

Plymouth Sound and its estuaries are classified as a Special Area of Conservation (SAC) due to the variety of habitats including limestone reefs and rocky reefs which provide a home for many important benthic species. Within the Sound, there are areas that are dominated by seagrass beds, but currently there is little protection in place and these beds are in danger from boats anchoring and mooring in the area. The aim of this investigation was to locate an area of seagrass, just off the coast of Kingsand and collect data on what habitats are present and what benthic species it contains.

Method

Four transects were taken and the seabed was monitored using a side scanner, towed behind the boat. Those for transects were taken between:

- Line 9: 50° 19' 10 N, 004° 10' 48 W -
50° 19' 47 N, 004° 11' 32 W
- Line 8: 50° 19' 42 N, 004° 11' 19 W -
50° 19' 06 N, 004° 10' 39 W
- Line 7: 50° 19' 10 N, 004° 10' 36 W -
50° 20' 01 N, 004° 11' 36 W
- Line 6: 50° 20' 02 N, 004° 11' 32 W -
50° 19' 11 N, 004° 10' 33 W

On each transect, key features were noted down for later inspection with a camera, linked to a monitor on-board. The videos were not recorded, due to technical fault, but some observations were noted.

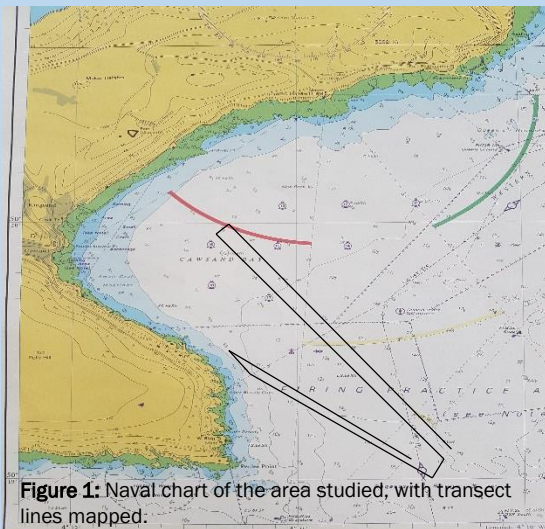
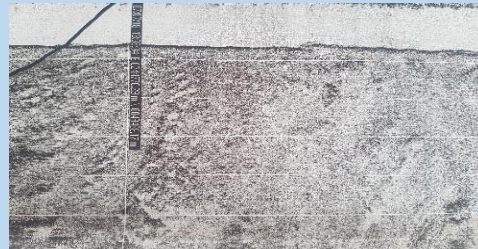


Figure 1: Naval chart of the area studied, with transect lines mapped.

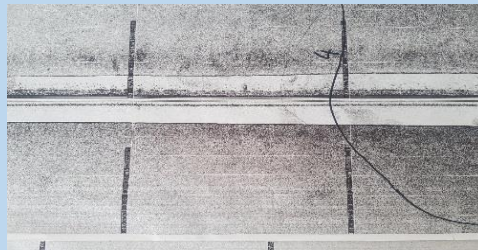
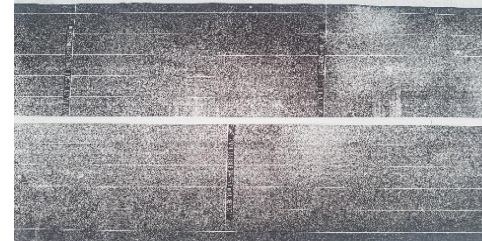


Habitat Type 1: Bedrock

Located along line 6 between 13:35 – 13:37 and line 7 between 13:17 – 13:19 UTC. Previous geological field studies, show the bedrock is made up of folded layers of mudstone and sandstone formed in the Devonian period. Bedrock is a hard substrate and therefore has greater influence on water movement, as well as providing habitats for many epibenthic species.

Habitat Type 2: Coarse Sand/Broken Shells

Located along most transects, but most prominent along line 8 between 13:07 – 13:11 UTC and line 7 between 13:18 – 13:23 UTC. Characterised by larger grain size and a less stable environment, more influenced by water movement. Broken shells were also present. Less fauna was found on the live video feed, but some signs of burrows and macroalgal growth.



Habitat Type 3: Fine Sediment/Mud

Located along all transects, separating the areas of bedrock and coarser sand. Characterised by finer grain size and a more stable benthic environment with cohesive sediment. From the live video feed, burrows appeared more frequently and larger than in the coarser sandy habitat. Large algal mats cover much of the seabed and some starfish were present.



Bed form Ripples

Located along line 6 between 13:36 and 13:38 UTC. These ripples are influenced by wave movement and formed in areas of low flow and a Froude number less than one.. From a video taken at 14:26 UTC, it was found that algae was growing in the troughs of the ripples. The area was also characterised by broken shells and blue starfish were present. Potential identification is *Marthasterias glacialis*.

From the investigation, we identified three types of substrate habitats. Each of these provides shelter for different species and influence the marine environment in different ways, thus making each important in its own way. Seagrass beds were not identified on the side scan and could not be found on the probe camera. Further investigation would be needed to locate and find out the extent of the seagrass beds in the area. Then, proper regulations can be put in place to better protect each habitat type within Plymouth Sound.

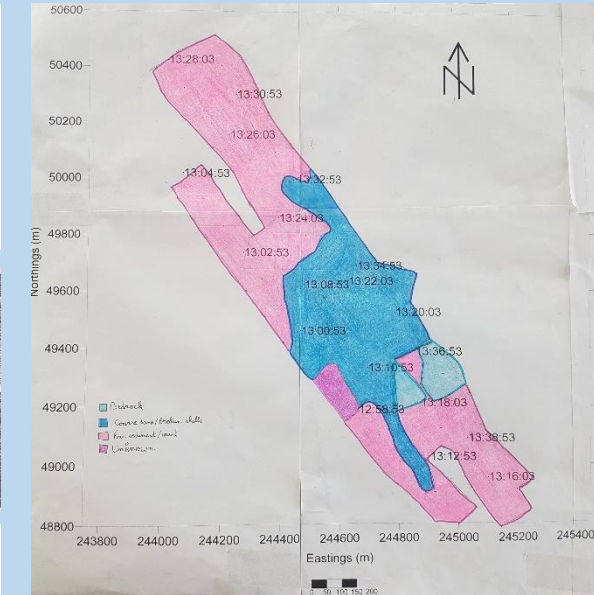


Figure 2: Recreation of the seafloor in the surveyed area.

Seafloor Map

Using the side scan data, the co-ordinates were converted to Eastings and Northings and the printout was used to calculate the size of different habitat types. From these calculations, all the information could be put together to create a seafloor map (as shown above). The main areas highlighted were: Bedrock (Light Blue), Coarse Sand (Dark Blue), Fine Sediment (light pink) and an unidentified area of seafloor (dark pink).

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Disclaimer: The views expressed in this work of those of the students in Group 5 and not the University of Southampton.