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MINISTRY OF AGRICULTURE, FISHERIES AND FOOD
FISHERIES LABORATORY, LOWESTOFT, SUFFOLK, ENGLAND

1985 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA CRUISE 7/85

STAFF:

D Harding SIC
R G Houghton
B C Bedford
L E Woolner
T Boon
B Rackham
B Russell
R Flatt
R Ayers
Dr G Grammer (Luton)
N Pearson (part time)

DURATION:

13 August-11 September

LOCALITY:

North Sea

AIMS:

1. To carry out a groundfish survey of the North Sea using a standard Granton trawl in order to obtain information on:

i) the distribution and abundance of all fish species caught in the trawl;

ii) the length and age distributions of commercially important gadoids;

iii) the distribution of fish in relation to environmental parameters;

iv) the distribution and relative abundance of macro benthos;

v) gadoid interactions through collections of stomachs from cod and whiting for the ICES programme on stomach analysis;

vi) the distribution of caesium in fish flesh via trawl samples of fish for analysis at Lowestoft.

2. Collect water samples for caesium analysis from the pumped water supply and using Niskin bottles.

3. Sample the environment using electronic sensors either in the pumped water supply or by deploying the instruments in a sampling frame.

4. Examine benthos using:

a) the Granton trawl;
b) an Agassiz trawl with meter wheel filled to give distance measurements;
c) a Day grab at selected stations.

5. All biological data will be entered on the computer to create a database for this cruise and summarise results before the cruise ends.

6. All electronic instruments will be data logged and programmes used to extract and present results in graphics format.

7. Collect live specimens of fish for Mr Scholes including Myxine, 20 adult ♀ dabs, 10 small cod (<20cm) and 5 soles (<20cm).

8. Collect whiting samples for a research project on Lernaeocera branohialis based at Kings College, London.

9. Release drift indicators for Turbot larvae off the NE Coast.

10. Collect a small halibut (70-100cm) for the archaeology unit at Cambridge University.

NARRATIVE:

RV CIROLANA left Lowestoft at 0800 h GMT, 13 August 1985 and sailed for the first fishing station in the centre of the Southern Bight of the North Sea. Fishing commenced at 1325 h GMT and at this station the routine for operating the Agassiz trawl and a profiling frame containing CTD and Aquatracka was established. Ship-board sensors including a second shallow water CTD and Turner 10 fluorometer were also tested. All these instruments were linked to the computer along with the output from the RACAL-DECCA and programmes used to log data at fixed time intervals when operating.

The pattern of work proposed for this cruise was similar to that carried out in previous years although the cruise track was modified slightly to allow Mr Pearson to join the ship for two days while working stations of the NE coast of England, so that he could carry out tests with the Lowestoft and Scanmar headline height and wing - spread measuring instruments. On this cruise CIROLANA put into Lerwick for 24 hrs on 30 August for a mid cruise break and later on 6 September had to divert to the Tyne to put one of the scientific staff ashore for dental treatment. Three trawl stations were lost as a result of this diversion and two more due to bad weather conditions and gear damage.

Benthos samples were obtained from the main trawl at each fishing station and from the Agassiz trawl at selected stations mainly in the Northern North Sea. The day grab was used on one station and failed to function because of damage to the lid which could not be repaired.

Environmental sensors for temperature, salinity and chlorophyll 'a' were operated throughout the cruise by pumping sea-water over these sensors deployed in a tank on deck or in the hydrographic laboratory. These were logged at five minutes intervals along with the ships position. The profiling CTD and Aquatrack was deployed at all deep stations to measure temperature, salinity, oxygen and chlorophyll 'a' against depth and the output of the CTD logged against ships position.

AEP1 requirements for sampling water for Cs analysis were accomplished by sampling at or en route to fishing stations, and fish samples for Cs analysis were obtained from selected trawl hauls in selected areas of the N Sea.

Computer failures occurred from time to time but were overcome on each occassion, the most drastic of those failures occurred on the 31 August and could only be corrected by transferring all the circuit boards to the second computer cabinet. Problems still occurred after this transfer but were quickly overcome. These failures may be linked to the resiting of the computer in an enclosed environment in which the air circulation is inadequate and in which over heating occurs.

