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# Characterization of Coastal and Marine Recreational Activity in the U.S. Northeast

A Report developed by Point 97, SeaPlan, and the Surfrider Foundation for the Northeast Regional Planning Body

October 2015

## Abstract

To support ocean planning efforts in the Northeast, Point97, the Surfrider Foundation and SeaPlan conducted a study for the Northeast Regional Planning Body to characterize coastal and marine recreational activities. In order to fill a regional need to better understand the spatial patterns of important recreational activities in New England, the study focused on collecting information on commercial whale watching, SCUBA diving, sailing races and regattas, sportfish tournaments, competitive board and paddle events, as well as individual uses, such as beach going, wildlife viewing, surfing, and non-motorized boating (e.g. kayaking). The study team collaborated with industry representatives from the various recreational sectors, including whale watch operators, underwater explorers, surf and dive shop owners, and sailing event organizers, to help guide the development, execution, and review of the study components. Using a combination of online survey tools and in-person participatory mapping techniques, the study used complementary methodologies to gather data by targeting both the expertise of recreational industry leaders as well as individuals who recreate along the coast. Study limitations were specific to each unique data collection approach and reflect the challenges of reaching a diverse set of stakeholders. The resulting datasets fill a gap in the understanding of recreational use in the Northeast through depictions of whale watching areas and transit routes, SCUBA diving areas, landside locations of marine events and spatial data points that characterize non-consumptive activities from individual users. Products from this work are available on the Northeast Regional Planning Body's website (neoceanplanning.org) and the Northeast Ocean Data Portal (northeastoceandata.org).

## Primary Authors:

**Jennifer Bloeser**, Director of Operations, Point97

**Cheryl Chen**, Director of Client Services, Point97

**Melissa Gates**, Northeast Regional Manager, Surfrider Foundation

**Andy Lipsky**, Senior Partner, SeaPlan

**Kate Longley-Wood**, Project Manager, SeaPlan

## Northeast Regional Planning Body Project Managers:

**John Weber**, Northeast Ocean Planning Staff

**Katie Lund**, Northeast Ocean Planning Staff

## Project Steering Committee

**Jamie Carter**, National Oceanic and Atmospheric Administration (NOAA)

**Michele DesAutels,** United States Coast Guard

**Grover Fugate**, Rhode Island Coastal Resources Management Council

**Jeff Herter**, New York State Department of State (NYS DOS)

**Dan Hubbard,** United States Coast Guard

**Dave Kozak**, Connecticut Department of Environmental Protection Office of Long Island Sound Programs

**Jennifer McCann,** University of Rhode Island Coastal Resources Center and Rhode Island Sea Grant

**Nick Napoli**, Northeast Ocean Planning Staff

**Betsy Nicholson,** NOAA

**Matt Nixon**, Maine Coastal Program

**Liz Podowski**, New York Department of State

**Prassede Vella**, Massachusetts Office of Coastal Zone Management

**Chris Williams**, New Hampshire Coastal Program

## Acknowledgements

# Executive Summary

Coastal and marine recreation provides significant economic and social benefits to coastal communities of the U.S. Northeast region. It is important to understand how and where people use the coast and ocean as a first step towards better management of the natural resources integral to coastal and marine recreation.

The Northeast Regional Planning Body (NERPB) recognized the need to fill this data gap and thus partnered with Point 97, SeaPlan, and Surfrider Foundation (referred to as the Team), to engage regional stakeholders in the collection and development of spatial data sets to represent coastal and marine recreation use patterns in the Northeast region (i.e., from Long Island Sound and the south shore of Long Island north through the Gulf of Maine). Stakeholder knowledge and input grounded the project throughout, and contributed to the development of study goals, scope, design, and review of draft products.

Due to the diverse nature of stakeholder groups who recreate in the study area and in response to stakeholder feedback, the team created a series of customized data collection approaches. Specifically, the team utilized two complementary methodologies that collected data on the following recreational activities:

1. **Industry leader surveys**
   - Whale watching
   - SCUBA diving
   - Marine events: Sailing regattas
   - Marine events: Saltwater sport fishing tournaments
   - Marine events: Competitive board and paddle events

2. **Individual User survey:**
   - Shore-based activities (beach going, biking or hiking, camping, collection of non-living resources/beachcombing, hang gliding/parasailing)
   - Surface water activities (boating/sailing, kayaking or other paddling activity, kiteboarding, skimboarding, surfing, swimming or body surfing, windsurfing)
   - Wildlife & sightseeing (photography, scenic enjoyment, sitting in your car watching the scene, watching birds, whales, seals, etc., from shore or boat)
   - Diving (free diving/snorkeling, SCUBA diving from shore or boat). Diving was included as a separate activity grouping so that the data collected in the Individual User survey could be viewed alongside data collected in the industry leader survey.

The team engaged industry leaders to scope the best method for gathering spatial user patterns from their respective groups. The results of this consultation were online mapping surveys – one dedicated

exclusively to SCUBA diving and one to marine events – and a series of in-person workshops for mapping commercial whale watching activity with Participatory Geographic Information Systems (PGIS) tools.

The PGIS whale watching workshop gathered spatial data on whale watch industry use and transit areas from companies operating out of ME, MA, NH and NY. The SCUBA diving online survey and subsequent PGIS workshops gathered spatial data on SCUBA diving areas from south of Long Island to ME, identifying an area of high use in Cape Ann, MA. The marine events online survey gathered data on sailing events and fishing tournaments from NY through ME, and competitive board and paddle events from CT through ME.

Additional data on SCUBA sites and landside locations for marine events were captured from online and print sources, as well as through conversations with industry experts. These data were collected to fill data gaps from survey responses, and to ensure complete geographic coverage of SCUBA and event recreational areas in the region.

The Individual User survey was designed to engage individuals to map ocean recreation activities from their own experiences over the prior 12 months. An online mapping survey gathered over 19,000 spatial data points from 975 respondents. Twenty non-consumptive activities were characterized, including beach going, wildlife viewing, surfing, and paddle sports.

Following review by the Northeast Regional Planning Body, products from these data will be available through the Northeast Ocean Data Portal (www.northeastoceandata.org) in fall 2015 and incorporated into the regional ocean plan.

Study limitations are specific to each unique data collection approach and reflect the challenges of reaching a diverse set of stakeholders. Some of these challenges include:
- A short season in which recreational ocean users are available to participate in data collection efforts and the time and resources required to employ a wide range of outreach opportunities to reach known stakeholders and subsequently achieve interest and buy-in for the study.
- Patchy geographic coverage for industry-specific surveys and lack of spatially-specific data on marine events (fishing tournaments, sailing regattas, and board and paddle events).
- The opt-in nature of the Individual User survey - because respondents chose to participate in the survey, results apply only to the sampled population and may not accurately reflect true values considering all of the region's recreational users.

Specific data limitations and an overview of the team's efforts and recommendations to fill data gaps are described in detail in the report. Despite these known limitations, the study included a strong stakeholder outreach and participatory component and enlisted help from regional planners, ocean recreational business leaders, and recreational users to provide information that addresses an information gap for the region.

Highlights of this study include:

- General and dominant whale watch use areas in the region are well characterized as a result of well-attended participatory mapping workshops and follow up data vetting efforts

- This study was able to thoroughly characterize SCUBA diving areas in the region by combining data from an online survey, participatory mapping workshops, online and printed SCUBA diving guides, and by applying buffers to protect sensitive locations and to achieve consistent geometry.

- Although participation in the marine events online survey was low, additional background research on regional events, such as sailing races and regattas, fishing tournaments, and competitive board and paddle events, allowed for the presentation of marine events data both in tabular format and by mapping the landside locations of events.

- The few number of distance sailing race events, coupled with effective engagement of this sector resulted in a dataset and map, which characterize the general cruising route for all known distance races in the region.

- Standup paddleboard (SUP) events are more prevalent than surf contests or triathlons, constituting 62% of all competitive board and paddle events mapped in this study. Spatial indications of competitive board and paddle events on ocean waters are variable and dependent upon a number of factors, including course, challenge promised to competitors, wave conditions, winds, tides, currents, and other ocean uses that are taking place in the area.

- On average respondents to the Individual User coastal recreation survey spent $263.29 in total trip expenditures during their last trip with approximately 40% of those expenditures spent on food and beverages and approximately 20% spent on lodging.

- Forty percent of coastal resident respondents on the Individual User survey noted that the availability of nearby marine recreation opportunities was the primary deciding factor in their choice to live there

- The top five activities reported in the Individual User coastal recreation survey include beach going, scenic enjoyment, swimming/body surfing, biking/hiking, and wildlife viewing.

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## POINT 97

Point 97 is a high-tech spin-off of Ecotrust, delivering impact technology solutions and engagement strategies for coastal and marine planning in regions around the world. Working to improve marine and coastal management practices, Point 97 helps partners and clients strengthen coastal communities and ocean ecosystems, bridge different ocean user perspectives and implement management decisions in an inclusive and transparent way. Learn more at pointnineseven.com

## SEAPLAN

SeaPlan is an independent, nonprofit ocean science and policy group working toward vibrant economies sustained by healthy oceans through advancing science-based, stakeholder informed ocean management. Based in Boston, MA, the organization excels in fostering better decision making through the use of pragmatic strategy, best available science and effective stakeholder engagement. In 2006, SeaPlan (then called the Massachusetts Ocean Partnership) formed as an innovative group advancing the practice of coastal and marine spatial planning (CMSP) in Massachusetts that led to the creation of the Massachusetts Ocean Management Plan. As a neutral provider of ocean planning services and tools, SeaPlan is an effective collaborator with government, nongovernmental entities and the private sector to achieve ocean planning goals.

## SURFRIDER FOUNDATION

Since its inception in 1984, the Surfrider Foundation has evolved into one of the largest non-profit grassroots organizations dedicated to the protection and enjoyment of the world's ocean, waves and beaches through a powerful activist network. Today it has 85 chapters, plus 40 high school and college clubs, and more than 250,000 supporters, volunteers and activists around the country. Surfrider staff and volunteers drive the mission through research, education, activism and conservation. Armed with a model to defend the coast, they have achieved more than 300 coastal victories (and counting) since 2006. Learn more at surfrider.org

# 1.    Introduction

## 1.1.  Purpose of the study

Coastal and marine recreation provides significant social and economic benefits to coastal communities of the U.S. Northeast region. These benefits include enhanced human well-being derived from enjoying the coastal and marine environment as well as the financial benefits of direct expenditures (e.g., hotel stays, dining, and shopping). It is important to understand how and where people use the coast and ocean as a first step towards better management of the natural resources integral to coastal and marine recreation.

The Northeast Regional Planning Body [1](NERPB) recognized the need to develop products characterizing spatial patterns of coastal and marine recreational activity in the Northeast region and thus partnered with Point 97, SeaPlan, and Surfrider Foundation (referred to as the team), to engage regional stakeholders in the collection and development of spatial data sets to represent coastal and marine recreation use patterns in the Northeast region (i.e., from Long Island Sound and the south shore of Long Island north through the Gulf of Maine). Stakeholder knowledge and input grounded the project throughout, and contributed to the development of study goals, scope, design, and review of draft products.

## 1.2.  Guide to the report

This report is divided into several sections to reflect the separate but complementary studies that were conducted for each coastal and marine recreation sector. The study components include:
1. Overall Study Goals and Scope
2. Commercial Whale Watching
3. SCUBA Diving
4. Marine Events – Sailing races and regattas
5. Marine Events – Fishing tournaments
6. Marine Events – Competitive board and paddle events
7. Individual User Online Recreation Survey
8. Overarching Conclusion

These study components are presented separately as specific methodologies and approaches were tailored to each sector given the feedback received from stakeholders and industry experts, the NERPB staff and the study's Project Steering Committee (a subset of NERPB members and staff). In each study component we include introduction, methods, results, and discussion sections.

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[1] http://neoceanplanning.org

# 2.    Study Goals and Scope

The Northeast Coastal and Marine Recreational User Characterization study was intended to capture data on a wide variety of coastal and marine recreational uses throughout the Northeast. Stakeholder knowledge and input grounded the project throughout, and contributed to the development of study goals, scope, design, and review of resulting products. Due to the diverse nature of stakeholder groups who recreate in the study area, the team created a series of customized data collection approaches, leveraging distinct stakeholder feedback and user group characteristics. The survey was divided in to two main components described further in Section 2.4:

1. **Industry leader surveys** – These surveys were designed to target industry experts to collect data on commercial whale watching, SCUBA diving, sailing races and regattas, fishing tournaments, and competitive board and paddle events. Industry stakeholders were integral in identifying the appropriate methodology to target key industry experts in each user group.

2. **Individual User survey** – This online opt-in (respondents choose to participate) survey was designed to target individual coastal and ocean recreational users from the general population. While this approach leveraged stakeholder input, it was designed to be inclusive of a wide variety all coastal and ocean recreational users and not limited to recreation experts.

This chapter will cover a general overview of the study goals and objective, study area, scope, project team, and study limitations. As this project encompasses a variety of data collection approaches to capture a number of different stakeholder groups and industries, details of the project specific to each stakeholder group can be found in subsequent chapters.

## 2.1.  Study goals and objectives

The overall aim of the study was to characterize spatial patterns of coastal and marine recreational activities to support ocean planning efforts in the Northeast. The primary objectives of the study were to:

- **Engage with stakeholders to identify the most effective methods for data collection from distinct user groups.** Stakeholders from select recreational industry groups (e.g., commercial whale watching, sailing regattas, SCUBA diving, surfing, kayaking and standup paddleboard) had the option to participate in online surveys or collaborate with project leaders to design specialized methods for collection of data.
- **Facilitate participation from recreational users for the development coastal and marine recreational activity datasets in the Northeast.**
- **Provide results to incorporate into the Northeast Ocean Data Portal.** The Portal is the on-line "ocean atlas" providing data on various human uses and natural resources in Northeast US

coastal and marine waters and is an important decision-making tool resulting from the Northeast US ocean planning effort.

- **Publically disseminate information to be used by coastal planners and a wide range of stakeholders for ocean planning purposes.** The information collected through the survey helps to describe the spatial extent of marine recreational activities. As described below, some surveys and workshops also collected supplementary information such as demographics, economic data, and opinions of multi-use interactions and industry trends.

## 2.2. Geographic scope of study

This effort surveyed recreational user groups in the Northeast region, including the states of CT, MA, ME, NH, NY, RI and VT. Users from Vermont were included in the outreach effort because of the likelihood that Vermont residents would travel to neighboring states to participate in the target recreational activities.

The **Individual User survey** (and the board and paddle portion of the marine events survey) focused on state waters from Long Island Sound to northern ME (Figure 2.1), while the **industry surveys** (marine events, SCUBA and whale watching) had a scope which included state and federal waters south of NY, and offshore waters out to the EEZ (Exclusive Economic Zone) (Figure 2.1). The industry surveys (with the exception of board and paddle events) had a slightly larger geographical scope to account for activities that were likely to take place further offshore, such as fishing tournaments whose participants might travel as far as the continental shelf, and activities that cover larger areas, such as long distance sailing races.
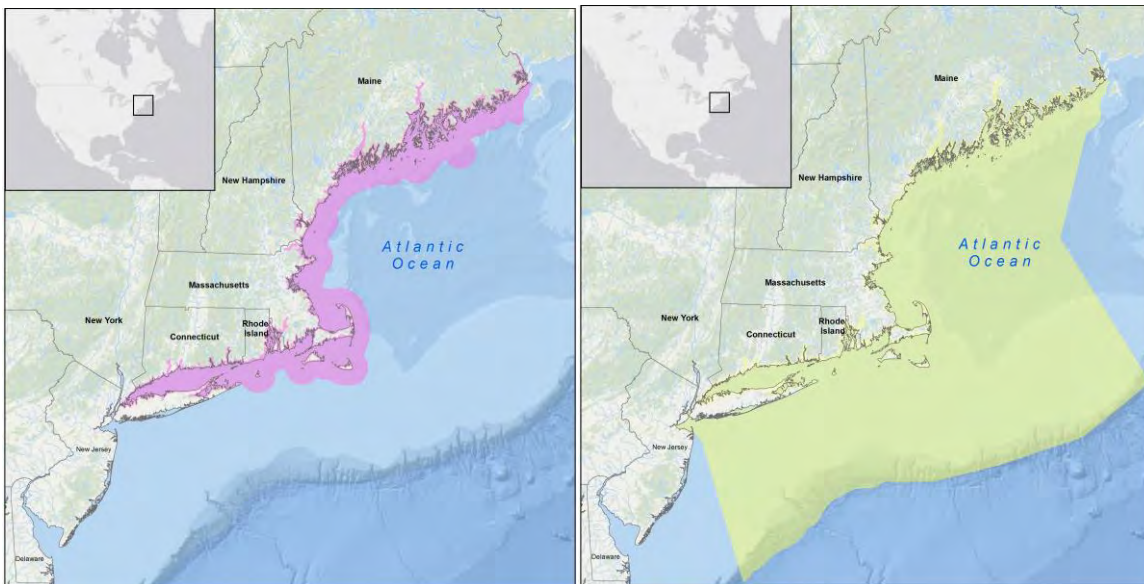


**Figure 2.1. Geographic extent of Individual User surveys (map on left) and industry leader surveys (map on right)**

## 2.3. Organizational structure

Throughout the development of the project, the project team worked in close collaboration with the Northeast Regional Planning Body (NE RPB) and the Northeast Ocean Data Portal team. The project was directed by a Project Steering Committee (PSC), which consisted of the following individuals:

- *Jamie Carter, National Oceanic and Atmospheric Administration (NOAA)*
- Michele DesAutels, *United States Coast Guard*
- Grover Fugate, *Rhode Island Costal Resources Management Council*
- Jeff Herter, *New York State Department of State (NYS DOS)*
- *Dan Hubbard, United States Coast Guard*
- Dave Kozak, *Connecticut Department of Environmental Protection Office of LIS Programs*
- Katie Lund, *Northeast Ocean Planning Staff*
- Jennifer McCann, *University of Rhode Island Coastal Resources Center and Rhode Island Sea Grant*
- Nick Napoli, *Northeast Ocean Planning Staff*
- Betsy Nicholson, *NOAA*
- Matt Nixon, *Maine Coastal Program*
- Liz Podowski, *NYS DOS*
- Prassede Vella, *Massachusetts Office of Coastal Zone Management*
- John Weber, *Northeast Ocean Planning Staff*
- Chris Williams, *New Hampshire Coastal Program*

The PSC was instrumental in identifying and facilitating engagement with key stakeholder advisors from a variety of recreational industries targeted during the study, and provided review and input into the survey methodology and draft data products. Staff from URI's Coastal Resources Center and RI Sea Grant closely partnered in the collection, review, verification of information, and engagement of RI stakeholders as part of the coordination with their state's ocean planning update.
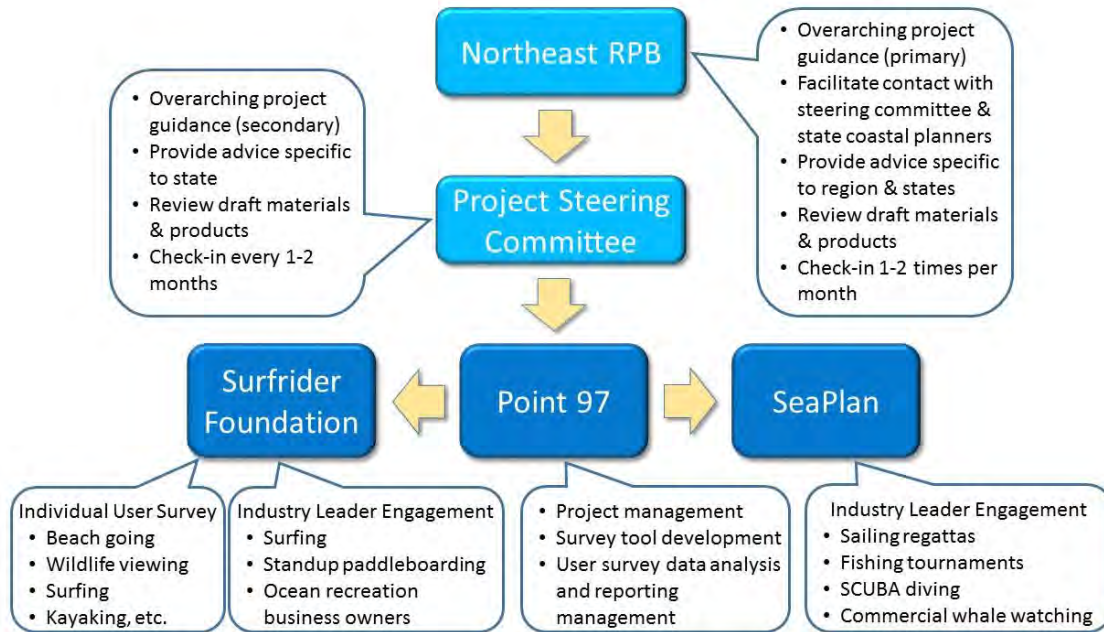
**Figure 2.2. Organizational structure of the project team**

The project team consisted of three organizations: Point 97, the Surfrider Foundation (Surfrider), and SeaPlan (collectively referred to as the team; Figure 2.2). Point 97 served as the central point of contact and provided project management duties and coordination among team members. Point 97 also took the role of technical lead in developing the web-based survey tools. Surfrider and SeaPlan led stakeholder outreach by organizing conference calls, webinars, and in-person meetings, and by cultivating a social media presence, assembling stakeholder working groups, and promoting engagement opportunities in data collection phases. In the initial phase of the project, Surfrider and SeaPlan collaborated with the PSC to design the Individual User and industry leader surveys with input from stakeholders and partners. Point 97 then developed the survey tools and managed the reporting and data analysis of the Individual User Survey. SeaPlan managed data analysis and reporting for the industry leader surveys, including collaborating with the University of Rhode Island Coastal Resources Center (URI CRC) and Rhode Island Sea Grant (RI SG) to obtain complementary ocean use data for Narragansett Bay, RI and MA and the Rhode Island Ocean Special Area Management planning area, as described in Section 2.4. Surfrider led outreach, stakeholder engagement and analysis of the competitive board & paddle industry leader survey path.

As described in the following sections and chapters, conversations with the expert stakeholder advisors guided the development of project methodology, outreach, and data product development over the course of the study.

## 2.4. Summary of approach

Historically, comprehensive and systematically gathered data on recreational uses of the ocean has been sparse to non-existent. Previous studies have attempted to address these data gaps by focusing on

specific regions (e.g. Mid-Atlantic[2], Oregon[3] and California[4]) and specific components of marine recreation such as the Northeast Recreational Boating Survey[5]. State-based ocean plans, such as the Massachusetts Ocean Management Plan[6] and the Rhode Island Ocean Special Area Management Plan (RI OSAMP)[7] have also incorporated data on some recreational sectors, while establishing the need for additional effort in others. This project was pursued by the NE RPB to help fill these data gaps at a regional-level and employ approaches to meaningfully engage recreational stakeholders in ocean planning efforts. The resultant approach emphasized stakeholder outreach and participation by industry leaders to help develop effective survey methodologies, disseminate information about engagement opportunities and enhance survey participation.

Additionally, the team closely coordinated with the state of RI as they conducted parallel data collection activities as part of the state's effort to update the RI OSAMP. Through meetings and phone calls with URI CRC/URI SG staff, as well as collaboration during data collection meetings and workshops, methods for incorporating original and updated RI OSAMP data into study data products were agreed upon on a sector by sector basis. Additional details of how RI OSAMP data are integrated into study data products are included in subsequent chapters. Data gathered for RI in this study is considered preliminary and will be reviewed by the RI OSAMP Recreation and Tourism Technical Advisory Committee and proceed through the formal public process required by law before approved by the CRMC and formally adopted into the OSAMP document.

To capture the spatial use patterns of distinct coastal and marine recreational user groups and their differing activities, the team utilized two complementary methodologies:

1. **Industry leader surveys**
   Multiple industry leader data collection methodologies were designed to target industry leaders, including marine event organizers, recreational SCUBA diving experts, and commercial whale watch operators. The team engaged industry leaders to scope the best

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[2] *U.S. Mid-Atlantic Coastal and Ocean Recreation Study*, Surfrider Foundation, Point 97, The Nature Conservancy, Monmouth University's Urban Coast Institute (2014).

[3] *Oregon Non-Consumptive Recreational Use Study*, Surfrider Foundation, Natural Equity, and Point 97 (2012).

[4] An Economic and Spatial Baseline of Recreational Uses in the California South Coast, Point 97 (2015).

[5] Starbuck, K., A. Lipsky, SeaPlan, *2012 Northeast Recreational Boater Survey: A Socioeconomic and Spatial Characterization of Recreational Boating in Coastal and Ocean Waters of the Northeast United States*, Technical Report (2013).

[6] Massachusetts Executive Office of Energy and Environmental Affairs, *Massachusetts Ocean Management Plan* (2015).

[7] Rhode Island Coastal Resources Management Council, *Rhode Island Ocean Special Area Management Plan* (2010).

method for gathering spatial user patterns from their respective groups. The results of this consultation were **two online mapping surveys** – one dedicated exclusively to SCUBA diving and one to marine events – and a series of **in-person workshops** for mapping commercial whale watching activity with Participatory Geographic Information Systems (PGIS) tools. In addition, as part of our outreach approach to review draft materials resulting from the surveys and workshops with industry leaders, data gaps were identified and some of them filled by supplemental data collection techniques. These are described in individual recreational component chapters.

**2. Individual user survey**

The Individual User survey was designed to engage individuals to map ocean recreation activities from their own experiences over the prior 12 months. Twenty non-consumptive activities were characterized, including beach going, wildlife viewing, surfing, and paddle sports. An additional **online mapping survey** collected information, including some economic data, on a variety of these individual activities.

### 2.4.1. Project tasks and timeline

The project consisted of the following tasks. The timeline in Figure 2.3 depicts the duration of each task, and identifies the dates of scoping and feedback discussions with the PSC:

1. **Identify stakeholder experts as advisors –** With assistance from the PSC**,** the team identified and enlisted key industry stakeholders as informal advisors for each component of the project to provide guidance on effective survey design, methodology and tools, recruiting survey participants, and vetting data products. Engagement with stakeholder advisors led directly to the design of customized approaches for stakeholder engagement and survey design (Task 2). For example, discussions with representatives from the commercial whale watch industry indicated a preference for employing an in-person data collection methodology. This resulted in the design of the in-person, participatory mapping workshops to map the footprint of regional whale watching activity. More details of how conversations with industry leaders shaped the outreach and data collection processes can be found in subsequent chapters.
2. **Methodology development and survey tool design –** Leveraging advice and expertise from the stakeholder experts identified in Task 1, the team scoped and designed survey methodology, and developed survey tools to collect data from individual ocean users, as well as targeted industry groups (marine events, SCUBA, and commercial whale watching).
3. **Outreach and data collection –** The team conducted an adaptive approach to engaging industry leaders in the development of survey methodologies and execution of project phases. The team solicited input early on from industry experts on survey design tactics. These experts also suggested additional experts and/or stakeholder groups, and others to obtain additional input on survey design, survey testing, and survey execution. This outreach provided valuable survey feedback and allowed the Team to most efficiently develop and vet survey design options. Once survey tools were developed, industry experts helped to shape outreach tools and direct

outreach to target survey participation via online surveys (individual ocean users, SCUBA divers, marine event organizers or participants) and in-person participatory GIS workshops, (e.g., commercial whale watching). See topic specific sections below for outreach and engagement details specific to SCUBA diving, sailing races and regattas, recreational fishing tournaments, and whale watching.

4. **Data analysis –** Using the data collected in Task 3, the team conducted data cleaning and Quality Assurance/Quality Control procedures (e.g. correcting drawing errors, editing entered attribute data for consistent spelling and capitalization), produced draft data products and options for visualizing data products (i.e. mapped raw data points versus heat/intensity map products), and identified data gaps. Where appropriate, additional research was conducted to fill data gaps and/or supplement survey data products (e.g. use published locations of SCUBA sites to add to data from online survey).

5. **Stakeholder review and feedback** –Through a series of in-person workshops, webinars, one-on-one phone calls, and email campaigns, the team invited key stakeholders to review the data collected during the survey and to provide additional data via participatory GIS methods or by identifying and recommending additional and alternative sources of data. A summary of stakeholder review meetings and webinars can be found in Appendix A.

6. **Final report and data product development –** The team integrated feedback from Task 5 to develop a final report and data products, which will be available for viewing and download on the Northeast Ocean Data Portal in Fall 2015.

**Figure 2.3. Project Tasks and Timeline**



## 2.5. Scope of the analysis

Data on the following recreational activities and events were captured within the industry surveys:

- Whale watching
- Scuba diving
- Sailing races and regattas
- Saltwater sport fishing tournaments
- Competitive board and paddle events

The following recreational activities were captured within the Individual User survey:

- Shore-based activities (beach going, biking or hiking, camping, collection of non-living resources/beachcombing, hang gliding/parasailing)
- Surface water activities (boating/sailing, kayaking or other paddling activity, kiteboarding, skimboarding, surfing, swimming or body surfing, windsurfing)
- Wildlife & sightseeing (photography, scenic enjoyment, sitting in your car watching the scene, watching birds, whales, seals, etc., from shore or boat)
- Diving (free diving/snorkeling, SCUBA diving from shore or boat). Diving was included as a separate activity grouping so that the data collected in the Individual User survey could be viewed alongside data collected in the industry leader survey.

The team did not collect data on fishing or recreational boating from Individual Users, as those activities have already been addressed through previously executed or planned studies in the Northeast (see 2012 Northeast Recreational Boater Survey[8] for example). Because the data collected during this survey is not a statistically representative sample, it was not possible to conduct economic impact analyses; however, data on expenditures related to recreational activities were captured within the Individual User survey, as well as within the competitive board and paddle component of the Marine Events survey. The Individual User survey also collected demographic information, including age, gender, residence, and annual household income.

The analysis considered the following factors relevant for characterizing these recreational uses:

- Geographic extent of specified recreational activities
- Temporal occurrence of activities (both recurrence and seasonality)
- Intensity of activities
- Additional data relevant to target activities (e.g., historical trends for whale watching and site access characteristics for SCUBA)

The maps included in this report are intended to depict a general footprint of the activities targeted during this study; however, there are a number of data attributes that, while not depicted in map format, are included as part of the spatial datasets available for download from the Northeast Ocean Data Portal. Examples of these attributes include temporal information, (e.g. season in which a whale watch area is typically visited), use intensity (e.g. number of participants in a sailing race), or activity-specific characteristics (e.g. type of underwater feature at a SCUBA diving site).

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[8] Starbuck, K., A. Lipsky, SeaPlan, *2012 Northeast Recreational Boater Survey: A Socioeconomic and Spatial Characterization of Recreational Boating in Coastal and Ocean Waters of the Northeast United States*, Technical Report (2013)

Study limitations are specific to each unique data collection approach. Limitations for industry-specific surveys include patchy geographic coverage and lack of spatially specific data on some known marine events, such as sailing regattas, fishing tournaments and competitive board and paddle events. An important limitation of the Individual User survey is that the opt-in nature of the surveys means that survey participants are self-selecting. Therefore, the sample is not random and survey responses may not be demographically representative of the study population.

Broadly, survey data reflect the challenges of reaching and engaging a diverse set of stakeholders. Achieving buy-in from stakeholder groups on the necessity for robust recreational data in the ocean planning process requires substantial time and effort. In general, in-person engagement efforts were most effective at garnering survey participation and yielding high-quality data; however, the large number and diverse nature of target study participants, coupled with the seasonal nature of many of the target activity, necessitated an online approach for most survey components. Specific data limitations and an overview of the team's efforts and recommendations to fill data gaps are described in detail in subsequent chapters.

# 3. COMMERCIAL WHALE WATCHING

## 3.1. Introduction

*Background and context*

Whale watching in the Northeast began in the 1970s and has grown to rank among the region's most important recreational industries, generating total direct and indirect expenditures of $126 million[9]. Commercial whale watch companies operate from a number of ports from NY to ME, with Stellwagen Bank National Marine Sanctuary (SBNMS), 25 miles to the east of Boston, the most popular whale watching destination and accounting for around 80% of whale watching in the region.[10, 11]Whale watching occurs primarily during July and August when the demand is highest, weather conditions are favorable, and the target viewing species are most active within the area; however the seasonality of operations may span from the spring through the fall. Companies operate vessels that range from small, semi-private charters that may conduct single daily trips for 6 passengers, to large charters out of hubs like Boston and Bar Harbor that may accommodate up to 400 passengers on 3 to 5 trips and serve thousands of patrons daily. The whale species observed most frequently from whale watch vessels in the Northeast are humpback (*Megaptera noveangliae*), fin (*Balaenoptera physalus*), and minke whales (*Balaenoptera acutorostrata*).

The economic value of commercial whale watching, combined with a lack of data on whale watch activity in the region made this sector a priority for inclusion in this project. The commercial success of whale watching businesses depends heavily on highly variable environmental and economic conditions. Variations in weather, the presence and activities of marine mammals, fuel costs and other economic indicators can impact whale watch businesses on a year-to-year basis. These variations coupled with a relatively short operating season mean that whale watch companies in the Northeast employ a relatively unique business model, compared to other recreational industries in the Northeast. This component of the study targeted individuals with specific expertise in marine navigation and/or data

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[9] O'Connor, S., Campbell, R., Cortez, H., & Knowles, T., *Whale Watching Worldwide: tourism numbers, expenditures and expanding economic benefits*, a special report from the International Fund for Animal Welfare, Yarmouth MA, USA, prepared by Economists at Large (2009)
http://www.ifaw.org/sites/default/files/whale_watching_worldwide.pdf.

[10] Rhode Island Coastal Resources Management Council, *Rhode Island Ocean Special Area Management Plan (Ocean SAMP)*, Vol I (2010).

[11] Hoagland, Porter, and A. E. Meeks*, The Demand for Whalewatching at Stellwagen Bank National Marine Sanctuary,* Marine Policy Center, Woods Hole Oceanographic Institution and NOAA (2000)
http://hawaiihumpbackwhale.noaa.gov/documents/pdfs_science/whalewatch_benefits.pdf.

analysis in order to meet the objectives this this study.    As such the team sought out individuals who were either directly employed by a whale watching business or who represented an NGO or academic institution that worked in close collaboration with the industry

For the purpose of this study, a commercial whale watch operator is defined by a business whose primary activity includes regularly scheduled trips dedicated to finding and observing whales in their natural habitat. Commercial whale watching vessels are typically over 65 feet in length and hold at least 100 passengers.  Some operators have higher capacities and may have over 300 passengers on a trip. While the team recognizes that there are smaller charter operators which offer whale watching excursions as a complement in their suite of services, as well as other boat-based wildlife tourism platforms which target seals or other offshore megafauna, this study's scope was narrowed to focus on commercial operators who focus specifically on whales.  These large commercial whale watch operators are expected to have a spatial footprint and industry characteristics that are unique to that sector.

## 3.2.  Methodology

### 3.2.1.  Scoping process

*Description of existing data*
Many whale watch vessels in the region collect locational data during whale watch excursions; however, the collected data are variable in terms of the type of data collected, data format, granularity, and the timespan over which the data were collected. Some vessels collect effort data either by storing track data in a GPS on board the vessel, or by recording locations at periodic intervals throughout the trip. Most whale watch operations in the region collect data on whale sightings, including the species, number and behavior of the animal, sometimes accompanied by photographs that can be used to identify individual animals. Sightings data are generally collected on paper data sheets. Data sheets are either stored and or scanned into electronic copies or the data are entered into Excel or Access data files that can then be converted to spatial data. This study aimed to collect spatial data in a consistent format throughout the study area in order to best represent the geographic footprint of whale watching activities at a regional scale.

RI whale watch operators identified areas of most frequent whale sightings, as well as other offshore wildlife viewing areas for the RI OSAMP[12]. Meetings with key informants confirmed that existing data for wildlife viewing was accurate, however additional areas were identified (Figure 3.1)

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[12] Meetings with key informants confirmed that existing data for wildlife viewing was accurate, however additional areas were identified.
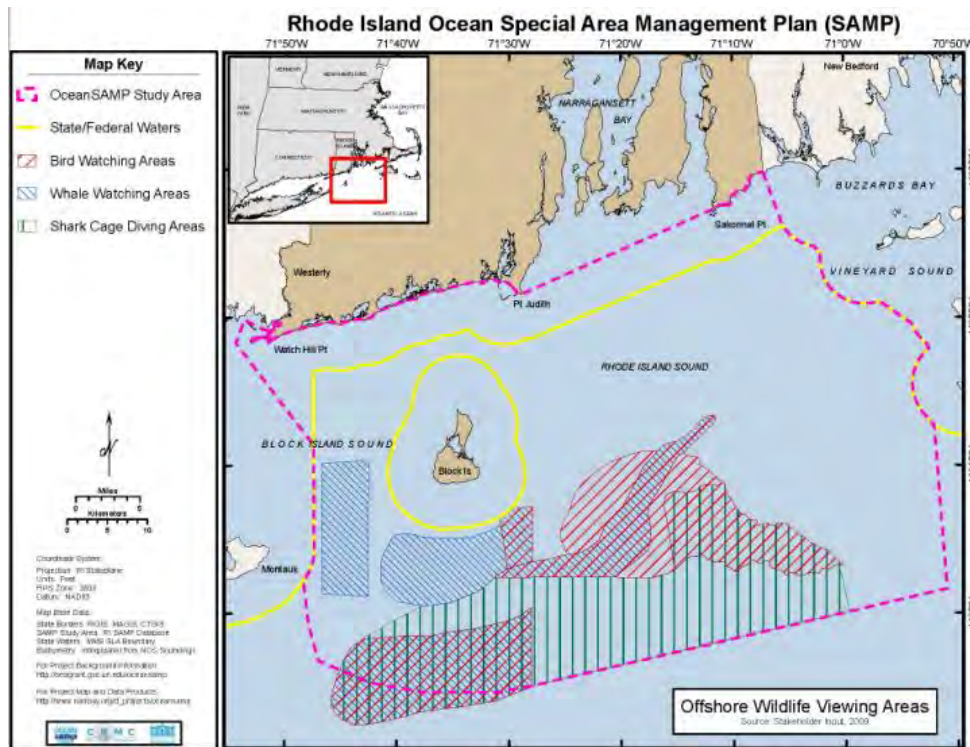
**Figure 3.1. The wildlife viewing areas within the Rhode Island Ocean Special Area Management Plan (OSAMP)**

*Scoping process*

In order to determine the most effective method for whale watch spatial data collection, the team conducted a webinar in December of 2014 with industry representatives to discuss potential options. See Appendix A for further details on webinar timing and participation. Agendas and presentation materials for survey scoping calls can be found in Appendices E and F. During these, and subsequent conversations, the project team asked industry representatives to provide feedback on the following topics:

1. **Preferred data collection methodology** – The webinar introduced several options for data collection methodology, including online opt-in surveys, webinars using interactive mapping technology, or in-person meetings using participatory geographic information systems (PGIS) approaches. The team also asked industry leaders if they had other suggested methodology options, or whether they favored a hybrid approach to combine aspects of several methodologies.

2. **Data attributes** – Participants were asked to suggest additional information that should be collected to characterize mapped areas.

3. **Outreach strategy** – Participants were asked to identify individuals and groups, as well as outreach venues (i.e. listservs) that could both participate in and distribute information.

Industry experts expressed interest in using participatory mapping techniques, but voiced concerns about the time and location of in-person workshops, cautioning against scheduling them during the whale watch season. Some participants also supported the use of an online option, or a hybrid approach combining online and in-person methodologies that would leverage existing data.

Based on feedback from industry representatives, the project team proposed the following methodology:

- In the spring, hold in-person workshops throughout the study region to gather data from commercial whale watching industry members (including owners, operators, naturalists, and data managers) using eBeam participatory mapping technology (see Section 3.2.3 for a description of this data collection tool).
- Prior to the workshops, leverage existing data (effort and sightings data) collected from whale watch trips to guide participants in drawing generalized areas.
- Following the in-person workshops, hold follow-up online meetings using SeaSketch[13], so participants can view aggregated, analyzed data and suggest corrections or refinements.

Many whale watch operations have collected tracking and sightings data for many years, and industry representatives suggested that the team leverage these existing datasets. There was consensus among the team that while these existing datasets are useful for ground-truthing and providing context for data collected during workshops, amassing and analyzing data collected through variable methodologies and stored in different formats over variable timeframes could be very time consuming. The project team agreed to incorporate available datasets into the PGIS workshops as reference data where appropriate.

This approach was presented via webinar to the PSC in March 2015, at which point PSC members had a chance to ask questions and provide feedback. Following the webinar, the PSC approved of the approach and provided additional feedback while developing workshop methodologies and materials.

### 3.2.2. Description of outreach

Using existing professional networks and by attending and presenting at the Gulf of Maine Naturalists workshop held in Provincetown, MA, in April 2015 the team identified whale watch operators, naturalists, and data managers throughout the study region. NGOs and academic groups which provide on-board scientists, data collectors, and data management for a variety of whale watching organizations

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[13] SeaSketch is a web-based platform that allows registered users to view ocean data and to interact with the data using drawing tools and commenting features. SeaSketch was developed to support and facilitate ocean planning efforts through a platform that does not require user familiarity with GIS tools.

helped to identify key individuals from many companies, especially in MA, NH and ME. Staff contacted representatives from each of these organizations via email and phone calls, informing them of the Northeast recreational uses study and inviting their participation at one of the four workshops.

### 3.2.3. Description of data collection workshops

*Workshop process*
In spring 2015, SeaPlan and NROC held in-person participatory mapping workshops at four different locations: Bar Harbor, ME; Portsmouth, NH; Plymouth, MA; and New York, NY (See Appendix A for meeting details). A total of 32 individuals, representing 20 businesses or organizations attended these workshops. These locations were spread throughout the Northeast coastline and coincided with known hubs for whale watching. Workshops were held in April and May to avoid the peak summer whale watching season. Workshop facilitators followed a procedure adapted from the PGIS workshop methodology developed by NOAA[14]. The first meeting was attended and facilitated by NOAA staff, and provided a training workshop for the project team in order for SeaPlan and NROC staff to facilitate future workshops following an effective standardized methodological approach. This approach involves having participants digitally map use areas in three steps, starting with broad use areas, followed by specific, highly-used areas, and finishing with supplemental locations (e.g. transit areas or closely-related activities). While participants map, the process facilitator asks specific questions about industry characteristics (e.g. size of boats, length of season), about the mapped areas (e.g. whether the mapped area coincides with a specific depth range or bathymetric feature), and also listens for opportunities to ask follow-up questions and capture input from participant discussions. Our team utilized the NOAA PGIS methods guidance as we executed meeting planning, venue selection, facilitation strategies, and data back-up and cleaning procedures. Additionally, NOAA staff conducted an on-site visit to the operator in Kennebunkport, ME, in order to collect data from operators who were not able to participate in the workshops.

As part of the process of updating the RI OSAMP, RI CRC/RI SG held in-person meetings with stakeholder experts who identified additional areas where whale watching takes place in or near RI waters. RI will continue to ground truth this information by having the OSAMP Recreation and Tourism Advisory Committee review this information in the Fall 2015 for formal approval into the OSAMP document.

*eBeam tool*
The eBeam is a tool that allows users to interact with and manipulate computer programs projected onto a flat, smooth surface. For the purposes of this project, the eBeam provided a user-friendly and collaborative method for participants to define areas of whale watch use in a dynamic GIS-based editing

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[14] NOAA Office for Coastal Management, *Guidebook to Participatory Mapping of Ocean Uses* (2014).

environment. Using NOAA developed facilitation techniques described above, facilitators asked participants to draw areas of use onto a pre-defined GIS basemap, which contained relevant references such as maritime place names and landmarks, coastal reference points, relevant administrative boundaries (e.g., sanctuaries and whale critical habitats), and raw reference data provided by whale watch companies. The eBeam tool consists of a wireless electronic stylus, a receiver, and computer software, and utilizes a projector to project a computer screen onto a flat surface (such as a whiteboard or wall) onto which a stylus is used by participants to draw areas of activity. With this implementation of the eBeam tool, participants digitized polygons on the projected GIS-based map, which allowed the features to be automatically saved and then attributed with information the participants shared during the concurrent discussion.

*Data collection*
Following the workshop's general background discussion identifying overall purpose and context for this project, facilitators guided participants in the mapping of areas routinely used by commercial whale watch activities. Participants mapped the general, dominant, and supplemental use areas as defined below, and described specific characteristics of each of these areas, including seasonality and species targeted.  Participants were asked to focus on providing information on trends within the past 3 – 5 years i.e., 2010 – 2014).

Use areas were defined as:
- **General use area:** includes the full footprint of activity in the last three to five years, regardless of frequency or intensity; does not include areas where the use may occur once or twice or where it might conceivably occur now or in the future
- **Dominant use area:** includes all areas routinely used by most users most of the time, within seasonal patterns for that use; must be within the general use area
- **Transit routes:** includes areas used for transit to and from general or dominant use areas,
- **Supplemental use areas:**  includes areas used for closely-related activities (e.g., lighthouse tours), and infrequent specialty trips (e.g. multi-day offshore excursions) or historical uses.

Workshop facilitators also encouraged participants to share information regarding whale watch industry trends. While discussion focused on the past three to five years, many participants had decades of experience in the industry. Upon completion of the mapping workshop, SeaPlan staff compiled the data derived from all participants and synthesized it into a spatial data product depicting whale watch areas in the Northeast. The data were posted on SeaSketch where whale watch industry stakeholders had the opportunity to review the data either on their own time or during two webinars, held in early summer 2015.

As described previously, Rhode Island whale watching areas were mapped through a separate process, which did not employ the same categorization methods.  These areas are symbolized separately on the resulting map products.

### 3.2.4. Data processing and cleaning

Data collected during the workshops were edited to remove topological errors such as self-intersecting loops, and other drawing artifacts. Workshop participants were instructed on drawing techniques to ensure that accurate and consistent spatial data products could be developed. Drawing errors can occur when the participant finishes the drawing by tapping at the center of a drawn polygon, or a location outside the polygon, rather at the end of the line. These types of errors were identified in the data processing phase and corrected. If, during the workshop, participants indicated that an area followed specific bathymetric features, or took place a certain distance from shore, polygons were also edited to fit those descriptions. In some cases, workshop participants indicated that two mapped areas should be merged together. These changes were made during the data processing phase. Data processing also ensured that any general use areas associated with a specific port workshop encompassed all of the dominant use areas for that port, based on the definition of those two feature types. Finally, polygons were adjusted to exclude onshore areas using the NOAA medium resolution shoreline dataset. In some cases, drawn general use areas were expanded to encompass the boundaries of drawn dominant use areas, based on the definition of those two feature types. Notes on specific features that were recorded during the workshop (e.g. species, and primary year(s) and season(s) of use) were added to the spatial data attributes.

Whale watch areas identified in the RI OSAMP, and RI OSAMP update workshops were integrated into the whale watch data collected in this study. RI areas are characterized in the study dataset as dominant use areas.

## 3.3. Results

### 3.3.1. Overview of respondents

Workshop participants represented 20 different organizations from four states in the Northeast: ME, NH, MA, and NY (Table 3.1). Overall, 32 individuals participated, some representing more than one organization. Participating organizations included whale watch operators - owners and captains, naturalists, academic institutions, data managers, and non-governmental science and conservation groups. The team also met with Kennebunkport, ME operators during an in-person site visit in July. A site visit was also attempted to collect data from the Boothbay Harbor operator; however, this organization did not wish to participate. Although workshop participants were not representative of every known operator, all known homeports (except for Boothbay Harbor, ME) were represented in the workshops

While the workshops did not attract a representative from every whale watch operator in the region, the substantial geographic overlap among whale watch operators (e.g., multiple operators hail from same home ports), combined with industry knowledge of where other operators are likely to travel provides a comprehensive overview of important whale watching in the region.

| State* | Number of whale watch operators | Number of participating whale watch operators |
|---|---|---|
| *Maine* | 6 | 4 |
| *New Hampshire* | 3 | 1 |
| *Massachusetts* | 13 | 6 |
| *New York* | 2 | 2 |

**Table 3.1. Number of whale watch operators in the Northeast by state (as determined by project-related online research and stakeholder outreach) and number that participated in the study.**
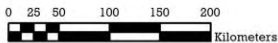
*States of CT and RI were excluded because CT does not have any dedicated whale watch organizations, and RI data was collected through parallel efforts as part of the RI OSAMP.

### 3.3.2. Spatial data

The state-based maps of mapped whale watching areas can be found in Appendix BI.

**Map 1. Whale Watching Spatial Data**



Dominant Use Area

General Use Area

Transit Route

Supplemental Use Area

RI OSAMP Whale Watch Area

General use areas reflect the full footprint of the activity in the last 3 - 5 years while dominant use areas identify places routinely used within the general footprint. Supplemental use areas refer to closely-related activities and infrequent specialty trips. RI Areas reflect separate OSAMP data collection methods. These definitions are described further in the main report.

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015 Northeast Regional Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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### 3.3.3. Overview of whale watching area characteristics

Workshop participants mapped a total of 20 general use areas, 72 dominant use areas, and 33 transit or supplemental areas. A detailed overview of these areas, broken down by use type and region, can be found in the following paragraphs. Data from the RI OSAMP depict 5 whale watch areas, and participants in the RI OSAMP update workshops mapped 2 additional whale watch areas; however, these areas showed significant overlap with the areas mapped in the original version of the RI OSAMP. Because RI whale watch data was collected through a separate process, RI whale watching areas do not adhere to the categorization scheme used in the PGIS workshops, and are symbolized differently on the maps.

*General Use Areas*

The whale watch season in the Northeast roughly coincides with the movements of large numbers of whales in and out of local waters, with operations generally beginning in April or May and ending in September or October. Seasonal changes, such as sea temperatures and prey availability, generally affect where operators must to travel to find whales. Therefore, areas of use vary throughout the whale watch season as whales may be found in different locations. General use areas encompass all of the variable areas that whale watch operators are likely to visit. Most operators target humpback whales, which migrate progressively further north throughout the whale watch season. They are more common in some areas than others and feed on different prey in different regions. Industry activity peaks in the summer when whale watching attracts the most patrons. Data collected on general use areas is reported below, with each separate section pertaining to each of the four workshops.

Maine

Participants at the ME workshop did not map general use areas, but rather, focused on dominant use areas. The project team created general use areas by drawing a polygon, which contained all of the dominant use areas and the areas between. Workshop participants had the opportunity to verify the accuracy of the polygon during follow-up webinars. Based on this extrapolation, the general use area contains two small areas relatively close to shore off of Portland and Eastport, and one much larger area offshore of Bar Harbor that encompasses the waters between Grand Manan Bank in the east, Newfound Ground and East Banks in the west, the Outer Schoodic Ridges and Bank Comfort in the south. A follow-up conversation with the whale watch operator in Kennebunkport indicate that Jeffreys Ledge is the target area for most whale watch excursions leaving from that port. This use area overlaps with those associated with NH and North Shore, MA ports.

New Hampshire and Massachusetts

Whale watching off the coast of NH and the North Shore of MA extends from Isle of Shoals off of the NH coast in the north to Cape Cod Bay in the south, and encompasses Jeffreys Ledge and the entire Stellwagen Bank National Marine Sanctuary (SBNMS). Operators go no further than the deep sea ledges to the east of the SBNMS. In this region operators generally view humpback, fin, and minke whales, with the occasional pilot whale (*Globicephala* spp*)*, sei whale (*Balaenoptera borealis*), Atlantic white-sided dolphins (*Lagenorhynchus acutus*), and North Atlantic right whale (*Eubalaena glacialis*). Whale watching vessels are legally prohibited from approaching right whales within 500 yards, and therefore do not

specifically target right whales for viewing although whale watch vessels in the Northeast are likely to observe right whales in the area throughout the whale watching season. In the event that they find themselves within this limit, whale watch vessels are obligated to depart the area at a safe, slow speed.[15]  Operators typically see most of these species around 15 to 25 miles offshore.
Whale watching in Southeastern Massachusetts from Boston to Cape Cod, as well as Nantucket, encompasses the area bounded by Isle of Shoals in the north to Cape Cod, Chatham, and Nantucket in the south. It is also bounded by Boston Harbor in the west and the outer shoreline of Cape Cod and outer boundary of the SBNMS in the east. The footprint includes the entire SBNMS.

New York
Whale watching operations out of New York Harbor and Montauk respectively occupy two different and relatively small general use areas. Overall, the use footprint encompasses one area just to the south and east of New York Harbor along the New Jersey and Long Island coastlines and a second area extending off Montauk to Block Island, RI.

*Dominant Use Areas*
Across the Northeast, operators largely determine their dominant use areas based on seasonality of the target species and operational limitations (speed and size of vessel, fuel costs, time availability, etc.). Particularly off the coast of MA, seasonal speed limits are enforced to protect North Atlantic right whales; restrictions require vessels 65 feet or longer to travel at 10 knots or less are in place in Cape Cod Bay January 1 through May 15, and off Race Point March 1 through April 30.[16] As noted above, whale watch vessels do not specifically target right whales for viewing.

Dominant use areas are detailed below, and are summarized by homeport, site, seasonality, and species in Appendix C. The Feature ID (FID) column can be used to reference the area in the spatial data.

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[15] NOAA Fisheries. "North Atlantic Right Whales."  Page accessed on July 29, 2015.
http://www.greateratlantic.fisheries.noaa.gov/Protected/mmp/viewing/regs/
[16] NOAA Fisheries. "Reducing Ship Strikes to North Atlantic Right Whales." Last modified May 18, 2015.
http://www.nmfs.noaa.gov/pr/shipstrike/#speedlimit.

Maine
Whale watching activity in ME is concentrated off the coast of Portland, Bar Harbor/Mount Desert Island, and Eastport, with additional operators located in Kennebunkport and Boothbay Harbor. Most trips off of Portland follow a nearby underwater ridgeline to the south, with the occasional trip to West Cod Ledge to the east if whales are more difficult to find. The use area off of Bar Harbor is much broader. In late spring, operators usually travel about 60 miles offshore to the productive waters of the Outer Falls and Jeffreys Bank. In the summer, they spot humpback whales around Petit Manan and Mount Desert Rock. In the fall, the footprint includes Jonesport and Grand Manan Bank in the east, Newfound Ground and East Banks in the west, or to the Outer Schoodic Ridges and Bank Comfort in the south. Operators out of Eastport tend to stay relatively closer to shore in Passamaquoddy Bay where they see humpback, fin, and minke whales, but occasionally travel out to Grand Manan Island, where they see humpback and right whales. The operator out of Kennebunk noted several areas which tend to be hot spots for whale watching, including areas known colloquially as The Flagpole, Peaks, the Fingers (5 miles south of the northern end of Jeffreys Ledge), Scantum Basin, and Jeffreys Basin. In the late spring, Northern Jeffreys Ledge is best, while in August and the early fall, there are greater numbers and variety of whales, including fin sperm, humpback, right, sei and minke whales. Outside of these four major regions, there was incomplete representation of the ME whale watch industry leading  in the Boothbay Harbor region

New Hampshire and Massachusetts
Operators from NH tend to search for whales around Jeffreys Ledge and the SBNMS. They mostly see fin and minkes whales and dolphins in a typical summer. In summer 2014, they spotted an unusual group of fin whales only ¼ mile offshore from Hampton Beach, and in spring 2015, they saw fin whales in a more southern location than is typical.

Specific whale watching areas off the North Shore of MA at any given year or month are difficult to predict, but the dominant use footprint tends to be focused within the SBNMS. Operators specifically target humpback whales in the northwest corner of the SBNMS. In the spring and fall operators search for humpback, fin, and minke whales near Tillies Bank, and in the summer near the southwest corner of the SBNMS.

North Shore operators note that during the fall seasons from 2000 to 2005, they focused trips closer to Boston Harbor outside of the SBNMS, where humpback whales were more often found. In 2013, they only spotted one whale in the SBNMS for a span of six weeks. Operators viewed atypical behavior in 2014 of large, widespread assemblages of dolphins and humpback whales, and in the last two fall seasons spotted whales much further north than Jeffreys Ledge. NH operators noted the irregularity of 2014 in the viewing of fin whales only 2 to 5 miles offshore.

Whale watch operators from Boston spend the spring in the northwest corner and center of SBNMS observing humpback, fin, and minke whales, and the occasional sei and right whales and Atlantic white-sided dolphins. Operators out of Provincetown and Nantucket are able to spot whales, such as fin, minke, and right whales, closer to the shore of Cape Cod in the spring and do not venture to the

northwest corner of the SBNMS. In particular, MA and Cape Cod operators are affected by right whale speed restrictions and must shorten trip distances in the spring. The summer whale watch area adds the southwest corner of the SBNMS to the spring footprint, where all operators observe the same variety of species as in the spring. The fall footprint encompasses the entire area traveled in the preceding months, including the backside of Cape Cod.

In recent summer seasons, operators have traveled along the shipping lane through the SBNMS, which has become a common spot for humpback whales, particularly in 2012 and 2013. In fall 2013, Boston operators spent a significant amount of time around the northern border of the SBNMS and Jeffreys Ledge, where they spotted humpback, fin, and pilot whales. In the past two springs, Provincetown operators have had trouble finding whales inside Cape Cod Bay, so they have spent significant time around the ledge to the southwest of Provincetown, where they have spotted humpback, fin, and right whales. In 2013, operators saw a large group of fins that traveled daily from the waters off of Plymouth in the morning, to Race Point in the afternoon, to the southwest corner of the SBNMS in the evening, and participants hypothesized that this followed tidal cycles. In 2009 or 2010, operators spotted sei and right whales around the area referred to as the "Triangle" (bounded by the intersection of the 750 and 150 Loran lines with Race Point), near the southeast corner of the SBNMS, which was out of the ordinary.

New York
Out of New York Harbor, whale watch operators travel south along the New Jersey (NJ) coastline in the earlier part of the season. Later in the season they will travel along the south shore of Long Island if they do not see whales off NJ. Whale watchers predominantly see humpback whales in these areas, but occasionally see Atlantic bottlenose (*Tursiops truncatus*) and short-beaked common dolphins (*Delphinus delphis*), fin, and pilot whales off of Long Island in the fall. Out of Montauk Harbor, the dominant use area extends about 30 miles from the south shore of Long Island to Block Island Sound and Block Island in the east, where operators tend to see humpback, fin, and minke whales, and bottlenose and common dolphins

*Transit and Supplemental Use Areas*
Maine
In general, operators out of Portland begin their trips by departing Portland Harbor to the south and continuing straight to the open ocean in the south or east. In rough weather, operators will travel towards Halfway Rock Lighthouse to see seals or minke whales. Whale watch vessels have a top speed of 12 knots, which means it takes about two hours to reach the destination and limits trips to no further than 10 miles offshore.

Operators out of Bar Harbor tend to depart the harbor for 3 ½ hour morning trips 14 miles towards Petit Manan to see puffins, then travel 21 to 24 miles southwest to the East Bumps for whales, and return to the harbor. Afternoon trips take 3 hours, with the operators transiting straight out and back to the Inner Schoodic Ridge or to Mount Desert Rock early or late in the season. Early in the season when whales are more difficult to find, operators tend take longer 5 to 6 hour trips and follow a more meandering route

up to 60 miles offshore. Additionally, operators out of Bar Harbor offer lighthouse tours, which transit around Mount Desert Island and out to Duck Island before returning to Frenchman Bay; however, this route was not mapped during the workshop.

New Hampshire and Massachusetts
Upon leaving port, operators out of NH and the North Shore follow a single navigation corridor out to the target destination. These transit paths create a fan pattern out of the respective ports. Depending on the operator's home port, transit time to the open ocean may take from 3 to 20 minutes. Depending on the operator's whale watching destination, transit time in the ocean may take 50 minutes to 2 hours. Typical trips out of the ports of Gloucester, Newburyport, and Portsmouth transit straight out towards Jeffreys Ledge and Isle of Shoals (where they may view pinnipeds and birds), or follow the coastline south into the SBNMS. North Shore operators conduct single daily 4-hour trips in the spring and fall and twice daily half-day trips in the summer.

On any given trip, operators out of Boston Harbor follow one of three primary transit paths along restricted channels. Operators follow the Nantasket Channel to travel south to the SBNMS, the Hypocrite Channel to travel east, and the North Channel to travel north. Trips are typically 3 to 4 hours and vessel speed and sea conditions dictate the distance traveled.

Operators out of Provincetown may travel in any direction off of Race Point depending on the location of whales. Vessel speeds are usually only limited by seasonal right whale restrictions in the spring. Operators out of Plymouth and Hyannis travel straight out of their respective harbors to the SBNMS, and operators out of Nantucket travel straight north towards Chatham. No additional supplemental use areas were described.

New York
After exiting New York Harbor and passing Breezy Point into the open ocean, operators either travel south or east, or, if they have difficulty finding whales, meander in a general southeast direction. Operators typically exit Montauk Harbor and head straight east, and then upon passing Montauk Point Light, turn south-southeast.

The Montauk operator offers occasional trips that venture further offshore from the typical use area. In 2003, there was a summer tour that explored an area near the continental shelf break.  This operator also offers a yearly, multi-day trip to the western edge of the Great South Channel in August.  The vessel leaves Montauk Harbor, transits to Oak Bluffs, Martha's Vineyard to pick up additional passengers, and then heads east to towards the Great South Channel. Passengers on this trip are likely to observe humpbacks, minkes, common and Atlantic white sided dolphins, as well as right whales.

### 3.3.4. Trends and other results

During each of the data collection workshops, participants discussed relevant information pertaining to overall whale watch industry characteristics and trends, which provides context to the geospatial data. Participants across the Northeast agreed that the industry has changed significantly in a number of ways over the past few decades. The industry took off in the 1980s and 1990s; with numerous companies operating out of the same locations, each offering more frequent trips on smaller boats than today. Since then, the industry has seen consolidation as fewer companies operate fewer but larger boats. Participants in MA noted the decrease in attendance on whale watch trips out of the North Shore and Cape regions, and increase in customer patronage of trips out of Boston Harbor. Workshop participants believed that this trend may be due to the convenience of Boston Harbor to a greater number of patrons and the high capacity of vessels and trip frequency. Bar Harbor operators have also experienced an increase in patronage. Provincetown operators have noticed a slight decrease in patronage; however, Provincetown is still perceived as a whale watch destination. On the other hand, Portland and New York operators receive limited patronage. General public perception does not seem to view these locations as whale watch or eco-tourism destinations.

Participants also noted specific recent trends that may be increasing competition in the industry. With the advent of increased fishing restrictions, fishermen may transition into the whale watch industry, and as a result, increase competition. In addition, in the past 10 years there seems to have been an increase in the number of small dual charter whale watch/SCUBA diving or deep sea fishing vessels. While no new large commercial operators have emerged in the past few years, industry expansion seems to be occurring through these small charters.

Participants from ME agreed that the state's whale watch industry is unique in its collaborative—as opposed to competitive—mindset, which may stem from the spatial spread of the operators and the diversity of trip offerings. Some operators not only conduct whale watch tours, but also offer lighthouse and puffin tours. Both Bar Harbor and Provincetown operators particularly notice that while the majority of customers are interested in whales, a growing number book trips to target specific species of birds or seals.

Participants from MA noted the special importance of on-the-water communication with the fishing industry. Whale watch captains often receive reports from fishers on the locations of whale sightings, increasing the efficiency of captains' search time. However, with the high number of recent fishery restrictions, fewer fishers are in the water and able to provide useful information, which causes whale watch operators to expend additional resources to locating whales. Some whale watch captains, such as those operating out of Boston Harbor, also communicate with one another or with the Liquefied Natural Gas (LNG) depots (e.g. Northeast Gateway) on whale sightings.

## 3.4. Discussion

### 3.4.1. Results

Intensely-used whale watching areas tend to coincide with prominent underwater features, such as Stellwagen Bank, Jeffreys Ledge, and Grand Manan Bank. In many cases, these large, general areas are used by a variety of operators originating from a number of different regional ports (Stellwagen Bank and Jeffreys Ledge, for example). Although whale watching occurs throughout the Northeast, there is no whale watching activity originating from Connecticut. However, there are known to be a number of smaller tour operators from this state which focus on more general nature viewing and which may occasionally see small cetaceans during their excursions. This is largely due to geography and the relatively long travel times from CT to areas known to be frequented by whales.

Generally, transit routes reflect the shortest distance between the homeport and the closest dominant use area, as fuel costs are a continuing concern in the industry. In some cases, such as with trips leaving from Portsmouth, NH, the mapped transit route depicts a circle around the dominant use area, presumably showing a search area or a typical trip's track. In other areas, such as out of Bar Harbor, ME, transit routes also reflect the fact that whale watch vessels will often take passengers to see other points or wildlife of interest, such as lighthouses or puffins or seals.

The large number of mapped dominant use areas in ME, NH, and MA reflect both the high number of operators in the region, as well as the changeable sighting conditions from season to season and from year to year. In these regions, it was more likely for operators to report changing use areas from season to season, within a given year. As the Gulf of Maine is considered a major feeding ground for many of these species, it may be that more variability is observed within a given year because of the shifting of food resources compared to sightings of whales in NY and RI, which are more likely to observe whales en route to the feeding grounds.

### 3.4.2. Study and data limitations

Though the data were sufficiently complete and widespread to compile an overarching map of overall whale watch use in the Northeast, the area around Boothbay Harbor, ME represents a data gap due to lack of industry participation. While the workshops did not attract a representative from every whale watch operator in the region, the substantial geographic overlap among whale watch operators, combined with industry knowledge of where other operators are likely to travel provides a comprehensive overview of important whale watching in the region.

It is also important to note that whale watch sighting conditions are highly variable, both within seasons and from year to year. As such, the mapped polygons should be considered to reflect a snapshot in time (in general, calendar years 2010 - 2014) and should not be interpreted to definitively depict historical areas, past trends, or to predict future conditions. Even given the specificity with which workshop participants described use areas, these areas are still relatively large, reflecting the fact that target viewing species can travel great distances in short amounts of time, and conditions can change quickly.

Therefore, these areas should not be considered as definitive locations where whale watching takes place, but rather, areas where high intensity of use is likely to occur.

### 3.4.3. Recommendations

*Data presentation and interpretation*
Noting appropriate caveats about the variable nature of whale watch use areas over time, the team believes that the data collected during this survey is a useful snapshot of whale watching activity in the region.

*Lessons learned*
As this effort presented a comprehensive overview of whale watching in the Northeast region and addressed any notable gaps, the project team recommends that any future efforts to map whale watching sites in this or other regions follow a similar protocol and engage whale watch operators, naturalists, data managers and NGOs through in-person participatory mapping efforts. In-person meetings should take place outside of peak whale watching season; however, it is helpful to hold these meetings around the time that the whale watch season is just beginning or just ending, as many individuals involved with commercial whale watching are likely to travel or have other commitments outside of the whale watching season. In-person meetings, while potentially more costly than online data collection methodologies, are advantageous in that they allow for the following:

- Engaging participants at times and locations that are convenient to them
- Answering more detailed questions about the project context and goals
- Troubleshooting technical issues on the fly
- Obtaining detailed feedback and contextual information via open-ended discussions
- Collecting large volumes of data in a short amount of time

Throughout the project, workshop participants and other stakeholders noted the prevalence of marine wildlife viewing tours with target species other than whales. In the future, similar data collection efforts might expand their scope to cover charters viewing other wildlife, such as seals and birds.

# 4. SCUBA DIVING

## 4.1. Introduction

*Background and context*

Shore- and boat-based recreational SCUBA diving is a popular activity occurring at various sites throughout the Northeast, primarily focusing around historical shipwrecks, interesting benthic communities, and popular wildlife viewing areas. Despite the relatively cool water temperatures, diving activity in the Northeast occurs year-round but is concentrated in the months of May through October, and is clustered around regions with attractive underwater topography such as Cape Ann, MA. Much diving activity occurs from private boats or from the shore, while groups may also charter diving excursions through professional dive boats. Divers engage in a number of activities while diving, including wildlife viewing, photography, and fishing or hunting. The average value per day of SCUBA diving in the Northeast has been valued at $14.93, based on individual diver consumer surplus. In RI alone, the net economic value of SCUBA diving and snorkeling together was valued at $25.8 million.[17,18]

Characterization of recreational SCUBA diving was a priority for the NE RPB and this study as SCUBA divers are impacted by economic and environmental forces and because of the high potential for interaction between SCUBA diving and other ocean uses. Dive shop owners and charter operators represent key business stakeholders in the SCUBA diving community and are affected by fuel costs and other economic forces that may drive participation in recreation and tourism activities. Activities such as habitat exploration, photography, and fishing are dependent on access to underwater marine resources and qualities that promote those resources viability, e.g., water quality conditions. SCUBA divers are also likely to share space with other ocean uses, including aquaculture sites, recreational boating areas, and fishing areas (especially wrecks) as well as more in-shore uses such as beach-going and paddle sports. SCUBA divers are often vocal advocates for shoreline access, which, in turn, affects other recreational users of the ocean.

Although the Individual User survey described in Chapter 8 allowed members of the general public to enter data on locations where they went SCUBA diving, resulting in data describing diving activities, this chapter highlights an additional and more comprehensive effort to gather data on important SCUBA diving areas in the region through a targeted survey of SCUBA diving experts such as dive club members, dive shop owners and instructors, and charter operators.

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[17] Rhode Island Coastal Resources Management Council, *Rhode Island Ocean Special Area Management Plan (Ocean SAMP),* Vol I (2010).

[18] Kaval, P. and J. Loomis, *Updated Outdoor Recreation Use Values with Emphasis on National Park Recreation*, Department of Agricultural Resource Economics, Colorado State University (2003).

*Description of existing data*

There are a variety of sources of information on recreational diving sites in the Northeast. On a regional level, NOAA maintains a spatial dataset depicting the locations of wrecks and obstructions.[19] However, this dataset does not distinguish between dive sites and other underwater features and is considered by many to be unreliable when it comes to identifying the locations of certain wrecks. The 2012 Northeast Recreational Boater Survey[20] also collected information on locations where boaters went diving during the 2012 boating season; however, as this study targeted boaters, not divers, it is not representative of the diving community and serves as supplemental information, as does the Individual User survey which targeted the general public. .

