

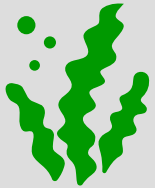
# SCIENCE ADVISORY COUNCIL: WORKING GROUP FINDINGS, PART 2

May 4, 2026



## AGENDA / OVERVIEW

- Background on the Ocean Management Plan
- Cultural and Recreational Resources
- Habitat



# OAC AND SAC MEMBERSHIP

## Ocean Science Advisory Council

### Academic Institutions

Kevin Stokesbury UMass Dartmouth, SMAST\*  
John Duff UMass Boston, School for the Environment\*  
Kristin Uiterwyk UMass Boston, Urban Harbors Institute

### Private, Nonprofit Organizations

Jon Grabowski MA Fishermen's Partnership\*  
Priscilla Brooks Conservation Law Foundation  
Jessica Redfern New England Aquarium

### Government Agencies

Mark Rousseau MA DMF\*  
Todd Callaghan MA CZM  
Laura Brothers USGS

\*organizations named in statute

## Ocean Advisory Commission

### Legislators

Sen. Julian Cyr  
Sen. Dylan Fernandes  
Sen. Bruce Tarr  
Rep. Patrick Kearney  
Rep. Joan Meschino  
Rep. Ken Sweezey

### Agency Representatives

Alison Brizius CZM Director  
Dan McKiernan DMF Director  
Tay Evans MassDEP Commissioner's designee

### Stakeholder Representatives

*Representative of a commercial fishing organization:*

Beth Casoni MA Lobstermen's Association

*Representative of an environmental organization:*

Chris McGuire The Nature Conservancy

*Expert in the development of offshore renewable energy:*

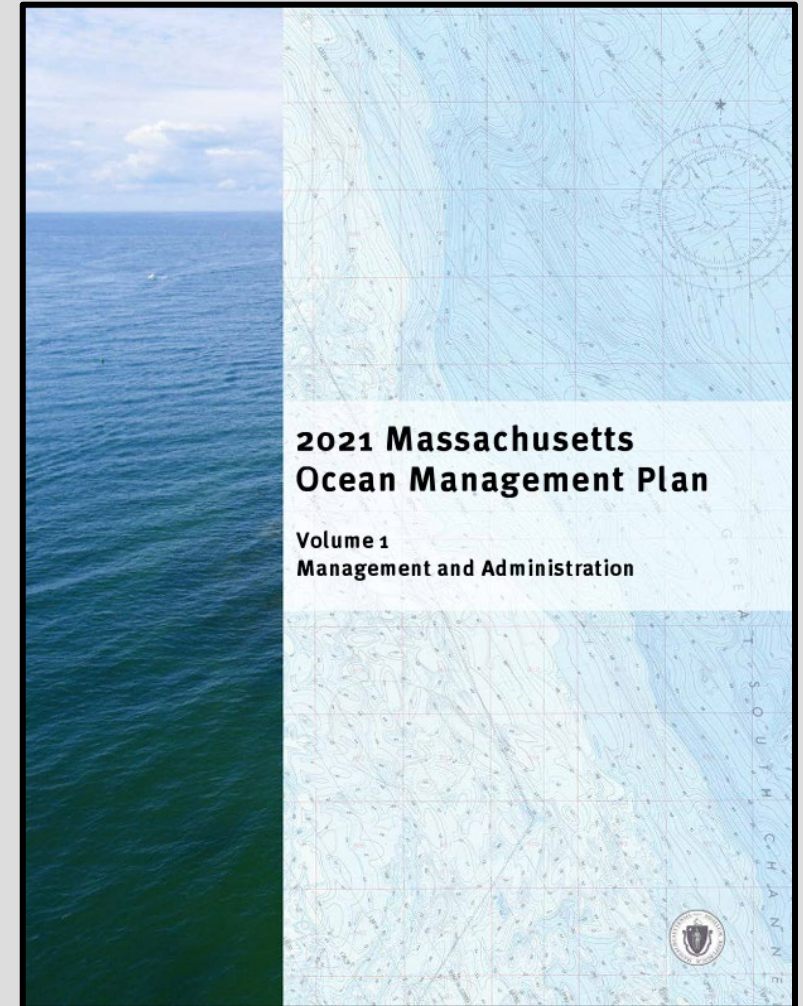
Liz Marsjanik Vineyard Offshore

*Representatives of six coastal Regional Planning Agencies:*

Heather McElroy CCC\*  
Daniel Doyle MVC\*  
Jeffrey Carlson NP&EDC\*  
Jerrard Whitten MVPC\*  
Dominick Pangallo MAPC\*  
Janice Robbins SRPEDD\*

# THE OCEAN MANAGEMENT PLAN

- Plan is reviewed at least once every 5 years
  - Published: 2009, 2015, 2021
- The Plan framework:
  - **Special, Sensitive, or Unique** resources (habitats)
  - **Water Dependent Uses** (e.g., traffic, fishing)
  - **Siting and performance standards** for projects (cables, pipelines, renewable energy, sand mining, others)
- State approvals must be consistent with Plan
  - Determined through MEPA





# MASSACHUSETTS OCEAN PLAN JURISDICTION

## **Ocean Planning Area:**

- Defined in Oceans Act of 2008
- 0.3 nautical mile from shore to state/federal boundary
- Does not include harbors, rivers, inlets

## **Ocean Plan Applicability:**

- Project size/impact threshold: MEPA EIR triggers Ocean Plan standards
- Fisheries management is explicitly reserved for DMF

# THE OCEAN MANAGEMENT PLAN SITING STANDARDS

	Protected Area	Community Scale Wind	Commercial Tidal Energy	Sand & gravel mining	Cables	Pipelines
Green / SSUs: Presumptive Exclusion	North Atlantic Right Whale	X	X	X	X	X
	Humpback Whale	X		X	X	X
	Fin Whale	X		X	X	X
	Roseate Terns	X		X		
	Special Concern Terns	X				
	Sea Ducks	X				
	Leach's Storm Petrel	X				
	Colonial Waterbirds	X				
	Hard/Complex Seafloor			X	X	X
	Eelgrass	X	X	X	X	X
Blue / WDU: Avoid, minimize, mitigate	Intertidal Flats	X	X	X	X	X
	Important Fish Resource Areas		X	X		X
	High Comm. Fishing Effort & Value	X	X	X		X
	Recreational Fishing	X	X	X		X
	Traffic	X	X			
	Fishing Traffic	X	X			
	Recreational Boating	X	X			
Fixed Fishing Facilities	X	X	X	X	X	

# REVIEW PROCESS: TECHNICAL WORK GROUPS

Transportation &  
Navigation



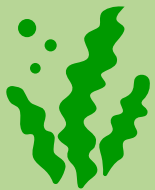
Culture &  
Recreation



Ocean Tech &  
Innovation



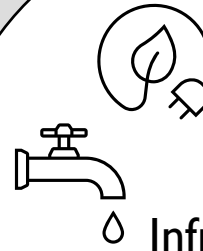
Habitat



Fisheries



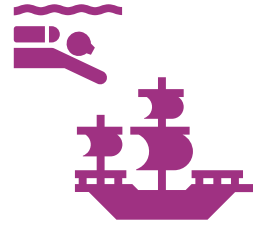
Energy &  
Infrastructure



Sediment  
& Geology



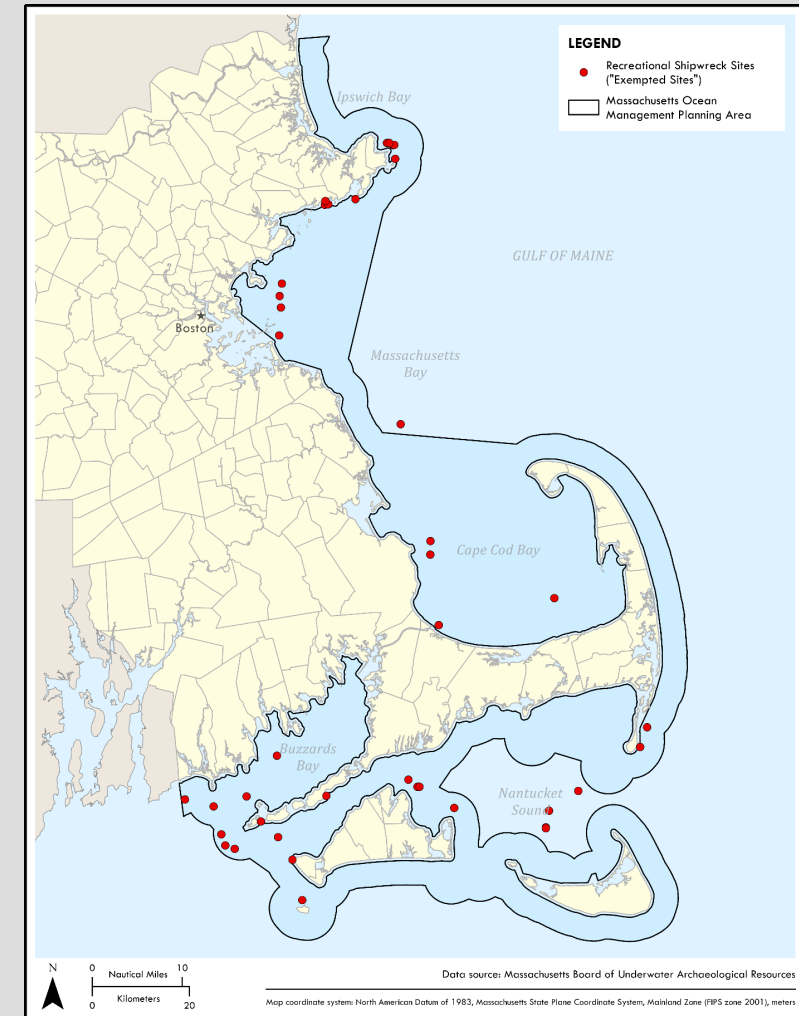
# CULTURAL HERITAGE & RECREATIONAL RESOURCES

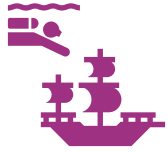


Name	Affiliation
Todd Callaghan	CZM
Hollie Emery	CZM
Paul Jahnige	MOOR
David Robinson	BUAR

## Work Group Scope of Work:

1. Evaluate existing WDUs – review data sources and maps:
  - Co-review Rec Boating WDU (w/ Trans/Nav wg)
  - Co-review Rec Fishing WDU (w/ Fisheries wg)
  - Co-review Hard/Complex SSU (w/ Sed/Geo wg; shipwreck data)
2. Consider a new WDU for dive sites if data support it
3. Evaluate progress on Science Priority #3: mapping cultural resources and recreational hotspots
4. Baseline Assessment: Update the existing 6 variables





# RECREATIONAL BOATING

## Recommendations on Recreational Boating:

- Agree with Transportation & Navigation wg: Carry forward Rec Boating WDU from 2021 (no new data).
- Agree with Fisheries recommendations for updating Recreational Fishing WDU map (subject of a future meeting).
- NROC working on a rec boating activity update but may not be ready for this update of ocean management plan.

Current (2021) WDU:

