphasized that “there is no requirement in 404(c) that a cost/benefit analysis be performed, and there is no suggestion in the legislative history that the word ‘unacceptable’ implies such a balancing.”⁶⁰³ Indeed, Senator Muskie’s discussion of the Administrator’s responsibilities with respect to the “veto” power demonstrate the factors that Congress intended EPA to consider. “[T]he Administrator must determine that the material to be disposed of will not adversely affect the municipal water supplies, shellfish beds and fishery areas... wildlife or recreational areas in the specified cite. Should the Administrator so determine, no permit may issue.”⁶⁰⁴ This affords no balancing of environmental concerns against cost considerations.⁶⁰⁵

Even if EPA were to engage in a cost/benefit analysis under 404(c) – which it may not – such an analysis weighs in favor of EPA exercising its 404(c) authority.

First for this analysis, it is important to identify what costs EPA would be allowed to consider. Importantly, EPA is not allowed to consider costs spent by the applicant in pursuit of a Section 404 permit. Deciding to apply for a permit, and spending money on this process, was a business expense voluntarily undertaken by PLP. Like all permittees, PLP was never assured that it would receive a Section 404 permit. Costs incurred during the process of obtaining a permit are not an

⁶⁰¹ 40 C.F.R. § 231.2(e).

⁶⁰² 44 Fed. Reg. 58,076, 58,078 (Oct. 9, 1979).

⁶⁰³ Denial or Restriction of Disposal Sites; Section 404(c) procedures, 44 Fed. Reg. 58,076, 58,078 (Oct. 9, 1979) (“When Congress intended EPA to consider costs under the Clean Water Act, it said so.”).

⁶⁰⁴ Conference Report and Debates reprinted in 1 Legislative History of the Water Pollution Control Act Amendments of 1972, at 177.

⁶⁰⁵ See Creppel v. U.S. Army Corps of Engineers, Civ. A. No. 77-25, 1988 WL 70103 at *6-*8 (E.D. La. June 29, 1988); see also Section 404(c) Procedures, 44 Fed. Reg. at 58,078 (“[I]n EPA’s view, section 404(c) does not require a balancing of environmental benefits against non-environmental costs such as the benefits of the foregone project. This view is based on the language of 404(c) which refers only to environmental factors.”).

appropriate consideration for a cost/benefit analysis.⁶⁰⁶ Indeed, the only costs PLP could argue they will incur is the loss of future revenue, but as has been established, this mining project is not economically feasible.⁶⁰⁷

On the other hand, the cost/benefit analysis would require EPA to consider the benefit of exercising its 404(c) authority. These benefits are significant. They include 1) the environmental benefits flowing from keeping the Bristol Bay region pristine and unpolluted, 2) the economic benefits to the commercial salmon fishery, recreational fishery, and eco-tourism industry, and 3) the benefit to Alaska Natives and all local subsistence users who rely on the fishery for food and the continuation of their culture.

EPA's use of its 404(c) authority to protect Bristol Bay would keep the region pristine and unpolluted. Bristol Bay is the world's most prolific wild sockeye salmon fishery and is the one of the only remaining salmon runs in the United States where fish return each year at historic levels – more than 57 million sockeye salmon in 2020 alone.⁶⁰⁸ The watershed includes two National Parks—Katmai and Lake Clark—as well as at least 29 fish species, more than 40 terrestrial mammal species, and 190 bird species, many of which are “essential to the structure and function of the region's ecosystems.”⁶⁰⁹ By exercising its 404(c) authority to restrict the Pebble Mine, the ecological damage to the region will be avoided. In fact, all of the unacceptable adverse effects discussed previously would be avoided, including: adverse impacts to salmon, water flow reduction, chemical spill damage, habitat fragmentation, risk of catastrophic mine failure, and the cumulative effects of these impacts.

