Cruise Report CEND608 for the Quarter one Southwest Beamtrawl Survey

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AIMS AND PERFORMANCE:

1. To carry out a beam trawl survey of the Western Channel for stock assessment purposes using standardized 4m beam trawls in order to obtain information on:
   a) Distribution, size composition and abundance of all fish species caught.
   b) Age – length distribution of selected species.
   c) Distribution of fish in relation to their environment.
   d) Distribution of macrobenthos and anthropogenic debris.
   e) Surface and bottom temperature and salinity data using CTD.
   f) Length weight & maturity information using individual fish measurements, in support of the EU Data Regulation.

Aim one was completed successfully with all data entered onto the FSS system despite some difficulties with the EDC system. In addition, histology samples were collected to determine accuracy of macroscopic staging along with gonad weight and pictures of the gonads in and out of the body cavity. Totals for numbers collected, number of otoliths taken and number of fish sampled for the histological database by species are shown in Tables 1-3 respectively.

2. To collect acoustic data at two operating frequencies (38 kHz and 120 kHz) continuously throughout the cruise. An attempt will be made to use this data to determine habitats and the scale at which these vary.

Data was collected as planned on all acoustic systems and multibeam data wa processed in detail on board for all stations sampled. QTC data was also collected and will be processed later along with the fisheries acoustic information.

3. To determine if it is possible to collect qualitative and quantitative information on habitat using an underwater camera system without lights mounted on the gear to ground truth the acoustic information collected on habitats.

The system performed well in terms of down loading and charging on deck, but unfortunately the mounting system still leaves the camera susceptible in bad weather and the current camera is not light sensitive enough to collect useful pictures with out an additional light source.
An additional aim of sampling monkfish for genetics and fin clips and tagging of elasmobranchs were conducted, but this is putting an undue burden on the fishroom staff and with out sufficient time to plan these additional aims (on the day of departure is just not good enough) these will not be conducted in the future.

Narrative:

The Cefas Endeavour sailed from Swansea on the afternoon of the 18th of March, with 10 scientific crew on board, to conduct the Q1SWBeam trawl survey. A shake down tow was conducted on the fishing ground off Travose head. Following which the ship continued on a SW course to the western edge of the survey area around the Scilly's. The camera was deployed on the port beam, but water depths were too great to obtain useful images of the habitat. Six stations were successfully sampled in good weather containing catches of mainly monk and megrim with a few lemon soles. Unusually large numbers of small white-bellied monk fish were collected, in fact these out numbered the age 1 monk fish by a considerable margin. The following day weather conditions were worsening and we mover inshore after completing sampling stations in strata 1 and 2. Catches were similar to the previous day, but some good samples of sole were taken off Cornwall. The fish room continued operating well despite difficulties with the EDC system failing to keep tallies for collected otoliths so that samples had to be stored in packets. Students set about collecting maturity samples and taking pictures of macroscopic staging.

On the following day we finally managed to fix the EDC problem, but the weather was worsening so that we had to hug the coast for shelter, but we still managed to complete 8 stations around Plymouth up to Start Point. The camera system was removed and not mounted again due to poor weather conditions, poor light and the danger of damage given the strong winds. Catches contained large numbers of sizeable monk fish (around 50cm). Sole and lemon sole were also abundant in the area, but plaice numbers were down compared to previous years. On the 22nd of March we steamed into Lyme Bay but northerly winds were now so strong that sampling was restricted to the most inshore stations an attempts was made to move offshore, but the net fouled in the strong winds and swell and the two was abandoned to be repeated later. Conditions improved and we managed to complete sampling in stratum 4. Catches saw the fist decent numbers plaice, although still down compared to previous surveys of the area. Monk fish were still observed in good numbers in the offshore stations with increasing numbers of decent roundfish also appearing, under improving weather conditions.

Used the weather window to move offshore and start picking up mid-channel stations moving east to west. The swell caused by the previous days wind was causing some problems with the multibeam data and also took out the code ends on a couple of tows when encountering large stones. Really good numbers of 50-70cm sized monk fish and an unusual abundance of black sea bream, given the northerly latitude. Returned mid-cahnnel west to east but further south with catches containing few commercial

catches as might be expected for the area. The students had been trained in the use of the EDC and were now able to contribute significantly and some deck master training also took plaice to assist in increasing the number of people to perform this task, especially on other surveys. The following day we continued further east finishing off on the stations around the Hurd Deep, where we also completed the sampling of water for tritium and caesium concentrations. Weather forecast predicted severe westerly gales by the end of the week so we decided to head out over night to the most westerly portion of the survey area on the French coast to make use of the calm before the storm in these exposed areas.

