Key Site 61: Îles de la Madeleine (Magdalen Islands), Quebec

Location: 47°31'14"N, 61°35'37"W

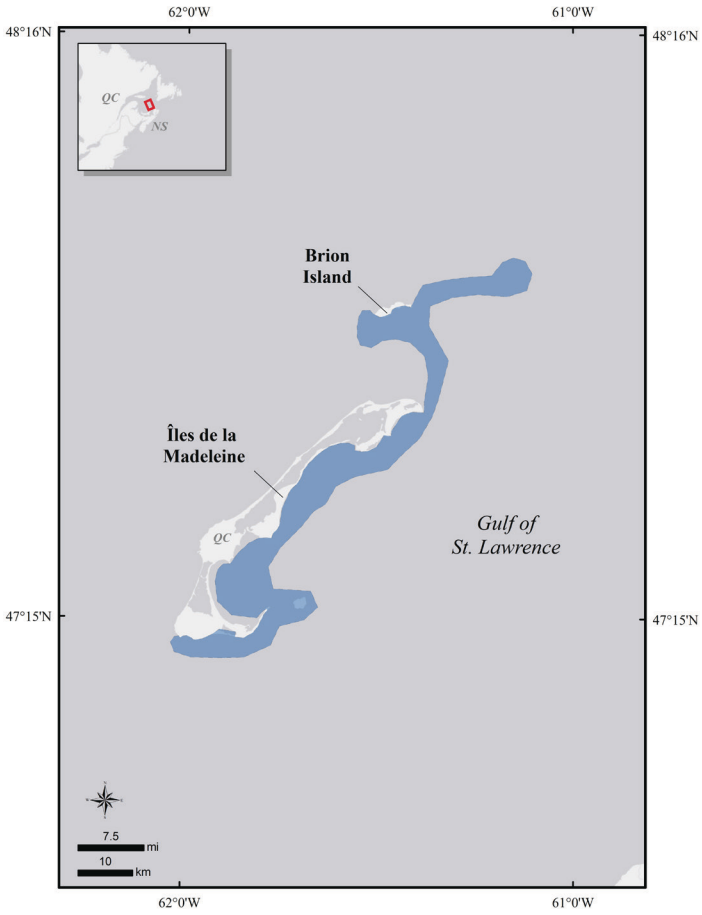
Size: 729 km^2

Description: The Îles de la Madeleine, unofficially known as the Magdalen Islands, are in the southern part of the Gulf of St. Lawrence, Quebec, Canada. More precisely, this small, isolated archipelago lies on an undersea ridge named the Magdalen Shallows, between the Gaspé Peninsula (Quebec) and Cape Breton Island (Nova Scotia), about 120 km north of Prince Edward Island and 150 km southwest of Newfoundland. It is made up of six or seven (disputably) inhabited islands linked by either bridges or dunes, and of four other islands, including Brion Island, separated from the principal group. Several other tiny islands and rocks are also included in the archipelago. About 12,000 inhabitants live on the archipelago. The sand substrate is omnipresent on the islands: tombolos, sand bars, spits, and dune systems occupy most of the landscape. The key site consists of a narrow stretch of water, about 200 km long, to the east and south of the principal group of islands, as well as southeast of Brion Island and around the Rochers aux Oiseaux (Bird Rocks); the latter is situated about 30 km northeast of the principal group of islands. The key site also includes shorelines of islands and rocky shoals adjacent to the nearshore waters.

The Îles de la Madeleine are situated next to the Laurentian Abyss (> 300 m deep), where benthic invertebrate diversity and primary productivity is high with upwelling and mixing of water (UQAR 2014). The vast water masses that surround the archipelago create a moderate climate, with currents that keep large stretches of water ice-free during winter.

Precision and Correction of Abundance Estimates Presented: Estimates of eiders counted during the Common Eider winter survey have been photo-corrected, unless stated otherwise. Otherwise, abundance estimates presented have not been adjusted to account for incomplete detection or other biases. Therefore, abundance estimates should be treated as minimum estimates.

Biological Value: This key site is one of the most important Common Eider (*Somateria mollissima*)



overwintering areas in eastern Canada. A triennial winter Common Eider survey in the Gulf of St. Lawrence estimated 12,000 to 19,000 eiders in the key site in 2006–2015 (photo-corrected; four surveys), and a 2018 survey provided a preliminary visual estimate of 32,400 birds in ice-free waters (Canadian Wildlife Service unpublished data). Depending on annual ice conditions, birds forage in large groups near Brion Island, from south of Île de l'Est to south of Pointe-Basse, in the Baie de Plaisance, around Île d'Entrée, and south of Île du Havre Aubert (Canadian Wildlife Service unpublished data). Based on measurements of heads collected in the key site during the 2016–2017 hunting season (n = 248), 90% of wintering Common Eiders were from the *dresseri* population, 4% *borealis*, and 6% intergrade *borealis-dresseri* (Canadian Wildlife Service unpublished data). Also reported during the winter Common Eider survey in February 2013 were 125 White-winged Scoters (*Melanitta deglandi*) and 80 Surf Scoters (*Melanitta perspicillata*) east of Brion Island (Canadian Wildlife Service unpublished data). A few King Eiders (*Somateria spectabilis*) were

also observed among Common Eider flocks. Groups of dozens to hundreds of Common Goldeneyes (*Bucephala clangula*), Long-tailed Ducks (*Clangula hyemalis*), and Red-breasted Mergansers (*Mergus serrator*) are regularly seen along the shores during winter (Fradette 1992, RQO et al. 2019); their presence and numbers depend on the annual ice conditions around the archipelago. Long-tailed Ducks are also present far offshore (Canadian Wildlife Service unpublished data) since they can dive to 60 m deep to feed on pelagic prey. Up to 10 Harlequin Ducks (*Histrionicus histrionicus*) from the eastern population, listed as of special concern by the Committee on the Status of Endangered Wildlife in Canada, have been reported during winter at a few spots along the principal group of islands (RQO et al. 2019).

