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

2014 RESEARCH VESSEL PROGRAMME

PROGRAMME: RV CEFAS ENDEAVOUR: 04/14

STAFF:

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DURATION: 11 February – 10 March

LOCATION: Western Channel (ICES area VIIE, VIIF, VIIG, VIIH, VIIJ)

NARRATIVE:

The advanced party arrived in Portland to join the Endeavour on 8 February to set up the EDC and the flowcytometer before being joined by the rest of the planned cruise staffing on 10 February ready for the planned sailing the next day. However exceptionally poor weather delayed sailing for 5 days. To try to make up time in the remaining survey two further staff were drafted and joined the ship on 15 February before departure at 0600h on Sunday 16 February. The plan had been to complete the Western Channel part of the survey by the mid cruise changeover which given the 5 day delay was impossible.

Sampling commenced at around 0900h to the east of Portland Bill with a further 3 stations sampled in stratum 6 and 2 in stratum 9. Due to the significant reduction in available survey time it was decided to reduce the number of samples in each stratum and although this does reduce time requirements it is not proportional to the reduction in the number of stations. Consequently additional tasks intended to contribute to the ecosystem monitoring program such as plankton sampling had also to be curtailed. Epibenthic monitoring, the main ecosystem aim for this part of the cruise, was retained. Catches were small as expected in this area, but a surprising number of plaice were observed this far east, and various species of ray were frequently encountered in small numbers.

Day two saw us working anticlockwise around the northern Channel Islands (Alderney, Guernsey). Few signs of fishing activity beyond some static gear markers were observed, however attempts to sample one station south of Gurnsey was abandoned because of the

potential for static gear and a lack of permission due to the risk of interfering with commercial fishing activities.

On 18 February the weather started to deteriorate again with increasing winds kicking up the swell in shallow water. This, combined with the rough grounds and static gear (one station had to be abandoned entirely and we had to run back on ourselves to maintain randomness) in the southern part of the stratum meant that progress was slow and several tows had to be repeated due to gear damage from stones punching holes in the codends. A couple of hours were spent repairing the nets and some adjustments were made to the port gear, which had been down on sole catches (but not noticeably for other species) compared to the starboard gear. Both gears performed equally after that. Catches were as expected for the area with a few sole, good catches of scallops, edible crabs and spider crabs. The final station of the day was fished in the dark and yielded decent numbers of sole. Discussion around the merits of putting some stone traps into the gear to improve efficiency in the future were had and will be discussed further prior to next year's survey.

The next day started early near the French coast in stratum 11. The first two stations were right in the local scallop grounds and many boats were observed working in the area. However, unlike previous years the only contact that was made was made through the French coast guard to inform us where a potter had placed his gear. This is a positive development in an area where we have had trouble with fishermen before. The first two stations of the day yielded a good number of scallops as expected and as we neared the Banc de Langustine, several French trawlers were observed and an increase in sole catches was noticeable. As we hit mid channel the ground became softer and we finished that day on a decent haul of pretty clean fish with some sole in it.

The 20 February started with some stronger winds, and some large catches of plaice. The largest was 600 in one haul which is near the average series yearly catch and as such exceptional but catches in general appear to be higher than in previous years. Sole numbers were also steady, but compared to previous years cuttlefish catches were down which is surprising particularly since the survey is earlier this year than previous years. Heading in to Lyme Bay, Start Point provided some lee and the sea state improved. We continued fishing northwards, spotting a number of the Brixham beamers at work but only the odd bit of static gear, probably pots. Unfortunately, on the penultimate haul of the day, the wire parted during a plankton dip, but losses were limited as ESM2 and CTD had been deployed separately earlier due to windy conditions so only the nets and flowmeters were lost. Replacements were requested from Pinbush. We finished the day near Portland.

We have continued running the flowcytometer and when the system has been online results have been examined back at the lab and appear to be suitable for further analysis on our return. Ceasium water sample collections have also been continued as in previous years.

On Friday we started off Start Point, sampling a further two stations in stratum 4 with winds again increasing. We continued to see decent catches of plaice and some sole as expected, but also recording a spiny lobster which is unusual this far east for the species. As we headed further offshore fishing operations were halted by the Captain due to weather and we tried to

dodge for a while to see if the changing tide would improve the sea state. Failing this, we traversed west past several local fishing boats and a couple of beam trawlers to see if it would be possible to sample stations in Falmouth Bay. We arrived after dark and although winds were significantly less than offshore we were unable to conduct any further sampling that day.

On the final day of the first half (22/02/2014) we started in Falmouth Bay working our way westwards. Catches continued to provide good numbers of plaice, and decent numbers of sole and even a couple of turbot and cod. Following the second tow, we unsuccessfully surveyed the area near the tow for some dropped containers for an hour. The number of parchment worms characteristic of the area previously was unusually large and persistent in catches and at least at first glance had extended further eastwards than in previous years. To allow for clean up and to finish at a suitable time for staff to travel back the next day we dropped a CTD station in stratum 3 which unfortunately means that we had collected only one profile and one plankton sample for this stratum.

After changing over staff and obtaining stores, the Endeavour left Falmouth on 24 February at 0900h in fine weather and managed to fish two stations and conduct grabs on one before the wind picked up again and sampling was halted. The catches were made up of mainly gadoids with a good number of haddock, the highest sole abundance this year, and some lemon sole and a few plaice. After half a day of sampling we hurried back to the other side of the Lizard for shelter.

On the morning of 25 February, we were still dodging and near Falmouth so we decided to try to head back towards Start Point to try to pick up the remaining stations there. However there was insufficient lee to work the beams so we spent the afternoon collecting grab samples on stations that had been sampled in the first half of the cruise. In the evening the seas finally smoothed out sufficiently to attempt fishing so that we rapidly completed these stations without conducting subsequent grabs as it seems it is possible to operate the grab in worse seas than the beams. There were plenty of fishing vessels operating in the area during the day and evening, but our catches could not explain what they were targeting with only a moderate catch of a generally poor mix being taken.

The 26 February was spent heading out across the channel sampling stations and once again grabbing to ground truth the multibeam data and to obtain infaunal samples as well as continue to collect the other ecosystem information. Because of the serious delays to the survey it was decided to carry out the ecosystem work in greater detail than originally anticipated as it was not clear as to when we would be able to get to the Celtic Sea proper given the combination of the weather and the new working rules. The very low number of cuttle fish in the area was surprising and it is not clear if this was a bad year for cuttlefish or whether they had left the area early.

We reached the French coast again on the following day fishing in stratum 12. The ground was hard and as expected consisted largely of shell, gravel and a good number of stones. This caused some problems with the gear and one station had to be fished three times before a valid sample could be obtained. However there appeared to be higher numbers of sole in the area this year despite the ground conditions. Epibenthos was dominated by sponges and ascidians.

After fishing three stations successfully a halt was called to fishing once again. And although we spent some time dodging the weather did not improve sufficiently to return to sampling. Although it would have been very helpful to have one more station done in order not to have to return to the area we decided to head for stations in Mounts Bay where we were anticipating some lee from the northerly winds.

Having made our way across the channel we found ourselves in our Falmouth Bay dodging high winds instead of on station in Mounts Bay. In the late afternoon on 28 February we set off again from a calm Falmouth Bay. We managed to get a couple of stratum 2 stations completed, one with 28 sole and a few plaice, more or less as expected for the area. This completed the sampling in stratum 2. Despite a variable forecast it was decided to carry on westwards to the Isles of Scilly, where we completed the day under improving weather conditions.

On 1 March we continued around the Scilly Isles picking up stations in stratum 1. This was the first sighting of any significant catches of megrim suggesting the distribution had shifted back to the more usual pattern, where as the last two years these had been caught much further east. Catches of gadoids also increased having seen very few cod or haddock in the survey up to this point. Very little netting activity was noted around the islands compared to previous years.

Moving NE-wards up the north Cornish coast we encountered very high catches of sole (around 200 in a 2 mile tow) as expected for the 7fg spawning area at this time of the year. Generally speaking the size distribution of these was smaller than in the Channel, but comparable to those taken off Start Point. Lemon sole catches continued to be high, but plaice numbers appear to be low for the area this year. Gadoid catches continued to increase. Grab samples indicated that the sediments are better sorted containing less of the very coarse material that had caused problems with the Hammond grab sealing mechanism in the western channel. Beam trawlers both UK (from Penzance and Plymouth/Brixham) and other nationalities were active in the area. (The area is closed to otter trawlers during the first quarter as part of the cod recovery plan).

On 3 March sampling commenced in the inner Bristol Channel and continued out to the Celtic Deep. Catches were generally light consisting of small sole, some plaice and dab with the second tow turning out a number of juvenile rays. Small whiting and haddock were also abundant and a smattering of cod was present. Sediment samples indicated an increase in soft sediments further east with a surprising number of spider crabs present given the sediment type. The final three stations of the day were located out in the Celtic Deep. Here sediments were again very soft and a couple of hauls with decent numbers of Nephrops were taken as expected for the area along with the obligatory witches. Various dogfish species were also encountered along with further increases in catches of gadoids throughout the day.

The next day saw us heading for the Irish coast where we managed to sample 5 stations in stratum A. The first one was located close to shore on rocky grounds, but we managed a tow on some flat hard ground. The species composition not entirely surprisingly differed significantly from those of the remaining stations taken on softer grounds with the more usual soft bottom communities of Nephrops, witch and gadoids.

Heading south we made for the Celtic deep on the next deep sampling the remaining three stations in stratum D. Catches continued to produce a smattering of Nephrops, gadoids and a few sole, but given that the area is considered prime Nephrops grounds catches were surprisingly small and only the occasional commercial activity was observed in the area. Further south where the ground was harder again we picked up the remaining station in stratum F with catches of little note.

On 6 March we were aiming to pick up the remaining stations in the numbered strata moving eastwards on now very much harder ground again. Monks and soles were once more found in greater abundance, but catches were generally small. We had made better progress over the previous two days and before completing the final station it was decided that there was sufficient time to move spend a day sampling in stratum J which had not been previously sampled.

On the final day of the survey we detoured to circumnavigate the Britani peninsular picking up two stations on flat ground before reaching two sites on decidedly rockier substrates. Catches were surprisingly similar to the strata further north as this area is considered a zoogeographic transition zone. The stations further inshore were more diverse, but this seemed to be an artifact more of their hardness than the location near the Bay of Biscay. We were unable to sample the final station in the stratum as we were asked to leave the area by the French authorities based on requests from the potting fleet that the area was covered in static gear. We did not observe static gear, but abandoned sampling to head for the surveys final station in stratum 8.

The last sampling station in the channel was completed in the early hours of 8 March on very hard ground with lot of benthic by-catch, mainly consisting of sponges and some urchins. Scallops and some flatfish were the main commercial species of interest. Having completed the fisheries sampling we turned north into Lyme Bay to pick up a water station which had been omitted in the first half of the cruise and to carry out a man over board drill. At around 1400h we completed the survey and started heading for Lowestoft with the intent to dock on the morning of 10 March. Having made good time we were able to dock on the earlier tide.

RESULTS BY AIM:

1. To carry out a multi gear ecosystem survey of the Celtic Sea, South Western Approaches and Western Channel. Deploying standardised 4m beam trawls (95 out of 134), ring nets, Hammond grabs (68 valid samples). Station selection will be based on a fully random stratified approach with the gears deployed at each station where appropriate.

   Catches from the trawls will be processed to obtain information on:

   - Distribution, size composition and relative abundance of fish, cephalopods, and benthic invertebrates.
   - Age-length distribution of selected fish species.
   - Biological parameters of selected species.

The data obtained from processing the trawl catches is collected in support of the EU Data Collection Framework (DCF) and will be submitted to ICES working groups and other biological studies.

2. To collect fisheries acoustic data at three operating frequencies (38, 120 & 200 kHz) and multibeam data continuously throughout the cruise. (Completed)

SECONDARY AIMS

3. Collect information on;
    a. Abundance and Distribution of macrobenthos (Full macrobenthic work ups to abundance were conducted for all beam trawl hauls)
    b. Distribution and classification of anthropogenic debris (Conducted for all beam trawl hauls).
    c. Distribution of fish in relation to their environment.

4. To collect zooplankton samples at each station using ringnets. (A total of x collections were made (2/station using different mesh sizes). Samples could not be collected at all stations during the first part of the cruise due to the reduction in available time associated with weather and because and the loss of gear. On the second half ctd dips were carried out on all stations and only at a small number of these could we not deploy the plankton nets because of conditions.)

5. To collect conductivity, temperature and depth profiles at each trawl station alongside surface and near-bottom water samples using a Niskin with ESM2 logger. (On the first half only two profiles per day were collected due to time constraints with a minimum of two samples per stratum taken except in stratum 3 where it was only possible to collect one sample).

6. To collect sediment and infaunal samples using a Hammond or alternatively a Day grab on each station. (Part 2 only Completed successfully: a total of 68 samples collected)

7. To continuously log sub-surface (3m) salinity, temperature, fluorometry and other environmental data using the 'Ferrybox' and phytoplankton size spectral analysis using flowcytometry. (Completed successfully: samples and calibrations were taken, but on the second half it was not possible to assess the samples on the fly due to problems with the software)

8. Collect water samples for caesium and tritium analysis under SLA22 (Trevor Baily to put on board prior to sailing from Lowestoft (Part 1 only). (Completed successfully: 11 samples collected)

9. Collect and analyse stomach content for demersal fish species in the Celtic Sea (on board).

Opportunistic Aims, these will be undertaken if survey progress and weather allow.

