

# Starting With the End in Mind

Offshore Wind Energy Transmission

Presented By:

Tershara Matthews, Senior Vice President, Environmental Science

November 2024



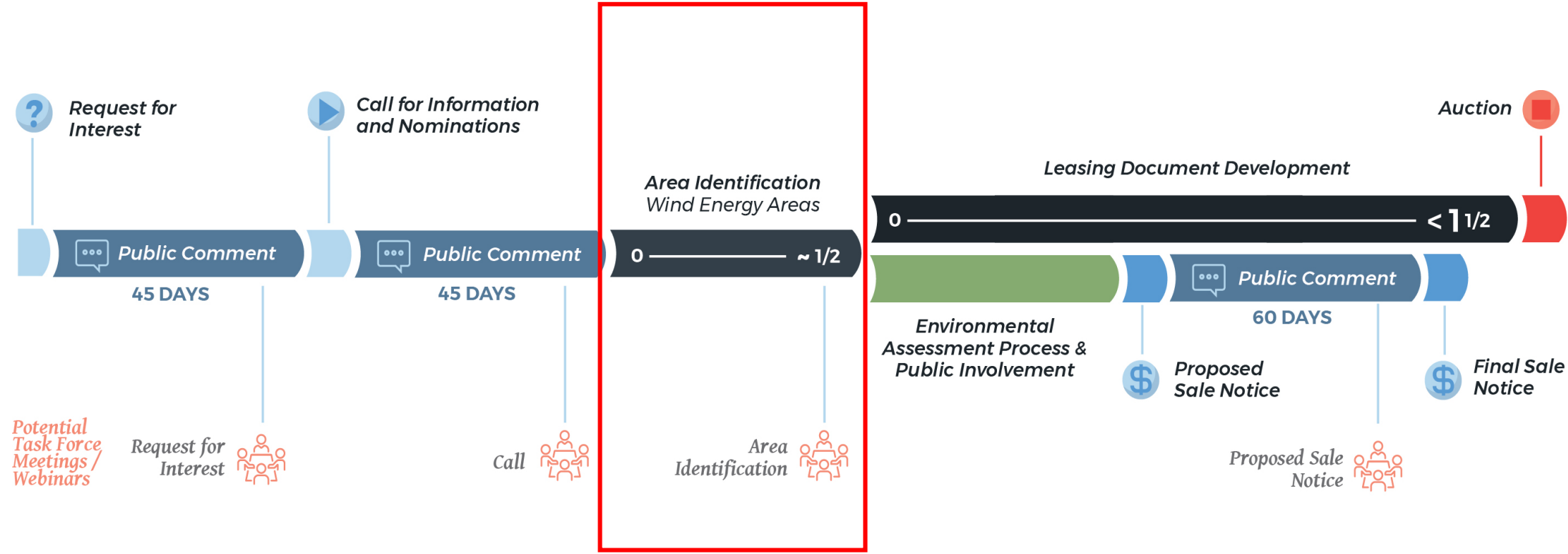
# AGENDA

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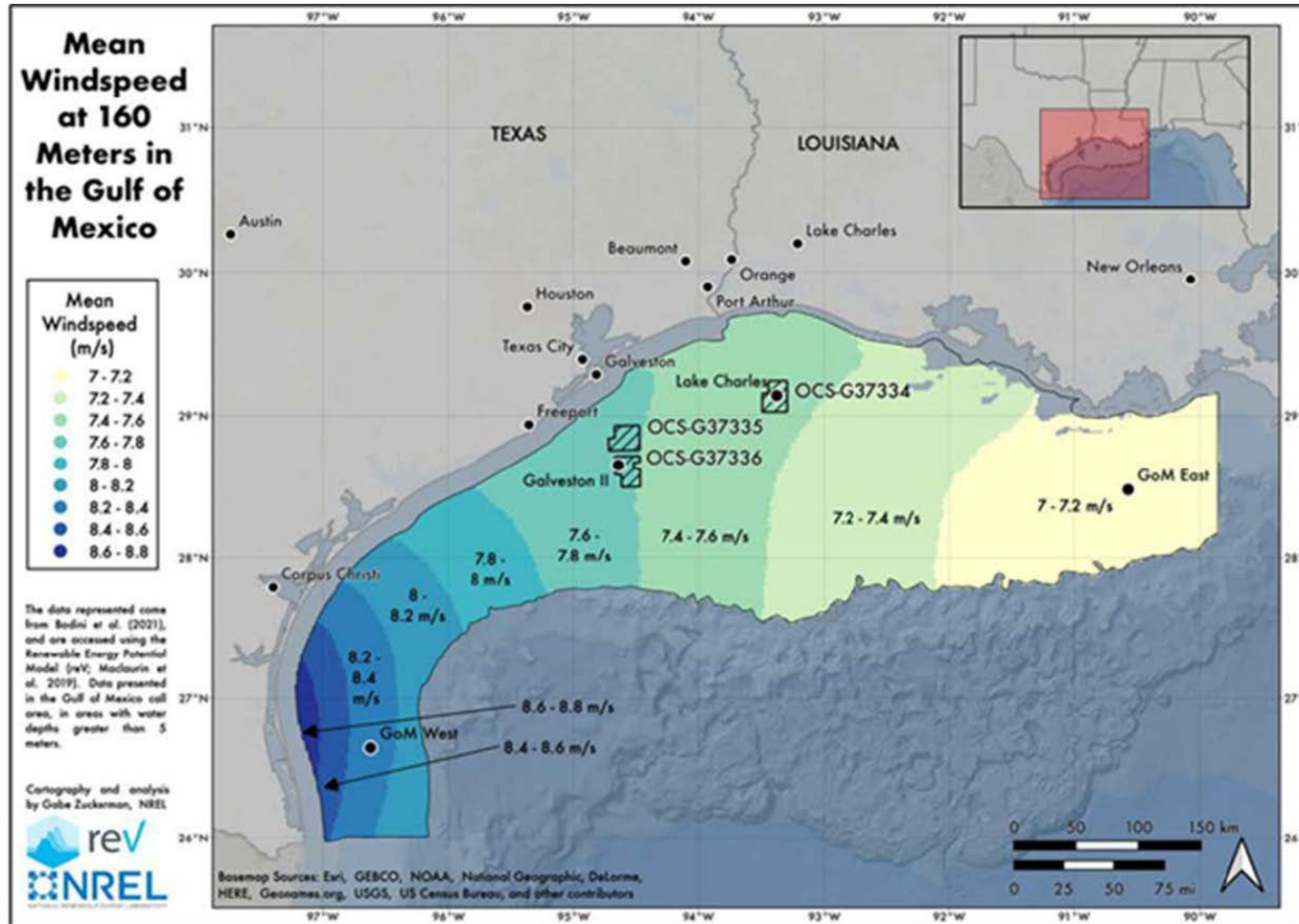
- Introduction
- What We Did & How We Did It
- Lessons Learned
- Q&A



