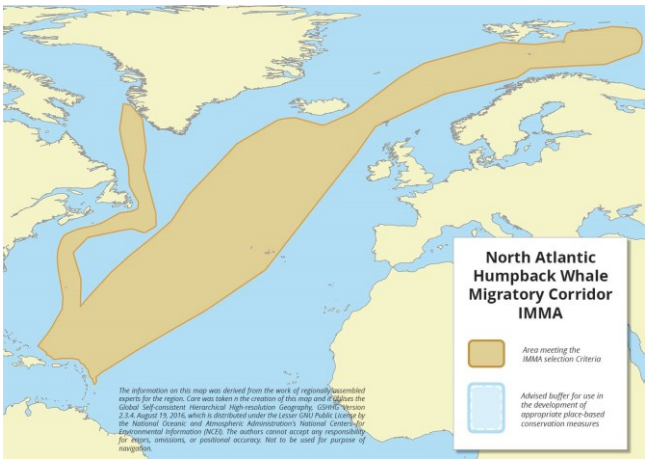

Area Size

11,818,614 km²

Qualifying Species and Criteria

Humpback whale – *Megaptera novaeangliae*

Criterion C (3a)

Summary

The North Atlantic Humpback Whale Migratory Corridor IMMA represents the central migratory corridor, which splits into two distinct branches, used by humpback whales (*Megaptera novaeangliae*) during their annual seasonal migrations between feeding grounds in the northern Atlantic and breeding grounds in the Caribbean. It originates along the Antillean islands in the Caribbean, extending northward and branching into two corridors at around 29°N with one extending northwest into the Gulf of Maine and Labrador Sea as far as the west coast of Greenland while the other extends northeast toward Iceland and the Norwegian and Barents Seas. This IMMA overlaps with 12 Ecologically and Biologically Significant Areas (EBSAs), various Vulnerable Marine Ecosystems (VMEs) as described by the North Atlantic Fisheries Organization (NAFO) and the Northeast Atlantic Fisheries Commission (NEAFC), and over 15 protected areas (PAs), including one Important

North Atlantic Humpback Whale Migratory Corridor IMMA

Summary, continued.

Bird Area (IBA), several marine Key Biodiversity Area (KBA), and seven marine PAs within Bermudian jurisdiction.

Description:

The North Atlantic Humpback Whale Migratory Corridor IMMA originates along the Antillean islands, in the Caribbean, extending northward into the Atlantic and branching into two corridors around 29°N with one extending northwest into the Gulf of Maine and Labrador Sea to the west coast of Greenland while the other moves northeast past Iceland to the Norwegian and Barents Seas. This IMMA connects portions of the shallow, warm water breeding sites in the Caribbean, the colder, highly productive feeding grounds of the north Atlantic, and the high seas. The northwest branch of this IMMA intersects with the continental shelf / ridge / seamounts around Bermuda, crossing the continental shelf again as it enters the Labrador Sea. The northeast branch intersects the mid-Atlantic ridge starting around 46°W and 25°N until it reaches shallower waters between Greenland and the UK. This IMMA crosses the North Atlantic Gyre, which is made up of several circulating currents including the Gulf Stream, the Azores, Canary, North Equatorial, and Antilles Currents. This IMMA overlaps with 12 Ecologically and Biologically Significant Areas (EBSAs), various Vulnerable Marine Ecosystems (VMEs) as described by the North Atlantic Fisheries Organization (NAFO) and the Northeast Atlantic Fisheries Commission

