

North Atlantic Tug-Tow AIS Vessel Density 2011  
Northeastern U.S.

October 21, 2015

Prepared for:  
Northeast Regional Ocean Council (NROC)  
Northeast Ocean Data  
[www.northeastoceandata.org](http://www.northeastoceandata.org)

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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. This dataset represents the density of tug and tow vessel traffic in 2011 from vessels with AIS transponders in 100 meter grid cells. The dataset is best interpreted using a high to low density scale and does not represent actual vessel counts.

This dataset was created using vessel trackline data produced by the National Oceanographic and Atmospheric Administration Coastal Services Center (NOAA CSC). AIS data for 2011 were processed by NOAA CSC using the NOAA Trackline Builder tool in ArcGIS.

## 2. PURPOSE

To support efforts for regional coastal and ocean planning by the Northeast Regional Ocean Council (NROC).

## 3. SOURCES

- North Atlantic Vessel Tracks 2011, NOAA CSC  
[ftp://ftp.csc.noaa.gov/temp/MarineCadastre/For\\_CSC/Zone\\_18\\_19\\_tracks\\_2011a.gdb.zip](ftp://ftp.csc.noaa.gov/temp/MarineCadastre/For_CSC/Zone_18_19_tracks_2011a.gdb.zip)
- Nationwide Automatic Identification System, United States Coast Guard

## 4. DATABASE DESIGN AND CONTENT

Native storage format: ArcGIS File Geodatabase Raster  
Columns and Rows: 12719, 12941

Number of Bands: 1  
Cell Size: 100 meters  
Source Type: generic  
Pixel Type: floating point  
Pixel Depth: 32 Bit

Statistics:

Minimum: 2.394362129615792e-017  
Maximum: 253.85  
Mean: 0.1125211280584178  
Standard Deviation: 1.51582346985168

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

Geographic extent: -8619306.1085, 4369590.5106, -7347406.1085, 5663690.5106

ISO 19115 Topic Category: oceans, transportation, environment

Place Names:

Atlantic Ocean, Cape Cod Bay, Cape May, Chesapeake Bay, Connecticut, Delaware, Delaware Bay, Georges Bank, Gulf of Maine, Hudson River, Long Island Sound, Maine, Maryland, Massachusetts, Massachusetts Bay, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Rhode Island Sound, United States, Virginia

Recommended Cartographic Properties:

(Using ArcGIS ArcMap nomenclature)

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

Scale range: Optimal at 1:1,000,000

## 6. DATA PROCESSING

Processing environment: ArcGIS 10.1 SP1, Windows 7 Professional, Intel Core i5 CPU

Process Steps	
1	SELECT to extract trackline features where vesselGroup is equal to 'tugTow'
2	Perform KERNEL DENSITY using Spatial Analyst on NOAA CSC 2011 AIS trackline dataset. Search Radius = 100; Resolution = 100, Units = SQUARE_METERS
3	SET NULL to change all zero values to NoData

## 7. QUALITY PROCESS

**Logical Consistency:** No testing was performed on the source trackline data. Data were visually inspected to confirm that the results of the density analysis were reasonable.

**Completeness:** Data are complete based on all known Nationwide Automatic Identification System records from 2011. Source data were created using the NOAA Trackline Builder tool which created separate trackline features using filter settings for 30 minutes and 1 nautical mile. The gridded raster identifies density based on the results of that analysis.

**Positional Accuracy:** Horizontal accuracy is dependent on the location of the transmitted AIS locations from GPS and includes errors associated with this technology.

**Timeliness:** 2011

**Use restrictions:** NOT FOR NAVIGATION.

**Distribution Liability:** Data are provided as is. NROC and RPS ASA are not liable for any interpretations, assumptions, or conclusions based on these data.