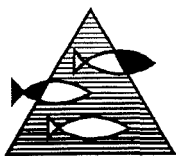


# PROSJEKTRAPPORT

ISSN 0071-5638



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Faks: 56 36 61 43

Distribusjon:

ÅPEN

HI-prosjektnr.:

920102

Oppdragsgiver(e):

Oppdragsgivers referanse:

Rapport:

FISKEN OG HAVET

NR. 3 - 1998

Tittel:

REPORT ON OCEANOGRAPHIC CRUISES  
AND DATA STATIONS 1997

Senter:

Marint miljø

Seksjon:

Norsk Marint Datasenter

Forfatter(e):

Karen Gjertsen

Antall sider, vedlegg inkl.:

87

Dato:

16.03.98

Sammendrag:

Rapporten gir en oversikt over toktene til Havforskningsinstituttets forskningsfartøy "G.O. Sars", "Johan Hjort", "Michael Sars" og "G.M. Dannevig" i 1997. I tillegg vises kurskart for leiefartøyet "Jan Mayen". Først vises en oversikt over toktnummer og tidsrom for toktene. Den påfølgende figur gir en oversikt over faste hydrografiske snitt og faste stasjoner (side 1). De to neste tabellene (side 2 og 3) viser når de faste snittene er tatt og antall observasjoner pr. måned fra de faste stasjonene. På side 3 vises også dekning - alle CTD st tatt i 1997.

Disse oversiktene er også innrapportert til Det internasjonale råd for havforskning (ICES) sammen med Roscop-skjema.

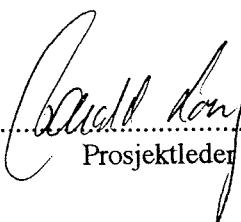
Data fra toktene er tilgjengelig fra Havforskningsinstituttet. Rapporten kan brukes til å identifisere båt og stasjonsnummer man ønsker data for.

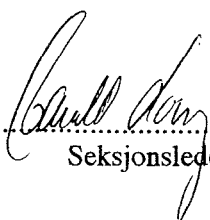
Emneord - norsk:

1. Kurskart
2. Stasjonskart

Emneord - engelsk:

1. Course track map
2. Stations map

  
.....  
Prosjektleder

  
.....  
Seksjonsleder

K 5357

## **Summary:**

The present report shows the course tracks and stations occupied by the research vessel "G.O. Sars", "Johan Hjort", "Michael Sars" and "G.M. Dannevig" during 1997.

The first tables shows the cruise number and the periods for each cruise. The next page shows the standard sections worked out by the Institute of Marine Research and the position of the fixed stations in the coastal water. The following tables (page 2 and 3) indicate when the standard sections are worked out, while the next page shows the number of observations per month of each of the fixed stations. An overview of CTD stations 1997 is given at page 3.

The data is available on request. This report may be used to indentify ship and station numbers.

CHART oceanographic stations and sections	1
STANDARD sections	2
STANDARD stations	3

### "G. O. SARS" 1997

(Ship no 15)		Page of
Cruise no	Period of cruises	track chart
1997001	29 Jan - 5 Feb	4
1997901	6 Feb - 4 Mar	5,6
1997003	6 Mar - 19 Mar	7
1997004	22 Mar - 3 Apr	8
1997005	6 Apr - 22 Apr	9,10
1997006	23 Apr - 30 Apr	11
1997007	1 May - 1 Jun	12,13
1997008	3 Jun - 20 Jun	14,15
1997009	27 Jun - 18 Jul	16,17
1997010	20 Jul - 17 Aug	18,19
1997902	19 Aug - 9 Sep	20,21
1997904	11 Sep - 2 Oct	22,23
1997013	9 Oct - 19 Oct	24,25
1997014	21 Oct - 18 Nov	26,27
1997015	21 Nov - 17 Dec	28

### "JOHAN HJORT" 1997

(Ship no 12)		Page of
Cruise no	Period of cruises	track chart
1997201	14 Jan - 3 Feb	29,30
1997901	6 Feb - 1 Mar	31,32
1997203	4 Mar - 19 Mar	33
1997204	20 Mar - 31 Mar	34,35
1997205	2 Apr - 22 Apr	36,37
1997207	24 Apr - 26 May	38
1997208	28 May - 17 Jun	39,40
1997209	19 Jun - 16 Jul	41,42
1997903	18 Jul - 4 Aug	43
1997902	20 Aug - 9 Sep	44,45
1997904	11 Sep - 2 Oct	46,47
1997213	4 Oct - 27 Oct	48,49
1997214	28 Oct - 8 Nov	50,51
1997215	10 Nov - 25 Nov	52,53
1997216	26 Nov - 13 Dec	54,55
1997217	13 Dec - 17 Dec	56

### "MICHAEL SARS" 1997

(Ship no 11)		Page of
Cruise no	Period of cruises	track chart
1997101	21 Jan - 17 Feb	57,58
1997102	20 Feb - 18 Mar	59,60
1997103	21 Mar - 31 Mar	61
1997104	2 Apr - 22 Apr	62
1997106	10 May - 30 May	63,64
1997107	3 Jun - 16 Jun	65
1997114	17 Jun - 1 Jul	66
1997109	4 Jul - 14 Jul	67
1997110	15 Jul - 24 Jul	68
1997903	29 Jul - 14 Aug	69,70

1997112	20 Aug - 24 Sep	71
1997115	24 Sep - 27 Sep	72
1997116	10 Oct - 30 Oct	73
1997117	1 Nov - 18 Dec	74, 75, 76

## "G. M. DANNEVIG" 1997

(Ship no 16)

"G.M.Dannevig" is periodical hired by SFT  
(Norwegian Pollution Control Authority)

Cruise no	Period of cruises	Page of track chart
1997301	18 Jan	77
1997351	18 Jan SFT	
1997302	21 Jan -23 Jan	78
	27 Jan SFT	
1997352	10 Feb SFT	
1997303	11 Feb - 13 Feb	78
1997304	14 Feb - 15 Feb	77
1997353	24 Feb SFT	
1997354	10 Mar SFT	
1997305	13 Mar - 15 Mar	79
1997306	11 Mar - 12 Mar	77
1997355	24 Mar SFT	
1997356	1 Apr SFT	
1997307	2 Apr - 4 Apr	79
1997357	15 Apr SFT	
1997308	16 Apr - 1 May	
1997358	5 May SFT	
1997309	3 May - 5 May	80
1997310	9 May - 13 May	84
1997359	20 May SFT	
1997311	20 May - 21 May	77
1997360	2 Jun SFT	
1997312	2 Jun - 4 Jun	80
1997310	11 Jun - 14 Jun	84
1997361	16 Jun SFT	
1997313	16 Jun - 17 Jun	77
1997314	30 Jun 6 Jul	
1997362	10 Jul SFT	
1997315	7 Jul - 9 Jul	81
1997316	10 Jul - 11 Jul	77
1997363	29 Jul SFT	
1997317	6 Aug - 8 Aug	81
1997364	11 Aug SFT	
1997318	12 Aug - 16 Aug	
1997319	17 Aug - 18 Aug	77
1997320	19 Aug - 24 Aug	
1997365	25 Aug STF	
1997321	26 Aug - 30 Aug	
1997322	1 Sep - 8 Sep	84
1997366	9 Sep SFT	
1997323	10 Sep - 11 Sep	77
1997324	12 Sep - 14 Sep	82
1997325	15 Sep - 3 Oct	
1997367	6 Oct SFT	
1997326	6 Oct - 7 Oct	77
1997327	9 Oct - 16 Oct	84
1997328	17 Oct - 19 Oct	82

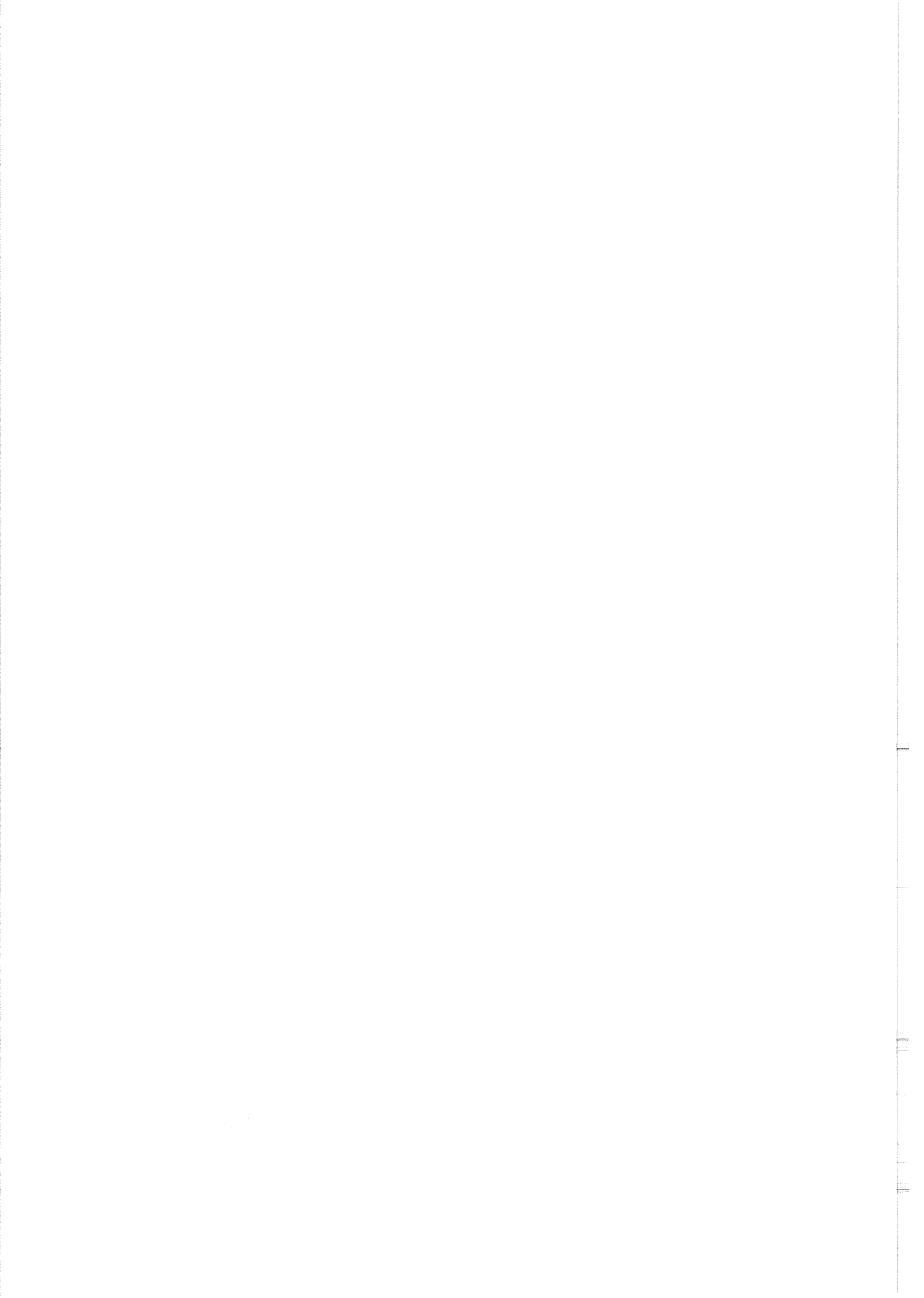
1997327	9 Oct - 19 Oct		84
1997328	17 Oct - 19 Oct		82
1997368	19 Oct	SFT	
	10 Nov - 11 Nov		77
1997330	12 Nov - 13 Nov		83
	13 Nov - 15 Nov		
1997329	16 Nov - 18 Nov		85
1997369	20 Dec	SFT	
1997370	1 Dec	SFT	
1997331	1 Dec - 2 Dec		77
1997332	15 Dec - 17 Dec		83

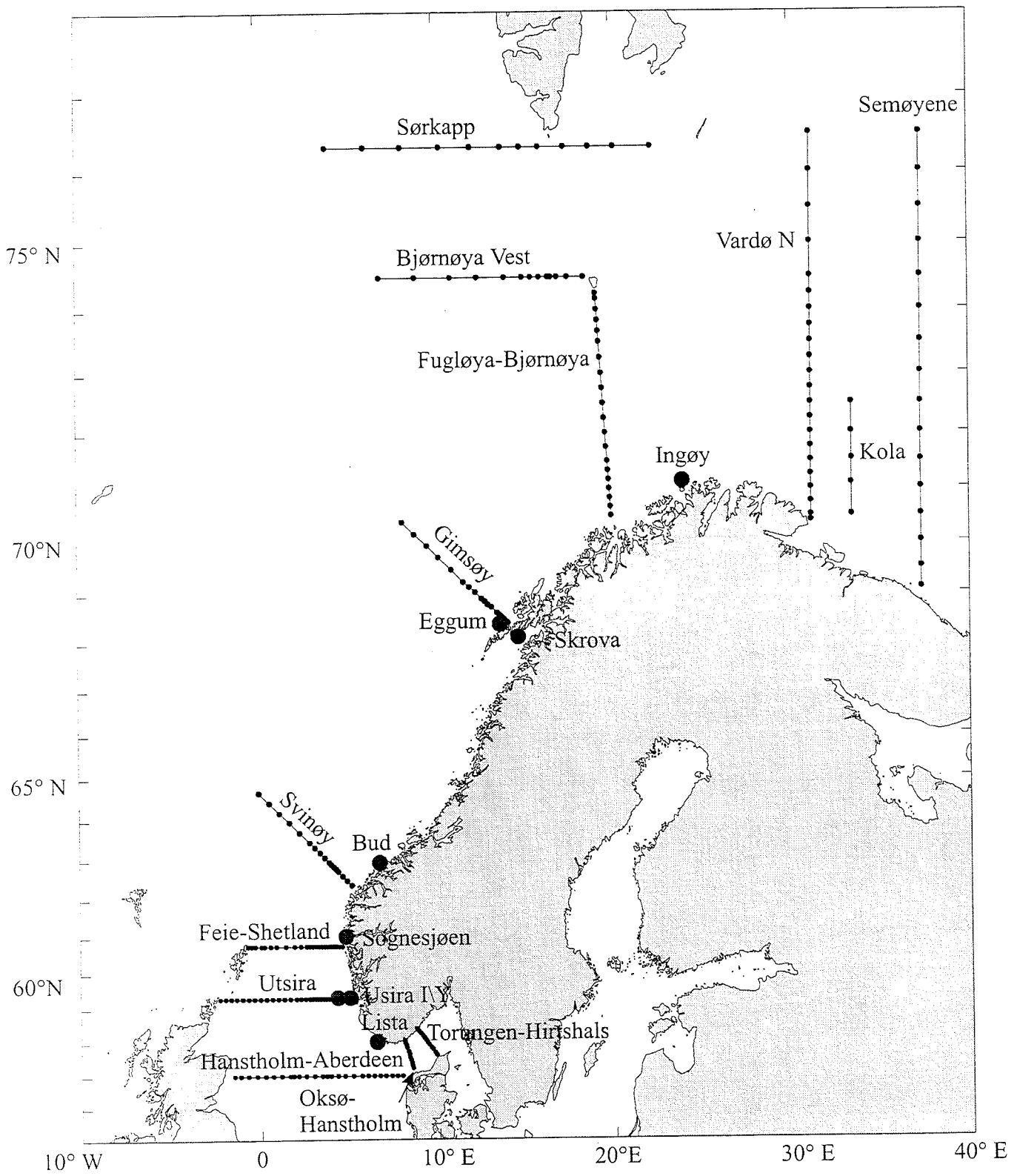
"JAN MAYEN" 1997

Cruise no	Period of cruises	Page of
		track chart
1997901	3 Feb - 27 Feb 1977	86,87

Guidelines:

- z Vertical Oceanogr. st., CTD ST.
- △ Pelagic trawl station
- Bottom trawl station
- ⊙ CTD and PLANKTON st
- Plankton station
- M Mocness





STANDARD 1997

Cruise no/ship

SECTIONS

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Torungen - Hirtshals	Page 77 shows this section taken by "G.M. Dannevig											1997015GS
Oksø - Hanstholm		1997101MS										1997015GS
Hanstholm - Aberdeen		1997101MS				1997009GS						1997015GS
Utsira West	1997101MS						1997009GS				1997015GS	
Feie - Shetland	1997101MS				1997106MS	1997208JH					1997015GS	
Svinøy - North/West	1997001GS	1997102MS	1997004GS	1997005GS		1997209JH	1997010GS		1997115MS	1997214JH		1997217JH
Gimsøy - North/West		1997001GS	1997203JH	1997104MS	1997007GS		1997209JH		1997112MS		1997215JH	
					1997207JH			1997010GS				
Sørkapp												
Fugløya - Bjørnøya		1997901JM	1997203JH		1997207JH	1997008GS		1997902GS	1997904GS			
Bjørnøya West			1997203JH		1997207JH							
Vardø - North		1997901GS	1997203JH			1997008GS		1997903MS				
								1997902JH				
Sem. Island - North												

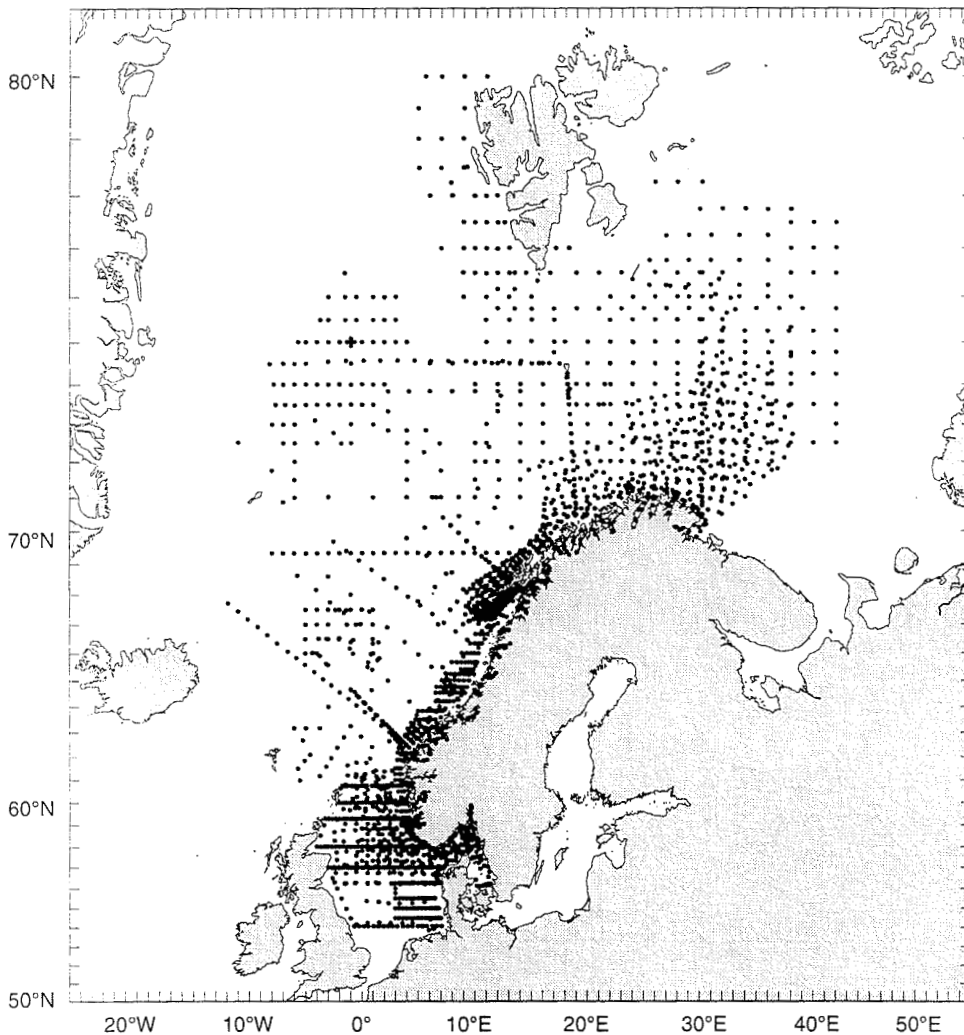


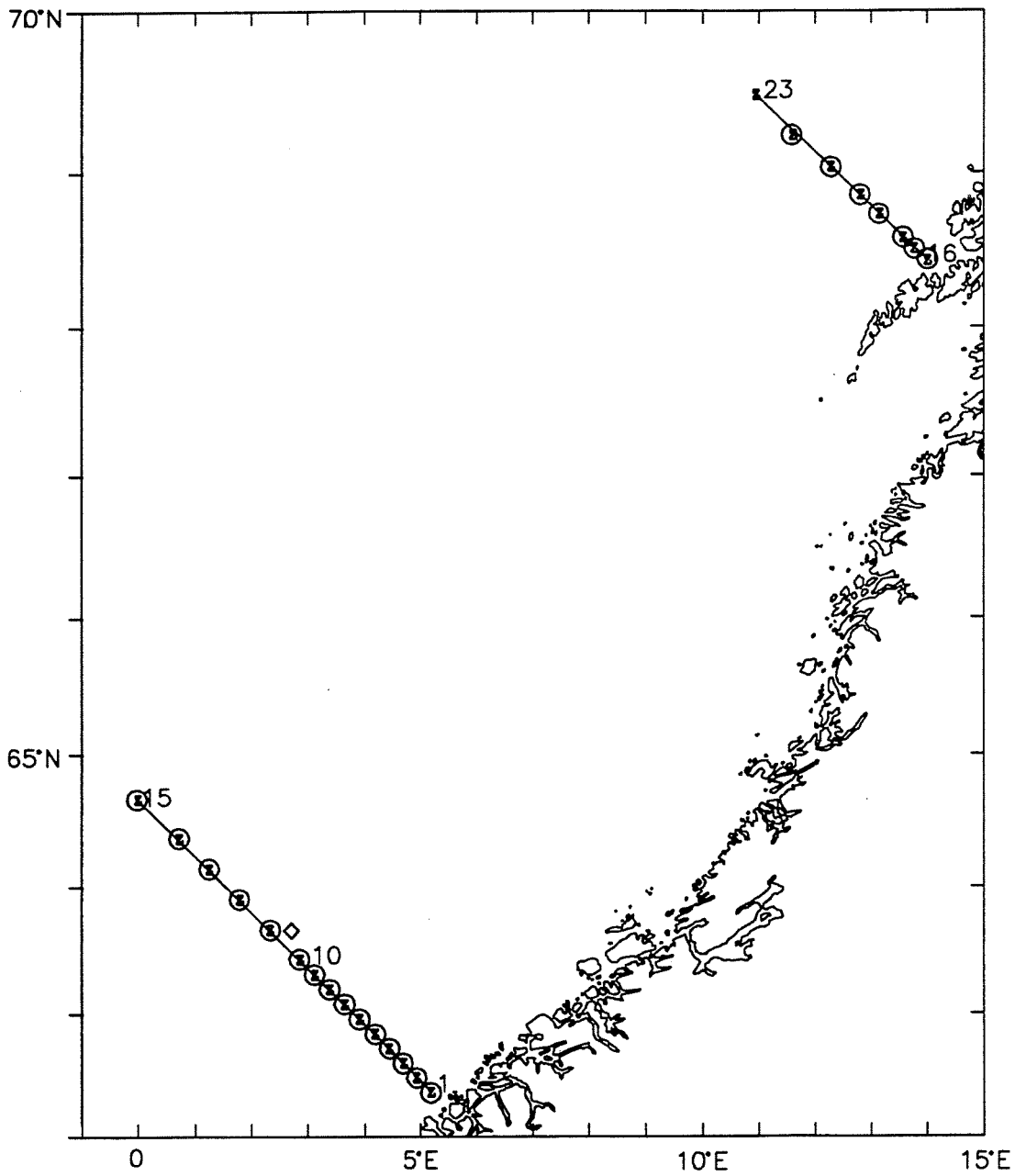
No of observations in 1997

**STANDARD STATIONS**

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
<b>LISTA</b> N58 01 E06 32	3	3	2	3	4	3	3	3	3	3	3	3	36
<b>UTSIRA Y</b> N59 19 E04 44	3	3	3	3	3	3	3	3	3	3	3	3	36
<b>UTSIRA I</b> N59 19 E04 59	3	3	3	3	3	3	3	3	3	3	3	3	36
<b>SOGNESJØEN</b> N61 01 E04 50	1	1	2	3	2	2	3	3	3	3	3	3	29
<b>BUD</b> N62 56 E 06 47	3	1	2	2	3	3	3	4		3	3	2	29
<b>SKROVA</b> N68 07 E14 39	3	3	4	3	3	3	3	3	3	4	3	4	39
<b>EGGUM</b> N 68 23 E13 38	2	4	3	4	3	3	3	3	3	3	3	4	38
<b>INGØY</b> N71 08 E 24 01	3	3	4	3	5	3	3	2	4	2	2	2	36

**Overview CTD stations 1997**





29 Jan - 5 Feb 1997  
 Cruise no 1997001

z CTD st.no 1-23

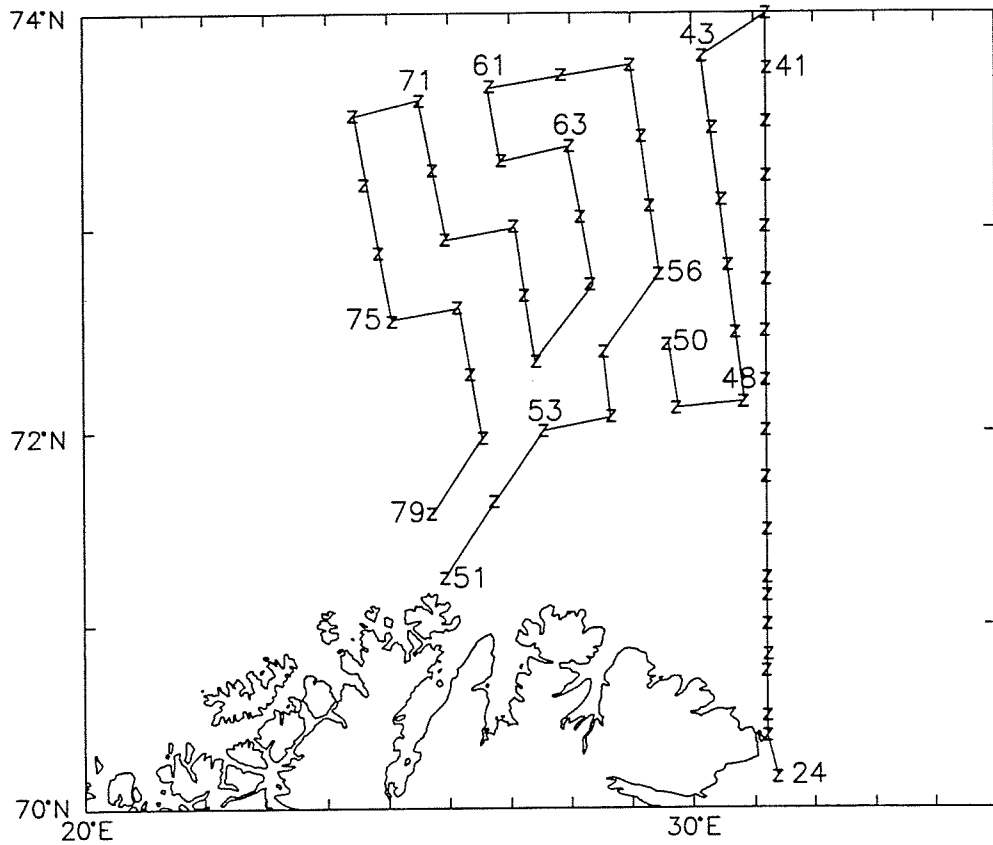
"G.O.Sars"

⊙ CTD and plankton st. (WPII-net)

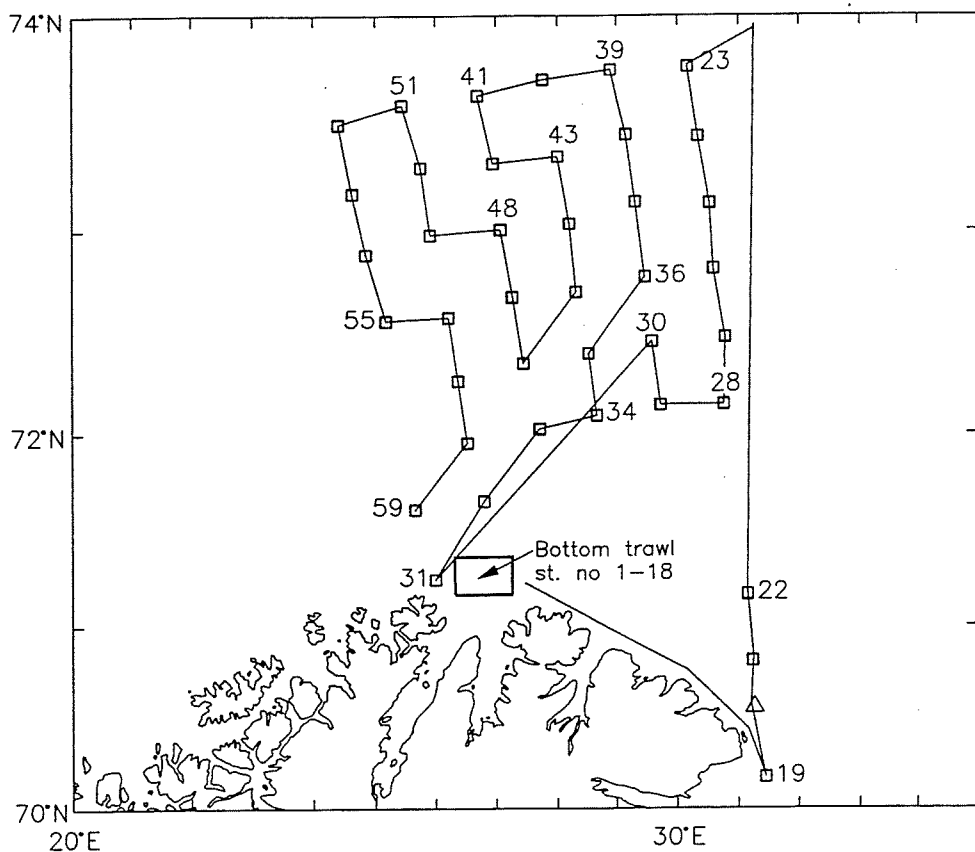
◇ Mocness st.

Standard section Svinøy NW: st.no 1-15

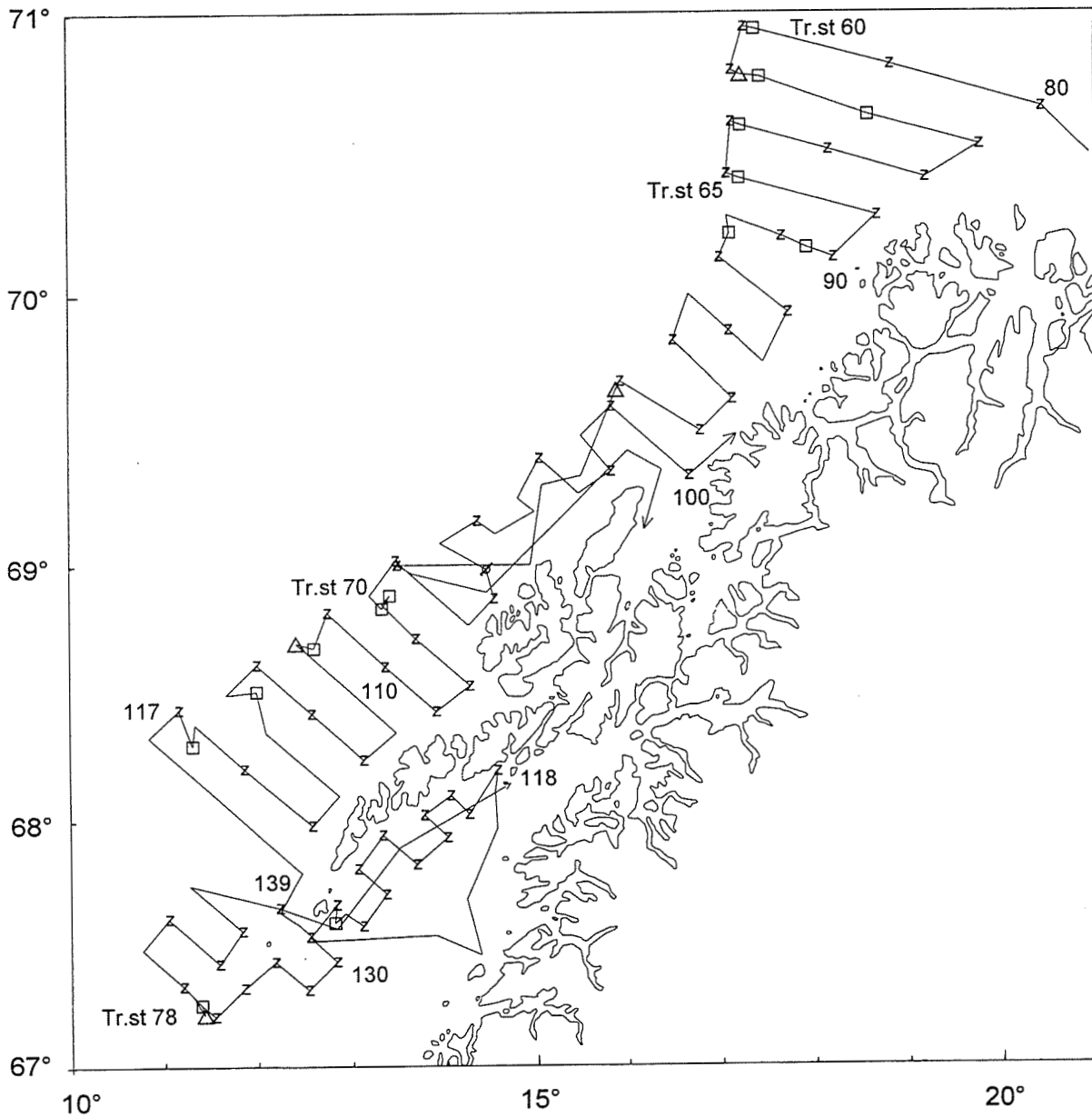
Gimsøy NW: st.no 16-23



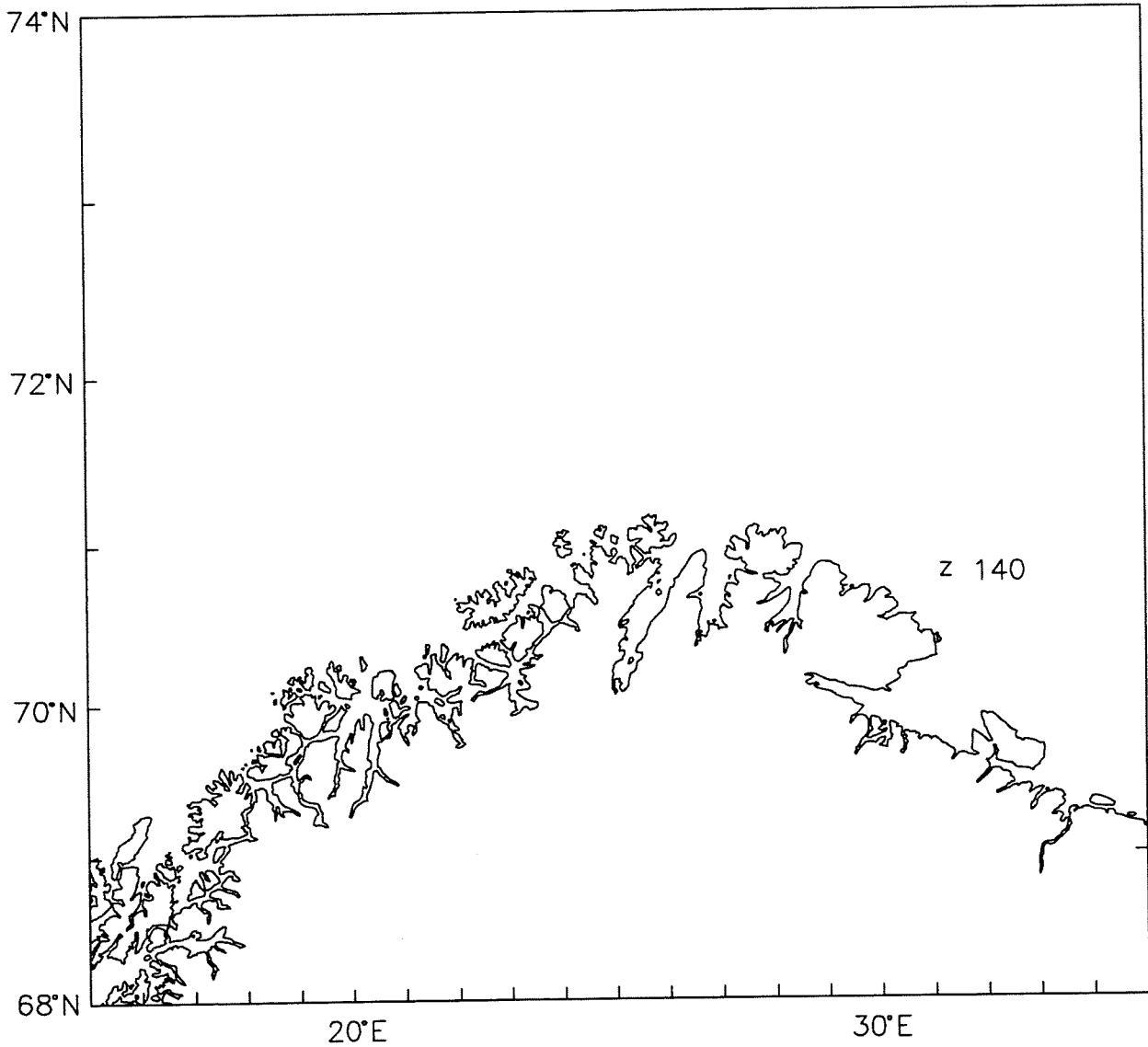
6 - 18 Feb 1997 (1 part)      z CTD st.no 24-79      "G.O.Sars"  
 Cruise no 1997901      Standard section Vardø N: st.no 25-42



6 - 18 Feb 1997 (1 part)       $\Delta$   $\square$  TRAWL st.no 1-59      "G.O. Sars"  
 Cruise no 1997901       $\square$  Bottom tr.  
     $\Delta$  Pel. tr.



19 Feb - 4 Mar 1997 (II. part) z CTD st.no 80-139 G.O.Sars"  
 Cruise no 1997901  
 □△ TRAWL st.no 60-78  
 □ Bottom trawl  
 △ Pel trawl  
 ○ Handline



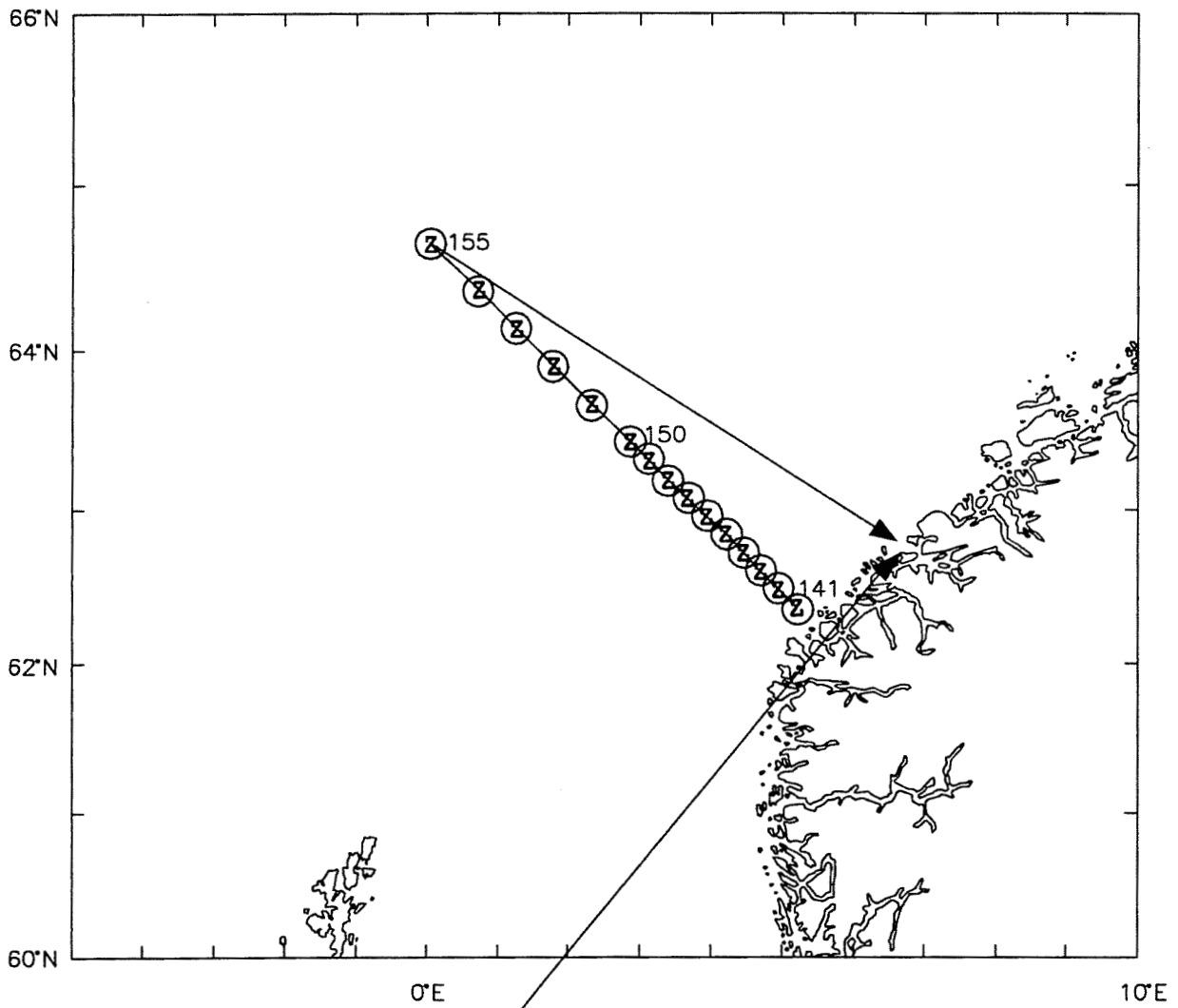
6 - 19 Mar 1997

z CTD st.no 140

G.O. Sars"

Cruise no 1997003

TRAWL st. not shown



22 Mar–3 Apr 1997

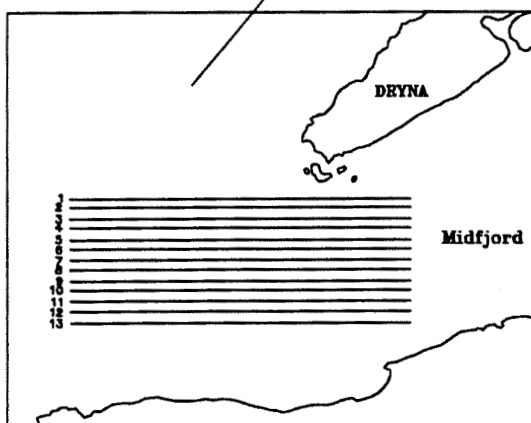
I part:

"G.O.Sars"

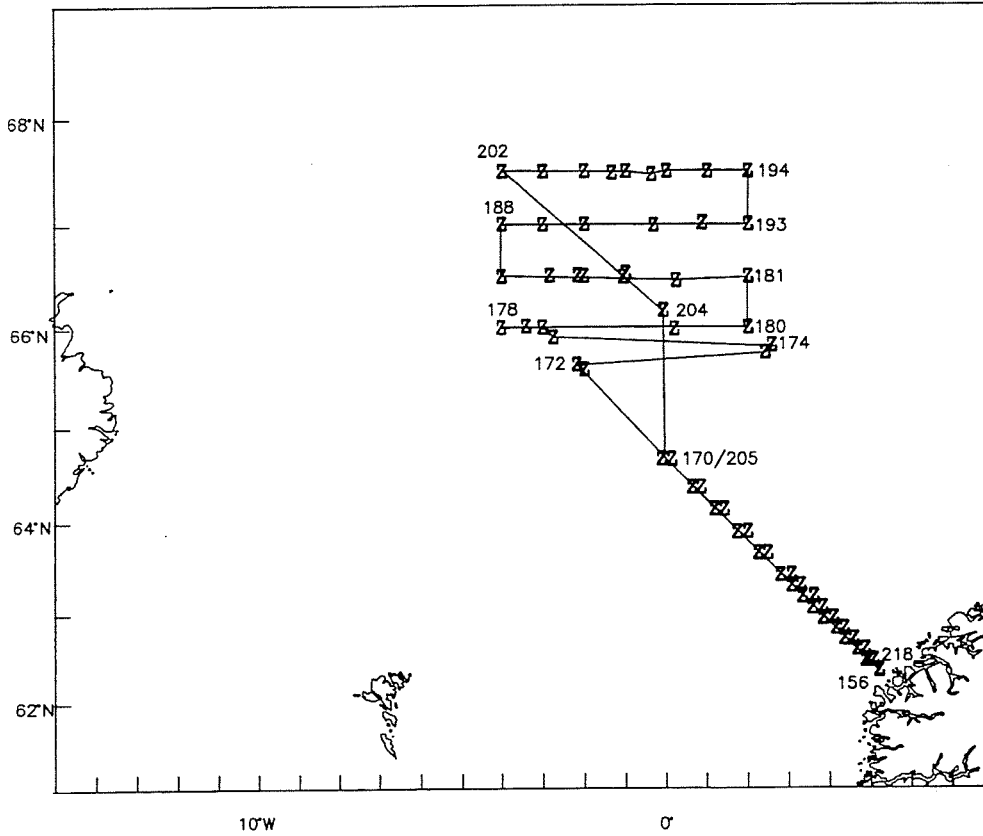
Cruise no 1997004

Ⓩ CTD and PLANKTON st (WP-II net) st.no 141–155

Standard section Svinøy NW: st.no 141–155



II part: Methods for detecting and mapping of *Lophelia* coral banks were performed in outer Midfjorden. Depth recordings were taken along transects 1–13 (Two n.m. long and 90 m apart). The data were used to produce a bathymetrical map.



