
United States Coast Guard Office of Navigation Systems



"We Help Mariners Get There"

BOEM's Offshore Wind and Maritime Industry Knowledge Exchange

George H. Detweiler, Jr. | Office of Navigation Systems | U.S. Coast Guard | Washington, DC



Homeland
Security



COAST GUARD ROLES AND RESPONSIBILITIES

- Mission: to ensure our Nation's maritime safety, security and stewardship.
- Recognized as a Subject Matter Expert (SME) for:
 - maritime safety, maritime security, maritime mobility,
 - national defense, and
 - protection of the marine environment.
- Member of BOEM's State Renewable Energy Task Forces
- Collaborate on use of Navigation Safety Risk Assessments for evaluating specific projects
- Cooperating agency for NEPA purposes: Provide **recommendations** and identify **potential impacts** to the Lead Permitting Agency (LPA) (BOEM) on:
 - safety of navigation for the entire maritime community,
 - the traditional uses of the particular waterway (MTS),
 - other Coast Guard missions (SAR, MEP, Security)

PRIMARY OBJECTIVES

- Maintain a safe, secure and efficient Marine Transportation System (MTS)
- Ensure safe and efficient navigation routes to and from US major ports
- Ensure a safe, secure and resilient flow of national defense and commercial vessels - vital to both our Nation's national and economic security
- Balance competing interests offshore, e.g., MTS, wind farms and other renewable energy areas, fishing, recreation, tourism, etc.
- Protection of
 - All mariners
 - Property (wind farm(s) or other structures/equipment)
 - Environment

“The prosperity of our nation is inextricable linked to a safe, secure and efficient MTS.” Admiral Paul Zukunft, Commandant, USCG, Jul 2016

AUTHORITIES AND OTHER GUIDANCE DOCUMENTS

- Ports and Waterways Safety Act (PWSA)
- Titles 33 (Navigation and Navigable Waters) and 46 (Shipping) of the Code of Federal Regulations (CFR)
- Outer Continental Shelf Lands Act (OCSLA)
- Navigation and Vessel Inspection Circular No. 02-07 (NVIC 02-07)
- Marine Planning Guidelines
- MOUs / MOAs
- Establish Safety Zones and Security Zones at the District Commander (DC) and/or Sector (COTP) level.
- Establish Regulated Navigation Areas (RNAs) at DC level only.
- Extends to territorial sea boundary (12 nautical miles)

SAFETY OF NAVIGATION

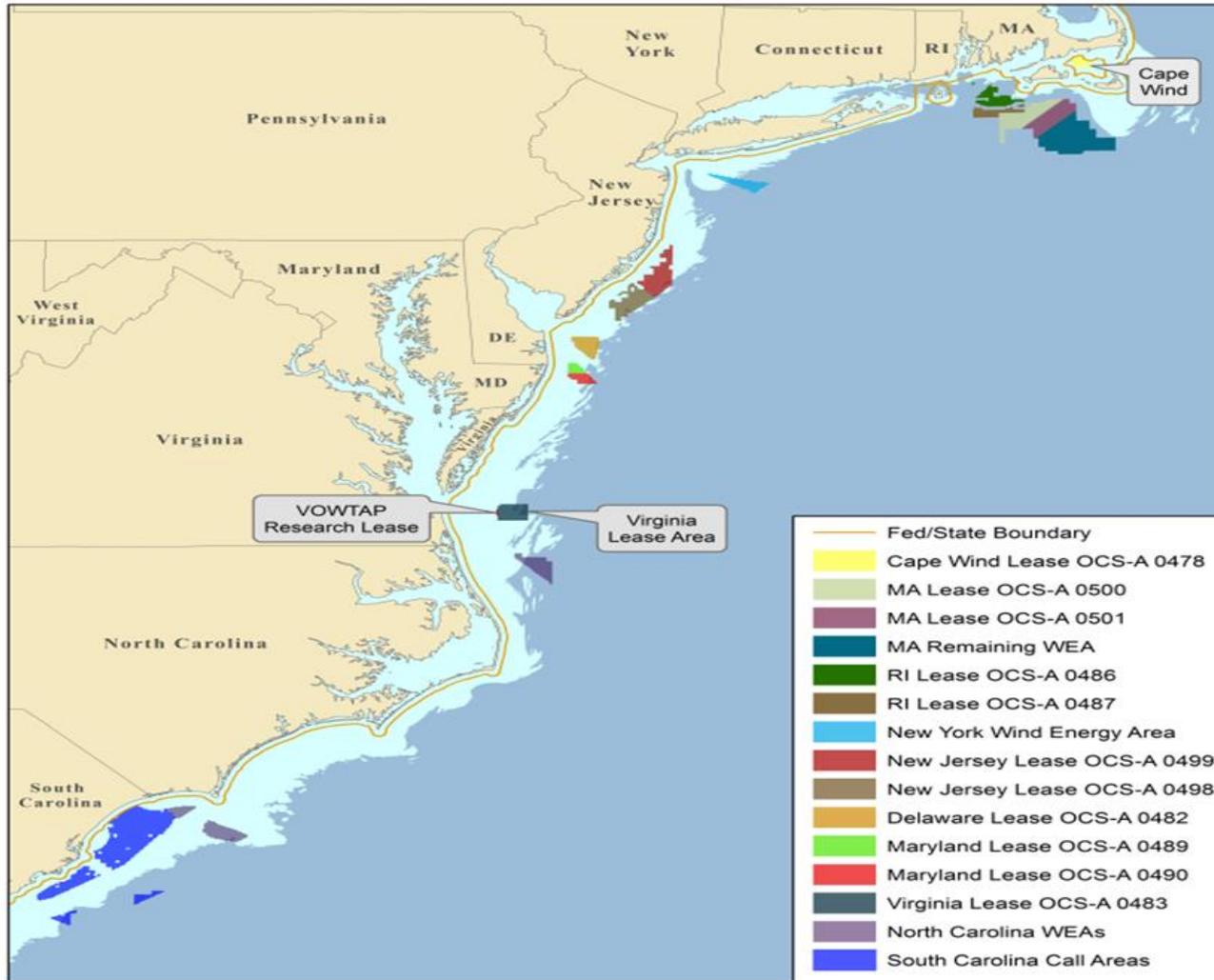
- Placement of structures on the OCS, where previously no structures existed, increases risk of a vessel allision and will increase risk of collision between vessels.
- Risk will increase as a result of the density of vessel traffic being increased through funneling and decreased sea space maneuverability.
- Rerouting traffic may also increase the weather related casualty risk to smaller vessels engaged in coastwise shipping.
- By forcing them further offshore, vessels will be subjected to larger sea states which will affect their stability.
- By forcing them offshore, their tracklines will now be interspersed among deep draft vessels transiting at higher speeds.

PORT ACCESS ROUTE STUDY (PARS)

- Coast Guard is required (by law) to conduct a PARS before establishing new or adjusting existing fairways or TSS's.
- Consult/coordinate with Federal, State, and foreign state agencies (as appropriate) and maritime community representatives, environmental groups, and other interested stakeholders.
- Primary purpose of this coordination is, to the extent practicable, to reconcile the need for safe access routes with other reasonable waterway uses.
- PARS process (complete or modified) may be used to determine and justify if safety zones, security zones, recommended routes, regulated navigation areas and other routing measures should be created

ATLANTIC COAST PARS

Atlantic OCS Renewable Energy - Massachusetts to South Carolina



Bathymetry
 Up to 30 meters
 More than 30 meters

0 50 100 150 200 250
 Nautical Miles

Map ID: PACB-2016-1020



Homeland Security



MOST SIGNIFICANT OUTCOMES

- Marine Planning Guidelines (MPGs) (Enclosure 2)
- Identification of Alongshore Towing Vessel Routes (Appendix VII)
- Major Deep Draft Routes (Appendix VII)



MARINE PLANNING GUIDELINES

- Developed using input from:
 - Confed. of European Shipmasters' Assoc. (CESMA)
 - World Shipping Council (WSC)
 - UK Maritime Coastguard Agency (MCA)
 - German Waterways and Shipping Directorates
- Major topics:
 - Port Approaches and Traffic Separation Schemes (TSSs)
 - Along Shore Routes
 - Offshore Deep Draft Routes
 - Navigational Safety Corridors
 - Other Considerations
 - Contributions to Risk
 - Mitigations

