

## Key Site 37: Ungava Bay, Quebec

**Location:** 58°49'11"N, 68°26'37"W

**Size:** 13,989 km<sup>2</sup>

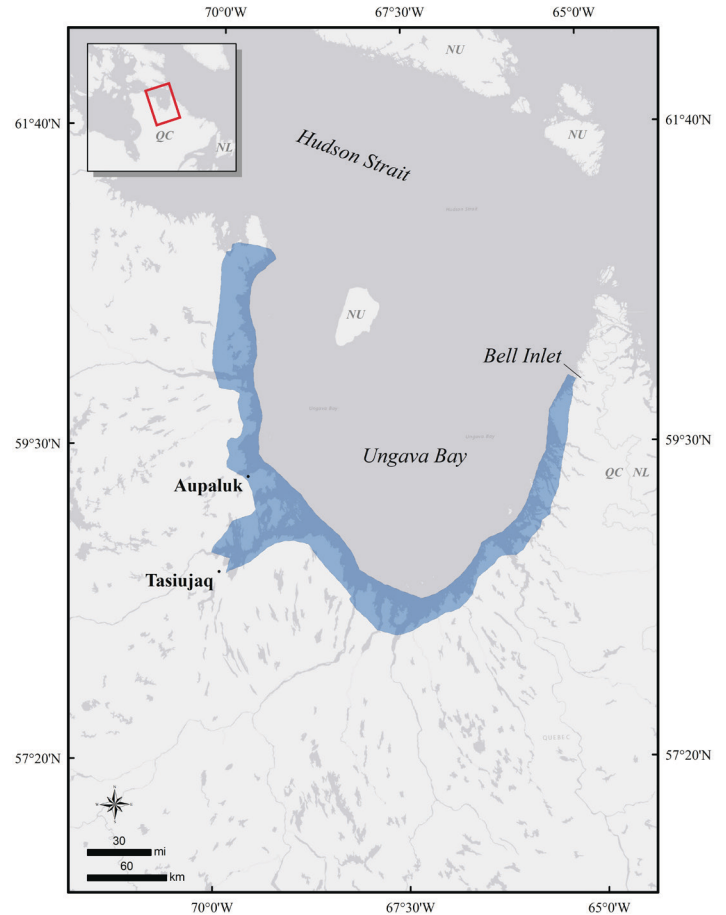
**Description:** Ungava Bay lies in northeastern Quebec and is bordered by Hudson Strait to the north. The Ungava Peninsula borders its west shore, and the Labrador Peninsula borders its east shore. This key site is composed of an oceanic coastal band from Quaqtaq at its northwestern end, to Kuujjuaq in the south, and to Bell Inlet at its northeastern end. It comprises the myriad of islands and archipelagos near the coast; the numerous deep bays, inlets, and mouths of large rivers that empty into Ungava Bay; and a narrow terrestrial stretch along the coast. Several Inuit communities are located in this key site.

### Precision and Correction of Abundance

**Estimates Presented:** Abundance estimates presented for this key habitat site have not been adjusted to account for incomplete detection or other biases. Abundance estimates should, therefore, be treated as minimum estimates.

**Biological Value:** The importance of this key site to sea ducks is only partially understood due to the remoteness of the site and the lack of organized surveys. However, local Inuit knowledge and other available information provide evidence that the site is used during migrations, breeding, molting, and possibly for wintering. For instance, Ungava Bay supports Common Eiders (*Somateria mollissima borealis*) during about six months (from mid-May to mid-November) (Savard et al. 2011).

During spring migration, Common Eiders that have been wintering in the Gulf of St. Lawrence and around Newfoundland fly north along the Labrador coast and then along the Ungava Bay coast to their breeding islands along the Ungava Peninsula and farther north in eastern Arctic Canada (Nakashima 1986, Mosbech et al. 2006a, Savard et al. 2011). Considering that about one third of *S. m. borealis* (total population estimated at 550,000; NAWMP 2012) use this migration route (Mosbech et al. 2006a, Savard et al. 2011), the segment of the population migrating through Ungava Bay rather than Hudson Strait could number more than 150,000 individuals. Female eiders arrive on the coast of Ungava Bay from about the third week of May to early June (Mosbech



et al. 2006a, Savard et al. 2011). Important spring staging areas include the sector of Kangirsuk (mouth of the Arnaud River), south of Aupaluk and east of Tasiujaq (mouth of the Rivière aux Feuilles), and the stretch from Pointe Le Droit to Bell Inlet on the eastern side of the bay (Nakashima 1986).

