

**CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE
LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK NR33 0HT**

2012 RESEARCH VESSEL PROGRAMME

PROGRAMME: RV CEFAS ENDEAVOUR: 05/12

STAFF:

Sven Kupschus (SIC) 24 March – 2 April
Ian Holmes (2IC/SIC)
Dave Brown
Joanne Smith
James Pettigrew

Joana Silva
Rob Bush
Paul Bouch
Leah Nelson

DURATION: 24 March – 7 April.

LOCATION: Western Channel (ICES area VIIIE)

NARRATIVE:

The Endeavour left Lowestoft on the morning tide of the 24th after a 6 day delay to sailing caused by emergency repairs to the ship. During the brief 1.5 hour stop checks were conducted to ensure that all equipment was on board. Unfortunately it was not possible to check for full functionality due to the time constraint of sailing on the same tide as entry. It was however noticed at that time that some of the acoustic equipment appeared to be inoperable.

The day was spent setting up the fishlab, gear and attempting to communication system between the various acoustic components for an early start to sampling the next day around Portland and into the eastern part of Lyme Bay.

Sampling commenced in Stratum 6 on the 25th of March. Two stations were sampled, including a CTD dip for the Memo project before static gear around Portland Bill meant we needed to find an alternate tow which took some time to get to. Consequently only two more stations were completed in the eastern part of Lyme Bay and a water sample taken for Radiological analysis. During the day we managed to get the FSS system on the bridge to function properly and the BEAMs logger to work by manually installing the survey and gears (attempting to set up a new survey crashes the system). After completion of fishing operations the ship set off on a southwards course towards the Channel Islands while conducting a number of CTD / Memo samples.

On day two we started fishing between Jersey and Alderney having attempted to contact the local authorities with limited success. The day started well enough with small amounts of fish, but deteriorated quickly with some large backs of flustra and sizeable amounts of rock. Progress was hindered substantially by large amounts of static gear that was out after, likely associated with the spring tides and the fine weather. We managed to get in 5 stations before running out of light as we attempted to get a sixth tow completed. We had to abort when spotting gear after a couple of cables but still caught a couple of sole. We decided to come back at the end of the

following day and try again if there was sufficient light. Up to this point catches had been very light. The sole we did catch were smaller than we usually see.

We steamed south over night to the Bay de Mont St Michel where we started fishing in the morning. The first station went well, but then ground and static gear really slowed us down, particularly around Guernsey. We did get in the sixth station as darkness fell though we did have to compromise a little on the distance from the original station. We caught as many sole as we had in the rest of the 3 days of surveying indicating there are pockets of good abundance even in the areas where we usually expect to see few sole. We also caught a good sized Turbot and some cuttlefish but else things have been very quiet fish wise. At the end of the day the gear was inspected as a couple of shackles were out of place, but it became apparent that the lower catch rates in the starboard gear were associated with poor rigging back at the lab. We made some corrections and decided to try for another day, rather than change out the beam.

Dave Brown had been trying his hardest to get the acoustics working, but other than the fisheries acoustics we achieved little and were operating virtually blind.

We started off the morning in beautiful weather close to the French coast in an area, which in previous year's permissions had precluded us from visiting. This year no such exclusions were provided so that we were able to sample the area. The first station was less than a mile from shore and fishing was hard in amongst a number of rocky outcrops. We did however manage a valid mile long sample without incidence. The second tow was still located in previously restricted area. The reason for the restrictions is that these grounds are highly productive scalloping grounds exploited by a fleet of inshore boats, all of which suddenly appeared on the radar with 40 vessels in the 3 mile radar radius. Undeterred we set about collecting our sample and despite some gesturing and the likes we trawled our two miles and backed our nets. No helicopters, just a couple of obligatory questions from the French and a fair number of scallops. Moving further out into stratum 10 we started to get on to the rockier ground with a couple of invalids due to slight gear damage and some shorter tows, but luckily not the large quantities of brittle stars that we have known from the area in previous years. In the catches we saw a few more monk fish and gurnards as well as some sole. There were also lots of wrasses over the rockier ground and unusually for this far south a fair number and a wide size range of cuttlefish. After spending the beginning of the day on the bridge Ian took over running the survey while I was still around to help with the use of the electronics and the nuances of a stratified random survey. Finishing the day out towards the Hurd deep and stratum 9 we came across a number of beam trawlers of various nationalities, but they may have been scalloping rather than beaming as sole although present were not particularly abundant.

The beams appeared to be fishing more evenly since the corrections with catches of commercial species adjusted for the difference in blinder now appearing to be much more even. There were still more rocks caught in the port side, but we have seen this in previous years for this particular beam.

Dave managed to get the multi beam to cooperate finally and we even got the Olex fired up. Now we can see. Although not as useful over the English side it still will be helpful for the Hurd

deep and some of the stations further out west. Thanks also to Bill Medows back at the lab for taking the time to talk Dave through things remotely.

An early start around the Deep rendered a few good sized sole and a few monks but little else of note on Thursday. Heading back south we passed the bank de langoustine (a known spawning area for sole) and although there were a few nets out there was not the presence of the fishery encountered in some years. Catches confirmed that the high concentrations of soles were not present at this time, but we still caught a fair number in the area around the bank along with a fair few monk fish and still some cuttlefish. Marbled electric rays are usually found in the area, but this year there appear to be more than in previous years. Heading east the ground became harder again and catches were covered in mucous emanating from one of the species of sponge.

At the end of the day our plans for finishing the survey were all thrown up in the air when we were informed by the captain that in contrast to what we had been told on sailing we would have to dock in LT on Friday evening. Following some animated discussions a number of e-mails were sent and we awaited replies from head office.

Good news, at least for us finishing the survey, docking has been rescheduled, although the affair seems to have taken the wind out of everyone's sails, crew and Cefas staff. We continue to steam west picking up the last few stations in the French EEZ and cross back to the English side just after lunch. Because of the very fine weather the Olex is producing some very good pictures of what is out there in this deeper water. A number of sand wave fields were found, much further west than I had expected / been used to, as well as discovering an 80m uncharted wreck which rises 7m above the surrounding seabed. The Olex provided some nice images including a 3D view and more importantly we managed to avoid it on the tow. The last three hauls of the day yielded the expected light catches dominated by monks and megrims in terms of the commercially valuable species. Winds have been picking up in the evening gusting to 25 which is still very manageable out here so fingers crossed for a couple more days of calm to complete the most exposed part of the survey out west and around the Scilly Isles.

On the morning of the 30th of March we started off near the Brittany peninsular picking up stations out into the Western approaches catches have been relatively small, but diverse. Boarfish and cuttlefish have been the dominant species numerically, with a spattering of sole and monk included. Being back in UK waters James was able to conduct some Memo sampling using the ring nets during the nights.

The following day we again started around 5 o'clock, but were immediately confronted with static gear which slowed progress considerably but we managed to get the first two in which produced some nice sized haddock and we also saw one or two nice sized cod and good catches of megrim which continued throughout the day. The second station of the day had to be abandoned due to dense gillnet activity closing off sizeable areas of the grounds to trawling. Fishermen were cooperative in providing locations of their gear, but it was decided that it was going to be too time consuming to try to pick a way through the gear given the ambitious schedule for the day. The prime was replaced with a secondary station to be fished later in the survey. Heading north along the western boundary of the survey area catches continued in

much the same vane up to the Isles of Scilly. We completed a 1 mile tow in tricky grounds and amongst potting gears and increasing winds, something that would have been impossible without the Olex running. The last couple of hauls of the day were much the same as previous but in addition to some nice cod we also caught a sizeable hake and some lesser fork-beards. The Endeavour steamed over night to the Lizard for commencement of sampling on my last day of the survey before handing over to Ian as SIC tomorrow morning. A number of ring net samples were completed on the overnight steam.

On the 1st of April, the two stations off the Lizard were successfully fished and the catches of monk continued, with the addition of a few sole megrim haddock and hake. The remaining 5 stations fished during the day were fished in stratum 3 around Mevagissey. Prime station 5 was located within 1nm of the Cornish coast and as expected, we encountered a plethora of static gear. Fortunately we were still able to locate a clear tow just outside the 50m contour line that was still within the 1nm of the station position. In these stations, we began to catch sole and plaice at each haul. Following the end of the days fishing operations, James completed 5 ringnet sample collections station prior to heading towards Newlyn.

At first light on April 2nd, Sven and one crew member were put ashore and a replacement crew member joined as planned and Ian took over as SIC. The survey recommenced at 0800GMT with a CTD profile. The five stations in stratum 2 off Lands-end were completed without incident. Notable changes in the catch composition were the emergence of sole plaice and monk-fish as major components of the catches. Several stations also saw bigger catches of large spiny starfish (*Marthasterias glacialis*). Upon completion of the stratum 2 stations, the final beam station of the day was the replacement position in stratum 8. During the over-night steam to the morning's starting position, James completed 5 ringnet sample collections.

