

Genetic investigation of reproductive philopatry of the raggedtooth shark
(*Carcharias taurus*) along the South African coast

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Reproductive philopatry is a behaviour where animals remain or return to specific areas for mating, gestating or pupping. Philopatric behavior has been documented in various marine animals and previous studies have shown that shark populations may be characterised by regional genetic structure at scales of 100s of kilometres due to reproductive philopatry. The effects of overfishing, anthropogenic activities and environmental stressors could have a more dramatic effect on populations whose individuals are philopatric and depend on a specific locality, compared with those that are part of a larger homogeneous stock. Special efforts for conservation and management need to be applied for reproductively isolated females that might constitute partially independent reproductive units, each of which may exhibit distinct demographic processes. Due to restricted gene flow between these units, the probability of reproductive mixing and population recovery as well as genetic diversity is reduced. In this study, mitochondrial and microsatellite markers are used to investigate how reproductive philopatry shapes the genetic structure of raggedtooth sharks (*Carcharias taurus*) along the south-east coast of South Africa. By analysing DNA samples taken from young of the year and juvenile sharks with restricted movement outside of their specific nursery areas, we were able to disentangle genetic structure on a small geographic scale. The integration of genetic data with tagging data will further improve our understanding of this species' behaviour by delivering a more complete picture of migration and population connectivity. Ultimately, this project will guide management decisions for successful and sustainable conservation of these apex predators.