INTERVIEW WITH CHAIR PROFESSOR GRAHAM SHIMMIELD

OI 2004: Stimulating, Rewarding and Illuminating

Professor Graham Shimmield is a graduate of the University of Durham, England with a BSc (Honours) degree in Geology. In 1981, he studied for a PhD in marine geochemistry at the University of Edinburgh, following which he was appointed Lecturer in Chemical Oceanography. In 1996, as Reader, Graham moved to take up an appointment as joint Director of the Scottish Association for Marine Science and the NERC Dunstaffnage Marine Laboratory. Although the management and organisation of the Association is a major task, he still finds time to go to sea and conduct some of his own research into palaeoceanography (studying coral reefs and deep sea sediments) and the impact of marine pollutants on the environment.

What are, in short, the objectives of the Scottish Association for Marine Science and what is happening at the Dunstaffnage Marine Laboratory and the UHI Milenium Institute?

SAMSâ€™ principal objective is to pursue research and to support education in marine science for the benefit of Scotland. It carries out these functions through its two principal partners. These are the Natural Environment Research Council which provides core funding support for research in the Northern Seas extending to the Arctic, and the UHI Millennium Institute which is the higher education institution through which SAMS delivers an undergraduate course in marine science and support for 25 postgraduate students. SAMS currently operates on two sites: Dunstaffnage, and Ardtoe on the north side of the Ardnamurchan peninsula. Ardtoe is the principal focus for research into sustainable aquaculture and was acquired by SAMS in November 2003. SAMS also owns two subsidiary companies: SAMS Research Services Limited which conducts the commercial programme for the Association, and the European Centre for Marine Biotechnology which is an incubator for small SMEs and provides the opportunity to link SAMS own marine biotechnology research programme with inward investment and enterprise objectives. SAMS is just entering the third phase of the Association with the completion of a new Â£10 million research laboratory complex to house the SAMS researchers and the incubator facility for the ECMB. Through this investment supported by the European Regional Development Fund, the Natural Environment Research Council and Highland and Islands Enterprise, as well as SAMS own resources, I am sure that the Association will have a bright future for many decades to come.

Could you answer the same question, this time as regards the Royal Society of Edinburgh and the Institute of Biology?

The Royal Society of Edinburgh was founded in 1783 to promote all aspects of academic learning and the recognition of individuals who have contributed to the intellectual development of Scotland. The Institute of Biology is now a major affiliate of the Biosciences Federation and represents a wide breadth of biologists across the United Kingdom. Both bodies play a crucial role in providing advice to the governments of both Scotland and the UK, as well as commenting on developments affecting all facets of society. Over recent months the Royal Society of Edinburgh has been conducting an in-depth review of the Fishing Industry and its future within a Scottish context.

How did you get involved in Oceanology International? Have you participated in, or possibly criticised, earlier conferences?

My involvement in Oceanology International stems from my interaction with the Society for Underwater Technology and my longstanding interest in all aspects of marine technology. With this second year at the Excel Centre, London, we can look forward to the opportunity for major interactions between the sponsors and presenters, as well as an active scientific programme. Oceanology International provides an excellent opportunity and a unique forum to allow the instrument developers, the service sector and the academic community to meet together at one venue. This provides a most valuable opportunity for us to communicate the new directions of marine research that we are undertaking and to put this into context with the new technical developments occurring across a number of marine industries.

You chaired the Committee putting together the Conference programme. Are you satisfied with the result? How is the theme of the Conference: â€˜Strategies for Stewardship of our Oceans and Coastal Zonesâ€™ reflected in the presentations?

The theme comes about from our developing agenda in the UK to recognise the finite capacity of the ocean, and particularly the

coastal zone, under manâ€™s impact and influence, and is reflected in recent government strategic thinking and in the variety of European Directives that are now coming into force. We believe that it is timely for Oceanology International to review the technical and research developments in this area in order that some of the emerging pressures on our marine environment can be fully quantified. I have been delighted by the response to the conference programme, and particularly the wide range of remote sensing and autonomous observation technologies that are now coming online. My objective by the end of the week of Oceanology International will be to have opened peoplesâ€™ eyes to the wide range of capabilities to assist in our moral and responsible use of the marine environment, regardless of the business or sector we operate in.

We interviewed Admiral Lautenbacher of NOAA in our January 2004 edition about the new global push towards an Integrated Coastal, Ocean and Earth Observation System. Do you share his enthusiasm and where does Europe stand?