During a comprehensive survey of the area in 1978 and 1980, 48,700 breeding pairs were observed on several archipelagos and islands along the Ungava Bay and the Quebec coast of the Hudson Strait (Chapdelaine et al. 1986), with most in Ungava Bay. This likely represents the most important known breeding concentration of *S. m. borealis* in the Canadian Arctic (Savard et al. 2011), accounting for about 25% of the entire population. Some pairs also breed on islets in freshwater lakes on the mainland, generally less than 2.5 km inland (Chapdelaine et al. 1986). The largest known colonies are situated in the following archipelagos: Eider Islands, Plover Islands, Payne Islands and Gyrfalcon Islands along the western coast of the site, islands between Weymouth Inlet and the mouth of the Qijujjuuq River, and

islands from Langley Inlet to Bell Inlet along the eastern coast of the site (Chapdelaine et al. 1986, Nakashima 1986, Falardeau et al. 2003). The Quebec Breeding Bird Atlas provides new insights on other sea ducks breeding, or possibly breeding, on the western coast of Ungava Bay (the eastern coast has not yet been surveyed): Long-tailed Duck (*Clangula hyemalis*) is common and widely dispersed, Red-breasted Merganser (*Mergus serrator*) is scarcer, and Common Merganser (*Mergus merganser*) and King Eider (*Somateria spectabilis*) are rare (Quebec breeding bird atlas 2016). Harlequin Duck (*Histrionicus histrionicus*), a species of special concern in eastern Canada, breed on fast-flowing rivers that empty into the southern half of Ungava Bay (Dancelou, Aux Mèlèzes, Caniapiscou, Koksoak, False, Qurlutuq, and George rivers; Savard et al. 2008) and near the coast in the Aupaluk and Kangirsuk sectors (Quebec Breeding Bird Atlas 2016).

Ungava Bay is believed to be of high importance to sea ducks during the molting period. Common Eiders molt in large numbers in Ungava Bay; males leave their nesting area and congregate in July in the numerous bays and estuaries, particularly along the coast between Quaqtq and Kangirsuk, in the mouth of the Lefroy River, in the Ikattok and Boulder bays south of Aupaluk, near the mouths of the False River and Rivière à la Baleine, and in coastal areas between Pointe Le Droit and Bell Inlet (Driver 1958, Nakashima 1986). Black Scoters and Surf Scoters (*Melanitta americana* and *M. americana*) (Appendix 1, Appendix 2) of both sexes also leave breeding grounds to stage or molt in the southernmost and eastern part of the Ungava Bay (SDJV 2015, Lamb et al. 2020, Lamb et al. 2021).

Male and female Barrow's Goldeneyes (*Bucephala islandica*) from the eastern population, listed as a species of special concern under the Species at Risk Act of Canada, have been confirmed molting in the southern part of the site: males molted in Tasiujaq Bay, the mouth of the Marralik River, and Alukpaluk Bay (Robert et al. 2002); females molted at the mouth of the Koksoak, False, and À la Baleine rivers (Savard and Robert 2013).

Ungava Bay is also very important to sea ducks during the fall staging period; the few data available are based on satellite telemetry studies (SDJV 2015, Lamb et al. 2020). Many birds that molt in Ungava Bay in July and August also stage there for a pro-

longed period, sometimes as late as October and November. Female Common Eiders stayed in the same general areas they used during premolt and molt for another 30 days on average, with departures from the site between October 21 and November 16 ( $n = 12$ ; Savard et al. 2011). Ungava Bay, therefore, supports Common Eiders for about six months (i.e., from mid-May to mid-November) (Savard et al. 2011). Some Common Eiders that breed higher in the Canadian Arctic and winter along western Greenland also pass by the north-western coast of Ungava Bay in October (Mosbech et al. 2006a). King Eiders have been tracked to the Quaqtq area in September and near Aupaluk from October to December (Mosbech et al. 1986b).

Only small groups of eiders (fewer than 50), including Common and King Eiders, have been reported in the key site during winter, including in the Eider Islands off Quaqtq (Nakashima 1986), off Aupaluk, and around the Gyrfalcon Islands (Mosbech et al. 2006b, Canadian Wildlife Service unpublished data). Long-tailed Ducks have also been observed during an exploratory survey for eiders in February 2010 off Aupaluk, in the Gyrfalcon Islands, and off the mouth of the Koksoak River on the western side of Ungava Bay (Canadian Wildlife Service unpublished data).

**Sensitivities:** Access and quality of food resources at key foraging sites are of great importance in this site. Colonies are sensitive to human disturbance and predation, and breeding is highly dependent on annual weather conditions in this low Arctic climate. A few communities harvest eiderdown each year.