In addition to the ecological benefits a 404(c) veto would provide, EPA's veto would benefit the commercial fishing industry—an industry that has been successfully managed for the last 135 years.⁶¹⁰ The salmon fishery provides jobs for around one third of working age residents in the Bristol Bay.⁶¹¹ This fishery brings in \$2.2 billion annually.⁶¹² Sport fishing and bear viewing bring in \$77 million and \$20 million annually, while the visitor industry brings in \$67.9 million.⁶¹³ In total, the fishery supports around 15,000 jobs.⁶¹⁴ The Pebble Mine plan poses the threat of wetlands

⁶⁰⁶ *C.f. Mingo Logan*, 829 F.3d 710, 735-37 (D.C. Cir. 2016) (Kavanaugh, J., dissenting) (explaining that costs incurred in reliance on an *already-granted* permit are permissible costs to consider); *c.f. Central Valley Chrysler-Jeep, Inc. v. Goldstone*, 563 F. Supp. 2d 1158, 1169 (E.D. Cal. 2008) (“Environmental regulation is a constantly evolving part of the normal business landscape and Plaintiffs provide no basis for the notion that courts should insulate businesses from the consequences of business decision that are related to pending environmental regulation.”).

⁶⁰⁷ See *infra* II.C.2.

⁶⁰⁸ Press Release: 2020 Bristol Bay Season Highlights – Big Harvests and Strong Retail Sales, BRISTOL BAY REGIONAL SEAFOOD DEVELOPMENT ASSOCIATION (Sept. 10, 2020), <https://www.bbrsda.com/updates/2020/9/10/press-release-2020-bristol-bay-season-highlights-big-harvests-and-strong-retail-sales>.

⁶⁰⁹ Watershed Assessment, at ES-5.

⁶¹⁰ Memorandum, Bristol Bay Native Corp., Bristol Bay and the Proposed Pebble Mine: Facts and Circumstances, at 15 (Feb. 24, 2020) [hereinafter BBNC Memorandum on Preliminary Final EIS] (on file with Natural Resources Defense Council).

⁶¹¹ About Bristol Bay, U.S. ENVTL. PROTECTION AGENCY, <https://www.epa.gov/bristolbay/about-bristol-bay>.

⁶¹² McKinley Research Group, The Economic Benefits of Bristol Bay Salmon (February 2021).

⁶¹³ *Id.* at Exec. Summary; see also Watershed Assessment, Volume 3 Appendices E-J, at 18.

⁶¹⁴ McKinley Research Group, supra, at Exec. Summary.

loss across seven watersheds, wetlands which provide vital ground water filtration for the surrounding streams that support this fishery.⁶¹⁵ Further, the mine’s potential impacts to water quality and the destructions of regional streams and river will degrade salmon habitat, negatively impacting the economic viability of the salmon harvest.⁶¹⁶ Avoiding these threats to the ecological viability of the salmon fishery will benefit the commercial fishing industry, a lucrative industry providing economic opportunity for the region.

Additionally, local subsistence communities will benefit from EPA using its 404(c) authority to veto the Pebble Mine. Alaska Native families in the Bristol Bay region rely on salmon and other subsistence species for up to 80% of their protein sources.⁶¹⁷ These resources are “the most consistent and the most reliable component of the local economy.”⁶¹⁸ There are twenty-five communities within the Bristol Bay region, many of which are “rural, contain many low-income households, and retain subsistence lifestyles in a mixed, subsistence cash-income economy.”⁶¹⁹ With the loss of salmon, the cost of living for these communities could increase so high that they could be forced to leave. The risk that the development of this mine would pose for the local subsistence communities would be alleviated by the exercise of 404(c) authority.

In sum, EPA may not consider costs in deciding whether to exercise 404(c) authority. The congressional mandate is clear: EPA may consider only the unacceptable adverse effects *to the environment*. However, even if it were permissible for EPA to engage in a cost-benefit analysis, the benefits of exercising 404(c) authority vastly outweigh the costs.