Given the weather forecast for strong N/NE winds, the following day (April 3) was spent fishing the offshore stations in stratum seven and six. A total of seven stations were successfully fished. Catches in the offshore stratum 7 stations yielded small catches that included a number of small monkfish along with a number of cuttlefish and a few sole. The stations in stratum 6 yielded slightly larger catches (>1 box per side) but included less monk but a greater number of non commercial species – common dragonets mainly. The day ended with James completing 4 ringnet net sample collections. On April 4, a series of 8 stations in stratum four south of Plymouth were completed. The main catch at most of these stations was the bryozoans *Cellariidae*. These catches took considerably longer to sort as they required 'washing' prior to the sort to remove excesses of sand. The main fish component in these hauls was common dragonets, and thick-back soles with a few lemon sole, plaice and monk also. The latter stations of the day yielded no *Cellariidae* but more soles and plaice with a few monk and cod. At the end of this day a further 3 ringnet samples were collected.

On April 5, the remaining stratum 4 stations south of Start Point were completed, before heading into Lyme Bay to fish some inshore stratum 5 stations. The stratum 4 stations were fish in 'heavier' seas' and yielded large numbers of plaice as seen in previous surveys. Additionally, a good number of lemon sole were also seen in these hauls along with several sole. The by-catch at these stations was a mixture of various starfish and weed. The stations within the

inshore waters of Lyme Bay consisted of large numbers of plaice with a few sole lemon sole and monkfish. These stations also saw the survey's first large catches of solenette and small dab. In order to make the following day easier in terms of completion of the survey and the steam back to Lowestoft, an eighth survey station was fished in the outer reaches of Lyme Bay, with catches similar to those seen earlier in the day. Three further ring net stations were completed that evening.

The last survey station for this year was fished early on April 6 in outer Lyme Bay. On hauling, 'both' beams flipped over onto their backs due to the weight of sand and broken shell in the cod ends. It took great skill and determination to retrieve both catches onto the deck and both were declared valid tows. The fish catches at this station consisted mainly of plaice, solenette and lesser spotted dogfish.

With survey complete, Endeavour set sail for Lowestoft, whilst the task of cleaning up, packing away and data quality checks were carried out. En-route to Lowestoft, an extra Memo sampling event was carried out off Dungeness.

Docking in Lowestoft took place on the morning tide April 7.

Station numbers, including profiler stations are shown in Figure 1 with Figure 2 displaying the associated validity codes for the beam-trawl stations and the survey track by date. Species composition plots (Figure 3) show the sample composition in 2012, with Figure 4 illustrating the consistency in the species composition over time for the whole time-series.

Fish distributions for the main commercial species of interest are shown in Figure 5, and are largely consistent with the area distribution in previous years. Length frequency distributions are shown in Figure 6 for the same species. Sole are encountered at a large proportion of the stations with highest abundances found in mounts bay, off start point and to the south and east of Guernsey. The length distribution of the sole caught in 2012 are similar to that in 2011, except in 2012 the catches were lower at both the smaller and larger length groups. Plaice were much less abundant in 2012 compared to 2011, but generally show a similar distribution but at a lower level. The exception to this was that in 2012 the smallest plaice caught was at 17cm whereas in 2011, there were a small number at each length down to 13cm. The areas around the start and into Lyme Bay continue to yield the highest abundances as in previous years. Monk fish were very widely distributed as in previous years, but their overall abundance was down on the 2011 survey by around 50%. This was largely due to the reduced numbers of fish caught in the <20cm length group suggesting that last year's recruitment was smaller than seen in previous years. Megrim catches were down by around 30% compared to 2011 and this reduction appears to be mostly at the smallest fish lengths (<30cm) but is particularly noticeable at lengths <20cm. The recent trend in the distributional shift with megrim being more consistently found as far east as Start point appears to be continuing as this year megrim were seen in small numbers as far east as Lyme Bay. Catches of lemon sole were again slightly down on previous years, however, this year greater numbers of lemon sole were caught south of Start Point and into Lyme Bay than previously seen.

Cuttle-fish catches were largely restricted to the central channel, with abundances considerably higher than the previous year with the bulk of the increase observed at the smallest sizes (<12cm) indicating a higher recruitment compared to the previous year. Scallop catches were high this year with almost 300 being caught and the majority being caught in French waters, but we were fishing in some areas known to be very productive for scallops from which we had been previously excluded.

A total of 49 sets of ring-nets for the mnemiopsis project were successfully completed, easily surpassing the number of stations the previous year.

RESULTS BY AIM:

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.

A total of 81 valid beam trawl samples were collected over the period of the survey in accordance with the relative effort by stratum as per the original survey plan. This year, no additional samples were collected within stratum in order to provide more information on survey precision estimates. Such analysis still requires many more additional samples over time, but can increase precision of abundance estimates immediately. Station positions of all beam trawl samples are provided in table 1 and plotted in Figures 1 and 2 with catch by species shown in Table 2.

- b) *Age – length distribution of selected species.*

A total of 1995 otolith / length / weight and maturity samples were collected for commercial fish species of interest to the DCF. Sample numbers by species / sex groups are shown in table 3. Length frequency distributions for selected species are shown in Figure 6 separated by port and starboard gears.

- c) *Distribution of fish in relation to their environment.*

QTC and multibeam data was not collected on stations and in transit between stations for the entire survey as the QTC was inoperable. The ferry box was functioning correctly for the entire trip so additional environmental information for surface waters collected away from stations was possible as in previous years.

- d) *Distribution of macrobenthos and anthropogenic debris.*

Presence and absence of epifaunal species was collected from the starboard beam (with blinder), with anthropogenic debris now recorded in the new litter sampling protocol (see secondary aims point 5).

- e) *Surface and bottom temperature and salinity data using CTD.*

Temperature and salinity information, using a net based mini CTD was collected with all trawl samples. Two additional CTD casts using the EM2 logger were performed daily in association with fishing stations

- f) *Length weight & maturity information using individual fish measurements, in support of the EU Data Regulation.*

Length-weight information was taken for selected species to supplement data collected on previous surveys.

2. *To collect fisheries acoustic data at three operating frequencies (38, 120 & 200 kHz) and multibeam data continuously throughout the survey. An attempt will be made to use this data to determine habitats and the scale at which these vary.*

This work was not possible on this survey as the QTC was inoperable.

SECONDARY AIMS:

1. Collect length weight information for DCF work.
In addition to the individual weight data collected in association with otolith information 266 length weight data were collected over 54 species / sex combinations to supplement sampling carried out in previous year's surveys. Sample numbers by species and sex are shown in Table 3.
2. All dead shad (Allis and Twaite) and all dead lampreys are to be frozen and returned to the lab marking samples with the survey, station and date.
No shad or lamprey were caught in 2012.
3. Tag rays not needed for DCF maturity work (undulate, cuckoo, common skate and blonde ray).
The number of rays of a 'tagable' size, that were not required for DCF maturity work was small, but in total 14 rays were tagged and released with Peterson tags. In addition one starry smooth-hound was also tagged and released. The tagged rays comprised cuckoo ray (12); blonde ray (1) and undulate ray (1).
4. Collect radiology water samples for Trevor Bailey (AE001)
Eleven water samples were collected for radiology including the usual sampling station located over the Hurd Deep dumping grounds.
5. Collect litter data from the beam trawls according to the latest cefas litter protocol.
All litter items collected in trawl samples were categorized and recorded according to the litter sampling protocol developed by Cefas. In total, 215 items of litter were analyzed and photographed as per the sampling protocol. The standardized litter sampling protocol adopted may require some additional resource on all fisheries surveys but especially the beam trawl surveys.
6. Collect maturity photographs for sole and plaice.
No maturity photographs for sole and plaice were taken, as no examples of the required developmental stages were encountered. Spawning appeared to have been early this year and the delay of the cruise probably did not improve the situation.
7. Alkalinity, nutrient and dissolved inorganic carbon sampling.
At each CTD station, TA-DIC and nutrient samples of surface waters were collected and fixed for Naomi Greenwood. At stations where bottom samples are taken a water sample from the bottom was also collected. CO₂ sampling was continuously sampled on the automated system which was monitored daily. A total of 24 TA/DIC/nutrient samples were collected on the survey.

8. Plankton sampling for MEMO project.

Plankton sampling was carried out on stations where CTD dips are collected + some night-time sampling. In total 48 ring-net samples with associated environmental information were collected in the UK sector of the western channel. A considerable amount of time was dedicated to this aim and is unlikely to be repeated in future years unless additional sea-time can be made available from this project. In total, 1407 individual jellyfish measurements were taken.

Finally, we would like to take this opportunity to thank all of the officers and crew of the Endeavour and the cefas scientific staff for their commitment and professionalism that led to a successful completion of the survey aims.

