Massachusetts - BOEM Task Force Meeting

April 29, 2015

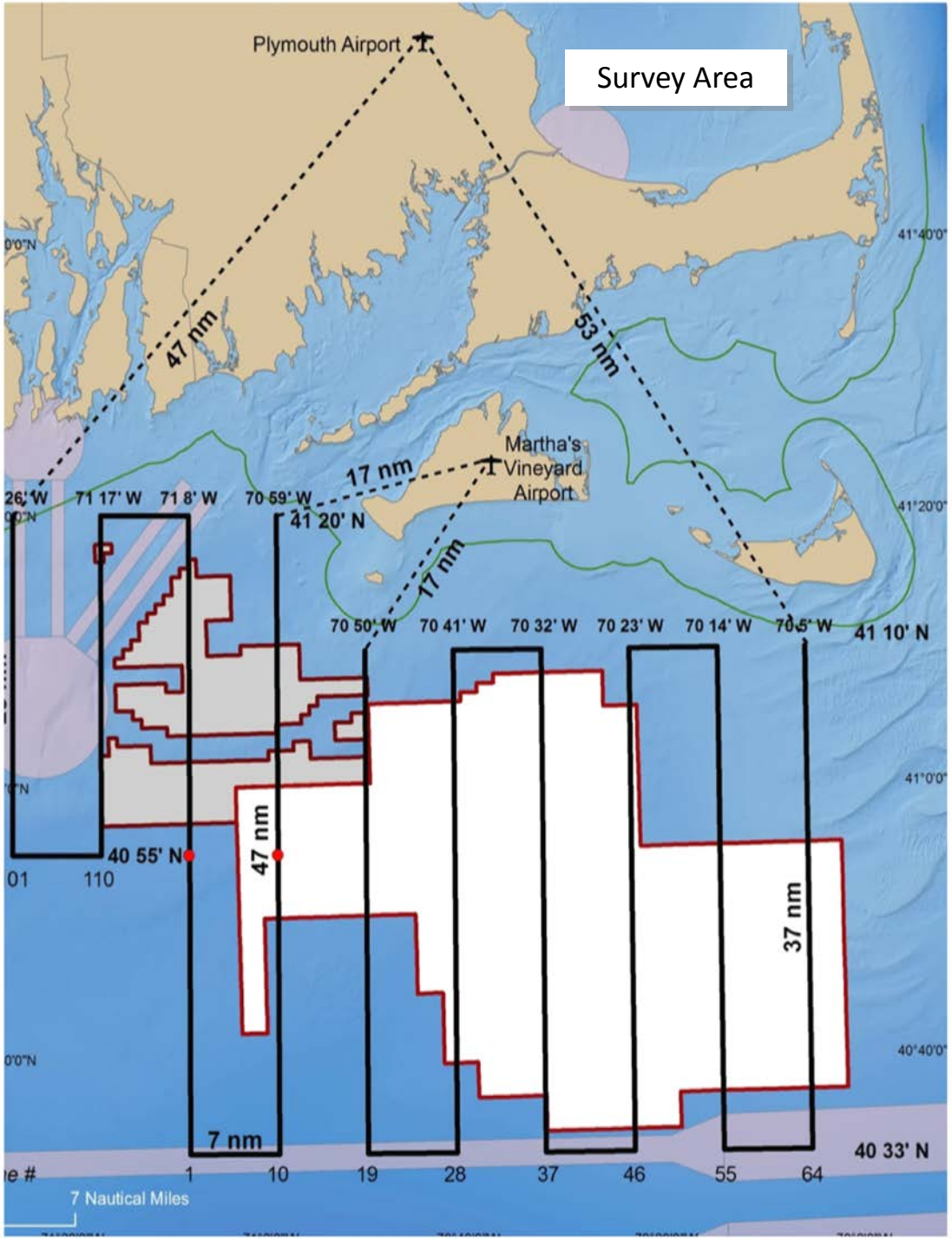
Agenda

- Marine Resource Characterization
- Transmission Planning Study
- 2015 Update - Massachusetts Ocean Plan

Marine Resource Characterization

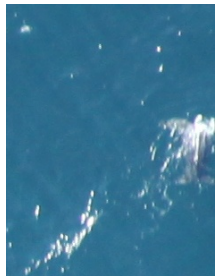
Marine Resource Surveys

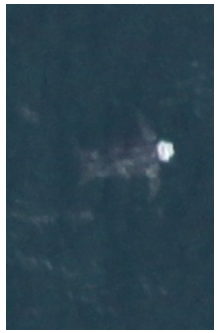
- Characterize distribution and abundance in MAWEA and RIMA WEA to support responsible & coordinated siting
- EEA, MassCEC & Co-funding with BOEM
  - Marine mammal and sea turtle aerial surveys - New England Aquarium (3 years)
  - Passive acoustic surveys – NEA/Cornell Univ (3 years)
  - Avifauna aerial surveys - College of Staten Island (3 year)
  - Benthic surveys – UMass-D, School of Marine Science and Technology (2 years)


Survey Area
Plymouth Airport
Martha's Vineyard Airport
47 nm
53 nm
17 nm
17 nm
47 nm
37 nm
7 nm
71 17' W
71 8' W
70 59' W
70 50' W
70 41' W
70 32' W
70 23' W
70 14' W
70 5' W
41 20' N
41 10' N
40 55' N
40 33' N
41°40'0"
41°20'0"
41°0'0"
40°40'0"
1
10
19
28
37
46
55
64
7 Nautical Miles


