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Beacon Wind

Michelle Fogarty
EEA Habitat Working Group on Offshore Wind Energy
May 27, 2021

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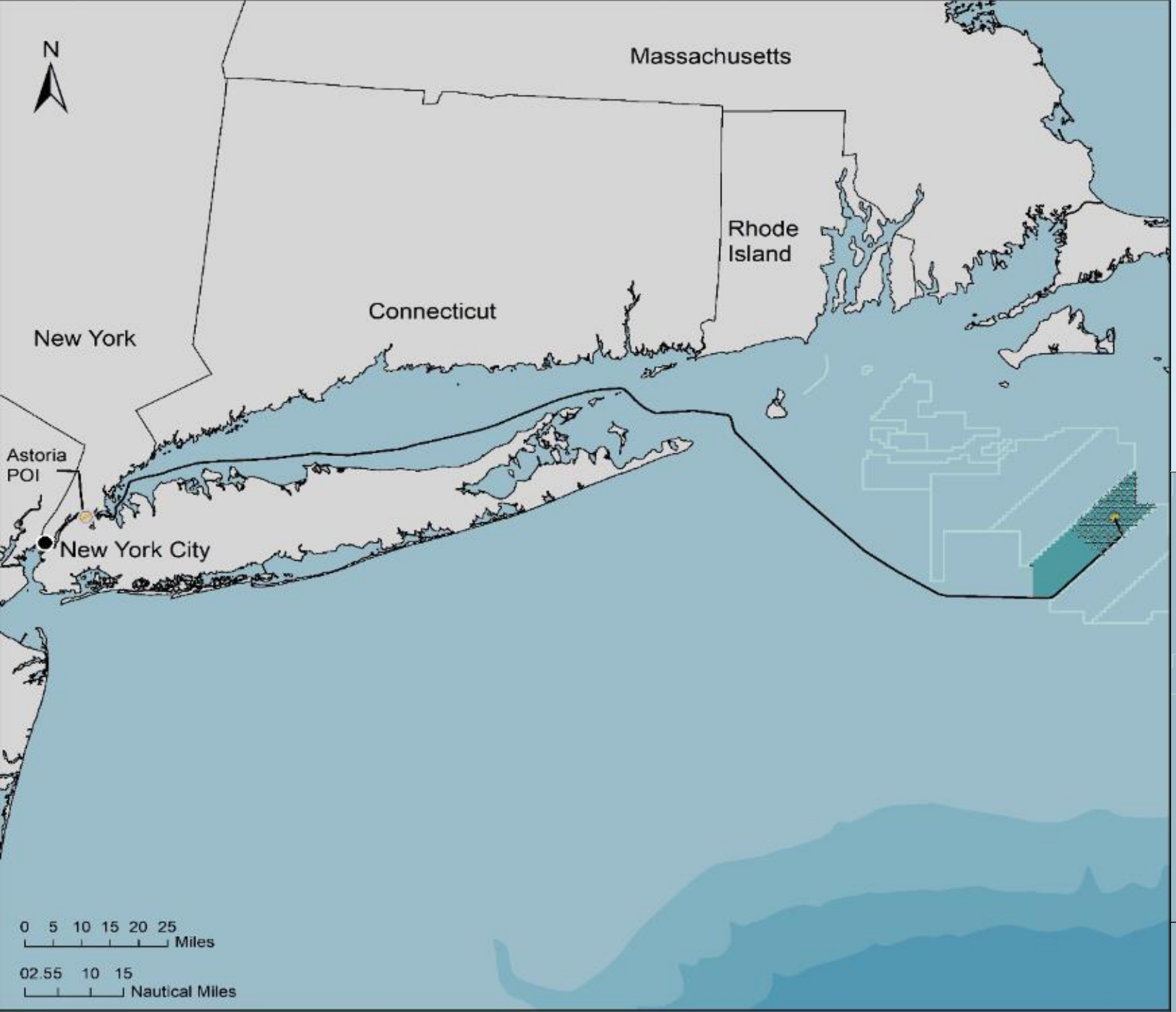
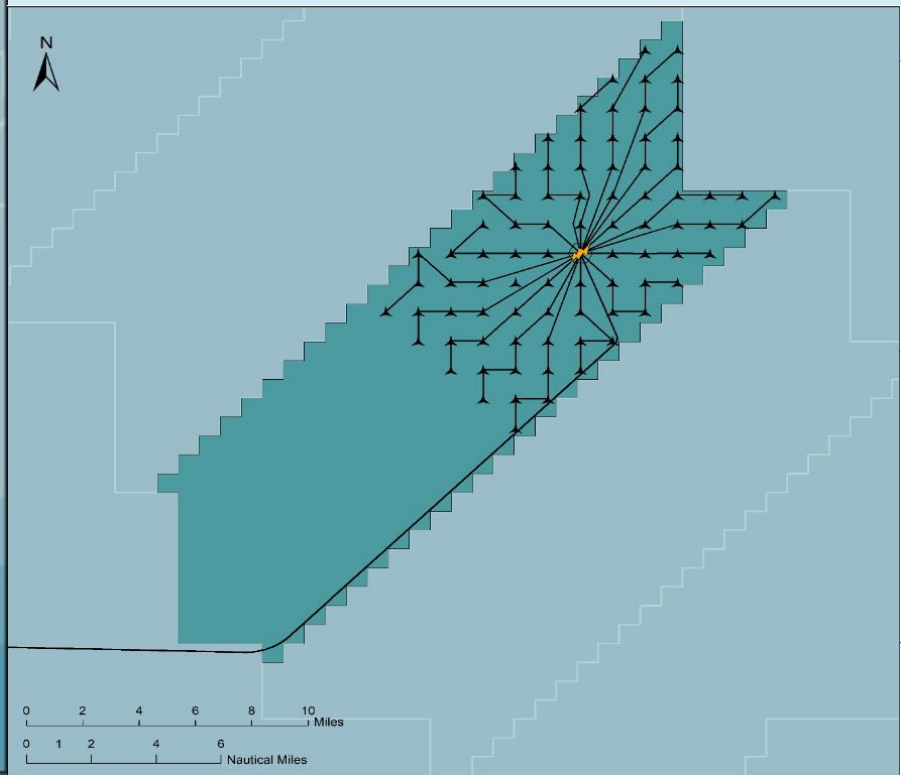
Energy Procurements Update:

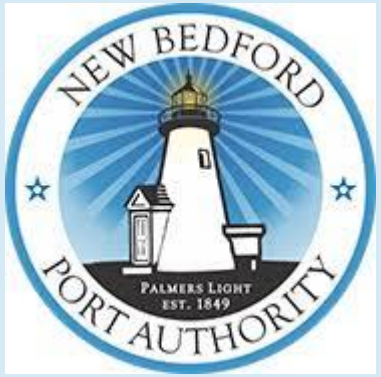
- January 2021: New York awarded 1,230 MW to Beacon Wind 1 with landfall at Astoria, NY

Beacon Wind 1





Route Consultations



2021 Beacon Wind Activities

- HRG surveys for Lease Area completed and are underway along export cable route (mobilized August 2020)
- Scout Boat Program for survey activities
- Seafloor sampling for Lease Area and export cable route mobilizing summer 2021: vibracores, SPI/PV imagery, CPTs, and benthic grabs
- SAP Buoy and Mooring Installation – Anticipated Q2/Q3 2021
- Survey newsletters distributed to fisheries stakeholders and available on website- www.BeaconWind.com
- Survey activities published via USCG LNM and updates to USCG NY VTS for nearshore activities
- Project websites show AIS for survey vessels operating in the Lease Area under “Information for Mariners”

FV Karoline Marie (Scout Boat)

Stril Explorer

FV Karoline Marie (Scout Boat)

