Inaugural lecture summary: Marine Apex Predators – Sentinels of Oceans under Siege

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Marine apex predators – a term conveniently used to denote upper-trophic level predators – include seabirds, marine mammals and sharks. These animals are generally visible and available for observations for some part of their annual cycle. This, together with them absorbing lower-trophic level changes in either their demographics, such as population growth and fecundity, or their behaviours, such as movement patterns and habitat use, has led to their use in detecting large scale changes in marine ecosystems. As 'sentinels' of the oceans they also receive much public attention drawn to their charismatic appeal.

In this presentation I will start off by sharing my journey which led to an interest in marine apex predators and marine systems. I have been fortunate to spend time in some of the more remote parts of the world and been able to study marine predators in areas where direct human impacts have been limited and I will share these experiences.

I will then discuss some case studies of our recent and ongoing research on marine predators and highlight how they can be used to better understand and manage changes in marine ecosystems, stemming from over exploitation of resources as well as climate change. In particular, I will draw attention to how the field of 'biologging science' – the science of studying animals through deployment of instrumentation on study animals – has greatly improved our understanding of conservation threats that marine predators face, and also allowed the identification of areas of ecological and biological importance that can benefit from spatial protection.

I will further discuss the interaction between fisheries and marine predators that compete for the same marine resources. Seabirds such as Cape gannets and African penguins are particularly noteworthy in this regard as they are easily studied at breeding colonies and their behavioural characteristics – such as effort expended in finding food – is indicative of prey abundance. Such information can be integral to sustainable fisheries management in an ecosystems-based approach to resource management.

I will conclude the presentation by drawing attention to the student, post-doc and more senior team that form part of the Marine Apex Predator Research Unit (MAPRU) at Nelson Mandela University and will highlight some key research findings not touched on above. I will conclude by arguing for the value of using marine apex predators to communicate biodiversity challenges to the public and the importance of social media to obtain this objective.