UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930

April 24, 2025

Kristen Hamilton
Environmental Compliance Officer
National Science Foundation
2415 Eisenhower Avenue
Alexandria, VA 22314

Re: International Ocean Drilling Programme/National Science Foundation Expedition 501
New England Shelf Hydrogeology

Dear Ms. Hamilton:

We have reviewed the Draft Environmental Assessment (Draft EA) for the proposed marine research of the New England shelf hydrogeology off Massachusetts (MA) in the Northwest Atlantic Ocean. Researchers from the Colorado School of Mines and University of Massachusetts (UMass) with funding from the U.S. National Science Foundation (NSF) propose to conduct the International Ocean Drilling Programme (IODP)/NSF Expedition 501 *New England Shelf Hydrogeology*, from the liftboat (L/B) *Robert*. The proposed work includes various activities to examine the continental shelf freshwater off New England to better understand the onshore-offshore hydrologic system dynamics. Specifically, the researchers propose drilling, coring, and logging operations at up to four proposed drill sites within the Exclusive Economic Zone (EEZ) of the U.S., south of Nantucket, MA in water depths ranging from approximately 40 meters (m) to 55 m. Two boreholes are proposed at each drill site resulting in the potential release of approximately 43 m^3 of drill cuttings or solids. The solids, comprising the sand-, silt-and mud-(stone) from the sub-seabed, would be discharged from the L/B leaving the solids on the seafloor within the vicinity of the borehole. The work is proposed to occur between May and August 2025 and include approximately 96 days of drilling, 32 days at each of three sites.

As you are aware, the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and the Fish and Wildlife Coordination Act require federal agencies to consult with one another on projects such as this that may adversely affect EFH. This process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH Assessments and generally outlines each agency's obligations in this consultation procedure. We offer the following comments for your consideration.

Resources and Impacts

The New England Fishery Management Council (NEFMC), the Mid-Atlantic Fishery Management Council, and NOAA Fisheries have designated the proposed project area as EFH for 53 federally-managed species including Atlantic cod (*Gadus morhua*), Atlantic sea scallop (*Placopecten magellanicus*), summer flounder (*Paralichthys dentatus*) and a number of highly migratory species including sharks and billfishes. The project area also overlaps with two designated Habitat Areas of Particular Concern (HAPCs) including the inshore juvenile Atlantic cod and the Southern New England HAPCs. HAPCs are a subset of EFH that are especially important ecologically, particularly susceptible to human-induced degradation, vulnerable to developmental stressors, and/or rare.

Atlantic Cod
Recently, the NEFMC finalized the designation of the Southern New England HAPC on February 2, 2024, within and around offshore wind lease areas in southern New England. Specifically, this action was approved based on new and emerging information demonstrating the importance of this area as cod spawning habitat, and to highlight the importance and vulnerability of complex habitat in this area to offshore wind development (50 CFR 648). This HAPC designation overlaps each of the four proposed drilling sites for this project.

Historical information provided in multiple sources has documented that the Southern New England HAPC, including Cox Ledge and the surrounding areas as an important spawning ground for Atlantic cod (Deese 2005, Zemeckis 2014b, McBride and Smedbol 2022). Results of recent trawl surveys during the Vineyard Wind/New England Wind pre-construction fisheries surveys completed with UMass Dartmouth's School for Marine Science & Technology (SMAST) have identified spawning condition cod (i.e., ripe, and ripe and running) within and adjacent to the proposed drilling sites (Van Parijs et al. 2022, Van Hoeck and Frey 2024). Additionally, data collected as part of the Cox Ledge Atlantic Cod Project (Van Hoeck and Frey 2024) including passive acoustic monitoring, acoustic telemetry, and biological sampling, also indicate that cod may be spawning within the Southern New England HAPC on Cox Ledge and additional presence throughout Southern New England, including the eastern portion of the SNE WEAs (Van Hoeck and Frey 2024).

