Testimony of

James H. Knapp, Ph.D.

Professor in the
SCHOOL OF THE EARTH, OCEAN, AND ENVIRONMENT
at the
UNIVERSITY OF SOUTH CAROLINA

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OVERSIGHT HEARING
on
"EVALUATING FEDERAL OFFSHORE OIL AND GAS DEVELOPMENT
ON THE OUTER CONTINENTAL SHELF"

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Introduction

Good morning, Chairman Gosar, Chairman Bishop, Ranking Member Lowenthal, and honorable members of the House Subcommittee on Energy and Mineral Resources. It is a pleasure and honor to appear again before this committee, and I applaud you for holding this hearing today. For the record, I am James H. Knapp, Professor in the School of the Earth, Ocean, and Environment at the University of South Carolina, in the great Palmetto State. My comments today represent my own views, and should not be construed to reflect those of my institution or entities that support our research. I will summarize my written testimony in these opening comments, which I submit for the record.

Today I would like to emphasize three points:

- The premise that offshore development is inconsistent with other uses and activities in the near and offshore is a demonstrably false one;
- Even with modern technology, discovery of new energy resources remains a challenging and expensive proposition, as it has from its earliest days; and
- Informed decisions about offshore development potential can only be made with new state-of-the-art data.

Background

By way of background, I am an environmentalist through my upbringing in California during the 1960s and 70s, an Earth scientist through my academic training at Stanford and M.I.T., and for most of the past decade, a vocal advocate for the acquisition of new seismic data on the Atlantic OCS. I believe an all-of-the-above strategy is the only sensible and responsible approach to meeting the energy demands of a vibrant U.S. and World economy going forward.

Compatible Uses of OCS

In the spirit of full disclosure, we currently receive federal grant support from both the Bureau of Ocean Energy Management (BOEM) and the National Energy Technology Laboratory of the U.S. Department of Energy (DoE). Our BOEM funding supports evaluation of the seabed and subsurface of offshore areas of South Carolina for establishing wind energy infrastructure (Figure 1). Through funding from DoE, we along with colleagues from a number of organizations are evaluating the offshore geologic storage potential of CO_2 as a means of mitigating future fossil fuel carbon emissions (Figure 2). The Atlantic OCS in particular appears to offer significant potential for CO_2 storage, in part because previous exploratory drilling has not compromised potential reservoirs suitable for storage.

At the request of the former Minerals Management Service (MMS) and subsequently BOEM, the Department of Defense prepared an evaluation of compatibility of offshore oil and gas development with DoD activities (Figure 3). The 2010 analysis concluded that no more than 1% of the entire Federal OCS was unsuitable for oil and gas development, and an additional 2% was unsuitable for permanent oil and gas surface structures. The 2015 study arrived at similar numbers for areas included

within the 2015 Draft Proposed Plan, concluding that more than 96% of the OCS was either unrestricted (67.2%) or had site-specific restrictions (29.5%).

Challenge of Exploration

Even with modern technology, the discovery of subsurface energy reserves remains challenging. By way of example, I can cite the history of petroleum exploration in Florida, which began with the first well in Escambia County in 1900. It was more than fifty years and hundreds of exploration wells later that the first discovery of oil was made in southern Florida, in the Sunniland trend. In 1970, when the Jay field was discovered in the Florida panhandle, it was the largest domestic discovery in the United States since the giant Prudhoe Bay discovery in the 1960's. As is typically the case with such petroleum data, these Florida wells played a significant role in establishing the scientific basis for plate tectonic theory during the 1960's, documenting based on the rocks discovered at depth that North America and Africa were once connected, and the Atlantic Ocean had subsequently opened where the continents split. While new seismic methods have evolved, particularly for the offshore, the challenge to identify new energy reserves remains a proposition with at best a 70% success rate.

