

Paper Number: 2470

## **Seabed mapping of a deep-water basin; towards completing a broad-scale seabed substrate map of Ireland's offshore**

Guinan, J. <sup>1</sup>, Monteys, X<sup>1</sup>, Thébaudeau, B. <sup>1</sup>, Sacchetti, F. <sup>2</sup>, Szpak, M.T<sup>1</sup>.

INFOMAR Programme, Marine and Geophysics Programme, Geological Survey of Ireland

INFOMAR, Programme, Advanced Mapping Services, Marine Institute, Rinville, Oranmore, Galway, Ireland

As Ireland's national seabed mapping programme (INFOMAR –Integrated mapping for the sustainable development of Ireland's Marine Resource) enters its second phase of data acquisition, significant advances have been made in producing seabed substrate maps for Ireland's extensive offshore territory, more than ten times its land mass approximately 880,00 km<sup>2</sup>.

Seabed mapping provides essential information to underpin effective management of the marine environment, to shape and inform monitoring programs and measure change, to document extent and distribution of particular habitats of concern, to inform conservation measures and to support fisheries management decisions.

Whilst recent focus of Ireland's national seabed mapping data acquisition campaign has been closer to shore, research continues on the extensive offshore geophysical datasets. Specifically, multibeam echosounder data from the deep-water has been re-examined using data which has been reprocessed with the latest software techniques [1]. The resulting Digital Terrain Model (DTM) gridded at 30 m resolution provides new insights to the geomorphological structures in the offshore. Along with the availability of an improved DTM, another catalyst for the development of a broad-scale seabed substrate map has been a requirement to deliver the most current data on Ireland's offshore seabed substrate to the European Commission as part of the European Marine Observation and Data Network (EMODnet) Geology programme [2]

Here we describe an interpretation of the DTM for seabed substrate in the Rockall Trough, a steep-sided depression in the Continental Shelf of the North Atlantic extending over 1000 km long and 250 km wide. The trough lies in a north-easterly to south-westerly orientation and is characterised by water depths of ~ 1000 m to the north bounded by the Wyville-Thomson Ridge, and ~ 3500 m to the south where it opens into the Porcupine Abyssal Plain. The trough has been well-described in terms of its oceanography, geomorphology, glacial history and sedimentary processes which provide a regional characterisation of this deep-water environment. These data combined with new additions to the seabed samples database, new analyses of shallow seismic profiles and oceanographic data support the development of this new broad-scale seabed substrate map.

*References:*

[1] Sacchetti, F., et al. (2011)

[2] <http://www.emodnet.eu/geology>)

