



Enriching Our Native Way of Life

APPENDIX B

to

Comments of Bristol Bay Native Corporation
on the Clean Water Act 404 Permit Application
for the
Proposed Pebble Mine Project (POA-2017-271)
and the
National Environmental Policy Act
Draft Environmental Impact Statement

Submitted to the U.S. Army Corps of Engineers
July 1, 2019

Appendix B – A Brief History of EPA Watershed Assessment and 404(c) Action

The loss of salmon-supporting waters from the proposed Pebble mine would be devastating and unprecedented in Alaska. In 2010, after many years living under the threat of the proposed Pebble mine, BBNC along with Alaska Native Tribes and others, called upon the EPA to exercise its authority under CWA Section 404(c) to protect Bristol Bay salmon resources.¹ In response, EPA took a conservative yet reasonable approach to establishing aquatic resource loss limits, by first developing the Bristol Bay Watershed Assessment (BBWA). The BBWA is an ecological risk assessment undertaken by the agency in an effort to scientifically document “the significance of Bristol Bay’s ecological resources and evaluate the potential impacts of large-scale mining on these resources.”² The BBWA was the product of three years of study, two rounds of public comment, and independent, external peer review. The BBWA assessed how “mining-related stressors . . . would affect ecological resources in the watershed.”³

The vast administrative record for the BBWA, including its 747 reference documents and peer review process, and the subsequent CWA 404(c) Proposed Determination (PD),⁴ represents the best available science regarding Bristol Bay and the threats posed from mining the Pebble deposit. This Appendix describes the history leading to the BBWA and PD and 404 Permit Application; the assumptions, analysis, and conclusions contained in the BBWA and PD; and the vast public support for EPA’s decision to protect Bristol Bay under its 404(c) authority.

A. A Decade of Uncertainty, Anxiety, Confusion, and Frustration over the Proposed Pebble Mine; Pre-Application Meetings with EPA and The Army Corps; and PLP’s Initial Mine Plans and State Applications

From 2004 to present, the Pebble Limited Partnership (PLP) and its parent company Northern Dynasty Minerals (NDM) made frequent statements about the company’s intention to soon enter permitting for the mine. The many years of broken promises and living under the threat of permitting created, as Senator Lisa Murkowski noted in 2013 in

¹ Letter from Jason Metrokin, BBNC, to Dennis McLerran, EPA Region 10 (Aug. 12, 2010). EPA has also received “over 850,000 requests from citizens, Tribes, Alaska Native corporations, commercial and sport fisherman, jewelry companies, seafood processors, restaurant owners, chefs, conservation organizations, members of the faith community, sport recreation business owners, elected officials and others asking EPA to take action to protect Bristol Bay.” See http://yosemite.epa.gov/opa/admpress.nsf/names/r10_2014-2-28_bristol_bay.

² EPA, An Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska (2014), available at <http://cfpub.epa.gov/ncea/bristolbay/recordisplay.cfm?deid=253500#Download> [hereinafter “Bristol Bay Watershed Assessment” or “BBWA”], at ES-1.

³ BBWA at ES-10.

⁴ 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), available at https://www.epa.gov/sites/production/files/2014-07/documents/pebble_pd_071714_final.pdf [hereinafter “Proposed Determination” or “PD”].

a letter to PLP, “anxiety, confusion and frustration” throughout the Bristol Bay region.⁵ The following are selected comments over time illustrating a pattern of broken promises that has persisted long before EPA’s involvement in Bristol Bay:

- **2004** – Northern Dynasty Minerals (NDM) announces they expect “completion in 2005 of a Bankable Feasibility Study and permit applications for the construction and operation of a long life, large-scale, open pit gold-copper-molybdenum mine.”⁶
- **2005** – NDM claims that it will “complete a feasibility study in December 2005 and prepare submissions to apply for environmental permits during 2006.”⁷
- **2007** – PLP targets the “goal of the Partnership is to engineer, permit, construct and operate a modern, long-life mine at the Pebble Project. The partners are targeting completion of a pre-feasibility study in December 2008, a feasibility study by 2011 and commencement of commercial production by 2015.”⁸
- **2008** – PLP was on “schedule to finalize a proposed development plan in 2009 and, following input from project stakeholders, apply for permits in early 2010.”⁹
- **2009** – PLP noted they were “completing a Prefeasibility Study and preparing the Pebble Project for permitting in 2010.”¹⁰
- **2010** – PLP claims it is “preparing to initiate project permitting under the National Environmental Policy Act (NEPA) in 2011.”¹¹
- **2010** – PLP CEO John Shively tells the Juneau Empire that PLP is likely to start applying for permits in early 2011.¹²

⁵ See Letter from Sen. Lisa Murkowski to PLP (July 1, 2013), *available at* http://www.energy.senate.gov/public/index.cfm/files/serve?File_id=3b2efb37-cdd2-4203-8568-72c405e2a4e4.

⁶ NDM Press Release (Nov. 3, 2004), https://www.sec.gov/Archives/edgar/data/1164771/000116477104000013/ndm6k_110304.htm

⁷ NDM Press Release (Nov. 1, 2005), <https://www.sec.gov/Archives/edgar/data/1164771/000116477105000018/ndm6k-110105.htm>

⁸ NDM Press Release (Oct. 4, 2007), https://www.sec.gov/Archives/edgar/data/1164771/000116477107000008/ndm6k_100407.htm w

⁹ NDM Press Release (Oct. 27, 2008), <http://www.northerndynastyminerals.com/ndm/NewsReleases.asp?ReportID=595696>

¹⁰ NDM Press Release (March 19, 2009), https://www.sec.gov/Archives/edgar/data/1164771/000116477109000003/ndm6k_031909.htm

¹¹ NDM Press Release (Feb. 1, 2010), https://www.sec.gov/Archives/edgar/data/1164771/000116477110000002/ndm6k_020110.htm

¹² http://juneauempire.com/stories/092410/sta_711593114.shtml#.VJEcCqR43Pw

- **2011** – PLP reports that “design process is nearing important milestones and that PLP intends to enter the permitting phase toward the end of 2012.”¹³
- **2012** – PLP announces preparing the Pebble project for permitting at the end of 2012.¹⁴
- **2013** – On E & E News, PLP CEO John Shively explains that he hopes “to have a project to take into permitting this year.”¹⁵
- **2013** – NDM CEO Ron Thiessen stated to the International Business Times, that “We can permit this mine. There’s no question.” “The heavy lifting is done and we have all of the data.” Thiessen further stated that “Northern Dynasty will have permitting documentation done and ready to file by the first quarter of 2014”¹⁶
- **2015 – late 2017** – PLP’s website claims they are working toward the goal of submitting our initial project description for permitting” and “we’re only just now preparing to apply for permits”¹⁷
- **2017** – NDM CEO Ron Thiessen states that PLP will enter into a new partnership and submit its permit applications by the third quarter of 2017.¹⁸

From 2004 to 2011, PLP met with the Army Corps, EPA, and the State of Alaska dozens of times to discuss PLP’s proposal.¹⁹ At these meetings, PLP was informed that review of its plans to develop a hardrock mine in the headwaters of Bristol Bay “would include a public interest review, development of an environmental document in accordance with the National Environmental Policy Act (NEPA), and a review for compliance with the CWA Section 404(b)(1) Guidelines.”²⁰ Also during this time, EPA staff reviewed various drafts and iterations of PLP’s Environmental Baseline Documents, study plans, field plans, progress reports and analytical quality assurance plan, as well as forming and joining interdisciplinary teams with the State of Alaska and Army Corps to visit the site and coordinate agency review of important environmental studies for NEPA.²¹ In December 2011 and January 2012, PLP provided EPA, the

¹³ NDM Press Release (May 2, 2011), <https://www.sec.gov/Archives/edgar/data/1164771/000106299311001739/exhibit99-1.htm> s

¹⁴ NDM Press Release (May 15, 2012), <https://www.sec.gov/Archives/edgar/data/1164771/000106299312001783/exhibit99-1.htm>

¹⁵ E&E News (June 13, 2013), <http://www.eenews.net/tv/videos/1698/transcript>

¹⁶ International Business Times (Nov. 27, 2013), <http://www.ibtimes.com/pebble-mine-executive-says-northern-dynasty-can-manage-giant-alaskan-copper-mine-alone-if-necessary>

¹⁷ <http://www.pebblepartnership.com/plan.html>

¹⁸ NDM Press Conference (May 12, 2017), *available at* <http://www.northerndynastyminerals.com/site/assets/files/4390/ndm-conf-call-transcript-may-12-2017.pdf>

¹⁹ PD at 2-1 to 2-4.

²⁰ PD at 2-3.

²¹ *Id.*

Army Corps, State of Alaska, and other resource agencies with its more than 25,000-page Environmental Baseline Document, primarily presenting the results of the baseline studies conducted by NDM and PLP from 2004 to 2008.²²

Despite PLP's unfulfilled claims of a detailed 404 permit application that never materialized,²³ over the years PLP had indeed submitted mine plans to regulatory agencies for various purposes.²⁴ In these submissions, PLP touted several scenarios and stages of mine development, the smallest being a 2.0-billion-ton mine taking 28 years to extract and the largest being a 6.5 billion-ton mine taking 78 years.

In 2006, NDM submitted water rights applications to Alaska Department of Natural Resources (ADNR). NDM applied for water rights permits to Upper Talarik Creek and the Kaktuli River for use in mining operations. In total, NDM applied for rights to approximately 35 billion gallons of groundwater and surface water per year.²⁵ In 2006, NDM also submitted to ADNR an Initial Application for Certificate of Approval to Construct a Dam for two tailings impoundments.²⁶ Then in February 2011, NDM submitted its preliminary plans for mining the Pebble deposit to the U.S. Securities and Exchange Commission (SEC).²⁷ This submission described three stages of mine development at the Pebble deposit: an initial 2-billion-ton mine consisting of 25 years of open pit mining, a 3.8-billion-ton mine consisting of 45 years of open pit mining, and a 6.5-billion-ton mine consisting of 78 years of open pit mining. Ghaffari et al. (2011) also indicate that the total Pebble mineral resource may approach 12 billion tons of ore.²⁸

As described below, for its BBWA development throughout 2011 to 2014 and in its 404(c) Proposed Determination issued in July 2014, EPA relied on its history of involvement in the Pebble Project since 2004 and PLP/NDM's own applications and plans submitted to the State of Alaska and SEC, as well as PLP/NDM's Environmental Baseline Document published in late 2011 and early 2012.²⁹

In fall 2017, PLP released to the public a new iteration of its proposal for a mine plan.³⁰

²² PD at page 2-4.

²³ To be sure, PLP did file a 404 permit application in 2017. Yet for all the reasons BBNC has detailed in its March and June letters to the Corps, and in the main body of these comments, it is not a good-faith, detailed, permit application.

²⁴ See, e.g., Northern Dynasty Minerals Ltd., Securities Exchange Comm'n Filing (Feb. 24, 2011), available at <https://www.sec.gov/Archives/edgar/data/1164771/000106299311000722/exhibit99-1.htm>; Pebble Project—ADNR Water Rights Applications (2006), available at <http://dnr.alaska.gov/mlw/mining/largemine/pebble/water-right-apps/index.cfm>.

²⁵ PD at page 2-3.

²⁶ <http://dnr.alaska.gov/mlw/mining/largemine/pebble/water-right-apps/index.cfm>

²⁷ Northern Dynasty Minerals Ltd., Securities Exchange Comm'n Filing (Feb. 24, 2011), available at <https://www.sec.gov/Archives/edgar/data/1164771/000106299311000722/exhibit99-1.htm>.

²⁸ PD at page 2-3.

²⁹ PD at 2-2 to 2-4.

³⁰ See PLP Presentation by Tom Collier to the Alaska Resource Development Council, Oct. 5, 2017, at 35 (PLP Current Plan), available at <http://www.akrdc.org/assets/Breakfasts/collier2017.pdf>.

