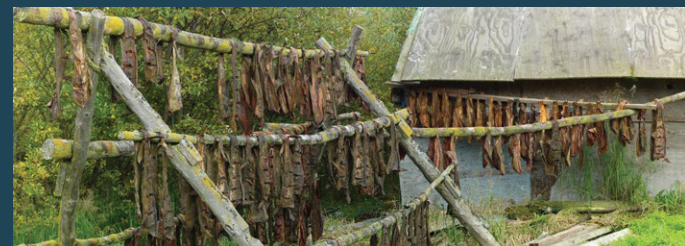
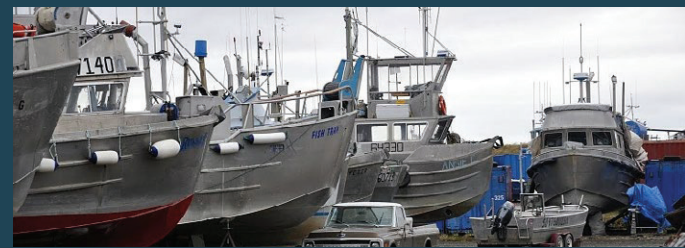


# Proposed Determination of the U.S. Environmental Protection Agency Region 10 Pursuant to Section 404(c) of the Clean Water Act Pebble Deposit Area, Southwest Alaska



## EXECUTIVE SUMMARY

The U.S. Environmental Protection Agency (EPA) Region 10 is publishing for public comment this proposed determination (2022 Proposed Determination) to prohibit and restrict the use of certain waters in the Bristol Bay watershed as a disposal site for the discharge of dredged or fill material associated with mining at the Pebble deposit, a large ore body in southwest Alaska. EPA Region 10 is exercising its authority under Section 404(c) of the Clean Water Act (CWA) (Box ES-1) and its implementing regulations at 40 Code of Federal Regulations (CFR) Part 231 because of the unacceptable adverse effects on anadromous<sup>1</sup> fishery areas in the Bristol Bay watershed that could result from discharges of dredged or fill material associated with such mining. Development of a mine at the Pebble deposit and such a mine's potential effects on aquatic resources have been the subject of study for nearly two decades; the 2022 Proposed Determination is based on this extensive record of scientific and technical information. The scope of the 2022 Proposed Determination applies only to specified discharges of dredged or fill material associated with mining the Pebble deposit.

Alaska's Bristol Bay watershed (Figure ES-1) is an area of unparalleled ecological value, boasting salmon diversity and productivity unrivaled anywhere in North America. As a result, the region is a globally significant resource. The Bristol Bay watershed provides intact, connected habitats—from headwaters to ocean—that support abundant, genetically diverse wild Pacific salmon populations. These salmon populations, in turn, help to maintain the productivity of the entire ecosystem, including numerous other fish and wildlife species.

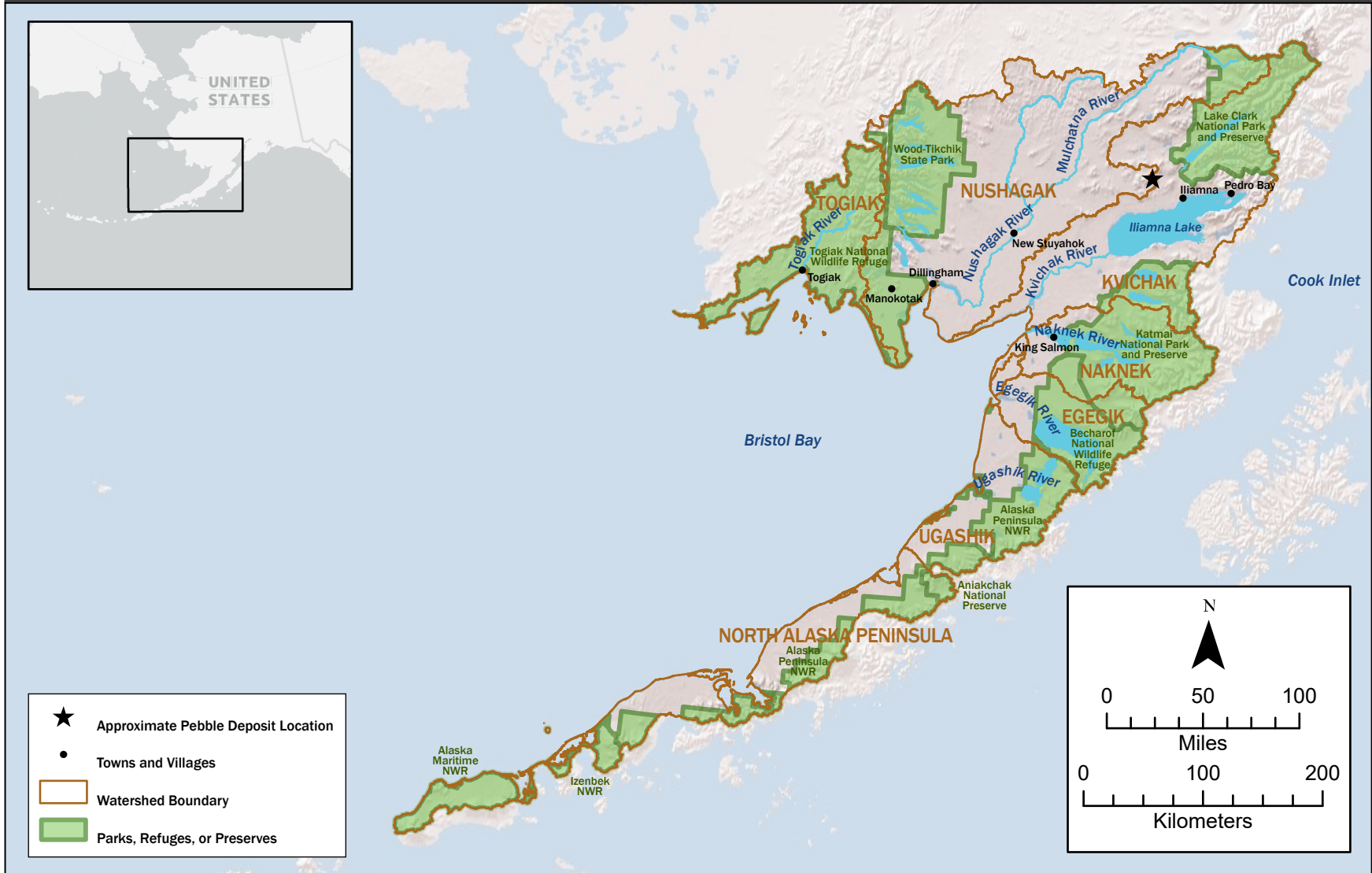
The Bristol Bay watershed's streams, wetlands, and other aquatic resources support a more than 4,000-year-old subsistence-based way of life for Alaska Natives, as well as world-class, economically important commercial and sport fisheries for salmon and other fishes. The Bristol Bay watershed supports the world's largest runs of Sockeye Salmon, producing approximately half of the world's Sockeye Salmon. These Sockeye Salmon represent the most abundant and diverse populations of this species remaining in the United States. Bristol Bay's Chinook Salmon runs are also frequently at or near the world's largest, and the region also supports significant Coho, Chum, and Pink salmon populations. Because no hatchery fishes are raised or released in the watershed, Bristol Bay's salmon populations are entirely wild and self-sustaining. Bristol Bay is remarkable as one of the last places on Earth with such bountiful and sustainable harvests of wild salmon. One of the main factors leading to the success of this fishery is the fact that its diverse aquatic habitats are largely untouched and pristine, unlike the waters that support many other salmon fisheries worldwide.

