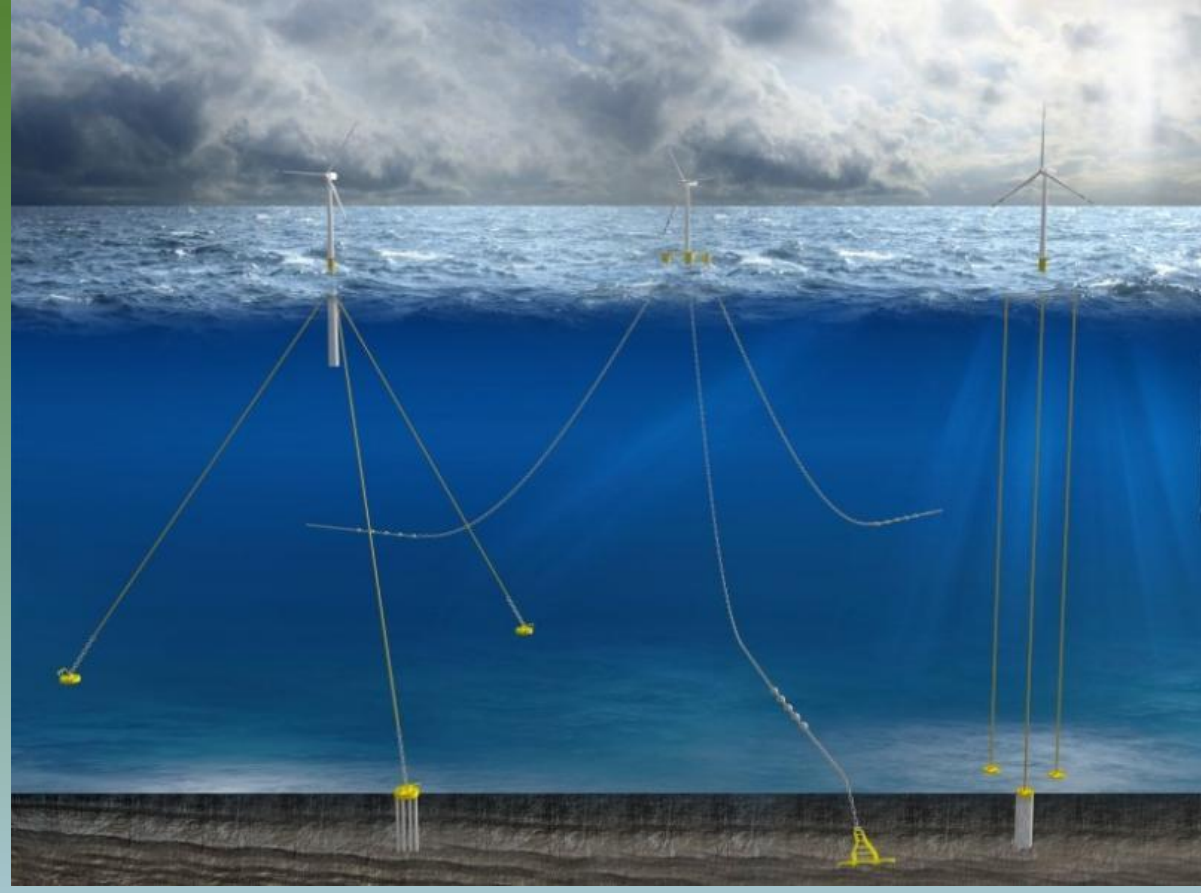
Offshore Wind Development
Gulf Of Maine

Fisheries and Energy

Can they coexist, what are the concerns?

