

APPENDIX I GEOGRAPHIC INFORMATION SYSTEM DATA SOURCES

This page intentionally left blank.

**Final
Environmental Impact Statement/Overseas Environmental Impact Statement
Atlantic Fleet Training and Testing**

TABLE OF CONTENTS

APPENDIX I GEOGRAPHIC INFORMATION SYSTEM DATA SOURCES _____ I-1

List of Figures

This section does not contain figures.

List of Tables

Table I-1: Data Sources by Feature/Layer I-1

This page intentionally left blank.

APPENDIX I GEOGRAPHIC INFORMATION SYSTEM DATA SOURCES

Table I-1: Data Sources by Feature/Layer

<i>Feature/Layer</i>	<i>Applicable Figures</i>	<i>Data Source References</i>
AFTT Study Area	Multiple Figures (Global)	Department of the Navy (2016) Navy POC: Jonathan Crain Jonathan.crain@navy.mil
Military Training/Range/Operation Areas	Multiple Figures (Global)	Training Areas - Commander, U.S. Fleet Forces - U.S. Navy, Common Operating Picture (COP) Atlantic Gomex. Updated 5/2018. SDSFIE Version 2.6. Navy POC: David Urbik David.urbik@navy.mil
Special Use Airspace	Multiple Figures (Global)	NGA Digital Aeronautical Flight Information File (DAFIF) (2010).
Large Marine Ecosystems	Multiple Figures (Global)	Large Marine Ecosystem Program, NOAA Fisheries, Narragansett Laboratory, Narragansett, RI. Updated 06/26/2014. SDSFIE Version 2.6. www.lme.noaa.gov Kenneth.Sherman@NOAA.gov
Bays or Inshore Waters, and Civilian Ports	Multiple Figures (Global)	Department of Navy (DON) – U.S. Navy. Updated 07/02/2018. SDSFIE Version 2.6. Navy POC: David Urbik David.urbik.ctr@navy.mil
Navy Contractor Shipyard	Multiple Figures (Global)	National Geospatial Intelligence Agency (NGA). Updated 05/25/2016. SDSFIE Version 2.6.
Navy Port or Pierside Location	Multiple Figures (Global)	National Geospatial Intelligence Agency (NGA). Updated 05/25/2016. SDSFIE Version 2.6.
Ocean Base Map	Multiple Figures (Global)	Amante, C. and B.W. Eakins, 2009. ETOPO1 1 Arc-Minute Global Relief Model: Procedures, Data Sources and Analysis. NOAA Technical Memorandum NESDIS NGDC-24. National Geophysical Data Center, NOAA. doi:10.7289/V5C8276M [2017] https://www.ngdc.noaa.gov/docucomp/page?xml=NOAA/NESDIS/NGDC/MGG/DEM/iso/xml/316.xml&view=getDataView&header=none
Naval Air Station	1.2-1	Naval Air Stations – Commander, U.S. Fleet Forces – U.S. Navy, Common Operating Picture (COP) Atlantic Gomex. Updated 10/27/2017. SDSFIE Version 2.6
3NM/9NM State/Federal Boundary	2.3-1	FWC-FWRI (Florida Fish and Wildlife Conservation Commission-Fish and Wildlife Research Institute), updated July 21, 2017
Bryde’s Whale	2.3-2	Rosel, P. E., P. Corkeron, L. Engleby, D. Epperson, K. D. Mullin, M. S. Soldevilla, B. L. Taylor. 2016. Status Review of Bryde’s Whales (<i>Balaenoptera edeni</i>) in the Gulf of Mexico under the Endangered Species Act. NOAA Technical Memorandum NMFS-SEFSC-692
Bottom Substrate	2.3-2, 3.5-1, 3.5-2, 3.5-3,	National Ocean Service, National Centers for Coastal Ocean Science, Center for Coastal Monitoring and Assessment, the

Table I-1: Data Sources by Feature/Layer (continued)

