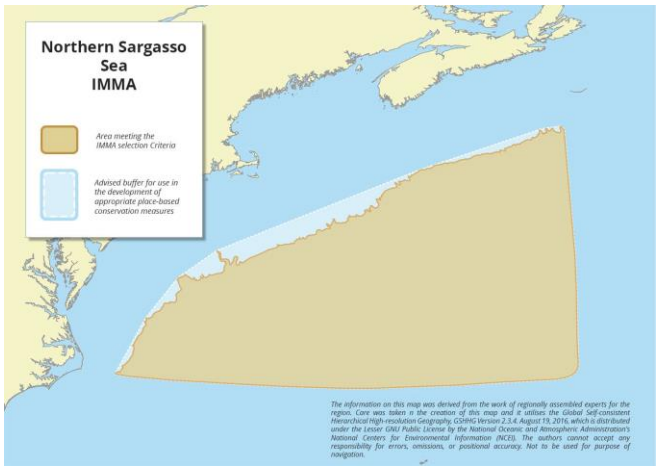

Area Size

722,961 km²

Qualifying Species and Criteria

Sperm Whale – *Physeter macrocephalus*

Criterion A; B (2); C (2)

Other Marine Mammal Species Documented

Balaenoptera musculus, Balaenoptera physalus, Delphinus delphis, Grampus griseus, Megaptera novaeangliae, Stenella coeruleoalba, Stenella frontalis

Summary

The Northern Sargasso Sea IMMA lies in the temperate western North Atlantic. It is located south of Nova Scotia, east of the northeastern states of the USA, and north of Bermuda, outside the continental shelf. Its waters are strongly influenced by the powerful Gulf Stream Current and are generally 3,000-4,000 m deep, although the area includes some of the New England Seamounts which rise to nearly 1,000 m below the surface. The area has the world's highest known densities of Vulnerable sperm whales (*Physeter macrocephalus*) presumably because it is a valuable feeding ground for the species. The area overlaps with the "Sargasso Sea" and "New England and Corner Rise Seamounts" EBSAs, as well as the US "Northeast Canyons and Seamounts Marine National Monument".

Northern Sargasso Sea IMMA

Description:

The Northern Sargasso Sea IMMA lies in the temperate western North Atlantic. It is located south of Nova Scotia, east of the northeastern states of the USA, and north of Bermuda. The waters are deep, mostly 3,000-4,000 m deep, but the area includes the chain of New England seamounts which can rise to about 1,000 m below the surface. The Gulf Stream current exerts a strong influence over much of the area. Sea surface temperatures vary greatly, from about 8° south of Nova Scotia in the winter, to about 25° in the Gulf Stream. The area overlaps with the "Sargasso Sea" and "New England and Corner Rise Seamounts" EBSAs, as well as the US "Northeast Canyons and Seamounts Marine National Monument".

Figure 1: Dorsal fins of two sperm whales (*Physeter macrocephalus*) surfacing . This species commonly found throughout the Northern Sargasso Sea IMMA. Photo credit: Hilary Moors-Murphy.

Figure 2: Aerial view of a group of sperm whales (*Physeter macrocephalus*) at the surface. The Northern Sargasso Sea IMMA has the world's highest known densities of this species. Photo credit: David Gaspard.

Figure 3: Two sperm whale (*Physeter macrocephalus*) flukes. Acoustic recordings and defecation rates show that sperm whales are feeding within the Northern Sargasso Sea IMMA . Photo credit: Whitehead Lab, Dalhousie University and The Dominica Sperm Whale Project (https://www.thespermwhaleproject.org/).

Criterion A: Species or Population Vulnerability

This IMMA encompasses important aggregations and feeding grounds for the sperm whale (*Physeter macrocephalus*), which is assessed as Vulnerable (Taylor et al., 2019) on the IUCN Red List of Threatened Species, with data indicating a concerning decline in populations over time (Whitehead & Shin, 2022). From an estimated pre-whaling global population of about 1,950,000, the species experienced a significant reduction to about 850,000 in 2022.

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

The density of sperm whales in the Sargasso Sea is among the highest globally (Wong, 2012). During Wong's (2012) acoustic surveys, the area between 60° and 66°W had the highest proportion of detections per unit of effort compared to other areas in the Sargasso Sea. The western part of the area, off the US continental Shelf, has the highest estimated density of sperm whales of 16 studies around the world, about 0.0106 whales/km^2 (Hayes et al., 2020; Palka, 2020; Whitehead & Shin, 2022). In the northern Sargasso Sea outside the US EEZ, Wong (2012) estimated a density of 0.0053 whales/km^2, more than double the average global estimate of 0.0024 whales/km^2 (Whitehead & Shin, 2022). The reasons for this high density are not clear but likely include the Gulf Stream current interacting with the prominent New England seamount chain (Wong & Whitehead, 2014).

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

Acoustic recordings (echolocation clicks and buzzes) as well as defecation rates show that sperm whales are foraging in the Northern Sargasso Sea (Wong, 2012; Wong & Whitehead, 2014).

Supporting Information

Hayes, H.S.A., Elizabeth, J., Katherine, M.-F., and E, R.P. 2019. 'US Atlantic and Gulf of Mexico Marine Mammal Stock Assessments—2019'. NOAA Technical Memorandum NMFS-NE-264 (2020):1-479 [online], Available at: https://media.fisheries.noaa.gov/dam-migration/2019_sars_atlantic_508.pdf.

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Taylor, B.L., Baird, R., Barlow, J., Dawson, S.M., Ford, J., Mead, J.G., Notarbartolo di Sciara, G., Wade, P., and Pitman, R.L. 2019. '*Physeter macrocephalus* (amended version of 2008 assessment)'. The IUCN Red List of Threatened Species 2019, e.T41755A160983555 [online]. Available at: https://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T41755A160983555.en.

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Wong, S.N.P. 2012. 'A pelagic paradox: The ecology of a top predator in an oceanic desert'. PhD thesis, Dalhousie University, xvii + 1-147 [online]. Available at: https://dalspaceb.library.dal.ca/server/api/core/bitstreams/2656614e-4dff-45b5-be44-260f7e040bc2/content.

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macrocephalus) around Kelvin Seamount in the Sargasso Sea in relation to oceanographic processes'. Deep Sea Research I, 91:10-16.

Acknowledgements

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PDF made available for download at
https://www.marinemammalhabitat.org/factsheets/northern-sargasso-sea-imma/