MA, RI, and NY have collected information on diving locations at a state level. Massachusetts Ocean Resource Information System contains a dataset from 2007, which used data from the Massachusetts Board of Underwater Archaeological Resources and web-based searches for popular diving locations to depict dive sites in MA state waters (Figure 4.1) The Massachusetts 2015 Ocean Management Plan Baseline Assessment (v.2) also contains a dataset derived from this 2007 layer depicting 40 underwater archaeological sites that are exempted from requiring a Board of Underwater Archaeological Resources permit for recreational diving, with the intent of preserving these sites for the continued enjoyment of the recreational diving community.  The RI OSAMP contains data on locations and areas identified by SCUBA dive boat operators as popular diving sites (Figure 4.2). In 2011, New York State Department of State (NYS DOS) conducted a series of PGIS workshops to collect information on the locations of artificial reef and wreck dive sites. These datasets are available on the NYS DOS Geographic Information Gateway. There are also a number of online resources, as well as printed guide books describing popular dive sites in the Northeast.

This study was an attempt to reconcile these disparate data sources by using a single methodology to characterize SCUBA activity on a region-wide scale.

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[19] http://www.nauticalcharts.noaa.gov/hsd/wrecks_and_obstructions.html

[20] Starbuck, K., A. Lipsky, SeaPlan, *2012 Northeast Recreational Boater Survey: A Socioeconomic and Spatial Characterization of Recreational Boating in Coastal and Ocean Waters of the Northeast United States*, Technical Report (2013).
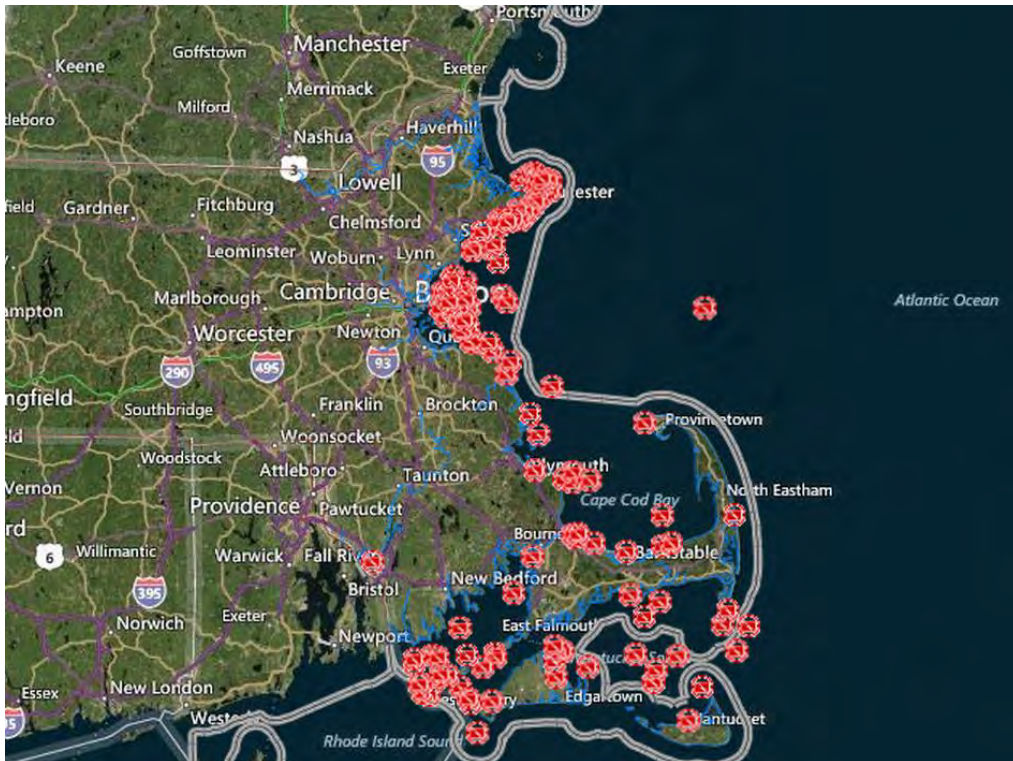
**Figure 4.1.** Dive sites in Massachusetts state waters from MORIS
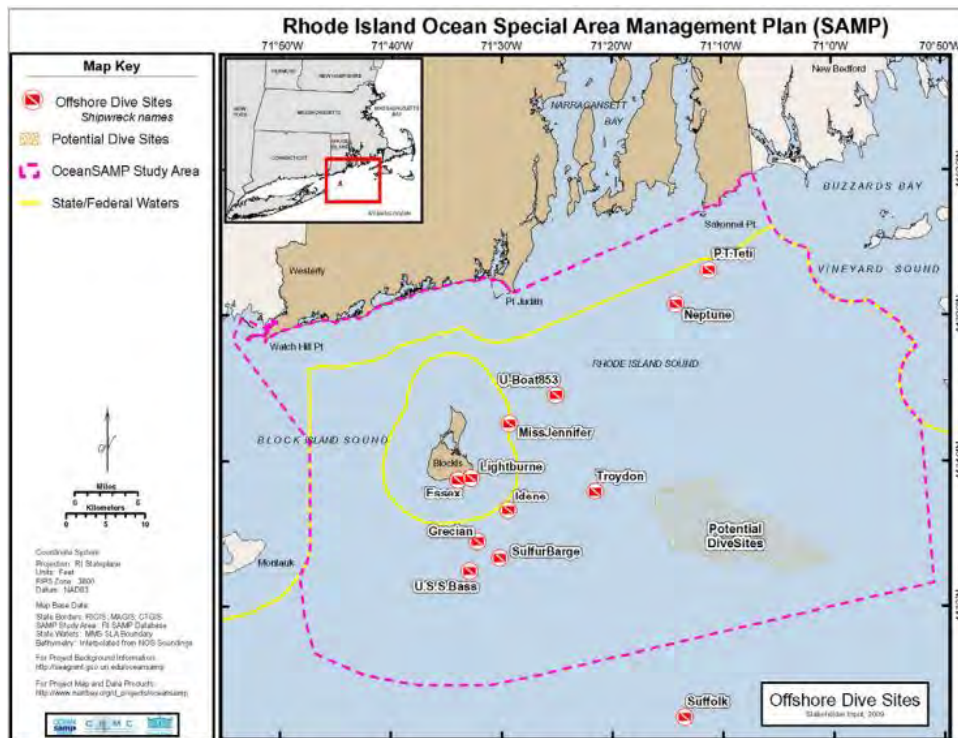


**Figure 4.2.** Data on popular diving sites from the RI OSAMP

## 4.2. Methodology

### 4.2.1. Scoping process

In order to understand the breadth of existing data and to weigh the pros and cons of various methodological options for collecting spatial data on recreational SCUBA diving, the team held a series of webinars and phone conversations with representatives from the recreational SCUBA diving community during late 2014 and early 2015. Conversations included representatives from Portsmouth SCUBA, Stellwagen Bank National Marine Sanctuary, Quest Marine Services, and North Atlantic Dive Expeditions, as well as members of the team and the project steering committee (PSC). See Appendix A for further details on webinar timing and participation. Example agendas and PowerPoint slides for survey scoping calls can be found in Appendices E and F. During these conversations, the team asked industry experts to provide feedback on the following topics:

1. **Preferred data collection methodology** – Several options for data collection methodologies, including online opt-in surveys, webinars using interactive mapping technology, or in-person meetings using participatory geographic information system (PGIS) approaches were presented. The team also asked SCUBA representatives if they had other suggested methodology options, or whether they favored a hybrid approach to combine aspects of several methodologies.
2. **Data attributes –** Participants were asked to suggest additional information that should be collected to characterize mapped areas and to identify any proprietary or sensitivity concerns regarding diving locations.
3. **Outreach strategy –** Participants were asked to identify individuals and groups, as well as outreach venues (e.g., listservs) that could both participate in and distribute information about the survey.

Based on input received from with industry representatives, the team proposed the following methodology:

- Use an online opt-in survey to be distributed to diving organizations, dive shops, individual divers, and dive charter operators to map footprint of areas important for SCUBA diving.
- Hold periodic SeaSketch[21] based webinars during the data collection to vet interim data from the online opt-in survey and to fill in survey gaps
- Attend and participate in Boston Sea Rovers Conference in Danvers, MA and the Beneath the Sea conference in Secaucus, NJ to increase survey visibility and participation

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[21] SeaSketch is a web-based platform that allows registered users to view ocean data and to interact with the data using drawing tools and commenting features. SeaSketch was developed to support and facilitate ocean planning efforts through a platform that does not require user familiarity with GIS tools.

- Hold in-person meetings spanning the study area to vet the data collected during both the online survey and the SeaSketch webinars once the survey period is over, and identify additional dive areas using PGIS methods.
- Consult with industry experts on appropriate methodologies for generalizing sensitive diving locations, such as wreck archeological sites, for visualization in final data products.

There was general support for the proposed methodology though there was some concern about the limited duration of the data collection period. This concern was addressed by developing a strong outreach campaign prior to the survey period and during the data collection period. Industry members and the team agreed to conduct outreach to all recreational divers, regardless of their level of expertise, in order to maximize participation.

Industry members suggested additional experts and leaders who could help to broadcast the survey invitation and information on the project. They also suggested various groups for targeted outreach, including dive clubs, dive shops, and charter boat operators, and reiterated the need to attract participants by attending regional conferences. They also indicated that several diving organizations are very active on social media and recommended integrating social media into the outreach approach.

This approach was presented via webinar to the PSC in March 2015, at which point PSC members had a chance to ask questions and provide feedback. Following the webinar, the PSC approved of the approach and provided additional feedback in the survey tool development phase.


### 4.2.2. Description of survey tool and data collection

The team developed an online survey tool that would allow users to map and enter information about highly-used recreational dive sites in the study region.  The survey was live from March 31$^{st}$ – May 25$^{th}$, 2015 and utilized a Google Maps and a nautical chart interface to provide the familiarity and ease of navigability (zooming, panning, and searching for locations) it offers. The survey was supported on Mozilla Firefox, Safari, Google Chrome, and Internet Explorer 10+ browser platforms. Users accessed the tool by registering on the survey home page (Figure 4.3) and mapped by drawing polygons (Figure 4.4). This mapping method was utilized instead of dropping points on a map as it better enabled users to generalize important SCUBA diving locations and more accurately indicate the boundaries of those locations.

Through this unique link, the participant was then directed to the mapping platform and given instructions on how to map an area. Participants were instructed to draw a polygon depicting the general location of the dive site. Users were urged to map at the highest resolution at which they felt comfortable, but language in the tool's instructions also acknowledged the sensitivity of disclosing the exact locations of sensitive areas and suggested that users generalize polygons if they did not wish to map exact site locations, or if multiple sites of interests or wrecks could be found in close proximity to

one another.  After mapping a diving area, participants were asked to provide details on the site, including:

- The features of interest at the wreck (e.g., man-made structure, habitat, or wildlife)
- Whether the area was a wreck site
- The name of the wreck (if applicable)
- The age of the wreck (if applicable)
- The type of vessel of the wreck (if applicable)
- Whether the area was considered sensitive
- The number of divers that typically visit the site in a year
- Types of activities that typically took place at the site (e.g., exploration, photography, fishing)
- Site access (i.e. shore or boat)
- Amenities at shore-based access point (e.g., parking, dive shop, restrooms)
- Water visibility at site
- Season when site is most frequently visited
- Best moon phase at which to visit site

Once diving site details had been entered, the participant had the option of mapping another site, going back to edit previously mapped sites, or finishing the survey.
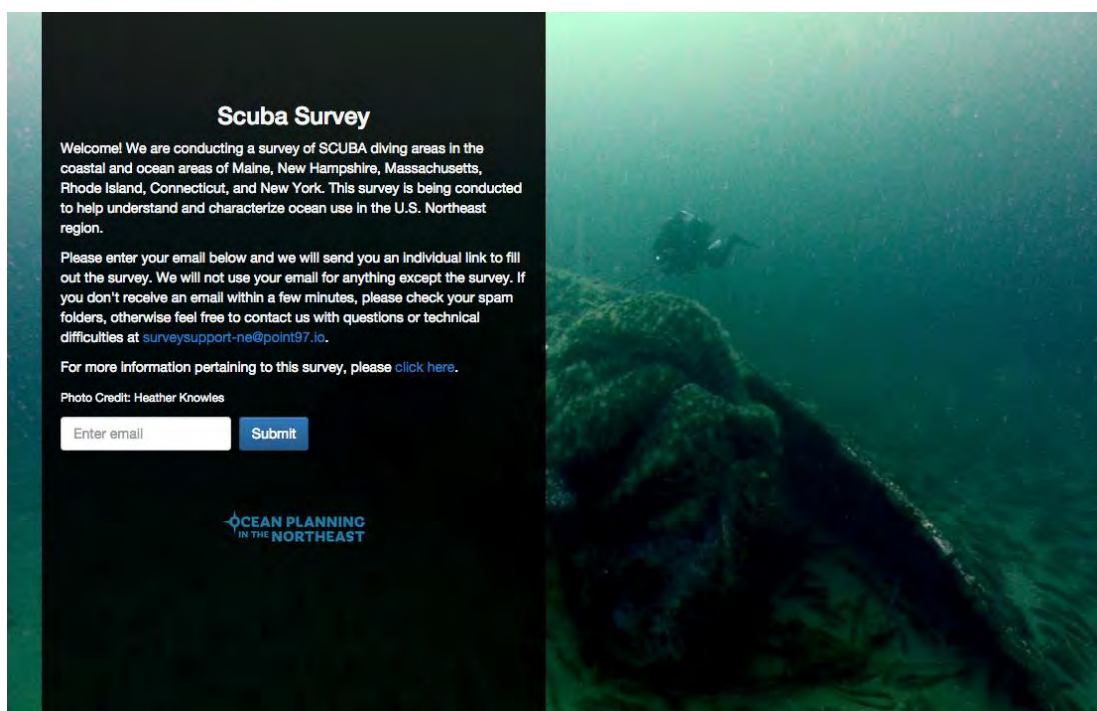


**Figure 4.3. Welcome and registration page for the online SCUBA survey**
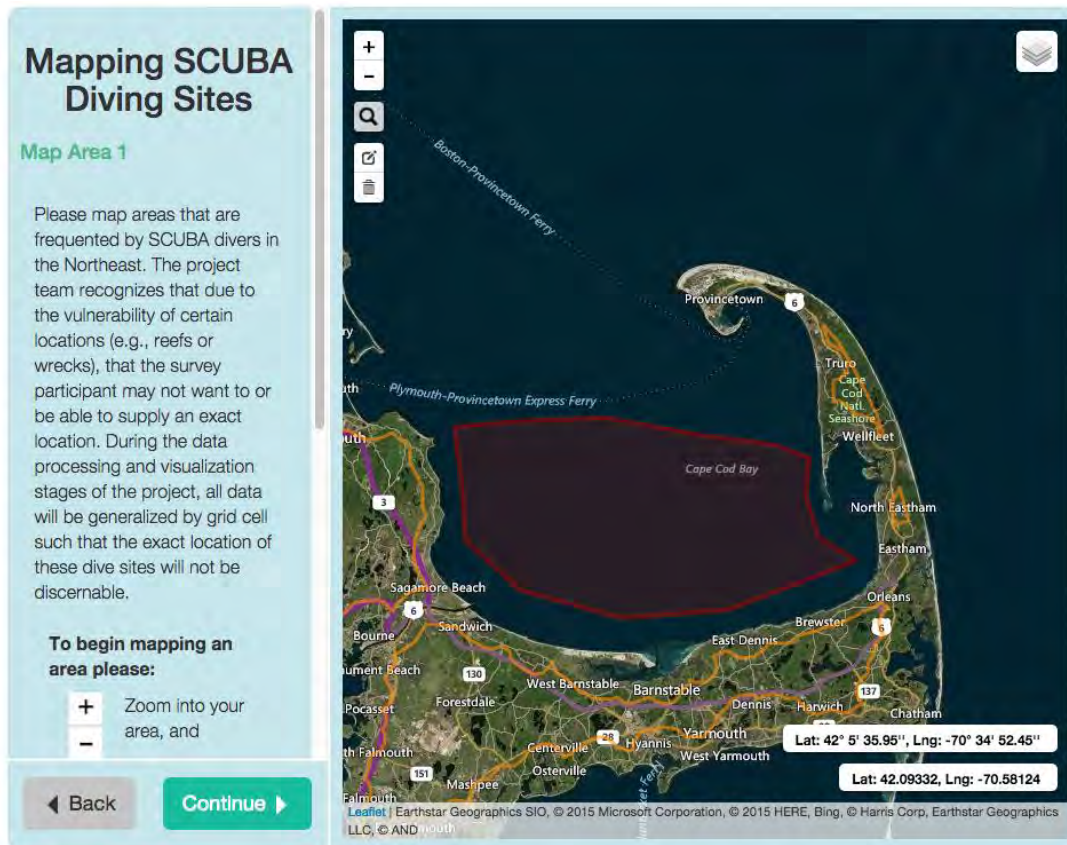
**Figure 4.4. Screenshot of SCUBA survey mapping application**

### 4.2.3. Description of survey tool outreach and data vetting

Through online research and feedback from industry experts, the team compiled a list of dive clubs, dive shops, charter boat operators, and other recreational diving experts in the study region. This list can be found in Appendix D. Prior to the survey's release, the team sent an invitation via email to these organizations and individuals, providing information about the survey and inviting them to register for the survey in advance.

A representative from NROC attended the Boston Sea Rovers conference in Danvers, MA (March 2015) to distribute information about the survey and to register participants in advance. The team also enlisted the help of a diving expert familiar with the project to distribute information about the project on the Team's behalf during the 2015 Beneath the Sea Conference in Secaucus, NJ (March 2015).

When the survey was released on March 31st, 2015, the team sent out another email announcement to the contact list described above. The team also requested that diving clubs with a large, active membership distribute information about the survey to their membership lists. Additionally, the team leveraged social media to post information about the survey on active dive club pages on Facebook. A summary of the number of diving organizations the team contacted, by state, can be found in Table 4.1.

**Table 4.1. Summary of SCUBA contacts by state**

*Note that the team did not directly contact industry representatives from RI as the University of RI CRC/RI SG was conducting that effort simultaneously, as described in Section 2.4.

| State | Number of SCUBA Clubs |
|---|---|
| CT | 12 |
| MA | 44 |
| ME | 12 |
| NH | 4 |
| NY | 17 |
| Various/Regional | 2 |

While the survey was live, the team sent periodic email reminders to contacts who had not filled out the survey, as well as to SCUBA divers who had started, but not completed the survey. In areas where the team identified major data gaps, such as NY and Long Island Sound, the team followed up to prior outreach events with phone calls. The team held two webinars while the survey was live and one after the survey closed, to vet draft data with industry experts who had been involved in the survey scoping process. The team used SeaSketch to provide access to mapped survey data, and to allow industry experts to comment on or add information to the existing data. Using SeaSketch to periodically view interim data allowed the team to identify data gaps and to consult with industry experts on additional outreach opportunities or strategies to fill known data gaps.

Once the data were analyzed and collected, the team presented the data at four dedicated meetings in the study area, described in Appendix A. At these meetings, industry representatives had the opportunity to view and provide feedback on the data collected using the online survey and SeaSketch, and were also able to add data on additional events using the e-beam tool described previously. The team also held several webinars in which SCUBA experts could identify and fill in data gaps. SCUBA experts who were unable to attend the meetings were allowed to review and add data in SeaSketch, or to add data remotely via webinar.

As part of the process of updating the RI OSAMP, RI CRC/RI SG held in-person meetings with stakeholder experts who identified additional, highly-used SCUBA diving areas in or near RI waters. During this process, the team collaborated closely with RI CRC/RI SG to determine how best to integrate these, as well as data from the existing OSAMP into the study data.

### 4.2.4. Data processing and cleaning

Spatial characteristics and attribute data from the online opt-in survey were reviewed for completeness and consistency with existing data products on the Northeast Ocean Data Portal. The team used the NOAA medium resolution shoreline dataset to clip all mapped polygons to the landward boundary. User-entered site details were edited to achieve consistent capitalization, spelling, and punctuation, and, where possible, were supplemented by online research to fill in data gaps in attribute fields.

The team also filtered mapped SCUBA sites based on the size of the mapped polygon.  The size and spatial resolution of mapped polygons varied widely, with some users mapping polygons that covered extremely large areas, including one that spanned the majority of the Gulf of Maine. Because these large areas have limited utility from an ocean planning perspective, the team characterized all mapped areas larger than 100 km$^2$, as general, rather than specific diving areas. These general diving areas are not included in maps and spatial data products because of their limited utility, but rather, are described in this report.

Data collected using PGIS methods were edited to eliminate self-intersecting loops and other topological errors using ArcGIS editing tools. Workshop participants were instructed to ensure complete polygons by ending their drawing as close to the start of their drawing as possible, and tapping the stylus on the surface gently at the end point to save the drawing. Drawing errors can occur when the participant taps at the center of the polygon, or a location outside the polygon, rather at the end of the line. Polygons were also cropped to eliminate areas that overlapped with land. These data were merged with the site-specific data collected using the online tool.

In order to protect the location of potentially sensitive diving areas, such as historic or culturally important wrecks and other archeological resources, the team generalized the data of the more specific mapped sites from the online survey by taking the center point of each mapped polygon, and applying a 5 km buffer around each center point. Areas mapped during the PGIS workshops were either very small and site specific or very large and general. Small, site-specific data from the PGIS workshops were treated similarly to the site-specific data from the online survey, except the buffer distance is 1 km. The justification for the smaller buffer distance stems from workshop participants assertions that the areas that they were mapping are not considered sensitive. Larger, mapped areas that may cover some sensitive sites were considered large and general enough to be kept as is.  Data gathered from the RI OSAMP meetings were addressed in the same manner, using a 1 km buffer distance around the center point of each mapped site.

The resultant data from the online survey, the PGIS workshops and the RI OSAMP update meetings were merged into a single spatial dataset. The result is a map depicting general areas where SCUBA diving is likely to occur in the region based on users' input. Mapped SCUBA areas from the original RI OSAMP are also included in the dataset, but have not been altered.

## 4.3.  Results

### 4.3.1.  Survey response characteristics

A total of 102 individuals initiated the survey. While only 43 of those individuals completed the survey in its entirety, data were captured from individuals who started, but did not complete the survey. Survey participants mapped a total of 191 areas, which depict 27 general SCUBA areas (>100 km$^2$) and 164 site-specific areas (<100 km$^2$). In some cases, survey participants mapped an area where many activities or features of interest (e.g. wrecks) are located. During the in-person data vetting and refinement

meetings, including those associated with the RI OSAMP update process, participants also mapped an additional 86 SCUBA sites. Table 4.2 provides a geographical overview of survey responses, showing a summary of the home state of survey respondents (including those who did not finish the survey), the locations of sites mapped using the online survey, and the locations of sites mapped during in-person workshops. Sites spanning multiple states or occurring primarily outside of state waters are listed under the Various/Offshore category.

**Table 4.2. Summary of SCUBA survey responses by state**

| State | Number of Survey Respondents | Number of SCUBA Sites Mapped through on-line tool | Number of SCUBA sites mapped through in-person workshops |
|---|---|---|---|
| CT | 10 | 6 | 2 |
| MA | 71 | 127 | 7 |
| ME | 3 | 22 | 17 |
| NH | 8 | 1 | 0 |
| NY | 4 | 0 | 32 |
| RI | 1 | 13 | 20 |
| Various/Offshore | 5 | 22 | 8 |
| **TOTAL** | 102 | 191 | 86 |

### 4.3.2. Spatial data

Map 2 depicts recreational SCUBA diving areas on a regional scale. State-based maps of mapped SCUBA sites from the online survey and PGIS workshops can be found in Appendix BII. As described in Section 4.1.4, this map shows general areas where diving is likely to occur, based on user input and a buffered centerpoint of mapped locations

**Map 2. Recreational SCUBA Diving Areas: Northeast Region**
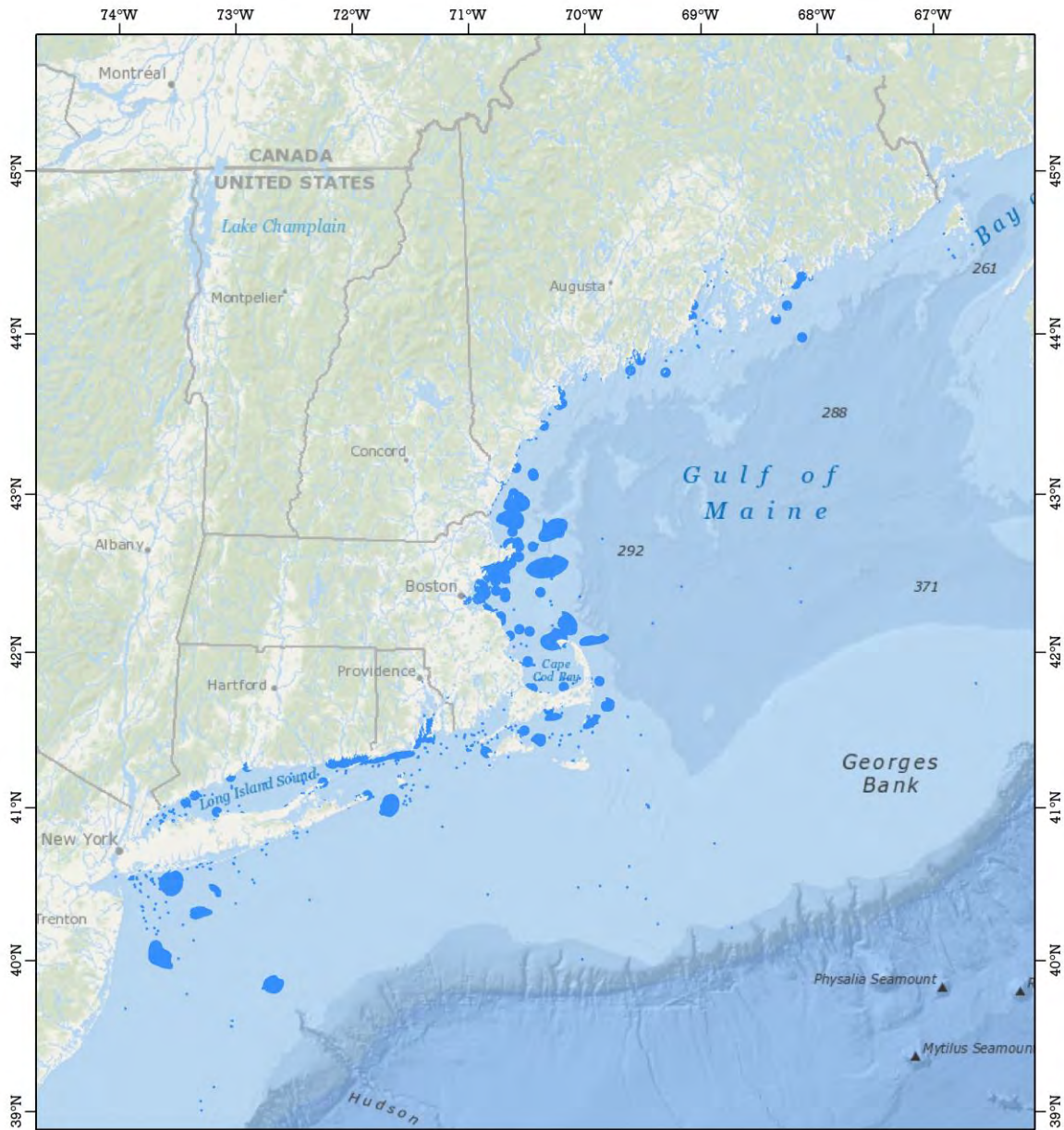


Recreational SCUBA Diving Areas

0   20   40        80        120       160
Miles

0   25   50   100      150      200
Kilometers

N

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015
Northeast Regional Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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In addition to these areas, some survey participants identified larger bodies of water where a substantial amount of diving activity takes place. These areas include:

- Western Edge of the Great South Channel
- Cape Ann and surrounding North Shore areas of MA
- Southern Edge of Nantucket Shoals
- Chatham to Monomoy area off of Cape Cod, MA
- Backside of Cape Cod, MA from Race Point to Monomoy
- Isle of Shoals and surrounding waters
- Block Island Sound and surrounding waters along the shoreline of Western RI and Eastern CT
- Nantucket Sound, MA
- ME coastal waters
- Rhode Island Sound
- Buzzards Bay
- Stellwagen Bank National Marine Sanctuary
- Cape Cod Bay
- Massachusetts Bay
- Narragansett Bay
- Long Island Sound
- Fisher's Island Sound

### 4.3.3. Overview of regional SCUBA site characteristics

Respondents provided information on characteristics of SCUBA sites mapped through the online survey (related information collected from PGIS workshops did not include the same standardized details and is not referenced in this section). According to the survey, notable wildlife was a predominant site characteristic for mapped SCUBA sites, present at 165 of the mapped sites. Interesting habitats, such as canyons or reefs were present at 120 of the mapped sites, while manmade features, such as wrecks, artificial reefs and aquaculture sites, were present at 75 of the mapped sites (Figure 4.5). At these sites, wildlife viewing, exploring, hunting/fishing, and photography were the most popular activities, while some divers also reported that that sites were also used for training, scientific research, the collection of artifacts, or other, varied activities (Figure 4.6). Water visibility was described as either average or good at the majority of sites (Figure 4.7). Most of the mapped sites were primarily accessed by boat, although 29 of the mapped sites did not have associated access information reported in the survey (Figure 4.8). Survey participants indicated that spring and summer were the optimal times to visit most survey sites (Figure 4.9). Many of the sites are reported to have over 75 visitors per year; however, 40 of the mapped sites do not contain associated visitation data (Figure 4.10).
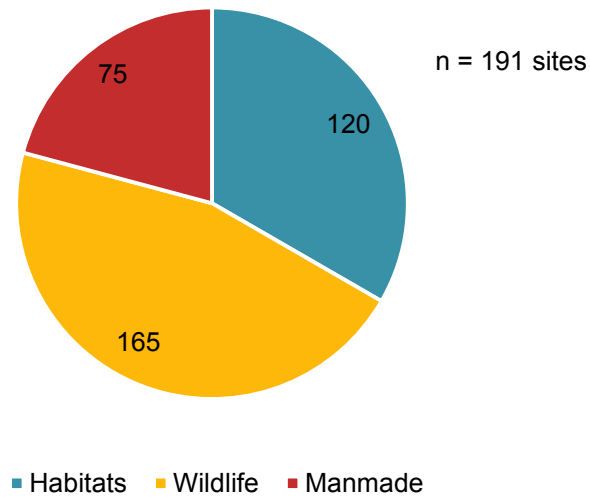
**Figure 4.5. Site characteristics of mapped SCUBA sites. Respondents were able to select multiple characteristics for each site.**
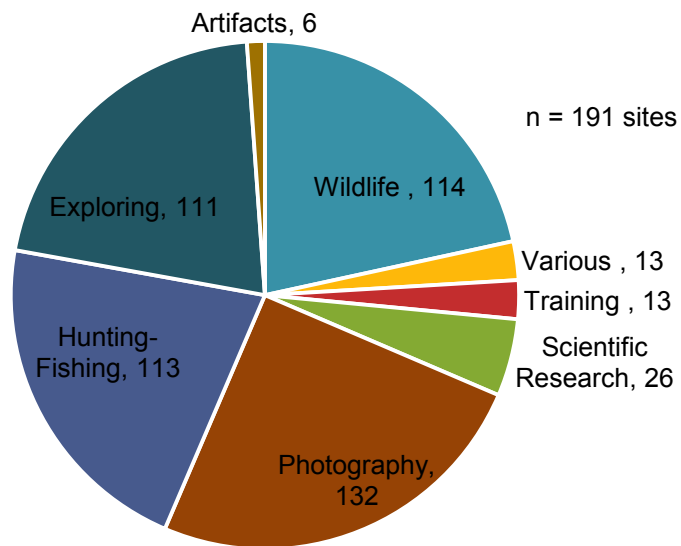


**Figure 4.6. Activities at mapped SCUBA sites. Respondents were able to select multiple activities for each site.**

n = 191 sites

■ Excellent  ■ Good  ■ Average  ■ Poor  ■ NA
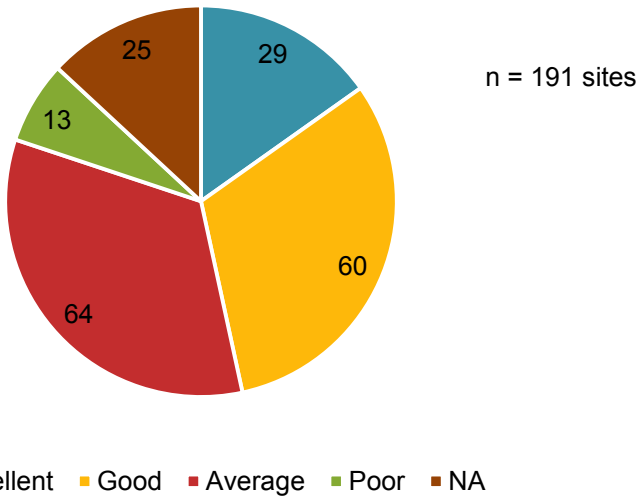
**Figure 4.7. Typical water visibility of mapped SCUBA sites.**



n = 191 sites

■ Boat  ■ Shore  ■ No Data
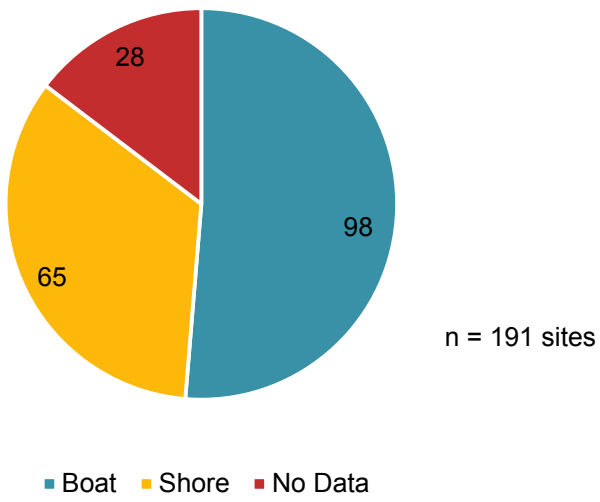
**Figure 4.8. Site access to mapped SCUBA sites. Respondents were able to select multiple site access options for each site.**
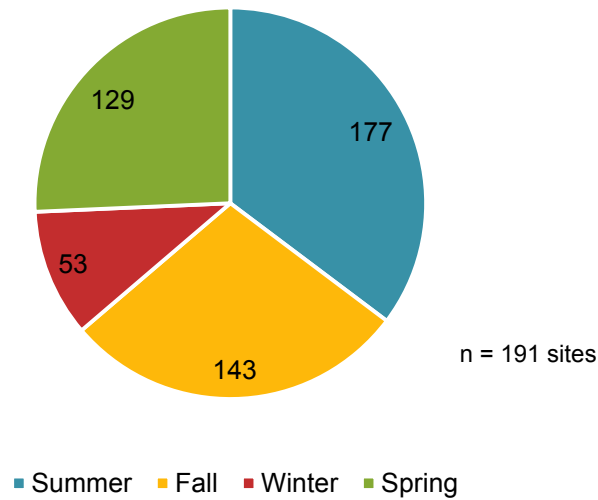
**Figure 4.9. Optimal season to visit survey SCUBA sites. Respondents were able to select multiple seasons for each site.**
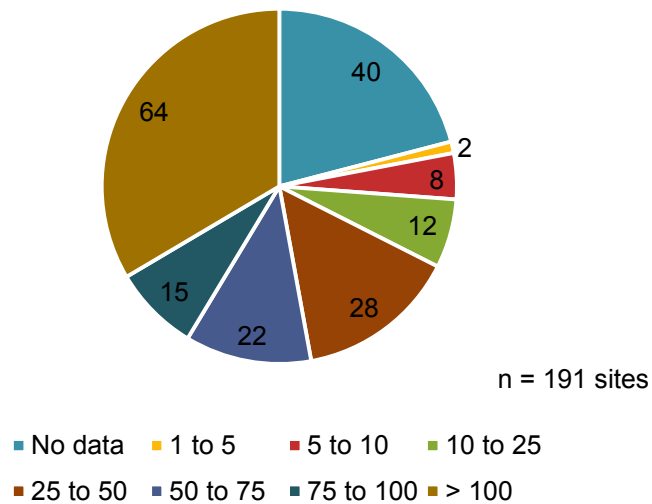


**Figure 4.10. Number of times mapped SCUBA site is visited per year.**

*Additional dataset creation*

Based on the data gaps previously described and identified through data vetting meetings with industry stakeholders, efforts were made to address the incomplete data resulting from the online survey and PGIS meetings. Background research and conversations with diving experts identified a number of both online and print sources that provided additional data on popular dive sites, which could be used to

augment results from the survey. This led to the creation of an additional spatial dataset depicting the point locations of popular dive sites, as identified on state-based geospatial data resources (including the RI OSAMP), diving websites, as well as published diving guidebooks. A complete list and descriptions of these resources can be found in Appendix G. This dataset is intended to accompany the data collected during the survey to provide a more geographically-representative, though less spatially explicit overview of dive sites in the study area. For the purposes of this report and the data portal product, a 1 nm buffer was applied to these points, and the resulting dataset was merged with the data from the survey and the in-person workshop. The 1nm was applied so that the dataset would have consistent geometry with the survey and workshop data (i.e. they are both polygons), while still maintaining the resolution of the original dataset as much as possible.

## 4.4. Discussion

### 4.4.1. Results

The online survey data depict diving sites throughout most of the study region, with notable clusters around Cape Ann, MA, and a notable lack of mapped sites in Long Island Sound and New York waters. Workshop participants confirmed that Cape Ann, MA is in fact a popular diving location; however, it is likely that there was some redundancy in the entered data with multiple respondents mapping the same diving locations in that area. Participants in the in-person data vetting meeting in Portland, ME, indicated that the lack of SCUBA sites in the Boothbay Harbor region is not a gap in survey effort, but rather an area where diving activity is infrequent or non-existent. Much of this area has limited access and lack features attractive to recreational divers. Participants in the Nahant, MA meeting noted that the eastern coastline of Cape Cod from Provincetown to Chatham is a non-consumption zone, which results in decreased visitation by divers. Participants in both in-person meetings and in webinars were able to fill in some areas of Long Island Sound and New York that were not captured by the online opt-in survey. However, participants in the West Sayville, NY meetings suggested that perceived gaps in Long Island Sound are a result of low frequency of diving due to poor water clarity and pollution, low visibility, lack of wrecks, and limited shore access. Participants in the Old Lyme, CT meeting confirmed that while the water visibility in some locations in Long Island Sound is generally poor, it is still an important diving area, especially for divers along the northern shore of Long Island Sound. However, participants at this meeting were hesitant to identify specific areas in Long Island Sound that were more highly used than others.

Shoreline access was a major discussion topic in most of the in-person meetings, with many participants expressing consternation at the perceived trend towards limiting shoreline access to property owners and town residents. Participants at the Portland, ME meeting in particular noted that popular shore dive sites were largely determined by a combination of factors including parking availability, shoreline access, and presence of interesting underwater features.

While more boat-based dives than shore-based dives were mapped in the online survey, workshop conversations suggest that shore-based dives are also popular among recreational divers, presumably due to the fact that shore dives do not require the associated cost of chartering a vessel. The popularity of charter vessels also varied by region. Some areas, such as Cape Ann, MA are home to numerous charter operations while in ME, charter operations are sparser.

Wildlife viewing, photography, and exploration were popular activities for SCUBA divers across the region. The popularity of hunting and fishing varied depending on state regulations. In ME, lobster diving is not permitted; however, lobster diving is a popular activity in MA and NY. Participants at the Connecticut meeting indicated that for many, a permit to take lobsters was prohibitively expensive.

Participants also offered feedback on generalizing survey response data and there was general consensus that generalizing the data using a 5 km buffer, whether as a grid cell or by taking the center point of the mapped site, provided adequate protection for specific sites while still depicting appropriate geographical resolution. Some meeting attendees that participated in the NY and Connecticut data vetting meetings were reluctant to share specific geospatial information about their usage patterns because of a desire to keep dive sites confidential and because of skepticism related to government regional planning efforts.

### 4.4.2. Study and data limitations

*Response rates*
It is difficult to determine the precise number of SCUBA areas in the region to use as a metric against which to measure survey responses. While man-made structures, such as wrecks and artificial reefs are finite in number, there are additional, enumerable sites that, while important to divers, may lack specific boundaries and which might not be known by many divers. That said, it is still possible, using feedback from SCUBA experts, to identify areas that were well characterized, as well as data gaps within the survey data, as noted previously.

There are reasons why the tool was not successful in capturing SCUBA activity in some parts of the study area. The first relates to the tool itself. A technical issue with the survey, which was discovered several weeks into the survey data collection period, led to some users having difficulty logging on to the survey and also may have resulted in some entered data being lost. Although the team reached out to users who had entered data while the survey was experiencing technical problems, the Team cannot say with certainty that all lost survey data were re-entered. Further, some participants using out of date web browsers were unable to access the survey. Additionally, some participants reported that the mapping tool was difficult to use, or that the survey appeared to be too time consuming.

The second issue had to do with reaching appropriate contacts. The team acquired contact information from club websites as well as via lists provided by industry contacts; however, in many cases, contact information was either not available or was outdated or incorrect.

Other potential reasons for lack of participation include lack of time or interest, or contact emails becoming lost in spam filters. Further, some users expressed reluctance to enter information on sites whose locations that they wanted to protect, even when the team described proposed data generalization efforts.

*Data limitations*
SCUBA sites do not necessarily have exact boundaries. Many divers will explore a loosely defined area, the extent of which can be determined by tides, currents, visibility, access, or other factors. Even man-made structures, such as wrecks, may shift over time depending on oceanographic conditions. Participants were asked to map SCUBA areas using the highest spatial resolution that they were willing or able to employ; however, time constraints and knowledge of a site's precise location could also affect the precision with which an area was mapped. Precision also depends on the scale at which the area was mapped and the survey participant's level of comfort with the survey tool.

### 4.4.3. Recommendations

*Data presentation and interpretation*
Noting appropriate caveats about the varied sources and data analyses used to create this dataset, the team believes that the data from the online survey, participatory mapping workshops, and outside research compiled and generalized in the final dataset represent a fairly comprehensive footprint of where SCUBA diving is most likely to take place in the region. However, it should be noted that the areas presented here may not include every specific location where recreational diving occurs in the region.

*Lessons learned*
Should there be a need for future efforts to map SCUBA sites in this, or other regions, the team offers the following observations for guidance:

1. As discussed in section 4.1, data on SCUBA sites are available from a wide variety of authoritative sources, many of which contain explicit geographic information, which can be as sources for spatial dataset creation to develop baseline data on SCUBA activity in other regions..
2. While the survey tool had the advantage of being distributed to a wide variety of participants, in-person meetings were a better venue for engaging participants and capturing a large amount of data in a relatively short period of time. SCUBA conferences and conventions, as well as marine archaeologists, dive clubs, dive shops, dive charter operators are all sources of expert knowledge on SCUBA activity. While organizing and traveling to in-person meetings can be costly, the benefits of in-person meetings include:

   - Engaging participants at times and locations that are convenient to them
   - Answering more detailed questions about the project context and goals
   - Troubleshooting technical issues on the fly

- Obtaining detailed feedback and contextual information via open-ended discussions
- Collecting large volumes of data in a short amount of time

Providing data for experts to react to and supplement data at their convenience, rather than requesting their time and effort up front, generally increases industry experts' willingness to participate.

# 5. MARINE EVENTS: Sailing Races and Regattas

## 5.1. Introduction

*Background and context*

Competitive sailing is common in many nearshore waters in the Northeast, with much of the racing activity occurring in close proximity to yacht clubs. Sailing races and regattas are hosted by yacht clubs or community sailing organizations, and occur primarily throughout the summer months and consist of races out to and around buoys or other markers and back, or from one yacht club to another. In addition, there are a number of long distance races along the Atlantic coast or in and out of Atlantic ports, which represent significant cultural, historical, and economic uses of coastal and offshore waters[22]. Major offshore sailing races in the Northeast have taken place since the early 20th century and today can have a major impact on the local economy. For example, average event expenditures for individual sailing races in RI may range between $300,000 and $1,300,000.[23] Newport, RI, is an international sailing hub and hosts annual races such as the Volvo Ocean Race and the Newport to Bermuda Race. In 2012, the Newport to Bermuda Race's combined investment into the local Newport economy reached $9.1 million on boats, race preparation, and local travel and hospitality[24] The 2015 Volvo Ocean Race drew a record attendance of 125,000 spectators to the City of Newport, and an economic impact study on this race is expected in the near future.[25] As significant contributors to coastal communities and economies in the Northeast, sailing races and regattas represent important recreational uses of the ocean and coastal areas, making this a priority sector for inclusion in this project.'

*Description of existing data*

There are a variety of sources of information on both recurring and one-time sailing races and regattas in the region. Across the study area, regional associations, such as the Gulf of Maine Racing Association and US Sailing, maintain up-to-date lists of events on their websites. The USCG issues information about

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[22] Industrial Economics, Inc*., Identification of Outer Continental Shelf renewable energy space-use conflicts and analysis of potential mitigation measures,* U.S. Department of the Interior, Bureau of Ocean Energy Management, Herndon, VA. OCS Study BOEM 2012-083 (2012): 414.

[23] Rhode Island Coastal Resources Management Council, *Rhode Island Special Area Management Plan (Ocean SAMP),* Vol I, (2010).

[24] "Newport Bermuda Race releases economic impact study," Trade Only Today (2013), http://www.tradeonlytoday.com/2013/05/newport-bermuda-race-releases-economic-impact-study/.

[25] City of Newport Waterfront Commission. May 21, 2015 Meeting Minutes. http://www.cityofnewport.com/home/showdocument?id=8927

events through Local Notice to Mariners announcements.[26]  In addition, the USCG Manual on Permitting of Regattas and Marine Parades[27] is a tool to protect waterways, giving USCG authority to "adequately oversee the safety, security, and environmental protection of ports and waterways during marine events." On a local level, individual yacht clubs frequently list racing events on their sites, and in some cases, larger, recurring events have their own websites which contain detailed information about races.

These sources are helpful in compiling a list of sailing races and regattas in the study area, their general locations, and event details; however, the extent to which these sources provide explicit spatial information that can inform ocean planning varies. For example, while some race information describes race boundaries using landmarks with fixed spatial locations, such as navigational buoys, other sources of information are less explicit, and may describe races as occurring in the general area of a particular body of water, or by referencing buoys that were placed in the area specifically for an event, which cannot be directly referenced using spatial coordinates.

Further, the USCG has indicated that marine event permits are unlikely to provide a complete picture of all events occurring in the region, as not all event organizers are required to fill out a USCG permit.  For a description of marine events that require a permit, see pages 1-5 in the Manual on Permitting of Regattas and Marine Parades. [28]

The RI OSAMP contains spatial data on recurring races in RI waters. RI OSAMP data represents buoy races, (races which typically take place in protected, inshore areas and which involve racing one or more laps around a course marked by buoys), as circles (Figure 5.1), and characterizes distance races (races which originate at one location, and have an end point or turning point at a single, faraway location) as lines (Figure 5.2).  However, the RI OSAMP document states that the events in the dataset are not meant to be all inclusive. The RI OSAMP data also doesn't include events, which take place in Narragansett Bay, which was outside the planning area of the RI OSAMP.

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[26] http://www.navcen.uscg.gov/index.php?pageName=lnmDistrict&region=1
[27] https://www.uscg.mil/directives/cim/16000-16999/CIM_16751_3.pdf
[28] https://www.uscg.mil/directives/cim/16000-16999/CIM_16751_3.pdf
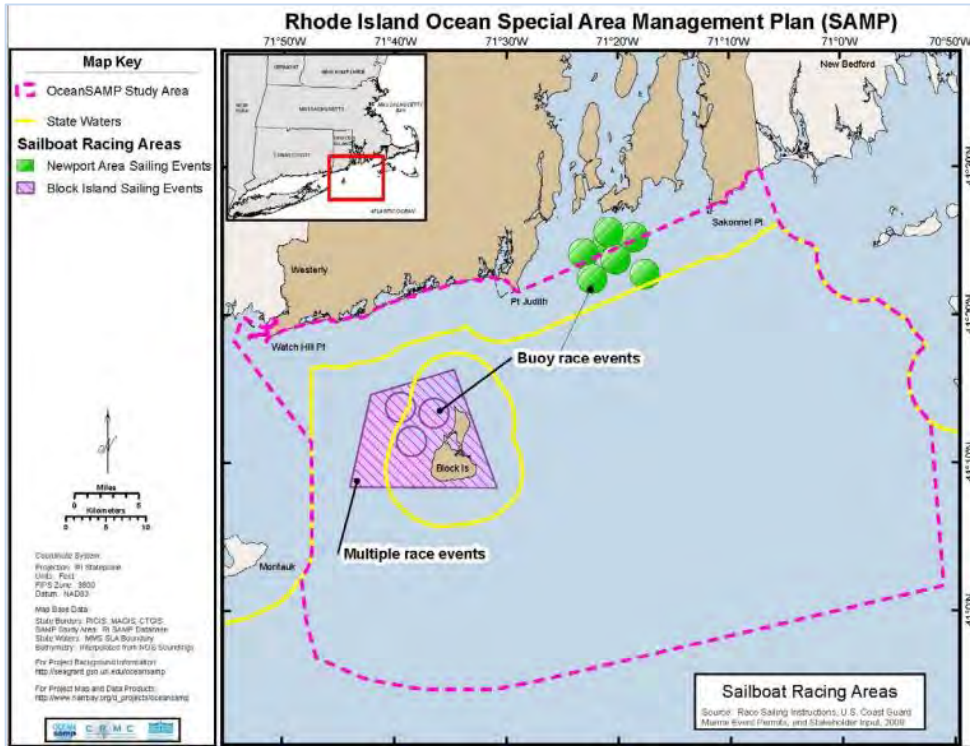
**Figure 5.1. Buoy race data from the RI OSAMP**
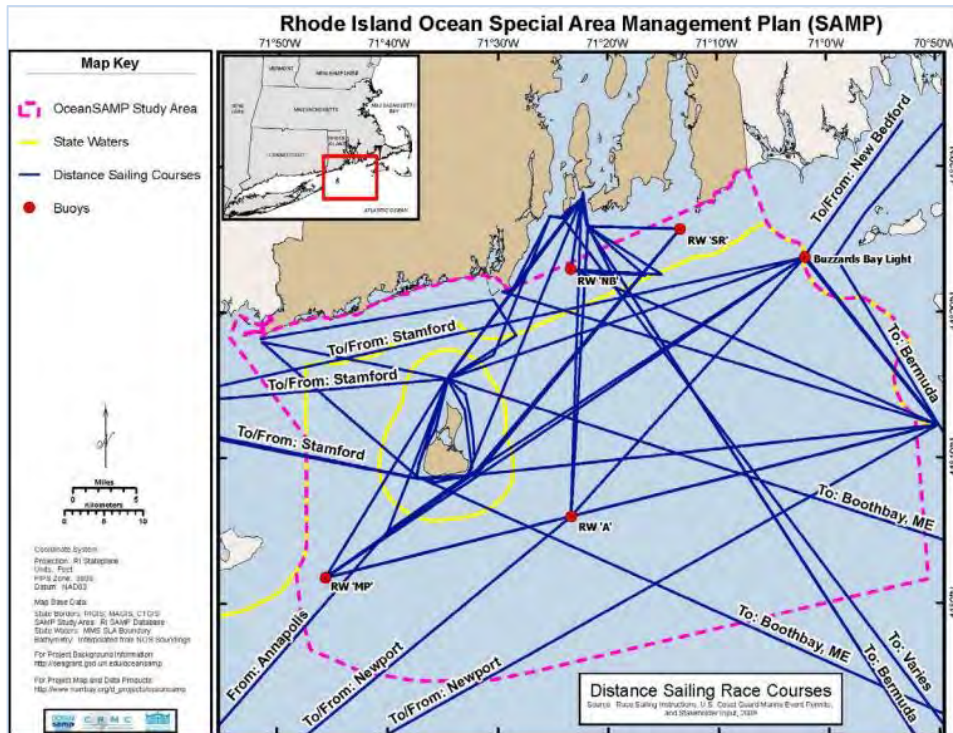


**Figure 5.2. Distance race data from the RI OSAMP**

## 5.2. Methodology

Leveraging knowledge of existing data, and the nature of sailing events in the region, the team worked with experts on sailing races and regattas in the region to design a survey methodology that would account for the large difference in the scale of sailing events.

Methodology development relied heavily on input from industry leaders. The project kicked off by identifying existing data and identifying key industry leaders. Conversations with these industry leaders led to the development of a customized survey methodology and outreach approach, followed by a data vetting process, which involved reviewing and refining draft survey results with industry leaders and filling identified data gaps.

### 5.2.1. Scoping process

In order to understand the breadth of existing data for regattas and distance races, and in order to weigh the pros and cons of various methodological options for collecting spatial data on sailing races and regattas, the team held a series of webinars and meetings with representatives from the sailing race and regatta community during late 2014 and early 2015. Industry experts included representatives from the Connecticut Marine Trades Association, the USCG, the MA Environmental Police, Gulf of Maine Ocean Racing Association, Sailors for the Sea, and Morris Yacht Clubs, as well as members of the team and the project steering committee (PSC). See Appendix A for further details on webinar timing and participation. Example agendas and PowerPoint slides for survey scoping calls can be found in Appendices E and F.

During these conversations, the team asked industry experts to provide feedback on the following topics:

1. **Preferred data collection methodology** – Webinars introduced several options for data collection methodology, including online opt-in surveys, webinars using interactive mapping technology, or in-person meetings using participatory geographic information systems (PGIS) approaches. The team also asked industry leaders if they had other suggested methodology options, or whether they favored a hybrid approach to combine aspects of several methodologies.
2. **Event criteria -** Participants were asked whether there were criteria, such as event recurrence, event organizers, or number of participants (sailors or vessels) that could be used to determine which events should be targeted for the data collection effort.
3. **Data attributes –** Participants were asked to suggest additional information (i.e. event sponsor, registration fees), which should be collected to characterize mapped areas.
4. **Outreach strategy –** Participants were asked to identify individuals and groups, as well as outreach venues (i.e. listservs) that could both participate in and distribute information about the survey.

Based on feedback from industry members, the team proposed the following methodology:

- Use an online opt-in survey to be distributed to race organizers, yacht clubs, and local and regional sailing organizations, in order to map, as polygons, the footprint of those buoy races that they oversee.
- Create a draft dataset characterizing distance races as lines between race start and end point, using online research and available data from tracking websites. Hold a webinar with distance race organizers to vet the draft dataset using SeaSketch[29] or other data viewing platforms.
- Hold in-person meetings throughout the study region to vet the data collected during both the online survey and the SeaSketch webinars.

This methodology was based on feedback from industry members that an online survey format is preferable to in-person or web-based data collection meetings because it provides recordable data in real-time and because it enables reaching a larger pool of potential respondents in less time. The team proposed characterizing distance races outside of the survey tool based on industry member input that the distance races in the region are relatively few in number. Industry leaders also agreed that the study should include all recurring races, regardless of size.

This approach was presented via webinar to the PSC in March 2015, at which point PSC members had a chance to ask questions and provide feedback. Following the webinar, the PSC approved of the approach and provided additional feedback in the survey tool development phase.

### 5.2.2. Description of data collection and survey tool

*Data collection for distance races*
Because industry contacts indicated a small number of distance races taking place in the region, the team collected data on these races through online research to generate a list of recurring Northeast distance races and created a draft spatial data product depicting lines between the start and end point of each race. RI OSAMP data on distance races informed and were added to this draft data product. However, one-time distance race events described in the RI OSAMP data were not included. The team refined this data product using GPS data provided by Yellowbrick Tracking, which collects data on the locations of vessels participating in some of the target races (Map 3). The raw data points helped to provide more refined information on typical routes taken by race participants during some of the races.

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[29] SeaSketch is a web-based platform that allows registered users to view ocean data and to interact with the data using drawing tools and commenting features. SeaSketch was developed to support and facilitate ocean planning efforts through a platform that does not require user familiarity with GIS tools.
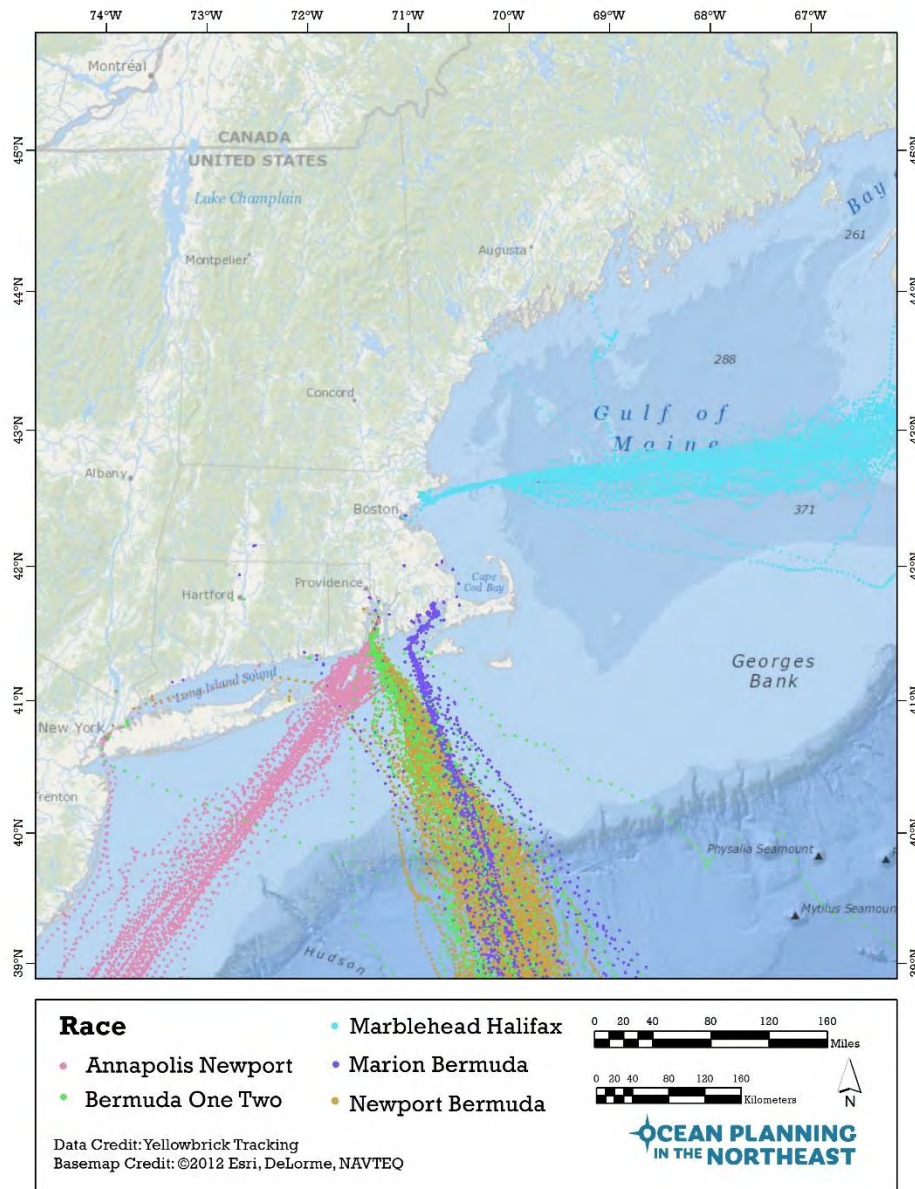
**Map 3. GPS trackpoints on distance races provided by Yellowbrick Tracking**

The team held a SeaSketch webinar with industry representatives involved in distance races (including the Marion to Bermuda, Block Island, Vineyard, and Marblehead to Halifax races). This online forum enabled industry representatives to annotate or edit the existing draft data presented and to provide information on additional races. Industry representatives were given the opportunity to use SeaSketch to refine and add to the draft dataset both during the hosted webinar and at their convenience following the webinar.

*Online opt-in survey:  Buoy races*

One survey instrument was used to collect data on the various types of marine events, including sailing races, fishing tournaments, and competitive board and paddle events. Survey participants were also asked to choose what type of event they planned to characterize. It was possible to choose more than one event type, and survey questions varied slightly depending on the type(s) of event(s) chosen at the beginning of the survey.

The Marine Events survey tool collected data from March $31^{st}$ – May $25^{th}$, 2015 and largely mirrored that of the SCUBA survey mapping tool described in Section 4.2.2 as it was built upon the same software platform developed by Point 97. As in the SCUBA survey, Marine Events survey users could access the tool by registering on the survey home page (Figure 5.3) and were sent an individual unique link to access the survey (Figure 5.4), where the following information was collected:

- Name
- Email
- Affiliation
- Age range
- State and county of residence

Survey participants who indicated that they would be entering data on a sailing race and regatta would then chose from categories to describe their role with respect to the event. Participants chose at least one of the following:

- Member of sailing/racing association or advocacy group
- Race organizer/member of host organization
- Race sponsor
- Race official
- Race participant
- Race spectator
- Race volunteer
- Staff at community sailing organization
- Member of community sailing organization
- Staff at yacht club
- Member of yacht club
- On-water enforcement official (i.e. Harbormaster, USCG or Environmental Police/Marine Patrol)
- Other (user-specified)

Participants were then directed to the mapping platform and given instructions on how to map an area. Participants were instructed to draw a polygon around the general area where the event takes place. After mapping a race area, participants were asked to provide details on the event, including:

- Type of sponsoring organization (public or private)
- Event name
- Event sponsor
- Number of event participants (individual sailors)
- Recurrence (how often the event takes place)
- Month(s) during which the event takes place
- Year that the event started to take place
- Landside location where the event is based

Once details of the event had been entered, participants had the option of mapping another event, going back to edit previously mapped events, or finishing the survey.
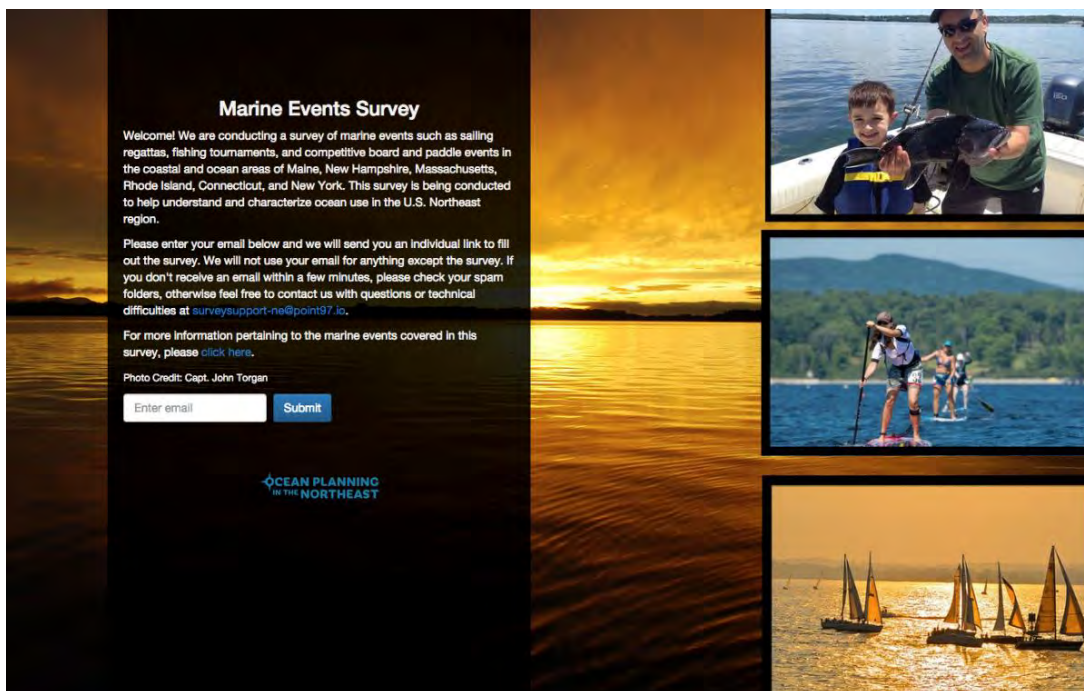


**Figure 5.3. Screenshot of survey home page.**

U.S. Northeast Region Coastal and Ocean Marine Events Survey

Welcome! We are conducting a survey of group recreation activities in the coastal and ocean areas of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, and New York. This survey was created with the help of industry representatives and is being conducted by the Northeast Regional Planning Body to help inform ocean planning in the U.S. Northeast region. This survey is intended to collect information on competitive events that take place in coastal and offshore waters. You have been invited to take this survey on marine events such as sailing races, regattas, youth sailing events, fishing tournaments, and competitive board and paddle events. Survey participants are encouraged to focus on supplying information only on the events with which they are affiliated. You must be 18+ to participate.

Please remember that all your individual information will be kept private and that survey results will be presented in summarized form.

You have the choice of completing the survey in one sitting or stopping and coming back to the survey as many times as you need. Your answers will automatically be saved so you can simply use the survey link sent to your email to return to the survey. If you'd like to go back to any survey question, please use the in-survey back button.

For more information pertaining to the marine events covered in this survey, please click here.

**Figure 5.4. Screenshot of survey start page**

### 5.2.3. Description of survey tool outreach and data vetting

Through online research of yacht clubs and feedback from industry experts, the team compiled a list of yacht clubs and sailing organizations in the study region, along with associated races and contact information for the race organizer or other key point of contact. Prior to the survey's release, the team sent an invitation via email to these organizations, providing information about the survey and inviting them to register for the survey in advance. A summary of the number of sailing organizations that the team contacted, by state, can be found in Table 5.1. The table also lists the number of known events associated with each state, but the team assumes that this is an underestimate of all regional sailing events, given that some yacht clubs did not have information on their sites about existing events. When the survey was released on March 31st, the team sent out another email announcement to the contact list described above. The team also reached out to leaders of regional racing groups by both email and phone, including Gulf of Maine Racing Association, Sailors for the Sea, Massachusetts Bay Yacht Club Association, and US Sailing, and requested that they distribute information about the survey to their membership lists.

**Table 5.1. Summary of known sailing events and sailing organizations by state.**

| State | Number of Sailing Clubs | Number of Sailing Races |
|---|---|---|
| CT | 38 | 77 |
| MA | 97 | 79 |
| ME | 32 | 60 |
| NH | 3 | 8 |
| NY | 50 | 23 |

Note that the team did not directly contact industry representatives from RI as URI CRC/RI SG was conducting that effort simultaneously, as described in Section 2.4. As part of the process of updating the RI OSAMP, RI CRC/RI SG held in-person meetings with stakeholder experts who identified additional areas used for sailing races and regattas in RI waters. During these meetings, stakeholders mapped racing areas within Narragansett Bay, which was not included in the original OSAMP data. During this process, the team collaborated closely with RI CRC/RI SG to determine how best to integrate these, as well as data from the existing OSAMP into the study data.

During the survey period, the team sent periodic email reminders to contacts who had not filled out the survey, as well as to race organizers who had started, but not completed the survey. The team also periodically checked in via email and phone calls with industry representatives to obtain feedback on additional outreach opportunities and strategies to fill known data gaps.

Once the data were analyzed and collected, the team presented the data at four dedicated meetings in the study area, described in Appendix A. The Massachusetts Boating and Yacht Club Association also invited the team to present an overview of the survey and to collect additional information at one of its quarterly meetings, held in Dorchester, MA in June 2015. At these meetings, industry representatives had the opportunity to view and provide feedback on the data collected using the online survey and SeaSketch and were also able to add data on additional events using the e-beam tool.

### 5.2.4. Data processing and cleaning

*Distance races*
Data entered by industry leaders using SeaSketch were downloaded from the site and used to refine and supplement the draft distance race dataset using editing tools in ArcMap. In one case, a SeaSketch participant drew a polygon to characterize the Marion to Bermuda Race. In this case, the polygon was simplified to a line to reflect the center of the polygon. The PGIS workshops were also an opportunity for participants to vet distance race data. For example, in the PGIS workshop in Old Lyme, CT one

participant refined the course of the Storm Trysail Block Island Race that had been entered in SeaSketch by an industry expert. In this case, the data from the PGIS workshop was used to extend course drawn in SeaSketch to the south and to the east, to reflect a slightly larger racing area. There were several cases where online survey participants entered data on distance races. In these cases, data on distance races were removed from the online opt-in survey data and added to the distance race data. Distance race data from the RI OSAMP were considered authoritative and were not altered in the regional distance race dataset.

*Buoy races*

Because of the incomplete nature of the survey results on buoy races, maps were not developed for this report; however, Appendix BIII instead contains maps of sailing event landside locations. Landside locations include yacht clubs, marinas, or other points of origin for sailing events.

## 5.3. Results

### 5.3.1. Distance race data characteristics

Data collected using the sources and techniques described in Section 5.1.4 yielded spatial data on 12 distance races, which take place in the region. These races are listed in Table 5.2 and mapped in Map 4.

| Race | Organizing Yacht Club(s) | Start Point | Destination | Month |
|---|---|---|---|---|
| Annapolis to Newport | Annapolis Yacht Club; Newport Yachting Center | Annapolis, MD | Newport, RI | June |
| Annual Castine Classic Yacht Race | Castine Yacht Club | Castine, ME | Camden, ME | July |
| Beringer Bowl Overnight Ocean Race | Boston Yacht Club | Marblehead, MA | Provincetown, MA | July |
| Bermuda One-Two | Newport Yacht Club | Newport, RI | St. George's Bermuda | June |
| Corinthians | Corinthians; Stonington Harbor Yacht Club, Boothbay Harbor Yacht Club | Watch Hill Light, RI | Boothbay Harbor, ME | July |
| Maine Rocks* | Rockland Yacht Club | Rockland Harbor, ME | Matinicus Rock, ME | September |
| Marblehead to Halifax | Boston Yacht Club; Royal Nova Scotia Yacht Squadron | Marblehead, MA | Halifax, Nova Scotia | July |
| Marion-Bermuda Race | Beverly Yacht Club; Blue Water Sailing Club; Royal Hamilton Amateur Dinghy Club | Marion, MA | St. David's Head, Bermuda | June |
| Newport to Bermuda | Cruising Club of America and the Royal Bermuda Yacht Club | Newport, RI | St. David's Head, Bermuda | June |
| Stamford Vineyard Race* | Stamford Yacht Club | Stamford, CT | Buzzards Bay, MA | September |
| Storm Trysail Block Island Race* | Storm Trysail Club | Stamford, CT | Block Island, RI | May |
| Volvo Ocean Race** | N/A | Alicante, Spain | Gothenburg, Sweden | October - June |
| *Denotes races in which the destination is the turning point before heading back to the starting point, rather than the final destination of the race<br>**Race has multiple stopover points across the globe. Newport, RI is a stopover point between Itajai, Brazil and Lisbon, Portugal | | | | |

**Table 5.2. List of recurring distance races and locations in study area**


### 5.3.2. Buoy race survey response characteristics

A total of 63 individuals initiated the survey, while 45 individuals completed the survey. Survey participants mapped a total of 68 areas where buoy races take place. There is not a one-to-one relationship between the number of buoy race areas mapped and the number of events described

because in some cases, multiple users mapped the same event and in other cases, survey participants mapped an area where an unspecified number of events take place regularly throughout the year. Therefore, 68 is considered an underestimate of the number of distinct buoy races described in the survey data.

