OASIS

Oceanic Seamounts: An Integrated Study
A project funded by the European Commission
Contract No. EVK3-CT-2002-00073-OASIS

No. 2 December 2002

OASIS newsletter

Project news

The European Commission signed the contract on November 29, 2002, marking the official start of OASIS on December 1, 2002. OASIS will be part of the Biodiversity Cluster of EU projects. A first project meeting was held in Hamburg (see below).

The OASIS consortium agreed to set up a position statement about seamounts, regarding their ecological significance and their actual and potential threats (page 3)

Participants of the Hamburg meeting

From left to right: Sabine Christiansen, Stefanie Schmidt, Martin White, Jessica Lindström-Battle, Mario Rui Pinho, Telmo Morato. George Wolff, Tim Beck, Brian Bett, Ricardo Santos (kneeling), Bernd Christiansen, Barbara Springer, Dave Billett, Nina Jaeckisch, Bettina Martin, Kostas Kiriakoulakis, Birte Matthiessen, Ana Mendonça, Javier Aristegui, Felix Jose, Robert Turnewitsch.

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First project meeting held

OASIS held its first project meeting in Hamburg on November 11–12, 2002. Here follows an extract of discussed topics.

Project timetable

A few dates have been set, particularly for cruises:

December 1, 2003	start of OASIS
March 20 – April 1, 2003	*Poseidon* project cruise
May 14 –June 20, 2003	*Discovery* project cruise
July 2003	ROV training on *Thalassa*
August 25–30, 2003	Deep-Sea Biology Symposium in Coos Bay, Oregon, USA
Nov 11 – Dec. 6, 2003	*Meteor* project cruise
November 30, 2005	end of project

A first stakeholder workshop is scheduled for April 2003. The workshop will focus on seamounts in relation to fisheries. The OASIS website will be launched in January 2003 (www.rrz.uni-hamburg.de/OASIS)

Work packages

To achieve the objectives of the OASIS project, work has been divided into five work packages (WP). These were presented and methods for sampling and analysis, as well as dissemination of results, public outreach and stakeholder involvement, were discussed. Here follows a list of tasks to be carried out in each work package and the responsible institution:

WP1: Characterisation of topographical and hydrographical properties. Responsible: NUIG

1. Detailed mapping by Seabeam and review of known hydrography of study sites. Responsible: UHH
2. 3D current field measurements. Responsible: NUIG, in collaboration with IMAR/DOP
3. Satellite imagery of SST and ocean olour in seamount study regions. Responsible: IMAR/DOP
4. BML structure and vertical turbulent diffusion measurements. Responsible: NUIG
5. Process modelling. Responsible: ULPGC

WP2: Influence of kilometre-scale seafloor topography on water-column biogeochemistry. Responsible: ULIV

1. Integrated sampling at the topographic features. Responsible: ULIV, URO
2. Primary production, export production, and water-column remineralisation rates. Responsible: ULPGC
3. Organic matter composition, provenance and quality. Responsible: ULIV
4. Influence of kilometre-scale seafloor topography on particulate material fluxes in benthic mixed and nepheloid layers. Responsible: URO

WP3: Seamount biota Responsible: SOC

1. Interaction of the "deep scattering layer" with seamount topography. Responsible: UHH.
2. Dynamics of the benthic mixed layer community around seamounts. Responsible: UHH
3. Standing stock and distribution of benthos on and around seamounts. Responsible: SOC
4. Seamount fish and fisheries. Responsible: IMAR/DOP
5. Trophic pathways in seamount communities. Responsible: UHH

WP4: Seamount ecosystems: Integration, modelling and management. Responsible: IMAR/DOP

1. The functional ecology of seamount systems. Responsible: IMAR/DOP and consortium
2. Contribution to the understanding of seamount biodiversity and zoogeography. Responsible: IMAR/DOP,FAU and consortium
3. Development of an "Offshore MPA Tool Box" and site-specific management plans for the investigated seamounts. Responsible: IMAR/DOP and WWF

WP5: Developing a common understanding of seamount ecosystems, their conservation and sustainable use. Responsible: WWF

1. Public information, education
2. Stakeholder involvement
3. Dissemination of scientific results in political bodies, contribution to decision-making process