Avian cholera outbreaks have been documented recently in Arctic Canada; Common Eider mortalities due to this highly virulent disease were confirmed in 2006 and 2011 in the Aupaluk region and suspected in 2006 in the Kangirsuk region, with observed mortality ranging from 1% to 24% in the affected colonies (Iverson 2015). Eggs and eiderdown collection, and subsistence harvest by Inuit, are not considered to have impacts at the population scale.

**Potential Conflicts:** Berteaux et al. (2014) predict temperature and precipitation increases in Quebec's taiga (south and east coasts of Ungava Bay) and tundra (west coast) due to climate warming. Permafrost thaw is also predicted to have profound effects on the Arctic ecosystem. These climatic changes will likely influence overall sea duck distribution, with species

ranges shifting further north. Increases in polar bear populations combined with an earlier ice-free season has led to greater polar bear predation on eider nests; this increase in bear predation has been estimated to be greater than seven-fold since the 1980s in the low Canadian Arctic (Iverson et al. 2014).

Maritime traffic is expected to increase in the near future in Hudson Strait, and perhaps in Ungava Bay, as the ice-free season lengthens. An accidental oil spill could have dramatic effects, particularly near breeding eider colonies or when sea ducks congregate at foraging sites during staging or when molting; furthermore, an increase in the ice-free period will facilitate natural resource development in Nunavut and Nunavik and likely result in increased industrial activities in the Arctic in general.

In 2016 Canada designated the Arctic waters indefinitely off limits to new offshore oil and gas activities and in 2019 suspended the terms of all active oil and gas licenses in the western and eastern Arctic offshore areas.

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**Status:** The Parc National Kuururjuaq falls within the key site; created in 2009, it protects the Koroc River drainage basin that stretches from the interior Torngat Mountains all the way down to Ungava Bay. Part of the planned Parc National du Québec de la Baie-aux-Feuilles, between Aupaluk and Tasiujaq, also overlaps the key site, as does part of the planned Quaqtq-Kangirsuk biodiversity reserve (MELCC 2021). There are four Important Bird Areas (IBA) included in the key site: Eider Islands IBA, Plover and Payne islands IBA, Gyrfalcon Islands IBA, and Northeast Ungava Bay IBA, all of which support a significant number of breeding Common Eiders (IBA Canada 2021). However, while IBA designation recognizes the area's importance for birds, it provides no legal protections to these areas.

All offshore waters and islands in the key site are part of the Nunavik Marine Region, a zone where

Inuit manage wildlife through the Nunavik Marine Region Wildlife Board.

## Literature Cited

- Berteaux, D., N. Casajus, and S. de Blois. 2014. *Changements climatiques et biodiversité du Québec: Vers un nouveau patrimoine naturel*. Presses de l'Université du Québec, Québec, Canada. 169 pp.
- Chapdelaine, G., A. Bourget, W. B. Kemp, D. J. Nakashima, and D. J. Murray. 1986. Population d'eider à duvet près des côtes du Québec septentrional. *In* A. Reed (ed.), *Eider ducks in Canada*, pp. 39–50. Canadian Wildlife Service, Ottawa, Ontario. 177 pp.
- Driver, P. M. 1958. Biological studies in Ungava during 1958. *Arctic* 11:191–193.
- Falardeau, G., J.-F. Rail, S. Gilliland, and J.-P. L. Savard. 2003. Breeding survey of Common Eiders along the west coast of Ungava Bay, in summer 2000, and a supplement on other nesting aquatic birds. *Environnement Canada, Service canadien de la faune, région du Québec. Série de rapports techniques n° 405*, Sainte-Foy, Québec. 67 pp.
- IBA Canada. 2021. <http://ibacanada.ca/>.
- Iverson, S. A. 2015. Quantifying the demographic and population impact of avian cholera on Northern Common Eiders in the face of ancillary threats and changing environmental circumstances. Ph.D. dissertation, Carleton University, Ottawa, Ontario. 228 pp.
- Iverson, S. A., G. H. Gilchrist, P. A. Smith, A. J. Gaston, and M. R. Forbes. 2014. Longer ice-free seasons increase the risk of nest depredation by polar bears for colonial breeding birds in the Canadian Arctic. *Proceedings of the Royal Society B* 281: 20133128. <https://doi.org/10.1098/rspb.2013.3128>.
- Lamb, J. S., P. W. C. Paton, J. E. Osenkowski, S. S. Badzinski, A. M. Berlin, T. Bowman, C. Dwyer, L. J. Fara, S. G. Gilliland, K. Kenow, C. Lepage, M. L. Mallory, G. H. Olsen, M. C. Perry, S. A. Petrie, J.-P. L. Savard, L. Savoy, M. Schummer, C. S. Spiegel, and S. R. McWilliams. 2020. Assessing year-round habitat use by migratory sea ducks in a multi-species context reveals seasonal variation in habitat selection and partitioning. *Ecography* 43:1842–1858.