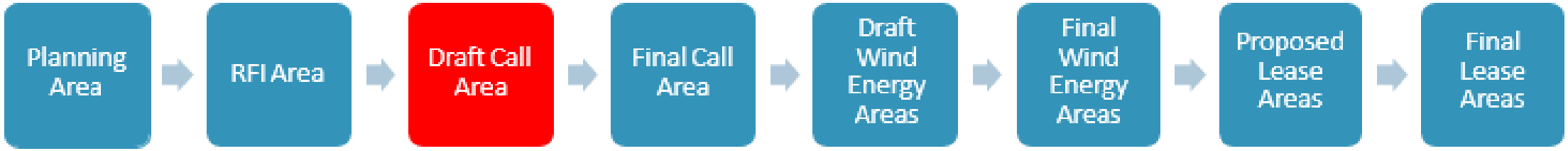
Deepwater Wind

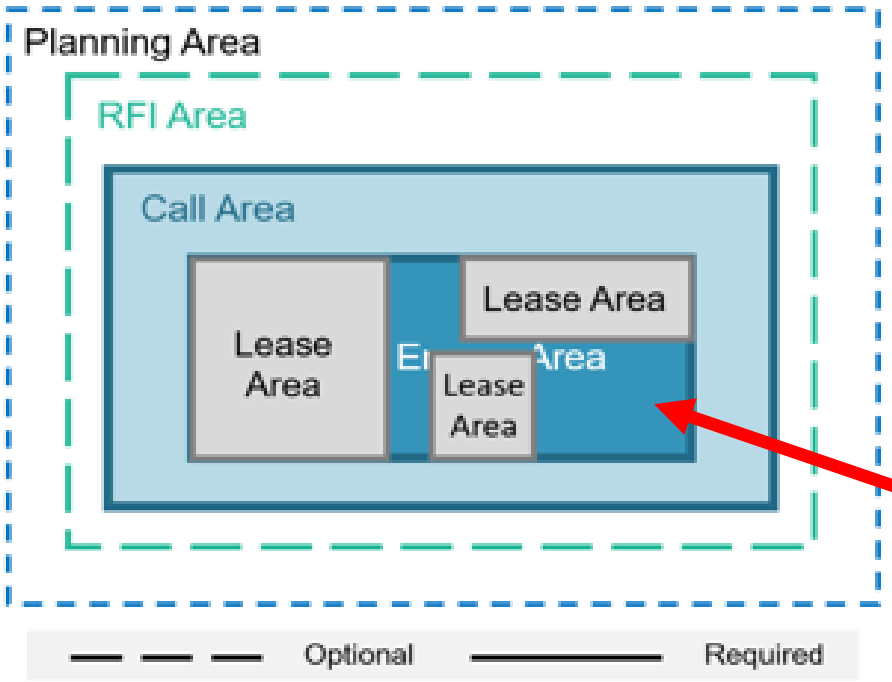


US Department of Energy

e.g., FIXED vs FLOATING Foundations

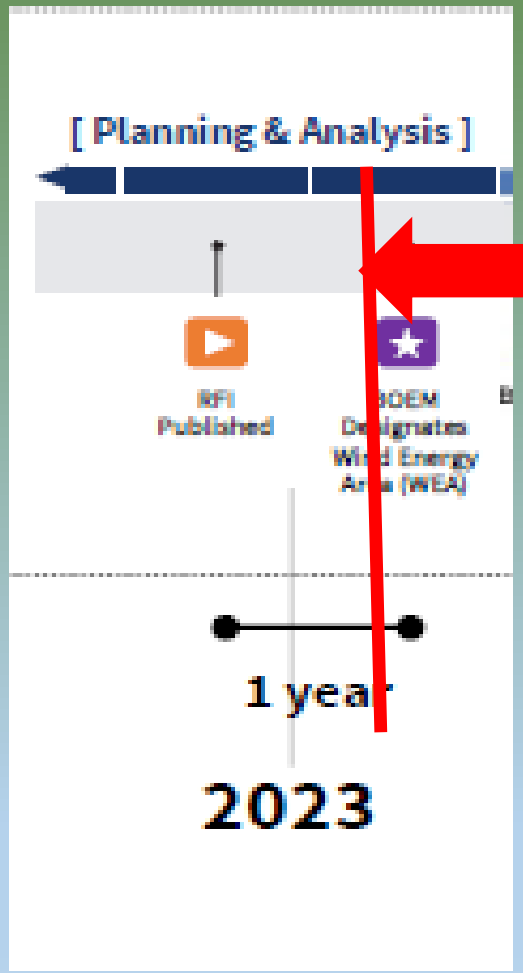
BOEM's Gulf of Maine Siting Process

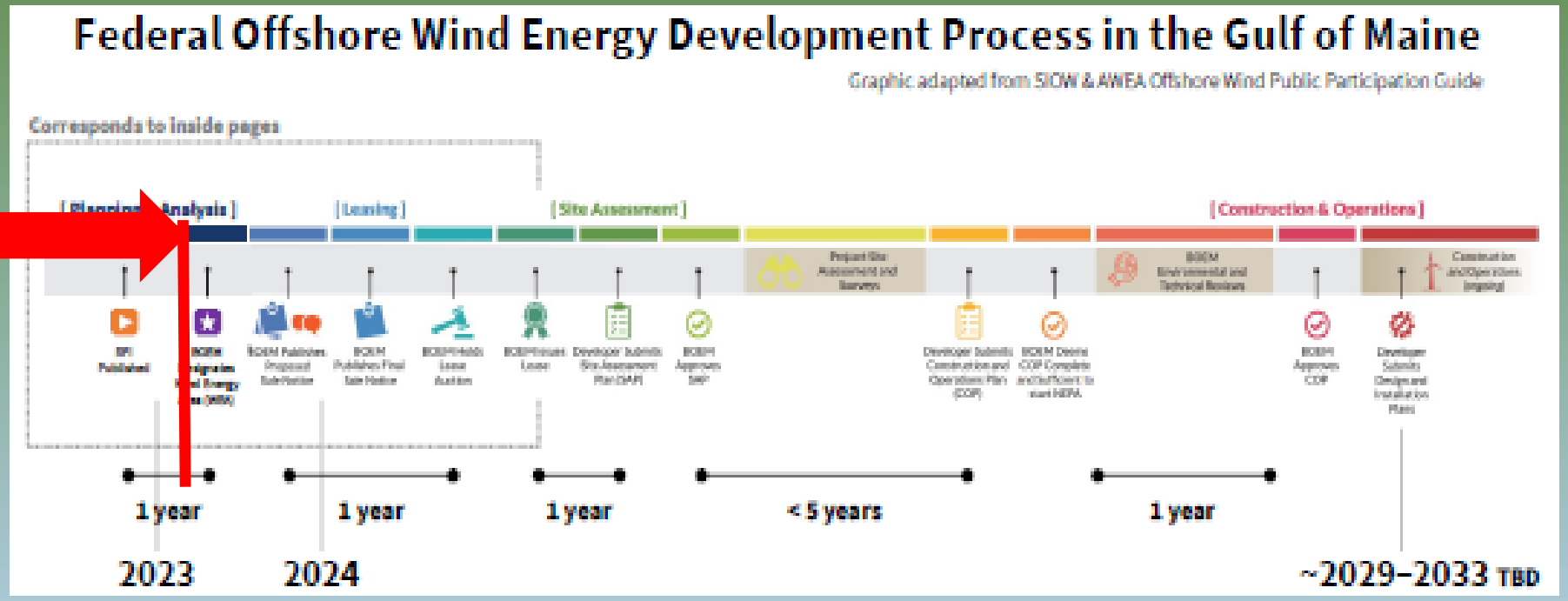




- ✓ Planning Area
- ✓ Request for Information Area
- ✓ Call Area
- ❖ Draft Wind Energy Area

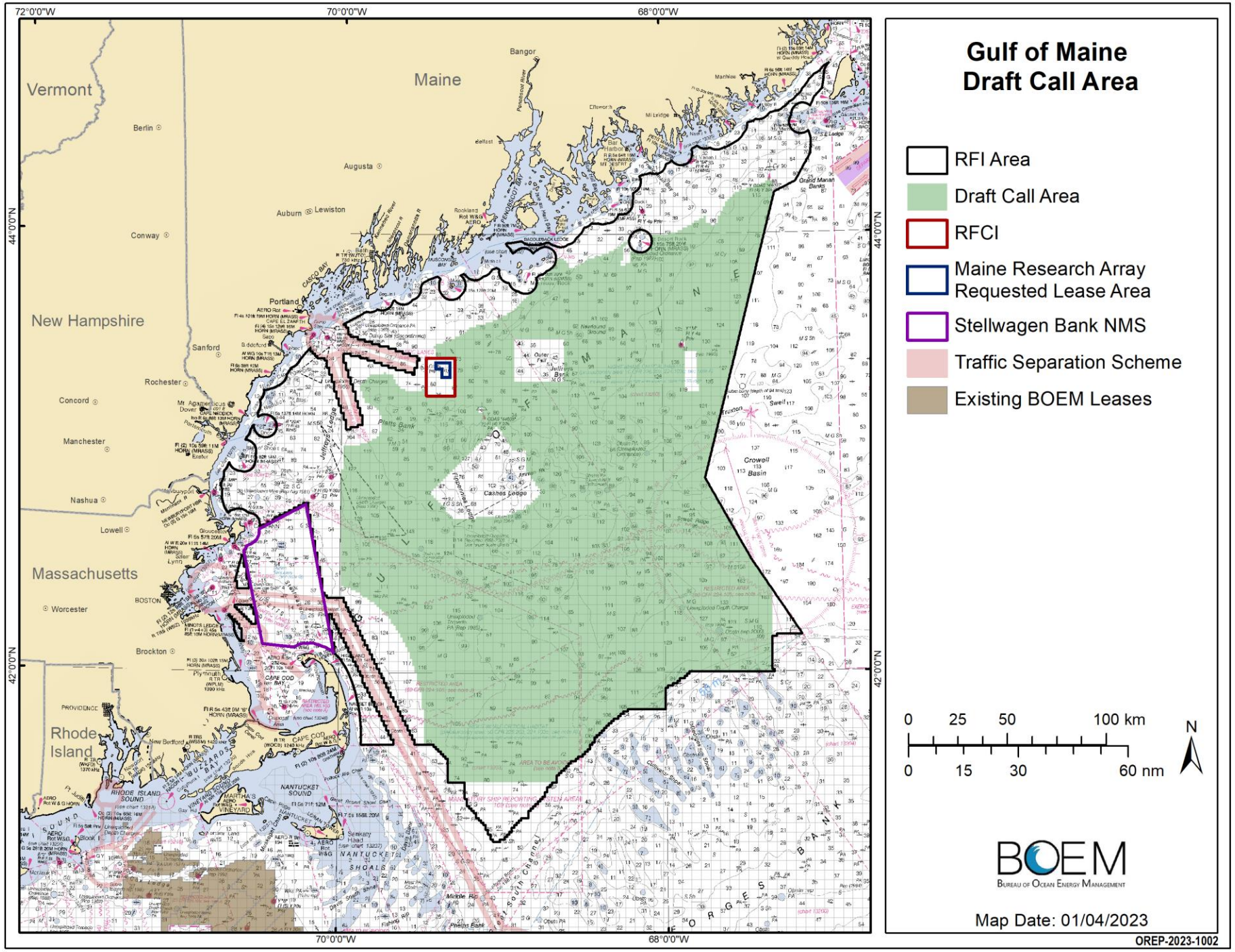
BOEM's Gulf of Maine Siting Process





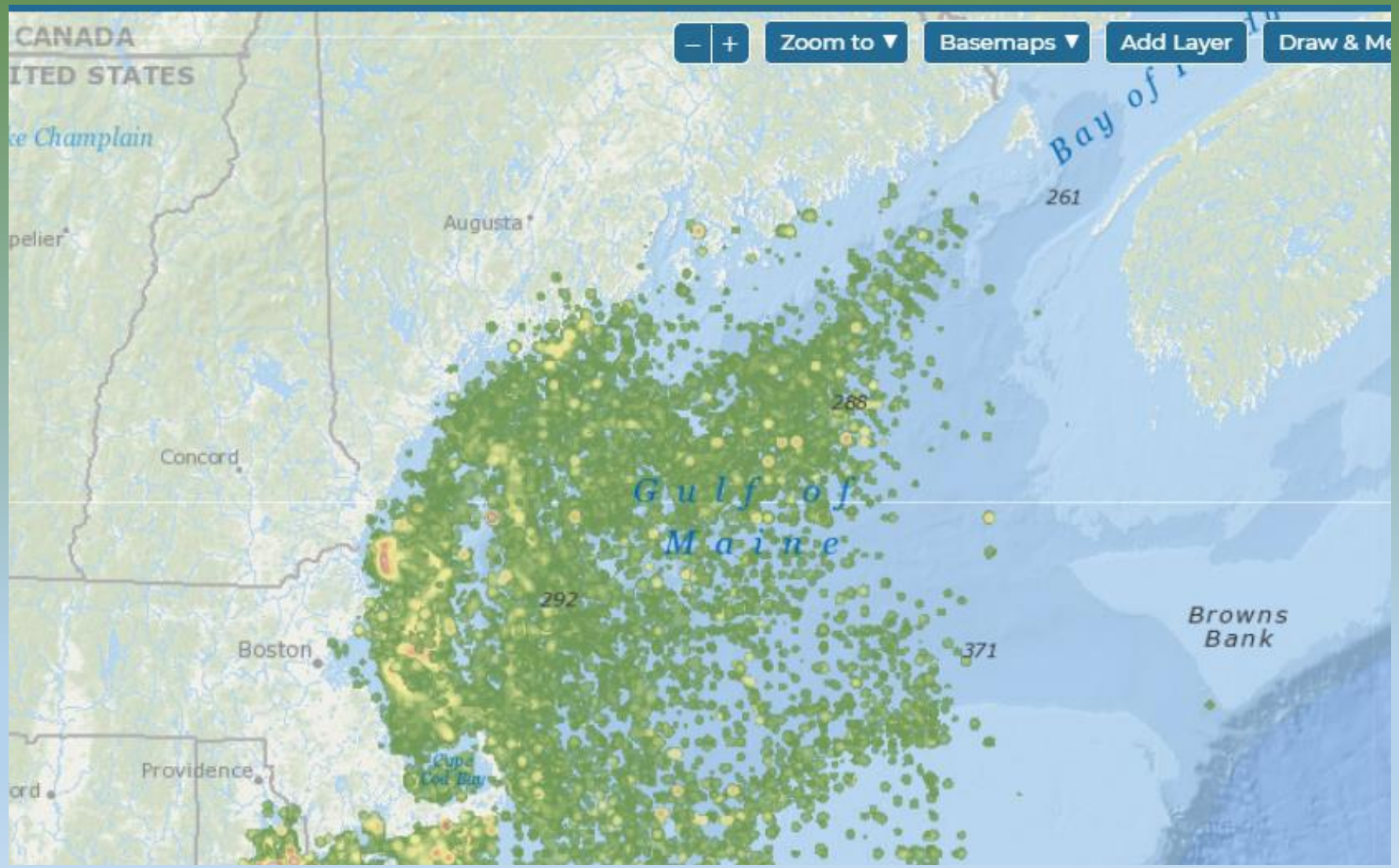
Currently waiting for BOEM to announce the Wind Energy Area(s) in the Gulf of Maine.

