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# Assessing Recreationists' Perceptions of Offshore Wind Energy Development in New Hampshire: Final Report

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# Assessing Recreationists' Perceptions of Offshore Wind Energy Development in New Hampshire: Final Report

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## Executive Summary

The overarching goal of the study was to assess water-based recreationists' attitudes and perceptions towards *potential* offshore wind energy development (OWD) along the New Hampshire seacoast. On-site face-to-face surveys were conducted with water-based recreationists (e.g., boaters, anglers, beach users) along the New Hampshire seacoast during the summer of 2019. For a guiding framework, this study utilized a systematic sampling plan and a quantitative survey methodology, which resulted in 553 completed surveys and a 75% response rate. Readers are encouraged to review these findings as reflective of water-based recreationists within the New Hampshire seacoast, and *not* representative of *all* northeastern seaboard water-based recreationists. Study results and analyses are further detailed throughout the various sections of this report.

### Key observations and findings:

- The majority of water-based recreationists in the sample noted being middle-aged white males from the local area or the state of New Hampshire who were politically moderate and reported earning moderate levels of education and household income (Section 2-1).
- The sample consisted of highly experienced and repeat recreation users who participated in a multitude of water-based recreation activities such as fishing from shore and boats, motorized and non-motorized boating, beach activities, and surfing at the New Hampshire seacoast (Sections 2-2 and 2-3).
- The overall sample indicated high levels of satisfaction with their 2019 New Hampshire seacoast experience, and noted strong place attachment with the coastal resource (Sections 2-4 and 2-8).
- The majority of respondents were supportive and accepting of OWD off the coast of New Hampshire, and agreed that OWD would fit the landscape and oceanscape of the New Hampshire seacoast (Section 2-5).
- The overall sample noted that OWD would have a positive impact upon the water-based recreation experience at the New Hampshire seacoast, and that OWD would likely draw recreationists and tourists to the region (Section 2-7).
  - Moreover, respondents clearly indicated that the presence of OWD within the New Hampshire seacoast would *not* cause water-based recreationists to alter or substitute their recreation experiences, activities, or behaviors (Section 2-7).
- The majority of the sample was supportive of electricity generated by OWD off the coast of New Hampshire being consumed by New Hampshire residents, and somewhat oppositional towards Maine and Massachusetts residents consuming that same electricity (Section 2-5).
- Respondents indicated the major benefits of OWD within the New Hampshire seacoast relate to holistic concepts such as benefiting future generations, helping the environment, giving the area a positive reputation, and improving the local economy (Section 2-6).

# Section 1. Introduction

## Section 1-1. Study Background and Objectives

The advancement of global climate change is poised to produce significant impacts upon a range of economic, social, and environmental systems around the world<sup>1</sup>. The implementation and expansion of worldwide renewable energy systems has been widely recognized as a critical step towards the reduction of the greenhouse gas emissions largely responsible for global climate change<sup>2</sup>. As the demand for renewable energy production in the United States continues to increase, wind energy remains one of the most viable domestic options<sup>3</sup>. While numerous land-based wind energy development sites in the United States are currently in operation, offshore wind energy development (OWD) has been slow to develop in the United States for various social, ecological, and political reasons. However, due to recent capital investments and substantial wind resources proximate to large population centers, the Northeastern Seaboard of the United States is now poised for significant OWD expansion<sup>4</sup>. For instance, The United States' first commercial grade OWD farm began operation in Rhode Island in 2016 and more than 20 commercial grade OWD projects are planned for development off the Northeastern Seaboard of the United States in the coming decade<sup>4</sup>.

Much of this OWD infrastructure may be within or adjacent to New Hampshire's public lands, waters, and protected areas, raising concerns about the potential environmental and social impacts on outdoor recreation stakeholders in these areas. Outdoor recreation is the 4<sup>th</sup> largest economic sector in the United States and one of the most critical economic sectors in New Hampshire<sup>5</sup>. In 2017, the New Hampshire outdoor recreation economy generated \$8.7 billion in annual consumer spending, \$528 million in state and local tax revenue, and directly supported more than 79,000 jobs<sup>5</sup>. A significant portion of New Hampshire's outdoor recreation visitation and associated expenditures revolve around the states' 18 miles of coastline. The New Hampshire seacoast is home to a multitude of public parks and water-based recreation facilities. Nearly every one of these recreation facilities serves the primary purpose of providing access to the coastline. This abundant access includes numerous boat launches, marinas, angling piers, overlooks, and an assortment of beaches. The combination of biological and geological diversity, in addition to the abundance of public access points, makes the New Hampshire seacoast extremely attractive to a wide range of local, regional, and international water-based recreationists such as beach users, anglers, and boaters.

Natural resource managers within the New Hampshire coastline strive to maximize benefits for water-based recreationists while achieving and maintaining desired social and environmental conditions. Proactive management is needed to sustain high quality water-based recreation opportunities and respond to increasing and encroaching forms of energy development. Proactive management requires a systematic and empirical understanding of water-based recreationists' perceptions of OWD. Water-based recreationists are critical and unique stakeholders who have the potential to be negatively or positively impacted by OWD due to their firsthand interaction with this form of energy development. Negative impacts may include viewshed obstructions, auditory disturbances, loss of access, and/or navigational hazards<sup>6,8</sup>. Positive impacts may include novel tourist attractions and/or artificial marine habitats producing scuba dive sites and increased angler catch rates<sup>7,8</sup>. Moreover, water-based recreationists impacted by OWD may adjust, substitute, or even be displaced altogether from their activities, resources, or region in an effort to achieve their desired recreation experience.

With such a valuable natural resource, managers and stakeholders alike within the New Hampshire seacoast recognize the importance of providing credible data to policy makers in order to sustain this abundant recreation resource for generations to come. However, there is little existing information on the

impact and significance of *potential* OWD within the New Hampshire seacoast. Previous assessments are dated or investigated only specific components of the resource. Moreover, no previous studies have focused specifically on the social aspects of OWD upon water-based recreationist within the New Hampshire seacoast. In response to these gaps, New Hampshire Sea Grant commissioned the University of New Hampshire to collect data and provide empirical responses to these questions. This study was conducted from June to August of 2019 and was funded through the generous contributions of New Hampshire Sea Grant.

The purpose of this study was to collect, analyze, and interpret the following information:

- Water-based recreation demographic information
- Water-based recreation trip visitation patterns
- Water-based recreationists' attitudes towards OWD
- Water-based recreationists' support and opposition towards OWD
- Water-based recreationists' perceived recreation impacts from OWD
- Water-based recreationists' environmental attitudes and beliefs
- Water-based recreationists' energy preferences



## Section 1-2. Methods

The overarching goal of the study was to assess water-based recreationists’ attitudes and perceptions towards *potential* offshore wind energy development (OWD) along the New Hampshire seacoast. On-site face-to-face interviews were conducted with water-based recreationists along the New Hampshire seacoast during the summer of 2019. Through conversations with New Hampshire natural resource management agencies and local stakeholders, the research team identified 18 priority locations being utilized by water-based recreationists within the New Hampshire seacoast. These survey locations were individually selected based on their popularity among a wide range of water-based recreationists including motorized and non-motorized boaters, recreational anglers, and beach users. To gather a diverse and representative sample, a systematic sampling plan was developed in consultation with natural resource managers and local stakeholders to coincide data collection with peak water-based recreation use periods<sup>9</sup>.

To ensure diversity within the sample, the majority of these 18 survey sites included overlapping water-based recreation facilities. For example, Odiorne Point State Park consisted of a boat launch, a beach area, and multiple angling locations, all within one survey site. Combined, these 18 survey sites contained: five marinas, eight boat launches, seven angling locations, and four beaches. These sites were geographically selected and clustered into three separate groupings which spanned the New Hampshire seacoast: 1) northern sites, 2) central sites, and 3) southern sites. A listing of these three groupings, the survey locations within them, and their affiliated management authorities is provided in Table 1.