During the in-person data vetting and refinement meetings, participants also mapped, and provided information on, an additional 22 buoy races. Table 5.3 provides a geographical overview of survey responses, showing both a summary of the home state of survey respondents, and the locations of mapped events. Events spanning multiple states or occurring primarily outside of state waters are listed under the Various/Offshore category.

**Table 5.3.** **Total number of survey respondents and events mapped by state**

| State | Number of Survey Respondents | Number of Events Mapped During Online Survey | Number of Events Mapped During Data Vetting |
|---|---|---|---|
| CT | 6 | 9 | 1 |
| MA | 26 | 38 | 15 |
| ME | 4 | 8 | 6 |
| NH | 2 | 3 | 0 |
| NY | 3 | 5 | 0 |
| Unspecified/Varied/Other | 4 | 5 | 0 |
| **TOTAL** | 45 | 68 | 22 |

As previously described, the RI OSAMP update process collected data on RI sailing events for that state, including those in Narragansett Bay, which was not included in the original RI OSAMP. Distance race data from the RI OSAMP was also used to inform the draft dataset on distance races described in 5.1.2.

### 5.3.3. Survey participant characteristics and demographics

While survey respondents often filled several roles in the race, approximately half of the respondents held the role of event organizer and or a member of the organizing or sponsoring organization (Figure 5.5)
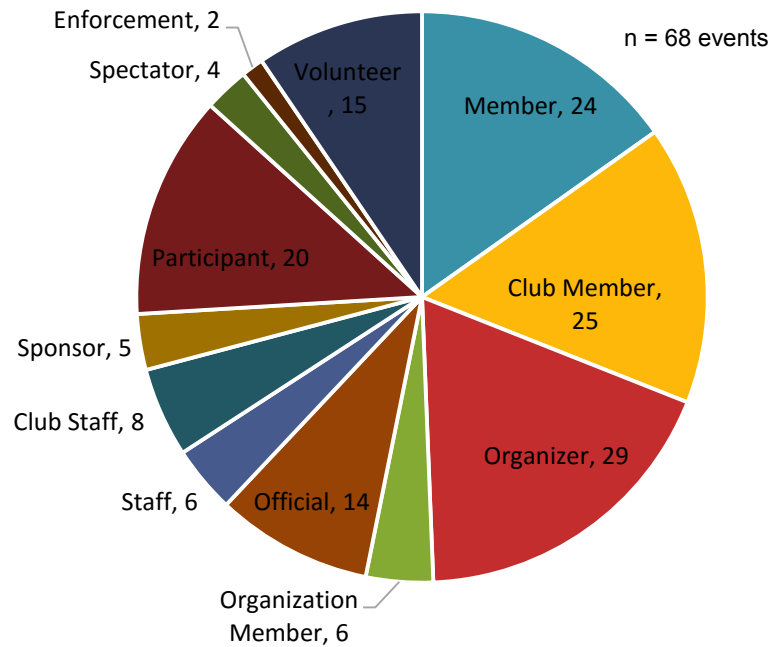
**Figure 5.5. Role of survey respondents**

### 5.3.4. Spatial data

A regional overview map depicting distance races a can be found in Appendix BIII. Because of the incomplete nature of the survey results on buoy races, maps were not developed for this report; however, Appendix BIII instead contains maps of sailing event landside locations. Landside locations include yacht clubs, marinas, or other points of origin for sailing events. More details on this dataset can be found in the following sections.

### 5.3.5. Overview of buoy race characteristics in the region

Nearly one-third of survey participants didn't specify the type of event they were characterizing, possibly because the mapped area contained many different types of events. Races were the most frequently-specified event type. There were 13 community boating event areas mapped, and only 3 race weeks (Figure 5.6). The majority of the mapped areas contained races that take place once a year, followed closely by races that take place once or twice per week (Figure 5.7). These regularly recurring races were often community boating events, such as evening racing series, which take place once or twice per week. The number of participants in a race varied widely. While there were very few races with over 500 participants, there were approximately equal numbers of responses throughout the remainder of the participant interval range options in the survey (Figure 5.8). In the cases where multiple events were said to take place at a given location, it is not clear whether the number of participants reflects the typical number of participants in that area, or whether it is information about a

specific race taking place in that area. Most events took place during the summer months, with the highest number of events taking place in July (Figure 5.9). Because of the limited participation in this survey, these figures are not representative of all regional events.



n = 68 events

■ Race Week  ■ Race  ■ Community Boating  ■ Unspecified
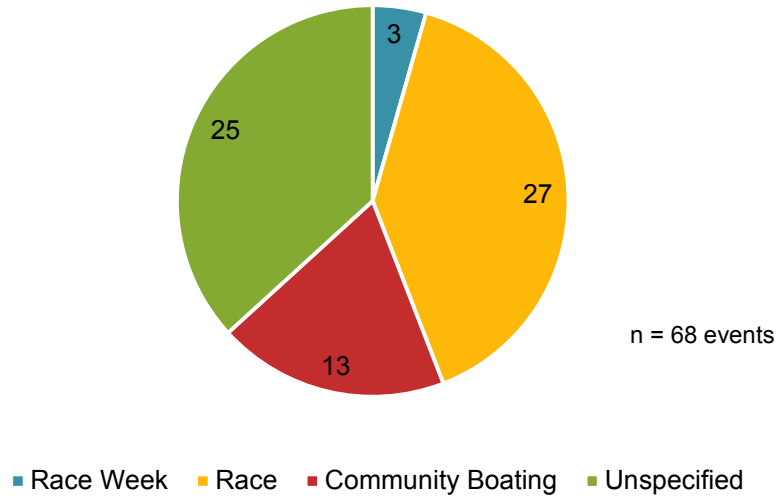
**Figure 5.6. Survey responses for sailing event type.**



n = 68 events

■ Unspecified  ■ 2-5 Years  ■ Once-Twice per week  ■ Once per Year
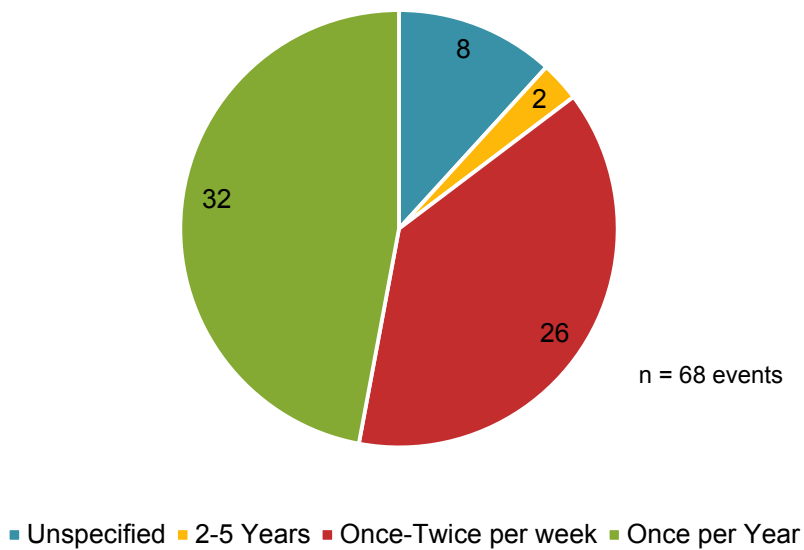
**Figure 5.7. Frequency of mapped sailing events.**

n = 68 events
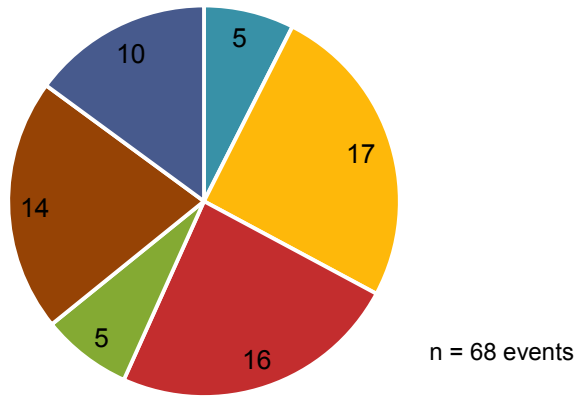
■ Unspecified ■ 100-500 ■ 25-50 ■ 500-1000 ■ 50-100 ■ Less than 25

**Figure 5.8. Number of participants in mapped sailing events.**



n = 68 events
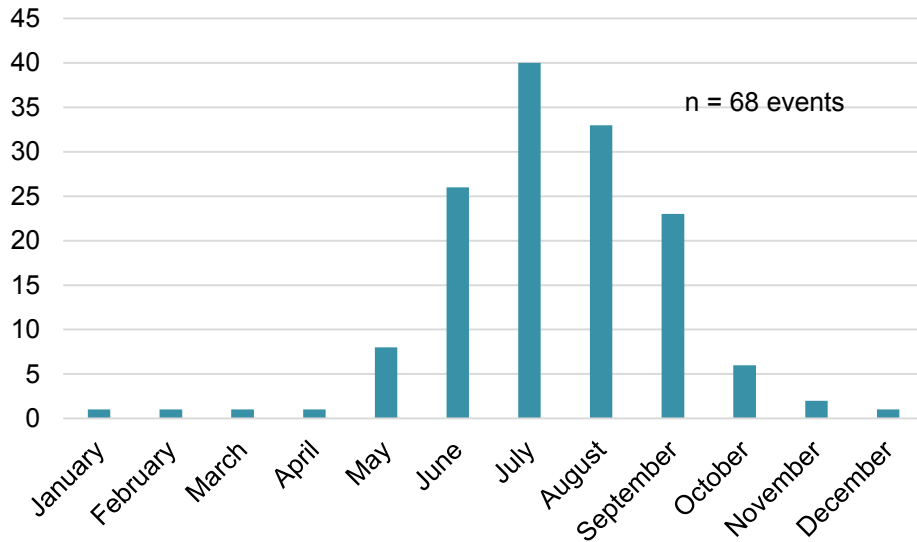
**Figure 5.9. Timing of mapped sailing events.**

*Additional dataset creation*

Based on the data gaps previously described and identified through draft data vetting meetings with industry stakeholders, efforts were made to address the incomplete data resulting from the online survey and PGIS meetings. Online searches for yacht clubs and sailing organizations, regional event listings, online survey data, and stakeholder feedback were used to populate a table of event landside locations, addresses, and known associated events (Appendix H). This research identified 195 sailing event landside locations hosting at least 730 events throughout the region. Landside locations were

geocoded using ArcGIS tools to create a spatial dataset depicting the point locations of the yacht clubs and sailing organizations that were identified during the project (Map 5). The dataset also contains attribute data on known events. Data on event characteristics captured during the online survey and subsequent data vetting workshops, including the RI OSAMP update meetings, are included in this table so that events listed in the table that were characterized during the survey contain more descriptive details on certain events. Because this dataset is more geographically-representative of race activity in the area, this report contains maps depicting this dataset for the region and for individual states. The regional map can be found in Map 5 below and the state maps can be found in Appendix BIII.

## Map 4. Distance Sailing Races: Northeast Region
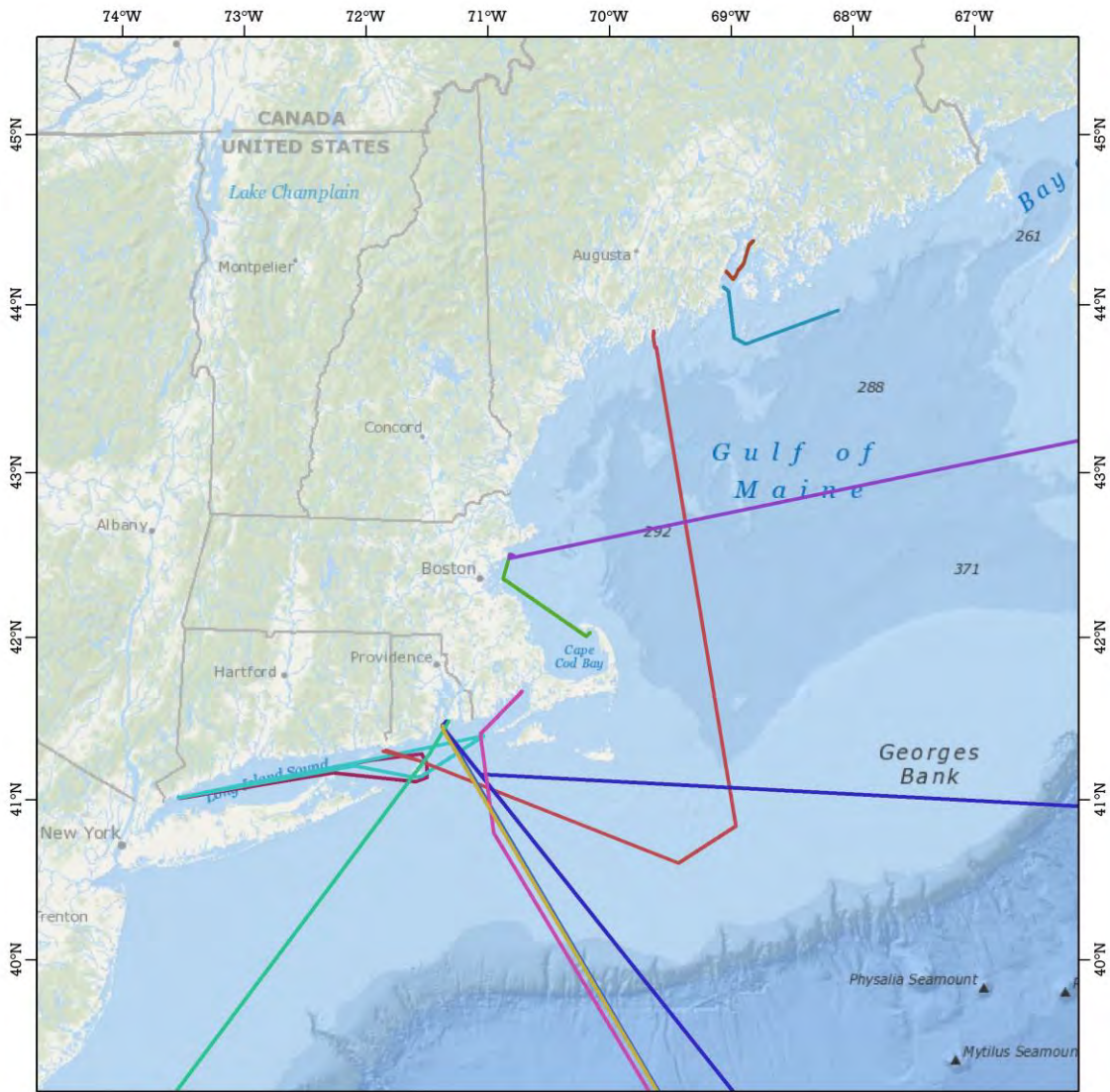


Distance Race

- Annapolis to Newport
- Annual Castine Classic Yacht Race
- Beringer Bowl Overnight Ocean Race
- Bermuda One Two
- Corinthians
- Maine Rocks
- Marblehead to Halifax
- Marion to Bermuda Race
- Newport Bermuda
- Stamford Vineyard Race
- Storm Trysail Block Island Race
- Volvo Ocean Race

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015
Northeast Regiona Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

OCEAN PLANNING IN THE NORTHEAST

**Map 5. Map of Buoy Race Landside Location**
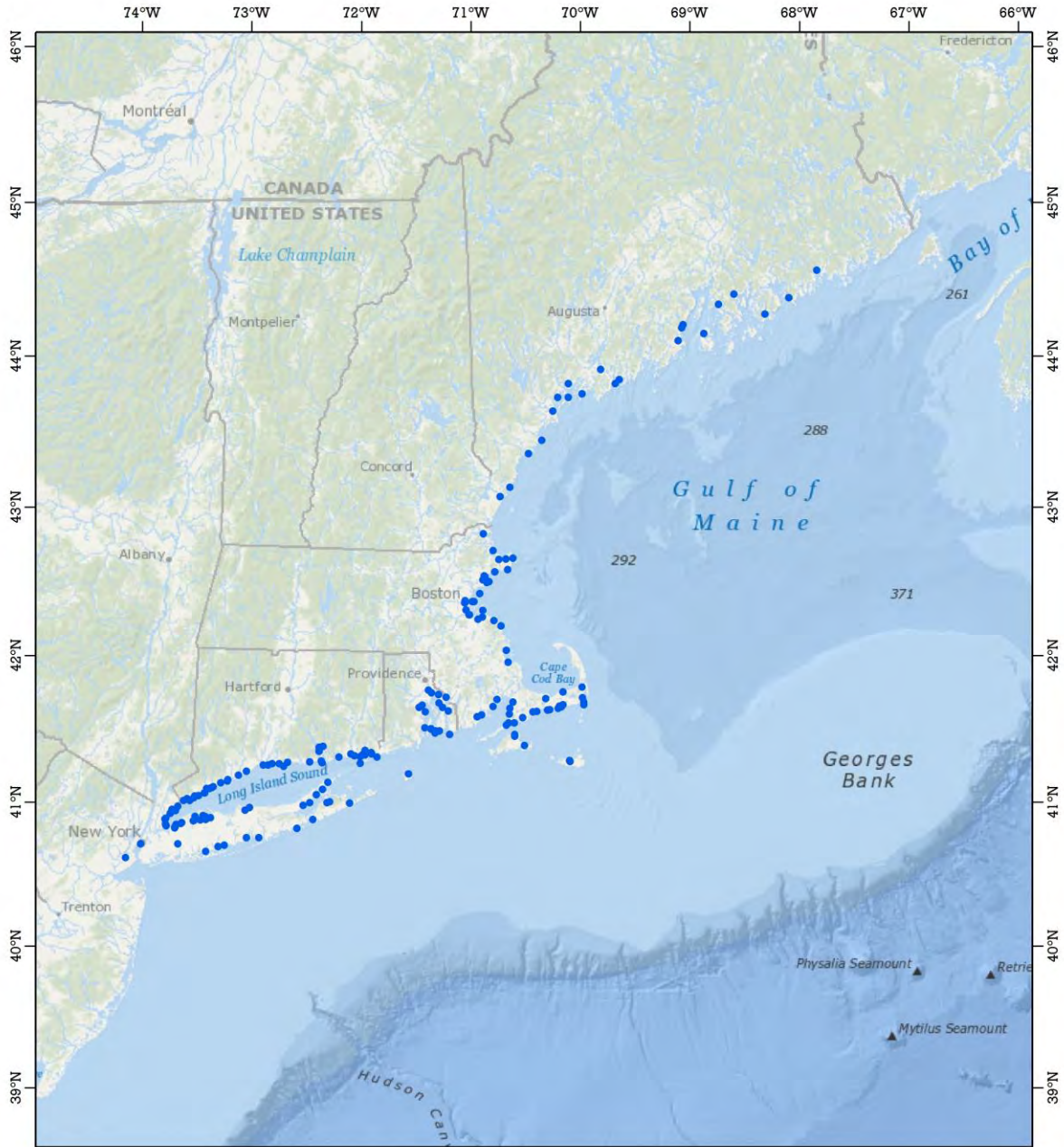


Sailing Race Landside Locations

0  20  40    80    120   160
Miles

0  25  50   100   150   200
Kilometers

N

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015 Northeast
Regional Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

OCEAN PLANNING
IN THE NORTHEAST

## 5.4. Discussion

### 5.4.1. Results

While the survey results for buoy races, especially small regattas, were incomplete, some general results are noteworthy. The survey data depict sailing races and regattas occurring throughout the study region, with clusters of activity taking place in Boston Harbor through the North Shore of MA, the Casco Bay region of ME, the South Shore of Cape Cod and the Islands, and in the New London and Mystic areas of Connecticut.  Participants at the workshop in Old Lyme, CT also stressed that race activity is  clustered in Long Island Sound, with summer sailing races taking place over the majority of the Sound area during the racing season. Data collection efforts in RI also revealed that Newport and Narragansett Bay are regional sailing hubs. As described in initial discussions with industry members, there are many small, regularly occurring series that take place in a relatively small area close to the associated yacht club, and which tend to attract less than 50 participants. Higher profile regattas, which take place once a year and which tend to attract 100 – 500 participants, vary in the size of their overall spatial footprint. Some, like the Portland Yacht Club Lobster Bowl, take place in close proximity to their landside location while others, like the Fisher's Island Yacht Club Round Island Race, take their participants further offshore.

There is no direct correlation between the number of participants in a race and the overall spatial footprint that the race occupies. This is especially true when it comes to distance races. While distance races tend to attract fewer participants, they generally cover larger areas, albeit with less frequency.

In general, the study was successful in capturing the number and general footprint of distance races in the region, as well as many of the high-profile regattas, which tend to occur once a year. Many smaller, community-based events, which are likely to be less heavily publicized, were not adequately captured during this survey. While the dataset depicting the landside locations of sailing races (See Appendix BIII) does not capture the ocean footprint of sailing events, it is more effective than the data collected during the survey in geographically representing race activity throughout the region, as it shows the locations from which these activities originate. The landside location dataset has utility in identifying general areas where sailing activities are likely to take place, as well as in providing important attribute data on event timing and recurrence, which are both important considerations from an ocean planning perspective.

### 5.4.2. Study and data limitations

*Distance races*
While the team has high confidence that the study has captured the total number of regularly recurring distance races that take place in the region, the lines depicting these races are highly generalized. The team made the decision to characterize these races as lines, rather than polygons, in consideration of the regional scale at which the data will be viewed; however, routes may vary depending on winds and other environmental conditions, meaning that races depicted on a large (i.e. zoomed-in) scale may not provide a precise depicting of the race activity.

*Buoy races*

The online survey attempted to capture the general footprint of buoy races in the region using mapped polygons, but because survey participation was limited, it was determined that point data depicting landside locations of buoy races could provide better representation of the distribution of race activity throughout the region.  Although the size of the activity area surrounding each event landside location may vary depending on the nature of the race, the number of participants, or the geographic or seafloor characteristics surrounding the location, the landside location points should be interpreted as hubs of activity from which sailing events are likely to originate. The spatial footprint of a race depends on a number of factors, including winds, tides, currents, number of participants, and other ocean uses that are taking place in the area. Some races have specific boundaries, while others take place in more general areas.

Based on supplemental research conducted as part of this survey, there are at least 726 non-distance race sailing events that take place in the region. Based on this data, the survey tool, combined with the data captured during the data vetting phase, captured less than 10% of sailing activity in the region (See Appendix H) for a list of known sailing events and event organizers in the region). The dataset depicting point locations of yacht clubs and sailing organizations in the region can help to identify the study's data gaps.

Additional survey tool limitations related to survey responses are described in Section 4.4.2.

### 5.4.3.  Recommendations

*Data presentation and interpretation*

The team believes that the distance race dataset is representative of all of the recurring distance races in the region, recognizing the caveat that a line (compared to a polygon) cannot depict the full spatial extent of where distance race activity could take place in a given race.  From a regional perspective, line-based depictions of race routes provide an approximation of where race activity is likely to take place, noting appropriate caveats on the influence of variable environmental conditions on race routes.

 The dataset depicting the point locations of yacht clubs and sailing organizations can be used to visualize where smaller sailing events and regattas are likely to originate from throughout the region. Although this dataset does not depict the spatial extent of activities originating from that location, it provides more comprehensive regional spatial coverage given the likely study limitations mentioned above. Data collected via the online survey are used to supplement this dataset, providing additional attribute information about race characteristics, such as timing, recurrence, and participation.

*Lessons learned*

Given that the spatial description of events on permit applications varies widely in terms of quality and precision, future recreational characterization of smaller sailing regattas and buoy races will need to be coordinated with USCG and relevant state authorities to determine how marine event permits can best be used to supplement information gathered.  Close coordination with local boating authorities is also highly encouraged to ensure adequate control and safety of everyone in and around all marine events.

For future characterization efforts, the Team offers the additional following observations for guidance:

1. Many races have information about general race boundaries in either online or printed documents. While these are often expressed as buoy or other landmarks, rather than specific geographic coordinates, given sufficient knowledge of local landmarks using navigational charts or other spatial data, these resources could be leveraged to further characterize races in the region.
2. While the survey tool had the advantage of being distributed to a wide variety of participants, in-person meetings were a better venue for engaging industry members and capturing a large amount of data in a relatively short period of time, especially prior to the season where sailing races are at peak intensity. The benefits of in person meetings are described in further detail in Section 4.4.3.
3. With this survey's focus on competitive sailing events, the spatial footprints of other organized sailing activities, such as educational marine sailing and shipboard programs that maintain an active presence on the water year-round, are not reflected in the current dataset. Future efforts may consider including these activities in the scope of target activities to capture.

# 6.    MARINE EVENTS: Fishing Tournaments

## 6.1. Introduction

*Background and context*

Marine recreational fishing is a prominent ocean activity in the northeast and an important component of this sector is the organization of fishing tournaments. Fishing tournaments in the Northeast region can occur over small bodies of water or take place over large areas of the ocean (hundreds or thousands of square miles) with some occurring over the duration of one weekend and other region/statewide tournaments occurring over the course of an entire spring-summer-fall season. Fishing tournaments fall broadly into three major categories: (1) large, state/regionwide events, (2) club contests, and (3) events sponsored by local tackle shops. The majority of these events target in shore fisheries depending on locality, including locally abundant species such as striped bass (*Morone saxatilis*), bluefish (*Pomatomus saltatrix*), mackerel (*Scombridae* spp*., Scomberomorus* spp.), fluke (*Paralichthys dentatus*) , black seabass (*Centropristis striata*), tautog (*Tautoga otitis*), Atlantic cod (*Gadus morhua*), and Pollock (*Pollachius virens*). Big game fishing tournaments generally occur in offshore waters beyond state water boundaries and  target a variety of large gamefish species, including  tunas , sharks, and billfish. These events are registered with NOAA. Overall, the total number of fishing tournaments in the region has declined over the past several years, presumably due to the state of the economy and rising fuel costs. Despite the decreased number of events, fishing tournaments remain an important cultural and historical aspect of marine recreation in the Northeast.[30] Because of the paucity of comprehensive information that describe the location and characteristics of recreational fishing tournaments, and the recreational fishing sector in general, the NE RPB is filling this important data gap through this and other studies.

*Description of existing data*

Lists of fishing tournaments in the region are located on several online sources, including:

- Rhode Island Saltwater Anglers Association (RISAA) Tournament Page
- www.sportfishermen.com
- www.cyberangler.com
- www.noreast.com/tournaments
- www.americanfishingcontests.com

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[30] Rhode Island Coastal Resources Management Council, *Rhode Island Ocean Special Area Management Plan (Ocean SAMP),* Vol I (2010).

Additional details about each event, including weigh-in locations, participation costs, and target species, can often be found on marina, fishing club, and dedicated tournament websites. However, these sources do not contain any detailed spatial information about where the majority of tournament activity is likely to take place.

## 6.2. Methodology

### 6.2.1. Scoping process

To understand the extent and type of existing data and to discuss methodological options for collecting spatial data on fishing tournaments, the team held a series of webinars and phone conversations with representatives from the recreational fishing industry in early 2015. Discussions occurred with representatives from the Coastal Conservation Association of New Hampshire, the Rhode Island Charter and Party Boat Association, the Connecticut Charter and Party Boast Association, the Babylon Tuna Club, The Bay Shore Tuna Club, and the Massachusetts Department of Fish and Game, as well as members of the team and the PSC. See Appendix A for further details on webinar timing and participation. Example agendas and PowerPoint slides for survey scoping calls can be found in Appendices E and F.

During these conversations, the team asked industry experts to provide feedback on the following topics:

1. **Preferred data collection methodology** – Webinars introduced several options for data collection methodology, including online opt-in surveys, webinars using interactive mapping technology, or in-person meetings using participatory geographic information systems (PGIS) approaches. The team also asked industry leaders if they had other suggested methodology options, or whether they favored a hybrid approach to combine aspects of several methodologies.
2. **Event criteria -** Participants were asked whether there were criteria, such as event recurrence, event organizers, or number of participants that could be used to determine which events should be targeted for the data collection effort.
3. **Data attributes –** Participants were asked to suggest additional information (i.e., target species), which should be collected to characterize mapped areas.
4. **Outreach strategy –** Participants were asked to identify individuals and groups, as well as outreach venues (i.e. listservs) that could both participate in and distribute information about the survey.

Initial research of online sources identified approximately 50 tournaments in the region and this initial list was confirmed by our industry experts during the scoping phase of the project. Through additional research of tournament organizer websites and written materials obtained from the New England Salt Water Fishing Show (held in February 2015), this project reports a total of 122 annual/semi-annual tournament events. This list includes additional events from the initial list of organizers and

tournaments; and includes all tournaments that have taken place in 2014 or scheduled for 2015 calendar years. Industry experts noted the difficulty of mapping the spatial footprint of a given tournament, because fishing locations aren't fixed and tournament "boundaries" are typically very large; considerations based on the inter-annual variability in the distribution of target species, weather conditions, fuel costs, and other issues greatly influence where tournament participants travel and are very difficult to predict or map.

Based on feedback from industry members, the team proposed the following methodology:

- Use an online opt-in survey to be distributed to tournament organizers, leaders of sportfishing clubs, and managers of marinas and tackle shops to map the footprint of those sportfishing tournaments, which they oversee.
- Hold in-person meetings in each state to vet the data collected during the survey.

Participants provided advice on engaging tournament organizers in the survey and in some cases offered to distribute information about the survey via their club websites and mailing lists.

This approach was presented via webinar to the PSC in March 2015, at which point PSC members had a chance to ask questions and provide feedback. Following the webinar, the PSC approved of the approach and provided additional feedback in the survey tool development phase.


### 6.2.2. Description of survey tool and data collection

*Online opt-in survey*
The team developed an online survey tool, which would allow users to map and enter information about fishing tournaments. The same survey instrument was used to collect data on several different types of events, including sailing races, fishing tournaments, and competitive board and paddle events. This survey instrument is described in detail in Section 5.2.2.

A survey participant was then asked to choose from categories that describe their role with respect to the event. They could choose at least one of the following:

- Tournament organizer/member of host organization
- Tournament sponsor
- Tournament official
- Tournament participant
- Tournament spectator
- Tournament volunteer
- Member of recreational fishing organization, association or advocacy group
- On-water enforcement official (i.e. Harbormaster, USCG or Environmental Police/Marine Patrol)

- Federal, state or local government official
- Other (user-specified)

The participant was then directed to the mapping platform and given instructions on how to map an area. Participants were instructed to draw a polygon around the general area where the event takes place. After mapping a race area, the participant was asked to provide details on the event, including:

- Event name
- Event sponsor
- Number of vessels participating in the event
- Recurrence (how often the event takes place)
- Month(s) during which the event takes place
- Type(s) of fish targeted during the event
- Year that the event started to take place
- Landside location where the event is based

Once details of the event had been entered, the participant had the option of mapping another event, going back to edit previously mapped events, or finishing the survey.

### 6.2.3. Description of survey tool outreach and data vetting

Through online research and feedback from industry experts, the team compiled an initial list of sportfishing clubs and tournaments in the study region, along with contact information for the tournament organizer or other key point of contact. Table 6.1 provides a state-by-state summary of the number of fishing organizations and tournaments that the team identified. This list grew during the study period based on feedback from industry members and additional research; however this list may not be exhaustive. Prior to the survey's release, the team sent an invitation via email to identified organizations, providing information about the survey and inviting them to register for the survey in advance.  When the survey was released on March 31st, the team sent out another email announcement to the contact list described above. The team also reached out to the industry contacts involved in the survey scoping process and asked them to distribute information about the survey to their other key contacts.

**Table 6.1. Summary of fishing organizations and tournaments by state, as identified by the project team**

| State | Number of Fishing Clubs | Number of Fishing Tournaments |
|---|---|---|
| CT | 2 | 2 |
| MA | 18 | 44 |
| ME | 9 | 9 |
| NH | 0 | 0 |
| NY | 16 | 56 |
| RI | 4 | 11 |

While the survey was live, the team sent periodic email reminders to contacts who had not filled out the survey, as well as to participants who had started, but not completed the survey. The team also periodically checked in by email and phone with industry representatives to obtain feedback on additional outreach opportunities, or on strategies to fill known data gaps.

Once the data were analyzed and collected, the team invited key industry contacts to the in-person meetings in the study area, described in Appendix A. While these industry contacts did not elect to attend the meetings, they did help to  refine the list of tournaments that were compiled during background research.

### 6.2.4. Data processing and cleaning

Data processing and cleaning procedures for fishing tournament data collected in the Marine Events survey are similar to those described in Section 5.2.4 in that the team used ArcGIS editing tools to clip features to the shoreline, remove topological errors, and achieve consistent attribute characteristics.

## 6.3. Results

### 6.3.1. Survey response characteristics

A total of 11 individuals initiated the survey, while 4 individuals completed the survey. Survey participants mapped a total of 8 areas, which depicted at least 8 events. Table 6.2 provides a geographical overview of survey responses, showing both a summary of the home state of survey respondents and the locations of mapped events. If a mapped event area took place in the waters of multiple states, or if that event activity took place outside of state waters, this event was listed under the Various/Offshore category.

**Table 6.2. Total number of survey respondents and fishing events mapped by state**

| State | Number of Survey Respondents | Number of Events Mapped |
|---|---|---|
| CT | 0 | 0 |
| MA | 3 | 4 |
| ME | 0 | 1 |
| NH | 0 | 0 |
| NY | 1 | 1 |
| RI | 0 | 1 |
| Various/Offshore | 1 | 1 |
| **TOTAL** | 4 | 8 |

### 6.3.2.  Spatial data

Because of the incomplete nature of the fishing tournament survey results, maps depicting raw data on fishing tournaments are not included in this report. Section 6.3.3 describes an additional spatial data that was generated based on the list of regional tournaments found in Table 6.3. Maps depicting this dataset can be found in Appendix BIV.

### 6.3.3.  Overview of regional tournament characteristics

Due to the low survey response rate, it is not possible to describe regional tournament characteristics based on survey data. However, Table 6.3 contains data on target species and timing for known fishing tournaments in the region, based on background research.

*Additional dataset creation*

Due to the low response rate using the online survey, the Team also developed an additional spatial dataset related to fishing tournament activity in the region. This dataset is based on a list of regional tournaments identified through online research of tournament organizer websites, written materials obtained by organizers attending the 2015 New England Salt Water Fishing Show, and vetted with industry experts. These data can be found in Table 6.3. The majority of these tournaments are scheduled to occur in 2015. However, some of the tournaments included on this list have been held in previous years and it is unclear from available information whether they will be taking place during 2015 or future years.

The spatial dataset derived from this list is composed of points identifying where the tournament is based (such as the sponsoring marina or fishing club headquarters) or the location of the weigh-in station. This spatial dataset was created by geocoding the addresses of tournament points of origin and/or weigh-in stations using ArcGIS tools. A regional map of this dataset can be found in Map 6 and state maps depicting this dataset can be found in Appendix BIV. However, this dataset only depicts a subset of known tournaments, and resulting maps do not reflect the fact that several tournaments may originate from the same location. Approximately one-third of the identified tournaments do not have a designated point of origin or weigh-in station. While these tournaments are listed in the tabular data in

Table 6.3, they are not included in the spatial dataset, as there is insufficient spatial information to characterize these events.

**Map 6. Map of Fishing Tournament Landside Locations**
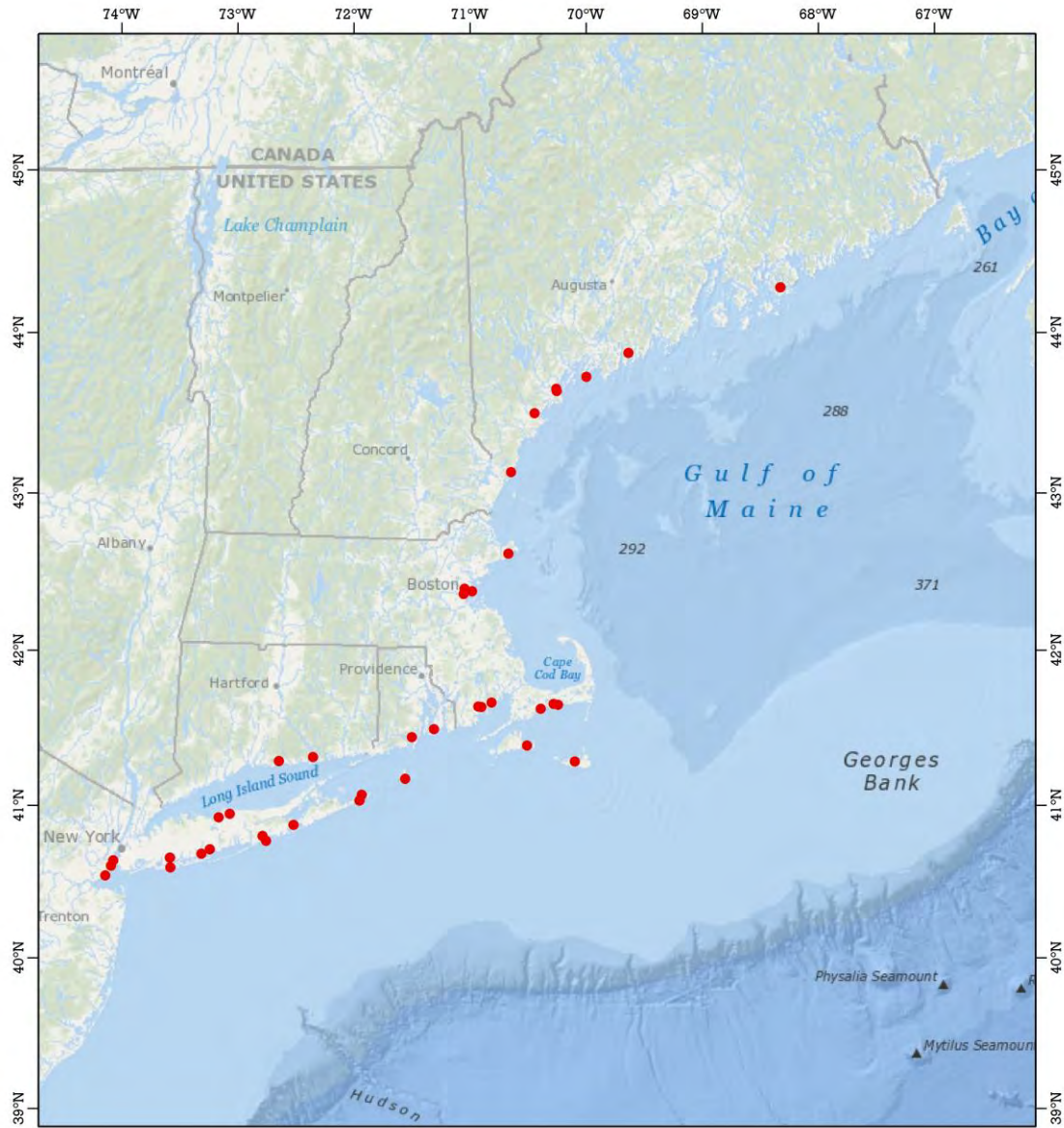
## Table 6.3. Summary of fishing tournaments in the Northeast

| Organization | Tournament | State | Point of Origin/Weigh-in Station | Species Targeted | Tournament Length | Event Date | Most Recent Year |
|---|---|---|---|---|---|---|---|
| Bay Shore Tuna Club | Weeklong Blackfish | NY | 122 Ocean Avenue, Bay Shore, NY 11706 | blackfish | 1 week | Nov 7-15 | 2015 |
| | Weeklong Bluefish I | NY | 122 Ocean Avenue, Bay Shore, NY 11706 | bluefish | 1 week | May 30-Jun 7 | 2015 |
| | Weeklong Bluefish II | NY | 122 Ocean Avenue, Bay Shore, NY 11706 | bluefish | 1 week | Aug 15-23 | 2015 |
| Bay Shore Tuna Club | Intra-club Bluefish | NY | 122 Ocean Avenue, Bay Shore, NY 11706 | bluefish | 1 day | Jul 18-19 | 2015 |
| | Weeklong Bonito | NY | 122 Ocean Avenue, Bay Shore, NY 11706 | bonito | 1 week | Jul 25-Aug 2 | 2015 |
| | Weeklong Cod Fish | NY | 122 Ocean Avenue, Bay Shore, NY 11706 | cod fish | 1 week | Nov 28-Dec 6 | 2015 |
| | Weeklong Flounder II | NY | 122 Ocean Avenue, Bay Shore, NY 11706 | flounder | 1 week | Apr 4-12 | 2015 |
| | Weeklong Flounder II | NY | 122 Ocean Avenue, Bay Shore, NY 11706 | flounder | 1 week | Apr 25-May 3 | 2015 |
| | Weeklong Fluke | NY | 122 Ocean Avenue, Bay Shore, NY 11706 | fluke | 1 week | May 16-24 | 2015 |
| | Intra-club Fluke | NY | 122 Ocean Avenue, Bay Shore, NY 11706 | fluke | 1 day | May 30-31 | 2015 |
| | Weeklong Mako/Thresher | NY | 122 Ocean Avenue, Bay Shore, NY 11706 | mako, thresher | 1 week | Jun 20-28 | 2015 |
| | Weeklong Sea Bass | NY | 122 Ocean Avenue, Bay Shore, NY 11706 | sea bass | 1 week | Oct 17-25 | 2015 |
| | Weeklong Striped Bass | NY | 122 Ocean Avenue, Bay Shore, NY 11706 | striped bass | 1 week | Oct 10-18 | 2015 |
| | Intra-club Striper | NY | 122 Ocean Avenue, Bay Shore, NY 11706 | striped bass | 1 day | Oct 17-18 | 2015 |
| | Weeklong Tuna I | NY | 122 Ocean Avenue, Bay Shore, NY 11706 | tuna | 1 week | Jul 18-26 | 2015 |
| | Weeklong Tuna II | NY | 122 Ocean Avenue, Bay Shore, NY 11706 | tuna | 1 week | Sep 5-13 | 2015 |
| | Intra-club Tuna | NY | 122 Ocean Avenue, Bay Shore, NY 11706 | tuna | 1 day | Sep 12-13 | 2015 |
| | Weeklong Weakfish | NY | 122 Ocean Avenue, Bay Shore, NY 11706 | weakfish | 1 week | May 9-17 | 2015 |
| | Intra-club Weakfish | NY | 122 Ocean Avenue, Bay Shore, NY 11706 | weakfish | 1 day | May 16-17 | 2015 |
| Big Game Fishing RI | Fluke Til Ya Puke Tournament | RI | South Kingstown, RI | fluke | 1 day | Jun | 2015 |

| Organization | Tournament | State | Point of Origin/Weigh-in Station | Species Targeted | Tournament Length | Event Date | Most Recent Year |
|---|---|---|---|---|---|---|---|
| BOMA Boston | the BOMA Boston Striped Bass and Bluefish Tournament | MA | Boston, MA | striped bass, bluefish | 1 day | | 2014 |
| Boothbay Regional Fish and Game Association | the Boothbay Region Fish and Game Association Saltwater Tournament | ME | Boothbay, ME | striped bass, mackerel, pollock | 2 days | | 2014 |
| Boston Big Game Fishing Club | Newport Rhode Island Monster Shark Tournament | RI | Newport, RI | shark | 2 days | Jun 17-20 | 2015 |
| Boston Bruins Foundation | Boston Bruins Skate & Bait Fishing Tournament | MA | Gloucester, MA | none specified | 1 day | 23-Jul | 2006 |
| Buzzards Bay Anglers Club | the Annual Inshore Tournament | MA | Mattapoisett, MA | striped bass, bluefish | 1 week | | 2011 |
| | Members Only Spring Tournament | MA | Mattapoisett, MA | none specified | | | 2015 |
| | Saltwater Ice Fishing Derby | MA | None | none specified | 1 day | Feb | 2015 |
| Cape Cod Salties | In House Striped Bass Derby | MA | None | striped bass | 2 weeks | Jun | 2015 |
| | the Annual Salties One Day Derby | MA | None | striped bass, bluefish | 1 day | | 2015 |
| | In House Derby | MA | Yarmouth, MA | striped bass, bluefish, bonito, false albacore, fluke, cod, tuna, black seabass, flounder, tautog, mackerel, and others | season long | | 2015 |
| Casco Bay Anglers Club | the CBAC Striper Hunt | ME | None | striped bass | 2 days | | 2012 |
| Casco Bay Tuna Club | Bailey Island Fishing Tournament | ME | Bailey Island, ME | striped bass, bluefish, mackerel, cod, pollock, shark (blue, mako, porbeagle, thresher) | 6 days | Jul 21 - 26 | 2015 |
| Castafari Inc. | Oak Bluffs Bluewater Classic | MA | None | marlin, tuna, swordfish, and others | 2 days | Jul 22-25 | 2015 |
| Castafari Inc. | the Oak Bluffs Bluewater Classic and the Hyannis Tunafest | MA | Hyannis, MA | tuna | 3 days | | 2015 |
| Fishing Finatics | the Boston Harbor Striper Shootout | MA | None | striped bass | 2 days | | 2015 |
| Fishnet Charters | Bad Daddy Buzzards Bay Fishing Tournament | MA | Fairhaven, MA | tautog, sea bass, scup | 1 day | 6-Jun | 2015 |
| Freeport Hudson Anglers | Annual Fluke Frenzy | NY | Freeport, NY | fluke | 1 day | 11-Jul | 2015 |
| | the Annual Shark Tournament | NY | Freeport, NY | shark | 1 day | | 2015 |
| Freeport Tuna Club | Blackfish Shoot-Out | NY | Freeport, NY | blackfish | 3 days | Oct 9-11 | 2015 |
| | Fluke Shoot-Out | NY | Freeport, NY | fluke | 3 days | Jun 12-14 | 2015 |
| | Shark Shoot-Out | NY | Freeport, NY | shark | 1 day | 20-Jun | 2015 |
| | the Woodcleft Fishing Station Shark Tournament | NY | Freeport, NY | shark (mako / thresher only) | 1 day | | 2015 |
| | Striped Bass Shoot-Out | NY | Freeport, NY | striped bass | 3 days | Jul 10-12 | 2015 |
| Help Hook the Cure Striped Bass Derby | the Help Hook the Cure Striped Bass Derby | MA | Winthrop, MA | striped bass | 1 day | | 2014 |

| Organization | Tournament | State | Point of Origin/Weigh-in Station | Species Targeted | Tournament Length | Event Date | Most Recent Year |
|---|---|---|---|---|---|---|---|
| Hyannis Anglers Club | Offshore Bluefin Tuna | MA | Hyannis, MA | bluefin tuna | 1 day | 3-Oct | 2015 |
| | Season Long Cup | MA | Hyannis, MA | multi-species | 4.5 months | May 22-Oct 11 | 2015 |
| | Father's Day Bass & Bluefish Tournament | MA | Hyannis, MA | striped bass, bluefish | 1 day | 20-Jun | 2015 |
| | The Jabberwocky Fishing Tournament | MA | Hyannis, MA | none specified | 1 day | 26-Jun | 2015 |
| | 2 Day Canyon | MA | Hyannis, MA | none specified | 2 days | Aug 21-23 | 2015 |
| JB Tackle | Block Island Sharkfest | RI | New Shoreham, RI | shark | 2 days | Jun 12-14 | 2015 |
| | Tri-State Canyon Shootout Tournament | RI | New Shoreham, RI | none specified | 4 days | Aug 2-5 | 2015 |
| Long Island Shinnecock Marlin & Tuna Club | the Hamptons Offshore Invitational Fishing Tournament | NY | Hampton Bays, NY | tuna, shark (mako or thresher only), albacore, mahi, bluefish | 2 days | | 2015 |
| MA Marine Fisheries | Massachusetts Saltwater Fishing Derby | MA | None | black sea bass, bluefish, bonito, cusk, false albacore, fluke, scup, Spanish mackerel, striped bass, tautog, wahoo, winter flounder, yellowfin tuna | 11 months | Jan 1-Nov 30 | 2015 |
| Marine Anglers for Research and Conservation | the Casco Bay Classic Tournament | ME | South Portland, ME | bluefin tuna, shark, bluefish, striped bass, haddock, pollock, cusk | 3 days | | 2015 |
| Martha's Vineyard Striped Bass and Bluefish Derby | the Martha's Vineyard Striped Bass and Bluefish Derby | MA | None | striped bass, bluefish (also included are bonito & false albacore) | 5 weeks | | 2014 |
| MDA & Agency 1 | MDA & Agency 1 Sport Fishing Tournament | ME | South Portland, ME | striped bass, bluefish, ground fish, shark, bluefin tuna | 3 days | Aug 14 - 16 | 2005 |
| Montauk Marine Basin | Annual Doormat Derby Fluke Tournament | NY | Montauk, NY | fluke | 1 day | 25-Jul | 2015 |
| | the Montauk Marine Basin Shark Tournament | NY | Montauk, NY | shark | 2 days | | 2015 |
| | Carl Darenberg Memorial Shark's Eye All-Release Tournament | NY | Montauk, NY | shark | 2 days | Jul 18-19 | 2015 |
| | Offshore Shoot Out at Montauk Marine | NY | Montauk, NY | tuna, shark, mahi, swordfish, wahoo | 4 days | Sep 19-Oct 12 | 2014 |
| Moriches Anglers Fishing Club | Fluke Tournament | NY | Center Moriches, NY | fluke | | | |
| | the Moriches Anglers Shark Tournament | NY | Moriches Inlet, Brookhaven, NY | shark | 1 day | | 2015 |
| | Inter-club Derbies | NY | Center Moriches, NY | none specified | | | |
| Nantucket Anglers Club | Inshore Classic | MA | Nantucket, MA | striped bass and others | over a month | Sep 14-Oct 19 | 2014 |
| | Bluefin Tuna Tournament | MA | Nantucket, MA | bluefin tuna | 2 days | June 27-28 | 2015 |
| | Cranny Cranston Tournament | MA | Nantucket, MA | bluefish | 3 days | Oct 11-14 | 2014 |

| Organization | Tournament | State | Point of Origin/Weigh-in Station | Species Targeted | Tournament Length | Event Date | Most Recent Year |
|---|---|---|---|---|---|---|---|
| | July Bass & Blue Tournament | MA | Nantucket, MA | bluefish, striped bass | 10 days | Jul 19-28 | 2014 |
| | Bottom Feeders Tournament | MA | Nantucket, MA | scup, black sea bass, fluke, sea robin | 2 days | Jul 11-12 | 2015 |
| | Last Gasp Striper Tournament | MA | Nantucket, MA | striped bass | 1 month | Nov 1-Dec 1 | 2014 |
| | the Bob Fletcher Bluefish/Bass Tournament | MA | Nantucket, MA | striped bass, bluefish | week | Aug 16-24 | 2014 |
| | Kids Everyone Wins Tournament | MA | Nantucket, MA | none specified | 1 day | 30-Aug | 2014 |
| | East vs West Challenge Tournament | MA | Nantucket, MA | none specified | 1 day | 16-Aug | 2014 |
| | Osterville Anglers Tournament | MA | Nantucket, MA | none specified | 2 days | Sep 27-28 | 2014 |
| | NAC vs MV Tournament | MA | Nantucket, MA | none specified | 2 days | Jun 19-20 | 2015 |
| Noreast | Annual MakoMatt Noreast Big Dog Shootout | NY | None | shark | 2 months | Jun 1-Jul 31 | 2015 |
| North Atlantic Anglers | the Father's Day Bass and Blue Tournament | MA | None | striped bass, bluefish | 1 day | | 2011 |
| North Shore Striped Bass Tournament | the North Shore Striped Bass Tournament | MA | Gloucester, MA | striped bass | 3 days | | 2011 |
| Oakland's Restaurant and Marina | the Wally Oakland Memorial Shark Tournament | NY | Hampton Bays, NY | shark (mako / thresher only) | 1 day | | 2015 |
| | Three Bay Spin/Fly Tournament | MA | None | schoolie (striped bass?) | 1 day | 17-May | 2015 |
| | Youth Striper Night | MA | 72 Crosby Cir, Osterville, MA 02655 | striped bass | | 15-May | 2015 |
| | Ladies Shoal Troll | MA | 72 Crosby Cir, Osterville, MA 02655 | striped bass | 1 day | 11-Jul | 2015 |
| | Osterville Rotary | MA | 72 Crosby Cir, Osterville, MA 02655 | striped bass, bluefish | 1 day | 18-Jul | 2015 |
| Osterville Anglers Club | Richard B. Sellars One Day Bass | MA | 72 Crosby Cir, Osterville, MA 02655 | striped bass, bluefish | 1 day | 22-Sep | 2015 |
| | Larry Coggeshall Season Opener | MA | 72 Crosby Cir, Osterville, MA 02655 | none specified | 1 day | 30-May | 2015 |
| | Father's Day Tournament | MA | 72 Crosby Cir, Osterville, MA 02655 | none specified | 1 day | 13-Jun | 2015 |
| | Barnstable Youth Hockey | MA | 72 Crosby Cir, Osterville, MA 02655 | none specified | 1 day | 25-Jun | 2015 |
| | OAC Open Derby Tournament | MA | 72 Crosby Cir, Osterville, MA 02655 | none specified | | 29-Aug | 2015 |
| Point Lookout Captains Association | Annual Pt. Lookout Shark Tournament | NY | 72 Bayside Dr., Point Lookout, NY | shark | 1 day | 13-Jun | 2015 |
| Port Harbor Marine | the Veterans Appreciation Striper Tournament | ME | Port Harbor, ME | striped bass, bluefish, cod, haddock, bluefin tuna, sharks, mackerel, pollock | 1 day | | 2015 |

| Organization | Tournament | State | Point of Origin/Weigh-in Station | Species Targeted | Tournament Length | Event Date | Most Recent Year |
|---|---|---|---|---|---|---|---|
| RISAA | Black Sea Bass Tournament | RI | (None | black sea bass | 10 days | Oct 10-19 | 2014 |
| | Yearlong Tournament | RI | None | black sea bass, bluefish, bonito, cod, false albacore, fluke, haddock, mahi, pollock, scup, striped bass, tautog, tuna | 1 year | Jan 1-Dec 31 | 2015 |
| | Team Trifecta Tournament | RI | None | black sea bass, bluefish, fluke, scup, striped bass | 3 days | Aug 15-17 | 2014 |
| | Rhode Island Bluefish Tourney | RI | None | bluefish | 10 days | Sep 19-28 | 2013 |
| | Team Fluke Challenge | RI | None | fluke | 2 days | Jul 12-13 | 2015 |
| | Spring Striped Bass Catch & Release | RI | None | striped bass | 10 days | Jun 5-14 | 2015 |
| | Fall Tautog Tournament | RI | None | tautog | 10 days | Oct 17-26 | 2015 |
| Saco Bay Rotary | the Alec Cyr Memorial Fishing Tournament | ME | Saco, ME | striped bass | 2 days | | 2014 |
| Sharks Fund Fishing | the North Atlantic Shark Tournament | MA | New Bedford, MA | sharks | 2 days | | 2015 |
| Smithtown Bay Yacht Club | the Bluefish Tournament | NY | St. James, NY | fluke, bluefish, striped bass | 1 day | | |
| South Shore Marlin and Tuna Club | the Long Island Marlin and Tuna Tournament | NY | None | billfish, tuna, mako | 1 day | | 2010 |
| Star Island Yacht Club | Annual Fluke Tournament | NY | Star Island, Montauk, NY | fluke | 1 day | 8-Aug | 2015 |
| | Annual Mako, Thresher & Tuna Tournament | NY | Star Island, Montauk, NY | mako, thresher, tuna | 2 days | Aug 21-22 | 2015 |
| | the Star Island Yacht Club Shark Tournament | NY | Montauk, NY | shark | 2 days | | 2015 |
| | Annual Full Moon Bass Marathon | NY | Star Island, Montauk, NY | striped bass | 2 days | Jul 31-Aug 1 | 2015 |
| | Annual Striped Bass Tournament | NY | Montauk, NY | striped bass | 1 day | 11-Oct | 2015 |
| | the Star Island Yacht Club Whitewater Sportfish Challenge | NY | Montauk, NY | tuna, shark (mako or thresher only), striped bass, bluefish | 2 days | | 2015 |
| Staten Island Tuna Club | the John Haugen Memorial Bluefish Tournament | NY | Staten Island, NY | bluefish | 2 days | | 2014 |
| | Vinny Sasek memorial Fluke Tournament | NY | 187 Mansion Ave., Staten Island, NY 10308 | fluke | 1 day | 12-Jul | 2015 |
| | Pink Ribbon Ladies Charity Fluke Tournament | NY | 344 Douglas Rd Staten Island, NY | fluke | 1 day | 18-Jul | 2015 |
| | Grandpa Savino Memorial Tournament | NY | 187 Mansion Ave., Staten Island, NY 10308 | fluke | 1 day | 9-Aug | 2015 |
| | Jim Ryan Memorial Fluke Tournament | NY | 187 Mansion Ave., Staten Island, NY 10308 | fluke | 1 day | 26-Jul | 2015 |
| | Annual Shark Tournament | NY | 344 Douglas Rd Staten Island, NY | shark | 1 day | 14-Jun | 2015 |

| Organization | Tournament | State | Point of Origin/Weigh-in Station | Species Targeted | Tournament Length | Event Date | Most Recent Year |
|---|---|---|---|---|---|---|---|
| | SITC Striped Bass 3 Day Contest | NY | 344 Douglas Rd Staten Island, NY | striped bass | 3 days | May 8-10 | 2015 |
| | Armed Forces Invitational Tournament | NY | 344 Douglas Rd Staten Island, NY | striped bass | 1 day | 5-Jun | 2015 |
| | Big Bass Tournament | NY | 344 Douglas Rd Staten Island, NY | striped bass | 3 days | Oct 23-25 | 2015 |
| Suffolk Marine Anglers | Spring Striped Bass Tournament | NY | None | striped bass, bluefish | 1 day | Jun 6-15 | 2015 |
| the Guilford VFW | the Eddie Beauvais Blackfish Tournament | CT | 21 Boston Post Rd., Madison, CT 06443 | blackfish, tautog | 2 weeks | | 2014 |
| the Northeast Striper Shootout | the Northeast Striper Shootout | CT | 142 Ferry Rd., Old Saybrook, CT 06475 | striped bass, bluefish | 7-8 days | | 2010 |
| The Schwartz Center | Fishing for a Cause | MA | None | striped bass, bluefish, fluke | 2 days | | 2015 |
| Vessel Services Inc. | the Sturdivant Island Tuna Tournament | ME | Port Harbor, ME | bluefin tuna | 3 days | | 2015 |
| WICC 600 | WICC 600 Greatest Bluefish Tournament on Earth | NY | Port Jefferson, NY | bluefish | 2 days | Aug 23-24 | 2015 |
| York Harbor Marine Service | the Dockside Striper Tournament | ME | None | striped bass, bluefish, mackerel (kids only) | 3 days | | 2014 |

## 6.4. Discussion

### 6.4.1. Survey results

The survey data tool yielded insufficient data when compared to the list of tournaments generated during background research. The few areas that were mapped depict fishing tournaments occurring throughout the study region, with several events spanning large areas containing both state and federal waters. Because the survey only captured a small number of events, it is not possible to draw region-wide conclusions from the survey data. Data from outside research also indicate that these tournaments take place over highly variable time periods, ranging from one day, to several months.

### 6.4.2. Study and data limitations

*Response rates*
Based on online research conducted both prior to, and following the survey data collection period, the team estimates that there have been over 100 fishing tournament events that have taken place in either 2014 or 2015 or both. This indicates that survey participants captured less than 10% of the fishing tournaments thought to take place in the region. The datasets created by background research that depict the locations of fishing tournament landside locations and predicted fishing areas can provide additional information about events not captured in the survey and the landside locations of where events occur.

Additional data limitations related to the survey tool and to the outreach efforts are described in Section 4.4.2.

*Data limitations*
The online survey was not able to capture sufficient data on fishing tournaments in the region; however the data depicting the landside locations of fishing tournaments has some utility in that it may approximate areas where fishing activity is likely to take place. This dataset is limited, however, in that it does not capture the precise spatial footprint of tournament activity nor can it show the point of origin of all tournaments, as some tournaments take place on a state or region-wide scale without designated points of origin or weigh-in stations.

### 6.4.3. Recommendations

*Data presentation and interpretation*
It is recommended that the attribute data associated with data collected on fishing tournaments be presented in tabular form, as seen in Table 6.3, to give an overview of area events and characteristics. Along with this tabular data, maps depicting the landside locations of fishing tournaments may be of some use in identifying areas where fishing tournament activity might take place; however, these maps

should be interpreted with the caveat that they are not representative of every race occurring in the region, especially those without a distinct starting or weigh-in point.

*Lessons learned*

This study suggests that it is difficult to pinpoint specific geographic areas where fishing tournaments are likely to take place, because of the broad, changeable nature of tournament activity. However, should there be a need for future efforts to map fishing tournaments in this, or other regions, the team offers the following observations for guidance.

While the survey tool had the advantage of being distributed to a wide variety of participants, in-person meetings have increased potential for building trust, engaging participants and capturing a large amount of data in a relatively short period of time. While organizing and traveling to in-person meetings can be costly, the benefits of in-person meetings include:

- Engaging participants at times and locations that are convenient to them
- Answering more detailed questions about the project context and goals
- Troubleshooting technical issues on the fly
- Obtaining detailed feedback and contextual information via open-ended discussions
- Collecting large volumes of data in a short amount of time

In-person meetings could take place at dedicated sessions or, alternately, data collection could occur at the end of selected tournament events (e.g. award ceremonies or captain's meetings), at which point data collectors could request that tournament participants outline their general fishing areas and transit routes.

# 7. MARINE EVENTS: Competitive Board and Paddle

## 7.1. Introduction

*Background and Context*
New England offers challenging competitions for surf, standup paddleboard (SUP) and triathlon athletes. Increasing in popularity with spiking trends in ocean recreation participation, these nearshore events are held year round and are primarily scheduled during warmer months. Surfing events are held near popular surf breaks and beaches, SUP races are primarily held in the calmer bay-protected waters, and triathlons that are primarily in water are a fairly nascent type of competition that demonstrate spatial variance according to configuration (i.e. a kayaking, swimming and jogging competition would be situated in different waters than a SUP, swimming & jogging competition). Board & paddle events draw large crowds of spectators and competitors, contributing to the local ocean economy in registration fees, lodging, transportation, food purchases and entertainment.

Northeast board & paddle events are primarily held annually. Annual surfing competitions are generally scheduled tentatively according to contingency of conditions. In spite of the often-fluctuating event dates, surf competitions align with SUP and triathlon events in drawing sizable crowds ranging from 25-1000 people.

*Description of Existing Data*
There is no comprehensive existing data specific to competitive Northeast board and paddle events. On a regional level, event associations such as the Eastern Surfing Association and Atlantic Paddle Board Association, maintain online lists of some regional events. National websites, such as PaddleGuru, maintain a list of Northeast events that are user-submitted. On a local level, individual event organizers list their own events on their websites and social media pages, and in some cases, annual events, such as with the Molly Surf Celebration, have their own websites and/or Facebook pages, which contain detailed information about the events.

These online sources are somewhat helpful in compiling a regional list of events, their general locations, and event details; however, the extent to which these sources provide comprehensive regional events data or explicit spatial information that can inform ocean planning is highly variable. For example, some online sources present only those events with which they are directly affiliated, while others crowdsource events data or allow organizers or competitors to self-input events data. In addition, some event information describes a landside location for a starting point using a surf shop or local beach with fixed a spatial location, but wave conditions may alter the actual event location by several miles. Other sources of information are less explicit, and may describe a course for a multi-mile SUP race using landside locations with spatial information but not define the ocean parameters of the actual SUP race until closer to the event when conditions are more predictable. Consequently, this study attempted to aggregate various data to better characterize these events to help inform ocean planning efforts.

## 7.2. Methodology

To supplement existing data, the Surfrider Foundation worked with event organizers and competitors across the region to design a survey methodology that sought to help develop a more comprehensive list of competitive board and paddle events in our region with more explicit spatial information than currently exists.

Methodology development relied heavily on existing processes implemented for the Stakeholder Working Group (SWG) assisting with the Individual User survey (see section 8.2.3). The process began by identifying existing data and key industry leaders to explore options for developing spatial information for competitive board and paddle events. Conversations with these industry leaders led to the development of a customized survey methodology and outreach approach, followed by a data vetting process, which involved reviewing and refining draft survey results with industry leaders and identifying data gaps.

### 7.2.1. Description of survey tool and data collection

*Data Collection*
Industry contacts indicated that the overall number of competitive board and paddle events taking place in the region was relatively small, with given estimates of roughly 25 large-scale events and an additional 10-15 smaller scale events. However, spectator, sponsor and competitor participation in those events is a broad and not easily defined niche, making the compilation of a specific list of industry experts difficult to define. Therefore, due to the diffuse nature of the industry experts for competitive board and paddle events, the team designed and used another online opt-in Marine Events survey. Survey results were used in combination with online research as the primary data collection tools to generate a list of events in the region and attempt to identify spatial extents of such events.

The online mapping survey previously described and developed by Point 97 for other marine events was used to collect data on competitive board and paddle events. When taking the survey, participants were asked to choose what type of event they planned to characterize (sailing, fishing or competitive board and paddle events). While it was possible to choose more than one event type, the survey questions varied depending on the type of event chosen at the beginning of the survey.

The team developed an online survey tool to allow users to map and enter information about competitive board and paddle events that they watched, organized, sponsored, competed in, knew about or helped volunteer for. The survey tool collected data from March 31st – May 25th, 2015 and utilized the survey platform described in Section 5.2.2. As previously described, participants were sent an individualized link to access the survey, where the following information was collected:
- Name
- Email
- Affiliation

- Age range
- State and county of residence

Survey participants then chose from categories to describe their role with respect to the event. Participants chose at least one of the following:
- Member of an association or advocacy group
- Event organizer/member of host organization
- Event sponsor
- Event official
- Event participant
- Event spectator
- Event volunteer
- Staff at event site
- On-water enforcement official
- Federal, state or local government official
- Other (please specify)

Participants were then directed to the mapping platform and given instructions on how to map an event by drawing a polygon around the general area where the event takes place.

After mapping an event area, participants were asked to provide details on the event, including:
- Type of event mapped (Surf Contest, SUP Race, In-Water Triathlon)
- Event name
- Landside location where the event is based
- Sponsor
- Recurrence (how often the event takes place)
- Month(s) during which the event takes place
- Year that the event started to take place
- Number of spectators
- Number of competitors
- Registration fee

Once details of the event had been entered, participants had the option of mapping another event, going back to edit previously mapped events, or finishing the survey.

### 7.2.2. Description of outreach and data vetting

Through online research and feedback from industry experts, the team compiled a list of event organizers in the study region, along with their associated events and contact information (Appendix I and J).

Prior to the release of the survey, the team sent an invitation via email to these organizers, providing background information about the study and survey, and inviting them to register for participation. A summary of the number of event organizers that the team contacted, by state, can be found in Table 7.1 (Map 27 shows known competitive board and paddle events point data collected through online research). The table also lists the number of known events associated with each state; the team assumes that this is an underestimate of all regional events, given that some known event organizers did not have event information available on their websites and no comprehensive list for the Northeast region exists.

**Table 7.1. Summary of known board and paddle events and event organizers by State**

| State | Number of Known Event Organizers | Number of Known Events |
|---|---|---|
| CT | 2 | 2 |
| MA | 11 | 17 |
| ME | 6 | 6 |
| NH | 2 | 3 |
| RI | 9 | 11 |
| **Regional Totals:** | **30** | **39** |

When the survey was released on March 31st, the team sent out another group email to the contact list described above. After the initial invitation, the team reached out to event organizers using a series of group and personal emails, phone calls, and social media posts requesting participation in the survey and for stakeholders to help distribute information about the survey to their email lists.

Willingness to participate and share this engagement opportunity varied, with some event organizers taking the survey but not sharing, and others sharing but not taking the survey. Due to low participation rates, the team developed an email offering to facilitate survey participation on behalf of event organizers and participants, which five stakeholders accepted.

During the data collection phase, the team sent email reminders to contacts who had not filled out the survey, as well as to participants who had started, but not completed the survey. The team also periodically checked in via email and phone calls with industry representatives to obtain feedback on additional outreach opportunities, and strategies to fill known data gaps.

Once the data were collected and analyzed, the team worked with the PSC to develop a methodology for stakeholder review that included an email invitation to a broad list of 1,092 individuals on the Surfrider Foundation's regional ocean planning email list, with follow up on social media and by phone to a targeted contact list of 60 known or probable event organizers. Of that targeted list that included probable event organizers, 30 contacts were verified as event organizers. The intended purpose of review of initial data was to help present the data in user-friendly ways, identify event data gaps for articulation in this final report, and to supplement data provided by survey participants. Interested

participants were prompted to register for a self-guided review process, using an online form. The opportunity was also promoted broadly using personal emails, phone calls, and social media.

Due to low registration rates, however, the deadline to register for the review process was extended and additional outreach conducted, via personal emails, phone calls and social media posts. Because of the review process extension, the team decided that not enough time remained in the project to collect additional supplemental data for inclusion in final products.

Participation in the registration process for review remained exceptionally low, even after the extension and additional outreach. Of the 60 known or probable event organizers invited to review, more than 50% indicated that they were uncomfortable with the identified process, which would have required them to login to an online data viewer with which they were unfamiliar. Another reason given was a lack of time; July is a busy month for event organizers who noted that they did not have time for review.