That plan called for a mine footprint (mine pit, tailings facility, and waste pit) of 5.4 square miles, 1.2 square miles larger than the 0.25 scenario that EPA determined could have “unacceptable adverse effects” on the fishery. Then, in December 2017, PLP’s 404 permit application described a 1.1 billion ton mine operating with 160,000 tons per day throughput, again larger than EPA’s 0.25 scenario. Subsequently, in May 2018, PLP revised its mining plans upwards by 25% to 1.5 billion tons (or nearly six times the size of EPA’s 0.25 billion ton scenario), operating with 180,000 tons per day throughput. Nothing in PLP’s most-recent and evolving project proposal resolves or addresses the findings of both the BBWA and PD. In fact, as PLP itself notes, its most-recent project proposal remains larger than the EPA 0.25 mine scenario.³¹

Furthermore, it is clear PLP simply intends to *start* with a mine at this scale and then expand by artificially segmenting its project proposal.³² And, PLP’s CEO himself has stated that even if PLP does not expand the mining beyond a 20-year, 1.5 billion ton development, “it’s unlikely that much copper and gold will be left in the ground, and so someone will probably come along and want to do a second phase of the project at another time.”³³

B. Bristol Bay’s Concerns about the Proposed Pebble Mine and a Petition to EPA for Protections

Bristol Bay is home to a 130-year-old commercial fishery that supports 14,000 American jobs in Bristol Bay and generates \$500 million in direct income annually. Nationally, the region’s commercial fisheries support 20,000 American jobs, and generates over \$1.5 billion in annual economic activity. Bristol Bay is also a bucket list destination for hunters and anglers, whose hunting and fishing trips support an additional 850 jobs and add \$60 million annually to the region’s economy. The people and communities of Bristol Bay economically and culturally depend on, and thus prioritize the stewardship of, Bristol Bay’s salmon resource.

In light of the enormous importance of salmon to Bristol Bay communities, PLP’s proposals for mining of the Pebble deposit³⁴ have been of great interest to the people of Bristol Bay since the deposit was first discovered in the late 1980s. After much study and deliberation, the consensus in Bristol Bay is that the proposed Pebble mine would severely undercut the very foundation of Bristol Bay – its incredible salmon resource. That PLP continues to push the mine, especially in light of its oft-repeated yet also

³¹ *Id.*

³² See BBNC letter to the Army Corps (June 29, 2018), section III.C.2.

³³ Statement of Tom Collier, PLP CEO, NBC Nightly News, *Proposed Pebble Mine in Alaska could threaten world’s largest salmon fishery* (Feb. 3, 2018), available at <https://www.nbcnews.com/nightly-news/proposed-pebble-mine-alaska-could-threaten-world-s-largest-salmon-n844431>.

³⁴ PLP has submitted mine plans to regulatory agencies for various purposes. See, e.g., Northern Dynasty Minerals Ltd., Securities Exchange Comm’n Filing (Feb. 24, 2011), available at <http://www.sec.gov/Archives/edgar/data/1164771/000106299311000722/0001062993-11-000722-index.htm>; Pebble Project—ADNR Water Rights Applications (2006), available at <http://dnr.alaska.gov/mlw/mining/largemine/pebble/water-right-apps/index.cfm>.

ignored statements of deference to the people of Bristol Bay, PLP's proposal causes disruption, uncertainty, and fear throughout the region. Metallic sulfide mining of the Pebble ore deposit has the potential to cause devastating adverse impacts on the area's sensitive salmon habitats and to diminish the salmon resources that serve as the foundation of the region's subsistence way of life, Alaska Native culture, and robust commercial salmon fishing industry.

PLP's repeated promises and failure to file a permit application or otherwise address the concerns of local people over the course of a decade drove BBNC, along with several Alaska Native Tribes and others, to file petitions in 2010 asking EPA to impose § 404(c) protections for Bristol Bay water and salmon resources.³⁵

In its initial 404(c) petition letter to EPA, BBNC explained that "risks to Bristol Bay resources from leaching and potential dam failure are something that the people of this region will face long after the proposed mine has stripped the mineral wealth and ceased operating."³⁶ Specifically, BBNC was then, and remains today, concerned with "unacceptable risks of irreparable harm to the water quality and the natural and renewable resources" in Bristol Bay from long-term contamination that would be difficult to contain over time and would lead to chronic degradation of salmon habitat.³⁷ Chronic degradation of salmon habitat would diminish the salmon resources that serve as the foundation of the region's subsistence way of life, Alaska Native culture, and robust commercial salmon fishing industry.

In its petition, BBNC also explained that "an impoundment failure quickly would reach BBNC lands and Bristol Bay itself, and thus be devastating to the people of this region."³⁸ As BBNC said in its petition, proposed Pebble mine development "poses an unacceptable risk to our shareholders, their subsistence-based livelihoods, and the prospects for the future, long-term economic development opportunities for the region."³⁹

The stress created by this threat, coupled with the uncertainty surrounding a permitting timeline, has exhibited itself in social and economic ways throughout the region. Such fears and uncertainties have been expressed in comments submitted to EPA from

³⁵ See, e.g., Letter from Jason Metrokin, BBNC to EPA Region 10 (Aug. 12, 2010); Joint Letter from Six Tribes to EPA (May 2, 2010); Letter from Alaska Independent Fishermen' Marketing Association to EPA (May 13, 2010); Letter from Bristol Bay Regional Seafood Devt. Ass'n to EPA (June 20, 2010); Bristol Bay Native Association, A Resolution Requesting the EPA to Invoke Section 404(c) of the Clean Water Act as Appropriate in the Kvichak and Nushagak Drainages of the Bristol Bay Watershed to Protect Habitat and Existing Uses, Res. 2010-32 (Sept. 17, 2010). EPA also received 404(c) requests and letters of support from Ekuk Village Council, Clarks Point Tribal Council, Twin Hills Village Council, Alaska Independent Fishermen's Marketing Association, Bristol Bay Regional Seafood Development Association, National Council of Churches, and numerous other sporting and conservation groups.

³⁶ Letter from Jason Metrokin, BBNC to EPA Region 10 (Aug. 12, 2010).

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*

BBNC shareholders and regional residents over the years.

The Corps should look to the lengthy administrative record compiled by the EPA, particularly the seventeen public hearing transcripts for the BBWA and 404(c) action to inform its analysis of the public interest.⁴⁰

In public testimony taken in 2012, 2014, and 2017 EPA heard repeated comments concerning the hardship already being suffered by Bristol Bay fishermen, residents, and communities due to the uncertainty surrounding the proposed Pebble Mine and the continued threat it poses to the people there. Many commenters urged EPA to act promptly to protect the waters and fishery in Bristol Bay to ensure that fishermen, subsistence users, and residents can move forward with their economic and daily pursuits without the looming threat of large-scale destructive mining operations. Comments also reflected the current and on-going cultural pressures resulting from PLP's activities in the region, the ever-persistent uncertainty engendered by PLP and government inaction regarding the mine, as well as the direct threats of the proposed mine. Comments also discussed concerns over the increased presence of outside visitors, untrustworthy promises of money and jobs, fears of exploitation, and community tensions and fighting. Some examples of this include:

- “[W]e have a right to be afraid of what is happening, because we live in this land We have been in this battle long enough. We want to see something start happening that can assure Alaska native people in this area that our waters, our way of life will continue to be protected.”⁴¹
- “It’s been a decade that the threat of this mine has hung over our heads and for people in my generation investing in the fishery, buying in is a huge leap and financial risk and I see it as one that our fishery will pay back to us as long as we make sure that the habitat remains there.... For a fishery to be successful we need continued investment and for that we need the trust that our government is looking out for us. ... And now we need action. We can’t wait any longer; we can’t let the threat of this hang over us anymore.”⁴²

⁴⁰ Transcripts from seventeen EPA public hearings available at:

<https://www.regulations.gov/docket?D=EPA-R10-OW-2017-0369> (2017 public hearings in Dillingham and Iliamna); <https://www.regulations.gov/docket?D=EPA-R10-OW-2014-0505> (2014 public hearings in Dillingham, New Stuyahok, Anchorage, Kokhanok, Nondalton, Iliamna, and Igiugig); and <https://www.regulations.gov/docket?D=EPA-HQ-ORD-2012-0276> (2012 public hearings in New Stuyahok, Anchorage, Nondalton, Dillingham, Igiugig, Naknek, Seattle, and Levelock).

⁴¹ U.S. EPA Draft Bristol Bay Watershed Assessment Record of Public Comment Meeting – New Stuyahok, Alaska, at 15 (June 7, 2012) [hereafter “New Stuyahok Hearing Transcript”], *available at* <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-ORD-2012-0276-4154>.

⁴² Statement of Katherine Carscallen, Bristol Bay Regional Seafood Development Association, to EPA Administrator Gina McCarthy (Aug. 27, 2013), *audio file available at* <http://kdqg.org/post/epa-administrator-listens-concerns-about-pebble-mine-during-visit-dillingham> (42:00 to 45:00).

- “As I stand here in front of you today, my mind isn’t really here. It’s at home with my children that I’ve left for the fourth time this month on Pebble-related causes. It’s on my subsistence net I was supposed to mend. It’s on getting fish ready, the birch trees we were supposed to cut, it’s on my cabin and boat rentals, it’s on my clients I get in seven days for the sport fishing opener. [...] Standing here in front of you today, talking about a mining giant threatening my entire way of life wasn’t what I ever could have planned for . . .”⁴³
- “Every year my freezer is full of meat, fish and berries from Bristol Bay. I look at this proposed mine as an attempt to take that from me, my children and future grandchildren. I believe with all of my heart that if this mine goes through, this will be the end of our lives as we know it. We will be forced to look to other sources for survival and will be forced to give up a part of our lives that is not just about food, but about a culture and a way of life.”⁴⁴
- “[Y]ou have a lot of people concerned about the future and who knows what the future is.”⁴⁵
- Our food are in jeopardy, our future is in jeopardy. What my mind and heart can fathom is the future of my people We are of the fish people. We are the salmon people.”⁴⁶
- “And the thought of my children not being able to pass our way of life to their children makes my heart hurt. I come to you today for my children and my grandchildren’s way of life to continue to be passed on to the future generations. Please protect our water.”⁴⁷
- “Please help us, it would be the biggest mine in the world. It hurts me deeply, I have actually cried that our home might be destroyed and I want to save our fish and wildlife. I want my grandchildren to be able to fish like I did. I want to be using my fish camp and living off the fish and subsistence every traditional way. I’ve lived this way my whole life and I’m 77 years old. I don’t like people being against each other over this mine.”⁴⁸

⁴³ EPA Bristol Bay Watershed Assessment Public Hearing – Seattle, Washington at 24-25 (May 31, 2012) [hereafter “Seattle Hearing Transcript”], available at <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-ORD-2012-0276-1270>.

⁴⁴ Public Comment Letter from Sherina R. Ishnook, Assistant Controller, BBNC (June 5, 2012), available at <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-ORD-2012-0276-0580>.

⁴⁵ New Stuyahok Transcript, at 13.

⁴⁶ U.S. EPA -- Region 10 Bristol Bay Watershed Assessment Public Hearing – Dillingham, Alaska, at 8-9 (June 5, 2012) [hereafter “Dillingham Hearing Transcript”], available at <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-ORD-2012-0276-1290>.

⁴⁷ Dillingham Hearing Transcript, at 86.

⁴⁸ Nondalton Hearing Transcript, at 7.

