



# CHERISH

*Newid Hinsawdd a Threftadaeth yr Arfordir  
Climate Change and Coastal Heritage  
Athrú Aeráide agus Oidhreacht Chultúrtha*

## **PRELIMINARY RESEARCH SURVEY REPORT**

Survey Code:	Survey Name:	Institution
KRY19_02	KRY19_CHERISH	Geological Survey Ireland

## Section A: Description of the Research Survey

### A1 Overview of survey personnel

Names	Institute/	Position	Number of Days
<b>Crew:</b>			
James Barry	GSI	Party Chief /Surveyor	10
Agust Magnusson	GSI	Vessel Master	10
Padraig Cronin	GSI	Processor	10

### A2 Objectives

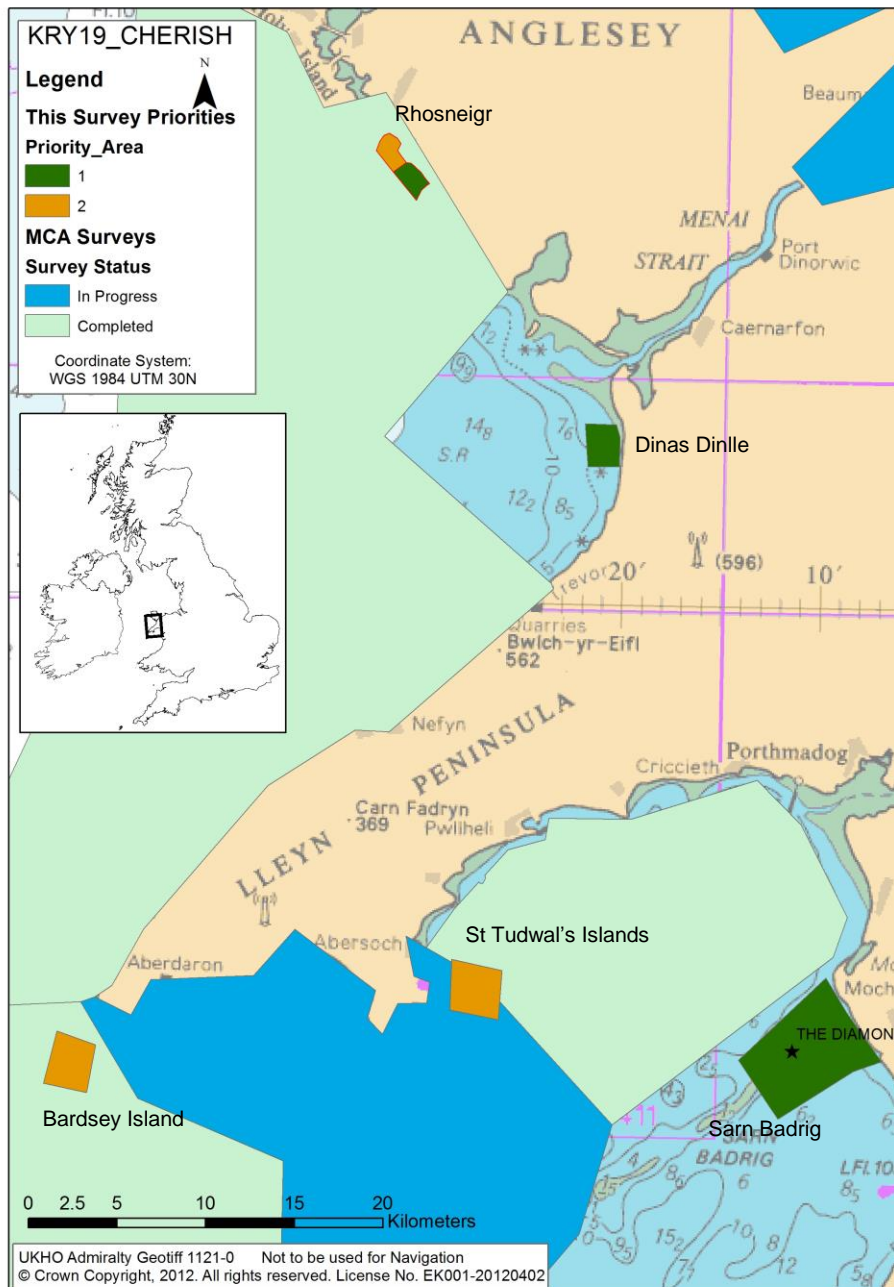
CHERISH (Climate, Heritage and Environments of Reefs, Islands and Headlands) is a 5 year (2017-2021) European-funded Ireland-Wales project between the Royal Commission on the Ancient and Historical Monuments of Wales, the Discovery Programme: Centre for Archaeology and Innovation Ireland, Aberystwyth University: Department of Geography and Earth Sciences and Geological Survey Ireland. The project will receive €4.1 million through the Ireland-Wales 2014-2020 Interreg Programme.

