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FISHERIES RESEARCH TECHNICAL REPORT No. 80

Ministry of Agriculture, Fisheries and Food, current meter data inventory, 1981-83

S. R. JONES

LOWESTOFT, 1985

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Fish. Res. Tech. Rep., MAFF Direct. Fish. Res., Lowestoft, (80) 19 pp.

CONTENTS

Introduction

This is the seventh inventory of current meter data obtained from exercises carried out by the Lowestoft Laboratory of the Ministry of Agriculture, Fisheries and Food (MAFF); it covers the years 1981 to 1983. Meters deployed during 1983 in the North-east Atlantic, but not due for recovery until 1984, will be included in a later inventory.

MAFF Fisheries Research Technical Reports Nos. 4, 7, 15, 38, 54 and 65 are inventories of current meter data for the years 1968-71, 1971-72, 1973-74, 1975-76, 1977-78 and 1979-80 respectively (Baxter and Bedwell, 1972; Bedwell, 1973; Bedwell *et al.*, 1975; Medler, 1977; Jones, 1979, 1982).

A description of the current meter mooring used in shelf seas is given in Technical Report No. 4, while Technical Report No. 7 describes the processing of the data recorded by the instruments. A diagrammatic representation of the mooring arrangement used in the NE Atlantic is given in Medler *et al.*, 1984.

This inventory comprises Table 1 which summarises the current meter exercises on the shelf, Tables 2-11 which detail the data obtained from all exercises and Figures 1-7 which show the locations of the moorings referred to. Tables 6 and 7 concern meters which were lost from exercises reported previously in Technical Report No. 65 but recovered during the period of this report.

In the tables a 'P' or 'T' in the 'Notes' indicates that the meter was fitted with a pressure (P) or temperature (T) sensor. There are three types of recording current meter in use, and a note is given at the foot of each Table showing the type used. Normally the recording interval is 10 min on the shelf and 1 h in the deep ocean moorings. The term 'good record' indicates that the meter performed satisfactorily for the expected length of time. For the semi-permanent station, i.e. Sellafield (Table 8), the geographical position given is the nominal one, with slight differences in position and water depth from deployment to deployment: the variation about this position is 1.0′ N-S and 1.3′ E-W. The mean spring tidal range shown on each table is taken from the Admiralty Co-tidal and Co-range charts (Great Britain – Hydrographer of the Navy, 1974). The 'Length of record' and 'Timing discrepancy' are shown separately to give a measure of the actual (as opposed to nominal) data interval.

Data availability

The Marine Information and Advisory Service (MIAS) was set up to co-ordinate the archive of all UK oceonographic data. Data from all MAFF moored current meter exercises are supplied to MIAS on a routine basis. Data collected in any one year are not freely available to the scientific and commercial community via MIAS until a further two clear years have elapsed. Hence at 1 January 1983 all data specifically collected for MAFF purposes in 1980 came into general circulation, and at 1 January 1984 the 1981 data followed.

Data are available from MIAS in a variety of standard formats to suit the particular customer's requirements. Details are available from MIAS, Bidston Observatory, Birkenhead, Merseyside L43 7RA. Enquiries about MAFF data not yet in circulation should be made direct to the Fisheries Laboratory, Lowestoft, Suffolk, NR33 0HT.

In 1983 the Fisheries Research Data Report Series commenced. These reports provide complete and detailed presentations of results in the form of plots and parameter tables from selected moored current meter deployments. Initially these will be concerned with moorings in the deep Atlantic, but eventually will include data from UK coastal waters deployments.

Data return statistics

Table 1 gives details of statistics relating to the scale of the exercises and losses incurred for current meter moorings in shelf seas waters. It follows on from similar tables in previous inventories. Only one meter was lost from the six exercises on the shelf during the report period. Two meters lost from the Tees in 1979 and the north-east coat in 1980 were recovered in 1982 (Tables 6 and 7).

References

BAXTER, G.C. and BEDWELL, J.A., 1972. The MAFF current meter system and data inventory, 1968-71. Fish. Res. Tech. Rep., MAFF Direct. Fish. Res., Lowestoft, (4) 41 pp.

BEDWELL, J.A., 1973. MAFF current meter data inventory, January 1971-December 1972. Fish. Res. Tech. Rep., MAFF Direct. Fish. Res., Lowestoft, (7) 34 pp.

BEDWELL, J.A., MEDLER, K.J. and READ, J.W., 1975. MAFF current meter data inventory, January 1973-December 1974. Fish. Res. Tech. Rep., MAFF Direct. Fish. Res., Lowestoft, (15) 32 pp.

GREAT BRITAIN – HYDROGRAPHER OF THE NAVY, 1974. Chart of Co-tidal and Co-range Lines, British Isles and Adjacent Waters. Hydrographic Office, Taunton, Chart Number 5058.

JONES, S.R. 1979. MAFF current meter data inventory, 1977-1978. Fish. Res. Tech. Rep., MAFF Direct. Fish, Res., Lowestoft, (54) 19 pp.

JONES, S.R., 1982. MAFF current meter data inventory, 1979-1980. Fish. Res. Tech. Rep., MAFF Direct. Fish. Res., Lowestoft, (65) 15 pp.

MEDLER, K.J., 1977. MAFF current meter data inventory, 1975-1976. Fish. Res. Tech. Rep., MAFF Direct. Fish. Res., Lowestoft, (38) 28 pp.

