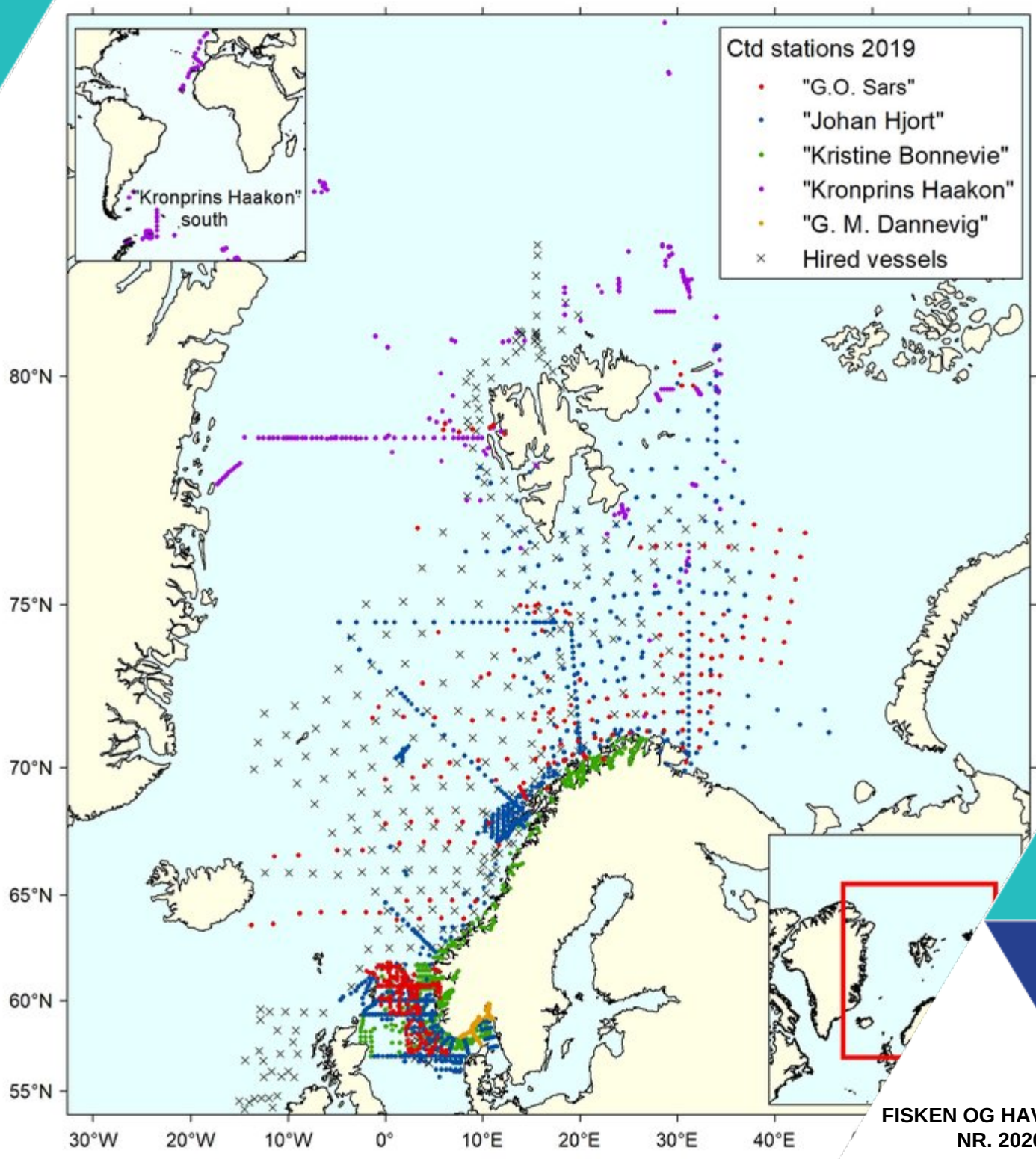
REPORT ON CRUISES AND DATA STATIONS 2019

Oversikt over tokt og stasjoner tatt i 2019



FISKEN OG HAVET
NR. 2020-1

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Report on cruises and data stations 2019

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Oversikt over tokt og stasjoner tatt i 2019

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Number of pages:

214

Summary (English):

Report on cruises and data stations 2019

The report gives an overview of cruises in 2019, by the Institute of Marine Research, University of Bergen and Tromsø and Norwegian Polar Institute, Tromsø on board our research vessels and many of the hired commercial vessels. Each cruise is described by a short description and a track chart mainly showing CTD, plankton and trawl stations. The coverage of the oceanographic sections is listed in a table. Another table shows the number of observations per month for the fixed stations. Meta data about the cruises are reported to the International Council for the Exploration of the Sea (ICES) using the form “Cruise Summary Report”: http://www.seadatanet.org/Metadata/CSR. Research data are available from the Norwegian Marine Data Centre at Institute of Marine Research. The charts can internally at IMR be downloaded from the Institute Intranet/Archive: https://mediearkiv.hi.no/ Charts are made by Karen E. Gjertsen. Sebastian Bosgraaf made charts for “G.M.Dannevig”.

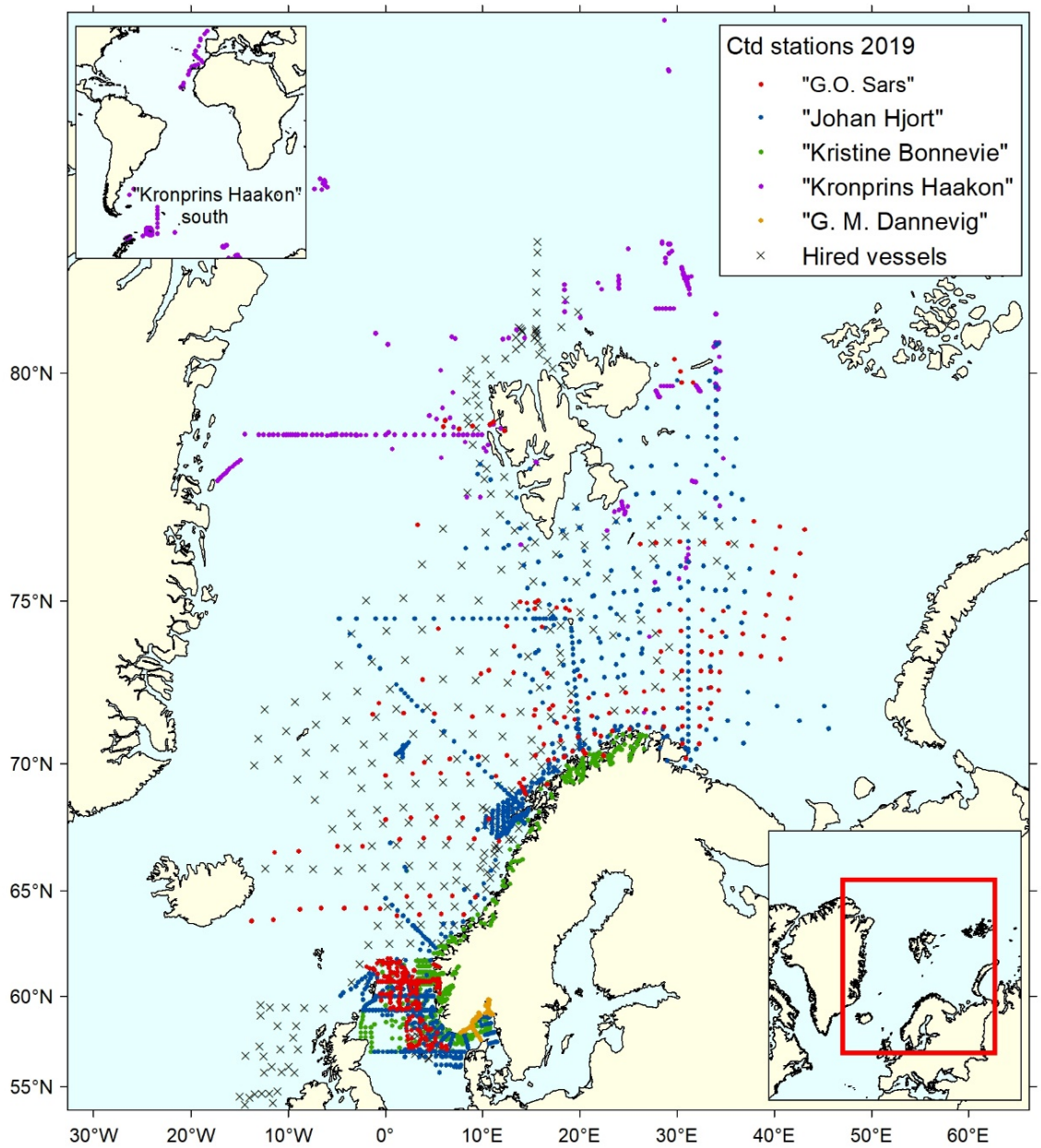
Summary (Norwegian):

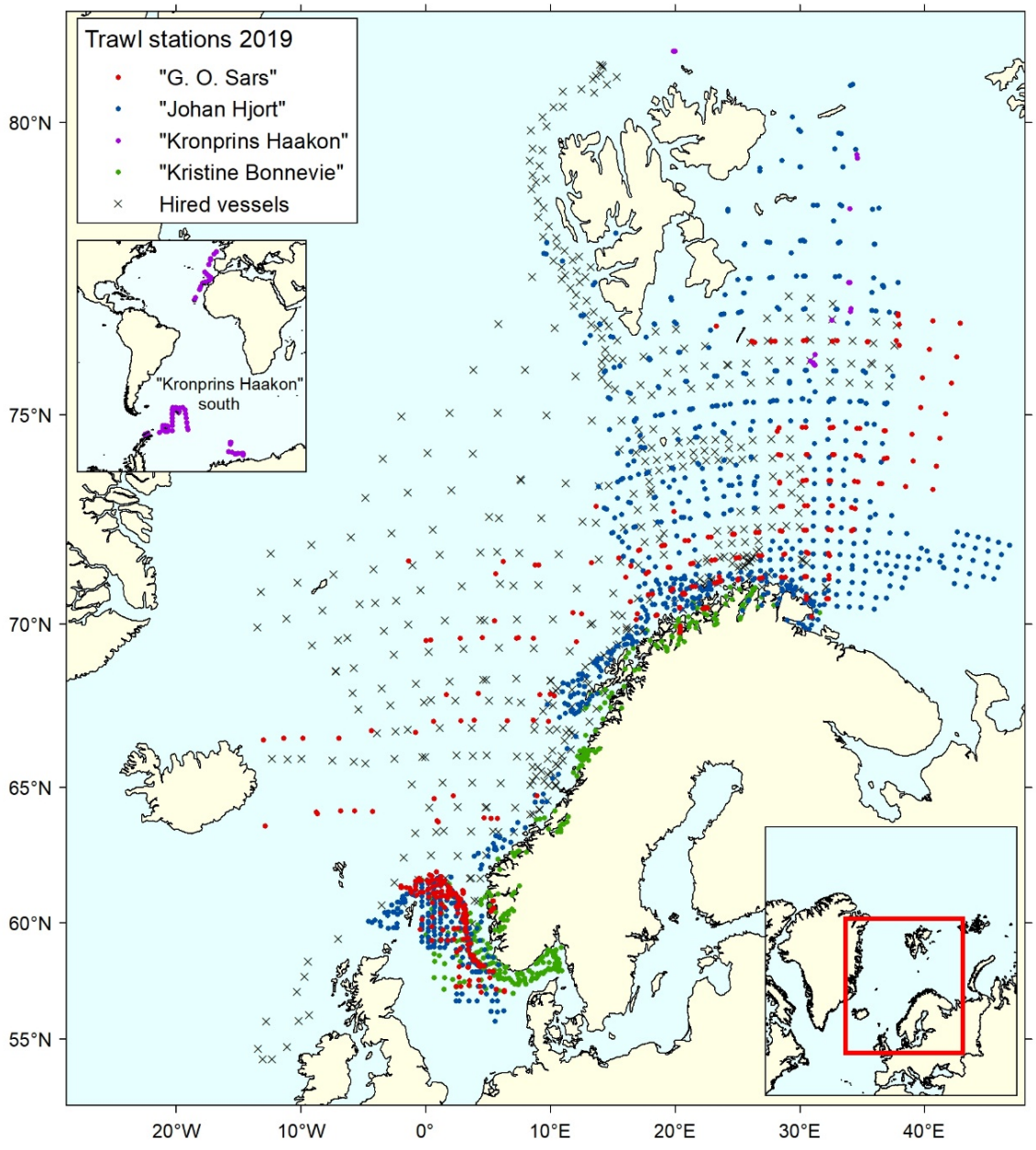
Oversikt over tokt og stasjoner tatt i 2019.

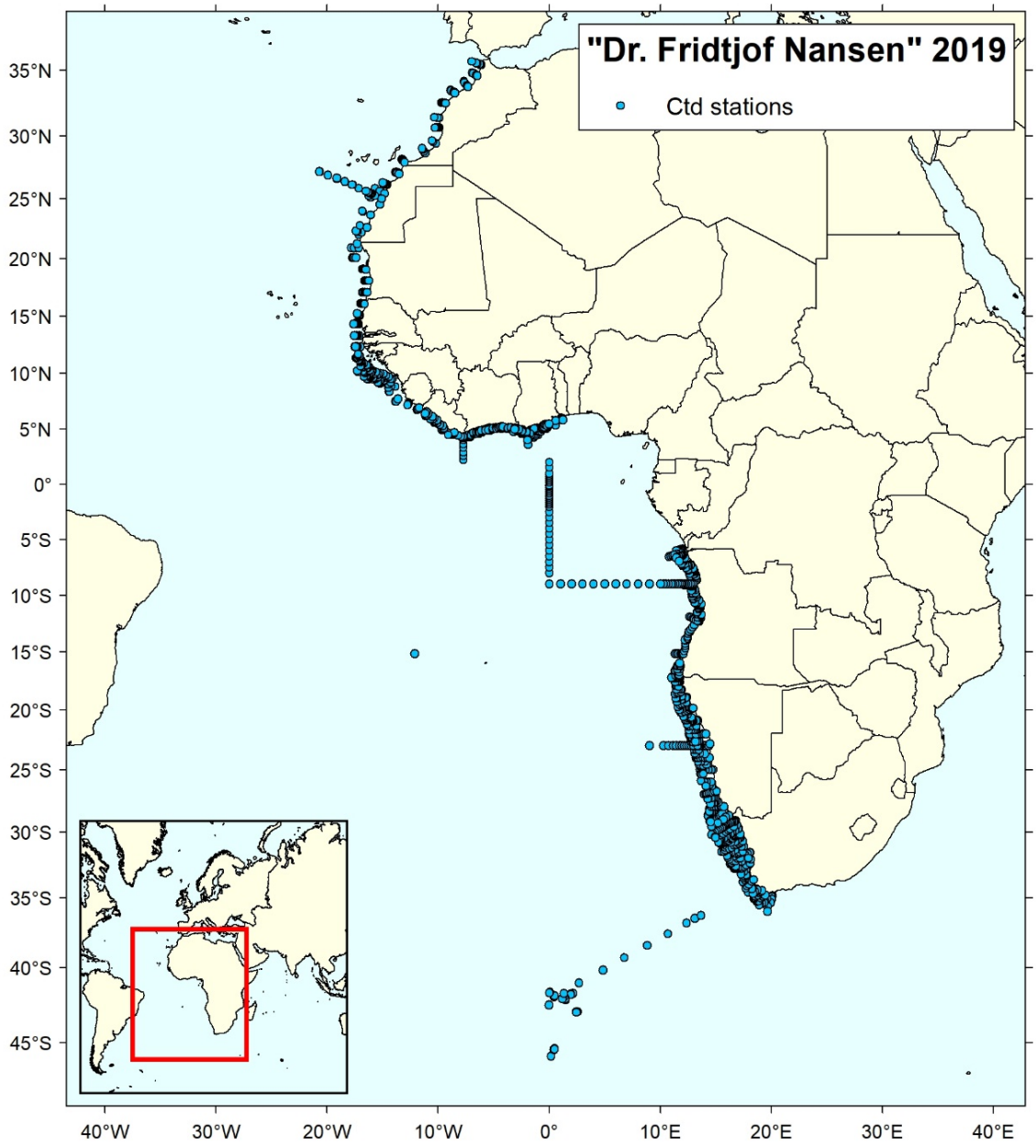
Rapporten gir en oversikt over tokt i 2019 i regi av Havforskningsinstituttet, Universitetet i Bergen og Tromsø, og Norsk Polarinstitutt, Tromsø, med egne og mange av de innleide fartøyer. Den gir en kort beskrivelse av toktet og viser kurs- og stasjonskart – hovedsakelig CTD, plankton og trålstasjoner. Tabeller viser når de faste snittene er tatt og antall observasjoner per måned for de faste stasjonene. Toktene er innrapportert ICES (Det internasjonale råd for havforskning) i skjemaet: ”Cruise Summary Report”: http://www.seadatanet.org/Metadata/CSR. Data fra toktene er tilgjengelig fra Norsk marint datasenter, Havforskningsinstituttet. Kartene kan internt lastes ned fra instituttets intranettside/mediearkiv: https://mediearkiv.hi.no/. Kartene er laget av Karen E. Gjertsen. Sebastian Bosgraaf har laget kartene for ”G.M. Dannevig”.

Content

1 - Charts overview 2019 - Ctd stations and trawl stations.




Trawl stations 2019
"G. O. Sars"
"Johan Hjort"
"Kronprins Haakon"
"Kristine Bonnevie"
Hired vessels
"Kronprins Haakon" south
80°N
75°N
70°N
65°N
60°N
55°N
20°W
10°W
0°
10°E
20°E
30°E
40°E


"Dr. Fridtjof Nansen" 2019
Ctd stations
35°N
30°N
25°N
20°N
15°N
10°N
5°N
0°
5°S
10°S
15°S
20°S
25°S
30°S
35°S
40°S
45°S
40°W
30°W
20°W
10°W
0°
10°E
20°E
30°E
40°E

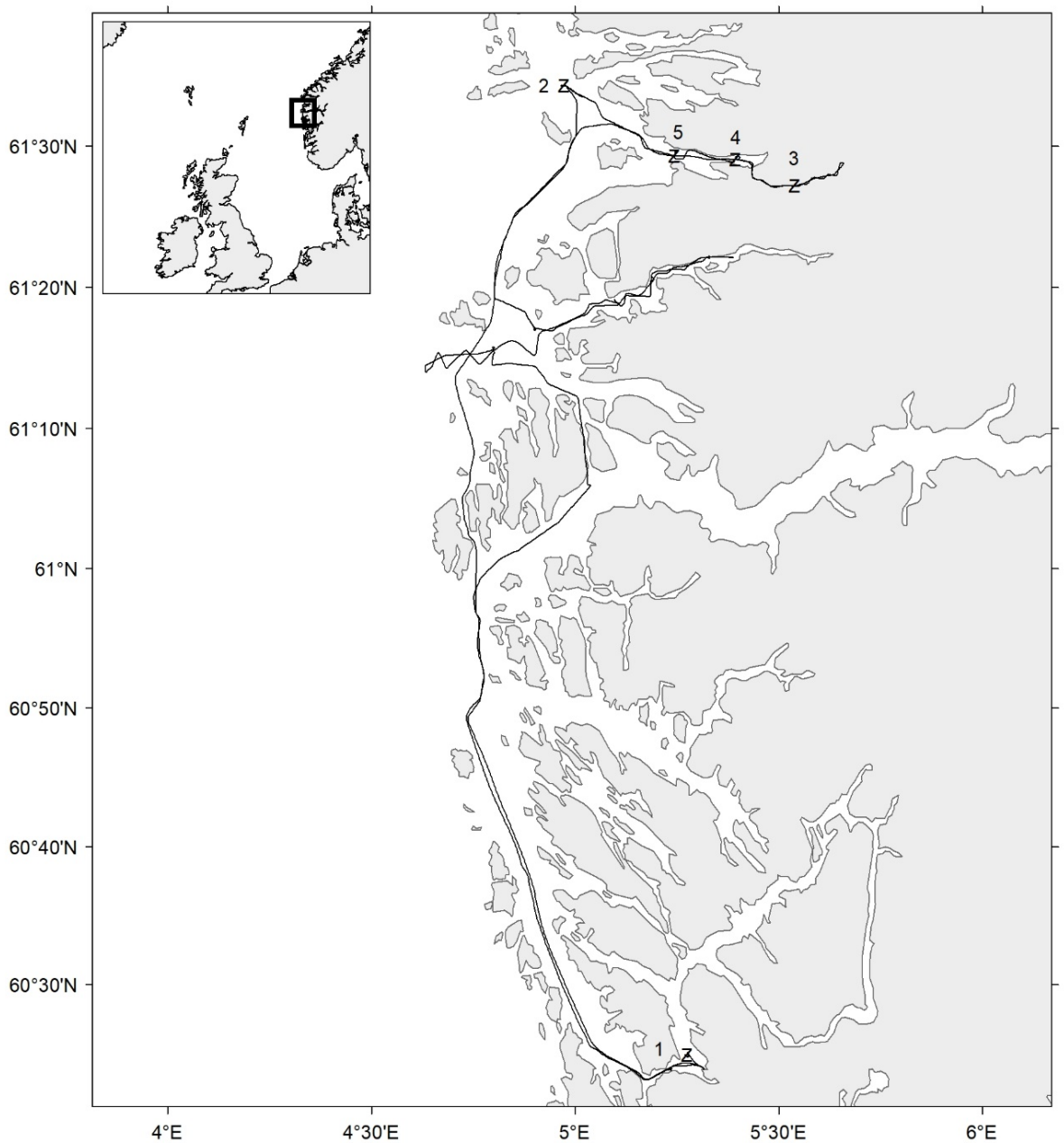
2 - "G. O. Sars" – Cruises 2019

Ship code 10

Cruise no	Period	Purpose	Area	CTD st.no	Trawl st.no	Fig. no
2019101	2.1.-4.1.	The marine geological survey is a training course for students within marine geology and marine geophysic.	Norwegian fjords	1-5	-	1
2019102	5.2.-3.3.	Monitoring: demersal fish stocks, fish egg and larvae, shellfish and cephalopods, other macro-benthic species, marine litter, temperature and salinity.	North Sea, Northeast Atlantic Ocean	6-138	1-61	2-4
2019103	5.3.-22.3.	Acoustic survey of saithe during the spawning period, at time of year when saithe spawning stock (SSB) are highly aggregated. Survey to be used in assessment after 5 years (ICES regulation).	North Sea	139-161	62-142	5-6
2019104	24.3.-26.3.	Collecting plankton and phytoplankton with mocness and multinet mammoth. Comparison of two different tools, Mocness and Multinet Mammoth, for collecting zooplankton. Both gears are multipel nets with open and close mechanisms.	Norwegian fjords	162	-	7
2019105		Cancelled	-	-	-	
2019106	6.4.-19.4.	Sea bottom mapping with video-filming and sampling of benthic fauna and sediments at selected stations in the shelf and continental slope west of Bear Island. The main aim is mapping of benthic fauna, bio-diversity, habitat types, geological terrain-parameters and chemical pollution. The mapping was performed using visual seabed observation using hauled video rig, sampling of sediments and organisms using a variety of sampling gears (grab, boxcorer, multicorer, beam trawl and hyperbenthic sled).	Barents Sea	163-168	-	8
2019107	29.4.-3.6.	Part of the International Ecosystem Survey of the Nordic Seas (IESNS) where the objectives are (1) to measure the abundance of Norwegian spring-spawing herring and blue whiting using acoustics, (2) collect data on zoo- and phytoplankton, (3) measure the hydrographical conditions.	Norwegian Sea	169-223	143-195	9-10
2019108	7.6.-4.7.	Deep Sea Research	Norwegian Sea	224-230	-	11
2019109	6.7.-10.7.	The purposes of the cruise was to-Visually inspect the wreck of the nuclear submarine «Komsomolets» with cameras attached to the Remote Operated Vehicle (ROV). Collect samples of seawater, sediment and biota at specific locations in the immediate proximity of the wreck. «Komsomolets» is resting at a depth of 1680 m at 73.72N and 13.27E southwest of Bear Island in the Norwegian Sea.	Norwegian Sea	231-236	-	12
2019110	10.7.-15.7.	The objective of the cruise was to collect corals from deep-sea coral reefs to assess the biological and physiological health status of reefs in the Northern part of the Norwegian coast and shelf. In addition, water samples were collected to assess water quality parameters and food availability for organisms living in the reefs. Carbon chemistry parameters were measured to assess temporal variability in ocean chemistry and to create a basline data base for the OA monitoring in Norway. Fugløya, Korallen, Stjernsund, Steinavær and Hola reefs were sampled.	Norwegian Sea	237-252	-	13-14
2019111	18.7.-21.7.	LoVe and transect 3	Norwegian Coast	253-258	-	15
2019112	24.7.-6.8.	The ocean bottom seismometer survey to study crustal structure in the KNIPOVICH RIDGE and transition zone with oceanic crust. The structure of the oceanic crust generated by the ultraslow, oblique spreading KNIPOVICH RIDGE, the end-member of spreading ridge s ystem, makes it an important and interesting ridge to investigate. This ridge is responsible for opening of North Atlantic and relative movement between Greenland and Svalbard.	Barents Sea	259	-	16

2019113	13.8.-11.9.	Ecosystem Monitoring: oceanographic conditions, zooplankton, juvenile fish and adults (pelagic and demesal), benthos, sea birds, marine mammals, biodiversity and marine litter.	Barents Sea	261-343	198-337	17-18
2019114	18.9.-4.10.	Training course in Ocean Science.	North Sea	344-390	338-428	19-20
2019115	10.10.-15.11.	MAREANO Leg 3. Kvitøyrenna Sea bottom mapping with video-filming and sampling of benthic fauna and sediments at selected stations in the Barents Sea (west and east off Svalbard). With the main aim off mapping benthic fauna, bio-diversity, habitat types, geological terrain-parameters and chemical pollution.The mapping was performed using visual seabed observation and sampling of sediments and organisms using a variety of sampling tools (video-rig, grab, box corer, multicorer, beam trawl and hyperbenthic sledge).	Barents Sea	391-402	-	21
2019119	-	Cancelled (Mareano)	-	-	-	-
2019120	20.11.-24.11	Course	-	-	-	-
2019117	26.11.-5.12.	Investigations of sampling trawls.	Barents Sea	-	429-490	22
2019118	11.12.-17.12.	ICES international training course in wideband acoustic methods, with 20 international scientists.	Norwegian fjord	405-406		23

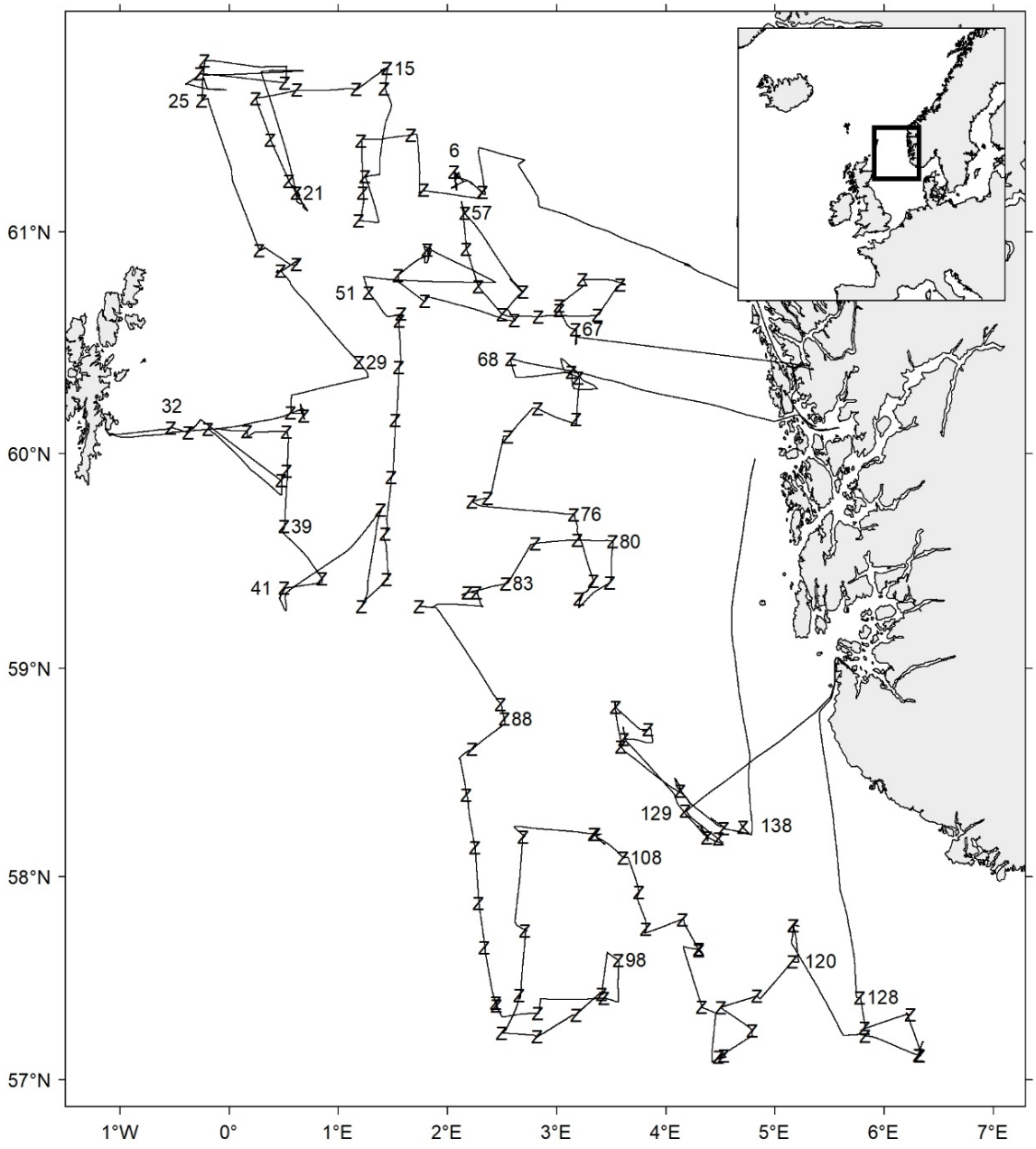
3 - "G. O. Sars" – Charts for cruises 2019



Cruise no 2019101 "G. O. Sars"
2–4 January 2019

z CTD st.no 1-5

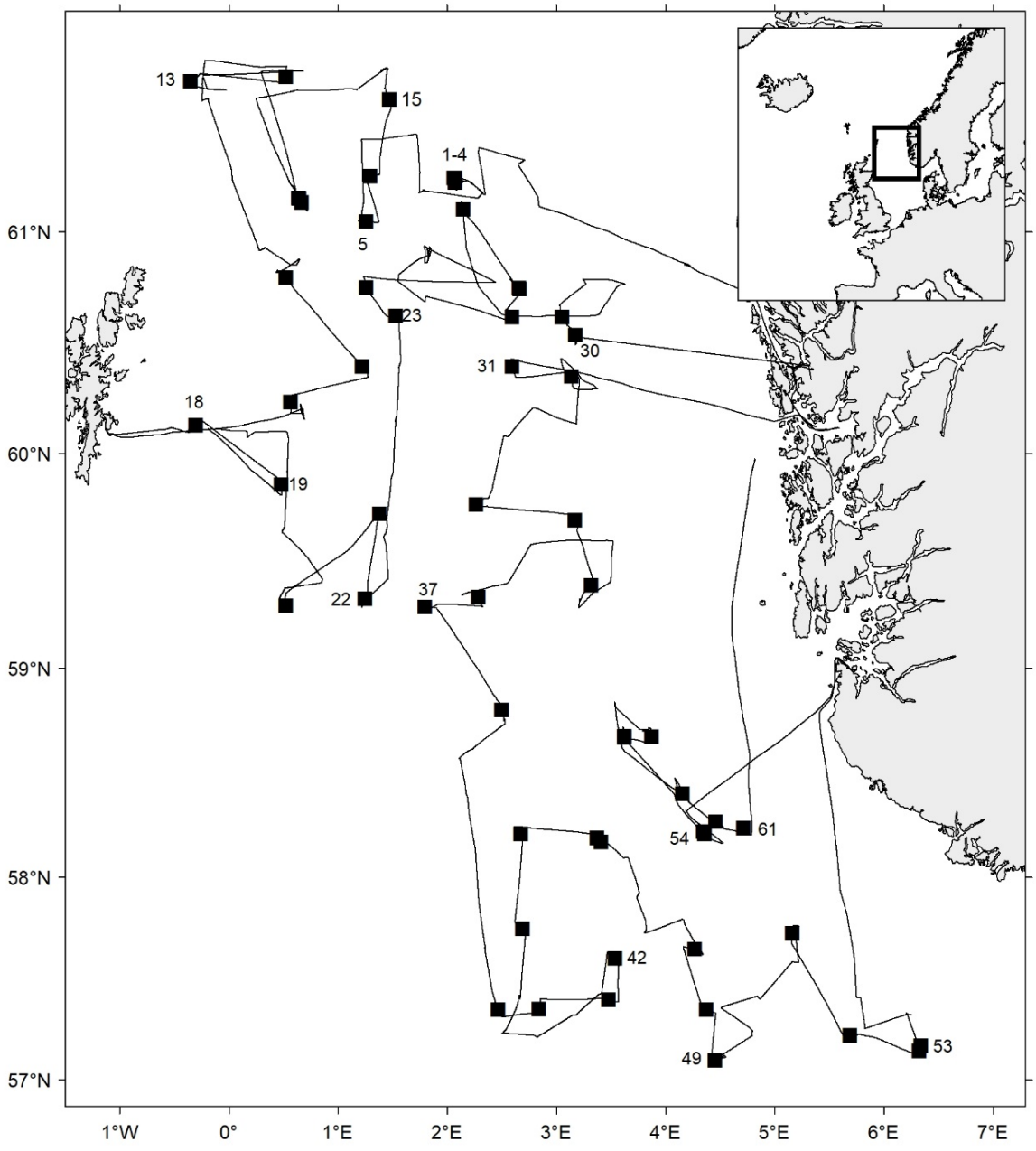
Fig. 1



Cruise no 2019102 "G. O. Sars" (Chart 1)
5 February–3 March 2019

z CTD st.no 6-138

Fig. 2



Cruise no 2019102 "G. O. Sars" (Chart II)
5 February–3 March 2019

■ Bottom trawl st.no 1-61

Fig3

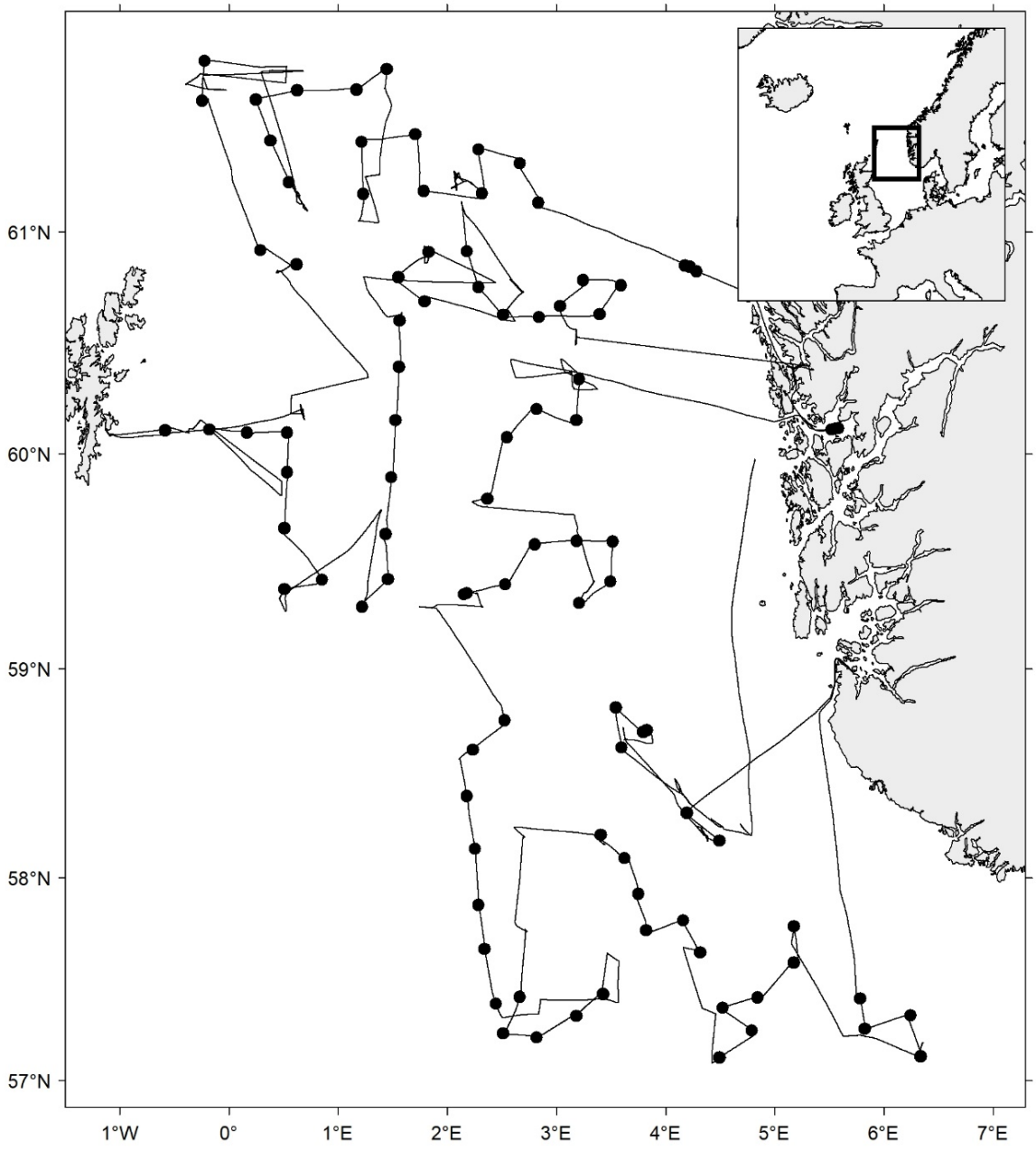
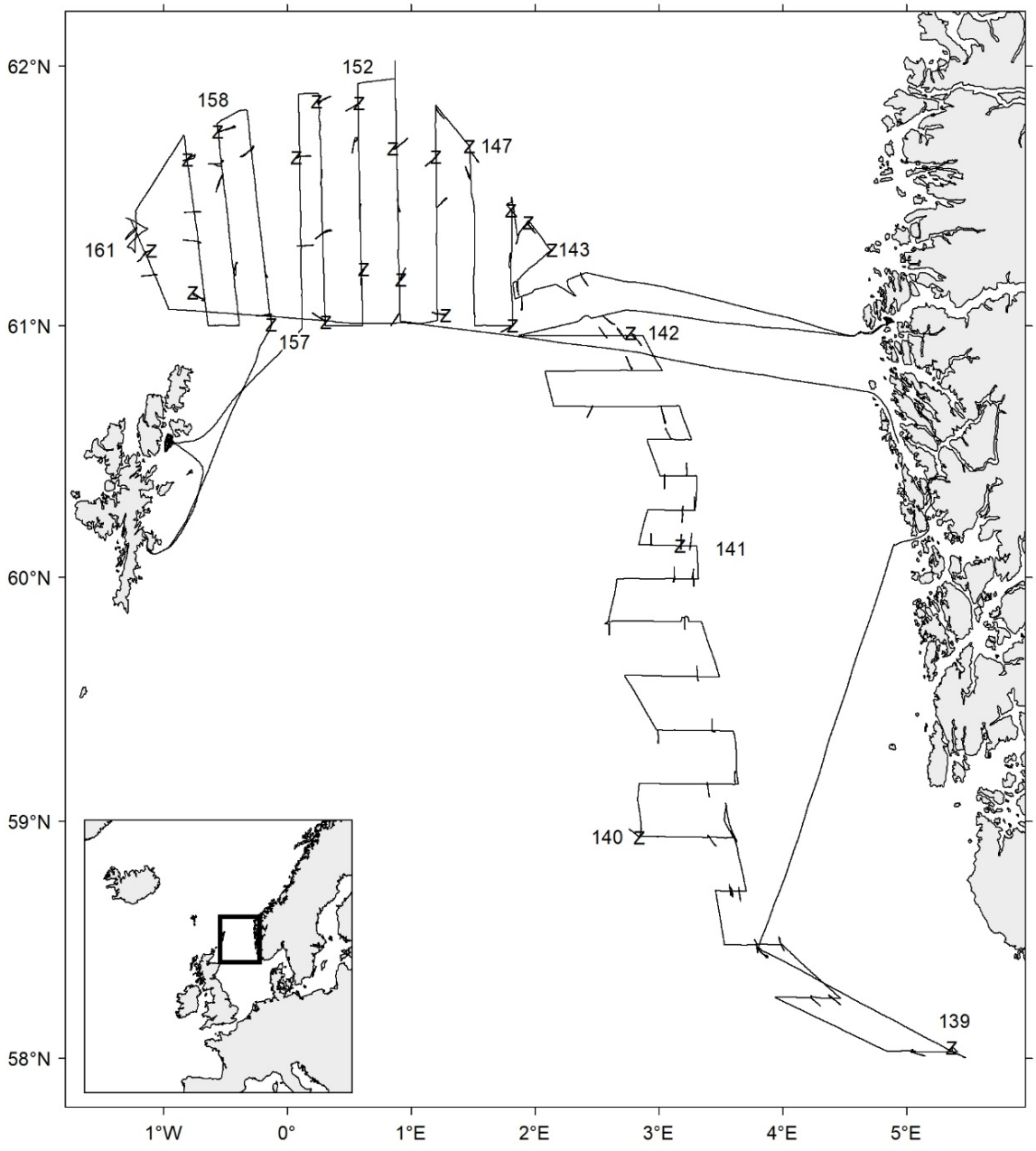

61°N
60°N
59°N
58°N
57°N
1°W
0°
1°E
2°E
3°E
4°E
5°E
6°E
7°E
Cruise no 2019102 "G. O. Sars" (Chart III)
5 February–3 March 2019
MIK station

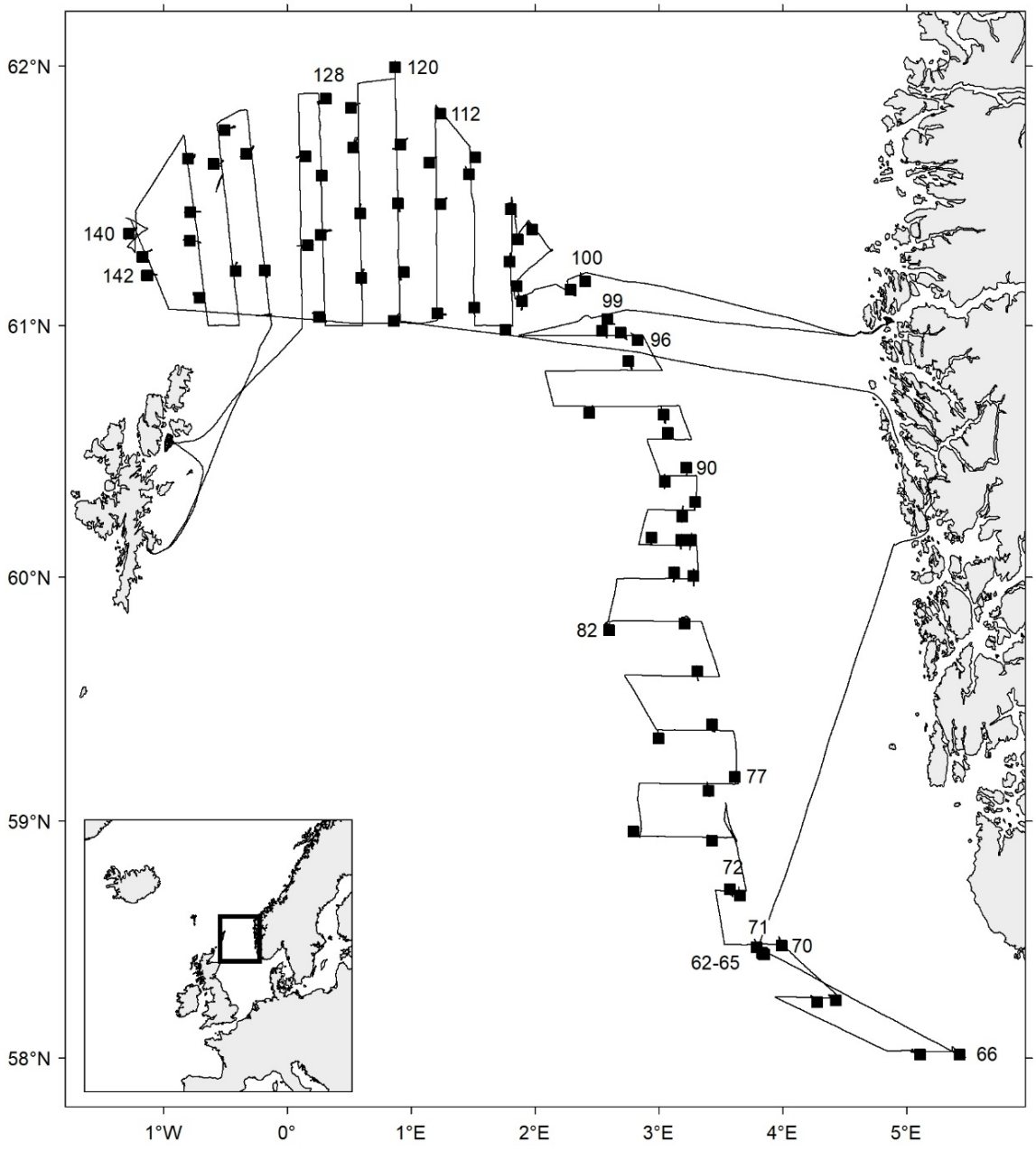
Fig. 4



Cruise no 2019103 "G. O. Sars" (Chart I)
5–22 March 2019

z CTD st.no 139-161

Fig. 5



Cruise no 2019103 "G. O. Sars" (Chart II)
5–22 March 2019

■ Bottom trawl st.no 62-142

Fig. 6

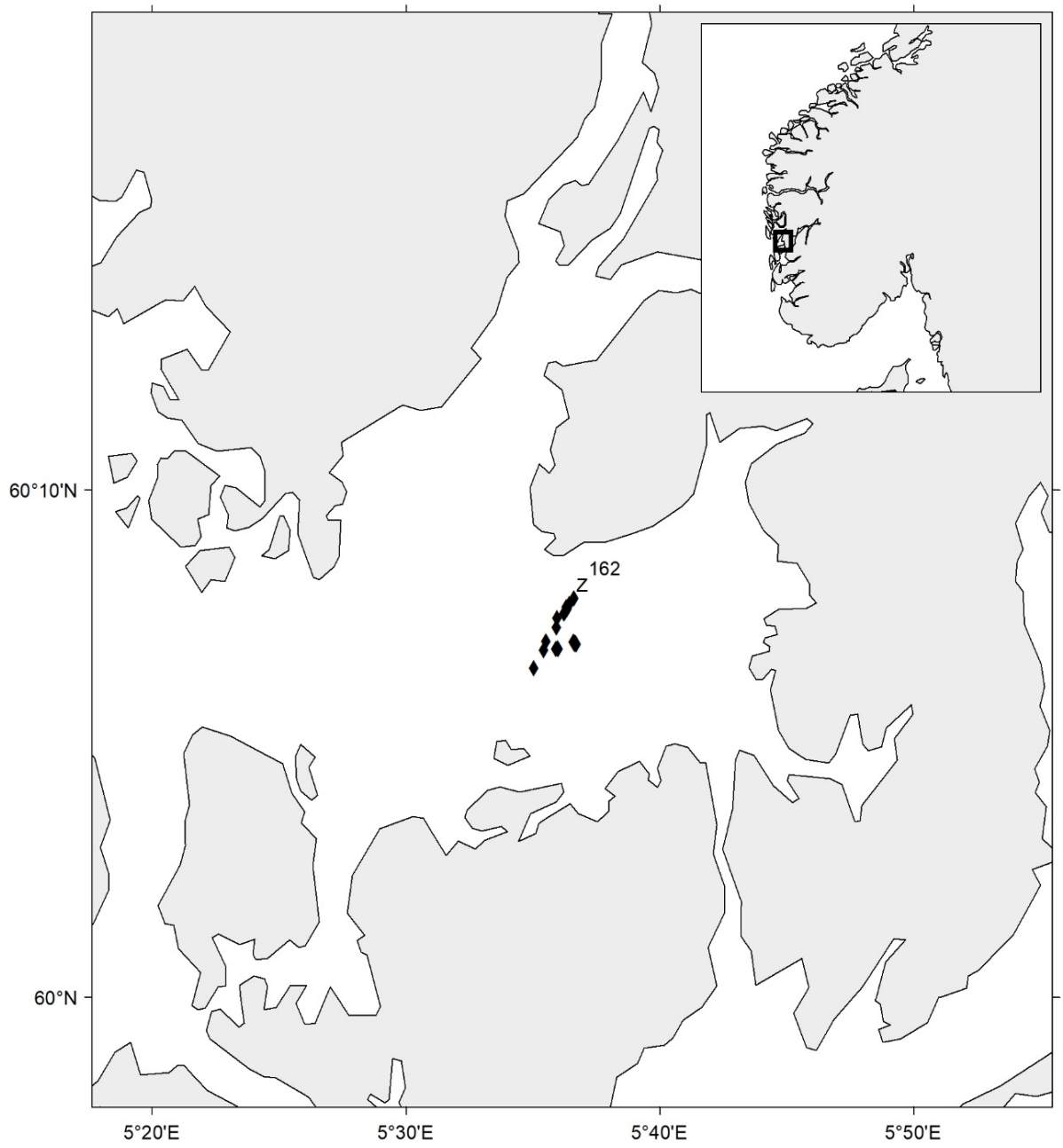
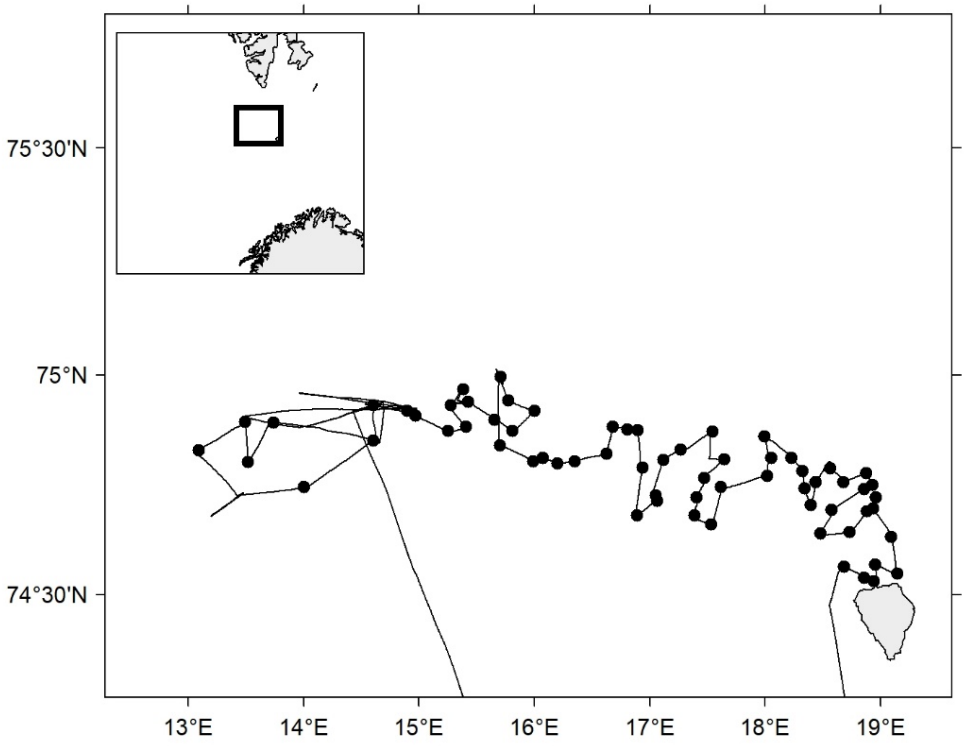
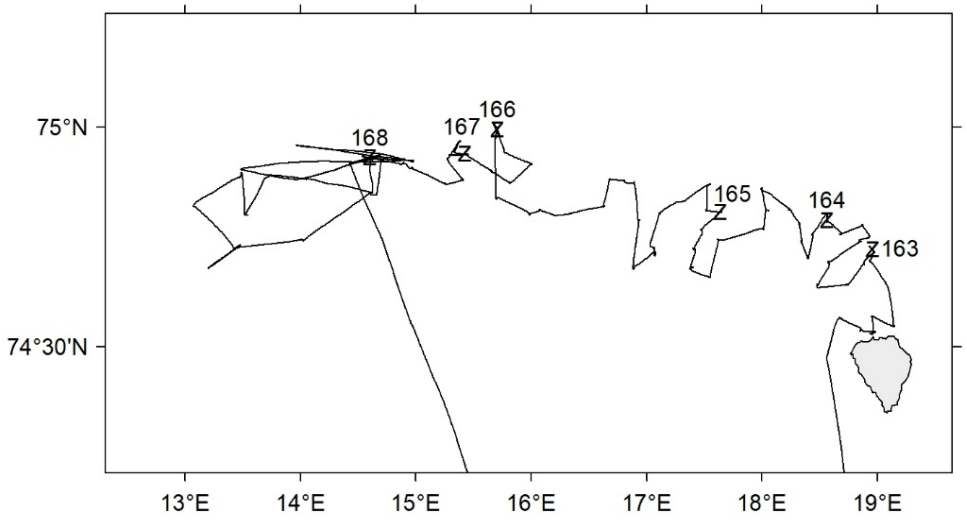

60°10'N
60°N
5°20'E
5°30'E
5°40'E
5°50'E
162
z
Cruise no 2019104 "G. O. Sars"
24–26 March 2019
z CTD st.no 162
♦ Mocness and Multinet mammoth

Fig. 7



Cruise no 2019106 "G.O.Sars"
6–19 April 2019

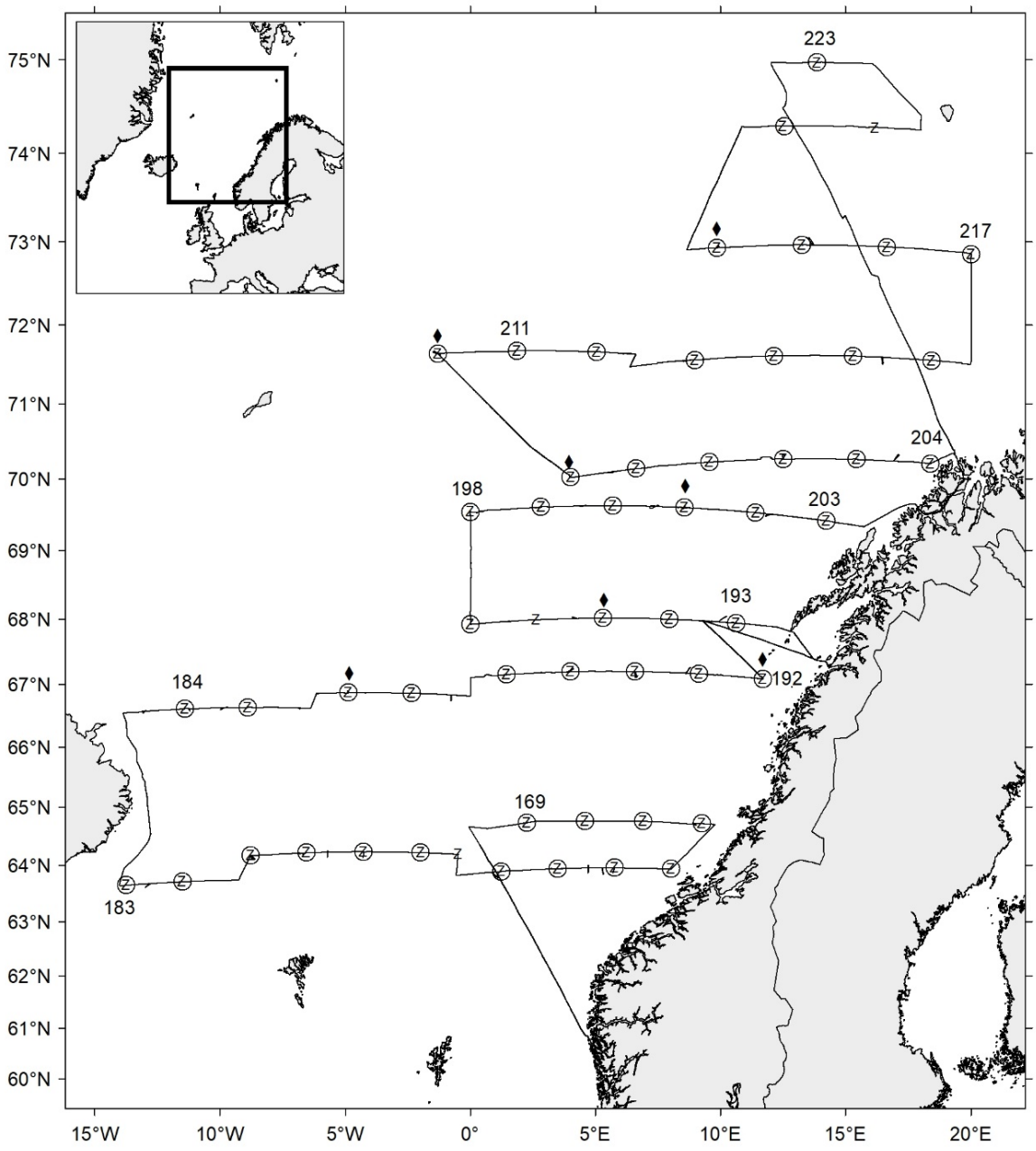
● Video stations st.no 1992–2057



Cruise no 2019106 "G.O.Sars"
6–19 April 2019

z Full stations - ctd st.no 163–168

Fig. 8



Cruise no 2019107 "G. O. Sars" (Chart I)
29 April–3 June 2019

z CTD st.no 169–223
○ Plankton st. (WP-II-net)
♦ Plankon st. (Multinet)

Fig. 9

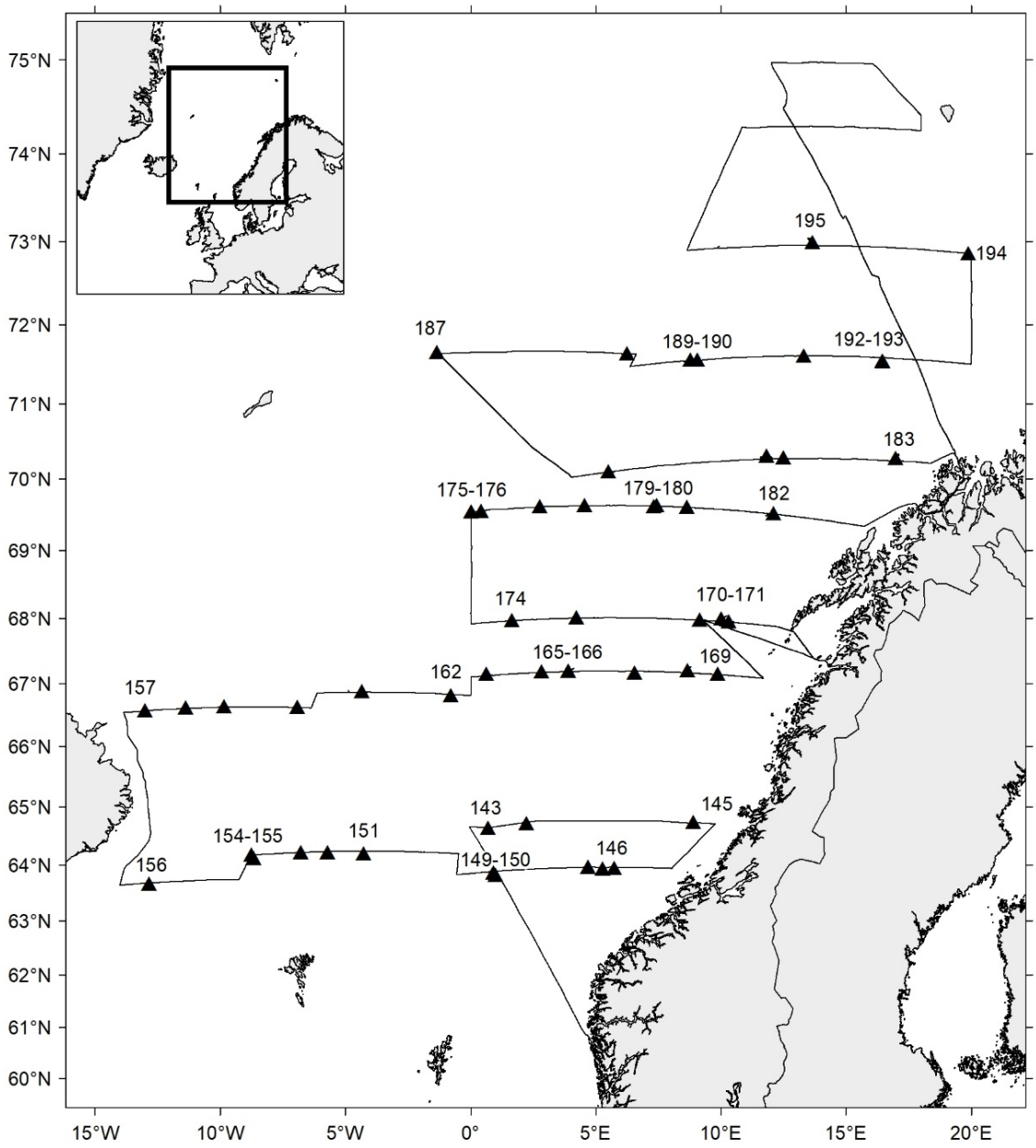
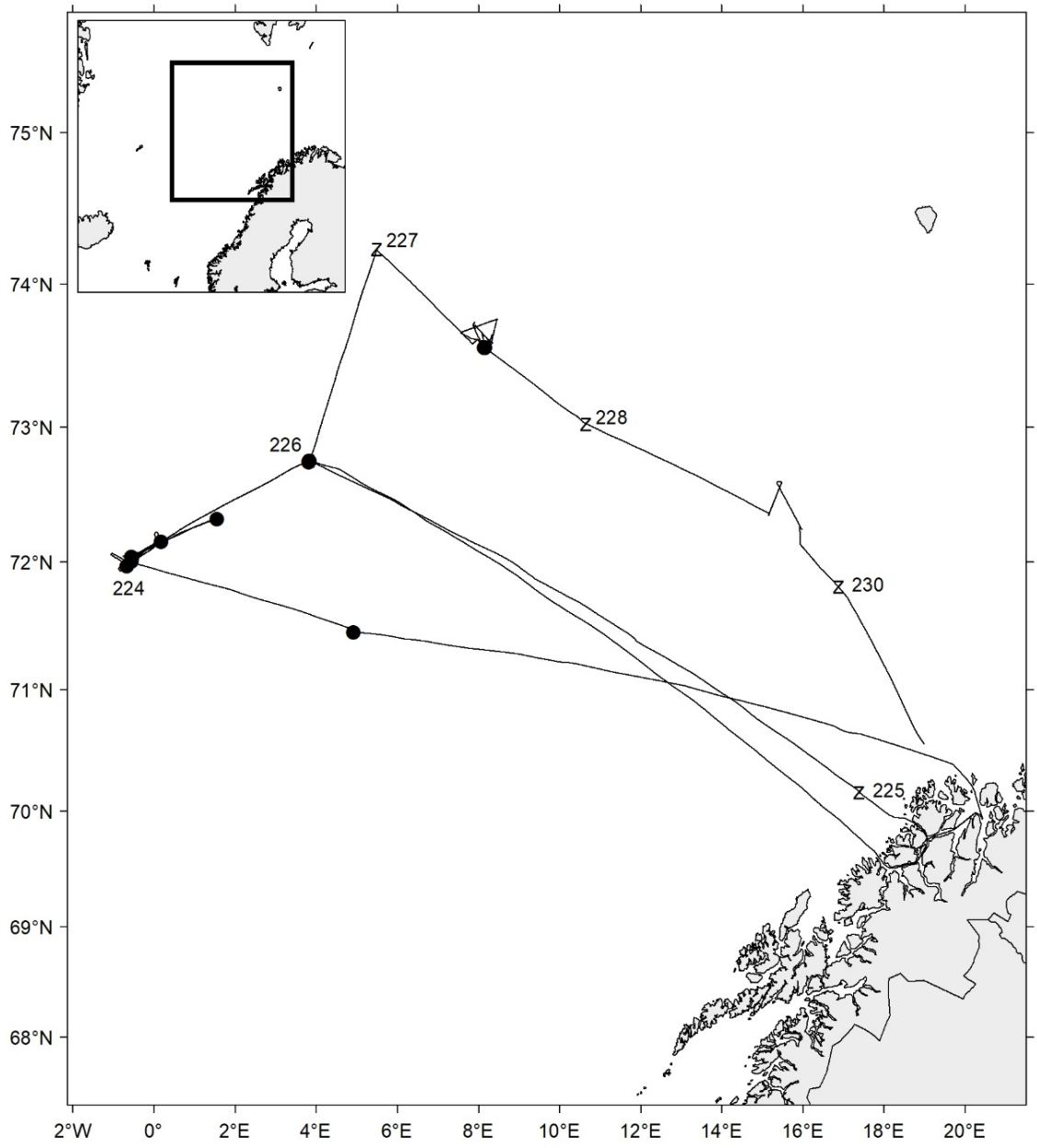

75°N
74°N
73°N
72°N
71°N
70°N
69°N
68°N
67°N
66°N
65°N
64°N
63°N
62°N
61°N
60°N
15°W
10°W
5°W
0°
5°E
10°E
15°E
20°E
195
194
187
189-190
192-193
183
175-176
179-180
182
174
170-171
165-166
169
162
157
143
145
154-155
151
146
156
149-150
Cruise no 2019107 "G. O. Sars" (Chart II)
29 April–3 June 2019
▲ Pelagic trawl st.no 143-195

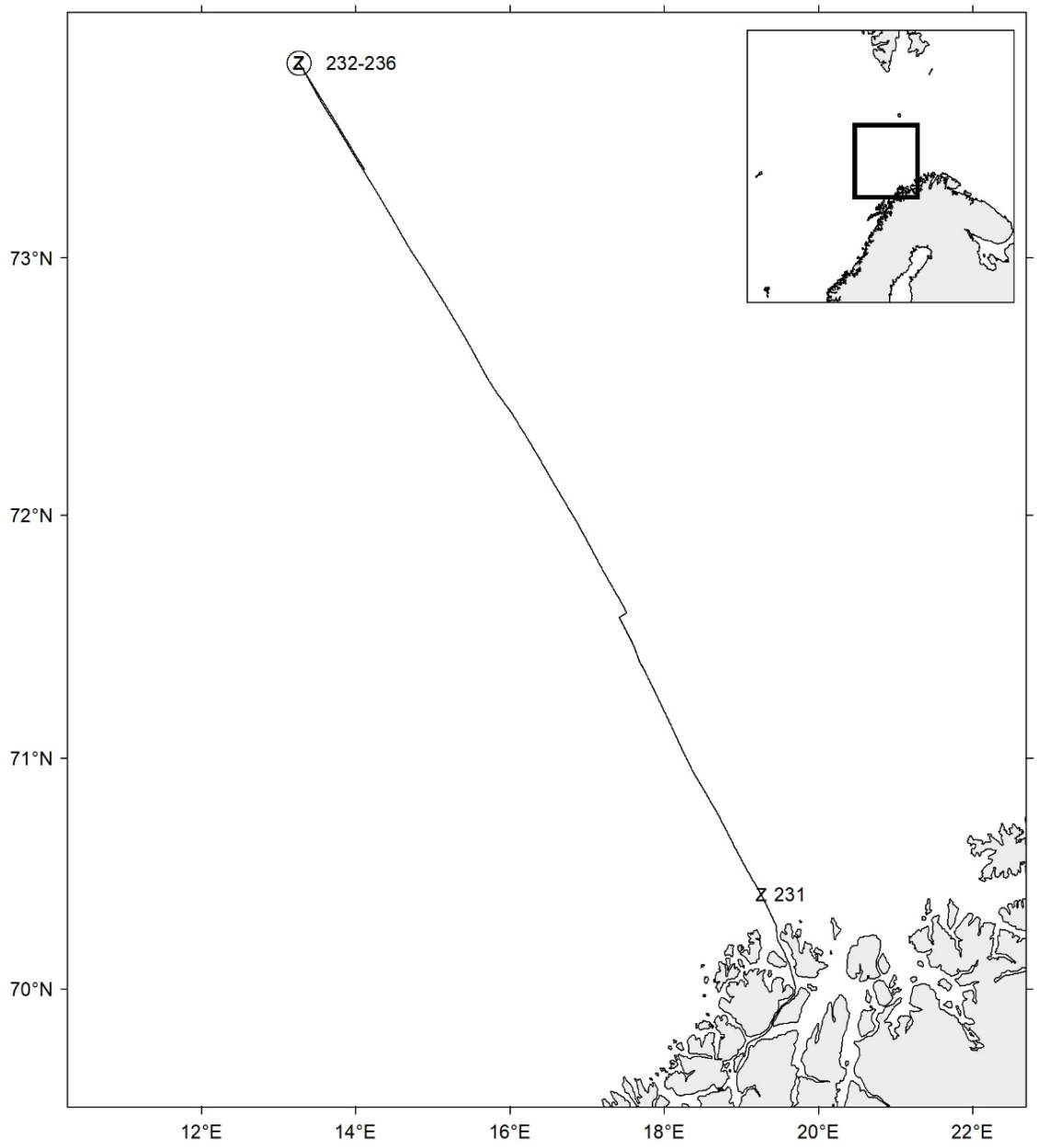
Fig. 10



Cruise no 2019108 "G. O. Sars"
7 June–4 July 2019

z CTD st.no 224-230
● Rov stations

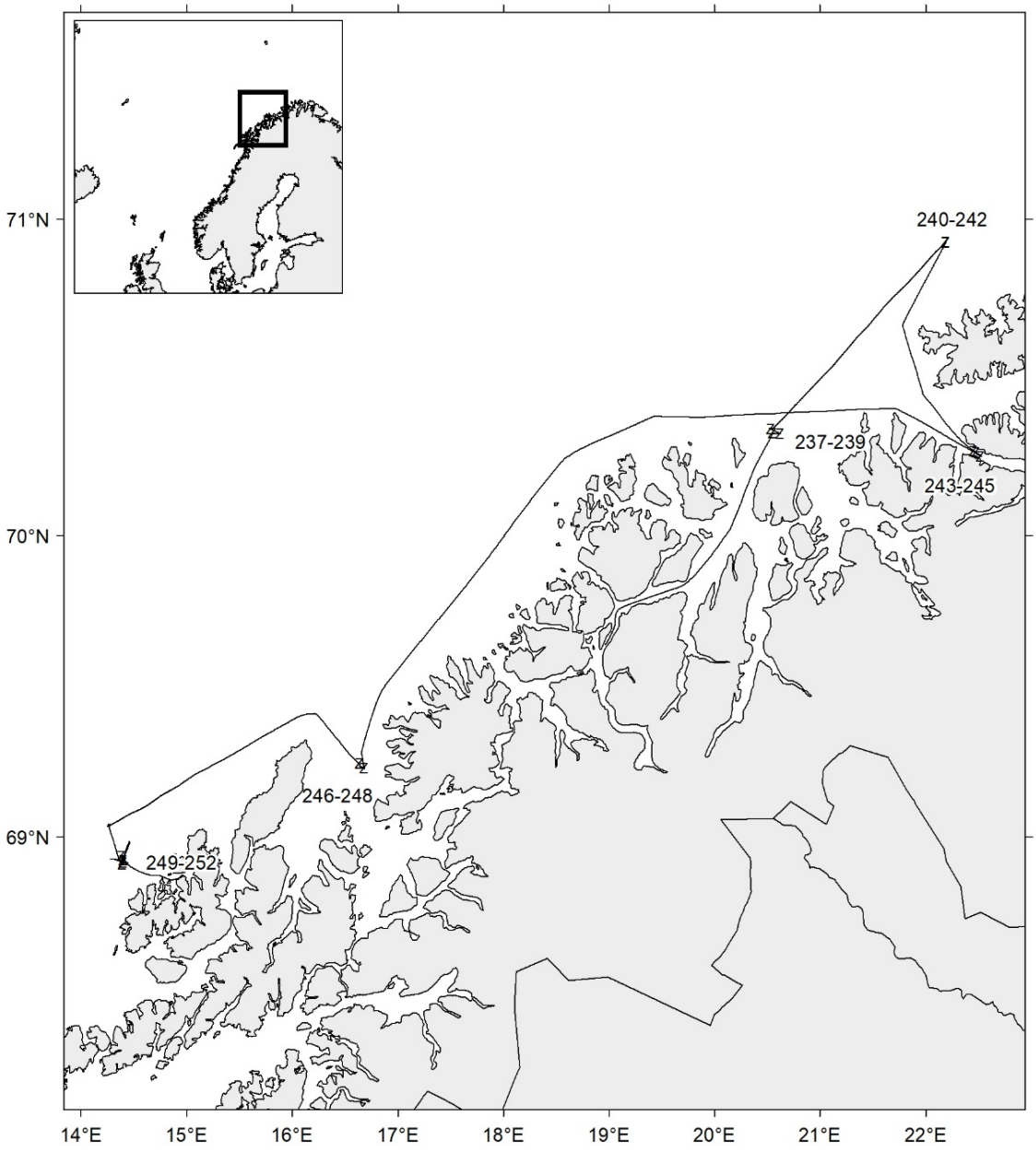
Fig.11



Cruise no 2019109 "G. O. Sars"
6–10 July 2019

z CTD st.no 231-236
○ Rov stations

Fig. 12



Cruise no 2019110 "G. O. Sars" (Chart 1)
10–15 July 2019

z CTD st.no 237-252

Fig. 13

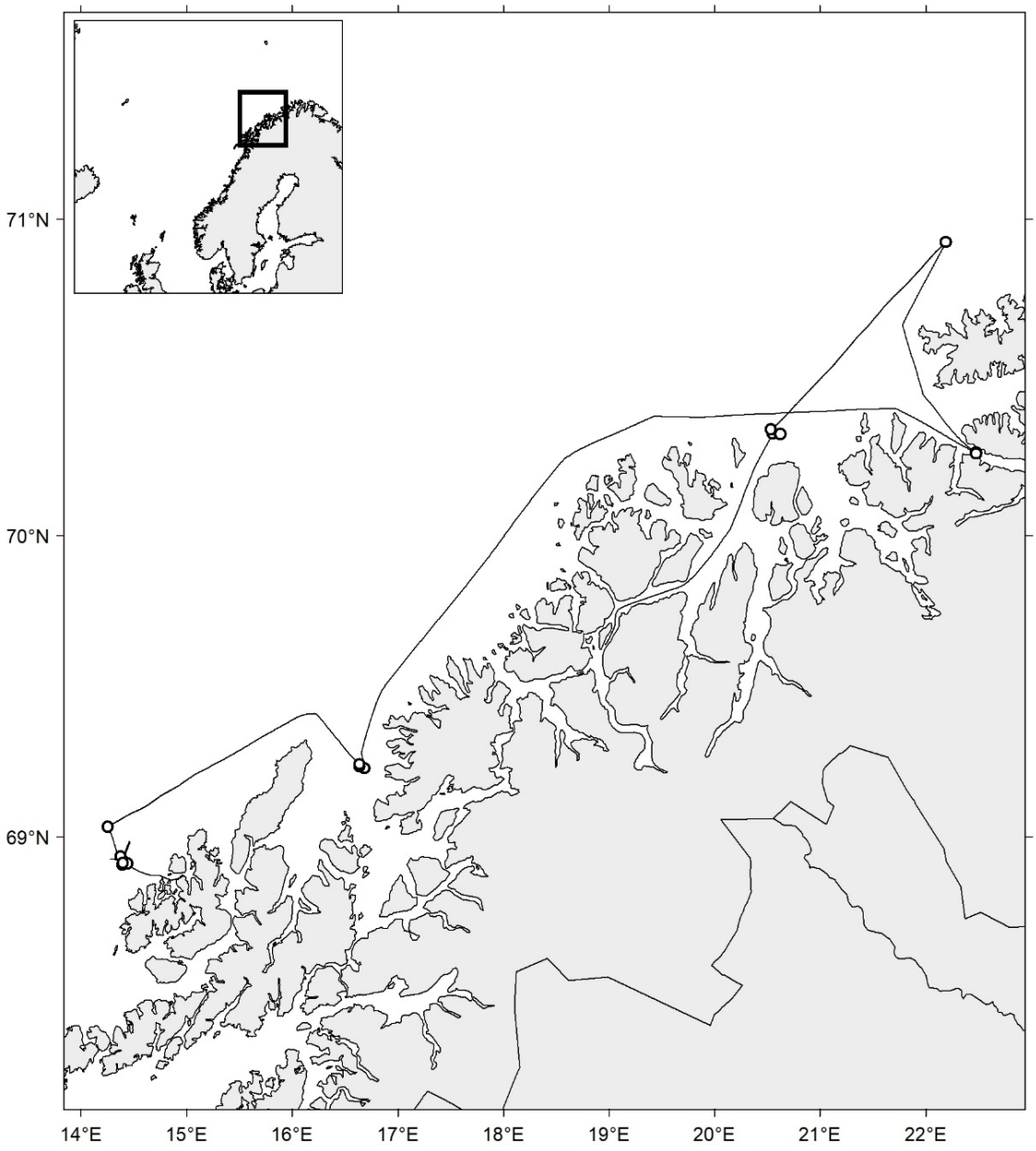
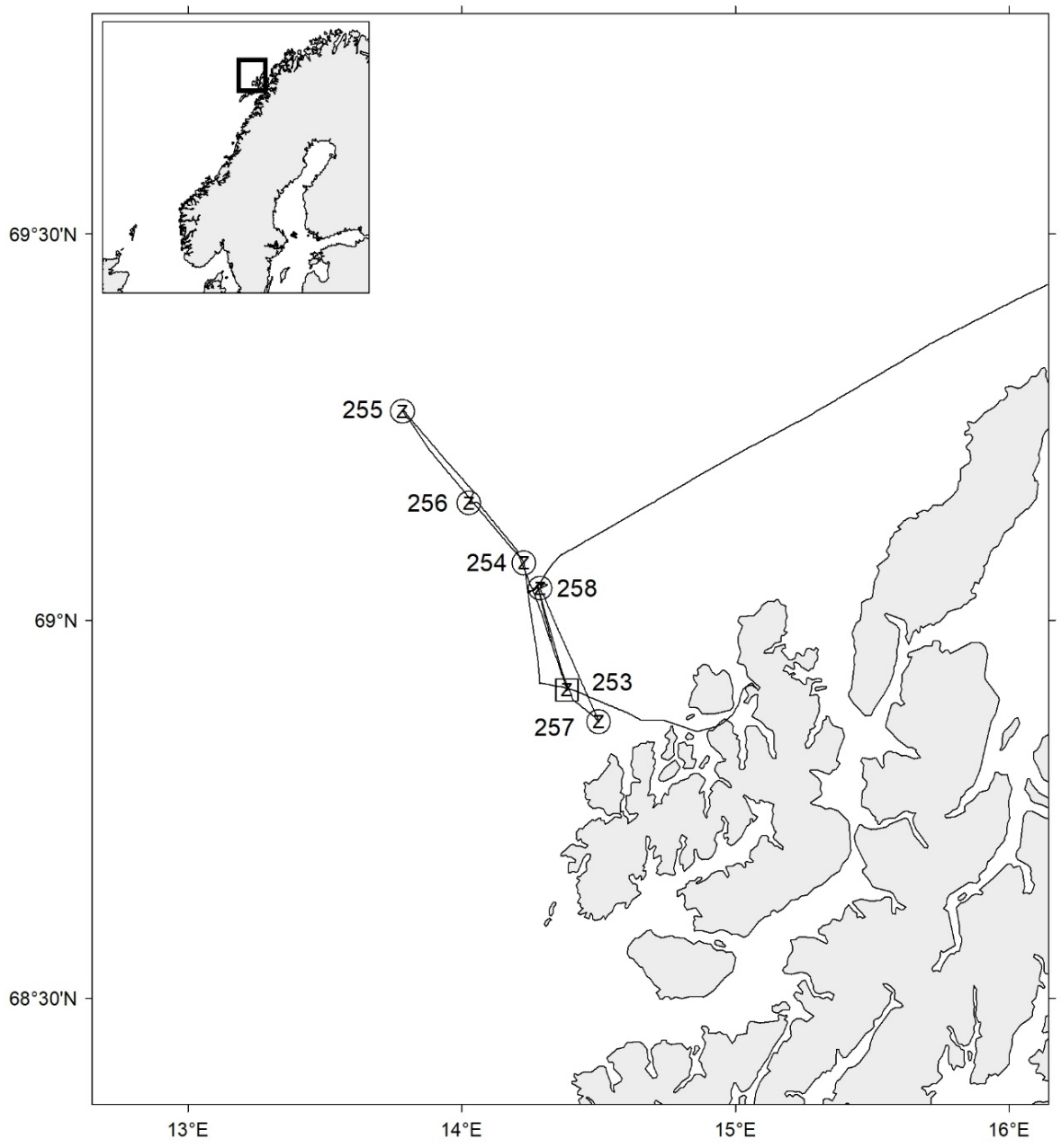

71°N
70°N
69°N
14°E
15°E
16°E
17°E
18°E
19°E
20°E
21°E
22°E
Cruise no 2019110 "G. O. Sars" (Chart II)
10–15 July 2019
ROV stations

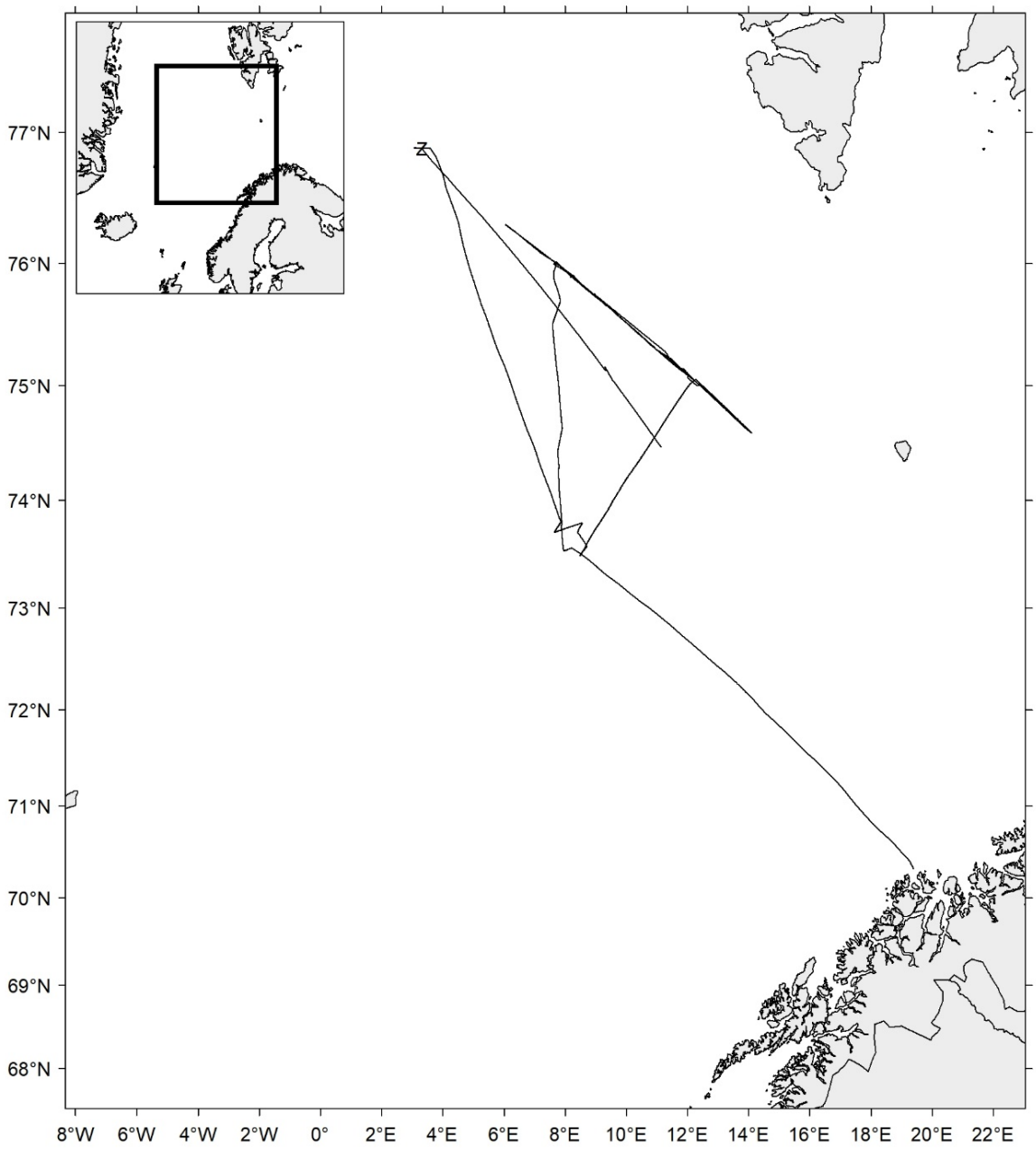
Fig. 14



Cruise no 2019111 "G. O. Sars"
18-21 July 2019

z CTD st.no 253-258
○ Plankton st. (WP-II-net)
□ ROV st.

