Connectivity of *Amphiprion akallopisos* (skunk anemonefish) in the Western Indian Ocean using microsatellite markers.

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INTRODUCTION

- Popular species in the pet and aquarium hobbyist trade (Fig. 1)
- Local overexploitation of populations and consequent destruction of coral reefs
- Networks of marine protected areas (MPAs) are necessary
- Connectivity among populations through larval dispersal should be taken into account when designing MPAs
- This study: determining connectivity in the Western Indian Ocean (WIO) by using microsatellites as genetic markers

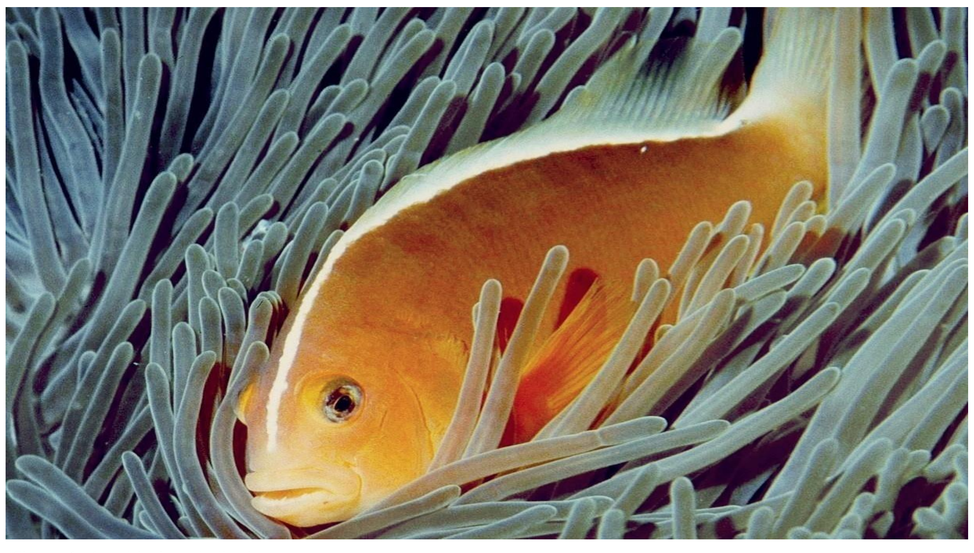

Figure 1*: Amphiprion akallopisos* (photo: M. Kochzius)

Research questions:

1. Is a genetic break present between the populations of Madagascar and the African mainland?
2. Is there gene flow between the east and west coast of Madagascar?
3. Are the results comparable when using mitochondrial DNA, a generally slower evolving genetic marker?

MATERIAL AND METHODS

SAMPLING

- Samples of 124 individuals
- Collected at 6 different sites in the WIO during SCUBA-diving (Fig. 2)
- Finclips were preserved in 96 % ethanol