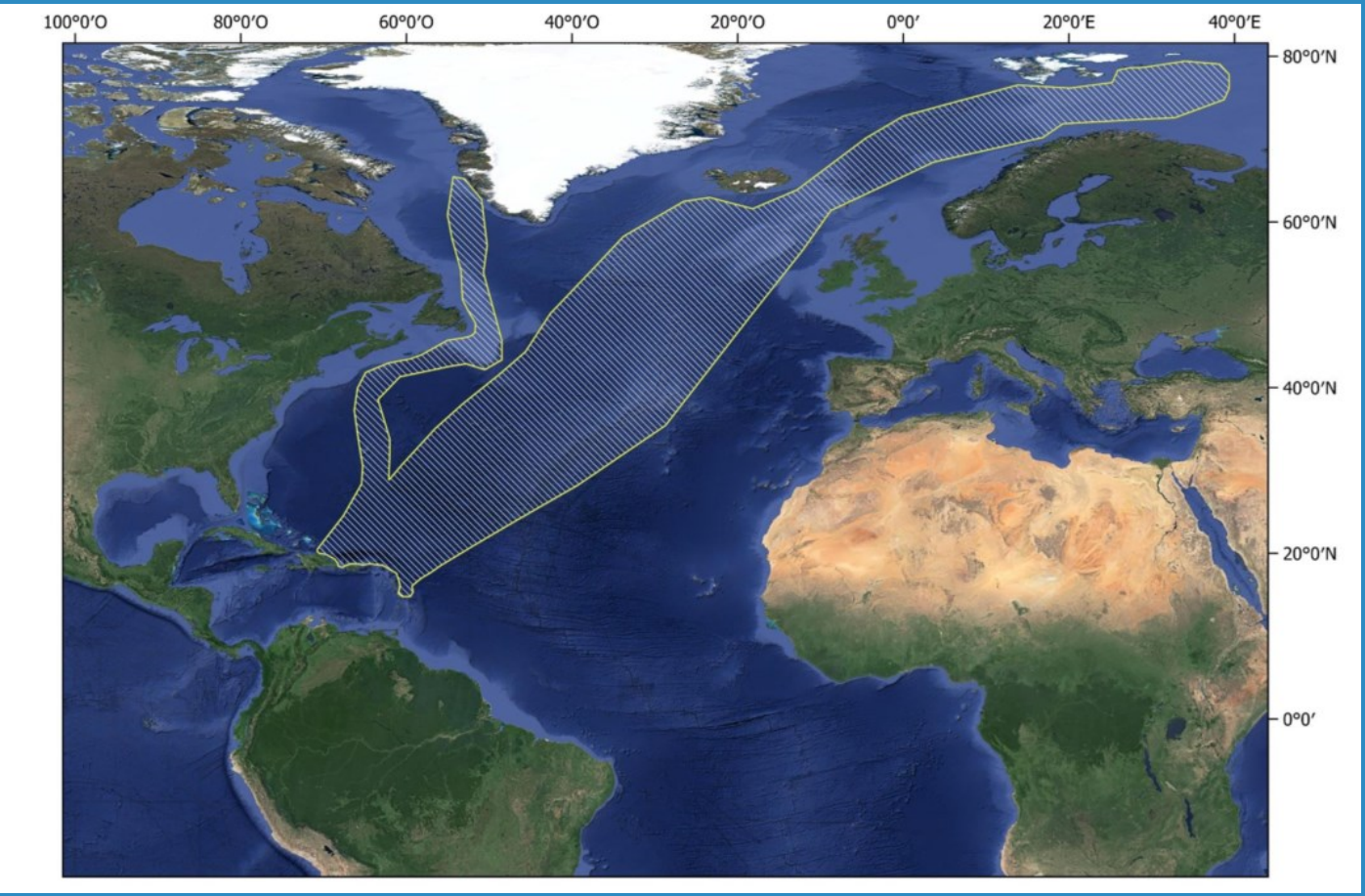

Figure 1: North Atlantic Humpback Whale Migratory Corridor IMMA boundaries. Credit: Bea Smith.

(NEAFC), and over 15 protected areas (PAs), including one Important Bird Area (IBA), several marine Key Biodiversity Area (KBA), and seven marine PAs within Bermudian jurisdiction.