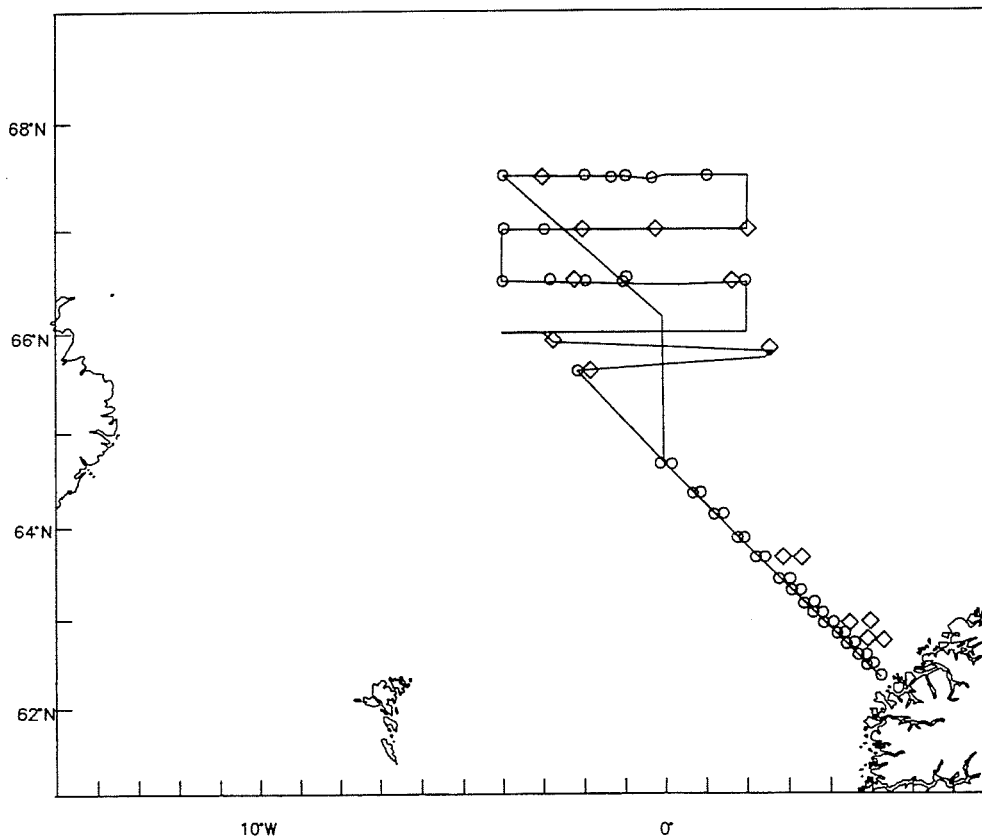
6 - 22 April 1997

z CTD st.no 156-218

"G: O. Sars"

Cruise no 1997005

Standard section Svinøy NW: st.no 156-170/205-218

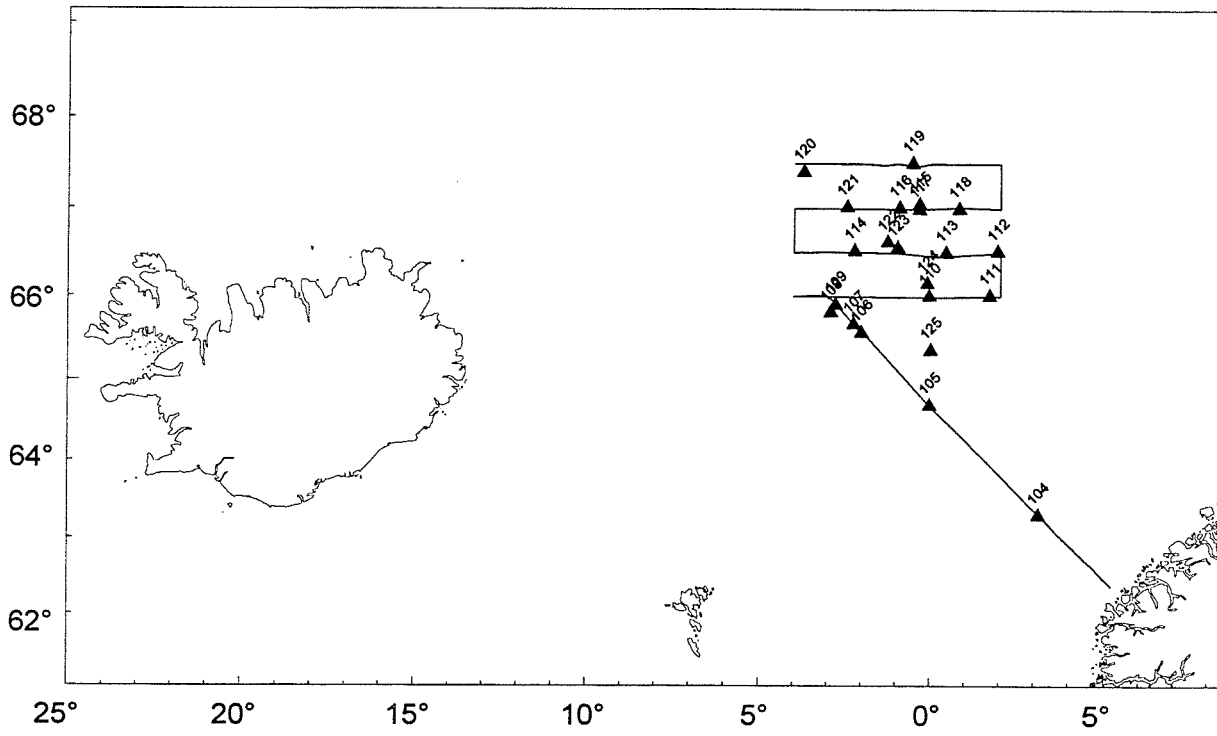


6 - 22 April 1997

○ WP II net  
◇ MOCNESS st.

"G: O. Sars"

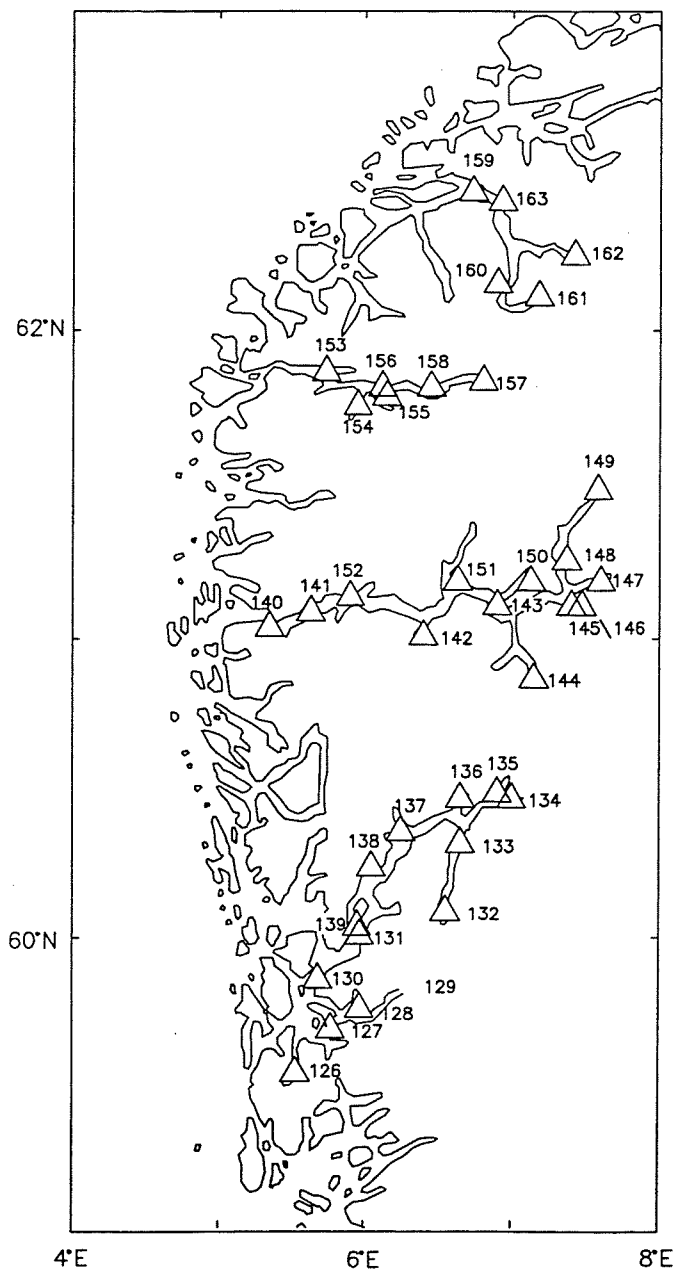
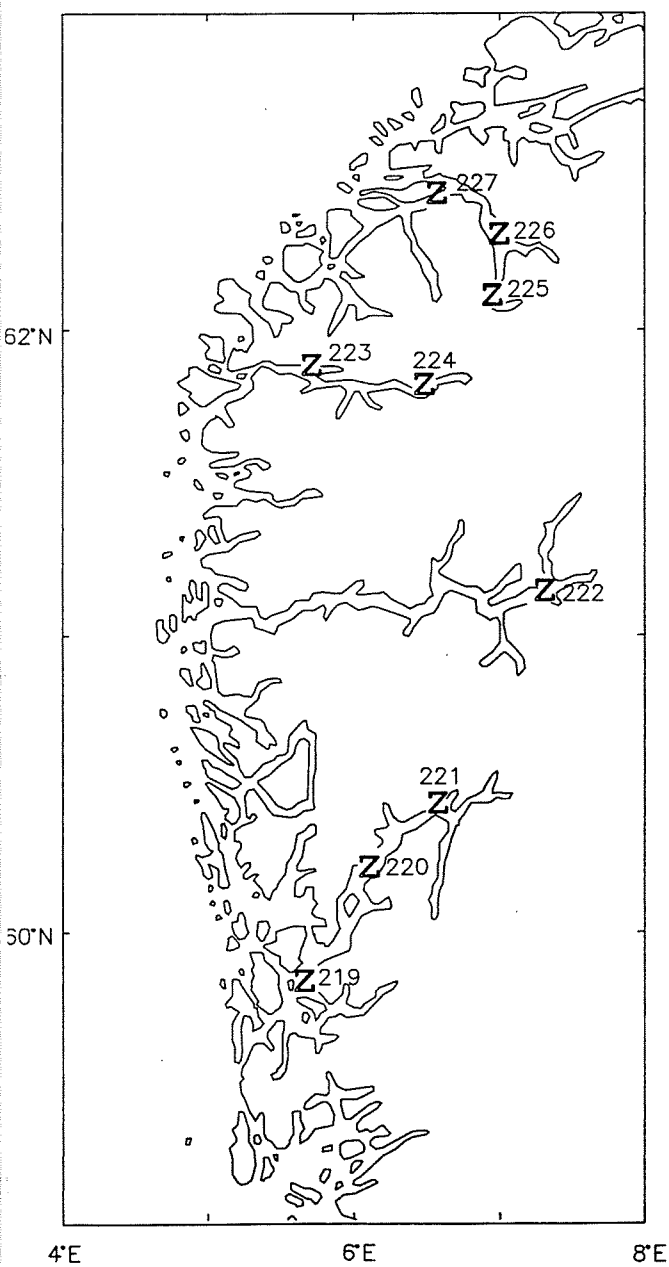
Cruise no 1997005



6 – 22 April 1997 ▲ Pel. TRAWL st.no 104–125  
 Cruise no 1997005

"G. O. Sars"

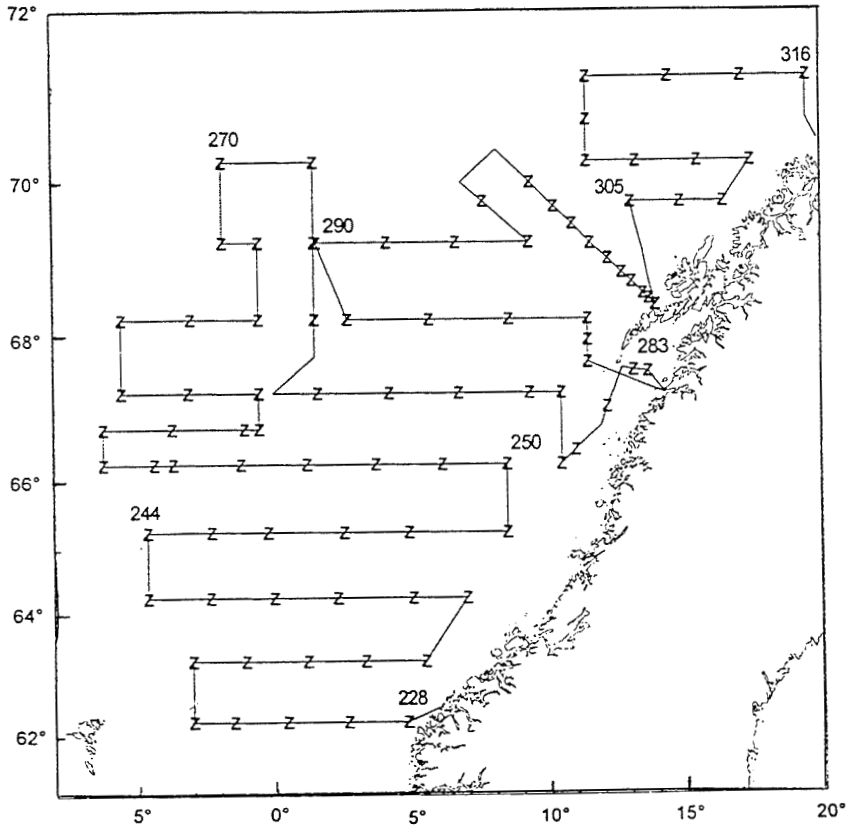




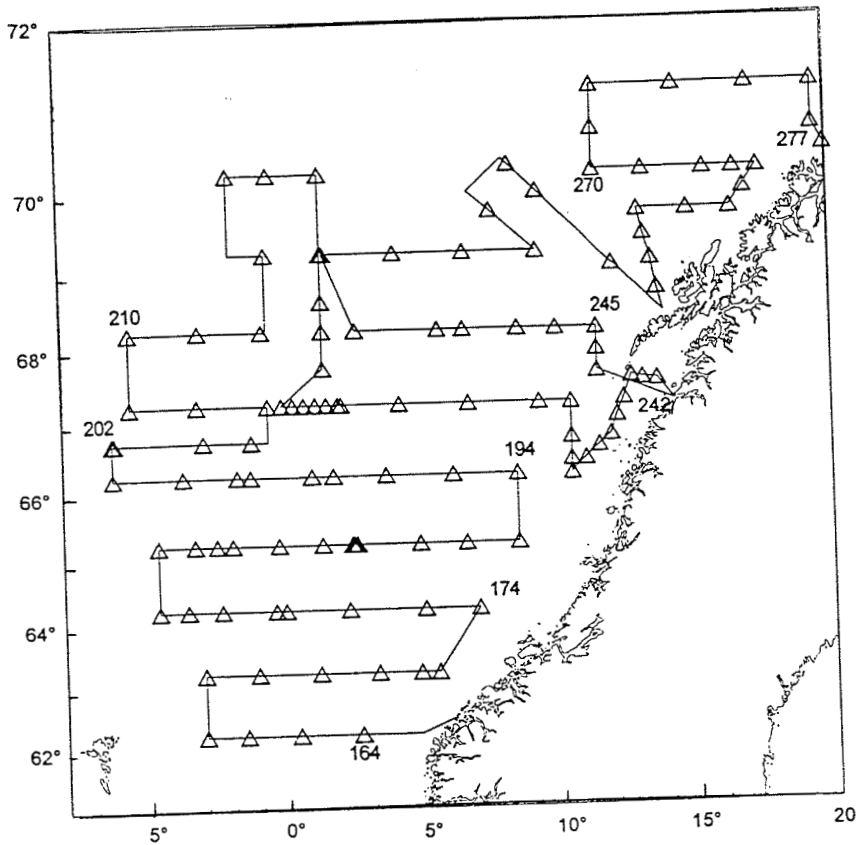
23-30 Apr 1997    Z CTD st.no 219-227    "G.O. Sars"

△ TRAWL st.no 126-163

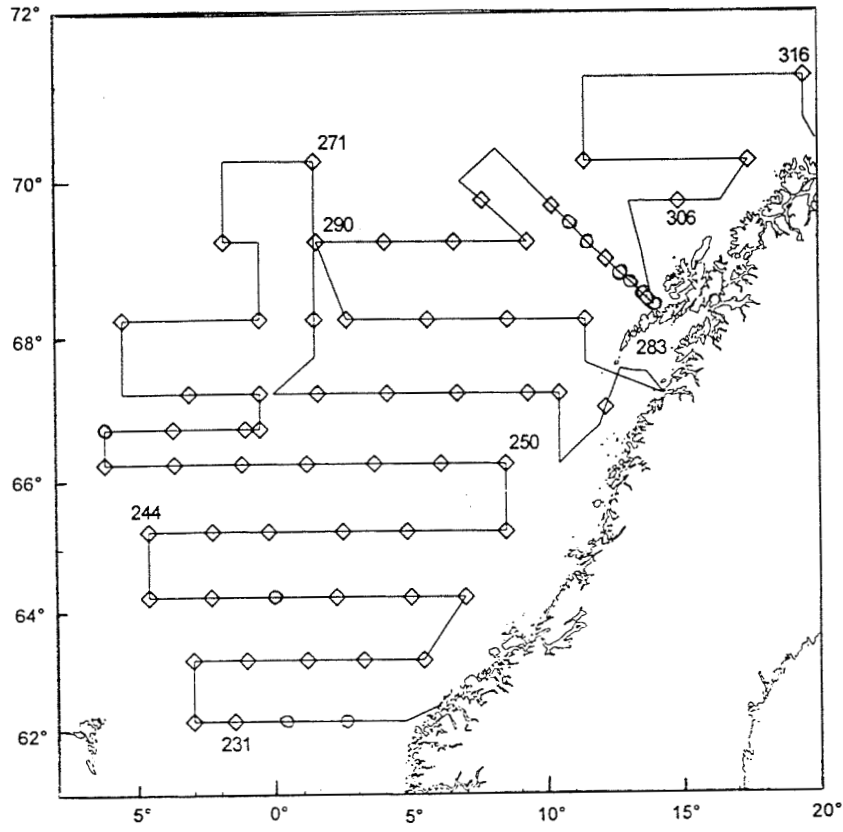
Cruise no 1997006



1 May-1 Jun 1997 z CTD st.no 228-316 "G.O.Sars"  
 Cruise no 1997007 Standard section Gimsøy NW: st.no 295-304



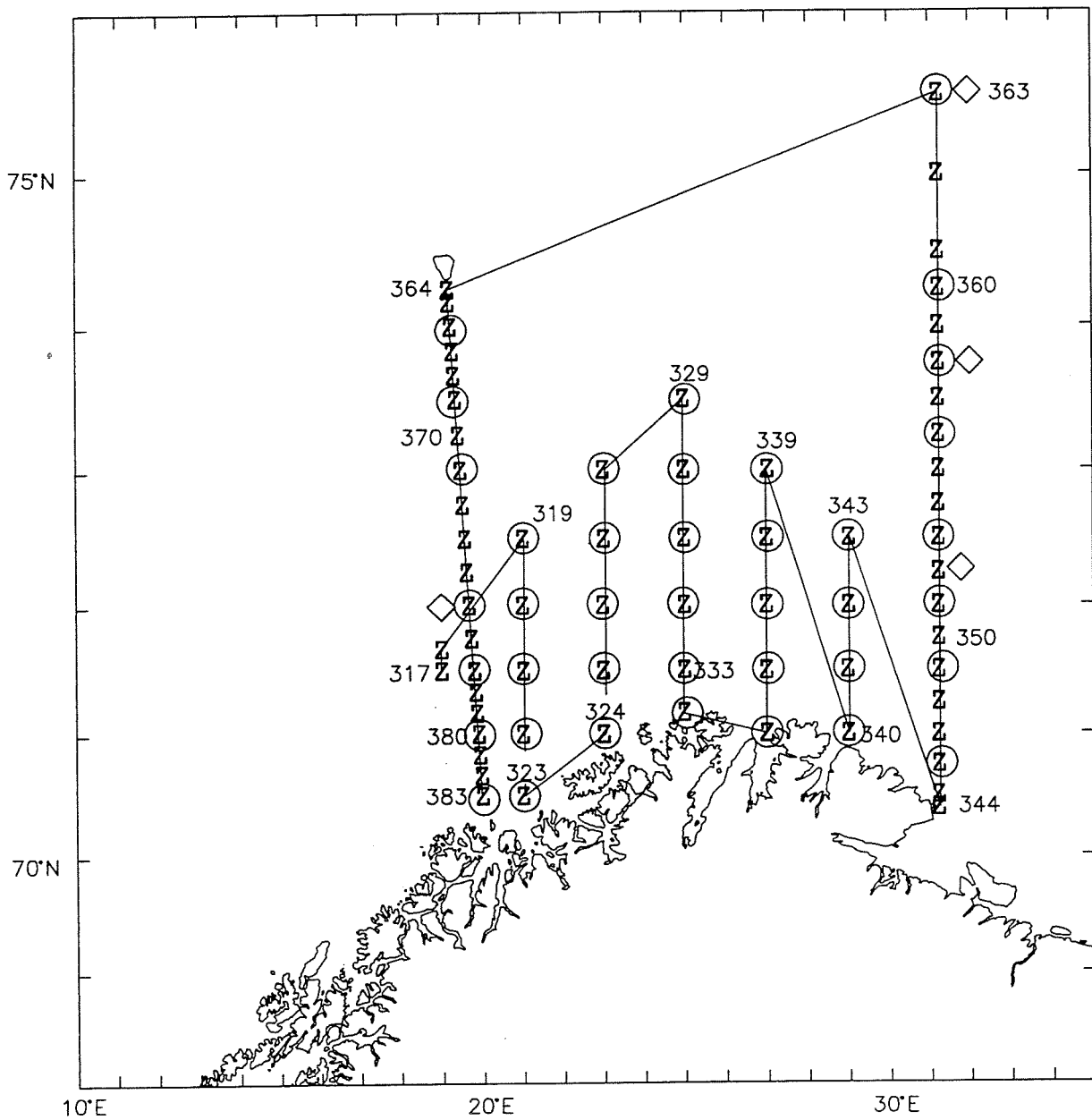
1 May-1 Jun 1997 Δ Pel. TRAWL st.no 164-277 "G.O.Sars"  
 Cruise no 1997007



1 May-1 Jun 1997  
 Cruise no 1997007

- ◇○ PLANKTON st.
- ◇ MOCNESS st.
- WP II net

"G.O.Sars"



3 - 20 June 1997

Cruise no. 1997008

z CTD st.no 317-383

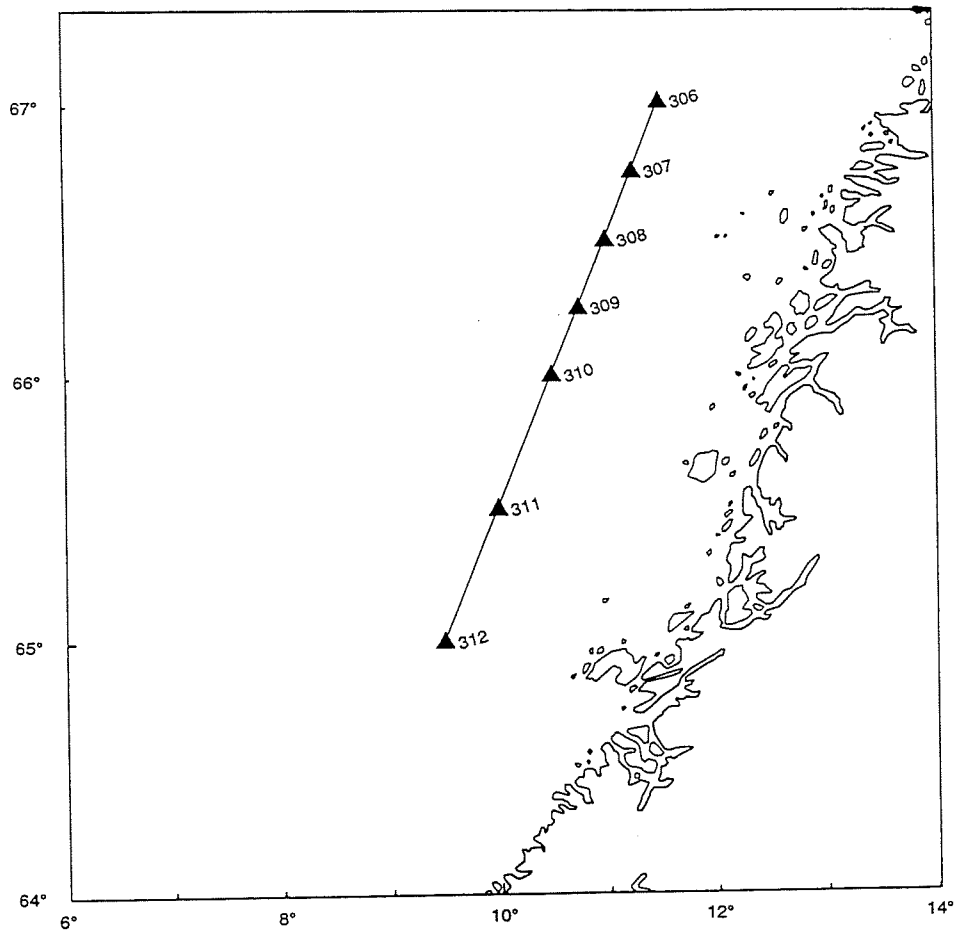
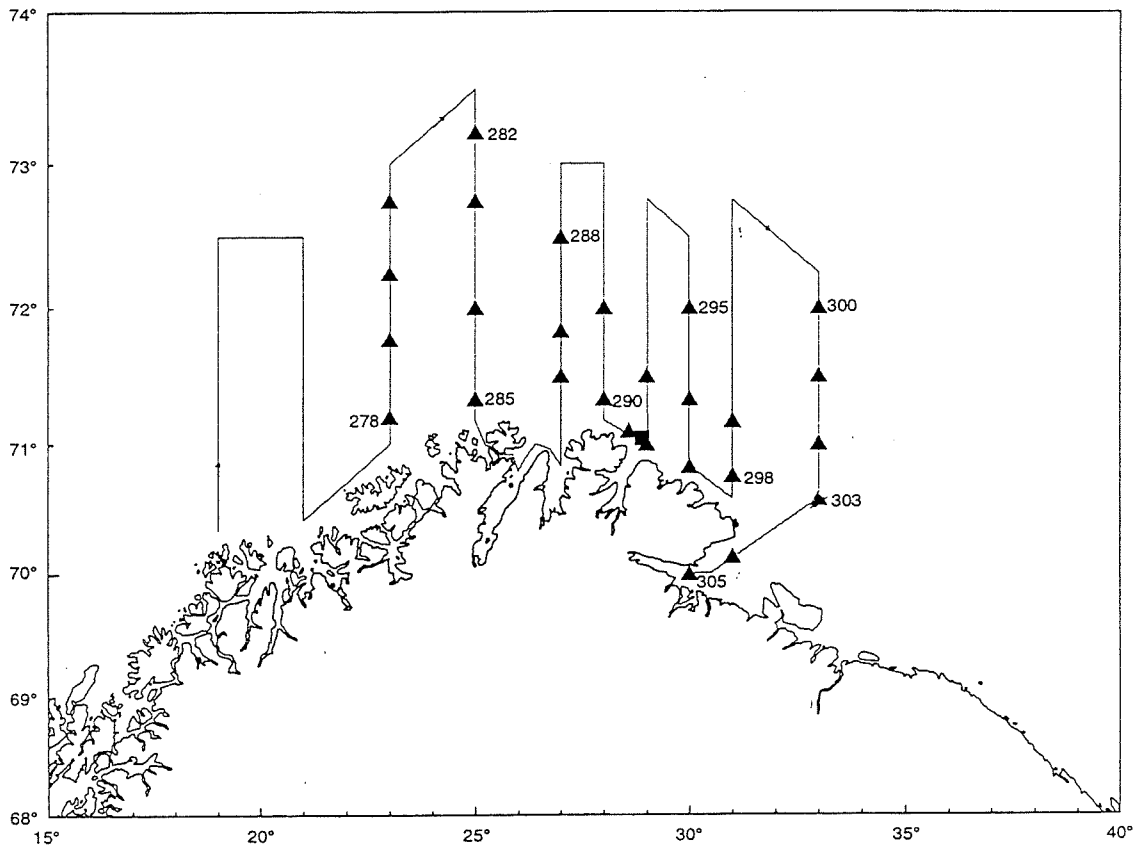
"G.O.Sars"

⊙ CTD and PLANKTON, eggs/larvae st. (Gulf III)

◇ Mocness st.

Standard sections Fugløya-Bjørnøya st.no 364-383

Vardø N st.no 334-363



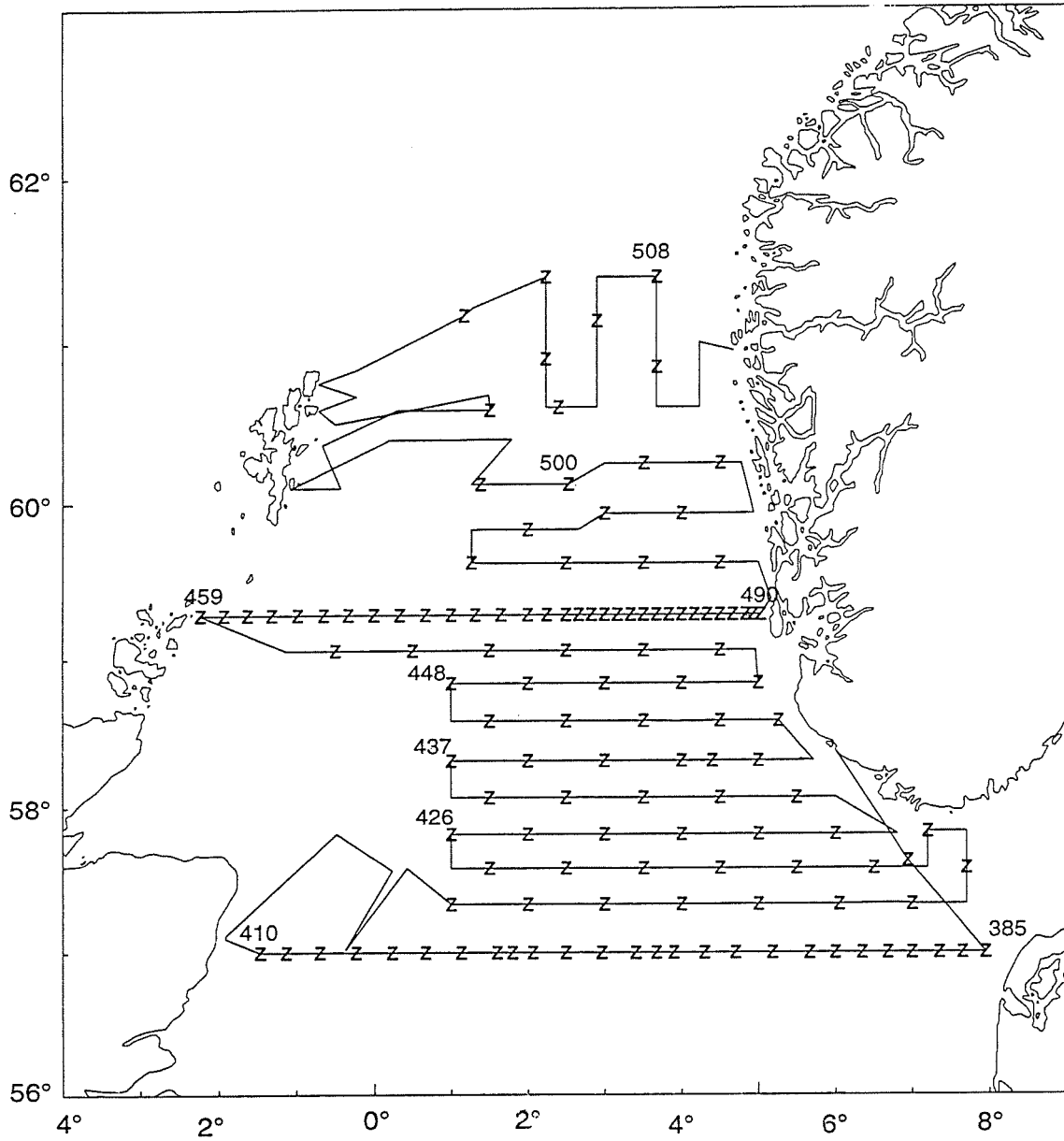
3 - 20 June 1997

Cruise no 1997008

■▲ TRAWL st.no 278 - 312

▲ Pel tr.  
■ Bottom tr.

"G.O.Sars"

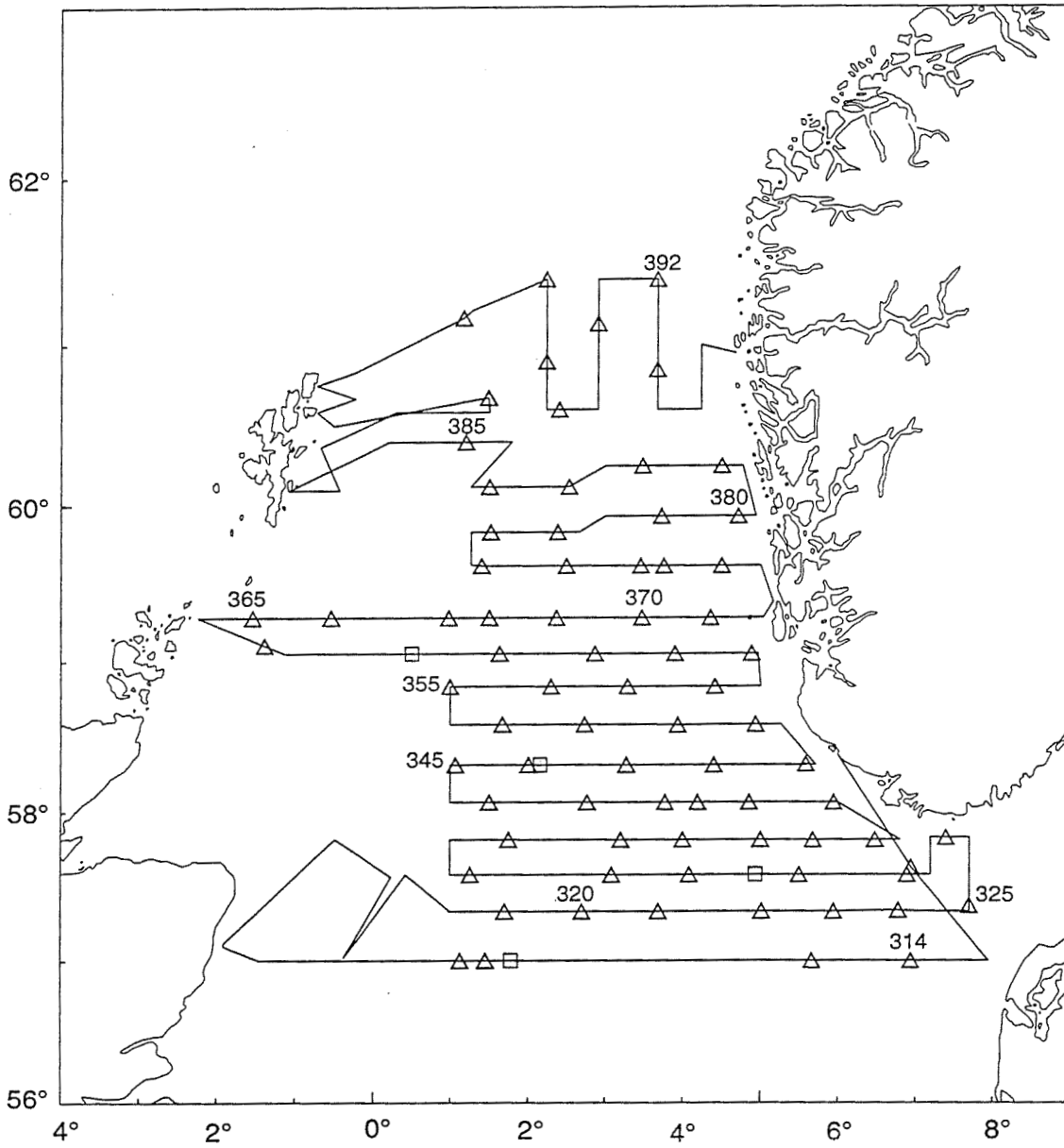


27 Jun - 18 Jul 1997  
Cruise no 1997009

z CTD st.no 384-509

"G.O. Sars"

Standard section Hanstholm-Aberdeen st.no 385-410  
Utsira W st.no 459-490



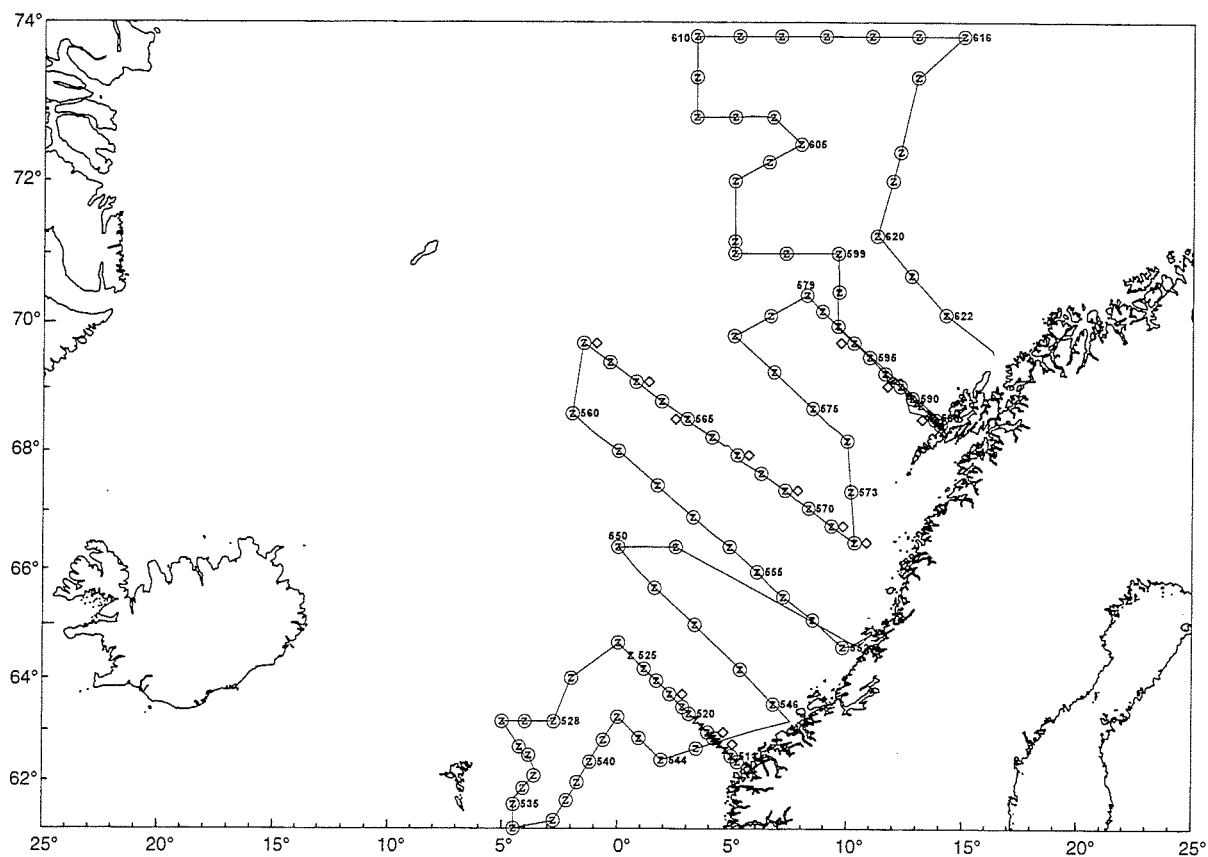
27 Jun - 18 Jul 1997

Cruise no 1997009

□△TRAWL st.no 313-393

□ Bottom trawl  
△ Pel. trawl

"G.O. Sars"

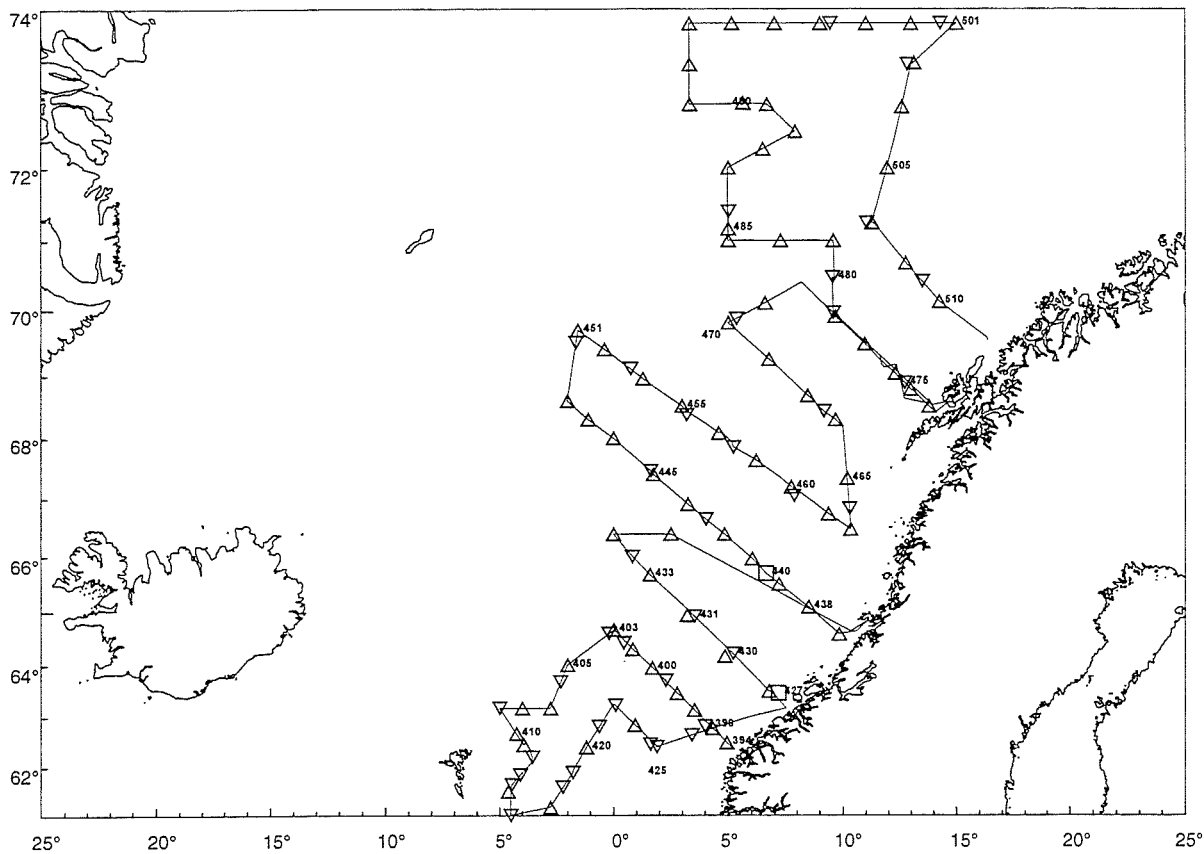


20 Jul - 17 Aug 1997  
 Cruise no 1997010

z CTD st. nr 510 - 622 "G.O. Sars"  
 ⊙ CTD and PLANKTON st. (WP II-net)  
 ◇ Mocness st.