BOEM's Gulf of Maine Siting Process



Gulf of Maine Fishing Activity

Example: Traps/Pots Only (VTR reported data)

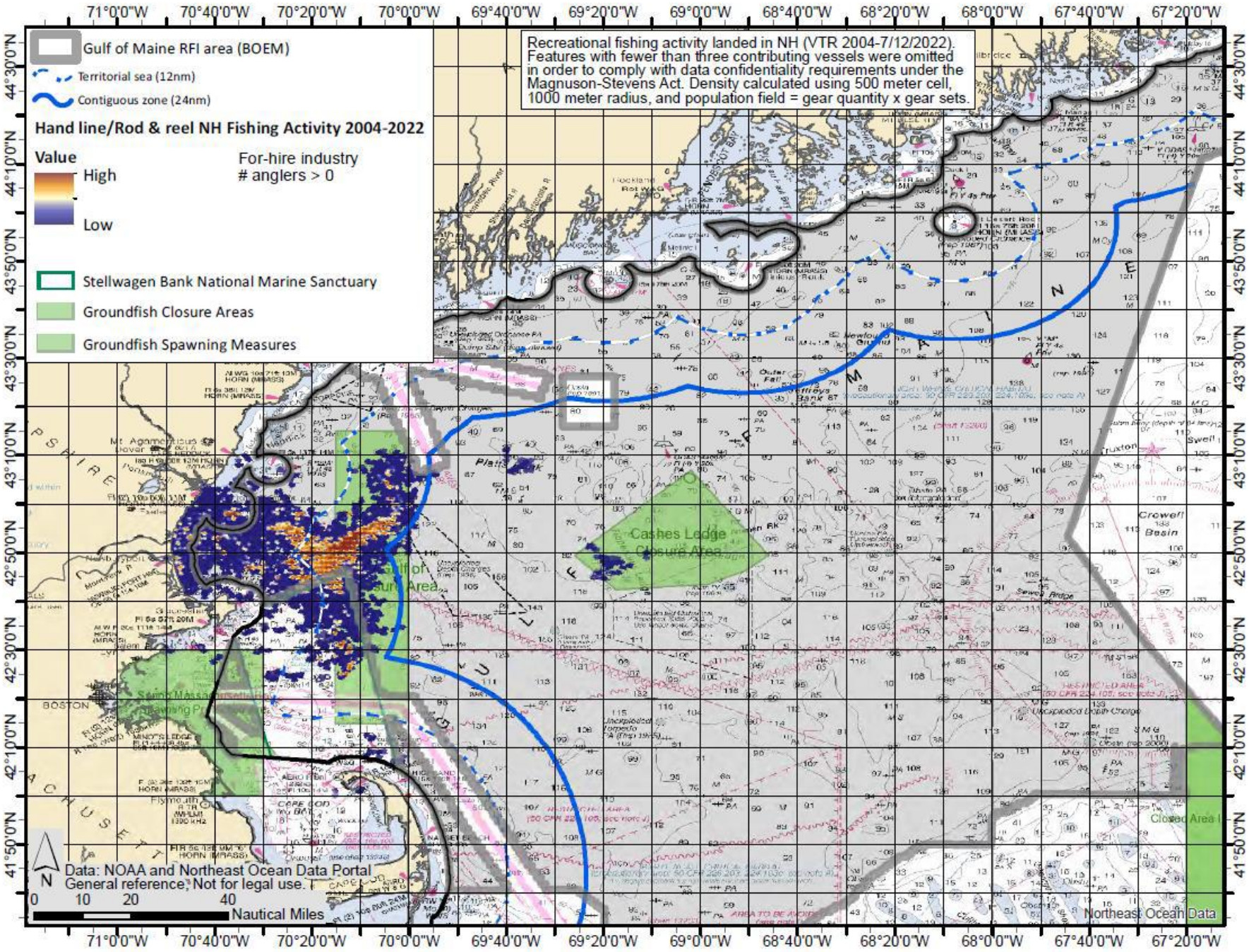


https://www.northeastoceandata.org

Fisheries (RFI Area)

NH's Recreational Fishing Footprint (non-confidential)