Following the final trawl haul and the CTD station near the Tail End of the Dogger Bank, CIROLANA sailed overnight to a position just north of the New Zealand ground where the final half-hour tow was made to collect live dabs for Mr Scholes. Following this haul the ship sailed for Lowestoft while gear was dismantled and packed, the laboratories cleaned and data summaries made for all fish and benthos using the new fishing survey data base.

CIROLANA lay overnight in Corton Roads and entered Lowestoft harbour at 0600 h GMT on 11 September thus concluding the ninth annual groundfish survey of the North Sea.

RESULTS:

Aim 1. Seventy-four fishing stations were worked successfully including all but three of the primary stations. Figure 1 shows the cruise track and fishing positions.

At each station fished by the Granton trawl the weight of each species of fish and shellfish of commercial importance was recorded along with minor species of fish and the total weight of benthos taken in the trawl. Length distributions of all species were taken and numbers calculated from the length subsamples. Counts were made of each benthos species recorded. All this data was input to the computer and data summaries made on the last day of the cruise. Table 1 illustrates the total catch of fish and benthos for all trawl hauls in the North Sea on the 1985 survey.

Length distributions and otoliths were collected for all fish of commercial importance including cod, haddock, whiting, norway pout, saithe and plaice so that age length keys could be constructed and numbers at age of these species determined. In addition all "monk" were collected for more detailed analysis including whole weight/gutted weight relationships.

2041 stomachs for cod and whiting were collected at selected stations for the ICES programme on stomach analysis.

Aim 2. Surface samples of sea water were collected at 44 stations for Cs analysis and surface and bottom water collected at 6 stations along latitude 57°N. Fish for Cs analysis were collected in the 12 areas designated.

Aim 3. On line sensors were run continuously in sea water pumped from 3 metres via the ships PUMP and gave good results apart from on two occassions when instruments failed. The Turner 10 fluorometer had to be replaced on the second day of the survey and the CTD on the 20th day. The CTD and Aquatrackks used to take vertical profiles worked well throughout the cruise and 70 profiles were obtained using these instruments. Data logging of all sensors was successfully carried out throughout this cruise and in addition the ships position was recorded along with these instrument readings using RACAL-DECCA.

Aim 4. Benthos was sampled by both Granton and Agassiz trawls. That from the Granton was logged with the data on fish while the Agassiz records were recorded in a separate data Base. No records were obtained from the Day grab which was damaged beyond repair on the first haul.

Aim 5. All biological data was entered in the computer using the new fishing survey data base and extractions of data made on the final day of the cruise.

Aim 6. No graphics output was possible.

Aim 7. Live male and female dab were obtained for Mr Scholes. Four Hagfish were also obtained and kept alive, these were survivors of approximately 20 hagfish collected at three stations at various times during the cruise.

Aim 8. Whiting samples were collected at 21 stations for a research project on Lernaeocera branchialis based at Kings College, London.

Aim 9. Sea surface drifters were released at 7 stations, off the NE Coast of England for Mr Riley's project on Drift of Turbot larvae. Two inshore stations were missed due to weather conditions.

Aim 10. Was not achieved.

Ad hoc collections of fish for the fish identification course at Lowestoft and for other requests were also made on this cruise.

