

Autonomous Seabed Monitoring System Deployed



A long-life acoustic monitoring system developed by Sonardyne International Ltd, UK, to detect minute changes in the seafloor due to settlement has been successfully deployed in Southeast Asia for Brunei Shell Petroleum (BSP). Installed in 45 metres of water, the network of Autonomous Monitoring Transponders (AMTs) that make up the system were supplied with compact subsea instrument housings and anti-trawl seabed frames that have been custom-designed by Sonardyne to provide protection from commercial fishing activities in the area.

Structure, pipeline and seabed settlement monitoring is regularly undertaken in life of field surveys. The challenge for operators is to acquire the data required to identify subtle changes over periods of several years, reliably and cost effectively. Sonardyne's solution

is built around the company's sixth generation (6G) and Wideband 2 technology platform. This combination provides the capability to precisely and repeatedly measure vertical movements at the transponder locations; acquire and log sensor data from a variety of inbuilt and external sensors; and wirelessly transmit stored data at high speed to the surface for analysis. The autonomous functionality of the system enables it to operate for several years without intervention, eliminating the requirement and associated high costs of a vessel and ROV to be on location during the survey.

After an initial period of testing and configuration, the system is now fully operational and has been left to record and log data. Precise seabed pressure, temperature and salinity will be recorded every hour whilst non-critical data such as battery consumption and pitch and roll will be logged every day. When required, a vessel of opportunity will transit to the survey location and acoustically interrogate the AMTs to recover their data using a [Sonardyne Dunker 6 modem](#) deployed over the side of the vessel. The data will then be analysed by specialists so that any noticeable trends in seafloor deformation may be identified.

Due to the relatively shallow water depths of the survey location, it was identified early in the project that the AMTs would need protection against possible damage caused by fishing operations. The AMTs were each supplied in compact, glass sphere instrument housings and then encased within bespoke, low profile anti-trawl frames designed and manufactured by Sonardyne to provide excellent resistance to snagging by fishing nets, as well as corrosion and bio-fouling.