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<sup>1</sup> Anadromous fishes are those that hatch in freshwater habitats, migrate to sea for a period of relatively rapid growth, and then return to freshwater habitats to spawn. For the purposes of the 2022 Proposed Determination, "anadromous fishes" refers only to Coho or Silver salmon (*Oncorhynchus kisutch*), Chinook or King salmon (*O. tshawytscha*), Sockeye or Red salmon (*O. nerka*), Chum or Dog salmon (*O. keta*), and Pink or Humpback salmon (*O. gorbuscha*).



**Figure ES-1. The Bristol Bay watershed, composed of the Togiak, Nushagak, Kvichak, Naknek, Egegik, and Ugashik River watersheds and the North Alaska Peninsula. Only selected towns and villages are shown on this map.**



Nearly 70 percent of Bristol Bay’s Sockeye and large numbers of its Coho, Chinook, Pink, and Chum salmon are sustainably harvested in subsistence, commercial, and recreational fisheries before they can return to their natal lakes and streams to spawn. Thus, these salmon resources have significant nutritional, cultural, economic, and recreational value, both within and beyond the Bristol Bay region. The total economic value of the Bristol Bay watershed’s salmon resources, including subsistence uses, was estimated at more than \$2.2 billion in 2019 (McKinley Research Group 2021). The Bristol Bay commercial salmon fishery generates the largest component of this economic activity, resulting in 15,000 jobs and an economic benefit of \$2.0 billion in 2019, \$990 million of which was in Alaska (McKinley Research Group 2021). Section 3 of the 2022 Proposed Determination provides an overview of the streams, wetlands, and other aquatic resources of the Bristol Bay watershed and discusses their role in supporting important subsistence, commercial, and recreational fisheries.

#### **BOX ES-1. SECTION 404 OF THE CLEAN WATER ACT**

The objective of the Clean Water Act (CWA) is to restore and maintain the chemical, physical, and biological integrity of the nation’s waters. Section 404(c) of the CWA authorizes the U.S. Environmental Protection Agency (EPA) to (1) prohibit or withdraw the specification of any defined area in waters of the United States as a disposal site, and (2) restrict, deny, or withdraw the use of any defined area in waters of the United States for specification as a disposal site whenever it determines, after notice and opportunity for public hearing, that the discharge of dredged or fill material into the area will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas. EPA has used its Section 404(c) authority judiciously, having completed only 13 Section 404(c) actions in the 50-year history of the CWA.

## **Proposed Mine at the Pebble Deposit**

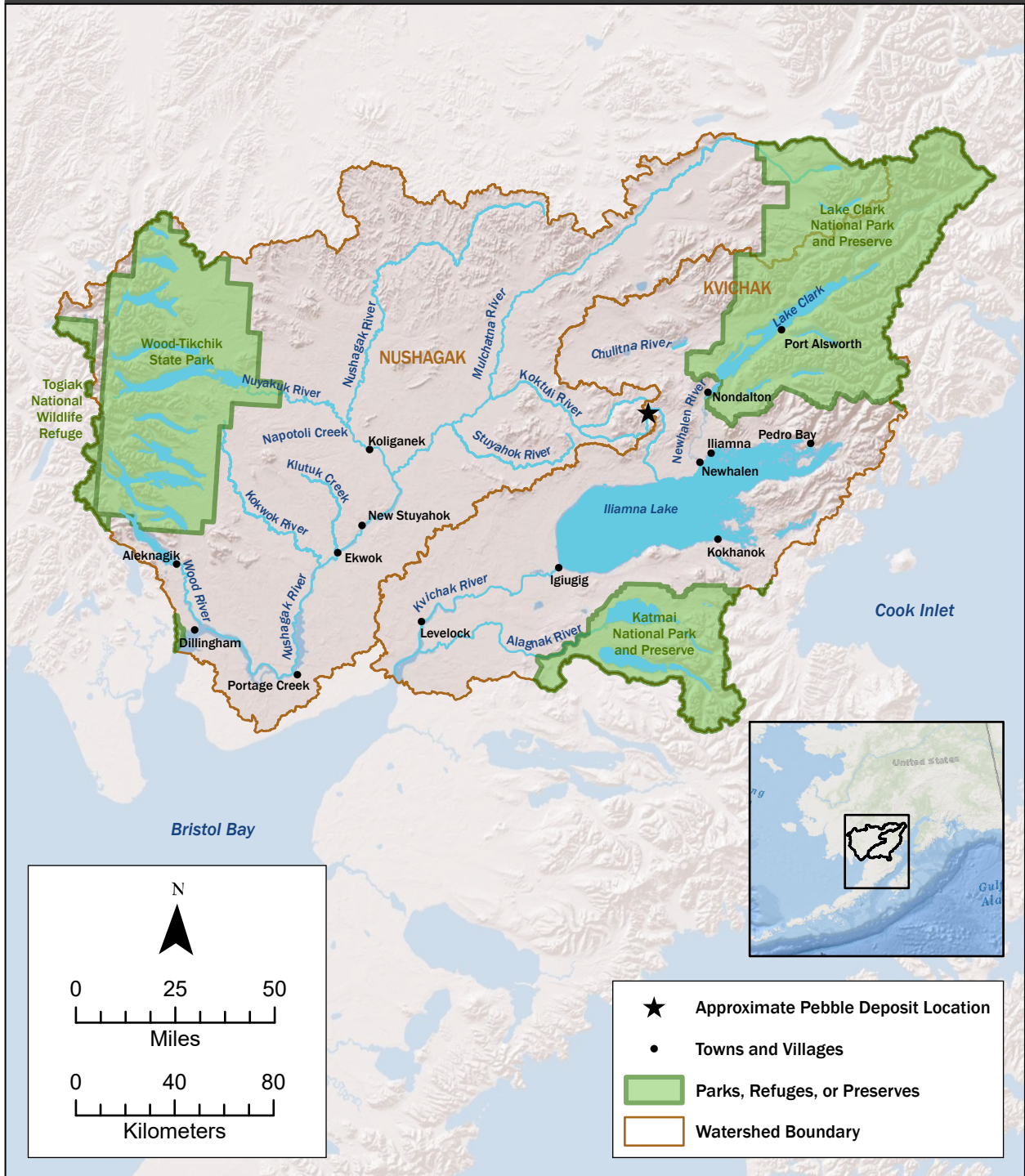
The Pebble deposit, a large, low-grade deposit containing copper-, gold-, and molybdenum-bearing minerals, is located at the headwaters of the pristine Bristol Bay watershed. The Pebble deposit underlies portions of the South Fork Koktuli River (SFK), North Fork Koktuli River (NFK), and Upper Talarik Creek (UTC) watersheds. The SFK, NFK, and UTC drain to two of the largest rivers in the Bristol Bay watershed, the Nushagak and Kvichak Rivers (Figure ES-2).

