

CONDITIONS ON THE DAY:

Date: 06/07/17
Location: Fal Estuary
Time of Arrival: 12:25 UTC
Vessel: MTS Xplorer
Sea State: Calm
Cloud Cover: 1 okta
Wind: 5-8 knots NW
Low Tide: 09:41 UTC (1.26m)
High Tide: 15:36 UTC (4.58m)

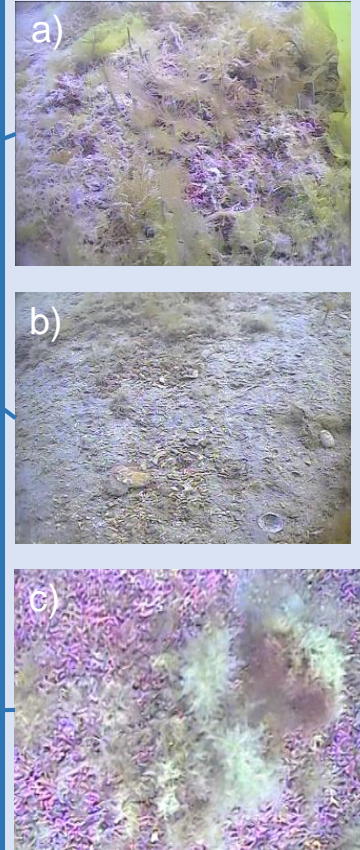
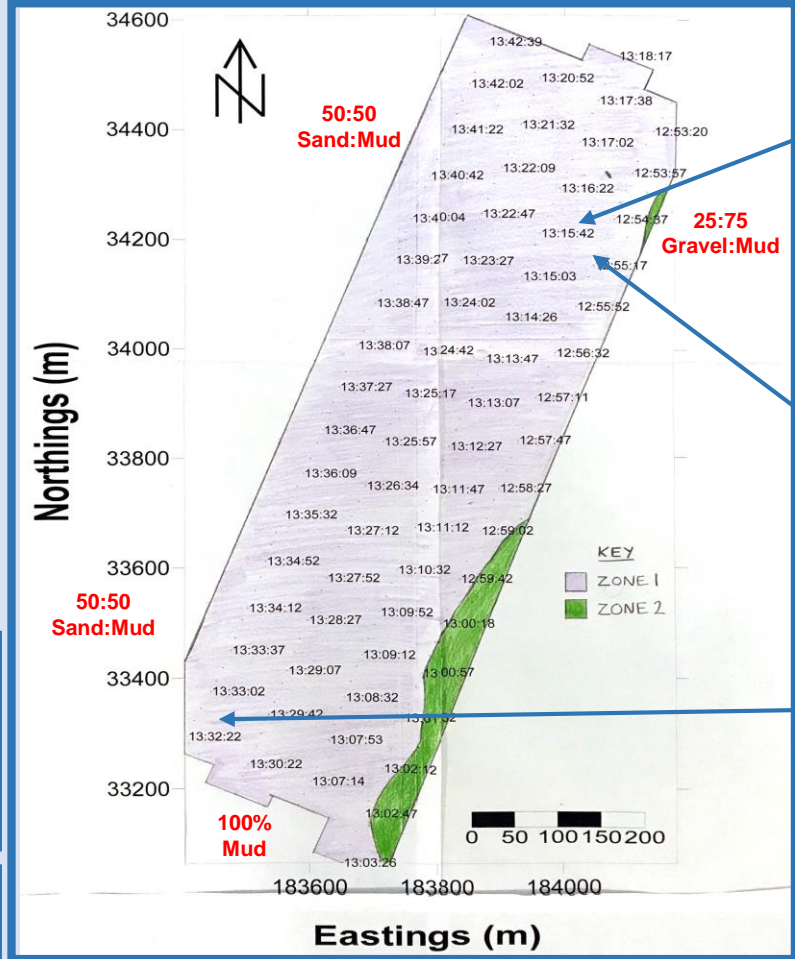
GEOLOGY:

Area MB2_1 is part of the Devonian Portscatho formation, consisting of sandstone, mudstone and minor siltstone beds (British Geological Survey, 2011). A geophysical survey completed by the Port of Falmouth authority generated ratios for sediment types in the area surveyed; these sediment ratios have been incorporated into the habitat map in red (Port of Falmouth Development Initiative, 2009).

