

COMPATIBILITY DETERMINATION

Use: Karluk Lake Nutrient Modification

Refuge Name: Kodiak National Wildlife Refuge (Refuge)

Establishing and Acquisition Authorities

Original authority was Executive Order 8857 (1941); modified by Public Land Order 1634 (1958), Alaska Native Claims Settlement Act (ANCSA 1971), and Alaska National Interest Lands Conservation Act (ANILCA 1980).

Refuge Purposes

Kodiak Refuge was established in 1941 (Executive Order 8857) "... for the purpose of protecting the natural feeding and breeding ranges of the brown bear and other wildlife ..." Forty years later ANILCA Section 303 (5)(b) added the following purposes:

- i. to conserve fish and wildlife populations (and) habitats in their natural diversity including, but not limited to, Kodiak brown bears, salmonids, sea otters, sea lions and other marine mammals and migratory birds;
- ii. to fulfill the international treaty obligations of the United States with respect to fish and wildlife and their habitats;
- iii. to provide, in a manner consistent with the purposes set forth in subparagraphs (i) and (ii), the opportunity for continued subsistence uses by local residents; and
- iv. to ensure, to the maximum extent practicable and in a manner consistent with the purposes set forth in paragraph (i), water quality and necessary water quantity within the refuge.

National Wildlife Refuge System Mission

The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans (National Wildlife Refuge System Administration Act of 1966, as amended [16 U.S.C.668dd-668ee]).

Description of Use

In 2012, Kodiak Regional Aquaculture Association (KRAA) requested a permit to apply fertilizer (aqueous nitrogen and phosphorus) to Karluk Lake, including the Thumb and O'Malley Basins. Detail of KRAA's proposal is described in the Karluk Lake Nutrient Enrichment Final Environmental Assessment (EA) which the Service released in October 2015. In the Finding of No Significant Impact (FONSI) signed on January 20, 2016, the decision was made to not allow fertilization of Karluk Lake at this time because the proposed project did not demonstrate a sufficient need. This Compatibility Determination (CD) relates specifically to this project proposal.

In the Federal Appropriations Bill of 2017, Senate Report 114-281, the Service was directed to complete a CD for this proposed use. This CD is specific to the KRAA proposal and makes no

determination in regards to fishery restoration activities in general or any specific tools which may be used for these activities.

Anticipated Impacts of the Use

The Karluk Lake system and the anticipated effects of the action are described in the 2015 EA and summarized below.

Aquatic Resources - The proposed action would increase the amounts of phosphorus and nitrogen in Karluk Lake and KRAA expects this to increase phytoplankton which in turn would increase zooplankton numbers and body size of sockeye salmon smolt. However, Service staff evaluated previous fertilization efforts and found there is a lack of studies and evidence to support this claim. Schmidt and others (1998) documented a trend of increased phytoplankton with increased phosphorus, and decreased phytoplankton with increased zooplankton. Carcass availability (i.e., carcass deposition via escapement) was the significant factor (when considered along with fertilization) in loading phosphorus into the Karluk system and the retention of phosphorus into the following spring. In that study, fertilization was not similarly credited with any similar benefit. Based on this information it is not clear that there is a link between fertilization and the quantity of fry or that there is a link between fertilization and the production or size of smolts. One study analyzed in the EA and published by the Alaska Department of Fish and Game titled *Sockeye Salmon Smolt Enumeration on the Karluk River, 2013* (Loewen 2014), found that the “average length and weight of each age class were the largest in the historical data series, suggesting a healthy rearing environment for sockeye salmon in Karluk lake prior to outmigration.”

Subsistence Resources and Uses - No change in resource abundance and availability is expected as any increase in sockeye salmon runs would be harvested principally by commercial fishermen. There would be no change in competition for subsistence resources, or physical, legal access to subsistence use areas.

Public Review and Comment

This CD was posted to the Refuge’s website and made available for public comment starting on April 20, 2018 for 14 days. Per request, the comment period was extended an additional two weeks, closing on May 18, 2018. The public review included all of the communities on Kodiak Island, including Ahkiok, Karluk, Kodiak, Larsen Bay, Old Harbor, Ouzinkie and Port Lions. Its availability was also advertised in the Kodiak Daily Mirror. Printed copies were available for review at the Refuge Office, the Refuge Visitor Center, and the Kodiak Public Library. Comments were solicited from the Alaska Department of Fish and Game and Alaska Native Tribes and Native Corporations.

