No Discharge Zones
Northeastern U.S.
November 6, 2014

Prepared for:
Northeast Regional Ocean Council
Northeast Ocean Data Portal
www.northeastoceandata.org

Prepared by:
Jenna Turner
RPS Applied Science Associates
55 Village Sq. Dr.
South Kingstown, RI 02879

## 1. INTRODUCTION

A No Discharge Zone (NDZ) is a designated boundary within which the discharge of treated and untreated sewage from vessels is prohibited. There are a number of harmful pollutants found in sewage discharges that negatively impact both aquatic and human health. Pump-out facilities are located within the boundaries of NDZs to facilitate the elimination of sewage from vessels, or sewage must be retained onboard for disposal beyond three miles from shore. The No Discharge Zone boundaries are based on information within the Federal Register and were produced by Environmental Protection Agency (EPA) for Regions 1 and 2. Zone boundaries in Region 1 were also coordinated with the Massachusetts Coastal Zone Management.

This dataset displays NDZs in EPA Region 1 and Region 2, which are current as of 2014 and 2011, respectively. Data from both regions were merged into one dataset and boundaries between different zone features were harmonized to eliminate boundary discrepancies. NDZs within the Hudson River, New York State Canal System, Lake Champlain, Lake George, and south of New York Harbor were not included. This dataset was updated in 2014 to include all waters under Massachusetts state jurisdiction. Three NDZs were added in Massachusetts including ferry corridors in the Vineyard Sound and Nantucket Sound and a zone extending from Manchester-By-The-Sea to Marshfield. Additionally, the Long Island Sound NDZ in New York State was updated from a proposed status to a final status.

## 2. PURPOSE

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

## 3. SOURCES AND AUTHORITIES

- Connecticut Marine Sanitation Device Standard-Notice of Determination https://www.federalregister.gov/articles/2007/06/15/E7-11312/connecticut-marine-sanitation-device-standard-notice-of-determination
- Massachusetts Office of Coastal Zone Management Executive Office of Energy and Environmental Affairs No Discharge Area Boundaries Salisbury to Marshfield
- Massachusetts Office of Coastal Zone Management Executive Office of Energy and Environmental Affairs No Discharge Area Boundaries Duxbury to Nantucket
- NOAA Coastal Services Center (MarineJurisdictions2012)
- NOAA Coastal Services Center (northeastBoundary)
- New York State Prohibition of Discharges of Vessel Sewage; Final Affirmative Determination https://www.federalregister.gov/articles/2011/09/08/2011-22997/new-york-state-prohibition-of-discharges-of-vessel-sewage-final-affirmative-determination
- US EPA Region 2 (R2NODISCHARGE)
- US EPA Region 1 (NDZ_2013)
- United States Environmental Protection Agency No Discharge Zone Map – Mamaroneck Harbor, NY http://www.epa.gov/region2/water/ndz/mamaroneckharbor.html

## 4. DATABASE DESIGN AND CONTENT

Native storage format: ArcGIS File Geodatabase – simple feature class

Feature Types:

Polygons representing areas where discharge of vessel sewage is prohibited.

Data Dictionary:

| Line | Name | Definition | Type | Size |
|---|---|---|---|---|
| 1 | OBJECTID | Uniquely identifies a feature | OBJECTID | * |
| 2 | Shape | Geometric representation of the feature | geometry | * |
| 3 | name | Descriptive feature name | text | 100 |
| 4 | location | Descriptive geographic location of feature | text | 50 |
| 5 | state | US state abbreviation | text | 3 |
| 6 | EPARegion | EPA region | text | 15 |
| 7 | status | Legal status of the feature | text | 25 |

Feature Class Name: NoDischargeZones

Total Number of Unique Features: 43

Dataset Status: Complete

## 5. SPATIAL REPRESENTATION

Geometry Type: vector polygon
Reference System: GCS North American 1983
Horizontal Datum: North American Datum 1983
Ellipsoid: Geodetic Reference System 1980

XY Resolution: 0.000000001
Tolerance: 0.000000008983153

Geographic extent: -74.26 to -68.19, 40.31 to 44.38

IS0 19115 Topic Category: environment, oceans, transportation

Place Names:

Atlantic Ocean, Block Island, Boothbay Harbor, Boston Harbor, Buzzards Bay, Camden, Cape Cod, Casco Bay, Centerville Harbor, Connecticut, Greater Huntington-Northport Bay Complex, Harwich, Hempstead Harbor, Hudson River, Jamaica Bay, Kennebunk, Lake Champlain, Lake George, Long Island's South Shore Estuary, Long Island Sound, Lower North Shore, Mamaroneck Harbor, Mount Hope Bay, Mt. Desert, Nantucket, Navesink River, New Hampshire, New York Harbor, North Shore, New York State Canal System, Oyster Bay/Cold Spring Harbor Complex, Peconic Estuary/East Hampton, Pleasant Bay/Chatham Harbor, Plymouth, Port Jefferson Harbor Complex, Rhode Island, Rockland, Rockland Harbor, Rockport, Salem Harbor, Shrewsbury River, Stage Harbor, Waquoit Bay, Wells, Wellfleet Harbor

Recommended Cartographic Properties:

(Using ArcGIS ArcMap nomenclature)