**Table 1.** Survey Site Groupings, Locations, and Management Authorities

	Site Name	Managing Authority
Northern Sites	Peirce Island Docks	City of Portsmouth
	Prescott Park Docks	City of Portsmouth
	Wentworth by the Sea Marina	Wentworth by the Sea Marina (Private)
	Great Bay Marine	Great Bay Marine (Private)
	Kittery Point Yacht Club	Kittery Point Yacht Club (Private)
	Portsmouth Harbor Cruises	Portsmouth Harbor Cruises (Private)
	Rising Tide Anglers	Rising Tide Anglers (Private)
Central Sites	Odiorne Point State Park	NH DNCR
	Wallis Sands State Park	NH DNCR
	Jeness Beach State Park	NH DNCR
	Rye Harbor State Marina	Pease Development Authority’s Division of Ports and Harbors
	Granite State Whale Watch	Granite State Whale Watch (Private)
Southern Sites	Hampton Beach State Park	NH DNCR
	Hampton Beach State Park Campground	NH DNCR
	Hampton Harbor State Marina	Pease Development Authority’s Division of Ports and Harbors
	Al Gauron Deep Sea Fishing and Whale Watching	Al Gauron Deep Sea Fishing and Whale Watching (Private)
	Captain Bob’s Lobster Tours & Fishing Charters	Captain Bob’s Lobster Tours & Fishing Charters (Private)
	Hampton River Marina	Hampton River Marina (Private)

\*Note: *Rising Tide Anglers* was located within Peirce Island Docks and *Al Gauron* and *Captain Bob’s* were located within Hampton Harbor State Marina.

The on-site survey quantitative survey was administered via tablet computers using the commercially available off-line data collection application *Qualtrics*. A trained research assistant approached potential respondents, described the purpose of the study, and solicited respondents to participate in the survey, which was read aloud and took between 10 and 15 minutes to complete. If



potential respondents indicated they did not partake in any form of water-based recreation that day, they were thanked for their time and excluded from the study. For further systematic sampling purposes, interviewers contacted every third person or party observed and requested their participation<sup>9</sup>. Only consenting adults (18+) were eligible to participate. The on-site survey was conducted throughout the priority survey locations from June 1, 2019 to August 1, 2019. This sampling stratum accounted for 34 total sampling days, which are representative of the 2019 summer water-based recreation season within the New Hampshire seacoast. In total, 735 surveys were attempted, yielding 553 completed surveys and a 75% response rate (Table 2).

**Table 2.** Survey Response Rate

	<b>Total</b>
Respondents	553
Refusals	182
Response Rate	75.2%

\*Note. Overall sample based on  $n=735$



## Section 2. Overall Results

### Section 2-1. Respondent Profile

In order to develop a respondent profile, the study sample was asked to identify their gender, age, ethnic background, earned income level, highest education level obtained, political affiliation, and New Hampshire residency status (Table 3). The first column in Table 3 indicates the valid percentages and means for each category while the second column reflects the total sample size within each category.

- Sex/gender within the sample indicated that just over half of the visitors were male (58%) and 42% were female (Table 3).
- The average age of respondents was 46 years with approximately 30% representing the 18-35-year age group, 26% representing the 36-50-year age group, 30% representing the 51-64-year age group, and 14% representing the 65 and older age group.
- A large majority of the visitors surveyed (94%) reported their race/ethnicity as White. Other ethnicities reported included Spanish/Hispanic/Latino, African-American, and Asian.
- Approximately one-half (50%) of the visitors surveyed reported earning household incomes of \$100,000 or more, while 29% reported earning household incomes of less than \$75,000.
- Over one-half (54%) of the sample reported earning a four-year college or graduate/professional degree, while approximately 44% of the sample earned either a two-year college degree or had some college or high school degree.
- The political ideology distribution within the sample was fairly symmetric, with approximately 30% of respondents identifying as liberal, approximately 42% of respondents identifying as moderate, and approximately 28% of respondents identifying as conservative.
  - The mean for political ideology was 3.92, suggesting the sample was fairly moderate, although leaning toward the liberal side of moderate.
- The majority of respondents (75%) noted they were New Hampshire residents.

**Table 3. Water-Based Recreationists' Visitor Profile**

<b>Variable</b>	<b>% or Mean</b>	<b>n</b>
<i>Gender</i>		
Male	57.9%	320
Female	41.8%	231
<i>Age</i>		
Average age	46 Years	
18-35	29.3%	161
36-50	26.4%	145
51-64	30.4%	167
65 and Older	14.0%	77
<i>Race/Ethnic Background</i>		
White	94.4%	493
Spanish/Hispanic/Latino	1.9%	10
Other	3.7%	19
<i>Income</i>		
\$25,000 or less	3.4%	17
\$25,000 to \$49,999	8.7%	44
\$50,000 to \$74,999	17.3%	87
\$75,000 to \$99,999	19.7%	99
\$100,000 to \$149,999	31.4%	158
\$150,000 or more	19.5%	98
<i>Education</i>		
Less than High School	>1.0%	1
Some High School	1.4%	8
High School Graduate	12.3%	68
Some College	20.4%	113
Two Year College	11.6%	64
Four Year College	33.8%	187
Graduate or Professional Degree	20.3%	112
<i>Political Affiliation</i>		
Mean	3.92	553
Liberal	29.7%	164
Moderate	42.3%	234
Conservative	28.0%	155
<i>Residency Status</i>		
New Hampshire Resident	75.0%	525

\*Note. Percentages may not equal 100 because of rounding.

## Section 2-2. Trip Visitation Patterns

Information pertaining to trip visitation patterns was collected to further understand the respondent profile. The sample was asked to indicate whether their trip that day was a day trip or overnight trip and the length of stay in hours or days visited, their zip code of residency, the distance they traveled from their home to the study site, group size including adults and children, and their experience use history with the resource (Table 4).

- Nearly three-quarters of visitors (74%) reported that their trip to the New Hampshire seacoast was a day trip, while 26% reported that their visit was part of an overnight trip (Table 4).
- For *day trip visitors*, the average length of stay was 5.8 hours at the survey site. For *overnight visitors*, the average length of stay within the New Hampshire seacoast was 6.5 nights.
- Among those who indicated that their visit was part of a day trip, only about 6% visited for two hours or less, while approximately 87% of visitors stayed four or more hours.
- Among those who indicated that their visit was part of an overnight trip to the New Hampshire seacoast, the majority of visitors (78%), stayed for three or more nights.
- Visitors traveled an average of 45 miles from their home to the New Hampshire seacoast. Approximately 78% reported traveling 50 miles or less from their home to visit the New Hampshire seacoast.
- The average group size for the sample was 2.8 persons. Approximately 10% visited alone, 48% visited with one other person, and 42% visited in groups of three or more people.
- Among visitors who reported travelling with children, 30% reported having one child in the group, and 70% reported having two or more children in the group.
- The water-based recreation sample consisted predominately of repeat recreation users. More than 98% of respondents noted they had visited the New Hampshire seacoast before.
- Those respondents who indicated their status as a repeat visitor, were then asked a series of follow-up questions pertaining to their history of use at the New Hampshire seacoast.
  - On average, visitors noted they spent approximately 8 days per month, 48 days per year, and 26 total years engaged in water-based recreation along the New Hampshire seacoast as of 2019.