Modern Seismic Surveying

Obviously, neither seismic surveying nor offshore exploration are new to the Atlantic OCS. More than 240,000 line miles (385,000 line km) of 2-D seismic reflection data were acquired off the shores of the U.S. Atlantic between the late 1960s and late 1980s (Figure 4), in support of an earlier phase of petroleum exploration. In preparation for these activities, extensive environmental impact studies were carried out by federal agencies, much as they are today, evaluating the potential impacts of seismic surveying and offshore drilling on tourism, commercial and recreational fishing, and marine shipping and commerce. These other uses of the marine and near-shore environment have continued apace over the last 50 years, despite the previous efforts for offshore energy development, belying the claim that such activities are mutually exclusive.

Despite the enormous scientific value of these legacy seismic data, fully 80% of the territory that was originally included in the draft 2017-2022 5-year plan has never been evaluated with commercial seismic surveys (Figure 5). Furthermore, modern seismic surveys, driven globally by exploration activities over the last two decades (Figure 6), have ushered in fundamentally new models for how continents break and continental margins evolve.

Conclusion

In conclusion, I am encouraged that the new administration appears poised to reinstate an opportunity for market forces to determine whether offshore development on the Atlantic OCS is warranted. Those decisions can only be made in an informed way on the basis of new, state-of-the-art seismic surveys, such that the Federal government might fairly execute its statutory obligation to adequately evaluate the resource potential of this essentially frontier petroleum province, and the private sector might pursue environmentally responsible energy development in the national interest.

Figures

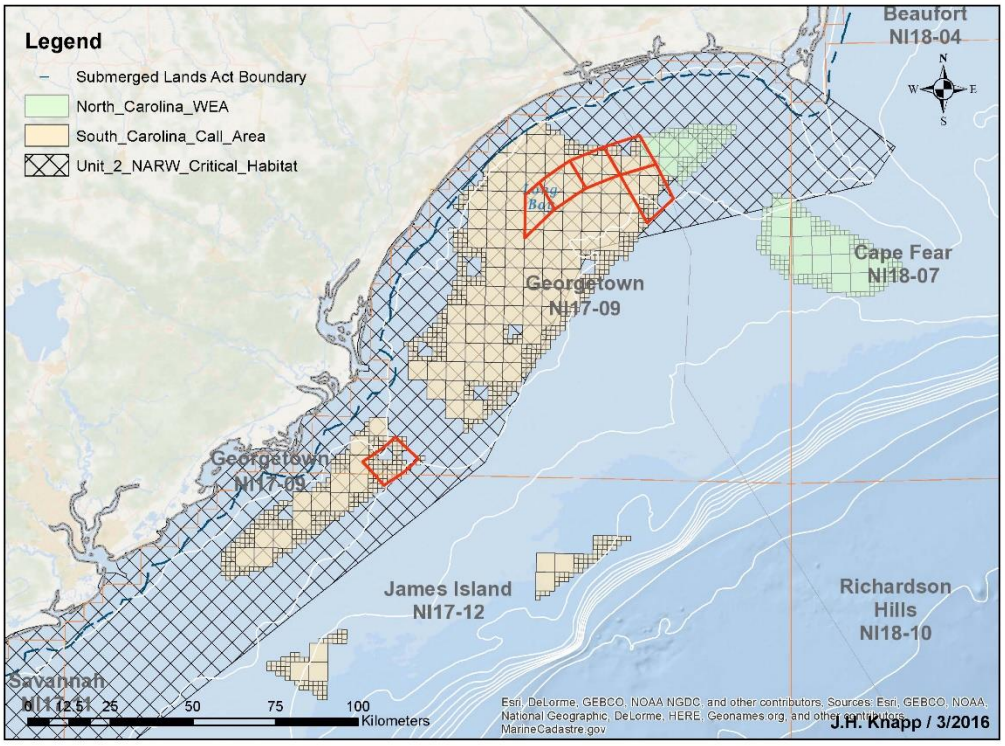


Figure 1. Map of offshore wind energy study area (red boxes) funded by the Bureau of Ocean Energy Management, offshore South Carolina. Marine geophysical methods are used to characterize the seabed and subsurface for suitability of offshore wind energy installations. Study is a collaboration between Coastal Carolina University and the University of South Carolina.

