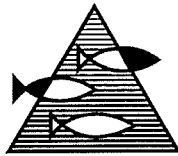


PROSJEKTRAPPORT

ISSN 0071-5638



HAVFORSKNINGSINSTITUTTET

MILJØ - RESSURS - HAVBRUK

Nordnesgaten 50 Postboks 1870 5817 Bergen

Tlf.: 55 23 85 00 Faks: 55 23 85 31

Forskningsstasjonen

Flødevigen

4817 His

Tlf.: 37 05 90 00

Faks: 37 05 90 01

Austevoll

havbruksstasjon

5392 Storebø

Tlf.: 56 18 03 42

Faks: 56 18 03 98

Matre

havbruksstasjon

5984 Matredal

Tlf.: 56 36 60 40

Faks: 56 36 61 43

Distribusjon:

ÅPEN

HI-prosjektnr.:

920102

Oppdragsgiver(e):

Oppdragsgivers referanse:

Rapport:

FISKEN OG HAVET

NR. 4 - 2000

Tittel:

REPORT ON OCEANOGRAPHIC CRUISES
AND DATA STATIONS 1999

Senter:

Marint miljø

Seksjon:

Norsk Marint Datasenter

Forfatter(e):

Karen Gjertsen

Antall sider, vedlegg inkl.:

84

Dato:

09.03.2000

Sammendrag:

Rapporten gir en oversikt over toktene til Havforskningsinstituttets forskningsfartøy "G.O. Sars", "Johan Hjort", "Michael Sars" og "G.M. Dannevig" i 1999. Hovedsakelig CTD og trål.

Først vises oversikt over tidsrom for tokt og tokt nr. For de fleste toktene vises kurs- og stasjonskart. Tabellene på side to og tre viser når de faste snittene er tatt og antall observasjoner pr måned for de faste stasjonene. På side fire vises dekning - CTD st. tatt i 1999.

Disse oversiktene er også innrapportert til Det internasjonale råd for havforskning (ICES) sammen med Summary Report.


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

Summary:

The present report shows the course tracks and stations occupied by the research vessels "G.O. Sars", "Johan Hjort", "Michael Sars" and "G.M. Dannevig" during 1999.

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 coast 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 1999 is given at page 4.

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

	Page
CHART oceanographic stations and sections	1
STANDARD sections	2
STANDARD stations	3
CTD stations 1999	4

"G. O. SARS" 1999

(Ship no 15)		Page of track chart
Cruise no	Period of cruises	
1999001	4 Jan - 26 Jan	5
1999002	27 Jan - 27 Feb	6
1999003	1 Mar - 20 Mar	7
1999004	25 Mar - 6 Apr	8
1999005	7 Apr - 24 Apr	9
1999006	28 Apr - 2 Jun	10-12
1999007	5 Jun - 27 Jun	13-16
1999008	29 Jun - 18 Jul	17-18
1999009	21 Jul - 21 Aug	19-20
1999010	24 Aug - 7 Sep	21-22
1999011	9 Sep - 10 Oct	23-25
1999012	12 Oct - 22 Oct	26-28
1999013	27 Oct - 11 Nov	29-30
1999014	15 Nov - 20 Dec	31

"JOHAN HJORT" 1999

(Ship no 12)		Page of track chart
Cruise no	Period of cruises	
1999201	9 Jan - 11 Jan	
1999202	12 Jan - 26 Jan	32
1999203	27 Jan - 23 Feb	33
1999204	25 Feb - 11 Mar	34
1999205	14 Mar - 16 Mar	35
1999206	19 Mar - 26 Apr	36-37
1999207	27 Apr - 10 May	38
1999208	10 May - 29 May	39
1999209	31 May - 13 Jun	40-41
1999210	15 Jun - 9 Jul	42-43
1999211	11 Jul - 24 Jul	
1999212	28 Jul - 19 Aug	44
1999213	20 Aug - 7 Sep	45-46
1999214	9 Sep - 4 Oct	47-49
1999215	18 Oct - 1 Nov	50-51
1999216	3 Nov - 28 Nov	52-53
1999217	1 Dec - 13 Dec	54

"MICHAEL SARS" 1999

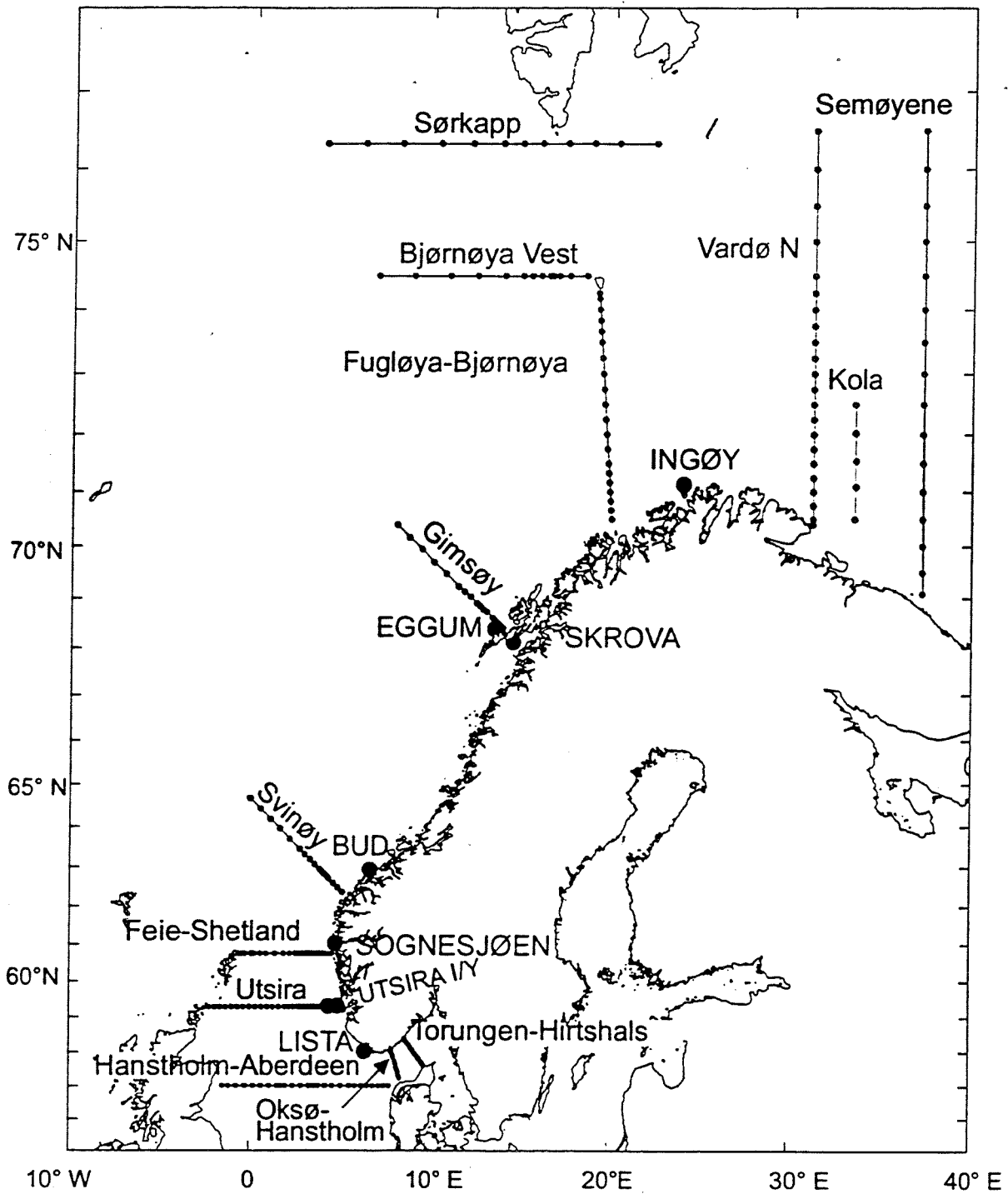
(Ship no 11)		Page of track chart
Cruise no	Period of cruises	
1999101	9 Jan - 11 Feb	55-56
1999102	15 Feb - 21 Mar	57-59
1999103	25 Mar - 3 Apr	60
1999104	5 Apr - 18 Apr	61
1999105	20 Apr - 4 May	62-63

1999106	5 May - 16 May	64
1999107	19 May - 4 Jun	65-66
1999108	5 Jun - 5 Jul	67-68
1999109	28 Jul - 25 Aug	69-70
1999110	28 Aug - 23 Sep	71
1999111	25 Sep - 10 Oct	
1999112	12 Oct - 2 Nov	72
1999113	4 Nov - 16 Dec	73-74

"G. M. DANNEVIG" 1999

(Ship no 16)

Cruise no	Period of cruises	CTD no	TRAWL no	Page of track chart
1999301	20 Jan - 20 Jan	1-10		75
1999302	8 Feb - 8 Feb	11-22		75
	22 Feb - 22 Feb	23		
1999303	1 Mar - 1 Mar	24		
1999304	2 Mar - 12 Mar		1- 23	
1999305	16 Mar - 17 Mar	25-36		75
	11 Apr - 14 Apr	37-54	24	
1999306	15 Apr - 15 Apr	55-66		75
1999307	15 Apr - 1 May	67-156		76
	11 May - 14 May	157-180	25-26	
1999308	15 May - 15 May	181-190		75
1999309	19 May - 1 Jun	191-253	27-66	
1999310	3 Jun - 3 Jun	254		
1999328	6 Jun - 7 Jun	255-264		77
1999311	7 Jun - 19 Jun		67-110	
1999312	20 Jun - 21 Jun	265-276		75
1999313	19 Jul - 21 Jul	277-288		75
1999329	21 Jul - 23 Jul	289-295		78
1999316	16 Aug - 17 Aug	296-307		75
1999317	18 Aug - 27 Aug			79
1999330	27 Aug - 29 Aug	308-315		80
1999319	13 Sep - 14 Sep	316-327		75
1999320	15 Sep - 3 Oct	328-363		81
	3 Oct - 4 Oct	364-371		82
1999321	6 Oct - 7 Oct	372-383		75
1999322	5 Nov - 5 Nov	384-395		75
1999331	6 Nov - 20 Nov			75
1999332	18 Nov - 20 Nov	396-402		83
1999323	21 Nov - 30 Nov			79
	2 Dec - 2 Dec	403-404		
SFT-stations				84



**STANDARD
SECTIONS**

1999

Cruise no/ship

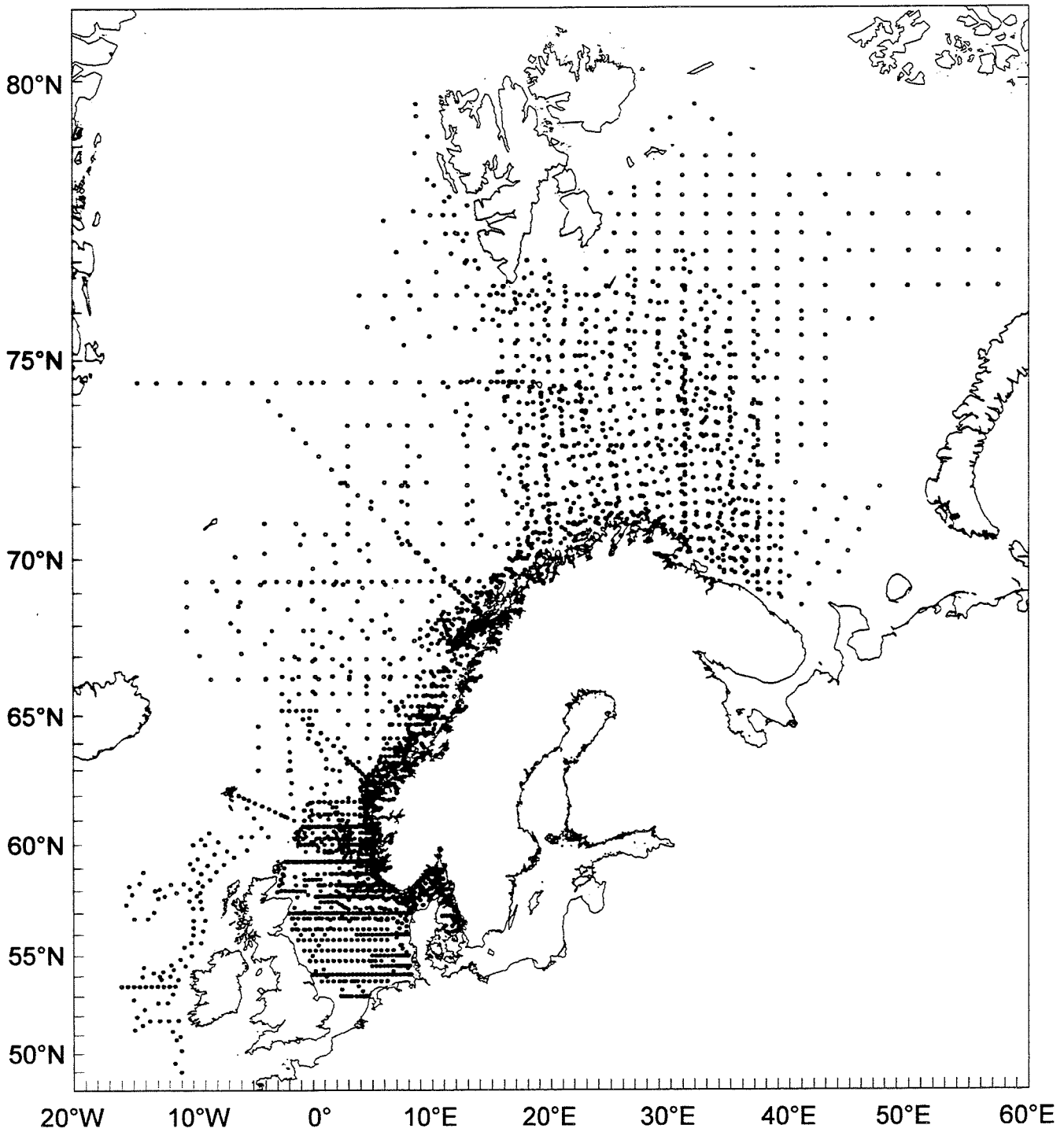
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	No
Torungen - Hirtshals		1999101MS	See "G.M.Dannevig - see page 75"									1999014GS	2
Oksø - Hanstholm						1999007GS						1999014GS	2
Hanstholm - Aberdeen		1999101MS				1999007GS						1999014GS	3
Utsira West	1999101MS						1999008GS				1999014GS		3
Feie - Shetland	1999101MS						1999008GS				1999014GS		3
Svinøy - North/West	1999202JH		1999205JH	199906GS	1999208JH	1999209JH	1999009GS				1999216JH		7
Gimsøy - North/West	1999001GS		1999003GS		1999006GS	1999210JH		1999009GS			1999216JH		6
Sørkapp								1999213JH					1
Fugløya - Bjørnøya	1999202JH		1999003GS	1999005GS		1999210JH		1999213JH		1999011GS			6
Bjørnøya West			1999003GS										1
Vardø - North	1999202JH		1999003GS			1999108MS		1999010GS					4
Semøyene - North								1999010GS					1

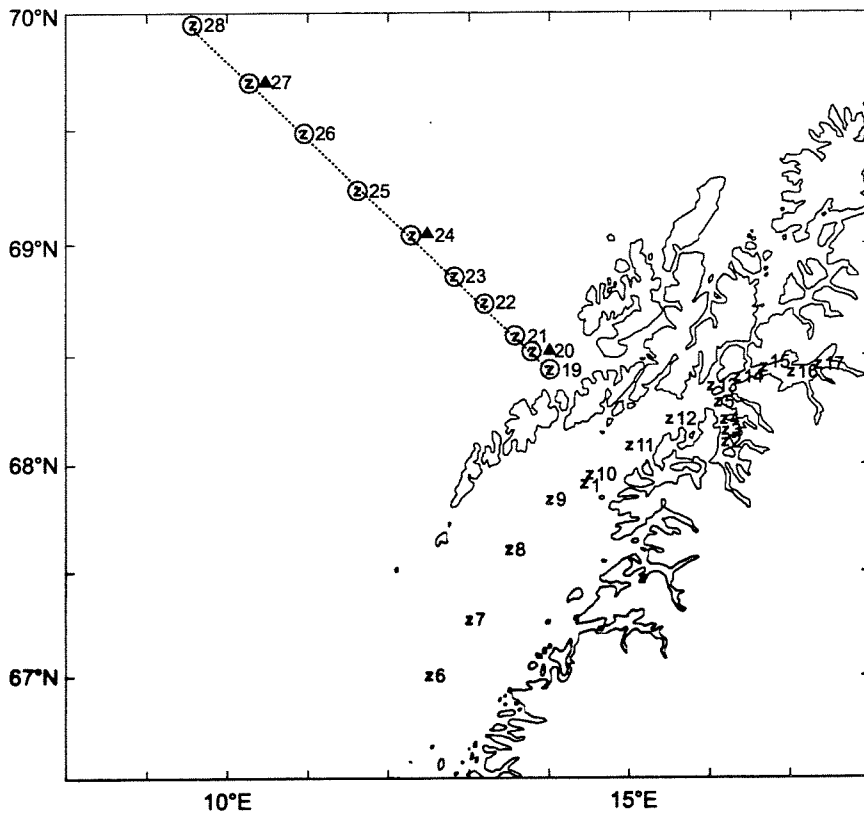
No of observations in 1999

STANDARD

STATIONS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
LISTA N58° 01' E06° 32'	1	2	4	3	3	3	3	3	3	3	2	3	33
UTSIRA Y N59° 19' E04° 44'	3	3	3	3	3	3	3	3	3	3	3	2	35
UTSIRA I N59° 19' E04° 59'	3	3	3	3	3	3	3	3	3	3	3	1	34
SOGNESJØEN N61° 01' E04° 50'	1	2	2	1	3	2	2	2	1	2	2	3	23
BUD N62° 56' E 06° 47'	3	1	3	3	3	3	3	3	3	2	3	0	30
SKROVA N68° 07' E14° 39'	3	3	4	3	4	3	3	3	3	3	3	3	38
EGGUM N 68° 23' E13° 38'	3	3	3	3	3	3	3	3	3	3	2	3	35
INGØY N71° 08' E 24° 01'	3	4	4	2	4	4	3	4	3	4	3	4	42

CTD stations 1999
“Johan Hjort”, “G.O.Sars” og “M. Sars”
(3874 stasjoner)



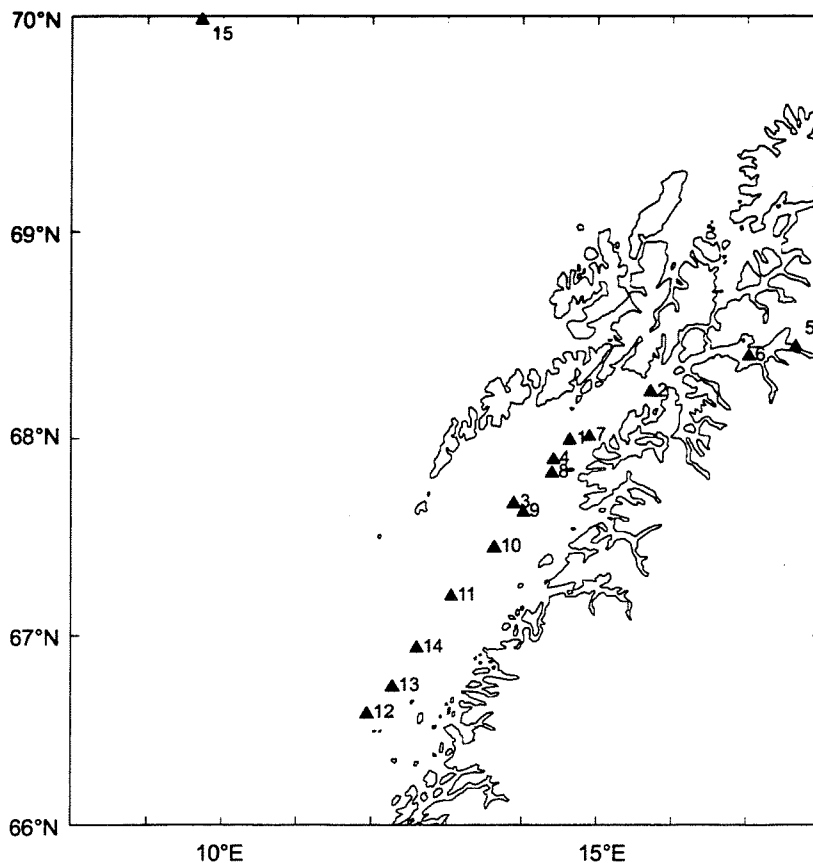


4 - 26 January 1999
Cruise no 1999001

z CTD st.no 1-28
z CTD and PLANKTON st.
▲ Mocness st.

"G.O. Sars"

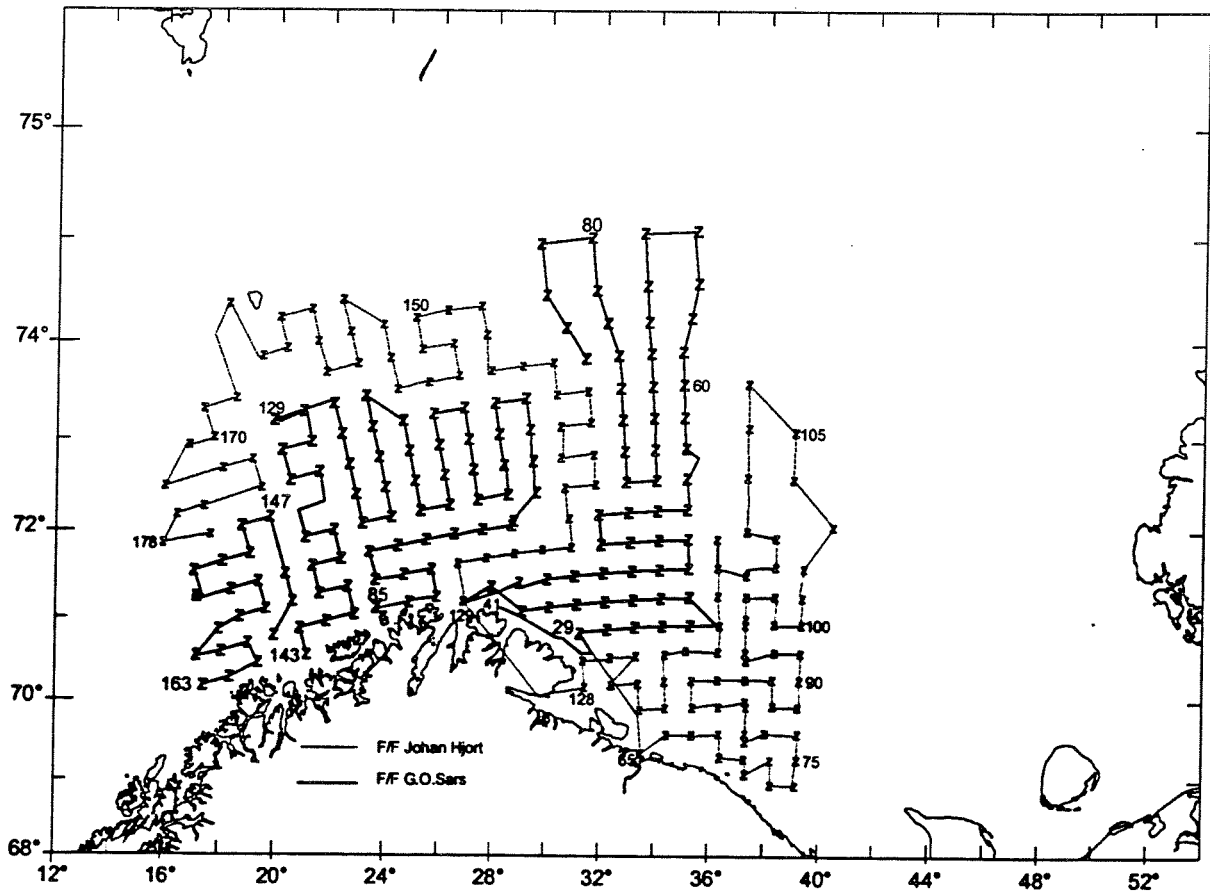
Standard section Gimsøy NW st.no:19-28



4 - 26 January 1999
Cruise no 1999001

Pel. TRAWL st.no 1-15

"G. O Sars"

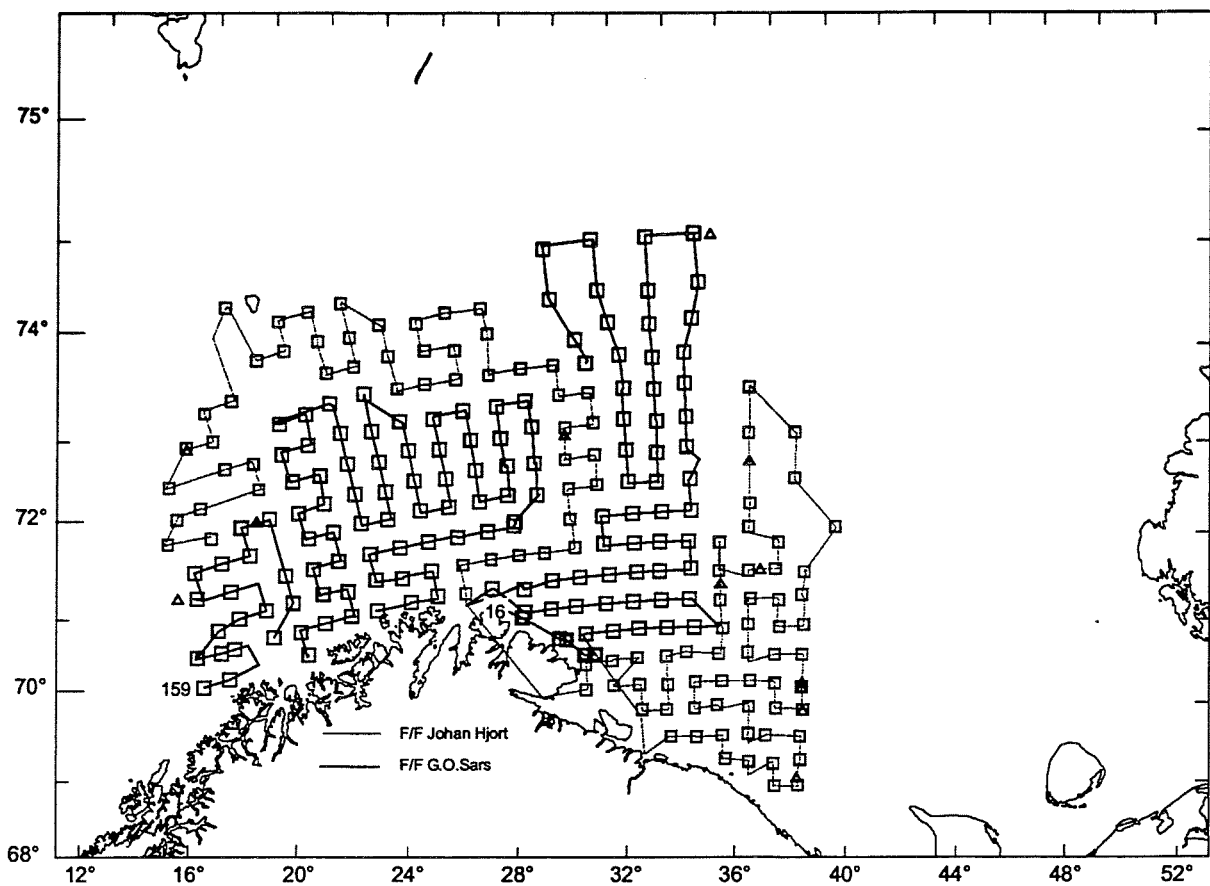


27 Jan - 27 Feb 1999

z CTD st.no 29-163

Cruise no 1999002

"G.O. Sars"



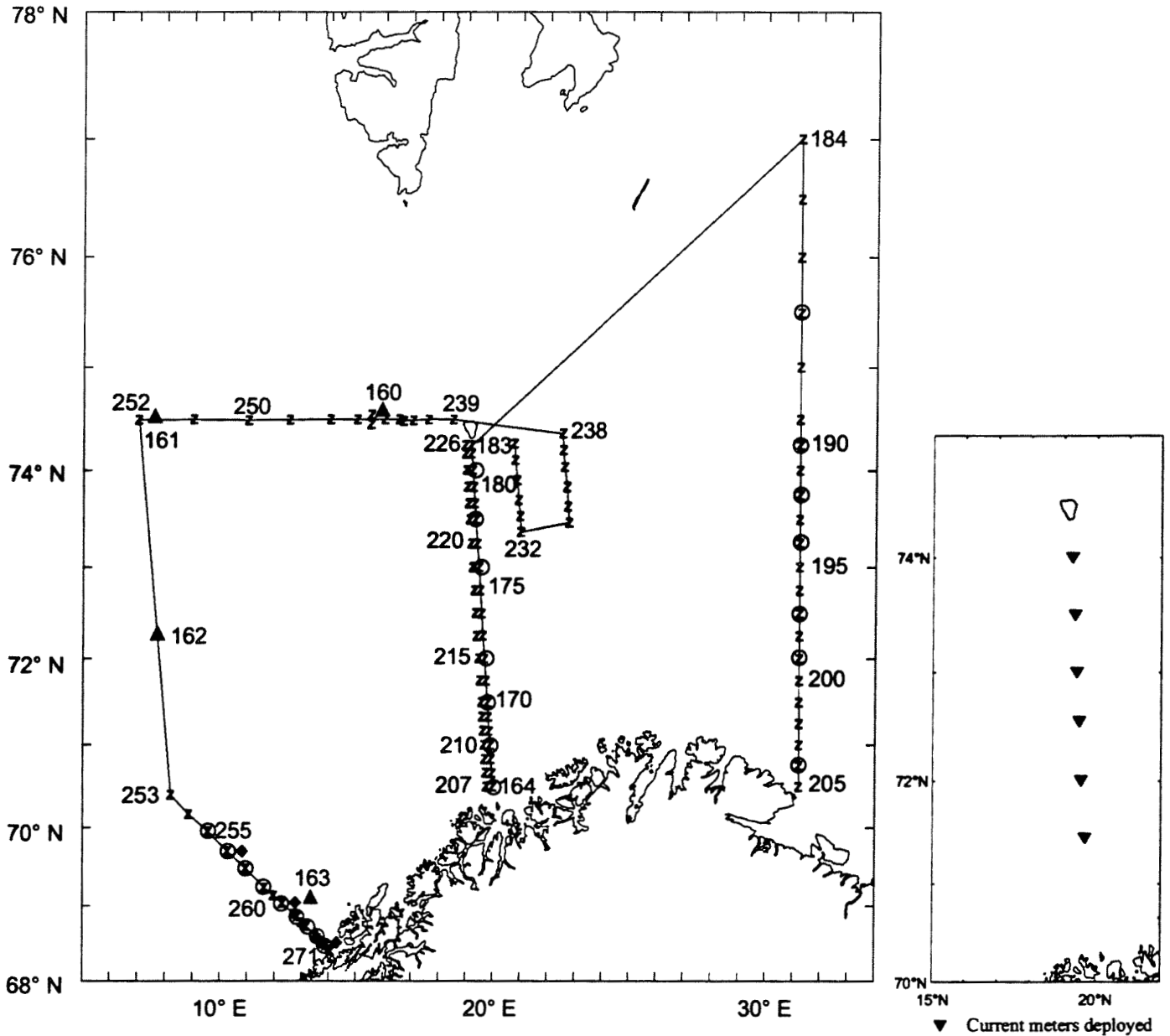
27 Jan - 27 Feb 1999

TRAWL st.no 16-159

"G.O. Sars"

Cruise no 1999002

□ bottom tr.
 △ Pel. tr. 6



1 - 20 March 1999
Cruise no 1999003

z CTD st.no 164-271 "G.O. Sars"

⊙ CTD and PLANKTON St. (WP-II-net)

◆ Mocness st.no 256, 260 and 268

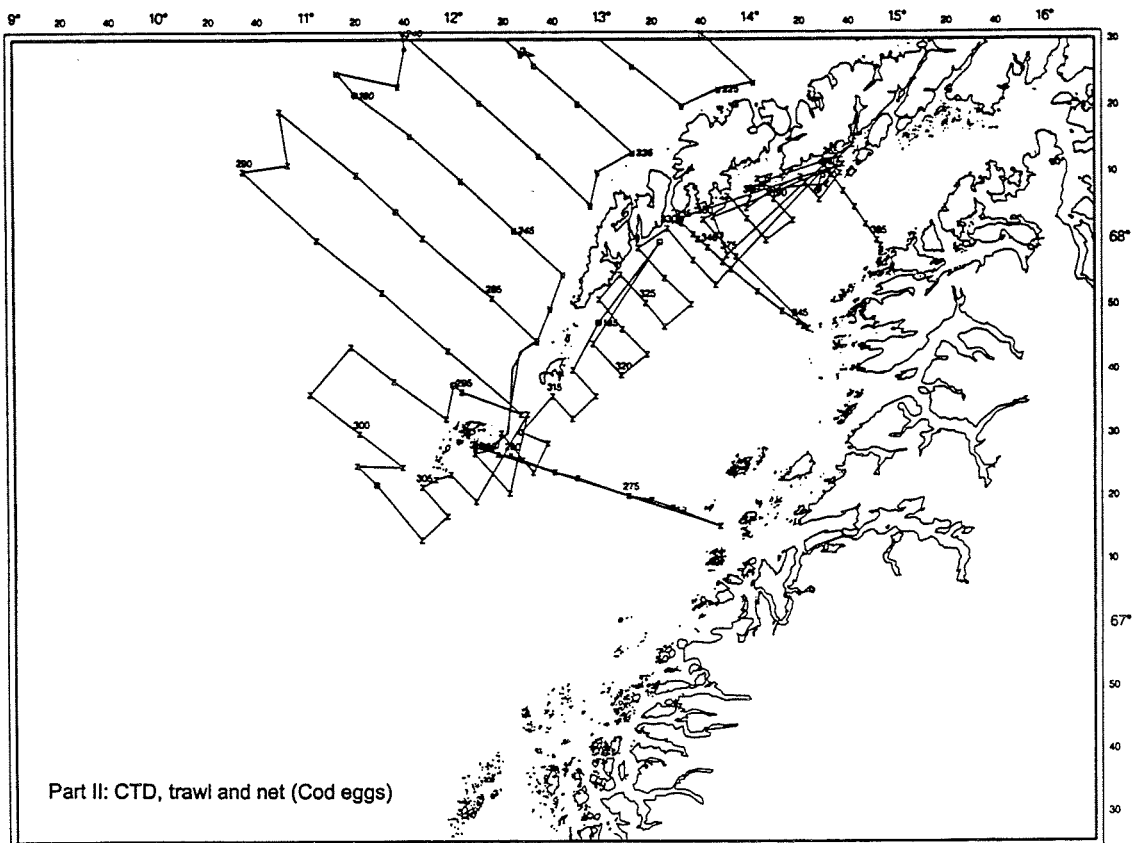
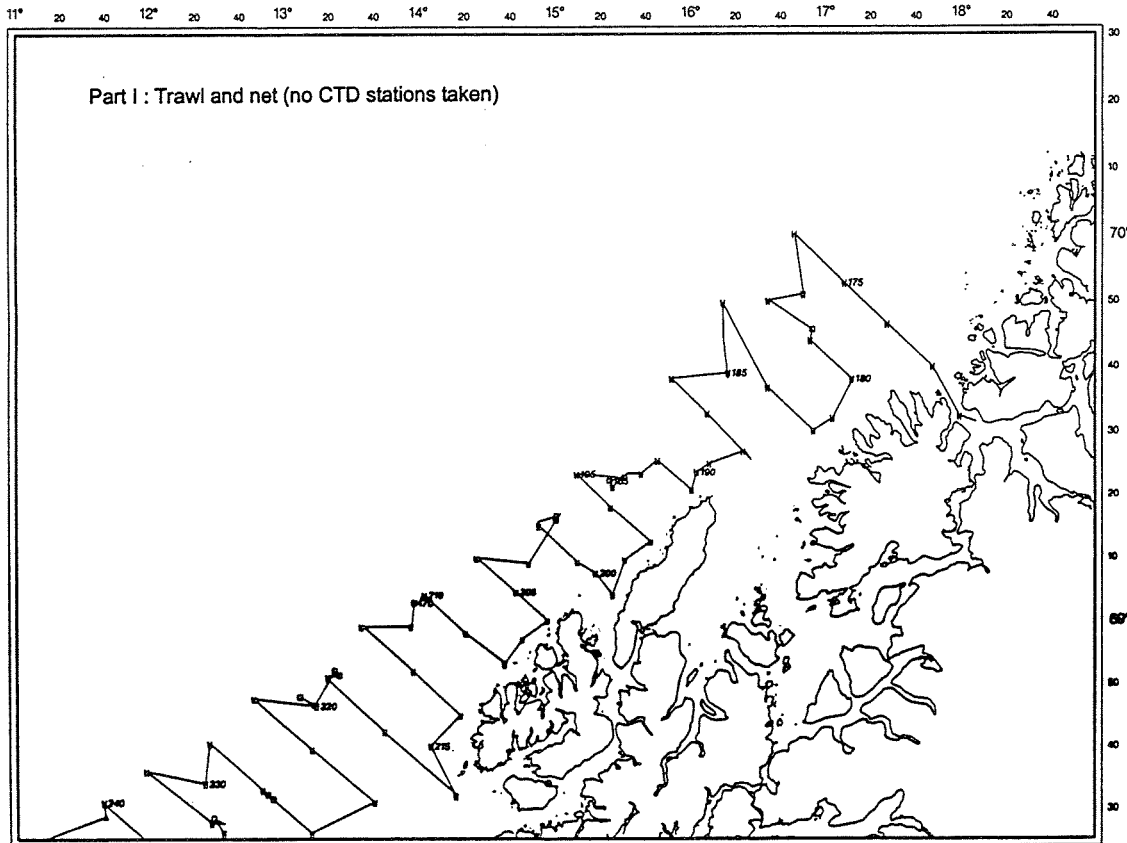
▲ Pel. TRAWL st.no 160-163

Standard section: Fugløya-Bjørnøya st.no 164-183
and st.no 207-226

Vardø N st.no 184-206

Bjørnøya West st.no 239-252

Gimsøy NW st.no 253-271



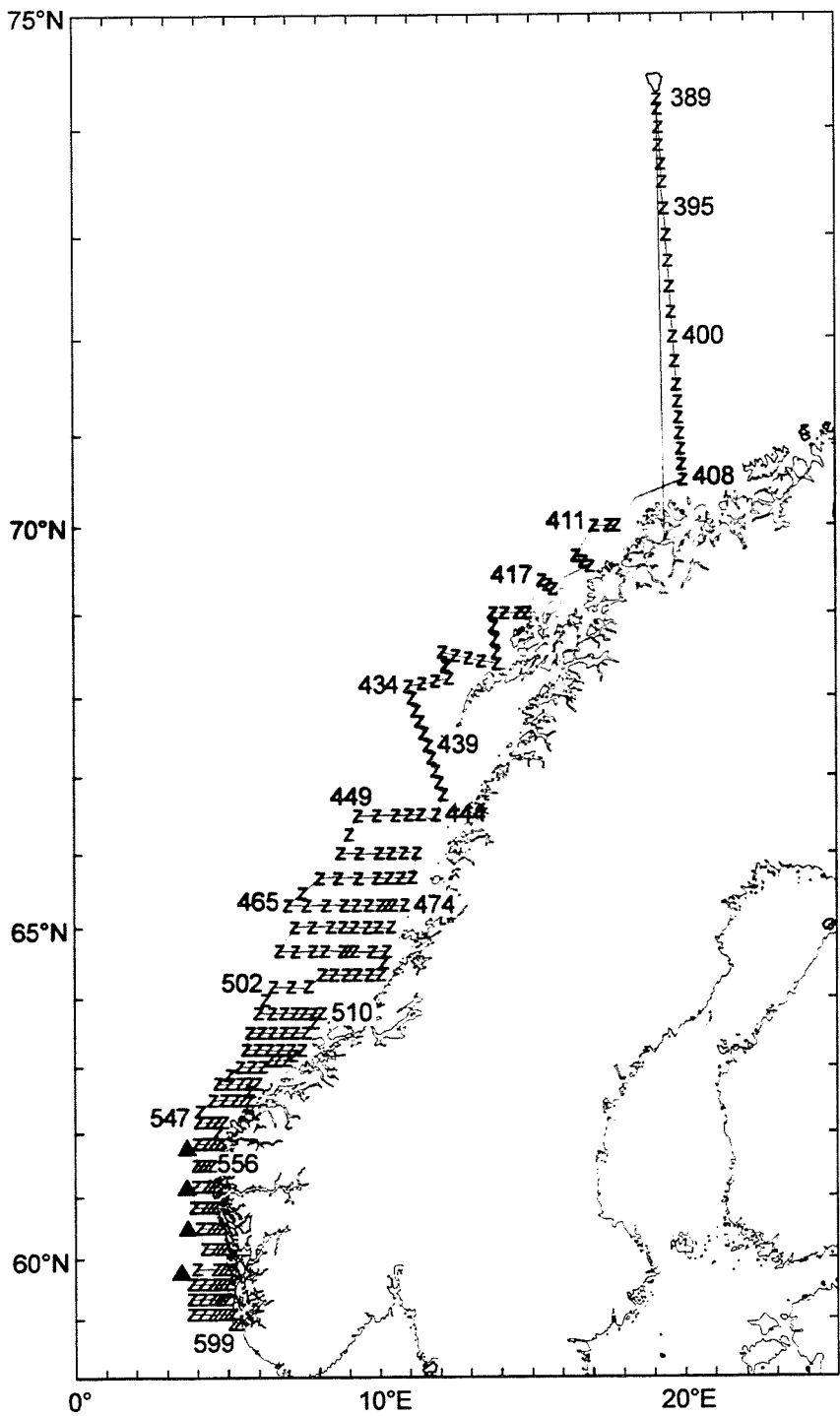
25 Mar - 6 Apr 1999 z CTD and net (cod eggs) st.no 272-388 "G. O. Sars"

Cruise no 1999004 W net (Cod eggs)

TRAWL st.no 164-193

□ Bottom tr.