WP6: Co-ordination and management of the project. Responsible: UHH

1. Co-ordination and project management
2. Data management

OASIS position statement

WWF pointed to ongoing political processes of relevance to the project and highlighted the importance of feeding the scientific results, but also expert advice into the political decision making processes. On the occasion of a debate about whether seamounts in the North East Atlantic are to be considered as being under immediate threat and/or decline in the OSPAR maritime area, WWF asked whether the OASIS consortium could agree to give a position statement on this issue. It was discussed how far OASIS as a group of scientists should make a political statement and indicated that science has to be independent from policy. However, due to the holistic approach including the practical outcome of the project in the form of recommendations on seamount MPA designation and management at the study sites, an OASIS position about seamounts regarding their ecological significance and their actual and potential threats was agreed.

Cruises

There will be three major OASIS cruises in 2003.

1. *Poseidon*, March 20 – April 1, 2003. This will be a pilot cruise for the project and focus on Seine Seamount. The cruise will include studies on the hydrography, biogeochemistry and pelagic (zooplankton and primary production) biology.
2. *Discovery*, May 14 –June 20, 2003. This cruise will be the first OASIS project cruise and will cover all disciplines, except fish(eries), at both study sites.
3. *Meteor*, Nov 11 – Dec. 6, 2003. The second OASIS project cruise will have a programme similar to the *Discovery* cruise.

In summer 2004, a fish survey will be conducted by the Azoran research vessel *Archipelago*. Further cruises are planned for 2004 and 2005.

Links to other projects

There is already a strong link to the MAR-ECO initiative (Patterns and processes of the ecosystems of the Northern mid-Atlantic). Part of OASIS will be one element of the MAR-ECO component project PN2, Interactions of mesopelagic and bathypelagic fauna with the benthopelagic community associated with MAR seamounts/slopes. It was suggested to include the MAR-ECO coordinator in the OASIS stakeholder advisory board to strengthen this collaboration.

Representatives from OASIS will attend the second MAR-ECO planning workshop in January 2003 to investigate opportunities for further collaboration.

The OASIS position statement

Seamounts are underwater offshore mountains rising from the abyssal plains in all oceans. Special current conditions create a unique environment at each seamount and provide the basis for an abundance of fish and invertebrates, making the waters important breeding and feeding grounds for vast numbers of pelagic and demersal fish.

Many species at seamounts grow very slowly and some fish reproduce first at the age of 25 years and more and reach a maximum age of more than 100 years[1]. Due to their isolated locations in the open ocean, seamounts have been found to host a high level of endemism[2] and local populations of fish. These factors make seamount ecosystems very sensitive to disturbance from human activities.

As seamounts are rich in fish and other natural resources, they provide lucrative fishing grounds and potential mining sites for metals, etc. Plummeting fish stocks in shallower waters now push fishing fleets further out at sea, and offshore seamount fish stocks are already being exploited by several NE Atlantic fleets[3]. Due to lack of governance of the high seas, management of seamounts in international waters is non-existent, causing the destruction of habitats and decline in fish populations.

The dragging of trawls over seamounts and the removal of large parts of resident fish populations have negative consequences for the biodiversity of seamounts and other underwater environments in various parts of the world. In New Zealand, for example, there is evidence of decline in fish stocks associated with seamount fishing[4], and in the NE Atlantic, large areas of cold water coral reefs have been destroyed by trawling[5]. When unregulated, even smaller-scale fishing can disturb these sensitive environments, such as in the Azores, where artisanal fishing at seamounts has caused the decline in important fish stocks[6].

Today, due to lack of well-funded research, little is known of seamount ecosystems in the NE Atlantic, as well as of the impact of human activities upon these unique oceanic ecosystems. The OASIS project (OceAnic Seamounts: an Integrated Study), funded by the European Commission, is the first European seamount study integrating physical, biogeochemical and biological research.

Sustainable fisheries are dependent upon well-functioning ecosystems. In order to ensure a sustainable fishery and viable fishing communities, an ecosystem-based management approach is crucial for seamounts and other important oceanic ecosystems, regulating human activities and ensuring a sustainable exploitation of marine resources. One of the scopes of OASIS is therefore to produce comprehensive and science-based management guidelines for seamounts in deep sea areas.

Finally, until we know more about these fragile ecosystems and the long-term impacts of fishing and other human activities, we in the OASIS group believe that it is necessary to apply the precautionary principle to seamounts to ensure their necessary protection and management.

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