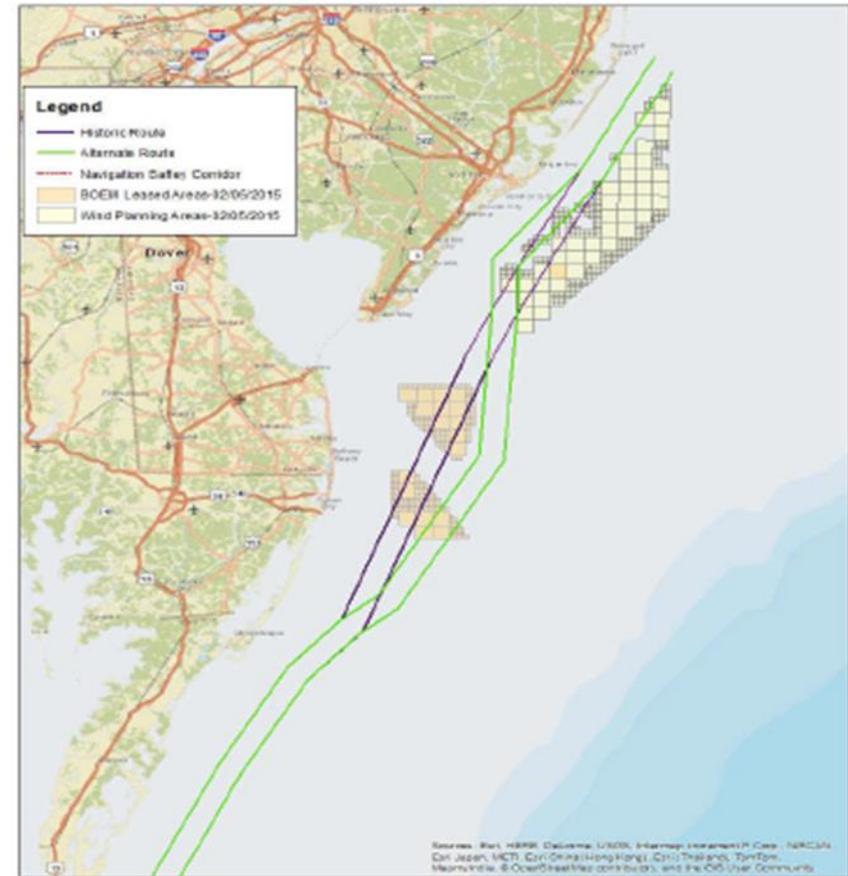
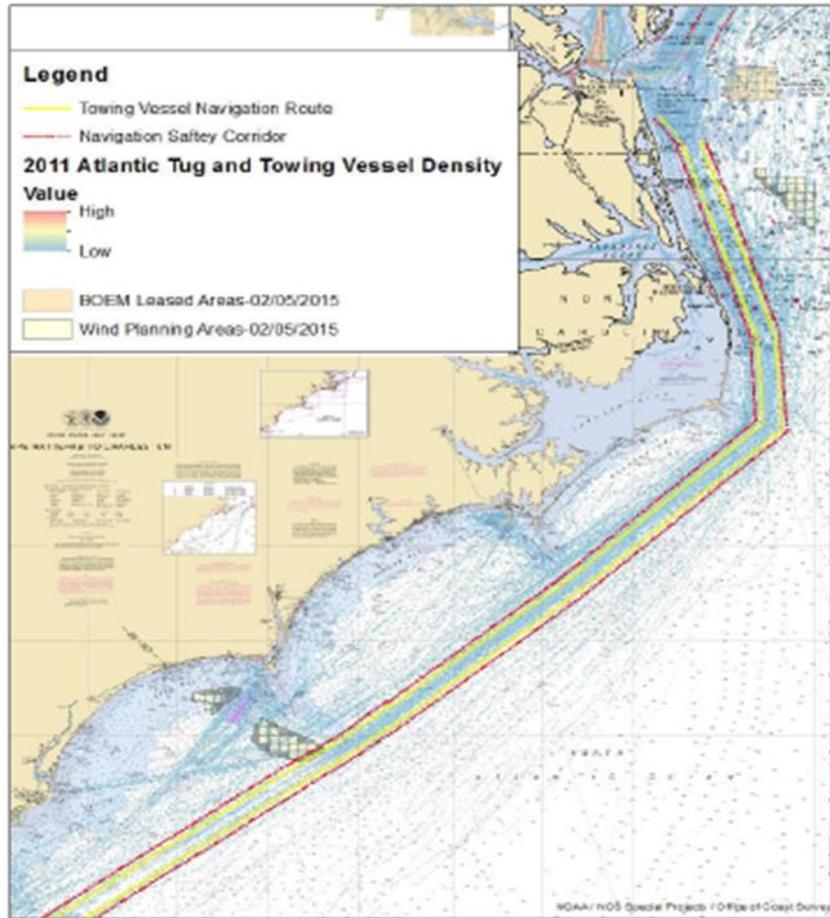
USES OF MARINE PLANNING GUIDELINES

- Assist in initial Area Identification
- Assist offshore developers/marine planners in evaluating navigational impacts of their project
- Navigation Safety Risk Assessments (NSRA) – development and review
- Consider sea space to safe maneuvers
- Appropriate separation distances
- Non-regulatory
- TSSs, alongshore routes and offshore deep draft routes
- Evaluation of any other type projects

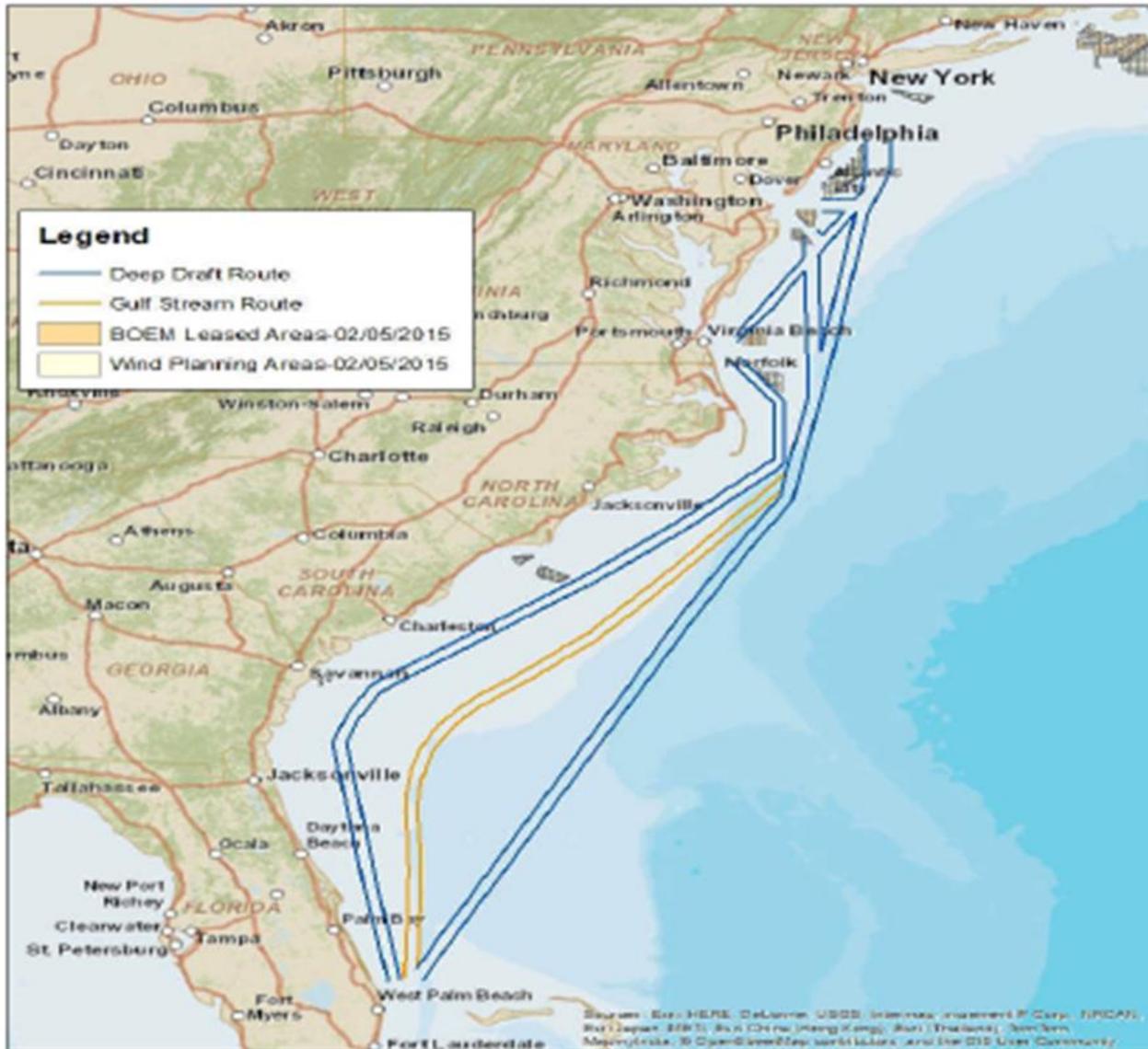
IDENTIFICATION OF ALONGSHORE TOWING VESSEL + MAJOR DEEP DRAFT VESSEL ROUTES

- Identified traditional tug and barge routes
 - Applied MPGs to routes to identify Navigation (Safety) Corridors
 - 9 NM for tug and barges
- Identified major deep draft routes
 - Applied MPGs to a lesser degree due to deep draft traffic location and wind farm interaction
 - 10 NM for deep draft vessels

