

Geophysical Survey for Benthic Habitat Mapping of the Fal Estuary SAC Boundary

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Metadata

Date: 22/06/2016
Start Time: 08:14 UTC; End Time: 10:18 UTC
Location: Zone Point, Fal Estuary
Vessel: MTS Xplorer
Cloud cover: 6/8 cloud
Sea state: 1 (capillary waves)
Weather: little wind and swell
High water: 06:19 UTC; Low water: 12:44 UTC

Background

The Fal Estuary is located in Cornwall in the South-West of England. It was designated a Special Area of Conservation (SAC) in 2005. The boundary of the SAC is between Zone Point and Manacle Point. The qualifying features included the presence of live maerl and seagrass beds.

Aim

To gather sidescan, video and grab survey data to create a detailed benthic habitat map of the SAC boundary near Zone Point.

Method

Zone Point was chosen as the survey location as the conditions were calm, so the vessel was able to go further offshore than normal, allowing a survey of the estuary mouth. A sidescan sonar survey was made by a TowFish taking four transect across the SAC boundary line. During the survey, the receiving computer monitor was observed to identify suitable sites, which were noted and surveyed later with a video camera. These were used as ground truthings to identify suitable sites in which to perform a grab. Two Van Veen grabs were then taken of the substrate in order to examine the benthic species.

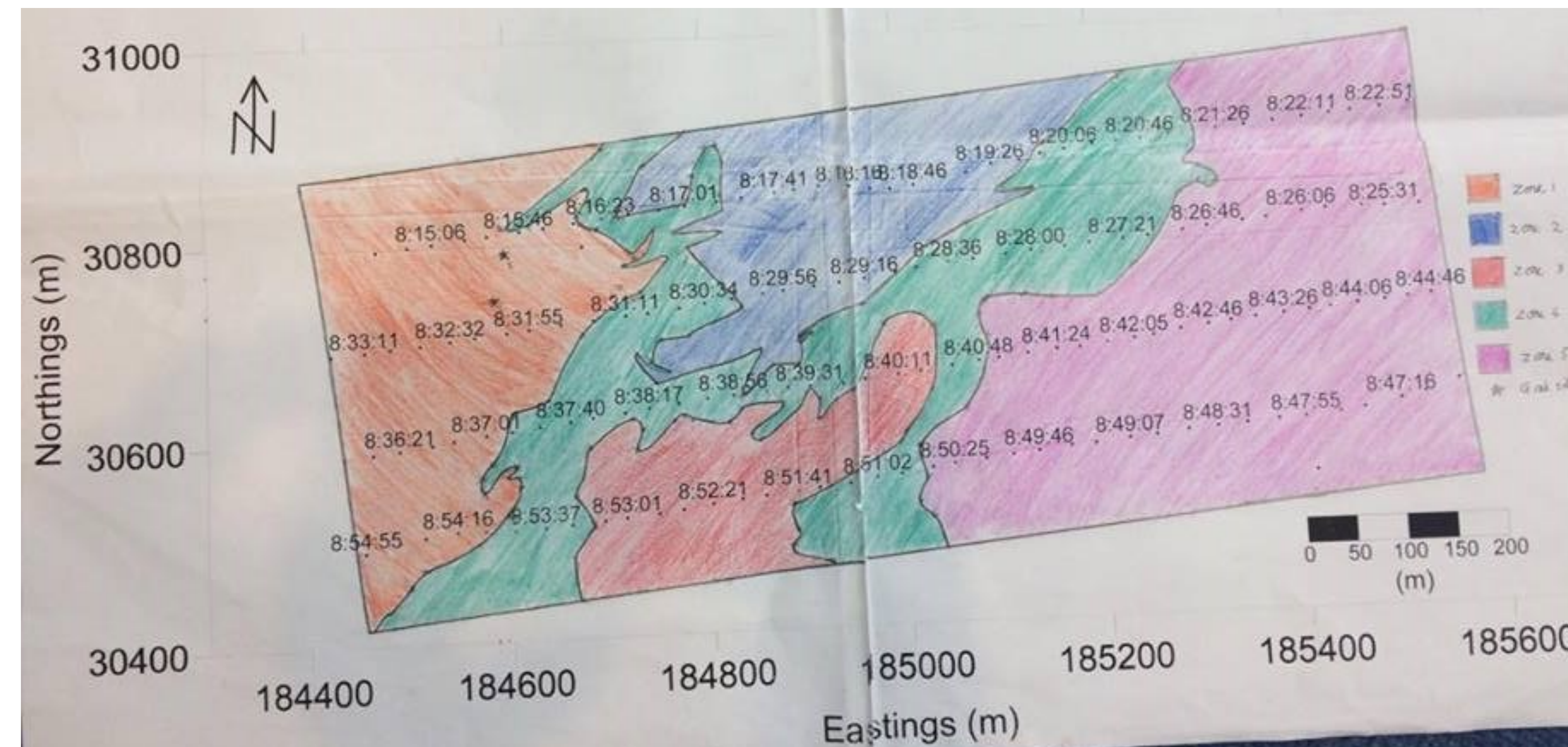


Figure 1: Benthic habitat map of the Zone Point area, near the mouth of the Fal estuary, with five different habitat zones shown by different colouration. The four sidescan transect lines are shown also for reference.