Observer Sitings


Camera Port



Leatherback Turtles

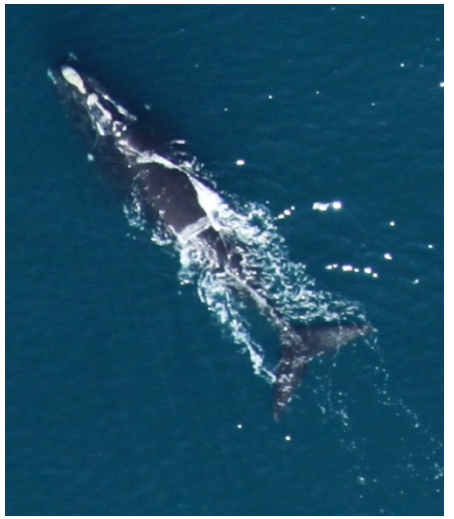
Vertical Image Examples

Common dolphins

Blue shark

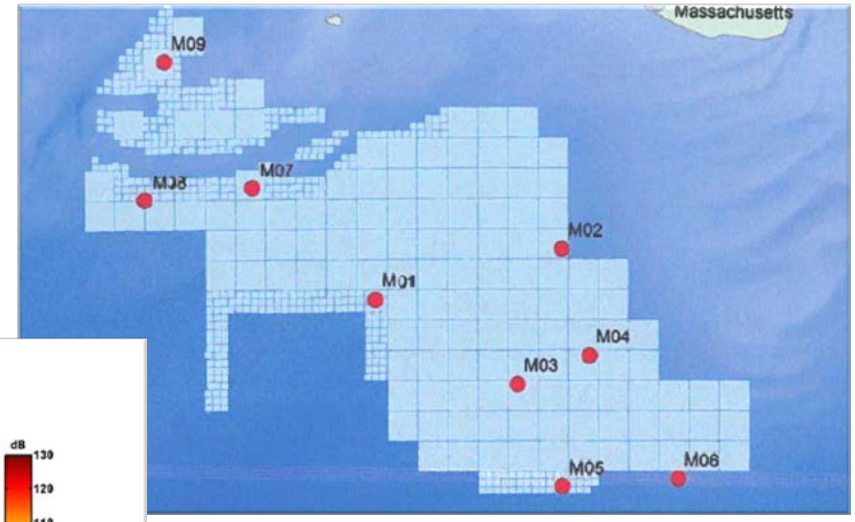
Basking Shark

Right Whales



Large Whale and Turtle Surveys

- Performed by the New England Aquarium/Cornell
- Conducted passive acoustic data collection



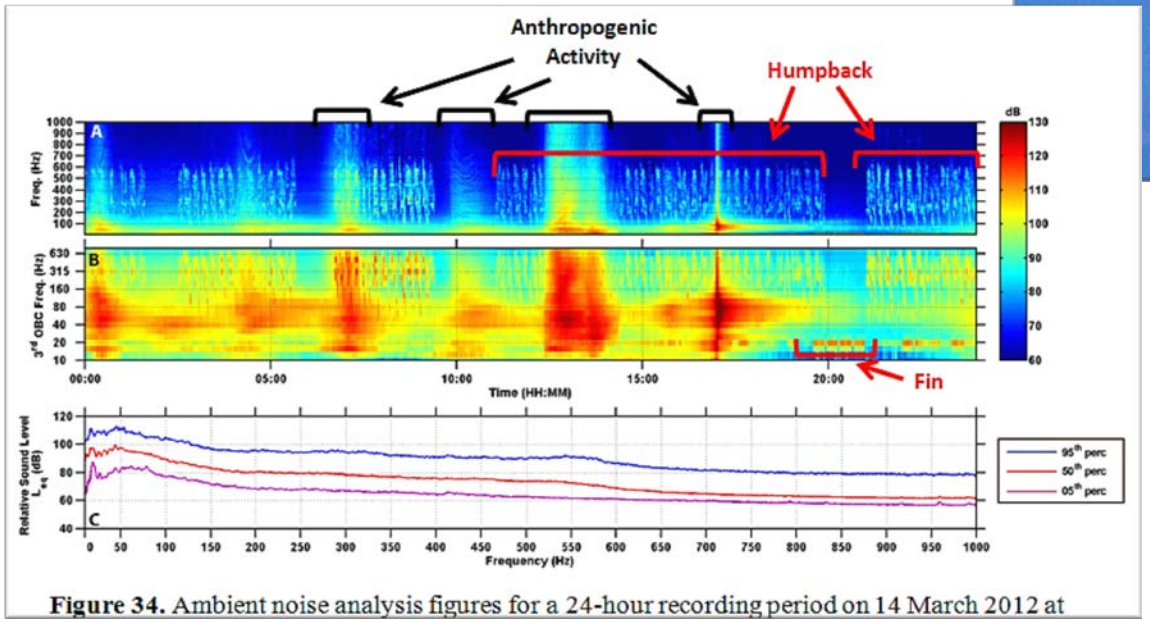
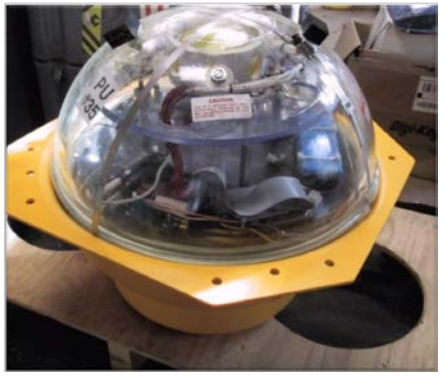


Figure 34. Ambient noise analysis figures for a 24-hour recording period on 14 March 2012 at