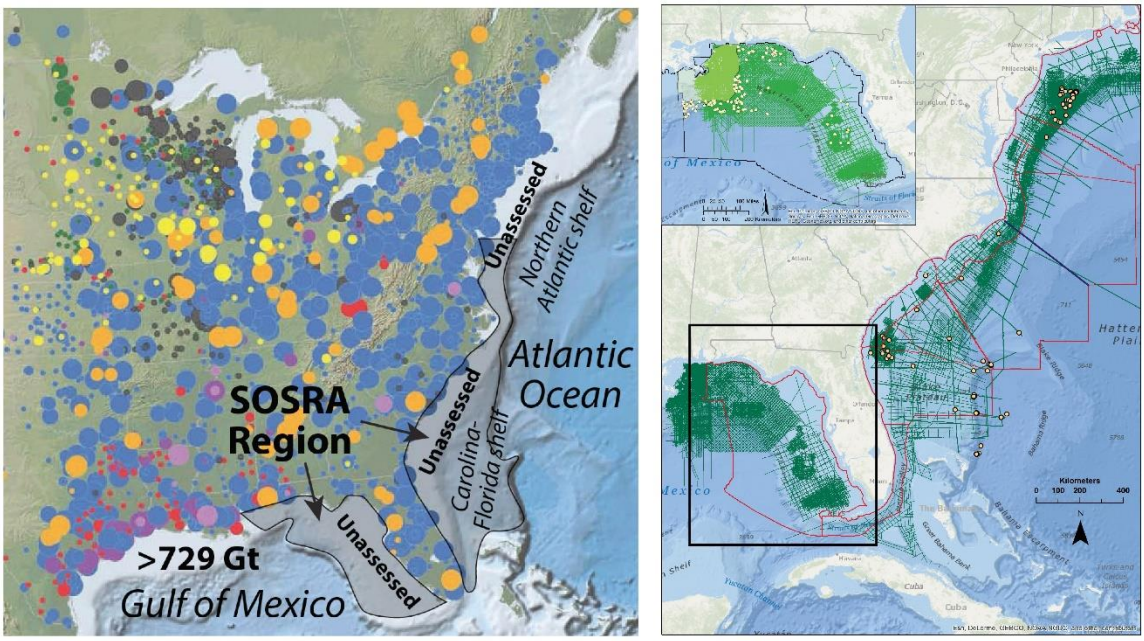
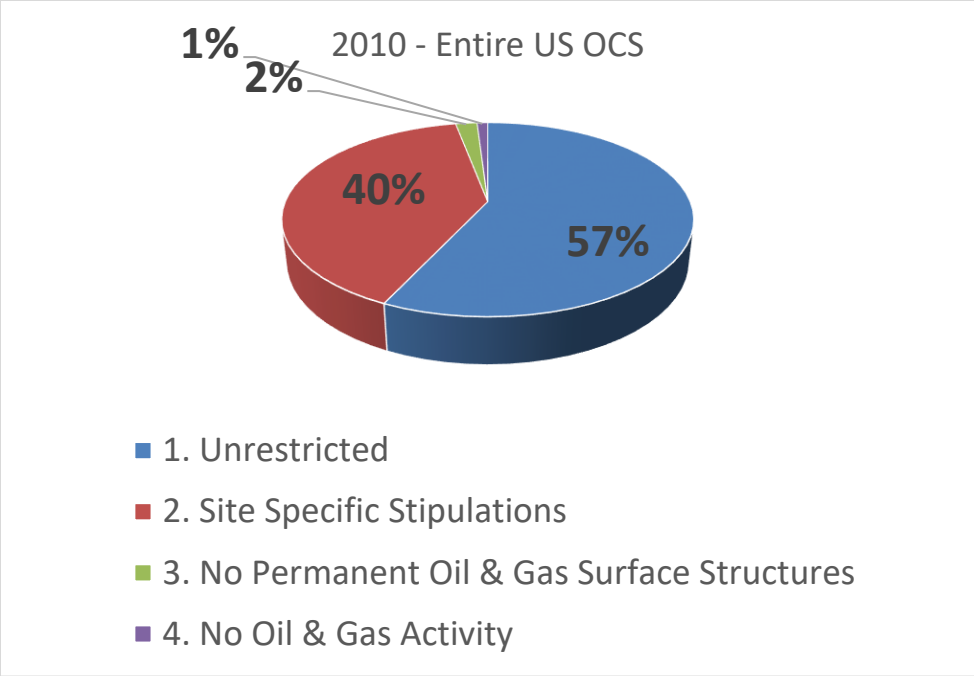