Since 2001, Northern Dynasty Minerals Ltd. (NDM) and subsequently the Pebble Limited Partnership (PLP)<sup>2</sup> have been conducting data collection and analysis as part of efforts to pursue the development of a large-scale mine at the Pebble deposit. Construction and operation of a mine at the Pebble deposit would necessitate the discharge of dredged or fill material into wetlands, streams, and other waters of

<sup>2</sup> PLP was created in 2007 by co-owners NDM and Anglo American PLC to design, permit, construct, and operate a long-life mine at the Pebble deposit (Ghaffari et al. 2011). In 2013, NDM acquired Anglo American’s interest in PLP, and NDM now holds a 100 percent interest in PLP (Kalanchey et al. 2021).



Figure ES-2. Major water bodies within the Nushagak and Kvichak River watersheds.



the United States and would, therefore, require a CWA Section 404 permit from the U.S. Army Corps of Engineers (USACE). In December 2017, PLP submitted a CWA Section 404 permit application to USACE to develop a mine at the Pebble deposit, which triggered the development of an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA). In response to the Section 404 permit review/NEPA review process, PLP submitted a revised permit application in June 2020 (the 2020 Mine Plan) (PLP 2020).

In the 2020 Mine Plan, PLP proposes to develop the Pebble deposit as a surface mine at which 1.3 billion tons of ore would be mined over 20 years. The project consists of four primary elements: (1) the mine site situated in the SFK, NFK, and UTC watersheds (Figure ES-3); (2) the Diamond Point port; (3) the transportation corridor, including concentrate and water return pipelines; and (4) the natural gas pipeline and fiber optic cable. The first element, a fully developed mine site, would include an open pit, bulk tailings storage facility (TSF), pyritic TSF, a 270-megawatt power plant, water management ponds (WMPs), water treatment plants (WTPs), milling and processing facilities, and supporting infrastructure (Figure ES-4). Under the 2020 Mine Plan, PLP would progress through four distinct mine phases: construction, operations (also referred to as production), closure, and post-closure. The construction period would last approximately four years, followed by 20 years of operation. Closure, including physical reclamation of the mine site, is projected to take approximately 20 years. Post-closure activities, including long-term water management and monitoring, would last for centuries (USACE 2020a).

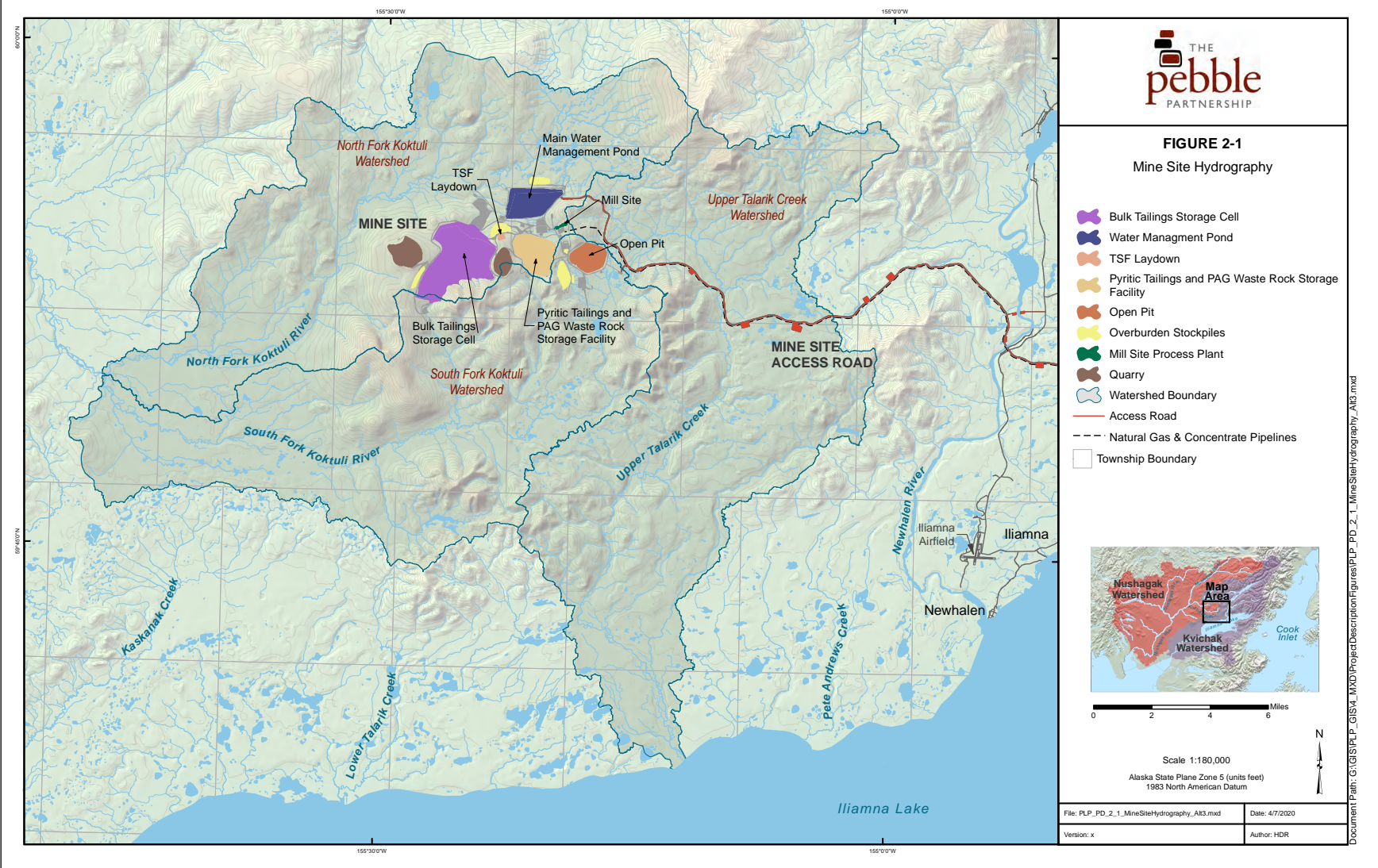
On July 24, 2020, USACE published a Notice of Availability for the Final EIS (FEIS) in the *Federal Register* (USACE 2020a), and on November 20, 2020, USACE issued its Record of Decision (ROD) denying PLP's CWA Section 404 permit application on the basis that the 2020 Mine Plan would not comply with the CWA Section 404(b)(1) Guidelines and would be contrary to the public interest (USACE 2020b). By letter dated November 25, 2020, USACE notified PLP that the proposed project failed to comply with the CWA Section 404(b)(1) Guidelines because, even after consideration of proposed mitigation measures, "the proposed project would cause unavoidable adverse impacts to aquatic resources which would result in Significant Degradation to aquatic resources."

On January 19, 2021, PLP filed a request for an appeal of the USACE permit denial with USACE. USACE accepted the appeal on February 25, 2021, and review of the appeal is ongoing.