Standard section: Svinøy NW: st.no 510-526  
 Gimsøy NW: st.no 579-597





20 Jul - 17 Aug 1997

Cruise no 1997010

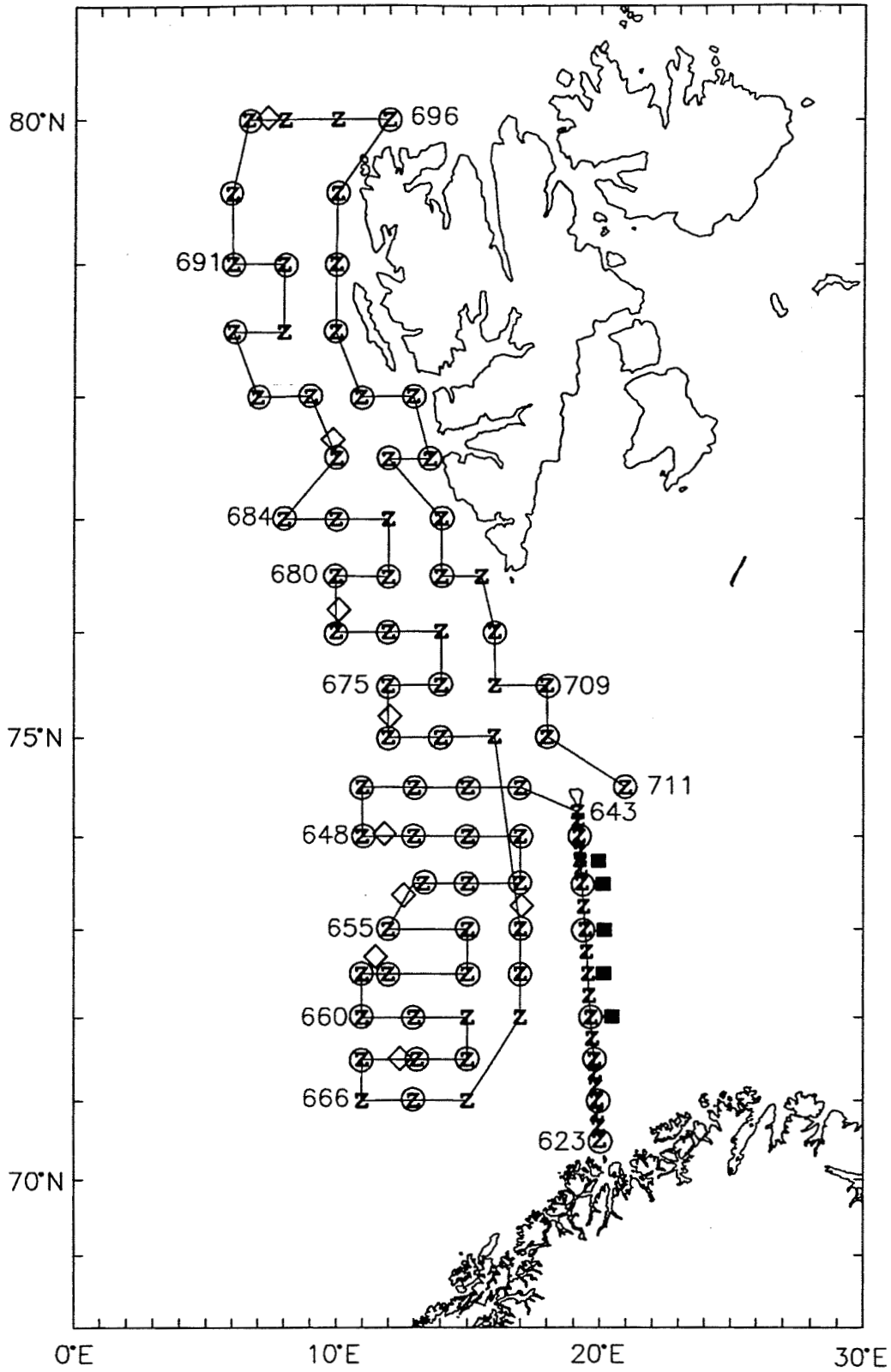
□ ▽ △ TRAWL st. no 394-510

△ Pel. trawl in surface

▽ Pel. trawl in depth

□ Bottom trawl

"G.O. Sars"



19 Aug–9 Sep 1997z CTD st.no 623–711 "G.O.Sars"

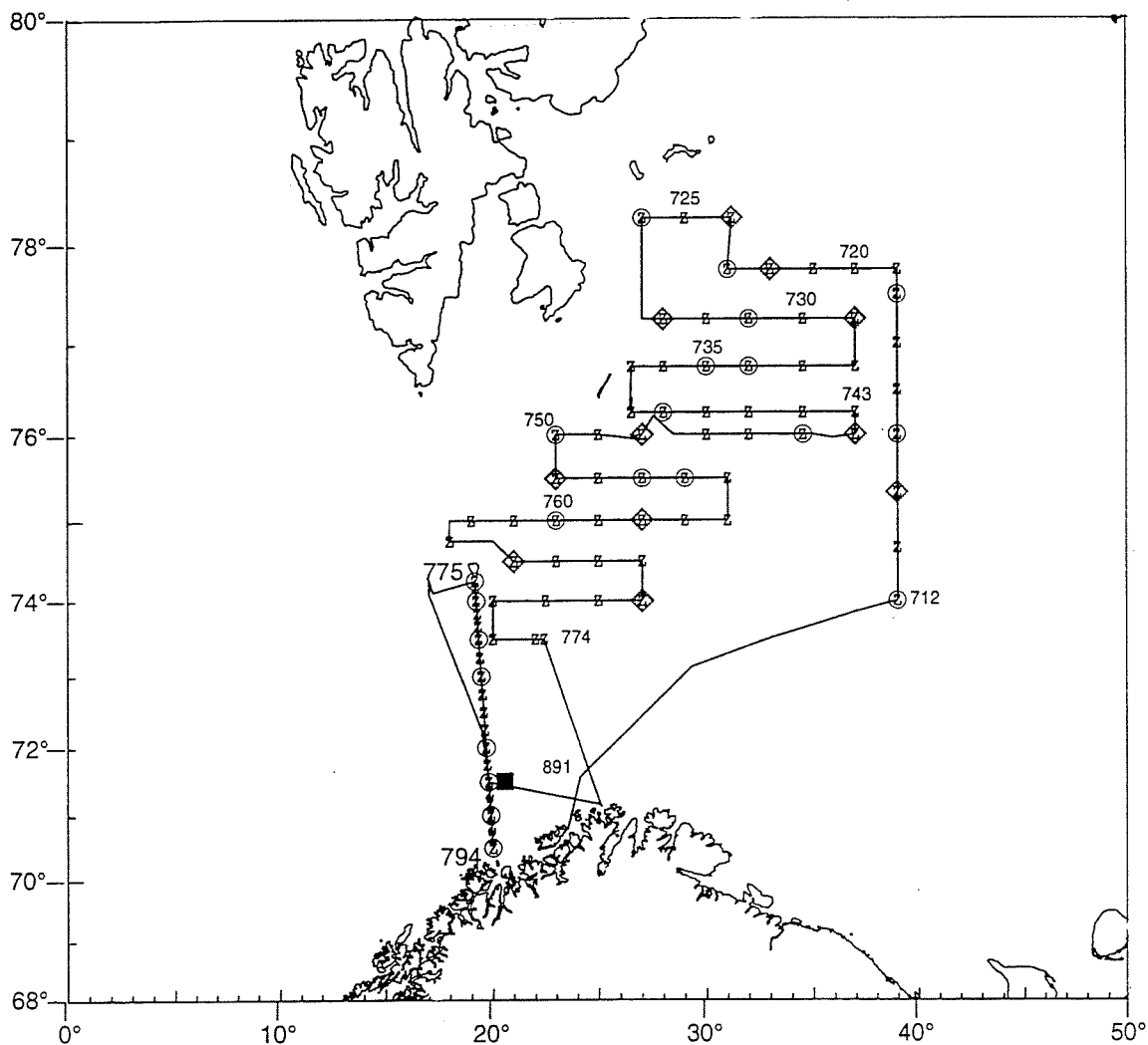
Cruise no 1997902    ⊗ CTD and PLANKTON st. (WP II-net)

◇ MOCNESS st.

■ Current meter deployed

Standard section Fugløya–Bjørnøya: st.no 623–643





11 Sep - 2 Oct 1997  
Cruise no 1997904

z CTD st.no 712-794

"G.O.Sars"

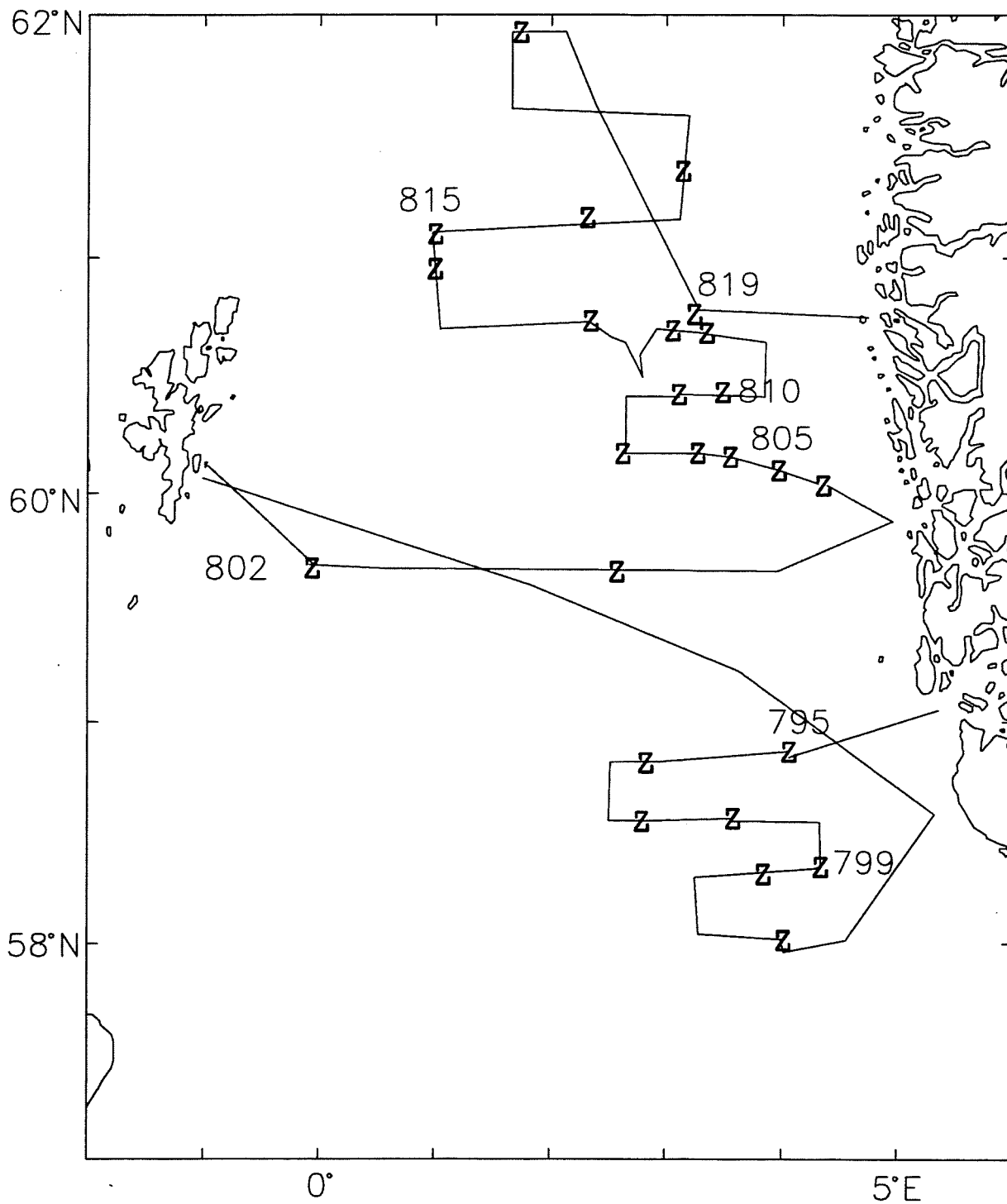
⓪ CTD and PLANKTON st.

ⓧ and MOCNESS st.

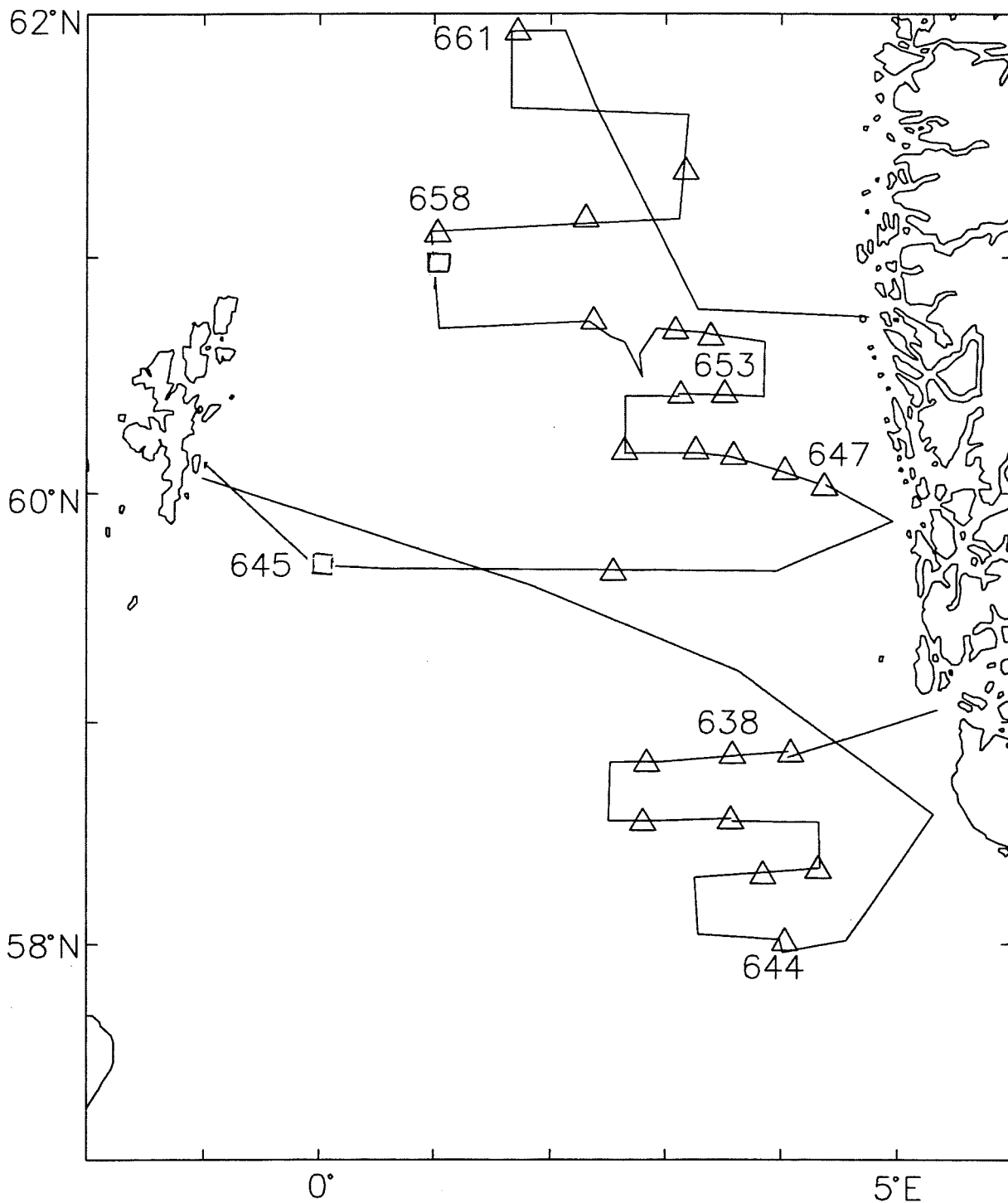
■ Current meter deployed

Standard section Fugløya-Bjørnøya st.no 775-794





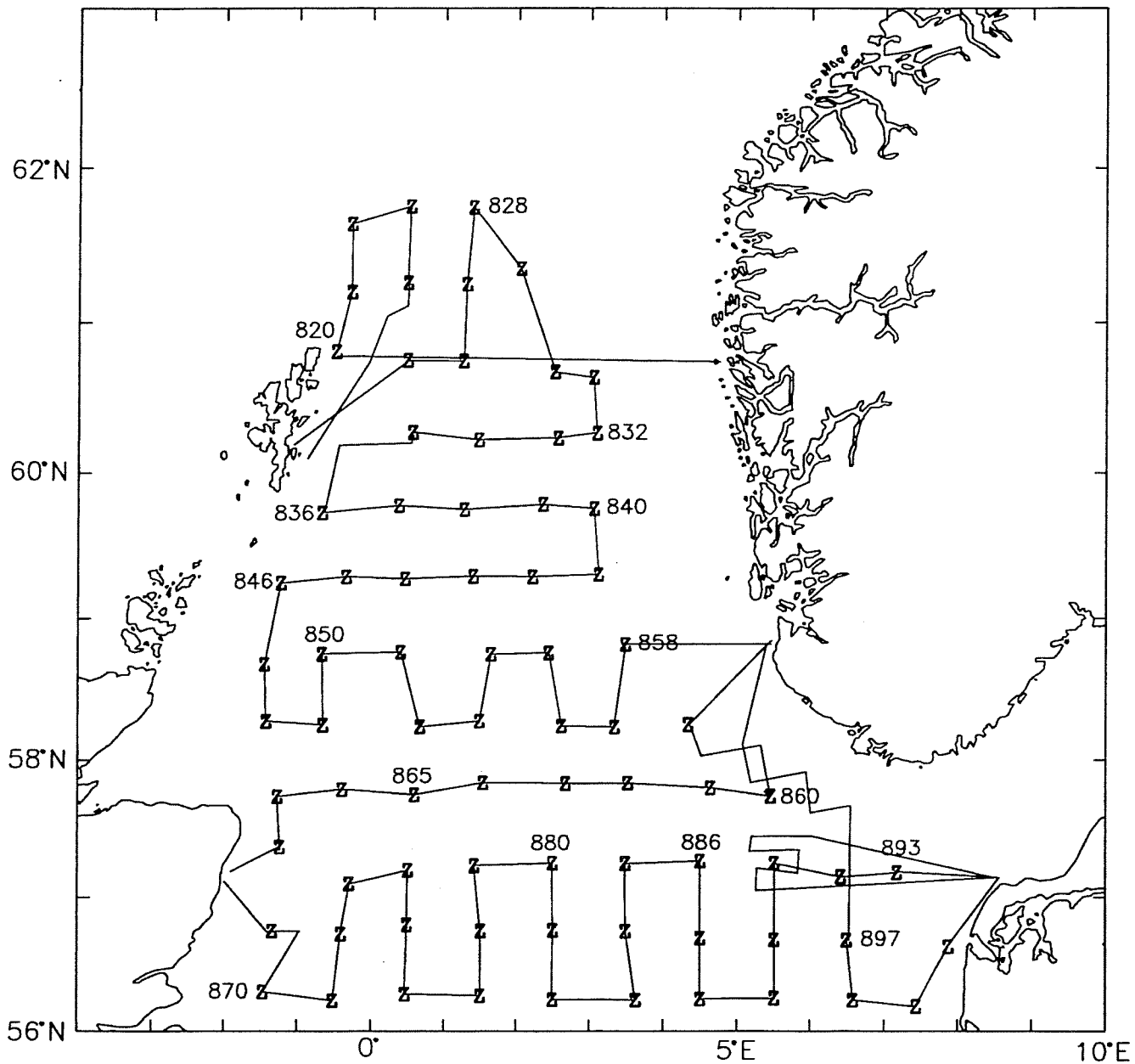
9 - 19 Oct 1997    Z CTD st.no 795-819    "G.O.Sars"  
 Cruise no 1997013



9 - 19 Oct 1997  
 Cruise no 1997013

TRAWL st.no 637-661  
 △ Pel. tr.  
 □ Bottom tr.

"G.O.Sars"



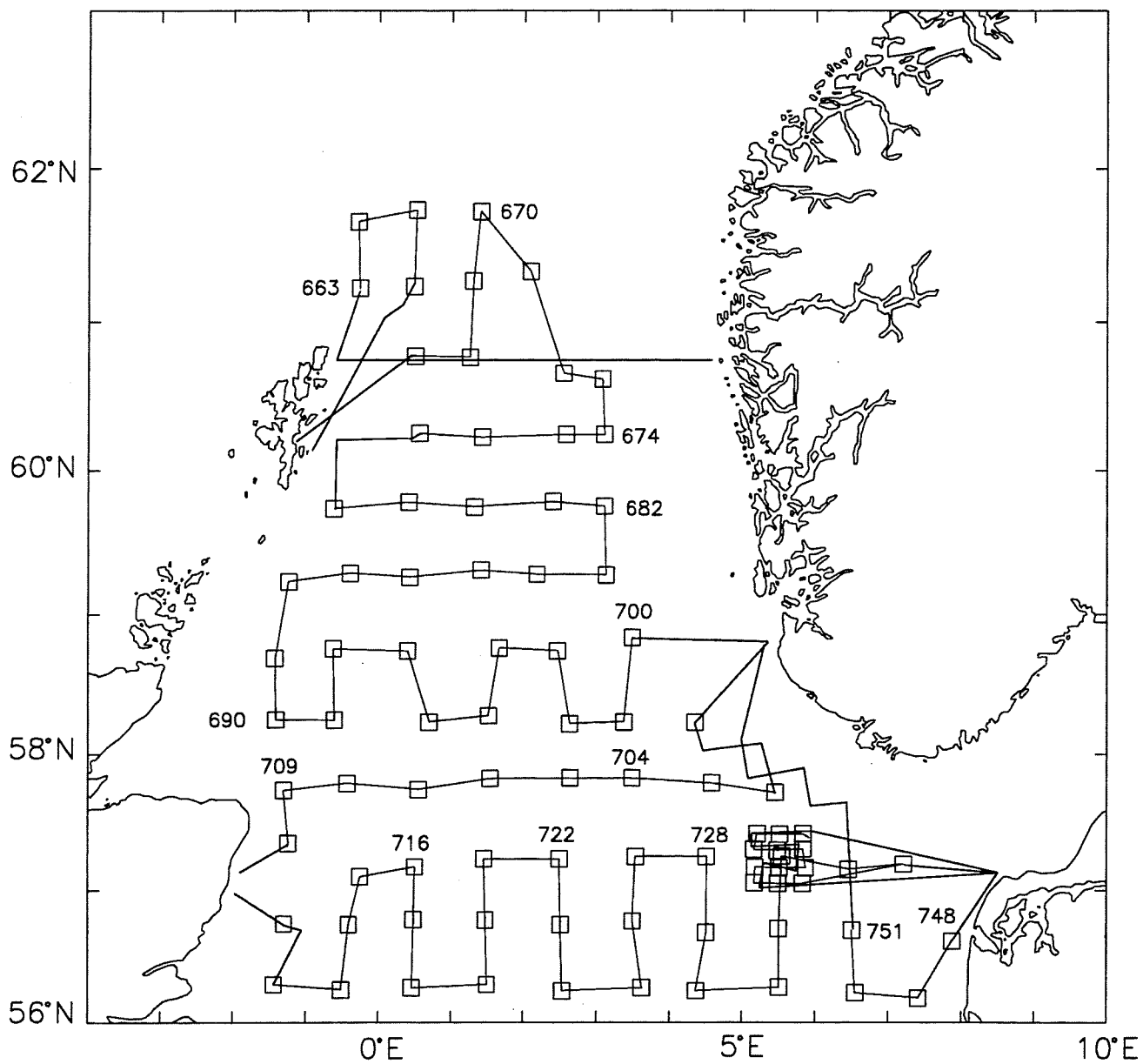
21 Oct - 18 Nov 1997

z CTD st.no 820-897

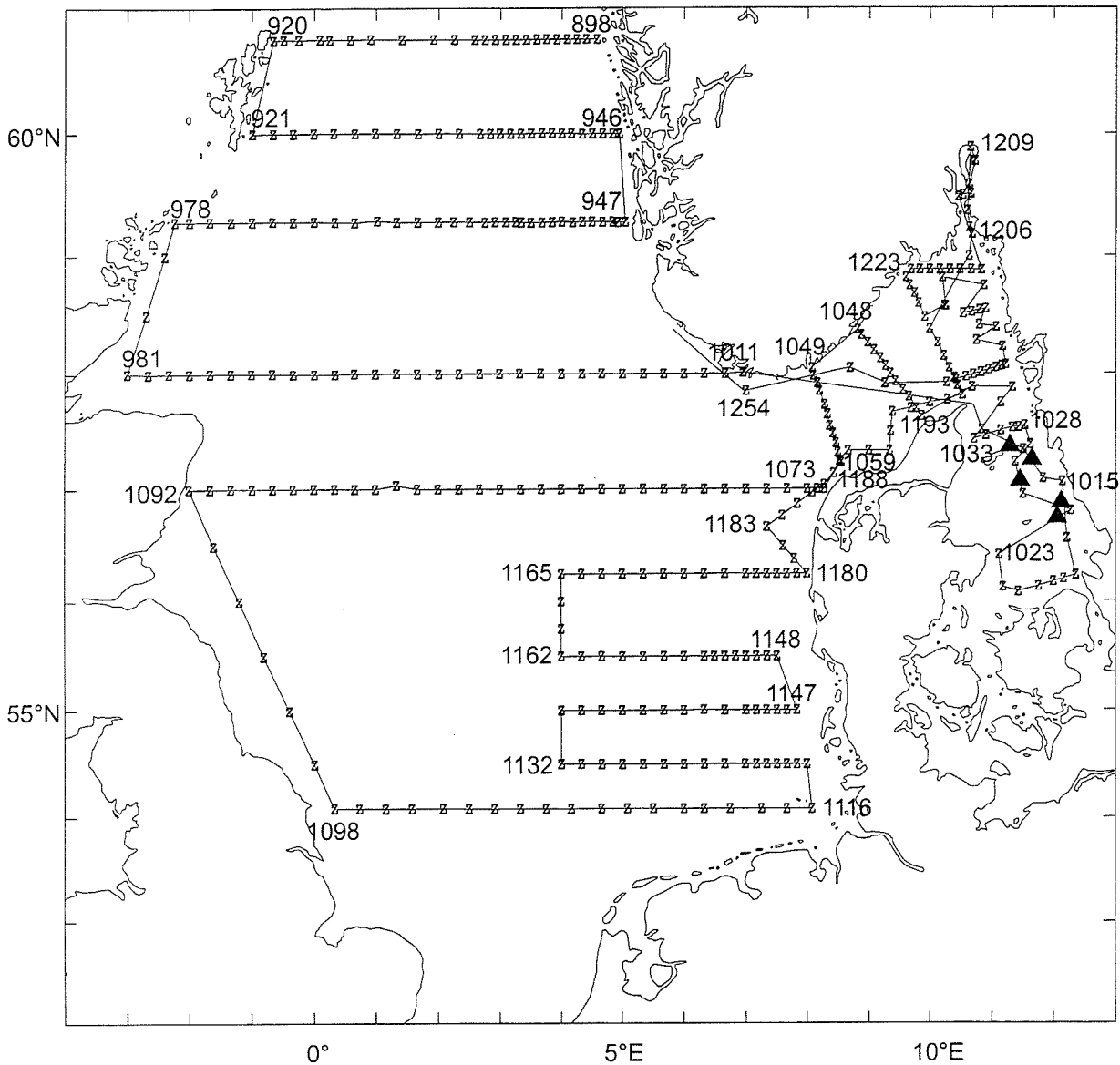
"G.O.Sars"

Cruise no 1997014





21 Oct–18 Nov 1997    □ Bottom TRAWL st.no 663–735, "G.O.Sars"  
 748–751  
 Cruise no 1997014    □ Beam TRAWL st.no 736–747



21 Nov - 17 Dec 1997

z CTD st.no 898 - 1254

G.O.Sars<sup>66</sup>

▲ Pel. TRAWL st.no 152-156

Cruise no 1997015

Standard sections:

Feie-Shetland st.no 898-920

Slotterøy W st.no 921-946

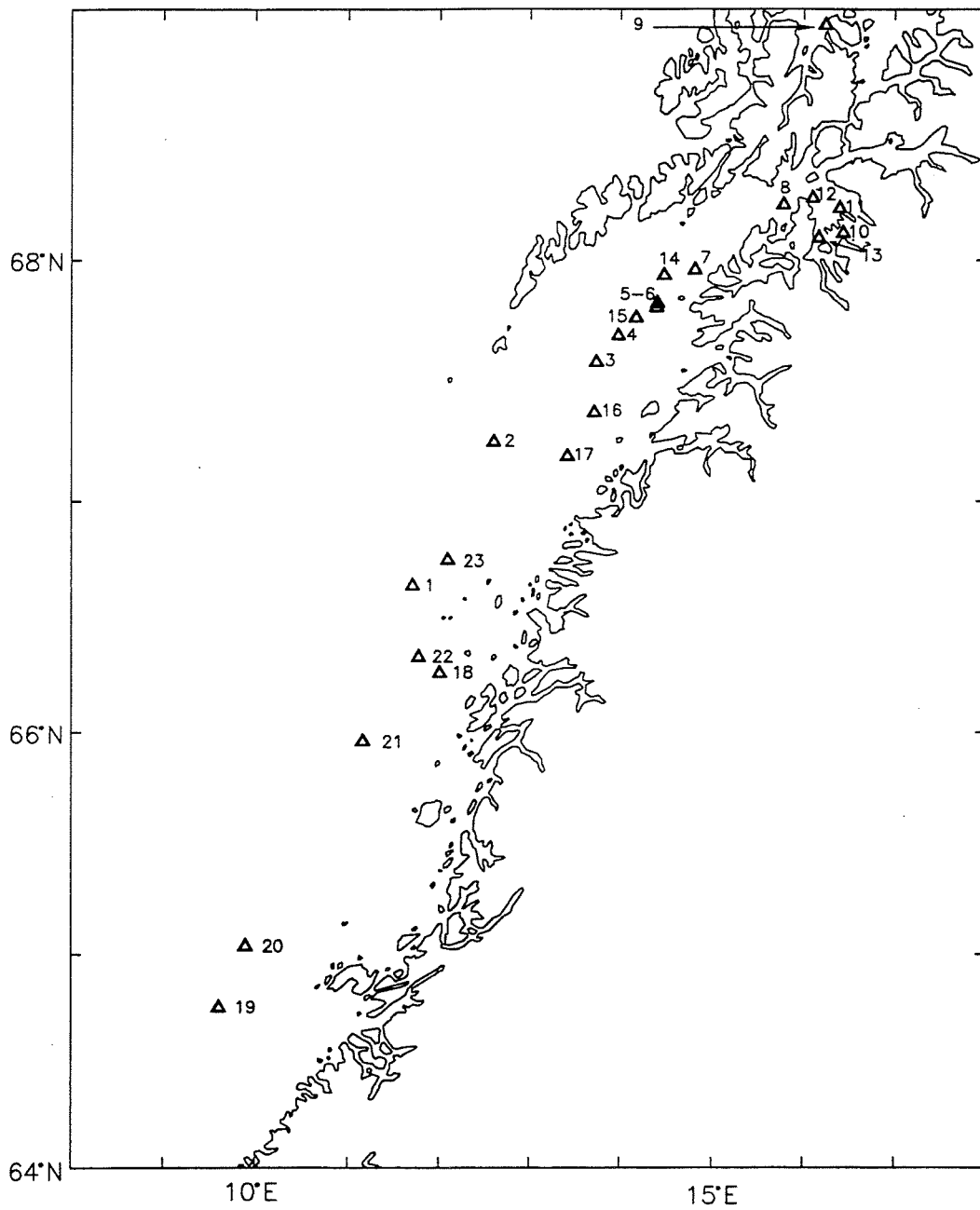
Utsira W st.no 947-978

Hanstholm-Aberdeen st.no 1072-1093

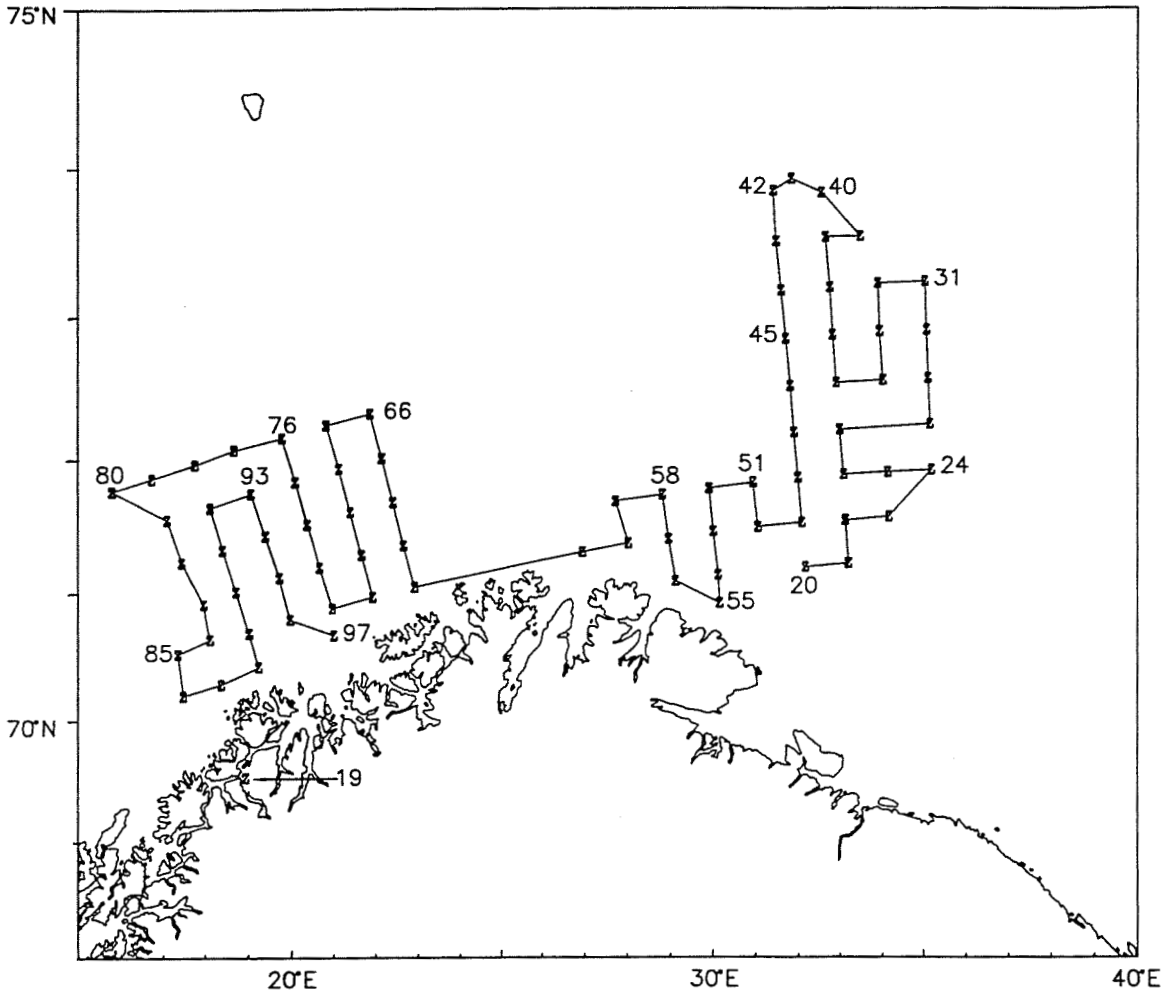
Oksø - Hanstholm st.no 1049 - 1059

Torungen-Hirtshals st.no 1048

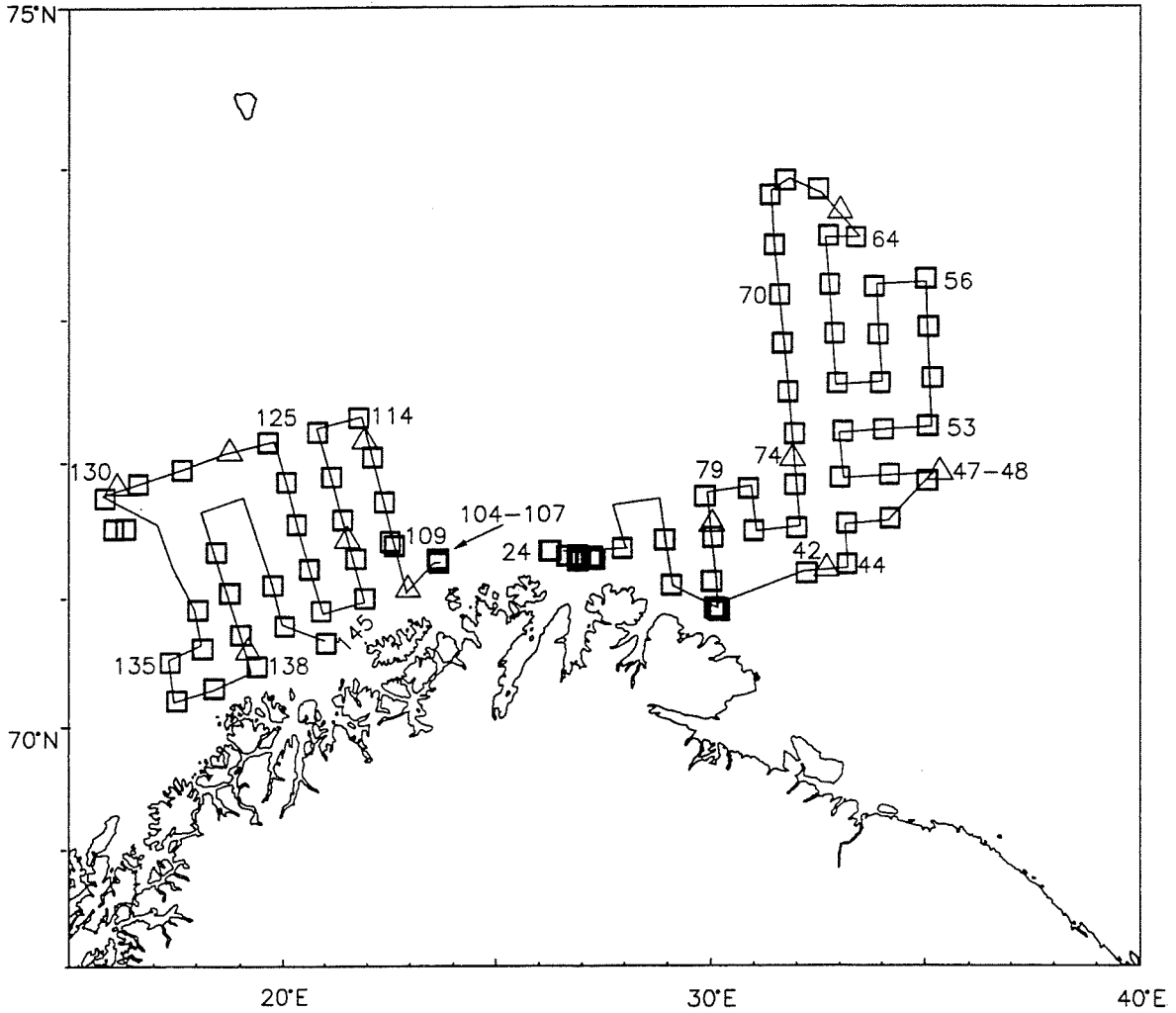




14 Jan - 3 Feb 1997     $\Delta$  Pel TRAWL no 1-23    "Johan Hjort"  
 Cruise no 1997201



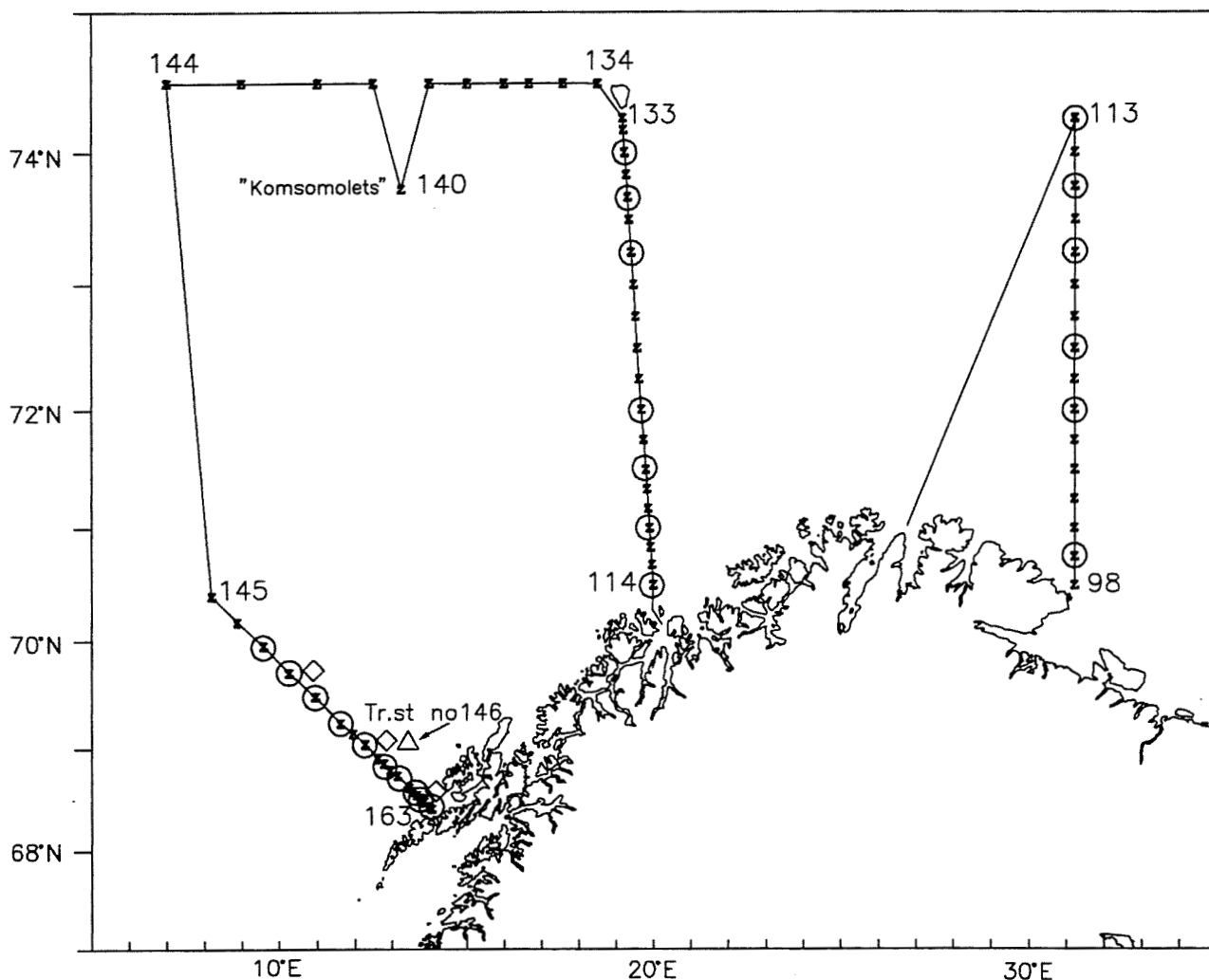
6 Feb - 1 Mar 1997 z CTD st.no 19-97 "Johan Hjort"  
 Cruise no 1997901



6 Feb - 1 Mar 1997 □△ TRAWL st.no 24-145 "Johan Hjort"

Cruise no 1997901

□ Bottom tr  
 △ Pel. tr.