Δ Pel. tr. (st.no 179)

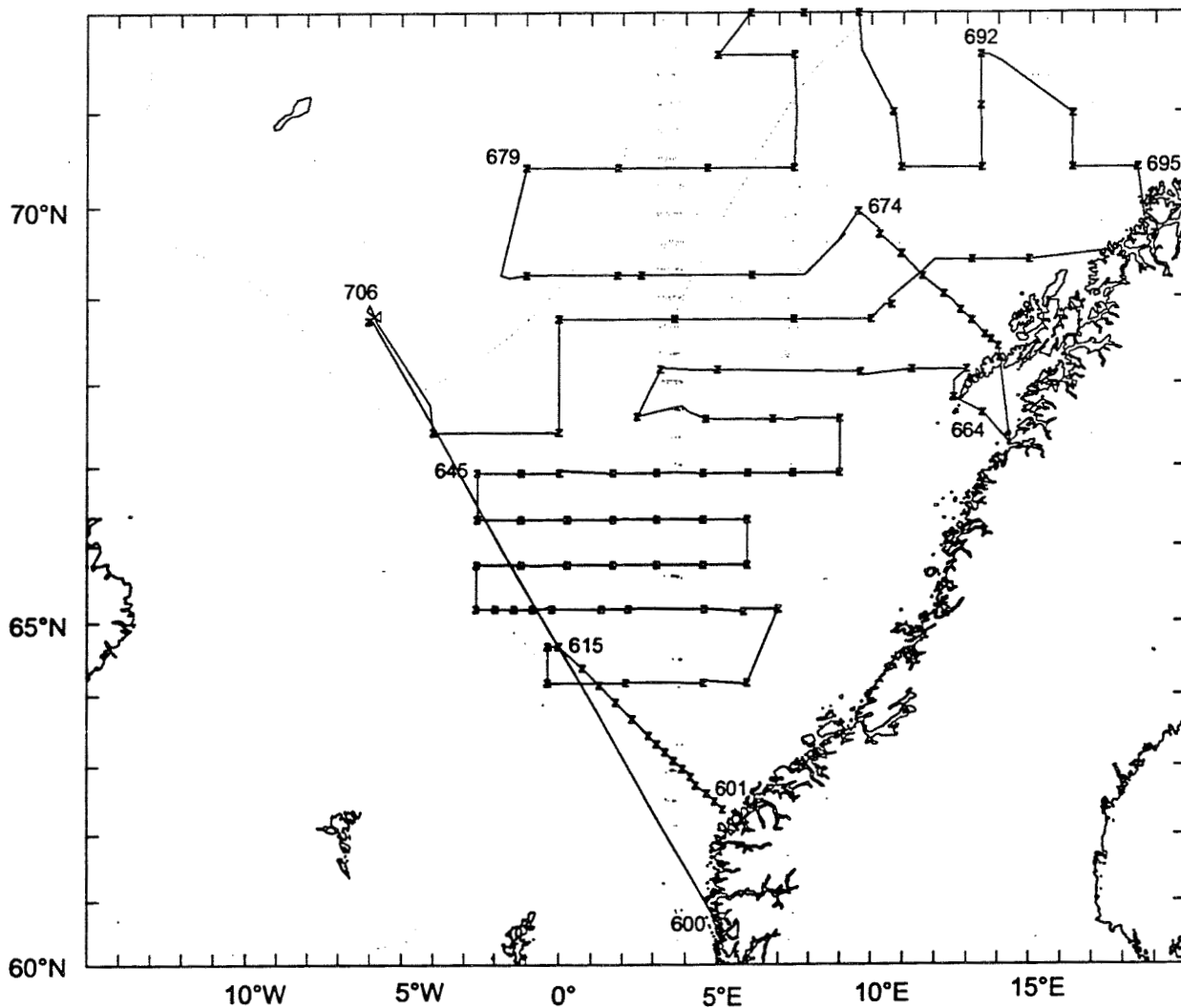


7 - 24 April 1999
Cruise no 1999005

z CTD and PLANKTON St.
(Gulf III and dip net sampling)
st.no 389-599

“G.O. Sars”

▲ Pel. TRAWL st.no 194-197
Standard section Fugløya-Bjørnøya: st.no 389-408



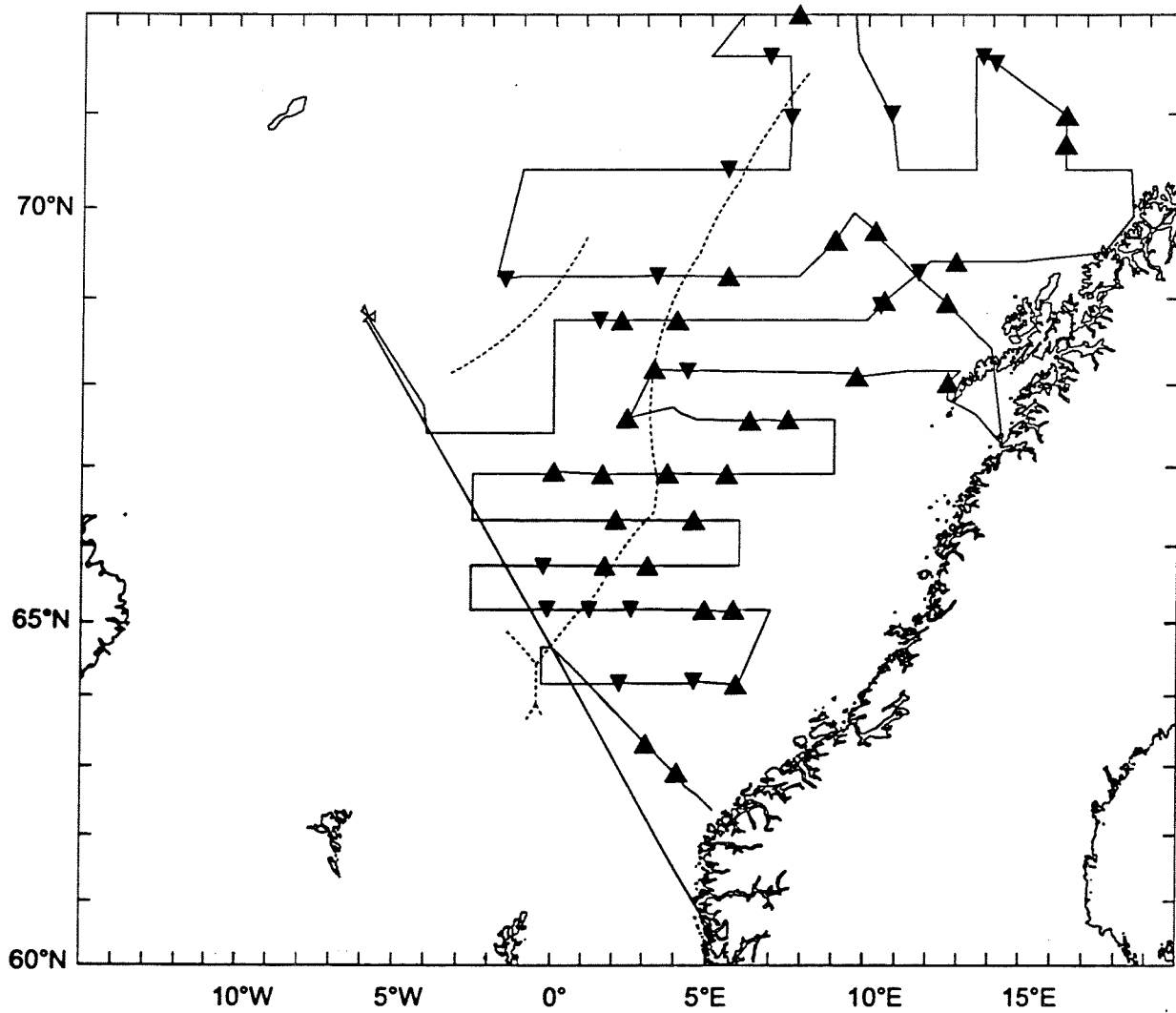
28 Apr - 2 Jun 1999

Z CTD st.no 600-706

"G. O. Sars"

Cruise no 1999006

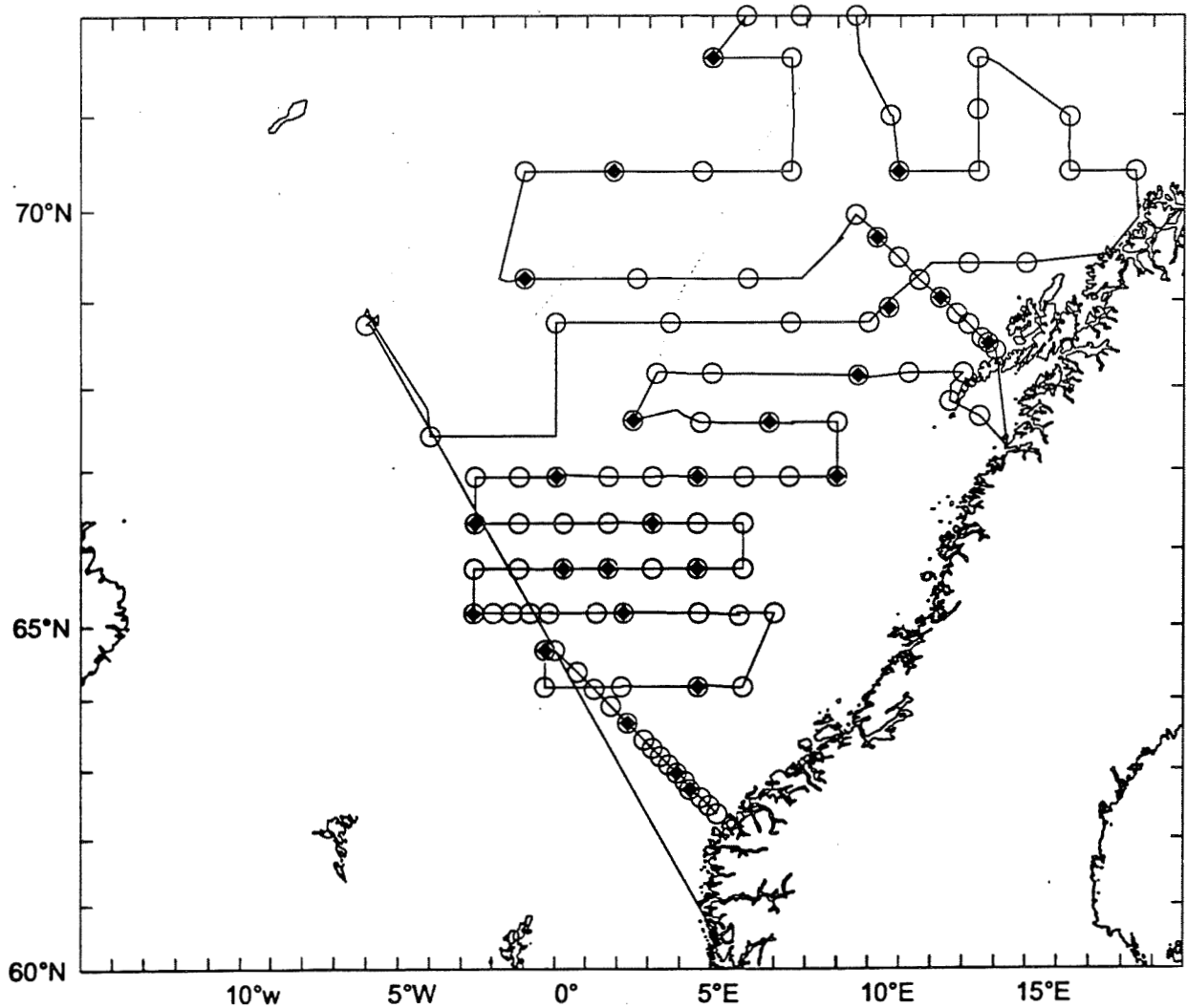
Standard section: Svinøy NW: st.no 601-615
Gimsøy NW: st.no 665-674



28 Apr - 2 Jun 1999
Cruise no 1999006

Pelagic trawl st
▼ Mesopelagic haul
▲ Surface haul

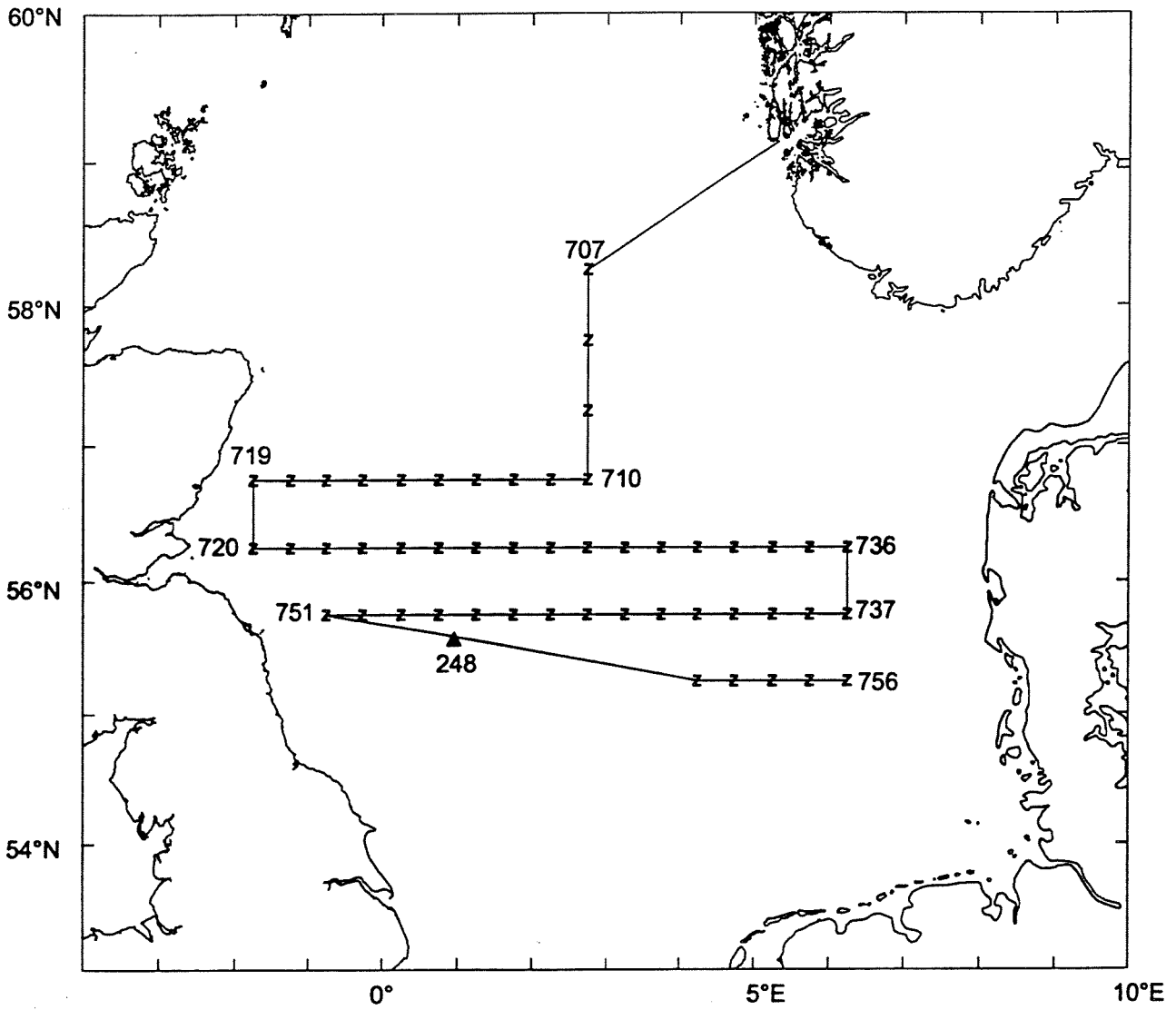
"G. O. Sars"



28 Apr - 2 Jun 1999
 Cruise no 1999006

PLANKTON: ○ WP II- net
 ◆ Mocness st.

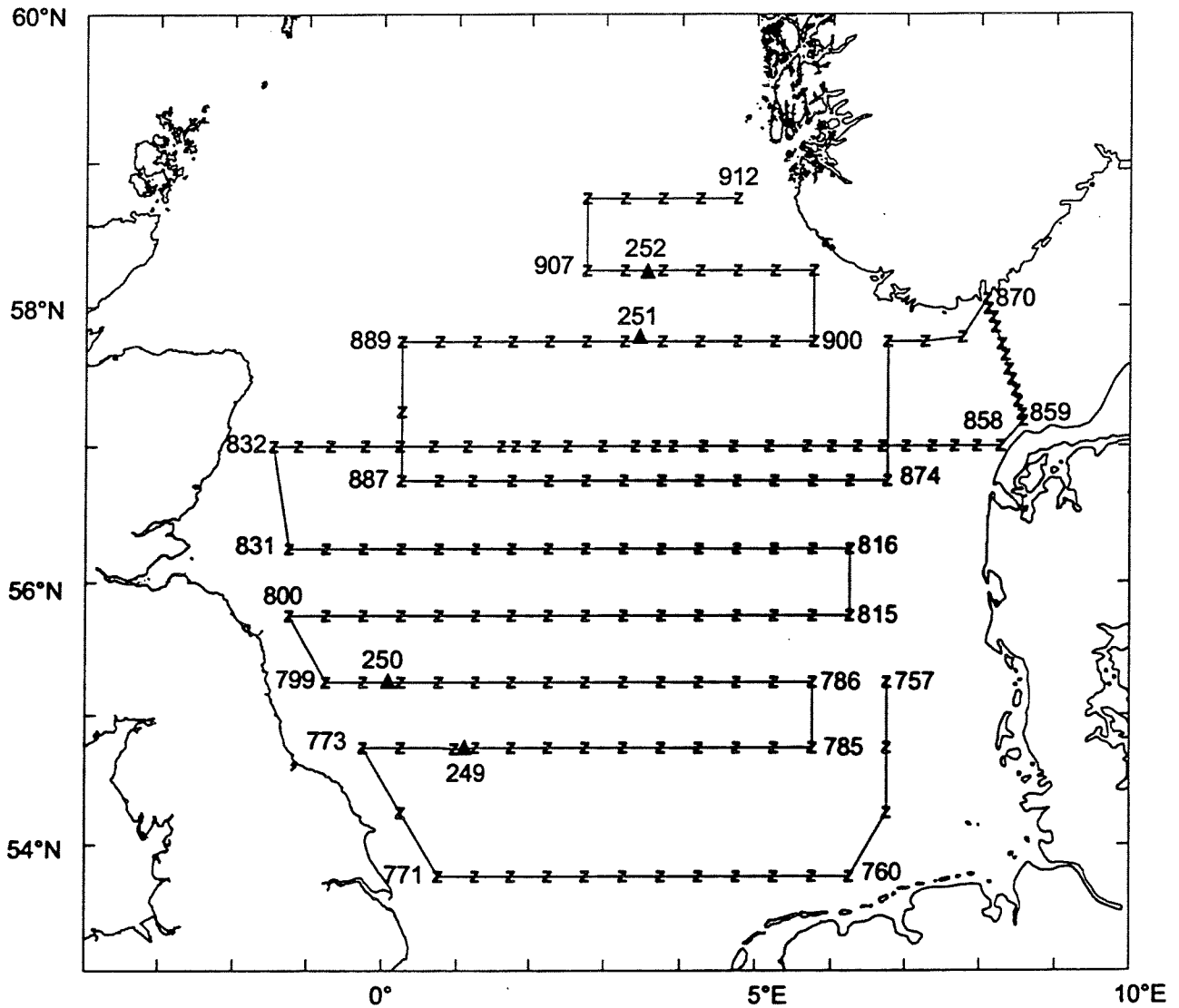
"G.O. Sars"



5 - 27 June 1999
Cruise no 1999007

Part I: z CTD st.no 707-756
▲ Pel. TRAWL st.no 248

"G. O. Sars"



5 - 27 June 1999
Cruise no 199007

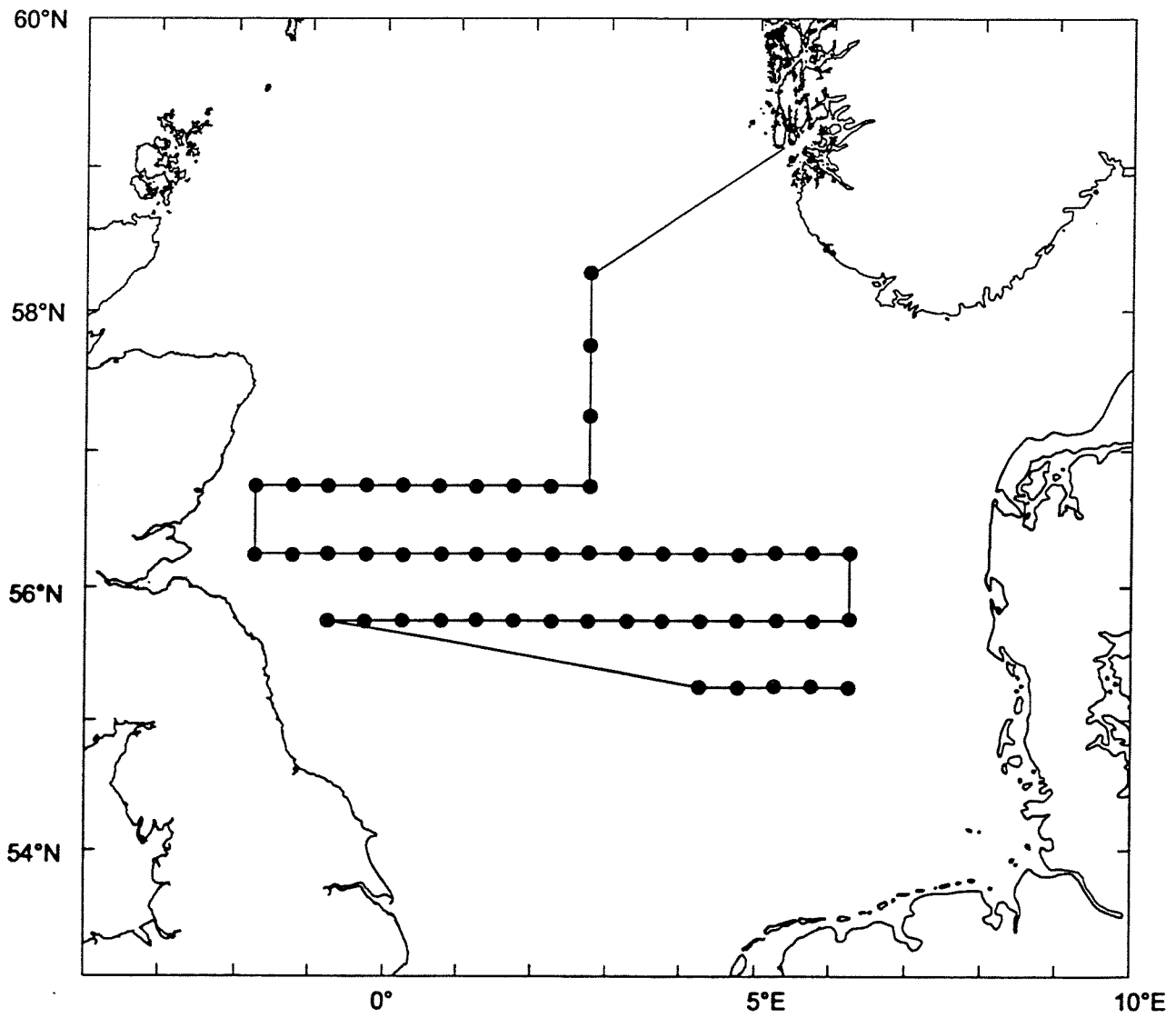
Part II: z CTD st.no 757 - 912

"G. O. Sars"

▲ Pel. TRAWL st.no 249-252

Standard sections: Oksø - Hanstholm st.no 859-870

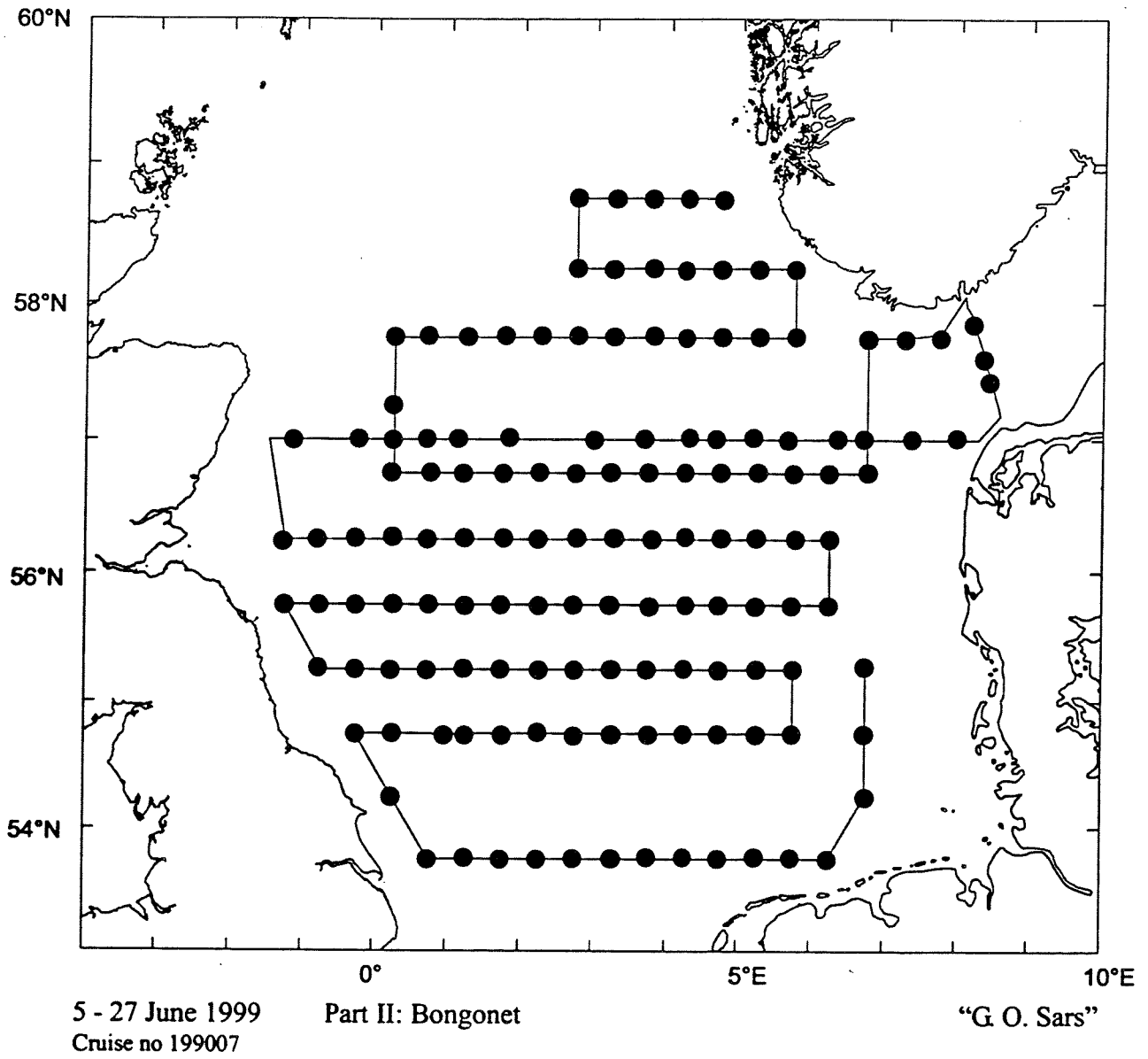
Hanstholm - Aberdeen st.no 832-858

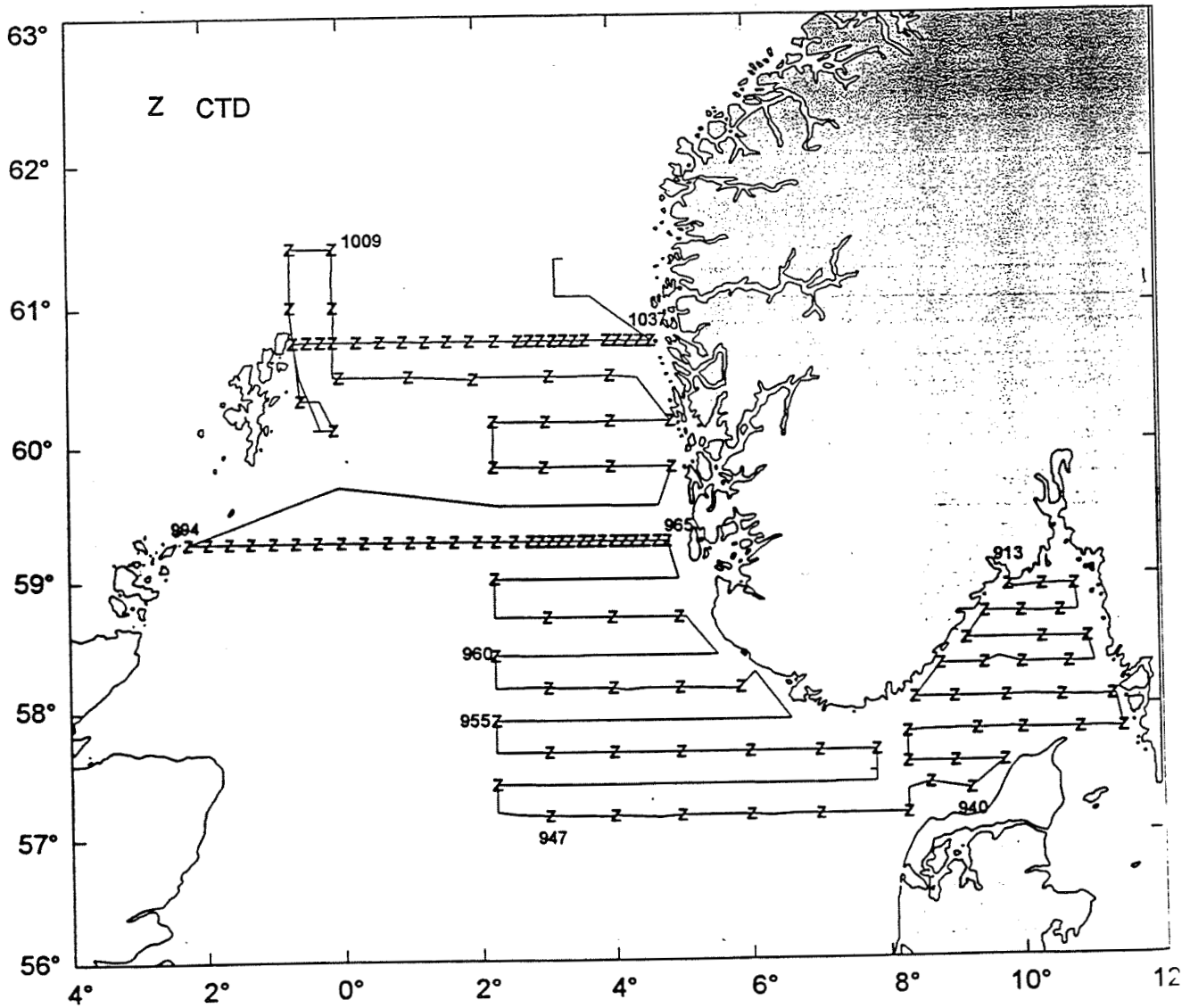


5 - 27 June 1999
Cruise no 1999007

Part I: ● Bongonet

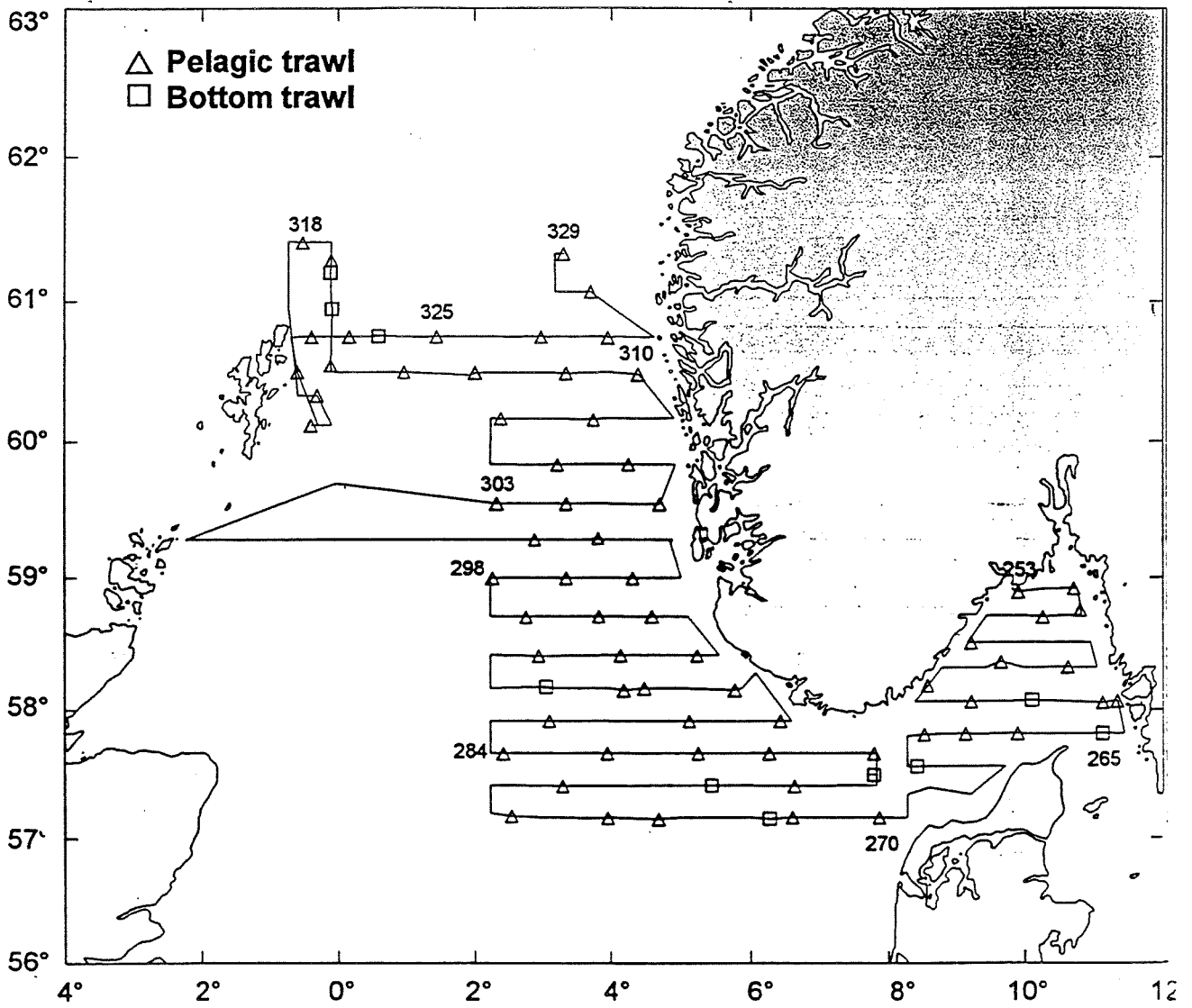
"G. O. Sars"



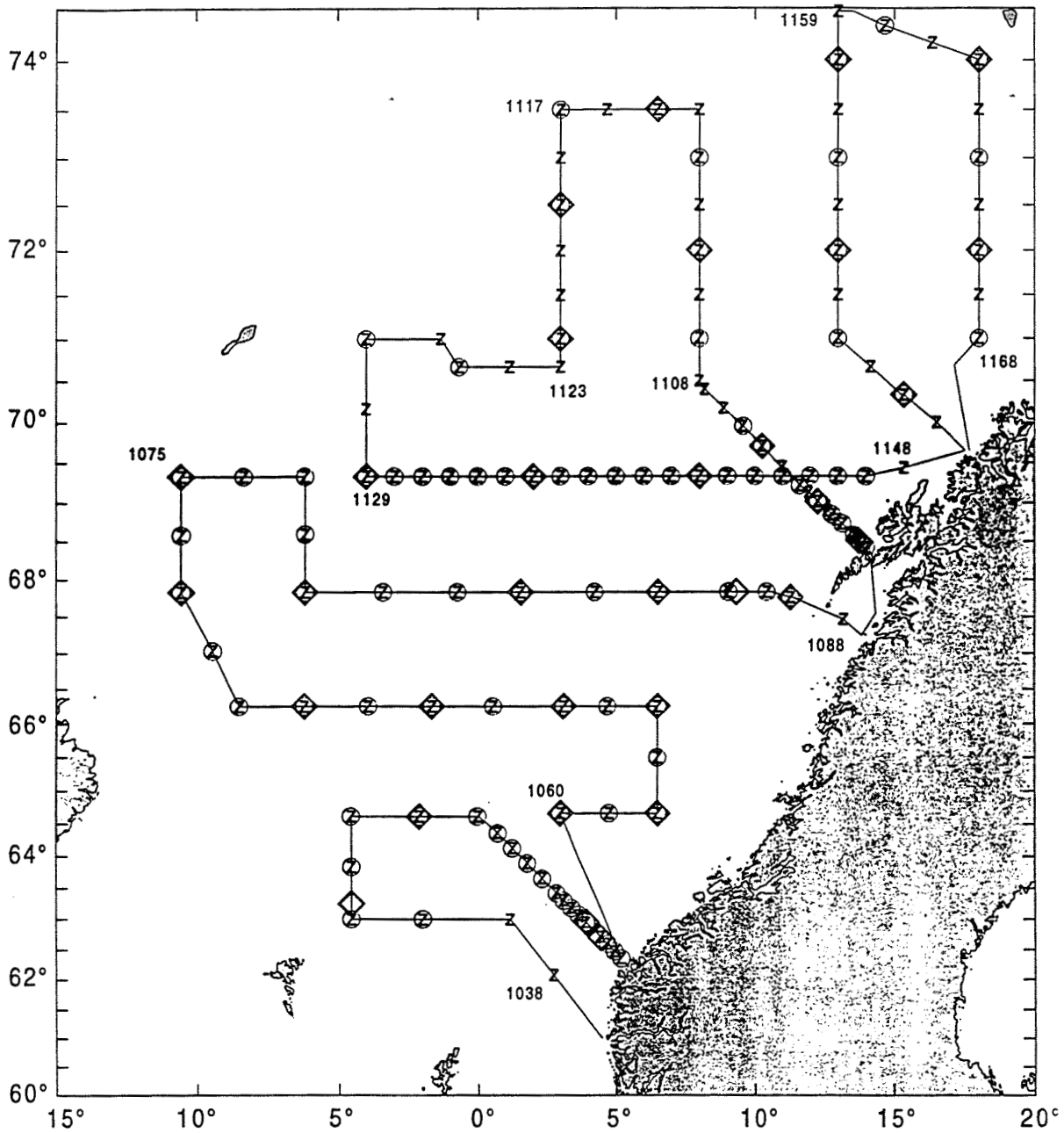


29 June - 18 July 1999 Z CTD st.no 913-1037 "G. O. Sars"
 Cruise no 1999008

Standard sections: Feie Shetland st.no 1014-1037
 Utsira W st.no 965-994



29 June - 18 July 1999 TRAWL st.no 253-329 "G. O. Sars"
 Cruise no 1999008



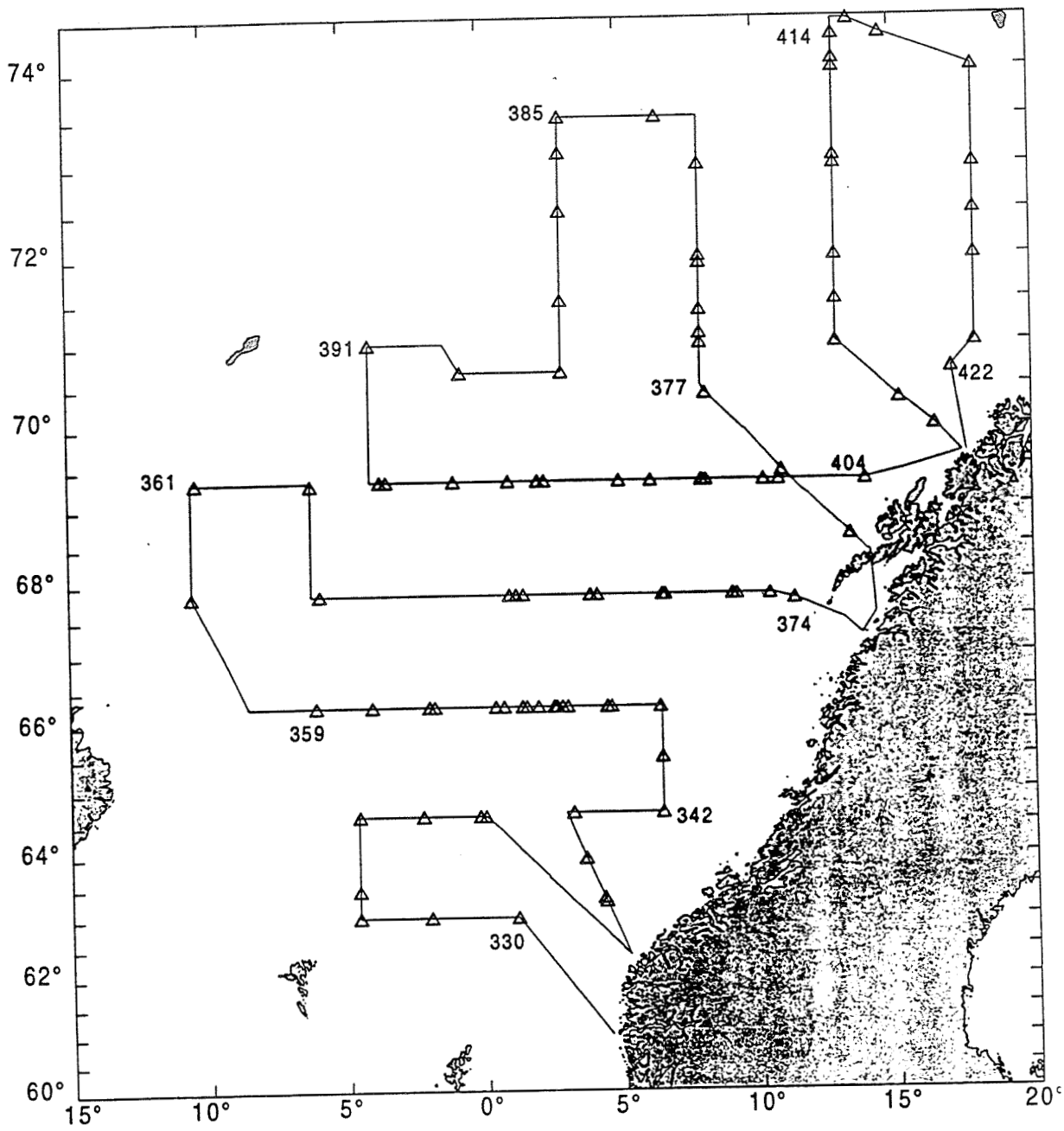
21 Jul - 21 Aug 1999
Cruise no 1999009

Z CTD st.no 1038-1168

"G.O. Sars"