10. In muddy sediments where possible it is intended to collect key parameters from Sediment Profile Imagery and grabs to assess PSA (sediment type), Total organic carbon, pigments and redox depth (aRPD). (Grab samples completed successfully: 68 valid samples and 12 deployments taking video footage only; No SPI images taken due to time constraints)

11. To tag and release specimens of various commercially exploited skates (Rajidae) and other select elasmobranches. (Species and numbers tagged were: 6 blonde rays, 1 cuckoo ray, 5 nursehounds, 1 spurdog, 1 marbled electric ray, 2 painted rays, 24 stray smoothhounds, 1 common skate, 7 undulate rays)

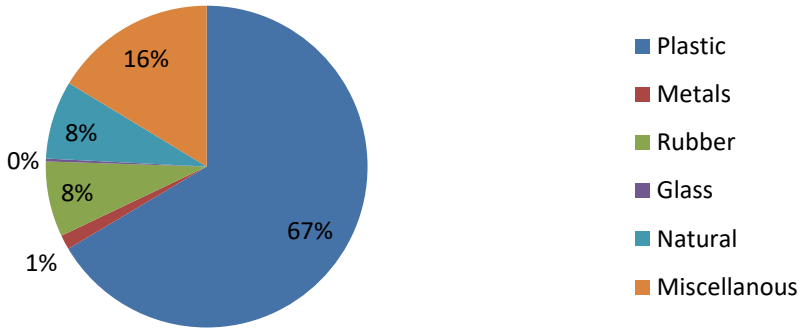
12. Collect specimens of select species for genetic analysis and ID purposes as well as length weight measurements where still required. (Completed successfully: 30 black sea bream)

13. Collect frozen specimens of Sepiolidae. (No longer required)

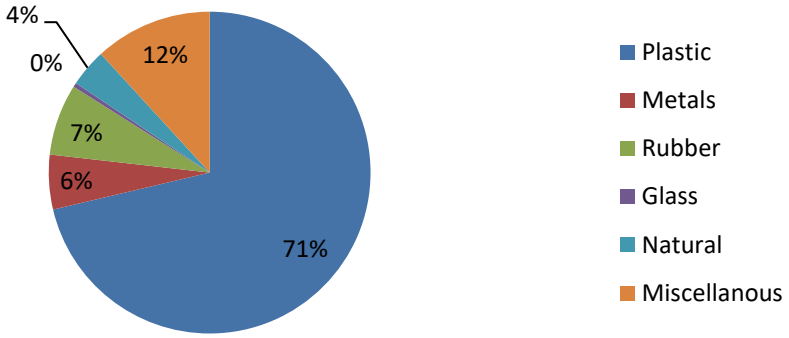
14. Collect histological specimens and photographs of gonad states for selected gadoid species for submission to WKMSGAD. (No specimens encountered that were missing from collection)

15. Collections of micro plastics using the Manta trawl during the beam trawl operations to correlate historic sampling to the current ferry box based collections. (Not carried out due to poor weather making the manta trawl largely inoperable) Litter collections from the beam trawls were as follows:

Marine Benthic Litter collected during Cend 04/14 (With Blinder; N=343)



Marine Benthic Litter collected during Cend 04/14 (No blinder; N=237)



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Paul Nelson
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James Pettigrew
Matt Eade
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Alex Tidd

Veronique Creach
Trevor Bailey

Table 1: Gear deployments and validity by area:

Area	Gear	Validity	Number of deployments
Celtic Sea	4m Beam with blinder	V	29
Celtic Sea	4m Beam	V	29
Celtic Sea	CTD with Niskin	V	28
Celtic Sea	Hamon Grab	I	4
Celtic Sea	Hamon Grab	V	40
Western Channel	4m Beam with blinder	A	2
Western Channel	4m Beam with blinder	I	3
Western Channel	4m Beam with blinder	V	62
Western Channel	4m Beam	I	5
Western Channel	4m Beam	V	62
Western Channel	CTD with Niskin	V	41
Western Channel	Hamon Grab	I	8
Western Channel	Hamon Grab	V	29

Table 2: Total Catch by species:

SCIENTIFIC	SampledCatch	TotalCatch	MAFF
Broken shell	0	138.623	BSL
Phaeophyceae	0	11.494	SWB
Laminaria spp	0	34.487	LMX
Laminaria saccharina	0	2.64	LMS
Fucus spp	0	1.103	FUX
Fucus vesiculosus	0	0.364	WRB
Rhodophyceae	0	0.917	SWR
Assorted rocks	0	3659.686	ROK
Epibenthic mixture	0	2350.142	BEN
Anemone unidentified	0	3.118	AMU
Porifera	0	65.672	PFZ
Dysidea fragilis	0	0.589	DYS
Haliclona oculata	0	0.31	HAO
Axinella infundibuliformis	0	7.8	AXI
Halichondria panicea	0	68.483	BCS
Suberites spp	0	15.568	SUB
Polymastiidae	0	4.062	PMX
Cliona celata	0	141.698	CLI
Raspailia spp	0	10.697	RAS
Tethya aurantia	0	1.039	TAA
Hydroida (order)	0	5.63	HYD
Tubularia spp	0	0.396	TUI

Abietinaria abietina	0	0.002	ABI
Diphasia spp	0	0.115	DIP
Diphasia nigra	0	0.193	DIN
Hydrallmania falcata	0	0.399	HYH
Nemertesia spp	0	20.28	NEM
Nemertesia antennina	0	5.125	NEA
Nemertesia ramosa	0	0.386	NER
Lytocarpia myriophyllum	0	0.022	HYL
Alcyonium digitatum	0	54.596	DMF
Alcyonium glomeratum	0	0.069	AYG
Eunicella verrucosa	0	1.842	EUV
Urticina (tealia) felina	0	20.076	DHA
Bolocera tuediae	0	1.039	BCT
Actinia equina	0	0.073	AEQ
Calliactis parasitica	0	0.409	CAR
Sagartia spp	0	3.379	SAG
Metridium senile	0	2.794	PMA
Caryophyllia smithii	0	0.003	DCC
Aphrodite aculeata	0	29.338	AAC
Laetmonice (hermione) histrix	0	0.314	HMH
Glycera tridactyla	0	0.005	GLC
Hyalinoecia tubicola	0	0.138	HYT
Sabellaria spinulosa	0	11.52	RCL
Sabellidae	0	0.059	PWX
Filograna implexa	0	0.103	FII
Calliostoma zizyphinum	0	0.001	PTS
Aporrhais pespelicani	0	0.002	APP
Crepidula fornicata	0	0.538	ASL
Simnia patula	0	0.007	SIM
Euspira fusca	0	0.005	EFU
Ocenebra erinacea	0	0.03	OCE
Buccinum undatum	15.918	15.918	WHE
Whelk eggs	0	22.497	WES
Scaphander lignarius	0	1.411	SDL
Philine aperta	0	0.147	PHP
Pleurobranchus membranaceus	0	0.055	PBM
Nudibranchia	0	0.279	NBX
Archidoris pseudoargus	0	7.643	ADP
Tritonia hombergi	0	1.525	TNH
Dendronotus frondosus	0	0.061	DDF
Alpheus glaber	0	0.04	ALP
Glycymeris glycymeris	0	0.116	GLG
Atrina fragilis	0	0.196	AFR

Aequipecten opercularis	0	38.497	QSC
Chlamys varia	0	0.58	CHV
Pecten maximus	116.529	116.529	SCE
Pecten maximus	272.817	272.817	SCR
Limidae	0	0.005	LIZ
Limaria hians	0	0.057	LIM
Laevicardium crassum	0	0.138	LCC
Acanthocardia spp	0	0.8	ACY
Angulus tenuis	0	0.002	TNT
Arctica islandica	0	1.526	CLQ
Veneridae	0	0.029	CLV
Chamelea gallina	0	0.005	VST
Clausinella fasciata	0	0.046	VFR
Corbula gibba	0	0.006	CGB
Scaphopoda	0	0.001	SPZ
Rossia macrosoma	0	0.116	ROM
Sepiola atlantica	0	0.02	SPA
Sepia elegans	0.353	0.353	SEE
Sepia officinalis	46.966	46.966	CTC
Sepia orbignyana	0.834	0.834	SEO
Loligo forbesi	0.573	0.573	NSQ
Loligo vulgaris	0.866	0.866	LLV
Loligo (Alloteuthis) subulata	0.007	0.007	ATS
Octopus vulgaris	0	0.19	OCV
Eledone cirrhosa	0	36.597	EDC
Pycnogonum littorale	0	0.001	PGL
Scalpellum scalpellum	0	0.01	SCA
Lepadidae	0	0.002	GOZ
Solenocera membranacea	0	0.006	SOA
Pasiphaea spp	0	0.003	PAS
Palaemon serratus	0	0.745	CPR
Processidae	0	0.09	PCY
Processa canaliculata	0	0.039	PCC
Pandalus montagui	0	0.208	PRM
Dichelopandalus bonnieri	0	0.017	PDB
Crangon crangon	0	0.019	CSH
Crangon allmanni	0	0.515	CGA
Pontophilus spinosus	0	0.096	PPS
Homarus gammarus	11.24	11.24	LBE
Nephrops norvegicus	11.364	11.364	NEP
Palinurus elephas	2.934	2.934	SLO
Eupagurus / pagurus in suberites	0	0.021	HIS
Eupagurus / pagurus in buccinum	0	1.325	HIW

Eupagurus / pagurus in adamsia	0	31.668	HIA
Pagurus bernhardus	0	0.002	PEB
Anapagurus laevis	0	0.003	APL
Lithodes maja	0.17	0.17	LDM
Munida rugosa	0	2.772	MNR
Galathea spp	0	0.42	GLX
Galathea strigosa	0	0.028	GLT
Pisidia longgicornis	0	0.105	PIS
Upogebia deltaura	0	0.012	UPD
Dromia personata	0	0.964	DRP
Ebalia tuberosa	0	0.009	EBT
Hyas coarctatus	0	0.682	HYC
Hyas araneus	0	0.001	HYA
Eurynome aspersa	0	0.038	EUA
Eurynome spinosa	0	0.001	EUS
Inachus dorsettensis	0	3.087	IND
Inachus phalangium	0	0.392	INP
Inachus leptochirus	0	1.958	INL
Macropodia rostrata	0	0.36	MCR
Macropodia tenuirostris	0	0.738	MCT
Macropodia linaresi	0	0.02	MCL
Pisa armata	0	0.697	PAA
Corystes cassivelaunus	0	0.024	CCV
Atelycyclus rotundatus	0	1.465	ALR
Cancer pagurus	86.16	86.16	CRE
Liocarcinus depurator	0	21.896	LMD
Polybius (Liocarcinus) holsatus	0	6.53	LMH
Liocarcinus pusillus	0	0.02	LPU
Macropipus tuberculatus	0	0.719	MPT
Necora puber	12.843	12.843	MLP
Liocarcinus marmoreus	0	0.293	LMM
Pilumnus hirtellus	0	0.11	PNH
Xantho pilipes	0	0.002	XAP
Xantho incisus	0	0.024	XAI
Goneplax rhomboides	0	91.689	GOR
Rissoides (Meiosquilla) desmaresti	0	0.007	MED
Sipunculidae	0	0.128	SIY
Bryozoa	0	0.004	EPZ
Alcyonidium diaphanum	0	14.371	ALG
Flustra foliacea	0	27.486	FAF
Cellariidae	0	1.165	CEL
Pentapora foliacea	0	10.253	PET
Luidia sarsi	0	23.399	LUS

Luidia ciliaris	0	32.914	LDC
Astropecten irregularis	0	11.404	API
Crossaster papposus	0	35.103	CTP
Anseropoda placenta	0	10.173	PLM
Poraniomorpha hispida	0	0.005	PMH
Porania pulvillus	0	6.132	PPV
Henricia spp	0	0.005	HEX
Henricia oculata	0	1.26	HEO
Asterias rubens	0	131.533	STH
Marthasterias glacialis	0	202.394	MAG
Stichastrella rosea	0	3.033	SLR
Ophiura albida	0	0.066	OHA
Ophiura ophiura	0	2.3	OHT
Ophiocomina nigra	0	2.171	OPN
Ophiothrix fragilis	0	319.559	OPF
Echinus acutus	0	2.39	URA
Echinus esculentus	0	245.432	URS
Psammechinus miliaris	0	1.583	PMM
Brissopsis lyrifera	0	0.02	BRL
Spatangus purpureus	0	1.717	SPG
Echinocardium spp	0	3.105	ECV
Echinocardium cordatum	0	1.099	ECC
Holothuroidea	0	3.996	HTZ
Holothuria forskali	0	0.058	COT
Antedon bifida	0	0.015	ADB
Ascidiacea	0	61.882	SSX
Polyclinidae	0	26.384	PCZ
Diazona violacea	0	69.498	DIV
Ascidia mentula	0	0.243	ASM
Ascidia virginea	0	0.029	ASV
Ascidiella scabra	0	0.005	ASS
Styela clava	0	2.06	SAA
Molgulidae	0	2.214	MGX
Branchiostoma (Amphioxus) lanceolatum	0	0.008	LCT
Dogfish egg cases	0	0.548	DEG
Scyliorhinus canicula	481.027	481.027	LSD
Scyliorhinus stellaris	17.815	17.815	DGN
Mustelus asterias	126.095	126.095	SDS
Squalus acanthias	2.96	2.96	DGS
Torpedo marmorata	9.327	9.327	MER
Raja brachyura	33.601	33.601	BLR
Raja microocellata	8.244	8.244	PTR

