How the Mass Wind Energy Area got to be where it is:

Data and competing scales

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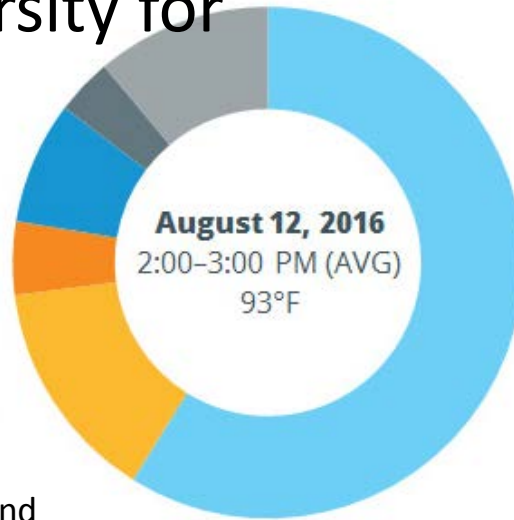
Mass Research Partnership Workshop
SMAST 9-19-2017

Why offshore wind?

Energy diversity for security

Natural Gas	59%
Nuclear	14%
Renewables	5%
Hydro	8%
Coal	4%
Oil	11%

August 12, 2016
2:00–3:00 PM (AVG)
93°F

Source: ISO New England

Power plants retiring

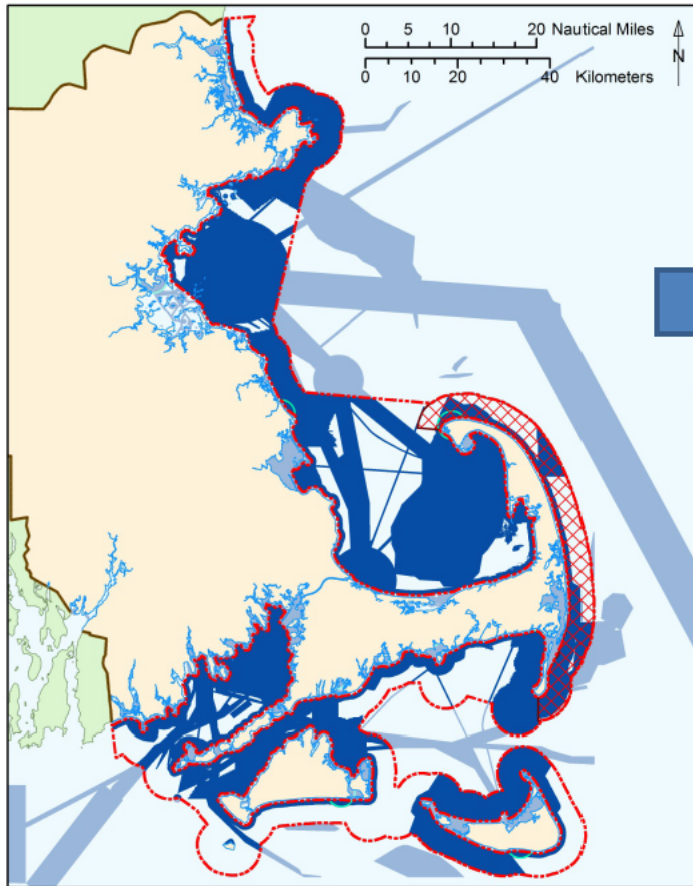*With aging non-gas-fired plants closing, New England will need new ways to meet peak demand and make up for natural gas constraints*
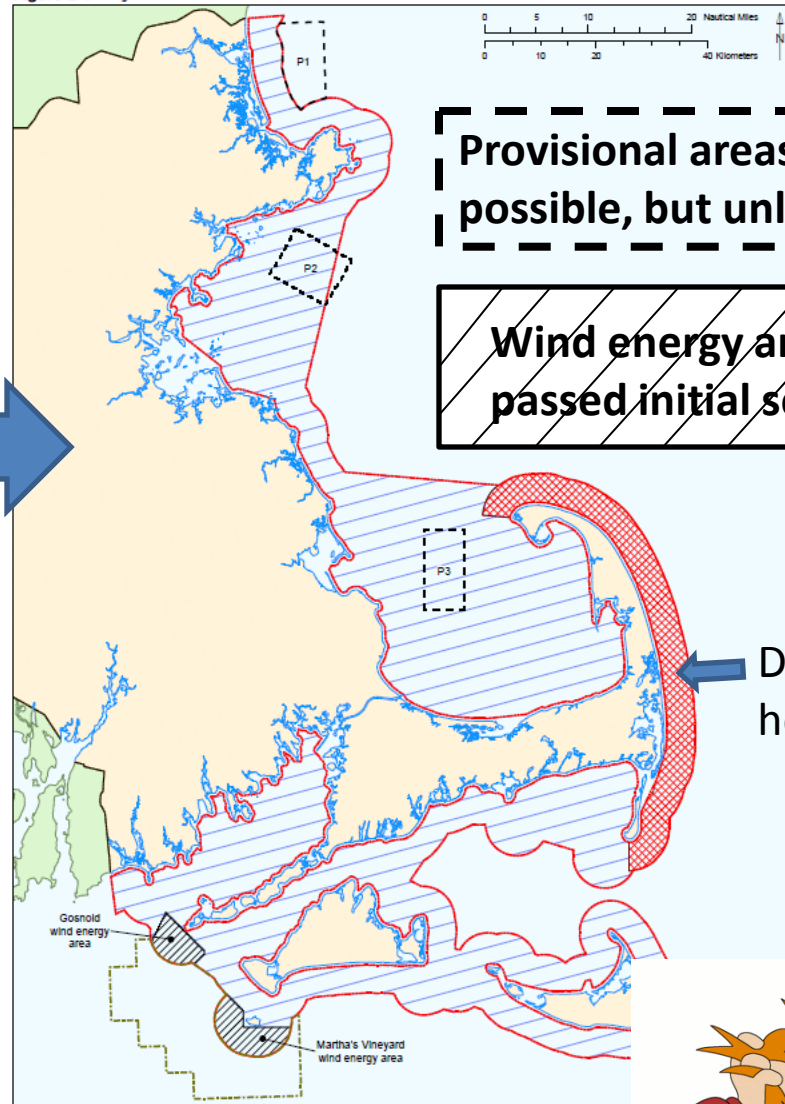