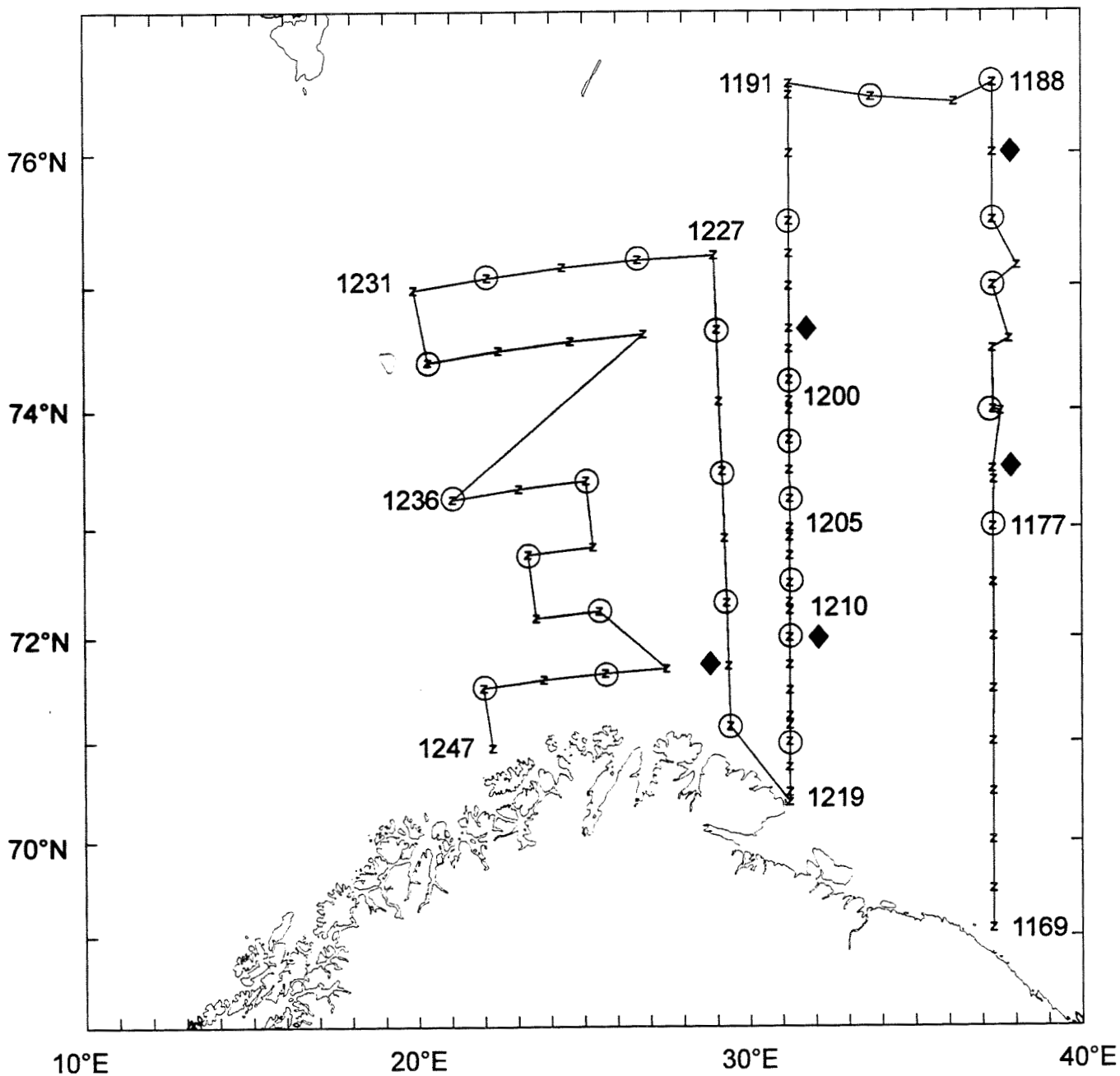
- ⊙ CTD st. and WP-II net and/or Juday net
- ◇ CTD st. and WP-II net and/or Juday net and Moccuss plankton sampler

Standard section Svinøy NW: st.no 1045-1059
Gimsøy NW: st.no 1089-1108



21 Jul - 21 Aug 1999
 Cruise no 1999009

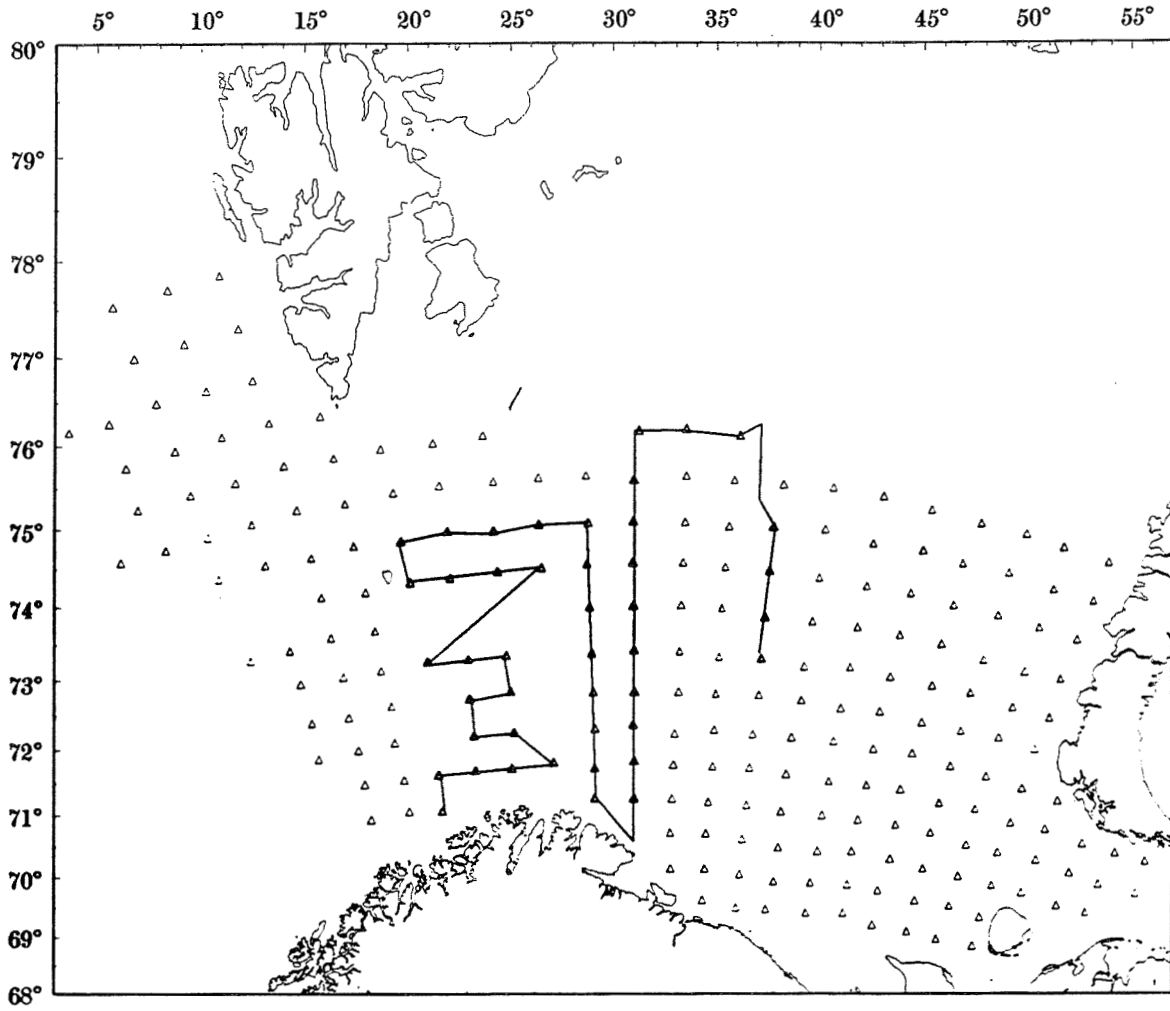
△ Pel. TRAWL st.no 330-422 "G.O. Sars"



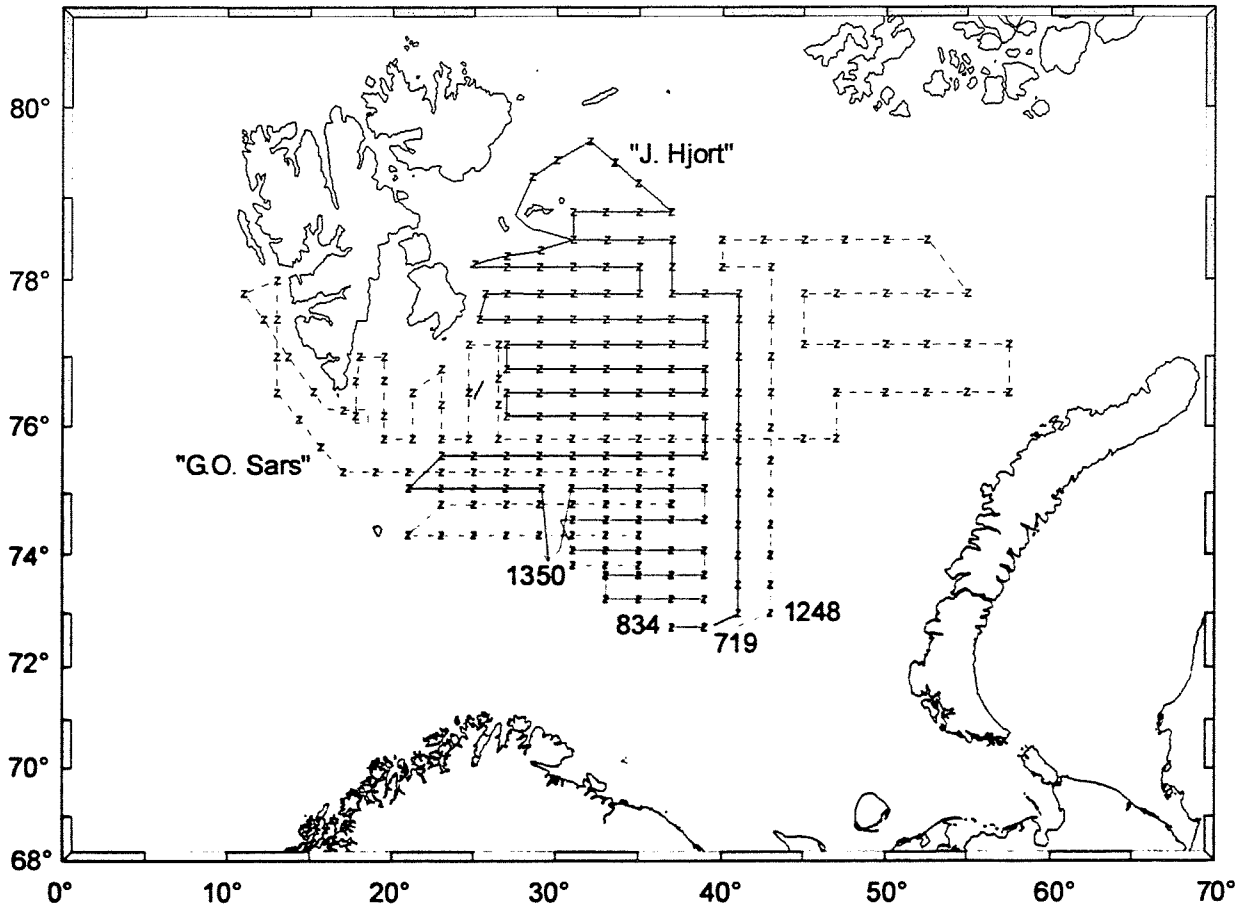
24 Aug - 7 Sep 1999
Cruise no 1999010

z CTD st.no 1169-1247
 ⊗ CTD st and PLANKTON st. (WP-II-net)
 ◆ Moored st.
 Standard section Vardø N: st.no 1191-1219
 Semøyene: st.no 1169-1188

"G.O. Sars"



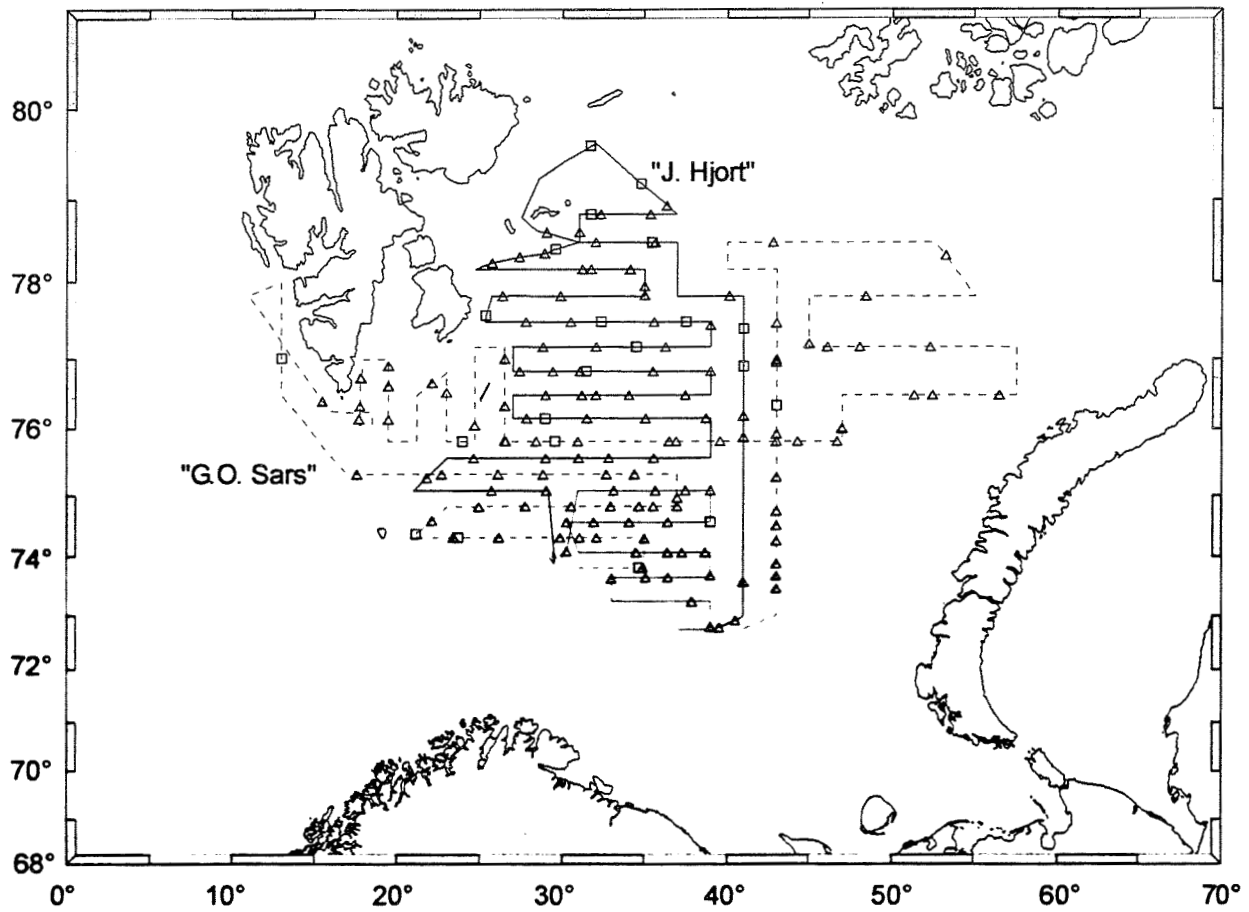
24 Aug - 7 Sep 1999 Δ — Δ G.O. Sars' part of pel.trawl stations "G.O. Sars"
 Cruise no 1999010



"G.O. Sars": 9 Sep - 5 Oct 1999
 Cruise no 1999011
 "Johan Hjort": 11 Sep - 4 Oct 1999
 Cruise no 1999214

z CTD st.no "G.O. SARS" 1248-1350
 "Johan Hjort" 719-834

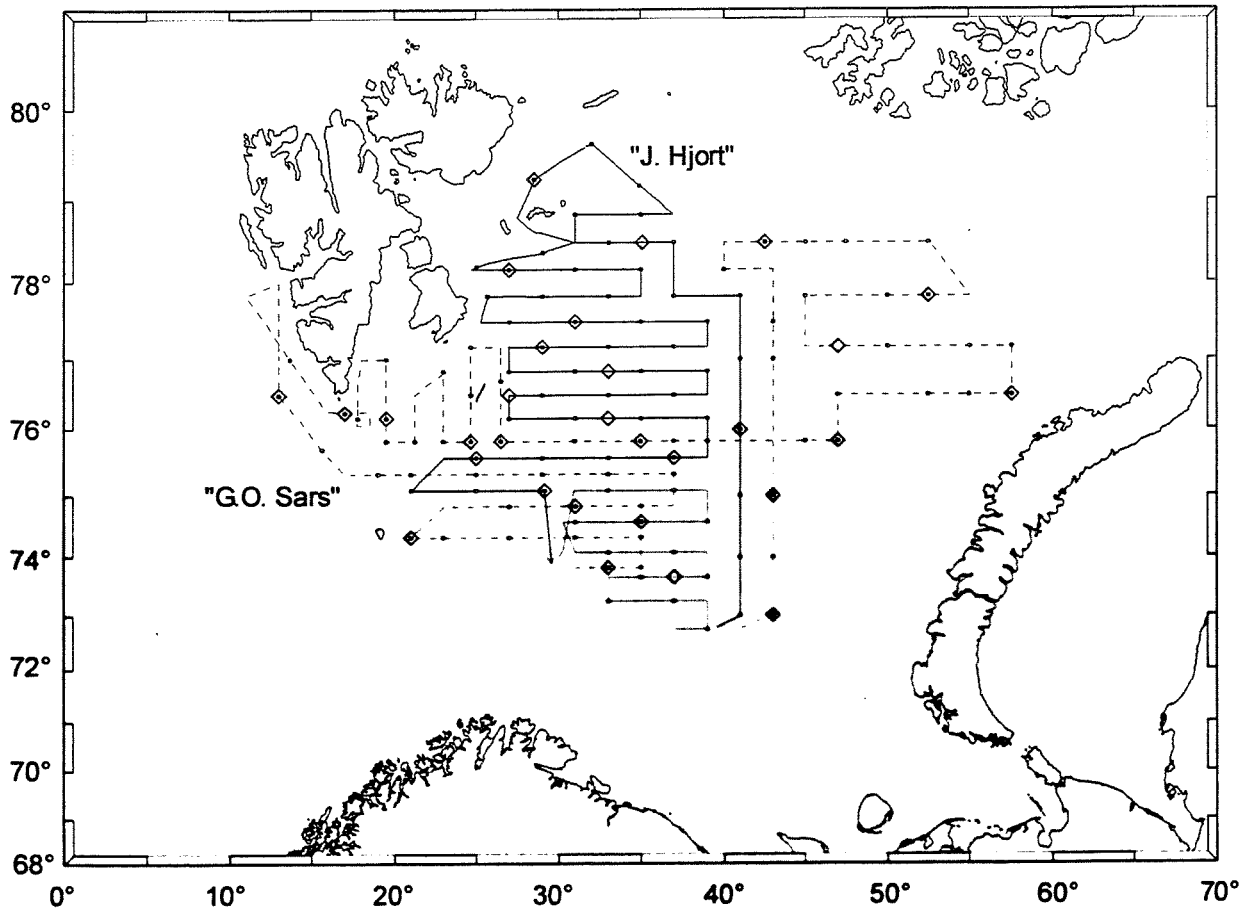
----- "G. O Sars"
 _____ "Johan Hjort"



"G. O. Sars" 9 Sep - 5 Oct 1999
 Cruise no 1999011
 "Johan Hjort" 11 Sep - 4 Oct 1999
 Cruise no 1999214

△ Pelagic TRAWL
 □ Bottom TRAWL

----- "G. O. Sars"
 _____ "Johan Hjort"

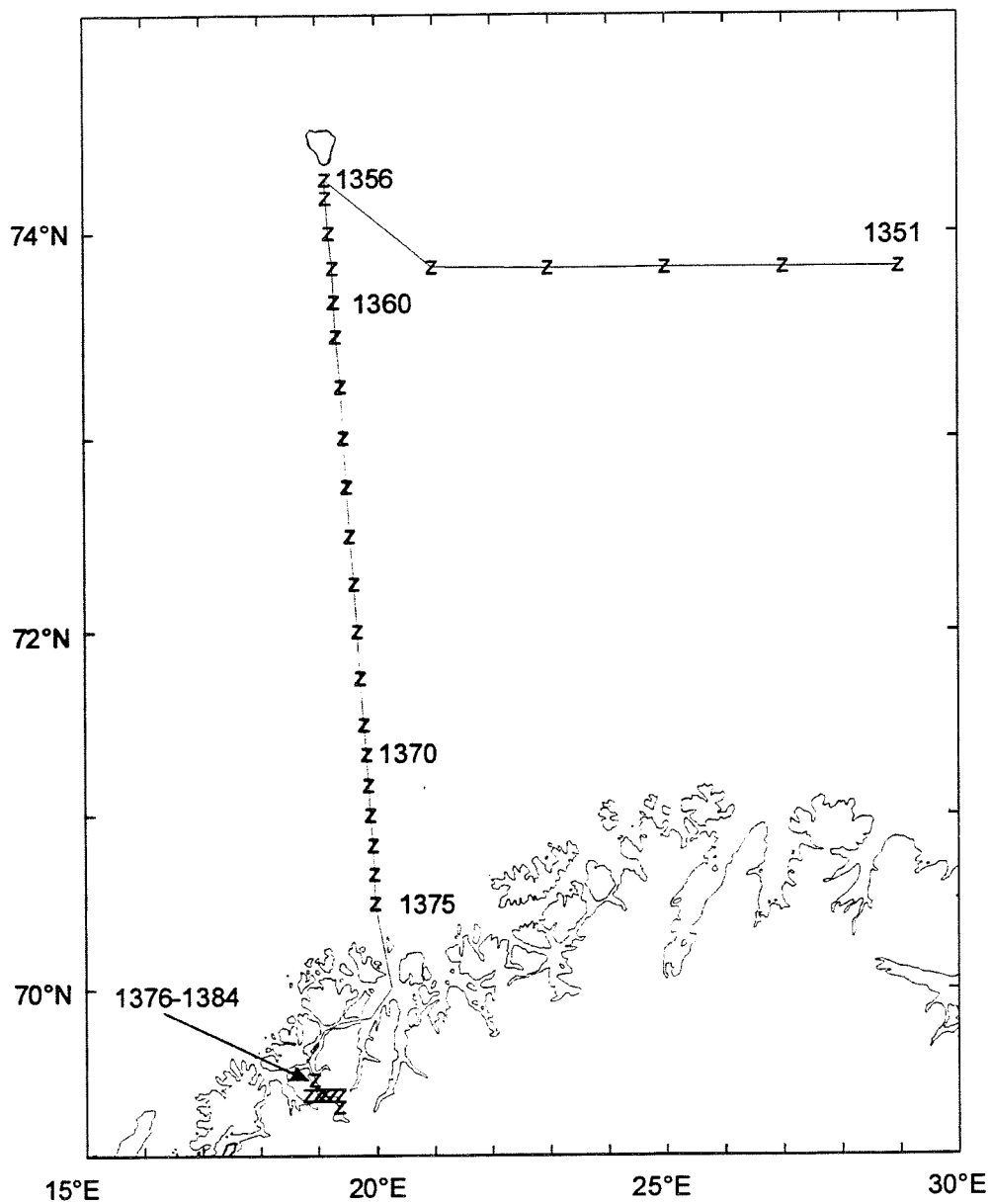


"G.O. Sars": 9 Sep - 5 Oct 1999
Cruise no 1999011

• WP-2 net
◇ Mocness st.

----- "G. O. Sars"
———— "Johan Hjort"

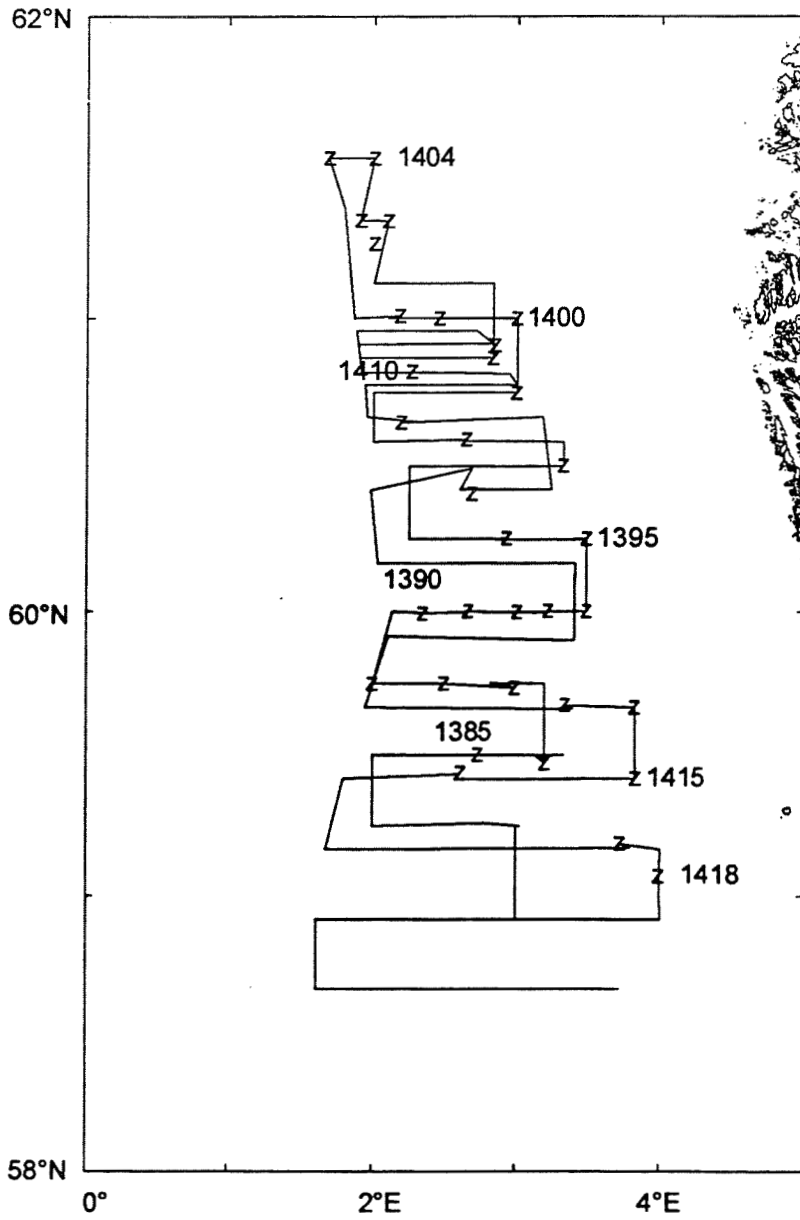
"Johan Hjort": 11 Sep - 4 Oct 1999
Cruise no 1999214



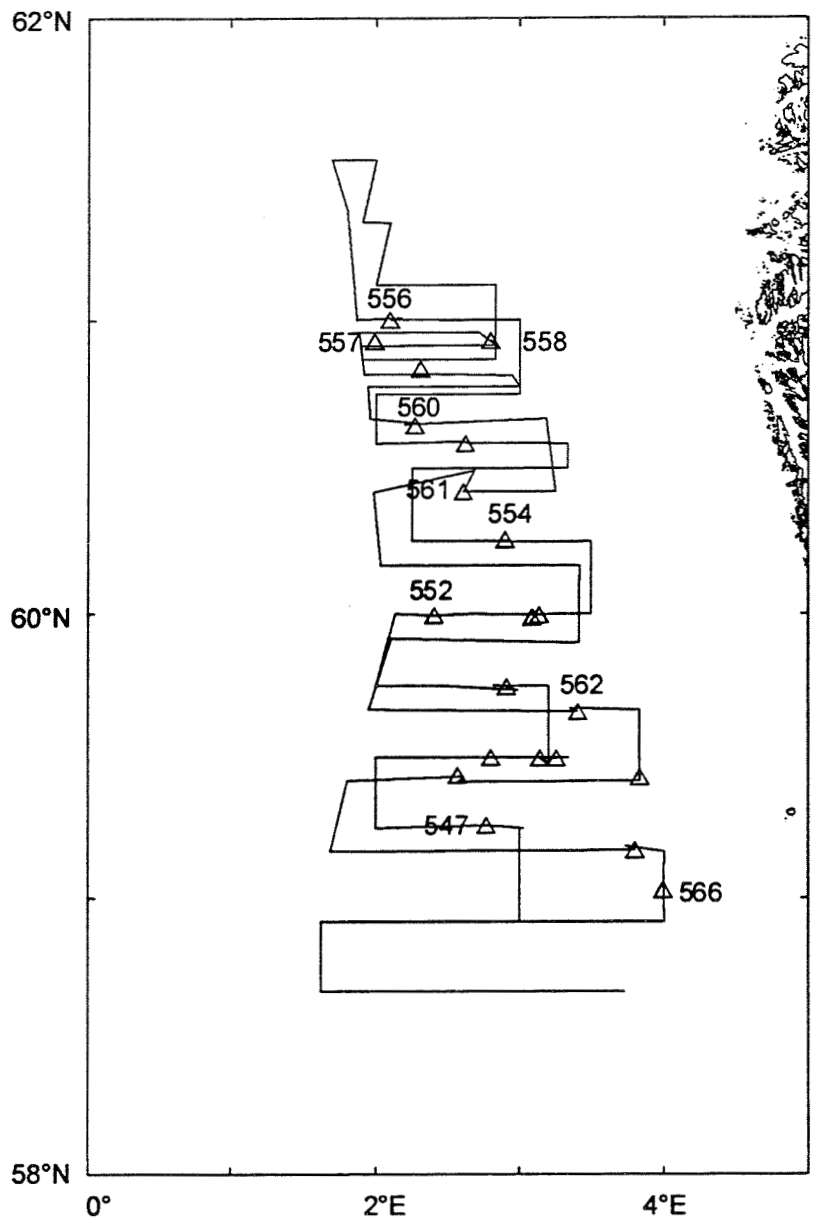
Cruise no 1999011 - Part II
6 Oct - 10 Oct 1999

"G.O. Sars"

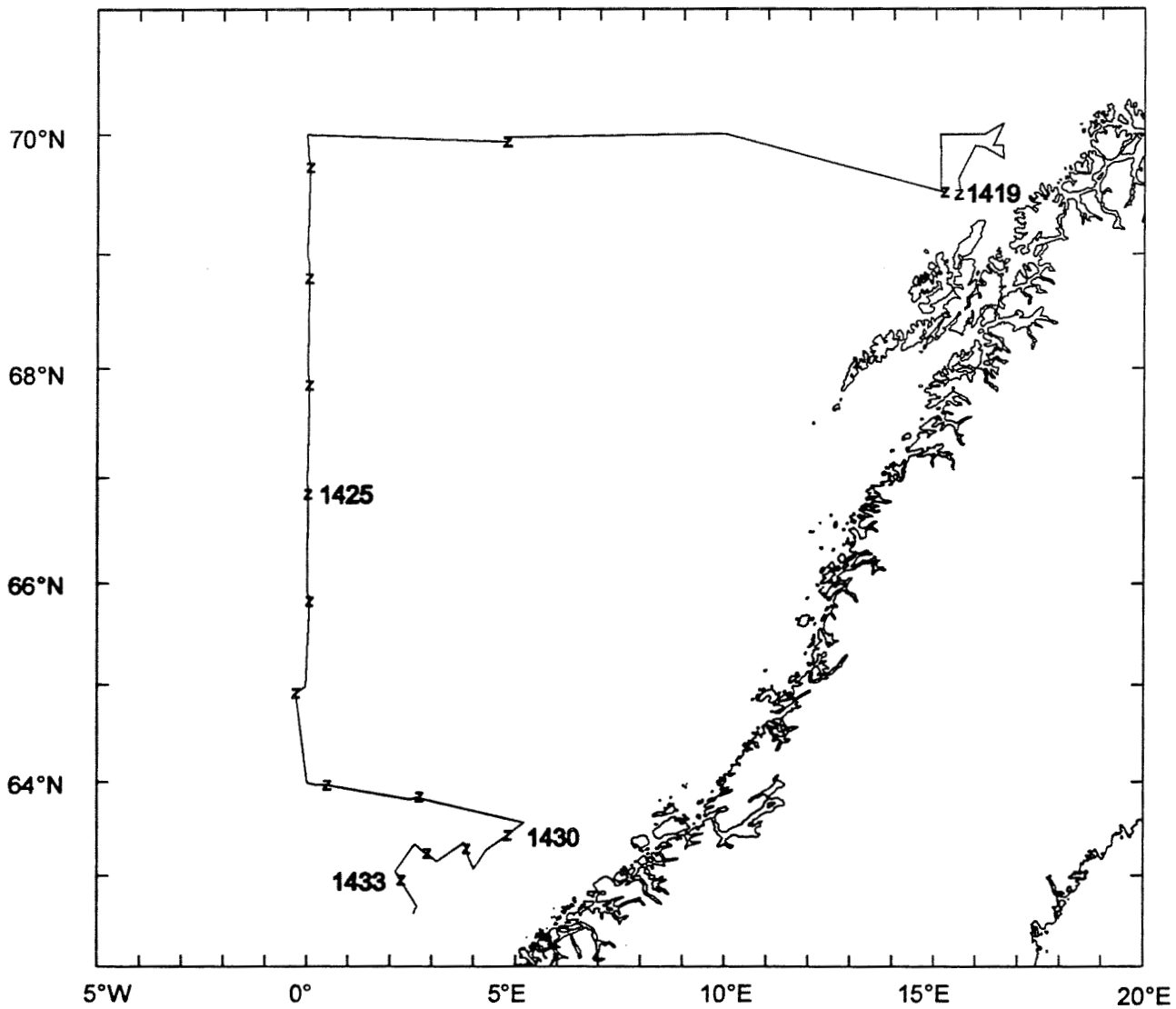
z CTD st.no 1351 - 1384
Standard section: Fugløya - Bjørnøya st.no 1356-1375



12 - 22 October 1999 z CTD st.no 1385-1418 "G.O. Sars"
 Cruise no 1999012



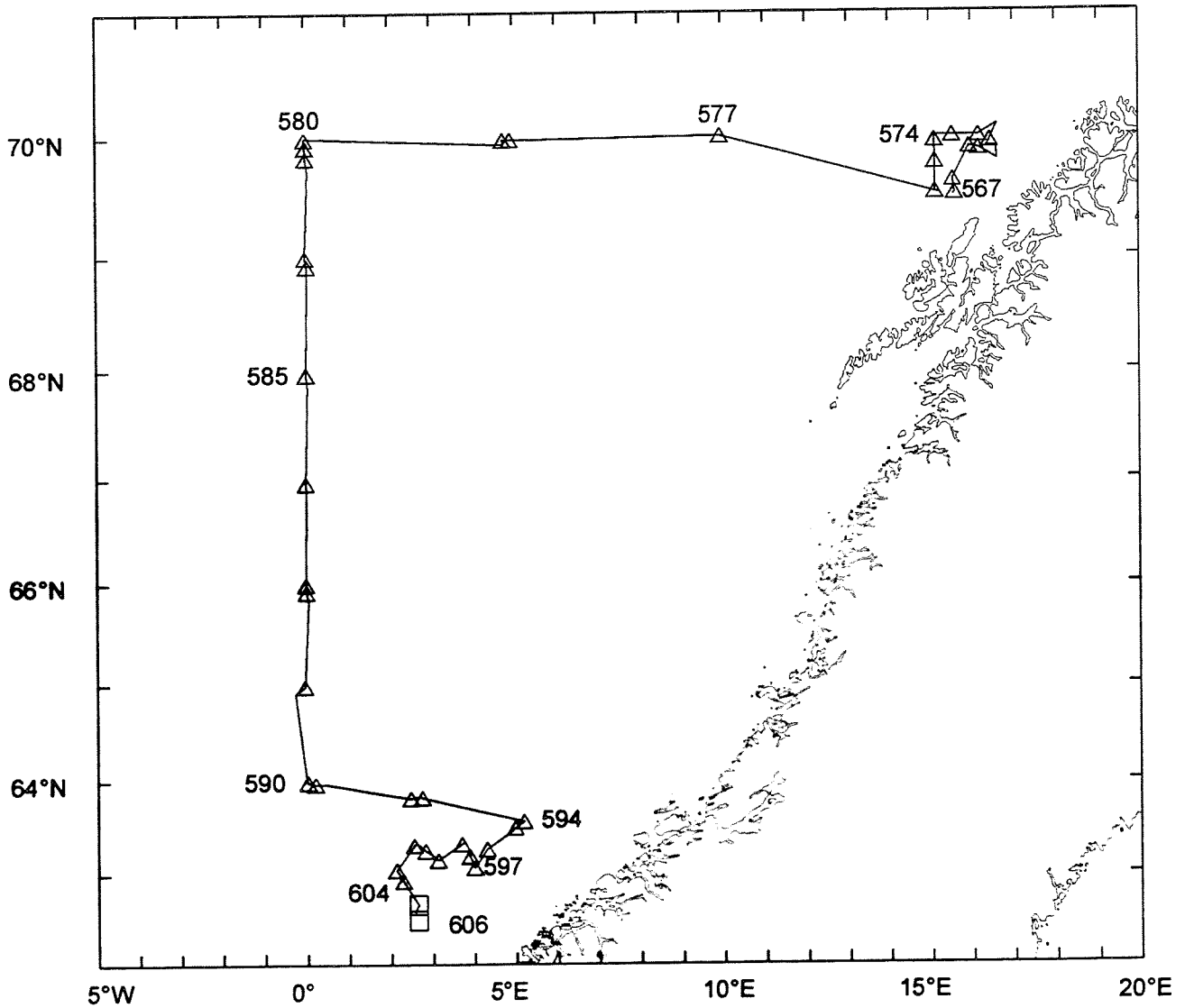
12 - 22 October 1999 Δ Pel TRAWL st.no547-566 "G.O. Sars"
 Cruise no 1999012



27 Oct - 11 Nov 1999
Cruise no 1999013

z CTD st.no 1419-1433

"G.O. Sars"



27 Oct - 11 Nov 1999

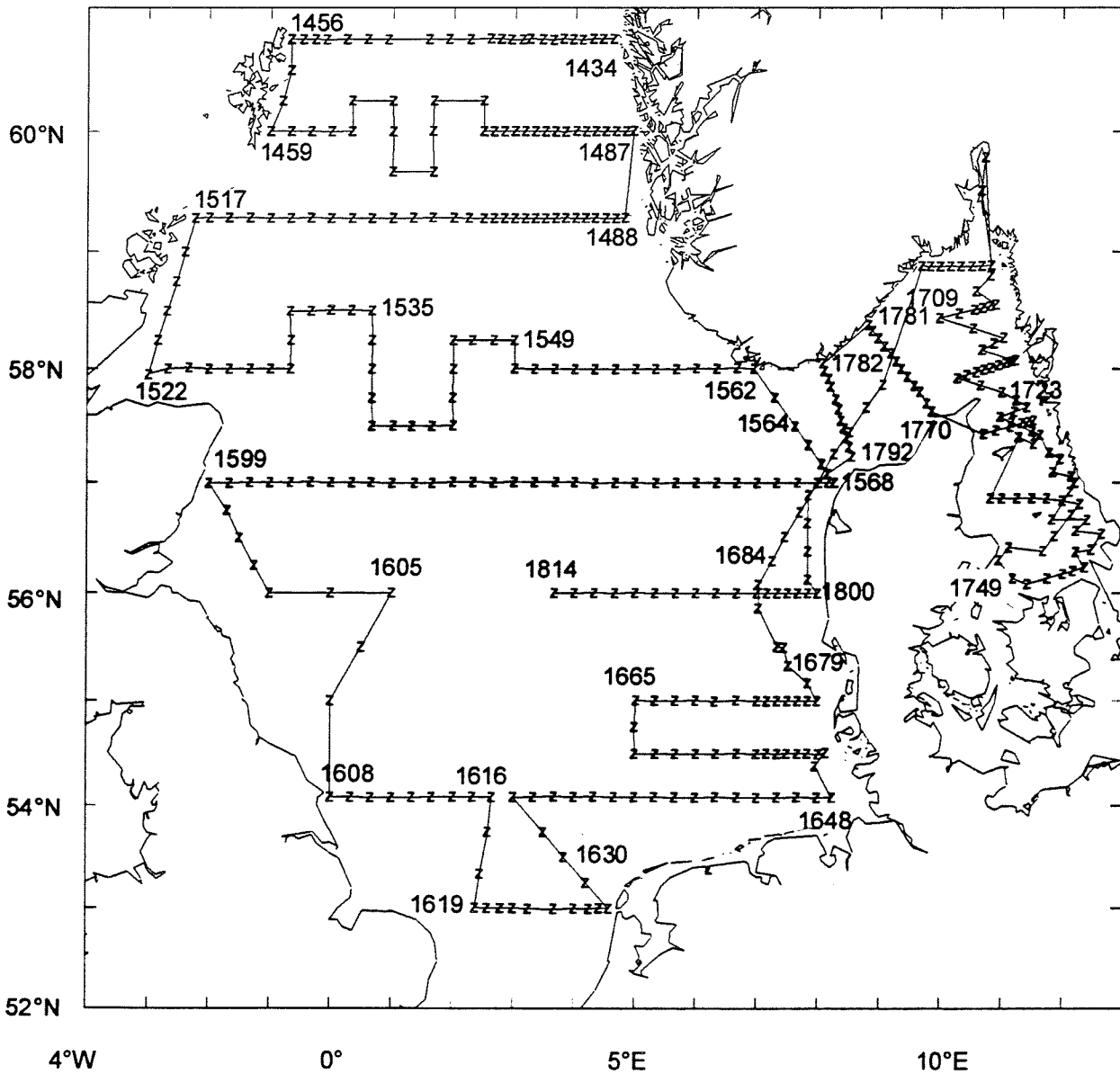
TRAWL st.no 567-606

"G.O. Sars"

Cruise no 1999013

△ Pel tr.

□ Bottom tr.