- Lamb, J. S., S. G. Gilliland, J.-P. L. Savard, P. H. Loring, S. R. McWilliams, G. H. Olsen, J. E. Osenkowski, P. W. C. Paton, M. C. Perry, and T. Bowman. 2021. Annual-Cycle Movements and Phenology of Black Scoters in Eastern North America. *Journal of Wildlife Management* 85:1628–1645.
- Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC). 2021. Aires projetées au Québec (version du 31 mars 2021) [in French only]. <https://services-mddelcc.maps.arcgis.com/apps/MapSeries/index.html?appid=8e624ac767b04c0989a9229224b91334>.
- Ministère du Développement durable, de l'Environnement et de la lutte contre les Changements climatiques (MDDELCC). 2018. Registre des aires protégées par désignation. [http://www.mddelcc.gouv.qc.ca/biodiversite/aires\\_protegees/registre/reg-design/index.htm](http://www.mddelcc.gouv.qc.ca/biodiversite/aires_protegees/registre/reg-design/index.htm).
- Mosbech, A., G. Gilchrist, F. Merkel, C. Sonne, A. Flagstad, and H. Nyegaard. 2006a. Year-round movements of Northern Common Eiders *Somateria mollissima borealis* breeding in Arctic Canada and West Greenland followed by satellite telemetry. *Ardea* 94:651–665.
- Mosbech, A., R. S. Dano, F. Merkel, C. Sonne, G. Gilchrist, and A. Flagstad. 2006b. Use of satellite telemetry to locate key habitats for King Eiders *Somateria spectabilis* in west Greenland. In G. C. Boere, C. A. Galbraight, and D. A. Stroud (eds.), *Waterbirds around the world*, pp. 769–776. The Stationery Office, Edinburgh, UK. 940 pp.
- Nakashima, D. J. 1986. Inuit knowledge of the ecology of the Common Eider in northern Quebec. In A. Reed (ed.), *Eider ducks in Canada*, pp. 102–113. Canadian Wildlife Service, Ottawa, Ontario. 177 pp.
- North American Waterfowl Management Plan (NAWMP). 2012. North American waterfowl management plan: People conserving waterfowl and wetlands. U.S. Fish and Wildlife Service, Arlington, VA. [https://nawmp.org/sites/default/files/2017-12/NAWMP-Plan-EN-may23\\_0.pdf](https://nawmp.org/sites/default/files/2017-12/NAWMP-Plan-EN-may23_0.pdf).
- Quebec breeding bird atlas. 2016. Data consulted on the website of the atlas of the breeding birds of Quebec [http://www.atlas-oiseaux.qc.ca/index\\_en.jsp](http://www.atlas-oiseaux.qc.ca/index_en.jsp). (Data consulted on August 12, 2016.) Regroupement QuébecOiseaux, Environment and Climate Change Canada's Canadian Wildlife Service and Bird Studies Canada, Quebec, Canada.
- Robert, M., R. Benoit, and J.-P. L. Savard. 2002. Relationship among breeding, molting, and wintering areas of male Barrow's Goldeneye in eastern North America. *Auk* 119:676–684.
- Savard, J.-P. L., M. Robert, and S. Brodeur. 2008. Harlequin Ducks in Quebec. *Waterbirds* 31(Special Publication 2):19–31.
- Savard, J.-P. L., L. Lesage, S. G. Gilliland, H. G. Gilchrist, and J.-F. Giroux. 2011. Molting, staging, and wintering locations of Common Eiders breeding in the Gyrfalcon Archipelago, Ungava Bay. *Arctic* 64:197–206.
- Savard, J.-P. L., and M. Robert. 2013. Relationships among breeding, molting, and wintering areas of adult female Barrow's Goldeneyes (*Bucephala islandica*) in eastern North America. *Waterbirds* 36:34–42.
- Sea Duck Joint Venture (SDJV). 2015. Atlantic and Great Lakes sea duck migration study: Progress report June 2015. Available at [https://seaduckjv.org/wp-content/uploads/2014/12/AGLSDMS-Progress-Report-June2015\\_web.pdf](https://seaduckjv.org/wp-content/uploads/2014/12/AGLSDMS-Progress-Report-June2015_web.pdf).