The team regrouped to develop a third approach for initial data review, which included sending a targeted list of 54 industry leaders a copy of Appendix J, as described above. Prospects were asked to review the lists and note whether any known event organizers or events were missing. This method proved more effective, with a total of 5 industry leaders providing feedback with two being from MA and one from both ME and RI. Of those, there were 4 surfing and 1 SUP industry leaders. Table 7.2 depicts a breakdown of industry expert type and home state of each reviewer.

**Table 7.2. Home state and industry leader type of board and paddle event data reviewers**

| STATE | SURF | SUP |
|--------|------|-----|
| CT | 0 | 0 |
| MA | 2 | 1 |
| ME | 1 | 0 |
| NH | 0 | 0 |
| RI | 1 | 0 |
| **Totals:** | 4 | 1 |

Feedback indicated that the data accumulated through the survey and supplemental process was fairly comprehensive in terms of known event organizers and known events. Identified event gaps were minimal:

- One reviewer noted we might be missing a couple Eastern Surfing Association competitions, held at various beaches across New England;
- Two reviewers noted there is an inaugural annual SUP race scheduled on August 29, 2015, hosted by SUP Sonas at Fort Point Channel Boston; and

- One reviewer noted that the annual Ozone Surf Classic on Nantucket, MA, was missing; and
- One reviewer indicated that the annual Big Andrew Surf Contest at Long Sands Beach in York, ME, was missing; and finally,
- One reviewer noted a gap in this study relating to data on regularly recurring group events, like surf camps and kayak tours.

The data vetting process further demonstrated the need for additional research beyond the scope of this study to ensure events of all scales are accounted for in the Northeast.

### 7.2.3. Data processing and cleaning

Data processing and cleaning procedures for competitive board and paddle events data collected in the Marine Events survey are similar to those described in Section 4.2.4 in that the team used ArcGIS editing tools to clip features to the shoreline, remove topological errors, and achieve consistent attribute characteristics. However, unlike the data on SCUBA sites, the data were not generalized.

There were two instances where survey participants entered data on events outside of salty waters. In these cases, the freshwater events data were removed from results.

## 7.3. Results

### 7.3.1. Survey response characteristics

A total of 26 stakeholders initiated the survey, while 13 individuals completed the survey on their own and 6 opted for facilitated participation. A total of 23 events were mapped. Table 7.3 provides a geographical overview of survey responses by state.

**Table 7.3. Total number of board and paddle event survey respondents by state**

| State | Number of Survey Respondents |
|-------|------------------------------|
| CT | 1 |
| MA | 8 |
| ME | 4 |
| NH | 2 |
| RI | 8 |
| TOTAL | 23 |

*Additional Dataset Creation*
Due to low survey response, the team conducted additional online research to fill known data gaps by identifying and mapping the approximate landside location of additional events along with information on registration fees and event types. A map depicting supplemental data collected using this additional method can be found in Appendix BV. While data on kayak, canoe and rowboat events were not

specifically solicited in the survey; some data collected represent these types of events but should not be considered a comprehensive characterization of this type of event, which was out of the scope of this survey.

### 7.3.2. Survey participant characteristics

Survey participants often identified having more than one role in a given event. For example, one respondent selected sponsor, organizer, volunteer, and competitor, while another identified as an organizer and volunteer, and others left this field empty. Table 7.4 shows the total numbers of selections for event roles.

**Table 7.4. Board and paddle event survey participants identified with various event roles**

| Competitor | Organizer | Sponsor | Volunteer/Staff | Spectator |
|:---:|:---:|:---:|:---:|:---:|
| 3 | 13 | 2 | 9 | 3 |

As indicated in
Table 7.1, the majority of survey participants live in MA and RI and are affiliated with SUP race events (see Section 7.3.4).

Figure 7.1 shows the average percent of competitor participation in each range specified in the survey. The largest percent of events mapped by this survey draw an average of between 25 and 49 competitors, closely followed by events that draw an average of between 100 and 499 competitors.

**Figure 7.1. Average Percent of Competitor Participation Rates per Events Mapped in Survey**
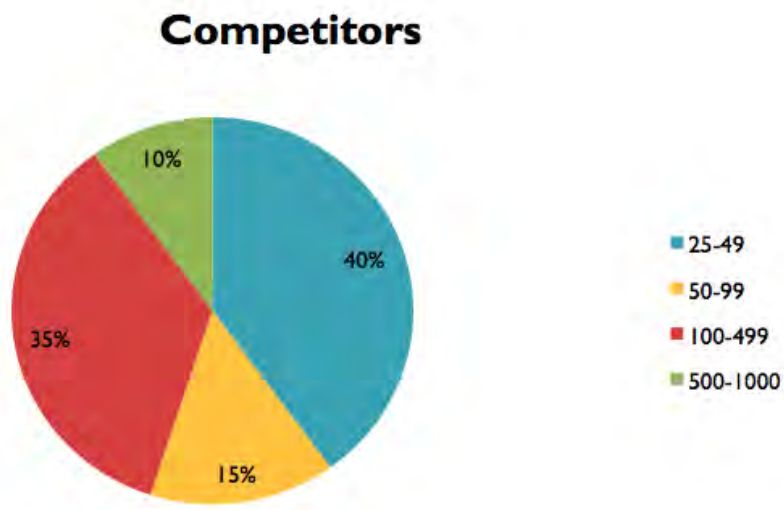
Figure 7.2 depicts the average percent of spectator participation in each range specified in the survey. The largest percent of events mapped by this survey draw between 50 and 99 spectators.

**Figure 7.2. Average Spectator Participation Rates per Each Range Specified in the Survey.**
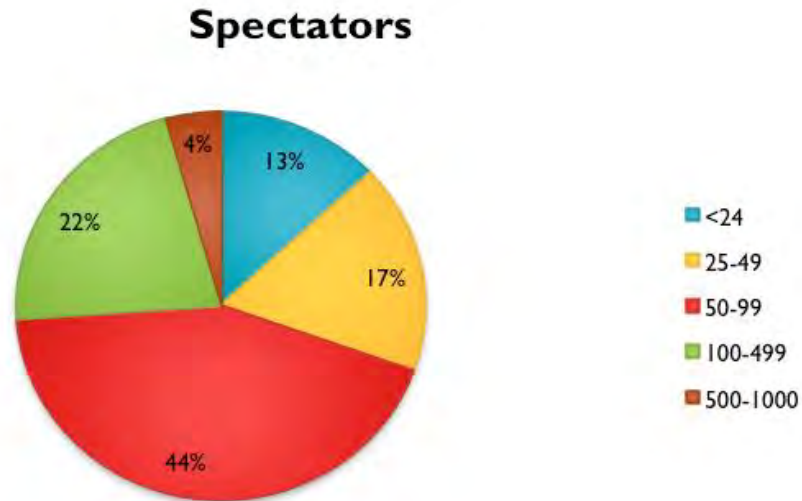


Figure 7.3 shows the variance between event types in terms of drawing large crowds of spectators and competitors to a given coastal area. Triathlons mapped by this survey are shown to draw the largest total participation rates, with an average combined count of spectators and competitors of 825 per event, whereas SUP events mapped by this survey draw an average of 271 participants, and surf contests draw an average of 195 people.

**Figure 7.3. Average Total Combined Number of Competitors and Spectators per Event Type**
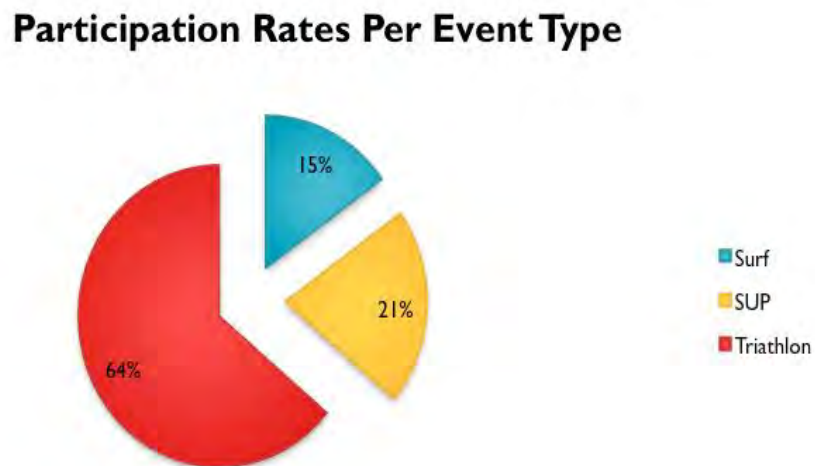
### 7.3.3. Spatial data

A regional overview depicting competitive board and paddle events point data collected by supplemental approach can be found in Appendix BV. For a full list of mapped events and known event organizers, see Appendix I and J.

### 7.3.4. Overview of board and paddle event characteristics in the region

SUP events were the most frequently specified event type. There were 6 surfing contest areas mapped, 24 SUP races, 7 triathlons, and 2 events mapped that are kayak, canoe and rowboat type.

The vast majority of the mapped areas are competitions that take place once a year, followed by events that take place more than once or twice per week. Two events occurring multiple times per week were mapped by a SUP rental and lesson shop that hosts events throughout the spring and summer at two locations in MA.

The number of competitors and spectators varied widely, even within event types. Two competitions indicated having over 500 participants, whereas 8 events are indicated as having between 25 and 50, with none having fewer than 25 competitors.

Survey participants that indicated months for event occurrence indicate that most competitive board and paddle events take place during the summer months, with the highest number of events taking place in August. Figure 7.4 shows the months of occurrence that survey respondents noted for each event type; some survey respondents left this field unanswered, likely due to the event changing based upon ocean conditions.

**Figure 7.4. Months Indicated for Event Occurrence by Select Survey Participants**
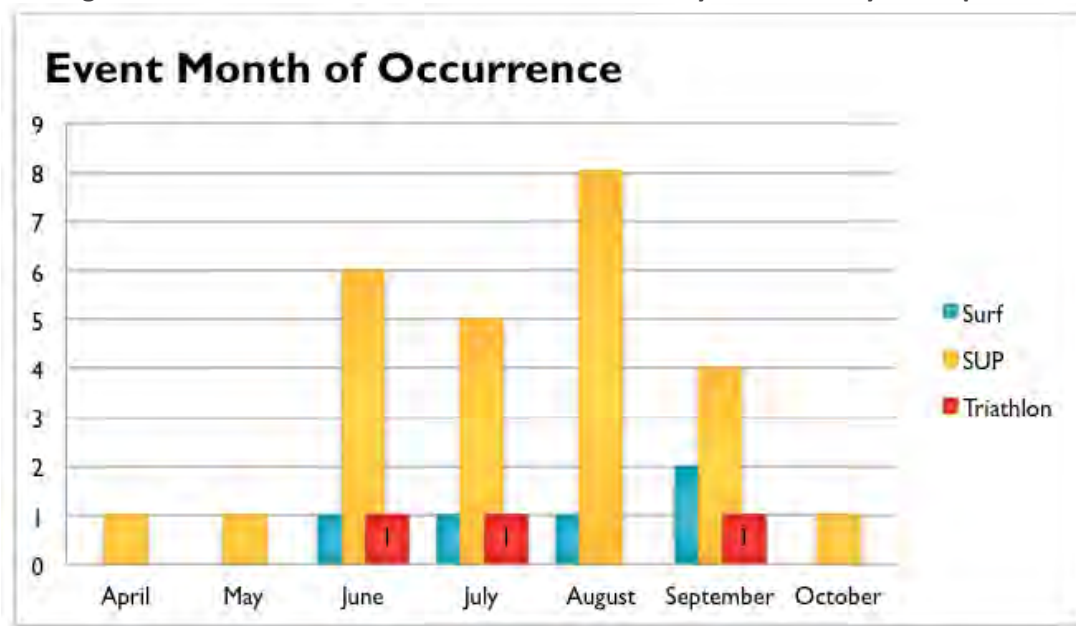
## 7.4. Discussion

### 7.4.1. Results

The survey data depict board and paddle events occurring throughout the study region, with SUP events occurring in calmer bay-protected waters, such as Cape Ann, MA, and Casco Bay, ME, and surf contests favoring well known wave breaks in areas such as Kennebunkport, ME, and Newport, RI. Figure 7.5 shows that SUP events are more prevalent than surf contests or triathlons, constituting 62% of all events mapped in this study.

**Figure 7.5. Percent of Total Board and Paddle Event Types Mapped in this Study**
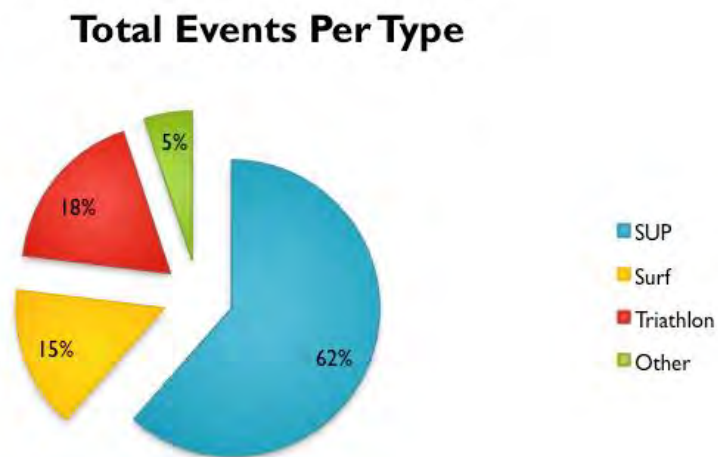


As described in the introduction, many board and paddle events take place close to the associated event organizer. Higher profile competitions that attract larger crowds of participants vary in spatial impressions on the ocean, ranging from a nearshore 1.23-mile swim, as with the Nantucket Triathlon, to a three-leg, 30-mile distance SUP race across mid coast ME, like the Lobster SUP Cup. Aggregate participation rates for competitors and spectators range from roughly 50, for small scale SUP races promoted by local shops, like Narrow River Kayaks Lucy's Hearth race, and can trend upwards of 1000, such as the Cape Ann SUP race at Essex Marina, in Essex, MA.

Figure 7.6 shows the average event registration fee per state for each event type for competitions mapped by this survey. For all events, the average registration fee for mapped events is $77, however fees can vary widely between event types. Online research indicates that The Blackburn Challenge boating race organized by the Cape Ann Rowing Club charges $375 for early registration per boat and $500 for late registration, whereas the Waterman Eco Challenge SUP race charges $35 per competitor. Within specific event types, registration fees can vary from state to state. Mapped Triathlon races in MA have the highest competitor registration fee of any event at an average of $125 per race, and ME surf contests charge the least amount for any event type in New England, at an average of $25 per contest.

Figure 7.6. Average Registration Fees per State and Event Type
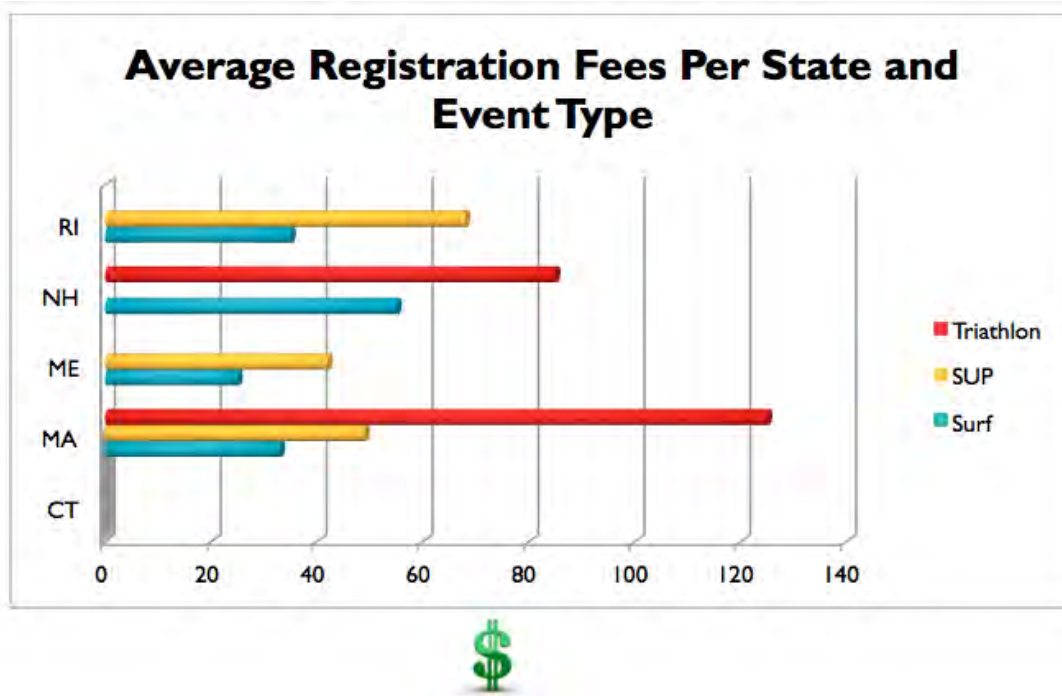


The study was successful in characterizing the number of larger, recurring events and their frequency, participation rates and some associated economic information. However, it is probable that many smaller, locally promoted events that were not captured in this survey are likely to occur nearshore across the Northeast. Because these smaller scale events are often orchestrated by charities, schools, gyms and shops and not promoted beyond the immediate vicinity of the event, it is difficult to pinpoint an exact number of probable events.

### 7.4.2. Study and data limitations

*Survey Responses*
Results represent only data collected via online research and surveys from a small subset of Northeast event organizers and competitors; both survey and initial data review participation rates were low. Results would have been more robust with greater survey participation.

Based on supplemental research conducted as part of this survey, the dataset depicting the locations of event organizers and competitions in the region can help to identify the gaps in survey data (see Map 27). Additional survey tool limitations related to survey responses are described in 4.4.2.

Spatial indications of competitive board and paddle events on ocean waters are variable and dependent upon a number of factors, including course, challenge promised to competitors, wave conditions, winds, tides, currents, and other ocean uses that are taking place in the area. SUP and triathlon events have

specific boundaries, whereas surf contests can be moved along the coast based upon the latest surf report. Participants in this survey were asked to map the specific areas where their events take place, but data provided may not indicate the explicit event activity, and should not be interpreted as such. The survey data likely also under reports surf contests hosted by the Eastern Surfing Association that are scheduled throughout the spring, summer and fall, based upon conditions. These contests can be postponed, shifted to another area, or cancelled, based upon prevailing conditions.

### 7.4.3. Recommendations

This data helped fill some known gaps but because many competitive board and paddle events are locally hosted, not widely promoted throughout the Northeast, and because no common website or other comprehensive resource is available to characterize these events, the team recognizes there are likely to be significant gaps in these results. We recommend for future study that additional resources and time are provided for research, outreach, in person visits, presentations and meetings. In particular, outreach at the beginning of a future study is vital, to ensure a "critical mass" of stakeholders and experts to help provide and review data.

To help obtain critical mass, industry leaders indicated a strong preference for helping engage competitors and event organizers in data collection during the in-season rather than pre-season, but not in offering their expertise in reviewing data during the in-season. Therefore, for any future study of competitive board and paddle events, the team recommends timing carefully to position data collection during the in-season (spring/summer) and data review during off-season (fall/winter).

To supplement data collected, resources could also be dedicated to ocean recreation outing clubs, meet ups, and associations as well as event sponsors such as local restaurants, gear manufacturers, shops, competitors, organizers and other experts to collect additional competitive board and paddle events data at dedicated, in-person meetings.

Utilizing an online survey collection tool in conjunction with targeted, in-person meetings scheduled around the region would have added benefits that were not available within the scope of this study, including:
- Leveraging the existing relationship of event organizers and competitors
- Engaging participants at times and locations that are convenient to them
- Offering guided support for using the survey tool
- Answering detailed questions about the project and goals
- Obtaining detailed feedback and qualitative data
- Collecting large volumes of data in a short amount of time
- Helping participants understand the utility of participation
- Connecting participation to the broader context of regional ocean planning efforts

Working with event organizers to provide data for competitors to react to and supplement at their convenience is likely to enhance willingness to participate and increase confidence in the study and

results. The team further recommends meeting with winners from previous annual competitions, as winner information can be readily sourced from online search engines and the competitor's knowledge of the spatial and economic information is generally quite accurate.

*Data Presentation and Interpretation*
The frequency of event recurrence is also important to consider. Small nearshore events that recur multiple times each week may present a higher impact on other ocean uses than larger and further offshore events that take place once annually. The team recommends that the dataset depicting the point locations of event organizers and competitions (Appendix BV) be used in conjunction with the survey data to represent where competitive board and paddle events are likely to take place throughout the region. While the spatial extent of activities originating from these points is not shown, the data provides additional regional spatial coverage to augment survey findings. Data collected via the online survey can be used to further characterize certain events, as well as to expand upon the spatial data for those events.

*Lessons Learned*
Although this study suggests that it is difficult to characterize spatial areas where competitive board and paddle events take place, the team recognizes an opportunity for further collaboration with stakeholders to leverage additional knowledge of local information. In addition, there is potential to work with state and municipal departments responsible for issuing permits for ocean and coastal recreation competitions and to obtain spatial, attendee and organizer information contained in those applications, as well as some economic data. . While special events permit applications are not standardized and vary in format and data input fields from town to town and state to state, these applications categorically include basic events data to characterize total numbers of event participants, landside location, dates, times, title of the event, contact information of the event organizer(s) and often, registration fees.

# 8.   INDIVIDUAL USER ONLINE RECREATION SURVEY

## 8.1. Introduction

In addition to industry expert targeted data collection described for whale watching, SCUBA diving, and marine events, the NE RPB also desired a study that would both gather spatial recreational use data from individual users from the general public while also engaging stakeholders in regional planning efforts.

For this "Individual User" portion of the study, the team employed a methodology emphasizing stakeholder outreach to collect spatial data on both coastal and marine recreational activities in the Northeast. The team engaged recreational stakeholders and the PSC to collaboratively develop the survey instrument, deploy targeted outreach strategies, and review the resulting spatial data on coastal and marine recreational use patterns, as described below.

## 8.2. Methodology

### 8.2.1.  Survey methods

The online survey was launched on November 13, 2014 and ended April 30, 2015. In the survey, respondents were asked to recount details of their coastal and marine recreation trips over the previous 12 months, and separately, of their last trip, including information about participation in recreational activities, the location of activities, and expenditures made.

The survey employed an opt-in approach where anyone willing could participate in mapping the locations of their coastal and marine recreational activities. This method is optimal for increasing sample sizes to obtain data from specific user group niches (e.g., windsurfers, bird watchers, kayakers) that are difficult to adequately and confidently capture through a general population survey. This approach proved to be cost effective considering the relatively large Northeast study area. The internet opt-in approach also provided a participatory opportunity to engage and build stakeholder investment in regional ocean planning. This approach is particularly relevant for economically valuable and spatially localized activities such as surfing, kayaking, and kiteboarding. These types of activities are practiced by a relatively small percentage of the overall coastal and marine recreational population yet contributes significantly to local economies.

Often the populations of these user groups are not well defined (e.g., a complete listing of users and contact information are not available) and so statistically targeted survey options are not feasible. Additionally, given the small percentage of the population participating in these activities, the sample size needed to adequately and confidently sample across the variability in these user groups through a general population survey would be cost prohibitive and beyond the ability of internet survey providers.

Considering these constraints and limitations, the team chose to leverage a participatory crowd-sourced approach to gathering spatial data on coastal and marine recreation spatial use patterns. This approach

follows similar approaches in other ocean planning regions (Mid-Atlantic and West Coast), as it has become increasingly popular as a method to engage citizens and stakeholders to contribute their information and directly inform local and regional management and planning processes.

## 8.2.2. Survey mapping tool

To collect spatially explicit data on coastal and marine recreational activities, the team utilized Point 97's survey and mapping platform that was customized to this project and accessible through mobile phones, tablets, and desktop/laptop computers. Through outreach efforts led by the Surfrider Foundation, survey respondents were directed to a webpage to register for the survey. Respondents then received an email with a unique link to the online survey, which they could use at any time to return to the survey if they did not complete the survey in one sitting.

In addition to survey questions, respondents were asked to map locations where they conducted specific coastal and marine recreational activities in the last 12 months. The mapping tool (see Appendix K for survey tool screenshots) was designed to be user-friendly and easily navigable and could be accessed through both desktop/laptop computers as well as mobile smartphones to enable a respondent to conveniently, quickly, and easily submit survey data. To map recreation locations, respondents used the survey's mapping tool, which presented satellite data from Bing Maps as well as National Oceanic and Atmospheric Administration (NOAA) nautical charts. To navigate the map, respondents could search for a specific location or navigate the map themselves (zoom in/out and pan around), similar to the Google Maps interface. Respondents then dropped activity markers to indicate where they participated in recreational activities and then associated specific recreational activities with that location.

Point 97 embedded several features into the mapping tool to ensure ease of use and the collection of high quality and high-resolution data, including:

- Search functions that enabled survey respondents to search for a specific location. Respondents were then zoomed into that location at the desired spatial scale for accurate placement of activity markers.
- A geo-fence was set up and visible in the mapping tool to delineate the study region and ensure that survey respondents only mapped in areas relevant to the study region. Furthermore, if respondents attempted to map outside the study region they were presented with an error message and a map of the study region to remind them of the study region boundaries.
- A zoom level of 15 (or a 1-inch to 0.25-mile map scale) was enforced to ensure accurate placement of activity markers.
- A reminder of unmapped activities to ensure survey respondents mapped all their recreational activities. If survey respondents indicated they were finished mapping they would be reminded of the recreational activities they had not yet mapped.

- The mapping tool included a module to help survey respondents review, edit, delete, and track where they have mapped activity locations and the associated activities.

To monitor the progress and incoming survey data in real-time, Point 97 also developed an administrative dashboard to summarize key survey analytics. Information in the dashboard included the number of respondents who have registered, started, and completed the survey by state and across the region. Furthermore, the dashboard indicated how many people had mapped certain activities and displayed an associated heat map of mapped activities. This data was then used to help inform the Surfrider Foundation's outreach efforts so that certain geographies or user groups could be targeted to increase their participation in the online survey.

### 8.2.3. Stakeholder outreach and engagement methods

The Surfrider Foundation implemented a variety of outreach strategies designed to promote stakeholder engagement in all phases of this study. Primary outreach efforts were conducted during the winter and early spring months of data collection, between November 13, 2014 and April 30, 2015. Outreach targeted non-consumptive (e.g. excludes extractive type activities such as fishing and clamming) coastal and ocean users and leveraged the collaboration of a broad set of "Gatekeepers," that is, recreational businesses, groups, chapters, clubs and associations, as well as environmental organizations in the region, to help amplify messaging and engagement opportunities. Outreach incorporated information about the Northeast regional ocean planning process and opportunities for public engagement.

In the fall of 2014, the Surfrider Foundation established targeted outreach and rolling admissions to recreational interests to urge participation in a Stakeholder Working Group (SWG, Appendix R). SWG members ranged from individual users to business owners, agency officials, students and clubs. The purpose of the SWG was to help review survey design and participation strategies, to help disseminate and promote study engagement opportunities, and finally, to help review initial and final data. These contacts provided valuable feedback, complementing input from the Project Steering Committee, and greatly enhanced the Surfrider Foundation's outreach. For example, a representative from the kayaking community offered an opportunity for the team to give a presentation on the survey at a sea kayakers association meeting with a group of fifty ocean recreation users. A surfboard manufacturer placed promotional postcards in the boxes of all orders shipped during the data collection period, which enabled further outreach.

After the first couple weeks of data collection, our team noted recurring support questions regarding the use of the mapping tool. To help improve the user experience, the Surfrider Foundation developed two instructional videos to help users navigate the mapping tool and to understand the survey and the utility of their participation in this public process for ocean planning. One video featured an overview of the study and the individual user survey and the other featured instruction and best practices for using the mapping tool.

Throughout the course of the study, Surfrider Foundation staff conducted targeted outreach on the study to 1,090 recreational groups, businesses, and associations, as well as beach adjacent businesses, politicians, academics, environmental nonprofits and others in the region with vested interest in ocean recreation, tourism and the regional ocean planning process.

These target contacts were selected to capture the breadth of activities and geographic extent of coastal and ocean recreation in the Northeast region. Communication was conducted primarily through phone calls and emails, and focused on:
- describing the specific purpose and intent of the project;
- addressing questions or concerns regarding the handling, use, and analysis of data collected;
- encouraging gatekeepers to share information with their members and customers.

In total, 68 recreational businesses and groups in the Northeast joined the SWG and an additional 58 entities promoted participation in the study through newsletters, emails, blogs, websites, social media, word of mouth, collaborations on outreach events, and distribution of outreach materials. Others may have participated without informing the Surfrider Foundation of their efforts.

Surfrider Foundation staff and volunteers conducted the following additional activities to promote understanding and participation in the study:
- provided information via Surfrider Foundation national, regional and chapter websites, email lists, and social media;
- created and distributed outreach materials (including over 6,000 postcards) through Surfrider Foundation chapter meetings, outreach events, coastal conferences, regional ocean planning meetings, and collaborations with the SWG and other regional businesses and groups;
- distributed 19 media releases to major Northeast print and online media during the data collection phase, with 2 getting media attention[31];
- gave 15 total presentations to groups in each coastal New England state, spanning ocean recreation interests and reaching an additional 485 people with information about the study, this survey, and Northeast regional ocean planning;

Gatekeepers and other recreational users were contacted via phone, email, tabling events, and in-person visits. Due to the off-season data collection period, where many ocean recreation businesses are closed for the season and outdoor engagement opportunities at the beach were not possible, the Surfrider Foundation developed communications strategies to leverage holidays, such as Black Friday, Christmas, and Valentine's Day, to appeal to beach goers through various vehicles, including social media, events, and emails. In addition, the Surfrider Foundation developed a series of videos featuring

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[31] See:
http://www.seacoastonline.com/article/20150213/ENTERTAINMENTLIFE/150219662/101164/ENTERTAINMENT
and http://www.fosters.com/article/20150520/NEWS/150529943/14372.

interviews with SWG members promoting participation in the survey. Videos ranged in style, length and content to appeal to various audiences of beach goers and for use across a broad spectrum of media platforms. Using multimedia across traditional and nascent platforms and tailoring imagery and messaging to the holidays and seasons allowed the Surfrider Foundation to reach a broad base of beach goers with the survey engagement opportunity.

After the data collection phase was completed, the Surfrider Foundation conducted additional outreach to the SWG and gatekeepers to provide an update on the study and to validate the spatial data collected. The team coordinated a webinar for July 30, 2015 but technical difficulties precluded the participation of users attempting to connect to the webinar from a mobile device. The team and PSC developed a secondary data review method to afford gatekeepers and recreational contacts an additional opportunity to review initial data. The SWG was contacted and social media was used to urge participation; registrants were provided with login information to SeaSketch[32] to view the raw data points using an online data viewer. Data was broken out by activity groupings with each point symbolized by a pie chart. Each point could be composed of up to four slices of the pie – one for each of the four activity groupings (shore-based, surface water, wildlife & sightseeing, and diving). Diving was included as a separate activity grouping so that the data collected in the Individual User survey could be viewed alongside data collected in the industry leader survey. The different activity groupings were viewable in the legend and assigned different colors. Feedback from participants was positive, indicating that the data appeared accurate.

### 8.2.4. Data analysis methods

Once the online survey was closed, Point 97 compiled and summarized the results for analysis to determine recreational activity participation rates, locations, and expenditures. Analysis and summaries were performed across all respondents to provide regional results, as displayed in the main body of this report, as well as across respondents from the six Northeast states, see Appendix L through Q.

There were a total of 20 activities mapped and spatial data layers are available for each of these activities, all activities combined, and for activity grouping. To help facilitate the use of these data layers in the Northeast regional ocean planning process, a set of activity groupings were developed based on the recreation activity groupings used in the Northeast region and in alignment with NOAA Participatory GIS mapping efforts. Spatial data layers were then created using the following activity groupings (see Table 8.10 in Section 8.3.1):

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[32] SeaSketch is a web-based platform that allows registered users to view ocean data and to interact with the data using drawing tools and commenting features. SeaSketch was developed to support and facilitate ocean planning efforts through a platform that does not require user familiarity with GIS tools.

1. shore based activities,
2. surface water activities,
3. wildlife and sightseeing activities, and
4. diving activities[33]

## 8.3. Results

As the primary goals of the study were to fill important data gaps and inform Northeast regional ocean planning efforts, the following information and spatial data are provided at the state and regional levels:
- Respondent participation rates for specific coastal and marine recreational activities;
- Spatial patterns of use for overall, grouped, and specific coastal and marine recreational activities; and
- Average overall and itemized coastal and marine recreation trip expenditures.

The survey gathered data from 975 respondents from 27 different states (including two Canadian provinces, with the majority of respondents from Northeast region states - Table 8.1).

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[33] Diving activities were given their own grouping due to the potential for overlap with data collected in the SCUBA survey as part of this study

## Table 8.1. Respondents' state residency

| State | Respondents (%) | Respondents (n) |
|---|---|---|
| Massachusetts | 37.6% | 367 |
| Maine | 18.1% | 176 |
| New York | 8.6% | 84 |
| Rhode Island | 8.3% | 81 |
| Connecticut | 8.2% | 80 |
| New Hampshire | 7.6% | 74 |
| Vermont | 1.4% | 14 |
| New Jersey | 2.6% | 25 |
| Pennsylvania | 1.0% | 10 |
| Maryland | 0.9% | 9 |
| Washington, D.C. | 0.7% | 7 |
| California | 0.6% | 6 |
| Quebec | 0.5% | 5 |
| Virginia | 0.4% | 4 |
| Delaware | 0.3% | 3 |
| Florida | 0.3% | 3 |
| North Carolina | 0.3% | 3 |
| Ohio | 0.2% | 2 |
| Oregon | 0.2% | 2 |
| Texas | 0.2% | 2 |
| Wyoming | 0.2% | 2 |
| Arizona | 0.1% | 1 |
| Colorado | 0.1% | 1 |
| Georgia | 0.1% | 1 |
| Minnesota | 0.1% | 1 |
| Louisiana | 0.1% | 1 |
| Nova Scotia | 0.1% | 1 |
| No Answer | 1.0% | 10 |
| **TOTAL** | **100.0%** | **975** |

### Table 8.2 through

Table 8.6 display demographic information about survey respondents, including gender, race, education, income, and employment status. Overall, the average respondent was 41 years old and the majority of respondents were male (51.6 percent), white (94.7 percent), with a Bachelor's degree (56.1 percent), income between $50,000–$74,999 (16.9 percent), and employed full-time (64 percent).

## Table 8.2. Overall survey demographics

| Demographics | Survey respondents |
|---|---|
| Male | 51.6% |
| Female | 48.4% |
| White | 94.7% |
| Asian/Pacific Islander | 1.7% |

| | |
|---|---|
| Hispanic, Spanish, or Latino | 1.5% |
| American Indian or Alaska Native | 0.7% |
| Black or African American | 0.2% |
| Other | 1.1% |

### Table 8.3. Respondents' average age and age group

| Age group | Respondents (%) |
|---|---|
| 18-30 | 23.2% |
| 31-40 | 20.3% |
| 41-50 | 18.5% |
| 51-60 | 19.2% |
| >60 | 18.8% |
| **Average age** | **41** |

### Table 8.4. Respondents' level of education

| Education level | Respondents (%) | Respondents (n) |
|---|---|---|
| Bachelor's degree or higher | 56.1% | 198 |
| Some college | 35.4% | 125 |
| High school | 7.9% | 28 |
| Less than high school | 0.6% | 2 |
| No formal education | 0.0% | 0 |

**Table 8.5. Respondents' level of income**

| Income range | Respondents (%) | Respondents (n) |
|---|---|---|
| Less than $25,000 | 8.0% | 66 |
| $25,000 to $49,999 | 15.1% | 125 |
| $50,000 to $74,999 | 16.9% | 140 |
| $75,000 to $99,999 | 16.2% | 134 |
| $100,000 to $124,999 | 15.4% | 127 |
| $125,000 to $149,999 | 9.3% | 77 |
| $150,000 to $174,999 | 8.2% | 68 |
| $175,000 to $199,000 | 1.6% | 13 |
| $200,000 or greater | 2.8% | 23 |
| Don't know | 6.4% | 53 |

**Table 8.6. Respondents' employment status**

| Employment status | Respondents (%) | Respondents (n) |
|---|---|---|
| Employed full time | 64.0% | 614 |
| Retired | 12.7% | 122 |
| Employed part time | 9.5% | 91 |
| Student | 7.4% | 71 |
| Homemaker | 1.6% | 15 |
| Unemployed | 1.5% | 14 |
| Disability/Unable to Work | 0.4% | 4 |
| Military | 0.0% | 0 |
| Other | 2.9% | 28 |

To determine activity participation rates, respondents were asked to indicate which coastal and marine recreational activities they conducted in the last 12 months in the Northeast region. Respondents could select multiple activities. Respondents were also asked which activities they conducted during their last trip to the Northeast region that was primarily for coastal and marine recreation purposes. A trip was defined as an intentional trip outside of the respondent's daily routine. Finally, respondents were further asked to identify the coastal and marine recreational activity that was the primary activity of the trip. Respondents could only indicate one primary activity.

Table 8.7 displays the activity participation rates of survey respondents over the last 12 months, during their last trip, and for their primary activity. The top five most popular activities among survey respondents over the last 12 months were beach going (92 percent), scenic enjoyment/sightseeing (78.7 percent), swimming or body surfing (72.5 percent), biking or hiking (63.9 percent), and watching marine life (61.2 percent).

When asked specifically about coastal and marine recreational activities conducted on their most recent trip, participant activity rates differed slightly (Table 8.7). The five most popular activities among survey respondents were beach going (61.9 percent), scenic enjoyment/sightseeing (50.2 percent), watching

marine life (33.7 percent), photography (32.5 percent), and collecting non-living resources/beachcombing (27.4 percent).

Finally, we asked respondents to select only one activity as their "primary" recreational activity over their last trip, and again participant activity rates differed slightly, see Table 8.7. The five most popular primary activities among survey respondents were beach going (33.5 percent), scenic enjoyment/sightseeing (8.7 percent), biking or hiking (6.1 percent), boating/sailing (6.1 percent), and swimming or body surfing (3.7 percent).

**Table 8.7. Activity participation in each activity in the last 12 months, last trip, and primary activity**

| Activities | Last 12 months (%) | Last Trip (%) | Primary Activity (%) |
|---|---|---|---|
| Beach going (sitting, walking, running, dog walking, kite flying, etc.) | 92.0% | 61.9% | 33.5% |
| Scenic enjoyment/sightseeing | 78.7% | 50.2% | 8.7% |
| Swimming or body surfing | 72.5% | 26.5% | 3.7% |
| Biking or hiking | 63.9% | 26.7% | 6.1% |
| Watching birds, whales, seals and/or other marine life (from shore or private boat) | 61.2% | 33.7% | 0.0% |
| Photography | 57.1% | 32.5% | 2.3% |
| Sitting in your car watching the scene | 53.0% | 20.8% | 2.4% |
| Collection of non-living resources/beachcombing (beach glass, shells, fossils, driftwood) | 49.9% | 27.4% | 0.0% |
| Kayaking or other paddling activity (canoe, stand up paddle board) | 49.5% | 15.3% | 0.0% |
| Boating/sailing | 44.6% | 14.3% | 6.1% |
| Surfing (from board or kayak or stand up board) | 36.6% | 24.2% | 0.0% |
| Camping | 17.1% | 3.7% | 0.5% |
| Watching birds, whales, seals and/or other marine life (from a charter/party vessel) | 15.6% | 3.9% | 0.0% |
| Free diving/snorkeling (from shore or boat) | 13.8% | 2.2% | 0.0% |
| Skimboarding | 4.5% | 0.4% | 0.1% |
| SCUBA diving (from shore or private boat) | 4.5% | 1.2% | 0.0% |
| Windsurfing | 2.2% | 0.8% | 0.5% |
| SCUBA diving (from a charter/party vessel) | 1.0% | 0.1% | 0.0% |
| Kiteboarding | 0.7% | 0.5% | 0.4% |
| Hang gliding/parasailing | 0.2% | 0.0% | 0.0% |
| Other | 5.6% | 4.2% | 2.5% |

Figure 8.1 shows reported activity participation rates comparing trips over the last 12 months, the last trip, and the primary activity undertaken on the last trip. For trips in the last 12 months and for their last trip, respondents were asked to indicate all the coastal and marine recreational activities they participated in. Respondents may have participated in multiple coastal and marine recreational activities on their last trip but were asked to also indicate the primary or main activity on their last trip. For example, 92 percent of respondents indicated they participated in beach going activities (often along with other activities) in the last 12 months, 61.9 percent indicated they participated in beach going

activities on their last trip, and 33.5 percent of respondents indicated that on their last trip their primary activity was beach going.

**Figure 8.1. Activity participation rates of the last 12 months, last trip, and primary activity during last trip**
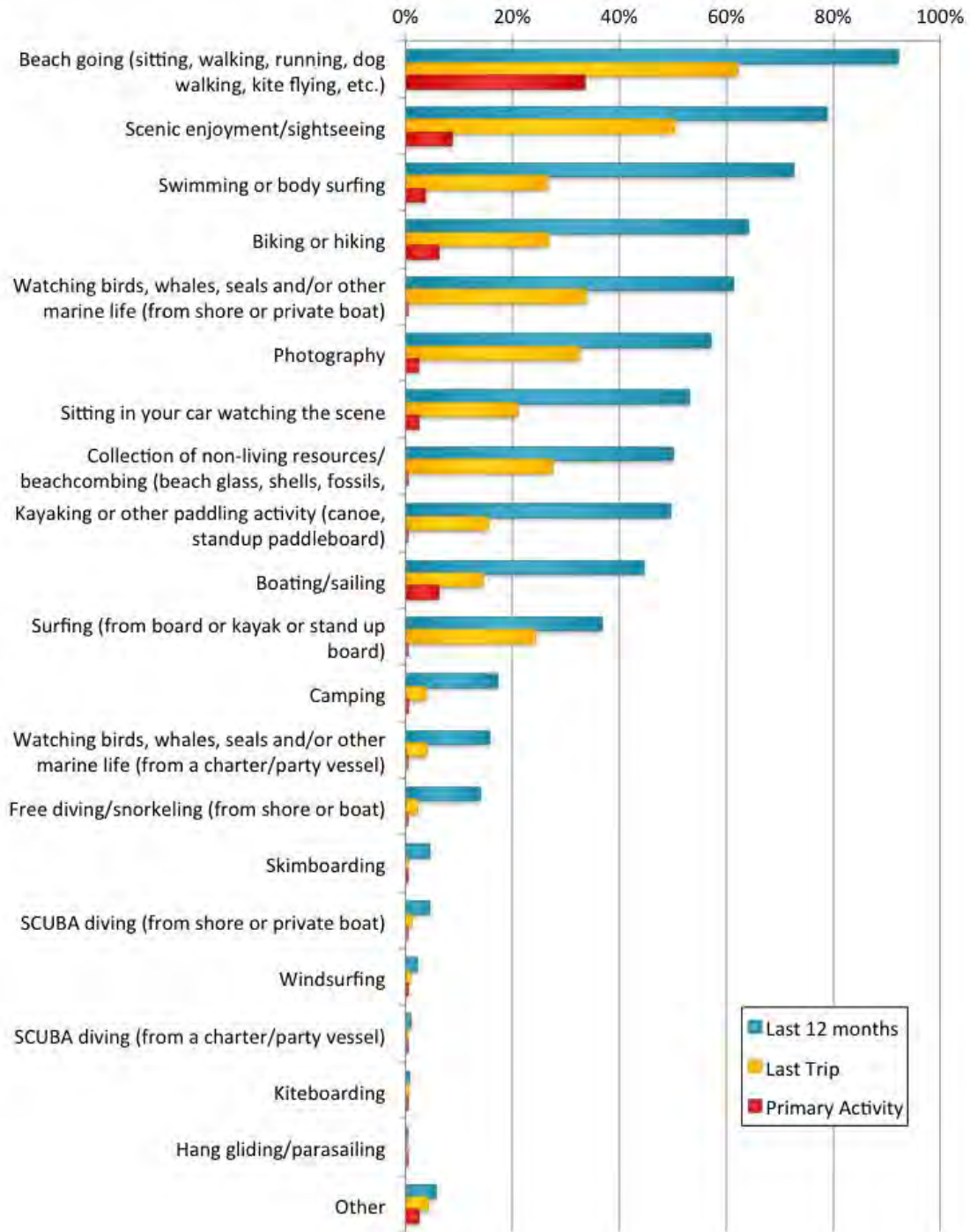
Table 8.8 displays the average expenditures made for each item on their last trip. Across all respondents the most common expenditures was for food and beverage purchases from a store (20.2 percent of respondents) with an average expenditure of $83.77. The next most common was food and beverages at a restaurant or bar (20.1 percent of respondents) with an average expenditure of $90.67. Across all respondents we estimate an average total trip expenditure to be $263.29 per person, per trip.

Table 8.8 displays the average expenditure for each expense category. For example, among all respondents who spent money on lessons, clinics, and camps, the average expenditure amount was approximately $348.45 per person per last trip. Lessons, clinics, and camps expenses in fact were the highest per person per trip average expenditure out of all items. This was followed by expenditures on airline flight/bus/train ($295.99) and on lodging ($270.67). It is important to explicitly note that the average expenditures per item presented in Table 8.8 should not be added together, and only serve to indicate the average cost of such items if an individual spent money on such an item.

**Table 8.8. Average trip expenditures per person by item across all respondents**

| Category | % of observations | Average expenditures ($) |
|---|---|---|
| Food and beverages from a store | 20.2% | $83.77 |
| Food and beverages at a restaurant or bar | 20.1% | $90.67 |
| Lodging (if you stayed overnight) | 19.8% | $270.67 |
| Car fuel | 9.6% | $33.89 |
| Airline flight/Bus/Train | 6.0% | $295.99 |
| Shopping and souvenirs (t-shirts, posters, gifts, etc.) | 5.9% | $73.72 |
| Lessons, clinics, camps | 5.3% | $348.45 |
| Other | 4.8% | $159.52 |
| Equipment rental (surfboard, bike, kayak, stand up paddle, etc.) | 2.0% | $92.47 |
| Sundries (sunscreen, surf wax, motion sickness pills, etc.) | 1.9% | $21.04 |
| Car rental | 1.6% | $154.81 |
| Park entrance, museum, aquarium, or other entrance fee | 1.1% | $18.75 |
| Parking | 0.9% | $11.97 |
| Charter fee (whale watching, etc.) | 0.7% | $66.65 |
| **AVERAGE TOTAL TRIP EXPENDITURE** | | **$263.29** |

Figure 8.2 displays the relative average expenditures made per person per trip for all items as displayed in Table 8.8. Expenditures on food and beverages, lodging, and car fuel combined make up over 68 percent of the total average trip expenditure per person.

**Figure 8.2. Average coastal and marine recreation trip expenditures**
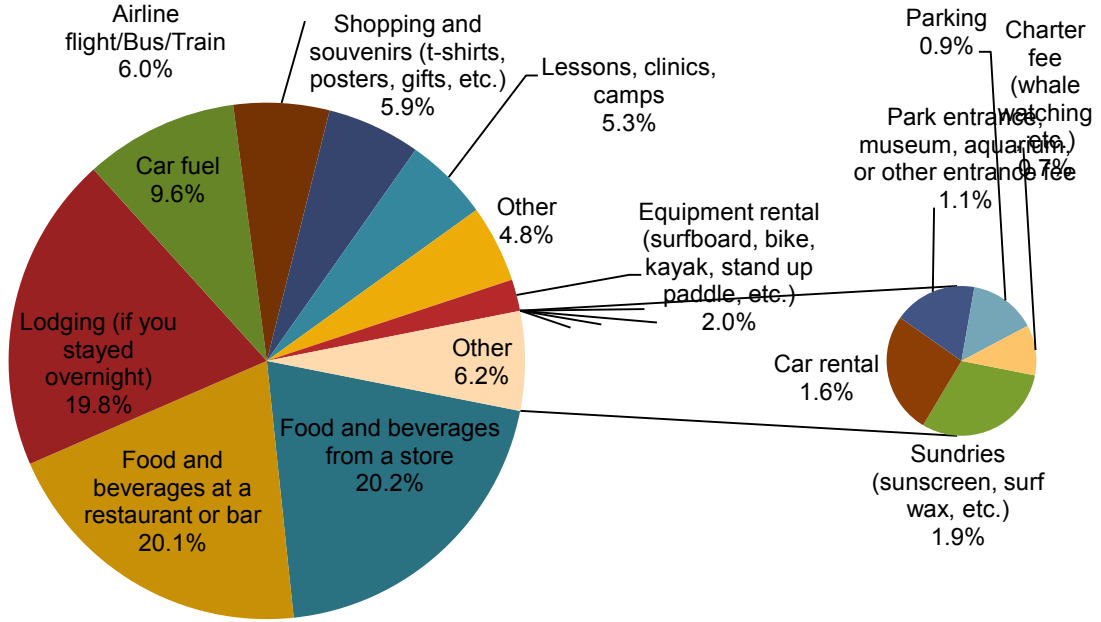
The value of coastal and marine recreation is multi-faceted. The trip expenditures we summarize above are but a portion of the total value of coastal and marine recreation. For example, coastal and marine recreation values are also encompassed in real estate values. Individuals may recreate on the coast as part of their daily routine. The value of this accessibility to recreation opportunities can be encompassed in real estate values. To qualitatively assess this coastal and recreation value from coastal residents we asked respondents, "If you live on the coast, please tell us how much nearby coastal and marine recreation opportunities played into your decision to live on the coast".

Figure 8.3 displays the results across all respondents; while 20 percent of respondents did not live on the coast, 40 percent of coastal resident respondents said that the availability of nearby coastal and marine recreation was the main reason to live there. Furthermore, Figure 8.4 displays how many miles respondents live from the coast and indicates that a large portion of respondents (60.2 percent) live less than 10 miles from the coast.

**Figure 8.3. Influence of coastal and marine recreation on residency**
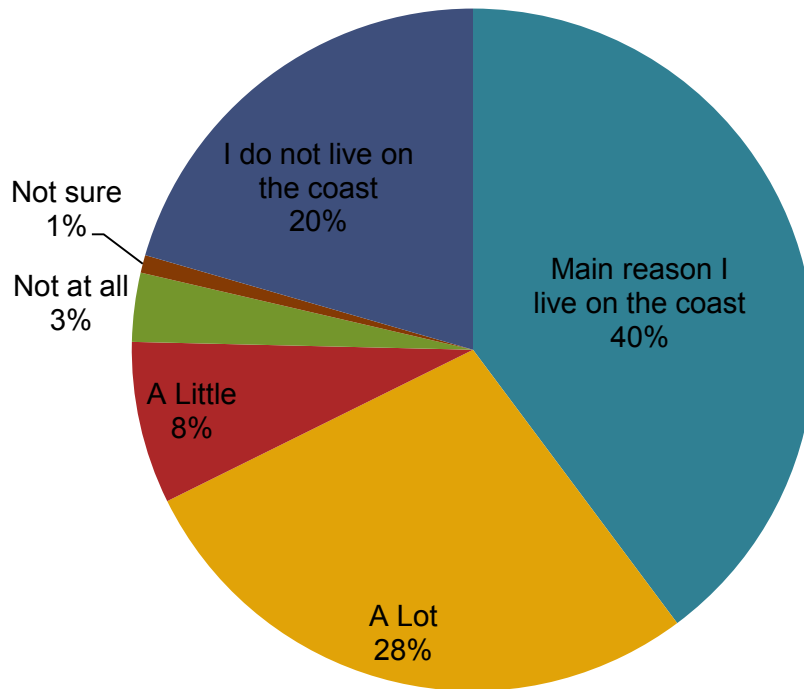
**Figure 8.4. Estimated miles respondents live from coast (one way)**
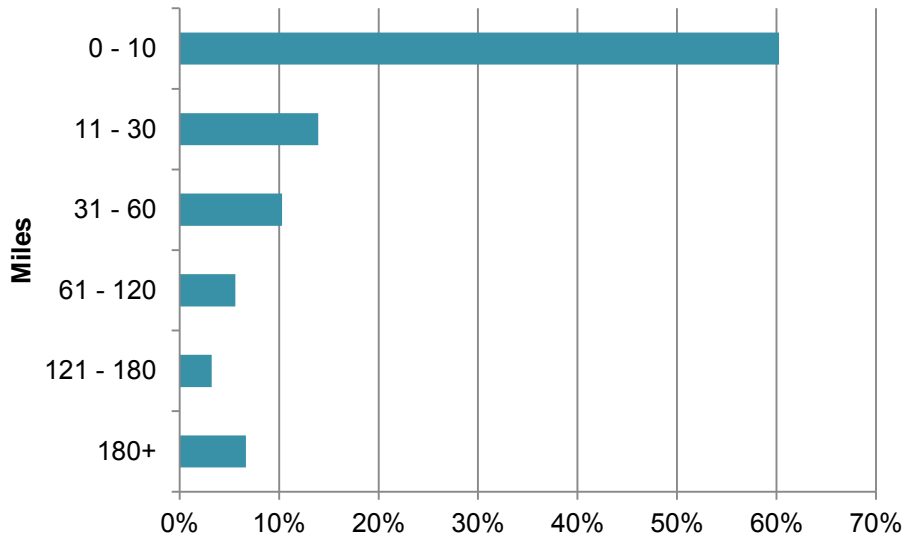


Finally, we asked respondents to indicate if they would agree that the mapping portion of this survey is easy to understand and use; the majority of respondents agreed (82.4 percent), and the results of this question are listed below in Table 8.9.

**Table 8.9. Mapping Feedback**

| | |
|---|---|
| Strongly Agree | 44.8% |
| Somewhat Agree | 37.6% |
| Neither Agree nor Disagree | 5.9% |
| Somewhat Disagree | 8.3% |
| Strongly Disagree | 3.3% |

### 8.3.1. Spatial Data

The spatial data gathered from this study were summarized into several data sets. Table 8.10 indicates the number of activity markers placed per activity across the entire Northeast region as well as the activities that were included in the grouped activities. The resulting spatial data layers developed depict the spatial patterns of use for participants in the survey and can be found in Appendix BVI. The resulting data layers are simply the raw data points mapped by respondents--no analysis or weighting were applied. Note that this data set should not be interpreted as a representative depiction of the intensity of recreational use in the region.

**Table 8.10. Activity groupings and data points mapped**

| ACTIVITY GROUPINGS | ACTIVITIES | NUMBER OF DATA POINTS |
|---|---|---|
| All Activities | Includes all mapped activities (includes 'other' activities) | 19,211 |
| Shore-based Activities | Beach going (sitting, walking, running, dog walking, kite flying, etc.) | 2,590 |
| | Biking or hiking | 1,345 |
| | Camping | 140 |
| | Collection of non-living resources/beachcombing (beach glass, shells, fossils, driftwood) | 1,136 |
| | Hang gliding/parasailing - not mapped - only one point | 1 |
| Surface Water Activities | Boating/sailing | 886 |
| | Kayaking or other paddling activity (canoe, stand up paddle board) | 1,137 |
| | Kiteboarding | 25 |
| | Skimboarding | 56 |
| | Surfing (from board or kayak or stand up board) | 976 |
| | Swimming or body surfing | 1,709 |
| | Windsurfing | 90 |
| Wildlife & Sightseeing | Photography | 2,226 |
| | Scenic enjoyment/sightseeing | 2,945 |
| | Sitting in your car watching the scene | 1,121 |
| | Watching birds, whales, seals and/or other marine life (from shore or private boat) | 2,179 |
| | Watching birds, whales, seals and/or other marine life (from a charter/party vessel) | 187 |
| Diving | Free diving/snorkeling (from shore or boat) | 191 |
| | SCUBA diving (from a charter/party vessel) | 11 |
| | SCUBA diving (from shore or private boat) | 113 |

## 8.3.2. Review of Spatial Data

To review the initial data, the team worked with the PSC to develop a methodology that included an online webinar and a secondary method with open participation and targeted invitation for interested participants to register for a self-guided review process, using an online form. The opportunity was also promoted using personal emails, phone calls, and social media. The Team contacted over 1,200 stakeholders with the opportunity to review; of those 24 registered and 8 completed the review process. While review participation was low, some valuable feedback was offered.

Results indicated some confusion regarding:
- the subdivision of SCUBA and freediving into a separate activity grouping
- why fishing was not marked at certain hotspots
- what each point represents
- whether data represents a given survey participant's use or the broader public's intensity of use

The team was able to address these confusions flagged during review by:
- including descriptive text in Chapter 3 and 4 to clarify the decision to separate SCUBA and freediving in its own activity grouping
- specifically noting in the groupings document that fishing was not included in the is survey
- including descriptive text in section 8.6.1 to explain what the data shows and doesn't show

Reviewers identified the following gaps:
- Surfing over the entire 1.5 mile beach at Fortune's Rocks in Biddeford, ME
- Every ocean activity should be plotted over the entire 7-mile stretch of Old Orchard Beach, ME

- Surfing should be noted from Duxbury/Gurnet Point in MA all the way to Hull

Data reviewers indicated that they saw themselves and their ocean recreation use in the data, and that the point data looked accurate. When asked what percentage of their total Northeast ocean recreation trips they plotted using this survey, a majority replied between 75 & 100%.

Some reviewers raised concern that their individual use data would be overshadowed by other uses, particularly when this survey data is presented as points whereas other ocean recreation data is presented as polygons or other forms of more visible visual representations of data.

## 8.4. Discussion

### 8.4.1. Results
This study collected spatial and economic data on coastal and marine recreational uses in the Northeast region using a cost-effective, internet-based survey tool. The results may be used to identify the types of activities and relative use that occur in coastal and marine areas and inform the region's current and future ocean planning and management efforts.

Our study gathered data mostly from individuals living near the coast in Massachusetts (36.7 percent of respondents) and Maine (18.1 percent of respondents) who are white (94.7 percent of respondents) and have a Bachelor's degree or higher (56.1 percent of respondents). This group mainly recreates on the beach for walking, sitting, scenic enjoyment and/or swimming. Even though this group may not be a representative this study capture an important cross section of coastal and ocean users and provides over 19,211 spatial data points on recreation locations.

A large and diverse group of recreational stakeholders were engaged in the development, outreach, and review of the study's results and map products and are now more likely to participate in ocean planning activities and processes. This is an important achievement and as planning efforts move forward, it will be productive to continue to engage this key group of marine recreational stakeholders.

This study complements other coastal and marine recreational use studies such as MARCO's Mid-Atlantic Coastal and Ocean Recreation Use Survey, the Northeast's Boater Survey, and the NOAA's Participatory Human Uses GIS efforts.

Moving forward, the Surfrider Foundation will provide presentations on final study results and Northeast regional ocean planning to help gatekeepers and recreational stakeholders see themselves in the data and the process, as well as to provide instruction for viewing the data on the Northeast Ocean Data Portal. Presentations will serve as additional opportunities to highlight public engagement opportunities in the regional ocean planning process.

### 8.4.2. Study and data limitations

Data collected through an internet opt-in mode have some important limitations. Because respondents choose to participate in the survey, the sample is not random and may not be demographically representative of the overall population. For these reasons, the study was designed with the understanding that summaries of demographics or economic expenditures apply only to the sampled population and may not accurately reflect true values considering all of the region's recreational users.

Potential biases still remain such as recall and non-response biases. In particular a recall bias or systematic error in survey responses caused by difference in the accuracy of recollections may be a potential source of error as respondents are asked to recount the activity location and expenditures made on their coastal recreation trip in the last 12 months. Furthermore, the survey is optional and thus there may potentially be a non-response bias in that the answers of non-responders may have been significantly different than those who responded to the survey.

Despite these known limitations, the study included a strong stakeholder outreach and participatory component to enlist help from regional planners, ocean recreational business leaders, and recreational users to provide data and information that addresses a critical gap for the region. Survey respondents "dropped" over 19,000 activity markers along and beyond Northeast region shores—collectively they created the region's first spatial data set for individual user non-consumptive coastal and marine recreation. This participatory approach has helped build awareness of and investment in regional marine planning efforts among recreational users, groups, and associations.

### 8.4.3. Recommendations

A tremendous amount of spatial data were gathered as part of this survey effort which can be a valuable data set to characterize general coastal and marine recreation use areas in regional ocean planning efforts. It is important not to overstate what the spatial data collected in this survey represents. However, other studies have found that these data sets can help provide a general sense of the types of recreation activities that occur in specific areas of the region, the general overall patterns of recreation-based use, and average economic expenditures for recreation-based trips.

Based upon similar studies conducted in other regions, the team asserts that had data collection been conducted during heavy beach use months in the Northeast, outreach would have been even more successful at increasing engagement in this survey. It is recommended that this data set be compared with general recreational use datasets that may exist such as state park visitor statistics, aerial surveys, beach use counts, and any other surveys in which locations can be compared with each other to validate and assess results.

# 9. CONCLUSION

Together these surveys addressed all study goals and objectives by characterizing spatial use patterns of coastal and marine recreational activities from individual users and industry experts. In doing so, we engaged stakeholders to identify the most effective methods of data collection for different industries. This project also facilitated participation from recreational users in the collection and development of spatial data sets and resulted in robust stakeholder participation, as well as amplification of final product, which can be used for ocean planning purposes.

Highlights of this study include:

- General and dominant whale watch use areas in the region are well characterized as a result of well-attended participatory mapping workshops and follow up data vetting efforts

- This study was able to thoroughly characterize SCUBA diving areas in the region by combining data from an online survey, participatory mapping workshops, online and printed SCUBA diving guides, and by applying buffers to protect sensitive locations and to achieve consistent geometry.

- Although participation in the marine events online survey was low, additional background research on regional events, such as sailing races and regattas, fishing tournaments, and competitive board and paddle events, allowed for the presentation of marine events data both in tabular format and by mapping the landside locations of events.

- The few number of distance sailing race events, coupled with effective engagement of this sector resulted in a dataset and map, which characterize the general cruising route for all known distance races in the region.

- Standup paddleboard (SUP) events are more prevalent than surf contests or triathlons, constituting 62% of all competitive board and paddle events mapped in this study. Spatial indications of competitive board and paddle events on ocean waters are variable and dependent upon a number of factors, including course, challenge promised to competitors, wave conditions, winds, tides, currents, and other ocean uses that are taking place in the area.

- On average respondents to the Individual User coastal recreation survey spent $263.29 in trip expenditures during their last trip with approximately 40% of those expenditures spent on food and beverages and approximately 20% spent on lodging.

- Forty percent of coastal resident respondents on the Individual User survey noted that the availability of nearby marine recreation opportunities was the primary deciding factor in their choice to live there

- The top five activities reported in the Individual User coastal recreation survey include beach going, scenic enjoyment, swimming/body surfing, biking/hiking, and wildlife viewing.

