

Arctic Network

National Park Service
U.S. Department of the Interior

Alaska Region
Inventory & Monitoring Program



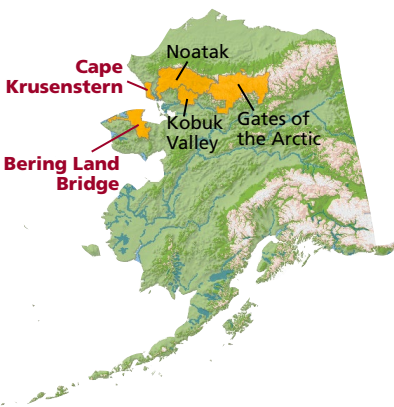
Bering Land Bridge N Pres. • Cape Krusenstern NM
Gates of the Arctic NP & Pres. • Kobuk Valley NP • Noatak N Pres.

January 2015

Yellow-billed Loon Resource Brief



The Status of Yellow-billed Loons in The Arctic Network



Yellow-billed Loons are being monitored in 2 Arctic Network parks: Bering Land Bridge N Pres. and Cape Krusenstern NM.

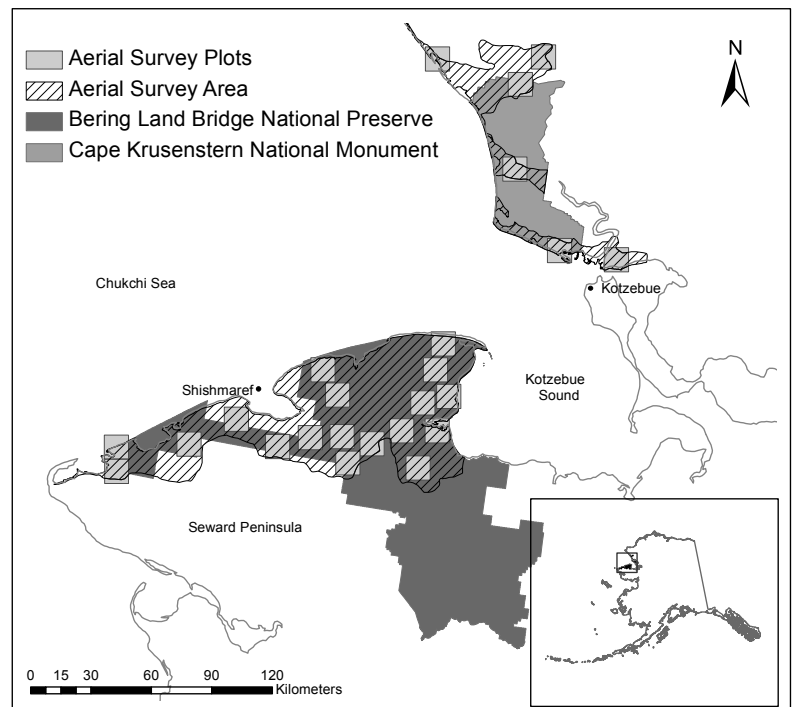
Based on aerial surveys conducted in June of 2011 and 2013 in Bering Land Bridge National Preserve (BELA) and Cape Krusenstern National Monument (CAKR), the population of Yellow-billed Loons occurring in northwestern Alaska is about 2.5 times larger than indicated by earlier estimates of 418 birds and 85 nests. This larger estimate may indicate that habitats on the northwestern Seward Peninsula and CAKR may be more important for overall Yellow-billed Loon conservation in Alaska than previously realized. Yellow-billed Loons used 207 of 1291 lakes in the study area and nested at an additional 205 lakes. Between

2011 and 2013, the probability of reuse of an individual lake by a Yellow-billed Loon was greater than 70%, suggesting the birds were attracted to these lakes by either high site fidelity or high lake suitability.

The contaminants data from Yellow-billed Loon eggs are still being analyzed but preliminary results suggest that mercury may be approaching levels that could impede reproduction in the species (publication URL: <http://www.aoucospubs.org/doi/abs/10.1650/CONDOR-14-28.1>).