I have read Admiral Lautenbacherâ€™s interview with interest. I fully support his aspiration for an integrated coastal ocean and earth observation system. Without the in situ and near real-time observing of the dynamics of our maritime environment we are unlikely to develop the predictive, and perhaps more importantly, responsive, approach to marine management issues. I have recently returned from San Juan, Puerto Rico, where the ORION Conference was taking place. Here a vision for undersea networks on both the east and western coast of North America was outlined with tremendous enthusiasm. Perhaps the most remarkable aspect was the drawing together of a wide range of marine disciplines, together with the information technologists responsible for the latest generation of cyber infrastructure and the vital component of public outreach and education. My hope and aspiration would be that the variety of countries in Europe with strong capability in this area should work together to harness new developments in e-science and public interest in order to contribute to a world-wide ocean and earth observation system. This, of course, would be expensive but with greater demand on marine resources and an ever-increasing risk to other users of the sea from accidental or even natural impacts, I see no other way in which to guard and develop global maritime environmental security.

Setting up a conference cannot be done without the support of others; here is your opportunity to mention some of these.

The conferencing organising committee has done a superb job in delivering an interesting programme. Of course, this is very much down to the organisation of the Spearhead Team, in particular Lesley-Ann Sandbach, Craig Moyes and Sheila Ramaiya. The SUT, with Commander Ian Gallett, provides a strong and knowledgeable support for the organisation. It has been a great pleasure working with them.

What can the visitors of the Conference expect? To attend all presentations might be too ambitious, even not possible. Have you subdivided the programme into themes or sciences? What kind of people do you expect to attend? And which presentations should be attended in particular by hydrographers, surveyors and manufacturers of hydrographic equipment?

The new Excel Centre provides the opportunity to easily access a wide range of presentations and stands, which are now available to OI2004. Running alongside is the science presentation programme, which has been developed into several themes. These themes all demonstrate the importance of marine technology in areas of marine stewardship and coastal zone management. Some of the latest advances in remote sensing and autonomous observation are presented in the research papers. However, we have been particularly keen to emphasise the importance for the manufacturing and service sectors to understand the drivers of governmental approach and the new regulations required for managing the marine environment. Alongside the main conference are several other smaller groups, some of which are meeting to discuss the latest European Research Developments. I would single out the ESONET Workshop which is in the process of planning the linkage of several marine observation platforms throughout the Mediterranean and northwest Atlantic, and even as far as the Arctic.

What will be the main topics in marine science and technology in the future? Will the oceans ever become transparent?

I think the primary topic for marine science and technology into the future will be the development of submarine networks and observatories. The seafloor is already covered in a wide variety of redundant capability, from earliest telecommunication cables through to the infrastructure for oil and gas extraction, and even military uses that are no longer required. Our challenge is to find ways to use the huge investment formerly put into sub-sea hardware, together with the very latest developments that the research scientists and technologists are capable of, to generate a new programme of sub-sea observation networks. One area of the oceans that will be significant in the next decade is likely to be the polar region, and particularly the Arctic. Climate change and increasing pressures on Northern sea routes, together with the realisation of significant environmental impact, means that the marine polar environment will become a major new frontier area for research and opportunity.

Marine Science and Marine Technology are mostly mentioned together as Marine Science and Technology. Should they be merged or is there a clear distinction? And what should we expect from New Technology Approaches?

This question on whether marine science and marine technology should be separated, or whether there is a closer link, is an interesting one. To further our science directions will require clear technological assistance, and the scientists themselves will demand significantly greater operational parameters from the technologists. This is the classic technology pull and push that ensures that marine science and technology is an integrated approach to our understanding of the oceans. Where we need to do considerably more work is in the area of communication and understanding. It is sometimes difficult for the scientists to develop their ideas to the point of technological understanding, and similarly technologists need to calibrate their developments against the needs of the scientists. OI is a good example of the forum where these areas come together, and I for one do not believe that there needs to be a rigid and clear distinction between the disciplines.

Do you have any message for our readers or is there anything else you would like to mention?

In conclusion, I believe that the merging of ocean exploration, together with ocean science and environmental stewardship, is the challenge for the early twenty-first century. I am delighted that Oceanology International has agreed to adopt this for the theme of

the conference and I believe that all participants and contributors will find this stimulating, rewarding and, above all, illuminating. Thank you.