**Table 4. Water-Based Recreationists' Trip Visitation Patterns**

<b>Variable</b>	<b>% or Mean</b>	<b>n</b>
<i>Trip Type</i>		
Day trip	73.8%	408
Overnight trip	26.2%	145
<i>Day Trip – Number of hours recreating</i>		
Average hours spent on day trip	5.8 hours	
1-2 hours	5.6%	22
3 hours	11.0%	44
4 hours	18.3%	73
5 hours	19.3%	77
6 or more hours	46.1%	184
<i>Overnight Trip- Number of days recreating</i>		
Average days spent on overnight trip	6.5 nights	133
1 day	3.0%	4
2 days	19.5%	26
3 days	27.1%	36
4 or more days	50.8%	67
<i>Distance Traveled from Home</i>		
Average total distance traveled	45.0 miles	529
Visitors travelling 50 miles or less	78.3%	414
<i>Group Size – Adults (18+)</i>		
Average group size	2.8 persons	536
Visited alone	10.1%	54
2 people per group	47.6%	255
3 or more people per group	42.3%	227
<i>Group Size – Children (17 and under)</i>		
Average number of children in group	2.4 children	161
1 child in group	29.8%	48
2 or more children in group	70.2%	113
<i>First Time versus Repeat</i>		
First time visitor	1.8%	10
Repeat visitor	98.2%	543
<i>Level of Experience</i>		
Average days per month recreating	7.5 days	489
Average days per year recreating	48.0 days	505
Average total years recreating	26.3 years	529

\*Note. Percentages may not equal 100 because of rounding.

## Section 2-3. Activity Participation

Due to the multifaceted nature of water-based recreation activities within the New Hampshire seacoast, a wide variety of recreation activities can take place simultaneously. In this study, visitors were asked to indicate which water-based recreation activity was their ‘primary activity’ on the day they were surveyed. The respondents were categorized based on their primary activity response and placed into one of eleven groups: 1) *commercial charter fishing operation*, 2) *commercial tour boat operation*, 3) *non-motorized pleasure boating*, 4) *motorized pleasure boating*, 5) *beach activities*, 6) *fishing from shore*, 7) *fishing from a private boat*, 8) *land activities*, 9) *water activities*, 10) *surfing*, or 11) *other activities*. Realizing overlap could exist between these groups, specific guidelines were applied to properly identify each water-based recreation visitors’ primary activity when sampled.

- Of the entire sample, the four most common water-based recreation activities were: *commercial charter fishing operations* (12%), *commercial tour boat operations* (12%), *non-motorized pleasure boating* (12%), and *motorized pleasure boating* (11%) (Table 5).
- The three least common water-based recreation activities were: *water activities* (6%), *surfing* (6%), and *other activities* (2%).
  - Examples of ‘other’ water-based recreation activities included bird watching or participating in festivals or events at the survey site.

**Table 5.** Water-Based Recreationists’ Activity Participation

Activity Type	Valid Percentage	<i>n</i>
Commercial charter fishing operation	12.7%	70
Commercial tour boat operation (whale watching, Isle of Shoals, etc.)	12.5%	69
Non-motorized pleasure boating (sailing, kayaking, SUP, canoeing, paddle boating, etc.)	11.9%	66
Motorized pleasure boating (boating, boat touring, jet skiing, tubing, waterskiing, etc.)	11.4%	63
Beach activities (sunbathing, walking, relaxing, shell collecting, volleyball, etc.)	9.9%	55
Fishing from shore, pier, dock, etc.	9.4%	52
Fishing from a private boat (non-commercial)	9.2%	51
Land activities (walk/run, biking, picnicking, playgrounds, pavilions, camping, etc.)	9.0%	50
Water activities (swimming, wading, boogie boarding, snorkeling, etc.)	6.1%	34
Surfing	5.6%	31
Other activities (bird watching, festivals, events, etc.)	2.1%	12
<b>Total</b>		<b>553</b>

\*Note. Percentages may not equal 100 because of rounding.

## Section 2-4. Satisfaction

Water-based recreationists have a variety of reasons for visiting natural areas. Overall trip satisfaction is often used as a primary management criterion for evaluating an outdoor recreation experience. This study asked water-based recreationists to evaluate their overall level of satisfaction with their visit to the New Hampshire seacoast.

- The single item measurement of overall satisfaction was measured on a seven-point scale where one represented ‘*poor*’ and seven represented ‘*perfect*’ (Table 6).
- Overall satisfaction was very high amongst respondents; with the majority of water-based recreationists (87%) indicating their overall trip that day to the New Hampshire seacoast was either excellent or perfect.

**Table 6. Water-Based Recreationists’ Overall Satisfaction Rating**

Mean	Valid Percentages						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
6.36	>1.0%	>1.0%	>1.0%	1.8%	11.2%	34.4%	52.3%

\*Note. Percentages may not equal 100 because of rounding.

\*Note. Response Code: 1 = Poor and 7 = Perfect

- The multi-item measurement of water-based recreationists’ satisfaction was measured on a seven-point scale where one represented ‘*strongly disagree*’ and seven represented ‘*strongly agree*’ (Table 7).
- The vast majority of respondents (99%) agreed they thoroughly enjoyed their trip to the New Hampshire seacoast that day, with an average of 6.67 on a 7-point scale.
- Approximately 97% of the sample agreed that their trip was well worth the time and money spent to take it, with an average of 6.55 on a 7-point scale.

**Table 7. Water-Based Recreationists’ Satisfaction Rating**

Variable	Mean	Disagree (%)	Neutral (%)	Agree (%)
I thoroughly enjoyed my trip to the NH seacoast today	6.67	>1.0%	1.1%	98.6%
My trip was well worth the time and money spent	6.55	>1.0%	2.5%	96.9%
I could not imagine a better trip to the NH seacoast	5.99	3.8%	8.9%	87.3%

\*Note. Percentages may not equal 100 because of rounding.

\*Note. Response Code: 1 = Strongly Disagree and 7 = Strongly Agree

## Section 2-5. Perceptions towards Offshore Wind Energy Development

Attitudes and perceptions towards OWD can vary greatly among various water-based recreation populations. To assess New Hampshire coastal water-based recreationists' perceptions towards OWD, respondents were asked to indicate their knowledge and attitudes towards OWD in general, as well as their support and/or opposition towards OWD, perceptions of the fit of OWD within the landscape, and their perceptions of energy equity and distribution of power related to OWD.

- The single item measurement of water-based recreationists' general knowledge towards OWD was measured on a seven-point scale where one represented '*not at all knowledgeable*' and seven represented '*very knowledgeable*' (Table 8).
- The overall mean for this item was 3.63, suggesting the sample was fairly neutral, although leaning toward a lack of general OWD knowledge.
  - Over one-third of respondents (38%) reported being knowledgeable towards OWD.
  - Nearly half of the sample (48%) reported being unknowledgeable towards OWD.

**Table 8.** Water-Based Recreationists' Knowledge towards OWD in General

Variable	Mean	Unknowledgeable (%)	Neither (%)	Knowledgeable (%)
How knowledgeable are you about offshore wind energy development in general	3.63	47.5%	14.6%	38.0%

\*Note. Percentages may not equal 100 because of rounding.

\*Note. Response Code: 1 = Not at all Knowledgeable and 7 = Very Knowledgeable

- The single item measurement of water-based recreationists' general attitudes towards OWD off the New Hampshire seacoast was measured on a seven-point scale where one represented '*very unacceptable*' and seven represented '*very acceptable*' (Table 9).
- The overall mean for this item was 5.19, suggesting the sample would be moderately accepting of OWD of the New Hampshire Seacoast.
  - Nearly three-quarters of respondents (73%) indicated that OWD off the New Hampshire seacoast would be acceptable.
  - Approximately 13% of respondents noted OWD off the New Hampshire seacoast would be unacceptable.

