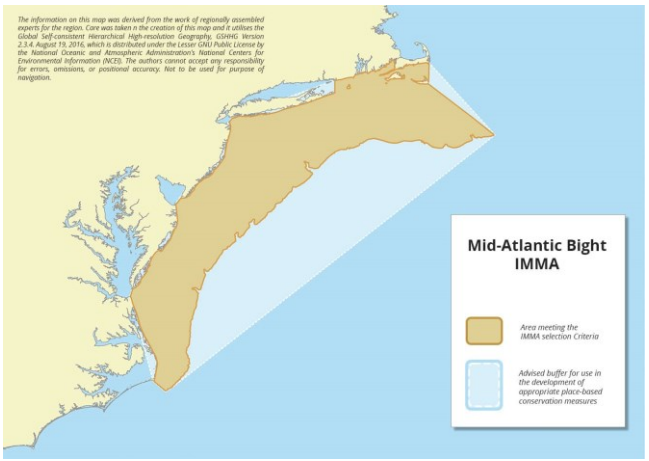

Area Size

114,783 km²

Qualifying Species and Criteria

Sei whale – *Balaenoptera borealis*

Criterion A; C (3b)

Fin whale – *Balaenoptera physalus*

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

North Atlantic right whale – *Eubalaena glacialis*

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

Sperm whale – *Physeter macrocephalus*

Criterion A

Common minke whale – *Balaenoptera acutorostrata*

Criterion C (2, 3b)

Humpback whale – *Megaptera novaeangliae*

Criterion B (2); C (2)

Tamanend's bottlenose dolphin – *Tursiops erebennus*

Criterion B (2)

Common bottlenose dolphin – *Tursiops truncatus*

Criterion B (2)

Criterion D (2) – Marine Mammal Diversity

Balaenoptera acutorostrata, Balaenoptera borealis, Balaenoptera physalus, Delphinus delphis, Eubalaena glacialis, Globicephala macrorhynchus, Globicephala melas, Grampus griseus, Leucopleurus acutus, Megaptera novaeangliae, Phocoena phocoena, Physeter macrocephalus, Stenella frontalis, Tursiops erebennus, Tursiops truncatus

Mid-Atlantic Bight IMMA

Other Marine Mammal Species Documented

Halichoerus grypus, Phoca vitulina

Summary

The Mid-Atlantic Bight IMMA is located along the east coast of the United States. It is bounded in the north by Nantucket Shoals and in the south by Cape Lookout, North Carolina. It extends from shore to the continental shelf break, delineated by the 150 m isobath. This area includes part of the Massachusetts Cape and Islands Ocean Sanctuary at the northern extent of the IMMA. This IMMA supports one of the most important feeding and aggregation areas in US waters for critically endangered North Atlantic right whales, as well as their main migratory corridor to the calving grounds. This area also provides foraging habitat for multiple large whale species (fin whale, humpback whale, minke whale), one of which is listed as Vulnerable (fin whales). This area also supports a high diversity of marine mammals, with at least 15 cetacean species regularly present, and 2 pinniped species.

Description:

The Mid-Atlantic Bight IMMA is located along the east coast of the United States. It is bounded in the north by Nantucket Shoals off southern New England, and in the south by Cape Lookout, North Carolina. It extends from shore to the continental shelf break, delineated by the 150 m isobath, and thus represents the waters of the continental shelf. This area includes part of the Massachusetts Cape and Islands Ocean Sanctuary, at the northern extent of the IMMA.