# RENEWABLE ENERGY PROCESS: FOCUS ON PRE-LEASE ACTIVITIES



# RESOURCE ASSESSMENT



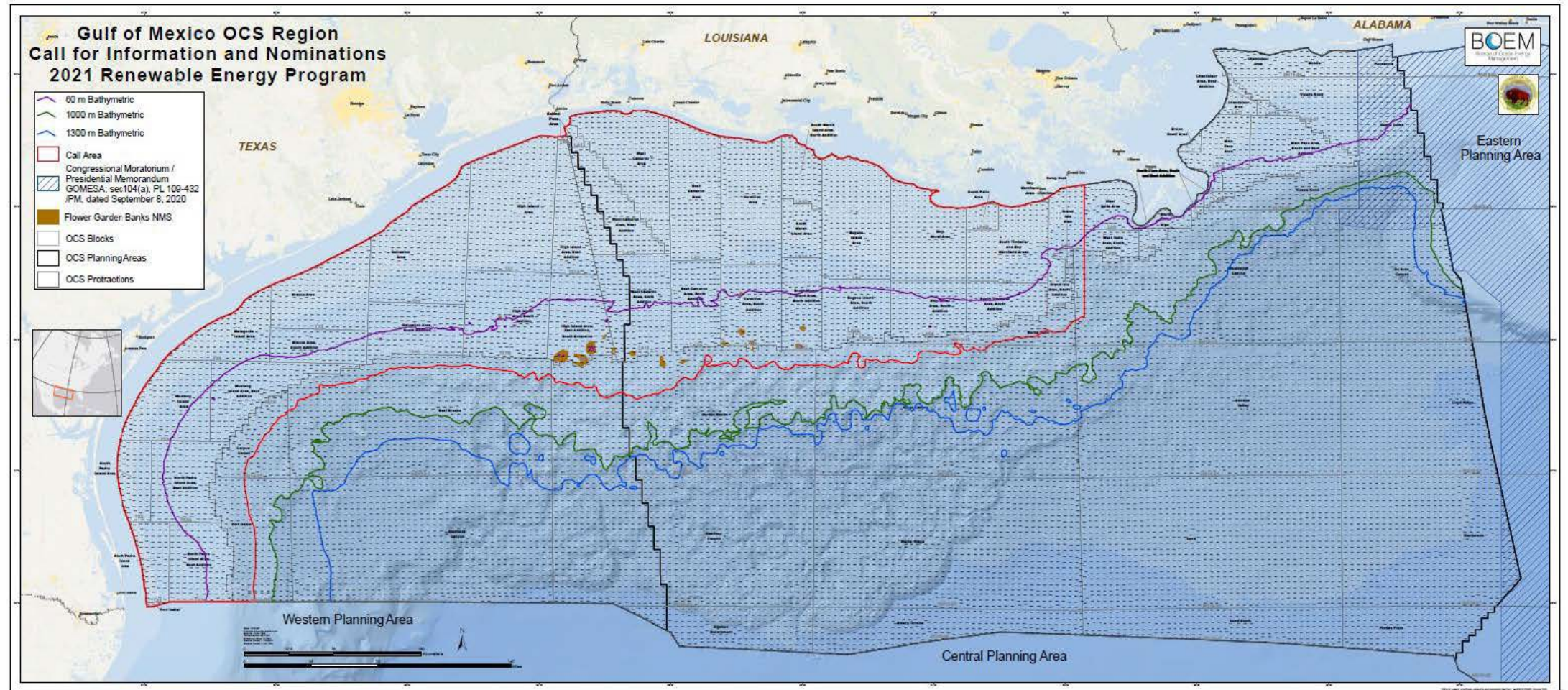
Mean wind speeds at 160m elevation over the period of 2000 to 2020

Reference sites: Galveston II, Lake Charles, Gulf of Mexico East and Gulf of Mexico West

*Map by Gabe Zuckerman, NREL*



# CALL FOR INFORMATION AREA





## MAJOR COMMENTS RECEIVED ON CALL FOR INFORMATION

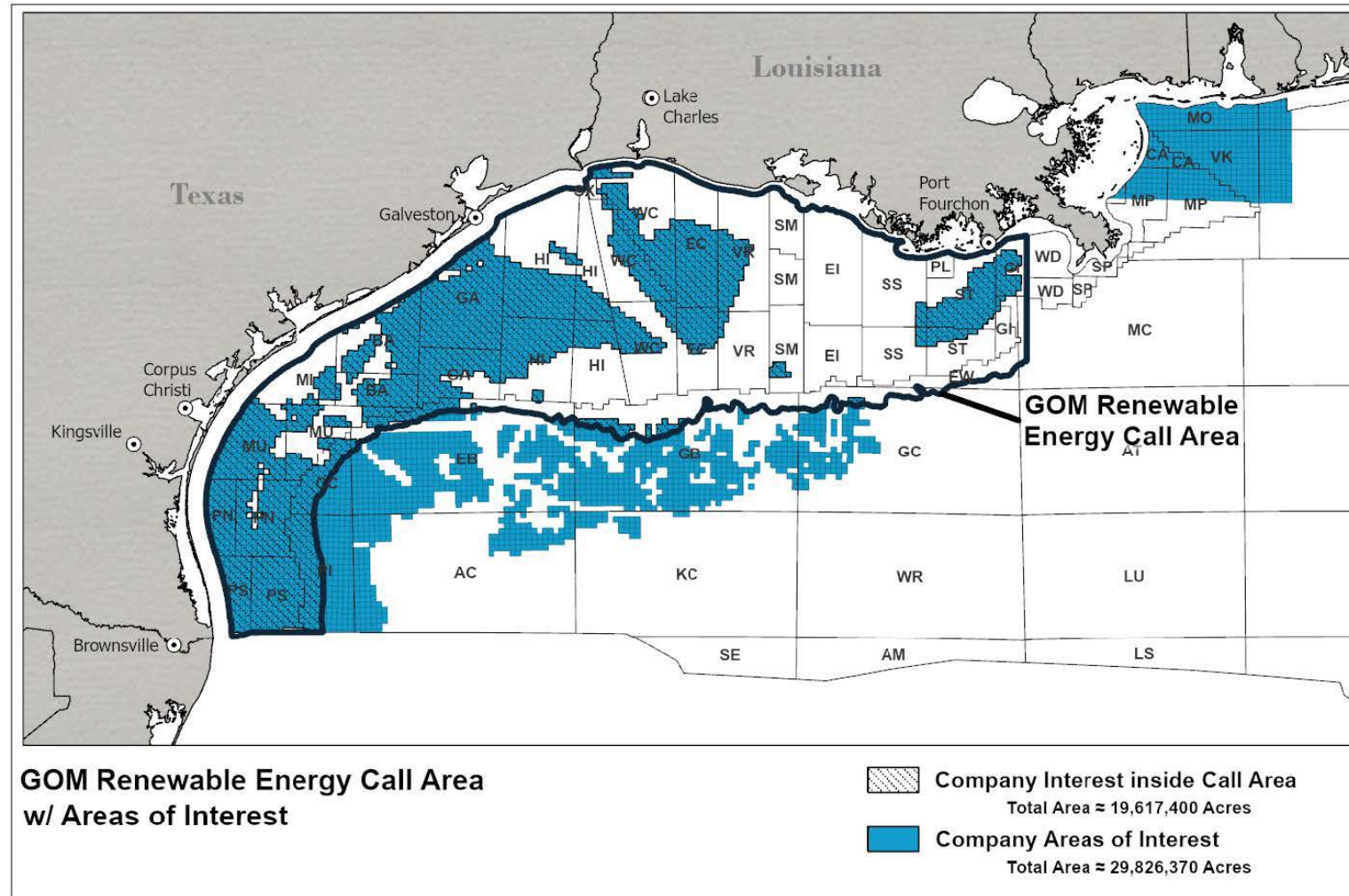
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- Request for 20 nm coastline buffer for migratory birds
- Request for 20 nm coastline buffer for Menhaden fisheries for flyovers
- Protection for the significant sediment resource areas (SSRAs)
- Request for 100-400 m buffer for Rice's whale
- Request for exclusion of high-moderate high shrimping areas
- Request for 2 nm buffer for navigation fairways
- Removal of areas located near low-altitude training areas for DoD





