

Messages from the Sea

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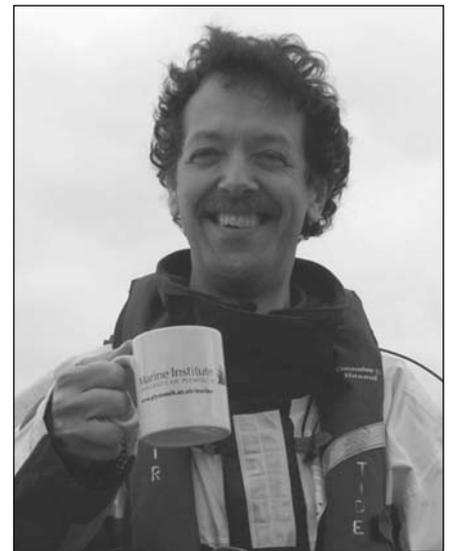
Last September, I accepted an invitation to visit the West Coast of Greenland as part of a floating symposium between scientists, religious leaders and politicians who were discussing climate change and other human impacts on the Arctic. This was a poignant occasion because it coincided with the discovery of dramatic shrinkage of summer sea ice to an area that had been predicted for 2040 by the Arctic Council.

As our plane soared across the Irish Sea on its way north, I spotted Blackpool pier, Morecambe Bay, Sellafield and the new 90MW offshore windfarm near Barrow-in-Furness. Fishing boats and cargo vessels were plying their way. Most of the previous night, I had been working to complete an article on the proposed European Marine Strategy Directive and was dealing with correspondence on the Science Select Committee Inquiry on "Investigating the Oceans" for which I was the Special Adviser and which was launched in Plymouth, the home of one of the largest concentrations of marine scientists in the UK working together as the Plymouth Marine Sciences Partnership. Suddenly seeing the sea glimmering below me left me awestruck; it is such an important part of our identity as a nation but how much do we really know about it and are we really protecting it and using it sensibly?

Scientists are sometimes accused of looking at the small details and missing the bigger picture. On the other hand, the finger is often pointed

at those with political responsibility for failing to think outside their sector or for pursuing short-termism in the name of political expediency. Our seas certainly provide plenty of evidence of all these failings. For years we have managed our fisheries as a production industry without considering how some activities impact the ecosystem upon which fish and human welfare depends. We have sometimes pursued conservation goals as if humans do not exist. We have given insufficient importance to the key role that the sea has in regulating climate change and to investment in improving our understanding of this vital process. We are surprised when the sea becomes more acidic as it absorbs more CO₂; when new species invade our shores as waters become warmer or they are inadvertently (but avoidably) brought by cargo ships; when seabird populations decline because the sandeels they depend on have been removed by industrial fishing; when bathers find beaches inexplicably covered with green algae.

But the story is not all about doom and gloom. Our beaches are cleaner than they have been for over a century; problems can be solved when awareness is high, feelings run strong and interests coincide. The offshore wind farm near Barrow is a pioneer of many future marine renewable energy projects using tides, wind and waves. There is huge untapped potential for responsible marine biotechnology. We need to revalue our relationship to the sea if the well-accepted concept of sustainable development is to apply to



marine areas in the same way as it does to the land. This cannot be achieved by tinkering with existing complex laws and entitlements; we need a radical step change to meet the challenges of a modern society... and any new management scheme should be supported by an appropriate science base.

The case of offshore renewables illustrates the complexities. With plans announced for some 7000 new wind generators and technology that will allow them to be installed in water as deep as 50 metres, vast areas of our continental shelf will be dedicated to energy production. Operators are nervous about other legitimate users of marine space in their farms, particularly fishers with mobile gear (nets, dredges, etc). Where will our fish come from? There is a risk that fishermen displaced from these areas will put even heavier pressure on the remaining habitats. On the other hand, the wind and wave farms may act as protected areas, though there will be disturbance associated with power generation technology. There are difficult choices ahead and these require value judgements based on sound science. Given the limitation in our current knowledge base, they will also need a precautionary approach, conserving or restoring enough marine space to form a network of protected

areas. We simply do not understand enough about the marine environment to exploit it in its entirety; even if deemed ethically acceptable, the risk would be too great.

We are about to witness the biggest change in history in the use of our marine space but the needs for providing sound long-term information have been ignored or understated. We became aware of rising CO₂ levels because of long-term measurements at the Mauna Loa observatory in Hawaii. But few readers will have heard that the only truly long-term (but less celebrated) data series on the marine food chain comes from the Plymouth-based Sir Alister Hardy Foundation for Ocean Science. Many other observations have often been interrupted due to sporadic funding however, and access to data is often difficult. Much new marine technology is being imported from countries where entrepreneurs have seized the opportunity based on well-supported research and development,

including blue skies research. The recent Select Committee report showed that the UK has a legacy of excellent marine science and that research councils (particularly the Natural Environment Research Council) are making great efforts to support it within the constraints of their own funding. But overall, the UK's Marine Science is poorly co-ordinated, often inadequately supported and risks falling behind our competitors. We need a national strategy for marine science and a high level mechanism to ensure delivery and optimal use. This will require bold thinking, which is why the Select Committee suggested a Marine Agency with Ministerial level engagement.

Without a new planning process and associated regulations, sustainable development of the UK's marine environment will be unachievable; new technologies will be delayed and conflicts will emerge. This is why the proposed Marine Bill is essential, and, on a larger geographical scale, the

European Marine Strategy Directive (MSD). Both instruments pursue marine spatial planning – a different concept from land planning because there are no fences in the sea – and the so-called “ecosystem approach” that accepts management to be of people and not of the environment. Curiously, it is the relationship between human welfare and the sea that we understand the least but people, their representatives and leaders, set a future vision for our seas.

As I watched the melting icebergs in Greenland and listened to local people and saw some of the huge deepwater trawlers that work blindly at unprecedented depths, it was clear to me that we need to radically change our relationship to the sea. With appropriate investment in marine science and its innovative application, the UK has the potential to lead the way towards sustainable seas.



Religious representatives on the foredeck of the MS Fram off the west coast of Greenland conduct a ceremony to launch a floating symposium of scientists, religious leaders and politicians brought together to discuss science and ethical issues of climate change, September 2007.