Atlantic cod are a species of extraordinary ecological, economic and cultural significance to the New England region. Spawning behaviors necessary for reproductive success make Atlantic cod vulnerable to impacts from disturbances. Atlantic cod spawning involves a complex sequence of competition and courtship behaviors that extend over long periods of time, with individual residence time within aggregations spanning several weeks to months (Rowe and Hutchings 2003; Windle and Rose 2007; Zemeckis et al. 2014a). Spawning across Southern New England, including Cox Ledge and the surrounding areas is known to occur between November and April (McBride and Smedbol 2022; Van Hoeck et al. 2023). Adult cod that spawn in southern New England are primarily residential, with high rates of site fidelity (Zemeckis 2014a & b, McBride and Smedbol 2022), and are genetically distinct from other spawning groups (Clucas et al. 2019; McBride and Smedbol 20 2022). These factors increase the vulnerability of this population to impacts from activities that reduce spawning success.

Cod spawning aggregations are easily disrupted and disturbances may result in the long term to permanent dispersion of spawning aggregations (Dean et al. 2012). Physical habitat disturbance occurring during spawning may interfere with mating behavior and egg production (Dean et al. 2014, Siceloff and Howell 2013). The same is true for acoustic effects, where peer-reviewed science has documented that elevated noise may cause cod to flee, change swim speed and direction, freeze, or seek shelter; and that this behavioral impact can persist well beyond the cessation of the generated noise (Mueller-Blenkle et al. 2010; Engas et al. 1996; Andersson et al. 2017; Stanley et al. 2017; Van der Knapp et al. 2022). Noise-induced stress has been shown to affect reproductive success, particularly for species such as cod, which are bound to specific spawning grounds and have restricted spawning seasons (de Jong et al. 2020). The best available science indicates that direct, physical disturbances of active cod spawning aggregations, or indirect disturbances (e.g. noise) are likely to hinder reproductive success and result in the dispersion of the aggregation or abandonment of the spawning site entirely.

The implementation of temporal restrictions on disruptive activities during vulnerable life stages are among the most successful measures for mitigating disturbance to and facilitating recovery of aggregation-spawning fishes during vulnerable periods (Hammer et al. 2014; Erisman et al. 2017; Chollett et al. 2020; Mooney et al. 2020). Due to the vulnerability of spawning aggregations to physical disturbance during spawning and their high-site fidelity for spawning sites, we generally recommend temporal restrictions on in-water bottom disturbing activities, during the peak spawning period (November 1 – March 31) to avoid and minimize impacts to spawning Atlantic cod. However, according to the Draft EA, the work is proposed to occur between May and August 2025. Because work is proposed outside of the months when cod are expected to spawn in the project area, we do not need to include any recommended temporal work restrictions as an EFH conservation recommendation.

EFH Conservation Recommendations

We recommend, pursuant to Section 305(b)(a)(A) of the MSA, that you adopt the following EFH conservation recommendations to avoid and minimize adverse impacts to EFH:

1. The EFH consultation should be reinitiated if the project timeline for in-water work deviates in any way from what is described in the Draft EA.

Please note that Section 305(b)(4)(B) of the MSA requires you to provide us with a detailed written response to these EFH conservation recommendations, including a description of measures you have adopted that avoid, mitigate, or offset the impact of the project on EFH. In the case of a response that is inconsistent with our recommendations, Section 305(b)(4)(B) of the MSA also indicates that you must explain your reasons for not following the recommendations. Included in such reasoning would be the scientific justification for any disagreements with us over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects pursuant to 50 CFR 600.920(k). Please also note that a distinct and further EFH consultation must be reinitiated pursuant to 50 CFR 600.920(1) if new information becomes available or the project is revised in such a manner that affects the basis for the above EFH conservation recommendations.

Conclusion
We appreciate the opportunity to provide these EFH conservation recommendations. If you have any questions regarding our conservation recommendations or information in this letter, please contact Gabriella DiPreta at gabriella.dipreta@noaa.gov.

Sincerely,

Louis A. Chiarella
Assistant Regional Administrator
For Habitat and Ecosystem Services

cc: C. Boelke, NMFS HESD
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