

# Mining Prospects High for Cornwall



Cornwall, UK, is synonymous with tin mining, having built its fortunes in previous centuries extracting and producing the metal for export around the world. A new and exciting project has now been launched that will build on Cornwall's mining heritage with an ambitious proposal to recover tin deposits from the waters off the North Coast of Cornwall. Marine Minerals Ltd (MML) is a Cornish company created to investigate the viability of this project and Coastline Surveys was asked to play a major role in the early investigative surveys to establish the characteristics of the mineral bearing sands off the coast of St Ives on the Northern peninsular of the county.

In recent years the industry has all but disappeared with only shore-based mining taking place in one or two sites. The resultant impact on the economy of the region is tangible

and has decimated previously prosperous towns within the county.

Earlier this year Coastline's 24m survey vessel *MV FlatHolm* carried out extensive vibrocore sampling of the seabed in three specified areas off the coast between Perranporth and St Ives. The recovered cores will be used to assess the extent and quality of the tin deposits lying within the seabed sediments. This particular survey was challenging and required the sector-leading power of the C-COREHP in order to maximise penetration into the dense seabed. The site was predominantly compact sands overlying bedrock in places with coarse gravel, cobbles and subangular granite pieces.

Due to the dynamic nature and rugged environment of the north Cornish coastline it was essential to complete the workscope quickly and safely with optimum efficiency between each sampling location. The C-COREHP was equipped with a real-time penetrometer which accurately measured the rate/distance of barrel penetration whilst coring into the seabed. This information proved invaluable and enabled the *FlatHolm* to remain on station for the minimum period required for a quality sample to be recovery despite experiencing long swells of 2-3m from the Atlantic waters. The efficiency of the operation onboard *MV FlatHolm* enabled the work to be undertaken in February, not often considered suitable for seabed surveys.

The team successfully overcame the rigours of this demanding environment and completed the workscope of 40 core locations in three days exceeding all expectations of Marine Minerals and its team.

The core samples are currently being studied by ecologists, geologists and metallurgists and specialist consultants largely also based within Cornwall to provide further insights into the flora, fauna and marine life of the proposed mining site. The essential information will feed into studies to establish baseline conditions before preparation of environmental impact assessment reports.

Dr David Hitchcock, managing director of Coastline Surveys, is a specialist in marine mineral prospecting and has undertaken and managed many extensive studies including seabed sediment disturbances, water column sediment plumes and benthic impacts associated with marine aggregate mining in the UK and abroad. Marine tin deposits have in the past been mined using traditional dredging methods, which are considered by MML as environmentally unacceptable for this site. Modern and novel technologies are being investigated and developed in order to recover the tin in a way that causes minimal disturbance to the seabed. The *modus operandi* of the project is intended to eliminate harmful disruption of the native marine life by filtering the metal deposits on board a vessel and then returning approximately 95% of the unwanted resource directly back in to the seabed. The tin deposit arose out of previous shore based mining efforts and has been washed out to sea during possibly many centuries.

John Sewell, commercial manager for MML, says of the project that the methods will be far more precise and economic than dredging. The company's research so far suggests that when compared to natural forces such as tides, currents and storm waves, this method of working will have insignificant effects on the seabed and the local ecology. The company is carefully investigating many issues in detail via a year-long environmental study. Findings will be made public and form part of the company's application to the MMO for a full operating licence. These plans will themselves be subject to formal, statutory public consultation, managed by the MMO, which it is anticipated will take place in 2014.

Coastline Surveys will work with Marine Minerals Ltd to support further investigations including a full and detailed environmental and social impact assessment, all of which is expected to run for another year. MML believes that there are millions of pounds worth of tin reserves off the north coast of Cornwall which are in high demand as a valuable resource with applications in many global technological industries. The project is expected to bring new employment and investment opportunities to an area that desperately needs commercial regeneration.