

# OASIS

Oceanic Seamounts: An Integrated Study  
Project proposal submitted to EU FP5

No. 1 October 2002

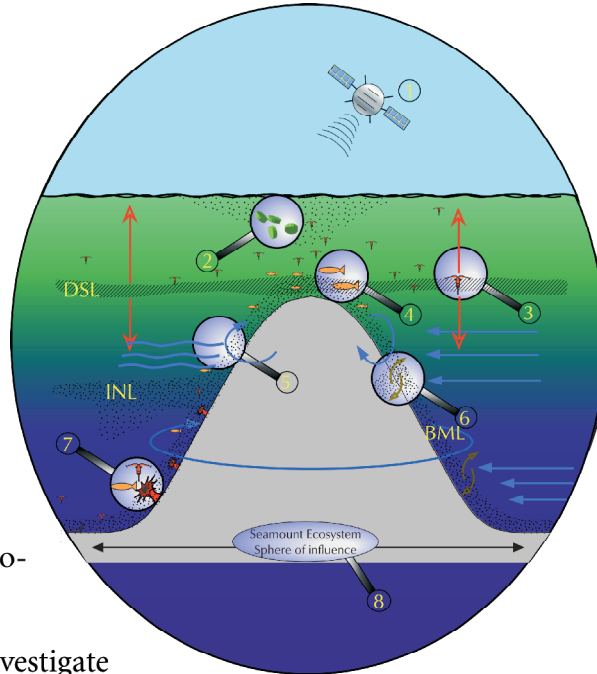
## Project news:

The start of OASIS is coming closer - the kick-off project meeting is scheduled to take place 11-12 November 2002 in Hamburg.

## Overall goal:

The project OASIS aims at describing the functioning characteristics of seamount ecosystems.

OASIS' holistic approach to investigate seamount ecosystems integrates hydrographic, biogeochemical and biological information. Based on two case studies, OASIS will yield an advanced mechanistic understanding of the processes characterizing seamount ecosystems, and their influence on the surrounding ocean. The scientific results, condensed in a conceptual ecosystem model, will be applied to outline a model management plan as well as site-specific management plans for the seamounts investigated.



## Partners:

Universität Hamburg	Dr. Bernd Christiansen	coordination; biology
National University of Ireland, Galway	Dr. Martin White	physical oceanography
IMAR -DOP, Univ. Azores	Prof. Ana Martins	biology
University of Liverpool	Dr. George Wolff	biogeochemistry
Universidad de Las Palmas de Gran Canaria	Prof. Javier Arístegui	biology, phys. oceanogr.
Universität Rostock	Prof. Gerd Graf	biogeochemistry
SOC/NERC, UK	Dr. Brian Bett	biology
WWF International	Stefan Lutter	dissemination, conserv.
NE Atlantic Programme	Prof. Andre Freiwald	biology, geology
Friedrich-Alexander-Universität Erlangen		

Contact: Dr. Bernd Christiansen [bchristiansen@uni-hamburg.de](mailto:bchristiansen@uni-hamburg.de)

Universität Hamburg,  
Institut für Hydrobiologie und Fischereiwissenschaft  
Zeiseweg 9, D-22765 Hamburg, Germany  
Tel. +49 40 42838-6670, Fax +49 40 42838-6696

newsletter

OASIS

**O**bjectives

The primary goal of OASIS, to provide an holistic, integrated assessment of seamount ecology, will be achieved by addressing the following main objectives.

**Objective 1: To identify and describe the physical forcing mechanisms effecting seamount systems**

This objective addresses the hydrographic processes that control the circulation, mixing and exchange of fluid in the vicinity of seamounts. These are key requirements for an understanding of the biogeochemical and biological processes, and they are essential for the design of an effective biogeochemical and biological sampling strategy.