Criterion C: Key Life Cycle Activities Sub-criterion C3: Migration Routes C3a – Whale Seasonal Migratory Corridor

The North Atlantic Humpback Whale Migratory Corridor encompasses the two primary migration routes used by the largest breeding aggregation of humpback whales (*Megaptera novaeangliae*) in the north Atlantic, connecting breeding grounds in the Caribbean to two distinct foraging areas, one of which occurs in the Gulf of Maine and eastern Canada (including waters off Newfoundland and Labrador), and the other in West Greenland, Iceland, the northern Norwegian coast and the Barents Sea (IWC, 2002; Stevick et al., 2006). Every winter, the majority of the North Atlantic humpback population mates and calves in the Caribbean, congregating throughout the shallow banks that buffer the Antillean islands (Winn et al., 1975; Whitehead & Moore, 1982; Mattila & Clapham, 1989; Katona & Beard, 1990; Smith et al., 1999). The Springtime northern migration back to feeding grounds occurs sometime between December and May, during which individuals have been recorded using Bermuda as a stopover feeding site during the long migration (Martin et al., 1984; Stone et al., 1987; Kennedy et al., 2014; Johnson et al., 2022; Grove et al., 2023). The southbound migration back to calving grounds, during which individuals generally follow a similar route to northbound migration (Kettemer, 2023), begins around late September.

Migratory connectivity between breeding and feeding sites has been established using photographic identification (photo-ID) methods and genetic analyses (e.g. Katona & Beard, 1990; Baker et

Figure 2: Humpback whales (*Megaptera novaeangliae*) in the North Atlantic Humpback Whale Migratory Corridor IMMA.
Photo credit: Fae Sapsford / Sargasso Sea Commission.

al., 1990; Stevick et al., 2003, 2016; Wenzel et al., 2003, 2020; Rizzo & Schulte, 2009), sightings data (OBIS, 2023), and telemetry tagging (e.g. Fossette et al., 2014; Kennedy et al., 2014; Robbins, 2023; Kettemer et al., 2022). Data from 22 tagged whales presented in Kennedy et al. (2014) and 200 tagged whales presented in Kettemer (2023) indicate two distinct pathways to discrete foraging sites in the Northwest Atlantic and the Northeast Atlantic (Katona & Beard, 1990; Stevick et al., 1998; Kettemer et al., 2022; Robbins, 2023). The North Atlantic Humpback Whale Migratory Corridor IMMA connects these feeding grounds to recognized breeding areas in the Greater Antilles islands of the Caribbean and encompasses critical migratory habitat in the Somers Isles of Bermuda IMMA.

