

Key Site 50: Southwestern St. Lawrence Estuary (Kamouraska–Trois-Pistoles), Quebec

Location: 47°51'58"N, 69°34'16"W

Size: 496 km²

Description: This key site measures about 75 km by 10 km along the south shore of the upper estuary of the St. Lawrence River, Quebec, between Kamouraska and Trois-Pistoles. It contains many islands, including the Kamouraska Islands, Île aux Fraises, Les Pèlerins, Île aux Lièvres, Île Blanche, Île aux Pommes, and Île aux Basques, most of which fall within the Estuary Islands National Wildlife Area (Appendix 1). While some islands are nearshore, others are 10 to 12 km offshore in the St. Lawrence Estuary. Île aux Fraises, Île aux Lièvres, and Île Blanche are separated from the south shore by a channel with depths of less than 20 m.

The southwestern St. Lawrence Estuary is situated where fresh water from the St. Lawrence River intermixes with saltwater from the Gulf of St. Lawrence. It is characterized by semidiurnal tides of 5 to 6 m amplitude. The coast has a low profile and is bordered by a wide littoral terrace less than 10 m deep; extended mudflats become exposed at low tide. There are numerous salt marshes in the key site.

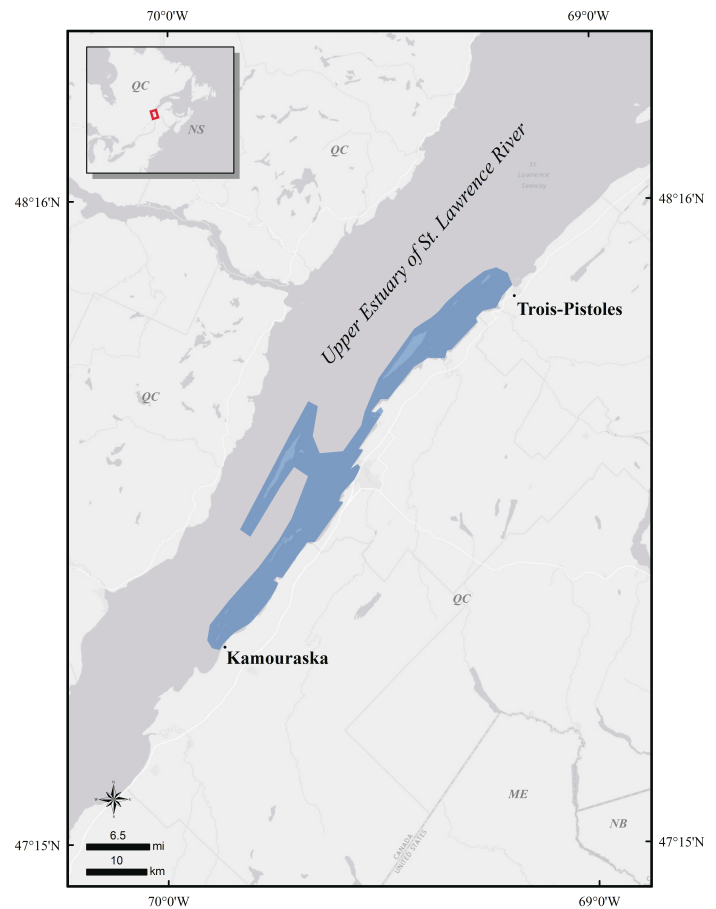
Coastal waters generally freeze in midwinter, but ice is usually thin in that portion of the estuary, and icebreakers maintain the main shipping lane between the Gulf of St. Lawrence and the St. Lawrence Seaway.

The largest city bordering the key site is Rivière-du-Loup (population about 18,000). Many touristic villages are dispersed along this portion of the south shore of the St. Lawrence Estuary.

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 be treated as minimum estimates.

Biological Value: American Common Eider (*Somateria mollissima dresseri*) is the primary sea duck species in this key site. Thousands breed on



the islands, and many eiders breeding in other parts of southern Quebec transit through the key site during spring and fall migration, to and from wintering areas further south.

