

Tidal Energy Study in Turbulent Waters

At Torr Head on Northern Ireland's rugged and dramatic coast, where the Atlantic Ocean and the Irish Sea meet and turbulent waters, strong tides and currents run fast, a Saab Seaeye Falcon spent three days gathering vital benthic data for an impact assessment of a proposed tidal array installation. [Marine Ecological Surveys](#) Limited undertook the assessment project for its client, Tidal Ventures Ltd, who intends to develop a 100MW tidal array.

Site Location and Caple Routeing

Daniel Brutto, general manager at Marine Ecological Surveys (MESL), explained that a detailed benthic characterisation survey of the habitats and species was necessary to predict the likely impact of the proposed development of the array on the marine environment.

He explained that the survey, apart from being required by government agencies to evaluate the affect of the proposals on the marine environment, also helps engineers refine their plans for site location and determine cable runs by identifying the routes least likely to impact the environment. He also says that considerable savings in field work costs come from providing such ground-truthing data.

Challenging Tide Window

As such tidal sites are chosen for their high-energy nature, they bring challenges in the shape of high winds, high tides and strong wave energies, declared Daniel Brutto. Consequently, the MESL team had to work within a single neap tide window whilst surveying 40 sites over a three-day period.

For the project, [Roving Eye](#) added a high-definition camera to its [Falcon ROV](#) and spent the three-day window filming at the 40 locations whilst sending the data topside to a team of MESL marine scientists on board the vessel, who were also directing the survey.

Strong Currents

As the images had to be of extreme clarity for observation and record purposes, it was essential that the Falcon provided a stable platform for filming whilst overcoming the effects of strong currents and turbulent waters.

Tides were running at 5m/s, requiring the operators to learn the slacks and eddies across the 40 locations, and still work in currents running at over two knots. The reduced drag of the ROV's thin umbilical was also beneficial when working in high current areas.

Daniel Brutto added that the Falcon ROV was a more effective choice for countering the tidal energies of the site compared to using a dropdown camera. Such a camera would have resulted in shorter operational opportunities, a more prolonged and expensive survey, and lesser quality data.

Image: Falcon ROV aboard Roving Eye Enterprises' survey vessel off Torr Head.