The physical oceanography of the region is influenced by local topography, freshwater estuarine inputs, large scale atmospheric patterns over the North Atlantic, and tropical or winter coastal storm events. Therefore, the ocean habitat is characterized by great variability across time scales from days and weeks to seasons, years, and decades. Seasonally, this area experiences one of the largest transitions in stratification with cold, well-mixed conditions in the winter months and strongly stratified conditions during the summer (Houghton et al., 1982). In late spring and early summer, a strong thermocline develops at about 20 m depth across the entire shelf, isolating a continuous mid-shelf "cold pool" of water that extends from Nantucket to Cape Hatteras (Houghton et al., 1982). Local river discharge can augment this thermal stratification across most of the shelf (Chant et al., 2008) and provides pulses of nutrients and other material to the mid-Atlantic bight (MAB) shelf. These riverine inputs are only a fraction of the supply from upstream sources delivered by a mean southwestward flow along the shelf (Fennel et al., 2006). In addition, upwelling along the coast occurs annually each summer. It is driven by SW winds associated with the Bermuda High (Glenn & Schofield, 2003; Glenn et al., 2004). Local upwelling can deliver Cold Pool water all the way inshore and to the surface near the coast (Glenn et al., 2004). This upwelled water can drive the development of very large phytoplankton blooms that are advected offshore (Sha et al., 2015).

Criterion A: Species or Population Vulnerability

The IUCN Red List lists four Qualifying Species in this region: the North Atlantic right whale (*Eubalaena glacialis*; Cooke, 2020) is Critically Endangered, the sei whale (*Balaenoptera borealis*) is Endangered (Cooke, 2018a), and both the fin whale (*B. physalus;* Cooke, 2018b) and the sperm whale (*Physeter macrocephalus;* Taylor et al., 2019) are Vulnerable.

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

The IMMA includes an important high-use habitat for North Atlantic right whales, which aggregate in large numbers to feed in southern New England, particularly south of Nantucket and Martha's Vineyard. Both visual and passive acoustic data have demonstrated right whale presence in this area across all seasons (e.g., Davis et al., 2017; Quintana-Rizzo et al., 2021). Right whale abundance was found to increase in this area between 2013 and 2019 (O'Brien et al., 2022), and prior studies have indicated that over 20% of the species is present from December through May (Quintana-Rizzo et al., 2021). A recent study based on aerial survey data documented that 60% of the species population was using this habitat within a single 4-month period in 2023 (McKenna et al., 2023), and a minimum of 100 individuals (~30% of the population) were sighted via an aerial survey on a single day in 2019 (NMFS survey data). At least 30%-50% of known reproductive females use this area (Leiter et al., 2017; Quintana-Rizzo et al., 2021).

Humpback whales (*Megaptera novaeangliae*) have been the most frequently detected baleen whales off New York in recent years (King et al., 2021; Zoidis et al., 2021; Chou et al., 2022). Between 2018-2020, they were encountered at a rate of 1.99 per 1,000 km of aerial sighting effort in the New York Bight (Zoidis et al., 2021). Over 100 individual humpback whales were photo-identified in New York Bight waters from 2012 through 2018, with a mean within-season occupancy of 37.6 days (range: 2-141) and confirmed annual return (Brown et al., 2022). Juveniles are the predominant demographic class of humpback whales across this IMMA (Swingle et al., 1993; Wiley et al., 1995; Barco et al., 2002; Aschettino et al., 2020;

Stepanuk et al., 2021; Brown et al., 2022).

Fin whales are the second most frequently sighted baleen whale off New York in this IMMA. Between 2017-2020, they were encountered at a rate of 1.47 per 1,000 km of effort in the New York Bight (Zoidis et al., 2021). Aggregations have been known to form in the vicinity of Montauk, New York (e.g. Sadove & Matlock-Cooley, 1991; Kopelman & Sadove, 1995; Chou et al., 2022).

Common bottlenose dolphins (*Tursiops truncatus*) were the most frequently encountered cetacean in surveys conducted off New Jersey in 2008-2009, and they were estimated to number 761 (95% CI: 362-1,600) in spring and as many as 1,537 animals in summer (95% CI: 758-3119, Whitt et al., 2015).