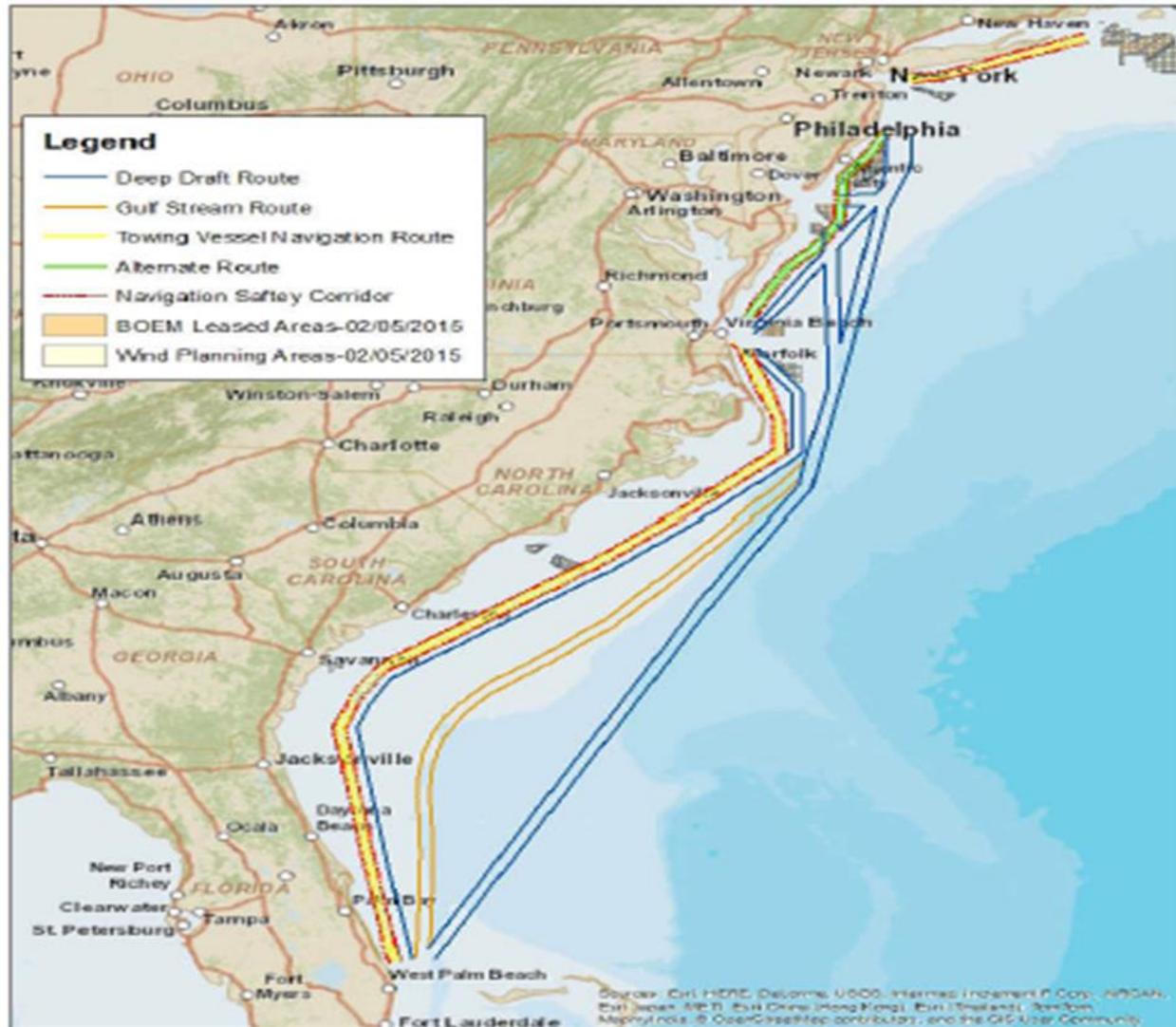
ALONGSHORE TOWING VESSEL ROUTES



DEEP DRAFT ROUTES



COMBINED



WAY AHEAD

- Final Report is complete. Published in Federal Register on March 14, 2016.
- Report to Congress
- 30 day comment period closed on April 13, 2016
- Comments reviewed – No change to the report
- Posted on <https://www.navcen.uscg.gov/> under Maritime Information
- Apply navigation corridors during marine planning activities
- Incorporate MPGs in future Coast Guard documents
- Consider developing a routing system along the Atlantic Coast
 - “Converting” navigation corridors into shipping safety fairways or other routing measures (U.S. Regulations and IMO submissions)

FAIRWAYS

- Fairway: A lane or corridor in which no artificial island or structure, whether temporary or permanent, will be permitted so that vessels using U.S. ports will have unobstructed approaches.
- Act like a routing measure – vessels operate as such
- Fairways only created domestically – require regulations in 33 CFR 166
- USCG creates

- 2 – 5 year process

ROUTING MEASURES

- Created by the USCG
 - Approved internationally by the International Maritime Organization (IMO)
 - Approved domestically
- Recommendatory, not mandatory
- Examples are:
 - Area to be avoided (ATBA)
 - No Anchoring Area
 - Precautionary area
 - Traffic Separation Scheme (TSS)
 - Traffic lane
 - Separation Zone or separation line
- 2 – 4 year process

ACTIVITIES/RESTRICTIONS IN AND AROUND WIND FARMS

- Coast Guard does not anticipate restricting activities in and around wind farms unless necessary to ensure safety of navigation, protect life and property at sea, and protect the environment. Activities could include fishing (commercial, recreational) and sailing. However, restrictions may be necessary based on the following (not a total list):
 - Size of the wind farm
 - Spacing of the turbines
 - Axis of the turbines
 - Size/type of vessels
 - Cargo of vessels
 - Volume of traffic
 - Environmental concerns

SEARCH AND RESCUE

- USCG reviews wind farm proposals to determine impact on its Search and Rescue (SAR) mission.
- USCG may recommend:
 - Emergency shutdown procedures to aid in its SAR mission.
 - Communications capabilities.
 - Mariner Information Sheets.
 - Monitoring capabilities.

MARKING, LIGHTING, CHARTING OF WIND FARMS

- Marking and lighting per USCG requirements.
- Private ATON (PATON) request will need to be submitted, approved, and permitted through the applicable Coast Guard District office
- Developer will have to provide a plat for the farm.
- NOAA will chart the farm on all applicable charts – understand each turbine will be identified on the charts, if possible.

MOVING FORWARD

Coast Guard is committed to supporting the maritime community by:

- Helping to identify likely navigation conflicts that will occur from placing structures along and in close proximity to traditional maritime routes taking into account, as appropriate, our Marine Planning Guidelines,
- Helping to identify routing conflicts that will arise from development within the call areas and adjacent leased areas (cumulative effects),
- Helping to identify associated navigation safety risks,
- Working with other government agencies to develop workable solutions, and
- Evaluating additional areas that may be identified as potential areas of development.
- If developing a routing system along the Atlantic Coast is considered appropriate, then commence that process to include all those that may be impacted.

NAVIGATION SAFETY RISK ASSESSMENT (NSRA)

- Navigation safety requires that mariners:
 - be able to determine their position and a safe course to steer,
 - be alert to unseen dangers,
 - be able to determine if risk of collision exists, and
 - be able to take action to avoid collision.
- Wind farm impacts nav safety if it impairs/impacts the mariner's ability to do the above.
- NSRA = an assessment of the nav safety risks leveraging existing studies, standard industry practices, or guidelines from recognized sources (i.e governmental agencies or classification societies) applicable to their wind farm or the characteristics of the waterway.
- NSRA identifies and evaluates potential mitigation measures.
- BOEM requires completion by the **developer**
- Coast Guard Guidance
 - NVIC 02-07 (being updated)
 - Marine Planning Guidelines
- Reviewed by Coast Guard for BOEM
- Recommendations provided to BOEM and developer concerning mitigation measures

U.S. Department of Homeland Security
 United States Coast Guard
 2700 Sector Street, S.W.
 Washington, DC 20543
 Phone: (202) 253-1544
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 COMDTPLUB P16700.4
 NVIC 02-07
 1/07 9 2/07

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 02-07

Subj: GUIDANCE ON THE COAST GUARD'S ROLES AND RESPONSIBILITIES FOR OFFSHORE RENEWABLE ENERGY INSTALLATIONS (OREI)

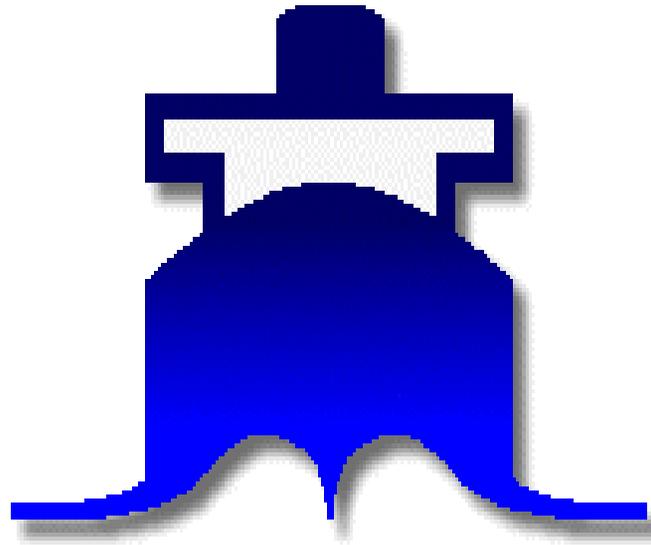
Ref: (a) Memorandum of Understanding between the Minerals Management Service (MMS) - U.S. Department of the Interior and the U.S. Coast Guard - U.S. Department of Homeland Security dated 30 September 2004
 (b) Cooperating Agency Agreement between the MMS and U.S. Coast Guard for Programmatic Environmental Impact Statement (EIS), Coast Guard e-mail acceptance submitted 7 July 2006
 (c) The Ports and Waterways Safety Act (PWSA) of 1972 (Public Law 92-346, 86 Stat. 424)
 (d) Coast Guard and Maritime Transportation Act of 2006 (Public Law 109-241)
 (e) Navigation and Vessel Inspection Circular (NVIC) No. 9-02, Ch-1, Guidelines for Development of Area Maritime Security Committees and Area Maritime Security Plans for U.S. Ports, COMDTPLUB P16700.1
 (f) Risk-Based Decision-Making Guidelines, COMDTINST M16103.3 (series), and Risk-Based Decision-Making Guidelines, 1st edition (<http://www.uscg.mil/hq/gc/milkc/guidelines/RBDM/Guide.htm>)
 (g) PAWSA Guide (http://www.navcen.uscg.gov/www/projects/pawsa/PAWSA_Guide.htm)

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NON-STANDARD DISTRIBUTION NUM

QUESTIONS?