15 Nov - 20 Dec 1999
Cruise no 1999014

z CTD st.no 1434 - 1814

“GO. Sars”

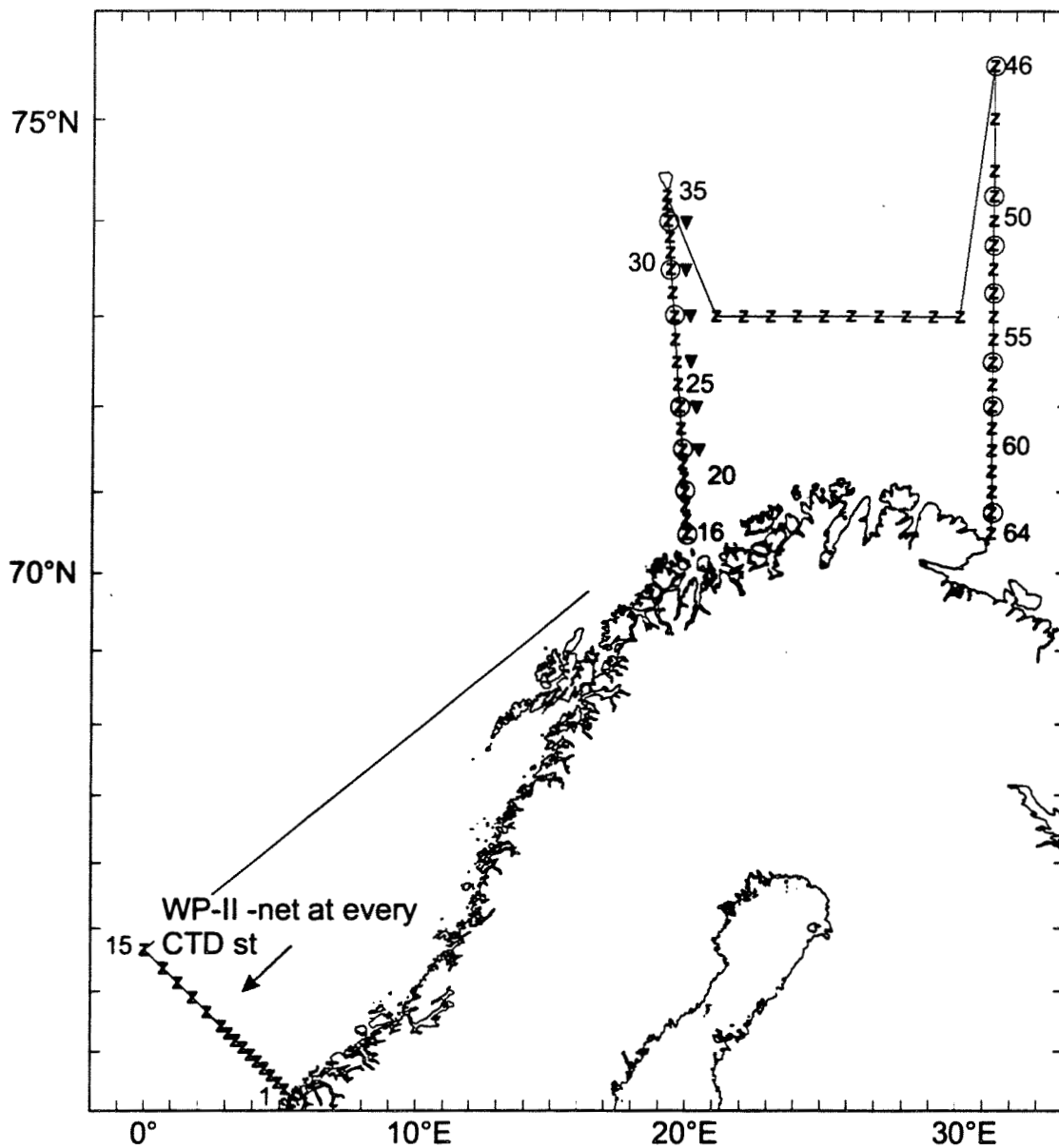
Standard sections Feie-Shetland: st.no 1434-1456

Utsira W: St.no 1488-1517

Hansthalm-Aberdeen: st.no 1568-1599

Torungen-Hirtshals: st.no 1770-1781

Oksø-Hansthalm: st.no 1782-1792



12 - 26 Jan 1999

z CTD st.no 1-64

“Johan Hjort”

Cruise no 1999202

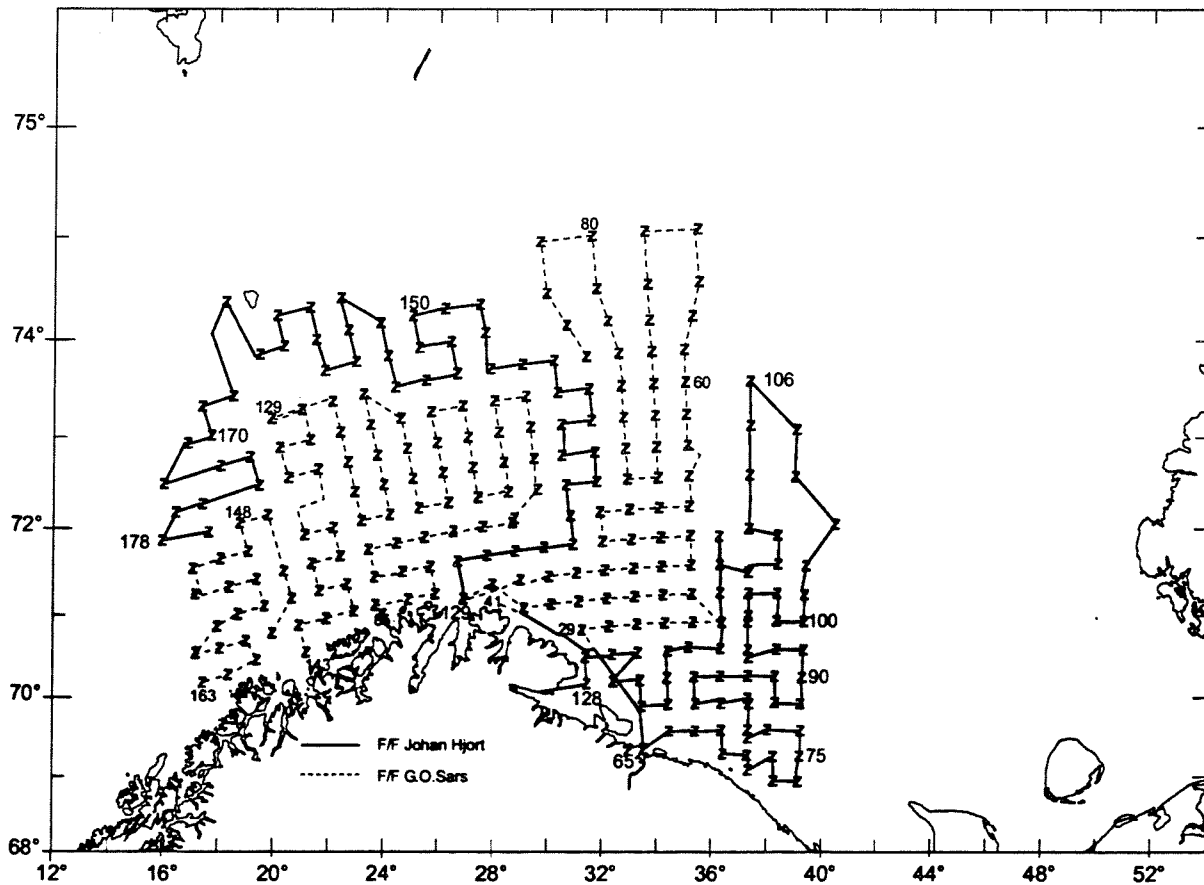
▼ Veins mooring

⊙ CTD and PLANKTON st.(WP-II-net)

Standard sections Svinøy NW: st.no 1-15

Fugløya-Bjørnøya:st.no 16-35

Vardø N:st.no 46-64

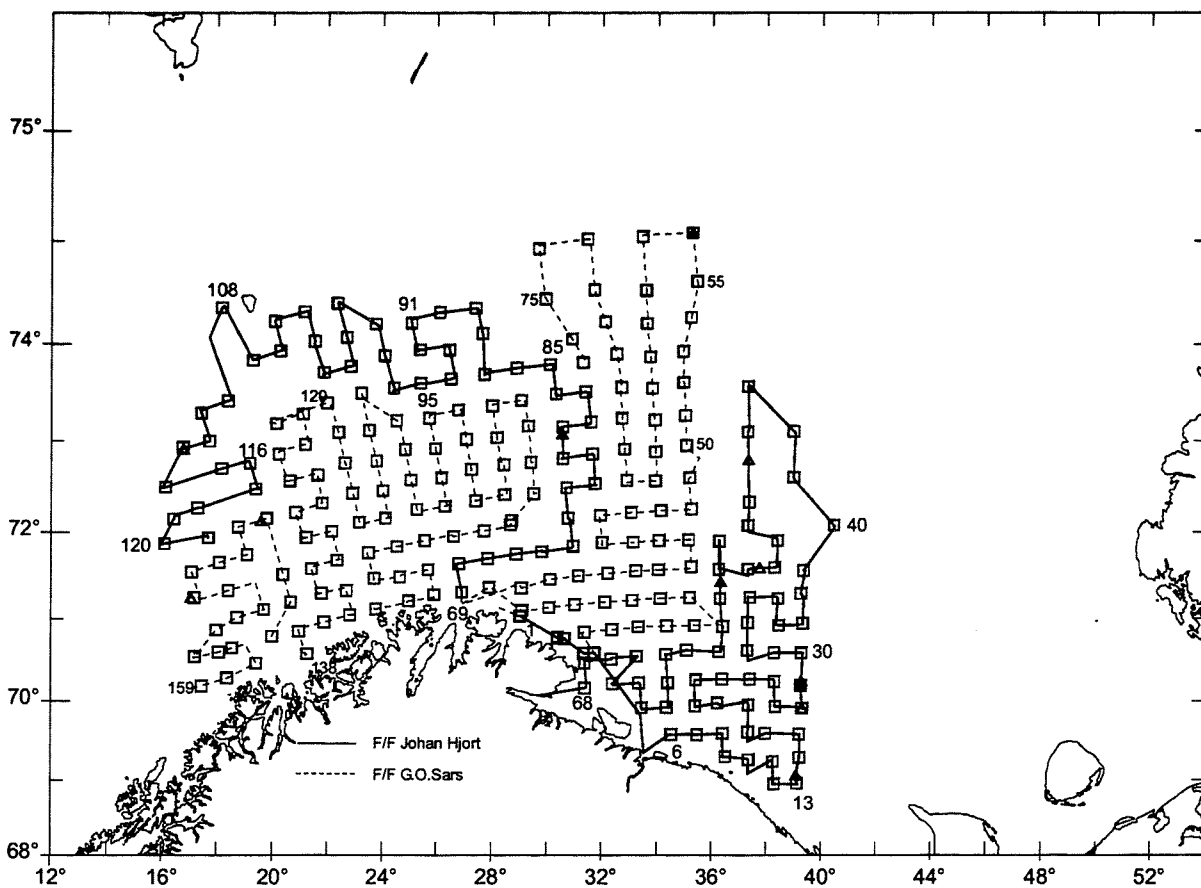


27 Jan - 23 Feb 1999

z CTD st.no 65-179

"Johan Hjort"

Cruise no 1999203



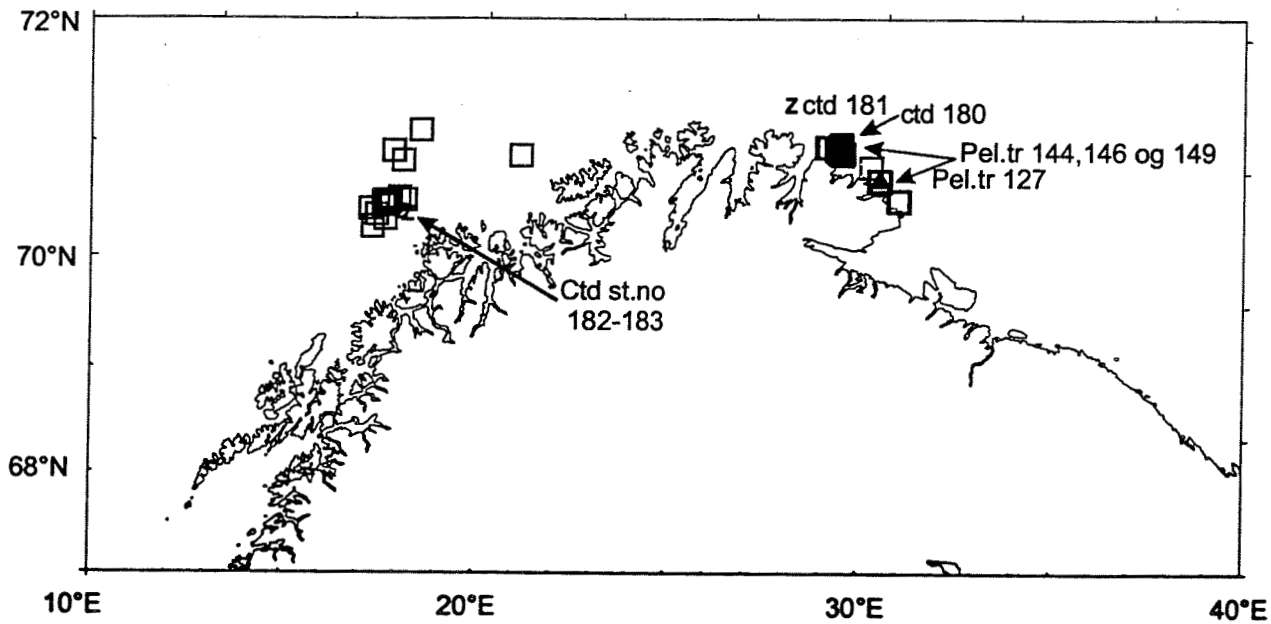
27 Jan - 23 Feb 1999

TRAWL st.no 1-121

"Johan Hjort"

Cruise no 1999203

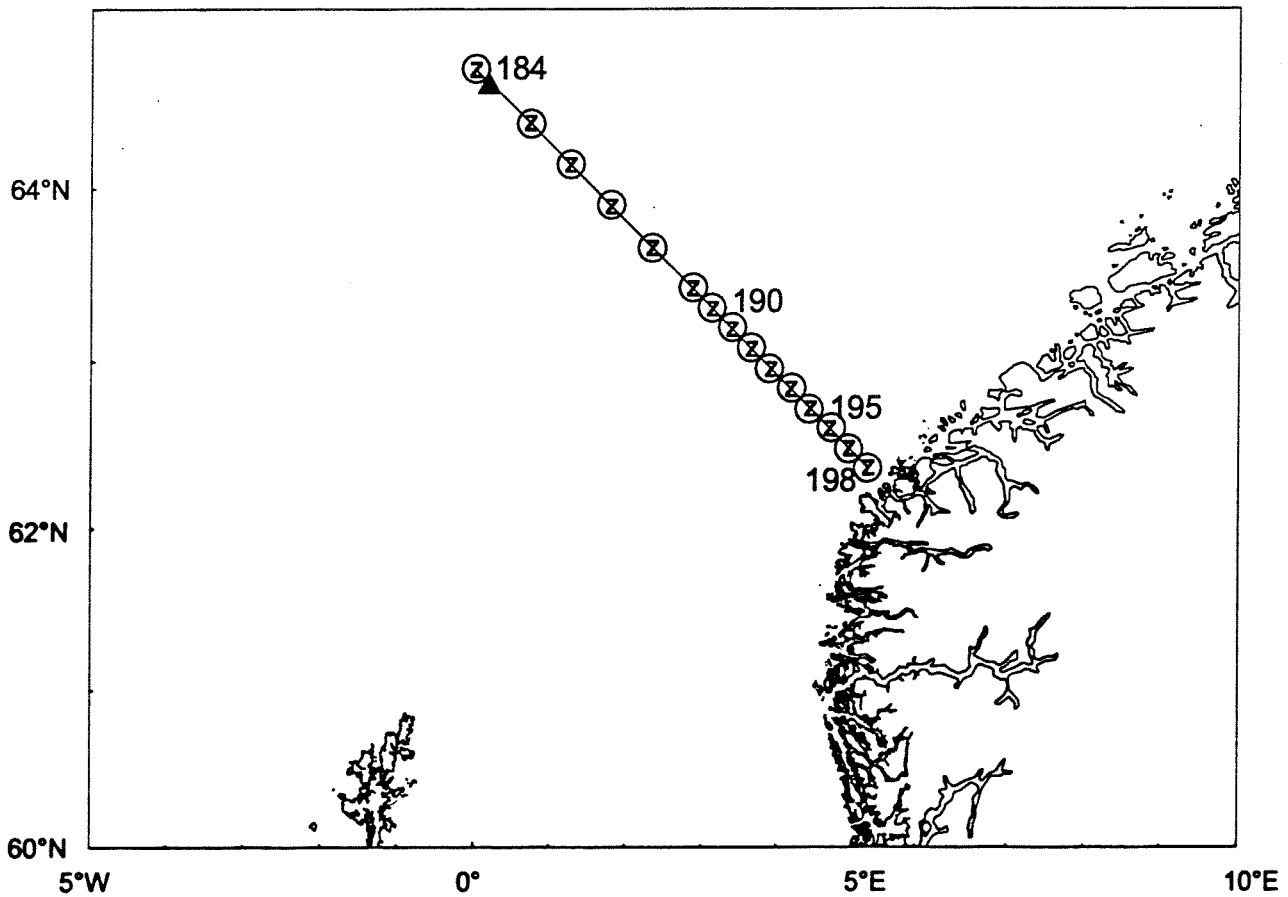
□ Bottom tr. 33
 △ Pel.tr.



25 Feb - 11 Mar 1999
Cruise no 199204

z CTD st.no 180-183
TRAWL st.no 122-185
▲ Pel.tr (127, 144, 146 and 149)
□ Bottom tr.

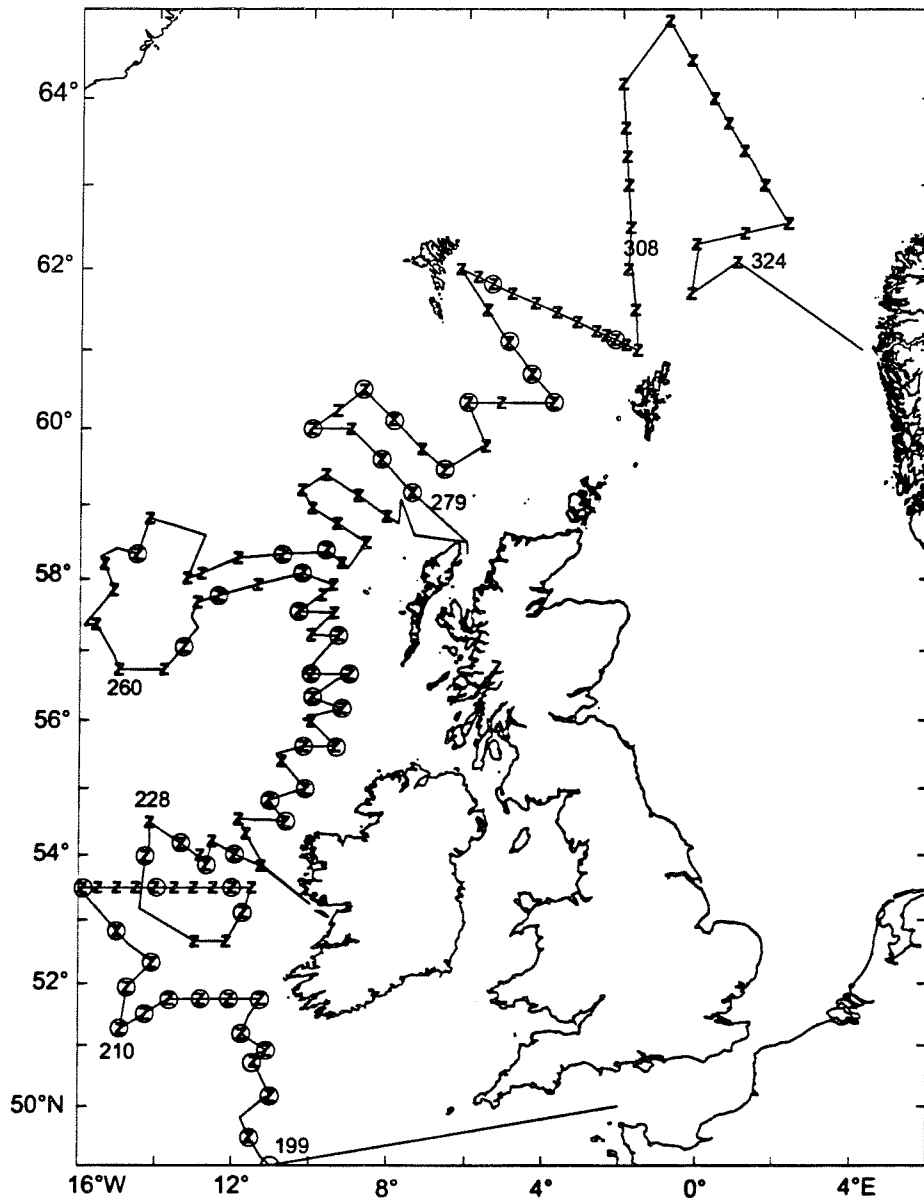
“Johan Hjort”



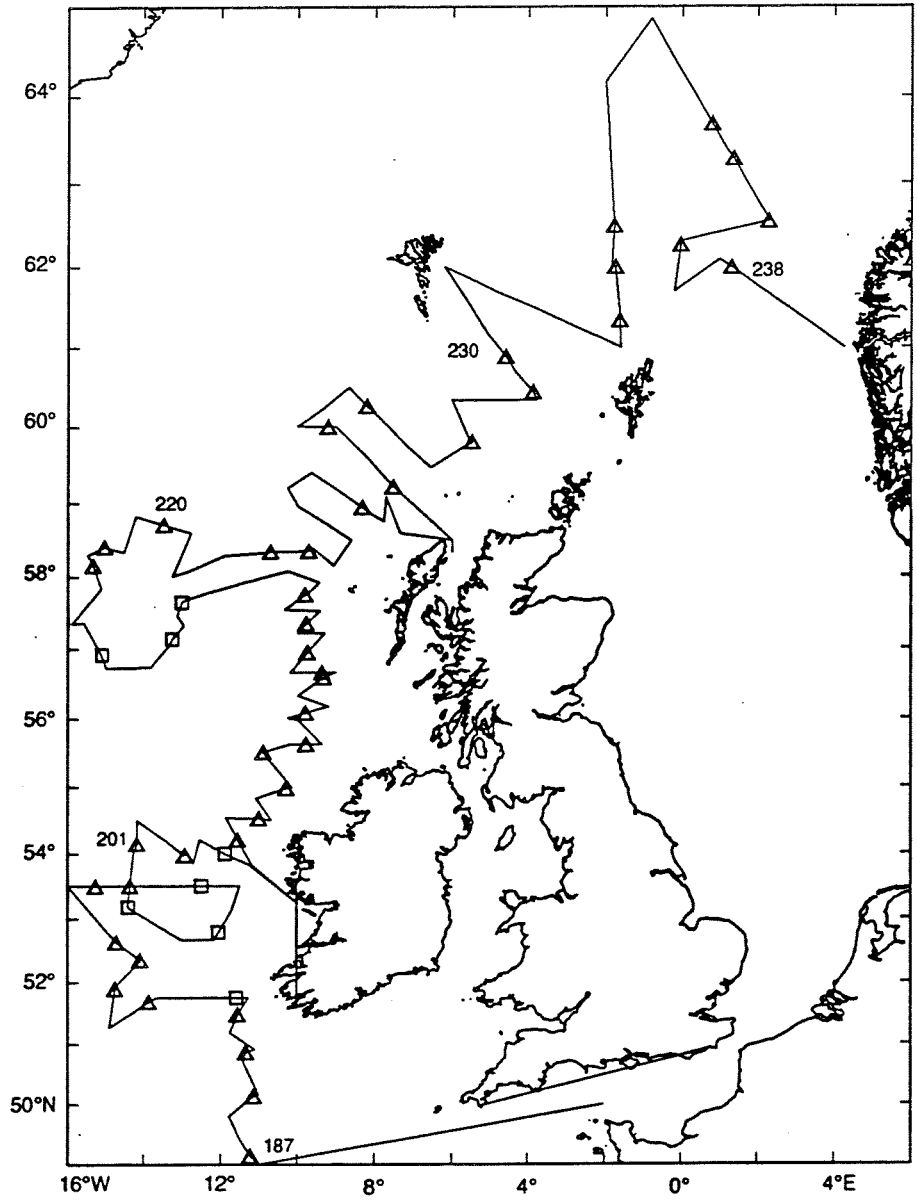
14 - 16 March 1999
Cruise no 1999205

Standard section Svinøy NW:
z CTD st.no 184-198
⊗ CTD and PLANKTON st.(WPII-net)
▲ Pel trawl st.no 186

"Johan Hjort"



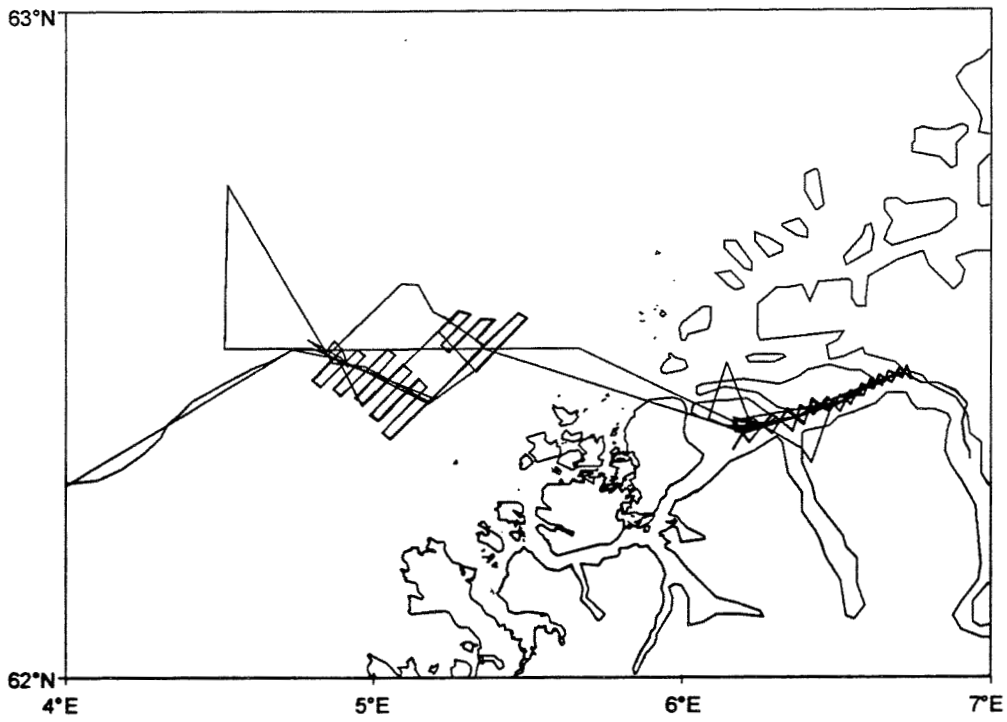
19 Mar - 26 Apr 1999 z CTD st.no 199-324 "Johan Hjort"
 Cruise no 1999206 Ⓣ CTD and PLANKTON st.



19 Mar - 26 Apr 1999
 Cruise no 1999206

TRAWL st.no 187-238
 △ Pel. trawl
 □ Bottom trawl

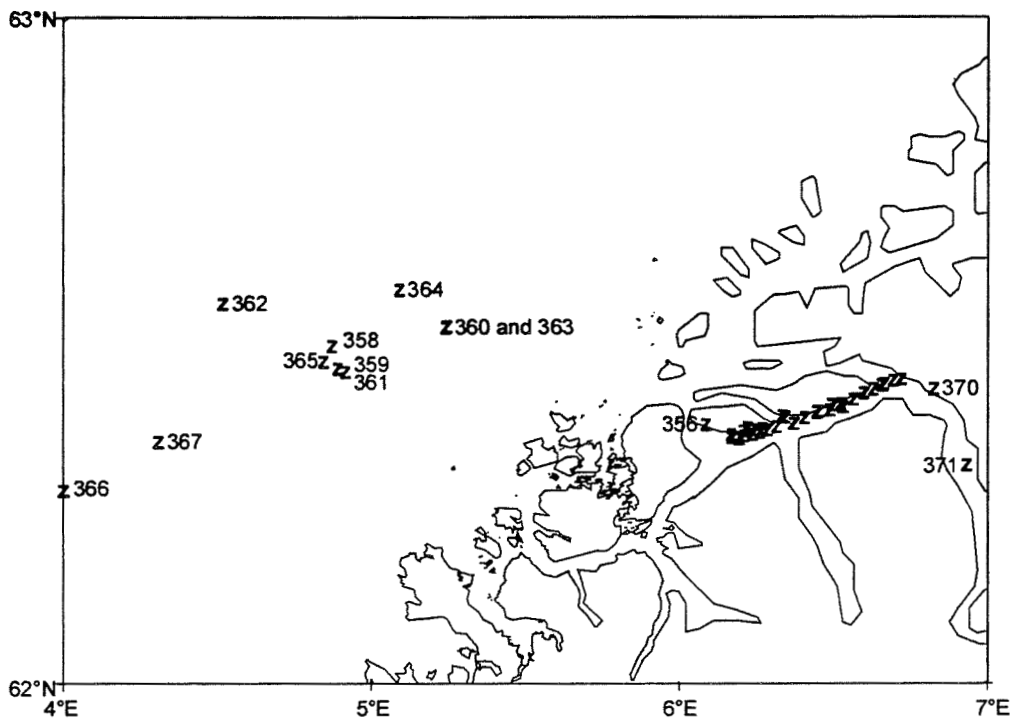
"Johan Hjort"



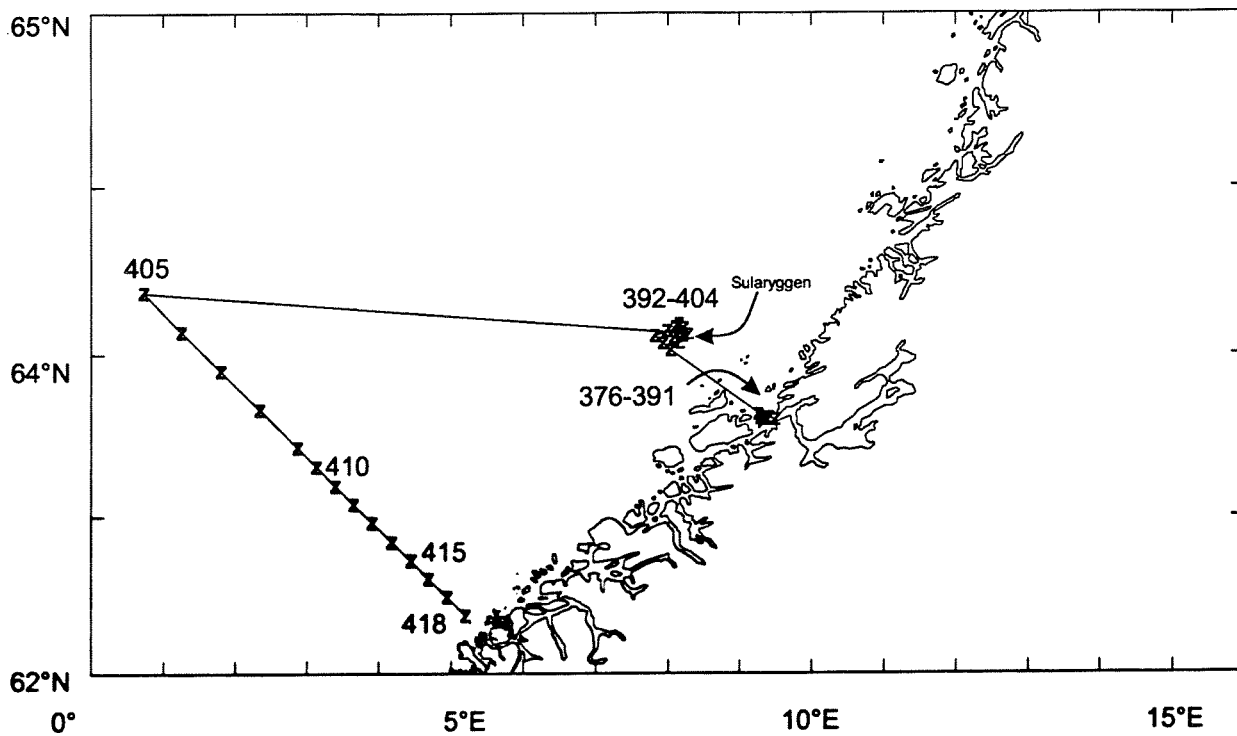
27 Apr - 10 May 1999
Cruise no 1999207

Cruise track

“Johan Hjort”



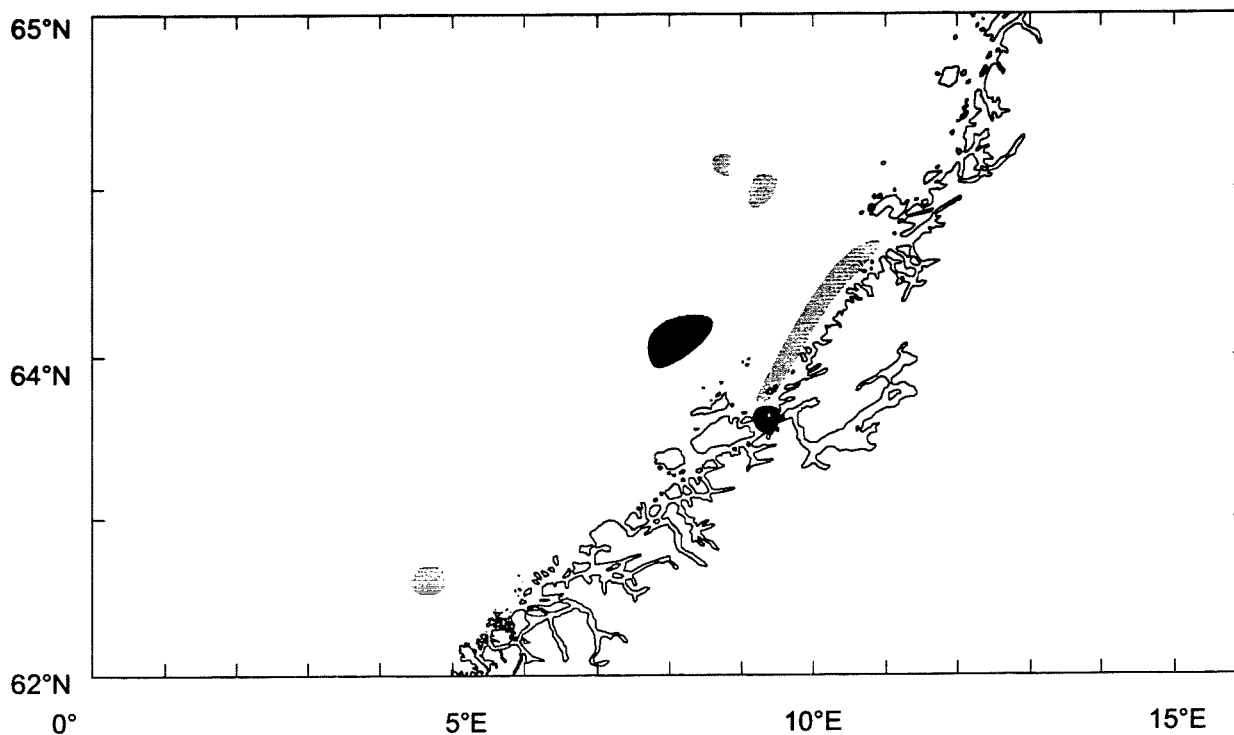
Z CTD st.no 325-374





10 - 29 May 1999
Cruise no 1999208

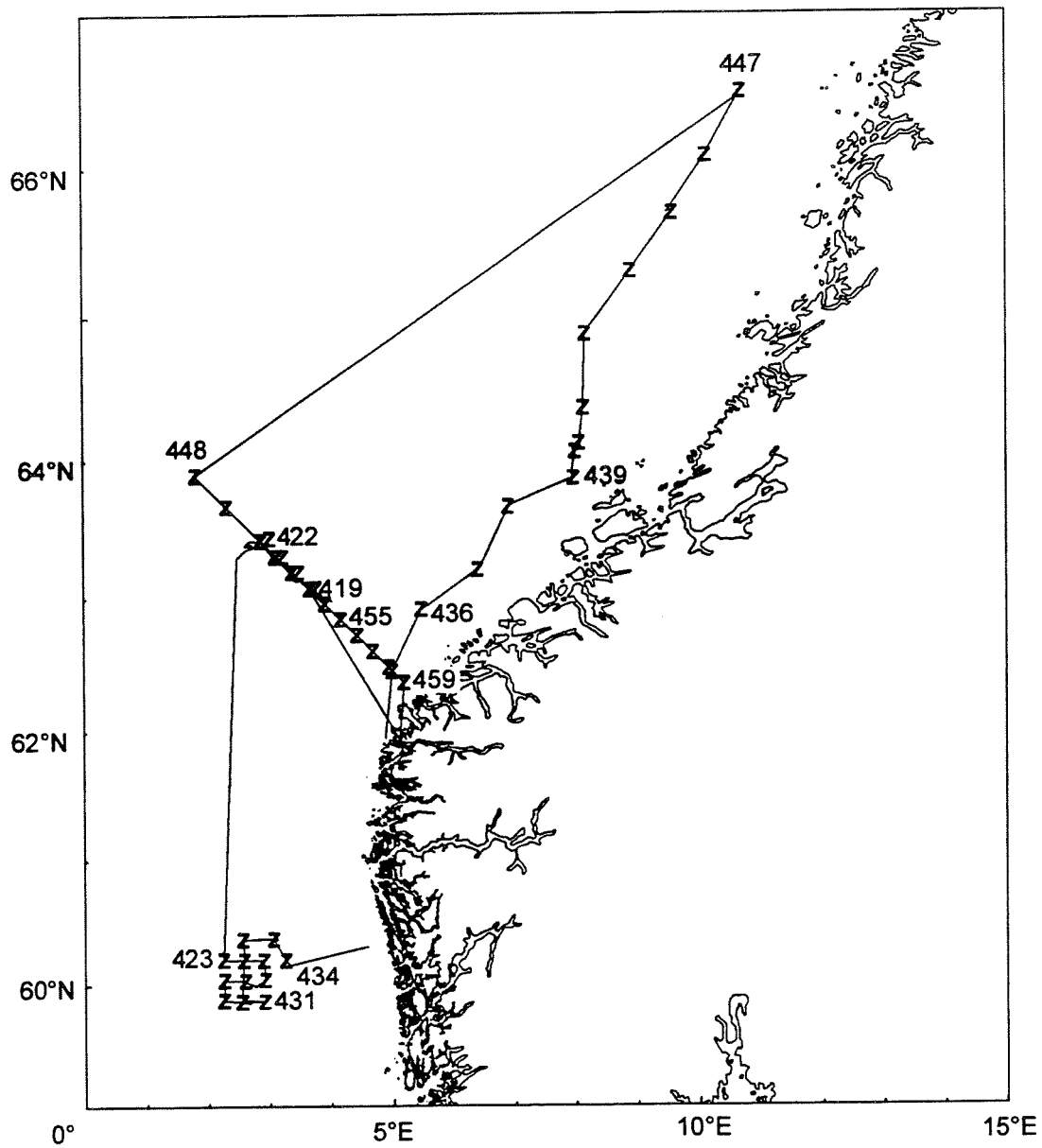
Z CTD st.no 376-418
Plankton st. (WP-II-net) on every ctd st at
Svinøy section and at "Sularyggen"
2 Mocness st at Sularyggen
Standard section Svinøy NW: st.no 404-418

"Johan Hjort"



 Mapping of deep water corals

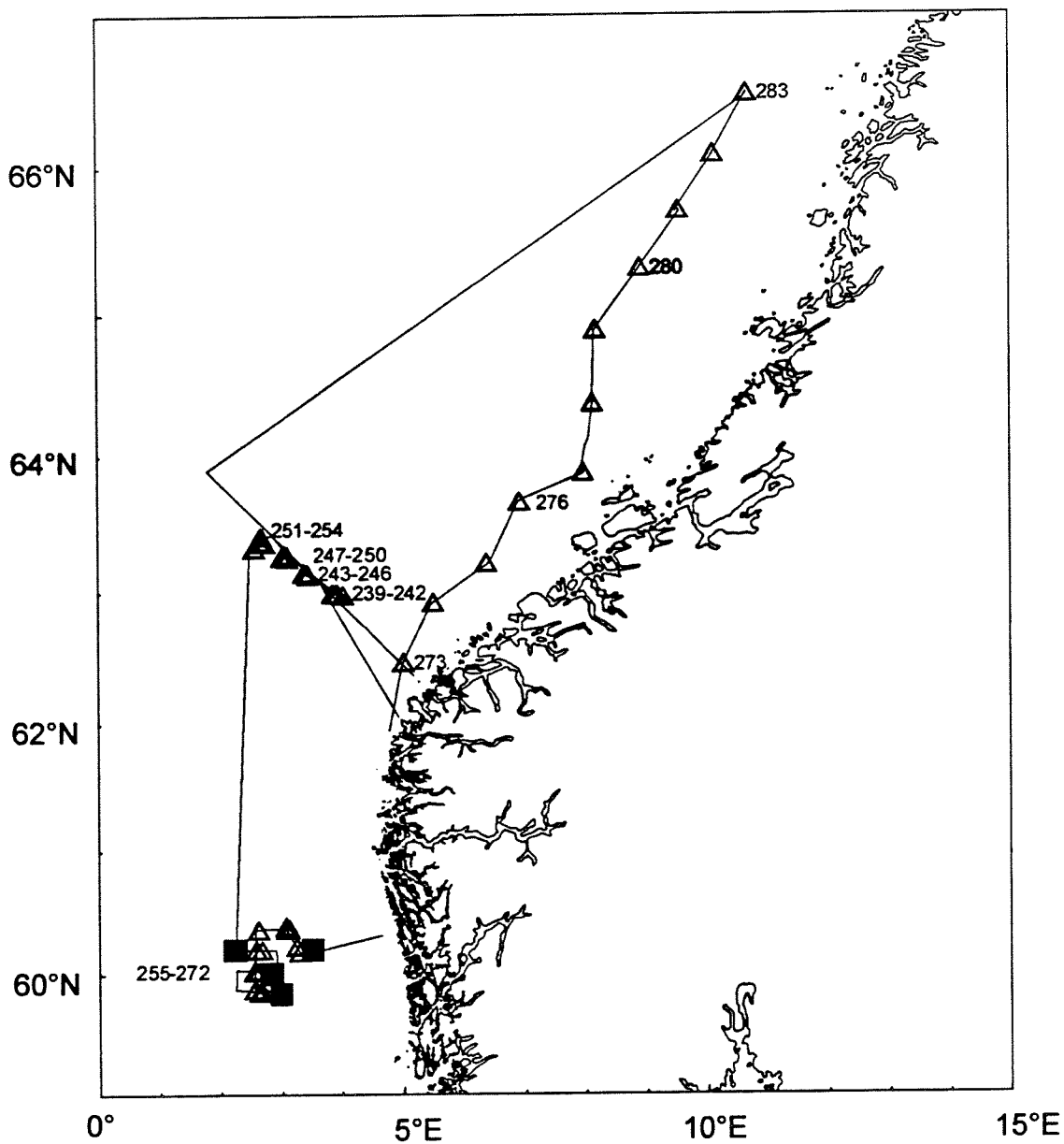
 Mapping of deep water corals and special study areas for
Hydrography, ADCP - current observations and
current observations by buoys



