

Ocean science towards informed decisions



The role of the ocean in regulating climate change is now recognised as being critical. But there are consequences for marine ecosystems and human livelihoods. IGBP scientists are at the forefront of research, tackling how both climate change and other global changes – such as fishing, loss of biodiversity and nutrient deposition to name a few – interact. One of our objectives is to provide scientific knowledge upon which informed decisions can be made to minimise impacts on the Earth System.

This edition of the Global Change NewsLetter allows readers to wet their feet and sample marine results from across IGBP core projects. Ian Perry and Manuel Barange (p. 9) introduce the Global Ocean Ecosystem Dynamics (GLOBEC) analysis of marine socio-ecological systems and describe how human communities and marine ecosystems are intimately connected and offering policy options for adapting to changes. Fish to microbes are the focus of an article from the Integrated Marine Biogeochemistry and Ecosystem Research leadership (IMBER, p. 12). The *end-to-end food webs* approach paves the way for integration of scientific questions from GLOBEC into IMBER at the end of this year when GLOBEC reaches its conclusion (see John Field, p. 14).

Testing hypotheses such as the feedback between ocean ecosystems and climate requires large, coordinated field campaigns. IGBP projects such as the Surface Ocean – Lower Atmosphere Study (SOLAS) have planned experiments to test such hypotheses. Barry Huebert questions whether the funding mechanisms to implement these ambitious experiments are adequate. (p. 4).

Continuous observations over time are fundamental for identifying and understanding global changes and SOLAS is working to improve global coverage of time-series stations. The Cape Verde Observatory (p. 6) is an example that combines both atmospheric and ocean measurements, supported by a consortium of national funding agencies. It not only brings international scientists and funding to this remote island, but the project is committed to improving facilities and training local scientists, who are integrated into the management and operation of the project from the start.

The new Chair of the Land-Ocean Interactions in the Coastal Zone (LOICZ) Project, Alice Newton, invites collaboration in the case-study approach to understanding coastal problems and in creating solutions and tools for policy makers (p.17).

Most of IGBP's marine activities over the decades have been conducted in close collaboration with the Scientific Committee on Oceanic Research (SCOR, p.18). SCOR provides invaluable scientific guidance and helps create opportunities for our joint activities. The 2008 Symposium on the Ocean in a High-CO₂ World is an example of a successful collaboration, which brought together scientists from SOLAS, IMBER, GLOBEC, LOICZ, PAGES and beyond to present the latest results on ocean acidification and its consequences. Highlights of the Symposium include scientific, economic and policy perspectives and are presented in this issue (p. 24 onwards).

The Symposium participants produced the Monaco Declaration (see article p. 20), which called for urgent action to limit damages to marine ecosystems due to increasing ocean acidity. The Symposium and Declaration, with the support of Prince Albert of Monaco, received wide media coverage on the consequences for marine systems and the need to urgently reduce CO₂ emissions. A Summary for Policymakers has also been prepared, designed to influence the political decisions being made, above all, at the Conference of the Parties (COP 15) to the United Nations Framework Convention on Climate Change being held in Denmark this coming December. This conference will meet to decide on a future agreement for greenhouse gas emission reductions.

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