

<b>Data Collection</b> Summary Products for At-Sea Abundance of Marine Birds developed by the NOAA National Centers for Coastal Ocean Science (NCCOS), prepared by the Marine-life Data and Analysis Team (MDAT)	
<b>Data Collection Title</b>	MDAT_WS_AVIAN_SUMMARY_PRODUCTS_V2.0_2018_03_01
<b>Data Collection URL</b>	Map services: <a href="https://mgelmaps.env.duke.edu/mdat/rest/services/MDAT">https://mgelmaps.env.duke.edu/mdat/rest/services/MDAT</a>

<b>Data Set</b>	
<b>Data Set Title</b>	MDAT_WS_AVIAN_SUMMARY_PRODUCTS_V2.0_2018_03_01
<b>Principal Investigators</b>	<p>MDAT Project: Patrick N. Halpin (PI) - Marine Geospatial Ecology Lab at Duke University; Earvin Balderama (Co-I) - Loyola University Chicago; Michael Fogarty (Co-I) - NOAA/NEFSC; Arliss Winship (Co-I) - NOAA/NCCOS</p> <p>NCCOS Project: Arliss J. Winship, Brian P. Kinlan, Timothy P. White, Jeffery B. Leirness, John Christensen - US DOC; NOAA; NOS; National Centers for Coastal Ocean Science (NCCOS)</p>
<b>Primary Points of Contact</b>	<p>MDAT Collection: Jesse Cleary (<a href="mailto:jesse.cleary@duke.edu">jesse.cleary@duke.edu</a>) - Marine Geospatial Ecology Lab at Duke University</p> <p>NCCOS Models: Arliss Winship (<a href="mailto:arliss.winship@noaa.gov">arliss.winship@noaa.gov</a>) - US DOC; NOAA; NOS; National Centers for Coastal Ocean Science (NCCOS)</p>
<b>Collaborators</b>	<p>MDAT members: Earvin Balderama (Co-I, Loyola University Chicago) Jesse Cleary (Duke University) Corrie Curtice (Duke University) Michael Fogarty (Co-I, NOAA/NEFSC) Patrick N. Halpin (PI, Duke University) Brian Kinlan (NOAA/NCCOS) Charles Perretti (NOAA/NEFSC) Jason Roberts (Duke University) Emily Shumchenia (NROC) Arliss Winship (Co-I, NOAA/NCCOS)</p>
<b>Author List</b>	<p>MDAT Technical Report: Corrie Curtice<sup>1</sup>, Jesse Cleary<sup>2</sup>, Emily Schumchenia<sup>3</sup>, Patrick Halpin<sup>2</sup></p> <p><sup>1</sup> Marine Geospatial Ecology Laboratory, Nicholas School of the Environment, Duke University Marine Lab, Beaufort, NC, US <sup>2</sup> Marine Geospatial Ecology Laboratory, Duke University, Durham, NC, US <sup>3</sup> Northeast Regional Ocean Council, US</p> <p>BOEM Report: Arliss J. Winship<sup>1,2</sup>, Brian P. Kinlan<sup>1</sup>, Timothy P. White<sup>3</sup>, Jeffery B. Leirness<sup>1,2</sup>, John Christensen<sup>1</sup></p> <p><sup>1</sup> NOAA National Centers for Coastal Ocean Science, Silver Spring, MD, U.S.A. <sup>2</sup> CSS, Inc, Fairfax, VA, U.S.A. <sup>3</sup> Bureau of Ocean Energy Management, Sterling, VA, U.S.A.</p>