- “Nondalton has already been heavily impacted by the mining exploration in the area. In the last six years, there has been a steady increase in visitors to the village, including scientists, researchers, reporters, mining companies, anti and pro Pebble people. . . . There is an increased level of stress . . . The survival of our culture directly depends on the health of our land, the fish and the wildlife.”⁴⁹
- “Any perception amongst salmon consumers that a toxin producing industrial mining complex is operating in the heart of our fishery will damage our marketability . . . Acting proactively will also protect the mining industry by providing certainty of what standards would need to be met for any mineral development to occur.”⁵⁰
- “My biggest concern is the future of the fishery. We need clear water here . . . So I think my biggest concern is the future of the fishery. If that mine is developed up there, I think it's going to be -- it's going to be terrible on the water....[T]he salmon and the commercial fishery provides us with the cash, cash that we need for other products, ammunition, flour, and all the other things we need for to exist out here.”⁵¹
- “We have been in this battle long enough. We want to see something start happening that can assure Alaska native people in this area that our waters, our way of life will continue to be protected.”⁵²
- “Our village, through the help of BBEDC grants will be implementing and will be utilizing a fish processing plant that will employ up to 22 local residents with the potential for growth. This employment will help us to become a more sustainable community. For how long? It is detrimental to our way of life to hang on to the ingenuity of the proposed Pebble project.”⁵³
- “On the average, we do 160 million pounds of fish a year. If you do that [mine], you might as well shut down our plant in Naknek. I've talked to our buyers and if the mine goes through and pollutes the water in front of Levelock, and that water goes down to the Kvichak and taints the fish, our market are done.”⁵⁴

⁴⁹ U.S. EPA Draft Bristol Bay Watershed Assessment Record of Public Comment Meeting – Nondalton Alaska at 1 (June 7, 2012) [hereafter “Nondalton Hearing Transcript”], *available at* <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-ORD-2012-0276-4830>.

⁵⁰ Letter from Lindsay Bloom, F/V Rainy Day, to EPA, Docket No. EPA-HQ-ORD-2012-0276 (July 17, 2012), *available at* <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-ORD-2012-0276-2691>.

⁵¹ Testimony of Hjalmar “Ofi” Olson, former Chairman of the Board, President and CEO of BBNC and commercial fisher, Hearing Transcript from EPA Meeting, Dillingham, Alaska (June 5, 2012), at 16-17, *available at* <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-ORD-2012-0276-1290>.

⁵² Testimony of Joe Chythlook, BBNC Chairman of the Board, Hearing Transcript from EPA Meeting, New Stuyahok, Alaska (June 7, 2012), at 15, *available at* <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-ORD-2012-0276-4154>.

⁵³ U.S. EPA Draft Bristol Bay Watershed Assessment Record of Public Comment Meeting – Levelock, Alaska, at 2 (June 6, 2013) [hereafter “Levelock Hearing Transcript”], *available at* <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-ORD-2012-0276-4037>.

⁵⁴ Levelock Hearing Transcript, at 13-14.

- “As the prospect of a mine becomes more real, major uncertainty will be created throughout the fishery, from production through consumption.”⁵⁵
- “[T]he perception that these salmon are tainted food sources is all that it will take to drive prices down to a point where the industry will not survive. 15,000 jobs and hundreds of millions of dollars annually are at stake. My job is at stake. A way of life is at stake. The largest reason the community is here is at stake. The quality of the water is at stake. It is not worth the risk.”⁵⁶
- “The subject of Pebble is raised by concerned anglers in every conversation I have about the Bristol Bay fishery [D]evelopment of Pebble will put the sport fishing industry of the Bristol Bay region into a recession of long-term duration. It is unlikely my business nor more sport fishing businesses would survive. Development of Pebble would be the destruction of our Bristol Bay ‘brand’ of clean water and sustainable wild salmon.”⁵⁷
- “[N]o amount of money can replace the many different kinds of fish we enjoy or the experience of a first job in the commercial fishing industry.”⁵⁸
- “As a member of a local fishing crew I fear for my fishing livelihood”⁵⁹

C. EPA’S Watershed Assessment and 404(c) Proposed Determination

The loss of salmon-supporting waters from the proposed Pebble mine would be devastating and unprecedented in Alaska. In 2010, BBNC along with Alaska Native Tribes and others, called upon the EPA to exercise its authority under CWA Section 404(c) to protect Bristol Bay salmon resources.⁶⁰ In response, EPA took a conservative yet reasonable approach to establishing aquatic resource loss limits, an approach that

⁵⁵ Statement of Robert Waldrop, Executive Director, Bristol Bay Regional Seafood Development Association (July 11, 2012) *available at* <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-ORD-2012-0276-4525>.

⁵⁶ U.S. EPA Draft Bristol Bay Watershed Assessment Record of Public Comment Meeting – Naknek, Alaska, at 11-12 (June 5, 2012) [hereafter “Naknek Hearing Transcript”], *available at* <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-ORD-2012-0276-4153>.

⁵⁷ Public Comment Letter from Mark Rutherford, Owner, Wild River Guides Co. (May 31, 2012), *available at* <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-ORD-2012-0276-1353>.

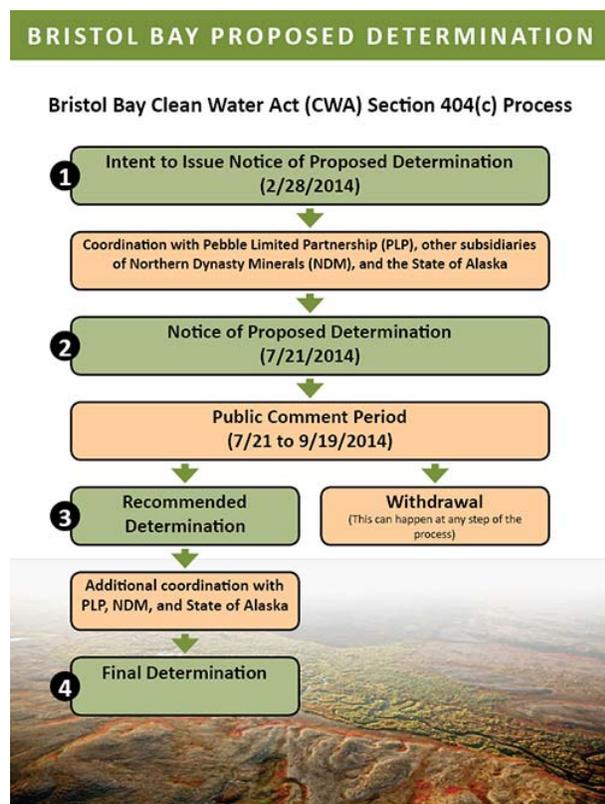
⁵⁸ Public Comment Letter from Helen Gregorio, Togiak Resident (June 4, 2012), *available at* <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-ORD-2012-0276-0594>.

⁵⁹ Public Comment Letter from Robert Massengale, Fisherman and Dillingham Resident (June 24, 2012), *available at* <http://www.regulations.gov/#!documentDetail;D=EPA-HQ-ORD-2012-0276-1244>.

⁶⁰ Letter from Jason Metrokin, BBNC, to Dennis McLerran, EPA Region 10 (Aug. 12, 2010). EPA has also received “over 850,000 requests from citizens, Tribes, Alaska Native corporations, commercial and sport fisherman, jewelry companies, seafood processors, restaurant owners, chefs, conservation organizations, members of the faith community, sport recreation business owners, elected officials and others asking EPA to take action to protect Bristol Bay.” See http://yosemite.epa.gov/opa/admpress.nsf/names/r10_2014-2-28_bristol_bay.

is well within its discretion and that achieves the need for protection of valuable fisheries resources.

EPA responded to the region's 404(c) petitions by conducting extensive public outreach and by performing a watershed assessment to gather information and study the potential risks associated with large-scale mining in Bristol Bay. In January 2014, following three years of study that included dozens of meetings with stakeholders in the region, extensive scientific analysis, multiple rounds of public hearings, several draft documents, and two rounds of peer review, and 1.1 million public comments, the vast majority of which echoed the early petitioners' call for action (including a remarkable 98% from the Bristol Bay region during one comment period), EPA finalized its Bristol Bay Watershed Assessment (BBWA).⁶¹



Thereafter, in February 2014 EPA Region 10 at long last took a first step toward protecting the Bristol Bay salmon resources for future generations by proposing an “unacceptable adverse effects” determination and informing PLP, the State of Alaska, and the U.S. Army Corps of Engineers of its decision and providing them an opportunity to submit information on the record.⁶² After taking comments from these parties and receiving no satisfactory response from PLP that they could avoid or take measures to prevent an unacceptable adverse effects finding, in July 2014 EPA took a second step toward protecting Bristol Bay by issuing a Proposed Determination on restrictions on discharges of wastes from mining the Pebble deposit.⁶³

As described in detail below, EPA Region 10 had a solid foundation for its proposed “unacceptable adverse effects” determination under its CWA authority. As analyzed in the BBWA, a large-scale mine at the Pebble deposit, based on PLP’s own baseline data and plans submitted to the State of Alaska and SEC and confirmed in PLP’s 404 permit application plans, would destroy large tracts of vital salmon habitat because of the

⁶¹ See EPA, An Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska (2014), available at <http://cfpub.epa.gov/ncea/bristolbay/recordisplay.cfm?deid=253500#Download>.

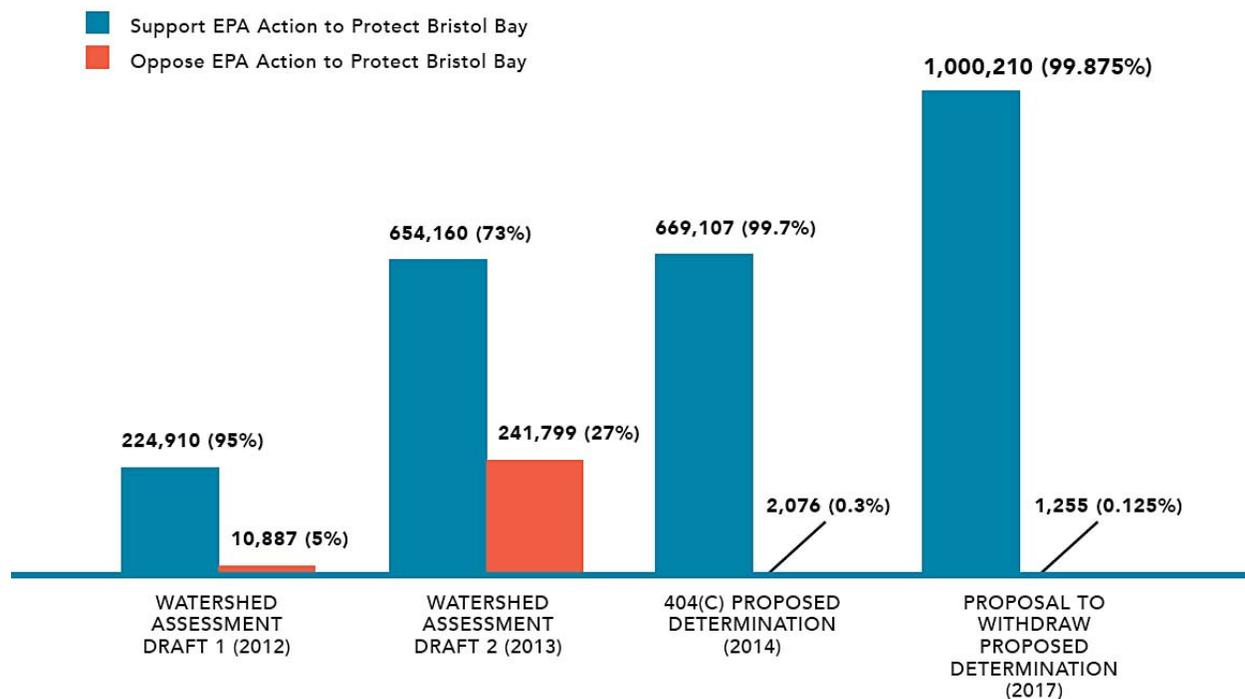
⁶² Letter from Dennis McLerran, EPA Region 10 Regional Administrator, to Tom Collier, PLP CEO, Joe Balash, Commissioner, ADNR, and Col. Christopher D. Lestochi, Commander, USACE Alaska Dist. (Feb. 28, 2014).