Closed or retiring
Generation at risk

Source: ISO New England

Landside capacity is more limited (est. 1500 MW total)

Offshore wind goals set in law

– Energy Diversity Act: 1600 MW of offshore wind by 2027 (200-400 turbines)

State planning

1. Identify and map special, sensitive, and unique natural resources
   a) whales
   b) eelgrass
   c) fish
   d) etc etc

2. Identify and map existing uses
   a) fisheries
   b) rec fishing, boating
   c) transportation
   d) etc etc

3. Assess compatibility between new uses and existing uses and resources

*Mass Waters only
*Cables, pipelines, wind, sand mining

Note: This map displays the spatial extents of special, sensitive, or unique resources and select water-dependent uses as of December 2009. Consult the Massachusetts Ocean Management Plan for associated siting and performance standards.

4. Identify potential locations

Provisional areas (may be possible, but unlikely)

Wind energy areas that passed initial screening

Don't go here!

Fishing closures

Traffic lanes

Gulf of Maine

292

Cape Cod Bay

Concord

Massachusetts

Providence

Rhode Island

Hartford

Rhode Island Sound

Nantucket Shoals

93

Long Island Sound

Esri, DeLorme, GEBCO, NOAA NGDC, and other contributors,
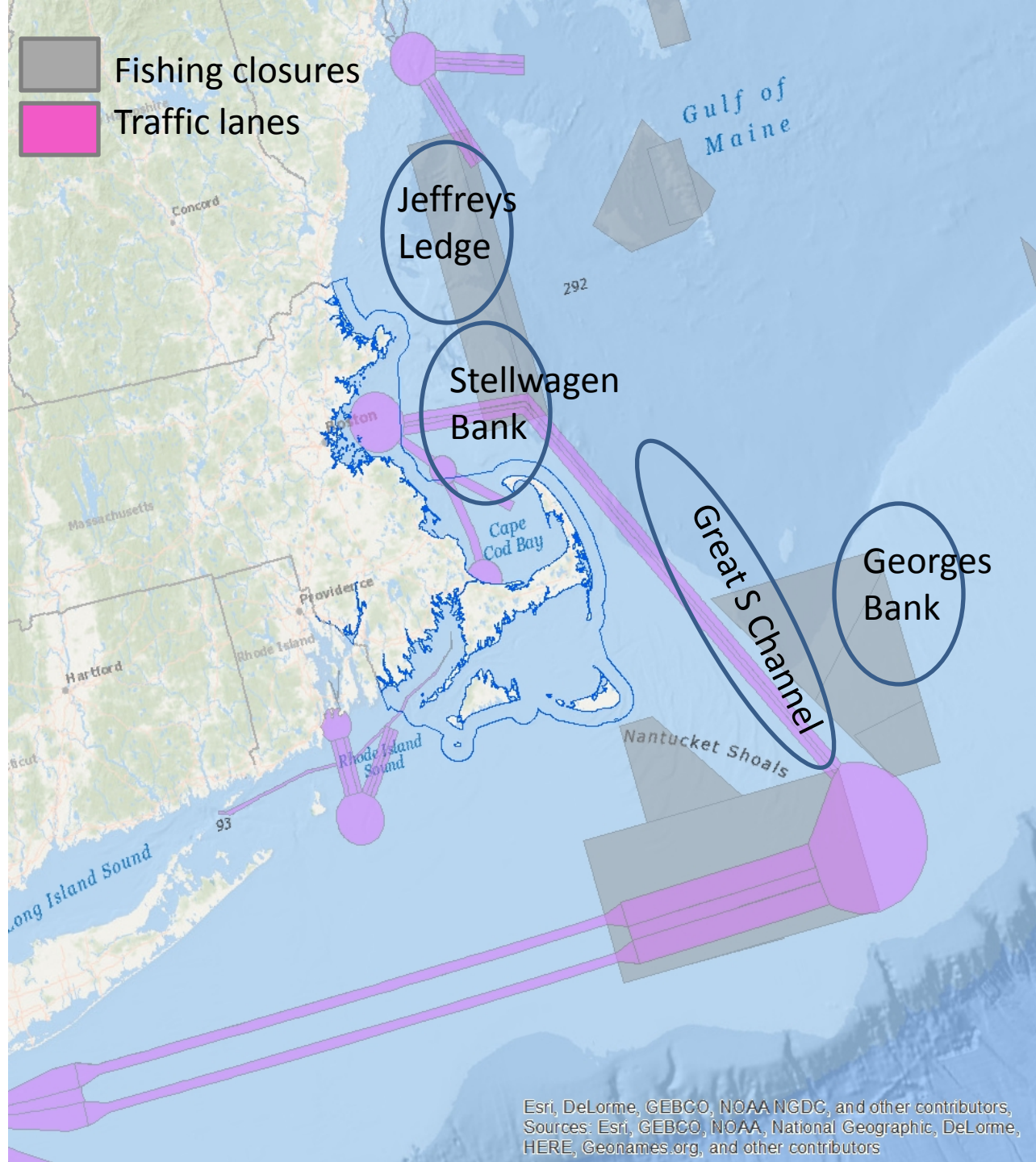Sources: Esri, GEBCO, NOAA, National Geographic, DeLorme,
HERE, Geonames.org, and other contributors

