

Key Site 11: Nelson Lagoon, Alaska

Location: 56°0'19"N, 160°47'55"W

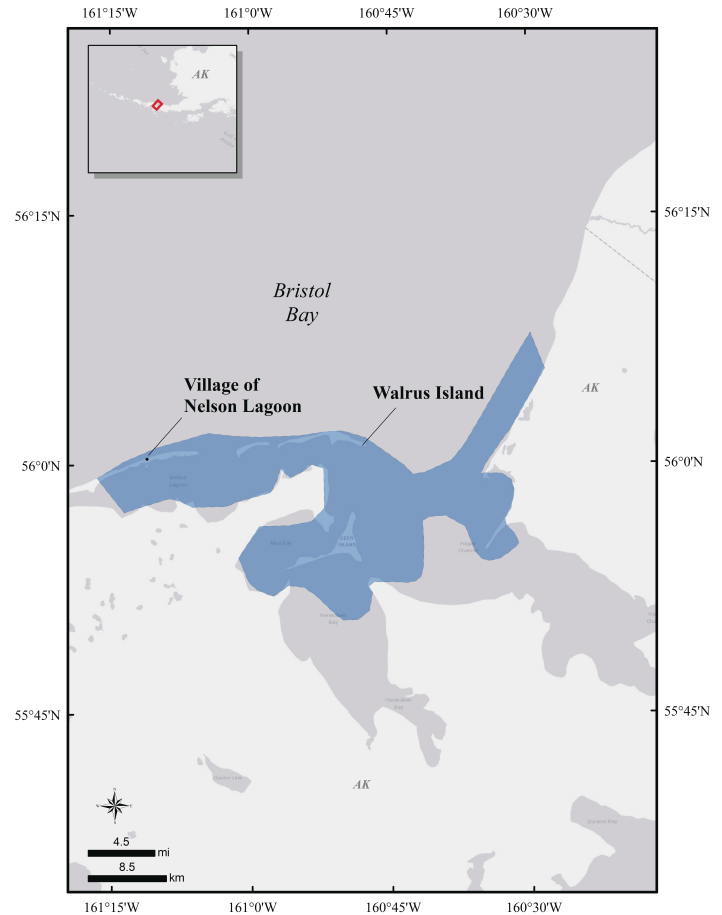
Size: 525 km²

Description: Nelson Lagoon lies 14 to 23 km east of the village of Nelson Lagoon (2016 summer pop. ~120) on the Alaska Peninsula. Nelson Lagoon is a shallow bay protected by a series of long, narrow, and partially vegetated barrier islands and often remains ice-free during winter. The area is at the southern potential extent of the sea ice in winter. The high biological productivity of the area is generated by the exchange of nutrients and physical dynamics between the Bering Sea and freshwater and terrestrial habitats. Tide ranges average 2.4 to 3 m.

Precision and Correction of Abundance

Estimates Presented: Abundance estimates for Steller's Eiders (*Polysticta stelleri*) at Nelson Lagoon are based on aerial photographic surveys. For other species, abundance numbers have been adjusted to account for incomplete detection, either by applying species-specific visibility correction factors estimated from other similar areas and surveys, or based on expert and local knowledge.

Biological Value: Nelson Lagoon supports high concentrations of wintering, staging, and molting sea ducks, most notably Steller's Eider and Black Scoter (*Melanitta americana*) (Bowman et al. 2021) with lesser numbers (<1500 per species) of Pacific Common Eider (*Somateria mollissima v-nigra*), King Eider (*S. spectabilis*), and Surf Scoter (*M. perspicillata*). It has historically been used by Steller's Eiders for spring and fall staging, as well as fall molt. Nelson Lagoon is currently the primary molting area for Steller's Eiders in Alaska; 20,000 to 47,000 Steller's Eiders have been observed there in late August and early September 2012–2016 (Williams et al. 2016), possibly representing more than half of the Pacific population (Wetlands International 2006). Steller's Eiders are known to molt in this area from mid-August through early October (Williams et al. 2016). Within this key site, the most important molting sites are immediately south (inside) and adjacent to Walrus Island, which is part of the Kudobin Islands chain. Many Steller's Eiders and Black Scoters remain in this area throughout the fall and winter, and up to 50,000 birds of both species



stage there during spring migration, as do an estimated 10,000 King Eiders (Larned 2012). This area is also important for other waterfowl, particularly Emperor Geese (*Anser canagicus*) and shorebirds. Large eelgrass beds and abundant benthic resources, including shellfish (e.g., *Macoma* and *Mytilus* spp.), occur in Nelson Lagoon and adjacent areas.