## COMPANIES' AREAS OF INTEREST



# OCEAN PLANNING MODELING

## CHARACTERIZATION ANALYSES

*Describes ocean neighborhood*



## CONSTRAINTS MODELING

*What is limiting?*



## SUITABILITY MODELING

*Where are the best areas?*



## TRADE-OFF ANALYSES

*Cost/benefits*



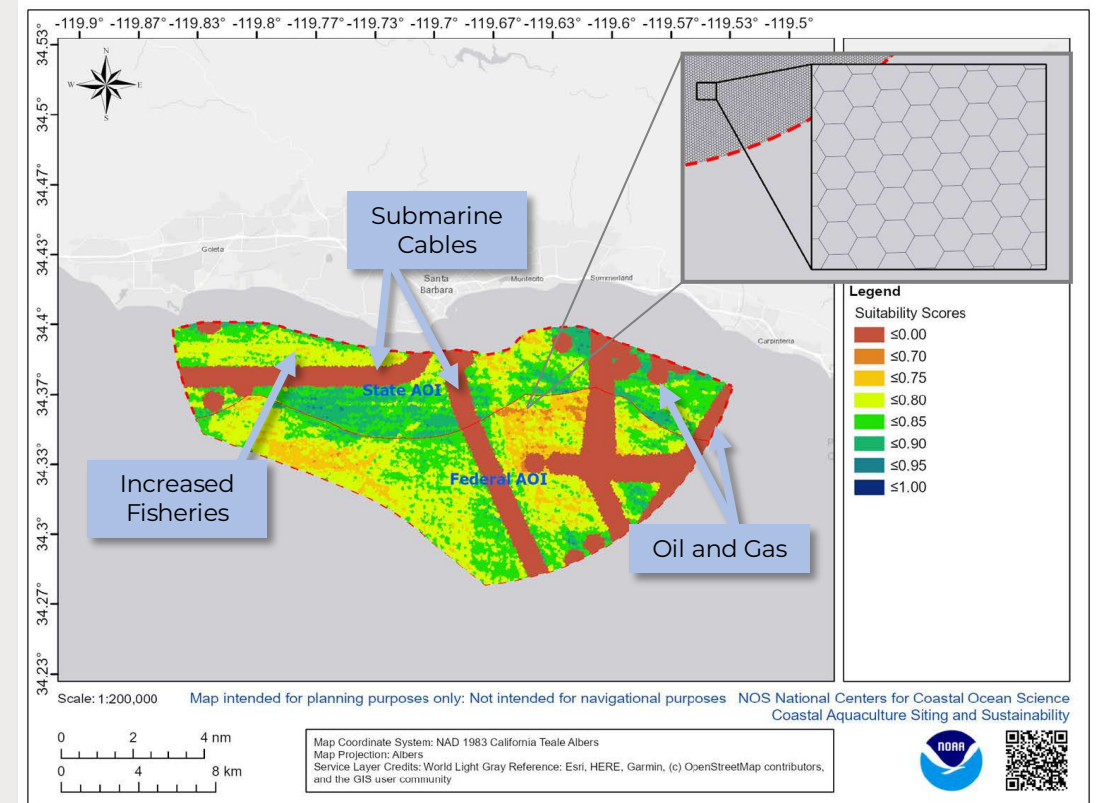
## SCENARIO MODELING

*Possible options*



## SPATIAL MODELING

## Modeling Example



*An ocean planning model weighs locations relative to each other based on a given criteria*