<i>Feature/Layer</i>	<i>Applicable Figures</i>	<i>Data Source References</i>
Bottom Substrate (continued)	3.5-4, 3.5-5	University of Hawaii, BAE Systems Spectral Solutions and Analytical Laboratories of Hawaii, LLC, 2007
Planning Awareness Mitigation Areas	2.3-2	Department of the Navy (2018) Navy POC: Brittany Bartlett Brittany.bartlett@navy.mil
Florida Manatee Critical Habitat	2.3-2, 3.7-3	NOAA Fisheries Greater Atlantic Regional Fisheries Office, 2016
Open Ocean Areas	3.0-1	NOAA-Fisheries, US LME Program, Narragansett Laboratory Kenneth.Sherman@NOAA.gov www.lme.noaa.gov
Bathymetry	3.0-3, 3.0-4, 3.0-5, 3.0-6	Amante, C. and B.W. Eakins, 2009. ETOPO1 1 Arc-Minute Global Relief Model: Procedures, Data Sources and Analysis. NOAA Technical Memorandum NESDIS NGDC-24. National Geophysical Data Center, NOAA. doi:10.7289/V5C8276M [2017] https://www.ngdc.noaa.gov/docucomp/page?xml=NOAA/NESDIS/NGDC/MGG/DEM/iso/xml/316.xml&view=getDataView&header=none
Major Ocean Currents	3.0-7	Department of the Navy (2015) Navy POC: David Urbik David.urbik.ctr@navy.mil
Average Sea Surface Temperature	3.0-8	NOAA Optimum Interpolation (OI) Sea Surface Temperature (SST) V2 (2016). NCEP/NWS/NOAA. Climate Modeling Branch W/NP24 http://www.esrl.noaa.gov/psd/data/gridded/data.noaa.oisst.v2.html#references
Ozone, PM2.5, and PM10 Nonattainment/Maintenance Areas	3.1-1, 3.1-2, 3.1-3, 3.1-4	U.S. Environmental Protection Agency: Ozone 2014; PM2.5 – 2015; PM 10 Nonattainment/Maintenance Areas – 2013
Sediment Quality	3.2-2, 3.2-3, 3.2-4	EPA National Aquatic Resource Surveys https://www.epa.gov/national-aquatic-resource-surveys/data-national-aquatic-resource-surveys 2010
Water Quality	3.2-6, 3.2-7, 3.2-8	EPA National Aquatic Resource Surveys https://www.epa.gov/national-aquatic-resource-surveys/data-national-aquatic-resource-surveys 2010
Johnson's Seagrass Critical Habitat	3.3-1	NOAA, 2000. USFWS Critical Habitat Portal: https://ecos.fws.gov/ecp/report/table/critical-habitat.html
Seagrass Areas	3.3-2, 3.3-3, 3.3-4	Department of Navy (DON). Updated 07/02/2018. Navy POC: Scott Chappell william.s.chappell@navy.mil
Reef Habitat	3.4-1	National Oceanic and Atmospheric Administration 2009: US Dept of the Navy 2008b, 2011; US Fish and Wildlife Service 2005, 2008, 2010
Artificial Reefs, Shipwrecks, Oil and Gas Platforms, Towers	3.5-5, 3.5-6, 3.5-7, 3.5-8	Complete list of sources located in the Navy Technical Report entitled "Building and Maintaining a Comprehensive Database and Prioritization Scheme for Overlapping Habitat Data - Focus

Table I-1: Data Sources by Feature/Layer (continued)

