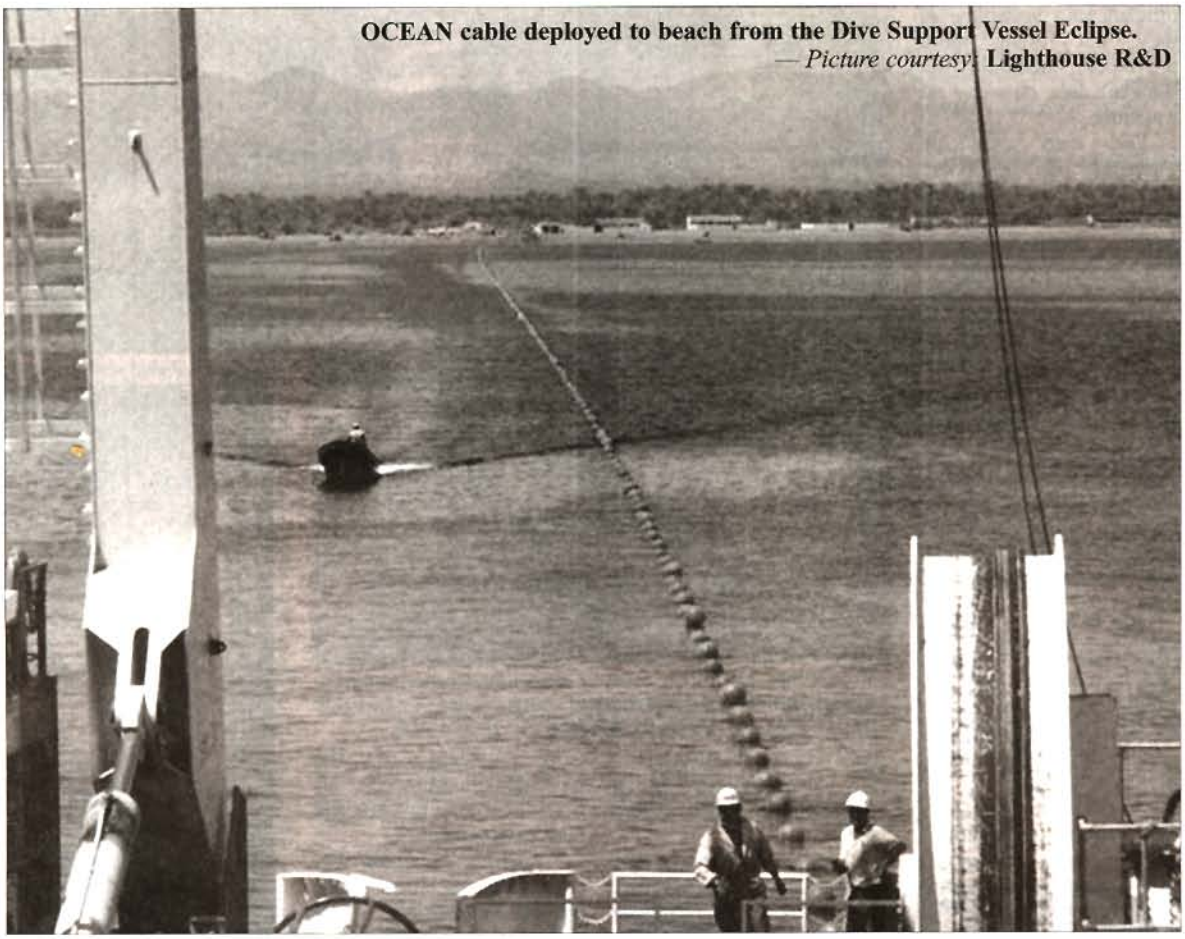
Ministry of Agriculture and Fisheries project to study deepwater current phenomena

Oceanographic monitoring system installed in Gulf of Oman



OCEAN cable deployed to beach from the Dive Support Vessel Eclipse. — *Picture courtesy:* **Lighthouse R&D**

By Conrad Prabhu

MUSCAT — A US research organisation, which is supporting the Ministry of Agriculture and Fisheries in the development of an oceanographic monitoring system in the Gulf of Oman, has reported major progress in the execution of the project.

Houston-based Lighthouse R&D Enterprises said it has completed the installation of a state-of-the-art system that will enable Omani researchers to study deepwater current phenomena off the Sultanate's coast.

The project is seen as key to enhancing the scientific community's understanding of the deepwater ocean environment, as well as supporting the ministry in its efforts to develop and manage the Sultanate's fishery resources.

As part of the project, two key points along the Gulf of Oman coast — at Shinas and Ras al Hadd — were identified for the siting of special equipment designed to help researchers understand the physical properties of the marine environment in these areas.

Following an agreement signed with the ministry in January 2005, Lighthouse kicked off Phase I of the project involving the installation of three deepwater current meter moorings around Ras al Hadd.

Each mooring is designed to record current speed and direction, pressure, temperature, salinity, turbidity and oxygen every 60 minutes for 365 days at the sensors.

The arrays will be retrieved periodically and the data downloaded and analysed. The goal is to identify the existence of any oceanographic phenomenon — loop currents, eddies, and so on — and how they affect fisheries and the coastal marine environment.

Phase II involved the installation of an on-bottom cabled system as part of an extended real-time study of oceanographic phenomenon along the Northern Oman just south of the United Arab Emirates.

The arrays are connected via cable to a shore station providing continuous power and two-way open communication for data retrieval and system monitoring. Incoming data management and instrument configuration is communicated and controlled via satellite from the Lighthouse R&D office in Houston.

Lighthouse had leased a sophisticated Dive Support Vessel (DSV), called Eclipse, to deploy special data equipment off the coast at Shinas and Ras al Hadd.

A remotely operated vehicle (ROV) installed on board the Eclipse was deployed for visual identification of the route, as well as to obtain a video history of what the seabed looked like where the cable was laid.

With the monitoring system now in place, scientists and researchers can look forward to a stream of valuable data on current speed and direction, turbidity, oxygen conductivity, temperature, pressure, and so on. The monitoring system will also provide physical ocean parameters that are a necessary baseline for any type of research of the ocean, specifically with regard to the fisheries environment.

Lighthouse R&D, which provides specialist services to the petroleum industry in deepwater field development projects, says the sophisticated marine monitoring system combines technology associated with marine telecommunications with conventional oceanographic monitoring equipment.

Lighthouse R&D Enterprises has pioneered a global initiative to identify and study oceanographic phenomena. It is working in partnership with a consortium of oil and gas companies specifically formed to address the issues surrounding deepwater field development.

Dubbed the Lighthouse Oceanographic Research Initiative (LORI), it aims to expand regional oceanographic knowledge for the maritime community.