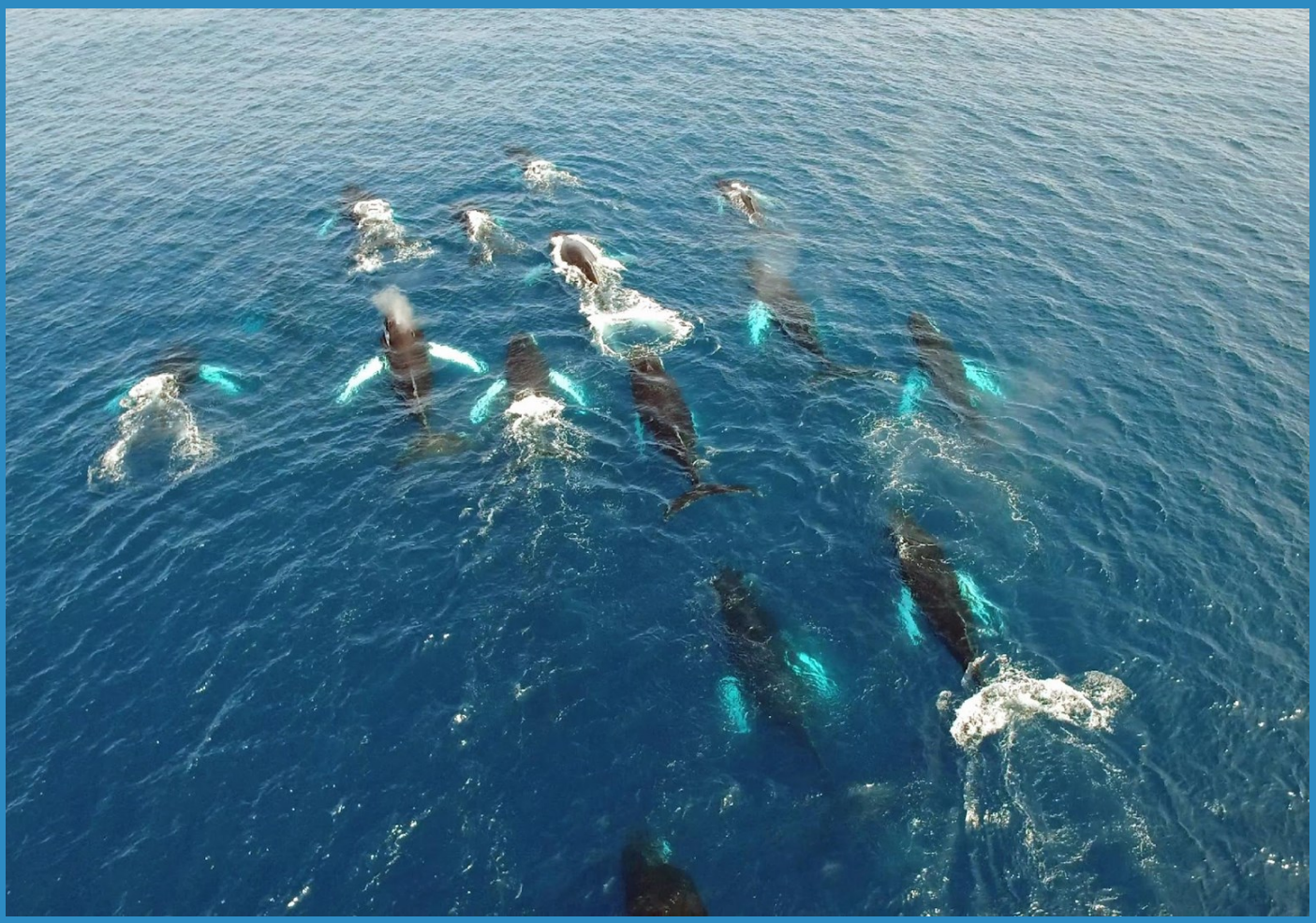

Figure 3: A pod of humpback whales (*Megaptera novaeangliae*) in the North Atlantic Humpback Whale Migratory Corridor IMMA. Photo credit: Andrew Stevenson / Sargasso Sea Commission.

Figure 4: Humpback whale (*Megaptera novaeangliae*) swimming through floating Sargassum patches in the North Atlantic Humpback Whale Migratory Corridor IMMA. Photo credit: Andrew Stevenson / Sargasso Sea Commission.

Supporting Information

Baker, C.S., Palumbi, S.R., Lambertsen, R.H., Weinrich, M.T., Calambokidis, J., and O'Brien, S.J. 1990. 'Influence of seasonal migration on geographic distribution of mitochondrial DNA haplotypes in humpback whales'. Nature, 344:238–240.

Fossette, S., Vely, M., Heide-Jorgensen, M.P., and Maslach, N. 2014. 'Satellite tagging and biopsy sampling campaign, MEGASAT reproduction area - North West Indies (N.W.I)'. Terminal Mission Internal Report, MEGARA Project, North West Indies [oneline]. Available at: http://www.car-spaw-rac.org/IMG/pdf/Final_ report_MEGARA.pdf. (Accessed: 6 July 2023). Reserve Naturelle Nationale de Saint Martin, St. Martin.).

Grove, T., King, R., Stevenson, A., and Henry, L-A. 2023 'A decade of humpback whale abundance estimates at Bermuda, an oceanic migratory stopover site'. Front. Mar. Sci., 9:971801.