Fishing closures
Traffic lanes

Gulf of Maine
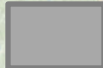
Jeffreys Ledge

Stellwagen Bank

Great S Channel

Georges Bank

Cape Cod Bay

Nantucket Shoals

Long Island Sound

Rhode Island Sound

Esri, DeLorme, GEBCO, NOAA NGDC, and other contributors,
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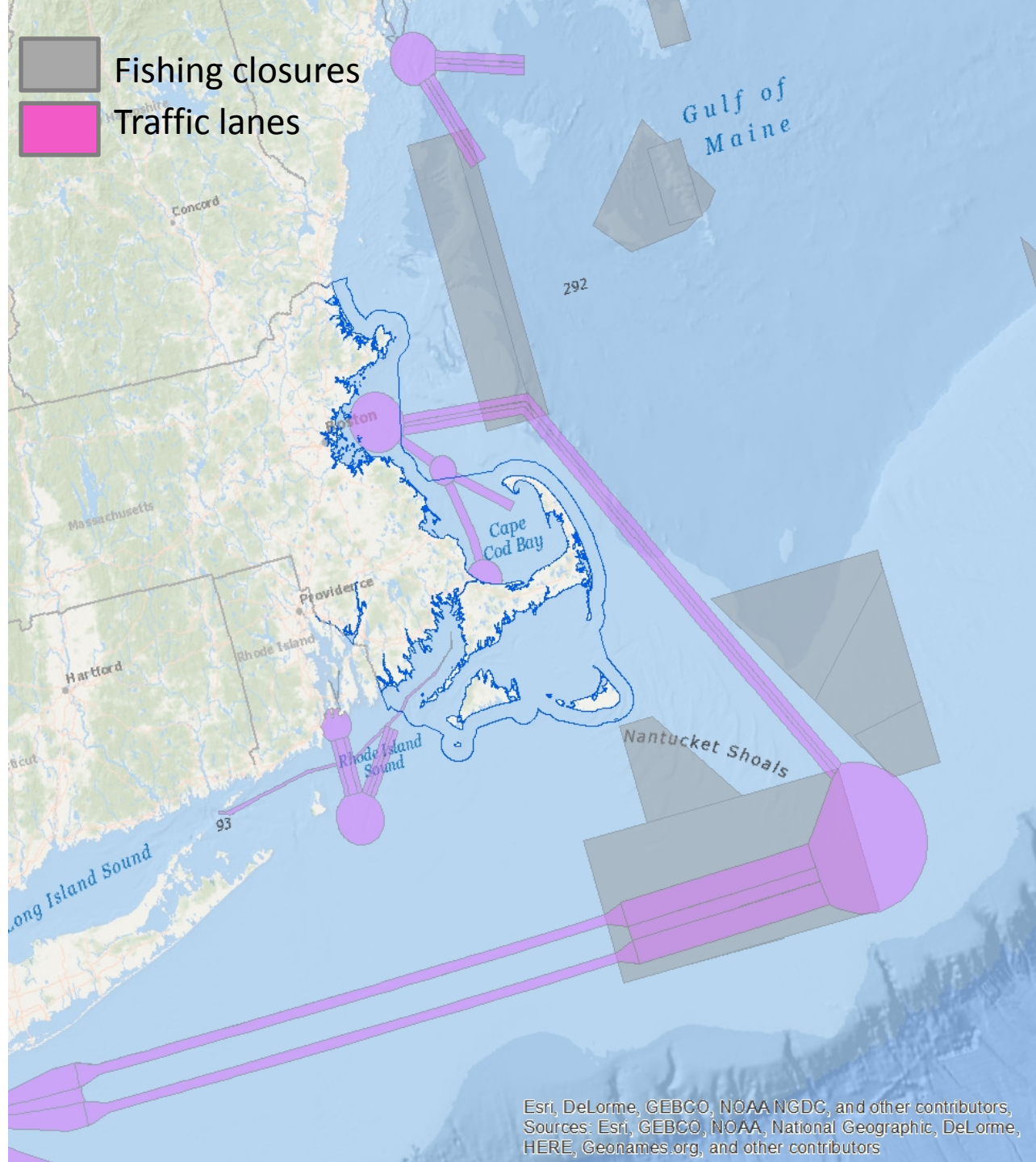
Fishing closures

Traffic lanes

Request For Interest Area

Jeffreys Ledge

Stellwagen Bank

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HERE, Geonames.org, and other contributors

