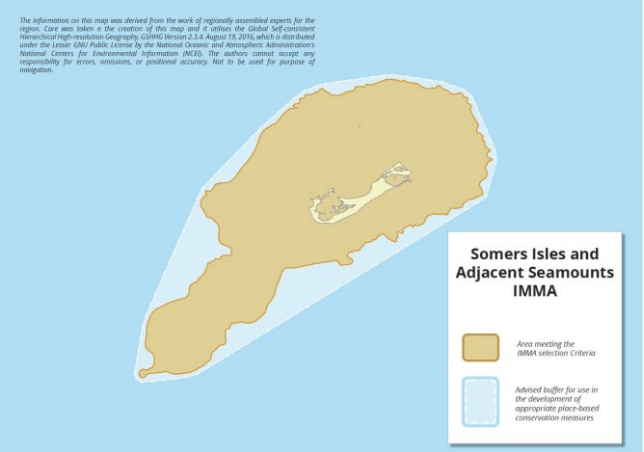

Area Size

2,543 km²

Qualifying Species and Criteria

Humpback whale – *Megaptera novaeangliae*

Criterion B (2); C (1,2,3b)

Other Marine Mammal Species Documented

Physeter macrocephalus, Tursiops truncatus, Ziphius cavirostris

Summary

Bermuda, also known as the Somers Isles, is an isolated group of mid-oceanic islands. Located approximately 1,000 km from the United States coastline, the IMMA includes shelf and deep waters closely following the steep 2,000 m isobath of the Bermuda Platform around the two adjacent seamounts. While the Islands themselves cover 55 square kilometres, the IMMA area is approximately 3,097 square kilometres and contains two adjacent seamounts to the southwest of the Somers Isles, the Challenger and Argus Banks. The IMMA hosts seasonal aggregations of North Atlantic humpback whales (*Megaptera novaeangliae*) that use the area as a stopover point on both the northern and southern migrations, as well as an important area for feeding, calving, and nursing

Somers Isles and Adjacent Seamounts IMMA

Summary, continued.

young. Pilot and sperm whales also occur but these are presently not commonly observed. The waters around Bermuda were designated a Marine Mammal Sanctuary in 2012 and the IMMA is surrounded by, but not included in the Sargasso Sea Ecologically or Biologically Significant Marine Area described in 2012.

Description:

The Somers Isles (Bermuda) and Adjacent Seamounts comprise a mid-ocean archipelago of islands. The land area covers 55 km² with 1,000 square kilometres of the Bermuda Platform comprising shallow waters. The total area in the area is approximately 3,097 square kilometres and includes the Challenger and Argus Banks to the southwest of the Bermuda Platform down to the steep 2,000m isobath. The area is wholly located in the Sargasso Sea in the Tropical Northwestern Atlantic biogeographic region (Coates et al., 2013) in a highly oligotrophic setting. In winter, the upper water mass layer (Eighteen Degree Water, or Sargasso Sea Water) is vertically well mixed and fuels primary productivity (Angel, 2011). A second thermocline develops in summer beneath a shallower mixed layer, normally <20 m in depth (Fawcett et al., 2014). The area includes the Bermuda Platform with sand holes and steep coral ledges. It also includes many topographically complex seafloor features and habitats such as seamounts, canyons and the steep platform sides, all of which interact with, and, likely even topographically steer, the mixing and circulation

Figure 1: Humpback whale (*Megaptera novaeangliae*) breaching in Somers Isles. Photo credit: Andrew Stevenson.

Figure 2: Humpback whale (*Megaptera novaeangliae*) fluke. Photo credit: Andrew Stevenson.

Figure 3: A pair of humpback whale (*Megaptera novaeangliae*) observed underwater. Photo credit: Andrew Stevenson.

Figure 4: Humpback whales (*Megaptera novaeangliae*) surfacing in Somers Isles. Photo credit: Andrew Stevenson.

of nutrients, food and energy (Fahlman et al., 2023). A Marine Mammal Sanctuary has been in place since 2012, and the IMMA is surrounded by, but not included in, the Sargasso Sea Ecologically or Biologically Significant marine Area.

Criterion B: Distribution and Abundance Sub-criterion B2: Aggregations

Boat-based surveys since 2007 revealed the Somers Isles to be a humpback whale (*Megaptera novaeangliae*) migratory stopover ground (Grove et al., 2023), with whales observed passing through Bermuda waters on their way south to the Caribbean breeding/calving grounds from mid-December into February as well as on their way north from the breeding/calving grounds to their northern feeding grounds March through to mid-May. Peak aggregations occur from mid-March to late April. An abundance survey indicated some 1,000-2,000 humpbacks migrate through Bermuda, with reconstructed abundances showing exponential growth since 2012 (Grove et al., 2022, 2023). Numerous important habitats have been identified including areas for feeding, resting, using sand holes to remove parasites (Stevenson & Werth, 2024) and singing. It is believed that the complex topography of the canyon enhances song transmission (Payne & Payne, 1985). On their way north, large numbers of humpbacks aggregate in the IMMA, with layovers up to 21 days. Groups with over a dozen individuals can be observed milling around for many hours. Their behaviour differs from earlier in the season when competitive groups are frequently observed. These large groups will then suddenly move at a consistent speed and heading (north) with coordinated breathing in what appears to be a convoy.

