Campaign 8 Interim Report 2

Massachusetts Clean Energy Center

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June 2024

Task/Deliverables	Schedule
Conduct August survey(s)/ Survey(s) completed	August 2023
Conduct September survey(s)/ Survey(s) completed	September 2023
Conduct October survey(s)/ Survey(s) completed	October 2023
Conduct November survey(s)/ Survey(s) completed	November 2023
Conduct December survey(s)/ Survey(s) completed	December 2023
Conduct January survey(s)/ Survey(s) completed	January 2024
Conduct February survey(s)/ Survey(s) completed	February 2024
Conduct March survey(s)/ Survey(s) completed	March 2024
Conduct April survey(s)/ Survey(s) completed	April 2024
Conduct May survey(s)/ Survey(s) completed	May 2024
Submit Mid-Campaign Report	June 2024

Project Plan

The New England Aquarium (NEAq) has conducted aerial line-transect surveys of the Southern New England Wind Energy Areas (WEA) and surrounding waters as illustrated in Figure 1 (the "study area") using a mix of observer sightings and automated aerial photography to estimate distributions and abundances of large whales, including the North Atlantic right whale (*Eubalaena glacialis*), and sea turtles.

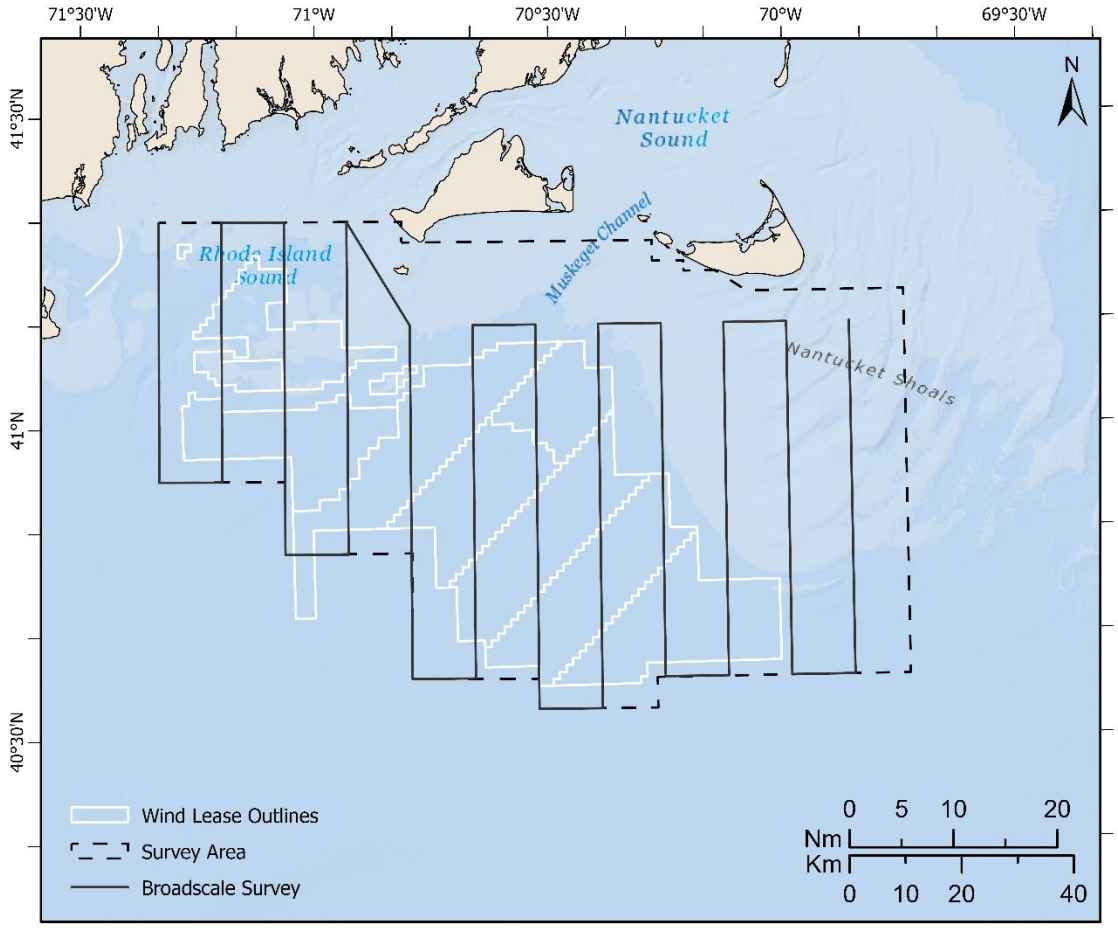

Figure 1. Wind energy areas in the offshore waters of Massachusetts and Rhode Island. Examples of tracklines for a general survey are depicted by black lines. Existing lease areas are depicted in white. Study area depicted by dashed black line.

Aerial surveys began in March 2023 and will continue through November 2024 ("Survey Campaign 8") with a draft final report to be completed in June 2025. This survey campaign will provide data required by the federal resource agencies to assess the environmental effects associated with offshore wind energy development in the Southern New England WEAs, and will increase understanding of the seasonality, numbers, and distribution of right whales, other large whales, and sea turtles.

The key objectives of the surveys are:

1. Collect line-transect sightings from broad-scale, general surveys (hereafter, general surveys) that can be used to map the distribution of large whales (with a focus on right, sei [*Balaenoptera borealis*], humpback [*Megaptera novaeangliae*], fin [*Balaenoptera physalus*], and minke whales [*Balaenoptera acutorostrata*]) and sea turtles in the study area and estimate their relative abundance.

2. Collect opportunistic observer sightings of other cetaceans (whales and dolphins), seals, sharks, and fish.

3. Collect digital photography to capture marine mammals, sea turtles, birds, and smaller cryptic species likely to be missed by observers scanning out to 2 nautical miles (nm) (e.g., harbor porpoise [*Phocoena phocoena*], sharks, fish and birds), and fixed fishing gear.

4. Conduct condensed, directed, and calibration surveys as needed to obtain fine-scale sightings and effort data, increase sample sizes, and understand the effects of conducting surveys at 1,500 feet, rather than 1,000 feet, which would be necessary during and after turbine construction.

5. Calculate density estimates for species with adequate sample sizes in an area of outer continental shelf federal waters off the coast of Massachusetts using the aerial observers' data. Species of interest include large whales (with a focus on right, humpback, fin and minke whales), common small cetaceans, and sea turtles.

We used the study area, design, and methodology that was previously reviewed and approved by MassCEC and BOEM. Surveys followed appropriate safety and communications protocols. NEAq provided a survey report to all survey partners within 24 hours of each survey. Details of tasks, milestones, and deliverables are provided in Table 1. Four types of line-transect aerial surveys are included in this project plan:

1. General surveys record all types of marine fauna visible from the aircraft. These line-transect surveys cover the entire wind energy area (5,811 km^2) and extend slightly beyond the lease area boundaries (Figure 1). They have north-south tracklines that are 6 nm apart. Eight survey options are available: each option shifts all tracklines 0.75 nm east or west, but maintains the 6 nm spacing between tracklines. Survey options were selected at random before each survey. Our goal is to fly these surveys twice a month and we prioritize their completion over flying the other types of surveys. However, we also try to achieve some temporal separation between general surveys to maximize the oceanographic variability captured during each survey. Balancing these objectives may result in our only flying one general survey, if weather conditions change during our survey window.

2. Condensed surveys occur in areas used by aggregations of right whales to better determine demographic, distribution, and behavior patterns in the study area. The tracklines for these surveys are 3 nm apart. Four survey options are available: each option shifts all tracklines 0.75 nm east or west, but maintains the 3 nm spacing between tracklines The exact number of condensed surveys will be determined as surveys progress. For example, additional condensed surveys may be conducted if aggregations of right whales persist and monthly general surveys are completed in less time than budgeted (e.g., this situation could occur when we have good

weather conditions). These surveys may also be flown in between general surveys to achieve temporal separation between general surveys.

3. Directed surveys are flown to respond to aggregations of right whales within the study area. These surveys are coordinated with NOAA Fisheries' Northeast Fisheries Science Center (hereafter, NEFSC). The exact number of directed surveys will be determined as surveys progress, similar to condensed surveys.

4. Calibration surveys are conducted to estimate the effect of changing altitude on our ability to detect different species. Specifically, the same set of tracklines are flown twice during each of these surveys: once at the standard 1,000 feet and once at 1,500 feet. Understanding the effect of changing altitude is important because surveys conducted during turbine construction and operation will need to be flown at 1,500 feet. The timing of these surveys will be selected to maximize the opportunity to complete two general surveys each month and to maximize the expected number of multiple species in the study area for a calibration survey. The exact number of calibration surveys will be determined as surveys progress, similar to condensed and directed surveys.

In addition, NEAq has been concurrently flying additional broadscale surveys and condensed surveys funded under two different additional contracts (the Department of Energy funded Wildlife and Offshore Wind [WOW] project lead by Duke University, and surveys funded by Northeast Fisheries Science Center), and will continue to fly additional surveys through the end of Campaign 8. Because we consider this work additive, we report on all surveys conducted in the study area during the period of performance.

Table 1. Tasks, Milestones and Deliverables (Campaign 8).

Task Number	Description	Milestone/Deliverable	Completion Date
1	Establish and monitor **safety protocols** for aerial surveys	Contractor COVID-19 protocols Aviation operations and safety practices documentation Updates to COVID-19 or aviation protocols and practices	February 15, 2023 February 15, 2023 Within 14 calendar days of adoption by Contractor
2-A	Conduct **March** surveys and submit a Daily Summary Report for each survey	Surveys completed Daily Summary Report	March 2023 Within 24 hours of completion of survey
2-B	Conduct **April** surveys and submit a Daily Summary Report for each survey	Surveys completed Daily Summary Report	April 2023 Within 24 hours of completion of survey
2-C	Conduct **May** surveys and submit a Daily Summary Report for each survey	Surveys completed Daily Summary Report	May 2023 Within 24 hours of completion of survey
2-D	Conduct **June** surveys and submit a Daily Summary Report for each survey	Surveys completed Daily Summary Report	June 2023 Within 24 hours of completion of survey
2-E	Conduct **July** surveys and submit a Daily Summary Report for each survey	Surveys completed Daily Summary Report	July 2023 Within 24 hours of completion of survey
2-F	Conduct **August** surveys and submit a Daily Summary Report for each survey	Surveys completed Daily Summary Report	August 2023 Within 24 hours of completion of survey
2-G	Conduct **September** surveys and submit a Daily Summary Report for each survey	Surveys completed Daily Summary Report	September 2023 Within 24 hours of completion of survey
2-H	Conduct **October** surveys and submit a Daily Summary Report for each survey	Surveys completed Daily Summary Report	October 2023 Within 24 hours of completion of survey
2-I	Conduct **November** surveys and submit a Daily Summary Report for each survey	Surveys completed Daily Summary Report	November 2023 Within 24 hours of completion of survey
2-J	Conduct **December** surveys and submit a Daily Summary Report for each survey	Surveys completed Daily Summary Report	December 2023 Within 24 hours of completion of survey
	NOAA-Funded Surveys include January and February 2024.		
2-K	Conduct **March** surveys and submit a Daily Summary Report for each survey	Surveys completed Daily Summary Report	March 2024 Within 24 hours of completion of survey
2-L	Conduct **April** surveys and submit a Daily Summary Report for each survey	Surveys completed Daily Summary Report	April 2024 Within 24 hours of completion of survey
2-M	Conduct **May** surveys and submit a Daily Summary Report for each survey	Surveys completed Daily Summary Report	May 2024 Within 24 hours of completion of survey
2-N	Conduct **June** surveys and submit a Daily Summary Report for each survey	Surveys completed Daily Summary Report	June 2024 Within 24 hours of completion of survey

Task Number	Description	Milestone/Deliverable	Completion Date
2-O	Conduct **July** surveys and submit a Daily Summary Report for each survey	Surveys completed Daily Summary Report	July 2024 Within 24 hours of completion of survey
2-P	Conduct **August** surveys and submit a Daily Summary Report for each survey	Surveys completed Daily Summary Report	August 2024 Within 24 hours of completion of survey
2-Q	Conduct **September** surveys and submit a Daily Summary Report for each survey	Surveys completed Daily Summary Report	September 2024 Within 24 hours of completion of survey
2-R	Conduct **October** surveys and submit a Daily Summary Report for each survey	Surveys completed Daily Summary Report	October 2024 Within 24 hours of completion of survey
2-S	Conduct **November** surveys and submit a Daily Summary Report for each survey	Surveys completed Daily Summary Report	November 2024 Within 24 hours of completion of survey
2-T	Optional: Conduct **additional** month(s) of surveys	Surveys completed Daily Summary Report	To be Determined Within 24 hours of completion of survey
3-A	Prepare **Interim Campaign Report 1**	Interim Campaign Report 1	August 31, 2023
3-B	Prepare **Interim Campaign Report 2**	Interim Campaign Report 2	June 30, 2024
3-C	Prepare quarterly table of survey effort	Quarterly Table of Campaign 8 Survey Effort	Twentieth (20^{th}) day of the month following end of the calendar quarter
4	Perform **QA/QC review** of survey data	QA/QC survey data	February 28, 2025 *
5	Prepare **Final Survey Campaign 8 Report**	Draft Report MassCEC and BOEM review period Final Report	March 31, 2025 * May 31, 2025 * June 30, 2025 *
6	Compile survey **vertical photography**	Hard-drive archive for BOEM Representative pictures for MassCEC	June 30, 2025 * June 30, 2025 *

* Subject to the Term set forth in Section 4, the completion date for these subtasks shall be extended by one (1) month for each additional month of surveys completed pursuant to Task 2-I.

2 Aerial Surveys

2.1 Preliminary Results

In this reporting period, 30 surveys were conducted on 28 days for a total of 26 general trackline surveys, three condensed trackline surveys, and one directed survey (details in Table 2). Total survey time was 165.9 h and covered 29,361.3 kilometers (km).

Table 2. Summary of aerial survey effort conducted in the study area offshore of Massachusetts and Rhode Island from August 2023 through May 2024. Note: W = west, E = east, km = kilometers, NA = not applicable, Cond = condensed survey, Dir = directed survey. * denotes surveys not funded by BOEM. Option number refers to one of eight general survey trackline options available.

Month	Day	Year	Survey Type	Airtime hours	km	Direction	Option
August	1	2023	General + Cond	8.0	1,504.8	W → E	8
August	2	2023	General	2.5	376.0	W → E	8
August	6	2023	General	7.0	1,140.9	W→ E	3
August	10	2023	General	6.3	1,085.4	W → E	1
August	14	2023	General	6.9	1,124.6	W → E	7
September	12	2023	General	3.2	609.9	W → E	5
September	13	2023	General	3.8	728.9	W → E	5
September	21	2023	General	6.6	1,149.9	W → E	2
October	5	2023	General	3.5	572.3	W → E	4
October	12	2023	General	6.3	1,215.1	W → E	8
October	17	2023	General	6.2	1,123.2	W → E	1
November	6	2023	General	6.5	1,218.2	W → E	7
November	12	2023	General	6.1	1,098.1	W → E	3
November	15	2023	Condensed	5.4	1,041.2	W → E	-
December	8	2023	General	5.6	1,123.2	W → E	2
January	12	2024	General	6.8	1,117.1	W → E	3
*January	31	2024	General	6.8	1,106.6	W → E	6
*February	9	2024	General	5.7	918.8	W → E	4
*February	12	2024	General + Dir	6.9	1,300.3	W → E	5
February	22	2024	General	7.0	1,318.1	W → E	8
*March	1	2024	General	7.0	1,175.9	W → E	5
*March	13	2024	Condensed	5.6	889.9	W → E	-
March	31	2024	General	6.0	1,077.1	W → E	6
April	9	2024	General	6.5	1,236.0	E → W	3
April	17	2024	General	6.0	909.2	E → W	8
May	9	2024	General	7.4	1,173.2	W → E	1
May	15	2024	General	5.1	883.4	W → E	2
May	25	2024	General	5.2	1,144.0	W → E	4

2.2 Survey date: August 1, 2023

Aircraft takeoff occurred from New Bedford Regional Airport at 0912 h. Survey conditions were clear, visibility was 5 nm, wind ranged from 8-12 knots from the N to NE, and Beaufort Sea State ranged from 2-4. This survey lasted 8.0 h and covered eight general survey tracklines and eight condensed tracklines to provide aerial support for project WOW. A total of 106 sightings of marine fauna were recorded by observers (Table 3). Survey tracklines and observer sightings are shown in Figure 2. A sample photograph from this survey can be seen in Figure 3.

Table 3: Species sighted by observers during the August 1st aerial survey.

Species	Number of sightings	Number of individuals
Blue shark *(Prionace glauca)*	2	2
Bottlenose dolphin *(Tursiops truncatus)*	9	125
Common dolphin *(Delphinus delphis)*	13	692
Fin whale *(Balaenoptera physalus)*	27	36
Hammerhead shark (*Sphyrna sp.)*	2	2
Humpback whale *(Megaptera novaeangliae)*	29	43
Minke whale *(Balaenoptera acutorostrata)*	10	11
Unidentified dolphin/porpoise	4	40
Unidentified shark	10	11

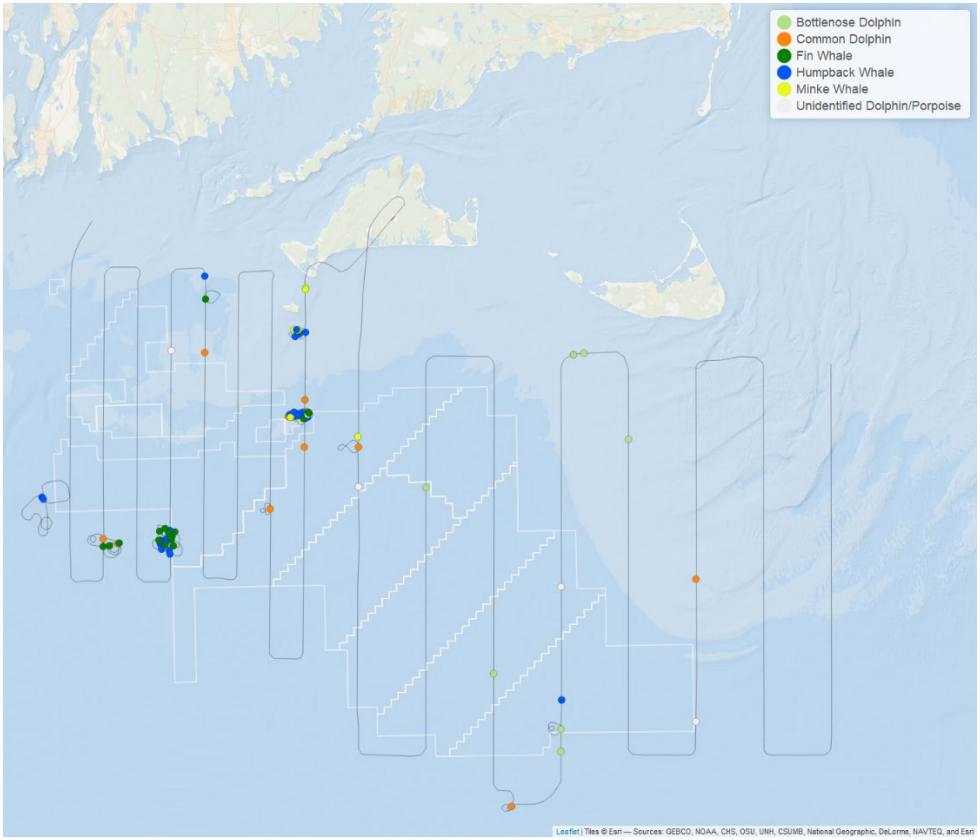

Figure 2. Marine mammal sightings and tracklines from a condensed survey and a partial general survey conducted on August 1, 2023 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy lease sites.

Figure 3. A humpback whale breaching during the August 1, 2023 aerial survey.

2.3 Survey date: August 2, 2023

Aircraft takeoff occurred from New Bedford Airport at 1052 h. Survey conditions were clear, visibility was 5 nm, wind speed was 14-18 knots from the N, and Beaufort Sea State ranged from 1-3. This survey lasted 2.5 h and covered four general survey tracklines. A total of 42 sightings of marine fauna were recorded by observers (Table 4). Survey tracklines and observer sightings are shown in Figure 4.

Table 4. Species sighted by observers during the August 2nd aerial survey.