Criterion C: Key Life Cycle Activities Sub-criterion C2: Feeding Areas

The IMMA encompasses one of the current primary foraging habitats for North Atlantic right whales in US waters (Leiter et al., 2017; Quintana-Rizzo et al., 2021; O'Brien et al., 2022; Meyer-Gutbrod et al., 2023). North Atlantic right whales aggregate to feed south of Nantucket and Martha's Vineyard, mainly in winter and spring, but in recent years have occupied the area every month of the year (Quintana-Rizzo et al., 2021). Right whale abundance was found to increase in this area between 2013 and 2019 (O'Brien et al., 2022), and a recent study based on aerial survey data found 60% of the species was documented in this habitat within a 4-month period in 2023 (McKenna et al., 2023). North Atlantic right whales have been observed displaying feeding behaviours (e.g. open-mouthed swimming) in all seasons and across years (Quintana-Rizzo et al., 2021); observations which have also been corroborated with biologging tag data (unpublished). Similar feeding behaviors have been observed but less frequently further south, including off New York (Zoidis et al., 2021), New Jersey (Whitt et al., 2013), and Virginia (Englehaupt et al., 2020).

Within this IMMA, fin, humpback, and common minke (*Balaenopatera acutorostrata*) whales have also been regularly observed feeding, both separately and in multi-species aggregations (CETAP, 1982; Kopelman & Sadove, 1995; Brown et al., 2018; King et al., 2021; Stepanuk et al., 2021; Lomac-MacNair et al., 2022; Smith et al., 2022). A three-year study in the New York Bight based on over 680 hrs of aerial survey data documented foraging behaviour in 27% of the recorded fin whale sightings, 40% of the humpback whale sightings, and 18% of the minke whale sightings (Lomac-MacNair et al., 2022). Sighting rates of foraging whales were highest in the summer (4.4 whales/1,000 km effort). In a separate study compiling 8 years of data collected from whale watching vessels in the New York Bight apex, 40% of sightings (321/787 sightings) of humpback whales, including lunge feeding activity (Smith et al., 2022).

Humpback whales have also been observed surface feeding off coastal Virginia, primarily from fall through spring (Swingle et al., 1993). In a satellite tagging study conducted off the Chesapeake Bay from 2015-2017, 35 humpback whales were outfitted with satellite tags. Hierarchical state-space modeling results suggest that these animals spent 82.0% of their time engaged in foraging behavior (Aschettino et al., 2020).

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

The Mid-Atlantic Bight (MAB) is a well-known migratory corridor for North Atlantic right whales, as they migrate between their feeding grounds in Southern New England, the Gulf of Maine, and the Gulf of St. Lawrence, and their calving grounds in the South Atlantic Bight. This migratory route includes reproductively mature females, pregnant females,

juveniles, and young calves as well as mature males (Schick et al., 2013; Oedekoven et al., 2015). Northward migratory patterns have been studied both via modeling and with limited satellite telemetry data. Modelling analyses based on extensive sightings data suggest a mean northward migration speed of 2.8–3.1 km/h (e.g., Firestone et al., 2008). This is complemented by satellite telemetry data showing the migration of whales through the MAB, including a mother with calf moving from Florida to the Gulf of Maine in 1996 at an average speed of 26.0 km/d (Schick et al., 2009), a reproductively active female moving from the Bay of Fundy to the calving ground in 2000 at an average speed of 44.2 km/d (Schick et al., 2009), and a male moving from coastal Virginia to Massachusetts (HDR, unpublished data).

Sei and minke whales display strong seasonal shifts in density (Roberts et al., 2023), indicative of migratory behaviour, with highest densities in spring, where it is likely that these species feed as they migrate through from southerly calving grounds to summer feeding grounds in the Gulf of Maine and farther north. These results for sei whales are consistent with prior analysis of whaling data at the Blandford, Nova Scotia whaling station further north by Mitchell (1975), who reported two "runs" of sei whales, one in June and another in October. Passive acoustic data collected throughout this IMMA show similar patterns in seasonal occurrence. In a multi-year passive acoustic monitoring study spanning Davis Strait down to the Caribbean, minke whale detections peaked off New York within the Mid-Atlantic Bight from mid-March through mid-May (Risch et al., 2014).