**Table 9.** Water-Based Recreationists' General Attitudes Towards OWD off the New Hampshire Seacoast

Variable	Mean	Unacceptable (%)	Neither (%)	Acceptable (%)
How acceptable would you find offshore wind energy development off the New Hampshire seacoast	5.19	12.7%	14.6%	72.6%

\*Note. Percentages may not equal 100 because of rounding.

\*Note. Response Code: 1 = Very Unacceptable and 7 = Very Acceptable



- The single item measurement of water-based recreationists’ support and opposition towards OWD off the New Hampshire seacoast was measured on a seven-point scale where one represented ‘*strongly oppose*’ and seven represented ‘*strongly support*’ (Table 10).
- The overall mean for this item was 5.22, suggesting the sample was fairly supportive of OWD off the New Hampshire seacoast.
  - The majority of respondents (77%) indicated they support OWD off the New Hampshire seacoast.
  - About 12% of the sample noted they oppose OWD off the New Hampshire seacoast.

**Table 10.** Water-Based Recreationists’ Support and Opposition towards OWD off the New Hampshire Seacoast

Variable	Mean	Oppose (%)	Neither (%)	Support (%)
To what extent do you support or oppose OWD off the NH seacoast	5.22	12.1%	11.2%	76.6%

\*Note. Percentages may not equal 100 because of rounding.

\*Note. Response Code: 1 = Strongly Oppose and 7 = Strongly Support

- The single item measurement of water-based recreationists’ perceptions of the *fit* of OWD within the New Hampshire landscape or oceanscape was measured on a seven-point scale where one represented ‘*strongly disagree*’ and seven represented ‘*strongly agree*’ (Table 11).
- The overall mean for this item was 4.56, suggesting the sample was in agreement that OWD would fit the landscape or oceanscape of the New Hampshire seacoast.
  - More than half of the sample (58%) indicated they agree that OWD off the New Hampshire seacoast would fit well within the landscape.
  - Less than one-quarter of respondents (24%) noted they disagreed that OWD off the New Hampshire seacoast would fit well within the landscape.

**Table 11.** Water-Based Recreationists’ Perceptions of OWD Fit within the Landscape

Variable	Mean	Disagree (%)	Neither (%)	Agree (%)
Do you agree OWD off the NH coast would fit well within the landscape	4.56	23.8%	17.9%	58.2%

\*Note. Percentages may not equal 100 because of rounding.

\*Note. Response Code: 1 = Strongly Disagree and 7 = Strongly Agree

- Water-based recreationists’ attitudes towards OWD energy distribution and equity were measured on a seven-point scale where one represented ‘*strongly oppose*’ and seven represented ‘*strongly support*’ (Table 12).
- Approximately 83% of the sample indicated they support electricity generated by OWD off the coast of New Hampshire being consumed by New Hampshire residents.
  - Approximately 67% of respondents indicated they support electricity generated by OWD off the coast of New Hampshire being consumed by Maine residents.
  - Nearly one-fifth of visitors (18%) indicated they oppose electricity generated by OWD off the coast of New Hampshire being consumed by Massachusetts residents.

**Table 12.** Water-Based Recreationists’ Attitudes Towards OWD Energy Distribution

<b>Variable</b>	<b>Mean</b>	<b>Oppose (%)</b>	<b>Neither (%)</b>	<b>Support (%)</b>
<i>To what extent do you support or oppose electricity generated by OWD off the coast of NH being consumed by...</i>				
New Hampshire residents	6.01	6.00%	11.2%	82.8%
Maine residents	5.30	13.8%	19.5%	66.8%
Massachusetts residents	5.13	18.1%	19.2%	62.8%

\*Note. Percentages may not equal 100 because of rounding.

\*Note. Response Code: 1 = Strongly Oppose and 7 = Strongly Support



## Section 2-6. Perceived Risks and Benefits of Offshore Wind Energy Development

Water-based recreationists are critical and unique stakeholders who have the potential to be negatively or positively impacted by OWD due to their firsthand interaction with this form of energy development. To assess water-based recreationists’ perceived risks and benefits of OWD, respondents were asked to evaluate a range of impacts.

- The multi-item measurement of water-based recreationists’ perceived benefits of OWD was measured on a seven-point scale where one represented ‘*completely disagree*’ and seven represented ‘*strongly agree*’ (Table 13).
- Respondents indicated the top four perceived benefits of OWD within the New Hampshire seacoast were: 1) *benefit future generations*, 2) *help the environment*, 3) *give the area a positive reputation*, and 4) *improve the local economy*.
  - Of the entire sample, more than 86% of visitors indicated they felt OWD off the New Hampshire seacoast would *benefit future generations* and *help the environment*.
  - More than 78% of respondents felt OWD off the New Hampshire seacoast would *give the area a positive reputation*, *improve the local economy* and *increase energy independence*.
  - More than three-fifths of the sample (60%) indicated OWD off the New Hampshire seacoast would *improve the marine habitat for fish*.
  - Slightly less than half of visitors (46%) perceived that OWD off the New Hampshire seacoast would *bring new people to the area to live and/or visit* and *benefit tourism businesses*.

**Table 13.** Water-Based Recreationists’ Perceived Benefits of OWD

Variable	Mean	Disagree (%)	Neither (%)	Agree (%)
<i>OWD off of the NH Seacoast would...</i>				
Benefit future generations	5.90	6.3%	7.1%	86.6%
Help the environment	5.82	6.8%	7.8%	85.3%
Give the area a positive reputation	5.59	8.5%	13.4%	78.1%
Improve the local economy	5.55	7.9%	12.3%	79.8%
Increase energy independence	5.51	10.6%	9.0%	80.4%
Improve the marine habitat for fish	5.02	12.8%	26.9%	60.2%
Bring new people to the area to live and/or visit	4.39	25.5%	28.0%	46.5%
Benefit tourism businesses	4.29	26.3%	28.2%	45.6%

\*Note. Percentages may not equal 100 because of rounding.

\*Note. Response Code: 1 = Completely Disagree and 7 = Completely Agree

- The multi-item measurement of water-based recreationists’ perceived risks of OWD was measured on a seven-point scale where one represented ‘*completely disagree*’ and seven represented ‘*strongly agree*’ (Table 14).
- Respondents indicated the top four perceived risks of OWD within the New Hampshire seacoast were: 1) *decrease the scenic and natural beauty*, 2) *ultimately, not be as productive as promised*, 3) *create navigational hazards and a loss of access*, and 4) *negatively influence the marine environment*.
  - It should be noted that all of the perceived risks ranged from a mean score of 4.00 to 2.85 suggesting an overall trend of disagreement with the risk items.
  - Of the entire sample, approximately 40% of respondents completely disagreed that OWD off the New Hampshire seacoast would *decrease the scenic and natural beauty* and *ultimately, not be as productive as promised*.
  - Nearly one-half of visitors completely disagreed that OWD off the New Hampshire seacoast would *create navigational hazards and a loss of access*, and *negatively influence the marine environment*.
  - More than three-fifths of the sample completely disagreed that OWD off the New Hampshire seacoast would *drive visitors and residents away from the area, harm the area’s economy, and bring too many new people to the area to live and/or visit*.

**Table 14.** Water-Based Recreationists’ Perceived Risks of OWD

<b>Variable</b>	<b>Mean</b>	<b>Disagree (%)</b>	<b>Neither (%)</b>	<b>Agree (%)</b>
<i>OWD off of the NH Seacoast would...</i>				
Decrease the scenic and natural beauty	4.00	40.0%	17.7%	42.3%
Ultimately, not be as productive as promised	3.75	39.6%	34.0%	26.4%
Create navigational hazards and a loss of access	3.69	45.4%	22.6%	32.0%
Negatively influence the marine environment	3.41	48.5%	27.8%	23.7%
Drive visitors and residents away from the area	3.05	58.7%	23.5%	17.7%
Harm the area’s economy	2.96	60.0%	27.7%	12.3%
Bring too many new people to the area to live and/or visit	2.85	63.5%	24.1%	12.4%

\*Note. Percentages may not equal 100 because of rounding.