⁶³ PD, at 2-11 and 5-1.

inherent geographic nexus between the ore deposit and important salmon streams. Moreover, mining at the Pebble deposit, like other metallic sulfide mining, would generate enormous quantities of tailings and waste material containing copper and other toxic metals. These materials could potentially escape into the surrounding environment during routine operations as well as through future mishaps and failures, destroying and degrading many miles of salmon streams and thousands of acres of interconnected wetlands, ponds, and lakes.⁶⁴

Over time, support has grown for EPA's Proposed Determination and for final 404(c) action. Nationally since 2012, more than 2.5 million public comments have been submitted to the agency supporting its efforts to protect Bristol Bay from the proposed Pebble Mine Project.

SINCE 2012, MORE THAN 2.5 MILLION TOTAL COMMENTS SUPPORT EPA ACTION TO PROTECT BRISTOL BAY



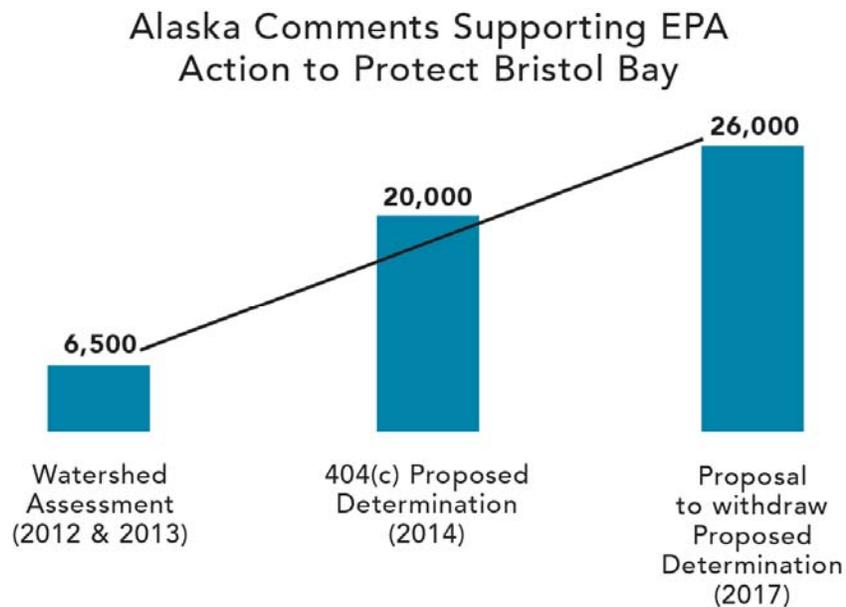
Numbers based on internal review of EPA dockets EPA-HQ-ORD-2012-0276, EPA-HQ-ORD-2013-0189, EPA-R10-OW-2014-0505, and EPA-R10-OW-2017-0369. Review of the 2017 docket is still ongoing, with 1,001,465 (98.2%) of the total 1,016,488 comments reviewed as of Dec. 1, 2017.

As EPA heard during public hearings in the Bristol Bay region in October 2017, the people of the region overwhelmingly requested that EPA keep its proposed restrictions in place. Of the 120 people who testified in the two public hearings in Dillingham and Iliamna, more than 85% of them supported keeping the Proposed Determination in place and opposed EPA's proposal to withdraw the Proposed Determination. EPA

⁶⁴ See BBWA, at Chapter 8.

heard strong testimony about the cultural and economic uncertainty the people in the region are facing if the agency withdraws its Proposed Determination.

EPA received more than one million public comments in fall 2017, more than 99.9% of which supported keeping the agency's Proposed Determination in place as PLP was entering the 404 permitting process. In addition, in 2017 Alaskans commented to EPA in record numbers asking the agency to keep protections for Bristol Bay in place.



On January 26, 2018, one month after PLP submitted its 404 permit application to the Army Corps of Engineers, EPA Administrator Pruitt announced that, after hearing directly from stakeholders and the people of Alaska, the agency would keep the Proposed Determination in place. In announcing his decision, the Administrator noted that “it is my judgment at this time that any mining projects in the region likely pose a risk to the abundant natural resources that exist there. Until we know the full extent of that risk, those natural resources and world-class fisheries deserve the utmost protection.”⁶⁵ EPA’s decision to invoke its 404(c) authority and its findings in the Proposed Determination are supported by a vast record and the best available science, as is its decision to keep the Proposed Determination in place.

On December 22, 2017 PLP submitted its 404 permit application and later amended its application on January 23, 2019 to consist of a larger plan than originally envisioned. Notably, nothing in PLP’s most recent mine plans or in the Pebble Draft EIS, 404 permit application, and supporting documentation has done anything to quell the existing apprehension throughout the Bristol Bay region. To the contrary, the people of Bristol

⁶⁵ <https://www.epa.gov/newsreleases/epa-administrator-scott-pruitt-suspends-withdrawal-proposed-determination-bristol-bay>

Bay are even more fearful that the government is allowing PLP to segment its operations and thereby mask the full extent of impact. This fear is reasonable, with PLP making continued promises to the investment community that someday, someone will indeed mine the entire 12 billion ton deposit rather than the 1.5 billion ton plan currently in permitting and with the company already once revising upwards its plans to build a larger mine.

PLP's 404 permit application describes a project with impacts exceeding the restrictions proposed by EPA in the Proposed Determination:

	Draft EIS 20-year	Draft EIS 78-year	EPA Proposed Determination
Ore Mined (% of delineated 12.125 billion ton deposit)	1.44 billion tons (11.9% of delineated resource)	6.67 billion tons (55% of delineated resource)	
Anadromous Streams Permanently Lost	8.75 linear miles	43.75 linear miles	5 linear miles
Resident Fish Streams Permanently Lost	20 linear miles	<i>Not quantified.</i>	
All Streams Permanently Lost	73.2 linear miles	<i>Not quantified</i>	19 linear miles of tributaries to anadromous streams
Wetlands, Lakes, Ponds Directly and Permanently Lost	3,458 acres	15,903 acres	1,100 acres contiguous with anadromous streams and tributaries of anadromous streams
Total Mine Site Footprint	8,086 acres	29,632 acres	

As EPA concluded in the PD, even a mine size smaller than the one currently touted by PLP⁶⁶ would eliminate or dewater at least 4.7 miles (7.6 km) of streams with documented occurrence of coho and Chinook salmon.⁶⁷ The Draft EIS for the Pebble Mine Project confirms EPA's findings that notes that 8.87 miles of streams with documented salmon occurrence would be destroyed under PLP's plans.⁶⁸ According to EPA, this level of "large impact on anadromous fish streams *is unprecedented in the*

⁶⁶ These EPA impact estimates are for a mine size of 0.25 billion tons. As of its May 11, 2018 "Technical Update" to its Army Corps permit application, PLP plans to mine 1.5 billion tons of material. See <https://pebbleprojecteis.com/> ("Monday, May 21, 2018 – Updates to Project Information Available").

⁶⁷ PD at 4-6; see also BBWA at Figure ES-2. The footprint (mine pit, tailings facility, and waste pit) of PLP's mine proposal released on October 5, 2017 is 5.4 square miles, which is 1.2 square miles larger than the 0.25 scenario analyzed by EPA. See Pebble Project Update Presentation, available at https://www.pebblepartnership.com/update/20171005_Presentation.pdf?v=2.

⁶⁸ Pebble Draft EIS, Appendix I (Essential Fish Habitat Assessment), p. 68, Table 5-1 (46,836 linear feet, or 8.87 linear miles, Essential Fish Habitat permanent destroyed).

*context of the CWA Section 404 regulatory program in Alaska.*⁶⁹ In addition to direct, irreversible impacts to salmon habitat, a hardrock mine at the headwaters of Bristol Bay would require treatment in perpetuity,⁷⁰ with PLP consultants acknowledging that the timeframe for “concern” for mine waste could be on the order of 10,000 years.⁷¹

It was these scientific findings, founded in the EPA’s Watershed Assessment after years of study and public input, that led the agency to exercise its 404(c) authority in Bristol Bay, noting the “ecological and mineral resources of the Bristol Bay watershed create one of the unique instances anticipated” for the use of 404(c) restrictions.⁷²

1. The Bristol Bay Watershed Assessment Provides the Best Available Science Regarding Bristol Bay and the Threats Posed by the Pebble mine

EPA responded to the concerns raised in 404(c) petitions by first studying the Bristol Bay watershed and its outstanding ecological, cultural, and economic importance as well as evaluating the potential impacts of large-scale mining on the resources of Bristol Bay.⁷³ The BBWA quantified, in a conservative manner, the expected loss of wetlands, streams, lakes, and ponds from the construction and operation of a porphyry copper mine at the Pebble deposit. EPA elected to focus on the Pebble deposit because its size and extensive characterization make it “the most likely site for near-term, large-scale mine development in the region.”⁷⁴

To address the uncertainties regarding the size of a mine that might be proposed for construction at the Pebble deposit, EPA analyzed three potential mining scenarios—Pebble 0.25 (250 million tons of ore), Pebble 2.0 (2 billion tons of ore), and Pebble 6.5 (6.5 billion tons of ore) scenario.⁷⁵ EPA acknowledged that the exact details of any final mine proposal would differ from the specific elements of any one of the scenarios analyzed by EPA. However, the scenarios “reflect the general characteristics of mineral deposits in the watershed, modern conventional mining technologies and practices, the scale of mining activity required for economic development of the resource and the infrastructure needed to support large-scale mining.”⁷⁶ By assessing three separate mine sizes, EPA provided a realistic range of potential impacts based on the resources

⁶⁹ PD at 4-6.

⁷⁰ *Id.* at 4-62.

⁷¹ See The Keystone Center, Panels on Geology and Geochemistry & Hydrology and Water Quality (Oct. 2-4, 2012), video available at <https://www.youtube.com/watch?v=T9tD35mqab8>.

⁷² PD at 4-2.

⁷³ BBWA at ES-1.

⁷⁴ *Id.* at ES-3 to ES-4.

⁷⁵ The Pebble 2.0 and Pebble 6.5 scenarios were based on potential mine sizes suggested by planning work done by Northern Dynasty Minerals and the Pebble Limited Partnership. *Id.* at ES-10, 6-1, 6-20. These scenarios represent a realistic range for what might be proposed in a plan to mine the Pebble deposit, based on conventional mining practices and the expressed intentions of the holders of the rights to mine the Pebble deposit. See *generally* BBWA, Chapters 4, 6.

⁷⁶ *Id.* at ES-10 to ES-11.

in the Bristol Bay watershed and the real world consequences of large-scale mining. The following discussion highlights some of the most important factors underlying EPA's findings.