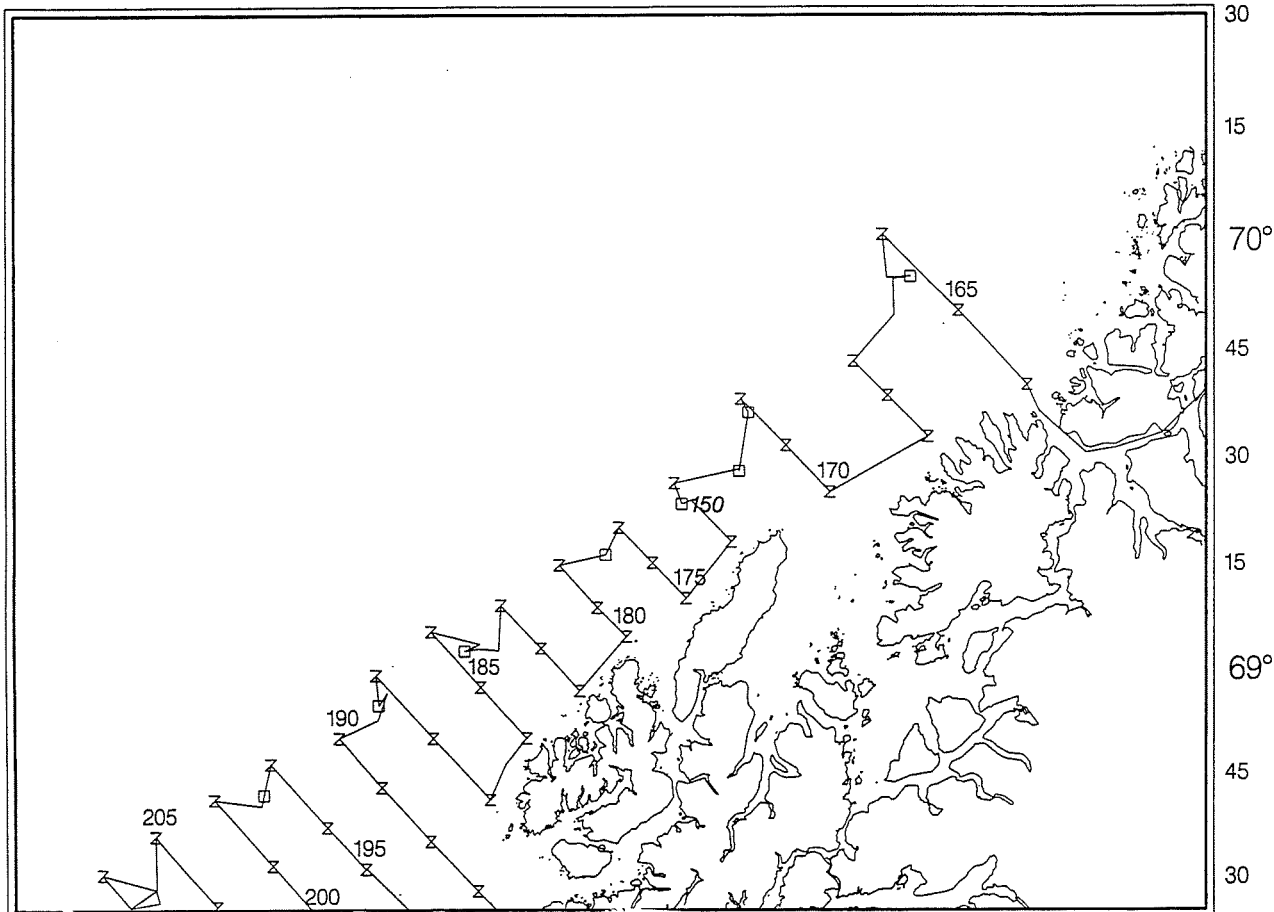
4 - 19 Mar 1997  
Cruise no 1997203

z CTD st.no 98-163 "Johan Hjort"  
 ⊗ CTD and PLANKTON st. (WPII-net)  
 ◇ MOCNESS st. (st.no 148,152,160)  
 △ Pel.trawl st.no 146

Standard sections: Vardø N: st.no 98-113  
 Fugløya-Bjørnøya: st.no 114-133  
 Bjørnøya West: st.no 134-144  
 Gimsøy NW: st.no 145-163

«Johan Hjort»  
Cruise no 1997204

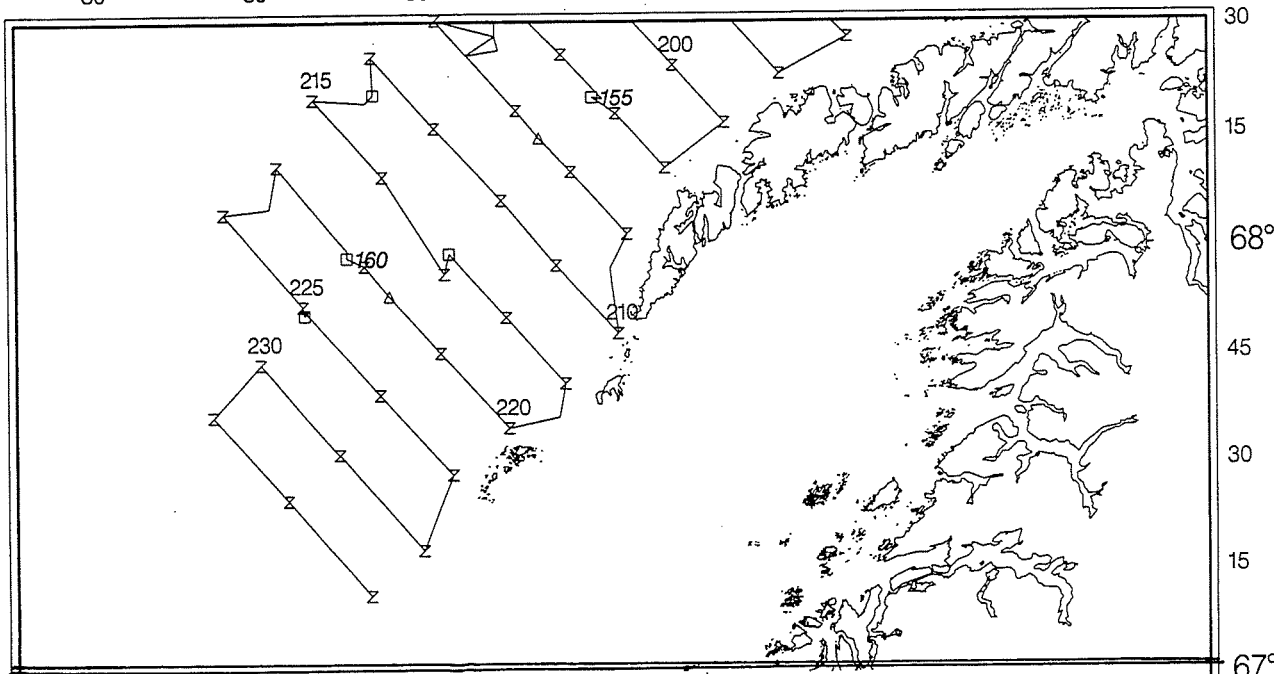
11° 30 12° 30 13° 30 14° 30 15° 30 16° 30 17° 30 18° 30



Density and distribution of cod eggs:

Part I: 20-23 Mar 1997 z Ctd st.no 164-206 116 net hauls (100-0 m, diam. 60 cm) taken during the cruise.  
□ Bottom TRAWL st.no 147-154

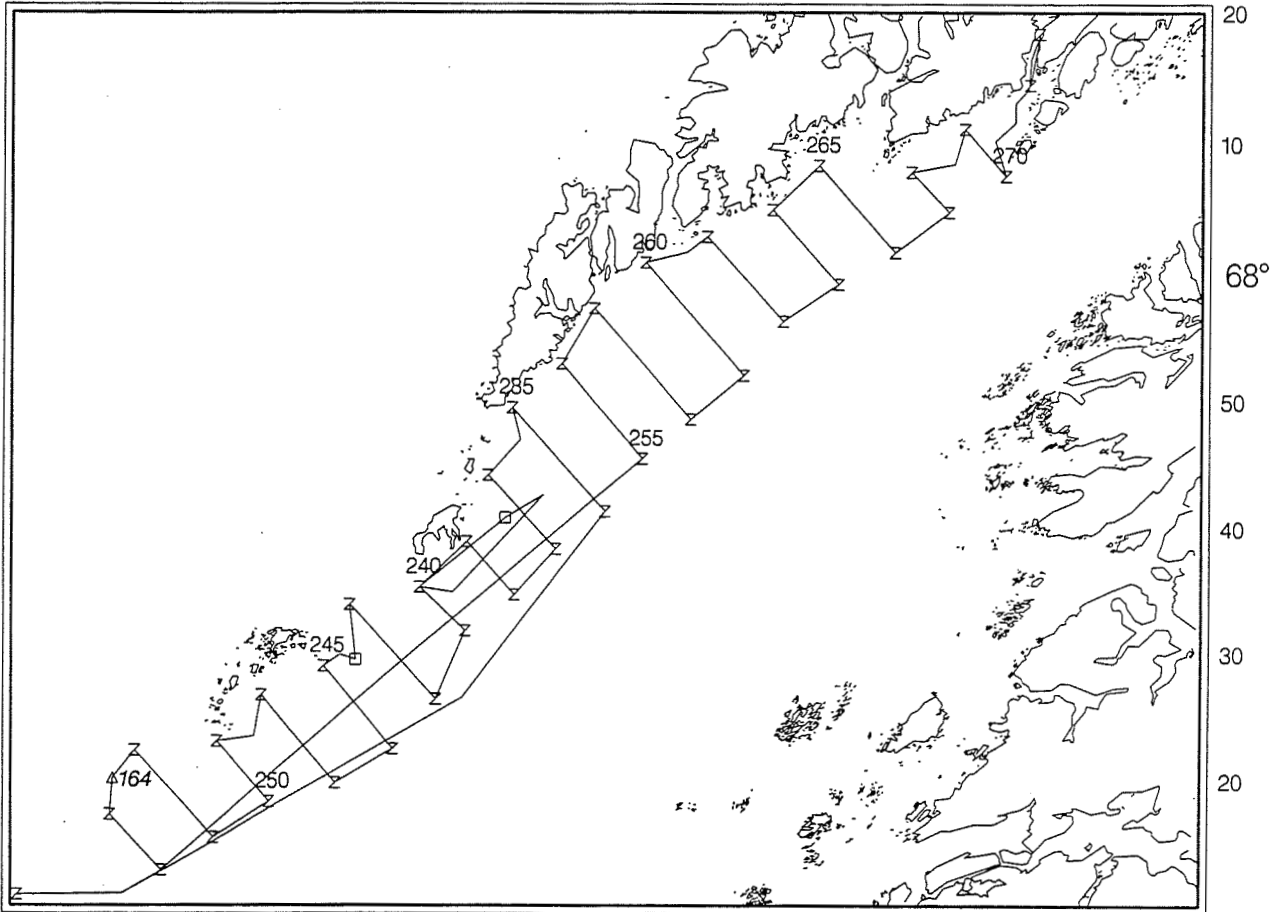
9° 30 10° 30 11° 30 12° 30 13° 30 14° 30 15° 30 16° 30



Part 2: 23-26 Mar 1997 z CTD st.no 207-233  
TRAWL st.no 155-161  
□ Bottom trawl  
△ Pel. trawl

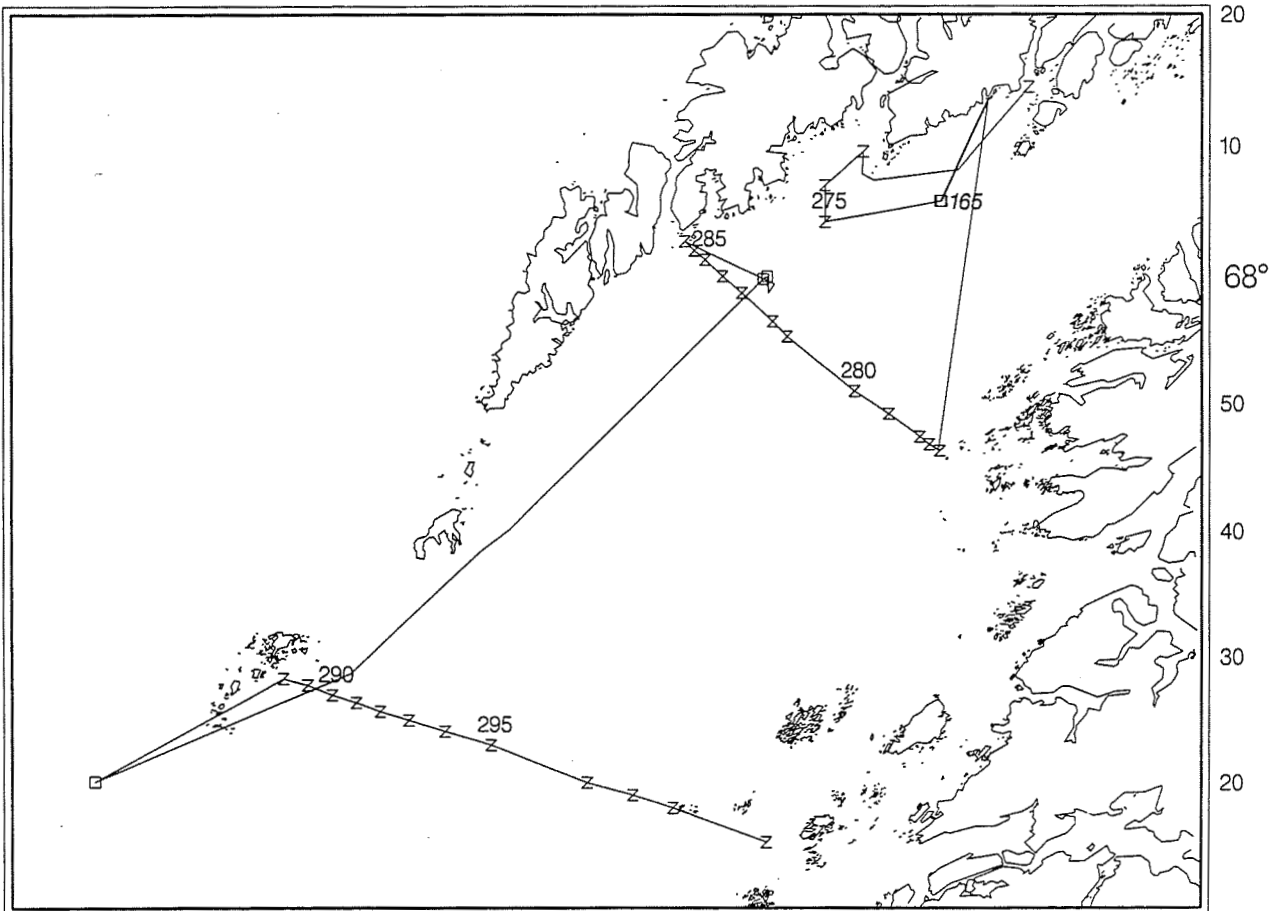


10 20 30 40 50 12° 10 20 30 40 50 13° 10 20 30 40 50 14° 10 20 30 40 50 15° 10

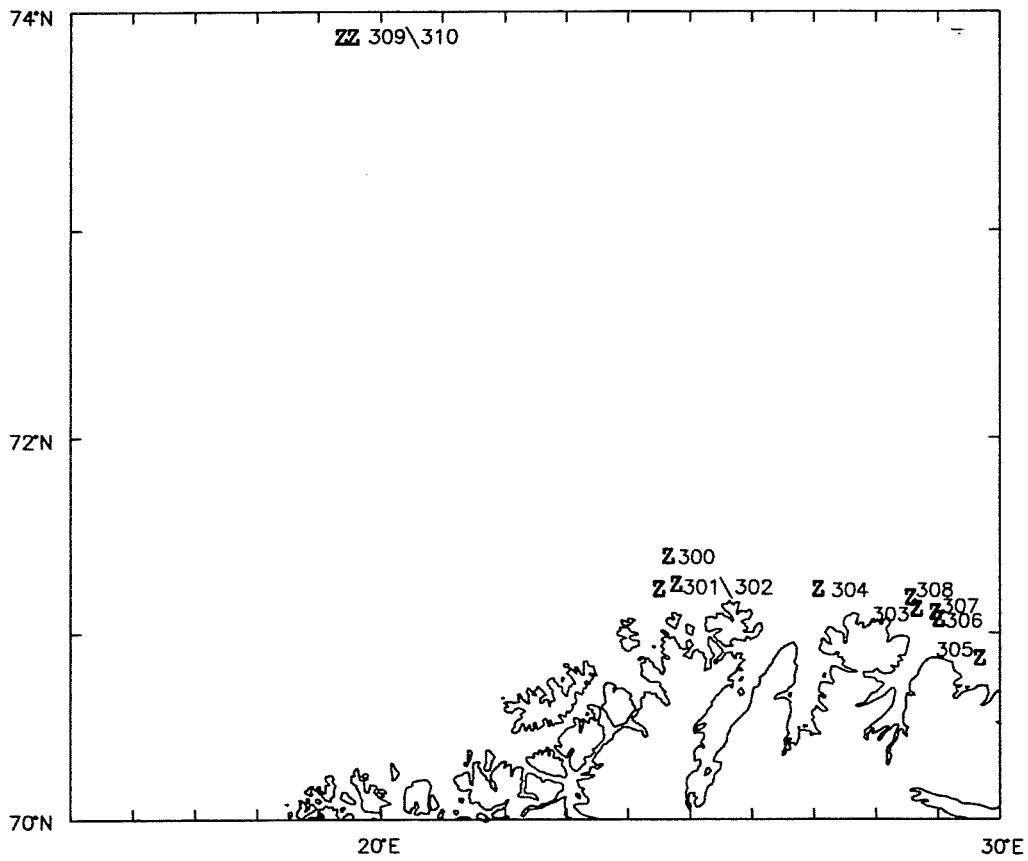


Part 3: 26-29 Mar 1997 z CTD st.no 234-272  
□ Bottom trawl st.no 162-164

10 20 30 40 50 12° 10 20 30 40 50 13° 10 20 30 40 50 14° 10 20 30 40 50 15° 10



Part 4: 30-31 Mar 1997 z CTD st.no 273-299  
□ Bottom trawl st.no 165-168

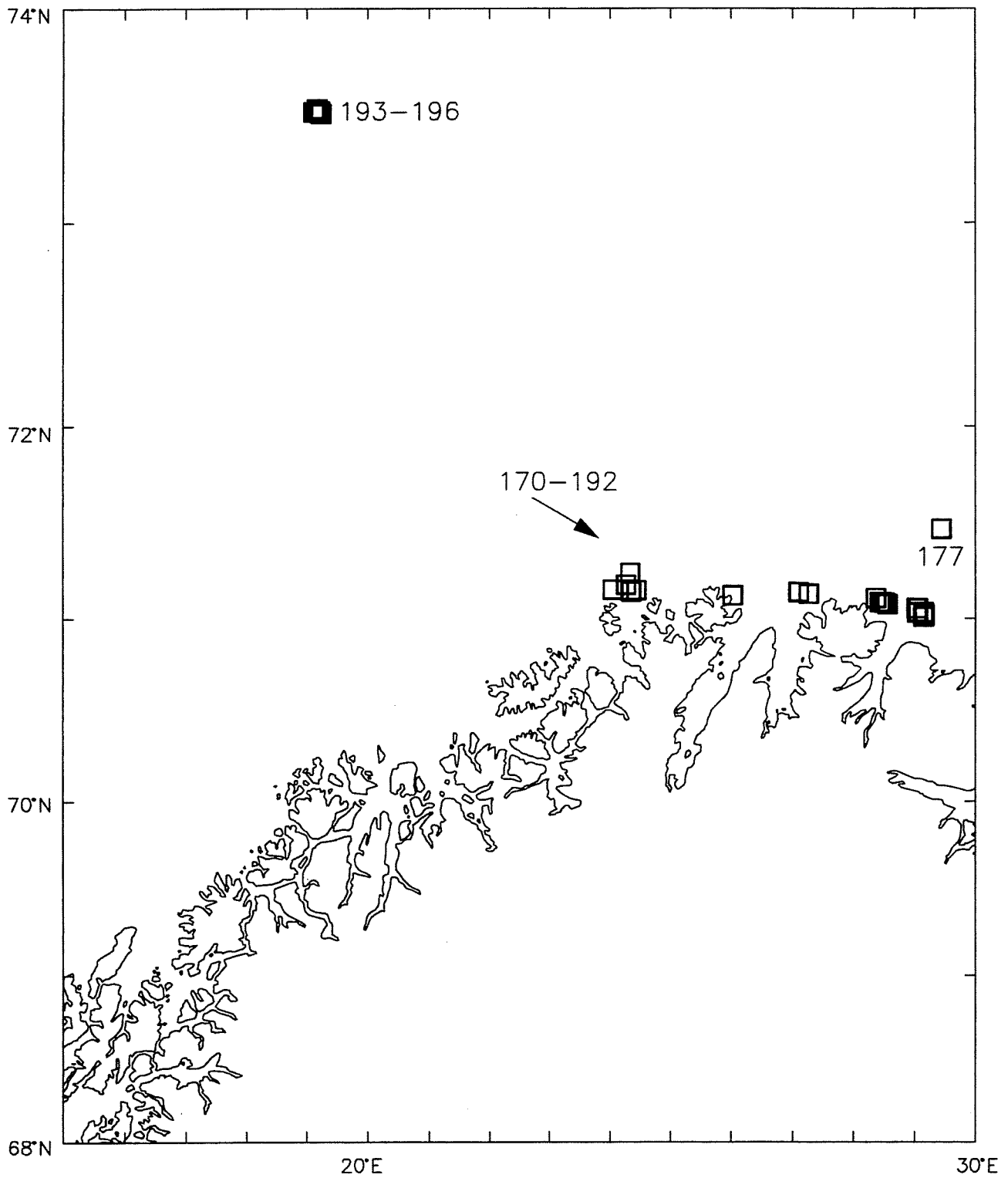


2-22 Apr 1997

z CTD st.no 300-310

"Johan Hjort"

Cruise no 1997205

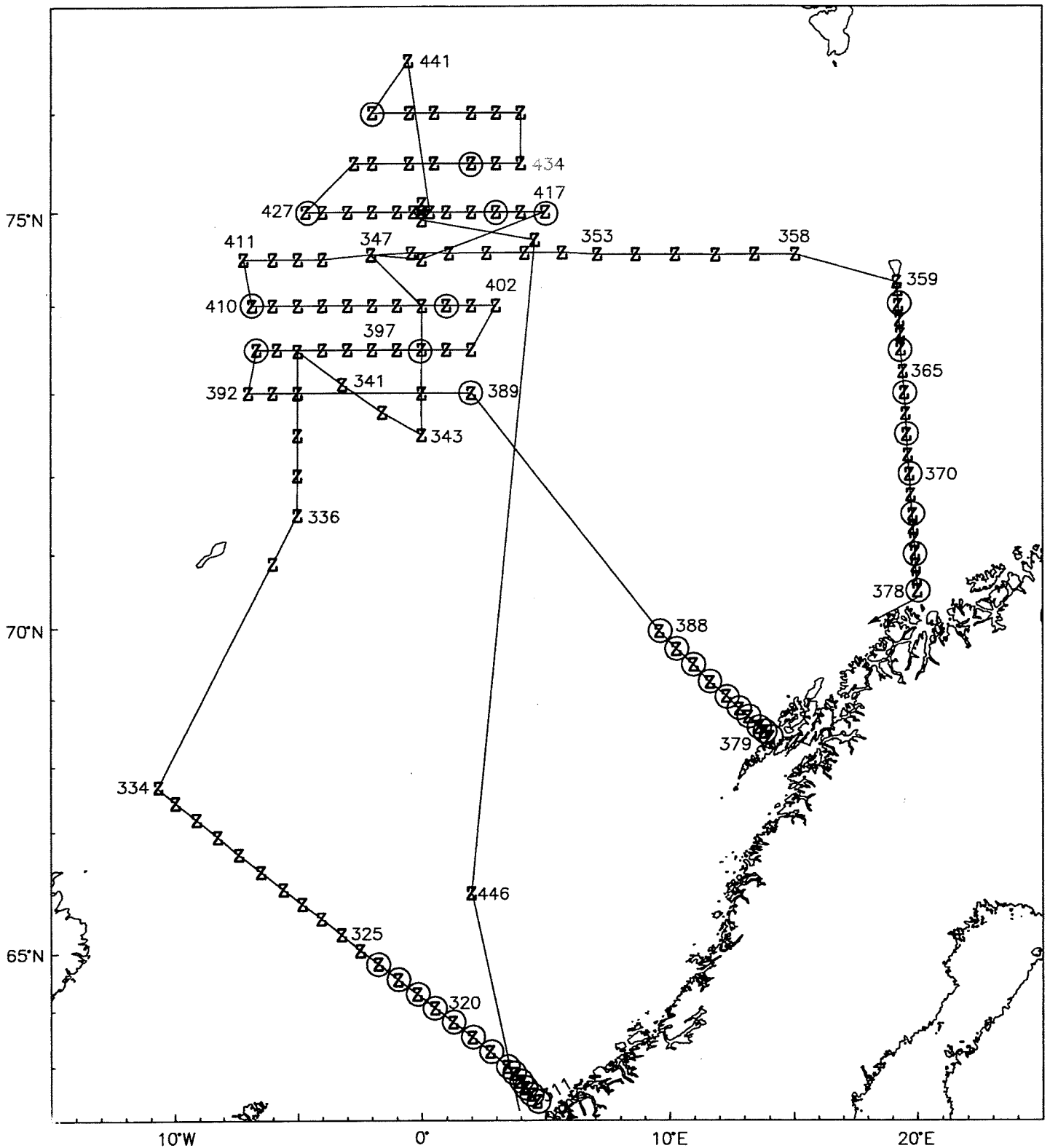


2-22 Apr 1997

□ Bottom TRAWL st.no 170-196

"Johan Hjort"

Cruise no 1997205



24 Apr - 26 May 1997

z CTD st.no 311-446

"Johan Hjort"

Cruise no 1997207

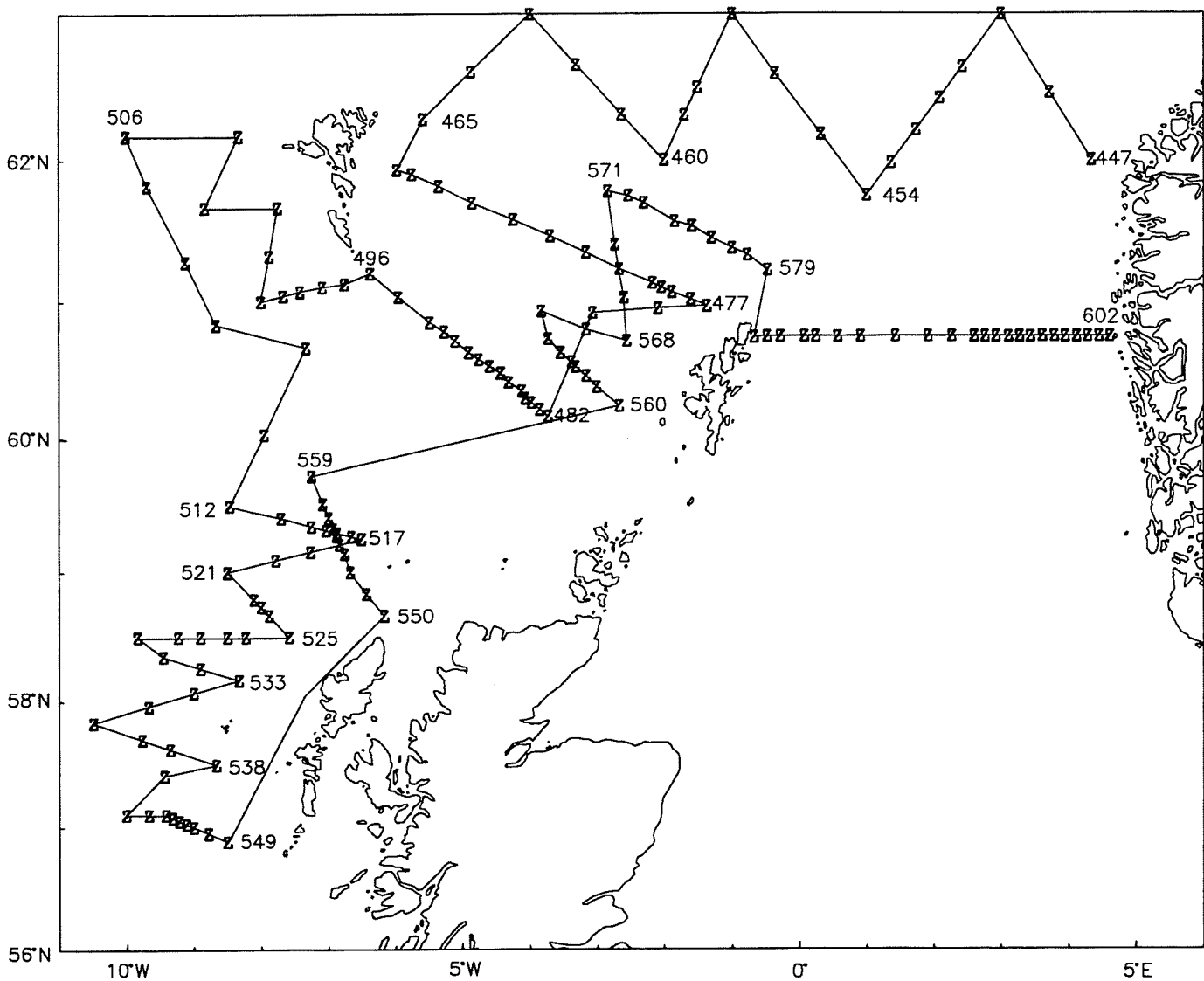
⊙ CTD and PLANKTON st. (WP-II net)

Standatd section: Svinøy NW: st.no 311-323

Gimsøy NW: st.no 379-388

Bjørnøya W: st.no 347-358

Bjørnøya-Fugløya: st.no 359-378



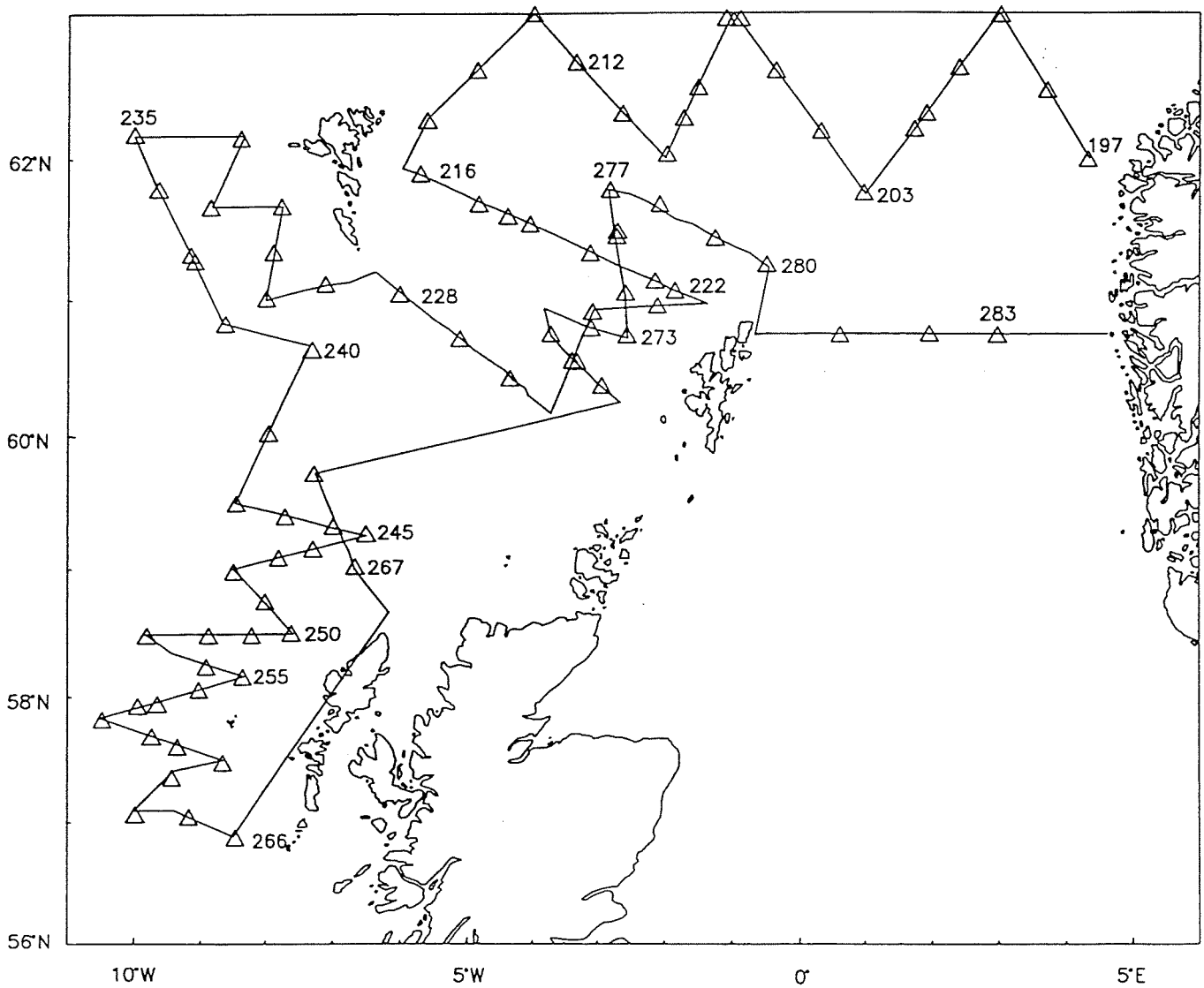
28 May - 17 June 1997

z CTD st.no 447-602

"Johan Hjort"

Cruise no 1997208

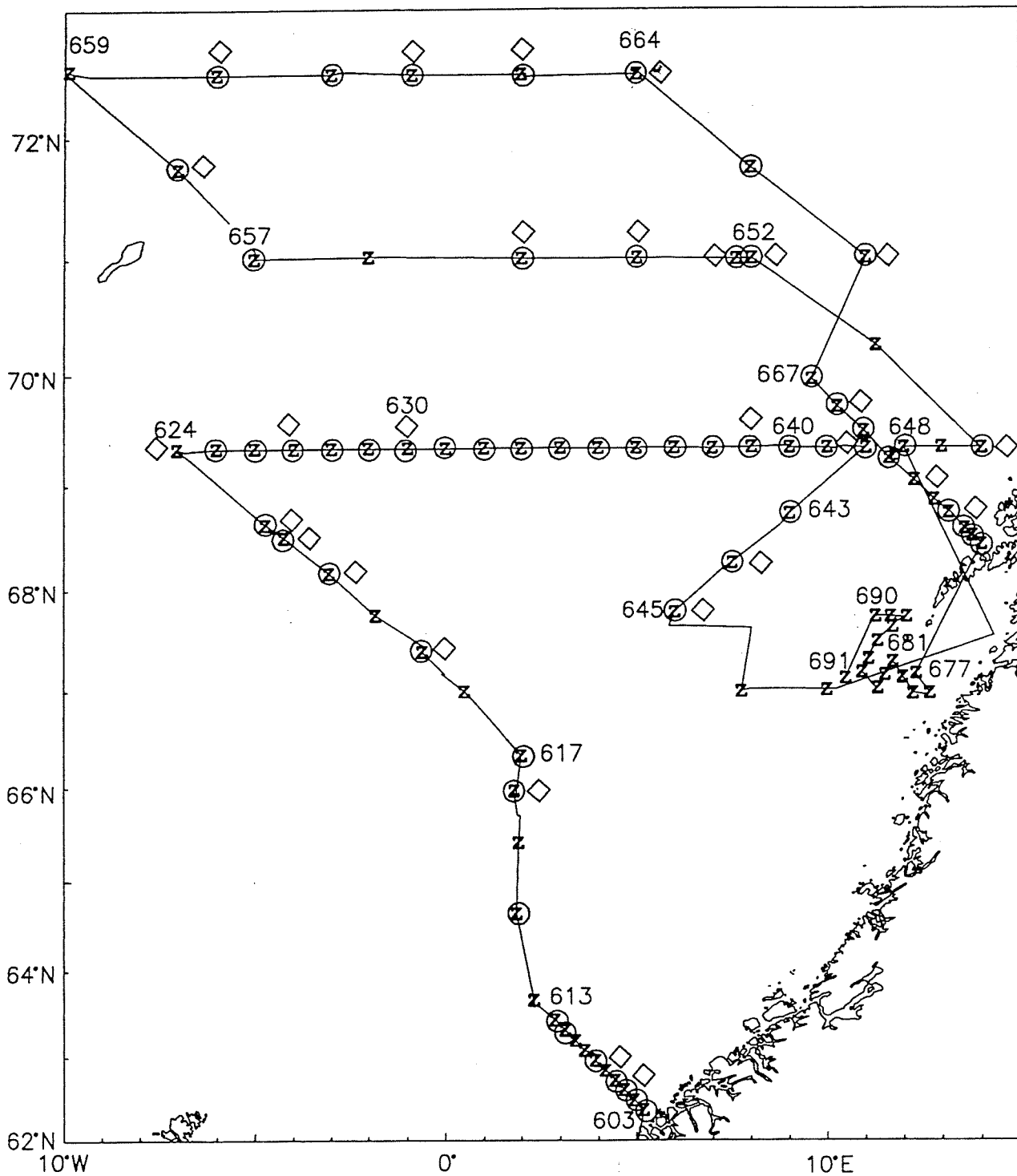
Standard section Feie - Shetland: st.no 580-602



28 May - 17 June 1997  
 Cruise no 1997208

△ Pel TRAWL st.no 197-283

"Johan Hjort"

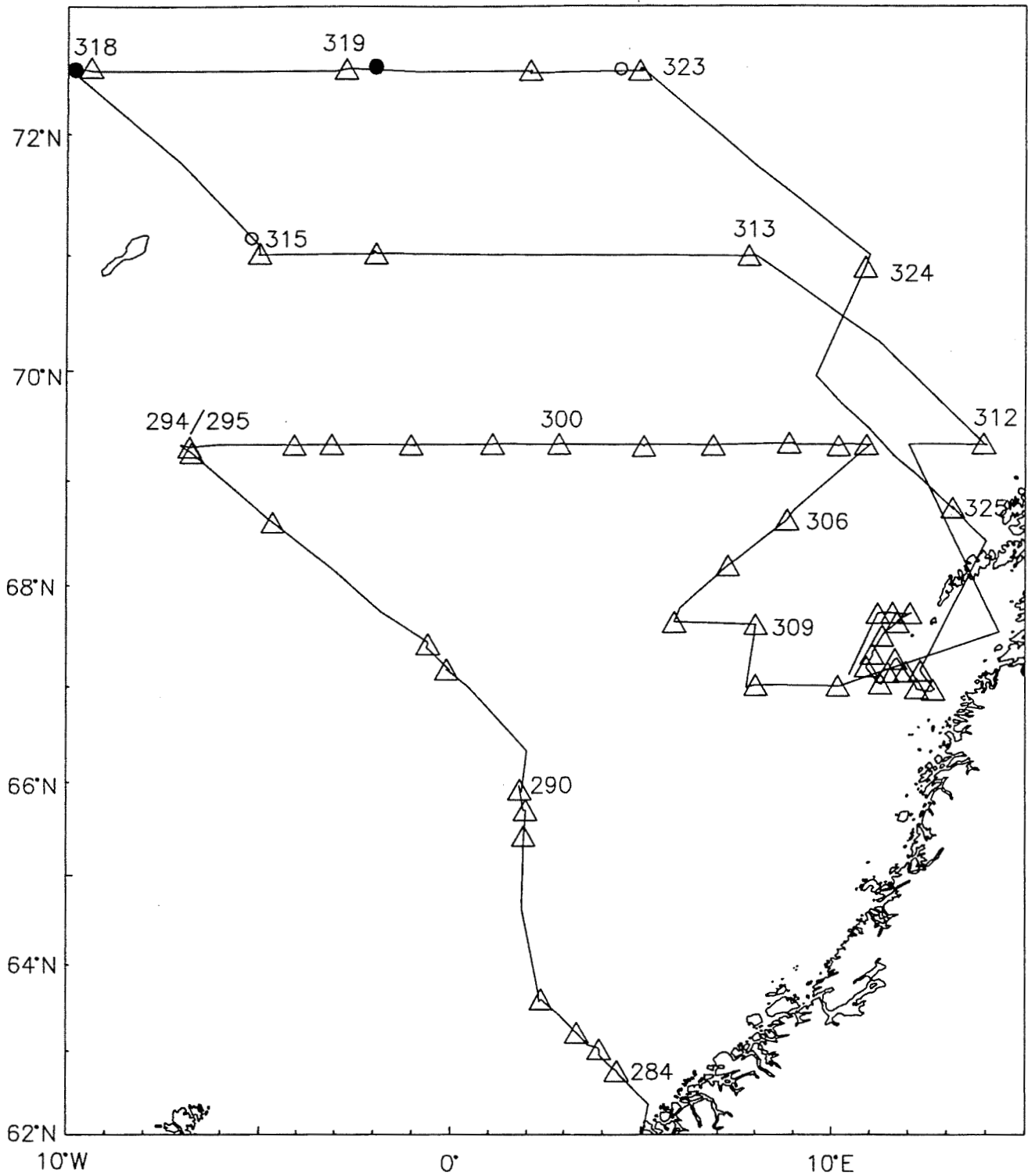


19 June - 16 July 1997  
 Cruise no. 1997209

z CTD st.no 603-691  
 ⊗ CTD and PLANKTON st.  
 ◇ Mocness st.

"Johan Hjort"

Standard sections: Svinøy NW: st.no 603-613  
 Gimsøy NW: st.no 667-676



19 June - 16 July 1997

△ Pel TRAWL st.no 284-339

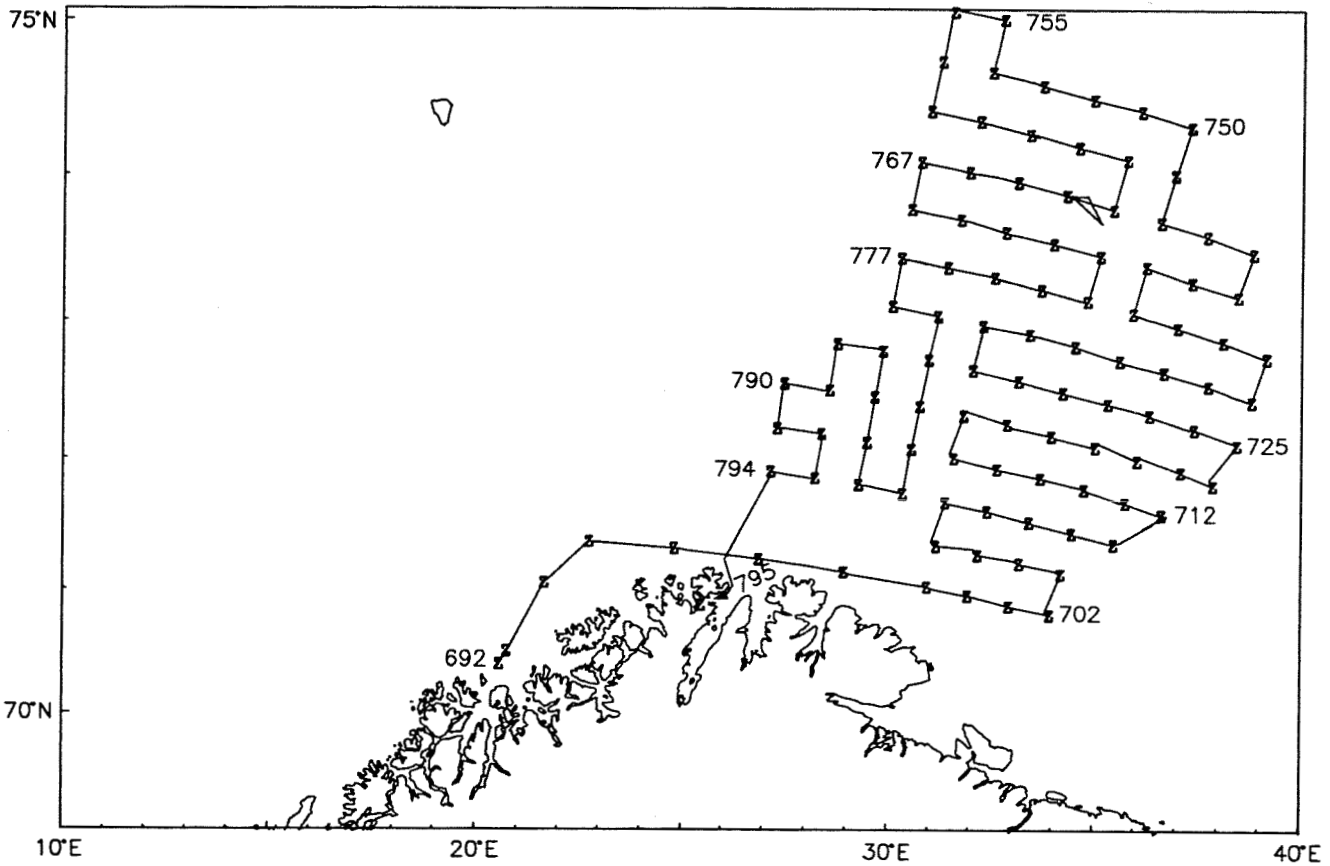
"Johan Hjort"

Cruise no 1997209

○ Longline (St.no 316,322)

● Drift-net (st.no 317,320)



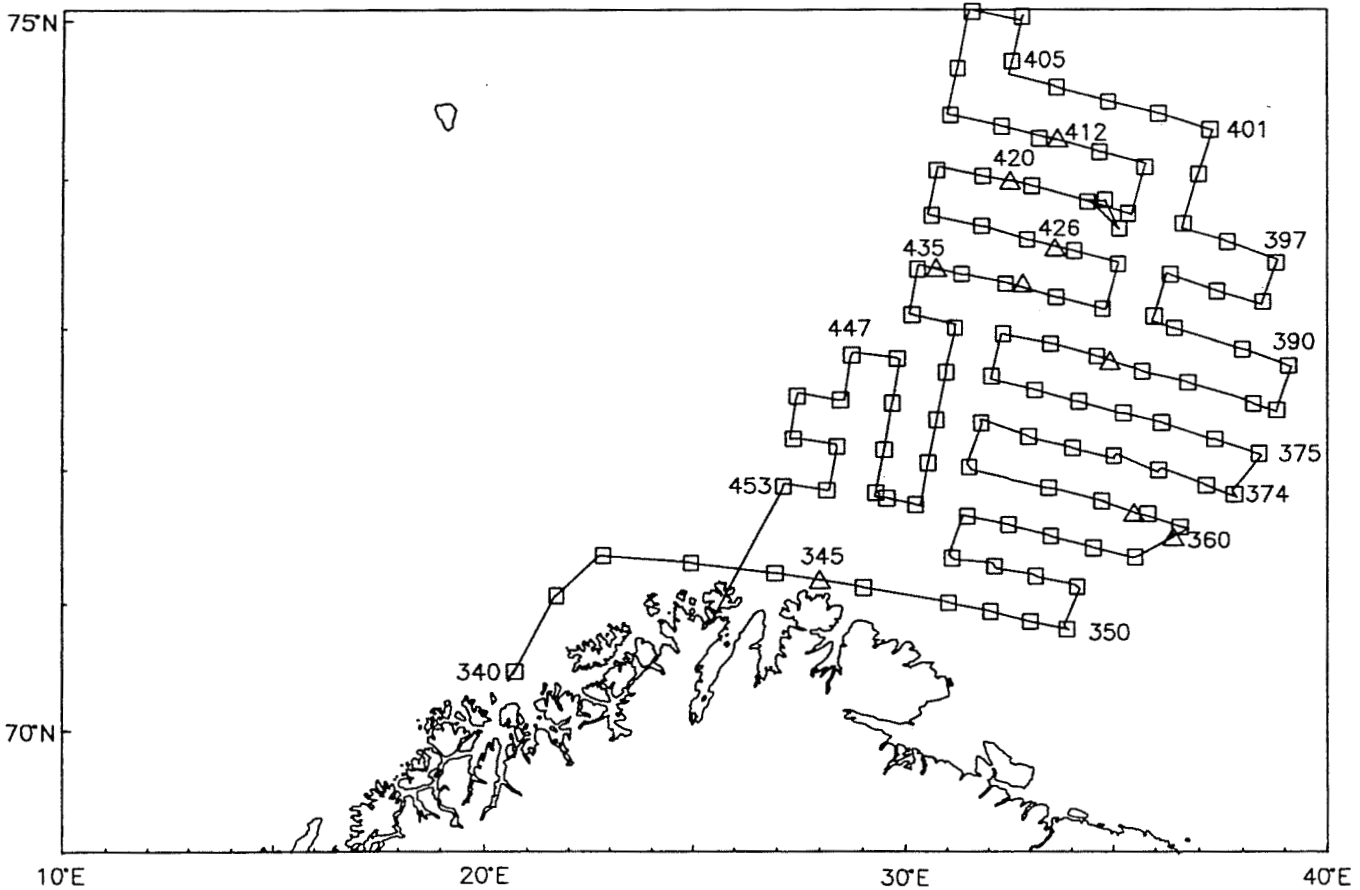


18 Jul - 4 Aug 1997

z CTD st.no 692-795

"Johan Hjort"

Cruise no 1997903



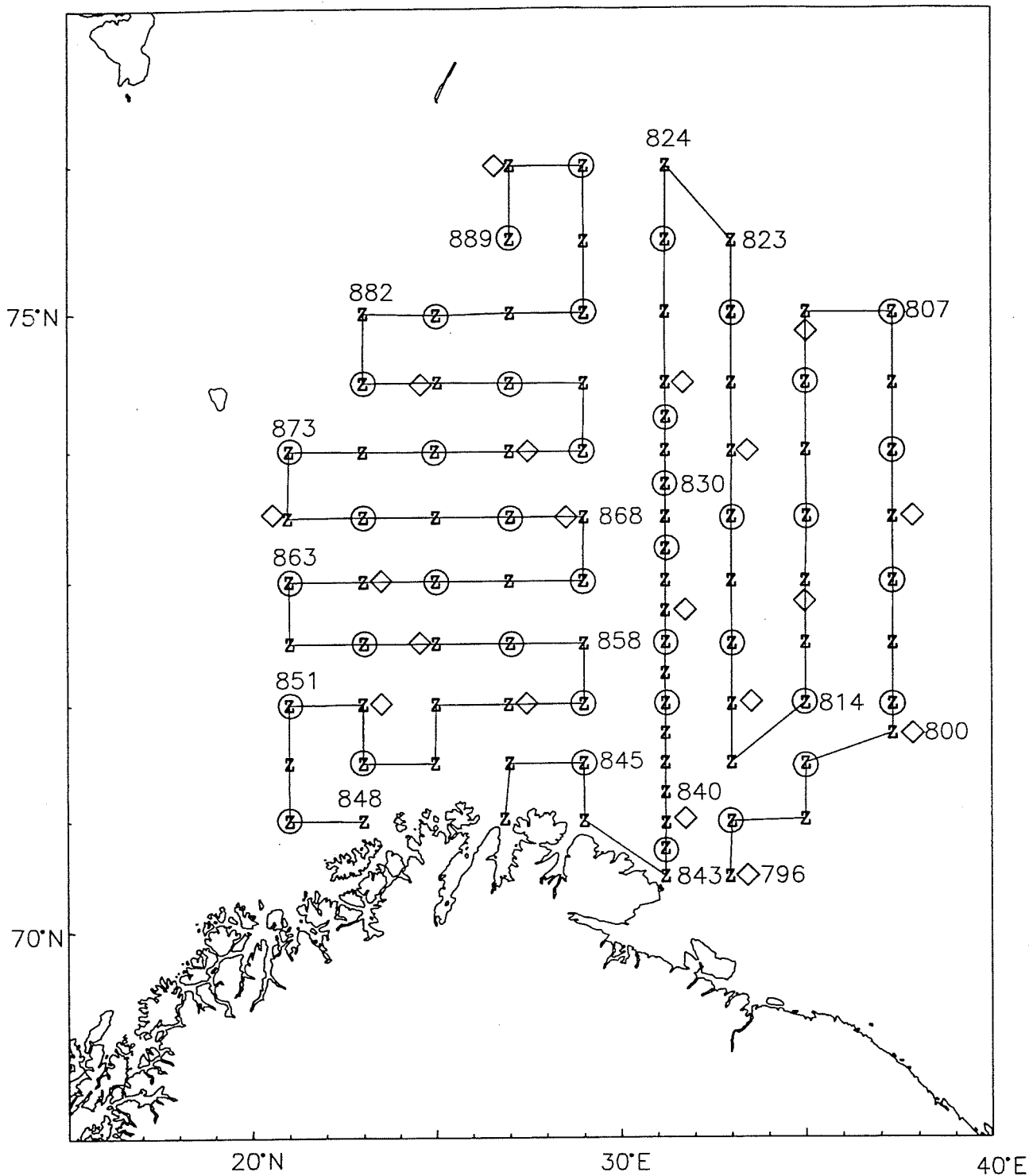
18 Jul - 4 Aug 1997

△ □ TRAWL st.no 340-453

"Johan Hjort"

Cruise no 1997903

△ Bottom trawl 43  
□ Pel. trawl



20 Aug – 9 Sep 1997

z CTD st.no 796–889

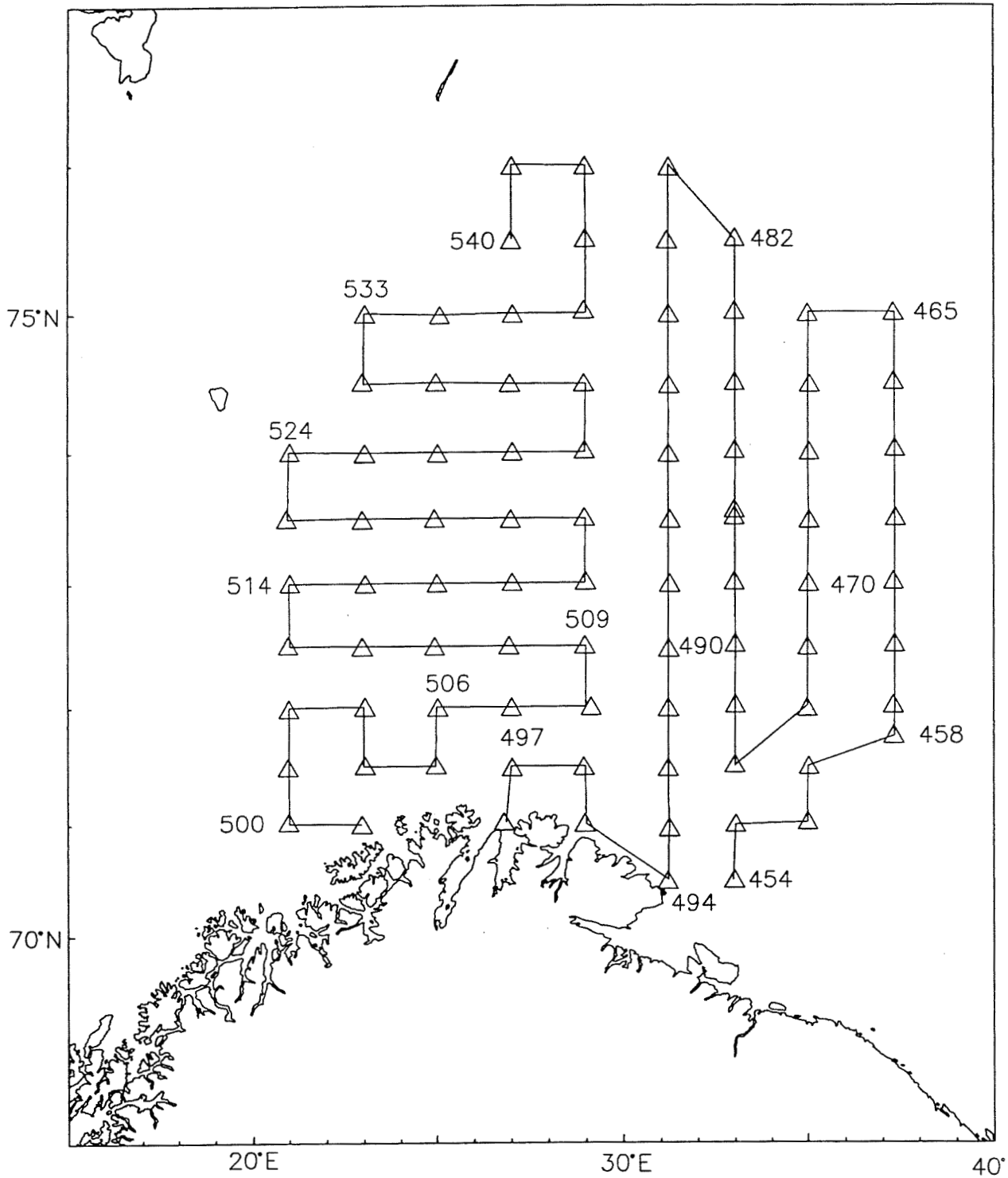
”Johan Hjort”

Cruise no 1997902

⓪ CTD and PLANKTON st.

