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| <b>Data Collection</b><br>Distribution and biomass data for fish species along the U.S. east coast from about Cape Hatteras north to Canadian waters, created by the Northeast Fisheries Science Center for the Northeast Regional Ocean Council, prepared by the Marine-life Data and Analysis Team (MDAT) |   |
| <b>Data Collection Title</b>  | MDAT_FISH_BIOMASS_DATA_V1.0_2016_05_20  |
| <b>Data Collection URL</b>  | Map services: <a href="http://mgelmaps.env.duke.edu/mdat/rest/services/MDAT">http://mgelmaps.env.duke.edu/mdat/rest/services/MDAT</a> |

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| <b>Data Set</b>                  |  |
| <b>Data Set Titles</b>           | MDAT_WS_MDMF_FISH_BIOMASS_DATA_V1.0_2016_05_20<br>MDAT_WS_MENH_FISH_BIOMASS_DATA_V1.0_2016_05_20<br>MDAT_WS_NEAMAP_FISH_BIOMASS_DATA_V1.0_2016_05_20<br>MDAT_WS_NEFSC_FISH_BIOMASS_DATA_V1.0_2016_05_20  |
| <b>Principal Investigators</b>   | NEFSC Project:<br>Michael Fogarty, Charles Perretti - US DOC; NOAA; NOAA Northeast Fisheries Science Center (NEFSC)<br><br>MDAT Project:<br>Patrick N. Halpin (PI) - Marine Geospatial Ecology Lab at Duke University; Earvin Balderama (Co-I) - Loyola University Chicago; Michael Fogarty (Co-I) - NOAA/NEFSC; Brian Kinlan (Co-I) - NOAA/NCCOS  |
| <b>Primary Points of Contact</b> | NEFSC Data: Michael Fogarty ( <a href="mailto:michael.fogarty@noaa.gov">michael.fogarty@noaa.gov</a> ) - US DOC; NOAA; NOAA Northeast Fisheries Science Center (NEFSC)<br><br>MDAT Collection: Jesse Cleary ( <a href="mailto:jesse.cleary@duke.edu">jesse.cleary@duke.edu</a> ) - Marine Geospatial Ecology Lab at Duke University  |
| <b>Collaborators</b>             | Chris Bonzek (Virginia Institute of Marine Science, NEAMAP data source)<br>Jeremy King (ret.) and the Massachusetts Division of Marine Fisheries (MDMF data source)<br>Sally Sherman (Maine Department of Marine Resources, MENH data source)<br><br>MDAT members:<br>Earvin Balderama (Co-I, Loyola University Chicago)<br>Jesse Cleary (Duke University)<br>Corrie Curtice (Duke University)<br>Michael Fogarty (Co-I, NOAA/NEFSC)<br>Patrick N. Halpin (PI, Duke University)<br>Brian Kinlan (Co-I, NOAA/NCCOS)<br>Charles Perretti (NOAA/NEFSC)<br>Jason Roberts (Duke University)<br>Emily Shumchenia (NROC)<br>Arliss Winship (NOAA/NCCOS) |
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|                  | <p><sup>1</sup> Marine Geospatial Ecology Laboratory, Nicholas School of the Environment, Duke University Marine Lab, Beaufort, NC, US</p> <p><sup>2</sup> Marine Geospatial Ecology Laboratory, Nicholas School of the Environment, Duke University, Durham, NC, US</p> <p><sup>3</sup> Northeast Regional Ocean Council, US</p>   |
| <b>Abstract</b>  | <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 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 29 marine mammal species or species guilds and 40 avian species, and three geospatial products for 82 fish species.</p> <p>MDAT member Northeast Fisheries Science Center (NEFSC) summarized fish biomass and distribution, as part of their ongoing Ecosystem Assessment work on the Northeast Continental Shelf, which spans Cape Hatteras, North Carolina to the Gulf of Maine. NEFSC provided three data products: (1) bubble plot of raw observations, (2) hexagon plot showing the mean, and (3) an inverse-distance weighted (IDW) interpolation plot which smoothed over multiple observations and interpolated in regions with few observations. All units are natural log kilograms per tow. These products were created for four sources of fisheries independent trawl data, across multiple time spans:</p> <ul style="list-style-type: none"> <li>• NEFSC 1970-2014; 2005-2014</li> <li>• North East Areas Monitoring and Assessment Program (NEAMAP) 2007-2014</li> <li>• Massachusetts Division of Marine Fisheries (MDMF) 1978-2014; 2005-2014</li> <li>• Maine &amp; New Hampshire state trawls (ME/NH) 2000-2014; 2005-2014</li> </ul> <p>Survey samples for all data sources were collected primarily in September and October, with some in November and a small number in December.