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Forecasting Climate Impacts on Future Production of Commercially Exploited Fish and Shellfish

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Foreword

The recent publication of the Intergovernmental Panel on Climate Change (IPCC) 4th Assessment Report (AR4) concludes that there is a growing body of evidence that indicates climatic conditions are likely to change due to natural and anthropogenic forcing. In response to these findings the PICES scientific community initiated a series of meetings to:

a) discuss frameworks and methodologies for forecasting the impacts of climate change on the growth, distribution and abundance of marine life, with particular emphasis on commercial fish and shellfish;
b) review the results of designated case studies to test methods;
c) plan for an inter-sessional meeting in early 2010 where scientists can present, discuss and publish forecasts of climate change impacts on the world's commercial fish and shellfish resources.

The research done within PICES on climate change and fisheries has been diverse and has included:

- guidance on methods for selection of IPCC scenarios for use in projections,
- guidance on techniques for downscaling IPCC scenarios to local regions,
- development of coupled ecosystem models for use in evaluating climate-induced shifts in environmental conditions,
- numerous publications documenting relationships between climate forcing and marine fish and shellfish distribution and production, and
- stock assessment techniques for evaluating management strategies to mitigate the impacts of change.

A challenge facing PICES is the need to integrate this research to provide stakeholders with quantitative estimates of the potential impact of climate change on marine life in the North Pacific. This challenge calls for the establishment of interdisciplinary research teams composed of experts from around the Pacific Rim who will focus attention on the development of common and standardized frameworks for forecasting climate change impacts on marine life, with particular emphasis on commercially important fish and shellfish. The Science Plan for the new PICES scientific program, FUTURE (**F**orecasting and **U**nderstanding **T**rends, **U**ncertainty and **R**esponses of North Pacific Marine **E**cosystems), also highlights the need for integrated interdisciplinary research on the potential implications of climate change on marine ecosystems. PICES should act now to ensure that our research communities develop the capability to provide quantitative contributions to the next IPCC reports and guidance for management under climate change scenarios. PICES should strive to present and discuss results of the forecasting teams at an inter-sessional meeting, and papers should be published in a peer reviewed journal by 2011. The timing for the publication is critical because the future IPCC AR5 report is slated for release in 2013, and only published papers can be referenced in that report.

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