CHERISH is a cross-disciplinary project. It aims to raise awareness and understanding of the past, present and near future impacts of climate change, storminess and extreme weather events on the rich cultural heritage of the Irish and Welsh regional seas and coast. It employs innovative techniques to study some of the most iconic coastal locations in Ireland and Wales.

The CHERISH project identified a number of sites in Cardigan and Caernarfon Bays for which the project required detailed bathymetric surveys. Three main site types were targeted: reefs, headlands, and shipwrecks; while islands formed a secondary objective. Reefs for multibeam surveys included Sarn Badrig in Cardigan Bay, while headlands included Rhosneigr and Dinas Dinlle in Caernarfon Bay. The wreck of "The Diamond" was selected due to its being a designated wreck. Islands identified for survey included the St Tudwal's and Bardsey, to assist in the generation of seamless onshore-offshore maps.

Multibeam surveying was to be carried out in depths <50m using the Geological Survey research vessel Keary which is equipped with a Kongsberg EM 2040 D multibeam echosounder between the 1<sup>st</sup> and 12<sup>th</sup> July 2019. Sub-bottom profiling using an Edgetech CHIRP 3200 was conducted along all survey lines.

Authorisation for the KRY19\_CHERISH survey was received from the Foreign & Commonwealth Office (Ref: 57/2019), permitting surveying between 1<sup>st</sup> and 12<sup>th</sup> July 2019. A license to survey the wreck of "The Diamond" was also obtained from the Historic Environment Service of the Welsh Government Cadw (Ref: qA1380605).



**Figure 1: KRY19\_CHERISH target areas in relation to existing UKHO coverage.**

### A3 Overview of research survey

The R.V Keary transited from Howth, Ireland to Cardigan Bay, Wales on the 2<sup>nd</sup> July 2019. While in Cardigan Bay, Pwllheli Marina was used for port calls. In Cardigan Bay, survey work was conducted on Sarn Badrig and the St Tudwal's Islands, with a wreck survey of "The Diamond" located on Sarn Badrig. Following transit to Caernarfon Bay on 8<sup>th</sup> July 2019, existing UKHO bathymetry offshore of Rhosneigr was extended as close to shore as possible and shallow bathymetry of Dinas Dinlle was surveyed close to drying height. In Caernarfon Bay, Victoria Dock was used for port calls. Due to equipment issues, the survey finished one day earlier than planned on 11<sup>th</sup> July 2019, with a return to Dun Laoghaire, Ireland.