During the breeding season, 10,000 to 15,000 Common Eider pairs nest in colonies on islands in the key site, approximately 15% of the continental breeding population of *S. m. dresseri*. Four islands host 87% of pairs in the key site: Île aux Fraises, Îles du Pot à l'Eau-de-Vie, Île Blanche, and Île aux Pommes (Joint Working Group on the Management of the Common Eider 2004, Lepage 2019). Successful breeding females and ducklings leave breeding islands soon after hatch and move either south along the estuary shore (Gauthier and Bédard 1976, Diéval et al. 2011) or along Île aux Lièvres (Falardeau et al. 2000) where foraging areas abound and avian predation (mainly gulls) is less severe. The shoreline of the key site includes large stretches of rocky substrates with macrophytes harboring invertebrates on which the

ducklings feed. During brood-rearing, 30 to 97% of the broods' diet consists of gastropods (*Littorina* spp.; Cantin et al. 1974).

During spring migration, Common Eiders, scoters (*Melanitta* spp.), and mergansers (*Mergus* spp.) use the area, including the Passe de l'Île aux Lièvres (channel) where herring spawn in some years, providing abundant food (Falardeau et al. 2000). Local breeders and transient eiders arrive in the key site from late April to early May. Counting locally breeding eiders plus a portion of the eiders that breed along Quebec's north shore, it is likely that more than 40,000 eiders pass through the key site in spring (C. Lepage, Canadian Wildlife Service, pers. comm.). Scoters (mostly Surf [*M. perspicillata*], but also Black [*M. americana*]) are present in the second half of May (Lamb et al. 2020). Scoters number 2500 to 5000 individuals, but with regular turnover, total use is likely higher (Canadian Wildlife Service unpublished data).

Some breeding females molt onsite in late summer to early fall. Hundreds of Surf Scoters gather in early July in the Passe de l'Île aux Lièvres prior to molt (Falardeau et al. 2000), and small flocks of goldeneyes (*Bucephala* spp.) and Red-breasted Mergansers (*Mergus serrator*) molt in the key site during July and August (Canadian Wildlife Service unpublished data).

During late summer and through fall, Common Eiders *dresseri* remain abundant, with individuals from other breeding areas joining local birds before migrating to wintering sites along the coasts of Nova Scotia and New England. Eiders may remain in the estuary until December or January (S. Gilliland pers. comm.). Surf Scoters also stage in the key site in the fall, with some passing through in late August to early September and others staying through October (SDJV 2015, Lamb et al. 2020, Canadian Wildlife Service unpublished data).

In winter most of the coastal waters in this key site are frozen; however, up to 235 Barrow's Goldeneye (*Bucephala islandica*, from the eastern population listed as of "special concern" by the Committee on the Status of Endangered Wildlife in Canada) and 115 Common Goldeneye have been observed in ice-free areas around Pointe de l'Anse Double at Île aux Lièvres and by Îles du Pot à l'Eau-de-Vie (Robert et al. 2003).

Sensitivities: Recent reductions in ice and increased frequency and severity of storms in the St. Lawrence Estuary will likely increase erosion and coastal flooding episodes in the key site (Conseil du Saint-Laurent 2018). It is predicted that by 2060, due to sea level rise, nearly 80% of the coastal ecosystems of the south shore of the upper St. Lawrence Estuary will be affected by coastal squeeze (i.e., a narrowing of the marsh or intertidal zones), likely leading to the degradation or loss of these ecosystems (Conseil du Saint-Laurent 2018). This could affect benthic communities, including particularly important foods for sea ducks, such as blue mussels (*Mytilus edulis*) or gastropods (Diéval et al. 2011). Adverse weather conditions (e.g., precipitation and high winds) during the hatch for Common Eider may decrease duckling survival (Joint Working Group on the Management of the Common Eider 2004, Diéval et al. 2011). Breeding females and foraging broods are very sensitive to disturbance from recreational boating and kayaking around breeding islands (Bolduc and Guillemette 2003) as well as from people harvesting sea products near some islands. Predation of Common Eider ducklings by Great Black-backed and Herring gulls is substantial in some years. Overall duckling survival is generally low, with less than 15% of class IA ducklings produced on breeding areas subsequently observed on foraging sites along the St. Lawrence Estuary's south shore (Diéval 2006). The irregular presence of Red Fox (*Vulpes vulpes*) on islands often results in temporary abandonment of colonies by breeding female eiders; however, the Société Duvetnor usually controls foxes on several of the major colonies. Avian cholera outbreaks regularly strike eider colonies on the south shore; the last large outbreak was in 2002 and killed nearly 20% of females breeding in the St. Lawrence Estuary (Joint Working Group on the Management of the Common Eider 2004). Generally, water quality in this part of the St. Lawrence is poor due to wastewater from municipalities or remote residences and the presence of agricultural activity; anthropogenic bacterial contamination leads to regular harvest closures for softshell clams and mussels (Working Group on the State of the St. Lawrence Monitoring 2015).

