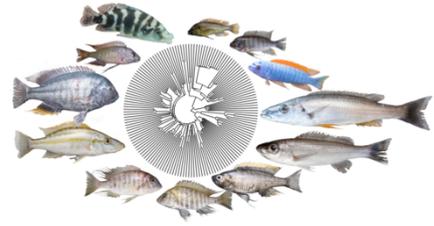


PhD position in Cichlid Fish Evolutionary Genomics in the Svardal lab at the University of Antwerp

The [Svardal lab](#) at the University of Antwerp (Belgium) has a PhD position available in evolutionary genomics of Lake Malawi cichlid fishes and is looking for talented and highly motivated candidates to start in early 2019 (starting date negotiable).



The hundreds of closely related but ecologically diverse species of Lake Malawi cichlids provide an exceptional model to study the genomic mechanisms involved in rapid adaptation and diversification. We are working on understanding both the fundamental evolutionary processes involved in the formation of new species and the molecular basis of adaptive phenotypes. Our main scientific approach is the analysis of large-scale genome sequencing data using population genetic and statistical genomic techniques. Recently, we have also established experimental populations of Lake Malawi cichlid fishes, aiming to study physiological and behavioural phenotypes involved in rapid adaptation to heavy fishing pressure. PhD topics include:

- **Understanding the role of old genomic variation in rapid adaptation.** We have recently found that Lake Malawi cichlids harbour genomic regions of exceptionally high genetic diversity (Svardal et al., in preparation). This project focuses on analysing recent whole-genome sequencing data of hundreds of Lake Malawi cichlid fish species to infer the evolutionary origin of genomic regions of high genetic diversity. Accordingly, we seek to test whether the ancestor of Lake Malawi cichlids obtained these genetic variants by hybridisation with a divergent lineage of cichlid fish and whether this variation has been maintained by balancing selection. Secondly, population genetic methods will be used to identify the role of these genetic variants in ecological adaptation and speciation.
- **Uncovering the genetic basis of recent adaptation to intensive fishing using museum genomics.** Besides their role as a model system in speciation research, Lake Malawi cichlids are food for millions of people, and suffer a recent and strong increase in fishing pressure. Some cichlid populations have seemingly adapted their life histories to intense fishing by maturing at substantially smaller sizes compared to less intensively fished populations. This project involves analysing genome sequencing data from museum collections spanning 130 years in order to identify genetic variants, genes, and molecular pathways evolving in response to fisheries-induced selection. Together with differential gene expression analysis and trait mapping in laboratory populations (optionally as a separate project) this will yield unprecedented insight into the molecular and phenotypic responses to fishing, a question of global importance.

Desired qualifications

- Master's degree in Biology, Mathematics, Computer Science, or a related field
- Understanding of the basic principles of population genetics and strong motivation to develop further quantitative skills in this field
- Some experience with computational data analysis, statistics, and programming (e.g., R, Python, command line) and strong motivation to acquire further skills in these fields

We offer

- An attractive doctoral scholarship for 4 years (contingent on positive evaluation after 1 year)
- Great genomic and computational resources and fish facilities
- Funds for conference travel and the option to engage in field work in Africa
- A stimulating, international working environment

Interested? Please contact hannes.svardal@uantwerpen.be including, in a single pdf, a CV, a short statement of motivation/research interest (max. 1 page) and the names of two referees, preferably by **20th December 2018**, but later inquiries are also welcome.