Species	Number of sightings	Number of individuals
Bottlenose dolphin (*Tursiops truncatus)*	1	25
Common dolphin *(Delphinus delphis)*	10	545
Fin whale *(Balaenoptera physalus)*	12	19
Humpback whale *(Megaptera novaeangliae)*	15	21
Minke whale *(Balaenoptera acutorostrata)*	3	3
Unidentified dolphin	1	25

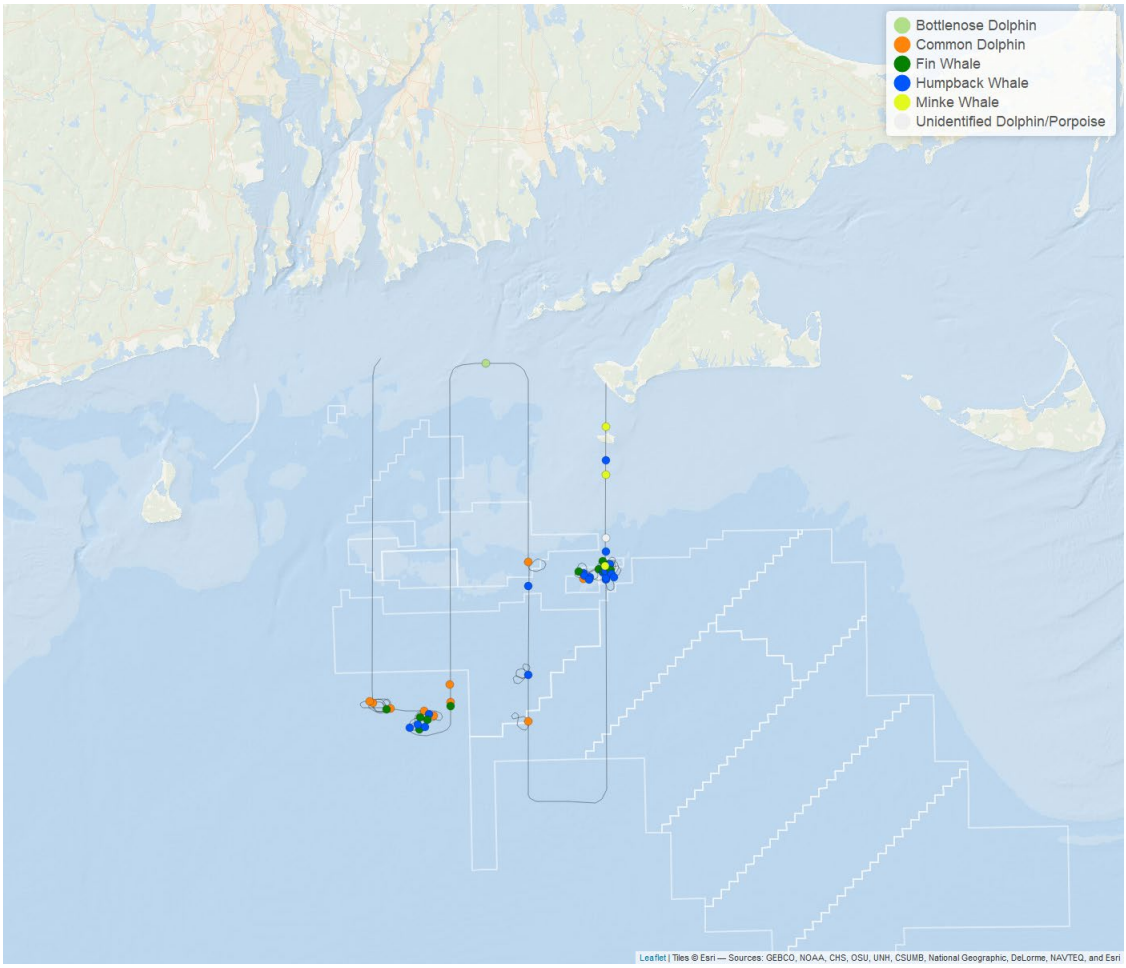

Figure 4. Marine mammal sightings and tracklines from a partial general survey conducted on August 2, 2023 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites.

2.4 Survey date: August 6, 2023

Aircraft takeoff occurred from New Bedford Regional Airport at 0901 h. Survey conditions were hazy to clear, visibility was 5 nm, wind ranged from 12-14 knots from the N to SSW, and Beaufort Sea State ranged from 1-3. This survey lasted 7.0 h and covered 12 general survey tracklines. A total of 183 sightings of marine fauna were recorded by observers (Table 5). Survey tracklines and observer sightings are shown in Figure 5. A sample photograph from this survey can be seen in Figure 6.

Table 5. Species sighted by observers during the August 6th aerial survey.

Species	Number of sightings	Number of individuals
Bottlenose dolphin *(Tursiops truncatus)*	5	31
Common dolphin *(Delphinus delphis)*	26	1,318
Fin whale (*Balaenoptera physalus)*	15	23
Hammerhead shark *(Sphyrna sp.)*	7	8
Humpback whale (*Megaptera novaeangliae)*	32	50
Leatherback sea turtle *(Dermochelys coriacea)*	5	5
Minke whale *(Balaenoptera acutorostrata)*	12	13
Unidentified dolphin	11	73
Unidentified shark	70	80

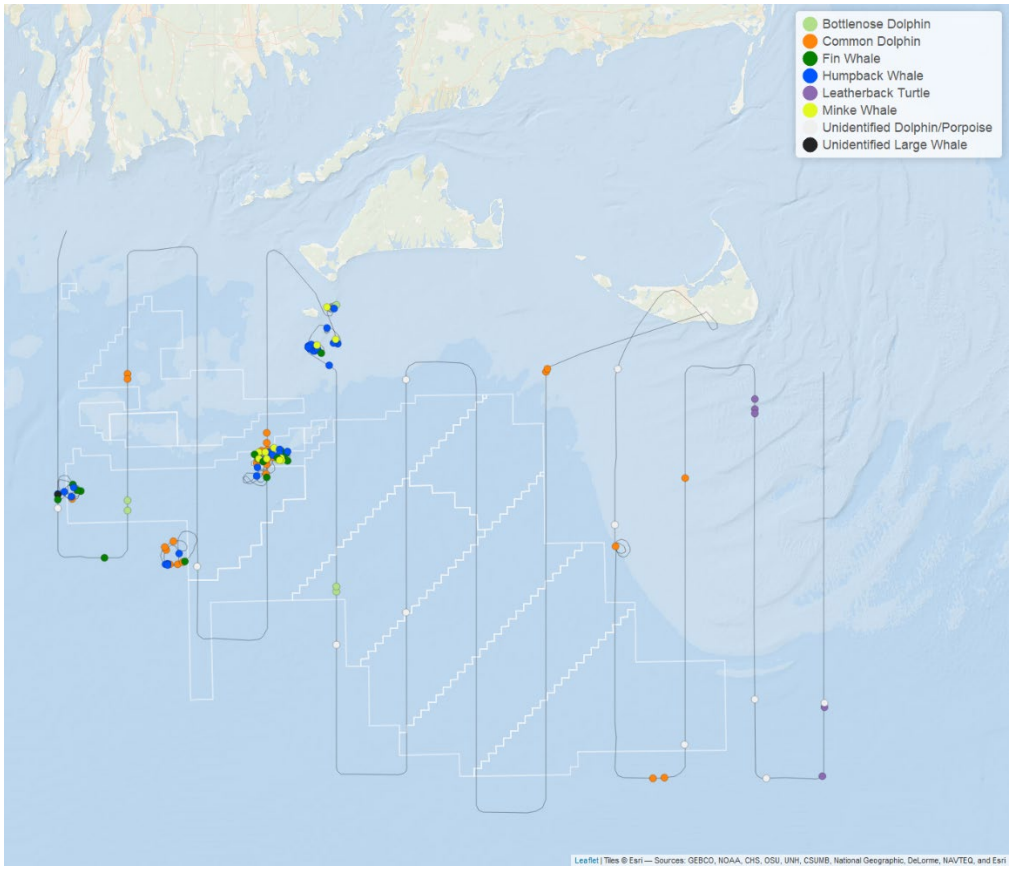

Figure 5. Marine mammal and sea turtle sightings and tracklines from a general survey conducted on August 6, 2023 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites.

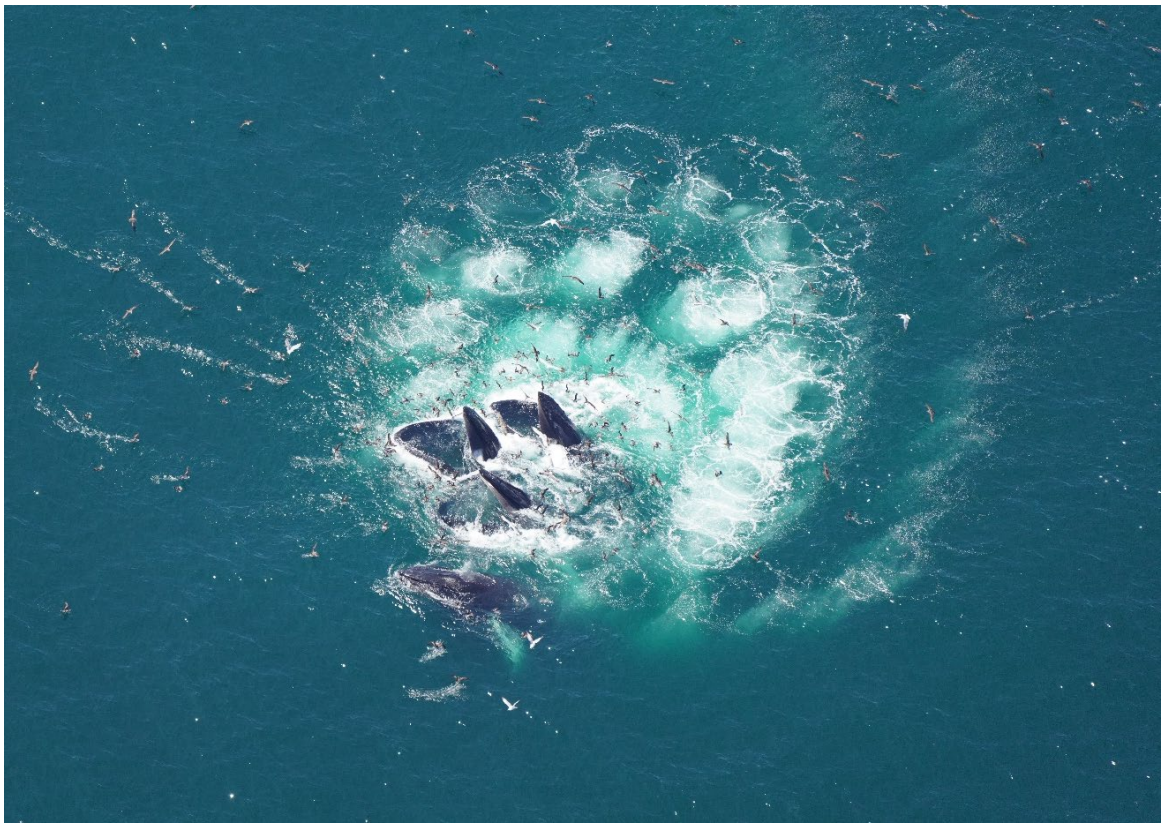

Figure 6. A group of humpbacks bubble-net feeding during the August 6, 2023 aerial survey.

2.5 Survey date: August 10, 2023

Aircraft takeoff occurred from New Bedford Regional Airport at 0807 h. Survey conditions were hazy, visibility was 4-5 nm, wind ranged from 6-16 knots from the SW, and Beaufort Sea State ranged from 2-4. This survey lasted 6.3 h and covered 12 general survey tracklines. A total of 58 sightings of marine fauna were recorded by observers (Table 6). Survey tracklines and observer sightings are shown in Figure 7.

Table 6. Species sighted by observers during the August 10th aerial survey.

Species	Number of sightings	Number of individuals
Bottlenose dolphin *(Tursiops truncatus)*	2	7
Common dolphin *(Delphinus delphis)*	13	247
Fin whale *(Balaenoptera physalus)*	11	16
Humpback whale *(Megaptera novaeangliae)*	16	30
Minke whale *(Balaenoptera acutorostrata)*	8	8
Unidentified dolphin/porpoise	6	86
Unidentified shark	2	2

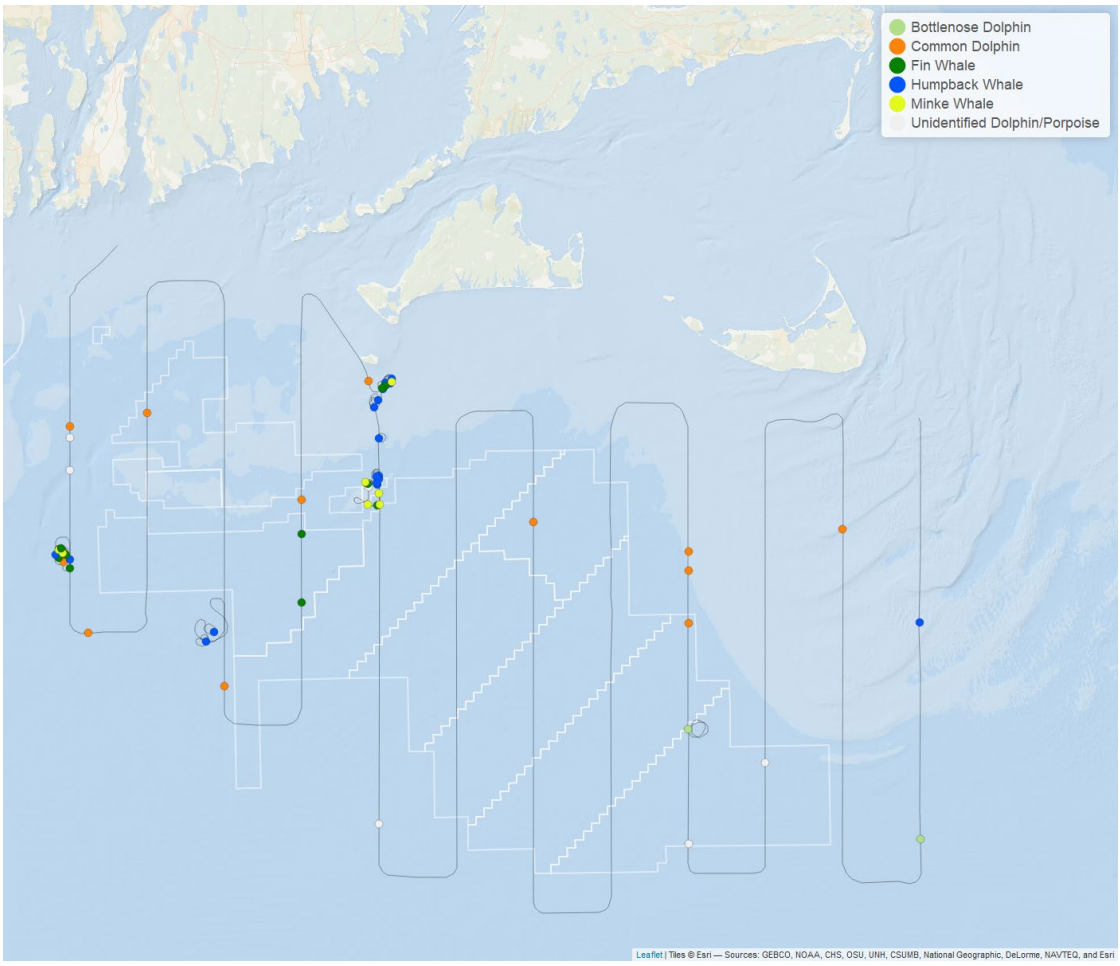

Figure 7. Marine mammal sightings and tracklines from a general survey conducted on August 10, 2023 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites.

2.6 Survey date: August 14, 2023

Aircraft takeoff occurred from New Bedford Regional Airport at 0902 h. Survey conditions were clear, visibility was 5 nm, wind ranged from 8-18 knots from the W to SW, and Beaufort Sea State ranged from 1-4. This survey lasted 6.9 h and covered 12 general survey tracklines. A total of 67 sightings of marine fauna were recorded by observers (Table 7). Survey tracklines and observer sightings are shown in Figure 8. A sample photograph from this survey can be seen in Figure 9.

Table 7. Species sighted by observers during the August 14th aerial survey.

Species	Number of sightings	Number of individuals
Basking shark *(Cetorhinus maximus)*	1	1
Bottlenose dolphin *(Tursiops truncatus)*	4	39
Common dolphin *(Delphinus delphis)*	9	435
Fin whale *(Balaenoptera physalus)*	3	9
Hammerhead shark *(Sphyrna sp.)*	5	5
Humpback whale *(Megaptera novaeangliae)*	16	27
Leatherback sea turtle *(Dermochelys coriacea)*	1	1
Minke whale *(Balaenoptera acutorostrata)*	2	2
Ocean sunfish *(Mola mola)*	4	4
Unidentified dolphin/porpoise	5	26
Unidentified shark	17	17

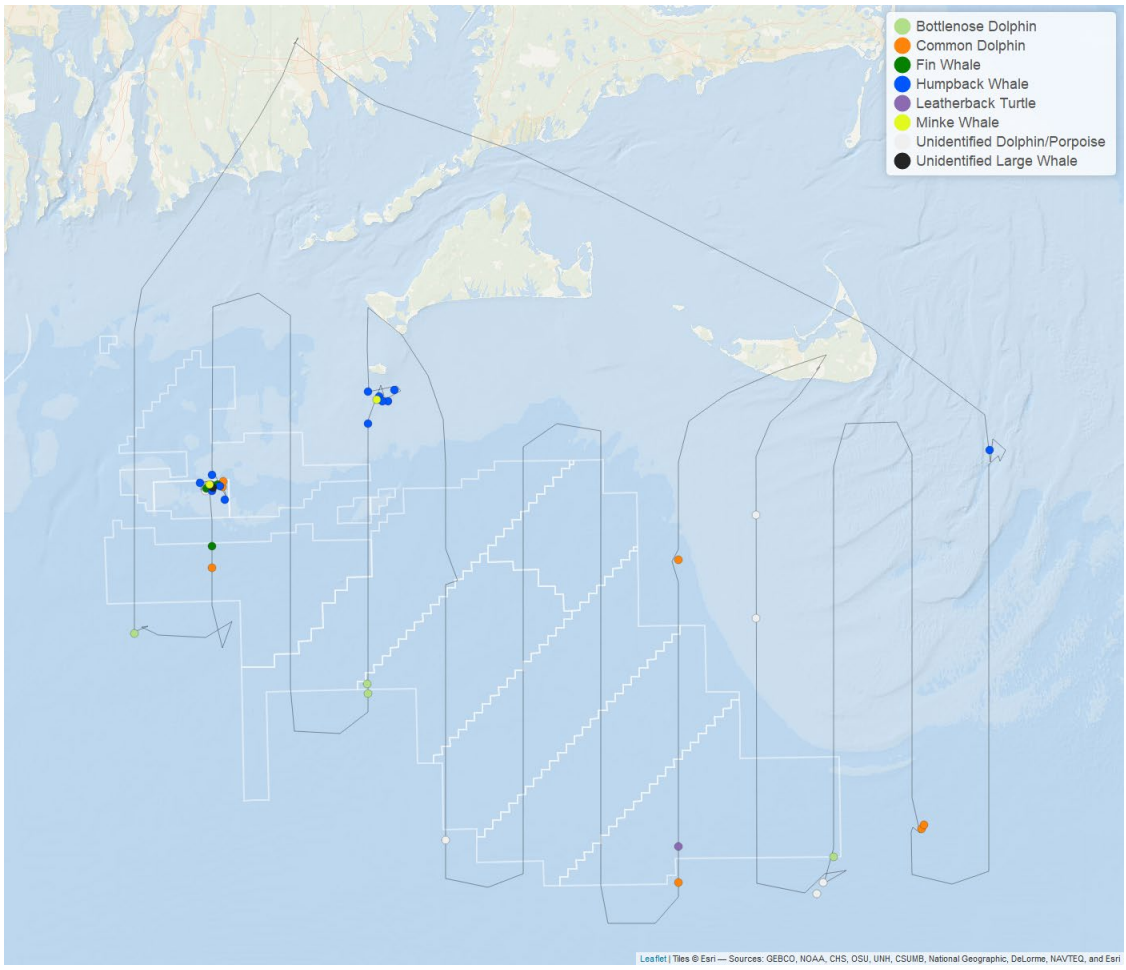

Figure 8. Marine mammal and sea turtle sightings and tracklines from a general survey conducted on August 14, 2023 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites.

Figure 9. A fin whale and common dolphins seen during the August 14, 2023 survey.

2.7 Survey date: September 12, 2023

Aircraft takeoff was delayed to let fog in the survey area burn off and occurred from New Bedford Regional Airport at 1428 h. Survey conditions were clear to patchy fog to fog, visibility was 1-5 nm, wind was 6 knots from the S, and Beaufort Sea State ranged from 1-2. This survey lasted 3.2 h and covered six general survey tracklines, two of which were cut short due to persistent fog. A total of 135 sightings of marine fauna were recorded by observers (Table 8). Survey tracklines and observer sightings are shown in Figure 10.

Table 8. Species sighted by observers during the September 12th aerial survey.

Species	Number of sightings	Number of individuals
Common dolphin *(Delphinus delphis)*	6	579
Fin whale *(Balaenoptera physalus)*	5	5
Hammerhead shark *(Sphyrna sp.)*	33	34
Humpback whale *(Megaptera novaeangliae)*	5	16
Leatherback sea turtle *(Dermochelys coriacea)*	1	1
Minke whale *(Balaenoptera acutorostrata)*	2	2
Ocean sunfish (*Mola mola)*	1	1
Unidentified dolphin/porpoise	5	32
Unidentified ray	3	3
Unidentified shark	73	92
Unidentified tuna	1	17

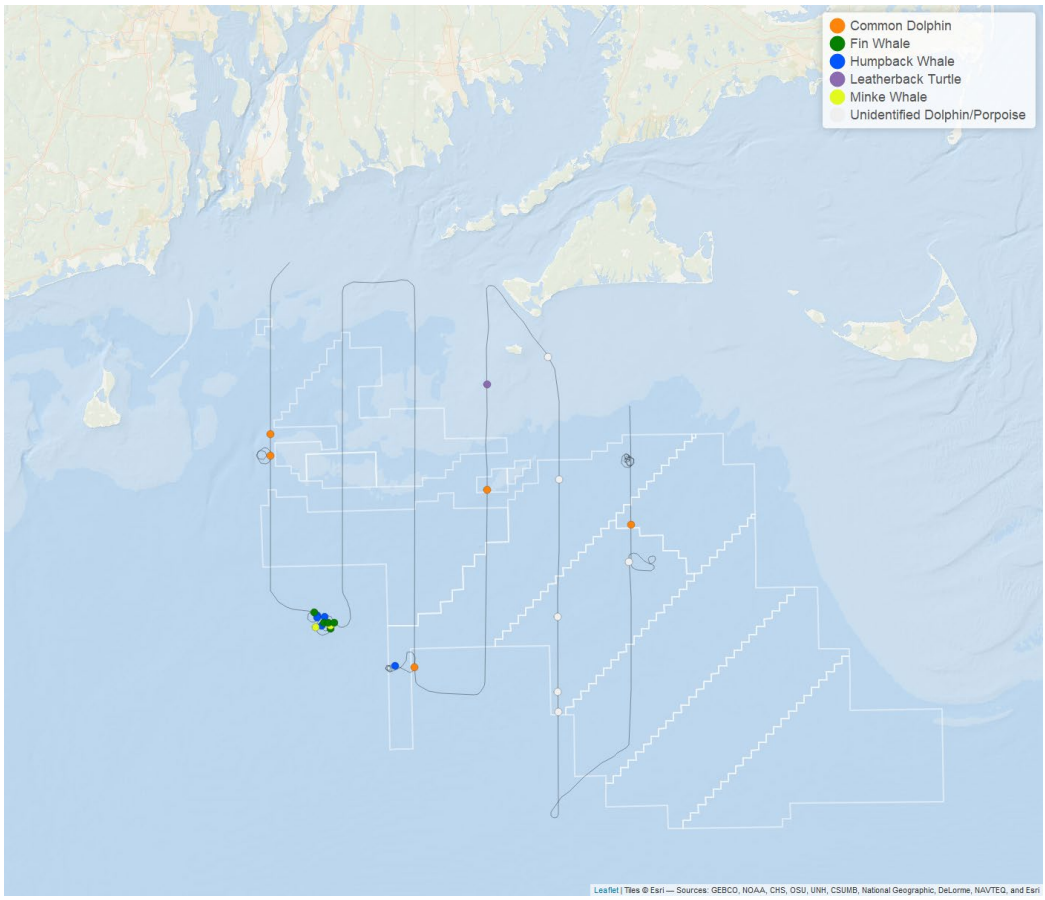

Figure 10. Marine mammal and sea turtle sightings and tracklines from a partial general survey conducted on September 12, 2023 the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites.