Sven Kupschus & Ian Holmes
7 April 2012

Seen in Draft: Terry Byrne (Master)
George Ritchie (1st Mate)

DISTRIBUTION:

Basic list +

Sven Kupschus (SIC)
Ian Holmes (SIC)
Dave Brown
Joana Silva
Rob Bush
Joanne Smith
Leah Nelson
Paul Bouch
James Pettigrew
S. Pitois
T. Maes
T. Bailey
S. Bossy
D. Wilkinson

Table 1: Station Log information:

	Cruise	Station	Time	Stratum	LatS	LongS	LatH	LongH	Distance	LogS	LogH	DepthS	DepthH	Tdir	Wdir	SeaH	SwlH	Tspeed	Wspeed	Barom	SwlDir	Gear
1	CEND 5/12	1	25/03/2012 07:32	6	50.222	2.256833	50.222	0.513666	0	244.1	244.1	61	61	79	270	1	2	1.9	18	1040	270	Profiler
2	CEND 5/12	2	25/03/2012 09:19	6	50.215333	-2.28	50.232	-0.464	2	249.7	251.7	60	58	86	210	0.5	1	2.9	15	1042	210	Beams
3	CEND 5/12	3	25/03/2012 11:54	6	50.44745	-2.0047	50.443166	0.113666	1.8	269.3	271.1	45	45	77	70	0.5	1	1	11	1043	240	Beams
4	CEND 5/12	4	25/03/2012 15:34	6	50.552816	-2.1871	50.546216	-0.3251	1	296.6	297.6	33	31	277	110	0	0.5	2	12	1042	140	Beams
5	CEND 5/12	5	25/03/2012 17:20	5	50.5204	-2.5647	50.497516	1.207133	2.1	314.1	316.2	42	47	302	110	0	0.5	1	4	1042	170	Beams
6	CEND 5/12	6	25/03/2012 18:45	5	50.60965	-2.7475	50.579216	1.525033	2.61	325.4	328.01	34	40	71	120	0	0	0.3	5	1042		Beams
7	CEND 5/12	7	25/03/2012 20:40	0	50.497666	-2.697	50.497666	-1.394				47	47									Profiler
8	CEND 5/12	8	25/03/2012 21:14	0	50.465833	2.686833	50.465833	1.373666				47	47									Profiler
9	CEND 5/12	9	25/03/2012 22:39	0	50.435333	2.670333	50.435333	1.340666				54	54									Profiler
10	CEND 5/12	10	25/03/2012 23:15	0	50.397666	-2.6605	50.397666	-1.321				57	57									Profiler
11	CEND 5/12	11	26/03/2012 05:19	11	49.6601	2.261333	49.6601	0.522666	0	395	395	53	53	106	70	1	0.5	0.6	25	1042	70	Profiler
12	CEND 5/12	12	26/03/2012 06:29	11	49.632116	2.306216	49.65595	-0.5578	1.7	400.4	402.1	57	58	81	80	1	1	2	24	1042	70	Beams
13	CEND 5/12	13	26/03/2012 08:40	11	49.541133	2.344116	49.560283	0.774633	2	414.01	416.01	57	61	36	70	0.5	0.5	2.2	9	1043	70	Beams
14	CEND 5/12	14	26/03/2012 10:29	9	49.616066	2.566716	49.637366	-1.219	2	424.1	426.1	73	74	27	60	1	0.5	0.9	20	1043	70	Beams
15	CEND 5/12	15	26/03/2012 14:02	11	49.3413	2.629333	49.367783	1.193366	2.1	449.5	451.6	65	63	252	70	0.5	0.5	1.5	20	1042	70	Beams
16	CEND 5/12	16	26/03/2012 17:52	11	49.3676	2.376633	49.367616	0.753233				60	60						17	1042	60	Profiler
17	CEND 5/12	17	26/03/2012 18:12	11	49.380333	2.364166	49.365583	0.752466	1	468.1	469.1	61	61	58	70	0.5	0.5	0.8	16	1042	270	Beams
18	CEND 5/12	18	26/03/2012 19:36	11	49.257883	2.350766	49.253033	-0.7339	0.7	478.2	478.9	56	56	57	70	0	0.5	1.3	18	1042	70	Beams
19	CEND 5/12	19	27/03/2012 05:28	11	48.806466	1.838533	48.806466	0.838533	0	523.3	523.3	31	31		70	0.5	0.5		15	1042	70	Profiler
20	CEND 5/12	20	27/03/2012 05:52	11	48.8091	1.862516	48.817983	-0.9097	1.9	524.4	526.3	31	33	61	70	0.5	0.5	1.2	13	1041	60	Beams
21	CEND 5/12	21	27/03/2012 08:05	11	48.721383	2.223183	48.737183	0.356166	2	542.7	544.7	38	40	86	70	0.5	0.5	0.3	12	1042	70	Beams
22	CEND 5/12	22	27/03/2012 09:49	10	48.8858	2.190983	48.856833	0.429233	2	554.9	556.9	40	42	312	70	0.5	0.5	0.4	15	1042	80	Beams
23	CEND 5/12	23	27/03/2012 11:50	10	49.001433	-2.3715	49.0356	0.753833	2.1	570.3	572.4	48	55	310	70	0.5	0	1.7	18	1043		Beams
24	CEND 5/12	24	27/03/2012 13:50	0	49.0937	-2.16165	49.0937	-0.3233	0	583	583	31	31		40	0.5	0.5		10	1043	60	Profiler
25	CEND 5/12	25	27/03/2012 14:10	11	49.09195	2.144566	49.068666	-0.2646	2	584.4	586.4	30	29	276	70	0.5	0	1.5	7	1043		Beams
26	CEND 5/12	26	27/03/2012 15:40	11	49.078516	2.126083	49.091333	-0.2852	1.1	589.7	590.8	29	29	242	70	0.5	0	0.1	20	1042		Beams
27	CEND 5/12	27	27/03/2012 18:11	11	49.279666	2.288916	49.25245	0.636933	2	611.5	613.5	49	50	155	70	0.5	0.5	0.4	10	1042	40	Beams
28	CEND 5/12	28	27/03/2012 18:59	0	49.241333	2.323466	49.241333	0.646933				48	48	155	70	0.5	0.5	0.4	10	1042	40	Profiler
29	CEND 5/12	29	28/03/2012 05:31	11	48.67915	-2.75115	48.679116	1.502266	0	668.8	668.8	33	33	127	70	0	0	1.2	3	1042		Profiler
30	CEND 5/12	30	28/03/2012 06:21	11	48.663833	2.733866	48.670133	1.514766	1	673	674	34	32	129	70	0	0	1.6	5	1042		Beams
31	CEND 5/12	31	28/03/2012 07:56	10	48.801366	2.823383	48.77105	1.605533	2	683.6	685.6	45	45	128	70	0.5	0	1.3	6	1041		Beams
32	CEND 5/12	32	28/03/2012 10:35	10	48.976	2.951666	48.982833	-1.8571	1	703.7	704.7	63	60	330	70	0.5	0	0.5	6	1042		Beams
33	CEND 5/12	33	28/03/2012 12:29	0	49.010366	2.642066	49.010366	1.284133	0	716.4	716.4	53	53	310	70	0.5	0	1.2	10	1041		Profiler
34	CEND 5/12	34	28/03/2012 12:57	10	49.017233	-2.62565	49.050633	-1.2618	2	718	720	53	55	308	70	0	0	1.2	11	1040.8		Beams
35	CEND 5/12	35	28/03/2012 14:41	10	49.202733	2.667716	49.218416	-1.4255	2.1	729.5	731.6	61	63	278	350	0.5	0.5	1.3	10	1040.5	350	Beams
36	CEND 5/12	36	28/03/2012 16:36	10	49.193	3.000066	49.225183	-0.0372	2	743.6	745.6	73	71	136	350	0.5	0.5	0.3	10	1040.5	350	Beams
37	CEND 5/12	37	28/03/2012 17:56	10	49.331116	3.016933	49.3416	-0.19515	2	752.3	754.3	73	73	163	30	0.5	0.5	1.1	12	1040	20	Beams