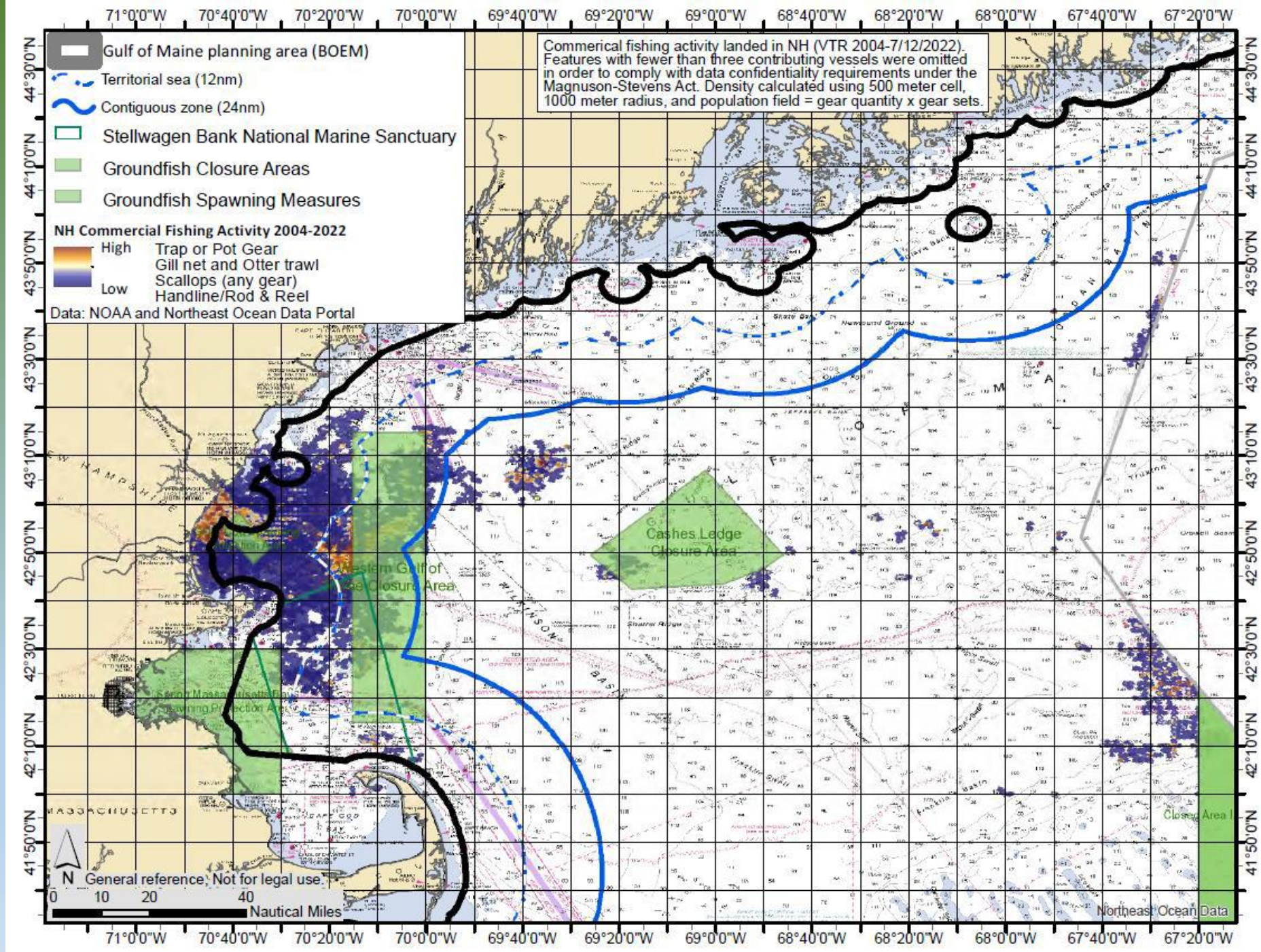
Note: VTR data points



Fisheries

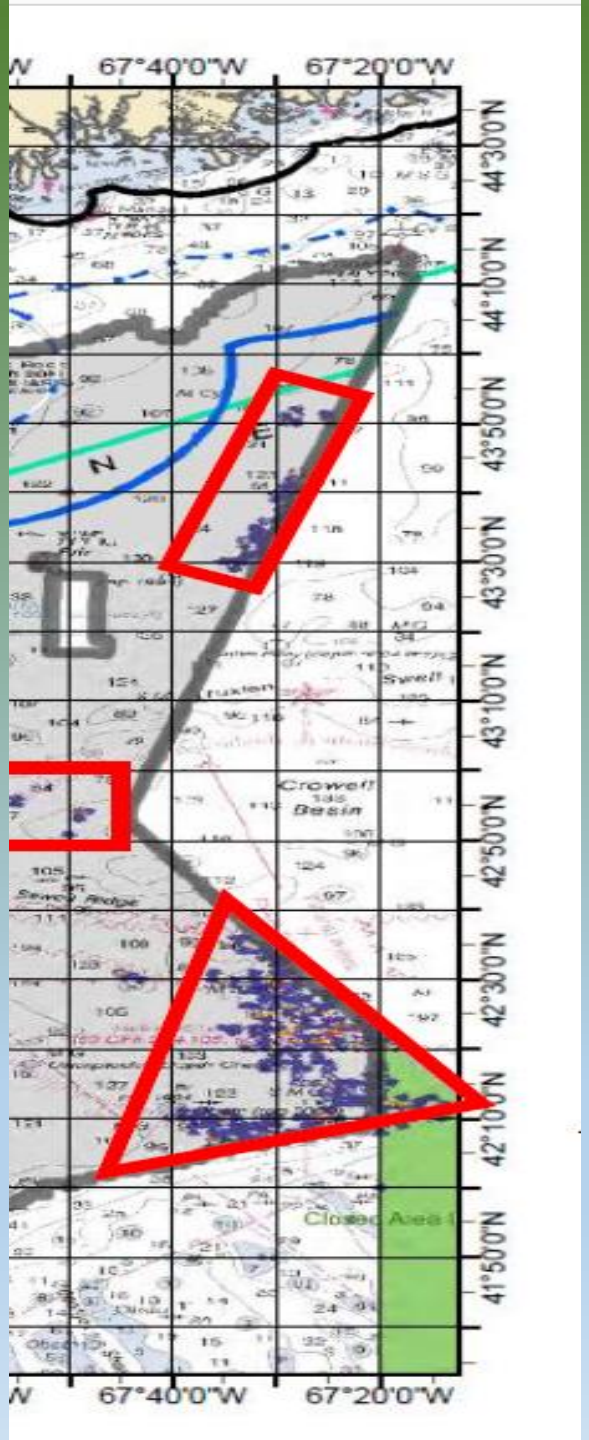
NH's Commercial Fishing Footprint (non-confidential)