Due to the strategic position of the Îles de la Madeleine in the middle of the Gulf of St. Lawrence, many ducks transit through during spring and fall migrations (Lamb et al. 2020). Peak eider abundance occurs in mid-March, and birds are seen until May (Fradette 1992). Common Goldeneye, Long-tailed Duck, and Red-breasted Merganser are common in spring; for instance, thousands of Long-tailed Ducks are observed in the coastal zone, including the Baie de Plaisance (Fradette 1992). Surf and White-winged scoters are rare migrants during spring (Fradette 1992), contrary to fall. Up to 62 Harlequin Duck were observed at Old Harry Point in 2012 (RQO 2019).

In fall, Common Eiders pass through the archipelago and some remain there for the winter. Long-tailed Ducks increase in abundance from mid-October to mid-December (Fradette 1992). Scoters migrate through the key site at the end of September and in October, with White-winged Scoter more abundant than Surf Scoter (Fradette 1992). Black Scoters (*Melanitta americana*) have also been reported during fall in groups of up to 300 individuals, but less frequently and apparently later (i.e., from mid-October to December) (RQO et al. 2019).

Few sea ducks currently breed in or adjacent to the key site (Quebec Breeding Bird Atlas 2018; but see Fradette 1992 and Munro 1996).

There is little documentation of sea ducks molting in the key site. However, in the past groups of thousands of nonbreeding White-winged Scoters were observed in the Baie de Plaisance and south of the Île du Havre aux Maisons in late June to early July, with some birds staying well into the molting period (Fradette 1992). Birders recently reported groups of 100 to 250 White-winged Scoters in July and August scattered throughout the archipelago (RQO et al. 2019).

Sensitivities: Climate change processes are increasing coastal erosion in the Îles de la Madeleine: 68% of the coast is being affected. In addition, winter ice cover and ice season length are decreasing in the Gulf of St. Lawrence, and the frequency and severity of winter storms are predicted to increase in the future, further exacerbating coastal erosion (Bernatchez et al. 2008). By 2060, coastal erosion is predicted to affect 81% of the coast due to storms, subsidence, and increased sea level (Bernatchez et al. 2012). Availability and quality of food resources for sea ducks could be influenced by shellfish overharvesting, pollution, biogeographic dynamics, environmental events (e.g., winter storms), and ice conditions in winter.

Potential Conflicts: Oil pollution is a concern due to the proximity of the Îles de la Madeleine to the main shipping route to and from the St. Lawrence Seaway. Illegal oil dumping (e.g., bilge wastes) and accidental spills threaten the fragile islands' ecosystem. For instance, in 1970, the barge Irving Whale spilled bunker oil between Prince Edward Island and the Îles de la Madeleine, oiled about 5000 Common Eiders, and contaminated 35 km of the archipelago's coasts (Brown and Lock 2003). As recently as 2016, bags of contaminated sand, collected during cleanup, were found buried in some of the Îles de la Madeleine dunes.

Overfishing could disrupt the food chain and affect sea duck food resources, particularly bivalves. Aquaculture is also active in the key site (see Appendix 1); as of 2016, there were four producers for blue mussels, scallops, and oysters, as well as developmental activities to grow algae commercially (Bourque 2016). Most aquaculture operations are set up in lagoons, but there is one offshore site in the Baie de Plaisance where Common Eiders overwinter. Studies have been conducted to try to mitigate predation of cultivated mussels by Common Eiders, as some local producers lost their entire crop. The Quebec government wishes to increase sea product exports under a durable framework according to the 2018–2025 bio-food strategy (MAPAQ 2018). Coastal

habitats on the Îles de la Madeleine are subjected to important recreational activities (e.g., all-terrain vehicles on beaches) that can disturb breeding ducks and displace local foraging and migrating flocks.

Status: Pointe de l'Est National Wildlife Area, situated at the northeastern tip of the principal group of islands, was created in 1978 by Environment Canada and covers an expanse of dunes, barrens, and ponds. It was designated to protect important habitats that serve as staging areas for migratory birds. The Bird Rocks Migratory Bird Sanctuary (650 ha), declared in 1919 by the Canadian government, lies approximately 30 km north of the principal archipelago, near Brion Island, and consists of three main rocky islands: the Rocher aux Oiseaux and two smaller rocky islands together known as Rochers aux Margaulx. Waters within 1 km of the islands are included in the sanctuary. Most of Brion Island is protected as an ecological reserve, managed by the provincial government; it is host to 166 bird species, of which more than half breed locally. There are two Aquatic Birds Concentration Areas, one in the principal group of islands and the other near Brion Island (*Aires de concentration d'oiseaux aquatiques*; MELCC 2021). Nine Important Bird Areas overlap the Îles de la Madeleine key site, but two are more relevant to sea ducks, namely the Brion Island and the Rochers aux Oiseaux IBAs (IBA Canada website). The Îles de la Madeleine and surrounding waters are proposed for a Protected Marine Area, both by the federal and provincial governments, due to the abundance of wildlife and high biodiversity there (see UQAR 2014).

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American Common Eiders. Photo: Christine Lepage.