VI. CONCLUSION

The Pebble Mine would have far-reaching and potentially devastating impacts on the Bristol Bay watershed, its communities, and its wildlife, as well as on the \$2.2 billion annual sustainable fishery, 15,000 jobs, subsistence culture, and global food supply that the watershed supports. The project is widely condemned—regionally, state-wide in Alaska, nationally, and internationally—due to its unavoidable social, environmental, and economic risks. Given the compelling evidence of the project’s unacceptable adverse effects on protected resources, EPA action under Section 404(c) to prevent them is clearly justified.

The Army Corps’ denial of a permit to PLP has provided only a time-limited reprieve for the people, communities, and wildlife of Bristol Bay. To address the continuing threat, we urge EPA

⁶¹⁵ BBNC Memorandum on Preliminary Final EIS, *supra*, at 12, 13

⁶¹⁶ *Id.* at 15.

⁶¹⁷ *About Bristol Bay*, *supra*.

⁶¹⁸ James A. Fall, Theodore M. Krieg & Davin Holen, Alaska Dep’t of Fish and Game, Special Pub. No. BOF 2009-07, *An Overview of the Subsistence Fisheries of the Bristol Bay Management Area 2* (Nov. 2009), available at http://www.adfg.alaska.gov/specialpubs/SP2_SP2009-007.pdf.

⁶¹⁹ Bristol Bay Native Corp., *Comments on the Clean Water Act 404 Permit Application for the Proposed Pebble Mine Project (POA-2017-271) and the Corresponding National Environmental Policy Act Draft Environmental Impact Statement*, at 245 (July 1, 2019).

to grant UTBB’s request that the agency use its 404(c) veto authority to provide lasting protection to the Bristol Bay region—from the Pebble Mine or any other large-scale mining.

Respectfully submitted,



Joel Reynolds
Western Director and Senior Attorney
Natural Resources Defense Council



Taryn Kiekow Heimer⁶²⁰
Senior Advocate
Natural Resources Defense Council

⁶²⁰ Of assistance: Hannah Andrew, Erin Davies, Megan Edwards Davies, Aaron Troncoso, and Alison Gocke.

EXHIBIT 1

Request from United Tribes of Bristol Bay
to EPA (February 18, 2021)

UTBB Headquarters
P.O. Box 1252
Dillingham, Alaska 99576
Telephone: (907) 842-1687

UTBB Member Tribes:
Nondalton Tribal Council
P.O. Box 49
Nondalton, Alaska 99640
Telephone: 907-294-2257

New Stuyahok Traditional Council
P.O. Box 49
New Stuyahok, Alaska 99636
Telephone: 907-693-3173

Levelock Village Council
P.O. Box 70
Levelock, Alaska 99625
Telephone: 907-596-3434

Curyung Tribal Council
P.O. Box 216
Dillingham, Alaska 99576
Telephone: 907-842-2384

Ekuk Village Council
P.O. Box 530
Dillingham, Alaska 99576
Telephone: 907-842-3842

Manokotak Village Council
P.O. Box 169
Manokotak, Alaska 99628
Telephone: 907-289-2067

New Koliganek Village Council
P.O. Box 5057
Koliganek, Alaska 99576
Telephone: 907-596-3434

Traditional Council of Togiak
P.O. Box 310
Togiak, Alaska 99678
Telephone: 907-493-5003

Clarks Point Village Council
P.O. Box 90
Clarks Point, Alaska 99569
Telephone: 907-236-1427

Twin Hills Village Council
P.O. Box TWA
Twin Hills, Alaska 99576
Telephone: 907-525-4821

Aleknagik Traditional Council
P.O. Box 115
Aleknagik, Alaska 99555
Telephone: 907-842-2080

Portage Creek Village Council
1327 E. 72nd Ave., Unit B
Anchorage, Alaska 99518
Telephone: 907-277-1105

Chignik Lake Traditional Council
P.O. Box 33
Chignik Lake, Alaska 99548
Telephone: 907-845-2212

Pilot Point Tribal Council
P.O. Box 449
Pilot Point, Alaska 99649
Telephone: 907-797-2208