31 May - 13 Jun 1999
Cruise no 1999209

Z CTD st.no 419-459
Standard section Svinøy NW: st.no 448-459

"Johan Hjort"



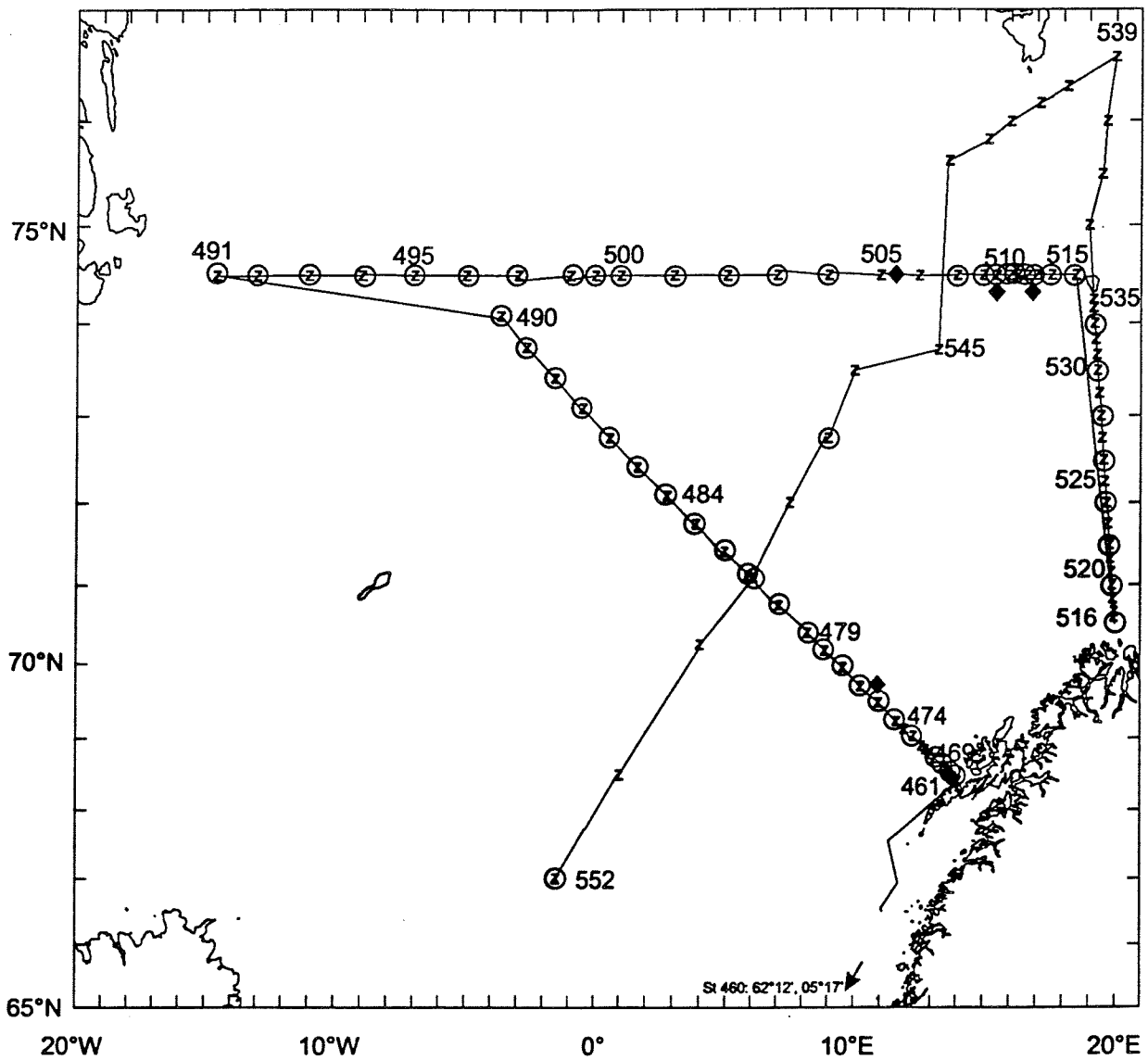
31 May - 13 Jun 1999
 Cruise no 1999209

TRAWL st.no 239-283

“Johan Hjort”

△ Pel. trawl

■ Bottom trawl (st. 255,257,260 and 279)



15 June - 9 July 1999

Cruise no 1999210

Z CTD st.no 460-552

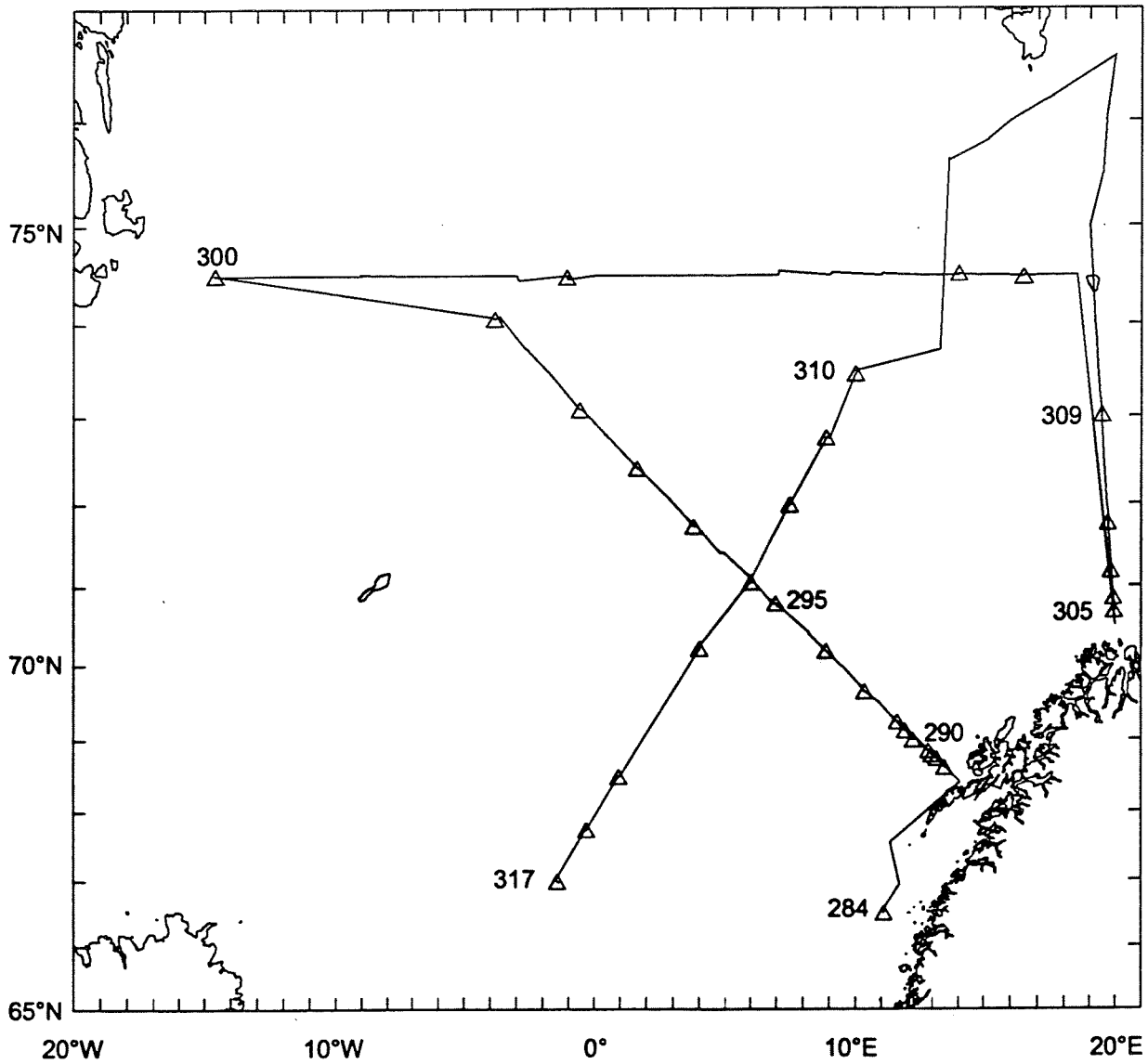
"Johan Hjort"

⊗ CTD and PLANKTON st. (WP II-net)

◆ Multinet or MOCNESS st.

Standard section Fugløya-Bjørnøya st.no 516-535

Gimsøy NW st.no 461-479

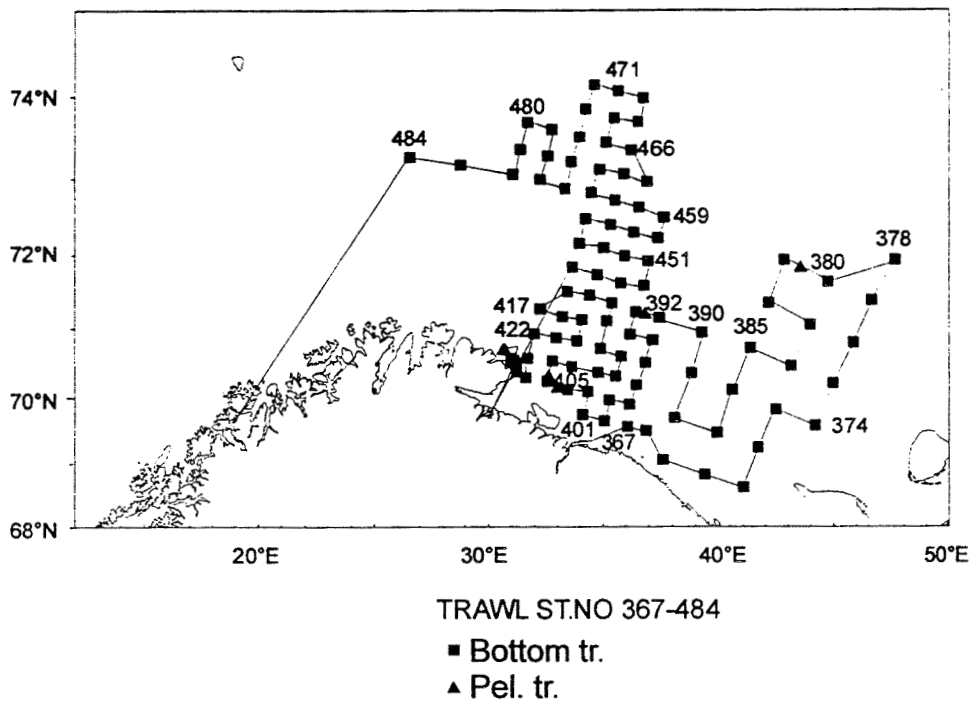
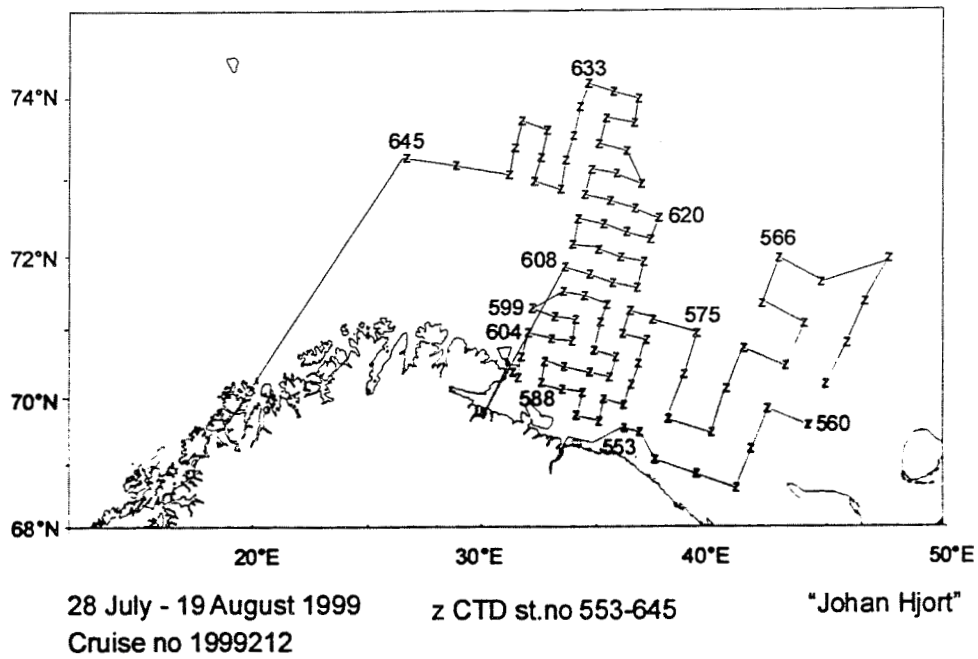


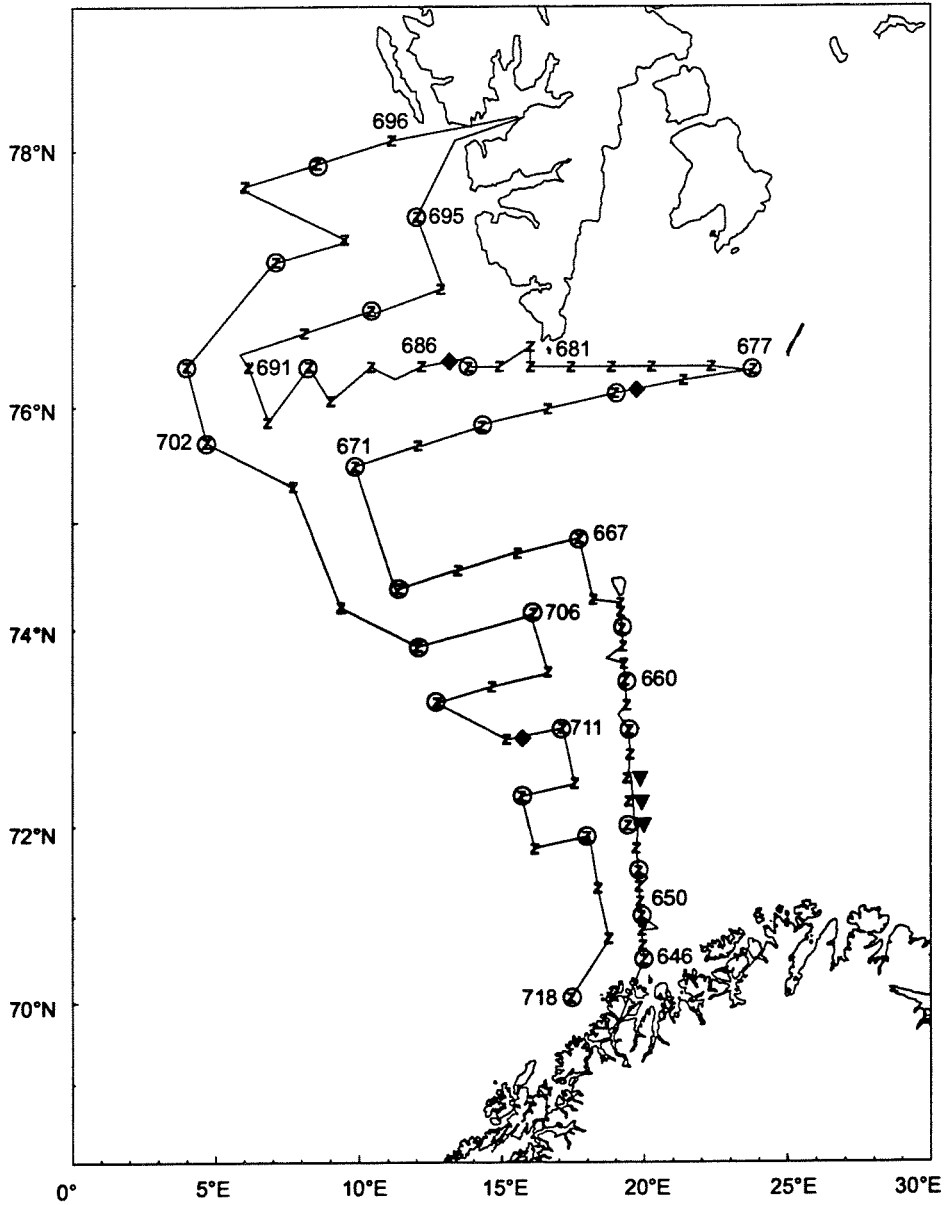
15 June - 9 July 1999

△ Pel. TRAWL st.no 284-317

“Johan Hjort”

Cruise no 1999210





20 Aug - 7 Sep 1999
Cruise no 1999213

Z CTD st.no 646-718

"Johan Hjort"

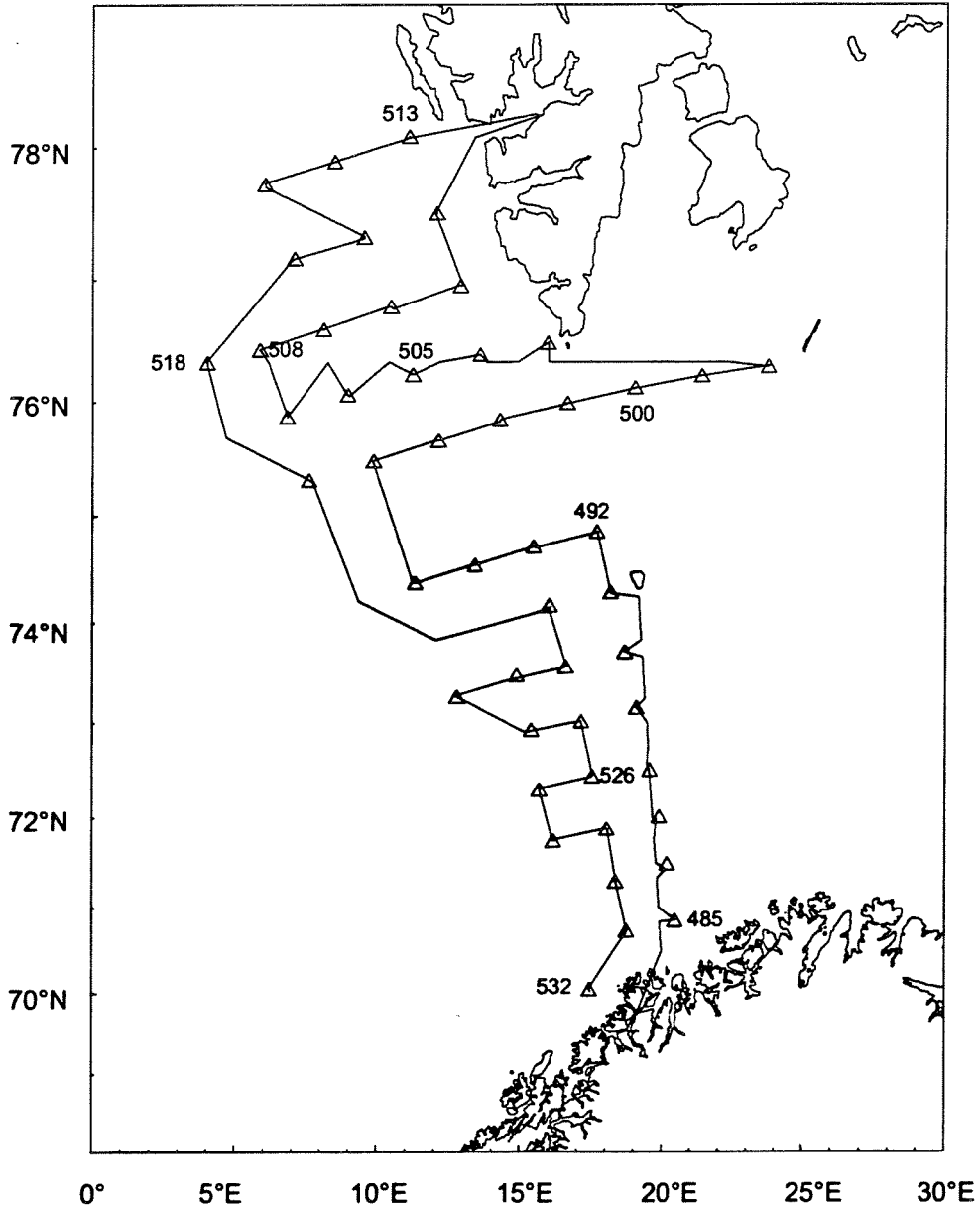
⊗ CTD and PLANKTON st. (WP-II-net)

◆ Mocness st.

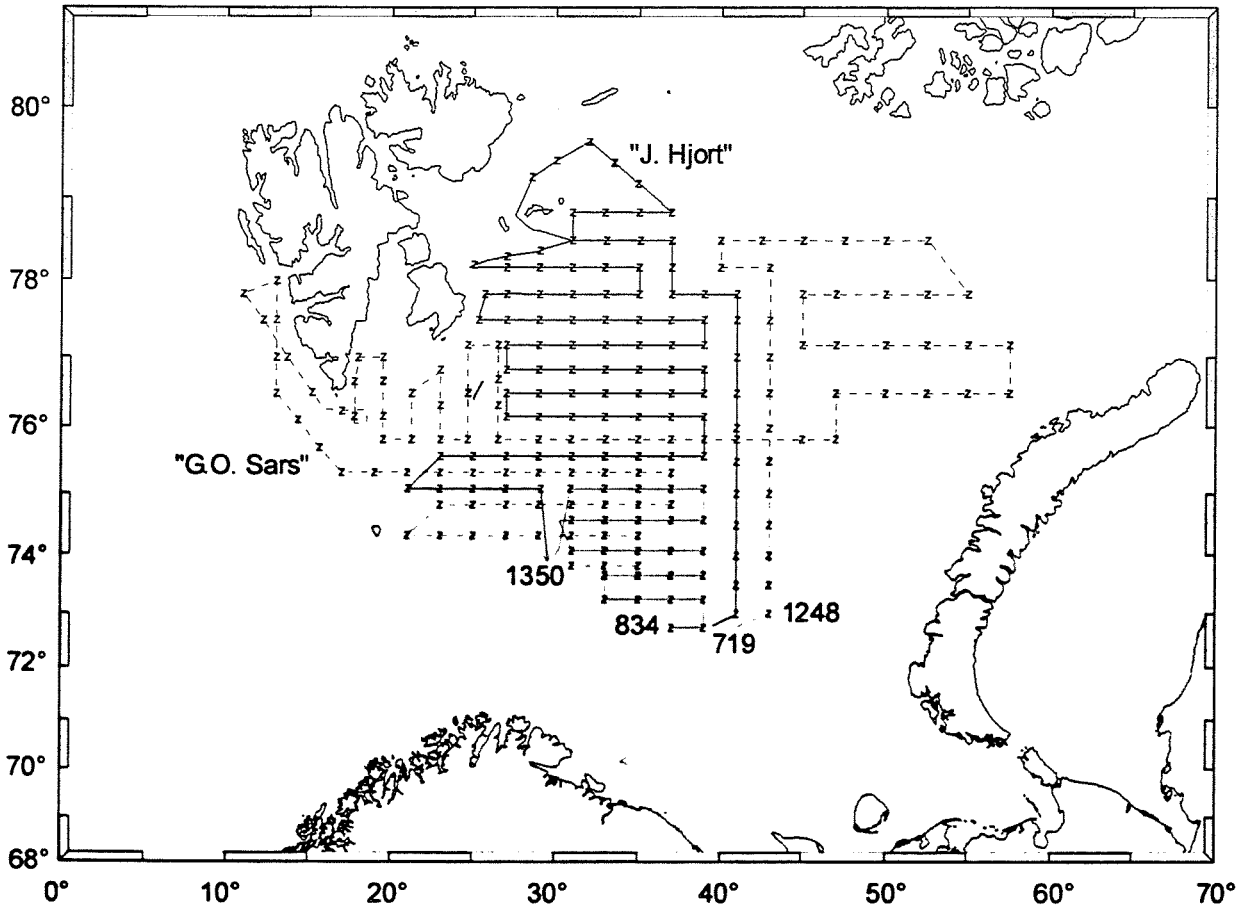
▼ Current Meter deployed

Standard section Fugløya-Bjørnøya st.no 646-665

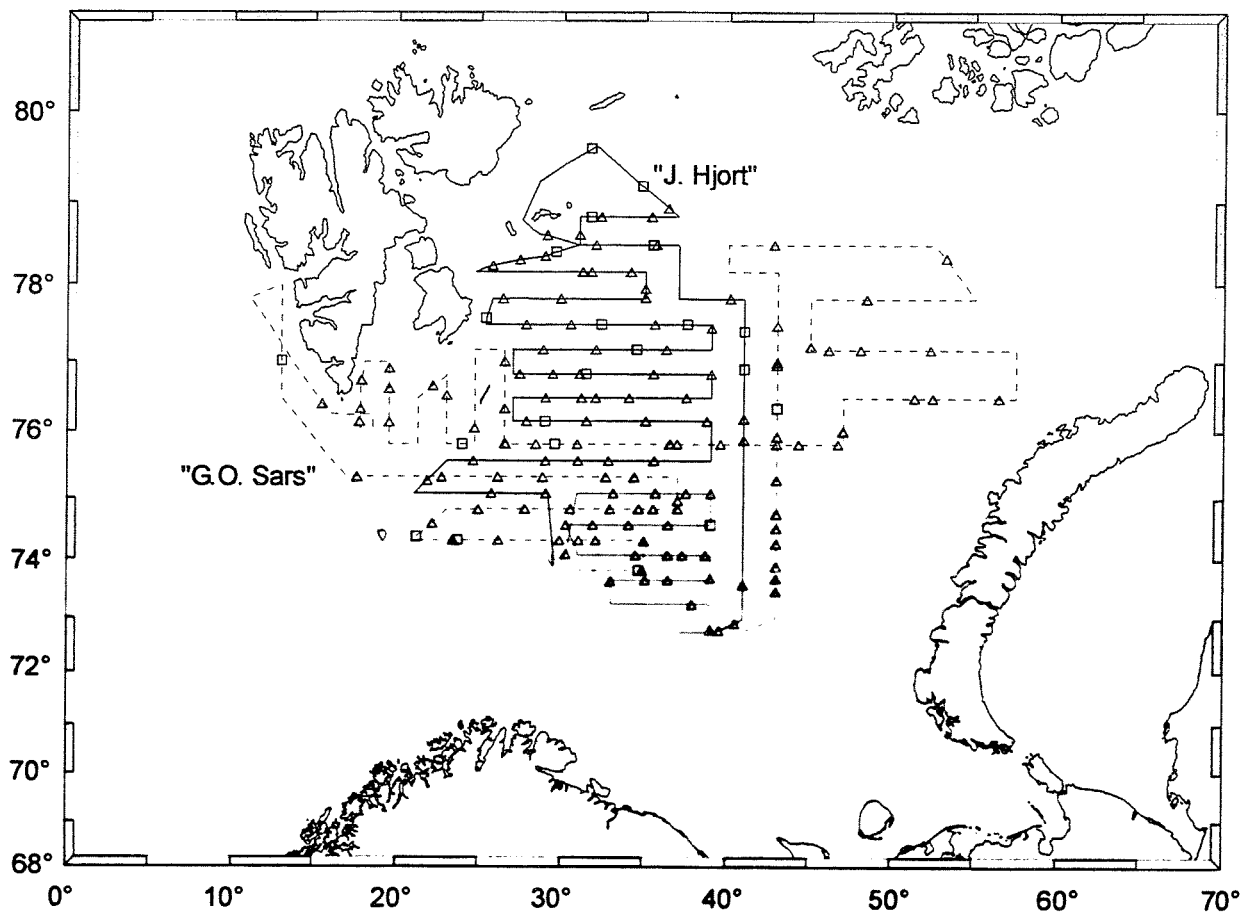
Sørkapp st.no 677-682,684-687,68, 691 and 701



20 Aug - 7 Sep 1999 Δ Pel. TRAWL st.no 485-532 "Johan Hjort"
Cruise no 1999213



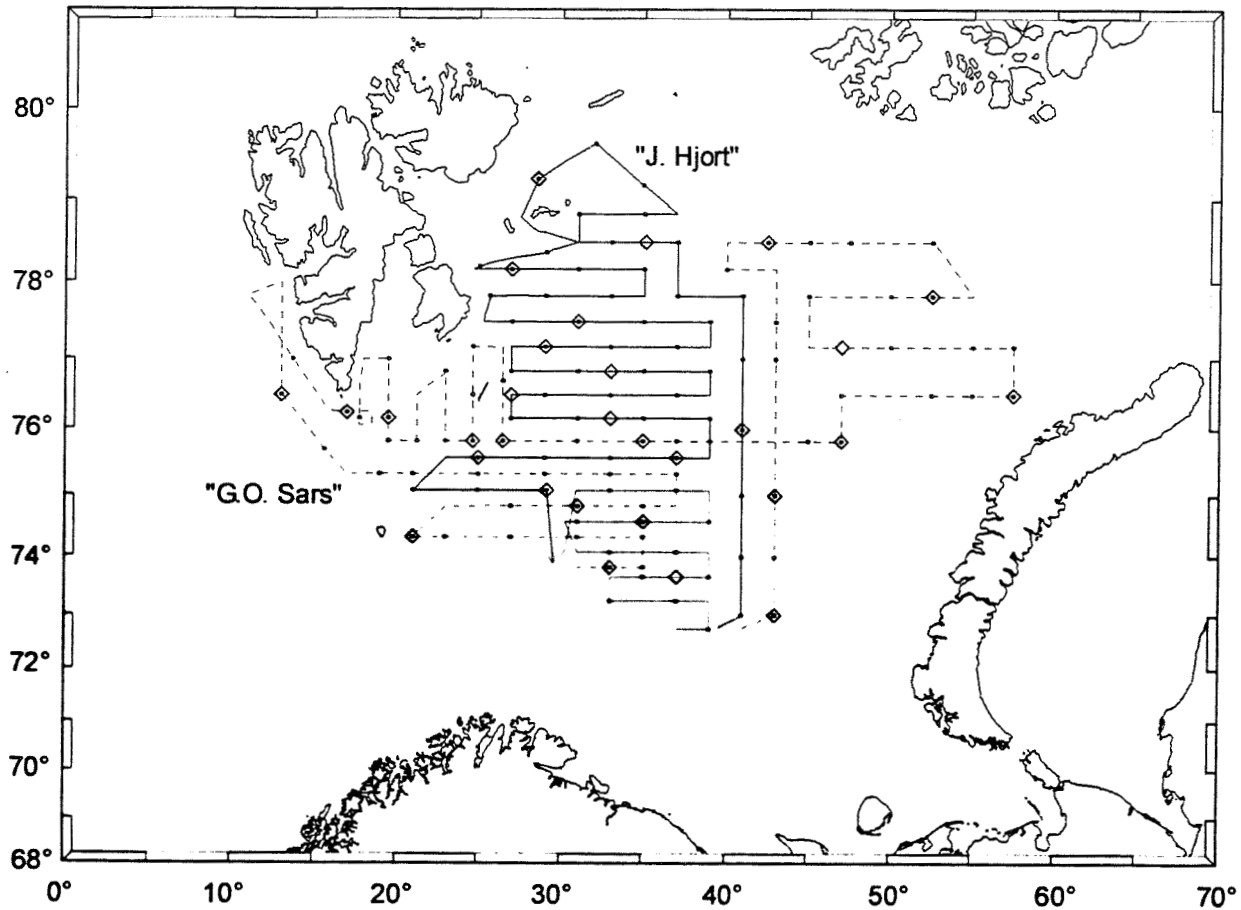
"G.O. Sars": 9 Sep - 5 Oct 1999 z CTD st.no "G.O. SARS" 1248-1350 ----- "G. O Sars"
 Cruise no 1999011 "Johan Hjort" 719-834 ————— "Johan Hjort"
 "Johan Hjort": 11 Sep - 4 Oct 1999
 Cruise no 1999214



"G. O. Sars" 9 Sep - 5 Oct 1999
 Cruise no 1999011
 "Johan Hjort" 11 Sep - 4 Oct 1999
 Cruise no 1999214

△ Pelagic TRAWL
 □ Bottom TRAWL

----- "G. O. Sars"
 _____ "Johan Hjort"

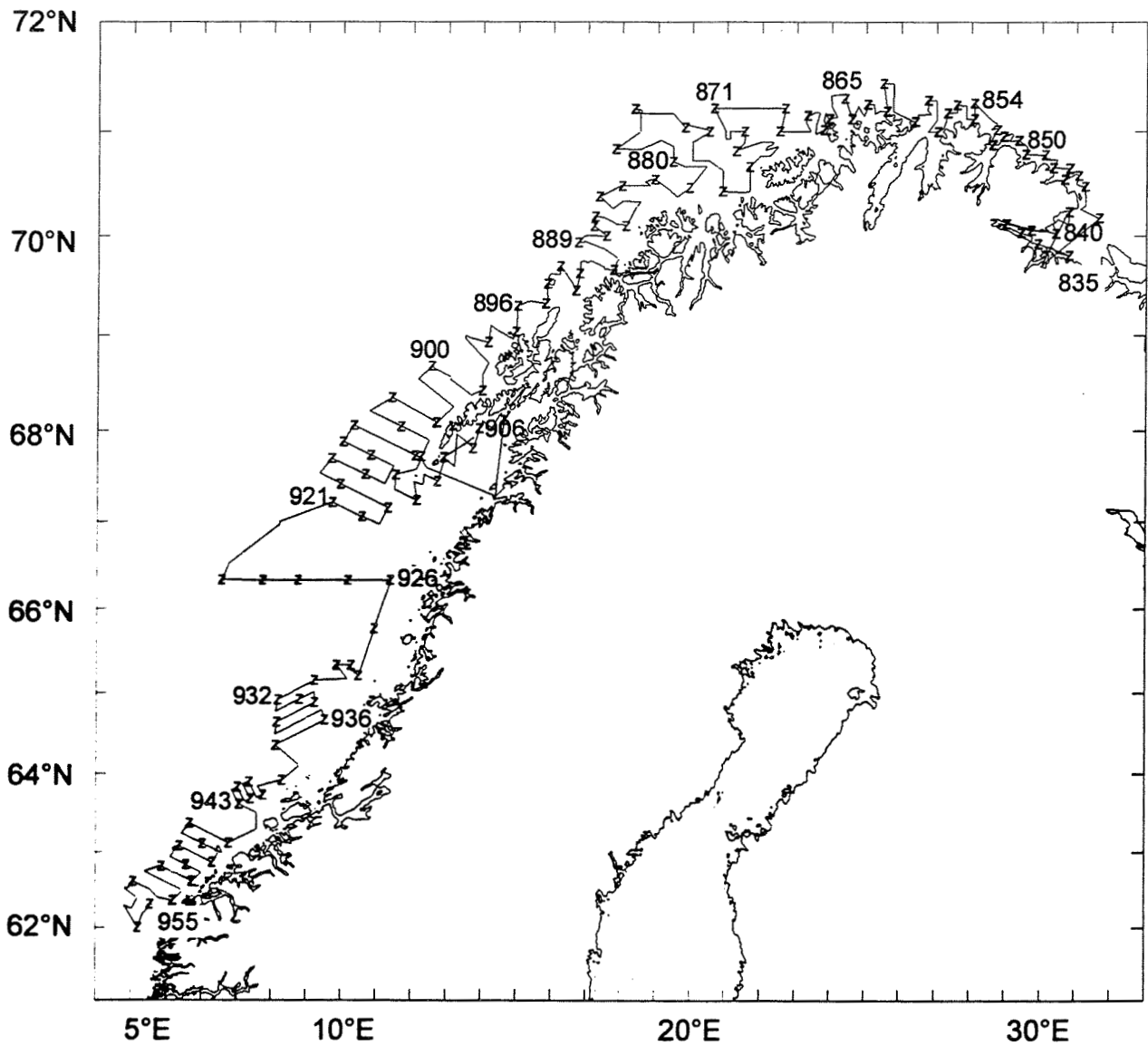


"G.O. Sars": 9 Sep - 5 Oct 1999
Cruise no 1999011

• WP-2 net
◇ Mocness st.

