

Genetic connectivity and hybridisation between temperate and subtropical rocky shore ascidians, *Pyura* spp

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Population connectivity is an important issue to understand the factors regulating the abundance and distribution of marine species. The present study utilises as model organisms southern African intertidal ascidians of the genus *Pyura*, namely *P. stolonifera* and two genetically distinct forms of *P. Herdmani*, of which one occurs in the temperate marine bioregion and the other in the subtropical and tropical bioregions. The hypothesis is that subtropical and temperate evolutionary lineages of *Pyura* hybridize on the south-east coast in the transition zone between the region's major coastal biogeographic provinces, and that hybrids will also be found primarily south of this region, as large-scale dispersal is most likely facilitated by the southward-flowing Agulhas current. DNA was extracted from 630 animals collected at thirteen different sites, from Port Edward to Port Elizabeth, and nuclear genetic markers were used to assess gene flow between different populations and species, and to investigate levels of hybridization. The data generated for these model organisms can provide information on the design of marine parks, and the effects of global climate change on the distributions of coastal fauna.