Pedro Bay Village Council
P.O. Box 47020
Pedro Bay, Alaska 99647
Telephone: 907-850-2225



united
TRIBES OF BRISTOL BAY

Michael Regan
Administrator-designate:

Jane Nishida
Acting Administrator
Mail Code 1101A
Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Dear Administrator-designate Regan and Acting Administrator Nishida:

The proposed Pebble Mine in Bristol Bay, Alaska, has threatened the region's waters and our Alaska Native Tribes for nearly two decades. This lingering project has created uncertainty for those who depend on Bristol Bay for their livelihoods—including thousands of Tribal members living a traditional subsistence way of life and our world-class commercial and sport fisheries which provide 14,000 jobs and \$1.5 billion in annual revenue to the American economy. If the Pebble Mine is constructed, all of that would be jeopardized.

Bristol Bay's watershed is the most ecologically and economically important remaining salmon fishery on Earth; it provides nearly half the world's wild sockeye salmon. Destroying thousands of acres of wetlands and hundreds of miles of streams where sockeye salmon spawn would irreparably damage one of the largest wild salmon fisheries left in the world. In addition, these fish are economically and culturally important to our Native way of life in Bristol Bay. Our people and the salmon share a connection going back to time immemorial.

The past four years brought Pebble closer to becoming a reality than anyone thought possible. In spite of a flawed mine plan and serious environmental concerns, the Trump administration rolled back proposed protections for the region and rushed this project forward into the federal permitting process. While the federal permit was denied at the end of last year, the protections for the region were successfully rolled back, meaning that mining the Pebble deposit remains open to the company. The uncertainty for those of us who depend on Bristol Bay persists.

Section 404(c) of the Clean Water Act allows the federal government to permanently protect any watershed from the threat of mining. Our Tribes firmly believe, and therefore formally request, that the EPA use this authority under the Clean Water Act and make ending the threat of the Pebble Mine a top priority.

The Tribal people of Bristol Bay and those whose livelihoods depend on its waters have dealt with uncertainty from the threat of the Pebble Mine for far too long. Our Tribes firmly believe, and therefore formally request, that the EPA use this authority under the Clean Water Act to protect Bristol Bay and prioritize ending the threat of mines like Pebble in our region.

Sincerely,



Robert Heyano
President
United Tribes of Bristol Bay

cc:

Brenda Mallory, Chair-designate, Council on Environmental Quality
Vance Stewart, Acting Assistant Secretary of the Army for Civil Works
Radhika Fox, Principal Deputy Assistant Administrator for Water and Acting
Assistant Administrator for Water, EPA
JoAnn Chase, Director, American Indian Environmental Office, Office of
International and Tribal Affairs, EPA
Cecilia Martinez, Senior Director for Environmental Justice, CEQ
Matt Lee-Ashley, Interim Chief of Staff, CEQ
Sara Gonzalez-Rothi, Senior Director for Water, CEQ

EXHIBIT 2

Letter from NRDC to EPA (March 8, 2021)



March 8, 2021

Michael Regan
Administrator-designate

Jane Nishida
Acting Administrator
Mail Code 1101A
Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Re: Permanent Protection for Bristol Bay, Alaska

Dear Administrator-designate Regan and Acting Administrator Nishida:

On behalf of the Natural Resources Defense Council (NRDC) and our more than 3 million members and activists, we write to support and amplify the request from United Tribes of Bristol Bay (UTBB)—a consortium of 15 federally-recognized tribes that represent more than 80% of the region’s population—to protect Bristol Bay from the threat of the proposed Pebble Mine.