Criterion D: Special Attributes
Sub-criterion D2: Diversity

The Mid-Atlantic Bight is noted for its cetacean diversity, with 5 species of baleen whales regularly utilising the area, at least 10 species of odontocetes, and 2 species of pinniped. The baleen whale species include the common minke whale, fin, humpback, and sei whales, as well as the North Atlantic right whale. The odontocete species include Atlantic spotted dolphin (*Stenella frontalis*), Atlantic white-sided dolphin (*Lagenorhynchus acutus*), common dolphin (*Delphinus delphis*), harbour porpoise (*Phocoena phocoena*), Risso's dolphin (*Grampus griseus*), short- and long-finned pilot whales (*Globicephala macrorhynchus, G. melas*), sperm whales, and bottlenose dolphins, which are now known to likely include two species: the common bottlenose dolphin as well as the newly identified Tamanends's bottlenose dolphin (*Tursiops erebennus*).

Cetacean species richness was estimated by two different methods by Roberts et al. (2023; Figure 1) and Hodge et al. (2022; Figures 2, 3). The latter reported relatively high diversity values along the Mid-Atlantic Bight as compared to other areas to the south. At the time of those studies, only one species of bottlenose dolphin was recognized in this region; however, new evidence presented by Costa et al. (2022) indicates that the long-recognized coastal and offshore morphotypes comprise two distinct species (Tamanend's bottlenose dolphin and common bottlenose dolphin). While more work is needed to fully describe the range of the Tamanend's bottlenose dolphin, evidence suggests that both species are present in the Mid-Atlantic Bight region (Torres et al., 2003).

Figure 1: North Atlantic right whale "Oakley" (Catalog #3120) observed on April 23, 2025, during a New England Aquarium aerial survey south of Massachusetts. Photo credit: New England Aquarium, under NMFS permit #25739.

Figure 2: Humpback whale (*Megaptera novaeangliae*) with calf. Photo credit: New England Aquarium.

Figure 3: Fin whale (*Balaenoptera physalus*) with calf. Photo credit: New England Aquarium.

Figure 4: Sei whale (*Balaenoptera borealis*) feeding. Photo credit: New England Aquarium.

Supporting Information

Aschettino, J.M., Engelhaupt, D.T., Engelhaupt, A.G., DiMatteo, A., Pusser, T., Richlen, M.F., and Bell, J.T. 2020. 'Satellite telemetry reveals spatial overlap between vessel high-traffic areas and humpback whales (*Megaptera novaeangliae*) near the mouth of the Chesapeake Bay'. Frontiers in Marine Science, 7, p.121.

Barco, S.G., McLellan, W.A., Allen, J.M., Asmutis-Silvia, R.A., Mallon-Day, R., Meagher, E.M., Pabst, D.A., Robbins, J., Seton, R.E., Swingle, W.M., Weinrich, M.T., and Clapham, P.J. 2002.' Population identity of humpback whales (*Megaptera novaeangliae*) in the waters of the US mid-Atlantic states'. Journal of Cetacean Research and Management 4(2):135-141.

Brown, D., Robbins, J., Sieswerda, P.L., Schoelkopf, R., and Parsons, E.C.M. 2018. 'Humpback whale (*Megaptera novaeangliae*) sightings in the New York-New Jersey Harbor Estuary'. Marine Mammal Science 34:250-257.

Brown, D.M., Robbins, J., Sieswerda, P.L., Ackerman, C., Aschettino, J.M., Barco, S., Boye, T., DiGiovanni Jr., R.A., Durham, K., Engelhaupt, A., Hill, A., Howes, L., Johnson, K.F., Jones, L., King, C.D., Kopelman, A.H., Laurino, M., Lonergan, S., Mallette, S.D., Pepe, M., Ramp, C., Rayfield, K., Rekdahl, M., Rosenbaum, H.C., Schoelkopf, R., Schulte, D., Sears, R., Stepanuk, J.E.F., Tackaberry, J.E., Weinrich, M., Parsons, E.C.M., and Wiedenmann, J. 2022. 'Site fidelity, population identity, and demographic characteristics of humpback whales in the New York Bight apex'. Journal of the Marine Biological Association of the United Kingdom 102(1-2):157-165.