# 10. Appendix A – Summary of Stakeholder Meetings, Webinars and Workshops for SCUBA, Sailing, Whale Watching and Fishing Tournaments and for RI OSAMP Updates

| Date | Meeting Topic | Location | Venue | Participants | Meeting Purpose | Summary of main points |
|---|---|---|---|---|---|---|
| 12/9/2014 | Sailing Methodology Scoping Webinar | N/A | N/A | Kathleen Burns (Connecticut Marine Trades Association), Michele DesAutels (United States Coast Guard (USCG)), Len Roberts (MA Environmental Police), Stephanie Helms (Gulf of Maine Ocean Racing Association), Jesse Henry (Gulf of Maine Ocean Racing Association), Cuyler Morris (Morris Yacht Clubs), Liz Podowski (NY State Department of State (NYS DOS)), Jeff Herter (NYS DOS) | To scope the most effective method for collecting geospatial data on sailing races and regattas in the Northeast | Participants suggested considering the large difference in scale of events, and the project team decided to collect information on smaller events through engaging a larger group of industry members and on larger events through consulting scoping webinar participants. Participants agreed upon a combined methodology consisting of an online survey and calls with key organizations. |
| 12/11/2014 | SCUBA Methodology Scoping Webinar | N/A | N/A | Chuck Oxendine (Portsmouth SCUBA), Matthew Lawrence (Stellwagen Bank National Marine Sanctuary-sitting in for Ben Cowie-Haskell), Heather Knowles (Northern Atlantic Dive Expeditions), Eric Takajian (Quest Marine Services), Liz Podowski (NY State Department of State), Prassede Vella (MA Office of Coastal Zone Management) | To scope the most effective method for collecting geospatial data on SCUBA diving in the Northeast | Participants and the project team agreed to further scope a hybrid approach to collecting information through an iterative opt-in survey, and vet this option with the steering committee. |
| 12/17/2014 | Whale Watch Methodology Scoping Webinar | N/A | N/A | Jessica Damon (Odyssey Whale Watch), Laura Howes (Boston Harbor Cruises), Pete Reynolds (Granite State Whale Watch), Paul Sieswerda (Gotham Whale Watch), Artie Kopelman (Coastal Research and Education Society of Long Island (CRESLI/State University of New York and State University of New York | To scope the most effective method for collecting geospatial data on commercial whale watching in the Northeast | Based on participant feedback, the project team decided to further scope a hybrid approach to data collection consisting of both online and in-person methodologies. The project team clarified for participants that the effort was focused on characterizing important |

| Date | Meeting Topic | Location | Venue | Participants | Meeting Purpose | Summary of main points |
|---|---|---|---|---|---|---|
| | | | | Fashion Institute of Technology), Jen Kennedy (Blue Ocean Society), Dave Wiley (Stellwagen Bank National Marine Sanctuary), Dianna Schulte (Blue Ocean Society), Zack Klyver (Bar Harbor Whale Watch), Chris Williams (NH Coastal Program), Liz Podowski (New York State Department of State (NYS DOS)), Jeff Herter (NYS DOS) | | areas for whale watching, not on the biological footprint. |
| 1/29/2015 | Fishing Methodology Scoping Webinar | N/A | N/A | Charles Witek (Babylon Tuna Club), Rick Zappia (Bay Shore Tuna Club), Jeff Herter (New York State Department of State (NYS DOS)), Michele DesAutels (United States Coast Guard (USCG)) | To scope the most effective method for collecting geospatial data on saltwater sportfishing tournaments in the Northeast | Based on participant feedback, the project team decided to expand outreach to a larger group of industry experts via phone calls, and present a more refined methodology. The project team acknowledged that the limited number of events in the study area would lead to difficulty in defining discrete polygons for tournaments, and that data collection could end up with probable tournament areas. |
| 2/9/2015 | Whale Watch Survey Development Phone Call | N/A | N/A | Artie Kopelman (Coastal Research and Education Society of Long Island), Jooke Robbins (Provincetown Center for Coastal Studies), Liz Podowski (New York State Department of State), Dianna Schulte (Blue Ocean Society), Jen Kennedy (Blue Ocean Society), Chris Williams (NH Coastal Program), Prassede Vella (Massachusetts Office of Coastal Zone Management), Paul Sieswerda (Gotham Whale Watch) | To present a proposed methodology to commercial whale watch industry experts and receive feedback | Participants expressed general support for the proposed methodology of holding three in-person meetings throughout the study region and mapping spatial data using eBeam participatory mapping technology. The project team also proposed holding online follow-up meetings using SeaSketch for participants to vet the data. |
| 2/19/2015 | Sailing Survey Development Phone Call | N/A | N/A | Tyson Bottenus (Sailors for the Sea), Liz Podowski (New York State Department of State (NYS DOS)), Mina Innes (NYS DOS), Prassede Vella (MA Office of Coastal Zone Management) | To present a proposed methodology to sailing industry experts and receive feedback | Participants expressed general support for the proposed methodology of using an online survey to characterize buoy races and a webinar to characterize distance races, and then conducting in-person meetings to vet the data. |

| Date | Meeting Topic | Location | Venue | Participants | Meeting Purpose | Summary of main points |
|---|---|---|---|---|---|---|
| 2/20/2015 | SCUBA Survey Development Phone Call | N/A | N/A | Heather Knowles (Northern Atlantic Dive Expeditions), Matthew Lawrence (Stellwagen Bank National Marine Sanctuary), Prassede Vella (MA Office of Coastal Zone Management), Mina Innes (New York State Department of State) | To present a proposed methodology to SCUBA diving industry experts and receive feedback | Participants expressed general support for the proposed methodology of using an online survey to map important areas for SCUBA diving and holding periodic SeaSketch-based webinars to vet interim data. The project team also proposed holding in-person meetings to vet the data collected through the survey and webinars. |
| 4/13/2015 | Sailing Distance Race Data Refinement Webinar | N/A | N/A | Alan Minard (Registration for Marion to Bermuda Race), Nan Johnson (Registration for Marion to Bermuda Race), Ray Redniss (Regional Race Officer for Block Island Race, Vineyard Race; Fleet Captain), Jeff Herter (New York State Department of State (NYS DOS)), Tyson Bottenus (Sailors for the Sea), Mina Innes (NYS DOS), Anne Coulombe (Marblehead to Halifax Race) | To review draft data and identify gaps in sailing distance race data | Participants helped the project team to begin refining existing data, and suggested including the number of participants and types of vessels in data products. |
| 4/17/2015 | Interim SCUBA Review Webinar I | N/A | N/A | Heather Knowles (Northern Atlantic Dive Expeditions), Matthew Lawrence (Stellwagen Bank National Marine Sanctuary), Eric Takakjian (Quest Marine Services) | To review interim SCUBA survey data and identify next steps for outreach and QAQC | Participants notified the project team of technical issues with the online survey and suggested additional contacts for outreach. |
| 4/20/2015 | Whale Watch PGIS Meeting I | Portsmouth, NH | NH Coastal Program Field Office | Patty Adell (Newburyport Whale Watch), Amy Warren (Newburyport Whale Watch), Pete Reynolds (Granite State Whale Watch), Jonathan Gwalthney (Granite State Whale Watch), Laura Lilly (Cape Ann Whale Watch), John Karvelas (Cape Ann Whale Watch), Cynde McInnis (Cape Ann Whale Watch), Dianna Schulte (Blue Ocean Society), Jen Kennedy (Blue Ocean Society) | To collect geospatial data on commercial whale watch activities and industry trends in the state of NH and the North Shore of MA | Participants noted the impacts of recent restrictions on the fishing industry, including decreased communication with fishers about whale sightings and the potential for fishers to enter the whale watch industry and increase competition. Participants expressed the need for more research and efforts into the impacts of submarine noise, ship strikes, and fishing gear entanglement on whales. Participants stressed the year-to-year |

| Date | Meeting Topic | Location | Venue | Participants | Meeting Purpose | Summary of main points |
|---|---|---|---|---|---|---|
| | | | | | | variability in the locations and frequency of whale sightings. |
| 5/11/2015 | Interim SCUBA Review Webinar II | N/A | N/A | Heather Knowles (Northern Atlantic Dive Expeditions), Matthew Lawrence (Stellwagen Bank National Marine Sanctuary) | To review interim SCUBA survey data and strategize on next steps for outreach | Participants strongly recommended that the project team leverage social media to contact SCUBA groups, and refine language in survey tool to be more specific about ideal size and resolution of mapped features. |
| 5/13/2015 | Whale Watch PGIS Meeting II | Bar Harbor, ME | College of the Atlantic | Natalie Springuel (Maine Sea Grant/College of the Atlantic (COA)), Tanya Lubansky (Allied Whale (AW)), Tom Fernald (AW), Rosemary Seton (AW), Toby Stephenson (COA/AW), Sean Todd (COA/AW), Zack Klyver (Bar Harbor Whale Watch (BHWW)), Julia Stepanuk (BHWW), Barbara Beblowski (COA/AW/BHWW), Skip Harris (Fundy Breeze Charters), Jess Damon (Odyssey Whale Watch) | To collect geospatial data on commercial whale watch activities and industry trends in the state of ME | Participants mapped only dominant use areas. Participants noted that the ME whale watch industry works more closely together than operators from other regions. Participants also noted that there has been consolidation in the industry. While whale watching has become increasingly popular in Bar Harbor, patronage has decreased in Portland. |
| 5/15/2015 | Whale Watch PGIS Meeting III | NY City, NY | Central Park Zoo | Dr. Arthur Kopelman (Coastal Research & Education Society of Long Island (CRESLI)/Viking Fleet), Dr. Howard Rosenbaum (Wildlife Conservation Society (WCS) Ocean Giants), Catherine Granton (Gotham Whale), Christopher Spagnoli (Gotham Whale/ WCS) | To collect geospatial data on commercial whale watch activities and industry trends in the state of NY | Participants noted that the public has been unaware of whale watch opportunities in NY, but that perceptions are changing and the industry is growing slowly. There are a very limited number of whale watch operations in the state. Participants expressed concern about emerging activities, such as offshore |

| Date | Meeting Topic | Location | Venue | Participants | Meeting Purpose | Summary of main points |
|---|---|---|---|---|---|---|
| | | | | | | wind energy and gas line development, in the areas in which they operate. |
| 5/19/2015 | Whale Watch PGIS Meeting IV | Plymouth, MA | Plymouth Public Library | Paul Sieswerda (Gotham Whale), John Conlon (Dolphin Fleet), Lindsay Hirt (Sea Salt Charters, Captain John Whale Watch), Debbie Ridings (Boston Harbor Cruises (BHC)), Laura Howes (BHC), Monica Pepe (Whale and Dolphin Conservation (WDC)), Michelle Collins (WDC), Regina Asmutis-Silvia (WDC) | To collect geospatial data on commercial whale watch activities and industry trends in the states of MA and NY | Participants discussed the growing presence since 10 years ago of small whale watch charters that also conduct SCUBA diving or deep sea fishing trips. Boston has experienced increased patronage and houses the largest whale watch operation in MA. Participants noted that the majority of customers are interested in whales, but a growing number book trips to target birds or seals. |
| 5/19/2015 | RI OSAMP Meeting with USCG | | | Ed LeBlanc (USCG) | Discussion of whether USCG marine event permit information could be used as a data source for the RI OSAMP update | |

| Date | Meeting Topic | Location | Venue | Participants | Meeting Purpose | Summary of main points |
|---|---|---|---|---|---|---|
| 5/28/2015 | RI OSAMP Data Collection Meeting | | | Robin Wallace (US Sailing) | Mapping sailing race areas in Narragansett Bay and RI OSAMP area for inclusion in RI OSAMP update. | |
| 6/2/2015 | RI OSAMP Data Collection and Evaluation Meetings | Narragansett, RI | Rhode Island Coastal Resources Center, University of Rhode Island | Dave Robinson (University of Rhode Island), Sheila McCurdy (US Sailing), Tyson Bottenus (Sailors for the Sea), Charlie Donilon (Snappa Charters), Rick Bellavance (Rhode Island Party and Charter Boat Association), Steve Anderson (Bare Bones Charters), John Rainone (L'il Toot Charters). | To evaluate current RI OSAMP data and provide additional data that can be used in the RI OSAMP update and in the SCUBA, sailing, and whale watching datasets for the recreational use characterization project. | Participants added additional SCUBA sites and other archaeologically-important underwater sites, mapped sailing areas in Narragansett Bay that were not part of the original RI OSAMP, and mapped additional wildlife viewing areas, including areas frequently visited by whale watching vessels. |
| 6/9/2015 | RI OSAMP SCUBA Data Collection Meeting | Warren, RI | East Bay Dive Center | Dave LeBrecque (East Bay Dive Center) | Collect data on SCUBA diving areas in Narragansett Bay and RI OSAMP area for inclusion in RI OSAMP update. | Additional SCUBA diving areas were mapped, and the participant provided a guidebook which listed the locations of additional SCUBA diving sites in the area. |
| 6/24/2015 | Data Vetting and Refinement Workshop I | Portland, ME | Gulf of Maine Research Institute | Jim Dock (Aqua Diving Academy), Zach Whalen (Aqua Diving Academy) | To review draft data and options for data presentation, and to fill data gaps | Participants from the SCUBA diving community agreed upon the level of generalization of the geospatial data. Participants provided explanations for perceived data gaps and hot spots, and noted that one of the main drivers for popularizing dive spots in ME in accessibility. |

| Date | Meeting Topic | Location | Venue | Participants | Meeting Purpose | Summary of main points |
|---|---|---|---|---|---|---|
| 7/8/2015 | Data Vetting and Refinement Workshop II | Nahant, MA | Nahant Dory Club | Bob Cusack (Dory Club), Jim Nannery (Metrowest Dive Club) | To review draft data and options for data presentation, and to fill data gaps | Participants from the SCUBA diving and sailing communities provided explanations for perceived data gaps, industry trends, and for SCUBA, loss of access. |
| 7/14/2015 | Data Vetting and Refinement Workshop III | West Sayville, NY | Long Island Maritime Museum | Mary Artale (Long Island Divers Association (LIDA), The Dive Club), Sally Wahrmann (LIDA, The Dive Club),, Rick Zappia (Bay Shore Tuna Club), Christopher Weaver (Eco-Photo Explorers, LIDA), Mike Salvarezza (Eco-Photo Explorers, LIDA), Stephen Bielenda (Eastern Dive Boat Ass'n), Barry Lipsky, Kirby Kurkomelis (Seahunt Divers, Inc.), Saverio Pispisa (Long Island SCUBA) | To review draft data and options for data presentation, and to fill data gaps | Participants from the SCUBA diving community filled in data gaps. Participants explained that diving is unpopular in Long Island Sounds because of pollution, poor visibility, and inaccessibility. Participants expressed suspicion over the security of revealing dive site locations and over the ability of government to restrict access. Participants also expressed a desire to have easier access to mapping information on the Northeast Ocean Data Portal. |
| 7/15/2015 | Data Vetting and Refinement Workshop IV | Old Lyme, CT | CT DEEP Marine Headquarters | Paul Risseeuw (East CT Sailing Association), Ryan Patrilak (SECONN Divers), Tom Hajek (diver), Anne Hannan (US Sailing), Gaeton Andretta (Paddler's Network, CBAC), George Hallenbeck (US Power Squadrons, CBAC), Bill Palmer (charter boat captain), Yolanda Cooley (DEEP Boating Division), Mark Munro (wreck diver), Jeff Godfrey (diver), Larry Lawrence (RI diver), Katie Bradford (East CT Sailing Association), Eleanor Mariani (DEEP Boating Division), David Blatt (DEEP LIS Program), David Kozak (DEEP LIS Program), Kathleen Burns (CT Marine Trades Association) | To review draft data and options for data presentation, and to fill data gaps | Participants from the sailing, SCUBA, and paddleboarding communities filled in data gaps, and questioned the efficacy of outreach and data collection methods. Sailing participants indicated that sailing activity is more or less perpetual in the Long Island Sound in-season. SCUBA participants expressed dissatisfaction with the extent of restricted access to wreck dive sites throughout NY, CT, and MA. Paddleboard participants noted that paddleboard events tend to be small, unstructured, and informal, and are limited by a number of factors related to access and ocean conditions. |

# 11. Appendix B – Maps Depicting Study Data
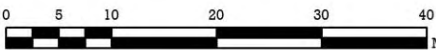
## 11.1. BI. Maps Depicting Data on Commercial Whale Watching

**Map 7. Commercial Whale Watching Spatial Data: Northern Maine**
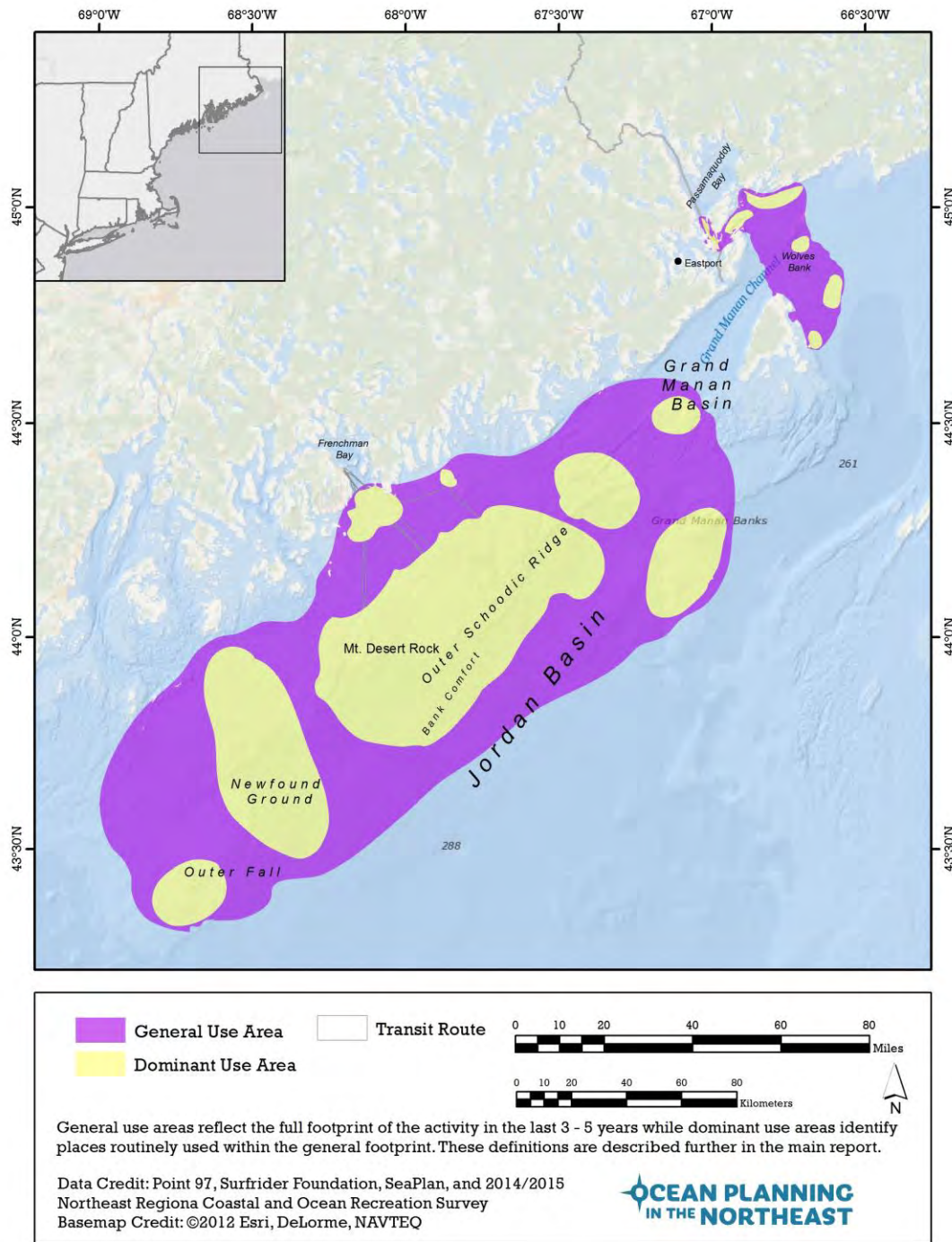
# Map 8. Commercial Whale Watching Spatial Data: Southern Maine



General use areas reflect the full footprint of the activity in the last 3 - 5 years while dominant use areas identify places routinely used within the general footprint. These definitions are described further in the main report.
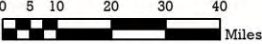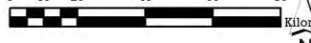
Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015 Northeast Regiona Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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**Map 9. Commercial Whale Watching Spatial Data: New Hampshire and Massachusetts**



General use areas reflect the full footprint of the activity in the last 3 - 5 years while dominant use areas identify places routinely used within the general footprint. Supplemental use areas refer to closely-related activities and infrequent specialty trips. RI Areas reflect separate OSAMP data collection methods. These definitions are described further in the main report.

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015
Northeast Regiona Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

# Map 10. Commercial Whale Watching Spatial Data: Montauk and Rhode Island



**General Use Area**
**Dominant Use Area**
**Transit Route**
**Supplemental Use Area**
**RI OSAMP Whale Watch Area**
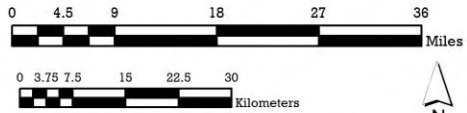
General use areas reflect the full footprint of the activity in the last 3 - 5 years while dominant use areas identify places routinely used within the general footprint. Supplemental use areas refer to closely-related activities and infrequent specialty trips. RI Areas reflect separate OSAMP data collection methods. These definitions are described further in the main report.

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015
Northeast Regiona Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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# Map 11. Commercial Whale Watching Spatial Data: New York Harbor



General use areas reflect the full footprint of the activity in the last 3 - 5 years while dominant use areas identify places routinely used within the general footprint. These definitions are described further in the main report.

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015 Northeast Regiona Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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## 11.2. BII. Maps Depicting Data on Recreational SCUBA Diving

**Map 12. SCUBA Diving Survey: Maine**
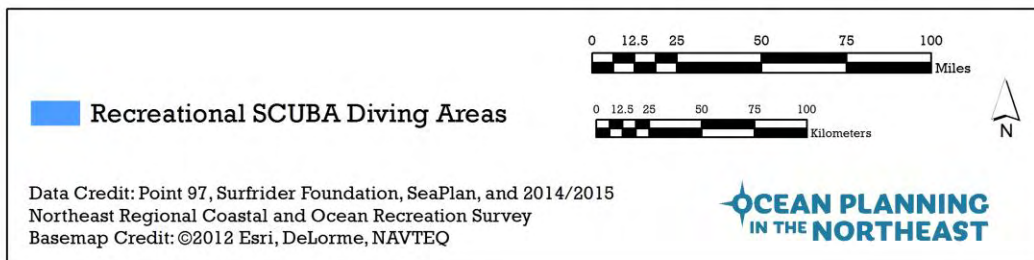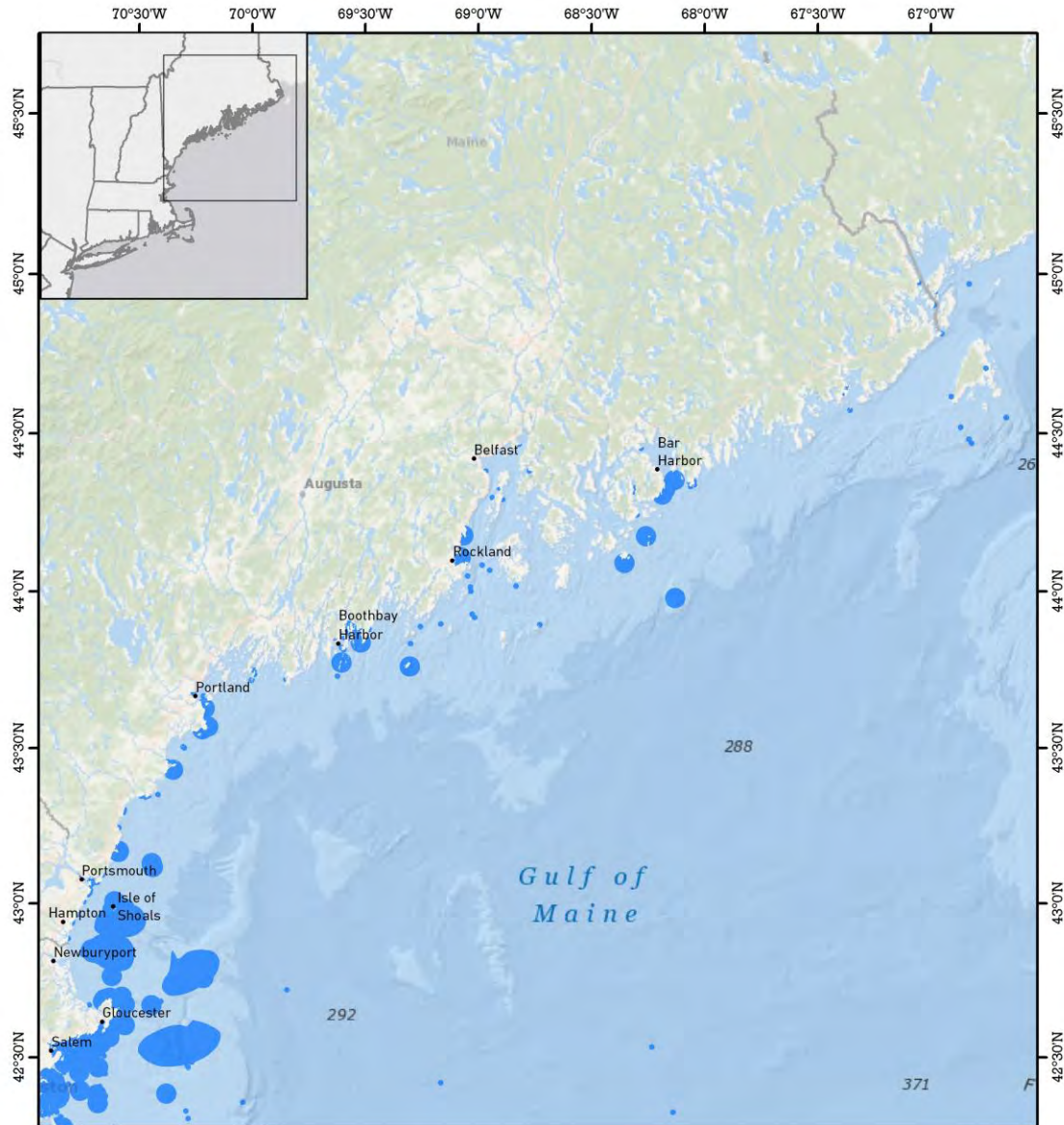
**Map 13. SCUBA Diving Survey: New Hampshire**



Recreational SCUBA Diving Areas

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015
Northeast Regional Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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# Map 14. SCUBA Diving Survey: Massachusetts



Recreational SCUBA Diving Areas

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015 Northeast Regional Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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**Map 15. SCUBA Diving Survey: Rhode Island**
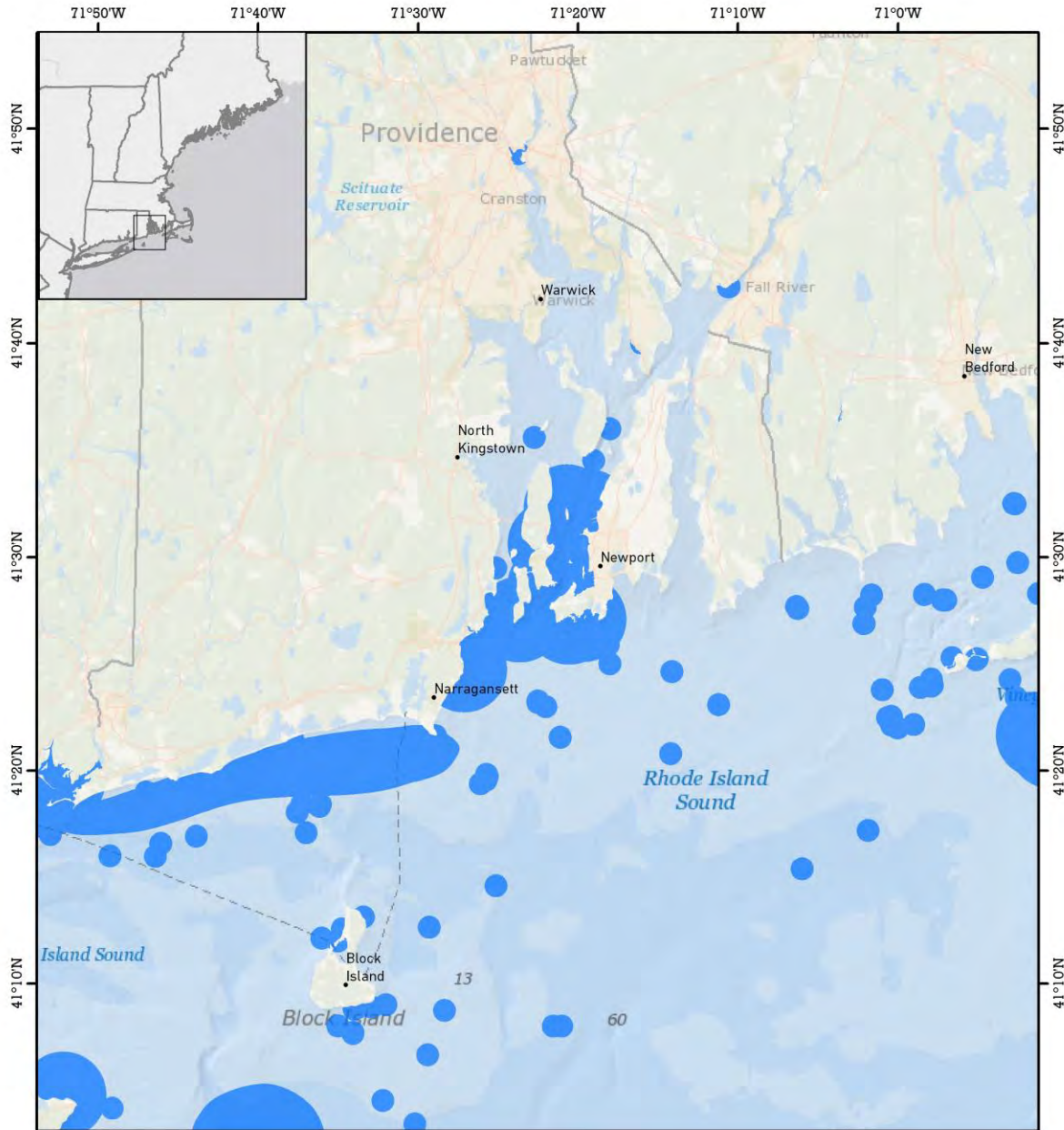


Recreational SCUBA Diving Areas

0  2.75  5.5  11  16.5  22
Miles

0  3  6  12  18  24
Kilometers

N

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015
Northeast Regional Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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# Map 16. SCUBA Diving Survey: Connecticut and Long Island Sound



Recreational SCUBA Diving Areas

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015 Northeast Regiona Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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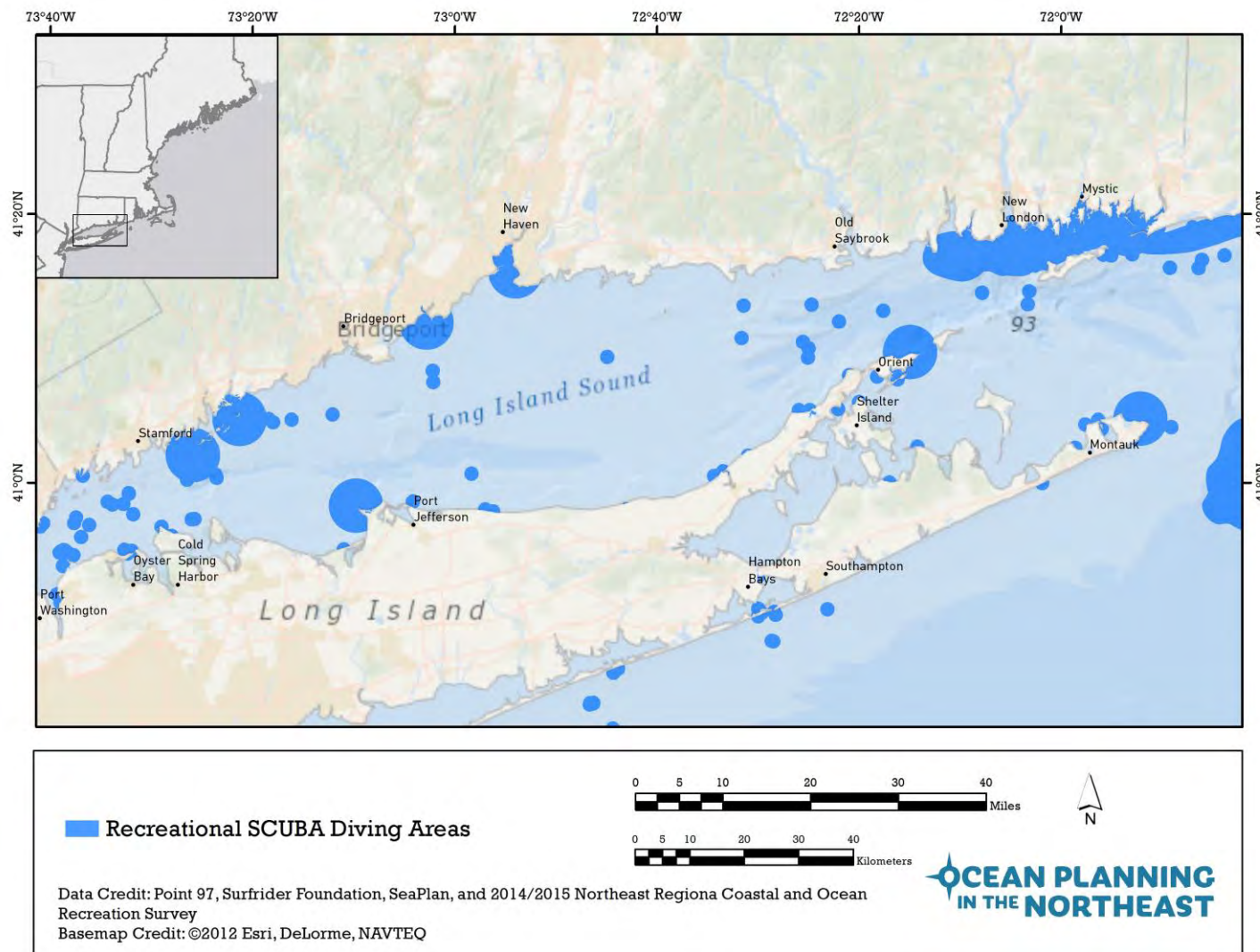
**Map 17. SCUBA Diving Survey: New York**



Recreational SCUBA Diving Areas

0  5  10      20      30      40
Miles

0  5 10      20      30      40
Kilometers

OCEAN PLANNING IN THE NORTHEAST

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015 Northeast Regiona Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ
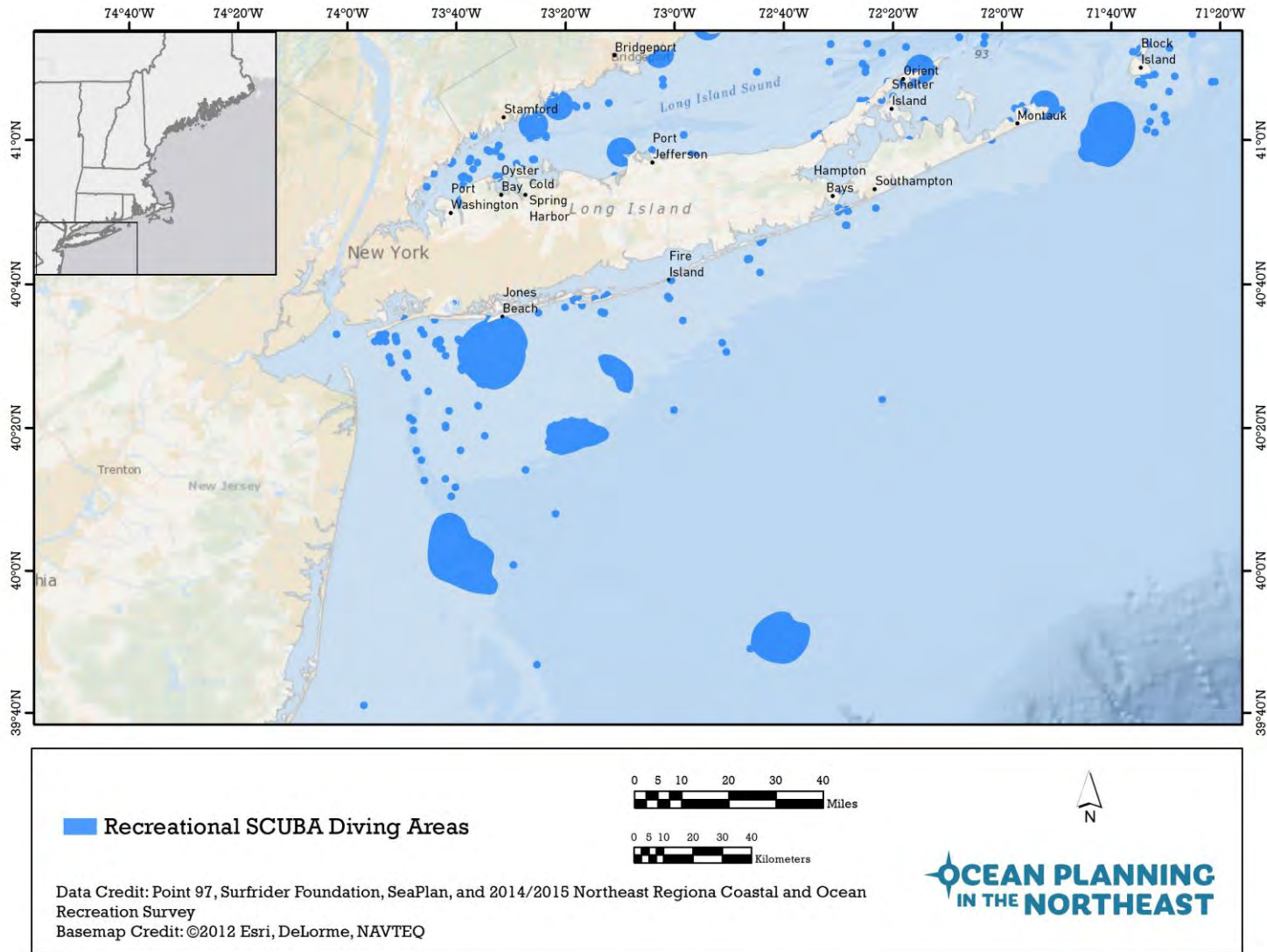
## 11.3. BIII. Maps Depicting Data on Sailing Races and Regattas

**Map 18. Landside Locations of Sailing Races and Regattas: Maine**



Sailing Race Landside Locations

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015
Northeast Regional Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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**Map 19. Landside Locations of Sailing Races and Regattas: New Hampshire**
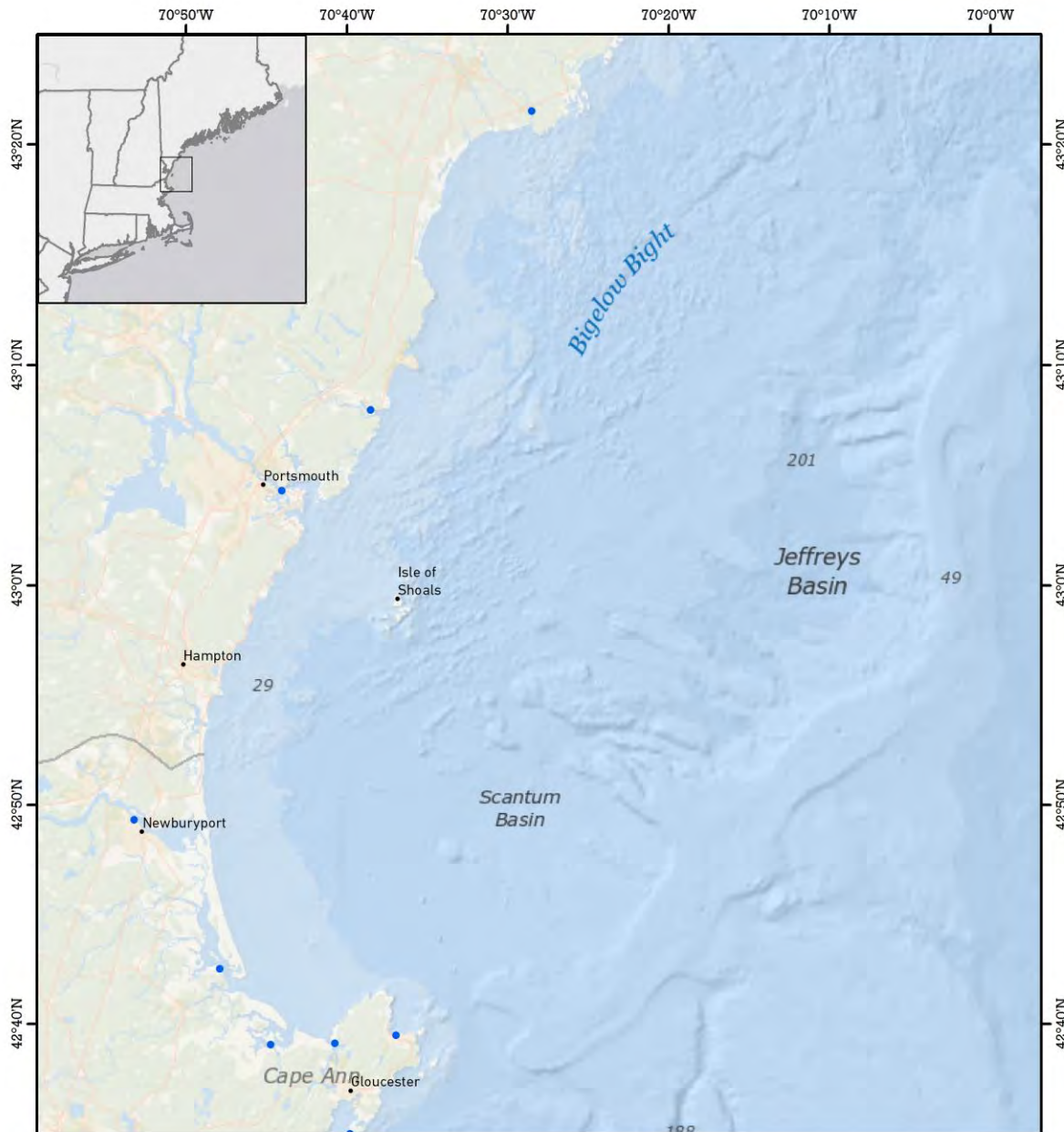


Sailing Race Landside Locations
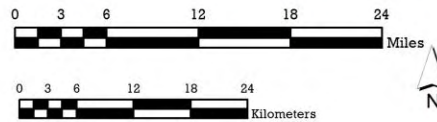
Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015
Northeast Regional Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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**Map 20. Landside Locations of Sailing Races and Regattas: Massachusetts**



Sailing Race Landside Locations

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015
Northeast Regional Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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**Map 21. Landside Locations of Sailing Races and Regattas: Rhode Island**
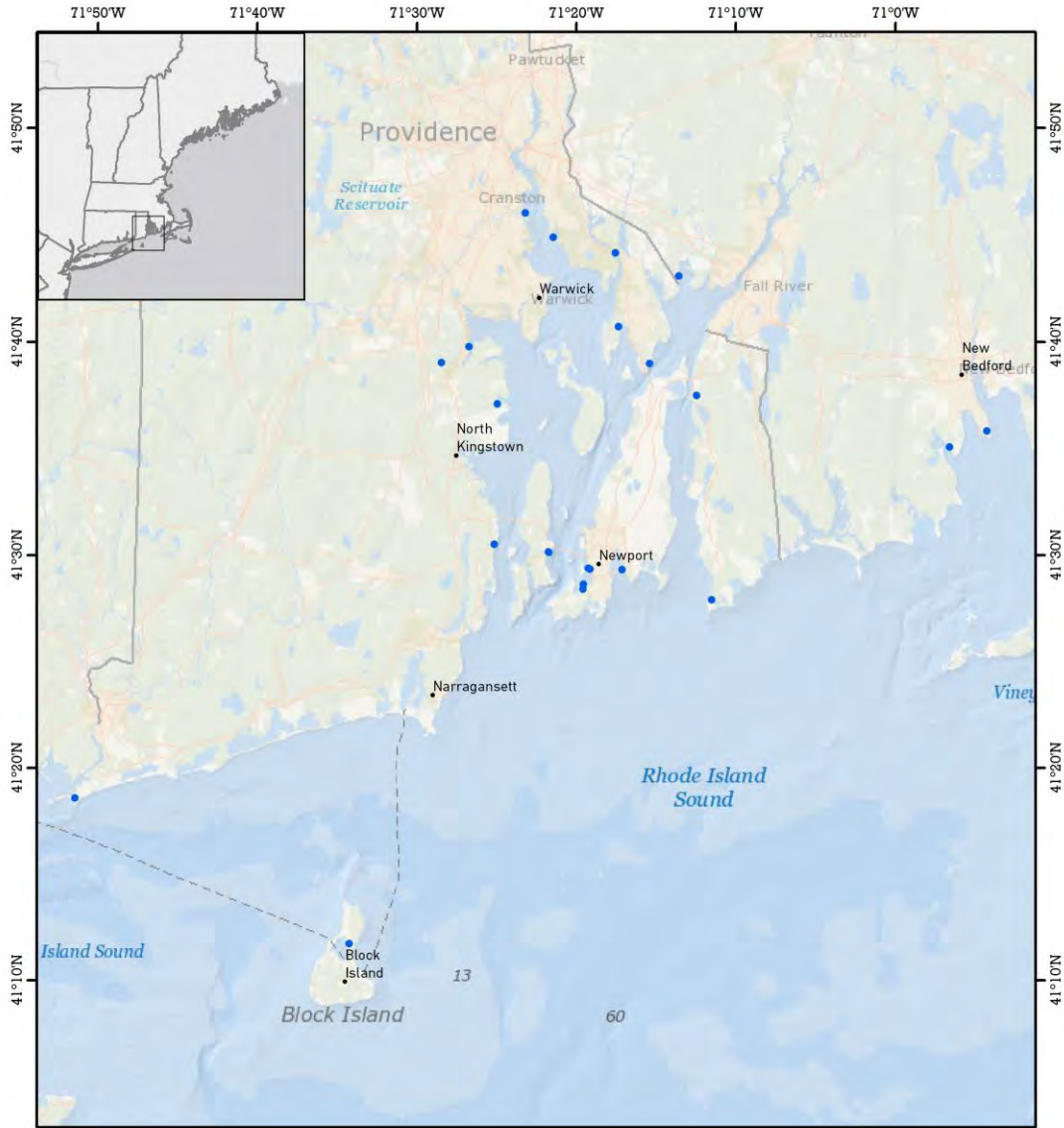
# Map 22. Landside Locations of Sailing Races and Regattas: Connecticut and New York



Sailing Race Landside Locations

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015 Northeast Regional Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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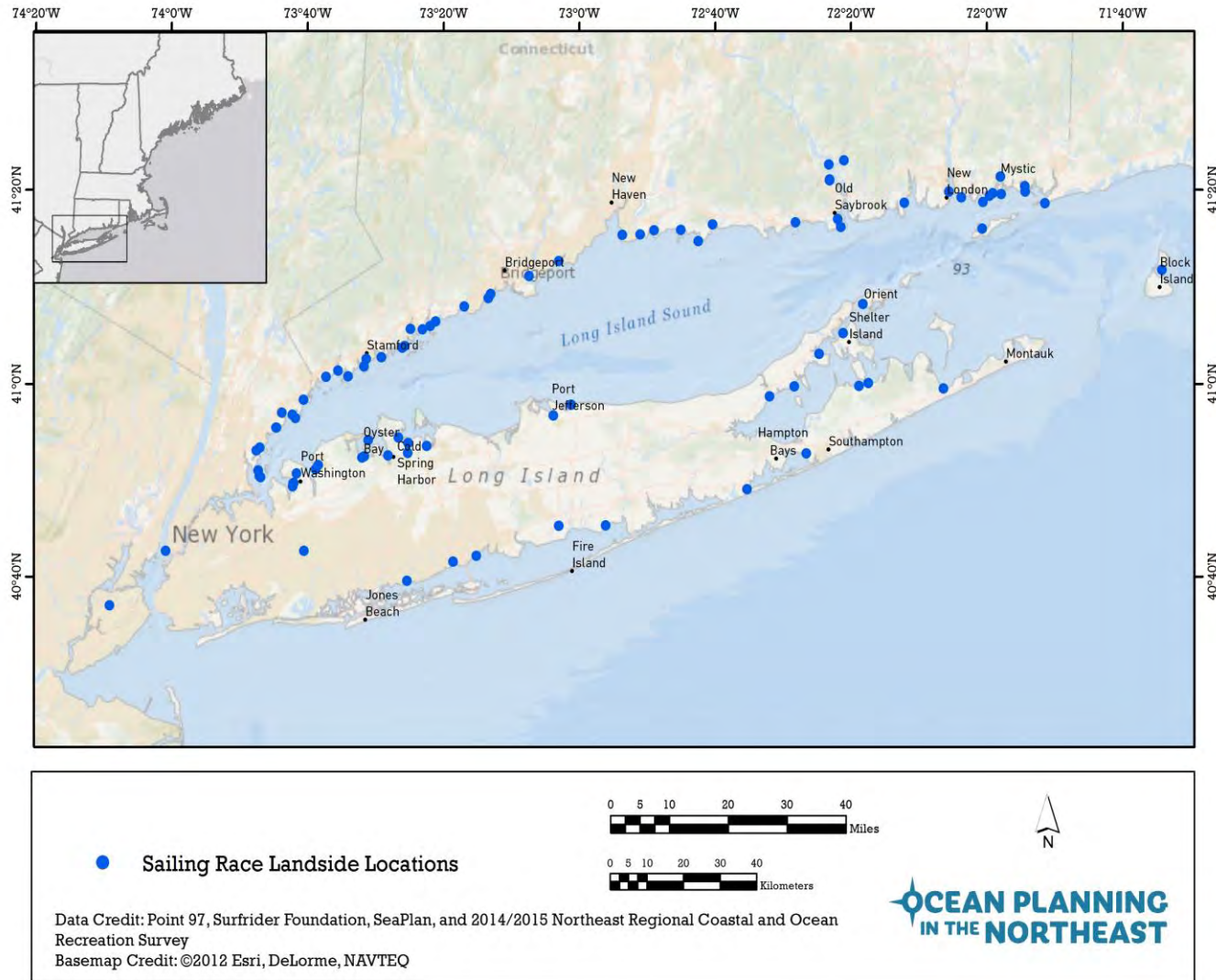
## 11.4. BIV. Maps Depicting Data on Fishing Tournaments

**Map 23. Fishing Tournament Locations: Maine**
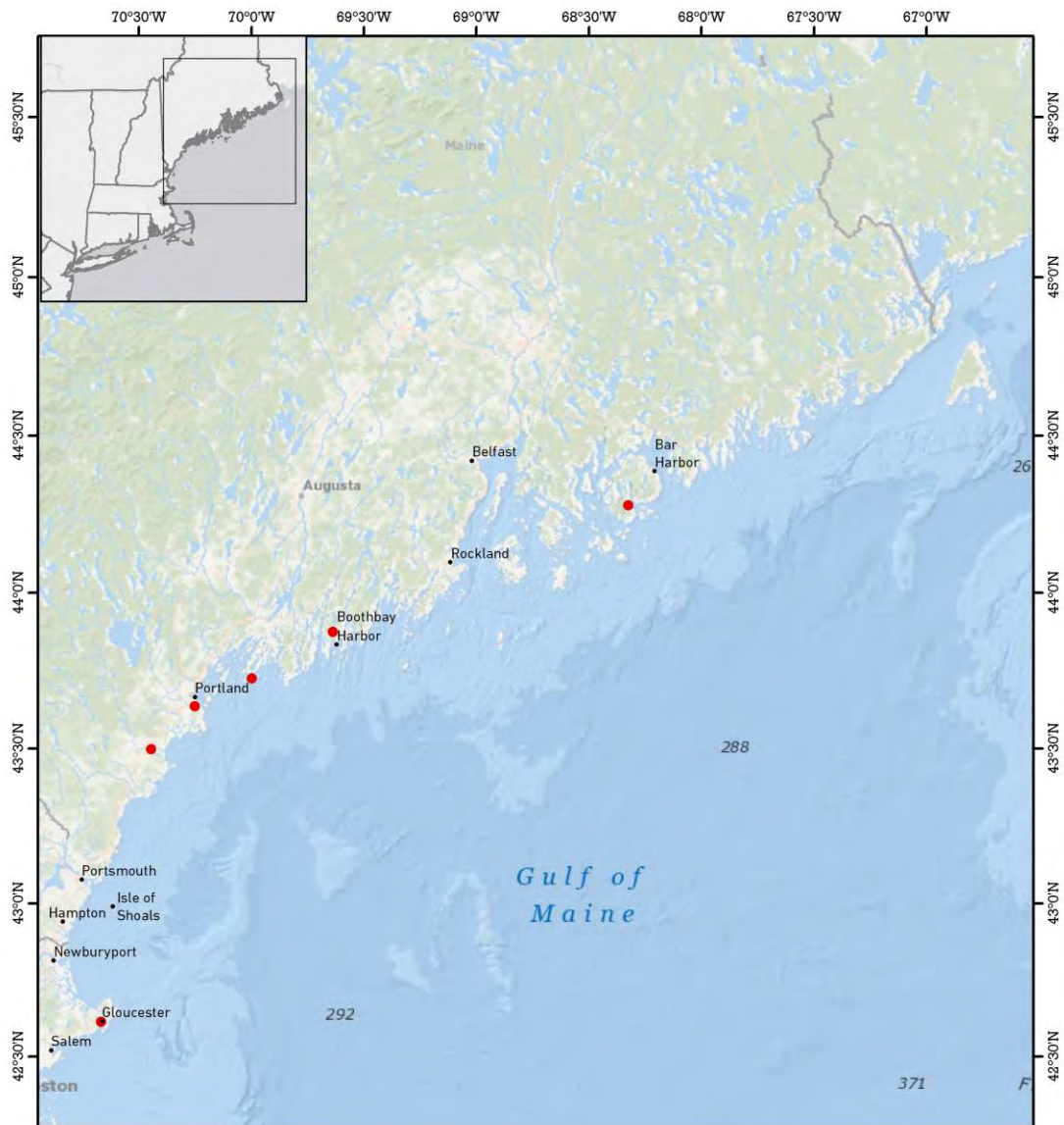


Fishing Tournament Landside Locations

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015
Northeast Regiona Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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**Map 24. Fishing Tournament Locations: Connecticut and New York**
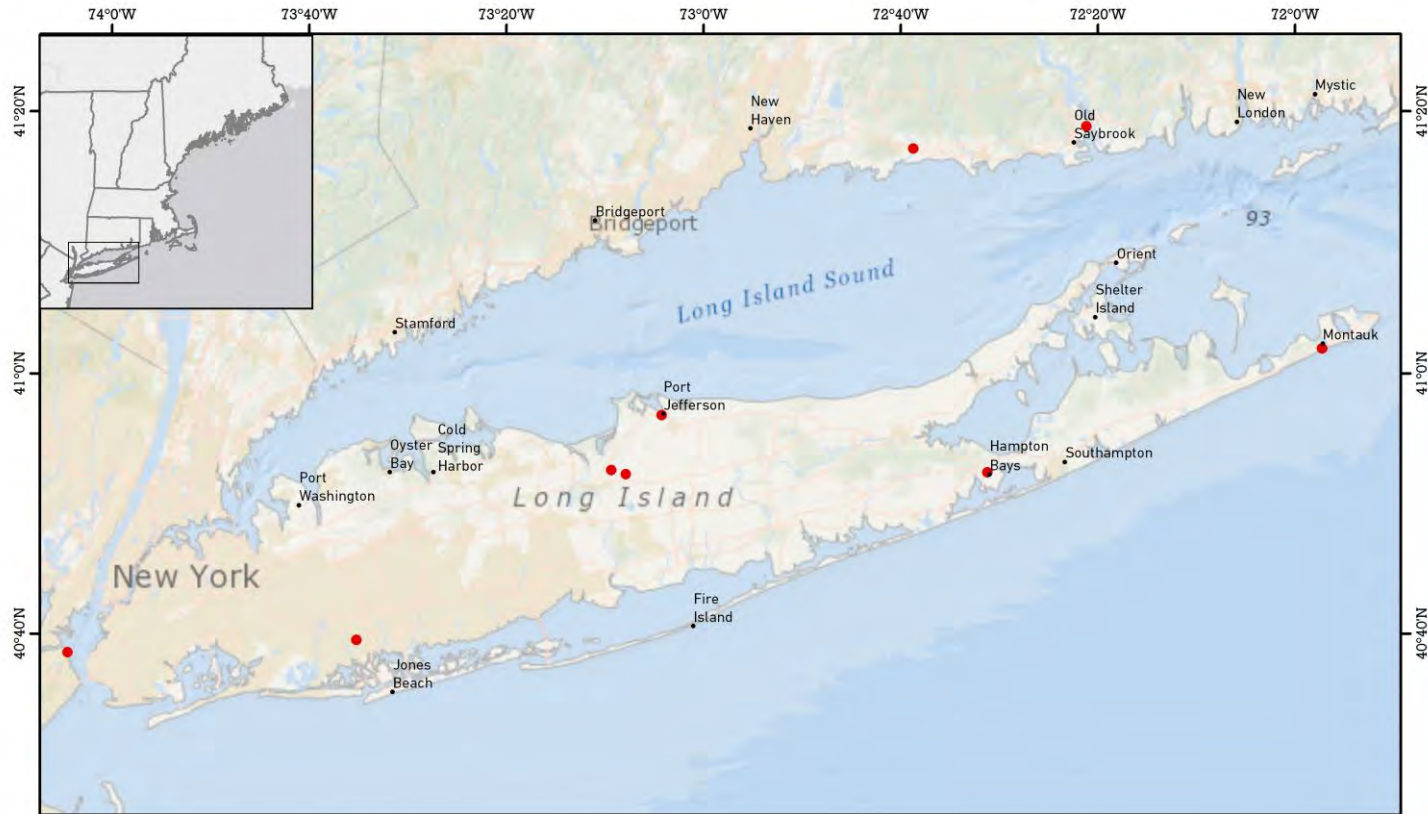


Fishing Tournament Landside Locations
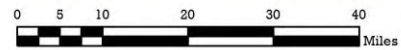
Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015 Northeast Regiona Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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## Map 25. Fishing Tournament Locations: Massachusetts
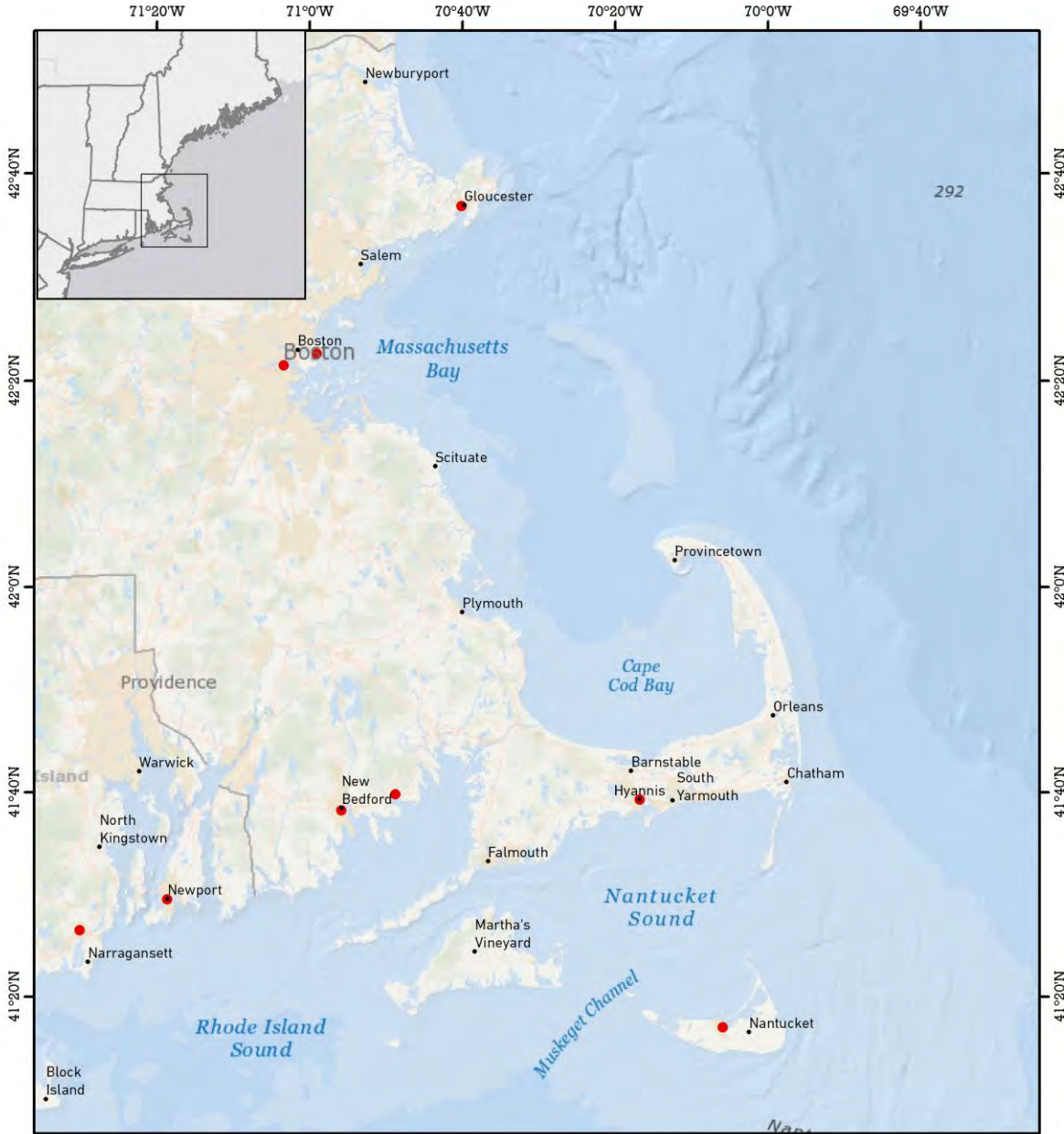


Fishing Tournament Landside Locations

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015
Northeast Regiona Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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## Map 26. Fishing Tournament Locations: Rhode Island
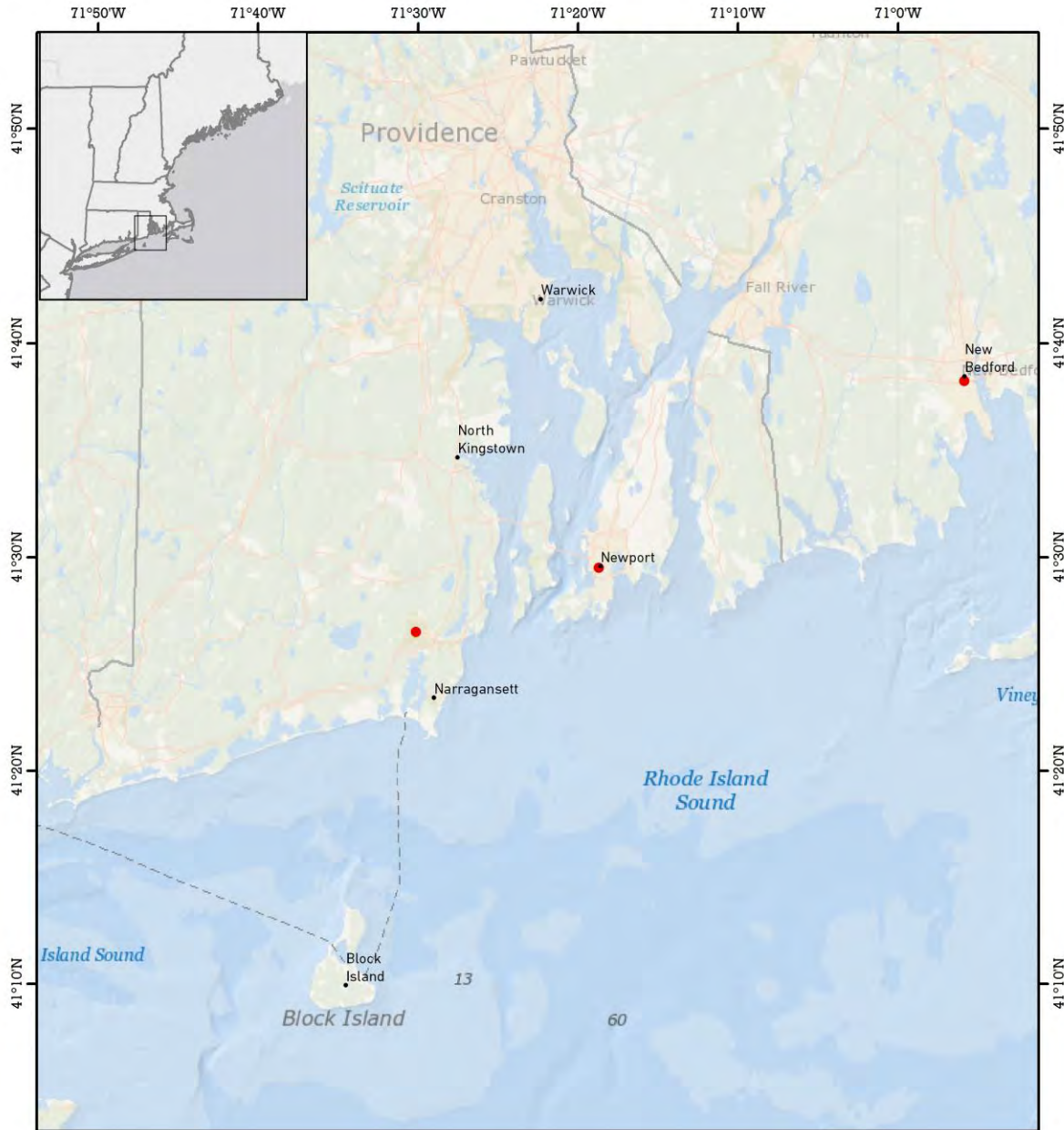


Fishing Tournament Landside Locations

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015
Northeast Regiona Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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## 11.5. BV. Maps Depicting Data on Competitive Board and Paddle Events

**Map 27. Board and Paddle Event Locations: Northeast Region**
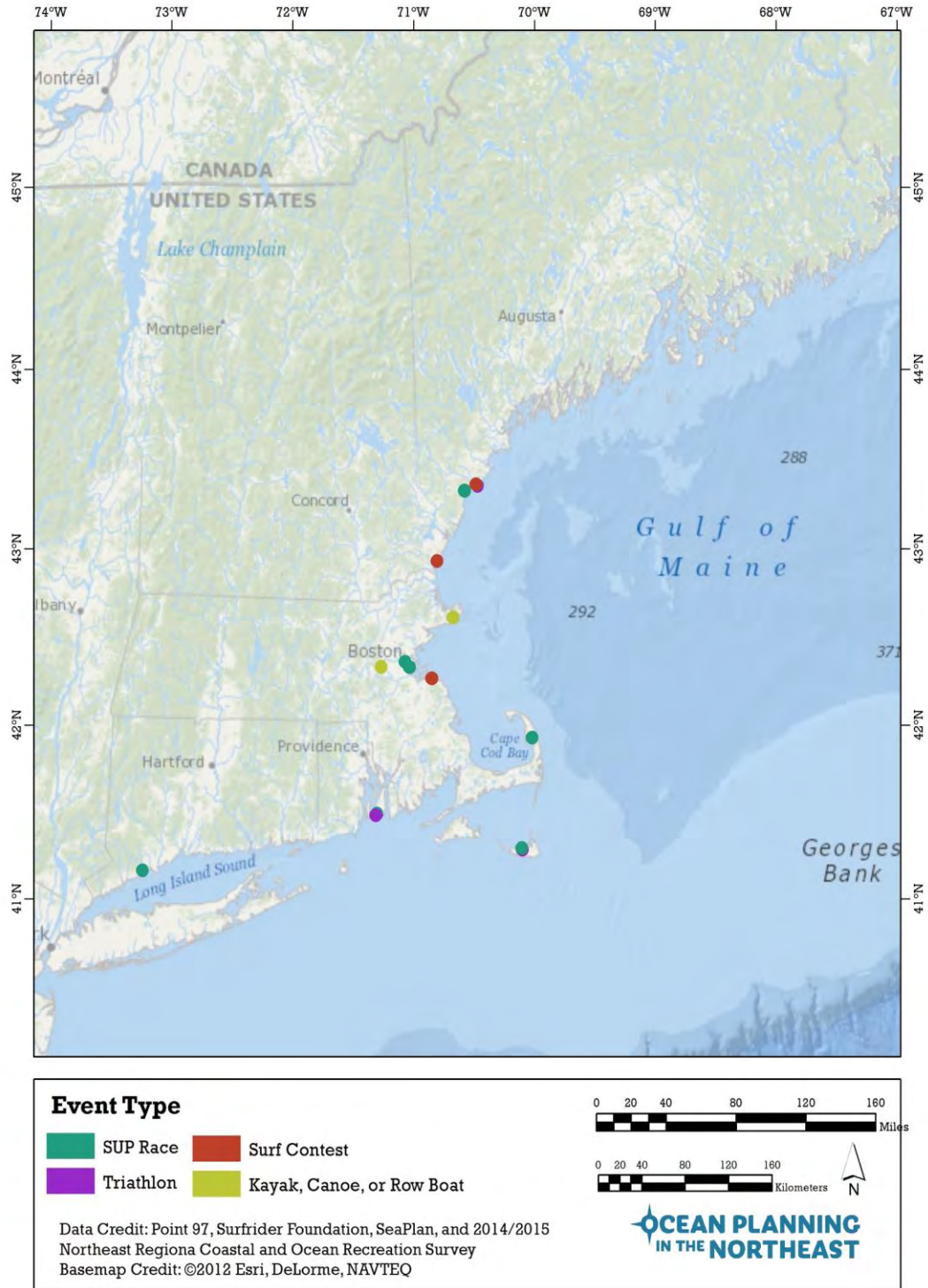
## 11.6. BVI. Maps Depicting Data from the Individual User Coastal Recreation Survey

**Map 28. Individual User Coastal Recreation Survey: Northeast Region**
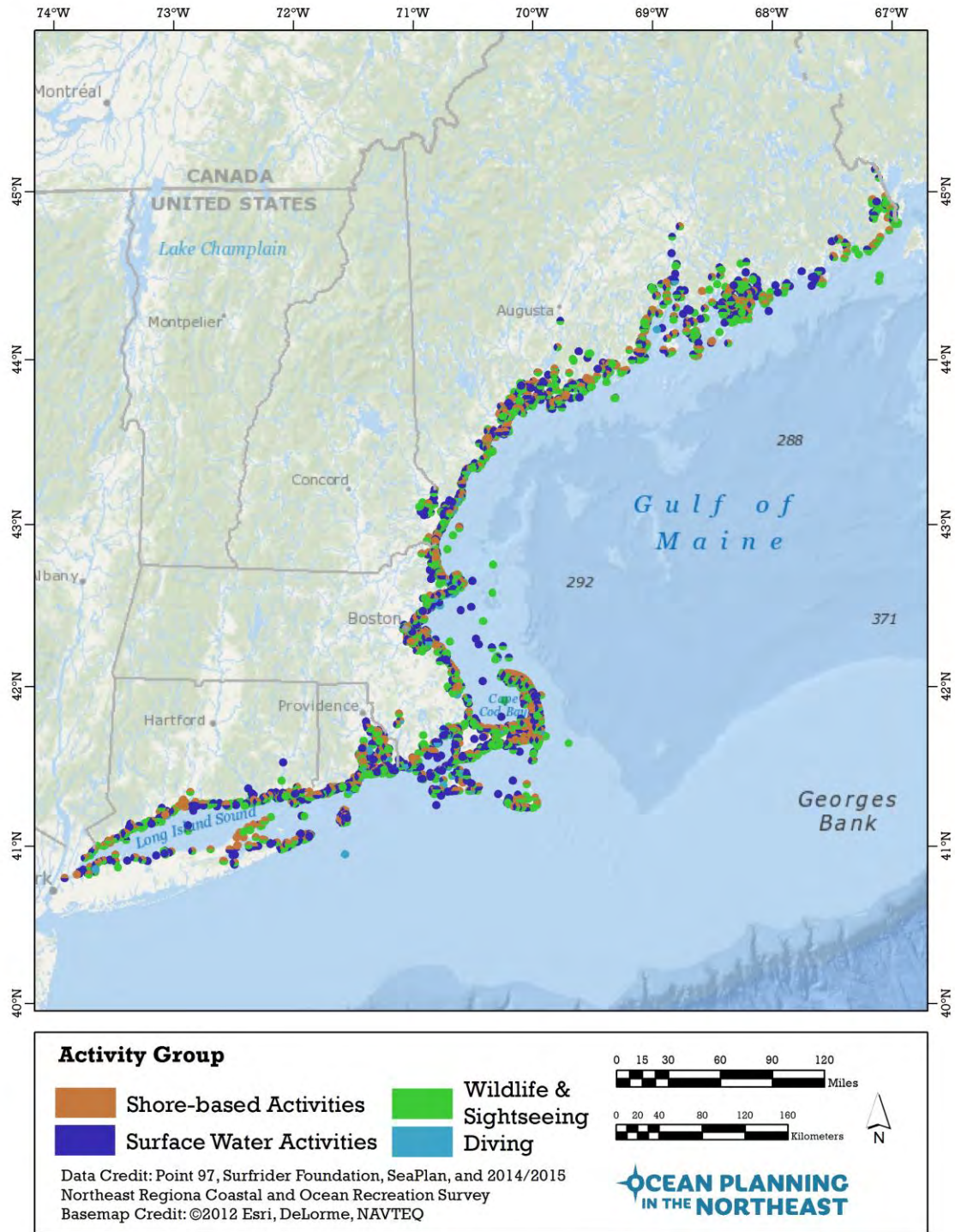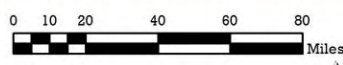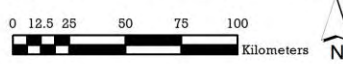
**Map 29. Individual User Coastal Recreation Survey: Maine**



Activity Group

Shore-based Activities
Surface Water Activities
Wildlife & Sightseeing
Diving

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015
Northeast Regiona Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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# Map 30. Individual User Coastal Recreation Survey: New Hampshire



**Activity Group**

- Shore-based Activities
- Surface Water Activities
- Wildlife & Sightseeing
- Diving

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015 Northeast Regiona Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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# Map 31. Individual User Coastal Recreation Survey: Massachusetts
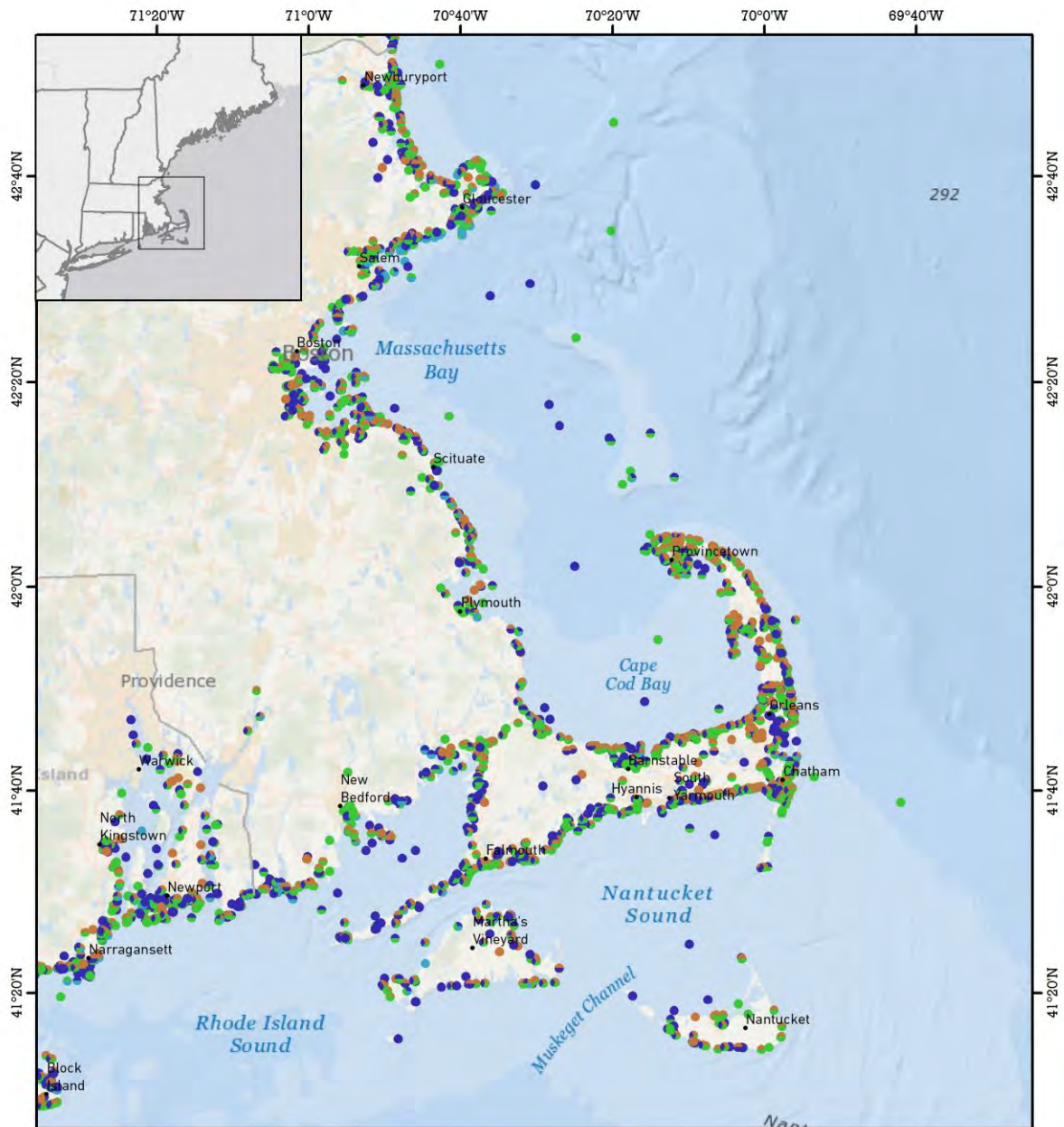


