WORKING PROJECT TITLE	Monitoring for alien species in marine protected areas
CORE TEAM MEMBER	Prof Tammy Robinson
ACADEMIC LEVEL OF THE PROJECT	PhD
PROJECT BACKGROUND	Despite the recognized threat that alien taxa pose to native biodiversity and the integrity of recipient systems, no dedicated monitoring for alien species currently takes place in South African MPAs. In acknowledgment that MPAs support different habitats (e.g. sandy shores, rocky shores, kelp beds), there is a need to develop an offering of sampling protocols that MPA authorities can draw on based on their specific needs. However, protected areas enjoy limited funding and thus protocols need to be effective and cost-efficient. Offering a variety of approaches will enable managers to choose the most effective protocol based on their staff capabilities and financial means. This project will 1) Experimentally determine optimal sampling protocols (accounting for detection and cost) for all habitat types supported in South African MPAs; 2) Apply the protocols in multiple MPAs to assess the prevalence of marine alien species; 3) Use the data gathered in 2 in a modeling approach to identify MPAs that are most at risk of invasions and that should be prioritized for monitoring and 4) Integrate all sections above into a national monitoring plan for MPAs.

This project will initially entail a variety of fieldwork. A scientific dive qualification or a willingness to qualify will be advantageous. Students with a sound statistical background and a logical approach are encouraged to apply.

FURTHER READING	Robinson TB, Peters K, Brooker B. (2020) Coastal invasions: The South African context. In: van Wilgen BW, Measey GJ, Richardson DM, Wilson JR, Zengeya TA (eds) *Biological invasions in South Africa*. Springer Nature pp 229-247. Peters K, Sink KJ, Robinson TB (2019) Sampling methods and approaches to inform standardized detection of marine alien fouling species on recreational vessels. *Journal of Environmental Management* 230: 159-167. Spear D, Foxcroft LC, Bezuidenhout H, McGeoch MA. (2013) Human population density explains alien species richness in protected areas. Biological Conservation 159: 137-147. http://dx.doi.org/10.1016/j.biocon.2012.11.022
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