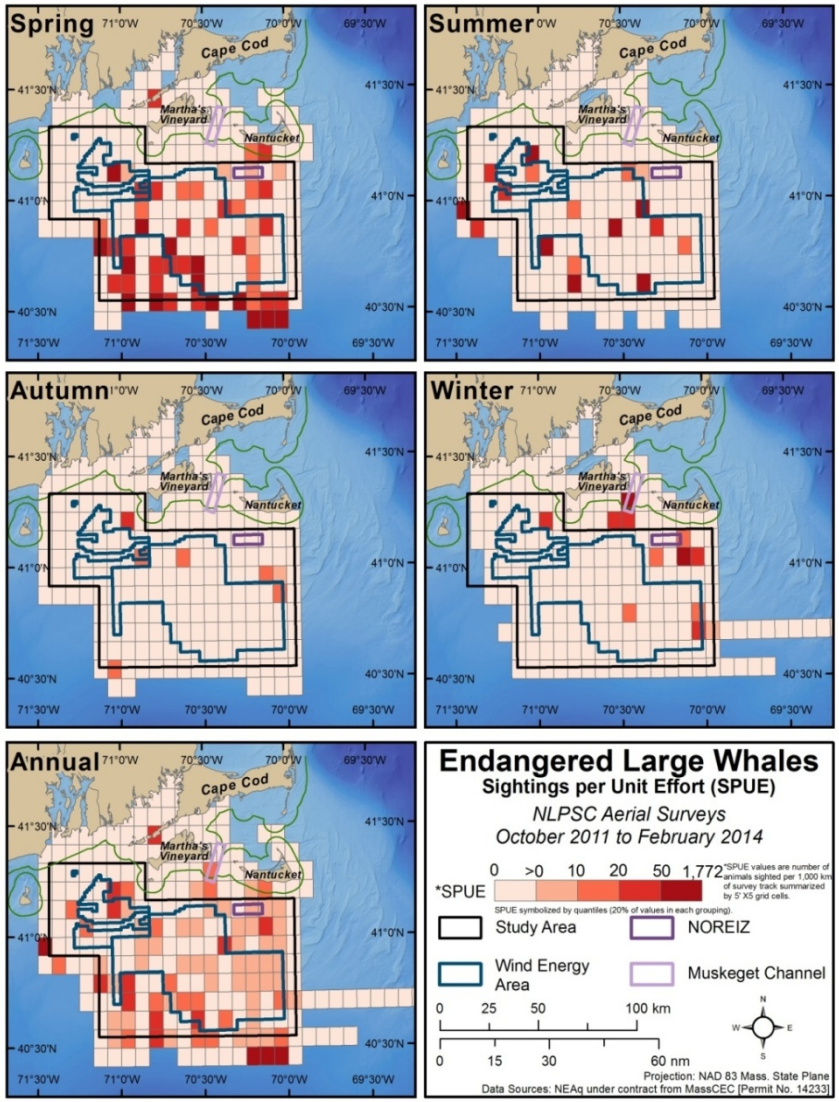
Large Whale and Turtle Surveys

Survey Effort:

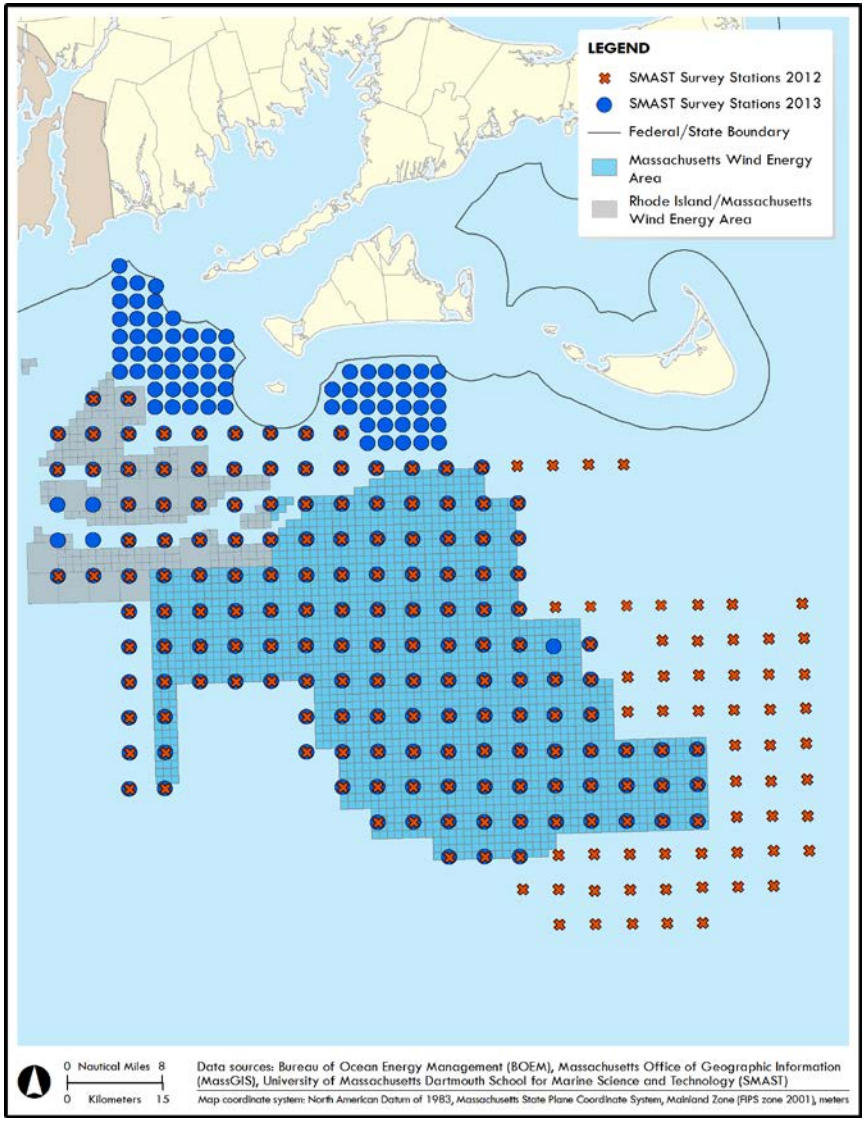
Total Flight Hours	125
Nautical Miles of Trackline Flown	6,560
Images Collected to Date	171,126
Average No. Images Collected per Full Survey	10,240
Total Images Analyzed to Date, including duplicates	127,205