CETAP. 1982. A characterization of marine mammals and turtles in the mid- and north-Atlantic areas of the US outer continental shelf, final report. Cetacean and Turtle Assessment Program, University of Rhode Island, Kingston, RI. 576pp.

Cooke, J.G. 2018a. *Balaenoptera borealis*. *The IUCN Red List of Threatened Species 2018:* e.T2475A130482064. Available at: https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T2475A130482064.en.

Cooke, J.G. 2018b. *Balaenoptera physalus*. The IUCN Red List of Threatened Species 2018: e.T2478A50349982. Available at: https://dx.doi.org/10.2305/IUCN.UK.2018-2.RLTS.T2478A50349982.en.

Cooke, J.G. 2020. *Eubalaena glacialis* (errata version published in 2020). *The IUCN Red List of Threatened Species 2020*: e.T41712A178589687. Available at: https://dx.doi.org/10.2305/IUCN.UK.2020-2.RLTS.T41712A178589687.en.

Costa, A.P., Mcfee, W., Wilcox, L.A., Archer, F.I., and Rosel, P.E. 2022. 'The common bottlenose dolphin (*Tursiops truncatus*) ecotypes of the western North Atlantic revisited: an integrative taxonomic investigation supports the presence of distinct species'. Zoological Journal of the Linnean Society, 196(4):1608-1636.

Chant, R.J., Glenn, S.M., Hunter, E., Kohut, J., Chen, R.F., Houghton, R.W., Bosch, J., and Schofield, O. 2008. 'Bulge Formation of a Buoyant River Outflow'. Journal Geophysical Research 113, C01017. Available at: doi:10.1029/2007JC004100.

Davis, G.E., Baumgartner, M.F., Bonnell, J.M., Bell, J., Berchok, C., Bort Thornton, J., Brault, S., Buchanan, G., Charif, R.A., Cholewiak, D., and Clark, C.W. 2017. 'Long-term passive acoustic recordings track the changing distribution of North Atlantic right whales (*Eubalaena*

glacialis) from 2004 to 2014'. Scientific reports, 7(1), p.13460.

Glenn, S.M. and Schofield, O. 2003. 'Observing the Oceans from the COOL Room: Our History, Experience, and Opinions'. Oceanography, V16, N4, pp. 37-52.

Glenn, S., Arnone, R., Bergmann, T., Bissett, W.P., Crowley, M., Cullen, J., Gryzmski, J., Haidvogel, D., Kohut, J., Moline, M., Oliver, M., Orrico, C., Sherrell, R., Song, T., Weidemann, A., Chant, R., and Schofield, O. 2004. 'Biogeochemical impact of summertime coastal upwelling on the New Jersey Shelf'. Journal of Geophysical Research Oceans 109: C12S02. Available at: doi:10.1029/2003JC002265.

Firestone, J., Lyons, S.B., Wang, C., and Corbett, J.J. 2008. 'Statistical modeling of North Atlantic right whale migration along the mid-Atlantic region of the eastern seaboard of the United States'. Biological Conservation, 141(1):221-232.

Hodge, B.C., Pendleton, D.E., Ganley, L.C., O'Brien, O., Kraus, S.D., Quintana-Rizzo, E., and Redfern, J.V. 2022. 'Identifying predictors of species diversity to guide designation of marine protected areas'. Conservation Science and Practice, 4(5):p.e12665.

Houghton, R.W., Schlitz, R., Beardsley, R.C., Butman, B., and Chamberlin, J.L. 1982. 'The Middle Atlantic Bight cold pool: Evolution of the temperature structure during summer 1979'. Journal of Physical Oceanography 12:1019-1029.

King, C.D., Chou, E., Rekdahl, M.L., Trabue, S.G., and Rosenbaum, H.C. 2021. 'Baleen whale distribution, behaviour and overlap with anthropogenic activity in coastal regions of the New York Bight'. Marine Biology Research 17(4):380-400.

Kopelman, A.H. and Sadove, S.S. 1995. 'Ventilatory rate differences between surface-feeding and non-surface feeding fin whales (*Balaenoptera physalus*) in the waters off eastern Long Island, New York, USA, 1981-87'. Marine Mammal Science 11(2):200-208.