<p><b>Abstract</b></p>	<p>In 2014, the Marine Geospatial Ecology Lab (MGEL) of Duke University began work with the Northeast Regional Ocean Council (NROC), the NOAA National Centers for Coastal Ocean Science (NCCOS), the NOAA Northeast Fisheries Science Center (NEFSC) and Loyola University Chicago, as part of the Marine-life Data and Analysis Team (MDAT), to characterize and map marine life in the Northeast region in support of the Regional Ocean Plan. In 2015, the Mid-Atlantic Regional Council on the Ocean (MARCO) contracted with MDAT to build upon and expand this effort into the Mid-Atlantic planning area, and in support of the Mid-Atlantic Regional Ocean Plan. These research groups collaborated to produce “base layer” predictive model products with associated uncertainty products for cetacean species or species guilds and avian species, and three geospatial products for fish species. Periodic updates to these base layer models and data are produced by the individual institutions in the MDAT team based on schedules set by the funders of each modeling effort.</p> <p>Because base layers total in the thousands, efforts to develop a general understanding of the overall richness or diversity in a particular area are not well served by the individual base products. To address this gap and other potential management applications as identified by the NE RPB and others, MDAT has created several types of summary map products from these base layers. Summary products are comprised of data layers from multiple species, and were created to allow quick access to map summaries about potential biological, management, or sensitivity <i>groups</i> of interest. These summary products include total abundance or biomass, species richness, and diversity for all modeled/sampled groups of species and are useful tools for seeing broad patterns in the underlying data or model results.</p> <p>An additional map product was created to highlight the core areas of highest abundance or biomass by species groups, using a 50% population threshold. Group core area richness maps aid users in identifying the “hotspots” of where certain groups of species have the highest abundance or biomass. Core area richness maps were created for three spatial extents: 1) the full US east coast; 2) the Northeast planning area and 3) the Mid-Atlantic area of interest. Because these products are dependent on the total extent of the input data, core area abundance/biomass products will differ at each extent.</p>
<p><b>Purpose</b></p>	<p>MDAT produced group summary products and delivered them to the Northeast and Mid-Atlantic (US) regional ocean portals and the national Marine Cadastre to inform ocean planning. All summary products are also available to the public via map services.</p>
<p><b>Methods</b></p>	<p>See Curtice et al. (2018) Section 3.</p>
<p><b>Citations</b></p>	<p>MDAT Technical Report:  Curtice, C., Cleary J., Shumchenia E., Halpin P.N. 2018. Marine-life Data and Analysis Team (MDAT) technical report on the methods and development of marine-life data to support regional ocean planning and management. Prepared on behalf of the Marine-life Data Analysis Team (MDAT). Accessed at:  <a href="https://seamap.env.duke.edu/models/mdat/MDAT-Technical-Report.pdf">https://seamap.env.duke.edu/models/mdat/MDAT-Technical-Report.pdf</a>.</p>

	<p>NCCOS/BOEM study:  Winship, A.J., Kinlan, B.P., White, T.P., Leirness, J.B. and Christensen, J. (2018) Modeling At-Sea Density of Marine Birds to Support Atlantic Marine Renewable Energy Planning: Final Report. U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs, Sterling, VA. OCS Study BOEM 2018-010. 67 pp. Access at:  <a href="https://coastalscience.noaa.gov/data_reports/modeling-at-sea-density-of-marine-birds-to-support-atlantic-marine-renewable-energy-planning-final-report/">https://coastalscience.noaa.gov/data_reports/modeling-at-sea-density-of-marine-birds-to-support-atlantic-marine-renewable-energy-planning-final-report/</a></p>
Data Start Date	1978-01-01
Data End Date	2016-10-05
Data Northern Boundary	47.73 degrees N
Data Southern Boundary	23.8 degrees N
Data Western Boundary	83.0 degrees W
Data Eastern Boundary	63.1 degrees W
Place Keywords	North Atlantic Ocean
Spatial Reference Information	Type: Projected Geographic Coordinate Reference: GCS_North_American_1983 Projection: All_Atlantic_Projection Well-Known Text: PROJCS["All_Atlantic_projection", GEOGCS["GCS_North_American_1983", DATUM["D_North_American_1983", SPHEROID["GRS_1980",6378137.0,298.257222101]], PRIMEM["Greenwich",0.0], UNIT["Degree",0.0174532925199433]], PROJECTION["Hotine_Oblique_Mercator_Azimuth_Center"], PARAMETER["false_easting",0.0], PARAMETER["false_northing",0.0], PARAMETER["scale_factor",0.9996], PARAMETER["azimuth",40.0], PARAMETER["longitude_of_center",-75.0], PARAMETER["latitude_of_center",35.0], UNIT["Meter",1.0]]
Spatial Representation Type	Grid
Datasets	Listed in Table 1 of Curtice et al. (2018)
Update Frequency	Irregular
Resource Provider	Marine Geospatial Ecology Lab (MGEL) at Duke University ( <a href="mailto:marinelife_data@duke.edu">marinelife_data@duke.edu</a> ), on behalf of MDAT and NCCOS.
Comment	<i>This data documentation describes numerous geospatial datasets archived together as a data collection, and is intended to provide dataset-level metadata for the purposes of discovery, use, and understanding.</i>
Use Limitation	<i>Please note: BOEM and NOAA make no warranty, expressed or implied, regarding these data, nor does the fact of distribution constitute such a warranty. BOEM and NOAA cannot assume liability for any damages caused by any errors or omissions in these data. If you use this dataset in a scientific publication or other formal publication, we request that you cite the Winship et al. (2018) and Curtice et al. (2018) publications.</i>