Raja montagui	43.896	43.896	SDR
Dipturus (Raja) batis	1.677	1.677	SKT
Leucoraja naevus	47.128	47.128	CUR
Raja undulata	27.159	27.159	UNR
Raja clavata	28.618	28.618	THR
Conger conger	119.34	119.34	COE
Clupea harengus	1.395	1.395	HER
Sprattus sprattus	0.533	0.533	SPR
Sardina pilchardus	0.866	0.866	PIL
Engraulis encrasicolus	0.04	0.04	ANE
Coregonus lavaretus	0	0.281	PLN
Argentinidae	1.931	1.931	ARG
Diplecogaster bimaculata	0.001	0.001	TSC
Lophius piscatorius	249.002	249.002	MON
Lophius budegassa	17.223	17.223	WAF
Gadus morhua	134.521	134.521	COD
Pollachius pollachius	71.145	71.145	POL
Melanogrammus aeglefinus	155.948	169.468	HAD
Enchelyopus cimbrius	0.133	0.133	FRR
Phycis blennoides	0.095	0.095	GFB
Trisopterus minutus	446.403	671.144	POD
Trisopterus luscus	307.072	307.072	BIB
Trisopterus esmarki	36.956	36.956	NOP
Merlangius merlangus	316.329	319.219	WHG
Molva molva	54.039	54.039	LIN
Gaidropsarus vulgaris	14.224	14.224	TBR
Micromesistius poutassou	1.926	1.926	WHB
Raniceps raninus	0.362	0.362	LFB
Ciliata mustela	0.024	0.024	FVR
Ciliata septentrionalis	0.102	0.102	NNR
Merluccius merluccius	24.726	24.726	HKE
Zeus faber	1.492	1.492	JOD
Capros aper	17.372	22.397	BOF
Syngnthidae	0	20.043	PFX
Syngnathus acus	0.095	0.095	GPF
Hippocampus hippocampus	0.008	0.008	SNH
Trigla (Chelidonichthys) lucerna	13.741	13.741	TUB
Eutrigla (Chelidonicthys) gurnardus	7.629	7.629	GUG
Trigloporus (chelidonichthys) lastoviza	16.679	16.679	GUS
Aspitrigla (Chelidonichthys) cuculus	44.765	44.765	GUR
Taurulus bubalis	0.141	0.141	SSN
Micrenophrys (Taurulus) lilljeborgi	0.021	0.021	NVB
Agonus cataphractus	1.296	1.296	POG

Liparis liparis	0.05	0.05	SSL
Trachurus trachurus	47.345	85.835	HOM
Spondyliosoma cantharus	13.494	13.494	BKS
Mullus surmuletus	7.601	7.601	MUR
Cepola rubescens (C. macrophthalma)	0.362	0.362	RPF
Dicentrarchus labrax	1.307	1.307	ESB
Centrolabrus exoletus	0.045	0.045	SMW
Ctenolabrus rupestris	1.263	1.263	GDY
Labrus bergylta	11.39	11.39	BNW
Labrus mixtus (L. bimaculatus)	7.409	7.409	CUW
Echiichthys (Trachinus) vipera	33.338	33.338	WEL
Trachinus draco	0.23	0.23	WEG
Blennius ocellaris	0.251	0.251	BBY
Parablennius gattorugine	0.311	0.311	TBY
Chirolophis ascanii	0.018	0.018	YBY
Pholis gunnellus	0.003	0.003	BTF
Ammodytidae	0.004	0.004	SAX
Ammodytes tobianus	0.103	0.103	TSE
Gymnammodytes semisquamatus	0.013	0.013	SMS
Hyperoplus lanceolatus	0.212	0.212	GSE
Callionymus lyra	121.749	121.749	CDT
Callionymus maculatus	1.313	1.313	SDT
Callionymus reticulatus	0.089	0.089	RDT
Pomatoschistus spp	0.017	0.017	POM
Gobius gasteveni	8.141	8.141	GSV
Crystallogobius linearis	0	0.097	CLG
Lesueurigobius friesii	0.137	0.137	FSG
Scomber scombrus	0.75	0.75	MAC
Scophthalmus maximus (Psetta maxima)	22.475	22.475	TUR
Scophthalmus rhombus	18.104	18.104	BLL
Arnoglossus laterna	6.98	6.98	SDF
Arnoglossus imperialis	9.406	9.406	ISF
Zeugopterus punctatus	86.565	86.565	TKT
Zeugopterus (Phrynorhombus) norvegius	1.637	1.637	NKT
Zeugopterus (Phrynorhombus) regius	0.254	0.254	EKT
Lepidorhombus whiffiagonis	52.102	52.102	MEG
Glyptocephalus cynoglossus	25.274	25.274	WIT
Hippoglossoides platessoides	8.796	8.796	PLA
Limanda limanda	19.814	22.459	DAB
Microstomus kitt	126.631	126.631	LEM
Platichthys flesus	17.163	17.163	FLE

Pleuronectes platessa	421.785	421.785	PLE
Solea solea	198.333	198.333	SOL
Buglossidium luteum	4.126	4.126	SOT
Microchirus variegatus	41.683	41.683	TBS
Pegusa (solea) lascaris	8.094	8.094	SOS
Bathynectes longipes	0	0.023	BAL
Rhizostoma octopus	0	1.536	BAR
Cirolana spp	0	0.002	CIR
Glossus humanus	0	0.456	GLO
Gibbula spp (Monodonta spp)	0	0.002	GTX
Pachymatisma johnstonia	0	65.367	PMJ
Squid eggs	0	0.497	SQS
Stelligera stuposa	0	19.533	STE
Xanthid crab	0	0.021	XAN
Parazoanthus spp	0	0.007	ZOA
NANA	0	0.009	APN
Symphodus (Crenilabrus) balloni	0.891	0.891	BLW
Chlorophyceae	0	0.009	CHZ
Chaetopterus tubes	0	205.632	CVT
Monodaeus couchi	0	0.01	EPM
NANA	0	0.007	LUA
Euspira (Polinices) eggs	0	0.034	NAE

Table 3: Biological samples by area

	Celtic Sea	Western Channel
Aspitrigla (Chelidonichthys) cuculus F	47	86
Aspitrigla (Chelidonichthys) cuculus M	19	77
Aspitrigla (Chelidonichthys) cuculus U	0	1
Conger conger U	5	21
Dicentrarchus labrax F	0	1
Dicentrarchus labrax M	0	1
Dipturus (Raja) batis F	2	4
Dipturus (Raja) batis M	2	1
Eutrigla (Chelidonicthys) gurnardus F	11	39
Eutrigla (Chelidonicthys) gurnardus M	12	24
Gadus morhua F	38	13
Gadus morhua M	30	10
Glyptocephalus cynoglossus F	68	2
Glyptocephalus cynoglossus M	54	0
Glyptocephalus cynoglossus U	1	0
Lepidorhombus whiffiagonis F	83	72

Lepidorhombus whiffiagonis M	57	13
Leucoraja naevus F	6	55
Leucoraja naevus M	5	55
Lophius budegassa F	1	9
Lophius budegassa M	1	6
Lophius budegassa U	1	0
Lophius piscatorius F	50	66
Lophius piscatorius M	28	57
Lophius piscatorius U	12	4
Melanogrammus aeglefinus F	132	46
Melanogrammus aeglefinus M	139	47
Merlangius merlangus F	261	159
Merlangius merlangus M	221	170
Merlangius merlangus U	1	1
Merluccius merluccius F	31	10
Merluccius merluccius M	44	14
Merluccius merluccius U	4	0
Microstomus kitt F	77	122
Microstomus kitt M	86	152
Molva molva F	1	1
Molva molva M	0	1
Molva molva U	1	2
Mullus surmuletus F	0	17
Mullus surmuletus M	0	21
Mullus surmuletus U	0	2
Mustelus asterias F	10	33
Mustelus asterias M	12	33
Pleuronectes platessa F	214	318
Pleuronectes platessa M	167	244
Raja brachyura F	4	6
Raja brachyura M	7	7
Raja clavata F	9	4
Raja clavata M	8	8
Raja microocellata F	1	0
Raja microocellata M	3	1
Raja montagui F	22	13
Raja montagui M	33	15
Raja undulata F	0	7
Raja undulata M	0	3
Scophthalmus maximus (Psetta maxima) F	0	4
Scophthalmus maximus (Psetta maxima) M	4	1
Scophthalmus rhombus F	4	5
Scophthalmus rhombus M	2	4

Scyliorhinus stellaris F	1	0
Scyliorhinus stellaris M	2	0
Solea solea F	86	157
Solea solea M	121	128
Trigla (Chelidonichthys) lucerna F	8	22
Trigla (Chelidonichthys) lucerna M	2	15
Trigloporus (Chelidonichthys) lastoviza F	2	38
Trigloporus (Chelidonichthys) lastoviza M	1	31
Zeus faber F	1	2
Zeus faber M	1	8

	Otolith	length-weight
Aspitrigla (Chelidonichthys) cuculus F	133	0
Aspitrigla (Chelidonichthys) cuculus M	96	0
Aspitrigla (Chelidonichthys) cuculus U	1	0
Conger conger U	24	2
Dicentrarchus labrax F	1	0
Dicentrarchus labrax M	1	0
Dipturus (Raja) batis F	6	0
Dipturus (Raja) batis M	3	0
Eutrigla (Chelidonicthys) gurnardus F	50	0
Eutrigla (Chelidonicthys) gurnardus M	36	0
Gadus morhua F	51	0
Gadus morhua M	40	0
Glyptocephalus cynoglossus F	70	0
Glyptocephalus cynoglossus M	54	0
Glyptocephalus cynoglossus U	1	0
Lepidorhombus whiffiagonis F	155	0
Lepidorhombus whiffiagonis M	70	0
Leucoraja naevus F	49	12
Leucoraja naevus M	57	3
Lophius budegassa F	10	0
Lophius budegassa M	7	0
Lophius budegassa U	1	0
Lophius piscatorius F	115	1
Lophius piscatorius M	85	0
Lophius piscatorius U	16	0
Melanogrammus aeglefinus F	178	0
Melanogrammus aeglefinus M	186	0
Merlangius merlangus F	420	0
Merlangius merlangus M	391	0
Merlangius merlangus U	2	0
Merluccius merluccius F	41	0

Merluccius merluccius M	58	0
Merluccius merluccius U	4	0
Microstomus kitt F	199	0
Microstomus kitt M	238	0
Molva molva F	2	0
Molva molva M	1	0
Molva molva U	3	0
Mullus surmuletus F	17	0
Mullus surmuletus M	21	0
Mullus surmuletus U	2	0
Mustelus asterias F	43	0
Mustelus asterias M	44	1
Pleuronectes platessa F	530	2
Pleuronectes platessa M	411	0
Raja brachyura F	10	0
Raja brachyura M	14	0
Raja clavata F	13	0
Raja clavata M	16	0
Raja microocellata F	1	0
Raja microocellata M	4	0
Raja montagui F	35	0
Raja montagui M	47	1
Raja undulata F	7	0
Raja undulata M	3	0
Scophthalmus maximus (Psetta maxima) F	4	0
Scophthalmus maximus (Psetta maxima) M	5	0
Scophthalmus rhombus F	9	0
Scophthalmus rhombus M	6	0
Scyliorhinus stellaris F	1	0
Scyliorhinus stellaris M	2	0
Solea solea F	243	0
Solea solea M	249	0
Trigla (Chelidonichthys) lucerna F	30	0
Trigla (Chelidonichthys) lucerna M	17	0
Trigloporus (Chelidonichthys) lastoviza F	40	0
Trigloporus (Chelidonichthys) lastoviza M	32	0
Zeus faber F	3	0
Zeus faber M	9	0

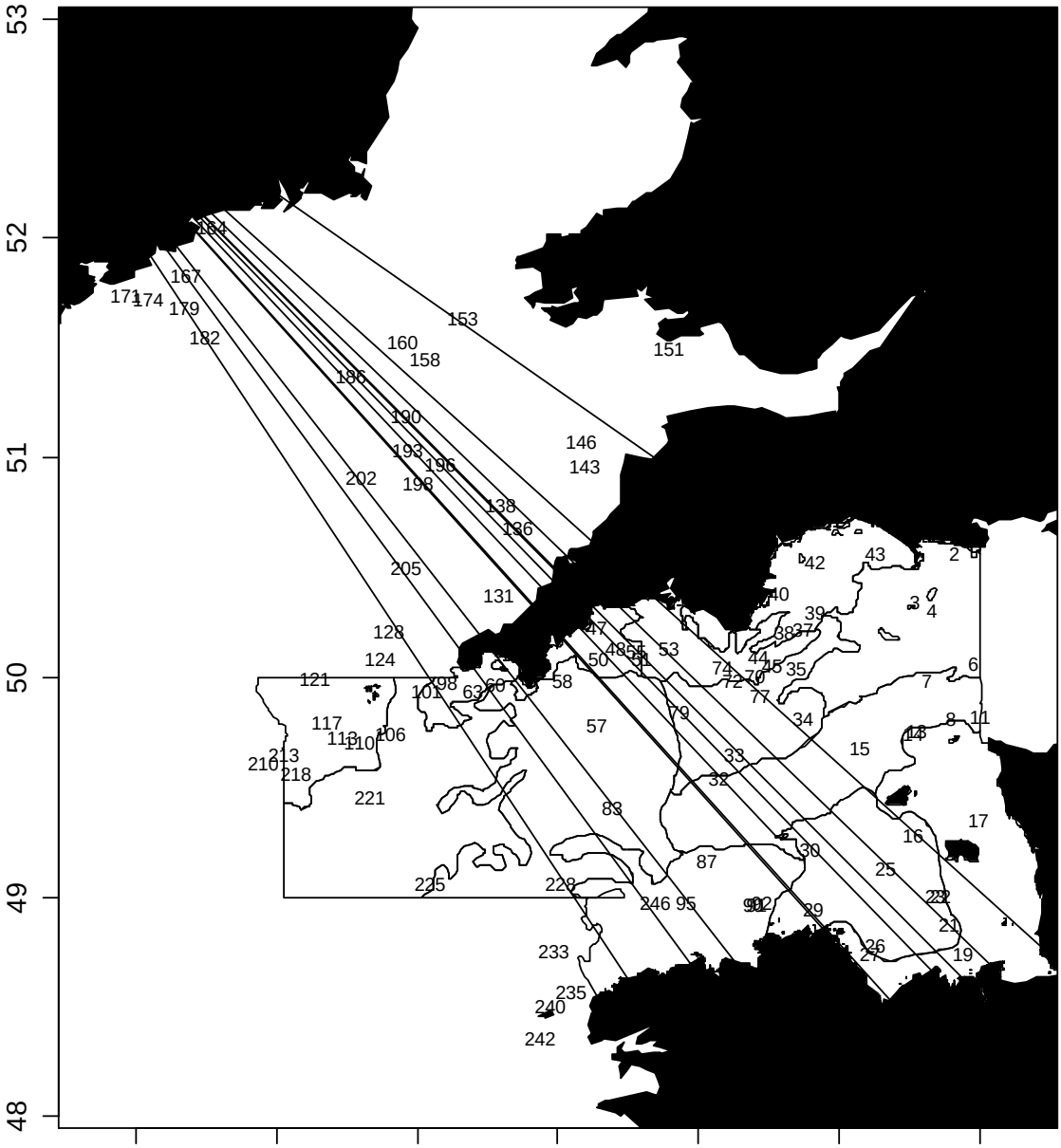

Figure 1: Chart of station numbers for CEND 4/14 including profiler stations:

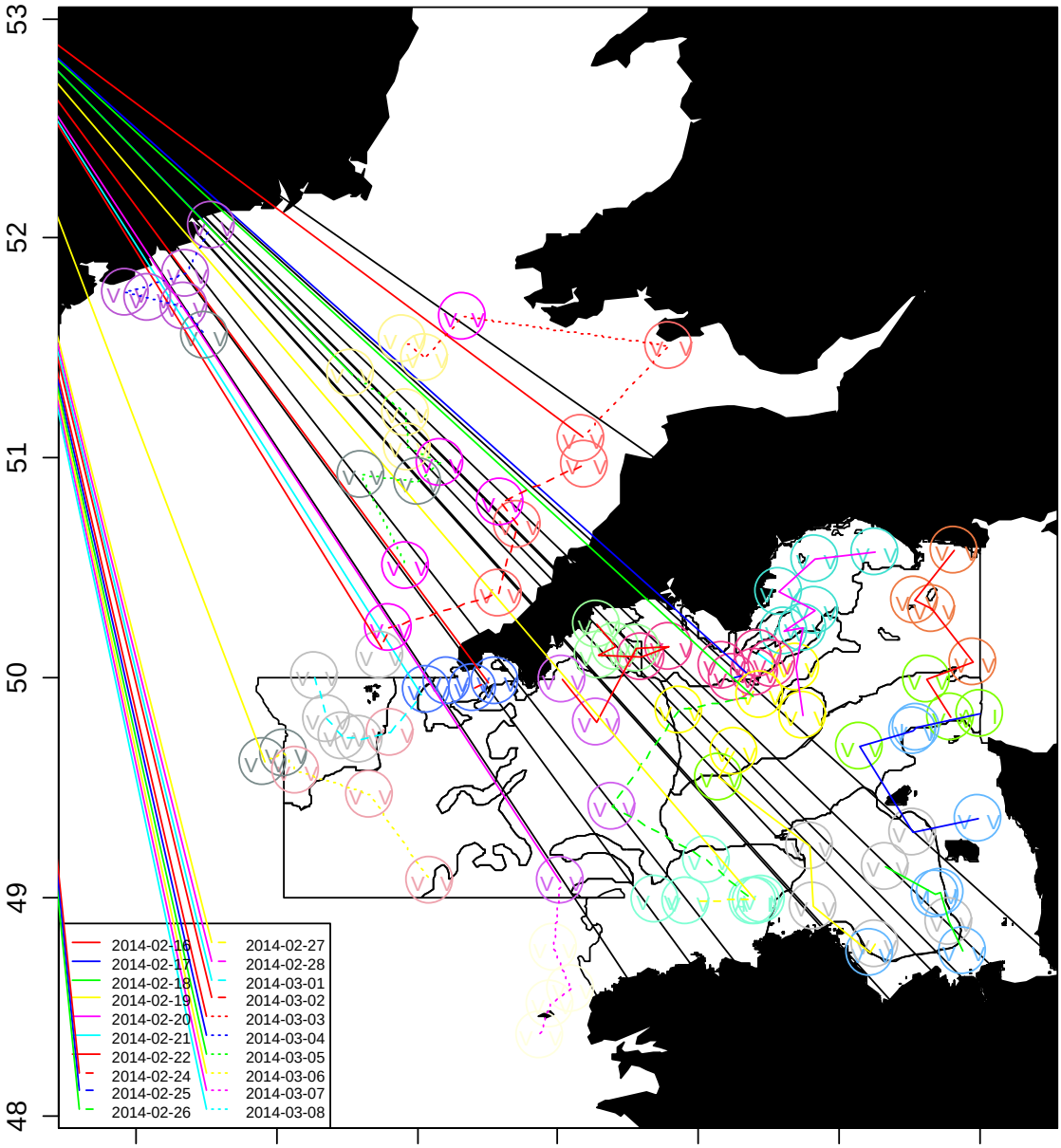

Figure 2: Survey Track showing beam trawl stations and validity codes by day

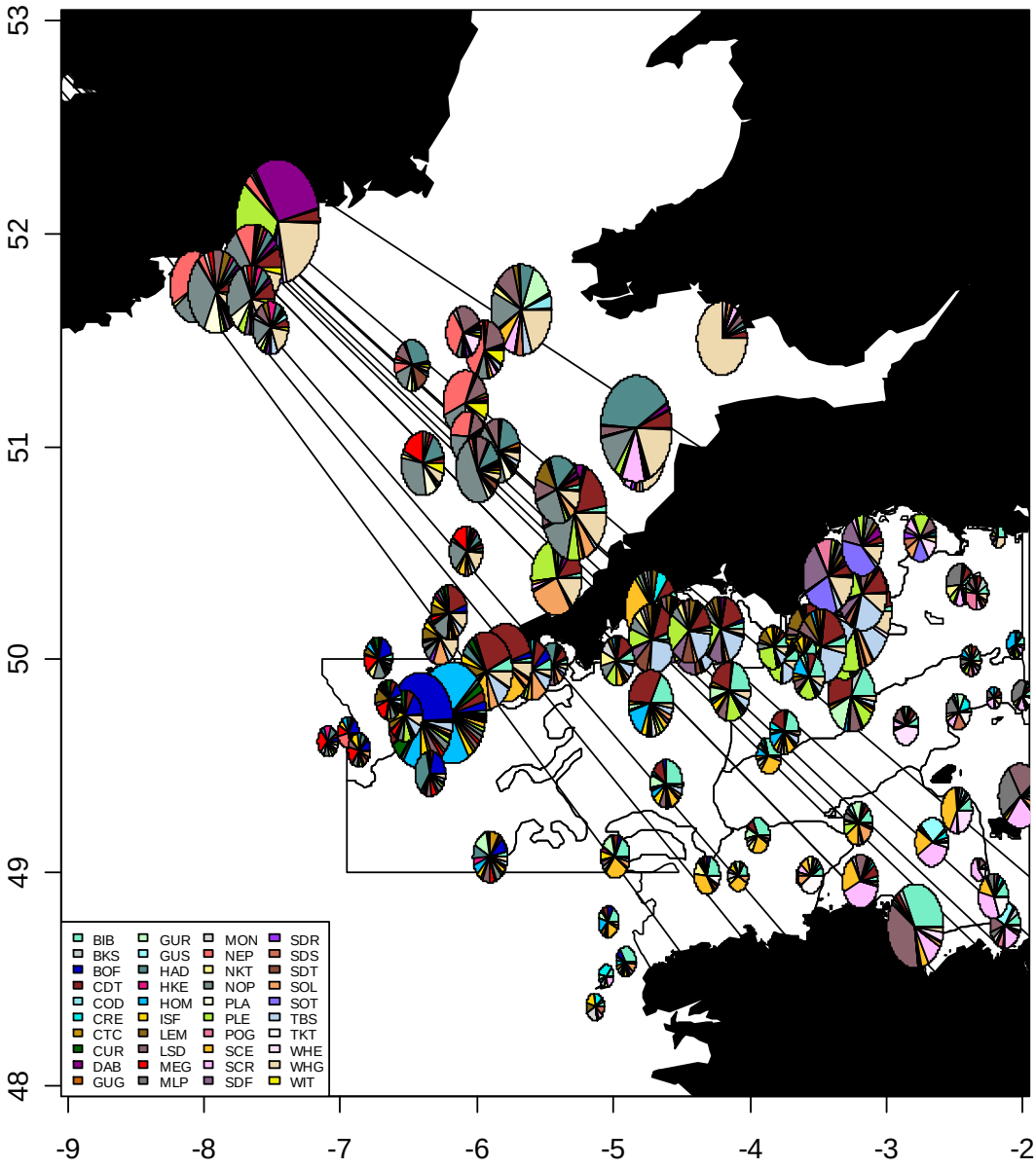

Figure 3: Species composition pie plots for Cend 4/14. Size of circles represents the size of the overall catch in numbers of the 40 most abundant species at a station with the size of the slice representing the relative proportion of each species encountered.

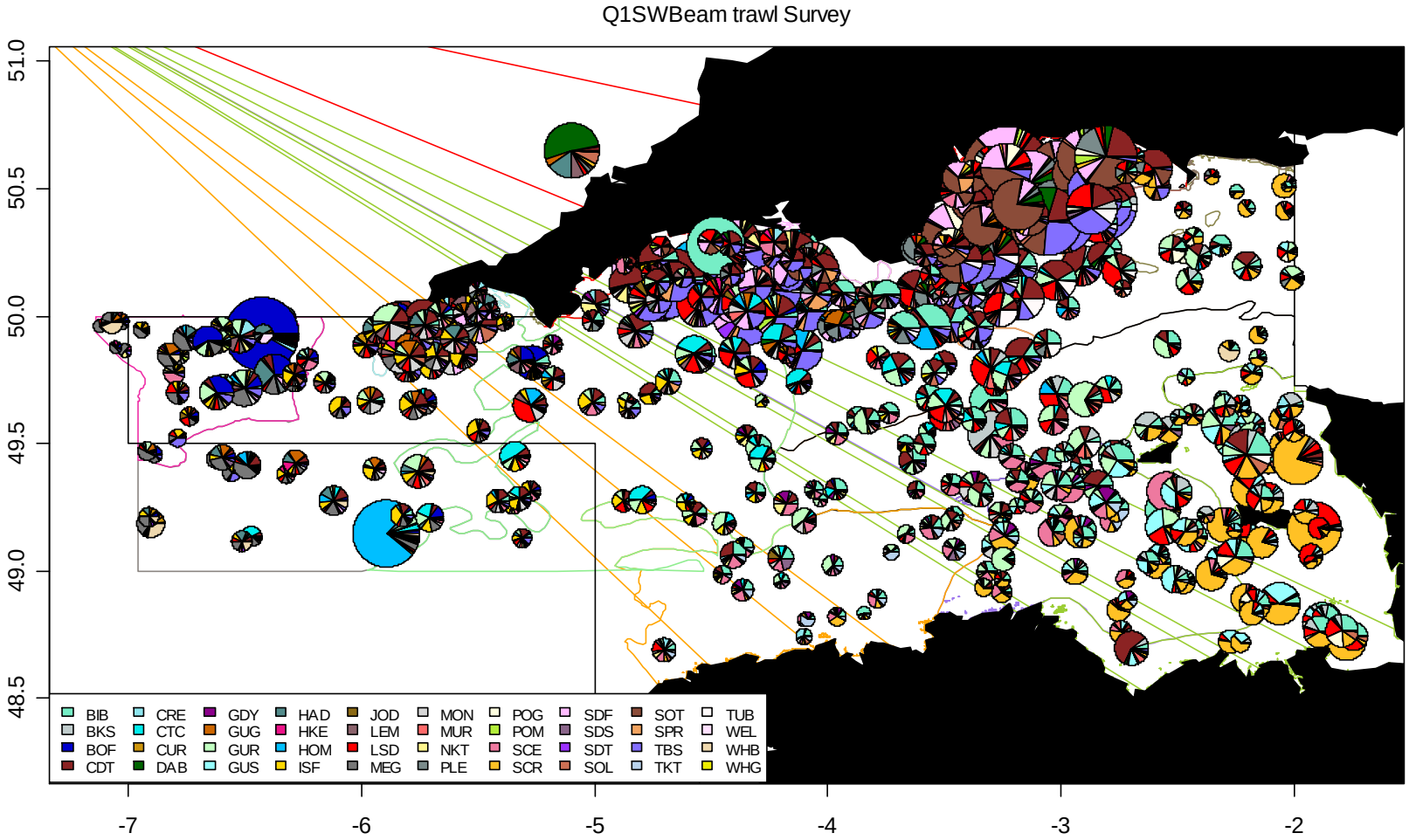

Figure 4: Species composition pie plots for the entire timeseries of the Q1SWBeam survey. Size of circles represents the size of the overall catch in numbers of the 40 most abundant species at a station with the size of the slice representing the relative proportion of each species encountered illustrating the general appropriateness of the stratum design although small improvements should be considered.