MEDLER, K.J., WOOLTORTON, J., JONES, S.R., and READ, J.W., 1984. Current meter observations from the Charlie-Gibbs Fracture Zone October 1977-July 1978. Data Rep., MAFF Direct. Fish. Res., Lowestoft, (2) 50 pp.

Table 1 Basic data referring to moored current meter exercises on the shelf during 1981-83

Exercise	Limits of duration (days)	Mean duration (days)	Number of rigs laid	Number of meters used	Number of meters lost	% loss incurred
NAB Tower						
3.12.80-8.2.81	67	67	1	3	0	0
11-28.6.81	17	17	1	2	0	0
6-15.6.82	9	9	1	2	1	50
Start Bay						
8-11.9.81	3	3	1	1	0	0
Isle of Wight						
8-25.7.83	17	17	1	2	0	0
Selsey Bill						
10-17.12.83	7	7	1	2	0	0
Sellafield						
27.5.81-12.1.82	25-49	33	7	7	0	0
12.1.82-22.1.83	18-58	34	10	10	0	0
22.1.83-20.1.84	12-87	43	7	7	0	0

Table 2 NAB Tower, 3 Dec 1980-8 Feb 1981, 11-28 June 1981 and 6-15 June 1982 (Figure 1)

Station	Water depth (m)	Tidal range (m)	Meter no.*	Height of meter above bottom (m)	Length of record			Timing discrepancy (min)	Notes
					days	hours	min		
3 December 1980–8 February 1981									
50°36.1'N	43	3.7	436	29.5	–	–	–		Meter malfunction
00°55.2'W			155	18	–	–	–		Meter malfunction
			730	7	30	8	50	0	(T) Meter weeded up
11-28 June 1981									
50°36.0'N	43	3.7	143	29.5	6	2	50	0	Meter weeded up
00°55.8'W			777	7	1	18	50	0	(T) Meter weeded up
6-15 June 1982									
50°36.1'N	44	3.7	436	29 5	8	11	30	0	(T) Rig fouled
00°55.0'W			149	6	–	–	–		Meter lost

*Plessey type M021.

Table 3 Start Bay, 8-11 September 1981 (Figure 2)

Station	Water depth (m)	Tidal range (m)	Meter no.*	Height of meter above bottom (m)	Length of record			Timing discrepancy (min)	Notes
					days	hours	min		
50°14.8′N 03°37.1′W	12	4.5	146	3	3	4	0	0	Good record

*Plessey type M021

Table 4 Isle of Wight, 8-25 July 1983 (Figure 1)

Station	Water depth (m)	Tidal range (m)	Meter no.*	Height of meter above bottom (m)	Length of record			Timing discrepancy (min)	Notes
					days	hours	min		
50°31.2′N	34	3.5	75	18.7	–	–	–		Meter malfunction
01°07.4′W			76	9	16	12	20	0	Good record

*Plessey type 9021

Table 5 Selsey Bill, 10-17 December 1983 (Figure 1)

Station	Water depth (m)	Tidal range (m)	Meter no.*	Height of meter above bottom (m)	Length of record			Timing discrepancy (min)	Notes
					days	hours	min		
50°37.1′N	30	4.3	69	17	7	5	10	0	(T) Good record
00°44.7′W			78	9	7	5	10	0	(T) Good record

*Plessey type 9021

Table 6 Tees, 16 May-9 November 1979 (Figure 3) (Addition to Table 3 in Technical Report No. 65)

Period	Water depth (m)	Tidal range (m)	Meter no.*	Height of meter above bottom (m)	Length of record			Timing discrepancy (min)	Notes
					days	hours	min		
3. 31 Aug-9 Nov	55	4.4	588	41	35	16	20	–	Lost November 1979 Recovered November 1982 Good record (P)

*Plessey type M021

Table 7 North-East Coast of England, July-August 1980 (Figure 3) (Addition to Table 12 in Technical Report No. 65)

Station	Water depth (m)	Tidal range (m)	Meter no.*	Height of meter above bottom (m)	Length of record			Timing discrepancy (min)	Notes
					days	hours	min		
C. 55°07.0'N 01°01.0'W	90	4.0	126	30	–	–	–	–	Lost August 1980 Recovered November 1982 No data

*Plessey type M021

Table 8 Sellafield (Windscale), 27 May 1981-20 January 1984 (Figure 4)

Position: 54°24'N 03°33'W			Water depth: 15 m				Tidal Range: 7.2 m
Period	Meter no.*	Height of meter above bottom (m)	Length of record			Timing discrepancy (min)	Notes
			days	hours	min		
1 27 May 1981-23 June	730	2	26	21	23	+7	Good record
2 23 June-21 July	493	2	20	21	01	−1	Rig may be fouled Caution needed
3 21 July-21 Aug	730	2	30	22	40	0	Good record
4 21 Aug-15 Sept	143	2	–	–	–		Meter malfunction
5 15 Sept-14 Oct	155	2	23	0	00	0	Good record
6 14 Oct-2 Dec	146	2	48	15	00	0	Good record
7 2 Dec-12 Jan 1982	777	2	40	23	40	0	Good record
8 12 Jan-16 Feb	436	2	–	–	–		Rig interfered with No data
9 16 Feb-19 Mar	146	2	29	23	40	0	Good record
10 19 Mar-20 Apr	436	2	26	21	00	0	Good record
11 20 Apr-18 May	146	2	28	1	20	0	Good record
12 18 May-22 June	143	9	34	16	30	0	Good record