\*Note. Response Code: 1 = Completely Disagree and 7 = Completely Agree

## Section 2-7. Recreationists’ Perceptions of Offshore Wind Energy Development Impacts

Water-based recreationists are critical and unique stakeholders who have the potential to be negatively or positively impacted by OWD due to their possible firsthand interaction with this form of energy development. Recreationists impacted by OWD may substitute their recreation activity, the recreation resource, or abandon their recreation experiences altogether in an effort to achieve their desired recreation experience. This study asked water-based recreationists to evaluate the perceived impact of OWD upon their recreation experiences and activities through a series of single item and multi-item measurements.

- The single item measurement of water-based recreationists’ overall perception of OWD’s impact upon the outdoor recreation experience was measured on a seven-point scale where one represented ‘no impact’ and seven represented ‘major impact’ (Table 15).
- The overall mean for this item was 3.71, suggesting that OWD may have a slight impact upon the overall outdoor recreation experience within the New Hampshire seacoast.
  - Nearly one-half of the sample (45.7%) perceived that OWD off the New Hampshire seacoast would have little impact upon their outdoor recreation experience.
  - Less than one-third of respondents (31%) perceived OWD off the New Hampshire seacoast would have a significant impact upon their outdoor recreation experience.

**Table 15.** Water-Based Recreationists’ Overall Perception of OWD’s Impact on Recreation

Variable	Mean	Little Impact (%)	Neutral (%)	Significant Impact (%)
Overall, how would OWD development impact your outdoor recreation experience here within the New Hampshire Seacoast	3.71	45.7%	23.1%	31.2%

\*Note. Percentages may not equal 100 because of rounding.

\*Note. Response Code: 1 = No Impact and 7 = Major Impact

- The single item measurement of water-based recreationists’ perceived positive and negative recreation impacts as a result of OWD was measured on a seven-point scale where one represented ‘*negatively impact*’ and seven represented ‘*positively impacted*’ (Table 16).
- The overall mean for this item was 4.36, suggesting the sample was fairly neutral, although leaning toward OWD positively impacting the outdoor recreation experience within the New Hampshire Seacoast.
  - Nearly one-half of the sample (43%) perceived that OWD off the New Hampshire seacoast would positively impact their outdoor recreation experience.
  - Less than one-third of respondents (26%) perceived OWD off the New Hampshire seacoast would negatively impact their outdoor recreation experience.

**Table 16.** Water-Based Recreationists’ Perception of OWD’s Positive and Negative Impacts on Recreation

Variable	Mean	Negatively Impact (%)	Neither (%)	Positively Impact (%)
Do you believe OWD would negatively or positively impact your outdoor recreation experience to the NH Seacoast	4.36	26.1%	30.6%	43.4%

\*Note. Percentages may not equal 100 because of rounding.

\*Note. Response Code: 1 = Negatively Impact and 7 = Positively Impact



- Water-based recreationists were asked to assess the extent to which OWD would negatively or positively impact various recreation motivations or experience preferences on a seven-point scale where one represented ‘*negatively impact*’ and seven represented ‘*positively impact*’ (Table 17).
- The overall means for this multi-item scale ranged from 4.30 to 4.00, suggesting the sample was largely in agreement that OWD would positively impact their water-based recreation motivations and experience preferences.
- The highest rated recreation motivations and experience preference impacts related to OWD within the New Hampshire seacoast were: 1) *enjoy the smells and sounds of nature*, 2) *develop your skills and abilities*, 3) *become better at a skill*, and 4) *give your mind a rest*.
  - Approximately 41% of respondents perceived OWD would positively impact their ability to *enjoy the smells and sounds of nature*.
- The lowest rated recreation motivations and experience preference impacts related to OWD within the New Hampshire seacoast were: 1) *view the scenery*, 2) *experience tranquility*, 3) *view the scenic beauty*, and 4) *to experience solitude*.
  - Approximately 41% of respondents perceived OWD would negatively impact their ability to *view the scenic beauty* and *view the scenery*.

**Table 17. Water-Based Recreationists’ Perceptions of OWD’s Impact on Recreation Preferences**

Variable	Mean	Negatively Impact (%)	Neither (%)	Positively Impact (%)
<i>How would OWD impact your ability to...</i>				
Enjoy the smells and sounds of nature	4.30	26.7%	32.4%	40.8%
Develop your skills and abilities	4.16	22.9%	42.7%	34.4%
Become better at a skill	4.16	22.7%	43.4%	33.8%
Give your mind a rest	4.14	32.1%	29.1%	38.7%
Have your mind move at a slower pace	4.11	29.7%	33.6%	36.5%
Be close to nature	4.11	34.2%	28.6%	37.2%
To experience solitude	4.09	31.1%	32.5%	36.4%
View the scenic beauty	4.05	40.9%	18.1%	41.0%
Experience tranquility	4.05	34.4%	28.6%	37.0%
View the scenery	4.00	41.3%	19.0%	39.7%

\*Note. Percentages may not equal 100 because of rounding.

\*Note. Response Code: 1 = Negatively Impact and 7 = Positively Impact

- The multi-item measurement of water-based recreationists’ behavioral adaptations to OWD was measured on a seven-point scale where one represented ‘*completely disagree*’ and seven represented ‘*completely agree*’ (Table 18).
- Respondents largely agreed that the presence of OWD within the New Hampshire seacoast would not cause them to substitute their recreation activities, their recreation resources, or abandon their recreation experiences.
- Respondents noted the top four recreation behavioral adaptations within the presence of OWD would be: 1) *avoid recreating around OWD*, 2) *realize that visiting different areas of the New Hampshire coast would be better for recreation*, 3) *avoid certain areas of the New Hampshire coast*, and 4) *change my recreation activity*.
  - It should be noted that all of the recreation behavioral adaptation items ranged from a mean score of 2.61 to 1.57, indicating an overall trend of disagreement with the items.
  - Of the entire sample, approximately 65% of visitors disagreed that OWD off the New Hampshire seacoast would cause them to *avoid recreating around OWD*, *realize that visiting different areas of the New Hampshire coast would be better for recreation*, *avoid certain areas of the New Hampshire coast*, and *change my recreation activity*.
  - More than 80% of respondents disagreed that OWD off the New Hampshire seacoast would cause them to *abandon my recreation experience altogether* and *never visit the New Hampshire coast again*.

**Table 18.** Water-Based Recreationists’ Behavioral Recreation Response to OWD

Variable	Mean	Disagree (%)	Neither (%)	Agree (%)
<i>In response to OWD off the New Hampshire Seacoast, I would likely...</i>				
Avoid recreating around OWD	2.61	64.4%	18.3%	17.4%
Realize that visiting different areas of the NH coast would be better for recreation	2.59	62.9%	21.2%	15.9%
Avoid certain areas of the NH coast	2.49	66.7%	17.7%	15.5%
Change my recreation activity	2.42	64.8%	25.0%	10.3%
Participate in some other recreation activity to avoid OWD	2.38	67.3%	22.1%	10.6%
Recreate at a different location <i>outside</i> the NH coast	2.31	69.6%	19.5%	10.8%
Abandon my recreation experience altogether	1.74	83.3%	13.4%	3.2%
Never visit the NH coast again	1.57	86.2%	11.6%	2.1%

\*Note. Percentages may not equal 100 because of rounding.