<i>Feature/Layer</i>	<i>Applicable Figures</i>	<i>Data Source References</i>
(Air Force and Navy), and Wind Turbines		<p>on Abiotic Substrates in the Atlantic Fleet Training and Testing Study Area" (12 December 2017)</p> <p>meta_id Citation: Berg and Berg (1989): Berg, D., & Berg, D. (1989). Tropical shipwrecks. East Rockaway, New York: Aqua Explorers Inc.</p> <p>BOEM (2013) Bureau of Ocean Energy Management. (2013). Platform Locations - Gulf of Mexico. Available from http://www.boem.gov/Oil-and-Gas-Energy-Program/Mapping-and-Data/Index.aspx. Accessed in June 2015</p> <p>Cerame Vivas (1988) "Cerame Vivas, M. J. (1988). Coastal atlas of Puerto Rico. Boquerón, Puerto Rico: M.J. Cerame Vivas, Inc.</p> <p>Chesapeake Bay Office - National Oceanographic and Atmospheric Administration. (2011). Chesapeake Bay Benthic Habitat Integration."</p> <p>DFW (2015) "Delaware Division of Fish and Wildlife. (2015). Delaware reef guide (2013-2014). Available from http://www.dnrec.delaware.gov/fw/Fisheries/Documents/2013and14DEReefGuide.pdf. Accessed in July 2015. Federal Geographic Data Committee."</p> <p>FFWCC & FWRI (2014) Florida Fish and Wildlife Conservation Commission and Fish and Wildlife Research Institute. (2014). Artificial Reefs Florida Point. Tallahassee, FL. Page</p> <p>GDNR (2015) Georgia Department of Natural Resources. (2015). Artificial Reef (Offshore). Available from http://coastalgadnr.org/ArtificialReef. Accessed in July 2015</p> <p>Handler (2001) Handler, M. (2001). Diving and snorkeling: British Virgin Islands (2nd ed.). Melbourne, Australia: Lonely Planet Publications.</p> <p>Longley-Wood (2015) Longley-Wood, K. (2015). Block Island wind farm turbine locations - GIS metadata prepared for the Northeast Ocean Data Portal (www.northeastoceanodata.org). 3 pages.</p> <p>Louisiana DWF (2015) Louisiana Department of Wildlife and Fisheries. (2015). Artificial Reef Program. Available from http://www.wlf.louisiana.gov/fishing/artificial-reef-program. Accessed in July 2015.</p> <p>MDMF (2015) Massachusetts Division of Marine Fisheries. (2015). Artificial Reefs [Website]. Available from</p>

Table I-1: Data Sources by Feature/Layer (continued)

<i>Feature/Layer</i>	<i>Applicable Figures</i>	<i>Data Source References</i>
Artificial Reefs, Shipwrecks, Oil and Gas Platforms, Towers (Air Force and Navy), and Wind Turbines (continued)		<p>http://www.mass.gov/eea/agencies/dfg/dmf/programs-and-projects/artificial-reefs.html. Accessed in July 2015.</p> <p>MS DMR (2015) Mississippi Department of Marine Resources. (2015). Artificial Reefs [Website]. Available from http://www.dmr.state.ms.us/index.php/marine-fisheries/artificial-reef. Accessed in July 2015.</p> <p>NC DMF (2015) North Carolina Division of Marine Fisheries. (2015). Artificial Reef Guide. Available from http://portal.ncdenr.org/web/mf/artificial-reefs-program. Accessed in July 2015.</p> <p>NOAA (2015) National Oceanic and Atmospheric Administration. (2015). Automated Wreck and Obstruction Avoidance database. [Web Page] Available from http://www.nauticalcharts.noaa.gov/hsd/wrecks_and_obstruction.html. Accessed in August 2015.</p> <p>NRHP National Register of Historic Places</p> <p>NRHP Eligible National Register of Historic Places-Eligible</p> <p>NRHP Listed National Register of Historic Places-Listed</p> <p>NRHP Listed- FORT National Register of Historic Places-Fort</p> <p>NRHP Listed, ad.res. National Register of Historic Places-Listed address restricted</p> <p>OCRF (2013) O.C. Reef Foundation. (2013). Ocean -Artificial Reef Location (Maryland) [Website]. Available from www.ocreeffoundation.com. Accessed in July 2015.</p> <p>Outdoor AL (2015) Outdoor Alabama - Alabama Department of Conservation and Natural Resources. (2015). Artificial Reefs. Available from http://www.outdooralabama.com/artificial-reefs. Accessed in July 2015.</p> <p>RI ARP (2015) Rhode Island Artificial Reef Program. (2015). Artificial reef off Newport and Block Island [Website]. Available from http://www.risaa.org/reefs.html. Accessed in July 2015.</p> <p>SCDNR (2015) South Carolina Department of Natural Resources. (2015). Marine - Artificial Reefs. Available from https://www.dnr.sc.gov/reefguide/artreefgraphic. Accessed in July 2015.</p>