2.8 Survey date: September 13, 2023

Aircraft takeoff was delayed due to low cloud cover and occurred from New Bedford Regional Airport at 1113 h. Survey conditions were clear to patchy fog to fog, visibility was 0-5 nm, wind was 7-10 knots from the S, and Beaufort Sea State ranged from 2-3. This survey lasted 3.8 h and covered the six remaining general survey tracklines from the September 12th survey. The easternmost line was only partially flown due to fog. A total of 31 sightings of marine fauna were recorded by observers (Table 9). Survey tracklines and observer sightings are shown in Figure 11.

Table 9. Species sighted by observers during the September 13th aerial survey.

Species	Number of sightings	Number of individuals
Bottlenose dolphin *(Tursiops truncatus)*	1	12
Common dolphin *(Delphinus delphis)*	9	360
Hammerhead shark *(Sphyrna sp.)*	6	6
Leatherback sea turtle *(Dermochelys coriacea)*	4	5
Unidentified dolphin/porpoise	2	3
Unidentified shark	8	9
Unidentified tuna	1	20

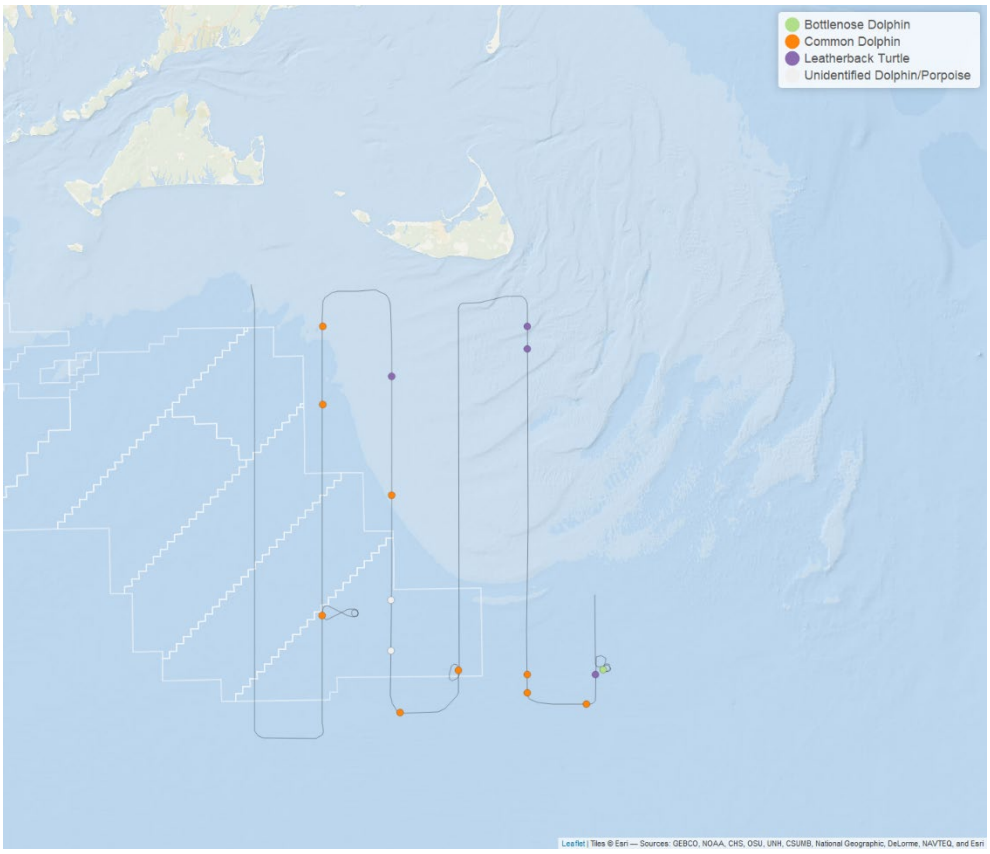

Figure 11. Marine mammal and sea turtle sightings and tracklines from a partial general survey conducted on September 13, 2023 in the study area offshore of Massachusetts and Rhode. White outlines represent the offshore wind energy area lease sites.

2.9 Survey date: September 21, 2023

Aircraft takeoff occurred from New Bedford Regional Airport at 0828 h. Survey conditions were hazy, visibility was 5 nm, wind ranged from 4-12 knots from the N, and Beaufort Sea State ranged from 1-3. This survey lasted 6.6 h and covered 12 general survey tracklines. A total of 57 sightings of marine fauna were recorded by observers (Table 10). Survey tracklines and observer sightings are shown in Figure 12. A sample photograph from this survey can be seen in Figure 13.

Table 10. Species sighted by observers during the September 21st aerial survey.

Species	Number of sightings	Number of individuals
Bottlenose dolphin *(Tursiops truncatus)*	5	92
Common dolphin *(Delphinus delphis)*	11	970
Fin whale *(Balaenoptera physalus)*	1	1
Humpback whale *(Megaptera novaeangliae)*	17	25
Leatherback sea turtle *(Dermochelys coriacea)*	4	4
Ocean sunfish *(Mola mola)*	12	12
Risso's dolphin *(Grampus griseus)*	1	50
Unidentified dolphin/porpoise	2	10
Unidentified shark	3	3
Unidentified tuna	1	15

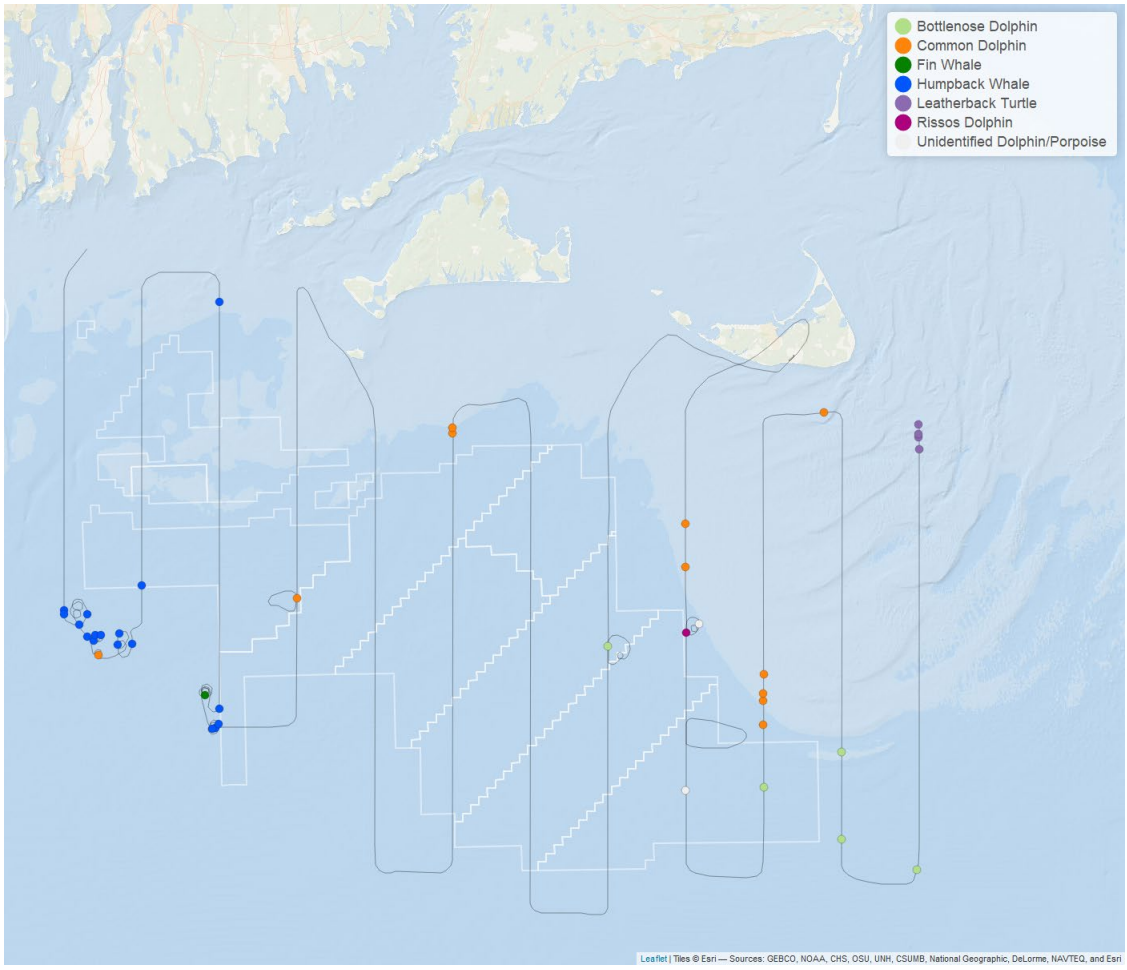

Figure 12. Marine mammal and sea turtle sightings and tracklines from a general survey conducted on September 21, 2023 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites.

Figure 13. A pod of Risso's dolphins seen during the September 21, 2023 aerial survey.

2.10 Survey date: October 5, 2023

Aircraft takeoff occurred from New Bedford Regional Airport at 1037 h. Survey conditions were hazy to fog, visibility was 0-5 nm, wind ranged from 6-8 knots from the S, and Beaufort Sea State ranged from 2-3. This survey lasted 3.5 h and covered six general survey tracklines, two of which were not completed due to fog. A total of 31 sightings of marine fauna were recorded by observers (Table 11). Survey tracklines and observer sightings are shown in Figure 14. A sample photograph from this survey can be seen in Figure 15.

Table 11. Species sighted by observers during the October 5th aerial survey.

Species	Number of sightings	Number of individuals
Common dolphin (*Delphinus delphis)*	6	146
Fin whale *(Balaenoptera physalus)*	1	1
Humpback whale (*Megaptera novaeangliae)*	6	12
Minke whale *(Balaenoptera acutorostrata)*	2	2
Unidentified dolphin/porpoise	3	11
Unidentified large whale	1	1
Unidentified shark	12	13

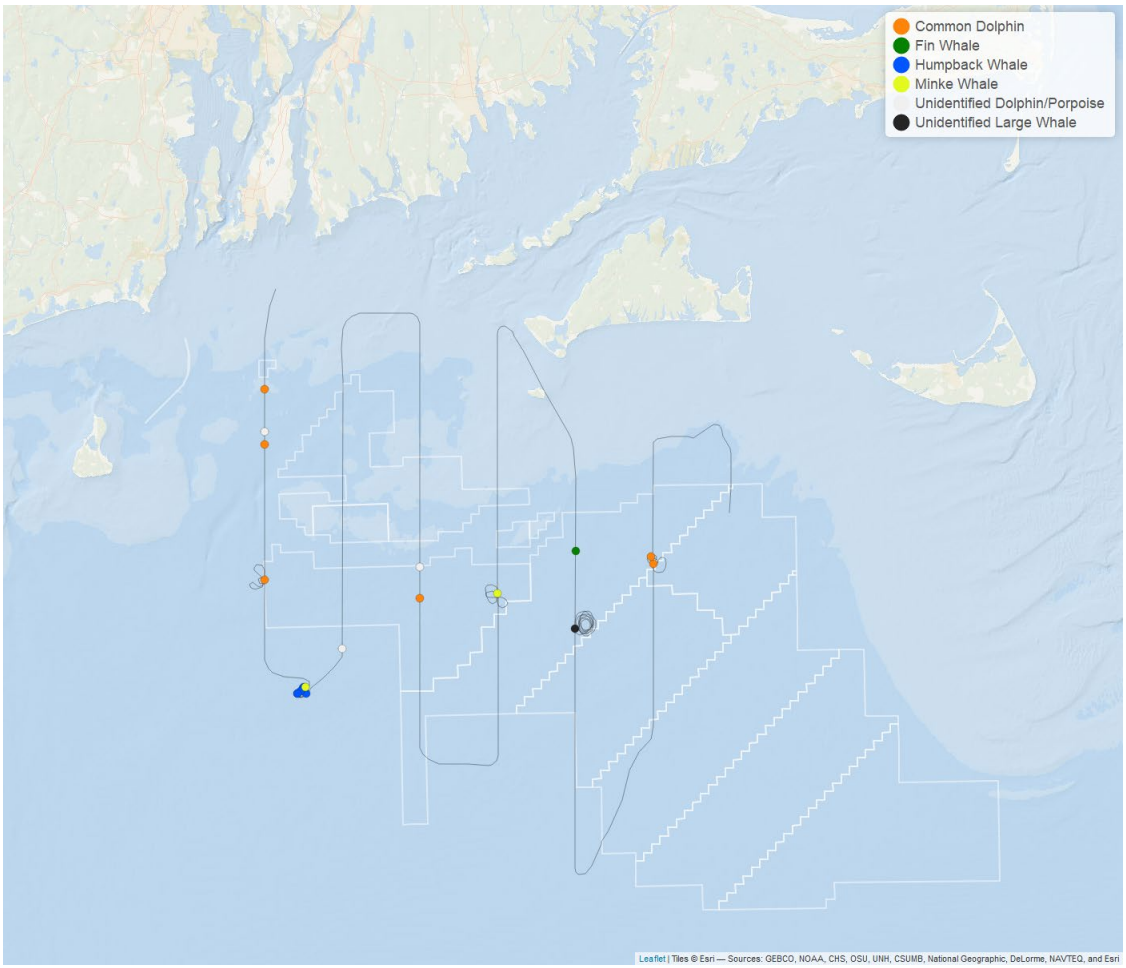

Figure 14. Marine mammal sightings and tracklines from a partial general survey conducted on October 5, 2023 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites.

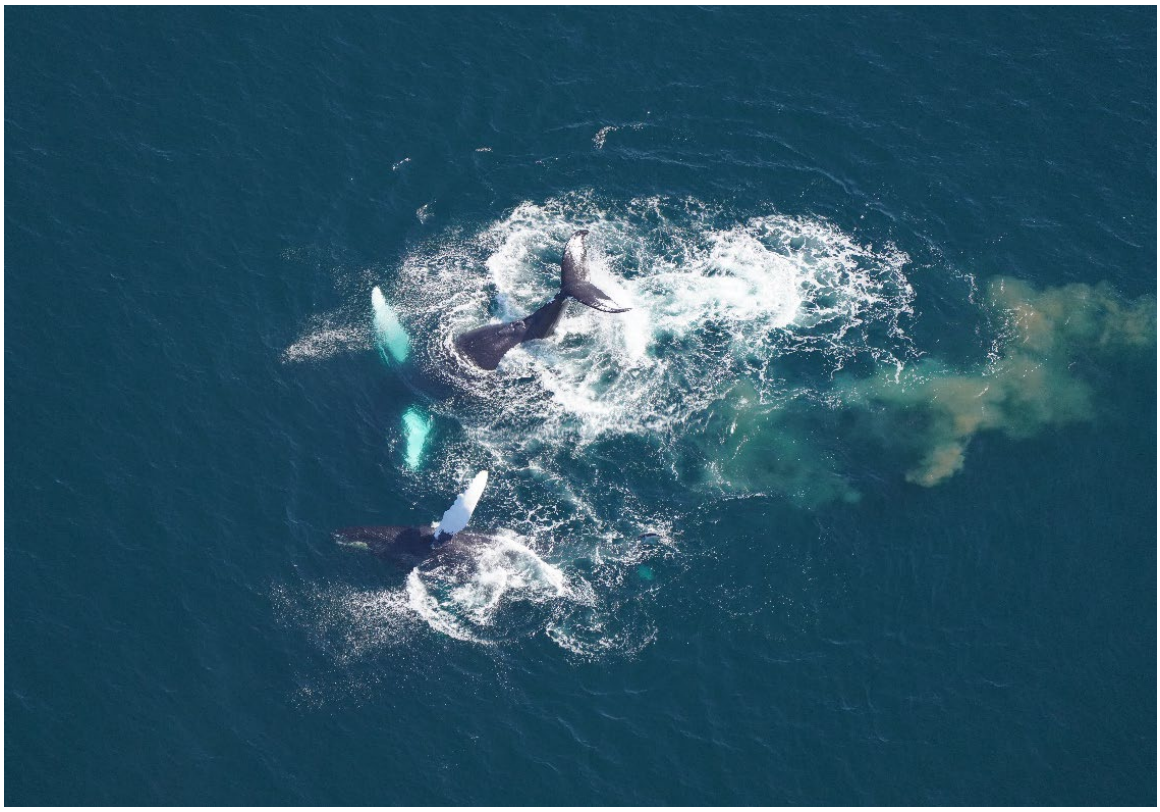

Figure 15. Humpback whales observed lobtailing, flipper slapping, and defecating during the October 5, 2023 aerial survey.

2.11 Survey date: October 12, 2023

Aircraft takeoff occurred from New Bedford Regional Airport at 0901 h. Survey conditions were hazy to patchy fog, visibility was 5 nm, wind ranged from 4-10 knots from the N, and Beaufort Sea State ranged from 1-2. This survey lasted 6.3 h and covered 12 general survey tracklines. A total of 54 sightings of marine fauna were recorded by observers (Table 12). Survey tracklines and observer sightings are shown in Figure 16.

Table 12. Species sighted by observers during the October 12th aerial survey.

Species	Number of sightings	Number of individuals
Basking shark (*Cetorhinus maximus)*	5	11
Bottlenose dolphin *(Tursiops truncatus)*	1	5
Common dolphin *(Delphinus delphis)*	29	1,065
Fin whale *(Balaenoptera physalus)*	2	3
Minke whale (*Balaenoptera acutorostrata)*	3	3
Unidentified dolphin/porpoise	3	40
Unidentified seal	1	8
Unidentified shark	10	10

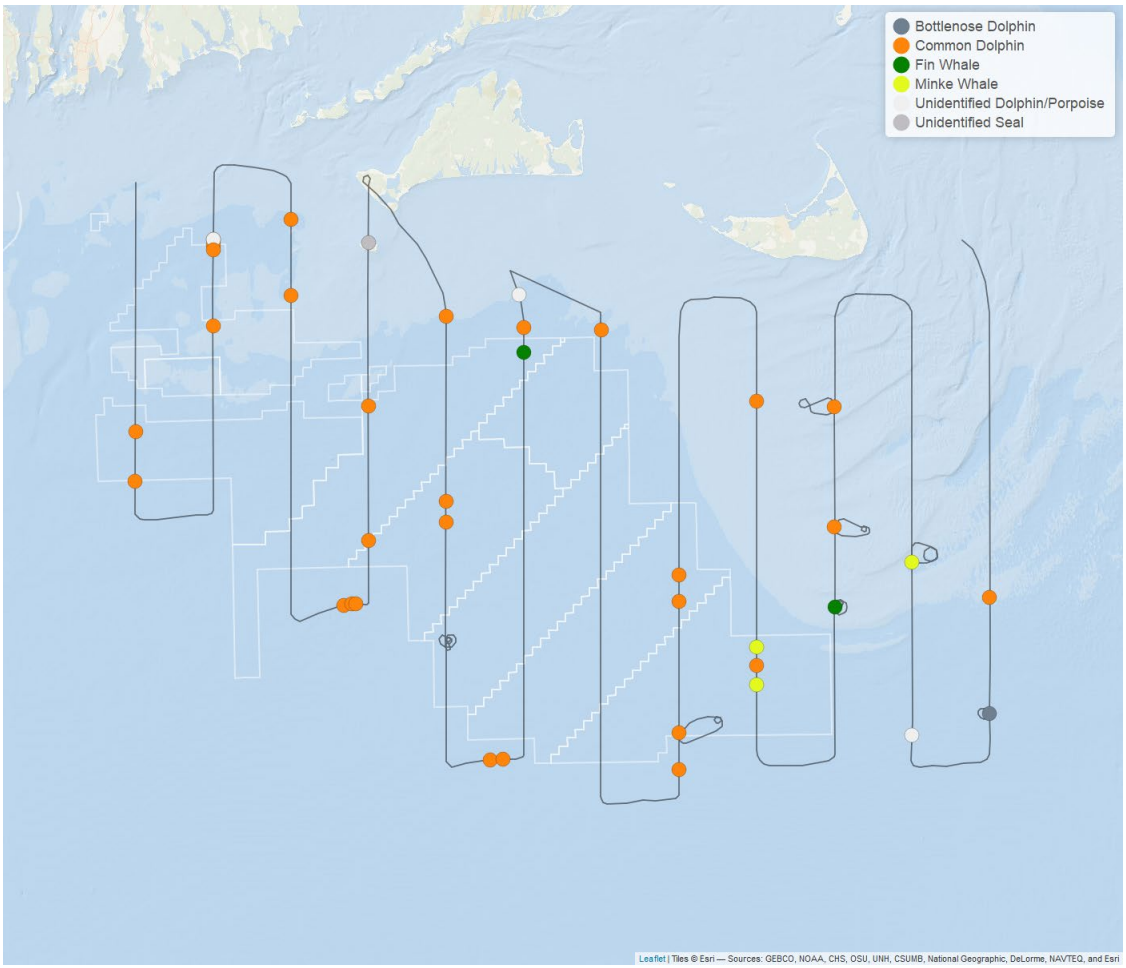

Figure 16. Marine mammal sightings and tracklines from a general survey conducted on October 12, 2023 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites.

2.12 Survey date: October 17, 2023

Aircraft takeoff occurred from New Bedford Regional Airport at 0855 h. Survey conditions ranged from clear to light rain to patchy fog, visibility was 2-5 nm, wind ranged from 2-8 knots from the NNE to ENE, and Beaufort Sea State ranged from 2-4. This survey lasted 6.2 h and covered 12 general survey tracklines. A total of 16 sightings of marine fauna were recorded by observers (Table 13). Survey tracklines and observer sightings are shown in Figure 17.

