Atlantic Vessel Density 2013
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Prepared for:
National Oceanic and Atmospheric Administration
Office for Coastal Management
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1. INTRODUCTION

Automatic Identification Systems (AIS) are a navigation safety device that transmits and monitors the location and characteristics of many vessels in U.S. and international waters in real-time. These products represent vessel traffic density in 100 meter grid cells for all vessels and nine vessel type groupings in 2013 for the Atlantic from vessels with AIS transponders. Vessel groupings include cargo, fishing, military, passenger, pleasure, tanker, tug-tow, other, and not available categories. The data are based on 2013 vessel track line data for the Atlantic, which is defined as UTM zones 17, 18, 19, and 20. The data are best interpreted using a high to low density scale and do not represent actual vessel counts.

2. PURPOSE

To support coastal and ocean planning and other activities pursuant to the Coastal Zone Management Act, Energy Policy Act, Magnuson-Stevens Fishery Conservation and Management Act, National Environmental Policy Act, Rivers and Harbors Act and the Submerged Lands Act.

3. SOURCES AND AUTHORITIES

- MarineCadastre.gov, National Oceanic and Atmospheric Administration and the Bureau of Ocean Energy Management
- Vessel Tracks 2013, National Oceanic and Atmospheric Administration Office for Coastal Management
- Nationwide Automatic Identification System, United States Coast Guard
- Maritime Security Act of 2002
- Executive Order 13547 – Stewardship of the Ocean, Our Coasts, and the Great Lakes

4. DATABASE DESIGN AND CONTENT

Native storage format: ArcGIS File Geodatabase Raster

Columns and Rows: 26718, 39912
Number of Bands: 1
Cell Size: 100 meters
Source Type: generic
Pixel Type: floating point
Pixel Depth: 32 Bit
Statistics:
Minimum: -1.366037806626077e-018
Maximum: 647.5346069335938
Mean: 0.06797048810751623
Standard Deviation: 1.065506888288353

Dataset Name: AtlanticVesselDensity_2013

Dataset Status: Complete

5. SPATIAL REPRESENTATION

Reference System: WGS 1984 Web Mercator Auxiliary Sphere
Horizontal Datum: WGS 1984
Linear Unit: Meter (1.0)
Angular Unit: Degree (0.0174532925199433)
False Easting: 0.0
False Northing: 0.0
Central Meridian: 0.0
Standard Parallel: 0.0
Auxiliary Sphere Type: 0.0

Geographic extent: -9350886.8927 to -6679086.8927, 1695727.7857 to 5686927.7857

ISO 19115 Topic Category: environment, oceans, transportation

Place Names:
Atlantic, Bahamas, Barnegat Bay, Cape Cod Bay, Caribbean, Chesapeake Bay, Connecticut, Delaware, Delaware Bay, Florida, Florida Keys, Georges Bank, Gulf of Maine, Hatteras Plain, Hudson River, Long Island Sound, Maine, Maryland, Massachusetts, Massachusetts Bay, New Hampshire, North Carolina, New Jersey, New York, Pennsylvania, Puerto Rico, Rhode Island, Rhode Island Sound, South Carolina, Straits of Florida, Tampa Bay, United States, Virginia

Recommended Cartographic Properties:
(Using ArcGIS ArcMap methods and nomenclature)

Stretch, Standard Deviation (2.5) Precipitation color ramp (inverted)

Scale range for optimal visualization: 100,000 to 5,000,000

6. DATA PROCESSING

Processing environment: ArcGIS 10.3.0, Windows 7 Professional, Intel Core i7 CPU

	Process Step Description
1	PROJECT 2013 Atlantic Vessel Tracks product into WGS 1984 Web Mercator Auxiliary Sphere coordinates
2	SELECT BY ATTRIBUTE on the 2013 Atlantic trackline product to identify features for each of the nine vesselGroup categories (cargo, fishing, military, pleasure, passenger, tanker, tugTow, allOthers, notAvailable)
	KERNEL DENSITY on each of the nine selection sets and on the comprehensive Atlantic Vessel Tracks product to create a total of ten density grids Search Radius = 100; Resolution = 100; Units = SQUARE_METERS
3	SET NULL to convert all zero values to null
4	Visual assessment of results against input selection sets

7. QUALITY PROCESS

Attribute Accuracy: Original content was acquired from authorized and verified sources – no new testing was done to cross reference or confirm otherwise the field or geometry values.

Logical Consistency: Tested through visual inspection of the geometry at scales of 1:1,000,000 to 1:40,000. Geometry is topologically clean. Locations with no vessel density have values of NoData.

Completeness: All known records acquired from the Nationwide Automatic Identification System were included in source vessel track data. Spatial and attribute properties are believed to be complete. Geometric thresholds from original data are preserved. No tests have been completed for exhaustiveness.

Positional Accuracy: Intended for use at an average scale not to exceed 1:80,000. Source data position values are determined by GPS and include the associated errors with this technology.

Timeliness: Observed conditions for calendar year 2013.

Use restrictions: Not for navigation.