

**Senior Post-doctoral Research Associate – Further Information – Coral Reef Fish Ecology:
Determinants of Fish Nutrient Quality (ERC)**

PI: Dr. Christina Hicks

Project partners:

Prof. Nick Graham, Lancaster Environment Centre, Lancaster University, UK

Dr. Andrew Thorne Lyman, Johns Hopkins Bloomberg School of Public Health, USA

Dr. Aaron MacNeil, Department of Biology, Dalhousie University, Canada

The Project

Lancaster Environment Centre (LEC) is seeking to appoint a Senior Post-Doctoral Research Associate in marine or nutrition science. The project is in collaboration with Dalhousie University and John Hopkins University, enabling collaborative opportunities.

Over a billion people suffer from micronutrient deficiencies that can cause stunting and premature death (Black et al 2013, FAO 2016). In East Africa, 124 million people are food insecure, with coastal areas along the Western Indian Ocean (WIO) often the most affected. Although fish are particularly high in many micro and macronutrients essential to health and development (Thilstead et al 2014, Bogard et al 2015), there is considerable variation in nutrient concentrations among species. Furthermore, over the past 20 years, overfishing and climate change has altered fish community composition in the WIO (McClanahan et al 2008, Graham et al 2015) while food insecurity has increased by 20% (FAO 2016). Consequently, particular effort is needed to understand 1) which species have the greatest concentrations of key nutrients; 2) where these species are found; and 3) how have the nutrients available within individual species of fish, and across fish community assemblages, changed under contemporary conditions of fishing pressure and climate change.

This is part of an ERC funded project FAIRFISH that tackles hidden hunger (micro-nutrient deficiencies) within small-scale fisheries in the WIO. FAIRFISH aims to develop a theoretically grounded and interdisciplinary understanding of the ecological and socio-cultural determinants of the nutritional contributions small-scale fisheries make to human health by: 1) establishing the ecological and environmental determinants of nutrient availability from fish; 2) determining how power enables or constrains access to nutritious fish; 3) quantifying how key social drivers impact nutritional inequality; and 4) uncovering new opportunities to meet nutritional needs. Consequently, you will be part of an interdisciplinary project involving both ecological and social scientists at Lancaster University, and will be expected to work closely with partners in statistical ecology, human nutrition, and fisheries development.

Further reading:

- Black, R.E., Victora, C.G., Walker, S.P., Bhutta, Z.A., Christian, P., De Onis, M., Ezzati, M., Grantham-McGregor, S., Katz, J., Martorell, R. and Uauy, R., 2013. Maternal and child undernutrition and overweight in low-income and middle-income countries. *The lancet*, 382(9890), pp.427-451.
- FAO. 2016. The State of World Fisheries and Aquaculture 2016. Contributing to food security and nutrition for all. Rome. 200 pp.
- Thilsted, S.H., Thorne-Lyman, A., Webb, P., Bogard, J.R., Subasinghe, R., Phillips, M.J. and Allison, E.H., 2016. Sustaining healthy diets: The role of capture fisheries and aquaculture for improving nutrition in the post-2015 era. *Food Policy*, 61, pp.126-131.
- Bogard, J.R., Thilsted, S.H., Marks, G.C., Wahab, M.A., Hossain, M.A., Jakobsen, J. and Stangoulis, J., 2015. Nutrient composition of important fish species in Bangladesh and potential contribution to recommended nutrient intakes. *Journal of Food Composition and Analysis*, 42, pp.120-133.
- McClanahan, T.R., Hicks, C.C. and Darling, E.S., 2008. Malthusian overfishing and efforts to overcome it on Kenyan coral reefs. *Ecological Applications*, 18(6), pp.1516-1529.
- Graham, N.A., Jennings, S., MacNeil, M.A., Mouillot, D. and Wilson, S.K., 2015. Predicting climate-driven regime shifts versus rebound potential in coral reefs. *Nature*, 518(7537), p.94.

The Department

Lancaster Environment Centre forms one of the largest and most prestigious groups of interdisciplinary environmental researchers in the world, with over 200 staff, and research and teaching that span the Environmental, Biological and Social Sciences. Within LEC, there is particular strength in high diversity tropical systems, including coral reefs and tropical rain forests. LEC was formally constituted on 1st August 2008 through the merger of three successful university departments (Environmental Science, Geography and the non-Medical parts of Biology) and now operates as a fully integrated university department on a single site. It is the largest department in Lancaster University and a key player in the strategic development of the institution and the Faculty of Science and Technology. The co-location of the NERC Centre for Ecology and Hydrology on the Lancaster campus as part of the LEC complex adds critical mass in environmental research capacity enabling staff from both organizations to work closely together in a formal collaboration. LEC currently admits about 240 undergraduate students and 100 postgraduate (MSc/PhD) students each year and teaches across a wide range of degree schemes.

The University

Lancaster is the Times University of the Year and is ranked 6th overall in the UK. The university continues to grow its reputation for teaching and research excellence both nationally and internationally. Established in 1964, Lancaster currently has over 12,000 students and has had £450 million invested in the campus over the last ten years. The University boasts an idyllic campus that combines city, coast and countryside all into one. The campus setting conveys a tranquil ambience whilst offering such a range of facilities it can almost be called a small town in its own right. More recently, Lancaster University has developed a portfolio of teaching partnerships overseas, as part of its global outreach internationalisation strategy.

The City and the Region

The main campus lies three miles outside the City of Lancaster and is easily accessible via road, rail, and bicycle. The city centre is just 15 minutes away by bus, and was recently ranked one of the 10 most vibrant cities in the UK thanks to its arts scene and student population. The City of Lancaster also enjoys a long and diverse history dating as far back as 1193, and has a well-maintained iconic city centre and medieval castle. The campus is just 30 miles south of the beautiful Lake District and about the same distance from the Yorkshire Dales. It is very well connected by road and rail, with Manchester (and its international airport) just over an hour distant, while the train journey to London takes under two and a half hours.

Further information

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