Table 8 Continued

Position: 54°24'N 03°33'W		Water depth: 15 m				Tidal Range: 7.2 m	
Period	Meter no.*	Height of meter above bottom (m)	Length of record			Timing discrepancy (min)	Notes
			days	hours	min		
13 22 June-27 July	146	9	34	19	10	0	Good record
14 27 July-14 Sept	143	9	48	22	50	0	Good record
15 14 Sept-13 Oct	146	9	29	1	00	0	Good record
16 13 Oct-25 Nov	634	9	38	21	00	0	Good record
17 25 Nov-22 Jan 1983	436	9	58	4	10	0	Good record Processed in 2 parts
18 22 Jan-15 Mar	143	9	51	16	50	0	Good record Some wave action
19 15 Mar-19 Apr	152	9	27	2	00	0	Good record
20 19 Apr-24 May	146	9	35	4	30	0	Good record
21 24 May-23 Aug	143	9	64	22	40	–	Tape ran out Clock error not calculated.
22 23 Aug-18 Nov	152	9	83	23	00	–	Tape ran out Clock error not calculated.
23 18 Nov-30 Nov	126	9	11	12	20	0	Meter poor last few hours
24 30 Nov-20 Jan 1984	152	9	51	1	30	0	Good record

*All meters are Plessey type M021

Table 9 North-east Atlantic, 1980 deployments (80-01 to 80-16) (Figure 5)

Station and position	Deployed / Recovered	Water depth (m)	Meter no.*	Height of meter above bottom (m)	Length of record			Timing discrepancy (min)	Notes
					days	hours	min		
80-01	10.6.80	4187	578	3450	–	–	–	–	Meter lost
52°25.0′N			650	3050	187	20	0	–	(T) Stopped before recovery
17°44.8′W	13.6.81		120	2550	184	09	0	0	(T) Rotor lost
(NEADS 6)			182	1050	367	18	11	−11	(T) Good record
			606	50	367	18	02	− 2	(T) Good record
80-02	24.6.80	4395	132	3800	349	11	57	+ 3	(T) Good record
47°15.5′N			696	3400	349	12	04	− 4	(T) Good record
09°58.2′W	9.6.81		20	2900	349	12	20	−20	(T) Good record
			109	1400	346	22	57	–	(T) Tape ran out
			373	400	349	11	55	+ 5	(T) Good record
80-03	24.6.80	4087	472	2050					
47°37.0′N			487	1050					Rig lost
09°59.9′W	–		600	50					
80-04	25.6.80	2877	45	1550					
47°54.5′N			207	750					Rig lost
09°59.4′W	–		702	50					
80-05	25.6.80	2030							
48°05.1′N			644	1050	346	3	41	+19	(T) Good record
09°50.1′W	6.6.81								
80-06	25.6.80	1640	101	850	345	17	53	+ 7	(T) Good record
48°08.3′N			331	50	345	19	01	− 1	(T) Good record
09°45.1′W	6.6.81								
80-07	25.6.80	640	464	310	288	7	0	–	(T) Good record — Rig lost
48°11.5′N			573	50	288	7	0	–	(T) Good record — recovered
09°39.8′W	–								February 82
80-08	25.6.80	1465	533	750	346	20	0	0	(T) Good record
48°07.4′N			743	50	346	19	51	+ 9	(T) Good record
09°17.0′W	7.6.81								
80-09	26.6.80	1505	206	750					
48°19.5′N			511	50					Rig lost
09°57.7′W	–								
80-10	5.10.80	4025	490	1050	–	–	–		Meter malfunction
45°54.8′N			128	50	188	00	01	− 1	(T) Good record
16°31.3′W	11.4.81								
80-11	5.10.80	4349	898	1050	187	13	58	+ 2	(T) Good record
45°50.1′N			801	50	187	13	46	+14	(T) Good record
16°35.8′W	11.4.81								

Table 9 Continued

Station and position	Deployed / Recovered	Water depth (m)	Meter no.*	Height of meter above bottom (m)	Length of record			Timing discrepancy (min)	Notes
					days	hours	min		
80-12	6.10.80	4280	442	1550	259	23	55	+ 5	(T) Good record
45°54.4'N			37	800	138	10	01	– 1	(T) Meter malfunction
16°37.2'W	23.6.81		288	50	260	00	03	– 3	(T) Good record
80-13	6.10.80	4685	238	1050					Rig lost
46°00.5'N			311	50					
17°01.6'W	–								
(NEADS 5)									
80-14	8.10.80	4108	703	1050	372	22	10	–10	(T) Some zero velocities
42°25.5'N			607	50	372	22	03	– 3	(T) Good record
20°35.1'W	18.10.81								
80-15	10.10.80	3840	999	3240	371	17	00	0	(T) Good record
41°44.9'N			500	2340	371	17	12	–12	(T) Good record
21°57.0'W	18.10.81		664	840	371	16	55	+ 5	(T) Good record
			104	50	371	17	06	– 6	(T) Good record
80-16	12.10.80	3568	824	1050	357	07	00	–	Meter stopped Direction only
41°38.6'N			960	50	369	23	07	– 7	(T) Good record
21°08.7'W	18.10.81								

*All meters are Aanderaa Type 4, recording at hourly intervals.