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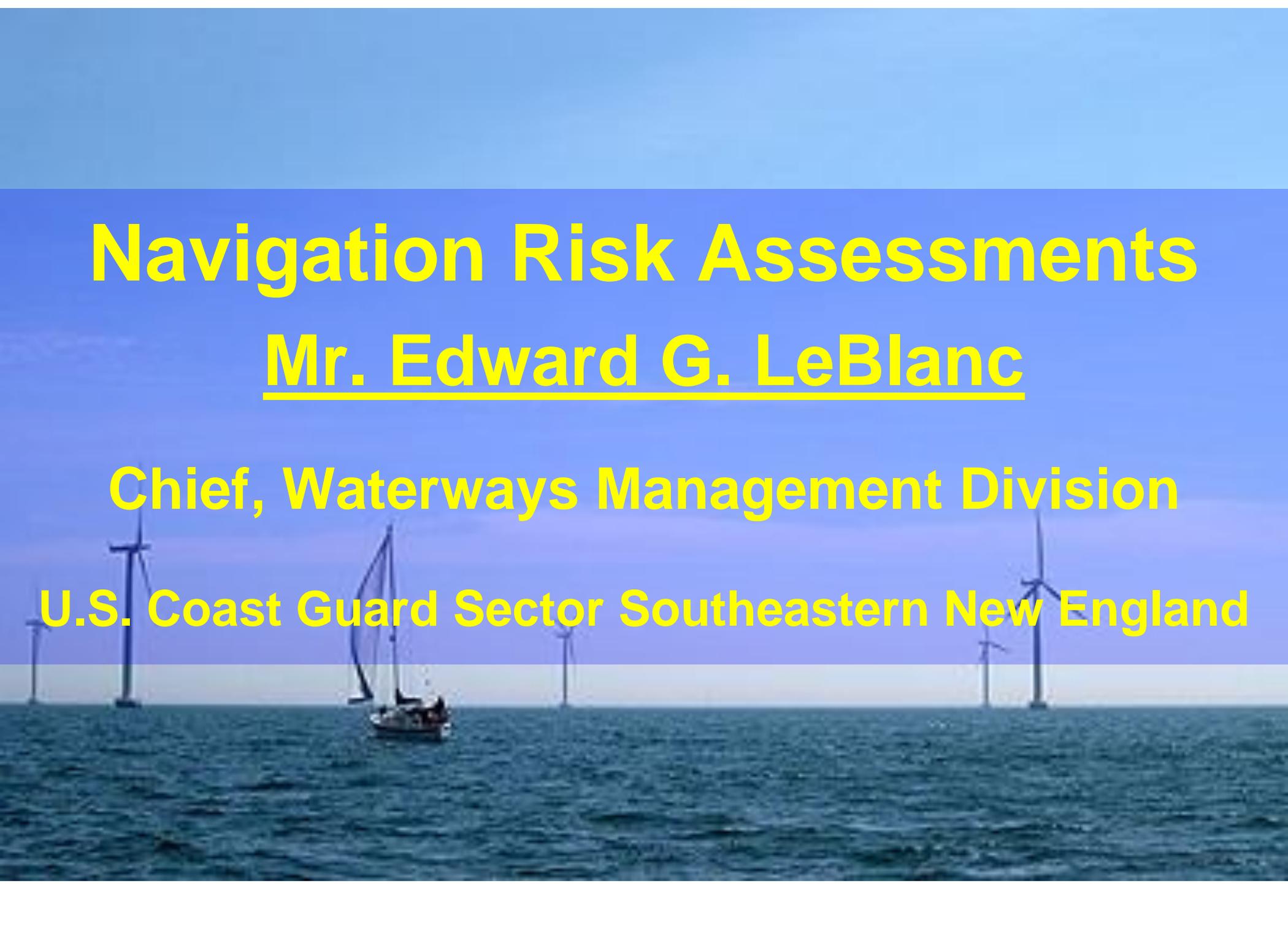


Navigation Risk Assessments

Mr. Edward G. LeBlanc

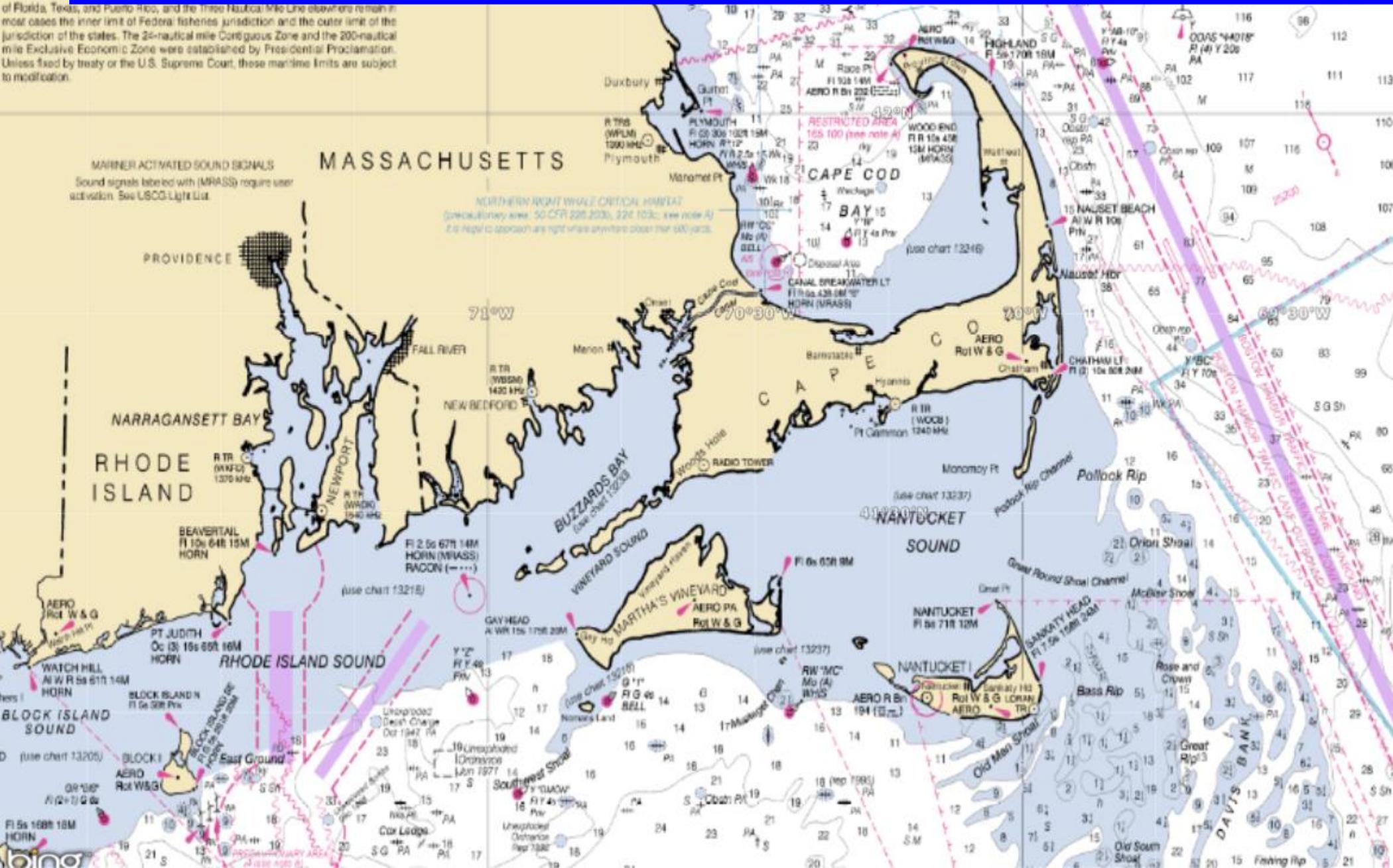
Chief, Waterways Management Division

U.S. Coast Guard Sector Southeastern New England



Coast Guard Sector Southeastern New England

With the outer limit of the limit of the city of Florida, Texas, and Puerto Rico, and the three Nautical Mile lines remain in most cases the inner limit of Federal fisheries jurisdiction and the outer limit of the jurisdiction of the states. The 24-nautical mile Contiguous Zone and the 200-nautical mile Exclusive Economic Zone were established by Presidential Proclamation. Unless fixed by treaty or the U.S. Supreme Court, these maritime limits are subject to modification.



MARINER ACTIVATED SOUND SIGNALS
Sound signals labeled with (MRASS) require user activation. See USCG Light List

NORTHERN RIGHT WHALE CRITICAL HABITAT
(protection area, 50 CFR 226.2030, 226.103c; see note A)
Do not approach or sight whale anywhere closer than 100 yards.