**Objective 2: To assess the origin, quality and dynamics of particulate organic material within the water column and surface sediment at seamounts.**

The organisms below the euphotic zone depend, with a few exceptions, on (particulate) organic material that has been produced in the surface ocean. During its descent to the seafloor this material is altered in many ways, for example by ingestion and egestion by pelagic animals, by microbial degradation or aggregate formation. Within the benthic mixed layer, sedimentation and resuspension will strongly influence the availability of this material. All these processes will affect the nutritional value of the organic matter for organisms living at or close to the seafloor.

**Objective 3: To describe aspects of the biodiversity and the ecology of seamount biota, to assess their dynamics and the maintenance of their production.**

Seamounts often accommodate enhanced stocks of commercially valuable species. Several hypotheses exist regarding how these stocks are maintained, e.g. by trapping of particles in Taylor columns, by enhanced primary production due to upwelling, or by trapping of the vertically migrating deep scattering layer fauna. This objective will address the major faunistic groups (zooplankton, micronecton, benthos and fish) at seamounts and their interactions, with special emphasis on the bottom mixed layer fauna.

**Objective 4: Modelling the trophic ecology of seamount ecosystems.**

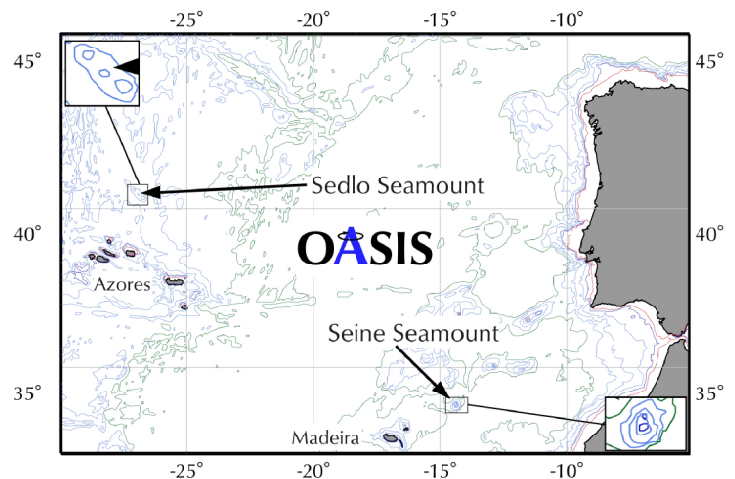
Under this objective, the growing body of information will be synthesized in a continuously updated conceptual ecosystem model, which will provide a common platform for the presentation of the primary scientific results of the project. In addition, the full OASIS dataset will

feed into a mass-balanced trophodynamic model, based on the ECOPATH suite.

**Objective 5: Application of scientific knowledge to practical conservation.**

This objective acknowledges the critical need for the timely input of appropriate scientific advice to the development of marine policy. Policy makers and advisors as well as other stakeholders require applicable results in the form of easy-to-use products. The design of scientifically sound and practicable management plans is the most difficult but essential part of the implementation of protected areas. Drawing on the scientific results of the project, OASIS will act as an interface to practitioners.

**S**tudy sites



Name	Sedlo Seamount	Seine Seamount
Location	40°25'N/26°55'W	33°50'N/14°20'W
Summit depth	600 m	45 m
Features	Summit below winter mixed-depth layer, but within the range of vertically migrating fauna.	Summit reaches well into the winter mixed-depth layer and into the euphotic zone.
Human impacts	Not yet exploited, but hosts a population of commercially valuable orange roughy ( <i>Hoplostethus atlanticus</i> ). An exploratory fisheries survey by a South African fishing vessel was performed in 2000.	Although no detailed information is readily available, this seamount is undoubtedly exploited by deep-sea commercial fisheries.

**T**ime table (preliminary)

Start of project	November 2002
Project meeting	November 2002
Pilot cruise on R.V. Poseidon	March 2003
Project cruise R.V. Discovery	Summer 2003
Project cruises R.V. Archipelago	Summer 2003
Project cruise R.V. Meteor	January 2004