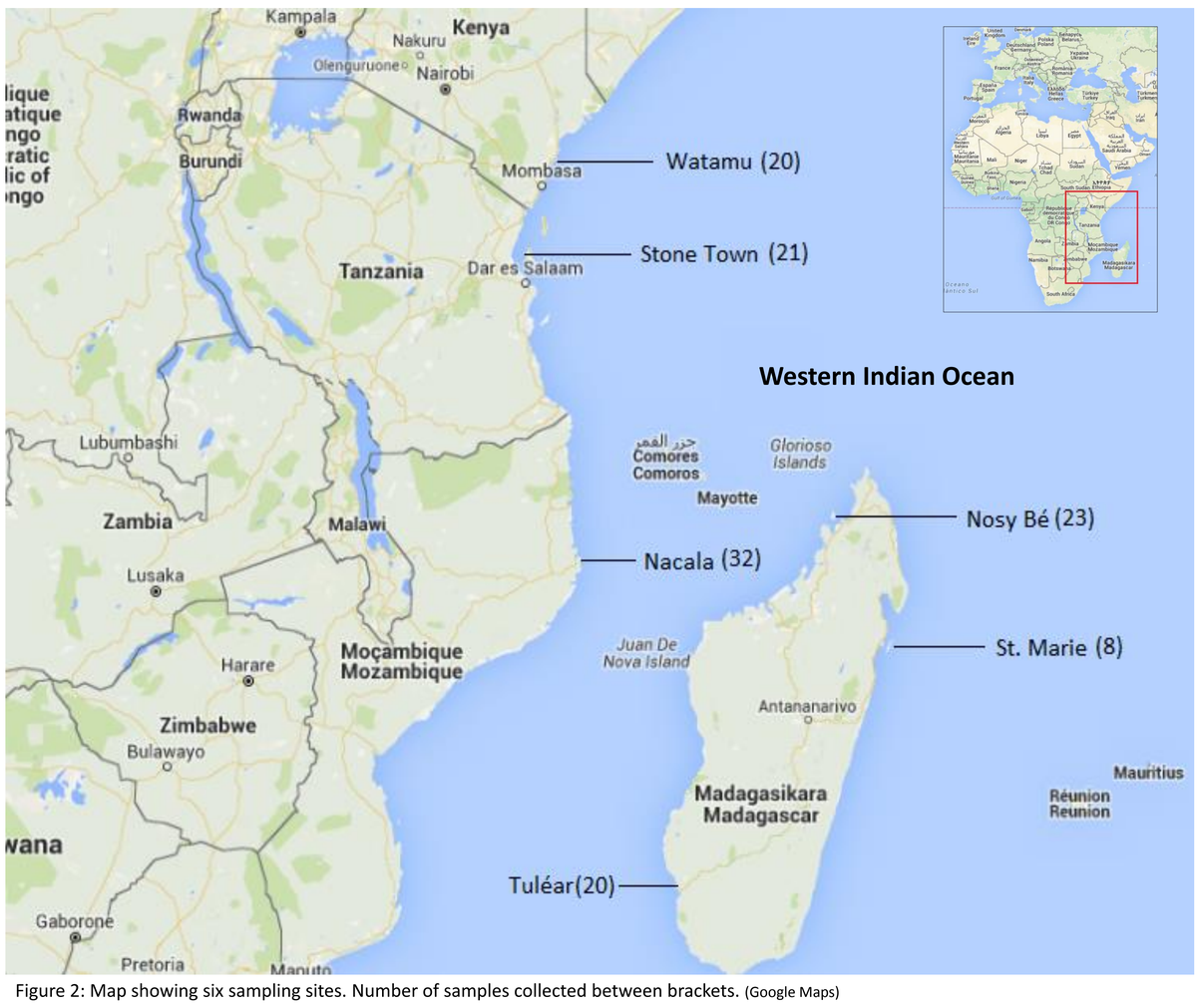

Figure 2: Map showing six sampling sites. Number of samples collected between brackets. (Google Maps)

GENETIC ANALYSIS

- DNA extraction
- Multiplex PCR with four different fluorescent labels applied to two sets of eight microsatellite markers (table 1)
- Scoring with program Genemarker
- Further DNA analysis with the programmes Genalex, Arlequin and Structure.

Table 1: Applied microsatellite loci

LOCUS	PRIMER SEQUENCE	REPEAT	LENGTH (bp)
A130	F: GCACTCAACACAAAGACCTTA R: ACCCAAACAACATCCAGTC	CA	200-300
D103	F: GTTGGCTAATGGTGCTGTG R: GATTCTGTGGTGGCATCAG	GATA	200-250
B6	F: TGTCTTCTCCCAAGTCAG R: ACGAGGCTCAACATACCTG	CATC	100-200
Am1	F: ACAAAGCCTTCATGTGGGTC R: CGCAAGTGTTGCCTCATAGA	TG	100-150
Am6	F: AGCAGAGAGGAAAGAAGGGC R: CAAGTGCCTGGCAGAAGATT	TGT	200-300
Am7	F: TGTCGCTACGACAGACTGCT R: GCATGAGTGATTGGACCCTA	ATG	80-100
Am9	F: TGCTGCACTCTGTCTATTTTGT R: GTGACTGAAGGCAAGGCAAT	TTA	200-250
Am10	F: GGAAGCAGCAATAAAGACGC R: AGAGACGCCTGATGGTGAGT	ACAG	250-300
Am17	F: GGCTGTCTGGGATGAGATGT R: TGTTCTGCAGATGGACTGTTTT	AATA	150-200
44	F: TTGGAGCAGCGTACTTAGCT R: AGATGTGTTTACGCACGCTT	GT	200-250
61	F: TGAACACATAAACGCTCACTCAC R: AAGACAATGCCTCCACATATCTA	GT	300-350
10TCTA	F: GGGACGTATCTGTTGGAAATGAT R: TTAAGGTACTGTGAGATGAGACT	TCTA	500-600
CF11	F: GCTGGTTACAACACCTTG R: GTAATTGCTGCAAGACAG	CT/CA	150-250
120	F: TCGATGACATAACACGACGCAGT R: GACGGCCTCGATCTGCAAGCTGA	GT	400-500
AC137	F: GGTTGTTTAGGCCATGTGGT R: TTGAGACACACTGGCTCCT	AC	350-450
D114	F: TGTTCCAGCTCTGATATTTGAC R: TTGGCAGTGTTTTATACCTGTC	GATA	200-250

The results of this study will contribute to the conservation and management of coral reefs and its inhabitants.

Acknowledgement

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