Note: VTR data points

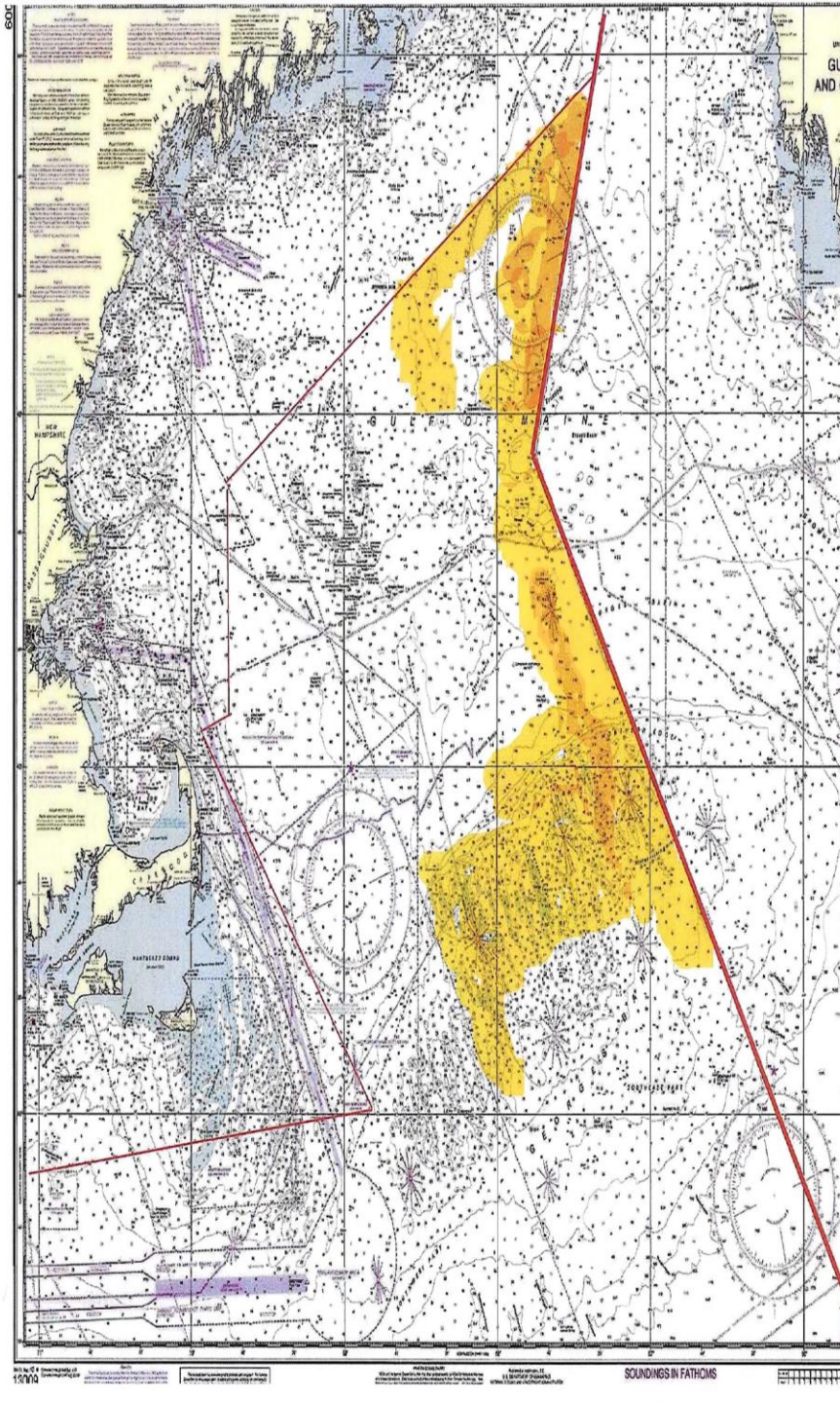


VTR data points

EXAMPLE:
Vessel Trip Reported Data Points vs actual fishing footprint



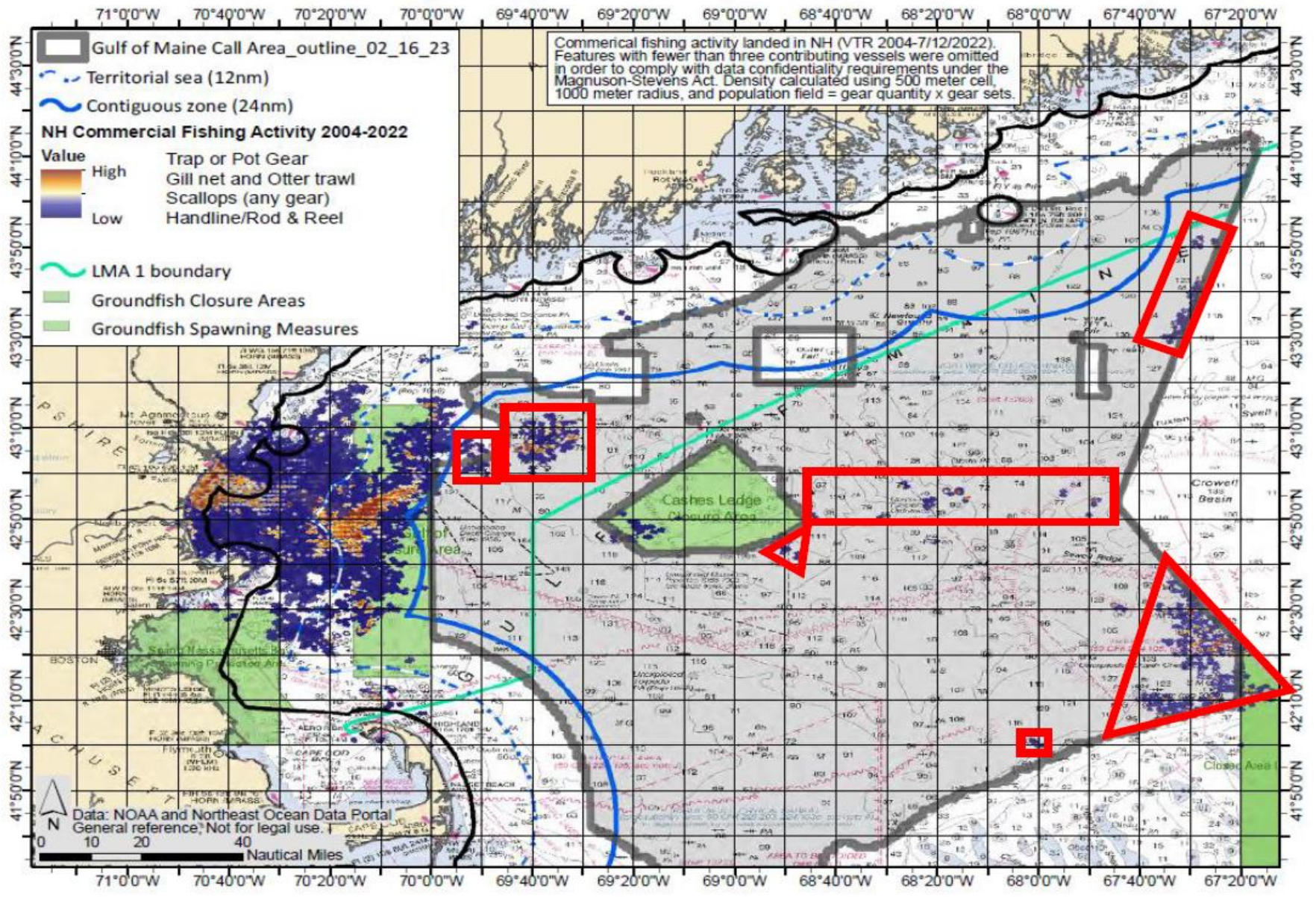
VS



Gulf of Maine Fishing Activity

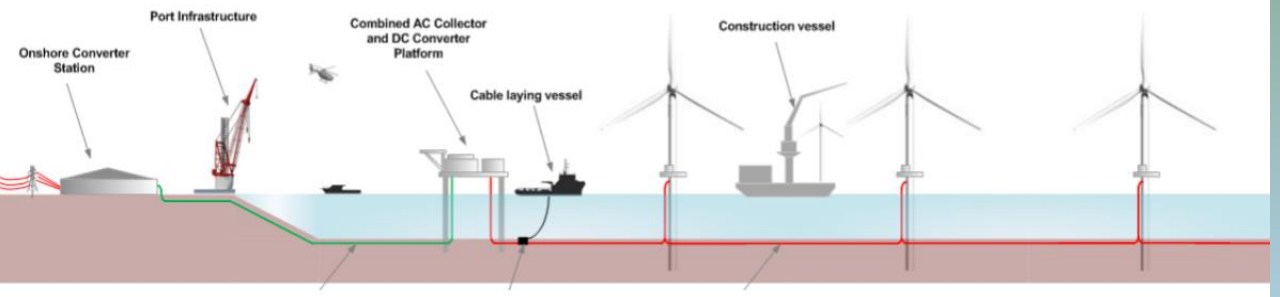
Call Area did eliminate some of NH's fisheries concerns….

However….



Wind Developers develop transmission and interconnection during Construction and Operation Plans (COP) after WEA identified

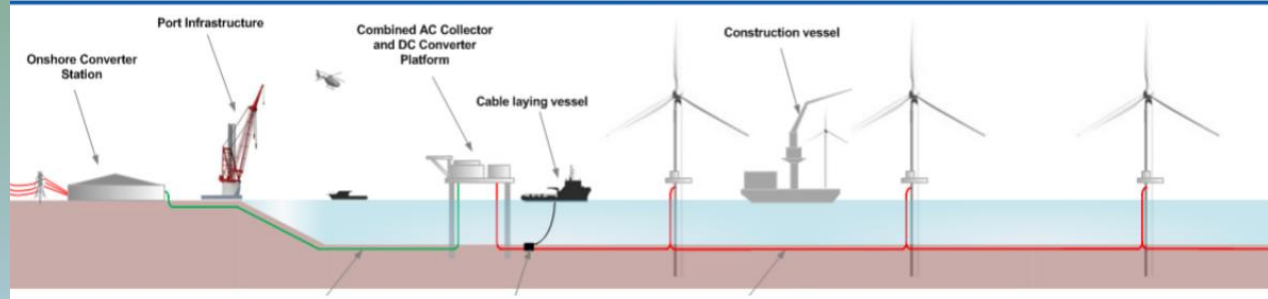
Transmission to Shore



Interconnection from the wind power plant to grid is the next element of the electrical interconnection, including

- Wind plant substation and power converters (HVDC)
- Transmission (Configuration and cable)
  - HVAC, HVDC-classic, HVDC-VSC
- Cable Landing
- Grid substation and power converters (HVDC)

Cable Landing/Interconnection



Technology:

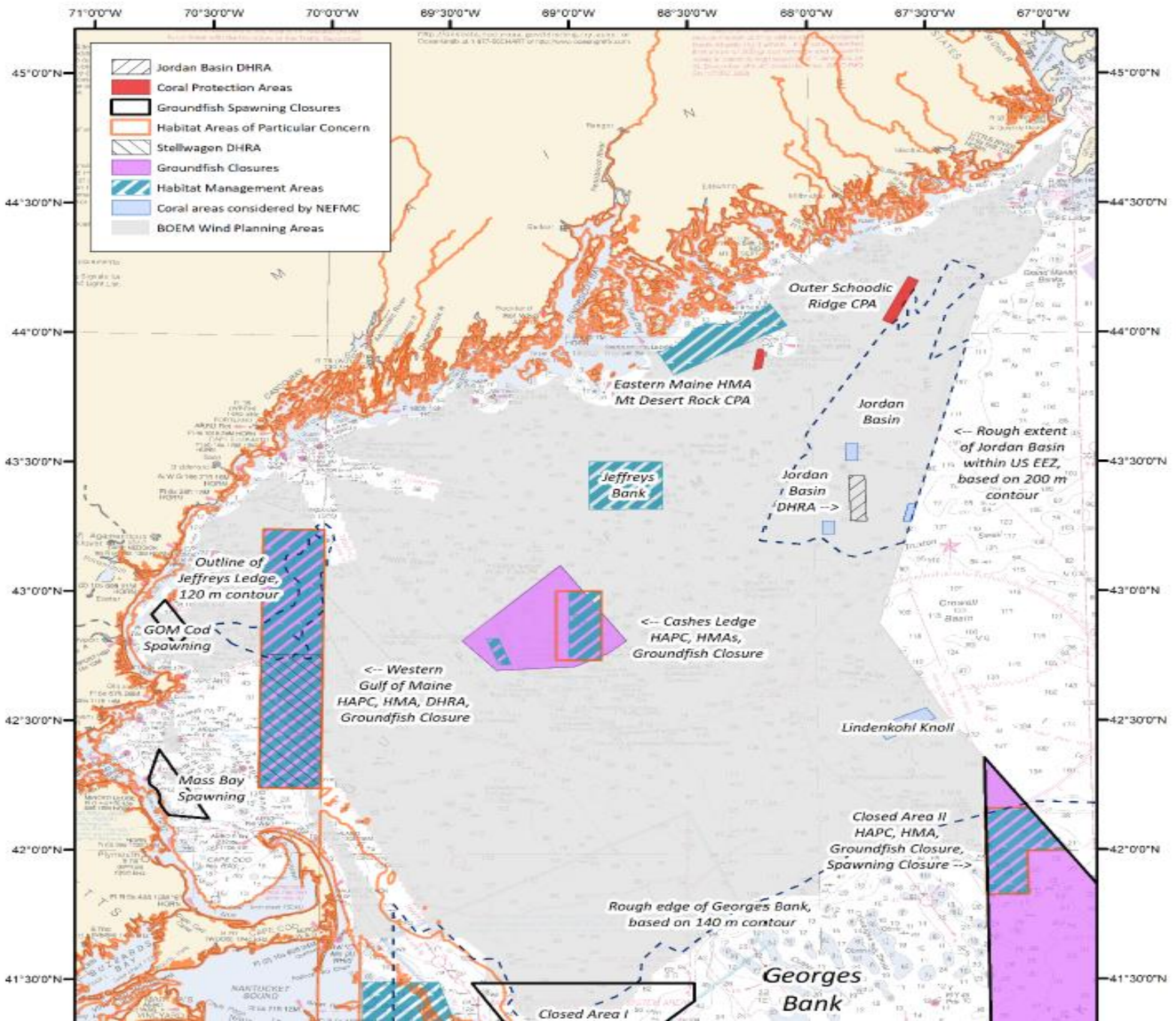
- Typically use directional drilling to go under beaches and coastal areas
- Place structure on the seafloor where cable goes underground for protection
- Onshore switchyard and grid interconnection space requirements

Permitting:

- Pass through state waters – all state permitting required
- Local zoning requirements for installation and interconnection
- FERC interconnection regulations (Same as any power plant)