----- "G. O. Sars"
———— "Johan Hjort"

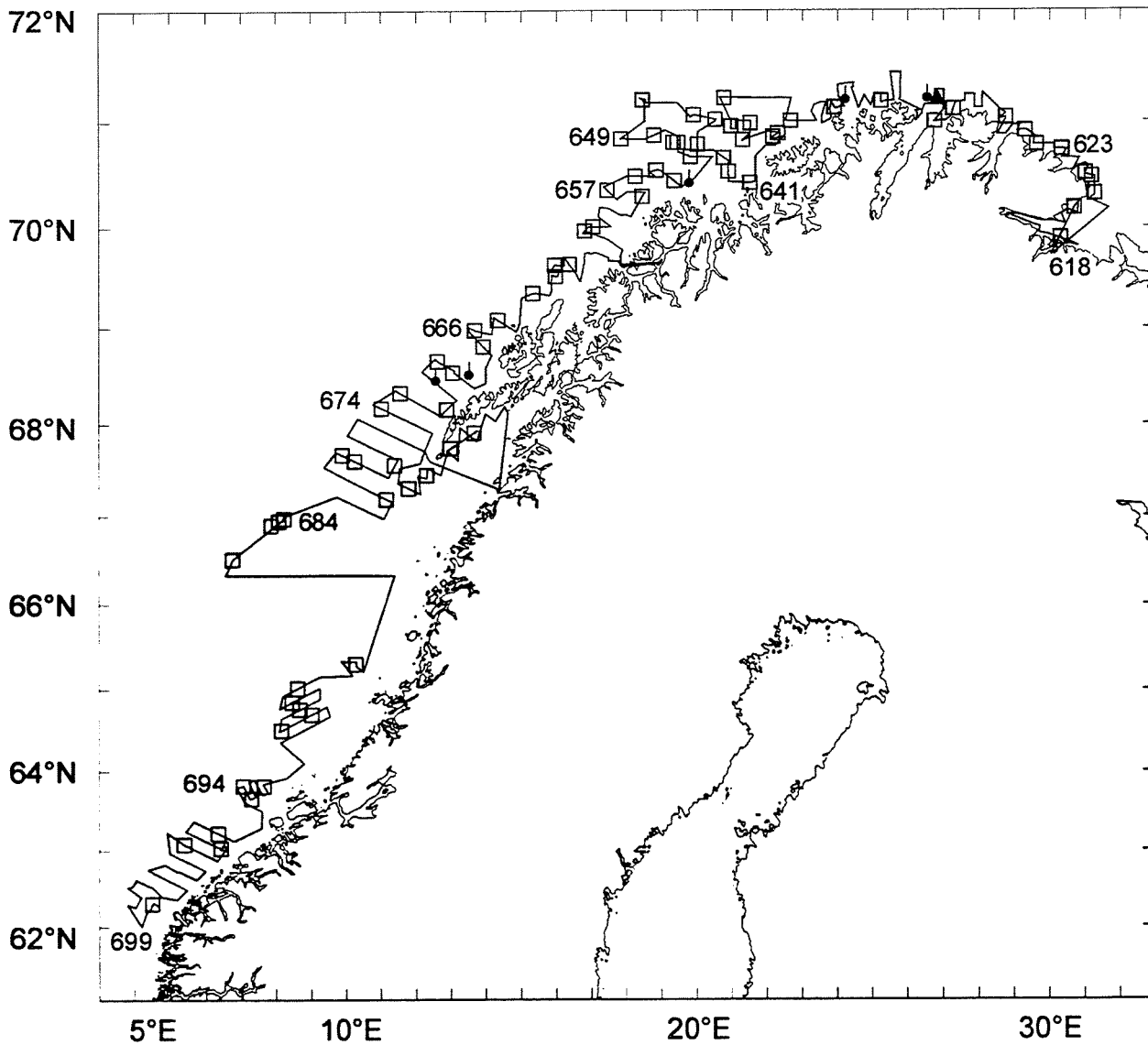
"Johan Hjort": 11 Sep - 4 Oct 1999
Cruise no 1999214



18 Oct - 1 Nov 1999
Cruise no 1999215

z CTD st.no 835-955

"Johan Hjort"

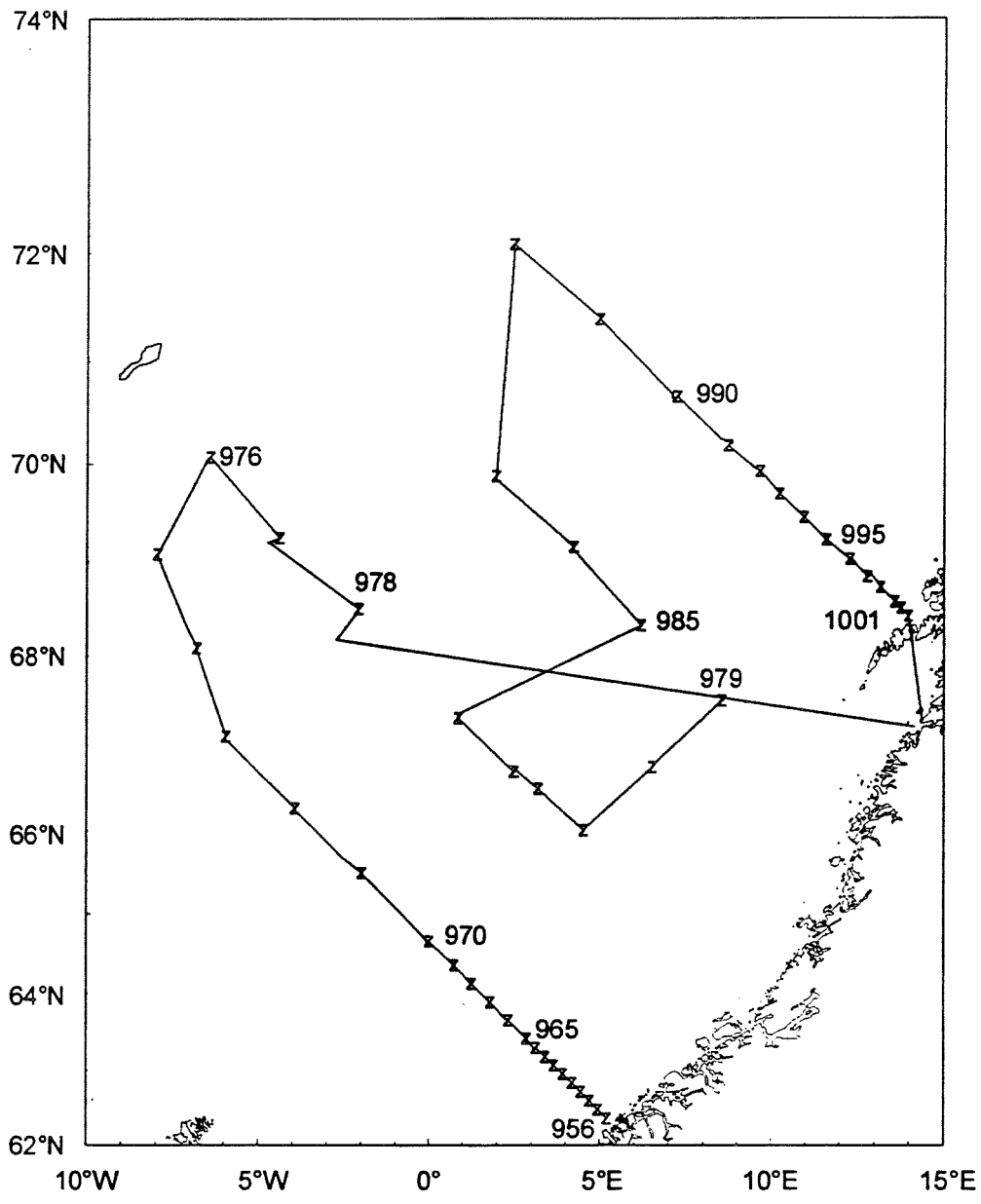


18 Oct - 1 Nov 1999
Cruise no 1999215

TRAWL st.no 618-699

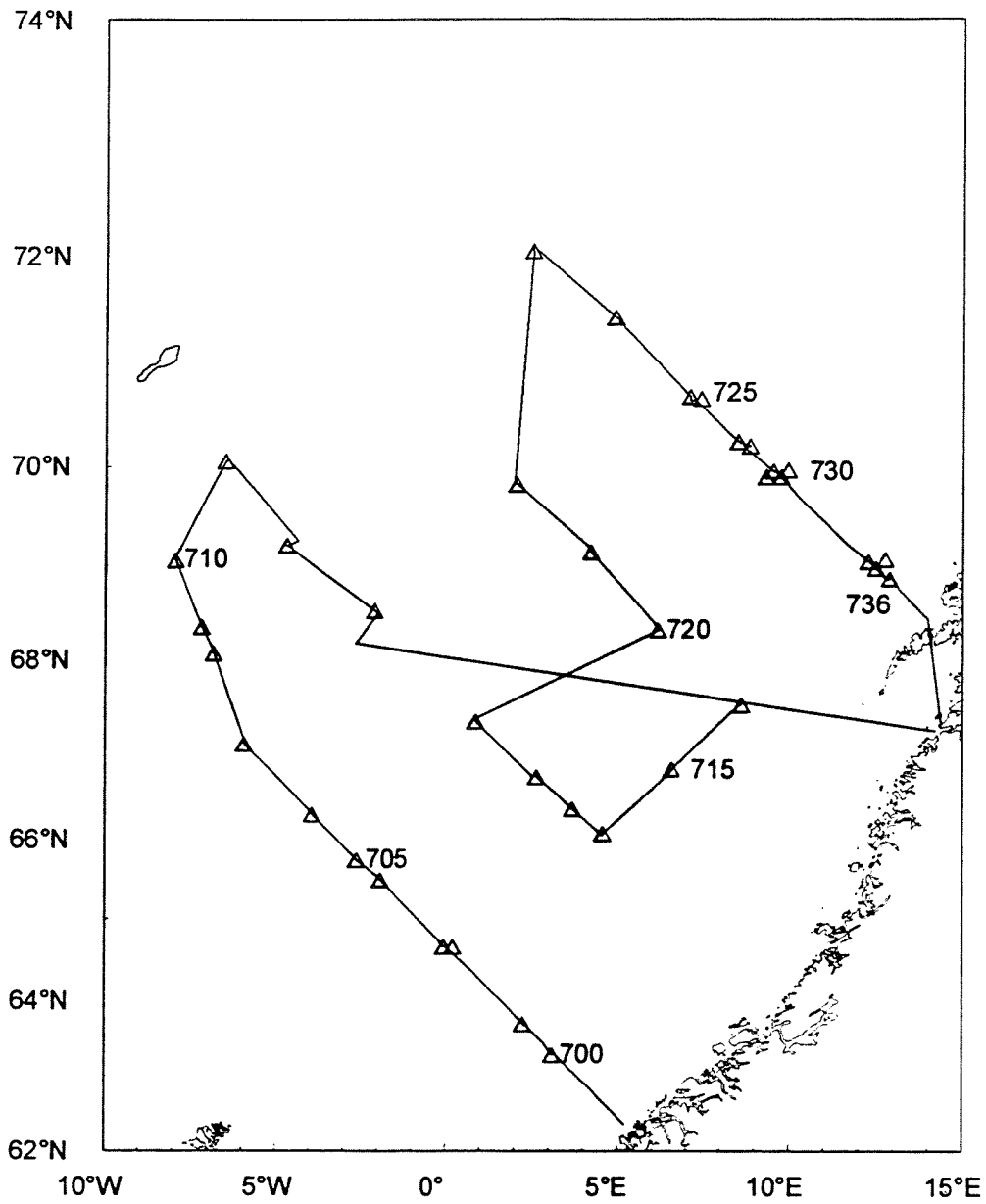
“Johan Hjort”

- Bottom tr
- ▲ Pel. tr. (st.no 629)
- hook and line (5 stations)



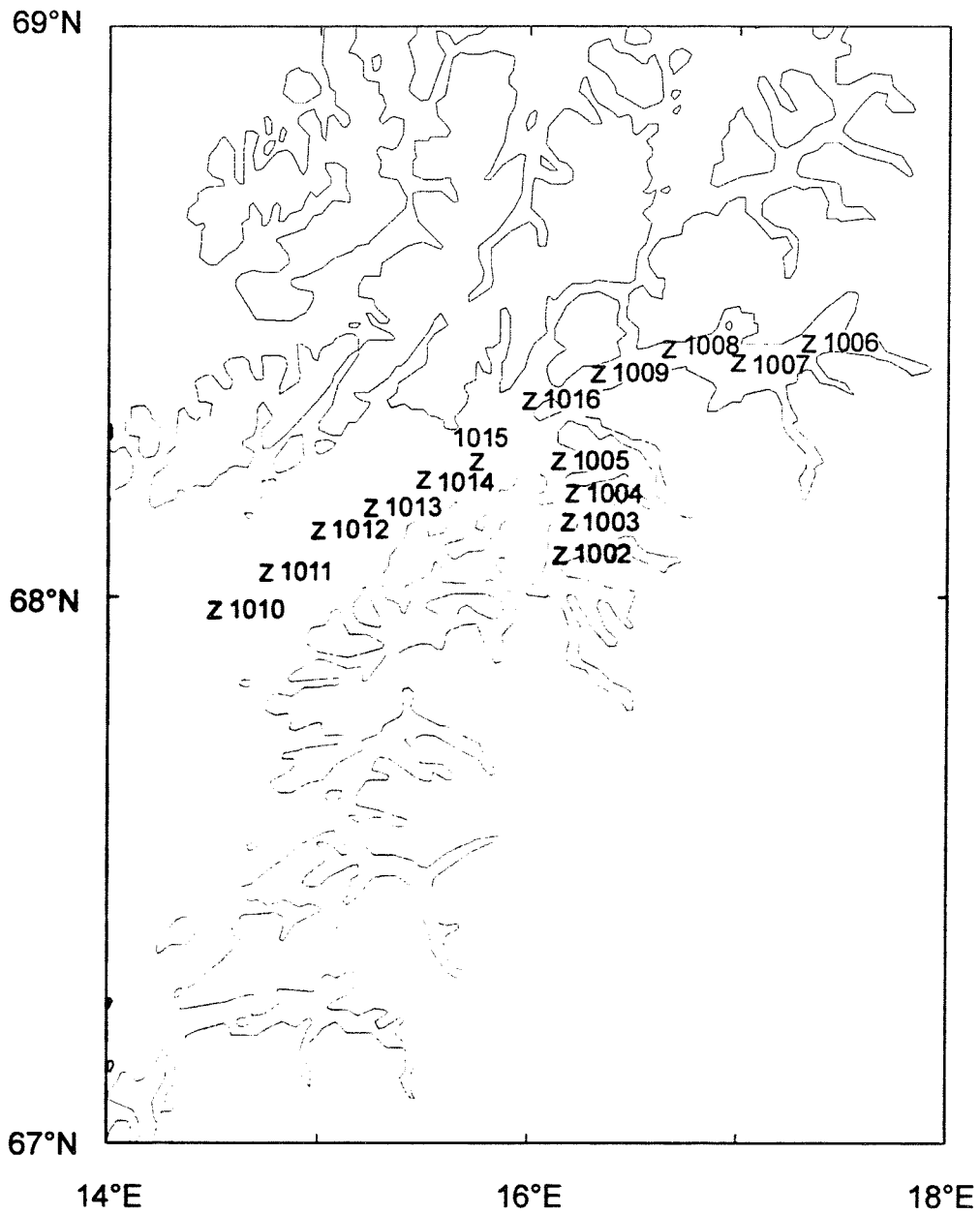
3 - 28 Nov 1999
Cruise no 1999216

z CTD st.no 956-1001 "Johan Hjort"
MULTINET (collecting zooplankton) at every ctd.st.
Standard section Svinøy NW: st.no 956-970
Gimsøy NW: st.no 990-1001



3 - 28 Nov 1999
Cruise no 1999216

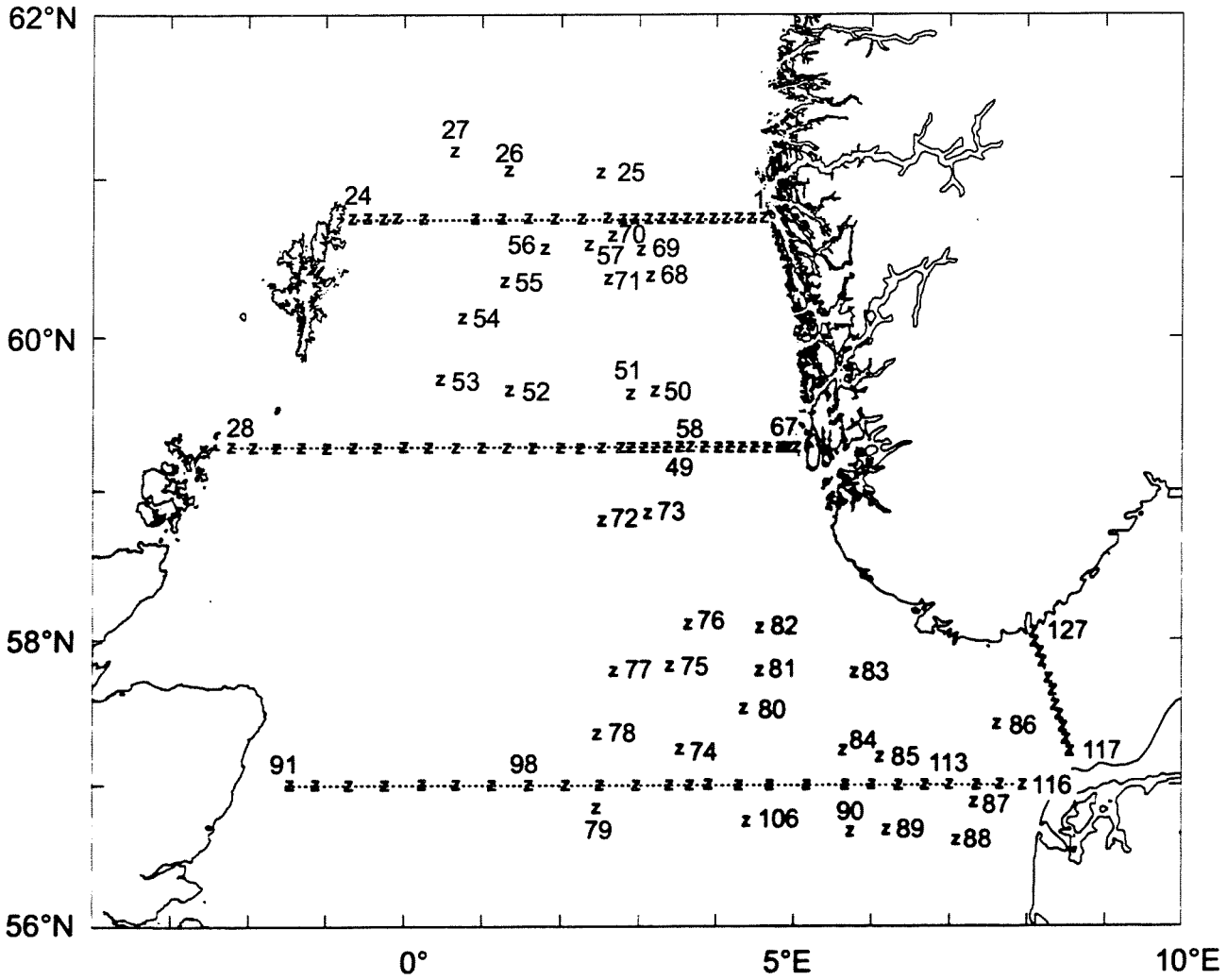
△ Pel.TRAWL st.no700-736 "Johan Hjort"



1 - 13 Dec 1999
Cruise no 1999217

z CTD st.no 1002-1016

“Johan Hjort”



9 Jan - 11 Feb 1999

z CTD st.no 1 - 127

“Michael Sars”

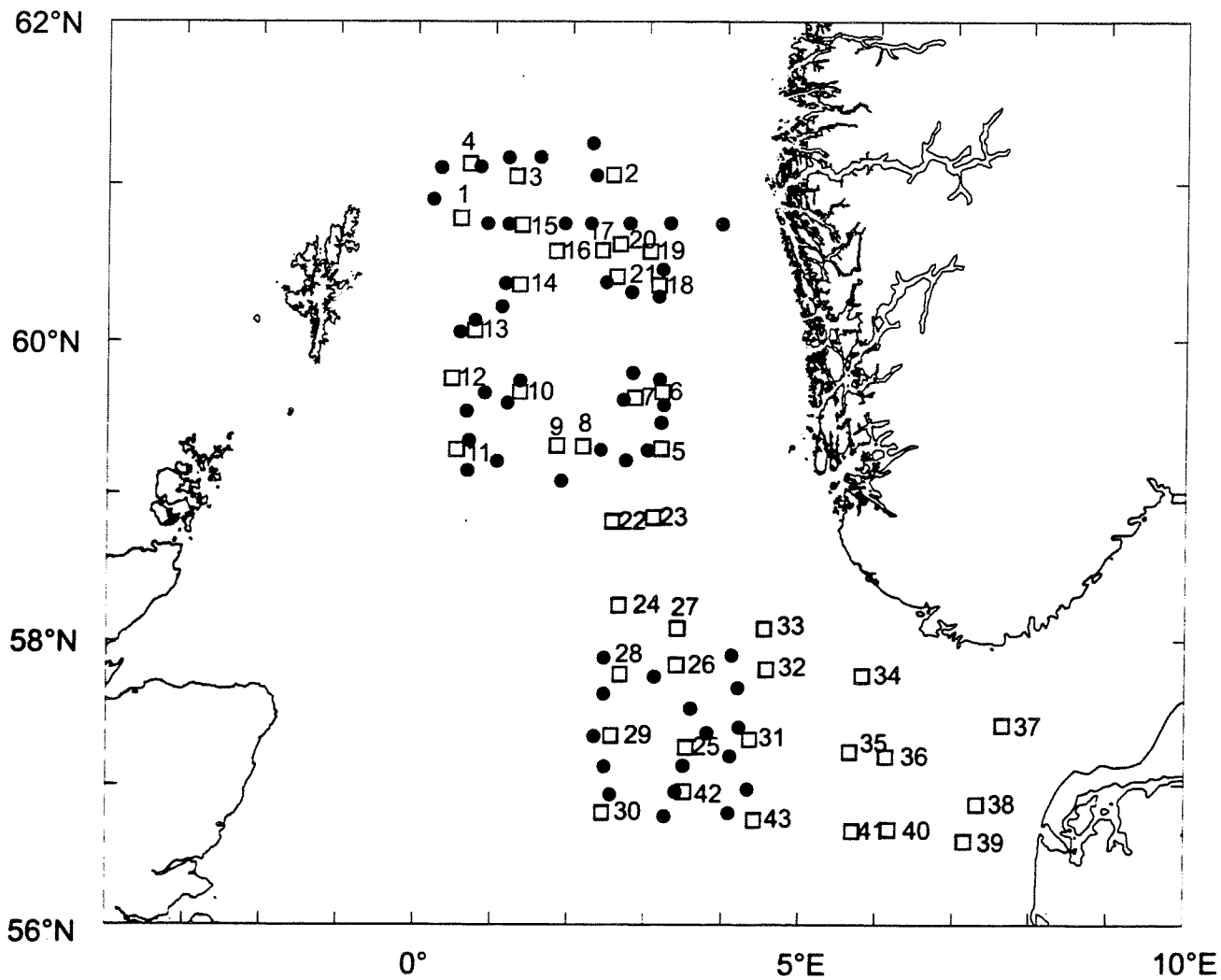
Cruise no 1999101

Standard section : Feie - Shetland st.no 1-24

UtsiraW: st.no 28 - 49 and 58 - 67

Hanstholm - Aberdeen st.no 91-116

Torungen - Hirtshals st.no 117-127



9 Jan - 11 Feb 1999

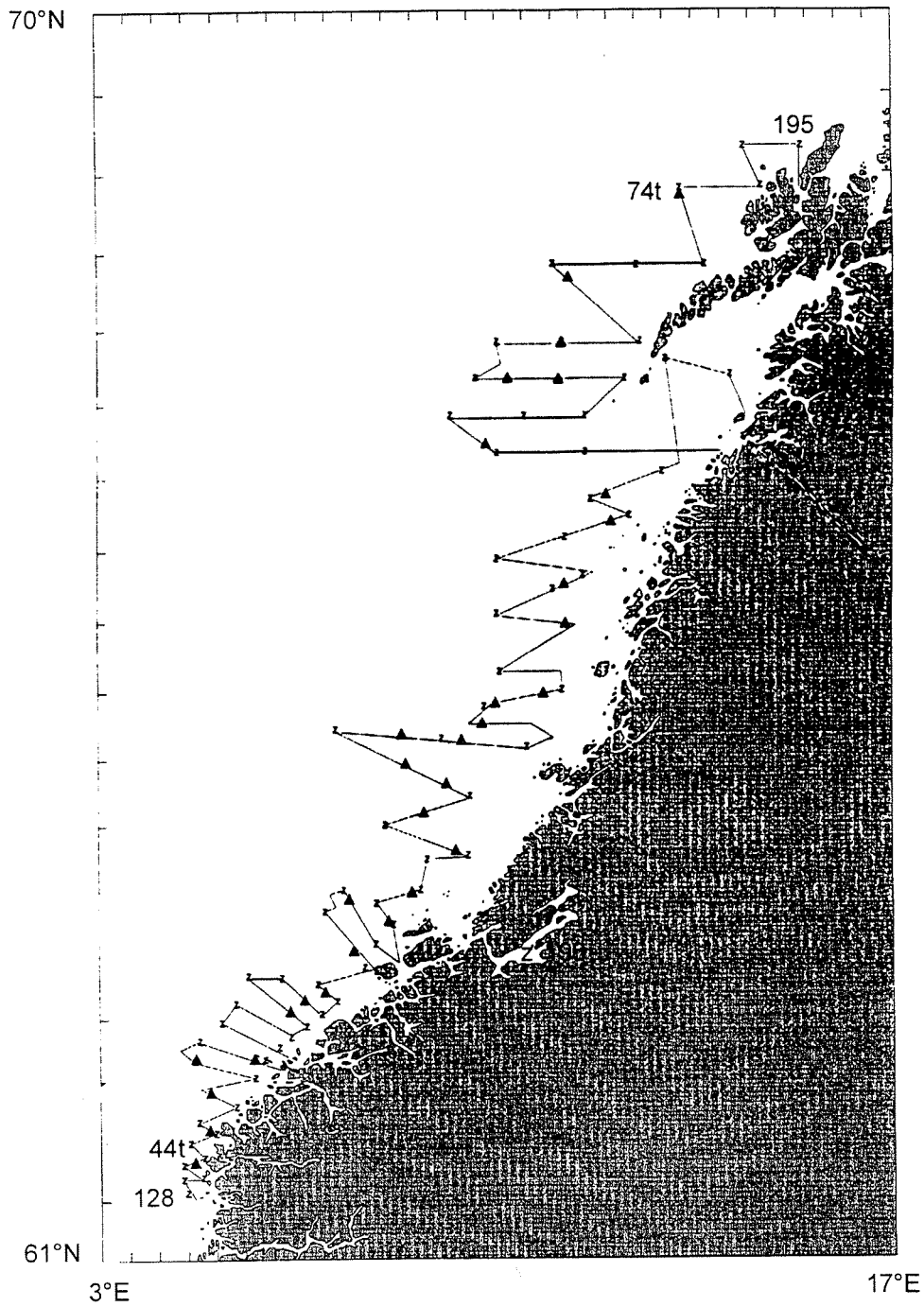
Cruise no 1999101

□ TRAWL st.no 1-43

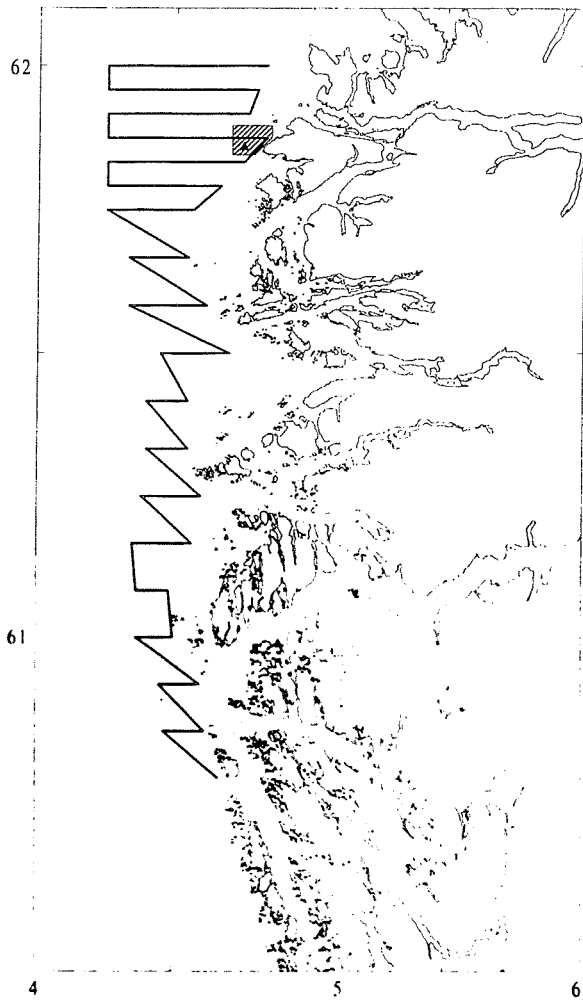
● MIK st.no 1-56 (Herring larvae collected)

“Michael Sars”

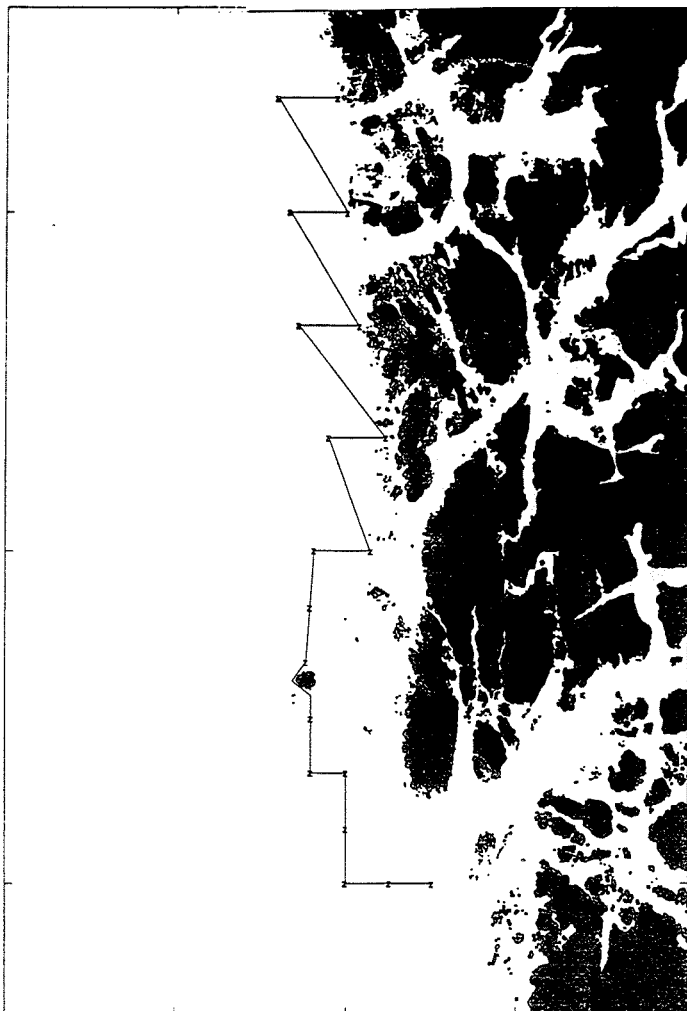
Cruise no 1999102 - "Michael Sars"
CTD st. no 128-291
TRAWL st.no 44-95



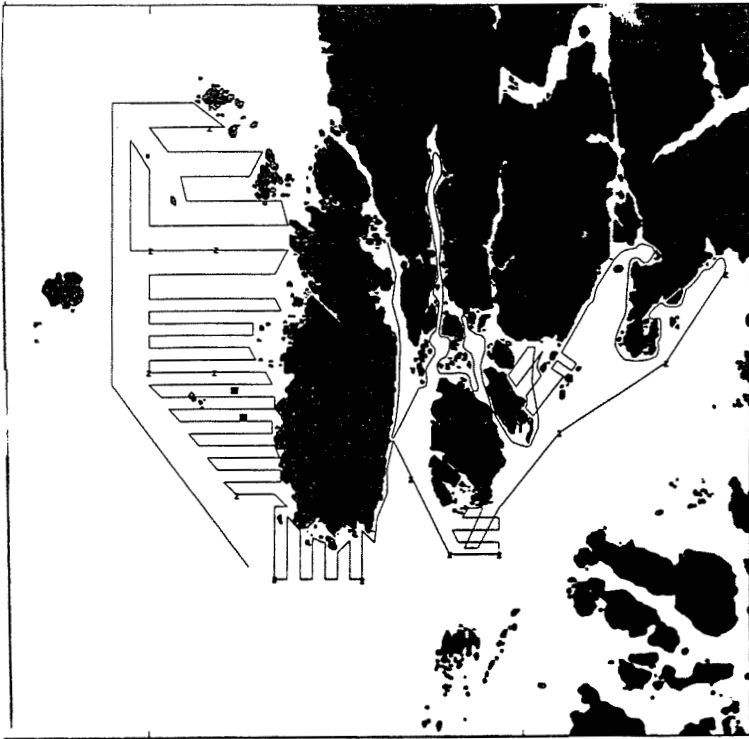
1. part 15.2 - 4.3.99 z CTD st.no 128-196 "Michael Sars"
▲ Pel TRAWL st.no 44-74



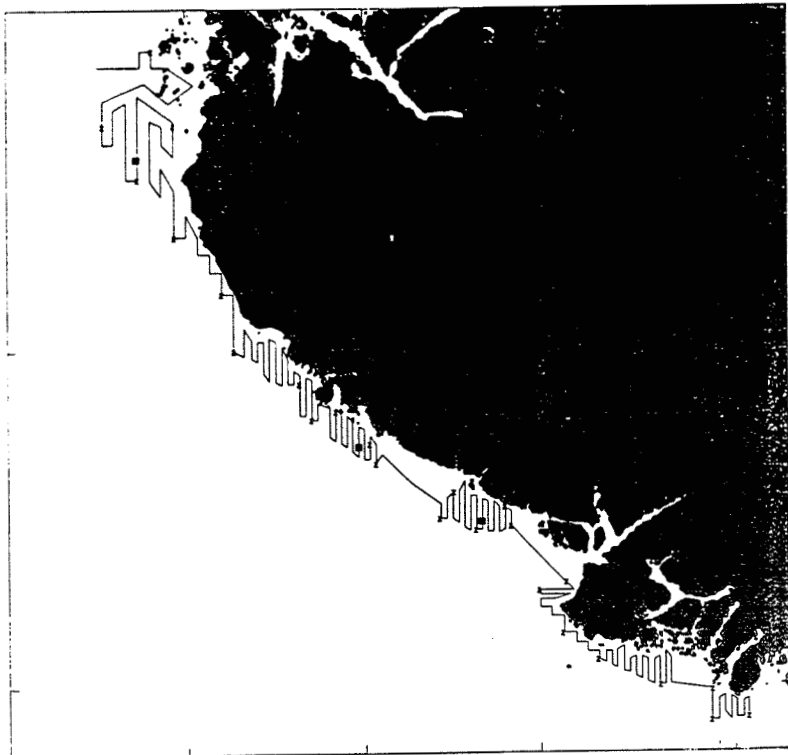
Cruise tracks, and trawl station (▲) 8 - 9.3.1999



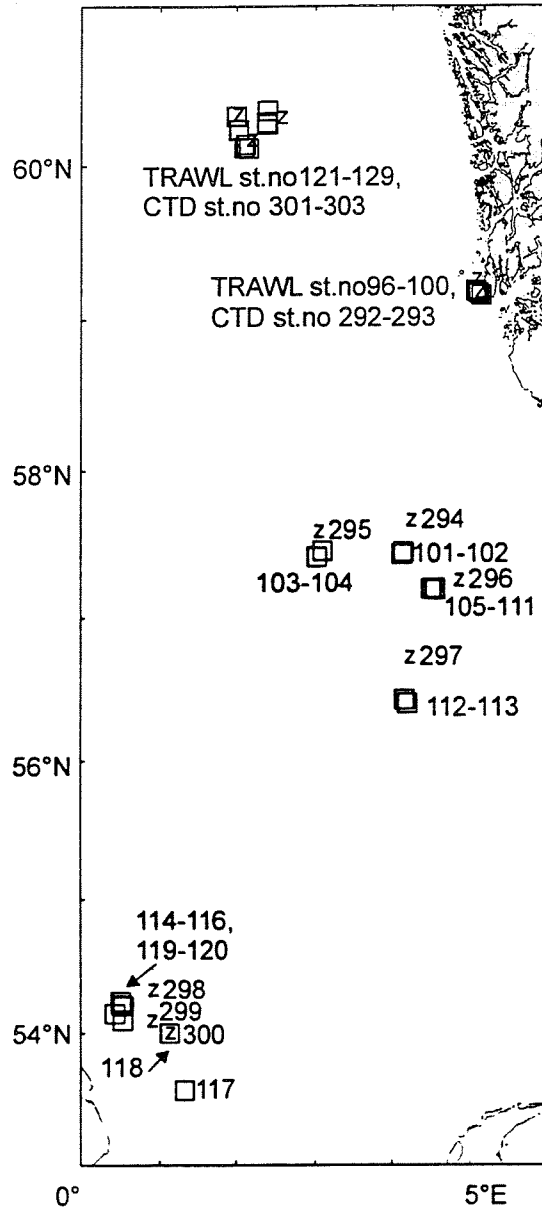
Cruise tracks and CTD stations (z) 9 - 10.3.1999



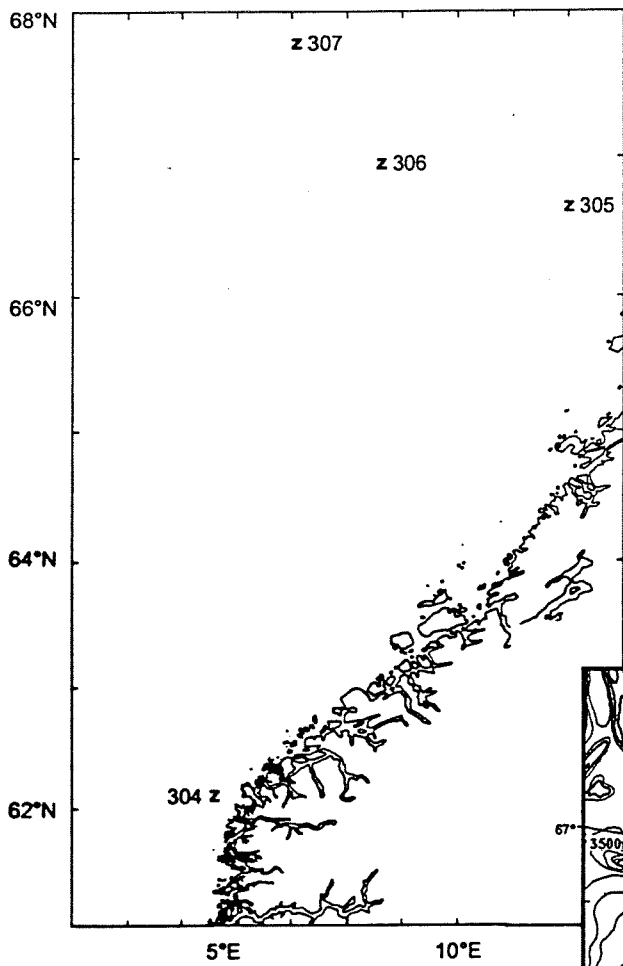
Cruise tracks, CTD stations (z) and
bottom trawl stations (■) 14 - 16.3.1999



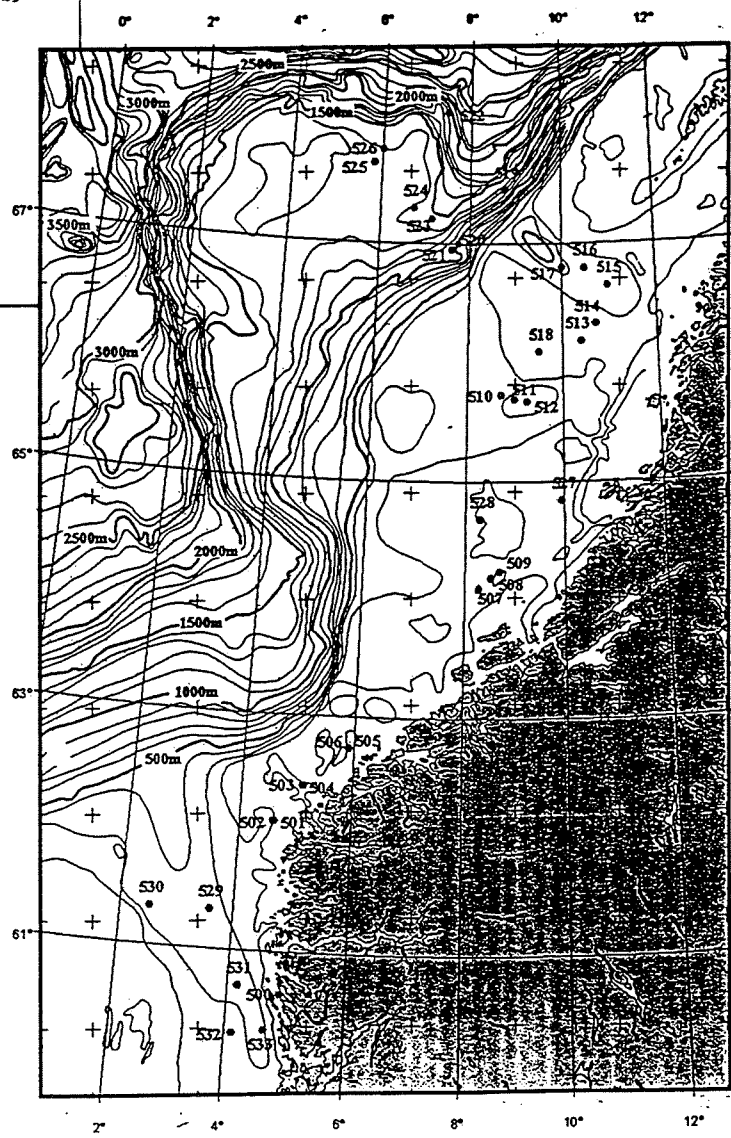
Cruise tracks, CTD stations (z) and bottom trawl stations (■) 10 - 12.3.1999



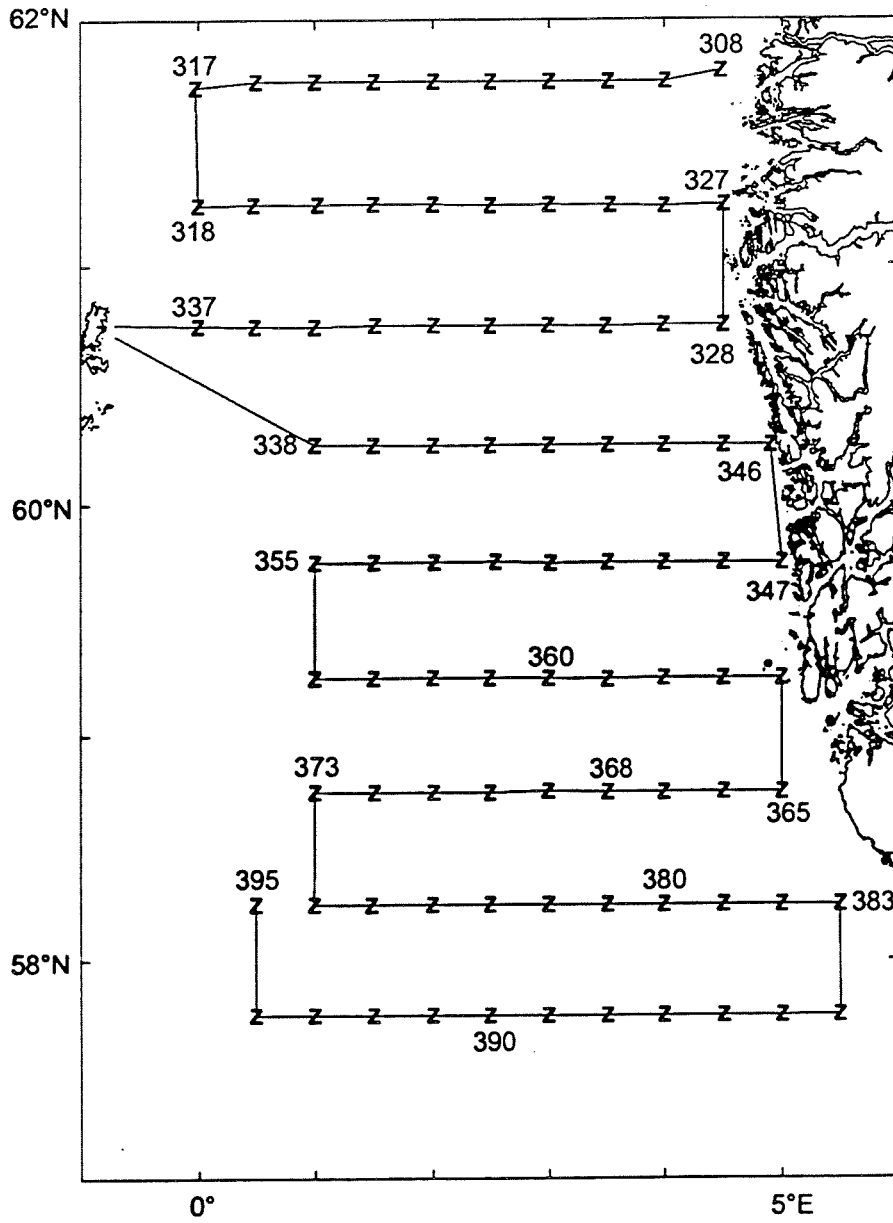
25 Mar - 3 Apr 1999 z CTD st.no 292-303 "Michael Sars"
 Cruise no 1999103 □ Bottom TRAWL st.no 96-129