Saentis

Seehorn

Deep Helder

Dolphin

Danielle Miller

Dina Polaris

2021 Beacon Wind High Resolution Geophysical (HRG) Surveys

Lease Area

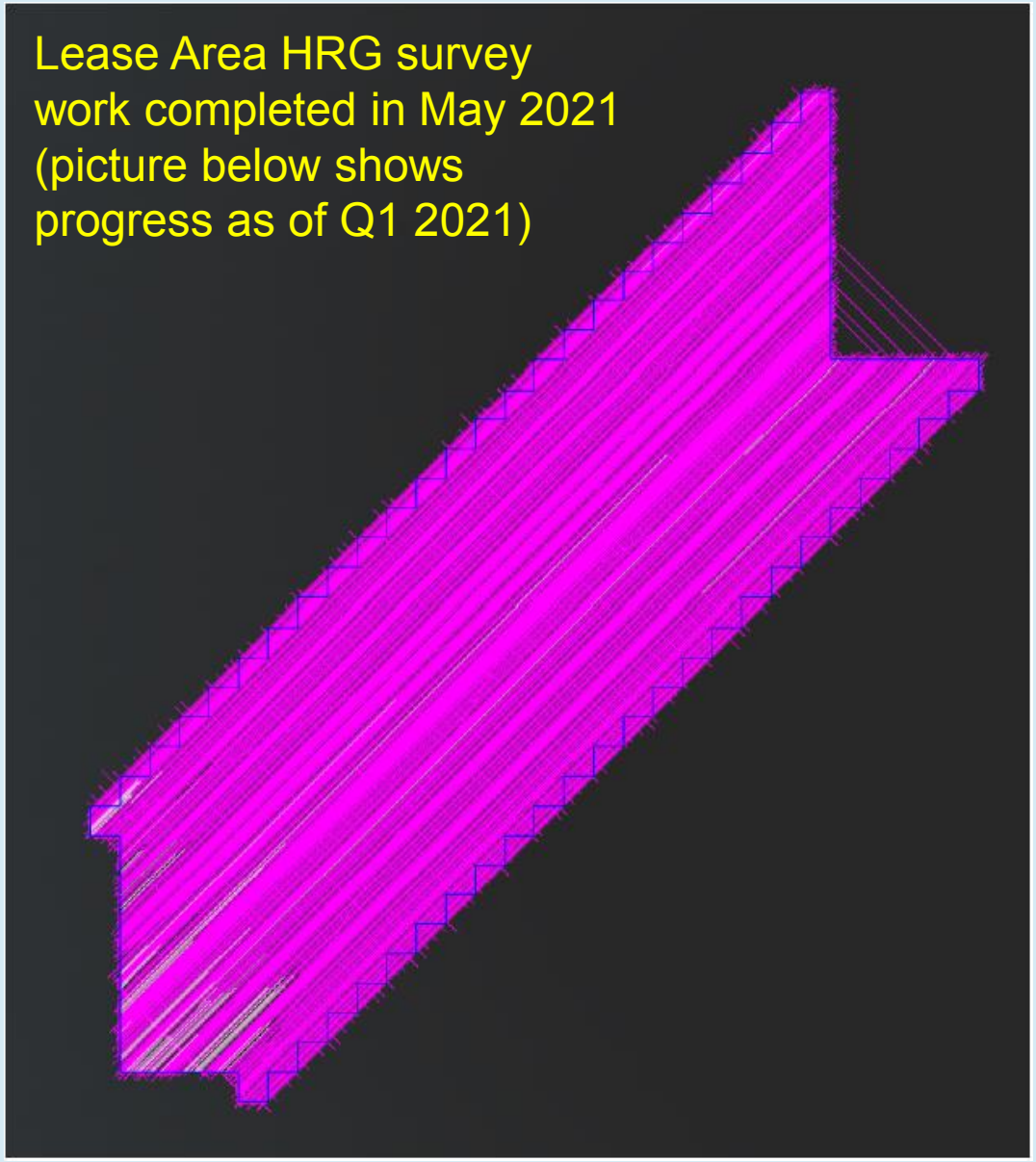
- Mobilized: August 2020
- Completed: May 2021

Export Cable Route

- Underway

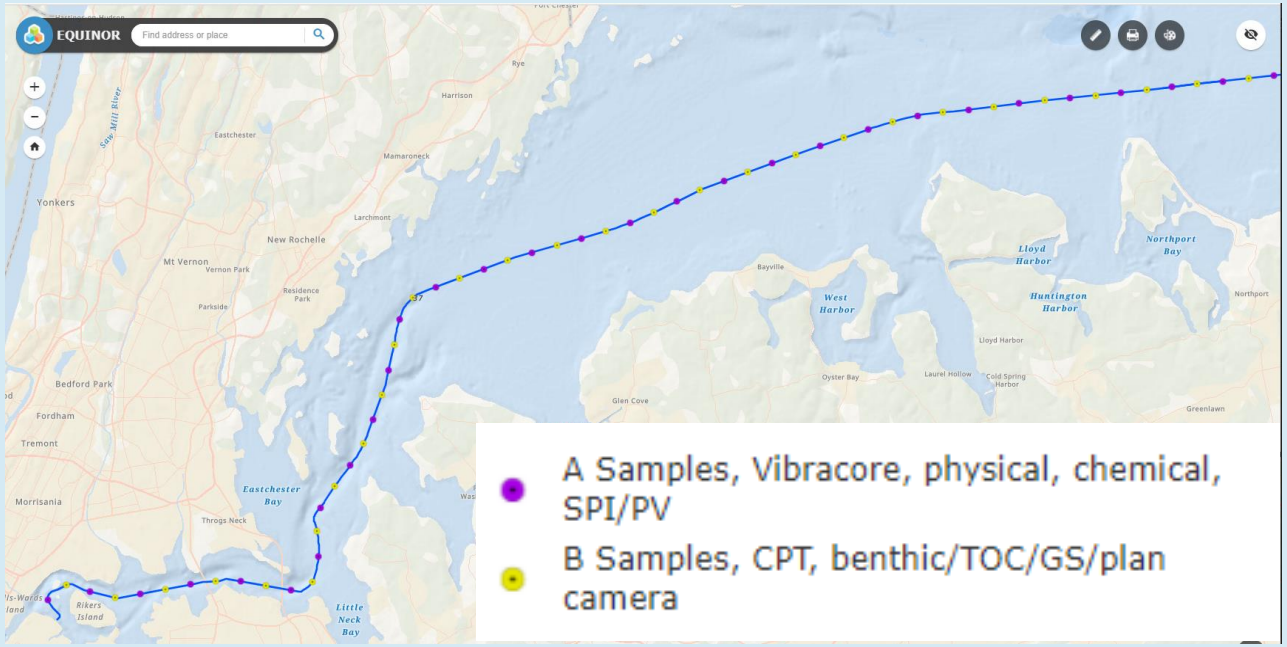
Scout Boats

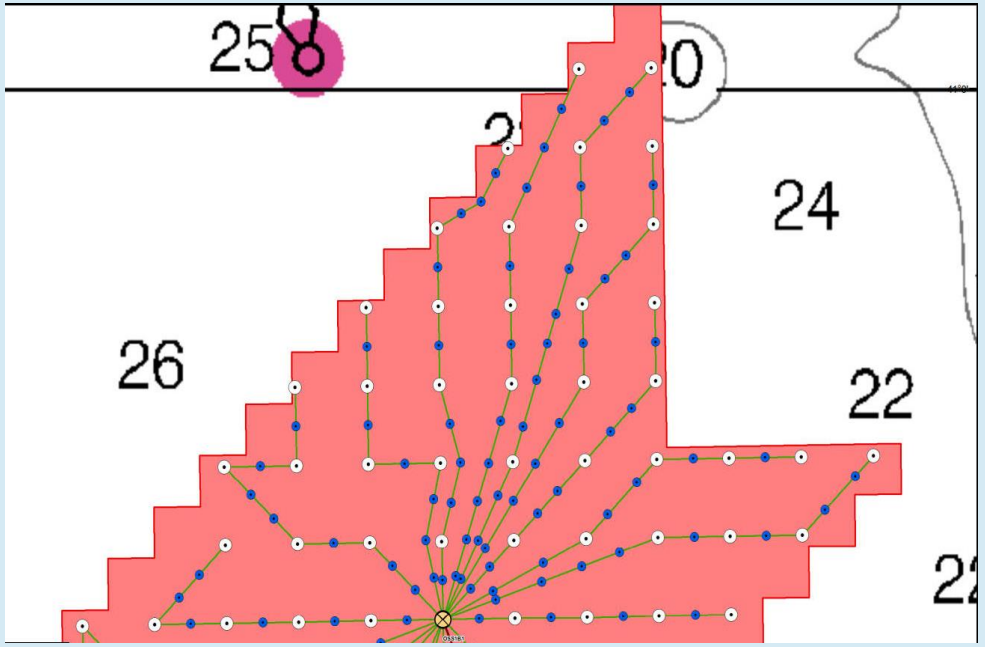
- Fishing vessels hired to assist clearance of survey lines
- Assist in communications with other vessels and provide waterway knowledge to survey vessels



2021 Beacon Wind Seafloor Sampling Activities

- Characterize physical and chemical condition across Lease Area and export cable route
- Ground truth geophysical survey
- Inform engineering and installation planning
- Support federal and state permitting