Fisheries Management

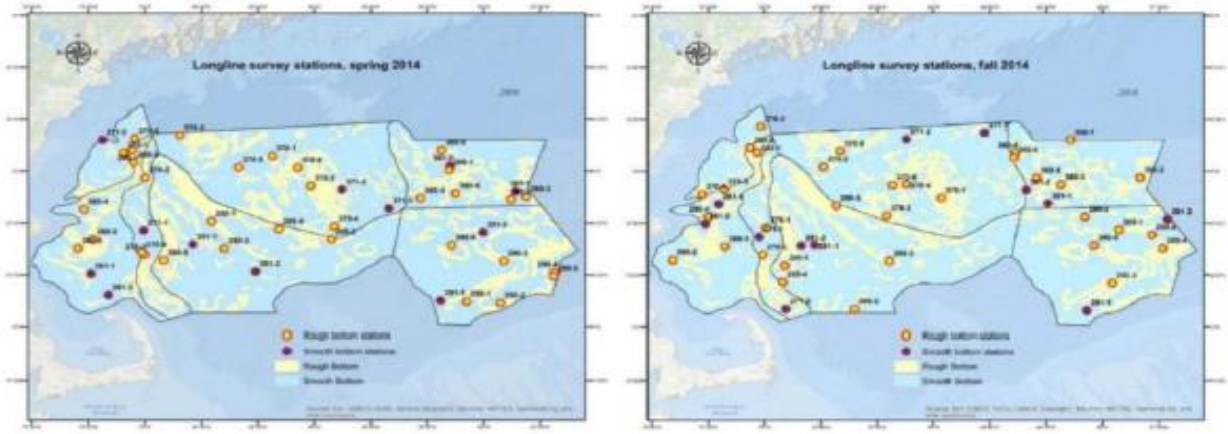
NEFMC Habitat Management Areas, Groundfish Closures and Spawning Areas, Habitat Research Areas, and Coral Protection



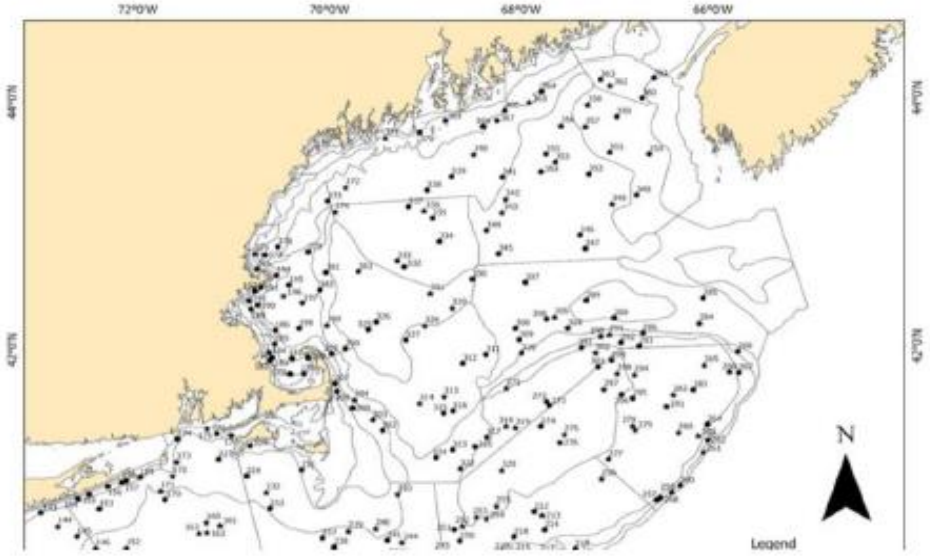
Fisheries Management

Some Surveys that Fisheries Management Decisions are Based

NEFSC Bottom Longline Survey – Spring and Fall

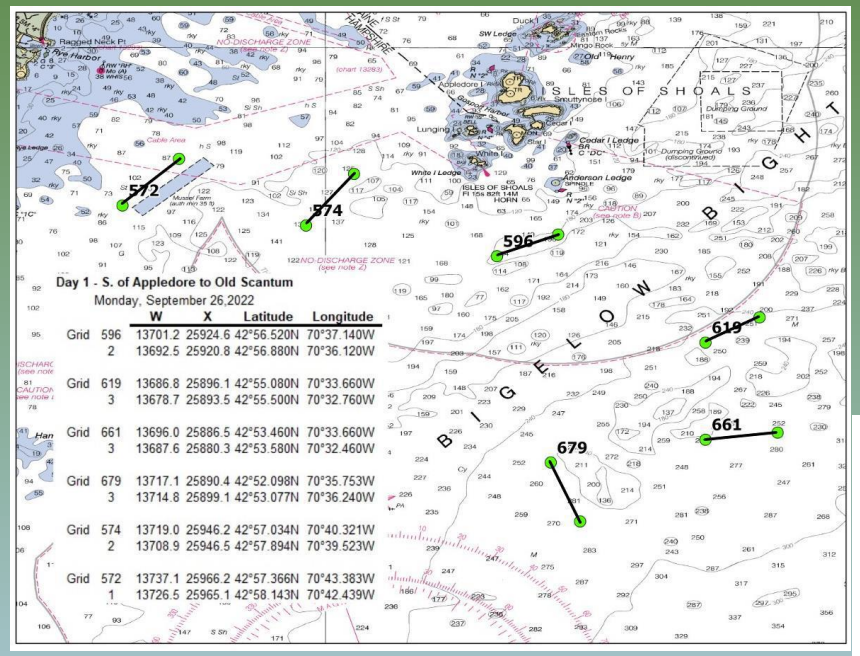


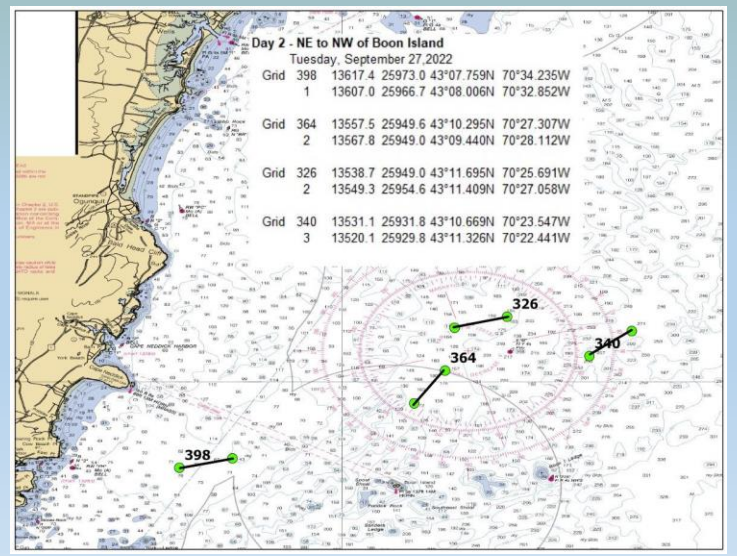
NEFSC Bottom Trawl Survey – Spring and Fall



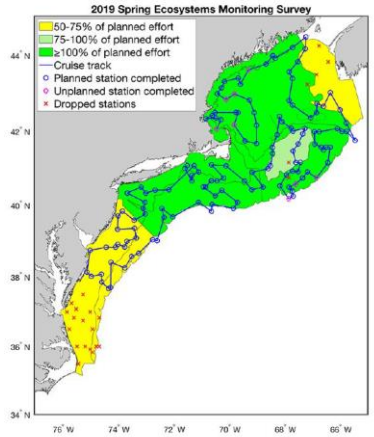
Surveys, continued

Maine/New Hampshire Inshore Trawl Survey (just in NH area)