\*Note. Response Code: 1 = Completely Disagree and 7 = Completely Agree



## Section 2-8. Place Attachment

Water-based recreationists have varying levels of place attachment to natural resources. In this study, visitors were asked to indicate their level of attachment to the New Hampshire seacoast. Three domains of place attachment were measured: 1) place identity, 2) community and social attachment, and 3) place dependence.

- The three place attachment assessments were measured on a seven-point scale, with one representing ‘*strongly disagree*’ and seven representing ‘*strongly agree*’ (Table 19).
- Respondents strongly identified with the New Hampshire seacoast, with nearly the entire sample agreeing that the *area meant a lot to them* (95%) and that they were *very attached to the area* (91%).
- The sample indicated they were attached to the community and social elements associated with the New Hampshire seacoast. More than three-quarters of the sample agreed *the people in the New Hampshire coastal area are important to me* (79%) and that *I have many ties to the people in the New Hampshire coastal area* (71%).
- Visitors were moderately dependent on the New Hampshire seacoast to engage in their primary outdoor recreation pursuits. More than two-thirds of respondents (68%) agreed that *no other place can compare to the New Hampshire Seacoast for the types of recreation activities I do here*.

**Table 19.** Water-Based Recreationists’ Place Attachment

Variable	Mean	Disagree (%)	Neutral (%)	Agree (%)
<i>Place Identity</i>				
The NH Seacoast means a lot to me	6.41	1.2%	4.0%	94.7%
I feel very attached to the NH coast	6.21	3.3%	5.6%	91.1%
<i>Community and Social Attachment</i>				
The people in the NH coastal area are important to me	5.68	7.5%	13.2%	79.3%
I have many ties to the people in the NH coastal area	5.36	15.5%	13.4%	71.0%
<i>Place Dependence</i>				
No other place can compare to the NH Seacoast for the types of [ <i>primary activity</i> ] I do here	5.21	13.2%	19.0%	67.8%
I wouldn’t substitute any other area for doing the types of [ <i>primary activity</i> ] that I do here	5.13	14.9%	19.9%	65.2%

\*Note. Percentages may not equal 100 because of rounding.

\*Note. Response Code: 1 = Strongly Disagree and 7 = Strongly Agree

## Section 2-9. Environmental Attitudes

Water-based recreationists have various levels of environmental beliefs that have been demonstrated to influence recreation behaviors. In this study, respondents were asked to indicate how frequently they engaged in various pro-environmental behaviors.

- The multi-item measurement of water-based recreationists’ pro-environmental behaviors was measured on a seven-point scale where one represented ‘*never*’ and seven represented ‘*always*’ (Table 20).
- Overall, the sample indicated moderate levels of environmental behaviors, with mean scores ranging from 2.73 to 5.17.
  - The primary environmental behaviors were *watching television specials on the environment* where approximately 78% of respondents indicated they engage in this behavior and *voting for or against political candidates based on their position on the environment* where more than half (54%) indicated they engage in this behavior.
  - The least frequently employed environmental behaviors were *contacting government agencies to get information about an environmental problem* where approximately 63% of respondents indicated they never engage in this behavior and *attending public hearings and/or meetings about the environment* where more than three-fifth (60%) indicated they never engage in this behavior.

**Table 20.** Water-Based Recreationists’ Pro-Environmental Behaviors

Variable	Mean	Never (%)	Neither (%)	Always (%)
I watch television specials on the environment	5.17	15.4%	6.90%	77.8%
I vote for or against political candidates based on their position on the environment	4.63	21.0%	24.8%	54.3%
I read conservation or environmental magazines, blogs, and/or newsletters	4.50	28.2%	9.00%	62.8%
I do not buy products that cause environmental problems	4.26	24.0%	32.5%	43.4%
I contribute money and/or time to an environmental or wildlife conservation group	4.23	34.3%	14.5%	51.2%
I attend public hearings and/or meetings about the environment	2.85	59.7%	19.5%	20.8%
I contact government agencies to get information about an environmental problem	2.73	62.6%	17.9%	19.5%

\*Note. Percentages may not equal 100 because of rounding.

\*Note. Response Code: 1 = Never and 7 = Always

## Section 2-10. Climate Change Beliefs

Water-based recreationists have various perceptions towards global climate change (GCC). In this study, visitors were asked to indicate their beliefs in the occurrence of GCC and their beliefs in the anthropogenic causation of GCC which have been demonstrated to influence perceptions of overall support and opposition for energy development.

- The multi-item measurement of water-based recreationists' beliefs in the occurrence of GCC was measured on a seven-point scale where one represented 'completely disagree' and seven represented 'completely agree' (Table 21).
- In general, the sample indicated high levels of belief in the occurrence of GCC around the world, with mean scores ranged from 5.77 to 6.07.
  - The highest rated beliefs in the occurrence of GCC were *the amount of ocean ice is decreasing* and *sea level is rising* where more than 85% of visitors agreed these instances are happening around the earth.
  - The lowest rated beliefs in the occurrence of GCC were *mountain environments are losing snow* and *air temperature is increasing* where approximately 78% of the sample agreed these instances are happening around the earth.

**Table 21.** Water-Based Recreationists' Beliefs in the Occurrence of Global Climate Change

Variable	Mean	Disagree (%)	Neither (%)	Agree (%)
<i>On average, around the world, I believe the following are happening...</i>				
The amount of ocean ice is decreasing	6.07	4.50%	10.1%	85.3%
Sea level is rising	6.05	4.30%	10.1%	85.6%
The temperature of the ocean is increasing	5.99	4.10%	11.6%	84.3%
The number of flooding events are increasing	5.98	5.10%	11.2%	83.7%
Permanently frozen soil in the arctic is now thawing	5.88	4.30%	15.7%	79.9%
The areas affected by drought are increasing	5.86	5.80%	11.4%	82.8%
Mountain environments are losing snow	5.77	8.00%	13.9%	78.1%
Air temperature is increasing	5.77	6.90%	15.9%	77.3%

\*Note. Percentages may not equal 100 because of rounding.

\*Note. Response Code: 1 = Completely Disagree and 7 = Completely Agree

- The multi-item measurement of water-based recreationists' beliefs in the anthropogenic causation of GCC was measured on a seven-point scale where one represented 'completely disagree' and seven represented 'completely agree' (Table 22).
- Overall, the sample noted even higher levels of belief in the anthropogenic causation of GCC around the world with mean score ranged from 5.98 to 6.37.
  - The highest rated beliefs in the anthropogenic causation of GCC were *pollution from factories* and *burning fossil fuels, such as oil and coal* where more than 90% of respondents agreed these instances contribute to changes in climate around the earth.
  - The lowest rated beliefs in the anthropogenic causation of GCC was *airplane travel* where 85% of visitors agreed these instances contribute to changes in climate around the earth.

**Table 22.** Water-Based Recreationists' Beliefs in the Anthropogenic Causation of Global Climate Change

Variable	Mean	Disagree (%)	Neither (%)	Agree (%)
<i>I believe the following contribute to changes in climate around the earth...</i>				
Pollution from factories	6.37	3.90%	1.60%	94.4%
Burning fossil fuels, such as oil and coal	6.24	4.90%	4.50%	90.6%
Clear cutting of forests	6.14	4.10%	6.90%	89.0%
Driving gas powered automobiles	6.13	4.80%	5.20%	89.9%
Burning fossil fuels, such as natural gas	6.02	6.30%	8.90%	84.8%
Clearing land for human use	6.01	5.50%	9.80%	84.9%
Airplane travel	5.98	5.30%	9.80%	85.0%

\*Note. Percentages may not equal 100 because of rounding.

\*Note. Response Code: 1 = Completely Disagree and 7 = Completely Agree



## Section 2-11. Energy Preferences

Water-based recreationists were asked to indicate their preferences towards various renewable and non-renewable forms of energy development, including: solar energy, onshore wind energy, hydroelectric power, natural gas energy, nuclear energy, oil energy and coal energy.