Figure 2. Location map of the Southeast Offshore Storage Resource Assessment (SOSRA) study, funded by the National Energy Technology Laboratory (NETL) of the U.S. Department of Energy, showing (A) map of point sources of CO_2 in the eastern United States (NATCARB database) and (B) location of legacy marine seismic reflection and well data used to characterize reservoir storage potential in the offshore. Study area extends from offshore Delaware to offshore Louisiana, and includes collaborators from Virginia Polytechnic Institute, Virginia Department of Mines, Mining, and Energy, Oklahoma State University, the South Carolina Geological Survey, the Alabama Geological Survey, and coordinated by the Southern States Energy Board.



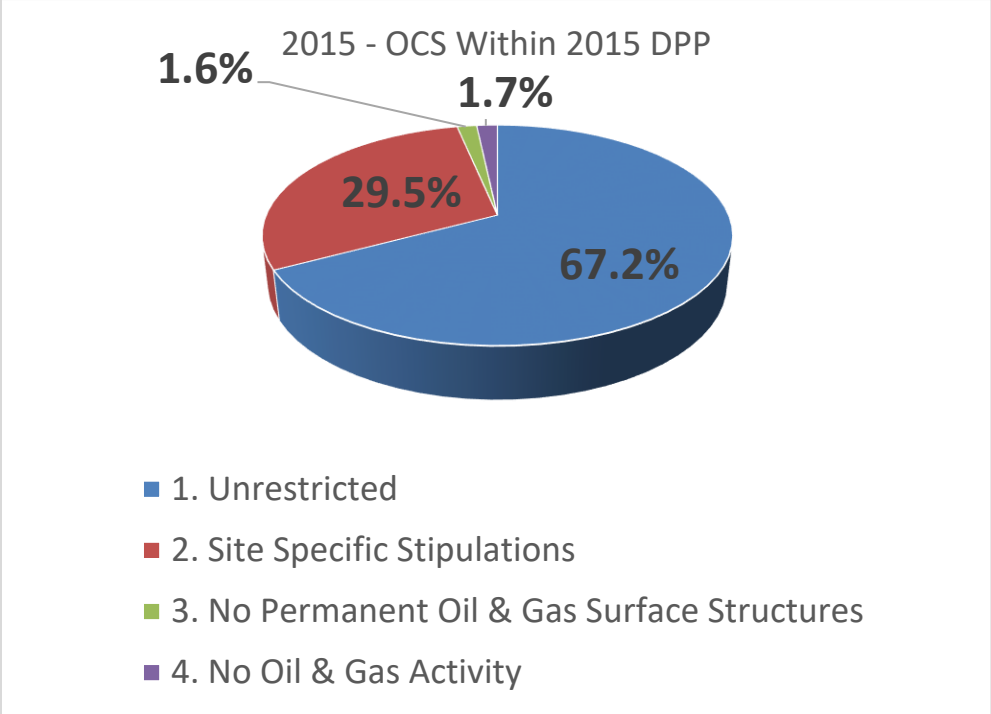


Figure 3. Data from (1) Report on the compatibility of Department of Defense (DoD) activities with oil and gas resource development on the Outer Continental Shelf (OCS) (2010); and (2) DoD Mission Compatibility Planning Assessment: BOEM 2017-2022 Outer Continental Shelf (OCS) Oil and Gas Leasing Draft Proposed Program (2015).

