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Mapping marine ecosystems and anthropogenic threats at the Prince Edward Islands: Towards South Africa's National Biodiversity Assessment 2018

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The Prince Edward Islands (PEI), Southern Ocean, and the surrounding exclusive economic zone (EEZ) have for the first time been included in South Africa's National Biodiversity Assessment (NBA). To do this, we build on marine spatial planning (MSP) done for the 2013 proclamation of the PEI as South Africa's first offshore Marine Protected Area, to build a marine ecosystem classification and habitat map. Biodiversity and habitat data were updated and combined with entirely new datasets. Additions include remote mapping of kelp habitats and manual delineation of a unique deep kelp bed (65 m) using benthic photographs and fine-scale bathymetry; spatial analysis of distributions of Vulnerable Marine Ecosystem indicator taxa; habitat preference modelling for 14 species of top predators; and sediment analysis allowing updated mapping of substratum types of the island shelf. Under the NBA process the updated spatial information was used to assess anthropogenic threats and protection status (representation of habitats within existing protected zones). The main pressure identified is that of long-line tooth fishing which was seen to overlap with several key VME habitats. The work will contribute to development of a Marine Area Plan which is required under South Africa's new MSP legislation, and will be useful to ongoing international efforts between France and South Africa within the CCAMLR Planning Domain 5 centred on Del Cano Rise.