RHODE ISLAND

MASSACHUSETTS

BLOCK ISLAND SOUND

RHODE ISLAND SOUND

BUZZARDS BAY

NANTUCKET SOUND

NARRAGANSETT BAY

WINEYARD SOUND

NANTUCKET

PROVIDENCE

NEW BEDFORD

NANTUCKET I.

BEAVERTAIL

GAY HEAD

NANTUCKET I.

BLOCK ISLAND N

Southwest Shoal

SWANTRY HEAD

BLOCK I AERO

Cox Ledge

Old Man Shoal

FI 5s 100R 10M HORN

Unsignalized Obstruction

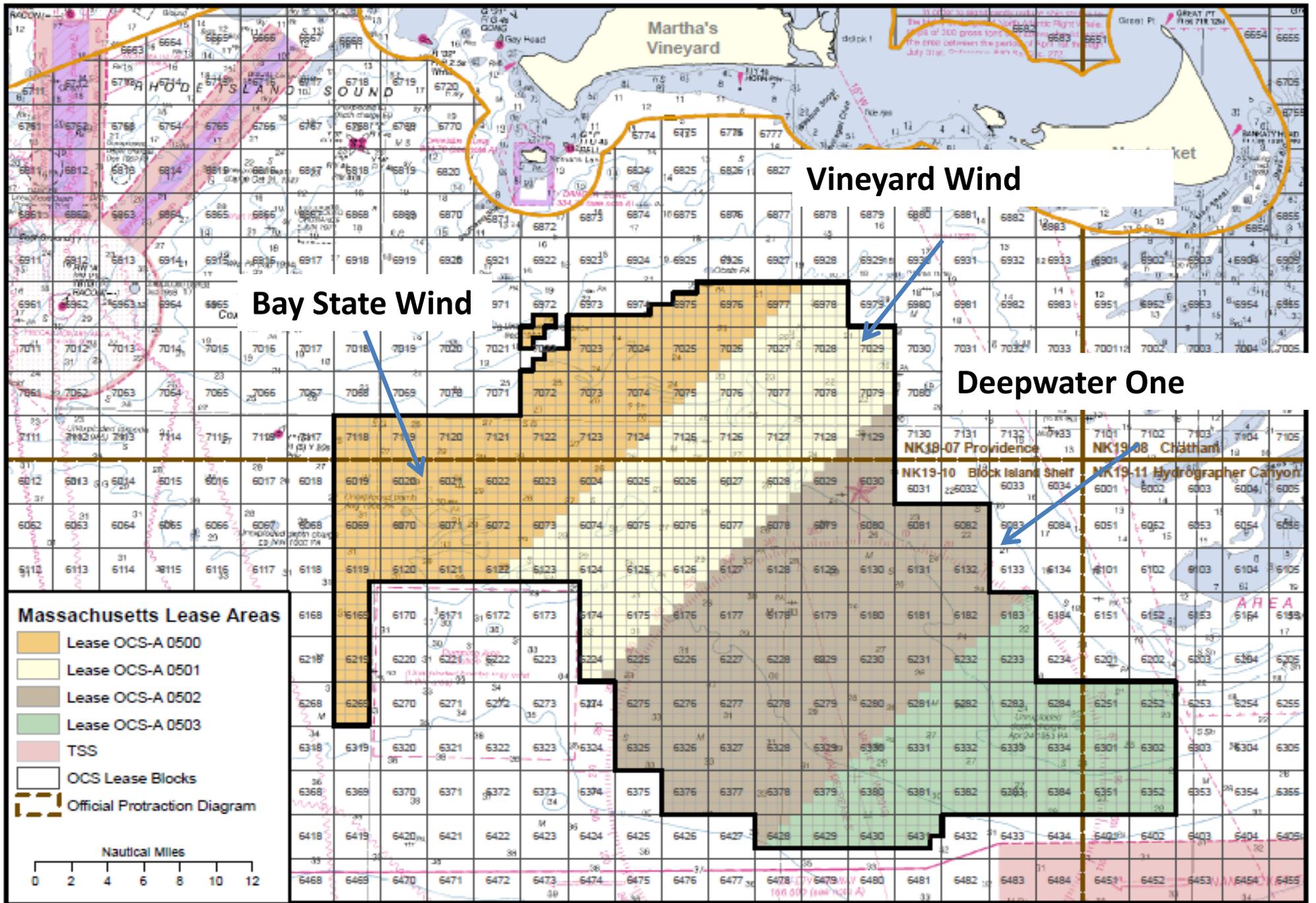
Old South Shoal

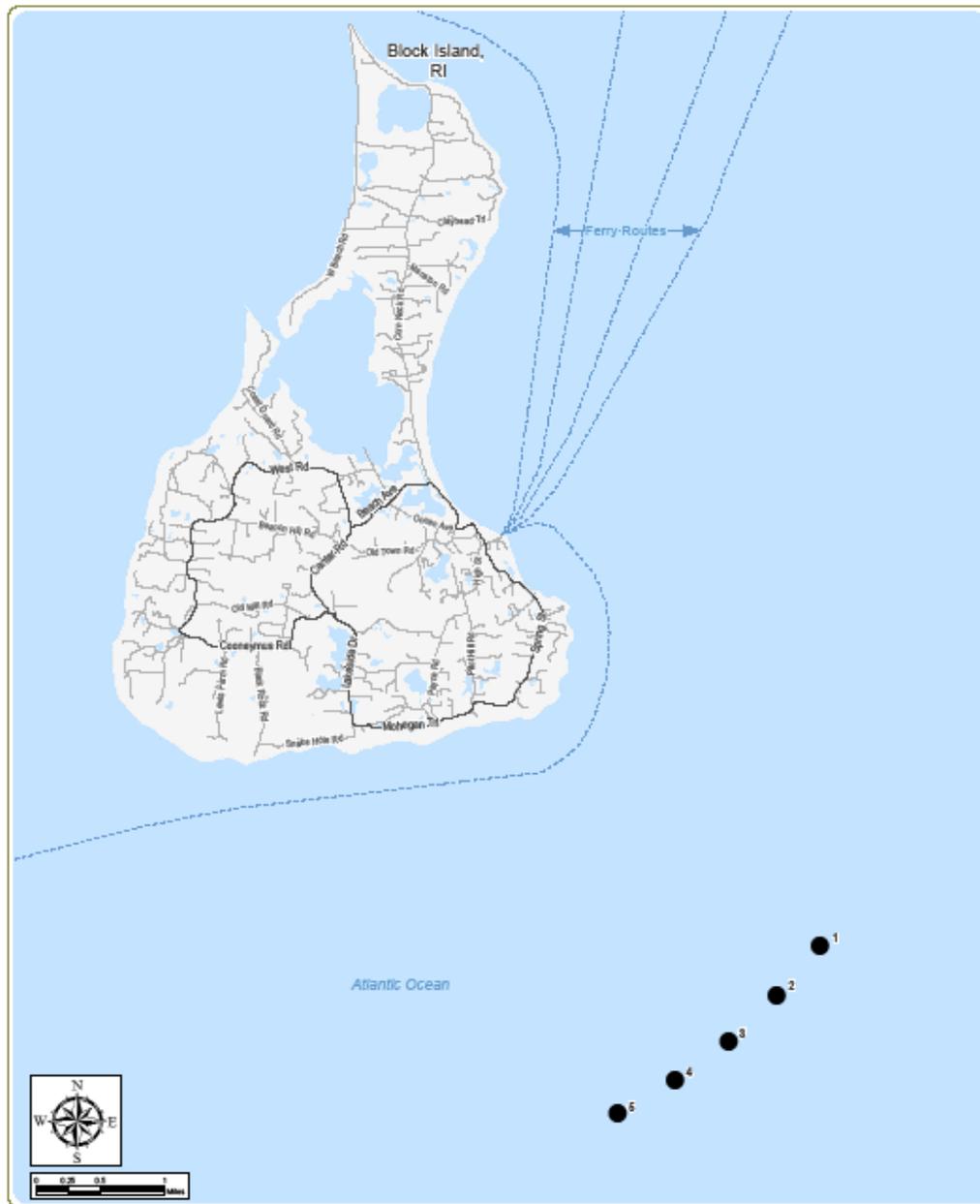
FI 5s 100R 10M HORN

Unsignalized Obstruction

Old South Shoal

Massachusetts Lease Areas





Block Island Wind Farm
Rhode Island

Figure 2. Proposed Project Layout
May 2012

Notes: Base Map: ESRI StreetMap North America, year 2008.