◇ Mocness st.

Standard section Vardø N: st.no 824–843

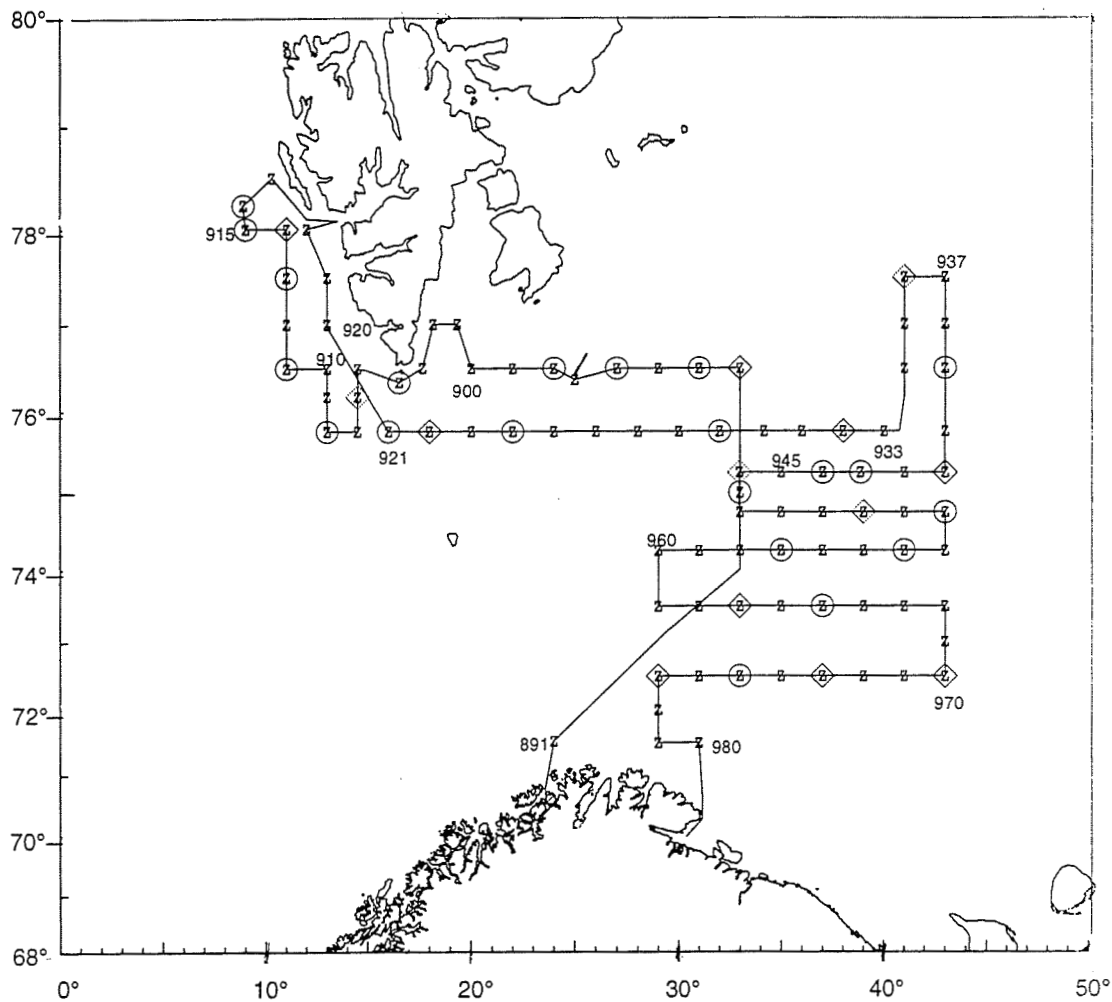


20 Aug - 9 Sep 1997

Pel. TRAWL st.no 454-540

"Johan Hjort"

Cruise no 1997902

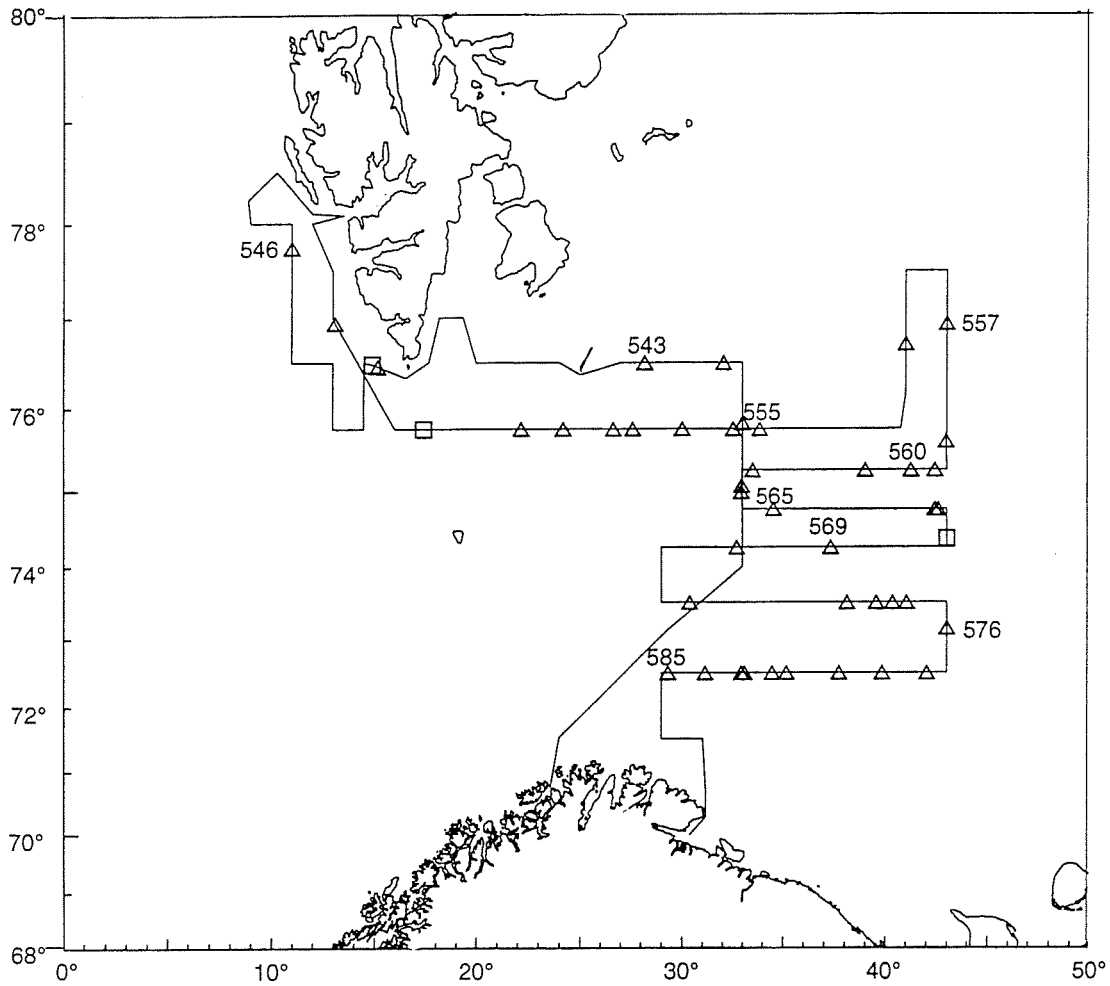


11 Sep - 2 Oct 1997 z CTD st.no 890 -980 "Johan Hjort"

Cruise no 1997904

⊙ CTD and PLANKTON st.

◇ CTD and MOCNESS st.



11 Sep - 2 Oct 1997

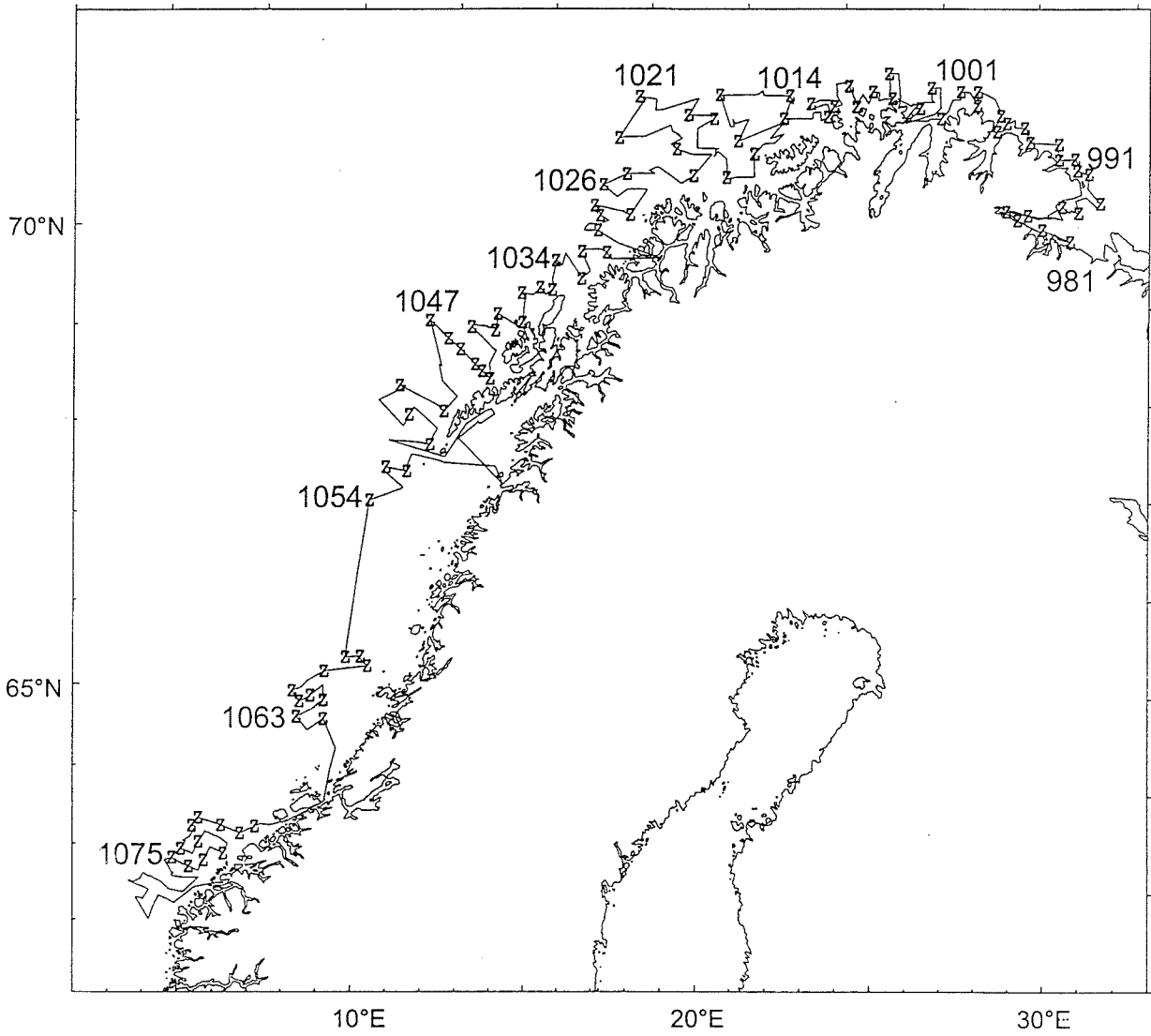
TRAWL st.no 541-585

"Johan Hjort"

Cruise no 1997904

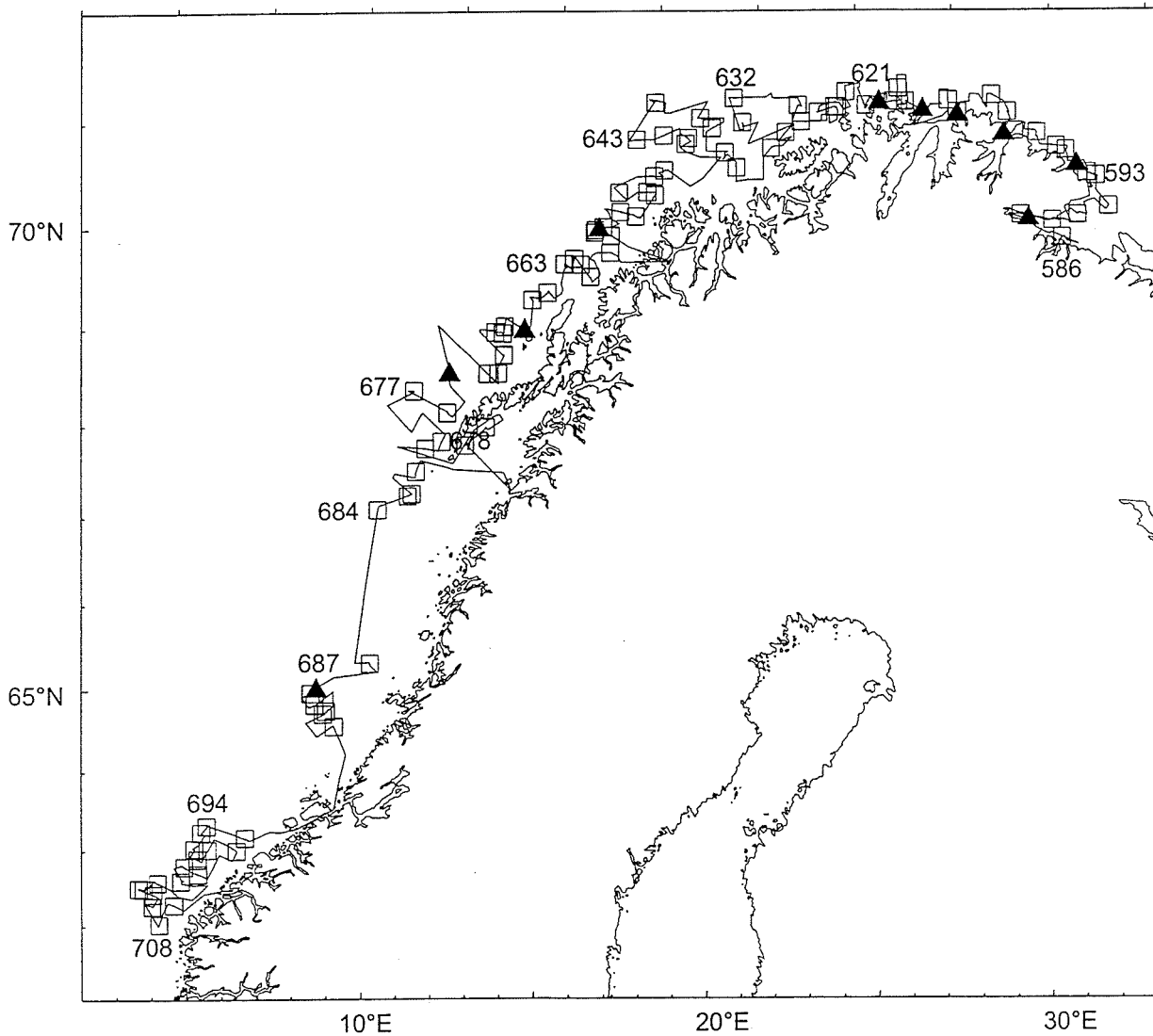
△ Pel trawl

□ Bottom trawl



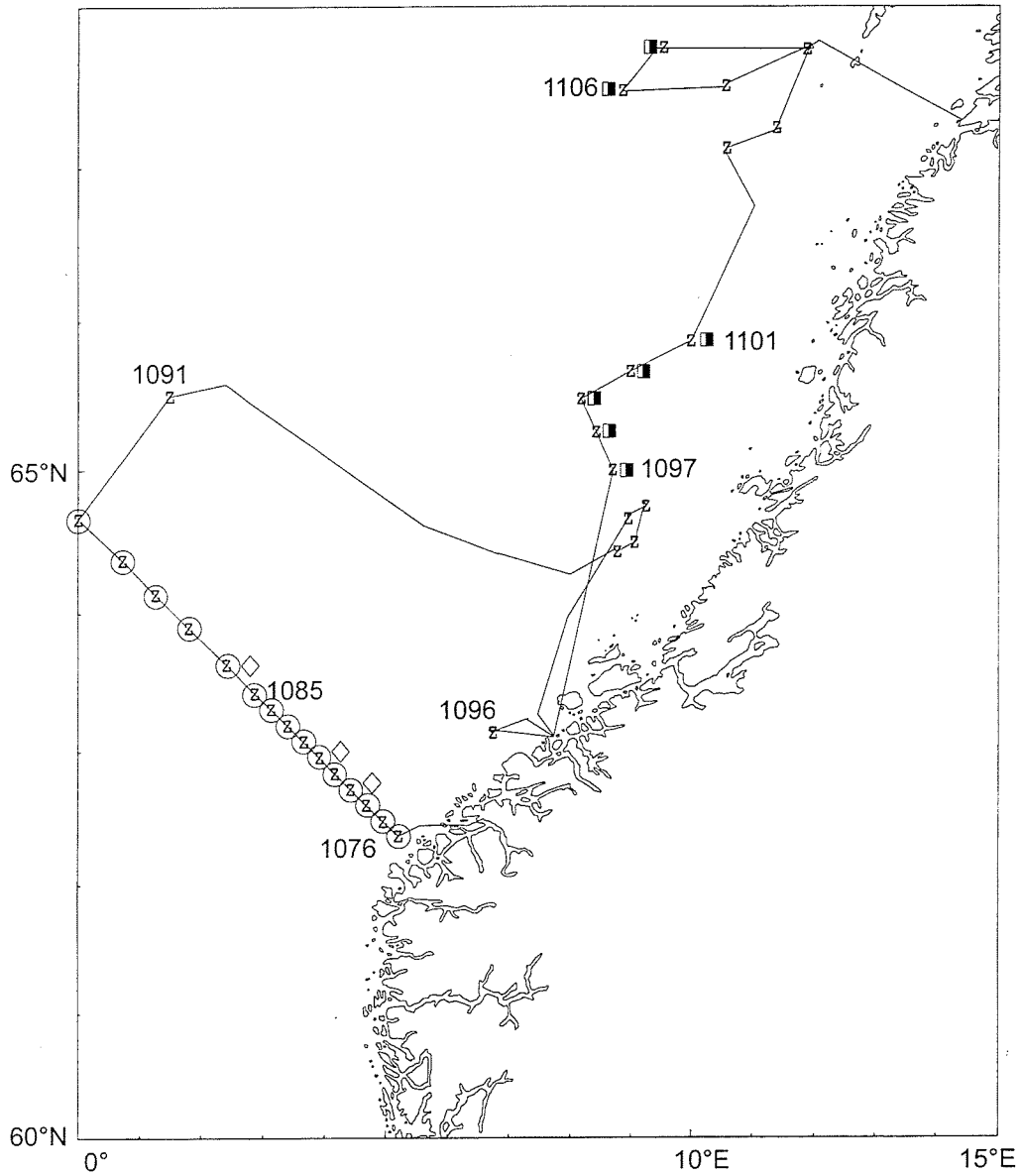
4 - 27 Oct 1997 z CTD st.no 981-1075  
Cruise no 1997213

“Johan Hjort”



4 - 27 Oct 1997    ▲ □ TRAWL st.no 586-709  
 Cruise no 1997213    □ Bottom trawl  
                          ▲ Pel. Trawl

“Johan Hjort”



28 Oct - 8 Nov 1997

Cruise no 1997214

z CTD st.no 1076-1107

⊙ CTD and PLANKTON (WPII-net)

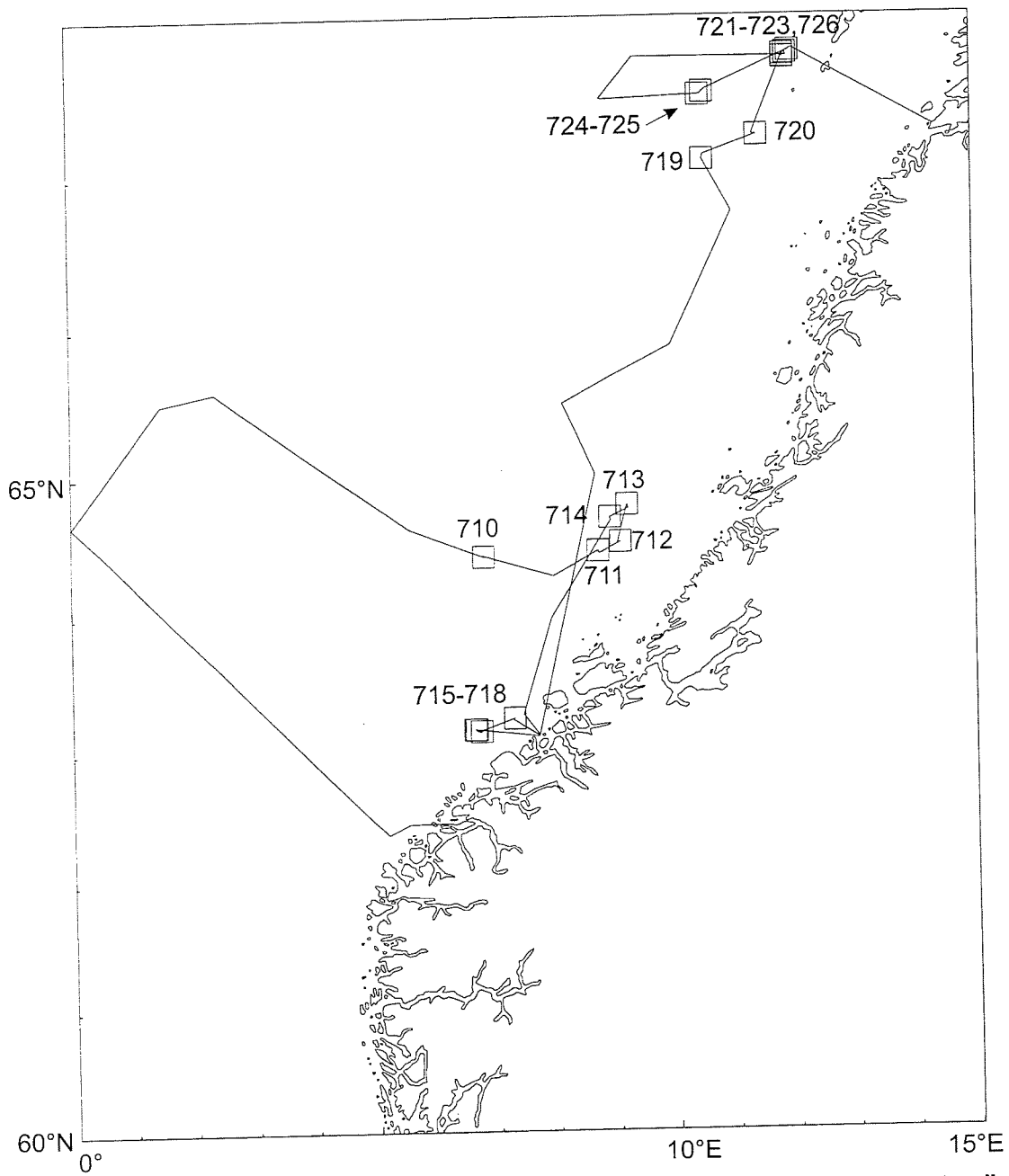
◇ MOCNESS st.

■ Grab

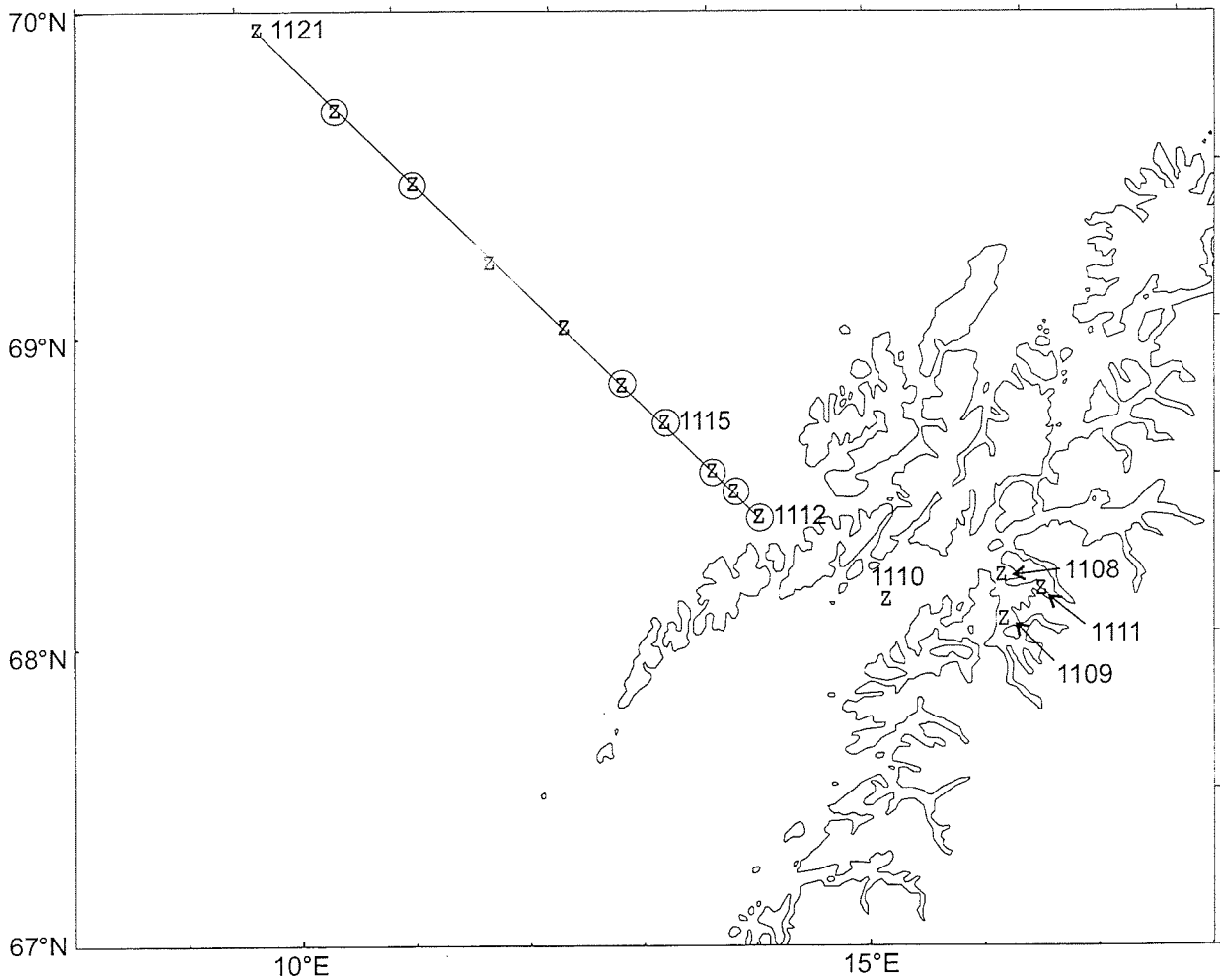
Standard section Svinøy NW: st.no 1076-1090

“Johan Hjort”





28 Oct - 8 Nov 1997 □ Bottom TRAWL st.no 710-726 "Johan Hjort"  
 Cruise no 1997214



10-25 Nov 1997

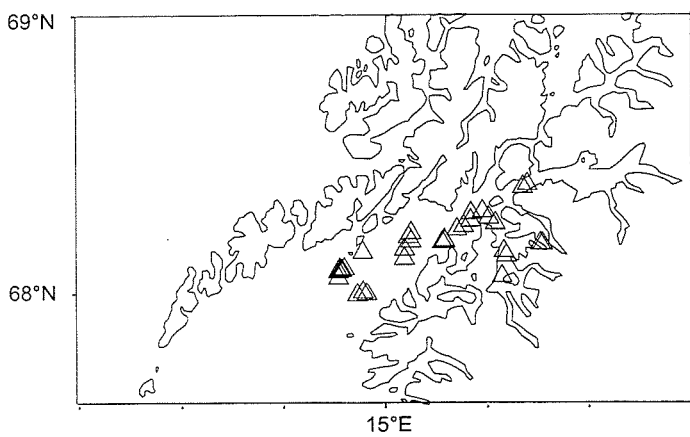
Z CTD st.no 1108-1121

“Johan Hjort”

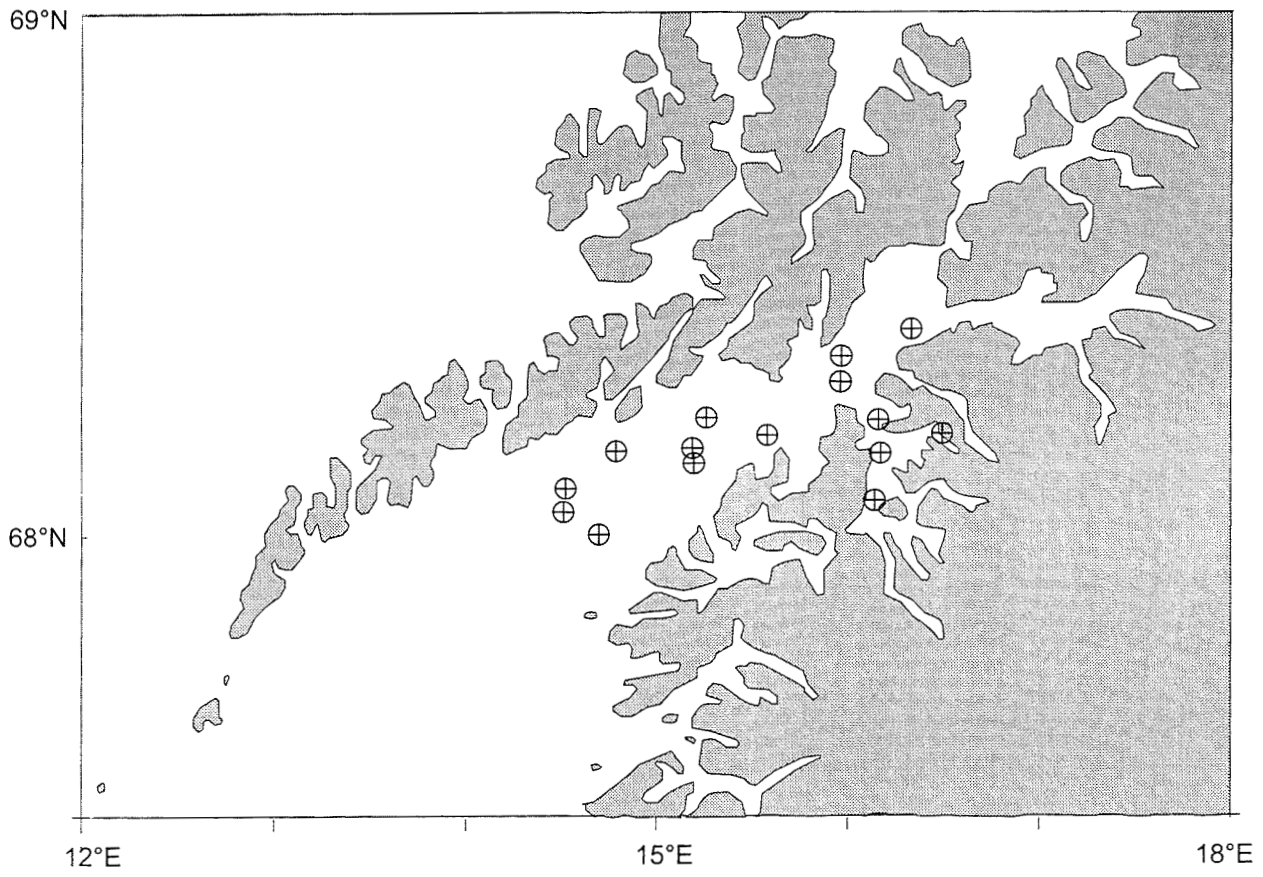
Cruise no 1997215

⊙ Ctd and PLANKTON (WP II-net)

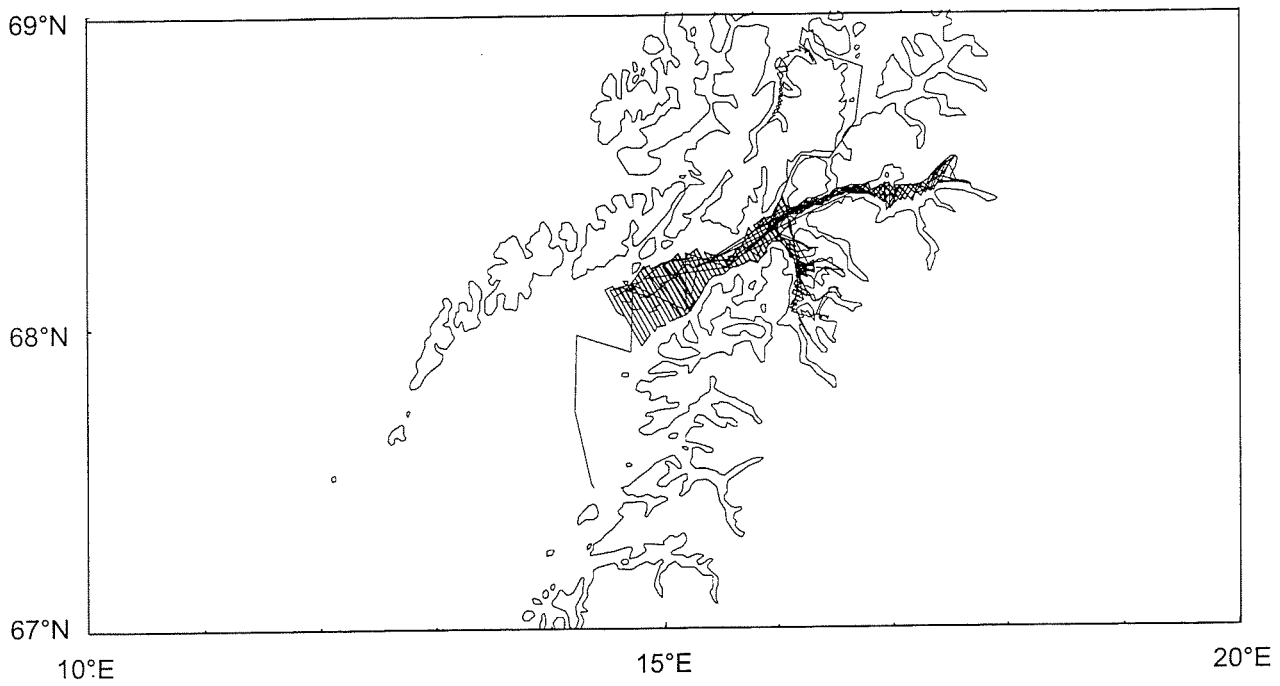
Standard section Gimsøy NW: st.no 1112-1121



△ Pel TRAWL st.no 727-756



Split beam, pressure stable transducer at depth for measurements of in situ TS of herring.

