

Northeast Recreational Boater Routes
Northeast United States
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1. INTRODUCTION

The Northeast Recreational Boater Routes displays recreational boater routes that were mapped by participants in the 2012 Northeast Recreational Boater Survey, which was conducted by SeaPlan, the Northeast Regional Ocean Council (NROC), states' coastal agencies, marine trade associations composed of many private industry representatives, and the First Coast Guard District. The methodology for the 2012 Northeast Recreational Boater Survey follows a protocol similar to the [2010 Massachusetts Survey](#) with modifications based on the lessons learned and recommendations suggested in the [Massachusetts Survey Final Report](#).

The methodology consists of surveying a random sample of selected boat owners throughout the Northeast through a series of monthly online surveys. The surveying period lasted throughout the 2012 boating season (May 1 through October 31, 2012), which was identified by the advisory committee (consisting of NROC and representatives from the recreational boating industry).

The project team decided to use a random sample survey approach because it successfully gathered statistically robust economic and spatial data on recreational boating activity by Massachusetts registered boaters during the 2010 boating season. This was also the only approach that would allow for the calculation of statistically robust economic impact estimates for both the states and the region, which was identified as a priority (along with spatial data) by both NROC and the boating industry.

Survey Sampling Methodology

The sample for this survey came from seven databases, including the U.S. Coast Guard Documented Vessel Database and databases of state registered boaters from New York, Connecticut, Rhode Island, Massachusetts, New Hampshire, and Maine. Recreational boaters who owned vessels that met the following criteria were eligible for the survey:

- Registration: Currently registered with a state in the Northeast and/or registered as a documented vessel with the U.S. Coast Guard, with a hailing port in the Northeast
- Primary Use: Recreational use designation
- Length: At least 10 feet in length
- Saltwater (if specified; only Maine and New Hampshire required this information)
- Location: Located in a “coastal county”. The survey team defined “coastal counties” as those that border saltwater, or those that were highlighted by state coastal planners as likely containing large amount of saltwater boating activity.

Based on the 2010 Massachusetts Survey and budgetary considerations, the project team determined an overall sample size that would provide sufficient spatial and economic data for both each state, as well as the whole Northeast. Because of the sometimes large discrepancies between the number of eligible boats in some states, the team decided that certain states with fewer eligible boats should also have a supplemental sample of boats in addition to the pure random sample. To ensure the sample represented the total population of registered boats in the Northeast, the sampling method included considerations of state, geography and size class. Of the 373,766 boats eligible for the survey, the base of randomly sampled boats included 50,000 boats from across all six states. In addition to this base, the survey team sampled 17,772 boats as a supplemental sample, including: 1,772 boats of 26 feet in length or more from across all six states to increase the number of large boats in the sample, and 16,000 additional boats to ensure each state had enough responses for the statistical analysis. These included 10,000 boats from Maine, 2,500 boats from Rhode Island, 2,000 boats from New Hampshire and 1,500 boats from Connecticut. This resulted in a total of 67,772 boaters invited to participate in the study.

Boater Recruitment and Response

In the survey invitation package, the survey team also sent invited boaters a questionnaire to verify eligibility to participate in the survey. Eligibility requirements consist of: boat is used in saltwater; boat is used for recreational purposes; and boaters have access to the internet with a working email address. 12,218 boaters responded to the invitation; however only 7,800 of these respondents were found to meet all of the above criteria. From this sample, 4,297 individual boaters completed at least one monthly survey.

Surveying Process

The study consisted of six monthly surveys and one end of season survey. The online monthly surveys gathered spatial and economic data on recreational boating activity that occurred during the previous month. The online survey had two parts: 1) a survey with questions about general boating activity during the previous month, and the boater's last trip of the month (specifically focusing on spending), and 2) a mapping application developed by [Ecotrust](#) where boaters plotted their boating route and identified any areas where they participated in activities, such as fishing, diving, wildlife viewing, swimming and relaxing at anchor. The end of season survey gathered a variety of information that could not be gathered in the monthly surveys. The end of season survey contained questions about yearly boating-related expenditures (e.g., dockage, storage, taxes, yearly maintenance), feedback on the survey itself, and general boating-related questions (e.g. whether boaters have taken a boating safety course).