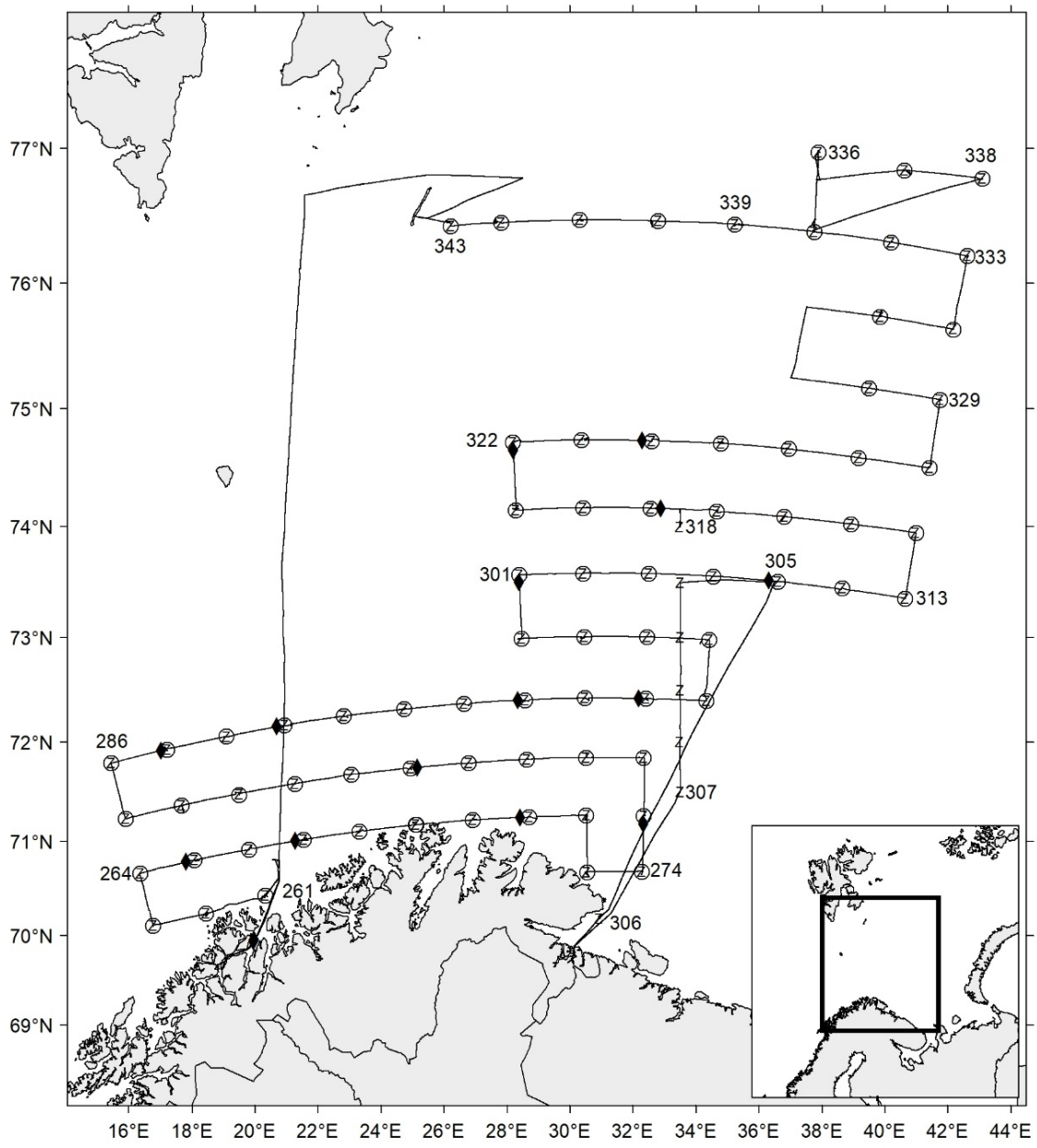
Fig. 15



Cruise no 2019112 "G. O. Sars"
24 July–6 August 2019

Collection of subsea seismic data (OBS) on the Knipovich ridge
CTD st.no 259

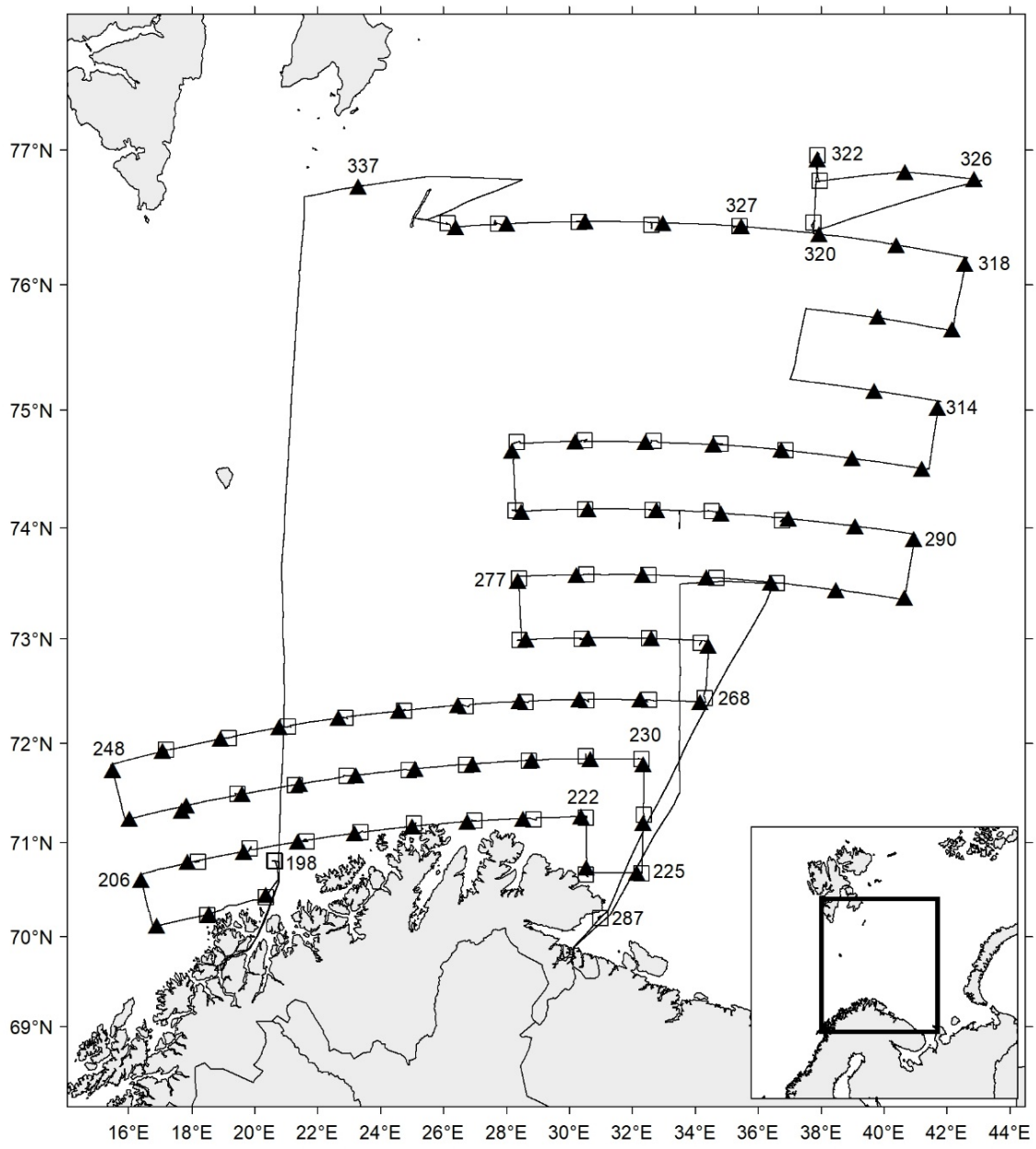
Fig. 16



Cruise no 2019113 "G. O. Sars" (Chart I)
13 August–11 September 2019

z CTD st.no 261-343
○ Plankton st. (WP-II-net)
♦ Plankton st. (Multinet)

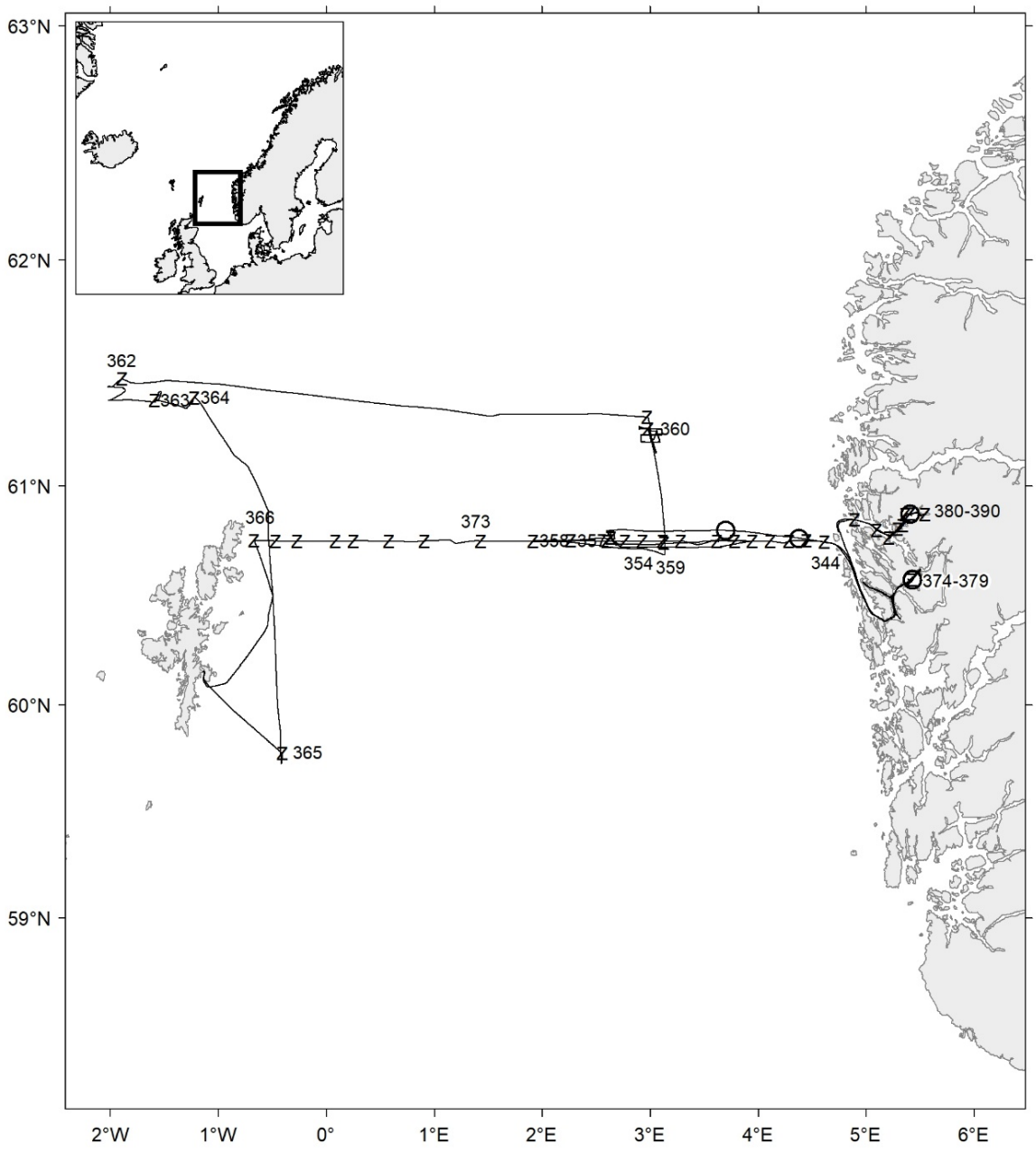
Fig. 17



Cruise no 2019113 "G. O. Sars" (Chart II)
13 August–11 September 2019

Trawl st.no 198-337
▲ Pelagic st.
□ Bottom st.

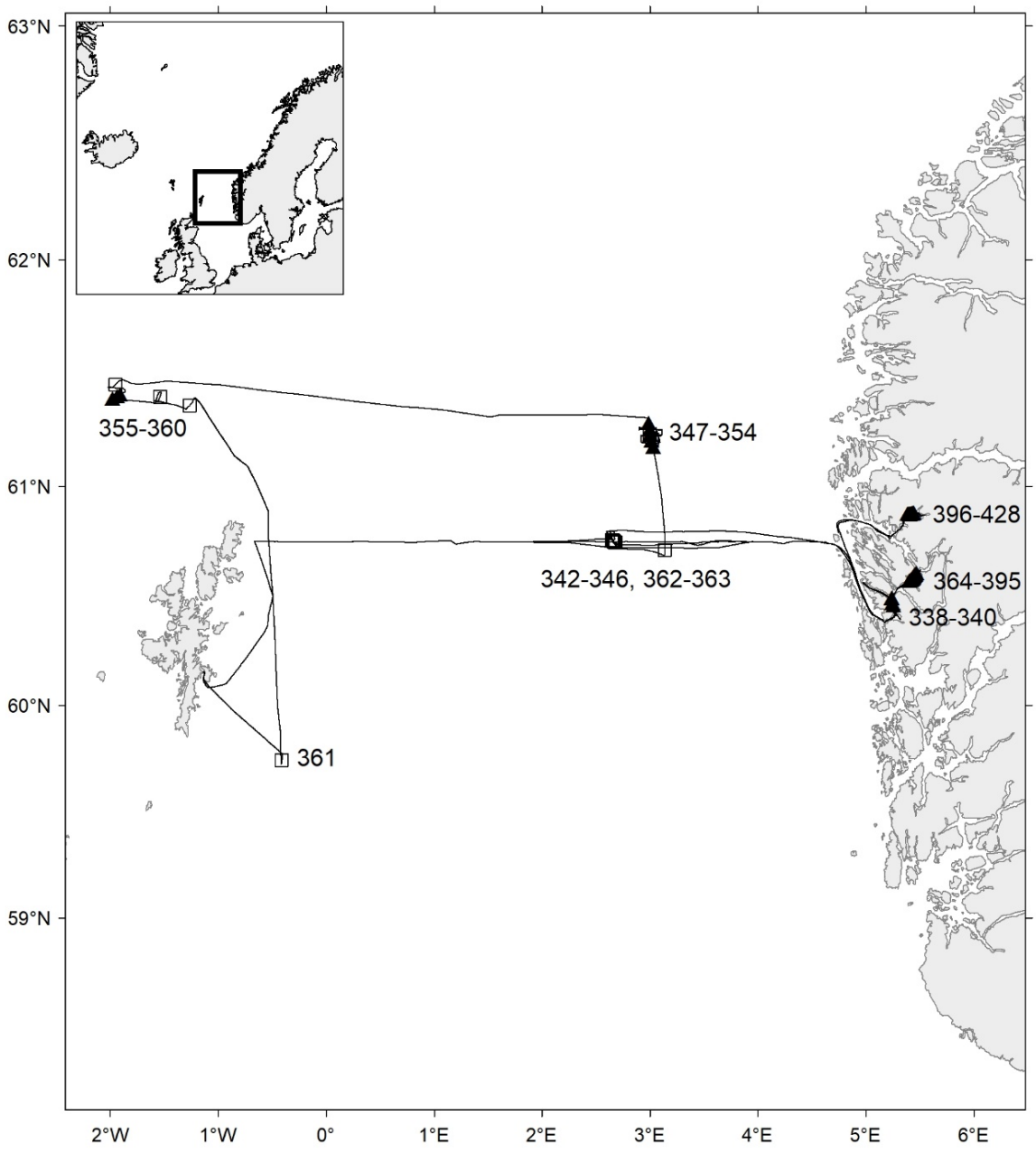
Fig. 18



Cruise no 2019114 "G. O. Sars" (Chart I)
18 September–4 October 2019

z CTD st.no 344-390
○ Plankton st. (Multinet)

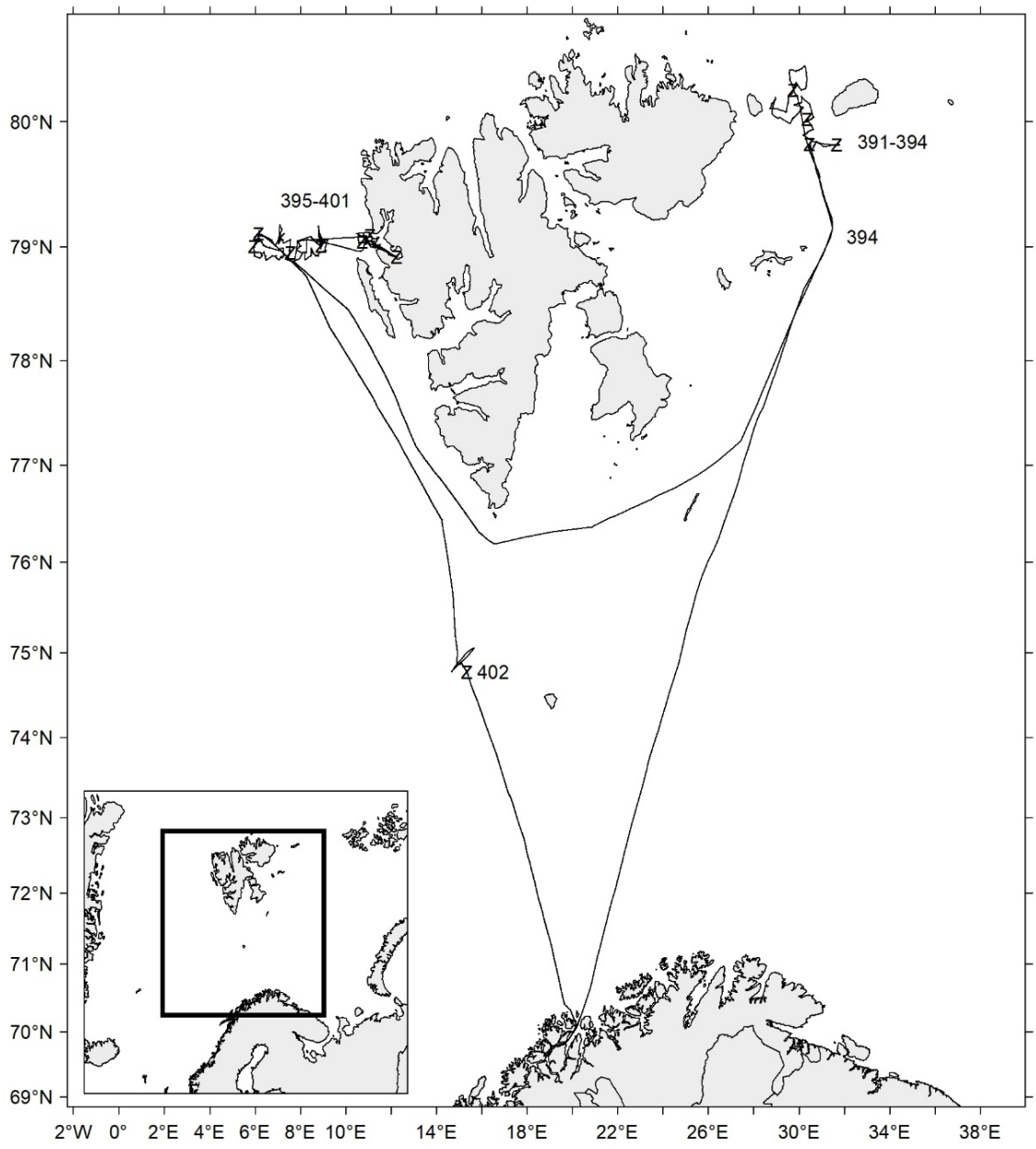
Fig. 19



Cruise no 2019114 "G. O. Sars" (Chart II)
18 September–4 October 2019

Trawl st.no 338-428
▲ Pelagic tr.
□ Bottom tr.

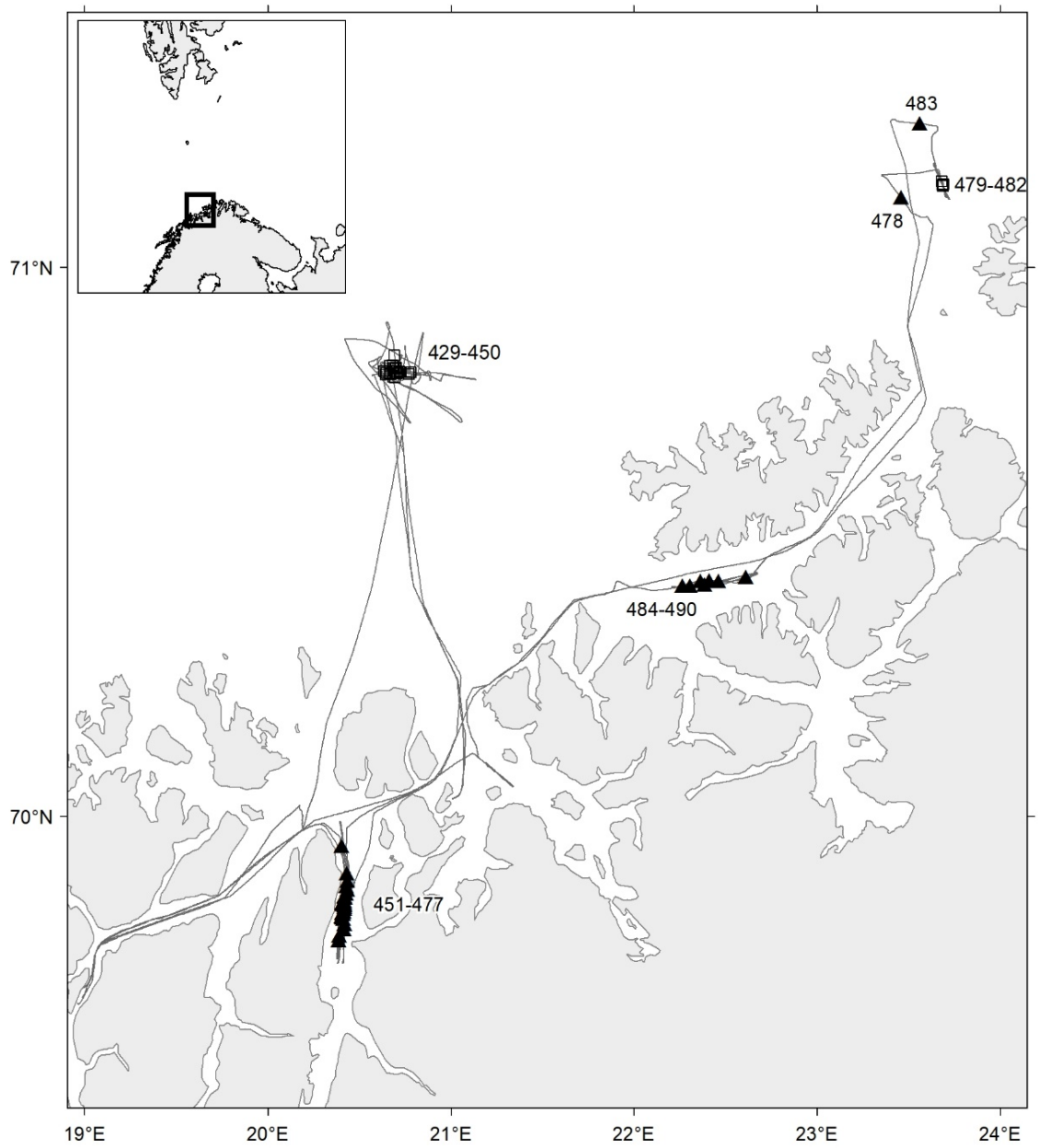
Fig. 20



Cruise no 2019115 "G.O.Sars" (Chart I)
10 October–5 November 2019

z CTD st.no 391-402

Fig. 21



Cruise no 2019117 "G. O. Sars"
26 November-5 December 2019

Trawl st.no 429-490
▲ Pelagic tr.
□ Bottom tr.

Fig. 22

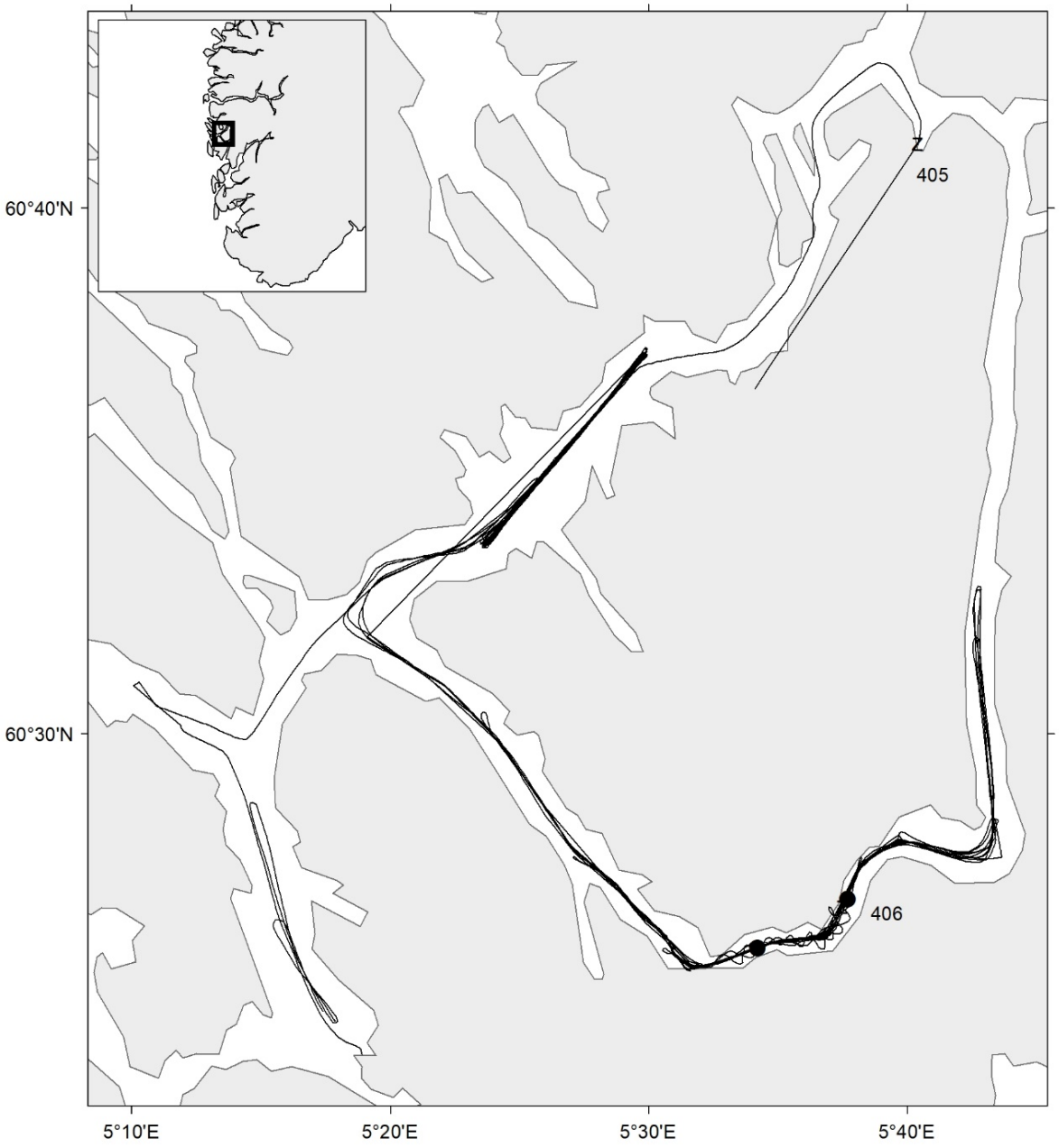

60°40'N
60°30'N
5°10'E
5°20'E
5°30'E
5°40'E
405
406
Cruise no 2019118 "G. O. Sars"
11–17 December 2019
z CTD st.no 405-406
● Krill trawl

Fig. 23

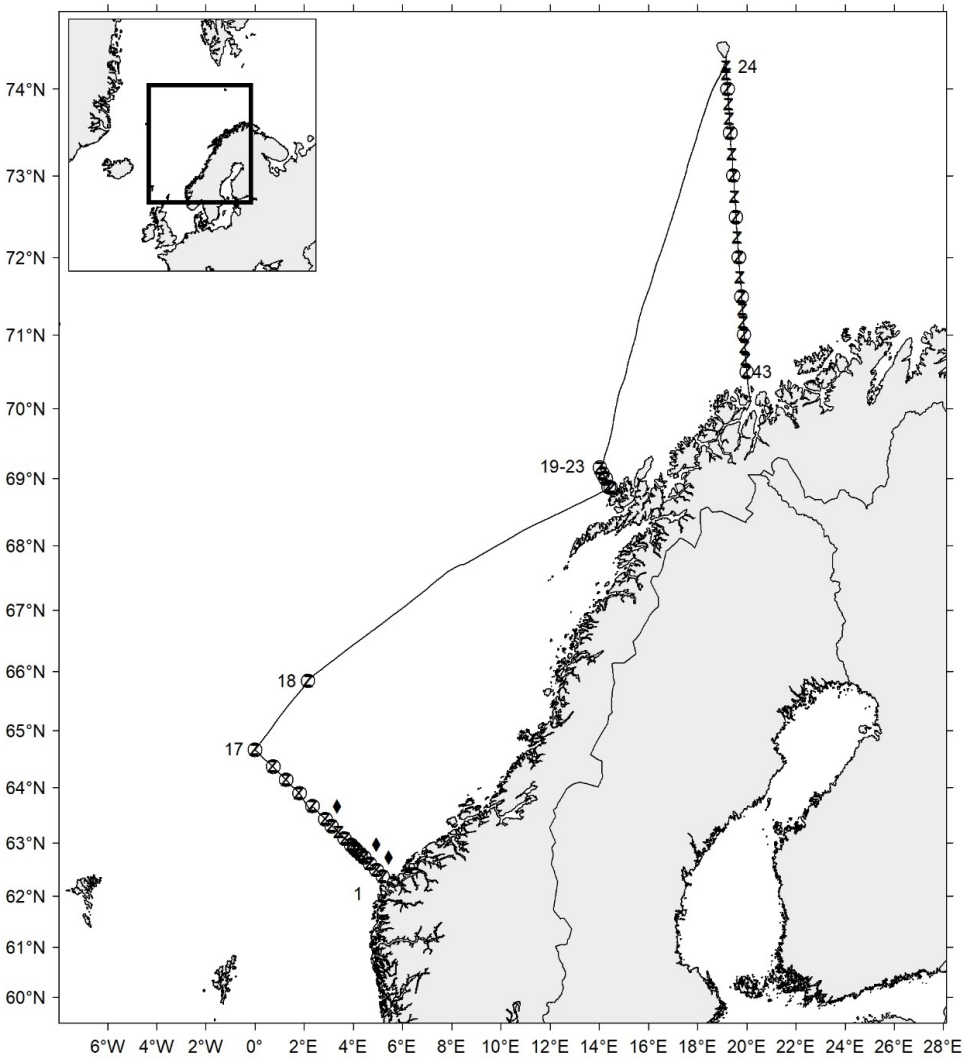
4 - "Johan Hjort" – Cruises 2019

Ship code no 12

Cruise no	Period	Purpose	Area	CTD st.no	Trawl st.no	Fig. no
2019201	19.1.-28.1.	Monitoring of the environment and plankton on the Svinøy and Fugløya-Bjørnøya sections and at station M. Measuring physical, chemical and biological parameters important to follow changes in climate and environment at weather station M in the Norwegian Sea. Implementation of transect over LoVe after fixed setup. Ocean acidification samples (carbon) at station M and Svinøy and Fugløya-Bjørnøya sections.	Barents Sea Norwegian Sea	1-43	-	24
2019202	31.1.-20.3.	Bottom trawl survey to assess the biomass and geographical distribution of the target species cod and haddock. Acoustic survey to assess the biomass and distribution of the target species cod, haddock and capelin.	Barents Sea	44-114	1-259	25-26
2019203	22.3.-9.4.	The main survey objective is to estimate abundance indices at age of the spawning stock of North East Arctic cod using the trawl acoustic method	Norwegian Sea	115-232	260-295	27-29
2019204	13.4.-12.5.	The North Sea Ecosystem spring cruise has been run since 2010 by the Institute of Marine Research (IMR) as a multi-purpose survey. The cruise covers hydrography, chemistry, phytoplankton and zooplankton, as well as fish eggs and fish larvae. The cruise also includes monitoring of radioactive contamination. Standard sections.	Kattegat, North Sea, Skagerrak	233-479	296-299	30-31
2019205	15.5.-4.6.	Monitoring the environment and plankton distribution at sections in the Norwegian Sea, and deployment of Argo floats.	Barents Sea, Greenland Sea, Norwegian Sea	480-592	-	32-33
2019206	11.6.-12.6.	Anniversary. (Johan Hjort 150 years).	-	-	-	-
2019207	29.6.-3.8.	The cruise will produce the data for the acoustic indexes for North Sea herring and saithe. The first part of the cruise was covering the areas closest to the Norwegian coast, the second half covered the central and western part of the North Sea, and acoustic transects west of Shetland. All transects was conducted as planned.	North Sea	593-686	300-494	34-35
2019208	6.8.-19.8.	Monitoring of the environment and plankton on standard sections. Measuring physical, chemical and biological parameters important to follow changes in climate and environment at weather station M in the Norwegian Sea.	Barents Sea Norwegian Sea	687-758	-	36
2019209	20.8.-3.10.	The cruise forms part of a multi-ship, multi-purpose “ecosystem survey” of the Barents Sea, carried out jointly by Norway and Russia. The objective of the cruise was to collect data related to stations and along cruise tracks, on water chemistry and physics, phytoplankton, zooplankton, fish (acoustics and trawl), benthic organisms, sea mammals, and birds.	Barents Sea	759-888	495-703	37-38
2019210	5.10.-13.11.	Annual combined acoustic and bottom trawl survey along the Norwegian coast north of 62° N.	Norwegian Sea Norwegian coast	889-946	704-852	39-40
2019211	14.11-27.11.	Monitoring of the environment and plankton at standard sections and station M. Measuring physical, chemical and biological parameters. Ocean acidification samples (carbon) at station M in the Norwegian Sea. Pick-up Polar buoy operating at station M.Conducting transect over LoVe after fixed setup. Launch a Argo buoy at the Fugløya-Bjørnøya section.	Norwegian Sea Barents Sea	947-1027	-	41
2019212	30.11.-12.12.	Monitor and assess the standing stock of Iceland scallop (Chlamys islandica) in the waters near Bear Island and at Spitsbergenbanken.	Barents Sea	-	-	42

-	16.12	Plankton course – daytrip.	Norwegian fjord	-	-	-

5 - "Johan Hjort" – Charts for cruises 2019

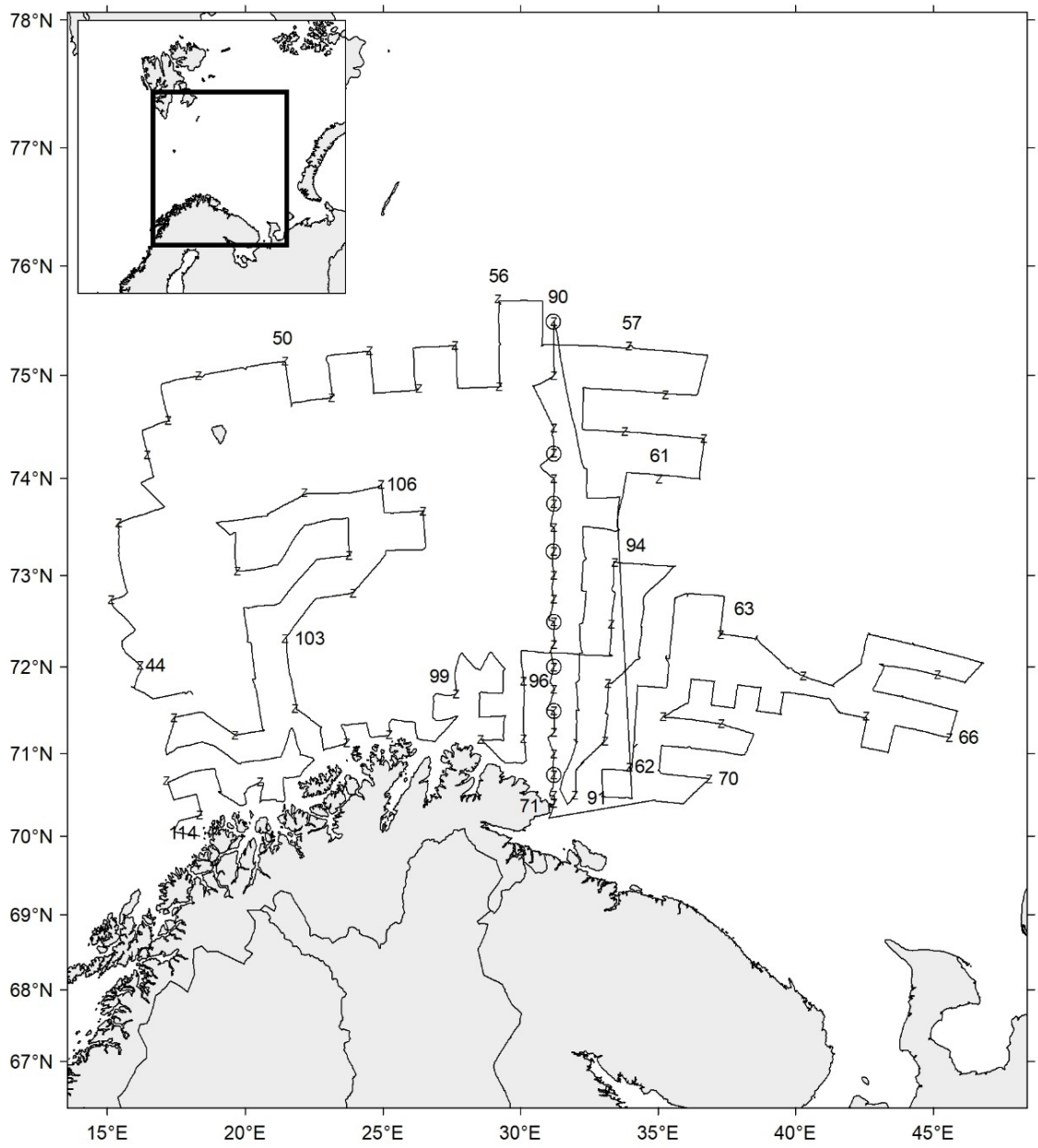


Cruise no 2019201 "Johan Hjort"
19–28 January 2019

z CTD st.no 1-43
○ Plankton st. (WP-II-net)
♦ Multinet

Standard sections:
Svinøy NW st.no 1-17
Fugløya–Bjørnøya st.no 24-43
"LoVe" st.no 19-23
St.M: st.no 18

Fig. 24

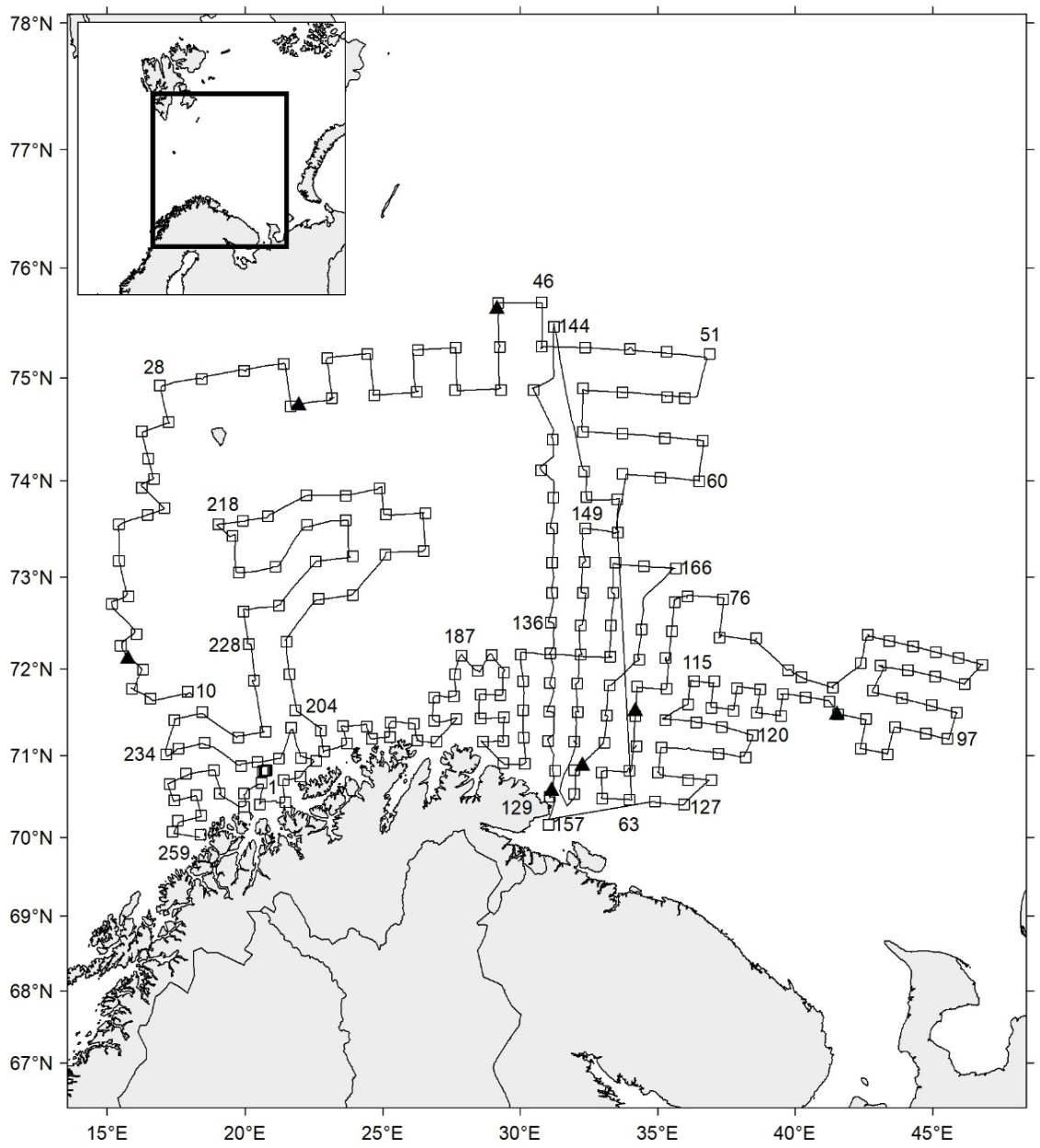


Cruise no 2019202 "J. Hjort" (Chart I)
31 January–20 March 2019

z CTD st.no 44–114
○ Plankton st. (WP-II-net)

Standard section Vardø N: st.no 71-90

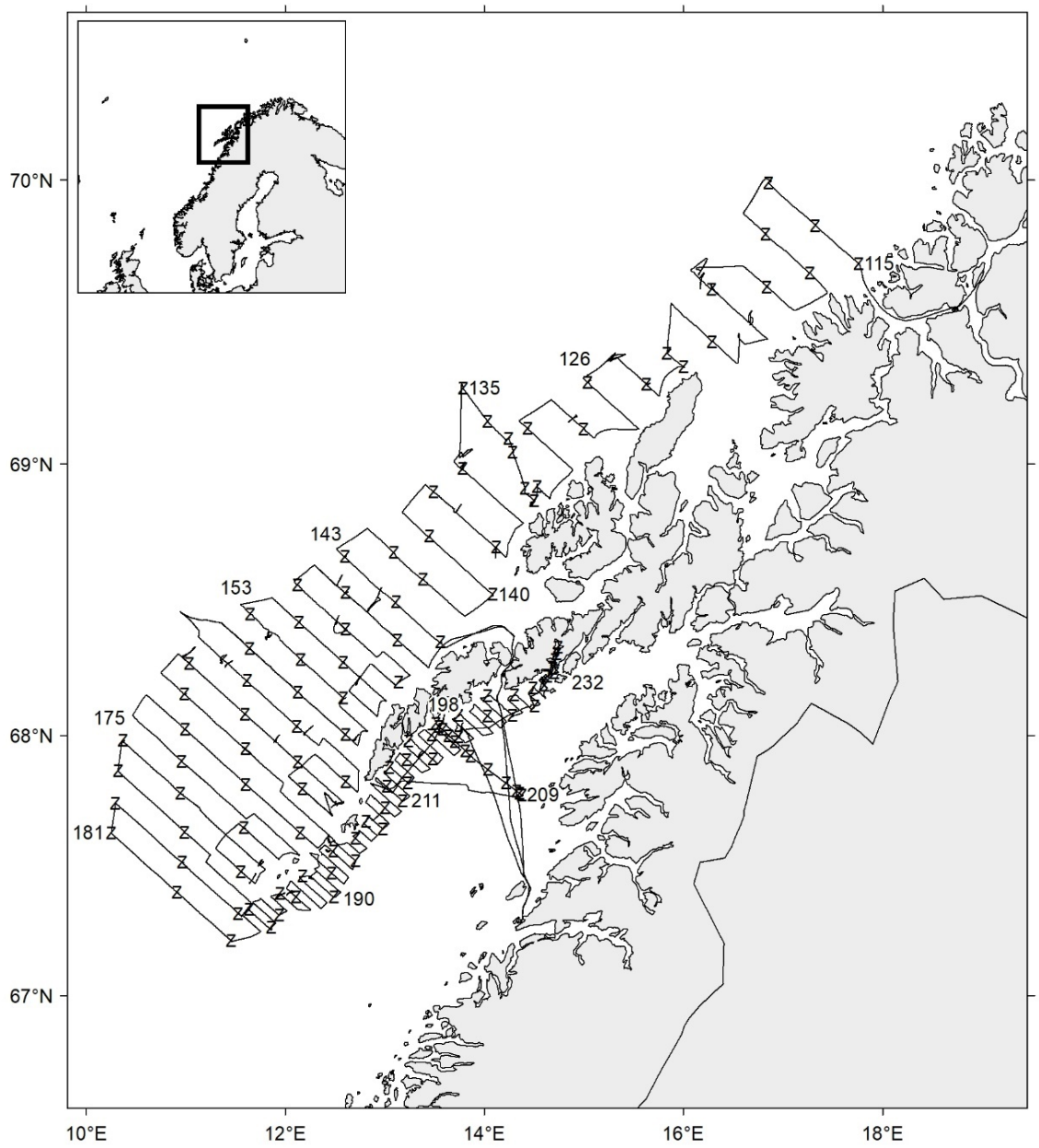
Fig.25



Cruise no 2019202 "J. Hjort" (Chart II)
31 January–20 March 2019

Trawl st.no 1-259
▲ Pelagic tr.
□ Bottom tr.

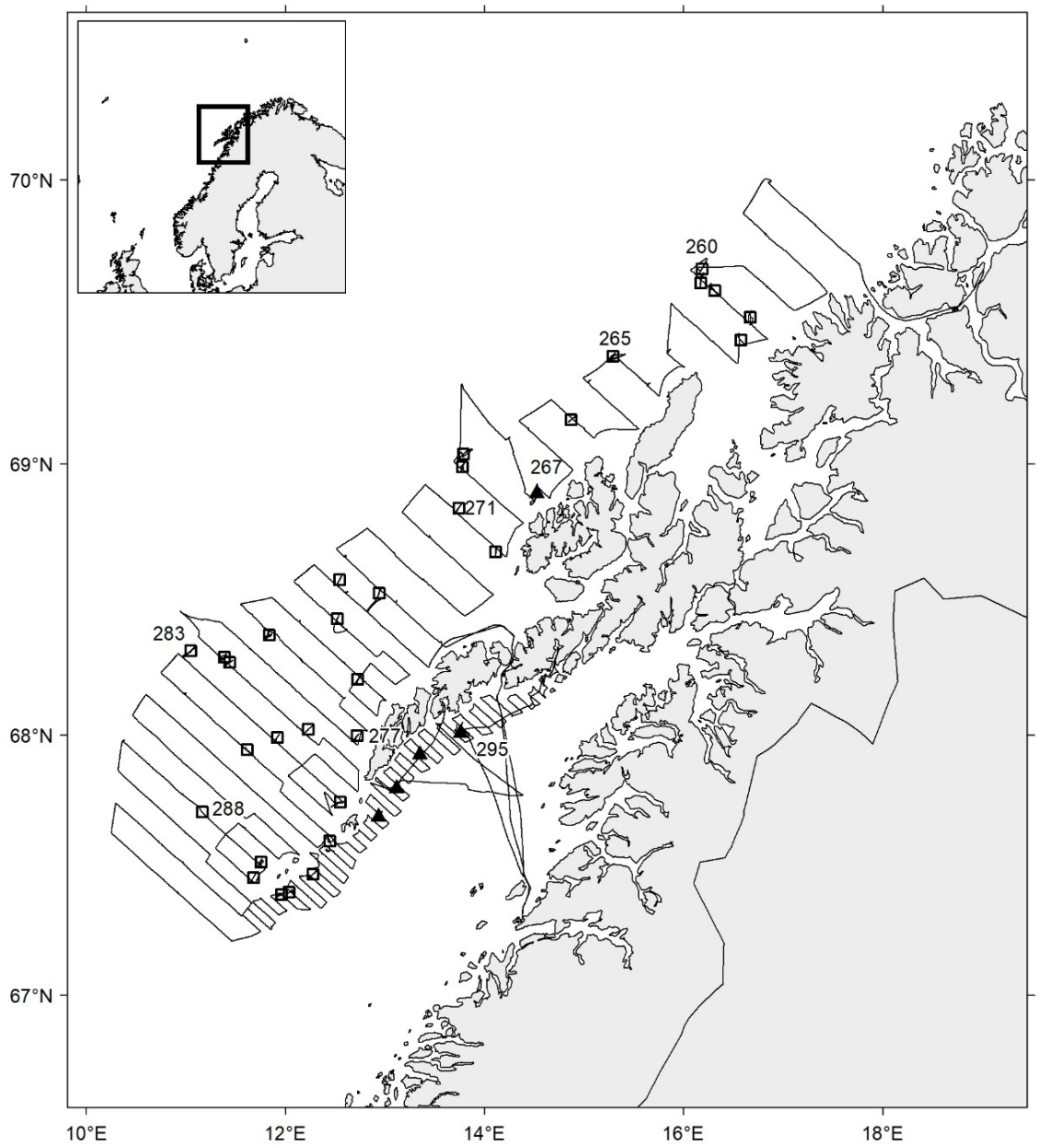
Fig.26



Cruise no 2019203 "Johan Hjort" (Chart 1)
22 March–9 April 2019

z CTD st.no 115–232
Standard section: Kabelvåg-Steigen st.no198–209
LoVe section: st.no 129–135

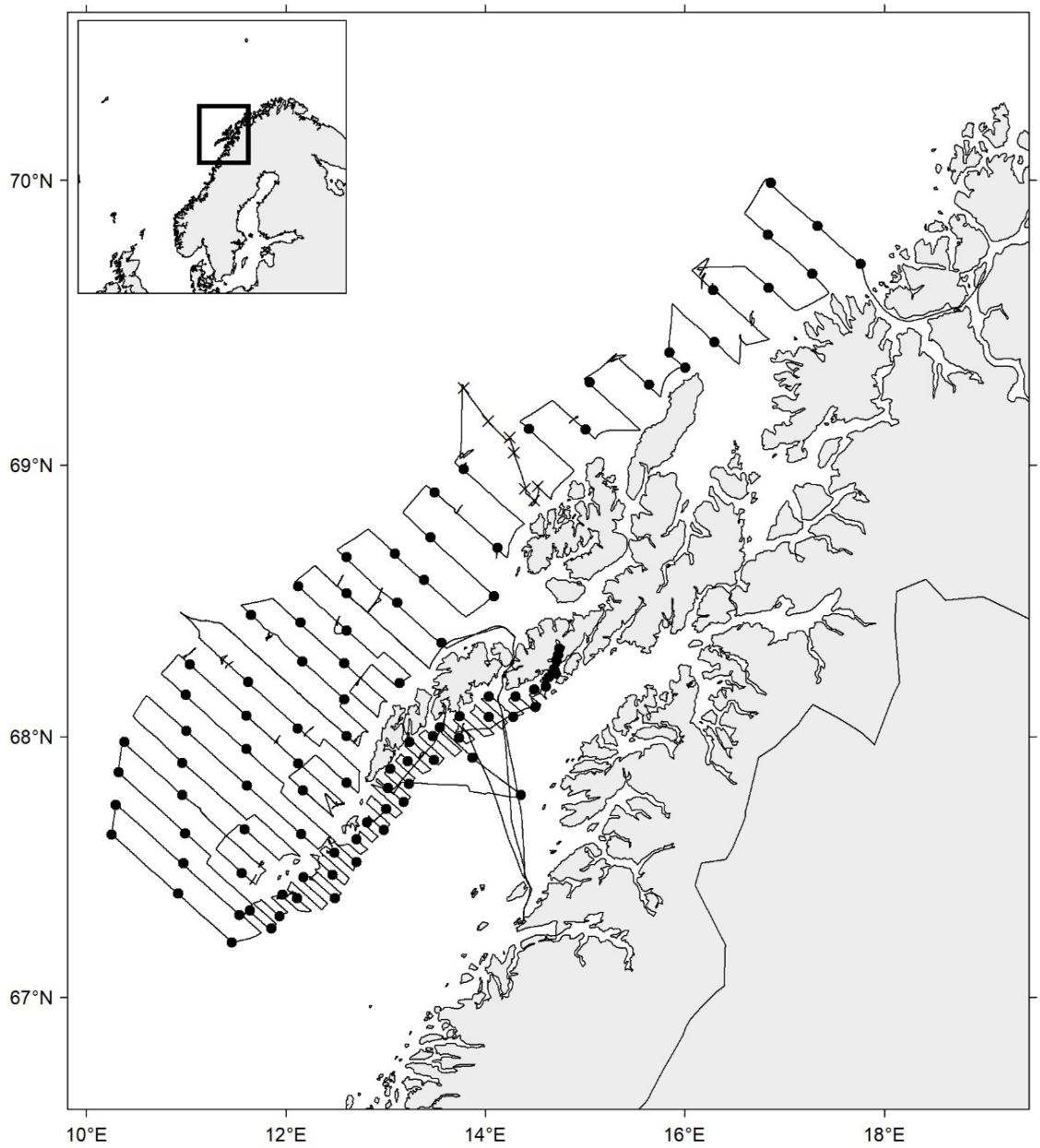
Fig.27



Cruise no 2019203 "Johan Hjort" (Chart II)
22 March–9 April 2019

Trawl st.no 260–295
▲ Pelagic tr.
□ Bottom tr.

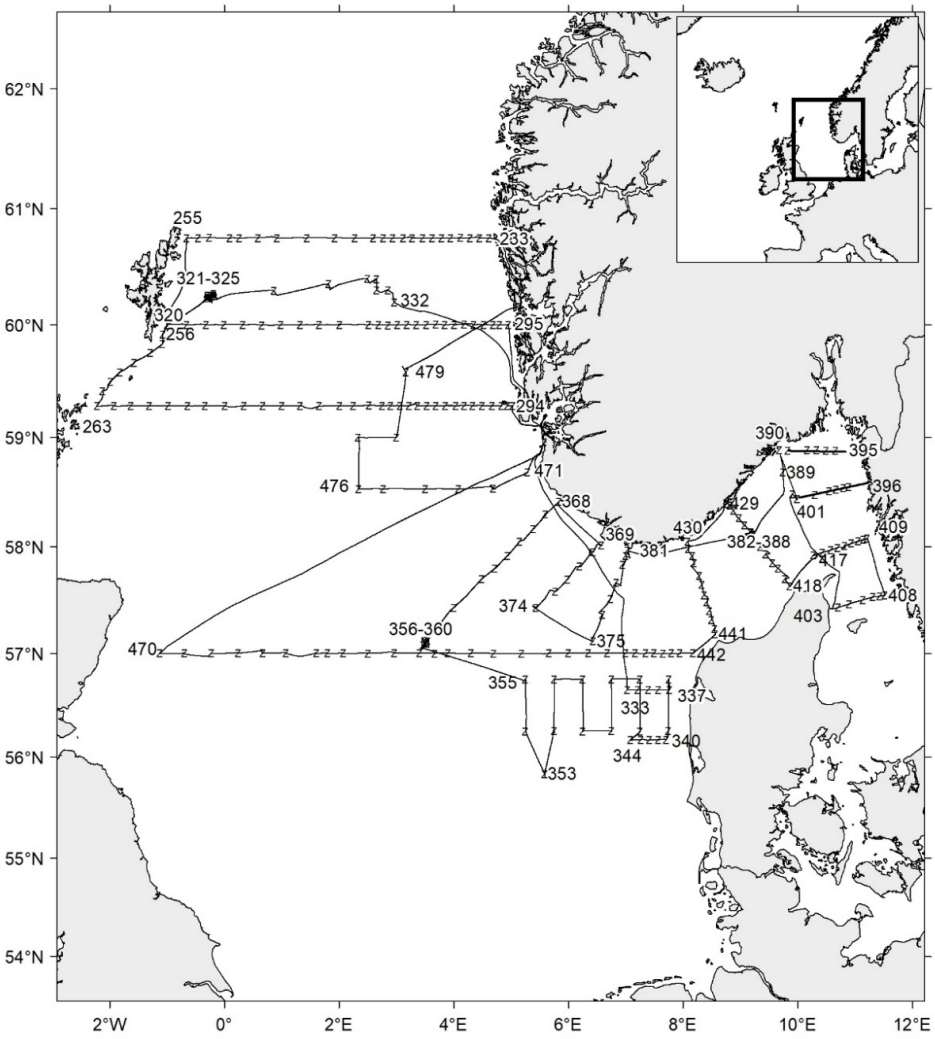
Fig.28



Cruise no 2019203 "Johan Hjort" (Chart III)
22 March–9 April 2019

● T80-net for egg and larvae
× Plankton st. (WP-II net)

Fig.29

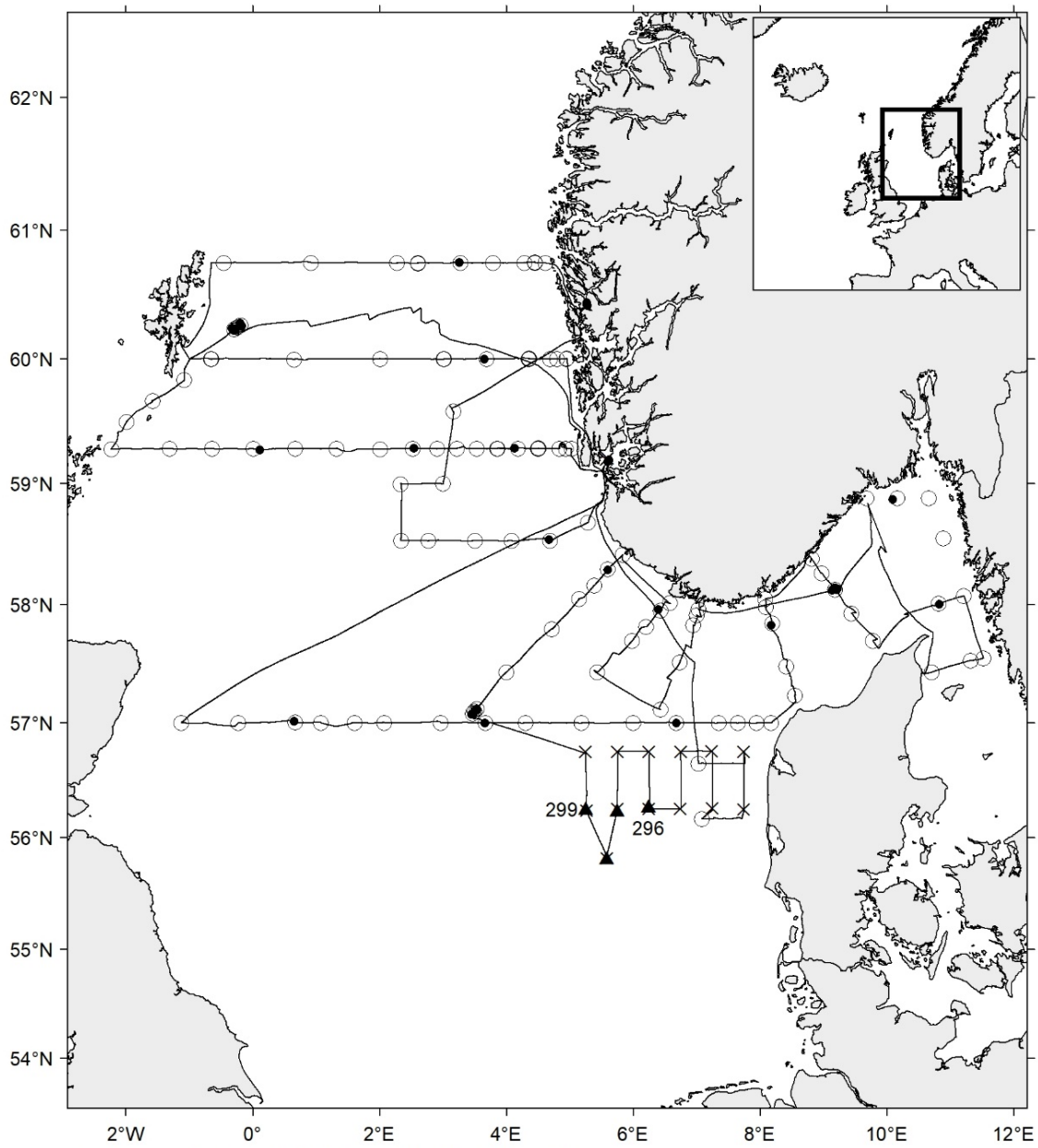


Cruise no 2019204 "Johan Hjort" (Chart I)
13 April–12 May 2019

z CTD st.no 233-479

Standard sections:
Fedje-Shetland: st.no 233-255
Slotterøy W: st.no 263-294
Utsira W: st.no 295-320
Huseby klit: st.no 333-337
Knude dyb: st.no 340-344
Egerøy: st.no 356-368
Lista: st.no 369-374
Lindesnes: st.no 375-381
Jomfruland–Koster: st.no 390-395
Vaderø: st.no 396-401
Gøteborg-Fr.h: st.no 403-408
Måseskjær: st.no 409-417
Torungen-Hirtshals: st.no 418-429
Oksø–Hanstholm: st.no 430-441
Hanstholm–Aberdeen: st.no 442-470
Jærens Rev SSW: st.no

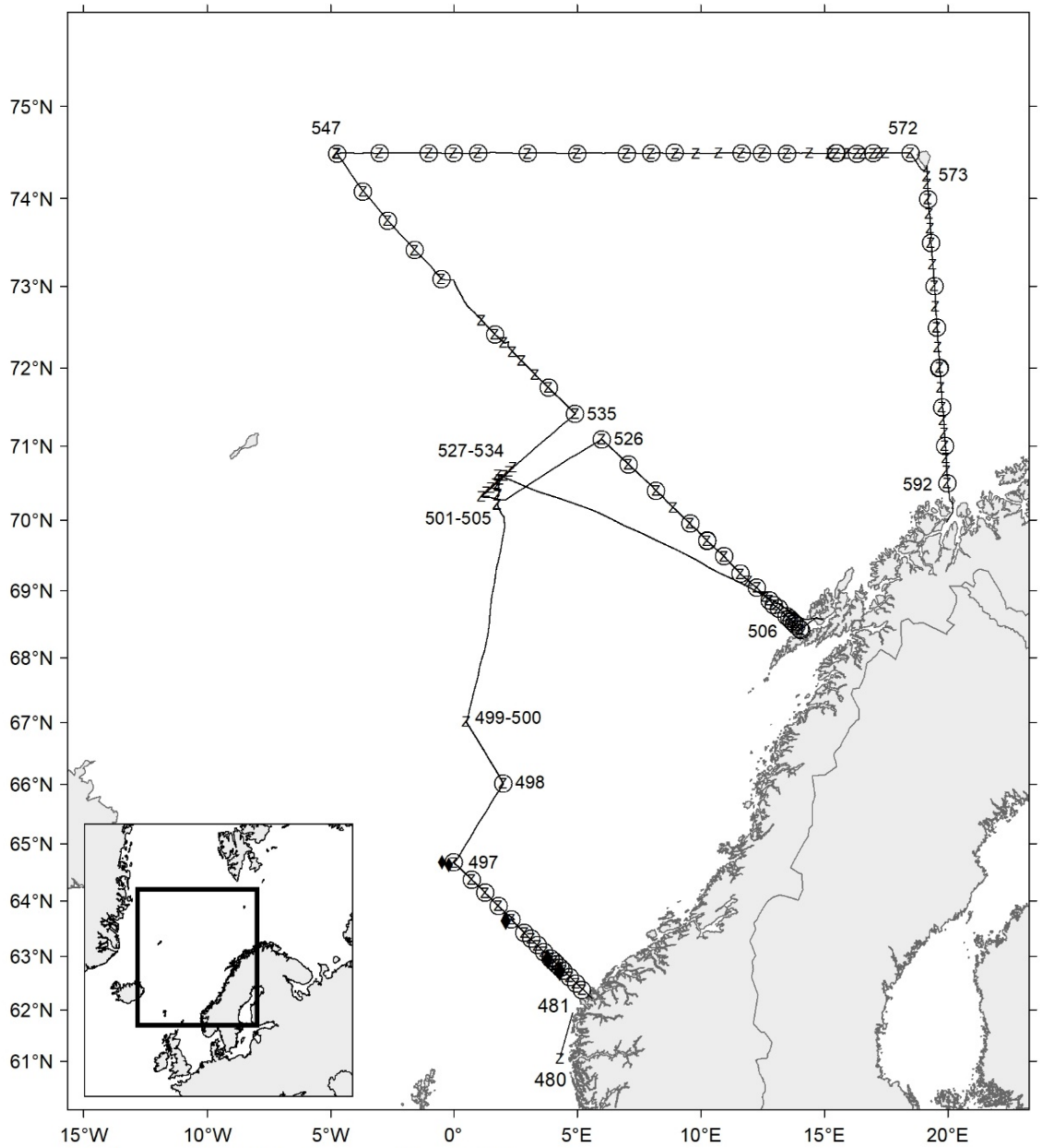
Fig.30



Cruise no 2019204 "Johan Hjort" (Chart II)
13 April–12 May 2019

○ WP-II net
● Multinet
× MIK
▲ Pelagic tr. st.no 296-299

Fig.31

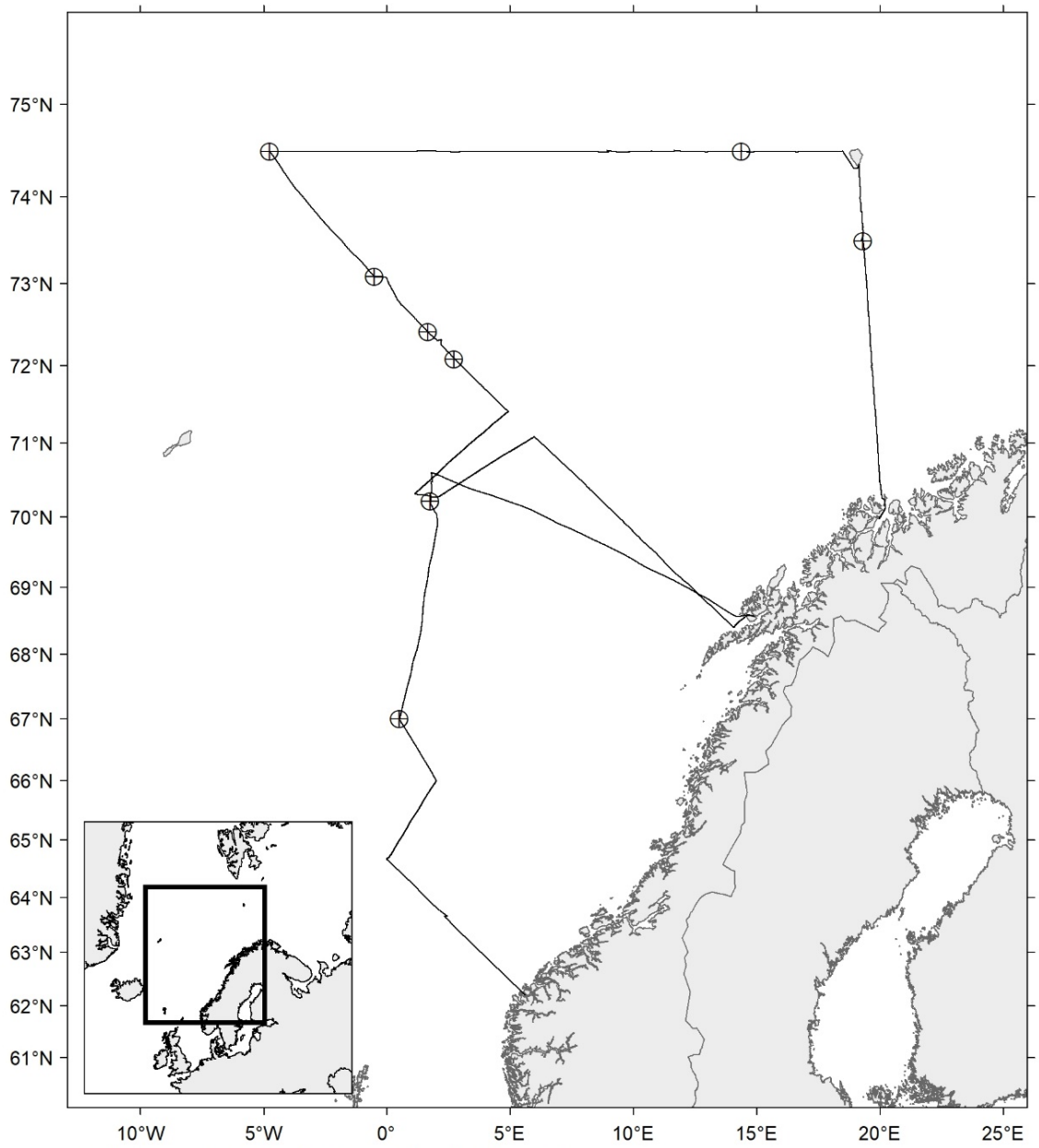


Cruise no 2019205 "Johan Hjort" (Chart I)
15 May–4 June 2019

z CTD st.no 480-592
○ Plankton st. (WPII-net)
♦ Multinet

Standard sections:
Svinøy NW st.no 480-497
Gimsøy NW st.no 506-547
Bjørnøya W st.no 547-572
Fugløya-Bjørnøya st.no 573-592

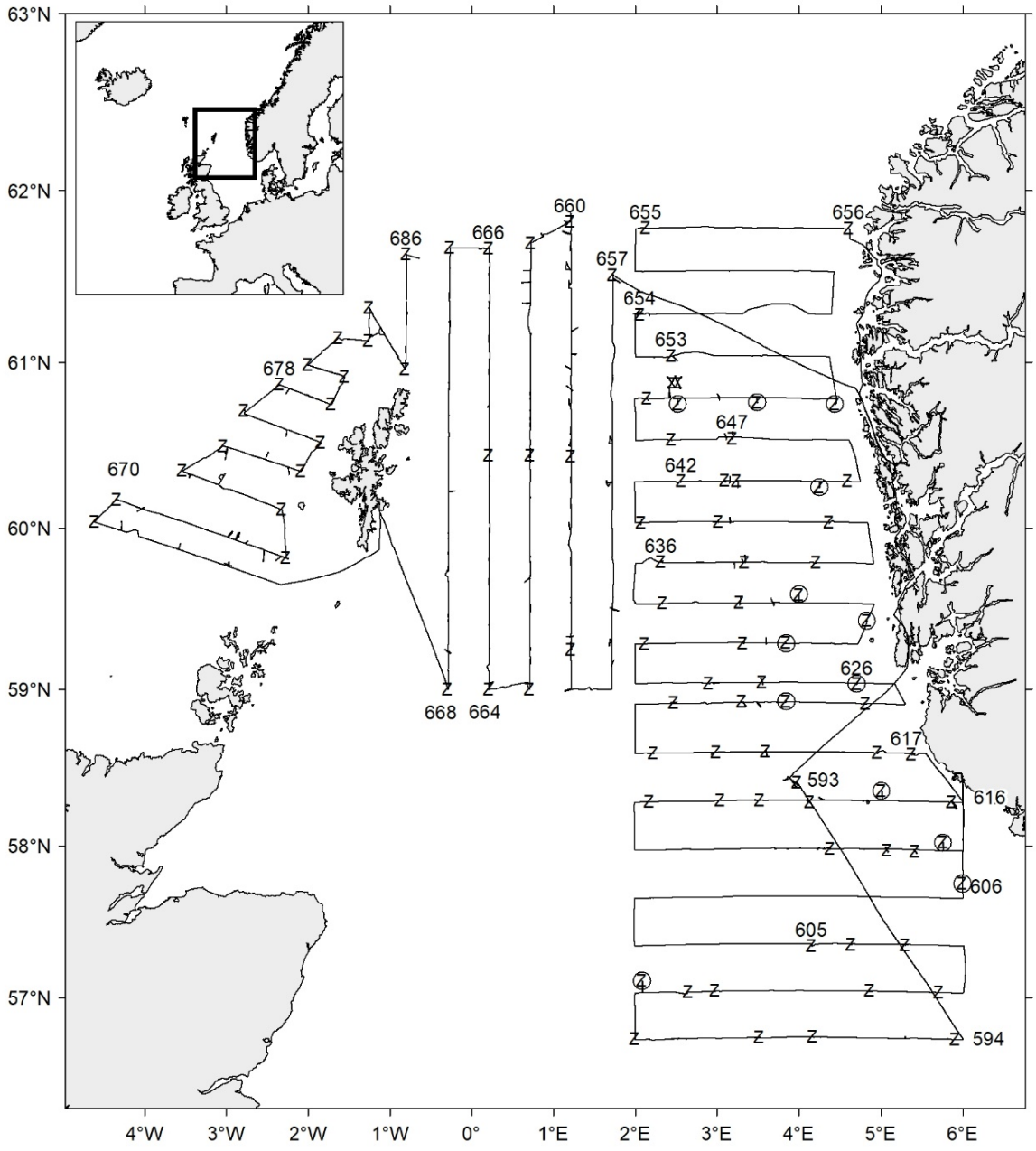
Fig.32



Cruise no 2019205 "Johan Hjort" (Chart II)
15 May–4 June 2019

⊕ Argo profiling drifters deployed

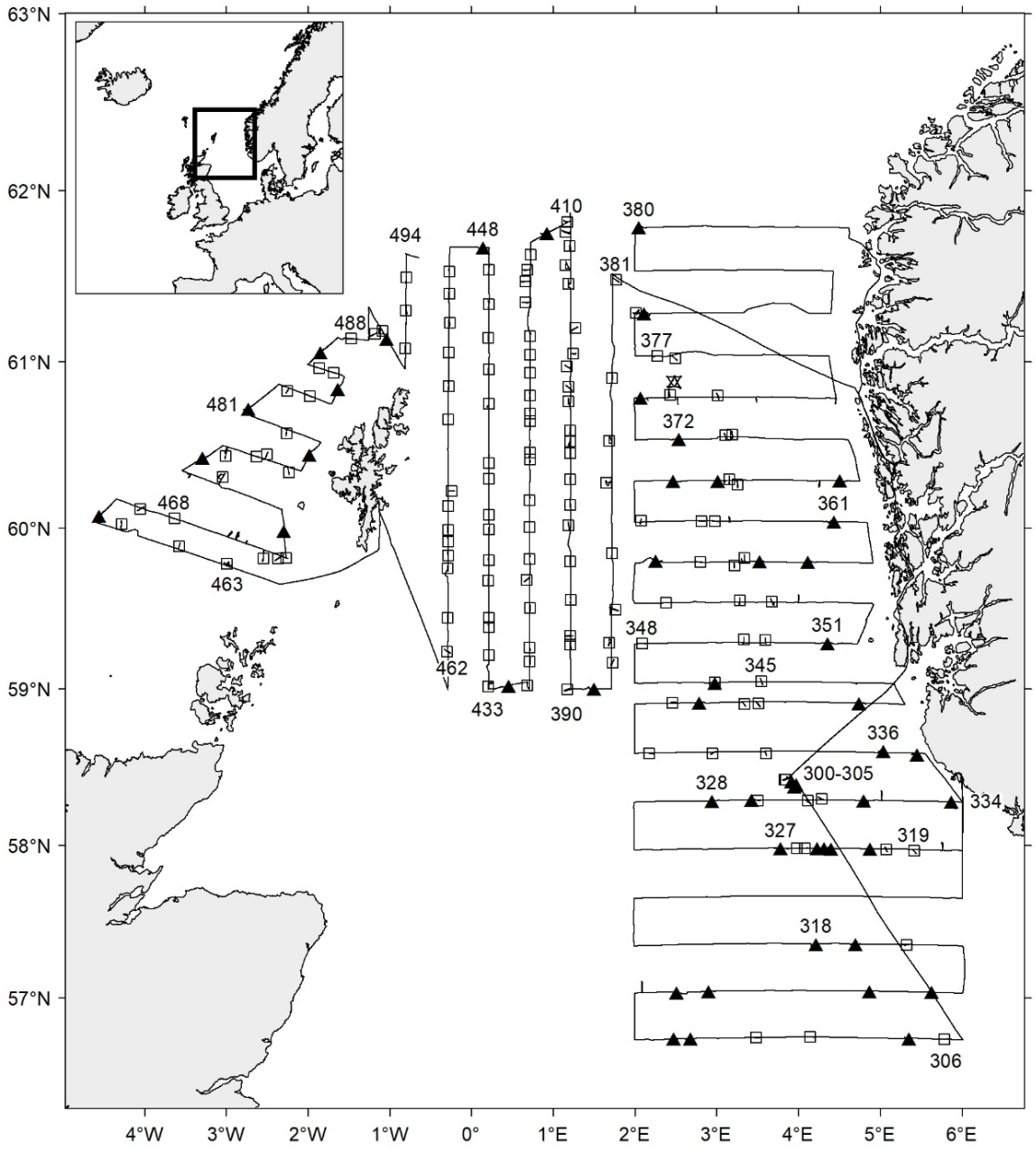
Fig.33



Cruise no 2019207 "Johan Hjort" (Chart I)
29 June–3 August 2019

z CTD st.no 593-686
○ Grab st.

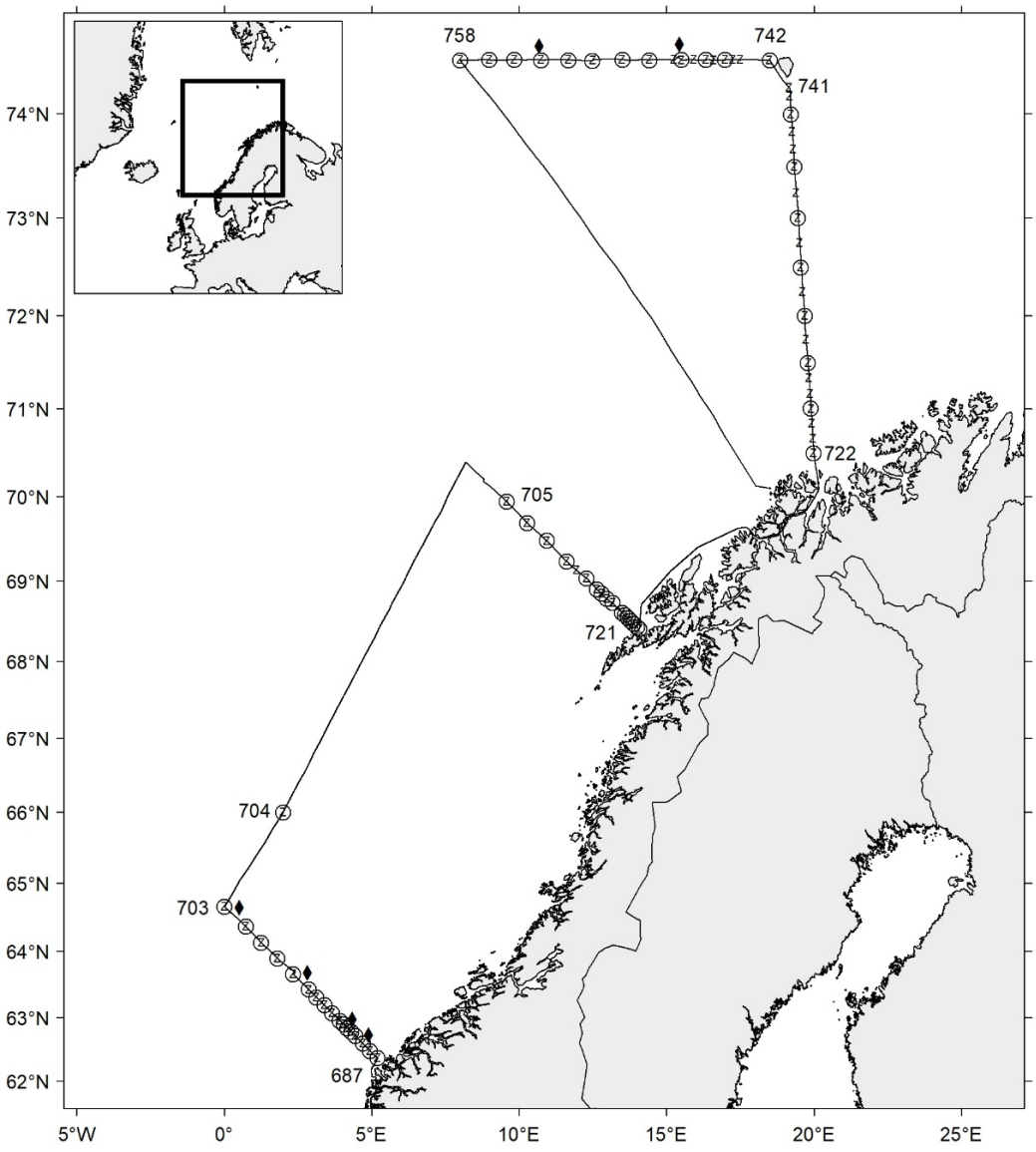
Fig.34



Cruise no 2019207 "Johan Hjort" (Chart II)
29 June–3 August 2019

Trawl st.no 300-494
□ Bottom trawl
▲ Pelagic trawl

Fig.35



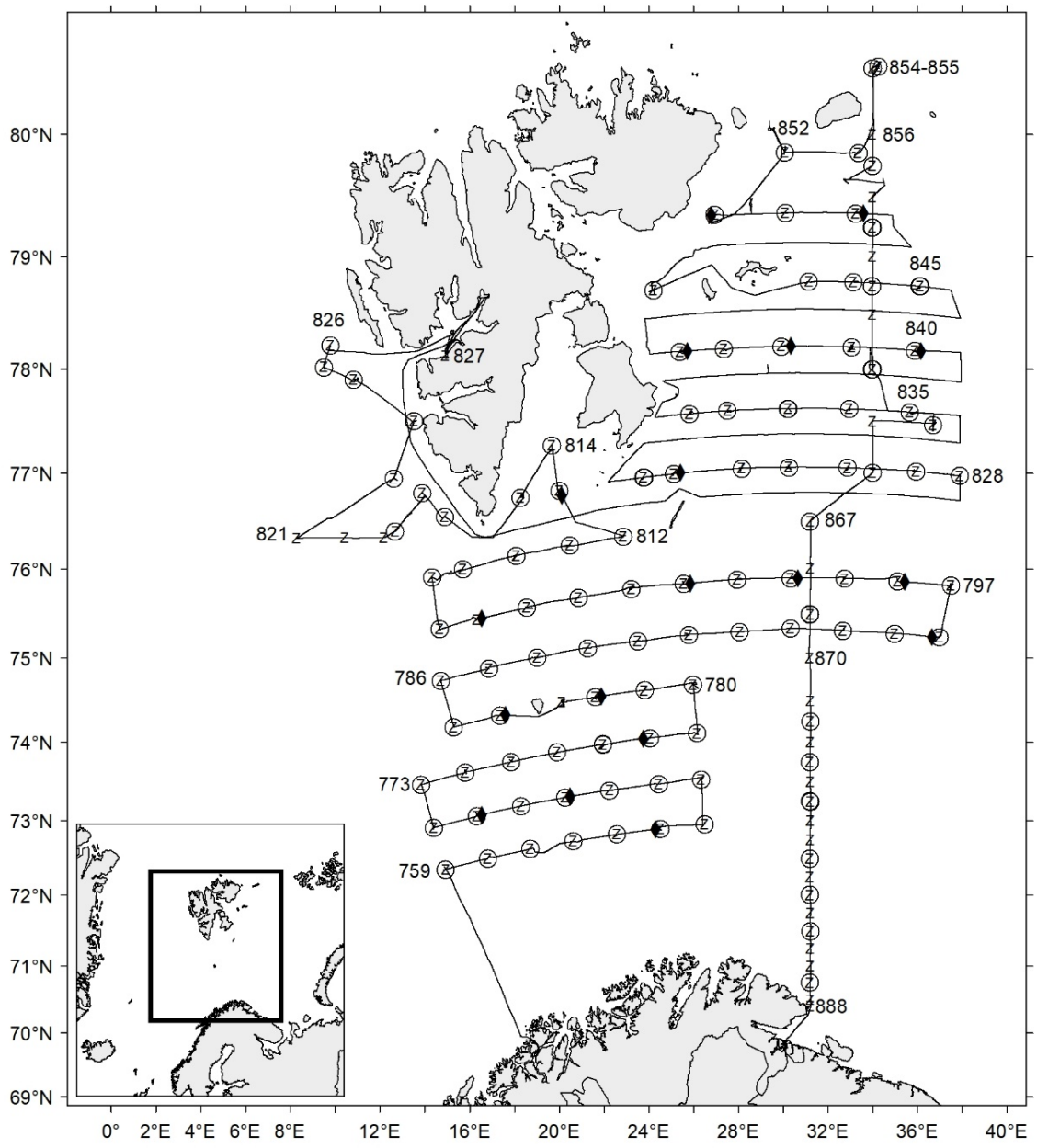
Cruise no 2019208 "Johan Hjort"
6–19 August 2018

z CTD st.no 687-758
○ Plankton st. (WP-II-net)
♦ Plankton st. (Multinet)

Standard sections:
Svinøy NW: st.no 687-703
Gimsøy NW: st.no 705-721
Fugløya–Bjørnøya: st.no 722-741
Bjørnøya W: st.no 742-758

St. M: st.no 704

Fig.36

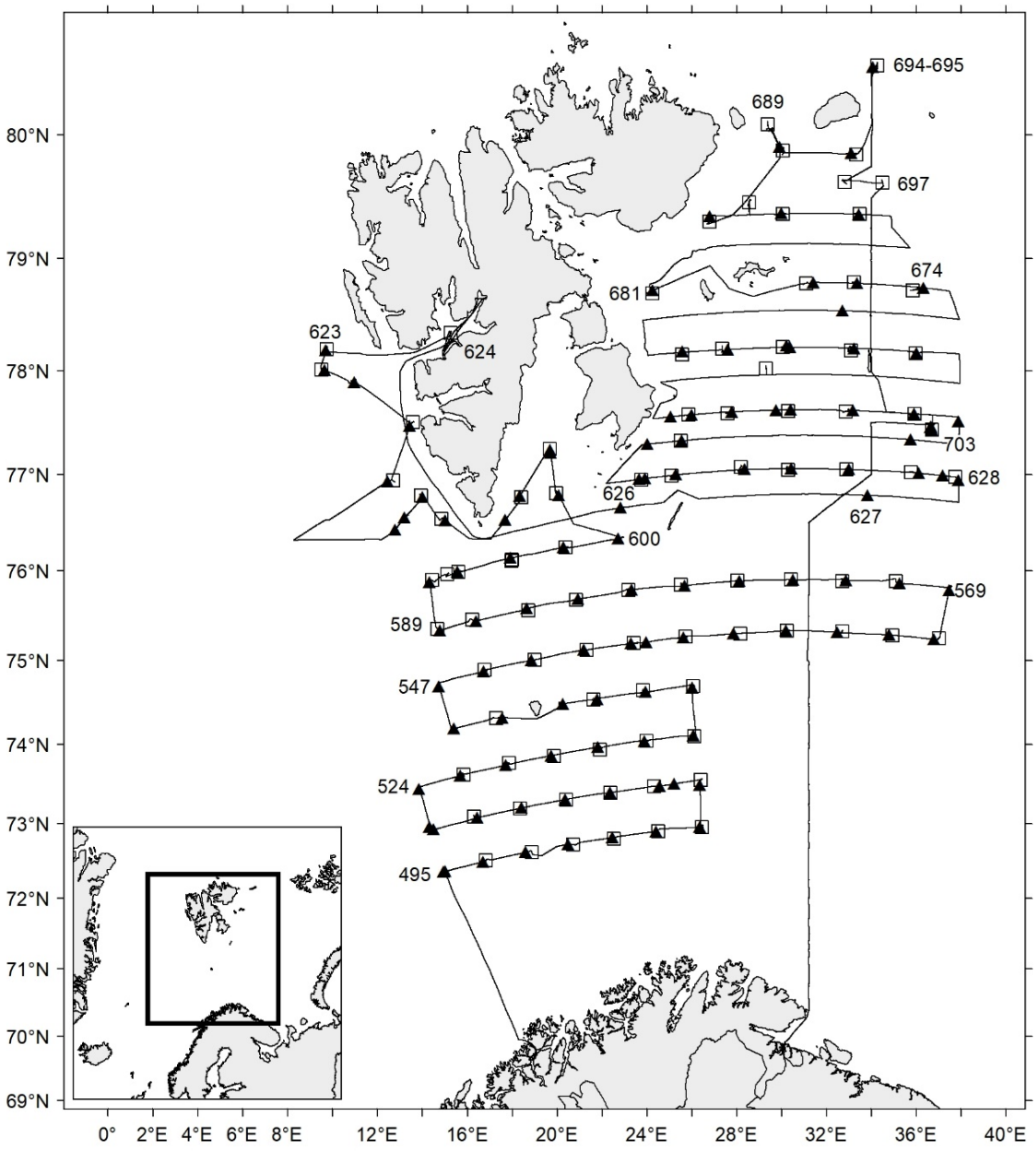


Cruise no 2019209 "Johan Hjort" (Chart I)
20 August–3 October 2019

z CTD st.no 759-888
○Plankton st. (WP-II-net)
♦Plankton st. (Multinet)

Standard section Vardø N st.no 867 -888

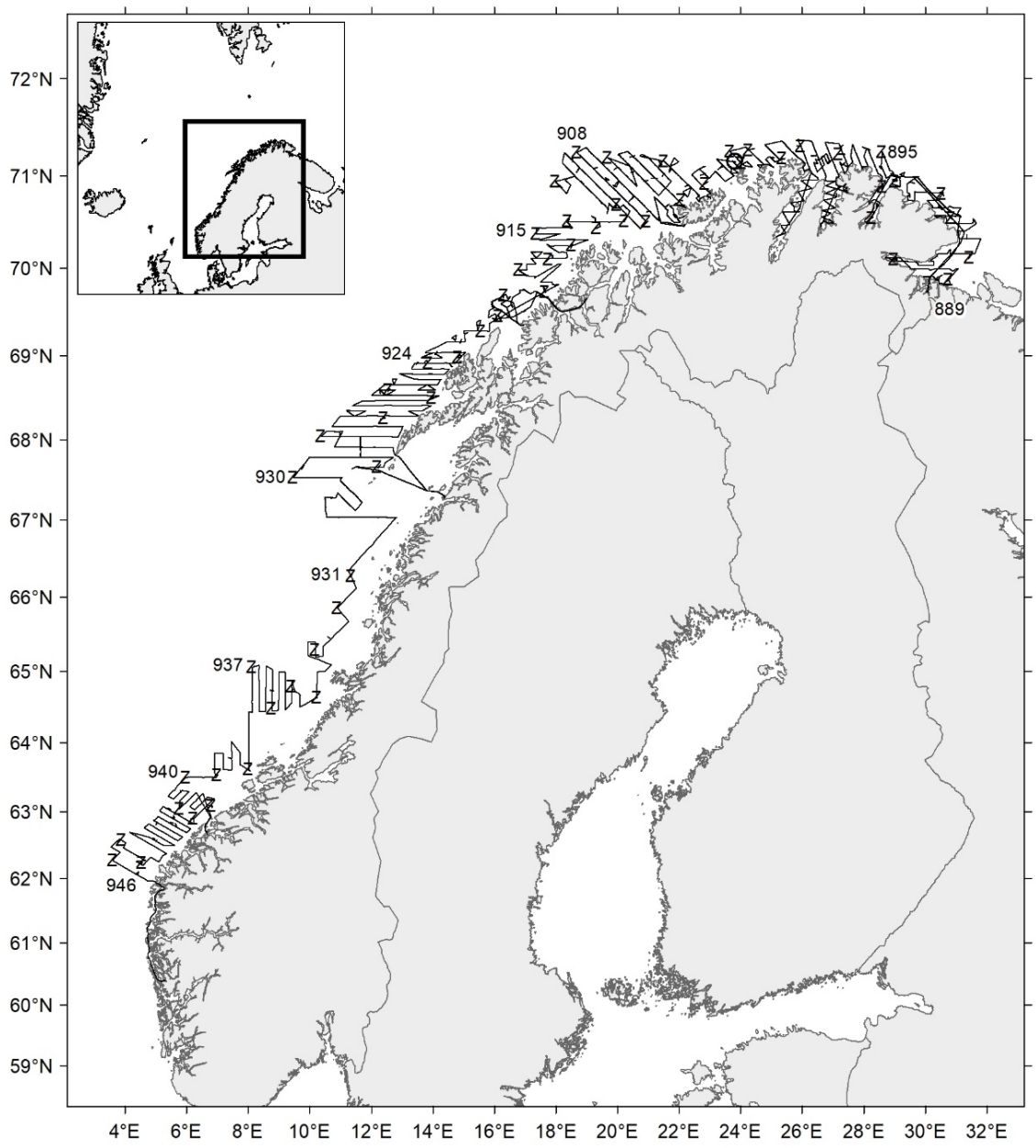
Fig.37



Cruise no 2019209 "Johan Hjort" (Chart II)
20 August–3 October 2019

Trawl st.no 495-703
▲ Pelagic tr.
□ Bottom tr.