The 27th saw us sampling the French coast for the first time, with very hard ground and rough topography collecting random samples took more time than on the English coast where habitats appear to be more uniformly distributed. Catches produced a number of large congers and the at least two hauls were marred by excesses of brittle stars so that it was necessary to cut tows down to 1 mile tows. We finished up in the area of the Bank de Langustine where we had encountered large number of sole the previous year and tagged 80 using DST tags. Catches of sole were large but not the density previously seen, with the activity of boats in the area still being high, but much more dispersed than last year. It seems that spawning has not gotten into a full swing yet (also suggested by the histology) and fishing in the broader area seemed better than last year. This suggests that spawning is later this year, rather than that spawning abundance is down.

The 28th and 29th were spent sampling the area around the channel islands (stratum 10 and 11) weather was poor to very poor on these days and some stations were droped due to the time constraint to ensure that all strata were sampled adequately during the survey. Unfortunately as time progressed it became clear that we were progressing more than adequately through the grid so that additional stations could still be sampled. On the penultimate day of the survey it was decided to add three more stations in the northern region of stratum 11, but only one of theses could be fished due to severe SW gales. Catches continued to produce monkfish and sole in numbers not seen previously in the area and some prime fish, mainly brill and turbut were encountered among large numbers of spider crabs usually seen in the area. Some catches of heavy weed and starfish made sorting tedious for little reward in terms of fish. No sea horses were taken this year, but the areas that usually yielded these were excluded from the grid by French restrictions to our operations.

Moved north over night still under sever gales, but by the morning we had some of the best weather for the whole survey and we finished of sampling in stratum 6 off Portland and completed the survey by the early afternoon. Catches were mixed, but generally low in commercial species as expected for the area. Cleaning and packing started in the afternoon as we set course for Lowestoft over night to catch the 16:00 tide at Lowestoft. Cefas Endeavour docked at around 17:00. Maps of the stations sampled and the detailed information of validity of twos on each station is shown in Figures 1a,b.