*Survey Effort as of June 2014

Survey Preliminary Data



Benthic Surveys



- UMass-Dartmouth's School of Marine Science and Technology
- SMAST Survey Pyramid
  - 10 megapixel digital still
  - 3 video cameras
- Survey 1: May 2012
  - 226 stations
- Survey 2: Sept 2013
  - 229 stations

Transmission Planning Update

Transmission Planning Goals

- Identify and characterize interconnection points
- Identify routes with least environmental impact and fewest conflicts
- Information supported EEA/CZM in 2015 update of the Massachusetts Ocean Management Plan, which examined potential transmission cable routes within the context of critical marine habitat areas, other natural resources, and marine water-dependent uses
- The transmission study report is available for download at: http://www.masscec.com/content/offshore-wind-transmission-study

Projects will Influence Transmission Build-Out

Multiple Interconnection Options

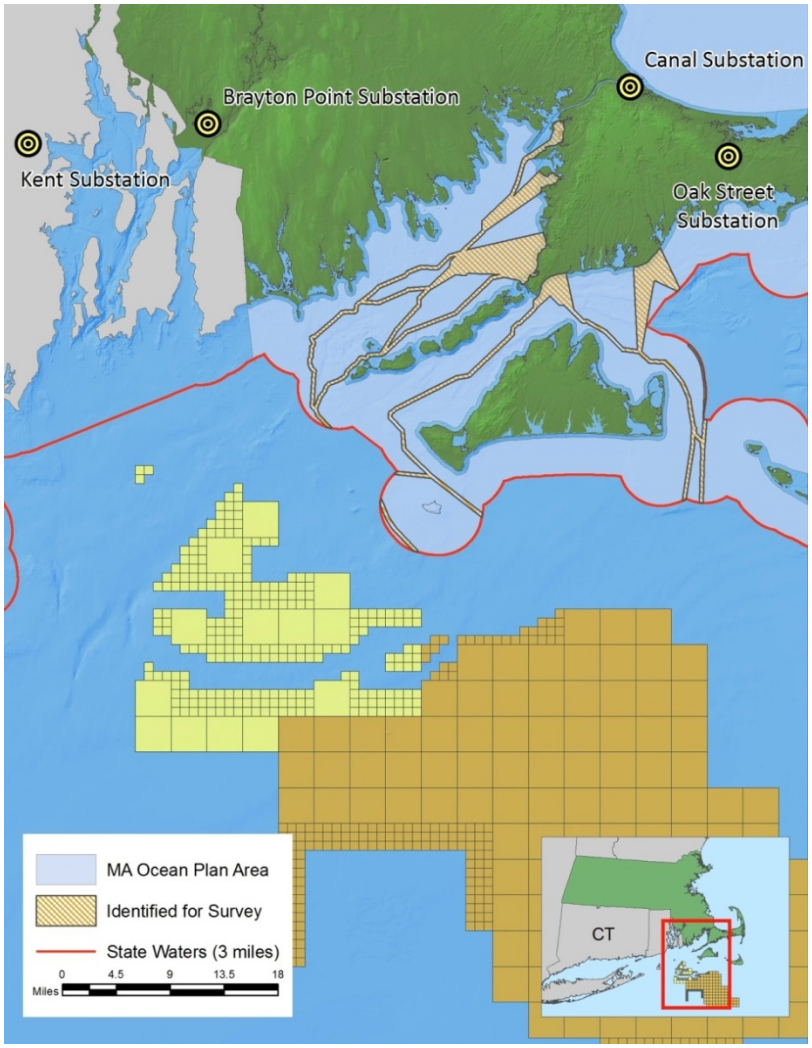
- 345 kV substations currently available
- Can interconnect 500 - 1,000 MW and up to 2,000 MW of OSW capacity at each point

