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TITLE: A Scientific Basis for Designation of the Northeast Canyons and Seamounts Marine National Monument

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ABSTRACT:

The Northeast Canyons and Seamounts Marine National Monument (NEC&SMNM) was designated by President Barack Obama in 2016, using his authority under the Antiquities Act of 1906. The Act allows a President to proclaim as national monuments "historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest" that are "upon the lands owned or controlled" by the United States but to reserve each designation to "the smallest area compatible with the proper care and management of the objects to be protected." Protection in general excludes commercial scale extraction and is in perpetuity. Analyses of physiographic and ecological data sets facilitated assessment of the conservation benefits of protections for the NEC&SMNM and syntheses of the ecological literature describe processes that operate in continental margin and deep-sea settings. Results indicate that the current monument designation is an area of high diversity and ecological connectivity across depths and along the continental margin. The monument boundaries contain hot spots (areas of high abundance and species richness) for seafloor communities (inclusive of benthic invertebrate and demersal fish) as well as marine mammals in the epipelagic. Many species are sensitive to disturbance and vulnerable to human activities (e.g., deep-sea corals, sponges) with very long recovery times and extremely low resilience. The monument contains at least nine exemplars of offshore northwest Atlantic marine wildlife communities and habitats (e.g., deep shelf invertebrates, shelf fish, deep sea corals and sponges in canyons and on seamounts, deep sea fish, chemosynthetic communities, deep sea soft sediment, shelf edge cetaceans & seabirds). The region is relatively undisturbed and can serve as a reference site to focus future research on ecological processes in an increasingly industrialized ocean and one subject to the synergies of regional climate effects. These results suggest that there is great potential for discovery and novel research in this first Atlantic Ocean Marine National Monument.

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