American Fisheries Society
Organized 1870 to Promote the Conservation, Development, and Wise Utilization of the Fisheries

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October 13, 2017

Administrator Scott Pruitt
U.S. Environmental Protection Agency (EPA)
William Jefferson Clinton Building
1200 Pennsylvania Ave., N.W., 1101A
Washington, DC 20460

Re: Docket ID No. EPA-R10-OW-2017-0369

Dear Administrator Pruitt:

The American Fisheries Society (AFS) submits this letter in response to the proposal to withdraw the EPA's July 2014 Clean Water Act 404(c) Proposed Determination to restrict the use of certain waters as disposal sites for dredged or fill material associated with mining the Pebble deposit in Alaska's Bristol Bay watershed. AFS objects to the withdrawal of the proposed determination and recommends that the EPA use its authority to prevent the elimination and/or impairment of waters and wetlands supporting the extraordinarily prolific, sustainable, all-wild Bristol Bay salmon fisheries. AFS is concerned that EPA's settlement agreement with the Pebble Limited Partnership will clear the way for a project whose impacts to fisheries and the watershed cannot be adequately reduced or mitigated.

AFS represents over 7,500 professional fishery scientists and resource managers. Our mission is to improve the conservation and sustainability of fishery resources and aquatic ecosystems by advancing fisheries and aquatic science and promoting the development of fisheries professionals. Bristol Bay's unimpaired watersheds and wild, sustainable, commercial, recreational, and subsistence fisheries represent an extraordinarily rare resource of national and global importance. The area boasts the world's largest and most valuable wild salmon fisheries.[1] AFS seeks to ensure the best available science is considered in a decision such as this that removes protections for the watershed and the fisheries resources that rely on it.

AFS urges you to consider the EPA report entitled "An Assessment of Potential Mining Impacts on Salmon Ecosystems of Bristol Bay, Alaska" (Report) as you reconsider the Clean Water 404(c) determination. AFS closely followed EPA progress on the Report in previous years, as well as the

current permitting for continued exploration in the Pebble district. AFS professionals with mining experience reviewed and commented on prior drafts of the Report. We also reviewed the final Report and the peer-review record, and believe that EPA conducted a comprehensive, rigorous, professional review incorporating the best available science and addressed every substantive peer-review critique. We believe that the Report provides an indispensable resource to inform decision-makers of the costs, benefits, and risks to public salmon resources from proposed mining activities in Bristol Bay.

The Report recognizes that Bristol Bay is extraordinary because it produces about half the world's wild Sockeye Salmon supply with runs averaging 37.5 million fish per year. The wild salmon fishery in Bristol Bay has been managed in a sustainable manner since 1884, and was valued at $1.5 billion U.S. in 2010[1]. In addition to Sockeye Salmon, Bristol Bay and the watershed support one of the world's largest remaining wild Chinook Salmon runs and healthy Coho, Chum and Pink Salmon runs. These salmon, as well as resident trout, sustain lucrative commercial and recreational fisheries and provide jobs and food security to 25 rural Alaska Native villages and thousands of people. Bristol Bay represents a rare, unaltered living laboratory where we can learn how healthy salmon ecosystems function. Ensuring that this area remains pristine would allow it to continue to inform salmon rehabilitation efforts in the conterminous U.S. where 40 percent of populations are extirpated from historic habitats, a third of remaining populations are threatened or endangered with extinction, and the specter of climate change threatens cold water fish populations nationally[2,3].

AFS found that the Report rigorously considered mining risks to salmon and based realistic mine scenarios on plans commissioned by mine proponents, state of the art mining and mitigation techniques. However, a major shortcoming of the Report, in our view, is the unrealistically optimistic assumptions that no significant human or engineering failures would occur. Given that EPA quantified impacts from developing approximately half of the estimated Pebble ore body and did not quantify additional impacts from port facilities, power generation and transmission, and urbanization and other infrastructure, the assessment of potential impacts is very conservative. Actual impacts would very likely be much greater.