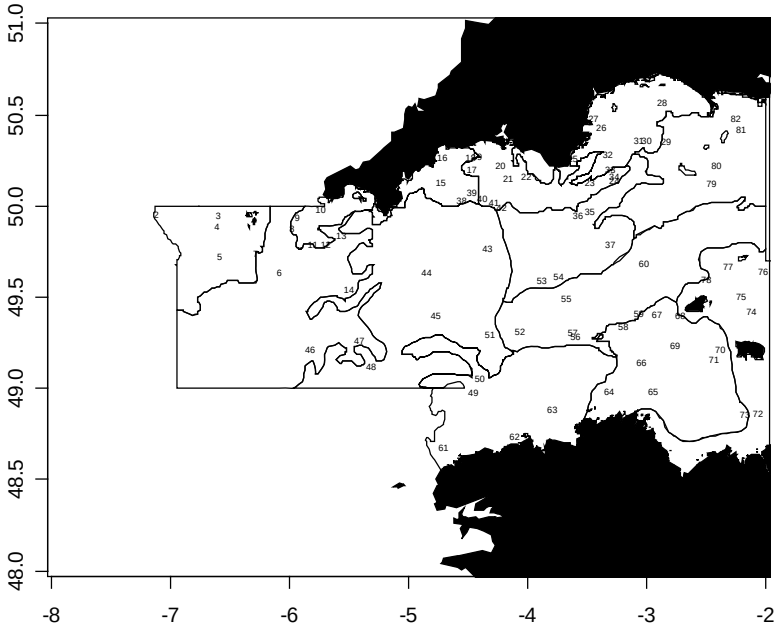

Figure 1a: Cend608 station sampled and associated strata

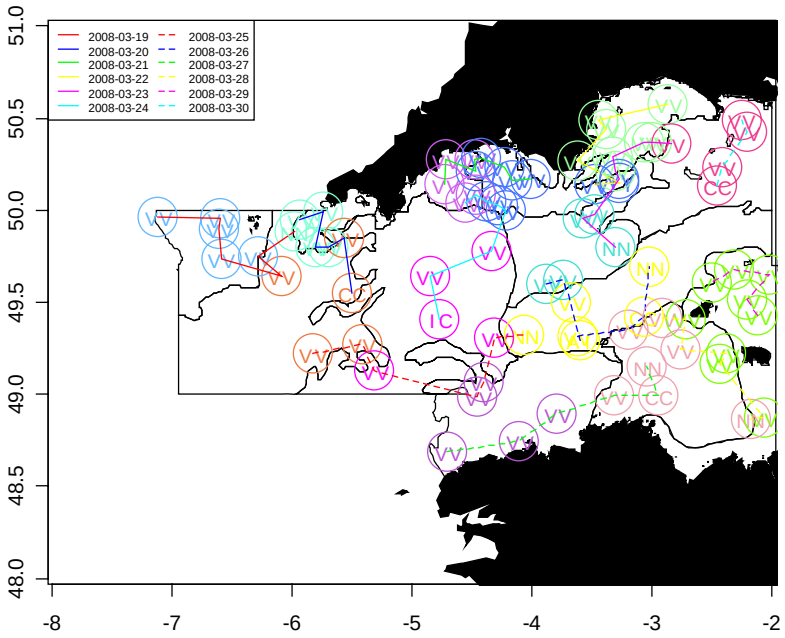

Figure 1b: Stations sampled by date and validity codes for Cend608.

SUMMARY OF CATCHES:

Length frequencies of the main commercial species are shown in Figure 2. Distributional maps for the important commercial species (sole, plaice, monkfish, Megrim) hake and lemon sole are shown in Figures 3-8.

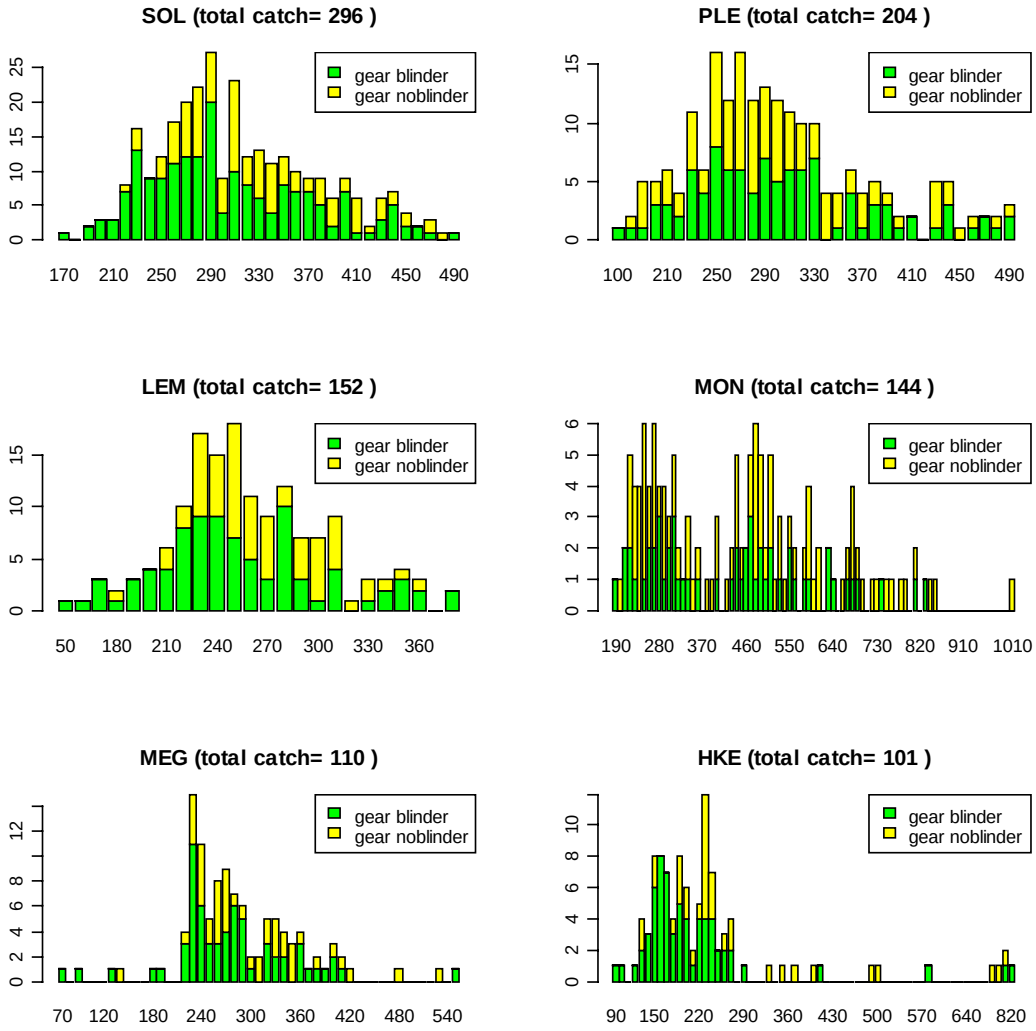

Figure 2: Length frequency distributions of the main commercial species by gear (20mm codend blinder and 80mm commercial codend). Total catches are shown in subfigure titles.