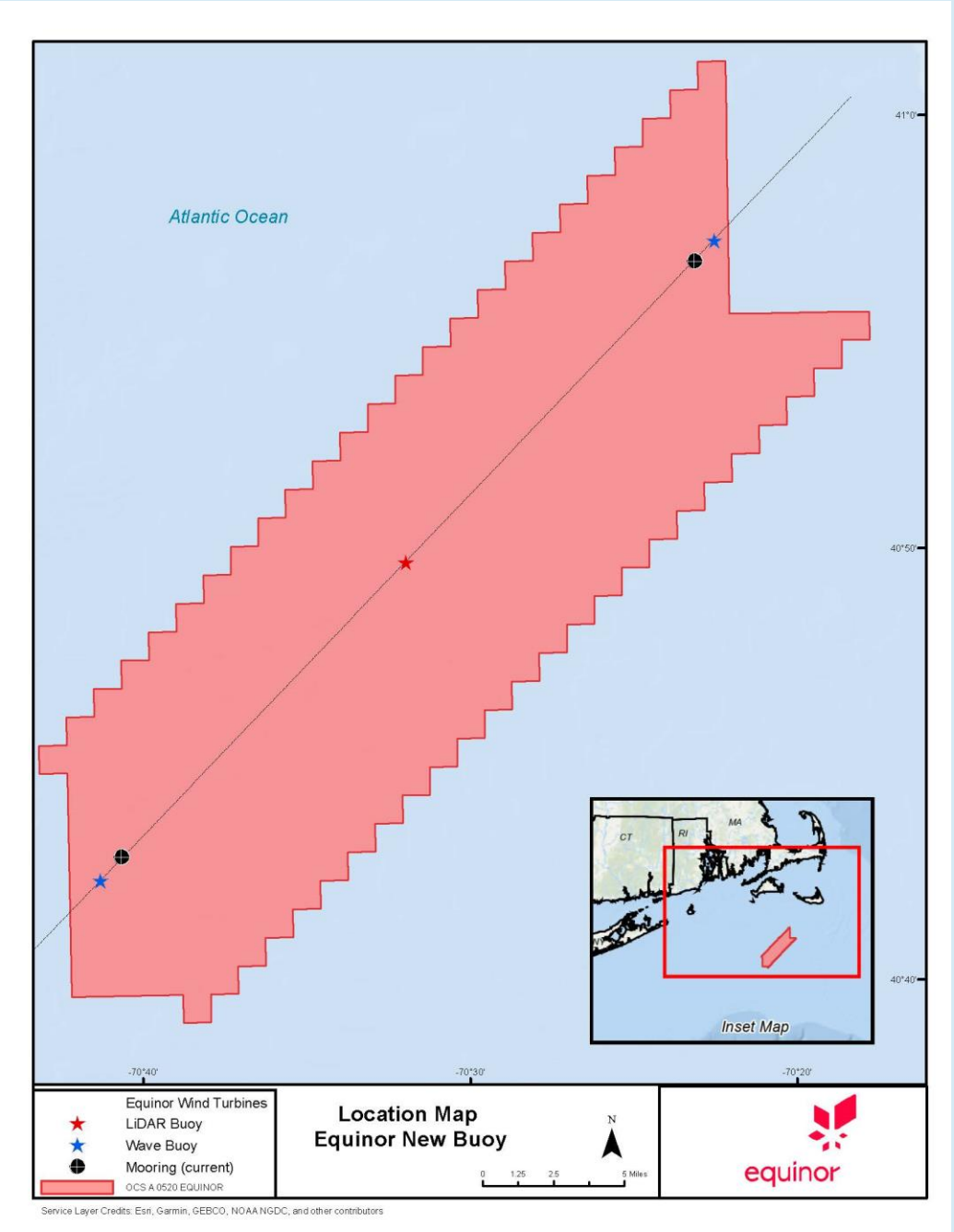


SAP Buoys and Moorings

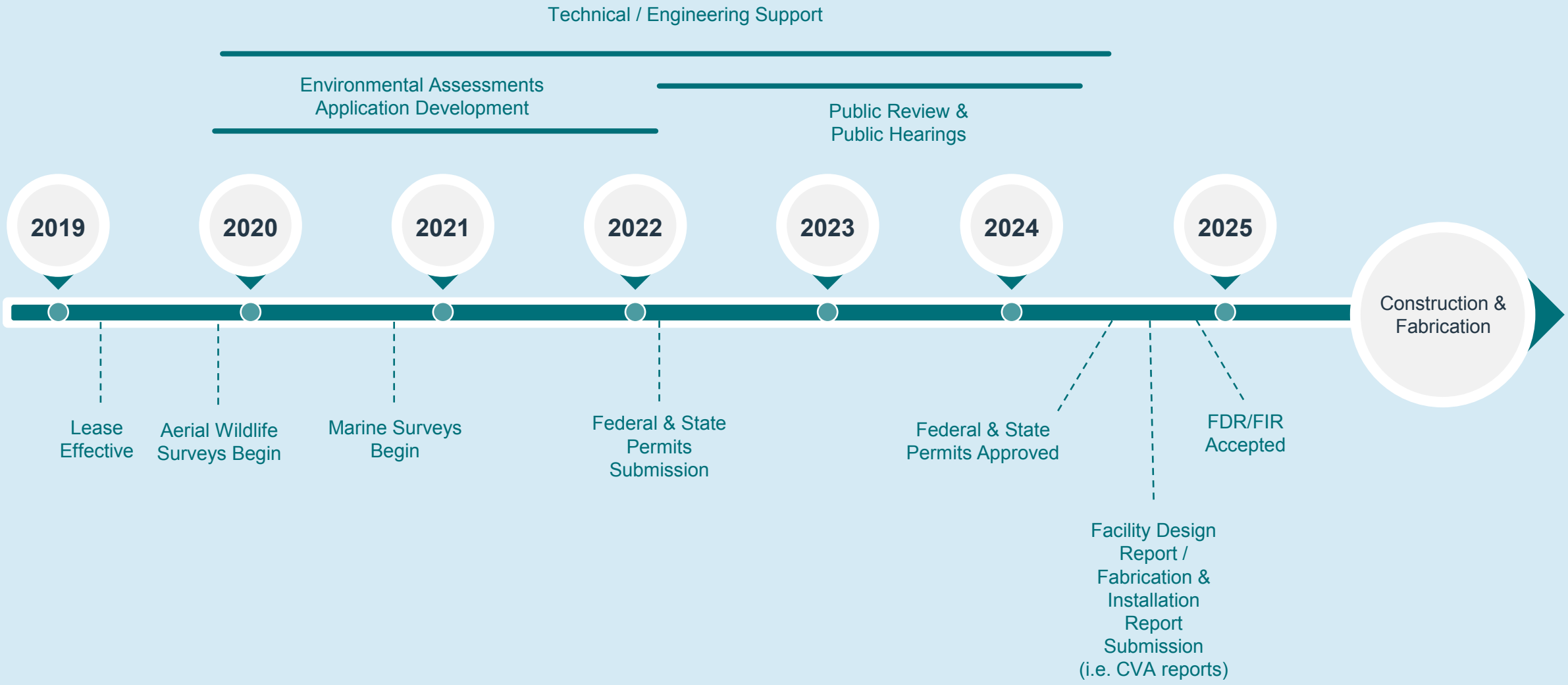
- Site Assessment Plan (SAP) in support of the installation and operation of:
  - One Floating Light Detection and Ranging (Floating LiDAR) buoy,
  - Two current meter moorings, and two wave and metocean buoys

- The proposed approach is to utilize the LiDAR buoy formerly located in Equinor Wind's New York Lease OCS-A 0512 (Empire Wind).

- The facilities will be moved to Equinor Wind's Massachusetts Lease OCS-A 0520 following all permit approvals.



Beacon Wind | Permitting Schedule



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SHAPING THE FUTURE OF ENERGY

Thank you for your attention

Michelle Fogarty
mfog@equinor.com

Ørsted Offshore North America

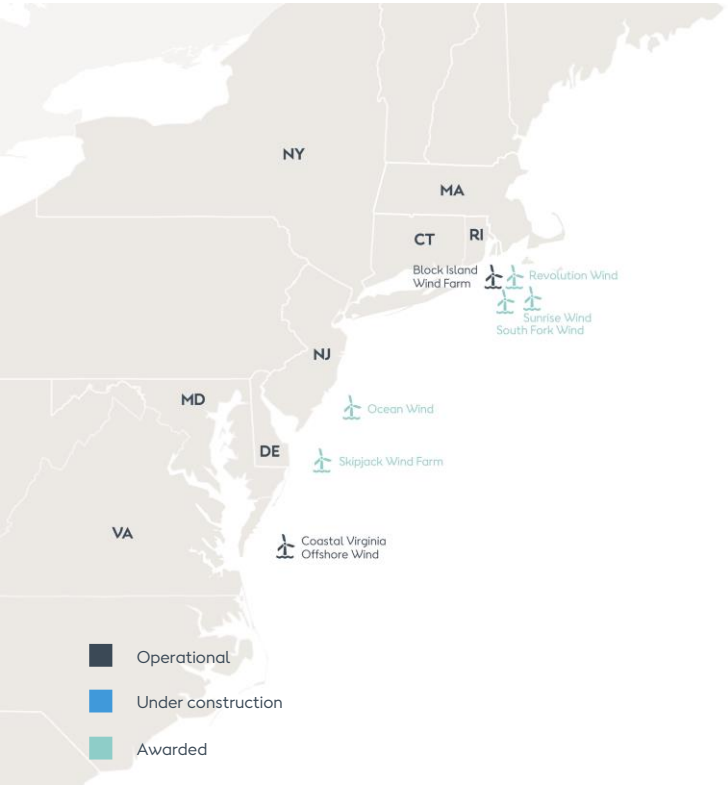
Northeast Program Update

Ørsted

MA EEA Habitat Working Group Meeting on Offshore Wind
May 2021

Ørsted Offshore North America portfolio

Awarded over 2,900 MW of offshore capacity on the East coast



In Operation

Block Island Wind Farm: 30MW

Coastal Virginia Offshore Wind: EPC contract, owned by Dominion Energy, 12 MW

Awarded

Revolution Wind: 50/50 JV w/ Eversource, 704MW (400MW to RI, 304MW to CT)