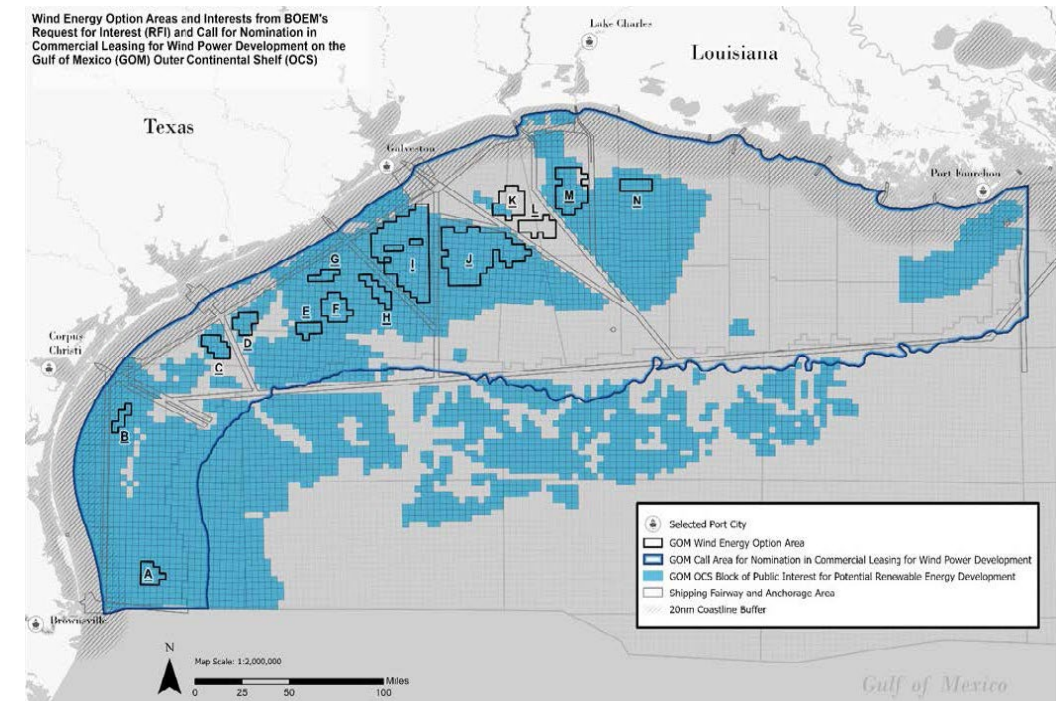
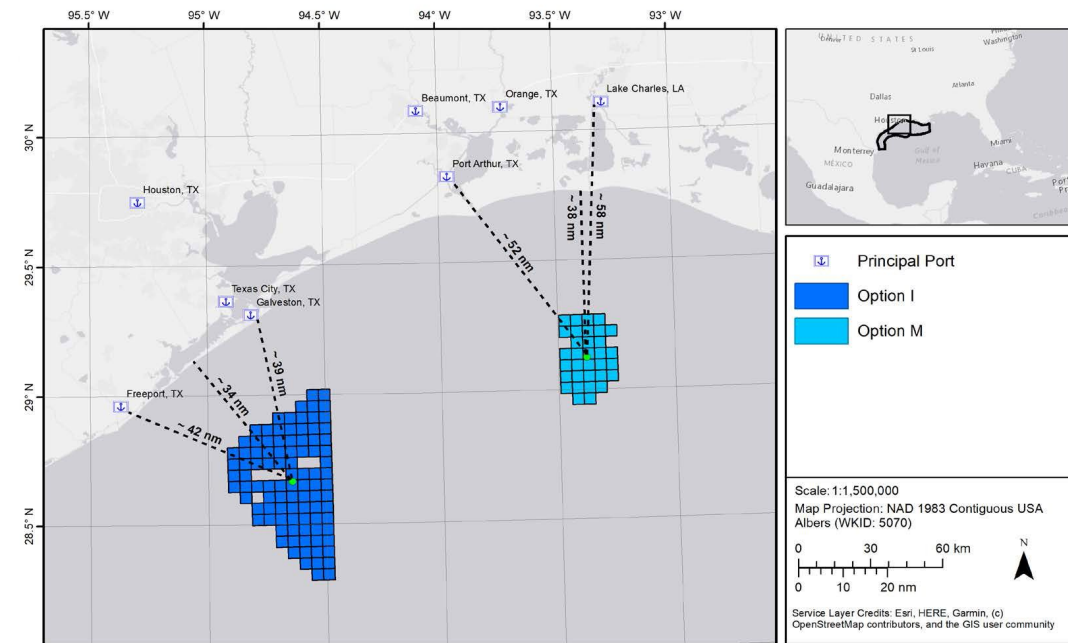
# OCEAN PLANNING - DECONFLICTING MODEL STRUCTURE



Equally Weighted Submodels  
***Pre-Decisional and Deliberative***

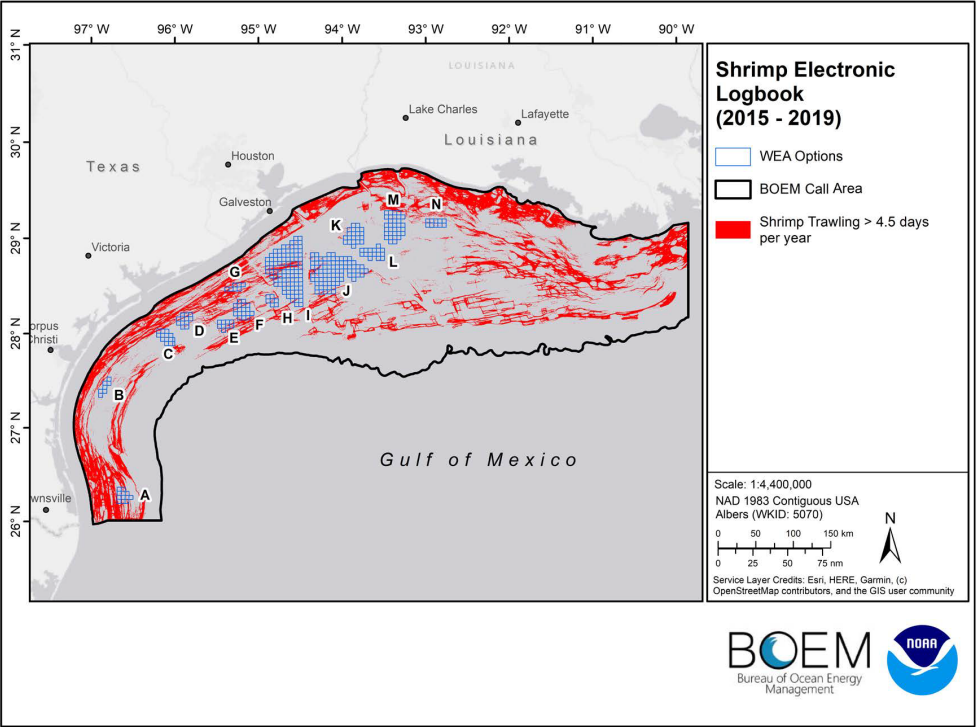
# GOM RECOMMENDED WEAs

- **Option I:** Galveston – 546,645 acres
- **Option M:** Lake Charles – 188,023 acres
- Rationale for WEA recommendations:
  - Competitive interest
  - Less national security concerns
  - Proximity to points of interconnection
  - Proximity to shore
  - Less than 10% moderate-high shrimping
  - Enough acreage to further divide into smaller lease sale areas

