Group 7: Habitat Mapping

Connor Dunbar Sam Holmes Megan Masters Joanna Miles Henry Norris Jack Sims Rianna Vlierboom Emma Whettall Olivia Yarney

This investigation took a series of six transects in the Special Area of Conservation that extends from the Fal Estuary to Manacle Rocks. The survey looked at an area of the bay near the edge of the SAC in order to ascertain why the area is designated as such. Using a sidescan sonar, the seabed was imaged and processing back in the laboratory allowing us to classify the different substrate types and gain an understanding of the sort of organisms likely to be found here. A video camera was deployed in order to directly observe the flora and fauna inhabiting this area. Based on the sidescan and video data, an area of soft sediment was chosen for a Van Ween grab.

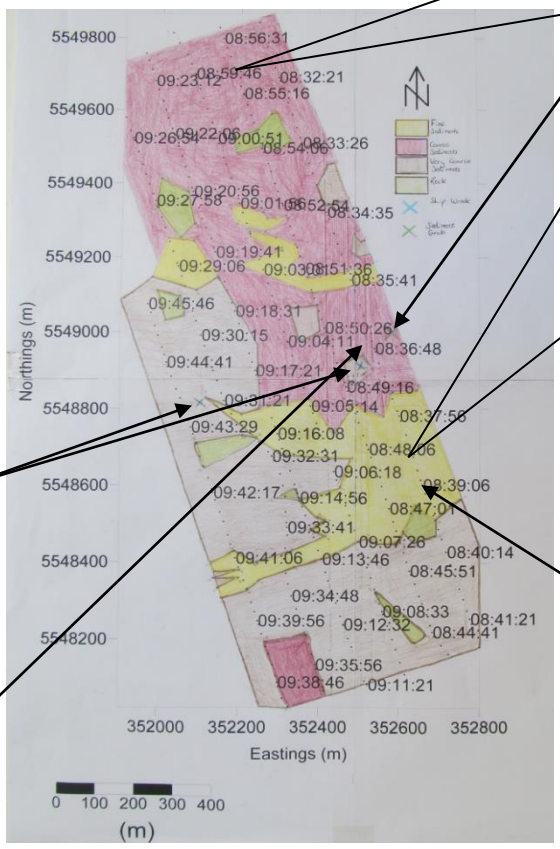
Figure 1: The contents of the sediment grab

Date: 28th June 2014
Time: 08:00 BST
High Tide: 06:42 BST
Weather conditions: Changeable, some heavy showers and some clear spells. Brisk South Westerly wind.
Vessel: MTS Explorer
Equipment used: Sidescan Sonar, Underwater video camera, Van Ween sediment grab

Figure 7: common starfish seen on an area of hard substratum, surrounded by macroalgae

Figure 8:Epifauna in areas of soft sediment are typically deposit feeders such as this Holothurian *Holothuria forskali*

The largest area of the survey is characterised by coarse sediment



The site of the sediment grab is indicated. The sediment was primarily mud with pebbles and broken shell incorporated.

There is a large area of fine sand or mud crossing the transect, potentially caused by sediment run off from land to the west

Figures 2-6: organisms found in the sediment grab (from top); an Annelid worm, most likely *Glycera tridactyla*, a Gastropod shell common in the grab, silver Spanish piece of eight dating from 1776, Scallop shell, small sponge.

Two wrecks were identified in the sidescan print out, both situated on areas of very coarse sediment. They may act as artificial reefs, encouraging higher diversity in the local area, especially in terms of fish and macroalgae. This was seen on the video transects when the camera passed over an area of hard substratum (see Figure 7).

Figure 9: screen grab from when the sediment grab was taken. This corresponds with an area of soft sediment on the sidescan survey

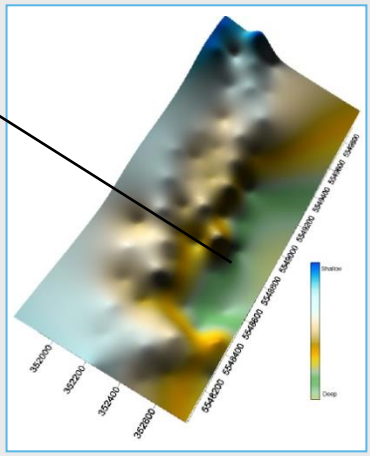


Figure 11: Contour map of the seafloor. The lowest areas (pale green) correspond with the large area of fine sand, meaning it is likely the current is very low in these areas

Figure 10: location of each transect, taken from Google Earth

<u>Summary of findings</u>

Four different substrate types were identified: fine sand, coarse sand, very course sand, and rock. Anthropogenic features, including wrecks, were also included. The most common substrate found was coarse, closely followed by very coarse sediment, however there was a large area of fine sand (or mud) bisecting the transects. There were small areas of rock scattered throughout the survey area, but no large patches. This survey observed two wrecks on the seabed, which act as a man made reef for organisms to attach themselves to. There were no other man made landmarks such as anchor scars as this area is a Special Area of Conservation.

The substrate type means that the most common organisms in this area will be infaunal, living within the sediment; however the small patches of rocks and reefs may act as an oasis for macroalgae and associated organisms to use as nursery or feeding and spawning grounds. No maerl beds were observed in this area of the SAC.

<u>Limitations</u>

With a method such as this there is always an element of distortion due to the different time it takes the sound waves to reach the sea floor. Also it was not possible to take a grab on each transect in order to corroborate the sidescan data as the area is protected.