HVDC

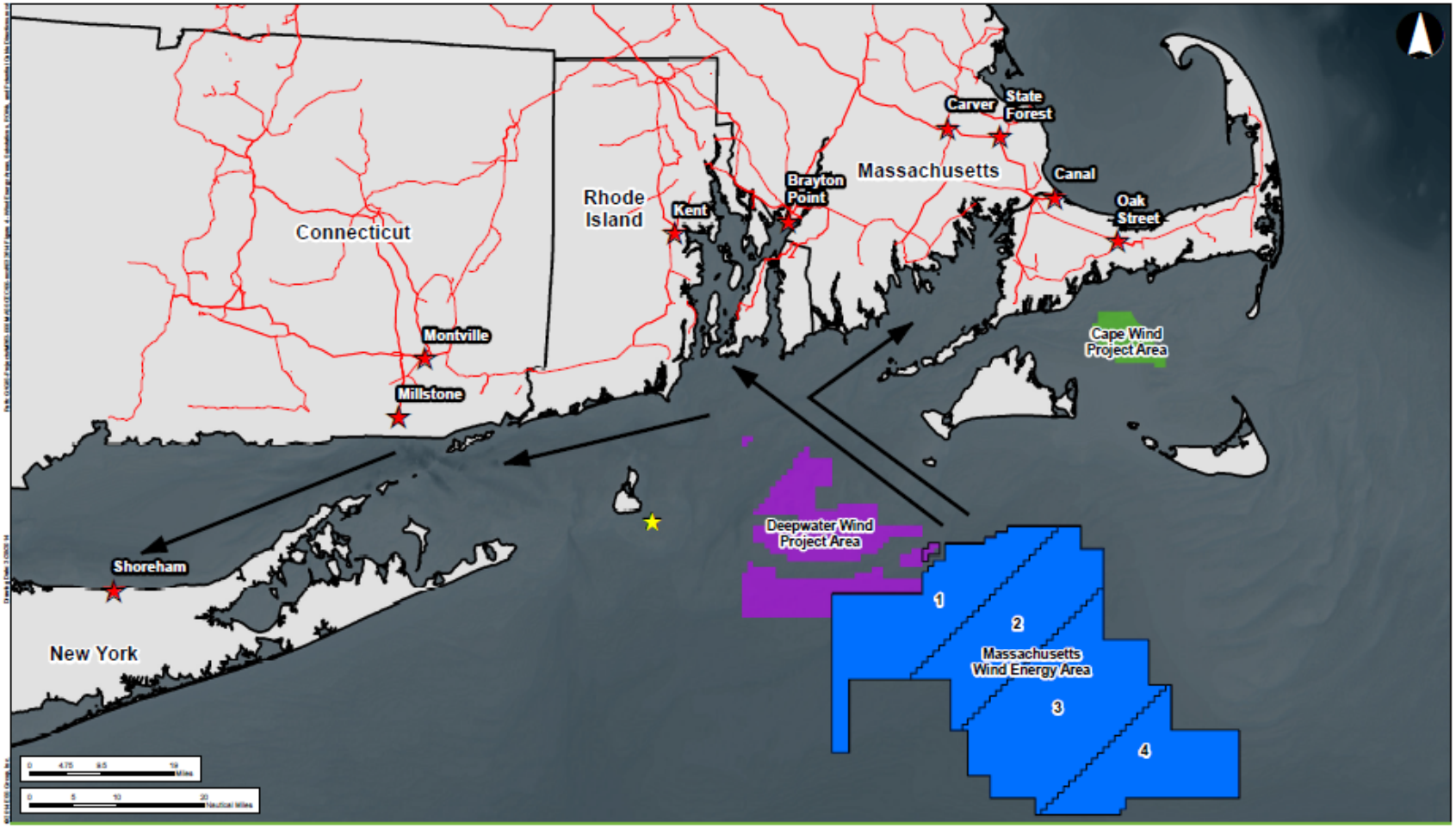
- Longer distances (40 to 130 mi); larger capacities
- Likely option for MAWEA build-out

HVAC

- 30 - 40 mi; smaller projects (200 – 400 MW)
- Technology advancement could benefit MAWEA