Table 13. Species sighted by observers during the October 17th aerial survey.

Species	Number of sightings	Number of individuals
Common dolphin (*Delphinus delphis)*	9	325
Fin whale (*Balaenoptera physalus)*	1	1
Ocean sunfish (*Mola mola)*	1	1
Unidentified dolphin/porpoise	5	22

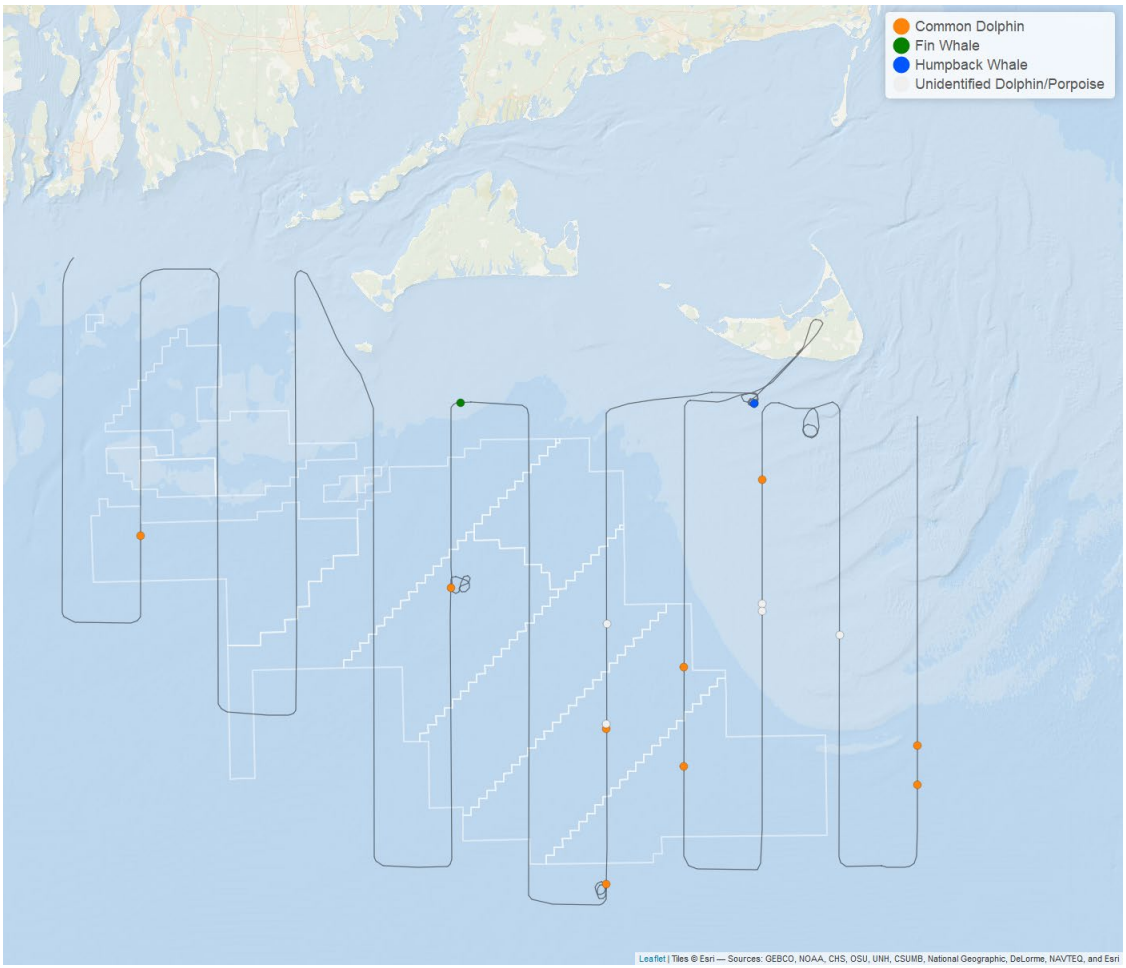

Figure 17. Marine mammal sightings and tracklines from a general survey conducted on October 17, 2023 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites.

2.13 Survey date: November 6, 2023

Aircraft takeoff occurred from New Bedford Regional Airport at 0758 h. Survey conditions were gray/overcast to clear, visibility was 5 nm, wind ranged from 14 knots from the NE to 8 knots from the E, and Beaufort Sea State was 3-5. This survey lasted 6.5 h and covered 12 general survey tracklines. A total of 12 sightings of marine fauna were recorded by observers (Table 14). Survey tracklines and observer sightings are shown in Figure 18.

Table 14. Species sighted by observers during the November 6th aerial survey.

Species	Number of sightings	Number of individuals
Common dolphin (*Delphinus delphis)*	4	100
Humpback whale (*Megaptera novaeangliae)*	1	1
Unidentified dolphin/porpoise	4	23
Unidentified seal	3	550

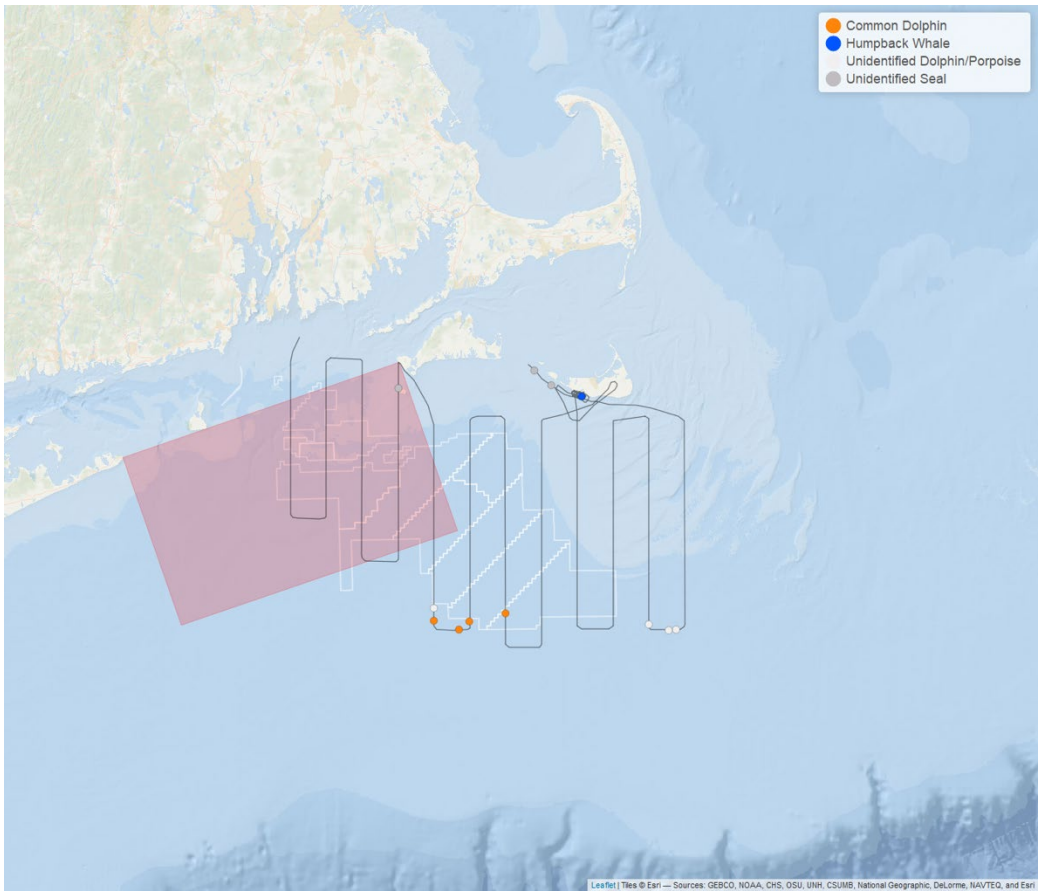

Figure 18. Marine mammal sightings and tracklines from a partial general survey conducted on November 6, 2023 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites. Red box represents right whale Seasonal Management Area.

2.14 Survey date: November 12, 2023

Aircraft takeoff occurred from New Bedford Regional Airport at 0759 h. Survey conditions were clear, visibility was 5 nm, wind ranged from 10-12 knots from the WNW, and Beaufort Sea State ranged from 2-5. This survey lasted 6.1 h and covered 12 general survey tracklines. A total of nine sightings of marine fauna were recorded by observers (Table 15). Survey tracklines and observer sightings are shown in Figure 19.

Table 15. Species sighted by observers during the November 12th aerial survey.

Species	Number of sightings	Number of individuals
Bottlenose dolphin (*Tursiops truncatus)*	1	40
Common dolphin (*Delphinus delphis*)	4	51
Minke whale *(Balaenoptera acutorostrata*)	1	1
Ocean sunfish *(Mola mola)*	1	1
Unidentified dolphin/porpoise	2	9

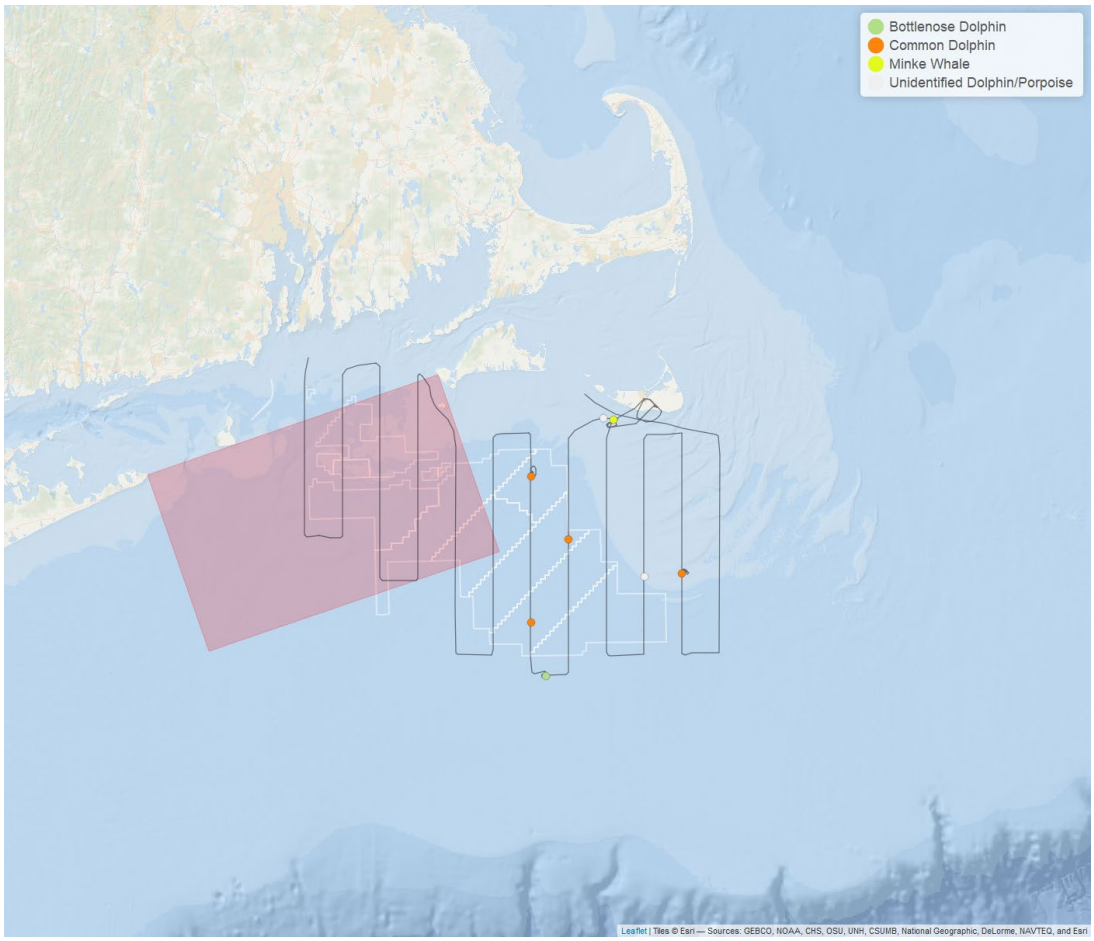

Figure 19. Marine mammal sightings and tracklines from a general survey conducted on November 12, 2023 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites. Red box represents right whale Seasonal Management Area.

2.15 Survey date: November 15, 2023

Aircraft takeoff occurred from New Bedford Regional Airport at 0824 h. Survey conditions were clear, visibility was 5 nm, wind ranged from 2-6 knots from the NW, and Beaufort Sea State ranged from 2-3. This survey lasted 5.4 h and covered ten condensed survey tracklines. A total of 37 sightings of marine fauna were recorded by observers (Table 16). Survey tracklines and observer sightings are shown in Figure 20. A sample photograph from this survey can be seen in Figure 21.

Table 16. Species sighted by observers during the November 15th aerial survey.

Species	Number of sightings	Number of individuals
Common dolphin (*Delphinus delphis)*	11	330
Minke whale (*Balaenoptera acutorostrata)*	4	4
Right whale (*Eubalaena glacialis)*	1	1
Sperm whale (*Physeter macrocephalus)*	1	1
Unidentified dolphin/porpoise	11	67
Unidentified large whale	1	1
Unidentified seal	6	6
Unidentified shark	2	2

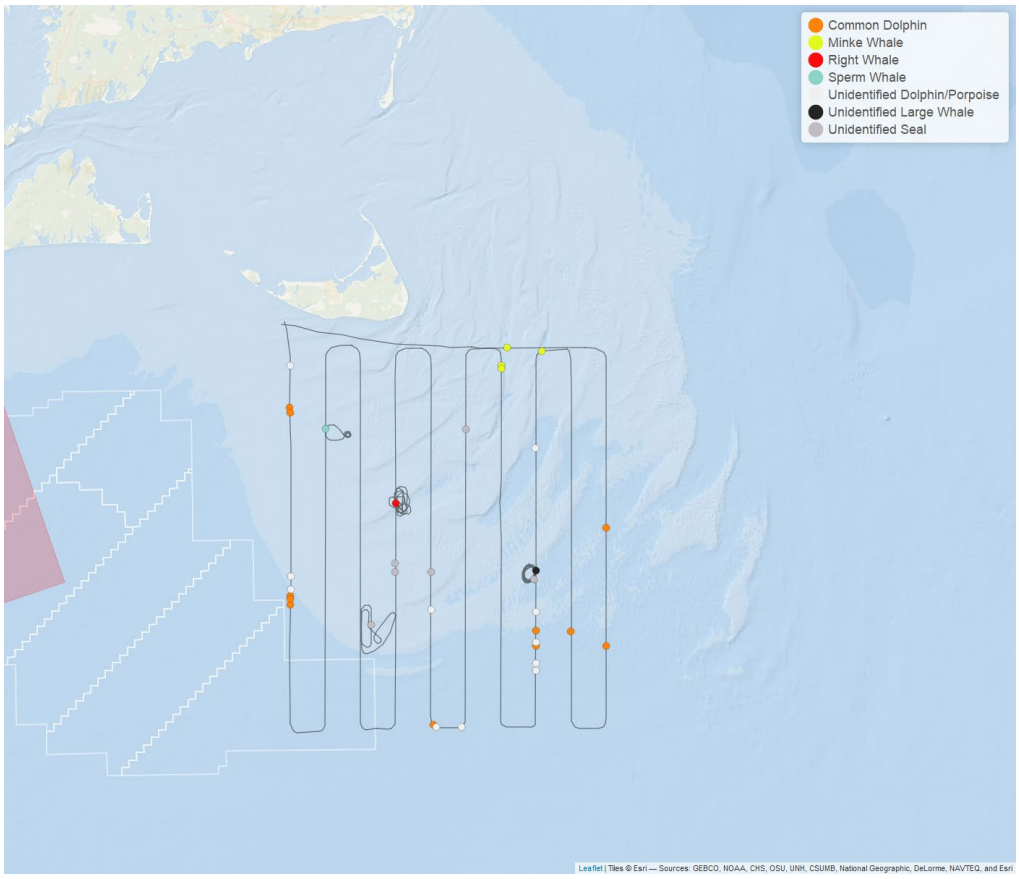

Figure 20. Marine mammal sightings and tracklines from a condensed survey conducted on November 15, 2023 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites. Red box represents right whale Seasonal Management Area.

Figure 21. Sperm whale observed on the November 15, 2023 aerial survey.

2.16 Survey date: December 8, 2023

Aircraft takeoff occurred from New Bedford Regional Airport at 0802 h. Survey conditions were hazy, visibility was 5 nm, wind ranged from 4-8 knots from the NW to W, and Beaufort Sea State ranged from 2-3. This survey lasted 5.6 h and covered 12 general survey tracklines. A total of 51 sightings of marine fauna were recorded by observers (Table 17). Survey tracklines and observer sightings are shown in Figure 22.

Table 17. Species sighted by observers during the December 8th aerial survey.

Species	Number of sightings	Number of individuals
Common dolphin (*Delphinus delphis)*	23	523
Gray seal (*Halichoerus grypus)*	3	3
Humpback whale (*Megaptera novaeangliae)*	1	1
Minke whale (*Balaenoptera acutorostrata)*	4	4
Unidentified dolphin/porpoise	14	61
Unidentified seal	6	80

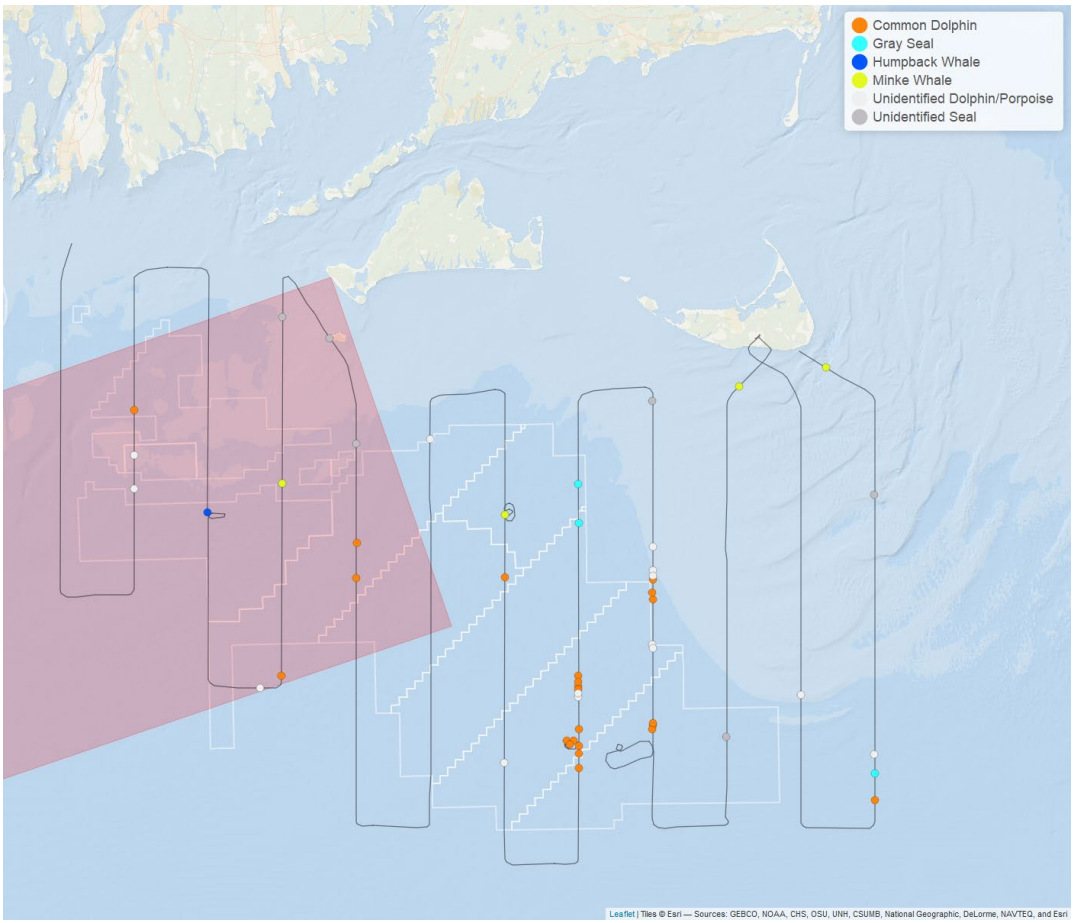

Figure 22. Marine mammal sightings and tracklines from a general survey conducted on December 8, 2023 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites. Red box represents right whale Seasonal Management Area.

2.17 Survey date: January 12, 2024

Aircraft takeoff occurred from New Bedford Regional Airport at 0749 h. Survey conditions were hazy to clear, visibility was 5 nm, wind ranged from 8 kts from the W to 6 kts from the SE, and Beaufort Sea State ranged from 2-4. The survey was 6.8 h and covered 12 general survey tracklines. A total of 19 sightings of marine fauna were recorded by observers (Table 18). Survey tracklines and observer sightings are shown in Figure 23. A sample photograph from this survey can be seen in Figure 24.

Table 18. Species sighted by observers during the January 12th aerial survey.