Table 10 North-east Atlantic, 1981 deployments (81-01 to 81-18) (Figure 6)

Station and position	Deployed Recovered	Water depth (m)	Meter no.*	Height of meter above bottom (m)	Length of record			Timing discrepancy (min)	Notes
					days	hours	min		
81-01	14.6.81	4107	652	1050	344	6	00	–	(T) Tape ran out
52°27.7'N			886	50	61	12	00	–	(T) Meter stopped
17°43.8'W	28.6.82								
(NEADS 6)									
81-02	15.6.81	458	444	58	–	23	45	0	(T) Good record
51°42.2'N			759	8	–	23	45	0	(T) Good record
14°38.6'W	16.6.81								
81-03	21.6.81	3991	128	1122	115	11	00	0	(T) Good record
46°49.0'N			924	50	115	10	58	+ 2	(T) Good record
23°46.2'W	15.10.81								
81-04	22.6.81	4530	926	1161	114	10	57	+ 3	(T) Good record
47°07.6'N			987	50	114	11	01	– 1	(T) Good record
21°43.6'W	14.10.81								
81-05	22.6.81	4540	351	987	113	16	00	0	(T) Good record
47°26.9'N			801	50	113	15	53	+ 7	(T) Good record
20°11.1'W	14.10.81								
81-06	22.6.81	4505	476	939	112	16	58	+ 2	(T) Good record
47°55.8'N			933	50	112	17	01	– 1	(T) Good record
18°32.5'W	13.10.81								
81-07	12.10.81	2555	288	1020	213	3	03	– 3	(T) Good record
52°30.2'N			759	50	213	3	00	0	(T) Good record
15°25.9'W	13.5.82								
81-08	12.10.81	1510	101	778	213	0	55	+ 5	(T) Good record
52°29.6'N			897	50	213	0	02	– 2	(T) Direction & temp only
15°16.2'W	13.5.82								
81-09	13.10.81	4548	20	933	260	6	28	+32	(T) Good record
47°54.8'N			743	44	260	6	52	+ 8	(T) Good record
18°33.3'W	1.7.82								
81-10	14.10.81	4540	442	981	260	3	53	+ 7	(T) Good record
47°26.8'N			543	44	260	3	51	+ 9	(T) Good record
20°11.2'W	1.7.82								
81-11	14.10.81	4534	132	1155	260	8	0	0	(T) Good record
47°07.0'N			789	44	260	8	02	– 2	(T) Good record
21°42.2'W	2.7.82								
81-12	15.10.81	3993	373	1116	260	2	52	+ 8	(T) Direction and temp only
46°48.6'N			562	44	260	2	46	+14	(T) Good record
23°46.2'W	2.7.82								

Meters recording at 1 min intervals

Table 10 Continued

Station and position	Deployed Recovered	Water depth (m)	Meter no.*	Height of meter above bottom (m)	Length of record days	hours	min	Timing discrepancy (min)	Notes
81-13	20.10.81	4062	120	1042					Rig lost
30°28.6'N			926	50					
28°50.2'W	–								
81-14	22.10.81	4912	476	977	184	1	56	+ 4	(T) Fault after 4418 hours
29°59.4'N			898	50	259	13	59	+ 1	(T) Large number of zero velocities
27°21.3'W	8.7.82								
81-15	22.10.81	5419	128	1053	259	10	00	0	(T) Temp suspect at end
30°00.5'N			885	50	29	23	00	0	(T) Meter malfunction
25°21.5'W	9.7.82								
81-16	27.10.81	5296	444	4622	255	0	55	+ 5	(T) Good record
30°19.5'N			534	3677	255	1	00	0	(T) 239 zero speed readings
23°22.0'W	9.7.82		606	2101	255	1	01	– 1	(T) Good record
			933	1050	255	1	01	– 1	(T) Good record
			987	50	255	1	02	– 2	(T) Good record
81-17	27.10.81	5027	644	1031	255	4	48	+12	(T) Good record
31°00.5'N			924	50	255	4	58	+ 2	(T) Good record
21°50.4'W	10.7.82								
81-18	28.10.81	4511	351	1031	255	5	00	0	(T) Good record
32°00.5'N			801	50	255	4	43	+17	(T) Good record
20°00.2'W	10.7.81								

*All meters are Aanderaa Type 4.
With the exception noted at 81-02 all meters record at hourly intervals.

Table 11 North-east Atlantic, 1982 deployments (82-03 to 82-18) (Figure 7)

