

M.J. Roberts¹, G. Walker Springett¹, S. Rowlands¹, B. Powell², P. Hughes², A. Owen², G.Llewelyn Jones³

¹Centre for Applied Marine Sciences (CAMS), Bangor University, Menai Bridge, Anglesey, LL59 5AB ²School of Ocean Sciences, (SOS) Bangor University, Menai Bridge, Anglesey, LL59 5AB ³Menter Môn, Neuadd y Dref, Llangefni, Ynys Môn, LL77 7XA

Cronfa Datblygu Rhanbarthol Ewrop European Regional Development Fund

SEACAMS2: Geoscientific research to support the development of the Morlais tidal stream demonstration zone off west Anglesey

AIMS:

- To investigate high energy offshore environments using geo-scientific survey methods to improve site selection, structural design and array configuration of MRE related seabed infrastructure and support the development of appropriate survey methodologies and future monitoring strategies.
- To research the effectiveness of submerged structures as analogues for predicting the long-term (decadal) impacts of \bullet MRE infrastructure on physical marine processes.

RATIONALE:

The successful delivery of a tidal stream demonstration zone off the coast of west Anglesey depends on addressing critical first-order issues, associated with financial viability (appropriate site selection, optimum engineering design for devices and arrays) and agreed environmental consent (acceptable impact mitigation). This project will provide a detailed firstorder understanding of physical conditions at key sites of interest within the zone, provide information that will be integral to identifying specific sites for potential future deployment and support developers optimise the design of MRE related infrastructure. The project will utilise data from geo-scientific surveys within the proposed demonstration zone in conjunction with data from other relevant sites characterised by similar marine conditions.







1) Projection of MBES data from the Morlais demonstration zone. 2) Seismic profile obtained across a survey transect across the site. 3) MBES grid model output around the wreck of the Maarten Cornelis (a trawler that sank in 1971) located within the demonstration zone.

METHODS:

- High resolution multibeam sonar (MBES) collected by the SEACAMS team over a period of several years from areas of interest within the proposed Morlais demonstration zone will be examined together with additional data sets provided by Menter Môn to determine aspects of temporal and spatial bathymetrical variability.
- High resolution seismic surveys have also been undertaken, some simultaneous to MBES data collection to elucidate the nature of the sub-surface geology, palaeo-environmental development of the area and factors controlling aspects of scour and sediment transport.
- Seabed classification studies utilising ground truth data via sediment grabs and towed camera surveys will additionally contribute to research associated with determining potential interactions between MRE related infrastructure and the surrounding seabed environment.

OUTCOMES:

- The research project will provide developers with a detailed understanding on bathymetric variability, sediment characteristics and nature of the underlying geology within the proposed Morlais demonstration zone.
- Assist developers in designing future foundations and identify optimum sites for potential future deployments in the Morlais demonstration zone.
- Provide new knowledge to MRE sector companies that will help them design appropriate monitoring strategies to allow them plan and mitigate against impacts of interactions between the marine environment and MRE infrastructure.

Contact: Dr Michael James Roberts Email: michael.roberts@bangor.ac.uk Tel 01248383966