BOEM Request for Interest

- Does anyone want to build here?
- What do we know about natural resources/existing uses?
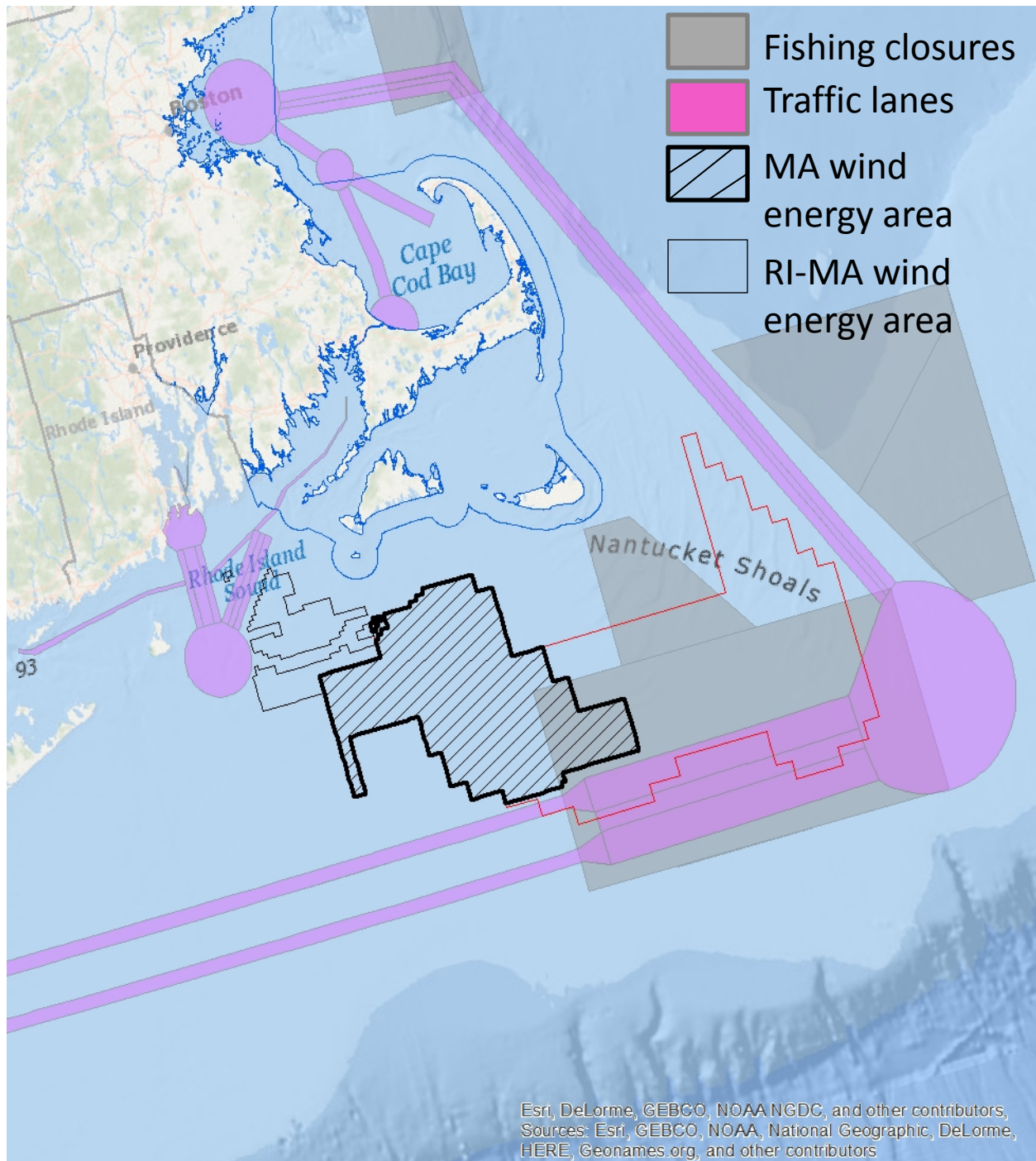
Stakeholder review

- Relied on available data
- Some stakeholders reanalyzed the data for this purpose

Initiate studies

- Marine mammals, turtles, birds
- Seafloor
- Fish resources

Chicken and egg:
Need to know where the wind farms are going to do the studies.
Need to do the studies to figure out where the wind farms should go.

Legend:
- Fishing closures
- Traffic lanes
- MA wind energy area
- RI-MA wind energy area