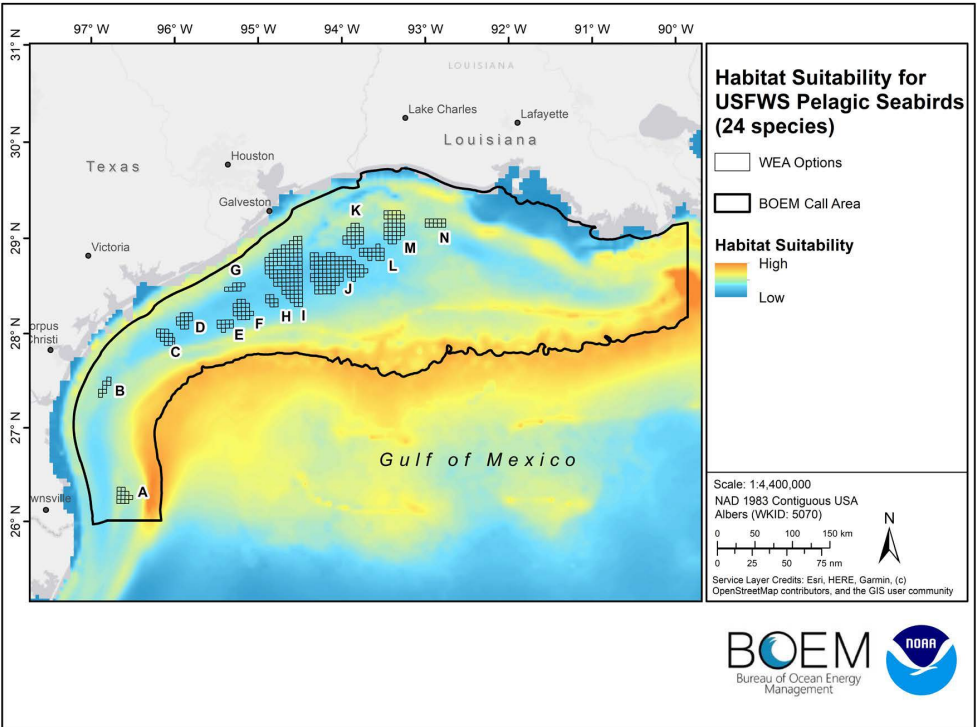




# RATIONALE FOR RECOMMENDED WEAs

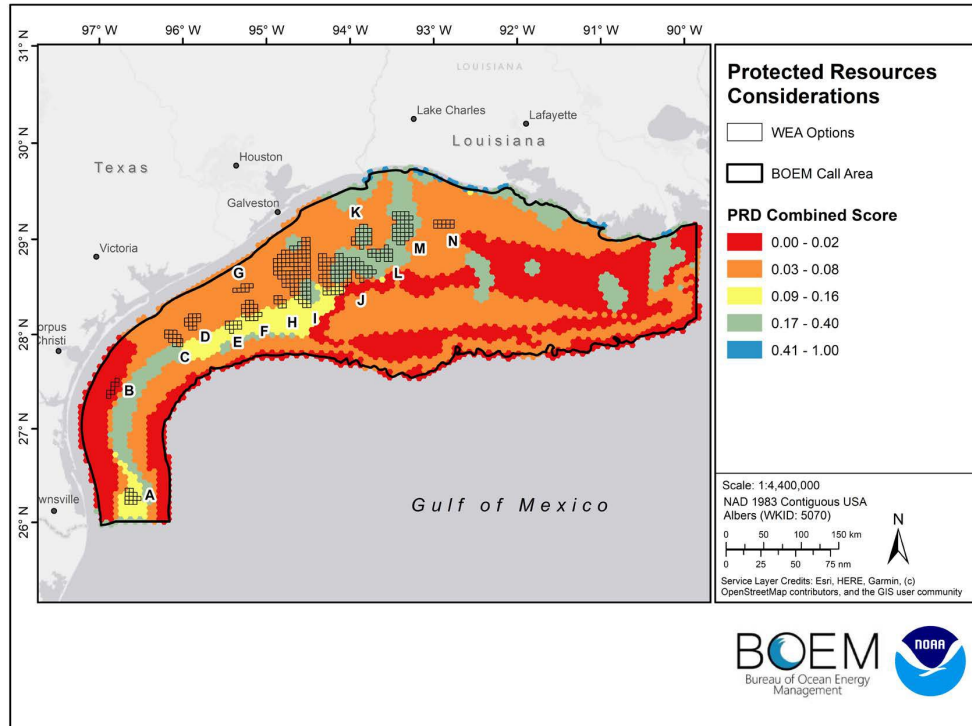


Shrimp Electronic Logbook  
(2015 -2019)

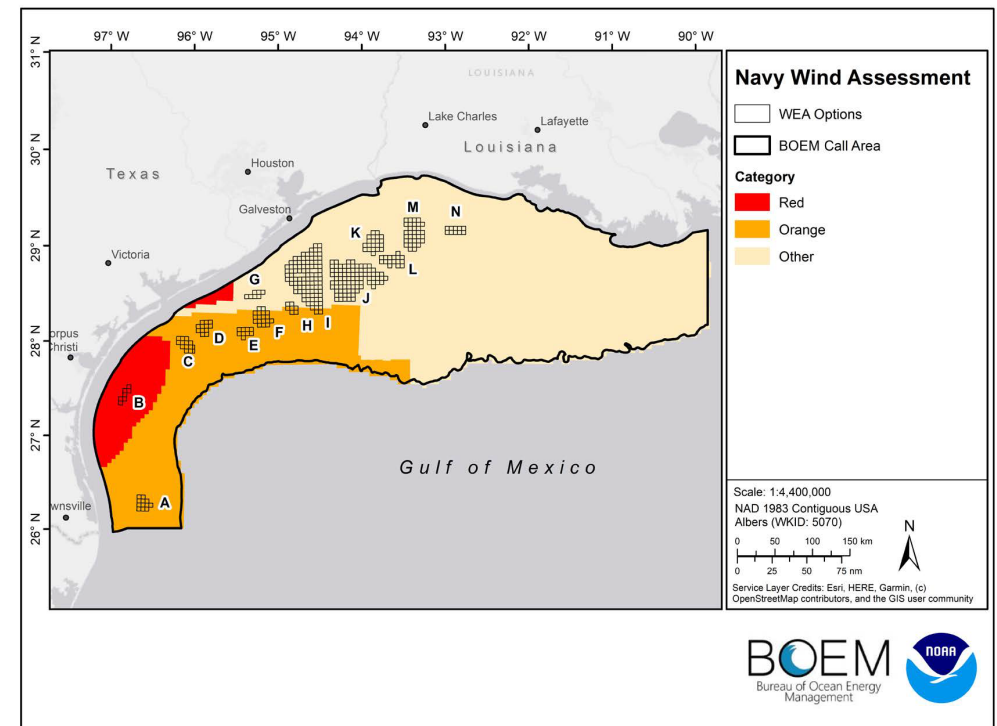


USFWS Pelagic Bird Considerations  
(24 species)