Species	Number of sightings	Number of individuals
Common dolphin (*Delphinus delphis)*	8	207
Gray seal (*Halichoerus grypus)*	2	2
Minke whale (*Balaenoptera acutorostrata)*	1	1
Right whale (*Eubalaena glacialis)*	2	7
Unidentified dolphin/porpoise	3	20
Unidentified seal	3	252

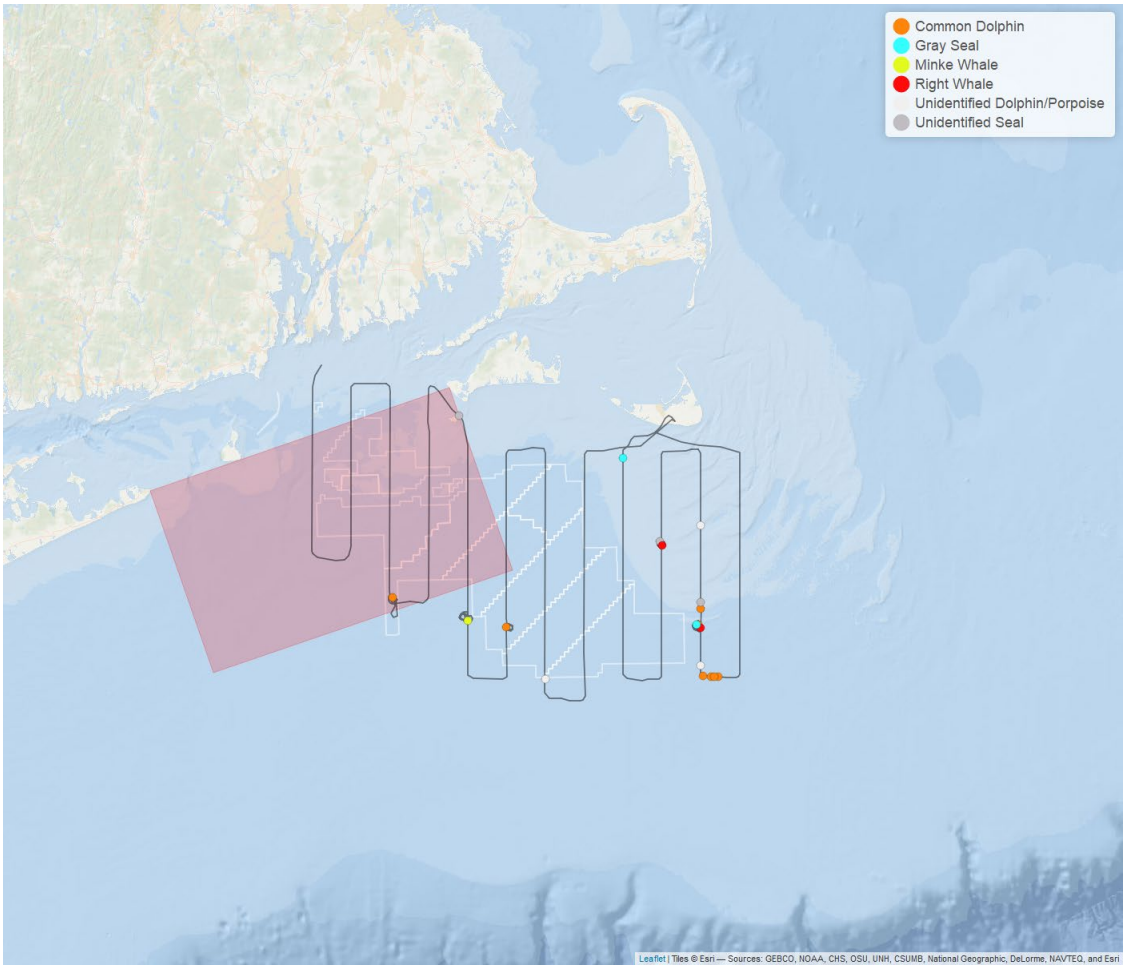

Figure 23. Marine mammal sightings and tracklines from a general survey conducted on January 12, 2024 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites. Red box represents right whale Seasonal Management Area.

Figure 24. Right whales #3892, #4593, #4312, #4640 (“Wishbone”), and #4360 (“Musketeer”) in a surface-active group observed on the January 12, 2024 aerial survey. Photo taken under NMFS Permit #25739.

2.18 Survey Date: January 31, 2024

Aircraft takeoff occurred from New Bedford Regional Airport at 0802 h. Survey conditions were hazy to gray/overcast to clear, visibility was 5 nm, wind ranged from 4 kts from the ESE to W, and Beaufort Sea State ranged from 1-3. The survey was 6.8 h and covered 12 general survey tracklines. A total of 12 sightings of marine fauna were recorded by observers (Table 19). Survey tracklines and observer sightings are shown in Figure 25.

Table 19. Species sighted by observers during the January 31st aerial survey.

Species	Number of sightings	Number of individuals
Common dolphin (*Delphinus delphis*)	1	8
Gray seal (*Halichoerus grypus*)	1	1
Right whale (*Eubalaena glacialis*)	4	20
Unidentified dolphin/porpoise	5	37
Unidentified seal	1	1

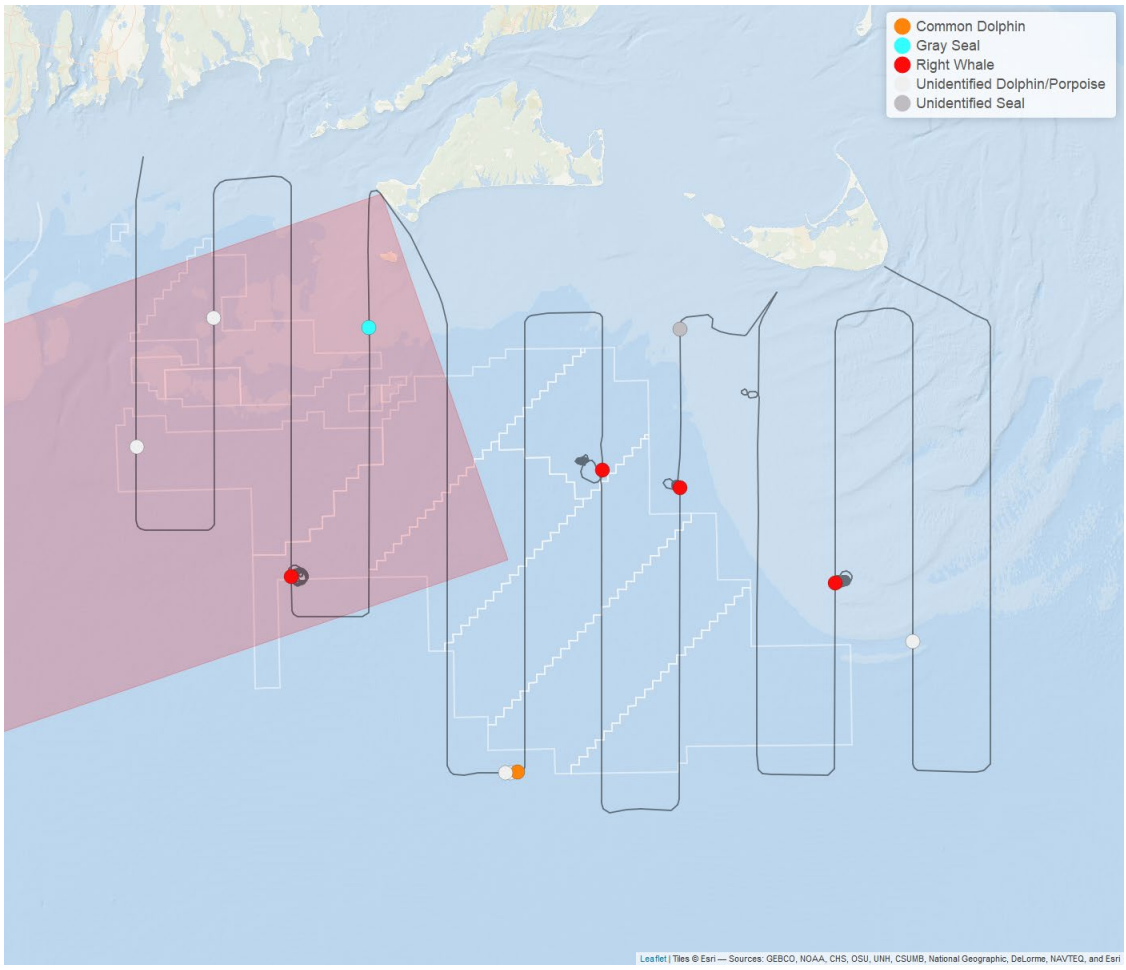

Figure 25. Marine mammal sightings and tracklines from a general survey conducted on January 31, 2024 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites. Red box represents right whale Seasonal Management Area.

Figure 26. Right whales #3545 and the 2021 calf of #3130 observed surfacing side by side on the January 31, 2024 aerial survey. Photo taken under NMFS Permit #25739.

2.19 Survey Date: February 9, 2024

Aircraft takeoff occurred from New Bedford Regional Airport at 0811 h. Survey conditions were gray to clear, visibility was 5 nm, wind ranged from 4-6 kts from the SW to 8-10 kts from the S, and Beaufort Sea State ranged from 2-4. The survey was 5.7 h and covered eight general survey tracklines. Survey plans were adjusted due to poor weather conditions: shortly after takeoff, the aircraft had to land on Nantucket to let precipitation pass by. Aircraft then flew four general survey tracklines west to east, and then flew four more general survey tracklines east to west. A total of seven sightings of marine fauna were recorded by observers (Table 20). Survey tracklines and observer sightings are shown in Figure 27.

Table 20. Species sighted by observers during the February 9th aerial survey.

Species	Number of sightings	Number of individuals
Right whale (*Eubalaena glacialis)*	6	8
Unidentified seal	1	200

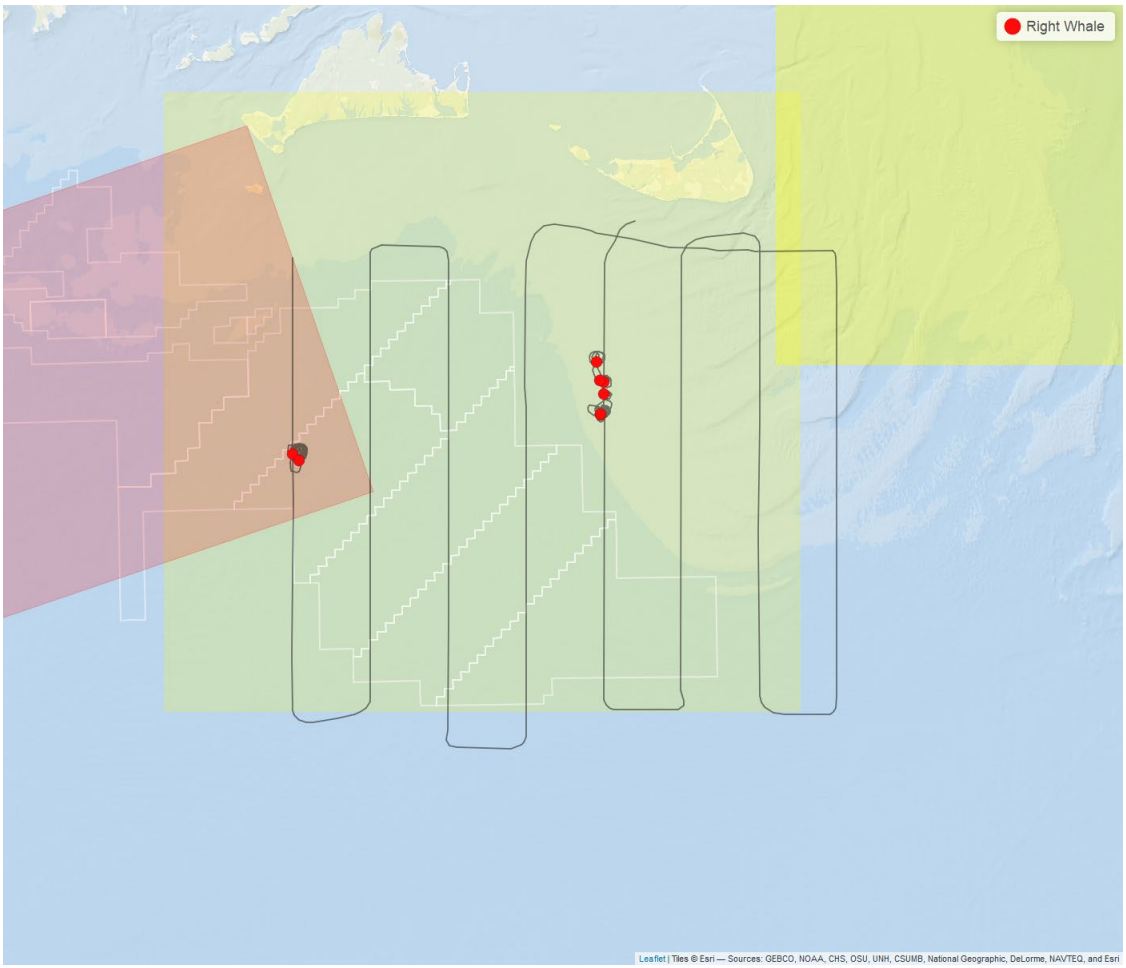

Figure 27. Marine mammal sightings and tracklines from a general survey conducted on February 9, 2024, in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites. Red box represents right whale Seasonal Management Area, yellow boxes represent Dynamic Management Areas.

2.20 Survey Date: February 12, 2024

Aircraft takeoff occurred from New Bedford Regional Airport at 0840 h. Survey conditions were clear to hazy, visibility was 5 nm, wind ranged from 4-6 kts from the NW, and Beaufort Sea State ranged from 1-2. The survey was 6.9 h and covered six general survey tracklines and eight directed tracklines, covering the area between Martha's Vineyard and Nantucket where right whales had been sighted recently. A total of ten sightings of marine fauna were recorded by observers (Table 21). Survey tracklines and observer sightings are shown in Figure 28.

Table 21. Species sighted by observers during February 12th aerial survey.

Species	Number of sightings	Number of individuals
Bottlenose dolphin (*Tursiops truncatus)*	1	15
Common dolphin (*Delphinus delphis)*	1	10
Gray seal (*Halichoerus grypus)*	1	1
Right whale (*Eubalaena glacialis)*	3	5
Unidentified dolphin/porpoise	1	1
Unidentified seal	3	253

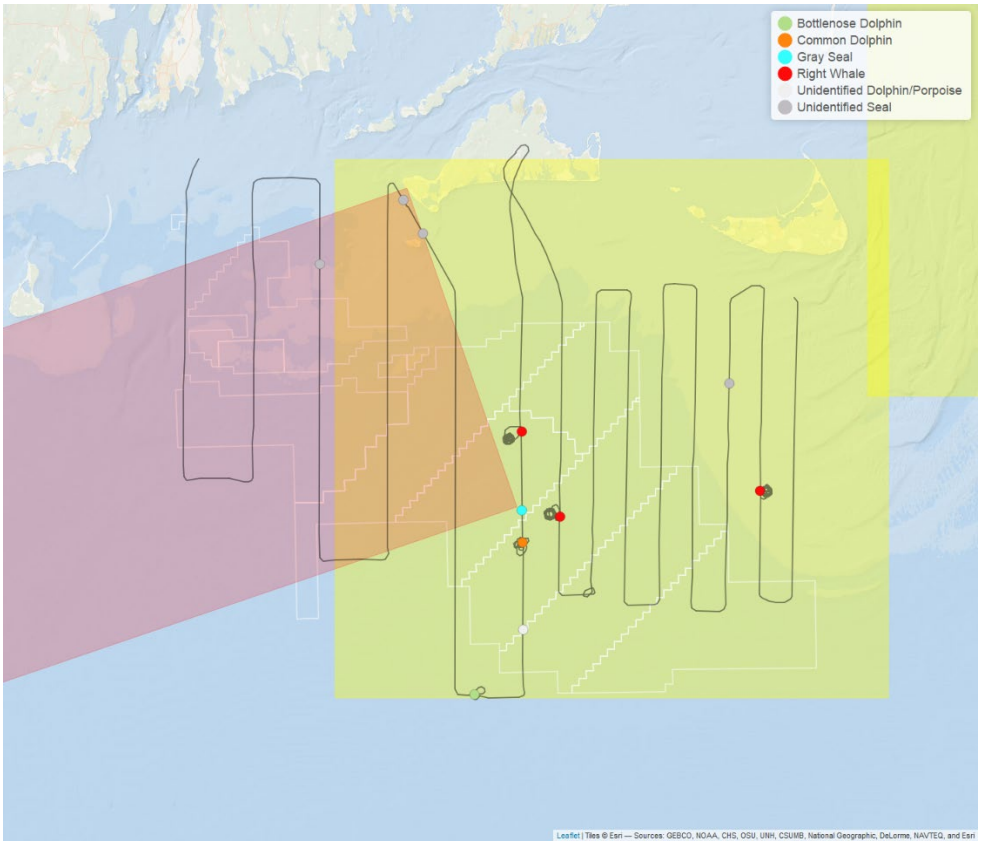

Figure 28. Marine mammal sightings and tracklines from a partial general survey and a directed survey conducted on February 12, 2024 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites. Red box represents right whale Seasonal Management Area, yellow boxes represent Dynamic Management Areas.

2.21 Survey Date: February 22, 2024

Aircraft takeoff occurred from New Bedford Regional Airport at 0808 h. Survey conditions were clear to hazy, visibility was 5 nm, wind ranged from 2-4 kts from the N to W, and Beaufort Sea State ranged from 1-3. The survey was 7.0 h and covered 12 general survey tracklines. A total of 17 sightings of marine fauna were recorded by observers (Table 22). Survey tracklines and observer sightings are shown in Figure 29.

Table 22. Species sighted by observers during the February 22nd aerial survey.

Species	Number of sightings	Number of individuals
Common dolphin (*Delphinus delphis)*	1	11
Gray seal *(Halichoerus grypus)*	2	251
Humpback whale (*Megaptera novaeangliae)*	1	1
Right whale (*Eubalaena glacialis)*	2	16
Unidentified dolphin/porpoise	8	23
Unidentified seal	3	3

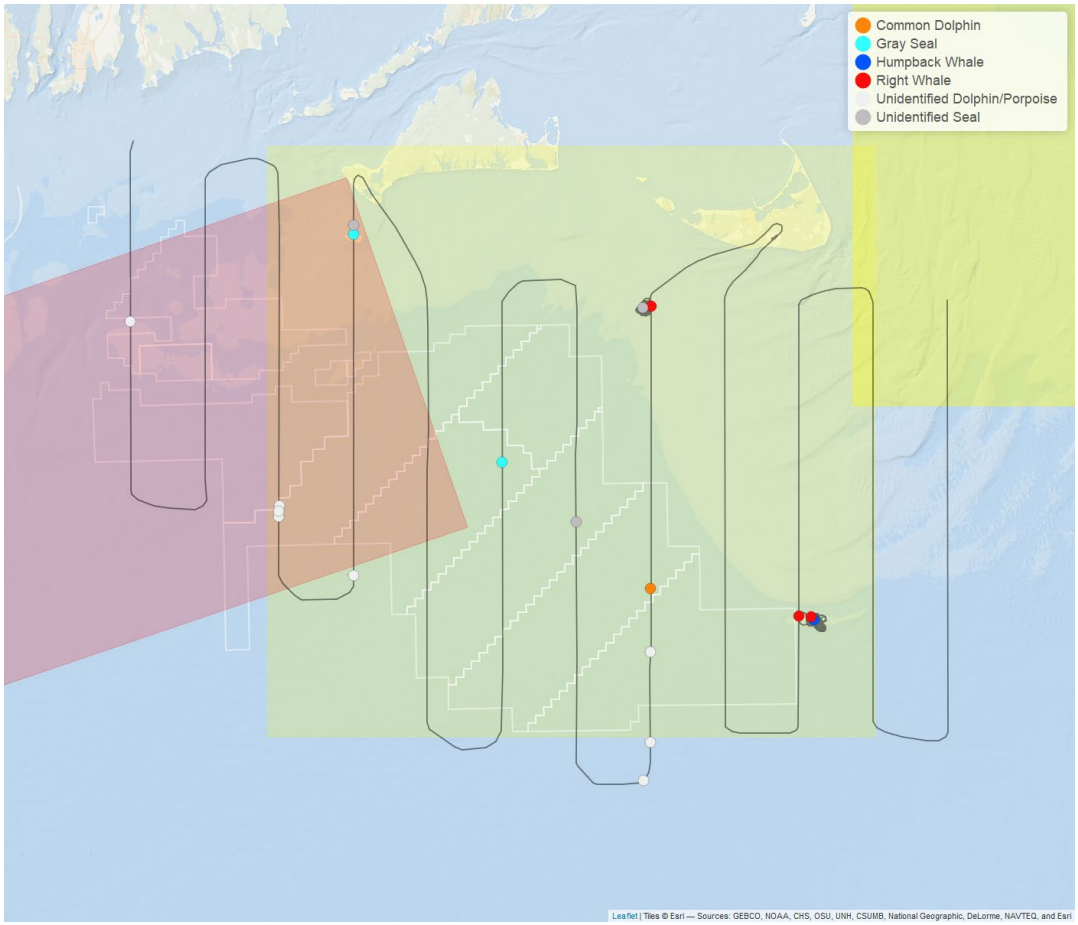

Figure 29. Marine mammal sightings and tracklines from a general survey conducted on February 22, 2024 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites. Red box represents right whale Seasonal Management Area, yellow boxes represent Dynamic Management Areas.

Figure 30. A humpback whale passes by a right whale (the 2022 calf of #2614) feeding over the Nantucket Shoals, observed on the February 22, 2024 aerial survey. Photo taken under NMFS Permit #25739.

2.22 Survey Date: March 1, 2024

Aircraft takeoff occurred from New Bedford Regional Airport at 0812 h. Survey conditions were clear, visibility was 5 nm, wind ranged from 9-21 kts from the NW to SW, and Beaufort Sea State ranged from 2-5. The survey was 7.0 h and covered 12 general survey tracklines. A total of four sightings of marine fauna were recorded by observers (Table 22). Survey tracklines and observer sightings are shown in Figure 31. A sample photograph from this survey can be seen in Figure 32.

Table 22. Species sighted by observers during the March 1st aerial survey.