- The multi-item assessment of water-based recreationists' energy preferences was measured on a seven-point scale where one represented '*strongly oppose*' and seven represented '*strongly support*' (Table 23).
- Across the entire sample, respondents indicated strong support and preference for all forms of renewable energy development, with means scores ranging from 5.88 to 6.58.
  - The highest levels of support were for solar energy development and onshore wind energy development with more than 87% of the sample indicating support.
- Across the entire sample, respondents indicated opposition for all forms of non-renewable energy development, with means scores ranging from 3.44 to 2.88.
  - The lowest levels of support were for coal energy development and oil energy development with more than 50% of the sample indicating opposition.
- The overall mean for nuclear energy development (which is considered neither renewable nor non-renewable) was 3.72, suggesting the sample was fairly neutral, although leaning toward opposition.

**Table 23.** Water-Based Recreationists' Energy Preferences

Variable	Mean	Oppose (%)	Neither (%)	Support (%)
<i>To what extent do you support or oppose...</i>				
Solar Energy	6.58	1.00%	2.40%	96.7%
Onshore Wind Energy	6.03	4.50%	8.30%	87.1%
Hydroelectric Power	5.88	6.50%	10.3%	83.2%
Natural Gas Energy	4.83	16.5%	21.9%	61.7%
Nuclear Energy	3.72	42.2%	22.4%	35.5%
Oil Energy	3.44	51.8%	21.7%	26.5%
Coal Energy	2.88	63.8%	17.5%	18.6%

\*Note. Percentages may not equal 100 because of rounding.

\*Note. Response Code: 1 = Strongly Oppose and 7 = Strongly Support

## Section 3. Summary and Conclusions

The overarching goal of the study was to assess water-based recreationists' attitudes and perceptions towards *potential* offshore wind energy development (OWD) along the New Hampshire seacoast. The quantitative survey results ( $n=553$ ) published in this report are a compilation of the data collected at numerous water-based recreation sites along the New Hampshire seacoast between June 1, 2019 and August 1, 2019. A detailed account of water-based recreationists' characteristics, behaviors, attitudes, and perceptions was provided in the main body of this report. This summary and conclusion section provides a brief highlight of key findings that may be of interest to natural resource managers, partner organizations, and stakeholders.

### Contextual Variables

In terms of the visitor profile, data suggests water-based recreationists utilizing the New Hampshire seacoast were likely to be middle-aged, white (94.4%), males (57.9%), who reported earning moderate levels of education and household income. The average age across all visitors was 46 years old; while 44.4% of respondents indicated they were over 50+ years old. When combining the household income categories, more than two-thirds of visitors (70.6%) reported household incomes greater than \$75,000, while 12.1% reported household incomes less than \$49,999. More than one-half of the sample (54.1%) indicated earning either a four-year college or professional degree. The political ideology distribution was fairly symmetric, where approximately 29.7% of respondents identified as liberal, 42.3% of respondents identified as moderate, and 28% of respondents identified as conservative. The mean for political ideology was 3.92, suggesting the sample was fairly moderate, although leaning toward the liberal side of moderate.

When evaluating trip visitation patterns, the vast majority of water-based recreationists in the study indicated they were from the state of New Hampshire (75%) and traveled an average of 45 miles from their home to the New Hampshire seacoast. Nearly three-quarters of visitors (73.8%) noted they were recreating at the New Hampshire seacoast for the day, and their average visit lasted 5.8 hours. Among the more than one-quarter of visitors (26.2%) who noted staying overnight in the area, the average length of stay was 6.5 nights. The average group size of water-based recreationists was 2.8 adults and approximately 10% of visitors recreated alone. Among those visitors who reported recreating with children, 29.8% reported one child in their group, and 70.2% reported two or more children in their group. Visitors noted being predominately repeat users (98.2%), as opposed to first-time users (1.8%). Experience use history and visitation frequency was very high among the sample, with respondents noting an average of 7.5 days per month, 48 days per year, and 26.3 total years engaged in water-based recreation within the New Hampshire seacoast. The visitors in this study indicated various forms of water-based recreation as their primary activity participation within the New Hampshire seacoast. The top water-based recreation activities were: commercial charter fishing operations (12.7%), commercial tour boat operations (12.5%), and non-motorized (11.9%) and motorized pleasure boating (11.4%).

The recreation experience questions provided data about satisfaction and place perceptions and attachment. Overall satisfaction was very high among respondents, with approximately 87% of water-based recreationists indicating their trip that day to the New Hampshire seacoast was either excellent or perfect. Moreover, nearly all of the respondents in the sample agreed that they thoroughly enjoyed their trip to the New Hampshire seacoast that day (98.6%) and that their trip was well worth the time and money spent (96.9%). The data also clearly showed that water-based recreationists strongly identified with and were moderately dependent upon the resources and the community and social attachment elements of the New Hampshire coastal resource for their water-based recreation activities.

The primary purpose of this study was to assess water-based recreationists' attitudes and perceptions towards *potential* offshore wind energy development (OWD) along the New Hampshire seacoast. The majority of respondents were supportive and accepting of OWD off the coast of New Hampshire, and agreed that OWD would fit well within the landscape and oceanscape of the New Hampshire seacoast. Approximately three-quarters of visitors indicated support (76.6%) and acceptance (72.6%) for OWD off the New Hampshire seacoast and more than one-half of visitors (58.2%) agreed that OWD would fit well within the landscape and oceanscape of the New Hampshire Seacoast. The majority of the sample (82.8%) was also supportive of electricity generated by OWD off the coast of New Hampshire seacoast being consumed by New Hampshire residents. Interestingly, the data suggests that respondents were somewhat oppositional towards adjacent states consuming that same electricity with nearly one-fifth of respondents (18.1%) opposing New Hampshire OWD generated electricity being consumed by Massachusetts residents.

When assessing respondents' perceptions of the benefits and risks associated with OWD, study findings suggest water-based recreationists perceived numerous benefits and very little risks associated with OWD off the coast of New Hampshire. More than three-quarters of respondents (78.1%) indicated the major benefits of OWD within the New Hampshire seacoast related to holistic concepts such as benefiting future generations, helping the environment, giving the area a positive reputation, improving the local economy, and increasing energy independence. Less than one-half of the sample (46.5%) noted that OWD within the New Hampshire seacoast would bring new people to the area to live and/or visit and benefit tourism businesses. When assessing perceptions of various risks associated with OWD, the highest rated item (with 42.3% agreement) related to a decrease in the scenic and natural beauty of the area. Other notable risks included OWD ultimately not being as productive as promised, creating navigational hazards and a loss of access, and a negative influence on the marine environment. However, it should be noted that the means scores for each of the perceived risks were quite low (ranging from 4.00 to 2.85 on a 7-point scale), suggesting an overall trend of disagreement with the risk items. Said another way, the data infers that water-based recreationists perceived very little risks associated with OWD off the coast of New Hampshire.

A substantial portion of this study was dedicated to assessing the extent to which water-based recreation experiences, activities, and behaviors may be impacted by OWD off the coast of New Hampshire. Study findings suggest OWD may pose a slight, albeit positive, impact upon water-based outdoor recreation experiences within the New Hampshire seacoast. Nearly one-half of the sample (43.4%) perceived that OWD off the coast of New Hampshire would positively impact their outdoor recreation experience. More than one-third of respondents (33.8%) indicated that OWD off the coast of New Hampshire would positively impact their ability to enjoy nature, develop their skills and abilities, and become better at a skill. While approximately two-fifths of visitors (40.9%) noted that OWD off the coast of New Hampshire would negatively impact their ability to view the scenery and scenic beauty. More importantly, the data clearly demonstrates that the presence of OWD off the coast of New Hampshire would *not* cause water-based recreationists to alter or substitute their recreation experiences, activities, or behaviors. Less than one-fifth of respondents (17.4%) noted they would avoid recreating around OWD, and only 2.1% of visitors expressed they would never visit the New Hampshire seacoast again due to the presence of OWD. The means scores for all of the behavioral recreation response items were very low (ranging from 2.61 to 1.57 on a 7-point scale), suggesting an overall trend of disagreement with the response items. Stated another way, these findings infer that water-based recreationists would *not* need to alter or change their recreation experiences, activities, and behaviors within the presence of OWD off the coast of New Hampshire.