**Activity Group**

- Shore-based Activities
- Surface Water Activities
- Wildlife & Sightseeing
- Diving

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015
Northeast Regiona Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ
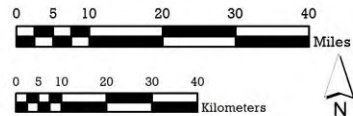
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**Map 32. Individual User Coastal Recreation Survey: Connecticut**
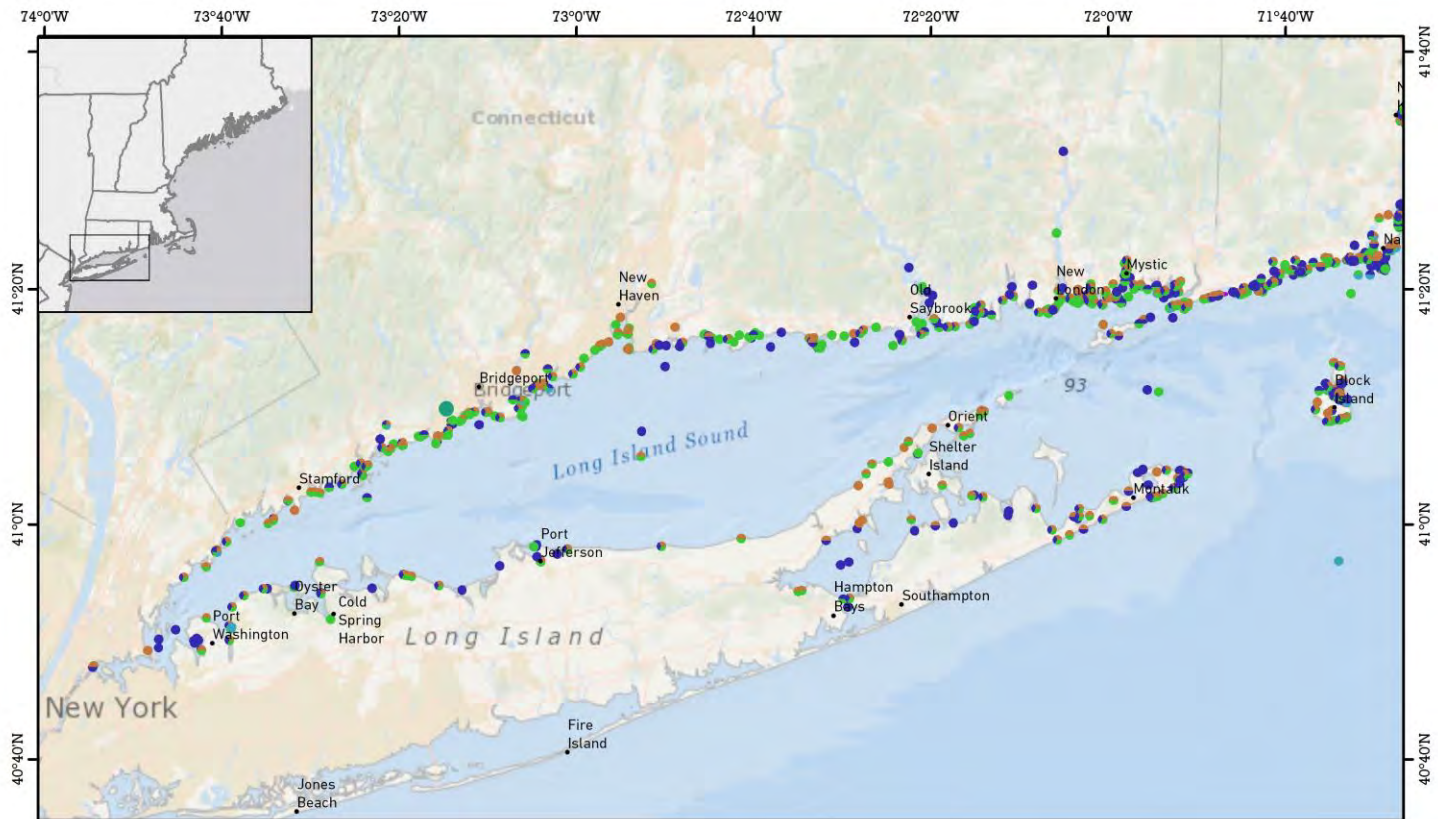


Activity Group

Shore-based Activities

Surface Water Activities

Wildlife & Sightseeing

Diving

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015 Northeast Regiona Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

OCEAN PLANNING IN THE NORTHEAST
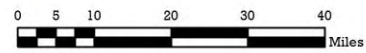
# Map 33. Individual User Coastal Recreation Survey: Rhode Island



**Activity Group**

- ■ Shore-based Activities
- ■ Surface Water Activities
- ■ Wildlife & Sightseeing
- ■ Diving

Data Credit: Point 97, Surfrider Foundation, SeaPlan, and 2014/2015
Northeast Regiona Coastal and Ocean Recreation Survey
Basemap Credit: ©2012 Esri, DeLorme, NAVTEQ

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# 12. Appendix C – Homeports, locations, and seasonality of cetacean sightings on whale watch trips

| | | | | | | |
|---|---|---|---|---|---|---|
| 0 | Bar Harbor, ME | Petit Manan Lighthouse, East Bumps | yearly | spring, fall | various | puffin |
| 1 | Bar Harbor, ME | Outer Falls, Jeffreys Bank | yearly | spring, summer | various | |
| 2 | Bar Harbor, ME | Mount Desert Rock, Schoodic Ridges | yearly | summer | humpback whales | |
| | Bar Harbor, ME | East Bumps | 2012-2013 | summer | various | |
| 3 | Bar Harbor, ME | south of Jonesport | 2005-2015 | fall | various | |
| 4 | Bar Harbor, ME | Grand Manan Bank | yearly | fall | various | |
| 5 | Bar Harbor, ME | Newfound Ground, Vinalhaven, East Banks | yearly | fall | various | |
| 6 | Bar Harbor, ME | Outer Schoodic Ridge | yearly | fall | humpback, fin, pilot, sperm, blue whales; Atlantic bottlenose dolphins | |
| 7 | Bar Harbor, ME | entrance to Frenchman Bay | yearly | unspecified | minke whales | |
| 8 | Eastport, ME | Letit Passage to Black Harbor | yearly | summer | humpback, fin whales | |
| 9 | Eastport, ME | Passamaquoddy Bay | yearly | summer | minke whales | |
| 10 | Eastport, ME | Wolves Bank | yearly | unspecified | humpback whales | |
| 12 | Eastport, ME | Grand Manan Basin | yearly | unspecified | humpback whales | |
| 13 | Eastport, ME | Grand Manan Basin | yearly | unspecified | humpback, right whales | |
| | Eastport, ME | Grand Manan Basin | 2013 | unspecified | right whales | |
| 14 | Portland, ME | unspecified | yearly | unspecified | various | |
| 15 | Portland, ME | unspecified | yearly | unspecified | various | |
| 16 | Portland, ME | unspecified | yearly | unspecified | various | |
| 17 | Portland, ME | unspecified | yearly | unspecified | various | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 18 | Portland, ME | unspecified | yearly | unspecified | various | |
| 19 | Portland, ME | unspecified | yearly | unspecified | various | |
| 20 | Portland, ME | unspecified | yearly | unspecified | various | |
| 21 | Bar Harbor, ME | Seal Island | yearly | unspecified | minke whales, unspecified porpoises | puffin |
| 22 | Bar Harbor, ME | south of Mount Desert Rock, Brunsport | yearly | fall | sei, pilot whales | |
| 23 | Bar Harbor, ME | south of Jonesport | yearly | fall | sei, pilot whales | |
| 24 | Portland, ME | unspecified | yearly | unspecified | humpback, fin, minke, right whales | |
| 25 | Portland, ME | unspecified | yearly | unspecified | humpback, fin, minke, right whales | |
| 26 | Portland, ME | unspecified | yearly | unspecified | humpback, fin, minke, right whales | |
| 27 | Portland, ME | unspecified | yearly | unspecified | humpback, fin, minke, right whales | |
| 28 | Portland, ME | unspecified | yearly | unspecified | humpback, fin, minke, right whales | |
| 29 | Portland, ME | unspecified | yearly | unspecified | humpback, fin, minke, right whales | |
| 30 | Portland, ME | unspecified | yearly | unspecified | humpback, fin, minke, right whales | |
| | Portland, ME | West Cod Ledge | yearly | summer | minke whales | |
| | Portland, ME | unspecified | yearly | unspecified | fin, minke, right whales | |
| | Portland, ME | Bigelow Bight | yearly | unspecified | minke whales | |
| 31 | New Hampshire | unspecified | 2015 | spring | fin whales | |
| 32 | New Hampshire | offshore Hampton Beach | yearly | summer | fin whales | |
| 33 | New Hampshire | unspecified | yearly | summer | fin, minke whales; unspecified dolphins | |
| 34 | New Hampshire | unspecified | 2013-2014 | fall | various | |
| 35 | North Shore, MA | NW corner of Sanctuary | yearly | summer | various | |
| 36 | North Shore, MA | Tillies Bank, NE corner of Sanctuary | yearly | spring, fall | humpback, fin, minke whales | |
| 37 | North Shore, MA | SW corner of Sanctuary | yearly | summer | various | |
| | North Shore, MA | SW corner of Sanctuary | 2014 | summer | humpback whales; unspecified dolphins | |
| 38 | North Shore, MA | Jeffreys Ledge | 2013-2014 | fall | various | |

| | | | | | humpback, fin, minke, right whales; Atlantic bottlenose, short-beaked | |
|---|---|---|---|---|---|---|
| 39 | Montauk, NY | unspecified | yearly | unspecified | common dolphins | |
| 40 | New York City, NY | unspecified | yearly | unspecified | various | |
| 41 | New York City, NY | unspecified | yearly | unspecified | various | |
| | New York City, NY | unspecified | yearly | spring, summer, fall | humpback whales; Atlantic bottlenose dolphins | |
| | New York City, NY | unspecified | yearly | unspecified | humpback, fin pilot whales; Atlantic bottlenose, short-beaked common dolphins | |
| 42 | MA various | unspecified | yearly | unspecified | fin, minke whales | |
| 43 | MA various | unspecified | yearly | unspecified | fin, minke whales | |
| 44 | MA various | unspecified | yearly | unspecified | fin, minke whales | |
| 45 | MA various | unspecified | yearly | unspecified | fin, minke whales | |
| 46 | Boston, MA | NW corner of Sanctuary | yearly | spring, summer, fall | humpback, fin, minke whales | |
| | Boston, MA | NW corner of Sanctuary | 2013-2014 | spring | humpback, fin, minke, right, sei whales; Atlantic white-sided dolphins | |
| 47 | Boston, MA | SW corner of Sanctuary | yearly | summer, fall | humpback, fin, minke whales | |
| 48 | Boston, MA | western boundary of Sanctuary | yearly | unspecified | fin whales | |
| 49 | MA various | shipping lane in Sanctuary | 2012-2013 | summer | various | |
| 50 | Boston, MA | south of Jeffreys Ledge | 2013 | fall | humpback, fin, pilot whales | |
| 51 | MA various | backside of Cape Cod | yearly | summer | various | |
| 52 | Nantucket, MA | backside of Cape Cod | yearly | summer | humpback whales | |
| 53 | Provincetown, MA | Wood End to Race Point | yearly | spring | fin, minke, right whales | |
| 54 | Provincetown, MA | ledge SW of Provincetown | 2014 | spring | humpback, fin, right whales | |
| 55 | Provincetown, MA | sand bars on backside of Cape Cod | yearly | summer | various | |
| 56 | Provincetown, MA | SW corner of Sanctuary | yearly | summer | humpback, fin, minke whales | |

| 57 | Provincetown, MA | SE corner of Sanctuary | yearly | summer | humpback, fin whales | |
| | Provincetown, MA | SE corner of Sanctuary | 2009-2010 | summer | humpback, fin, right, sei whales | |
| 58 | MA various | Cape Cod Bay | 2013 | summer | fin whales | |
| 59 | Boston, MA | unspecified | yearly | unspecified | various | |
| 60 | | unspecified | yearly | unspecified | fin whales | |
| 61 | Boston, MA | Tillies Bank | yearly | summer | various | |
| 62 | Boston, MA | Wildcat Knoll | yearly | summer | various | |
| 63 | Boston, MA | unspecified | yearly | spring | humpback whales | |
| 64 | Boston, MA | unspecified | yearly | spring | humpback whales | |
| 65 | Boston, MA | unspecified | yearly | spring | humpback whales | |

# 13. Appendix D –List of Dive Clubs, SCUBA Organizations, and Businesses Contacted to Request Participation in Online SCUBA Survey

| Organization | State |
|---|---|
| Adventure Diving of Cape Cod | MA |
| Aqua Center | MA |
| Aqua Diving Academy | ME |
| Aqua Nuts | NY |
| Aquatic Voyagers | NY |
| Atlantic Aquasport | NH |
| Atlantic Wreck Divers | NY |
| Bay State Council of Divers | MA |
| Bay State Hammerheads | MA |
| Black Dog Divers, Inc. | NH |
| Bob's Sea & Ski | MA |
| Boston Scuba | MA |
| Broadway Divers | NY |
| Buzzards Bay Dive Center | MA |
| Cape Ann Divers | MA |
| Cape Dive Club | MA |
| Capt. Sam's Scuba | CT |
| Central Maine Muck Divers | ME |
| Decapod Divers | MA |
| Deep Six Divers | MA |
| Diver Jim's | MA |
| Diverdors | MA |
| Diver's Cove | CT |
| Diver's Market | MA |
| Divers of Western New England | MA |
| Downeast Diving | ME |
| East Coast Divers | MA |
| East Coast Wreck Diving | NY |
| Fairfield County Diving Association | CT |
| Frogmen Divers | MA |
|  |  |
| Hamden Scuba | CT |
| Innerspace Explorers | CT |
| International Scuba Diving | CT |
|  | CT |
| League of Underwater Superheroes | ME |

| | |
|---|---|
| Long Island Divers Association | NY |
| Long Island Groupers | NY |
| Long Island SCUBA | NY |
| Long Island Sea Searchers | NY |
| Maine Divers Scuba Center | ME |
| Maine Divers SCUBA Center | ME |
| Maine Scuba Services | ME |
| Maine-iac Divers SCUBA Club | ME |
| Mass Bay Divers | MA |
| Mass Dive | MA |
| Mass Diving | MA |
| Merrimack Valley Dive Club | MA |
| Metro West Dive Club | MA |
| MIT SCUBA Club | MA |
| Monadnock Divers Club | NH |
| Moray Wheels | MA |
| Morse Diving | MA |
| National Academy of SCUBA educators | Various |
| New England Aquarium Dive Club | MA |
| New England Cold Water Divers | MA |
| North Shore Divers Club | MA |
| North Shore Frogmen | MA |
| Northern Atlantic Dive Expeditions Inc. | MA |
| NYC Sea Gypsies | NY |
| Oceanblue Divers | NY |
| Old Colony Amphibians | MA |
| | |
| Pioneer Valley Dive Club | MA |
| Portsmouth SCUBA | NH |
| Professional Association of Diving Instructors | Various |
| Rex Dive Center | CT |
| Rockland Aquanauts | NY |
| Rollins Scuba Associates | ME |
| Salem State SCUBA | MA |
| SCUBA Network Long Island | NY |
| SCUBA Network NYC | NY |
| SCUBA Shack | CT |
| Sea Ventures Charters | ME |
| Seaview Scuba | CT |
| SECONN Skin Divers | CT |
| Semper Diving & Marine | MA |
| Shippan Scuba Diving Service | CT |
| Skindivers Paradise | ME |
| South Plymouth Hammerheads | MA |

| | |
|---|---|
| South Shore Divers | MA |
| South Shore Neptunes | MA |
| Staten Island Sport Divers | NY |
| Subsea Divers | MA |
| The Dive Club | NY |
| The Gillmen | CT |
| The SCUBA Sports Club | NY |
| The Ski & Scuba Connection | CT |
| The Sunday Dive Club | NY |
| Triangle Divers | MA |
| Tufts SCUBA Club | MA |
| Quest Marine Services | MA |
| Undersea Divers | MA |
| United Divers of Central Massachusetts | MA |
| United Divers of New Hampshire | NH |
| United Divers, Inc. | MA |
| University of Maine | ME |
| Vineyard Scuba | MA |
| Waterworks Diving Service, Inc. | ME |
| Worcester Hammerheads | MA |
| WPI Dive Club | MA |

# 14. Appendix E – Survey Scoping Meeting Agendas



**Recreational Characterization Project:**
**Informational Webinar with Industry Experts – SCUBA**
**December 10, 2014 (1 – 2:00 pm)**

Webinar Access:
GoTo Meeting:
Conference call in:     951-797-1058
Passcode:                238361

Webinar Participants:

- John Weber and Katie Lund (Northeast Regional Ocean Council (NROC)/Regional Planning Body (RPB) Staff)
- Project Steering Committee (RPB State and Federal Agency reps)
- SeaPlan Team
- Industry Experts
- .97 and Surfrider

Meeting Purpose:
- Introduce ocean planning process and purpose of study
- Present overview of study and proposed methodology options for characterizing the sector
- Obtain feedback on methodology options from industry experts
- Identify next steps

Agenda:

I.      Introductions (*1:00 – 1:05)*

II.     Ocean Planning Process Review *(1:05 – 1:10)*

III.    Overview of Recreational Uses Study *(1:10 – 1:20)*

IV.     Industry Expert Feedback *(1:20 – 1:55)*

V.      Closing and next steps *(1:55 – 2:00)*

## Recreational Characterization Project:
## Informational Webinar with Industry Experts – Marine Sportfishing
## Tournaments
## January 29, 2015 (9:30 – 10:30 am)

Webinar Access:
GoTo Meeting: https://global.gotomeeting.com/join/287659189
Conference call in:       951-797-1058
Passcode:                238361

Webinar Participants:

- John Weber and Katie Lund (Northeast Regional Ocean Council (NROC)/Regional Planning Body (RPB) Staff)
- Project Steering Committee (RPB State and Federal Agency reps)
- SeaPlan Team
- Industry Experts

Meeting Purpose:
- Introduce ocean planning process and purpose of study
- Present overview of study and proposed methodology options for characterizing the sector
- Obtain feedback on methodology options from industry experts
- Identify next steps

Agenda:

I.       Introductions *(9:30– 9:35)*

II.      Ocean Planning Process Review *(9:35 – 9:40)*

III.     Overview of Recreational Uses Study *(9:40 – 10:00)*

IV.      Industry Expert Feedback *(10:00 – 10:25)*

V.       Closing and next steps *(10:25 – 10:30)*

**Recreational Characterization Project:**
**Informational Webinar with Industry Experts - Sailing Regattas and Races**
**December 9, 2014 (9 – 10:00 am)**

Webinar Access:

GoTo Meeting:        https://global.gotomeeting.com/join/349346149
Conference call in:  951-797-1058
Passcode:            238361

Webinar Participants:

- John Weber and Katie Lund (Northeast Regional Ocean Council (NROC)/Regional Planning Body (RPB) Staff)
- Project Steering Committee (RPB State and Federal Agency reps)
- SeaPlan Team
- Industry Experts
- .97 and Surfrider

Meeting Purpose:
- Introduce ocean planning process and purpose of study
- Present overview of study and proposed methodology options for characterizing the sector
- Obtain feedback on methodology options from industry experts
- Identify next steps

Agenda:

I.      Introductions *(9:00 – 9:05)*

II.     Ocean Planning Process Review *(9:05 – 9:10)*

III.    Overview of Recreational Uses Study *(9:10 – 9:20)*

IV.     Industry Expert Feedback *(9:20 – 9:55)*

V.      Closing and next steps *(9:55 – 10:00)*

**Recreational Characterization Project:**
**Informational Webinar with Industry Experts - Whale Watching**
**December 17, 2014, (11 am – 12:00 pm)**

Webinar Access:
GoTo Meeting:
Conference call in:        951-797-1058
Passcode:                    238361

Webinar Participants:

- John Weber and Katie Lund (Northeast Regional Ocean Council (NROC)/Regional Planning Body (RPB) Staff)
- Project Steering Committee (RPB State and Federal Agency reps)
- SeaPlan Team
- Industry Experts
- .97 and Surfrider

Meeting Purpose:
- Introduce ocean planning process and purpose of study
- Present overview of study and proposed methodology options for characterizing the sector
- Obtain feedback on methodology options from industry experts
- Identify next steps
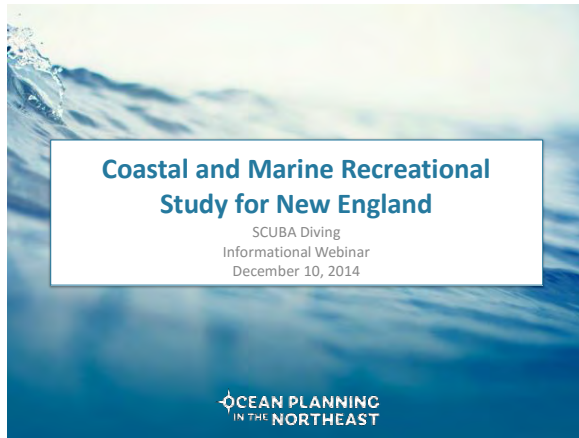
Agenda:

I.        Introductions (*11:00 – 11:05*)

II.       Ocean Planning Process Review *(11:05 – 11:10)*

III.      Overview of Recreational Uses Study *(11:10 – 11:20)*

IV.       Industry Expert Feedback *(11:20 – 11:55)*

V.        Closing and next steps *(11:55 – 12:00)*

# 15. Appendix F – Survey Scoping Meeting PowerPoint Slides

Figure 15.1. SCUBA Diving Scoping Meeting PowerPoint Slides

**Industry Experts**

*What are we asking of you?*

- Determine and refine methodology

- Assist with outreach and encourage participation

- Contribute to data collection effort

- Review data and final reports



**Existing Information: State Sources**

Rhode Island– SCUBA dive boat operators identified most popular dive sites

Massachusetts– 2007 data from MA Board of Underwater Archaeological Resources, and web searches of popular diving locations



**Existing Information: Regional**

2012 Northeast Recreational Boater Survey – Boaters identified locations where they went SCUBA diving while boating

NOAA Wrecks and Obstructions data layer on Northeast Ocean Data Portal



**Methodology Options: E-Beam Participatory Mapping Workshops**



**Methodology Options: Online Opt-in Survey**



**Methodology Options: Interactive Mapping Webinars using SeaSketch**

## Methodology Options

| Methodology | Pros | Cons |
|---|---|---|
| Online opt-in Survey | • Reaches wide audience<br>• Customizable<br>• Users can take survey on their own schedule | • Survey development can be time-consuming<br>•Some computer proficiency and internet access required |
| SeaSketch webinar | •Users do not have to travel to take survey<br>•Facilitators can ask questions on the fly<br>•Users can edit and refine existing data<br>•Users can view aggregated data in real time | •Users are restricted to specified webinar times<br>•Some computer proficiency and internet access required |
| Mapping workshops with E-Beam | •No computer proficiency or internet access required<br>• In-kind funding support from NOAA available for this methodology<br>•Facilitators can ask questions on the fly<br>•Creates ready-to-use data which can be viewed in real time | •Travel to in-person workshops required |

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## Questions & Feedback

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**Figure 15.2. Sailing Races and Regattas Scoping Meeting PowerPoint Slides**

## Coastal and Marine Recreational Study for New England

Sailing Races and Regattas
Informational Webinar
December 9, 2014

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## Meeting Purpose

- Introduce ocean planning process and purpose of study
- Present overview of study and proposed methodology options
- Obtain feedback from industry experts
- Identify next steps

OCEAN PLANNING IN THE NORTHEAST
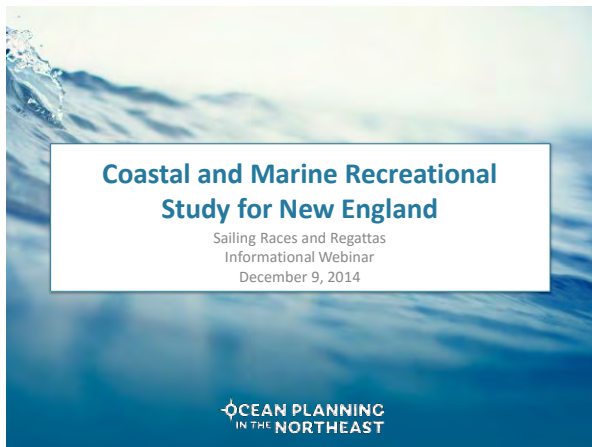
## Ocean Recreational Uses Characterization Study

Characterize coastal and marine recreational activity in New England

– Lack of regional spatial data
– Support Northeast regional planning process

1. Coastal Rec Survey
- Beach going
- Wildlife viewing
- Surfing
- Kayaking

2. Industry Leader Engagement
- **Sailing regattas**
- Fishing tournaments
- SCUBA
- Commercial whale watching

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## Industry Experts

*What are we asking of you?*

- Determine and refine methodology

- Assist with outreach and encourage participation

- Contribute to data collection effort

- Review data and final reports

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## Existing Information: USCG Marine Events Pilot Study



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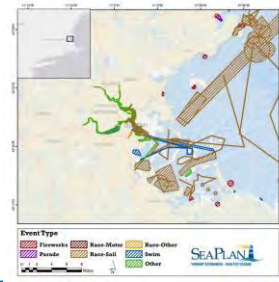
## Existing Information: Rhode Island Ocean SAMP



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## Methodology Options: Online Opt-in Survey



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## Methodology Options: Online Opt-in Survey



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## Other Options

- Interactive mapping webinars using SeaSketch

- Participatory mapping in-person workshops

- Other ideas?



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## Methodology Options

| Methodology | Pros | Cons |
|---|---|---|
| Online opt-in Survey | • Reaches wide audience<br>• Customizable<br>• Users can take survey on their own schedule | • Survey development can be time-consuming<br>•Some computer proficiency and internet access required |
| SeaSketch webinar | •Users do not have to travel to take survey<br>•Facilitators can ask questions on the fly<br>•Users can edit and refine existing data<br>•Users can view aggregated data in real time | •Users are restricted to specified webinar times<br>•Some computer proficiency and internet access required |
| Mapping workshops with E-Beam | •No computer proficiency or internet access required<br>• In-kind funding support from NOAA available for this methodology<br>•Facilitators can ask questions on the fly<br>•Creates ready-to-use data which can be viewed in real time | •Travel to in-person workshops required |

OCEAN PLANNING
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## Questions for Industry Experts

- What methodology(s) do you prefer? Other pros/cons to discuss?

- What events should we capture and how should we visualize them?

- What additional information should we collect?

- Who else should be involved and what is the best way to reach out to them?

- Are there any other data sources we should consider? [optional topic, time permitting]

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**Figure 15.3. Marine Sportfishing Tournaments Scoping Meeting PowerPoint Slides**

**Methodology Options: Online Opt-in Survey**


**Methodology Options: Online Opt-in Survey**

**Other Options**

- Interactive mapping webinars using SeaSketch

- Participatory mapping in-person workshops

- Other ideas?



**Questions for Industry Experts**

- What are some pros and cons to this methodology? Are there other methodologies we should consider?

- What events should we capture and how should we visualize them?

- What additional information should we collect?

- Who else should be involved and what is the best way to reach out to them?

- Are there any other data sources we should consider? [optional topic, time permitting]

**Example Survey Questions**

- How often does this event occur?

- What time of year does it typically take place?

- What types of fish are targeted?

- How many people take part in this event?

- What is the landside location of this event (i.e. harbor or port)?

**Figure 15.4. Whale Watching Scoping Meeting PowerPoint Slides**

**Methodology Options: E-Beam Participatory Mapping Workshops**



**Methodology Options: Online Opt-in Survey**



**Methodology Options: Interactive Mapping Webinars using SeaSketch**



**Methodology Options**

| Methodology | Pros | Cons |
|---|---|---|
| Online opt-in Survey | • Reaches wide audience<br>• Customizable<br>• Users can take survey on their own schedule | • Survey development can be time-consuming<br>•Some computer proficiency and internet access required |
| SeaSketch webinar | •Users do not have to travel to take survey<br>•Facilitators can ask questions on the fly<br>•Users can edit and refine existing data<br>•Users can view aggregated data in real time | •Users are restricted to specified webinar times<br>•Some computer proficiency and internet access required |
| Mapping workshops with E-Beam | •No computer proficiency or internet access required<br>• In-kind funding support from NOAA available for this methodology<br>•Facilitators can ask questions on the fly<br>•Creates ready-to-use data which can be viewed in real time | •Travel to in-person workshops required |

**Questions & Feedback**

# 16. Appendix G – Bibliography of Sources Used to Compile Research-Based Inventory of Recreational SCUBA Diving Sites

1. Aqua City Scuba. "Maine Dive Sites." Accessed July 21, 2015.
   http://www.aquacityscuba.com/dive_sites.htm

   *Geocoded locations of dive sites and dive shops with parking and site entry information.*

2. Aqua Explorers, Inc. "GPS and Loran Coordinate List: New York, New Jersey, and New England."
   Accessed July 21, 2015. http://www.aquaexplorers.com/shipwreckgpsnumbers.htm#.Va6ymaRVhBd

   *GPS coordinates provided for most popular shipwrecks in New York, New Jersey, and New England.*

3. Gentile, Gary, *Shipwrecks of Rhode Island and Connecticut*. Philadelphia, Pennsylvania: Gary Gentile Productions, 2004.

   *Provides hundreds of GPS and Loran coordinates for shipwrecks as well as narratives describing specific wrecks.*

4. Gentile, Gary. *Shipwrecks of Massachusetts (North).* Philadelphia, Pennsylvania: Gary Gentile Productions, 2008.

   *Provides hundreds of GPS and Loran coordinates for shipwrecks as well as narratives describing specific wrecks.*

5. Gentile, Gary. *Shipwrecks of Massachusetts (South).* Philadelphia, Pennsylvania: Gary Gentile Productions, 2006.

   *Provides hundreds of GPS and Loran coordinates for shipwrecks as well as narratives describing specific wrecks.*

6. Ferris DL and Dubiel WF. *Beneath the Waters of Cape Cod: Wrecks, Rocks, and Dive Sites*. Barnstable, Massachusetts: Crane Duplicating Service, Inc., 1992.

   *Contains GPS coordinates, maps, or photos for 64 dive sites. Some sites informed from this resource were geocoded based on contextual information and physical addresses.*

7. Ferris DL and Dubiel WF. *Beneath the Waters of Massachusetts Bay: Wrecks, Rocks, and Dive Sites*. Barnstable, Massachusetts: Crane Duplicating Service, Inc., 1993.

   *Contains GPS coordinates, maps, or photos for 60 dive sites. Some sites informed from this resource were geocoded based on contextual information and physical addresses.*

8. Massachusetts Office of Coastal Zone Management. Points popular for underwater recreational diving in coastal Massachusetts compiled from the Massachusetts Board of Underwater Archeological Resources, dive clubs, and commercial diving outfitters, 2007. Accessed July 21, 2015. http://maps.massgis.state.ma.us/czm/moris/metadata/moris_dive_sites_pt.htm

    *GPS coordinates of Massachusetts popular SCUBA sites generated from Board of Underwater Archeological Resources (BUAR) and web searches of popular diving locations listed by recreational and commercial groups.*

9. "New England Shipwreck Coordinates." Accessed July 21, 2015. http://wreckhunter.net/Coordinates%20List/CoordinatesList-19jun2010.pdf

    *GPS coordinates from selected New England shipwrecks from the editors of "Hunting New England Shipwrecks."*

10. New York Department of Environmental Conservation. "New York Marine Artificial Reefs." Accessed July 21, 2015. http://www.dec.ny.gov/docs/fish_marine_pdf/reefcoordmap.pdf

    *Contains GPS coordinates and site details for New York State Marine Artificial Reefs.*

11. New York Department of State. *Artificial Reef Diving – NY, Atlantic Ocean.* Accessed July 2, 2015. http://opdgig.dos.ny.gov/index.html#/map/0/4990846B-A419-486B-AA9F-A7D770382832,A4A2BFE8-1198-4624-91B5-796F558E77B4/-75.517,38.797,-68.552,41.324/oceans/11

    *GPS Coordinates of artificial reef diving sites compiled through a participatory GIS process in 2011.*

12.  New York Department of State. Wreck Diving – NY, Atlantic Ocean. Accessed July 2, 2015. http://opdgig.dos.ny.gov/index.html#/map/0/4990846B-A419-486B-AA9F-A7D770382832,A4A2BFE8-1198-4624-91B5-796F558E77B4/-75.517,38.797,-68.552,41.324/oceans/11

    *GPS Coordinates of artificial reef diving sites compiled through a participatory GIS process in 2011.*

13. Rhode Island Ocean Special Area Management Plan. *Dive Sites*. R.I. Coastal Resources Management Council & University of Rhode Island, 2015.

    *GPS coordinates and names of Rhode Island Dive Sites from the Original SAMP.*

14. "SCUBA Earth."  Accessed July 21, 2015. http://www.divebuddy.com/scuba_earth.aspx

    *SCUBA map that provides GPS coordinates for dive sites in addition to pictures and brief accessibility instructions.*

15. "SCUBA Knowtes: Southern Maine Shore Dive Site Guide. 2015." Accessed July 21, 2015. http://home.gwi.net/~spectrum/scubasites.html

*Southern Maine dive sites with GPS coordinates and professional advice for each site.*

16. Shine, Jerry. *A Shore Diving Guide to New England*. West Somerville, Massachusetts: Blue Sphere Pubs, 2005.

    *Lists 90 sites from Connecticut to Maine and provides detailed directions, parking information, and photos for each shore dive location. Some sites informed from this resource were geocoded based on contextual information and physical addresses.*

17. "Shore Diving: USA East." Accessed July 21, 2015. http://www.shorediving.com/Earth/USA_East/index.htm

    *Contains GPS coordinates for various entry points and parking locations for shore dives throughout the New England area.*

18. "WannaDive" Accessed July 21, 2015. http://www.wannadive.net/spot/North_America/USA/

    *A dive atlas created and used by New England divers including site specific information and GPS coordinates.*

19. Whitehead, Donald W. *Diving Cape Ann and Boston's North Shore.* Salem, Massachusetts: Liquid Space Publishing, 2005.

    *Compiles shipwreck histories, locations, and photographs as well as shore dive descriptions and access information. Some sites informed from this resource were geocoded based on contextual information and physical addresses.*

# 17. Appendix H – List of Known Sailing Event Organizers and Events

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| Agamenticus Yacht Club | York | Maine | Wednesday and Thursday Night Series | Outside Research | once per week | | July - August |
| | | | Regattas and Inter-Club Racing | | | | |
| | | | Fun Races - Independence Picnic and Nubble Races | | | | |
| American Yacht Club | Newburyport | New York | AYC Laser Regatta | Outside Research | once per year | | September |
| | | | JSA LIS Girls' Champs | | once per year | 6 | July |
| | | | YRA LIS Women's Championship for the Queen Cup | | once per year | | July |
| | | | Annual Women's Invitational Team Race | | once per year | 6 | June |
| Annisquam Yacht Club | Gloucester | Massachusetts | Great Race | Online Survey | once per year | | September |
| Aquantum Yacht Club | Quincy | Massachusetts | Lipton Cup Regatta | Outside Research | | | July |
| Arundel Yacht Club | Kennebunkport | Maine | Boon Island Race | Outside Research | | | June |
| | | | Founder's Day Race | | | | July |
| Association of the Cotuit Mosquito Yacht Club, Inc. | Barnstable | Massachusetts | P4/Opti Race | Outside Research | | | |
| | | | 420 Race | | | | |
| | | | Senior Series | | | | |
| Babylon Yacht Club | West Islip | New York | Corinthian Series | Outside Research | | | |
| | | | Louis Orr Invitational | | | | |
| | | | Commodores Cup | | | | |
| | | | Governor's Cup | | | | |
| | | | July 4th Regatta | | | | |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| Bass River Yacht Club | South Yarmouth | Massachusetts | Bass River Yacht Club Invitational | Online Survey | once per year | 25-50 | September |
| Barnstable Yacht Club | Barnstable | Massachusetts | Optimist Green Fleet Regatta | Outside Research | once per year | | August |
| Barrington Yacht Club | Barrington | Rhode Island | Cox Memorial Series | Outside Research | once per week | | May-September |
| | | | Frostbite Series | | once per week | | April-June, September-October |
| | | | Pret Gladding and Bud Humphrey Races | | | 20 | May, September |
| | | | Sunfish New England Regionals | | once per year | | June |
| | | | Mugwumps Racing | | once per week | | June - August |
| | | | Walter Seymour Race | | once per year | | |
| | | | Mini Ladies Cup | | once per year | | July |
| | | | J30 Regatta | | once per year | | July |
| | | | 2-Person Racing | | twice per year | 7 | June, August |
| | | | Thursday Night Adult Racing | | once per week | | June - August |
| | | | Old Ladies' Cup | | once per year | | August |
| Bay Shore Yacht Club | Shore | New York | Commodores Cup and Commodore's Memorial Cup | Outside Research | | | July |
| | | | Jr Challenge at SUNY Maritime | | | | August |
| | | | Bay Shore Invitational | | | | August - October |
| Bellport Bay Yacht Club | Bellport | New York | Bellport Bay Yacht Club Sandwich Series | Outside Research | | | |
| | | | Bellport Bay Yacht Club Junior Regatta | | | | |
| | | | Bellport Bay Yacht Club Labor Day NOR | | | | |
| | | | Bellport Bay Yacht Club Queen of the Bay NOR | | | | |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Bellport Bay Yacht Club PHRF Lite NOR | | | | |
| Beverly Yacht Club | | Massachusetts | Beverly Regatta | Online Survey | once per year | 100-500 | August |
| Biddeford Pool Yacht Club | Biddeford Pool | Maine | Wind Song Regatta | Outside Research | | | August |
| Black Rock Yacht Club | Bridgeport | Connecticut | Black Rock Harbor Wednesday Night Race Series | Outside Research | | | May - September |
| | | | Beneteau First 36.7 Championship | | | | September |
| | | | Single/Double Handed Race Series | | | | June - September |
| | | | PYC/BRY/FYC Friday Night Tri-Club Series | | | | June, July |
| | | | Frost Point Series | | | | July |
| | | | Junior Big Boat Sailing Regatta at BRYC | | | | August |
| | | | Ken Johnson Memorial Race | | | | July |
| | | | Sail Park City Regatta | | | | July |
| | | | The Onion Patch | | | | August |
| | | | Vineyard Race | | | | September |
| | | | Falkner Island Race | | | | September |
| | | | Brent C Danahue Memorial Cross Sound Race | | | | September |
| Block Island Yacht Club | New Shoreham | Rhode Island | Kaufmann Cup | Outside Research | once per year | | August |
| | | | Thursday Night Series | | once per week | | |
| Boothbay Harbor Yacht Club | Boothbay Harbor | Maine | Windjammer Days One Design Race | Outside Research | | | June |
| | | | Round Southport Race | | | | July |
| | | | 4th Corinthians Ocean Race | | | | July |
| | | | BHYC Regatta | | once per year | 25-50 | August |
| | | | Maine State Opti Championship | | | | August |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Commodore's Cup | | | | June, July |
| | | | Boothbay Harbor Yacht Club daily and weekly racing | Data Vetting | once per twice | 25-50 | |
| | | | Boothbay Harbor Yacht Club Occasional Weekly Racing | Outside Research | once per twice | 25-50 | |
| | | | Jr. Program Foundation Cup Regatta | | | | July |
| | | | Classic Yacht Race | | | | July, August |
| Boston Harbor Sailing Club | Boston | Massachusetts | Soling Racing | Outside Research | once per week | | May - August |
| | | | J29 Racing | | once per week | | |
| Boston Sailing Center | Boston | Massachusetts | Island Race | Outside Research | | | June - October |
| | | | Boston Harbor Islands Regatta | | once per year | | September |
| Boston Yacht Club | Marblehead | Massachusetts | Jackson Cup | Outside Research | | | April |
| | | | Wednesday Night Series | Data Vetting | | | |
| Branford Yacht Club | Branford | Connecticut | Branford Invitational | Outside Research | | | |
| Breakwater Yacht Club | Sag Harbor | New York | BYC May Cup Series | Outside Research | once per week | | May |
| | | | BYC Summer Series | | once per week | | June-September |
| | | | NYYC Race Week | | Once per year | | June |
| | | | Block Island Race Week | | Once per year | | June |
| | | | Sag Harbor Cup | | once per year | | August |
| | | | BYC Race to Montauk | | once per year | | September |
| | | | BYC Wood Regatta | | once per year | | September |
| | | | BYC Fall Series | | once per week | | September - October |
| | | | BYC Last Rots | | once per year | | October |
| Bristol Yacht Club | Bristol | Rhode Island | Advanced Women's Sailing | Outside Research | once per week | | May-September |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Acat Racing | | once per week | | May-September |
| | | | Frostbite Series | | once per week | | November-March |
| | | | Laser and Collegiate 420 Racing | | once per week | | May-September |
| | | | Millard Series | | | 50 | |
| | | | NOR | | | | |
| | | | Mercury Class | | once per week | | |
| | | | Sea Sprite Class | | | | |
| | | | Sid Clark Offshore Race | | | | |
| | | | A-Class Catamaran Regattas | | | | |
| | | | Optimist | | | | |
| | | | Bristol Yacht Club Spring and Fall Sports | PGIS Workshop | | | |
| Bucks Harbor Yacht Club | Brooksville | Maine | Junior Olympics Regatta | Outside Research | | | July |
| | | | Marblehead Race Week | | | | July |
| | | | Mid-season Regatta | | | | July |
| | | | Harraseeket to Camden Race | | | | July |
| | | | Eggemoggin Reach Regatta | | | | August |
| | | | Retired Skipper's Race | | | | August |
| Camden Yacht Club | Camden | Maine | Castine Class Race for Robinson Cup | Outside Research | | | July |
| | | | Castine Class Race | | | | July |
| | | | Castine Class Birthday Race | | | | July |
| | | | Red Jacket Regatta | | | | July |
| | | | Dark Harbor Regatta | | | | July |
| | | | Castine-to-Camden Race | | | | July |
| | | | Camden-to-Woden Boat Feeder Race | | | | August |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Eggemoggin Reach Regatta | | | | August |
| | | | Castine Class Race | | | | August |
| | | | Down East Junior Sailing Assoc. Maine 420 Championship | | | | August |
| | | | Castine Class Eaton Cup Race | | | | August |
| | | | Opti Regatta | | | | August |
| | | | Castine Class Labor Day Race | | | | August |
| Cedar Point Yacht Club | Westport | Connecticut | Laser Spring Regatta | Outside Research | once per year | | May |
| | | | One Design Regatta - Sportboar | | once per year | | May |
| | | | PHRF Wednesday Night Racing | | once per week | | May - September |
| | | | Vice Commordore's Cup | | once per year | | May |
| | | | One Design Regatta | | once per year | | May |
| | | | Thistle Districts | | once per year | | June |
| | | | PHRF Sunday Series | | once per week | | June - August |
| | | | Commodore's Cup | | once per year | | July |
| | | | JSA Junior Race Week - Laser and 420 | | once per year | | July |
| | | | JSA Opti Open Regatta (Area C) | | once per year | | August |
| | | | Special Olympics CT Unified Sailing Regatta | | once per year | | August |
| | | | Rear Commodore's Cup | | once per year | | September |
| | | | Star Bedford Pitcher Regatta | | once per year | | September |
| | | | Fontelieu Fall Classic | | once per year | | October |
| Centerboard Yacht Club | South Portland | Maine | Centerboard Regatta | Outside Research | | | June - July |
| | Centerport | New York | Winkle Cup | | | | |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| Centerport Yacht Club | | | William K. Vanderbilt II Memorial Cup | | | | |
| | | | Memorial Day Regatta | | | | May |
| | | | Independence Day Regatta | | | | July |
| | | | Labor Day Regatta | | | | |
| | | | Commodore's Cup | | | | |
| | | | Cruising Canvas Cup | | | | |
| | | | Frostbite Series | | once per week | | November-March |
| | | | JY 12 LI Inter-Fleet Challenge | | | | April |
| | | | New Year's Eve Regatta | | Once per year | | January |
| | | | St. Patrick's Day Regatta | | Once per year | | March |
| | | | Ice Cream Cup | | once per year | | July |
| Chapoquoit Yacht Club | Falmouth | Massachusetts | Opti Racing | Outside Research | once per week | | |
| | | | 420 Racing | | once per week | | |
| | | | Vineyard Haven Junior Regatta | | once per year | | July |
| Chatham Yacht Club | North Chatham | Massachusetts | Chatham Yacht Club Sailing School and Series Races | Online Survey | once per twice | 50-100 | July - August |
| Chebeague Island Yacht Club | Chebeague Island | Maine | Crow Island Race | Outside Research | once per year | | July |
| | | | Ocean Race | | once per year | | July |
| | | | Hamilton Beach Race | | once per year | | July |
| | | | West End Race | | once per year | | August |
| | | | Round Island Race | | once per year | | August |
| | | | Double Race | | once per year | | August |
| | | | Bates Island Race | | once per year | | August |
| Chelsea Yacht Club | Wappingers Falls | New York | Chelsea Open Regatta | Outside Research | once per year | | June |
| | | | HYRYA Series | | | | |
| | | | Holiday Races | | | | |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Ladies Day Race | | | | |
| | | | CYC Dinghy Regatta | | | | |
| | | | Single Handed Races | | | | |
| | | | Long Distance Races | | once per twice | | |
| | | | Torches Newburgh Bay Races | | | | |
| | | | Last Chance Race | | once per year | | October |
| | | | Pursuit to the Party Race | | once per year | | October |
| | | | Wednesday Night Racing Series | | once per week | | May - September |
| City Island Yacht Club | City Island | New York | Annual Distance Race | Outside Research | once per year | | June |
| | | | Annual Women Skippers' Race | | once per year | | August |
| | | | Annual Day Race | | once per year | | August |
| | | | Governor's Cup Charity Regatta | | once per year | | August |
| | | | Sayers Series Race | | once per year | | September |
| | | | JAM Series | | once per week | | June - August |
| Coasters Harbor Navy Yacht Club | Newport | Rhode Island | | | | | |
| Cohasset Sailing Club | Cohasset | Massachusetts | Cohasset Yacht Club Series Racing | Online Survey | once per twice | 25-50 | June, July, August |
| Coles River Club | Swansea | Massachusetts | Coles River Club Summer Series | Online Survey | once per twice | 25-50 | June-September |
| Conanicut Yacht Club | Jamestown | Rhode Island | Junior Race Week | Outside Research | once per year | | |
| | | | J22 Fleet | | once per week | | July - August |
| | | | Around the Island Race | | | | September |
| | | | Commodore's Regatta | | once per year | | September |
| Corinthian Yacht Club of Marblehead | Marblehead | Massachusetts | Corinthian Classic Yacht Regatta | Outside Research | | | |
| | | | Town Class Nationals | | | | |
| | | | Summerset Regatta | | | | |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Midsummer Ocean | | | | |
| | | | Marblehead Race Week | Online Survey | once per year | 500-1000 | July |
| Cottage Park Yacht Club | Winthrop | Massachusetts | Pursuit Race to Benefit Make-A-Wish | Outside Research | once per year | | August |
| | | | CPYC JFK Regatta | | once per year | | August |
| Courageous Sailing Center | Charlestown | Massachusetts | Courageous Sailing Youth and Adult Programs | Online Survey | once per twice | 25-50 | June |
| Cow Bays Cruising | Port Washington | New York | Cow Bay Cruising Association Series | Outside Research | | | |
| Dennis Yacht Club | East Dennis | Massachusetts | Belle of the West Regatta | Online Survey | once per year | 25-50 | August |
| Devon Yacht Club | Amagansett | New York | District 8 Laser Regatta | Outside Research | | | August |
| | | | PGJSA Qualifier and Devon Invitational for Sunfish and Laser | | | | August |
| | | | PGJSA Regatta | | | | August |
| | | | Round Gardiner's Island Race | | | | August |
| Dolphin Yacht Club | Marblehead | Massachusetts | Sals Race | Outside Research | once per year | | August |
| Duck Island Yacht Club | Westbrook | Connecticut | Duck Island Spring Regatta, Duck Island Distance, Thundermug Regatta | | | | |
| Duxbury Yacht Club | Duxbury | Massachusetts | Summer Series | Outside Research | once per week | | |
| | | | Anniversary Race | | once per year | | August |
| | | | Sandpiper Nationals | | | | September |
| | | | Regatta Day | | | | August |
| East Greenwich Yacht Club | East Greenwich | Rhode Island | East Greenwich Yacht Club Annual Regatta Weekend | Outside Research | once per year | | July |
| | | | Summer Series | | Once per week | | May - September |
| Eastern Point Yacht Club | Gloucester | Massachusetts | Bang & Go Back | Outside Research | | | July |
| | | | Schooner Festival PHRF Race | | | | August |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Commodore Cup | | | | September |
| | | | Last Call Regatta | | | | September |
| | | | Round the Salvages Pursuit Race | Data Vetting | | | |
| Edgartown Yacht Club | Edgartown | Massachusetts | Edgartown Regatta | Online Survey | Once per year | 25-50 | July |
| | | | 12 Metre Regatta | Outside Research | | | August |
| | | | Round-the-Island Race | | | | July |
| | | | J-70 Tune Up Weekend | | | | June |
| Essex Bay Sailing Club | Essex | Massachusetts | Mudflat Regatta | Outside Research | | | July |
| | | | Conomo Cup | | | | August |
| Essex Corinthian Yacht Club | Essex | Connecticut | Cross Sound Challenge, Clark Memorial | Outside Research | once per year | | |
| Essex Yacht Club | Essex | Connecticut | Essex Rum Challenge, Wetherill Trophy Overnight, Willets Memorial | Outside Research | once per year | | |
| Falmouth Yacht Club | Falmouth | Massachusetts | Falmouth Regatta | Outside Research | | | July |
| Fayerweather Yacht Club | Bridgeport | Connecticut | Park City Regatta | Outside Research | once per year | | |
| | | | Black Rock Invitational | | | | |
| | | | Wednesday Night Race Series | | | | May - September |
| Fenwick Yacht Club | Old Saybrook | Connecticut | Fenwick Island Yacht Club Regatta | Outside Research | | | |
| Fishers Island Yacht Club | Amagansett | New York | Storm Trysail Foundation/Fishers Island Yacht Club Junior Overnight Race | Outside Research | | | |
| | | | Fishers Island Yacht Club Round Island Race | Online Survey | once per year | 100-500 | September |
| Frost Bite Yacht Club | Essex | Connecticut | Spring Series | Outside Research | once per week | | March - May |
| | | | Fall Series | | once per week | | October - December |
| Grand Cove Yacht Club | West Dennis | Massachusetts | Pig Regatta | Outside Research | | | |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| Great Harbor Yacht Club | Nantucket | Massachusetts | Thursday Jobson Race Night Series | Outside Research | | | July - August |
| | | | Saturday One Design Race | | | | |
| Green Haven Yacht Club | Rye | New York | Fall Race Day | Outside Research | once per twice | | September |
| | | | Commodore's Cup | | | | September |
| | | | Thunder Mug - Fun Race | | once per year | | September |
| | | | Tuesday Night August Series | | once per week | | August |
| | | | Charlie Clachrie Memorial Race | | once per year | | August |
| | | | Tuesday Night July Series | | once per week | | July |
| | | | Tuesday Night June Series | | once per week | | June |
| Groton Long Point Yacht Club | Groton | Connecticut | Salle Evelyn Regatta | Outside Research | once per year | | July |
| Guilford Yacht Club | Guilford | Connecticut | GYC Wednesday Night Races | Outside Research | | | |
| | | | GYC Middle Distance Race | | | | |
| | | | Guilford Cup Fleet Meet | | | | |
| Halloween Yacht Club | Stamford | Connecticut | Mayor's Cup | Outside Research | | | June |
| Hamburg Cove Yacht Club | Old Lyme | Connecticut | Memorial Day Regatta | Outside Research | once per year | | May |
| | | | Coley Cup Regatta/Alcorn Regatta | | once per year | | October |
| Harlem Yacht Club | New York | New York | Laser District 8 Regatta | Outside Research | once per year | | May |
| | | | Rear Commodore's Regatta | | once per year | | June |
| | | | Howard C Hoxsie Regatta | | once per year | | June |
| | | | Treat Race | | once per year | | August |
| | | | Vice Commodore's Regatta | | once per year | | September |
| | | | Ben Bates Shorthanded Regatta | | | | June |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Friday Twilight Series | | once per week | | June - August |
| | | | Dyer Dhow Series | | once per week | | June - August |
| | | | J/24 Fleet 61 | | once per week | | May - October |
| Harraseeket Yacht Club | South Freeport | Maine | HYC Regatta | Outside Research | once per year | | June |
| | | | Youth Regatta | | | | July |
| Hempstead Harbour Club | Glen Cove | New York | Commodore's Trophy Series | Outside Research | | | |
| | | | Champagne Race Series | | | | |
| | | | Wednesday Night PHRF Series | | | | |
| | | | HHC Laser Series | | | | |
| | | | Heritage Cup | | | | |
| Hingham Yacht Club | Hingham | Massachusetts | Salty Dog Regatta | Outside Research | | | June |
| | | | First Chance Regatta | | | | June |
| | | | Wednesday Night Race Series | Data Vetting | once per week | | |
| | | | HB PHRF Weekend Race | | once per month | | |
| | | | Rhodes 19 Fleet | | once per week | | |
| | | | Hingham Bay Junior Regatta | Outside Research | | | July |
| | | | Second Chance | | | | July |
| | | | Last Chance Regatta | | | | August |
| | | | Hitchcock Trophy | | | | August |
| Housatonic Boat Club | Stratford | Connecticut | Housatonic Invitational | Outside Research | | | |
| Hudson Cove Yacht Club | West Haverstraw | New York | HCYC Regatta | Outside Research | | | June |
| Huguenot Yacht Club | New Rochelle | New York | Commodore's Cup | Outside Research | | | September |
| Huguenot Yacht Club | New Rochelle | New York | Mayor's Cup | Outside Research | | | August |
| Hull Yacht Club | Hull | Massachusetts | Great Chase Race | Data Vetting | once per year | | |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| Huntington Yacht Club | Huntington | New York | Huntington Day Race | Outside Research | | | May |
| | | | HYC Regatta to Stamford YC | | | | July |
| | | | Commodore's Day Race | | | | September |
| Hyannis Yacht Club | Hyannis | Massachusetts | HYC Regatta | Online Survey | once per year | 100-500 | July |
| Hyannisport Yacht Club | Hyannis | Massachusetts | Hyannis Port Yacht Club Seasonal Racing and regattas | Online Survey | | | June - September |
| Ida Lewis Yacht Club | Newport | Rhode Island | J111 Worlds | Outside Research | once per year | | June |
| | | | Ida Lewis Distance Race | Online Survey | 2 per 5 Years | 100-500 | June, October |
| | | | Shields Nationals | Outside Research | once per year | | September |
| | | | Shields | | once per week | | May - September |
| | | | J24s | | once per week | | May - September |
| | | | M32s | | once per week | | May - September |
| Indian Harbor Yacht Club | Greenwich | Connecticut | Spring Sprint | Outside Research | | | |
| | | | Twilight Series | | | | |
| | | | YRA Sunday | | | | |
| | | | Captain Harbor Friday | | | | |
| | | | Law Trophy | | | | |
| | | | Women's Sailing Inter Club Final | | | | |
| | | | Go Your Own Way | | | | |
| | | | YRA LIS Championship | | | | |
| | | | Classic Yacht Regatta | | | | |
| | | | FOS Championships | | | | |
| | | | IHYC-RBYC Team Racing | | | | |
| | | | Ideal 18 Inter-Club Championships | | | | |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | 88 New England Championship | | | | |
| | | | Lorna Whittelsey Women's Regatta | | | | |
| | | | Club Championships | | | | |
| | | | Gearbuster | | | | |
| | | | YRA - LIS GlenCairn | | | | |
| Ipswich Bay Yacht Club | Ipswich | Massachusetts | Chowder Cup Race | Outside Research | | | July |
| Ischoda Yacht Club | Norwalk | Connecticut | Bishop's Cup | Outside Research | | | August |
| Jamestown Yacht Club | Jamestown | Rhode Island | Fool's Rules Regatta | Outside Research | | | August |
| Jubilee Yacht Club | Beverly | Massachusetts | Annual Regatta | Outside Research | Once per year | | September |
| Ketewomoke Yacht Club | Halesite | New York | Rumrunners Race | Outside Research | | | |
| | | | Vice Commodore Race | | | | |
| | | | Commodore Race | | | | |
| Kittery Point Yacht Club | New Castle | New Hampshire | Cape Cod Frosty North American | Outside Research | | | May |
| | | | John Paul Jones Destination Regatta | | | | June |
| | | | Ron Gibbons Memorial Regatta | | | | July |
| | | | Whaleback Regatta | | | | August |
| | | | Lobster Double Handed Regatta | | | | August |
| | | | Singlehanded Regatta | | | | September |
| | | | Dave Mowers Memorial Pursuit Regatta | | | | September |
| | | | Gosport Regatta | | | | September |
| Kollegewidgwok Yacht Club | Blue Hill | Maine | Founder's Cup Race | Outside Research | | | July |
| | | | Becton Cup Race | | | | July |
| | | | Nevin Cup Race | | | | August |
| | | | Downeast Race | | | | August |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Danforth Cup | | | | July |
| | | | Gitana Cup Race | | | | July |
| | | | Eggemoggin Reach Regatta | | | | August |
| | | | Britton Cup | | | | August |
| Larchmont Yacht Club | Larchmont | New York | Sport Boat Grand Prix | Outside Research | | | May |
| | | | Memorial Day - One Design Regatta | | | | May |
| | | | Robie Pierce - One Design Regatta | | | | May |
| | | | YRA One Design | | | | May - June |
| | | | Vanguard 15 Spring Regatta | | | | June |
| | | | YRA Match Race Clinic and Regatta for the Taylor Trophy | | | | June |
| | | | Annual Larchmont Race Week | | | | June |
| | | | JSALIS Pixel Championship | | | | August |
| | | | Vanguard 15 Team Race | | | | August |
| | | | Women's Invitational for the Commodore Mendez Trophy | | | | August |
| | | | Labor Day Regatta | | | | September |
| | | | Etchells Long Island Sound Championship | | | | September |
| | | | Larchmont Leukemia Cup | | | | September |
| | | | Fall Edlu | | | | September |
| | | | International One Design North American Championship | | | | September |
| | | | Vanguard 15 Women's Regatta | | | | September |
| | | | LYC Club Championship | | | | October |
| | | | YRA One Design | | | | October |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | STC and LYC Intercollegiate Big Boat Regatta | | | | October |
| | | | Viper 640 North American Championship | | | | October |
| Lloyd Harbor Yacht Club | Huntington | New York | Sunset Series | Outside Research | | | |
| | | | Little Brown Jug | | | | |
| | | | Friday Night Pursuit Series | | | | |
| Low Tide Yacht Club | New Bedford | Massachusetts | Series 1 & 2 Races | Outside Research | once per week | | June - September |
| | | | Wounded Warrior Pursuit Race | | once per year | | June |
| | | | Light the Bay Regatta | | once per year | | July |
| | | | Damsel Cup | | | | August |
| | | | Last Chance Regatta | | once per year | | September |
| Mamaroneck Frostbite Association | Rye | New York | New Year's Regatta | Outside Research | | | January |
| | | | Handicap Regatta | | | | March |
| Manchester Harbor Boat Club | Manchester By The Sea | Massachusetts | Crocker Race | Outside Research | once per year | | July |
| Manchester Sailing Association | Manchester By The Sea | Massachusetts | MSA Green Fleet Regatta | Outside Research | once per year | | July |
| Manchester Yacht Club | Manchester | Massachusetts | Columbus Day Regatta | Outside Research | | | |
| | | | Patton Bowl | | | | June |
| | | | One Design Race | | | | June, July |
| | | | MYC Fall Series | Online Survey | | | September |
| | | | Rhodes 19 East Coast Championship | Outside Research | | | July |
| | | | SS Crocker Memorial Race | Online Survey | | | March |
| | | | Crocker Memorial Race | Outside Research | | | July |
| Manhasset Bay Yacht Club | Port Washington | New York | New Year's Regatta | Outside Research | once per year | | January |
| | | | Frostbite Ocean Race | Outside Research | once per year | | April |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Bay Racing | | | | May |
| | | | Jay/Pixel Race Week | | once per year | | July |
| | | | Manhasset Bay Match for Knickerbocker Cup | | once per year | | August |
| | | | Manhasset Bay Fall Series | | once per week | | October |
| Manhattan Yacht Club | New York | New York | J/24 Racing | Outside Research | once per week | | |
| | | | J/105 Racing | | once per week | | |
| | | | PHRF Racing | | once per week | | |
| | | | Lucky Dog Races | | once per week | | |
| Marblehead Yacht Club | Marblehead | Massachusetts | Chase Race | Outside Research | | | July |
| Mason's Island Yacht Club | Mystic | Connecticut | Mason's Island Yacht Club Fun Regatta | Online Survey | once per twice | less than 25 | July |
| | | | Mason's Island Regatta | Outside Research | Once per year | | August |
| | | | MIYC Frostbite Regatta | | Once per year | | January |
| Mattapoisett Yacht Club | Mattapoisett | Massachusetts | Spring Round the Bay | Outside Research | once per year | | June |
| | | | Tuesday Night Series Ensigns | | once per week | | June - September |
| | | | Wednesday Night Race Series | | once per week | | June - September |
| | | | Beginner's Race | | once per year | | July |
| | | | Barking Bulldog Regatta | | once per year | | July |
| | | | MYC/AYC Chowder Cup | | once per year | | August |
| | | | Hurricane Cup | | once per year | | September |
| | | | Fall Round the Bay | | once per year | | September |
| Mattituck Yacht Club | Mattituck | New York | Carol Smith Regatta | Outside Research | | | |
| | | | Mattituck 420, Laser, Sunfish Regatta/PGJSA Qualifier | | | | |
| | | | Sail to the Dunes | | | | |
| MDI Community Sailing | Southwest Harbor | Maine | Optimist Bullseye | Outside Research | | | |
| | | | Intermediate Turbo 420 Sailing | | | | |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Optimist Basics/Bullseye | | | | |
| Milford Yacht Club | Milford | Connecticut | Optimist Regatta | Online Survey | once per year | 50-100 | July |
| | | | Arms-White Star Regatta | Outside Research | once per year | | June |
| | | | First District Championship | | once per year | | June |
| | | | MYC Holiday Series | | once per year | | July |
| | | | Milford Invitational, Boardman Cup Challenge | | once per year | | August |
| Minuteman Yacht Club | Westport | Connecticut | King Cup Race | Outside Research | once per year | | May |
| Morris Yacht and Beach Club | Bronx | New York | Wednesday Night Racing Series | Outside Research | | | |
| Mystic River Yacht Club | Mystic | Connecticut | Sails Up 4 Cancer | Online Survey | once per year | less than 25 | June |
| Nahant Dory Club | Nahant | Massachusetts | Summer Racing Area | Online Survey | once per twice | less than 25 | June, October |
| Nantucket Community Sailing | Nantucket | Massachusetts | Nantucket Race Week | Online Survey | once per year | 100-500 | August |
| Nantucket Yacht Club | Nantucket | Massachusetts | July and August One Design Series | Online Survey | once per twice | 50-100 | July - August |
| | | | International One Design Series | | once per twice | 25-50 | July - August |
| | | | Nantucket Yacht Club Race Circles 1 & 2 | | once per twice | 50-100 | July - August |
| Narragansett Terrace Yacht Club | Riverside | Rhode Island | Thursday Evening Race Series | Outside Research | Once per week | | May - September |
| | | | Around the Islands Races | | | | June - August |
| | | | Unk Allen Trophy Race | | | | June |
| | | | Alicia Taber Memorial Regatta | | | | July |
| | | | Annual McVay Race | | | | August |
| Narrasketuck Yacht Club | Amityville | New York | West Cup | Outside Research | | | June |
| | | | NYC Jr Regatta | | | | July |
| | | | Night Race NYC | | | | August |
| | | | NYC Invitation | | | | August |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Tuck Championship NYC | | | | August |
| New Bedford Yacht Club | South Dartmouth | Massachusetts | Rain Gutter Regatta | Outside Research | | | March |
| | | | John Bentley Laser Regatta | | | | June |
| | | | Pursuit of Courage Regatta | | | | June |
| | | | 4th of July Regatta | | | | July |
| | | | Lightning Atlantic Coast Championship | | | | July |
| | | | Buzzards Bay Regatta | | | | August |
| | | | Whalers Race | | | | September |
| | | | Low Tide Yacht Club Last Chance Regatta | | | | September |
| | | | End of the Summer Regatta | | | | September |
| | | | Buzzards Bay Regatta | | | | August |
| | | | New Bedford Junior Regatta | Online Survey | once per year | 100-500 | July |
| New Haven Yacht Club | New Haven | Connecticut | New Haven Mayor's Cup | Outside Research | Once per year | | August |
| | | | Hollingsworth Race | | Once per year | | May |
| | | | Spring Series 1 | | Once per year | | June |
| | | | Spring Series 2 | | Once per year | | June |
| | | | Race | | Once per year | | July |
| | | | Summer Series 1 | | Once per year | | July |
| | | | Summer Series 2 | | Once per year | | August |
| | | | Fall Series 1 | | Once per year | | August |
| | | | Fall Series 2 | | Once per year | | September |
| | | | Single-Handed Race | | Once per year | | September |
| New York Athletic Club Yacht Club | Pelham | New York | Stratford Shoal Race | Outside Research | Once per year | | |
| | | | Turkey Day Reach | | | | |
| New York Yacht Club | Newport | Rhode Island | Intercollegiate Sailing Assoc. Nationals | Outside Research | Once per year | | May - June |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | HSD Nord Bank Blue | Race Sailing Instructions, 2007 | | | June |
| | | | Leukemia Cup | Outside Research | Once per year | | June |
| | | | Annapolis to Newport Race | | Once per year | | June |
| | | | Annual Regatta Presented by Rolex | Online Survey | Once per year | 500-1000 | June |
| | | | Transatlantic Race 2015 | Outside Research | Once per year | | June - July |
| | | | Tiedemann Classics Regatta | | Once per year | | July |
| | | | Swan 42 Nationals & IRC East Coast Championships | | Once per year | | July |
| | | | Members Fleet Race Championships | | Once per year | | July |
| | | | Annual Cruise | | Once per year | | August |
| | | | Team Racing Kickoff Weekend | | | | May |
| | | | Grandmasters Team Race | | | | August |
| | | | Hinman Masters Team Race | | | | August |
| | | | Morgan Cup Team Race | | | | August |
| | | | Match Racing Weekend | | | | May |
| | | | Members Team Race Regatta | | | | July |
| | | | Rolex NYYC Invitational Cup | | Once per year | | September |
| Newburyport Yacht Club | Newburyport | Massachusetts | Dinghy Run to the Crescent | Outside Research | | | |
| Newport Shipyard | Newport | Rhode Island | Newport Bucket Regatta | USCG Marine Event Permit Chartlet and Sailing Instructions, 2009 | | | July |
| Newport Yacht Club | Newport | Rhode Island | One Design Racing - Spring Series | Outside Research | Once per week | | May - June |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | One Design Racing - Summer Series | | Once per week | | July - August |
| | | | One Design Racing - Fall Series | | Once per week | | September |
| | | | Offshore 160 | | Once per year | | July |
| | | | Friday Night Lights Sailing | | once per week | | April - May |
| | | | Sail Newport Regatta | | | | July |
| | | | NBYA Club 420 Regatta | | | | July |
| | | | New England Solo/Twin | | once per year | | July |
| | | | Mitchell Memorial Day and Columbus Day Regattas | | Twice per year | | May, October |
| | | | Bermuda One/Two | | Once per year | | |
| | | | OSTAR | | once per year | | |
| | | | TWOSTAR | | once per year | | |
| | | | Earl Mitchell Regatta | USCG Marine Event Permit Chartlet and Sailing Instructions, 2008 | | | October |
| | | | Jester Challenge | Outside Research | once per year | | |
| | | | Frostbite Racing | | once per week | | January - April |
| Niantic Bay Yacht Club | Niantic | Connecticut | Wednesday PM Series for PHRF | Outside Research | once per week | | |
| | | | Atlantics | | | | |
| | | | J-24s | | | | |
| | | | Ensigns | | | | |
| | | | Etchells | | | | |
| | | | Lasers | | | | |
| | | | J-24s | | | | |
| | | | Early Bird Regatta | | once per year | | June |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Junior Olympic Regatta | | once per year | | July |
| | | | Frostbiting | | | | |
| Noroton Yacht Club | Darien | Connecticut | Sonar ACCs and Viper Nes | Outside Research | | | |
| | | | Sonar Atlantic Coast Championship | | | | |
| | | | Friends and Neighbor's Regatta | | once per year | | July |
| | | | Girls Optimist Clinic and Regatta | | once per year | | July |
| | | | Viper 640 North American Championship | | once per year | | June |
| | | | Noroton YC Sponsored Events | Online Survey | once per twice | less than 25 | May - October |
| North Cove Yacht Club | Old Saybrook | Connecticut | Leukemia Cup Regatta | Outside Research | once per year | | August |
| | | | Outer Light Classic Regatta | | once per year | | July |
| | | | Thursday Night Race Series | | once per week | | June - September |
| North Haven Casino Yacht Club | North Haven | Maine | Kent Cove Cup | Outside Research | | | |
| | | | August Series - 420 | | | | |
| | | | Dupont Laser Regatta | | | | |
| | | | Hurricane Sound Race | | | | August |
| | | | Round the Island Race | | | | |
| North Shore Yacht Club | Port Washington | New York | Epstein Trophy - PHRF Race | Outside Research | once per year | | June |
| | | | Freedom Cup | | | | |
| | | | Ostling Cup | | | | |
| | | | Reiman Trophy | | | | |
| | | | Borden Cup | | Once per year | | June |
| | | | NYSC Day Race Open Regatta | | | | May |
| | | | Moonlight Regatta | | | | August |
| | | | Snyder Cup | | | | July |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Smith Cup | | | | August |
| | | | Commodore's Cup | | | | September |
| Norwalk Yacht Club | Norwalk | Connecticut | Chantey Man Cup | Outside Research | | | June |
| | | | Firecracker Race | | | | July |
| | | | Commodore's Great Pursuit Race | | | | July |
| | | | Yellow Rock Race | | | | August |
| | | | Greens Ledge Trophy | | | | September |
| | | | Spring Tune Up | | | | May |
| | | | Wednesday Evening Big Boat Series | | | | May - September |
| | | | Thursday Evening Ideal 18 Series | | | | May - September |
| | | | King Cup | | | | May |
| | | | Sunday Afternoon Ideal 18 Series | | | | May - September |
| | | | J SALIS Eastern Districts | | | | July |
| | | | Friends and Neighbor's Regatta | | | | July |
| | | | Midsummer Race | | | | July |
| | | | Gillespie Trophy - Women's Ideal 18 | | | | August |
| | | | Evening Race | | | | August |
| | | | Women's Cup | | | | August |
| | | | Philcox Cup | | | | September |
| | | | Mayor's Cup | | | | September |
| | | | NISF Challenge | | | | September |
| | | | Partners Cup | | | | October |
| Nyack Boat Club | Nyack | New York | Megnus Pederson Regatta | Outside Research | | | June |
| | | | Labor Day Regatta | | | | August |
| | | | Last Blast Regatta | | | | October |
| | | | Laser Weekly Races | | | | |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Laser Firecracker Regatta | | | | July |
| | | | Afterthought Regatta | | | | September |
| Oak Cliff Sail Center | Oyster Bay | New York | Spring Off Soundings, Fall Off Soundings | Outside Research | | | |
| Ocean Club on Smugglers Beach | South Yarmouth | Massachusetts | Athlete's 4 Cancer | Online Survey | once per year | 100-500 | June |
| Off Soundings Club | Higganum | Connecticut | Offsoundings Club Spring Series (Friday Race) | USCG Marine Event Permit Chartlet and Sailing Instructions, 2009 | once per week | | June |
| | | | Offsoundings Club Spring Series (Saturday Race) | | once per week | | June |
| Old Cove Yacht Club | New Suffolk | New York | 4th of July Regatta | Outside Research | | | |
| | | | Invitational and Opti Regatta | | | | |
| | | | Invitational & PGJSA Laser/420/Sunfish Regatta | | | | |
| | | | Fisher Cup | | | | |
| Old Greenwich Yacht Club | Greenwich | Connecticut | IHYC-OGYC Twilight | Outside Research | once per week | | May - September |
| | | | American Regatta | | | | |
| Orient Yacht Club | Orient | New York | Thursday Night Series | Outside Research | once per week | | June - September |
| | | | Spindrift Race | | | | July |
| | | | c420 Regatta | | once per year | | July |
| Orienta Yacht Club | Mamaroneck | New York | Race Series | Outside Research | once per week | | June - October |
| Orleans Yacht Club | Orleans | Massachusetts | Junior Sailing and DaySailer Fleet 15 | Online Survey | once per twice | less than 25 | June - September |
| Orr's Bailey Yacht Club | Orrs Island | Maine | July Racing Series | Outside Research | once per week | | July |
| Palmer's Cove Yacht Club | Salem | Massachusetts | Bowditch Race | Outside Research | | | |
| Pequot Yacht Club | Southport | Connecticut | Father's Day Regatta | Outside Research | | | June |
| | | | May Series | | | | May |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Series I | | | | |
| | | | Series II | | | | |
| | | | Sunday Series | | | | |
| | | | Pequot Women's Invitational | | | | |
| | | | Onion Patch Regatta | | | | |
| Petit Manan Yacht Club | Milbridge | Maine | Birch Memorial | | | | |
| Pettipaug Yacht Club | Essex | Connecticut | Pine Orchard Invitational | | | | |
| Plymouth Yacht Club | Plymouth | Massachusetts | PYC Junior Regatta | Outside Research | | | |
| Portland Yacht Club | Falmouth | Maine | Pilot Race | Online Survey | once per year | 50-100 | June |
| | | | Schooner Trophy Race | Outside Research | | | July |
| | | | Monhegan Race | Online Survey | once per year | 50-100 | July |
| | | | Lightship Regatta | | | | August |
| | | | Monhegan Island Races | Outside Research | | | August |
| | | | Fall Series | Online Survey | once per twice | | September |
| | | | Lobster Bowl | | once per year | 100-500 | September - October |
| Port Washington Yacht Club | Port Washington | New York | Make a Wish Regatta | Outside Research | | | |
| | | | Charity Cup Regatta | | | | |
| Quissett Yacht Club | Falmouth | Massachusetts | Unkie | Outside Research | | | July |
| | | | Round the Bay Race | | | | |
| Quonset Davisville Navy Yacht Club | North Kingstown | Rhode Island | Allen Harbor Racing Summer Series | Outside Research | | | |
| Ram Island Yacht Club | Groton | Connecticut | Salle Evelyn 420/Blue Jay Regatta | Outside Research | | | July |
| | | | Austin LaFrance Opti Regatta | | | | July |
| | | | Ram Island Invitational | | once per year | | August |
| Rhode Island Yacht Club | Cranston | Rhode Island | Tuesday Night Race Series | Outside Research | once per week | | May - September |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Cappelli Race | | once per year | | August |
| | | | Gaspee Regatta | | | | June |
| | | | Moonlight Regatta | | | | July |
| | | | Commodore's Invitational Regatta | | | | September |
| Richmond County Yacht Club | Staten Island | New York | Marshall Series | Outside Research | once per week | | |
| | | | O'Connell Series | | once per week | | |
| | | | Full Moon Series | | once per week | | |
| | | | Champagne Race | | once per year | | July |
| | | | Home and Home Regatta | | once per year | | August |
| | | | Over 50 Sunfish Race | | once per year | | August |
| | | | Past Commodore's Race | | once per year | | September |
| Riverside Yacht Club | Riverside | Connecticut | JSA Opti Championship Regatta | Outside Research | | | August |
| Rockland Yacht Club | Rockland | Maine | Multiple Events over the summer race season | | once per twice | 25-50 | June - September |
| Roger Williams University | Bristol | Rhode Island | Roger Williams Spring and Fall Sports | PGIS Workshop | | | |
| Rowayton Yacht Club | Norwalk | Connecticut | Opti Wrap Up Regatta | Outside Research | once per year | | August |
| Sachem's Head Yacht Club | Guilford | Connecticut | Summer Series Racing | Outside Research | once per week | | |
| | | | Opening Day Races | | | | |
| | | | Wednesday Night PHRF Series | | once per week | | |
| Sag Harbor Yacht Club | Sag Harbor | New York | Maycroft Cup Regatta | Outside Research | | | September |
| Sagamore Yacht Club | Oyster Bay | New York | Wednesday Night Series | Outside Research | once per week | | May - September |
| | | | Execution Distance Race | | | | May |
| | | | Alzheimer's Regatta | | | | June |
| | | | Race to Dinner | | | | August |
| | | | Commodores Cup | | | | September |
| | | | Horst Ankermann Race | | | | October |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| Sail Martha's Vineyard | Vineyard Haven | Massachusetts | Vineyard Cup | Online Survey | once per year | 500-1000 | July |
| Sakonnet Yacht Club | Little Compton | Rhode Island | Junior Sailing | PGIS Workshop | | | |
| Salem Willows Yacht Club | Salem | Massachusetts | Scituate to Provincetown Race | Outside Research | | | June |
| Saltaire Yacht Club | Franklin Square | New York | Landlubbers Race | Outside Research | | | August |
| Sandy Bay Yacht Club | Rockport | Massachusetts | Summer Sailboat Racing | Online Survey | | | June - August |
| Salve Regina University and St. George's Boarding School | Middletown | Rhode Island | Sunday Afternoon and Winter Racing | PGIS Workshop | | | |
| Saunderstown Yacht Club | Saunderstown | Rhode Island | Bullseye National Championship | Outside Research | Once per year | | September |
| Sayville Yacht Club | Bayport | New York | Leukemia Cup Regatta | Outside Research | once per year | | August |
| | | | Charity Distance Race | | | | |
| | | | Laser District 8 Grand Prix NOR | | | | |
| | | | JY 15 North Americans NOR | | | | |
| Savin Hill Yacht Club | Dorchester | Massachusetts | Savin Hill Yacht Club Twilight Racing | Online Survey | once per twice | less than 25 | June - September |
| Scituate Harbor Yacht Club | Scituate | Massachusetts | Scituate Junior Regatta | Online Survey | once per year | 100-500 | August |
| | | | Scituate Invitational | Data Vetting | | | |
| Sea Cliff Yacht Club | Sea Cliff | New York | Western District Regatta | Outside Research | | | |
| | | | ALIR Regatta | | | | |
| | | | J44 Regatta | | | | |
| Seawanhaka Corinthian Yacht Club | Oyster Bay | New York | Spring Fling Regatta | Outside Research | | | April |
| | | | Oyster Bay Challenge | | | | May |
| | | | Alfred Roosevelt Regatta | | | | May |
| | | | Race to Black Rock | | | | May |
| | | | Team Race Clinic | | | | May |
| | | | BA Cup Reunion | | | | June |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Squaw Cup | | | | June |
| | | | Junior-Senior Challenge | | | | July |
| | | | Kiwassa Cup | | | | July |
| | | | Annual Rendezvous | | | | July |
| | | | Royal Yacht Squadron Bicentenary Regatta | | | | July |
| | | | "Sail the Sound for Deafness" Classics Regatta | | | | August |
| | | | Dooley Roosevelt Regatta | | | | August |
| | | | Stratford Shoal Race | | | | August |
| | | | Fall Regatta - One Designs | | | | September |
| | | | Collegiate Match Race Clinic | | | | September |
| | | | Islands International Challenge Cup | | | | October |
| | | | Lee Trophy | | | | October |
| | | | Thanksgiving 2x2 TR Regatta | | | | November |
| Seguin Island Yacht Club | Bath | Maine | Seguin Island Trophy Race | Data Vetting | once per year | 25-50 | |
| Setauket Yacht Club | Port Jefferson | New York | Shelter Island Heatherton | Outside Research | | | |
| | | | Shelter Island Anniversary | | | | |
| | | | Shelter Island Poor Memorial | | | | |
| | | | Faulkner's Island Race | | | | June |
| | | | Distance Sprint | | | | July |
| | | | Mattituck Race | | | | August |
| | | | True North | | | | September |
| | | | Spring 1-7 | | | | June - July |
| | | | Summer 1-7 | | | | June - September |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Setauket YC Harbor Cup | | | | September |
| | | | Setauket YC Village Cup | | | | June |
| Shelter Island Yacht Club | Shelter Island | New York | Shennecossett Pre-OSC Race, Around the Lighthouses | | | | |
| Shennecossett Yacht Club | Groton | Connecticut | Pre-Soundings Regatta | Outside Research | | | |
| Shinnecock Yacht Club | Quogue | New York | Connett Bowl | Outside Research | | | August |
| | | | Celebrity Open Race | | | | August |
| South Shore Yacht Club | North Weymouth | Massachusetts | P'town Race | Outside Research | once per year | | June |
| | | | Haley Cup | | | | June |
| | | | Whiskey Race | | | | September |
| Southampton Yacht Club | Southampton | New York | Lightning 4th of July Cup | Outside Research | | | July |
| | | | Labor Day Cup | | | | September |
| | | | Town Regatta | | | | August |
| Southold Yacht Club | Southold | New York | Monday Night Series | Outside Research | | | May - August |
| | | | Carol Smith Regatta | | | | |
| Southport Yacht Club | Southport | Maine | Weekly Racing | Data Vetting | once per twice | 50-100 | |
| Sprite Island Yacht Club | Norwalk | Connecticut | Orr Flying Scot Regatta | Outside Research | | | June |
| Squantum Yacht Club | Quincy | Massachusetts | MBYCA Lipton Cup Regatta | Online Survey | once per year | 50-100 | July |
| Stage Harbor Yacht Club | Chatham | Massachusetts | Stage Harbor Yacht Club Annual Opti | Online Survey | Once per year | 50-100 | July |
| | | | Sailing School, Club Races | | once per twice | 25-50 | June - August |
| Stamford Yacht Club | Stamford | Connecticut | Weekend Series | Outside Research | once per week | | June, August, October |
| | | | Vineyard Race | | once per year | | September |
| | | | Valeur-Jensen Stamford Denmark Race | | once per year | | September |
| | | | One Design Series | | | | May - August |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | SYC Double Handed Regatta | | | | May |
| | | | Mayor's Cup Race | | | | June |
| | | | Dorade Regatta | | | | August |
| | | | SYC Overnight Regatta | | | | August |
| | | | Sheffield Island Clam Bake and Pursuit Race | | | | August |
| | | | Atlantic Round Regatta | | | | September |
| | | | SYC-KDY Challenge Match Race | | | | September |
| | | | SYC One Design Invitational | | | | September |
| | | | Cows Trophy Race | | | | October |
| Stone Horse Yacht Club | Chatham | Massachusetts | Stone Horse Yacht Club Opti X-treme Regatta | Outside Research | | | July |
| | | | Stone Horse Yacht Club Laser Regatta | | | | August |
| Stonington Harbor Yacht Club | Stonington | Connecticut | Spring Frostbite Series - Lasers | Outside Research | once per week | | April - June |
| | | | PHRF | | once per week | | June - September |
| | | | J/24 Sunday Series | | once per week | | June - August |
| | | | J/24 Long Race | | | | September |
| | | | J/24 Iron Man Race | | | | September |
| | | | BIG Jack Pursuit Race | | | | September |
| | | | Red Lobdell Regatta (ECSA) | | | | September |
| | | | Fall Frostbite Series | | once per week | | September - November |
| Storm Trysail Club | Larchmont | New York | Around Block Island Race | USCG Marine Event Permit Chartlet and Sailing Instructions, 2009 | | | May |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Storm Trysail Foundation/Fishers Island Yacht Club Junior Overnight Race | Online Survey | | 50-100 | July |
| | | | Long Island Sound IRC/PHRF Championships | | once per year | 100-500 | September |
| | | | Jr Safety At Sea | | | 500-1000 | October |
| Thames Yacht Club | New London | Connecticut | Chili Series | Outside Research | once per week | | June |
| | | | Wednesday Evening PHRF & Ensign Racing | | | | June - September |
| | | | Thursday Evening Force-5/420/Opti Racing | | | | June - September |
| | | | Francis T Bradbury Memorial Long Distance Regatta | | | | July |
| | | | Oscar Kerman Series | | | | August |
| | | | Chowder Series | | | | September - October |
| | | | Calvin K Brouwer Memorial Regatta | Online Survey | once per year | 100-500 | June |
| | | | Commodore's Trophy Race | | once per year | 100-500 | September |
| The Buzzards Yacht Club | Pocasset | Massachusetts | One Design Summer Series | Outside Research | once per week | | |
| | | | One Design August Series | | Once per week | | August |
| | | | One Design July 4th/Labor Day Series | | once per week | | |
| | | | PHRF Series | | | | |
| The Rockport Boat Club | Rockport | Maine | Family Regatta | Outside Research | | | July |
| | | | 420 Race 1 | | | | July |
| | | | 420 Race 2 | | | | August |
| Thimble Island Sailing Club | Branford | Connecticut | Sunday Summer Series | Outside Research | | | |
| | | | Big Boat Race | | | | August |
| | | | Junior Regatta | | | | August |
| | | | Around the Island Race | | | | August |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| Tiverton Yacht Club | Tiverton | Rhode Island | Around the Island Race | | | | June |
| | | | Wednesday Night Racing | | | | May - August |
| | | | Charlie LaRoue Memorial Race | | | | September |
| Vineyard Haven Yacht Club | Vineyard Haven | Massachusetts | 12 Meter Classic: Colombia vs. Heritage | Outside Research | | | August |
| | | | VHYC Advanced 420 and 420 Race Series | | | | June |
| | | | VHYC All Island Regatta | | | | August |
| Wadawanuck Yacht Club | Stonington | Connecticut | WAD 420 Regatta | Outside Research | | | |
| Waquoit Bay Yacht Club | East Falmouth | Massachusetts | Cape Cod Knockabout National Championship | Outside Research | once per year | | August |
| | | | SMYRA Championship | | | | |
| Watch Hill Yacht Club | Westerly | Rhode Island | Horton Offshore | Outside Research | | | July |
| | | | Fuller Offshore Regatta | | | | September |
| West Bay Yacht Club | East Greenwich | Rhode Island | Around the Bay Race | Outside Research | | | July |
| | | | Norton Memorial Regatta | | once per year | | August |
| | | | Lady Skippers Regatta | | | | August |
| | | | Fall Series | | once per week | | September |
| | | | Tune Up Regatta | | | | May |
| | | | Monday Evening Series | | once per week | | June - August |
| | | | WBYC Rainone Solo/Twin Regatta | | | | June |
| | | | Twenty-Hundred Club Spring Regatta | | | | June |
| | | | Twenty-Hundred Club Fall Race Around Prudence Island | | | | September |
| | | | Twenty-Hundred Club Cuttyhunk Regatta | | | | July |
| | | | Wednesday Fall Series | | once per week | | September |