Table I-1: Data Sources by Feature/Layer (continued)

<i>Feature/Layer</i>	<i>Applicable Figures</i>	<i>Data Source References</i>
Artificial Reefs, Shipwrecks, Oil and Gas Platforms, Towers (Air Force and Navy), and Wind Turbines (continued)		<p>Simonsen (2000) Simonsen, S. (2000). Diving & snorkeling: Puerto Rico. Melbourne, Australia: Lonely Planet Publications.</p> <p>TPWD (2015) Texas Parks and Wildlife Department. (2015). Texas Artificial Reef [Interactive Mapping Application]. Available from http://tpwd.texas.gov/gis/ris/artificialreefs/. Accessed in July 2015.</p> <p>U.S. Navy (2002) U.S. Department of the Navy. (2002). SINKEK shipwrecks around Puerto Rico. Data reported in the 2002 Marine Resource Assessment for Puerto Rico/St. Croix operating area</p> <p>Veridian Corp (2001) Veridian Corporation. (2001). The global maritime wreck database. Falls Church, Virginia: General Dynamics Corporation.</p> <p>VMRC (2005,2009) Virginia Marine Resources Commission. (2005). Artificial Reef Program: Newport News, Virginia: Virginia Marine Resources Commission; Virginia Marine Resources Commission. (2009). Shipwrecks and Artificial Reefs of Maryland and Virginia.</p> <p>Department of the Navy (ND) War Grave data collected by NAVY contractor. NAVY POC Scott Chappell William.S.Chappel@navy.mil</p> <p>WC Inc #53F (1998) Waterproof Charts Inc. (1998). Waterproof Chart #53F: Eastern Puerto Rico to St. Thomas–fishing. Punta Gorda, Florida: Waterproof Charts, Inc.</p>
Atlantic Salmon Critical Habitat	3.6-1	National Oceanic and Atmospheric Administration National Marine Fisheries Service, 2009. http://www.nmfs.noaa.gov/pr/species/criticalhabitat.htm
Atlantic Sturgeon Proposed Critical Habitat	3.6-2, 3.6-3	NOAA NMFS http://sero.nmfs.noaa.gov/maps_gis_data/protected_resources/critical_habitat/geodata/proposed_atlantic_sturgeon_critical_habitat_ln.htm 2016
Smalltooth Sawfish Critical Habitat	3.6-4	NMFS, Office of Protected Resources, October 2009
Gulf Sturgeon Critical Habitat	3.6-5	National Coastal Data Development Center, 2003
North Atlantic Right Whale Critical Habitat	3.7-3, 5.4-4, 5.4-5	NOAA Fisheries Greater Atlantic Regional Fisheries Office, 2016 http://www.nmfs.noaa.gov/pr/species/criticalhabitat.htm .
Green Turtle Critical Habitat	3.8-4	National Oceanic and Atmospheric Administration National Marine Fisheries Service, 1998
Hawksbill Turtle Critical Habitat	3.8-5	National Oceanic and Atmospheric Administration National Marine Fisheries Service, 1998

Table I-1: Data Sources by Feature/Layer (continued)