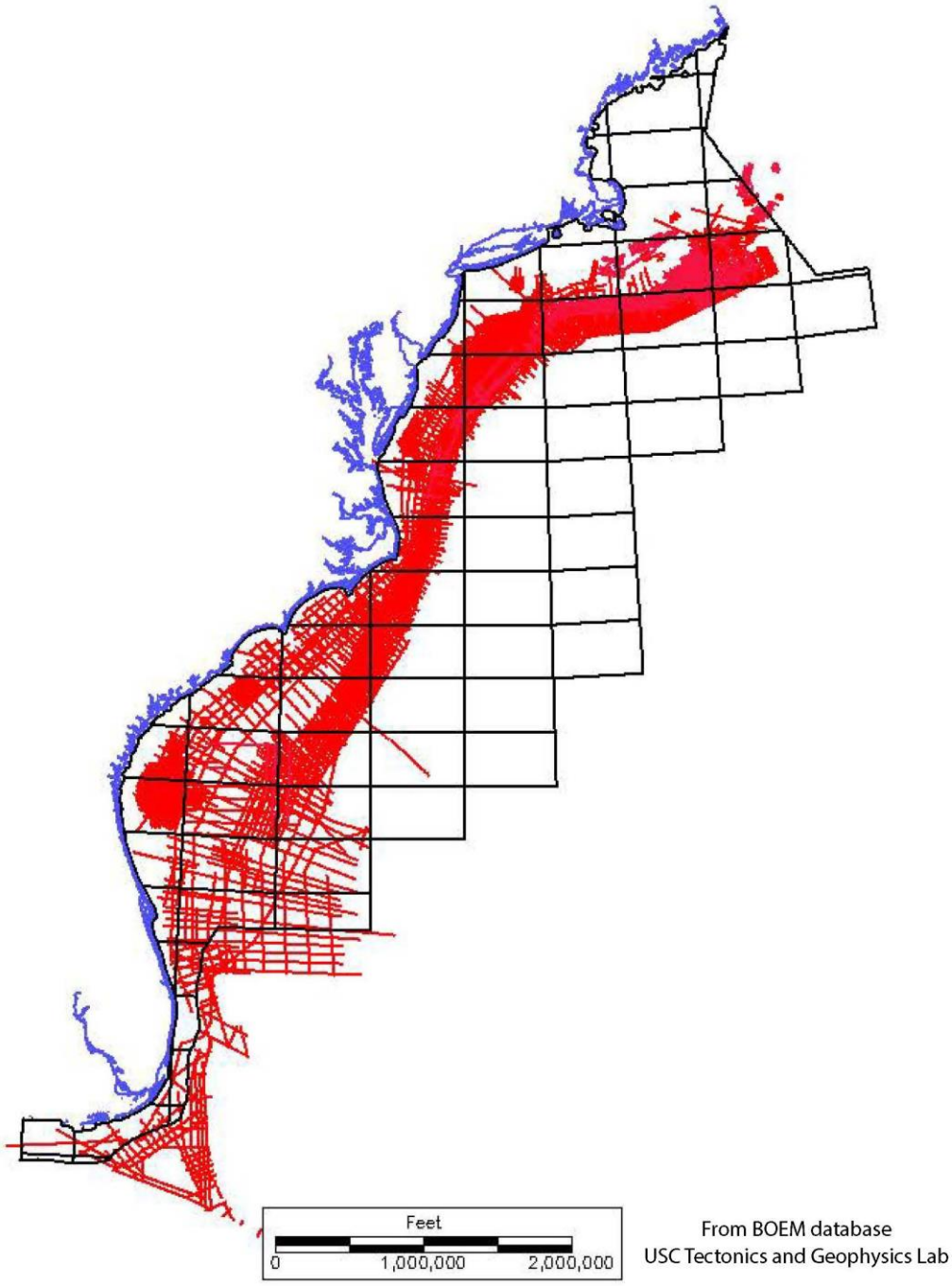


Figure 4. Map of legacy 2-D seismic data on the Atlantic OCS (courtesy of BOEM.) Approximately 380,000 line km (240,000 line miles) of 2-D seismic data were collected in the Atlantic OCS between 1966 and 1988.