To develop this route layer vessel routes were drawn in WGS 1984 in the Ecotrust mapping application and were imported into Excel, then ArcMap using a data frame in that coordinate system. To exclude routes or portions of routes that crossed over land or extended beyond northeastern waters beyond the continental shelf, we clipped this layer using the NOAA medium resolution shoreline dataset.

2. PURPOSE

This dataset can be used by coastal planners in ocean planning activities to develop a better understanding of how and where humans use the ocean in the Northeast to inform regional ocean planning and minimize ocean use conflicts. This effort also fulfilled a recommendation from the 2010 Massachusetts Survey to expand the survey's geographic range to the Northeast Region, allowing for the capture of interstate traffic between states in the Northeast.

Furthermore, this dataset can also be used by the boating industry to show the importance of recreational boating to the region and to inform business planning.

3. SOURCES AND AUTHORITIES

- 2012 Northeast Recreational Boater Survey, SeaPlan 2013
- NOAA Medium Resolution Shoreline Dataset

4. DATABASE DESIGN AND CONTENT

Native storage format: ArcGIS File Geodatabase – simple feature class

Feature Types:

Tracklines drawn by survey participants

Data Dictionary:

Line	Name	Definition	Type	Size
1	OBJECTID	Uniquely identifies a feature	OBJECTID	*
2	Shape	Geometric representation of the feature	geometry	*
3	month	Identifies the month in which the recorded route took place	short	*
4	surveyType	Identifies the sample type the route falls under (for statistical analysis purposes)	text	30
5	state	Identifies the state in which the survey participant's boat is registered	text	2
6	vesselSize	Identifies the size (in feet) of the vessel	text	30
7	Shape_Length	Measurement in spherical coordinates	double	*

Feature Class Name: RecreationalBoaterRoutes

Total Number of Unique Features: 5114

Dataset Status: Complete

5. SPATIAL REPRESENTATION

Geometry Type: vector polyline

Reference System: GCS_North_American_1983

Horizontal Datum: North American Datum 1983

Ellipsoid: Geodetic Reference System 1980

XY Resolution: XY Scale is 0.000000001

Tolerance: 0.000000008983153

Geographic extent: -76.72 to -65.72, 35.00 to 45.18

ISO 19115 Topic Category: environment, oceans, biota, economy, transportation

Place Names: Place Names:

Atlantic, Bay of Fundy, Cape Cod Bay, Chesapeake Bay, Delaware Bay, Gulf of Maine, Georges Bank, Long Island Sound, Massachusetts Bay, Nantucket Shoals, Northwest Atlantic, Rhode Island Sound

Recommended Cartographic Properties:
(Using ArcGIS ArcMap nomenclature)

Simple line, size .2

Scale range for optimal visualization: 6,000 to 8,000,000; Optimal at 200,000

6. DATA PROCESSING

Processing environment: ArcGIS 10.05, Windows 7 Ultimate SP5, Intel Core CPU

	Process Steps Description
1	Raw routes from mapping application imported into ArcMap
2	Routes occurring over land were eliminated using NOAA Medium Resolution Shoreline dataset and the ERASE geoprocessing function
3	month, surveyType, state and vesselSize attributes added and filled-in through queries of survey field and field calculator operations

7. QUALITY PROCESS

Attribute Accuracy: The boater routes are derived from a mapping tool used by boaters to plot their routes. To ensure that boaters included their round-trip route the mapping applications would send the user an error message asking them to re-plot the route or the program would automatically return the route to the starting point. This application also restricted the scale at which users could draw their routes, reducing the amount of error that could occur from plotting routes at too small a scale. Clipping this layer with a regional ocean shapefile derived from the NOAA medium resolution shoreline dataset excluded route density resulting from routes drawn over land, in freshwater, or outside of northeastern waters.

Logical Consistency: None

Completeness: Routes drawn over land, freshwater areas, or outside northeastern waters were excluded.

Positional Accuracy: The positional accuracy of the routes is dependent on the individual reporting routes through the mapping tool.

Timeliness: This dataset represents data collected from May through October of 2012.

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This dataset is not intended for navigation purposes

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