



# Lessons in Physiology from a Fish Living in the Most Extreme Aquatic Environment on Earth

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Studies on animals living in extreme environments may elucidate basic principles in physiology, because the nature of adaptations which are subtle in moderate environments become more obvious when animals are pushed to extremes. The Magadi tilapia, *Alcolapia grahami*, a small cichlid fish of Lake Magadi, Kenya is the only known 100% ureotelic teleost fish, excreting entirely urea and no ammonia. This species lives in one of the most severe aquatic environments on earth, characterized by extreme alkalinity, unusual water chemistry, and challenging O<sub>2</sub>, ROS, and temperature regimes. Its physiology was first investigated by Kjell Johansen, Geoffrey Maloiy, and Gunnar Lykkeboe in 1975. We have studied this fish for over 30 years, and continue to be amazed by its multiple adaptations to its many stressors. Our most recent work focuses on the respiratory metabolism and swimming energetic of a population that survives at temperatures greater than 45°C. The Magadi tilapia represents a bellwether organism for global warming.



**Thursday April 11<sup>th</sup> at 15.00**

***Aarhus Institute of Advanced Sciences***