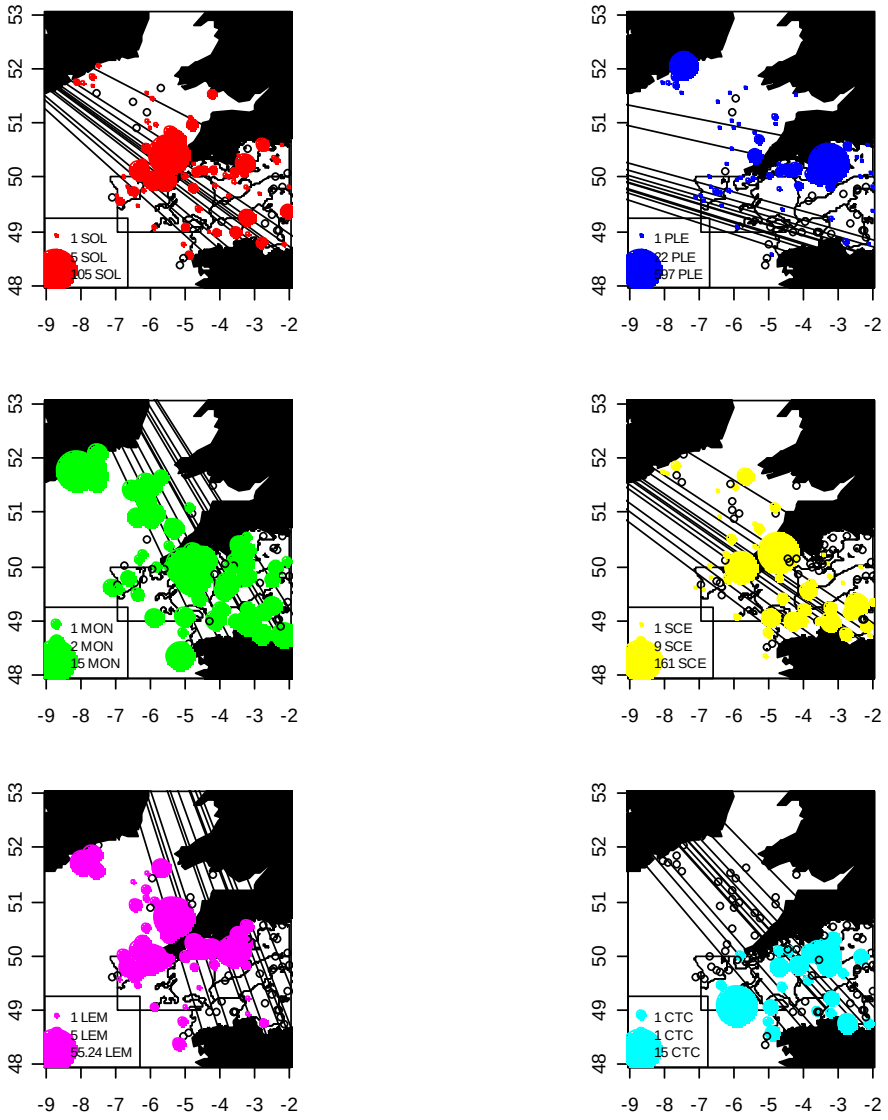

Figure 5: Distribution of major commercial species by station.

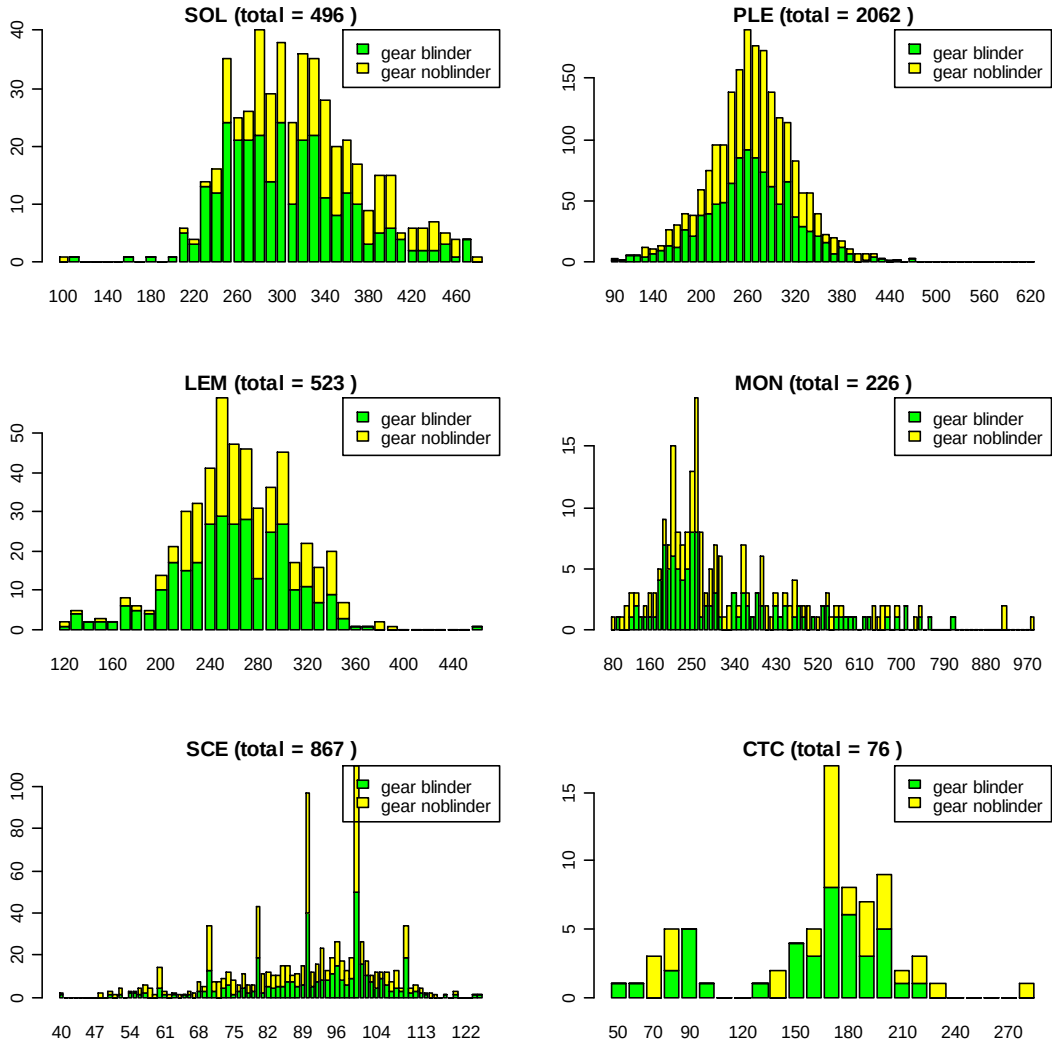

Figure 6: Length distributions for the major commercial species with total catch numbers by the two different gear types.

Appendix 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
CEND 4/14	1	16/02/2014 08:35	10	50.57782	-2.1764	50.57782	-2.1764	0	8.2	8.2	30	30	76	280	0.5	1	2	6	1018	210	Profiler
CEND 4/14	2	16/02/2014 09:10	10	50.57702	-2.17897	50.58233	-2.23095	2	9.6	11.6	30	28	73	260	0.5	1	1.2	12	1018	180	Beams
CEND 4/14	3	16/02/2014 11:54	10	50.35195	-2.45985	50.34718	-2.40657	2.1	30	32.1	55	56	129	180	0.5	2	0.3	9	1020	230	Beams
CEND 4/14	4	16/02/2014 13:18	10	50.31322	-2.33923	50.30342	-2.28942	2	36.6	38.6	56	56	263	200	1	1	1.9	10	1019	210	Beams
CEND 4/14	5	16/02/2014 16:08	10	50.07525	-2.13445	50.07525	-2.13445	0	55.1	55.1	62	62	268	280	0.5	1	2.5	13	1019	250	Profiler
CEND 4/14	6	16/02/2014 16:50	10	50.07332	-2.05308	50.07408	-2.00068	2	59.2	61.2	62	61	268	280	0.5	1	2.5	13	1019	250	Beams
CEND 4/14	7	16/02/2014 19:23	13	49.99432	-2.38115	49.96302	-2.3994	2	77.9	79.9	72	67	70	200	1	1.5	2.1	11	1019	210	Beams
CEND 4/14	8	16/02/2014 21:37	13	49.82075	-2.21255	49.83153	-2.16353	2.1	93.8	95.9	89	80	324	180	0.5	0.5	1.3	20	1018	210	Beams
CEND 4/14	9	16/02/2014 23:10	13	49.81827	-2.23467	49.81827	-2.23467	0	102.8	102.8	86	86	288				1.2				Profiler
CEND 4/14	10	16/02/2014 23:27	13	49.82142	-2.22848	49.82142	-2.22848	0	103.5	103.5	83	83									Profiler
CEND 4/14	11	17/02/2014 04:29	13	49.83233	-2.00595	49.84368	-1.9576	2	113	115	73	80	249	190	1	1	2.2	23	1017	200	Beams
CEND 4/14	12	17/02/2014 09:02	3	49.7522	-2.46892	49.7522	-2.46892	0	142.4	142.4	82	82	45	190	2	2.5	3.9	30	1016	200	Profiler
CEND 4/14	13	17/02/2014 09:35	3	49.77225	-2.45927	49.7446	-2.4868	2	144.6	146.6	85	80	45	190	2	2.5	3.9	30	1016	200	Beams
CEND 4/14	14	17/02/2014 12:11	3	49.75492	-2.4731	49.74197	-2.48913	1	155.6	156.6	77	75	32	180	0.5	2.5	0.3	31	1016	160	Beams
CEND 4/14	15	17/02/2014 14:21	13	49.68812	-2.85735	49.7091	-2.81782	2	173.8	175.8	97	97	234	150	2	2.5	2.6	36	1015	130	Beams
CEND 4/14	16	17/02/2014 18:40	2	49.29293	-2.48322	49.26852	-2.51808	2	212.2	214.2	63	63	69	180	1.5	2	1.8	20	1017	170	Beams
CEND 4/14	17	17/02/2014 21:25	3	49.35953	-2.01903	49.33108	-2.03883	2.1	237.2	239.3	36	32	333	160	1.5	1.5	1.6	22	1019	170	Beams
CEND 4/14	18	18/02/2014 04:14	3	48.75013	-1.82015	48.75013	-1.82015	0	301.3	301.3	22	22	78	160	1	0.5	2	16	1020	160	Profiler
CEND 4/14	19	18/02/2014 07:30	3	48.75283	-2.12872	48.76258	-2.08092	2	323.1	325.1	38	39	93	180	0.5	1	1	12	1019	180	Beams
CEND 4/14	20	18/02/2014 09:27	2	48.88843	-2.20282	48.88843	-2.20282	0	337.5	337.5	41	41	308	180	0.5	1	0.7	10	1020	180	Profiler
CEND 4/14	21	18/02/2014 10:06	2	48.88785	-2.21647	48.89773	-2.26463	2	339.9	341.9	40	43	306	180	0.5	0.5	2	15	1020	180	Beams
CEND 4/14	22	18/02/2014 12:44	3	49.01952	-2.28427	49.0232	-2.23465	2	357.6	359.6	38	31	285	160	0.5	0.5	2.3	12	1020	300	Beams
CEND 4/14	23	18/02/2014 17:25	3	49.01495	-2.32378	49.01423	-2.29855	1	378	379	42	39	125	210	0.5	1	3.1	6	1021	320	Beams
CEND 4/14	24	18/02/2014 20:13	0	49.14843	-2.66148	49.14843	-2.66148				64	64									Profiler
CEND 4/14	25	18/02/2014 20:39	2	49.14227	-2.66775	49.15238	-2.70347	1.5	400.7	402.2	63	65	42	190	0.5	0.5	0.6	7	1021	220	Beams
CEND 4/14	26	19/02/2014 04:36	2	48.78835	-2.74838	48.8196	-2.73912	1.9	431.8	433.7	34	40	126	240	0.5	0.5	1.4	12	1024	240	Beams
CEND 4/14	27	19/02/2014 06:20	3	48.74823	-2.78653	48.76922	-2.82703	2	441.8	443.8	35	38	129	260	0.5	0.5	2.1	12	1024	240	Beams
CEND 4/14	28	19/02/2014 09:31	2	48.95718	-3.19433	48.95718	-3.19433	0	469.2	469.2	71	71	28	270	0.5	0.5	0.2	10	1025	280	Profiler
CEND 4/14	29	19/02/2014 10:03	2	48.9579	-3.19013	48.95765	-3.24068	2	471.7	473.7	70	71	280	260	0.5	1.5	1.4	10	1026	285	Beams
CEND 4/14	30	19/02/2014 13:32	2	49.2298	-3.20778	49.23623	-3.15818	2	496.1	498.1	69	68	274	270	1	1	2.5	10	1026	270	Beams
CEND 4/14	31	19/02/2014 17:48	13	49.55065	-3.83783	49.55065	-3.83783	0	535	535	84	84	67	230	2	2	0.4	2	1023	260	Profiler
CEND 4/14	32	19/02/2014 18:21	13	49.54797	-3.85938	49.5453	-3.91002	2	536.7	538.7	84	86	73	230	2	2.5	0.9	18	1022	260	Beams
CEND 4/14	33	19/02/2014 20:20	11	49.65948	-3.74642	49.65878	-3.79788	2	551	553	82	82	80	230	2	2.5	1	24	1022	260	Beams
CEND 4/14	34	20/02/2014 04:53	11	49.82523	-3.25443	49.82883	-3.20318	2	589.7	591.7	71	72	216	230	2.5	2.5	1	26	1015	260	Beams
CEND 4/14	35	20/02/2014 07:21	11	50.04623	-3.30505	50.04283	-3.35622	2	608.9	610.9	70	71	176	230	2.5	2.5	0.1	26	1012	240	Beams
CEND 4/14	36	20/02/2014 09:37	9	50.23558	-3.25855	50.23558	-3.25855	0	624.5	624.5	64	64	54	260	2.5	3	1.1	27	1011	260	Profiler
CEND 4/14	37	20/02/2014 10:06	9	50.2294	-3.26275	50.21102	-3.30612	2	625.8	627.8	64	64	56	262	2.5	2.5	1.1	23	1012	260	Beams
CEND 4/14	38	20/02/2014 11:41	9	50.21243	-3.39688	50.19427	-3.44148	2.1	632.6	634.7	63	63	58	250	2.5	2.5	0.8	16	1012	230	Beams
CEND 4/14	39	20/02/2014 13:50	9	50.30617	-3.17562	50.32373	-3.1323	2	649.3	651.3	58	58	198	250	1.5	2	0.1	22	1012	210	Beams
CEND 4/14	40	20/02/2014 15:57	9	50.39082	-3.42795	50.42283	-3.41625	2	666	668	42	36	259	270	1.5	2	0.2	20	1011	260	Beams
CEND 4/14	41	20/02/2014 17:59	9	50.53267	-3.1915	50.53267	-3.1915	0	679.5	679.5	33	33	253	240	1	1.5	0.3	12	1011	260	Profiler
CEND 4/14	42	20/02/2014 18:31	9	50.53627	-3.17713	50.54278	-3.11407	1.8	680.9	682.7	33	35	270	240	1	1.5	0.2	12	1011	260	Beams
CEND 4/14	43	20/02/2014 20:53	9	50.57357	-2.75035	50.55677	-2.77035	1.3	699.3	700.6	36	36	87	230	1	1	0.7	14	1012	260	Beams
CEND 4/14	44	21/02/2014 05:09	8	50.1079	-3.57312	50.0851	-3.6108	2	746.5	748.5	67	70	237	270	2	3	1.5	32	1015	270	Beams
CEND 4/14	45	21/02/2014 07:30	8	50.06215	-3.47685	50.04425	-3.51827	2	759	761	71	71	57	270	1.5	2.5	0.3	25	1016	270	Beams
CEND 4/14	46	21/02/2014 09:05	11	49.95708	-3.53967	49.95708	-3.53967	0	766.9	766.9	75	75	53	260	1.5	3	0.8	32	1016	240	Profiler
CEND 4/14	47	22/02/2014 04:07	7	50.2394	-4.72153	50.22247	-4.76633	2	846.8	848.8	47	49	232	260	1	1.5	0.2	16	1018	250	Beams
CEND 4/14	48	22/02/2014 05:48	7	50.14217	-4.59557	50.1228	-4.55308	2	857.8	859.8	68	71	261	260	1.5	2.5	0	18	1019	230	Beams
CEND 4/14	49	22/02/2014 06:44	7	50.11275	-4.5369	50.11275	-4.5369	0	860.9	860.9	72	72	323	260	1.5	2.5	0	18	1019	230	Profiler
CEND 4/14	50	22/02/2014 08:34	7	50.09762	-4.71308	50.06993	-4.68415	2	878.7	880.7	74	77	38	230	1.5	2	0.3	15	1019	230	Beams
CEND 4/14	51	22/02/2014 11:03	8	50.09387	-4.40578	50.10233	-4.35585	2	893.9	895.9	75	75	73	230	1.5	2	0.1	15	1020	240	Beams
CEND 4/14	52	22/02/2014 12:47	8	50.14315	-4.22472	50.14315	-4.22472	0	901.7	901.7	68	68	144	240	1.5	2	0.2	15	1022	240	Profiler
CEND 4/14	53	22/02/2014 13:02	8	50.14055	-4.20743	50.12875	-4.15888	2	902.4	904.4	68	68	192	230	1.5	2	0	17	1022	230	Beams
CEND 4/14	55	22/02/2014 15:06	7	50.13197	-4.44092	50.13625	-4.49177	2	917.9	919.9	70	70	254	240	2	2	0.3	26	1022	230	Beams
CEND 4/14	56	22/02/2014 17:59	5	49.79278	-4.71113	49.79278	-4.71113	0	943	943	83	83	266	230	2	2.5	0.2	26	1021	230	Profiler
CEND 4/14	57	22/02/2014 18:21	5	49.7951	-4.72697	49.79617	-4.77787	2	943.9	945.9	84	84	266	230	2	2.5	0	26	1021	230	Beams
CEND 4/14	58	22/02/2014 20:37	5	49.99447	-4.97342	49.98208	-5.02138	2	961.4	963.4	77	78	23	230	2	2.5	0.7	24	1021	230	Beams
CEND 4/14	59	24/02/2014 12:40	6	49.99337	-5.41538	49.99337	-5.41538	0	33.1	33.1	54	54	98	200	1.5	2	0.3	19.4	1014	220	Profiler
CEND 4/14	60	24/02/2014 13:14	6	49.98007	-5.4454	49.96242	-5.48885	1.9	34.8	36.7	57	64	100	200	1.5	2	0.3	22	1007	210	Beams
CEND 4/14	61	24/02/2014 14:41	6	49.97218	-5.46728	49.97218	-5.46728	0	40.4	40.4	60	60	111	235	1.5	2	0.2	25.7	1012	200	Grab

