Risk to human health and welfare due to coral reef decline caused by climate change impacts

Supervisors:
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Healthy coral reefs confer many ecosystems services that are central to human health; first and foremost perhaps being the provision of sources of protein (generally fish) to some of the poorest people on Earth. There has not been an assessment of how many people rely on coral reefs for food, protection, and livelihoods using modern data. With access to better maps of urban populations (and future population predictions), better understanding of how and where climate change will impact coral reefs, and improved models of future climate change a new analysis of the current and future risk of climate change to human health and food provision by coral reefs is now possible. The results of proposed research will support effective national, regional, and even global decision-making, and potentially provide convincing data to policymakers to push for stronger action on climate change.

Recent models of future climate scenarios for coral reefs will be combined with the latest population census data and variables such as dependence on reef products, capability to adapt, etc to investigate the risk being faced by current and future populations around coral reef nations of the world.

This PhD would suit a quantitatively-minded candidate with experience in statistical modelling (generalised linear and non-linear models), preferably including spatio-temporal models. Working knowledge and experience in R is essential. Knowledge and/or an interest of the role humans play in coral reef ecosystems and resource-use on coral reefs is desirable but not essential.

Using the latest models of risk in actuarial science, through partnership with the Department of Mathematics and the School of Biological Sciences at the University of Essex this research will help understand the risk of coral loss being faced by some of the world's people who are least capable of managing and adapting to this impact.

Entry requirements and application procedures
The start of this 3-yr fully-funded PhD studentship will be the 8th Oct 2018. The studentship will be to the value of £14,777 per annum plus UK tuition fees.

Please note: International students need to have additional funding to cover the difference in tuition fees, which is £11,815.00; evidence will be requested that you have these additional funds.

For questions about this PhD and submission of application documents (CV, cover letter including a 500 word description of why you are interested in this project) - please email Dr Michelle Taylor: michelle.taylor@essex.ac.uk In addition please have two referees send references directly to Dr Taylor at

the above email address. Copies of transcripts and certificates will be requested if candidates are interviewed. Application material should be submitted by the **11th April 2018**.

For general information about the School of Biological Sciences at the University please visit our webpages http://www.essex.ac.uk/bs/.

The University of Essex

In the recent Research Excellence Framework 77% of research at the University of Essex research is 'world leading' or 'internationally excellent' (REF 2014). We offer world-class supervision and training opportunities and our research students work at the heart of an internationally-acknowledged and well-connected research community. In the 2013 Postgraduate Research Experience Survey, 84% of respondents said that they were satisfied with the quality of their research degree. At Essex we win awards for our pioneering student support schemes. We are the most recent winners of the prestigious *Times Higher Education* award for Outstanding Support for Students. As a PhD student at the University of Essex you can take advantage of the innovative professional development scheme Proficio – where, alongside funds for conferences and training, you also have access to free courses in transferable skills such as communication and engagement, creating influence and impact etc.

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