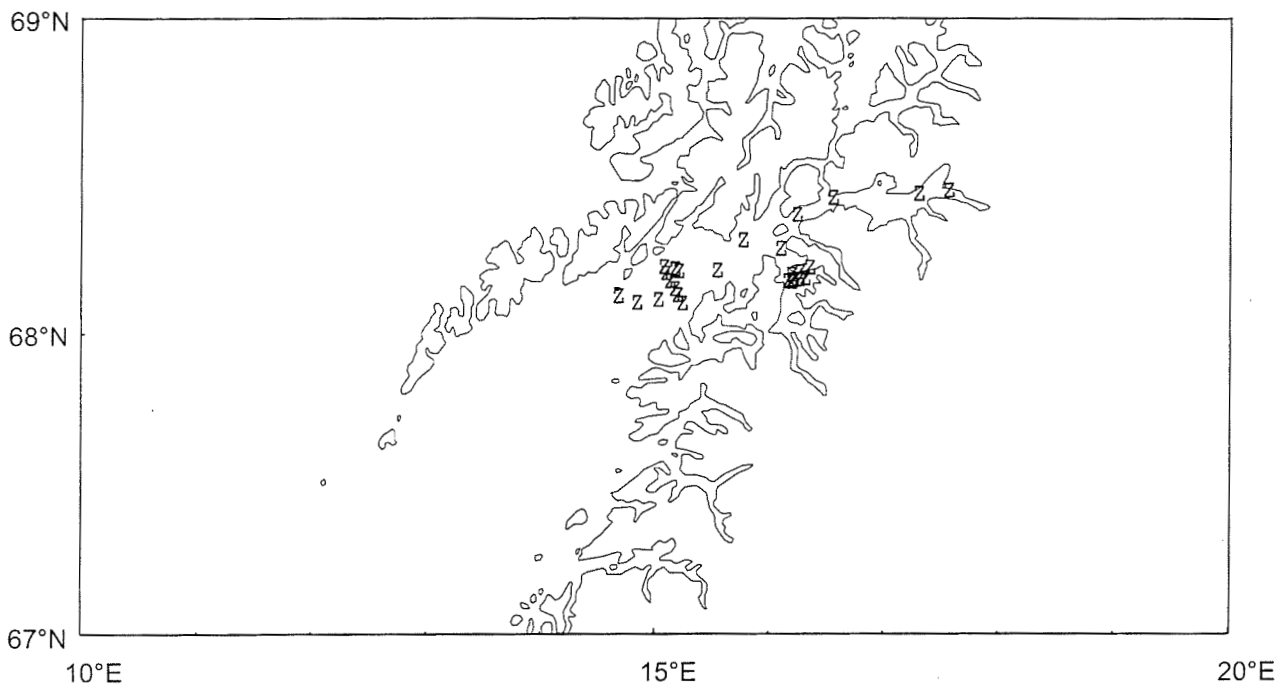


26 Nov - 13 Dec 1997

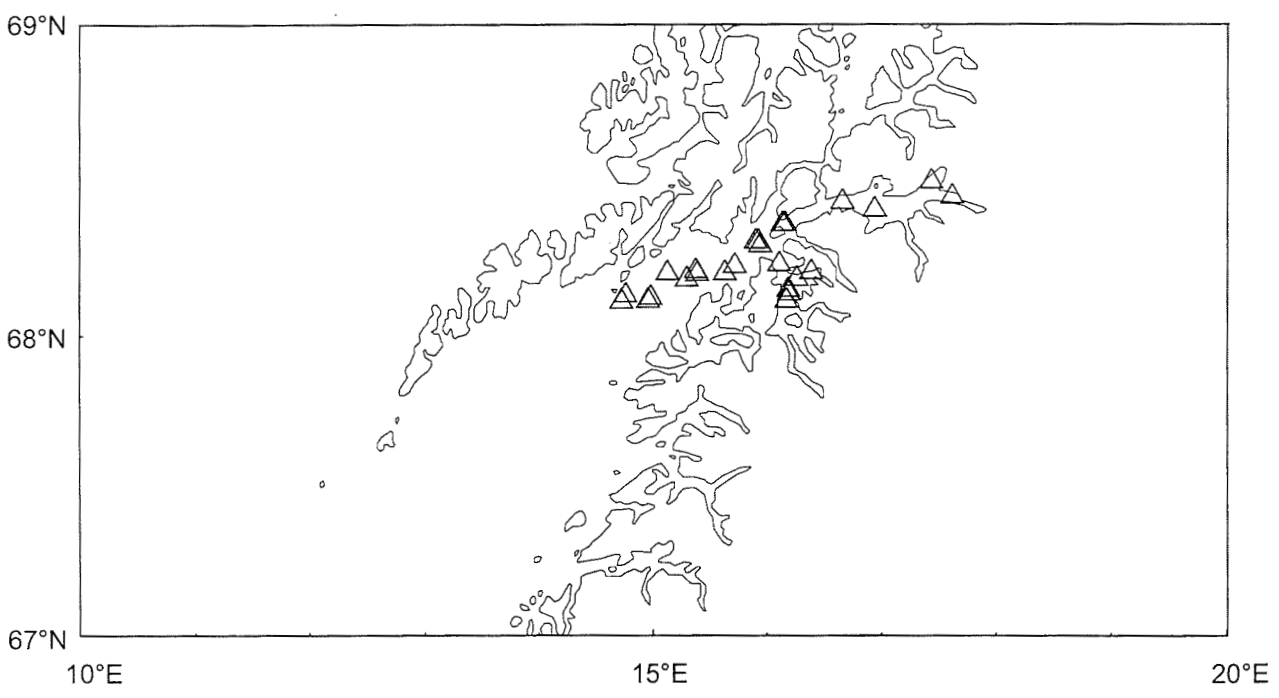
Cruise track

"Johan Hjort"

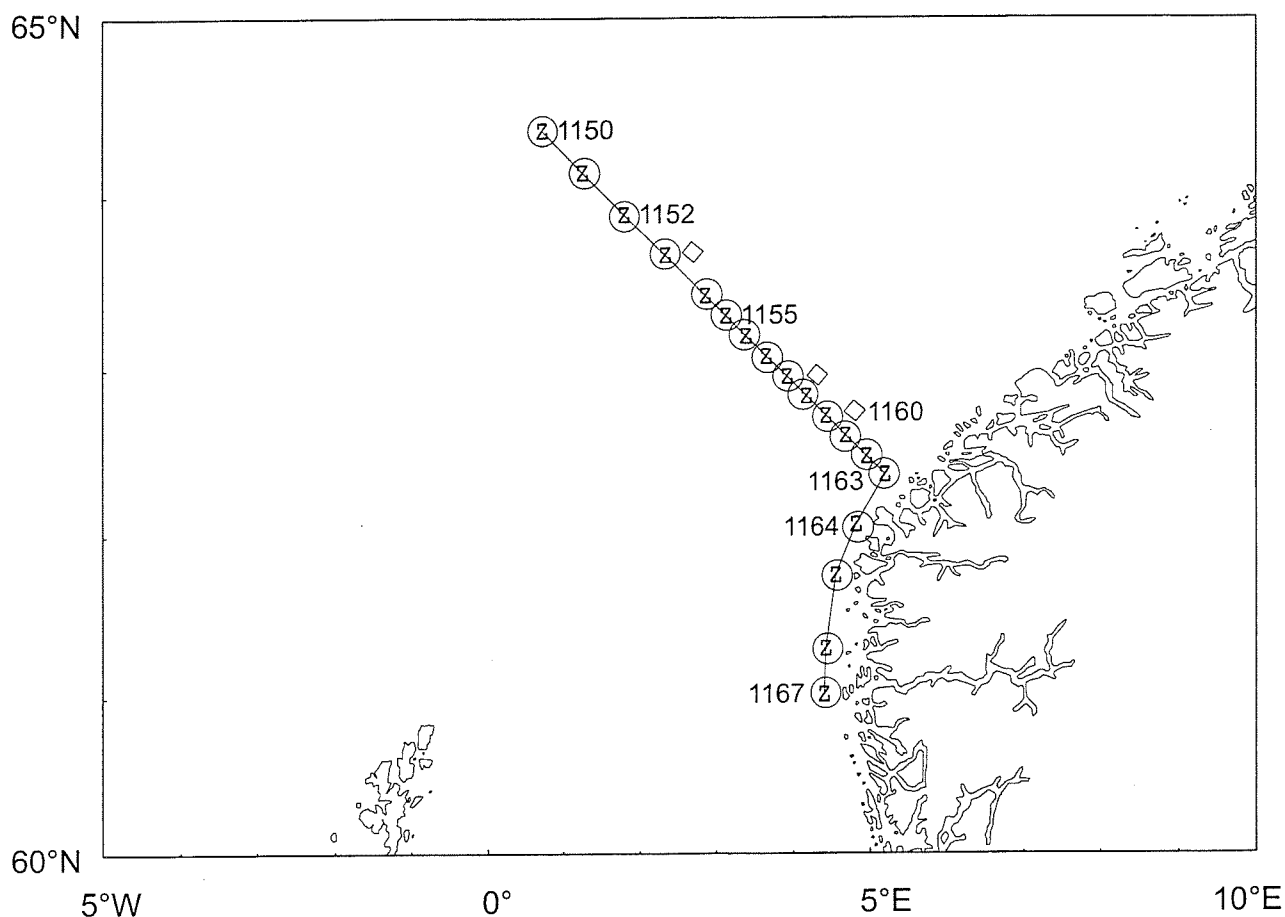
Cruise no 1997216



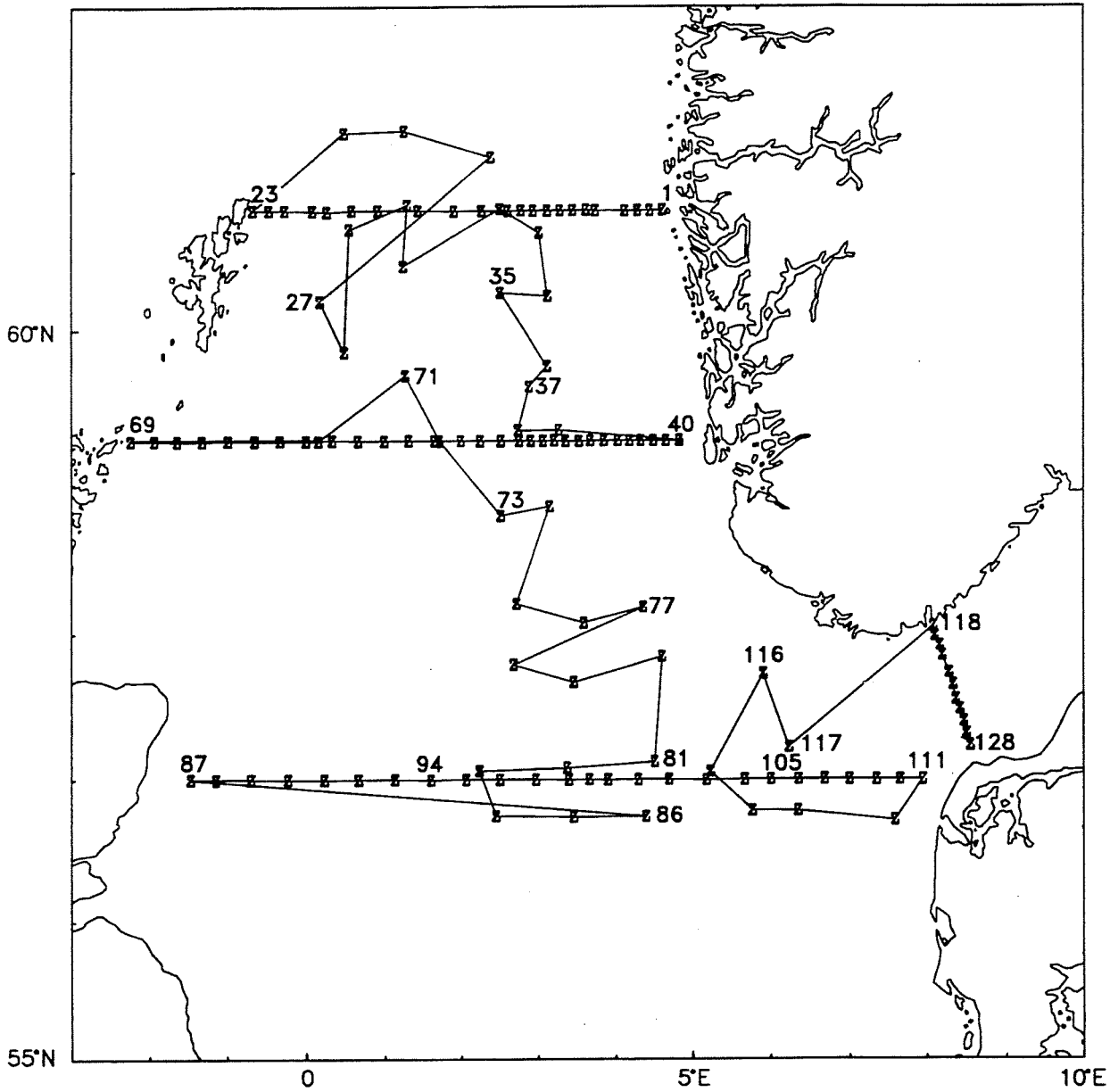
26 Nov - 13 Dec 1997 z CTD st.no 1122-1149 "Johan Hjort"  
 Cruise no 1997216



26 Nov - 13 Dec 1997 Δ Pel TRAWL st.no 757-782 "Johan Hjort"  
 Cruise no 1997216



13 - 17 Dec 1997 Standard section Svinøy NW: st.no 1150-1163 "Johan Hjort"  
 Cruise no 1997217 Ⓢ CTD and PLANKTON (WP-II-net) st.no 1150-1167  
 ◇ Mocness st.



21 Jan - 17 Feb 1997 z CTD st.no 1 - 128 "Michael Sars"

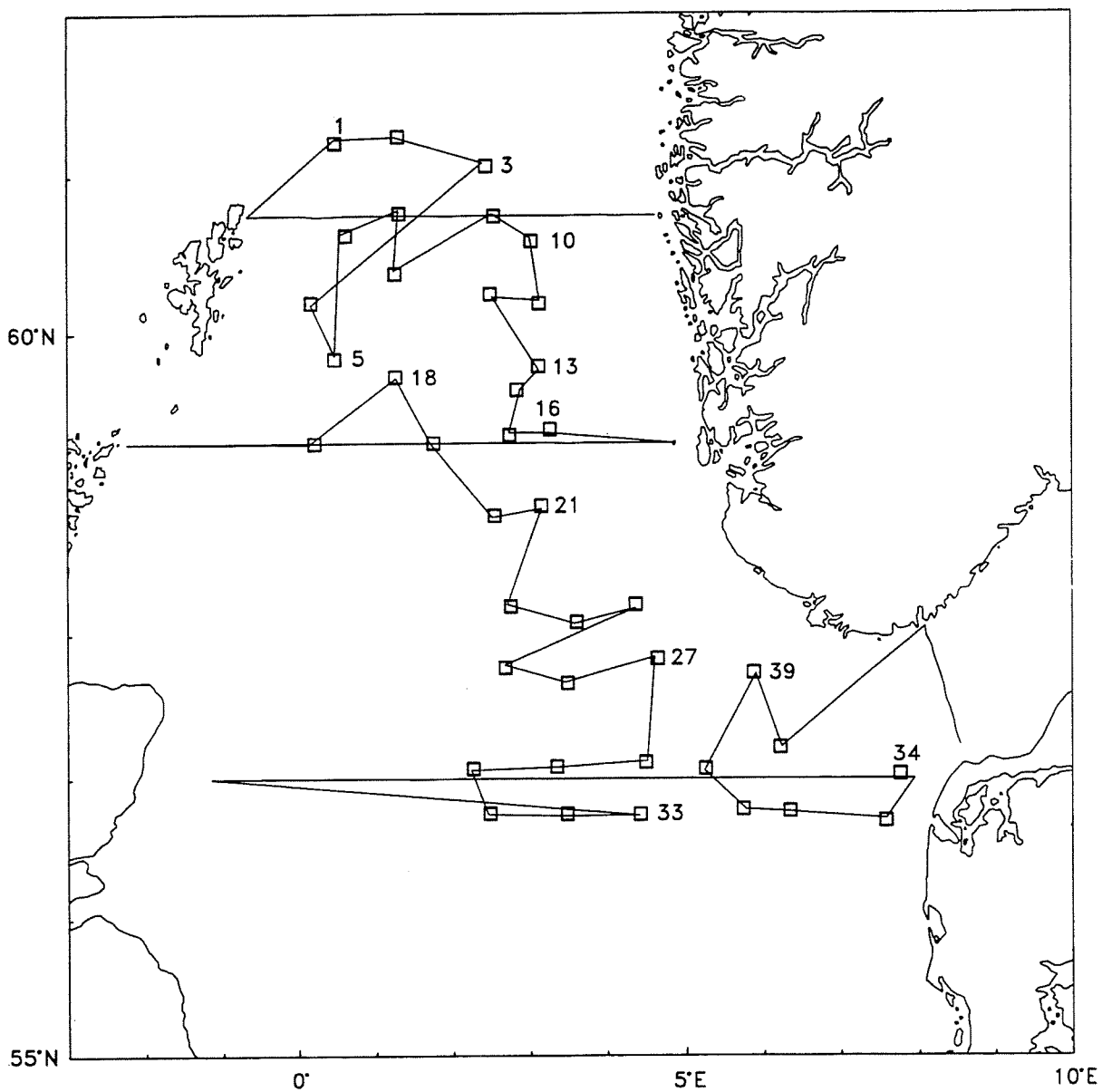
Cruise no 1997101

Standard sections: Feie-Shetland st.no 1-23

Utsira W st.no 40-69

Hanstholm-Aberdeen st.no 87 - 111

Hanstholm-Oksøy st.no 118 -128



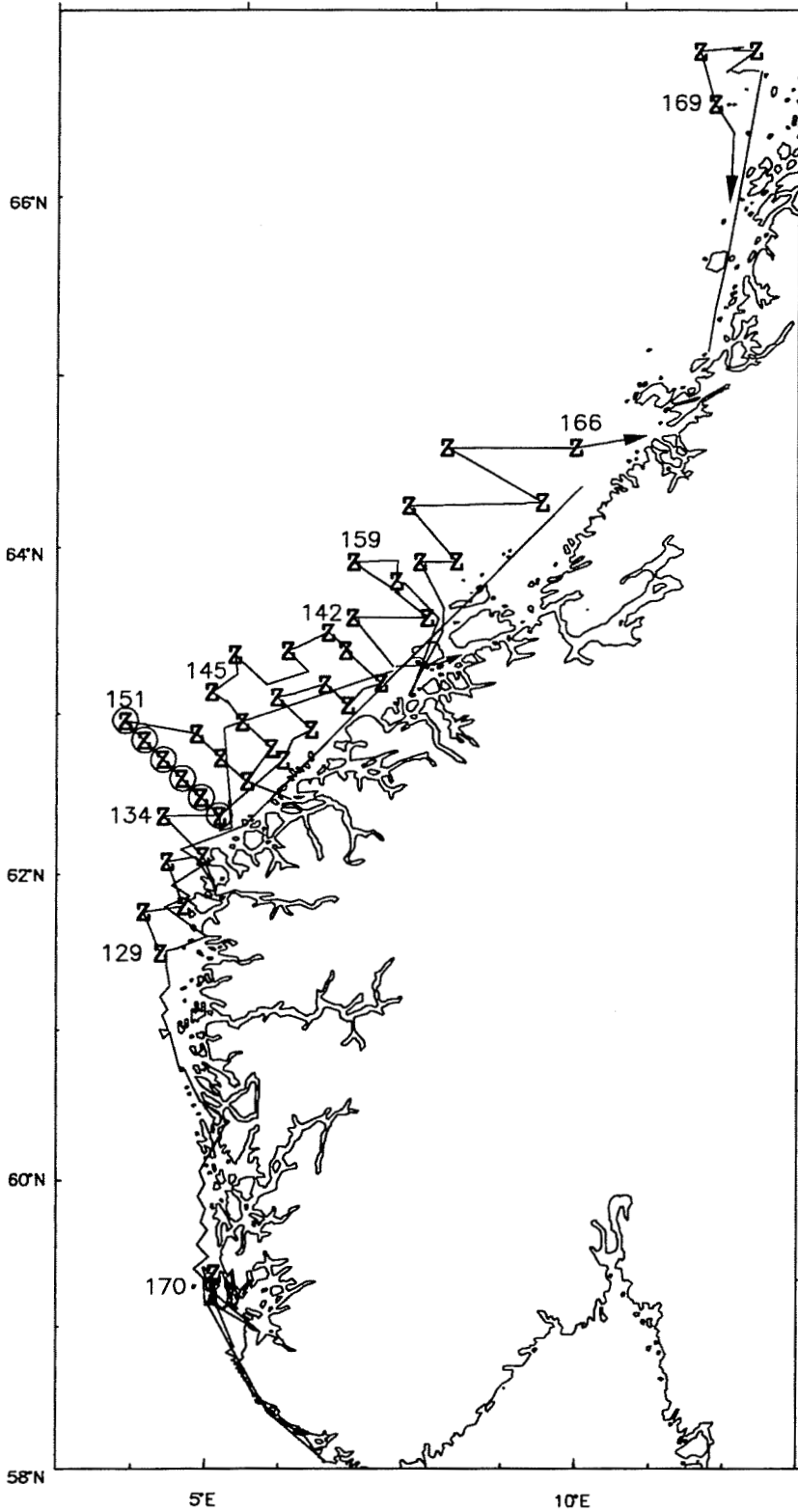
21 Jan - 17 Feb 1997

□ TRAWL st.no 1-40

"Michael Sars"

Cruise no 1997101





20 Feb - 18 Mar 1997

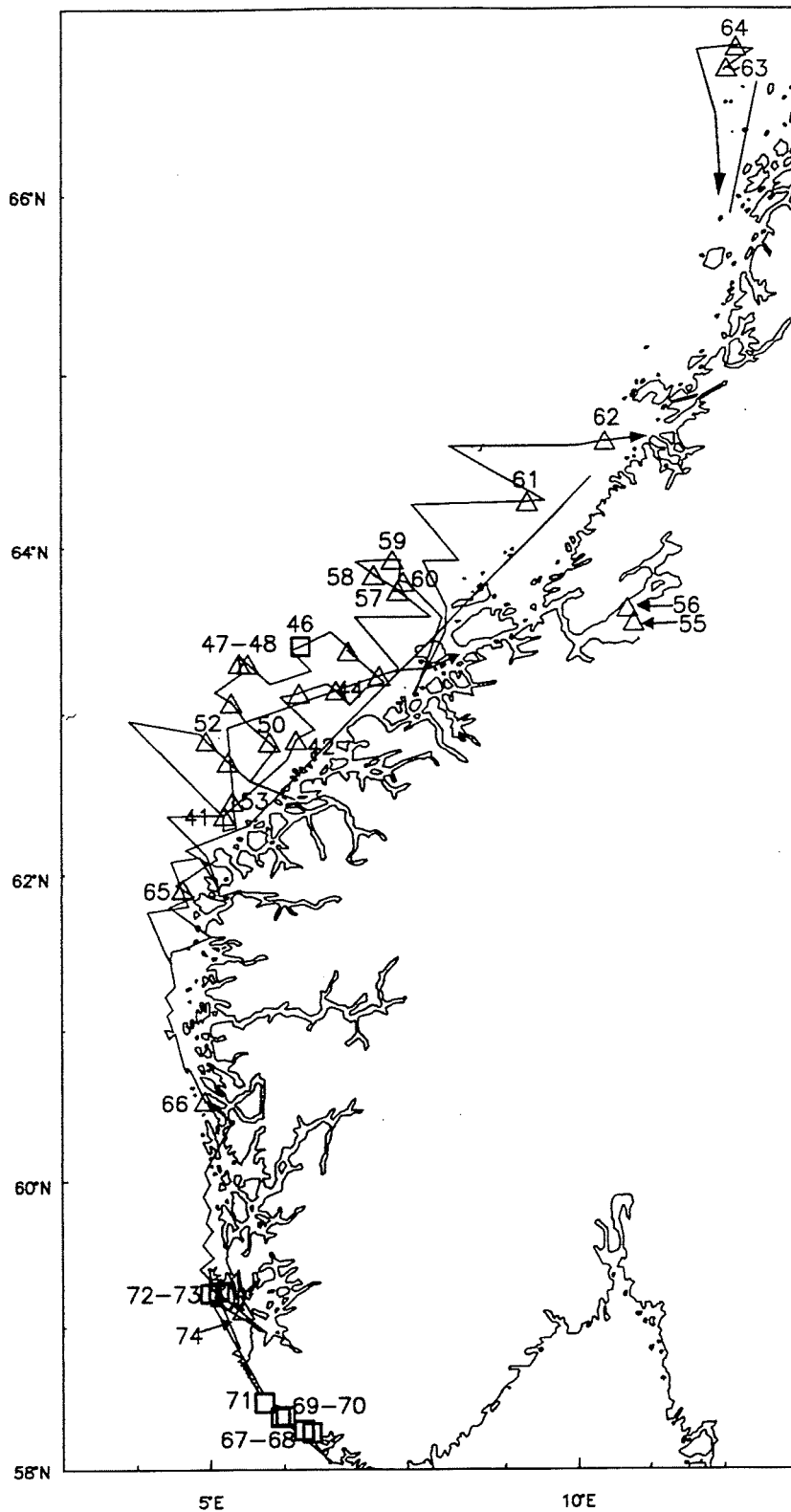
"Michael Sars"

Cruise no 1997102

z CTD st.no 129-170

⊗ CTD and PLANKTON st.( WP-II net)

Standard section: Svinøy NW st.no 151-156



20 Feb - 18 Mar 1997

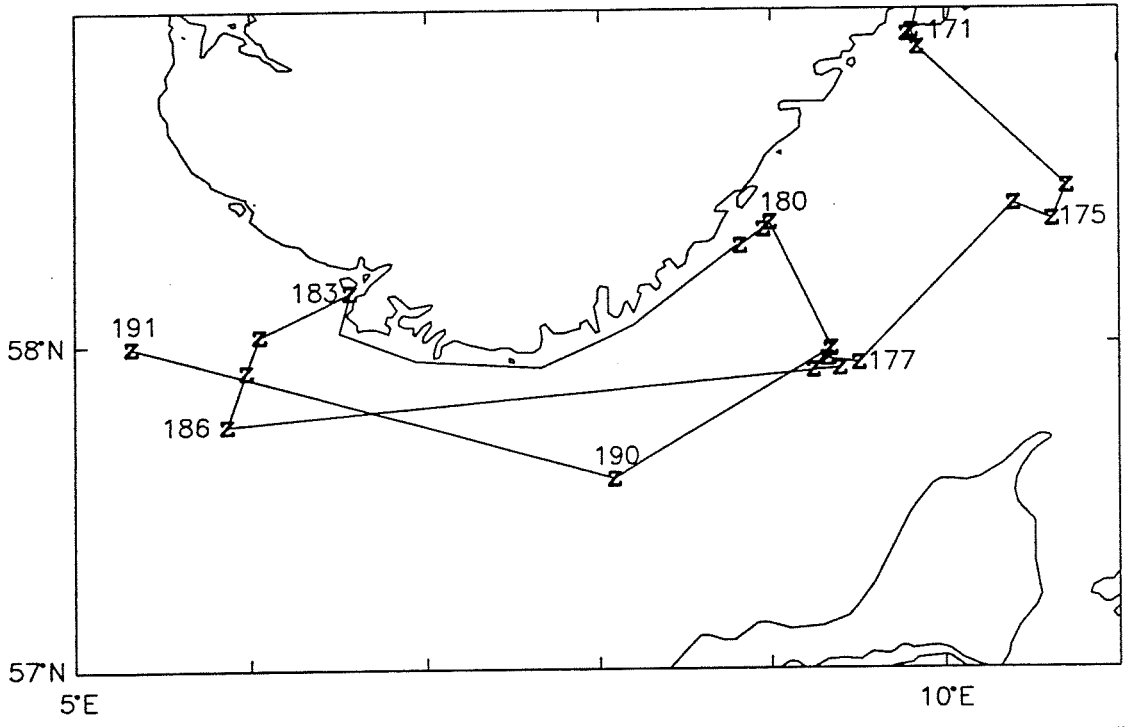
"Michael Sars"

Cruise no 1997102

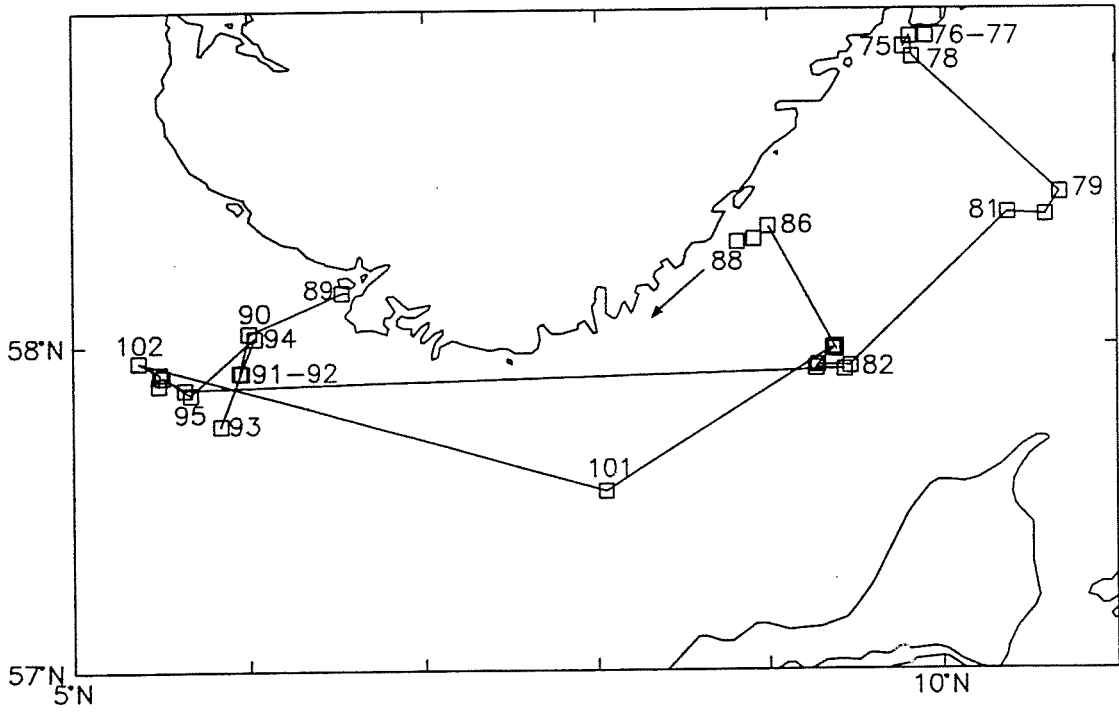
□△ TRAWL ST.NO 41-74

□ Bottom tr.

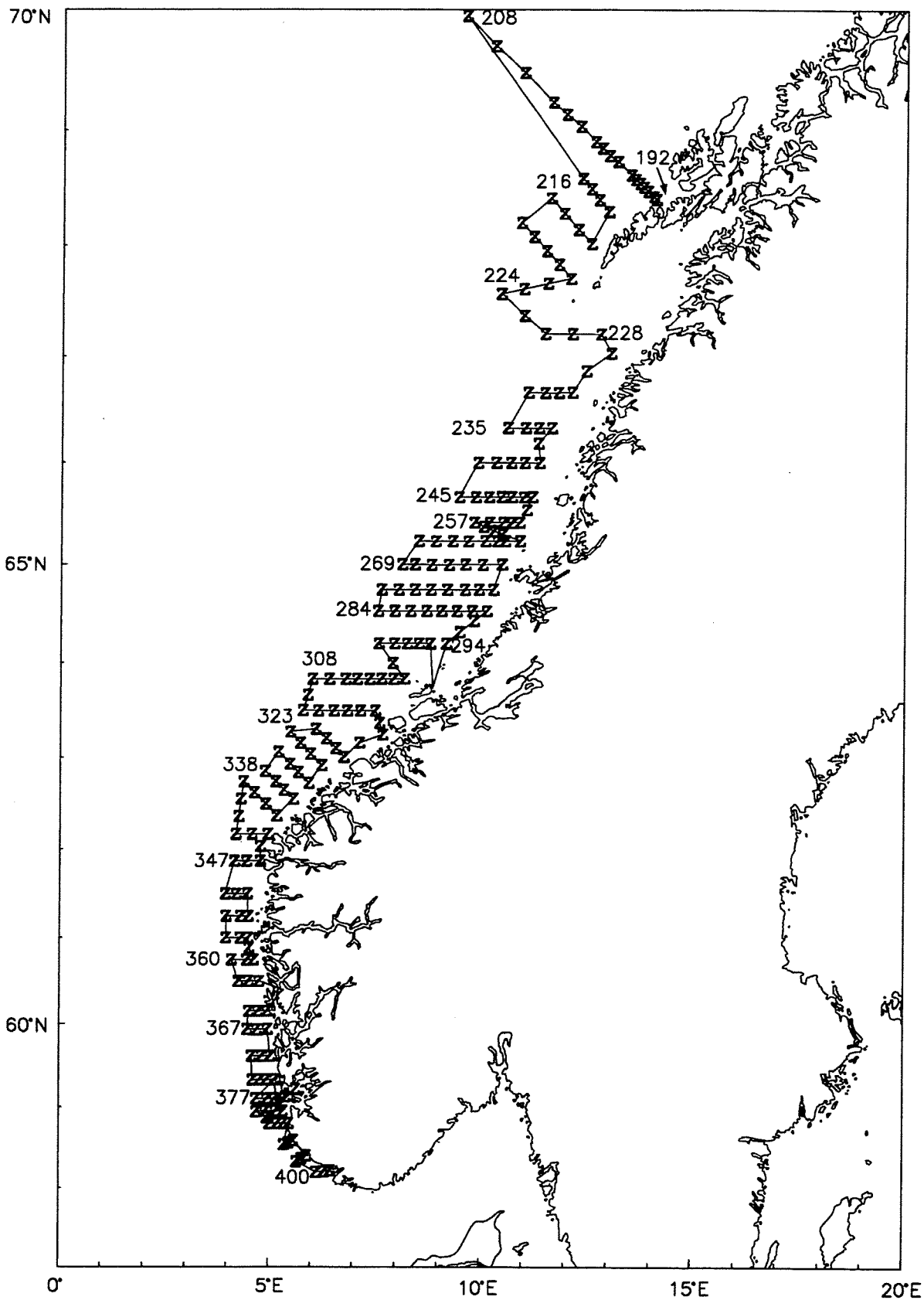
△ Pel tr.



21-31 Mar 1997      z CTD st.no 171-191      "Michael Sars"  
 Cruise no 1997103



21-31 Mar 1997      □ Bottom trawl st.no 75-104      "Michael Sars"  
 Cruise no 1997103

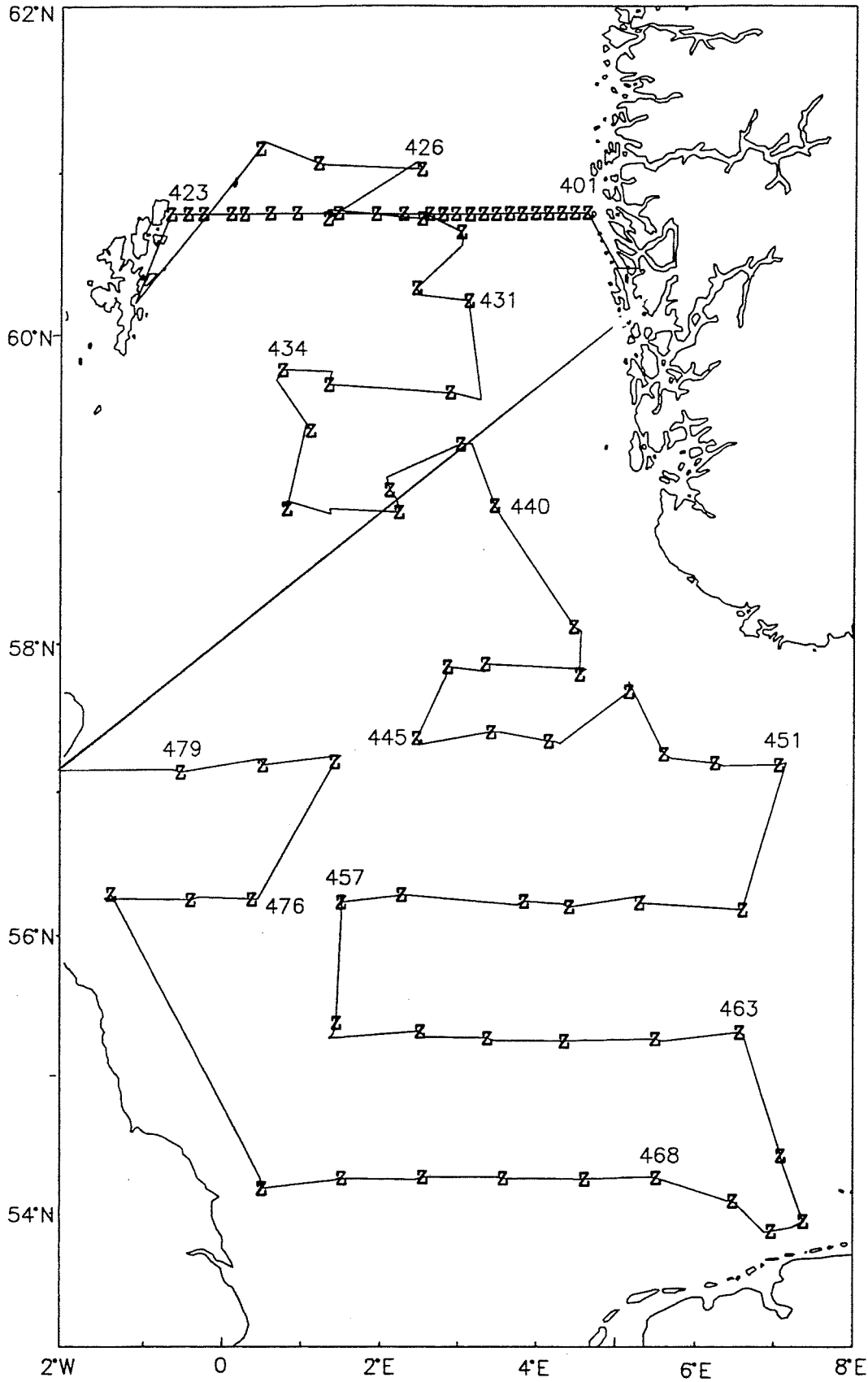


2-22 Apr 1997

"Michael Sars"

Cruise no 1997104 z CTD and GULF II or T-80 vertical haul net - st.no 192-400  
60 stations WP II net taken (not shown)

Standard section: Gimsøy NW: st.no 192-208



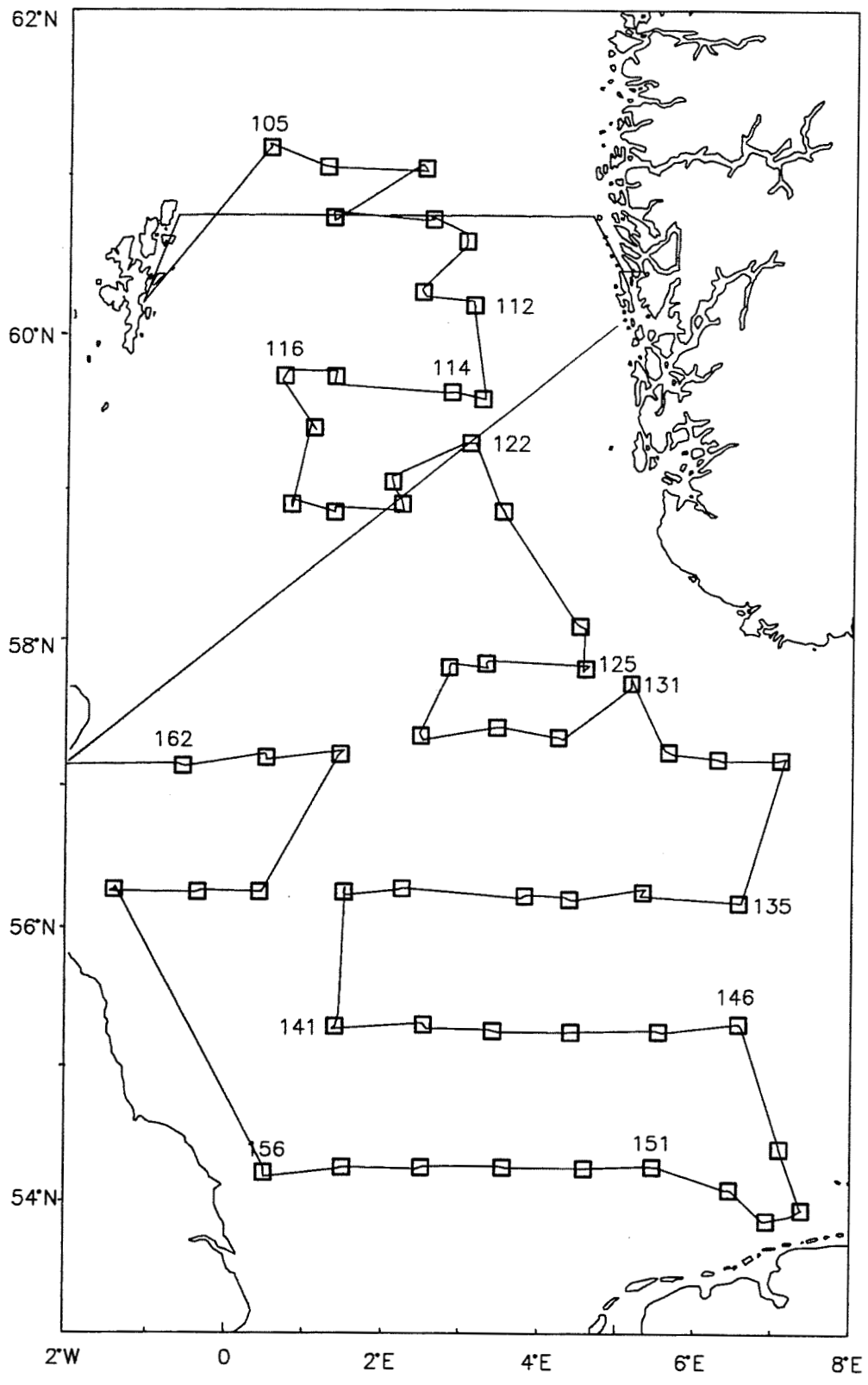
10-30 May 1997

z CTD st.no 401-479

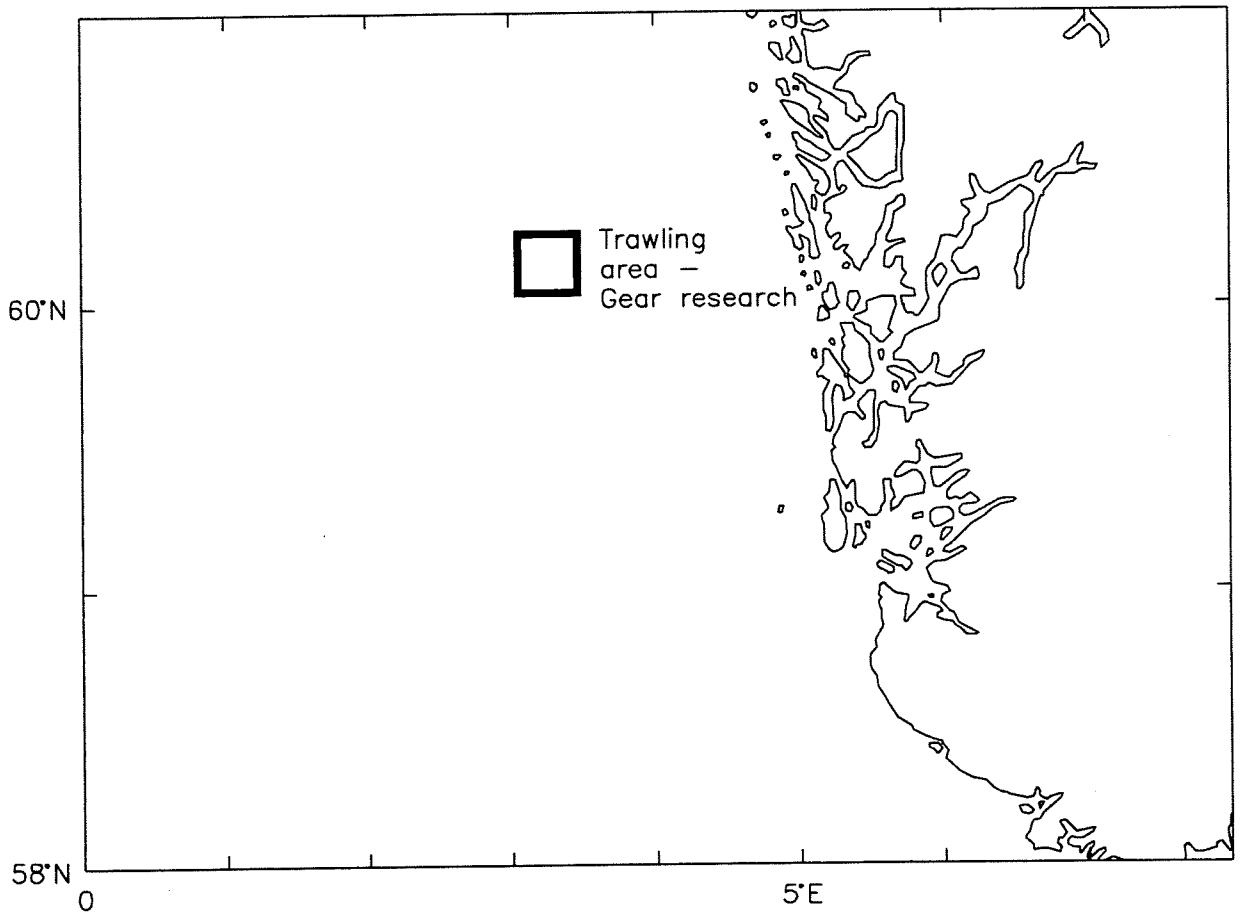
"Michael Sars"

Cruise no 1997106

Standard section Feie - Shetland: st.no 401-423



10-30 May 1997  Bottom TRAWL st.no 105 - 162 "Michael Sars"  
 Cruise no 1997106



60°N

58°N

0

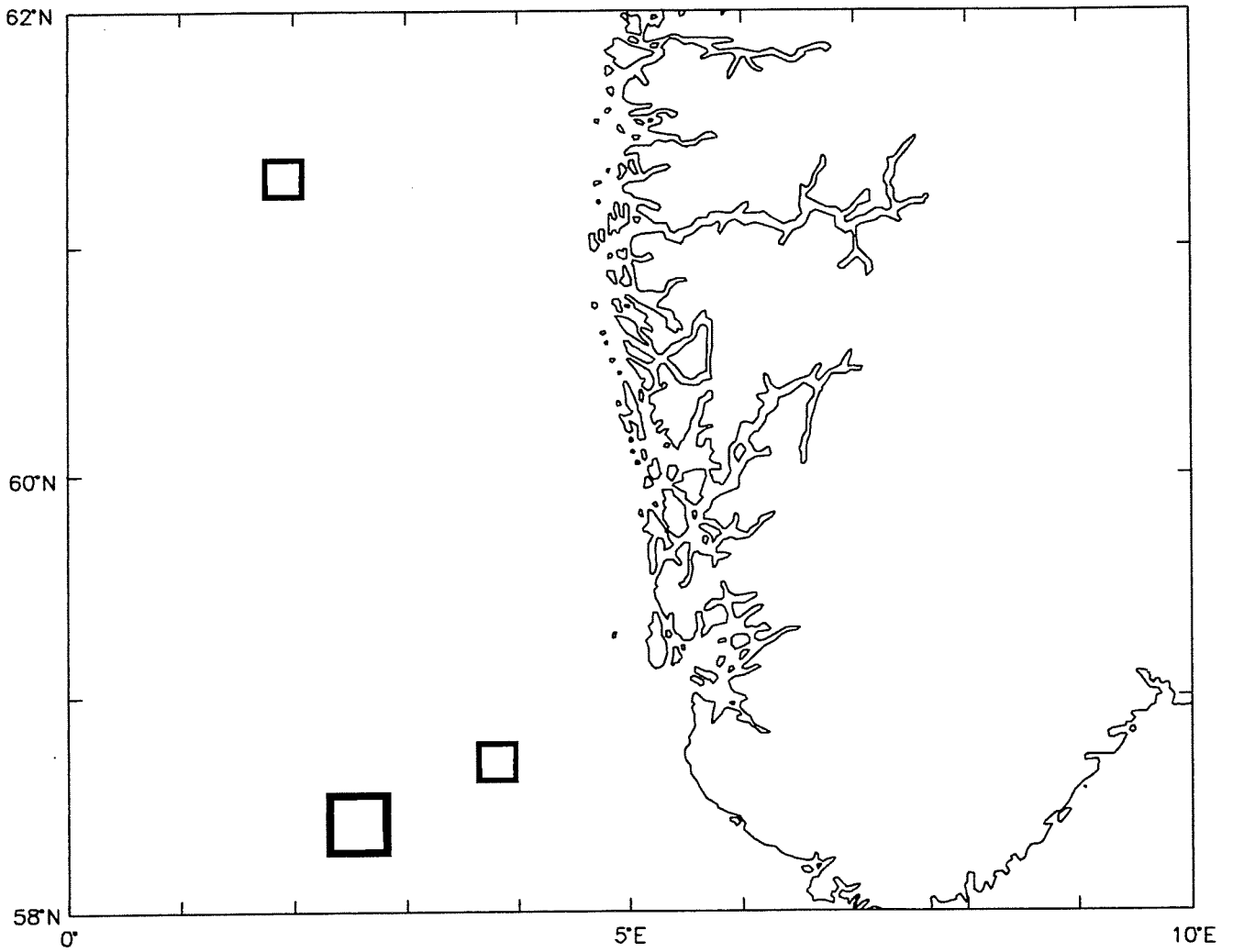
5°E

3-16 June 1997

Bottom TRAWL st.no 163-202

"Michael Sars"

Cruise no 1997107



17 June - 1 July 1997

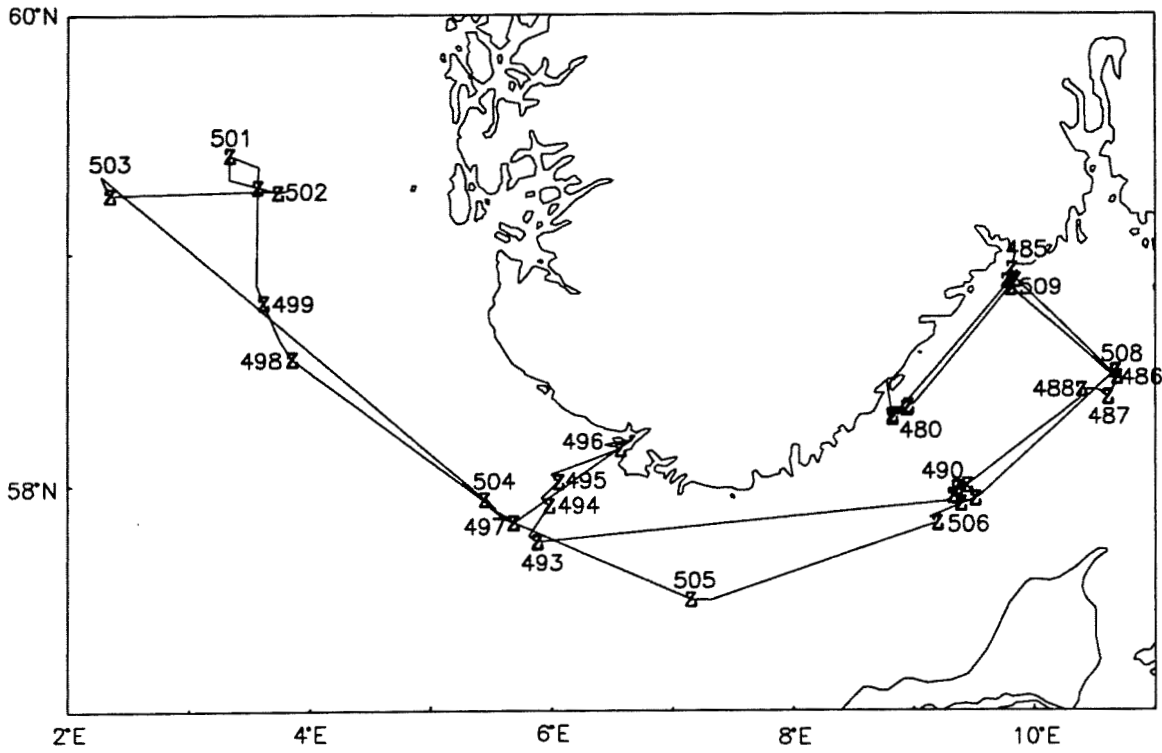
Cruise no 1997114

 TRAWLING AREA

"Michael Sars"

23 trawl hauls: Exploratory fishing  
 (Video and acoustic documented trawl hauls  
 across bottom laid oil and gas pipelines covered  
 with stones.)

