Pilot Boarding Areas
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Prepared for*:*
Northeast Ocean Data
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1. INTRODUCTION

Pilot boarding areas are locations at sea where pilots familiar with local waters board incoming vessels to navigate their passage to a destination port. Pilotage is compulsory for foreign vessels and U.S. vessels under register in foreign trade with specific draft characteristics. Pilot boarding areas are represented by a 0.5 nautical mile radius around a coordinate point unless the Coast Pilot specifically designates a different radius or boarding area boundary. This dataset does not contain information regarding the hazards and considerations necessary to approach each port.

The primary source material is the United States Coast Pilot. Additional information was derived from the Office of Massachusetts Coastal Zone Management's pilot boarding area dataset, which consists of information acquired from pilot associations in 2009. Northeast Ocean Data plans to engage with pilot associations in 2014 to confirm the location and boarding area sizes in order to finalize the dataset.

2. PURPOSE

This datasets is intended to support region-scale ocean planning activities.

3. SOURCES AND AUTHORITIES

- National Oceanic and Atmospheric Administration, U.S. Department of Commerce, National Ocean Service, Massachusetts Office of Coastal Zone Management
- U.S. Coast Pilot 1, 42nd Edition (2012) – Atlantic Coast: Eastport to Cape Cod
- U.S. Coast Pilot 2, 42nd Edition (2013) – Atlantic Coast: Cape Cod, MA to Sandy Hook, NJ
- Eastport Port Authority pilot and harbormaster

- Interport Pilots (http://www.interportpilots.com/services.htm)
- AidsToNavigation (NOAA National Ocean Service, Coastal Services Center)
- CoastalGeographicNames (NOAA Coastal Services Center)
- MORIS_OM_PILOT_BOARDING_AREAS_POLY (Massachusetts Coastal Zone Management)

4. DATABASE DESIGN AND CONTENT

Native storage format: ArcGIS File Geodatabase – simple feature class

Feature Types:
Boarding Area Polygons

Data Dictionary:

Line	Name	Definition	Type	Size
1	OBJECTID	Uniquely identifies a feature	OBJECTID	*
2	Shape	Geometric representation of the feature	*	*
3	boardingArea	Boarding area place name	Text	100
4	latitude	Latitude value for boarding area centroid	Double	*
5	longitude	Longitude value for boarding area centroid	Double	*
6	radius	Radius of boarding area. Default is 0.5 nm unless specified in Coast Pilot or inapplicable	Text	5
7	comments	Comments from U.S. Coast Pilot regarding specific boarding area	Text	190
8	vesselDescription	Description or name of vessel used by pilot if applicable	Text	90
9	organization	Contact organizations	Text	105
10	coordCode	0: Coordinate for location was explicitly characterized in CoastPilot; 1: Location not defined with coordinates and processing was required to locate boarding area	Text	3
11	jurisdiction	Country with jurisdiction over boarding area	Text	25
12	source	Source material	Text	25

Feature Class Name: PilotBoardingAreas

Total Number of Unique Features: 21

Dataset Status: In Progress

5. SPATIAL REPRESENTATION

Geometry Type: vector point

Reference System: GCS North American 1983
Horizontal Datum: North American Datum 1983
Ellipsoid: Geodetic Reference System 1980

XY Resolution: 0.000000000899322 degrees
Tolerance: 0.000000008983153 degrees

Geographic extent: -73.8, 40.45, -66.87, 44.96

IS0 19115 Topic Category: transportation, environment, oceans

Place Names:

Atlantic, Block Island Sound, Buzzards Bay, Cape Cod Bay, Cape Cod Canal, Cobscook Bay, Frenchman Bay, Gulf of Maine, Long Island Sound, Massachusetts Bay, Montauk, New York Harbor, Penobscot Bay, Rhode Island Sound

Recommended Cartographic Properties:

(Using ArcGIS ArcMap nomenclature)

Simple Fill Symbol: color: 277-50-68, color model: HSV

Scale range for optimal visualization: 100,000 to 1,000,000

6. DATA PROCESSING

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

	Process Steps Description
1	Examine Coast Pilot 1 and 2 and extract out relevant information for pilot boarding areas including ports served, latitude and longitude coordinates, comments, vessel descriptions, and contacts
2	Convert all coordinate pairs to decimal degrees
3	Remove or consolidate any duplicate records from different ports that reference the same boarding area
4	Calculate latitude/ longitude or use reference locations to obtain the boarding area position where explicit coordinates were not provided; reference datasets include Aids To Navigation and Coastal Geographic Names

5	Import points based on geographic coordinates and PROJECT points to the appropriate UTM coordinate system; locations in UTM zone 18 were converted to North American Datum UTM Zone 18N and locations in UTM zone 19 were converted to North American Datum UTM Zone 19N.
6	BUFFER each point by 0.5 nautical miles unless a different buffer radius was specified. One pilot boarding area in Rhode Island state waters was identified by four coordinate pairs and this area was digitized directly from these coordinates.
7	Both datasets in UTM coordinates were transformed into GCS North American Datum 1983 using the PROJECT tool and MERGED together to create a seamless regional dataset.

7. QUALITY PROCESS

Attribute Accuracy: The Coast Pilot was examined for applicable information for the majority of pilot boarding areas. Duplicate information was reviewed and removed or consolidated with existing records. Attribute information is based upon source material and is accurate as such.

Logical Consistency: All source geographic data consisted of coordinate pairs. Polygon data is topologically consistent.

Completeness: This dataset consists of pilot boarding areas for main ports in coastal northeastern U.S. waters and includes two boarding areas that lie approximately four miles into Canadian territorial waters. Non-compulsory boarding areas that are recommended for strangers were not included. Where specific coordinates were not given but sources indicated that the boarding area was a certain distance or direction from a reference location, the ArcGIS Editor toolbar was used to create lines for the specified distance and angle, which were then used to snap a new point to the proscribed location. Directions were based on angles from 0^0 to 360^0, with 0^0 indicating east, 90^0 indicating north, etc. Follow-up with individual pilots or pilot associations occurred where the boarding area was questionable and contact information was available. Additional questions were submitted to the Coast Pilot discrepancy reporting form to verify locations and associated information. Pilot boarding areas in Massachusetts state waters were compared with the Massachusetts Coastal Zone Management pilot boarding dataset and missing areas were incorporated into the dataset.

Positional Accuracy: The vertices used to derive the centroid of each boarding area, where applicable, were calculated from Coast Pilot records or derived from the reference datasets AidsToNavigation and CoastalGeoNames. Coast Pilot defines the area for three boarding areas, including a one nautical mile radius, a two nautical mile radius, and a bounding area of four coordinates. All other boarding areas were designated as points and these were buffered using a standard 0.5 nautical mile radius.

Timeliness: This dataset represents known pilot boarding areas based on the most recent Coast Pilot information from 2012 and 2013 and from Massachusetts Office of Coastal Zone Management as of 2009.

Use restrictions: NOT FOR NAVIGATION

Distribution Liability: Data are provided as is. Northeast Ocean Data and RPS Applied Science Associates are not liable for any interpretations, assumptions, or conclusions based on these data.