</p> <p>Much more detail about the NEFSC Ecosystem Assessment Program, along with additional data sets, can be found here:<br/> <a href="http://www.nefsc.noaa.gov/ecosys/">http://www.nefsc.noaa.gov/ecosys/</a></p> |
| <b>Purpose</b>   | <p>The objective of the NEFSC Ecosystem Considerations website is to provide a broad overview of the ecology of the Northeast U.S. Continental Shelf in support of Ecosystem Based Management, Coastal and Marine Spatial Planning, and the NOAA Northeast Integrated Ecosystem Assessment.</p>   |
| <b>Methods</b>   | <p>See Curtice et al. (2016) Section 2.3.</p>   |
| <b>Citations</b> | <p>NEFSC:<br/> Fogarty, M., Perretti, C. 2016. Distribution and biomass data for fish species along the U.S. east coast from about Cape Hatteras</p>  |

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|                                      | <p>north to Canadian waters, created by the Northeast Fisheries Science Center for the Northeast Regional Ocean Council. Online access: <a href="http://www.northeastoceandata.org/data-explorer/?fish">http://www.northeastoceandata.org/data-explorer/?fish</a></p> <p>MDAT:<br/>Curtice, C., Cleary J., Shumchenia E., Halpin P.N. 2016. 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 and Analysis Team (MDAT). Accessed at: <a href="http://seamap.env.duke.edu/models/MDAT/MDAT-Technical-Report-v1.1.pdf">http://seamap.env.duke.edu/models/MDAT/MDAT-Technical-Report-v1.1.pdf</a>.</p> |
| <b>Data Start Date</b>               | 1970  |
| <b>Data End Date</b>                 | 2014  |
| <b>Data Northern Boundary</b>        | 45.0 degrees N  |
| <b>Data Southern Boundary</b>        | 34.1 degrees N  |
| <b>Data Western Boundary</b>         | -76.7 degrees E   |
| <b>Data Eastern Boundary</b>         | -65.6 degrees E   |
| <b>Place Keywords</b>                | North Atlantic Ocean  |
| <b>Spatial Reference Information</b> | <p>Type: Geographic<br/>Geographic Coordinate Reference: GCS_WGS_1984<br/>Well-Known Text:<br/>GEOGCS["GCS_WGS_1984",<br/>DATUM["D_WGS_1984",<br/>SPHEROID["WGS_1984",6378137.0,298.257223563]],<br/>PRIMEM["Greenwich",0.0],<br/>UNIT["Degree",0.0174532925199433],<br/>AUTHORITY["EPSG",4326]]</p>  |
| <b>Spatial Representation Type</b>   | Grid  |
| <b>Datasets</b>                      | Data sourced from fall bottom trawl surveys performed by NEFSC (1970-2014), Northeast Area Monitoring and Assessment Program (2007-2014), Massachusetts Division of Marine Fisheries (1978-2014), and the Maine Department of Marine Resources and New Hampshire Fish and Game Department (2000-2014)   |
| <b>Update Frequency</b>              | Irregular   |
| <b>Resource Provider</b>             | 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 NEFSC.  |
| <b>Comment</b>                       | <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>  |
| <b>Use Limitation</b>                | <i>None. If you use this dataset in a scientific publication or other formal publication, we request that you cite the Fogarty &amp; Perretti dataset (2016) and the Curtice et al. (2016) publication.</i>   |