Species	Number of sightings	Number of individuals
Fin whale (*Balaenoptera physalus)*	1	1
Gray whale *(Eschrichtius robustus)*	1	1
Gray seal (*Halichoerus grypus)*	1	200
Right whale (*Eubalaena glacialis)*	1	1

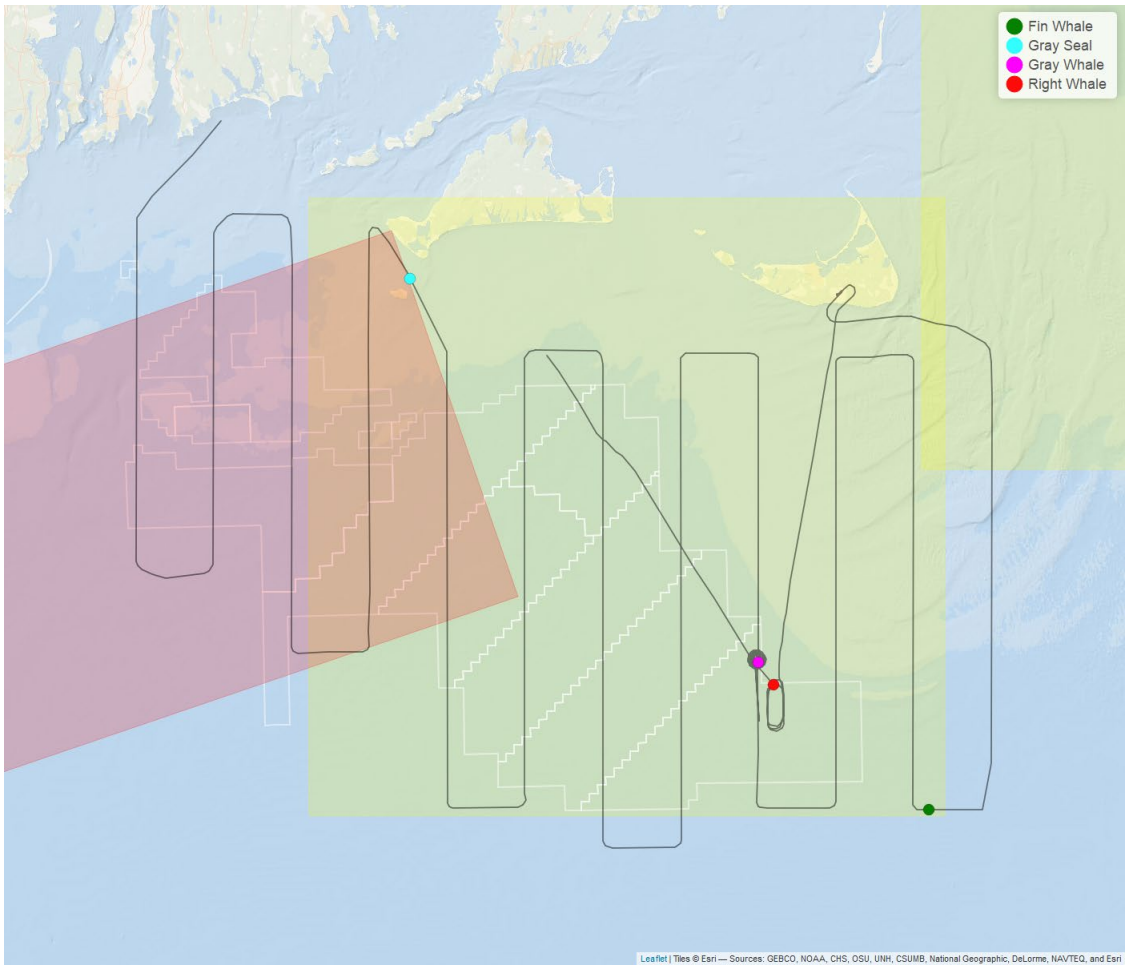

Figure 31. Marine mammal sightings and tracklines from a general survey conducted on March 1, 2024 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites. Red box represents right whale Seasonal Management Area, yellow boxes represent Dynamic Management Areas.

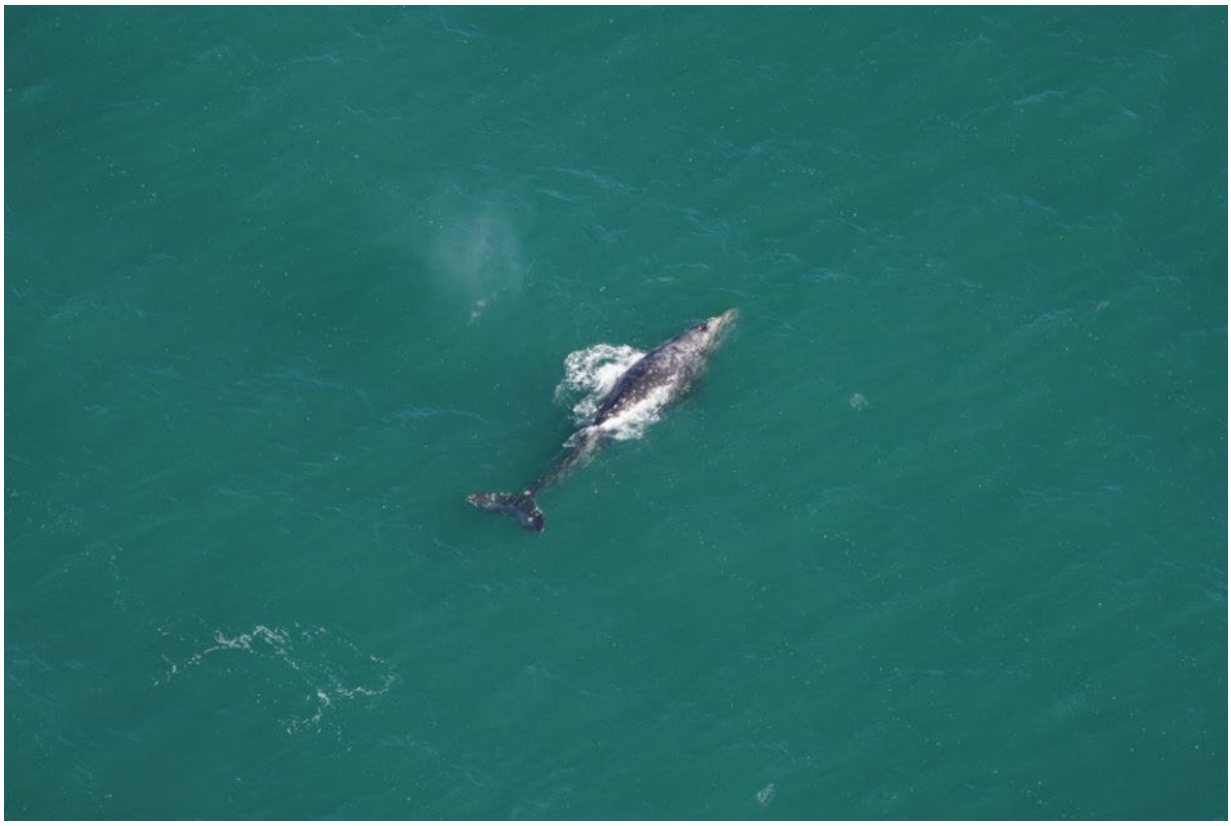

Figure 32. A gray whale observed during the March 1, 2024 aerial survey.

2.23 Survey Date: March 13, 2024

Aircraft takeoff occurred from New Bedford Regional Airport at 0940 h. Survey conditions were clear, visibility was 5 nm, wind ranged from 0-5kts from the NW, and Beaufort Sea State was a 2. The survey was 5.6 h and covered nine condensed survey tracklines. A total of 14 sightings of marine fauna were recorded by observers (Table 23). Survey tracklines and observer sightings are shown in Figure 33.

Table 23. Species sighted by observers during the March 13th aerial survey.

Species	Number of sightings	Number of individuals
Common dolphin (*Delphinus delphis)*	1	5
Right whale (*Eubalaena glacialis)*	8	20
Unidentified seal	5	8

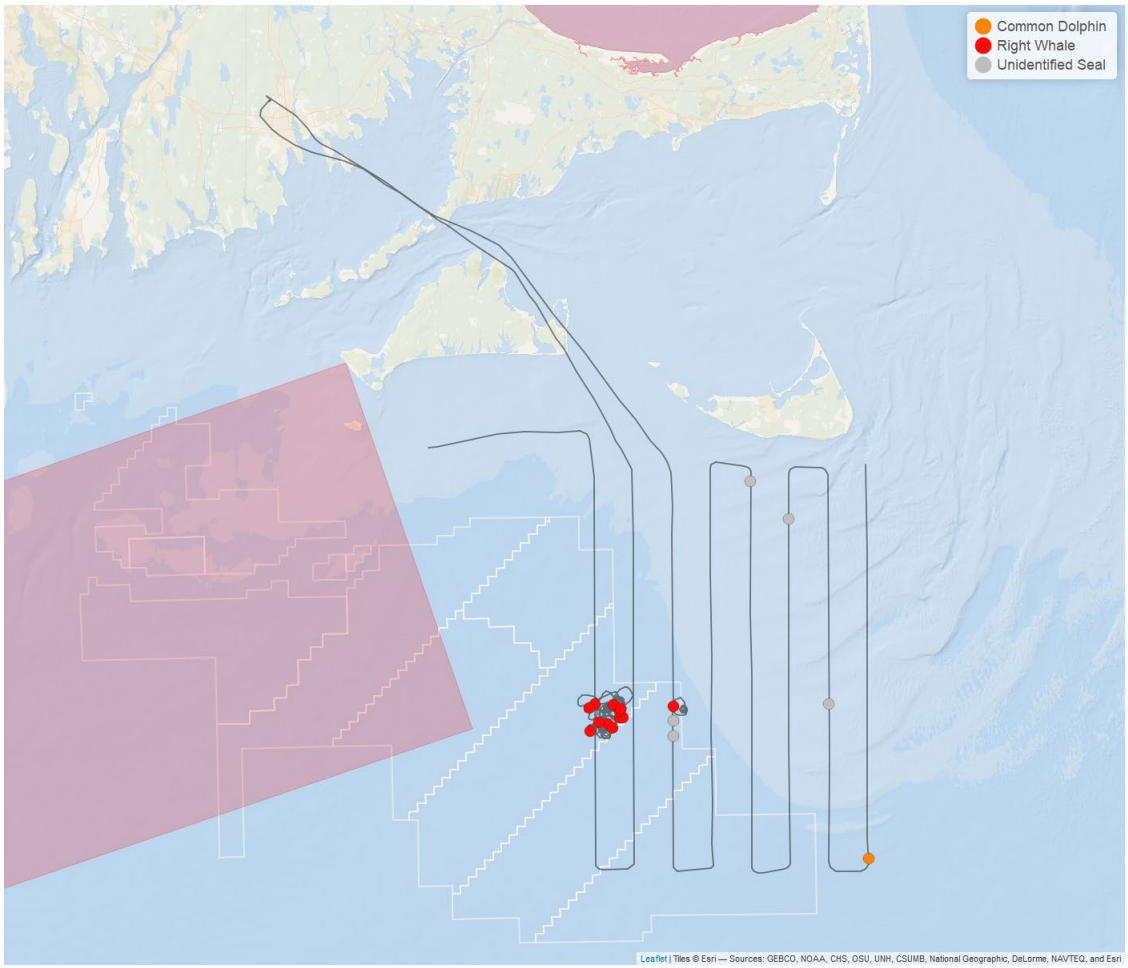

Figure 33. Marine mammal sightings and tracklines from a condensed survey conducted on March 13, 2024 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites. Red box represents right whale Seasonal Management Area.

2.24 Survey Date: March 31, 2024

Aircraft takeoff occurred from New Bedford Regional Airport at 0811 h. Survey conditions were clear, visibility was 5 nm, wind ranged from 3-11 kts from the NW, and Beaufort Sea State ranged from 1-3. The survey was 6.0 h and covered 12 general survey tracklines. A total of 17 sightings of marine fauna were recorded by observers (Table 24). Survey tracklines and observer sightings are shown in Figure 34.

Table 24. Species sighted by observers during the March 31st aerial survey.

Species	Number of sightings	Number of individuals
Humpback whale (*Megaptera novaeangliae)*	1	1
Minke whale (*Balaenoptera acutorostrata)*	1	1
Right whale (*Eubalaena glacialis)*	1	1
Unidentified seal	14	313

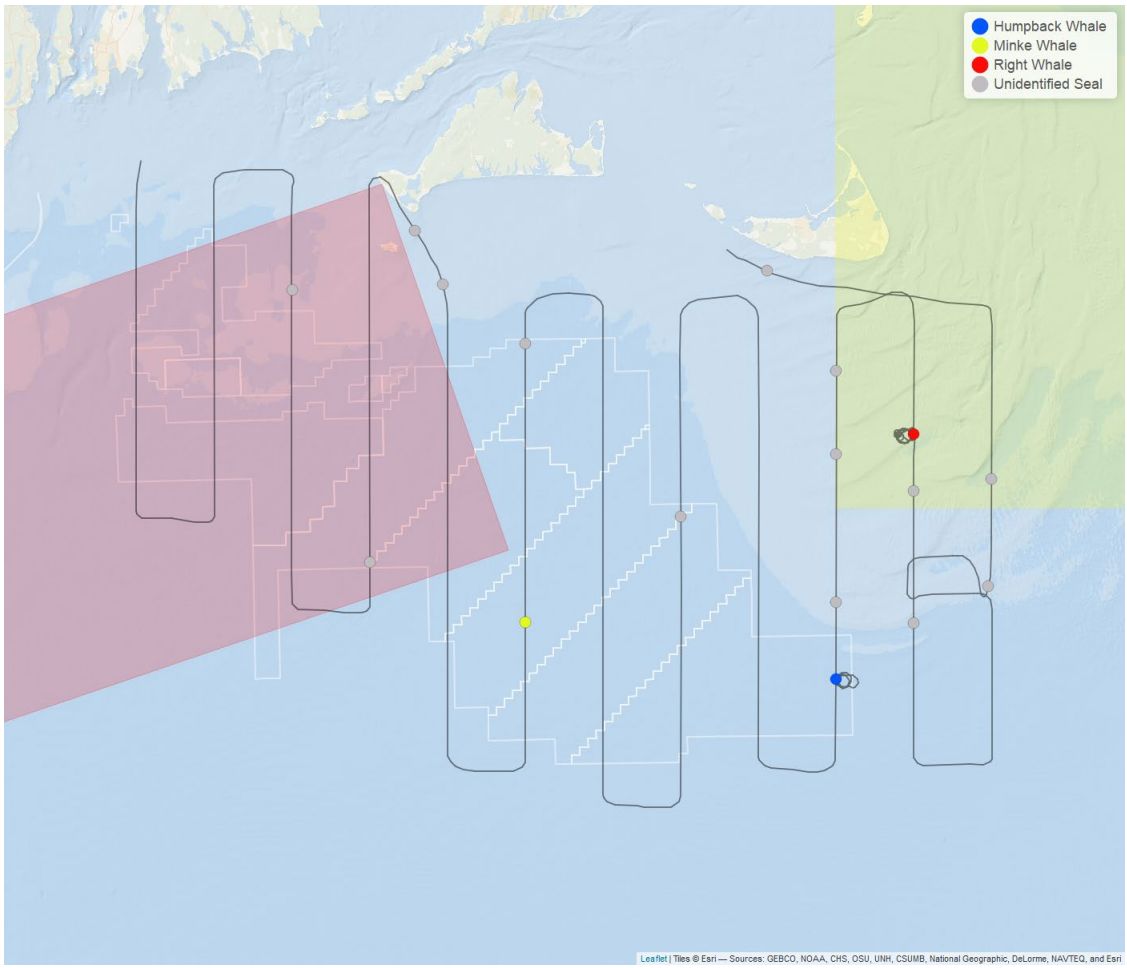

Figure 34. Marine mammal sightings and tracklines from a general survey conducted on March 31, 2024 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites. Red box represents right whale Seasonal Management Area, yellow boxes represent Dynamic Management Areas.

2.25 Survey Date: April 9, 2024

Aircraft takeoff occurred from New Bedford Regional Airport at 0759 h. Survey conditions were clear, visibility was 5 nm, wind ranged from 2-6 kts from the W to SE, and Beaufort Sea State ranged from 1-3. The survey was 6.5 h and covered 12 general survey tracklines. A total of 32 sightings of marine fauna were recorded by observers (Table 25). Survey tracklines and observer sightings are shown in Figure 35.

Table 25. Species sighted by observers during the April 9th aerial survey.

Species	Number of sightings	Number of individuals
Fin whale (*Balaenoptera physalus)*	1	1
Gray seal (*Halichoerus grypus)*	1	1
Humpback whale (*Megaptera novaeangliae)*	1	1
Minke whale (*Balaenoptera acutorostrata)*	2	2
Pilot whale (*Globicephala macrorhynchus)*	4	57
Right whale *(Eubalaena glacialis)*	1	1
Sei whale (*Balaenoptera borealis)*	1	3
Unidentified dolphin/porpoise	4	16
Unidentified seal	17	18

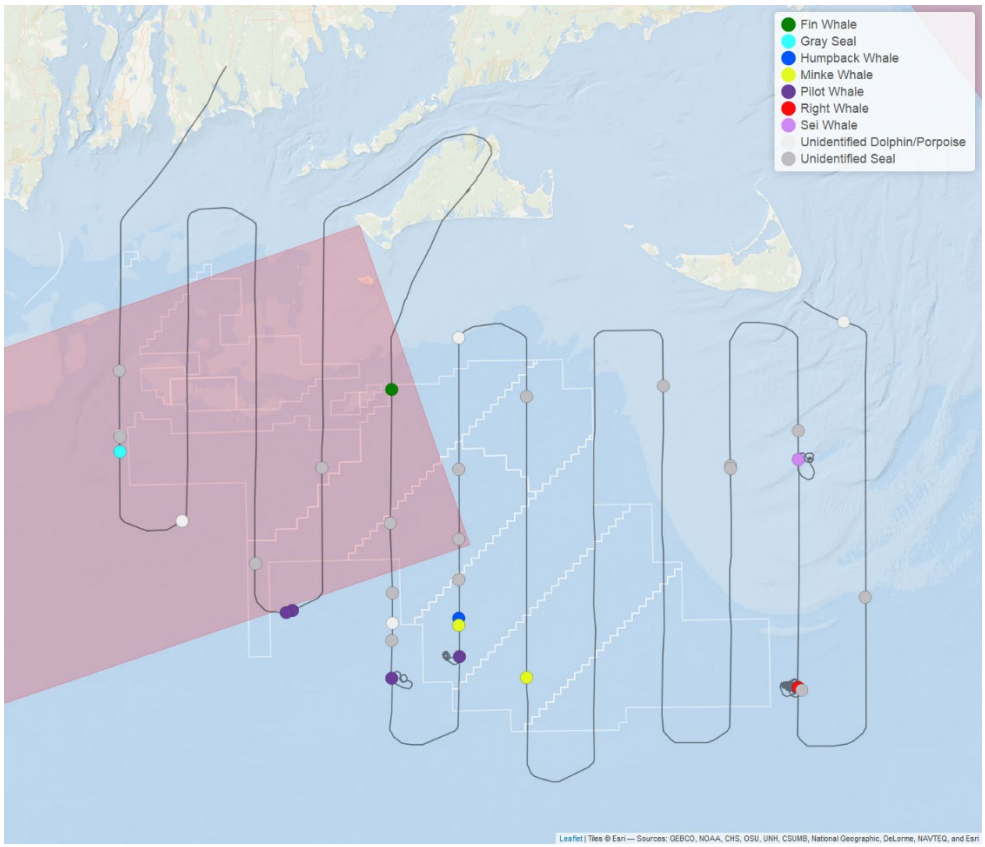

Figure 35. Marine mammal sightings and tracklines from a general survey conducted on April 9, 2024 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites. Red box represents right whale Seasonal Management Area.

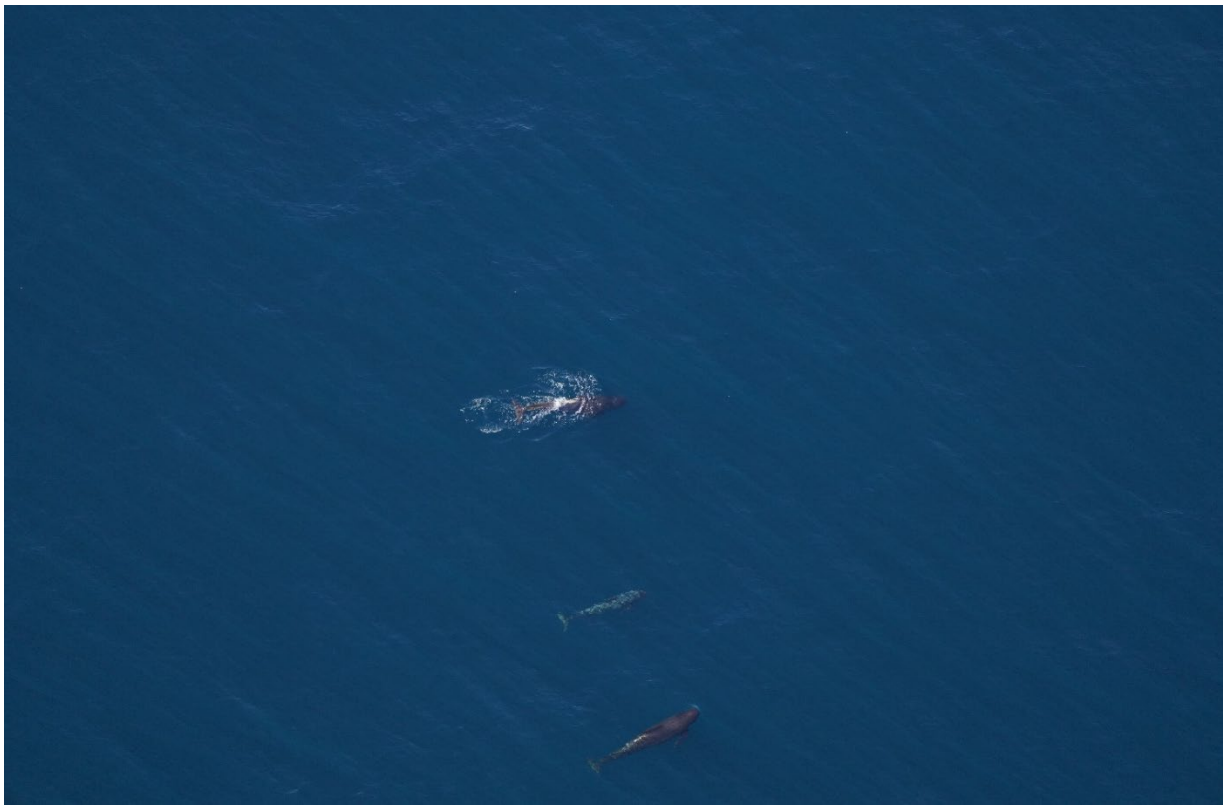

Figure 36. A group of pilot whales observed on the April 9, 2024 survey.

2.26 Survey Date: April 17, 2024

Aircraft takeoff occurred from New Bedford Regional Airport at 0755 h. Survey conditions were clear, visibility was 5 nm, wind ranged from 8-14 kts from the NE to E, and Beaufort Sea State ranged from 2-4. The survey was 6.0 h and covered 12 general survey tracklines. A total of three sightings of marine fauna were recorded by observers (Table 26). Survey tracklines and observer sightings are shown in Figure 37.

Table 26. Species sighted by observers during the April 17th aerial survey.