International Whaling Commission (IWC). 2002. 'Report of the Scientific Committee. Annex H. Report of the Sub-committee on the Comprehensive Assessment of North Atlantic humpback whales'. J. Cetacean Res. Manage, 4(Suppl.):230–260.

Johnson, C., Reisinger, R., Palacios, D., Friedlander, A., Zerbini, A., Willson, A., Lancaster, M., Battle, J., Graham, A., Cosandey-Godin, A., Jacob, T., Felix, F., Grilly, E., Shahid, U., Houtman, N., Alberini, A., Montecinos, Y., Najera, E., and Kelez, S. 2022. Protecting blue corridors, challenges and solutions for migratory whales navigating international and national seas. WWF, Oregon State University, University of California, Santa Cruz. World Wildlife Fund International, Gland, Switzerland.

Katona, S.K. and Beard, J.A. 1990. 'Population size, migrations and feeding aggregations of the humpback whale (*Megaptera novaeangliae*) in the western North Atlantic Ocean'. Rep Int Whal Commn, Special Issue, 12:295–305.

Kennedy, A.S., Zerbini, A.N., Vásquez, O.V., Gandilhon, N., Clapham, P.J., and Adam, O. 2014. 'Local and migratory movements of humpback whales (*Megaptera novaeangliae*) satellite-tracked in the North Atlantic Ocean'. Can J Zool, 92:9–18.

Kettemer, L.E. 2023. Forthcoming. *Migration Ecology of North Atlantic Humpback Whales: Mapping Movements throughout the Annual Cycle*. Doctoral thesis, UiT The Arctic University of Norway.

Kettemer, L.E., Rikardsen, A.H., Biuw, M., Broms, F., Mul, E., and Blanchet, M-A. 2022. 'Round-trip migration and energy budget of a breeding female humpback whale in the Northeast Atlantic'. PLoS ONE, 17:e0268355.

Laffoley, D. d'A., Roe, H.S.J., Angel, M.V., Ardron, J., Bates, N.R., Boyd, I.L., Brooke, S., Buck, K.N., Carlson, C.A., Causey, B., Conte, M.H., Christiansen, S., Cleary, J., Donnelly, J., Earle, S.A., Edwards, R., Gjerde, K.M., Giovannoni, S.J., Gulick, S., Gollock, M., Hallett, J., Halpin, P., Hanel, R., Hemphill, A., Johnson, R.J., Knap, A.H., Lomas, M.W., McKenna, S.A., Miller, M.J., Miller, P.I., Ming, F.W., Moffitt, R., Nelson, N.B., Parson, L., Peters, A.J., Pitt, J., Rouja, P., Roberts, J., Roberts, J., Seigel, D.A., Siuda, A.N.S., Steinberg, D.K., Stevenson, A., Sumaila, V.R., Swartz, W., Thorrold, S., Trott, T.M., and Vats, V. 2011 'The protection and management of the Sargasso Sea: The golden floating rainforest of the Atlantic Ocean. Summary Science and Supporting Evidence Case.' Sargasso Sea Alliance, Washington, DC.

Martin, A.R., Katona, S.K., Matilla, D., Hembree, D., and Waters, T.D. 1984. 'Migration of humpback whales

between the Caribbean and Iceland'. J. Mammal., 65:330–333.

Migratory Connectivity in the Ocean. 2023. 'Highly migratory marine species nodes and corridors, developed with data contributed to the Migratory Connectivity in the Ocean (MiCO)'. MiCO System Version 1.0 [online]. Available at: https://mico.eco. (Accessed: 13 March 2023). Duke University Nicholas School of the Environment Marine Geospatial Ecology Lab and University of Queensland, Durham, NC and Brisbane, Australia.