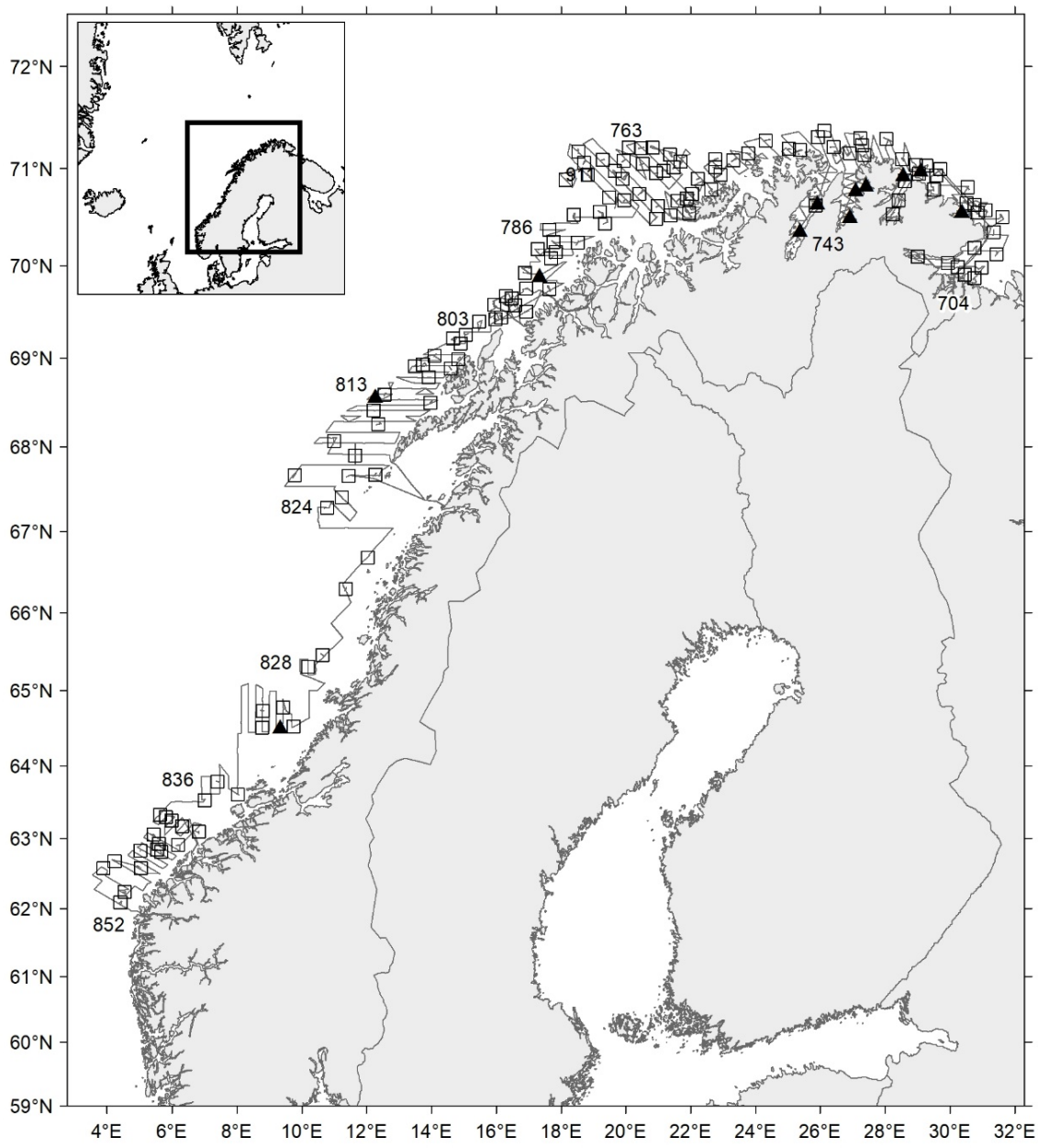
Fig.38



Cruise no 2019210 "Johan Hjort" (Chart I)
5 October–13 November 2019

z CTD st.no 889-946

Fig.39



Cruise no 2019210 "Johan Hjort" (Chart II)
5 October–13 November 2019

Trawl st.no 704-852
□ Bottom tr.
▲ Pelagic tr.

Fig.40

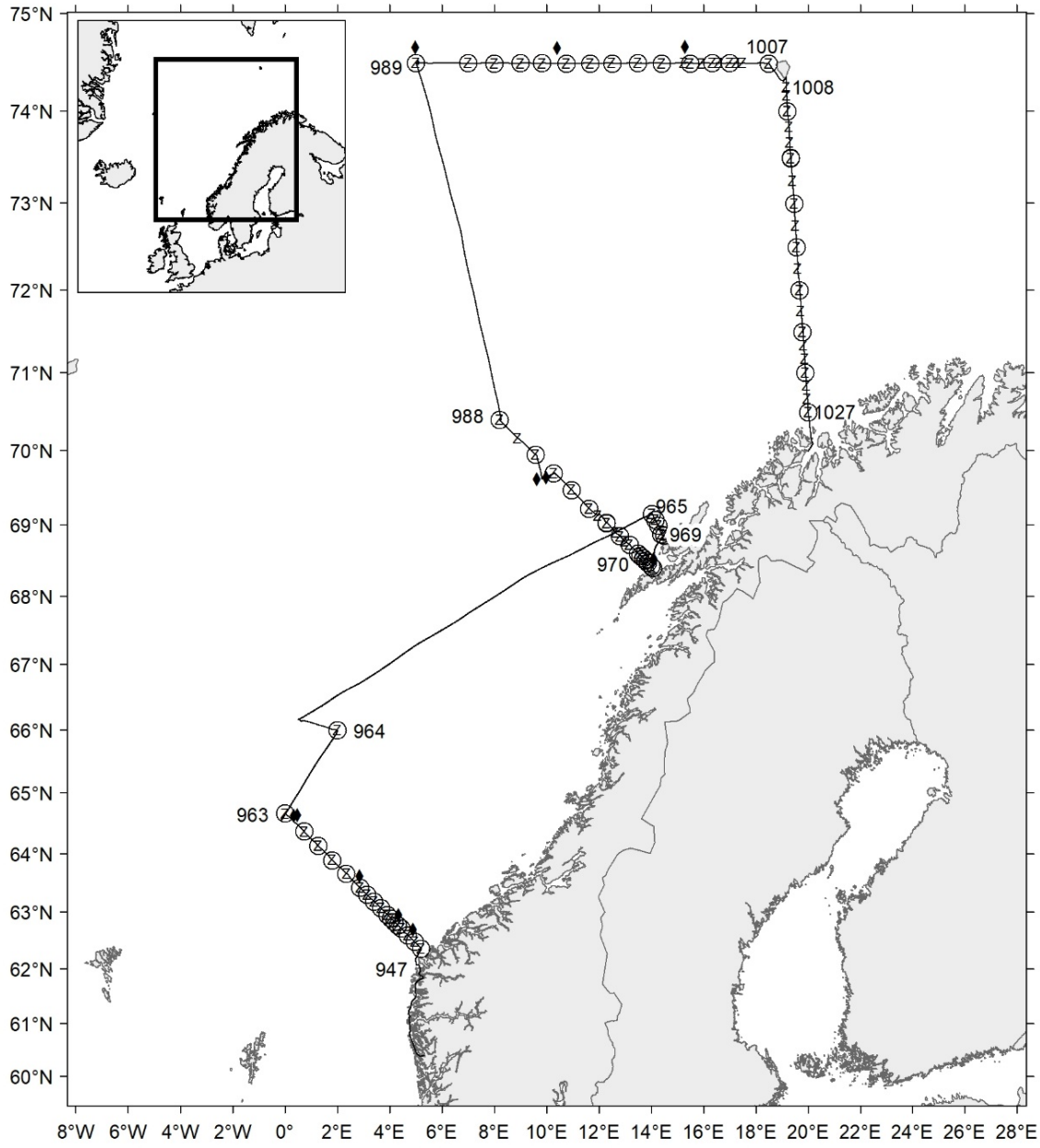

75°N
74°N
73°N
72°N
71°N
70°N
69°N
68°N
67°N
66°N
65°N
64°N
63°N
62°N
61°N
60°N
8°W 6°W 4°W 2°W 0° 2°E 4°E 6°E 8°E 10°E 12°E 14°E 16°E 18°E 20°E 22°E 24°E 26°E 28°E
989
1007
1008
1027
988
965
969
970
964
963
947
Cruise no 2019211 "Johan Hjort"
14–27 November 2019
z CTD st.no 947-1027
○Plankton st. (WP-II-net)
♦ Plankton st. (MIK)
Standard sections:
Svinøy NW: st.no 947-963
Gimsøy NW: st.no 970-988
Bjørnøya W: st.no 989-1007
Fugløya–Bjørnøya: st.no 1008-1027
LoVe transect: st.no 965-969
St. M. 964

Fig.41

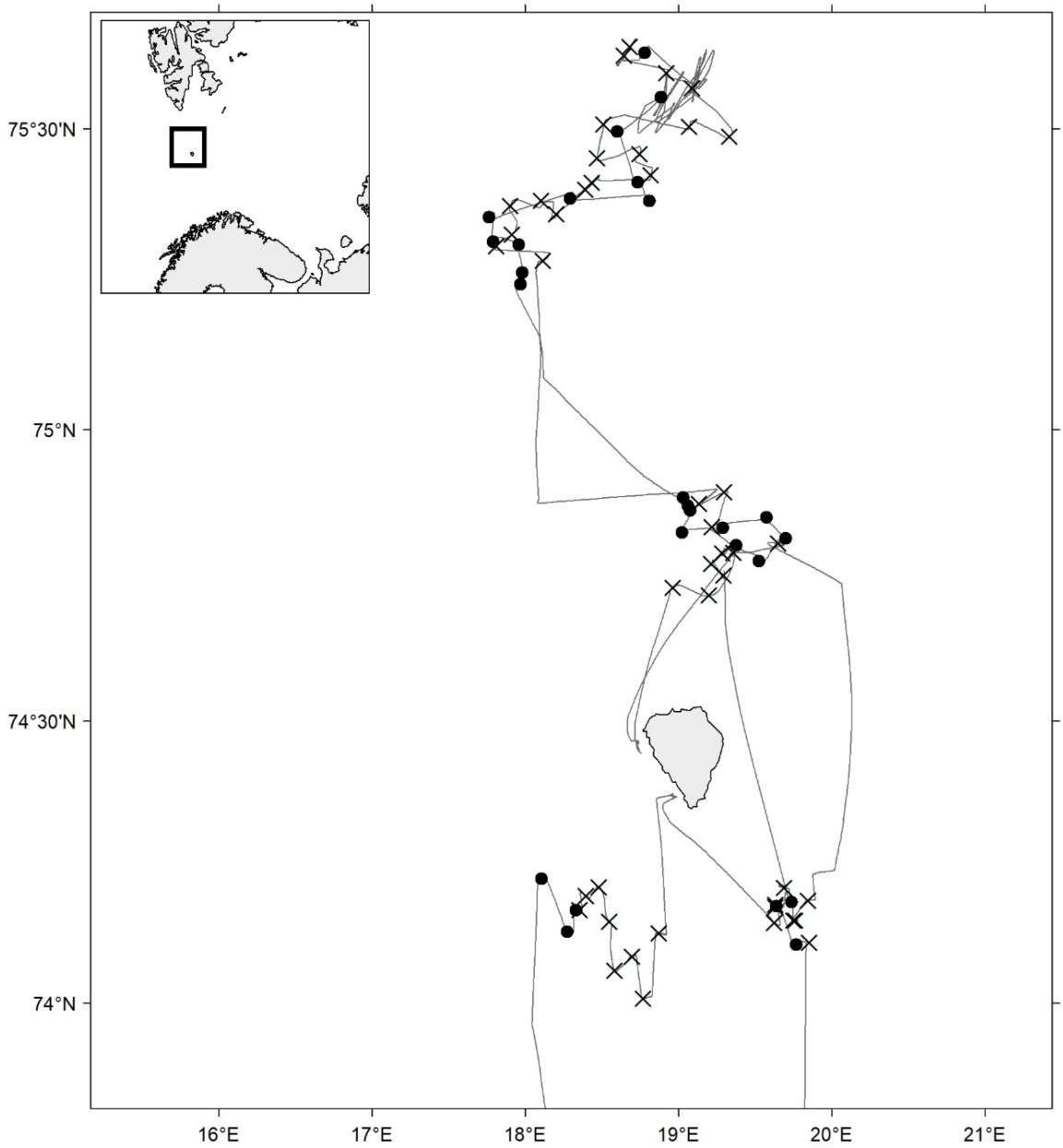

75°30'N
75°N
74°30'N
74°N
16°E
17°E
18°E
19°E
20°E
21°E
Cruise no 2019212 "Johan Hjort"
30 November–12 December 2019
●Video station
×Scallop dredge

Fig. 42

6 - "Kristine Bonnevie" – Cruises 2019

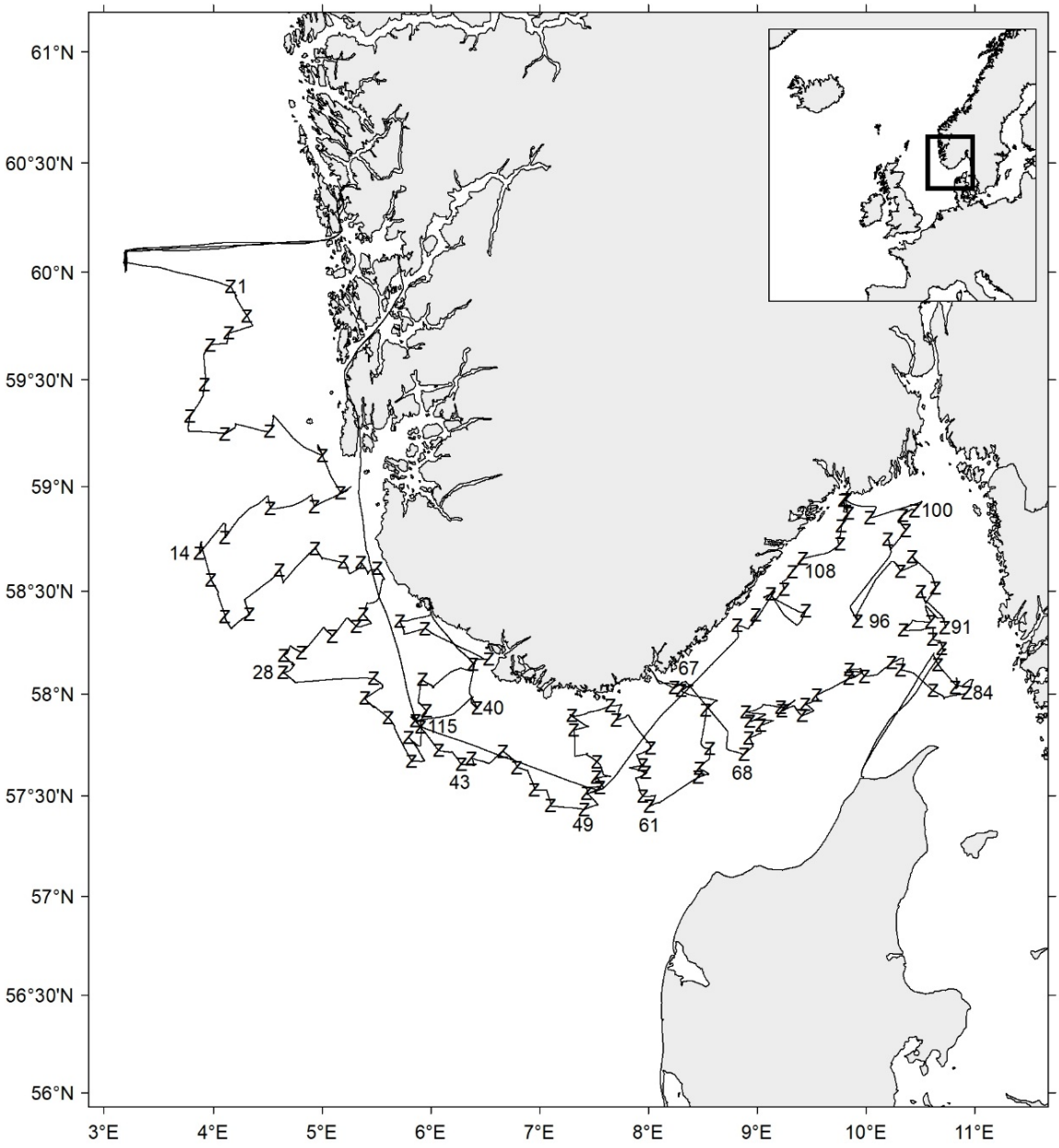
Ship code no 03

Cruise no	Period	Purpose	Area	CTD st.no	Trawl st.no	Fig. no
2019601	5.1-26.1.	Annual shrimp survey.	North Sea, Skagerrak	1-115	1-129	43-44
2019602	1.2.-4.2.	The cruise was undertaken as a part of the GEOF337, Physical Oceanography of Fjords course offered at the Geophysical Institute (GFI), University of Bergen. The site of study was Masfjorden and Fensfjorden. The data set collected aimed to address the processes related tides and mixing processes in Masfjorden, ocean-fjord exchange mechanisms and the observed deoxygenation of the inner basins in the fjord.	Norwegian fjords	116-181	-	45
2019603	7.2-16.2.	The objective of the cruise was to collect data and samples on pre-selected stations as part of the IMR monitoring of physical and biological parametres in the. In addition, a series of samplings were to be undertaken along the east coast of Scotland and west coast of Norway. The cruise programme included sampling for physical-chemical oceanographic parameters (CTD casts, nutrients and chlorophyll) and phytoplankton and zooplankton with plankton net and the Multinet Mammoth. A larger plankton net with an associated smaller and finer mesh net was used to sample the fish larvae and fish eggs.	North Sea	182-250	-	46-47
2019604	28.2-3.3.	The cruise was undertaken as a part of the GEOF232, Practical Meteorology and Oceanography course offered at the Geophysical Institute (GFI), University of Bergen. The site of study was Masfjorden and Fensfjorden. The data set collected aimed to address processes related fjord circulation and the observed deoxygenation of the inner basins in the fjord.	Norwegian fjords	251-330	-	48
2019605	4.3-8.3.	The survey is part of a training course in hydroacoustics and fish abundance estimation in cooperation between the Institute of Marine Research and the University of Bergen.	Norwegian fjords	331-335	130-140	49
2019606	17.3-26.3.	Monitoring of the environment and plankton on the Gimsøy, Fugløya-Bjørnøya, BjørnøyaV sections. Ocean acidification samples (carbon) at Gimsøy sections.	Barents Sea Norwegian Sea	336-378	-	50
2019607	27.3-31.3.	Genetic sampling of spawning Northeast Atlantic saithe Main task : 1) Genetic sampling of spawning fish from known and new spawning grounds. 2) Distribution of saithe eggs from spawning grounds. 3) Boyancy measurements on saithe eggs.	Troms Fjord and coastal areas from Lyngen, Malangsgrunnen, Balsfjord, Ulsfjord .	379-391	-	51-52
2019608	1.4-4.4.	Hydrographic measurements in fjords. Current meter moorings were recovered and deployed in the three sounds of Altafjorden. 75 CTD-stations in the fjords and coast between Tromsø and Hammerfest.	Norwegian fjords	392-466	-	53
2019609	6.4.-10.4.	Recovery and re-deployment of standard RCM-mooring S1-S in the Svinøy section. Recovery of the PolarBuoy and deep mooring. Standard CTD and plankton Svinøy section.	Norwegian Sea	467-484	-	54
2019610	13.4.-25.4.	Fish eggs and larvae in the coastal zone, Hordaland Municipality, Norway.	Coastal zone and fjords	-	-	55
2019611	27.4.-1.5.	A 5-days cruise to Sognefjorden to measure the how a 150km nutrition gradient affects the biodiversity and population connectivity in the deepest part of Sognefjord.	Norwegian west coast	485-492	-	56

2019612	1.5.-7.5.	Recover, service and re-deploy 4 moorings along the Barents Sea opening transect, and deploy a fifth mooring along the same section. Two of the moorings are bottom-mounted trawl-proof moorings, while the other three are moored strings. The moorings measure water velocity, temperature, and salinity.	Barents Sea Norwegian Sea	493-497	-	57
2019613	9.5.-12.5.	Hydrographic measurements in fjords. 76 CTD-stations in the fjords and coast between Tromsø and Hammerfest.	Norwegian fjords	498-574	-	58
2019631	13.5.-14.5.	Water sampling for eDNA analysis in Balsfjord and Malangen to study fish community composition in the two fjords.Test the usability of video equipment mounted on a sledge. This was done to make sure that the equipment function as intended before it is put to use offshore. The equipment will be used to count red king crab and snowcrab.	Norwegian Sea	575-585	-	59
2019614	-	Cancelled	-	-	-	-
2019615	16.5.-21.5.	The ocean environment and the ecosystem of the Porsanger fjord are mapped with water samples, acoustics, net, boxcore, pelagic and benthic trawl-samples.	Barents Sea	586-599		60-61
2019616	25.5.-31.5.	The cruise is conducted to test instrumentation related to the project the Nansen LEGACY. The LEGACY is the Norwegian Arctic research community's joint effort to establish a holistic understanding of a changing marine Arctic climate and ecosystem.	Norwegian fjords	600-622	-	62
2019617	-	Cancelled	-	-	-	-
2019618	8.6.-11.6.	Recovery and re-deployment of standard RCM-mooring S1-S in the Svinøy section. Deployment of surface and deep moorings at st-Mike (66N,2E)	Norwegian Sea	623	-	63
2019619	13.6.-21.6.	The objective of the cruise was to assess the impact of effluents from fish farms on the cold-water coral Lophelia pertusa. This was achieved by documenting the distribution and health of natural coral communities around fish farms and recovering transplanted coral fragments (from cruise 2018612) from a gradient away from a fish farm where the corals had been exposed to fish farm effluents for 1 years. Mortality, growth, cellular stress, and energy stores were compared. In addition, water sample were collected off two wall reefs in Langenuen, Hordaland and video transects were run around 3 wall reefs in the same fjord to document the living coral community.	North Sea, Norwegian Sea	624-645	-	64-65
2019620	22.6.-1.7.	Acoustic survey to get an index of the stock size of sprat and herring in Sognefjorden and Hardangerfjorden in Western Norway.	Norwegian fjords	646-671	175-196	66-67
2019621	2.7.-10.7	Ecosystem Skagerrak, Oslofjord	Skagerrak	672-676	197	68-70
2019622	12.7.-17.8.	IBTS Q3. Standard sections.	North Sea	678-828	198-276	71-73
2019623	20.8.-22.8.	Field investigations in connection with course BIO102 (Organismal biology), collection of fish and environmental data for student projects.	Southwest coast of Norway, Lygrafjorden, Åfjorden	829-833	277-281	74
2019632	23.8.-25.8.	Recovery and re-deployment of standard RCM-mooring S1-S in the Svinøy section. Deployment of Wavescan Buoy.	Norwegian Sea			75
2019624	-	Cancelled	-	-	-	-
2019625	27.8.-29.8.	Field investigations in connection with course BIO102 (Organismal biology), collection of fish and environmental data for student projects.	Southwest coast of Norway, Lygrafjorden, Åfjorden	834-838	282-286	76
2019626	-	Cancelled	-	-	-	-

2019628	2.9.-19.9.	Stock assessment of the red king crab in the fjords and near coastal waters of the quota regulated area in Norwegian waters.	Barents Sea	-	-	77-78
2019627	21.9-25.9.	Hydrographic measurments in fjords. Three current meter moorings were recovered and deployed in Altafjorden. CTD-survey of fjords and coast in Troms and western Finnmark.	Norwegian fjords	839-916	-	79
2019629	2.10.-9.11.	Annual combined acoustic and bottom trawl survey along the Norwegian coast north of 62˚ N	Norwegian Sea	917-996	287-406	80-82
2019630	10.11.-16.11.	The objective of the cruise is to collect hydrographic and ocean currents off the west coast of Norway. The data will be used to evaluate the numircal circulation modelt hat is a central tool in Institute of Marine Research salmon lice advice. Current meter moorings were deployed and a detailed CTD/ADCP survey in the Norwegian Coastal Current off the west coast of Norway was conducted.	Norwegian Sea	997-1112	-	83
2019633	17.11.-26.11.	The objective of the cruise was to collect data and samples on pre-selected stations as part of the IMR monitoring of physical and biological parametres in the North Sea. In addition, a series of samplings were to be undertaken along the east coast of Scotland and west coast of Norway, and also one station with sampling within 5nm of the Sleipner field.The cruise programme included sampling for physical-chemical oceanographic parameters, zooplankton with plankton net and the Multinet Mammoth. A larger plankton net with an associated smaller and finer mesh net was used to sample the fish larvae and fish eggs.	North Sea	1113-1204	-	84-85

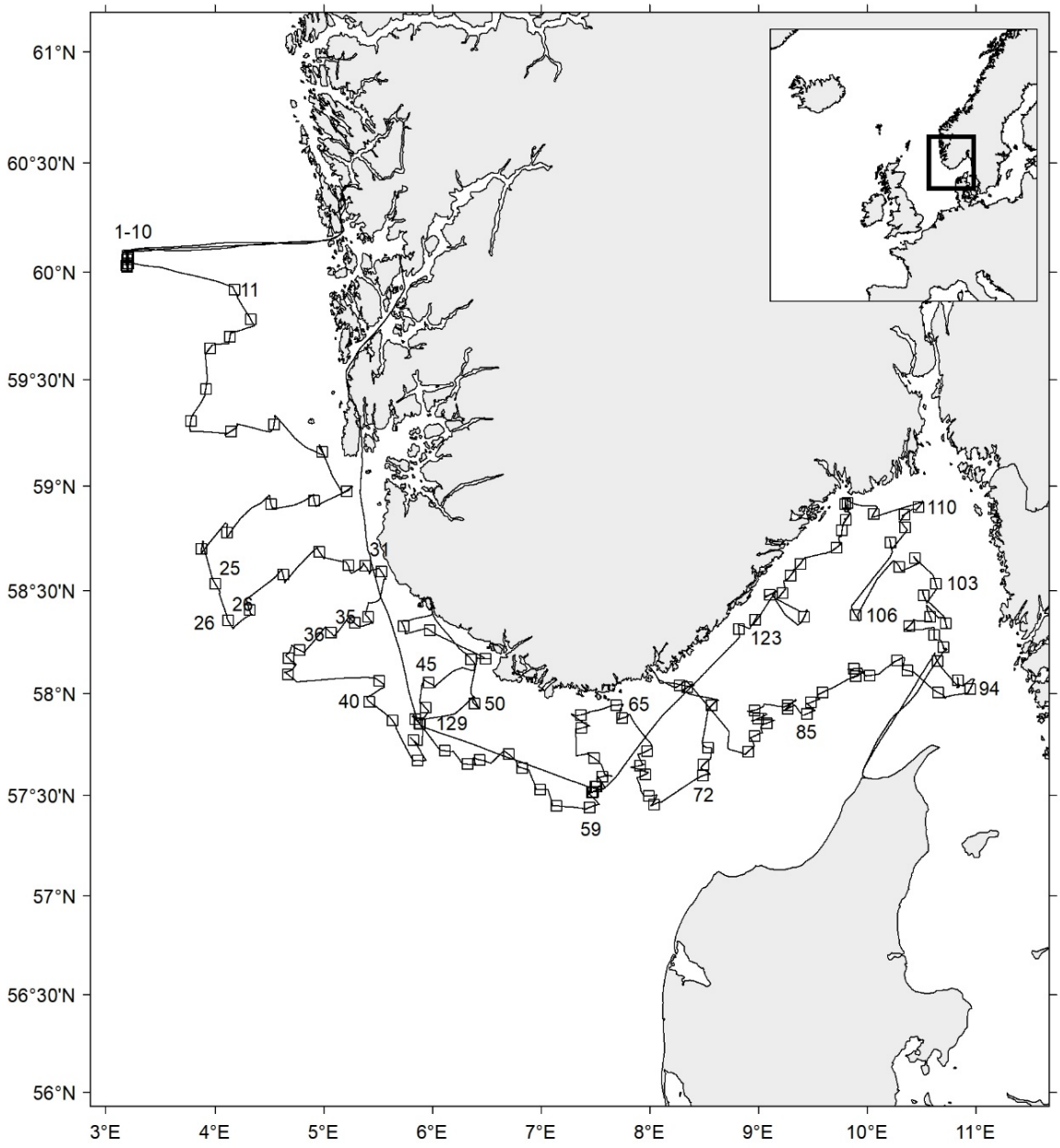
7 - “Kristine Bonnevie” –charts for cruises 2019



Cruise no 2019601 "K. Bonnevie" (Chart I)
5–26 January 2019

z CTD st.no 1-115

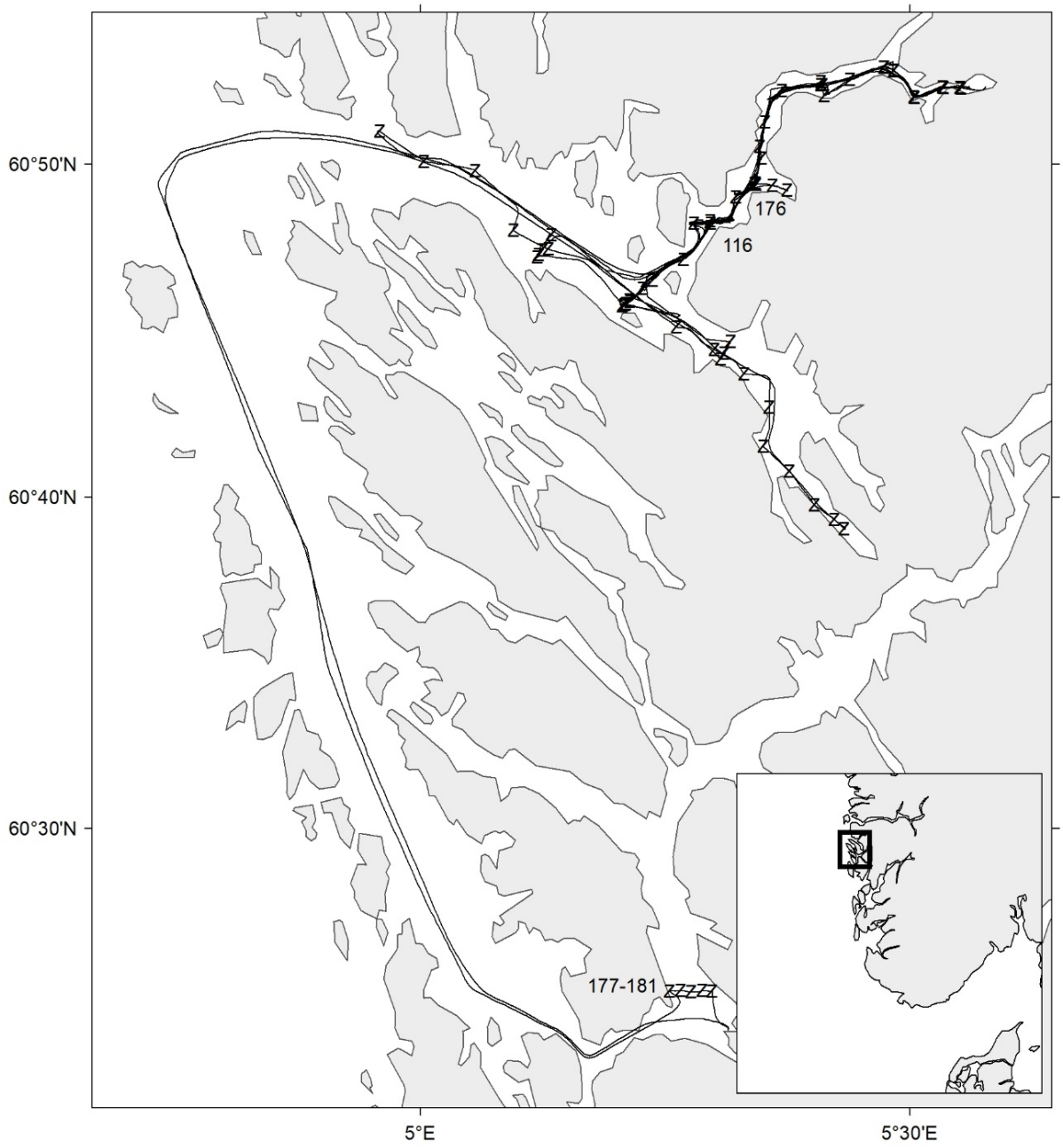
Fig.43



Cruise no 2019601 "K. Bonnevie" (Chart II)
5–26 January 2019

□ Bottom trawl st.no 1-129

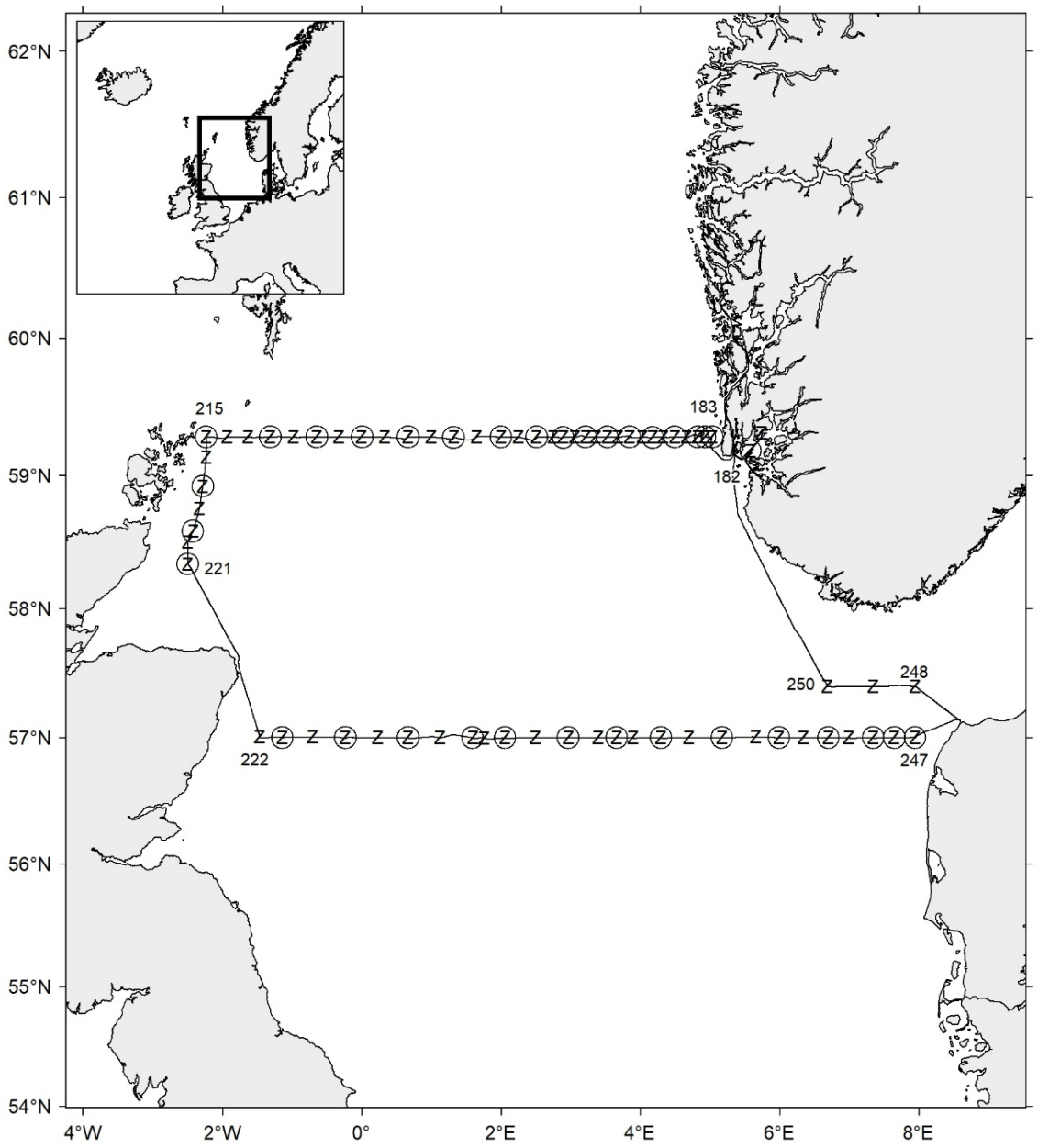
Fig. 44



Cruise no 2019602 "K. Bonnevie"
1-4 February 2019

z CTD st.no 116-181

Fig. 45

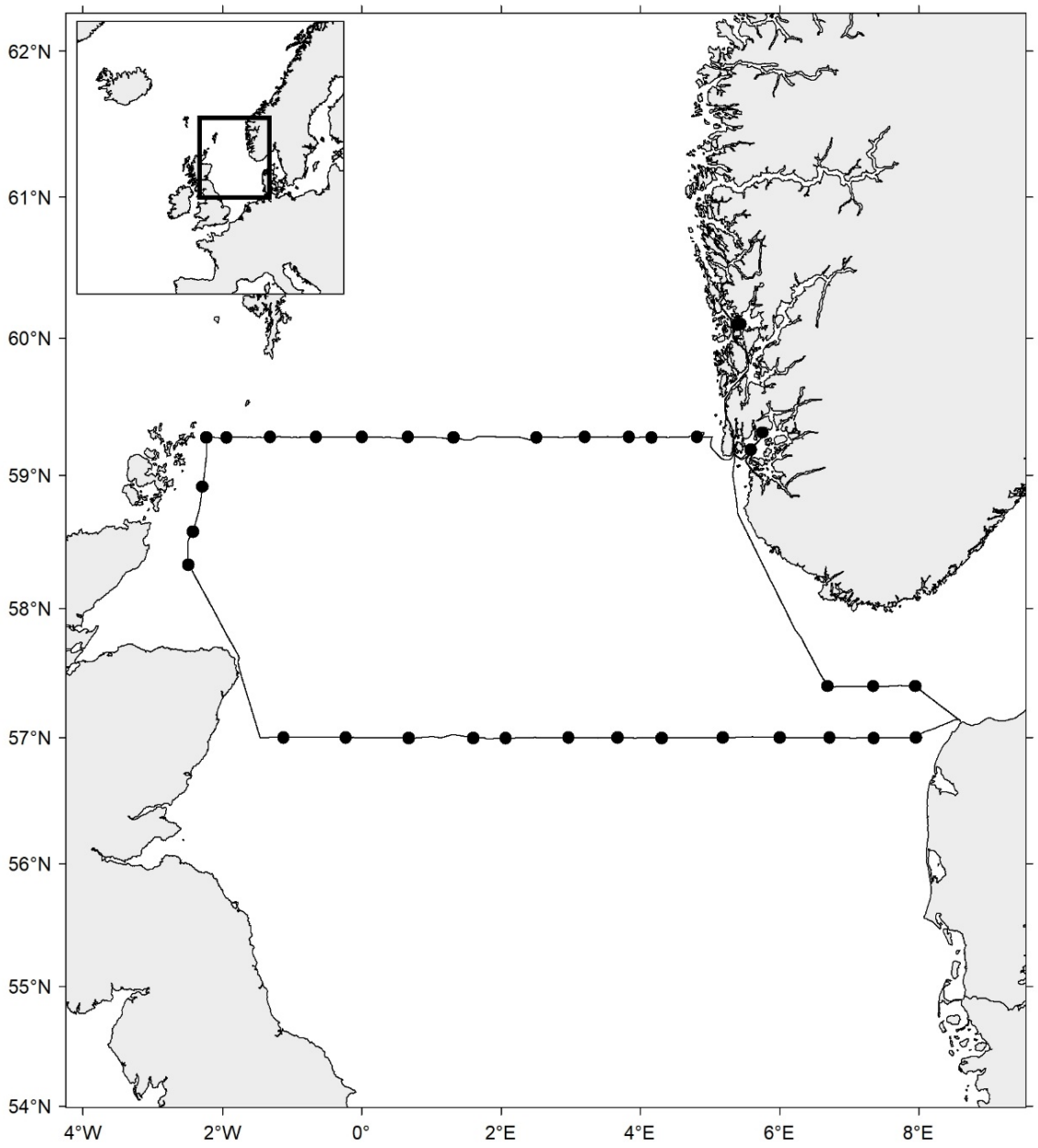


Cruise no 2019603 "K. Bonnevie" (Chart I)
7–16 February 2019

z CTD st.no 182-250
○ Plankton st. (WP-II-net)

Standard sections:
Utsira W: st.no 183-215
Hanstholm–Aberdeen: 222-247
Fair Isle-Pentland st.no 221-214

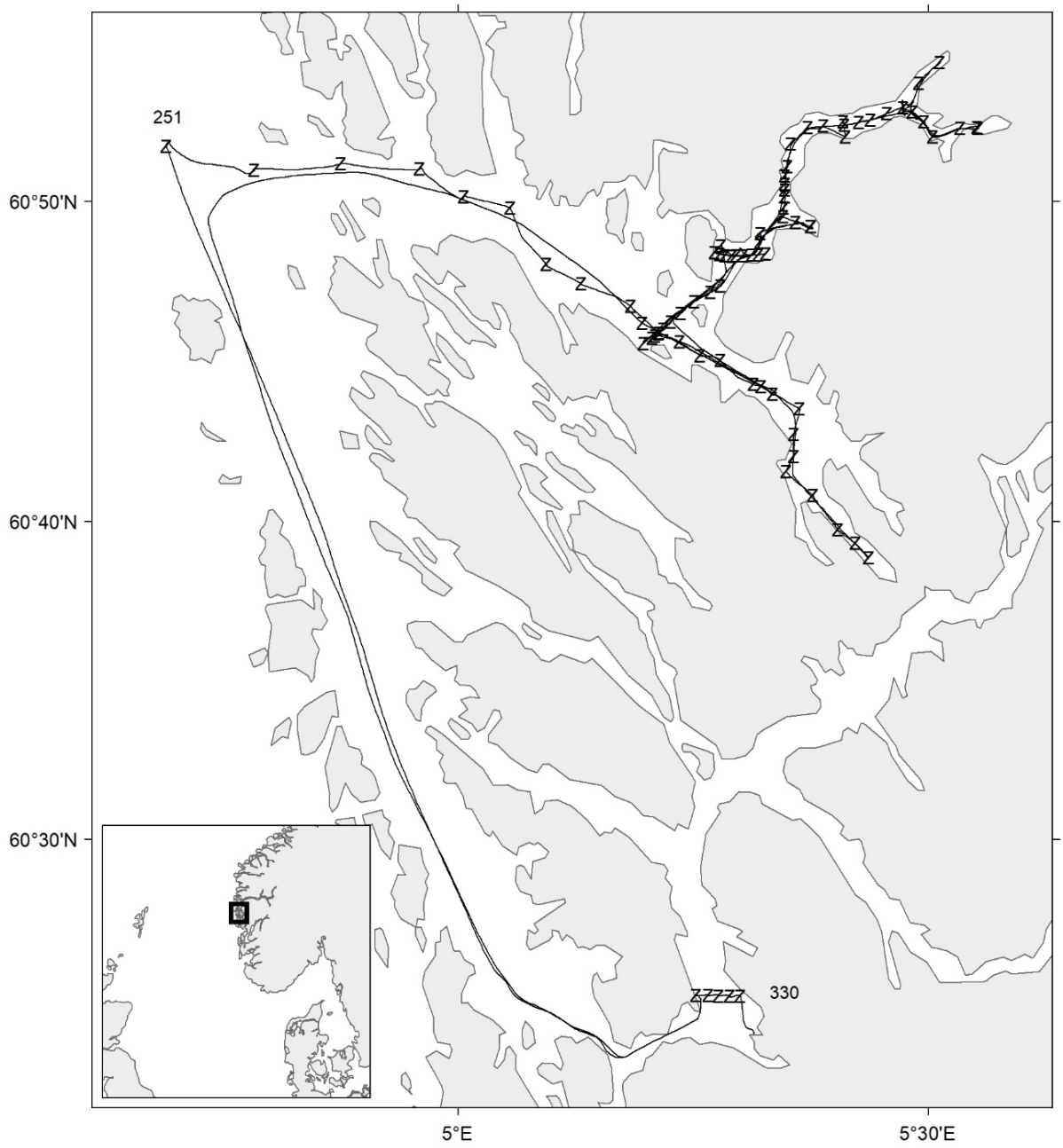
Fig. 46



Cruise no 2019603 "K. Bonnevie" (Chart II)
7–16 February 2019

●MIK station

Fig. 47

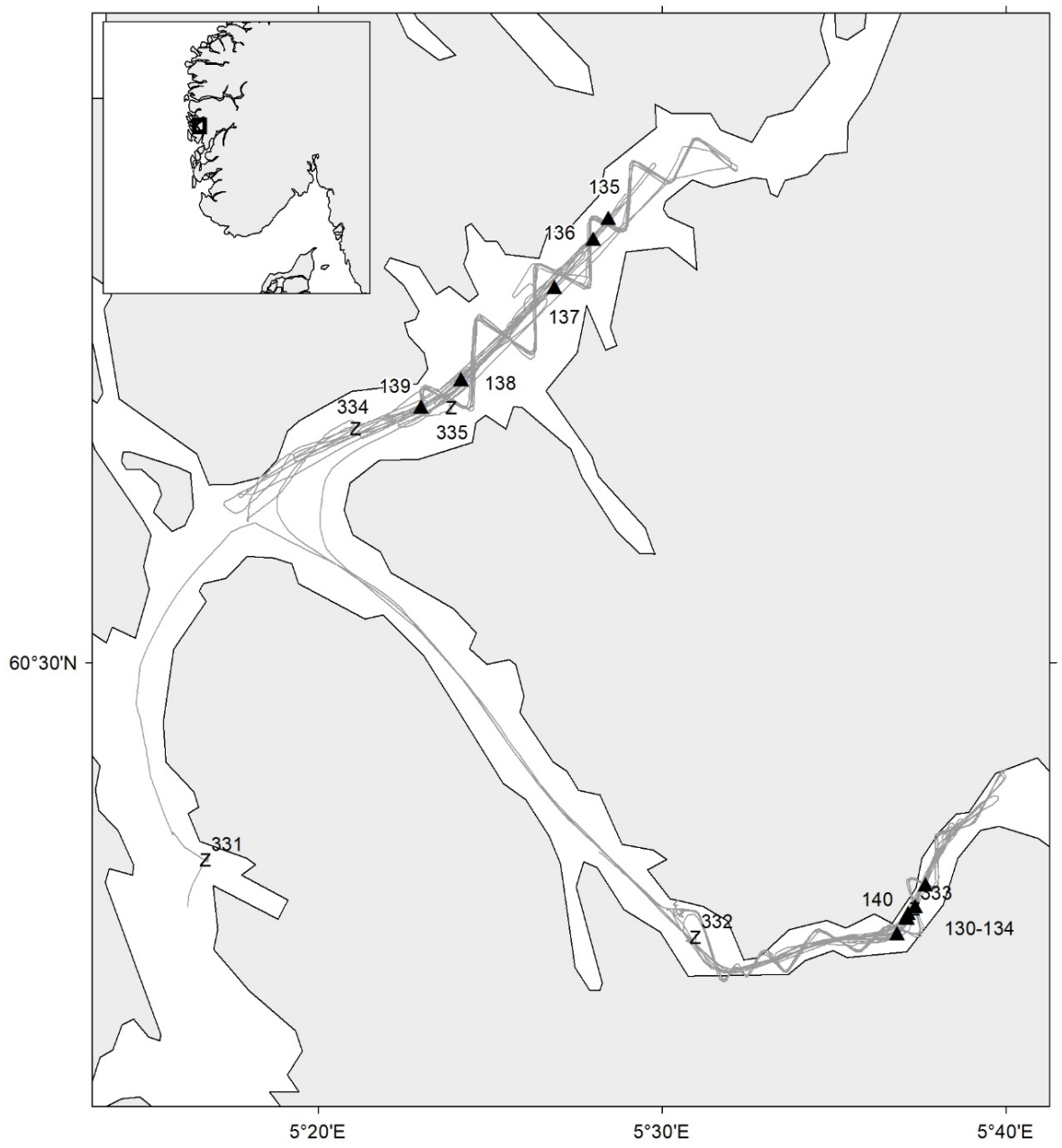


Cruise no 2019604 "Kristine Bonnevie"
28 Feb–3 March 2019

z CTD st.no 251-330

4 surface drifters were deployed on four occasions within Masfjorden.

Fig. 48

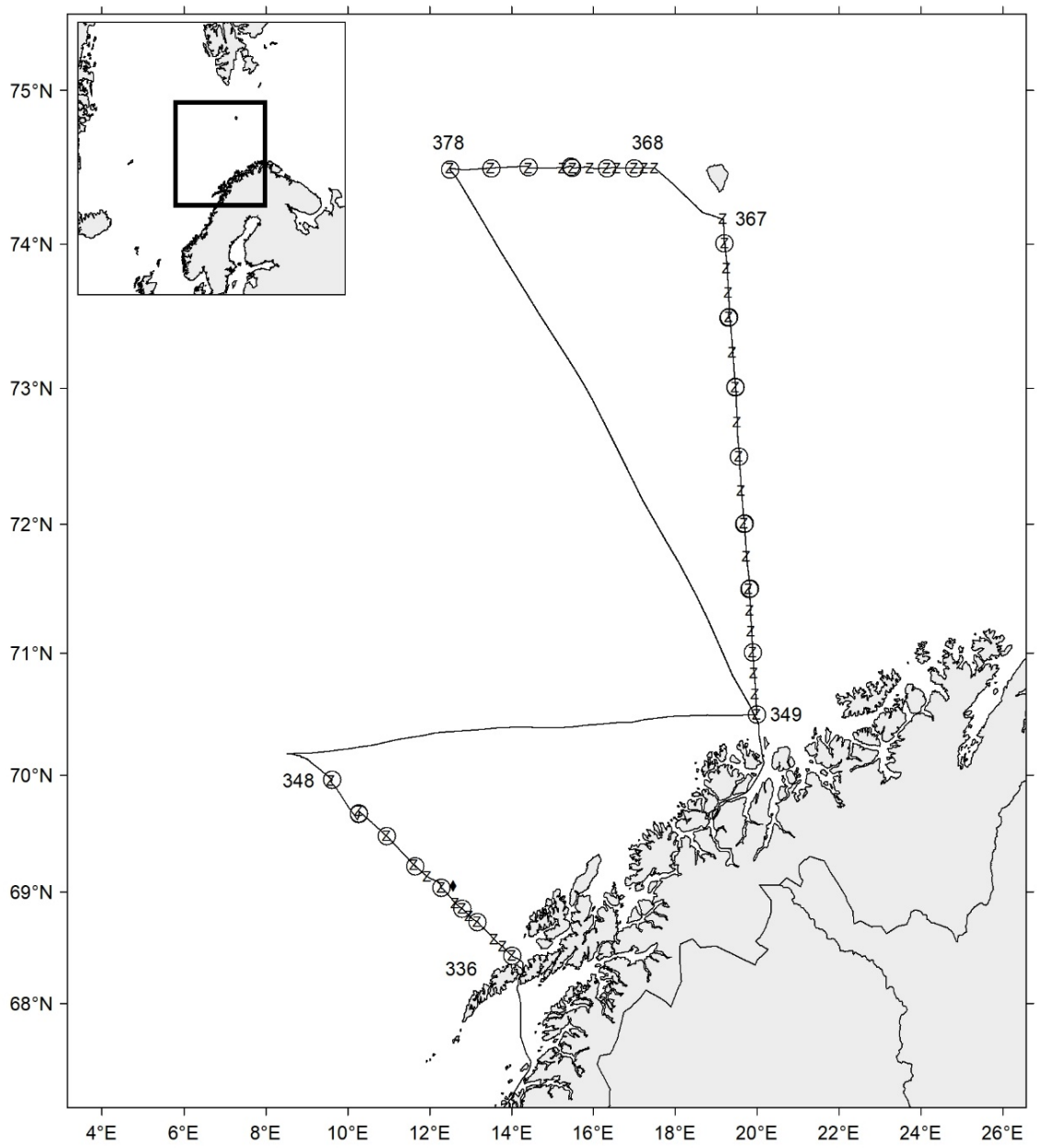


Cruise no 2019605 "K. Bonnevie"
4–8 March 2019

z CTD st.no 331–335

▲ Pelagic trawl st.no 130–140

Fig. 49

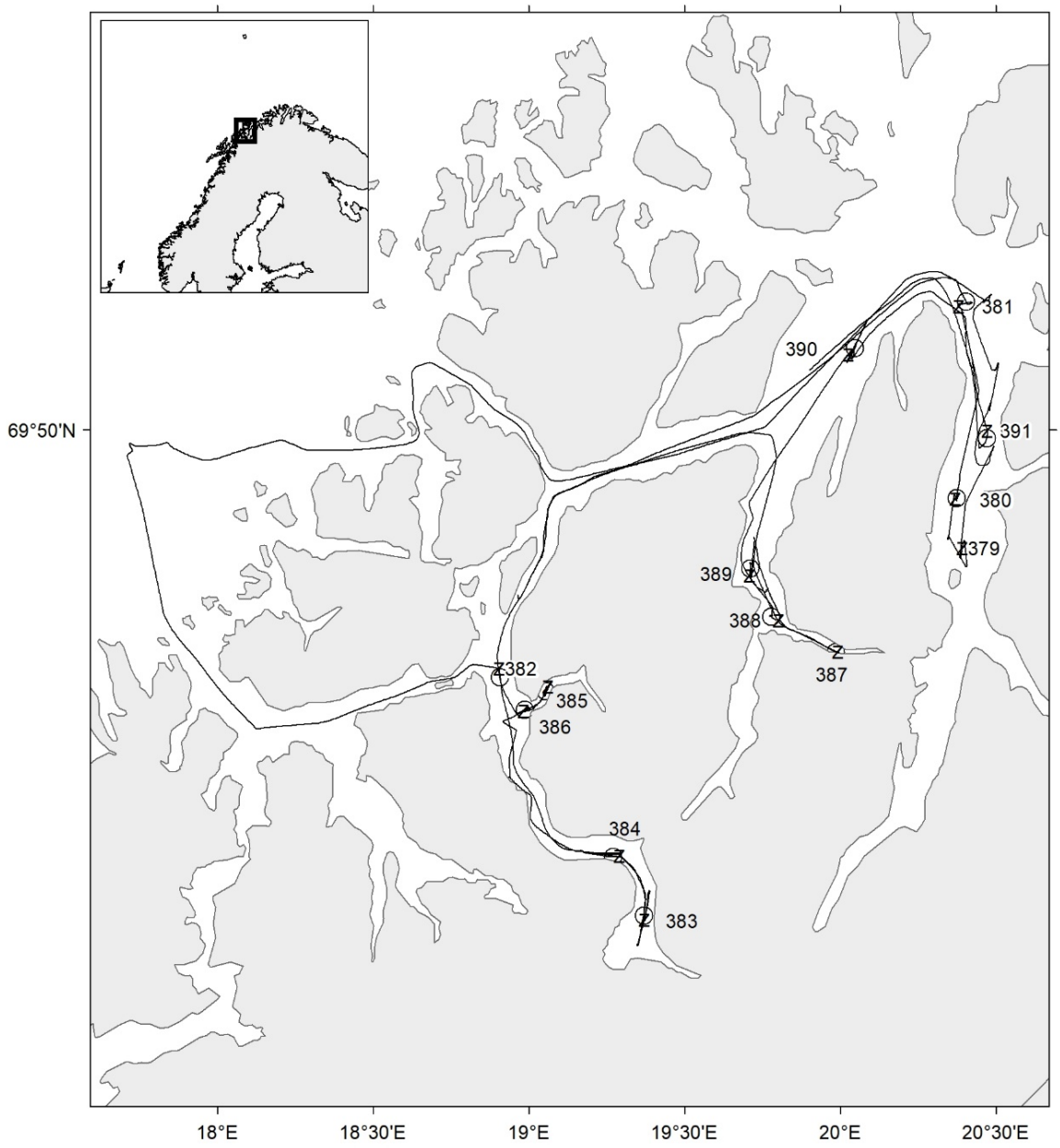


Cruise no 2019606 "K. Bonnevie"
17–26 March 2019

z CTD st.no 336–378
OPlankton st. (WP-II-net)
♦Plankton st. (Multinet)

Standard sections:
Gimsøy NW st.no 336–348
Fugløya–Bjørnøya st.no 349–367
Bjørnøya W st.no 368–378

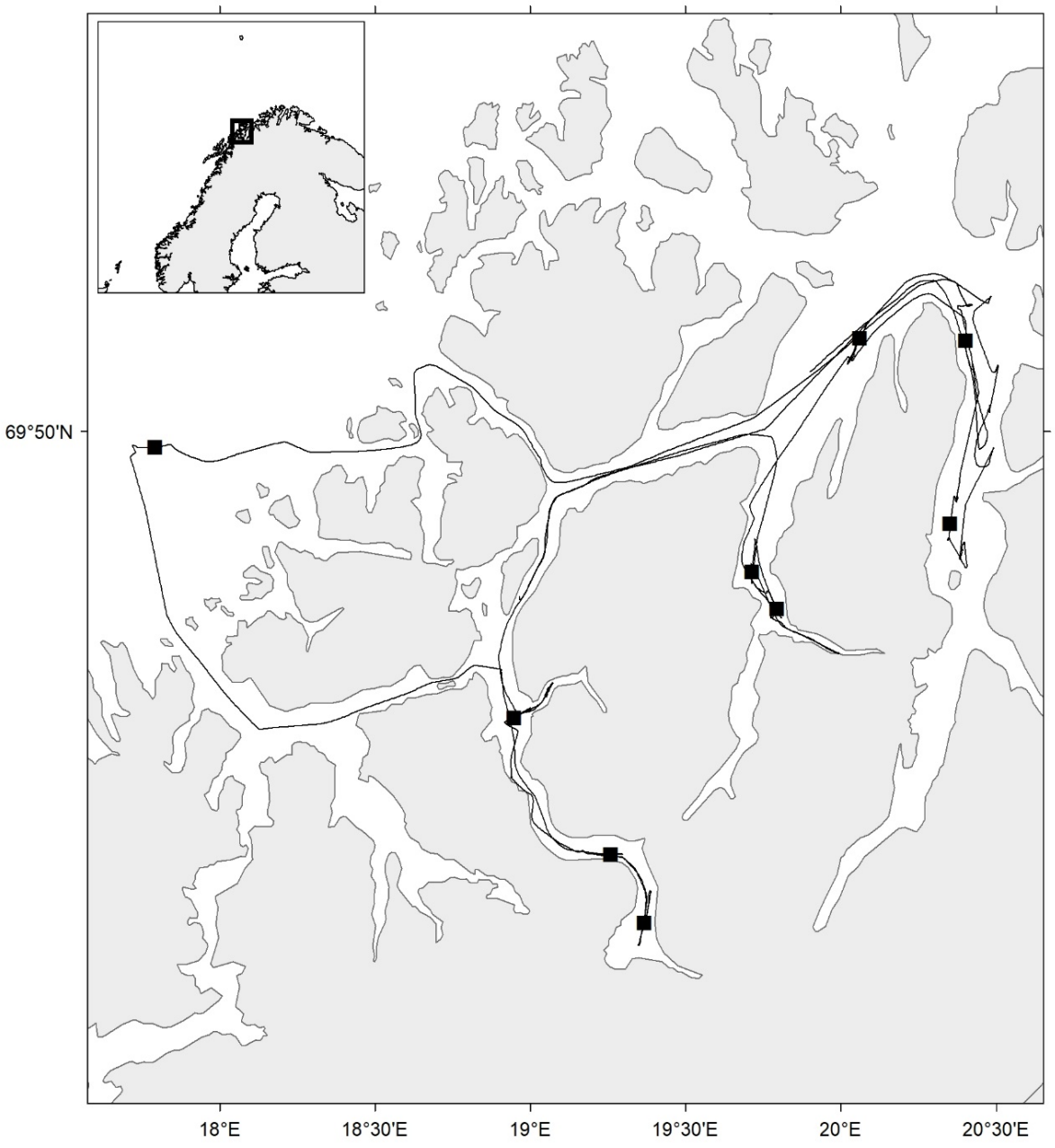
Fig. 50



Cruise no 2019607 "K. Bonnevie" (Chart I)
27–31 March 2019

z CTD st.no 379-391
○ Multinet st. (Egg and larvae)

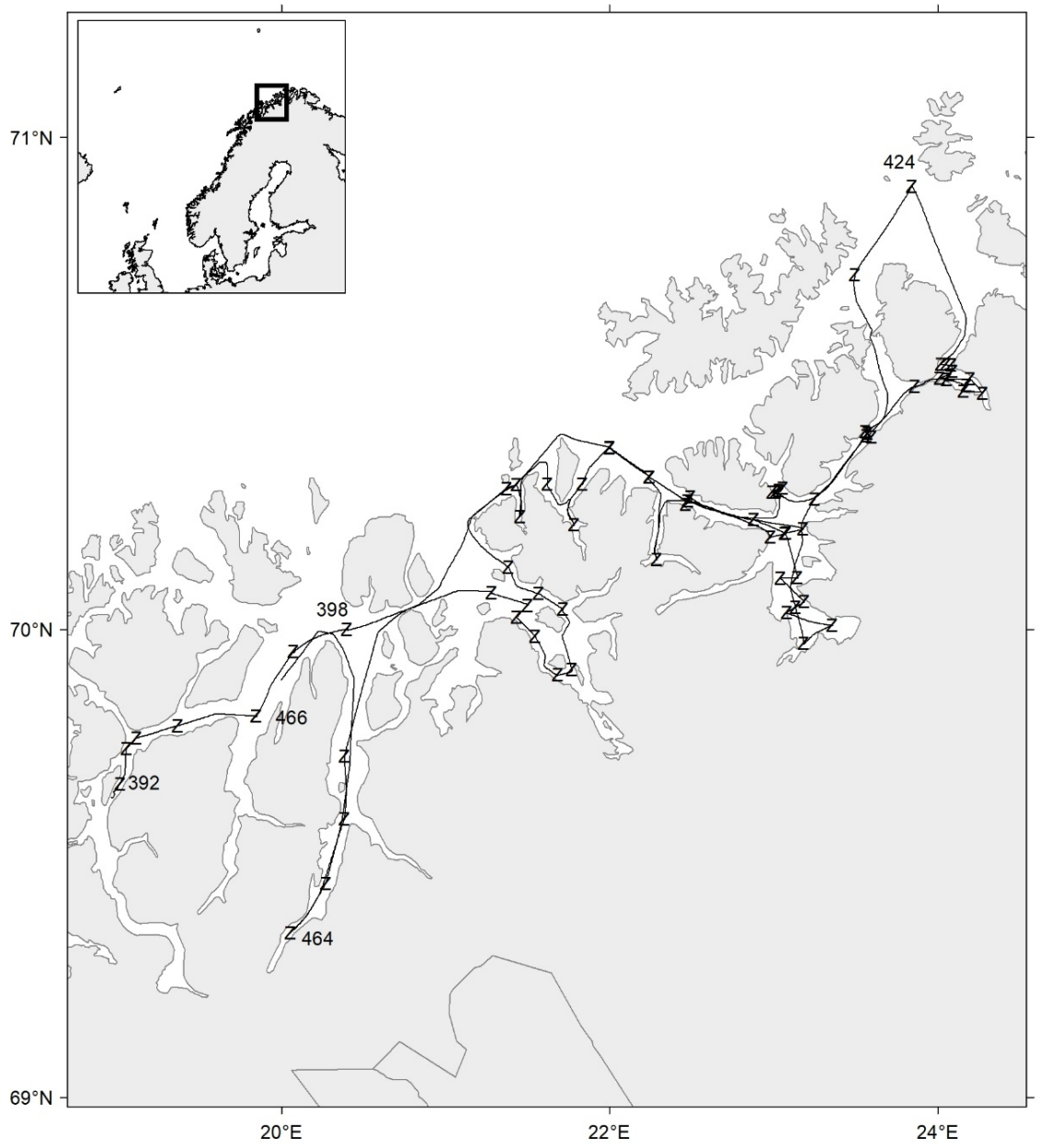
Fig. 51



Cruise no 2019607 "K. Bonnevie" (Chart II)
27–31 March 2019

■ Bottom trawl st. (9 stations)

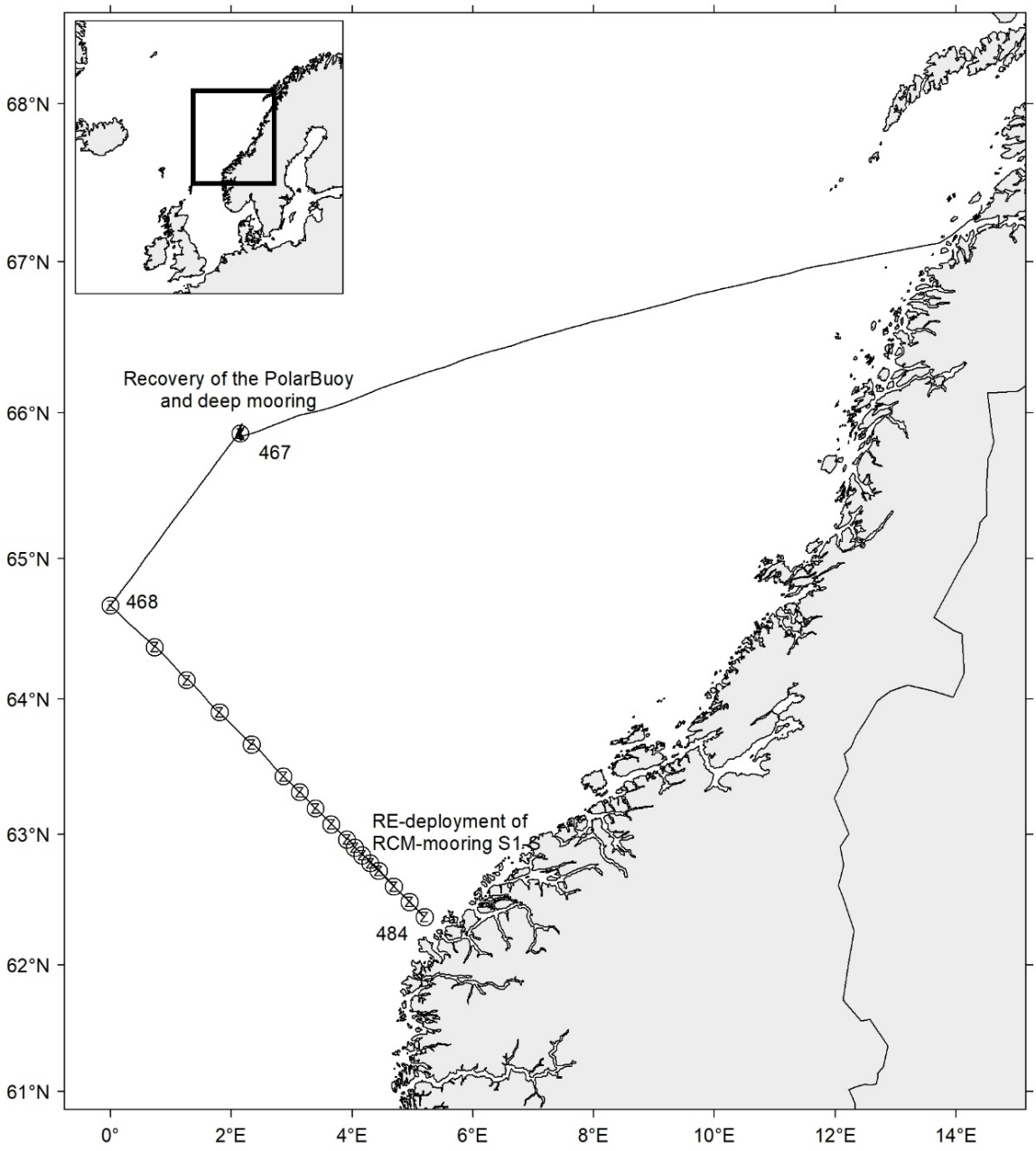
Fig. 52



Cruise no 2019608 "K. Bonnevie"
1–4 April 2019

z CTD st.no 392–466

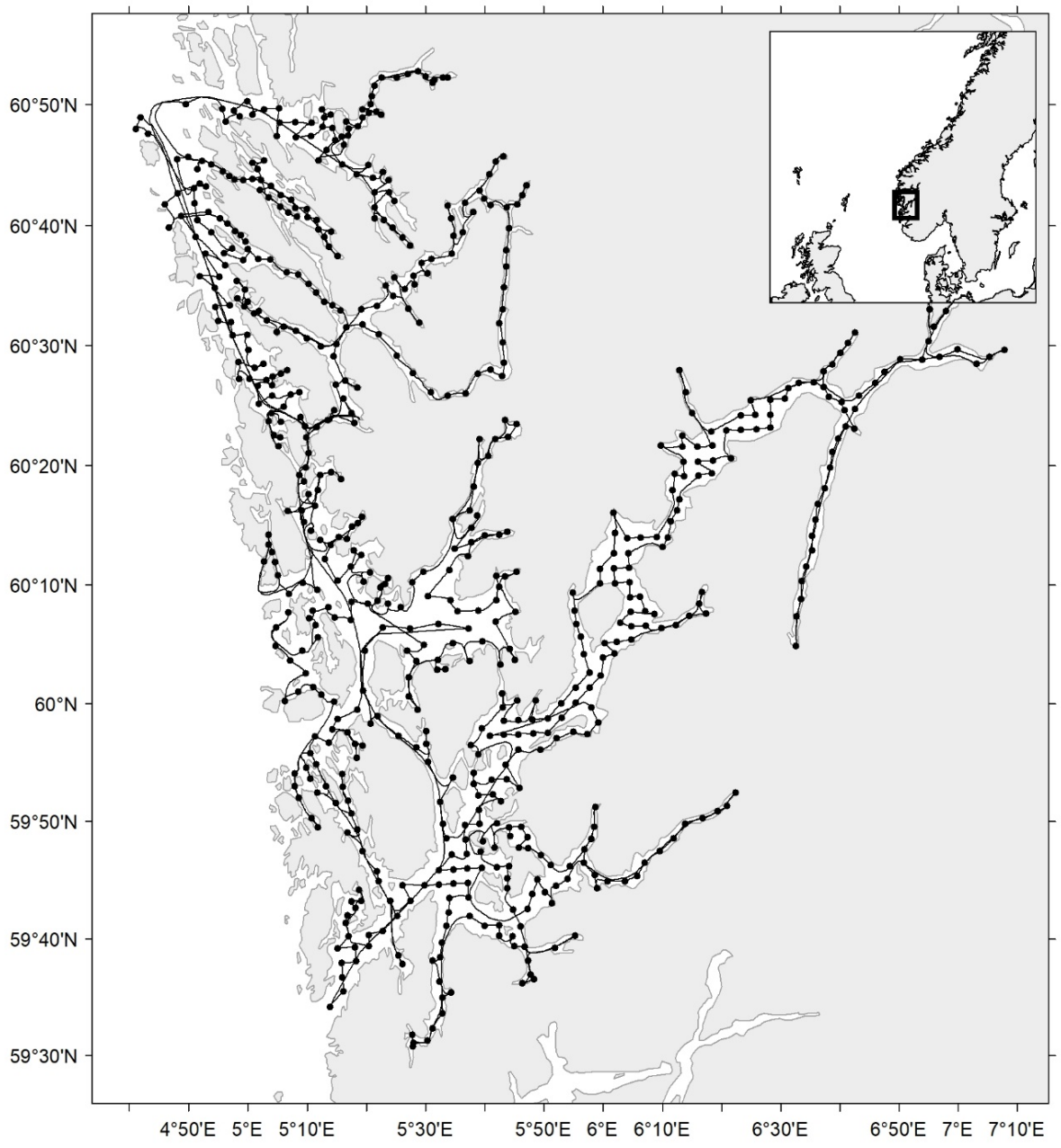
Fig. 53



Cruise no 2019609 "K. Bonnevie"
6–10 April 2019

z CTD st.no 467–484
○ Plankton st. (WP-II-net)
Sandard section Svinøy NW st.no 468–484

Fig. 54



Cruise no 2019610 "K. Bonnevie"
13–25 April 2019

- Castaway-ctd st. (handheld instrument) and egg- and larvae st.

Fig. 55

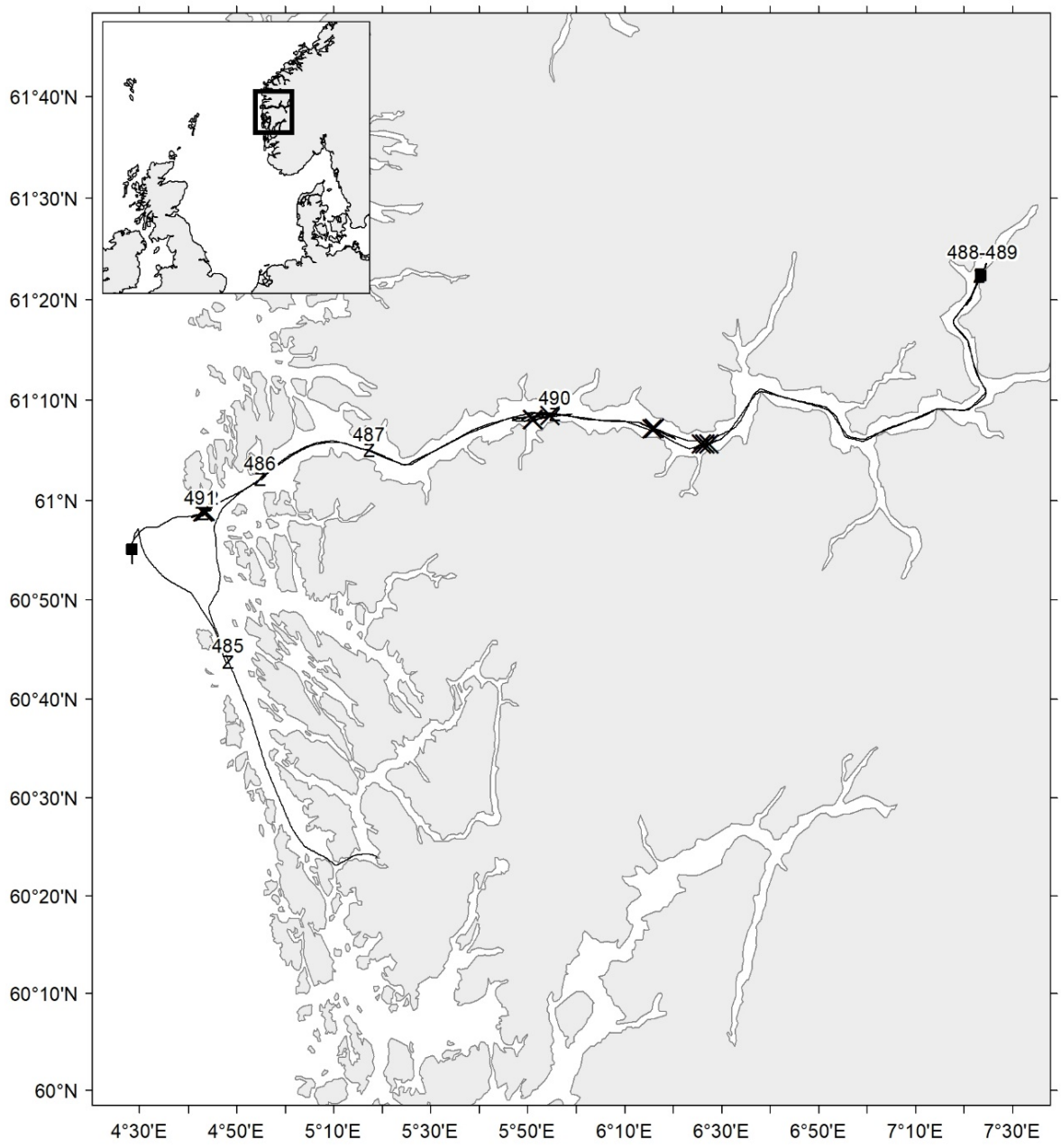

61°40'N
61°30'N
61°20'N
61°10'N
61°N
60°50'N
60°40'N
60°30'N
60°20'N
60°10'N
60°N
4°30'E
4°50'E
5°10'E
5°30'E
5°50'E
6°10'E
6°30'E
6°50'E
7°10'E
7°30'E
488-489
490
487
486
491
485
Cruise no 2019611 "K. Bonnevie"
27 April–1 May 2019
z CTD st.no 485-492
■ 2 bottom trawl st.
× 11 agassiz trawl st.