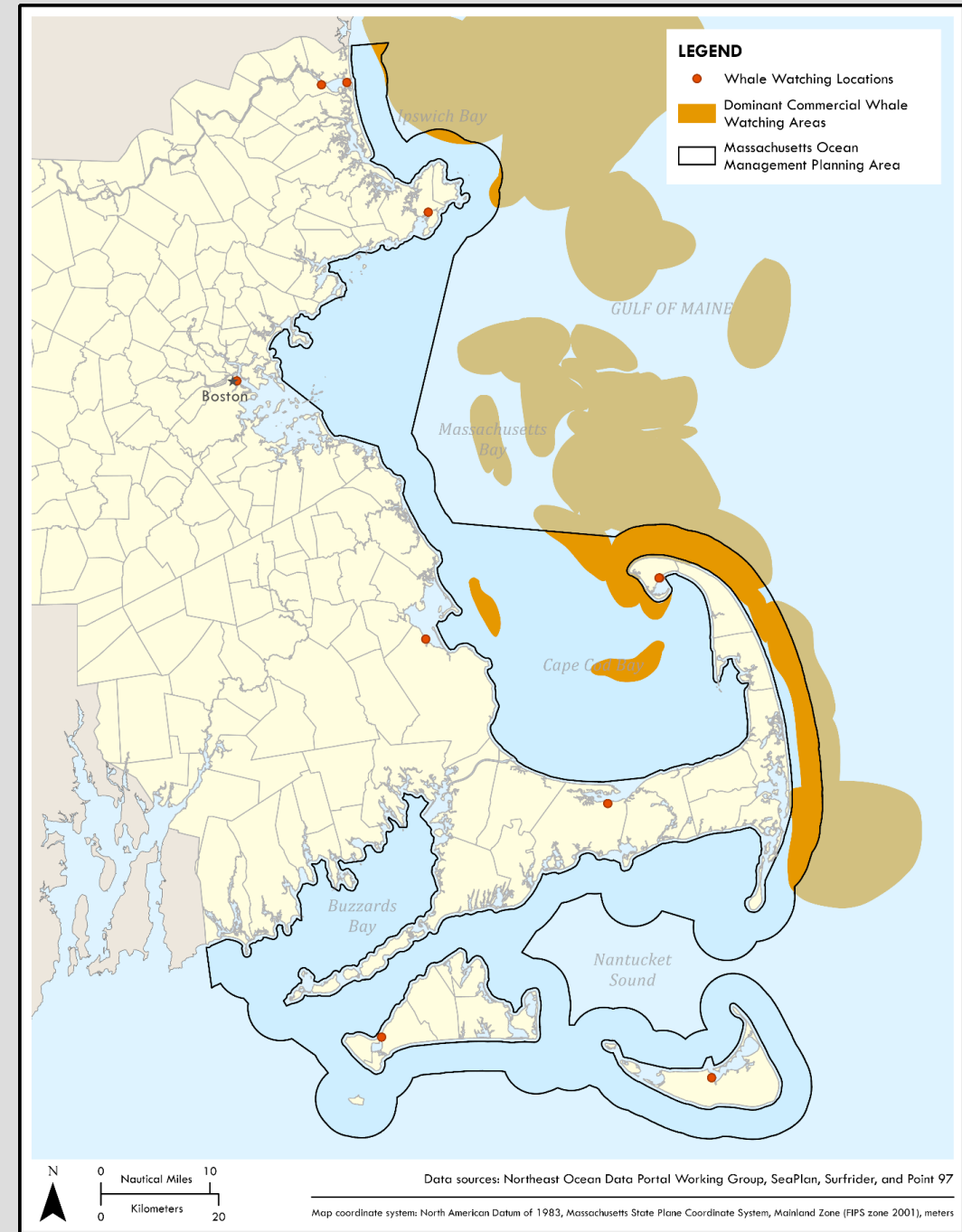


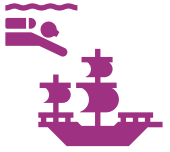


# WHALE WATCHING

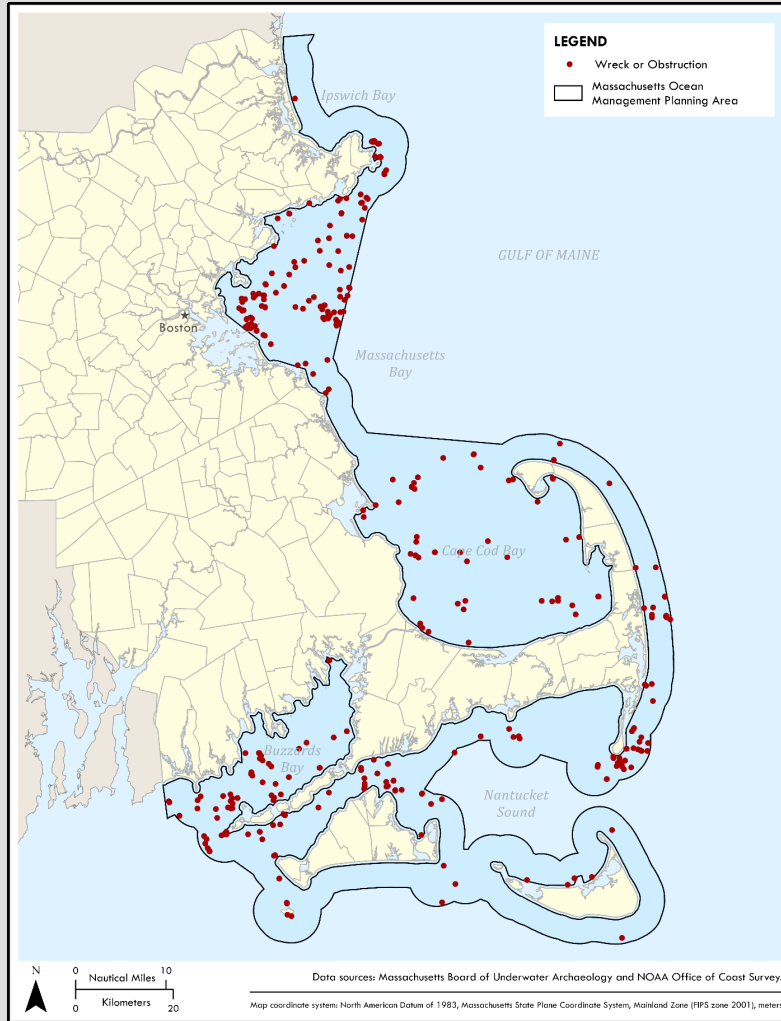
## Recommendation on whale watching:

- Continue to include the existing map in the Baseline Assessment (purely informational)



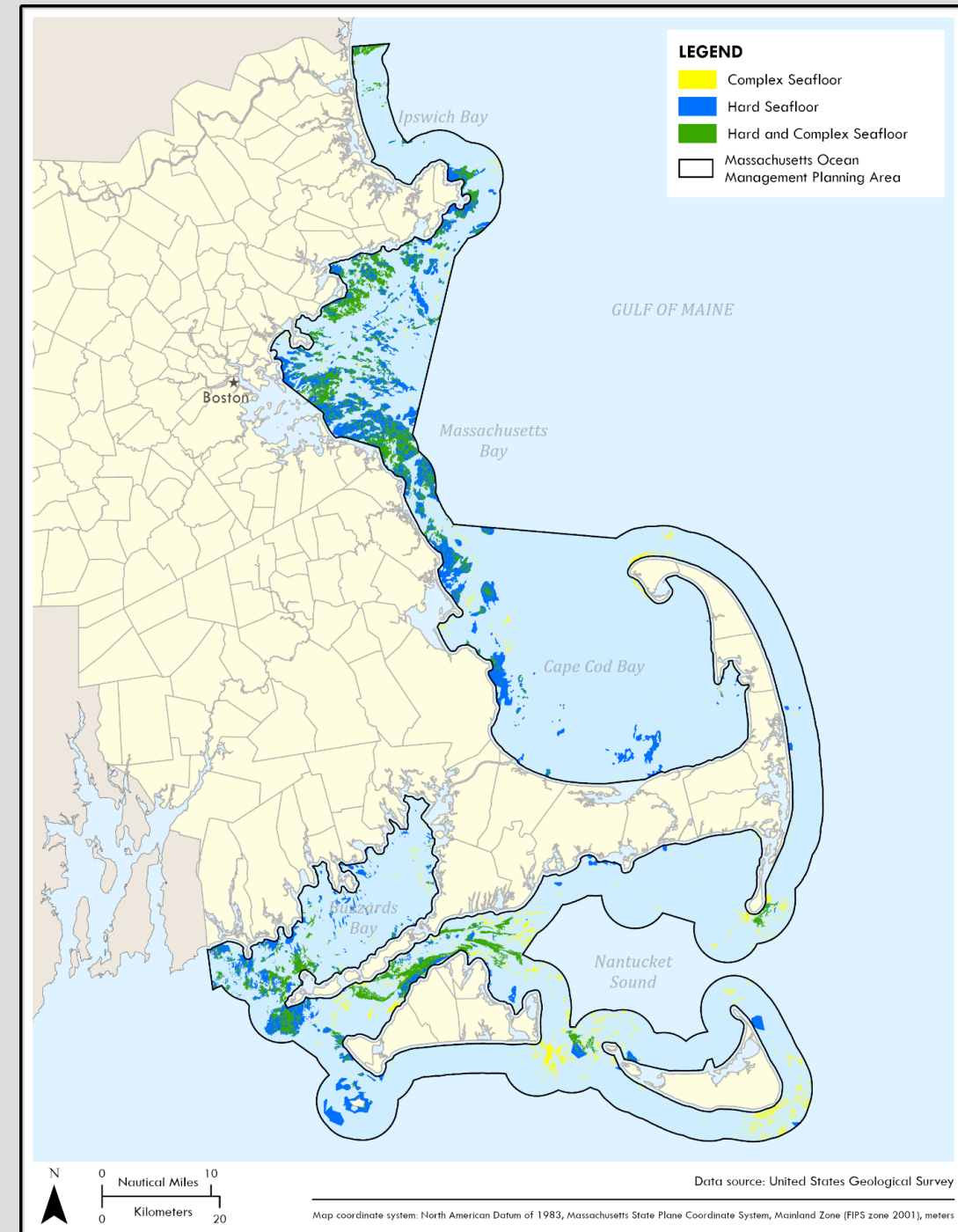


# SHIPWRECKS



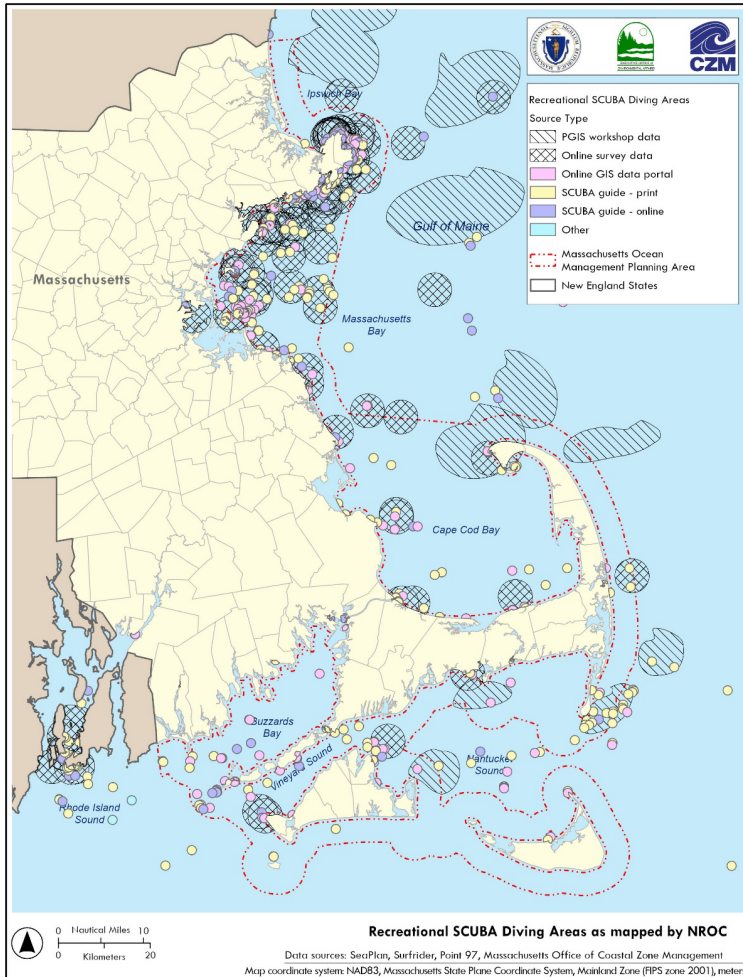
## Recommendations on Shipwrecks:

- Continue to include wrecks in the “Hard/Complex Seafloor” SSU
- Not enough validated data to create a stand-alone WDU or SSU
- **Science Priority:** engage diving community to help validate wreck locations