Criterion C: Key Life Cycle Activities Sub-criterion C1: Reproductive Areas

From 2016 onwards, female humpback whales have been observed with very small calves from late December to early January (Stevenson et al., 2017; Stevenson, 2019; 25 minutes 22 seconds). Notably in the early 20th century, calves 4.5 to 9.1 m in length were sighted until early June; from 1980-1985 and over 37 days of sighting effort, 6% of sightings were calves (Stone et al., 1987). These small calves could not have migrated to Bermuda from the Caribbean in December or early January, suggesting that some female humpbacks use Bermuda and the adjacent seamounts as birthing grounds on their southward migration (Kettemer, 2023). Mothers with 3–4-month-old calves are also the last humpbacks to enter Bermuda's waters in the latter part of April or early May. These calves can be observed nursing in shallow waters (Stevenson, 2019; 19 minutes 07 seconds). From early to late March, male competitive groups are observed chasing females, with males engaged in fierce fighting such as swimming on top of another male to prevent it from surfacing, and slashing pectoral fins at one another (Stevenson, 2019; 22 minutes, 48 seconds to 25 minutes 20 seconds). Aerial footage reveals competitive groups of as many as 25 whales chasing and fighting over a single female (Stevenson, 2019; 22 minutes 48 seconds to 25 minutes 20 seconds).

Sub-criterion C2: Feeding Areas

Systematic boat-based surveys conducted from 2007 onward by WhalesBermuda have observed humpback whales foraging on the edges of the Bermuda Platform and adjacent seamounts, particularly Sally Tuckers and the windward edge of Challenger Bank (Stevenson, 2011). Humpback whales are thought to be diving at dusk and overnight to feed on the deep scattering layer in this

area where there are also signs of defecation (Stone et al., 1987; Hamilton et al., 1997). Recent boat-based photos of defecation episodes while tail lobbing, together with aerial footage and collected faecal samples provide additional evidence of regular feeding in the IMMA. Bermuda and its adjacent seamounts are thought to provide an important stopover ground (Grove et al., 2023) and feeding station, providing opportunistic feeding opportunities to whales before they migrate north (Stone et al., 1987; Katona & Beard, 1990). DNA sequencing of solid faecal specimens indicate krill (Thysanopoda) and bristlemouth fish (Cyclothone) are important to humpback diets in the area (A. Stevensen and L. Blanco Bercial, unpublished data).

Sub-criterion C3: Migration Routes
C3b – Migration / Movement Area

Bermuda is one of the only areas in the North Atlantic where humpback whales are regularly observed during migration (Stone et al., 1987), with some individuals exhibiting strong fidelity to Bermuda (Beaudette et al., 2009). Photo identification and passive acoustic monitoring indicate that humpback whales are present in from mid-December to mid-May (Narganes Homfeldt et al., 2022), and densities in the IMMA are highest when whales are on their southerly route mid-December and again in early March as they migrate northwards. Modelled annual abundance estimated between 1,000-2,000 humpbacks migrate over the Bermuda Platform and adjacent seamounts (Grove et al., 2022, 2023), with 13% of humpbacks recorded across multiple years (Grove et al., 2023). Residency times based on photo-identification usually do not exceed three weeks, and updated photo identifications of 2,327 humpback whales suggest Bermuda and its adjacent seamounts are migratory stopover grounds (Grove et al., 2023) before continuing their journey north to the feeding grounds. The layovers of multiple days in Bermuda waters on similar dates year-to-year emphasises the hypothesis that Bermuda and its adjacent seamounts are not simply transitory migratory corridors (Grove et al., 2023). WhalesBermuda and others have matched whales in Bermuda to whales in the Caribbean, the eastern United States and Canada, and as far northeast as Franz Josef Land in Russia, Iceland, Ireland, Greenland, and the Azores (Stone et al., 1987).

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Acknowledgements

We would like to thank the participants of the 2024 IMMA Regional Expert Workshop for the identification of IMMAs in the North West Atlantic Ocean and wider Caribbean region. Funding for the identification of this IMMA was provided by the Water Revolution Foundation, with additional funding and collaboration from the Sargasso Sea Commission, OceanCare and Animal Welfare Institute. Essential administrative support was given by Tethys Research Institute and Whale and Dolphin Conservation.

Suggested Citation: IUCN-MMPATF (2025) Somers Isles and Adjacent Seamounts IMMA Factsheet. IUCN Joint SSC/WCPA Marine Mammal Protected Areas Task Force, 2025.

PDF made available for download at ***https://www.marinemammalhabitat.org/factsheets/somers-isles-and-adjacent-seamounts-imma/***