PEER funds report: outcome of a workshop in Copenhagen to write a proposal to answer the Horizon 2020 call “Forecasting and anticipating effects of climate change on fisheries and aquaculture”

Climate change is likely to affect all the biosphere's components and impact the functioning of all aquatic ecosystems and the living organisms that populate them. Warming temperatures are already having an observable and significant impact of aquatic species distribution and body sizes. In the context of an increasing global population and demand for sufficient and safe food supplies, it is critical to predict and anticipate the nature and magnitude of potential impacts of climate change on aquatic food production systems. Understanding the effects climate changes on Europe’s marine and freshwater fisheries and aquaculture sectors is essential for their long term sustainability, and vital to guarantee European consumers and societies an acceptable degree of self-sufficiency of seafood supplies.

In November 2013, the European Commission (EC) solicited a call for project proposals to address this issue under the topic “Forecasting and anticipating effects of climate change on fisheries and aquaculture” (call BG-02-2015, part of the EC’s Horizon 2020’s Blue Growth funding programme). A consortium of 20 partners, led by the University of Tromso in Norway, plans to answer this call with the ClimeFish project proposal. The ClimeFish project aims to investigate and anticipate the impact of climate change on European fisheries and aquaculture. It will examine the effects of the change in temperature and other climatic variables on several relevant case studies across Europe in both marine and freshwater environments, develop common concepts to assess the associated risks and opportunities, and forecast the implications for European fisheries and aquaculture which will ultimately allow for the application of appropriate policies to maximise the use of aquatic resources.

The University of Aberdeen is represented in the consortium by Dr Paul Fernandes and Dr Alan Baudron. We aim to examine the impact of rising temperatures in the west of Scotland marine ecosystem on commercial species; to predict the challenges and opportunities for the associated fisheries using ecosystem models (which we are currently developing under the MareFrame EU project), and to apply a management strategy evaluation to identify the best possible policy to maximise the production of the west of Scotland fisheries.

The consortium successfully negotiated through to stage 2 of the submission process, and was invited to submit a final proposal in June 2015. After several videoconference meetings and a ‘physical’ meeting to draft the [successful] stage 1 application, a 2nd physical meeting of consortia members took place on 16-17 April 2015 in Copenhagen to refine the proposal and, crucially, negotiate a budget. PEER funds were secured for Paul Fernandes to attend this meeting.

At the meeting several key issues were resolved. The first of these related to refinement of the multitude of case studies which had been proposed. These will be now be nested so that a large number will be dealt with to understand the various impacts of climate change; but a smaller subset will be chosen to forecast effects into the future through simulations. Crucially, an innovative part of the forecasting

tools will involve stakeholders in the "co-creation" approach[1]. The discussion of the budget was a major issue as might be expected given the large consortium size (n=20). It was agreed that those with larger workloads and responsibilities would get the larger share of the budget, although the exact costing model was not disclosed. Nonetheless, the University of Aberdeen emerged with a budget that would allow for a sizeable contribution. We will lead on the workpackage to investigate the effects of climate change across all case studies, but also lead a case study which will forecast the impacts of climate change on the west of Scotland over the next 30 years.

The proposal includes two MASTS partners: the University of Aberdeen and the University of Stirling. MASTS partners who are not part of this bid will be able to engage through these. The impact of climate change of fisheries and aquaculture has huge potential implications for the Scottish fishing industry and aquaculture sector. MASTS needs be engaged in research into this issue with European partners to ensure that the best policies are applied in order to ensure Scotland's fish production is sustained into the future.

Paul Fernandes
17 April 2015

[1] Ballesteros, M., J.L. Santiago, and R. Chapela. *New dance, old steps? Co-creation for the Ecosystem Approach to Management*. in *International Council for the Exploration of the Sea, ICES CM 2014*. 2014.