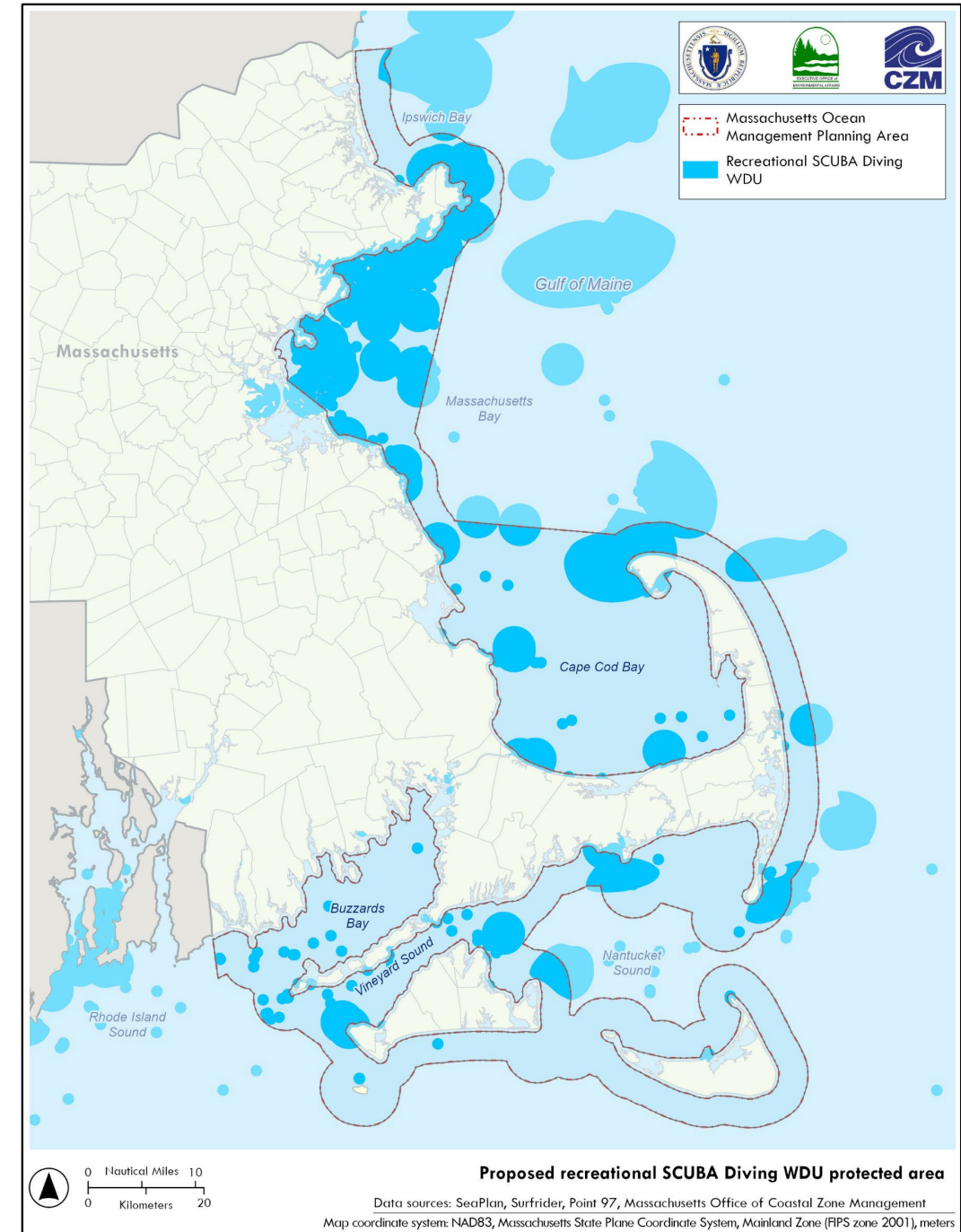


# POSSIBLE WDU: SCUBA DIVING SITES



## Recommendations on Dive Sites:

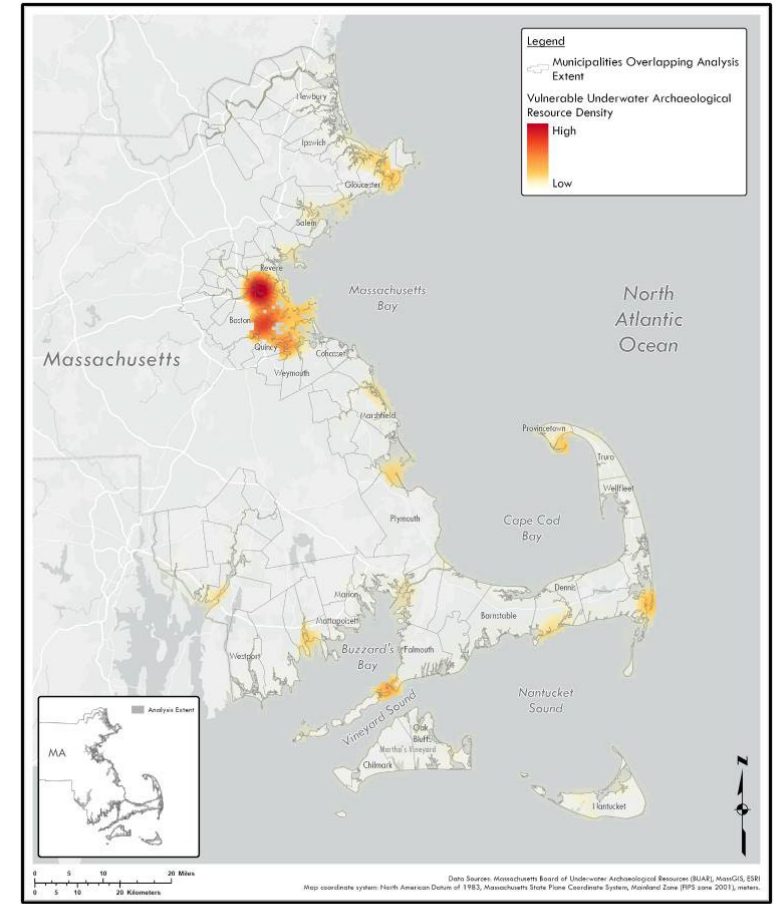
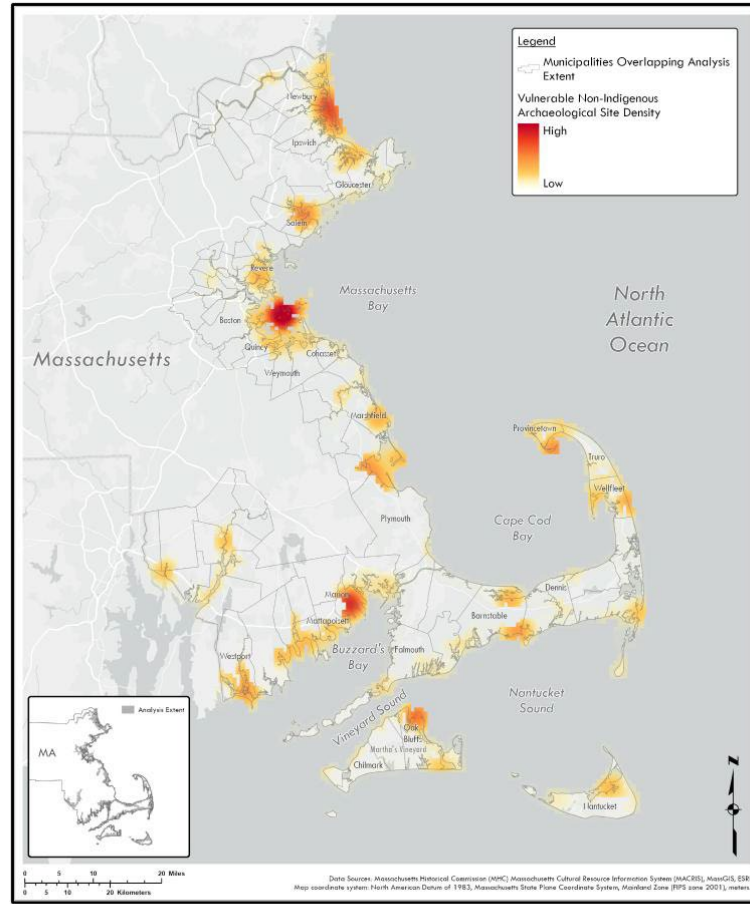
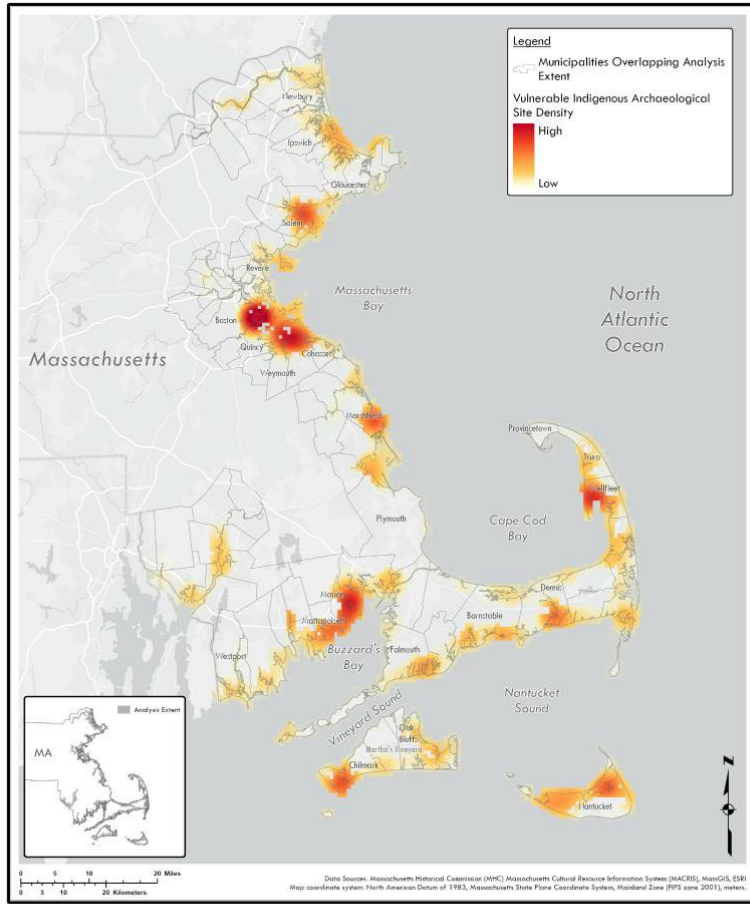
- Future (not this cycle): consider a new WDU for dive sites (map data based on NROC's work)
- **Science Priority:** Work with the MA diving community to update the underlying data



## UPDATE ON 2021 SCIENCE PRIORITY 3: MAPPING CULTURAL RESOURCES

- CZM and BUAR collaboration: awarded a NOAA Project of Special Merit
- Project Title: Assessing the Vulnerability of MA Coastal Cultural Resources to Coastal Hazards
- Theory: Known cultural resource sites + Coastal hazards → Resource vulnerability assessment
- Product: Developed the first ever landscape-scale maps of the state depicting where coastal cultural resources are most numerous *AND* most vulnerable to coastal hazards
- Future Product: Site prioritization and resource management strategies
- Result: Shift in cultural resource management from reactive to proactive

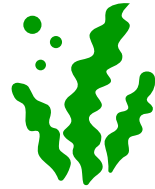
# PROJECT OF SPECIAL MERIT RESULTS



## FOR DISCUSSION

- Any questions or concerns with recommendations?
- Are there any data sets, publications, etc., that we should add?
- Are there any experts or key stakeholder groups to engage?

# HABITAT

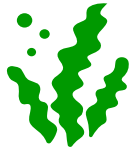
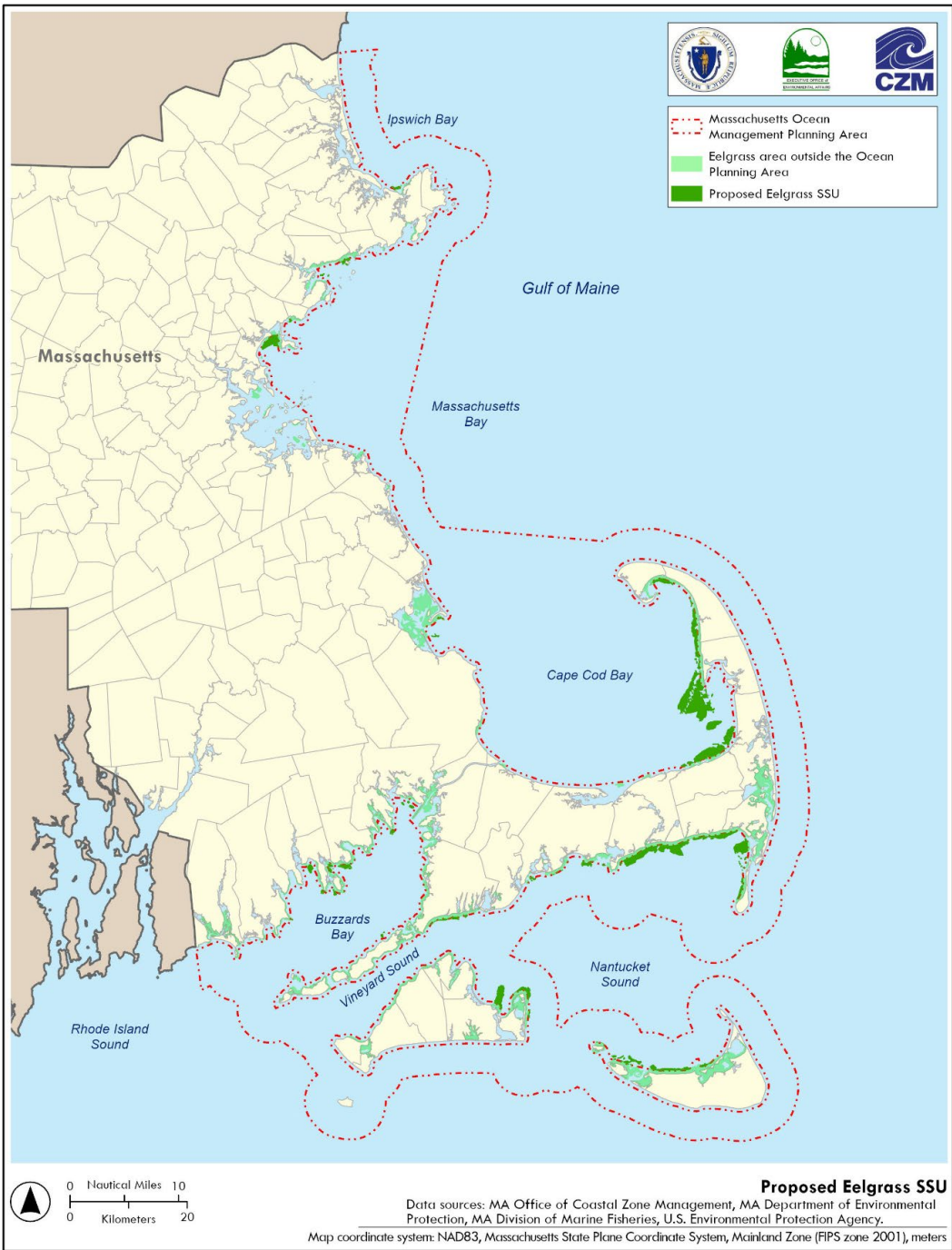


## Working Group Scope:

- 10 SSUs - review data and maps:
  - 3 whale core habitats
  - 3 bird core habitats + 2 important bird nesting areas
  - Eelgrass, intertidal flats
- Consider additional SSUs if sufficient data exist (whales, sea turtles, kelp, biogenic reefs...)
- Assess merits of SSUs shifting to a seasonal schedule
- Check Progress on Science Priority #4: Continue seafloor and habitat mapping
- Baseline Assessment Chapters (45+ variables)

Name	Affiliation
Hollie Emery, group lead	CZM
Brooke Hodge, GIS lead	CZM
Erin Burke	DMF
Danielle Cholewiak	NOAA
Phil Colarusso	EPA
Leah Crow	DMF
Tay Evans	MassDEP
Carolyn Mostello	NHESP
Daniel Palacios	Center for Coastal Studies
Jessica Redfern	New England Aquarium
Forest Schenck	DMF





# EELGRASS SSU

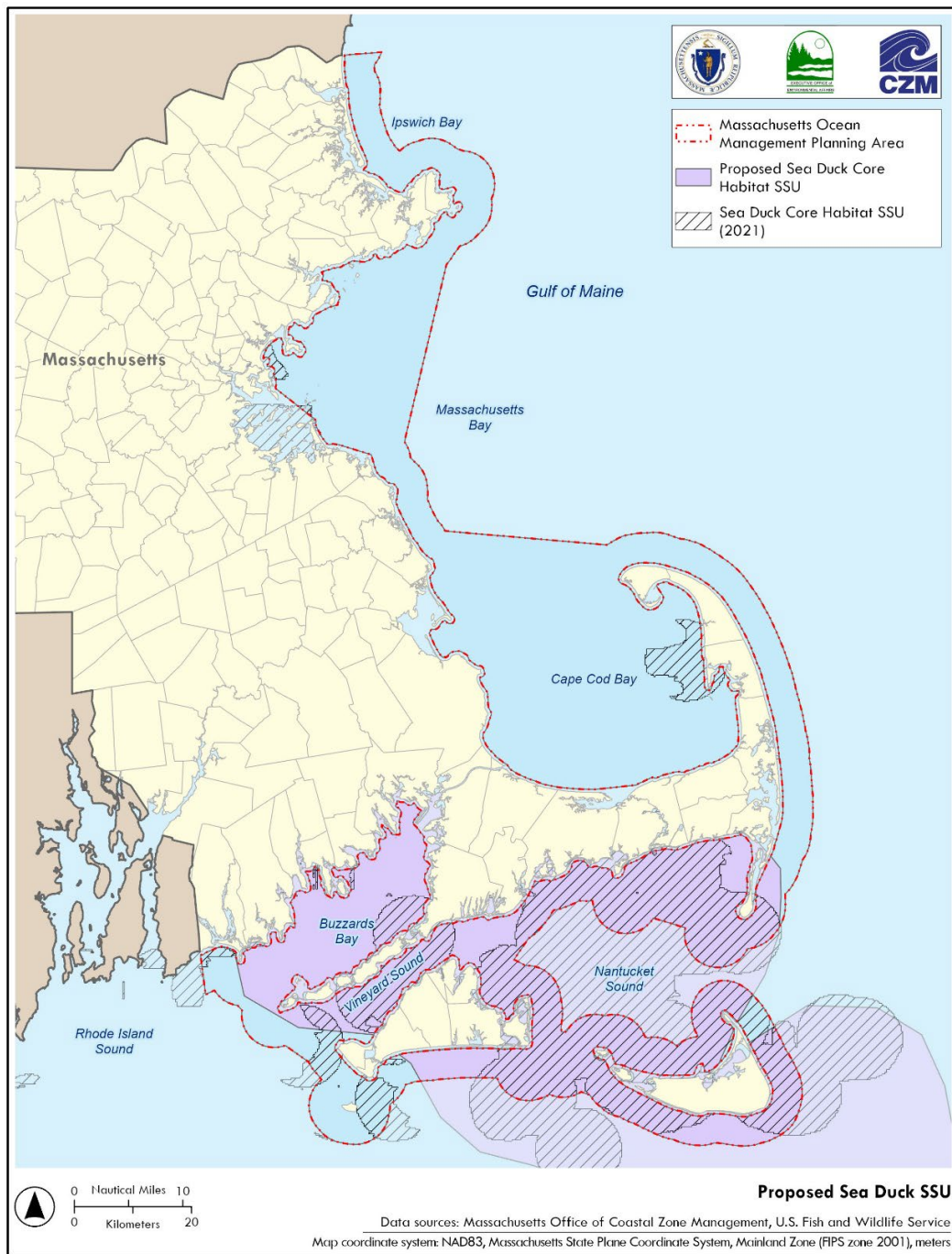
## Findings:

- Based on MassDEP, DMF, and EPA data
- All current and historical data + buffer
- New MassDEP data: 2021-2024 surveys
- New DMF data: Salem Sound, Marblehead
- 1% increase in SSU area: 24,703 -> 25,059 acres

## Recommendation:

- Adopt updated map (at left)

Proposed Eelgrass SSU – using all available data



# SEA DUCK CORE HABITAT SSU

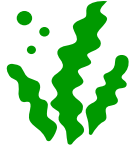
## Findings:

- 2021 map based on (CZM in-house) interpolation of USFWS survey data
- Since the 2021 plan, USFWS has published an analysis of these data

## Recommendation:

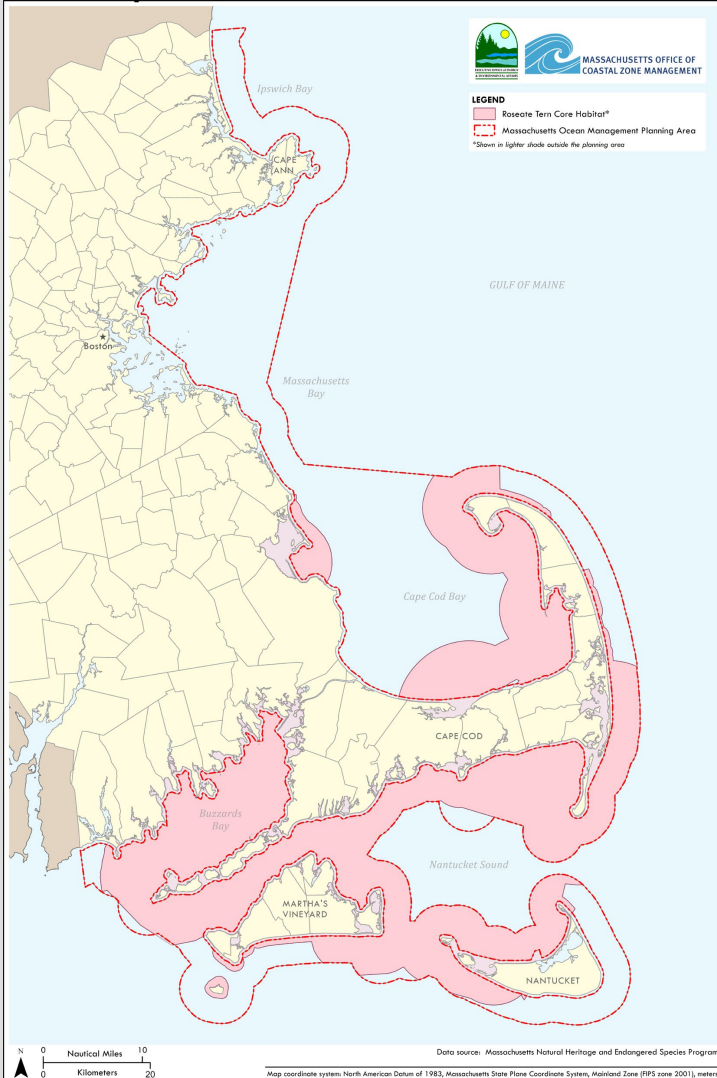
- Adopt USFWS map (same data, updated analysis)

Proposed Sea Duck SSU – using USFWS map

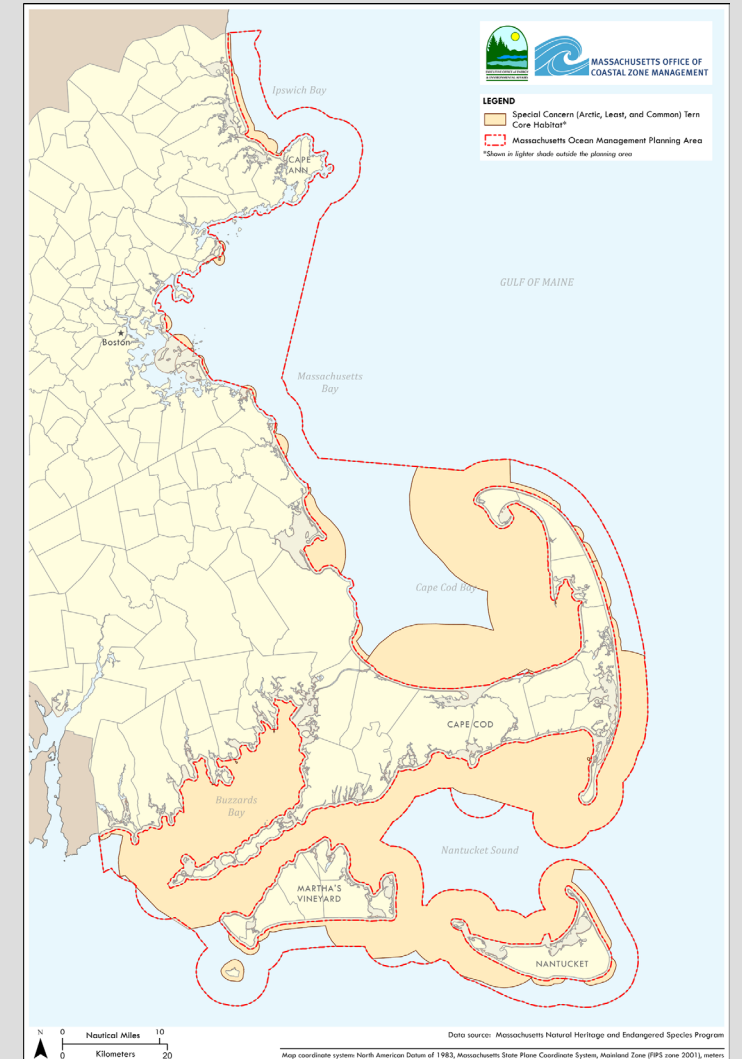


# TERN CORE HABITAT SSUS

## 2021 plan Roseate Tern:



## 2021 plan Special Concern Terns:



### Findings:

- 2 Tern Core Habitat SSUs:
  - Roseate Terns
  - Special Concern (Arctic, Least, Common) Terns
- Based on NHESP maps
- New NHESP maps expected 2026

### Recommendation:

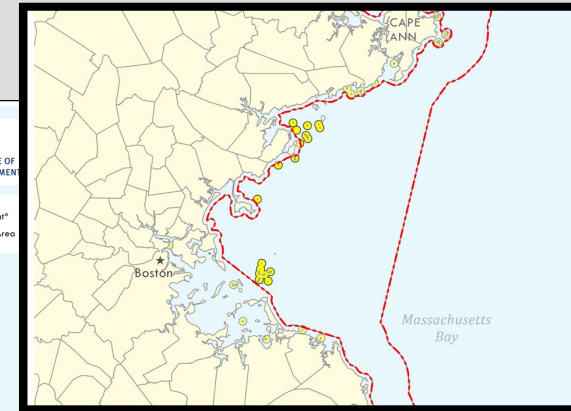
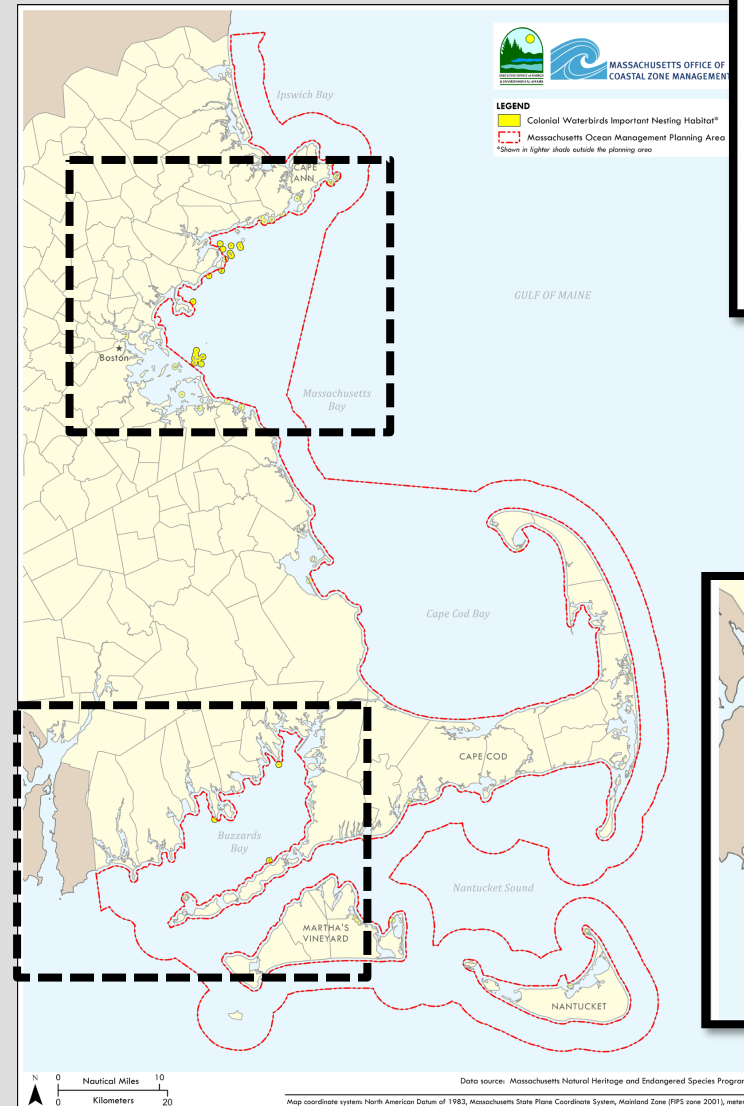
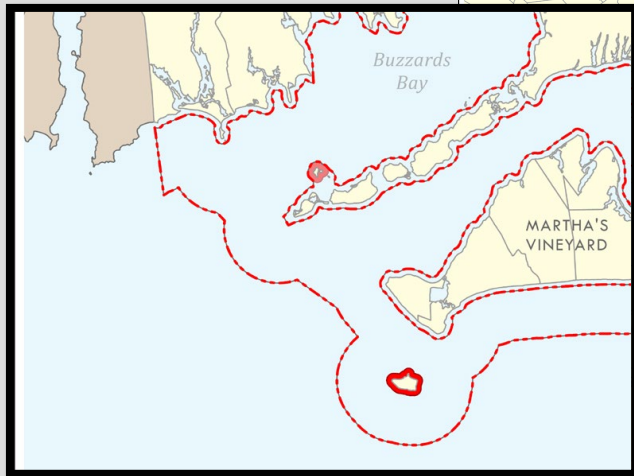
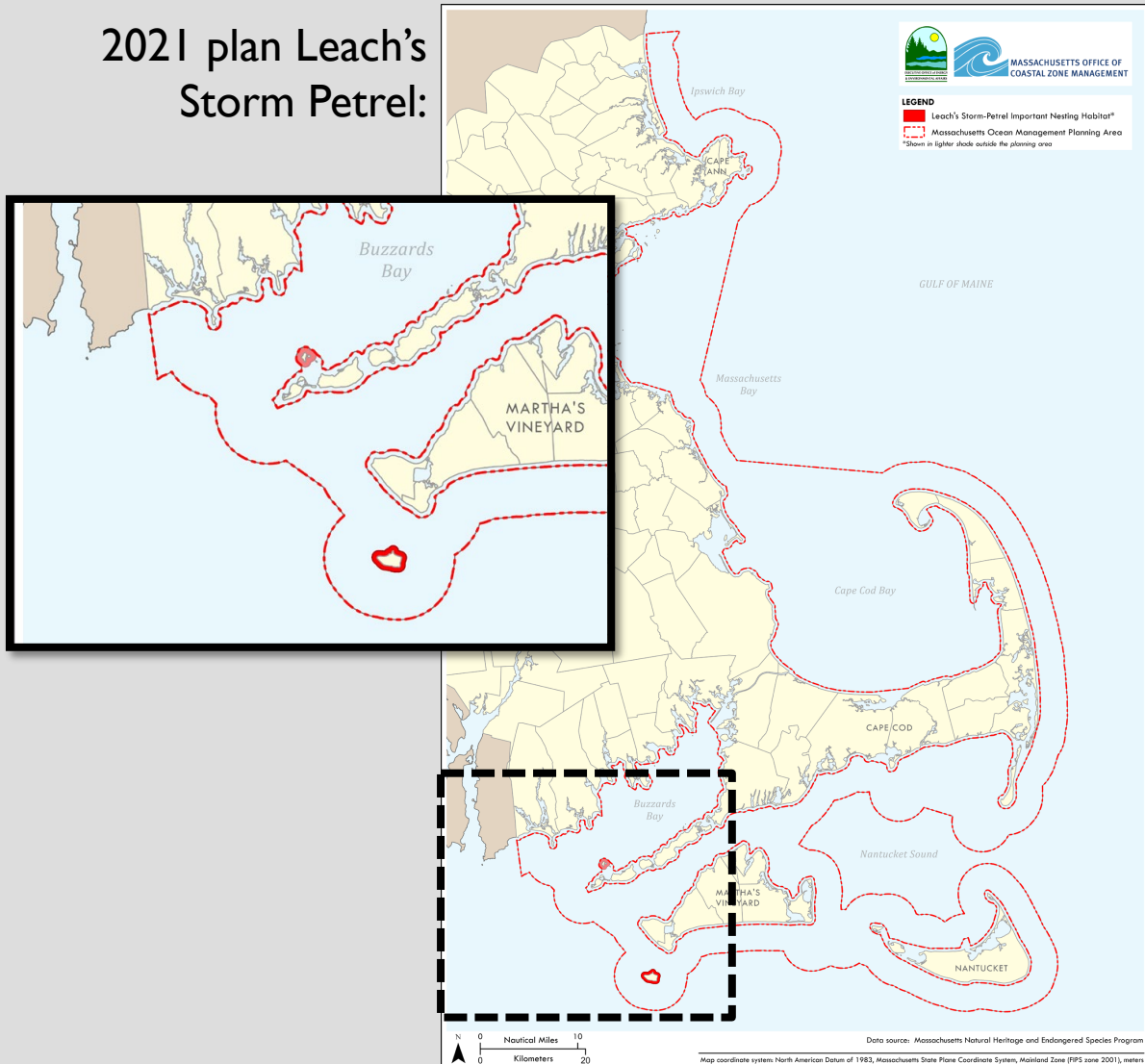
- Adopt new NHESPs map when available