CEND 4/14	62	24/02/2014 15:38	6	49.96013	-5.59587	49.96013	-5.59587	0	45.8	45.8	70	70	110	200	1.5	2	0.2	31.2	1010	220	Profiler
CEND 4/14	63	24/02/2014 15:55	6	49.95027	-5.60095	49.92203	-5.62765	1.9	46.4	48.3	70	75	114	210	1.5	2	0.2	35	1009	220	Beams
CEND 4/14	64	24/02/2014 17:38	6	49.92548	-5.62233	49.92548	-5.62233	0	51.7	51.7	72	72	254	200	1.5	2	0.1	35	1009	220	Grab
CEND 4/14	65	25/02/2014 13:53	8	50.10238	-3.5833	50.10238	-3.5833	0	179.8	179.8	68	68	62	245	2	2.5	0.7	19	1010	220	Grab
CEND 4/14	66	25/02/2014 14:20	8	50.10168	-3.58583	50.10168	-3.58583	0	180	180	70	70	60	240	2	2.5	0.8	26	1010	220	Grab
CEND 4/14	67	25/02/2014 15:01	8	50.09308	-3.59588	50.09308	-3.59588	0	180.7	180.7	70	70	59	240	2	2.5	0.9	28	1010	220	Grab
CEND 4/14	68	25/02/2014 15:44	8	50.05935	-3.48548	50.05935	-3.48548	0	185.7	185.7	69	69	48	250	2	2.5	0.8	25	1011	230	Grab
CEND 4/14	69	25/02/2014 16:13	8	50.05002	-3.50367	50.05002	-3.50367	0	186.6	186.6	70	70	50	250	2	2.5	0.8	20	1011	230	Grab
CEND 4/14	70	25/02/2014 17:36	8	50.02075	-3.60315	50.00748	-3.65177	2	190.9	192.9	70	70	122	260	1.5	2.5	0.1	15	1012	240	Beams
CEND 4/14	71	25/02/2014 18:24	8	50.0028	-3.677	50.0028	-3.677	0	194	194	71	71	189	260	1.5	2.5	0.1	15	1012	240	Profiler
CEND 4/14	72	25/02/2014 19:11	8	49.99662	-3.75728	49.99307	-3.80953	2.1	197.5	199.6	71	71	275	270	1	2	0.5	15	1014	240	Beams
CEND 4/14	73	25/02/2014 20:01	8	49.98813	-3.8335	49.98813	-3.8335	0	200.7	200.7	71	71	275	270	1	2	0.5	15	1014	240	Profiler
CEND 4/14	74	25/02/2014 20:45	8	50.0569	-3.83237	50.0591	-3.88432	2	205.7	207.7	70	70	280	275	1.5	2.5	0.8	11	1015	240	Beams
CEND 4/14	75	25/02/2014 22:14	8	50.0658	-3.9101	50.0658	-3.9101	0	209	209	72	72	284	270	1.5	2	0.7	19	1016	240	Profiler
CEND 4/14	76	26/02/2014 00:06	11	49.92473	-3.55577	49.92473	-3.55577	0	225.4	225.4	73	73	233	280	1	1.5	0.5	19	1018	230	Profiler
CEND 4/14	77	26/02/2014 00:46	11	49.92168	-3.5684	49.92258	-3.62008	1.9	226.8	228.7	73	74	0	290	1	1.5	0	18	1018	270	Beams
CEND 4/14	79	26/02/2014 04:32	11	49.8506	-4.14407	49.84152	-4.19368	2	252	254	80	79	165	270	1	2	0.5	19	1020	270	Beams
CEND 4/14	80	26/02/2014 06:12	11	49.84573	-4.17528	49.84573	-4.17528	0	256	256	78	78									Grab
CEND 4/14	81	26/02/2014 06:25	11	49.84712	-4.16633	49.84712	-4.16633	0	256.5	256.5	75	75									Grab
CEND 4/14	82	26/02/2014 10:08	5	49.41797	-4.5945	49.41797	-4.5945	0	287.5	287.5	94	94	267	280	1.5	3	0.4	19	1026	260	Profiler
CEND 4/14	83	26/02/2014 11:17	5	49.41607	-4.61025	49.40512	-4.65853	2	291.4	293.4	95	96	41	270	1.5	3	0.4	15	1027	260	Beams
CEND 4/14	84	26/02/2014 12:47	5	49.4106	-4.63042	49.4106	-4.63042	0	297.8	297.8	97	97	58	270	1.5	3	0.8	16	1027	260	Grab
CEND 4/14	85	26/02/2014 13:07	5	49.41218	-4.63358	49.41218	-4.63358	0	298	298	93	93	59	270	1.5	3	1	16	1027	260	Grab
CEND 4/14	86	26/02/2014 16:05	4	49.17797	-3.95535	49.17797	-3.95535	0	328.5	328.5	92	92	72	260	1	2.5	0.7	17.6	1029	250	Profiler
CEND 4/14	87	26/02/2014 16:27	4	49.1731	-3.94173	49.1734	-3.99288	2.1	330	332.1	92	92	67	260	1	2.5	0.3	20.3	1028	250	Beams
CEND 4/14	88	26/02/2014 17:55	4	49.17425	-3.98352	49.17425	-3.98352	0	334.8	334.8	91	91	248	260	1	2.5	0.1	21	1029	250	Grab
CEND 4/14	89	26/02/2014 20:15	4	48.97918	-3.61302	48.97918	-3.61302	0	354.2	354.2	75	75	276	240	1	2	1.8	19	1028.5	250	Profiler
CEND 4/14	90	26/02/2014 20:55	4	48.9811	-3.60955	48.98367	-3.55892	2	355.4	357.4	75	75	272	190	1	2	1.5	20	1027	250	Beams
CEND 4/14	91	26/02/2014 23:43	4	48.98183	-3.59183	48.98888	-3.5554	1.4	366.7	368.1	77	78	66	190	1	1.5	0.4	24	1025	230	Beams
CEND 4/14	92	27/02/2014 01:00	4	48.98758	-3.55592	48.9781	-3.57653	1	370.9	371.9	78	80	72	220	1.5	2	1.6	30	1025	230	Beams
CEND 4/14	93	27/02/2014 02:36	4	48.98435	-3.56187	48.98435	-3.56187				81	81									Grab
CEND 4/14	94	27/02/2014 05:35	4	48.98135	-4.0777	48.98135	-4.0777				94	94	247	290	1	2	0.2	25	1021	260	Profiler
CEND 4/14	95	27/02/2014 06:05	4	48.9821	-4.08617	48.98225	-4.12517	1.5	397.6	399.1	94	94	260	280	1	2	0.6	25	1025	260	Beams
CEND 4/14	96	27/02/2014 07:25	4	48.98345	-4.12165	48.98345	-4.12165	0	403.3	403.3	93	93									Grab
CEND 4/14	97	28/02/2014 22:46	6	49.99823	-5.7565	49.99823	-5.7565	0	608.1	608.1	66	66	293	300	1	2	0.8	16	1005	310	Profiler
CEND 4/14	98	28/02/2014 23:27	6	49.98467	-5.79073	49.98185	-5.73923	2	610.7	612.7	65	67	297	300	1	2	1.3	16	1005	310	Beams
CEND 4/14	99	01/03/2014 00:55	6	49.98353	-5.74437	49.98353	-5.74437	0	615.6	615.6	68	68	332	300	1	2	2	11	1017	290	Grab
CEND 4/14	101	01/03/2014 02:47	6	49.94762	-5.93225	49.91418	-5.92847	2.1	624	626.1	72	77	10	280	1	2	1.4	8	1016	290	Beams
CEND 4/14	102	01/03/2014 03:52	6	49.9284	-5.9316	49.9284	-5.9316	0	628.7	628.7	75	75	62	280	1	2	1	8	1016	290	Grab
CEND 4/14	103	01/03/2014 04:11	6	49.91963	-5.93033	49.91963	-5.93033	0	629.2	629.2	76	76	73	280	1	2	1	8	1016	290	Grab
CEND 4/14	104	01/03/2014 04:30	6	49.92033	-5.92085	49.92033	-5.92085	0	629.6	629.6	77	77	87	280	1	2	1	8	1016	290	Profiler
CEND 4/14	105	01/03/2014 06:22	12	49.74697	-6.16787	49.74697	-6.16787	0	645	645	101	101	125	240	1	1.5	1.1	11	1014	280	Profiler
CEND 4/14	106	01/03/2014 06:53	12	49.74983	-6.18635	49.73195	-6.22997	2	646.6	648.6	99	101	150	230	1	1.5	1	12	1015	270	Beams
CEND 4/14	107	01/03/2014 08:25	12	49.74718	-6.19628	49.74718	-6.19628	0	652.7	652.7	97	97	198	220	0.5	2	1	8	1012	270	Grab
CEND 4/14	108	01/03/2014 09:10	12	49.73585	-6.22185	49.73585	-6.22185	0	654.2	654.2	97	97	224	220	0.5	2	1.2	8	1012	270	Grab
CEND 4/14	109	01/03/2014 10:22	1	49.71742	-6.41738	49.71742	-6.41738	0	662.1	662.1	97	97	258	175	0.5	2.5	1.9	14.6	1013	250	Profiler
CEND 4/14	110	01/03/2014 10:55	1	49.714	-6.41422	49.72462	-6.36555	2.1	663.2	665.3	98	97	270	170	0.5	2.5	1.9	17.4	1013	250	Beams
CEND 4/14	111	01/03/2014 12:24	1	49.72233	-6.37167	49.72233	-6.37167	0	667.8	667.8	98	98	279	170	0.5	2.5	1.4	16.3	1013	250	Grab
CEND 4/14	112	01/03/2014 13:19	1	49.73412	-6.5118	49.73412	-6.5118	0	673.7	673.7	99	99	317	140	0.5	1.5	0.9	13.1	1012	250	Profiler
CEND 4/14	113	01/03/2014 14:03	1	49.7351	-6.52698	49.7092	-6.5596	2	675.6	677.6	101	101	15	210	0.5	1.5	1	15.7	1011	250	Beams
CEND 4/14	114	01/03/2014 15:32	1	49.71635	-6.55305	49.71635	-6.55305	0	680.3	680.3	102	102	29	210	0.5	1.5	1.1	12.1	1011	270	Grab
CEND 4/14	115	01/03/2014 15:52	1	49.71938	-6.54967	49.71938	-6.54967	0	680.6	680.6	103	103	43	210	0.5	1.5	1	11.9	1011	270	Grab
CEND 4/14	116	01/03/2014 16:45	1	49.81545	-6.65227	49.81545	-6.65227	0	687.9	687.9	99	99	33	210	0.5	1.5	1.2	11.1	1011	230	Profiler
CEND 4/14	117	01/03/2014 17:16	1	49.81083	-6.64723	49.78682	-6.68355	2	689.2	691.2	96	101	61	210	0.5	1.5	1	14.3	1011	270	Beams
CEND 4/14	118	01/03/2014 18:28	1	49.79257	-6.67283	49.79257	-6.67283	0	692.9	692.9	100	100	94	210	0.5	1.5	0.7	9.9	1012	270	Grab
CEND 4/14	119	01/03/2014 18:46	1	49.79397	-6.67625	49.79397	-6.67625	0	693.1	693.1	101	101	119	210	0.5	1.5	0.7	10.2	1012	270	Grab
CEND 4/14	120	01/03/2014 20:36	1	49.99388	-6.72962	49.99388	-6.72962	0	706.8	706.8	103	103	182	210	0	1.5	1.2	13.8	1012	270	Profiler
CEND 4/14	121	01/03/2014 21:05	1	50.00647	-6.72405	50.0388	-6.7109	2.1	708.3	710.4	103	102	217	220	0.5	1.5	1.5	10.4	1012	270	Beams
CEND 4/14	122	01/03/2014 22:34	1	50.03735	-6.7138	50.03735	-6.7138	0	712.6	712.6	102	102	225	220	1	1.5	1.5	15	1012	270	Grab
CEND 4/14	123	01/03/2014 23:00	1	50.03603	-6.70953	50.03603	-6.70953	0	713.1	713.1	102	102	225	220	1	1.5	1.5	15	1012	270	Grab
CEND 4/14	124	02/03/2014 01:57	1	50.10065	-6.269	50.0801	-6.25465	1.9	730.9	732.8	86	85	353	220	1	2	0.3	20	1005	280	Beams
CEND 4/14	125	02/03/2014 03:07	1	50.08292	-6.25983	50.08292	-6.25983	0	734.9	734.9	86	86	24	210	1	1.5	1.1	18	1005	280	Grab
CEND 4/14	126	02/03/2014 03:50	1	50.08677	-6.25762	50.08677	-6.25762	0	735	735	87	87	24	210	1	1.5	1.1	18	1005	280	Grab
CEND 4/14	127	02/03/2014 03:59	1	50.09153	-6.2524	50.09153	-6.2524	0	735.5	735.5	85	85	35	210	1	1.5	1.2	18	1005	280	Profiler
CEND 4/14	128	02/03/2014 05:06	15	50.22223	-6.2039	50.19685	-6.2416	2.1	744.5	746.6	86	87	40	230	1	1.5	1.6	14	1010	260	Beams