In a February 2021 letter, UTBB wrote:

The Tribal people of Bristol Bay and those whose livelihoods depend on its waters have dealt with uncertainty from the threat of the Pebble Mine for far too long...Section 404(c) of the Clean Water Act allows the federal government to permanently protect any watershed from the threat of mining. Our Tribes firmly believe, and therefore formally request, that the EPA use this authority under the Clean Water Act and make ending the threat of the Pebble Mine a top priority.¹

If built, the proposed Pebble Mine—or indeed any large-scale mine—would threaten the entire Bristol Bay region and way of life. Unprecedented in size and impact, the Pebble Mine has generated unparalleled opposition from Alaska Natives, Tribes, Bristol Bay residents, businesses, fishermen, sportsmen, faith-based organizations, jewelers, chefs, conservation and environmental groups, and from people around the world, citing its environmental, social, and economic risks.

Bristol Bay supports sustainable commercial, subsistence, and recreational fisheries that are the backbone of the region’s economy. It is home to the largest wild sockeye salmon fishery in the world; supplies half of the world’s wild sockeye salmon; generates \$1.5 billion annually, and supports more than 14,000 jobs.²

¹ Letter from Robert Heyano, President, United Tribes of Bristol Bay to Michael Regan, Administrator-designate, and Jane Nishida, Acting Administrator, EPA (February 2021).

² *An Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska (Final Report)*. U.S. Environmental Protection Agency, Washington, DC, EPA 910-R-14-001A-C, ES, 2014; Bristol Bay Watershed Assessment and Proposed Determination, [Appendix E](#), p. 18. EPA Final Watershed Assessment, 2009.

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Last year alone, Bristol Bay celebrated the return of almost 60 million salmon. Integral to that extraordinary run is the environmental sustainability of the region—something the proposed Pebble Mine would jeopardize.

But salmon are more than the economic engine of the region. Put simply, salmon are life in Bristol Bay. As they have for millennia, the wild salmon returning each year to Bristol Bay ensure Alaska Native communities' ways of life. Salmon feed its people, anchor its culture, sustain its wildlife, and are indispensable to both the practical and spiritual wellbeing of Bristol Bay's indigenous peoples.

None of this is new to EPA. Former President Obama described Bristol Bay as “one of Alaska's most powerful economic engines and one of America's greatest national treasures.”³ After conducting a rigorous three-year, twice-peer reviewed scientific study of the potential impacts of large-scale mining on the Bristol Bay region, the Obama-Biden EPA determined in 2014 that the Pebble Mine would have “significant” and even “catastrophic” impacts on the region.⁴

EPA has explicit statutory authority under Section 404(c) of the Clean Water Act to “prohibit,” “restrict,” “deny,” or “withdraw” the permitting of dredge and fill projects when EPA finds that the discharge “will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas.”⁵

Using its 404(c) authority, the Obama-Biden EPA proposed restrictions in 2014 to protect Bristol Bay from the Pebble Mine.⁶ However, the Obama-Biden Administration was unable to complete that work due in large part to delays from litigation brought by mining proponents. The Trump Administration ultimately reversed and withdrew the proposed restrictions in 2019, and the region and those who depend on its waters continue to live under the threat of the Pebble Mine. Bristol Bay remains unprotected.

Although the U.S. Army Corps of Engineers denied the Pebble Limited Partnership's Clean Water Act permit request late last year, the Pebble Mine continues to hang like the sword of Damocles over the Bristol Bay region.⁷ Indeed, Pebble is currently appealing the Corps' denial and has pledged to fight tooth and nail in court to overturn the Corps' decision. If those appeals fail, Pebble could always modify and re-file its permit application. And there is a very real risk of large-scale mining in the region by other companies in the future.

The Army Corps' denial offers no lasting protections for the region and does nothing to prevent future threats. This continuing threat to Bristol Bay requires an immediate solution. Fortunately, Congress provided EPA with the legal authority to do so using its well-established, science-based process under Section 404(c) of the Clean Water Act.

³ The White House, *5 Things You Need to Know About Alaska's Bristol Bay* (Dec. 16, 2014), <https://obamawhitehouse.archives.gov/blog/2014/12/16/5-things-you-need-know-about-alaskas-bristol-bay#:~:text=President%20Obama%20just%20took%20action%20to%20protect%20one%20of%20Alaska's,future%20oil%20and%20gas%20drilling>.

