



Figure 1: An enthusiastic group 8 on the boat deck

# Habitat Mapping Fal Estuary Group 8



Figure 2: The exact locations of the transect lines carried out

## Introduction

On the 28<sup>th</sup> June 2015 Group 8 headed out on the Xplorer boat with the aim to map a section of the seafloor around the coast from Zone Point, the area mapped was offshore from Porthbeor beach (50°8'58.23N 004°59'36.09W). This site was chosen due to the mornings survey which was in the same area, our survey intended to extend the mornings survey by group 11 allowing us to look at the difference in seafloor substrata and consequently the ecosystem over a small spatial scale. Habitat mapping is important for determining biodiversity of seafloor fauna and flora. Biodiversity is an important factor affecting an ecosystems resilience to change. We will assess our sites ecosystem for biodiversity which could, along with other groups data, inform us of the Fal estuaries ecosystems resilience to change.

## Methods

- A Subsurface Dual Frequency Analogue Side Scan Sonar (FISH) was towed along 5 different transects by the Xplorer (boat) at a depth 4m below the GPS receiver which was located on the boat. This produced high resolution images (frequency 100 KHz) of maps of the seafloor with a swath range of 150m.
- For ground truthing, video footage was taken of the seafloor within the sample area moving in the direction the boat was drifting. This verified sediment type and rock formations as well as giving an indication of the biota and their habitat.
- If there was more time the ground truthing would be verified using a Van Veen Grab taken along the different transects to give an indication of sediment size.



Figure 3: The FISH

Figure 4: Camera pre deployment

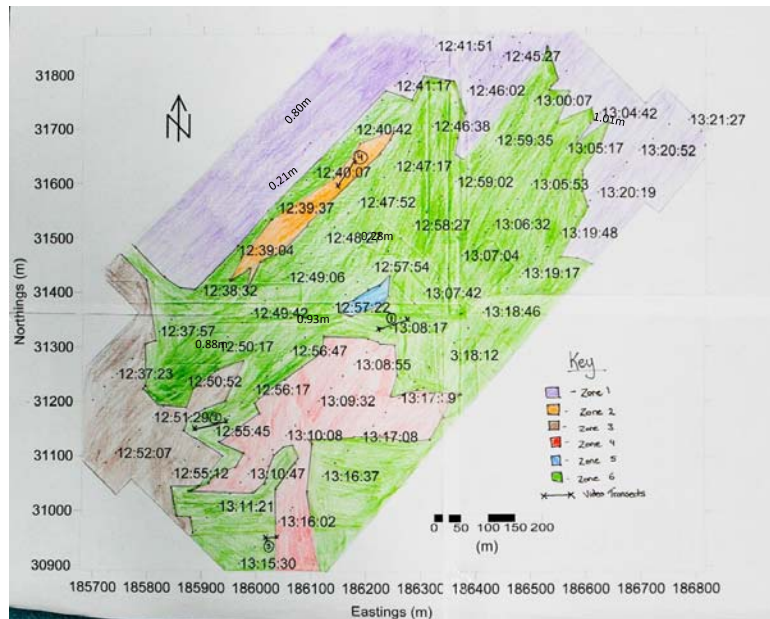


Figure 5 - Map to show the zonation of seabed observed by the FISH.

## Zones

- Zone 1 – rocky outcrop enclosed by boundary 1 and the North-East transect edge.
  - Zone 2 – a rocky outcrop enclosed by boundary 2 and surrounded by sand
  - Zone 3 – comprises of a series of smaller rocky outcrops enclosed by boundary 3 and the south-west transect edge
  - Zone 4 – largest rocky outcrop entirely enclosed by boundary 4
  - Zone 5 – very small rocky outcrop enclosed by boundary 5
  - Zone 6 – large expanse of sand which is enclosed by boundary 1, boundary 3, the north west and south east transect edges. Within it lies zones 2 and 5.
- Spot heights seen on map represent the heights of rock formations found at those locations relative to the surrounding sea bed.



Figure 6: An example of the side scan sonar read out used to construct the map

## Biology

In the 3 non-SAC locations videotaped and used for species ID, notable differences were found between the biodiversity of each area.

In location 1 (start 50°08.5N, 4°59.8W), the substrate was sandy and rippled with a distinct lack of rock, gravel was found in troughs (about 20cm apart from each other). Here, *Laminaria hyperborea* and *Plocamium cartilagineum* were both found in high densities and provided habitat for a range of wrasse and mullet. In location 2 (start 50°08.6N, 4°59.6W), the substrate was also sandy, rippled and lacking in rock but the troughs were at least 30cm apart. Again, gravel was collected in these and *Laminaria hyperborea* was the dominant floral species found in the area however there were incidences of Sea Lace (*Chorda filum*) and *Derbesia marina* being observed in addition to a lot of mixed plant debris. In this location there were also *Aurelia aurita*, *Aequorea aequorea* and *Stichostrella rosea* and numerous *Asterias rubens* present. *Chelon labrosus* was the only fish species present at this location. Location 3 was very rocky, with large kelp forests leading way to small sandy intervals with gravel collecting in the troughs of the sandy sediment's close (20cm) ripples. Species of flora found in this area included *Laminaria hyperborea* forests which hosted numerous *Palmaria palmata* specimen, with sandy areas being mostly bare but dotted with *Derbesia marina* on occasions. Two species of wrasse were found here, including the Corkwing and Goldsinny, and both *Aequorea aequorea* and *Aurelia aurita* were also found here in greater numbers than at previous locations.



Figure 7- *Laminaria hyperborea* observed at location 3.