38	CEND 5/12	38	28/03/2012 19:17	9	49.373416	3.234166	49.374333	-0.7222	0.3	761.2	761.5	80	75	138	30	0.5	0.5	0.3	11	1040	20	Beams
39	CEND 5/12	39	28/03/2012 19:42	9	49.38355	3.248116	49.415983	-0.70115	2	763	765	80	82	103	30	0.5	0.5	0.3	14	1040	20	Beams
40	CEND 5/12	40	29/03/2012 04:06	9	49.651116	3.175483	49.651116	-0.52645	0	783.2	783.2	72	72	235	20	0.5	0.5	0.9	10	1040	20	Profiler
41	CEND 5/12	41	29/03/2012 04:57	9	49.651716	3.176633	49.632683	-0.65625	2	786.7	788.7	70	70	228	20	0.5	0.5	0.9	6	1040	20	Beams
42	CEND 5/12	42	29/03/2012 07:47	9	49.47115	3.684483	49.460733	-2.1984	2	813.2	815.2	90	90	71	40	0.5	0.5	1.2	9	1040	20	Beams
43	CEND 5/12	43	29/03/2012 09:56	9	49.380966	3.452933	49.384333	-1.50805	1.9	829.7	831.6	85	85	64	10	0.5	0.5	0.9	12	1040	20	Beams
44	CEND 5/12	44	29/03/2012 12:08	10	49.2567	3.256716	49.2235	-0.794	2.1	845.1	847.2	75	75	310	40	0.5	0	0.7	3	1039		Beams
45	CEND 5/12	45	29/03/2012 13:10	10	49.2133	3.267833	49.2133	-0.8035	0	848.3	848.3	76	76	310	40	0.5	0	0.7	3	1039		Profiler
46	CEND 5/12	46	29/03/2012 14:41	12	49.092566	-3.61745	49.066866	-1.94745	2	863.8	865.8	82	82	260	70	0.5	0	1	6	1039		Beams
47	CEND 5/12	47	29/03/2012 15:40	12	49.0225	-3.71975	49.02695	-2.3097	2	869.9	871.9	84	84	269	350	0.5	0	0.7	6	1039		Beams
48	CEND 5/12	48	29/03/2012 17:23	12	49.0275	-3.7747	49.024766	-2.249	1	876	877	87	86	77	50	0.5	0	0.2	10	1039		Beams
49	CEND 5/12	49	29/03/2012 19:37	12	49.09495	-4.198	49.081333	0.939333	1.7	896.8	898.5	99	97	84	330	0.5	0	0.8	8	1039		Beams
50	CEND 5/12	50	30/03/2012 05:31	12	48.690616	4.813383	48.690616	3.253533	0	932	932	107	107	44		0.5	0	0.9	0	1036.7		Profiler
51	CEND 5/12	51	30/03/2012 06:06	12	48.67525	4.829183	48.690666	3.209933	1.7	934.2	935.9	105	107	44		0.5	0	1.1	0	1036.5		Beams
52	CEND 5/12	52	30/03/2012 07:54	12	48.803633	4.589483	48.827383	-2.493	2	947.7	949.7	105	105	72	340	0.5	0	1	4	1036.5		Beams
53	CEND 5/12	53	30/03/2012 10:31	12	49.050766	5.047116	49.028616	0.429416	2	972.1	974.1	110	110	78		0.5	0	0.5	0	1037		Beams
54	CEND 5/12	54	30/03/2012 13:35	8	49.114016	5.490833	49.131816	-2.241	2	994.2	996.2	112	112	149		0.5	0	0.4	0	1036		Beams
55	CEND 5/12	55	30/03/2012 15:46	13	49.01345	5.657066	49.046166	3.323333	2	1010.2	1012.2	116	114	244	10	0.5	0.5	0.8	16	1035	10	Beams
56	CEND 5/12	56	30/03/2012 18:14	8	49.26575	5.740533	49.235416	3.602333	2	1027.4	1029.4	113	113	313	10	0.5	0.5	0.3	19	1035	10	Beams
57	CEND 5/12	57	30/03/2012 19:09	0	49.22365	5.712783	49.22365	3.563916	0	1030.3	1030.3	113	113	356	10	0.5	0.5	0.5	17	1035	10	Profiler
58	CEND 5/12	58	30/03/2012 20:05	0	49.255333	-5.758	49.255333	-3.79				105	105									Profiler
59	CEND 5/12	59	30/03/2012 21:47	0	49.287	-5.961	49.287	-4.805				105	105									Profiler
60	CEND 5/12	60	31/03/2012 04:47	8	49.301633	6.385716	49.301633	-2.3143	0	1067.6	1067.6	118	118	320	0	2	2	0.2	24	1032	10	Profiler
61	CEND 5/12	61	31/03/2012 05:21	8	49.317766	6.368883	49.34605	-2.0536	2.1	1069	1071.1	118	117	310	0	2	2	0.2	24	1032	10	Beams
62	CEND 5/12	62	31/03/2012 08:02	8	49.12415	6.739583	49.1494	-4.64	2	1094.3	1096.3	131	126	73	20	1	1	0.4	20	1031.5	20	Beams
63	CEND 5/12	63	31/03/2012 10:51	1	49.52025	-6.9027	49.546266	-5.2434	2.1	1119.5	1121.6	120	116	142	30	1	1	0.2	24	1032	30	Beams
64	CEND 5/12	64	31/03/2012 12:31	1	49.611833	6.693283	49.611833	-4.1597	0	1130.2	1130.2	114	114	205	40	1	1	0.3	19	1031	30	Profiler
65	CEND 5/12	65	31/03/2012 12:56	1	49.623533	6.670283	49.653583	-3.8824	1.9	1131.8	1133.7	110	118	214	30	1	1	0.3	19	1031	30	Beams
66	CEND 5/12	66	31/03/2012 16:08	1	49.9493	6.531716	49.965883	-3.1675	1	1158.5	1159.5	98	97	239	20	1.5	1	0.6	24	1031	15	Beams
67	CEND 5/12	67	31/03/2012 17:25	1	49.91375	6.626016	49.933166	-4.006	2	1167	1169	99	101	268	0	1.5	1	0.2	20	1031	10	Beams
68	CEND 5/12	68	31/03/2012 19:28	1	49.8872	6.970983	49.85435	-5.7797	2	1184.1	1186.1	115	117	354	20	1	1	1.9	18	1031	20	Beams
69	CEND 5/12	69	31/03/2012 20:47	0	49.828166	6.891666	49.828166	-5.35				102										Profiler
70	CEND 5/12	70	31/03/2012 21:23	0	49.798666	6.837333	49.798666	-5.024				104										Profiler
71	CEND 5/12	71	31/03/2012 22:57	0	49.774333	-6.7895	49.774333	-4.737				100										Profiler
72	CEND 5/12	72	31/03/2012 23:18	0	49.766333	6.776833	49.766333	-4.661				100										Profiler
73	CEND 5/12	73	01/04/2012 05:41	13	49.7145	5.358333	49.7145	1.791666	0	1256.1	1256.1	98	93	271	75	1	1.5	0.5	22	1032.5	75	Profiler
74	CEND 5/12	74	01/04/2012 06:06	13	49.71515	5.338083	49.704266	-1.44925	2	1257	1259	93	92	271	75	1	1.5	0.5	22	1032.5	75	Beams
75	CEND 5/12	75	01/04/2012 08:16	13	49.851233	-5.1384	49.821683	-0.81	2	1271.3	1273.3	92	91	243	80	0.5	0.5	0.1	18	1032.5	80	Beams
76	CEND 5/12	76	01/04/2012 10:55	3	50.077533	4.794483	50.1069	3.074266	2.1	1295.5	1297.6	77	75	33	70	1	1	0.2	16	1033	70	Beams
77	CEND 5/12	77	01/04/2012 12:57	3	50.223733	-4.71295	50.21295	-3.049	2	1308.7	1310.7	61	57	51	90	0.5	0.5	0.1	9	1031.5	90	Beams