| Organization | City | State | Races | Source | Recurrence | # of participants | month |
|---|---|---|---|---|---|---|---|
| | | | Annual Regatta | | once per year | | July |
| | | | Fantastic Plastic Series | | | | September |
| | | | Pumpkin Patch Regatta | | | | October |
| West Cove Yacht Club | Noank | Connecticut | WCYA Invitational Regatta | Online Survey | once per year | less than 25 | September |
| West Dennis Yacht Club | West Dennis | Massachusetts | West Dennis Yacht Club Invitational | Outside Research | | | July |
| Wianno Yacht Club | Osterville | Massachusetts | Wianno Opti Regatta | Online Survey | once per year | 50-100 | July |
| Wild Harbor Yacht Club | North Falmouth | Massachusetts | Stone Horse Opti Regatta | Outside Research | | | July |
| | | | Wild Harbor 420 Invitational | | | | August |
| Winter Harbor Yacht Club | Winter Harbor | Maine | Winter Harbor Knockabouts | Outside Research | once per week | | |
| | | | Bullseyes | | once per week | | |
| Winthrop Yacht Club | Winthrop | Massachusetts | Winthrop Yacht Club PHRF Series | Outside Research | | | July |
| Wollaston Yacht Club | Quincy | Massachusetts | Quincy Bay Race Week | Outside Research | once per year | | |
| Woods Hole Yacht Club | Woods Hole | Massachusetts | Summer Wednesday Series | Outside Research | once per week | | |
| | | | Summer Thursday Ladies Series | | once per week | | |
| | | | Sunday Knockabout Series | | once per week | | |
| | | | Wednesday Knockabout Series | | once per week | | |
| Yale Corinthian Yacht Club | Branford | Connecticut | Harry Anderson Trophy | Outside Research | once per year | | September |
| | | | Dave Perry Trophy | | once per year | | November |
| | | | Owen, Mosbacher & Knapp Trophies | | once per year | | April |

# 18.  Appendix I – List of Known Regional Competitive Board and Paddle Event Organizers

- Adventurous Joe Coffee
- Aquaholics
- Aquidneck Island Outreach
- Buzzards Bay Coalition
- Cape Ann Rowing Club
- Cape Ann SUP
- Cape Cod Bay Challenge
- Charles River Watershed Association
- Coastal Urge
- Eastern Surfing Association
- Lucy's Hearth
- Manuka Sports Event Management
- Nantucket Land Council
- Nantucket Triathlon Club
- New England Science & Sailing
- Nonantum Resort
- Northeast Surfing
- Paddle Board Rhode Island
- Paddle Nantucket
- Paddle to the Point LLC
- Pursuit Racing
- Race the State
- Raw Element USA
- Rose Island Lighthouse Foundation
- Sail Martha's Vineyard
- Save the Harbor, Save the Bay
- SoPo SUP
- Soundsurfer Foundation
- Surfrider Foundation CT Chapter and Scoot & Paddle
- The Cape Cod Bay Challenge
- Thorfinn Expeditions
- Three Bays Preservation, Inc.

# 19. Appendix J – List of Known Regional Competitive Board and Paddle Events

| Event Name | Event State | # of Events Per Year | Event Type |
|---|---|---|---|
| 3rd Beach TriSUPthlon | RI | 1 | triathlon |
| Buzzards Bay Coalition | MA | 1 | triathlon |
| Cape Ann SUP | MA | 2 | sup-race |
| Casco Bay Challenge | ME | 1 | sup-race |
| Catch a Curl | RI | 2 | surf-contest |
| CCBC Supathon | MA | 1 | sup-race |
| Challenge on the Charles | MA | 1 | sup-race |
| Charles Island SUP Cup | CT | 1 | sup-race |
| Chillfest | ME | 1 | surf-contest |
| Coastal Urge Newport SUP Cup | RI | 1 | sup-race |
| Cushing Island SUP race series | ME | 1 | sup-race |
| Lobster SUP Cup | ME | 1 | sup-race |
| Lucy's Hearth SUP Race | RI | 1 | sup-race |
| Molly Surf Celebration | NH | 1 | surf-contest |
| Nantucket Land Council | MA | 1 | triathlon |
| Nantucket Paddle Battle | MA | 1 | triathlon |
| Narragansett Bay SUP Championship | RI | 1 | sup-race |
| New England Longboard Classic Surf Contest | MA | 1 | surf-contest |
| New England Mid-Winter Surfing | NH | 1 | surf-contest |
| Newport Harbor SUP Classic | RI | 1 | sup-race |

| | | | |
|---|---|---|---|
| Nonantum Resort Paddle Battle | ME | 1 | triathlon |
| Paddle for the Bays | MA | 2 | sup-race |
| Paddle to the Point | ME | 1 | sup-race |
| Providence Paddle Battle Course | RI | 1 | sup-race |
| Race the State | RI | 1 | sup-race |
| Rose Island Lighthouse Battle of the Bay | RI | 1 | triathlon |
| Run of the Charles Canoe and Kayak Race | MA | 1 | canoe-kayak-race |
| Sail Martha's Vineyard | MA | 1 | sup-race |
| Soundsurfer Waterman's Challenge | CT | 1 | sup-race |
| Swim & Paddle for Boston Harbor | MA | 1 | sup-race |
| The Blackburn Challenge | MA | 2 | sup-canoe-kayak-row-race |
| The Nantucket Paddle Battle | MA | 1 | sup-kayak-canoe-race |
| Wallis Sands Triathlon | NH | 1 | triathlon |
| Waterman Eco Challenge | RI | 1 | sup-swim-race |
| Wellfleet SUPathon | MA | 1 | sup-race |

# 20. Appendix K – Individual User Recreation Survey Tool Screenshots

**Figure 20.1. Survey registration web page**

**Figure 20.2. Survey screenshot: Mapping orientation**



**Figure 20.3. Survey screenshot: Placing activity markers**
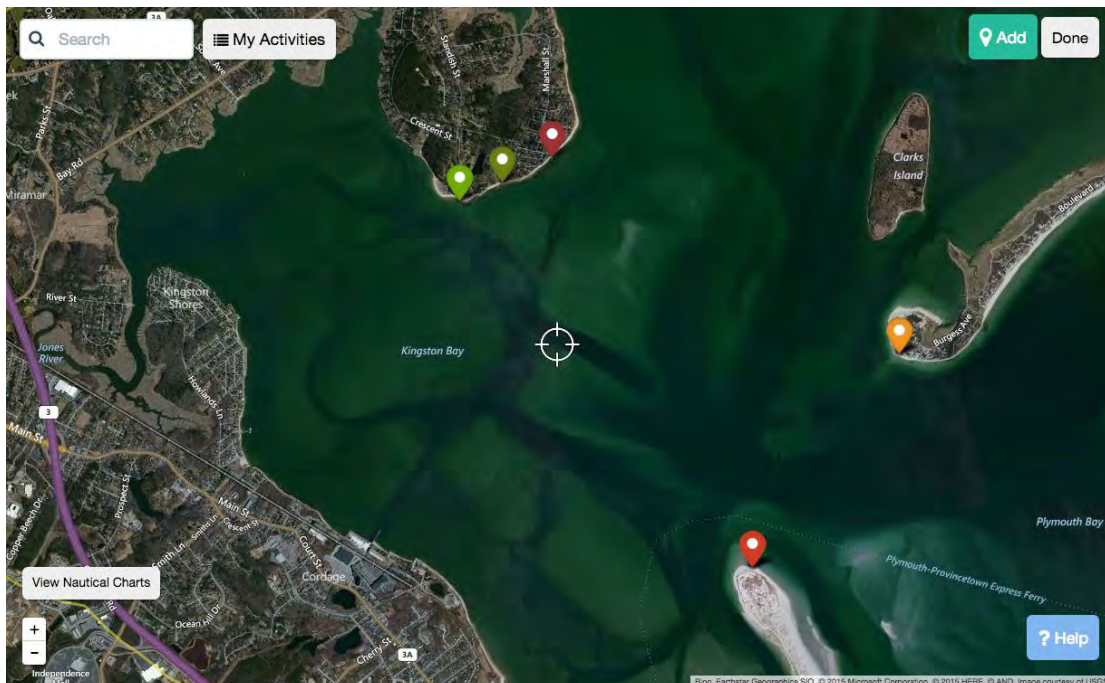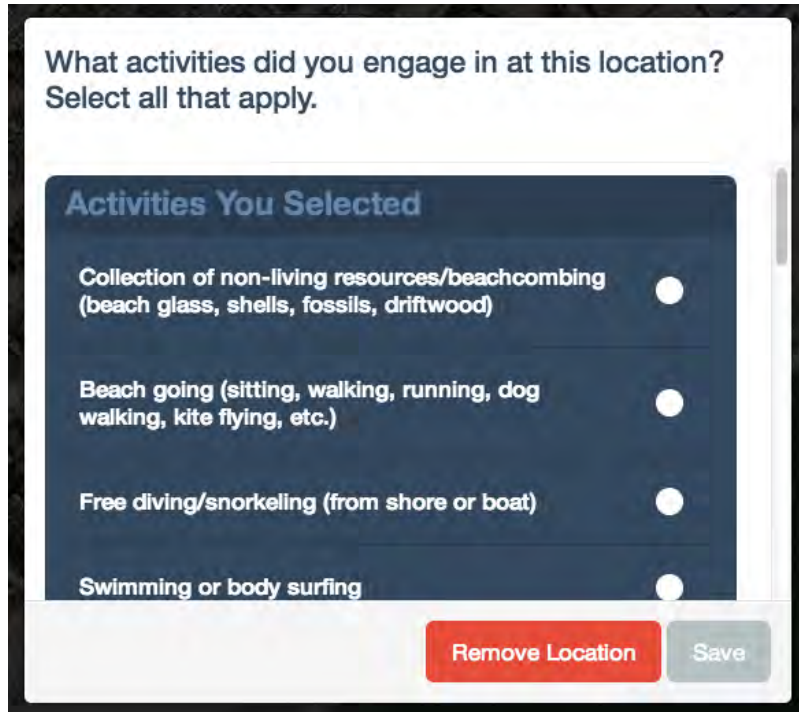
**Figure 20.4. Survey screenshot: Selecting recreational activities to conducted at a location**
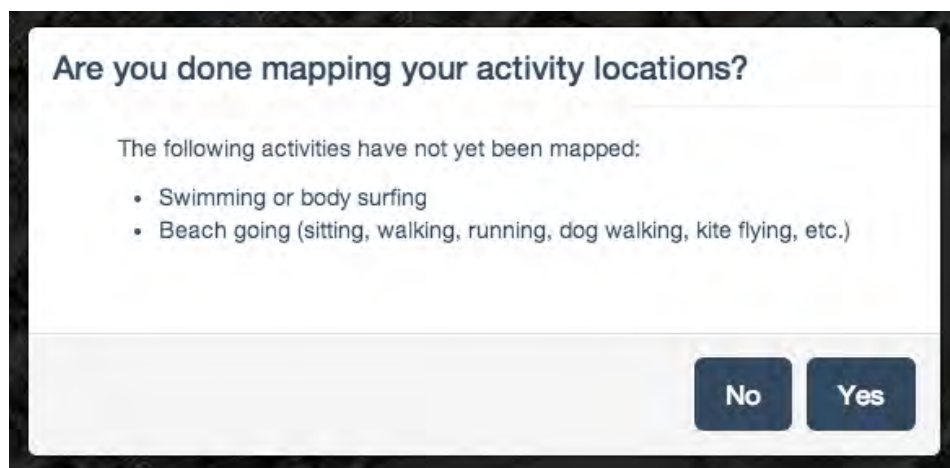


**Figure 20.5. Survey screenshot: Survey respondents are reminded of the activities they conducted in the last 12 months but have not yet mapped**

**Figure 20.6. Survey screenshot: Tracking activity markers**
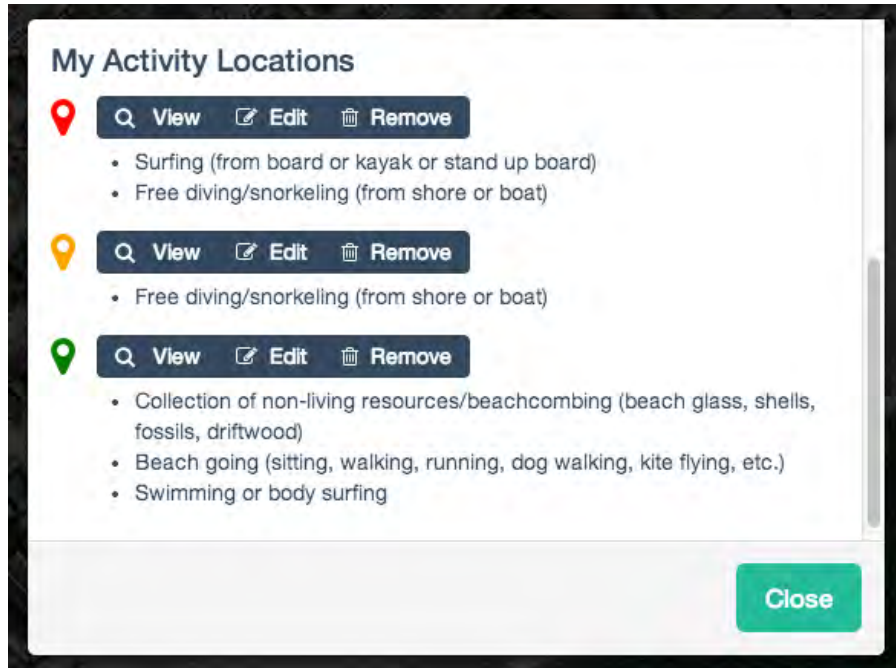
# 21. Appendix L – Connecticut: Individual User Online Recreation Survey State Results

This appendix contains the survey results calculated only considering responses from respondents who indicated they lived in the state of Connecticut

### Table 21.1. Connecticut: Overall survey demographics

| Demographics | Survey respondents |
|---|---|
| Number of respondents | 80 |
| Average Age | 44.2 |
| Male | 49.4% |
| Female | 50.6% |
| White | 96.1% |
| Hispanic, Spanish, or Latino | 3.9% |
| Black or African American | 0.0% |
| American Indian or Alaska Native | 0.0% |
| Asian/Pacific Islander | 0.0% |
| Other Exists | 0.0% |

### Table 21.2. Connecticut: Respondents' level of education

| Education level | Respondents (%) | Respondents (n) |
|---|---|---|
| Bachelor's degree or higher | 48.4% | 15 |
| Some college | 35.5% | 11 |
| High school | 12.9% | 4 |
| Less than high school | 3.2% | 1 |
| No formal education | 0.0% | 0 |

### Table 21.3. Connecticut: Respondents' level of income

| Income range | Respondents (%) | Respondents (n) |
|---|---|---|
| Less than $25,000 | 10.1% | 7 |
| $25,000 to $49,999 | 11.6% | 8 |
| $50,000 to $74,999 | 8.7% | 6 |
| $75,000 to $99,999 | 11.6% | 8 |
| $100,000 to $124,999 | 18.8% | 13 |
| $125,000 to $149,999 | 11.6% | 8 |
| $150,000 to $174,999 | 14.5% | 10 |
| $175,000 to $199,000 | 4.3% | 3 |
| $200,000 or greater | 1.4% | 1 |
| Don't know | 7.2% | 5 |

**Table 21.4. Connecticut: Respondents' employment status**

| Employment status | Respondents (%) | Respondents (n) |
|---|---|---|
| Employed full time | 70.9% | 56 |
| Retired | 10.1% | 8 |
| Employed part time | 6.3% | 5 |
| Student | 5.1% | 4 |
| Other | 2.5% | 2 |
| Homemaker | 1.3% | 1 |
| Unemployed | 1.3% | 1 |
| Disability/Unable to Work | 0.0% | 0 |
| Military | 2.5% | 2 |

**Table 21.5. Connecticut: Activity participation for the last 12 months, last trip, and primary activity in last trip**

| Activities | Last 12 months (%) | Last Trip (%) | Primary Activity (%) |
|---|---|---|---|
| Beach going (sitting, walking, running, dog walking, kite flying, etc.) | 90.0% | 68.8% | 41.3% |
| Scenic enjoyment/sightseeing | 76.3% | 53.8% | 8.8% |
| Swimming or body surfing | 70.0% | 28.8% | 5.0% |
| Watching birds, whales, seals and/or other marine life (from shore or private boat) | 60.0% | 37.5% | 0.0% |
| Photography | 57.5% | 27.5% | 3.8% |
| Biking or hiking | 56.3% | 23.8% | 0.0% |
| Kayaking or other paddling activity (canoe, stand up paddle board) | 53.8% | 21.3% | 0.0% |
| Collection of non-living resources/beachcombing (beach glass, shells, fossils, driftwood) | 45.0% | 28.8% | 0.0% |
| Sitting in your car watching the scene | 42.5% | 15.0% | 0.0% |
| Boating/sailing | 38.8% | 16.3% | 0.0% |
| Surfing (from board or kayak or stand up board) | 18.8% | 8.8% | 0.0% |
| Camping | 12.5% | 3.8% | 0.0% |
| Watching birds, whales, seals and/or other marine life (from a charter/party vessel) | 8.8% | 1.3% | 0.0% |
| Free diving/snorkeling (from shore or boat) | 8.8% | 1.3% | 0.0% |
| SCUBA diving (from shore or private boat) | 5.0% | 2.5% | 0.0% |
| SCUBA diving (from a charter/party vessel) | 2.5% | 0.0% | 0.0% |
| Hang gliding/parasailing | 1.3% | 0.0% | 0.0% |
| Skimboarding | 1.3% | 1.3% | 0.0% |
| Windsurfing | 1.3% | 0.0% | 0.0% |
| Kiteboarding | 0.0% | 0.0% | 0.0% |
| Other | 6.3% | 2.5% | 0.0% |

**Figure 21.1. Connecticut: Activity participation for the last 12 months, last trip, and primary activity in last trip**
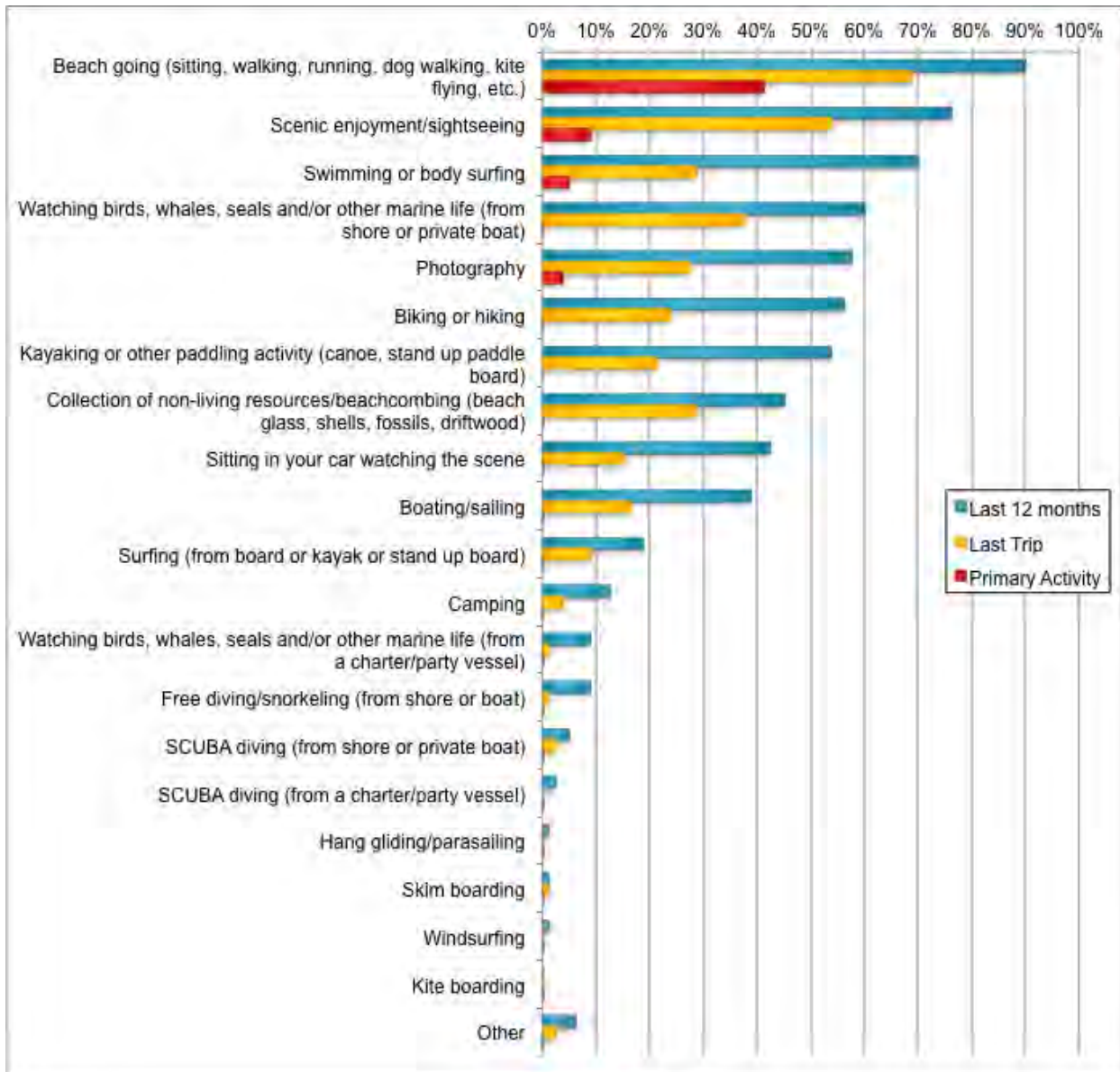
**Table 21.6. Connecticut: Average trip expenditures per person by item across all respondents and given an expenditure on an item**

| Category | Across all respondents | | Given an expenditure |
|---|---|---|---|
| | Average expenditures ($) | % of observations | Average expenditures ($) |
| Lodging (if you stayed overnight) | $54.59 | 29.3% | $256.91 |
| Airline flight/Bus/Train | $31.34 | 16.8% | $1,253.50 |
| Food and beverages at a restaurant or bar | $27.22 | 14.6% | $49.49 |
| Car fuel | $15.82 | 8.5% | $21.83 |
| Shopping and souvenirs (t-shirts, posters, gifts, etc.) | $14.09 | 7.6% | $66.32 |
| Food and beverages from a store | $12.83 | 6.9% | $23.87 |
| Other | $9.02 | 4.8% | $72.17 |
| Car rental | $6.25 | 3.4% | $500.00 |
| Parking | $5.10 | 2.7% | $24.00 |
| Equipment rental (surfboard, bike, kayak, stand up paddle, etc.) | $4.11 | 2.2% | $54.79 |
| Sundries (sunscreen, surf wax, etc.) | $2.22 | 1.2% | $17.78 |
| Park entrance, museum, aquarium, or other entrance fee | $1.70 | 0.9% | $9.73 |
| Lessons, clinics, camps | $1.38 | 0.7% | $110.00 |
| Charter fee (whale watching, etc.) | $0.50 | 0.3% | $40.00 |
| **TOTAL** | **$186.18** | | |

**Figure 21.2. Connecticut: Average coastal and ocean recreation trip expenditures**
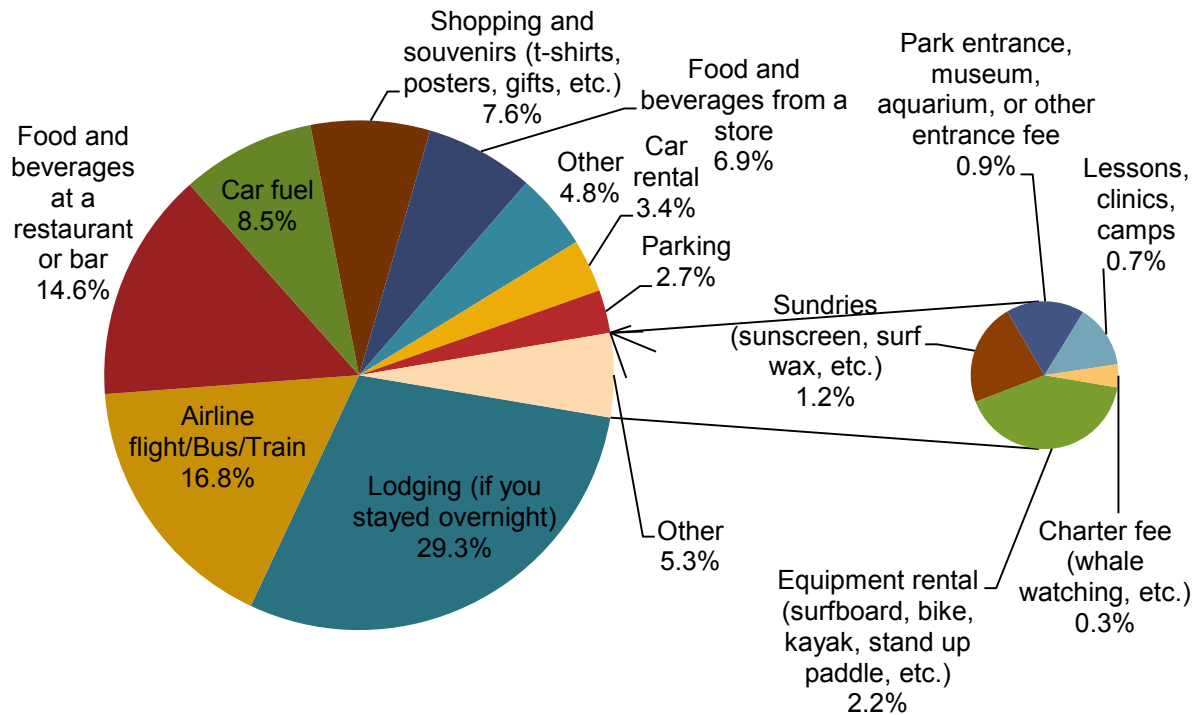
**Figure 21.3. Connecticut: Average trip expenditure per item, given expenditure made**
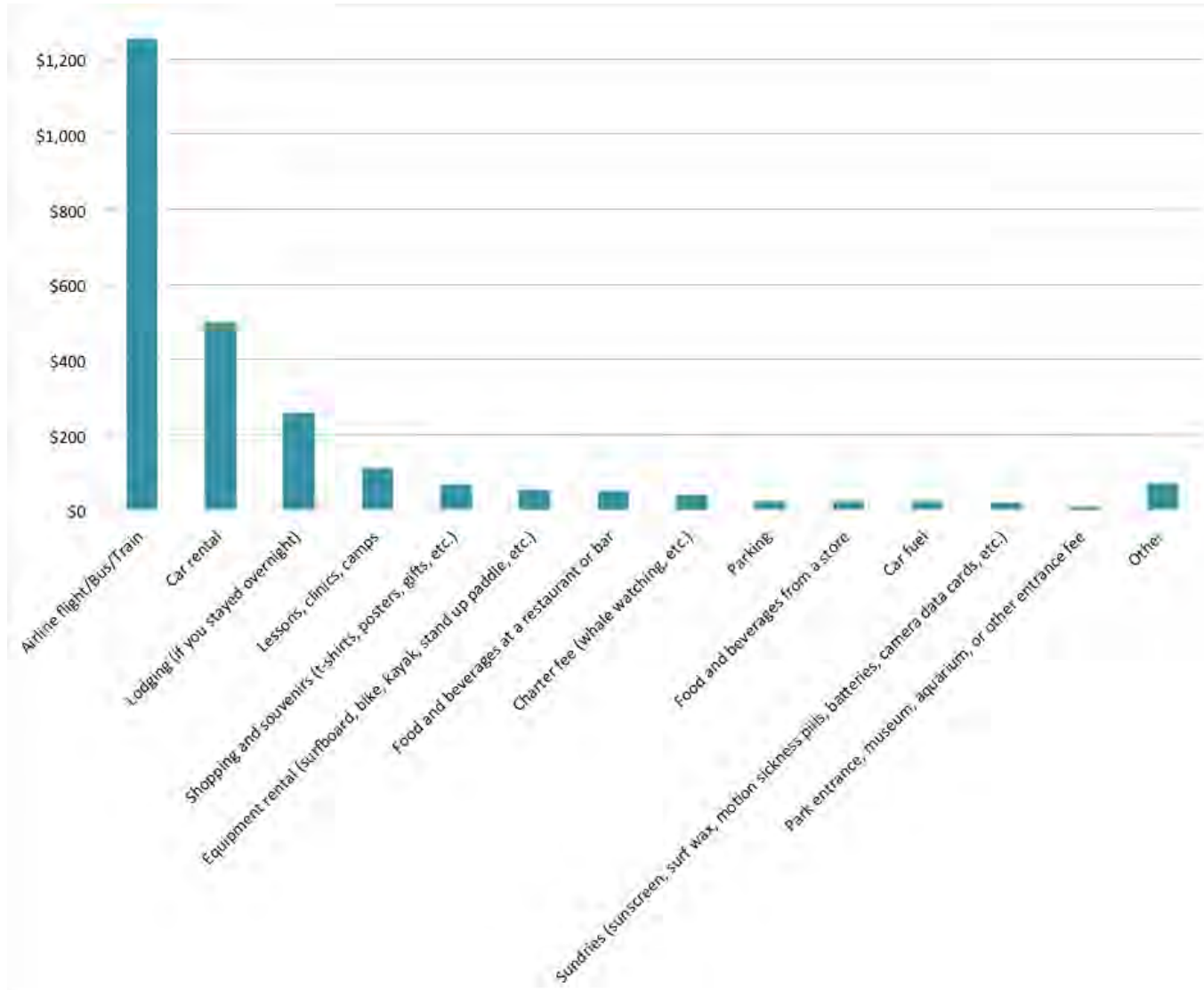
# 22. Appendix M – Maine: Individual User Online Recreation Survey State Results

This appendix contains the survey results calculated only considering responses from respondents who indicated they lived in the state of Maine.

### Table 22.1. Maine: Overall survey demographics

| Demographics | Survey respondents |
|---|---|
| Number of respondents | 176 |
| Average Age | 42.2 |
| Male | 52.3% |
| Female | 47.7% |
| White | 96.0% |
| American Indian or Alaska Native | 1.7% |
| Hispanic, Spanish, or Latino | 1.1% |
| Asian/Pacific Islander | 0.6% |
| Black or African American | 0.0% |
| Other | 0.6% |

### Table 22.2. Maine: Respondents' level of education

| Education level | Respondents (%) | Respondents (n) |
|---|---|---|
| Bachelor's degree or higher | 44.9% | 31 |
| Some college | 47.8% | 33 |
| High school | 7.2% | 5 |
| Less than high school | 0.0% | 0 |
| No formal education | 0.0% | 0 |

### Table 22.3. Maine: Respondents' level of income

| Income range | Respondents (%) | Respondents (n) |
|---|---|---|
| Less than $25,000 | 14.2% | 22 |
| $25,000 to $49,999 | 21.3% | 33 |
| $50,000 to $74,999 | 23.2% | 36 |
| $75,000 to $99,999 | 13.5% | 21 |
| $100,000 to $124,999 | 12.3% | 19 |
| $125,000 to $149,999 | 3.9% | 6 |
| $150,000 to $174,999 | 2.6% | 4 |
| $175,000 to $199,000 | 1.3% | 2 |
| $200,000 or greater | 1.3% | 2 |
| Don't know | 6.5% | 10 |

**Table 22.4. Maine: Respondents' employment status**

| Employment status | Respondents (%) | Respondents (n) |
|---|---|---|
| Employed full time | 69.9% | 123 |
| Employed part time | 9.1% | 16 |
| Retired | 8.5% | 15 |
| Student | 6.3% | 11 |
| Homemaker | 1.1% | 2 |
| Disability/Unable to Work | 1.1% | 2 |
| Unemployed | 0.0% | 0 |
| Military | 0.0% | 0 |
| Other | 4.0% | 7 |

*Source: Current study*

**Table 22.5. Maine: Activity participation for the last year, last trip, and primary activity in last trip**

| Activities | Last 12 months (%) | Last Trip (%) | Primary Activity (%) |
|---|---|---|---|
| Beach going (sitting, walking, running, dog walking, flying, etc.) | 92.0% | 53.4% | 35.8% |
| Scenic enjoyment/sightseeing | 77.8% | 51.1% | 9.1% |
| Biking or hiking | 71.0% | 22.7% | 9.1% |
| Swimming or body surfing | 65.9% | 13.1% | 0.6% |
| Watching birds, whales, seals and/or other marine life (from shore or private boat) | 62.5% | 30.1% | 0.0% |
| Photography | 58.0% | 29.0% | 1.7% |
| Sitting in your car watching the scene | 58.0% | 18.2% | 2.8% |
| Kayaking or other paddling activity (canoe, stand up paddle board) | 58.0% | 17.0% | 0.0% |
| Collection of non-living resources/beachcombing (beach glass, shells, fossils, driftwood) | 52.8% | 23.9% | 0.0% |
| Boating/sailing | 50.0% | 10.2% | 0.0% |
| Surfing (from board or kayak or stand up board) | 35.8% | 21.6% | 0.0% |
| Camping | 31.8% | 6.3% | 0.6% |
| Watching birds, whales, seals and/or other marine life (from a charter/party vessel) | 16.5% | 1.7% | 0.0% |
| Free diving/snorkeling (from shore or boat) | 10.8% | 1.7% | 0.0% |
| Skimboarding | 4.5% | 0.6% | 0.6% |
| SCUBA diving (from shore or private boat) | 4.0% | 0.6% | 0.0% |
| Kiteboarding | 0.6% | 0.6% | 0.6% |
| Hang gliding/parasailing | 0.0% | 0.0% | 0.0% |
| Windsurfing | 0.0% | 0.0% | 0.0% |
| SCUBA diving (from a charter/party vessel) | 0.0% | 0.0% | 0.0% |
| Other | 5.1% | 1.7% | 0.6% |

**Figure 22.1. Maine: Activity participation for the last year, last trip, and primary activity in last trip**
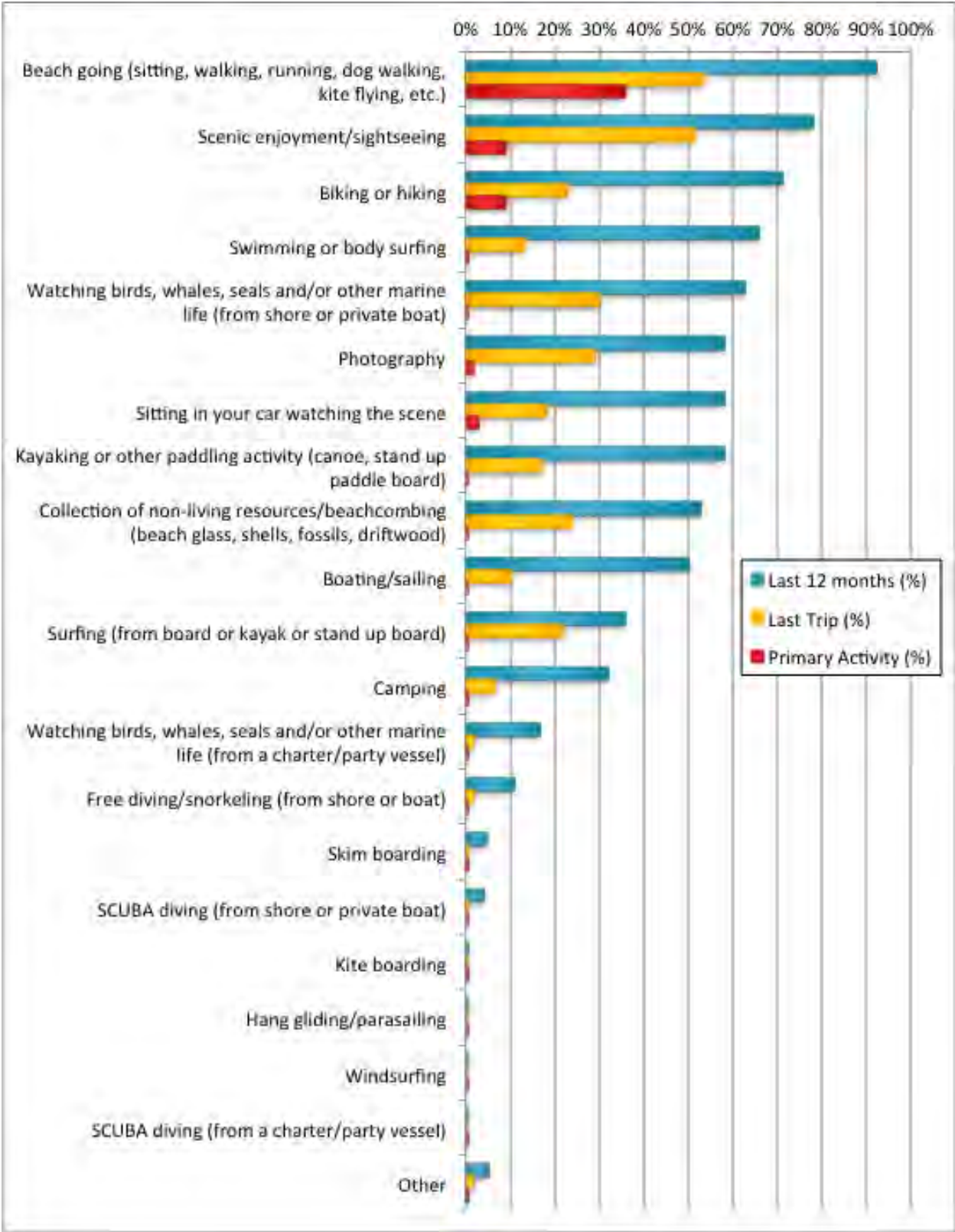
**Table 22.6. Maine: Average trip expenditures per person by item across all respondents and given an expenditure on an item**

| | Across all respondents | | Given an expenditure |
|---|---|---|---|
| Category | Average expenditures ($) | % of observations | Average expenditures ($) |
| Food and beverages at a restaurant or bar | $22.43 | 21.2% | $51.95 |
| Lessons, clinics, camps | $20.40 | 19.3% | $512.86 |
| Car fuel | $14.00 | 13.3% | $18.25 |
| Food and beverages from a store | $12.13 | 11.5% | $20.52 |
| Lodging (if you stayed overnight) | $12.02 | 11.4% | $132.20 |
| Equipment rental (surfboard, bike, kayak, stand up paddle, etc.) | $8.41 | 8.0% | $211.38 |
| Airline flight/Bus/Train | $5.44 | 5.1% | $319.00 |
| Shopping and souvenirs (t-shirts, posters, gifts, etc.) | $4.58 | 4.3% | $36.62 |
| Sundries (sunscreen, surf wax, etc.) | $2.13 | 2.0% | $12.09 |
| Park entrance, museum, aquarium, or other entrance fee | $1.66 | 1.6% | $10.45 |
| Parking | $1.29 | 1.2% | $8.39 |
| Charter fee (whale watching, etc.) | $0.57 | 0.5% | $50.50 |
| Car rental | $0.55 | 0.5% | $32.17 |
| Other | $0.06 | 0.1% | $0.79 |
| **TOTAL** | **$105.66** | | |

**Figure 22.2. Maine: Average coastal and ocean recreation trip expenditures**
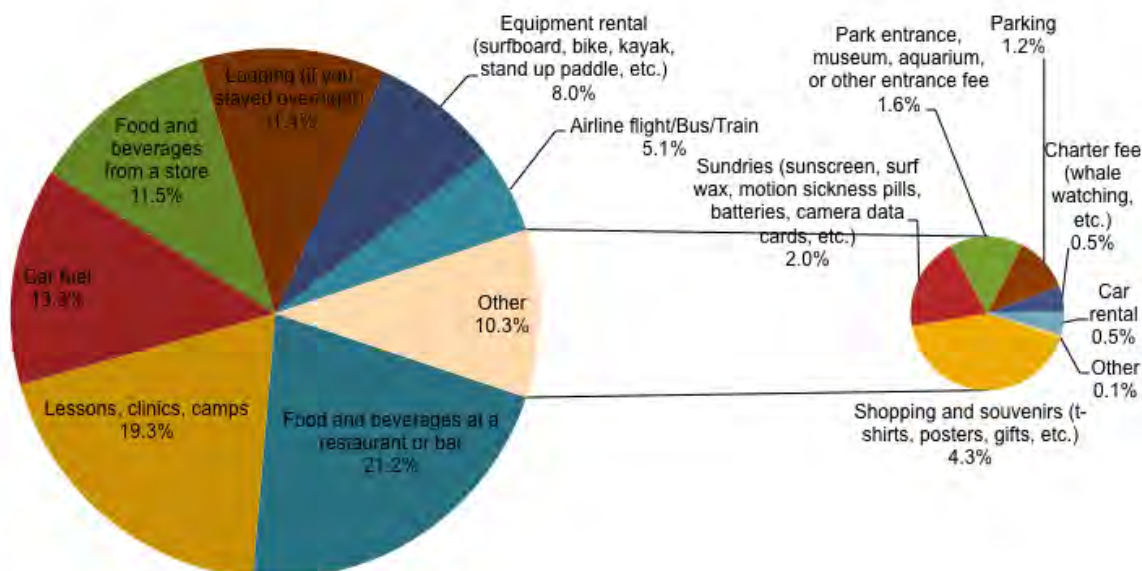
**Figure 22.3. Maine: Average trip expenditure per item, given expenditure made**
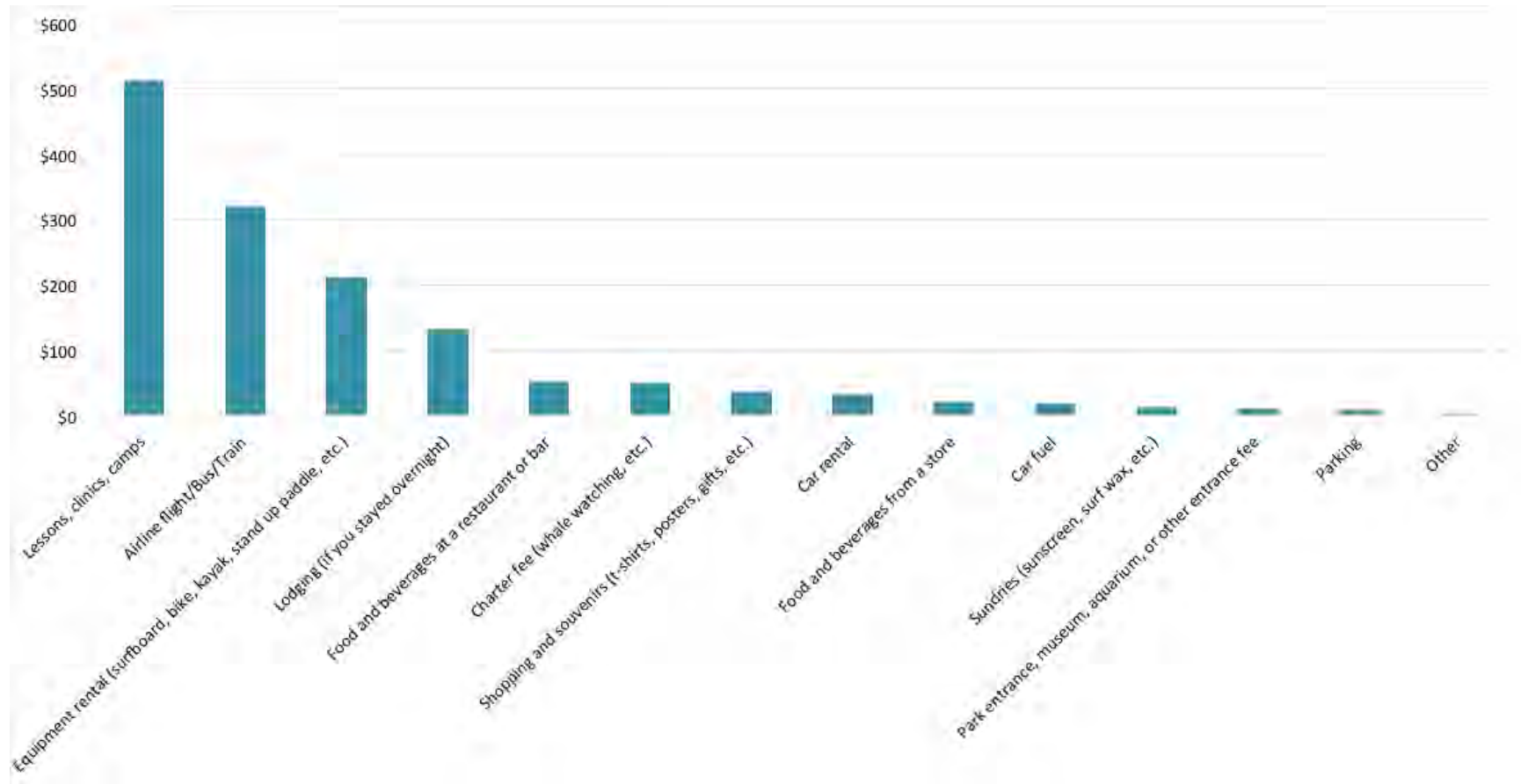
# 23. Appendix N – Vermont: Individual User Online Recreation Survey State Results

This appendix contains the survey results calculated only considering responses from respondents who indicated they lived in the state of Vermont.