Fig. 56

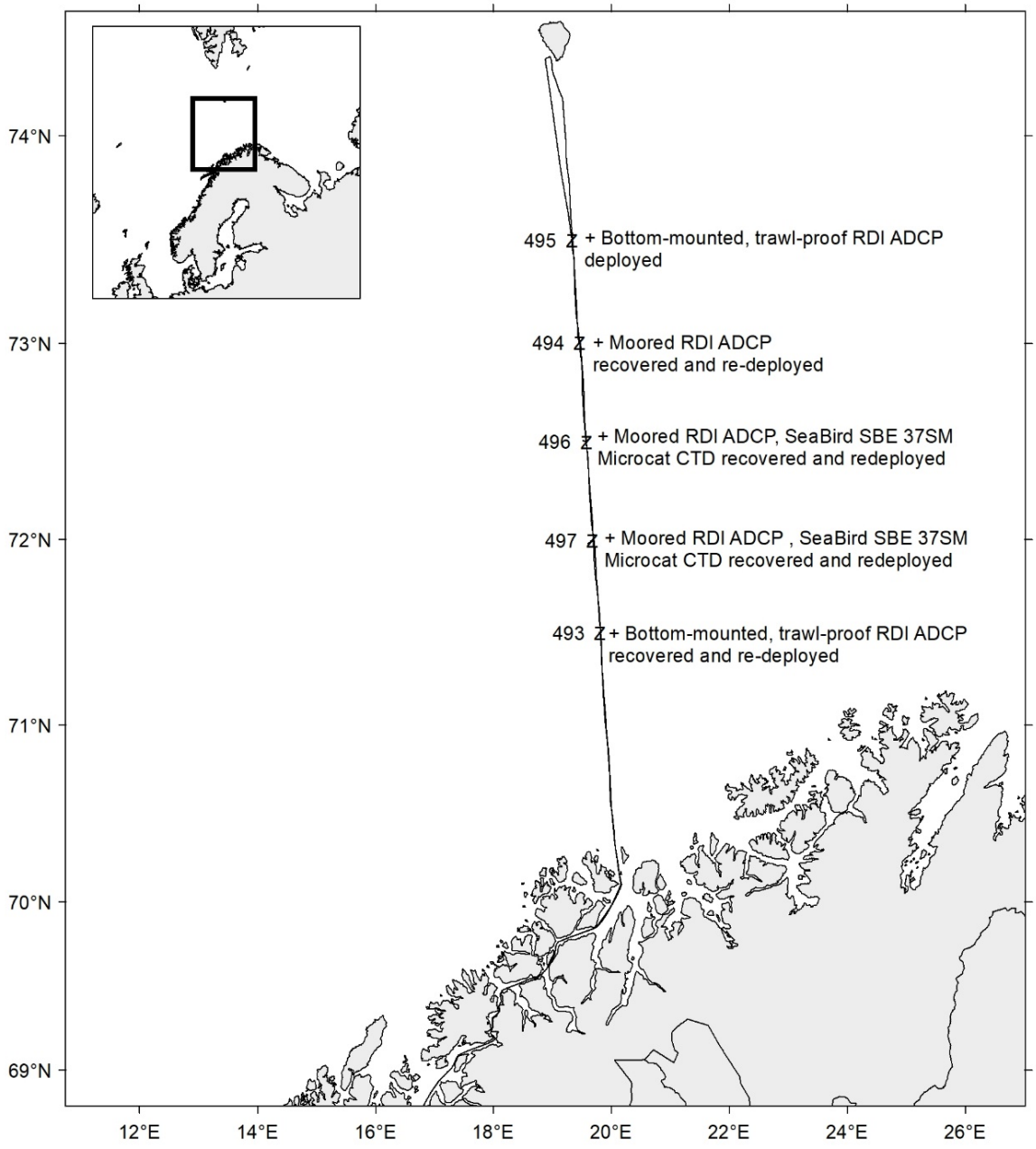
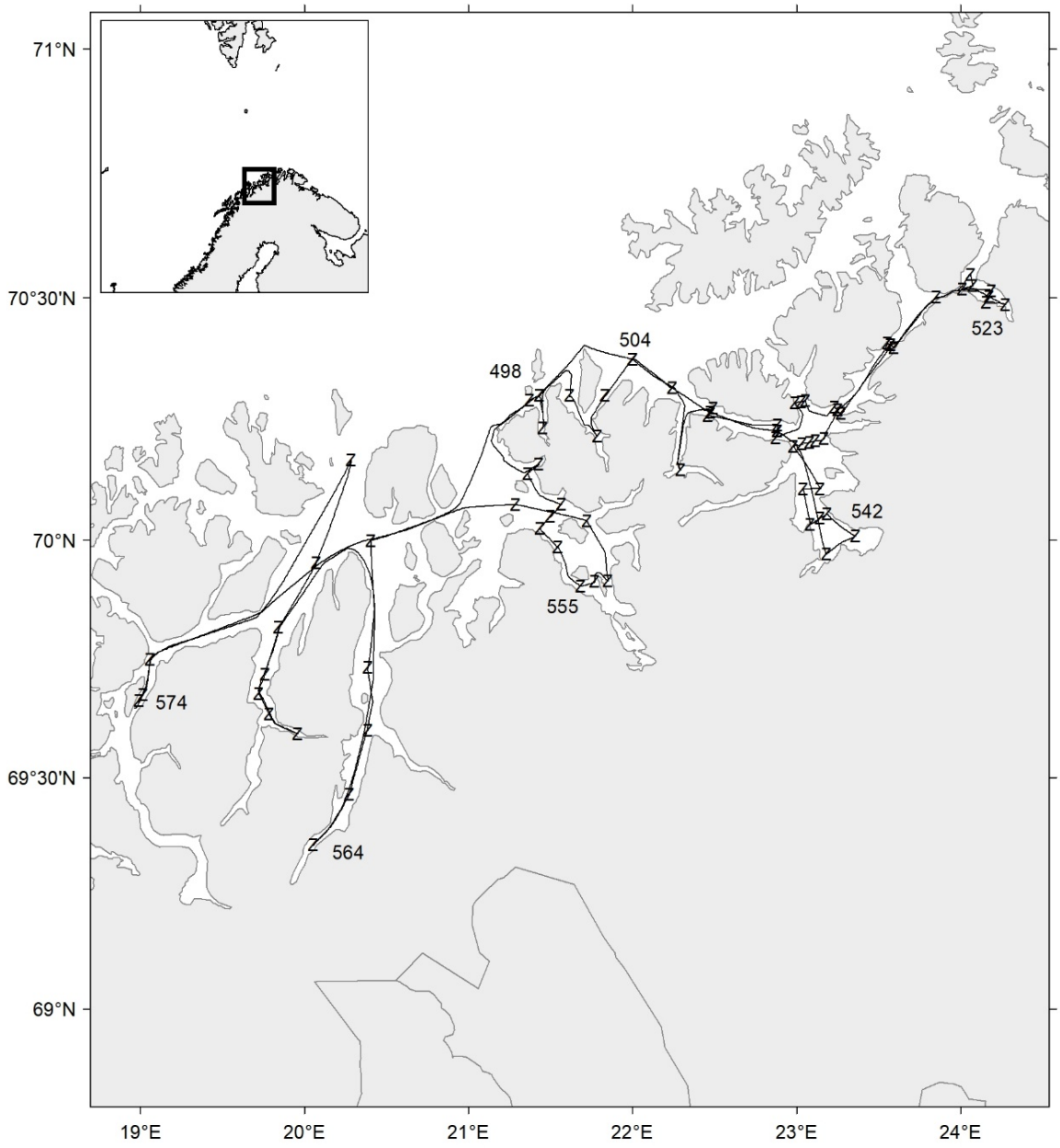

74°N
73°N
72°N
71°N
70°N
69°N
12°E
14°E
16°E
18°E
20°E
22°E
24°E
26°E
495 + Bottom-mounted, trawl-proof RDI ADCP deployed
494 + Moored RDI ADCP recovered and re-deployed
496 + Moored RDI ADCP, SeaBird SBE 37SM Microcat CTD recovered and redeployed
497 + Moored RDI ADCP , SeaBird SBE 37SM Microcat CTD recovered and redeployed
493 + Bottom-mounted, trawl-proof RDI ADCP recovered and re-deployed
Cruise no 2019612 "K. Bonnevie"
1–7 May 2019
z CTD st.no 493-497

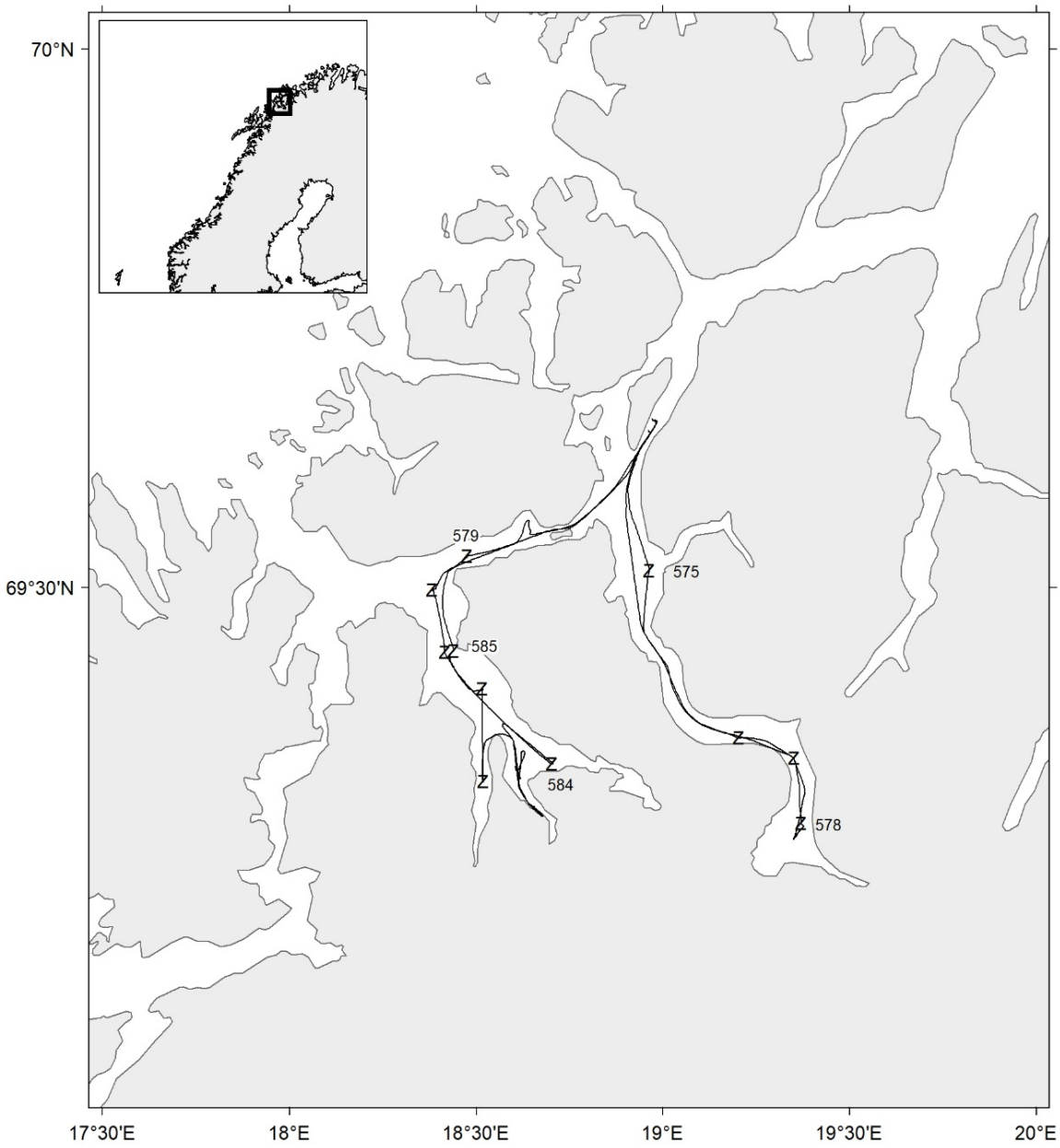
Fig. 57



Cruise no 2019613 "K. Bonnevie"
9–12 May 2019

z CTD st.no 498-574

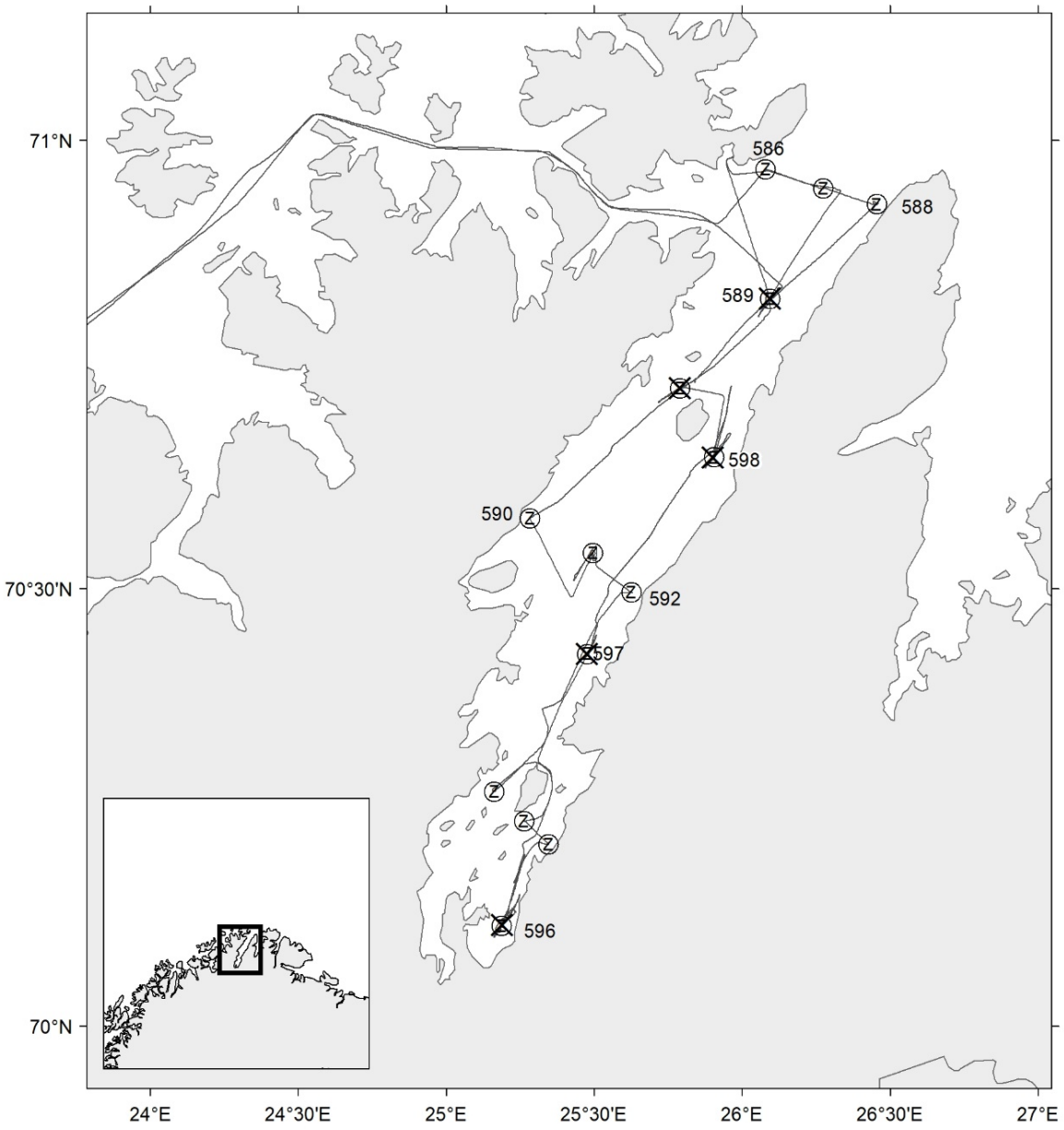
Fig. 58



Cruise no 2019631 "K. Bonnevie"
13–14 May 2019

z CTD st.no 575-585

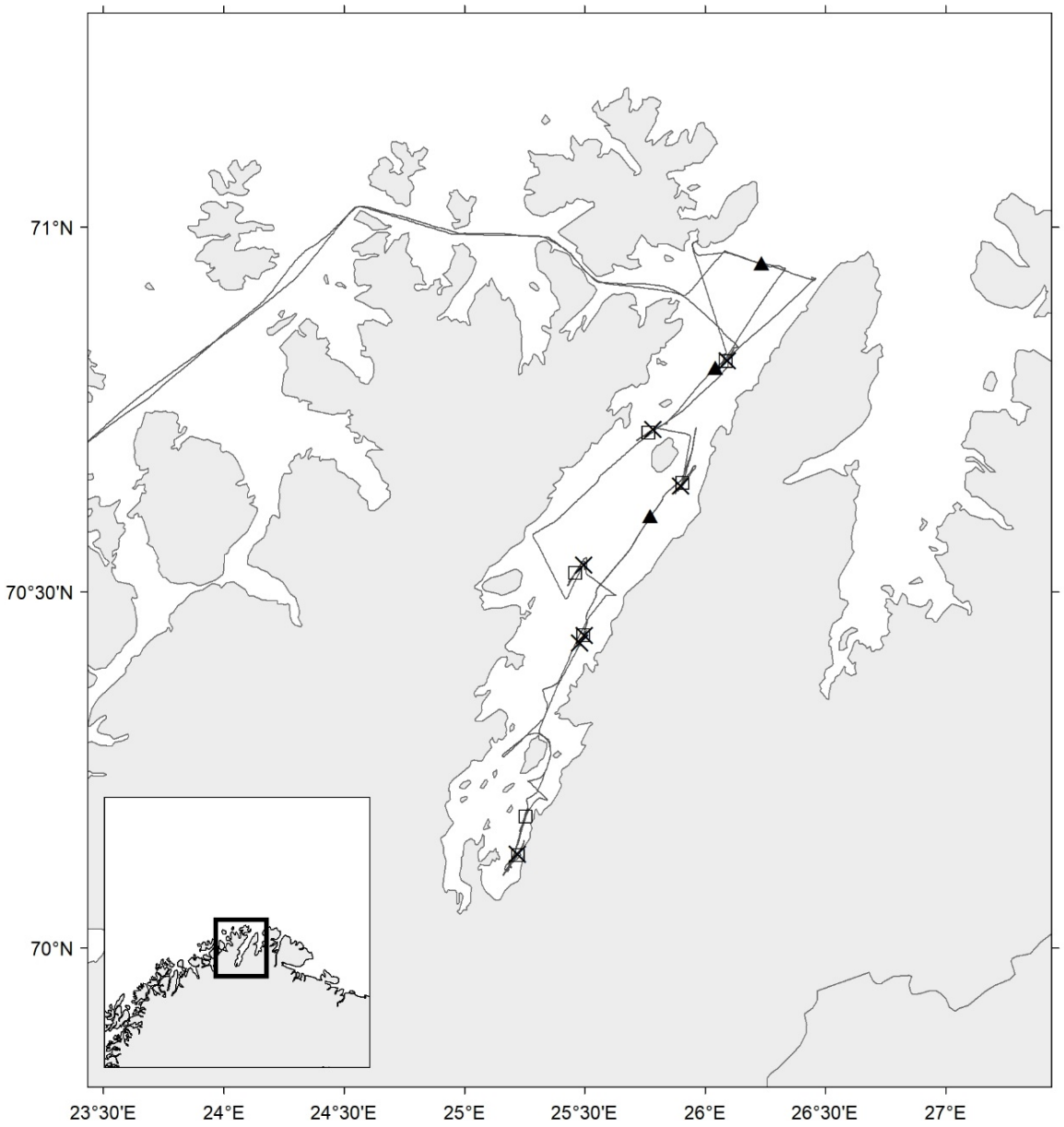
Fig. 59



Cruise no 2019615 "K. Bonnevie" (Chart I)
16–21 May 2019

z CTD st.no 586-599
○Plankton st. (WP-II-net)
×Grab st.

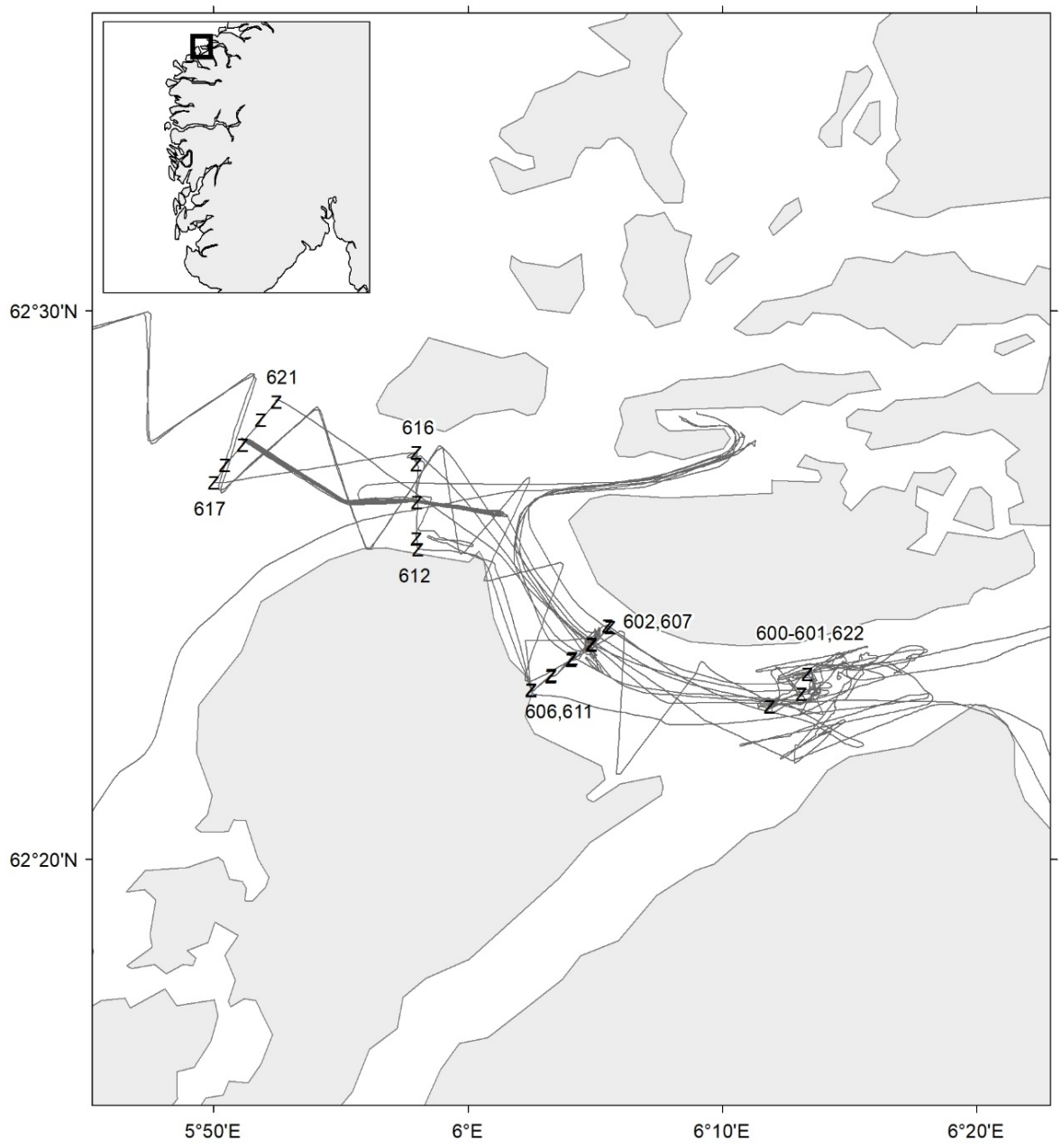
Fig. 60



Cruise no 2019615 "K. Bonnevie" (Chart II)
16–21 May 2019

▲ Pelagic trawl
□ Bottom trawl
× Beam trawl

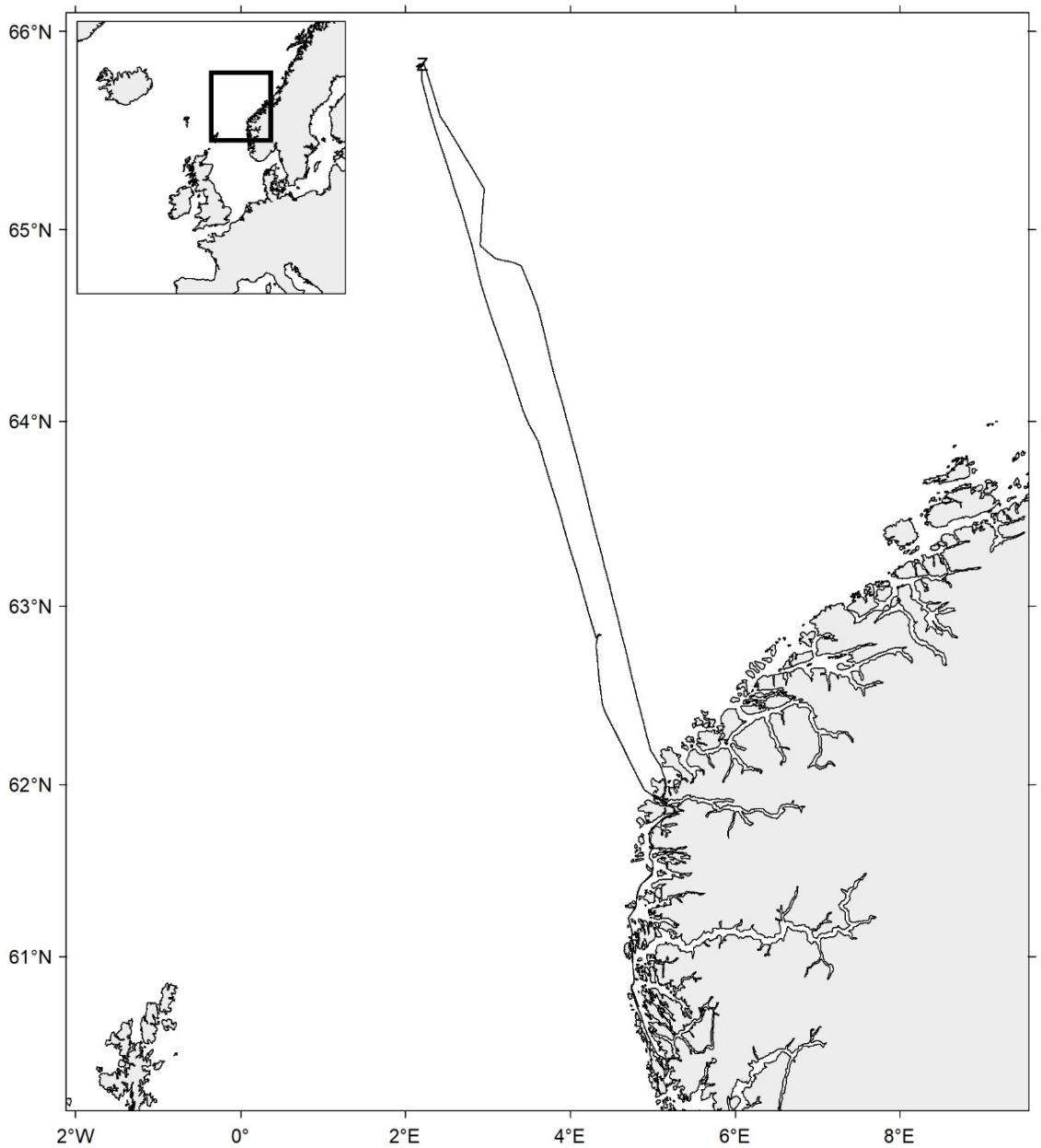
Fig. 61



Cruise no 2019616 "K. Bonnevie"
25–31 May 2019

z CTD st.no 600-622

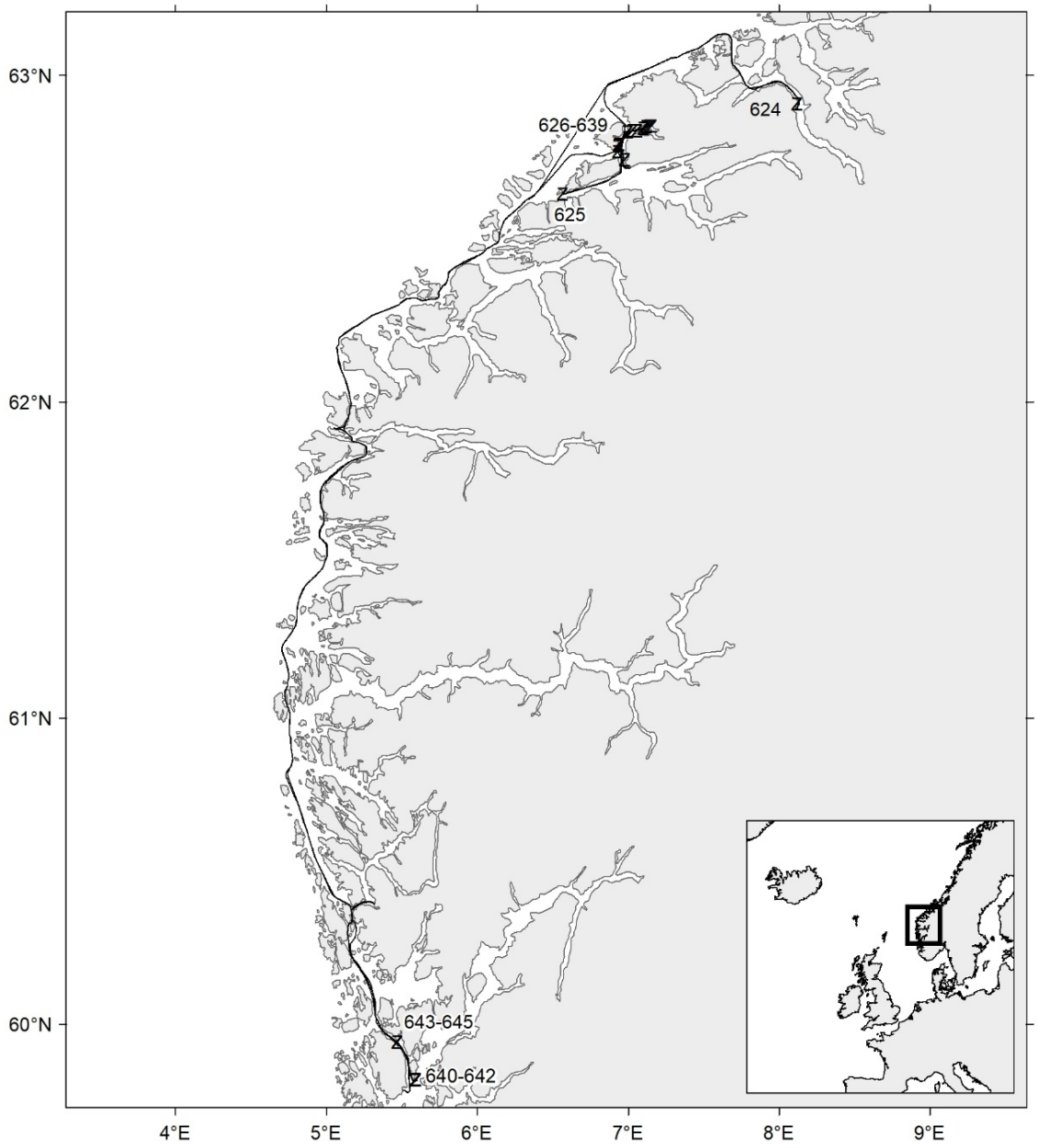
Fig. 62



Cruise no 2019618 "K. Bonnevie"
8–11 June 2019
— Cruise line
z ctd st.no 623

Recovery and re-deployment of standard RCM-mooring S1-S in the Svinøy section.
Deployment of surface and deep moorings at st-Mike (66N,2E)

Fig. 63



Cruise no 2019619 "K. Bonnevie" (Chart I)
13-21 June 2019

z CTD st.no 624-645

Fig. 64

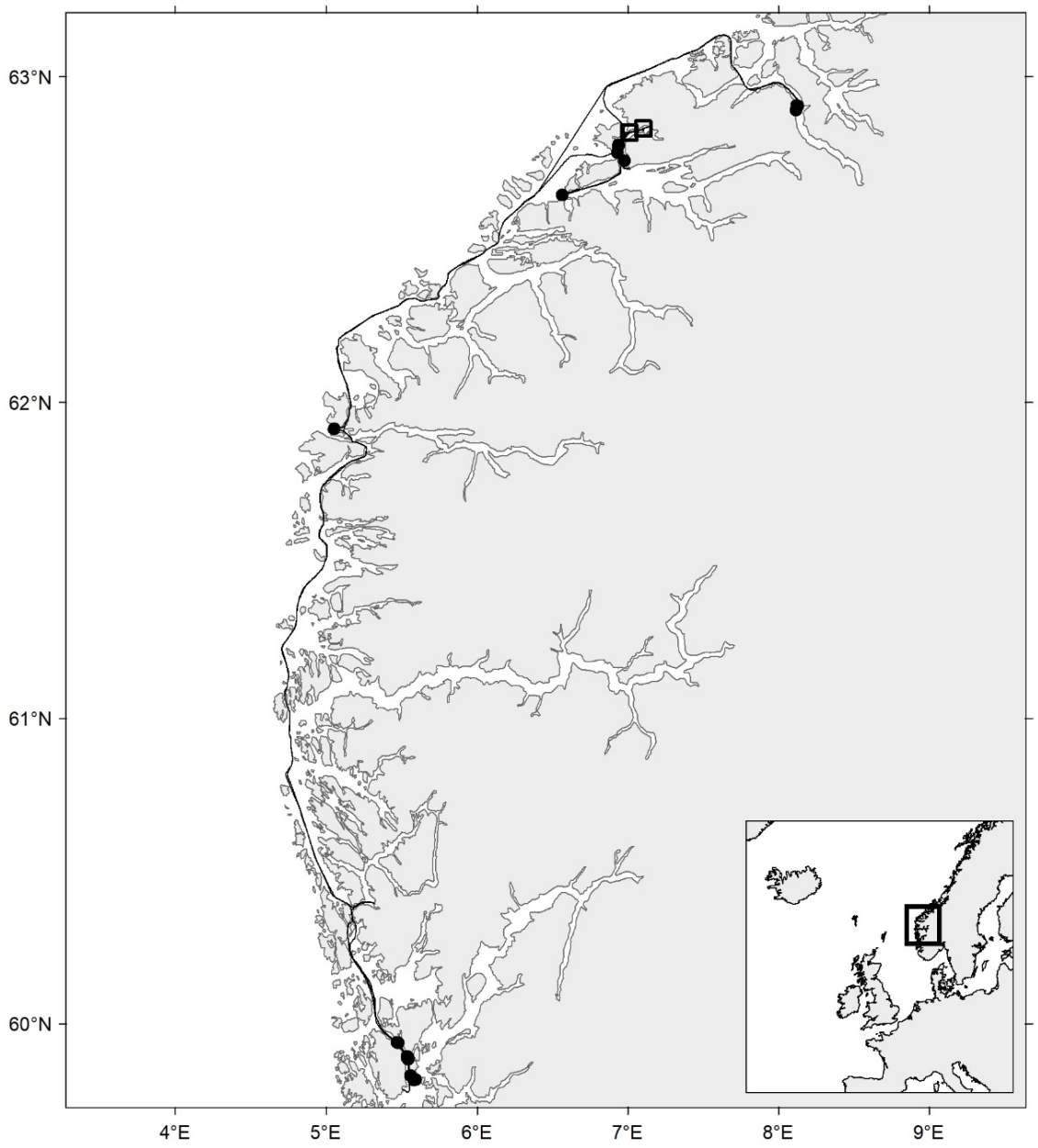
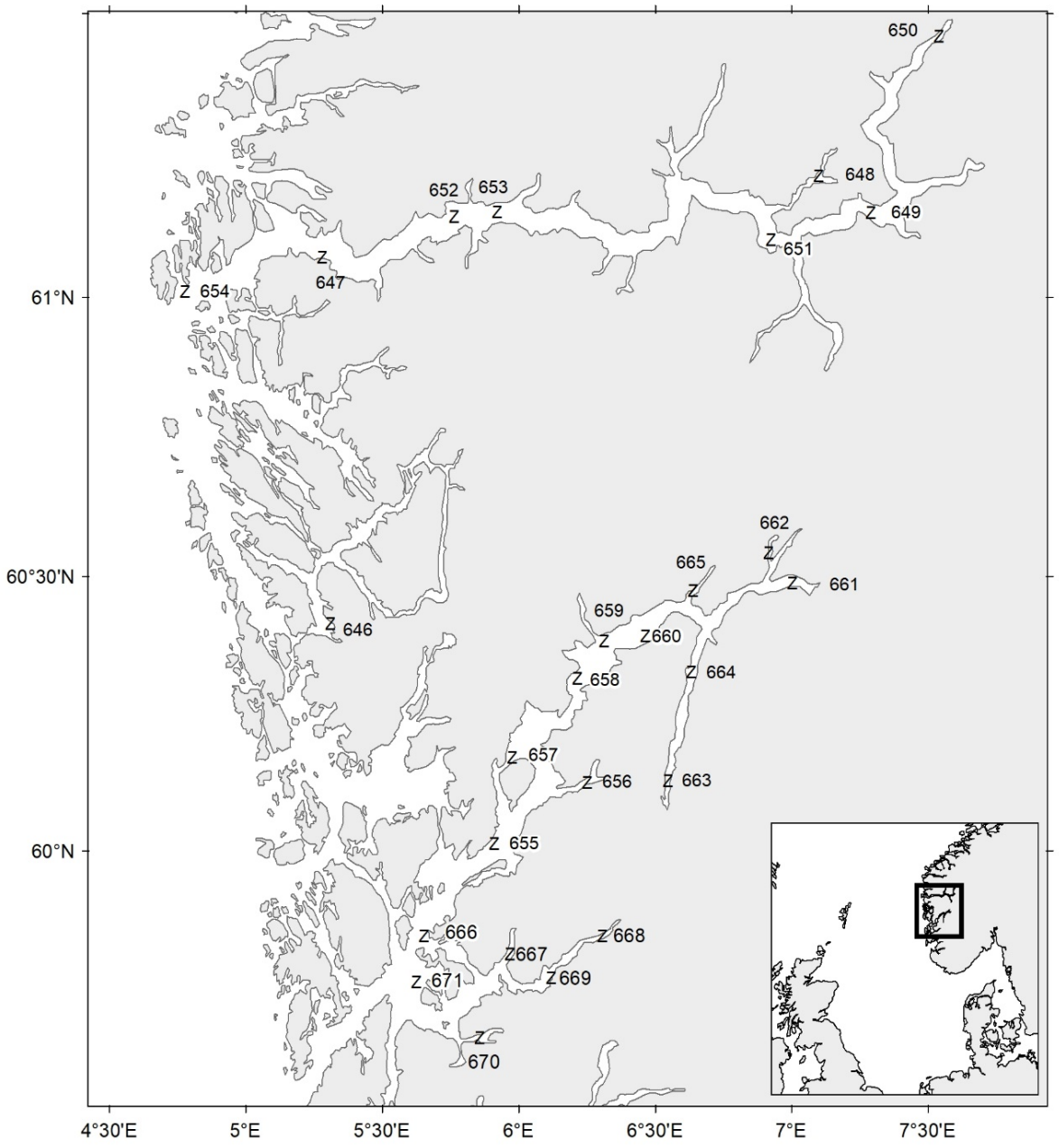

63°N
62°N
61°N
60°N
4°E
5°E
6°E
7°E
8°E
9°E
Cruise no 2019619 "K. Bonnevie" (Chart II)
13-21 June 2019
Grab stations
ROV stations

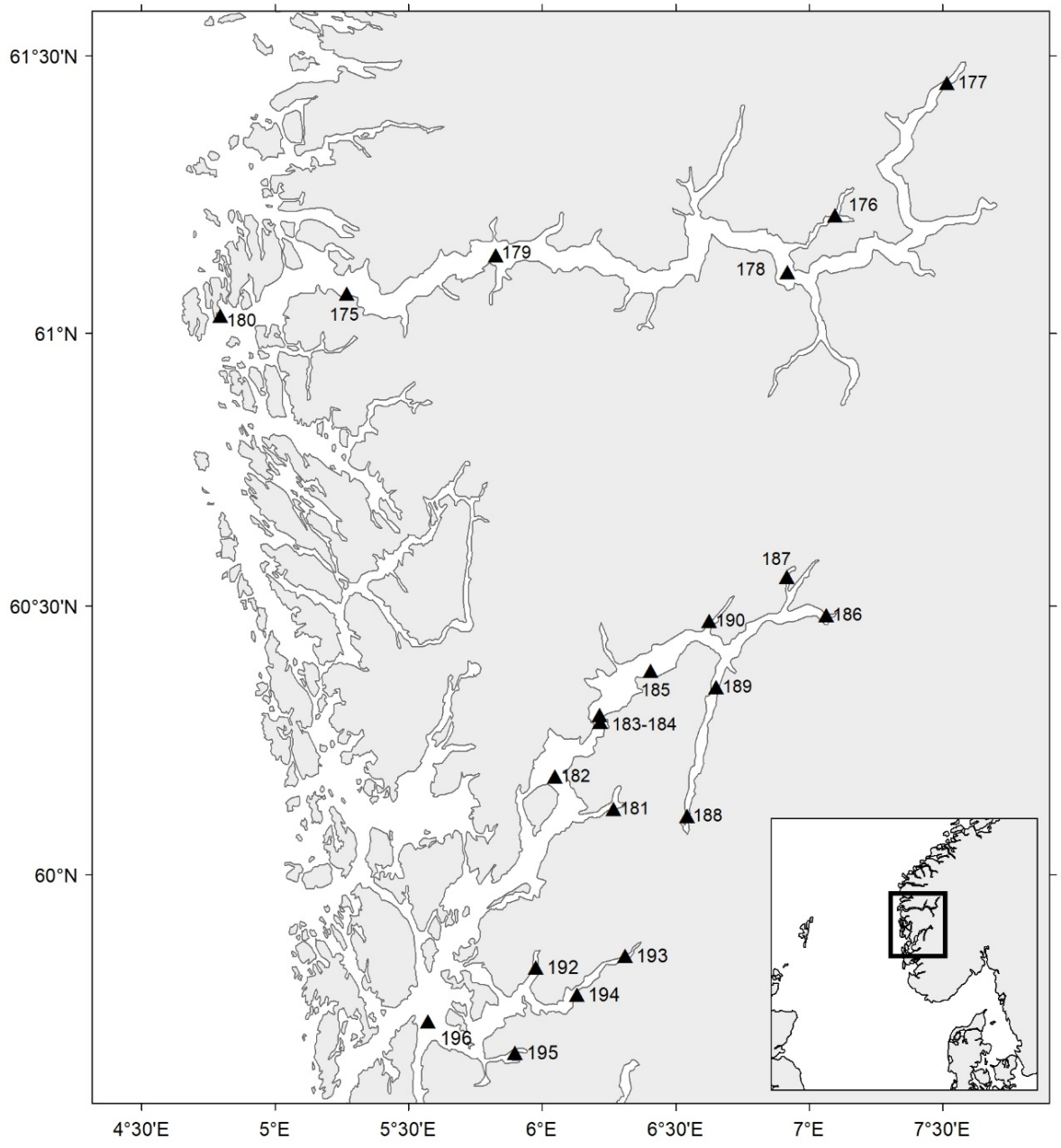
Fig. 65



Cruise no 2019620 "K. Bonnevie" (Chart I)
22 June–1 July 2019

z CTD st.no 646-671
Plankton st. (WP-II-net) on every CTD st.

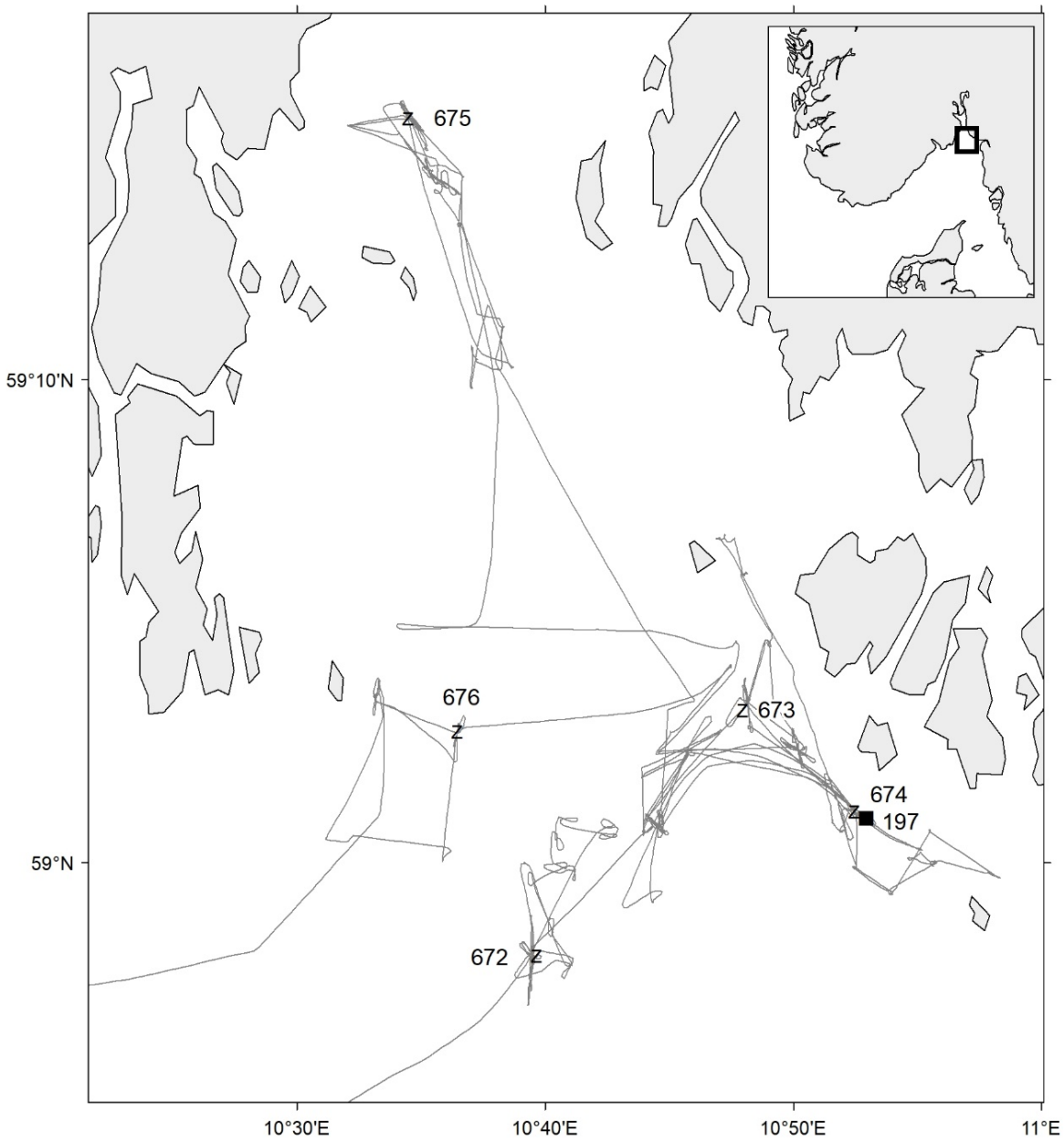
Fig. 66



Cruise no 2019620 "K. Bonnevie" (Chart II)
22 June–1 July 2019

▲ Pelagic trawl st.no 175-196

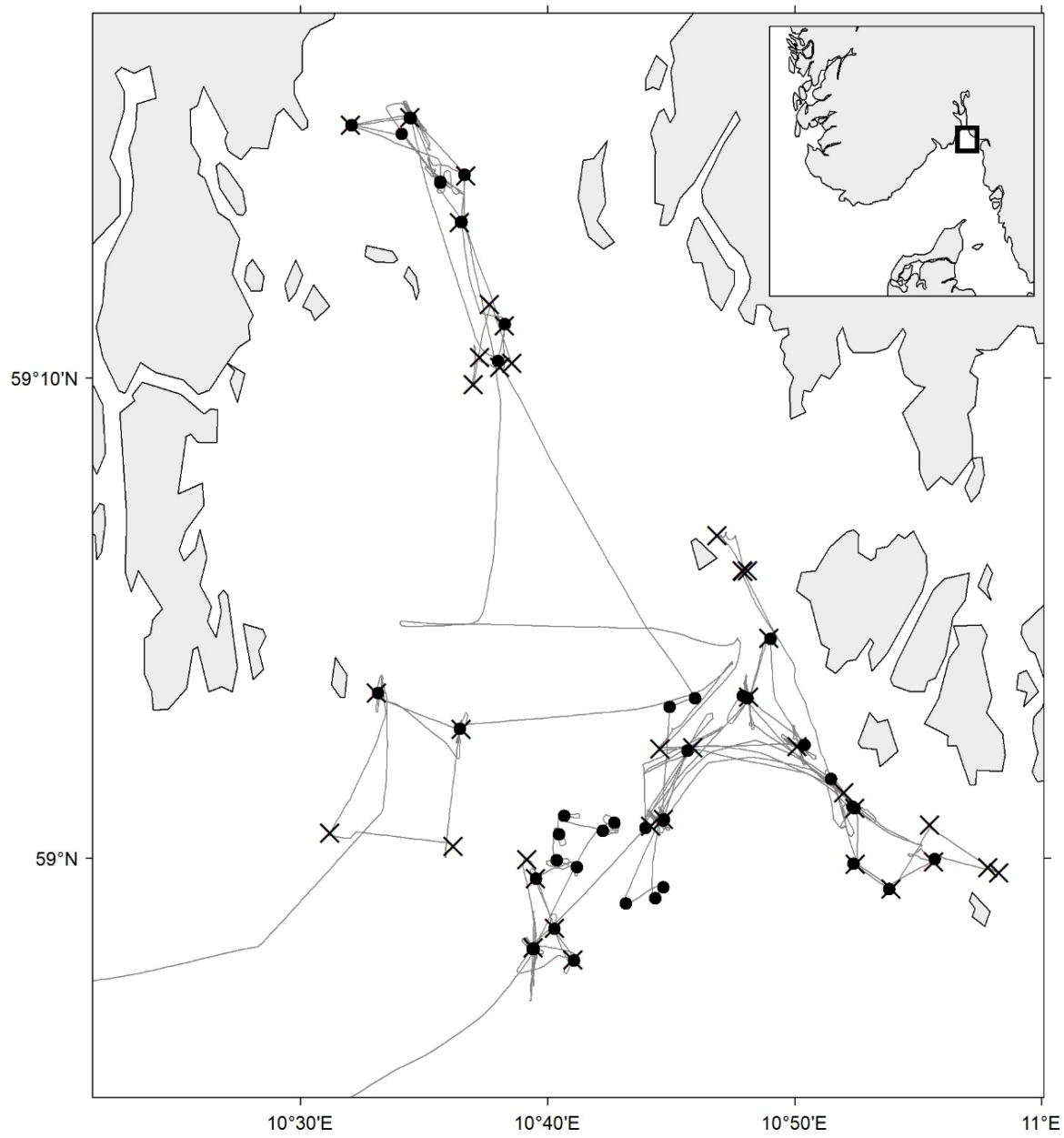
Fig. 67



Cruise no 2019621 "K. Bonnevie" (Chart I)
2–10 July 2019

z CTD st.no 672-676
■ Bottom trawl st.no 197

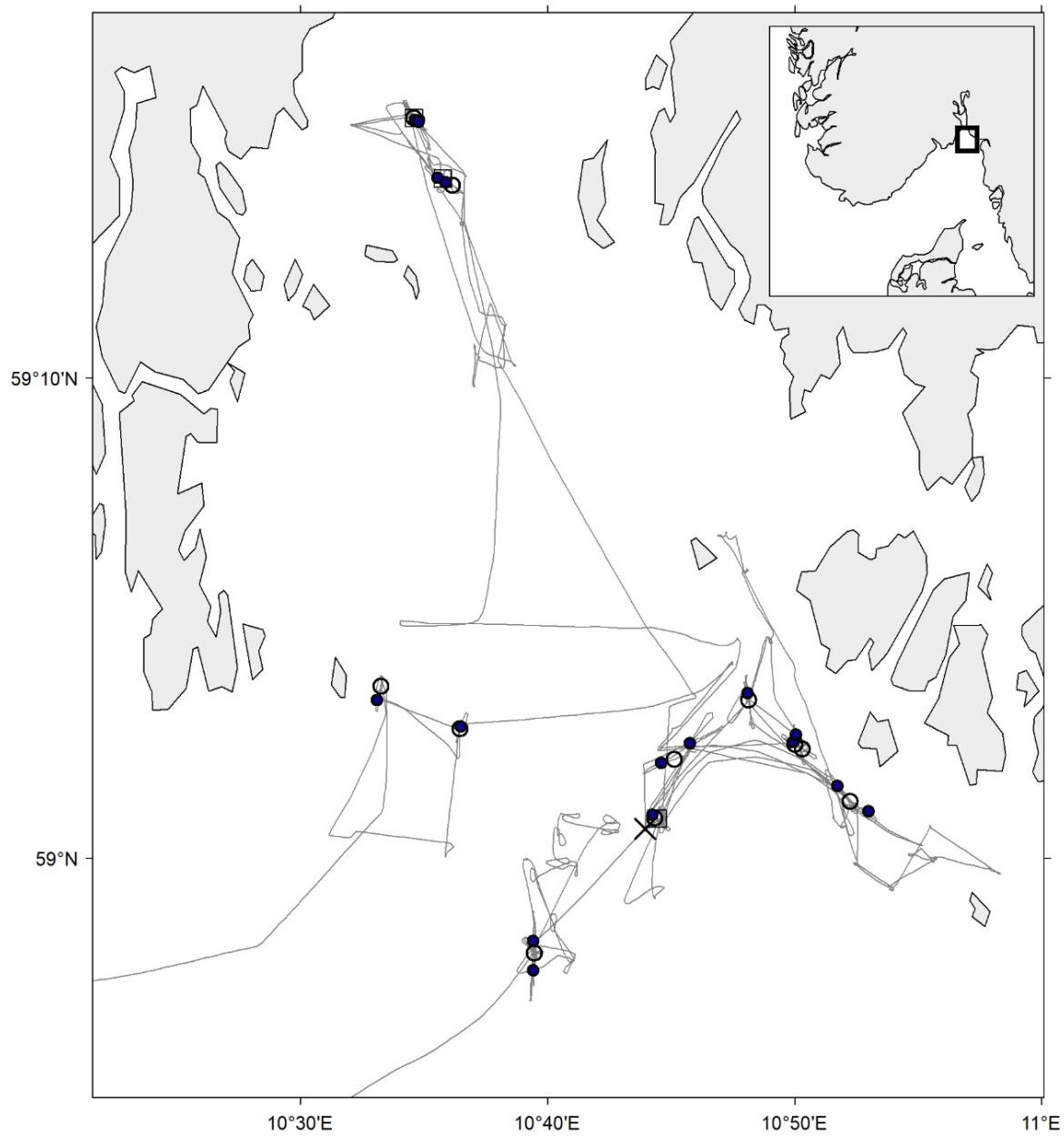
Fig. 68



Cruise no 2019621 "K. Bonnevie" (Chart II)
2–10 July 2019

× Rov st.
● Grab st.

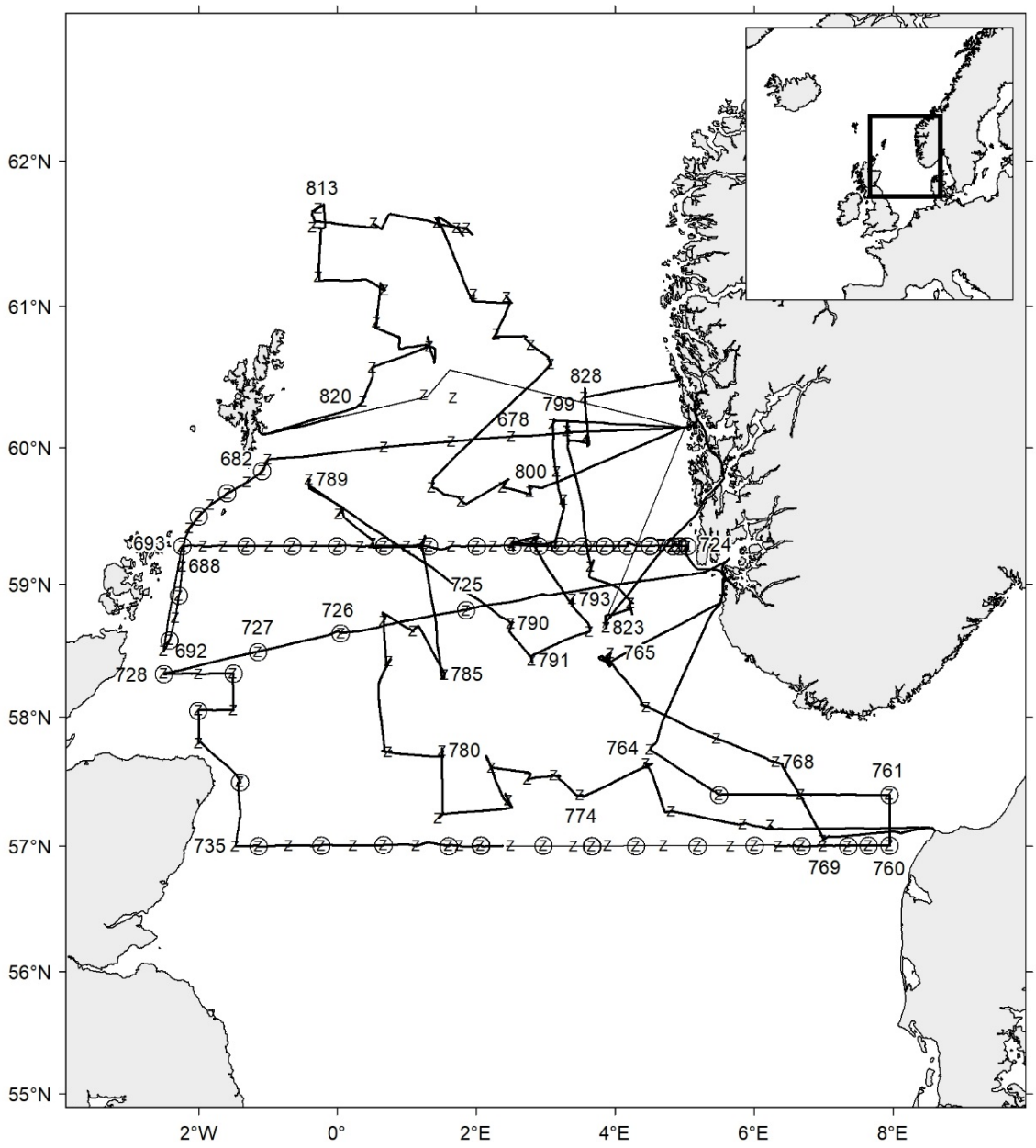
Fig. 69



Cruise no 2019621 "K. Bonnevie" (Chart III)
2–10 July 2019

● Sledge st.
○ Beam trawl
□ Agassis trawl
× Box corer st.

Fig. 70

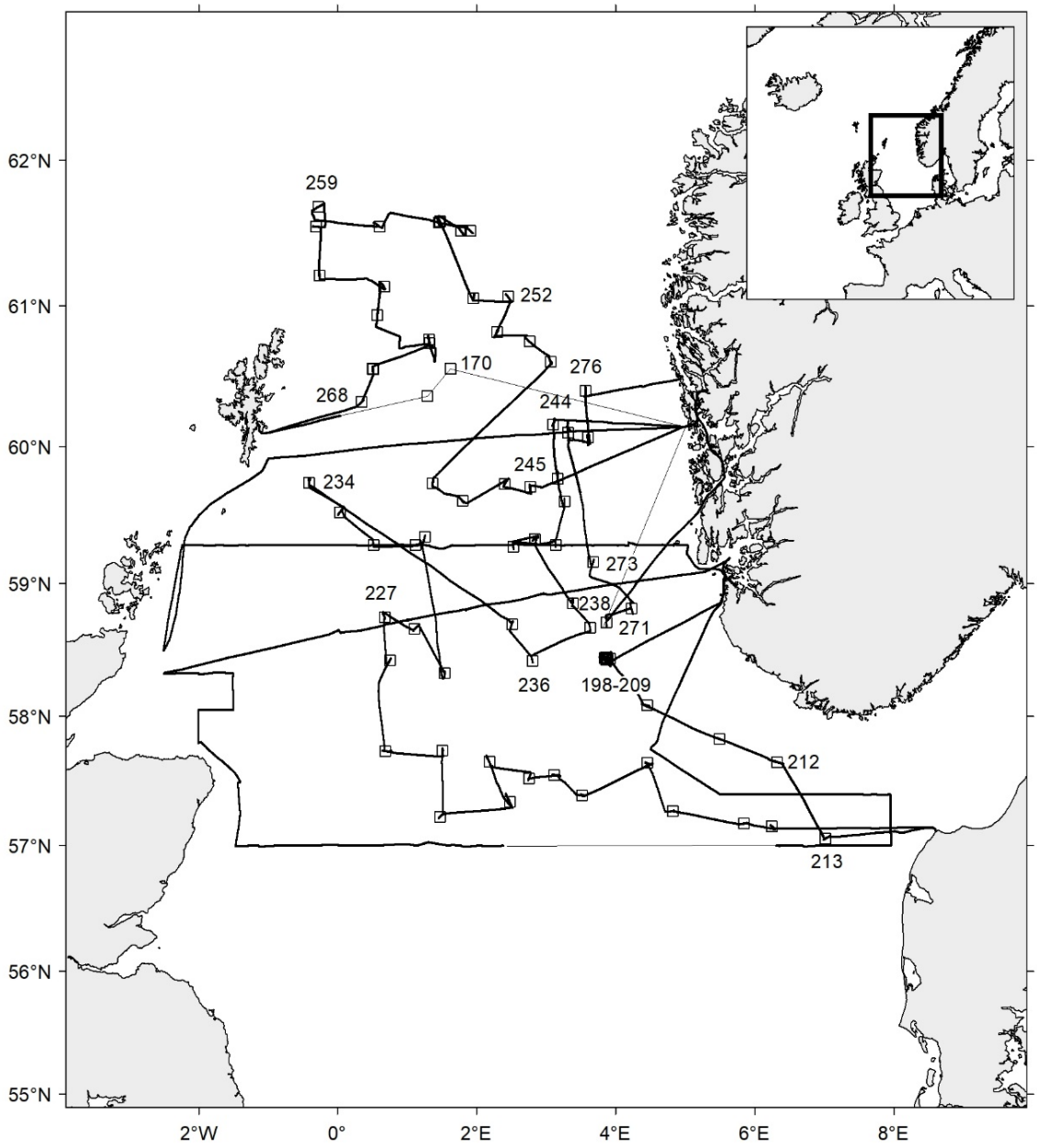


Cruise no 2019622 "K. Bonnevie" (Chart I)
12 July–17 August 2019

z CTD st.no 678-828
○Plankton st. (WP-II-net)

Standard sections:
Utsira W: st.no 693–724
Hanstholm–Aberdeen: st.no 735–760

Fig. 71



Cruise no 2019622 "K. Bonnevie" (Chart II)
12 July–17 August 2019

▫ Bottom trawl st.no 198-276

Fig. 72

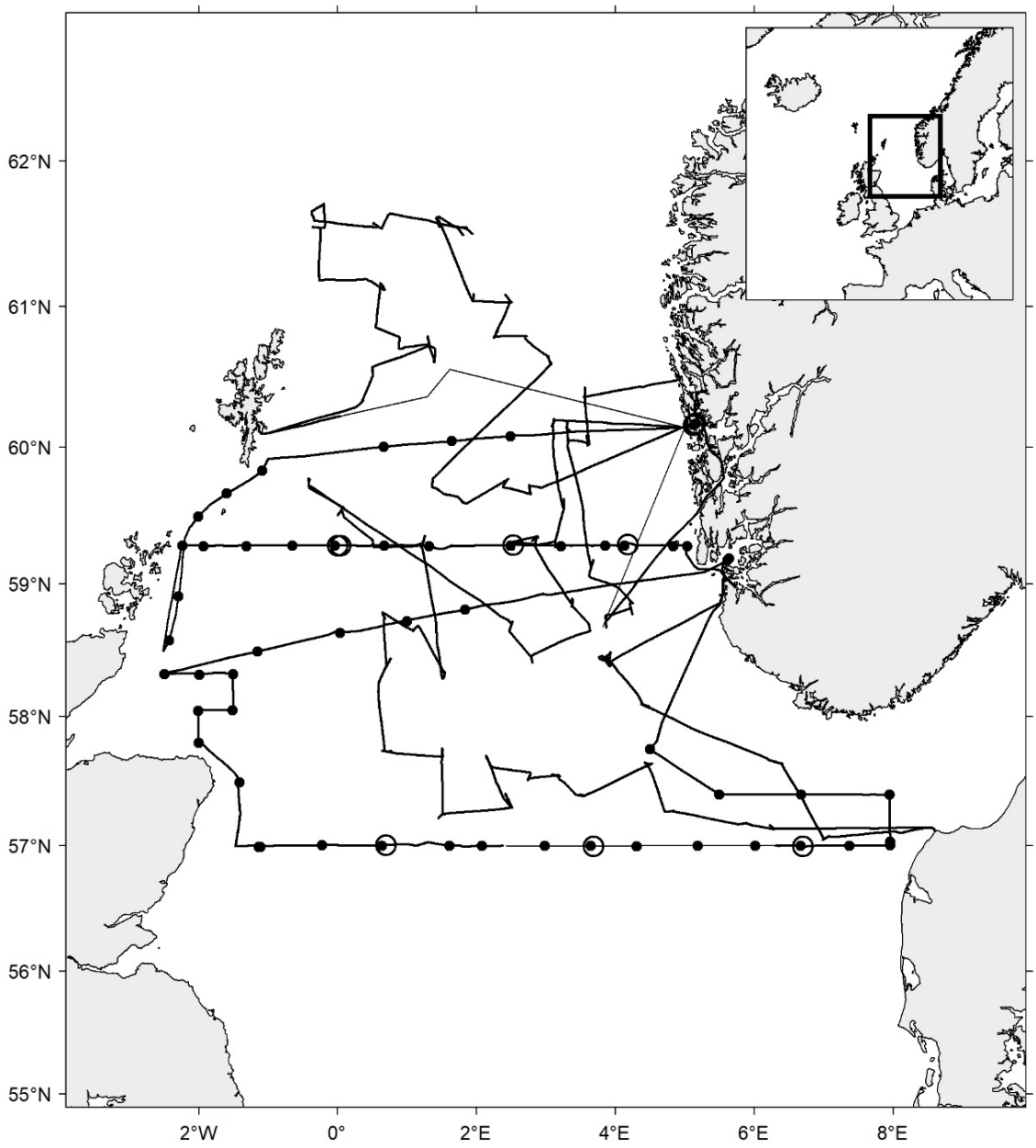
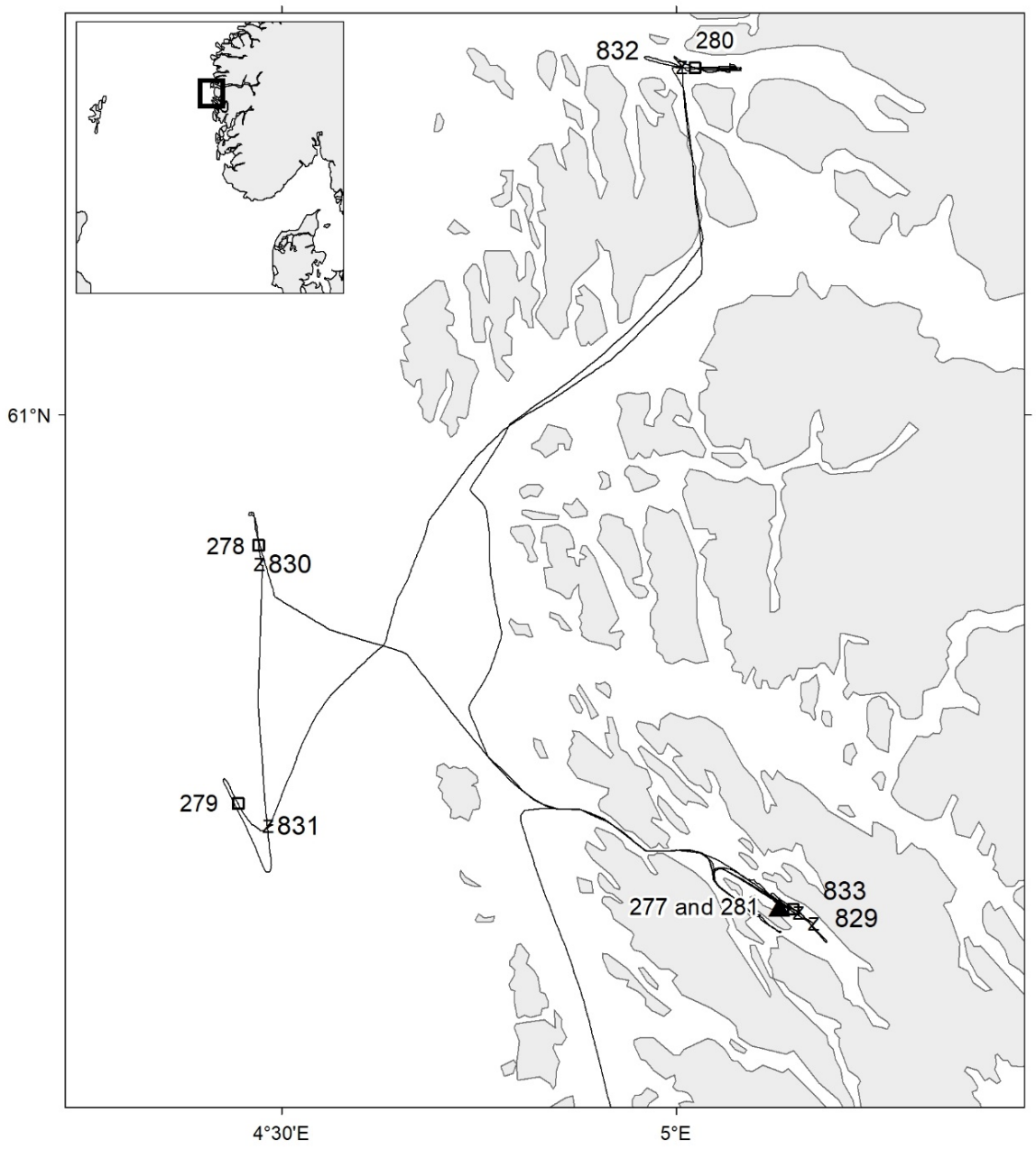

62°N
61°N
60°N
59°N
58°N
57°N
56°N
55°N
2°W
0°
2°E
4°E
6°E
8°E
Cruise no 2019622 "K. Bonnevie" (Chart III)
12 July–17 August 2019
● MIK station
○ Multinet station

Fig. 73



Cruise no 2019623 "K.Bonnevie"
20–22 August 2019

z CTD st.no 829-833
Trawl st.no 277-281
▲ Pelagic tr.
▫ Bottom tr.

Fig. 74

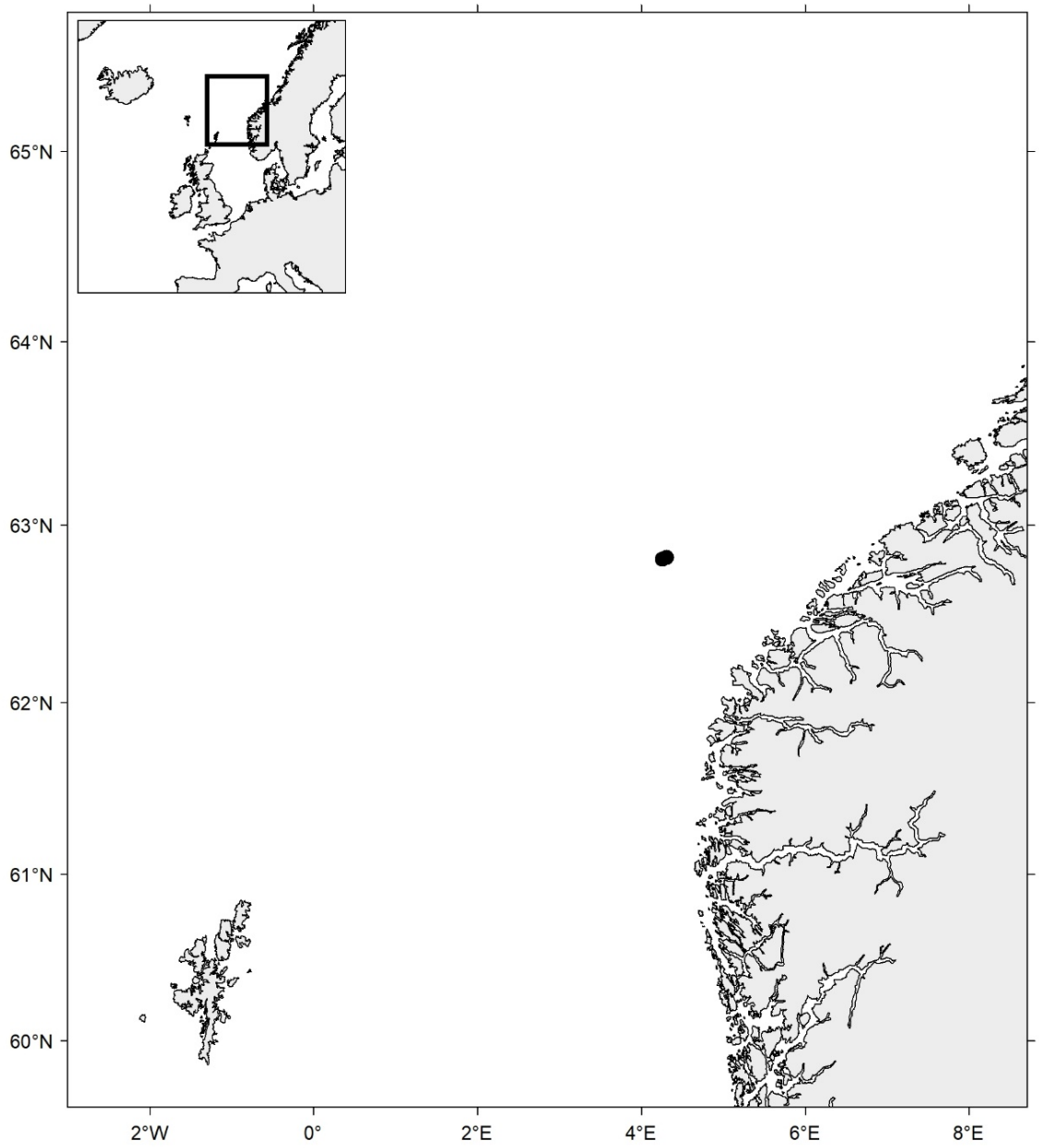
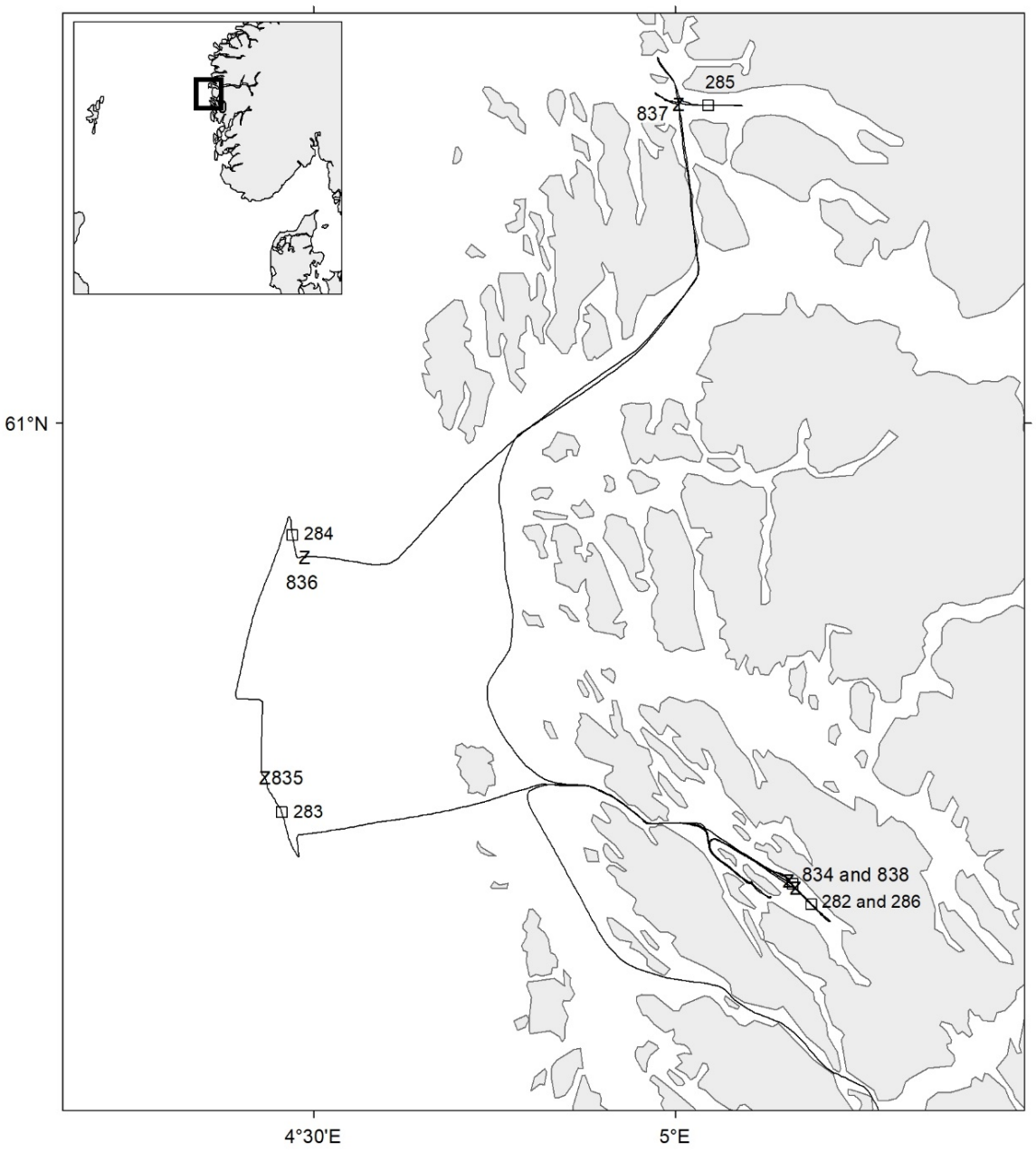

65°N
64°N
63°N
62°N
61°N
60°N
2°W
0°
2°E
4°E
6°E
8°E
Cruise no 2019632 "Kristine Bonnevie"
23–25 August 2019
● RE-deployment of RCM-mooring S1-S and deployment of Wavescan Buoy

Fig. 75



Cruise no 2019625 "K .Bonnevie"
27–29 August 2019

z CTD st.no 834-838
□ Bottom trawl st.no 282-286

Fig. 76

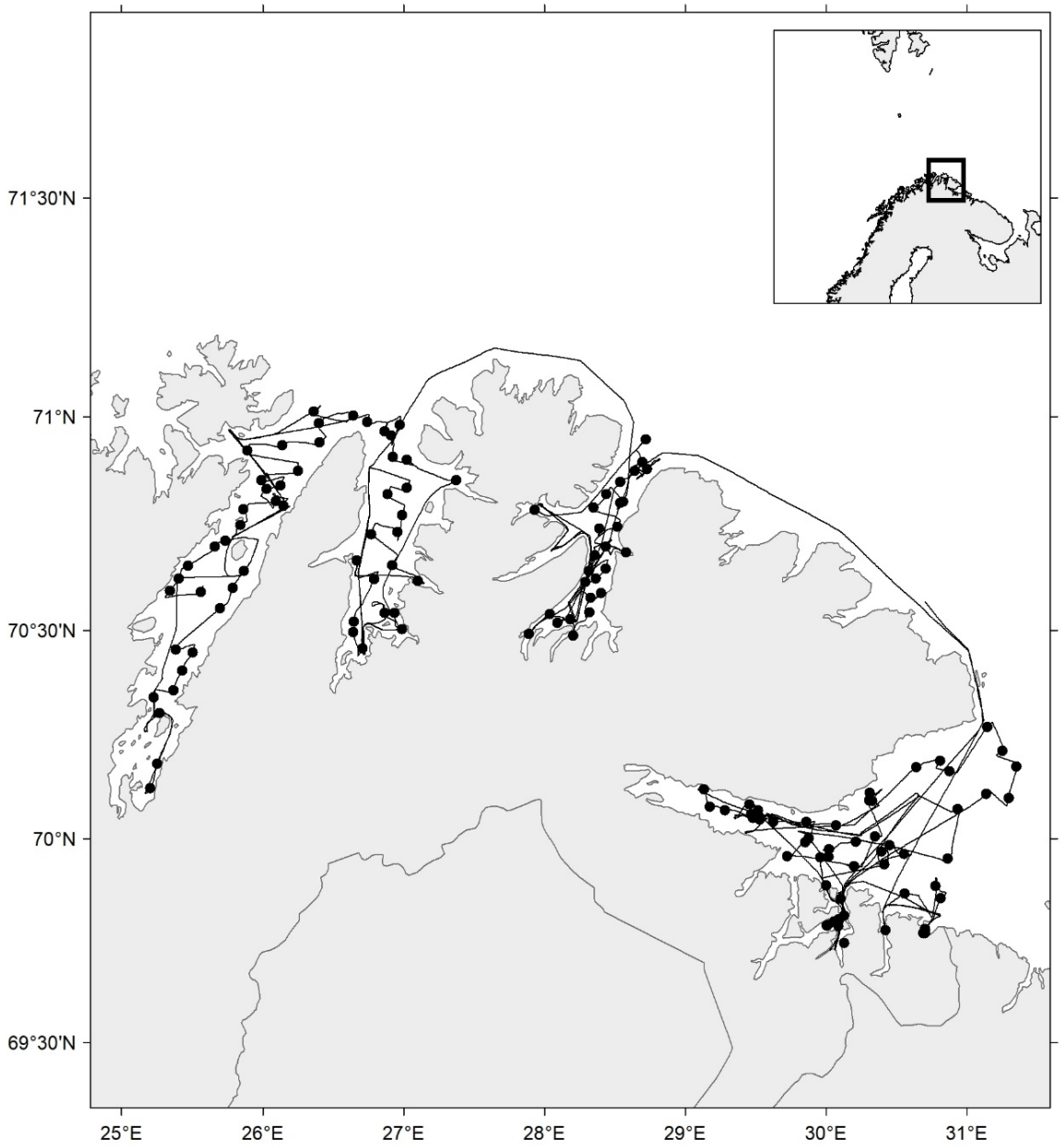

71°30'N
71°N
70°30'N
70°N
69°30'N
25°E
26°E
27°E
28°E
29°E
30°E
31°E
Cruise no 2019628 "K. Bonnevie" (Chart I)
2–19 September 2019
• Agassiz trawl

Fig. 77

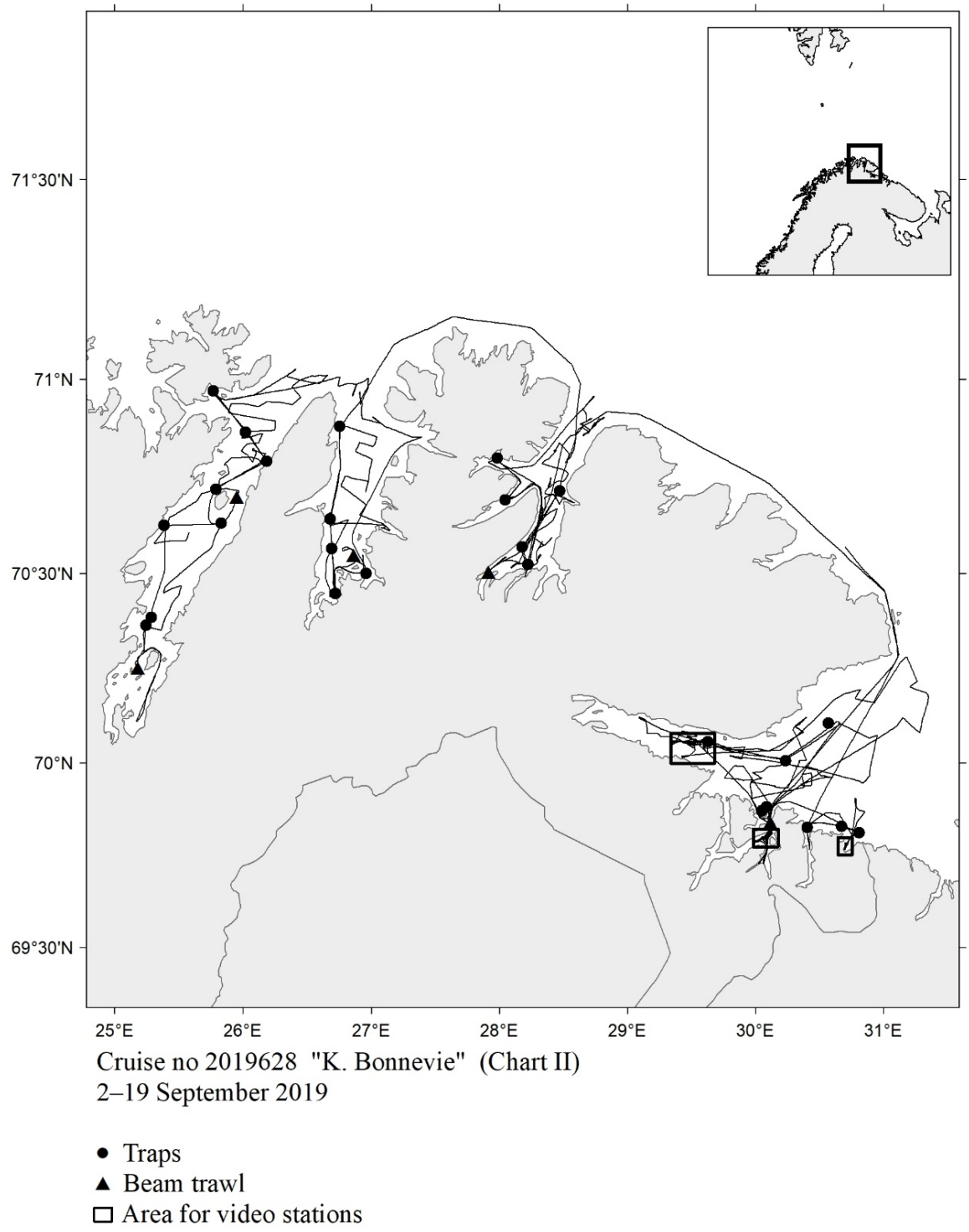
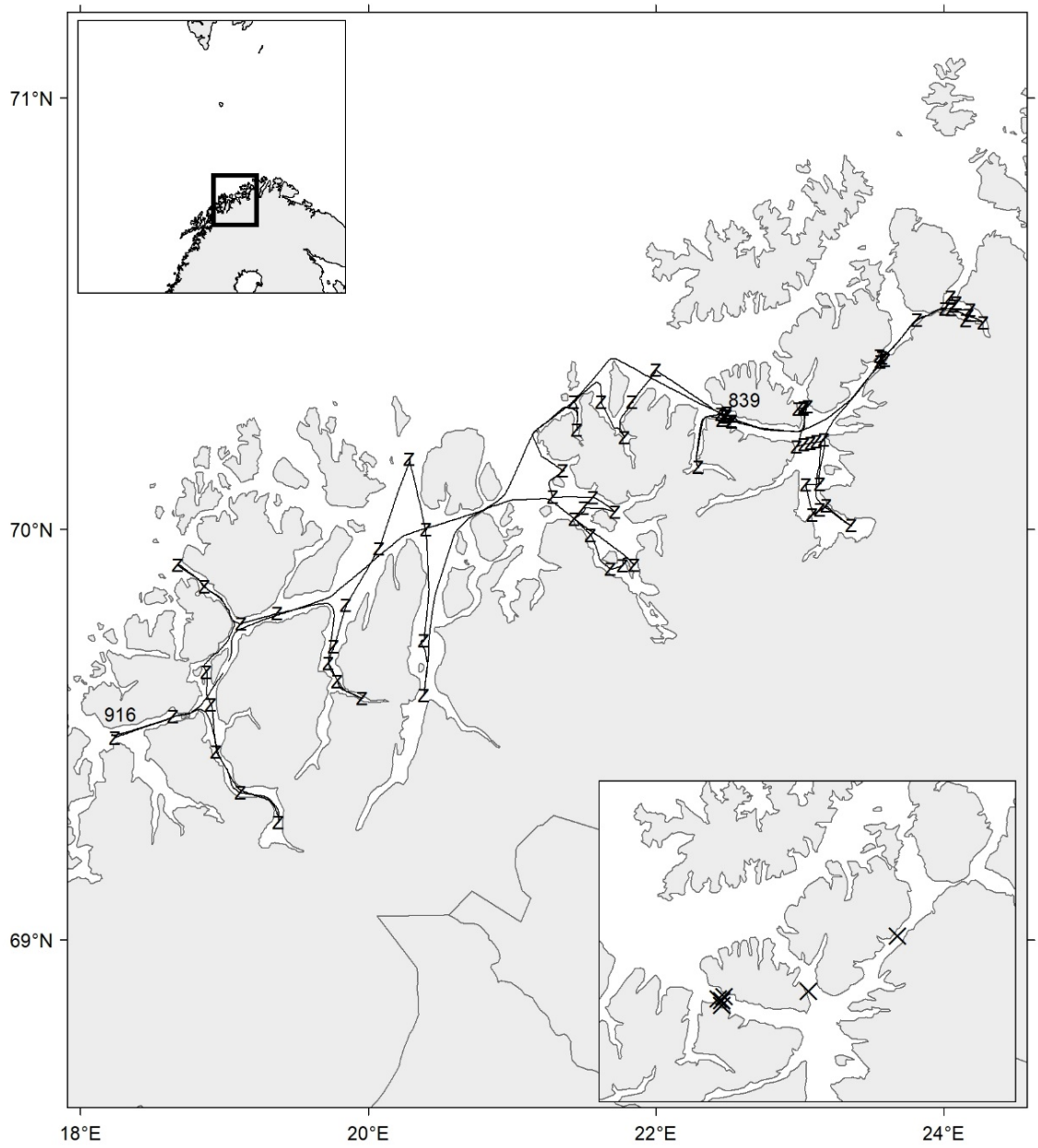

71°30'N
71°N
70°30'N
70°N
69°30'N
25°E
26°E
27°E
28°E
29°E
30°E
31°E
Cruise no 2019628 "K. Bonnevie" (Chart II)
2–19 September 2019
Traps
Beam trawl
Area for video stations

Fig. 78

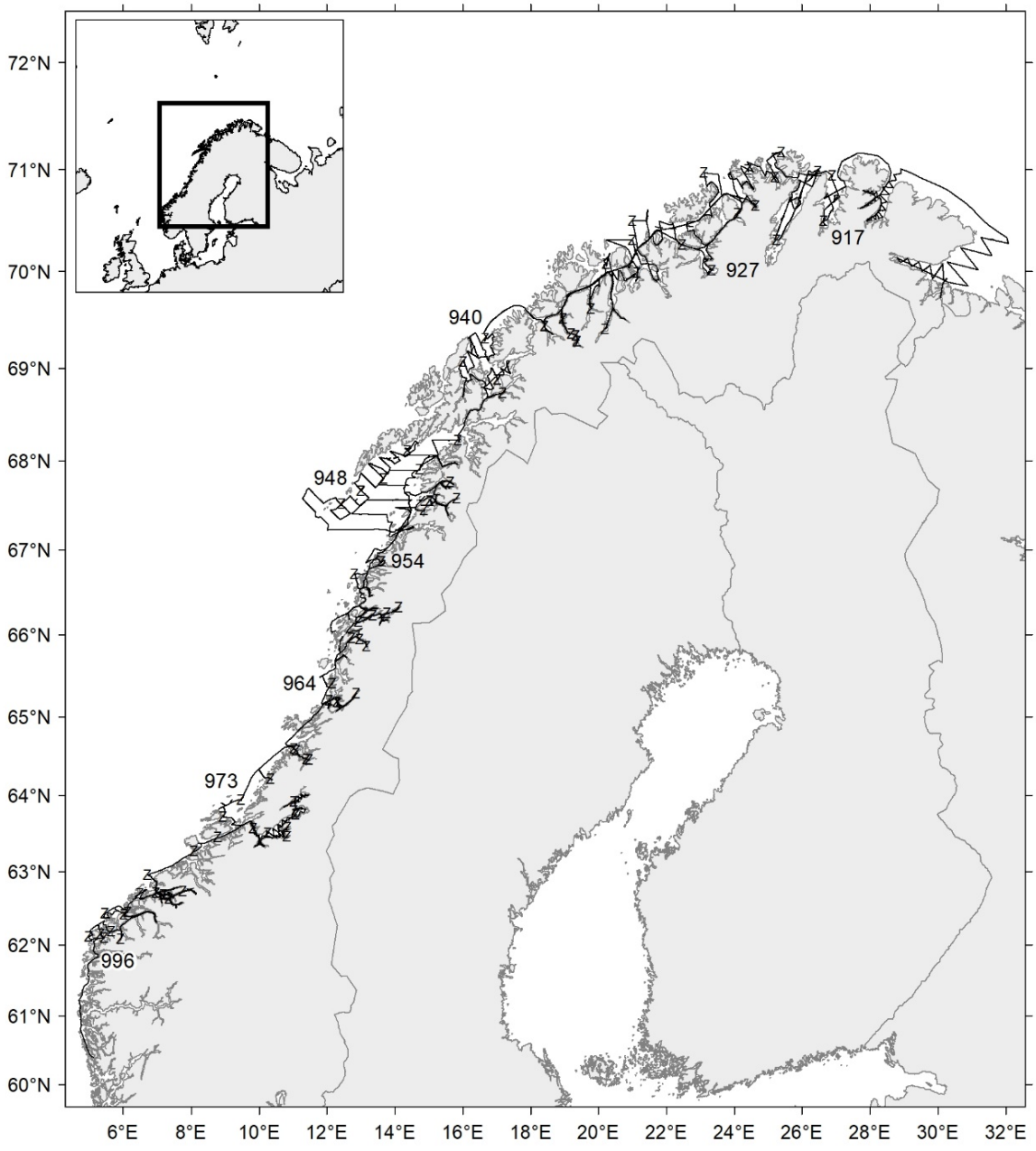


Cruise no 2019627 "K. Bonnevie"
21–25 September 2019

z CTD st.no 839-916

× Deployed/recovered current meter mooring

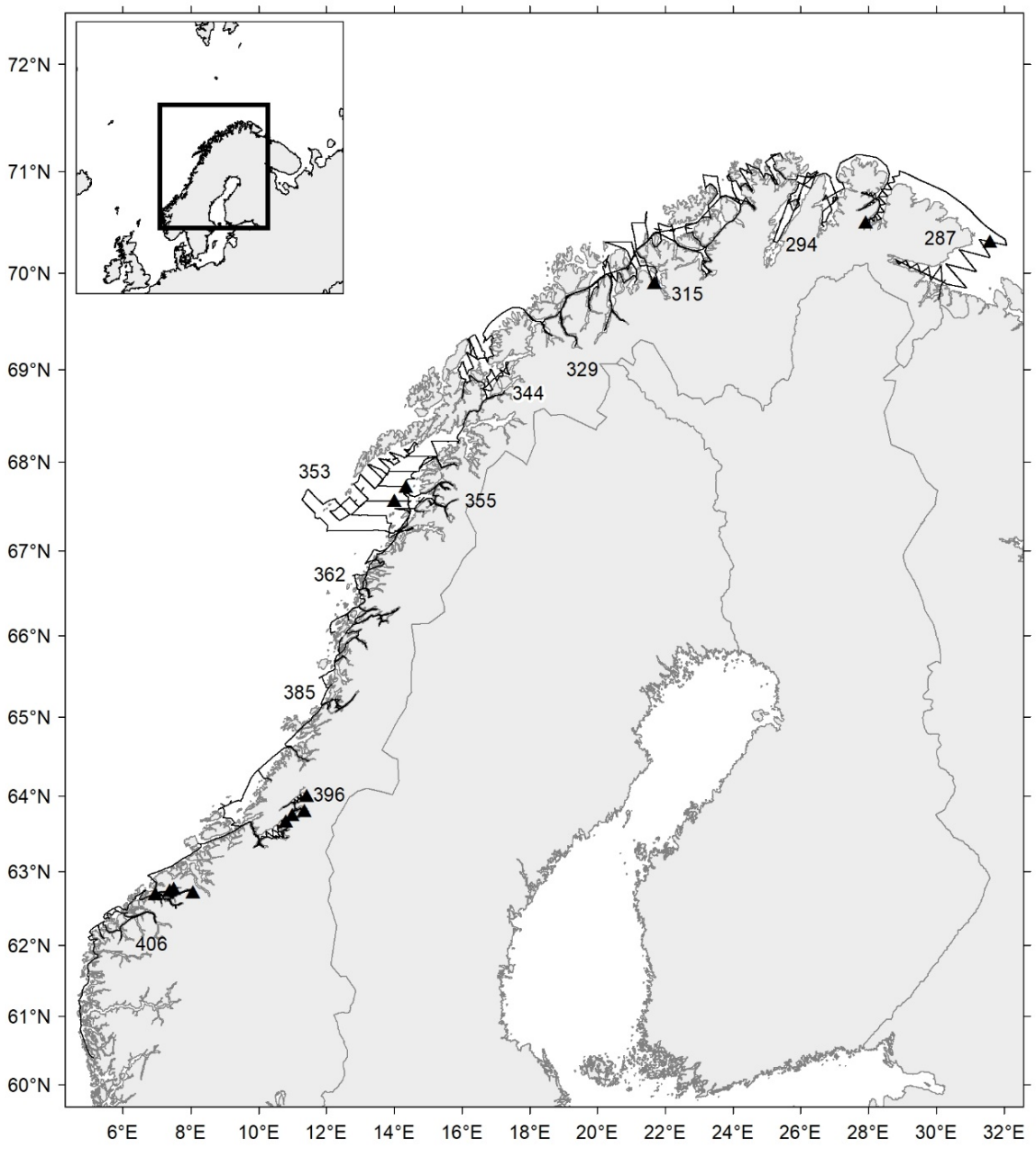
Fig. 79



Cruise no 2019629 "K. Bonnevie" (Chart I)
2 October–9 November 2019

z CTD st.no 917-996

Fig. 80



Cruise no 2019629 "K. Bonnevie" (Chart II)
2 October–9 November 2019

Trawl st.no 287-406
▲ Pelagic tr.
□ Bottom tr.