The Report estimated development of 6.5 billion tons of the estimated 10.8 billion ton Pebble ore deposit would result in a loss of 94 miles of salmon supporting streams and 5,350 acres of wetlands, ponds, and lakes in the mine footprint. Altered water flows would likely impair ecosystem function in 33 additional stream miles and mine pollution would likely affect fish in 51 stream miles. Toxic mine waste, leachates, wastewater, and tailings dams (mine waste dumps) should be monitored, maintained, and managed during and after mining—into perpetuity. A tailings dam failure in Bristol Bay would have catastrophic effects on fishery resources. Based on past mining district histories and its location, it is highly likely that damage to aquatic resources from mining would be unavoidable and permanent, and compensatory mitigation and remediation would be insufficient to make up for losses to aquatic habitats[4].

On August 4, 2014, Imperial Metals Corporation's Mount Polley copper-gold mine tailings dam failed, sending 24 million cubic meters of water and mine tailings downstream into a tributary of British Columbia's Fraser River with contamination reaching previously pristine Quesnel Lake. We believe the Mount Polley tailings dam failure reinforces the high risk of mining in the Bristol Bay headwaters and the specific risk of attempting to retain tailings and contaminated water behind an earthen dam in perpetuity.

The facts warrant deep consideration—Imperial Metals Corporation is an established Canadian mining firm, the mine and tailings dam were built to modern technical standards, the tailings were not acid-generating, and the breach occurred on a sunny summer day, not after an earthquake or a major storm event. The Mount Polley Mine tailings dam was the same type of tailings dam proposed for Pebble Mine. However, the Pebble Mine and associated dams are projected to be more than 100 times larger than Mount Polley, will be in a geologically and hydrologically less stable area, and in acid generating rock. Given those facts and the best available scientific information, the potential exists for a more serious catastrophe at Pebble Mine than what occurred and continues to occur at Mount Polley.

Besides those ecosystem and watershed level impacts, AFS is also concerned about the range of effects to individual salmon and entire Alaskan fish populations. Dilute copper concentrations can have far-reaching behavioral and pathological effects on fish, especially in low ionic strength waters*.

The Report and AFS' collective experience indicate that development of large-scale deposits in the Bristol Bay watershed are highly likely to have irreversible impacts. Such development is contrary to AFS recommended mine policy[22] because:

- the region is highly sensitive to mining pollution due to interconnected ground and surface waters with low buffering capacity;
- perpetual water pollution would result;
- perpetual water treatment and waste management would be required; and
- both surface and ground water quality would be degraded.

Therefore, AFS recommends that the EPA use its authority under section 404(c) of the Clean Water Act to preemptively prevent elimination and/or impairment of waters and wetlands supporting the extraordinarily prolific, sustainable, all-wild Bristol Bay salmon fisheries. AFS also recommends implementation of an independent statistically and ecologically rigorous monitoring program (as an intensified part of EPA's National River and Stream Assessment[23]) to document the current status and the spatial and temporal trends of the area's fish populations and their physical and chemical habitat.

AFS appreciates the opportunity to comment on the proposed rescission of the 404(c) determination and stands ready to provide technical assistance on this matter. Please do not hesitate to contact us if you have additional questions or if you would like to meet with AFS scientists and resource managers who are knowledgeable about the ecological and economic risks of mining in sensitive ecosystems.

Sincerely,

Douglas J. Austen, PhD
Executive Director

[*]Dilute copper concentrations as low as 5 µg/L impair salmonid olfactory function [(5-11)], making fish more susceptible to predation[11]. In laboratory studies, Hansen et al.[13] found that Rainbow Trout and Brown Trout actively avoided a range of metal concentrations characteristic of those in the Clark Fork River, Montana, mining district. Similarly, Woodward et al.[14] reported that Cutthroat Trout avoided a range of metal concentrations simulating those found in the Coeur d'Alene River Basin, Idaho, mining district. The migratory behavior of Atlantic Salmon was altered by releases from a New Brunswick copper-zinc mine[15]. DeCicco[16] found that Dolly Varden migrations were altered by an Alaskan copper mine, and Goldstein et al.[17] observed altered Chinook Salmon migration associated with Idaho metal mines. Esselman et al.[18] and Hughes[19] reported <15 percent intolerant fish occurred in an assemblage, once catchment mine density exceeded one mine per 5 km. Daniel et al.[20] found for the temperate plains ecoregion that a single mine in the catchment caused a threshold shift in the percent of game fish (meaning that there is no no-effect level). The preceding research involved mostly dilute chronic copper contamination, versus major spills such as Mount Polley. Such spills, as well as continuous leaks, are inevitable for tailings dams[21].

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