Leiter, S.M., Stone, K.M., Thompson, J.L., Accardo, C.M., Wikgren, B.C., Zani, M.A., Cole, T.V.N., Kenney, R.D., Mayo, C.A., and Kraus, S.D. 2017. 'North Atlantic right whale *Eubalaena glacialis* occurrence in offshore wind energy areas near Massachusetts and Rhode Island, USA'. Endangered Species Research, 34:45-59.

Lentz, S.J. 2017. 'Seasonal warming of the Middle Atlantic Bight Cold Pool'. J. Geophys. Res. Oceans, 122:941–954. Available at: doi:10.1002/2016JC012201.

Lomac-MacNair, K.S., Zoidis, A.M., Ireland, D.S., Rickard, M.E., and McKown, K.A. 2022. 'Fin, Humpback, and Minke Whale Foraging Events in the New York Bight as Observed from Aerial Surveys, 2017-2020'. Aquatic Mammals, 48(2):142-158.

McKenna, K., Ogilvie, A., Duley, P., Hsu, S., Cholewiak, D., Cole, T., Ganley, L., Redfern, J., and O'Brien, O. 2023. 'North Atlantic right whale distribution in Southern New England during the winter and spring of 2023'. Poster presented at the North Atlantic Right Whale Consortium, November 2023.

Meyer-Gutbrod, E.L., Davies, K.T., Johnson, C.L., Plourde, S., Sorochan, K.A., Kenney, R.D., Ramp, C., Gosselin, J.F., Lawson, J.W., and Greene, C.H. 2023. 'Redefining North Atlantic right whale habitat-use patterns under climate change'. Limnology and Oceanography, 68:S71-S86.

Mitchell, E. 1975. 'Preliminary report on Nova Scotia fishery for sei whales (*Balaenoptera borealis*)'. Rep. Int. Whal. Comm 25:218–225.

O'Brien, O., Pendleton, D.E., Ganley, L.C., McKenna, K.R., Kenney, R.D., Quintana-Rizzo, E., Mayo, C.A., Kraus, S.D., and Redfern, J.V. 2022. 'Repatriation of a historical North Atlantic right whale habitat during an era of rapid climate change'. Scientific reports, 12(1):12407.

Oedekoven, C.S., Fleishman, E., Hamilton, P., Clark, J.S., and Schick, R.S. 2015. 'Expert elicitation of seasonal abundance of North Atlantic right whales *Eubalaena glacialis* in the mid-Atlantic'. Endangered Species Research, 51–58.

Risch, D., Castellote, M., Clark, C.W., Davis, G.E., Dugan, P.J., Hodge, L.E., Kumar, A., Lucke, K., Mellinger, D.K., Nieukirk, S.L., and Popescu, C.M. 2014. 'Seasonal migrations of North Atlantic minke whales: novel insights from large-scale passive acoustic monitoring networks'. Movement ecology, 2:1-17.

Roarty, H., Glenn, S., Brodie, J., Nazzaro, L., Smith, M., Handel, E., Kohut, J., Updyke, T., Atkinson, L., Boicourt, W., and Brown, W. 2020. 'Annual and seasonal surface circulation over the Mid-Atlantic Bight Continental Shelf derived from a decade of High Frequency Radar observations'. Journal of Geophysical Research: Oceans, 125(11): p.e2020JC016368.

Roberts, J.J., Yack, T.M. and Halpin, P.N. 2023. Marine mammal density models for the U.S. Navy Atlantic Fleet Training and Testing (AFTT) study area for the Phase IV Navy Marine Species Density Database (NMSDD), Document Version 1.3. Duke University Marine Geospatial Ecology Laboratory, Durham, NC.

Sadove, S.S. and Matlock-Cooley, S. 1991. 'Occurrence and distribution of fin whales (*Balaenoptera physalus*) in the New York Bight 1981 through 1989'. Reports of the International Whaling Commission SC/F91/F27.