OBIS. 2023. 'Ocean Biodiversity Information System. Intergovernmental Oceanographic Commission of UNESCO'. Full OBIS export 2023-02-08 version [online]. Available at: https://obis.org/data/access. (Accessed: 1 March 2023). United Nations Educational, Scientific and Cultural Organization, Ostend, Belgium.).

Riede, K. 2000. 'Conservation and modern information technologies: The global register of migratory species (GROMS)'. J. Int. Wildl. Law Policy, 3:152–165.

Riede, K. 2004. 'Global register of migratory species - from global to regional scales. Final Report of the R&D Projekt 808 05 081'. Federal Agency for Nature Conservation in Germany, Bonn, Germany.

Rizzo, L.Y., Schulte, D. 2009. 'A review of humpback whales' migration patterns worldwide and their consequences to gene flow'. J. Mar. Biol. Assoc., 89:995–1002.

Robbins, J. 2023. 'Data from: Gulf of Maine humpback whales' [online]. Available at: https://www.movebank.org/cms/webapp?gwt_fragment=page=studies,path=study540299766. (Accessed: 20 July 2023). Movebank Data Repository. Unpublished dataset.

Stevick, P.T., Allen, J., Clapham, P.J., Friday, N., Katona, S.K., Larsen, F., Lien, J., Mattila, D.K., Palsboll, P.J., Sigurjonsson, J., Smith, T.D., Oien, N., and Hammond, P.S. 2003. 'North Atlantic humpback whale abundance and rate of increase four decades after protection from whaling'. Mar. Ecol. Prog., 258:263–273.

Stevick, P.T,. Allen, J., Clapham, P.J., Katona, S.K., Larsen, F., Lien, J., Mattila, D.K., Palsbøll, P.J., Sears, R., Sigurjónsson, J., Smith, T.D., Vikingsson, G., Øien, N., and Hammond, P.S. 2006. 'Population spatial structuring on the feeding grounds in North Atlantic humpback whales (*Megaptera novaeangliae*)'. Journal of Zoology, 270:244–255.

Stevick, P.T., Berrow, S.D., Berube, M., Bouveret, L., Broms, F., Jann, B., Kennedy, A., Suarez, P.L., Meunier, M., Ryan, C., and Wenzel, F. 2016. 'There and back again: multiple and return exchange of humpback whales between breeding habitats separated by an ocean basin'. J. Mar. Biol. Assoc., 96:885–890.

Stevick, P.T., Ølen, N. and Mattila, D.K. 1998. 'Migration of a humpback whale (*Megaptera novaeangliae*) between Norway and the West Indies'. Mar. Mamm. Sci., 14:162–166.

Stone, G.S., Katona, S.K. and Tucker, E.B. 1987. 'History, migration and present status of humpback whales *Megaptera novaeangliae* at Bermuda'. Biol. Conserv., 42:133–145.

Wenzel, F.W., Broms, F., López-Suárez, P., Lopes, K., Veiga, N., Yeoman, K., Simão, M., Rodrigues, D., Allen, J., Fernald, T.W., Stevick, P.T., Jones, L., Jann, B., Bouveret, L., Ryan, C., Berrow, S., and Corkeron, P. 2020. 'Humpback whales (*Megaptera novaeangliae*) in the Cape Verde Islands: migratory patterns, resightings, and abundance'. Aquat. Mamm., 46:21–31.

Wenzel, F.W., Jann, B., Allen, J., Carrillo, M., Hanquet, S., Katona, S.K., Martin, A.R., Reeves, R.R., Seton, R., and Stevick, P.T. 2003. 'Migration of a humpback whale (*Megaptera novaeangliae*) between the Cape Verde Islands and Iceland'. J. Cetacean Res. Manage., 5:125–129.

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) North Atlantic Humpback Whale Migratory Corridor IMMA Factsheet. IUCN Joint SSC/WCPA Marine Mammal Protected Areas Task Force, 2025.

PDF made available for download at ***https://www.marinemammalhabitat.org/factsheets/north-atlantic-humpback-whale-migratory-corridor-imma/***