<i>Feature/Layer</i>	<i>Applicable Figures</i>	<i>Data Source References</i>
Loggerhead Turtle Critical Habitat	3.8-6, 3.8-7, 3.8-8	NOAA Fisheries http://www.nmfs.noaa.gov/pr/species/turtles/criticalhabitat_loggerhead.htm 2014
Leatherback Turtle Critical Habitat	3.8-9	National Oceanic and Atmospheric Administration National Marine Fisheries Service, 1979
American Crocodile	3.8-10	U.S. Fish and Wildlife Service, 2003 https://www.fws.gov/verobeach/GIS.html .
Piping Plover Critical Habitat	3.9-1, 3.9-2, 3.9-3	U.S. Fish and Wildlife Service, 2009 https://www.fws.gov/verobeach/GIS.html .
NRHP Eligible or Listed Resources/Sovereign Immunity, Shipwrecks	3.10-4, 3.10-5, 3.10-6	NOAA Automated Wreck and Obstruction Information System [AWOIS] (2002). https://nauticalcharts.noaa.gov/data/wrecks-and-obstructions.html . Veridian Corporation (2001) National Registry of Historic Places (2016). https://www.nps.gov/nr/research/ .
Bureau of Ocean Energy Management Planning Areas	3.11-1	Bureau of Ocean Energy Management http://www.boem.gov/Maps-and-GIS-Data/ 2016
Maritime Boundaries	3.11-2, 3.11-3	FWC-FWRI (Florida Fish and Wildlife Conservation Commission-Fish and Wildlife Research Institute), 2017. http://myfwc.com/research/gis/ .
Oil and Gas Pipelines	3.11-3	Department of the Navy (2015) Navy POC: Jonathan Crain Jonathan.crain@navy.mil
Oil and Gas Pipelines	3.11-3	United States Department of the Interior, Minerals Management Service. Updated 02/10/2014. SDSFIE Version 2.6.
Commercially Used Waterways	3.11-4	Research and Innovative Technology Administration's Bureau of Transportation Statistics (RITA/BTS) National Transportation Atlas Database (2007). National Waterway Network
Ports	3.11-4	NGA (2016). World Port Index
Danger Zones and Restricted Areas	3.11-15, 3.11-16, 3.11-17	Title 33-Navigation and Navigable Waters, Chapter II-Corps of Engineers, Department of the Army, Department of Defense, Part 334-Danger Zone and Restricted Area Regulations 2005
Seafloor Resource Mitigation Areas	5.4-3, 5.6-1	US NAVY (2013). Seafloor Resource Mitigation Areas was created to implement AFTT Phase II mitigation measures in the Protective Measures Assessment Protocol. The data represents a refined subset of Phase II EIS/OEIS marine habitat data. The marine habitat data used is located in the AFTT II GIS deliverable (feature classes: aquatic_habitat_area, ecology_reef_habitat_point).
Biologically Important Areas for Cetaceans	5.4-4, 5.4-5	National Oceanic and Atmospheric Administration 2015 https://cetsound.noaa.gov/important .
National Marine Sanctuaries	2.3-2, 6.1-5, 6.1-6	NOAA National Marine Sanctuaries, 2004 https://sanctuaries.noaa.gov/library/imast_gis.html
Marine Protected Areas	6.1-1, 6.1-2, 6.1-3, 6.1-4	NOAA National Marine Protected Areas Center, 2015 United States Fish and Wildlife Service, 2017 https://marinecadastre.gov/data/ .

Table I-1: Data Sources by Feature/Layer (continued)

<i>Feature/Layer</i>	<i>Applicable Figures</i>	<i>Data Source References</i>
National Park Boundaries	6.1-1, 6.1-2, 6.1-3, 6.1-4	National Park Service, 2017 https://catalog.data.gov/dataset/national-park-boundariesf0a4c#sec-dates .

Notes: AUTECH = Atlantic Undersea Test and Evaluation Center, EPA = Environmental Protections Agency, MRA = Marine Resources Assessment, NGA = National Geospatial-Intelligence Agency, NMFS = National Marine Fisheries Service, NOAA = National Oceanic and Atmospheric Administration, U.S. = United States, OPAREA = Operating Area, VACAPES = Virginia Capes, HAPC = Habitat Area of Particular Concern, AWOIS = Automated Wreck and Obstruction Information System, NRHP = National Register of Historic Places, OCS = Office of Coast Survey

This page intentionally left blank.