Sole:

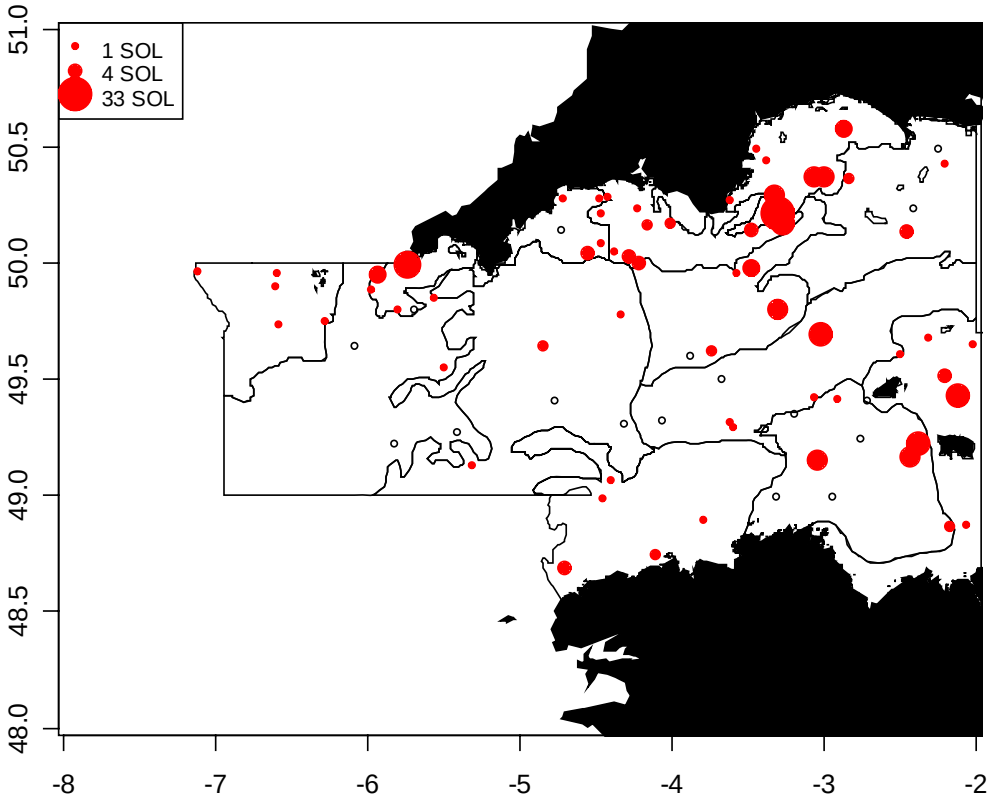

Figure 3 :Catches of sole per station (both gears combined), open black circles indicating stations with zero catches.

Sole as usual showed a very wide distribution through out the area with concentrations off Land's End, Start Point and in the area of the Banc de Langustine. Catches in the later area were smaller this year than in previous years, but the distribution of the raised catch numbers was wider.

Plaice:

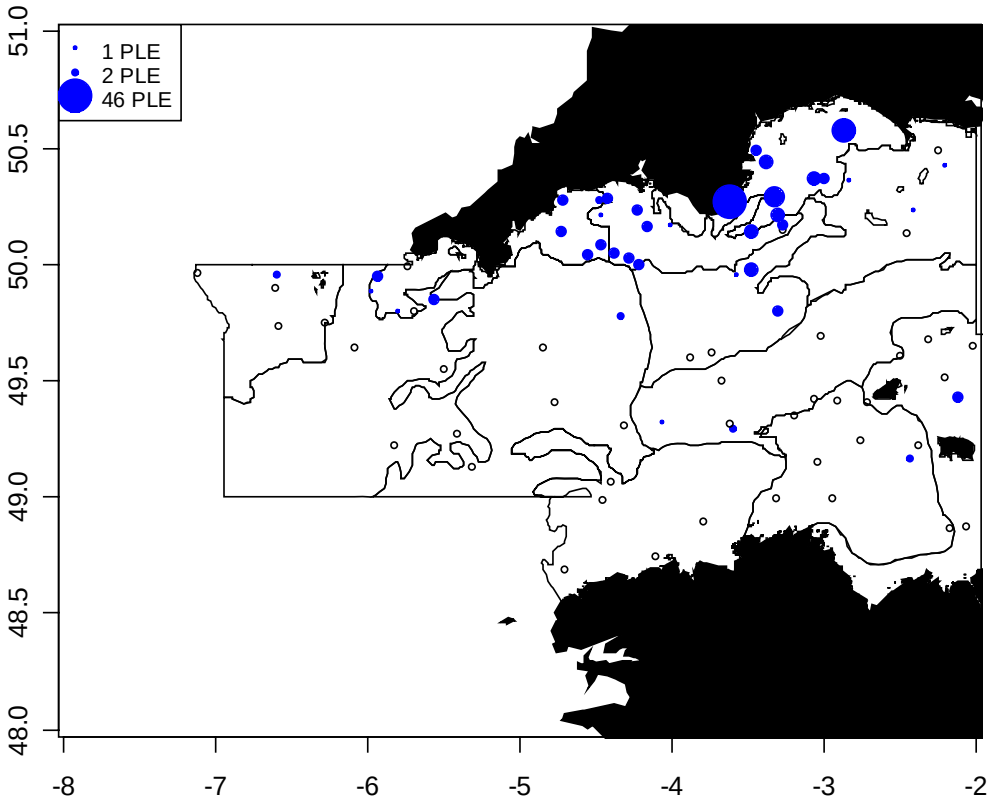

Figure 4: Catches of plaice per station (both gears combined), open black circles indicating stations with zero catches.

Plaice were caught predominantly in the northern part of the survey area this year. Although this is not unusual for the smaller specimens there are usually some good catches of large plaice in the French sector, which were definitely lacking this year. It is unclear whether this was associated with a difference in the timing of migrations of these larger fish, the random site selection, our restriction with regards to sampling some inshore areas on the French coast or a more serious prolem with the stock.

Lemon sole:

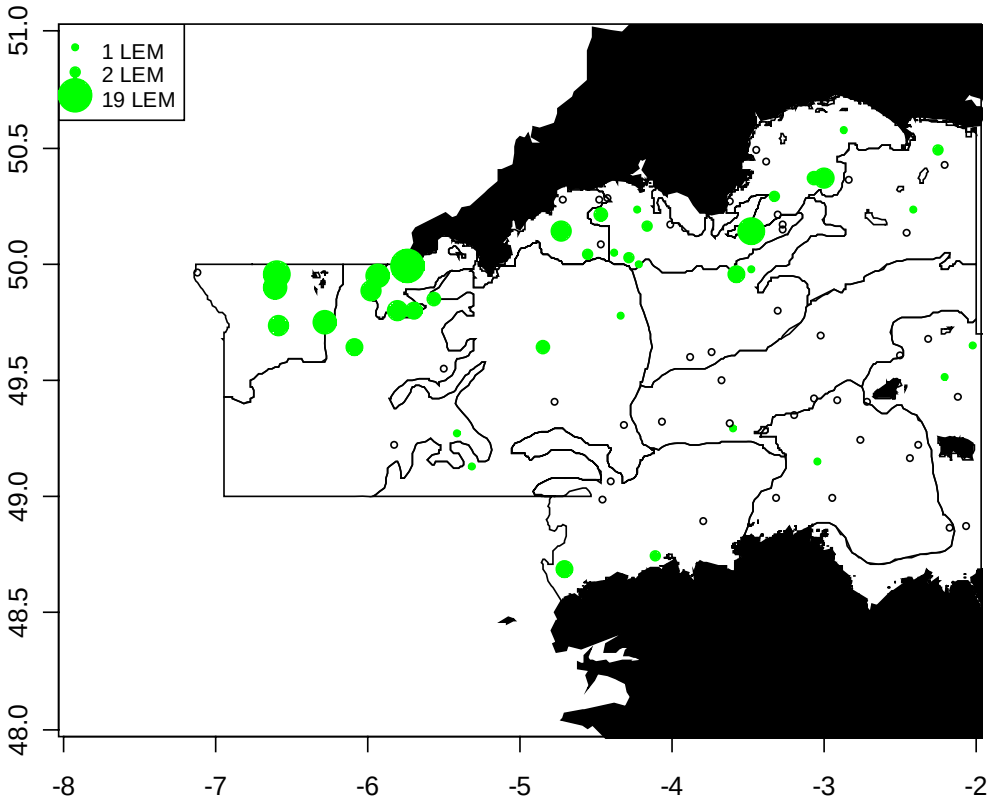

Figure 5: Catches of lemon sole per station (both gears combined), open black circles indicating stations with zero catches.

