



Oarweed (*Laminaria digitata*).

Marine Biological Association

The Marine Biological Association of the United Kingdom (MBA) (www.mba.ac.uk) is a professional body for marine biologists with some 1,200 members worldwide. The MBA has earned an international reputation for excellence and innovation in research, by the resident scientific staff and visiting research workers, including seven Nobel laureates.

The MBA is a founder member of the Plymouth Marine Sciences Partnership, which also includes the Sir Alister Hardy Foundation for Ocean Science (SAHFOS), the National Marine Aquarium, the University of Plymouth and the Plymouth Marine Laboratory.

The charitable aims of the Association are: "To promote scientific research into all aspects of life in the sea, including the environment on

which it depends, and to disseminate to the public the knowledge gained."

For more information on the MBA's Marine Life Information Network (*MarLIN*), look at the website (www.marlin.ac.uk).

Images

Images of marine life can be obtained from the *MarLIN* Communications and Outreach Officer, Guy Baker (g.baker@mba.ac.uk; 0044 1752 633 336). Photographic images on the website are copyright. Please do not use without consultation with *MarLIN* staff. ●

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Nat'l Biodiversity Network

The National Biodiversity Network (NBN) is a new and innovative way of sharing wildlife information in the UK, and is building tools to make this information accessible in a digitised and exchangeable form. By providing easy access to the information that people need about wildlife, wise and informed decisions can be made to ensure our natural environment is diverse, rich and sustainable now and for future generations.

English Nature

English Nature is the UK Government's independent agency that champions the conservation of wildlife and geology throughout England.

BMAPA

The British Marine Aggregate Producers Association represents eight companies involved in the extraction of sand and gravel from the sea-bed around the UK.

The Crown Estate

The Crown Estate, as owner of over half the UK's foreshore and almost all the seabed out to the 12-nautical-mile territorial limit, was pleased to sponsor the conference on volunteer marine life recording through its Marine Stewardship Programme. The Crown Estate operates in adherence to its core values of commercialism, integrity and stewardship.

The Crown Estate's Marine Stewardship Programme makes funds available for a range of practical projects at the coast. All projects funded through the programme are directly relevant to improving the management and stewardship of the Marine Estates. Projects currently receiving funding range from beach-cleaning initiatives to marine archaeological surveys and access improvements.

Further information about The Crown Estate can be found at www.thecrownestate.co.uk.

HERMES

By Phil Weaver

THE EU HAS RECENTLY FUNDED an Integrated Project called HERMES (Hotspot Ecosystem Research on the Margins of European Seas), which will begin on April 1st 2005 and run for four years.

HERMES is designed to gain new insights into the biodiversity, structure, function and dynamics of ecosystems along Europe's deep-ocean margin. It represents the first major attempt to understand European deep-water ecosystems and their environment in an integrated way, by bringing together expertise in biodiversity, geology, sedimentology, physical oceanography, microbiology and biogeochemistry so that the generic relationship between biodiversity and ecosystem functioning can be understood.

The primary ecosystems that we plan to study include biodiversity hotspots such as cold seeps, cold-water coral mounds, canyons and anoxic environments, where the geosphere and hydrosphere influence the biosphere through escape of fluids, presence of gas hydrates and deep-water currents. We will also study open slopes where landslides and deep-ocean circulation affect ecosystem development. These important systems require urgent study because of their possible biological fragility, unique genetic resources, global relevance to carbon cycling and possible susceptibility to global change and man-made disturbances.

Past changes, including catastrophic events, will be assessed using sediment archives. HERMES will make estimates of the flow rates of methane from the geosphere and calculate how much is utilised by benthic communities, leaving the residual contribution to enter the water column and possibly reach the atmosphere as a greenhouse gas.

HERMES will enable forecasting of biodiversity change in relation to natural and man-made environmental changes by developing the first pan-European margin Geographic Information System. This will provide a framework for integrating science, environmental modelling and socio-economic indicators in ecosystem management. The results will underpin the development of a European Ocean and Seas Integrated Governance Policy, enabling risk assessment, management, conservation and rehabilitation options for margin ecosystems.

The figure shows the bathymetry of the European margin and the distribution of canyons. Overlain on this are the known occurrences of cold-water corals, cold seeps and mud volcanoes. The irregular red areas show the locations of major landslides. On the basis of this map, and other available information, the study sites outlined by yellow boxes were selected. The Nordic margin represents a cold-water end-member with environmentally stressed ecosystems in a hydrocarbon province. The Porcupine/Rockall margin is rich in giant carbonate mounds and canyon systems. Many of the carbonate mounds support luxuriant coral reefs, and a number of these areas will be designated as Special Areas of Conservation (SACs) by the Irish and UK authorities. The Portuguese margin has large canyon systems. The EU FP5 project EUROSTRATAFORM has studied sedimentation in the canyons, but little is known of the ecosystems; the Moroccan margin of the Gulf of Cadiz has specialist seabed communities on mud volcanoes. The Western Mediterranean, bounded by the sills of Gibraltar and the Sicily Channel, has large contrasts between the strongly Atlantic-influenced southern area and the areas to the north where influence from European rivers is highly significant and has changed dramatically in just a few decades. The Eastern Mediterranean study area has areas of cold-seeps on the Mediterranean ridge, together with unique but poorly understood ecosystems driven by events such as intermittent deep-water formation. The Black Sea is a unique environment where we can study newly discovered microbial ecosystems thriving in permanent anoxia and their interaction with hydrocarbons.

The scientific approach in each area will be to:-

- Understand better the natural drivers that control ocean margin ecosystems;
- Understand better the biodiversity and ecosystem function of hotspot ecosystems;
- Forecast changes in biodiversity and ecosystem functioning linked to global change;
- Develop concepts and strategies for sustainable use of marine resources.

The project will make full use of the latest deep-sea technology, and will include three major 'showcase' cruises in which ROV technology from SOC, IFREMER and the University of Bremen will be deployed to gather information on deep-sea life along the European margin. As well as providing vital scientific data, HERMES will also offer unique opportunities for the training of young



Fig 1. Distribution of canyons on European margin, showing locations of landslides (red) and study sites (yellow boxes).

scientists and postgraduate students in the field of integrated marine research.

Three high-profile cruises using ROVs are planned to carry out key scientific tasks and to attract media attention. They are:-

- Atlantic N-S transect from Cadiz to Ireland, to be run by SOC in 2006;
- Mediterranean E-W transect from Greece to Spain, to be run by IFREMER in 2006 or 2007;
- Northernmost Atlantic transect from Svalbard to Norway, to be run by AWI in International Polar Year 2007.

With 36 scientific partners, a total budget in the order of €50m, and an EU contribution of €15m, the project will be one of the largest marine science projects in Europe and, as such, is expected to have a high profile with strong links to the media, such as the BBC, and a strong educational component with direct links to schools throughout Europe. It will link

with related projects in the USA and Canada. The hydrocarbons industry will be closely involved with several of the tasks, as will NGOs such as WWF. The HERMES partners also look forward to fruitful collaboration with MarBEF.

HERMES will be co-ordinated by Prof Phil Weaver at the Southampton Oceanography Centre. EC funding is provided from the FP6 Global Change and Ecosystems programme (EC contract GOCE-CT-2005-511234-1).

- For more information on the HERMES project, please visit the website at <http://www.eu-hermes.net>. •

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