The USACE permit denial addresses only PLP's specific permit application for the 2020 Mine Plan; it does not address other future plans to mine the Pebble deposit that would have adverse effects similar or greater in nature and magnitude to the 2020 Mine Plan. Information regarding the Pebble deposit and the 2020 Mine Plan can be found in Section 2 of the 2022 Proposed Determination.

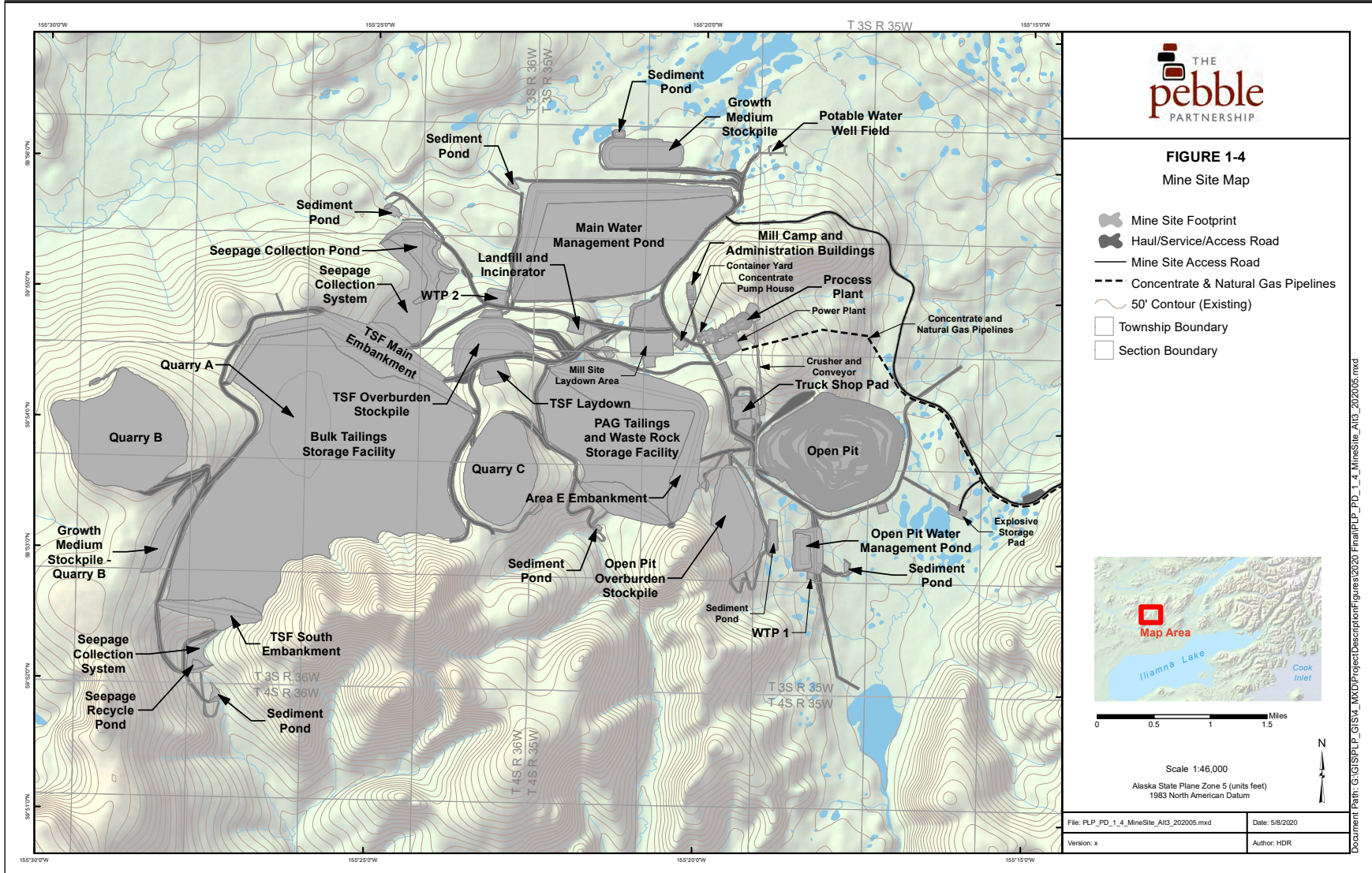


**Figure ES-3. Mine site hydrography.** Figure 2-1 from PLP’s June 8, 2020, Clean Water Act Section 404 permit application (PLP 2020).





**Figure ES-4. Mine site map. Figure 1-4 from PLP's June 8, 2020, Clean Water Act Section 404 permit application (PLP 2020).**



## 2014 Proposed Determination

For more than a decade, Alaska Native communities in the Bristol Bay watershed; subsistence, commercial, and recreational fishing interests; conservation groups; and others have raised concerns about the potential impacts a large-scale mine at the Pebble deposit could have on the region's socially, ecologically, and economically important fishery areas. Starting in May 2010, these groups and others began requesting that EPA use its CWA Section 404(c) authority to protect the region's fishery areas. In February 2011, EPA decided to conduct an ecological risk assessment before considering any additional steps. In January 2014, after three years of study, two rounds of public comment, and independent, external peer review, EPA released its *Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska*<sup>3</sup> (Bristol Bay Assessment or BBA) (EPA 2014). In July 2014, after careful consideration of available information, including the findings of the BBA and consultation with PLP and the State of Alaska, EPA Region 10 published a proposed determination under Section 404(c) of the CWA to restrict the use of certain waters in the SFK, NFK, and UTC watersheds as disposal sites for dredged or fill material associated with mining the Pebble deposit (2014 Proposed Determination) for public comment.

As a result of litigation brought by PLP, EPA Region 10's CWA Section 404(c) review process was halted in November 2014, until EPA and PLP resolved the case in a May 2017 settlement agreement. As part of that settlement agreement, EPA Region 10 proposed to withdraw the 2014 Proposed Determination. EPA ultimately withdrew the 2014 Proposed Determination in August 2019. In October 2019, 20 tribal, fishing, environmental, and conservation groups challenged EPA's withdrawal of the 2014 Proposed Determination. The ultimate result of the litigation was an October 29, 2021 decision by the U.S. District Court for the District of Alaska to vacate EPA's 2019 decision to withdraw the 2014 Proposed Determination and remand the action to the Agency for reconsideration.

The District Court's vacatur of EPA's 2019 decision to withdraw the 2014 Proposed Determination had the effect of reinstating the 2014 Proposed Determination and reinitiating EPA's CWA Section 404(c) review process. The next step in the CWA Section 404(c) review process required the Region 10 Regional Administrator to decide whether to withdraw the 2014 Proposed Determination or prepare a recommended determination within 30 days. On November 23, 2021, EPA Region 10 published in the *Federal Register* a notice extending the applicable time requirements through May 31, 2022, to provide sufficient time to consider available information and determine the appropriate next step in the CWA Section 404(c) review process. In its notice, EPA concluded that it should consider information that had become available since EPA issued the 2014 Proposed Determination. Information regarding the 2014 Proposed Determination and the history of EPA's work in the Bristol Bay watershed can be found in Section 2 of the 2022 Proposed Determination.

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<sup>3</sup> For more information about EPA's efforts in Bristol Bay or copies of the Bristol Bay Assessment, see <http://www.epa.gov/bristolbay>.

