

BENTHIC HABITAT MAPPING

Using Sidescan and video technologies

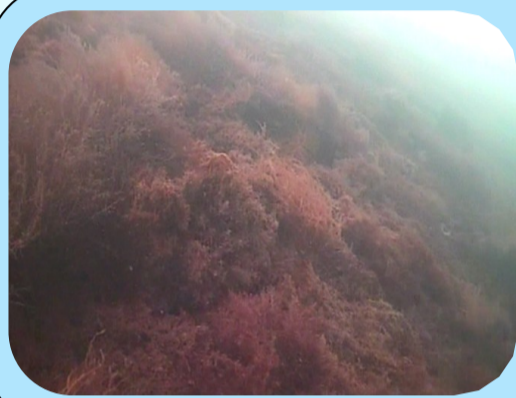
Introduction

Fal estuary comprises a large number of different habitats and substrates making it one of the most biologically-rich estuaries within the European Union. Habitat mapping has emerged as a key tool to help assess and conserve biodiversity. The Fal is a Special Area of Conservation (SAC) to promote and maintain biodiversity including species which are threatened by large-scale dredging plans within the estuary.

Our aim was to gain an understanding of the habitat surveyed in the upper reaches of Fal estuary, using sidescan sonar and video footage in order to identify bedforms, species and sediment present.

Methods

A printed thermograph from the sidescan was coupled with information from the tow fish's navigation to produce a habitat map. Video footage was used for data grounding instead of grabs as the sampling site was a (SAC). The frequencies used for the sidescan were 100kHz and 415kHz.



Zone 1: consists of a dense covering of algal species, predominantly Rhodophyta with some Chlorophyta. It also appears to have a relatively diverse benthic epifaunal community.

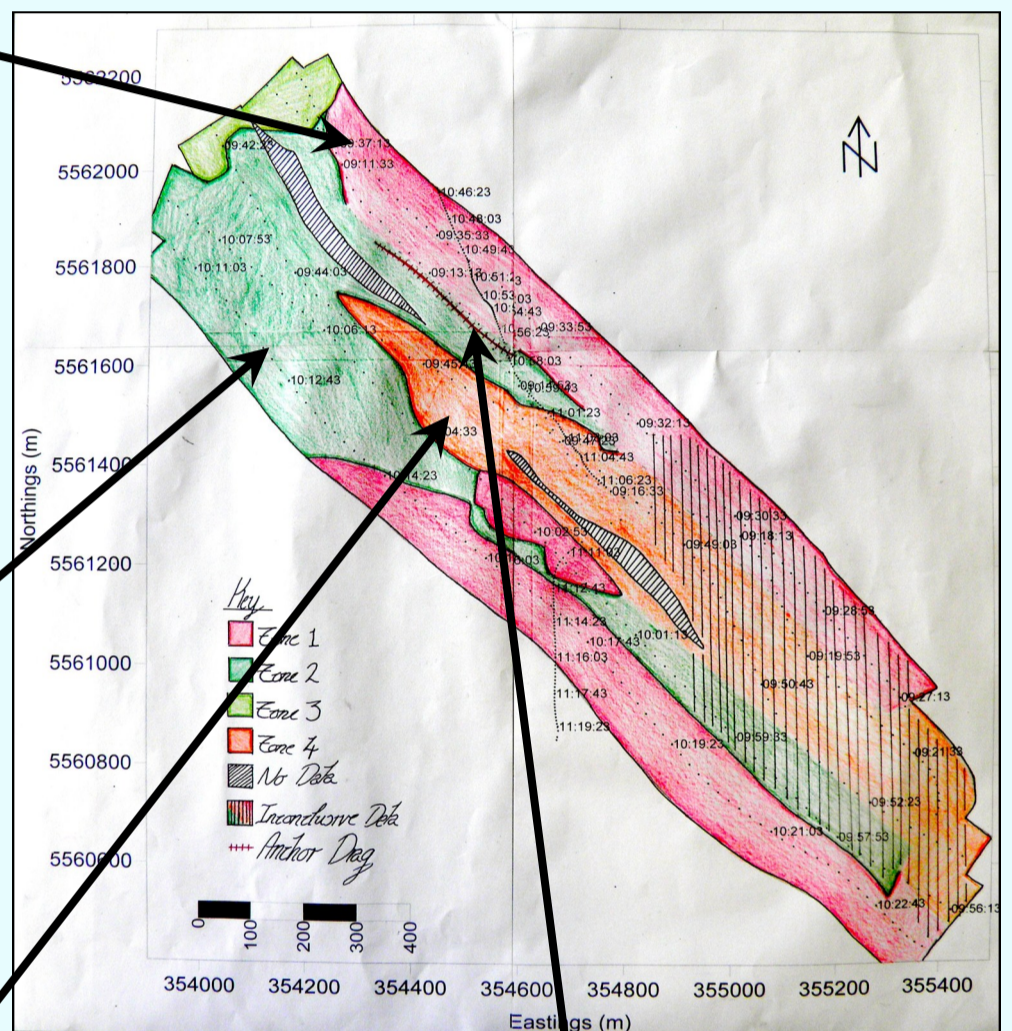


Zone 2: appears to have the same basic community structure as Zone 1 but less dense algal coverage and regions of exposed gravelly sediment.

Zone 3, which was not grounded, gives a similar result as Zone 2 on the backscatter but with a smaller sediment size shown on the sidescan in a lighter shade.



Zone 4: showed a more exposed coarse sediment where the dominant organisms were suspension feeding bivalves. This area coincided with removal of sediment in the deep channel.



Anchor drag - width 40cm from sidescan. This corresponds to a common two fluke yacht anchor. The still shows impacts on the Benthos.

Results and Limitations

Four probable zones were found in the sidescan backscatter results. Three of the four were grounded by video tows roughly north - south over the sampled area at Easting 354600.

There are a number of limitations to the results particularly in the southern end of the sampled area (labelled Inconclusive Data). In this area very little should be inferred from the results as the lack of grounding in this area has led to a disparity between sidescan and video data, with no obvious boundaries for the three zones that are seen though grounding. As well as the poor data quality due to conditions this lack of clarity of some boundaries could be due to weak horizontal gradients in-between the zones. Two areas within the sample area have no data from the sidescan as they were not covered by the swath range of any transect and as such no comment can be made about the habitat here.

Many thanks to the crew of RV Viking and to Prof. John Davies

Metadata Date: 27/06/13	Transect 1: Start time(all times UTC): 09:27 End time: 09:38	Transect 4: Start time: 09:56, End time: 10:08	End location: 50°11.144N 005°02.077W Start time: 10:46, End time: 11:06
Vessel: RV Viking Cloud cover: 3/8	Transect 2(initially transect 1): Start time: 09:10, End time: 09:22	Transect 5: Start time: 10:10, End time: 10:23	Video Feed 2: Start location: 50°11.059N 005°02.130W End location: 50°10.904N 005°02.133W Start time: 11:10, End time: 11:18
Tides: High tide of 5m at 09:00 and low tide of 0.4m at 15:30.	Transect 3: Start time: 09:42, End time: 09:53	Video Feed 1: Start location: 50°11.435N 005°02.331W	