Station and position	Deployed / Recovered	Water depth (m)	Meter no.*	Height of meter above bottom (m)	Length of record			Timing discrepancy (min)	Notes
					days	hours	min		
82-03	26.6.82	1537	696	748	90	17	00	0	(T) Good record
51°41.1'N			999	50	90	17	00	0	(T) Good record
15°12.7'W	25.9.82								
82-04	26.6.82	2404	573	1105	90	13	00	0	(T) Speed unreliable
51°42.1'N			397	50	90	13	00	0	(T) Good record
15°18.8'W	25.9.82								
82-05	27.6.82	1328	331	917	158	12	58	+ 2	(T) Good record
54°05.2'N			500	45	158	13	04	− 4	(T) Speed unreliable
19°55.4'W	3.12.82								
82-06	27.6.82	1904	599	1257	1	09	0	–	(T) Rig broke adrift
53°45.8'N			824	45	–	–	–	–	Meter lost
19°35.5'W	–								
82-07	27.6.82	2500	37	1232	155	12	0	0	(T) Good record
53°25.2'N			104	45	155	12	0	0	(T) Good record
19°02.2'W	30.11.82								
82-08	28.6.82	3168	768	1384	154	21	59	+ 1	(T) Good record
52°58.2'N			888	45	154	22	0	0	(T) Good record
18°23.8'W	30.11.82								
82-09	29.6.82	4135	852	3588	369	00	04	− 4	(T) Good record
52°27.3'N			192	2576	368	23	57	+ 3	(T) Good record
17°42.9'W	3.7.83		300	1789	369	00	01	− 1	(T) Good record
			490	1026	368	23	56	+ 4	(T) Good record
			607	225	369	00	04	− 4	(T) Good record
82-10	29.6.82	4500	46	914	157	14	58	+ 2	(T) Treat with caution
51°54.4'N			278	45	157	14	57	+ 3	(T) Good record
17°39.9'W	4.12.82								
82-11	30.6.82	4314	109	229	243	15	56	+ 4	(T) Meter malfunction
50°49.7'N			879	45	370	21	03	− 3	(T) Good record
20°31.4'W	6.7.83								
82-15	30.11.82	3155	888	1384	215	05	00	0	(T) Good record
52°59.1'N			768	45	215	05	00	0	(T) Good record
18°23.4'W	3.7.83								
82-16	30.11.82	2495	104	1232	215	21	03	− 3	(T) Good record
53°25.5'N			37	45	215	21	02	− 2	(T) Good record
19°01.4'W	4.7.83								

Table 11 Continued

Station and position	Deployed / Recovered	Water depth (m)	Meter no.*	Height of meter above bottom (m)	Length of record			Timing discrepancy (min)	Notes
					days	hours	min		
82-17	3.12.82	1335	331	917	170	01	00	0	(T) Meter malfunction
54°05.2′N			500	45	212	11	07	− 7	(T) Good record
19°55.0′W	4.7.83								
82-18	4.12.82	4440	278	914	213	01	56	+ 4	(T) Good record
51°53.9′N			46	45	213	01	58	+ 2	(T) Good record
17°37.4′W	5.7.83								

*All meters are Aanderaa Type 4, recording at hourly intervals.
Data from stations 82-01, 82-02, 82-12 and 82-14 (not shown) is the property of the Scottish Marine Biological Association, Oban.
There was no station 82-13.