## 2022 Proposed Determination

EPA Region 10 considered a wide array of information that has become available since it issued the 2014 Proposed Determination, including the following:

- More than 670,000 public comments submitted to EPA Region 10 in response to the 2014 Proposed Determination.
- PLP's CWA Section 404 permit application, including the 2020 Mine Plan (PLP 2020).
- USACE's FEIS evaluating the 2020 Mine Plan, including the FEIS appendices, technical support documents, and references (USACE 2020a).
- EPA's and the U.S. Fish and Wildlife Service's 12-week coordination process with USACE in Spring 2020 to evaluate PLP's proposed project for compliance with the CWA Section 404(b)(1) Guidelines.
- USACE's ROD denying PLP's CWA Section 404 permit application for the 2020 Mine Plan, including the ROD supporting documents (USACE 2020b).
- NDM's *Pebble Project Preliminary Economic Assessment* dated September 9, 2021 (Kalanchey et al. 2021).
- Updated data regarding fishery resources in the Bristol Bay watershed.
- New scientific and technical publications.

In January 2022, consistent with its regulatory procedures for proposed determinations at 40 CFR 231.3(a), EPA Region 10 notified USACE, Alaska Department of Natural Resources (ADNR), PLP, Pebble East Claims Corporation, Pebble West Claims Corporation, and Chuchuna Minerals<sup>4</sup> (the Parties) of EPA Region 10's intention to issue a revised proposed determination because, based on a review of information available to that date, it continued to believe that the discharge of dredged or fill material associated with mining the Pebble deposit could result in unacceptable adverse effects on fishery areas. EPA Region 10 provided the Parties with an opportunity to submit information that demonstrated that no unacceptable adverse effects would result from discharges associated with mining the Pebble deposit or that actions could be taken to prevent unacceptable adverse effects on fishery areas.

ADNR, PLP, and Chuchuna Minerals submitted information asserting legal, policy, scientific, and technical issues. As discussed in Section 2.2.2 of the 2022 Proposed Determination, this information did not demonstrate to the satisfaction of EPA Region 10 that no unacceptable adverse effects would occur as a result of the discharge of dredged or fill material associated with mining the Pebble deposit. Accordingly, consistent with 40 CFR 231.3(a)(2), EPA Region 10 is publishing a public notice of the 2022 Proposed Determination because EPA Region 10 continues to have reason to believe that the discharge

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<sup>4</sup> EPA Region 10 notified Chuchuna Minerals because USACE's FEIS for the 2020 Mine Plan indicates that it is reasonably foreseeable for discharges associated with mining the Pebble deposit to expand in the future into portions of areas where Chuchuna Minerals holds mining claims.



of dredged or fill material associated with mining at the Pebble deposit could result in unacceptable adverse effects on anadromous fishery areas. Section 4 of the 2022 Proposed Determination provides the basis for EPA Region 10's findings regarding unacceptable adverse effects on anadromous fishery areas.

As demonstrated in the FEIS and ROD, construction and routine operation of the mine proposed in the 2020 Mine Plan would result in the discharge of dredged or fill material into waters of the United States, including streams, wetlands, lakes, and ponds overlying the Pebble deposit and within adjacent watersheds. The direct effects (i.e., resulting from placement of fill in aquatic habitats) and certain secondary effects of such discharges (i.e., associated with a discharge of dredged or fill material, but not resulting from the actual placement of such material) would result in the total loss of aquatic habitats important to anadromous fishes. These losses are the result of the construction and routine operation of the various components of the mine site, including the open pit, bulk TSF, pyritic TSF, power plant, WMPs, WTPs, milling/processing facilities, and supporting infrastructure. According to the FEIS and ROD, discharges of dredged or fill material to construct and operate the mine site proposed in the 2020 Mine Plan would result in the total loss of approximately 99.7 miles (160.5 km) of stream habitat, representing approximately 8.5 miles (13.7 km) of anadromous fish streams and 91.2 miles (146.8 km) of additional streams that support anadromous fish streams. Such discharges of dredged or fill material also would result in the total loss of approximately 2,113 acres (8.6 km<sup>2</sup>) of wetlands and other waters that support anadromous fish streams.

Additional secondary effects of the proposed discharges of dredged or fill material at the mine site would degrade anadromous fishery areas downstream of the mine site. Specifically, the stream, wetland, and other aquatic resource losses from the footprint of the 2020 Mine Plan would reverberate downstream, depriving downstream anadromous fish habitats of nutrients, groundwater inputs, and other ecological subsidies from lost upstream aquatic resources. Further, streamflow alterations from water capture, withdrawal, storage, treatment, or release at the mine site are another secondary effect of the discharge of dredged or fill material associated with the construction and routine operation of the 2020 Mine Plan. Such streamflow alterations would adversely affect at least 29 miles (46.7 km) of anadromous fish streams downstream of the mine site due to greater than 20 percent changes in average monthly streamflow.<sup>5</sup> These streamflow alterations would result in major changes in ecosystem structure and function and would reduce both the extent and quality of anadromous fish habitat downstream of the mine. As recognized in the FEIS, all instances of complete loss of aquatic habitat and most impairment to fish habitat function would be permanent.

Although Alaska has many streams and wetlands that support salmon, individual streams, stream reaches, wetlands, lakes, and ponds play a critical role in supporting individual salmon populations and

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<sup>5</sup> Streamflow alterations would vary seasonally. Streamflow reductions exceeding 20 percent of average monthly streamflow would occur in at least one month per year in at least 13.1 miles (21.4 km) of anadromous fish streams downstream of the mine site, and operation of the 2020 Mine Plan would increase streamflow by more than 20 percent of baseline average monthly streamflow in at least 25.7 miles (41.3 km) of downstream anadromous fish streams due to WTP discharges.

protecting the genetic diversity of Bristol Bay's wild salmon populations. The diverse array of watershed features across the region creates and sustains a diversity of aquatic habitats that support multiple populations of salmon with asynchronous run timings and habitat use patterns (i.e., biocomplexity, after Hilborn et al. 2003). These population differences are reflected in salmon genetic diversity and adaptation to local conditions within Bristol Bay's component watersheds (e.g., Quinn et al. 2012) and provide stability to the overall system (Schindler et al. 2010). Impacts of the 2020 Mine Plan are concentrated in the SFK and NFK watersheds, which are a part of the Nushagak River watershed. Recent analysis specific to the Nushagak River watershed underscores the important role that the streams, wetlands, lakes, and ponds across the entire Nushagak River watershed, including those that would be adversely affected by the 2020 Mine Plan, play in stabilizing the Nushagak River's productive Sockeye and Chinook salmon fisheries (Brennan et al. 2019). Similarly, both the Kuktuli River (the SFK and NFK are tributaries to the Kuktuli River) and UTC have been documented to support genetically distinct populations of Sockeye Salmon (Dann et al. 2012, Shedd et al. 2016, Dann et al. 2018). Loss of salmon habitats and associated salmon diversity in the SFK, NFK, and UTC watersheds would erode both the habitat complexity and biocomplexity that help buffer these populations from sudden and extreme changes in abundance and ultimately maintain their productivity.