Catches of lemon sole were almost exclusively taken on the English side of the Channel with the greatest numbers encountered in the area of the Scilly Isles as in previous surveys. Some decent catches were obtained in the western region of the French coast, which had not been sampled previously in the random design survey.

Monk fish:

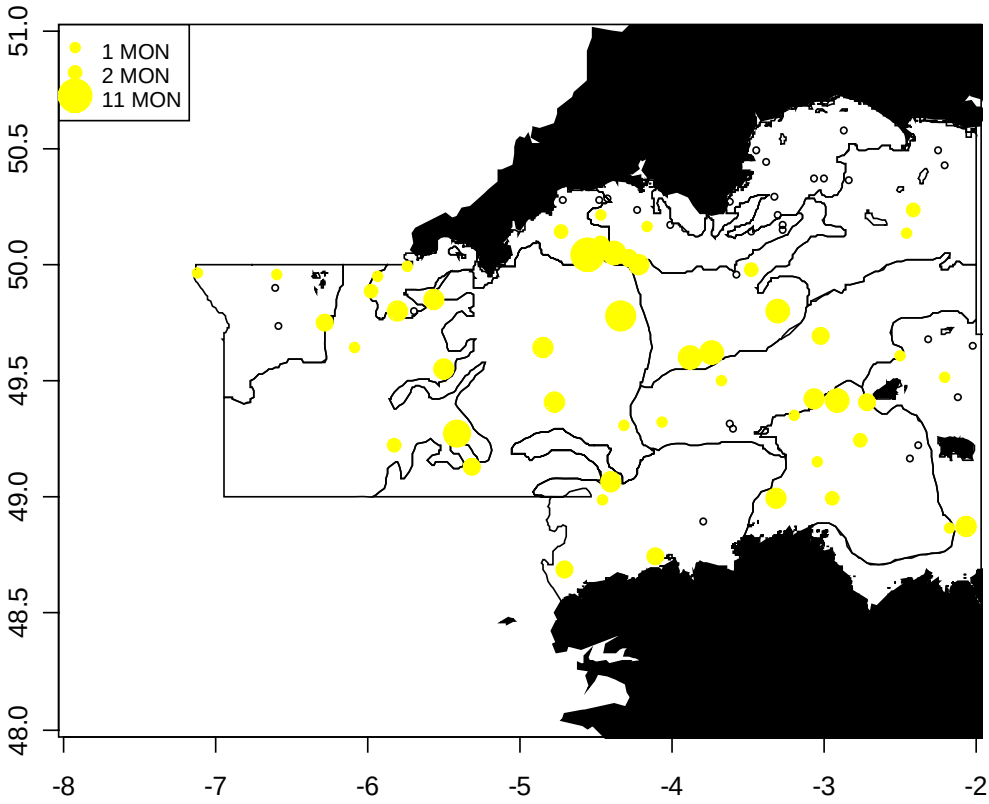

Figure 6: Catches of monk fish per station (both gears combined), open black circles indicating stations with zero catches.

The distribution of monk fish seemed unusually wide this year with high catches usually restricted to the eastern end of the survey grid. In addition, the mean size of the specimens caught was substantially larger than in previous years, however there were few small monks encountered suggesting that either the timing of their arrival in the survey area is different this year, or that recruitment is poorer than usual.