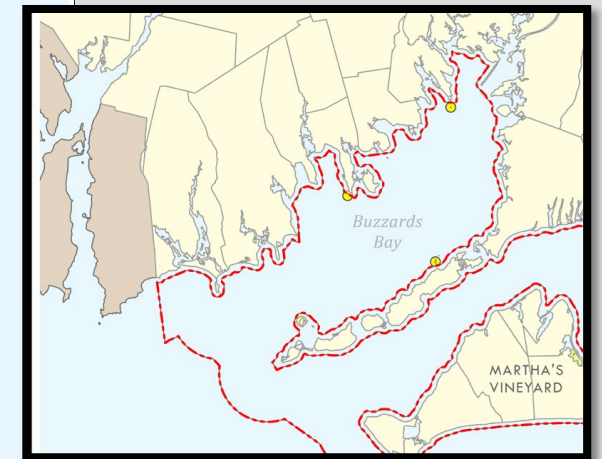
# LEACH'S STORM PETREL & COLONIAL WATERBIRDS IMPORTANT NESTING AREAS

Rec: Update with NHESP's new maps – possible in 2026

2021 plan Leach's Storm Petrel:



2021 plan Colonial Waterbirds





# INTERTIDAL FLATS SSU

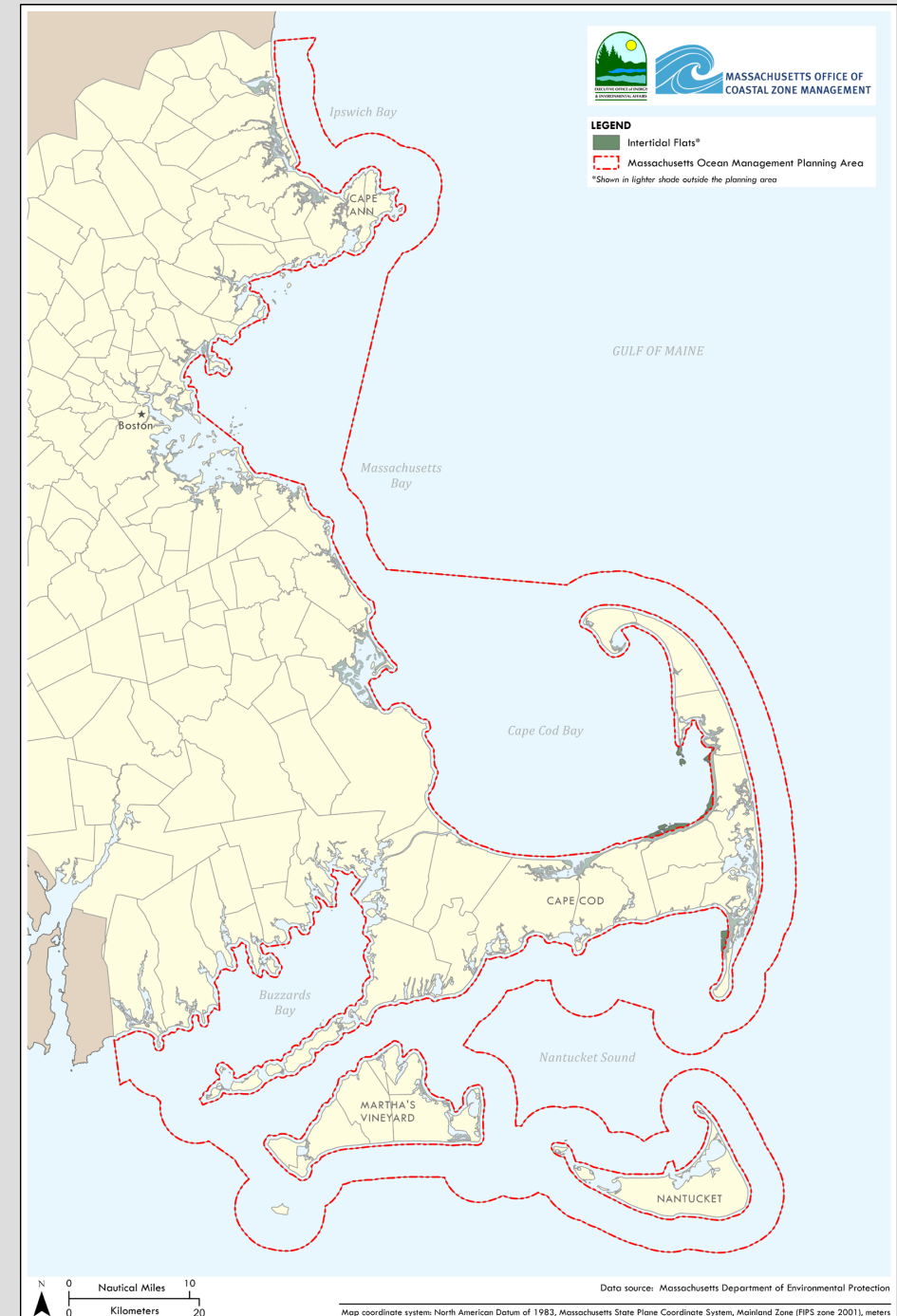
## Findings:

- Based on MassDEP wetlands maps
- UMass mapping effort underway – MassDEP may adopt this data

## Recommendations:

- Adopt new MassDEP map when available

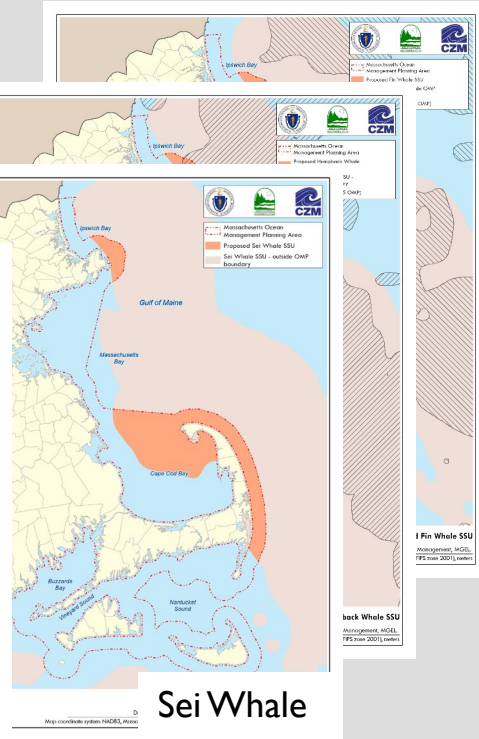
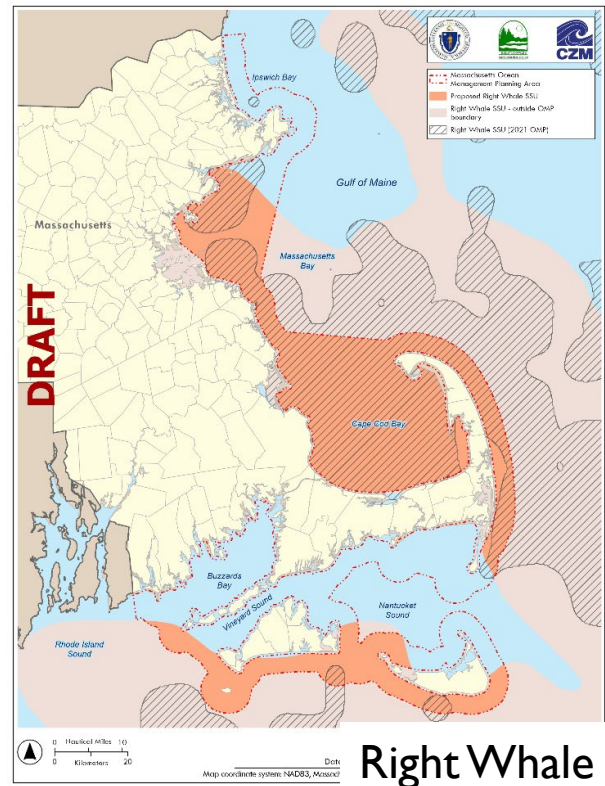
2021 plan Intertidal flats SSU:





# WHALE CORE HABITAT SSUS

Current (hatching) and proposed (orange) whale SSUs



## Findings:

- Fin, Humpback, and North Atlantic Right Whales
- In effect year-round, but may be overcome by “time-of-year controls”
- Based on an interpolation of sightings and effort data (best available in 2009)

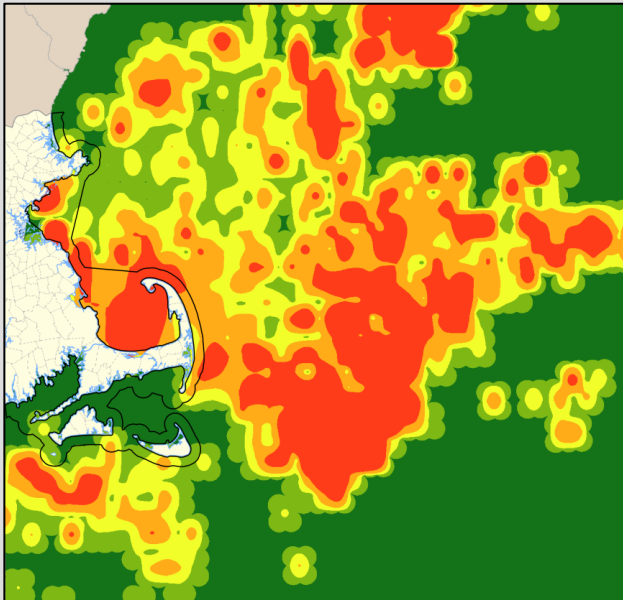
## Recommendations:

- Add Sei whales
- Incorporate seasonality
- Update map data source to reflect current best info (density surface models)

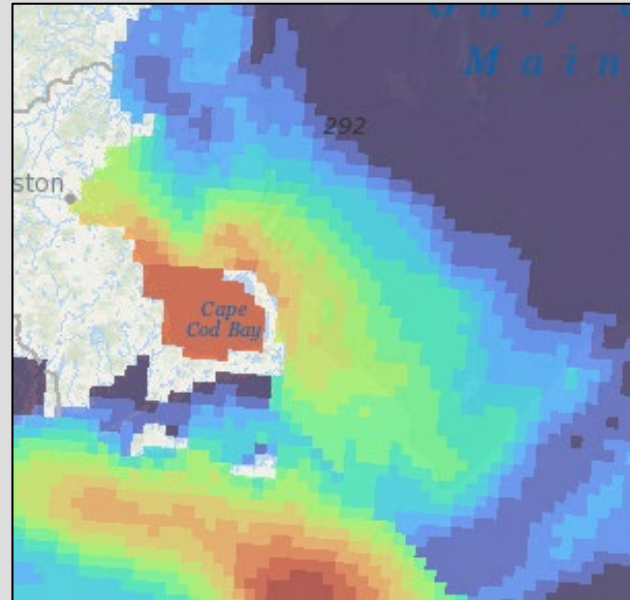


# WHALE SSU SOURCE DATA

Source data for 2021 plan:



Proposed source data:



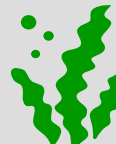
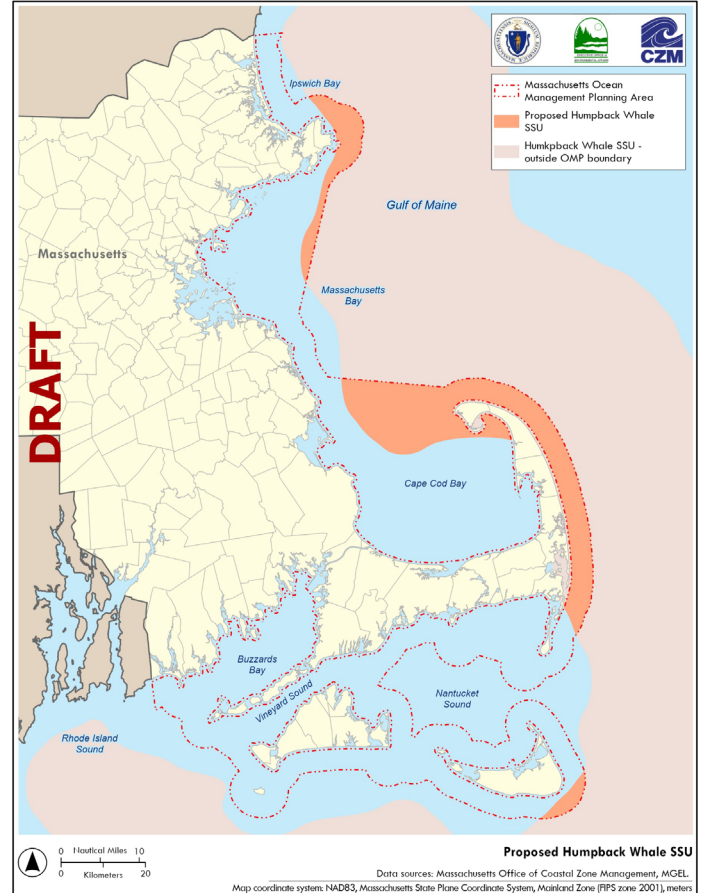
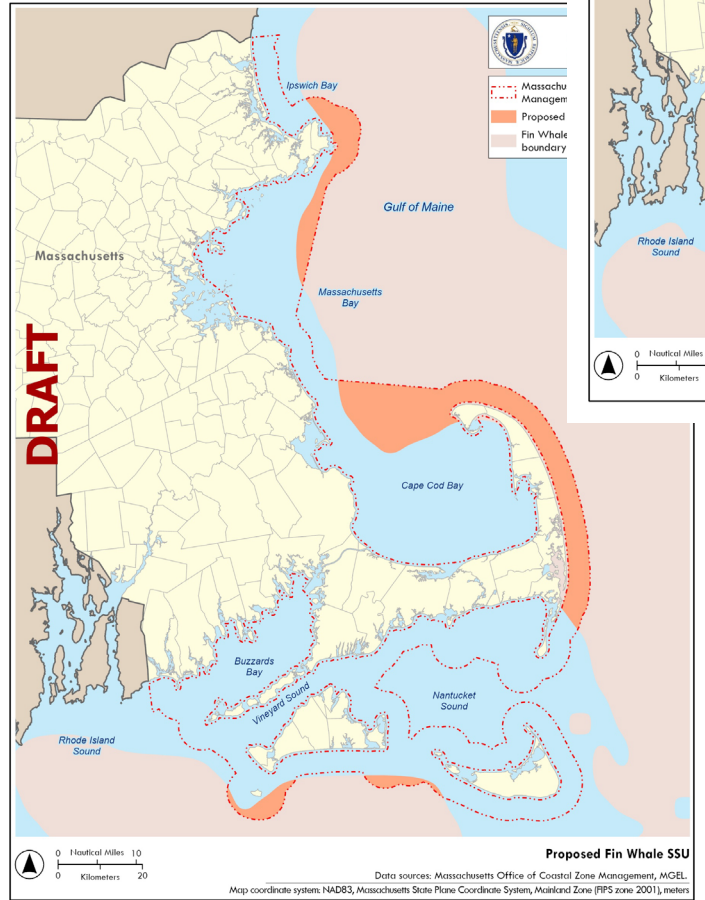
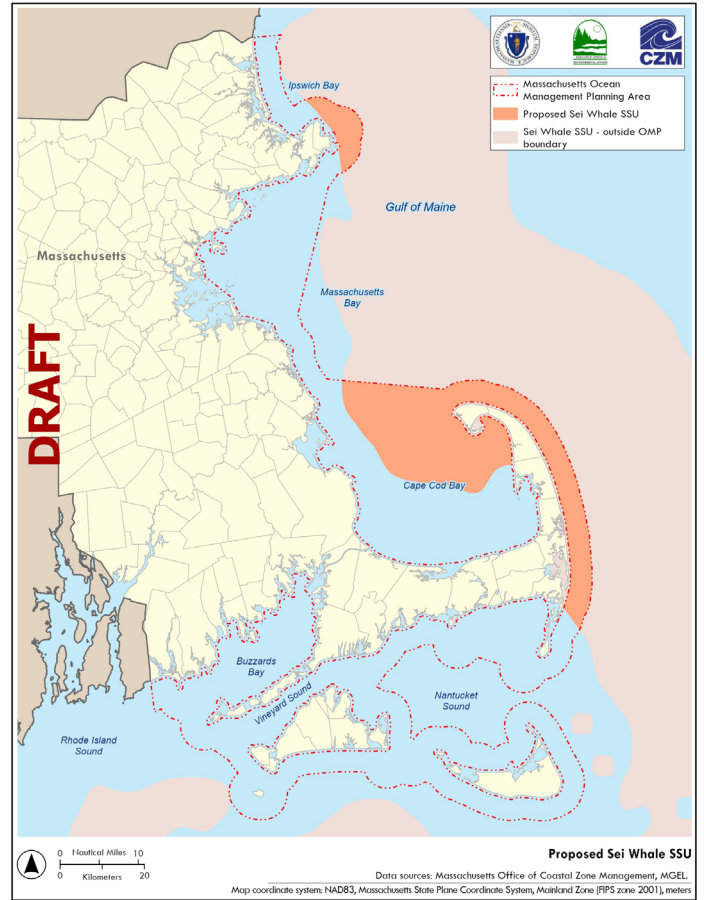
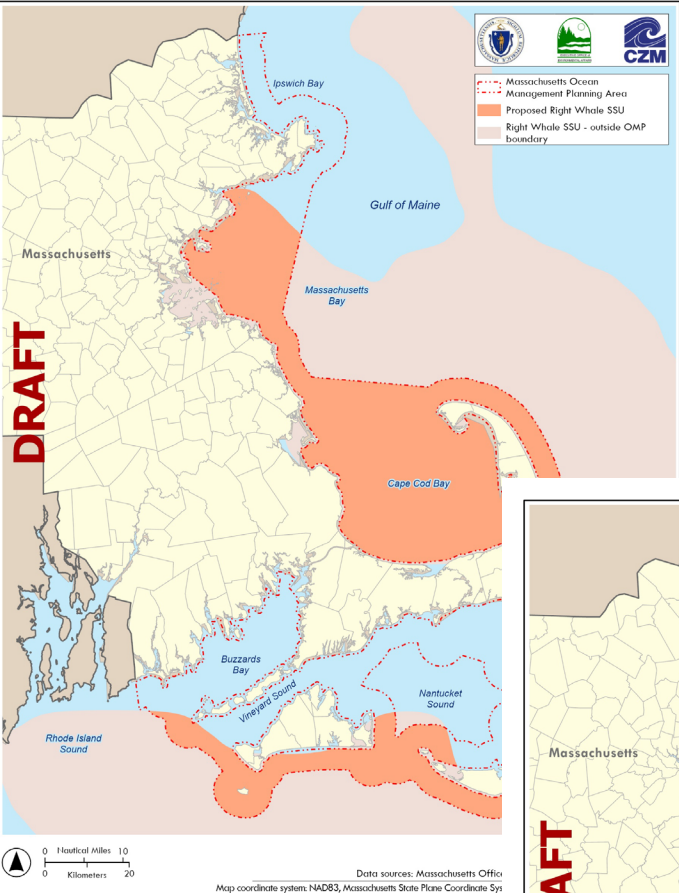
## Findings:

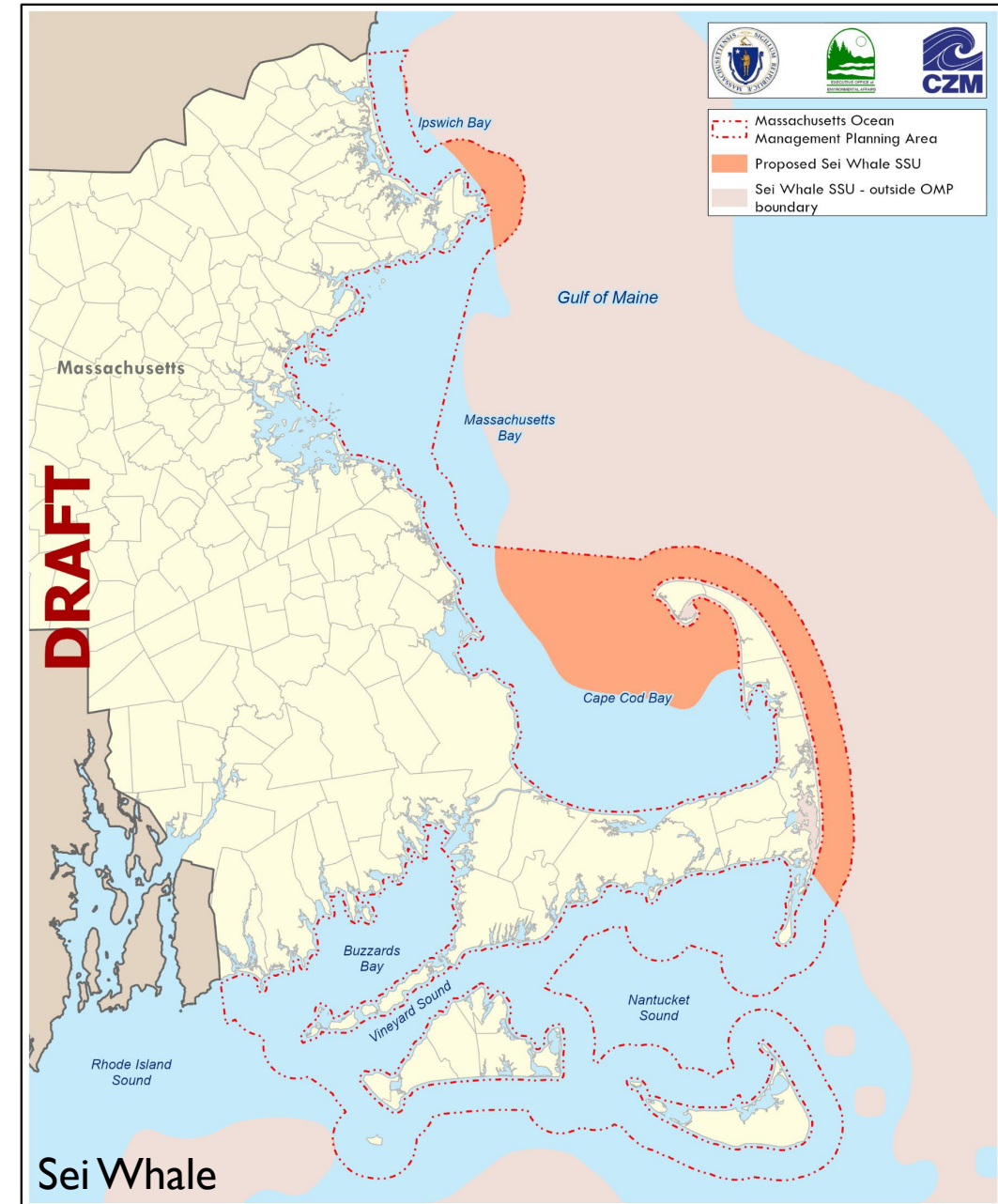
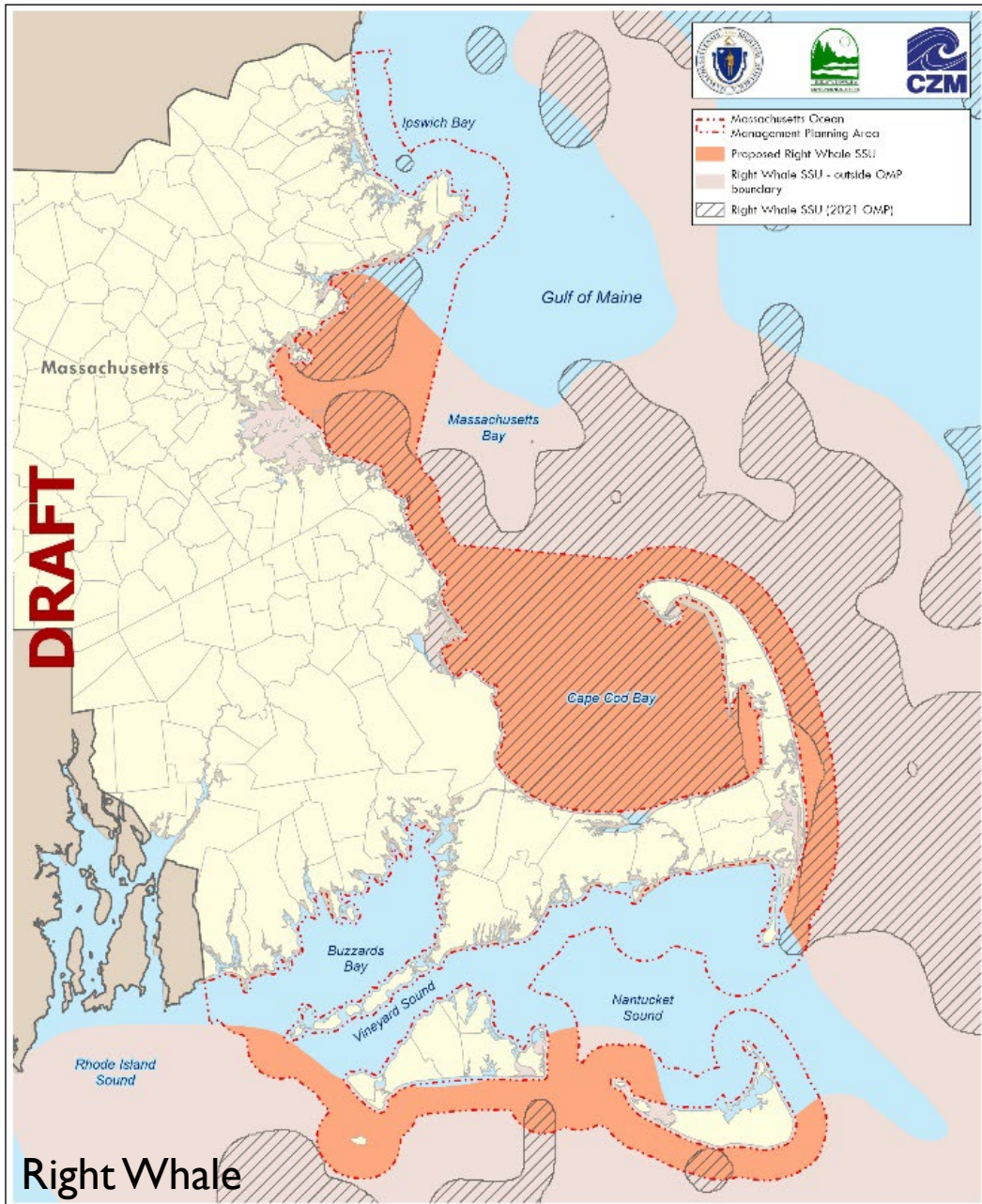
- 2021 SSUs use interpolated SPUE
- Best available info as of 2008
- Quality and quantity of SPUE is uneven and can be biased