**Figure 2: Survey tracklines of the RV Keary during KRY19\_CHERISH**

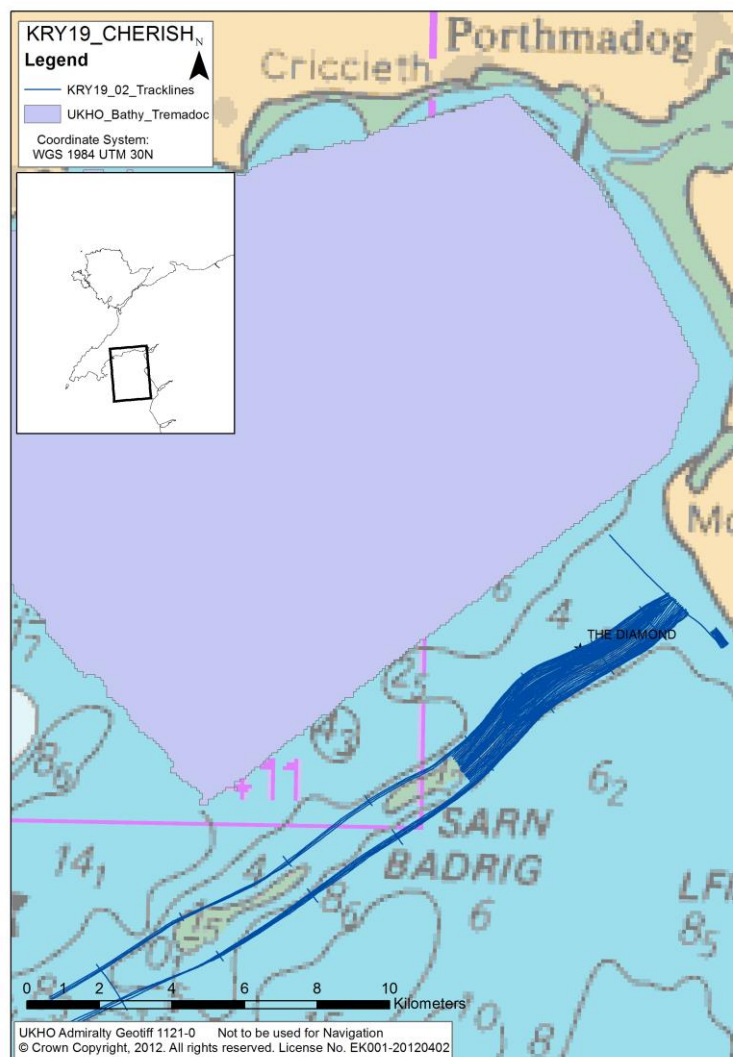
Survey tracklines are included as an appendix to this report.

Operation of the multibeam and sub-bottom profiling equipment followed “JNCC guidelines for minimising the risk of injury to marine mammals from geophysical surveys” (August 2017), including pre-survey monitoring for marine mammals. No mitigation measures were required during surveying.

A complete MMO report will be included as an appendix in the final report.

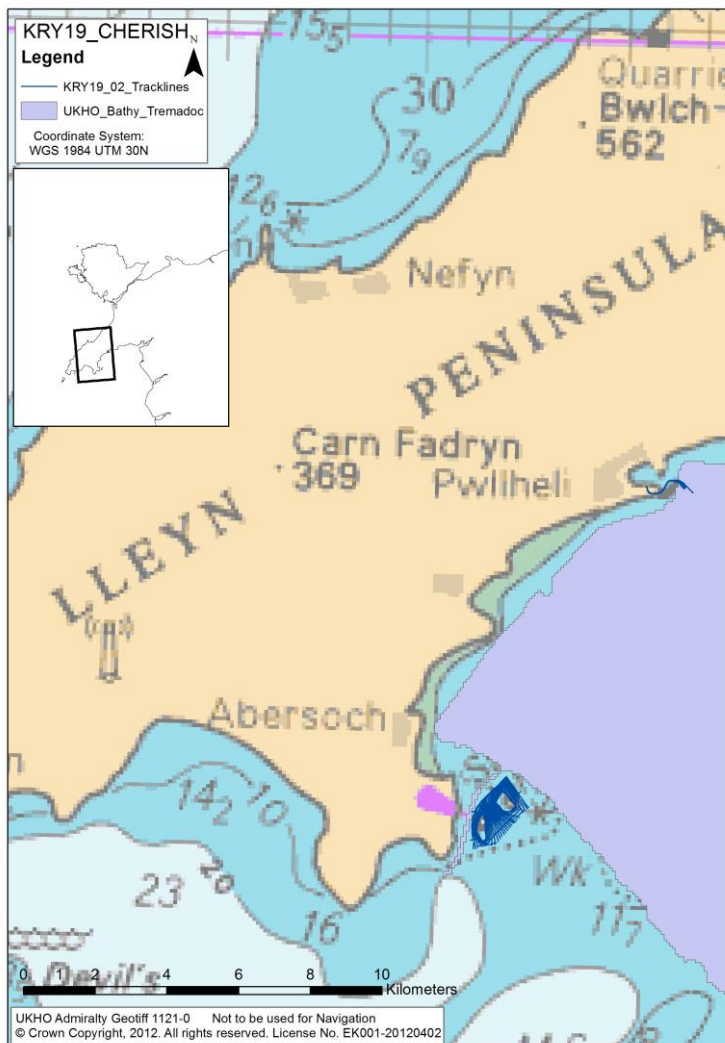
#### A4 Preliminary Results

An area over Sarn Badrig was surveyed (Figure 3), covering the inshore area of the ridge. Due to tidal conditions, only the highest part of the inshore sector of this ridge was surveyed. During periods of low tide when Sarn Badrig could not be surveyed, the RV Keary surveyed the surrounds of St Tudwal’s Islands, near Pwllheli (Figure 4). Due to the importance of onshore CHERISH coastal sites in Caernarfon Bay, two blocks were surveyed where there was no existing bathymetry data, offshore of Rhosneigr) and Dinas Dinlle (Figure 5.