Megrim

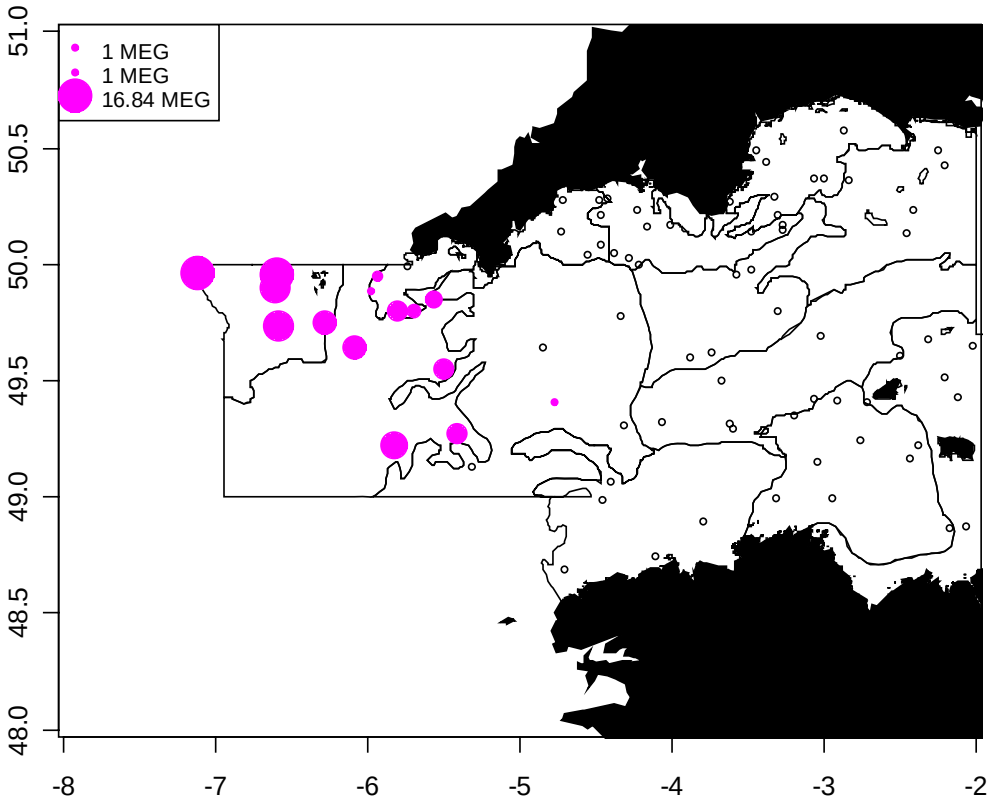

Figure 7: Catches of megrim per station (both gears combined), open black circles indicating stations with zero catches.

Catches of megrim were restricted to the most western part of the grid as in previous years with the highest concentrations being encountered around the Scilly Isles.