Fig. 81

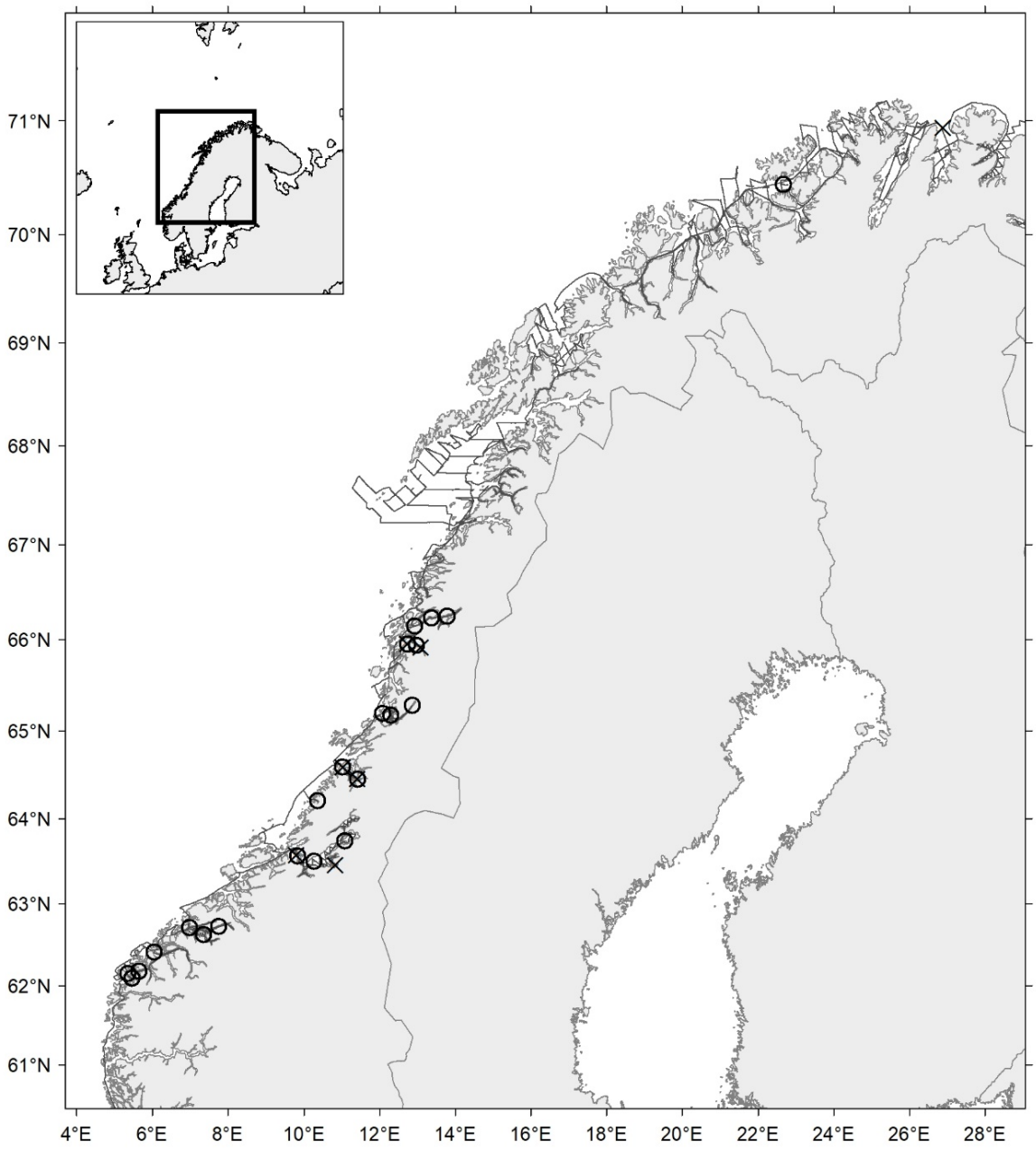
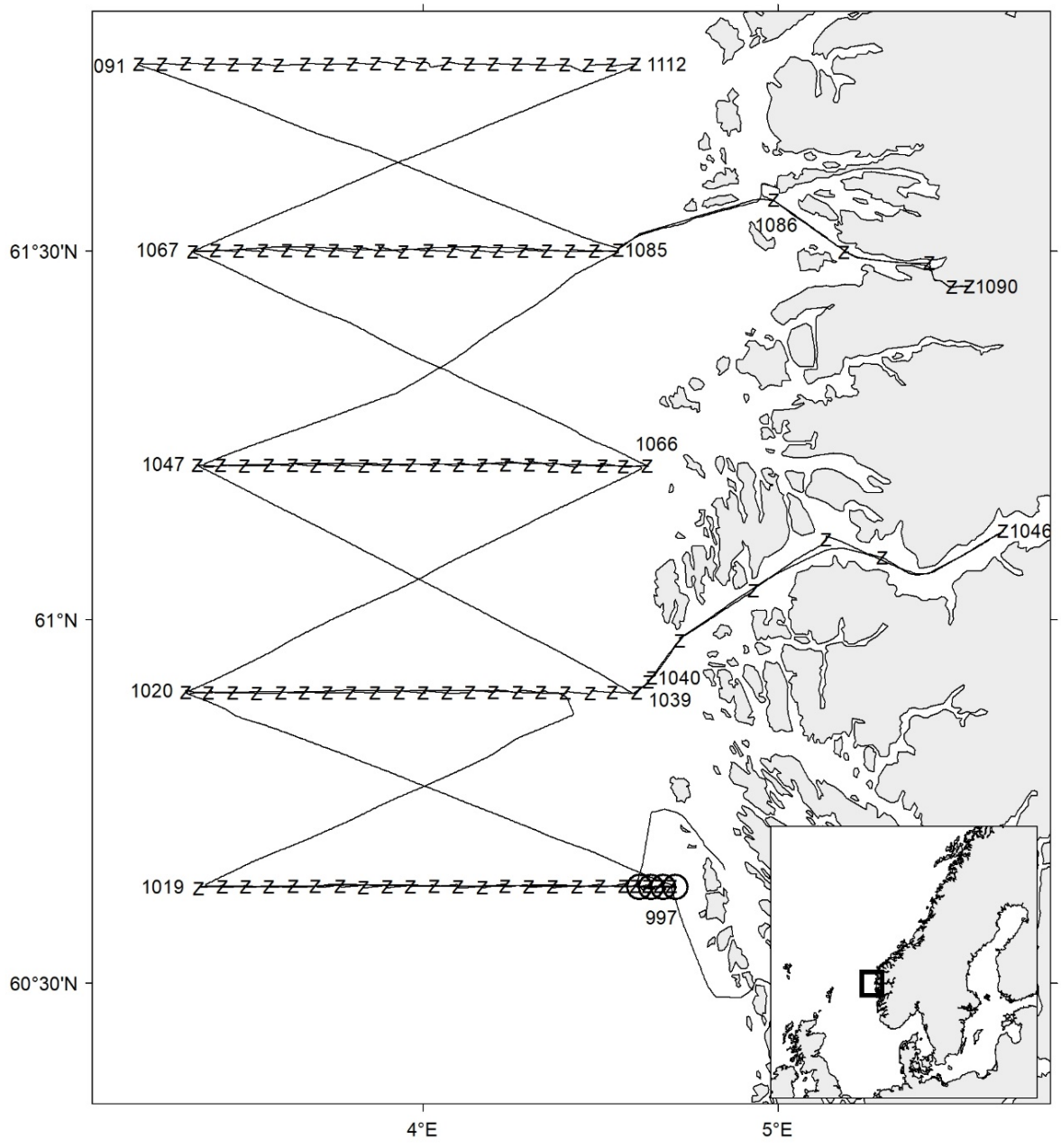

71°N
70°N
69°N
68°N
67°N
66°N
65°N
64°N
63°N
62°N
61°N
4°E
6°E
8°E
10°E
12°E
14°E
16°E
18°E
20°E
22°E
24°E
26°E
28°E
Cruise no 2019629 "K. Bonnevie" (Chart III)
2 October–9 November 2019
Plankton st. (WP-II-net)
Grab st.

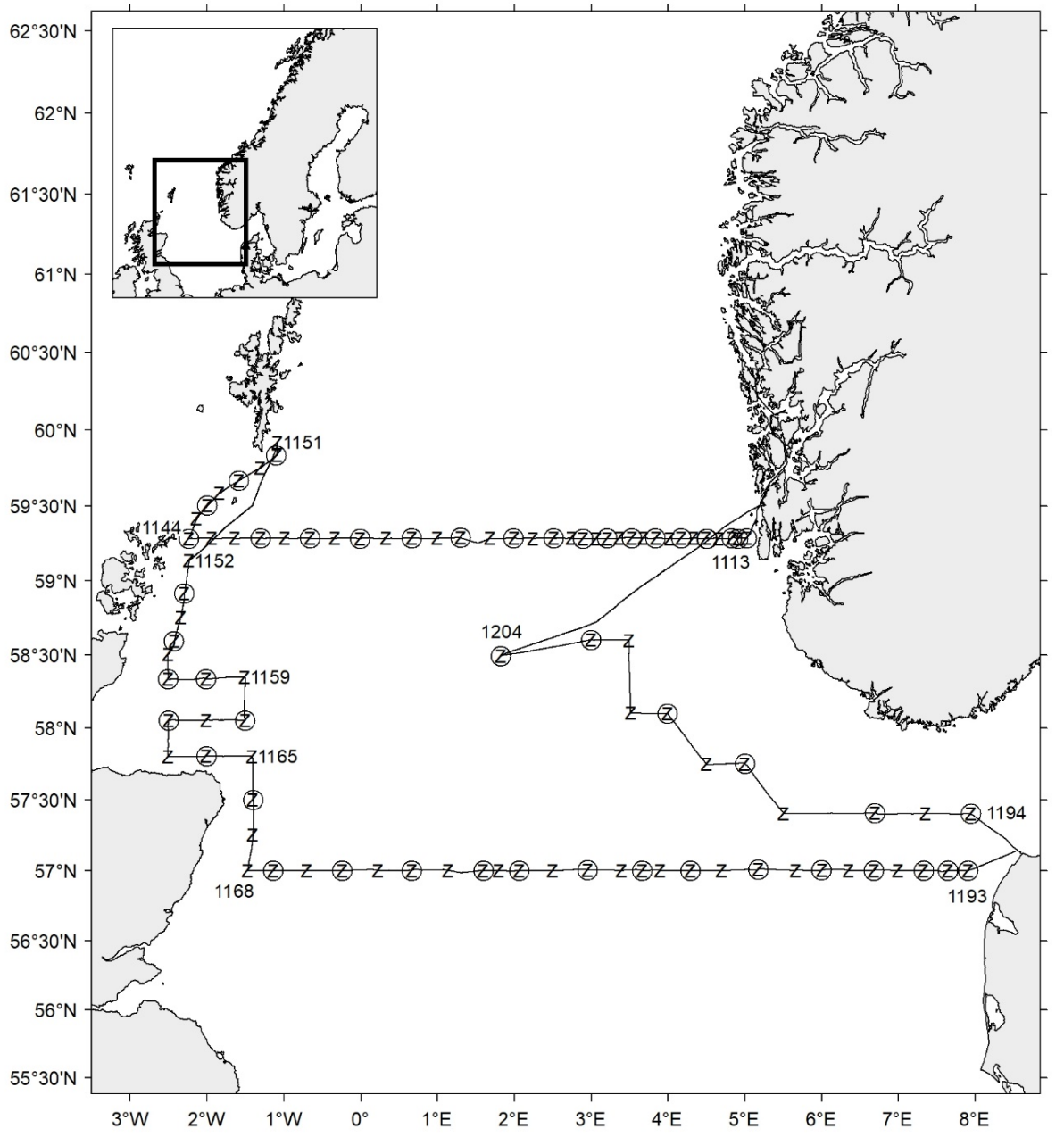
Fig. 82



Cruise no 2019630 "K. Bonnevie"
10–16 November 2019

z CTD st.no 997-1112
O Current meter deployed

Fig. 83



Cruise no 2019633 "K. Bonnevie" (Chart I) Standard sections:
17–26 November 2019 Utsira W: st.no 1113-1144
Fair Isle–Pentland: st.no 1145-1151
z CTD st.no 1113-1204 Aberdeen–Hanstholm: st.no 1168-1193
○ Plankton st. (WP II-net)

Fig. 84

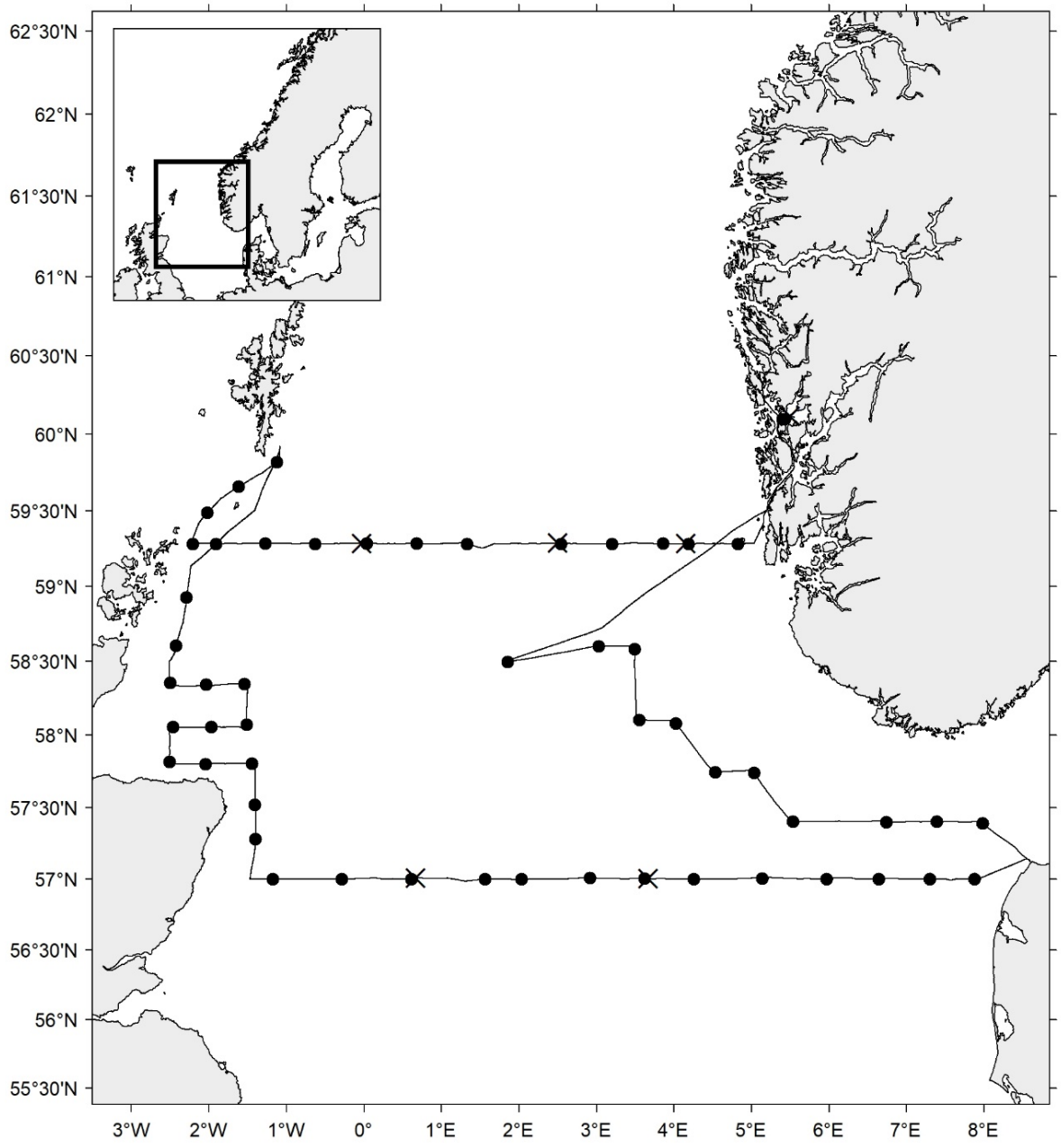

62°30'N
62°N
61°30'N
61°N
60°30'N
60°N
59°30'N
59°N
58°30'N
58°N
57°30'N
57°N
56°30'N
56°N
55°30'N
3°W
2°W
1°W
0°
1°E
2°E
3°E
4°E
5°E
6°E
7°E
8°E
Cruise no 2019633 "K. Bonnevie" (Chart II)
17–26 November 2019
● MIK st.
× Multinet st.

Fig. 85

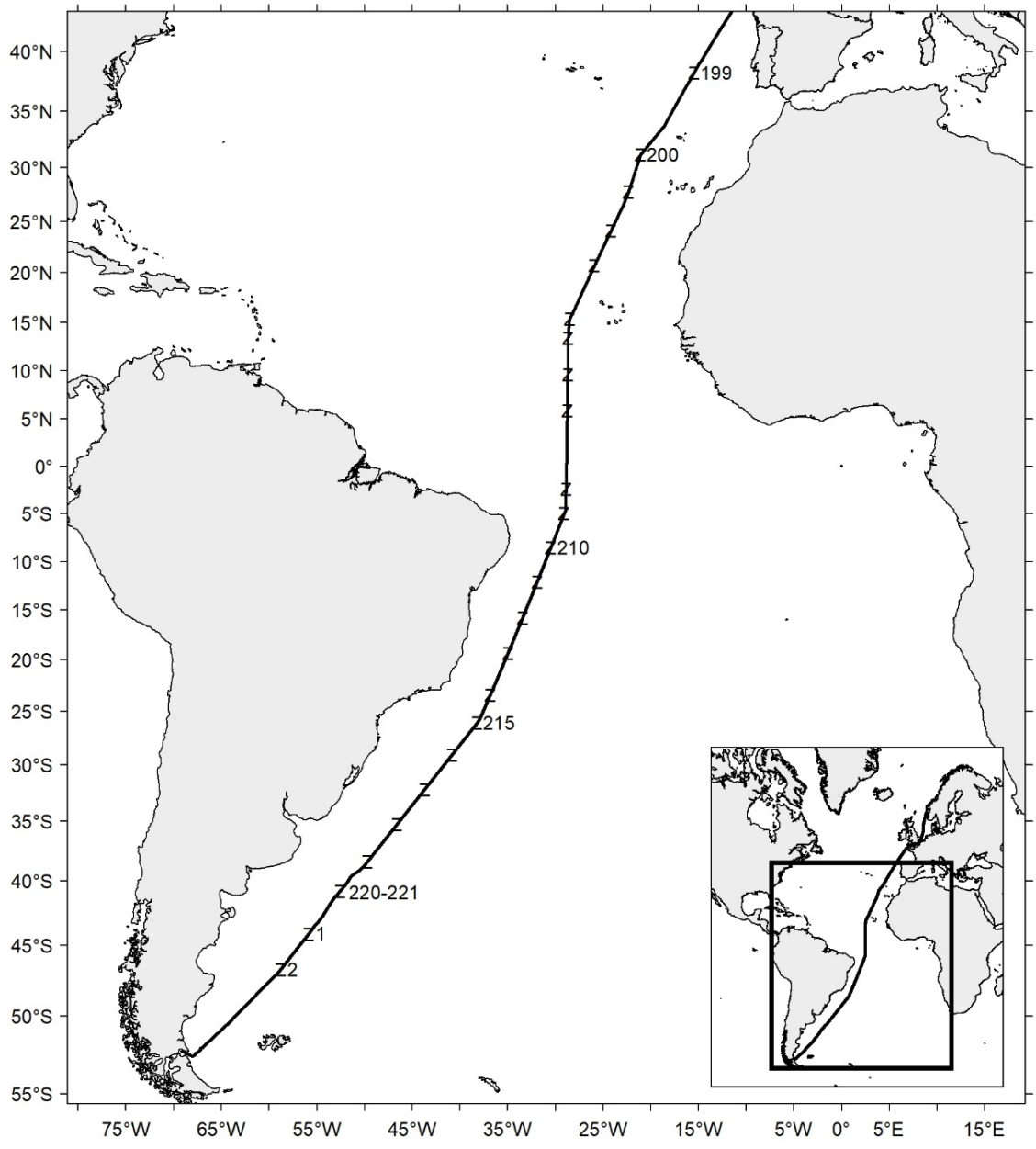
8 - "Kronprins Haakon" – Cruises 2019

Ship code 59

Cruise no	Period	Purpose	Area	CTD st.no	Trawl st.no	Fig. no
2018716 (start 2018)	1.12.-9.1	The scientific goals during the transect were twofold; to assess mesopelagic backscatter and to assess parameters that may be used in evaluating levels of primary production.	Atlantic Ocean – from Norway to Chile	1-2 (2018:199-221)	-	86
2019701	10.1.-24.2	Large scale krill synoptic survey in Area 48, Antarctica.	South Atlantic Ocean	3-51	1-67	87-89
2019702	28.2-10.4	The aim of the ECOgaps cruise is to improve the knowledgebase for the management of the King Haakon VII Sea extending from the coast of the Dronning Maud Land. ECOgaps. Specifically we focussed on a part of the MPA planning Domain 4 (CCAMLR - Commission for the Conservation of Antarctic Marine Living Resources) extending from the 0 meridian to the Astrid ridge (13E, See Fig. 1). We ran different CTD sections sampling for primary production, chemistry and oceanography across the Astrid ridge, at 6 E and Maud Rise and along one section. Along the route we registered krill swarms and the mesopelagic layer using the echosounder. At occasions, we trawled for krill and the mesopelagic layer. At 4 occasions we ran a bottom transect with an ROV filming and collecting material using the ROV itself and RP sled and bottom net. On all the transects we also set a long line and ran a multinet tows.	South Atlantic Ocean	52-116	68-82	90-91
2019703	1.5.-27.5.	Pelagic and mesopelagic research.	From Norway to Chile	117-136	83-100	92-93
2019704	3.7.-22.7.	Bioprospecting pelagic and bottom organisms ∀ Environmental data	Arctic Ocean, Atlantic Ocean, Barents Sea	138-144	-	94
2019705	-	Cancelled	-	-	-	-
2019706	5.8.-27.8.	The cruise initiate the seasonal studies of the northern Barents Sea and the adjacent Arctic Basin in the Nansen Legacy project. Physical, chemical and biological investigations will be carried out at process stations along a transect. Sampling will be carried out at the sea floor, the water column and from the sea ice.	Barents Sea	145-193	101-109	95-98
2019707	1.9.-16.9	The annual Fram Strait cruise is part of the long-term monitoring program of Arctic Ocean freshwater and sea ice export run the Norwegian Polar Institute. The main priority is to recover and redeploy the moorings from NPI across the East Greenland Current at 78°50' N, and to carry out the CTD/LADCP section (including extensive water sampling for various chemical properties and tracers) across entire Fram Strait along the 78°50'N line. In addition, sea ice physics work is carried out across the East Greenland Current. This includes in-situ work on selected sea ice floes as well as on land-fast ice as far west as we can go on 78°50'N. One additional CTD/LADCP section will be carried out across the Belgica-Norske-Westwind trough on the east Greenland shelf, the main conduit for warm Atlantic water to the Greenland coastal system and the floating tongue of the 79N glacier.	Greenland Sea	194-253	-	99

2019708	19.9.-16.10.	Conduct the first multidisciplinary study of hydrothermal vents under permanent ice cover in the deep (4000 m) Arctic Ocean, including mapping, geochemistry, physical oceanography, microbiology, meio-, macro- and megafauna sampling and video surveys.	Svalbard area	254-276	-	100
2019709	19.10.-9.11.	SEAMSTRESS focuses on studies of the effect of tectonic stress on methane release at Arctic continental margins while CAGE studies the amount of methane hydrate and magnitude of methane release in Arctic Ocean environments on time scales from the Neogene to the present. The cruise is directed to the Atlantic-Arctic gateway region to provide necessary field data for these objectives. From previous cruises, we have identified key localities which will be main targets for this cruise.	Arctic Ocean, Atlantic Ocean, Fram Strait	277-293	-	101
20196710	12.11.-27.11.	The main objectives were to recover and redeploy a number of moorings a) in the northern Barents Sea and north of Svalbard for the Nansen Legacy project and b) over the continental slope north of Svalbard for A-TWAIN/SIOS InfraNor, including project partner moorings. We also did CTD profiles and transects at a number of locations, with dual rosette mounted L-ADCPs and 38 + 150 kHz vessel mounted ADCPs. Water samples for biogeochemistry were taken at a number of the CTD casts. A glider was deployed in the central Barents Sea, to be recovered during a later cruise.	Barents Sea	297-418	-	102
2019711	28.11.-17.12	Nansen Legacy 07 Seasonal study Q4. This cruise was the second of in total four seasonal cruises with RV Kronprins Haakon in 2019/20 which focuses on biology in the project Arven etter Nansen (AeN). This seasonal cruise was named Q4 (Q4= 4th quarter of the year) and investigated 17stations of the established AeN transect along 34 E in the Northern Barents Sea and adjacent Arctic Basin from 76 to 82°N. The cruise took a variety of continuous ship measurements (Weather station, EK80, EM203, ADCP, thermosalinograph, pCO2 underway) as well as CTD with water samples, and a wide range of biological sampling of the benthos (box corer, benthic trawl), water column (multinet, MIK net, macrozooplankton trawl and many other smaller nets) and sea ice (snow, ice cores, water just underneath sea ice). In addition, experimental work (respiration, grazing and egg production) were conducted in the ship's laboratories. The chemistry (IMR/NPI) team onboard measured oxygen, nutrients and pH from standard depths on most CTD stations.	Barents Sea Svalbard area	419-461	110-117	103-105

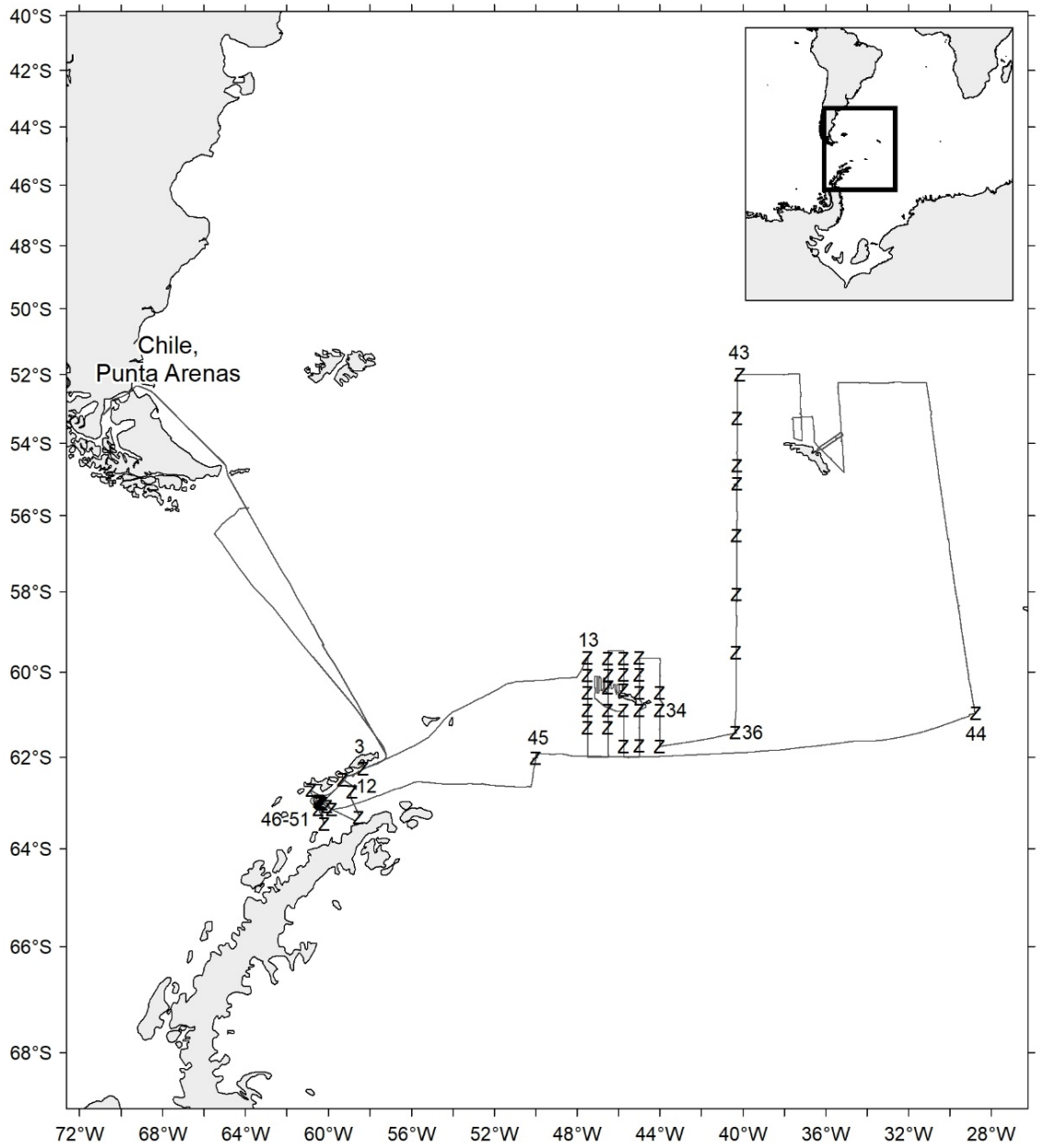
9 - "Kronprins Haakon" – Charts for cruises 2019



Cruise no 2018716 "Kronprins Haakon"
1 December 2018–9 January 2019

z CTD st.no 199-221 (2018) and st.no 1-2 (2019)

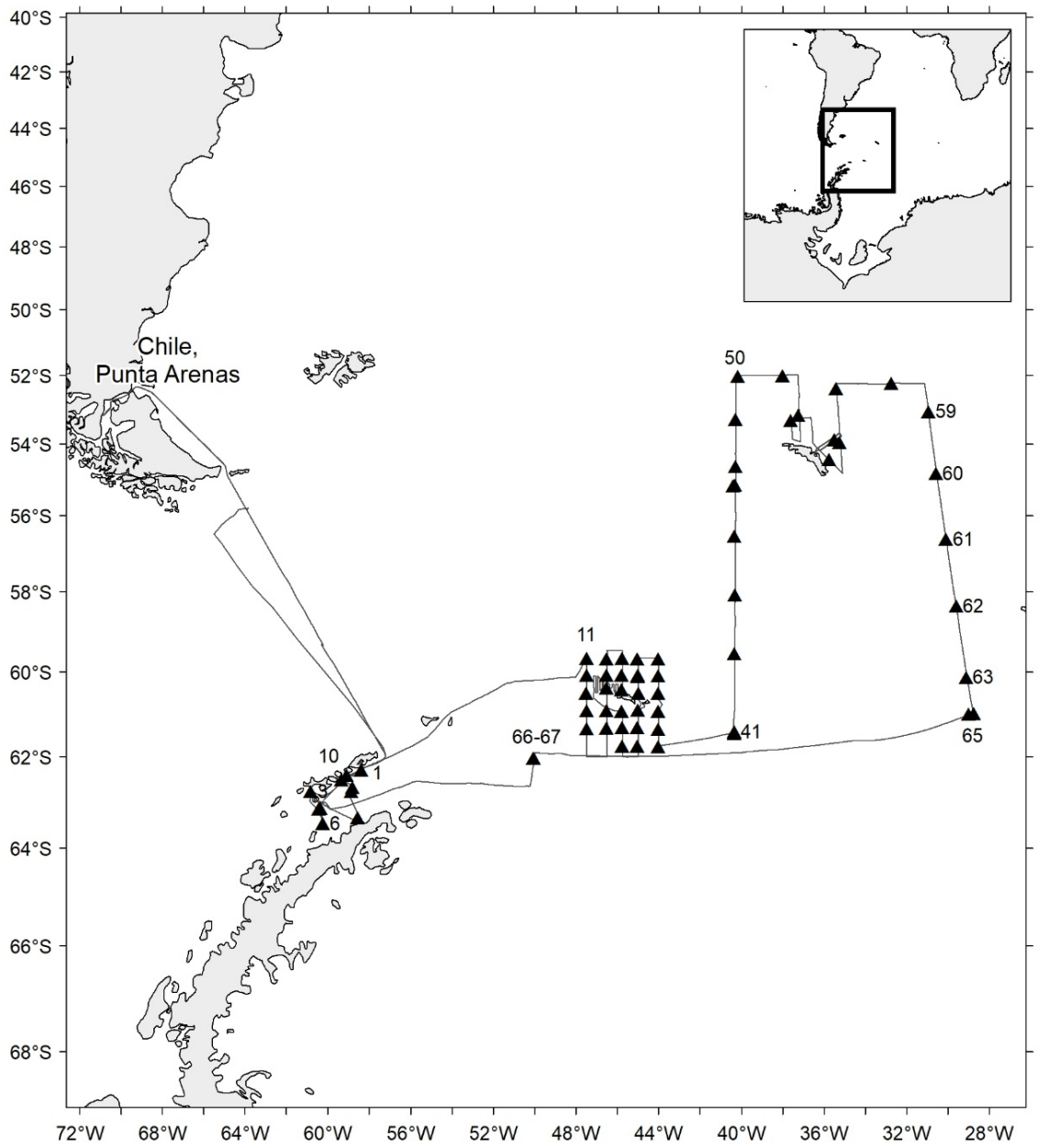
Fig.86



Cruise no 2019701 "Kronprins Haakon" (Chart I)
10 January–24 February 2019

z CTD st.no 3-51

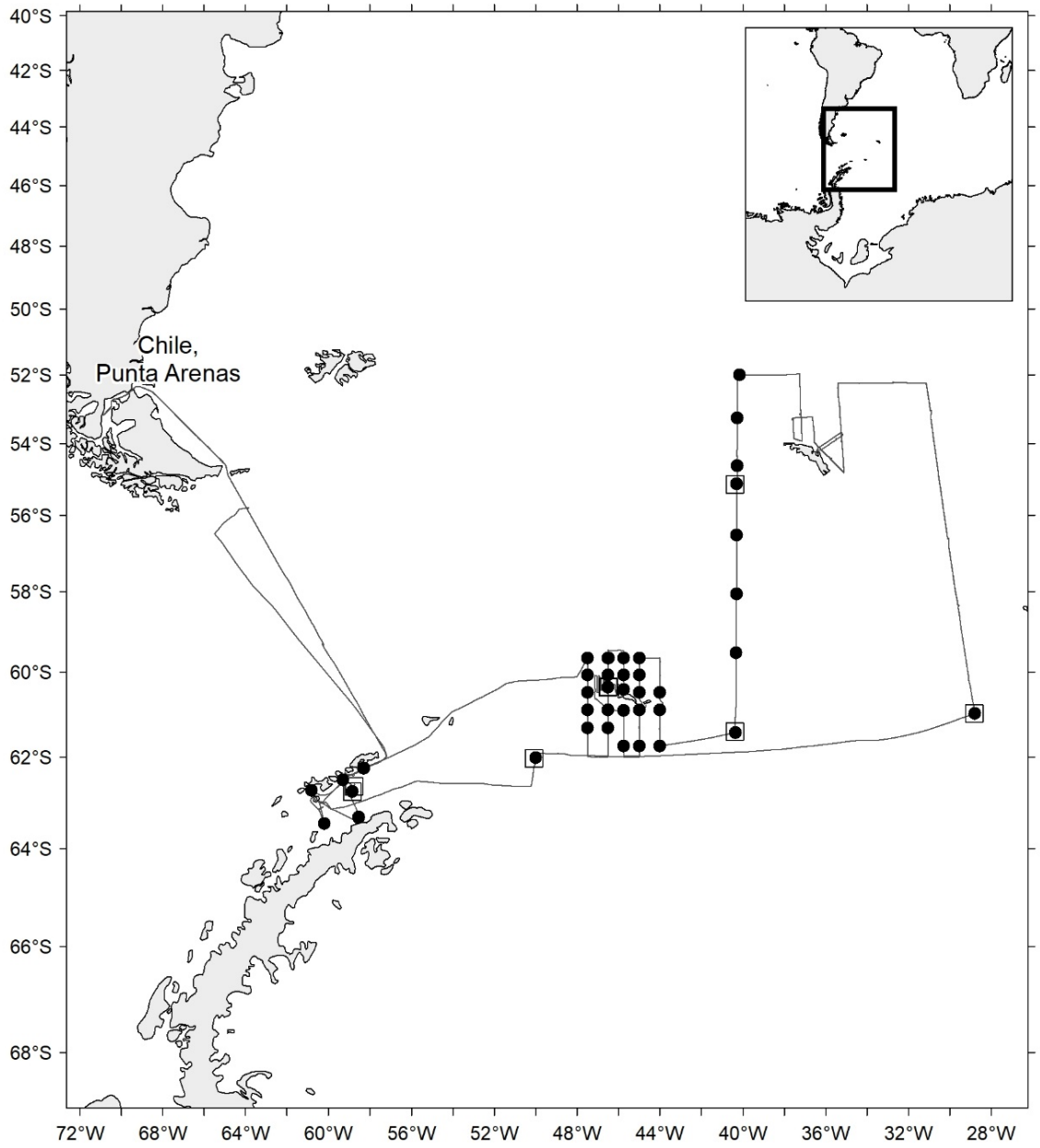
Fig.87



Cruise no 2019701 "Kronprins Haakon" (Chart II)
10 January–24 February 2019

▲Pelagic trawl st.no 1-67

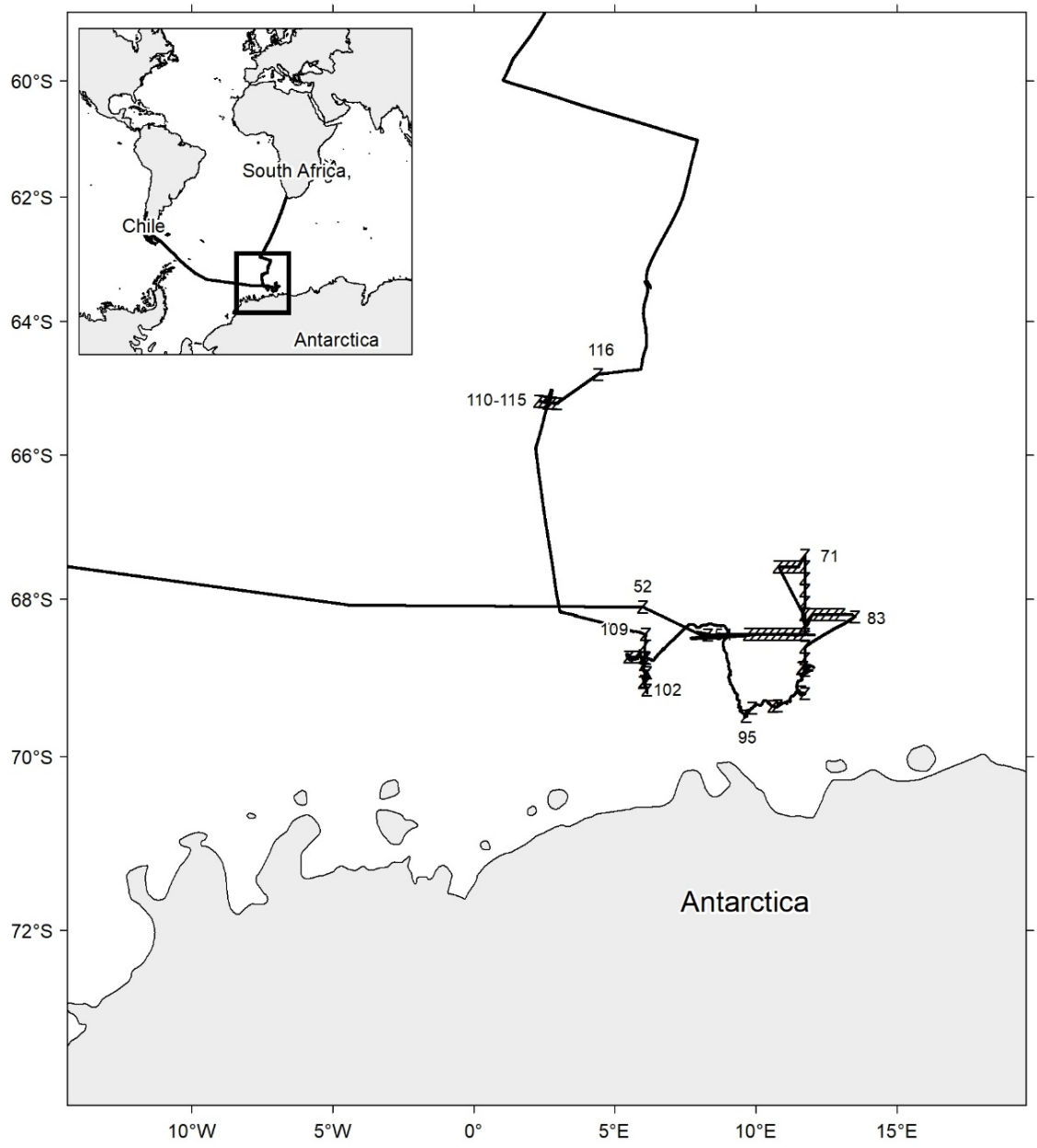
Fig.88



Cruise no 2019701 "Kronprins Haakon" (Chart III)
10 January–24 February 2019

● Plankton st. WP-II-net
□ Plankton st. Multinet

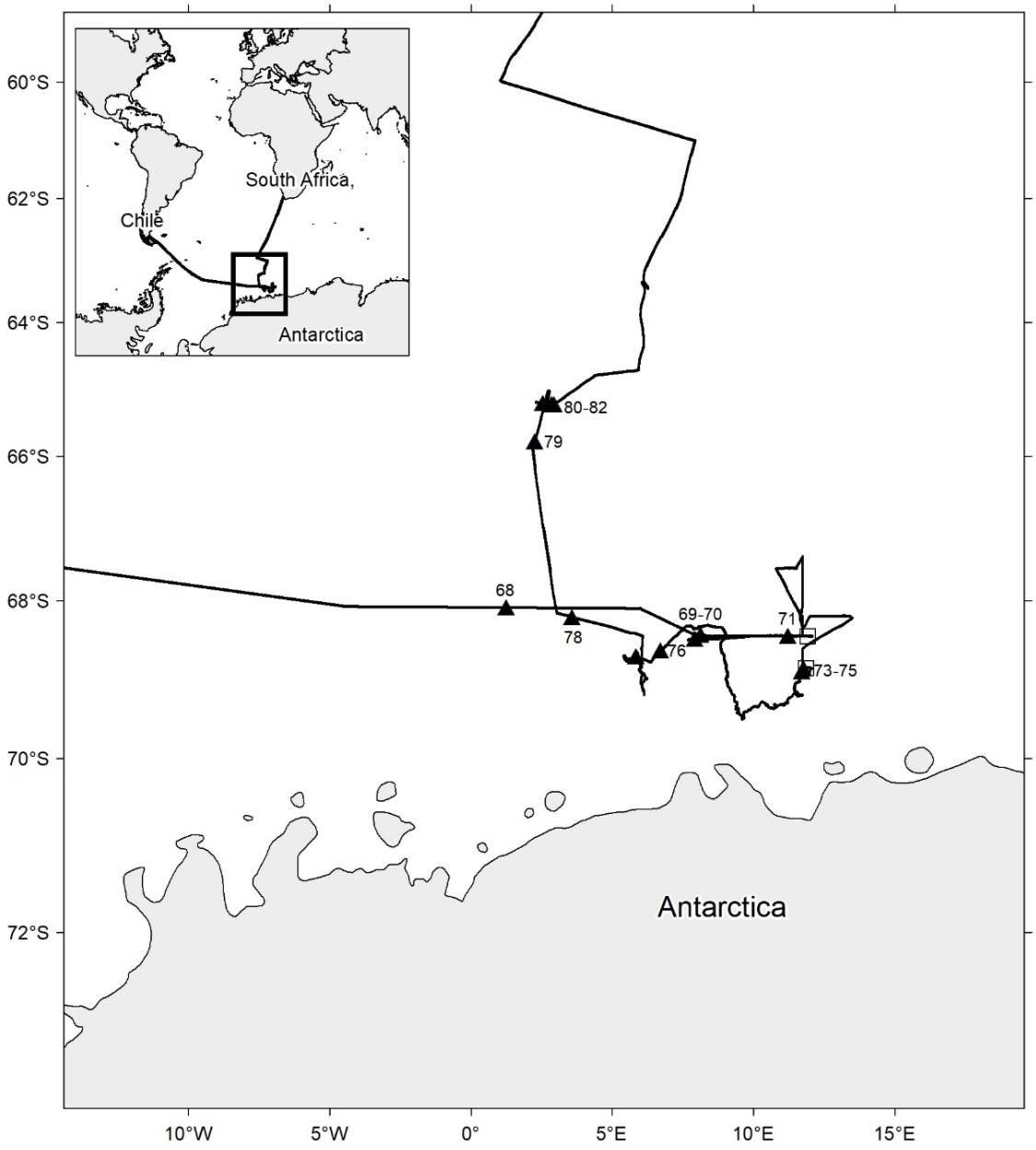
Fig.89



Cruise no 2019702 "Kronprins Haakon" (Chart I)
28 February– 10 April 2019

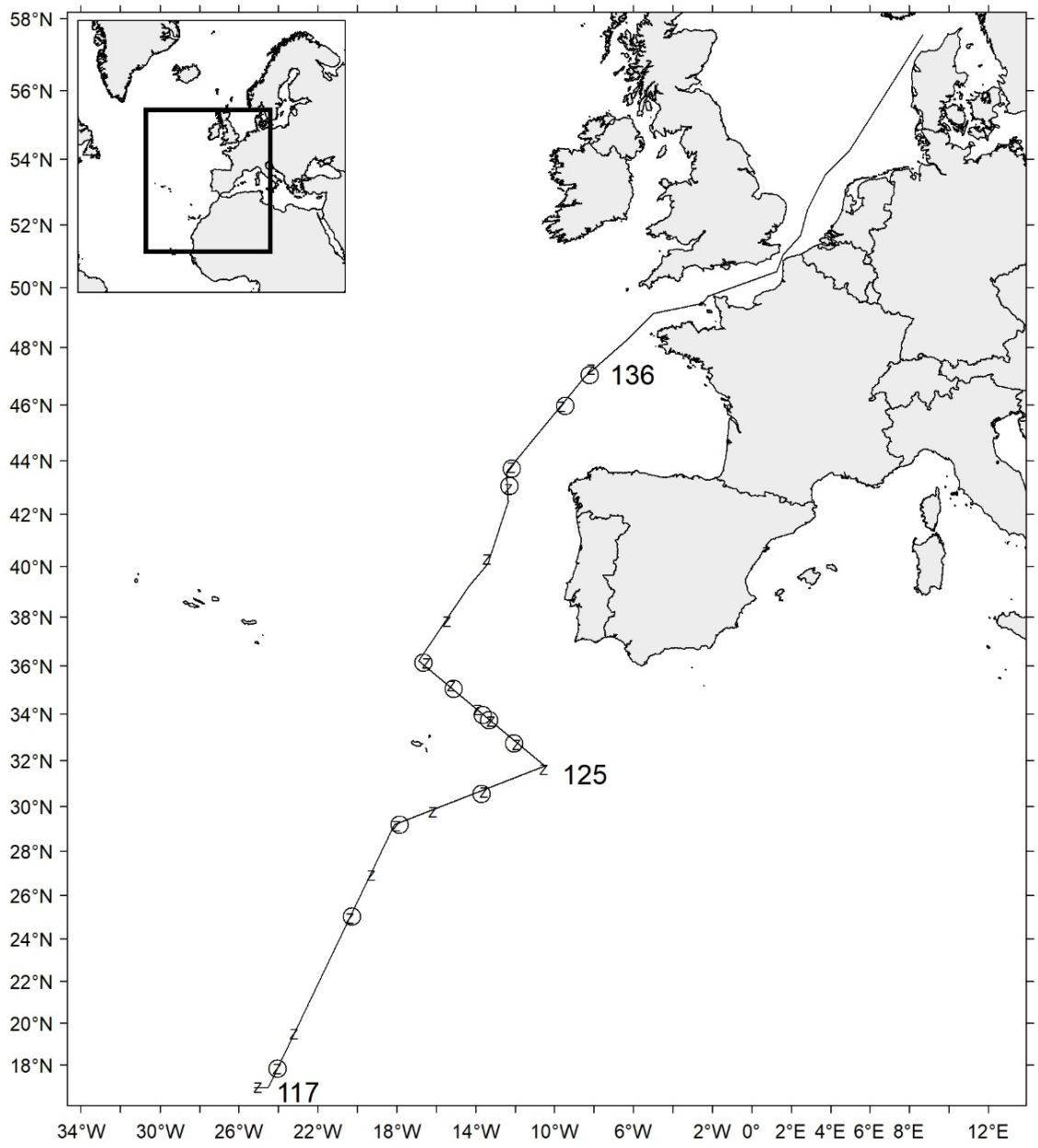
z CTD st.no 52-116

Fig.90



Cruise no 2019702 "Kronprins Haakon" (Chart II)
28 February– 10 April 2019
Trawl st.no 68-82
□ Bottom trawl
▲ Pelagic trawl

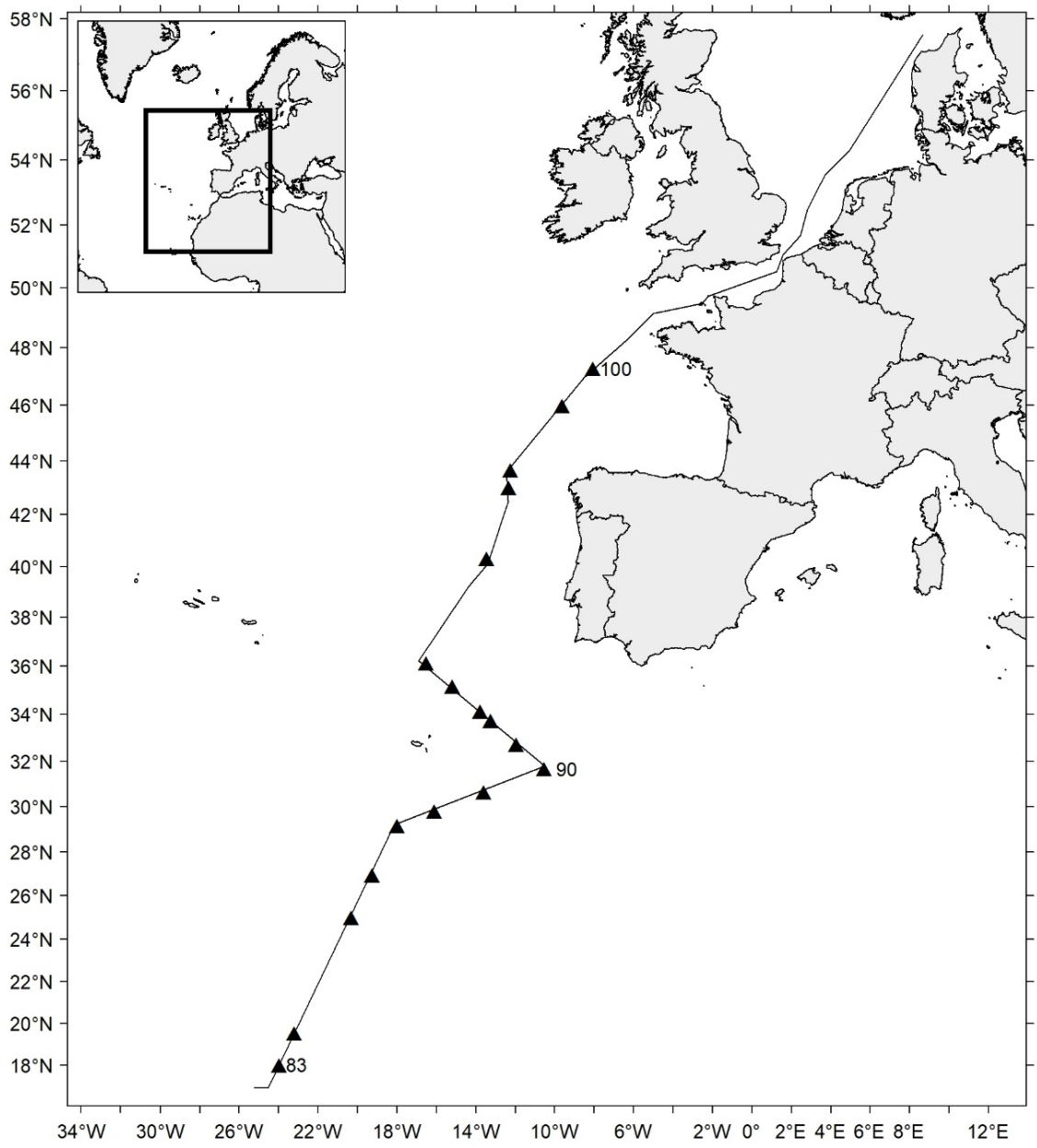
Fig.91



Cruise no 2019703 "Kronprins Haakon" (Chart I)
1–27 May 2019

z CTD st.no 117-136
○ Plankton st. (Multinet)

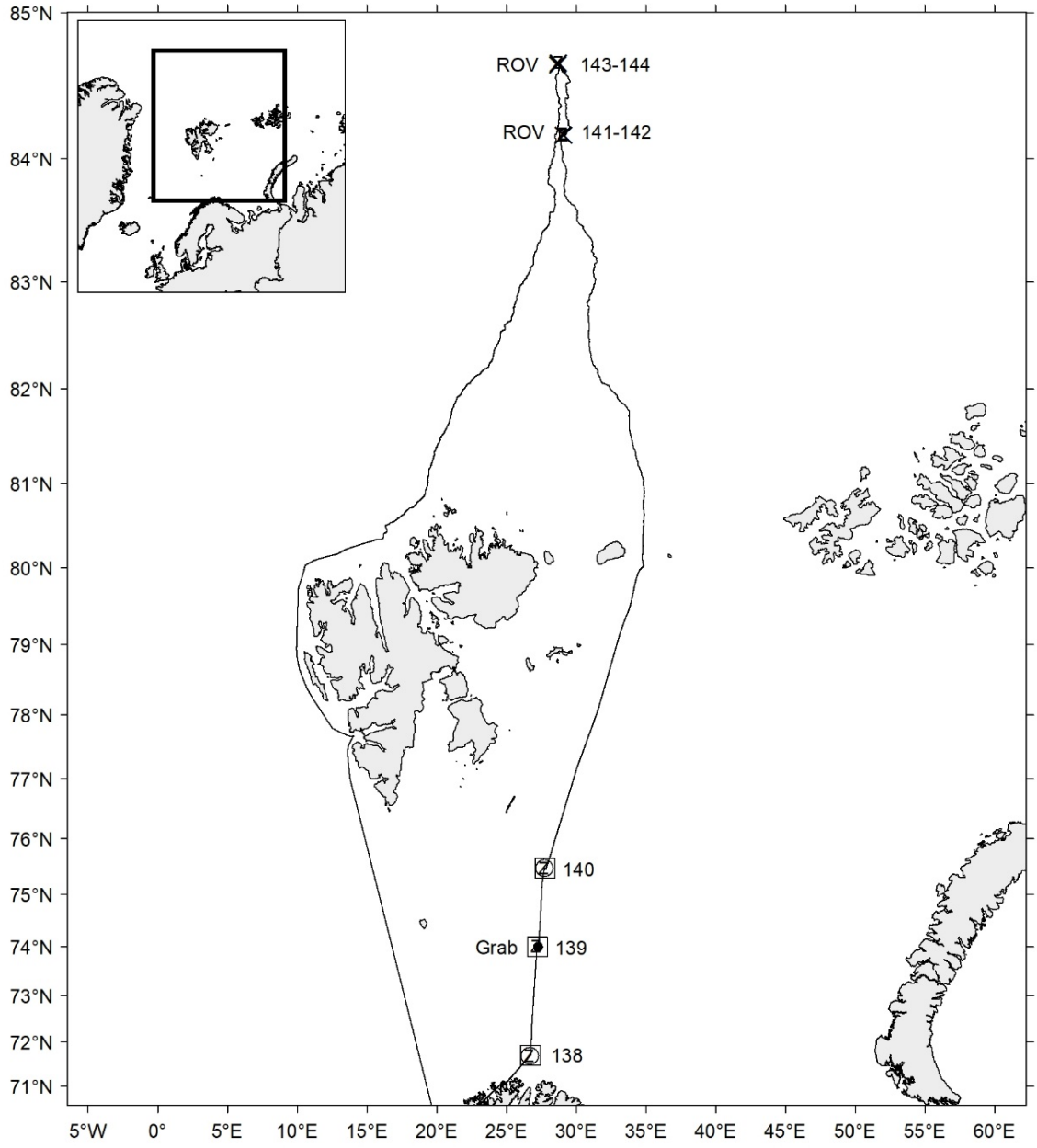
Fig.92



Cruise no 2019703 "Kronprins Haakon" (Chart II)
1–27 May 2019

▲ Pelagic trawl st.no 83-100

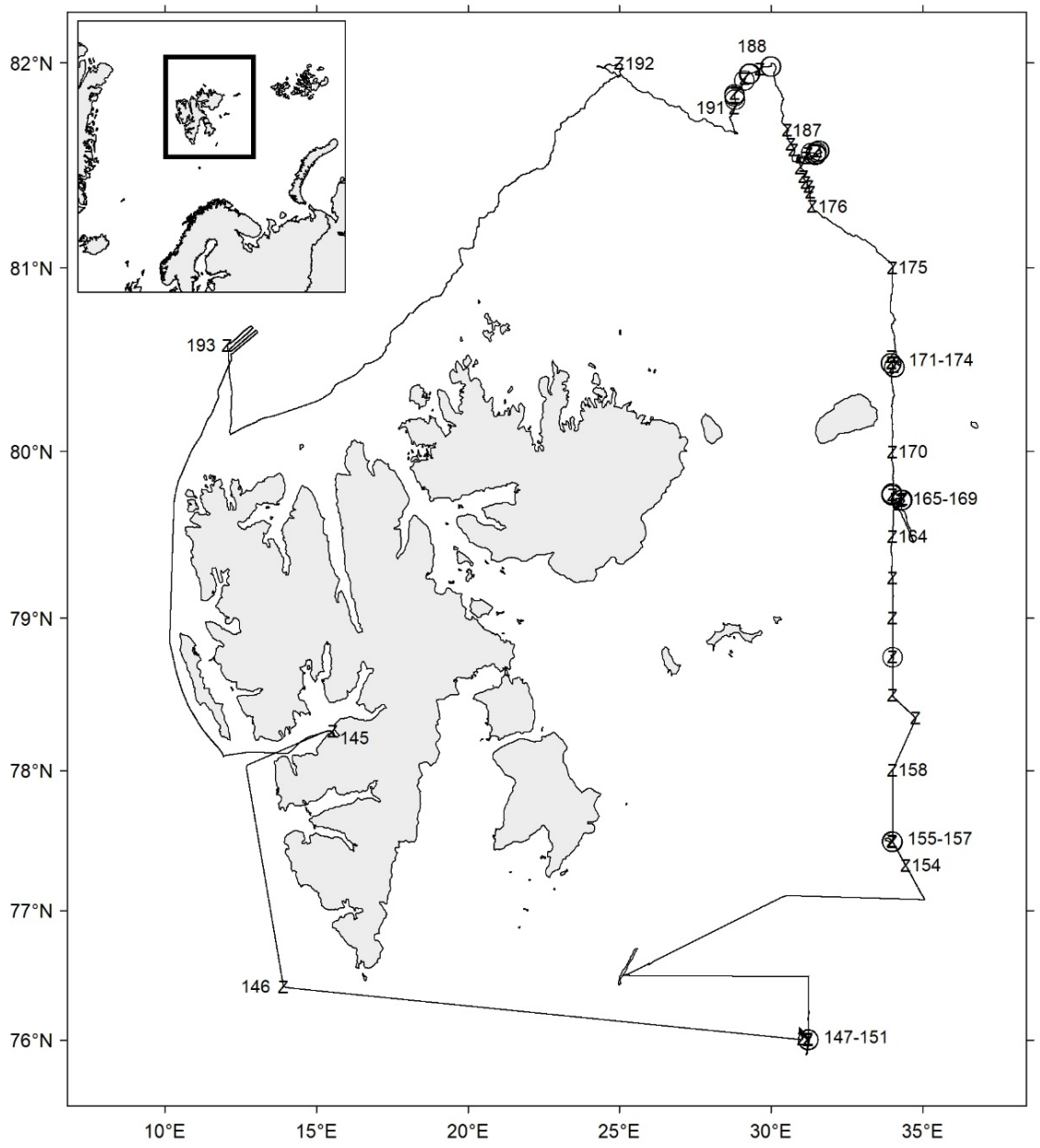
Fig.93



Cruise no 2019704 "Kronprins Haakon"
3–22 July 2019

z CTD st.no 138-144
○ Plankton st. (WP-II-net)
● Grab st.
□ Beam trawl

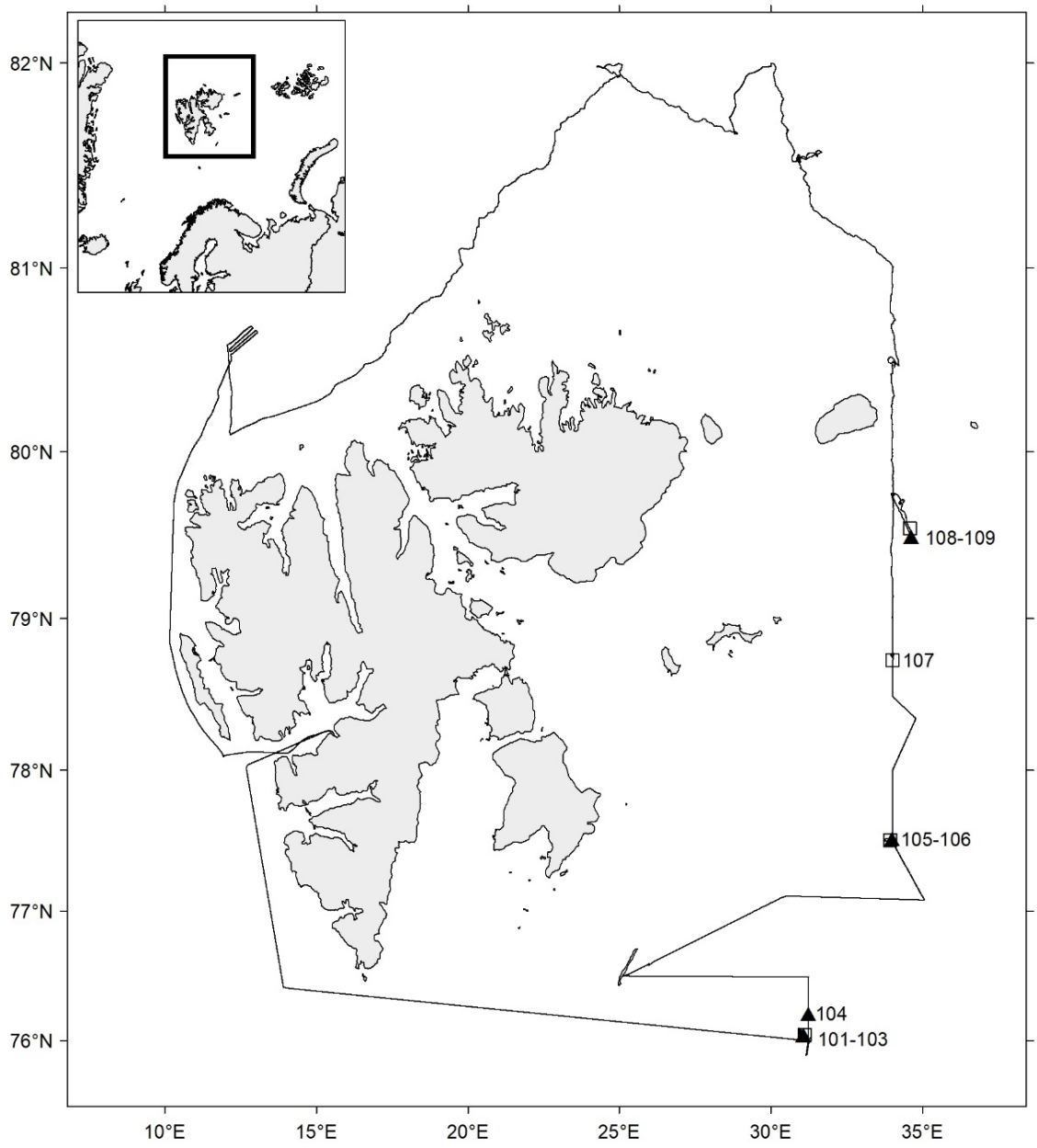
Fig.94



Cruise no 2019706 "Kronprins Haakon" (Chart I)
5–27 August 2019

z CTD st.no 145-193
○ Plankton st. (WP-II-net)

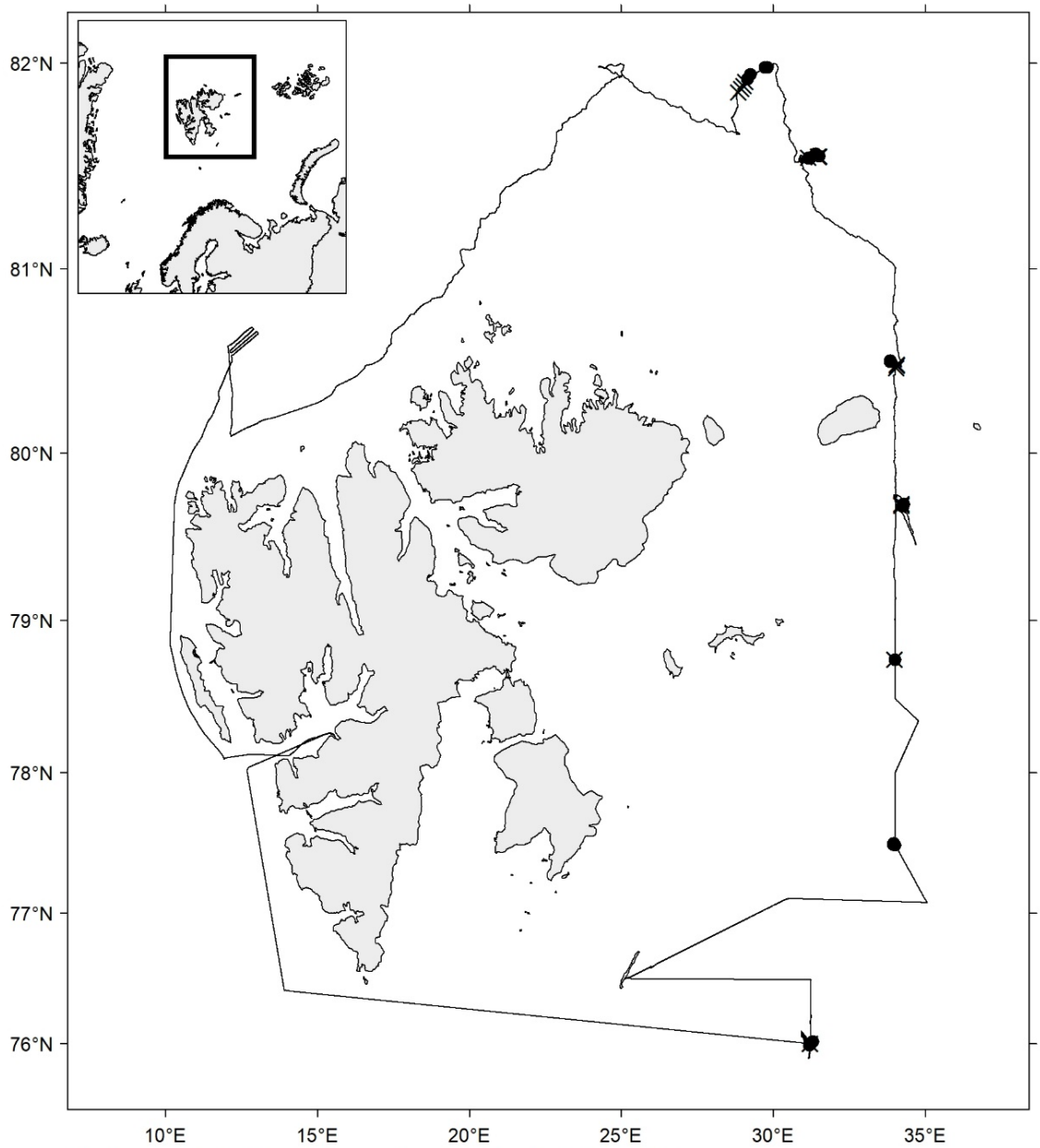
Fig.95



Cruise no 2019706 "Kronprins Haakon" (Chart II)
5–27 August 2019

Trawl st.no 101-109
▲ Pelagic trawl
□ Bottom trawl

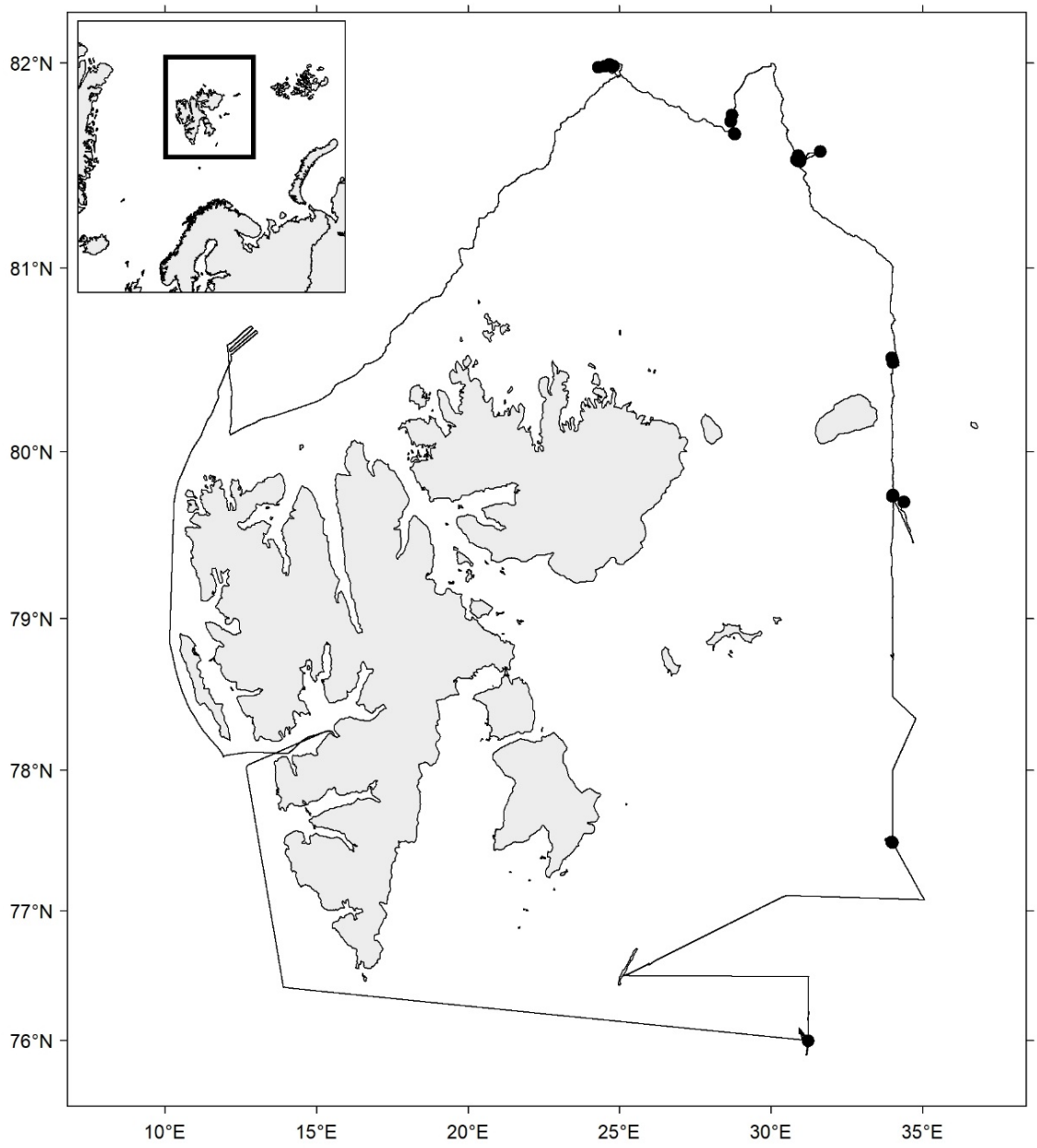
Fig.96



Cruise no 2019706 "Kronprins Haakon" (Chart III)
5–27 August 2019

× MIK station
● Multinet station

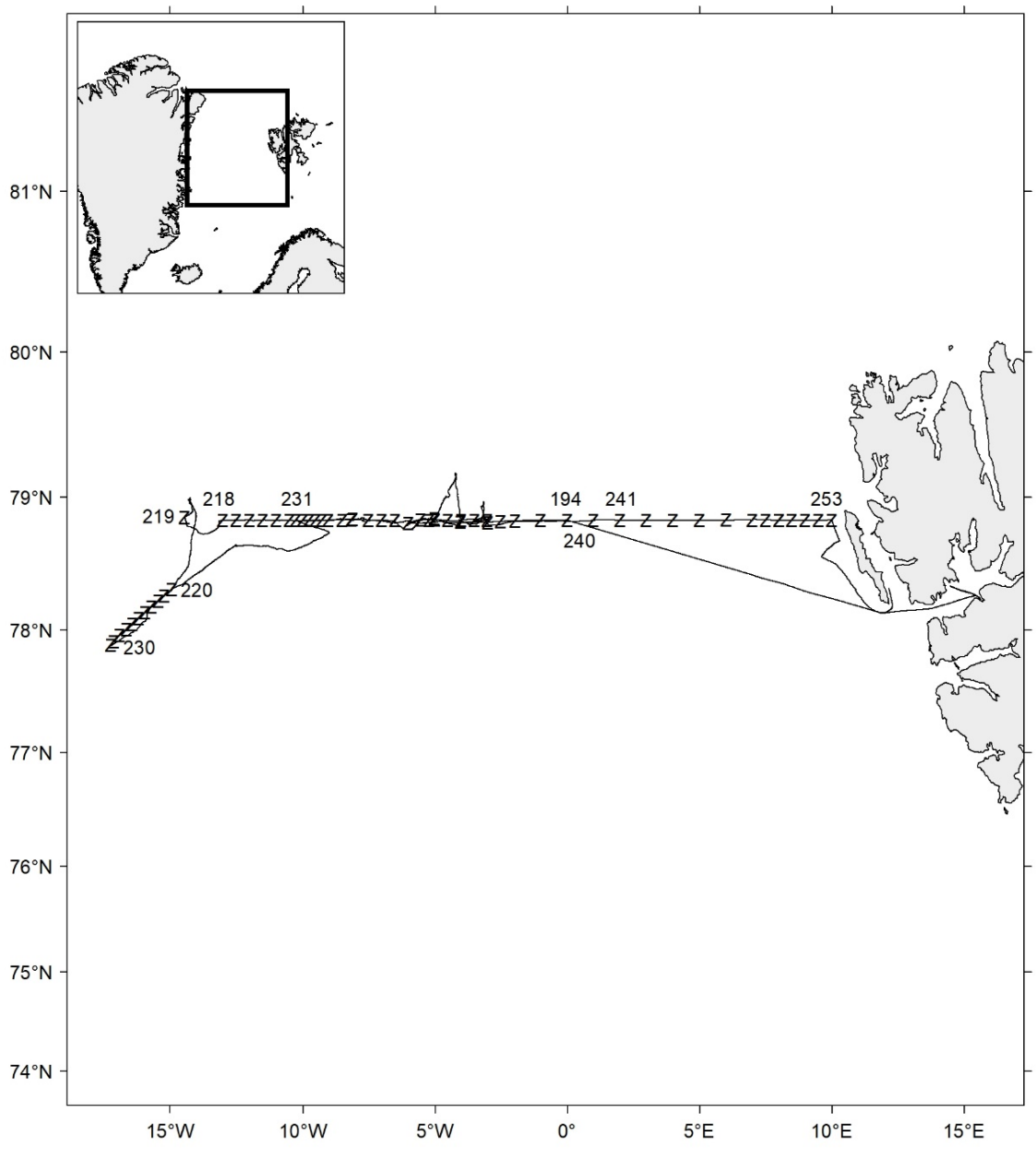
Fig.97



Cruise no 2019706 "Kronprins Haakon" (Chart IV)
5–27 August 2019

● ROV station

Fig.98



Cruise no 2019707 "Kronprins Haakon"
1–16 September 2019

Recover and redeploy the moorings from NPI across the East Greenland Current at 78°50' N, and to carry out the CTD/LADCP section across entire Fram Strait along the 78°50'N line.