Finally, in an effort to establish a baseline for further evaluations, this study assessed water-based recreationists' perceptions, attitudes, and beliefs towards environmentalism, global climate change (GCC),

and energy preferences. In terms of environmentalism, visitors indicated moderate levels of environmental attitudes and benefits. Respondents were most likely to engage in more passive environmental behaviors such as watching television specials focused on the environment and/or ceasing to purchase products that are bad for the environment. Visitors were much less likely to actively engage in environmental causes such as attending public hearings about the environment or contact government agencies to get information about an environmental problem. With regard to GCC, findings suggest visitors recognized that GCC is occurring worldwide, and that humans are largely the cause. Further, respondents indicated strong support and preference for all forms of renewable energy development (e.g., solar, onshore wind, hydroelectric) and opposition toward all forms of non-renewable energy development (e.g., oil and coal). Interestingly, visitors were relatively indifferent or natural towards both natural gas and nuclear energy development.

## Overall Conclusions

The overarching goal of the study was to assess water-based recreationists' attitudes and perceptions towards *potential* offshore wind energy development (OWD) along the New Hampshire seacoast. This report offers a snapshot of water-based recreation use within the New Hampshire seacoast. It provides basic data concerning water-based recreationists': socio-demographic characteristics, trip visitation and activity patterns, trip satisfaction and place attachment, perceptions towards OWD, perceived risks and benefits of OWD, perceived recreation impacts from OWD, and beliefs and attitudes towards environmentalism, global climate change, and energy preferences. Study results determined the majority of water-based recreationists in the sample noted being middle-aged white males, from the local area or the state of New Hampshire, who were politically moderate and reported earning moderate levels of education and household income. The sample consisted of highly experienced and repeat recreation users who participated in a multitude of water-based recreation activities such as fishing from shore and boats, motorized and non-motorized boating, beach activities, and surfing at the New Hampshire seacoast. The overall sample indicated high levels of satisfaction with their 2019 New Hampshire seacoast recreation experience, and noted strong place attachment with the coastal resource.

Moreover, study results suggest water-based recreationists were supportive and accepting of OWD off the coast of New Hampshire, and agreed that OWD would fit the landscape and oceanscape of the New Hampshire seacoast. The majority of the sample was supportive of electricity generated by OWD off the coast of New Hampshire being consumed by New Hampshire residents, and somewhat oppositional towards Maine and Massachusetts residents consuming that same electricity. Respondents indicated the major benefits of OWD within the New Hampshire seacoast relate to holistic concepts such as benefiting future generations, helping the environment, giving the area a positive reputation, and improving the local economy. The overall sample noted that OWD would have a positive impact upon the water-based recreation experience at the New Hampshire seacoast, and that OWD would likely draw recreationists and tourists to the region. For example, OWD may offer novel tourist attractions for water-based recreationists such as informational and interpretive boat tours to visit OWD sites, and OWD infrastructure could provide artificial marine habitat and structure producing potential dive sites and increased angler catch rates. Additionally, water-based recreationists noted the presence of OWD within the New Hampshire seacoast would *not* cause them to alter or substitute their experiences, activities, or behaviors; rather, OWD may serve to enhance and increase recreation visitation by serving as a novel and auxiliary attraction.

The results from this study provide a baseline from which to inform recreation resource management and energy policy at multiple levels of governance. Study results suggest support for OWD among water-based recreationists along the New Hampshire seacoast. Water-based recreationists in this study positively perceived the *fit* of OWD among their community and landscape and expressed an



understanding of the potential benefits and risks of OWD. Further, water-based recreationists perceived that OWD in New Hampshire could potentially give the New Hampshire seacoast a positive reputation, help the environment, and improve economic development. This study also highlights the importance of assessing and communicating recreation experience and use impacts when planning, developing, and managing OWD and related decisions in the United States. With the Northeastern Seaboard of the United States now poised for significant OWD expansion, it is important to understand how OWD affects a variety of recreationists and to involve this constituency in the OWD planning and policy process. This is especially true as OWD companies attempt to gain public support. This need for engagement and communication with recreation stakeholders will be critical to the continued success of OWD in the United States. Collectively, the information in this report should help give managers and stakeholders further insights that will aid in the sustained health and quality the New Hampshire seacoast.



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## **Appendix A. Staff, Students Supported, and Outreach/Extension**

One graduate student was employed on this project. Major tasks completed by the graduate student included survey data collection, and assistance with the data analysis and preparation of project reports and outreach materials. Study results informed the development of the graduate student research and scholarship. The following is a description of the staff, support, and outreach.

### **a. Students Supported**

- i. Number of Undergraduate Students = 0
- ii. Number of Graduate Students = 1
  - Mrs. Tasha Dooley
- iii. Degrees Awarded = 0

### **b. Staff**

- i. Number of full-time faculty = 3
  - Dr. Michael Ferguson
  - Dr. Clayton Mitchell
  - Dr. Lauren Ferguson
- ii. Number of full-time employees = 0

### **c. Publications**

- i. Total publication = 0

### **d. Volunteer Hours**

- i. Total volunteer hours = 0

### **e. Outreach/Extension**

- i. Number of meetings, workshops, or conferences, and number of attendees = 4; 400 attendees
- ii. Number of public or professional presentations, and number of attendees = 4; 400 attendees

## **Appendix B. Impact Statement**

Collaborative research between New Hampshire Sea Grant and the University of New Hampshire determined that water-based recreationists were supportive and accepting of OWD off the coast of New Hampshire, and agreed that OWD would fit the landscape and oceanscape of the New Hampshire seacoast. To date, there is little existing information on the impact and significance of OWD within the New Hampshire seacoast. Previous assessments are dated or investigated only specific components of the resource. Moreover, no previous studies have focused specifically on the social aspects of OWD upon water-based recreationist within the New Hampshire seacoast. This study provided a current and comprehensive assessment of the social impacts and significance of OWD upon water-based recreationists along the New Hampshire seacoast. For a guiding framework, this study utilized a systematic sampling plan and a quantitative survey methodology, which resulted in 553 completed surveys and a 75% response rate.

The primarily localized, experienced, educated, middle-aged, and attached study sample demonstrated they were dedicated and committed to the water-based recreation industry within the New Hampshire seacoast. Study results suggest the majority of respondents were supportive and accepting of OWD off the coast of New Hampshire, and agreed that OWD would fit the landscape and oceanscape of the New Hampshire seacoast. The overall sample noted that OWD would have a positive impact upon the water-based recreation experience at the New Hampshire seacoast, and that OWD would likely draw recreationists and tourists to the region. Moreover, water-based recreationists noted the presence of OWD within the New Hampshire seacoast would not cause them to alter or substitute their recreation experiences, activities, or behaviors; rather, OWD may serve to enhance and increase recreation visitation by serving as a novel and auxiliary attraction. While the state of New Hampshire manages the smallest section of Atlantic coastline, encompassing 13 total miles, the economic contribution of the water-based recreation industry within the New Hampshire seacoast is significant. The results from this study provide a baseline from which to inform recreation resource management and energy policy at multiple levels of governance.