

Population genetics of the inshore Bryde's whale (*Balaenoptera edeni brydei*) off southern Africa

Dominique Paynee^{1, 2}, Paulette Bloomer^{1, 2}, Gwenith Penry³, Simon Elwen⁴, Els Vermeulen¹

1. Mammal Research Institute, Department of Zoology and Entomology, University of Pretoria, South Africa
2. Molecular Ecology and Evolution Programme, Department of Biochemistry, Genetics and Microbiology, University of Pretoria, South Africa
3. Institute for Coastal and Marine Research, Nelson Mandela University, Gqeberha, South Africa
4. Sea Search, Research and Conservation, Muizenberg, South Africa & Department of Botany and Zoology, Stellenbosch University

Introduction:

- South Africa's inshore Bryde's whales → restricted coastal distribution
- < 1,000 mature individuals
- South Africa's largest resident marine predator
- Genetically isolated
- National listing: Vulnerable

Aim:

- To assess the level of genetic diversity and spatial structure in the inshore Bryde's whale (*Balaenoptera edeni brydei*) population in southern Africa using molecular markers

Methods: Microsatellite genotyping and mtDNA sequencing

- Assessment on different time scales
- Individual identification
- Relatedness
- Genetic diversity
- Population structure
- Population connectivity
- Phylogenetics



Discussion:

- Little genetic differentiation between individuals (Figure 1)
- Low nucleotide & haplotype diversity (Figure 2), and allelic richness
- South Africa shares a haplotype with an individual sampled in Java
- First evidence of Indian Ocean wide gene-flow
- High number of second order relationships (Figure 3)
- No significant inbreeding