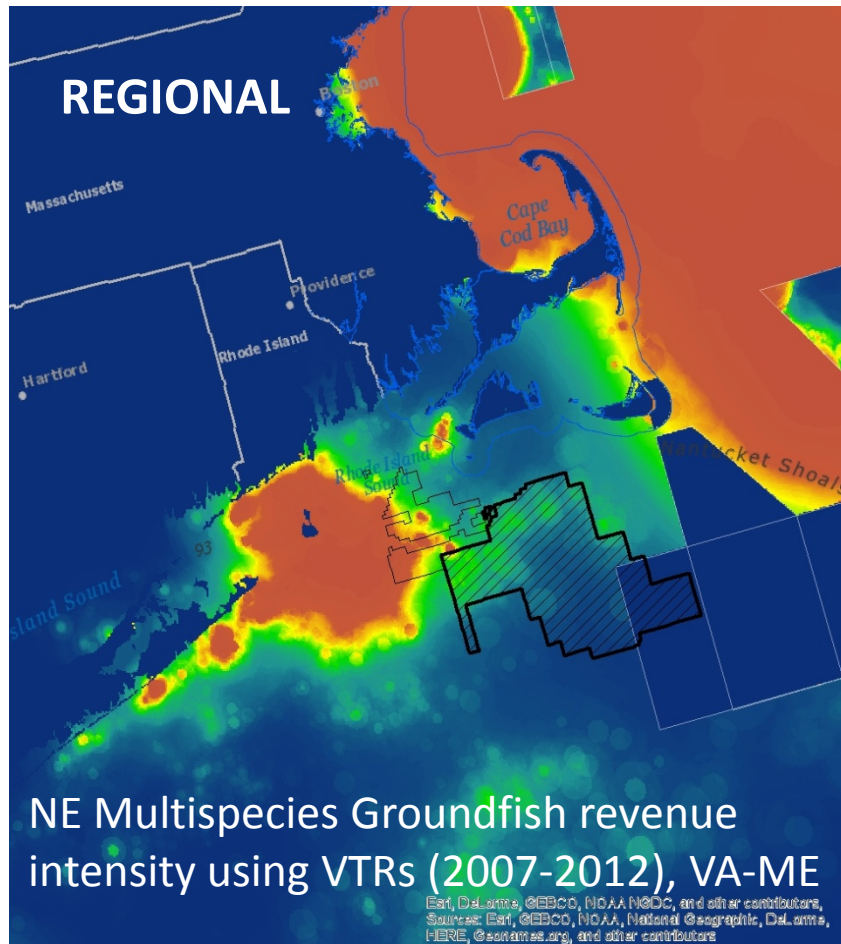Map labels: Boston, Cape Cod Bay, Providence, Rhode Island, Rhode Island Sound, Nantucket Shoals, 93