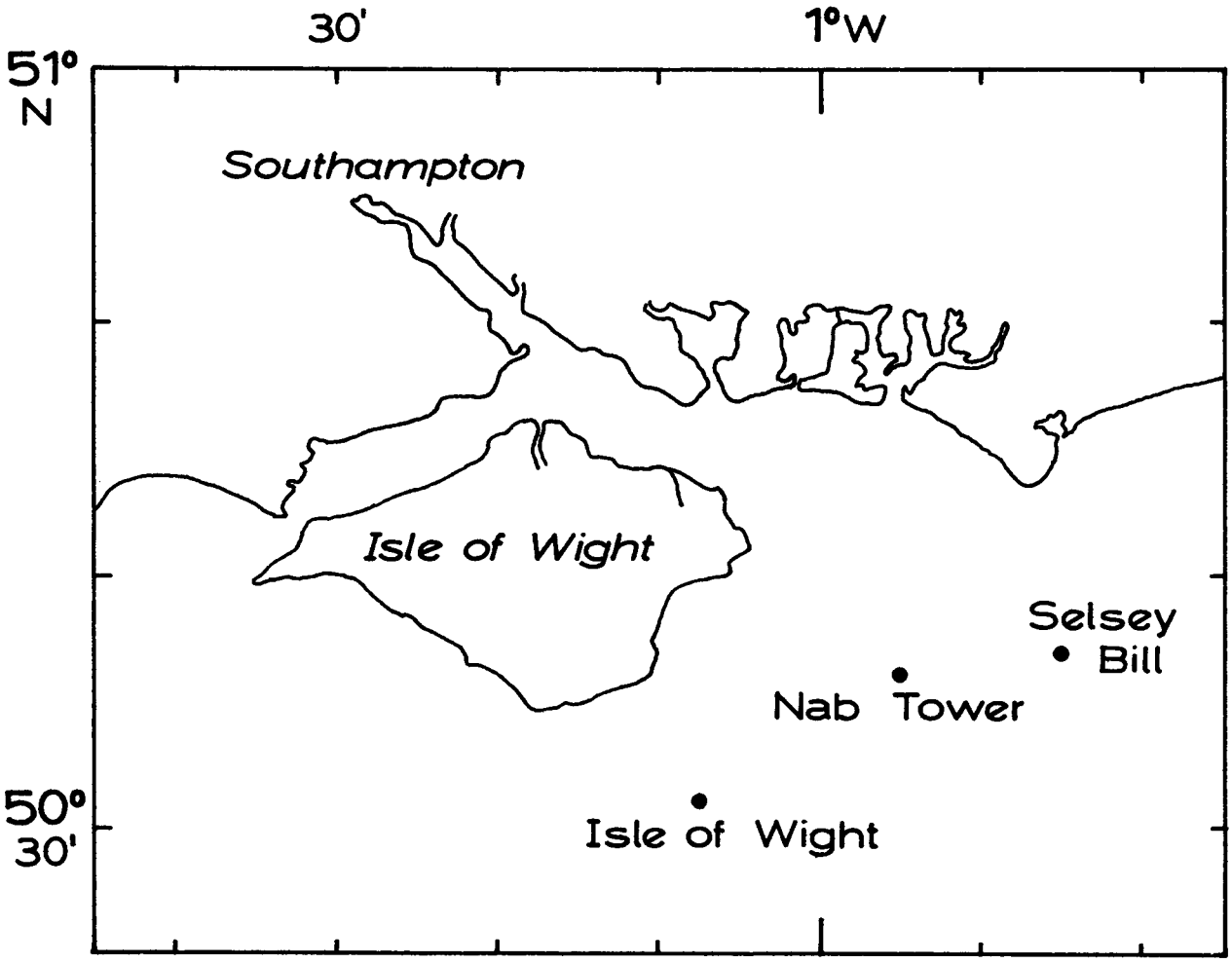

Figure 1 South coast stations (Tables 2, 4, 5)

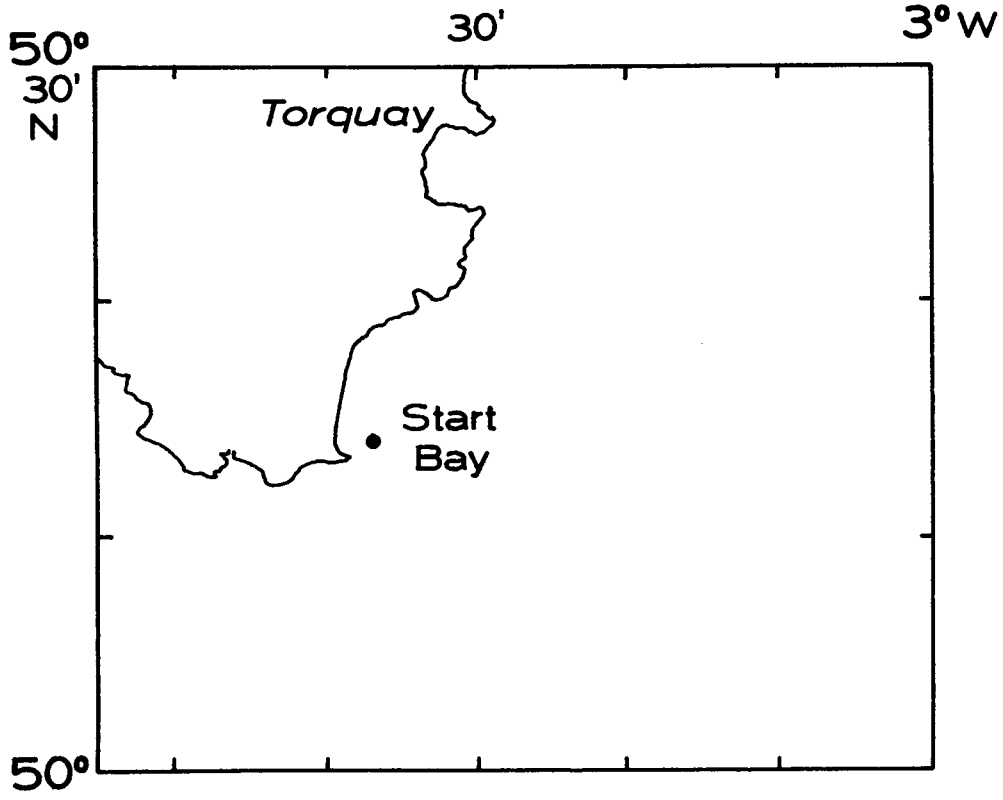

Figure 2 Start Bay station (Table 3)

