

# Nikki Phair

## **PhD Project Title: Vulnerability, resilience and adaptation of the seagrass, *Zostera capensis***

### **Description:**

With global change being an inevitable feature in the future of our planet, it is important to study its potential impacts on vital resources, such as exploited species, biological and genetic diversity, and essential ecosystem services. This is even more important due to increased human population, resulting in multiple environmental stressors and an increased usage of marine resources. Estuarine areas are highly important spawning areas and nurseries for marine and freshwater species, including important fishery species. This is largely due to the keystone seagrass species inhabiting estuaries. As such, the persistence of seagrass through global changes will be of vital importance both ecologically and economically in many regions, including the Western Cape. With pressures on marine systems intensifying, it becomes increasingly pertinent to study the resilience and resistance of key species such as the southern African seagrass, *Zostera capensis*. It is essential to identify areas which may serve as buffers to environmental change, allowing for the persistence of the species and its ecosystem services. The study of genetic diversity and adaptive variation of non-model organisms has recently become much more accessible with the development of next-generation sequencing approaches, allowing us to investigate the relation between adaptation and resilience to environmental change. Intraspecific genetic diversity is the foundation for biodiversity, and as such its conservation has been recognised by the IUCN and emphasised in the Convention for Biological Diversity. Genetic diversity in seagrasses has been linked to resilience and resistance to environmental changes. Genetic diversity has also been found to influence ecosystem functioning. This project seeks to integrate genetic information into spatial prioritisation for the preservation of the seagrass and its essential ecosystem services, which to date remains an infrequent application, despite genetic diversity acting as a foundation of biodiversity. Importantly, it is the first project to do so with seagrasses in Africa, using a genomic and conservation genetic approaches.

### **Supervisors:**

[Dr Sophie von der Heyden](#) (Stellenbosch University)

### **Personal Interests:**

When I am not working, I enjoy painting, hiking, horse riding and spending time in nature. As such, I have combined my love of nature and my scientific curiosity into a focus on conservation of natural systems.

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