Simple Fill Symbol: outline width: 0, color model: HSV

Final: 0-50-91

To be proposed: 280-50-80

Scale range for optimal visualization: 500,000 to 3,000,000

## 6. DATA PROCESSING

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

| | Process Steps Description |
|---|---|
| 1 | R2NODISCHARGE shapefile PROJECTED into GCS North American 1983 |
| 2 | Converted R2NODISCHARGE from shapefile to feature class |
| 3 | Visually examined NDZ_2013 and R2NODISCHARGE shared boundaries for alignment issues |
| 4 | The shared boundary between NDZ_2013 (feature name = 'Connecticut') and R2NODISCHARGE (feature name = 'Long Island Sound') was edited using a combination of the ERASE and the editor TRACE tools to fix boundary misalignment |
| 5 | MERGED NDZ_2013 and R2NODISCHARGE |
| 6 | CLIP merged features to the northeastBoundary |
| 7 | Deleted fields that were not common to both original datasets, and those fields that were non-essential. In NDZ_2013 deleted fields included: 'SQMI' and 'ACRES'. In R2NODISCHARGE deleted fields included: 'SQ_MI', 'ACRES', 'HECTARES', 'HYPERLINK1', 'HYPERLINK2', and 'SOUCRE'. |
| 8 | BUILT TOPOLOGY with rules stating that 'polygons must not overlap' and 'polygons must not have gaps'. Errors were assessed on a case-by-case basis, only those gaps that resulted from misaligned polygons were adjusted to harmonize boundaries. |
| 9 | The Mamaroneck Harbor polygon was adjusted to match the description and boundary as defined in the United States Environmental Protection Agency's No Discharge Zone Map – Mamaroneck Harbor, NY document. |
| 10 | No Discharge Zones in the Hudson River, New York State Canal System, Lake Champlain, and Lake George were removed. A remaining portion of the Shrewsbury River and Navesink River zones south of New York Harbor were also removed. |
| 11 | The New York Harbor feature (feature name = 'New York Harbor') was clipped to remove a small sliver along the northwestern edge, near Bayonne, NJ |
| 12 | DIGITIZED three features to reflect updates for Massachusetts, such that all state waters are designated as a no discharge zone. This includes ferry corridors in the Vineyard Sound and Nantucket Sound, as well as a feature extending from Manchester-By-The-Sea to Marshfield. |
| 13 | Long Island Sound NDZ status updated from 'proposed' to 'final' based on Federal Register Notice of Determination |

## 7. QUALITY PROCESS

Attribute Accuracy: Attribute information is based upon EPA source data. The attribute 'name' is a combination of the attribute 'WEBNAME' from the NDZ_2013 dataset, and 'LABEL' from the R2NODISCHARGE dataset. The attribute 'location' is a combination of the attribute 'LOC' from the NDZ_2013 dataset, and 'NAME' from the R2NODISCHARGE dataset. Attributes that were not common to both original datasets were eliminated.

Logical Consistency: Tested through visual inspection of the geometry at varying scales to ensure that polygons sharing a boundary were properly aligned and not overlapping. Overlapping boundaries were adjusted based on proximity to geographic boundaries. The EPA Region 1-Region 2 overlap was assessed using coordinate information in the

Connecticut Marine Sanitation Device Standard-Notice of Determination and United States Environmental Protection Agency's No Discharge Zone Map – Mamaroneck Harbor, NY. A topology layer was created with rules stating that 'polygons must not overlap' and 'polygons must not have gaps.' Overlapping boundaries were eliminated with the exception of the verified overlap between the Mamaroneck Harbor polygon and the Long Island Sound polygon. Insignificantly small gaps over open water were assumed to be an error and were filled in order to make shared boundaries flush. The three NDZ features added in Massachusetts were digitized based on adjacency to existing NDZ features and the NOAA Coastal Services Center MarineJurisdictions2012 dataset.

Completeness: This dataset represents No Discharge Zones in two EPA regions within the northeastern U.S. Where appropriate, multiple features that represented the same zone were merged into one comprehensive zone. No Discharge Zones in the Hudson River, New York State Canal System, and further north were eliminated since they do not inform ocean use planning. Though all Massachusetts state waters are designated as No Discharge Zones, individual features within state waters were retained from the original dataset.

Positional Accuracy: The location of the polygons is based on source data. There was some discrepancy between state line boundaries and zone boundaries and some features were adjusted to create a seamless, topologically consistent product. Zone boundaries along the shoreline reflect source data delineations. A shared boundary between Region 1 and Region 2 was adjusted to eliminate overlaps and gaps. Information regarding the true shape of the shared boundary was verified by coordinate information in the Connecticut Marine Sanitation Device Standard-Notice of Determination. The Mamaroneck Harbor polygon was adjusted to match the description and boundary as defined in the United States Environmental Protection Agency's No Discharge Zone Map – Mamaroneck Harbor, NY document. Ferry corridors in the Vineyard Sound and Nantucket Sound were added, as well as a feature extending from Manchester-By-The-Sea to Marshfield. Features were digitized based on maps provided by the EPA, the marine jurisdictions dataset created by the NOAA Coastal Services Center, and boundaries of adjacent features.

Timeliness: Region 1 zones are up to date as of 2014 and Region 2 zones are up to date as of 2011.

Use restrictions: NOT FOR NAVIGATION

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