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Results

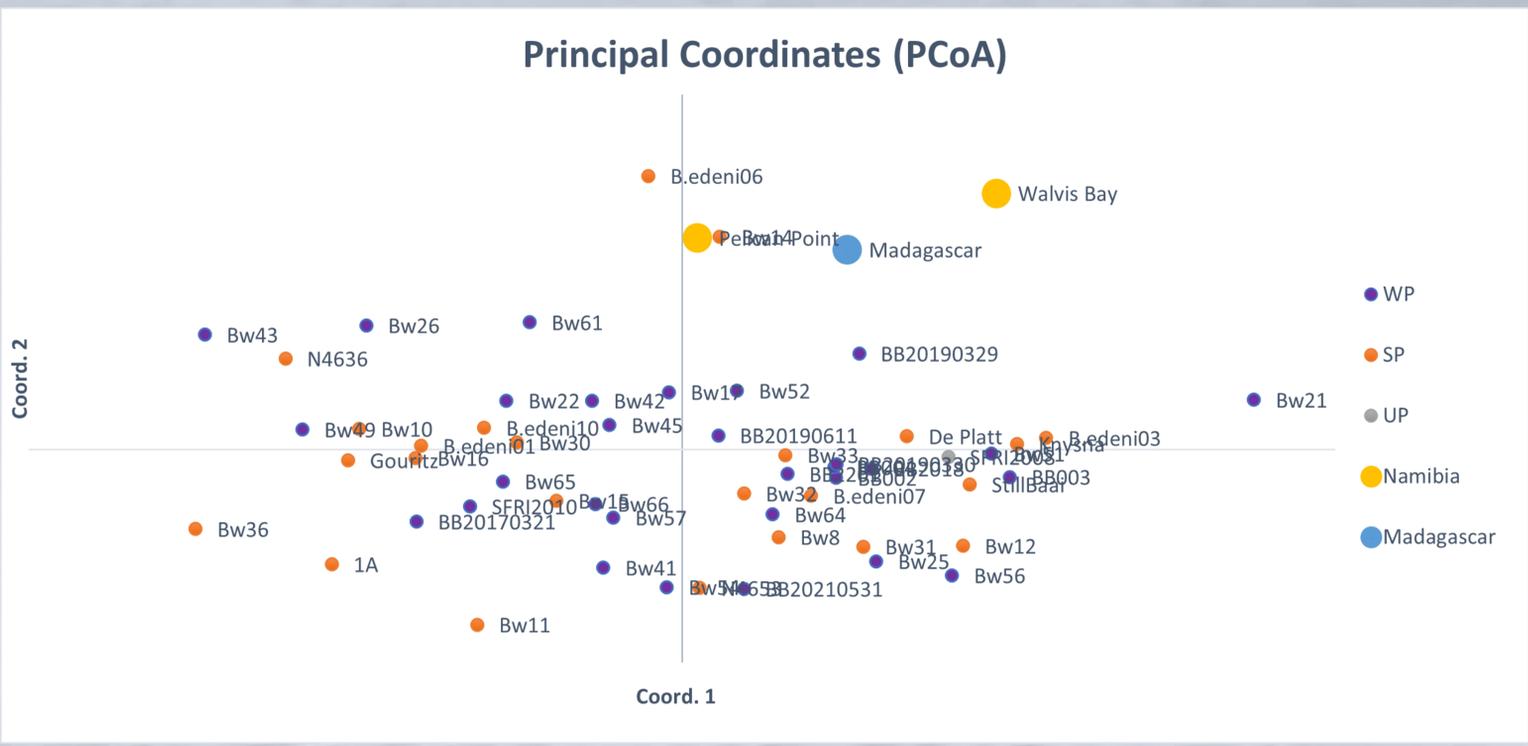


Figure 1. Principal Coordinates Analysis based on 85 unique microsatellite genotypes. Sampling location is indicated in the key. WP= Individuals sampled on west coast of South Africa, SP= Individuals sampled on south coast of South Africa, UP= Individual sampled at unknown location in South Africa

South Africa's inshore Bryde's whales form one population with evidence of low genetic diversity

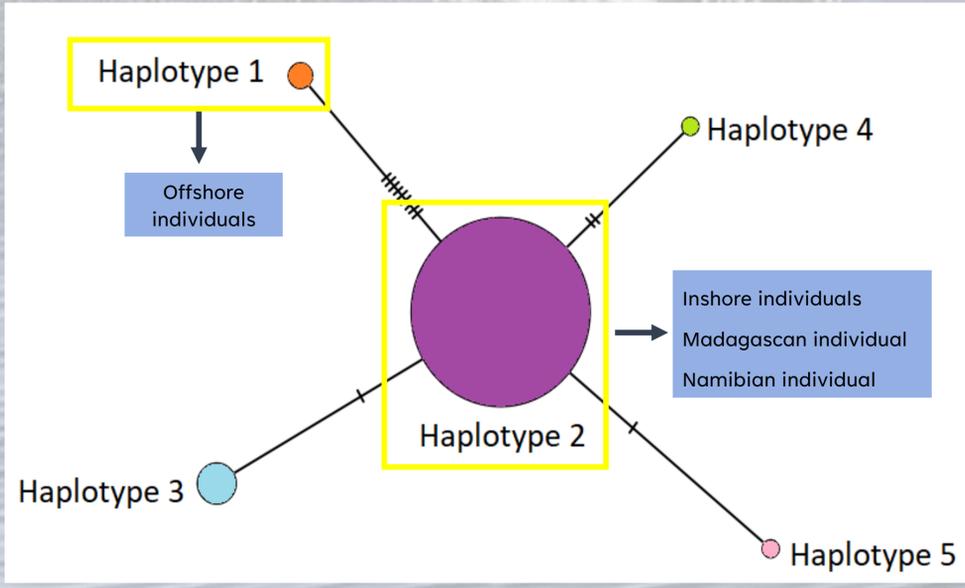


Figure 2. TCS allele network based on South African Bryde's whale mtDNA control region data

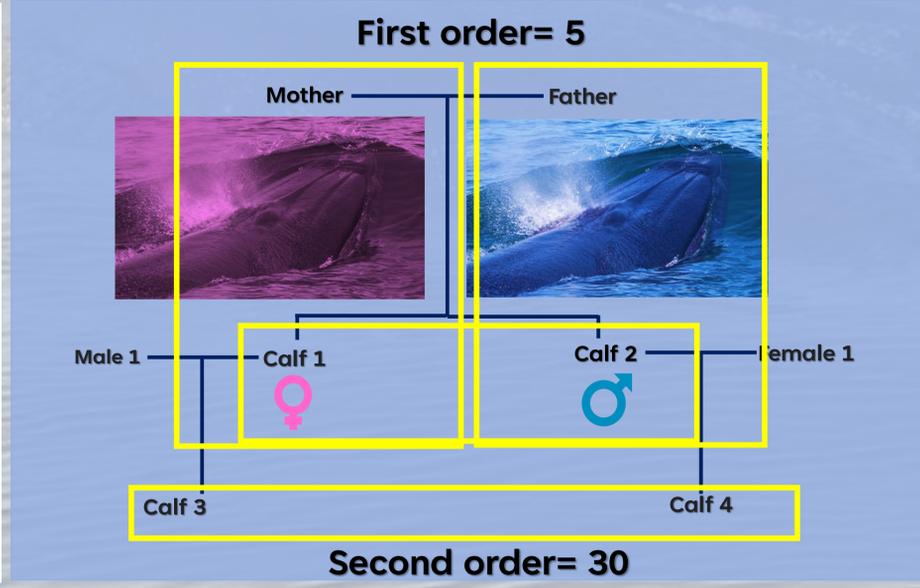


Figure 3. Mock pedigree to show the levels of relatedness detected among the samples