

Advancing land-sea integration for ecologically meaningful coastal conservation and management

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**Abstract:**

Coasts are among our most valuable natural assets but are under intense pressure from human use and climate change. Despite this, coasts – as a coherent ecological unit – have been poorly included in conservation plans, largely because they are inadequately delineated. There are usually gaps and overlaps at the edges of the separate terrestrial-, estuarine- and marine-realm maps, and often no clarity on which specific coastal boundary (e.g., high-water mark) was used, other than vaguely, ‘the coastline’. This particularly compromises conservation and management of ecotonal, intertidal ecosystems along realm-map seams because they are poorly defined and mapped. Therefore, a key step in advancing coastal conservation, assessment, planning and management is to generate a fine-scale ecosystem-type map that is seamless across realms. We undertook this for South Africa, aiming to delineate the ecotone into ecologically meaningful zones comprising structurally and functionally appropriate ecosystem types. We defined and mapped (at<1:3000) the ‘seashore’ as the land-sea interface between the dune scrub-thicket break and the back of the surf zone. The seashore is divided at the dune base into a landward ‘backshore’ and seaward ‘shore’, with the inherent dynamic variability included in the boundary delineation and constituent ecosystem types. Estuaries were also embedded into the map. Finally, we created rules for including adjacent terrestrial and marine ecosystem types in an ecologically determined coastal zone. We describe what tools this seashore integration and coastal delineation has unlocked, and how this places South Africa in a strong position to manage and conserve its coast.