● Wind Turbine





Coast Guard role in analysis of

proponent's nav safety risk assessment:

- **Provide the Lead Federal Agency with assessment of potential impacts to navigation safety**





Coast Guard interests:

- **Advocate for navigation safety**
 - **Not a proxy for any waterway user group, nor any govt agency**
 - **Balance navigation safety with stakeholder interests**





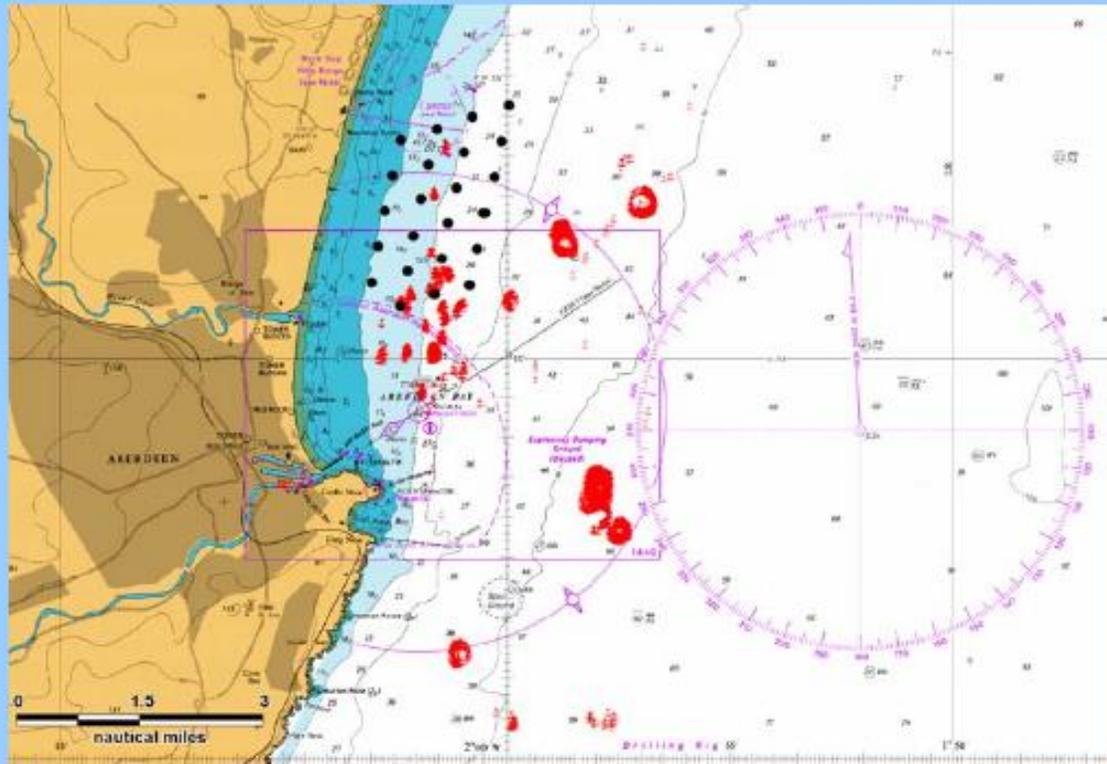
Coast Guard interests:

- Recognize that change may be required



Anchoring

- Through plotting the navigational status on AIS it is possible to determine where vessels were anchoring in the area.



- Suitable alternative anchoring will need to be available for vessels in this area.

Nav Risk Assessment:

- Qualitative
- Subjective
- No numbers, formulas, algorithms
- Seek to understand rationale
- Weight attached to numerous factors





Pre-application process is vital:

- **Most flexible component of entire permitting process**
- **Allows for frank discussions**
- **ID's potential challenges & problem areas**
- **Ensures complete stakeholder outreach**
- **Discusses process going forward**





COMDTPUB P16700.4
NVIC 02-07

MAR 9 2007



NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 02-07

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NON-STANDARD DISTRIBUTION: None





Create baseline for assessment:

- **Vessel compliance with Federal law & regulations**
 - E.g., “proper lookout”
- **Determine “worst case” scenario**





Create baseline for assessment:

- Compare to NVIC 02-07
- Holes?
- Explanations?



Prefer to review draft(s) of NSRA



➤ Proponent's major hurdles:

➤ Engaging stakeholders

➤ Addressing fishing

➤ Radar impacts

➤ Cumulative impacts





Quality NSRA:

- **Comprehensive data that is both:**
 - **Off-the-shelf**
 - **Project-specific**
- ...and consistent**



Quality NSRA:



- **Comprehensive outreach**
 - **1-on-1 on the record**
 - **Info sessions/Open Houses**
 - **Fed/state/local/tribal public meetings**



Quality NSRA:

- **Every statement of fact or opinion is supported by data or record**





Lighting & Marking

- **Recommend IALA O-139, “Marking of Man-Made Offshore Structures”**





➤ Example red flags:

- **Tip clearance measured from MLLW rather than MHHW**
- **Cable burial depths**
- **Sound signals**
- **Generally, unsupported statements are a red flag**





➤ **Commitments in the NSRA =
Conditions in the Permit**



Buffer guidance needs

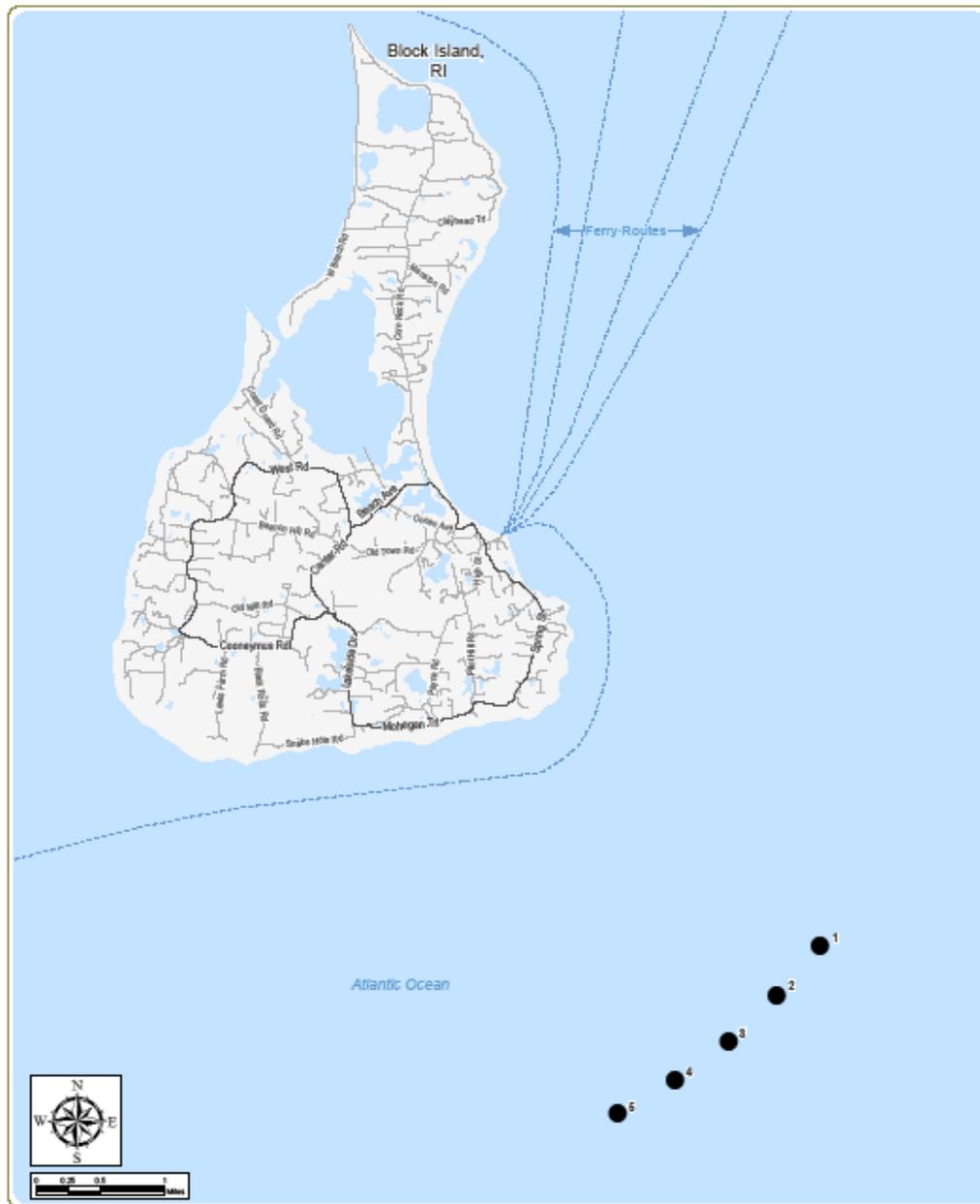


“intelligent application”

and applies

“on a case-by-case basis”





