INTRODUCTION

• New construction and development projects are a vital aspect of improving social wellbeing and sand and gravel are often required for such projects (1).
• Known shortage of angular sands vital for concrete production could be strained even further by predicted enlargement of Cork Bay by c.100,000 new residents in the near future (2).
• From an ecological and socioeconomic perspective, marine mining aggregates can both cause significantly less permanent habitat modification and increase job prospects in the Irish South Coast (3,1).
• The AggrePOP aims to quantify resource quality in order to provide this critical and potentially more environmentally-responsibl resources, with the end goal of delimiting resource presence.

RESOURCE IDENTIFICATION

• The south coast of Ireland sports a jagged coastline, the seabed is quite similar in nature. ArcGIS is used to compile physical sediment data with remotely sensed data in order to quantify the seabed.
• Bathymetry and Backscatter collected from both research cruises and INFOMAR projects.

ENVIRONMENTAL BENEFITS OF MARINE AGGREGATES

• Marine aggregates (MA) have some benefits over their terrestrial counterparts. From an industry standpoint, MA are typically cleaner and less prone to pyriteization with improved calcium carbonate contents (4).
• Studies of a mixed seabed substrate (sandy to pebbly) under low dredging intensity has shown full natural recovery of the seabed within a short 10-year period (5).
• 1 typical aggregate ship delivers around 250 lorry loads of product, largely reducing carbon emissions and infrastructure due to extensive truck-based transport.

METHODOLOGY

• Data obtained was predominantly collected on board the RV Celtic Voyager cruise no: CV18034 – A joint venture between the AggrePOP and Eirwind projects.
• This was done via the use of a combination of multiple data acquisition systems such as; EM2040 Bathymetric surveying (Fig. 1), Shipek grab sampling and Vibrocore (Fig. 2) accumulating to help better quantify the South coast seabed substrate.
• Post in-situ sediment extraction, particle size analysis is completed via the use of a Malvern Mastersizer 3000 optical system that uses laser diffraction to measure particle size distribution (PSD) of a given sediment ranging from 0.1 to 1500 μm

RESOURCE QUALITY

• PSD Malvern laser diffraction and sieve stack analysis will be performed on the 36 cores and 32 grab samples to assess and quantify particle size distribution across the South Coast; (below is an initial size fraction classification of Grab (black) and Vibrocore (green) samples taken, displayed on a FOLK 7 ternary plot).

FUTURE PLANS AND ACKNOWLEDGEMENTS

• Probable comparative particle size analysis study against quantified known territorially quarried aggregates located on the upstream areas of the studied palaeovalleys.
• Carbonate content to be included in particle size analysis to assess the lithic fraction versus the carbonate fraction of South Coast sediment samples.
• The authors would like to commend the Marine Institute, the MaREI Centre and the INFOMAR project for access to workspace and invaluable research data.

REFERENCES

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