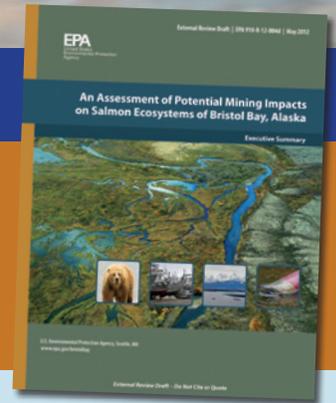


# PEBBLE WATCH *explores*

## SPECIAL EDITION

Your guide to the second draft  
of the U.S. EPA Bristol Bay  
watershed assessment



May 2013

### About the EPA watershed assessment

The purpose of the Bristol Bay watershed assessment is to paint a clear picture of the ecological resources in Bristol Bay, as well as to identify the potential impacts of large-scale mining on those resources.

It is written as an “ecological risk assessment,” a scientific investigation based on technical information and analyses.

Once final, the watershed assessment could be useful during the permitting process and during discussions on the impact of large-scale mining in the area. It could also be used by EPA to inform a decision on whether to limit large-scale mining developments in Bristol Bay.

In April, the U.S. Environmental Protection Agency (EPA) released the second draft of its Bristol Bay watershed assessment, taking into account more than 230,000 comments it had received on the first draft.

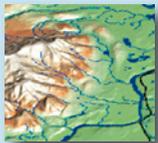
The EPA addressed several concerns in the second draft. Changes included:

- clarifying the purpose and scope of the document
- incorporating modern mining practices into the hypothetical mine scenarios used for the risk assessment
- explaining how mine scenarios were based on industry standards and publicly available preliminary mine plans for the proposed Pebble mine

EPA has already received tens of thousands of comments on the new draft, with the public input period closing on June 30, 2013. This guide highlights some of the findings in the new document, and provides a historical timeline of the watershed assessment process, information on how to find out more, and details for submitting your own comments.



# Changes to the assessment



## Structure and scope

While the assessment is still around the same size (now 1,160 pages instead of 1,124), it is organized differently to better reflect the format of an ecological risk assessment. It now has 14 chapters covering two main categories. Chapters 2-6 focus on the “Problem Formulation,” which covers the scope of the assessment, the resources of the Bristol Bay watershed and the mine scenarios used to analyze risk to those resources. Chapters 7-14 lay out the risks and impacts to salmon, wildlife and Alaska Native culture for both day-to-day mine operations, potential mine failure and cumulative effects from multiple mines. The EPA focused on describing direct effects to salmon and how those effects would in turn impact wildlife and Alaska Native culture. Other direct impacts of mining development to wildlife, and to people (both negative and positive), were not considered.



## Findings

The EPA stated that the revised draft reinforces its original conclusions that a single large mine would cause loss of stream habitat and wetlands even under normal operations, and that some type of accident or failure is likely during the centuries-long post closure period. In the second draft, the EPA included additional risks based on input from the public, peer reviewers and tribes.



## Working with mine scenarios

Since there is no published mine plan from developers, the EPA developed three different mining scenarios to determine risks of large-scale mining in the Nushagak/Kvichak watershed. The scenarios, all in the Pebble deposit area, cover 20-, 25- and 78-year mine operating durations.

Use of a “hypothetical” mine scenario is one of the biggest criticisms the EPA received on the first draft of the assessment. In the latest version, the EPA clarifies how it came up with the scenarios, saying that they realistically reflect the type of development that would be typical of a large-scale copper mine in Bristol Bay. The EPA based the scenarios on preliminary mine details published by Northern Dynasty Minerals, a 50 percent owner in the Pebble deposit, as well as consultations with experts and review of current mining literature.

The agency noted that even a mine plan introduced by developers would look different in the beginning, as there are always changes throughout the permitting process.

The EPA also established that the revised draft assumes that developers would use modern mining practices. This is an important distinction, as the report finds that there would be impact to the area even under normal operating conditions using modern techniques.

## Watershed Assessment - A Timeline



### Emphasis on public input

**2011**

EPA visits Bristol Bay region to meet with residents and learn their views, gather local knowledge.

**May 2010**

#### How it began

Nine federally recognized tribes and other organizations ask EPA to use Clean Water Act authority to stop Pebble mine development.

**February 2011**

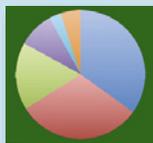
#### Study period

EPA announces watershed assessment plan. A study period begins, during which EPA interviews Bristol Bay area residents, collects scientific information about the area, and gathers input from other government agencies and tribes. EPA drafts the first version of the assessment, providing updates to the public along the way.



## Culture and traditional knowledge

The EPA included additional information on subsistence, impacts to way of life and case studies on how other Alaska resource extraction activities (North Slope, Red Dog Mine, Exxon Valdez spill) have impacted Native cultures. Based on some of these experiences, the EPA wrote that there would be “only modest direct employment benefits” in the area from large-scale mining. In Chapter 12, the EPA described how the loss of subsistence resources could negatively affect health, social networks, language and value and belief systems of Native peoples. Highlighted are representative quotes from Alaska Natives who testified during public meetings on the first draft of the watershed assessment regarding their concerns about the effects of large-scale mining on Native cultures.



## Compensation

In response to criticisms that it hadn't adequately discussed methods for compensating for impacts to fish, wetlands and streams, the EPA added Appendix J, “Compensatory Mitigation.” This includes analysis of several ideas that peer reviewers and individuals had suggested, including bank credits, spawning channel construction, beaver dam removal, road removal, hatchery construction, fish stocking, and commercial fishery harvest reduction. Report authors concluded that there are “significant challenges” with the measures suggested, and it is questionable whether they would be effective enough to address the magnitude of loss that would occur under the mine scenarios the EPA studied.