CEND 4/14	129	02/03/2014 06:02	15	50.2062	-6.22002	50.2062	-6.22002	0	748.5	748.5	87	87	56	230	1	1.5	1	14	1010	260	Profiler
CEND 4/14	130	02/03/2014 06:40	15	50.2084	-6.22698	50.2084	-6.22698	0	749.5	749.5	88	88	76	230	1	1.5	0.7	14	1010	260	Grab
CEND 4/14	131	02/03/2014 10:42	16	50.38528	-5.418	50.3961	-5.3689	2	787	789	48	48	235	180	1	2	0.8	15.5	1001	240	Beams
CEND 4/14	132	02/03/2014 12:01	16	50.3949	-5.37457	50.3949	-5.37457	0	791.2	791.2	47	47	237	210	1	2	0.7	25.4	1001	240	Grab
CEND 4/14	133	02/03/2014 12:29	16	50.39418	-5.3853	50.39418	-5.3853	0	791.6	791.6	48	48	238	190	1	2	0.4	23.3	1000	240	Grab
CEND 4/14	134	02/03/2014 12:52	16	50.3991	-5.38115	50.3991	-5.38115	0	792	792	48	48	237	210	1	2	0.2	23.6	1000	240	Profiler
CEND 4/14	135	02/03/2014 15:21	16	50.70942	-5.28743	50.70942	-5.28743	0	811.8	811.8	68	68	66	250	1	2	0.9	16.4	996	240	Profiler
CEND 4/14	136	02/03/2014 15:50	16	50.6926	-5.28707	50.67675	-5.33335	2.1	813.5	815.6	68	69	62	250	1	2	1.3	16.5	994	240	Beams
CEND 4/14	137	02/03/2014 16:44	16	50.67837	-5.33118	50.67837	-5.33118	0	816.5	816.5	70	70	60	250	1	2	1.3	16.2	994	240	Grab
CEND 4/14	138	02/03/2014 17:50	15	50.79633	-5.4108	50.78718	-5.46158	2	824.5	826.5	77	79	46	260	1	2	1	19.8	994	240	Beams
CEND 4/14	139	02/03/2014 18:41	15	50.7892	-5.45767	50.7892	-5.45767	0	828	828	80	80	38	250	1	2	0.8	21.1	994	240	Grab
CEND 4/14	140	02/03/2014 18:59	15	50.79108	-5.4472	50.79108	-5.4472	0	828.6	828.6	80	80	28	250	1	2	0.7	21	994	240	Grab
CEND 4/14	141	02/03/2014 19:25	15	50.79008	-5.438	50.79008	-5.438	0	829	829	80	80	11	250	1	2	0.4	21	994	240	Profiler
CEND 4/14	142	02/03/2014 22:19	16	50.97147	-4.8148	50.97147	-4.8148	0	855.6	855.6	58	58	229	260	1	1	3.3	22	993	240	Profiler
CEND 4/14	143	02/03/2014 22:46	16	50.9734	-4.80973	50.9933	-4.767	2.1	856.5	858.6	57	54	232	260	1	1	3	22	993	240	Beams
CEND 4/14	144	03/03/2014 00:00	16	50.9914	-4.769	50.9914	-4.769	0	860.3	860.3	53	53	237	260	1	1	2.1	22	993	240	Grab
CEND 4/14	145	03/03/2014 00:28	16	50.99298	-4.76913	50.99298	-4.76913	0	860.3	860.3	53	53	242	240	1	2	1.4	23	993	240	Grab
CEND 4/14	146	03/03/2014 01:20	16	51.08403	-4.83267	51.10727	-4.79372	2.1	867.1	869.2	60	60	70	240	1	1.5	0.4	25	994	240	Beams
CEND 4/14	147	03/03/2014 02:43	16	51.10487	-4.79838	51.10487	-4.79838	0	872.9	872.9	58	58	68	220	1	2	1.3	24	991	230	Grab
CEND 4/14	148	03/03/2014 03:00	16	51.1032	-4.7995	51.1032	-4.7995	0	873	873	59	59	66	220	1	2	1.5	24	991	230	Grab
CEND 4/14	149	03/03/2014 03:15	16	51.1048	-4.79423	51.1048	-4.79423	0	873.2	873.2	60	60	65	220	1	2	1.7	24	991	230	Profiler
CEND 4/14	150	03/03/2014 06:05	16	51.51267	-4.19387	51.51267	-4.19387	0	907.9	907.9	41	41	95	23	1	2	1	150	988	230	Profiler
CEND 4/14	151	03/03/2014 06:30	16	51.50808	-4.2063	51.49015	-4.2508	2.1	909.2	911.3	42	45	83	150	1	2	1.7	23	988	230	Beams
CEND 4/14	152	03/03/2014 07:42	16	51.49208	-4.24863	51.49208	-4.24863	0	912.8	912.8	45	45	125	160	1	2	0.2	12	988	240	Grab
CEND 4/14	153	03/03/2014 13:13	15	51.64277	-5.67592	51.65313	-5.72685	2	968.8	970.8	75	85	143	340	1.5	3.5	1.8	28.8	998	250	Beams
CEND 4/14	154	03/03/2014 14:29	15	51.65268	-5.71963	51.65268	-5.71963	0	973.9	973.9	85	85	138	10	1.5	3.5	2.3	23.3	999	250	Grab
CEND 4/14	155	03/03/2014 14:55	15	51.64985	-5.71603	51.64985	-5.71603	0	974.3	974.3	85	85	136	10	1.5	3.5	2.4	26.4	999	250	Grab
CEND 4/14	156	03/03/2014 15:51	15	51.60025	-5.68428	51.60025	-5.68428	0	977.6	977.6	80	80	126	10	1	3	2.3	22	1002	270	Profiler
CEND 4/14	157	03/03/2014 17:52	15	51.45927	-5.92843	51.45927	-5.92843	0	991.1	991.1	101	101	70	330	1	3	0.6	17.8	1005	270	Profiler
CEND 4/14	158	03/03/2014 18:09	17	51.45492	-5.94247	51.4499	-5.9951	2	991.9	993.9	101	106	43	290	1	3	0.6	18.1	1005	270	Beams
CEND 4/14	159	03/03/2014 19:10	17	51.45135	-5.98807	51.45135	-5.98807	0	996.2	996.2	106	106	27	290	1	3	0.6	18.1	1005	270	Grab
CEND 4/14	160	03/03/2014 20:07	17	51.53793	-6.0998	51.53058	-6.15215	2	1003.7	1005.7	118	115	28	270	1	3	1	28	1008	260	Beams
CEND 4/14	161	03/03/2014 21:23	17	51.53305	-6.1463	51.53305	-6.1463	0	1008	1008	115	115	22	280	1	3	1	30	1009	260	Grab
CEND 4/14	162	03/03/2014 21:43	17	51.53578	-6.14092	51.53578	-6.14092	0	1008.3	1008.3	114	114	14	280	1	3	1	30	1009	260	Profiler
CEND 4/14	163	04/03/2014 03:26	14	52.06412	-7.4518	52.06412	-7.4518	0	1067.3	1067.3	33	33	293	300	1	1.5	0.7	15	1011	300	Profiler
CEND 4/14	164	04/03/2014 03:37	14	52.05883	-7.46118	52.029	-7.48533	2	1067.9	1069.9	33	37	294	300	1	1.5	0.7	15	1011	300	Beams
CEND 4/14	165	04/03/2014 04:21	14	52.03078	-7.4843	52.03078	-7.4843	0	1070.9	1070.9	37	37	295	300	1	1.5	0.8	15	1011	300	Grab
CEND 4/14	166	04/03/2014 05:45	14	51.84422	-7.65918	51.84422	-7.65918	0	1084.1	1084.1	65	65	308	270	1	1.5	0.8	13	1012	280	Profiler
CEND 4/14	167	04/03/2014 05:56	14	51.83927	-7.6474	51.8138	-7.61312	2	1084.6	1086.6	67	73	311	270	1	1.5	0.7	13	1012	280	Beams
CEND 4/14	168	04/03/2014 06:52	14	51.81607	-7.61768	51.81607	-7.61768	0	1088.1	1088.1	74	74	342	270	1	1.5	0.4	13	1012	280	Grab
CEND 4/14	169	04/03/2014 07:18	14	51.82095	-7.62448	51.82095	-7.62448	0	1088.5	1088.5	74	74	355	270	1	1.5	0.2	13	1012	280	Grab
CEND 4/14	170	04/03/2014 09:38	14	51.76075	-8.07383	51.76075	-8.07383	0	1107.8	1107.8	43	43	180	270	0.5	1	0.7	12	1012	210	Profiler
CEND 4/14	171	04/03/2014 09:53	14	51.75113	-8.07077	51.7186	-8.06055	2	1108.4	1110.4	51	66	221	270	0.5	1.5	0.4	5	1011	230	Beams
CEND 4/14	172	04/03/2014 10:57	14	51.71997	-8.06145	51.71997	-8.06145	0	1112.7	1112.7	66	66	218	10	0.5	1.5	0.5	1.9	1011	270	Grab
CEND 4/14	173	04/03/2014 11:18	14	51.72338	-8.06067	51.72338	-8.06067	0	1113.1	1113.1	64	64	219	10	0.5	1.5	0.5	1.8	1011	270	Grab
CEND 4/14	174	04/03/2014 12:10	14	51.72867	-7.91107	51.74455	-7.86305	2	1118.7	1120.7	72	70	166	150	0.5	1	0.2	5.8	1011	260	Beams
CEND 4/14	175	04/03/2014 13:25	14	51.74222	-7.86712	51.74222	-7.86712	0	1122.5	1122.5	71	71	206	165	0.5	1	0.1	6.7	1011	260	Grab
CEND 4/14	176	04/03/2014 13:42	14	51.7409	-7.87375	51.7409	-7.87375	0	1122.8	1122.8	72	72	247	165	0.5	1	0.1	2.6	1011	260	Grab
CEND 4/14	177	04/03/2014 13:58	14	51.74055	-7.87367	51.74055	-7.87367	0	1122.8	1122.8	72	72	247	165	0.5	1	0.1	2.6	1011	260	Profiler
CEND 4/14	178	04/03/2014 15:13	14	51.69838	-7.66703	51.69838	-7.66703	0	1131.1	1131.1	82	82	289	40			0.4	3.5	1015		Profiler
CEND 4/14	179	04/03/2014 15:27	14	51.68978	-7.6571	51.66067	-7.62657	2	1131.8	1133.8	82	82	11	150	0	0	0.2	2.1	1015		Beams
CEND 4/14	180	04/03/2014 16:26	14	51.66412	-7.62827	51.66412	-7.62827	0	1135.3	1135.3	83	83	4	150	0	0	0.3	2.1	1015		Grab
CEND 4/14	181	04/03/2014 16:37	14	51.66202	-7.62582	51.66202	-7.62582	0	1135.4	1135.4	84	84	24	150	0	0	0.3	2	1015		Grab
CEND 4/14	182	04/03/2014 17:42	18	51.5581	-7.51405	51.54442	-7.46363	2	1143.1	1145.1	82	82	60	90	0.5	1	0.6	2.4	1018	240	Beams
CEND 4/14	183	04/03/2014 18:40	18	51.54585	-7.47245	51.54585	-7.47245	0	1147	1147	84	84	63	40	0.5	1	0.6	4	1018	240	Grab
CEND 4/14	184	04/03/2014 19:22	18	51.54822	-7.46873	51.54822	-7.46873	0	1147.2	1147.2	83	83	70	10	0.5	1	0.6	2.3	1019	235	Profiler
CEND 4/14	185	04/03/2014 23:12	17	51.36713	-6.49072	51.36713	-6.49072	0	1185.7	1185.7	87	87	2		0.5	0.5	0.5	0	1020	240	Profiler
CEND 4/14	186	05/03/2014 00:47	17	51.3821	-6.4777	51.34972	-6.49163	2	1192	1194	95	93	247		0.5	0.5	0.2	0	1020	240	Beams
CEND 4/14	187	05/03/2014 02:04	17	51.35478	-6.49072	51.35478	-6.49072	0	1196.5	1196.5	91	91	213		0.5	0.5	0.6	0	1020	240	Grab
CEND 4/14	188	05/03/2014 02:28	17	51.36582	-6.48718	51.36582	-6.48718	0	1197.2	1197.2	87	87	212		0.5	0.5	0.7	0	1020	240	Grab
CEND 4/14	189	05/03/2014 04:20	17	51.21358	-6.0886	51.21358	-6.0886	0	1215	1215	102	102	126		0	0.5	0.5	0	1026.5	240	Profiler
CEND 4/14	190	05/03/2014 04:31	17	51.20107	-6.08495	51.16698	-6.08115	2	1215.7	1217.7	103	102	123		0	0.5	0.5	0	1026.5	240	Beams
CEND 4/14	191	05/03/2014 05:26	17	51.1726	-6.08335	51.1726	-6.08335	0	1219	1219	102	102	102		0	0.5	0.5	0	1026.5	240	Grab
CEND 4/14	192	05/03/2014 06:40	17	51.03867	-6.09097	51.03867	-6.09097	0	1227.8	1227.8	99	99	75	220	0	0.5	0.5	6.8	1027	220	Profiler
CEND 4/14	193	05/03/2014 06:56	17	51.04475	-6.06815	51.0575	-6.01895	2.1	1228.7	1230.8	101	99	45	220	0	0.5	0.5	7	1027	220	Beams