# RATIONALE FOR RECOMMENDED WEAs



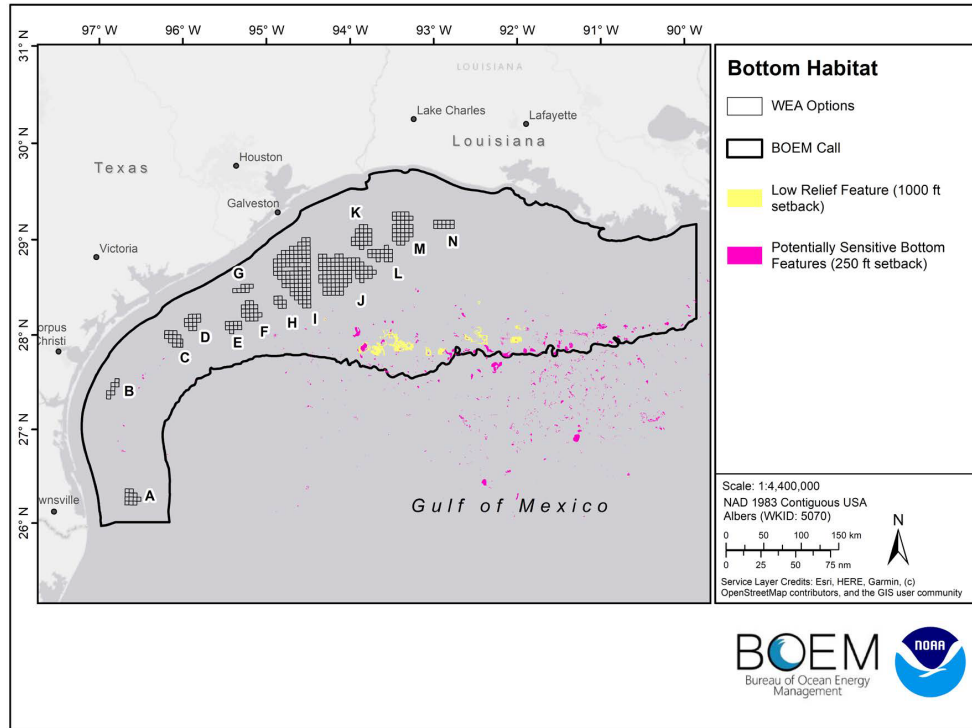
National Marine Fisheries Service Protected Resources combined composite data layer implemented within the relative suitability analysis



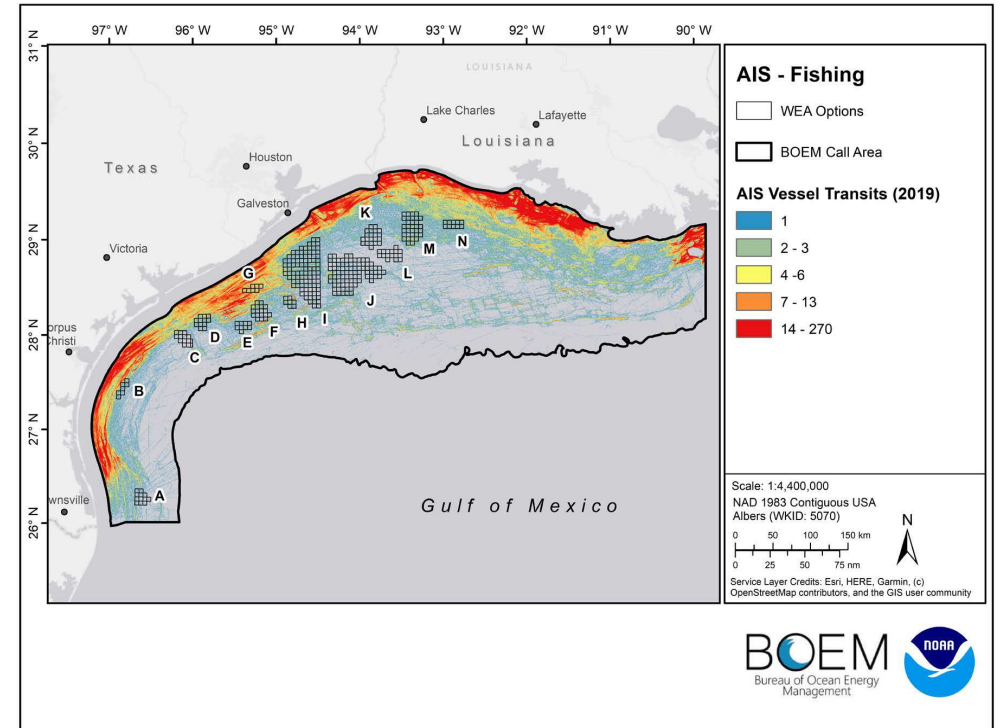
US DoD Preliminary Assessment of Call Area. The red areas denote wind exclusion zones



# RATIONALE FOR RECOMMENDED WEAs



Bottom Habitat  
Natural and Cultural Submodel



AIS Fishing Data  
Industry and Operations Submodel

# MAJOR COMMENTS RECEIVED ON PRELIMINARY WEAs

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## — **Impacts to Potential Size of WEAs**

- USCG has concerns with lightering zones in the southern portion of Option I
- Department of the Navy recommended only utilizing the northern portion of Option I

## — **Environmental Concerns (Birds, Bats)**

- USFWS and NGOs commended BOEM on the 20 nm but there are still concerns for trans-migratory birds and bats
- Texas Parks Wildlife Department would like to have 1 nm buffer artificial reefs instead of 1000 ft buffer
- NOAA plans to publish a proposed rule for the green sea turtle critical habitat in 2023. Option I and Option M may overlap with this designation

## — **General Comments**

- Recommend lease area size of 100,000 acres
- Additional WEAs near Port Fourchon, LA
- Concern about the cable routes from the WEAs
- Positive comments on the CBA used for California PSN





# GOM FINAL WEAs

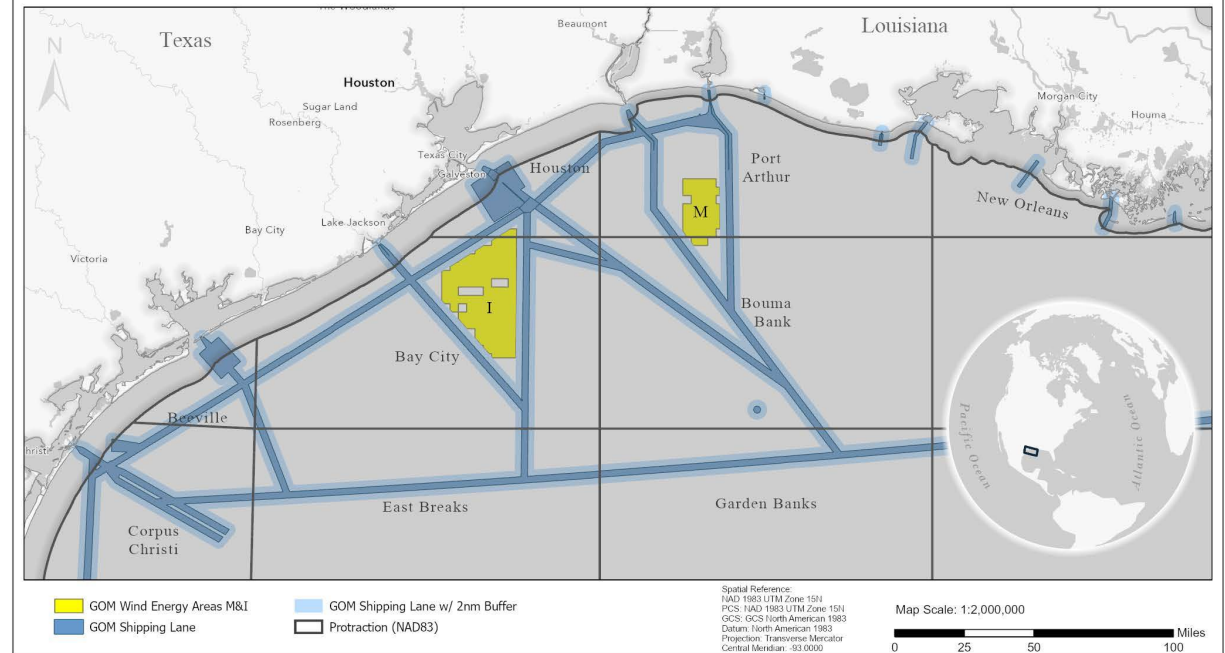
- Rationale for final WEA:
  - Removal of six blocks in the southern portion of Option I
  - Proximity to points of interconnection
  - Proximity to shore
  - Less than 10% moderate-high shrimping
  - Enough acreage to further divide into smaller lease sale areas