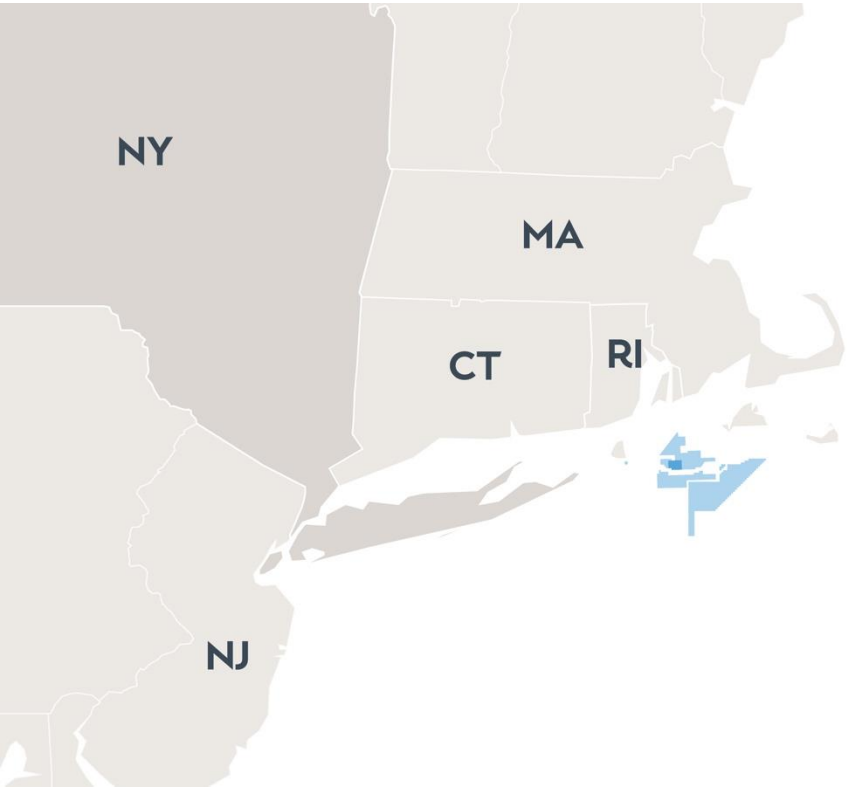
South Fork Wind: 50/50 JV w/ Eversource, 132MW

Sunrise Wind: 50/50 JV w/ Eversource, approximately 880MW

Ocean Wind: with the support of PSEG, 1,100MW

Skipjack Wind Farm: 120MW

Northeast Program - 50/50 JV with Eversource



South Fork

- Lease Area OCS-A 0517
- Approximately 132 MW to LIPA
- Deliver power to the East Hampton, NY
- DEIS issued January 2021
- NY Article VII approved March 2021

Revolution

- Lease Area OCS-A 0486
- Three power contracts (CT 304 MW, RI 400 MW)
- Interconnect to the existing Davisville Substation, RI
- NOI issued April 2021, scoping period ends June 1, 2021

Sunrise

- Lease Area OCS-A 0530
- Approximately 880 MW to NYSERDA
- Proposed interconnection at Holbrook Substation, NY
- COP filed September 2020

Permitting & Environmental Studies Updates

SFW Fisheries Monitoring

- SFW offshore fisheries surveys ongoing
- Benthic biology and ventless lobster trap surveys starting this spring
- SFWF Monitoring Plan: http://www.crmc.ri.gov/windenergy/dwsouthfork/SFW01_Fisheries_Monitoring_Plan_2020-09-30.pdf

SRW Offshore surveys

- Offshore GT surveys ongoing https://us.orsted.com/wind-projects/mariners

Thank you

Stephanie Wilson
Head of Permitting
stepw@orsted.com

Ørsted

Survey Summary --- New England Aquarium Aerial Wildlife Surveys

Update for Mass. Habitat Working Group

Nils Bolgen, Program Director
May 27, 2021

MASSACHUSETTS CLEAN ENERGY CENTER

Aerial Wildlife Surveys

Large Whales and Turtles

New England Aquarium

- 10-year effort in partnership with BOEM and EEA
- Aerial Surveys; passive acoustic monitoring; oceanographic survey