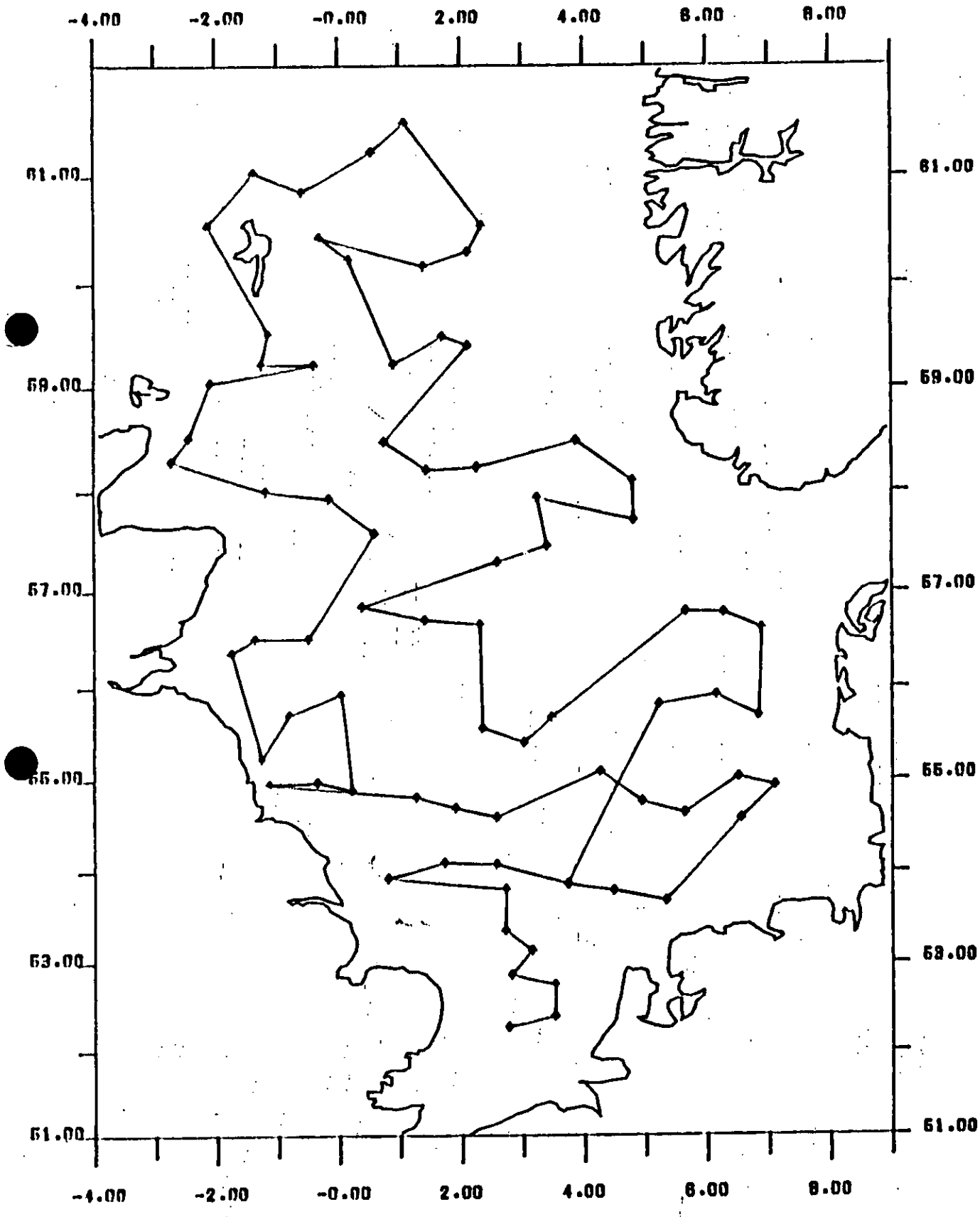
D Harding
17 September 1985

Seen in Draft:
G Sinclair (Capt)
P Kay (Skipper)

INITIALLED: D J G

DISTRIBUTION:
Basic List +
D Harding
R G Houghton
B C Bedford
L E Woolner
T Boon
B Rackham
B Russell
R Flatt
R Ayers
Dr G Grammer (Luton)
N Pearson

Fig 1



CIRC 7/86 CROMTON TRAILS

Table 1.

CIROLANA 7/05 CATCH DETAILS CODEND ONLY

CIRO 7/05 ALL VALID TRAWL STNS.