z CTD st.no 194-253

Fig.99

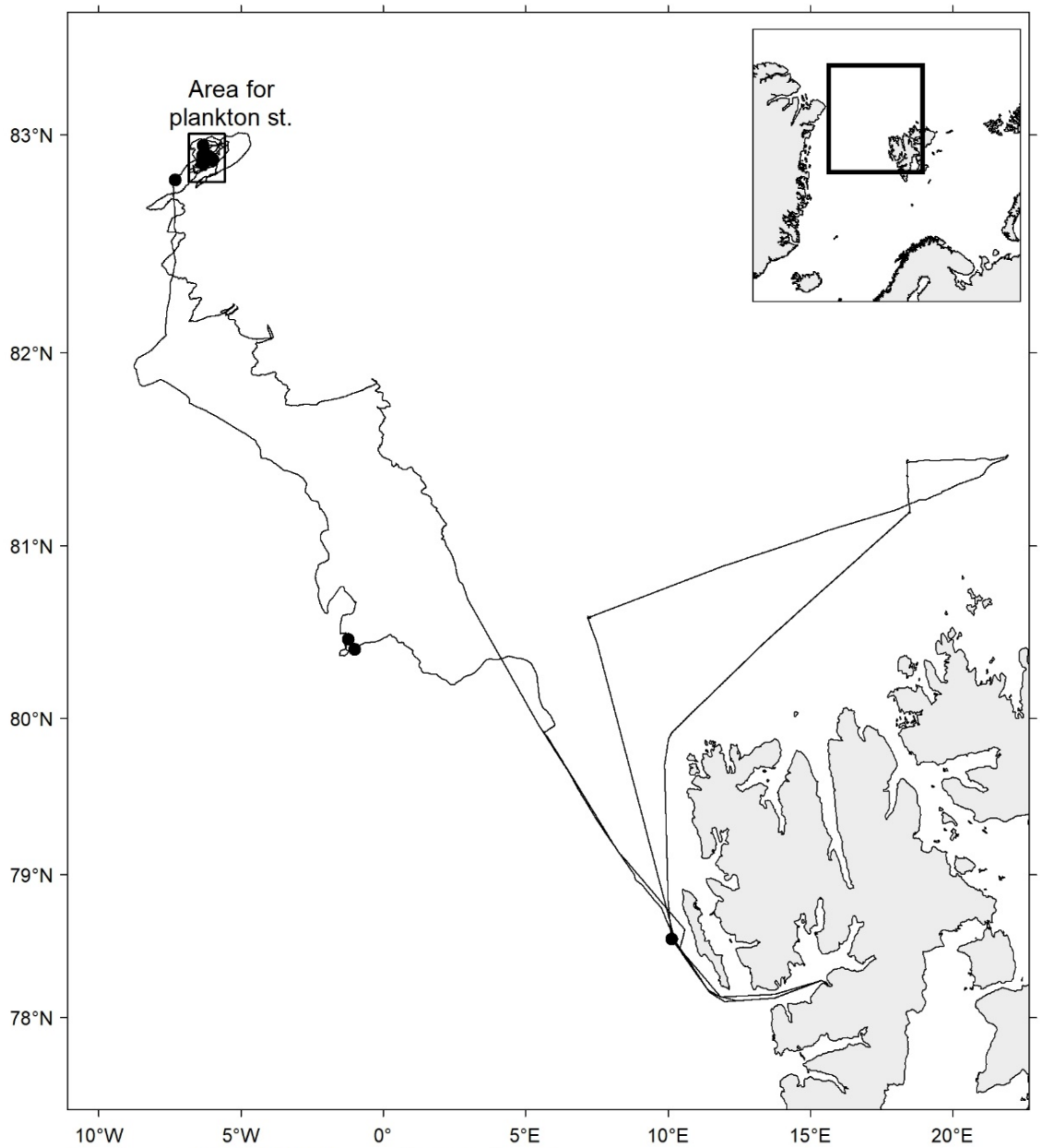
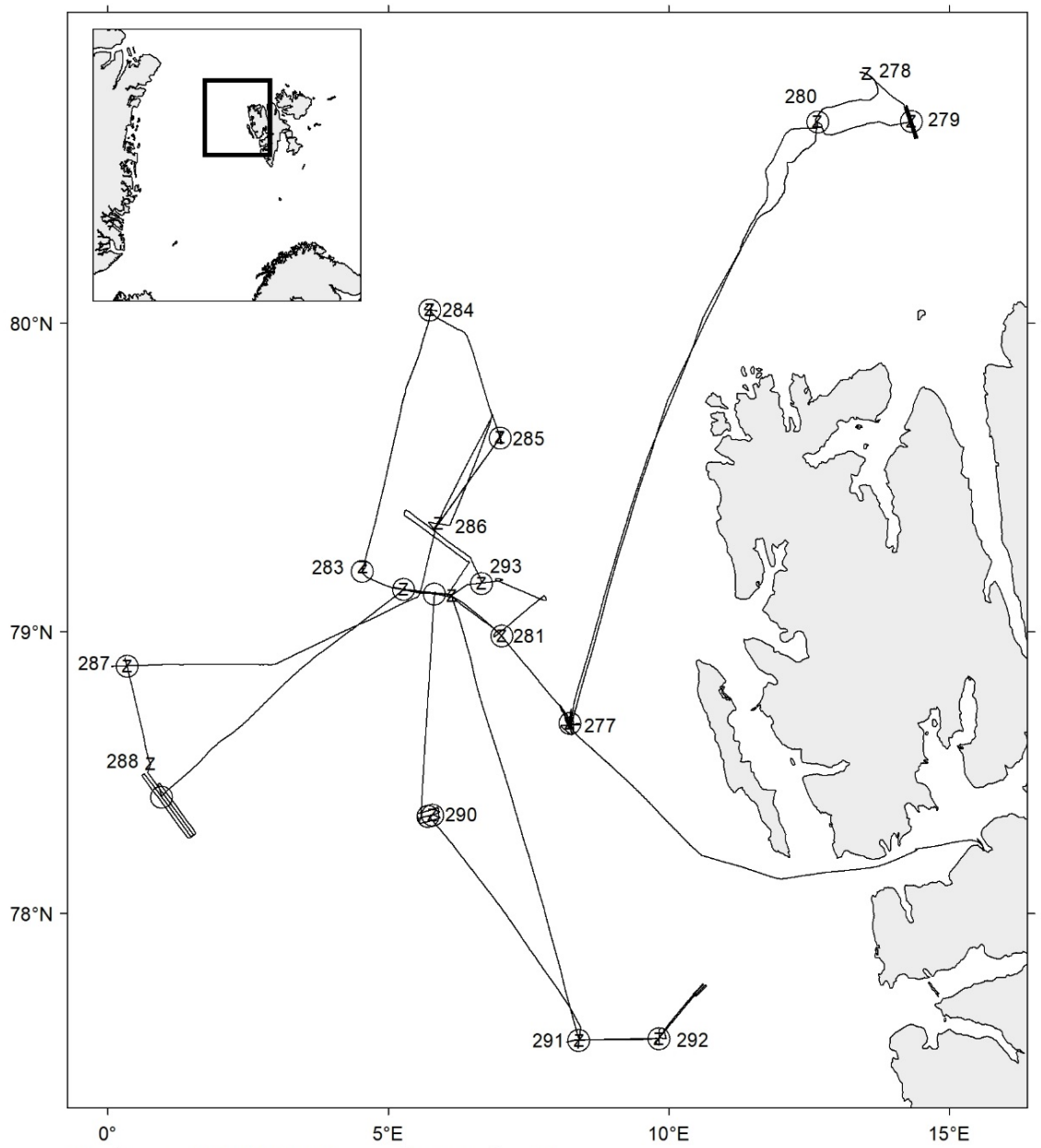

Area for
plankton st.
83°N
82°N
81°N
80°N
79°N
78°N
10°W
5°W
0°
5°E
10°E
15°E
20°E
Cruise no 2019708 "Kronprins Haakon"
19 September–16 October 2019
z CTD st.no 254-276
● Video stations

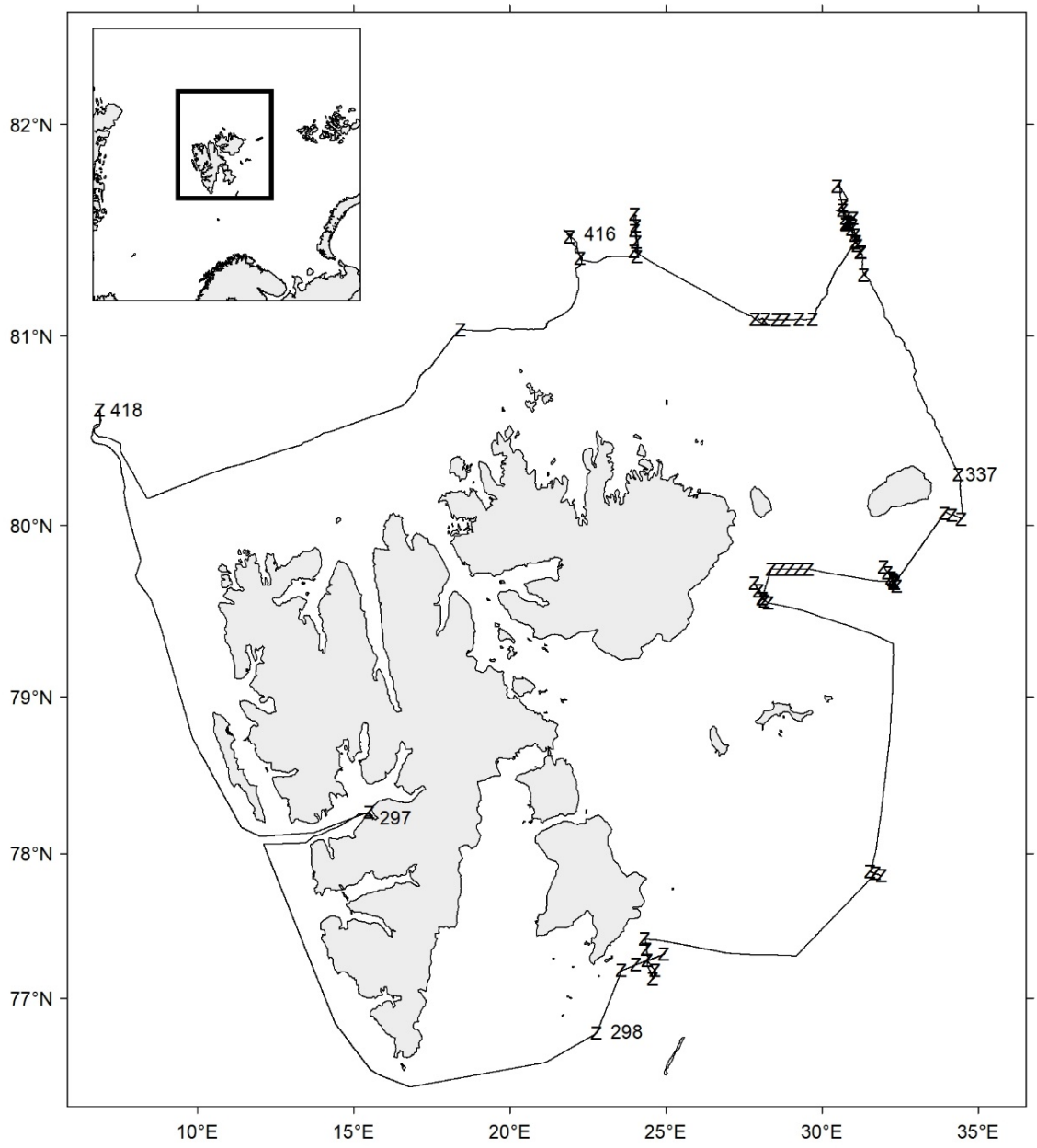
Fig.100



Cruise no 2019709 "Kronprins Haakon"
19 October–9 November 2019

z CTD st.no 277-293
○ Multicorer

Fig.101

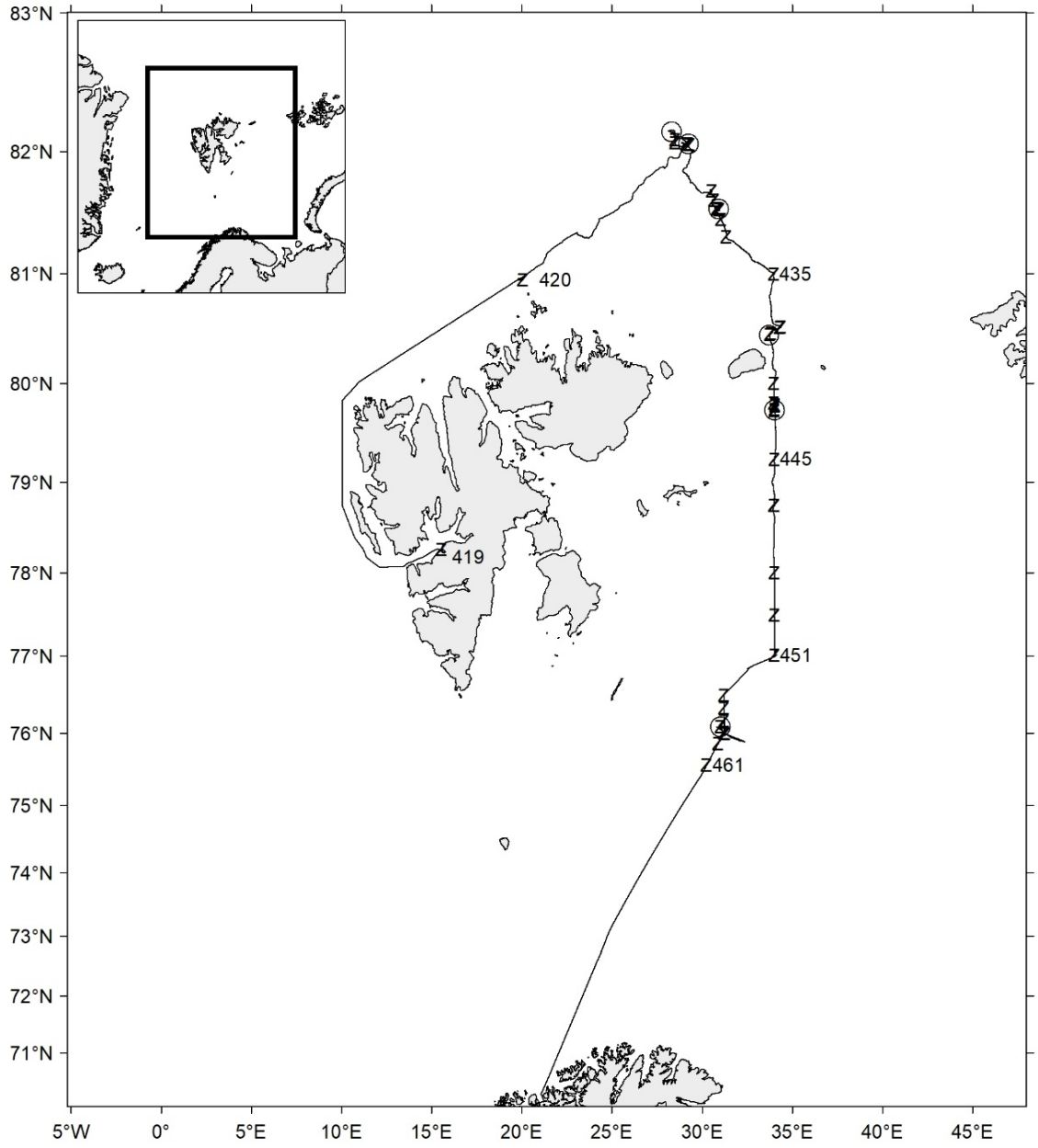


Cruise no 2019710 "Kronprins Haakon"
12–27 November 2019

Recovery, service and redeployment of moorings in the northern Barents Sea and across the continental slope to the north. CTD profiles/transects, water sampling, VM- and L-ADCP measurements, glider deployment.

z CTD st.no 297-418

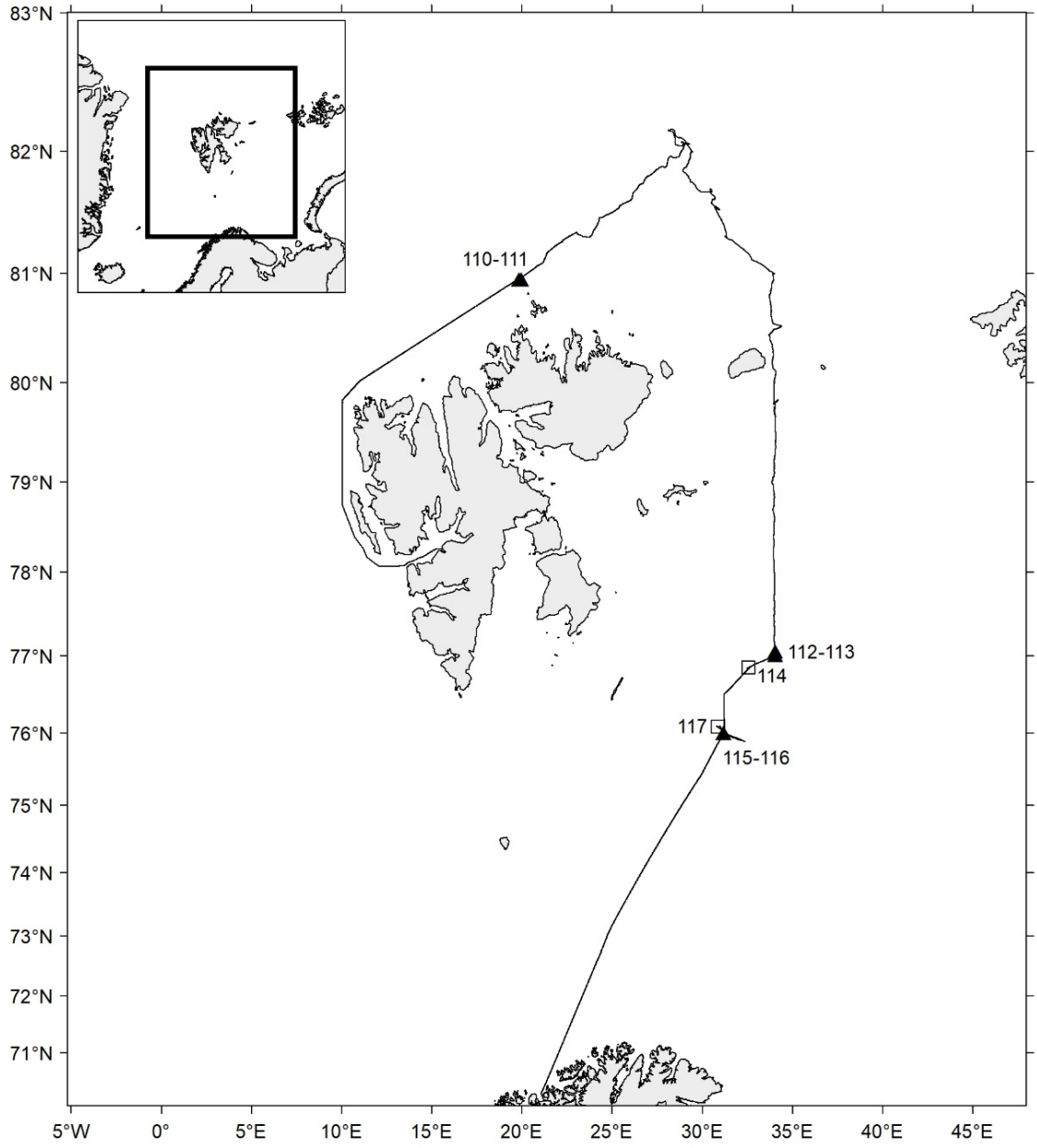
Fig.102



Cruise no 2019711 "Kronprins Haakon" (Chart I)
28 November–17 December 2019

z CTD st.no 419-461
○ Plankton st. (WPII-net)

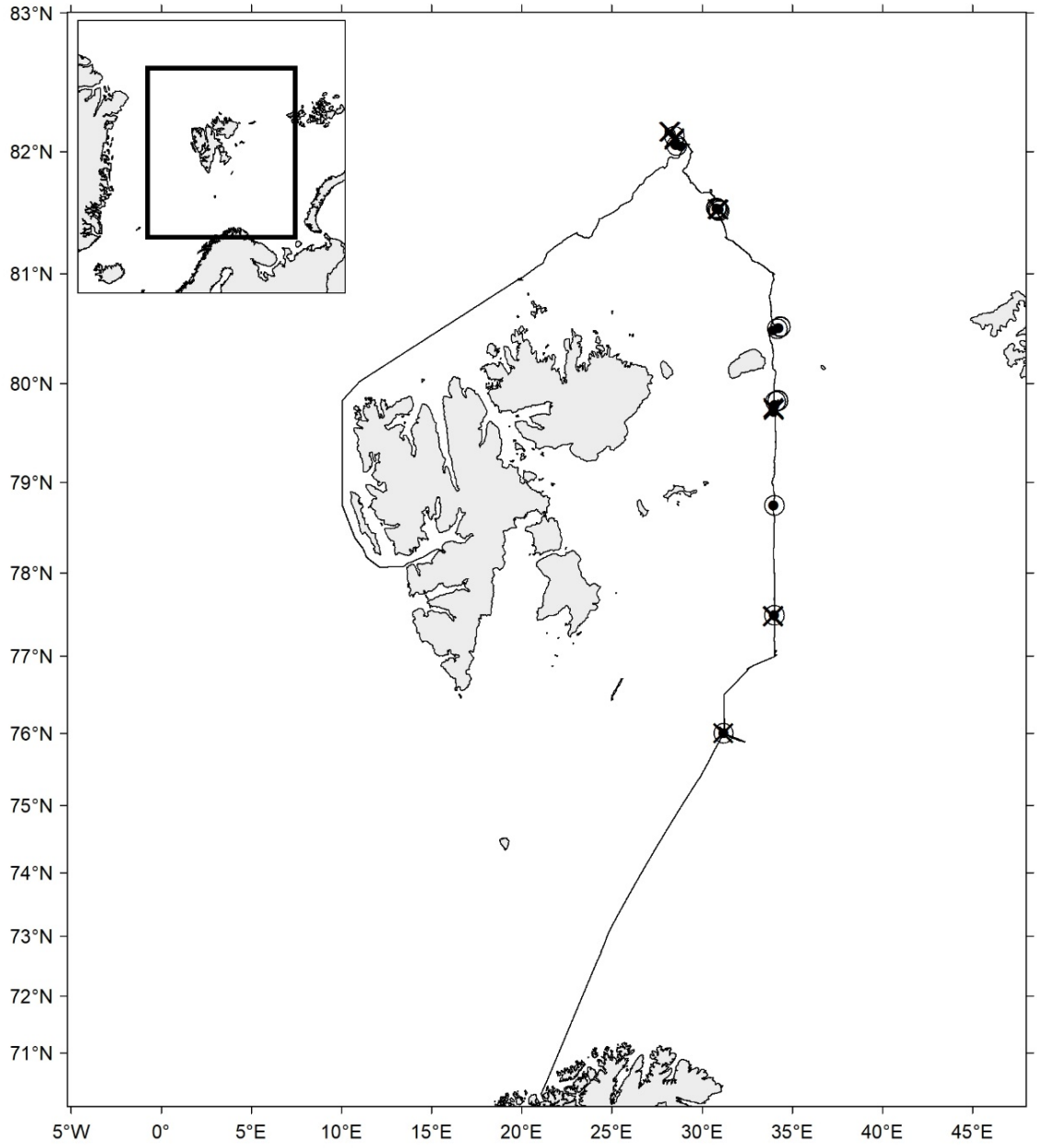
Fig.103



Cruise no 2019711 "Kronprins Haakon" (Chart II)
28 November–17 December 2019

Trawl st.no 110-117
▲ Pelagic trawl
□ Bottom trawl

Fig.104



Cruise no 2019711 "Kronprins Haakon" (Chart III)
28 November–17 December 2019

● Multinet st.
○ MIK st.
× Box corer st.

Fig.105

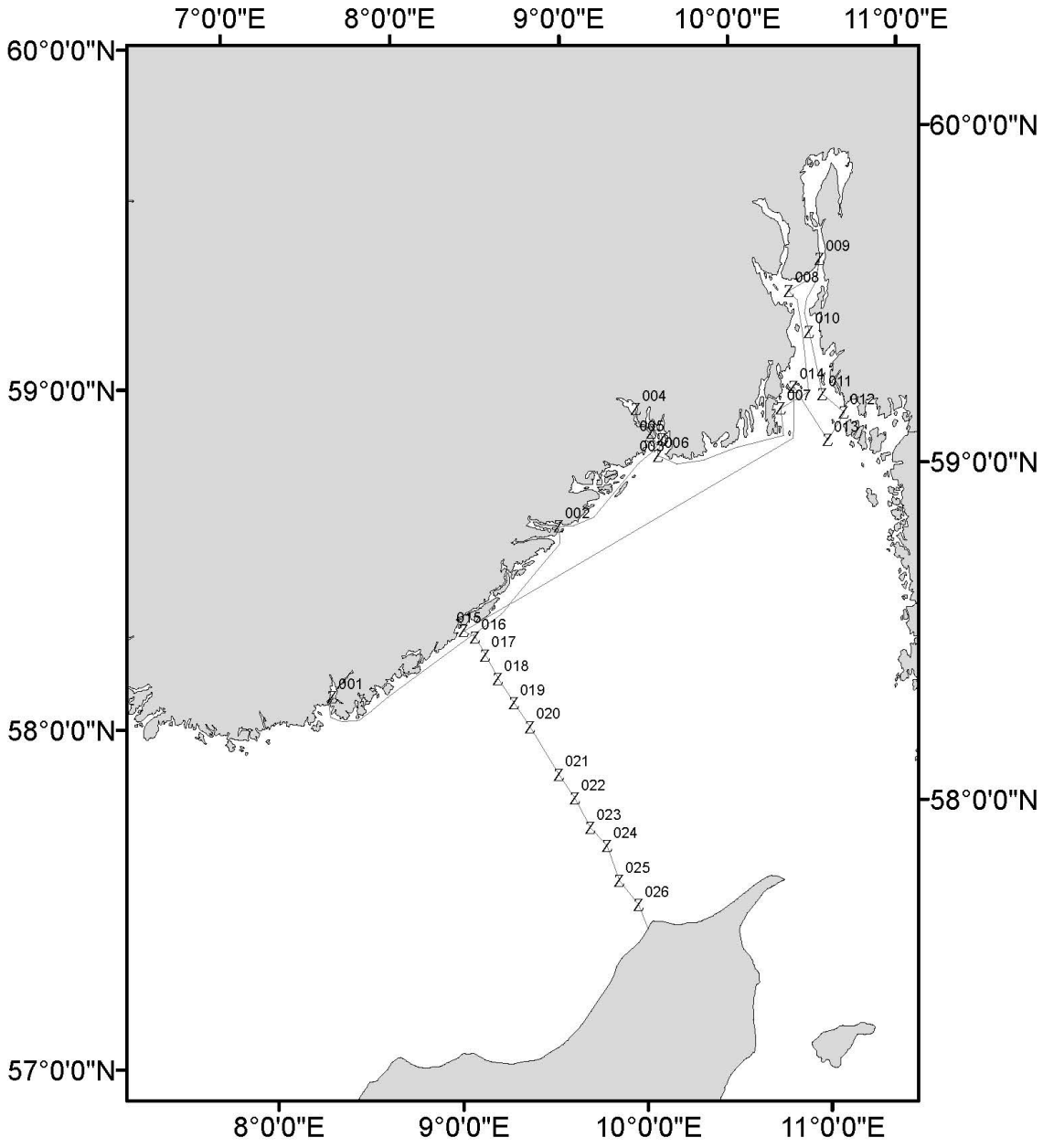
10 - "G. M. Dannevig" – Cruises 2019

Ship code 16

Cruise no	Period	Purpose	Area	CTD st.no	Fig. no
2019301	16.1.-21.1.	Hydrographic standard section “Torungen-Hirtshals”. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast	Skagerrak	1-26	106
2019302	1.2.-6.2.	Hydrographic standard section “Torungen-Hirtshals”. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast	Skagerrak	27-51	107
2019303	12.3.-18.3.	Hydrographic standard section “Torungen-Hirtshals”. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast	Skagerrak	52-77	108
2019304	19.3.-3.4.	Mapping of spawning areas	South/eastcoast	78-79	109
2019305	4.4.-9.4.	Hydrographic standard section “Torungen-Hirtshals”. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast	Skagerrak	80-104	110
2019306	8.5.-14.5.	Genetic mapping of cod-populations in the outer Oslofjord	Outer Oslofjord	105-107	111
2019307	15.5.-18.5.	Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast	Skagerrak	108-121	112
2019308	31.5.-8.6.	Hydrographic standard section “Torungen-Hirtshals” l. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast	Skagerrak	122-149	113
2019309	2.7.-8.7.	Hydrographic standard section “Torungen-Hirtshals”. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast	Skagerrak	150-176	114
2019310	2.8.-4.8.	Hydrographic standard section “Torungen-Hirtshals”. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast	Skagerrak	177-192	115
2019311	5.8.-18.8.	Ecosystem-based monitoring of skagerrak and coastal areas. The cruise focuses on the interaction between coast and sea	Skagerrak	193-203	116
2019312	19.8.-31.8.	Monitoring lobster/MPA	Outer Oslofjord	-	No chart
2019313	13.9.-14.9.	Hydrographic standard section “Torungen-Hirtshals”. Long-term environmental monitoring on a near-shore station outside Arendal	Skagerrak	204-209	117
2019314	15.9.-5.10.	Beach seine studies to measure recruitment of coastal fish-species	Skagerrak	210-268	118
2019315	6.10.-8.10.	Hydrographic standard section “Torungen-Hirtshals”. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast	Skagerrak	269-281	119
2019316	15.11.-17.11.	Hydrographic standard section “Torungen-Hirtshals”. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast	Skagerrak	282-292	120
2019317	18.11.-5.12.	Monitoring of the cod population, and other species in Skagerrak	Skagerrak	293-295	121

2019318	6.12.-12.12.	Hydrographic standard section “Torungen-Hirtshals” l. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast.	Skagerrak	296-315	122

11 - "G. M. Dannevig" – Charts for cruises 2019



Cruise no 2019301
"G. M. Dannevig"
16.01 - 21.01 2019

Z CTD st. no. 1 - 26

Fig.106

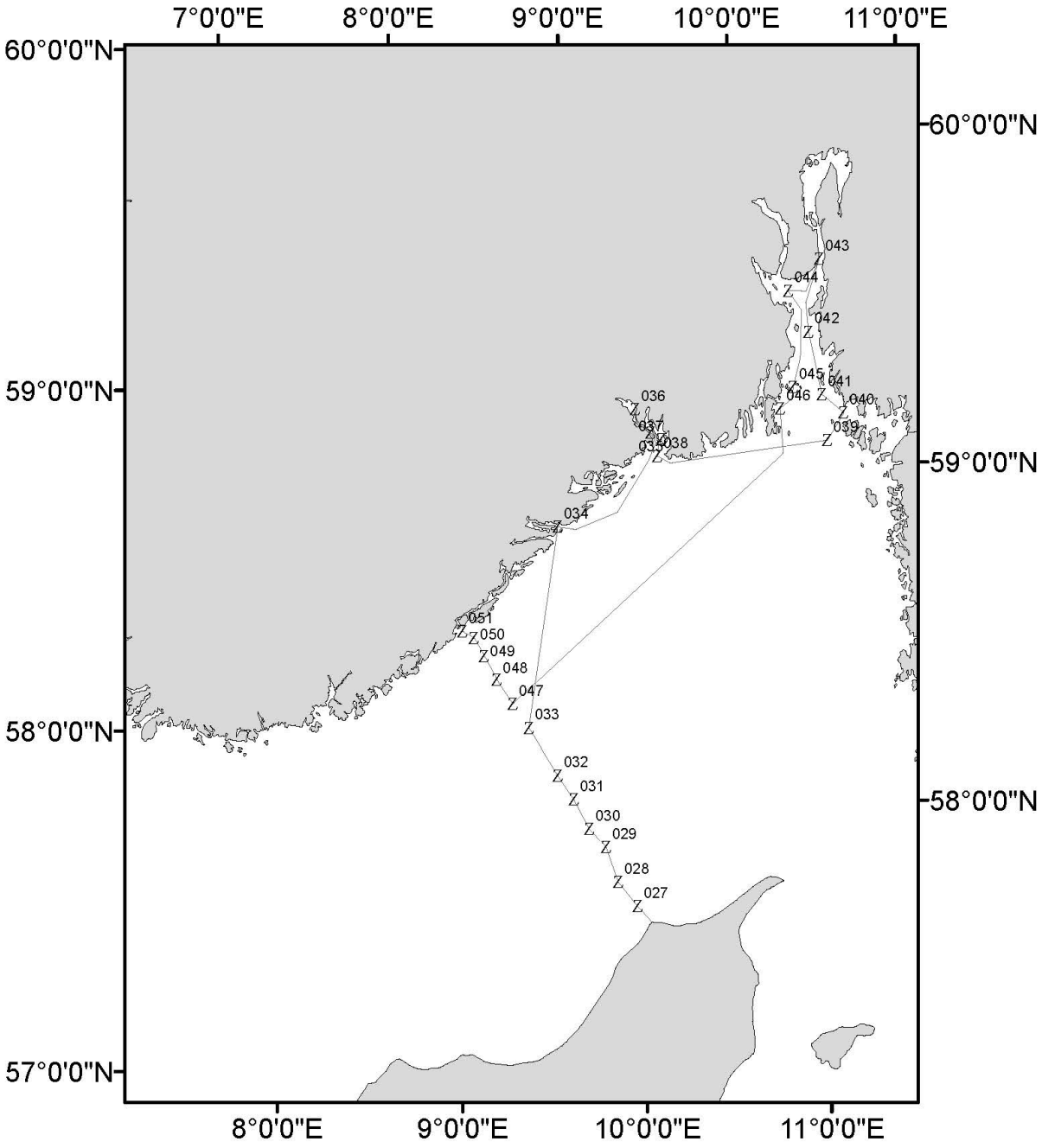

7°0'0"E
8°0'0"E
9°0'0"E
10°0'0"E
11°0'0"E
60°0'0"N
59°0'0"N
58°0'0"N
57°0'0"N
043
044
042
045
041
046
040
036
037
039
038
035
034
051
050
049
048
047
033
032
031
030
029
028
027
Cruise no 2019302
"G. M. Dannevig"
01.02 - 06.02 2019
Z CTD st. no. 27 - 51

Fig. 107

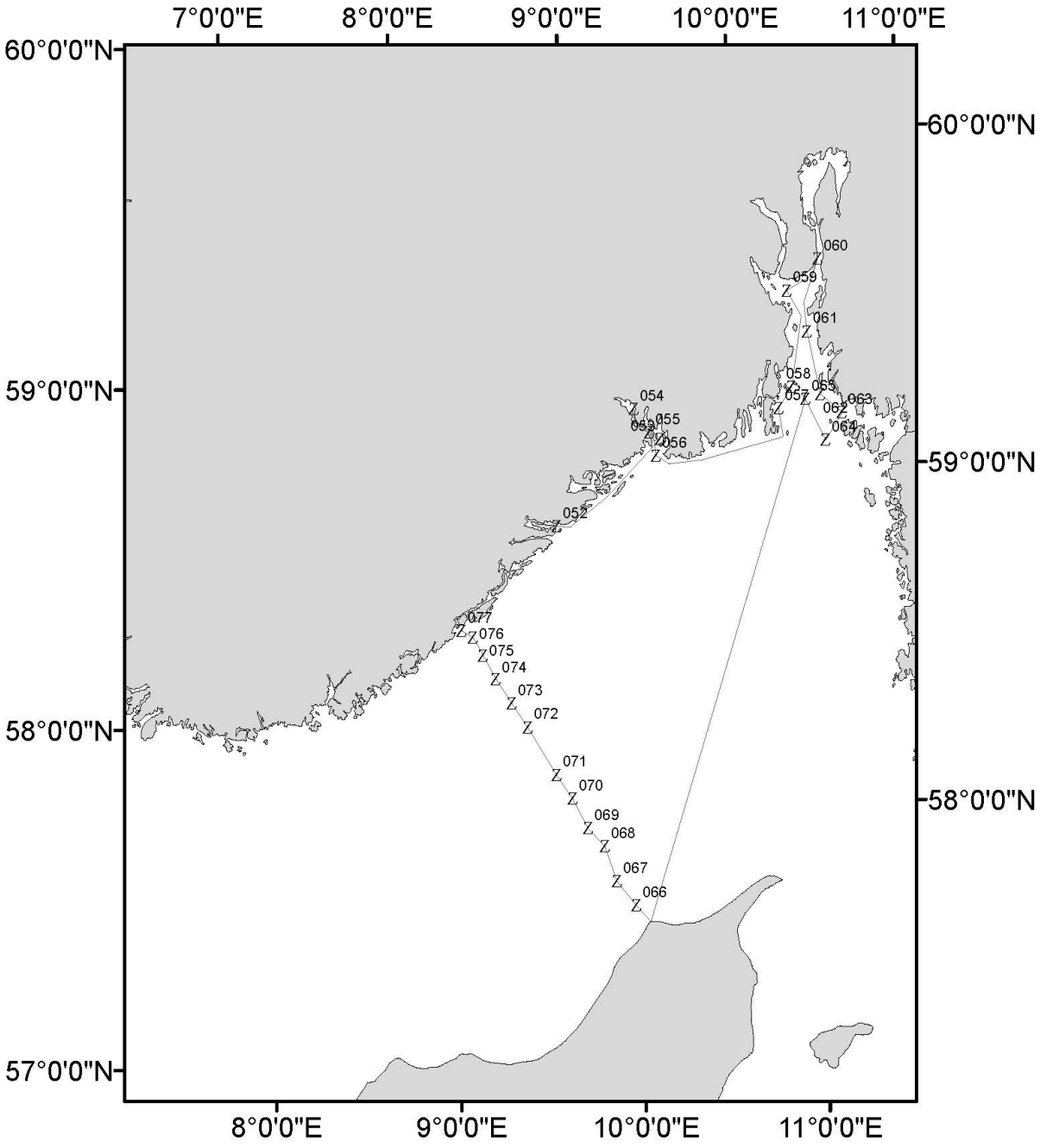
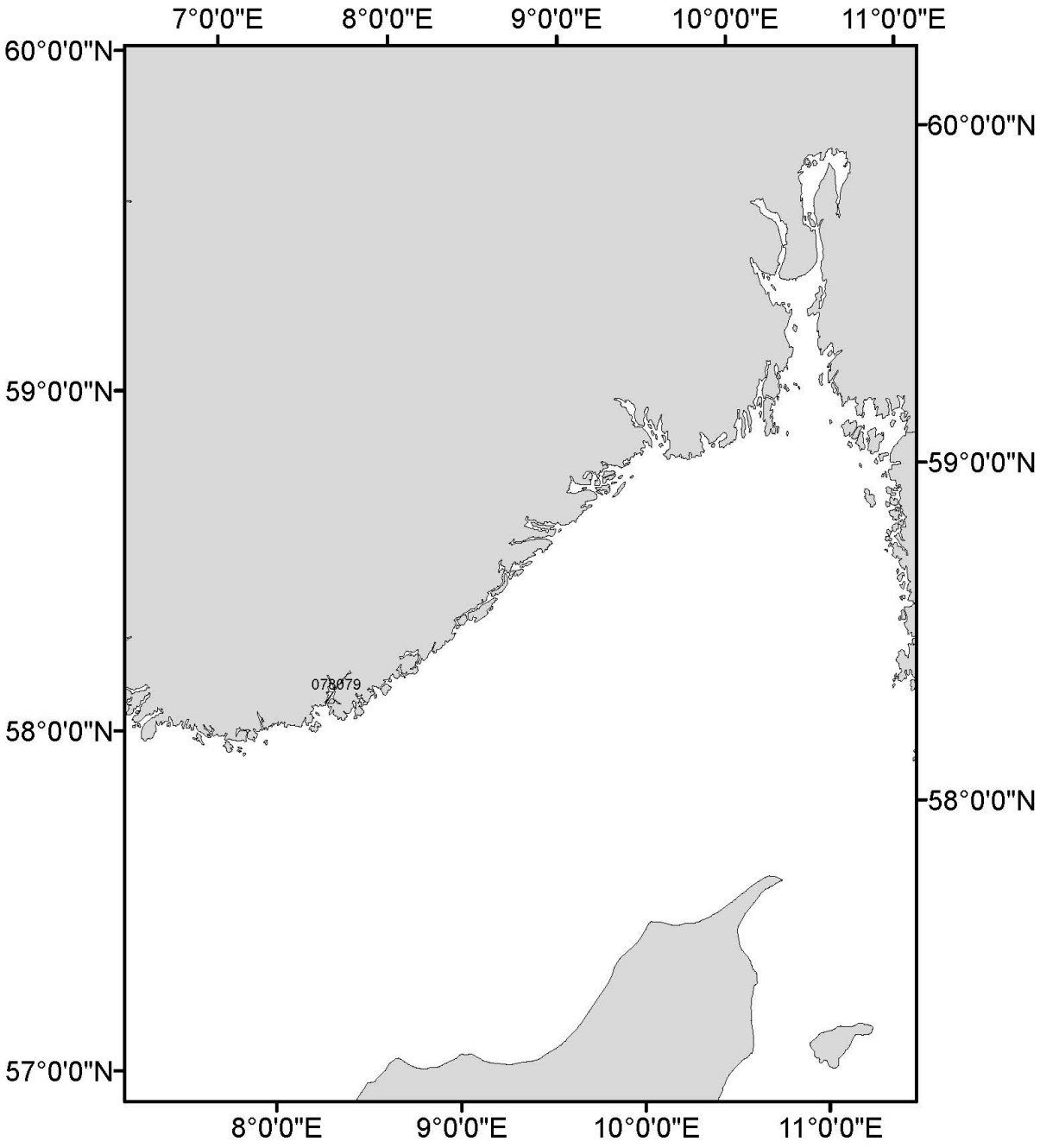

7°0'0"E
8°0'0"E
9°0'0"E
10°0'0"E
11°0'0"E
60°0'0"N
59°0'0"N
58°0'0"N
57°0'0"N
060
059
061
058
057
063
062
064
054
055
053
056
052
077
076
075
074
073
072
071
070
069
068
067
066
Cruise no 2019303
"G. M. Dannevig"
12.03 - 18.03 2019
Z CTD st. no. 52 - 77

Fig.108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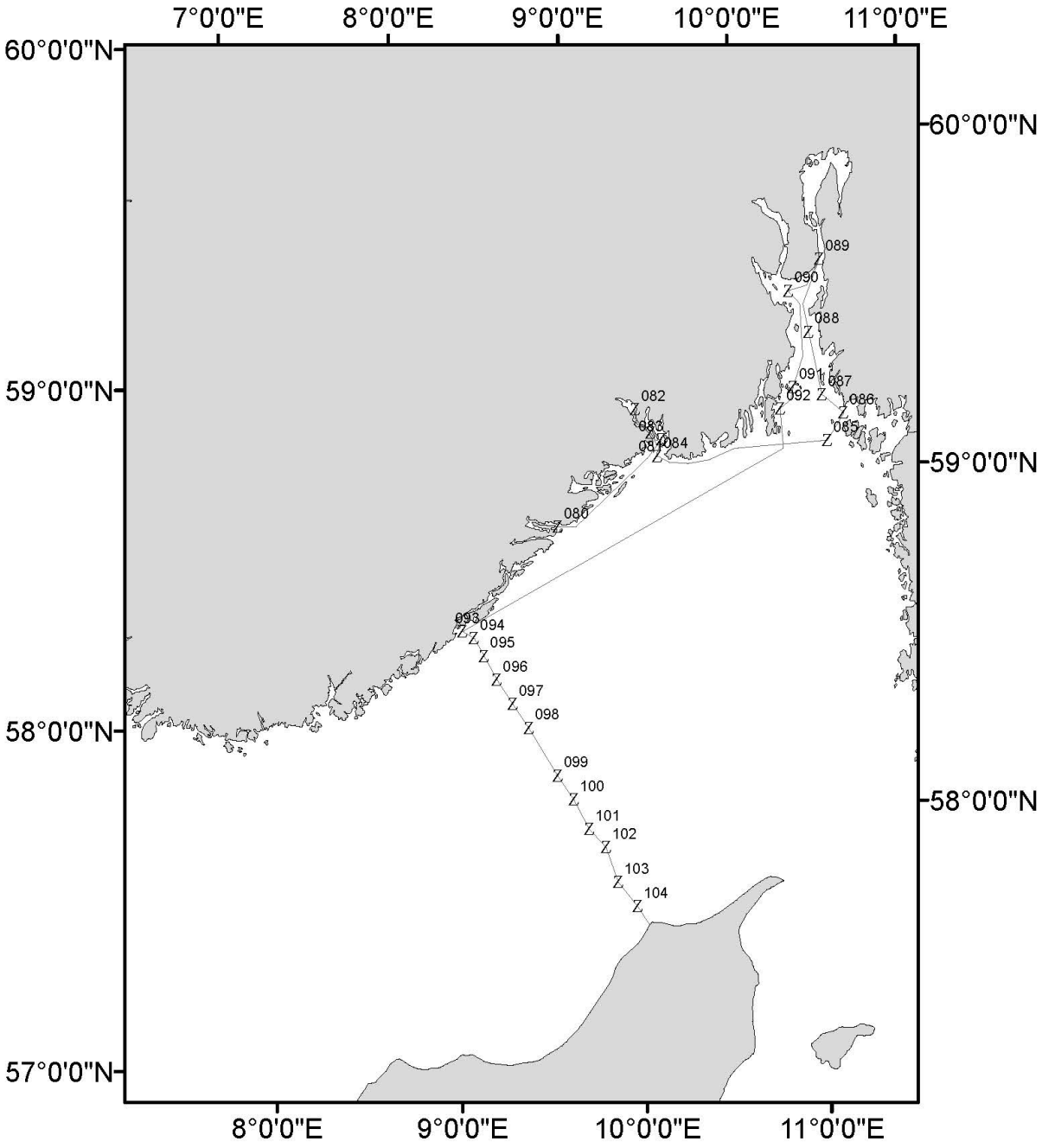
Cruise no 2019304
"G. M. Dannevig"
19.03 - 03.04 2019
Z CTD st. no. 78 - 79

Fig.109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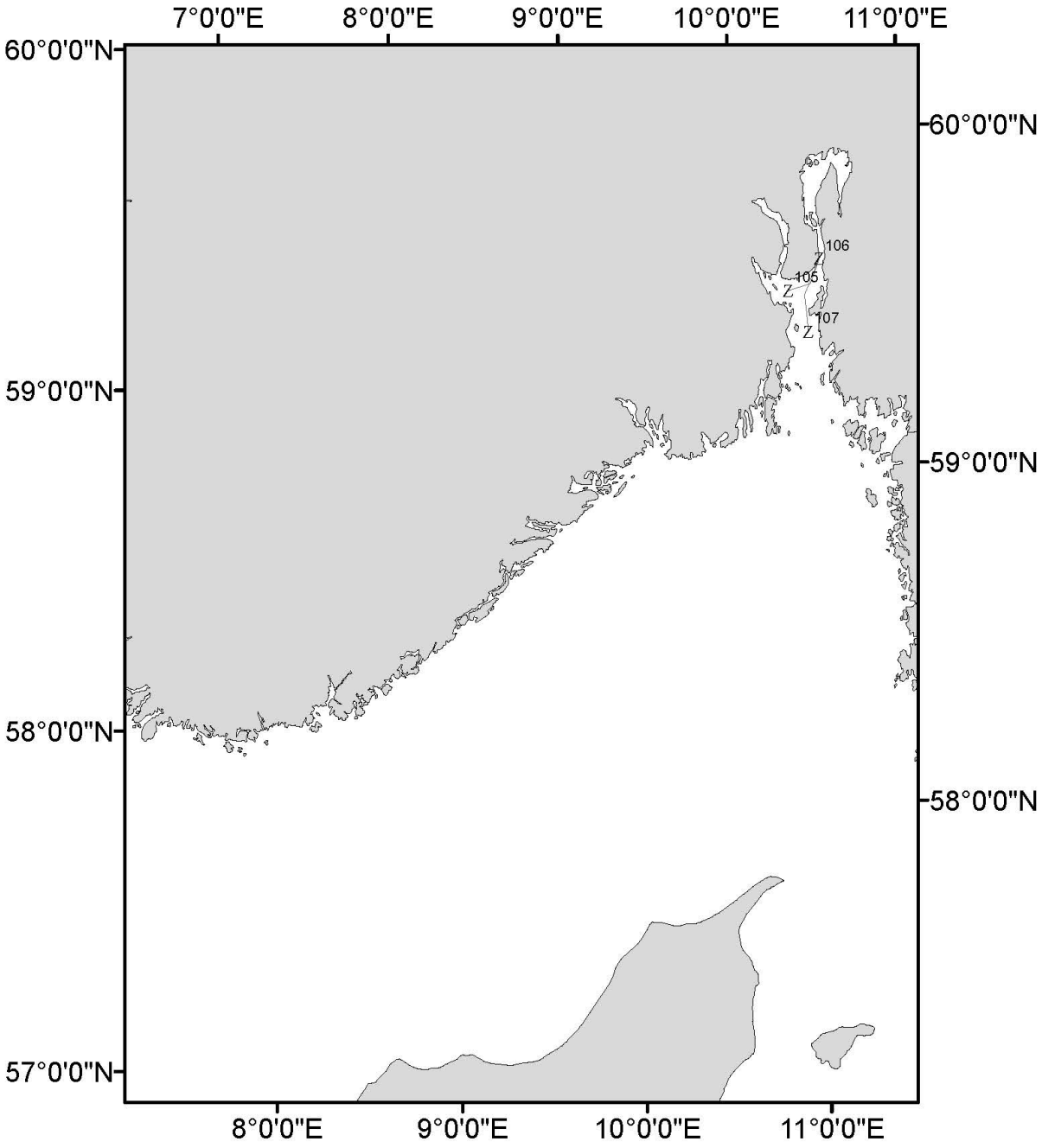
Cruise no 2019305
"G. M. Dannevig"
04.04 - 09.04 2019
Z CTD st. no. 80 - 104

Fig.110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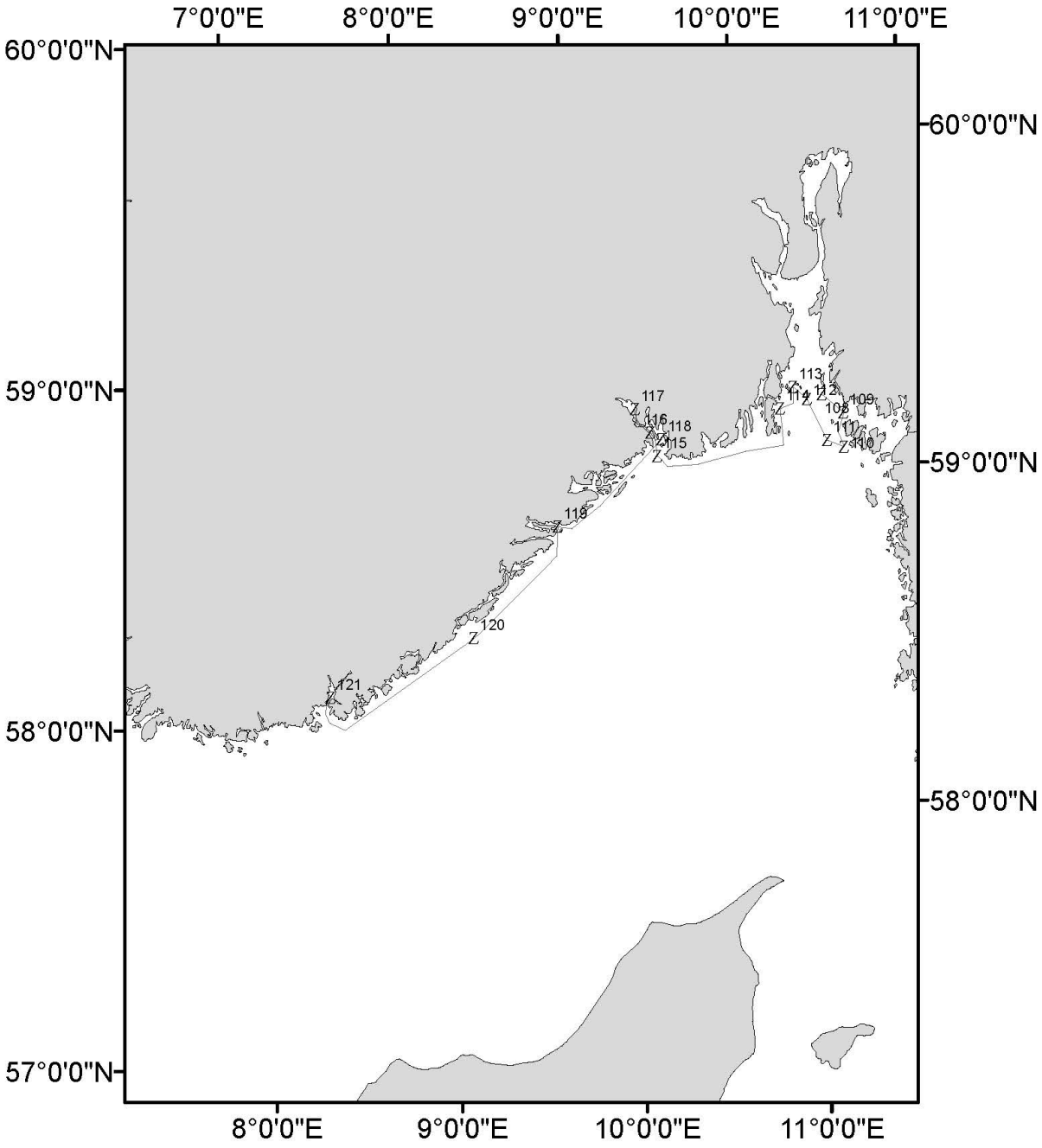
Cruise no 2019306
"G. M. Dannevig"
08.05 - 14.05 2019
Z CTD st. no. 105 - 107

Fig.111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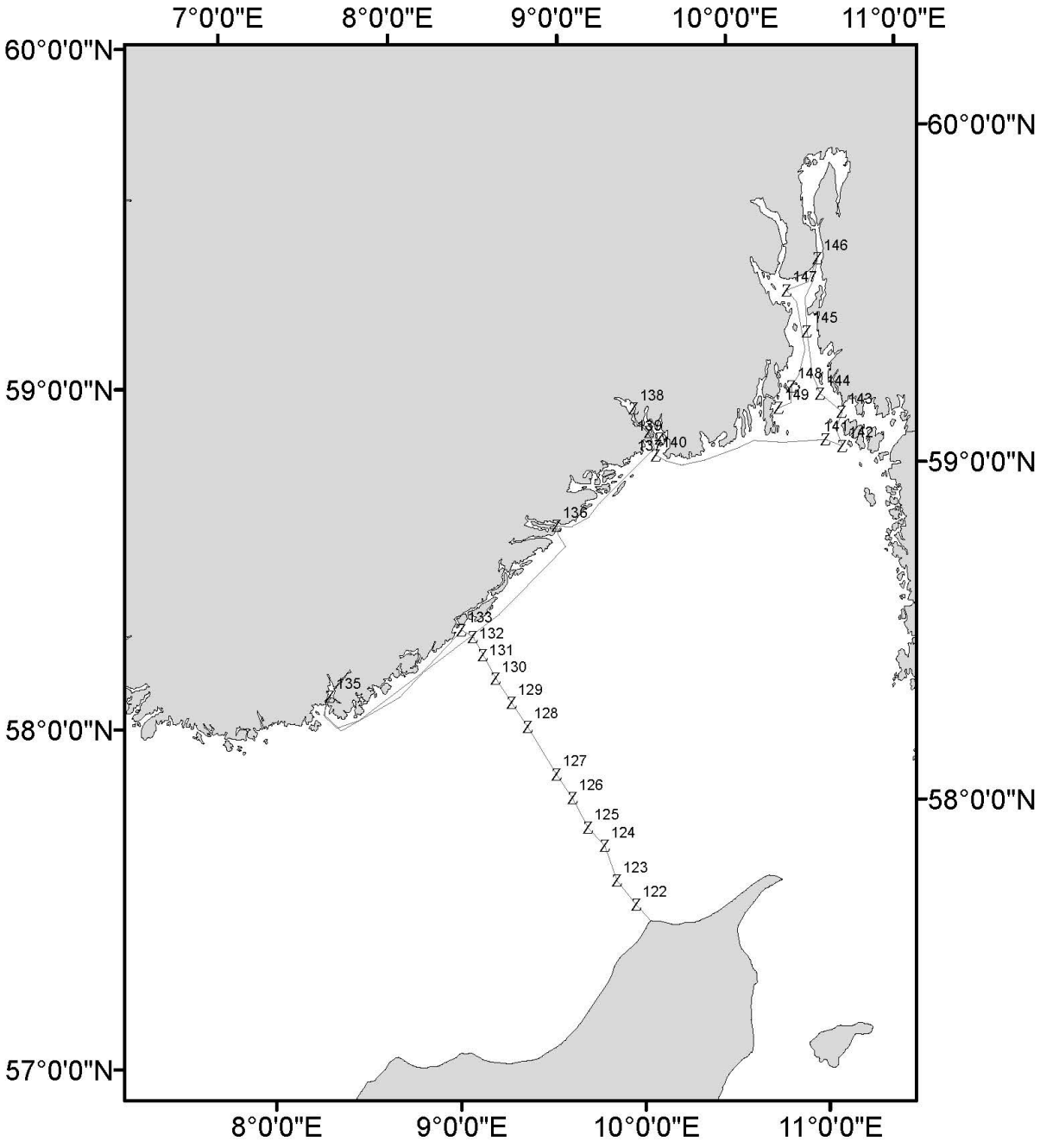
Cruise no 2019307
"G. M. Dannevig"
15.05 - 18.05 2019
Z CTD st. no. 108 - 121

Fig.112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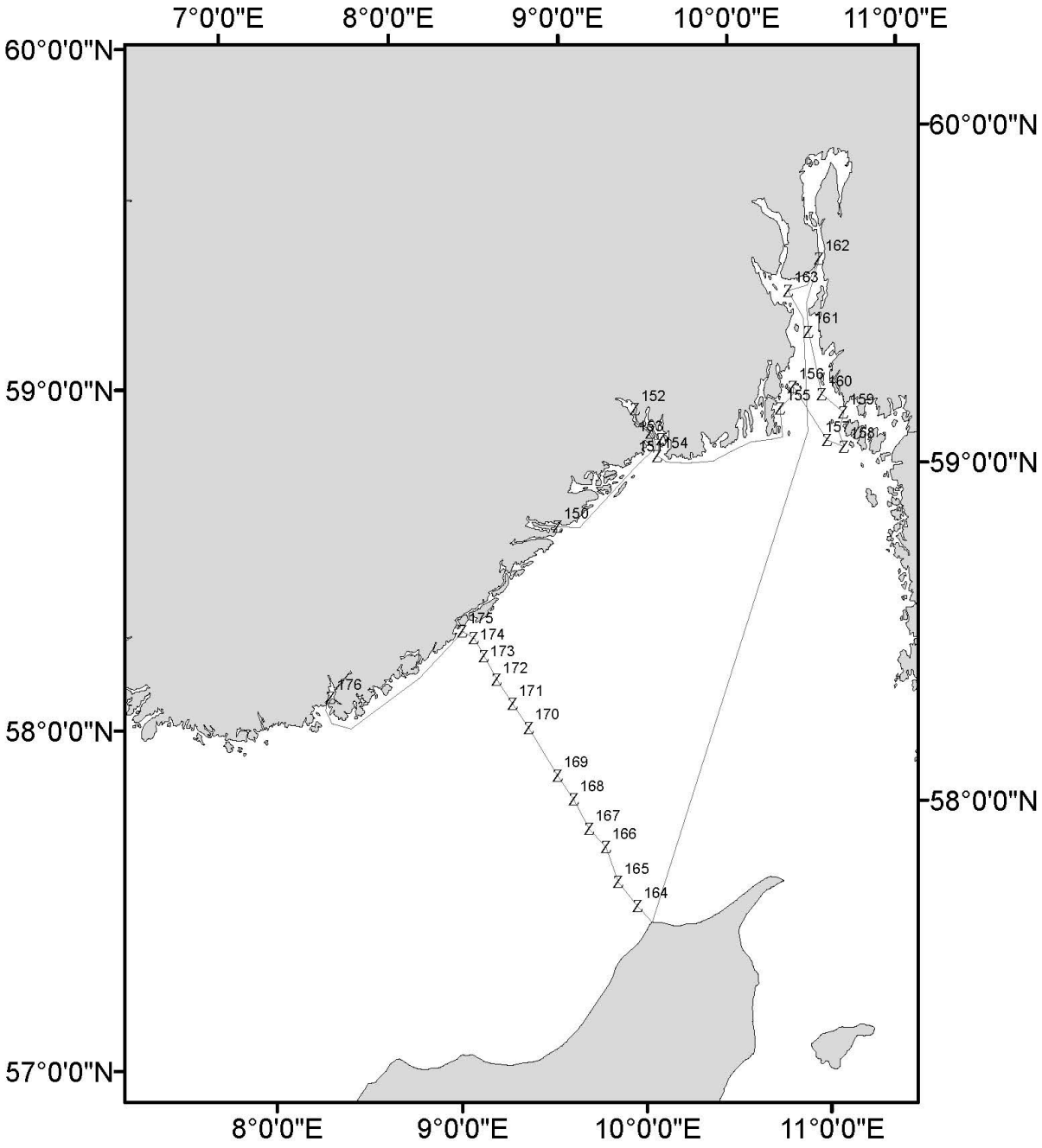
Cruise no 2019308
"G. M. Dannevig"
31.05 - 08.06 2019
Z CTD st. no. 122 - 149

Fig.113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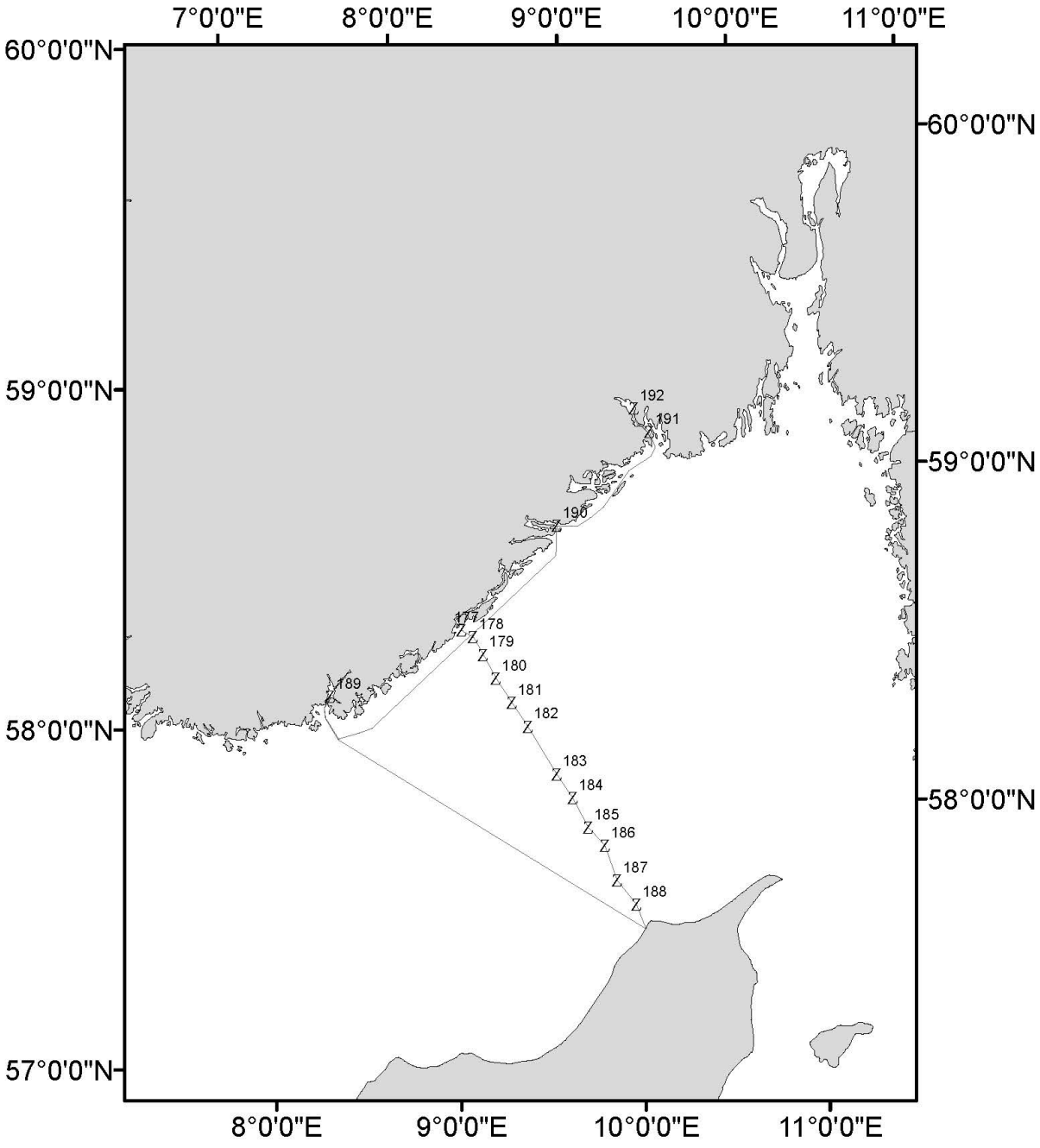
Cruise no 2019309
"G. M. Dannevig"
02.07 - 08.07 2019
Z CTD st. no. 150 - 176

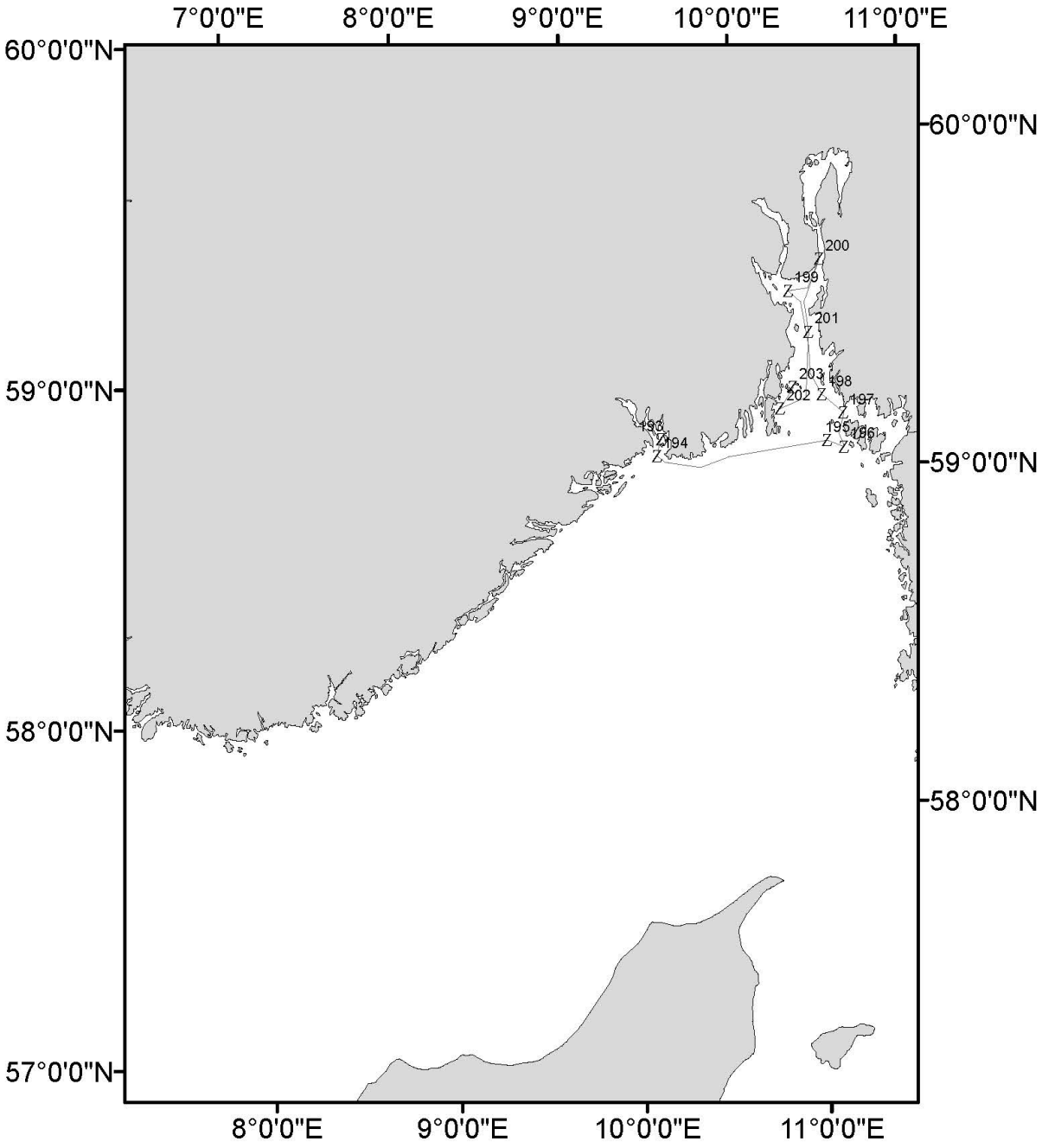
Fig.114



Cruise no 2019310
"G. M. Dannevig"
02.08 - 04.08 2019

Z CTD st. no. 177 - 192

Fig.115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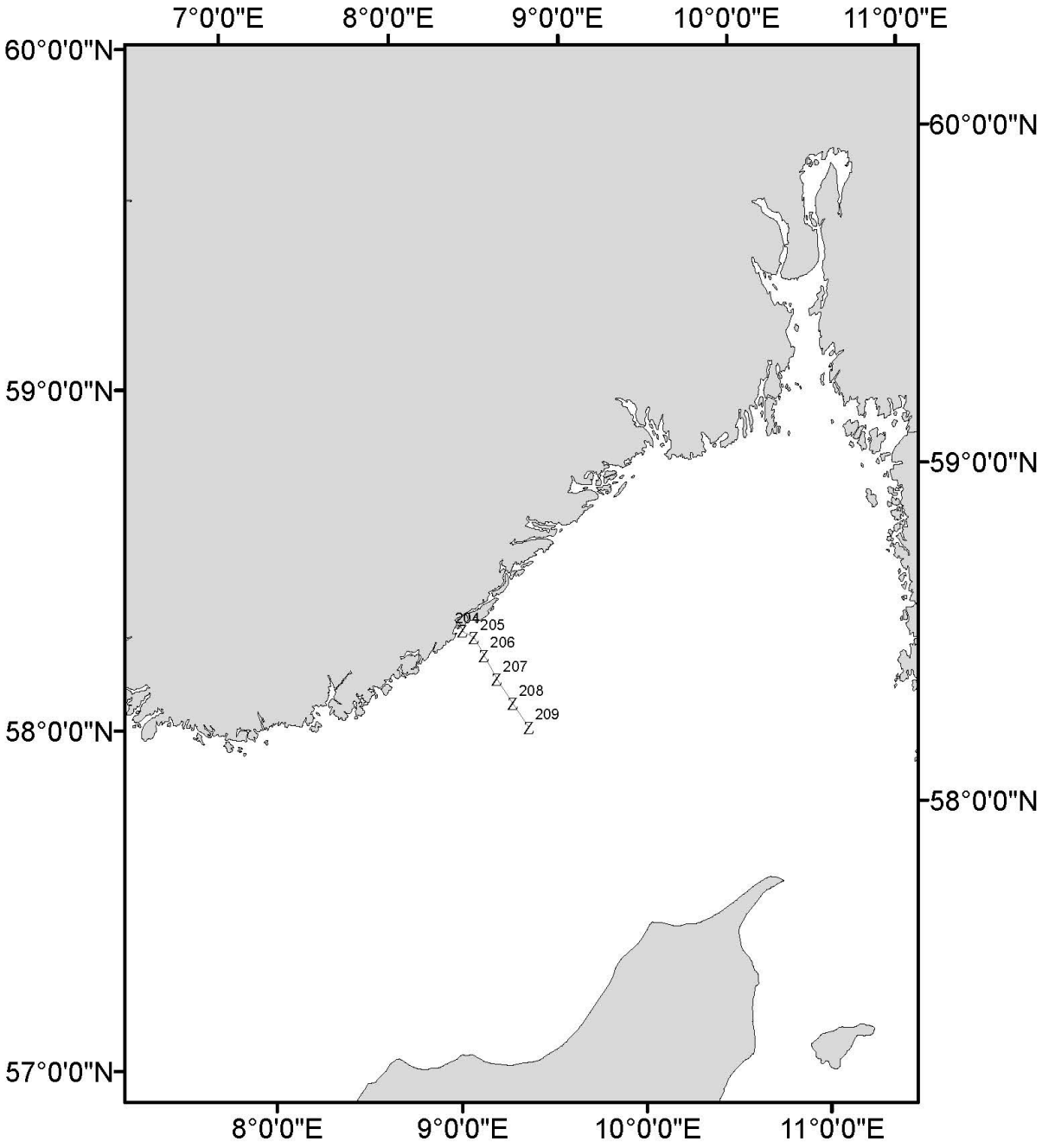
Cruise no 2019311
"G. M. Dannevig"
05.08 - 18.08 2019
Z CTD st. no. 193 - 203

Fig.116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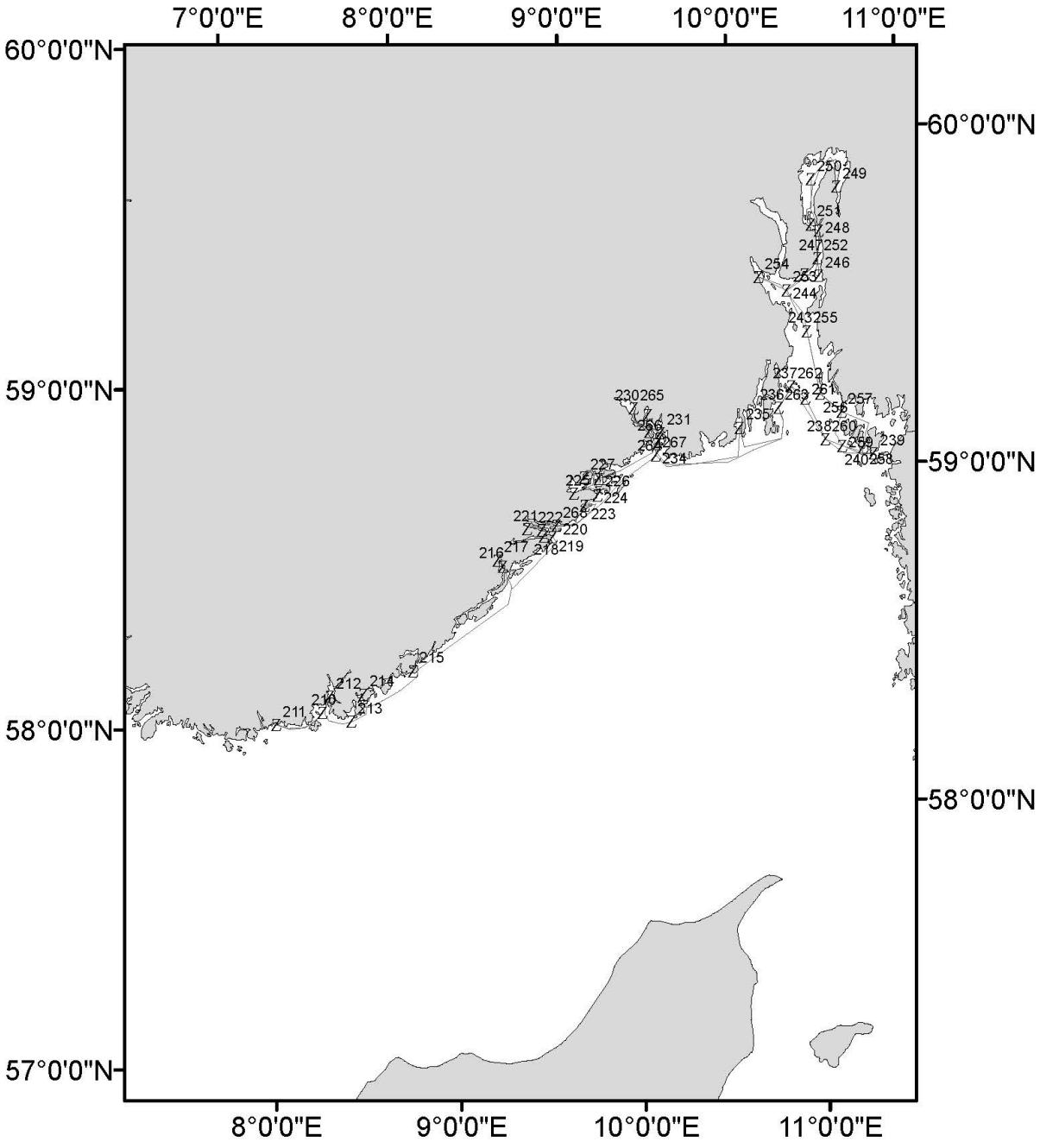
Cruise no 2019313
"G. M. Dannevig"
13.09 - 14.09 2019
Z CTD st. no. 204 - 209

Fig.117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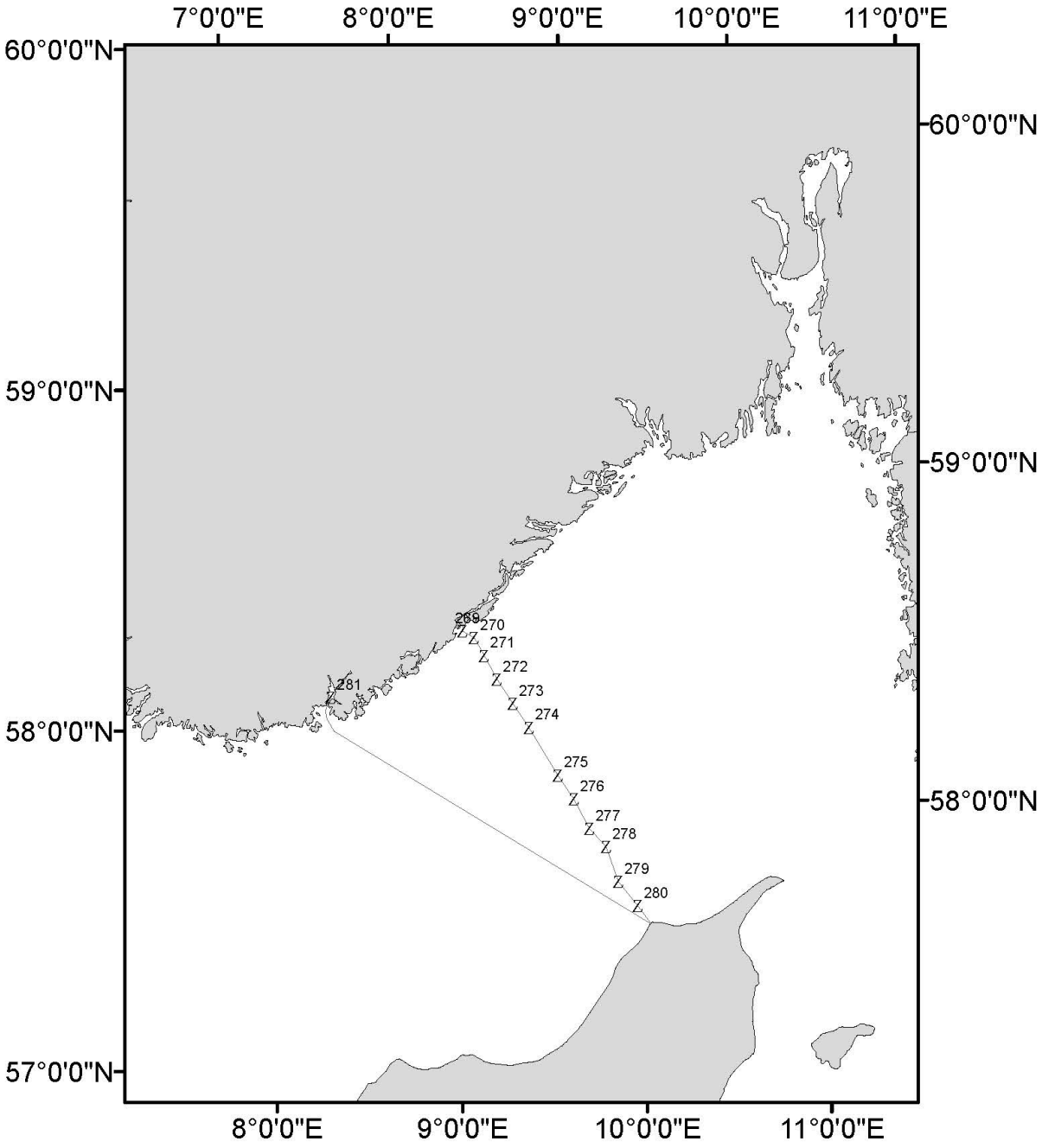
"G. M. Dannevig"
15.09 - 05.10 2019
Z CTD st. no. 210 - 268

Fig.118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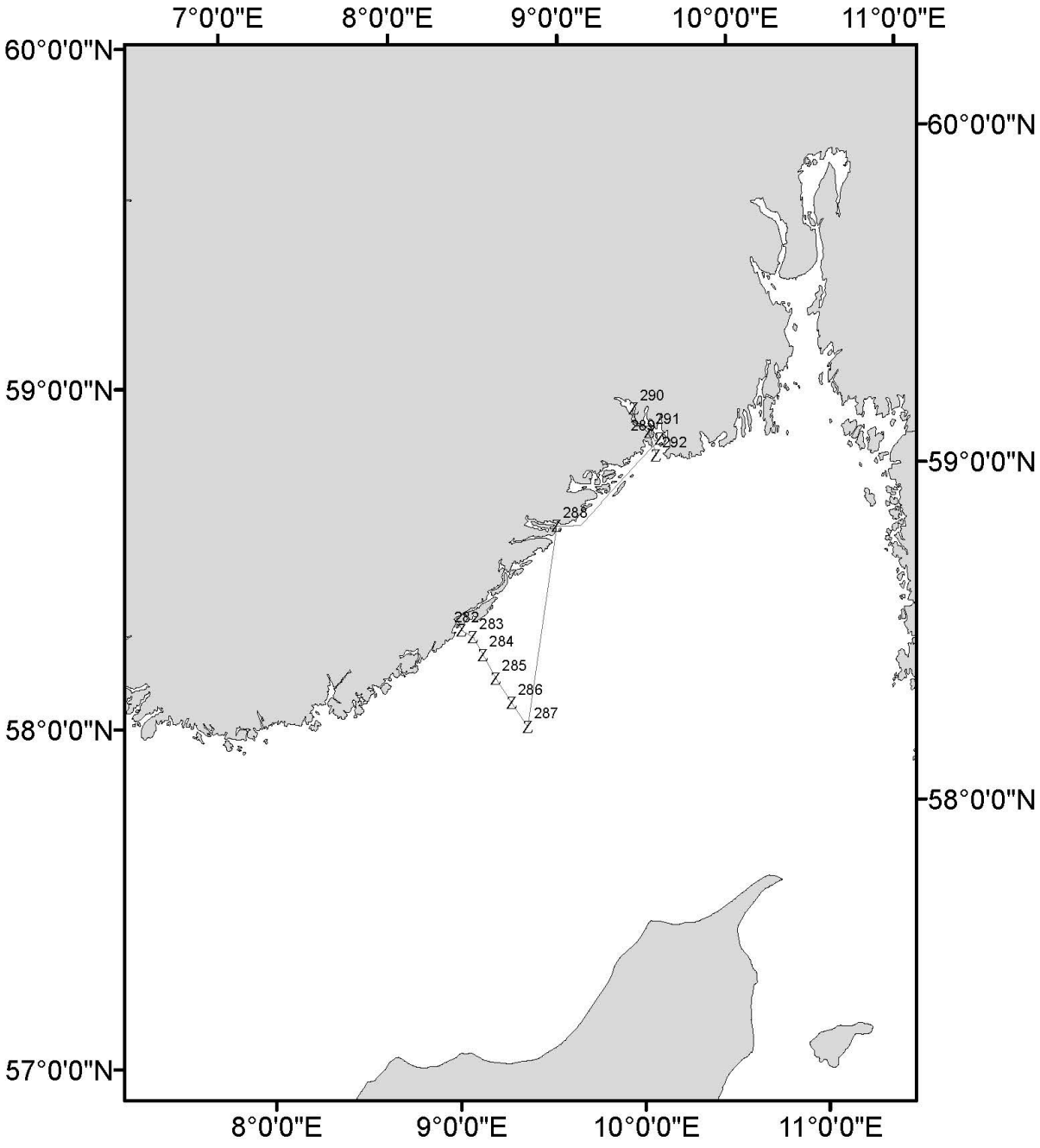
Cruise no 2019315
"G. M. Dannevig"
06.10 - 08.10 2019
Z CTD st. no. 269 - 281

Fig.119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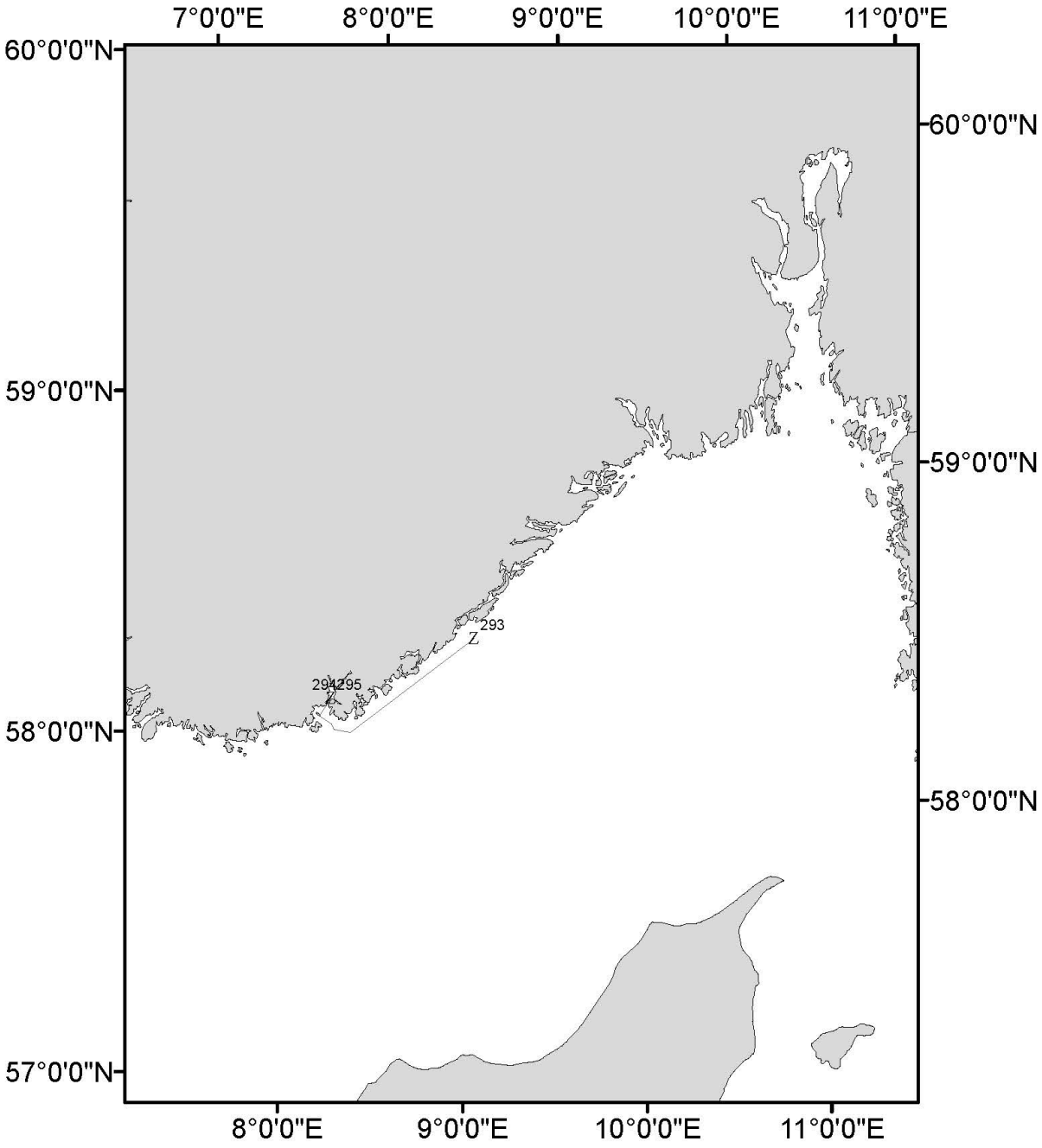
Cruise no 2019316
"G. M. Dannevig"
15.11 - 17.11 2019
Z CTD st. no. 282 - 292