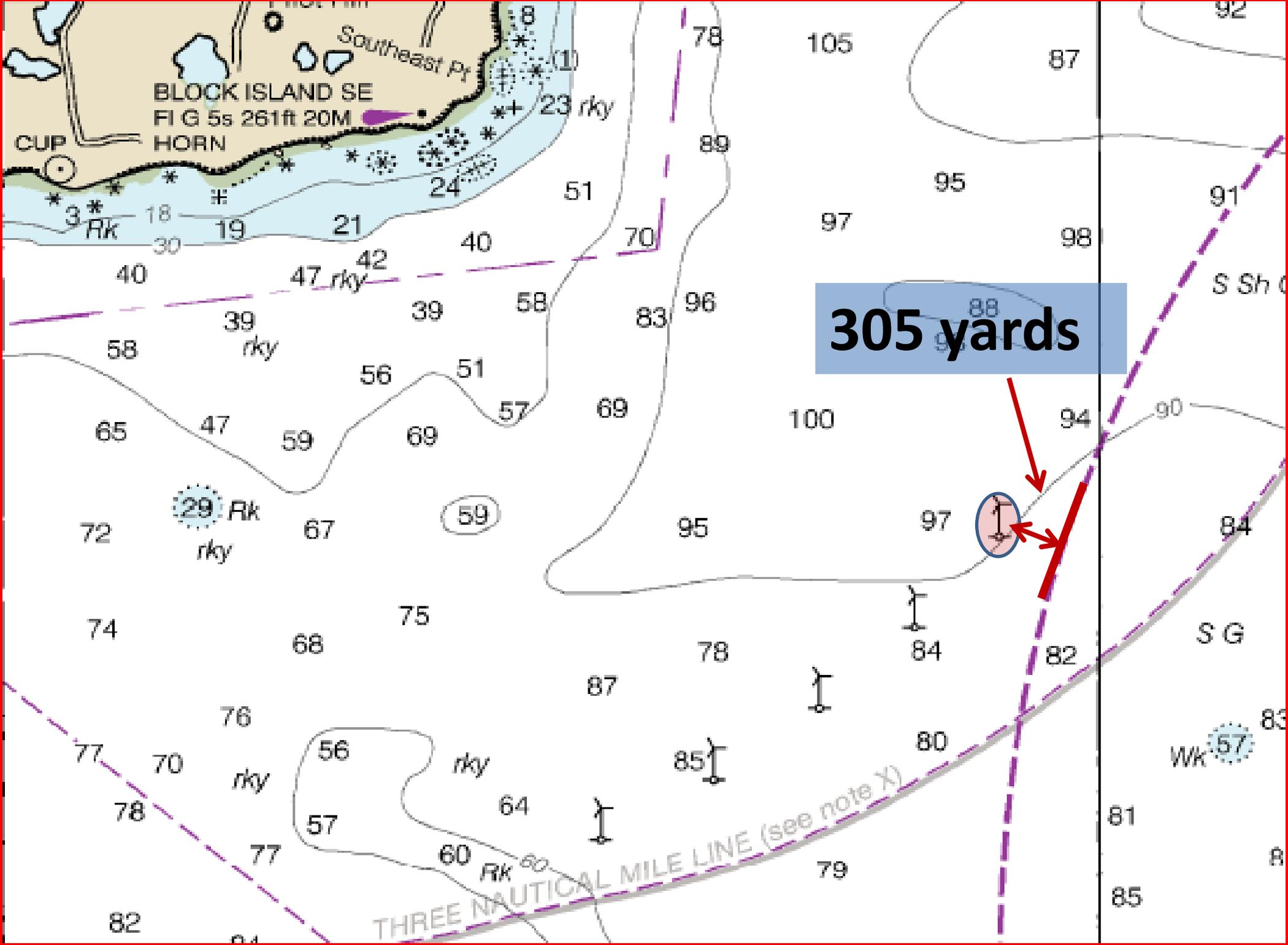
Block Island Wind Farm
Rhode Island

Figure 2. Proposed Project Layout
May 2012

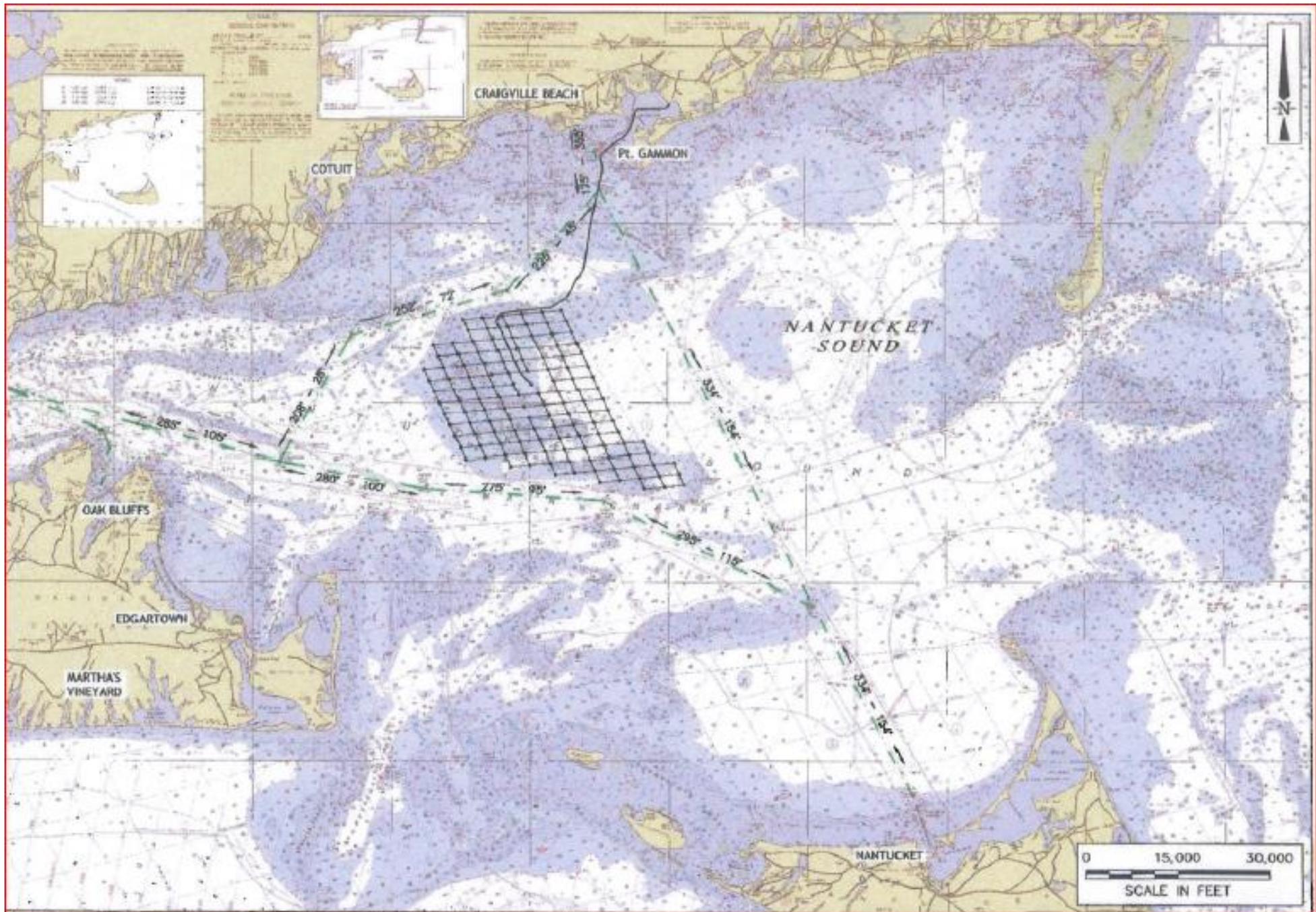
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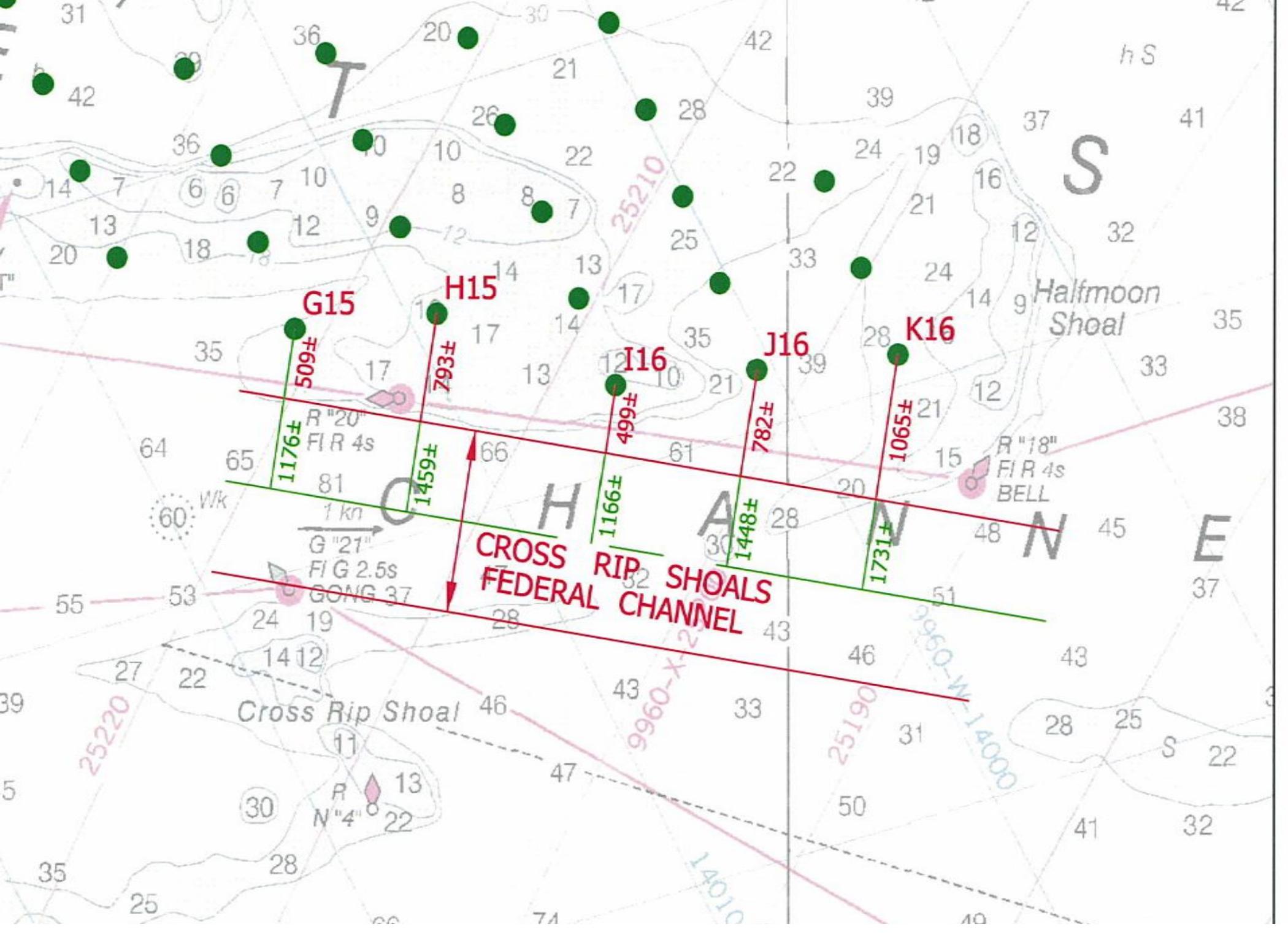
● Wind Turbine