Schick, R., Halpin, P., Read, A., Urban, D., Best, B., Good, C., Roberts, J., LaBrecque, E., Dunn, C., Garrison, L., Hyrenbach, K., McLellan, W., Pabst, D., Palka, D., and Stevick, P. 2011. 'Community structure in pelagic marine mammals at large spatial scales'. Mar Ecol Prog Ser 434:165–181. Available at: https://doi.org/10.3354/meps09183.

Schick, R.S., Kraus, S.D., Rolland, R.M., Knowlton, A.R., Hamilton, P.K., Pettis, H.M., Kenney, R.D., and Clark, J.S. 2013. 'Using hierarchical Bayes to understand movement, health, and survival in the endangered North Atlantic right whale'. PLoS ONE 8:e64166. Available at: https://doi.org/10.1371/journal.pone.0064166.

Sha, J., Jo, Y., Oliver, M., Kohut, J., Shatley, M., Liu, W., and Yan, X. 2015. 'A Case study of large phytoplankton blooms off the New Jersey coast with multi-sensor observations'. Continental Shelf Research 107:79-91.

Smith, S.E., Brown, D.M., Oliveras, J.R., Sieswerda, P.L., Ahearn, S., and Reiss, D. 2022. 'A Preliminary Study on Humpback Whales Lunge Feeding in the New York Bight, United States'. Front. Mar. Sci. 9:798250. Available at: doi: 10.3389/fmars.2022.798250.

Stepanuk, J.E.F., Heywood, E.I., Lopez, J.F., DiGiovanni, R.A.Jr., and Thorne, L.H. 2021. 'Age-specific behavior and habitat use in humpback whales: implications for vessel strike'. Marine Ecology Progress Series, 663:209-222.

Swingle, W.M., Barco, S.G., Pitchford, T.D., McLellan, W.A., and Pabst, D.A. 1993. 'Appearance of juvenile humpback whales feeding in the nearshore waters of Virginia'. Marine Mammal Science, 9(3):309-315.

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. Available at: https://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T41755A160983555.en.

Torres, L.G., Rosel, P.E., D'Agrosa, C., and Read, A.J. 2003. 'Improving management of overlapping bottlenose dolphin ecotypes through spatial analysis and genetics'. Marine Mammal Science, 19(3):502-514.

Townsend, D.W. 1991. 'Influences of oceanographic processes on the biological productivity of the Gulf of Maine'. Reviews in Aquatic Sciences, 5(3):211-230.

Whitt, A., Dudzinski, K. and Laliberté, J. 2013. 'North Atlantic right whale distribution and seasonal occurrence in nearshore waters off New Jersey, USA, and implications for management'. Endang Species Res 20:59–69. Available at: https://doi.org/10.3354/esr00486.

Wiley, D.N., Asmutis, R.A., Pitchford, T.D., and Gannon, D.P. 1995. 'Stranding and mortality of humpback whales, *Megaptera novaeangliae*, in the mid-Atlantic and southeast United States, 1985-1992'. Fishery Bulletin, 93:196-205.

Zoidis, A.M., Lomac-MacNair, K.S., Ireland, D.S., Rickard, M.E., McKown, K.A., and Schlesinger, M.D. 2021. 'Distribution and density of six large whale species in the New York Bight from monthly aerial surveys 2017 to 2020'. Continental Shelf Research 230:104572.

Quintana-Rizzo, E., Leiter, S., Cole, T.V.N., Hagbloom, M.N., Knowlton, A.R., Nagelkirk, P., Brien, O.O., Khan, C.B., Henry, A.G., Duley, P.A., and Crowe, L.M. 2021. 'Residency, demographics, and movement patterns of North Atlantic right whales *Eubalaena glacialis* in an offshore wind energy development area in southern New England, USA'. Endangered species research, 45:251-268.

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) Mid-Atlantic Bight IMMA Factsheet. IUCN Joint SSC/WCPA Marine Mammal Protected Areas Task Force, 2025.

PDF made available for download at ***https://www.marinemammalhabitat.org/factsheets/mid-atlantic-bight-imma/***