**Option I:** Galveston – 508,265 acres

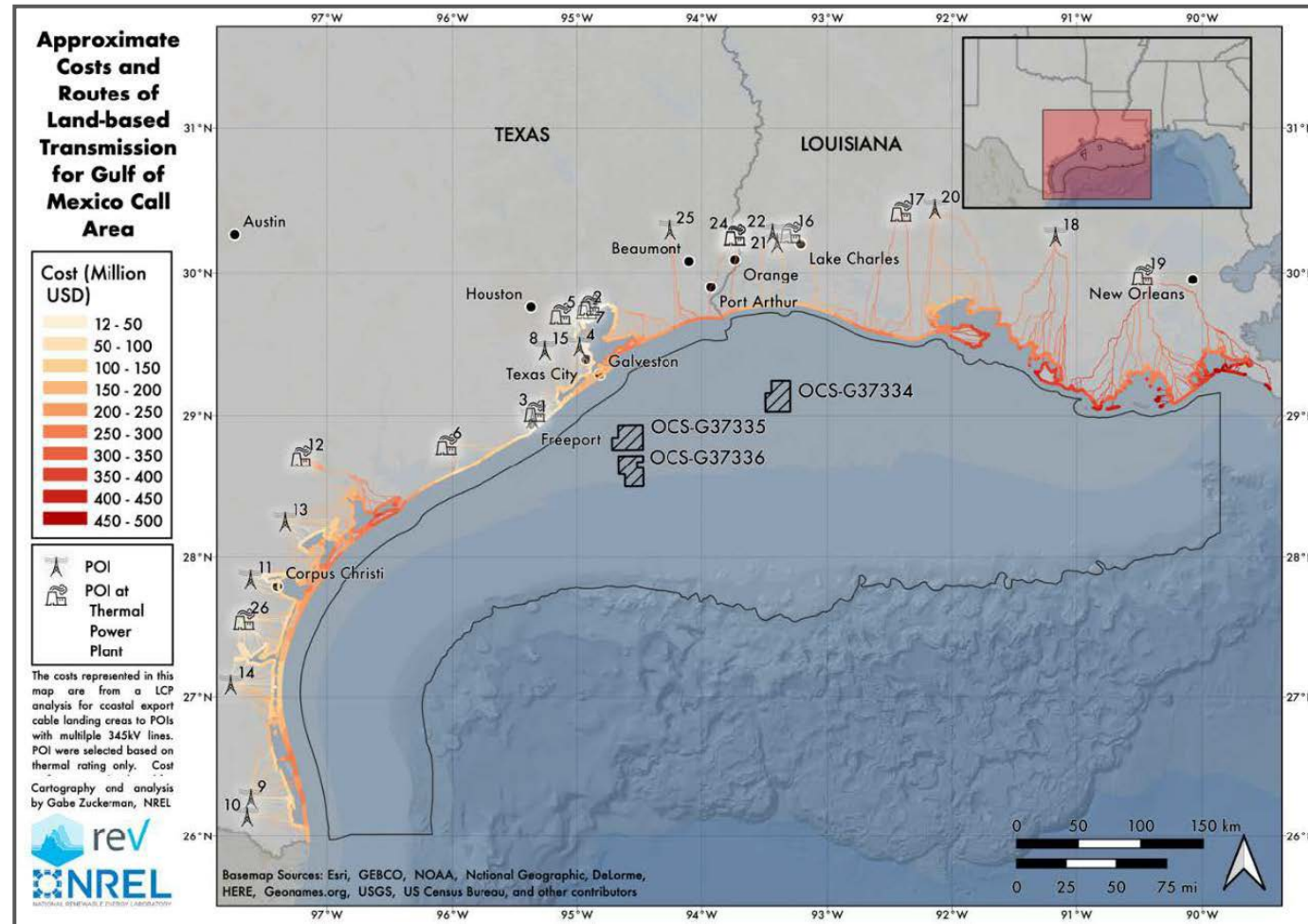
**Option M:** Lake Charles – 174,275 acres

## Gulf of Mexico Final Wind Energy Areas

**BOEM**  
BUREAU OF OCEAN ENERGY MANAGEMENT



# POIs IN THE GULF OF MEXICO



Locations and approximate costs and routes for interconnecting to the 25 most plausible POIs in the Gulf of Mexico

*Map by Gabe Zuckerman, NREL*



## LESSONS LEARNED

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- Continue to identify plausible points of interconnection (POI)
- Onshore cable routing assessment of the areas near those POI
- Research the benefits of the various types of transmission networks:
  - Radial
  - Intraregional
  - Interregional
  - Backbone
- Understand knowledge gaps:
  - Benthic habitat disturbance
  - Coastal habitat disturbance
  - Coastal Infrastructure (seawalls)
  - Marine Protected Areas