In addition to supporting genetically distinct salmon populations, the streams and wetlands draining the Pebble deposit area provide key habitat for numerous other fish species and supply water, invertebrates, organic matter, and other resources to downstream waters (Meyer et al. 2007, Colvin et al. 2019, Koenig et al. 2019). This is particularly true in dendritic stream networks like the SFK, NFK, and UTC systems, which have a high density of headwater streams. As a result, headwater streams and wetlands play a vital role in maintaining diverse, abundant anadromous fish populations—both by providing important fish habitat and supplying the energy and other resources needed to support anadromous fishes in connected downstream habitats.

EPA Region 10 believes the discharge of dredged or fill material for the construction and routine operation of the 2020 Mine Plan could result in unacceptable adverse effects on anadromous fishery areas in the SFK and NFK watersheds. In this regard, EPA makes four independent unacceptability findings, each of which is based on one or more factors, including the large amount of permanent loss of anadromous fish habitat (including spawning and breeding areas); the particular importance of the permanently lost habitat for juvenile Coho and Chinook salmon; the degradation of additional downstream spawning and rearing habitat for Coho, Chinook, and Sockeye salmon due to the loss of ecological subsidies provided by the eliminated anadromous fish streams; and the resulting erosion of both habitat complexity and biocomplexity within the SFK and NFK watersheds, which are key to the abundance and stability of salmon populations within these watersheds. This conclusion supports the proposed prohibition described in Section 5.1 of the 2022 Proposed Determination.

Further, EPA Region 10 believes the discharge of dredged or fill material for the construction and routine operation of a mine at the Pebble deposit anywhere in the SFK, NFK, and UTC watersheds could result in unacceptable adverse effects on anadromous fishery areas if the effects of such discharges are similar or greater in nature and magnitude to the adverse effects of the 2020 Mine Plan. In this regard,

EPA makes four independent unacceptability findings, each of which is based on one or more factors, including the pristine condition and productivity of anadromous habitat throughout the SFK, NFK, and UTC watersheds; the large amount of permanent loss of anadromous fish habitat; the degradation of additional downstream spawning and rearing habitat for Coho, Chinook, and Sockeye salmon due to the loss of ecological subsidies provided by the eliminated streams, wetlands, and other waters; and the resulting erosion of both habitat complexity and biocomplexity within the SFK, NFK, and UTC watersheds, which are key to the abundance and stability of salmon populations within these watersheds. This conclusion supports the proposed restriction described in Section 5.2 of the 2022 Proposed Determination.

Based on the foregoing, EPA Region 10 determined that the appropriate next step in this CWA Section 404(c) review process was to revise the 2014 Proposed Determination.

## Overview of Prohibition and Restriction in the 2022 Proposed Determination

The 2022 Proposed Determination includes two parts: a proposed prohibition and a proposed restriction, which are described in more detail in Sections 5.1 and 5.2, respectively.

### Proposed Prohibition

The EPA Region 10 Regional Administrator has reason to believe that discharges of dredged or fill material for the construction and routine operation of the mine at the Pebble deposit identified in the 2020 Mine Plan (PLP 2020) could result in unacceptable adverse effects on anadromous fishery areas in the SFK and NFK watersheds. Based on information in PLP's CWA Section 404 permit application, the FEIS, and the ROD, such discharges would have the following impacts on aquatic resources:

- The loss of approximately 8.5 miles (13.7 km) of documented anadromous fish streams (Section 4.2.1).
- The loss of approximately 91.2 miles (146.8 km) of additional streams that support anadromous fish streams (Section 4.2.2).
- The loss of approximately 2,113 acres (8.6 km<sup>2</sup>) of wetlands and other waters that support anadromous fish streams (Section 4.2.3).
- Adverse impacts to at least 29 additional miles (46.7 km) of anadromous fish streams resulting from greater than 20 percent changes in average monthly streamflow (Section 4.2.4).

Sections 4.2.1 through 4.2.4 describe the basis for EPA Region 10's determination that each of the above impacts could, independently, result in unacceptable adverse effects on anadromous fishery areas (including spawning and breeding areas).



Accordingly, the Regional Administrator proposes that EPA prohibit the specification of waters of the United States within the mine site footprint for the 2020 Mine Plan located in the SFK and NFK watersheds (Figure ES-4) (PLP 2020) as disposal sites for the discharge of dredged or fill material for the construction and routine operation of the 2020 Mine Plan (PLP 2020, USACE 2020a: Appendix J). The Defined Area for Prohibition is the portion of the mine site footprint for the 2020 Mine Plan within the SFK and NFK watersheds (Figure ES-4) (PLP 2020). The discharges prohibited in the Defined Area for Prohibition are dredged or fill material for the construction and routine operation of the 2020 Mine Plan.

## Proposed Restriction

Based on the same record, the Regional Administrator has reason to believe that discharges of dredged or fill material associated with future plans to mine the Pebble deposit could result in unacceptable adverse effects on anadromous fishery areas anywhere in the SFK, NFK, and UTC watersheds if the effects of such discharges are similar or greater in nature<sup>6</sup> and magnitude<sup>7</sup> to the adverse effects of the 2020 Mine Plan described in Sections 4.2.1 through 4.2.4 of the 2022 Proposed Determination.