## Recommendation:

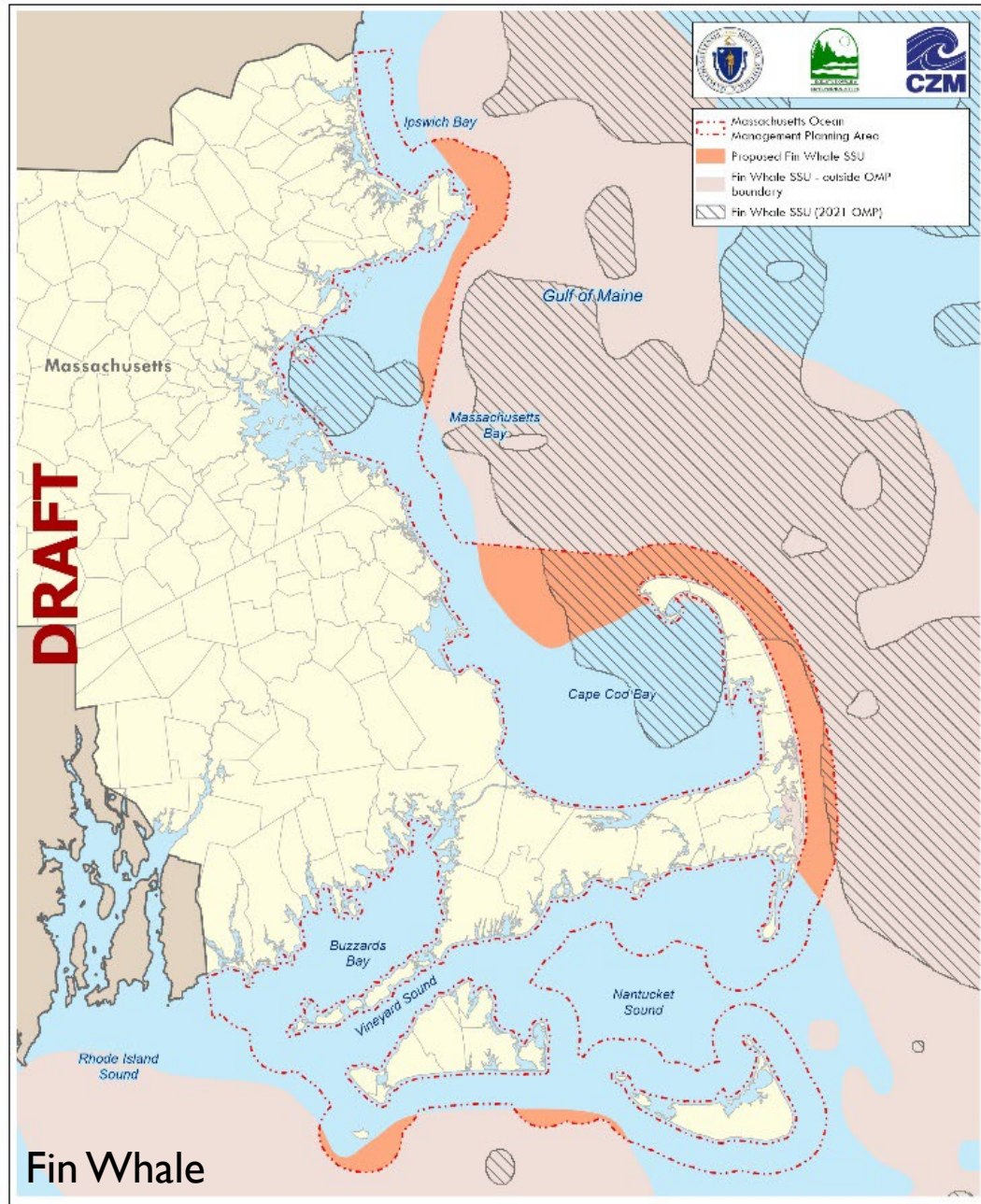
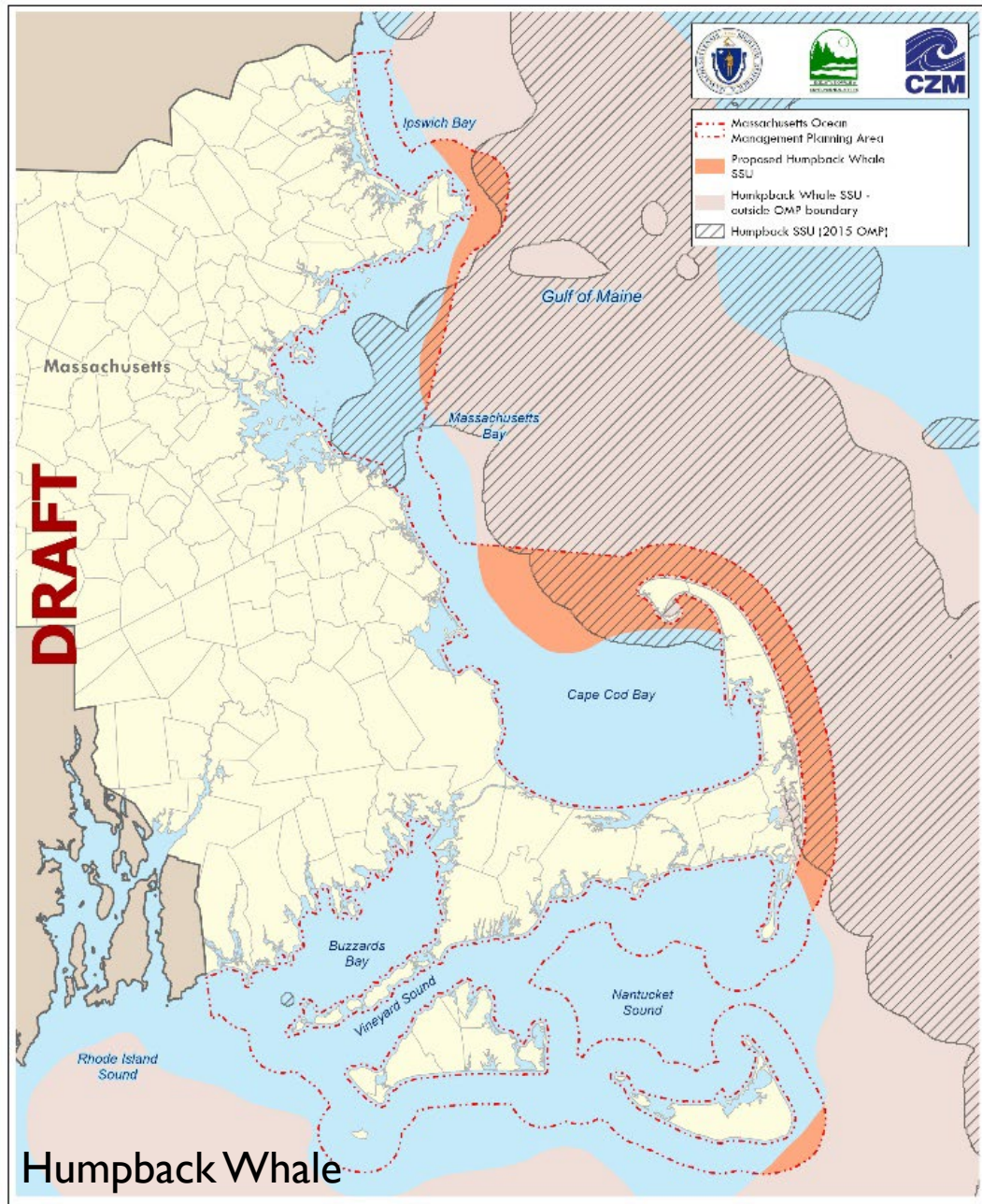
- Use modelled density data from Duke MGEL
  - Current best info: supplements sightings with habitat suitability
  - Now a higher resolution than SPUE
  - Can resolve to months (not just seasons or annually)
  - Used by the Navy, special attention paid to CCB and NARW

# DRAFT PROPOSED WHALE CORE HABITAT SSUS

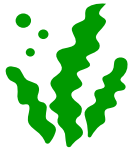




CURRENT (HATCHING) AND PROPOSED (ORANGE) WHALE SSUS

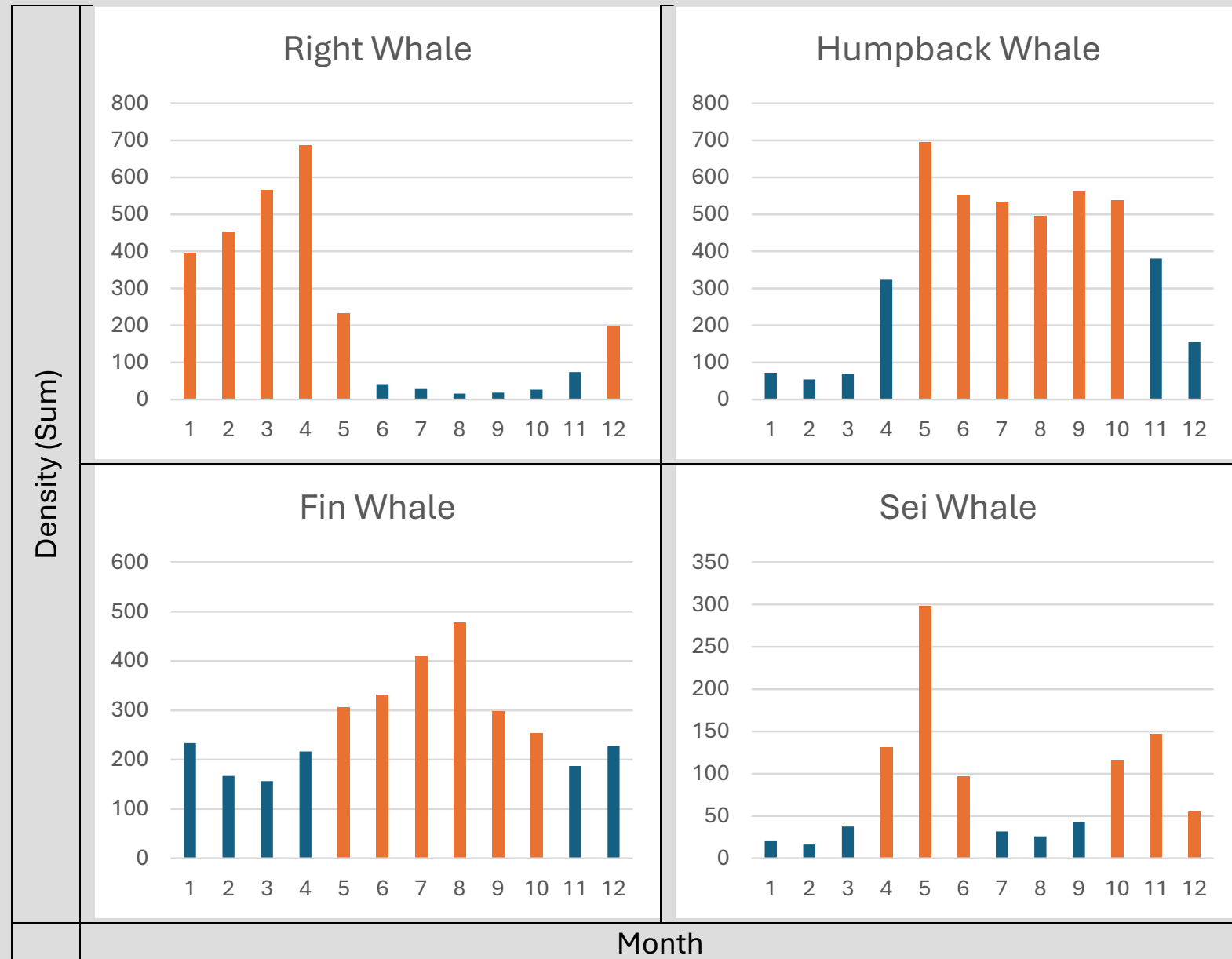


CURRENT (HATCHING) AND PROPOSED (ORANGE) WHALE SSUS



# SEASONALITY

**Recommendation:** SSUs in effect highest 6 months for each species (orange bars):





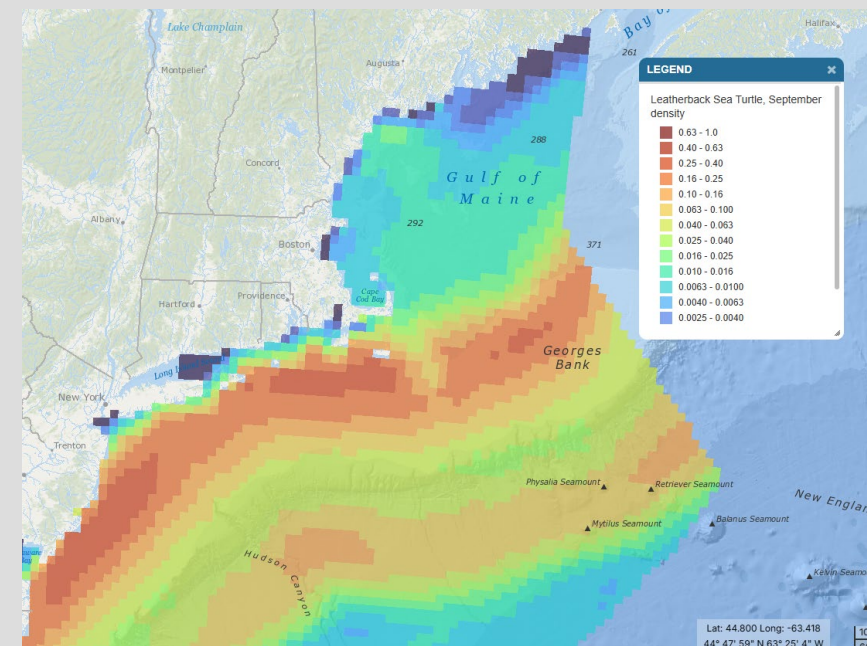
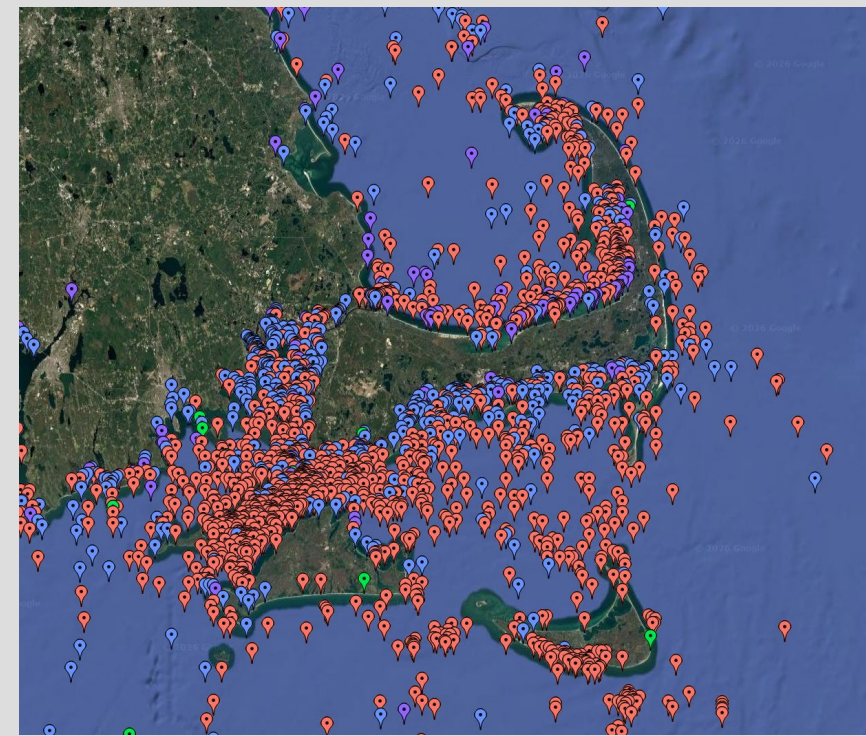
# FUTURE SEA TURTLE SSU?

## Findings:

- Previous Ocean Plan reviews have found insufficient spatial data for an SSU
- Recent density modelling is not reliable enough yet for SSU mapping
- Integrated Species Distribution Model (ISDM) for leatherbacks – DMF and NEAq collaboration

## Recommendation:

- Consider a sea turtle SSU when ISDM is complete





## PROPOSED CHANGES IN PROTECTED AREA

SSU / species	2021 (km <sup>2</sup> )	2026 (km <sup>2</sup> )	Change	Change (%)
North Atlantic Right Whale	2,500	3,507	+1,007	+40%
Humpback Whale	1,010	1000	-10	-1%
Fin Whale	966	992	+26	+3%
Sei Whale	0	1,148	+1,148	+
Eelgrass	100	101	+1.4	+1.4%
Sea Ducks	1,585	2,110	+525	+33%
Sea Turtles	0	?	+?	+?
Intertidal flats, hard/complex seafloor, birds		?	?	?