⁴ *An Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska (Final Report)*. U.S. Environmental Protection Agency, Washington, DC, EPA 910-R-14-001A-C, ES, 2014.

⁵ 33 U.S.C. § 1344.

⁶ *Proposed Determination to Restrict the Use of an Area as a Disposal Site; Pebble Deposit Area, Southwest Alaska*, 79 Fed. Reg. 42314 (July 21, 2014).

⁷ Army Corps of Engineers, *Record of Decision for Application Submitted by Pebble Limited Partnership To: The United States Army Corps of Engineers* (Nov. 20, 2020).

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President Biden has already committed to protecting Bristol Bay. As a candidate, he said:

Bristol Bay has been foundational to the way of life of Alaska Natives for countless generations, provides incredible joy for recreational anglers from across the country, and is an economic powerhouse that supplies half of the world's wild sockeye salmon. It is no place for a mine. The Obama-Biden Administration reached that conclusion when we ran a rigorous, science-based process in 2014, and it is still true today...As President, I will do what President Trump has failed to do: listen to the scientists and experts to protect Bristol Bay — and all it offers to Alaska, our country, and the world.⁸

Pebble's recent appeal demonstrates, yet again, the real urgency to finish that work.

Because of the unacceptable adverse effects of the Pebble Mine, EPA should exercise its Section 404(c) authority to permanently prevent the mine from irreparably altering the region.

In a full-page ad last month in *Politico*, UTBB implored:

The Tribal people of Bristol Bay and those whose livelihoods depend on its waters have dealt with uncertainty from the threat of the Pebble Mine for far too long. Your administration has the opportunity to end that uncertainty by protecting this national treasure and securing the future the people of Bristol Bay deserve.⁹

For the good of the people, economy, and environment in the region and beyond, we urge EPA to act swiftly. Please prioritize preserving the Tribes, communities, and jobs that the Bristol Bay fishery supports over furthering the interests of a foreign mining company. And please bring long-awaited certainty to those whose lives and livelihoods depend on Bristol Bay's clean water and salmon.

Thank you in advance for your consideration. We would welcome the opportunity to discuss this important issue with you and your staff at any time.

Sincerely,



Taryn Kiekow Heimer
Senior Advocate
Deputy Director, Marine Mammal Protection



Joel Reynolds
Western Director, Senior Attorney

⁸ Joe Biden, *My Statement on Bristol Bay* (Aug. 8, 2020), <https://medium.com/@JoeBiden/statement-by-vice-president-joe-biden-on-bristol-bay-1a83d60a2986>.

⁹ Open Letter to President Biden, *Politico* (Feb 24, 2021), <https://stoppebbleminenow.org/media/>.

EXHIBIT 3

Declaration of Richard K. Borden

(April 16, 2021)



I, Richard K. Borden, declare:

1. I am an environmental scientist and manager with over thirty-five years of experience in the mining and consulting industries. During my 23 years with the global mining company Rio Tinto, I participated in and contributed to more than twenty financial and technical assessments of new major capital projects, divestments, and potential acquisitions. I have performed environmental and permitting work at over fifty mines, projects, and operations. This included over seven years as Head of Environment for Rio Tinto's Copper, Copper & Diamonds and Copper & Coal Product Groups.

2. I have published numerous papers on mine environmental performance and management in peer reviewed scientific journals, conference proceedings, and books.

3. I am currently an independent consultant providing strategic environmental, permitting and closure expertise to the mining industry and non-government organizations world-wide. I am intimately aware of the environmental challenges, issues, and costs posed by the responsible development, operation, and closure of large copper mines.