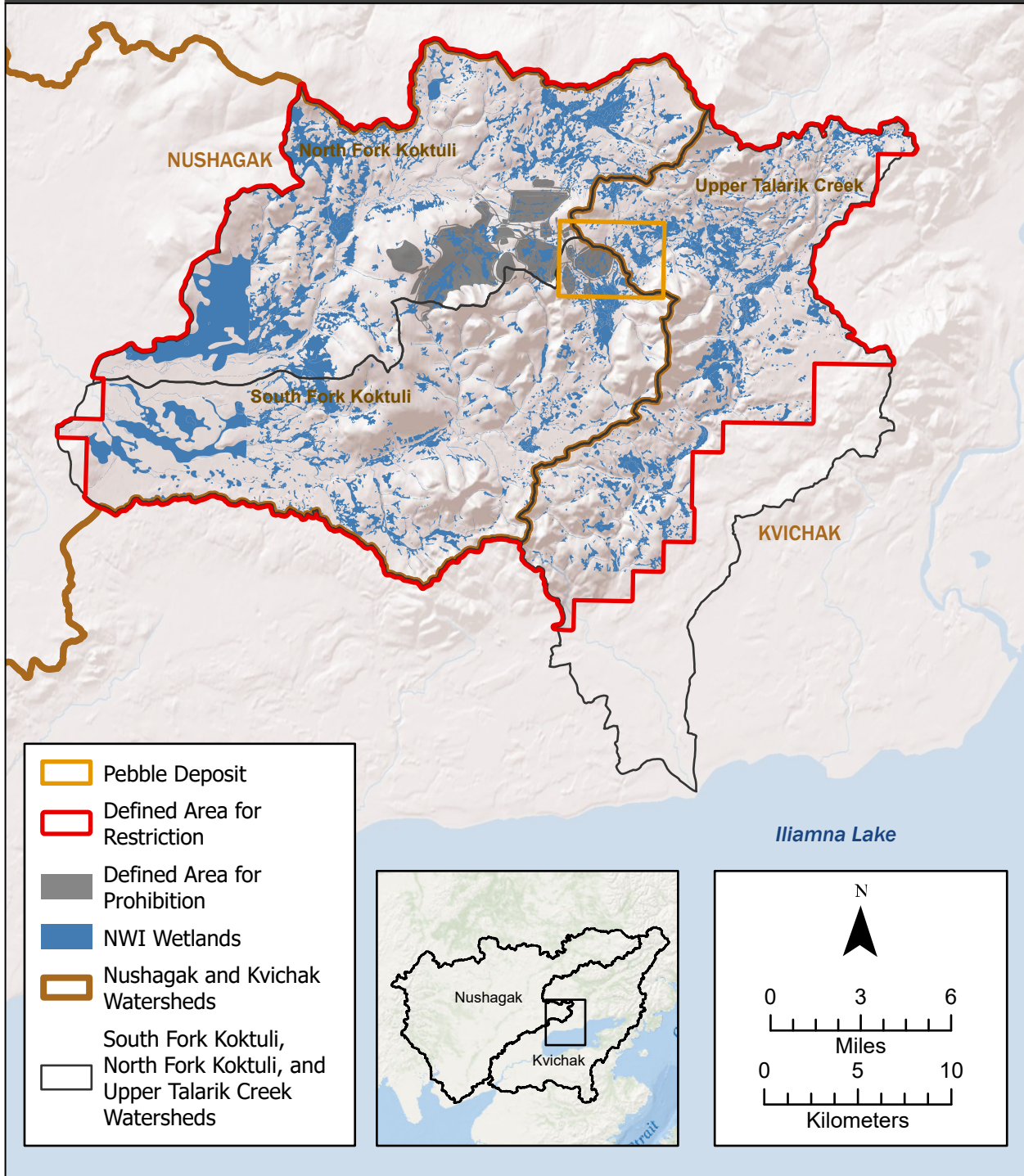
Accordingly, the Regional Administrator proposes to restrict the use of waters of the United States within the Defined Area for Restriction (Figures ES-5 and ES-6) for specification as disposal sites for the discharge of dredged or fill material for the construction and routine operation of any future plan to mine the Pebble deposit that would either individually or collectively result in adverse effects similar or greater in nature and magnitude to those described in Sections 4.2.1 through 4.2.4 of the 2022 Proposed Determination. Because each of the impacts described in Sections 4.2.1 through 4.2.4 could, independently, result in unacceptable adverse effects on anadromous fishery areas, a proposal that triggers any one of these four unacceptability findings would be subject to the restriction.

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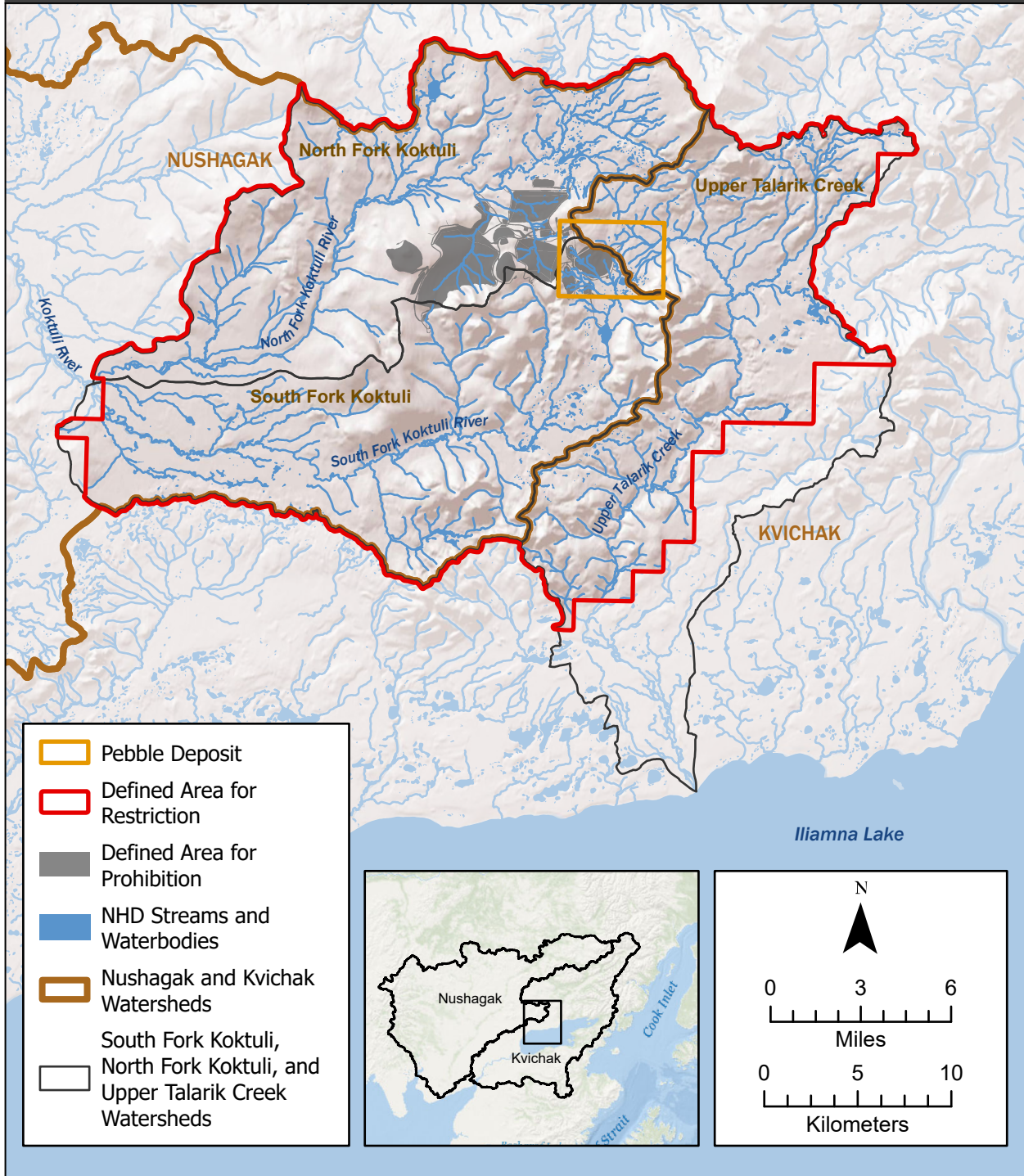
<sup>6</sup> *Nature* means “the type or main characteristic of something” (see Cambridge Dictionary available at: <https://dictionary.cambridge.org/us/dictionary/english/nature>).

<sup>7</sup> *Magnitude* means “the large size or importance of something” (see Cambridge Dictionary available at: <https://dictionary.cambridge.org/us/dictionary/english/magnitude>).

**Figure ES-5. The Defined Area for Restriction and the defined area for prohibition overlain on wetlands from the National Wetlands Inventory (USFWS 2021).**



**Figure ES-6. The Defined Area for Restriction and the defined area for prohibition overlain on streams and waterbodies from the National Hydrography Dataset (USGS 2021).**



## Evaluation of Portions of the CWA Section 404(b)(1) Guidelines

EPA's Section 404(c) regulations provide that consideration should be given to the "relevant portions of the Section 404(b)(1) Guidelines" in evaluating the "unacceptability" of effects (40 CFR 231.2(e)). EPA Region 10's consideration of the relevant portions of the Section 404(b)(1) Guidelines further confirm EPA's proposed unacceptable adverse effects finding.