**Table 23.1. Vermont: Overall survey demographics**

| Demographics | Survey respondents |
|---|---|
| Number of respondents | 14 |
| Average Age | 43.6 |
| Male | 57.1% |
| Female | 42.9% |
| White | 100.0% |
| Asian/Pacific Islander | 0.0% |
| Hispanic, Spanish, or Latino | 0.0% |
| American Indian or Alaska Native | 0.0% |
| Black or African American | 0.0% |
| Other | 0.0% |

**Table 23.2. Vermont: Respondents' level of education**

| Education level | Respondents (%) | Respondents (n) |
|---|---|---|
| Bachelor's degree or higher | 33.3% | 2 |
| Some college | 50.0% | 3 |
| High school | 16.7% | 1 |
| Less than high school | 0.0% | 0 |
| No formal education | 0.0% | 0 |

**Table 23.3. Vermont: Respondents' level of income**

| Income range | Respondents (%) | Respondents (n) |
|---|---|---|
| Less than $25,000 | 8.3% | 1 |
| $25,000 to $49,999 | 8.3% | 1 |
| $50,000 to $74,999 | 33.3% | 4 |
| $75,000 to $99,999 | 8.3% | 1 |
| $100,000 to $124,999 | 16.7% | 2 |
| $125,000 to $149,999 | 8.3% | 1 |
| $150,000 to $174,999 | 0.0% | 0 |
| $175,000 to $199,000 | 0.0% | 0 |
| $200,000 or greater | 0.0% | 0 |
| Don't know | 16.7% | 2 |

**Table 23.4. Vermont: Respondents' employment status**

| Employment status | Respondents (%) | Respondents (n) |
|---|---|---|
| Employed full time | 64.3% | 9 |
| Employed part time | 21.4% | 3 |
| Student | 7.1% | 1 |
| Retired | 7.1% | 1 |
| Unemployed | 0.0% | 0 |
| Homemaker | 0.0% | 0 |
| Military | 0.0% | 0 |
| Disability/Unable to Work | 0.0% | 0 |
| Other | 0.0% | 0 |

**Table 23.5. Vermont: Activity participation for the last year, last trip, and primary activity in last trip**

| Activities | Last 12 months (%) | Last Trip (%) | Primary Activity (%) |
|---|---|---|---|
| Beach going (sitting, walking, running, dog walking, kite flying, etc.) | 92.9% | 64.3% | 21.4% |
| Scenic enjoyment/sightseeing | 85.7% | 57.1% | 7.1% |
| Biking or hiking | 78.6% | 21.4% | 14.3% |
| Photography | 78.6% | 14.3% | 0.0% |
| Camping | 64.3% | 21.4% | 0.0% |
| Watching birds, whales, seals and/or other marine life (from shore or private boat) | 64.3% | 28.6% | 0.0% |
| Swimming or body surfing | 64.3% | 35.7% | 7.1% |
| Kayaking or other paddling activity (canoe, stand up paddle board) | 64.3% | 35.7% | 0.0% |
| Collection of non-living resources/beachcombing (beach glass, shells, fossils, driftwood) | 57.1% | 28.6% | 0.0% |
| Surfing (from board or kayak or stand up board) | 57.1% | 50.0% | 0.0% |
| Sitting in your car watching the scene | 28.6% | 14.3% | 0.0% |
| Skimboarding | 14.3% | 0.0% | 0.0% |
| Free diving/snorkeling (from shore or boat) | 14.3% | 0.0% | 0.0% |
| Boating/sailing | 14.3% | 14.3% | 0.0% |
| Watching birds, whales, seals and/or other marine life (from a charter/party vessel) | 0.0% | 0.0% | 0.0% |
| Hang gliding/parasailing | 0.0% | 0.0% | 0.0% |
| Kiteboarding | 0.0% | 0.0% | 0.0% |
| Windsurfing | 0.0% | 0.0% | 0.0% |
| SCUBA diving (from a charter/party vessel) | 0.0% | 0.0% | 0.0% |
| SCUBA diving (from shore or private boat) | 0.0% | 0.0% | 0.0% |
| Other | 7.1% | 7.1% | 0.0% |

**Figure 23.1. Vermont: Activity participation for the last year, last trip, and primary activity in last trip**
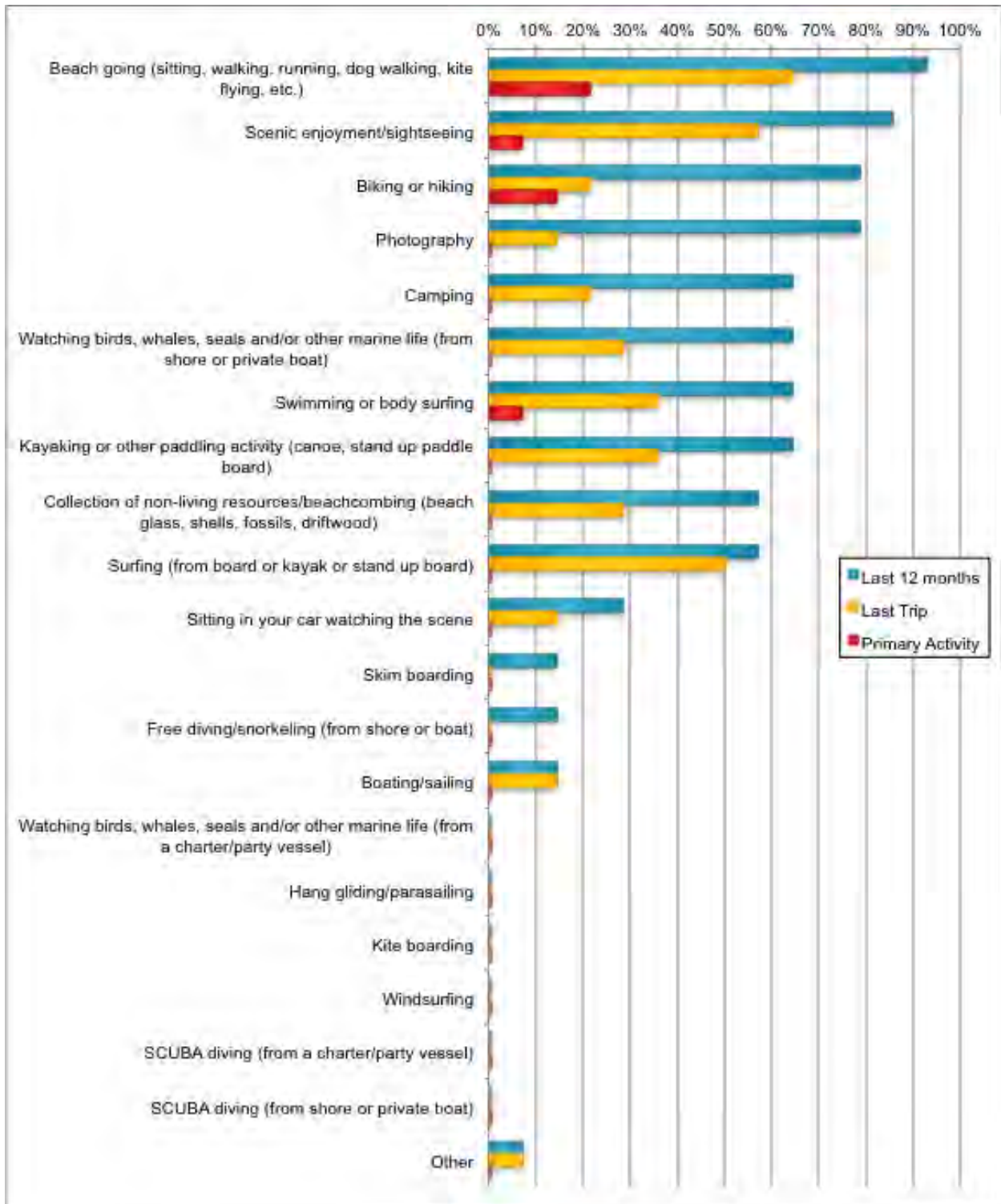
**Table 23.6. Vermont: Average trip expenditures per person by item across all respondents and given an expenditure on an item**

| Category | Across all respondents | | Given an expenditure |
| --- | --- | --- | --- |
| | Average expenditures ($) | % of observations | Average expenditures ($) |
| Lodging (if you stayed overnight) | $85.38 | 34.3% | $170.76 |
| Food and beverages at a restaurant or bar | $50.42 | 20.2% | $54.29 |
| Car fuel | $46.20 | 18.5% | $46.20 |
| Food and beverages from a store | $23.84 | 9.6% | $25.67 |
| Lessons, clinics, camps | $12.20 | 4.9% | $85.42 |
| Sundries (sunscreen, surf wax, etc.) | $7.14 | 2.9% | $16.67 |
| Park entrance, museum, aquarium, or other entrance fee | $6.19 | 2.5% | $28.89 |
| Parking | $6.16 | 2.5% | $17.25 |
| Shopping and souvenirs (t-shirts, posters, gifts, etc.) | $5.71 | 2.3% | $40.00 |
| Equipment rental (surfboard, bike, kayak, stand up paddle, etc.) | $3.57 | 1.4% | $50.00 |
| Airline flight/Bus/Train | $0.00 | 0.0% | $0.00 |
| Car rental | $0.00 | 0.0% | $0.00 |
| Charter fee (whale watching, etc.) | $0.00 | 0.0% | $0.00 |
| Other | $2.45 | 1.0% | $17.14 |
| **TOTAL** | **$249.27** | | |

**Figure 23.2. Vermont: Average coastal and ocean recreation trip expenditures**
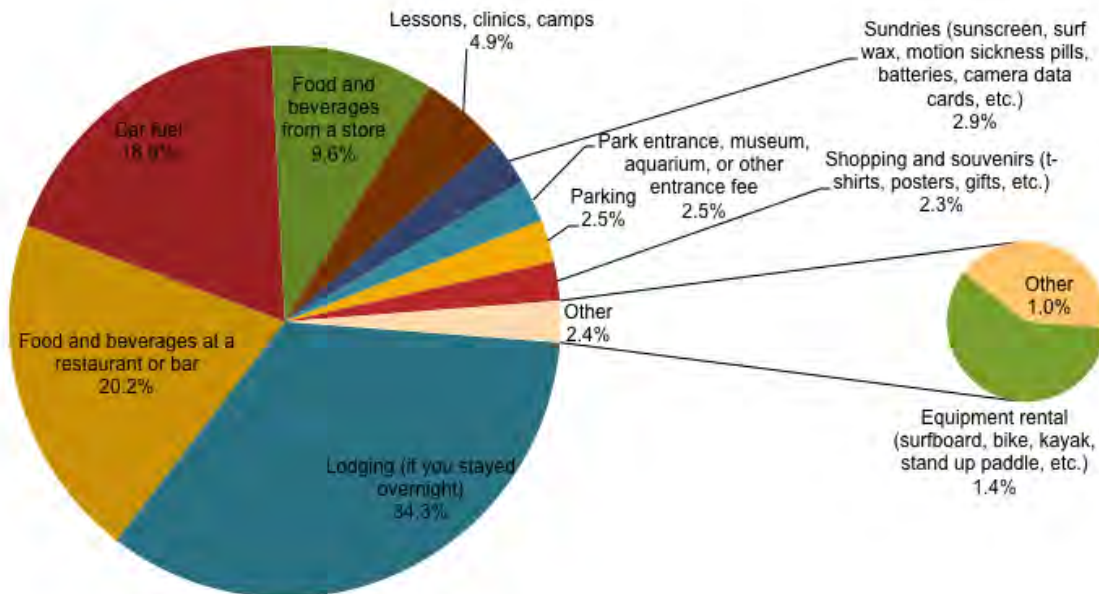
**Figure 23.3. Vermont: Average trip expenditure per item, given expenditure made**
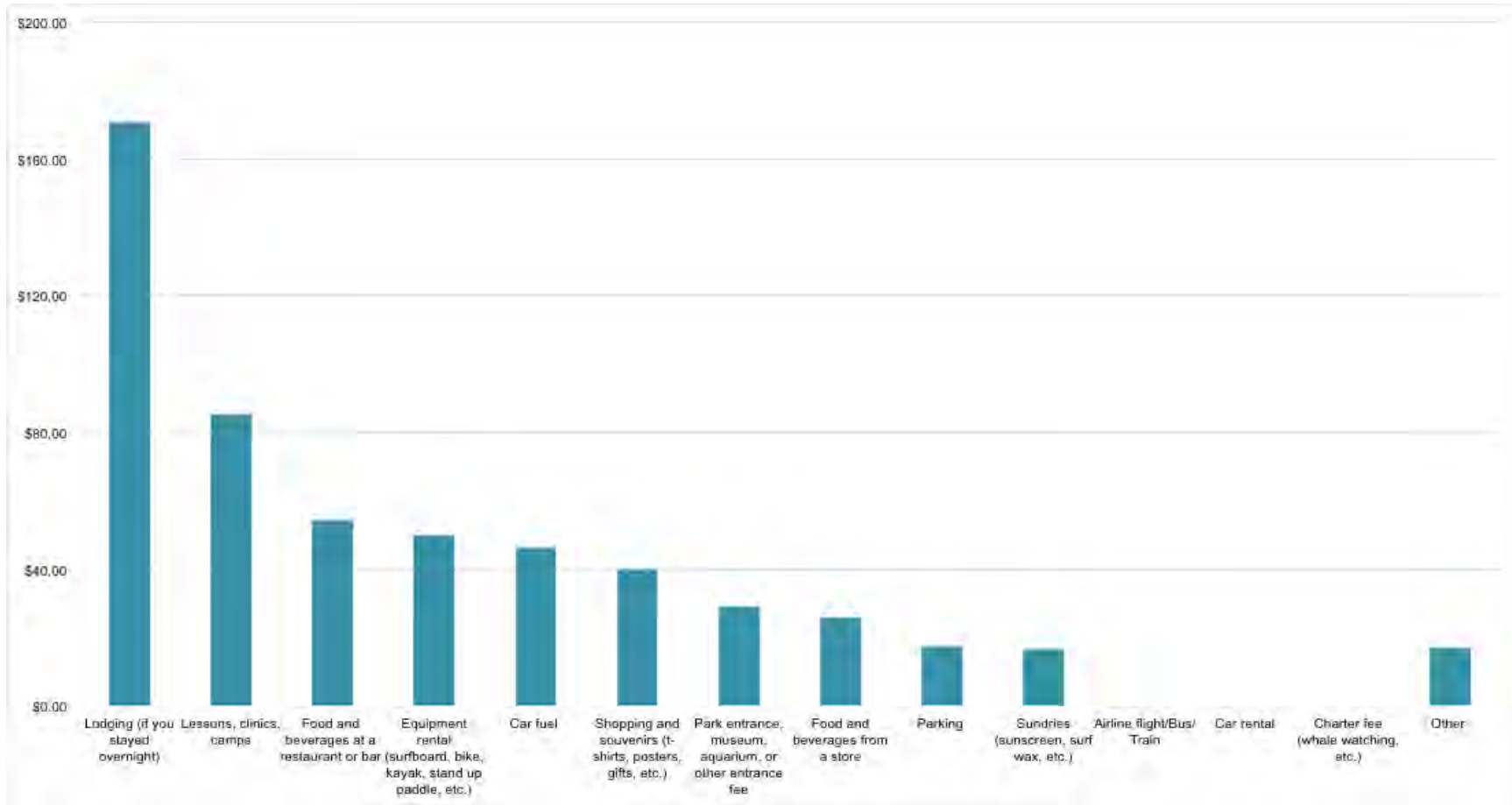
# 24. Appendix O – Massachusetts: Individual User Online Recreation Survey State Results

This appendix contains the survey results calculated only considering responses from respondents who indicated they lived in the state of Massachusetts.

**Table 24.1. Massachusetts: Overall survey demographics**

| Demographics | Survey respondents |
|---|---|
| Number of respondents | 367 |
| Average Age | 46.4 |
| Male | 51.4% |
| Female | 48.6% |
| White | 94.5% |
| Asian/Pacific Islander | 2.2% |
| Hispanic, Spanish, or Latino | 1.9% |
| Black or African American | 0.3% |
| American Indian or Alaska Native | 0.0% |
| Other Exists | 1.1% |

**Table 24.2. Massachusetts: Respondents' level of education**

| Education level | Respondents (%) | Respondents (n) |
|---|---|---|
| Bachelor's degree or higher | 60.5% | 78 |
| Some college | 31.8% | 41 |
| High school | 7.8% | 10 |
| Less than high school | 0.0% | 0 |
| No formal education | 0.0% | 0 |

**Table 24.3. Massachusetts: Respondents' level of income**

| Income range | Respondents (%) | Respondents (n) |
|---|---|---|
| Less than $25,000 | 6.6% | 20 |
| $25,000 to $49,999 | 10.8% | 33 |
| $50,000 to $74,999 | 13.8% | 42 |
| $75,000 to $99,999 | 17.7% | 54 |
| $100,000 to $124,999 | 15.1% | 46 |
| $125,000 to $149,999 | 11.5% | 35 |
| $150,000 to $174,999 | 11.1% | 34 |
| $175,000 to $199,000 | 1.3% | 4 |
| $200,000 or greater | 4.3% | 13 |
| Don't know | 7.9% | 24 |

**Table 24.4. Massachusetts: Respondents' employment status**

| Employment status | Respondents (%) | Respondents (n) |
|---|---|---|
| Employed full time | 58.7% | 215 |
| Retired | 17.8% | 65 |
| Employed part time | 10.4% | 38 |
| Student | 6.8% | 25 |
| Homemaker | 1.9% | 7 |
| Unemployed | 1.6% | 6 |
| Disability/Unable to Work | 0.3% | 1 |
| Military | 0.0% | 0 |
| Other | 2.5% | 9 |

**Table 24.5. Massachusetts: Activity participation for the last year, last trip, and primary activity in last trip**

| Activities | Last 12 months (%) | Last Trip (%) | Primary Activity (%) |
|---|---|---|---|
| Beach going (sitting, walking, running, dog walking, kite flying, etc.) | 94.0% | 60.5% | 35.4% |
| Scenic enjoyment/sightseeing | 82.0% | 47.1% | 7.4% |
| Swimming or body surfing | 77.7% | 25.9% | 2.7% |
| Biking or hiking | 64.9% | 25.6% | 5.2% |
| Watching birds, whales, seals and/or other marine life (from shore or private boat) | 62.9% | 33.8% | 0.0% |
| Photography | 57.8% | 33.5% | 2.2% |
| Sitting in your car watching the scene | 55.6% | 21.3% | 3.5% |
| Collection of non-living resources/beachcombing (beach glass, shells, fossils, driftwood) | 51.2% | 27.0% | 0.0% |
| Boating/sailing | 49.9% | 17.4% | 0.0% |
| Kayaking or other paddling activity (canoe, stand up paddle board) | 49.3% | 12.3% | 0.0% |
| Surfing (from board or kayak or stand up board) | 29.7% | 18.8% | 0.0% |
| Watching birds, whales, seals and/or other marine life (from a charter/party vessel) | 20.4% | 4.6% | 0.0% |
| Free diving/snorkeling (from shore or boat) | 16.9% | 1.6% | 0.0% |
| Camping | 13.4% | 1.9% | 0.3% |
| SCUBA diving (from shore or private boat) | 6.5% | 2.2% | 0.0% |
| Skimboarding | 4.6% | 0.0% | 0.0% |
| Windsurfing | 3.5% | 1.4% | 0.8% |
| SCUBA diving (from a charter/party vessel) | 1.9% | 0.0% | 0.0% |
| Kiteboarding | 1.4% | 0.8% | 0.8% |
| Hang gliding/parasailing | 0.3% | 0.0% | 0.0% |
| Other | 6.5% | 6.8% | 5.2% |

**Figure 24.1. Massachusetts: Activity participation for the last year, last trip, and primary activity in last trip**
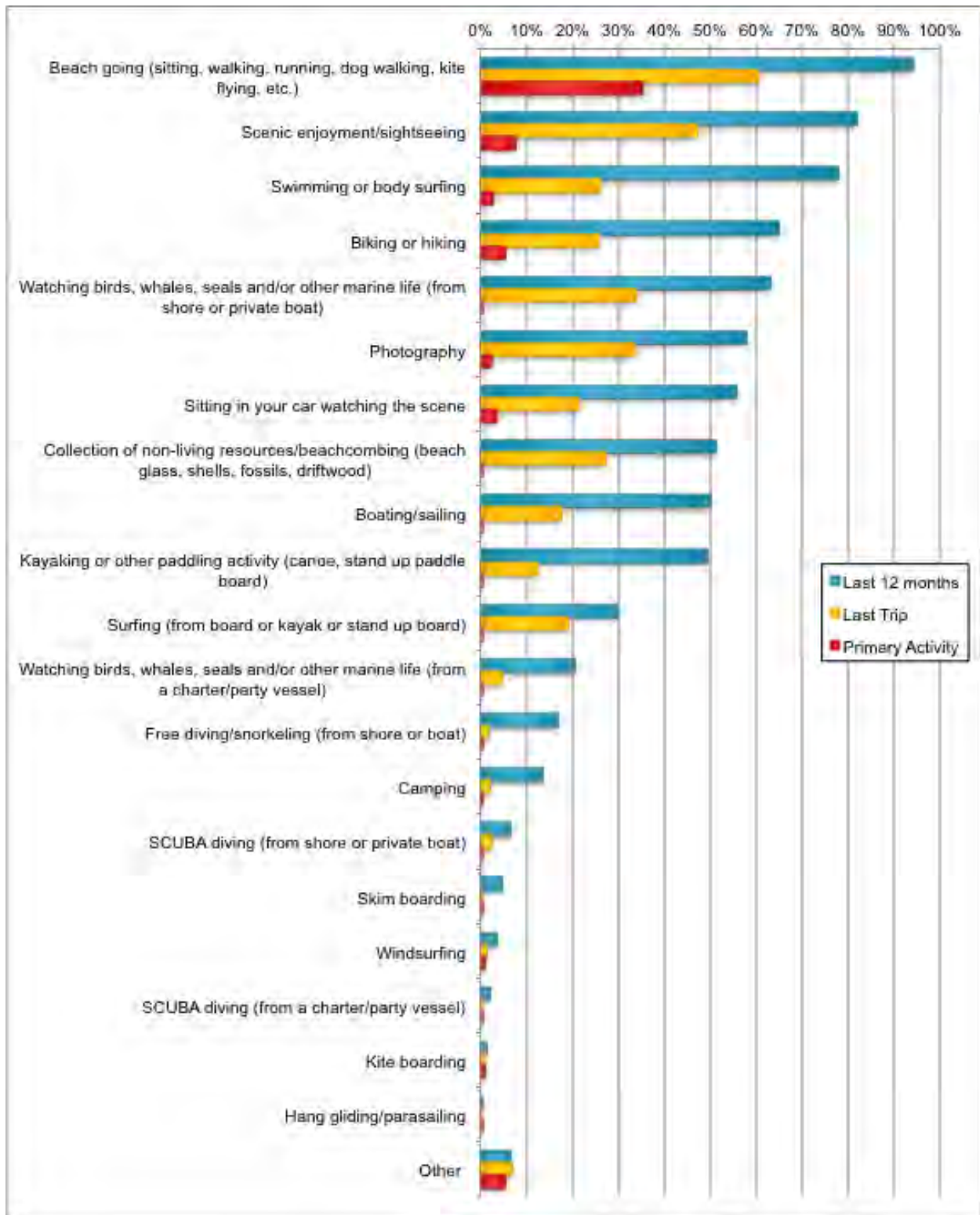
**Table 24.6. Massachusetts: Average trip expenditures per person by item across all respondents and given an expenditure on an item**

| | Across all respondents | | Given an expenditure |
|---|---|---|---|
| Category | Average expenditures ($) | % of observations | Average expenditures ($) |
| Food and beverages from a store | $70.03 | 26.7% | $111.75 |
| Food and beverages at a restaurant or bar | $51.36 | 19.6% | $87.27 |
| Lodging (if you stayed overnight) | $38.08 | 14.5% | $297.32 |
| Car fuel | $23.86 | 9.1% | $33.81 |
| Shopping and souvenirs (t-shirts, posters, gifts, etc.) | $17.45 | 6.7% | $95.61 |
| Lessons, clinics, camps | $12.75 | 4.9% | $389.92 |
| Airline flight/Bus/Train | $7.46 | 2.8% | $161.13 |
| Sundries (sunscreen, surf wax, etc.) | $4.22 | 1.6% | $19.37 |
| Equipment rental (surfboard, bike, kayak, stand up paddle, etc.) | $2.85 | 1.1% | $52.38 |
| Park entrance, museum, aquarium, or other entrance fee | $1.67 | 0.6% | $14.23 |
| Parking | $1.44 | 0.5% | $8.53 |
| Charter fee (whale watching, etc.) | $1.39 | 0.5% | $39.26 |
| Car rental | $1.03 | 0.4% | $94.50 |
| Other | $28.38 | 10.8% | $289.35 |
| **TOTAL** | **$261.99** | | |

**Figure 24.2. Massachusetts: Average coastal and ocean recreation trip expenditures**

**Figure 24.3. Massachusetts: Average trip expenditure per item, given expenditure made**
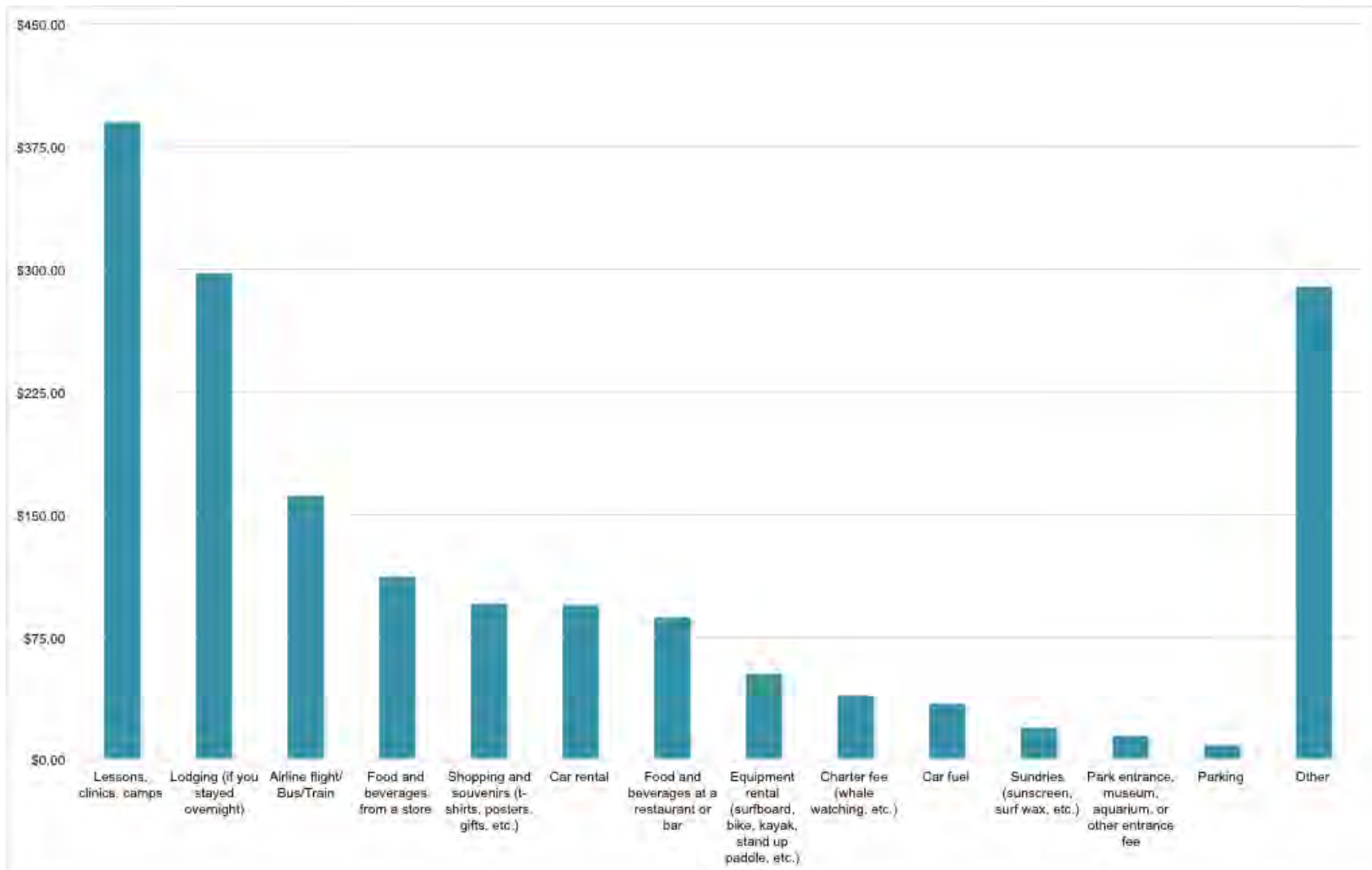
# 25. Appendix P – New Hampshire: Individual User Online Recreation Survey State Results
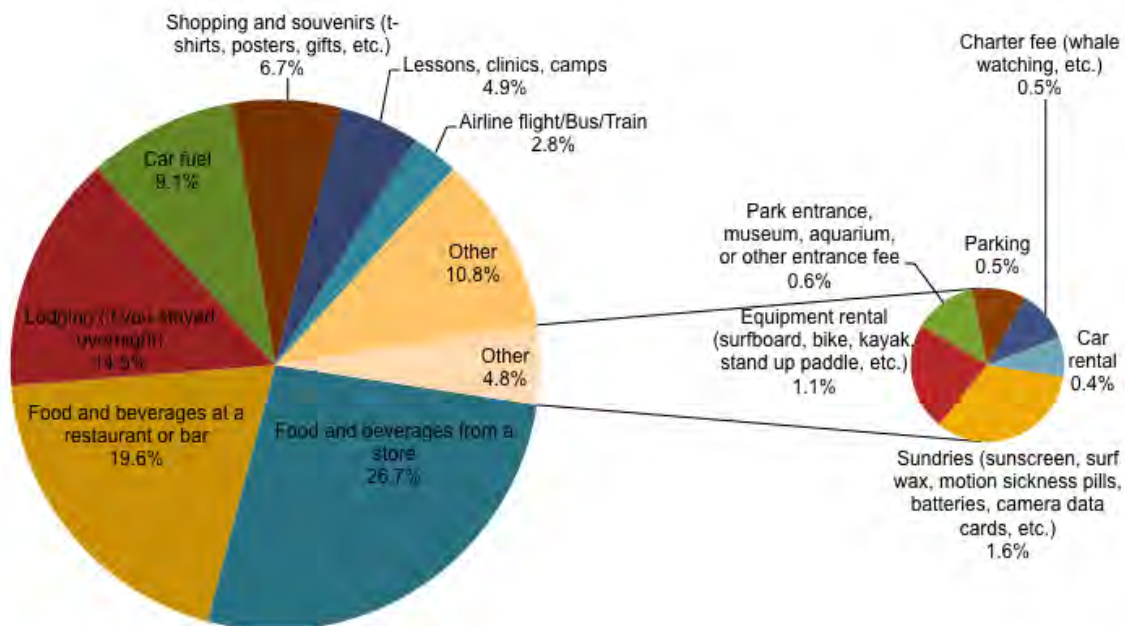
This appendix contains the survey results calculated only considering responses from respondents who indicated they lived in the state of New Hampshire.

**Table 25.1. New Hampshire: Overall survey demographics**

| Demographics | Survey respondents |
|---|---|
| Number of respondents | 74 |
| Average Age | 40.7 |
| Male | 51.4% |
| Female | 48.6% |
| White | 97.3% |
| Asian/Pacific Islander | 2.7% |
| Black or African American | 0.0% |
| Hispanic, Spanish, or Latino | 0.0% |
| American Indian or Alaska Native | 0.0% |
| Other | 0 |

**Table 25.2. New Hampshire: Respondents' level of education**

| Education level | Respondents (%) | Respondents (n) |
|---|---|---|
| Bachelor's degree or higher | 59.4% | 19 |
| Some college | 34.4% | 11 |
| High school | 3.1% | 1 |
| Less than high school | 3.1% | 1 |
| No formal education | 0.0% | 0 |

**Table 25.3. New Hampshire: Respondents' level of income**

| Income range | Respondents (%) | Respondents (n) |
|---|---|---|
| Less than $25,000 | 5.8% | 4 |
| $25,000 to $49,999 | 20.3% | 14 |
| $50,000 to $74,999 | 26.1% | 18 |
| $75,000 to $99,999 | 15.9% | 11 |
| $100,000 to $124,999 | 13.0% | 9 |
| $125,000 to $149,999 | 8.7% | 6 |
| $150,000 to $174,999 | 5.8% | 4 |
| $175,000 to $199,000 | 0.0% | 0 |
| $200,000 or greater | 2.9% | 2 |
| Don't know | 1.4% | 1 |

**Table 25.4. New Hampshire: Respondents' employment status**

| Employment status | Respondents (%) | Respondents (n) |
|---|---|---|
| Employed full time | 68.1% | 49 |
| Student | 11.1% | 8 |
| Retired | 11.1% | 8 |
| Employed part time | 6.9% | 5 |
| Homemaker | 2.8% | 2 |
| Unemployed | 0.0% | 0 |
| Military | 0.0% | 0 |
| Disability/Unable to Work | 0.0% | 0 |
| Other | 0.0% | 0 |

**Table 25.5. New Hampshire: Activity participation for the last year, last trip, and primary activity in last trip**

| Activities | Last 12 months (%) | Last Trip (%) | Primary Activity (%) |
|---|---|---|---|
| Beach going (sitting, walking, running, dog walking, kite flying, etc.) | 93.2% | 59.5% | 35.1% |
| Scenic enjoyment/sightseeing | 75.7% | 43.2% | 9.5% |
| Swimming or body surfing | 67.6% | 18.9% | 1.4% |
| Biking or hiking | 63.5% | 17.6% | 1.4% |
| Watching birds, whales, seals and/or other marine life (from shore or private boat) | 58.1% | 33.8% | 0.0% |
| Photography | 56.8% | 32.4% | 4.1% |
| Sitting in your car watching the scene | 56.8% | 17.6% | 0.0% |
| Surfing (from board or kayak or stand up board) | 54.1% | 36.5% | 0.0% |
| Collection of non-living resources/beachcombing (beach glass, shells, fossils, driftwood) | 48.6% | 21.6% | 0.0% |
| Kayaking or other paddling activity (canoe, stand up paddle board) | 44.6% | 5.4% | 0.0% |
| Boating/sailing | 32.4% | 5.4% | 0.0% |
| Camping | 20.3% | 1.4% | 0.0% |
| Watching birds, whales, seals and/or other marine life (from a charter/party vessel) | 12.2% | 2.7% | 0.0% |
| Free diving/snorkeling (from shore or boat) | 12.2% | 0.0% | 0.0% |
| Skimboarding | 8.1% | 1.4% | 0.0% |
| Windsurfing | 2.7% | 0.0% | 0.0% |
| SCUBA diving (from shore or private boat) | 2.7% | 0.0% | 0.0% |
| Hang gliding/parasailing | 0.0% | 0.0% | 0.0% |
| Kiteboarding | 0.0% | 0.0% | 0.0% |
| SCUBA diving (from a charter/party vessel) | 0.0% | 0.0% | 0.0% |
| Other | 4.1% | 2.7% | 0.0% |

**Figure 25.1. New Hampshire: Activity participation for the last year, last trip, and primary activity in last trip**
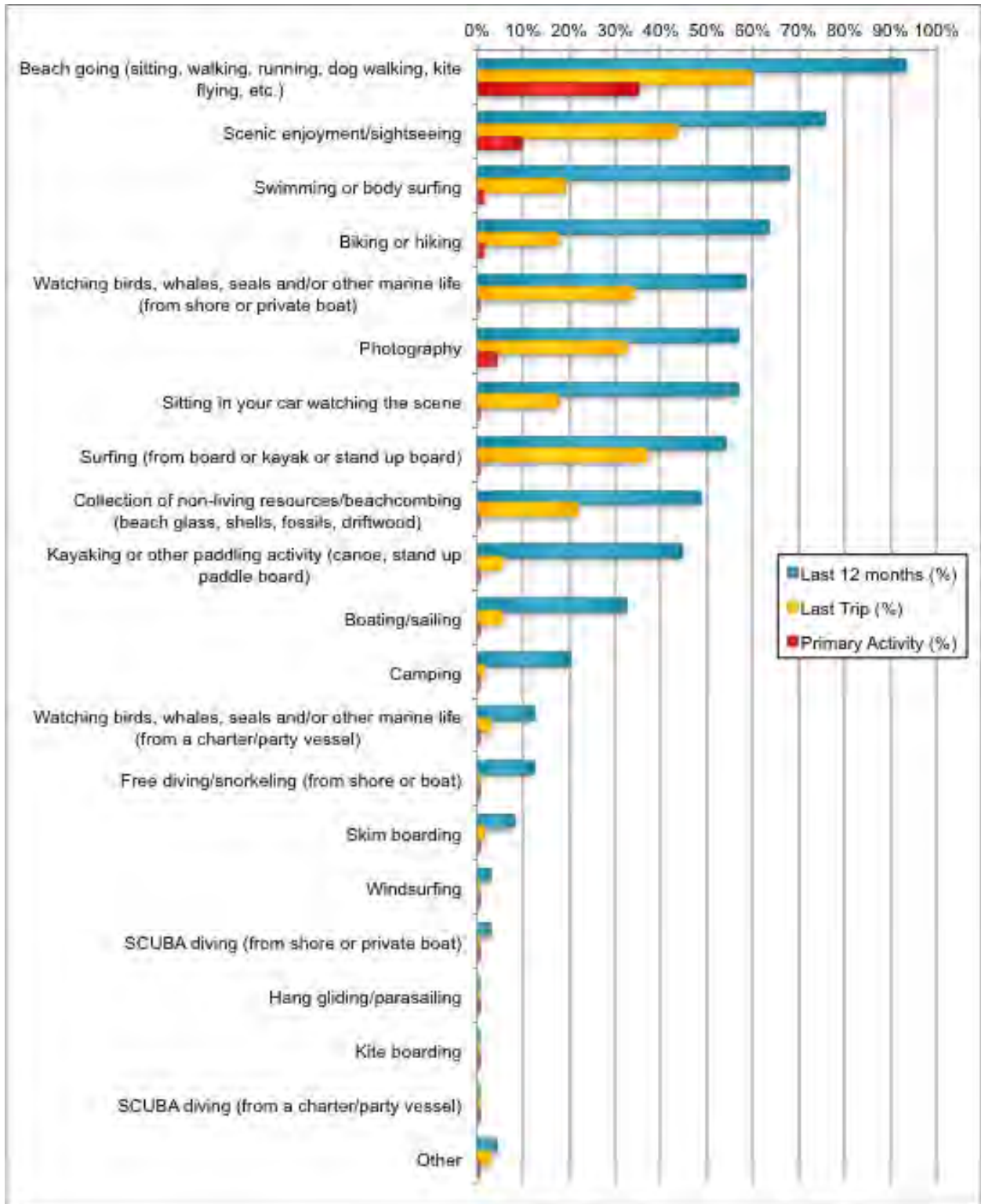
**Table 25.6. New Hampshire: Average trip expenditures per person by item across all respondents and given an expenditure on an item**

| Category | Across all respondents | | Given an expenditure |
|---|---|---|---|
| | Average expenditures ($) | % of observations | Average expenditures ($) |
| Food and beverages from a store | $49.43 | 35.8% | $85.07 |
| Car fuel | $33.22 | 24.1% | $45.52 |
| Food and beverages at a restaurant or bar | $18.17 | 13.2% | $40.73 |
| Airline flight/Bus/Train | $12.16 | 8.8% | $900.00 |
| Lodging (if you stayed overnight) | $11.20 | 8.1% | $82.90 |
| Sundries (sunscreen, surf wax, etc.) | $6.11 | 4.4% | $32.29 |
| Shopping and souvenirs (t-shirts, posters, gifts, etc.) | $5.15 | 3.7% | $38.10 |
| Parking | $1.21 | 0.9% | $4.25 |
| Equipment rental (surfboard, bike, kayak, stand up paddle, etc.) | $0.73 | 0.5% | $54.00 |
| Park entrance, museum, aquarium, or other entrance fee | $0.64 | 0.5% | $6.71 |
| Car rental | $0.00 | 0.0% | $0.00 |
| Charter fee (whale watching, etc.) | $0.00 | 0.0% | $0.00 |
| Lessons, clinics, camps | $0.00 | 0.0% | $0.00 |
| Other | $0.04 | 0.0% | $0.75 |
| **TOTAL** | **$138.05** | | |

**Figure 25.2. New Hampshire: Average coastal and ocean recreation trip expenditures**
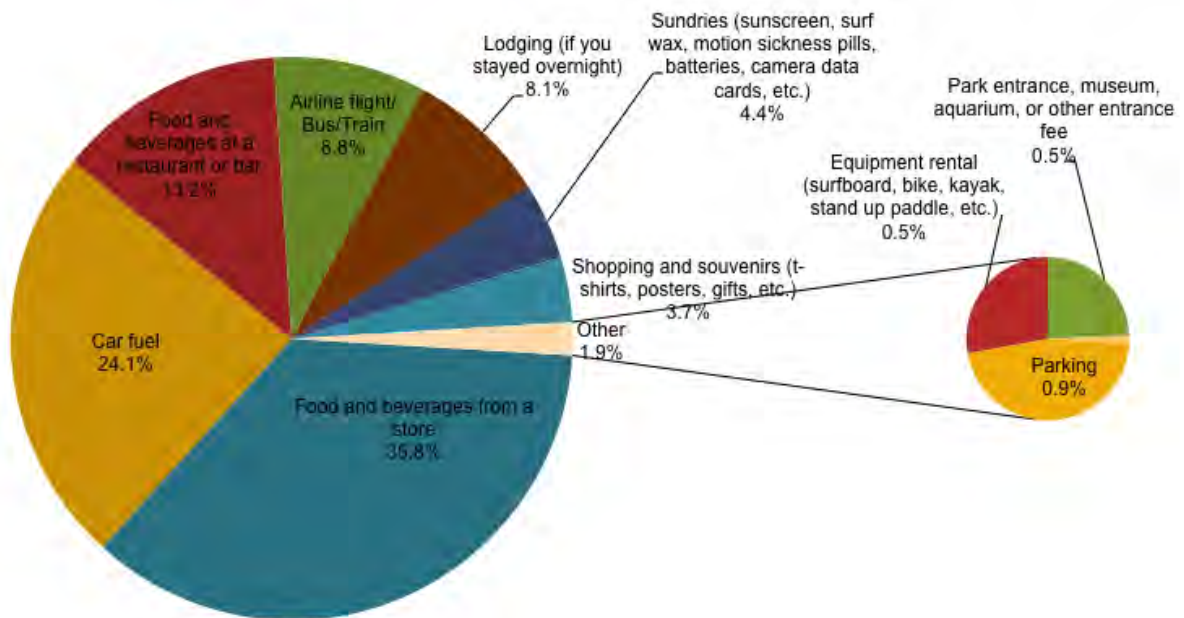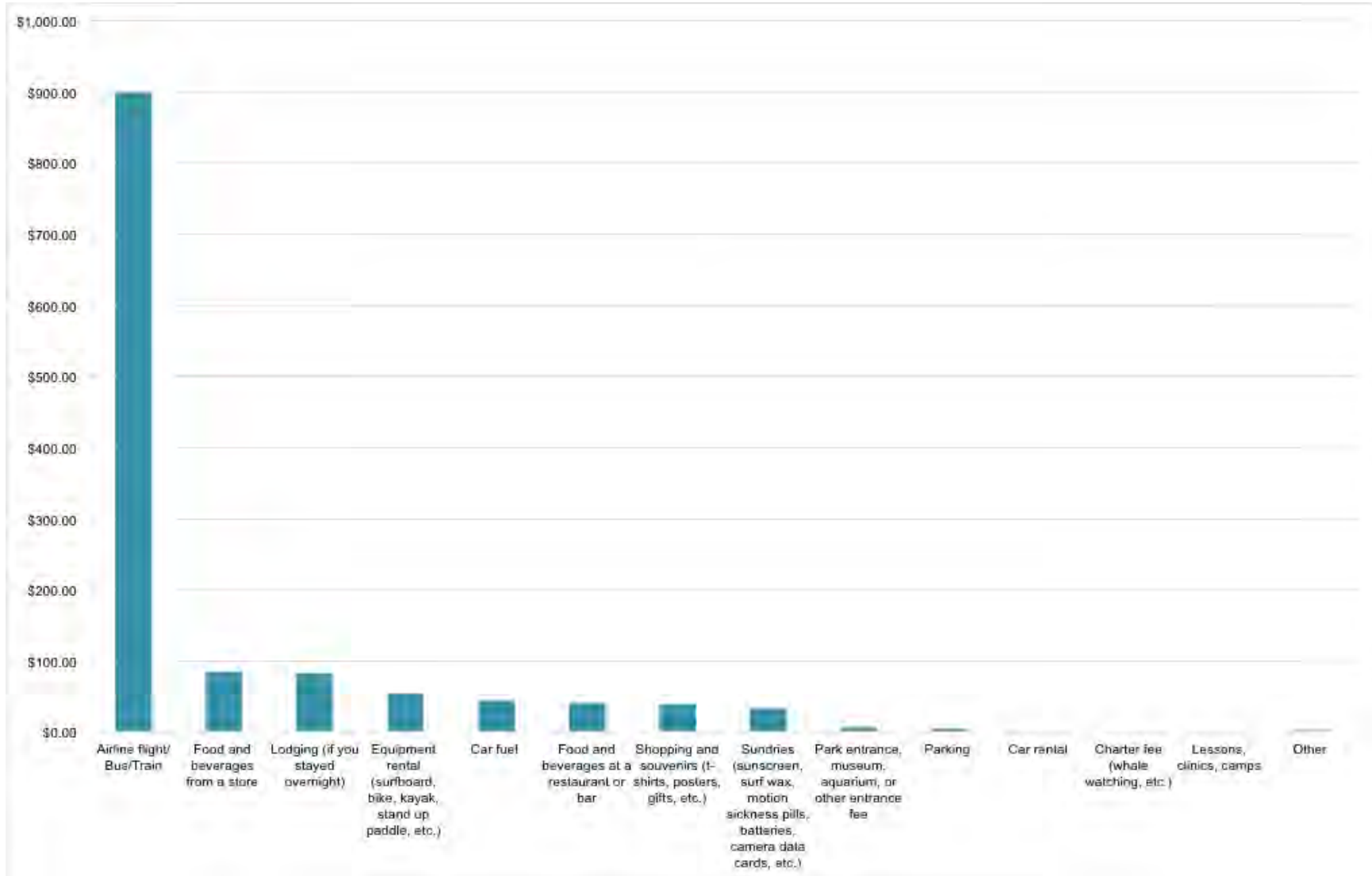
**Figure 25.3. New Hampshire: Average trip expenditure per item, given expenditure made**

# 26. Appendix Q – Rhode Island: Individual User Online Recreation Survey State Results

This appendix contains the survey results calculated only considering responses from respondents who indicated they lived in the state of Rhode Island.

**Table 26.1. Rhode Island: Overall survey demographics**

| Demographics | Survey respondents |
|---|---:|
| Number of respondents | 81 |
| Average Age | 42.8 |
| Male | 48.1% |
| Female | 51.9% |
| White | 95.1% |
| Hispanic, Spanish, or Latino | 2.5% |
| American Indian or Alaska Native | 2.5% |
| Black or African American | 0.0% |
| Asian/Pacific Islander | 0.0% |
| Other | 2.5% |

**Table 26.2. Rhode Island: Respondents' level of education**

| Education level | Respondents (%) | Respondents (n) |
|---|---:|---:|
| Bachelor's degree or higher | 82.9% | 34 |
| Some college | 14.6% | 6 |
| High school | 2.4% | 1 |
| Less than high school | 0.0% | 0 |
| No formal education | 0.0% | 0 |

**Table 26.3. Rhode Island: Respondents' level of income**

| Income range | Respondents (%) | Respondents (n) |
|---|---:|---:|
| Less than $25,000 | 6.8% | 5 |
| $25,000 to $49,999 | 13.7% | 10 |
| $50,000 to $74,999 | 16.4% | 12 |
| $75,000 to $99,999 | 17.8% | 13 |
| $100,000 to $124,999 | 19.2% | 14 |
| $125,000 to $149,999 | 11.0% | 8 |
| $150,000 to $174,999 | 5.5% | 4 |
| $175,000 to $199,000 | 4.1% | 3 |
| $200,000 or greater | 1.4% | 1 |
| Don't know | 4.1% | 3 |

**Table 26.4. Rhode Island: Respondents' employment status**

| Employment status | Respondents (%) | Respondents (n) |
|---|---|---|
| Employed full time | 70.4% | 57 |
| Student | 8.6% | 7 |
| Employed part time | 7.4% | 6 |
| Retired | 7.4% | 6 |
| Unemployed | 1.2% | 1 |
| Homemaker | 1.2% | 1 |
| Military | 0.0% | 0 |
| Disability/Unable to Work | 0.0% | 0 |
| Other | 3.7% | 3 |

**Table 26.5. Rhode Island: Activity participation for the last year, last trip, and primary activity in last trip**

| Activities | Last 12 months (%) | Last Trip (%) | Primary Activity (%) |
|---|---|---|---|
| Beach going (sitting, walking, running, dog walking, kite flying, etc.) | 95.1% | 67.9% | 32.1% |
| Swimming or body surfing | 87.7% | 29.6% | 4.9% |
| Scenic enjoyment/sightseeing | 82.7% | 44.4% | 8.6% |
| Watching birds, whales, seals and/or other marine life (from shore or private boat) | 71.6% | 29.6% | 0.0% |
| Biking or hiking | 70.4% | 25.9% | 6.2% |
| Sitting in your car watching the scene | 69.1% | 22.2% | 3.7% |
| Photography | 60.5% | 23.5% | 1.2% |
| Boating/sailing | 55.6% | 7.4% | 0.0% |
| Kayaking or other paddling activity (canoe, stand up paddle board) | 55.6% | 13.6% | 0.0% |
| Collection of non-living resources/beachcombing (beach glass, shells, fossils, driftwood) | 54.3% | 28.4% | 0.0% |
| Surfing (from board or kayak or stand up board) | 42.0% | 23.5% | 0.0% |
| Free diving/snorkeling (from shore or boat) | 29.6% | 8.6% | 0.0% |
| Watching birds, whales, seals and/or other marine life (from a charter/party vessel) | 14.8% | 2.5% | 0.0% |
| Camping | 9.9% | 2.5% | 0.0% |
| Skimboarding | 6.2% | 0.0% | 0.0% |
| SCUBA diving (from shore or private boat) | 6.2% | 1.2% | 0.0% |
| Windsurfing | 2.5% | 1.2% | 0.0% |
| Hang gliding/parasailing | 0.0% | 0.0% | 0.0% |
| Kiteboarding | 0.0% | 0.0% | 0.0% |
| SCUBA diving (from a charter/party vessel) | 0.0% | 0.0% | 0.0% |
| Other | 7.4% | 2.5% | 1.2% |

**Figure 26.1. Rhode Island: Activity participation for the last year, last trip, and primary activity in last trip**
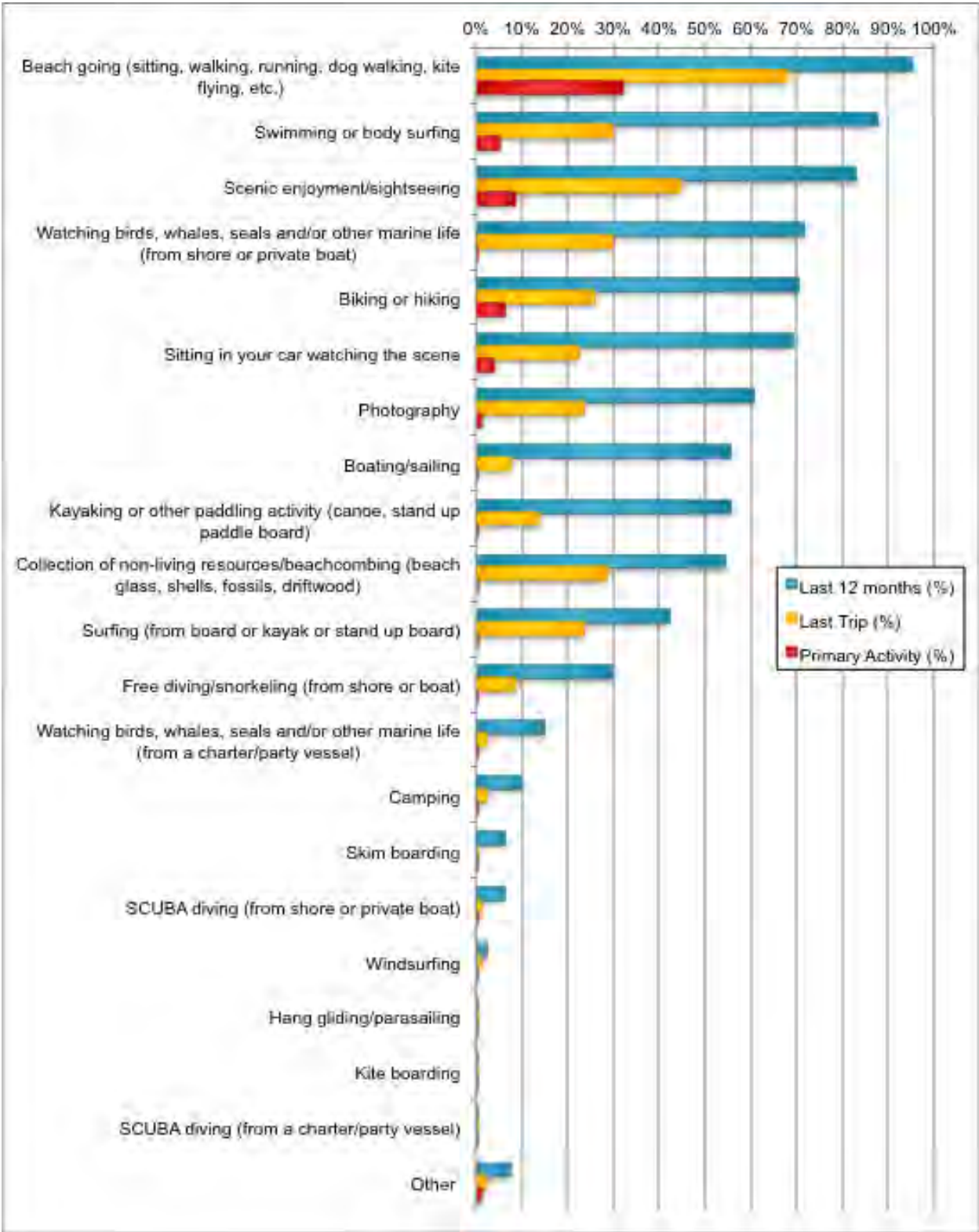
**Table 26.6. Rhode Island: Average trip expenditures per person by item across all respondents and given an expenditure on an item**

| Category | Across all respondents | | Given an expenditure |
| | Average expenditures ($) | % of observations | Average expenditures ($) |
|---|---|---|---|
| Food and beverages at a restaurant or bar | $78.55 | 34.9% | $181.80 |
| Food and beverages from a store | $70.47 | 31.3% | $146.36 |
| Car fuel | $29.09 | 12.9% | $39.94 |
| Lodging (if you stayed overnight) | $18.40 | 8.2% | $149.00 |
| Airline flight/Bus/Train | $11.48 | 5.1% | $232.50 |
| Charter fee (whale watching, etc.) | $4.38 | 1.9% | $177.50 |
| Shopping and souvenirs (t-shirts, posters, gifts, etc.) | $3.51 | 1.6% | $25.83 |
| Sundries (sunscreen, surf wax, etc.) | $2.54 | 1.1% | $15.81 |
| Parking | $1.93 | 0.9% | $13.04 |
| Lessons, clinics, camps | $1.48 | 0.7% | $120.00 |
| Car rental | $1.48 | 0.7% | $39.95 |
| Park entrance, museum, aquarium, or other entrance fee | $1.07 | 0.5% | $21.70 |
| Equipment rental (surfboard, bike, kayak, stand up paddle, etc.) | $0.19 | 0.1% | $15.00 |
| Other | $0.71 | 0.3% | $9.58 |
| **TOTAL** | **$225.28** | | |

**Figure 26.2. Rhode Island: Average coastal and ocean recreation trip expenditures**
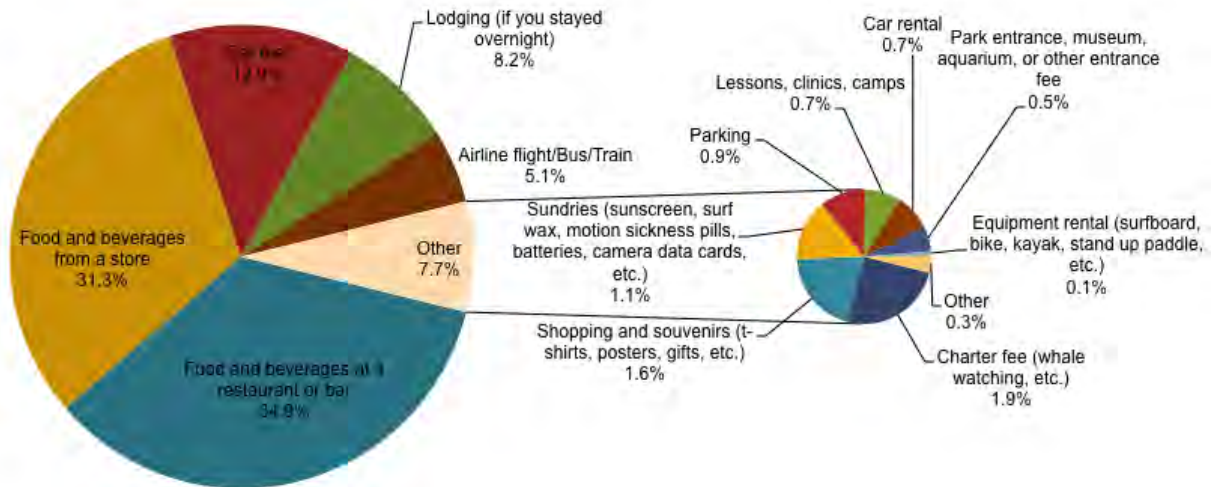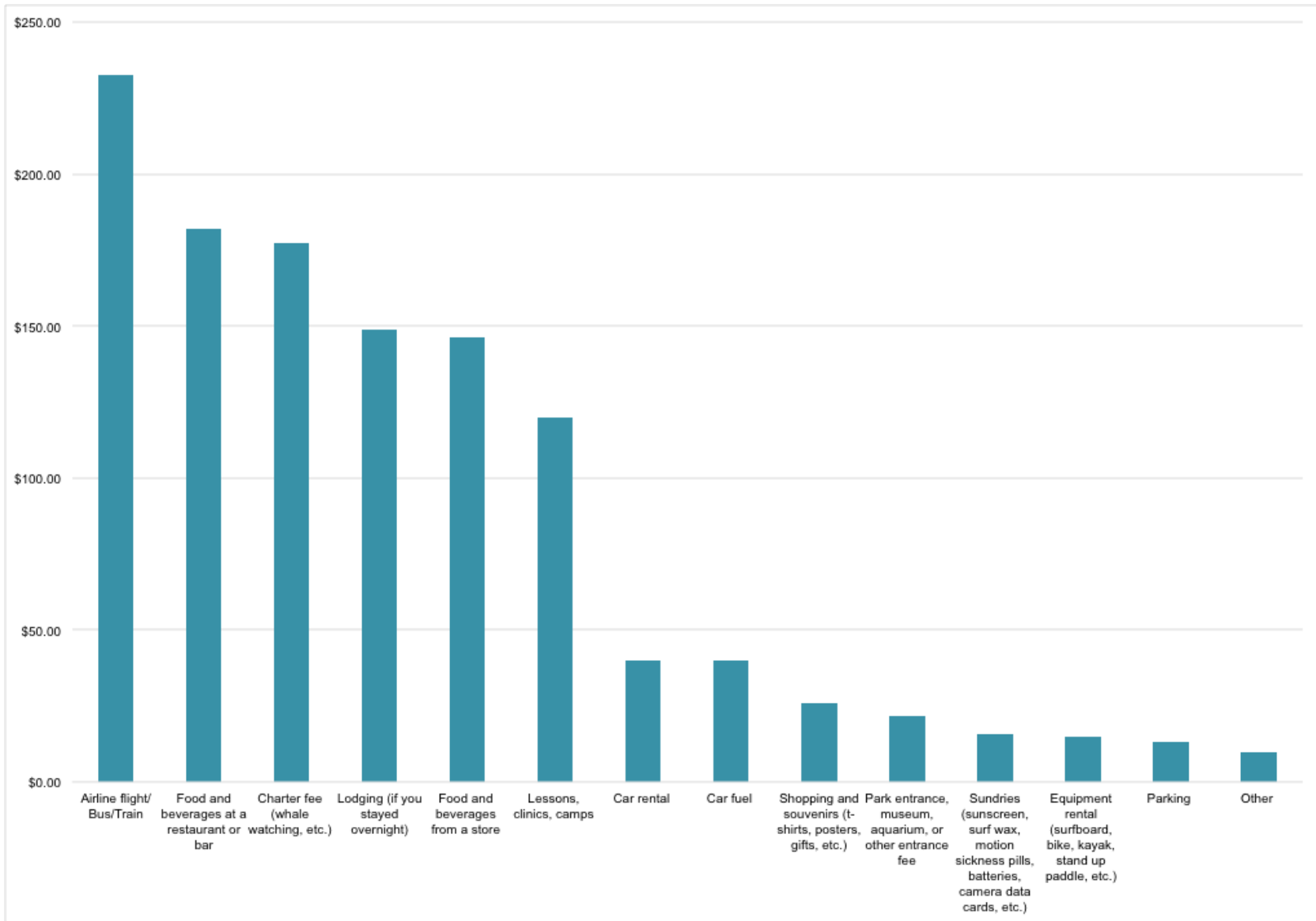
**Figure 26.3. Rhode Island: Average trip expenditure per item, given expenditure made**

# 27. Appendix R – Stakeholder Working Group

1. Acadia Park Kayak Tours, Brescian Lander, Guide & Owner, Bar Harbor, ME, Sea Kayak Tours
2. Alice's Awesome Adventures, Alice Bean Andrenyak, Owner, Brunswick, ME, Sea Kayak Tours
3. Aquaholics Surf Shop, Nanci Boutet, Owner, Kennebunkport, ME, Retail Surf & SUP Shop
4. Aquaholics Surf Shop, Eric Belanger, Manager, Kennebunkport, ME, Retail Surf & SUP Shop
5. Aquaterra Adventures, David Legere, Guide & Owner, Bar Harbor, ME, Sea Kayak Tours
6. Billington Sea Kayak, Plymouth, MA, Sea Kayak Outfitter and Tours
7. Black Point Surf Shop, Ryan McDermott, Owner, Scarborough, ME, Retail Surf Shop and Outfitter
8. Black Point Surf Shop, Crystal Ouimette, Manager, Scarborough, ME, Retail Surf Shop and Outfitter
9. Boston Harbor Islands, Giles Parker, Superintendent, Boston, MA, National Park Management
10. Cadillac Mountain Sports, Joe Moran, Marketing Manager, Bar Harbor, ME, Outdoor Sports Retail Shop
11. Caitlin Tateishki, Brooklyn, NY, Avid Swimmer
12. Chino Surfboards Jon Wong, Owner, Boston, MA, Retail Surf Shop
13. Cinnamon Rainbows Surf Co., Dave Cropper, Owner, Rye, NH, Retail Surf & SUP Shop
14. Environmental Protection Agency, Marisa Marzotta, Environmental Economist
15. Epic Sports, Brad Ryder, Owner, Bangor, ME, Outdoor Retail Shop
16. Essex River Basin Adventures, Essex, MA, Sea Kayak Tours and Outfitter
17. Gail Kotowski, Guilford CT, Individual User
18. Hancock Point Kayak Tours, Antonio Blasi, Registered Guide & Owner, Hancock, ME, Sea Kayak Tours
19. Harbor Trading Co., Lauren Toye, Ipswich, MA, Premium Lifestyle Boutique
20. Jack Savage, Concord, NH, Sea Kayaker
21. Jenna George, Hampton, NH, Avid Beach User
22. Kayak Learning Center, Beverly, MA, Kayak Tours and Outfitter
23. Kayak Waveology, Greg Paquin, CT, Kayak Lessons
24. Lincoln Canoe & Kayak, Amesbury, MA, Kayak and Canoe Outfitter
25. Liquid Dreams Surf Shop, Mark Anastas, Owner, Ogunquit, ME, Retail Surf & SUP Shop
26. Maine Surfers Union, Charlie Fox, Owner, Portland, ME, Retail Surf & SUP Shop
27. Massachusetts Port Authority, Capt. Wellock, Boston, MA
28. Masskiting, Chris Lamborghini, Boston, MA, Kitesurfing Group
29. Mocean Surf Shop, Barry Tripp, Owner, Old Orchard Beach, ME, Retail Surf & SUP Shop
30. Narragansett Surf & Skate, Dave Levy, Narragansett, RI, Surf Shop
31. Narrow River Kayaks, Narragansett, RI, Outfitter & Sea Kayak Tours
32. Natalie Springuel, Bar Harbor, ME, Sea Kayak Guide
33. New England Surf Community, Silas Coellner, Mashpee, MA
34. Nick Battista, Rockland, ME, Surfer and Sea Kayaker
35. Pioneers Board Shop, Steve O'Hara, Owner, North Hampton, NH, Retail Surf & SUP Shop

36. Portland Special Surfers, Chris Fritz, Owner, Portland, ME, NGO helping those with special needs find their love for the ocean.
37. Quebec Surf, Alex Tremblay, Quebec, Canada, Surf Adventure Group
38. Sacred Surf Shop, Wellfleet, MA, Surfing School
39. Salem Sound Coastwatch, Jack Nessen, Salem, MA
40. Sean McQuilken, Groton, CT, Sea Kayaker
41. SOPO SUP, Rafael Adams, Owner, South Portland, Maine, Paddleboard Outfitter
42. Silvia Cassano, Burlington, VT, Beach Visitor
43. Surfrider Foundation Connecticut Chapter, Gail Kotowski, SUP'er
44. Surfrider Foundation Connecticut Chapter, Kathy Donovan, Avid Beach User
45. Surfrider Foundation Connecticut Chapter, Zach Zeilman, Surfer
46. Surfrider Foundation Maine Chapter, Crawford Zetterberg, Surfer
47. Surfrider Foundation Maine Chapter, John Manly, Surfer
48. Surfrider Foundation Massachusetts Chapter, Chris May, Surfer
49. Surfrider Foundation Massachusetts Chapter, Dan LeMaitre, Photographer
50. Surfrider Foundation Massachusetts Chapter, Noel LaPierre, Swimmer & Surfer
51. Surfrider Foundation Massachusetts Chapter, Stewart Dalzell, Surfer
52. Surfrider Foundation New Hampshire Chapter, Rebecca O'Brien, Surfer
53. Surfrider Foundation New Hampshire Chapter, Sarah Minella, Surfer
54. Surfrider Foundation New Hampshire Chapter, Dale Pariseau, Surfer
55. Surfrider Foundation New Hampshire Chapter, Jamie McCallum, Surfer
56. Surfrider Foundation Rhode Island Chapter, Colin Hynes, Surfer
57. Surfrider Foundation Rhode Island Chapter, Phil Chiaradio, Surfer
58. Summer Sessions Surf Shop, Ryan McGill, Co-owner, Rye, NH, Retail Surf Shop
59. Summer Sessions Surf Shop, Tyler McGill, Co-owner, Rye, NH, Retail Surf Shop
60. Spirare Surfboards, Kevin Cunningham, Owner, Providence, RI, Surfboard Manufacturer
61. Surfari SUP & Surf, Christian del Rosario, Co-owner, Manchester, MA, Surf and SUP Retail Shop
62. Surfari SUP & Surf, Nicole del Rosario, Co-owner, Manchester, MA, Retail Surf & SUP Shop
63. Tidal Roots, Kyle Schaefer, Co-owner, Eliot, ME, SUP Manufacturer
64. Touring Kayaks, Ray Wirth, Belfast, ME, Sea Kayak Retail & Tours
65. Water Brothers Surf, Sid Abruzzi, Co-owner, Newport, RI, Retail Surf, SUP & Skate Shop
66. Water Brothers Surf, Danielle Abruzzi, Co-owner, Newport, RI, Retail Surf, SUP & Skate Shop
67. Wheels N Waves, Vince Brazen, Co-owner, Wells, ME, Retail Surf/SUP/Bike/Skate Shop and Outfitter
68. Wind's UP!, Max, Vineyard Haven, MA, Natural Watersports Outfitter and Rentals

# 28. Appendix S – Industry Experts

As previously described, this project benefitted greatly from the input and guidance from those individuals involved in the various marine recreational industries that were the focus of this effort. We are grateful to the following individuals who lent their time to this project and provided industry-specific expertise and insight to the survey in one or more of the following ways:

- Guiding survey scoping and survey development by either joining a webinar or through a dedicated phone call;
- Providing feedback on draft survey questions and tools;
- Assisting with survey promotion and outreach;
- Attending an in-person data collection or data review workshop; and/or
- Providing additional data

## Commercial Whale Watching

Patty Adell, *Newburyport Whale Watch*

Regina Asmustis-Silvia, *Whale and Dolphin Conservation*

Barbara Beblowski, *College of the Atlantic/Allied Whale/Bar Harbor Whale Watch*

Michelle Collins, *Whale and Dolphin Conservation*

John Conlon, *Dolphin Fleet Whale Watch of Provincetown*

Jessica Damon, *Odyssey Whale Watch*

Tom Fernald, *Allied Whale*

Catherine Granton, *Gotham Whale*

Gary Grenier, *Nick's Chance Whale Watch*

Jonathan Gwalthney, *Granite State Whale Watch*

Skip Harris, *Fundy Breeze Charters*

Lindsay Hirt, *Sea Salt Charters/Captain John Whale Watch*

Laura Howes, *Boston Harbor Cruises*

John Karvelas, *Cape Ann Whale Watch*

Jen Kennedy, *Blue Ocean Society*

Zack Klyver, *Bar Harbor Whale Watch*

Artie Kopelman, *Coastal Research and Education Society of Long Island and State University of New York Fashion Institute of Technology*

Laura Lilly, *Cape Ann Whale Watch*

Tanya Lubansky, *Allied Whale*

Cynde McInnis, *Cape Ann Whale Watch*

Monica Pepe, *Whale and Dolphin Conservation*

Pete Reynolds, *Granite State Whale Watch*

Debbie Ridings, *Boston Harbor Cruises*

Jooke Robbins, *Provincetown Center for Coastal Studies*

Howard Rosenbaum, *Wildlife Conservation Society*

Dianna Schulte, *Blue Ocean Society*

Rosemary Seton, *College of the Atlantic/Allied Whale*
Paul Sieswerda, *Gotham Whale*
Christopher Spagnoli, *Gotham Whale/Wildlife Conservation Society*
Julia Stepanuk, *Bar Harbor Whale Watch*
Toby Stephenson, *College of the Atlantic/Allied Whale*
Natalie Springuel, *Maine Sea Grant/College of the Atlantic*
Amy Warren, *Newburyport Whale Watch*
Dave Wiley, *Stellwagen Bank National Marine Sanctuary*

# SCUBA

Mary Artale, *Long Island Divers Association/The Dive Club*
Rick Bellavance, *Rhode Island Party and Charter Boat Association*
Steve Bielenda, *Eastern Dive Boat Association*
Jim Dock, *Aqua Diving Academy*
Jeff Godfrey, *SECONN Divers*
Tom Hajek, *Diver*
Heather Knowles, *North Atlantic Dive Expeditions*
Kirby Kurkomelis, *Seahunt Divers, Inc.*
Dave LaBrecque, East Bay Dive Center
Larry Lawrence, *Diver*
Matthew Lawrence, *Stellwagen Bank National Marine Sanctuary*
Barry Lipsky, *Long Island Divers Association*
Mark Munro, *Wreck diver*
Jim Nannery, *MetroWest Dive Club*
Chuck Oxendine, *Portsmouth SCUBA*
Bill Palmer, *Charter Boat Captain*
Ryan Patrilak, *SECONN Divers*
Saverio Pispisa, *Long Island SCUBA*
Steven Resler, *New York Department of State*
Chris Rigaud, *University of Maine*
David Robinson, *University of Rhode Island*
Mike Salvarezza, *Eco-Photo Explorers/ Long Island Divers Association*
Eric Takakjian, *Quest Marine Services*
Sally Wahrmann, *Long Island Divers Association, the Dive Club*
Christopher Weaver, *Eco-Photo Explorers/ Long Island Divers Association*
Zach Whalen, *Aqua Diving Academy*
Rick Zappia, *Bay Shore Tuna Club*

# Sailing Events

David Blatt, *Connecticut Department of Energy and Environmental Protection Long Island Sound Program*
Katie Bradford, *Eastern Connecticut Sailing Association*

Tyson Bottenus, *Sailors for the Sea*
Kathleen Burns, *Connecticut Marine Trades Association*
Yolanda Cooley, *Connecticut Department of Energy and Environmental Protection Boating Division*
Bob Cusack, *Nahant Dory Club*
Nancy Custer Carroll, *Southport Yacht Club*
Anne Coulombe, *Marblehead to Halifax Race*
Anne Hannon, *US Sailing*
Stephanie Helms, *Gulf of Maine Ocean Racing Association*
George Hallenbeck, *US Power Squadrons/Connecticut Boating Advisory Council*
Jesse Henry, *Gulf of Maine Ocean Racing Association*
Mary Horrigan, *New England Science and Sailing*
Nan Johnson, *Marion to Bermuda Race*
Sheila McCurdy, *US Sailing*
Eleanor Mariani, *Connecticut Department of Energy and Environmental Protection Boating Division*
Alan Minard, *Marion to Bermuda Race*
Cuyler Morris, *Morris Yacht Clubs*
Lee Parks, *US Sailing*
Ray Redniss, *Block Island Race/Vineyard Race*
Paul Risseeuw, *Eastern CT Sailing Association*
Len Roberts, *Massachusetts Environmental Police*
Bill Scanlon, *Massachusetts Bay Yacht Club Association*
Robin Wallace, *US Sailing*

# Fishing Events

Steve Anderson, *Bare Bones Charters*
John Boardman, *Massachusetts Division of Marine Fisheries*
Rick Bellavance, *Rhode Island Party and Charter Boat Association*
Charlie Donilon, *Snappa Charters*
John Rainone, *L'il Toot Charters*
Bob Veach, *Connecticut Charter and Party Boat Association*
Ritchie White, *Coastal Conservation Association – New Hampshire*
Charles Witek, *Babylon Tuna Club*
Rick Zappia, *Bay Shore Tuna Club*

# Competitive Board and Paddle Events and Individual User Survey

Gaeton Andretta from the Connecticut Boating Advisory Board and the Paddlers Network provided feedback on Competitive Board and Paddle Events survey data.
Additional outreach and promotional support for the study was provided by:
  350.org Mass
  Adventurers and Scientists for Conservation
  Adventure Chatham

Artistpraneur

Association to Preserve Cape Cod

Atlantic Paddle Boarding Association

Blue Ocean Society

Boston Bodyboarders

Boston Harbor Islands National Park

Boston University Outing Club

Brewster Recreation Department

Buzzards Bay Coalition

Cadillac Mountain Sports

Cape Ann SUP

Cape Cod Beach Chair Company

Clean Up Sound and Harbors

Coast to Coast Paddle

Coastal CT SUP

College of the Atlantic

Colleges of Fenway

Conservation Law Foundation

Duxbury Bay

Eastern Mountain Sports

Eastern Surfing Association

Eastern Surf Magazine

EcoRI

Friends of Casco Bay

Good Tern Coop

Grain Surfboards

Great Lakes Sailing-Conservation Partnership

Gregg Hayward

Gulf of Maine Council

Healthy Oceans Coalition

Indian Summer Surf Shop

Kayak Waveology (Greg Paquin)

Kokatat

MA Sierra Club

Maine Association of Sea Kayak Guides and Instructors

Maine Island Kayak Co.

Maine Island Trail Association

MARCO Portal Project

Marine Spatial Planning LinkedIN Group (Liam McAleese)

Martha's Vineyard Eco Adventures

Massachusetts Coastal Zone Management

Nantucket Marine Mammal Conservation

Nantucket Surf Spots

Nauset Surf Shop

New England Ocean Action Network

New England Ocean Odyssey

NH Coastal Program

NH Dept. Environmental Services

NH Dept. of Resources & Economic Development, Seacoast Region Supervisor

Northeast Surfing Academy (Ronnie Lees)

Northeastern Regional Association of Coastal Ocean Observing Systems

Ocean Conservancy

Ocean River Institute (Rob Moir)

One World One Ocean

OpenChannels

Outdoor Sports Center

Paddle Guru

Paddleguide.com

Patagonia

Peace Love SUP

Piscataqua Region Estuaries Partnership (Jill Farrell)

Provincetown Recreation Department

Pump House Surf Shop

Richard Nelson

Rideaway Kayak

Salem Sound Watch

Scoot and Paddle

Seacoast Science Center

Society for the Protection of NH Forests

Soundsurfer

Speak Up For The Blue

Suffolk University

SUP with Friends

SUP Safari

The Gordon and Betty Moore Foundation

The Juicery

Tribal Co-Lead of the NERPB (Richard Getchell)

UCONN - FYE Director

UCONN - Outdoor Programs

UCONN - Outing Club

UMass Lowell Campus

UMass Sustainability Club

Warm Winds Surf Shop