Location of the Pebble Ore Deposit. The mining claims that encompass the Pebble ore deposit cover roughly 186 square miles⁷⁷ and straddle the river drainages that serve as the foundation of Bristol Bay's world-renowned salmon fisheries. This represents a simple and straightforward geographic conflict—the Pebble minerals are lying directly underneath vital salmon spawning, rearing, and migration habitat. As a result, EPA concluded that the ordinary day-to-day operation of a large-scale mine—even without any accidents or catastrophic events—would result in the direct loss of large quantities of habitat important to salmon.⁷⁸

The “mine footprint” is described in the BBWA as the “area covered by the mine pit, waste rock piles, TSFs [tailings storage facilities], groundwater drawdown zone, and plant and ancillary facilities.”⁷⁹ According to EPA, if the Pebble deposit were to be fully developed at the 0.25 billion tons of ore level, direct impacts from the mine footprint alone would cause 24 miles of streams to be “lost—that is, eliminated, blocked, or dewatered,” including 5 miles “known to provide spawning or rearing habitats for coho salmon, sockeye salmon, Chinook salmon, and Dolly Varden.”⁸⁰ Reduced or altered stream flows would “reduce the amount and quality of fish habitat” in another 9.3 miles of salmon-bearing streams,⁸¹ and stream flow alterations would also eliminate 1,300 acres of off-channel habitats for salmon and other fishes in wetlands, ponds, and lakes.⁸²

Certainty of Toxic Waste Generation. The Pebble 0.25 scenario reflects the size of a mine associated with “a median-sized porphyry copper deposit of 250 million tons of ore.”⁸³ The mining of the Pebble deposit at this level will lead to the generation of enormous quantities of acid mine waste and the leaching of copper and other toxic metals from mine tailings and waste rock. According to EPA, the expected scale of mining operations at the Pebble deposit, given the low-grade nature of the ore deposit, “will necessarily produce large amounts of waste material.”⁸⁴ Indeed, a mine developed at the 0.25 billion tons of ore level would generate an estimated 406 million tons of waste rock containing copper and other heavy metals.⁸⁵ This amount of waste rock is greater than that produced to date by other Alaska mines: Fort Knox's total waste rock

⁷⁷ NDM, *The Pebble Project: The Future of U.S. Mining & Metals*, available at http://www.northerndynastyminerals.com/i/pdf/ndm/NDM_FactSheet.pdf.

⁷⁸ See BBWA at ES-14, 7-19 to 7-28.

⁷⁹ *Id.* at ES-13.

⁸⁰ *Id.*

⁸¹ *Id.*

⁸² See *id.*

⁸³ BBWA at 6-20.

⁸⁴ *Id.* at ES-10.

⁸⁵ See *id.* at ES-11 tbl. ES-1.

production, for example, is reported to be 372.5 million tons, Red Dog's is 157 million, while Greens Creek, Kensington, and Pogo are each reported at 2 million tons or less.⁸⁶ Moreover, given the low-grade nature of the Pebble ore body⁸⁷ and the stated goals of PLP's parent company to expand mine operations for generations,⁸⁸ EPA was being conservative in utilizing the Pebble 0.25 scenario as it is far smaller than any PLP proposals.⁸⁹

The waste rock associated with the Pebble ore body is acid-forming with high copper concentrations in test leachates.⁹⁰ The exposure of waste rock to water would lead to leaching of metals and likely would lead to the generation of acid mine drainage.⁹¹ With respect to the Pebble deposit, copper is the major contaminant of concern as it is toxic to salmon in low concentrations. This is especially true in the streams near the Pebble deposit because they are low in hardness, and copper toxicity increases as water hardness decreases.⁹² According to EPA, "during routine operations," without any system failure or catastrophic event and no matter how effectively the wastewater treatment system was working, water contaminated with copper and other toxic metals "would enter streams" and "water quality would be diminished" through "uncollected runoff and leakage of leachates from the waste rock piles and TSFs."⁹³ Much of this water would contain heavy metals in extremely high concentrations. At Pebble, "[w]aste rocks associated with the ore body are acid-forming with high copper concentrations in test leachates, and would require 2,900- to 52,000-fold dilution to achieve water quality criteria."⁹⁴ Under the 0.25 scenario, leachate escaping during routine operations would cause death or reduced reproduction of aquatic invertebrates in 13 miles of streams, and since these invertebrates are the "primary food source for juvenile salmon and all life stages of other salmonids," the leachate "would be expected to reduce fish

⁸⁶ See Levit, Stuart & David Chambers, Comparison of the Pebble mine With Other Alaska Large Hard Rock Mines at 11-12, Table 1 (Center for Science & Public Participation, Feb. 2012).

⁸⁷ See Letter from Gina McCarthy, EPA Administrator, to John Shively, PLP CEO (Sept. 30, 2013).

⁸⁸ Ron Thiessen, Denver Gold Forum (Sept. 25, 2017), <http://www.denvergoldforum.org/dgf17/company-webcast/NDM:CN/> ("this project, it's a multi-generational opportunity. Its size and scale will lead to a very, very long life mine and the property we have hosts showings that we've got drillholes in that we believe there's other mining opportunities as well.")

⁸⁹ PLP continues to state that the resource includes 6.44 billion tons of measured and indicated resources and 4.46 billion tons of inferred resources. See The Pebble Project, A Pathway to Permitting, Denver Gold Forum, Sept. 25 2017, The Pebble Partnership, Northern Dynasty Minerals, Ltd., at 3, available at <http://wsw.com/webcast/dgf17/ndm.to/presentationDownload.pdf>. PLP's website confirms that this is no small mine, stating "[w]e know that the Deposit is large enough, and rich enough, to sustain production for 20-25 years, and quite possibly operate for generations" and "[o]ur *initial* approach is for a 20-25-year mine. We believe it's possible that the project could extend for decades—the Deposit may hold a century's worth of minerals." See The Pebble Partnership Plan, <https://www.pebblepartnership.com/plan.html>.

⁹⁰ BBWA at ES-15.

⁹¹ PD at 4-52; BBWA at 8-3.

⁹² BBWA at 3-27.

⁹³ *Id.* at ES-15.

⁹⁴ *Id.*

productivity.”⁹⁵

Acid mine drainage, moreover, can and does persist for many decades at abandoned and inactive mines throughout the nation and typically carries with it soluble metals that are toxic to aquatic life.⁹⁶ Acid mine drainage can accelerate the leaching of heavy metals from surrounding rock and soils, and even in the absence of acidity, arsenic and other metals can leach from tailings and waste rock piles, contaminating adjacent waters and posing a threat to human drinking water resources as well as aquatic organisms.⁹⁷ These types of severe impacts are not just hypothetical. It is well established that hard-rock mines can generate substantial amounts of toxic wastes, and these wastes have had devastating effects on ecological resources and human communities.⁹⁸ At many abandoned mine sites throughout the American West—including sites far less ecologically sensitive than the area surrounding the Pebble ore deposit—acid mine drainage contaminated with heavy metals has persisted for decades without abatement.⁹⁹

Monitoring and treatment of mine tailings, waste rock, and their associated wastewater would be required on a massive scale long after the cessation of active mining operations and potentially for hundreds to thousands of years,¹⁰⁰ making it virtually certain that a catastrophic failure or accident will eventually occur. Ken Taylor, PLP’s Vice-President for Environment has admitted that “[w]e have to think about what it’s going to be like out there 10,000 years from now.”¹⁰¹ Similarly, a consultant for PLP has acknowledged that the timeframe for “concern” for mine waste could be on the order of 10,000 years.¹⁰² Indeed, it is widely recognized that hard-rock metallic sulfide mines require ongoing maintenance and water treatment.¹⁰³

⁹⁵ *Id.*

⁹⁶ See generally U.S. Govt. Accounting Office (GAO), ENVIRONMENTAL LIABILITIES: HARDROCK MINING CLEANUP OPERATIONS (June 14, 2006), available at <http://www.gao.gov/assets/90/82282.pdf>; EPA, Office of Solid Waste, Special Waste Branch, TECHNICAL DOCUMENT: ACID MINE DRAINAGE PREDICTION (1994), available at <http://water.epa.gov/polwaste/nps/upload/amd.pdf>.

⁹⁷ See, e.g., EPA Website, Abandoned Mine Drainage, http://water.epa.gov/polwaste/nps/acid_mine.cfm.

⁹⁸ See generally U.S. Govt. Accounting Office (GAO), ABANDONED MINES: INFORMATION ON THE NUMBER OF HARDROCK MINES, COST OF CLEANUP, AND VALUE OF FINANCIAL ASSURANCES (2011), available at <http://www.gao.gov/new.items/d11834t.pdf>; GAO, ENVIRONMENTAL LIABILITIES: HARDROCK MINING CLEANING OBLIGATIONS (2006), available at <http://www.gao.gov/assets/90/82282.pdf>; EPA, Office of Solid Waste, Special Waste Branch, TECHNICAL DOCUMENT: ACID MINE DRAINAGE PREDICTION (1994), available at <http://water.epa.gov/polwaste/nps/upload/amd.pdf>.

⁹⁹ See GAO, ENVIRONMENTAL LIABILITIES, at 2.

¹⁰⁰ BBWA at 6-33 (monitoring and management of exposed materials, leachate, and tailings storage facilities would be required for hundreds to thousands of years).

¹⁰¹ PBS Frontline, Alaska Gold (July 24, 2012), transcript available at <http://www.pbs.org/wgbh/pages/frontline/environment/alaska-gold/transcript-26/>.

¹⁰² See The Keystone Center, Panels on Geology and Geochemistry & Hydrology and Water Quality (Oct. 2-4, 2012), video available at <https://www.youtube.com/watch?v=T9tD35mqab8>.

¹⁰³ See EPA, Identification of Priority Classes of Facilities for Development of CERCLA Section 108(b) Financial Responsibility Requirements, 74 Fed. Reg. 37,213, at 37,214-17 (July 28, 2009).

PLP's current plans suggest that treatment in perpetuity may not be needed of the pyritic tailings facility and, according to their most recent plan, pyritic tailings will be returned to the open pit and stored below water. PLP claims that this eliminates the need for perpetual maintenance and water treatment. Given the uncertain technology and PLP's history of misstatements, the Corps must analyze this. For example, this plan is premised on PLP closing the open pit after 20 years, something that seems unlikely as the company simultaneously claims that the mine will operate for "generations" and upwards of 200 years.¹⁰⁴ If PLP does not close the open pit for more than 200 years, where will the pyritic tails be stored in the meantime and how will effluent from these tails be treated? After 200 years, how will the water level in the open pit be maintained so that discharging will not be required? Once the level of the pit lake has risen to about 890 feet elevation, water will have to be pumped from the pit, treated as required, and discharged to the environment. Additionally, PLP only says that perpetual treatment of the pyritic facility will be eliminated;¹⁰⁵ however, the Corps should look at whether other project components such as the main water management pond will continue discharging after closure.

Mining the Pebble deposit is also likely to result in further releases of copper and heavy metal contamination because mine tailings would have to be contained over long periods of time, during which a variety of system failures and catastrophic events could be expected to occur. In the BBWA, EPA explains that "[a] variety of water collection and treatment failures are possible, ranging from operational failures that result in short term releases of untreated or partially treated leachates to long-term failures to operate water collection and treatment systems in perpetuity. A reasonable but severe failure scenario would involve a complete loss of water treatment and release of average untreated wastewater flows into average dilution flows."¹⁰⁶ If just this moderate failure of the wastewater treatment system occurred in the Pebble 0.25 scenario, it would be sufficient to cause "direct effects" on salmon in 17 miles of streams, and the aquatic invertebrates that salmon feed on would be "killed or their reproduction reduced" in 48 to 62 miles of streams.¹⁰⁷ Similar adverse impacts on salmon could also occur through the overflowing of a tailings storage facility and spillage of contaminated water overflow during heavy rains.¹⁰⁸

The failure of a tailings storage facility dam would result in serious adverse effects on salmon.¹⁰⁹ For instance, a failure of the dam at TSF 1 (which is included in all three of the BBWA scenarios) would "result in a flood of tailings slurry into the North Fork Koktuli

¹⁰⁴ <https://www.pebblepartnership.com/plan.html>. See also, Statement of Ron Thiessen, Vancouver Resource Investment Conference (Jan 22, 2018) video available at, https://www.youtube.com/watch?v=pBs1dnP_9eo.

¹⁰⁵ Memo from James Fuego, PLP, to Shane McCoy, USACE (May 11, 2018), Technical Note on Updates to PLP's Proposed Project, pp. 2-3, available at https://pebbleprojecteis.com/files/05_11_2018_Pebble_Project_Updates_to_Proposed_Project.pdf

¹⁰⁶ BBWA at ES-16.

¹⁰⁷ *Id.*

¹⁰⁸ *See id.*

¹⁰⁹ *See generally id.* at ES-17 to ES-24.

