



Ocean acidification: Are we getting the message across to policy makers?

C. Turley

Plymouth Marine Laboratory, Prospect Place, The Hoe, Plymouth PL1 3DH (ct@pml.ac.uk)

It is only around 10 years ago that a few key papers pointed out the possible substantial, but largely unknown, consequences of increasing acidity of our surface oceans due to ocean uptake of CO₂ emissions to our atmosphere through burning fossil fuels and underlined the global scale and unprecedented rate of change in the chemistry of the marine environment. However, this issue has only really emerged in the last few years with publications in high profile journals like *Science and Nature*. As scientists realise the wide range of potential consequences other papers from a wide range of disciplines are increasingly emerging. It is these individual peer review papers that formed the basis for the growing number of scientific assessments in the form of national and international reports (e.g. The Royal Society 2005; Kleypas, 2005; WBGU 2006; Stern, 2006; IPCC, 2007) which have helped bring the issue of ocean acidification to the attention of policy makers in the UK, Europe, US and wider including those dealing with climate change (e.g. UNFCCC and IPCC), marine conservation (e.g. WWF, GECC and IWC) and the protection of our seas (e.g. OSPAR and The London Convention). We can say with high certainty that surface ocean acidification is happening now, and will continue as humans emit more CO₂ into the atmosphere through burning fossil fuel. It is happening at the same time as the world is warming. Marine organisms and ecosystems are going to have to deal with a number of major rapid global changes at once - unless we urgently introduce effective ways to reduce CO₂ emissions.

Along with climate change, ocean acidification could be used as a key driver for the urgent and substantial reduction of CO₂ emissions. The issue of ocean acidification has potentially a great contribution to make on the debate and negotiations on future

climate change mitigation or adaptation strategies. It is therefore important that both the climate change and energy policy communities and those involved with climate mitigation and adaptation strategies are aware of this and that scientists with knowledge of ocean acidification engage these communities. If the marine science community wants to influence future CO₂ emission strategies we have to catch-up with the thinking of the climate change policy community and look to address some difficult questions such as “what is dangerous pH change?” or “where are the tipping points?” or “what level of emissions mitigation have acceptable impacts?” or “are there adaptation strategies that are acceptable?” Most importantly we will need to be sure (and agree) within our own community about the level of certainty of our understanding, with regard to ocean acidification, of the distant past and our predictions of the future, their impacts and feedbacks and find a way to voice this clearly and without ambiguity to those that will be making future policy decisions. To address the numerous research gaps we need funding and to get funding we must also communicate the science, strategic importance and politics of ocean acidification to national and international funders. Following this, the cycle of research and communication of new findings to policy makers and other stakeholders can continue.