

ASPIRE 2018 WHITE PAPER SUBMISSION

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WILLING TO ATTEND WORKSHOP?

Yes, both of us willing, plus TBD new BOEM HQ Biological Oceanographer person (filling Greg Boland's (retired) position)

TARGET NAME(S)

See Tables 1 and 2 and Figure 1AK, below.

GEOGRAPHIC AREA(S) OF INTEREST WITHIN THE NORTH ATLANTIC OCEAN

The general area of greatest biological interest to BOEM for future baseline exploration lies between Norfolk Canyon (~37.5°N) and the Georgia-Florida border (~30°N), from 25 nmi offshore to the edge of the US exclusive economic zone. A subset of that general area of particular interest for additional exploration is this polygon:

32.6, -78.8
30.6, -80.3
30.6, -77.0
32.6, -76.0

RELEVANT SUBJECT AREA(S)

Biology, Geology, Physical Oceanography

DESCRIPTION OF TOPIC OR REGION RECOMMENDED FOR EXPLORATION

Within the general areas of interest are found three general, sometimes overlapping habitat types: canyons, corals, and seeps. BOEM's NEPA documents (Environmental Impact Statements) must accurately describe the Affected Environment and projected routine, accidental, and cumulative impacts of potential/proposed leasing activities, including to what it terms "deepwater benthic communities": deep sea corals, sponges and chemosynthetic organisms and associated habitat features and associated communities. Therefore, there is a management need to better understand the basic biology and ecology of these communities, especially as relates to potential impacts and recovery.

Drivers for BOEM interest in future exploration and improved baseline understanding of this region:

- 2019-2024 Oil and Gas Leasing Draft Proposed Program
- Collection of baseline data prior to offshore development
- Better understand Atlantic chemosynthetic communities and supporting seep habitats
- Understanding of resilience of particular habitats to disturbance
- Renewable Energy expansion and likely future operations
- Understanding connections between water column & benthic communities (benthic / pelagic coupling)
- Connectivity along the shelf (biogeography/connections and dispersal among canyons)
- Informing Essential Fish Habitat consultations

BOEM priorities for future exploration and improved baseline understanding of this region:

- Identify sensitive communities in advance of offshore development
- Characterization of Atlantic chemosynthetic communities and associated coral/sessile benthic species
- >200m (biology); >100 m (geohazards and shallow water processes)
- Identifying areas of 'dense' coral, sponge, chemosynthetic communities
- Understanding how deep sea communities will respond to change and how will they recover/adapt
- Slope stability/instability as it could potentially impact future development (geohazards)

RELEVANT PARTNERSHIPS

- Deep SEARCH team: Deep Sea Exploration and Research of Coral/Canyon/Seep Habitats. BOEM-funded (and National Oceanographic Partnership Program-sponsored) study led by TDI Brooks, with Erik Cordes as PI; ongoing field work results should serve as input to NOAA OER future planning; representatives of this team should be invited to the November workshop (we suggest Erik and/or Sandra Brooke). Per E. Cordes regarding rationale for these areas: *"...relevant to BOEM, I think that there is a good deal of mapping that still needs to be done in the southern part of our study area, particularly in the Stetson Banks area and south of the Savannah Banks. This is a really complex area with a lot of different geomorphologies, and presumably biological habitats. It is also relevant to offshore gas exploration. We have a few "postage stamps" of good multibeam in these areas, but there is a lot more to do. This is especially relevant after the Okeanos cruise where they seemed to have found an area of Lophelia mounds extending from Florida up to the Carolinas."*
 - As a follow-on to a previous Atlantic canyons study, one of the focus areas of this study will include submarine canyons south of Norfolk Canyon. A larger portion of the study will focus on other sensitive deepwater ecosystems in the region, including chemosynthetic communities related to hydrocarbon seeps, areas with known presence of deepwater corals, and previously unexplored areas deemed likely to possess deepwater coral ecosystems. Additional exploration of areas with known or likely hard bottom is needed to better understand the distribution and disturbance sensitivity of associated biological communities. The resulting information will be used to develop appropriate protective measures designed to prevent, minimize, and/or mitigate impacts.
- NOAA NCCOS benthic coral/sponge suitability modeling team in Silver Spring: Matthew Poti, Arliss Winship and associated "Data Rescue" team in Charleston (led by Peter Etnoyer). The predicted habitat suitability outputs from this ongoing BOEM-funded study "Data Synthesis and Advanced Predictive Modeling of Deep Coral and Hardbottom Habitats in the Southeast Atlantic" should be useful in showing general areas with high likelihood of coral/sponge presences.

APPENDIX

Table 1 and Figure 1. Sites planned for survey/sampling by 2018 R/V Atlantis / DSV Alvin Expedition AT41 (E. Cordes)

date	site	latitude	longitude	depth
19-Aug	WHOI			
20-Aug	Norfolk seep	36.8654	-74.4929	1600
21-Aug	Pamlico Canyon	34.9576	-75.2047	923
22-Aug	Cape Fear Seep	32.9790	-75.9270	2600
23-Aug	Stetson Deep	32.016	-77.401	825
24-Aug	Blake Deep	31.323	-77.243	1300
25-Aug	Blake Mounds	31.079	-79.492	680
26-Aug	Million Mounds N	30.569	-79.698	590
27-Aug	Stetson Shallow	32.018	-78.322	500
28-Aug	Blake Ridge	32.494	-76.191	2155
29-Aug	Cape Fear	33.567	-76.45	425
30-Aug	Hatteras Canyon	35.2854	-74.9054	933
31-Aug	Norfolk Canyon	37.03294	-74.3173	2000



Table 2. Additional sites of interest to BOEM, that are *not* planned to be surveyed and sampled by Expedition AT41

site	latitude	longitude	depth
Norfolk Canyon deep	37.03294	-74.3173	2000
Norfolk Canyon shallow	37.04607	-74.51171	1400
Norfolk seep	36.883	-74.5	200-1500
Pea Island Seep	35.706	-74.826	500
Keller Cyn	35.533	-74.833	200-1500
Hatteras Cyn	35.283	-74.933	200-1500
Pamlico Cyn	34.95	-75.217	200-1500
Cape Lookout A	34.317	-75.783	400
Cape Lookout B	34.183	-75.883	400
Cape Fear*	33.567	-76.45	425
Cape Fear Seep	32.9790	-75.9270	2600
Blake Ridge	32.494	-76.191	2155
Stetson Banks S	32.033	-77.667	600
Savanna Shallow	32.018	-78.322	500
Savanna Deep	32.016	-77.401	825
Stetson Banks N	31.817	-77.6	600
Savanna W	31.733	-79.167	550
Savanna E	31.7	-78.8	550
Charleston Bump	31.4	-78.833	600
Blake Deep	31.323	-77.243	1300
Blake Mounds	31.079	-79.492	680
Million Mounds N	30.569	-79.698	590