Avian

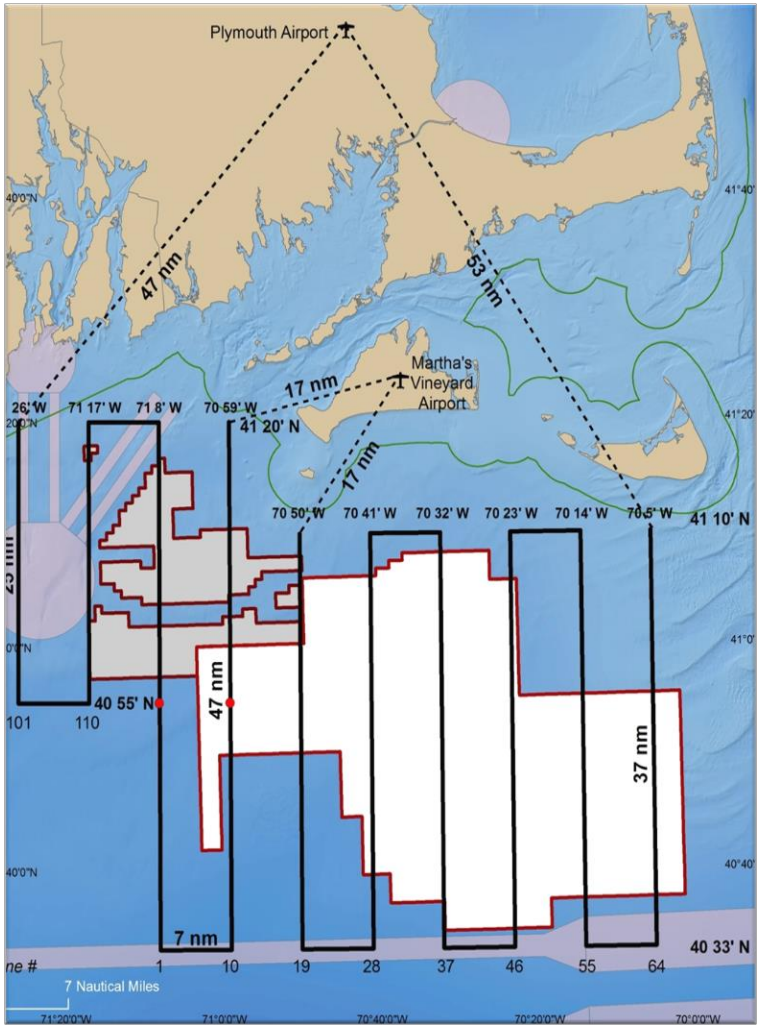
College of Staten Island

- 3-year effort in partnership with BOEM and EEA
- Aerial Survey

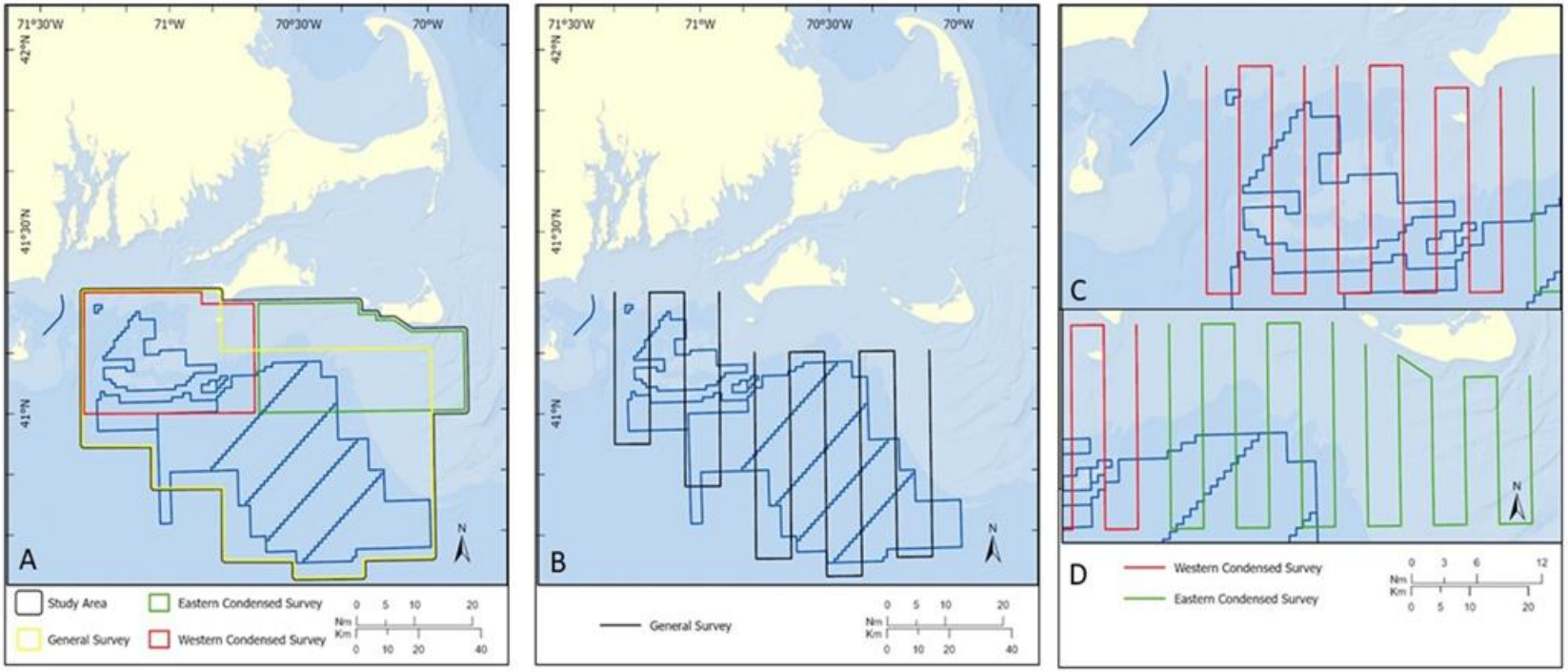
Benthic Survey

UMass Dartmouth, SMAST

https://www.masscec.com/offshore-wind



Survey Types



A) Study area (black outline)

B) General survey (tracklines are shown for option 1)

C/D) Western and Eastern condensed survey (tracklines are shown for option 1)

Source: *Megafauna Aerial Surveys in the Wind Energy Areas of MA and RI with Emphasis on Large Whales: Summary Report Campaign 5, 2018-2019.* New England Aquarium Anderson Cabot Center for Ocean Life (BOEM 2021-033, December 2020).

Survey Summary

	Survey Period	Line Transect Aerial Survey	Condensed Aerial Survey	Photographic	Acoustic	Oceano-graphic
Campaign 1	10/2011 – 9/2012	Yes (24)		Yes	Yes	
Campaign 2	10/2012 – 2/2014	Yes (24)		Yes	Yes	
Campaign 3	3/2014 – 6/2015	Yes (28)		Yes	Yes	
Campaign 4	2/2017 – 7/2018	Yes (21)	Yes (17)	Yes		Yes
Campaign 5	10/2018 – 8/2019	Yes (11)	Yes (29)	Yes		Yes
Cumulative	***10/2011 – 8/2019***	***108 surveys***	***46 surveys***		***3 campaigns***	***2 campaigns***
Campaign 6	3/2020 – 7/2021	Yes **Plus calibration**	Yes	Yes		

Survey Funding Summary

		MassCEC	BOEM	Developers	Total
Campaign 1		$599,721	--	n/a	$599,721
Campaign 2		$448,556	$343,000	n/a	$791,556
Campaign 3		$461,513	$330,000	n/a	$791,513
Campaign 4	(NEAq 2701)	$458,885	$449,943	n/a	$908,828
Campaign 5	(NEAq 2701)	$500,000	$250,000	n/a	$750,000
		$2,468,675	$1,372,943		$3,841,618
Campaign 6	(6a: NEAq 2736)	$ 0	$250,000		
	(6b: NEAq 2750)			$650,000	$900,000
		$2,468,675	**$1,622,943**	**$650,000**	**$4,741,618**

Reports, Data and Website

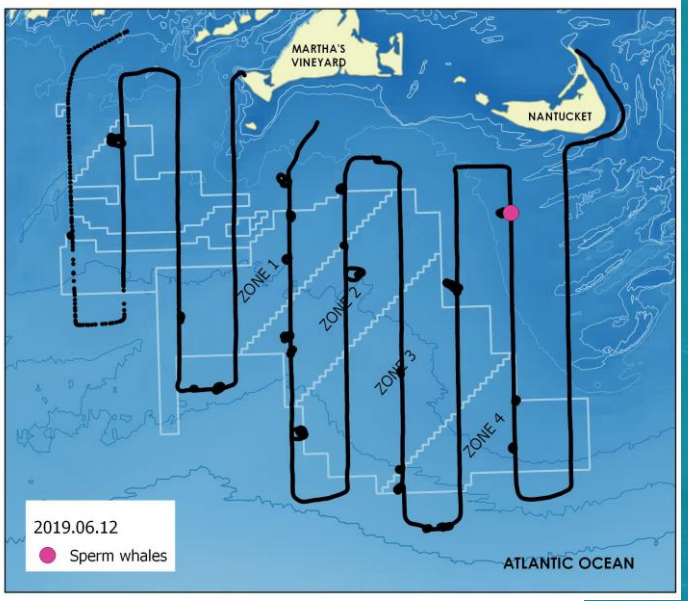
Data and Reports

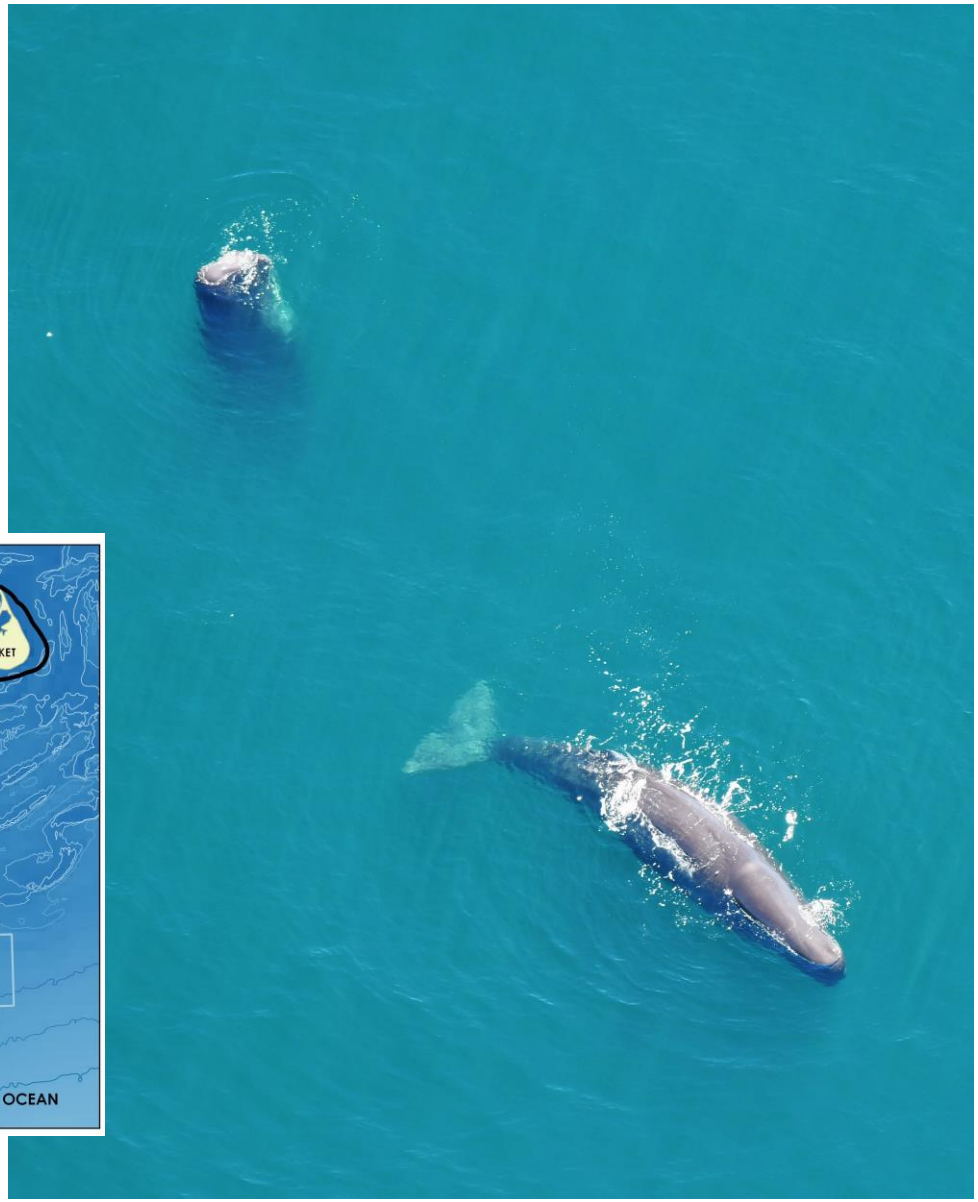
The following reports and data are available on-line or upon request via email to offshorewind@masscec.com:

	Report	Format	Online	Upon Request
Campaign 1	Monthly Survey Reports	pdf		X
	Campaign One Final Report	pdf	X	
	Appendices 1-8, 10	pdf		X
	Appendix 9 – Sightings Data Table	xlsx		X
Campaign 2	Monthly Survey Reports	pdf		X
	Campaign Two Final Report, with Appendices	pdf	X	
	Appendix 8 – Sightings Data Table	xlsx		X
Campaign 1-3	Campaign Three Monthly Survey Reports	pdf		X
	Campaign 1-3 Final Report (BOEM 2016-054)	pdf	X	
	Appendix A: Sightings Data	xlxs		X
	Appendix B: Sightings Maps	jpg		X
	Appendix C: Aerial Survey Dates and Effort	pdf		X
	Appendix D: SPUE Maps	jpg		X
	Appendix E: North Atlantic Right Whale Individuals	pdf		X
	Appendix F: Monthly Acoustic Presence	doxc		X

Sperm Whale Taking a Nap

June 2019





Survey Summary – New England Aquarium Aerial Surveys Current and moving forward

Mass. Habitat Working Group

Orla O'Brien
Assistant Scientist, Survey Coordinator
May 27, 2021

Anderson Cabot Center for Ocean Life
at the New England Aquarium

New England Aquarium
Protecting the blue planet

About me:

- Joined the NLPSC survey team in 2013
- Left in 2014 to pursue a master's degree
- Returned in 2019, leading the team since 2020, oversee data collection, processing, and analysis

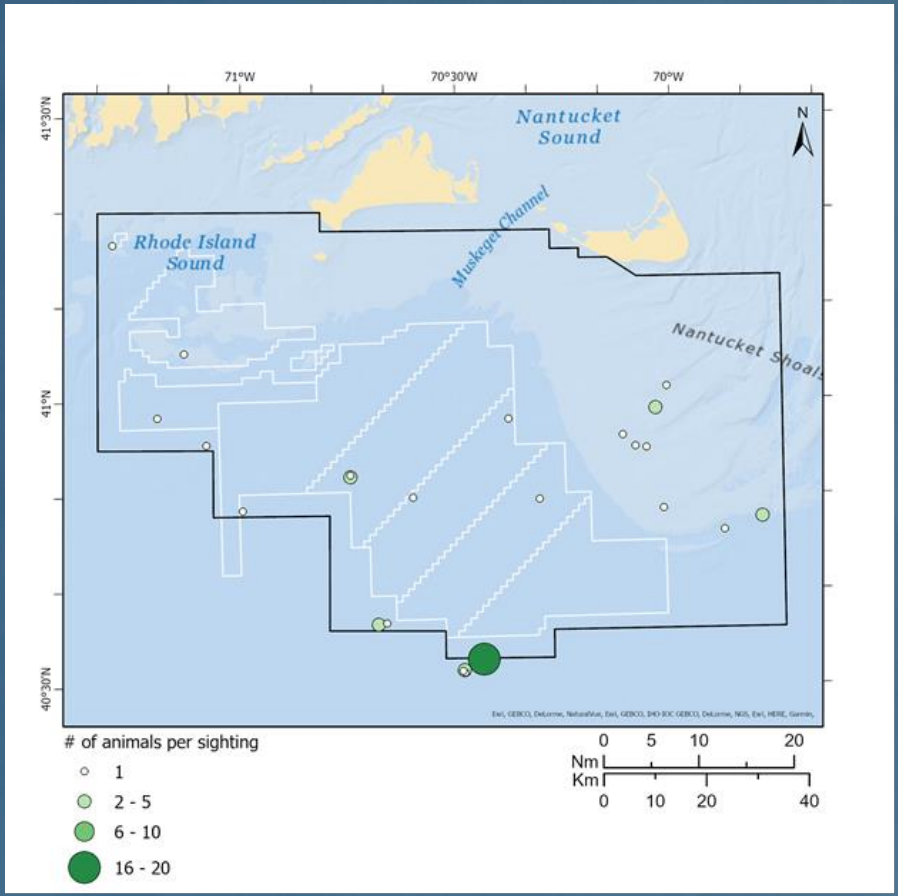
Aerial surveys – recent overview

- Campaign 5 report is online:

O'Brien, O, McKenna, K, Hodge, B, Pendleton, D, Baumgartner, M, and Redfern, J. 2021. Megafauna aerial surveys in the wind energy areas of Massachusetts and Rhode Island with emphasis on large whales: Summary Report Campaign 5, 2018-2019. Sterling (VA): US Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 2021-033. 83 p

- Currently flying Campaign 6
  - 6A is complete, 6B is ongoing – flying through August 2021
- 6A: March – October
  - 11 flights, 108 sightings of 2,121 cetaceans
- Added to our seasonal abundance estimates for:
  - Right, humpback, fin, and minke whales, common dolphins

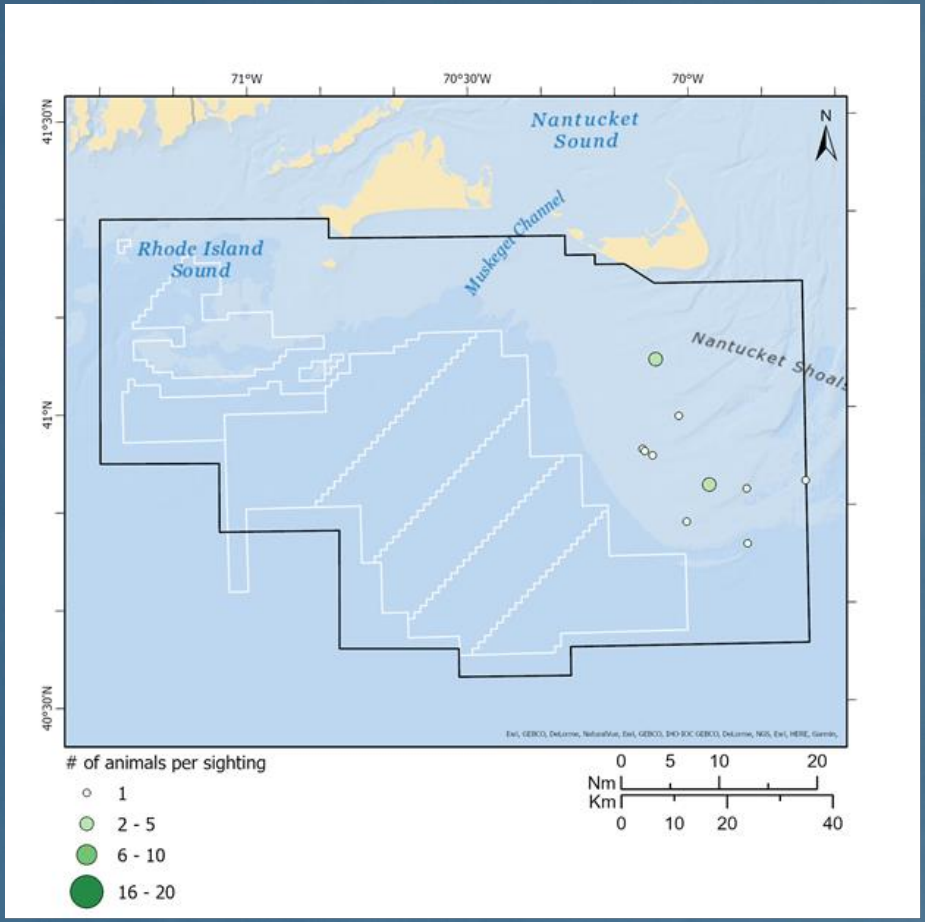
Aerial surveys – recent overview: 6A

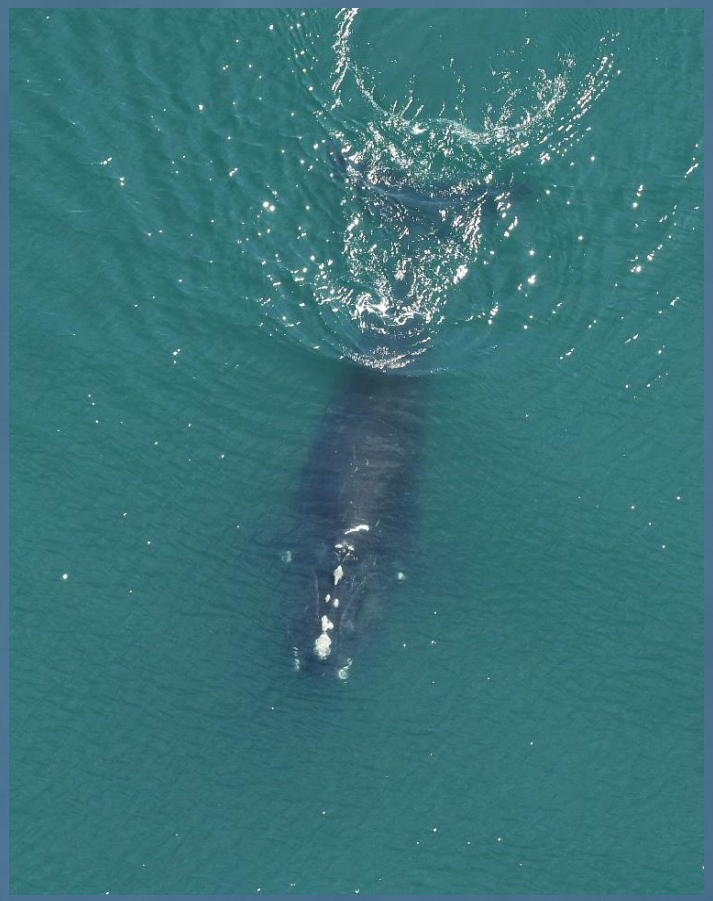


Humpbacks were the most abundant whale in the summer

O'Brien et. al. (In Prep)