### Recommendations:

- Adopt agency maps as they become available
- Continue to assess data availability for new SSUs (e.g., kelp, sea turtles)

## SCIENCE PRIORITY 4: HABITAT MAPPING

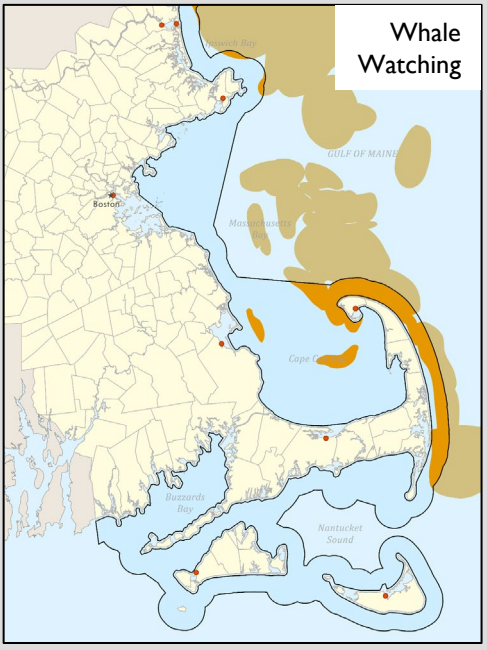
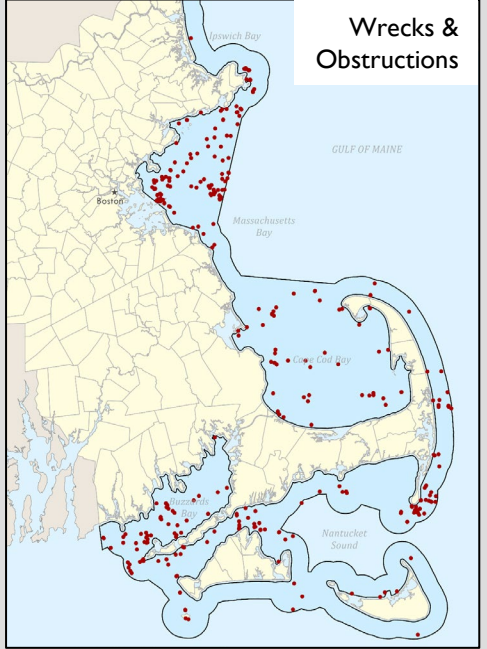
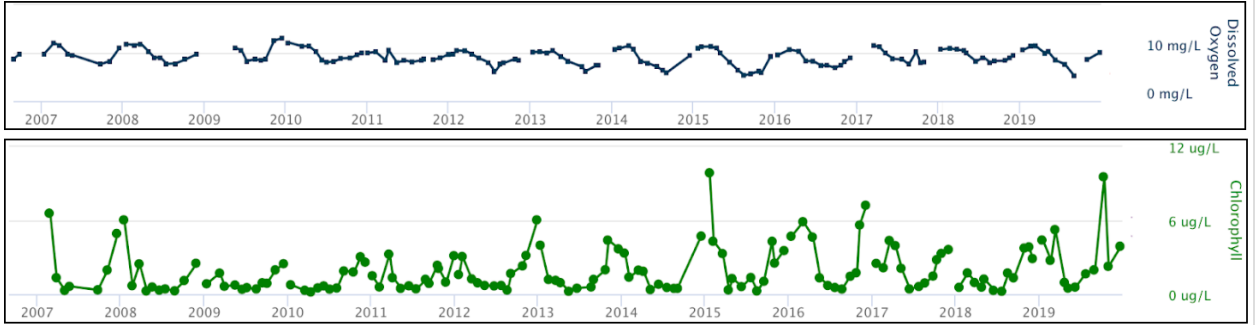
- Spatial distribution of mussels, kelp, and worm reefs
- Plankton – North Atlantic right whale distributions and relationship
- Seabird utilization of offshore space: migration pathways and flight heights
- Forage fish distribution and abundance

# OCEAN PLAN VOL 2: BASELINE ASSESSMENT

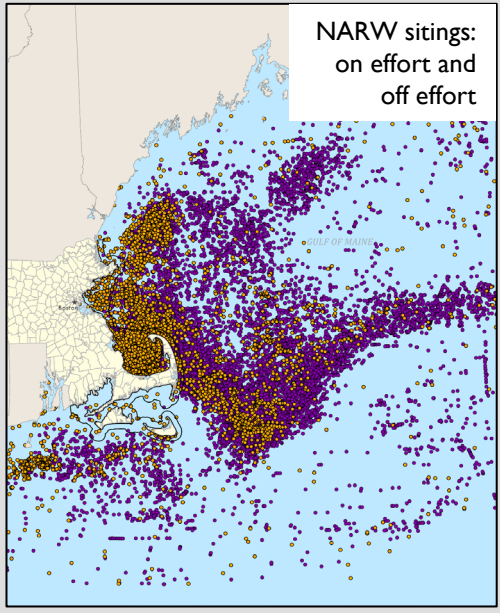
## Archaeological Landscape and Cultural Heritage

## Human Uses

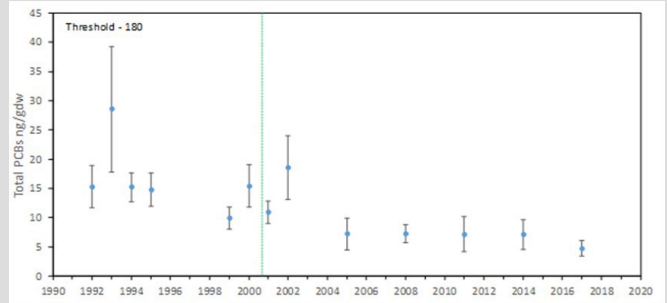
### Water Column Features



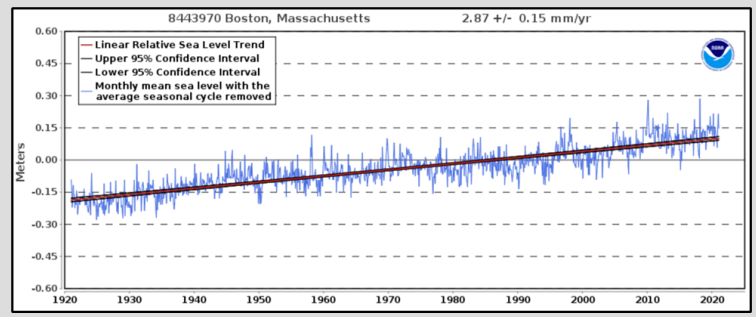
### Habitat



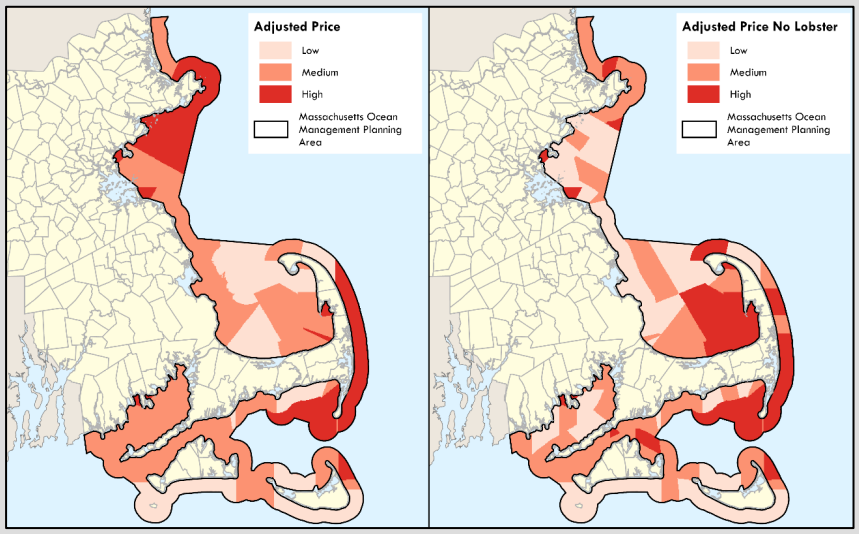
### Seabed Features



### Climate Change



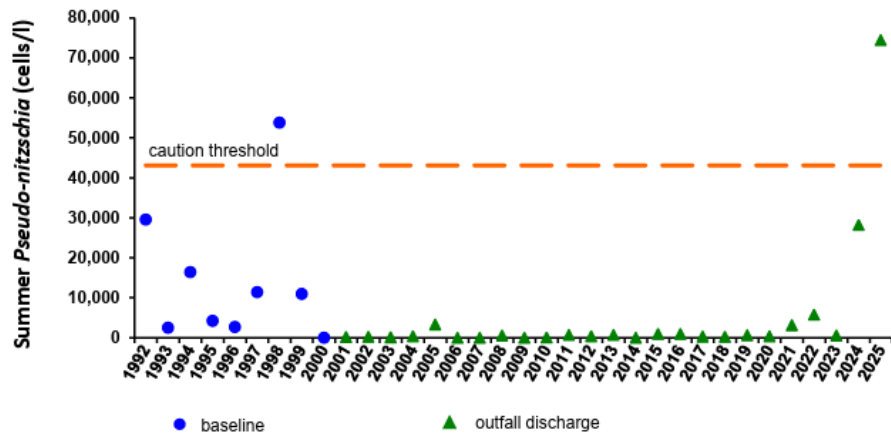
### Economic Impact of the Marine Sector



# BASELINE ASSESSMENT: HABITAT DATA

In addition to what was already covered for birds, whales, sea turtles, eelgrass, tidal flats, kelp, etc., in Volume I:

- Invasive Species
- Water Column Features
- Climate Change



**Figure 2.** Nearfield summer *Pseudo-nitzschia*, 1992-2025. The orange dashed line is the Contingency Plan threshold of 41,300 cells/L, set at the 95<sup>th</sup> percentile of the baseline (pre-discharge) summer average.

Climate Change Impacts on the Marine Environment in the Greater Boston Area

November 2024

Findings of the Greater Boston Research Advisory Group Report

UMass Boston University of Massachusetts Boston School for the Environment



Manila Clam, *Ruditapes philippinarum*

# BASELINE ASSESSMENT: HUMAN USE DATA

## Data to be Included in BA

- Economic figures:
  - Ports & Harbors
  - Tourism
  - Fisheries (Fisheries WG)
  - Energy construction (Energy & Infra WG)
- Existing Cables & Pipelines (Energy & Infra WG)
- Volume of dredging sediments used beneficially (Sed/Geo WG)
- Whale watching areas
- Cultural Resource/Coastal Hazard maps

## Maps to be included in BA from Volume I:

- AIS, VMS, Rec Boating, Traffic Lanes, Ferry Routes
- Dive Sites, shipwrecks (in H/C)
- Fishing areas (Fisheries WG)

**Table 7. Dredged sediment used beneficially 2015-2020**

Region	Volume placed (cy)	Volume dredged (cy)
North Shore	139,608	139,608
Boston Harbor	14,112,000	14,415,500
South Shore	108,539	448,348
South Coast	18,260	18,260
Cape Cod	992,123	1,019,048
Islands	118,382	118,382

**What else?**

## FOR DISCUSSION

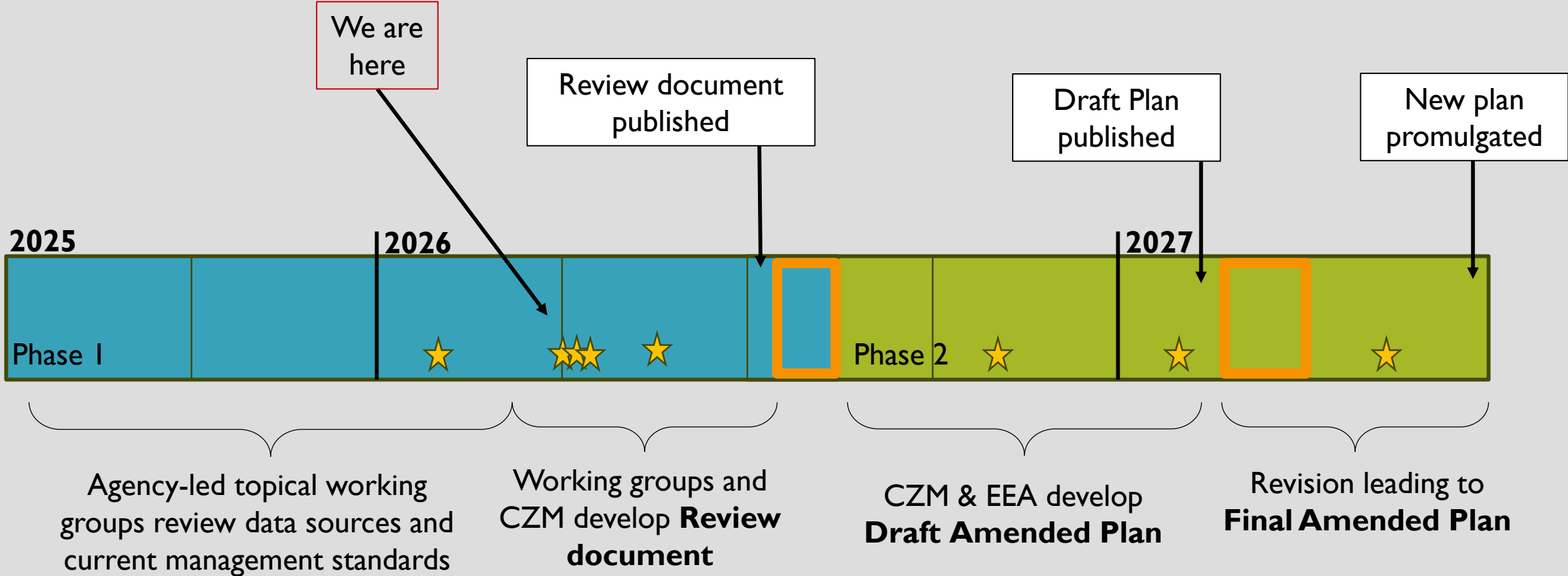
- Any questions or concerns?
- Are there any data sets, publications, etc., that we should add?
- Are there any experts or key stakeholder groups to engage?

## NEXT STEPS

- Additional SAC meetings to focus on:
  - Fisheries (May 14, 10 am)
  - Energy & Infrastructure (May 18, 11 am)
  - Sediment & Geology (May 21, 11 am)
- OAC meeting to focus on management framework and Ocean Plan administration
- Review Document
- Amended Ocean Plan

# OCEAN PLAN REVIEW TIMELINE

- ★ OAC and SAC meetings
- Public Comment Periods



*Note: this is a tentative timeline subject to revision*

THANK YOU

- Please contact [Hollie.E.Emery@mass.gov](mailto:Hollie.E.Emery@mass.gov) with any questions