Potential Interconnection Locations



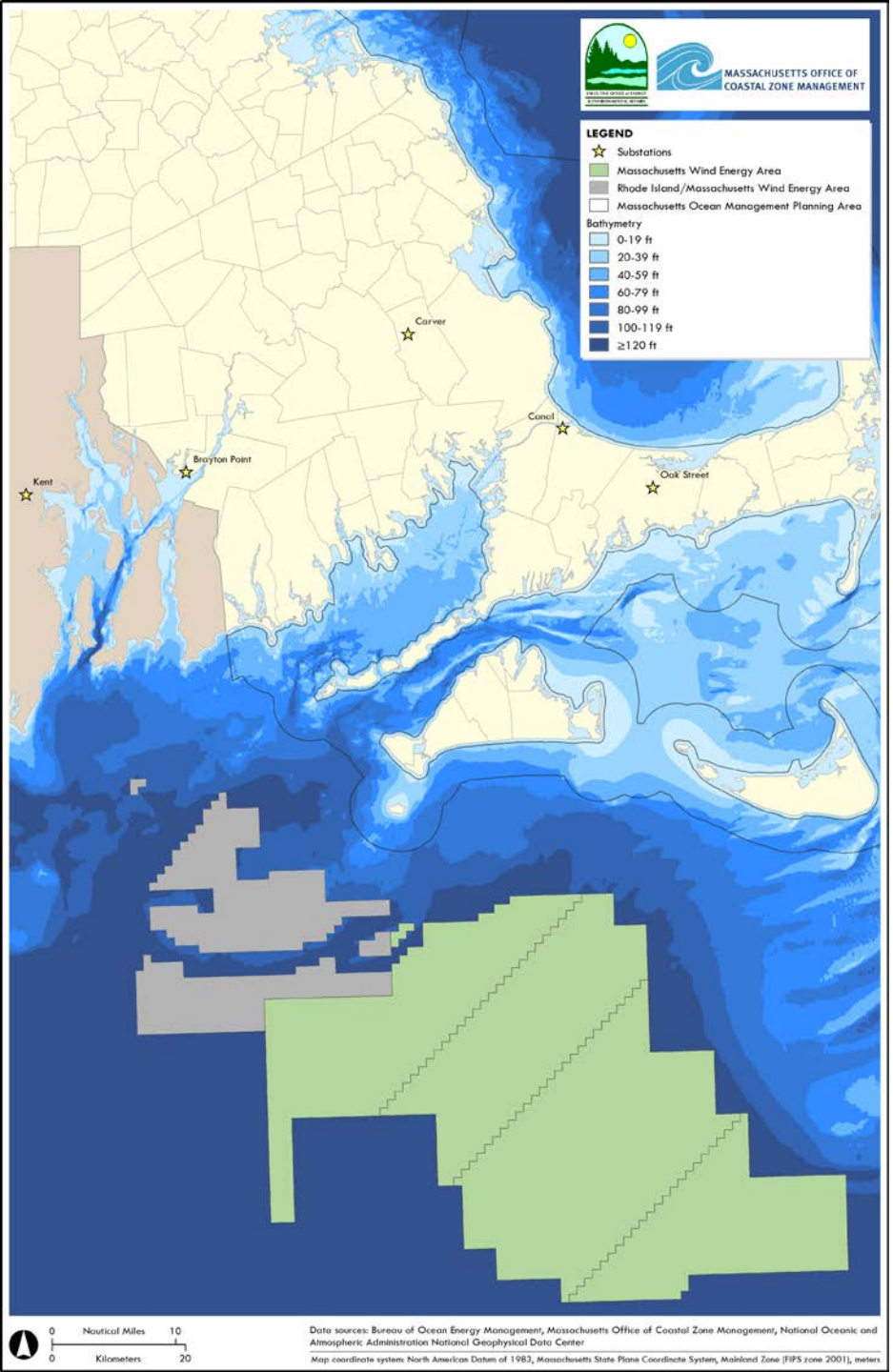
Massachusetts Ocean Plan Update

MA Ocean Plan: Blueprint for ocean management and development

- Plan identifies and maps:
  - Critical marine and estuarine habitats
  - Important areas for water-dependent uses (fishing, shipping)
- Contains siting and performance standards to protect these areas and interests:
  - Specific ocean-based projects are presumptively excluded from certain critical resource areas
  - Must avoid, minimize, and mitigate impacts to water-dependent uses

Offshore wind energy transmission

- Advance planning and siting for transmission of offshore wind in federal waters:
  - Address concerns raised by stakeholders, including local communities, commercial fishing
  - Supports “smart” offshore wind development and streamlines process for the wind industry
- MassCEC study: Assessed and described important information on key elements of transmission:
  - Build-out scenarios (10 year horizon)
  - Infrastructure components: configurations, landside grid interconnection points, converter & cabling requirements
- Update of ocean plan: identify preliminary routes