4. Based on my review of publicly available documents, I am familiar with the Pebble Mine project proposed for the Bristol Bay region of southwest Alaska. Over the past two years, I have reviewed and commented on the permit application and supporting environmental impact statement prepared for the project as part of the federal Clean Water Act permit process overseen by the U.S. Army Corps of Engineers ("Army Corps"). In a series of detailed letters to the Army Corps, I have described significant flaws in the EIS that, in my opinion, preclude issuance of a permit for the project. Those letters are publicly available.¹

The Pebble Mine

5. The ore body that is the focus of the Pebble Mine is located on land owned by the State of Alaska in the heart of the Bristol Bay watershed. Northern Dynasty Minerals ("Northern Dynasty"), which owns the Pebble Mine, and its subsidiary Pebble Limited Partnership ("PLP") have estimated that the ore body has measured and indicated resources of 57 billion pounds of copper and 71 million ounces of gold contained in 6.5 billion tons of rock. If correct, this would

¹ <https://www.nrdc.org/resources/pebble-mine-deis-comment-letters-submitted-richard-borden>.

make the Pebble ore body one of the twenty largest copper and one of the ten largest gold resources in the world.

6. The ore body is in the most sensitive, globally significant, and challenging environmental setting of any mining project I have ever reviewed. It lies at the headwaters of the Bristol Bay watershed, which supports the largest sockeye salmon runs in the world and the largest chinook salmon runs in North America. Located at a drainage divide between two of the region's major river systems, any large mine development would, of necessity, directly impact many thousands of acres of wetlands and potentially hundreds of miles of streams in the headwaters of these rivers. It will be extremely difficult, if not impossible, to construct, operate and successfully close a mine under these conditions without doing significant harm to the world's most important wild salmon fishery.

7. Much of the ore body is chemically reactive and would produce acid rock drainage if exposed to surface weathering conditions by mining. This high geochemical risk is exacerbated by the extremely wet climate of Bristol Bay and would virtually guarantee that a large perpetual water treatment liability is created should a mine be developed. Any full-scale mining operation would generate billions of tons of tailings and waste rock, that must be stored in perpetuity in geotechnically stable and non-erosive landforms. These difficult conditions, coupled with the region's high seismic risk, would make successful long-term mineral waste storage extremely challenging.

8. The exceptionally high level of environmental risk and associated mitigation costs, the complexity of the development challenges, and the high level of opposition to the project in the region and elsewhere have thus far prevented development of the ore body despite attempts by a succession of mine developers over the past several decades.

9. The 20-year mine plan proposed by the Northern Dynasty and PLP for permitting and evaluated in the 2020 Final Environmental Impact Statement (FEIS) would only target about ten percent of the contained metal in the ore body and by necessity would have to mine relatively low-grade ore. At this scale, the project is almost certainly not economically feasible. Expansion to a 78-year mine plan analyzed by Northern Dynasty in 2011 would increase the direct disturbance footprint by three times, direct loss of salmon habitat by five times, tailings production by five times, greenhouse gas emissions by seven times, and acid-generating waste rock production by seventy times. In September 2020, undercover videotapes revealed that Northern Dynasty's and PLP's actual plan is to expand the project to a 180- to 200-year, 10 billion-ton mine, vastly increasing its environmental impact, risk and technical complexity.

Impact of Permit Denial on Potential for Future Development

10. On November 20, 2020, the Army Corps issued a Record of Decision denying the requested permit for the Pebble Mine. While the Corps' decision has stopped the project for now, it has not eliminated the likelihood of, and extreme risk posed by, future development of the ore body – by Pebble or by some other mining company. Northern Dynasty has appealed the Army Corps' denial. Although given the circumstances discussed above its likelihood of success in overturning the permit denial may be low, I believe, based on my 35 years of experience in the

mining and consulting industries, that permanent protection measures will be required to prevent future mine development in the Bristol Bay watershed.

11. If Northern Dynasty's estimate of contained metal in the Pebble ore body is accurate and eventually found to be commercially developable, its value equates to over \$200 billion at recent metals prices (approximately \$3 per pound for copper and \$1500 per ounce for gold). While this estimate should not be confused with the value that would actually be realized from any mining investment because it does not include the large up-front capital costs, operating costs, and closure costs that would be required to develop and mine the deposit, the potential size of the ore body remains a significant inducement for large-scale mining in the region.