Images: (top) Yellow-billed Loon, (near right top) nest with eggs, (near right bottom) aerial view of loon habitat in ANCR, (far right) location of the study area on the northwestern coast of the Seward Peninsula, Alaska. Squares indicate sampled plots, hatched lines indicate the study area boundary, and shaded areas indicate U.S. National Park Service units for Bering Land Bridge and Cape Krusenstern.



Why This Vital Sign Is Important	The Yellow-billed Loon (<i>Gavia adamsii</i>) is an international species of concern with the global population estimated at 16,650-21,000. The species was considered for listing under the Endangered Species Act in 2014, but was not listed. These birds occur in a circumpolar distribution and breed on arctic tundra habitats, including areas of Bering Land Bridge National Preserve and Cape Krusenstern National Monument. Little is known about the species' status outside of the U.S. and Canada. The loons winter from Russia and Alaska along the coastlines of the Bering Sea and Aleutian Islands to the Yellow Sea in China. Approximately 20-25% of the global population occurs seasonally in Alaska, where the total summer breeding population is estimated at 3,700-4,900 birds. The species is considered to be one of the 10 rarest birds that regularly breed on the mainland U.S. In Alaska, Yellow-billed Loons are restricted to tundra landscapes on the Arctic Coastal Plain and	northwestern Alaska with large, deep, clear, freshwater, fish-bearing lakes. Because Yellow-billed Loons are large-bodied, long-lived and return to the same breeding sites each year they are ideal for monitoring long-term trends in occupancy, density and distribution. Yellow-billed Loons utilize both freshwater and marine environments. They are indicators of water quality and provide insight into the movement of marine-derived nutrients and shifts in riparian or coastal communities in BELA and CAKR. In addition, as large, long-lived, top trophic-level predators of fish in lake ecosystems, Yellow-billed Loons may bioaccumulate contaminants loads over a lifetime. This is of particular concern because some of the Yellow-billed Loons in northwestern Alaska winter in the highly contaminated Yellow Sea and the loons and their eggs may be harvested for human subsistence.
What We Want To Know About This Vital Sign	• Monitor changes in occupancy, density and distribution of Yellow-billed Loons in BELA and CAKR	• Monitor types and levels of contaminant burdens in eggs and prey fish from nesting lakes
How We Monitor This Vital Sign	We conduct aerial Yellow-billed Loon surveys biennially (every odd year) in late June in Bering Land Bridge National Preserve and Cape Krusenstern National Monument. The survey data help us to assess population occupancy, density and distribution. These long-lived and large birds are easily spotted from the air and return to the same breeding lakes each year, making them ideal for monitoring population trends in a freshwater ecosystem. The U.S. Fish and Wildlife Service designed specific lake-circling methods and established random plots for this aerial survey to optimize detection of Yellow-billed Loons in their nesting habitats. Two pilot-observers teams in tandem fixed-wing aircraft conduct repeat surveys of the 24 plots scattered across	the two park units. Flights are conducted at an altitude of less than 500 feet and all five species of loons encountered (Yellow-billed, Common, Red-throated, Pacific and Arctic) and their nests are recorded. In collaboration with U.S. Fish and Wildlife Service, we also monitor the types and levels of contaminants present in Yellow-billed Loon eggs and the small prey fish present in nesting lakes. These include but are not limited to: metals (e.g. mercury), persistent organic pollutants (POPs), organochlorine pesticides, perfluorinated hydrocarbons, polychlorinated biphenyl (PCB) congeners, polybrominated diphenyl ethers, and polycyclic aromatic hydrocarbons (PAHs).
How Monitoring This Vital Sign Can Help Park Managers	• Understand long-term population trends of one of the rarest birds in North America • Track types and levels of contaminants burdens present in a species utilizing freshwater and marine ecosystems	• Track status of and contribute data on an international species of concern