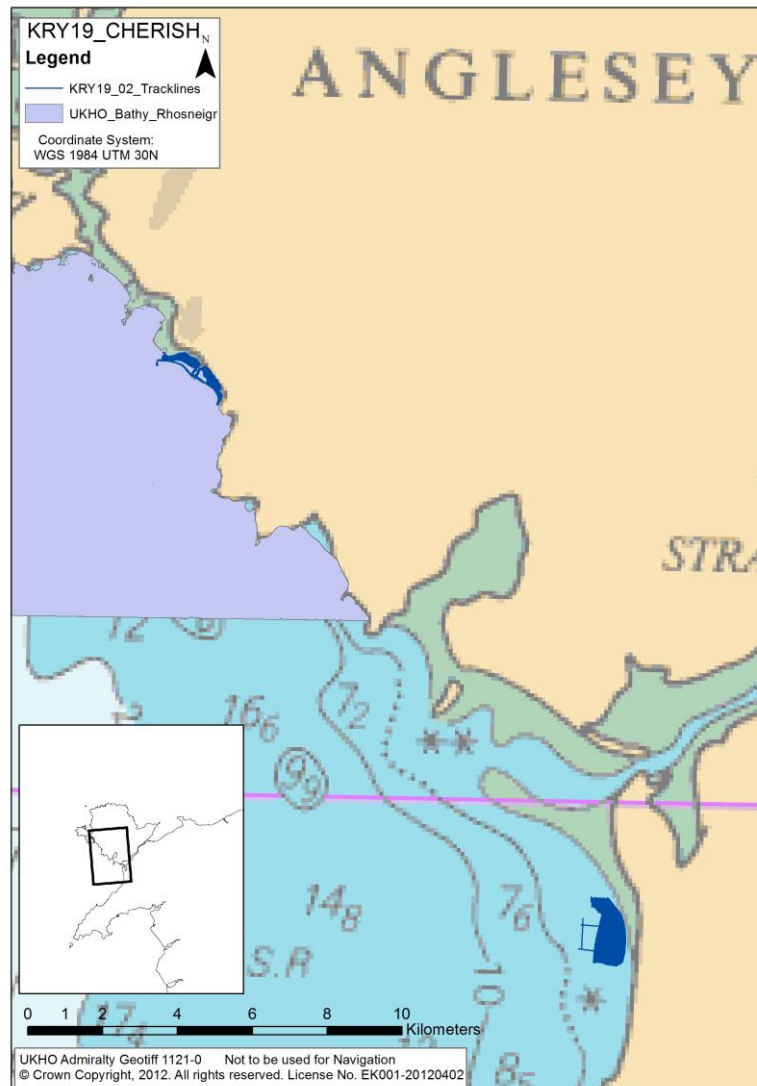


**Figure 3: Survey tracklines on Sarn Badrig in relation to UKHO bathymetry, and location of the wreck “The Diamond”**





**Figure 4: Survey tracklines surrounding St Tudwal's Islands and existing UKHO bathymetry**



**Figure 5: Survey tracklines of Dinas Dinlle and extending Rhosneigr UKHO bathymetry**

Cardigan Bay Wreck:

Wreck	Northing	Easting	Result
The Diamond	52.77552°	-4.18375°	Located and surveyed remains

A report on the progress of “The Diamond” wreck survey will be submitted to Cadw in accordance with license awarded.

A5 *Final Report*

A final report on the survey will be delivered in January 2020

## **APPENDICES**

### **Appendix I: Ships Expedition Track Chart**

See attached folder KRY19\_02\_Tracklines for shapefile (illustrated in Figure 2).

If you have received this report by post and would like a digital copy, please contact [Kieran.craven@gsi.ie](mailto:Kieran.craven@gsi.ie)