Aerial surveys – recent overview: 6A

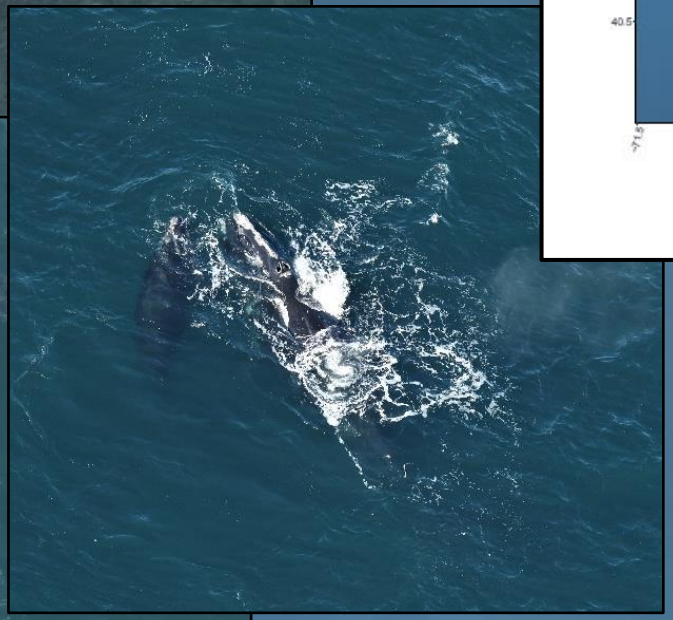


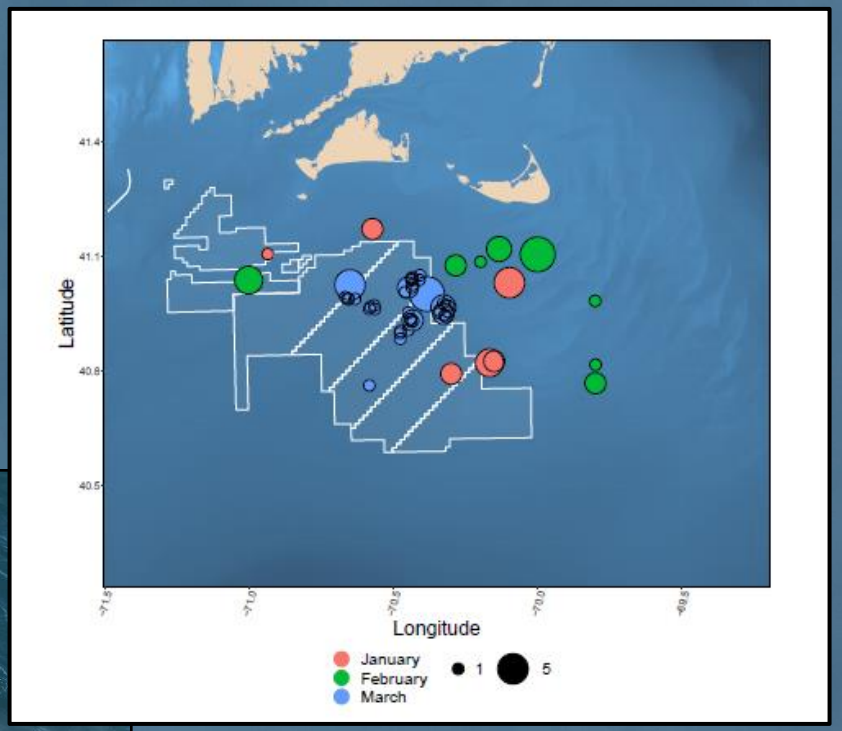


O'Brien et. al. (In Prep)

Right whales were the most abundant whale in the fall

Aerial surveys – recent overview: 6B





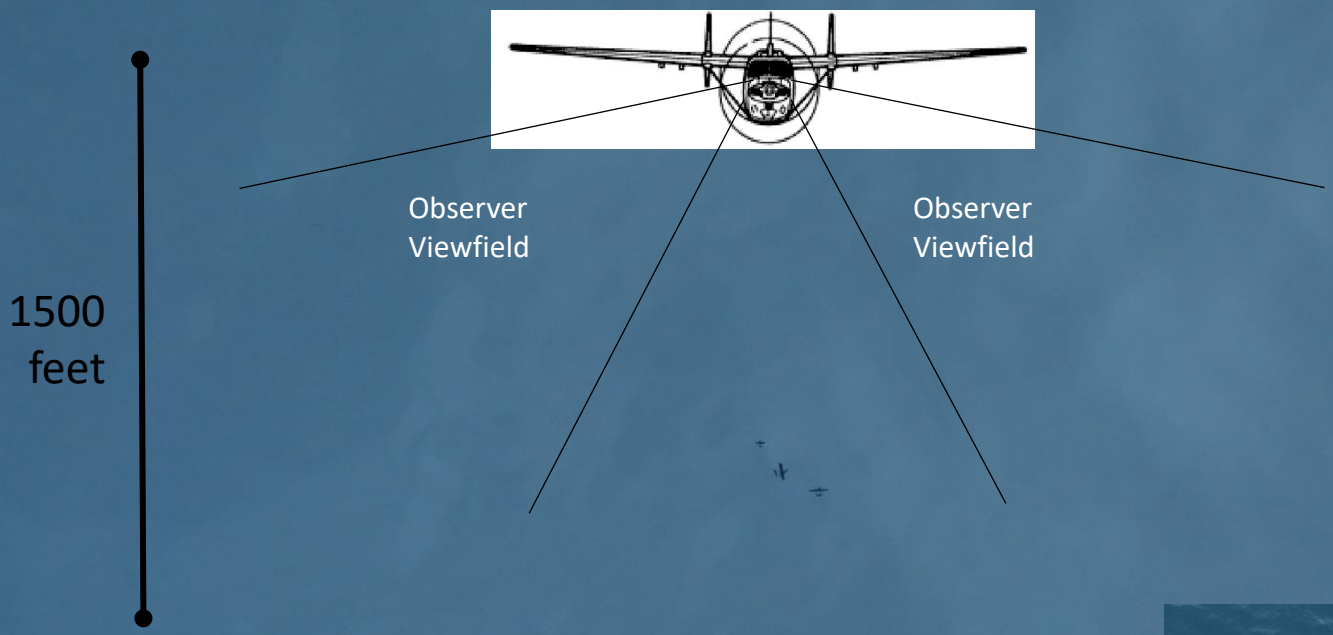
Aerial surveys – altitude calibration

- When construction starts, *any* aerial survey effort will need to go up in altitude to avoid turbines

- How will this change detectability?
  - Can't assume a 1:1 comparison between abundance estimates collected at different altitudes