Esri, DeLorme, GEBCO, NOAA NGDC, and other contributors,
Sources: Esri, GEBCO, NOAA, National Geographic, DeLorme,
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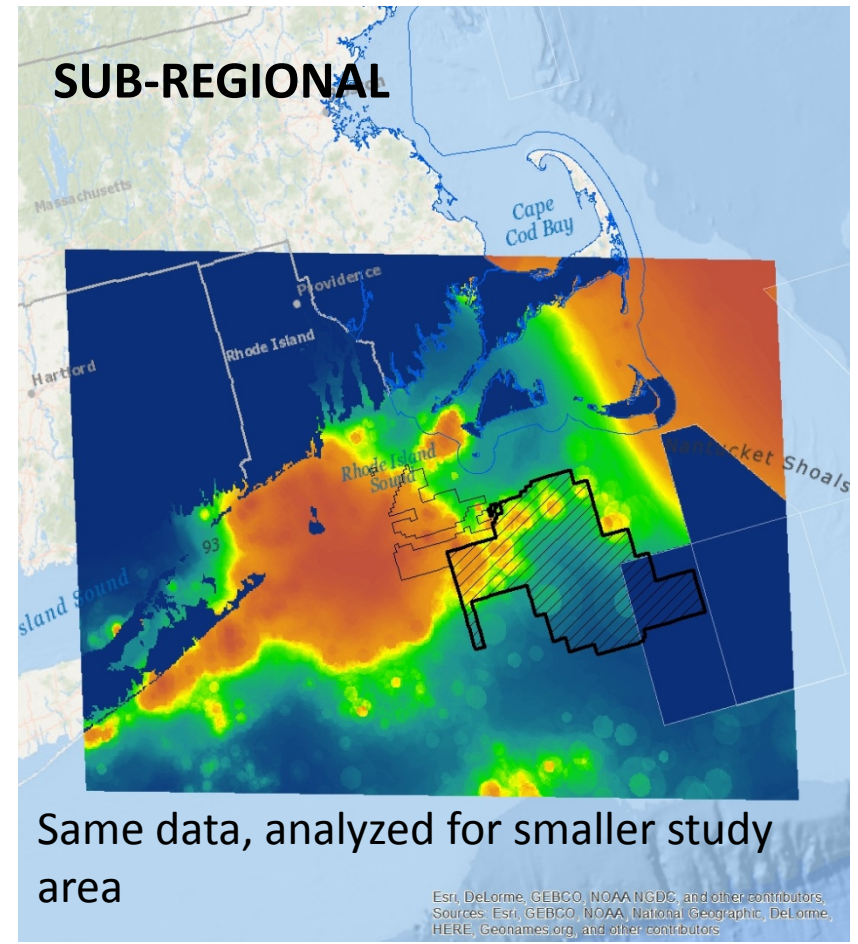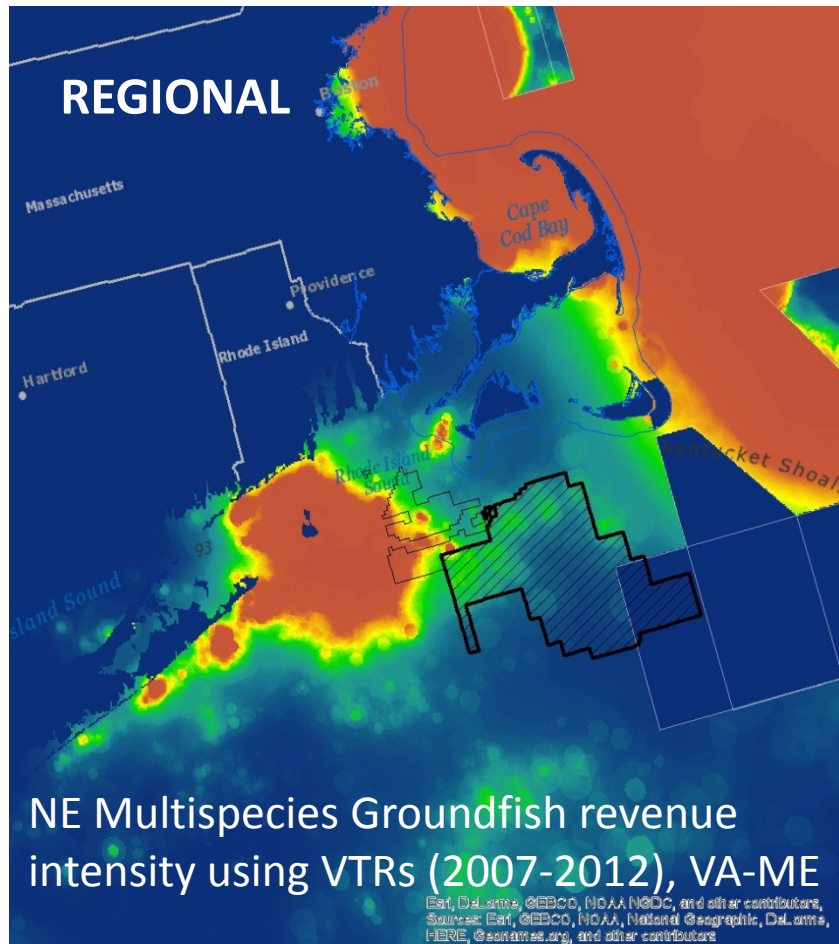
Where are we now?

Regional planning:
northeastoceandata.org, BOEM

GIS data from Kirkpatrick et al. 2017

Where are we now?

Regional planning:
northeastoceandata.org, BOEM

REGIONAL

NE Multispecies Groundfish revenue intensity using VTRs (2007-2012), VA-ME

SUB-REGIONAL

Same data, analyzed for smaller study area

GIS data from Kirkpatrick et al. 2017

What's needed?

- Fill characterization gaps at subregional scale–what is where when?
  - Jonah crab, squid
  - Ocean quahog, scallop
  - Seasonality

      - Etc, etc, etc

- Can lease/site specific characterization, monitoring and impact assessment studies be nested within subregional studies
  - Changes in food selection
  - Artificial reef effect
  - Abundance and spatial distribution

      - Etc, etc, etc

- Compatibility
- Data management – open and available