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## In-depth

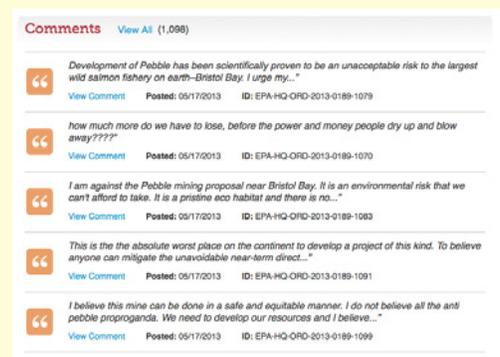
■ Read our summary of the first draft of the watershed assessment at [www.pebblewatch.com](http://www.pebblewatch.com). This document includes a description of each chapter in the original assessment.

■ For the EPA's fact sheet listing major changes in version two, an executive summary and the full text of the assessment and its appendices, go to [www2.epa.gov/bristolbay](http://www2.epa.gov/bristolbay).



## What are people saying?

Comments on the watershed assessment are available online. Find out what others think about the assessment by visiting the comments page. Find a link at [www2.epa.gov/bristolbay](http://www2.epa.gov/bristolbay).



**2012**  
February 24-March 9  
Public input on names of peer reviewers.

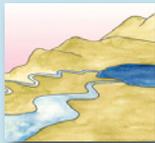
**2012**  
June 5-June 26  
Public input on questions for peer reviewers.

**2012**  
May 18-July 23  
Public comment period on first draft. Public meetings in Seattle, Anchorage and several villages in Bristol Bay.

**2013**  
April 26-June 30  
Responding to public interest, EPA holds another comment period on second draft.

May 2012	August 2012	November 2012	April 2013	Later in 2013
<b>Comment/peer review</b>	<b>Revision period</b>			<b>Revision/release of final</b>
Draft assessment released. More than 230,000 comments received.	Public peer review meetings held.	Peer review report released.	Second draft released for public comment and peer review.	Revision/release of final document.

## Changes to the assessment (cont.)



### Impacts to water

The EPA included additional information about water loss and water quality impacts in Chapter 8. It concludes that some leachate would escape collection and some water treatment failure is likely to occur. This chapter discusses common toxicants (like copper, aluminum and zinc) and their effects on fish. One of the greatest sources of uncertainty for water quality risk, according to the EPA, is the lack of a detailed understanding of how water moves in this area. Groundwater and surface water interaction are complex and more information is needed. EPA also referenced a study of hard rock metal mines in the U.S. that found most mines had violated water quality standards even though their mine permits included mitigation measures to avoid this. Failures occurred in part because their geochemical and hydrological characterizations were inadequate.



### Transportation corridor

Chapters 10 and 11 include expanded analysis of risks in the transportation corridor, including the possibility of pipeline spills, truck accidents involving process chemicals and culvert failures. Authors state that it is rarely possible to build roads that have no negative effect on streams.

#### WATERSHED ASSESSMENT CHAPTER GUIDE

1 Introduction	9 Tailings Dam Failure
2 Overview	10 Transportation Corridor
3 Description of the Region	11 Pipeline Failures
4 Type of Development	12 Fish-Mediated Effects on Culture & Wildlife
5 Assessment Endpoints	13 Cumulative Effects of Large Scale Mining
6 Mine Scenarios	14 Integrated Risk Characterization
7 Mine Footprint	
8 Water Collection, Treatment & Discharge	

## PEBBLE WATCH

Pebble Watch is an impartial, educational and fact-based resource for sharing information about the proposed Pebble project. It is a program of the Bristol Bay Native Corporation Land Department. The Pebble Watch team consists of scientists and science communicators who keep the public informed about issues related to potential Pebble mine development—from science reports to permitting.

Call (800) 426-3602 or write [staff@pebblewatch.com](mailto:staff@pebblewatch.com). Visit Pebble Watch online at [www.pebblewatch.com](http://www.pebblewatch.com) or “Like” us on Facebook for regular announcements.

## Your turn

### Submit your comments

**Online (preferred):** [www.regulations.gov](http://www.regulations.gov).  
Specify Docket #EPA-HQ-ORD-2013-0189.

**Email:** [ORD.Docket@epa.gov](mailto:ORD.Docket@epa.gov).  
Include EPA-HQ-ORD-2013-0189 in the subject line.

**Fax:** (202) 566-9744.  
Include EPA-HQ-ORD-2013-0189 in the subject line.

**Mail:** Office of Environmental Information  
(Mail Code: 28221T)  
Docket #EPA-HQ-ORD-2013-0189  
U.S. Environmental Protection  
Agency  
1200 Pennsylvania Ave., N.W.  
Washington, DC 20460

### Questions to consider

- Do you particularly agree or disagree with something in the assessment?
- Do you believe the proposed Pebble mine could have an impact on Bristol Bay watersheds?
- Is there something in your personal experience or knowledge that would add value to your comment?

**Deadline for public comment:**

**June 30, 2013**

**The EPA has stated that it will publish the final watershed assessment later in 2013 and will include a document detailing the agency’s response to public comments.**

*Information contained in this document represents an unofficial summary of the EPA’s draft report. This overview was not prepared by the EPA and is not intended to be comprehensive. Please access the full report for original information from the EPA before preparing your comments.*