78	CEND 5/12	78	01/04/2012 14:45	4	50.224366	-4.53415	50.224366	-2.1366	0	1320.5	1320.5	63	63	230	110	0.5	0.5	0	10	1031	110	Profiler
79	CEND 5/12	79	01/04/2012 16:08	4	50.228966	4.499016	50.220466	-2.1978	2	1325.01	1327.01	61	63	72	90	0.5	0.5	0.1	5	1030	80	Beams
80	CEND 5/12	80	01/04/2012 17:08	3	50.1875	4.599866	50.163183	2.543133	2	1329.9	1331.9	66	65	249	130	0	0.5	0	2	1030	110	Beams
81	CEND 5/12	81	01/04/2012 18:11	3	50.118733	-4.5965	50.09165	2.269666	1.9	1335.2	1337.1	73	75	251	100	0	0.5	0.1	12	1030	100	Beams
82	CEND 5/12	82	01/04/2012 18:59	0	50.082766	4.557316	50.082766	2.229266														Profiler
83	CEND 5/12	83	01/04/2012 20:06	0	50.082833	-4.64	50.082833	-2.56				71										Profiler
84	CEND 5/12	84	01/04/2012 20:49	0	50.058333	4.717166	50.058333	2.868666				73										Profiler
85	CEND 5/12	85	01/04/2012 21:30	0	50.034333	-4.7745	50.034333	-3.098				75										Profiler
86	CEND 5/12	86	01/04/2012 22:09	0	50.014833	-4.8425	50.014833	-3.37				76										Profiler
87	CEND 5/12	87	02/04/2012 08:01	2	49.962433	-5.5825	49.962433	-2.9125	0	1397.7	1397.7	71	71	273	10	0.5	0	0.2	10	1025		Profiler
88	CEND 5/12	88	02/04/2012 08:21	2	49.9729	5.586416	50.0025	3.036666	2	1398.7	1400.7	71	67	273	10	0.5	0	0.2	10	1025		Beams
89	CEND 5/12	89	02/04/2012 09:31	2	49.945066	5.560516	49.91445	-2.69125	2	1405.6	1407.6	72	74	288		0	0	0.2	0	1024.5		Beams
90	CEND 5/12	90	02/04/2012 11:37	2	49.922333	5.773166	49.899	4.048333	2	1418	1420	76	82	38	320	0.5	0.5	0.4	8	1024	260	Beams
91	CEND 5/12	91	02/04/2012 12:55	2	49.96055	-5.86215	49.993916	4.325916	1.9	1425.6	1427.5	74	73	86	340	0	0.5	0.3	8	1023	350	Beams
92	CEND 5/12	92	02/04/2012 14:50	2	49.856983	5.876416	49.856983	4.382083	0	1436.6	1436.6	88	88	154	310	0	0	0.3	6	1022		Profiler
93	CEND 5/12	93	02/04/2012 15:06	2	49.849383	-5.8758	49.83515	4.609833	2	1437.7	1439.7	88	90	157	310	0	0.5	0.3	11	1022	300	Beams
94	CEND 5/12	94	02/04/2012 17:18	8	49.599516	-5.862	49.6058	4.057916	2	1455	1457	105	103	225	350	0.5	0.5	0.3	11	1021	350	Beams
95	CEND 5/12	95	02/04/2012 18:06	0	49.606833	5.804833	49.606833	4.024166				98										Profiler
96	CEND 5/12	96	02/04/2012 19:07	0	49.628666	5.728666	49.628666	3.643333				96										Profiler
97	CEND 5/12	97	02/04/2012 19:42	0	49.6175	5.674666	49.6175	3.373333				94										Profiler
98	CEND 5/12	98	02/04/2012 20:19	0	49.6225	-5.604	49.6225	-3.02				95										Profiler
99	CEND 5/12	99	02/04/2012 20:46	0	49.6235	5.572166	49.6235	2.860833				94										Profiler
100	CEND 5/12	100	03/04/2012 05:44	7	49.7434	4.135133	49.7425	0.745933	2.1	1528.7	1530.8	83	83	248	330	0.5	0.5	0.1	13	1017	330	Beams
101	CEND 5/12	101	03/04/2012 07:45	7	49.717316	-3.93875	49.717316	-2.81625	0	1542.5	1542.5	81	81	258	330	0.5	0.5	0.6	18	1017	340	Profiler
102	CEND 5/12	102	03/04/2012 07:59	7	49.726883	3.944683	49.758566	-2.8472	2	1543.1	1545.1	81	78	258	330	0.5	0.5	0.6	18	1017	340	Beams
103	CEND 5/12	103	03/04/2012 09:37	7	49.83315	3.770283	49.865933	-2.28285	2	1554.1	1556.1	78	77	257	330	0.5	0.5	0.6	7	1018	340	Beams
104	CEND 5/12	104	03/04/2012 11:46	4	50.044	3.636783	50.028016	-2.0441	2	1569.2	1571.2	72	72	241	260	0.5	0.5	0.9	11	1016.9	280	Beams
105	CEND 5/12	105	03/04/2012 13:48	7	50.056733	3.384016	50.056733	-1.15205	0	1540	1540	74	74	18	290	0.5	0.5	0.1	15	1016	280	Profiler
106	CEND 5/12	106	03/04/2012 14:00	7	50.055366	3.396866	50.054	-1.3457	2	1584.6	1586.6	73	74	30	265	0.5	0.5	0.2	16	1016	280	Beams
107	CEND 5/12	107	03/04/2012 16:56	6	50.0885	-2.8479	50.08675	1.798833	2	1611.2	1613.2	70	70	71	270	0.5	0.5	1.4	22	1015	260	Beams
108	CEND 5/12	108	03/04/2012 18:28	6	50.191766	2.952433	50.183166	-0.00755	2	1620.4	1622.4	66	65	72	300	0.5	0.5	0.8	18	1014	270	Beams
109	CEND 5/12	109	03/04/2012 19:12	0	50.18	3.013333	50.18	-0.04				61										Profiler
110	CEND 5/12	110	03/04/2012 20:04	0	50.157833	-3.101	50.157833	-0.303				62										Profiler
111	CEND 5/12	111	03/04/2012 20:47	0	50.141333	-3.19	50.141333	-0.57				58										Profiler
112	CEND 5/12	112	03/04/2012 21:43	0	50.122	3.338833	50.122	-1.0165				63										Profiler
113	CEND 5/12	113	04/04/2012 05:41	13	49.96155	4.518766	49.950983	2.272333	2	1686	1688	83	82	101	340	1	1	0	24	1016	300	Beams
114	CEND 5/12	114	04/04/2012 07:35	3	50.05045	4.431516	50.05045	1.726066	0	1697.4	1697.4	74	74	250	340	1	1	0.2	19	1017.5	330	Profiler
115	CEND 5/12	115	04/04/2012 07:47	3	50.042966	-4.43995	50.018166	1.901866	2.1	1698	1700.1	77	77	253	340	1	1	0.2	18	1017.5	330	Beams
116	CEND 5/12	116	04/04/2012 09:43	4	49.99565	4.287983	50.000233	0.944133	2	1709.6	1711.6	77	76	263	20	0.5	0.5	0.5	14	1017	340	Beams
117	CEND 5/12	117	04/04/2012 11:53	4	50.199216	-4.14765	50.23255	0.592266	2	1724.4	1726.4	64	60	309	20	0.5	0.5	0.5	15	1018.5	320	Beams

118	CEND 5/12	118	04/04/2012 14:04	4	50.09255	3.939566	50.077866	-2.95825	2	1739.6	1741.6	77	77	92	30	0.5	0.5	0.3	12	1018.8	330	Beams
119	CEND 5/12	119	04/04/2012 15:06	4	50.067416	-4.02365	50.067416	-0.0946	0	1743.7	1743.7	77	77	97	20	0.5	0.5	0.8	10	1018.8	340	Profiler
120	CEND 5/12	120	04/04/2012 15:18	4	50.065366	4.031133	50.048416	0.303533	2	1744.2	1746.2	78	79	96	80	0.5	0.5	0.9	9	1019	340	Beams
121	CEND 5/12	121	04/04/2012 16:41	4	50.04705	4.112633	50.037266	0.646933	2	1748.3	1750.3	79	79	101	80	0.5	0.5	0.9	9	1019	50	Beams
122	CEND 5/12	122	04/04/2012 18:20	7	49.934333	3.986066	49.924583	-0.1428	2	1760.7	1762.7	80	80	61	50	0.5	0.5	0	7	1019	60	Beams
123	CEND 5/12	123	04/04/2012 19:08	0	49.922166	4.051333	49.922166	0.205333				74										Profiler
124	CEND 5/12	124	04/04/2012 20:04	0	49.9545	4.004833	49.9545	0.019333				74										Profiler
125	CEND 5/12	125	04/04/2012 20:34	0	49.971333	3.981833	49.971333	-2.9455				74										Profiler
126	CEND 5/12	126	05/04/2012 05:49	4	50.092533	3.711466	50.078416	-2.27565	2	1802.8	1804.8	75	75	70	65	1	1	1.1	27	1024.5	60	Beams
127	CEND 5/12	127	05/04/2012 08:09	4	50.23945	-3.46805	50.23945	-1.40415	0	1821.1	1821.1	64	64	134	60	1	1.5	0.2	30	1025	50	Profiler
128	CEND 5/12	128	05/04/2012 08:24	4	50.23225	3.475416	50.20655	-1.52575	2	1821.8	1823.8	65	67	184	60	1.5	1.5	0.5	30	1027	60	Beams
129	CEND 5/12	129	05/04/2012 09:53	4	50.099433	3.447116	50.0724	-1.4207	2	1831.6	1833.6	68	69	223	60	1.5	1.5	0.6	28	1027.3	60	Beams
130	CEND 5/12	130	05/04/2012 13:17	5	50.31025	3.110316	50.295	-0.4686	2	1857.5	1859.5	60	61	237	60	2	1.5	1	23	1028.8	60	Beams
131	CEND 5/12	131	05/04/2012 14:38	5	50.371033	-3.29675	50.371033	-0.89025	0	1867.2	1867.2	55	55	288	30	1.5	1.5	0.3	24	1028.8	60	Profiler
132	CEND 5/12	132	05/04/2012 14:48	5	50.370216	-3.31075	50.365733	-1.0875	1.9	1867.8	1869.7	55	57	306	34	1.5	1.5	0.3	19	1028.8	60	Beams
133	CEND 5/12	133	05/04/2012 16:38	5	50.546416	-3.1863	50.574683	-0.4783	1.9	1883.4	1885.3	37	35	61	60	1	1	0.4	26	1028.8	60	Beams
134	CEND 5/12	134	05/04/2012 17:32	5	50.60325	3.133416	50.58275	-0.27675	2	1887.9	1889.9	35	35	63	55	1	1	0.6	16	1029	60	Beams
135	CEND 5/12	135	05/04/2012 18:43	5	50.488916	3.002633	50.4645	1.935833	2	1896.6	1898.6	50	55	74	60	0.5	1	0.9	18	1029	60	Beams
136	CEND 5/12	136	05/04/2012 19:30	0	50.458166	2.949833	50.458166	1.899666				50										Profiler
137	CEND 5/12	137	05/04/2012 20:05	0	50.483	2.922833	50.483	1.845666				46										Profiler
138	CEND 5/12	138	05/04/2012 20:50	0	50.491833	-2.9025	50.491833	-1.805				44										Profiler
139	CEND 5/12	139	06/04/2012 04:38	5	50.540033	2.840066	50.540033	1.680133	0	1915.8	1915.8	45	45	52	60	0.5	0.5	0.5	14	1029.8	60	Profiler
140	CEND 5/12	140	06/04/2012 05:04	5	50.530916	2.803966	50.519933	1.705666	2	1917.8	1919.8	45	47	101	50	0.5	0.5	1.5	12	1029.8	60	Beams