## **Tershara Matthews**

### **WSP's Energy Addition Changemaker & National Offshore Wind Policy Lead**

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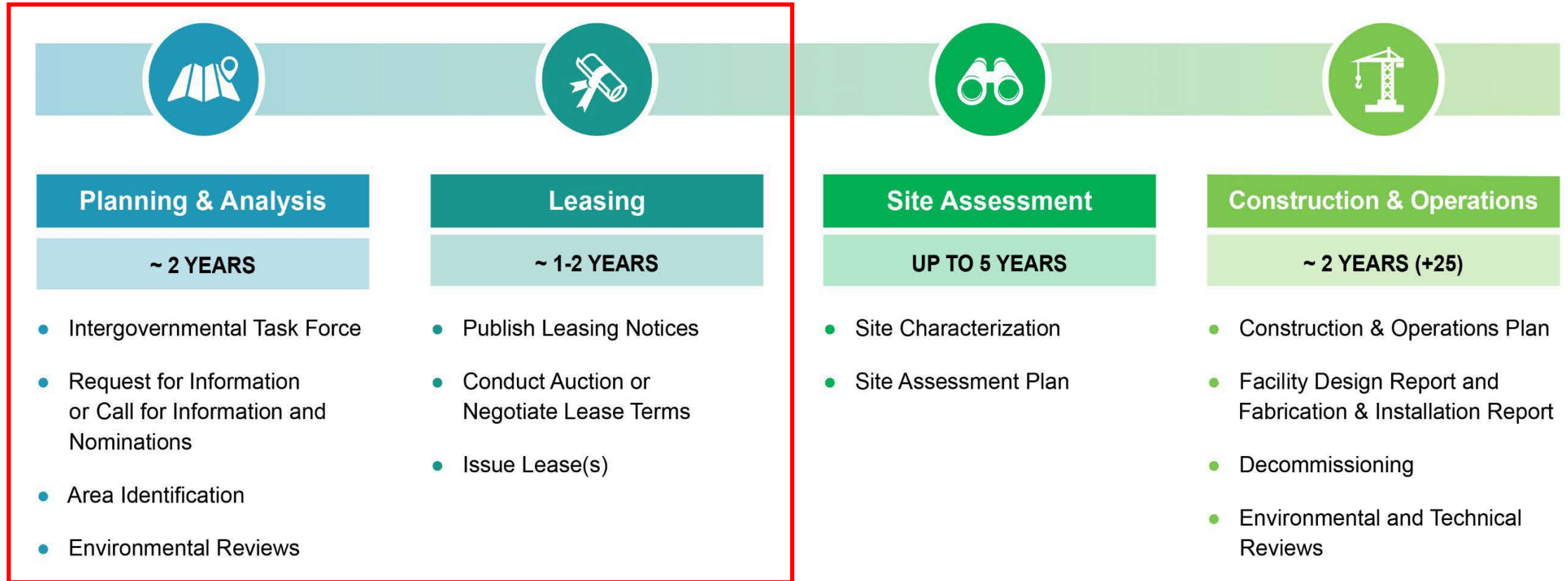
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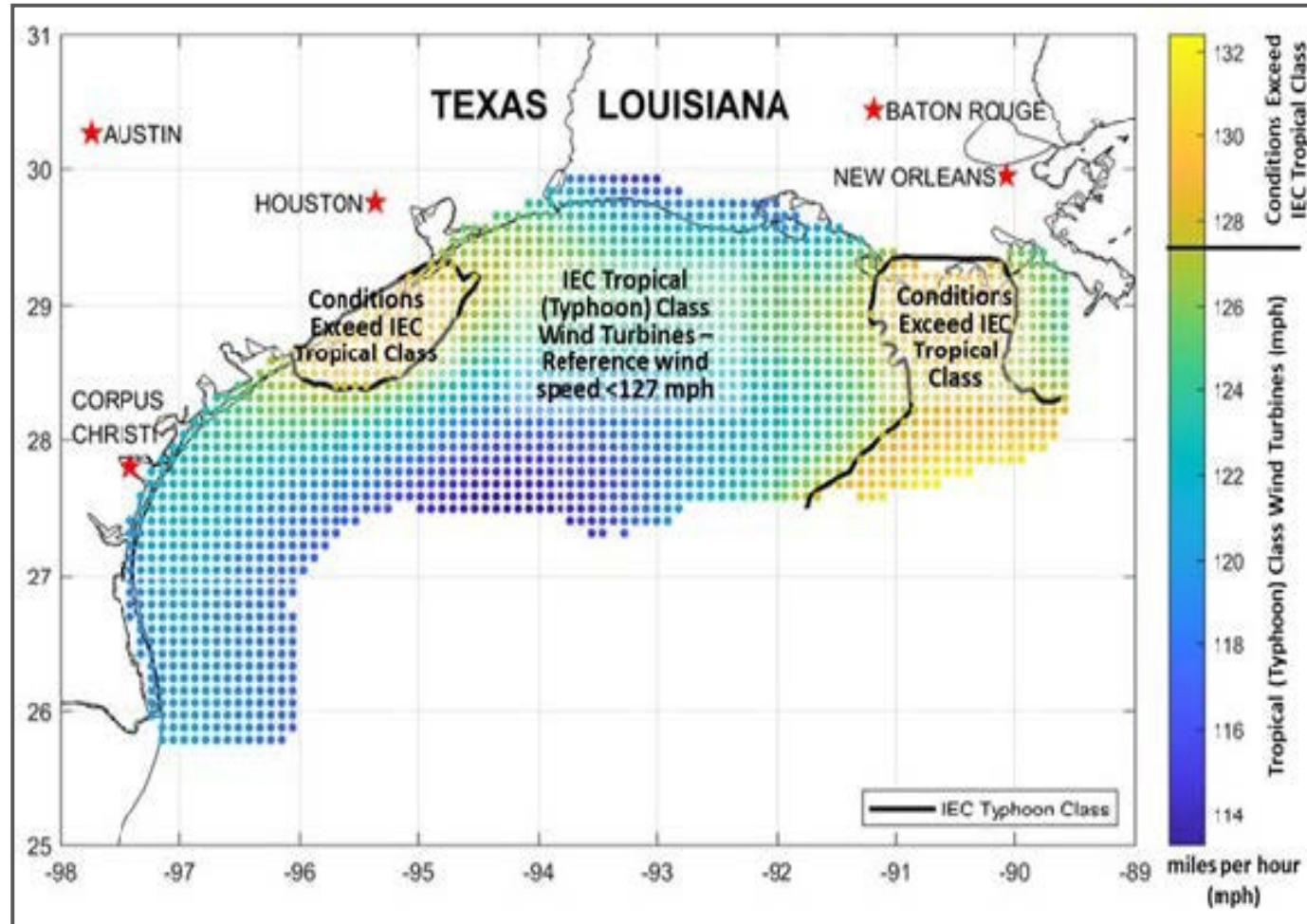


# BUREAU OF OCEAN ENERGY MANAGEMENT (BOEM) RENEWABLE ENERGY PROCESS OVERVIEW





## TECHNOLOGY – HURRICANE TYPHOON CLASS TURBINE ASSESSMENT



10-minute sustained wind speed (mph) at 150m with a return period of 50 years obtained from a 500,000-year hurricane simulation.

**Note:** No isocline for the Class 1A limit state appears since all simulated values of the 50-year wind speed are greater than the Class 1A reference wind speed (111.9 mph, 50m/s)