



**SERPENT**  
scientific and environmental  
rov partnership using existing  
industrial technology

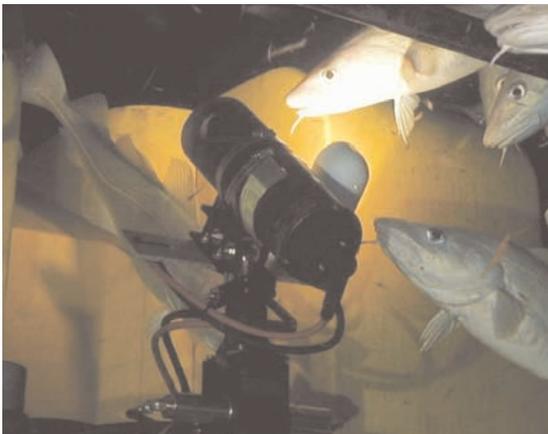
**subsea 7**

**Subsea 7 are pleased to be founding partners along with the Southampton Oceanography Centre (SOC), BP and Transocean in a new and exciting concept giving scientists the opportunity to use the standby time on operations where remotely operated vehicles (ROVs) are used, to better understand the deep-sea environment in which the oil and gas industry operate.**

The Southampton Oceanography Centre is one of the world's largest marine research and teaching facilities. At its core is a partnership between the Natural Environment Research Council (NERC) and the University of Southampton and boasts one of the largest deep-sea research groupings in the science community. The SERPENT project will be hosted at SOC and will encompass a global network of science partners, including Texas A&M University, Woods Hole Oceanographic Institute, Scripps Institute of Oceanography, The Universities of Rio de Janeiro and Sao Paulo, and many more.



The aim behind this partnership is to expand the scientific knowledge of in situ research in the marine environment using the latest ROV technology and experimental equipment available. Subsea 7 has agreed to support and expand this project across their businesses worldwide including the Gulf of Mexico, Brazil, West Africa, India and the far-east.



The benefits of SERPENT acting as a central hub for the science community means that strong, long lasting relationships can be formed with clients, operators and scientists ensuring that global science opportunities can be opened up as part of an official programme of research.

Client buy-in and confidentiality are paramount to the successes of this scheme, however there are clear benefits to all involved in the programme. The techniques developed by science and industry would be used in future to develop and backup operator's Environmental Impact Assessments (EIA) and statements for any current and potential work programmes.



Another benefit of this scheme for Subsea 7 and its current partners has been the increased levels of awareness of personnel involved. Feedback received from the offshore teams has been nothing other than positive. The crews have always shared an interest in what happens on the seabed or mid water and to varying degrees have some knowledge of the benthic and pelagic organisms that inhabit these zones

The visual impact of ROV led research will also create an exceptionally powerful tool to aid the public understanding of science, and promote awareness of the more sensitive marine issues in many countries.



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### **Commitment Details**

- Advance notice of locations/schedules
- Video footage and deployment of gear to the seabed
- Providing accommodation
- Development of mobilisation packs that will provide ROV crews basic information on areas of interest to all global SERPENT partners
- Digital stills cameras deployed to target locations (vehicle permitting)
- Extended tape records to be sent back to SERPENT partners from key science areas
- Thermometers and salinity probes will give background oceanographic data
- Help to expand the project to other areas of interest with other client bases world-wide
- Sampling when scientists are not present

### **Completed Projects**

- MSV Regalia, semi-submersible (18/07/03 - 01/08/03)
- Paul B Lloyd Jnr, drill rig owned by Transocean (14/05/03 - 24/05/03)
- MSV Nordica, monohull vessel (26/07/03 - 28/07/03)

### **Achievements to Date**

- First video footage ever recorded of Lophius piscatorus (Monkfish) hunting in its natural habitat
- 1st seabed sediment coring by an ROV in the West of Shetland area
- First video footage of Stichopus tremulus (Sea Cucumber) feeding in situ
- Deployment and manipulation of in situ experimental packages by an ROV
- Developing new techniques on performing ROV seabed survey protocols in conjunction with BP
- Visual documentation of Munida sarsi (Galatheid Squat Lobster) hunting and feeding on Krill
- Musée océanographique de Monaco (Monaco Oceanographic Museum) display of a collection of photos from the Regalia in their "technology and undersea world" section

### **Publications**

- "Creating a stir in the depths West of Shetland" internal newsletter 24/7 summer 2002
- "Remotely Operated Cucumbers" Planet Earth, issued winter 2002
- "Exotic cucumbers of the deep" Dolphin, issued spring 2003
- "In situ observations of predatory feeding behaviour in the galatheid squat lobster Munida sarsi" Journal of the Marine Biological Association of the UK issued 2003
- "The feeding behaviour of deep-sea holothurians based on in situ observations and experiments using a remotely operated vehicle" Journal of Experimental Marine Biology and Ecology (JEMBE), submitted 2003
- "Deep-water observations of monkfish (Lophius piscatorus L) in the North-east Atlantic ocean by means of "Remotely Operated Vehicle" Journal of Fish Biology, submitted 2003
- "Deep-sea ROV Collaboration scheme takes top prize at SUT event" Underwater Contractor, issued March 2003
- "Access for Industry Award" Underwater Technology 2003
- "Winner of the Bill Morris Memorial Medal" SUT Greenwich Maritime Museum Industrial showcase 2003
- Deep-sea holothurian paper in JEMBE, issued 2003

### **Mission Statement**

Through a novel collaboration between major players in the oil and gas industry the SERPENT project aims to increase access to cutting edge ROV technology for the world-wide science community and to progress our knowledge and techniques of in situ experimentation, interaction with other research communities worldwide and to increase awareness of our marine resources within the general public.

For more information please contact:  
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