MA ocean plan area

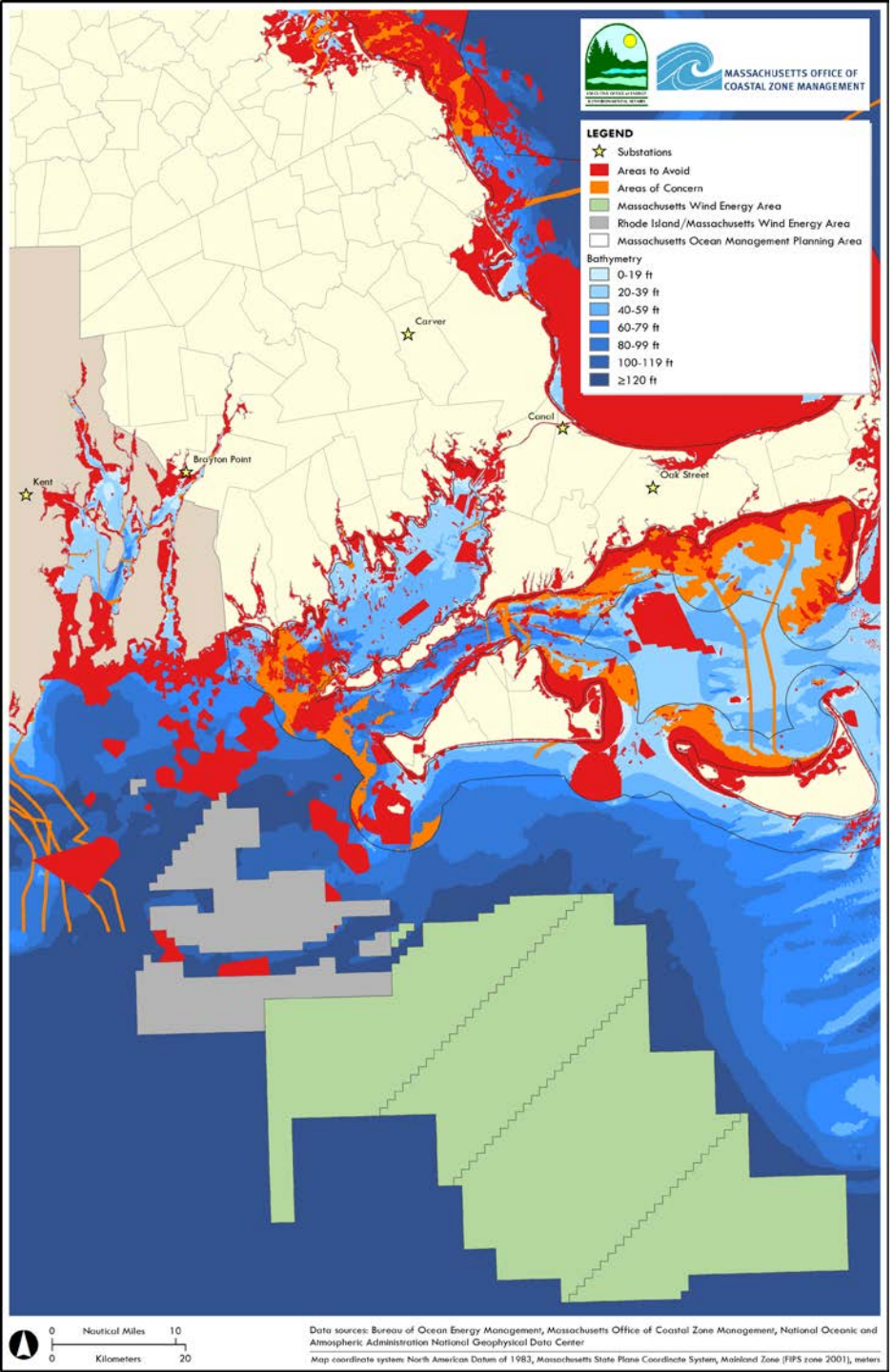
Wind Energy Areas

Priority substations

Offshore wind energy transmission

- MA ocean plan: Optimization and screening analysis:
  - Builds off MassCEC transmission study
  - Avoid areas of significant impact or incompatibility:
    - > Identify areas based on habitat, fisheries, seafloor geology, navigational and other areas of concern
  - Minimize transmission cable length
  - Developer and agency preferred installation method :
    - > Siting in soft seafloor substrate that permits cable install techniques with minimal impacts, achieves target burial depth, and expedites construction
    - > Horizontal directional drilling avoids significant near-shore resources and other concerns

CATEGORY	AREAS TO AVOID
Special, Sensitive, Unique Resources (per ocean plan)	North Atlantic right whale core habitat
	Humpback whale core habitat
	Fin whale core habitat
	Hard/complex seafloor
	Eelgrass
	Intertidal flats
Seafloor Substrate	Areas of rock from surficial sediment dataset
Navigation Uses	Anchorage Areas (C, D, L, and M)
Aquaculture Uses	Aquaculture sites
Sites to Avoid	Nomans Danger Zone
	Cape Wind project footprint
	U.S. Army Corps of Engineers disposal sites
Areas of Operational Limitation	Water depth <16 feet (limitations to cable installation vessels due to draft, currents, navigational hazards)
CATEGORY	**AREAS OF CONCERN**
SSU Resources	Important fish resources
Infrastructure Uses	Cable areas and existing cables with 250-m buffers
	Pipeline areas and existing pipelines with 500-m buffers



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Wind Energy Areas

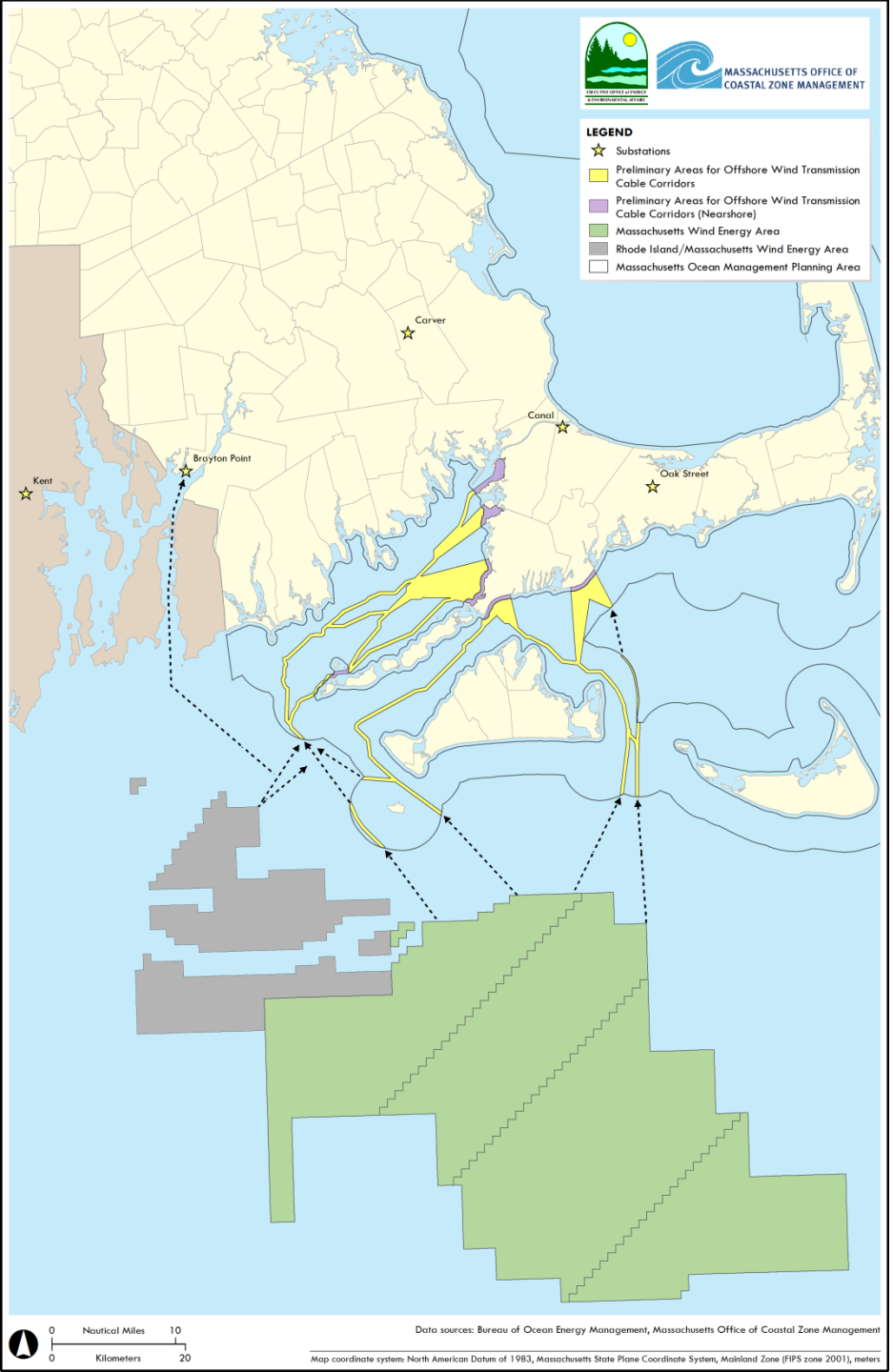
Priority substations

Areas to avoid and areas of concern

From compatibility assessment and screening analysis

Offshore wind energy transmission

- 2015 Ocean Plan identifies preliminary areas for transmission routes subject to further investigation
- 500m wide corridors with larger near-shore areas for survey and characterization
  - Sufficient space for multiple cable bundles including both HVDC and HVAC
- Synchronizing survey work with next steps in BOEM process: auction, leasing, site assessment, and NEPA analysis
- Survey and characterization work defined as one of the top science priorities in 2015 Ocean Plan