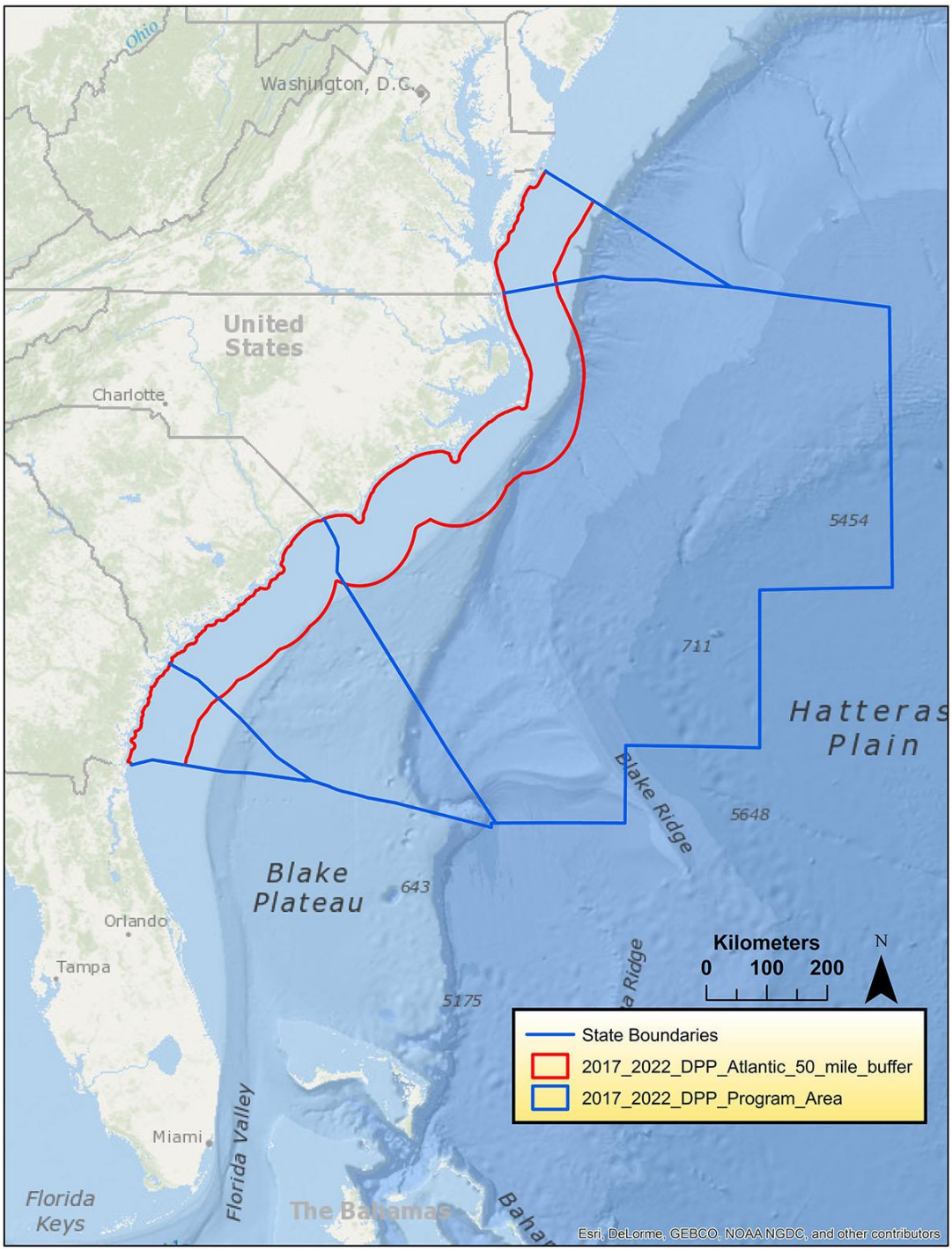


Figure 5. Area within Mid- and South Atlantic OCS Planning Areas originally included in the BOEM Draft Proposed Plan for 2017-2022. Red boundary represents 50 mile buffer zone from state waters. Fully 80% of area which was under consideration for exploration leases has never been the subject of commercial seismic surveys. (Produced at the Tectonics and Geophysics Lab at USC with information from BOEM.)

Figure 6. Map showing current offshore exploration efforts in the Atlantic Basin. Conspicuously absent are the Atlantic continental margin and Eastern Gulf of Mexico of the United States. (Courtesy of G. Steffens, Shell Oil Co.)