River,” “scour the valley and deposit many meters of tailings fines in a sediment wedge across the entire valley,” “bury salmon habitat ... along nearly the entire length” of the river below the dam, “cause serious habitat degradation in the mainstem Kuktuli River and downstream into the Mulchatna River,” and cause “[n]ear-complete loss of North Fork Kuktuli River fish populations downstream of the TSF” plus additional salmon and other fish population losses in the mainstem Kuktuli, Nushagak, and Mulchatna Rivers.¹¹⁰

Impossibility of Effective Mitigation. The BBWA establishes that many of the adverse impacts associated with the development of a large-scale mine at the Pebble deposit could not be adequately mitigated.¹¹¹ Under the Mitigation Rule promulgated by EPA and the U.S. Army Corps of Engineers (Army Corps), mitigation must first seek to avoid adverse impacts to the aquatic ecosystem and, to the extent such impacts cannot be avoided, those impacts must be minimized.¹¹² Where impacts cannot be avoided or minimized, appropriate and practicable compensatory mitigation must be provided as required by the 404(b)(1) Guidelines.¹¹³ The Mitigation Rule also requires that, for mitigation to effectively compensate for impacts to aquatic resources, such mitigation must be in the same area as the impacts—preferably in the same watershed.¹¹⁴

The BBWA thoroughly documents the reasons why the adverse impacts from mining the Pebble deposit would not be offset by compensatory mitigation. First, impact avoidance and minimization would not eliminate the losses of aquatic habitat caused by mining because wetlands and streams are widely distributed in the affected watersheds, substantial infrastructure would have to be built in this largely undeveloped and pristine region, and siting options are limited due to the location of the ore body.¹¹⁵

Further, none of the compensatory mitigation measures proposed to date would adequately compensate for the aquatic habitat losses at the scale at which they would occur. Mitigation credits and in-lieu fee program credits – the preferred mitigation methods under the Mitigation Rule¹¹⁶ – would be inadequate. There is currently no approved mitigation bank serving this area, and the single in-lieu fee program that

¹¹⁰ *Id.* at ES-23 to ES-24.

¹¹¹ BBWA App. J. An article co-authored by one of BBNC’s outside counsel undertook a similar analysis of potential compensatory mitigation measures for large-scale hardrock mining in Bristol Bay, evaluated them against the requirements of the Mitigation Rule and reached a similar conclusion. See Yocom, Thomas G. & Rebecca L. Bernard, *Mitigation of Wetland Impacts from Large-Scale Hardrock Mining in Bristol Bay Watersheds*, *Seattle J. Env’tl L.*, Vol. 3:71 (2013), available at <http://www.sjel.org/vol3/mitigation-of-wetland-impacts-from-large-scale-hardrock-mining-in-bristol-bay-watersheds> (“there are few, if any, reasonable and practicable measures within the relevant watersheds that could offset the enormous losses of headwater wetland and aquatic habitats associated with the proposed Pebble mine.”).

¹¹² 40 C.F.R. § 230.91(c).

¹¹³ *Id.* § 230.10(d); 40 C.F.R. § 230.91(c)(3).

¹¹⁴ *Id.* 230.93(b).

¹¹⁵ BBWA, App. J at 11.

¹¹⁶ *Id.* §§ 230.93(b)(2); 230.93(b)(3).

services the area has provided compensation only for projects with much more limited impacts.¹¹⁷ In any event, both mitigation approaches would be stymied by the lack of degraded resources and opportunities for restoration or enhancement within the affected watersheds.¹¹⁸ In addition, all of the permittee-responsible compensatory mitigation measures that have been suggested by PLP in its response to EPA's 15-day letter¹¹⁹ – measures such as increasing habitat connectivity, removing beaver dams, increasing habitat quality or quantity, and augmenting water flows – are either unavailable within the affected watersheds because of their intact, functioning character, or have an inadequate track record of success.¹²⁰ Finally, as EPA points out in the BBWA, preservation is a disfavored method of mitigation and no sites that are large enough, threatened, and not otherwise protected have been identified in the affected watersheds or in the larger Bristol Bay region.¹²¹

Looking outside of the affected watersheds, the potential mitigation measures that have been suggested by PLP in its response to EPA's 15-day letter – measures such as restoring old mine sites or constructing hatcheries – are problematic for various reasons and are not available at the necessary scale.¹²²

For all of these reasons, sufficient compensatory mitigation opportunities are simply not available within the affected watersheds or nearby to adequately offset the enormous losses of aquatic habitat that would occur as a result of mining the Pebble deposit.¹²³

2. EPA's Intent to Issue Notice of a Proposed Determination and Unacceptable Adverse Effects Finding

EPA released the final draft of the Bristol Bay Watershed Assessment on January 14, 2014.¹²⁴ With the release of the final BBWA, EPA also released two new documents related to the Peer Review of the BBWA, EPA's Response to Peer Review Comments and Peer Review Follow-on Comments on the second BBA draft.¹²⁵ These documents detail very closely how EPA addressed all independent peer reviewer comments when finalizing the BBWA. In March 2014, EPA also released its responses to public

¹¹⁷ *Id.*, App. J at 11, 13.

¹¹⁸ *Id.*, App. J at 13. EPA correctly concludes in its compensatory mitigation analysis that the "most appropriate geographic scale" within which to compensate for unavoidable impacts from mining the Pebble deposit would be at the site of impact, i.e. the North Fork Kaktuli, South Fork Kaktuli, and Upper Talarik Creek watersheds. *Id.* at 9.

¹¹⁹ Letter from Tom Collier, PLP CEO, to Dennis McLerran, Region 10 Administrator, EPA (April 29, 2014), available at https://web.archive.org/web/20170216214136/http://www.northerndynastyminerals.com/ndm/EPA_BBWA.asp.

¹²⁰ BBWA, App. J at 13-32.

¹²¹ *Id.*, App. J at 33.

¹²² *Id.*, App. J at 33-36.

¹²³ Yocom & Bernard, *supra note 249*, at 22.

¹²⁴ 79 Fed. Reg. 3,369 (Jan. 21, 2014).

¹²⁵ <https://cfpub.epa.gov/ncea/bristolbay/recordisplay.cfm?deid=253500#Download>

comments on both drafts of the BBWA, closely detailing how the agency addressed the public's, and PLP's, concerns in the BBWA.¹²⁶

After internal review and deliberation, on February 28, 2014, EPA announced that it was taking the first step to initiate its 404(c) action by issuing a 15-day letter to PLP, the Corps, and the State of Alaska (as landowner).¹²⁷ In its announcement, EPA noted that “[t]his action, requested by EPA Administrator Gina McCarthy, reflects the unique nature of the Bristol Bay watershed as one of the world’s last prolific wild salmon resources and the threat posed by the Pebble deposit, a mine unprecedented in scope and scale.” On that day, Region 10 Regional Administrator Dennis McLerran sent letters to PLP, the Corps, and the State of Alaska noting that “[b]ased on the input that the EPA receives during [404(c) steps], the Agency could decide that further review under Section 404(c) is not necessary” and prompted PLP to engage in early consultation with EPA, the Army Corps, and the State by submitting “information for the record to demonstrate that no unacceptable adverse effects to aquatic resources would result from discharges associated with mining the Pebble deposit or that actions could be taken to prevent unacceptable adverse effects to waters from such mining.”¹²⁸ Region 10 noted that it was taking the step to “review potential adverse environmental effects” of mining the Pebble deposit because “it has reason to believe that porphyry copper mining of the scale contemplated at the Pebble deposit would result in significant and unacceptable adverse effects to important fishery areas in the watershed.”¹²⁹ EPA provided PLP until April 29, 2014 to respond.¹³⁰

Following its proposed “unacceptable adverse effects” finding, EPA afforded PLP and the State of Alaska (as landowner) with 60 days to submit information, for the record, to demonstrate either that no unacceptable adverse effects on aquatic resources would result from discharges associated with mining the Pebble deposit or that actions could be taken to prevent such unacceptable adverse effects.¹³¹ After carefully considering responses from PLP, the Corps, and others, including nearly 1,500 pages of information and comments from PLP, EPA Region 10 was not satisfied that no unacceptable adverse effect could occur and took the next step under the 404(c) regulations to issue a Proposed Determination.¹³²

On July 18, 2014, EPA announced and made available its 404(c) Proposed Determination for the Pebble Deposit in Bristol Bay, Alaska, holding a 60-day comment

¹²⁶ *Id.*

¹²⁷ EPA Press Release, *EPA moves to protect Bristol Bay fishery from Pebble mine* (Feb. 28, 2014), https://yosemite.epa.gov/opa/admpress.nsf/names/r10_2014-2-28_bristol_bay.

¹²⁸ Letter from Dennis McLerran, EPA Region 10 Regional Administrator, to Tom Collier, PLP CEO, Joe Balash, Commissioner, ADNR, and Col. Christopher D. Lestochi, Commander, USACE Alaska Dist. (Feb. 28, 2014).

¹²⁹ *Id.*

¹³⁰ Letter from Dennis McLerran, EPA Region 10 Regional Administrator, to Tom Collier, PLP CEO (March 13, 2014).

¹³¹ PD at 2-11.

¹³² PD at 2-14.

period and public hearings and tribal consultations throughout the region.¹³³ EPA's proposed restrictions were broadly supported by the public – 99% of the more than 670,000 comments EPA received on the Proposed Determination supported the agency's proposal. In the seven public hearings held throughout Alaska on the Proposed Determination, more than 75% of Alaskans supported the agency's proposal, a number that grows to 82% when considering the Bristol Bay region alone.

3. EPA's Proposed Determination Technical and Scientific Findings Remain Unrefuted and PLP's Mine Plan Exceeds Restrictions

In its 404(c) Proposed Determination for mining the Pebble deposit, EPA Region 10 put forward a set of restrictions based on the unacceptable adverse impacts that would be expected from the "construction and routine operation of a 0.25 stage mine at the Pebble deposit."¹³⁴ EPA Region 10 proposed reasonable upper limits for aquatic resource losses resulting from the discharge of dredged or fill material from mining the Pebble deposit. These upper limits, imposed on discharges individually or collectively, include any of the following:

- 5 or more linear miles of streams with documented anadromous fish occurrence;
- 19 or more linear miles of stream tributaries where anadromous fish occurrence is not currently documented, but that are tributaries to streams with documented anadromous fish occurrence;
- 1,100 or more acres of wetlands, lakes, or ponds contiguous with either streams with documented anadromous fish occurrence or tributaries of those streams; and
- Greater than 20% of daily flow in 9 or more linear miles of streams with documented anadromous fish occurrence.¹³⁵

These restrictions are amply supported by the record and are conservative in many respects. And the proposed restrictions were broadly supported by the public – 99% of the more than 670,000 comments EPA received on the Proposed Determination supported the agency's proposal. In addition, in the seven public hearings held throughout Alaska on the Proposed Determination, more than 75% of Alaskans supported the agency's proposal, a number that grows to 82% when considering the Bristol Bay region alone.

Region 10 has fashioned a set of proposed 404(c) restrictions that establish an upper limit on permissible salmon habitat losses, expressed in linear miles and acres of streams and wetlands, lakes, and ponds, from mining the Pebble deposit. These proposed restrictions are geographically focused on a designated sub-area within the

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https://archive.epa.gov/epapages/newsroom_archive/newsreleases/b52a95f5b3adefc185257d1900056758.html

¹³⁴ PD at ES-6, 5-1.

¹³⁵ PD at ES-6, 5-1.

three watersheds most likely to be adversely affected by Pebble mine waste discharges. The proposal is fully supported by Region 10's finding, despite PLP's opportunity to submit additional information to EPA to offset its conclusion that mining the Pebble deposit under any of the three mining scenarios studied, "even the smallest, could result in significant and unacceptable adverse effects on ecologically important streams, wetlands, lakes and ponds and the fishery areas they support."¹³⁶ Additionally, in developing the proposed restrictions, Region 10 excluded consideration of several whole categories of serious adverse impacts associated with mining, and this rendered the proposed restrictions very conservative.