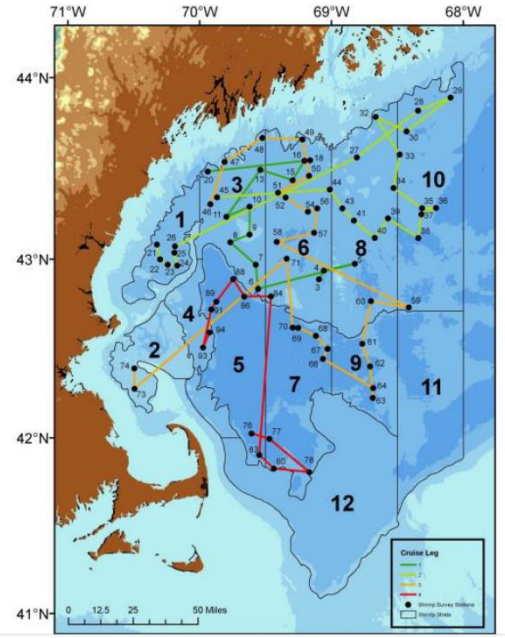




NEFSC Ecosystem Monitoring Survey – Spring, Summer, Fall, Winter

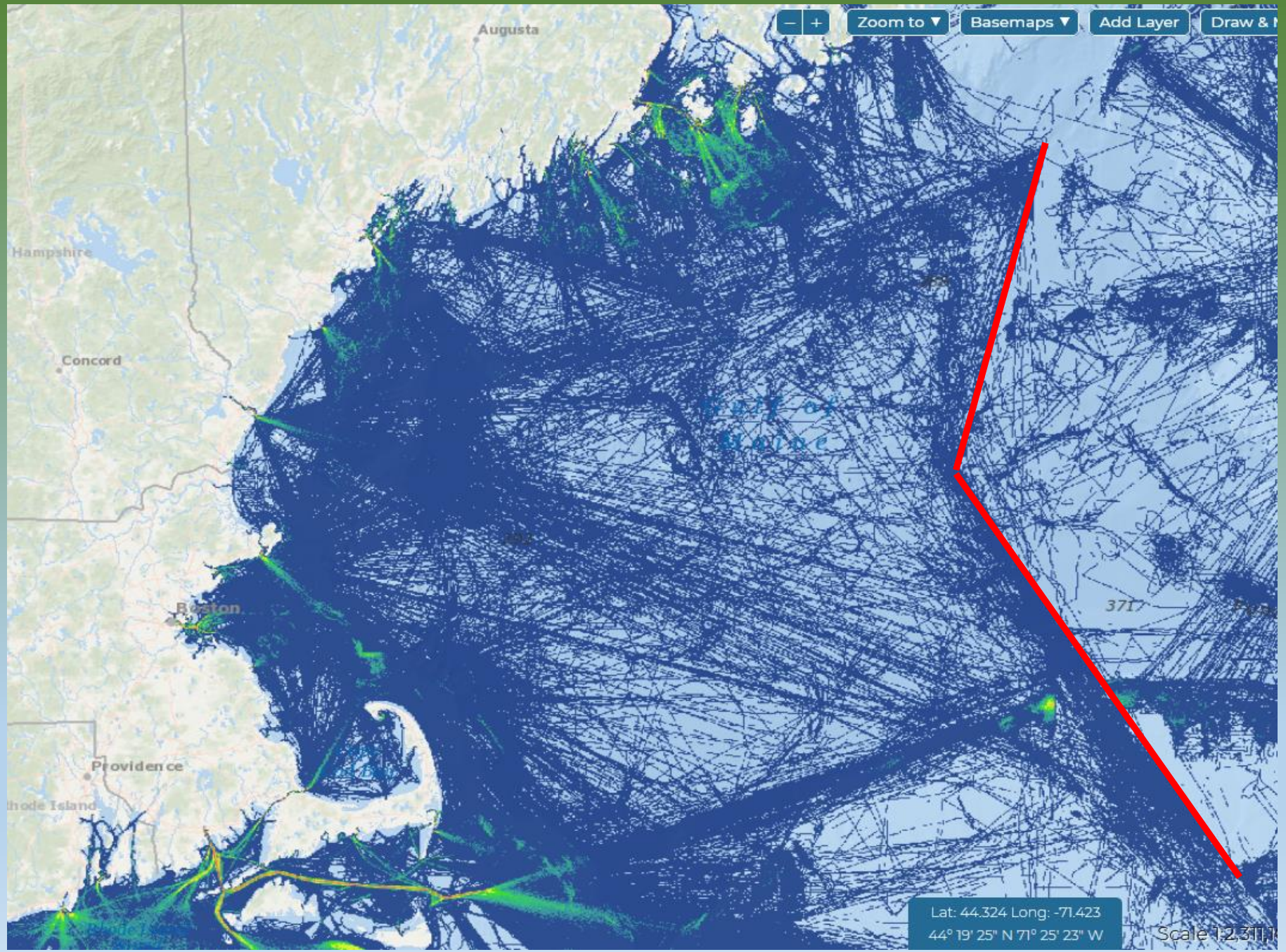


NEFSC Northern Shrimp Survey



Fisheries

2022 Fishing Vessel Transit Counts



Environmental Concerns??

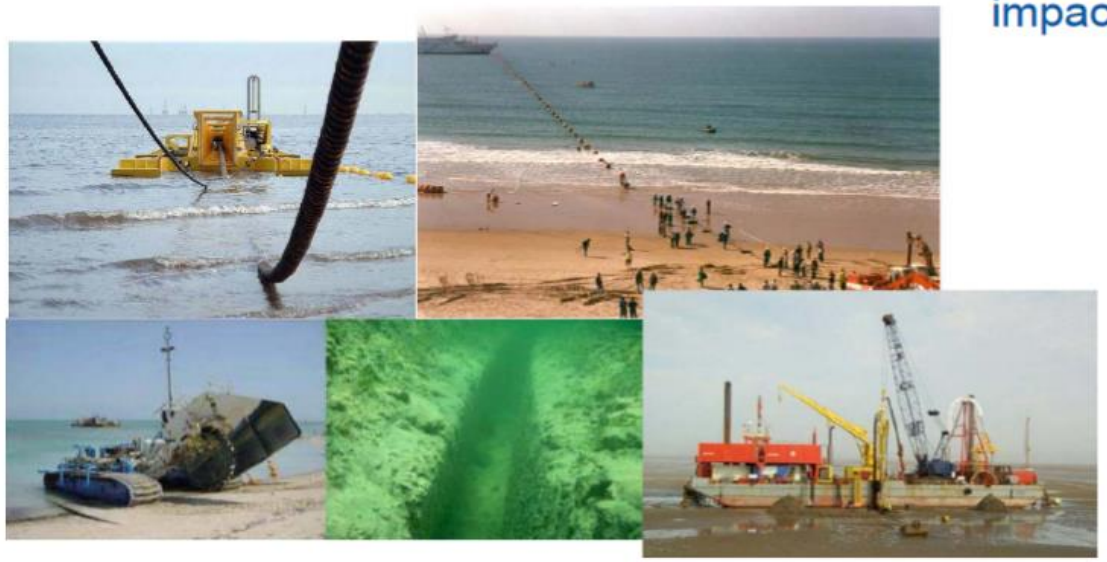
Potential Environmental Impacts

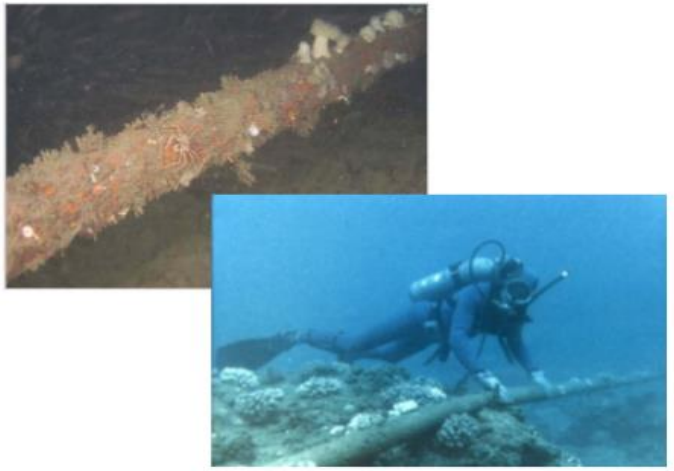
Installation, Maintenance and Repair

- Seabed disturbance
- Damage / disturbance of organisms
- Re-suspension of contaminants
- Visual disturbance
- Noise (vessels, laying machinery)
- Emissions and waste from vessels
- Region specific impacts (i.e. coral reefs, turtle egg-laying beaches, etc.)

Operational phase

- Introduction of artificial hard substrate (installed for cable protection)
- Electromagnetic fields (OCS Report: 2011-09 and NSL#: PC-11-03) impact on migration and behavior
- Navigational equipment impacts (HVDC using sea as a return)
- Thermal radiation - known general impact though no studies exsist





Efforts in Modelling

NEFSC Trawl Survey Interpolated Biomass 2010 - 2019

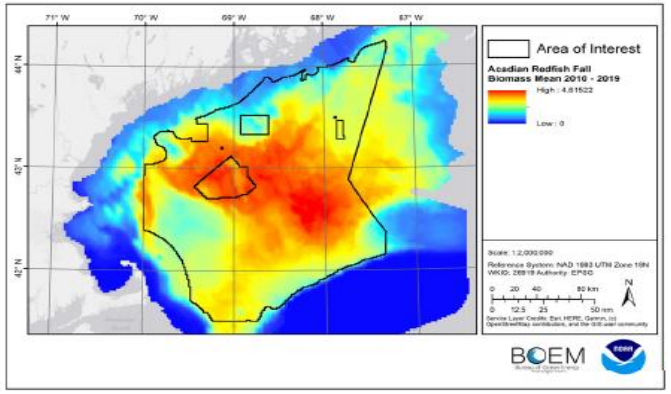
Source: Duke University Marine-life Data and Analysis Team (MDAT)