CEND 4/14	194	05/03/2014 08:08	17	51.05712	-6.0244	51.05712	-6.0244	0	1232.3	1232.3	99	99	26	220	0	0.5	0.5	7	1027	220	Grab
CEND 4/14	195	05/03/2014 09:23	15	50.99188	-5.84503	50.99188	-5.84503	0	1242.3	1242.3	93	93	351	230	0	2	0.4	12	1029	260	Profiler
CEND 4/14	196	05/03/2014 09:40	15	50.98088	-5.84162	50.94753	-5.84087	2	1243.2	1245.2	92	93	328	230	0	2	0.3	12	1029	260	Beams
CEND 4/14	197	05/03/2014 10:46	15	50.95288	-5.84213	50.95288	-5.84213	0	1247.4	1247.4	91	91	275	230	0.5	1.5	0.7	11.7	1029	240	Grab
CEND 4/14	198	05/03/2014 11:58	18	50.89215	-5.99273	50.90073	-5.94162	2	1255.5	1257.5	95	95	240	210	0.3	2	0.8	11.2	1030	240	Beams
CEND 4/14	199	05/03/2014 12:56	18	50.90587	-5.92887	50.90587	-5.92887	0	1258.8	1258.8	94	94	241	220	0.5	1.5	1	14.2	1031	240	Profiler
CEND 4/14	200	05/03/2014 13:33	18	50.8995	-5.95793	50.8995	-5.95793	0	1260.2	1260.2	94	94	238	220	0.5	1.5	1	14.4	1031	240	Grab
CEND 4/14	201	05/03/2014 15:29	18	50.92992	-6.40428	50.92992	-6.40428	0	1278.2	1278.2	96	96	240	240	0.5	2	0.1	15	1031	260	Profiler
CEND 4/14	202	05/03/2014 15:42	18	50.91933	-6.3965	50.88873	-6.37487	1.9	1279	1280.9	96	100	54	180	1	2	0.1	14.9	1031	260	Beams
CEND 4/14	203	05/03/2014 16:32	18	50.8988	-6.37968	50.8988	-6.37968	0	1282.6	1282.6	99	99	56	180	1	2	0.2	14.6	1031	260	Grab
CEND 4/14	204	05/03/2014 16:48	18	50.89875	-6.38373	50.89875	-6.38373	0	1282.8	1282.8	98	98	56	180	1	2	0.3	14.6	1031	260	Grab
CEND 4/14	205	05/03/2014 19:20	15	50.50925	-6.08043	50.47693	-6.09345	2	1309.1	1311.1	92	93	48	220	1	2	1	17.1	1032	240	Beams
CEND 4/14	206	05/03/2014 20:18	15	50.49488	-6.088	50.49488	-6.088	0	1313.7	1313.7	92	92	49	200	1	2	0.8	19.5	1031	240	Grab
CEND 4/14	207	05/03/2014 20:33	15	50.49947	-6.08557	50.49947	-6.08557	0	1314.1	1314.1	92	92	50	200	1	2	0.7	19.5	1031	240	Grab
CEND 4/14	208	05/03/2014 20:50	15	50.50058	-6.08253	50.50058	-6.08253	0	1314.2	1314.2	92	92	52	200	1	2	0.5	17	1031	240	Profiler
CEND 4/14	209	06/03/2014 03:10	18	49.6201	-7.1015	49.6201	-7.1015	0	1381.9	1381.9	122	122	295	220	1	1.5	0.5	23	1038	240	Profiler
CEND 4/14	210	06/03/2014 05:04	18	49.6161	-7.09307	49.62957	-7.04465	2.1	1392	1394.1	125	124	12	220	1	1.5	0.9	23	1038	240	Beams
CEND 4/14	211	06/03/2014 06:05	18	49.62803	-7.05612	49.62803	-7.05612	0	1395.6	1395.6	124	124	29	220	1	1.5	1.1	23	1038	240	Grab
CEND 4/14	212	06/03/2014 06:24	18	49.6295	-7.04908	49.6295	-7.04908	0	1396	1396	124	124	35	220	1	1.5	1.1	23	1038	240	Grab
CEND 4/14	213	06/03/2014 07:11	18	49.65787	-6.94355	49.63452	-6.9804	2	1401.7	1403.7	103	123	59	220	1	2	0.8	21	1032	250	Beams
CEND 4/14	214	06/03/2014 08:19	18	49.64485	-6.96185	49.64485	-6.96185	0	1406.6	1406.6	122	122	84	220	1	2	0.7	21	1032	250	Grab
CEND 4/14	215	06/03/2014 08:35	18	49.6479	-6.95698	49.6479	-6.95698	0	1407	1407	113	113	98	220	1	2	0.6	20	1032	250	Grab
CEND 4/14	216	06/03/2014 08:50	18	49.6486	-6.9552	49.6486	-6.9552	0	1407.2	1407.2	115	115	108	220	1	2	0.5	20	1032	250	Profiler
CEND 4/14	217	06/03/2014 09:43	12	49.5838	-6.8583	49.5838	-6.8583	0	1412.8	1412.8	118	118	180	210	1.5	2.5	0.5	21	1032	250	Profiler
CEND 4/14	218	06/03/2014 10:05	12	49.57527	-6.86522	49.55155	-6.90133	2.1	1413.7	1415.8	115	115	207	210	1.5	2	0.7	22.4	1031	250	Beams
CEND 4/14	219	06/03/2014 11:09	12	49.55263	-6.89622	49.55263	-6.89622	0	1417.9	1417.9	117	117	218	210	1.5	2.5	0.8	22.4	1032	250	Grab
CEND 4/14	220	06/03/2014 11:26	12	49.55868	-6.89298	49.55868	-6.89298	0	1418.4	1418.4	115	115	223	210	1.5	2.5	0.9	22.6	1031	250	Grab
CEND 4/14	221	06/03/2014 13:43	12	49.46418	-6.34332	49.47865	-6.29662	2.1	1440.8	1442.9	112	112	260	210	1	2	1	19	1031	250	Beams
CEND 4/14	222	06/03/2014 15:08	12	49.4757	-6.30207	49.4757	-6.30207	0	1444.9	1444.9	111	111	273	200	1	2	0.9	24.1	1032	250	Grab
CEND 4/14	223	06/03/2014 15:21	12	49.47707	-6.30162	49.47707	-6.30162	0	1445	1445	111	111	292	200	1	2	0.6	24.1	1032	250	Profiler
CEND 4/14	224	06/03/2014 18:36	12	49.07568	-5.90195	49.07568	-5.90195	0	1474.7	1474.7	118	118	30	190	1.5	2	1.2	21.4	1032	240	Profiler
CEND 4/14	225	06/03/2014 18:56	12	49.07307	-5.90428	49.04615	-5.93472	2	1475.6	1477.6	118	120	55	210	1.5	2	1.3	19.9	1032	240	Beams
CEND 4/14	226	06/03/2014 19:52	12	49.0512	-5.93167	49.0512	-5.93167	0	1479.5	1479.5	120	120	60	210	1.5	2	1.4	23.9	1032	240	Grab
CEND 4/14	227	06/03/2014 20:15	12	49.06123	-5.91572	49.06123	-5.91572	0	1480.5	1480.5	120	120	65	210	1.5	2	1.4	23.8	1032	240	Grab
CEND 4/14	228	07/03/2014 00:01	5	49.07512	-4.98643	49.07878	-4.9362	2	1518.3	1520.3	105	105	236	180	1	1.5	0.9	15	1032	240	Beams
CEND 4/14	229	07/03/2014 01:17	5	49.07718	-4.94702	49.07718	-4.94702	0	1522.8	1522.8	103	103	241	180	1	1.5	1.2	15	1032	240	Grab
CEND 4/14	230	07/03/2014 01:42	5	49.07607	-4.96093	49.07607	-4.96093	0	1523.4	1523.4	97	97	244	180	1	1.5	1.3	15	1032	240	Grab
CEND 4/14	231	07/03/2014 02:00	5	49.0753	-4.9609	49.0753	-4.9609	0	1523.5	1523.5	97	97	247	180	1	1.5	1.4	15	1032	240	Profiler
CEND 4/14	232	07/03/2014 04:35	5	48.77713	-5.02698	48.77713	-5.02698	0	1543.3	1543.3	109	109	36	210	1	2	0.4	22	1032	230	Profiler
CEND 4/14	233	07/03/2014 04:52	19	48.76938	-5.03572	48.7403	-5.06142	2	1544.2	1546.2	110	110	39	210	1	2	0.7	22	1032	230	Beams
CEND 4/14	234	07/03/2014 05:49	19	48.74662	-5.05743	48.74662	-5.05743	0	1547.8	1547.8	110	110	42	210	1	2	1.4	22	1032	230	Grab
CEND 4/14	235	07/03/2014 07:30	19	48.58148	-4.90877	48.55927	-4.94597	2	1560.1	1562.1	100	85	39	230	1	2	1.5	18	1024	270	Beams
CEND 4/14	236	07/03/2014 08:28	19	48.56295	-4.94207	48.56295	-4.94207	0	1563.4	1563.4	88	88	77	230	1	2	0.5	18	1024	270	Grab
CEND 4/14	237	07/03/2014 08:43	19	48.56853	-4.93417	48.56853	-4.93417	0	1564	1564	96	96	48	230	1	2	0.5	18	1024	270	Grab
CEND 4/14	238	07/03/2014 09:02	19	48.56912	-4.92282	48.56912	-4.92282	0	1564.4	1564.4	95	95	56	230	1	2	0.3	18	1024	270	Profiler
CEND 4/14	239	07/03/2014 09:59	19	48.50542	-5.06008	48.50542	-5.06008	0	1571.3	1571.3	92	92	230	270	1	2	2.4	13.1	1034	300	Profiler
CEND 4/14	240	07/03/2014 10:55	19	48.51517	-5.05273	48.53393	-5.02737	1.5	1577.1	1578.6	98	101	231	240	1	2	2.4	5	1034	300	Beams
CEND 4/14	241	07/03/2014 12:04	19	48.52787	-5.03073	48.52787	-5.03073	0	1580.5	1580.5	98	98	233	210	1	2	2.3	5	1034	300	Grab
CEND 4/14	242	07/03/2014 14:41	19	48.36957	-5.134	48.38517	-5.12455	1	1603.1	1604.1	95	89	44	0	1	2	0.3	7.1	1036	270	Beams
CEND 4/14	243	07/03/2014 15:45	19	48.3831	-5.1259	48.3831	-5.1259	0	1606.1	1606.1	93	93	40	0	1	2	0.4	8.5	1038	260	Grab
CEND 4/14	244	07/03/2014 16:04	19	48.38412	-5.12373	48.38412	-5.12373	0	1606.2	1606.2	92	92	37	30	0.5	1.5	0.4	8.1	1037	260	Profiler
CEND 4/14	245	07/03/2014 23:43	4	48.98368	-4.33385	48.98368	-4.33385	0	1673.5	1673.5	100	100	243	130	0.5	1	0.5	14	1036	260	Profiler
CEND 4/14	246	08/03/2014 00:02	4	48.9873	-4.3132	48.99122	-4.2615	2	1674.4	1676.4	98	96	262	130	0.5	1	0.2	14	1036	260	Beams
CEND 4/14	247	08/03/2014 01:24	4	48.98978	-4.27217	48.98978	-4.27217	0	1678.5	1678.5	96	96	265	130	0.5	1	0.8	14	1036	260	Grab