REFERENCES:

Bosence, D. & Wilson, J., 2003. Maerl growth, Carbonate Production Rates and Accumulation Rates in the NE Atlantic. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 13(1), pp. 21-31.
British Geological Survey, 2011. *Marine SeaBed Sediment Map - UK Waters*. [Online] Available at: <http://www.bgs.ac.uk/products/offshore/DigRock250.html> [Accessed 7 July 2017].
Hall-Spencer, J. M., 1998. Conservation Issues Relating to Maerl Beds as Habitats for Molluscs. *Journal of Conchology Special Publication*, Volume 2, pp. 271-286.
Port of Falmouth Development Initiative, 2009. *Environmental Statement Final Report*, Exeter: s.n.
Truck, S., Dinwoodie, J., Knowles, H. & Benhin, J., 2011. Assessing the Environmental Impact of Anchoring Cruise Liners in Falmouth Bay. In: P. Gibson, A. Papatthanassis & P. Milde, eds. *Cruise Sector Challenges*. s.l.:Springer Gabler.

AIMS: To create a benthic habitat map for the area MB2_1 in the Fal Estuary using geophysical data and video footage recorded onboard the MTS Xplorer. The Fal boasts a range of different habitats including mudflats, rich seagrass beds and colonies of maerl which our group is keen to observe. The diversity of habitats and species makes MB2_1 a site of great scientific importance and the area has consequently been designated as a Special Area of Conservation (SAC) due to the large population of maerl beds found here (Hall-Spencer 1998).



METHODOLOGY:

The geophysical survey was undertaken using side scan sonar. Four transects were taken with each line measuring approximately 1000m. The location of boundaries and key features of interest were observed on board and where later returned to after the geophysical survey. To confirm the benthic boundaries and habitats at the chosen sites of interest, ground-truthing was performed using a video camera deployed over the side of the vessel. Identification of species as well as boundaries were recorded from the camera footage.

MAERL:

The most significant habitat observed in the video footage were maerl beds found intermittently in Zone 1. Maerl grows in areas moderately sheltered from strong flows and storm waves from the SW, with small terrigenous sediment inputs (Bosence & Wilson 2003). Maerl grows to form large biogenic reefs of heterogeneous substratum, capable of supporting high biodiversity (Hall-Spencer 1998). In recent years, maerl beds have largely declined in volume due to the combined natural effects of ocean acidification and anthropogenic inputs from shipping and dredging (Truck *et al.* 2011).

Disclaimer: The ideas expressed in this poster are those of the group and do not represent those of the National Oceanography Centre (NOC)

Figure 1) - Habitat map, screenshots taken at sites of interest can be seen with arrows indicating location in area surveyed. Zone 1 was identified as muddy matrix with gravel and maerl beds. Zone 2 was not identified as no camera footage was taken in that area therefore we assume from the sonar trace that Zone 2 was rocky substrate. Table 1 contains more information about the location, time and species in Fig a, b and c. In Fig 1, more information about the sediment ratios in red can be found in the geology sub heading.

Figure	Video label	Time (UTC)	Species ID
a)	Bedform site	14:43:14	Minimal Maerl (<i>P. calcarum</i> , <i>L. corallioides</i>) present. Numerous <i>Sabella pavonina</i> .
b)	Bedform site	14:43:55	Facies of Maerl: clean algal gravel facies.
c)	Boundary	14:09:48	Dense Aggregation of Maerl (<i>Phymatolithon calcarum</i> , <i>Lithothamnion corallioides</i>). Sedimentary facies of Maerl: bank facies.

Table 1) Information table for screenshots (Fig a, b, c)