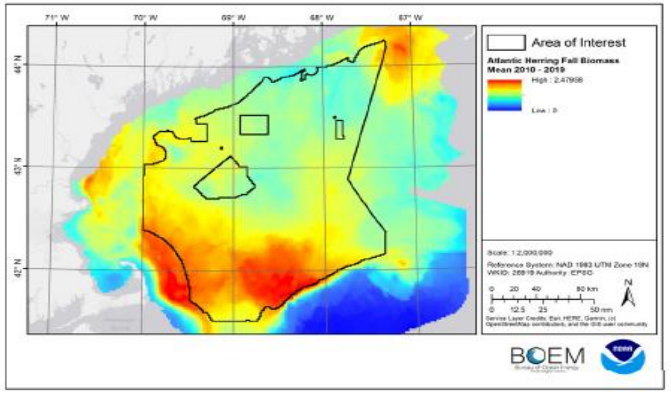
Spring and Fall Surveys conducted

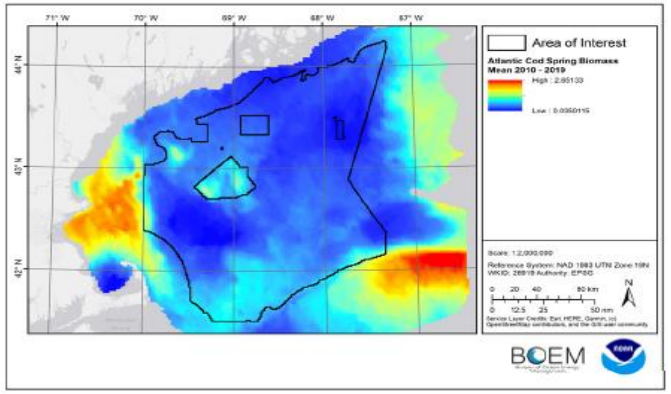
The following species were included:

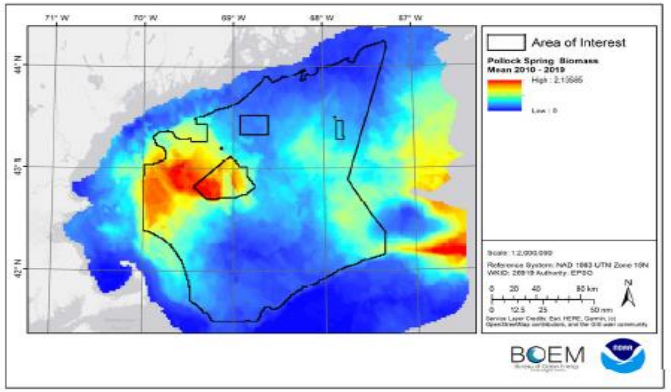
- Spring – Atlantic cod, monkfish (goosefish), pollock, and witch flounder
- Fall – Acadian redfish, American plaice, Atlantic herring

Identifies areas where important species biomass concentrations occur that differ from concentrations of fishing effort in the VMS data









Ecological Impact Studies

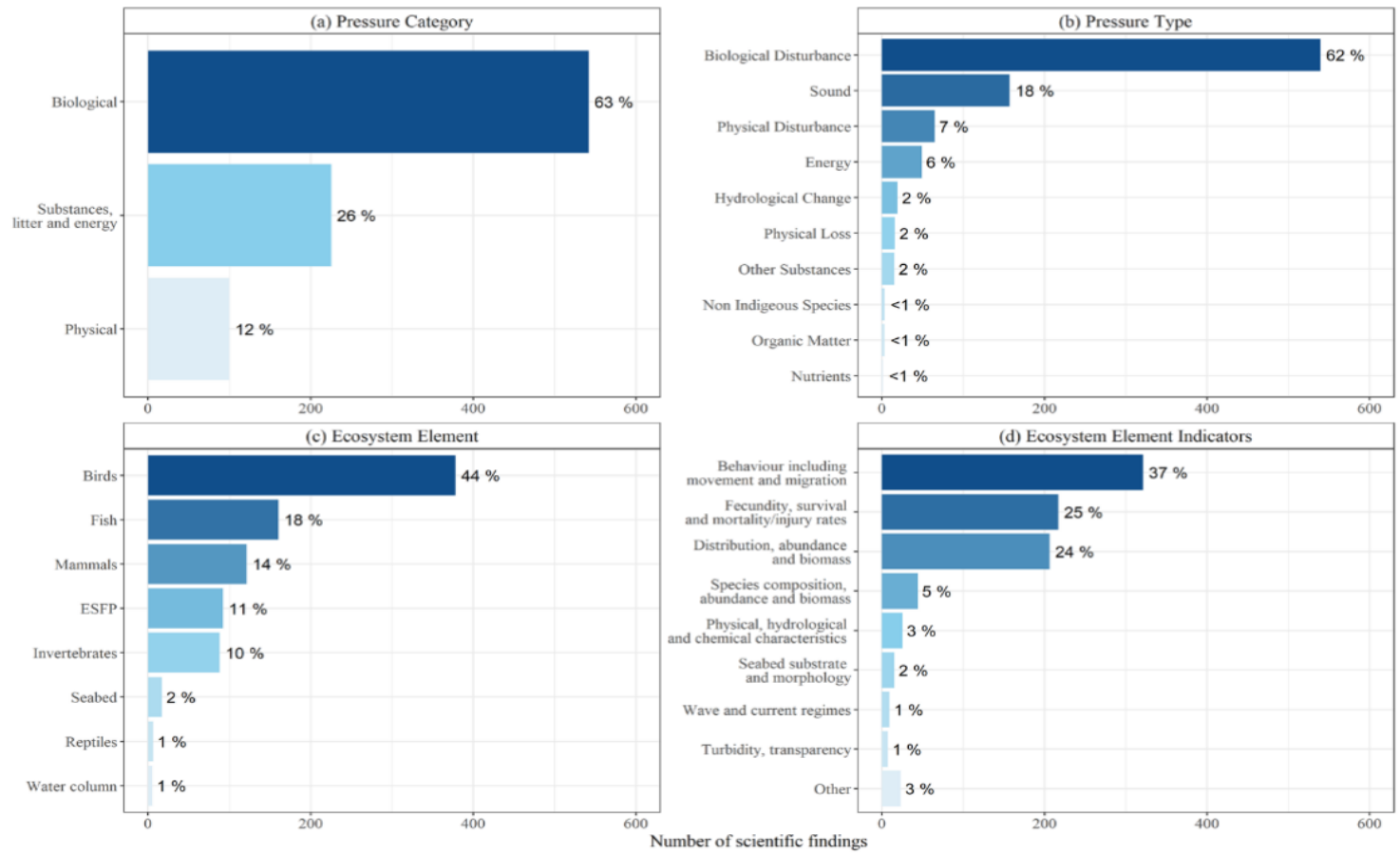


Fig. 2 Proportions of scientific findings of interactions between offshore wind energy devices and marine ecosystem extracted from the literature review. The information is classified according to studied pressure category (**a**) and type (**b**); and for ecosystem elements (**c**) and indicators assessed (**d**) in scientific research. ESFP ecosystem structure, functions, and processes.

Reviewing the ecological impacts of offshore wind farms, Ibon Galparsoro 1 ✉, Iratxe Menchaca 1 , Joxe Mikel Garmendia 1 , Ángel Borja 1,2, Ana D. Maldonado 1,3 , Gregorio Iglesias 4,5 and Juan Bald1

Fishing Community Impacts Socioeconomic

The construction and operation of wind turbines could impact commercial, recreational, and tribal fishing in a variety of ways, including:

- Displacing fishermen from traditional fishing areas
- Changing the distribution, abundance, and species composition of fish in an area
- Causing economic losses
- Increasing vessel traffic and competition for support services on shore
- Disrupting vessel radar systems
- Damaging or destroying fishing gear
- Reducing safety at sea from increased vessel traffic and navigation challenges
- Upstream/Downstream effects: support services to fishing communities, e.g., dealers, bait dealers, etc.

Committees, Organizations, and eNGO's working together

- State Agencies and UNH: **NHDOE, NHDES, and NHF&G, and UNH Sea Grant**
- NH Legislative **Commission to Study Offshore Wind and Port Development**. Senator Watters – Chair
- ROSA: The **Responsible Offshore Science Alliance** (ROSA) formed to advance regional research and monitoring of fisheries and offshore wind interactions in federal waters. It is a collaborative effort among fishing industry representatives, offshore wind developers, and state and federal government agencies.

- RODA: The **Responsible Offshore Development Alliance** collaborates with regulatory agencies, developers, and researchers to coordinate science and policy approaches to managing offshore development with a focus on minimizing conflicts with the fishing community.

- RWSC: The **Regional Wildlife Science Collaborative**, collaboratively and effectively conduct and coordinate relevant, credible, and efficient regional monitoring and research of wildlife and marine ecosystems that supports the advancement of environmentally responsible and cost-efficient offshore wind power development activities in U.S. Atlantic waters.

- SIOW: The **Special Initiative on Offshore Wind** is an affiliated program at the University of Delaware's (UD) College of Earth, Ocean & Environment (CEOE) that supports offshore wind power (OSW) as part of a comprehensive US energy solution, offering expertise, analysis, information sharing, and strategic partnership to build understanding and drive deployment. **Fisheries Mitigation**

- Committees, informing stakeholders, etc. continues as the need arises.


Any
Questions