

An indicator-based approach for cross-realm coastal biodiversity assessments

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**Abstract**

Ecosystem status assessments are generally separated into realm-specific analyses (terrestrial, freshwater, estuarine or marine), but without integrating these into a coherent assessment of coastal biodiversity across the land-sea interface. Trends in assessment indicators in coastal versus non-coastal areas have also rarely been considered. In this study we aimed to compile the first cross-realm national biodiversity assessment for the South African coast using three key indicators. The ecological condition, ecosystem threat status, and ecosystem protection level of coastal ecosystem types (n = 186) were determined and compared with those of non-coastal ecosystem types (n = 444). Nearly half (46.9%) of the South African coastal habitat has been degraded compared with 20% of non-coastal areas. Proportionately, there are three-times (60%) as many threatened coastal ecosystem types (or 55% by area) as there are threatened non-coastal ecosystem types (19%, 6% by area). Despite the impacted state of coastal biodiversity, protection levels are generally higher in the coastal zone (87% of ecosystem types have some protection) compared with non-coastal areas (75%), although fewer coastal ecosystem types have met their biodiversity targets (24%, vs 28% for non-coastal ecosystem types). These results illustrate the importance of using a cross-realm approach for status assessments, management and conservation of coastal biodiversity. The assessment methods described are flexible and widely applicable to other regions.