Species	Number of sightings	Number of individuals
Unidentified large whale	1	1
Unidentified seal	2	601

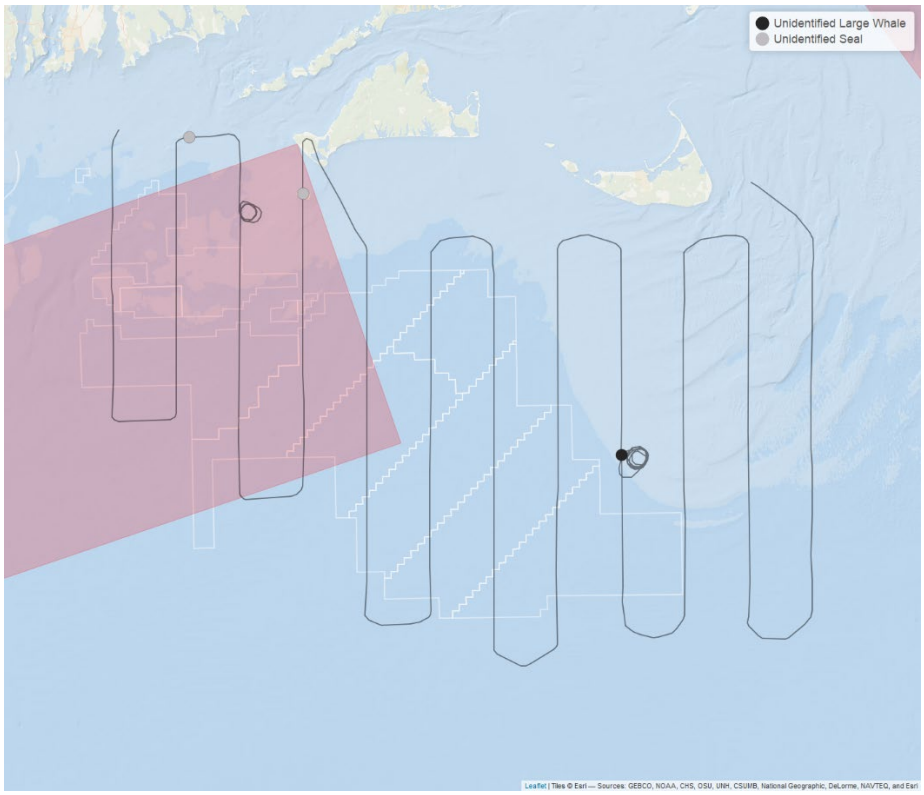

Figure 37. Marine mammal sightings and tracklines from a general survey on April 17, 2024 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites. Red box represents right whale Seasonal Management Area.

2.27 Survey Date: May 9, 2024

Aircraft takeoff occurred from New Bedford Regional Airport at 0837 h. Survey conditions were clear, visibility was 5 nm, wind ranged from 8-14 kts from the N to NE, and Beaufort Sea State ranged from 2-3. The survey was 7.4 h and covered 12 general survey tracklines. A total of 58 sightings of marine fauna were recorded by observers (Table 27). Survey tracklines and observer sightings are shown in Figure 38. A sample photograph from this survey can be seen in Figure 39.

Table 27. Species sighted by observers during the May 9th aerial survey.

Species	Number of sightings	Number of individuals
Basking shark (*Cetorhinus maximus)*	16	16
Common dolphin (*Delphinus delphis)*	2	65
Fin whale (*Balaenoptera physalus*)	3	6
Gray seal (*Halichoerus grypus)*	2	2
Humpback whale (*Megaptera novaeangliae)*	6	14
Minke whale (*Balaenoptera acutorostrata)*	11	11
Right whale (*Eubalaena glacialis)*	2	3
Sei whale (*Balaenoptera borealis)*	7	25
Unidentified dolphin/porpoise	4	18
Unidentified seal	4	43

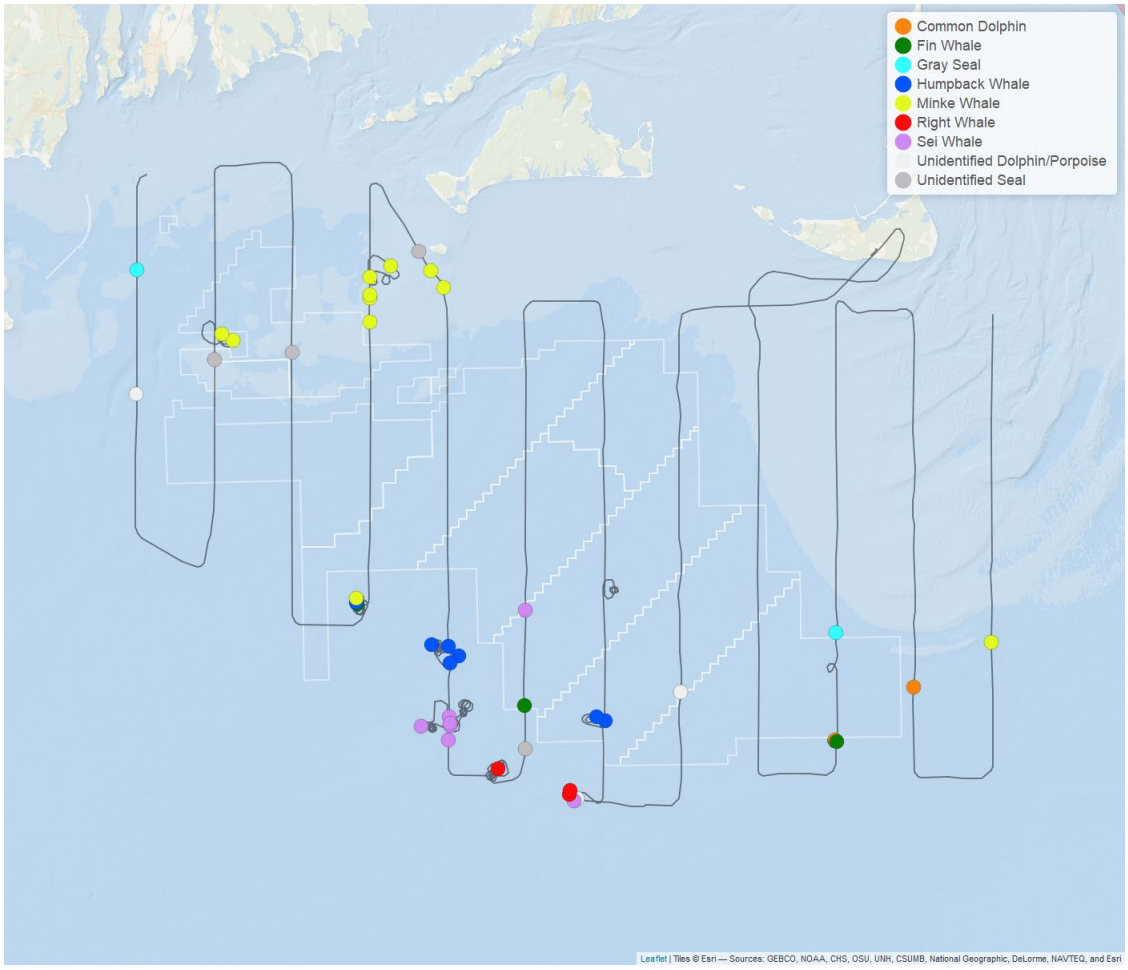

Figure 38. Marine mammal sightings and tracklines from a general survey conducted on May 9, 2024 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites.

Figure 39. A sei whale observed lunge feeding on the May 9, 2024 survey.

2.28 Survey Date: May 15, 2024

Aircraft takeoff occurred from New Bedford Regional Airport at 0804 h. Survey conditions were gray/overcast to rain, visibility was 0-5 nm, wind ranged from 3-4 kts from the SE, and Beaufort Sea State ranged from 2-3. The survey was 5.1 h and covered ten general survey tracklines. A total of 53 sightings of marine fauna were recorded by observers (Table 28). Survey tracklines and observer sightings are shown in Figure 40.

Table 28. Species sighted by observers during the May 15th aerial survey.

Species	Number of sightings	Number of individuals
Basking shark (*Cetorhinus maximus)*	30	30
Bottlenose dolphin (*Tursiops truncatus)*	1	2
Common dolphin (*Delphinus delphis)*	2	40
Fin whale (*Balaenoptera physalus)*	3	6
Humpback whale (*Megaptera novaeangliae)*	7	14
Right whale (*Eubalaena glacialis)*	1	1
Unidentified dolphin/porpoise	5	26
Unidentified seal	3	42

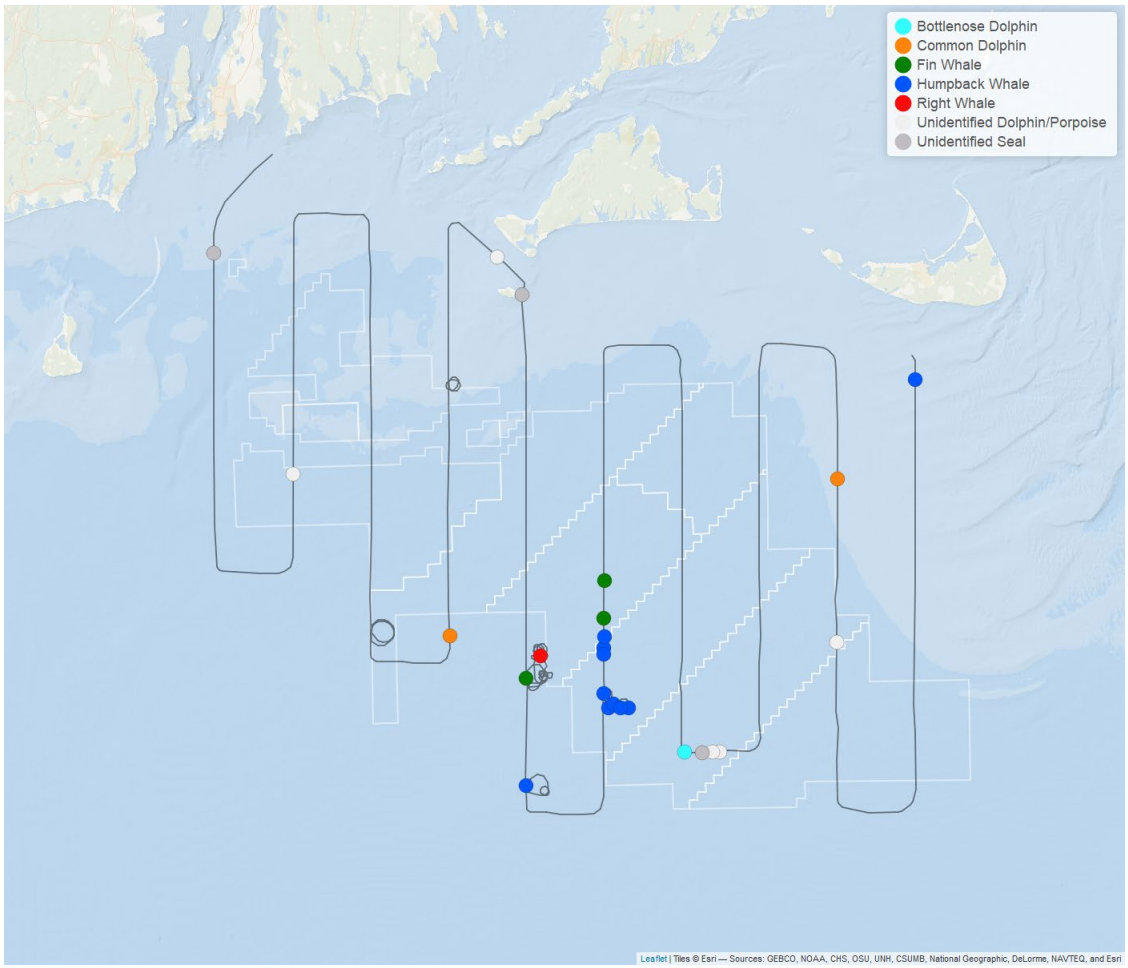

Figure 40. Marine mammal sightings and tracklines from a general survey conducted on May 15, 2024 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites.

2.29 Survey Date: May 25, 2024

Aircraft takeoff occurred from New Bedford Regional Airport at 0910 h. Survey conditions were clear to hazy, visibility was 5 nm, wind ranged from 2-6 kts from the N to S, and Beaufort Sea State ranged from 1-2. The survey was 7.3 h and covered 12 general survey tracklines. A total of 310 sightings of marine fauna were recorded by observers (Table 29). Survey tracklines and observer sightings are shown in Figure 41. A sample photograph from this survey can be seen in Figure 42.

Table 29. Species sighted by observers during the May 25th aerial survey.

Species	Number of sightings	Number of individuals
Basking shark (*Cetorhinus maximus)*	173	180
Bluefin tuna (*Thunnus thynnus)*	2	65
Bottlenose dolphin (*Tursiops truncatus)*	3	26
Common dolphin *(Delphinus delphis)*	9	388
Fin whale (*Balaenoptera physalus)*	2	4
Humpback whale (*Megaptera novaeangliae*)	6	20
Minke whale (*Balaenoptera acutorostrata)*	13	35
Ocean sunfish (*Mola mola)*	54	58
Sei whale (*Balaenoptera borealis)*	4	15
Unidentified dolphin/porpoise	16	79
Unidentified large whale	1	1
Unidentified shark	4	4
Unidentified seal	8	37
Unidentified tuna	15	69

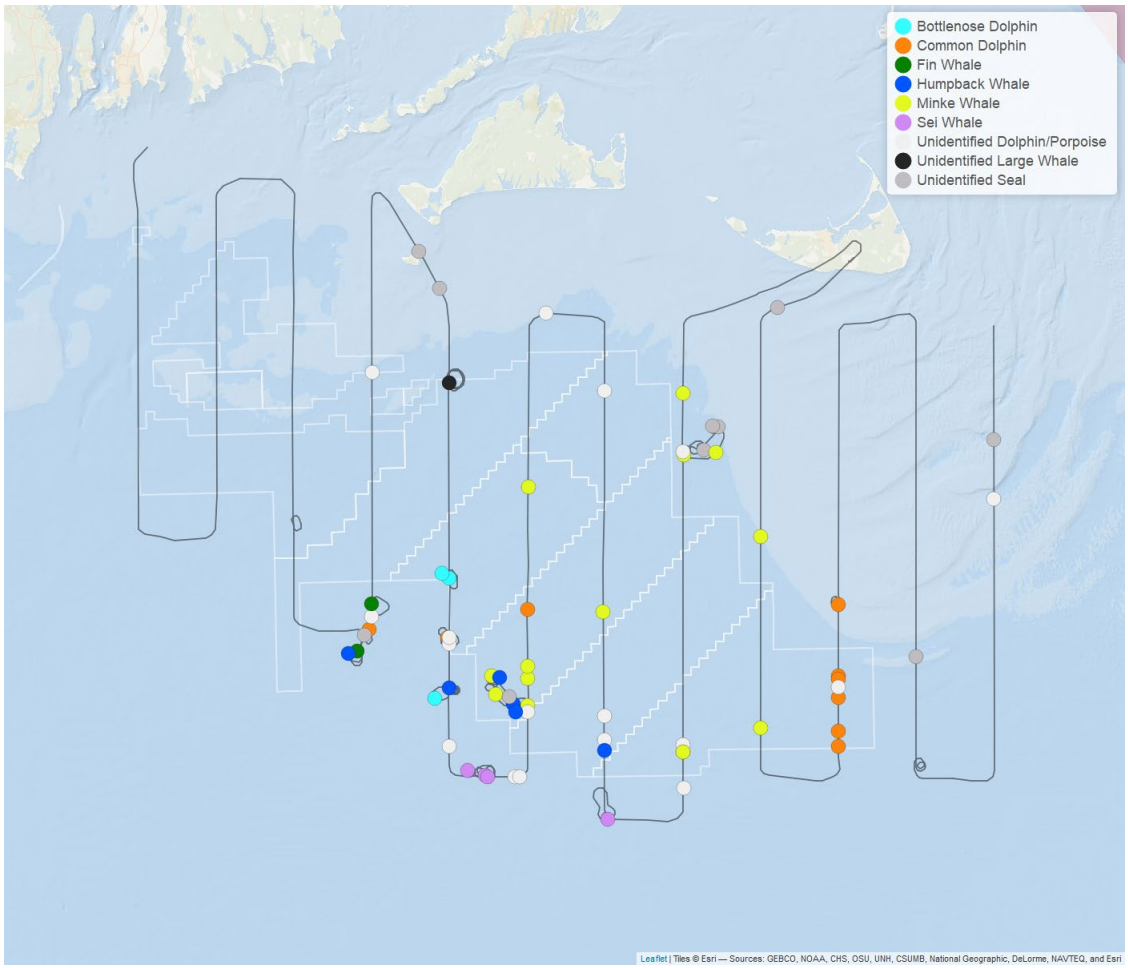

Figure 41. Marine mammal sightings and tracklines from a general survey conducted on May 25, 2024 in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites.

Figure 41. Humpback whales observed bubble-net feeding during the May 25, 2024 survey.

2.30 Sightings of Right Whales

During this reporting period, the NEAq team had 84 right whales across 32 sightings in the study area (Figure 42). The locations of the sightings are included in Table A-1 of the Appendix.

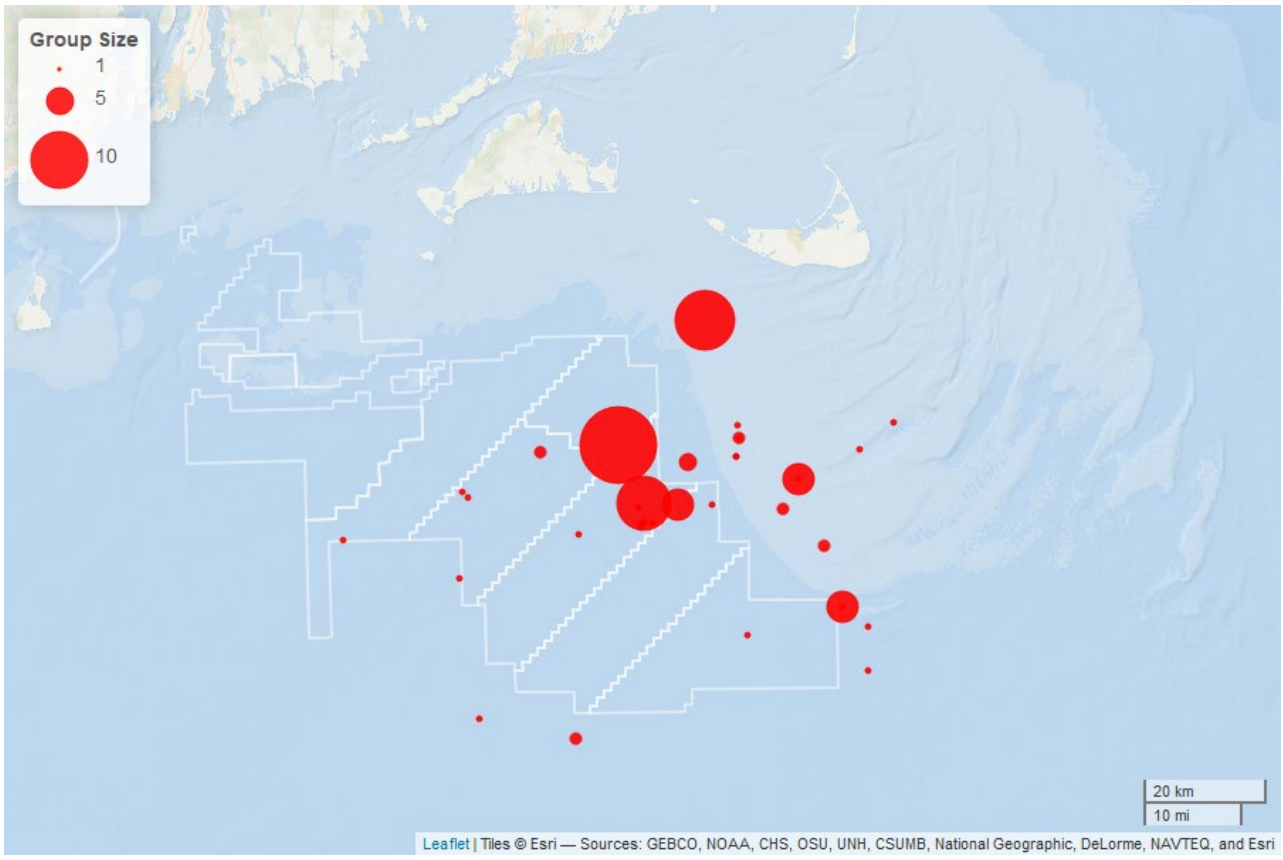

Figure 42. Right whale sightings from aerial surveys conducted during this reporting period in the study area offshore of Massachusetts and Rhode Island. White outlines represent the offshore wind energy area lease sites.

3 Photographic Analysis

3.1 Vertical photographs

During this reporting period, 143,016 vertical camera photographs were taken. There are no vertical photos from the March 13, 2024 and March 31, 2024 surveys while a piece of the camera mount was sent out for maintenance. Photo analysis is complete for 17 surveys conducted in this reporting period (Table 30) and double-checks on photo analysis have been completed through the December 8, 2023 survey. Marine megafauna sightings from vertical photos (that have been double checked) with trackline information can be found in Table B-1.

Table 30. Details of vertical camera photo analysis.

Survey Date	Survey Type	# Tracklines Reviewed	# Photos	Date Completed
8/1/2023	General+Condensed	16	5,017	9/1/2023
8/2/2023	General	4	1,568	9/5/2023
8/6/2023	General	12	4,263	9/11/2023
8/10/2023	General	12	3,748	9/29/2023
8/14/2023	General	8	6,177	9/30/2023
9/12/2023	General	6	1,953	10/2/2023
9/13/2023	General	6	2,875	10/2/2023
9/21/2023	General	12	6,778	12/15/2023
10/5/2023	General	7	3,576	11/2/2023
10/12/2023	General	12	6,333	1/5/2024
10/17/2023	General	12	5,648	1/10/2024
11/6/2023	General	12	6,835	3/4/2024
11/12/2023	General	10	5,446	3/12/2024
11/15/2023	Condensed	10	5,497	4/12/2024
12/8/2023	General	12	5,703	5/13/2024
1/12/2024	General	12	6,775	5/3/2024
1/31/2024	General	12	7,155	5/2/2024
2/9/2024	General	8	5,337	In Progress
2/12/2024	General+Directed	16	7,099	In Progress
2/22/2024	General	12	7,415	In Progress
3/1/2024	General	12	6,587	In Progress
3/13/2024	Condensed	0	0	-
3/31/2024	General	0	0	-
4/9/2024	General	12	6,527	In Progress
4/17/2024	General	11	5,810	In Progress
5/9/2024	General	10	5,989	In Progress
5/15/2024	General	10	5,362	In Progress
5/25/2024	General	12	7,543	In Progress

3.2 Handheld photographs of right whales:

During this reporting period, observers took 1,703 photographs and photographed at least 55 unique right whales, all of which have been identified. A total of 74 right whales were photographed on all surveys combined during this reporting period (this number includes individuals that were seen on multiple surveys). Ten whales were sighted but not photographed during the reporting period due to long dive times. Demographic information regarding the right whales that were identified during this reporting period is included in Table 31.

