News

BENTHIS North Sea case study – First campaign completed

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From June 13th to June 20th the first fieldwork campaign of the BENTHIS North Sea case study was carried out in the Dutch Voordelta. The main aim of the field experiment was to compare the direct mortalities on benthic organisms caused by fishing with a beam trawl versus fishing with a pulse trawl.

Additional programmes were carried out to look at physical effects on the seabed, sediment re-suspension, sediment characteristics and vertical sediment profiles and distribution of infauna.

The experiment was set up in a BACI (Before-After-Control-Impact) design: An area was selected in the Dutch Voordelta where high abundances of bivalves (expected to be vulnerable to trawling) are known to occur. Within the experimental area, 4 plots were set up: a control area, a 'beam area' and a 'pulse area' where experimental trawling would take place and a 'laser area' for measuring physical impacts of the beam trawl. On the 13th and 14th of June the areas were sampled prior to experimental trawling. After the areas were trawled with the respective gears the sampling was repeated.

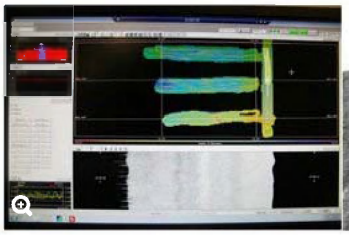
The case study was carried out in collaboration with IMARES (NL), ILVO (BE), Cefas (UK) and Marlab (UK) and the work was spread across three vessels: RV Isis (NL), RV Simon Stevin (BE) and the commercial vessel SCH18 (NL).

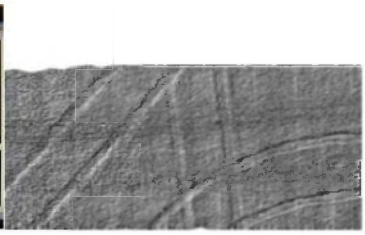
The Dutch vessel RV Isis had the task to survey all plots using the benthic sledge, which samples the top layers of the sediment for benthic fauna. RV Isis also carried out the experimental trawling of the beam area with a 4m commercial beam trawl. Scottish partners from Marlab joined the vessel to measure sediment suspension caused by the trawl gear as well as applying a laser to measure the physical impact to the seabed.

On-board Belgian vessel RV Simon Stevin work was focussed on the sediment profile. Boxcores were taken to look at vertical distribution of infauna and profiles of sediment characteristics such as particle size, porosity, total carbon and chlorophyll a.

Cefas (UK) provided a Sediment Profile Imaging (SPI) camera to take photos of the sediment profile form which sediment function can be inferred.

In addition multibeam measurements were taken of the entire area before and after trawling to map the physical tracks of the trawl gears.





The commercial pulse trawler SCH18 completed the experimental trawling of the pulse area. The re-suspension measurements were also carried out on-board SCH18 and the catches of the trawling were sampled to assess injuries to fish and compare the catch composition with that of the beam trawling on-board RV Isis.

The ambitious campaign started off in severe weather conditions which made progress difficult in the beginning, but luckily the weather turned almost tropical and the sea became a mirror during the second week which allowed the scientists to complete the tasks and try some additional experiments. Although it will take some time for the results to come through the campaign was deemed a success in terms of the data collected.