Fig.120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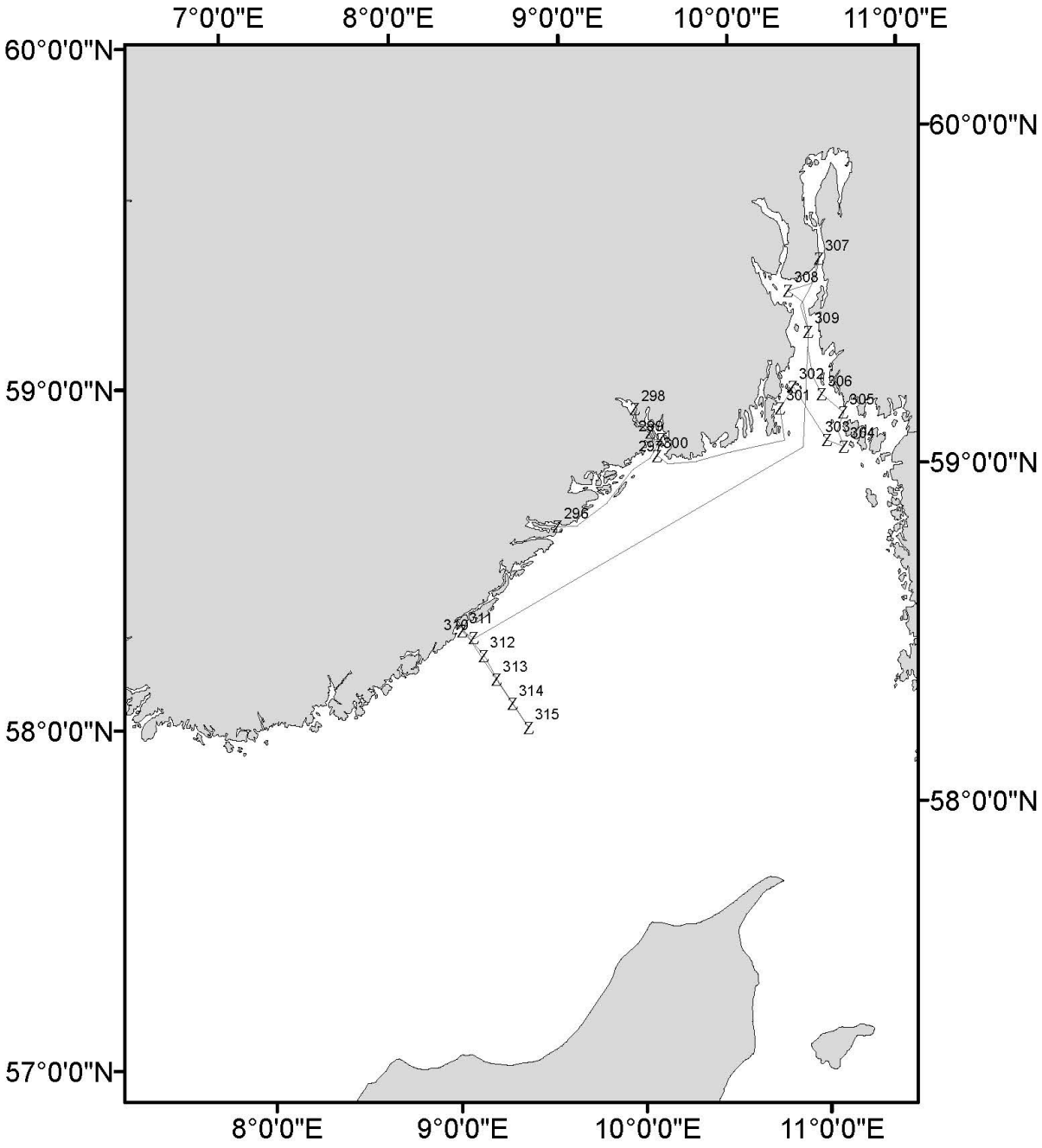
Cruise no 2019317
"G. M. Dannevig"
18.11 - 05.12 2019
Z CTD st. no. 293 - 295

Fig.121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Cruise no 2019318
"G. M. Dannevig"
06.12 - 12.12 2019
Z CTD st. no. 296 - 315

Fig. 122

12 - Hired vessels – 2019

Cruise no	Period	Vessel	Purpose	Area	CTD st.no	Trawl st.no	Fig. no
2019802	22.1.-26.2.	«Helmer Hanssen»	Abundance and distribution of cod and haddock.	Barents Sea,Greenland Sea.	1-62	1-189	123-124
2019804	11.2.-21.2.	«Asbjørn Selsbane»	A demersal seine was applied with pelagic trawl doors for live capture of cod. Catch limitation devices were tested and filmed with underwater cameras. Fishing was conducted at various depths and fishing densities and viability of the fish evaluated.	Barents Sea.	-	1-18	125
2019806	20.6.-5.7.	“ Talbor”	The aim of the cruise was to study the spreading and collect densities data of the snow crab in the Svalbard Fishery Protection Zone by using a hired fishery vessel. Our main study area was in the area for commercial fishing.	Barents Sea	-	-	126
2019807	7.3.-2.4.	“ Trombas”	Investigate effects of artificial light and new pot designs in the Barents Sea snow crab.	Barents Sea	-	-	No Chart
2019809	4.3.-17.3.	“ Vendla”	Acoustic trawl survey on Capelin spawning stock. Methodological survey using a stratified survey design aiming to measure the abundance of Capelin during the spawning season.	Norwegian Sea	-	1-22	127
2019813	19.9.-4.10.	«Helmer Hanssen»	The survey is part of the Barents Sea Ecosystem survey. Main goal is monitoring of the ecosystem. Data that were collected included physical oceanography, plankton, fish, benthos and marine mammal registrations. Several special investigations were also conducted.	Barents Sea	63-96	190-260	128-129
2019815	10.6.-16.6.	«Johan Ruud»	Study the spreading area for red king crab in Vest Finnmark, Norway. This is the area for a free fishing for red king crab and the further spreading is monitored.	Barents Sea	-	-	130
2018818	12.8.-1.9.	«Arctic Aurora»	Estimate harbour seal abundance based on numbers hauled out during moult in the counties Trøndelag and Nordland.	Barents Sea	-	-	No chart
2019824	18.3.-10.4.	«Katla»	∀ Compare the unfished northern shrimp (Pandalus borealis) stocks in the two fjords Porsanger and Tana in North-Norway (closed for trawling since the beginning of the 1970s) with the shrimp stock in a commercially exploited reference fjord (Kvænangen) with regards to density, spatial distribution, size and stage distribution, as well as genetic stock composition. ∀ Collect data on all demersal fish stocks (density, spatial distribution, length, age, stomach content) in the Tana and Porsanger fjords as well as in the reference fjord, Kvænangen, for use in an ECOPATH model. ∀ Collect bottom temperature in all three fjords by means of temperature loggers on the trawl.	Norwegian Sea	-	1-82	131

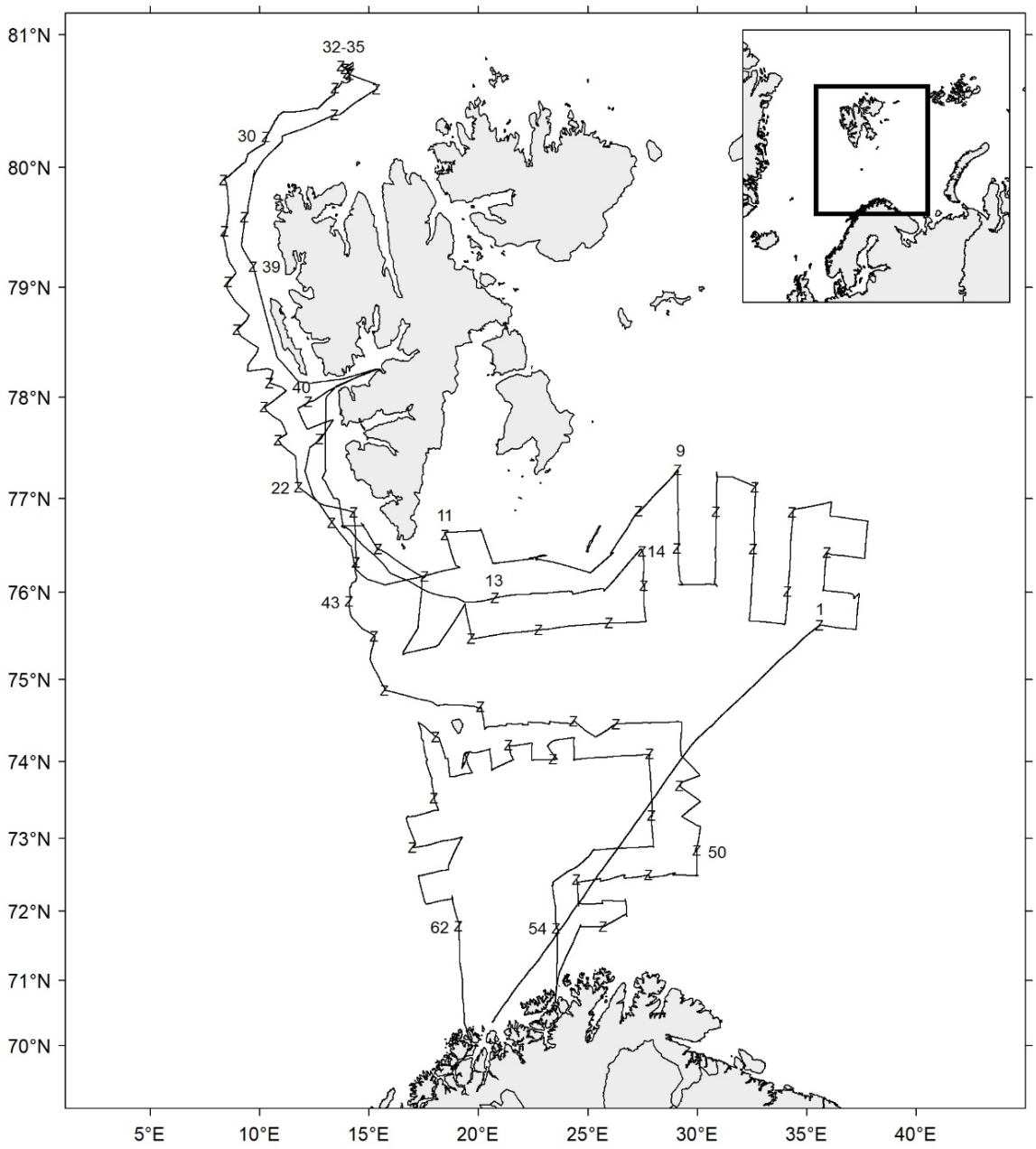
2019825	30.9.-23.10.	«Katla»	∀ Compare the unfished northern shrimp (Pandalus borealis) stocks in the two fjords Porsanger and Tana in North-Norway (closed for trawling since the beginning of the 1970s) with the shrimp stock in a commercially exploited reference fjord (Kvænangen) with regards to density, spatial distribution, size and stage distribution, as well as genetic stock composition. ∀ Collect data on all demersal fish stocks (density, spatial distribution, length, age, stomach content) in the Tana and Porsanger fjords as well as in the reference fjord, Kvænangen, for use in an ECOPATH model. ∀ Collect bottom temperature in all three fjords by means of temperature loggers on the trawl.	Barents Sea, Norwegian Sea			No chart
2019828	8.1.-12.3.	« Cabo de Hornos »	Large scale krill synoptic survey in Area 48 Antarctica - ARK vessel.	Scotia Sea	-	-	No chart
2019829	5.4.-14.5.	«Lance»	It is established a long-term data set of reproductive data for the Harp Seal population in the Greenlan Sea/West Ice. The main purpose of the cruise was to obtain data to continue this work and to collect samples to get updated data for the population’s condition.	Greenland Sea/West Ice	-	-	No chart
2019830	4.8.-27.8.	“ Kato”	The main purpose of the cruise was to obtain data for ecological monitoring of the minke whale stock.	Barents Sea	-	-	132
2019831	22.3.-8.4.	“ Kings Bay”	International blue whiting spawning stock survey. Acoustic survey to monitor the spawning stock of blue whiting on the spawning grounds west of the British Isles.	Northeast Atlantic Ocean	1-27	16-26	133
2019832	18.9.-1.10.	“ Fiskebas”	Test optical and acoustic instruments and methods for characterising the catch, with respect to species, biomass, individual size and welfare status. Observe fish behaviour and environmental conditions before and during catching, as well as the fish's vitality, during pumping and storage, as a basis for studying catch welfare.	Norwegian Sea North Sea	-	-	No chart
2019833	10.6.-24.6.	“ Vendla”	North Sea herring fishing grounds.	North Sea	-	-	No chart
2019836	9.6.-29.6.	«Brennholm»	ICES Triennial egg survey for assessment of spawning stock biomass of North East Atlantic Mackerel .	North Sea, Norwegian Sea	-	-	134
2019837	3.7.-6.8.	«Kings Bay»	Part of the International Ecosystem Summer Survey of the Nordic Seas (IESSNS) where the objectives are (1) to measure the abundance of Northeast Atlantic mackerel using swept-area method (2) measure the abundance of Norwegian spring-spawing herring and blue whiting using acoustics, (2) collect data on zooplankton, (3) measure the hydrographical conditions.	Norwegian Sea	28-103	27-115	135-136
2019838	4.7.-6.8.	«Vendla»	Pimary objective: Large-scale mapping and abundance estimation of Northeast Atlantic (NEA) mackerel, Norwegian Spring-Spawning (NSS) herring and blue whiting. Swept area trawling for mackerel and acoustic recordings and trawling on registrations for NSS herring and blue whiting.Secondary objectives: Sampling of zooplankton (0-200 m depth) and water temperature/salinity profiles (0-500 m depth). Opportunistic marine mammal observations along the covered transects.Mapping of Atlantic salmon, lumpfish and other pelagic fish species.	Atlantic Ocean, Norwegian Sea	12-82	36-126	137-138
2019839	2.5.-3.6.	«Fiskebas»	Tagging with RFID technology and biological sampling of mackerel in the spawning areas west of Ireland and Scotland.	Northeast Atlantic Ocean	-	-	139

2019840	13.2.-25.2.	«Kings Bay»	Provide acoustic estimates of abundance and distribution of Norwegian spring spawning herring during the spawning migration along the Norwegian coast.	Norwegian Sea	-	1-15	140
2019841	13.2.-25.2.	«Eros»	Abundance estimation of Norwegian Spring spawing herring during the spawning season.	Norwegian Sea	83-92	1-14	141
2019842	13.2.-25.2.	«Vendla»	Collection of acoustic data from fisheries sonar for study of herring schools. Collection of acoustic data from echo sounder for biomass estimation of herring. Collection of biological samples for estimation of species and size composition in the acoustic observations. Collection of hydrographic data (CTD).	Norwegian Sea	1-11	1-13	142-143
2019843	19.11.-10.12.	“ Nystrøm”	Tagging and release of NSS herring with RFID technology and biological sampling of herring in the wintering areas in Troms, Northern Norway.	Northeast Atlantic Ocean	-	-	No Chart
2019844	18.6.-12.8.	“ ACC Mosby”	Minke whale sighting survey program. Over the period 2014-2019 the Northeast Atlantic is covered by a mosaic survey to estimate the abundance of minke whales and other cetaceans. The methodology which involves tracking procedures for minke whales is especially developed for minke whales.	Barents Sea, Greenland Sea, Norwegian Sea	-	-	No Chart
2019847	23.4.-13.5.	“ Eros”	Measuring the abundance, distribution and age composition of lesser sandeel ∀ Dredge sampling for burrowed sandeels ∀ Bottom trawls ∀ Pelagic trawls ∀ Echo sounder sampling ∀ Zooplankton sampling ∀ Mapping of hydrographical conditions	North Sea	11-35	15-48	144-145
2019849	28.4.-10.5.	“ Tangen”	Estimate the effect of codend circumference for the size selection of northern shrimp. Quantify the importance of selection near or at the surfce during haulback.	North Sea	-	1-17	146
2019850	11.8.-28.8.	« Arni Fridriksson»	The survey is part of the international deep pelagic ecosystem surveys (ICES-WGIDEEPS). Main objective: Survey of Sebastes mentella in the open Norwegian Sea, the calculated survey index will be used as input in the assessment of the stock. Secondary objective: Collect data in support to integrated ecosystem management in the open Norwegian Sea.	Norwegian Sea	-	1-28	147
2019851	6.2.-12.2.	«Grotle»	Comparative fishing trials of artificial bait in longline fisheries for cod, ling and tusk. Trials part of a project aiming at finding alternative baits to expensive natural baits. The cruise tested at total of 10 different baits from two manufactures.	Norwegian Sea	-	-	No chart
2019853	1.10.-5.10.	«Kings Bay»	Survey of potentially human pathogenic and quality reducing parasites and microbiota in Atlantic mackerel intended for human consumption. The main parasite target species are anisakid nematodes incl. Anisakis spp., the soft flesh-inducing myxosporean parasite Kudoa thyrsites, and the fungus-like parasite Ichthyophonus sp. Additionally, the above mentioned parasite species, especially Anisakis spp., may serve as biological tag to track the actual mackerels‘ migration route.	North Sea, Norwegian Sea	-	-	No chart
2019854	10.10.-14.10.	«Kings Bay»	Survey of quality reducing parasites in Atlantic mackerel intended for human consumption. The parasite target species were the soft flesh-inducing myxosporean parasite Kudoa thyrsites, and the fungus-like parasite Ichthyophonus sp.	North Sea	-	-	No chart
2019855	8.4.-15.4.	«Kings Bay»	Survey of potentially human pathogenic and/or quality reducing parasites and microbiota in blue whiting intended for human consumption.	Northeast Atlantic Ocean	-	-	No chart

2019856	6.6.-10.6.	«Kings Bay»	Survey of potentially human pathogenic or quality reducing parasites and microbes in North Sea herring (Clupea harengus).	North Sea	-	-	No chart
2019857	30.10.-4.11.	«Kings Bay»	Survey of potentially health hazardous and/or quality reducing parasites in Norwegian spring spawning herring (Clupea harengus) intended for human consumption. The main parasite target species were the zoonotic nematode Anisakis simplex and the fungus-like parasite Ichthyophonus sp.	Norwegian Sea	-	-	No chart
2019858	7.1.-28.1.	“ Nystrøm”	Tagging and release of NSS herring with RFID technology and biological sampling of herring in the wintering areas in Troms, Northern Norway.	Norwegian fjord	-	-	148
2019860	30.8.-19.9.	“ Arni Fridriksson”	Deep-sea fish species: Monitoring of Greenland halibut, redfish and other deep-sea fish species, and elasmobranches. Biological sampling and data collection for assessment.	Barents Sea Norwegian Sea	-	-	149
2019861	17.3.-10.4.	“ Henriette”	Investigate distribution of northern shrimp (Pandalus borealis) on different types of benthic habitat using shrimp pots in the two fjords Porsanger and Tana in North-Norway (closed for trawling since the 1970’s) and in a trawled reference fjord (Kvænangen). ∀ Compare catch efficiency between a commercial shrimp trawl and shrimp pots. ∀ Collect bottom temperature in all three fjords by means of temperature loggers on shrimp pots.	Barents Sea Norwegian Sea	-	-	150
2019862	10.3.-19.3.	“ Vikingbank”	A blue whiting trawl was equipped with depth sensors, catch limitation system and a cod-end release device. The catch limitation system and cod-end release device were tested and filmed with underwater cameras, and observations of the trawls geometry was carried out.	North Atlantic Ocean	-	1-4	151
2019863	18.3.-29.3.	“ Eli R”	A sorting grid for excluding large fish is mandatory in the Norwegian shrimp fisheries. The use of the grid also causes loss of valuable Nephrop catches. To avoid losing Nephrops, an opening at the bottom of the grid has been suggested as a solution. In this study, a standard grid was therefore compared to a grid with 15 cm opening at the bottom to investigate if the grid modification results in increased catches of Nephrops and fish. Two identical trawls were towed simultaneously in commercial fishing areas and all species measured and quantified.	Skagerrak	-	-	152
2019865	2.4.-14.4.	“ Marie Emilie”	A sorting grid for excluding large fish is mandatory in the Norwegian shrimp fisheries. The use of the grid also causes loss of valuable Nephrop catches. To avoid losing Nephrops, an opening at the bottom of the grid has been suggested as a solution. In this study, a standard grid was therefore compared to a grid with 15 cm opening at the bottom to investigate if the grid modification results in increased catches of Nephrops and fish. Two identical trawls were towed simultaneously in commercial fishing areas and all species measured and quantified.	North Sea	-	-	153
2019866	29.10.-8.11.	“ Marie Emilie”	A sorting grid for excluding large fish is mandatory in the Norwegian shrimp fisheries. The use of the grid also causes loss of valuable Nephrop catches. To avoid losing Nephrops, an opening at the bottom of the grid has been suggested as a solution. In this study, a standard grid was therefore compared to a grid with 15 cm opening at the bottom to investigate if the grid modification results in increased catches of Nephrops and fish. Two identical trawls were towed simultaneously in commercial fishing areas and all species measured and quantified.	North Sea	-	-	154

2019871	4.9.-10.9.	“ Ballstadoey”	Underwater observation of catch regulation device for demersal seines. Video recordings where obtained from catch regulation device square mesh codend and codend extension. The overall objective is to collect video and information in order to improve the accuracy of the catch regulation system and to produce teaching material, in addition a prototype of an automatic codend releaser was tested.	Barents Sea Coast of Finnmark	-	-	No chart
2019873	21.10.-1.11.	“ Eir”	Experimental fishery in shallow water, using trammel nets and fyke nets. Main objective is to add data to time-series with focus on coastal cod abundance.	North Sea Coastal areas	-	-	No chart

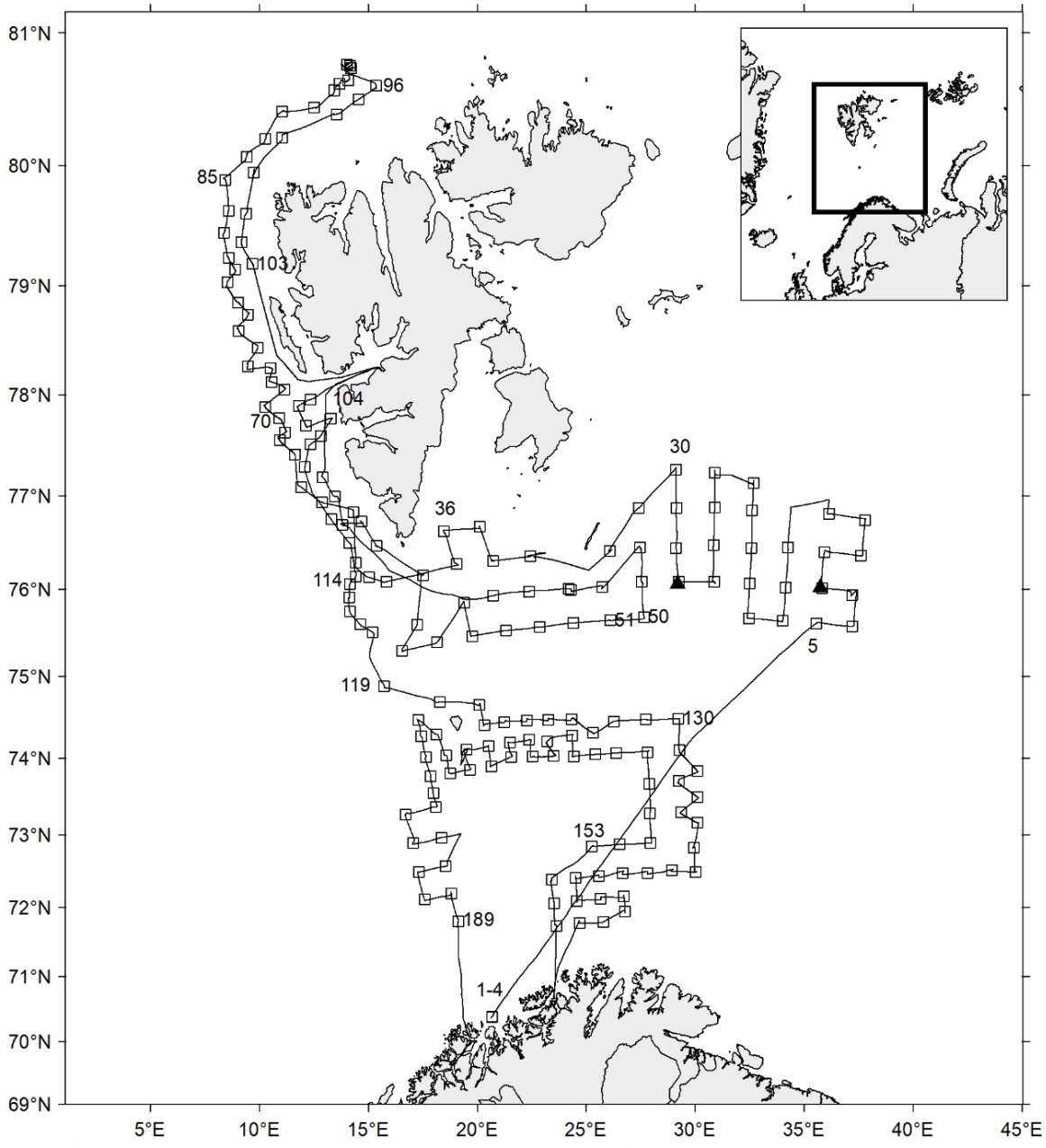
13 - Hired vessels – Charts for hired vessels 2019



Cruise no 2019802 "Helmer Hanssen" (Chart I)
22 January–26 February 2019

z CTD st.no 1–62

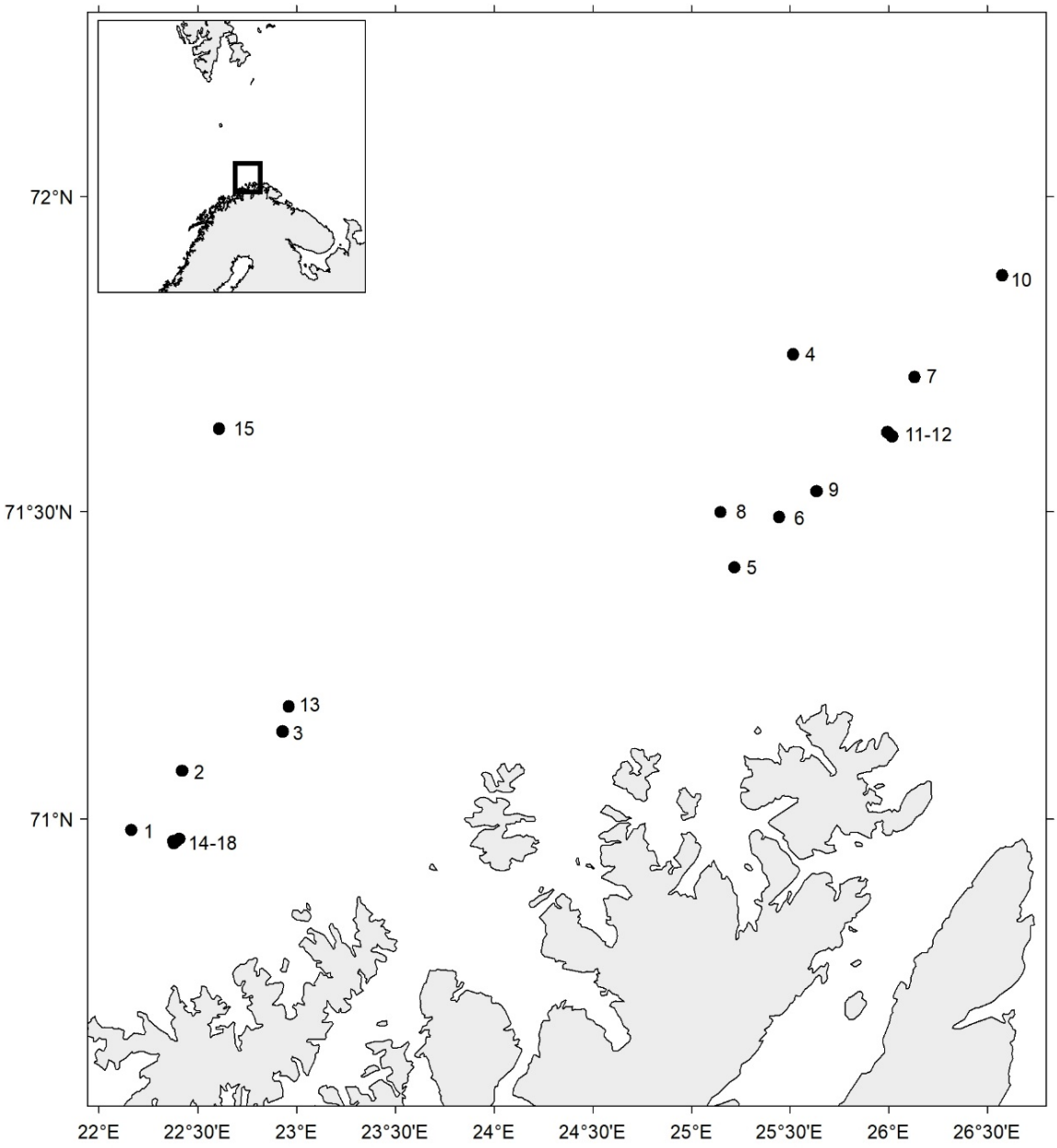
Fig. 123



Cruise no 2019802 "Helmer Hanssen" (Chart II)
22 January–26 February 2019

Trawl st. no 1–189
□ Bottom tr.
▲ Pelagic tr.

Fig. 124



Cruise no 2019804 "Asbjørn Selsbane"
11–21 February 2019

- Trawl stations 1-18

Fig.125

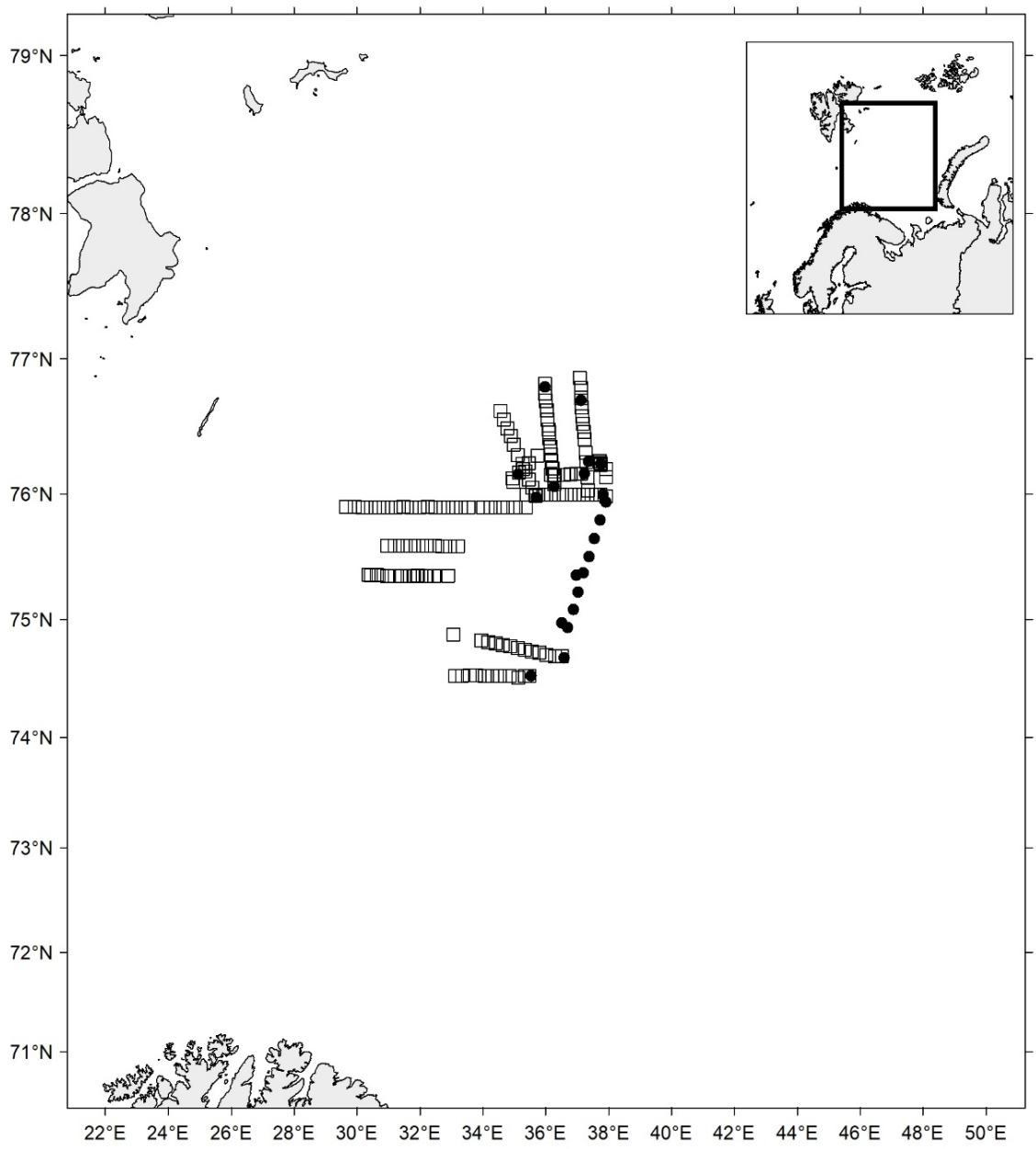
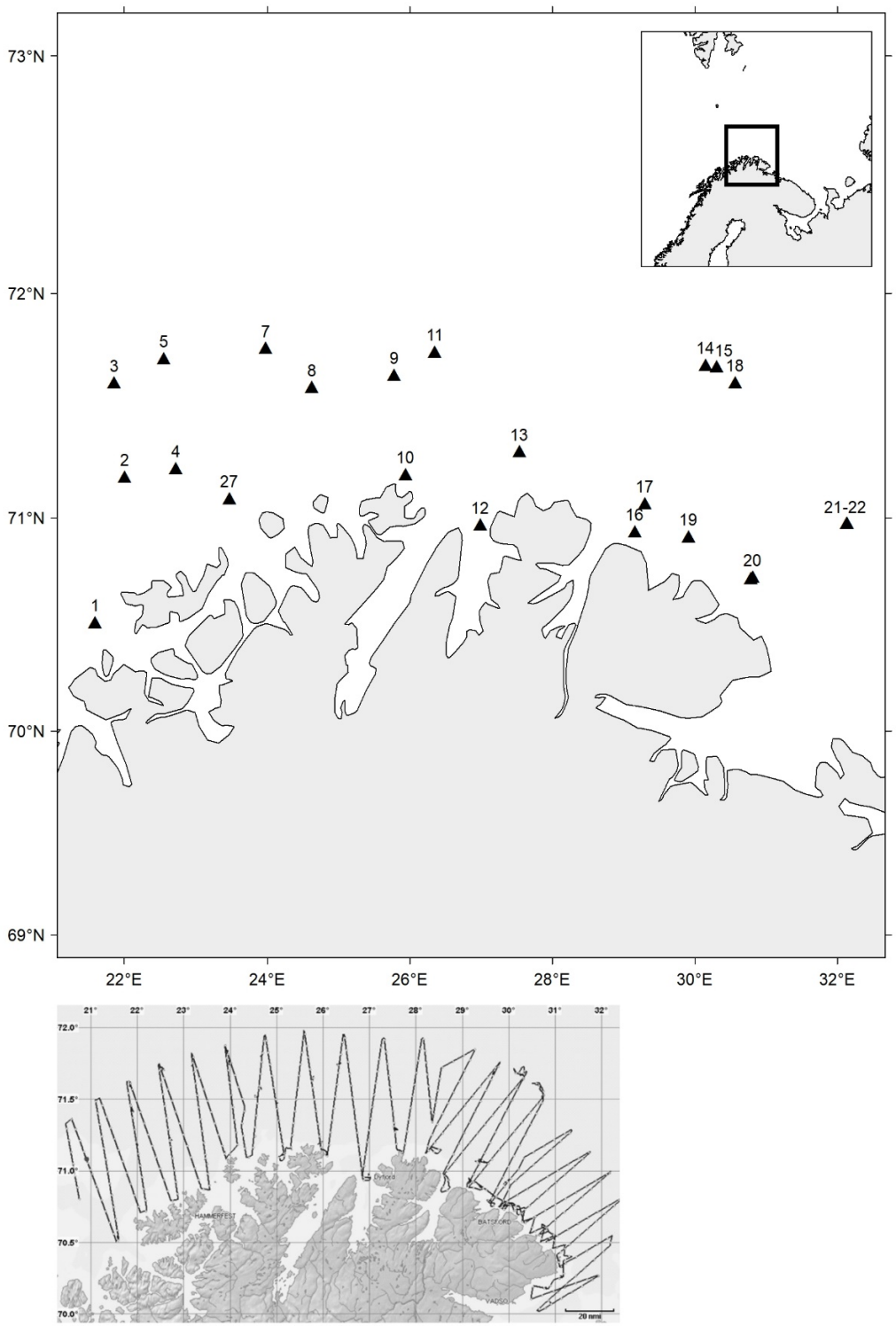

79°N
78°N
77°N
76°N
75°N
74°N
73°N
72°N
71°N
22°E
24°E
26°E
28°E
30°E
32°E
34°E
36°E
38°E
40°E
42°E
44°E
46°E
48°E
50°E
Cruise no 2019806 M/S Talbor
20 June–5 July 2019
● Agassiz trawl
○ Net

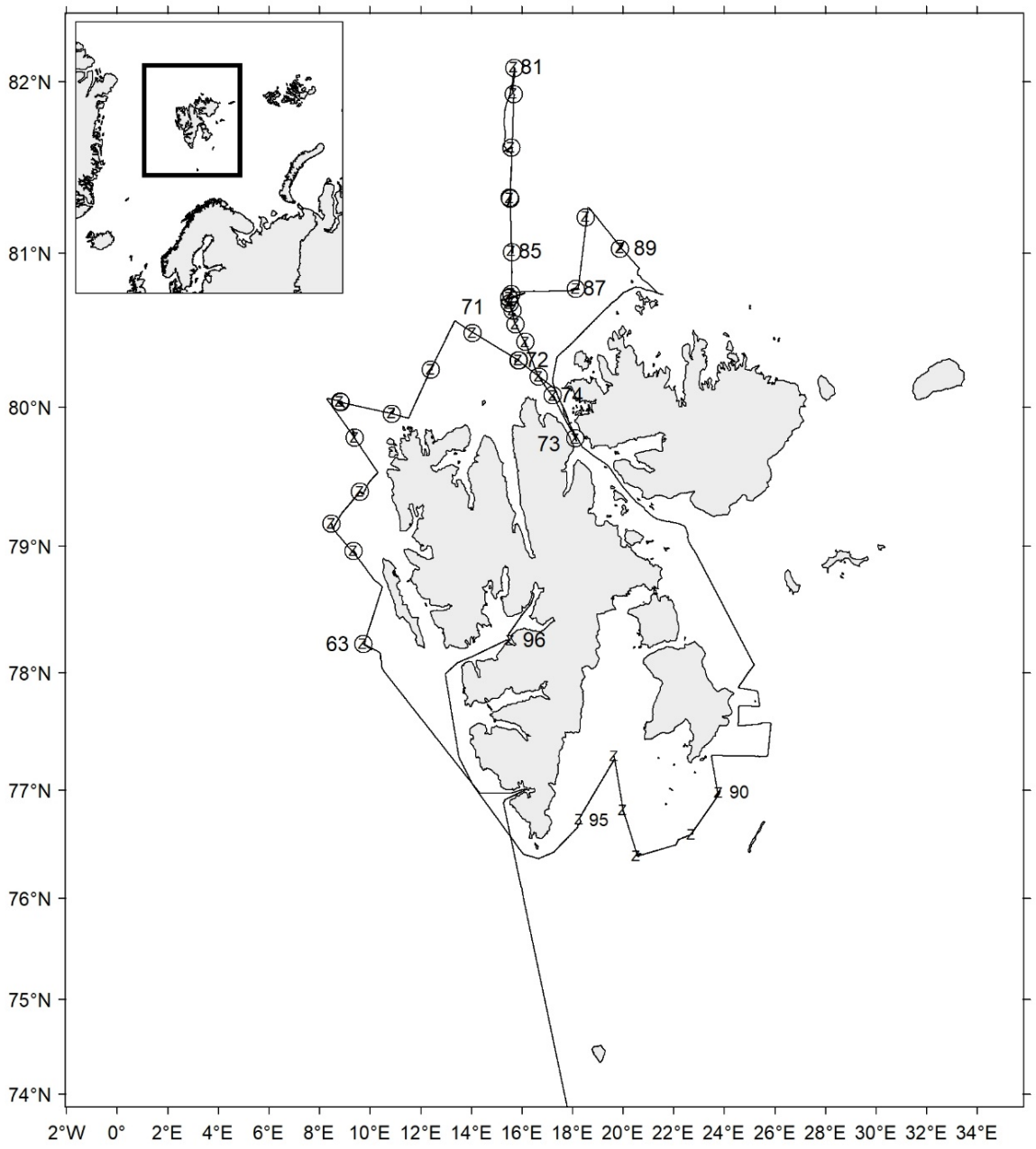
Fig. 126



Cruise no 2019809 "Vendla"
4–17 March 2019

▲ Pelagic trawl st.no 1-22
— Cruise track

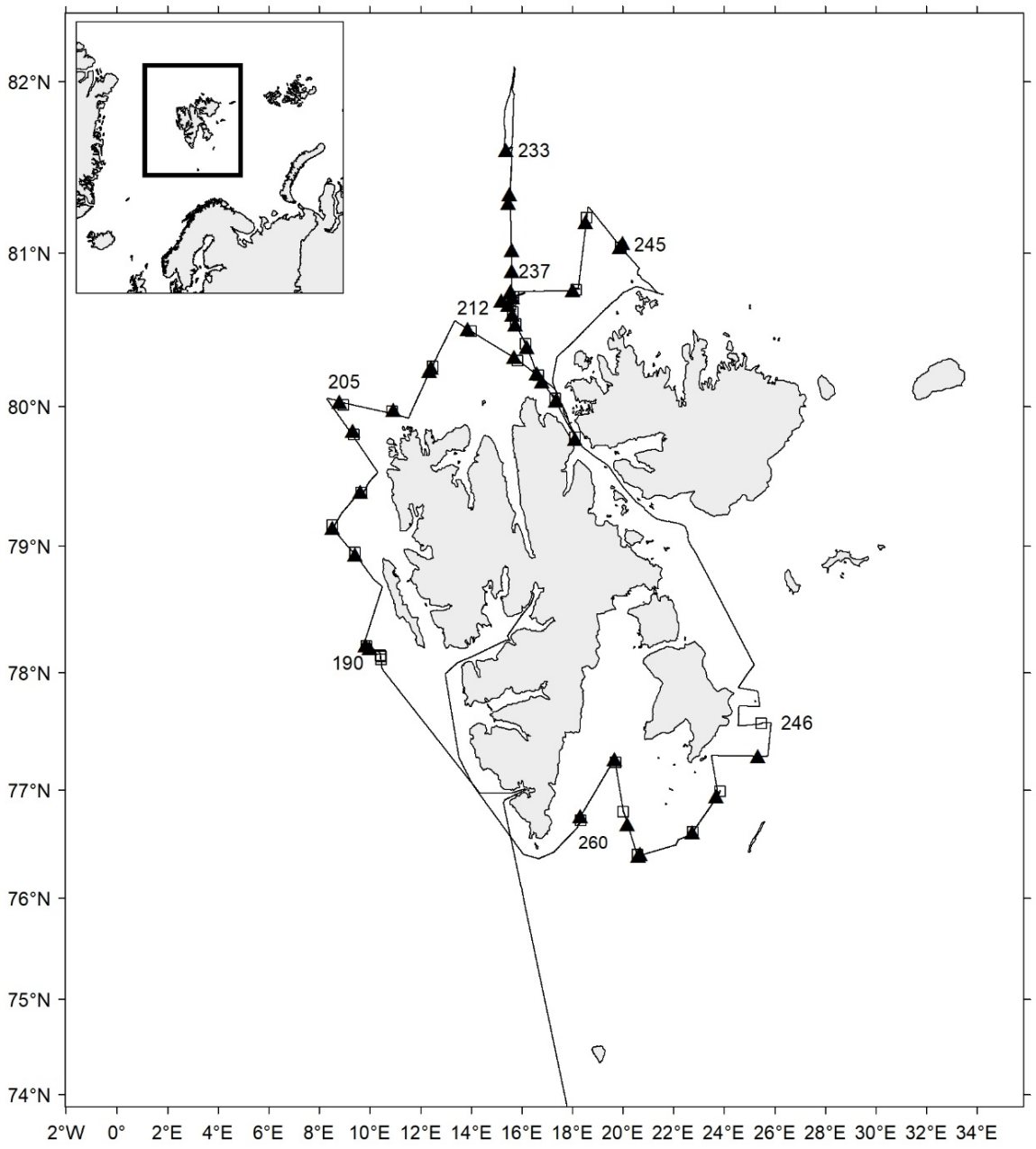
Fig.127



Cruise no 2019813 "Helmer Hanssen" (Chart I)
19 September–4 October 2019

z CTD st.no 63-96
○Plankton st. (WP-II-net)

Fig.128



Cruise no 2019813 "Helmer Hanssen" (Chart II)
19 September–4 October 2019

Trawl st.no 190-260
▲ Pelagic tr.
□ Bottom tr.

Fig.129

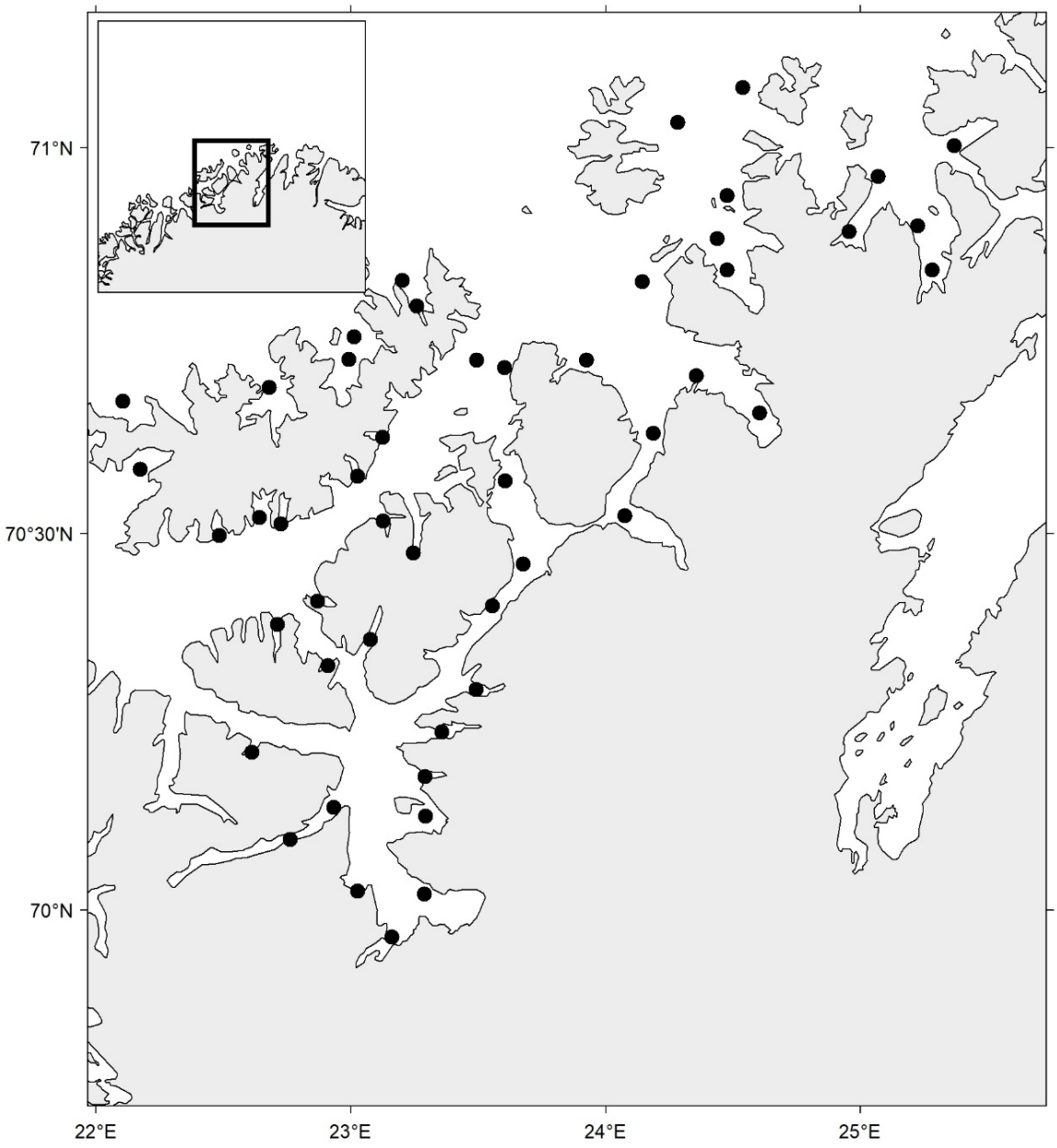

71°N
70°30'N
70°N
22°E
23°E
24°E
25°E
Cruise no 2019815 "Johan Ruud"
10-16 June 2019
●King crab traps st.no 265-313

Fig.130

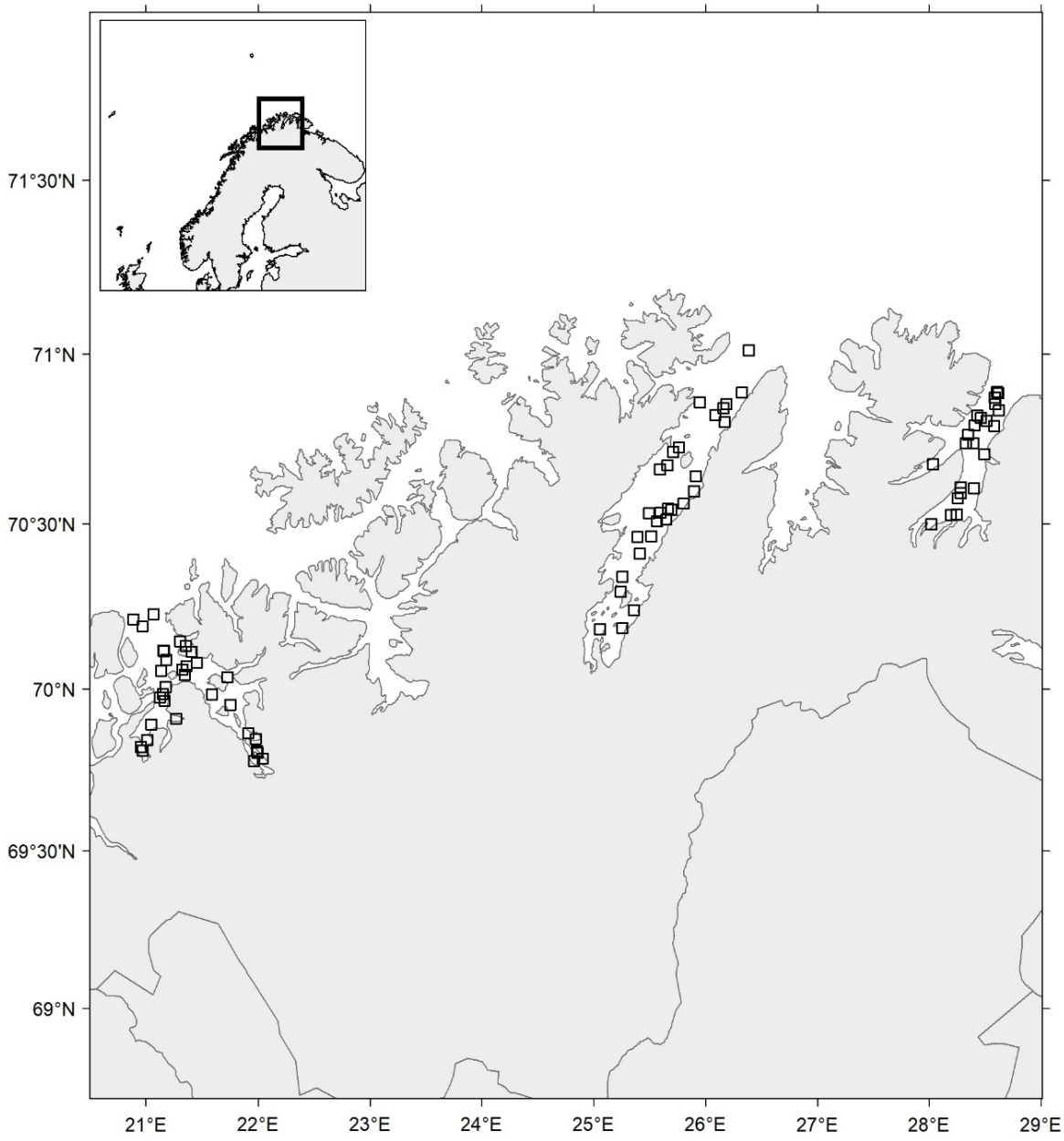
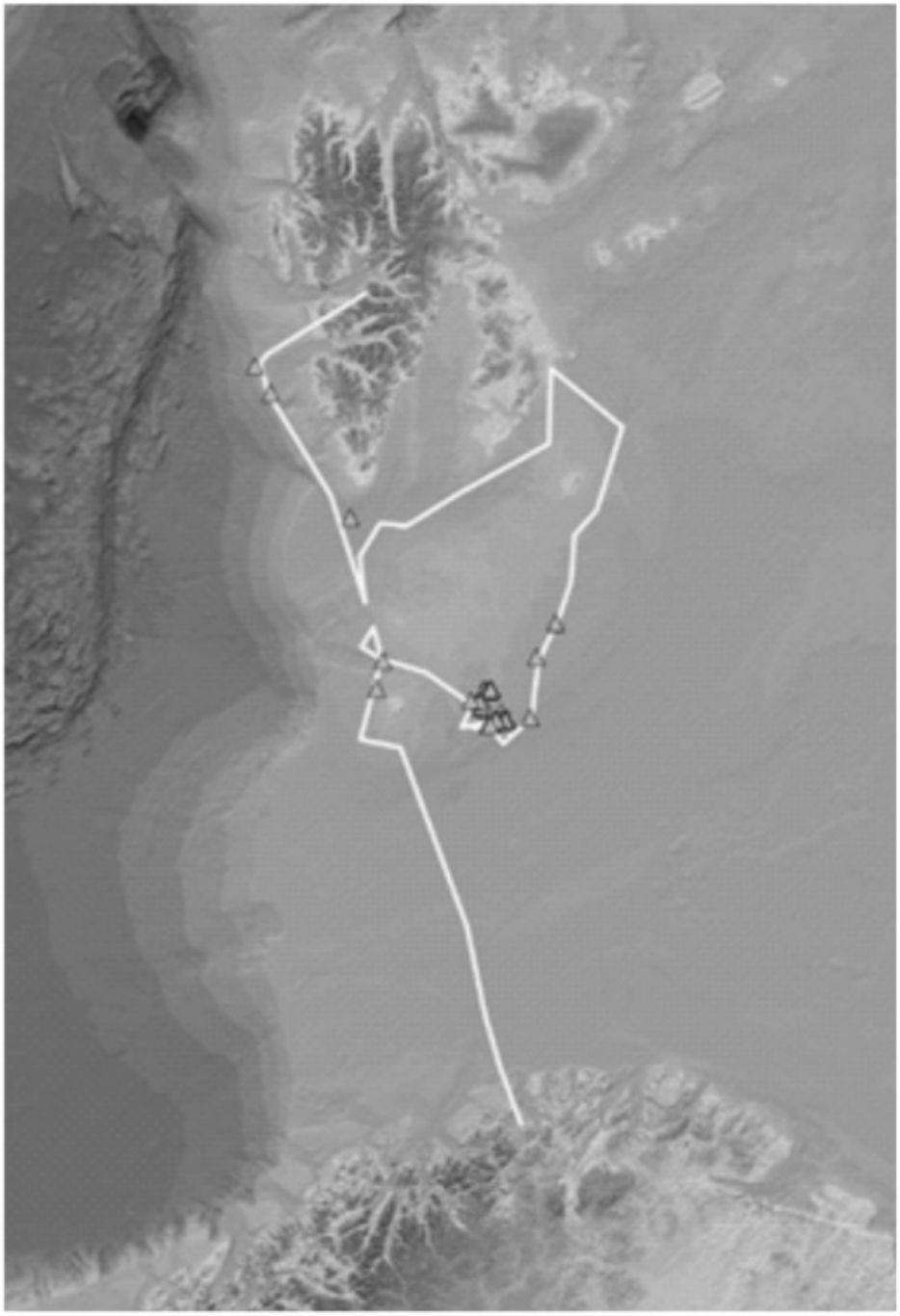
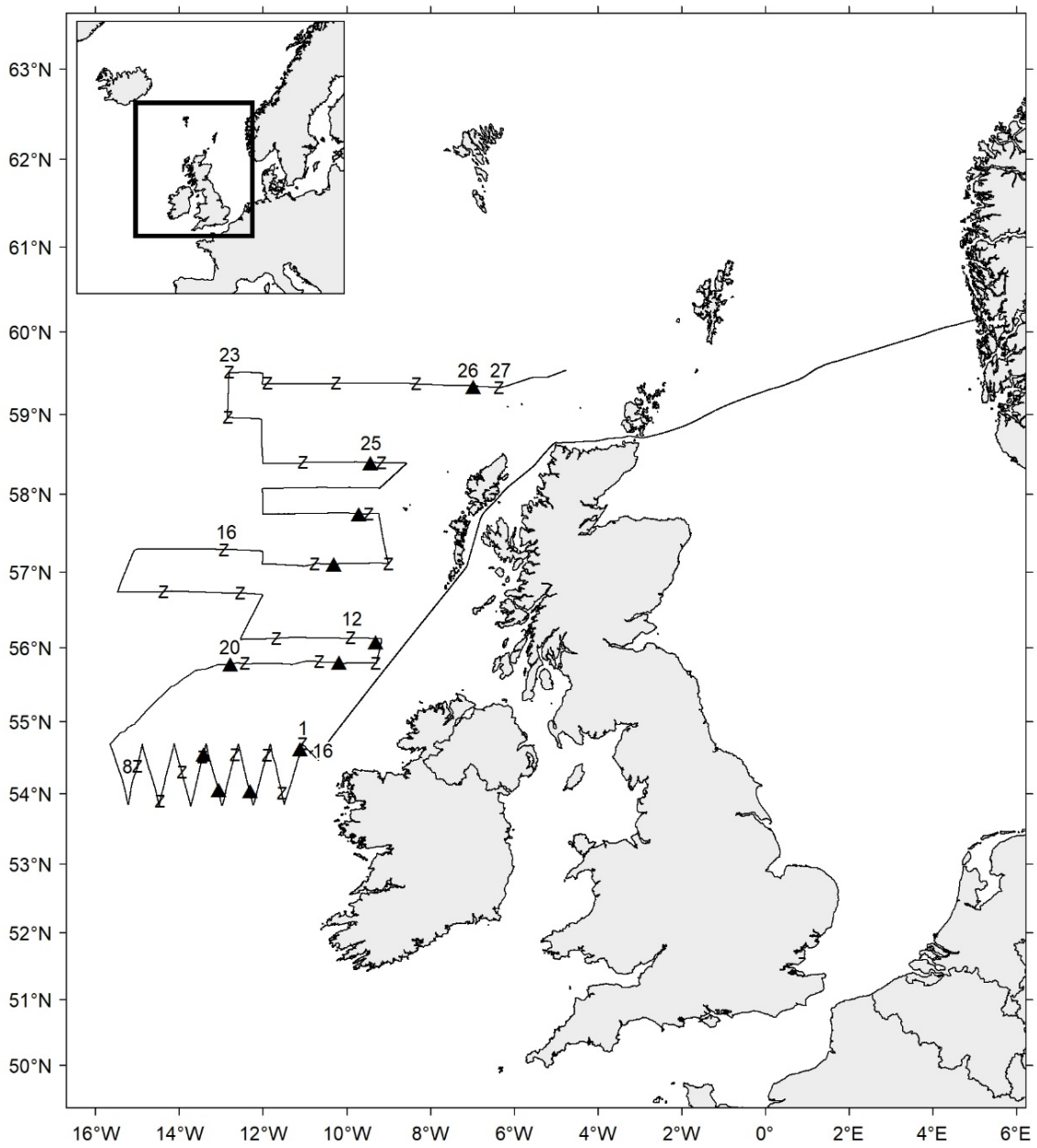

71°30'N
71°N
70°30'N
70°N
69°30'N
69°N
21°E
22°E
23°E
24°E
25°E
26°E
27°E
28°E
29°E
Cruise no 2019824 "Katla"
18 March–10 April 2019
Trawl st.no 1–82

Fig. 131



Cruise no 2019830 "Kato"
4–27 August 2019
Cruise track and triangles marks harvested whales.

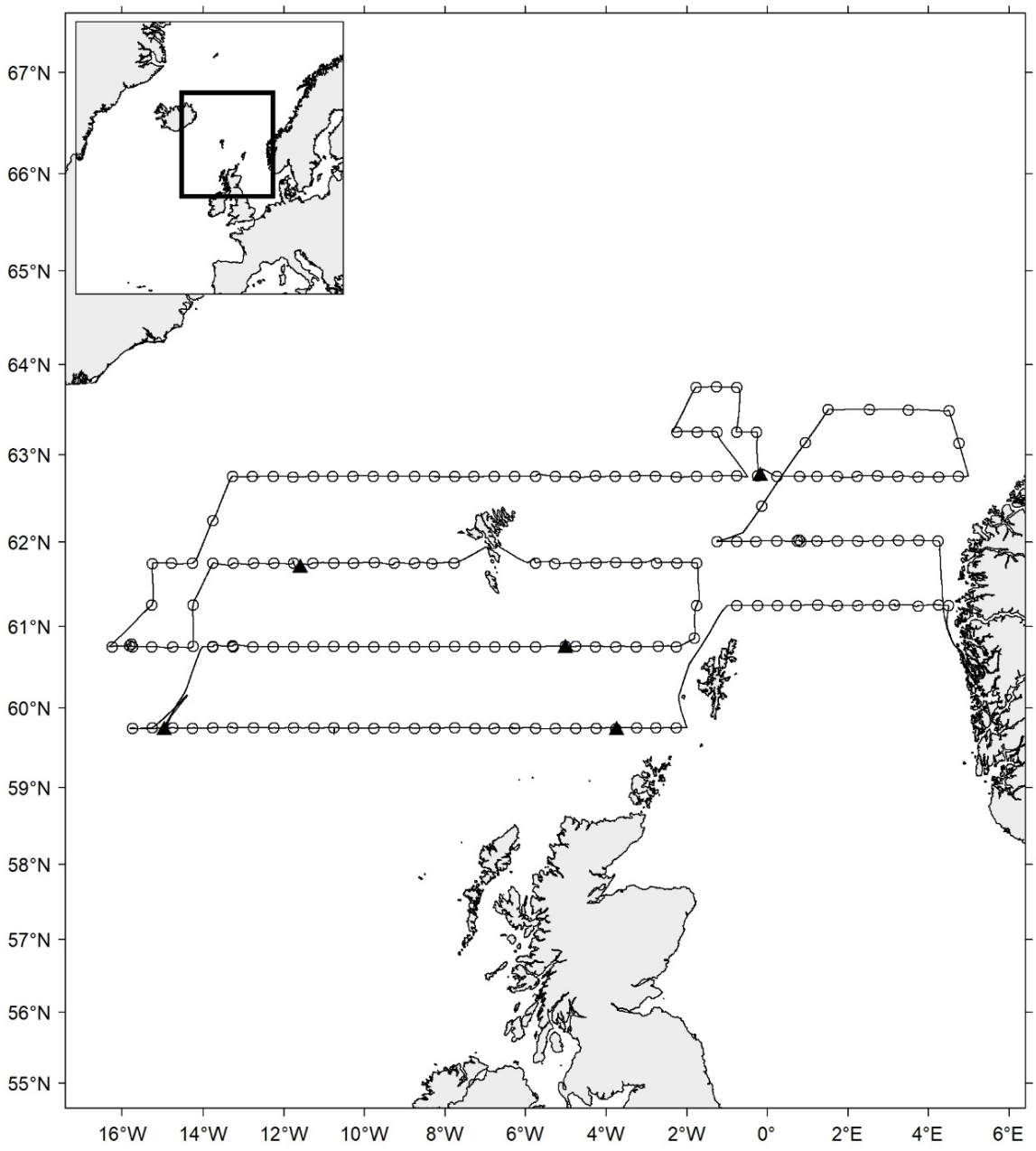
Fig. 132



Cruise no 2019831 "Kings Bay"
22 March–8 April 2019

z CTD st.no 1-27
▲ Pelagic trawl st.no 16-26

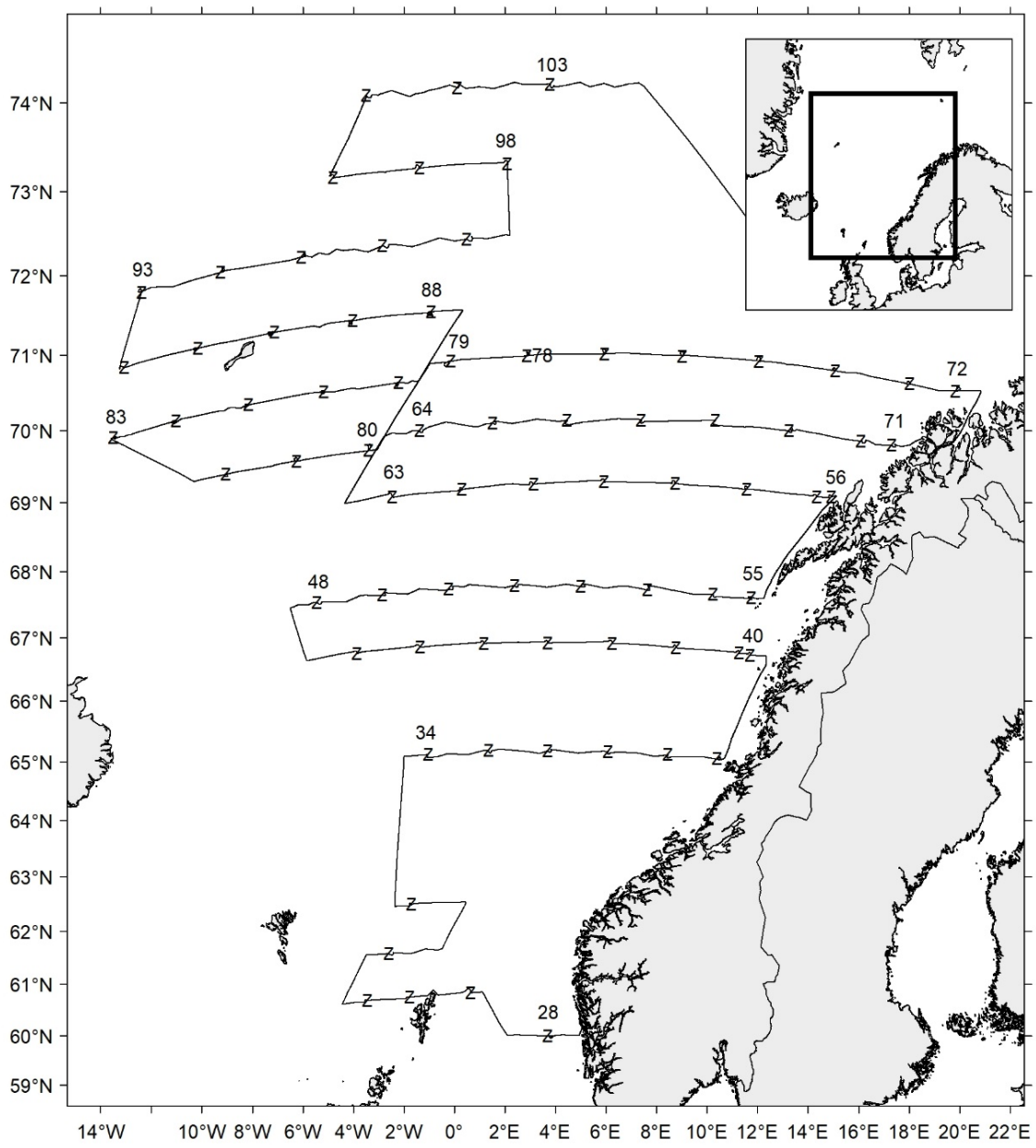
Fig.133



Cruise no 2019836 "Brennholm"
9–29 June 2019

○ Gulf VII. Fish egg, larvae and zooplankton samples.
▲ Pelagic trawl

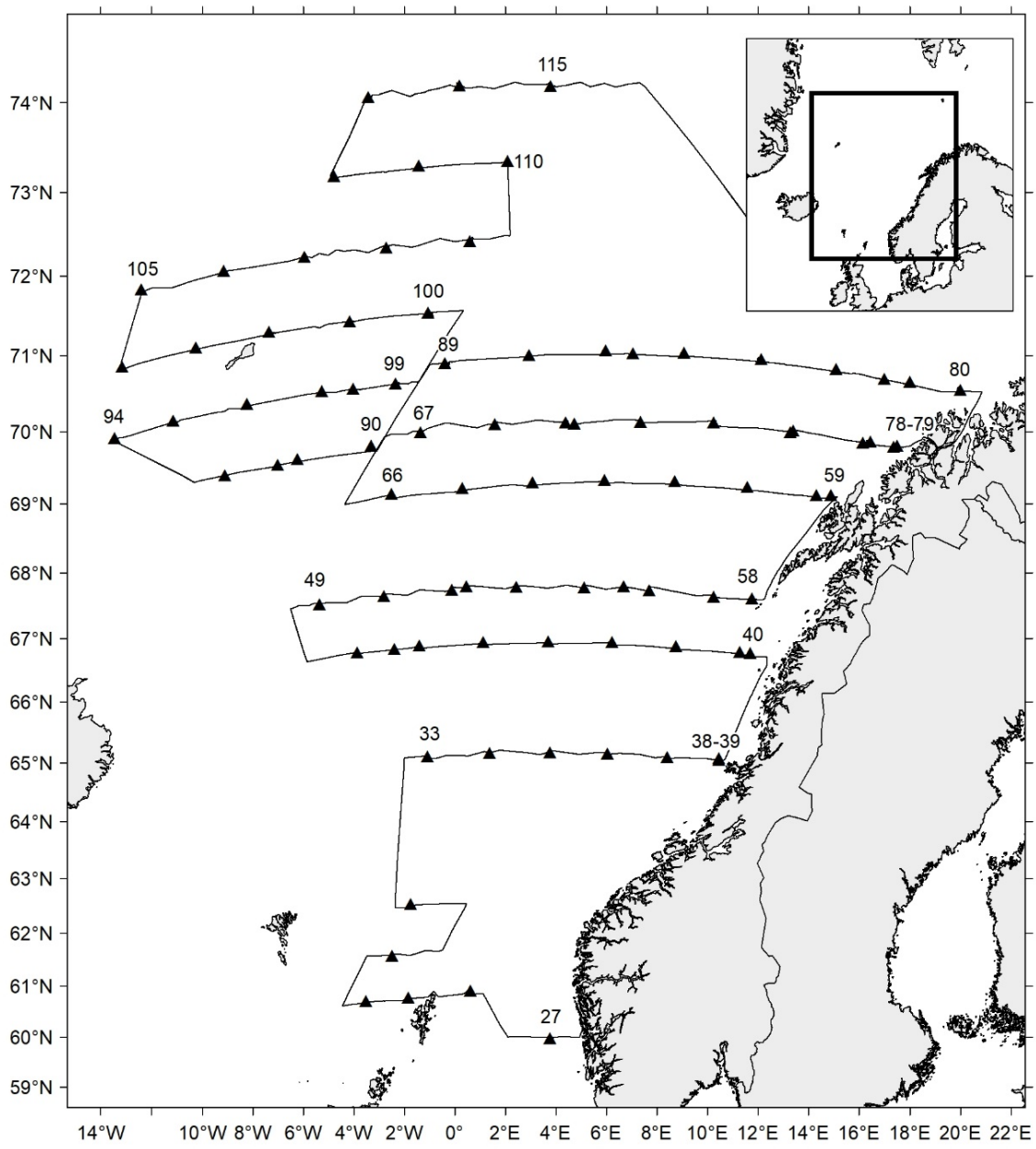
Fig.134



Cruise no 2019837 "Kings Bay" (Chart I)
3 July–6 August 2019

z CTD st.no 28-103
Plankton st. (WP-II-net) on every ctd st.

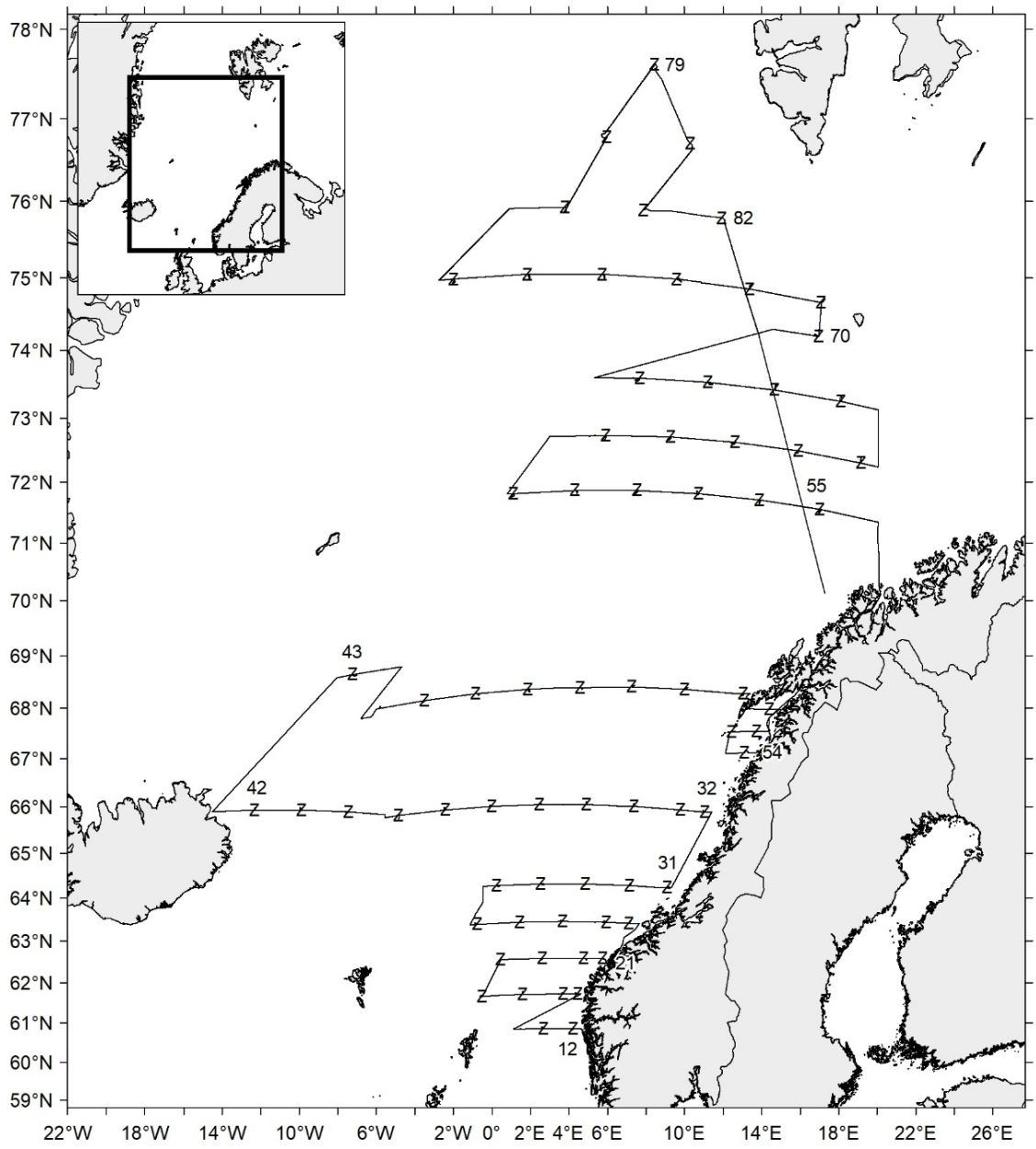
Fig.135



Cruise no 2019837 "Kings Bay" (Chart II)
3 July–6 August 2019

▲ Pelagic trawl st.no 27-115

Fig.136



Cruise no 2019838 "Vendla" (Chart I)
4 July–6 August 2019

z CTD st.no 12-82
Plankton st. (WP-II-net) on every ctd st.

Fig.137

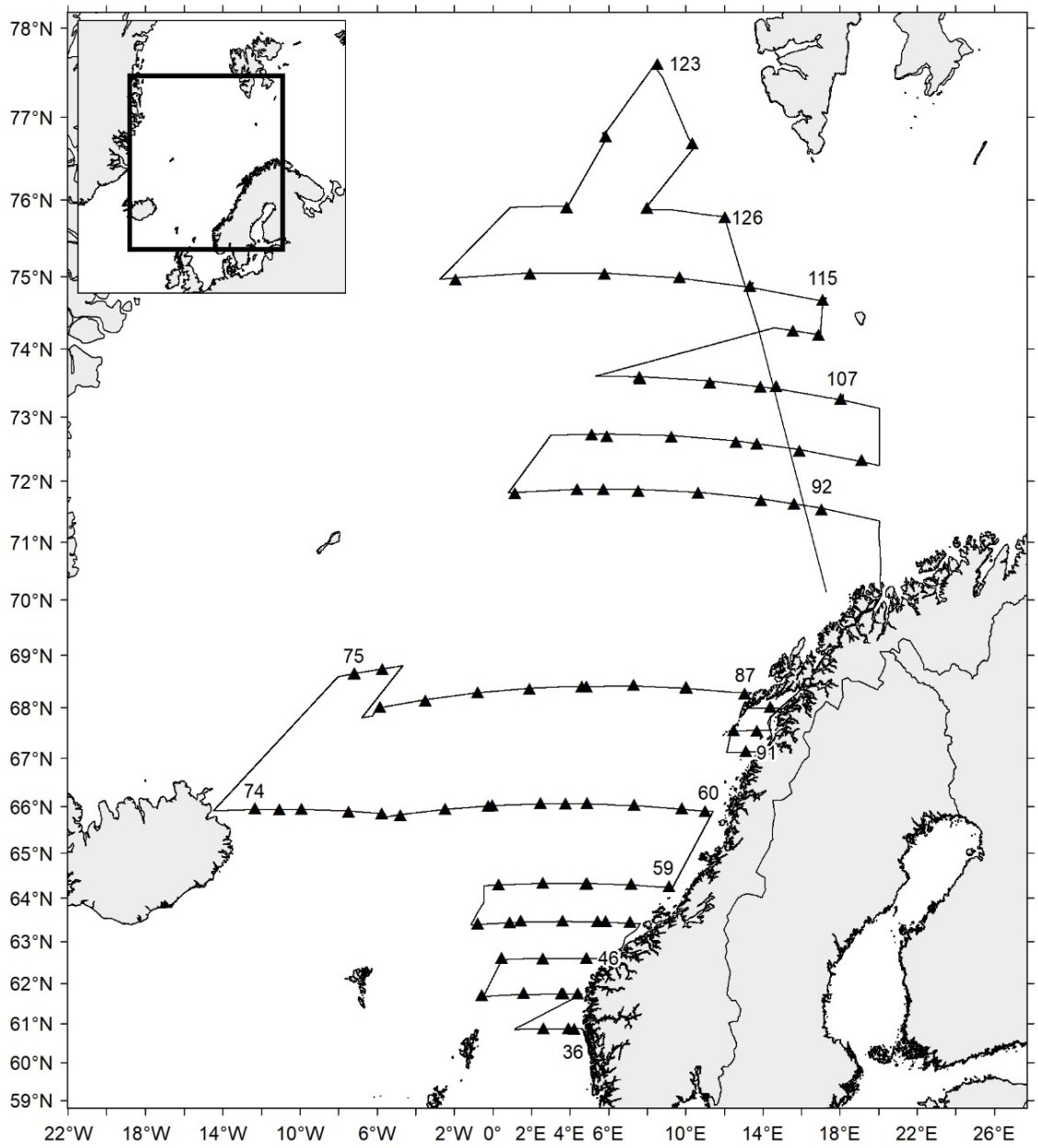
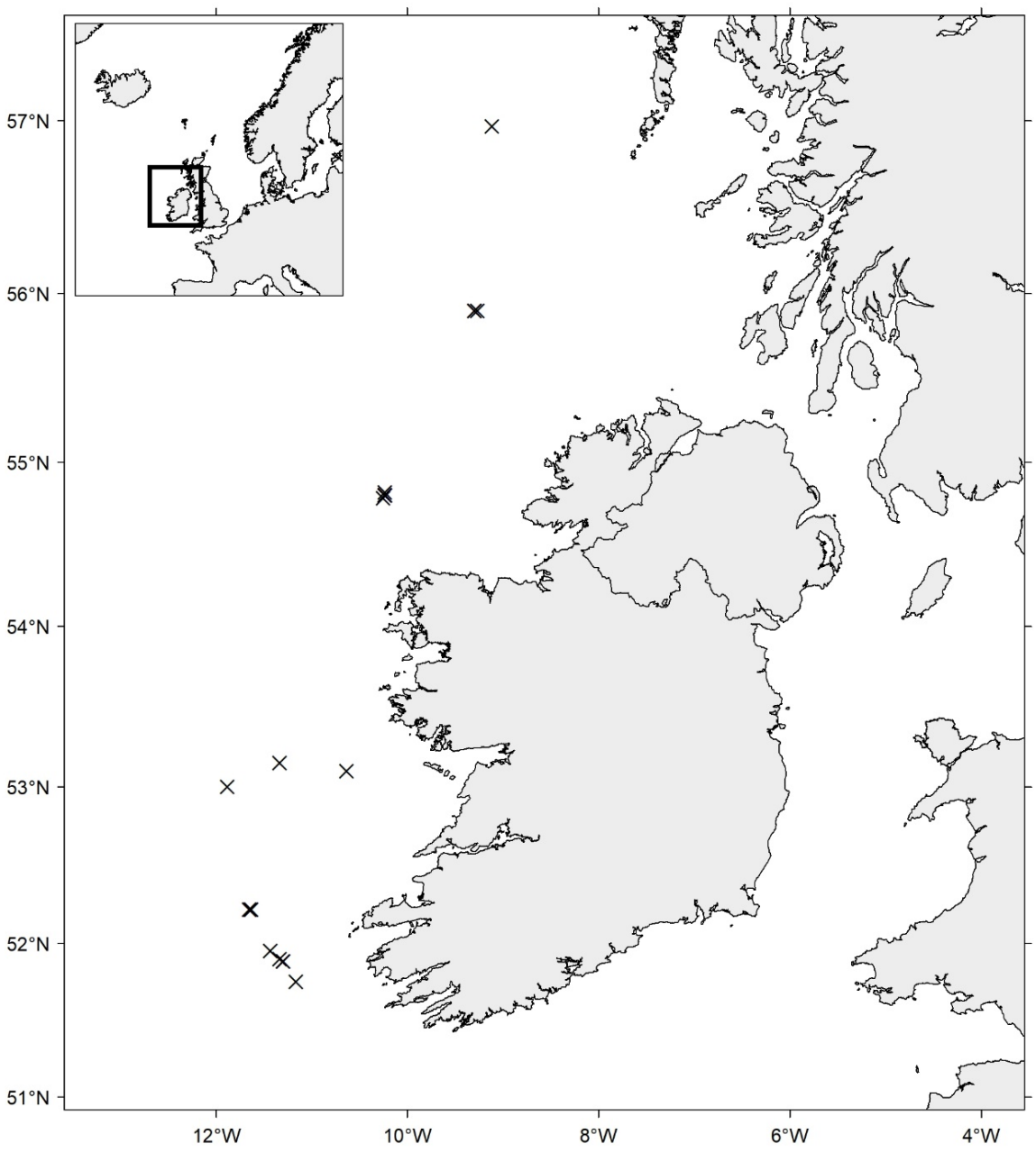

78°N
77°N
76°N
75°N
74°N
73°N
72°N
71°N
70°N
69°N
68°N
67°N
66°N
65°N
64°N
63°N
62°N
61°N
60°N
59°N
22°W
18°W
14°W
10°W
6°W
2°W
0°
2°E
4°E
6°E
10°E
14°E
18°E
22°E
26°E
123
126
115
107
92
75
87
91
74
60
59
46
36
Cruise no 2019838 "Vendla" (Chart II)
4 July–6 August 2019
▲ Pelagic trawl st.no 36-126

Fig.138



Cruise no 2019839 "Fiskebas"
2 May–3 June 2019

× Using 4 jigging machines with 10 hooks in each line for fishing and tagging mackerel.