Table 2: Total Catch by species:

SampledCatch	TotalCatch	MAFF	
Assorted rocks	0	2874.331	ROK
Epibenthic mixture	0	9190.143	BEN
<i>Symphodus bailloni</i>	2.343	2.343	BLW
<i>Eunicella verrucosa</i>	0	0.154	EUV
<i>Meiosquilla desmaresti</i>	0	0.009	MED
<i>Pentapora spp</i>	0	20.588	PET
<i>Gobiidae</i>	0.108	0.108	POM
<i>Pecten maximus</i>	46.005	46.005	SCE
<i>Arctica islandica</i>	0	0.285	CLQ
<i>Rossia macrosoma</i>	0	0.067	ROM
<i>Sepiola atlantica</i>	0	0.067	SPA
<i>Sepia elegans</i>	2.817	2.817	SEE
<i>Sepia officinalis</i>	139.076	140.353	CTC
<i>Loligo forbesi</i>	0.99	0.99	NSQ
<i>Loligo vulgaris</i>	0.38	0.38	LLV
<i>Alloteuthis subulata</i>	0.899	0.899	ATS
<i>Illex (loligo) illecebrosus</i>	0.686	0.686	SQI
<i>Ommastrephes (todaropsis) eblanae</i>	0.904	0.904	OME
<i>Eledone cirrosa</i>	0	66.946	EDC
<i>Homarus gammarus</i>	8.907	8.907	LBE
<i>Dromia personata</i>	0	0.936	DRP
<i>Maia squinado</i>	134.343	134.343	SCR
<i>Cancer pagurus</i>	41.49	41.49	CRE
<i>Scylliorhinus canicula</i>	299.994	299.994	LSD
<i>Scylliorhinus stellaris</i>	10.182	10.182	DGN
<i>Mustelus asterias</i>	59.78	59.78	SDS
<i>Squalus acanthias</i>	0.119	0.119	DGS
<i>Torpedo marmorata</i>	8.765	8.765	MER
<i>Raja brachyura</i>	10.493	10.493	BLR
<i>Raja microocellata</i>	1.81	1.81	PTR
<i>Raja montagui</i>	7.469	7.469	SDR
<i>Raja batis</i>	0.185	0.185	SKT
<i>Raja fullonica</i>	0.6	0.6	SHR
<i>Raja naevus</i>	35.995	35.995	CUR
<i>Raja undulata</i>	16.93	16.93	UNR
<i>Raja clavata</i>	26.831	26.831	THR
<i>Conger conger</i>	15.36	15.36	COE
<i>Sprattus (clupea) sprattus</i>	0.208	0.208	SPR

<i>Engraulis encrasicolus</i>	0.032	0.032	ANE
<i>Argentinidae</i>	0.929	0.929	ARG
<i>Diplecogaster bimaculata</i>	0.004	0.004	TSC
<i>Lophius piscatorius</i>	261.033	261.033	MON
<i>Lophius budegassa</i>	12.244	12.244	WAF
<i>Gadus morhua</i>	44.655	44.655	COD
<i>Pollachius pollachius</i>	6.179	6.179	POL
<i>Melanogrammus aeglefinus</i>	55.576	55.576	HAD
<i>Phycis blennoides</i>	1.03	1.03	GFB
<i>Trisopterus minutus</i>	116.185	118.865	POD
<i>Trisopterus luscus</i>	88.06	88.06	BIB
<i>Merlangius merlangus</i>	17.037	17.037	WHG
<i>Molva molva</i>	1.94	1.94	LIN
<i>Gaidropsarus vulgaris</i>	2.47	2.47	TBR
<i>Micromesistius poutassou</i>	3.765	3.765	WHB
<i>Ciliata mustela</i>	0.052	0.052	FVR
<i>Merluccius merluccius</i>	7.853	7.853	HKE
<i>Belone belone</i>	0.05	0.05	GAR
<i>Zeus faber</i>	13.443	13.443	JOD
<i>Capros aper</i>	5.488	5.488	BOF
<i>Syngnathus acus</i>	0.373	0.373	GPF
<i>Trigla lucerna</i>	27.812	27.812	TUB
<i>Eutrigla gurnardus</i>	7.364	7.364	GUG
<i>Trigloporus lastoviza</i>	26.552	26.552	GUS
<i>Aspitrigla cuculus</i>	83.597	83.597	GUR
<i>Aspitrigla obscura</i>	0.015	0.015	GUL
<i>Taurulus bubalis</i>	0.022	0.022	SSN
<i>Agonus cataphractus</i>	1.994	1.994	POG
<i>Trachurus trachurus</i>	1.011	1.011	HOM
<i>SpondylIOSoma cantharus</i>	9.08	9.08	BKS
<i>Mullus surmuletus</i>	8.119	8.119	MUR
<i>Centrolabrus exoletus</i>	0.049	0.049	SMW
<i>Ctenolabrus rupestris</i>	2.516	2.516	GDY
<i>Labrus bergylta</i>	15.875	15.875	BNW
<i>Labrus mixtus</i>	12.325	12.325	CUW
<i>Acantholabrus palloni</i>	0.18	0.18	SRW
<i>Trachinus (echiichthys) vipera</i>	1.145	1.145	WEL
<i>Blennius ocellaris</i>	0.344	0.344	BBY
<i>Blennius(parablennius)gattorugine</i>	0.151	0.151	TBY
<i>Chirolophis ascanii</i>	0.005	0.005	YBY
<i>Ammodytes tobianus</i>	0.02	0.02	TSE

<i>Hyperoplus lanceolatus</i>	0.188	0.188	GSE
<i>Callionymus lyra</i>	70.81	70.81	CDT
<i>Callionymus maculatus</i>	0.416	0.416	SDT
<i>Callionymus reticulatus</i>	0.021	0.021	RDT
<i>Gobius niger</i>	0.018	0.018	BLG
<i>Gobius gasteveni</i>	0.151	0.151	GSV
<i>Buenia jeffreysii</i>	0.014	0.014	JYG
<i>Scomber scombrus</i>	0.292	0.292	MAC
<i>Scophthalmus maximus</i>	19.094	19.094	TUR
<i>Scophthalmus rhombus</i>	10.845	10.845	BLL
<i>Arnoglossus laterna</i>	10.282	10.59	SDF
<i>Arnoglossus imperialis</i>	7.931	7.931	ISF
<i>Zeugopterus punctatus</i>	1.771	1.771	TKT
<i>Phrynorhombus norvegicus</i>	0.782	0.789	NKT
<i>Phrynorhombus regius</i>	0.549	0.549	EKT
<i>Lepidorhombus whiffiagonis</i>	50.394	50.394	MEG
<i>Glyptocephalus cynoglossus</i>	1.895	1.895	WIT
<i>Hippoglossoides platessoides</i>	0.285	0.285	PLA
<i>Limanda limanda</i>	7.317	7.317	DAB
<i>Microstomus kitt</i>	44.275	44.275	LEM
<i>Pleuronectes platessa</i>	174.045	174.045	PLE
<i>Solea solea (s.vulgaris)</i>	70.847	70.847	SOL
<i>Pegusa (solea) lascaris</i>	7.54	7.54	SOS
<i>Buglossidium luteum</i>	8.209	20.763	SOT
<i>Microchirus variegatus</i>	34.593	45.659	TBS

Table 3: Biological samples, including length weight information collected:

	Length weight sample	Otolith
	Length weight sample	Otolith
<i>Acantholabrus palloni</i> U	1	0
<i>Agonus cataphractus</i> U	4	0
<i>Alloteuthis subulata</i> U	1	0
<i>Arnoglossus imperialis</i> U	6	0
<i>Aspitrigla cuculus</i> F	0	78
<i>Aspitrigla cuculus</i> M	0	27
<i>Aspitrigla cuculus</i> U	0	16
<i>Aspitrigla obscura</i> U	1	0
<i>Blennius ocellaris</i> U	4	0
<i>Blennius(parablennius)gattorugine</i> U	3	0
<i>Buenia jeffreysii</i> U	3	0
<i>Callionymus lyra</i> U	1	0
<i>Callionymus maculatus</i> U	11	0
<i>Callionymus reticulatus</i> U	1	0
<i>Cancer pagurus</i> M	1	0
<i>Capros aper</i> U	1	0
<i>Chirolophis ascanii</i> U	1	0
<i>Ciliata mustela</i> U	5	0
<i>Conger conger</i> F	0	1
<i>Conger conger</i> M	0	3
<i>Conger conger</i> U	2	0
<i>Ctenolabrus rupestris</i> U	8	0
<i>Eutrigla gurnardus</i> F	0	33
<i>Eutrigla gurnardus</i> M	0	17
<i>Eutrigla gurnardus</i> U	0	8
<i>Gadus morhua</i> F	0	8
<i>Gadus morhua</i> M	0	4
<i>Gaidropsarus vulgaris</i> U	7	0
<i>Glyptocephalus cynoglossus</i> U	5	0
<i>Gobius gasteveni</i> U	9	0
<i>Gobius niger</i> U	1	0
<i>Homarus gammarus</i> F	2	0
<i>Homarus gammarus</i> M	2	0
<i>Hyperoplus lanceolatus</i> U	3	0
<i>Labrus bergylta</i> U	19	0
<i>Labrus mixtus</i> U	32	0

<i>Lepidorhombus whiffiagonis F</i>	0	230
<i>Lepidorhombus whiffiagonis M</i>	0	14
<i>Limanda limanda F</i>	0	52
<i>Limanda limanda M</i>	0	33
<i>Limanda limanda U</i>	0	3
<i>Lophius budegassa F</i>	0	2
<i>Lophius budegassa M</i>	0	3
<i>Lophius piscatorius F</i>	0	112
<i>Lophius piscatorius M</i>	0	89
<i>Lophius piscatorius U</i>	0	3
<i>Maia squinado B</i>	1	0
<i>Melanogrammus aeglefinus F</i>	0	41
<i>Melanogrammus aeglefinus M</i>	0	31
<i>Merlangius merlangus F</i>	0	32
<i>Merlangius merlangus M</i>	0	38
<i>Merluccius merluccius F</i>	0	14
<i>Merluccius merluccius M</i>	0	6
<i>Merluccius merluccius U</i>	0	2
<i>Micromesistius poutassou U</i>	2	0
<i>Microstomus kitt F</i>	0	73
<i>Microstomus kitt M</i>	0	82
<i>Mullus surmuletus F</i>	0	23
<i>Mullus surmuletus M</i>	0	17
<i>Mullus surmuletus U</i>	0	3
<i>Mustelus asterias F</i>	7	0
<i>Mustelus asterias M</i>	2	0
<i>Pecten maximus U</i>	2	0
<i>Pegusa (solea) lascaris U</i>	5	0
<i>Phrynorhombus norvegicus U</i>	9	0
<i>Phrynorhombus regius U</i>	4	0
<i>Phycis blennoides U</i>	5	0
<i>Pleuronectes platessa F</i>	0	234
<i>Pleuronectes platessa M</i>	0	160
<i>Pollachius pollachius U</i>	2	0
<i>Raja batis F</i>	0	2
<i>Raja brachyura F</i>	0	3
<i>Raja brachyura M</i>	0	2
<i>Raja clavata F</i>	0	19
<i>Raja clavata M</i>	0	19
<i>Raja fullonica F</i>	0	1
<i>Raja fullonica M</i>	0	1

<i>Raja microocellata</i> M	0	1
<i>Raja montagui</i> F	0	8
<i>Raja montagui</i> M	0	7
<i>Raja naevus</i> F	0	17
<i>Raja naevus</i> M	0	23
<i>Raja undulata</i> F	0	2
<i>Raja undulata</i> M	0	4
<i>Scomber scombrus</i> U	1	0
<i>Scophthalmus maximus</i> F	0	6
<i>Scophthalmus maximus</i> M	0	2
<i>Scophthalmus rhombus</i> F	0	3
<i>Scophthalmus rhombus</i> M	0	4
<i>Scyliorhinus canicula</i> F	1	0
<i>Scyliorhinus canicula</i> M	1	0
<i>Scyliorhinus stellaris</i> F	3	0
<i>Scyliorhinus stellaris</i> M	3	0
<i>Sepia officinalis</i> U	2	0
<i>Solea solea</i> (s.vulgaris) F	0	126
<i>Solea solea</i> (s.vulgaris) M	0	92
<i>Spondylisoma cantharus</i> U	19	0
<i>Squalus acanthias</i> M	2	0
<i>Symphodus bailloni</i> U	19	0
<i>Syngnathus acus</i> U	11	0
<i>Taurulus bubalis</i> U	1	0
<i>Torpedo marmorata</i> F	2	0
<i>Torpedo marmorata</i> M	5	0
<i>Torpedo marmorata</i> U	1	0
<i>Trachinus (echiichthys) vipera</i> U	3	0
<i>Trigla lucerna</i> F	0	26
<i>Trigla lucerna</i> M	0	21
<i>Trigloporus lastoviza</i> F	0	30
<i>Trigloporus lastoviza</i> M	0	16
<i>Trigloporus lastoviza</i> U	1	5
<i>Trisopterus luscus</i> U	1	0
<i>Zeugopterus punctatus</i> U	17	0
<i>Zeus faber</i> F	0	37

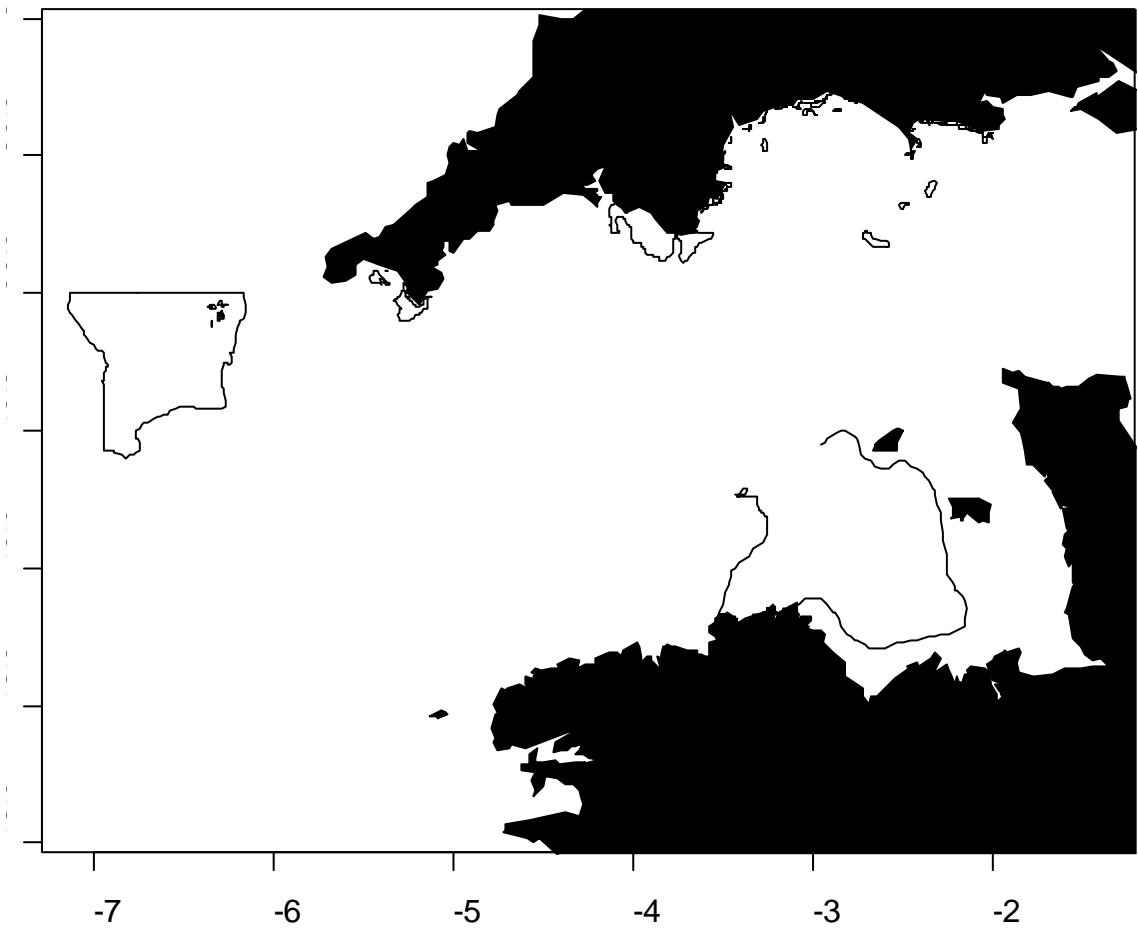


Figure 1: Chart of station numbers for CEND 6/12 including profiler stations:

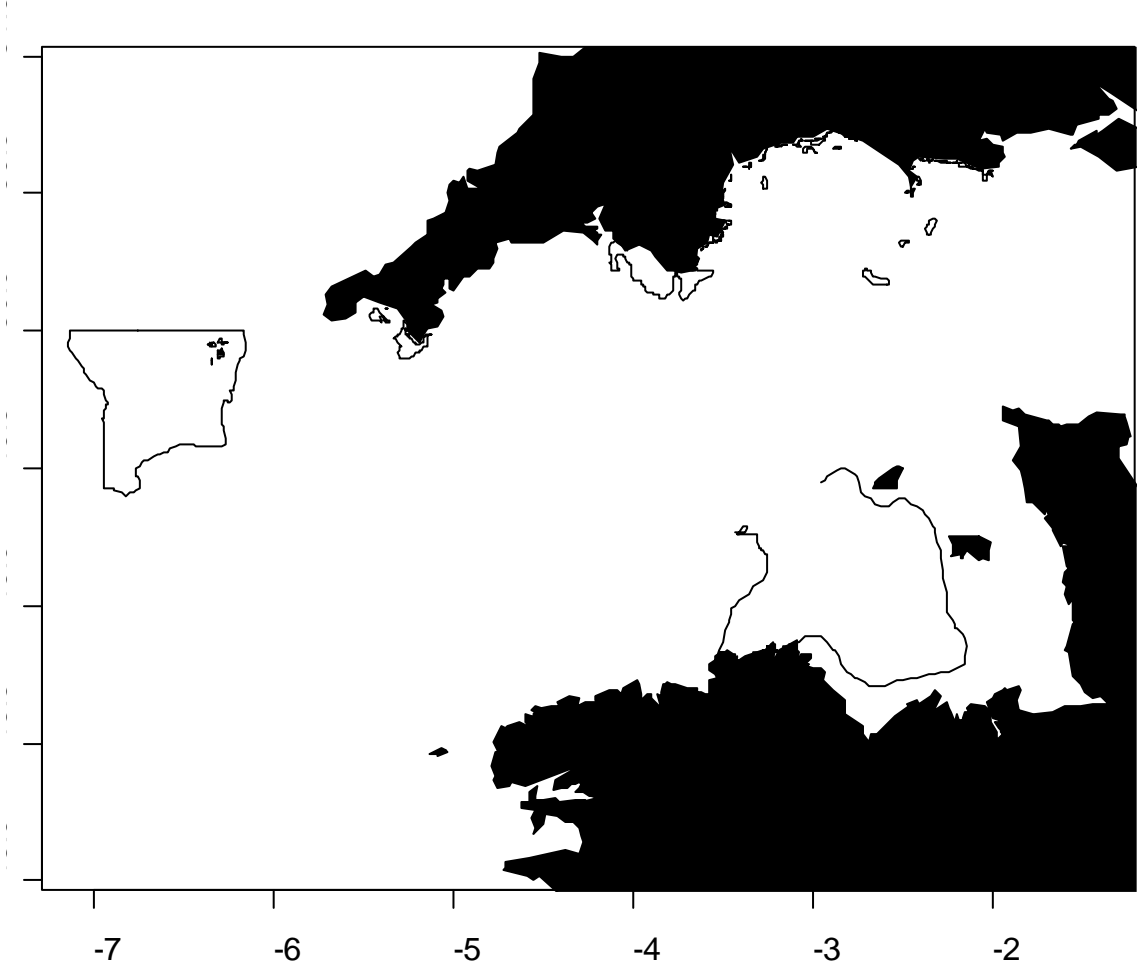


Figure 2: Survey Track showing beam trawl stations and validity codes by day

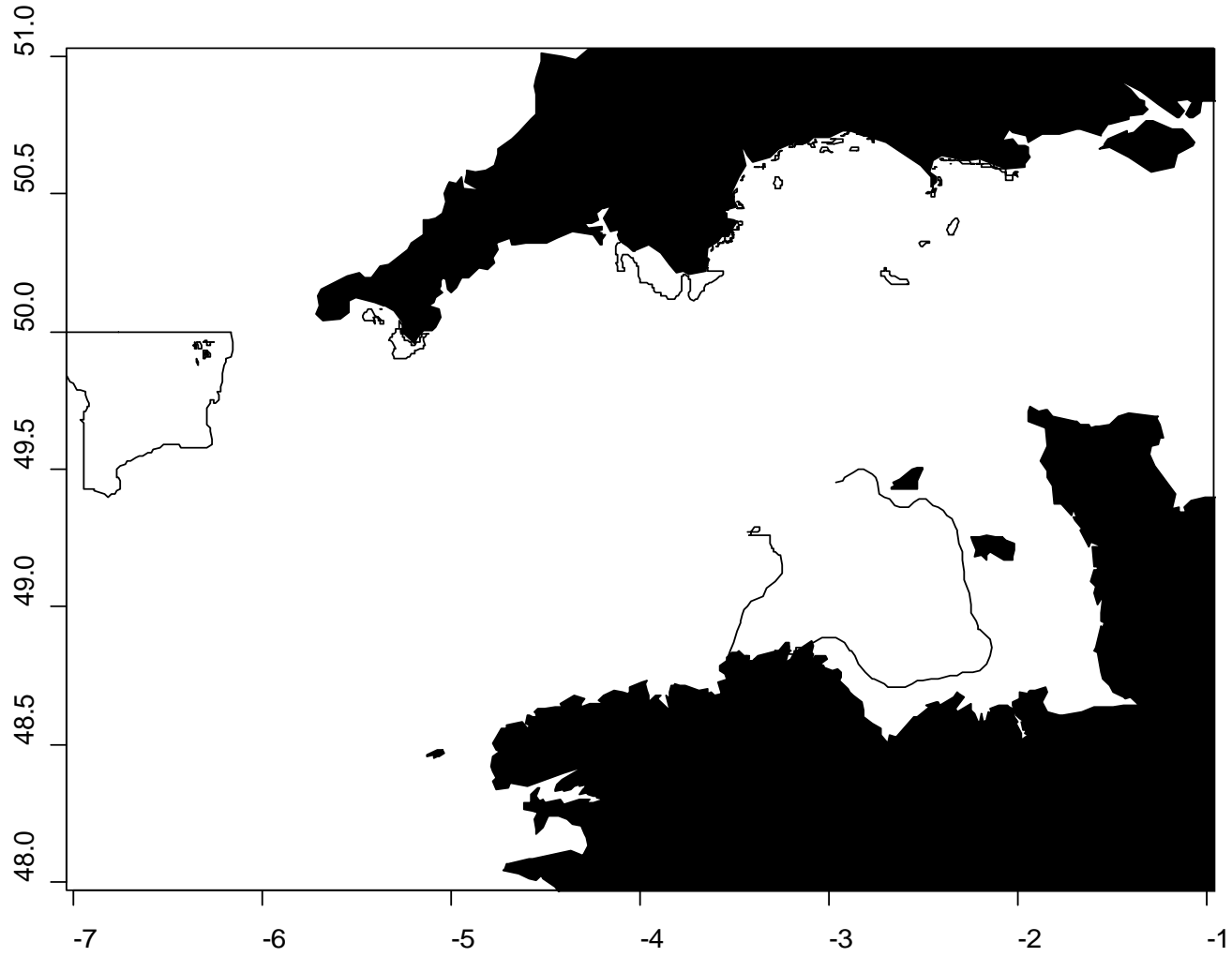


Figure 3: Species composition pie plots for Cend 6/12. Size of circles represents the size of the overall catch in numbers of the 40 most abundant species at a station with the size of the slice representing the relative proportion of each species encountered.

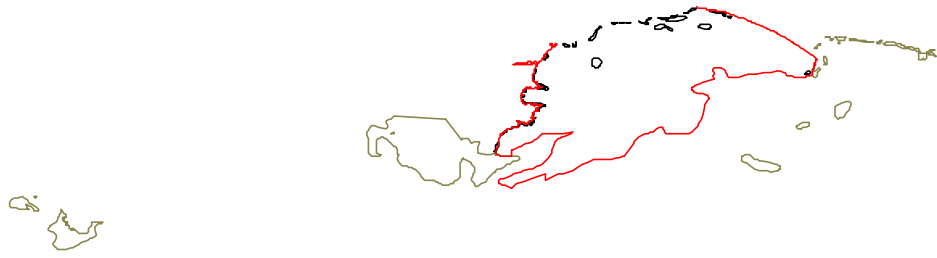


Figure 5: Distribution of major commercial species by station

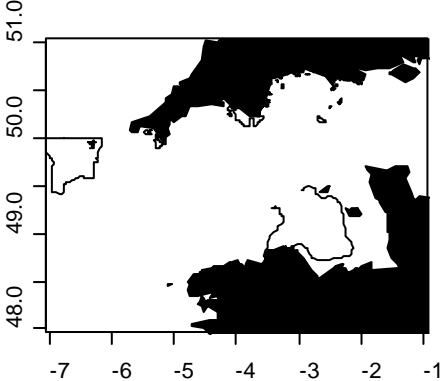


Figure 6: Length distributions for the major commercial species with total catch numbers by the two different gear types.