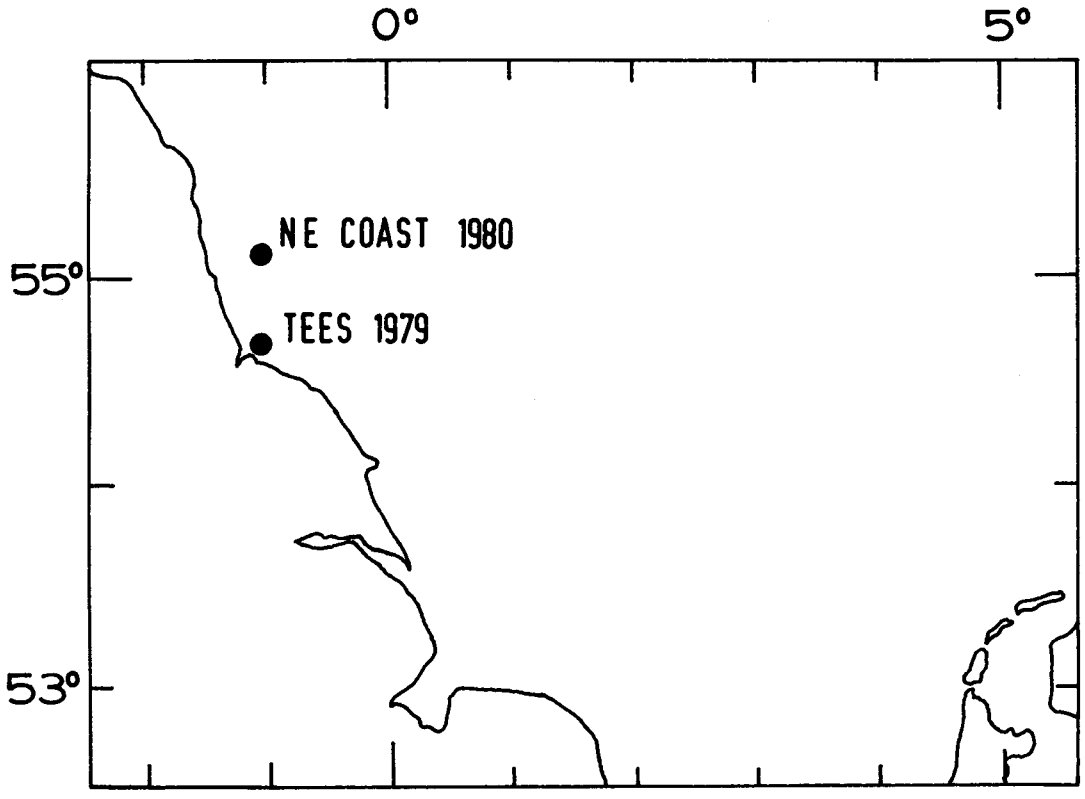

Figure 3 Additional stations for 1979 and 1980 (Tables 6, 7)

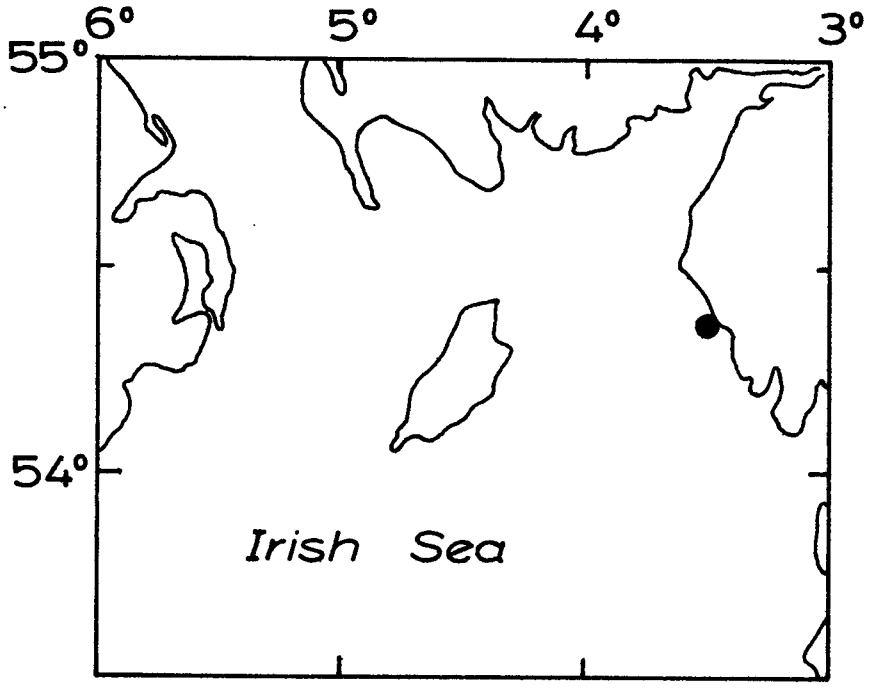

Figure 4 Sellafield station (Table 8)