The Refuge received comments from 6 parties. Three of the parties did not agree with the proposed incompatible determination. They were concerned the draft version of the CD would have far reaching implications to nutrient enrichment activities and fishery restoration work on Kodiak Refuge and Alaska refuges in general. These parties also noted the draft CD did not 1) acknowledge the language in the revised Kodiak Comprehensive Conservation Plan (CCP) published in 2008 which cites nutrient enrichment as a “prime example” of fish restoration, 2) clearly articulate why the proposed use materially interfered with or detracted from the purposes

of the Refuge, and 3) characterize the decision in the 2015 FONSI appropriately. They also noted the phrases “Stocks of Concern” and “Sustainable Salmon Fisheries” were not included in the Refuge’s CCP discussion of this issue and should therefore not be used in this CD.

Three commenters agreed the nutrient enrichment proposal was incompatible with the Refuge’s ANILCA purposes.

In response to the comments, we clarified the language used throughout the CD to articulate the scope of the CD and its relationship to the Refuge’s ANILCA purposes and revised CCP.

Proposed Determination

Use is Not Compatible
 Use is Compatible with the Following Stipulations

Justification

According to ANILCA 304(e), “where compatible with the purposes of the refuge unit, the Secretary may permit, subject to reasonable regulations and in accord with sound fisheries management principles, scientifically acceptable means of maintaining, enhancing, and rehabilitating fish stock.” The purposes of Kodiak Refuge which are affected by this action include the first purpose “to conserve fish and wildlife populations habitats in their natural diversity including, but not limited to, Kodiak brown bears, salmonoids [sic], sea otters, sea lions and other marine mammals and migratory birds;” and the fourth purpose “to ensure, to the maximum extent practicable and in a manner consistent with the purposes set forth in paragraph (i), water quality and necessary water quantity within the refuge.”

The Kodiak Refuge CCP completed in 2008 found that fishery restoration was generally an appropriate use on the refuge “where fishery resources have been severely adversely affected” and called out nutrient enrichment activities conducted by the Alaska Department of Fish and Game from 1986 to 1990 in Karluk Lake as an example of a past fish restoration project.

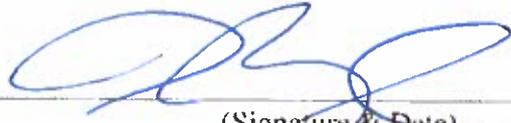
The lake fertilization project proposed by KRAA was analyzed by the Refuge in the Karluk Lake Nutrient Enrichment Environmental Assessment (EA) published in 2015. The EA considered several studies done on the Karluk Lake system and determined the Karluk Lake system is currently healthy and no active management to restore salmon stocks was needed. One study analyzed in the EA and published by the Alaska Department of Fish and Game titled *Sockeye Salmon Smolt Enumeration on the Karluk River, 2013* (Loewen 2014), found the “average length and weight of each age class were the largest in the historical data series, suggesting a healthy rearing environment for sockeye salmon in Karluk lake prior to outmigration.”

This CD is meant to only consider the specific nutrient enrichment project proposed by KRAA in 2012 and evaluated in the EA. According to the National Wildlife Refuge Administration Act of 1966 as amended by the National Wildlife Refuge Improvement Act of 1997 Section 5(1), a compatible use is one that “in the sound professional judgement of the Director, will not materially interfere with or detract from the fulfillment of the mission of the System or the purposes of the refuge.” This authority was delegated to Refuge Managers in the national CD

policy (603 FW 2) published in 2000. A CD for fish restoration in general has not been completed for Kodiak Refuge.

Based on the in-depth analysis completed in the EA and the current healthy status of the rearing habitat of Karluk Lake, it is my professional judgement that artificially increasing the level of nutrients in Karluk Lake at this time will detract from the first purpose of Kodiak Refuge and create a potential interference with our ability to maintain the natural water quality of Karluk Lake.

Signature Refuge Manager: _____



(Signature & Date)

9/28/18

Concurrence Regional Chief, NWRS, Alaska: _____



(Signature & Date)

9/28/2018

National Environmental Protection Act (NEPA) Compliance for Refuge Use Decision

- Categorical Exclusion without Environmental Action Memorandum
- Categorical Exclusions and Environmental Action Memorandum
- Environmental Assessment and Finding of No Significant Impact
- Environmental Impact Statement and Record of Decision