“Michael Sars” Cruise no 1999104
5-18 Apr 1999 Z CTD st.no 304-307

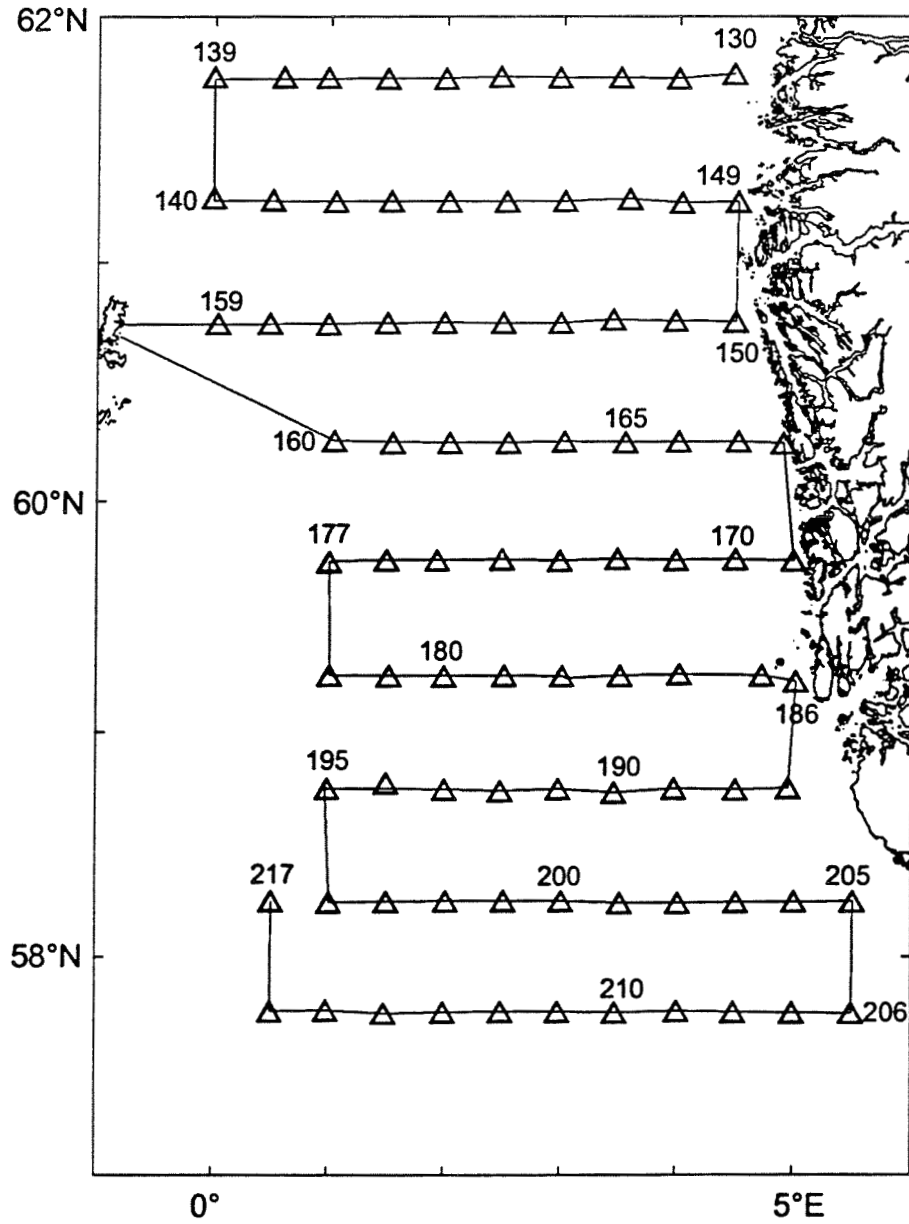


● Gravity cores st.no 500-533

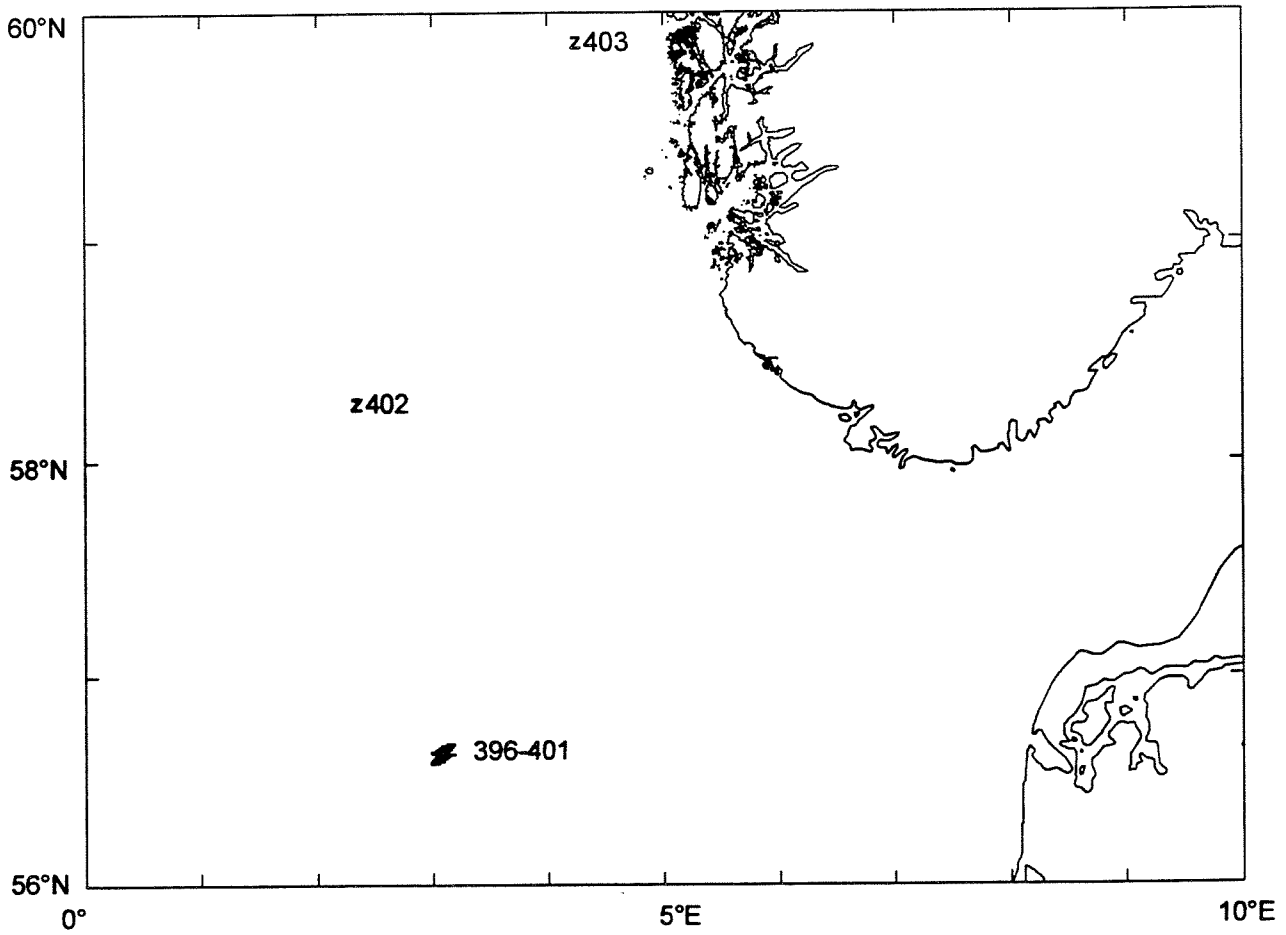


20 Apr - 4 May 1999 z CTD st.no 308-395 "Michael Sars"

Cruise no 1999105



20 Apr - 4 May 1999 Δ Pel.TRAWL st.no 130-217 "Michael Sars"
 Cruise no 1999105

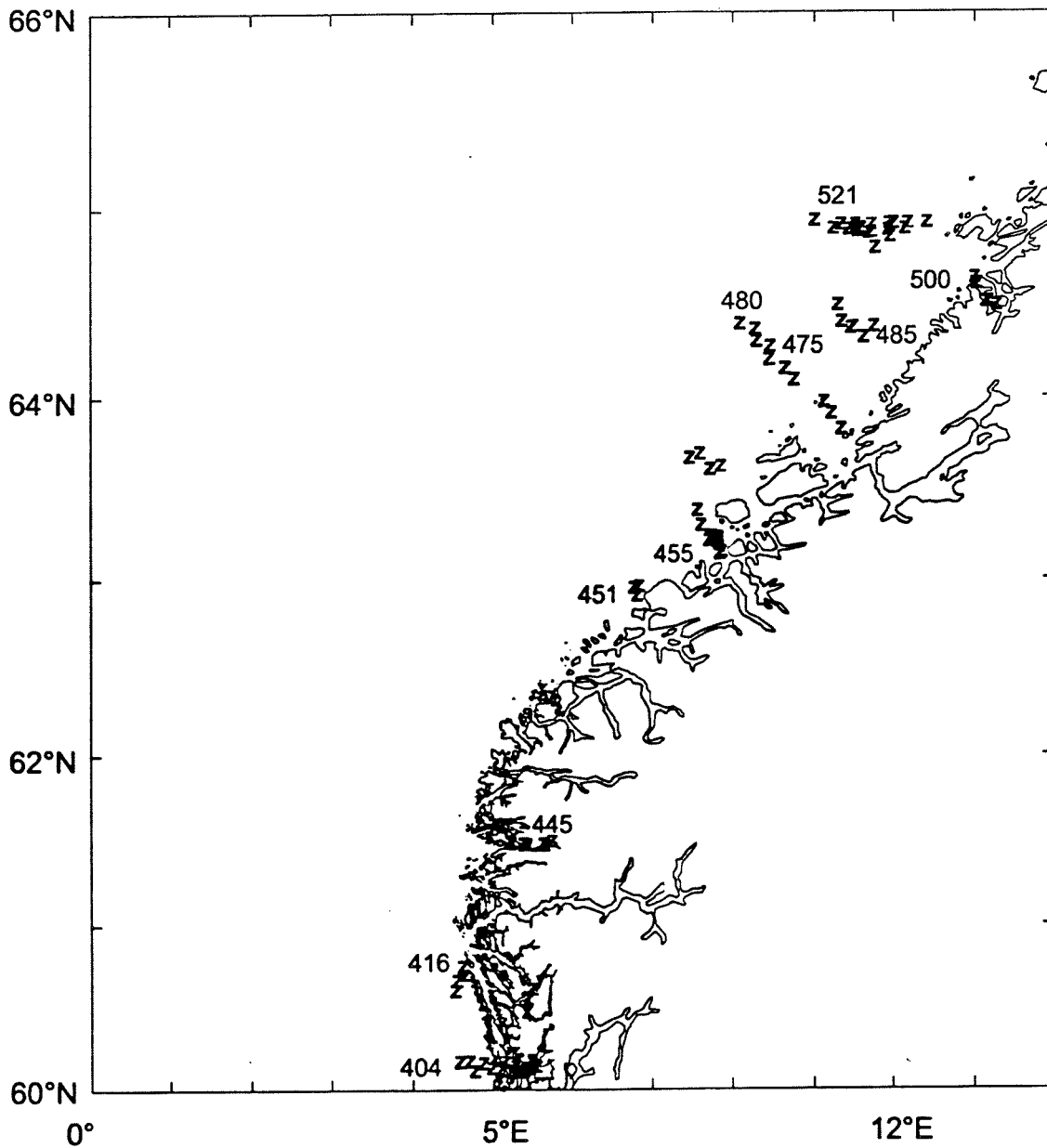


5 - 16 May 1999

Z CTD st.no 396 - 403

"Michael Sars"

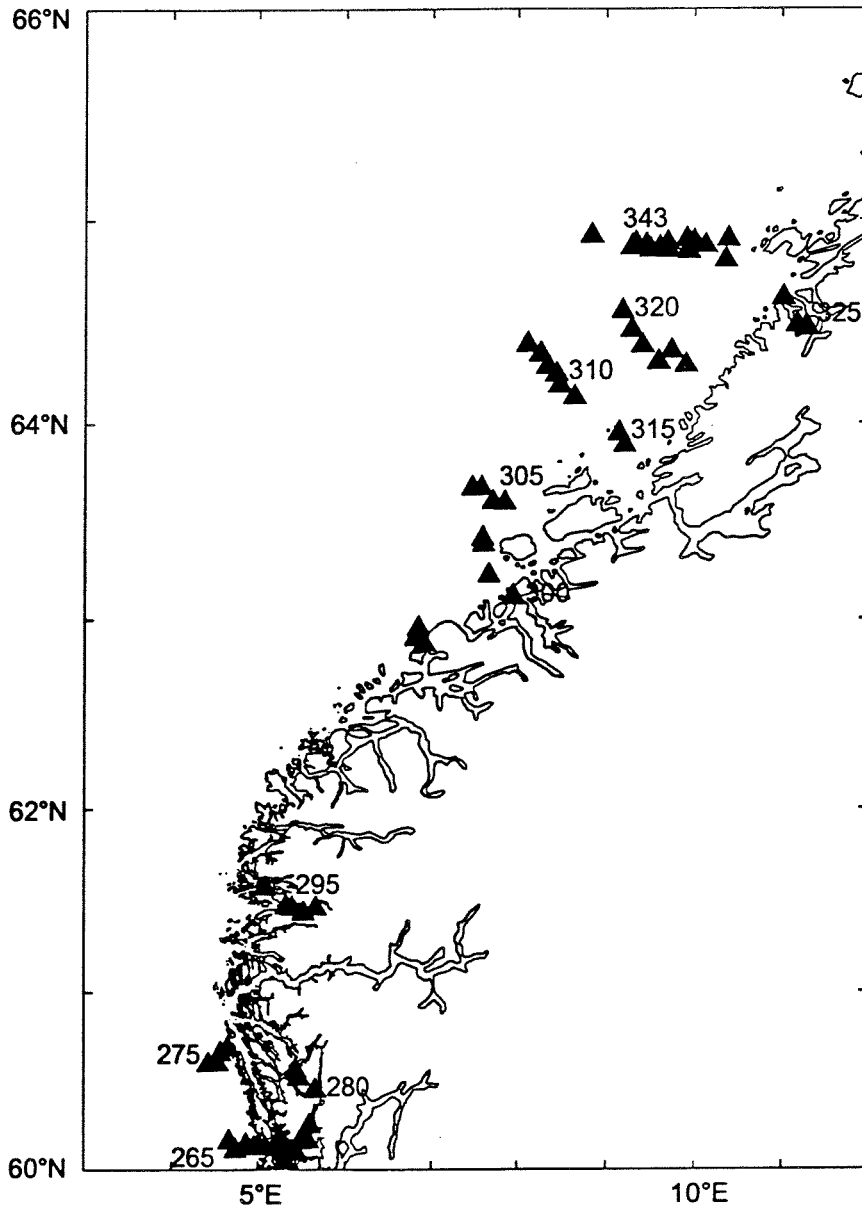
Cruise no 1999106



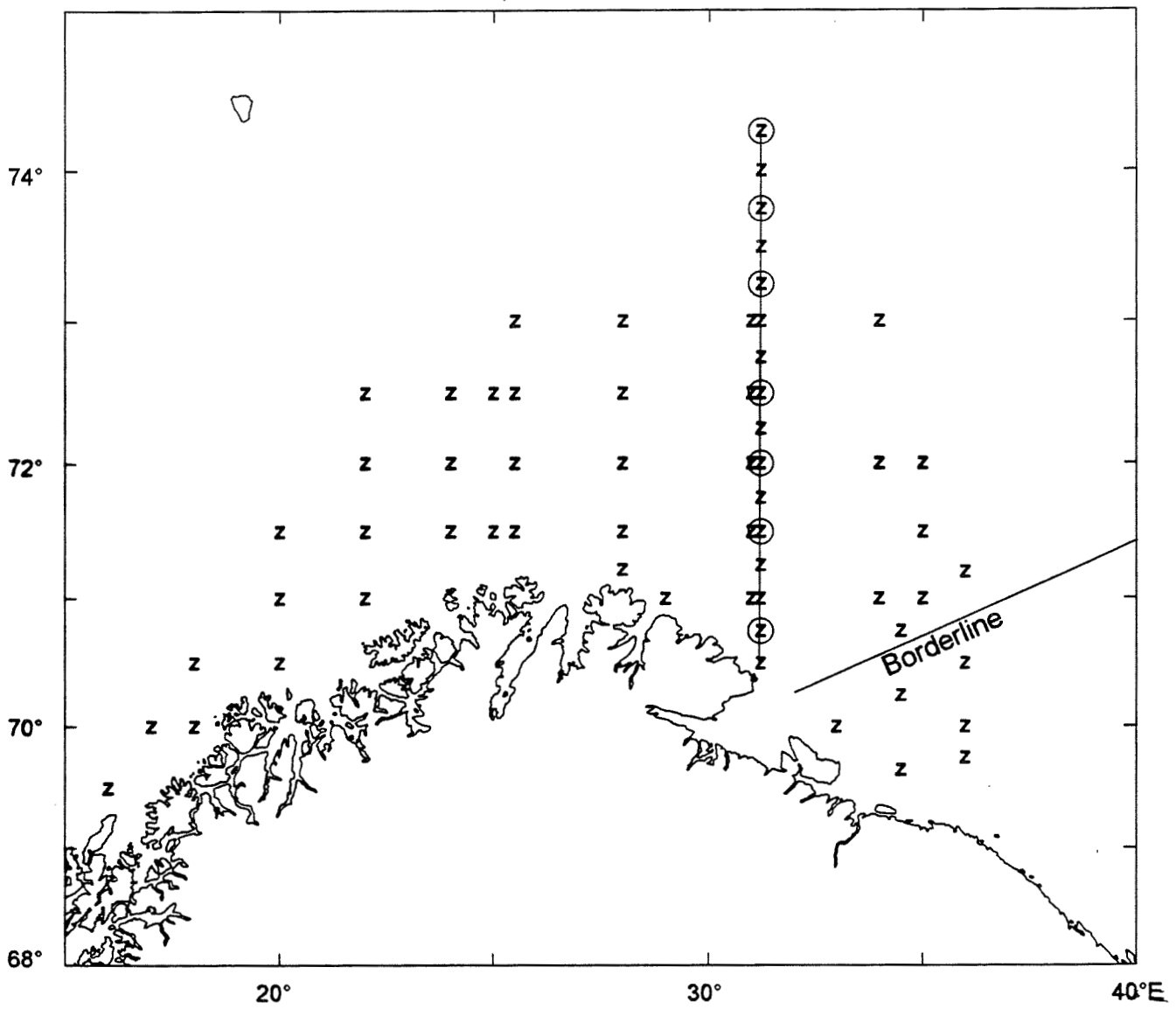
19 May - 4 June 1999
Cruise no 1999107

Z CTD st.no 404-521

"Michael Sars"



19 May - 4 June 1999 ▲ Pel. TRAWL st.no 265 - 339 "Michael Sars"
 Cruise no 1999107



5 June - 5 July 1999

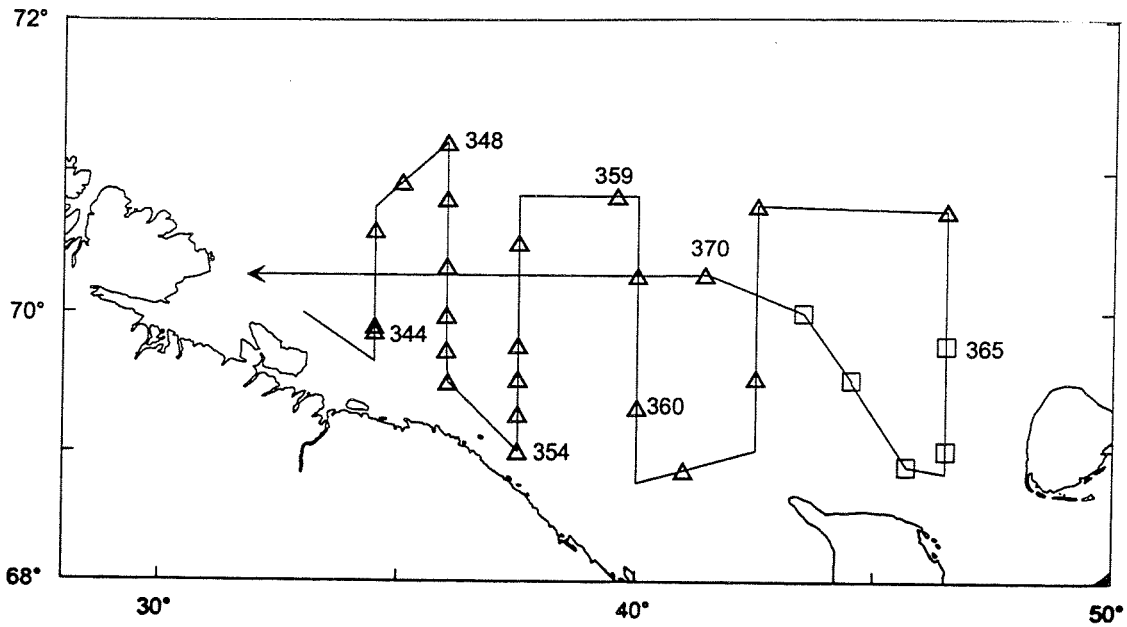
Z CTD st.no 522-585

"Michael Sáfir"

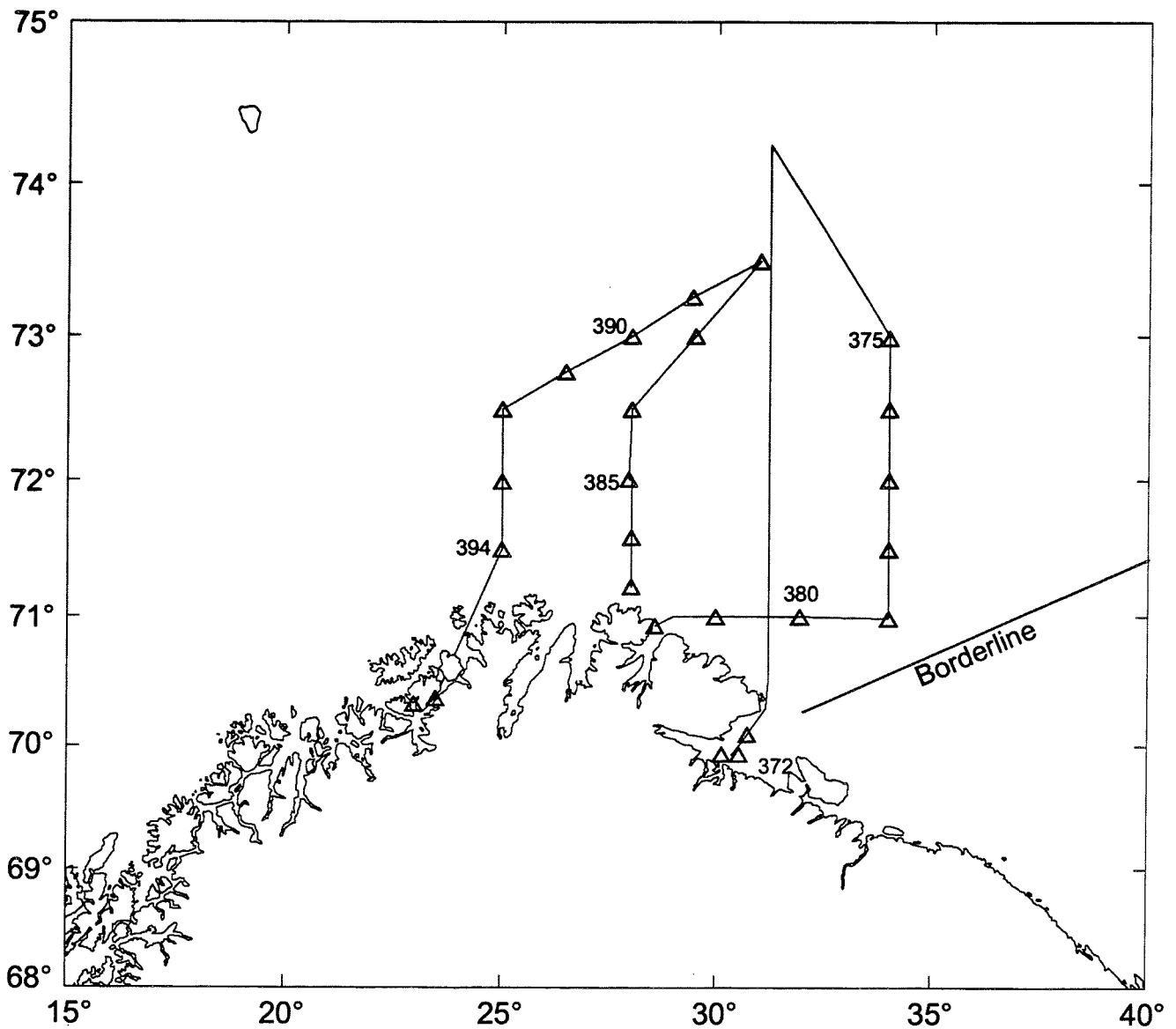
Cruise no 1999108

Ⓢ CTD and PLANKTON St. (WP-II-net)

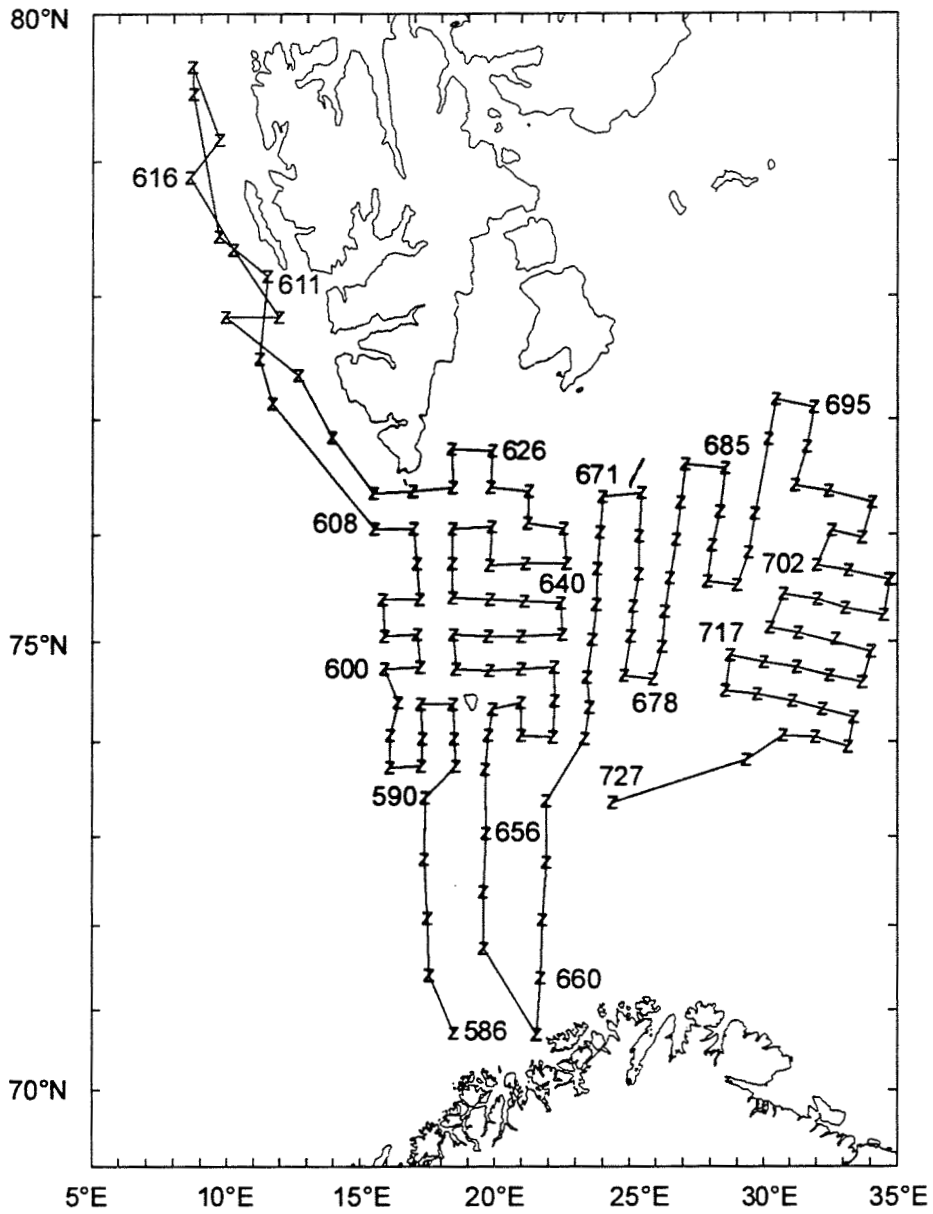
Standard section Vardø N (31°13'E)



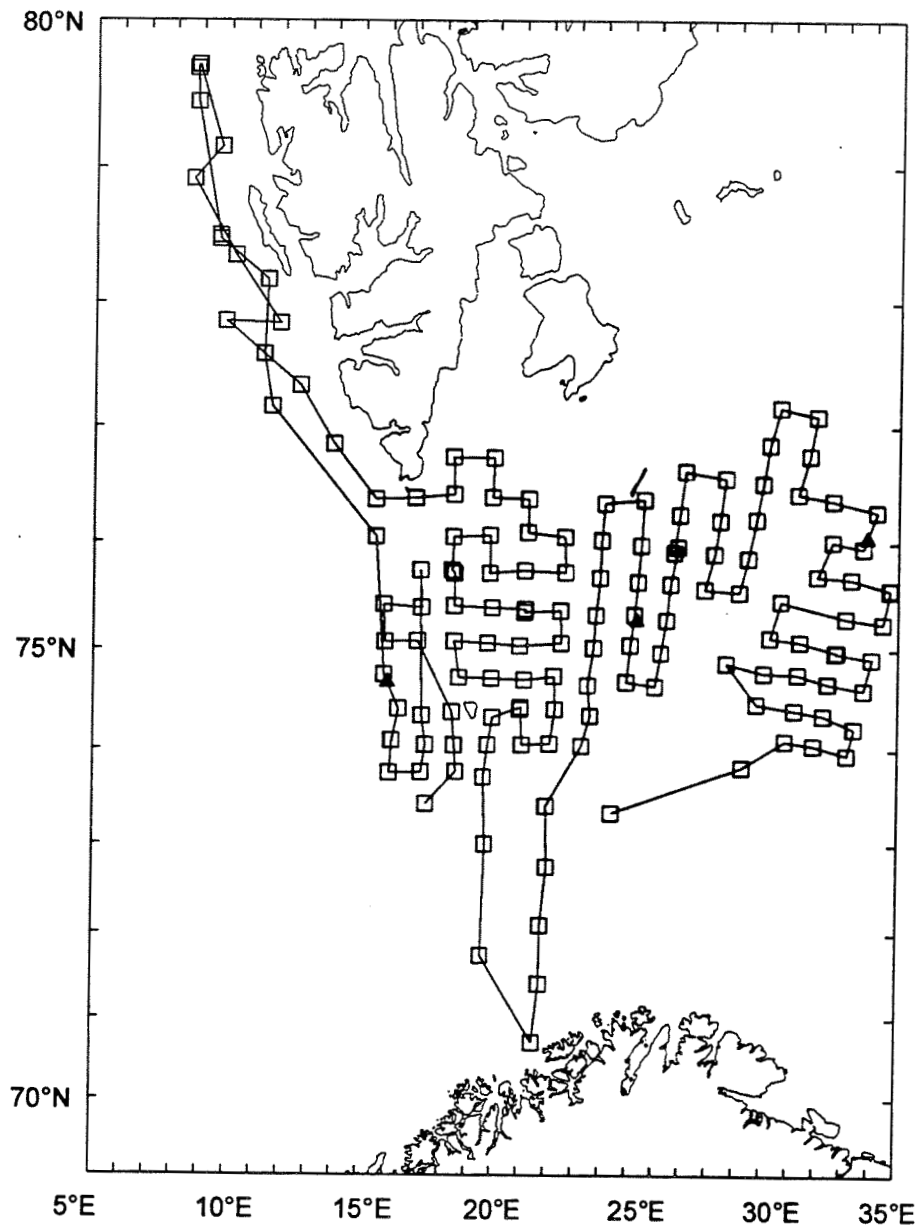
5 June - 5 July I: part: 16 June - 24 June 1999 TRAWL st.no 344-371 "Michael Sars"
 Cruise no 1999108
 △ Pelagic trawl
 □ Bottom trawl



5 June - 5 July 1999 II PART: 25.6-2.7.99 68 △ Pelagic trawl st.no 372-396 "Michael Sars"
 Cruise no 1999108



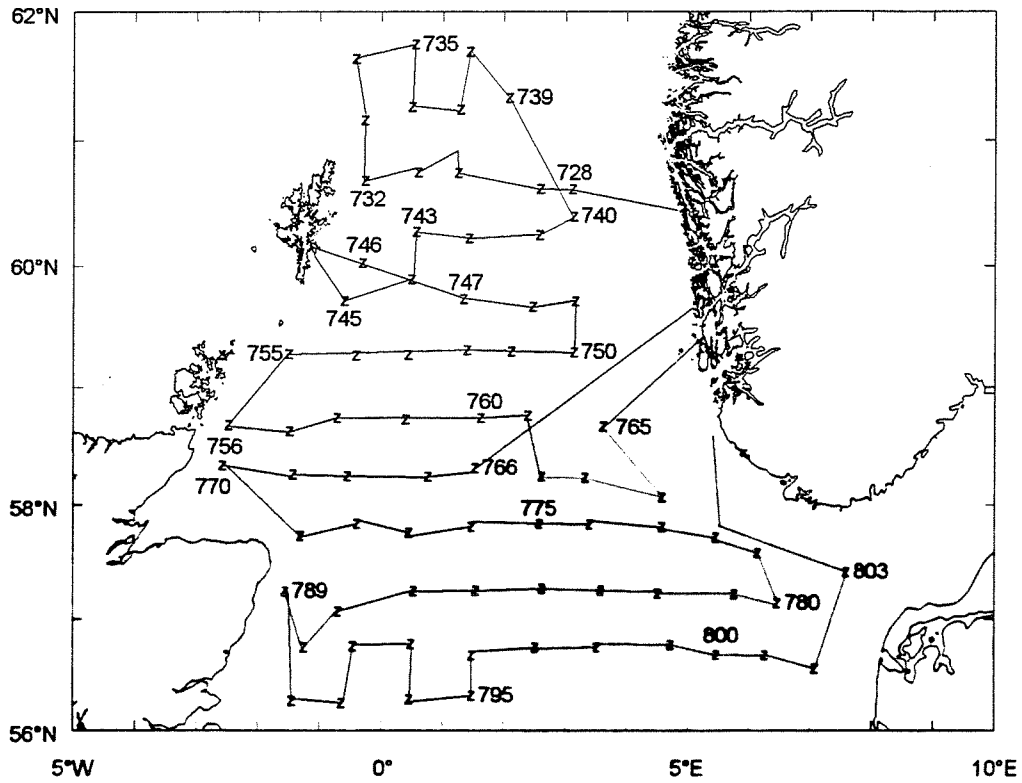
28 July - 25 August 1999 z CTD st.no 586-727 "Michael Sars"
 Cruise no 1999109



28 July - 25 August 1999
 Cruise no 1999109

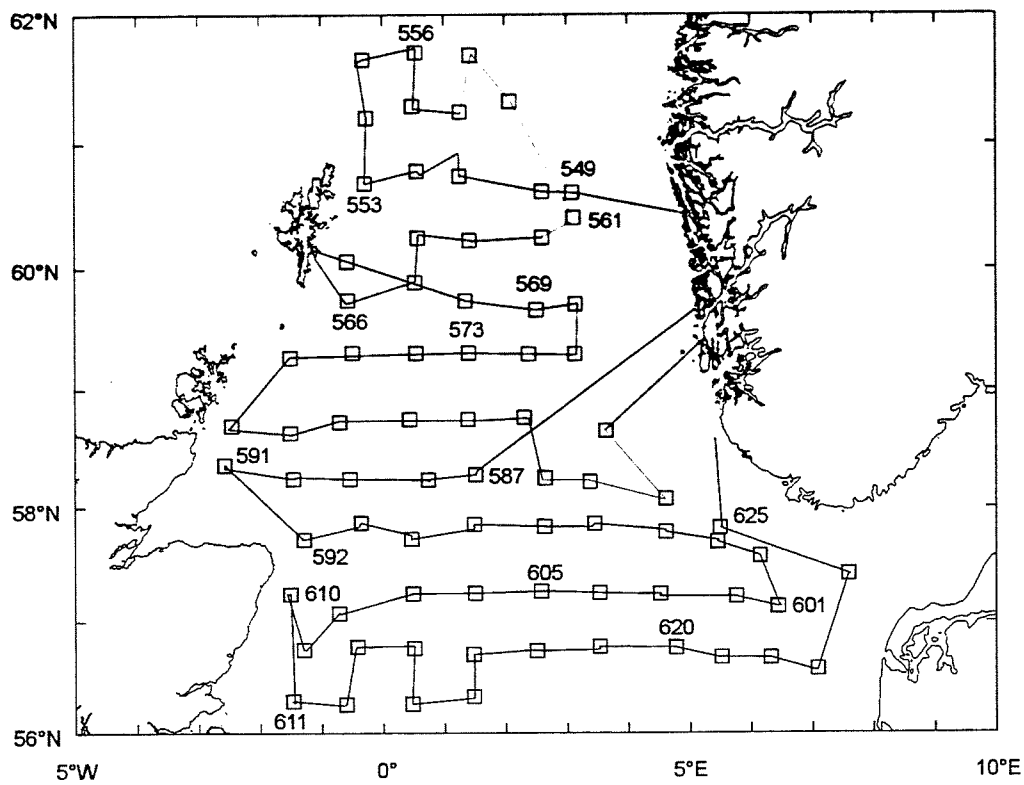
□▲ TRAWL st.
 □ Bottom tr.
 ▲ Pel tr.

“Michael Sars”



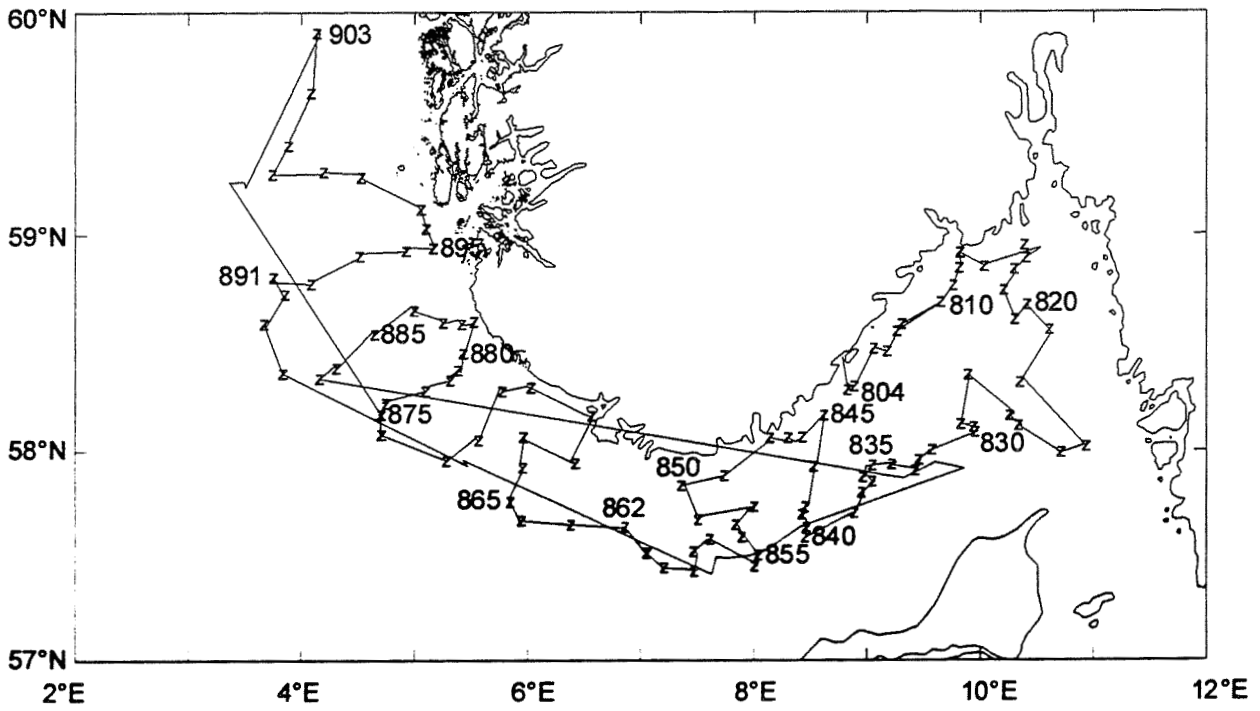
28 Aug - 23 Sep 1999 Z CTD st.no 728 - 803
Cruise no 1999110

"Michael Sars"



28 Aug - 23 Sep 1999 □ Bottom TRAWL st.no 549-625
Cruise no 1999110

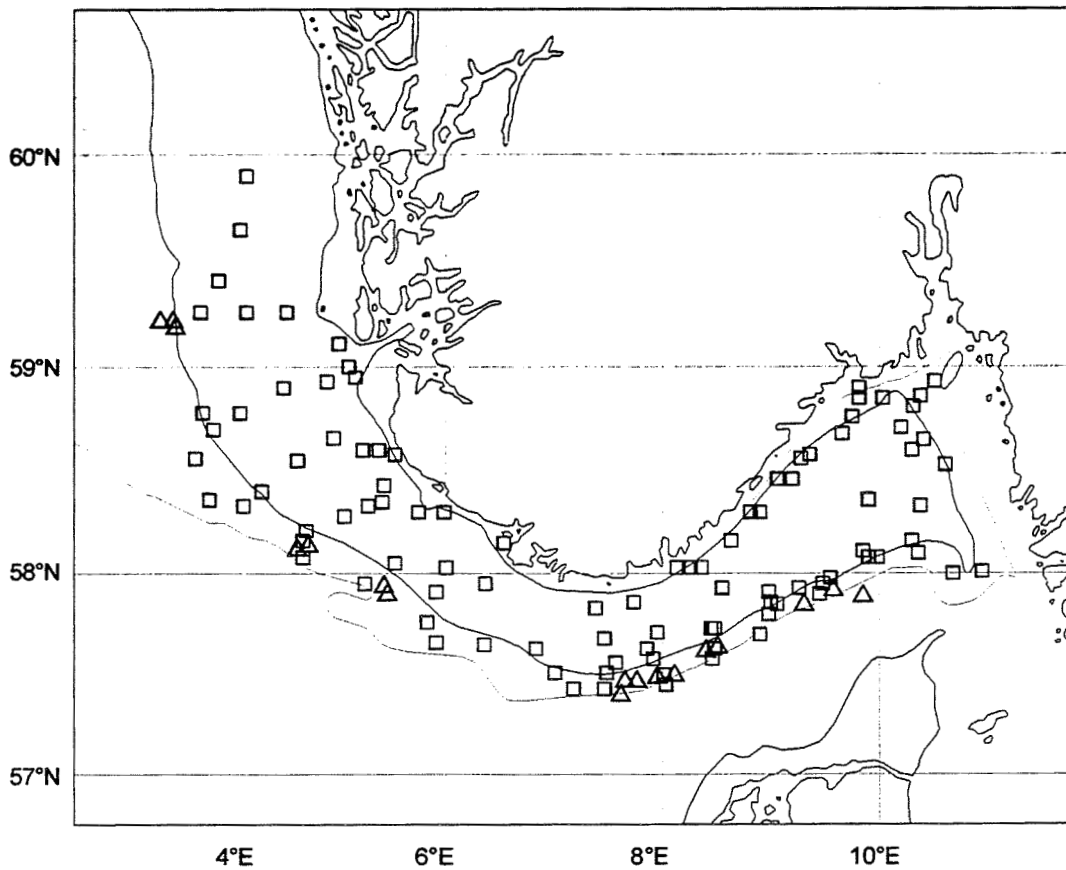
"Michael Sars"