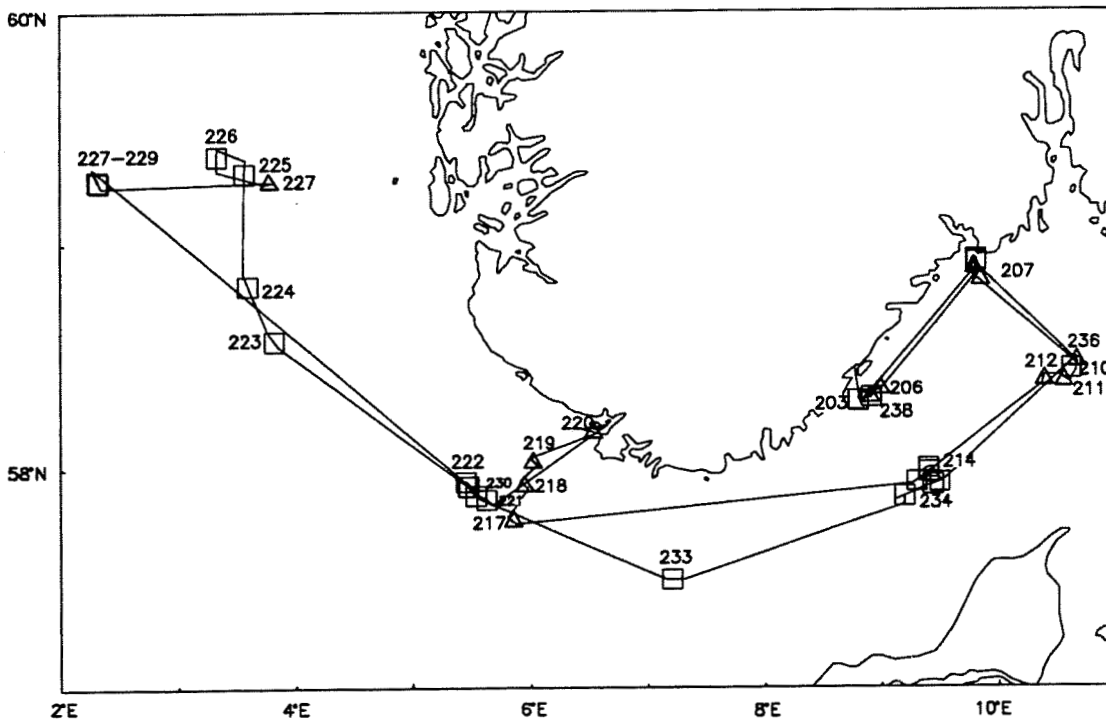




4 - 14 July 1997  
Cruise no 1997109

z CTD st.no 480-510

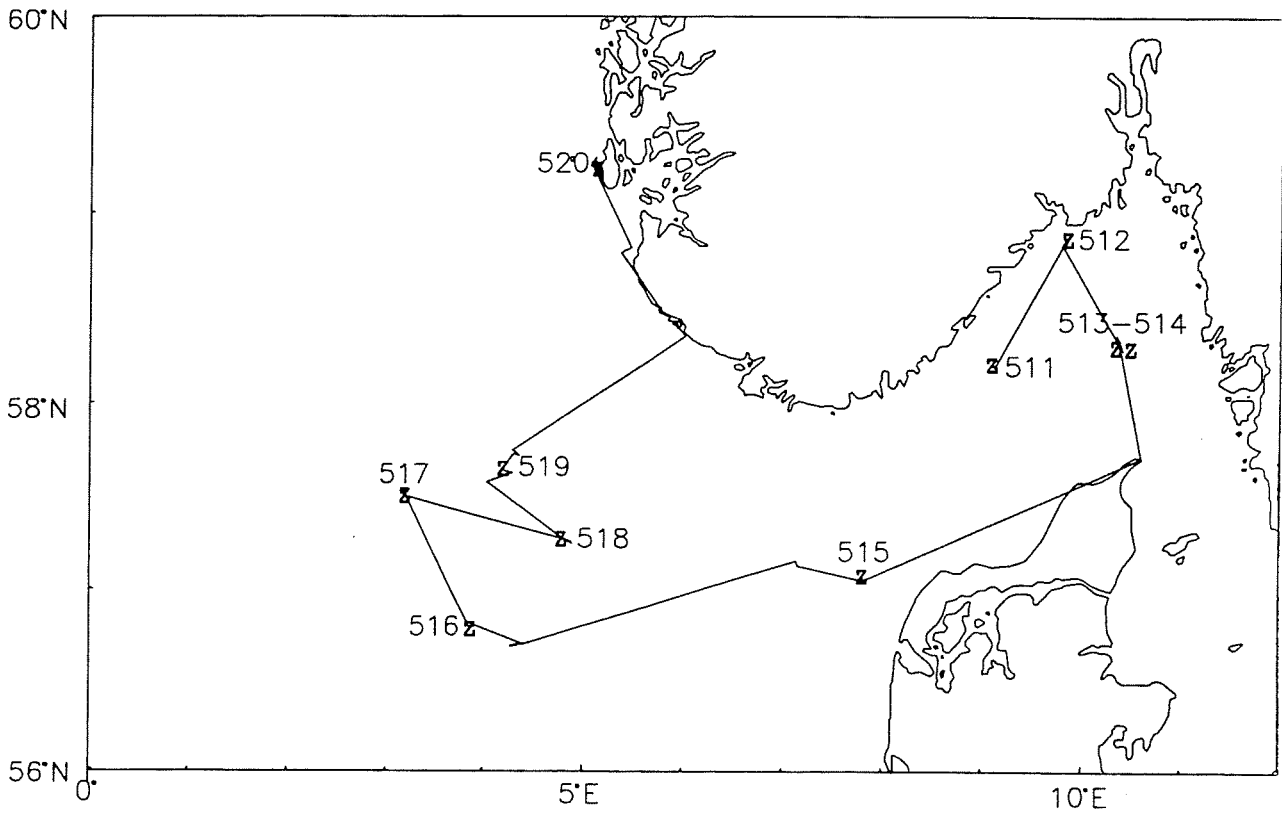
"Michael Sars"



4 - 14 July 1997  
Cruise no 1997109

□ Δ TRAWL st.no 203 - 238  
□ Bottom trawl (Crustaceans)  
Δ Nephrops twin trawl (Crustaceans)

"Michael Sars"

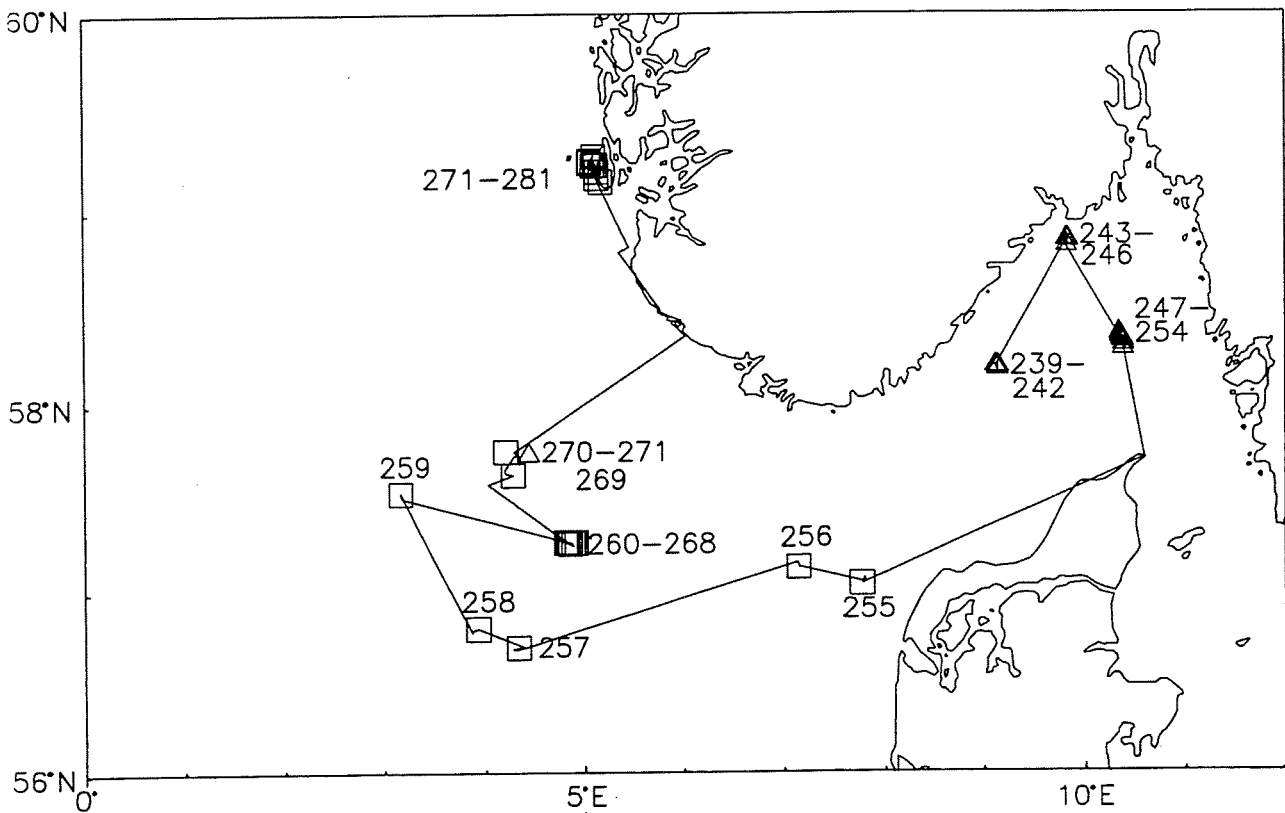


15 - 24 July 1997

z CTD st.no 511-520

"Michael Sars"

Cruise no 1997110



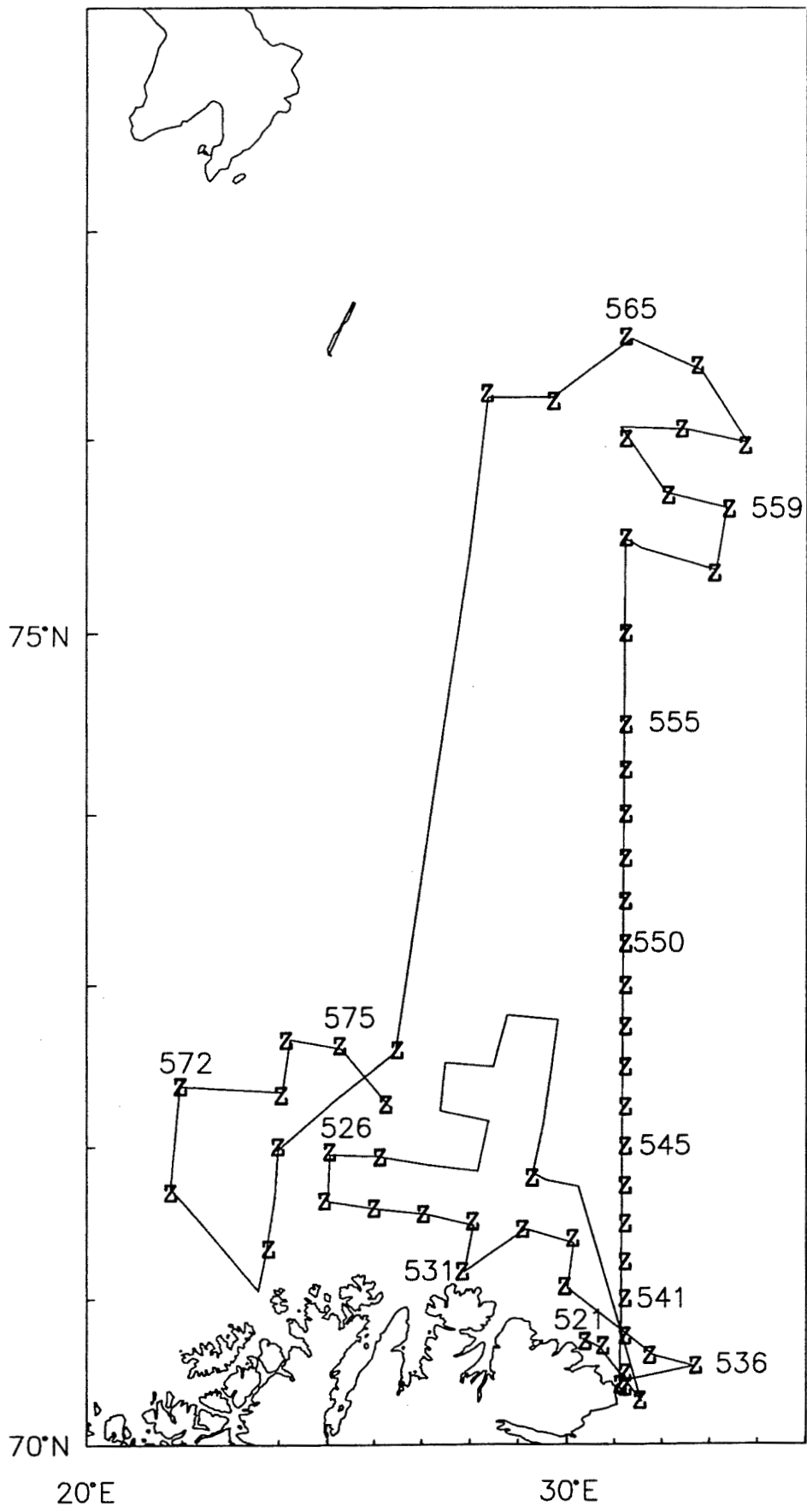
15 - 24 July 1997

△ □ TRAWL st.no 239-281

"Michael Sars"

Cruise no 1997110

□ Bottom tr.  
△ Pel. tr.

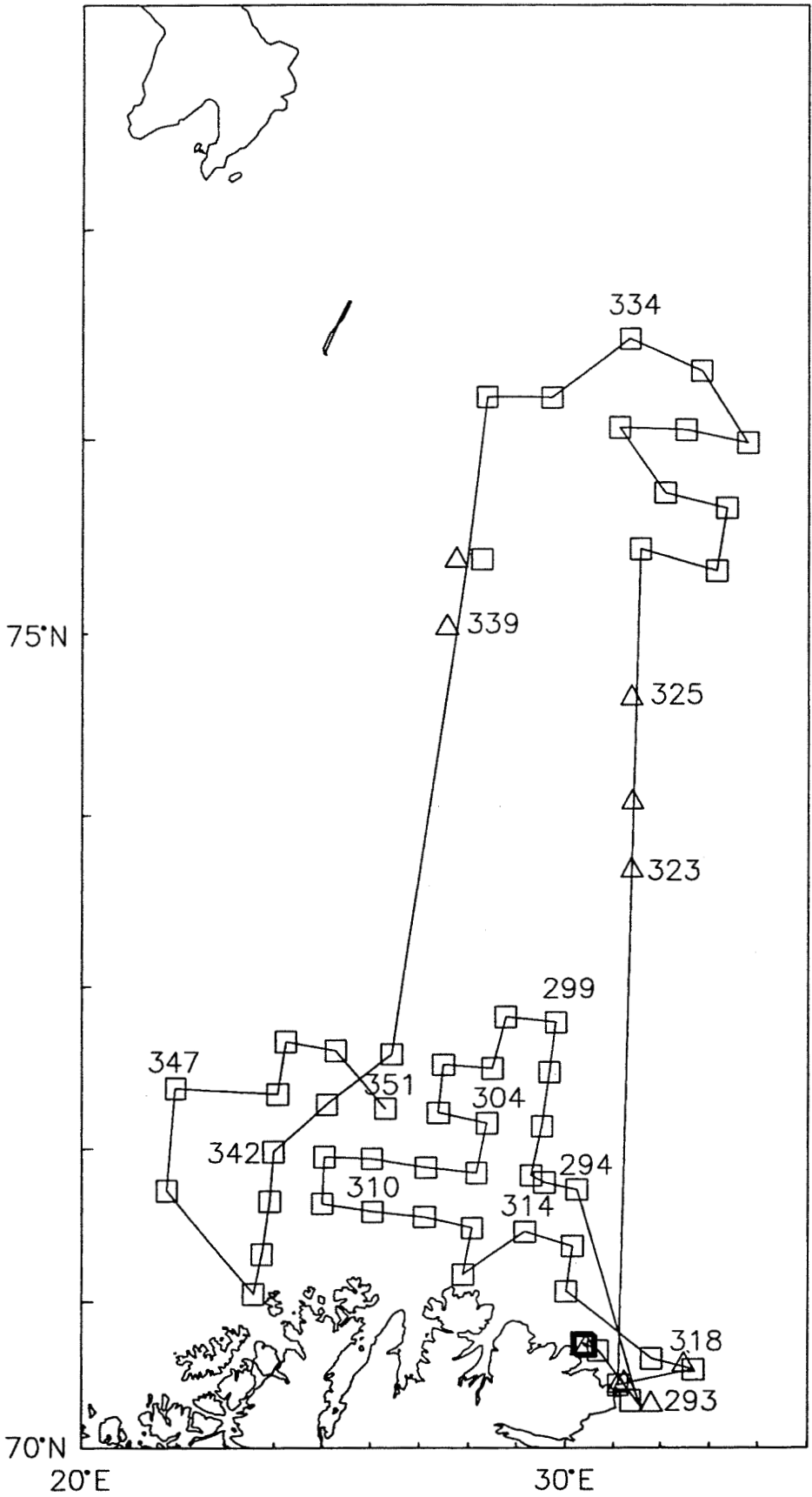


29 Jul - 14 Aug 1997

z CTD st.no. 521-576 "Michael Sars"

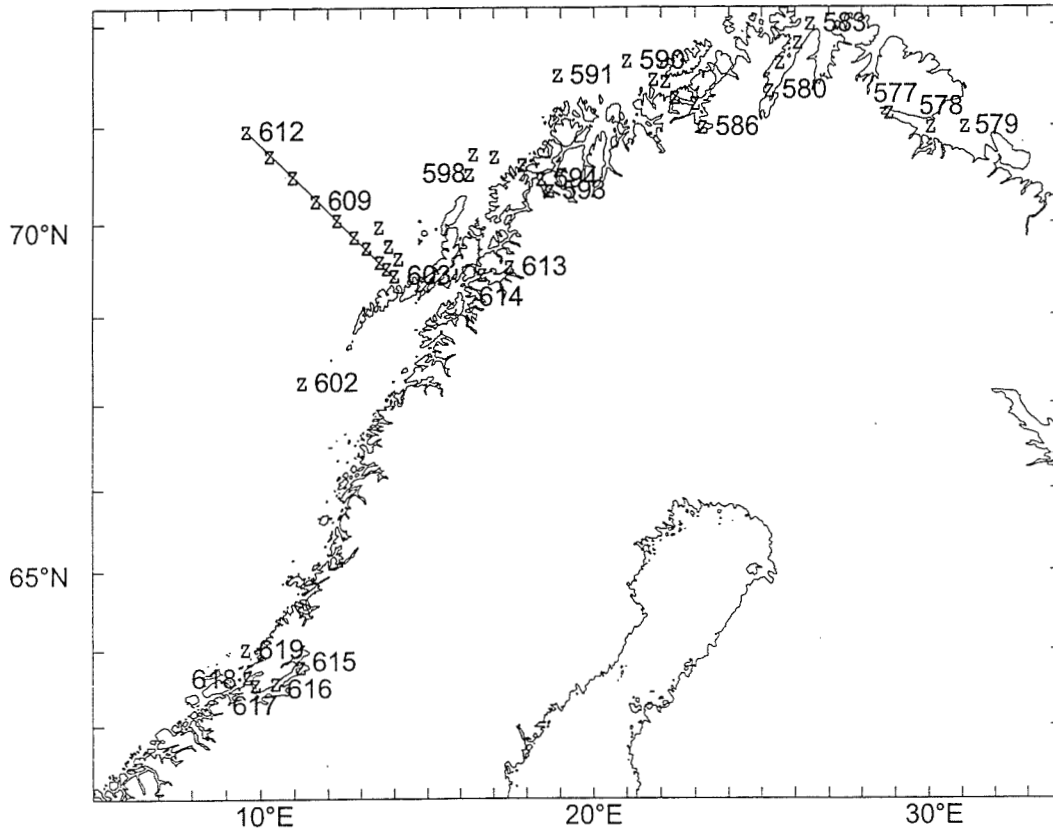
Cruise no 1997903

Standard section Vardø N: st.no 537-557, 561,565



29 Jul - 14 Aug 1997  
 Cruise no 1997903

□ △ TRAWL st.no 282-351 "Michael Sars"  
 □ Bottom trawl  
 △ Pel. trawl



20 Aug - 24 Sep 1997

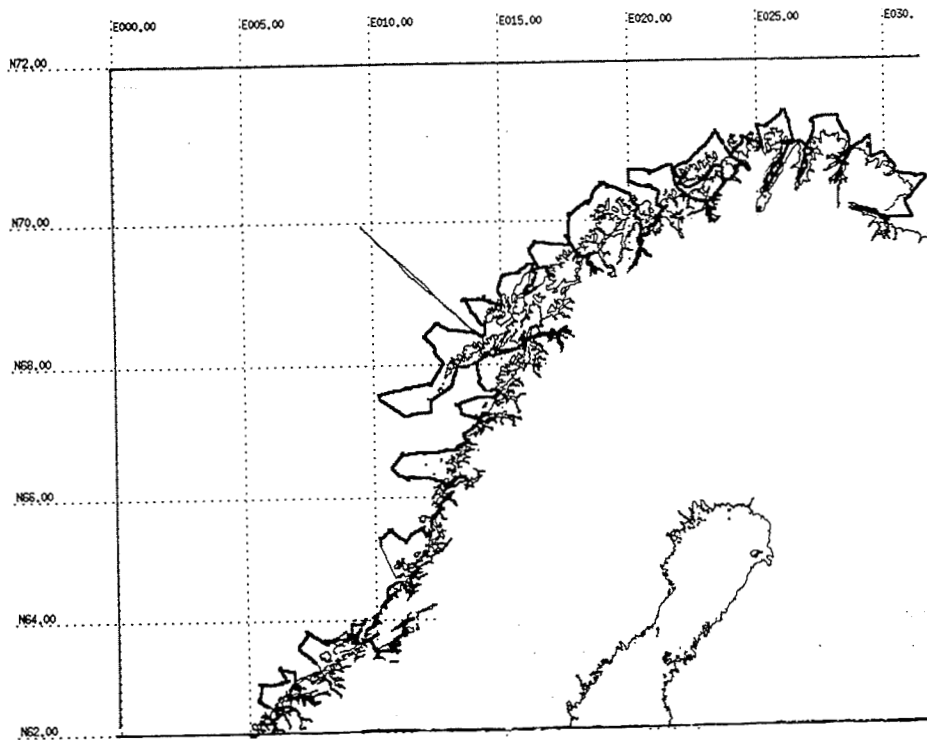
z CTD st. 577-619

"Michael Sars"

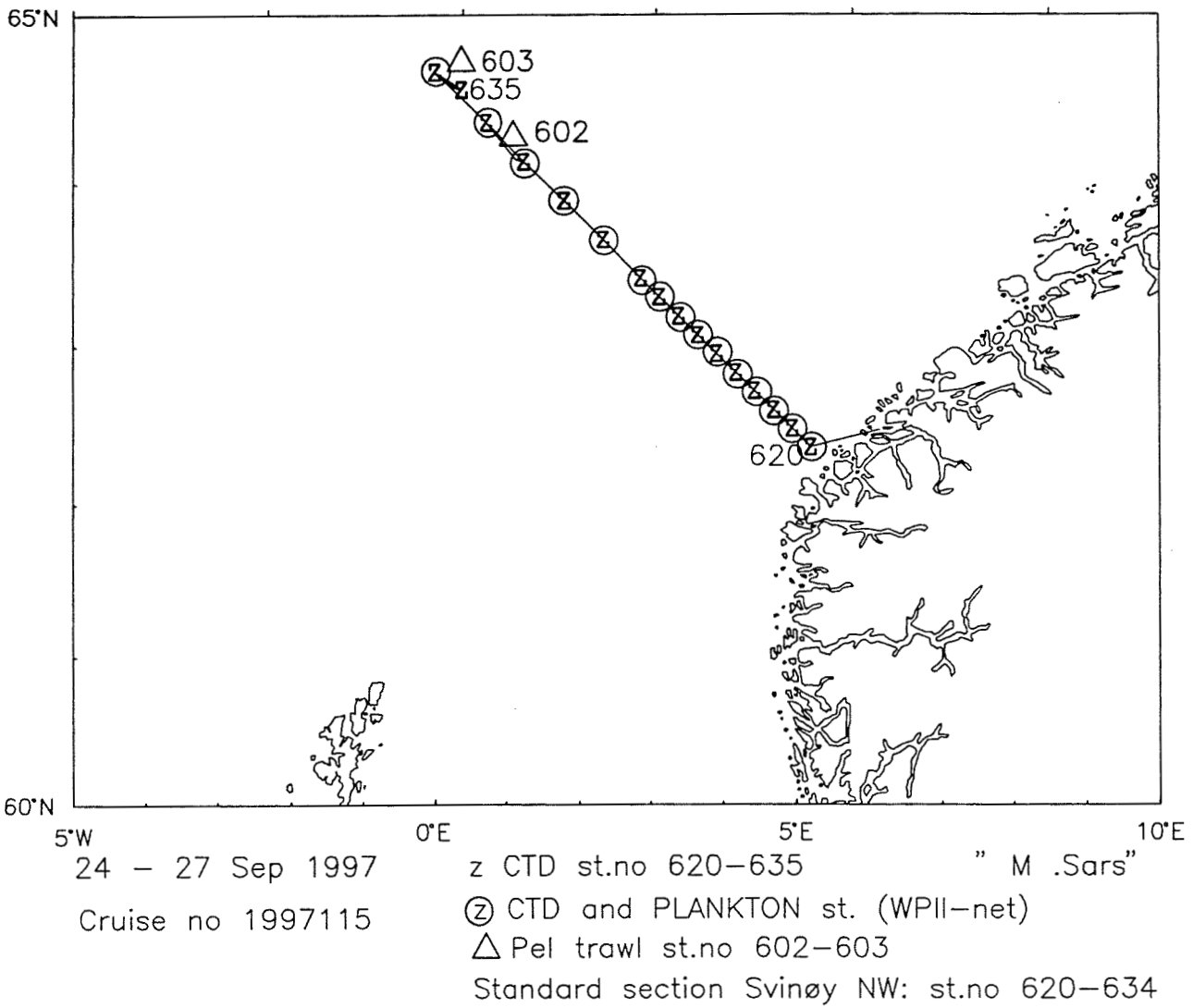
Standard section Gimsøy NW: st.no 603-612

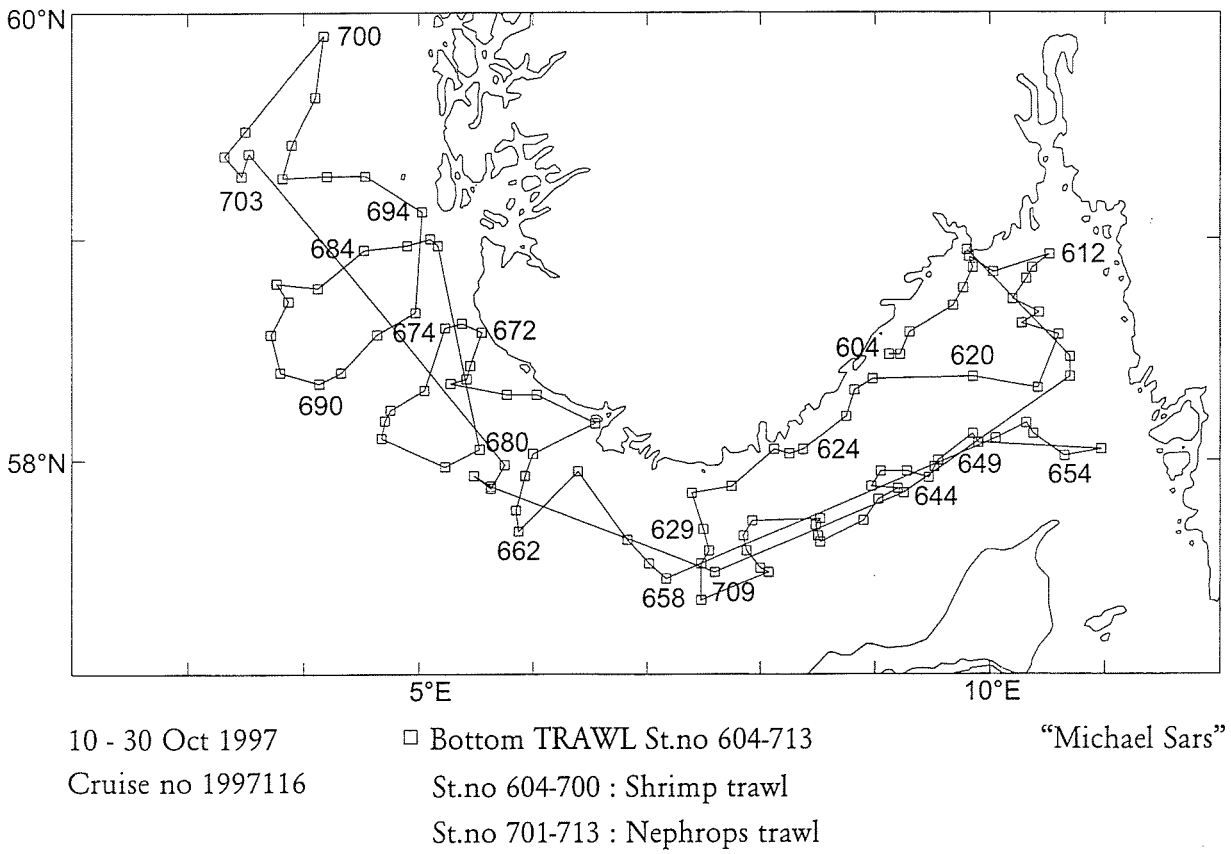
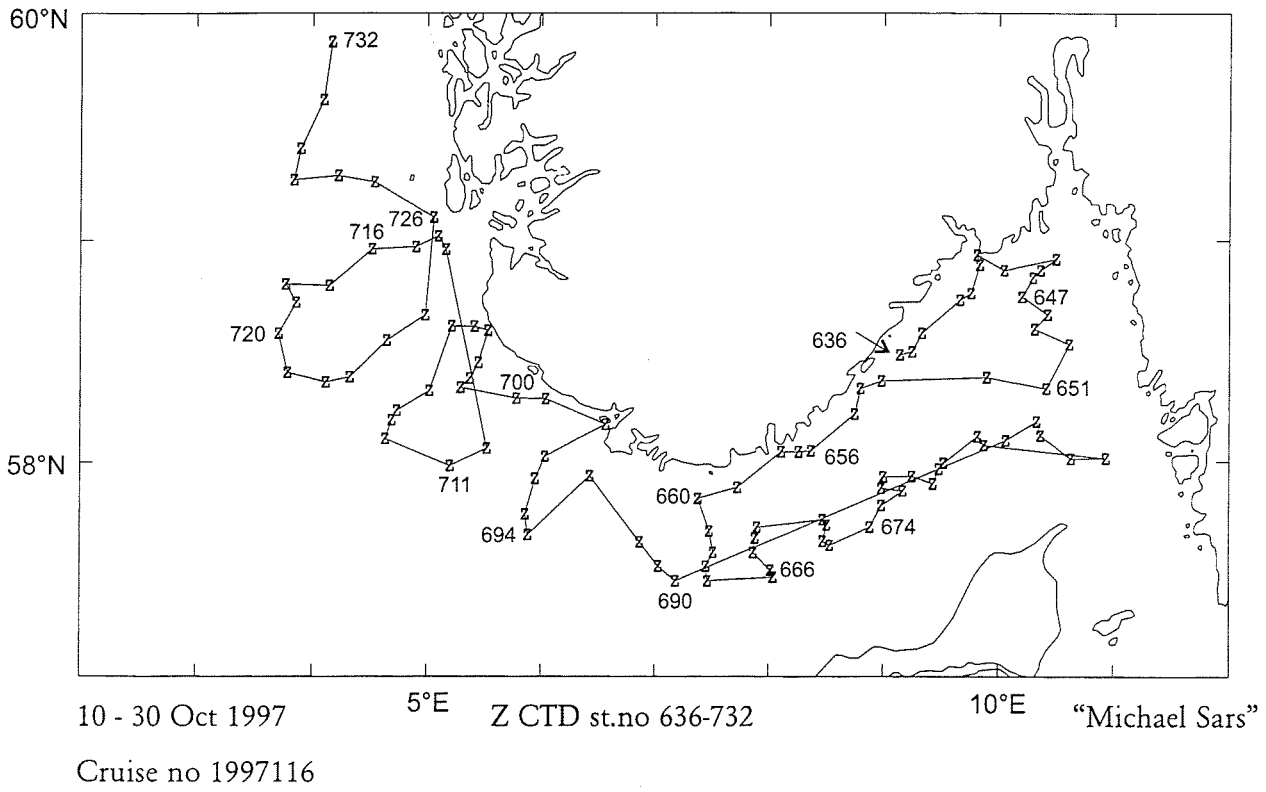
Cruise no 1997112

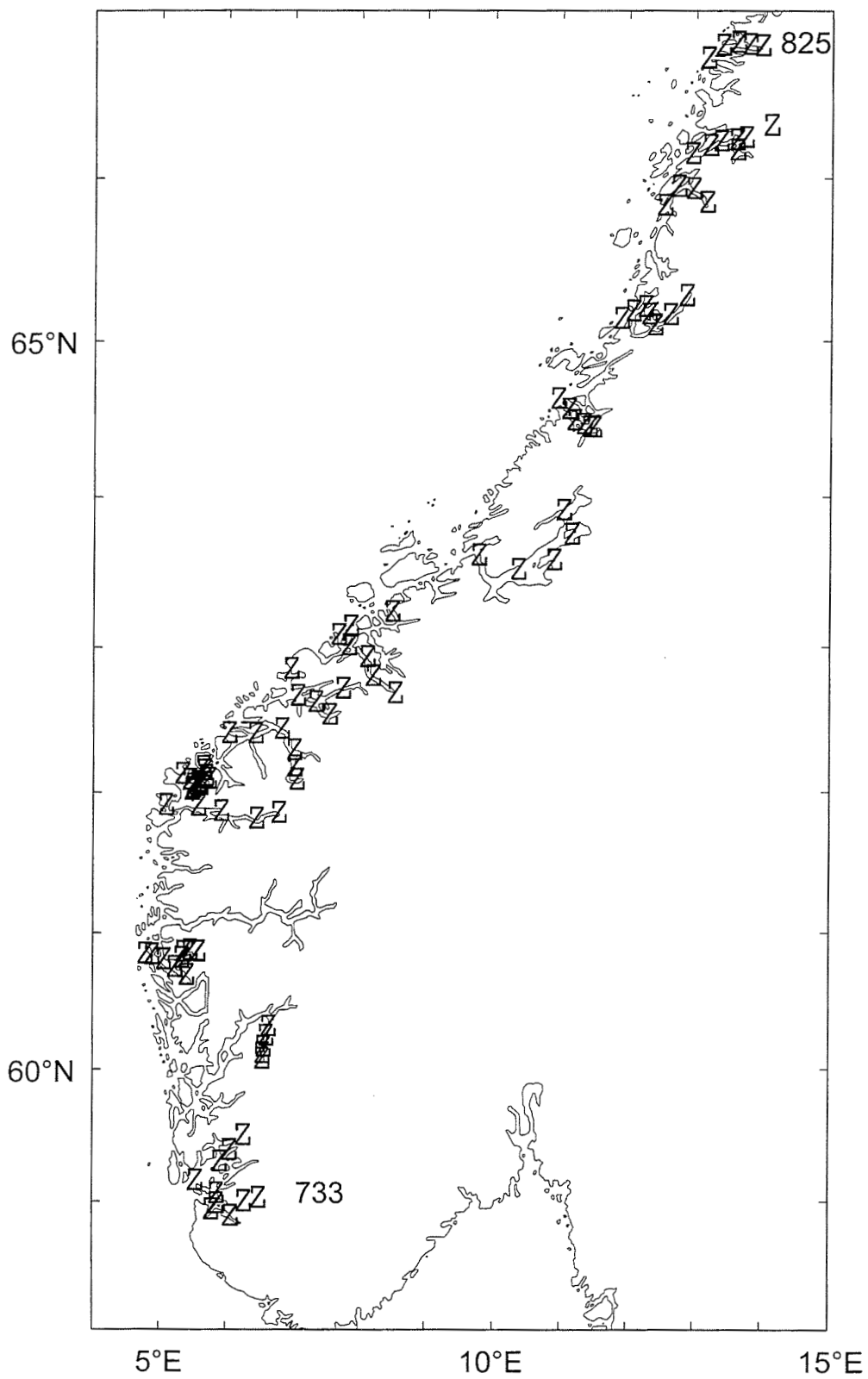
(Pel and bottom tr. not shown)



Track chart

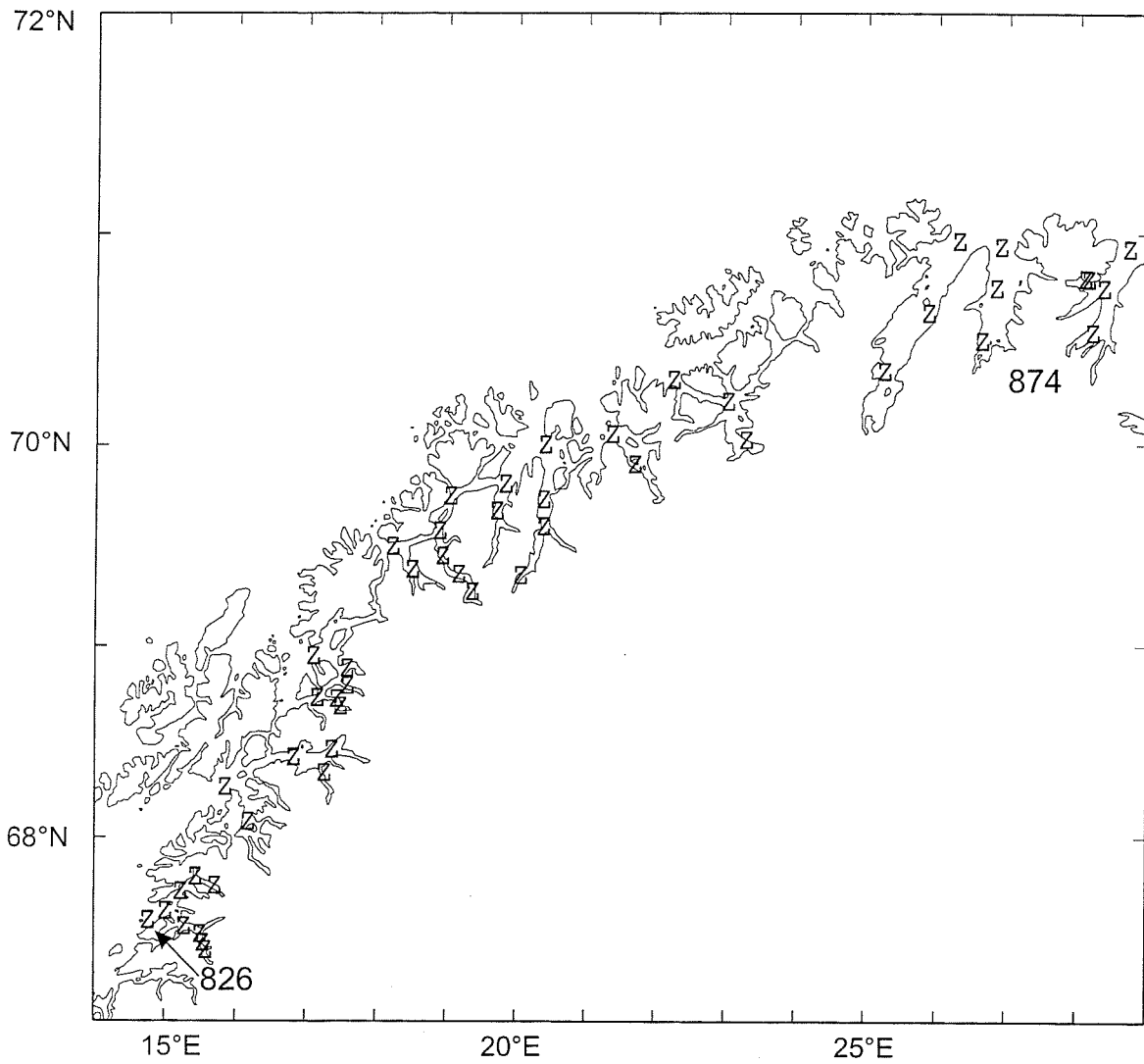






1 Nov - 26 Nov 1997 1 part: st.no 733-825 "Michael Sars"  
Cruise no 1997117

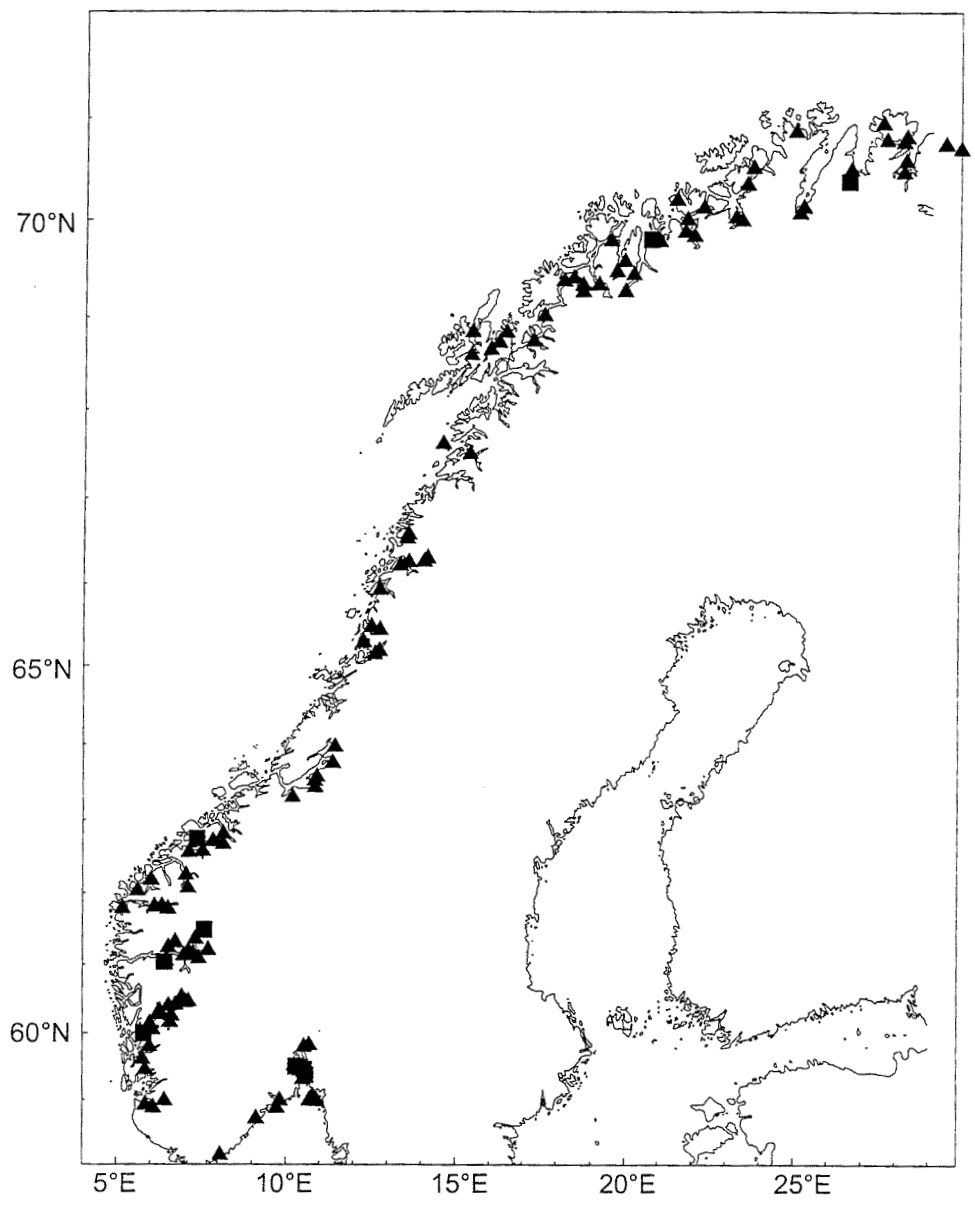




27 Nov - 18 Dec 1997  
Cruise no 1997117

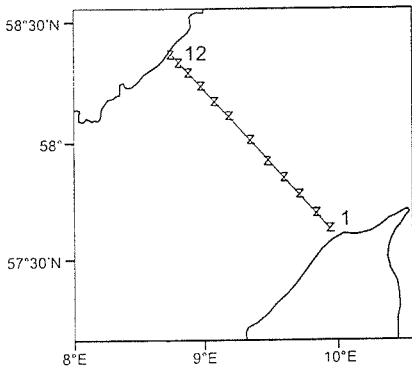
Part II st.no 826-874

“Michael Sars”