TOTAL TIME FISHED 4378mins.
NUMBER OF HAULS 73
TOTAL WEIGHT CAUGHT = 22595.67 kg

SPECIES	CODE	WEIGHT	%	NUMBER	%
MYXINE GLUTINOSA	HGF	4.530	.02	80	.03
SCYLIORHINUS CANICULA	LSD	36.500	.16	35	.01
GALEORHINUS GALEUS	GAG	16.000	.07	3	.00
SQUALUS ACANTHIAS	DGS	371.120	1.64	187	.07
RAJA RADIATA	SYR	311.455	1.38	653	.24
RAJA MONTAGUI	SDR	8.500	.04	6	.00
RAJA BATIS	SKT	.800	.00	1	.00
RAJA NAEVUS	CUR	36.630	.16	37	.01
CLUPEA HARENGUS	HER	632.815	2.80	14428	5.33
SPRATTUS (CLUPEA) SPRATTUS	SPR	62.915	.28	3160	1.17
SARDINA (CLUPEA) PILCHARDUS	PIL	.200	.00	2	.00
ARGENTINA SILUS	GSS	.550	.00	1	.00
ARGENTINA SPHYRAENA	LSS	16.040	.07	434	.16
MAUROLICUS MUELLERI	PLS	.005	.00	1	.00
LOPHIUS PISCATORIUS	MON	103.420	.46	23	.01
GADUS MORHUA	COD	1426.856	6.31	1898	.70
POLLACHIUS VIRENS	POK	2194.551	9.71	1859	.69
POLLACHIUS POLLACHIUS	POL	128.500	.57	32	.01
BROSME BROSME	USK	.140	.00	1	.00
MELANOGRAMMUS AEGLEFINUS	HAD	5197.425	23.00	34501	12.77
RHINONEMUS (ENCHELYOPUS) CIMBRIUS	FRR	27.910	.12	837	.31
TRISOPTERUS MINUTUS	POD	31.255	.14	640	.24
TRISOPTERUS LUSCUS	BIB	.350	.00	1	.00
TRISOPTERUS ESMARKI	NOP	659.700	2.92	25423	9.39
MERLANGIUS MERLANGUS	WHG	3428.306	15.17	41221	15.22
GAIDROPSARUS VULGARIS	TBR	13.300	.06	346	.13
GADICULUS ARGENTEUS	SYP	.585	.00	59	.02
MICROMESISTIUS POUTASSOU	WHB	2.940	.01	171	.06
MERLUCCIUS MERLUCCIUS	HKE	37.620	.17	38	.01
SEBASTES VIVIPARUS	REV	10.315	.05	91	.03
TRIGLA LUCERNA	TUB	9.040	.04	10	.00
EUTRIGLA GURNARDUS	GUG	1100.205	4.87	9304	3.44
ASPITRIGLA CUCULUS	GUR	5.000	.02	10	.00
MYOXOCEPHALUS SCORPIUS	DRT	.430	.00	3	.00
AGONUS CATAPHRACTUS	POG	.495	.00	36	.01
CYCLOPTERUS LUMPUS	LUM	3.340	.01	3	.00
TRACHURUS TRACHURUS	HOM	912.000	4.04	4328	1.60
MULLUS SURMELETUS	MUR	.200	.00	1	.00
TRACHINUS (ECHIICHTHYS) VIPERA	WEL	79.625	.35	5655	2.09
ANARHICHAS LUPUS	CAA	61.070	.27	27	.01
LUMPENUS LAMPRETAEFORMIS	BBY	.040	.00	46	.02
AMMODYTES SPP	SAN	21.455	.09	908	.34
CALLIONYMUS LYRA	CDT	38.768	.17	803	.30
GOBIIDEI	GPA	.020	.00	4	.00
SCOMBER SCOMBRUS	MAC	429.920	1.90	1179	.44
SCOPHTHALMUS MAXIMUS	TUR	8.300	.04	7	.00
SCOPHTHALMUS RHOMBUS	BLL	5.150	.02	6	.00
ARNOGLOSSUS LATERNA	SDF	.435	.00	21	.01
LEPIDORHOMBUS WHIFFIAGONIS	MEG	11.880	.05	27	.01
GLYPTOCEPHALUS CYNOGLOSSUS	WIT	14.235	.06	52	.02
HIPPOGLOSSOIDES PLATESSOIDES	PLA	372.685	1.65	9679	3.57
LIMANDA LIMANDA	DAB	3222.140	14.26	55303	20.45
MICROSTOMUS KITT	LEM	268.000	1.19	1544	.57
PLATICHTHYS FLESUS	FLE	.600	.00	3	.00
PLEURONECTES PLATESSA	PLE	872.695	3.86	3272	1.21
HIPPOGLOSSUS HIPPOGLOSSUS	HAL	1.300	.01	1	.00
SOLEA SOLEA (S.VULGARIS)	SOL	3.240	.01	7	.00
BUGLOSSIDIUM LUTEUM	SOT	1.296	.01	146	.05