12. Even if Northern Dynasty eventually divests its stake in the Pebble Mine, it is a virtual certainty that another developer will eventually acquire mining rights to the deposit and attempt to permit and develop it. In addition to the size and estimated economic value of the ore body, its location in a politically stable, pro-mining jurisdiction will guarantee continuing development interest for decades to come.

13. This is a very common pattern in ore body exploration and development. Large-scale open pit or block cave copper mine development typically takes several decades, multiple developers and multiple attempts before the favorable economic, financial, political, technical, and scientific conditions align -- and production can begin.

14. For example, some recently opened large open pit copper mines highlight the long lead times involved in this process:

- The Safford copper mine in Arizona began commercial production in 2007 but exploration there began as early as 1910. There were significant ore body evaluation campaigns in the 1950s, 1980s and 2000s. Throughout this period ownership of the ore body passed through the hands of multiple developers. The mine is currently managed by Freeport-McMoRan.
- The Oyu Tolgoi copper mine in Mongolia began commercial production in 2013 but it was initially identified by Soviet-era geologists in the 1980s. Western companies began exploratory drilling in the mid-1990s and included Magma, BHP-Billiton, and Ivanhoe. Actual construction of the mine did not begin until 2010 under Rio Tinto.
- The Las Bambas copper mine in Peru began commercial production in 2016, but the mineralization was first discovered as early as the 1870s. Large scale exploratory drilling occurred from 1942-1969, 1996-1998 and from 2005 onward. During this time, rights to the ore body passed through the hands of multiple mining companies including Cyprus, Phelps Dodge, BHP, Teck and Glencore. The mine is currently managed by MMG.
- The Combre Panama copper mine in Panama began commercial production in 2019, but it was first discovered in 1968. Significant drilling and ore body evaluation campaigns occurred in the 1970s and 1990s. It has also had multiple owners including Inmet, Teck and Minera Petaquilla before being developed by First Quantum.

15. The Pebble ore body itself was first discovered by Caminco in the 1980s, which then performed drilling campaigns and ore body evaluation into the 1990s. The rights to the ore body were acquired by Northern Dynasty Minerals in 2001. Multiple major mining and metals companies have been involved in the project since then, including Anglo-American, Mitsubishi Corporation, Rio Tinto and First Quantum Minerals.

16. Even in the wake of the recent permit denial by the Army Corps, the Pebble ore body will pose a continuing and nearly irresistible temptation to future developers despite the longstanding, broad-based opposition, technical challenges, and significant, unavoidable environmental impacts that would be associated with the mine. Major, mid-level, and junior mining companies will continue to periodically monitor and review the status of the ore body, looking for a political, economic, and social window of opportunity.

17. Strategic issues that may align in the short to intermediate term for some future developer include: a) a spike in copper prices due to global insecurity and lack of supply during some future crisis; b) an imbalance between world copper demand and supply; c) a political alignment of both state and federal governments that prioritize mineral development over other concerns; and d) a temporary decline in local and regional opposition due to economic stress or fatigue. Almost certainly, one or more companies will eventually identify a perceived opportunity for permitting and development of the Pebble deposit.

18. Without permanent protection of the Bristol Bay watershed, some future developer can be expected to attempt permitting and construction of a much larger mine at Pebble than the destructive, ill-considered plan currently proposed for permitting by Northern Dynasty. The only uncertainty is precisely when – that is, whether this will occur years or decades from today. Most strategic and responsible developers will avoid the resource as a bad investment, but some unwary or unscrupulous company can reasonably be expected to pursue an application once again. If permitted, the permittee or some other company will unquestionably attempt to develop the mine.

I declare under penalty of perjury under the laws of the State of Utah that the foregoing is true and correct. Executed at Salt Lake City, Utah on April 16, 2021.



Richard K. Borden