Narrow Geographic Scope. Region 10's proposed restrictions are geographically narrow in several ways. They encompass only discharges of dredged or fill material associated with mining the Pebble deposit.¹³⁷ They are also limited to the three sub-watersheds within which these mine-waste discharges are most likely to occur—the North Fork Koktuli, South Fork Koktuli, and Upper Talarik Creek watersheds.¹³⁸ Further, within these three watersheds, the restrictions are limited to waters within the boundaries of mine claims currently owned by NDM subsidiaries.¹³⁹ These geographic limits are each justified, and yet taken together they further narrowed the proposed restrictions.

Limitation to Mine Waste from Pebble Deposit. The Proposed Determination is grounded in the risk assessment undertaken in the BBWA, the underlying scientific literature, the extensive peer review evaluating the Assessment, numerous public comments from scientists and experts providing additional technical and scientific information to inform the final Assessment, and consultation with tribal governments.¹⁴⁰ EPA initiated the Assessment in order to study the effects of large-scale mining on water quality and the Bristol Bay salmon fishery.¹⁴¹ EPA specifically evaluated the Pebble deposit as a case study for potential risks, identifying and assessing three scenarios for mining that deposit.¹⁴² The Pebble deposit is: located in the headwaters

¹³⁶ PD at 5-1. See also *id.* at 2-14 ("After fully considering the April 29, 2014, submittals from PLP and the Alaska Attorney General, the Regional Administrator was not satisfied that no unacceptable adverse effect could occur, or that adequate corrective action could be taken to prevent an unacceptable adverse effect. Thus, EPA Region 10 has decided to take the next step in the Section 404(c) process, publication of this proposed determination.")

¹³⁷ PD at ES-1.

¹³⁸ *Id.* at ES-1, 2-18.

¹³⁹ *Id.* at 2-18.

¹⁴⁰ *Id.* at 2-6, 2-11. See also, Summary, Peer Review for Bristol Bay Assessment, <http://www2.epa.gov/bristolbay/peer-review-bristol-bay-assessment> (the purpose of the peer review process on the Assessment was "to ensure that the assessment incorporated high quality data and information, was unbiased, and that all conclusions were supported by sound science."); Public Involvement for Bristol Bay Assessment, <http://www2.epa.gov/bristolbay/public-involvement-bristol-bay-assessment> (EPA consulted with 13 federally-recognized tribal governments in the Nushagak and Kvichak River watersheds and assembled an intergovernmental technical team to provide input on the Assessment).

¹⁴¹ *Id.* 2-5.

¹⁴² BBWA at 1-4.

of the Nushagak and Kvichak River watersheds; the largest known porphyry copper deposit in Southwest Alaska; and the most likely site for near-term, large-scale mine development in the Bristol Bay watershed.¹⁴³ Focusing on the Pebble deposit was justified and reasonable because it is the most likely ore to be mined and thus it poses an imminent and realistic threat.¹⁴⁴

In the Proposed Determination, Region 10 likewise reasonably limits its geographic scope to the Pebble deposit based on the analysis in the Assessment and the associated record.

Limitation to Three Sub-Watersheds. In the BBWA, EPA identifies five geographic scales that it used for various aspects of its analysis—the largest scale and the fundamental scope of the entire assessment is the entire Bristol Bay watershed (Scale 1).¹⁴⁵ The smallest two scales are the “mine scenario footprints,” which encompasses the footprint of the major mine components, the groundwater drawdown zone, and ancillary facilities for each mine size scenario (Scale 4) and the “transportation corridor area” (Scale 5), which was not a finer scale than Scale 4 but simply a shift in focus from the site of the mine footprint to the site of the transportation corridor.¹⁴⁶ In between these two extremes are the Nushagak and Kvichak watersheds, including the drainage areas containing stream segments that flow directly or via downstream segments into the mainstem Nushagak or Kvichak Rivers (Scale 2), and the “mine scenario watersheds,” which include the cumulative drainage areas of the North and South Fork Kaktuli Rivers to their junction and Upper Talarik Creek to its junction with Iliamna Lake (Scale 3).¹⁴⁷ In the Assessment, Region 10 uses the broader geographic scales to describe the environment of the region and the finer scales to evaluate the potential effects of mining operations.¹⁴⁸ Specifically, Scale 3—the three mine scenario watersheds—form the basis of much of the analysis of impacts.¹⁴⁹

Given the severity of potential impacts within the mine scenario watersheds, as analyzed in the Assessment, Region 10 used the boundaries of these watersheds—North Fork Kaktuli, South Fork Kaktuli, and Upper Talarik Creek—as a starting point for defining the geographic scope of the potential disposal site to which the proposed restrictions would apply.¹⁵⁰ The Assessment is a key part of the solid foundation supporting Region 10’s determination that these watersheds are the most likely location for both the discharges associated with a Pebble mine and the unacceptable adverse effects flowing from those discharges.¹⁵¹

¹⁴³ PD at 2-14; BBWA at 4-1, 6-8.

¹⁴⁴ BBWA at 4-1, 6-19, 6-20.

¹⁴⁵ *Id.* at 2-8; PD at 2-6.

¹⁴⁶ BBWA at 2-8.

¹⁴⁷ *Id.* at 2-8.

¹⁴⁸ *Id.*

¹⁴⁹ See, e.g., *id.*, Chapter 7.

¹⁵⁰ PD at 2-18.

¹⁵¹ See *id.* at 2-18, Chapter 4; BBWA at 6-4, Chapter 7.

Limitation to Area Encompassing NDM Mining Claims. Region 10 could reasonably have defined the geographic scope of the disposal site as co-extensive with the boundaries of these watersheds. Instead, Region 10 took the conservative additional step of refining the potential disposal site to focus on the specific “area where discharges associated with mining the Pebble deposit will likely occur.”¹⁵² That area encompasses “all mine claims owned by NDM subsidiaries in the three watersheds”¹⁵³ as well as the entire footprint of each mining scenario, including the mine pit, waste rock pile, and tailings storage facilities where discharges of dredged or fill material would occur.¹⁵⁴ This refinement is consistent with the analysis in the Assessment and is a sound policy choice. By defining the geographic scope “as narrowly as possible,”¹⁵⁵ EPA is targeting the actual threat and acting to prevent unacceptable adverse effects to the Bristol Bay fishery in the least intrusive manner possible.

High Ceiling for Aquatic Resource Losses. Region 10’s proposed restrictions are supported by the impacts assessed in the BBWA.¹⁵⁶ Indeed, the proposed restrictions are “derive[d] from the estimated impacts resulting from the discharges of dredged or fill material associated with the construction and routine operation of a 0.25 stage mine at the Pebble deposit.”¹⁵⁷ Based on the findings in the Assessment discussed in Section IV.B above, the proposed restrictions establish the following upper limits for aquatic resource losses resulting from the discharge of dredged or fill material from mining the Pebble deposit:

- 5 or more linear miles of streams with documented anadromous fish occurrence;¹⁵⁸
- 19 or more linear miles of stream tributaries where anadromous fish occurrence is

¹⁵² PD at 2-17. See *id.* (explaining that “a potential disposal site that includes all mine claims owned by NDM subsidiaries in the three watersheds best represents locations where the discharge of dredged or fill material associated with mining the Pebble deposit, and any resulting unacceptable adverse effects on fishery areas, are most likely to occur”).

¹⁵³ *Id.* at 2-18. Discharges are most likely to occur here because “Alaska state law specifically recognizes the opportunity for mineral claim owners to use the state’s surface land above their mineral claims for mining activity.” *Id.* (citing 11 AAC 86.600).

¹⁵⁴ See PD at ES-5 (“In this case, the proposed geographic boundaries of the potential disposal site are the waters within the mine claims held by NDM subsidiaries, including PLP, that fall within the SFK, NFK, and UTC watersheds (Figure ES-3). EPA Region 10 focused on this area because it determined that it best represents the smallest geographical area where the discharge of dredged or fill material associated with mining the Pebble deposit is most likely to occur.”). Compare *id.* at ES-10, Figure ES-3 (map of potential disposal site) with BBWA at ES-6, Figure ES-2 (map of Pebble 0.25, 2.0, and 6.5 components overlaid with watersheds).

¹⁵⁵ PD at 2-17. See *id.* (reasoning that this scope, “although narrowly tailored to include only those areas where discharge of dredged or fill material associated with mining the Pebble deposit is most likely, will protect important fishery areas from unacceptable adverse effects”). See also *id.* at ES-1 (scope of the proposed restrictions is “geographically narrow” and does not affect other deposits or mine claim holders besides those associated with the Pebble deposit).

¹⁵⁶ *Id.* at ES-6, 5-1.

¹⁵⁷ *Id.*

¹⁵⁸ Compare *id.* at 5-1, with BBWA at ES-13 (concluding that the mine footprint alone for a 0.25 billion tonne mine would destroy 5 miles of known salmon spawning or rearing habitat).

not currently documented, but that are tributaries to streams with documented anadromous fish occurrence;¹⁵⁹

- 1,100 acres or more of wetlands, lakes, or ponds contiguous with either streams with documented anadromous fish occurrence or tributaries of those streams;¹⁶⁰ and
- Greater than 20% of alteration of daily flow in 9 or more linear miles of streams with documented anadromous fish occurrence.¹⁶¹

By using the Pebble 0.25 scenario as a baseline for the Proposed Determination, Region 10 reasonably developed restrictions closely tied to and amply supported by the administrative record.

While the upper limits for stream, wetland, lake, and pond losses that Region 10 has proposed are supported by the analysis in the Watershed Assessment, it is important to note that these ceilings are conservative, in the sense that aquatic resource losses at these levels would still amount to massive impacts that could justify an even lower ceiling. Indeed, a survey of hard-rock mines permitted under Section 404 of the CWA in Alaska¹⁶² shows that never before has the Army Corps authorized a mining project with the potential for this extent of anadromous streams and wetland destruction.¹⁶³ For example, at the Rock Creek Gold Mine in Northwest Alaska, the Army Corps permitted discharges into 346.5 acres of waters of the U.S. for purposes of mine construction and authorized the permanent loss of 170.5 acres of wetlands, but the affected waters were not anadromous.¹⁶⁴ At another example frequently touted by PLP,¹⁶⁵ the Red Dog Mine recently obtained approvals for an expansion that involved the placement of dredged or

¹⁵⁹ Compare PD at 5-1, with BBWA at ES-13 (concluding that the mine footprint alone for a 0.25 billion ton mine would destroy a total of 24 miles of anadromous and non-anadromous streams).

¹⁶⁰ Compare PD at 5-1, with BBWA at ES-13 (concluding stream flow alterations resulting from the mine footprint alone for a 0.25 billion ton mine would destroy 1,300 acres of wetlands, ponds, and lakes serving as off-channel habitat for salmon and other fishes).

¹⁶¹ Compare PD at 5-1, with BBWA at ES-13 (concluding stream flow alterations exceeding 20% resulting from the mine footprint alone for a 0.25 billion ton mine would adversely affect habitat in 9.3 miles of salmon streams).

¹⁶² For 404 permit documents on large-scale mining projects in Alaska, see <http://dnr.alaska.gov/mlw/mining/largemine/>.

¹⁶³ See PD 4-6.

¹⁶⁴ See Department of the Army, Permit Evaluation and Decision Document (Feb. 26, 2007), available at <http://dnr.alaska.gov/mlw/mining/largemine/rockcreek/pdf/rcacoedd.pdf>.