12 Oct - 2 Nov 1999
Cruise no 1999112

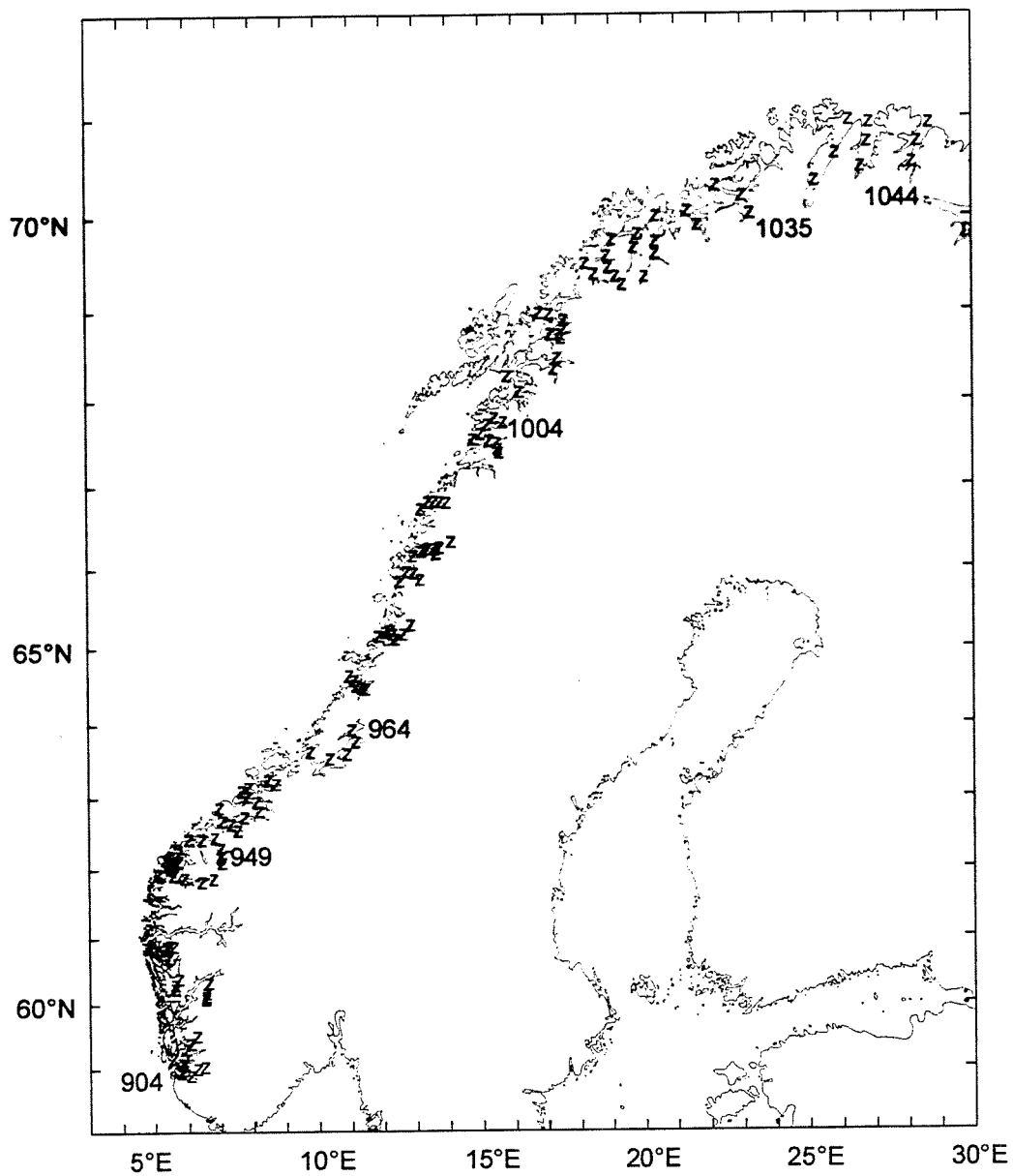
z CTD st.no 804-903

"Michael Sars"



TRAWL st.no 674-790

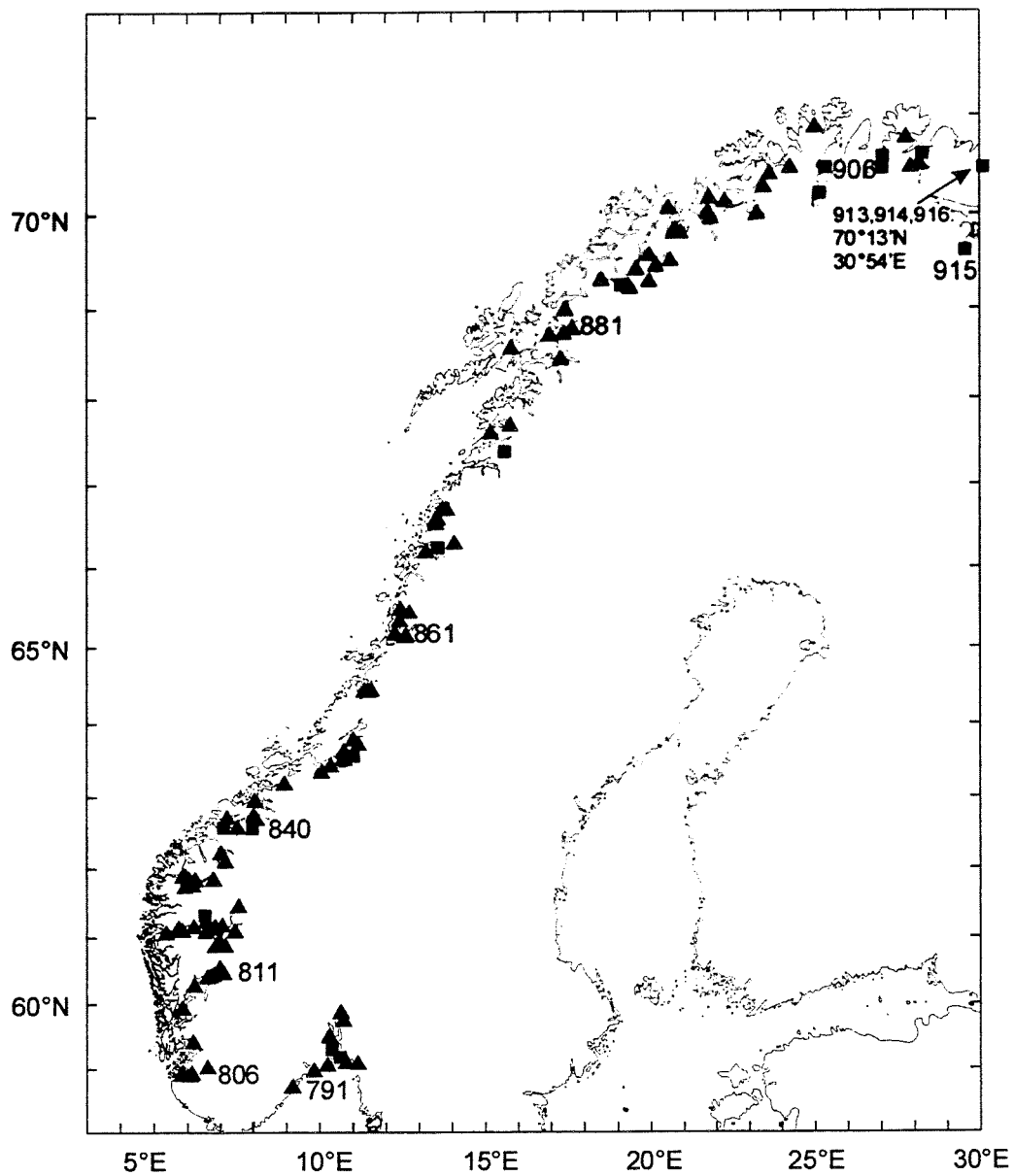
- Shrimp tr.
- △ *Nephrops* trawl



4 Nov - 16 Dec 1999
Cruise no 1999113

z CTD st.no 904-1044

"Michael Sars"

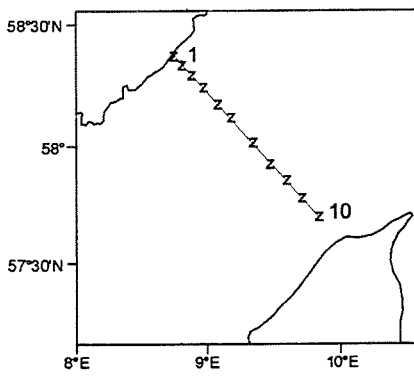


4 Nov - 16 Dec 1999
Cruise no 1999113

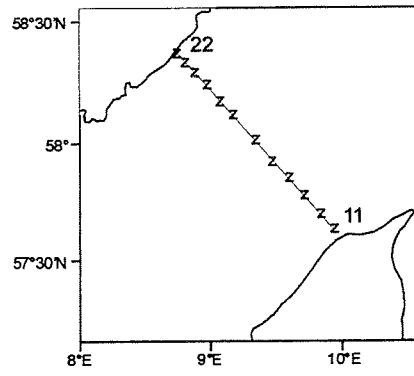
TRAWL st.no 791-916
▲ Pel.tr.
■ Bottom tr.

“Michael Sars”

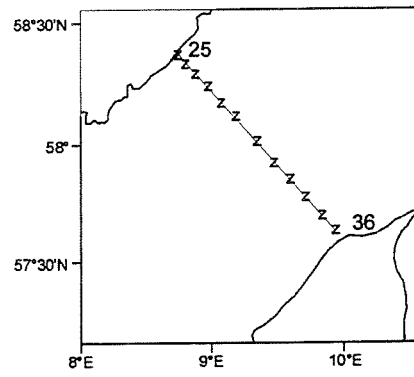
TORUNGEN - HIRTSHALS - 1999



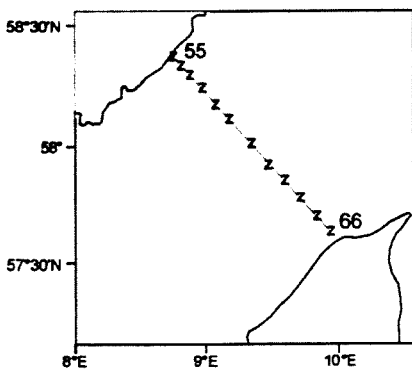
20 Jan z CTD st.no 1-10



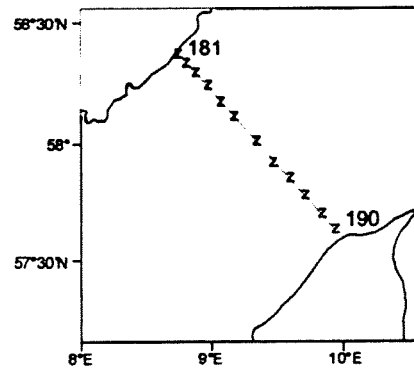
8 Feb z CTD st.no 11-22



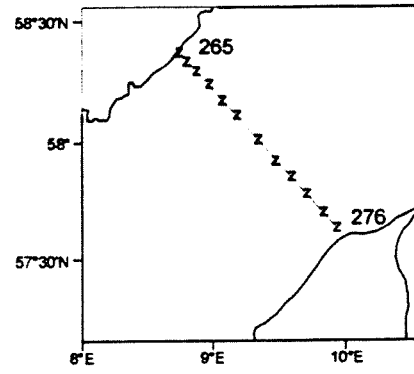
16 Mar z CTD st.no 25-36



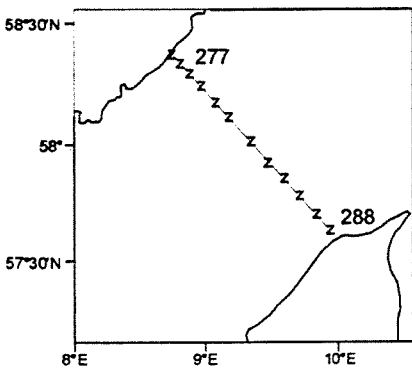
15 April z CTD st.no 55-66



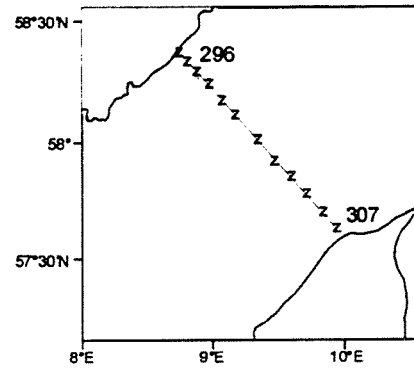
15 May z CTD st.no 181-190



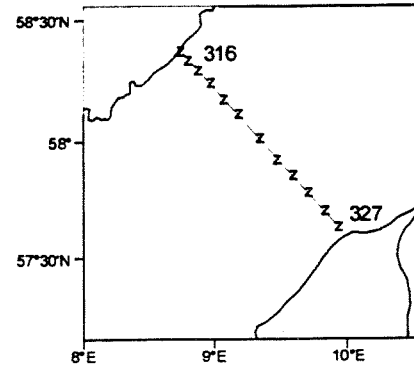
20 Jun z CTD st.no 265-276



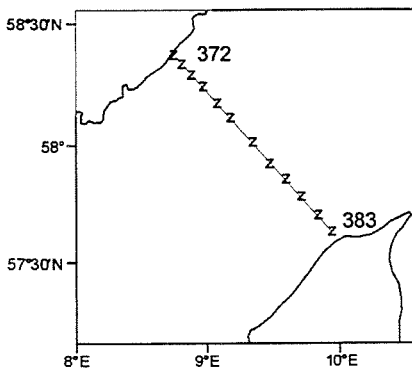
19 Jul z CTD st.no 277-288



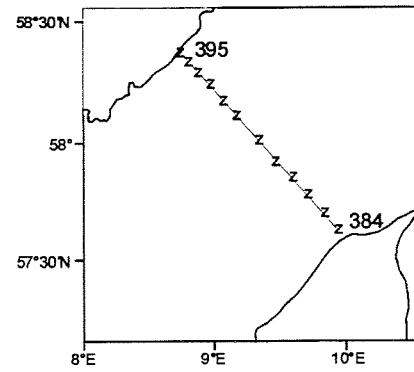
16 Aug z CTD st.no 296-307



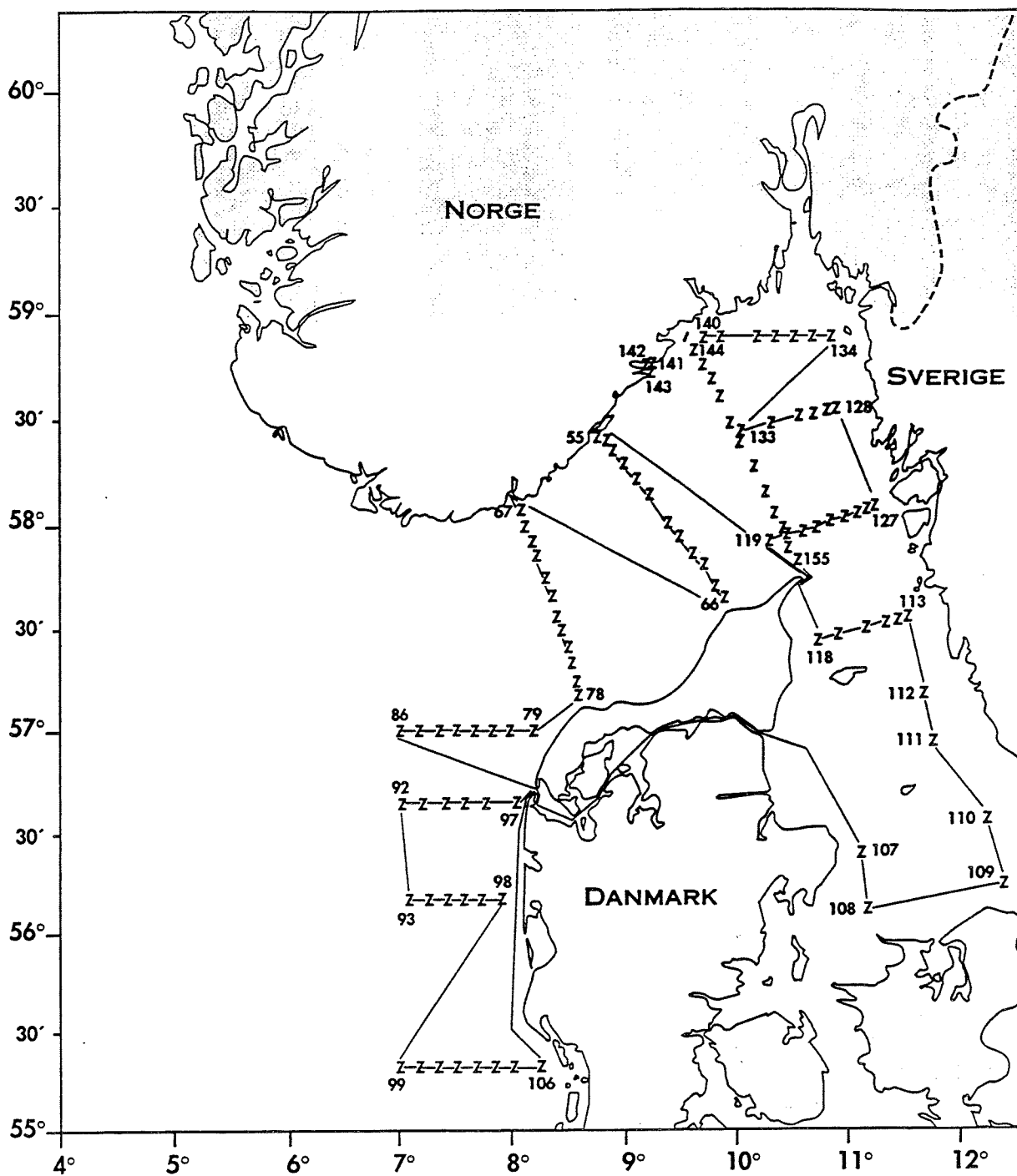
13 Sep z CTD st.no 316-327



6 Oct z CTD st.no 372-383

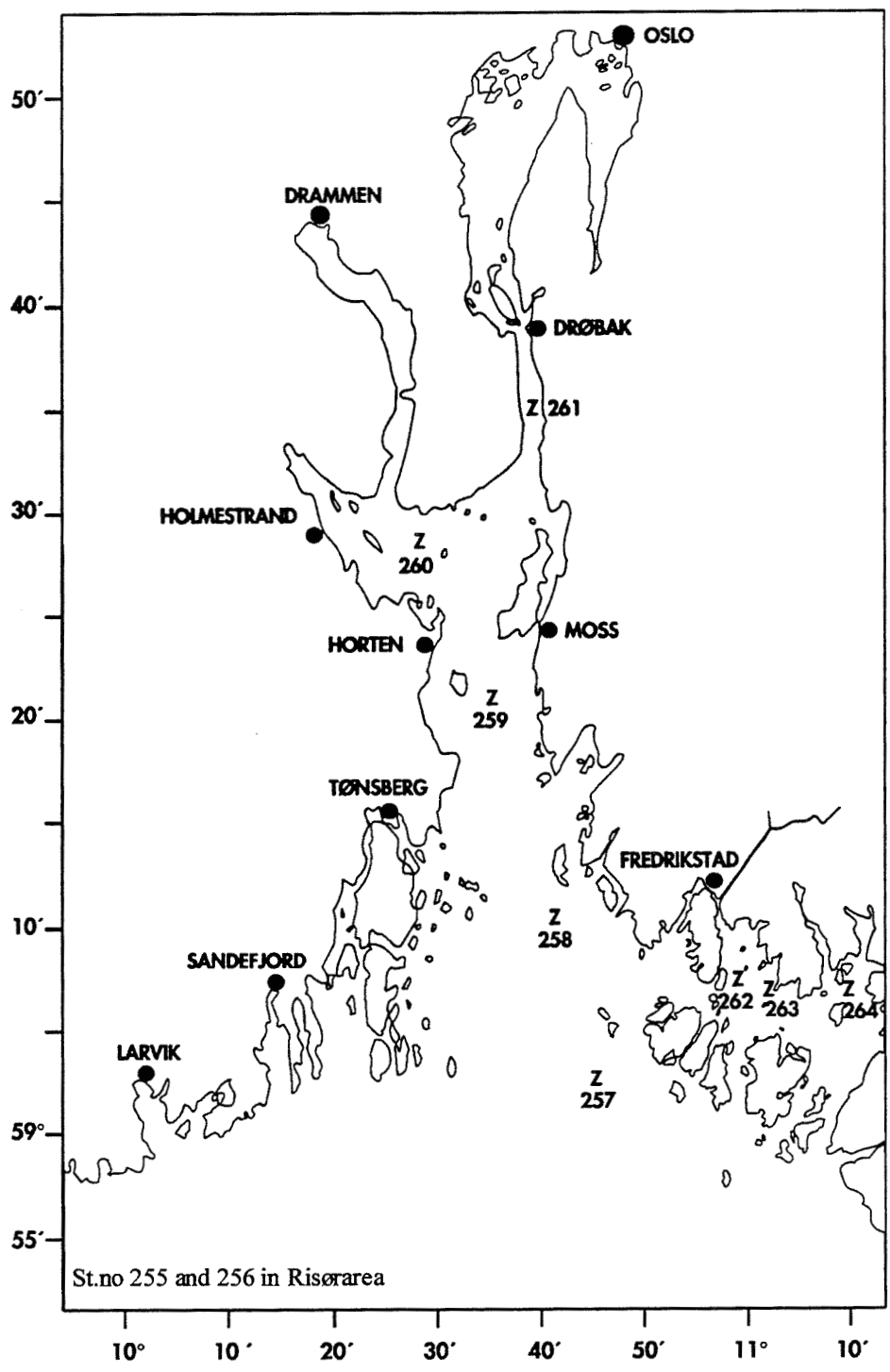


5 Nov z CTD st.no 384-395



Cruise no 1999307

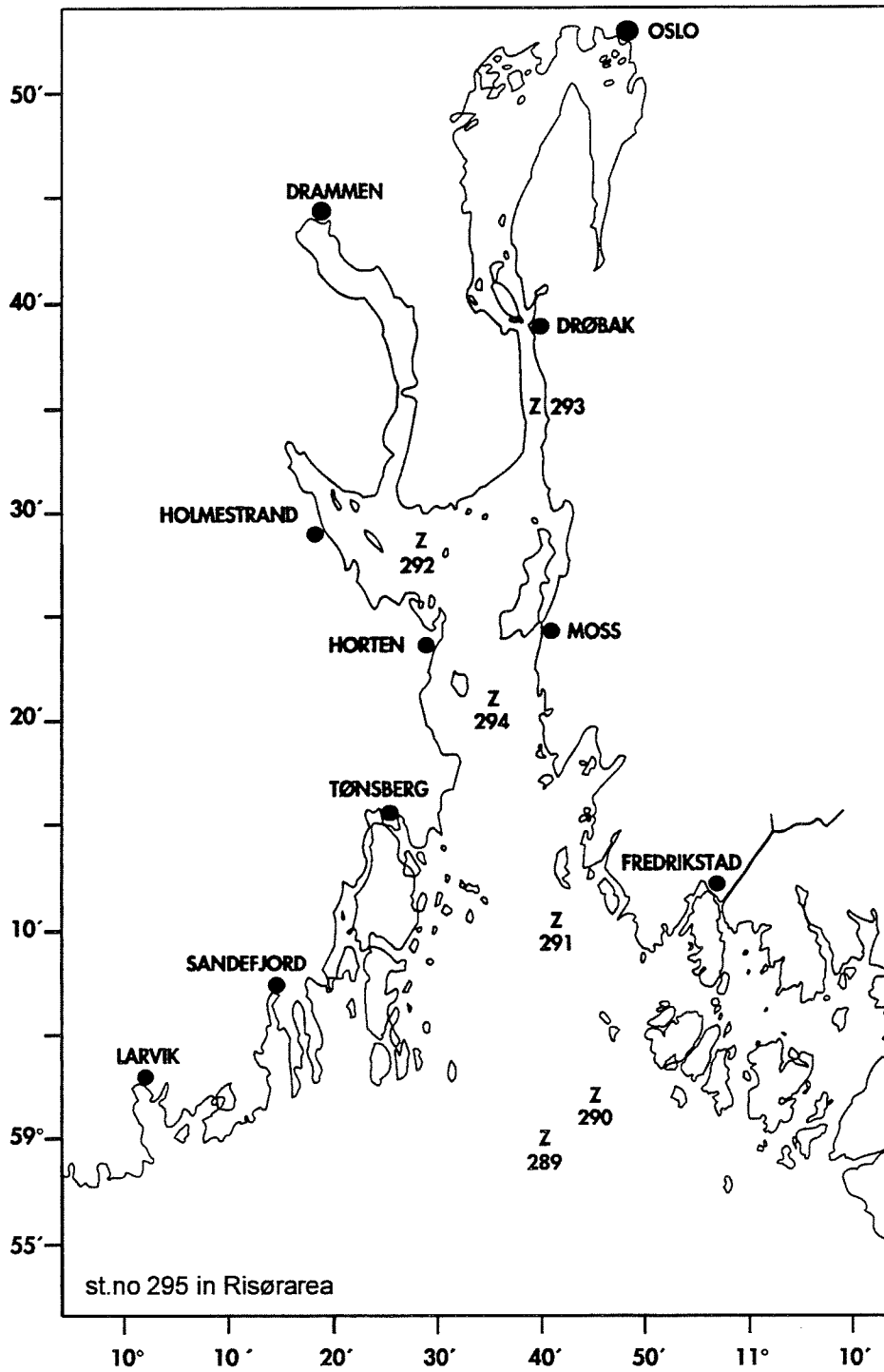
15 Apr - 1 May 1999



6 - 7 June 1999
 Cruise no 1999328

z CTD st.no255-264

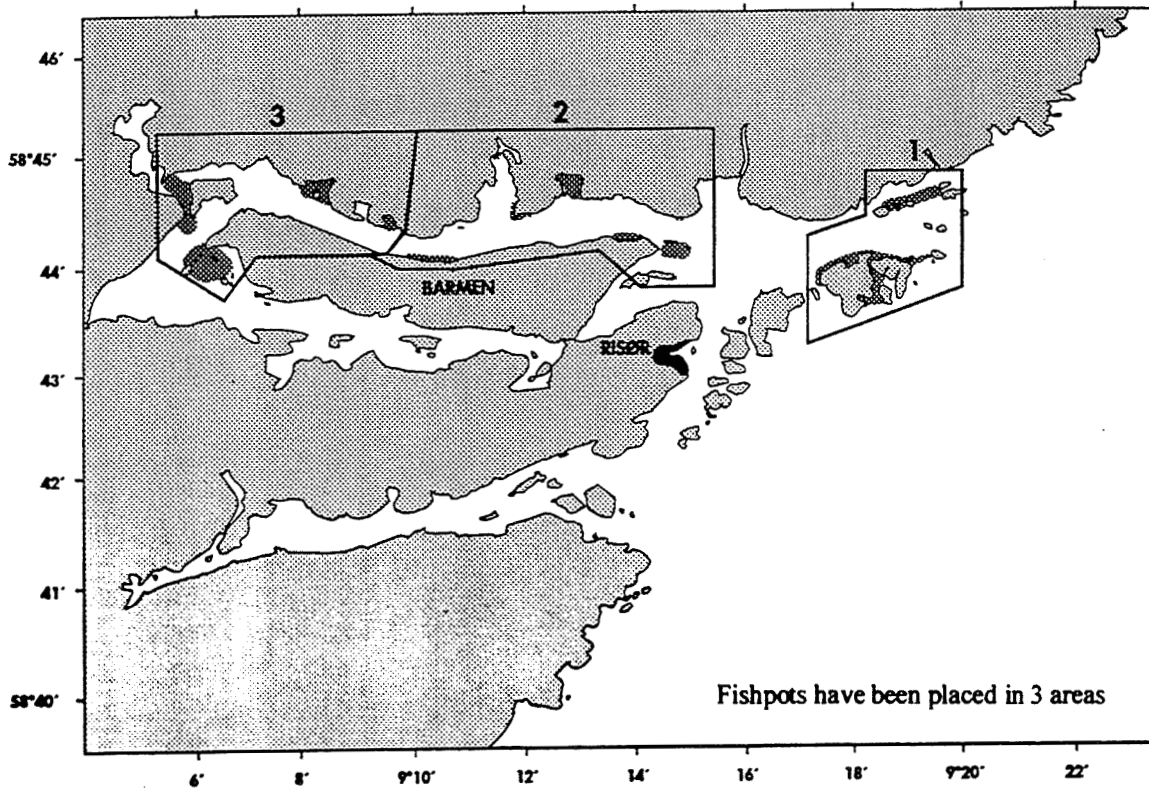
"G. M. Dannevig"



21 - 23 July 1999
 Cruise no 1999329

z CTD st.no 289-295

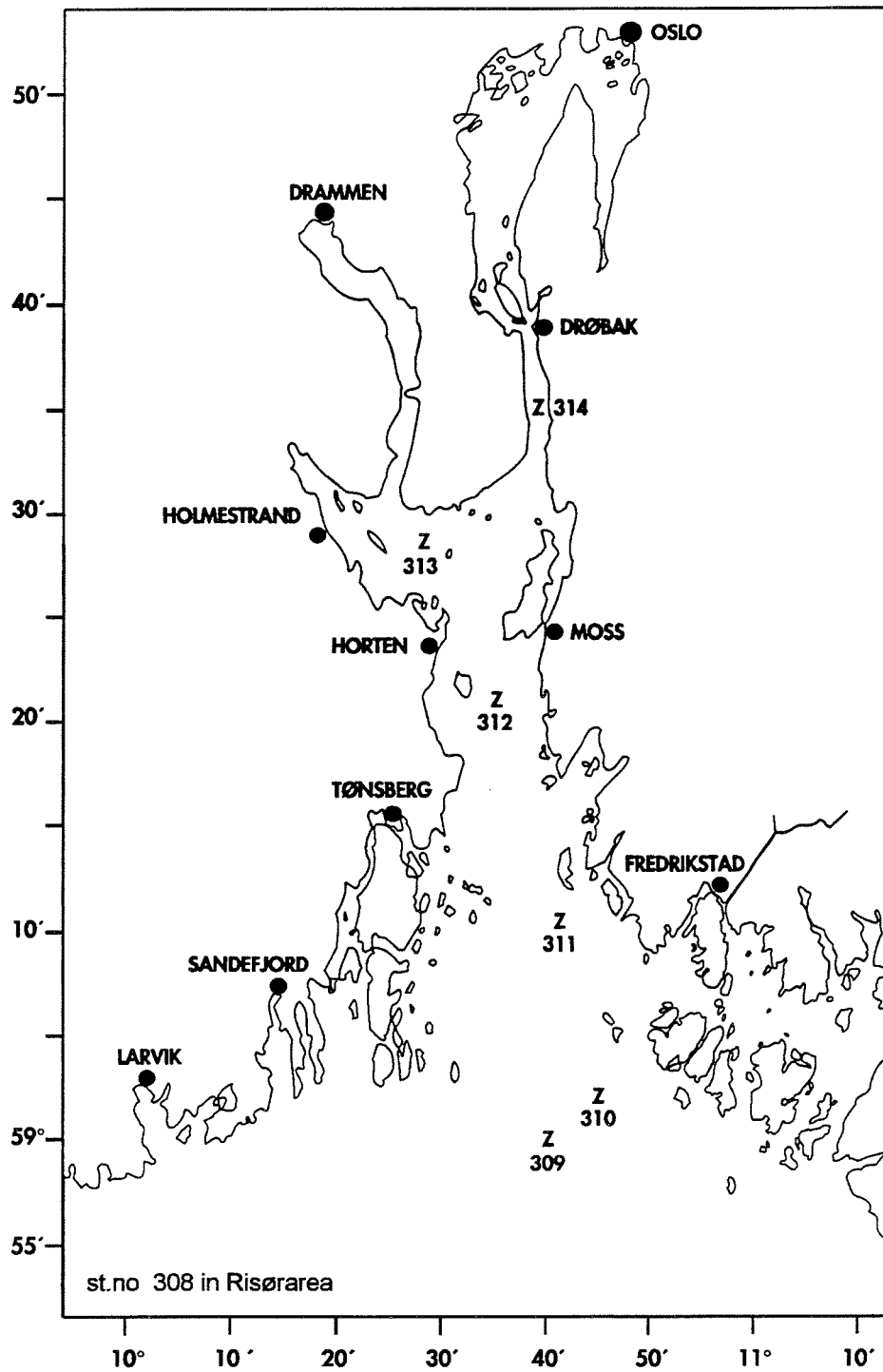
"G. M. Dannevig"



Cruise no 1999317
 Cruise no 1999323

18 Aug - 27 Aug 1999
 21 Nov - 30 Nov 1999

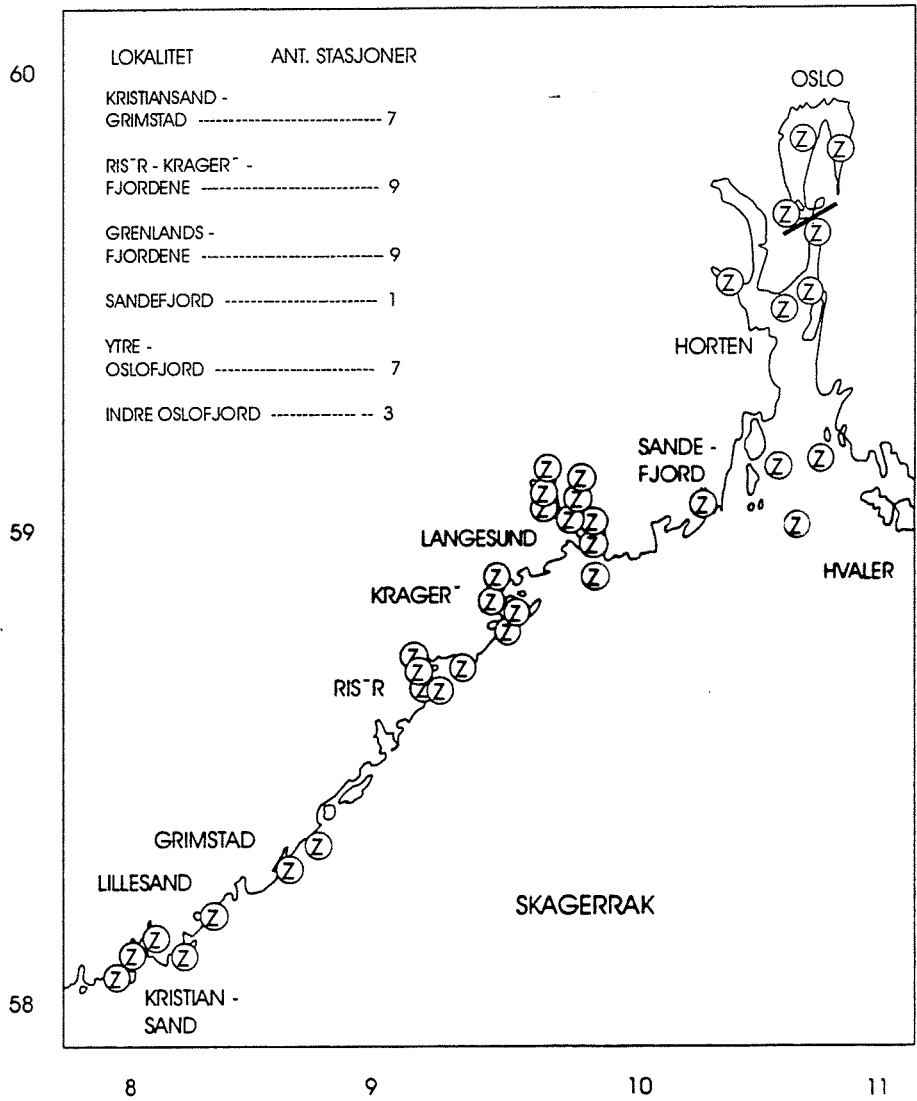
"G.M. Dannevig"



27 - 29 August 1999
Cruise no 1999330

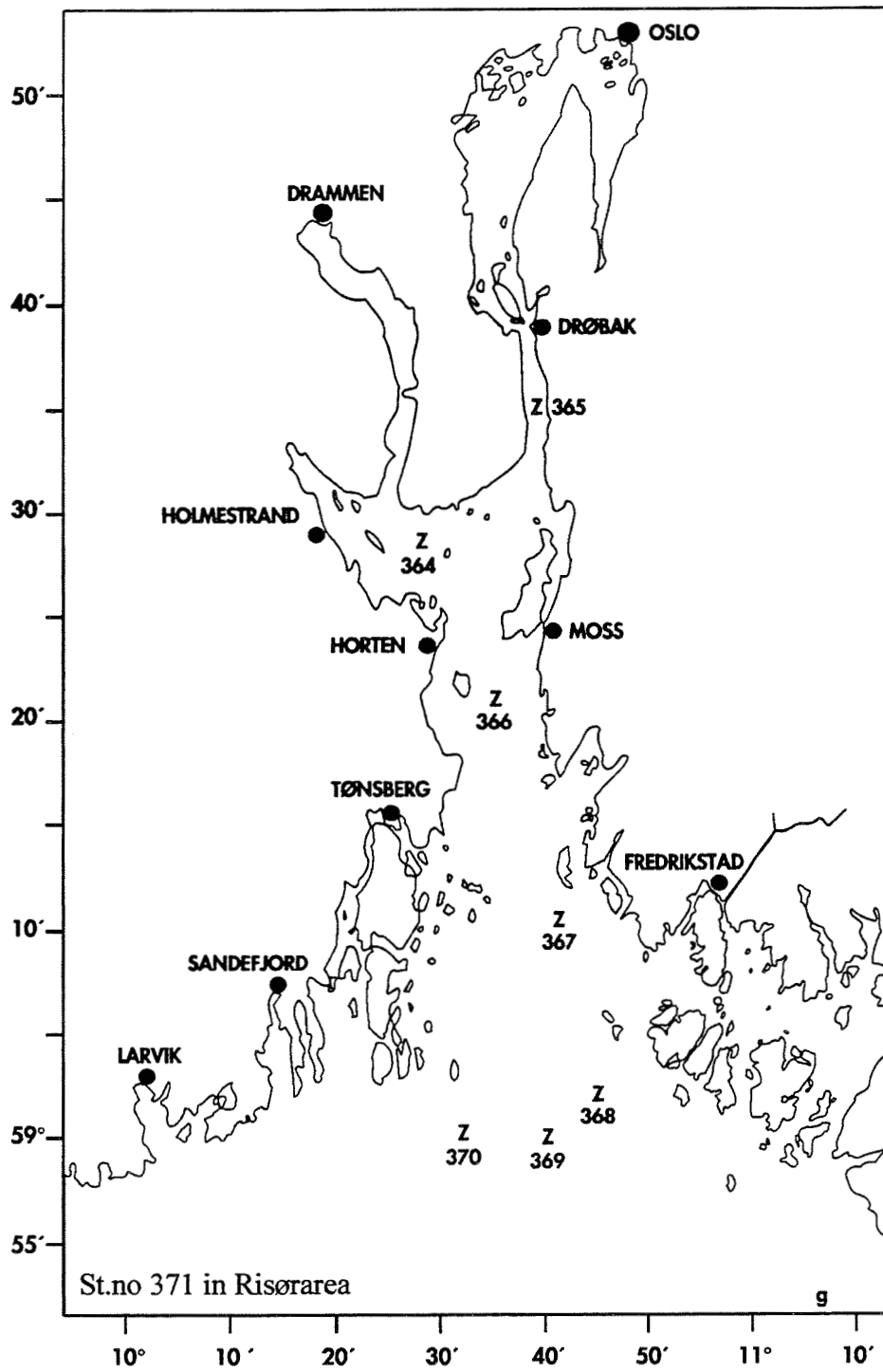
z CTD st.no 308-315

"G. M. Dannevig"



Cruise no 1999320

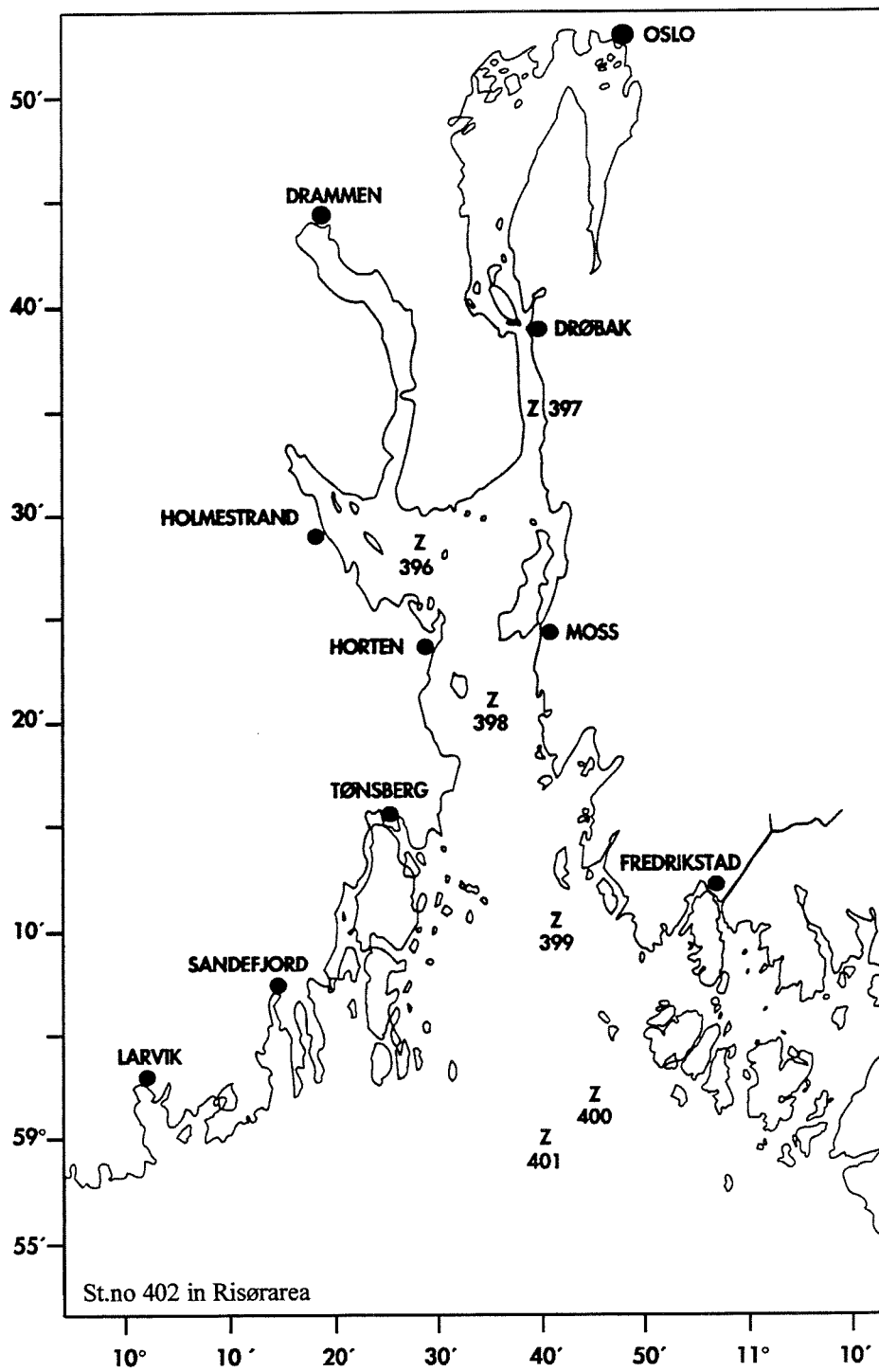
15 Sep - 3 Oct 1999



3 - 4 October 1999

CTD st.no 364-371

"G.M. Dannevig"



18 - 20 November 1999 z CTD st.no396-402 "G. M. Dannevig"
 Cruise no 1999332

SFT (Norwegian Pollution Control Authority)
stations 2 and 3 at Torungen - Hirtshals

