

Proposal for a workshop at the International Symposium on  
*“Climate Change Effects on Fish and Fisheries: Forecasting impacts, Assessing Ecosystem Responses, and Evaluating Management Strategies”*  
 April 2010, Sendai, Japan

<b>1. Title</b>
Potential Impacts of Ocean Acidification on Marine Ecosystems and Fisheries
<b>2. Convenors</b>
Kenneth Denman, Fisheries and Oceans Canada, Canadian Centre for Climate Modelling and Analysis, Victoria, Canada Yukihiro Nojiri, National Institute for Environmental Studies, Tsukuba, Japan Hans Pörtner, Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany
<b>3. Description and Objectives</b>
<p>The global ocean is being acidified as carbon dioxide from fossil fuel emissions enters its surface waters. The magnitude of this increase is directly related to the amount of carbon dioxide added, and more certain than many other changes related to climate change. Predicting the impacts of increasing acidification on marine ecosystems and fisheries is difficult due to the lack of knowledge of the ability of individual species and functional groups to adapt to increasing acidification, especially in combination with related effects associated with climate change such as increasing temperature, declining dissolved oxygen (Brewer and Peltzer, 2009), and stratification. Hence, potential effects cannot yet be represented in models of marine ecosystems. Potential impacts on commercial fisheries are significant: an analysis of 2007 US 'at vessel' fisheries value indicates 73% of the value is associated with calcium carbonate organisms and their direct predators (Cooley and Doney, 2009).</p> <p>This workshop welcomes talks on manipulation experiments and observations on the effects of high acidity (low pH) caused by elevated carbon dioxide on organisms at all trophic levels of fisheries foodwebs, modelling approaches to predict the impact of continuing increases in atmospheric carbon dioxide, effects on marine biodiversity, and economic and social impacts on marine fisheries.</p>
<b>4. Anticipated Outcomes/Products</b>
White paper and/or workshop report, and article for PICES Press
<b>5. References</b>
Brewer, P. G., and E. T. Peltzer, 2009. Limits to marine life. <i>Science</i> , 324, 347-348. Cooley, S. R., and S. C. Doney. 2009. Anticipating ocean acidification's economic consequences for commercial fisheries. <i>Environ. Res. Lett.</i> 4, 024007 (8pp) doi: 10.1088/1748-9326/4/2/024007.