¹⁶⁵ See Pebble Limited Partnership, Pebble's Promise, available at http://corporate.pebblepartnership.com/files/documents/Pebble_promise.pdf ("Mine operations at Middle Fork Red Dog Creek, at Red Dog Mine, led to cleaner water in the stream...").

fill material in less than 10 acres of wetlands.¹⁶⁶ At the Kensington Mine in Southeast Alaska the 404 permit for the discharge of mine-related dredge and fill materials from construction of new facilities affected 61.7 acres of anadromous waters and wetlands.¹⁶⁷ And finally, at Greens Creek Mine in Southeast Alaska the presence of salmon streams led the U.S. Forest Service in 2013 to reject the operator's proposed 116-acre tailings expansion, which would have resulted in the direct loss of 1,646 linear feet of salmon stream habitat from tailings, in favor of a smaller tailings facility expansion alternative that would not discharge into streams.¹⁶⁸

In none of these large-scale mine examples has the Army Corps permitted losses anywhere near 19 miles of non-anadromous streams, let alone 5 miles of anadromous stream losses. Likewise, none of these previously permitted large-scale mines come close to the EPA's proposed ceiling of 1,100 acres of wetlands, lakes, or ponds losses.

Exclusion of Several Categories of Adverse Impacts. The proposed restrictions do not take into account adverse impacts on salmon and their habitat resulting from mining-related accidents and failures, the construction and operation of pipelines and roads, or the effects of toxic discharges. These are all factors that EPA could reasonably have relied on in developing its restrictions, and doing so could only have led to a more stringent approach.

The BBWA and associated record provide extensive analysis and documentation of the potential for tailings dam failures under each of the three mine scenarios.¹⁶⁹ Region 10

¹⁶⁶ See U.S. Army Corps of Engineers, Public Notice of Application for Permit (Apr. 23, 2013), available at http://www.poa.usace.army.mil/Portals/34/docs/regulatory/publicnotices/POA-1984-12-M49_Chukchi%20Sea_PN.pdf (proposed work included "1.79 acres of excavated wetlands to raise the dam plus 5.7 acres of excavated wetlands and 6.6 acres of excavated uplands to construct the road."). Previous authorizations at Red Dog included proposed work that would "affect 245 acres, of which 119 acres are wetlands." U.S. EPA, Red Dog Mine Extension, Aqqaluk Project: Final Supplemental Environmental Impact Statement (Oct. 2009), available at <http://dnr.alaska.gov/mlw/mining/largemine/reddog/pdf/rdseis2009vol2a.pdf>.

¹⁶⁷ See Department of the Army Permit POA-1990-592-M, Lynn Canal 31, available at <http://dnr.alaska.gov/mlw/mining/largemine/kensington/pdf/kensusacelynncanal05.pdf> (authorizing permittee to "[d]redge, place structures, and discharge an approximate total of 3,487,950 cubic yards of fill and dredged fill materials into an approximate total of 61.7 acres of waters."); see also U.S. Army Corps of Engineers, Public Notice of Application for Permit, available at <http://dnr.alaska.gov/mlw/mining/largemine/kensington/pdf/kensusacepnjul09.pdf> ("A total of 83.4 acres of fill was authorized under DA permit modification POA-1990-592-M"). See also, *Coeur Alaska, Inc. v. Southeast Alaska Conservation Council*, 129 S. Ct. 2458, 2464 (2009) ("Over the life of the mine, Coeur Alaska intends to put 4.5 million tons of tailings in the lake. This will raise the lakebed 50 feet—to what is now the lake's surface—and will increase the lake's area from 23 to about 60 acres.").

¹⁶⁸ See Greens Creek gets OK for partial expansion of tailings facility, ALASKA JOURNAL OF COMMERCE (Sept. 12, 2013), available at <http://www.alaskajournal.com/Alaska-Journal-of-Commerce/September-Issue-3-2013/Greens-Creek-gets-OK-for-partial-expansion-of-tailings-facility/>; see also, U.S. Dep't. of Agriculture, Greens Creek Mine Tailings Disposal Facility Expansion, Final EIS and ROD Vol. 1, available at http://dnr.alaska.gov/mlw/mining/largemine/greencreek/pdf/FEIS_ROD.pdf (selecting alternative D, which was developed to "avoid filling any part of Tributary Creek with tailings.").

¹⁶⁹ See, e.g., BBWA, Chapter 9.

nevertheless elected not to rely on such impacts to support its proposed restrictions.¹⁷⁰ Since Region 10 elected not to consider this important factor, e.g., how much material could be released in a tailings dam failure and how much downstream habitat would be impacted when this occurs, its estimate of unacceptable adverse effects and the proposed restrictions that flow from them are inherently conservative.

The BBWA and the rest of the administrative record also include substantial analysis and documentation of ancillary facilities necessary for the construction and development of a mine at the Pebble deposit, such as roads, power plants, ports, and pipelines, as well as the potential adverse impacts on anadromous streams associated with these facilities, such as pipeline failures and road crossings.¹⁷¹ Estimated pipeline failure statistics in the Assessment indicate that this factor poses a significant threat to salmon and salmon habitat: the expected number of failures for each of the four pipelines would be about 2.2 over the life of the mine in the 0.25 mine scenario, while the chance of a large rupture in each of the three pipelines carrying liquids would exceed 25% and there would be a greater than 99.9% chance that at least one of these three pipelines would fail during the life of the project, releasing contaminants into nearby anadromous waters.¹⁷² Similarly, the BBWA demonstrates that 86 miles of road construction would be required in connection with mining the Pebble deposit, and these roads would involve at least 64 stream crossings, with direct impacts to salmon spawning streams.¹⁷³ Region 10's decision not to consider these factors in the Proposed Determination, while within the agency's discretion, further renders its analysis of impacts and its proposed restrictions conservative. And indeed, the BBWA estimates of road construction were conservative – PLP's proposed project contains 222 stream and river crossings, as compared to the 64 stream crossings analyzed by EPA in the BBWA.¹⁷⁴

Region 10's proposal is also conservative in that it does not take into account the toxicity of mine-related discharges to waters and wetlands, even though the BBWA includes considerable analysis of the threats to water quality resulting from toxic discharges during routine operations, such as from tailings leachate, waste rock leachate, mine pit runoff, and wastewater discharge, as well as from catastrophic accidents and failures.¹⁷⁵ Even during routine operations, the record demonstrates that toxic discharges would cause significant negative impacts on aquatic organisms.¹⁷⁶ Region 10's decision to exclude toxicity and water quality considerations amplifies the conservative nature of its proposed restrictions.

Finally, EPA's estimates of stream and wetland losses resulting from the mine scenarios are conservative. This is because the available stream, wetland, and anadromous fish

¹⁷⁰ PD at ES-6.

¹⁷¹ BBWA, Chapters 10 and 11.

¹⁷² *Id.* at 11-5 to 11-6.

¹⁷³ *Id.* at ES-16.

¹⁷⁴ PLP Permit Application Appendix B-Culverts Schedule.

¹⁷⁵ BBWA., Chapter 8.

¹⁷⁶ *Id.*, Chapter 14.1.1.

databases are incomplete – not all waters in the affected area have been mapped or surveyed, and those that have been are missing some stream courses and channel sinuosity.¹⁷⁷ Thus, EPA’s estimates of stream and wetland losses are low.¹⁷⁸ Yet even these understated losses of aquatic resources amount to a “large impact on anadromous fish streams,”¹⁷⁹ one that is “unprecedented in the context of the CWA Section 404 regulatory program in Alaska”¹⁸⁰ and that “could compromise the sustainability of fish populations” within the mine scenario watersheds as well as downstream.¹⁸¹ In short, even with incomplete data and the resulting uncertainty as to the “full implications” of these understated stream and wetland losses, Region 10 had more than enough information to conclude that “the discharge of dredged or fill material associated with the Pebble 0.25 stage mine could have unacceptable adverse effects on fishery areas in the SFK, NFK, and UTC watersheds, as well as downstream fishery areas.”¹⁸²

The BBWA, the Proposed Determination, the administrative record and the traditional knowledge of the people of Bristol Bay all support EPA Region 10’s conclusion that large-scale metallic sulfide mining at the Pebble deposit and associated waste disposal activities will result in “unacceptable adverse impacts” on the presently healthy and abundant wild salmon ecosystems in the North and South Fork Koktuli Rivers and Upper Talarik Creek drainages at the heart of the Bristol Bay salmon fishery.

4. EPA Keeps the 404(c) Proposed Determination in Place; Public Support Continues for Final EPA Action

There has been an unprecedented outpouring of public support for EPA 404(c) action due to the significant harms that would result from mining the Pebble deposit. Nearly two million comments from individuals and organizations throughout Alaska, other states, and even internationally have demonstrated an unprecedented level of support for EPA’s proposed 404(c) action in light of the severe harms that would be caused by mining the Pebble deposit. Indeed, as EPA noted in beginning this process, the agency received requests from “citizens, tribes, Alaska Native corporations, commercial and sport fisherman, jewelry companies, seafood processors, restaurant owners, chefs, conservation organizations, members of the faith community, sport recreation business owners, elected officials and others asking EPA to take action to protect Bristol Bay.”¹⁸³

The factual record regarding the effects of placing a hardrock mine at the site of the Pebble deposit is robust, accounting for nearly 4 years of study and public and peer

¹⁷⁷ See BBWA at 7-23, Box 7-1, and 7-34 to 7-35.

¹⁷⁸ *Id.* at 7-34 to 7-35.

¹⁷⁹ PD at 4-6.

¹⁸⁰ *Id.* at 4-6.

¹⁸¹ *Id.* at 4-13.

¹⁸² *Id.* at 4-13.

¹⁸³ See EPA, News Release—EPA Moves to Protect Bristol Bay Fishery from Pebble mine (Feb. 28, 2014), available at http://yosemite.epa.gov/opa/admpress.nsf/names/r10_2014-2-28_bristol_bay.

review input leading to EPA's decision to invoke 404(c) and its finding of unacceptable adverse effects. In fact, it is the most robust administrative record in the history of EPA's 404(c) actions. EPA initially held eight public hearings, received 1.1 million public comments, conducted two peer reviews, published two drafts of its Watershed Assessment culminating in a 1,402 page final report, and engaged in consultation with the Army Corps, State of Alaska, and PLP prior to issuing its Proposed Determination. Then, on its 200-page Proposed Determination, EPA held another seven public hearings and received another 670,000 public comments, 99% of which supported the agency's findings and requested the agency issue a Final Determination. And finally, on its proposal to withdrawal the Proposed Determination in July-October 2017, EPA received over 1 million written comments, 99.9% of which supported the agency's Proposed Determination and use of its 404(c) authority.

The administrative record to date is relevant, robust, and complementary to the Corps' work in processing any 404 permit application and undertaking NEPA analysis. Overall, EPA analyzed approximately 30,000 pages of comments and technical data from PLP in making its decision to initiate 404(c) and another 1,200 pages from PLP during the Proposed Determination comment period. The vast administrative record for the EPA Watershed Assessment and Proposed Determination represents the best available science regarding Bristol Bay and the threats posed from mining the Pebble deposit.

With release of the Pebble Project Draft EIS on February 20, 2019, and the acknowledgment of the *direct and permanent loss* of 3,560 acres of wetlands and 81.1 miles of streams, including 8.87 linear miles of designated salmon streams, the Army Corps document confirmed EPA's conclusions that a mine at the Pebble deposit would be unprecedented in the history of 404 permitting in Alaska, with impacts to wetlands and anadromous waters far exceeding any other proposal on record with the District. In addition, the Draft EIS and its lack of adequate mitigation measures to avoid, minimize, and compensate for these impacts is further support for EPA's conclusion that "known compensatory mitigation techniques are unlikely to adequately offset impacts of this nature and magnitude to the ecologically important stream and wetland resources" in the South Fork Koktuli, North Fork Koktuli, and Upper Talarik Creek watersheds.¹⁸⁴

¹⁸⁴ PD at 4-58.