Sensitivities: Steller's Eiders are identified as “vulnerable” by the International Union for Conservation of Nature (BirdLife International 2012). Greater than 90% of the Pacific population of Steller's Eider are believed to molt and winter in Alaska. The Alaska-breeding population was listed as threatened under the Endangered Species Act in 1997 due to population decline and range contraction (USFWS 1997), and some of these birds are known to molt in Nelson Lagoon (Martin et al. 2015).

The coastal barrier islands that create the sheltered lagoons are highly dynamic. Climate change and subsequent effects, including increased storm frequency, sea level rise, and erosion, have the potential to alter these natural features, but it is not clear

whether effects would be adverse (i.e., threatening the barrier islands and lagoon) or beneficial (i.e., creating more lagoon habitat) to sea ducks and other wildlife that use this area. Increasing water temperature and ocean acidification may affect the marine invertebrate community, an important source of prey for Steller's eider.

Potential conflicts: Major threats include the risk of oil contamination from spills in the Bering Sea and potential habitat degradation or ecosystem-level changes associated with climate change. Offshore oil and gas resources exist in the vicinity, but there is currently no active oil drilling. The area of the Outer Continental Shelf currently designated by BOEM as the North Aleutian Basin Planning Area, including Bristol Bay, was withdrawn from federal offshore oil and gas leasing and development in 2014 for an indefinite period of time due to the area's importance to Alaska Native subsistence users, fish and wildlife species, and commercial and recreational fisheries. The withdrawn area includes Nelson Lagoon. There are known coal reserves near Nelson Lagoon but no active mining.

Commercial fishing for salmon and subsistence activities are major components of the village of Nelson Lagoon's economy. A fish processing plant was recently completed in Nelson Lagoon but is not yet functional. Because Nelson Lagoon is nearly drained of water at low tide, navigation is difficult and there is little boat traffic or human use of the lagoon, where most sea ducks congregate, or adjacent uplands.

Status: Nelson Lagoon is part of the Port Moller Important Bird Area (Audubon Alaska 2016). Lands in this area also fall within the boundaries of the Port Moller Critical Habitat Area (Alaska Department of Fish and Game 2011) and the Alaska Peninsula National Wildlife Refuge. State Critical Habitat Areas are managed to maintain and protect naturally occurring resident and migrant fish and wildlife populations and their habitats, and a Special Areas Permit is required from Alaska Department of Fish and Game for any activity that may affect fish and wildlife habitat. Nelson Lagoon was designated as Critical Habitat for Steller's Eiders under the Endangered Species Act in 2001 (USFWS 2001). The northern Alaska Peninsula region is a mix of state and federal lands with extensive Native

regional (Aleut Corporation) and village corporation lands and numerous Native allotments. Jurisdiction of intertidal and subtidal areas is under the State of Alaska.

References:

- Alaska Department of Fish and Game. 2011. Bristol Bay Critical Habitat Areas management plan. Draft report.
- Audubon Alaska. 2016. Alaska's Important Bird Areas. <http://ak.audubon.org/important-bird-areas-4>.
- Birdlife International. 2012. <https://www.birdlife.org/focus-areas/species/>.
- Bowman, T. D., S. G. Gilliland, J. L. Schamber, P. L. Flint, D. Esler, W. S. Boyd, D. H. Rosenberg, J-P. L. Savard, M. C. Perry, and J. E. Osenkowski. 2021. Strong evidence for two disjunct populations of Black Scoters (*Melanitta americana*) in North America. *Wildfowl* 71:179–192.
- Larned, W. W. 2012. Steller's Eider spring migration surveys Southwest Alaska 2012. Unpublished report. U.S. Fish and Wildlife Service, Migratory Bird Management, Anchorage, Alaska, USA
- Martin, P. D., D. C. Douglas, T. Obritschkewitsch, and S. Torrence. 2015. Distribution and movements of Alaska-breeding Steller's Eiders in the nonbreeding period. *Condor: Ornithological Applications* 117:341–353.
- U.S. Fish and Wildlife Service. 1997. Endangered and Threatened Wildlife and Plants: Threatened Status for the Alaska Breeding Population of the Steller's Eider. Final Rule. Federal Register 62:31748.
- U.S. Fish and Wildlife Service. 2001. Endangered and threatened wildlife and plants: Final determination of critical habitat for the Alaska-breeding population of the Steller's Eider. Federal Register 66:8850.
- Wetlands International. 2006. Waterbird population estimates, 4th ed. Wetlands International, Wageningen, The Netherlands.
- Williams, A. R., T. D. Bowman, and B. S. Shults. 2016. Molting Pacific Steller's Eider survey in Southwest Alaska, 2016. Unpublished U.S. Fish and Wildlife Service report, Migratory Bird Management, Anchorage, Alaska.