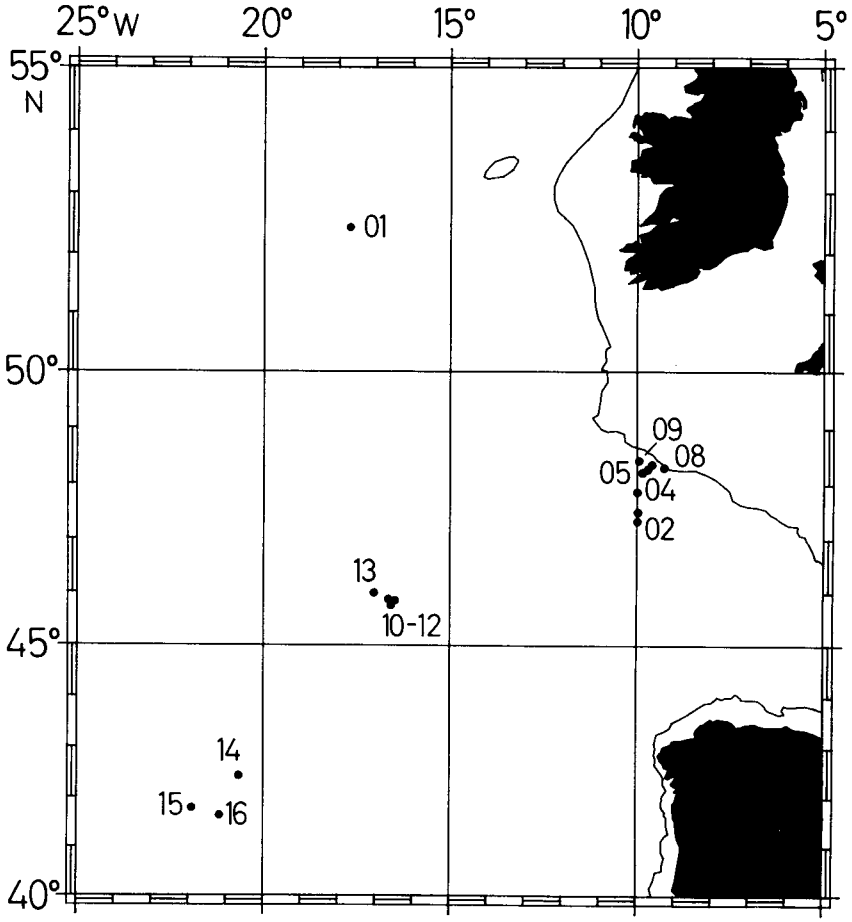

Figure 5 North-east Atlantic stations 1980-81 (Table 9)

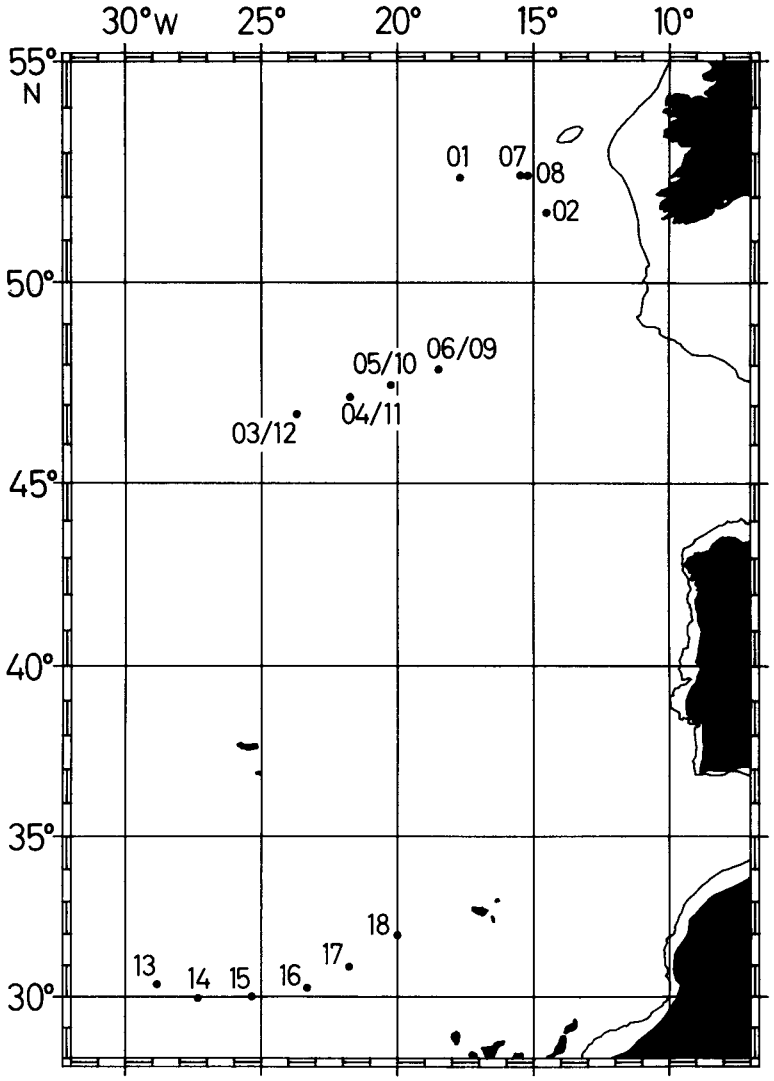

Figure 6 North-east Atlantic stations 1981-82 (Table 10)

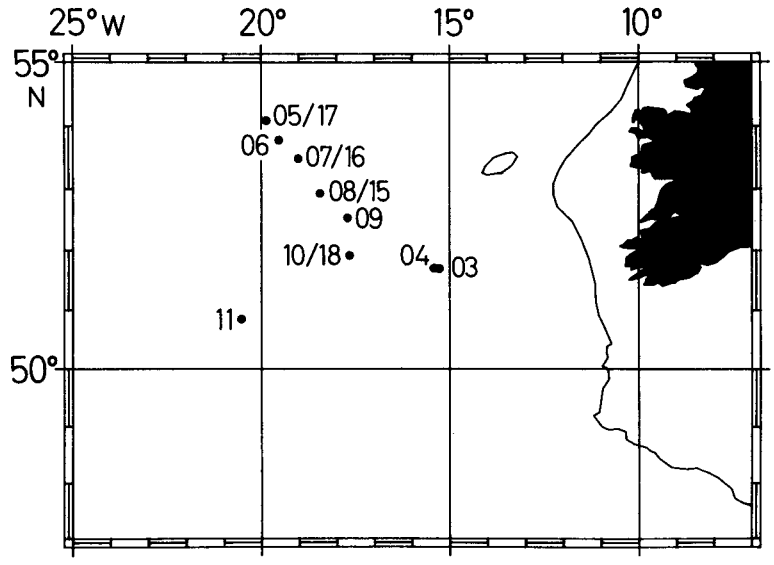

Figure 7 North-east Atlantic stations 1982-83 (Table 11)