Specifically, EPA Region 10 has determined that direct and secondary effects of the discharge of dredged or fill material for the construction and routine operation of the 2020 Mine Plan, as well as discharges that would result in effects similar or greater in nature and magnitude to the 2020 Mine Plan, would result in significant degradation under the Section 404(b)(1) Guidelines. These findings are based on the significantly adverse effects of the discharge of dredged or fill material on special aquatic sites, life stages of anadromous fishes, anadromous fish habitat, and aquatic ecosystem diversity, productivity, and stability under the Section 404(b)(1) Guidelines.

Region 10 evaluated PLP's two compensatory mitigation plans and neither plan adequately mitigates adverse effects described in the 2022 Proposed Determination to an acceptable level. EPA Region 10 also evaluated additional potential compensation measures for informational purposes. Available information demonstrates that known compensation measures are unlikely to adequately mitigate effects described in the 2022 Proposed Determination to an acceptable level. Information regarding the evaluation of the Section 404(b)(1) Guidelines can be found in Section 4.3 of the 2022 Proposed Determination.

## Information about Other Adverse Effects of Concern on Aquatic Resources

While not a basis for EPA Region 10's 2022 Proposed Determination, EPA Region 10 has identified additional potential adverse effects of concern on aquatic resources within the SFK, NFK, and UTC watersheds associated with discharges of dredged or fill material from mining the Pebble deposit and is presenting this discussion solely for informational purposes. First, adverse effects could result from accidents and failures, such as a tailings dam failure. Uncertainty exists as to whether severe accidents or failures could be prevented over a management horizon of centuries (or in perpetuity), particularly in such a geographically remote area. If such events were to occur, they would have profound ecological ramifications. Second, there are potential adverse impacts associated with the ancillary project components along the transportation corridor and at the Diamond Point port. Third, there are potential adverse impacts associated with the reasonably foreseeable expansion of the 2020 Mine Plan evaluated in the FEIS. The FEIS finds that it is reasonably foreseeable that the 2020 Mine Plan would expand in the future into a plan that would mine approximately 8.6 billion tons of ore over 78 years. The FEIS estimates that the discharge of dredged or fill material for the construction and operation of this expanded mine would result in the total loss of approximately 430 miles (6921 km) of streams at the expanded mine site, representing approximately 43.5 miles (70 km) of anadromous fish streams and



approximately 386 miles (621 km) of additional streams that support anadromous fish streams. Further, the FEIS estimates that discharges of dredged or fill material to construct and operate the expanded mine site would also result in the total loss of more than 10,800 acres (43.7 km<sup>2</sup>) of wetlands and other waters that support anadromous fish streams. These would represent extraordinary and unprecedented levels of anadromous fish habitat loss and degradation, dramatically expanding the unacceptable adverse effects identified for the 2020 Mine Plan. For example, significant additional anadromous fish habitat losses and degradation in SFK, NFK, and UTC caused by future expansion of the mine would threaten genetically distinct Sockeye Salmon populations in both the Koktuli River and UTC. See Section 6 of the 2022 Proposed Determination for a discussion of other concerns and considerations that EPA describes for informational purposes but do not serve as a basis for its findings.

## Authority and Justification for Undertaking a CWA Section 404(c) Review at this Time

EPA may act “whenever” it makes the required determination under the statute and regulations. The Agency may use its CWA Section 404(c) authority “at any time,” including before a permit application has been submitted, at any point during the permitting process, and after a permit has been issued (33 U.S.C. 1344(c); 40 CFR 231.1(a), (c); *Mingo Logan Coal Co. v. EPA*, 714 F.3d 608, 613 (D.C. Cir. 2013)).

Congress enacted CWA Section 404(c) to provide EPA the ultimate authority, if it chooses on a case-by-case basis, to make decisions regarding specification of disposal sites for dredged and fill material discharges under CWA Section 404 (*Mingo Logan Coal Co. v. EPA*, 714 F.3d 608, 612-13 (D.C. Cir. 2013)). EPA Region 10 has reviewed the available information, including the permitting record, and the record supports the findings reported in the 2022 Proposed Determination.

If EPA acts now, based on an extensive and carefully considered record, EPA, USACE, and the regulated community can avoid unnecessary expenditure of resources. By acting now, EPA clarifies its assessment of the effects of discharges for the construction and routine operation of the 2020 Mine Plan in light of the importance of the anadromous fishery areas at issue<sup>8</sup> and, therefore, promotes regulatory certainty for all stakeholders.

It also promotes transparency, clarity, and predictability for EPA to act now to restrict discharges for the construction and routine operation of a mine at the Pebble deposit anywhere in the SFK, NFK, and UTC watersheds that would either individually or collectively result in adverse effects similar or greater in nature and magnitude to those associated with the 2020 Mine Plan. By including this restriction, EPA is providing clarity to the regulated community and all interested stakeholders, which will help avoid unnecessary costs and investments. The federal government, the State of Alaska, federally recognized

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<sup>8</sup> In this proposed determination, EPA Region 10 has concluded that each of the impacts on aquatic resources identified in Sections 4.2.1 through 4.2.4 could, independently, result in unacceptable adverse effects. That finding is distinguishable from the USACE permit denial, in which USACE reached its conclusions based on consideration of total project impacts to aquatic resources.



tribal governments, PLP, and many interested stakeholders have devoted significant resources over many years of engagement and review. Considering the extensive record before EPA supporting this restriction, EPA believes that it would not be reasonable or necessary to engage in another multi-year NEPA and CWA Section 404 review process for future plans<sup>9</sup> that propose to discharge dredged or fill material in the Defined Area for Restriction that could result in effects that are similar or greater in nature and magnitude to effects of the 2020 Mine Plan. Ultimately, proposing the restriction now provides the most effective, transparent, and predictable protection of anadromous fishery areas throughout the Defined Area for Restriction from discharges that could result in unacceptable adverse effects on the valuable anadromous fishery areas within the SFK, NFK, and UTC watersheds.

## Conclusion

After evaluating available information, EPA Region 10 has reason to believe that unacceptable adverse effects on anadromous fishery areas (including spawning and breeding areas) could result from the discharge of dredged or fill material associated with mining at the Pebble deposit as identified in the 2020 Mine Plan.

EPA Region 10 is soliciting public comment on all issues discussed in the 2022 Proposed Determination. EPA Region 10 will fully consider all comments as it decides whether to withdraw the 2022 Proposed Determination or forward to EPA Headquarters a recommended determination. If EPA Region 10 prepares a recommended determination and forwards it to EPA Headquarters, EPA Headquarters will review the recommended determination, public comments received on the proposed determination, and all other available relevant information, and issue a final determination affirming, modifying, or rescinding Region 10's recommended determination.

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<sup>9</sup> USACE's denial of PLP's permit application does not address other plans to mine the Pebble deposit that would have adverse effects similar or greater in nature and magnitude to the 2020 Mine Plan.

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