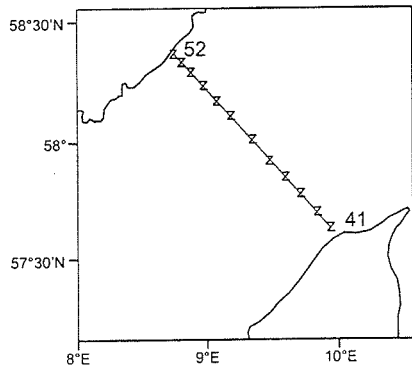


1 Nov - 18 Dec 1997    TRAWL st.no st.no 714-838    "Michael Sars"  
Cruise no 1997117    ▲ Pel trawl  
                                 ■ Bottom trawl

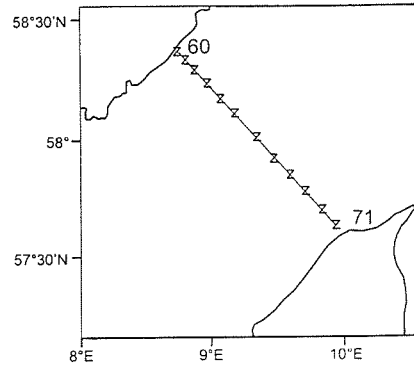
# TORUNGEN - HIRTSHALS - 1997



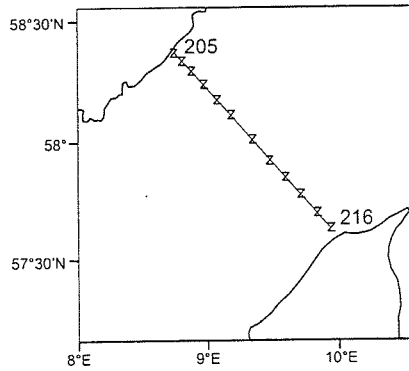
18 Jan z CTD st.no 1-12



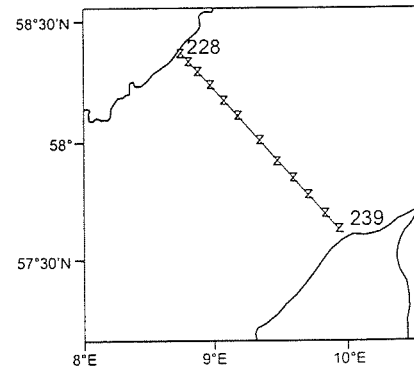
14-15 Feb z CTD st.no 41-52



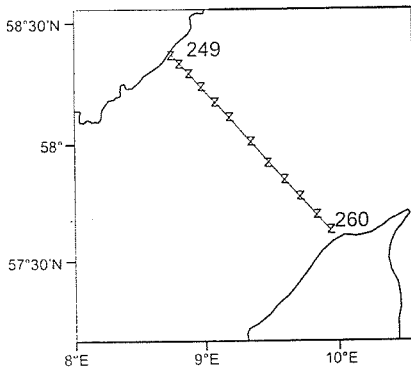
11-12 Mar z CTD st.no 60-71



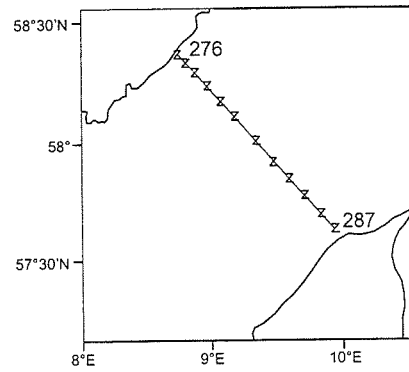
20-21 May z CTD st.no 205-216



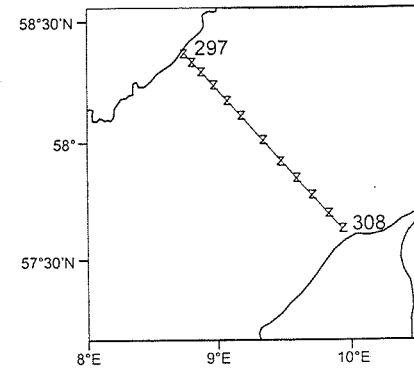
16-17 Jun z CTD st.no 228-239



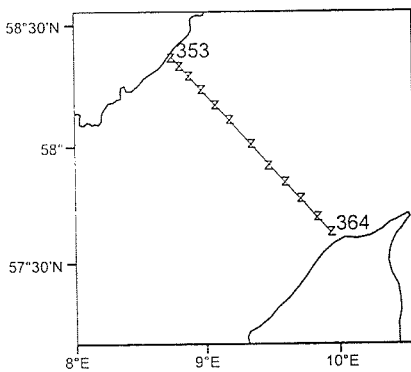
10-11 Jul z CTD st.no 249-260



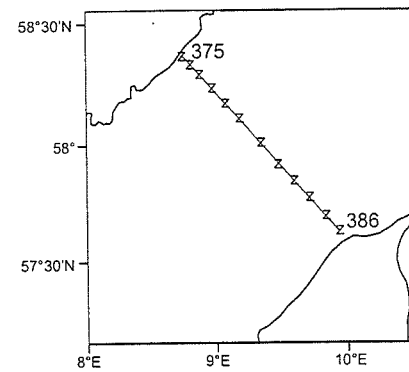
17-18 Aug z CTD st.no 276-287



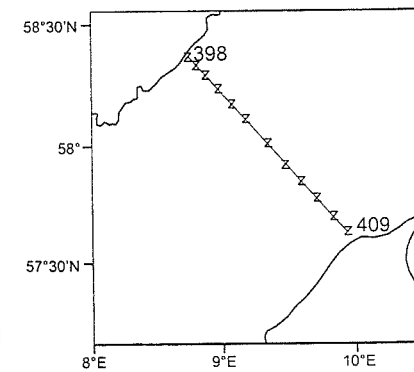
10-11 Sep z CTD st.no 297-308



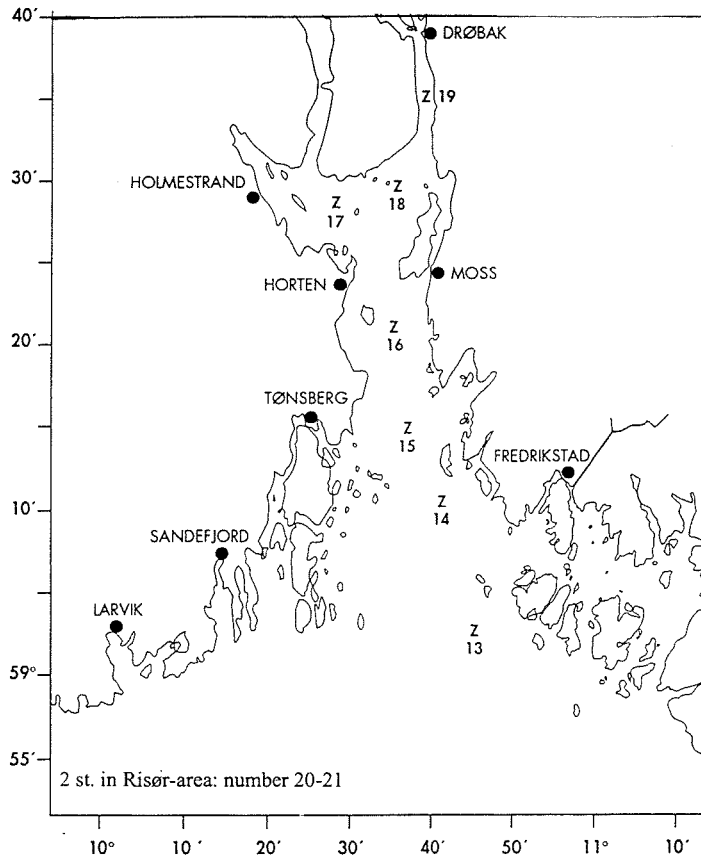
6-7 Oct z CTD st.no 353-364



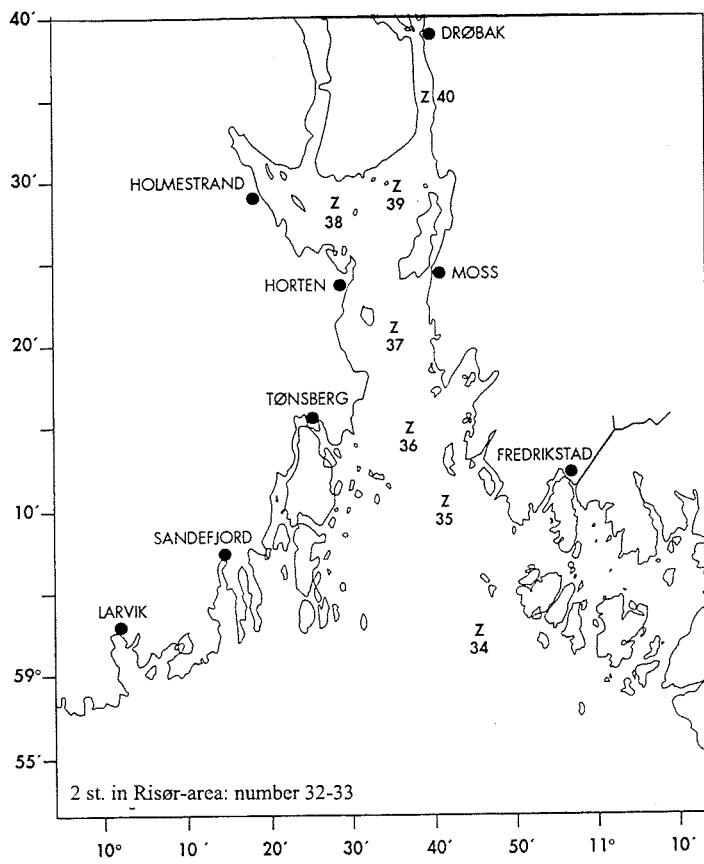
10-11 Nov z CTD st.no 375-386



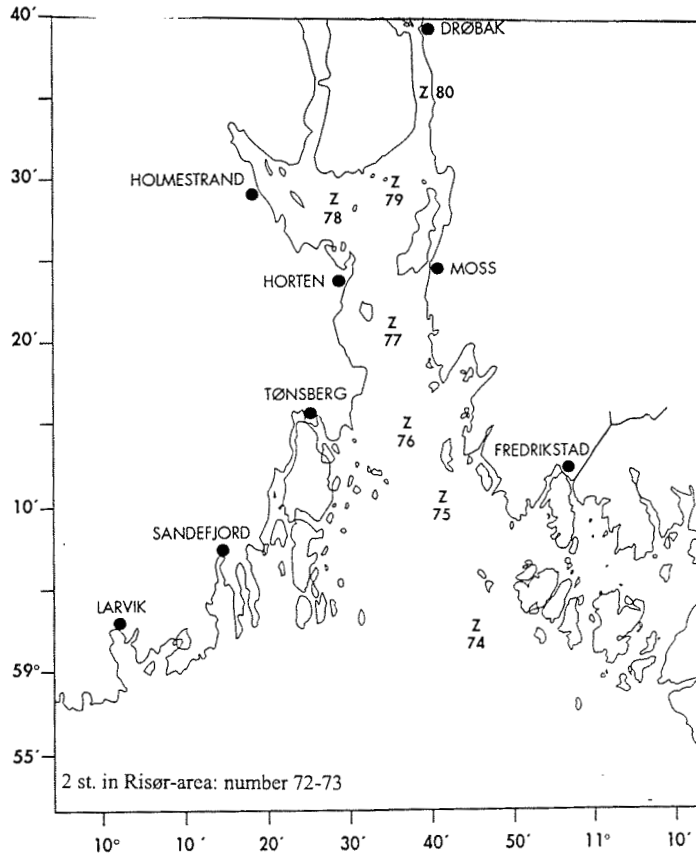
1-2 Dec z CTD st.no 398-409



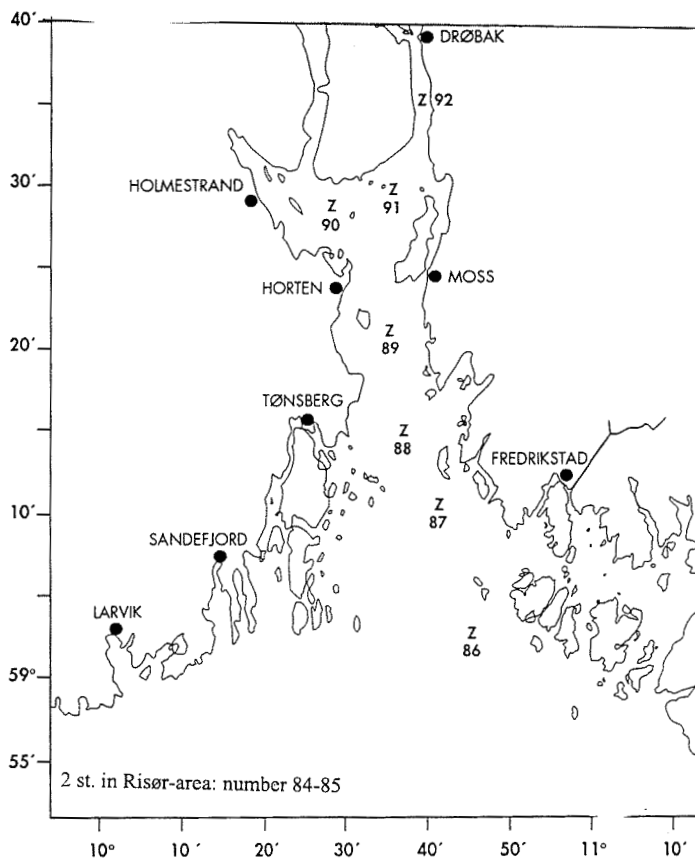
21 - 23 Jan 1997 z CTD st.no 13-21 "G:M. Dannevig"



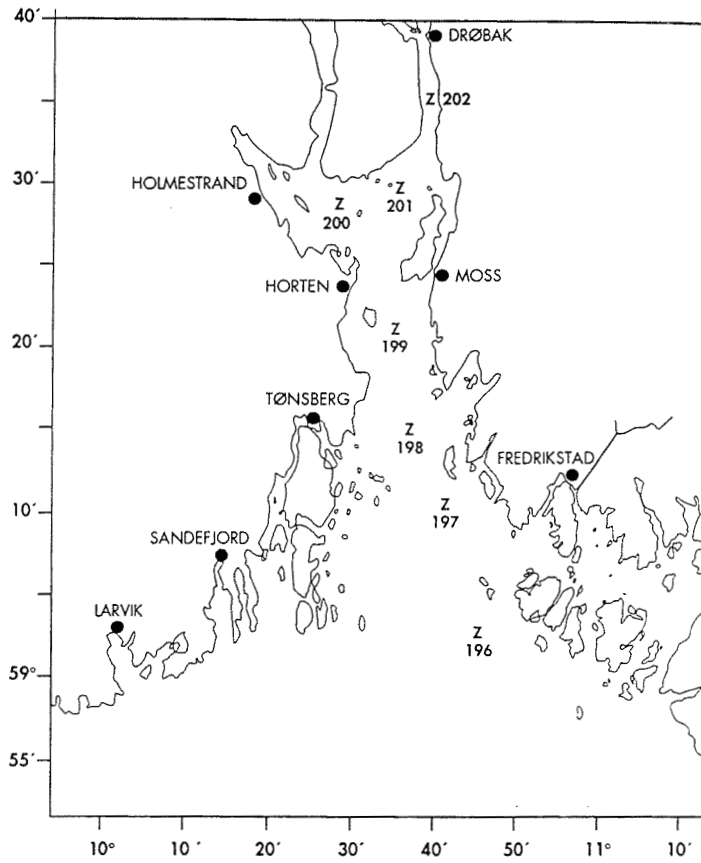
11 - 13 Feb 1997 z CTD st.no 32-40 "G:M. Dannevig"



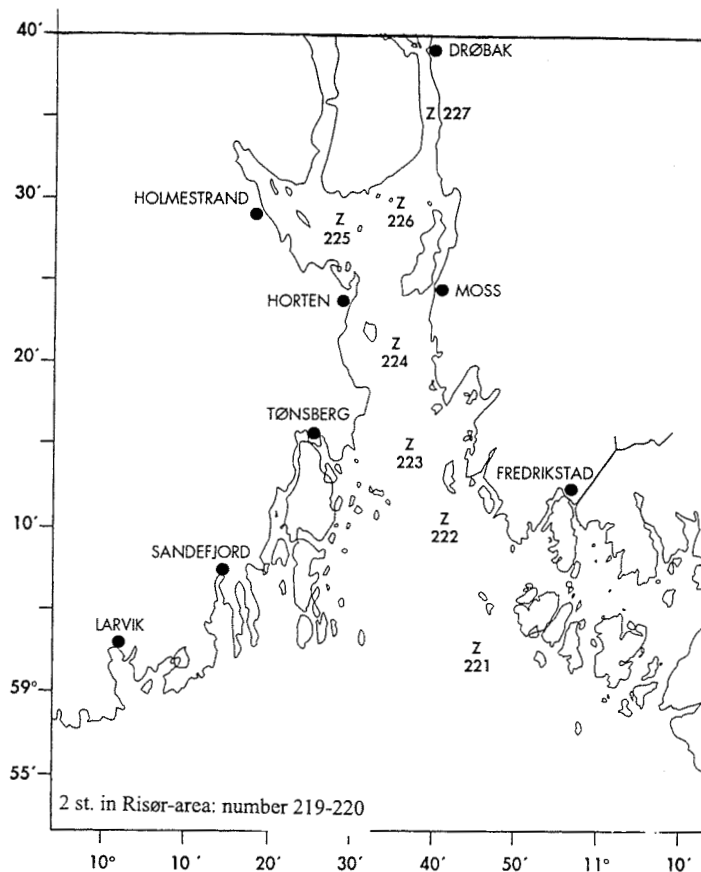
13 - 15 Mar 1997 z CTD st.no 72-80 "G.M. Dannevig"



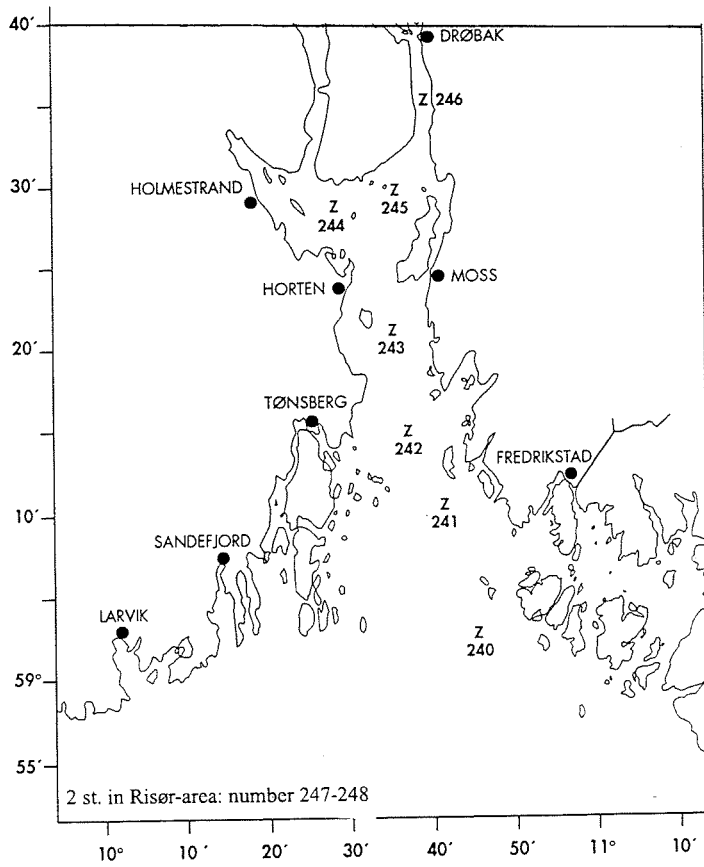
2 - 4 Apr 1997 z CTD st.no 84-92 "G.M. Dannevig"



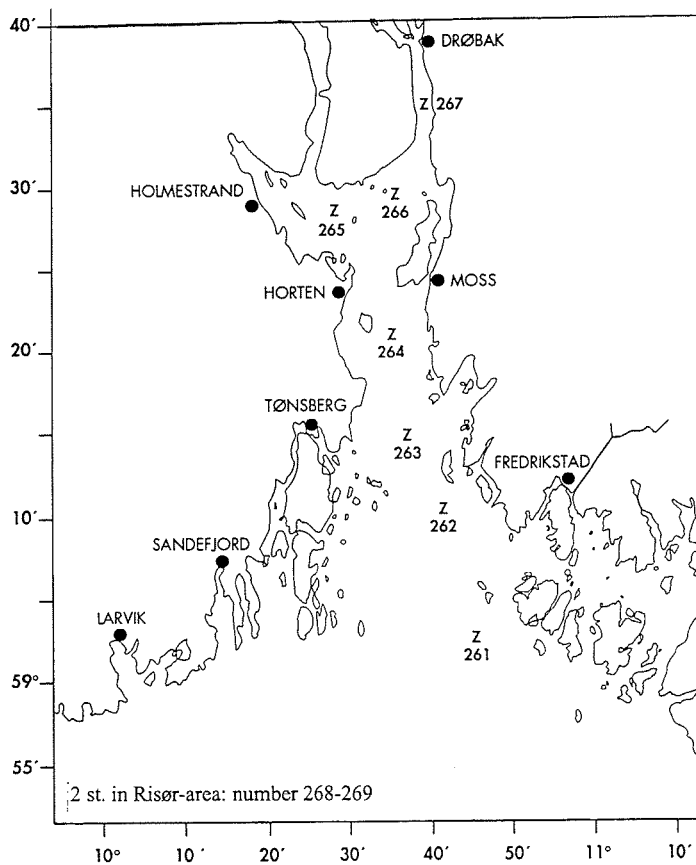
3 - 5 May 1997 z CTD st.no 196-202 "G.M. Dannevig"



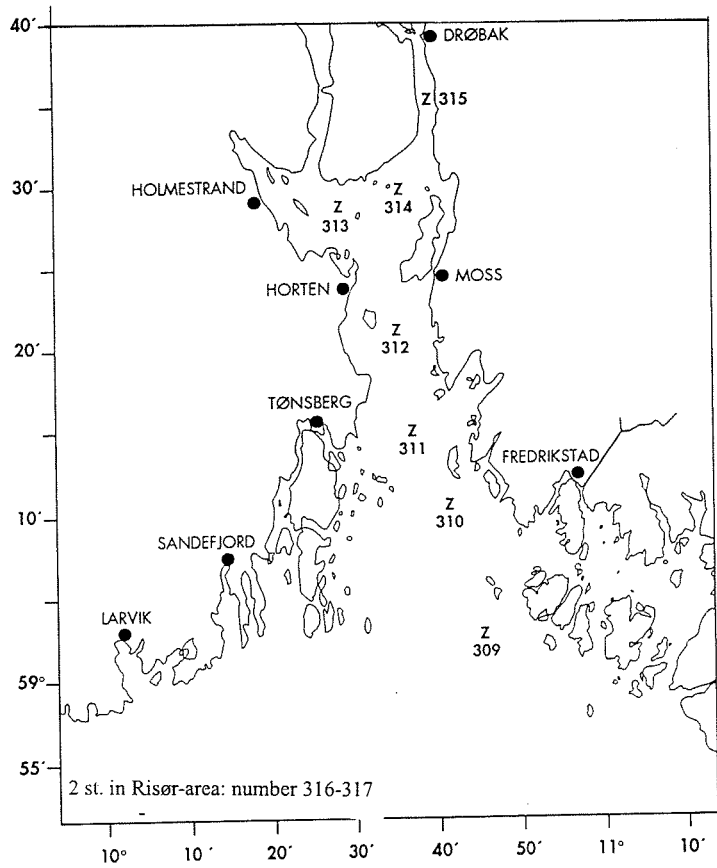
2 - 4 Jun 1997 z CTD st.no 219-227 "G.M. Dannevig"



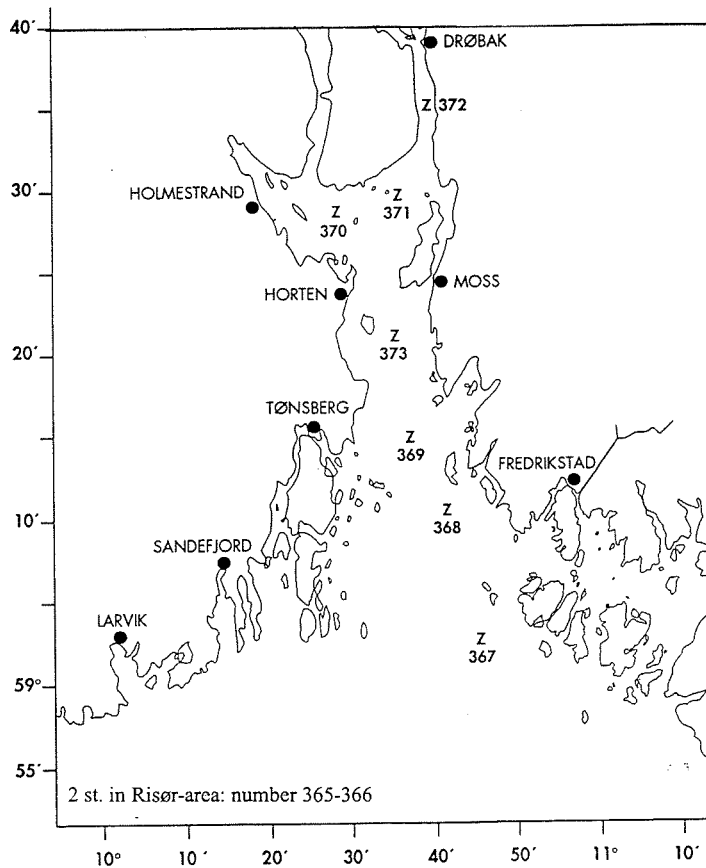
7 - 9 Jul 1997 z CTD st.no 240-248 "G.M. Dannevig"



6 - 8 Aug 1997 z CTD st.no 261-269 "G.M. Dannevig"

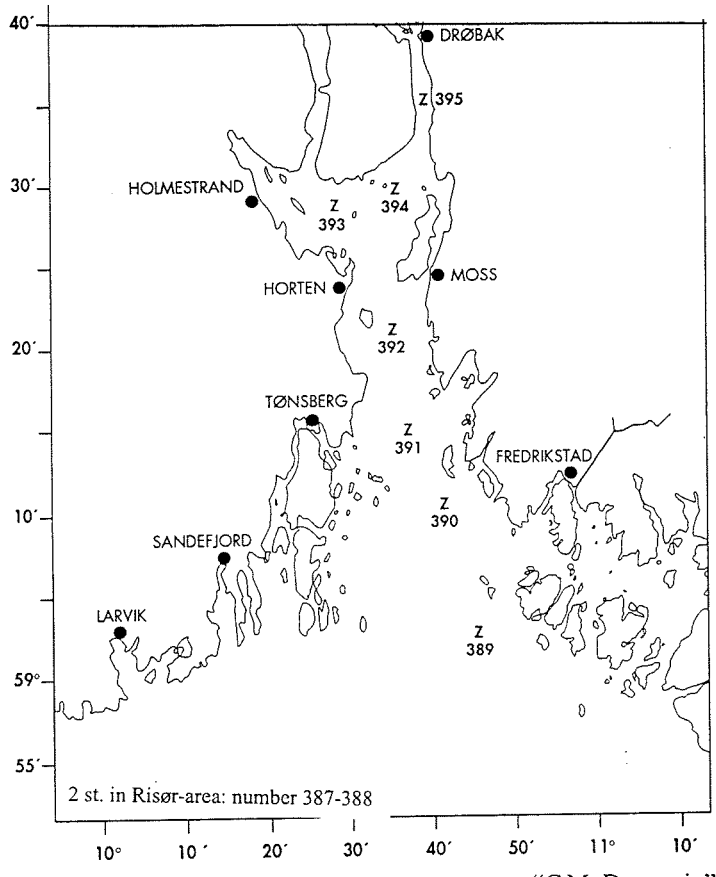


12 - 14 Sep 1997 z CTD st.no 309-317 "G.M. Dannevig"

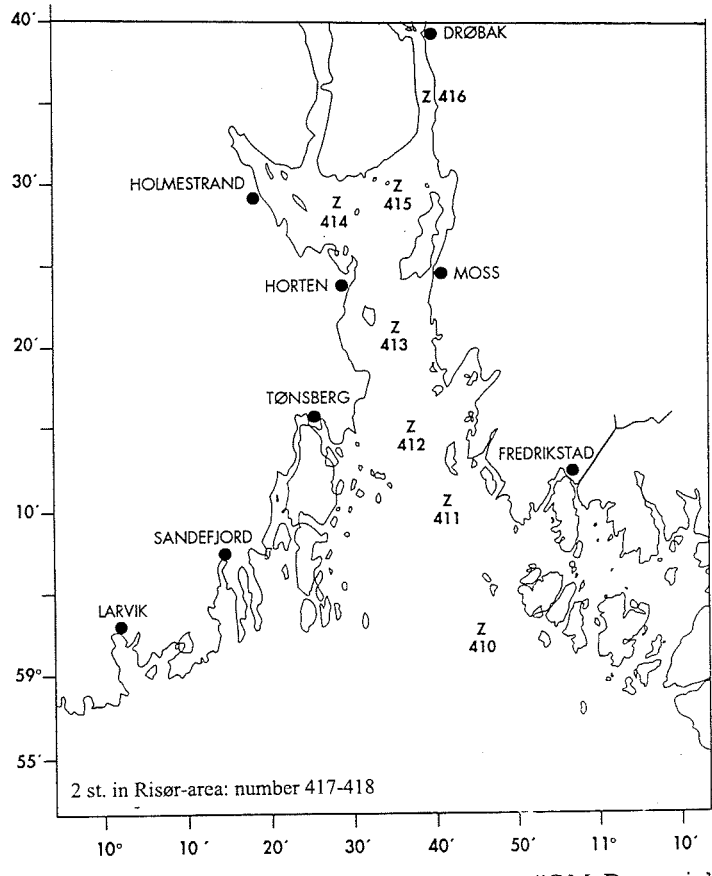


17 - 19 Oct 1997 z CTD st.no 365-373 "G.M. Dannevig"

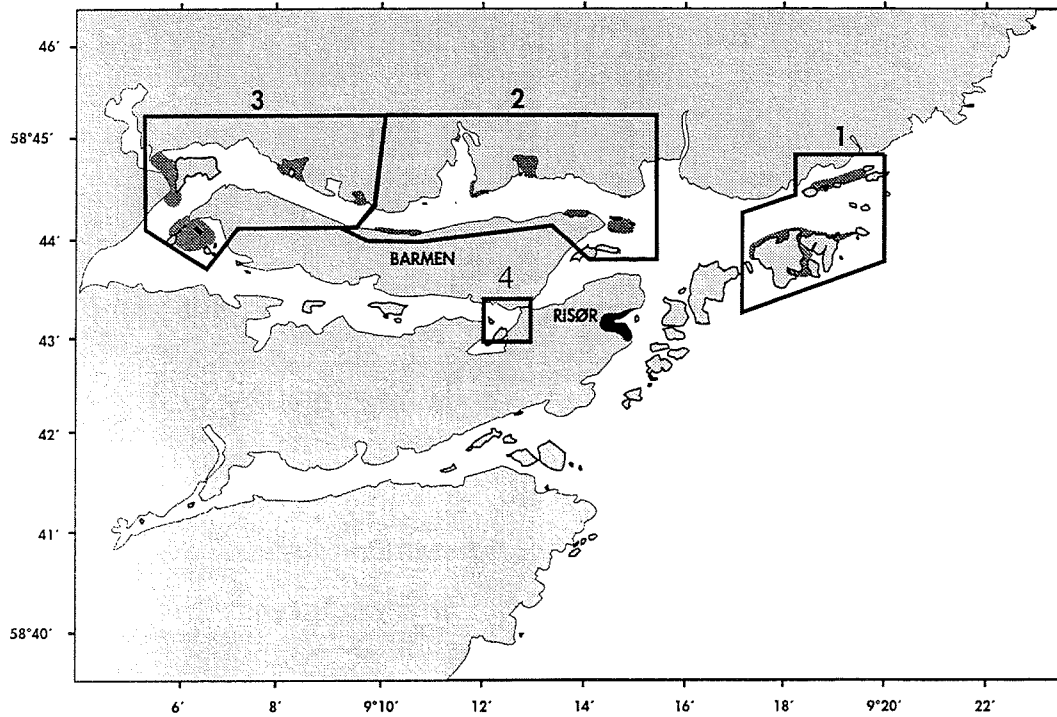




12 - 13 Nov 1997 z CTD st.no 387-395 "G.M. Dannevig"



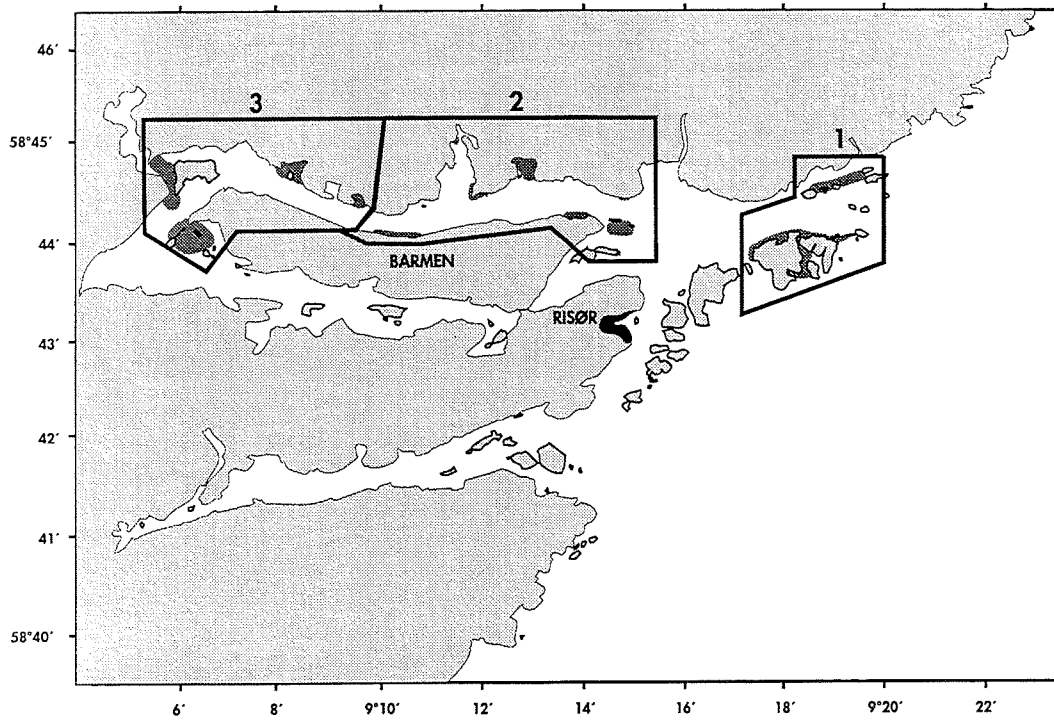
15 - 17 Dec 1997 z CTD st.no 410-418 "G.M. Dannevig"



9-13 May and 11-14 Jun 1997

“G.M. Dannevig”

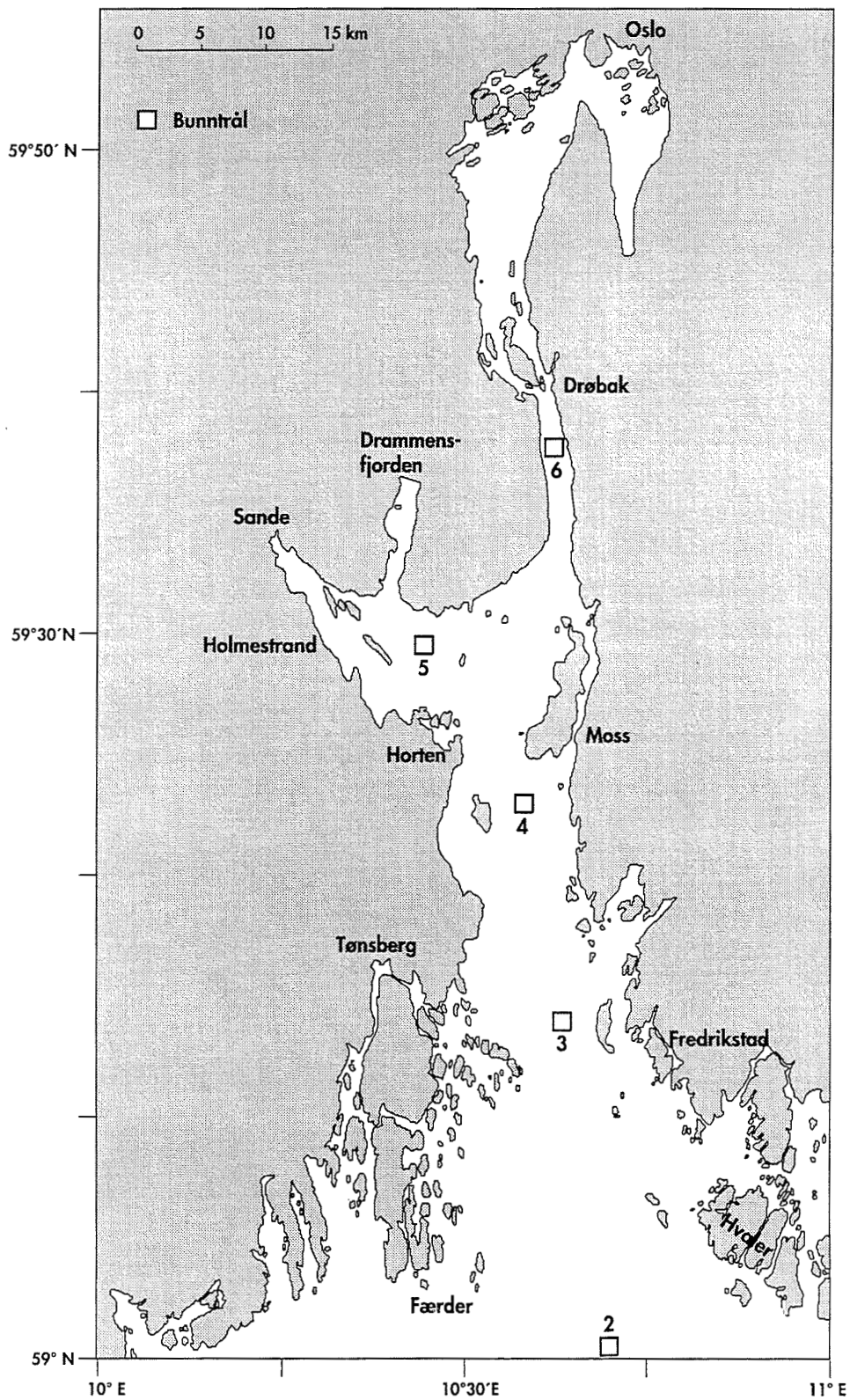
Fishpots have been placed in four areas



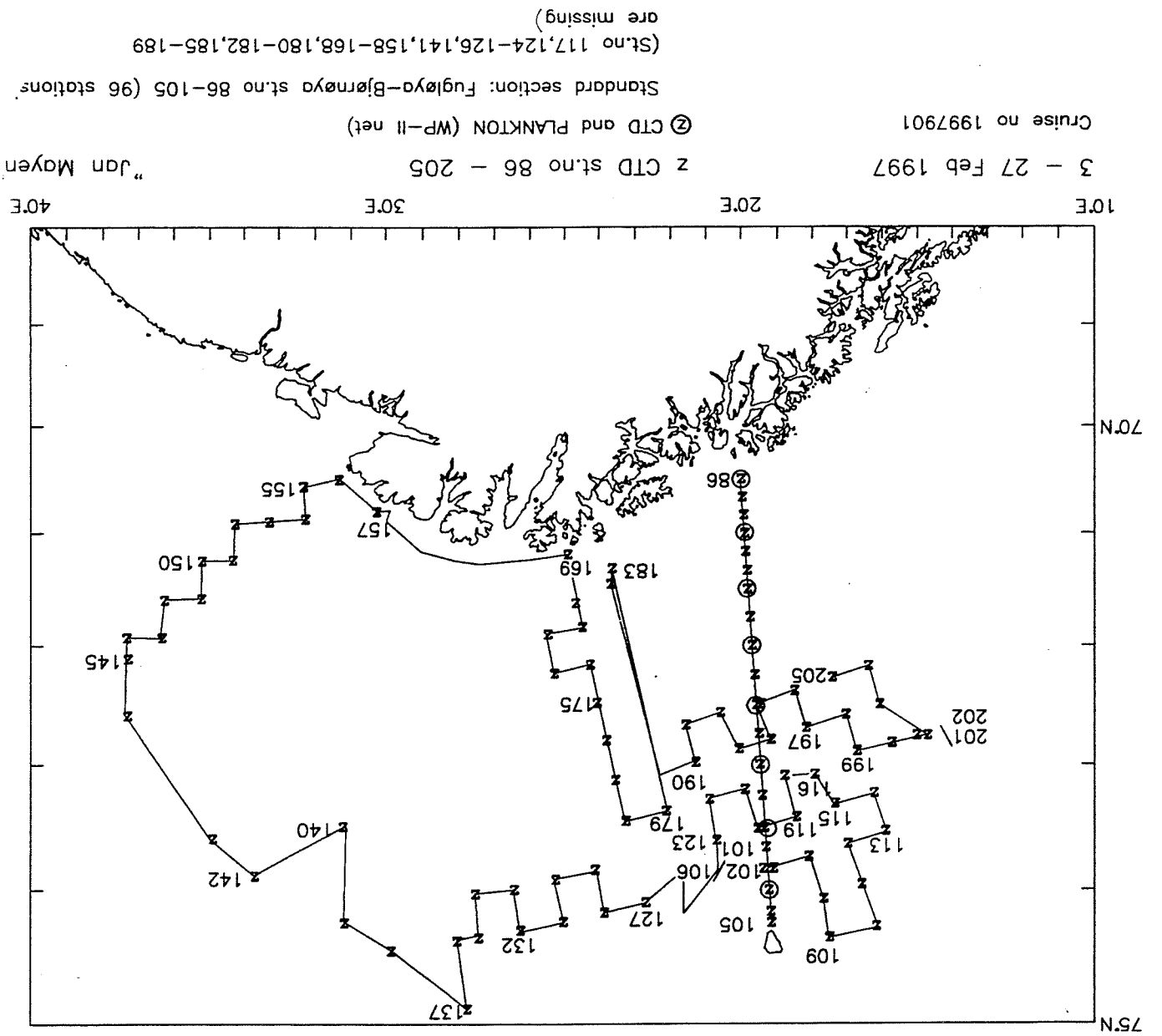
1-8 Sep and 9-16 Oct 1997

“G.M. Dannevig”

Fishpots have been placed in three areas



16-18 Nov 1997 □ TRAWL st. "G.M. Dannevig



40°E

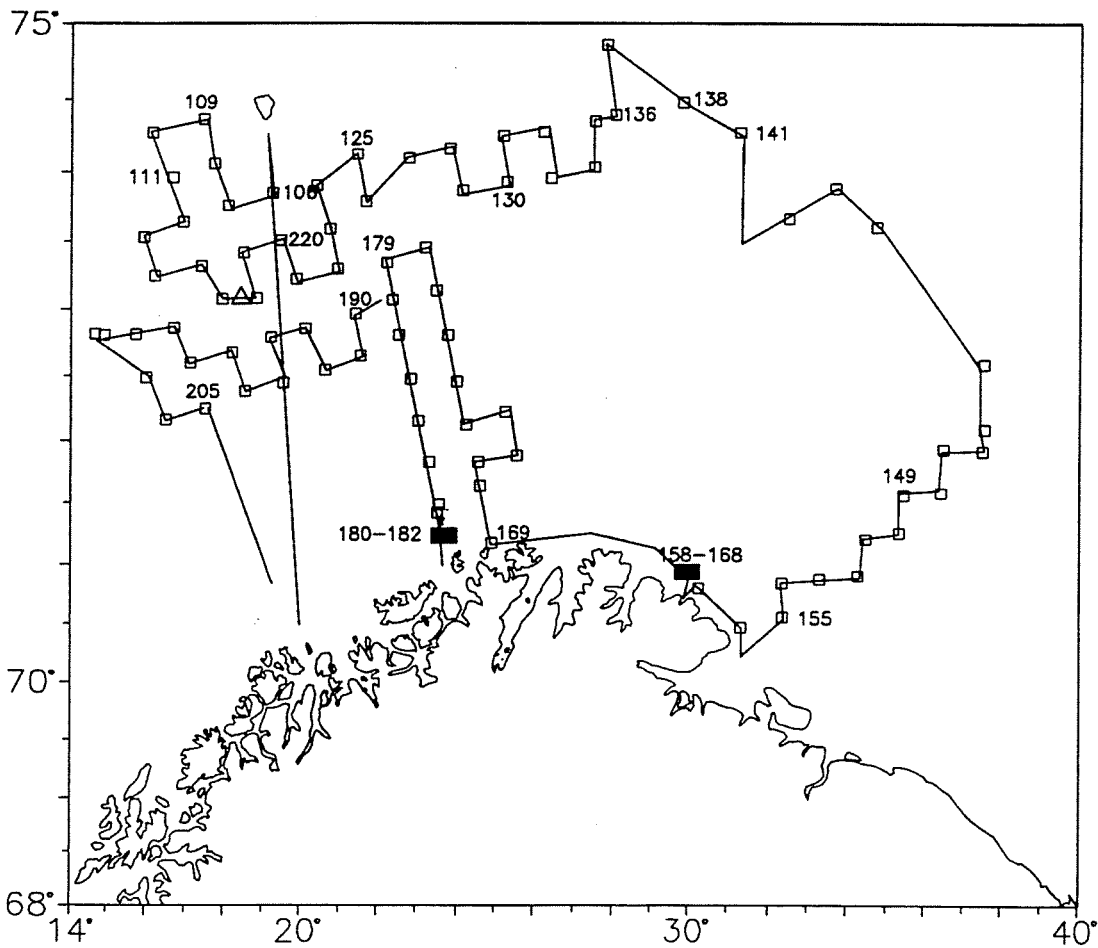
30°E

20°E

10°E

70°N

75°N



3-7 Feb 1997    □△TRAWL st.no 106-205 (98 hauls) "Jan Mayen"  
                               □ Bottom tr  
 Cruise no 1997901    △Pel tr.