Table 31. Summaries of age class and sex for right whales observed on aerial surveys conducted in the study area during this reporting period.

Age class and sex	Number ofindividuals
Adult Females	15
Adult Males	22
Adults with unknown sex	1
Juvenile Females	5
Juvenile Males	10
Juveniles with unknown sex	2

Appendix A: Right whale sightings

Table A-1. Sightings of right whales during aerial surveys conducted in the study area offshore of Massachusetts and Rhode Island during this reporting period.

Date	Time	Latitude	Longitude	Number of individuals
11/15/2023	10:23:15	40.9748	-69.9834	1
1/12/2024	13:07:34	40.93264	-70.1005	6
1/12/2024	14:04:29	40.71513	-69.9656	1
1/31/2024	09:12:05	40.84254	-70.9835	1
1/31/2024	10:52:36	40.98137	-70.4499	14
1/31/2024	11:51:01	40.95806	-70.3162	3
1/31/2024	14:10:10	40.83507	-70.0504	2
2/9/2024	11:18:42	40.99131	-70.2164	3
2/9/2024	11:28:12	41.01155	-70.2187	1
2/9/2024	11:45:48	40.96459	-70.2219	1
2/9/2024	11:53:08	40.96526	-70.2213	1
2/9/2024	15:06:03	40.91394	-70.7507	1
2/9/2024	15:24:47	40.90504	-70.7396	1
2/12/2024	11:18:49	40.9707	-70.6018	2
2/12/2024	13:01:33	40.8503	-70.5273	1
2/12/2024	15:14:19	40.88873	-70.1322	2
2/22/2024	11:29:26	41.16445	-70.2825	10
2/22/2024	14:12:40	40.74442	-70.0168	6
3/1/2024	12:31:16	40.7039	-70.1986	1
3/13/2024	10:17:17	40.89722	-70.4013	9
3/13/2024	10:39:52	40.86124	-70.4053	1
3/13/2024	10:43:27	40.86701	-70.4055	1
3/13/2024	11:03:42	40.8673	-70.3829	1
3/13/2024	11:13:59	40.89161	-70.4112	1
3/13/2024	11:17:57	40.86692	-70.4017	1
3/13/2024	11:33:32	40.89582	-70.3356	5
3/13/2024	14:56:46	40.8942	-70.2676	1
3/31/2024	12:32:20	41.01562	-69.9164	1
4/9/2024	08:55:56	40.65239	-69.9662	1
5/9/2024	11:58:44	40.5809	-70.72	1
5/9/2024	12:58:37	40.55042	-70.5329	2
5/15/2024	10:20:55	40.78597	-70.7583	1

Appendix B: Marine megafaunal sightings captured by vertical camera system

Table B-1. Marine megafauna captured by vertical photographs in the study area offshore of Massachusetts and Rhode Island shown by survey date and trackline.

Survey Date	Trackline	Species	#ofanimals
8/1/2023	207	Common dolphin (*Delphinus delphis*)	6
8/1/2023	207	Common dolphin (*Delphinus delphis*)	2
8/1/2023	207	Minke whale (*Balaenoptera acutorostrata*)	1
8/1/2023	207	Humpback whale (*Megaptera novaeangliae)*	1
8/1/2023	56	Unidentified shark	1
8/1/2023	56	Unidentified shark	1
8/1/2023	56	Unidentified shark	1
8/1/2023	56	Unidentified shark	1
8/1/2023	56	Unidentified shark	2
8/1/2023	56	Unidentified shark	1
8/1/2023	Cross-leg	Common dolphin (*Delphinus delphis*)	23
8/1/2023	Cross-leg	Bottlenose dolphin (*Tursiops truncatus)*	11
8/1/2023	Cross-leg	Bottlenose dolphin (*Tursiops truncatus)*	1
8/1/2023	72	Common dolphin (*Delphinus delphis*)	40
8/2/2023	32	Common dolphin (*Delphinus delphis*)	1
8/6/2023	27	Common dolphin (*Delphinus delphis*)	1
8/6/2023	27	Common dolphin (*Delphinus delphis*)	10
8/6/2023	27	Common dolphin (*Delphinus delphis*)	6
8/6/2023	27	Minke whale (*Balaenoptera acutorostrata*)	1
8/6/2023	27	Minke whale (*Balaenoptera acutorostrata*)	1
8/6/2023	27	Unidentified shark	1
8/6/2023	Cross-leg	Unidentified shark	1
8/6/2023	Cross-leg	Unidentified fish	1
8/6/2023	35	Unidentified shark	1
8/6/2023	35	Common dolphin (*Delphinus delphis*)	24
8/6/2023	Cross-leg	Unidentified shark	1
8/6/2023	51	Unidentified shark	1
8/6/2023	51	Unidentified shark	1
8/6/2023	51	Hammerhead shark (*Sphyrna* sp.)	1
8/6/2023	67	Unidentified shark	1
8/6/2023	67	Blue shark (*Prionace glauca*)	1
8/6/2023	67	Blue shark (*Prionace glauca*)	1
8/6/2023	67	Unidentified shark	1
8/6/2023	67	Unidentified shark	1
8/6/2023	67	Unidentified fish	1
8/6/2023	Cross-leg	Unidentified shark	1
8/6/2023	Cross-leg	Unidentified ray	1

Table B-1 continued. Marine megafauna captured by vertical photographs in the study area offshore of Massachusetts and Rhode Island shown by survey date and trackline.

Survey Date	Trackline	Species	#ofanimals
8/6/2023	75	Unidentified shark	1
8/6/2023	75	Unidentified shark	2
8/6/2023	75	Unidentified shark	1
8/6/2023	75	Unidentified shark	1
8/6/2023	75	Unidentified shark	1
8/6/2023	Cross-leg	Unidentified shark	1
8/6/2023	Cross-leg	Unidentified fish	1
8/6/2023	83	Unidentified shark	1
8/6/2023	83	Unidentified shark	1
8/6/2023	83	Unidentified shark	1
8/6/2023	83	Unidentified shark	1
8/6/2023	83	Unidentified shark	1
8/6/2023	83	Unidentified shark	2
8/6/2023	83	Unidentified shark	2
8/6/2023	83	Unidentified shark	2
8/6/2023	83	Unidentified shark	1
8/6/2023	Cross-leg	Basking shark (*Cetorhinus maximus)*	1
8/6/2023	91	Unidentified shark	1
8/6/2023	91	Unidentified shark	1
8/6/2023	91	Unidentified shark	2
8/6/2023	91	Unidentified shark	2
8/6/2023	91	Unidentified shark	1
8/6/2023	91	Unidentified shark	2
8/6/2023	91	Unidentified shark	1
8/6/2023	91	Unidentified shark	1
8/6/2023	91	Unidentified shark	1
8/6/2023	91	Unidentified shark	1
8/10/2023	1	Common dolphin (*Delphinus delphis*)	7
8/10/2023	Cross-leg	Loggerhead sea turtle (*Caretta caretta*)	1
8/10/2023	65	Unidentified shark	1
8/10/2023	81	Unidentified dolphin/porpoise	2
8/14/2023	7	Unidentified shark	1
8/14/2023	Cross-leg	Unidentified shark	1
8/14/2023	Cross-leg	Unidentified dolphin/porpoise	1
8/14/2023	15	Unidentified fish	1
8/14/2023	15	Common dolphin (*Delphinus delphis*)	1
8/14/2023	15	Minke whale (*Balaenoptera acutorostrata*)	1
8/14/2023	15	Common dolphin (*Delphinus delphis*)	11
8/14/2023	15	Common dolphin (*Delphinus delphis*)	8
8/14/2023	15	Minke whale (*Balaenoptera acutorostrata*)	1

Table B-1 continued. Marine megafauna captured by vertical photographs in the study area offshore of Massachusetts and Rhode Island shown by survey date and trackline.

Survey Date	Trackline	Species	#ofanimals
8/14/2023	15	Unidentified tuna	6
8/14/2023	31	Unidentified shark	1
8/14/2023	31	Unidentified fish	1
8/14/2023	31	Minke whale (*Balaenoptera acutorostrata*)	1
8/14/2023	39	Hammerhead shark (*Sphyrna* sp.)	1
8/14/2023	47	Ocean sunfish (*Mola mola*)	1
8/14/2023	55	Unidentified dolphin/porpoise	2
8/14/2023	55	Ocean sunfish (*Mola mola*)	1
8/14/2023	71	Unidentified shark	1
8/14/2023	71	Unidentified shark	1
8/14/2023	71	Unidentified shark	1
8/14/2023	71	Unidentified shark	1
8/14/2023	71	Blue shark (*Prionace glauca*)	1
8/14/2023	79	Unidentified shark	1
8/14/2023	87	Unidentified dolphin/porpoise	5
8/14/2023	87	Unidentified shark	1
8/14/2023	87	Unidentified shark	1
8/14/2023	87	Unidentified shark	1
8/14/2023	87	Unidentified shark	1
9/12/2023	5	Unidentified shark	1
9/12/2023	5	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	5	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	5	Unidentified shark	1
9/12/2023	5	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	5	Unidentified shark	1
9/12/2023	5	Unidentified shark	2
9/12/2023	5	Unidentified fish	1
9/12/2023	5	Unidentified shark	2
9/12/2023	5	Unidentified shark	1
9/12/2023	5	Unidentified shark	2
9/12/2023	5	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	5	Unidentified shark	1
9/12/2023	5	Unidentified shark	1
9/12/2023	5	Unidentified shark	1
9/12/2023	Cross-leg	Unidentified fish	40
9/12/2023	Cross-leg	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	Cross-leg	Unidentified tuna	9
9/12/2023	Cross-leg	Unidentified tuna	4
9/12/2023	Cross-leg	Minke whale (*Balaenoptera acutorostrata*)	1

Table B-1 continued. Marine megafauna captured by vertical photographs in the study area offshore of Massachusetts and Rhode Island shown by survey date and trackline.

Survey Date	Trackline	Species	#ofanimals
9/12/2023	13	Unidentified shark	1
9/12/2023	13	Unidentified shark	1
9/12/2023	13	Unidentified shark	1
9/12/2023	13	Unidentified shark	1
9/12/2023	13	Unidentified shark	1
9/12/2023	13	Unidentified shark	1
9/12/2023	13	Unidentified shark	1
9/12/2023	13	Unidentified fish	2
9/12/2023	13	Unidentified shark	1
9/12/2023	13	Unidentified shark	1
9/12/2023	21	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	21	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	21	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	21	Unidentified shark	1
9/12/2023	21	Unidentified shark	1
9/12/2023	21	Unidentified ray	1
9/12/2023	21	Unidentified shark	1
9/12/2023	21	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	21	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	21	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	29	Unidentified shark	1
9/12/2023	29	Unidentified fish	19
9/12/2023	29	Unidentified fish	4
9/12/2023	29	Unidentified shark	1
9/12/2023	29	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	29	Unidentified fish	1
9/12/2023	29	Unidentified shark	1
9/12/2023	29	Unidentified shark	1
9/12/2023	29	Unidentified shark	1
9/12/2023	29	Unidentified shark	1
9/12/2023	29	Unidentified shark	1
9/12/2023	29	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	29	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	Cross-leg	Unidentified shark	1
9/12/2023	Cross-leg	Blue shark (*Prionace glauca*)	1
9/12/2023	Cross-leg	Ocean sunfish (*Mola mola*)	2
9/12/2023	Cross-leg	Unidentified shark	1
9/12/2023	Cross-leg	Unidentified shark	1
9/12/2023	Cross-leg	Unidentified shark	1
9/12/2023	Cross-leg	Hammerhead shark (*Sphyrna* sp.)	1

Table B-1 continued. Marine megafauna captured by vertical photographs in the study area offshore of Massachusetts and Rhode Island shown by survey date and trackline.

Survey Date	Trackline	Species	#ofanimals
9/12/2023	Cross-leg	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	Cross-leg	Unidentified shark	1
9/12/2023	37	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	37	Unidentified shark	1
9/12/2023	37	Unidentified shark	1
9/12/2023	37	Ocean sunfish (*Mola mola*)	1
9/12/2023	Cross-leg	Unidentified fish	12
9/12/2023	Cross-leg	Common dolphin (*Delphinus delphis*)	17
9/12/2023	Cross-leg	Unidentified fish	1
9/12/2023	Cross-leg	Unidentified shark	1
9/12/2023	Cross-leg	Unidentified fish	7
9/12/2023	45	Unidentified shark	1
9/12/2023	45	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	45	Unidentified shark	1
9/12/2023	45	Unidentified ray	1
9/12/2023	45	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	45	Unidentified shark	2
9/12/2023	45	Unidentified shark	1
9/12/2023	45	Unidentified shark	1
9/12/2023	45	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	45	Unidentified shark	1
9/12/2023	45	Unidentified shark	1
9/12/2023	45	Unidentified shark	1
9/12/2023	45	Unidentified shark	1
9/12/2023	45	Unidentified fish	5
9/12/2023	45	Unidentified shark	1
9/12/2023	45	Unidentified shark	1
9/12/2023	45	Unidentified shark	1
9/12/2023	45	Hammerhead shark (*Sphyrna* sp.)	1
9/12/2023	45	Unidentified shark	2
9/12/2023	45	Unidentified ray	1
9/13/2023	61	Hammerhead shark (*Sphyrna* sp.)	1
9/13/2023	69	Common dolphin (*Delphinus delphis*)	2
9/13/2023	69	Blue shark (*Prionace glauca*)	1
9/13/2023	69	Unidentified shark	1
9/13/2023	69	Unidentified shark	1
9/13/2023	77	Unidentified ray	1
9/13/2023	77	Hammerhead shark (*Sphyrna* sp.)	1
9/13/2023	77	Unidentified shark	1
9/13/2023	77	Unidentified shark	1

Table B-1 continued. Marine megafauna captured by vertical photographs in the study area offshore of Massachusetts and Rhode Island shown by survey date and trackline.

Survey Date	Trackline	Species	#ofanimals
9/13/2023	Cross-leg	Leatherback sea turtle (*Dermochelys coriacea*)	1
9/13/2023	Cross-leg	Leatherback sea turtle (*Dermochelys coriacea*)	1
9/13/2023	85	Ocean sunfish (*Mola mola*)	1
9/13/2023	85	Unidentified shark	1
9/13/2023	85	Unidentified shark	1
9/13/2023	85	Unidentified shark	1
9/13/2023	85	Unidentified shark	1
9/13/2023	85	Unidentified dolphin/porpoise	13
9/21/2023	Cross-leg	Humpback whale (*Megaptera novaeangliae*)	1
9/21/2023	10	Leatherback sea turtle (*Dermochelys coriacea*)	1
9/21/2023	10	Unidentified shark	1
9/21/2023	Cross-leg	Unidentified seal	1
9/21/2023	Cross-leg	Leatherback sea turtle (*Dermochelys coriacea*)	1
9/21/2023	50	Ocean sunfish (*Mola mola*)	1
9/21/2023	50	Unidentified shark	1
9/21/2023	58	Unidentified fish	16
9/21/2023	58	Unidentified fish	9
9/21/2023	58	Common dolphin (*Delphinus delphis*)	20
9/21/2023	66	Common dolphin (*Delphinus delphis*)	59
9/21/2023	66	Unidentified shark	1
9/21/2023	66	Unidentified shark	1
9/21/2023	74	Ocean sunfish (*Mola mola*)	1
9/21/2023	82	Leatherback sea turtle (*Dermochelys coriacea*)	1
9/21/2023	82	Ocean sunfish (*Mola mola*)	1
9/21/2023	82	Ocean sunfish (*Mola mola*)	3
9/21/2023	82	Unidentified shark	1
9/21/2023	Cross-leg	Ocean sunfish (*Mola mola*)	1
9/21/2023	90	Ocean sunfish (*Mola mola*)	1
9/21/2023	90	Ocean sunfish (*Mola mola*)	1
9/21/2023	90	Leatherback sea turtle (*Dermochelys coriacea*)	1
9/21/2023	90	Leatherback sea turtle (*Dermochelys coriacea*)	1
10/5/2023	4	Blue shark (*Prionace glauca*)	1
10/5/2023	Cross-leg	Blue shark (*Prionace glauca*)	1
10/5/2023	12	Unidentified tuna	6
10/5/2023	12	Common dolphin (*Delphinus delphis*)	11
10/5/2023	20	Bottlenose dolphin (*Tursiops truncatus)*	1
10/5/2023	20	Unidentified shark	1

Table B-1 continued. Marine megafauna captured by vertical photographs in the study area offshore of Massachusetts and Rhode Island shown by survey date and trackline.

Survey Date	Trackline	Species	#ofanimals
10/5/2023	28	Unidentified shark	1
10/5/2023	28	Unidentified shark	1
10/5/2023	28	Unidentified shark	1
10/5/2023	28	Unidentified shark	1
10/5/2023	28	Unidentified shark	1
10/5/2023	28	Unidentified shark	1
10/5/2023	28	Unidentified shark	1
10/5/2023	Cross-leg	Leatherback sea turtle (*Dermochelys coriacea*)	1
10/5/2023	36	Unidentified shark	1
10/5/2023	36	Unidentified shark	1
10/5/2023	36	Unidentified shark	1
10/5/2023	44	Ocean sunfish (*Mola mola*)	1
10/12/2023	88	Blue shark (*Prionace glauca*)	1
10/12/2023	80	Minke whale (*Balaenoptera acutorostrata*)	1
10/12/2023	80	Gray seal (*Halichoerus grypus*)	1
10/12/2023	80	Unidentified seal	1
10/12/2023	3/-	Unidentified shark	1
10/12/2023	64	Unidentified shark	1
10/12/2023	64	Blue shark (*Prionace glauca*)	1
10/12/2023	40	Unidentified shark	1
10/12/2023	40	Basking shark (*Cetorhinus maximus)*	2
10/12/2023	40	Basking shark (*Cetorhinus maximus)*	1
10/12/2023	40	Unidentified shark	1
10/12/2023	40	Unidentified shark	1
10/12/2023	32	Unidentified dolphin/porpoise	8
10/12/2023	32	Unidentified shark	1
10/12/2023	24	Unidentified shark	1
10/12/2023	16	Unidentified shark	1
10/12/2023	16	Common dolphin (*Delphinus delphis*)	24
10/12/2023	8	Common dolphin (*Delphinus delphis*)	12
10/12/2023	8	Common dolphin (*Delphinus delphis*)	10
10/17/2023	73	Common dolphin (*Delphinus delphis*)	11
10/17/2023	81	Unidentified shark	1
10/17/2023	65	Minke whale (*Balaenoptera acutorostrata*)	1
10/17/2023	49	Unidentified shark	1
11/6/2023	55	Ocean sunfish (*Mola mola*)	1
11/6/2023	1/-	Unidentified seal	1
11/6/2023	1/-	Unidentified seal	1
11/6/2023	1/-	Unidentified seal	1

Table B-1 continued. Marine megafauna captured by vertical photographs in the study area offshore of Massachusetts and Rhode Island shown by survey date and trackline.

Survey Date	Trackline	Species	#ofanimals
11/6/2023	1/-	Unidentified seal	1
11/6/2023	1/-	Unidentified seal	1
11/6/2023	1/-	Unidentified seal	1
11/6/2023	1/-	Unidentified seal	1
11/6/2023	71	Unidentified seal	1
11/6/2023	3/-	Unidentified dolphin/porpoise	2
11/6/2023	3/-	Common dolphin (*Delphinus delphis*)	3
11/6/2023	3/-	Common dolphin (*Delphinus delphis*)	2
11/6/2023	95	Unidentified seal	1
11/12/2023	83	Common dolphin (*Delphinus delphis*)	3
11/12/2023	83	Unidentified dolphin/porpoise	4
11/15/2023	70	Harbor porpoise (*Phocoena Phocoena*)	1
11/15/2023	70	Unidentified seal	1
11/15/2023	70	Common dolphin (*Delphinus delphis*)	5
11/15/2023	82	Common dolphin (*Delphinus delphis*)	6
11/15/2023	86	Ocean sunfish (*Mola mola*)	1
11/15/2023	90	Unidentified shark	1
11/15/2023	94	Unidentified seal	1
11/15/2023	98	Common dolphin (*Delphinus delphis*)	6
11/15/2023	98	Common dolphin (*Delphinus delphis*)	21
11/15/2023	98	Unidentified seal	1
11/15/2023	98	Ocean sunfish (*Mola mola*)	1
11/15/2023	98	Ocean sunfish (*Mola mola*)	1
11/15/2023	98	Ocean sunfish (*Mola mola*)	1
11/15/2023	102	Common dolphin (*Delphinus delphis*)	15
11/15/2023	106	Common dolphin (*Delphinus delphis*)	4
12/8/2023	Cross-leg	Unidentified seal	1
12/8/2023	50	Unidentified seal	1
12/8/2023	58	Unidentified dolphin/porpoise	4
12/8/2023	58	Unidentified dolphin/porpoise	4
12/8/2023	66	Common dolphin (*Delphinus delphis*)	5
12/8/2023	66	Unidentified dolphin/porpoise	2
12/8/2023	66	Common dolphin (*Delphinus delphis*)	4
12/8/2023	66	Common dolphin (*Delphinus delphis*)	3
12/8/2023	74	Unidentified seal	1
12/8/2023	74	Unidentified seal	1
12/8/2023	74	Unidentified seal	1
12/8/2023	82	Unidentified seal	1
12/8/2023	82	Unidentified seal	1
12/8/2023	82	Common dolphin (*Delphinus delphis*)	3