Aerial surveys – altitude calibration

Aerial surveys – altitude calibration

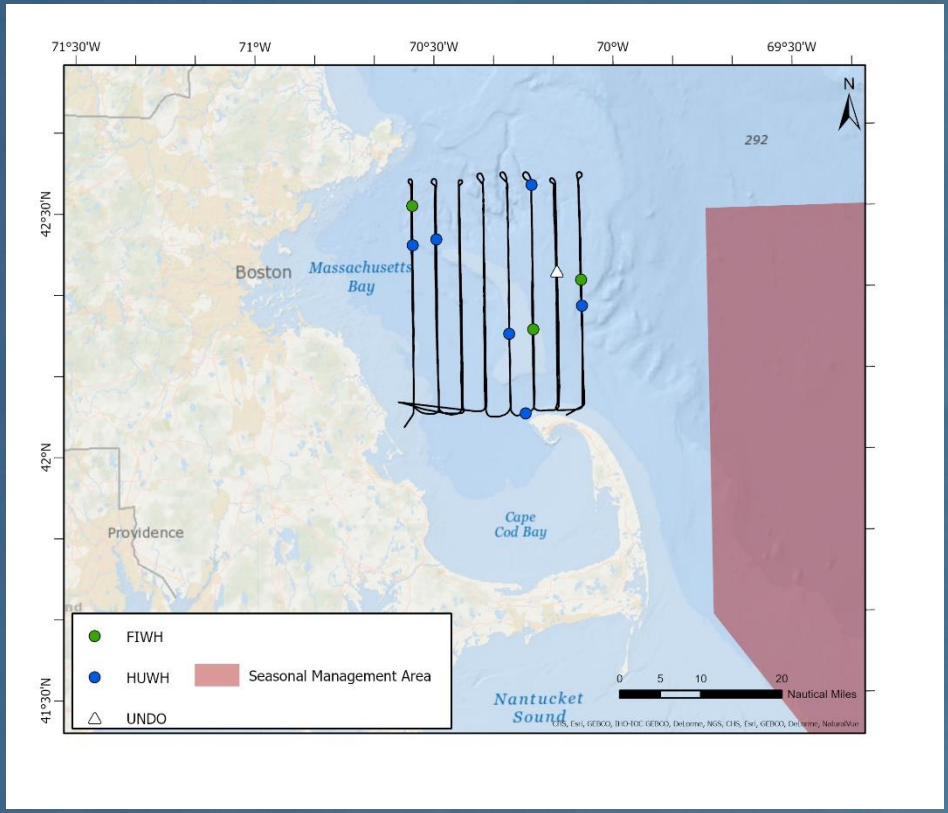


Animals will appear smaller, but time in view will increase – tradeoffs

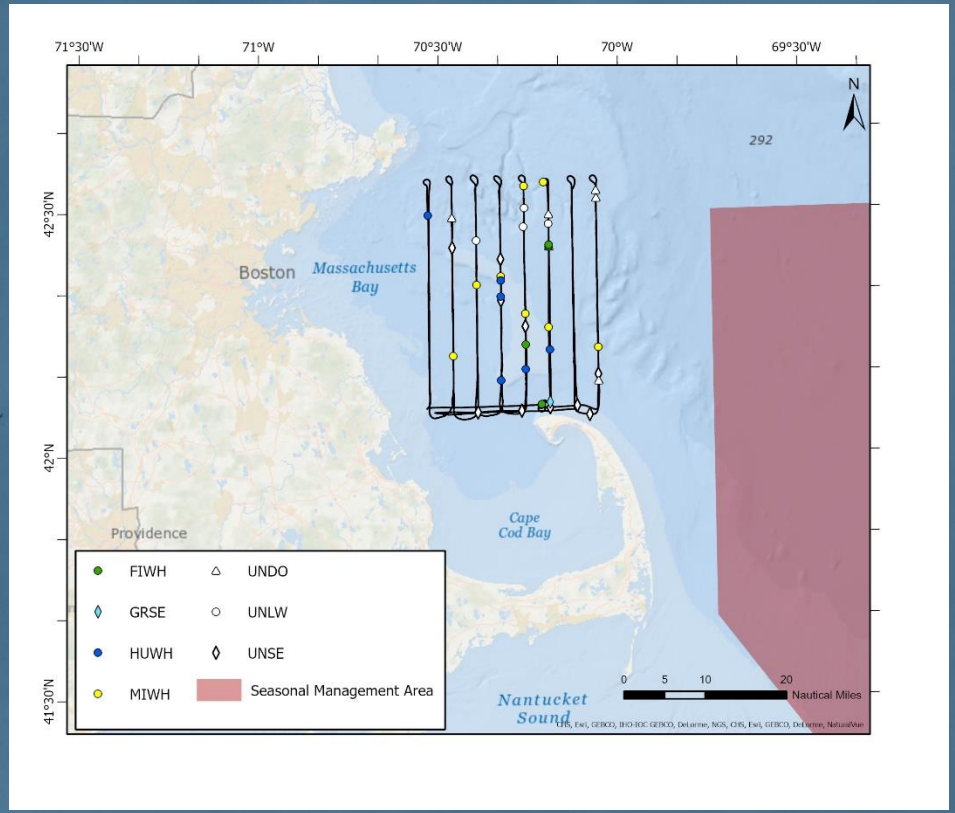
This may be different for different species groups

Aerial surveys – altitude calibration

May 21



May 23



Building paired detection functions based on the same data, to see what effect altitude has on detectability

Moving forward: 2021-2024

Assessing effects of construction on protected species

Effects of wind energy construction

- Three hypotheses about short-term effects of construction (Kraus et al. 2019):
  - Displacement
  - Behavior disruption
  - Stress

Kraus S.D., Kenney R.D., Thomas L. (2019) A Framework for Studying the Effects of Offshore Wind Development on Marine Mammals and Turtles. Report prepared for the Massachusetts Clean Energy Center, Boston, MA 02110, and the Bureau of Ocean Energy Management.

Effects of wind energy construction

- Effects on marine mammal species studied in other parts of the world
  - Typically pinnipeds and harbor porpoise
- We need to understand the effects on the more diverse community of marine mammal and turtle species found in U.S. waters
- **This understanding allows us to develop solutions for mitigating any negative effects**

MA and RI aerial surveys

- 10-year time series of line-transect data
- Captures temporal and spatial changes in marine mammal and turtle distribution and relative abundance
- Continuing the surveys provides a unique opportunity to assess displacement
  - We can determine whether displacement occurs for different species groups
  - For species that are displaced, we can determine the spatial and temporal scales over which displacement occurs

MA and RI aerial surveys

- We cannot detect potential effects of construction without continuing this survey effort
- The proposed surveys focus on collecting the data needed to detect displacement

Proposal Timeline

- Current surveys: Funded through August 31, 2021
- Proposed project duration: September 1, 2021 through Dec. 31, 2024
- Sept. 2021 – Dec. 2021:
  - Critically important for ensuring there is no gap in fall survey coverage
    - Summer-fall transition data documents
      - Sea turtle presence
      - Recently observed year-round right whale presence
  - The fall surveys in 2020 represent only the second time that surveys have been conducted at this time of year since 2017

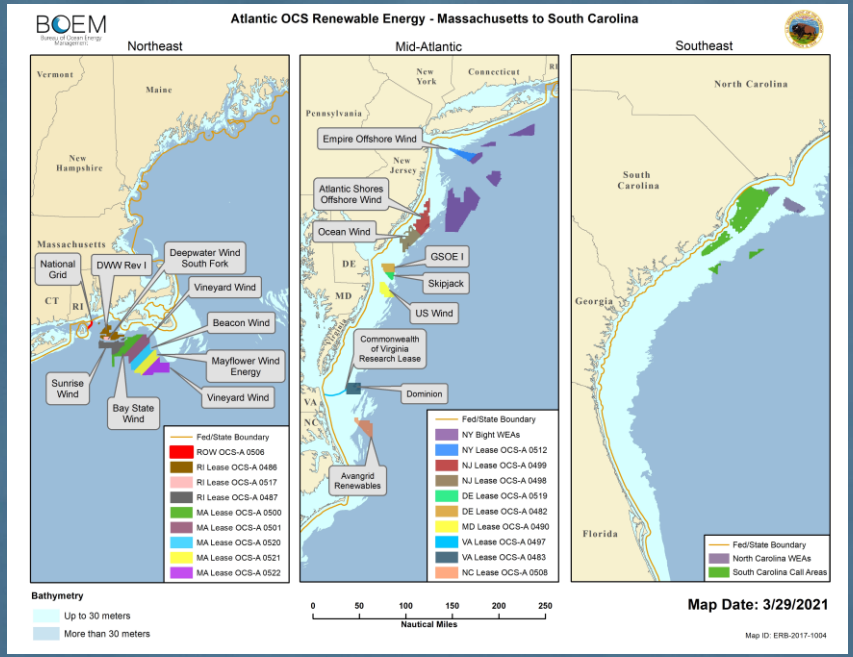
Proposal Timeline

- Jan. 2022 – Dec. 2022:
  - Ensures we continue collecting baseline data
  - Document species abundance and distribution in the period immediately before construction

- Jan. 2023 – Dec. 2024:
  - Coincides with construction and will ensure that we are able to document any potential displacement of species from the survey area

Moving forward

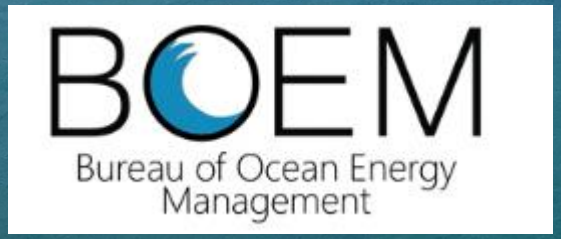
We have a unique opportunity to study the effects of the first commercial scale offshore wind farm in US waters as we move towards a future with more renewable energy sources



The New York Times

Biden Opens California's Coast to Wind Farms

Thank you



New England
Aquarium

Protecting the blue planet