Hake

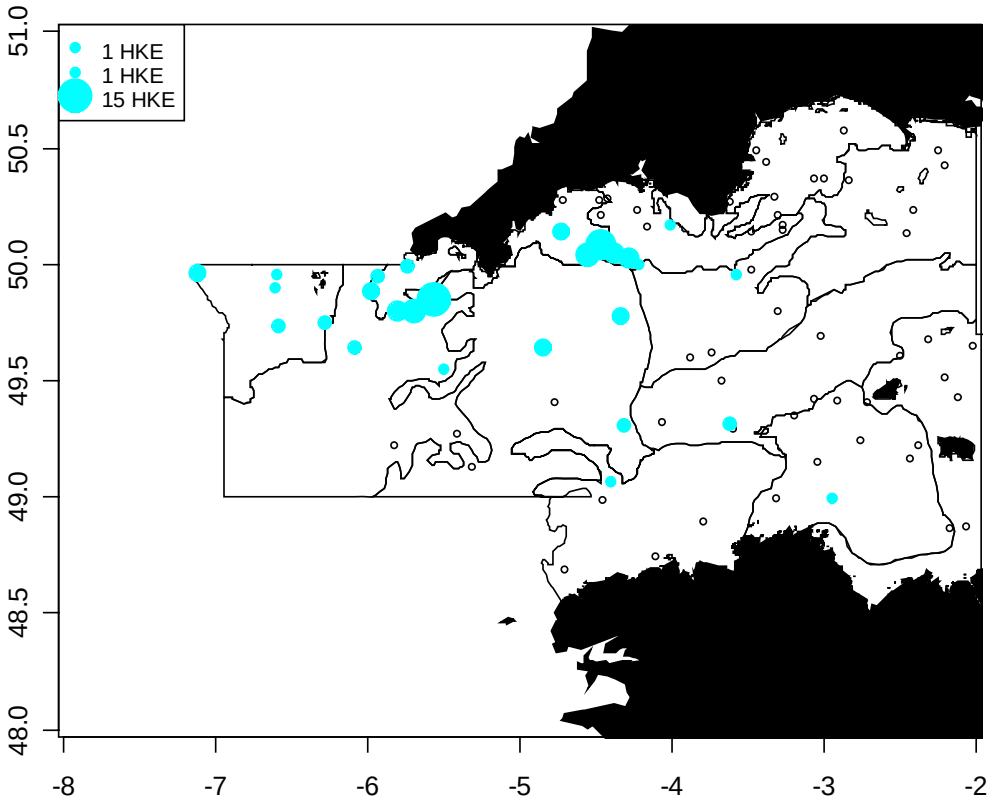

Figure 8: Catches of hake per station (both gears combined), open black circles indicating stations with zero catches.

Good numbers of Hake were encountered on the survey for the first time. Usually catches consist of small numbers of juveniles and the occasional adult. This year larger numbers of juveniles were caught and catches of larger specimens were more consistent. The distribution seems to be limited to the area west of Start Point and predominating in the northern area of the Channel.

General species composition:

The most abundant species encountered were poor cod, and almost all catches contained some. Because in terms of individuals the catches were dominated by this species they have been removed from the plots of species composition (Figure 9) as it makes it difficult to the changes in composition when included.

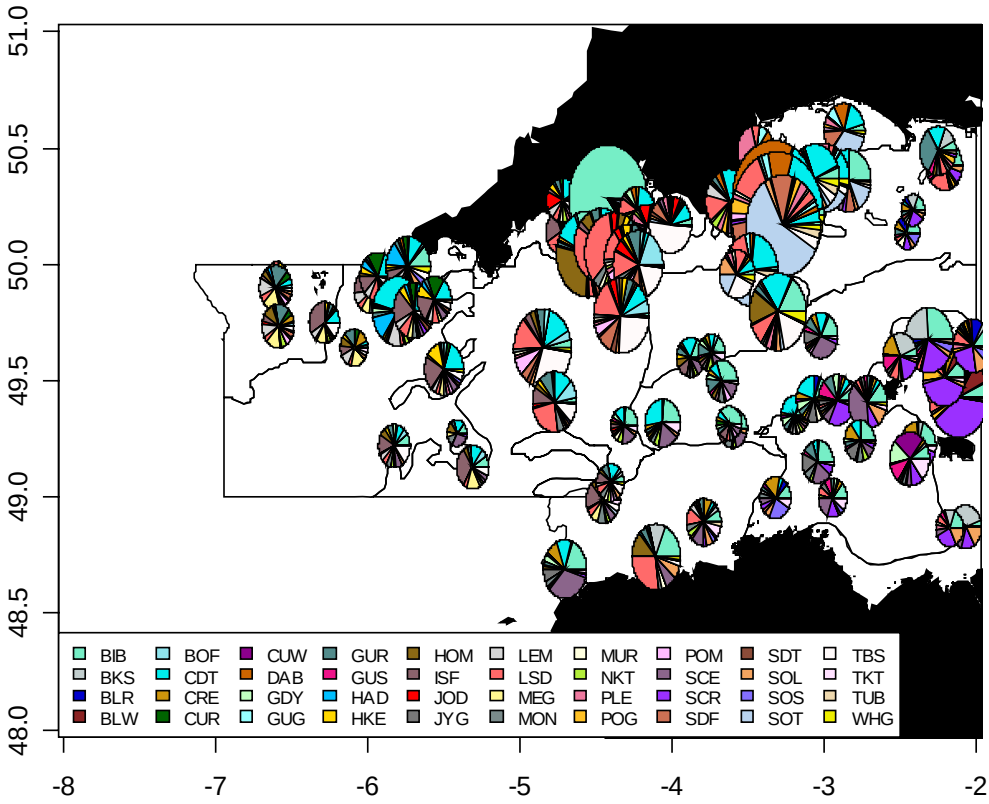

Figure 9: Species composition of catches by number of both gears combined. The size of the pie charts is related to the size of the total catches and the proportion in number is related to the size of the wedge.

The larges catches were taken around Plymouth and in Lyme Bay. Species composition shows clear trends across the survey area and these changes seem to justify the choice of strata. It is interesting to note the similarity of catches between the Plymouth and the western end of the coast with France, whilst in the area of the Channel Islands catches are very distinct from those taken in Lyme Bay at similar longitudes. Samples from the western edge of the grid are very distinct due to the presence of megrim and large numbers of monk, hake and scallops.