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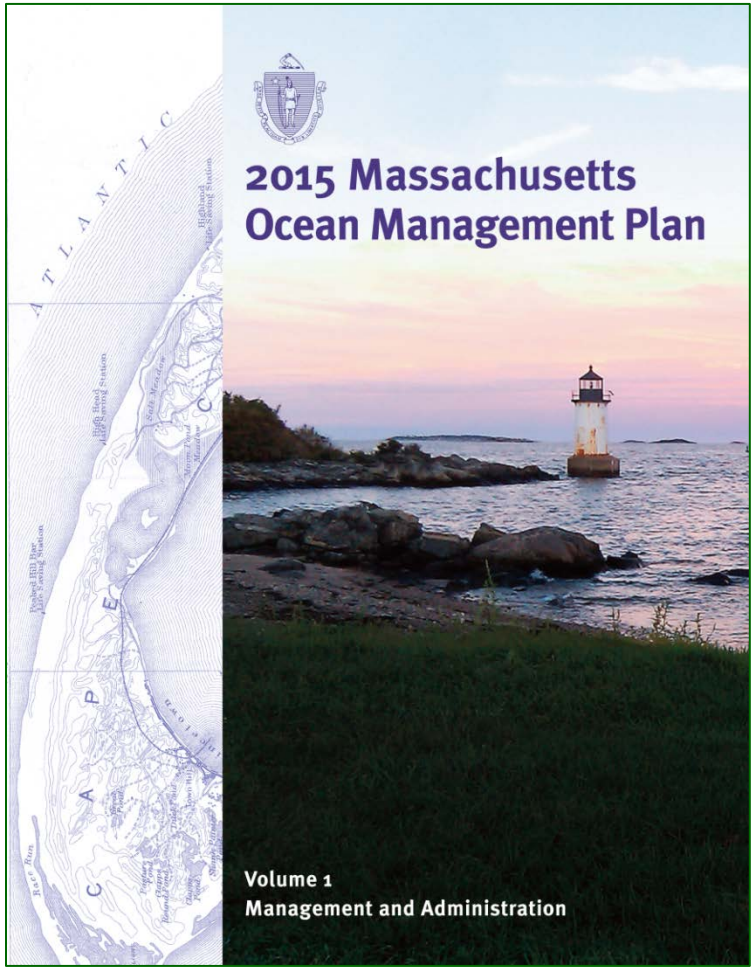
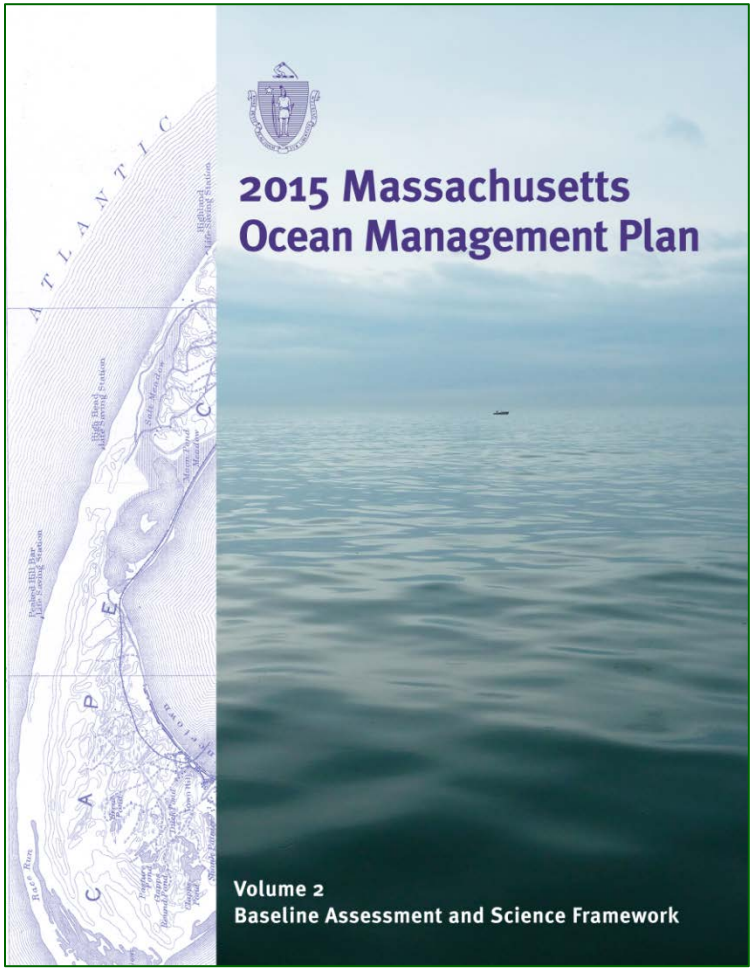
Preliminary areas for further investigation for offshore wind transmission cable corridors

2015 Ocean Plan

www.mass.gov/eea/2015-ocean-plan





Thank you

www.mass.gov/czm

www.masscec.com