305 yards

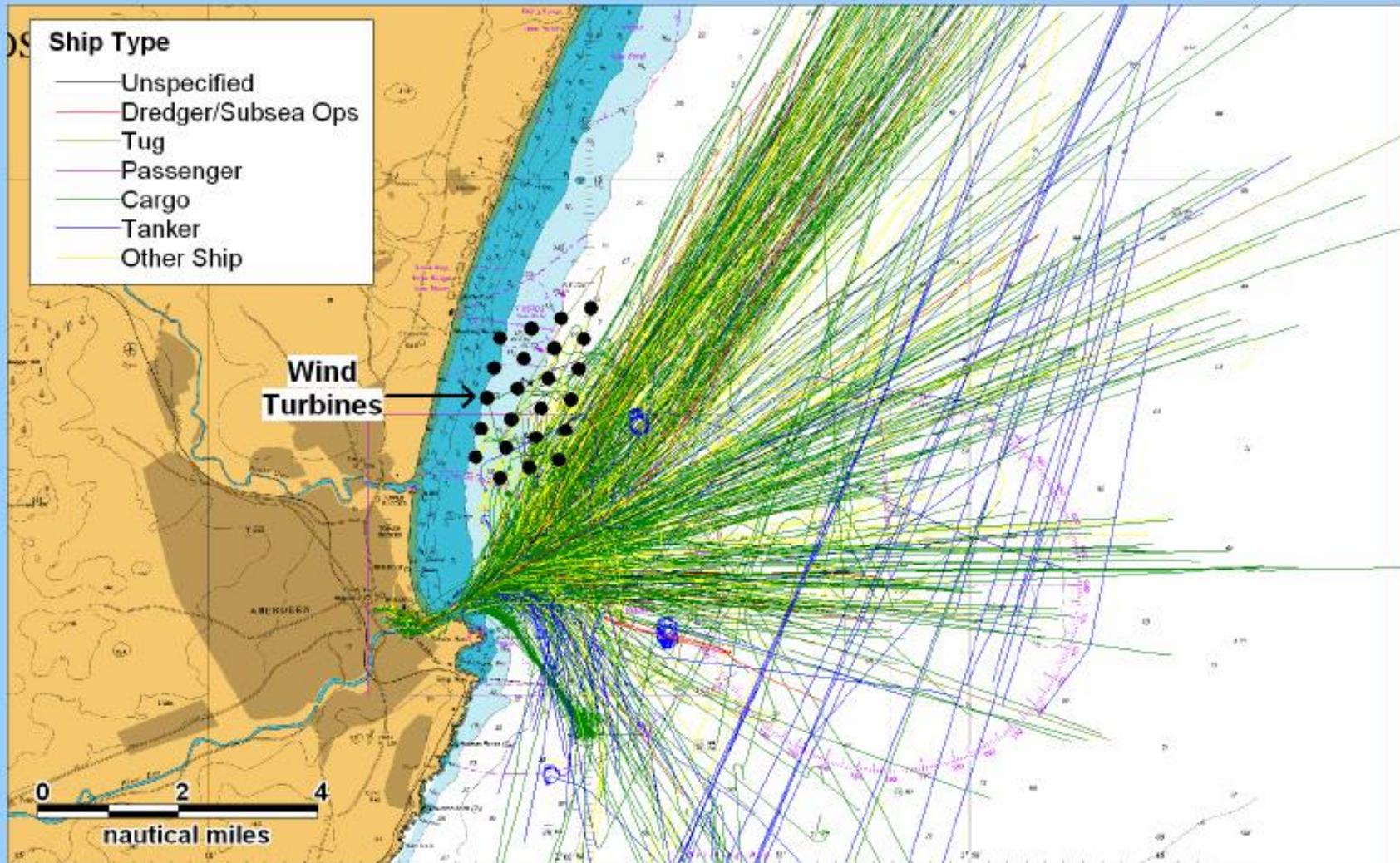




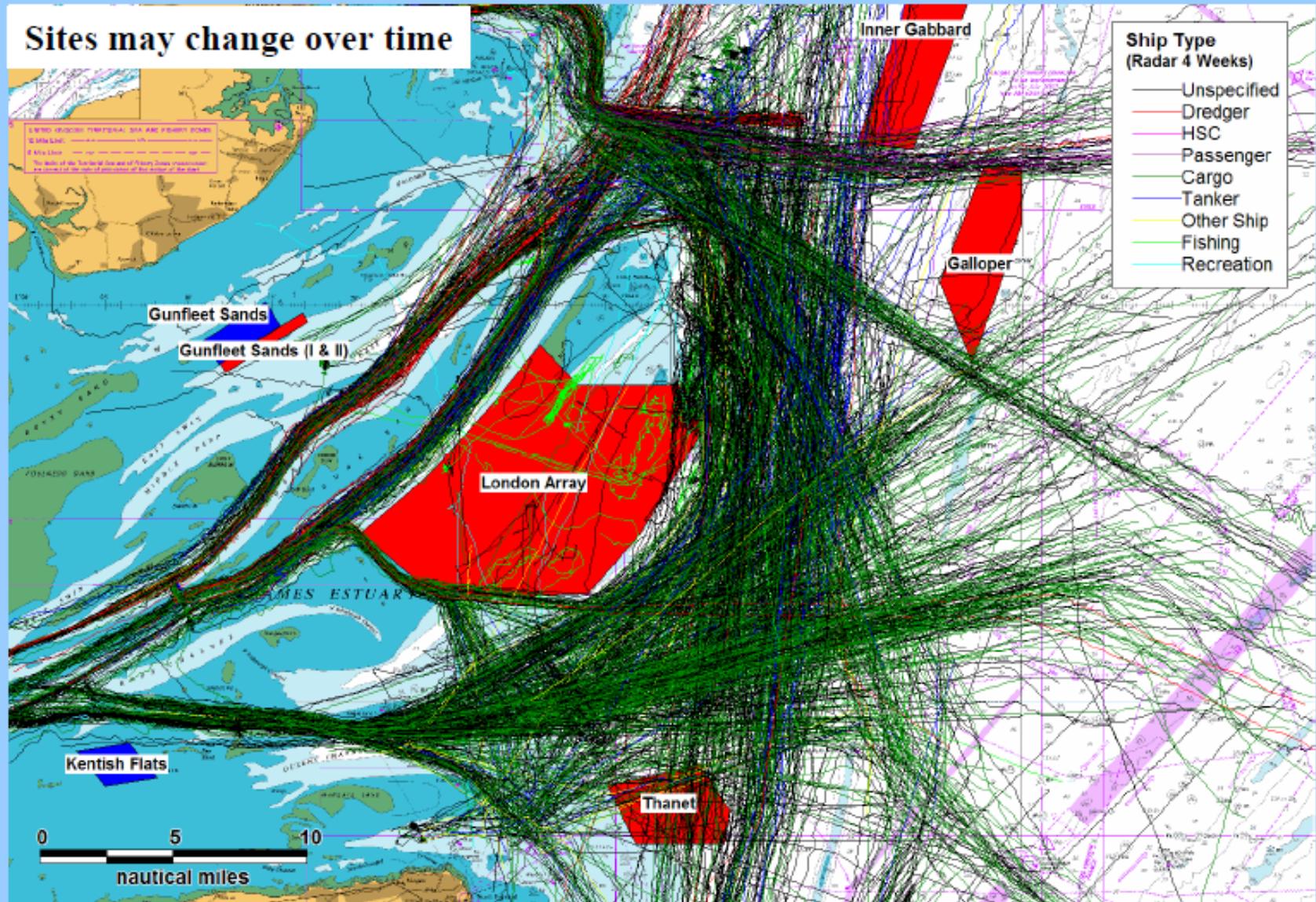
**CLOSEST POINT OF APPROACH
TOWERS TO CROSS RIP CHANNEL**

Tower (Alpha/Numeric)	Tower (List Number)	CPA NM	CPA Yards
G15	89	.24	480
H15	105	.38	760
I16	122	.23	460
J16	127	.37	740
K16	130	.50	1000

Shipping at Aberdeen (AIS)



Shipping at Other Sites



Blue = Rd 1, Red = Rd 2. (Kentish Flats Operational; Gunfleet Sands, Greater Gabbard, Thanet, London Array approved.)

Navigation Risk Assessments

Mr. Edward G. LeBlanc

Chief, Waterways Management Division

U.S. Coast Guard Sector Southeastern New England