Potential Conflicts: The St. Lawrence River is one of the most important and heavily travelled waterways in North America. Marine traffic is expected to increase in the future (MTQ 2021),

which will likely increase the risk of pollution (e.g., chemical or oil spills), disturbance, and bird collisions with vessels. The Port of Gros-Cacouna, situated within the key site, has been identified for development of several new marine facilities (e.g., gas terminals, marina, cruise ship port). Tourist and recreational activities, including sea kayaking around the islands, are popular within this key site and despite being prohibited, some tourists land on islands during the nesting season (Environment Canada 2014). The area has also been identified as having high potential for development of shellfish aquaculture, and harvest of urchins and seaweed occurs in the area, which may disturb eiders during the brood-rearing and molting periods (Diéval et al. 2011, Savard and Lepage 2013) and degrade foraging habitat. Eiderdown is collected commercially on most of the islands in the key site, but permit holders must follow strict directives (Bédard et al. 2008) to protect eider females and broods.

Status: The Estuary Islands National Wildlife Area (Appendix 1) was established in 1986 by Environment Canada to protect important nesting sites for migratory birds, particularly colonial sea birds and especially Common Eider. This national wildlife area comprises about 10 islands or portions of islands, including the Kamouraska Islands, Les Pèlerins, Île aux Fraises, and Île Blanche. The Société Duvetnor collects eiderdown throughout the estuary and uses profits from the sale of down for the conservation, public awareness, and research programs on Common Eiders in the lower St. Lawrence Estuary. In addition, Société Duvetnor owns several islands (Île aux Lièvres, which is designated as a Quebec's Réserve de biodiversité projetée [planned biodiversity reserve], two of the five islands in the Les Pèlerins Archipelago, and both of the islands in the Îles du Pot à l'Eau-de-Vie archipelago). While the three other islands of the five that form the Les Pèlerins Archipelago belong to Nature Conservancy Canada, the Société Duvetnor manages all islands of this archipelago. Île aux Basques Migratory Bird Sanctuary includes Île aux Basques which, along with waters within 500 m of the island, is owned by the Société Provancher. The Île aux Pommes, privately owned, is designated a natural reserve. The islands in the center of the St. Lawrence Estuary within the key site (Île aux Fraises, Île aux Lièvres, Îles du Pot à l'Eau-de-Vie, and Île Blanche) lie within the Saguenay–St. Lawrence Marine Park (provin-

cial status). At the coastal limit of the key site, Baie de L'Isle-Verte National Wildlife Area, the L'Isle-Verte Migratory Bird Sanctuary, and the Site ornithologique du marais de Gros-Cacouna (Cacouna marsh birdwatching site) are also under jurisdiction of Environment Canada. The Parc Côtier Kiskotuk is a linear coastal park of about 30 km from Cacouna to L'Isle-Verte. The Société d'écologie de la batture du Kamouraska owns approximately 2 km of coastal habitat on the Saint-André's flats. Forty-two Aquatic Birds Concentration Areas, a Quebec government designation, cover about 90% of the coastline of this key site, including that of the islands and those along the mainland (*Aires de concentration d'oiseaux aquatiques*; MDDELCC 2018). The key site includes nine Important Bird Areas; six of them are on islands, mostly due to their importance to seabird colonies (QC042, QC043, QC046, QC047, QC048, QC049, QC050, QC052, QC055; IBA Canada).

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