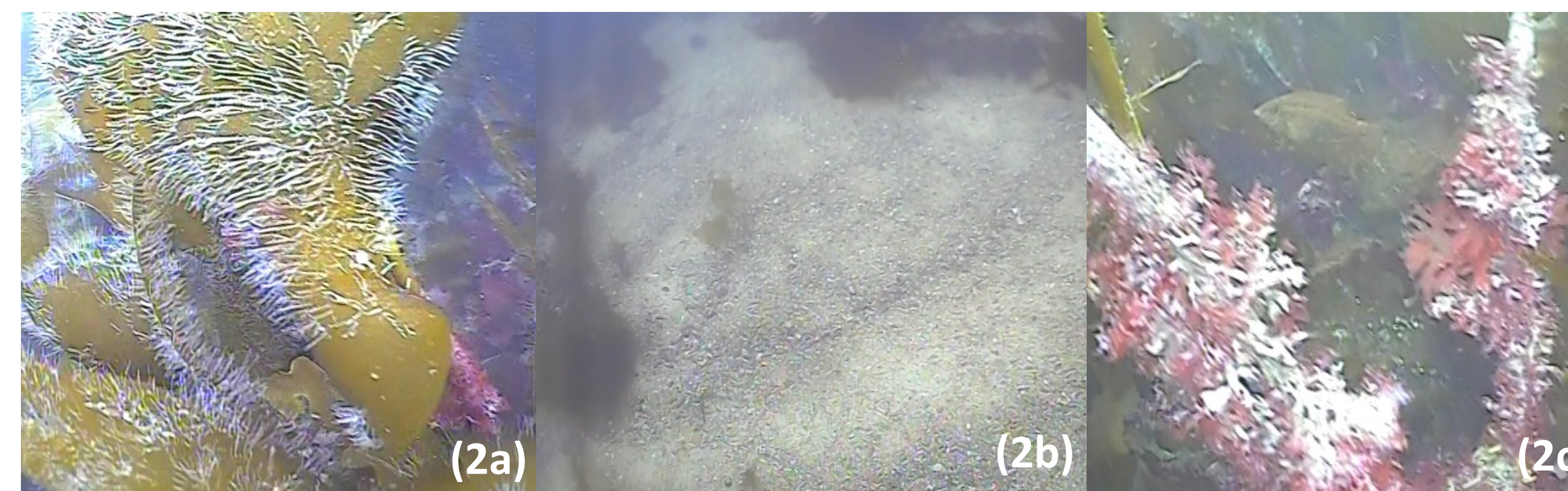


Figure 2: Video stills from the survey showing the various species and habitats identified - *Laminaria sp.* with Hydrozoans (2a), sandy bedform (2b) and juvenile Wrasse with *Chondrus sp.* (2c).



Figure 3: Images of the kelp species (*Saccharina latissima*; 3a) retrieved from the benthos using the Van Veen grab (3b), on-board the MTS Xplorer.

Sidescan Results:

The sidescan survey showed that the area of seafloor that was surveyed was mainly rocky, interspersed with sediment, which was identified in the video survey as being coarse sand. Zones 1, 2, 3 and 5 were rock, whereas zone 4 was sediment. The sidescan also indicated that the rock beds were tilted.

Video Survey Results:

The most abundant organisms were *Laminaria sp.*, colonised by encrusting Bryozoans and Hydrozoans. Also common were Rhodophyta such as *Chondrus sp.*, as well as various fish species, usually juvenile Wrasse^[2]. A medusa form of Hydrozoa and a common starfish were also spotted^[1]. The seafloor substrate was rocky and algal cover was usually >70%, but some sandy bedforms were found.

Van Veen Grab Results:

Ground truthing was used to identify two sites in the survey that showed patches of coarse sediment, to take a grab sample. Very little was retrieved during the grabs - *Saccharina latissima* and some encrusted rocks. This was either due to inaccurate coordinates or largely dominated rocky shore.

References

- ^[1] Campbell (2004) *Seashores and Shallow Seas of Britain and Europe*. 2nd Eds. London: Octopus Publishing Group Ltd.
^[2] Dipper (2001) *British Sea Fishes*. 2nd Eds. Middlesex: Underwater World Publications Ltd.