Fig.139

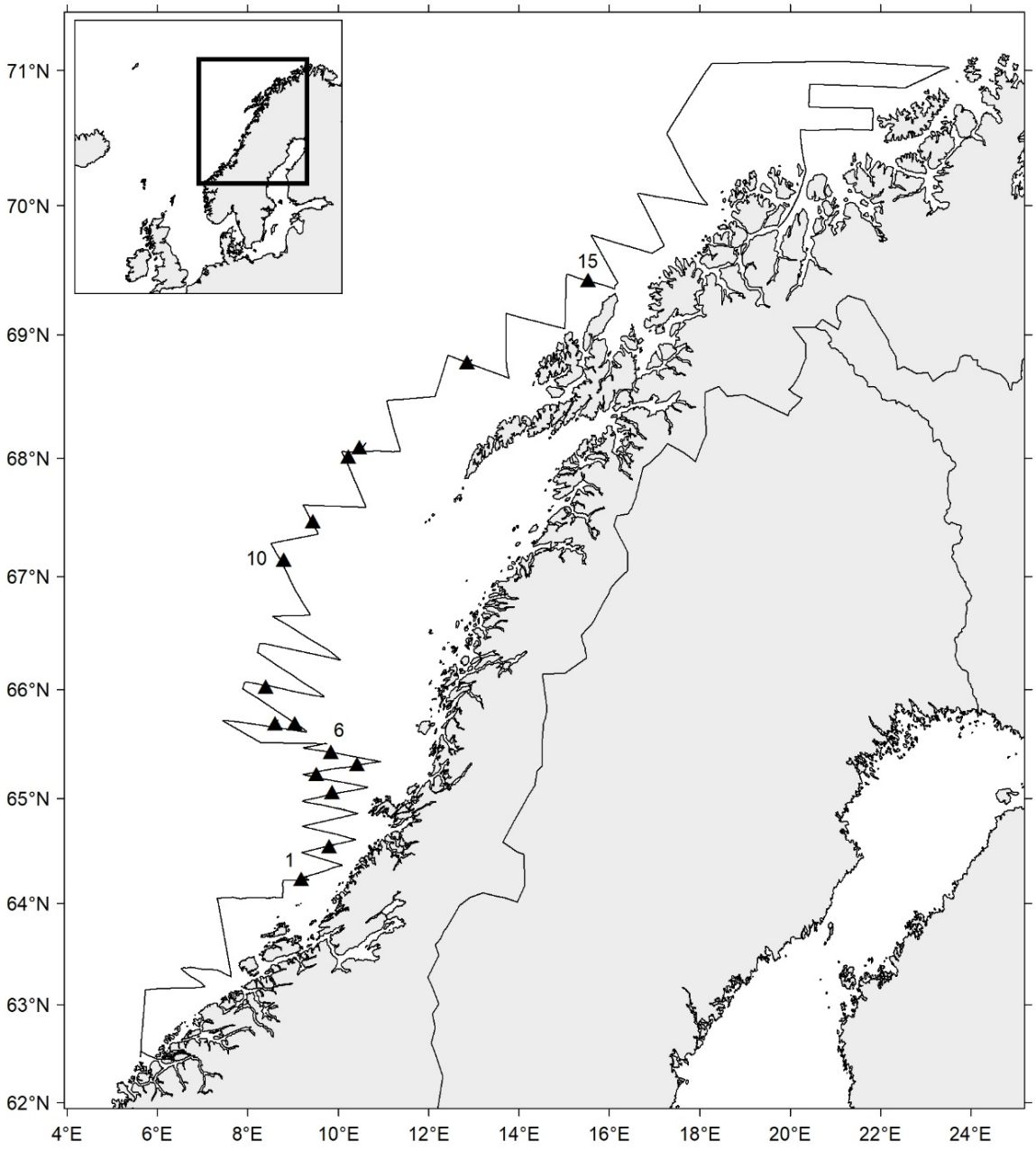
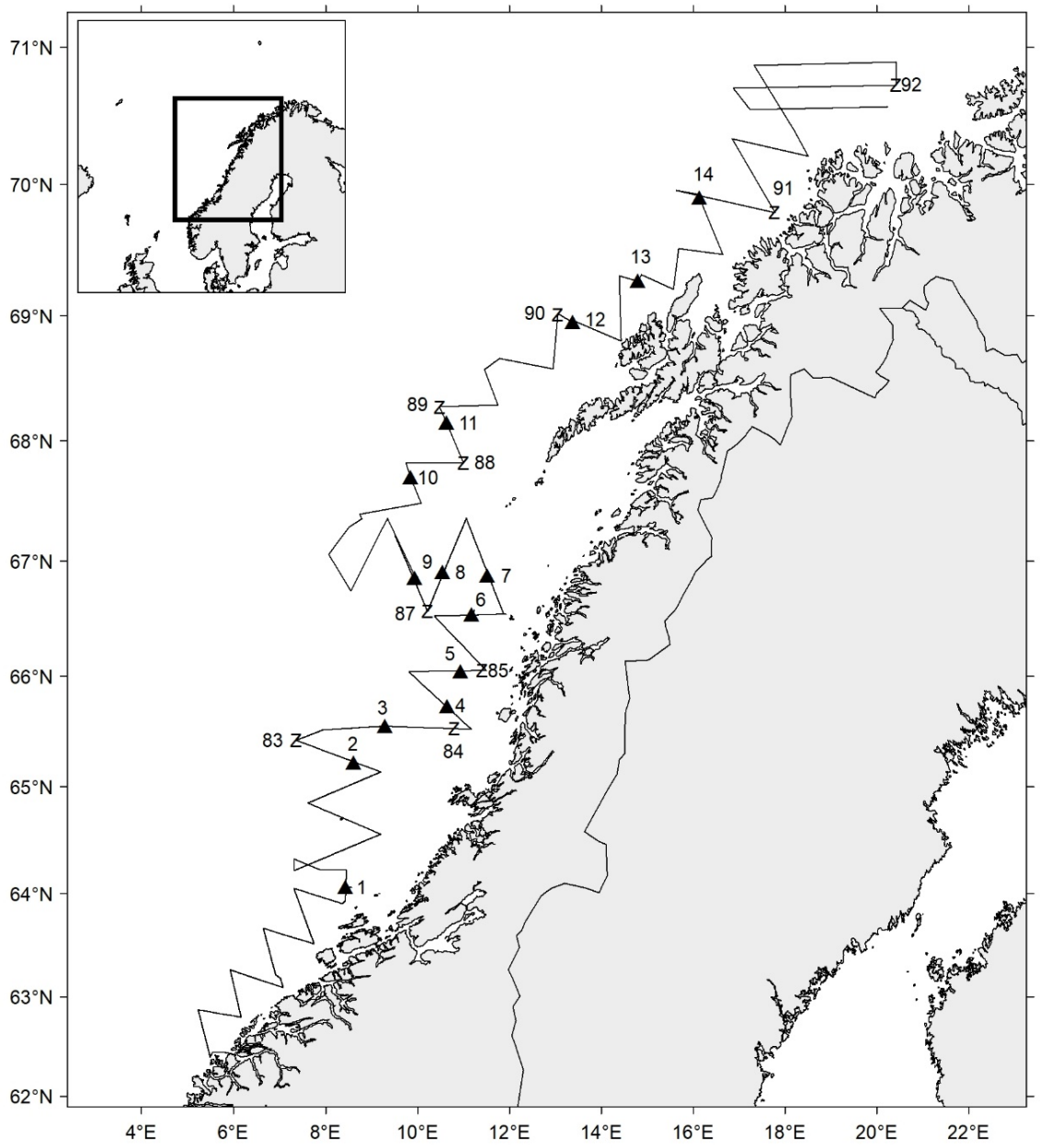

71°N
70°N
69°N
68°N
67°N
66°N
65°N
64°N
63°N
62°N
4°E
6°E
8°E
10°E
12°E
14°E
16°E
18°E
20°E
22°E
24°E
15
10
6
1
Cruise no 2019840 "Kings Bay"
13–25 February 2019
▲ Pelagic trawl st.no 1-15

Fig. 140

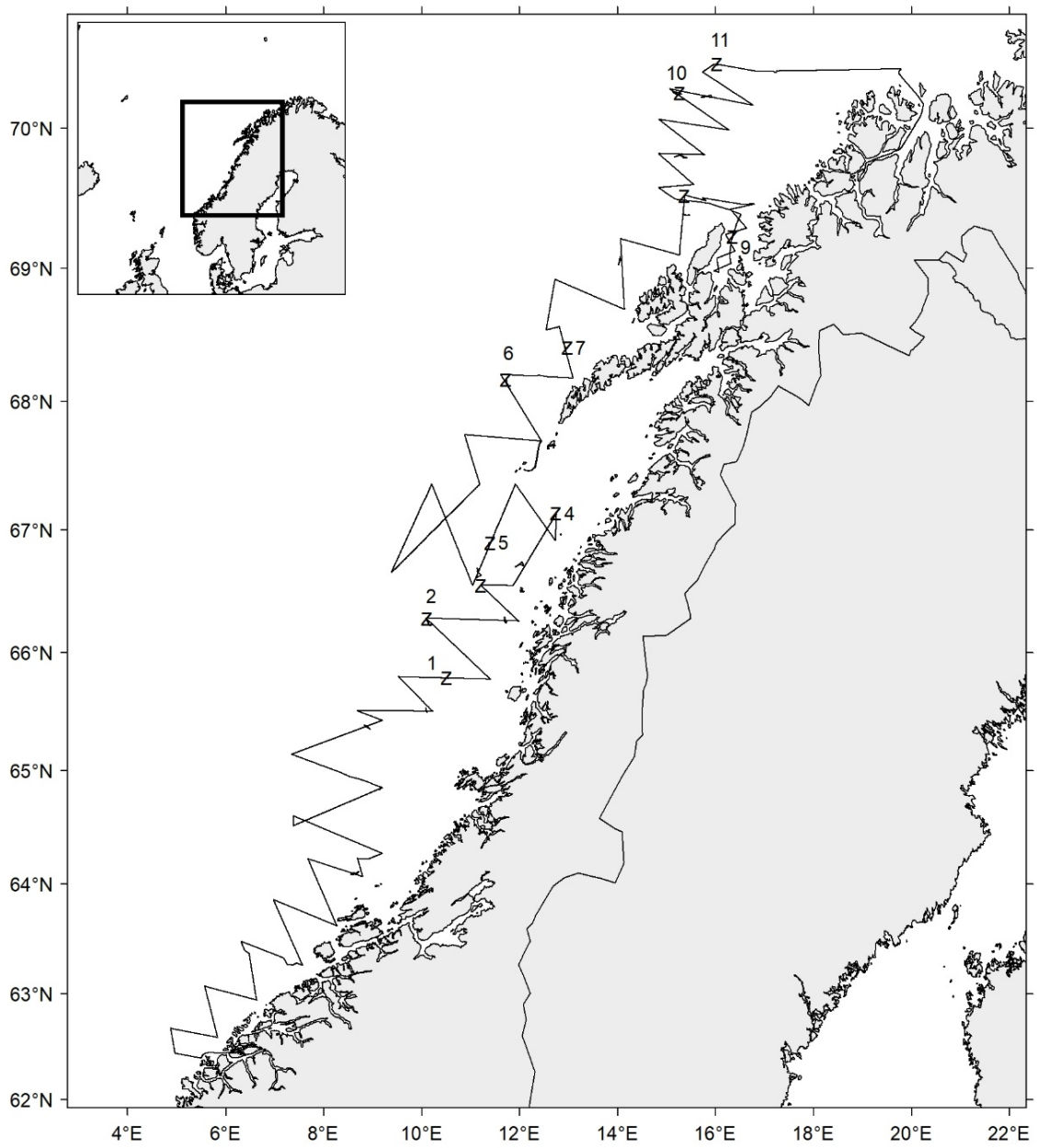


Cruise no 2019841 "Eros"
13–25 February 2019

z CTD st.no 83-92

▲ Pelagic trawl st.no 1-14

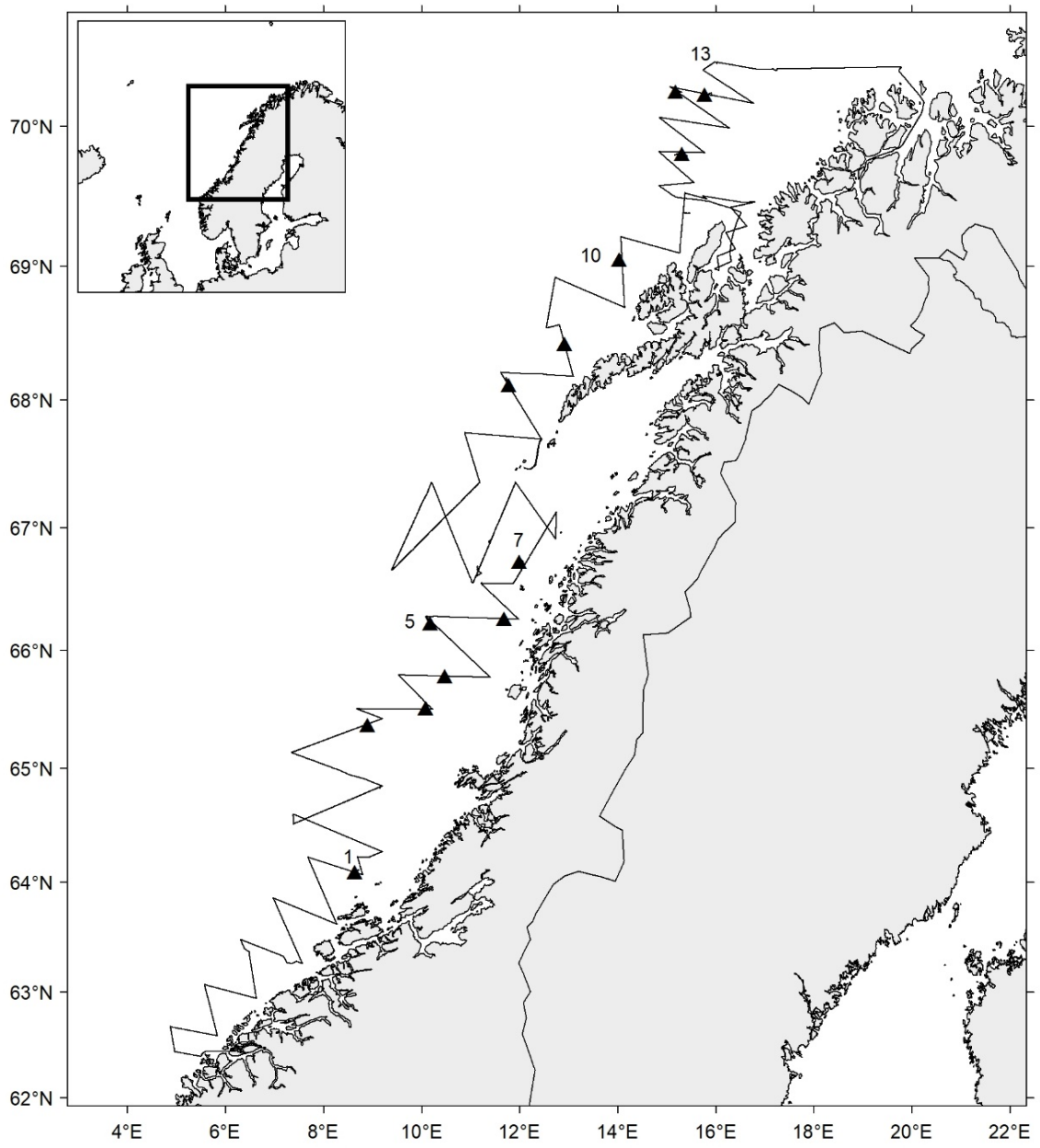
Fig.141



Cruise no 2019842 "Vendla" (Chart I)
13–25 February 2019

z CTD st.no 1-11

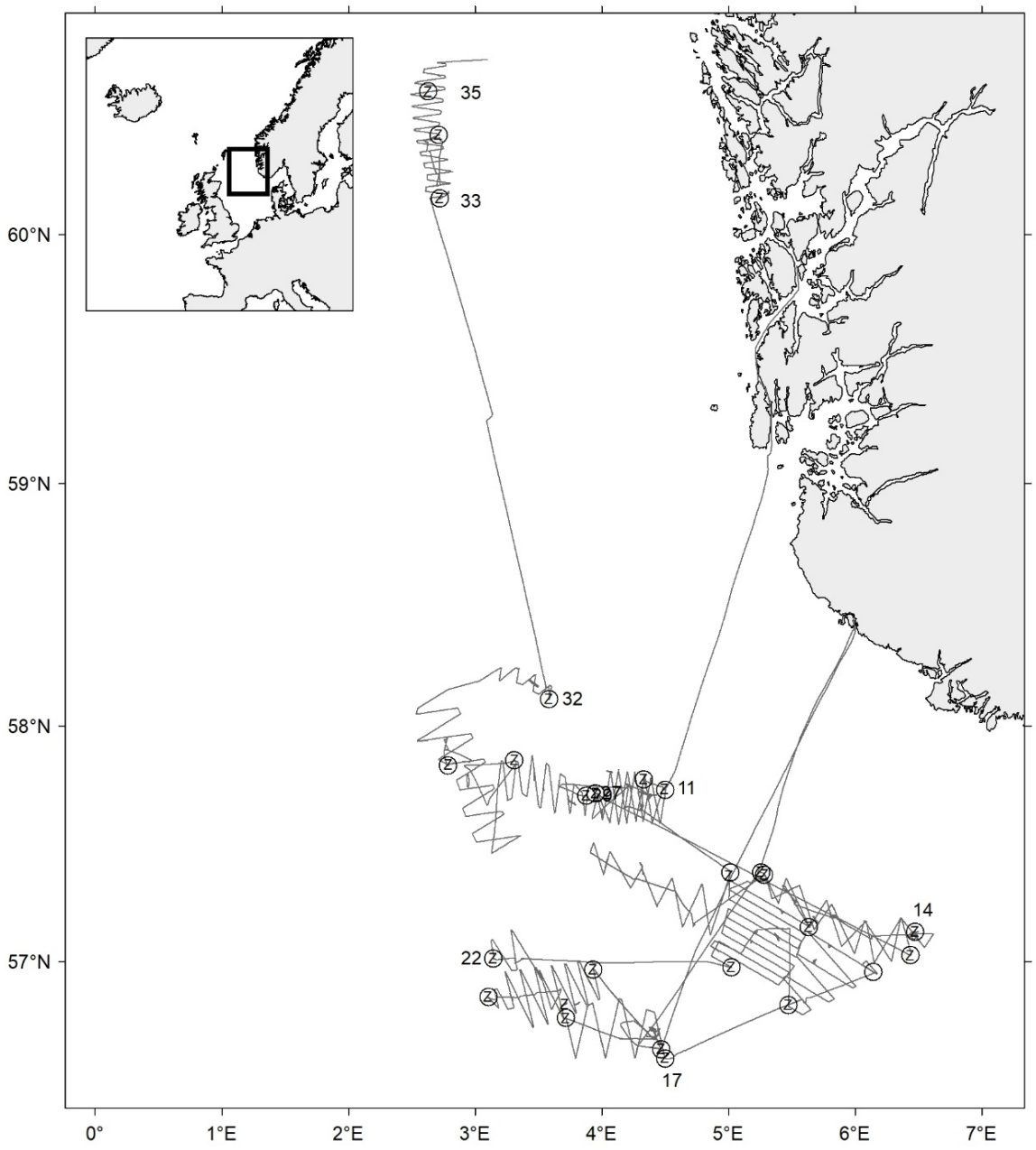
Fig.142



Cruise no 2019842 "Vendla" (Chart II)
13–25 February 2019

▲ Pelagic trawl st.no 1-13

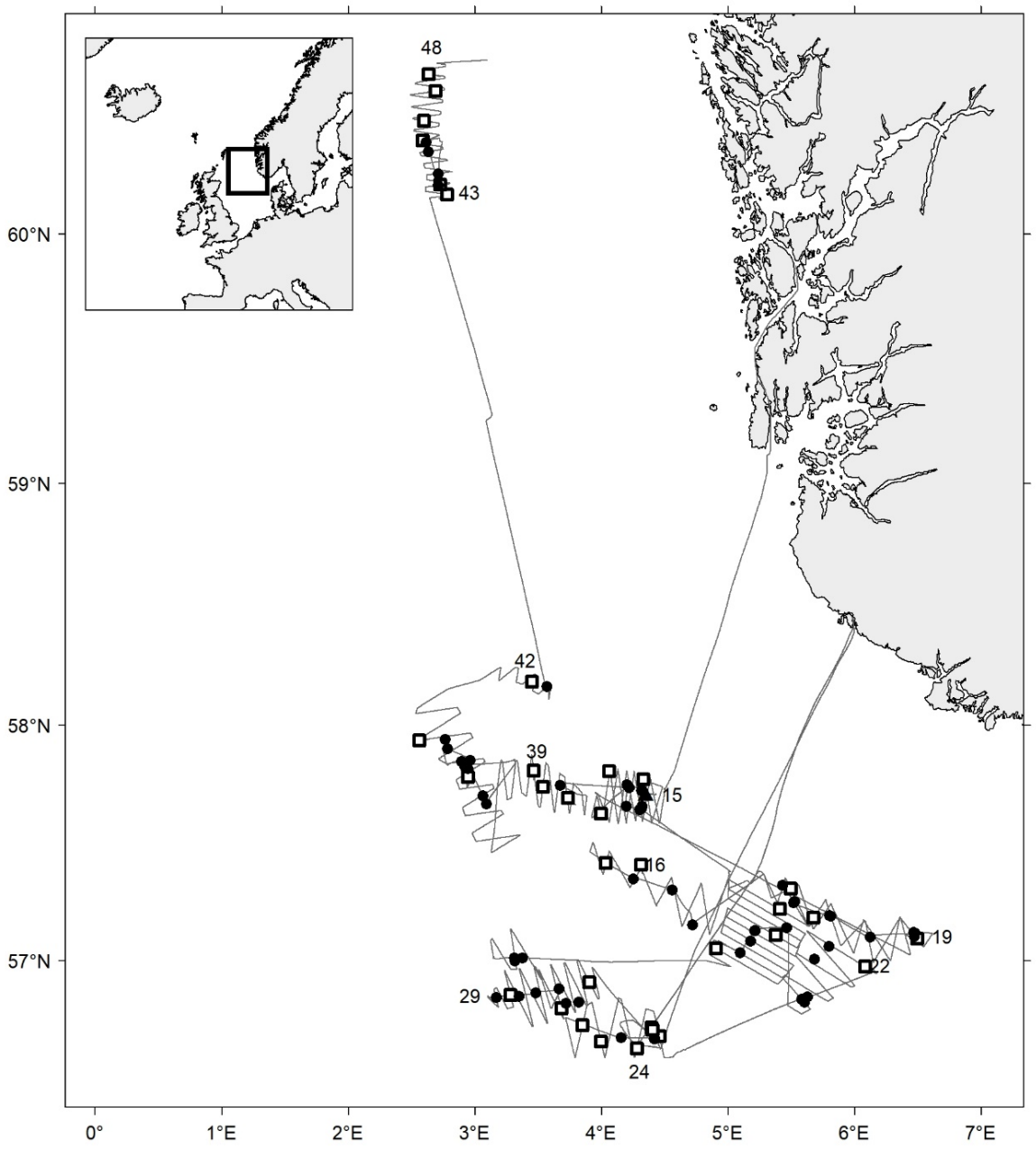
Fig.143



Cruise no 2019847 "Eros" (Chart I)
23 April–13 May 2019

z CTD st.no 11-35
○ Plankton st. (WP-II-net)

Fig.144



Cruise no 2019847 "Eros" (Chart II)
23 April–13 May 2019

Trawl st.no 15-48
▲ Pelagic trawl
□ Bottom trawl
● Sledge st.

Fig.145

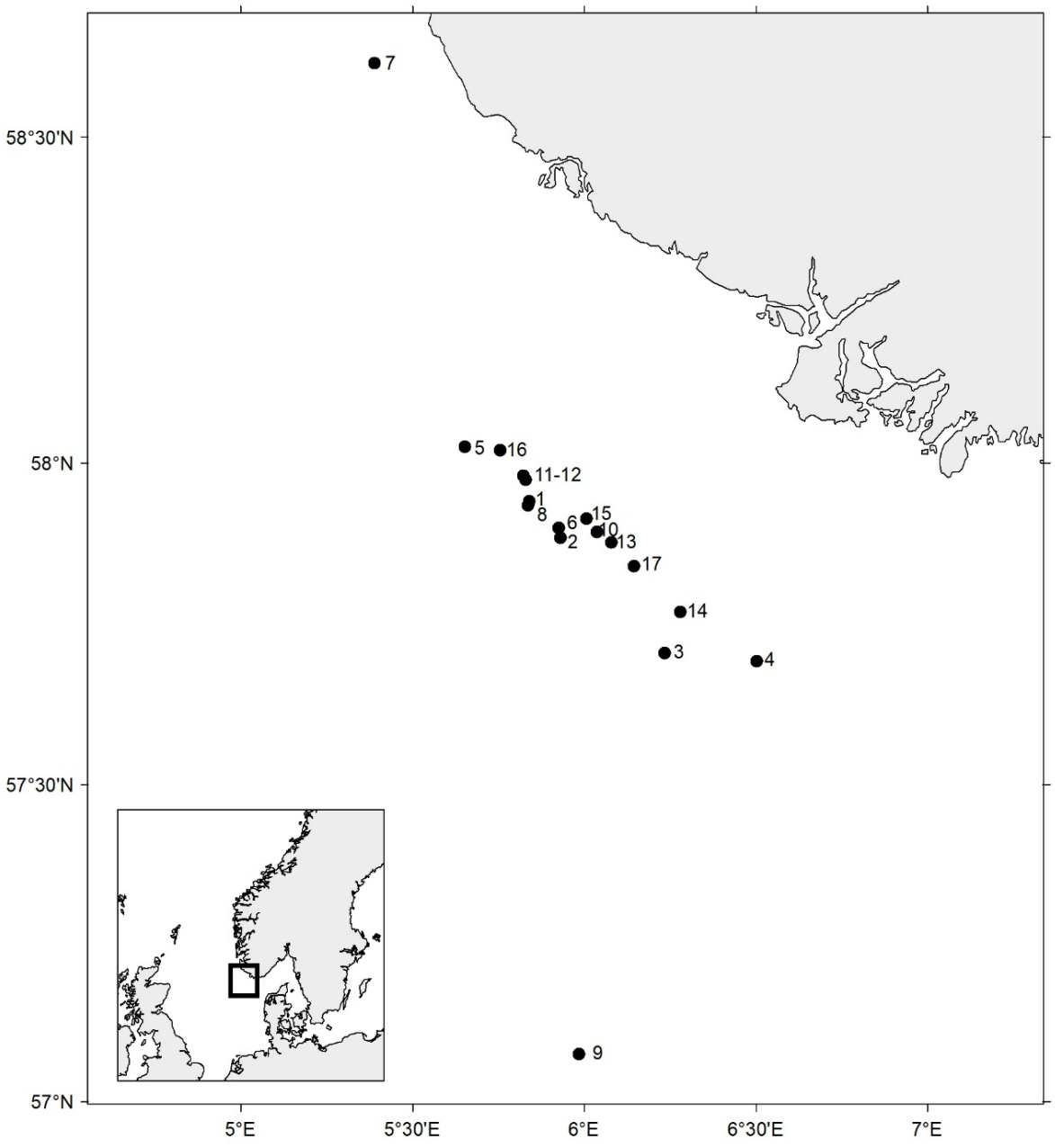
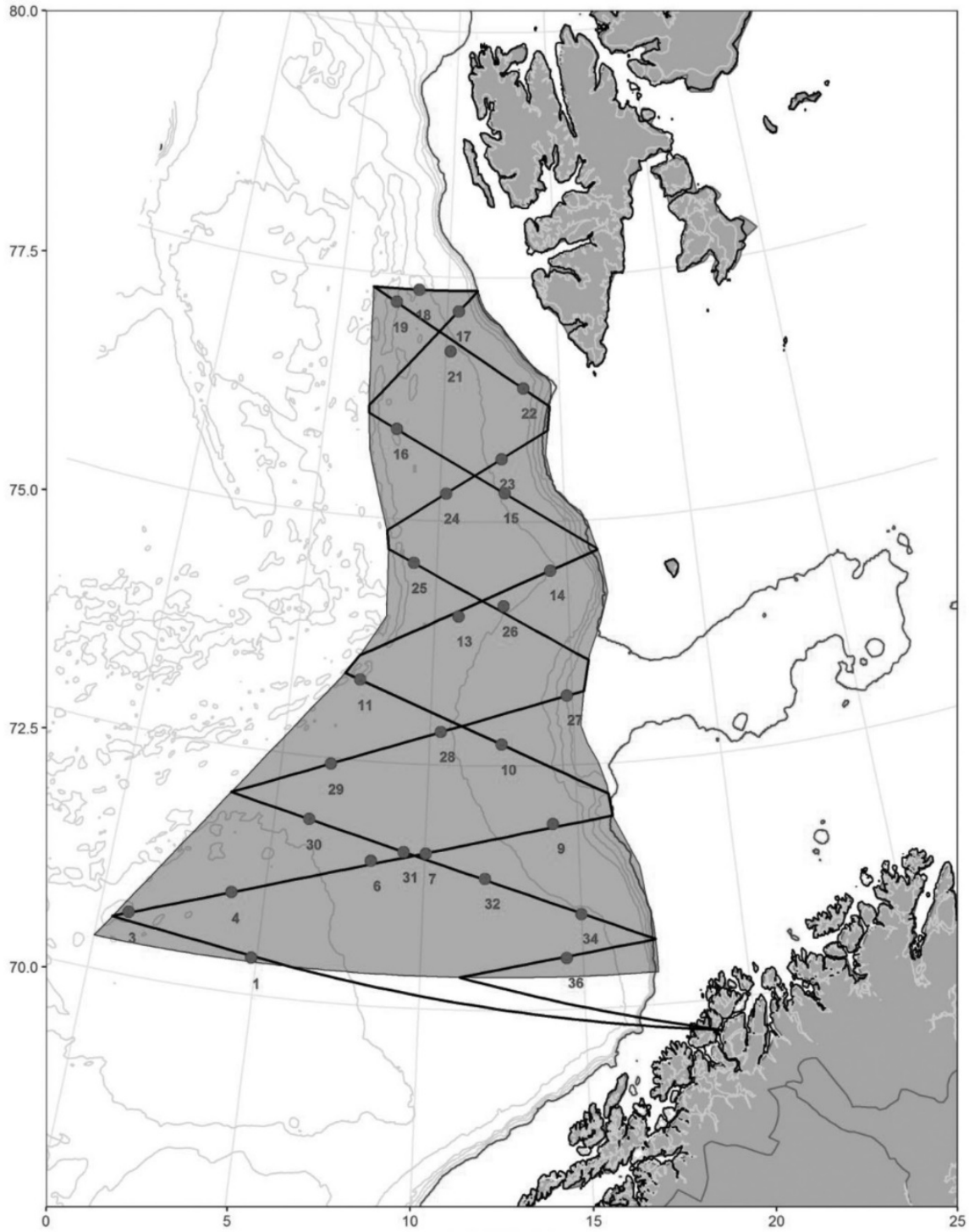

7
58°30'N
58°N
5
16
11-12
1
8
6
15
10
2
13
17
14
3
4
57°30'N
9
57°N
5°E
5°30'E
6°E
6°30'E
7°E
Cruise no 2019849 "Tangen"
28 April–10 May 2019
• Trawl st.no 1-17

Fig. 146



Cruise no 2019850 «Arní Friðriksson»
11–28 August 2019

Fig. 147

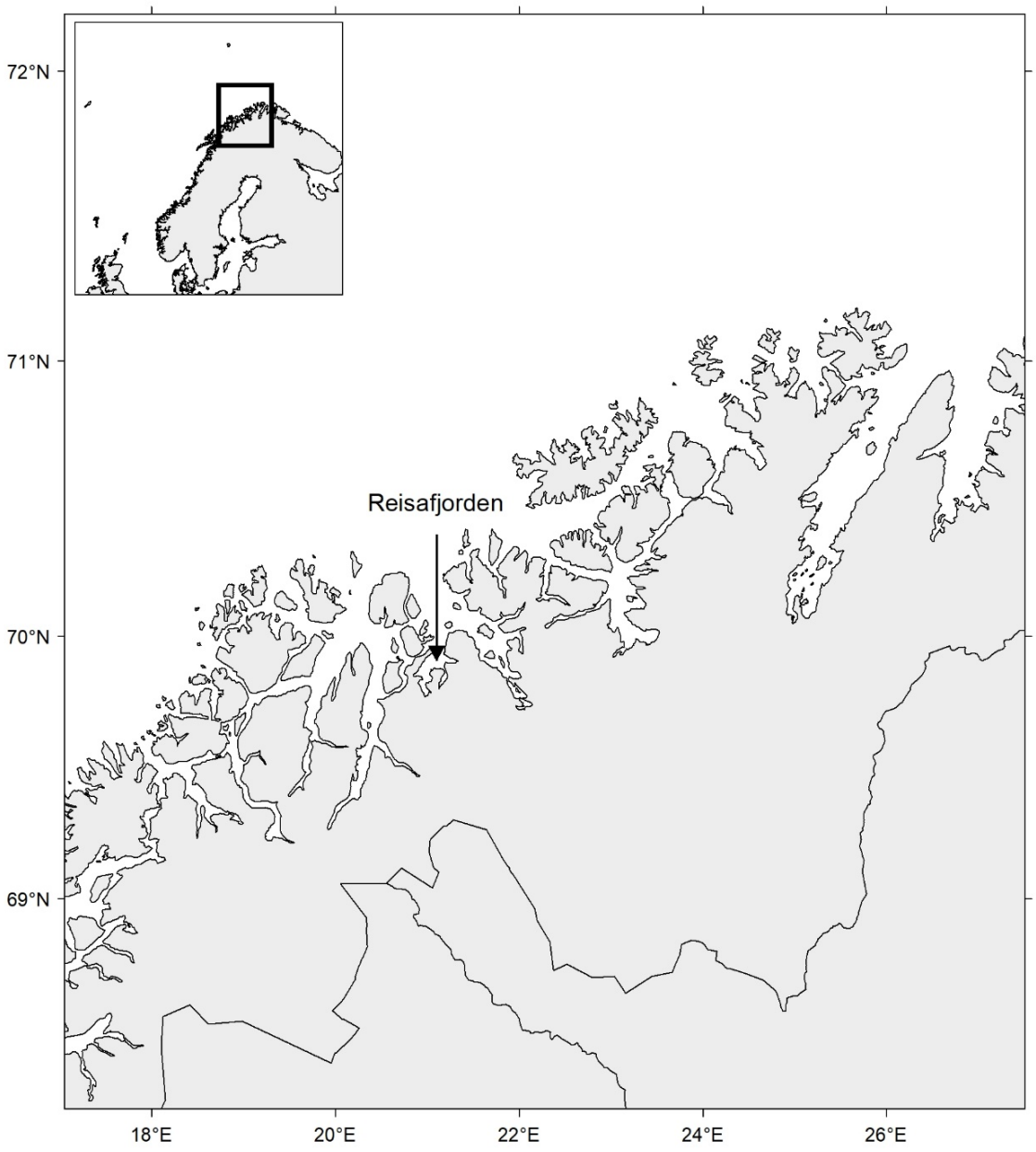
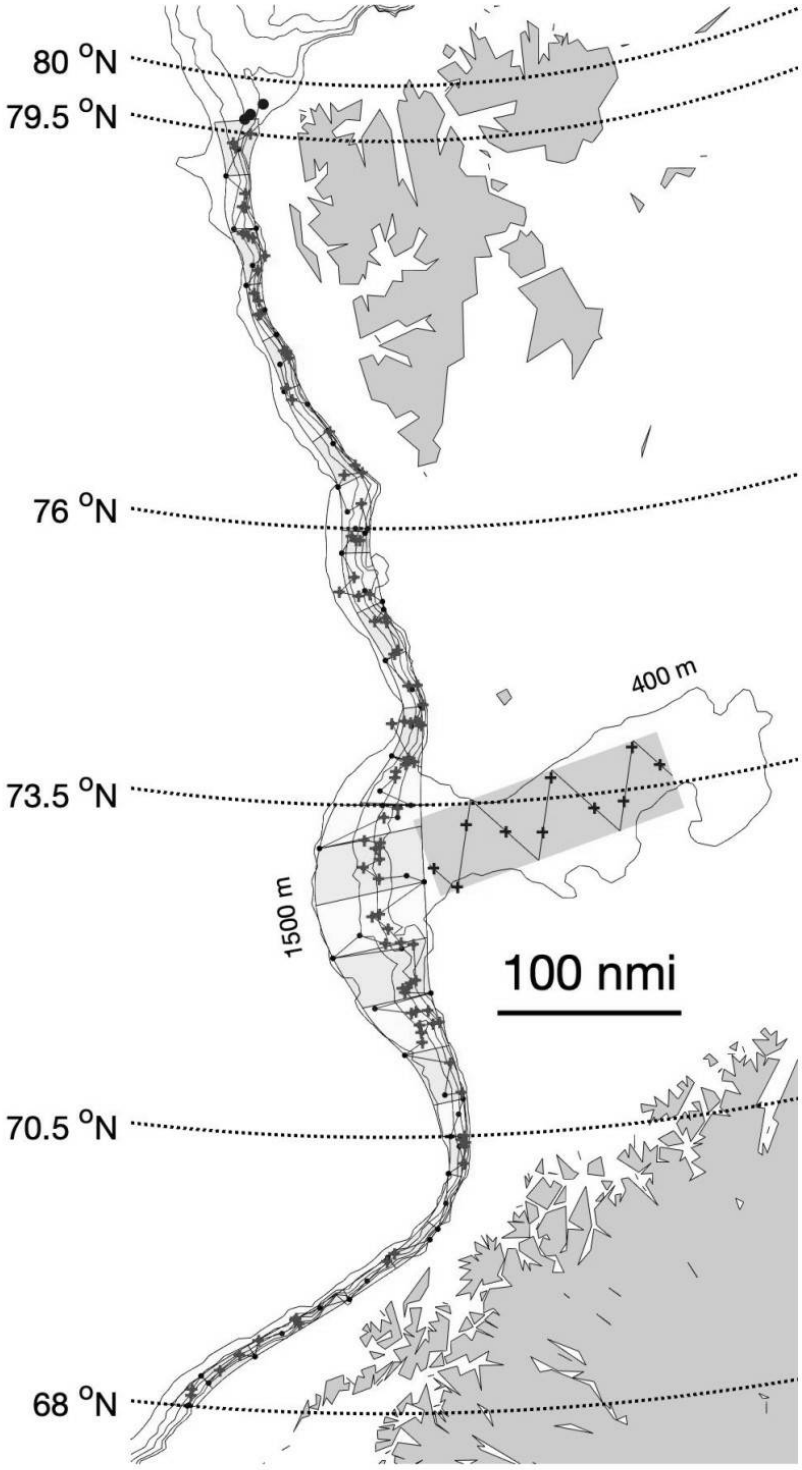

72°N
71°N
70°N
69°N
18°E
20°E
22°E
24°E
26°E
Reisafjorden
Cruise no 2019858 "Nystrøm"
7–28 January 2018
Tagging and release of NSS herring in Reisafjorden

Fig. 148



Cruise no 2019860 "Arni Fridriksson"
30 August–19 September 2019
Deep-sea fish species:
Monitoring of Greenland halibut, redfish and other deep-sea fish species,
and elasmobranches. Biological sampling and data collection for assessment.

Fig. 149

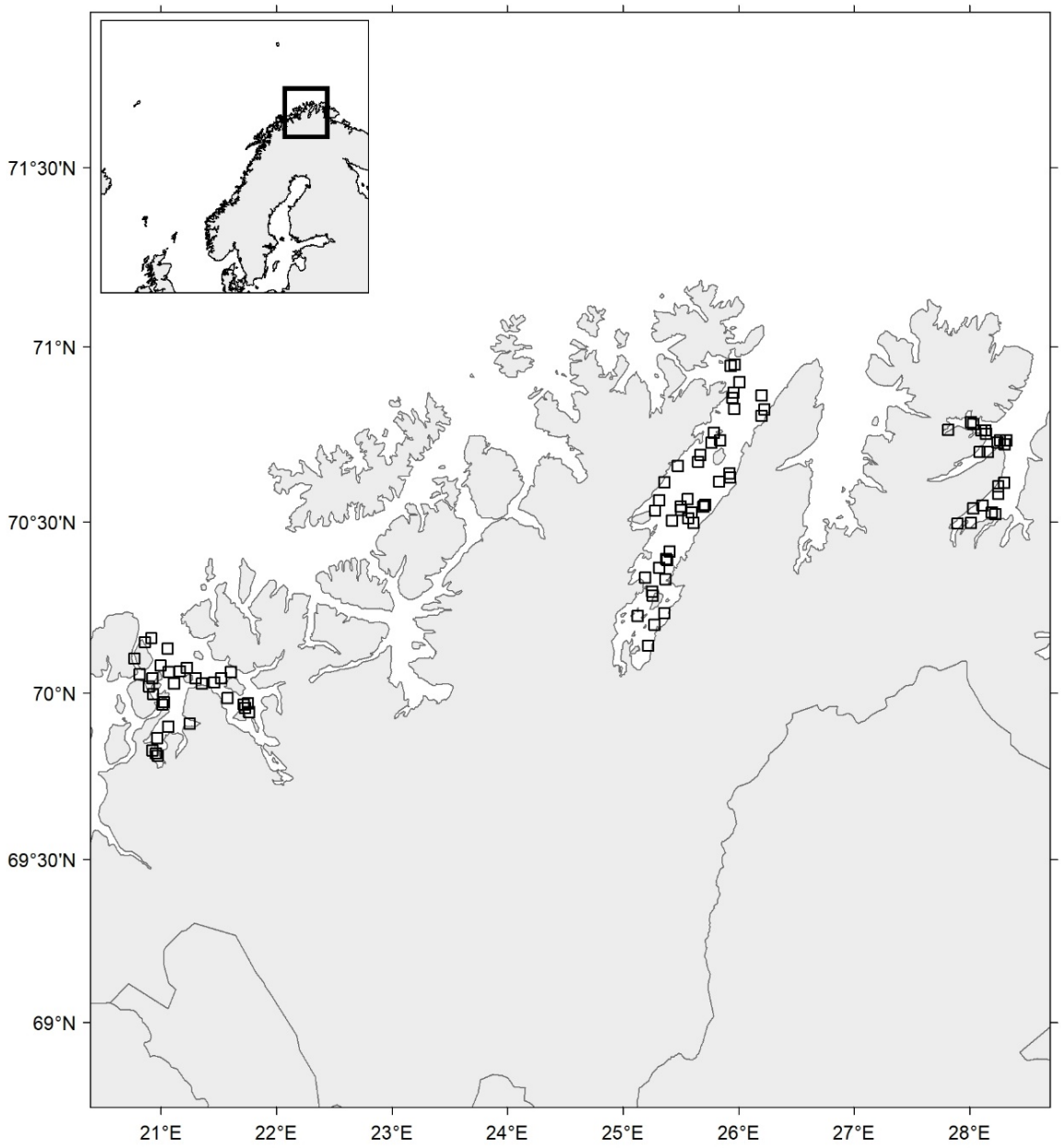

71°30'N
71°N
70°30'N
70°N
69°30'N
69°N
21°E
22°E
23°E
24°E
25°E
26°E
27°E
28°E
Cruise no 2019861 "Henriette"
17 March–10 April 2019
Trap stations: st.no 1-94

Fig. 150

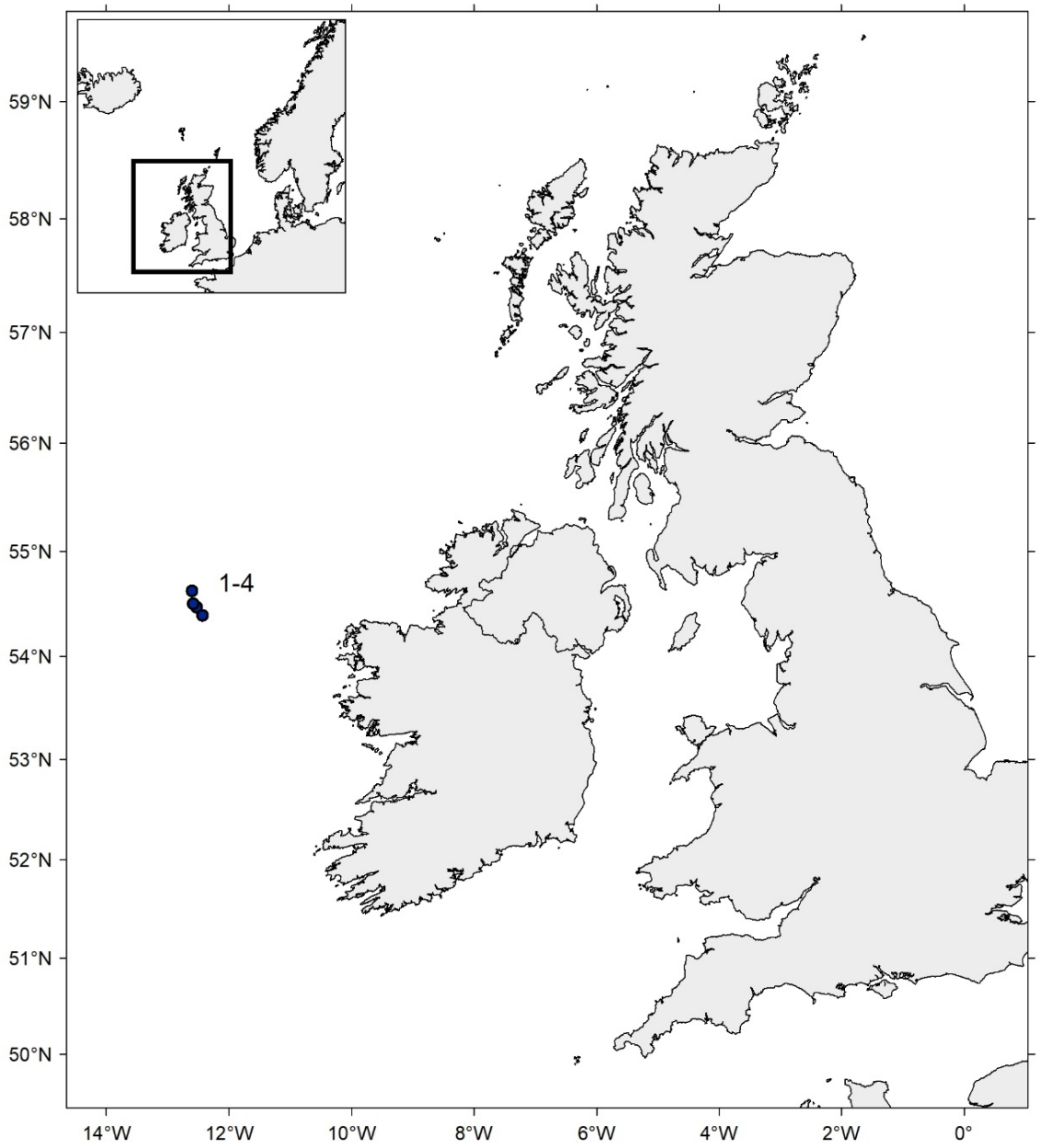
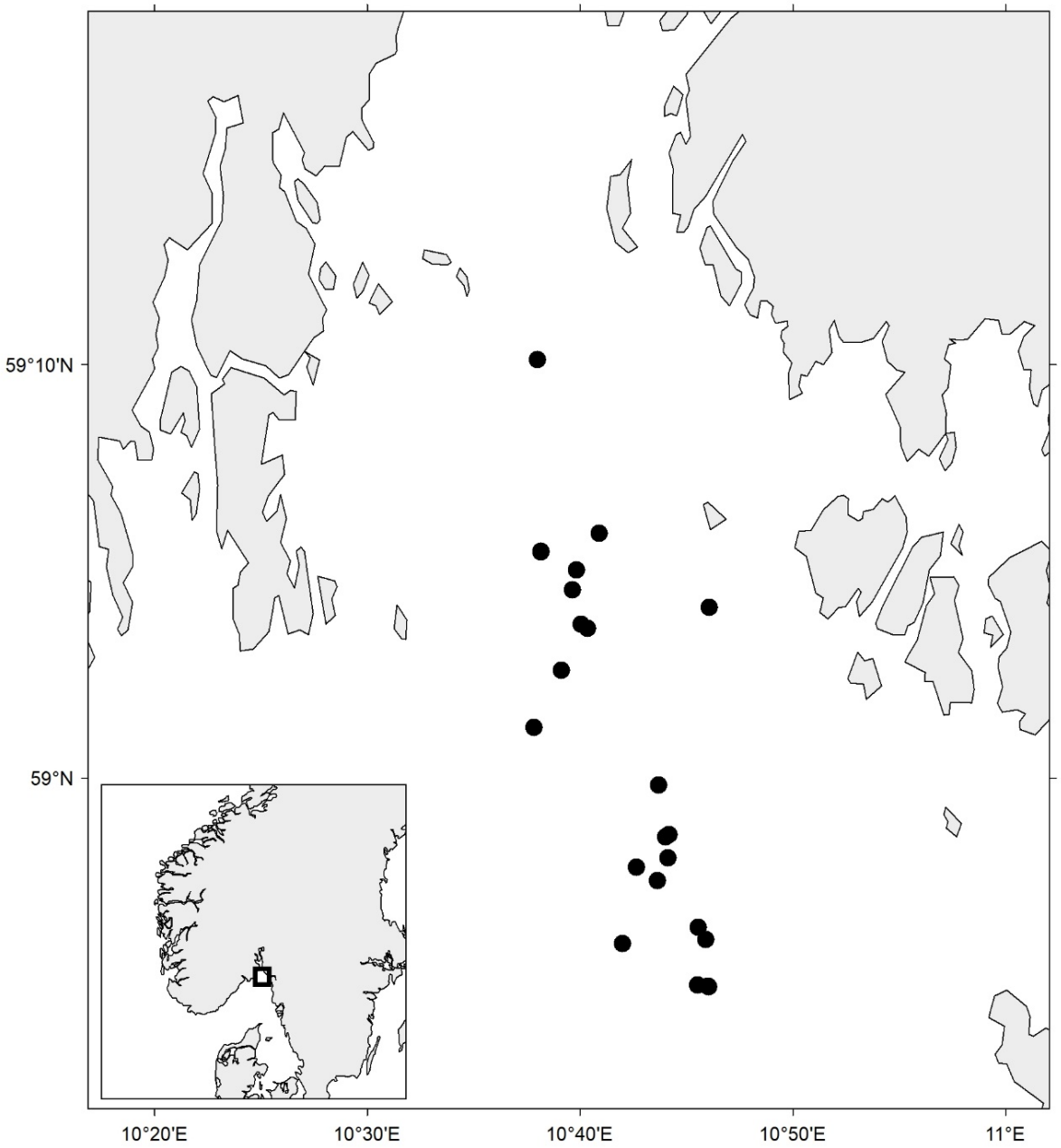

59°N
58°N
57°N
56°N
55°N
54°N
53°N
52°N
51°N
50°N
14°W
12°W
10°W
8°W
6°W
4°W
2°W
0°
1-4
Cruise no 2019862 "Vikingbank"
10–19 March 2019
● Trawl statins 1-4

Fig. 151



Cruise no 2019863 "Eli R."
18–29 March 2019

● Trawl stations

Fig. 152

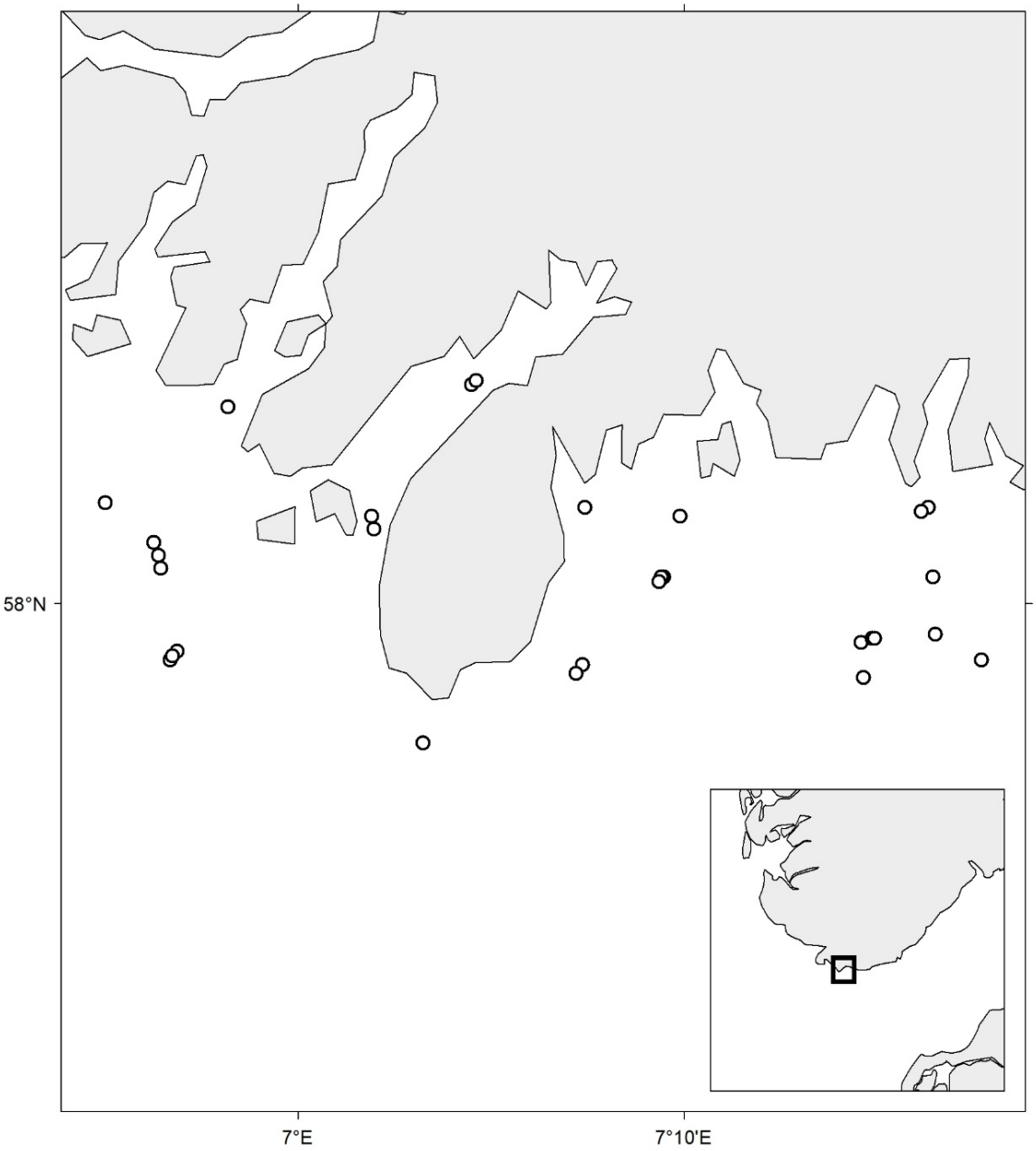

58°N
7°E
7°10'E
Cruise no 2019865 "Marie Emilie"
2–14 April 2019
Station 1-29

Fig. 153

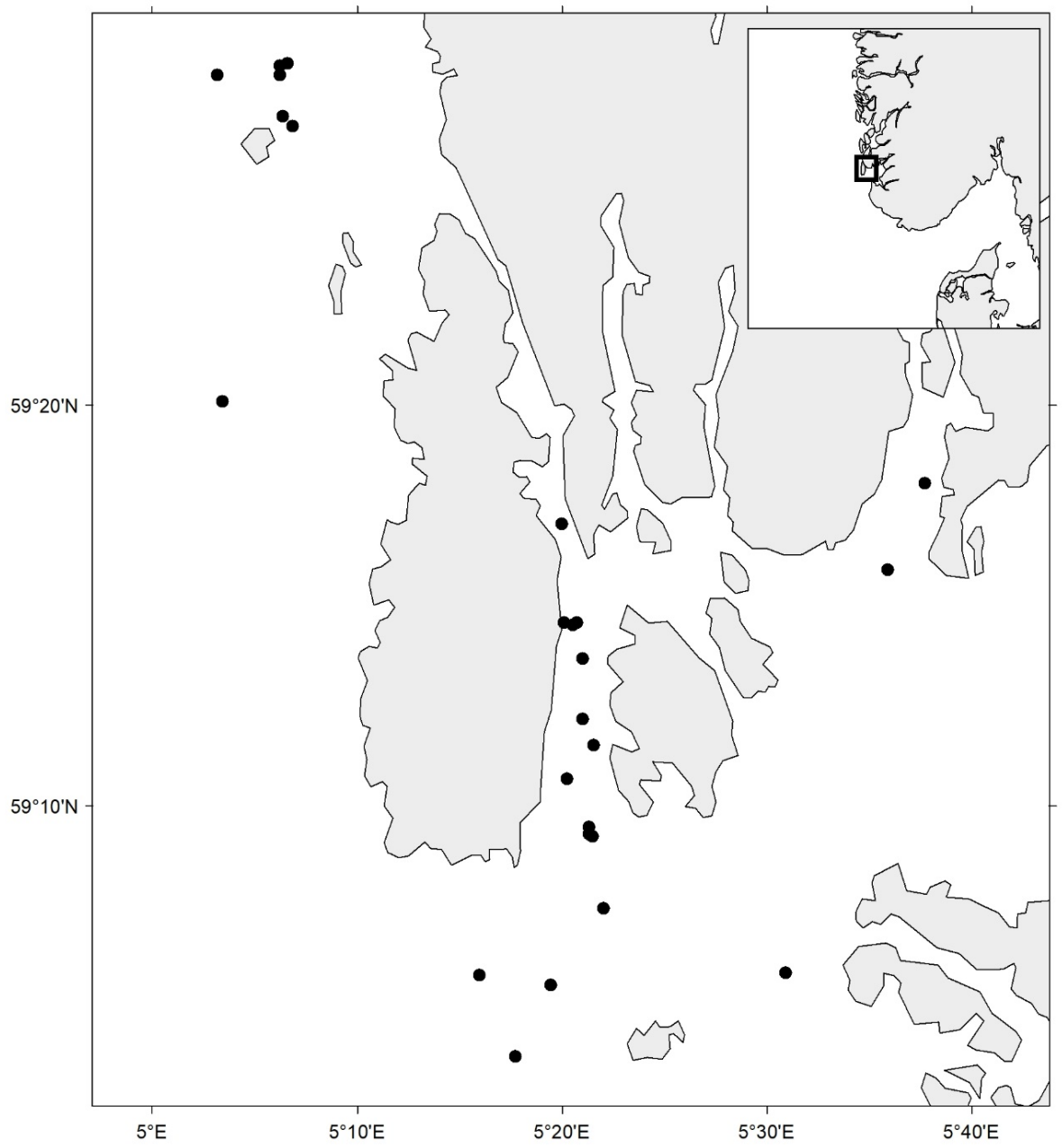

59°20'N
59°10'N
5°E
5°10'E
5°20'E
5°30'E
5°40'E
Cruise no 2019866 "Marie Emilie"
29 October – 8 November 2019
25 trawl stations

Fig. 154

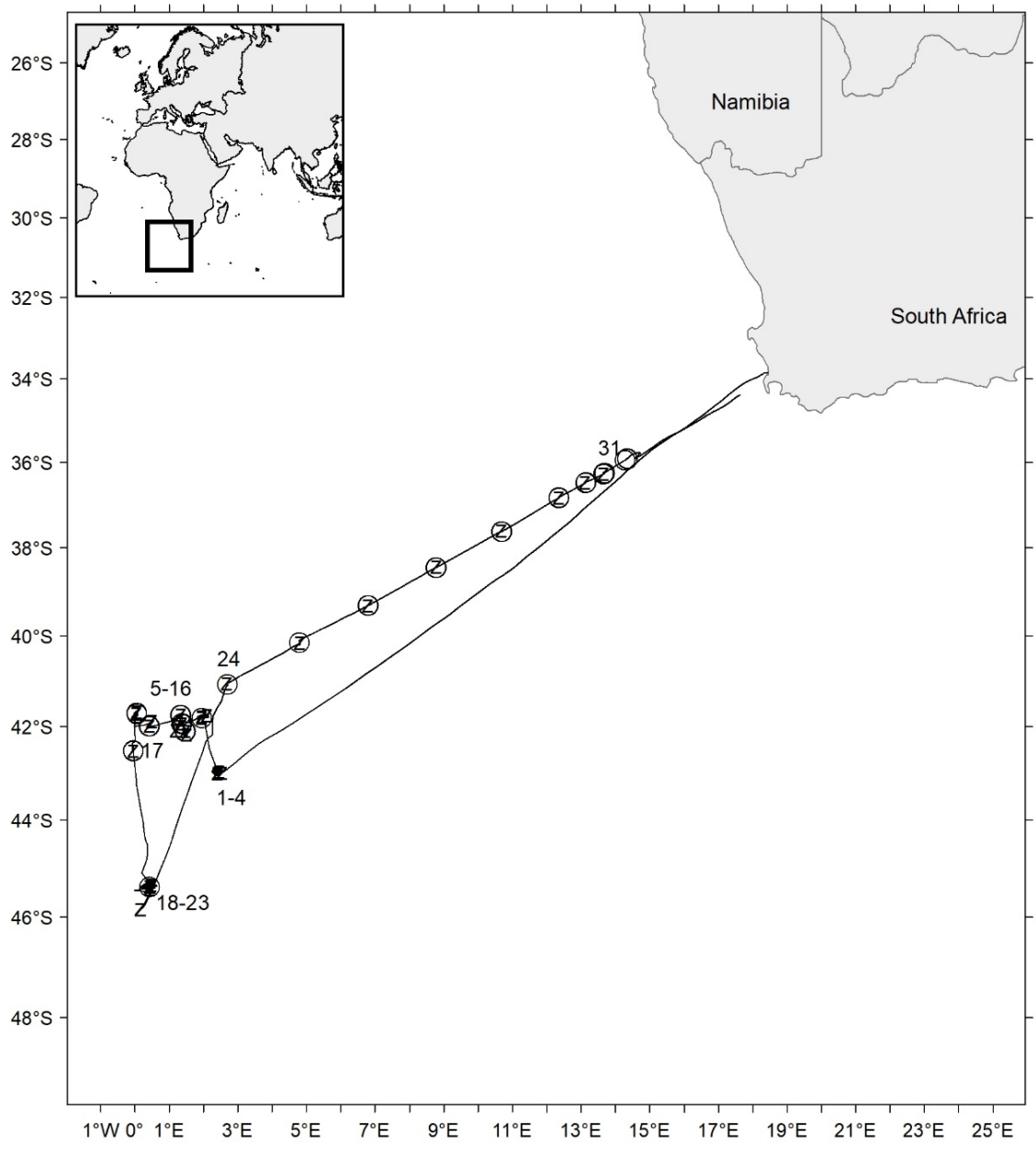
14 - "Dr. Fridtjof Nansen" – Cruises 2019

Ship code 14

Cruise no	Period	Purpose	Area	CTD st.no	Trawl st.no	Fig. no
2019401	24.1.-24.2.	Study Seamount complexes for SEAFO.	South Atlantic Ocean	1-31	1-10	155-156
2019402	28.2.-31.3.	Cover the transboundary demersal fish stocks of South-Eastern Atlantic.	South Atlantic Ocean	32-207	1-153	157-158
2019403	4.4.-24.4.	Cover the ecosystem and the transboundary demersal fish stocks of the South-Eastern Atlantic.	South Atlantic Ocean	208-336	1-87	159-160
2019404	30.4.-7.5.	Study mesopelagic fish.	South Atlantic Ocean	337-369	1-14	161-162
2019405	11.5.-26.5.	Cover the transboundary demersal fish stocks in the South-Eastern Atlantic.	North Atlantic Ocean	370-467	1-93	163-164
2019406	26.5.-26.6.	Cover the transboundary demersal fish stocks in the South-Eastern Atlantic	South-Eastern Atlantic	468-690	1-181	165-167
2019407	29.6.-16.7.	Cover the environmental conditions along the 0 -meridian.	Atlantic Ocean	691-750	1-25	168-169
2019408	20.7.-18.8.	Cover the marine ecosystem in Western Gulf of Guinea.	Western Gulf of Guinea	751-970	1-143	170-172
2019409	22.8.-23.9	Transboundary demersal and pelagic resources and ecosystems in the western Gulf of Guinea.	North Atlantic Ocean	971-1134	1-153	173-175
2019411	26.9.-7.10.	Cover the pelagic stocks and ecosystems Senegal–Morocco.	West Africa	1135-1158	1-13	176-178
2019412	9.10.-20.10.	Cover the pelagic stocks and ecosystems Senegal–Morocco.	Atlantic Ocean	1160-1183	1-36	179-180
2019413	30.10.-18.11.	Cover the pelagic stocks and ecosystems Senegal–Morocco	West Africa	1184-1245	1-46	181-183
2019414	21.11.-1.12.	Cover the pelagic stocks and ecosystems Senegal–Morocco.	West Africa	1246-1266	1-23	184-185
2019415	3.12-16.12	Study the mesopelagic ecosystem.	Vest Afrika	1267-1304		No chart

15 - "Dr. Fridtjof Nansen" – Charts for 2019

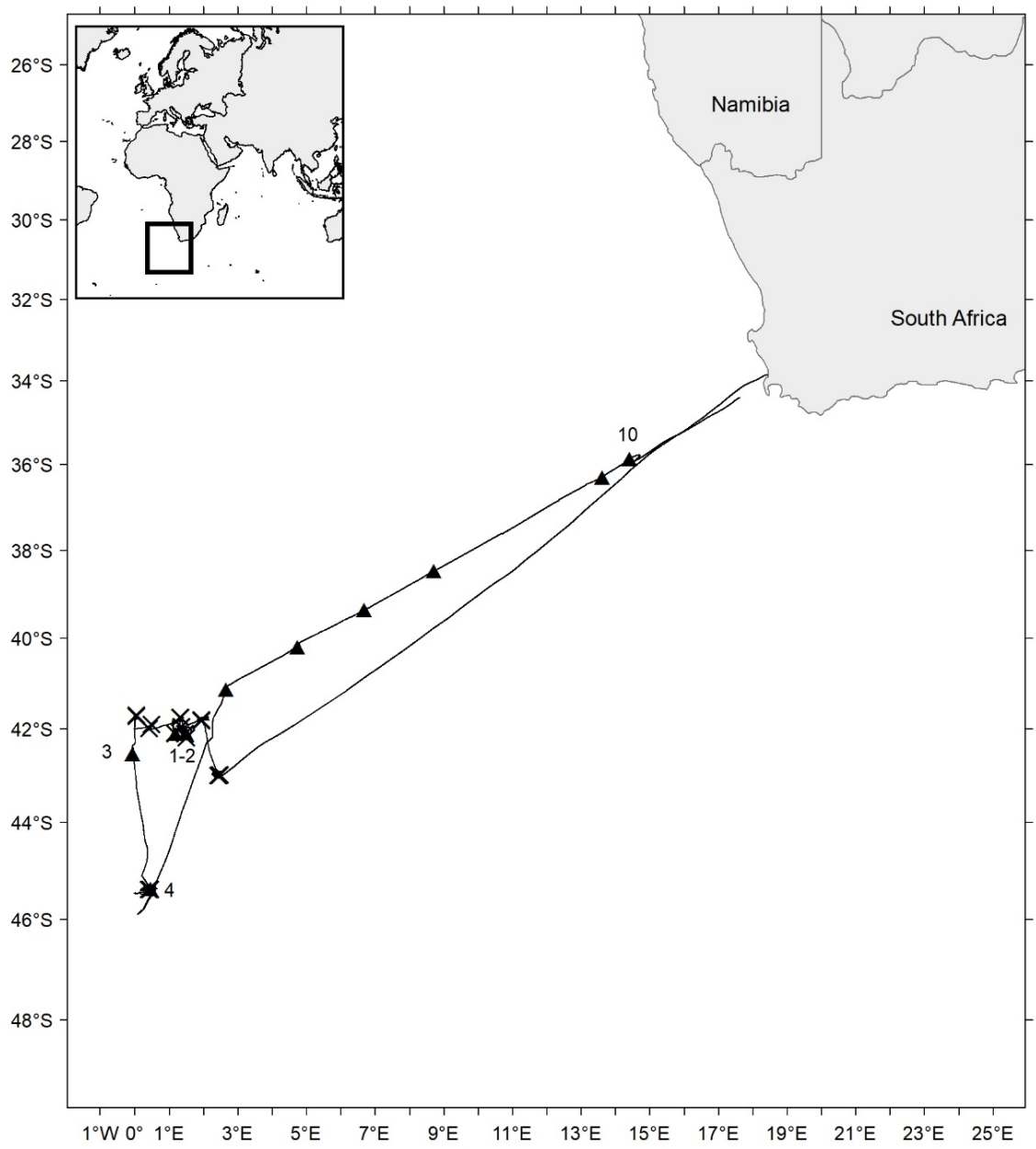
“ Dr. Fridtjof Nansen” 2019



Cruise no 2019401 "Dr. Fridtjof Nansen" (Chart I)
24 January–24 February 2019

z CTD st.no 1-31
○ Plankton st. (several gears)

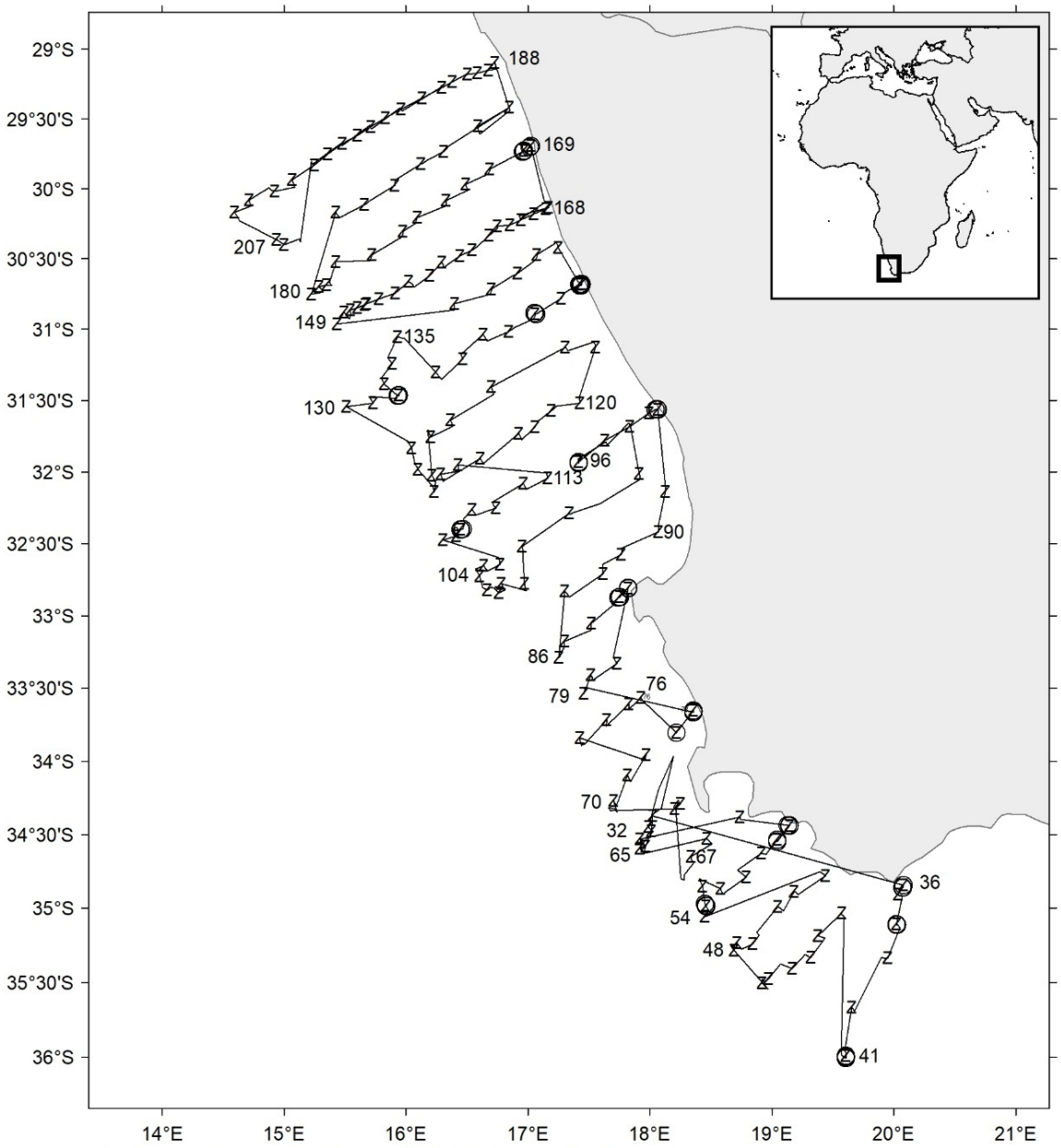
Fig. 155



Cruise no 2019401 "Dr. Fridtjof Nansen" (Chart II)
24 January–24 February 2019

▲ Pelagic trawl st.no 1-10
× Vams (Video Assisted Multisampler)

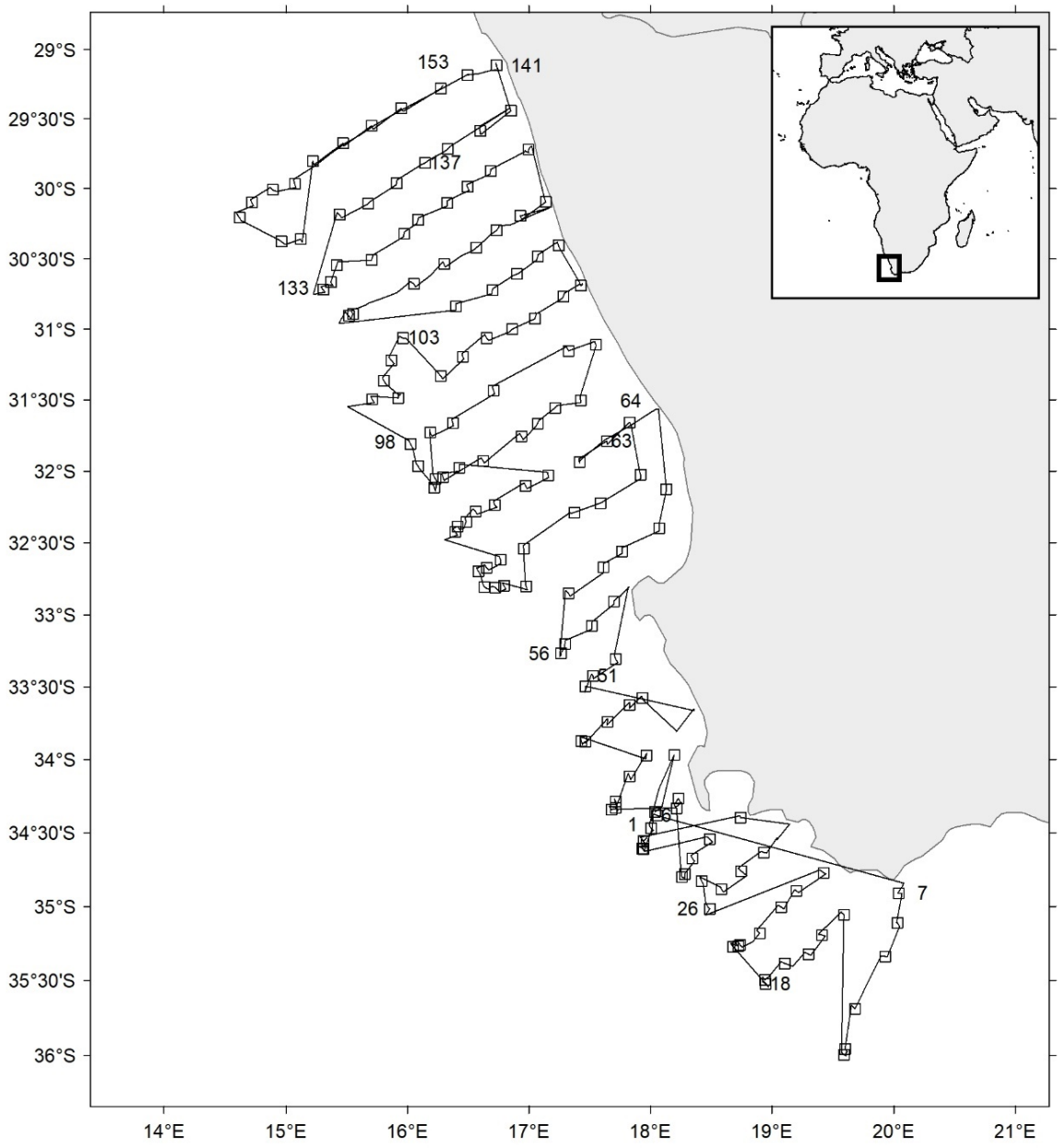
Fig. 156



Cruise no 2019402 "Dr. Fridtjof Nansen" (Chart I)
28 February–31 March 2019

z CTD st.no 32-207
○ Plankton st. (several gears)

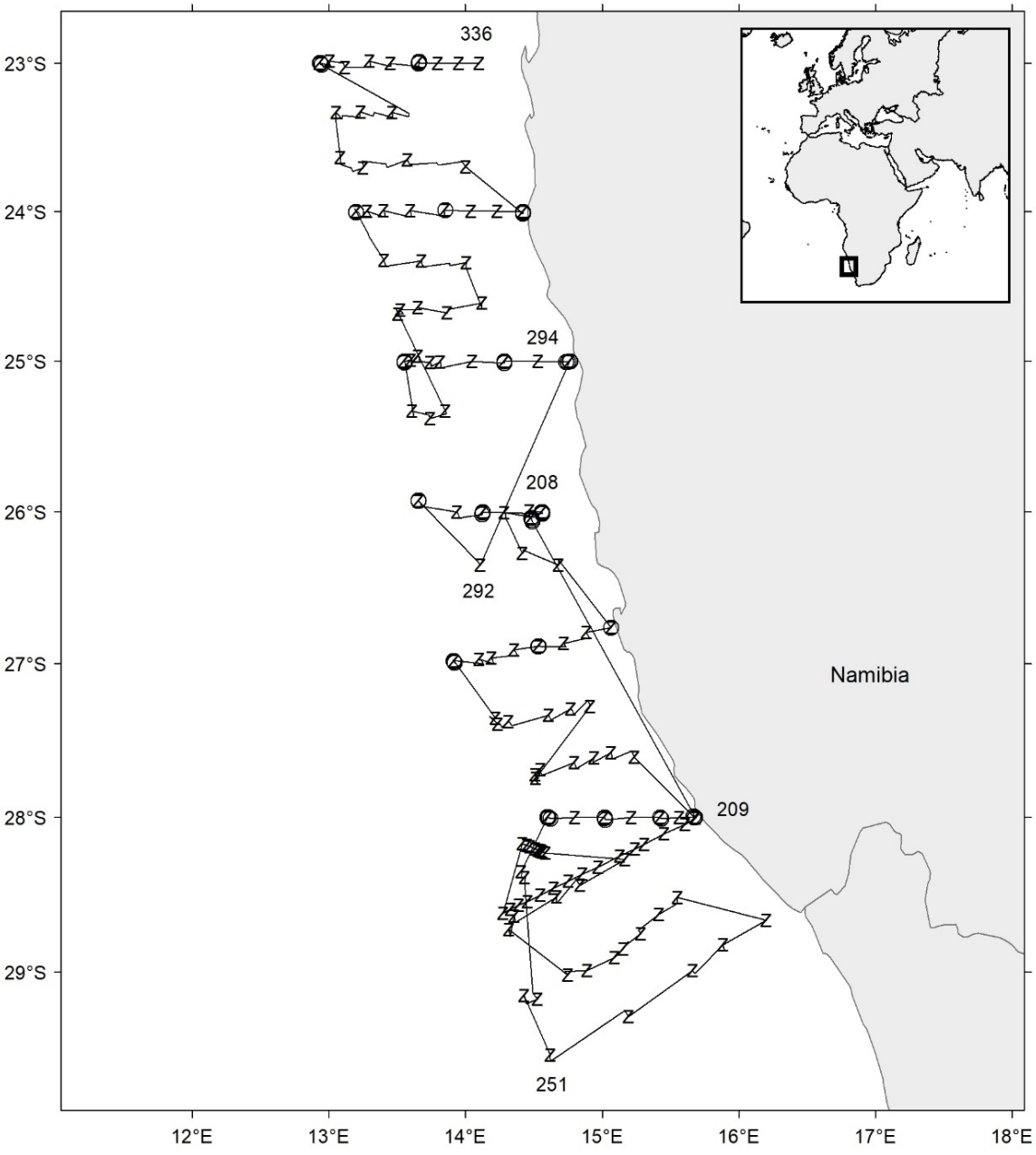
Fig. 157



Cruise no 2019402 "Dr. Fridtjof Nansen" (Chart II)
28 February–31 March 2019

□ Bottom trawl st.no 1-153

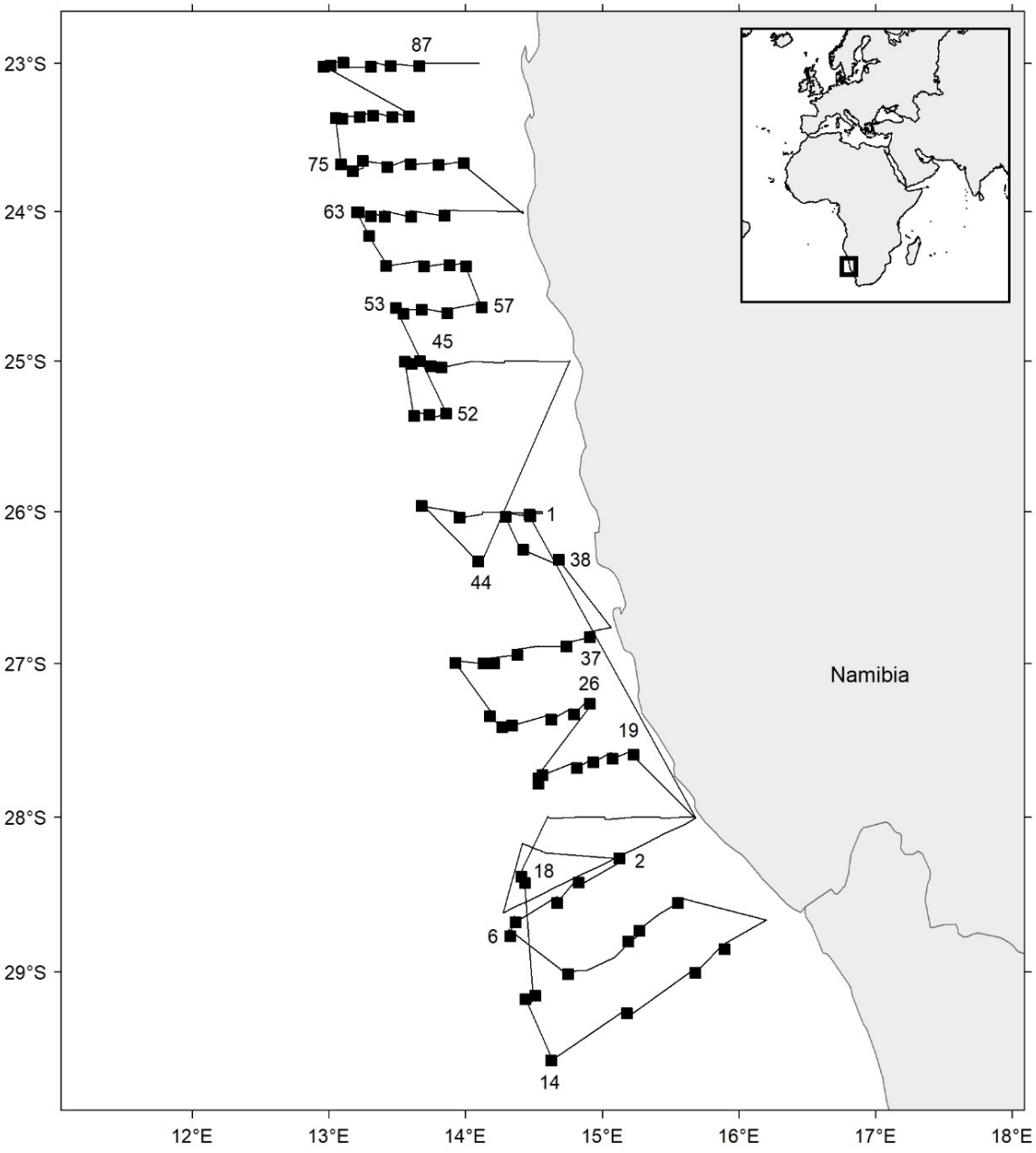
Fig. 158



Cruise no 2019403 "Dr. Fridtjof Nansen" (Chart I)
4–24 April 2019

z CTD st.no 208-336
○ Plankton st. (several gears)

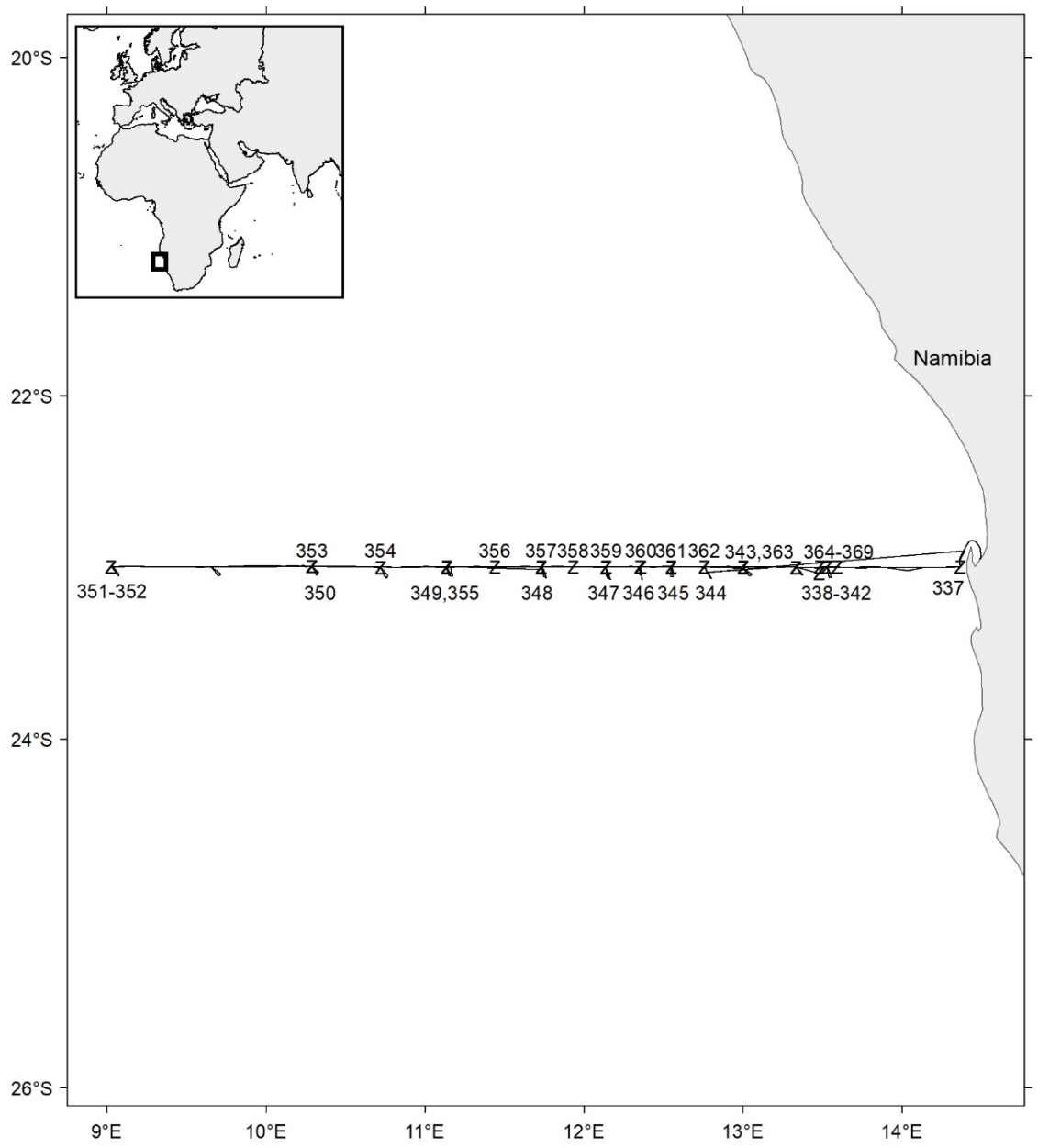
Fig. 159



Cruise no 2019403 "Dr. Fridtjof Nansen" (Chart II)
4–24 April 2019

■ Bottom trawl st.no 1-87

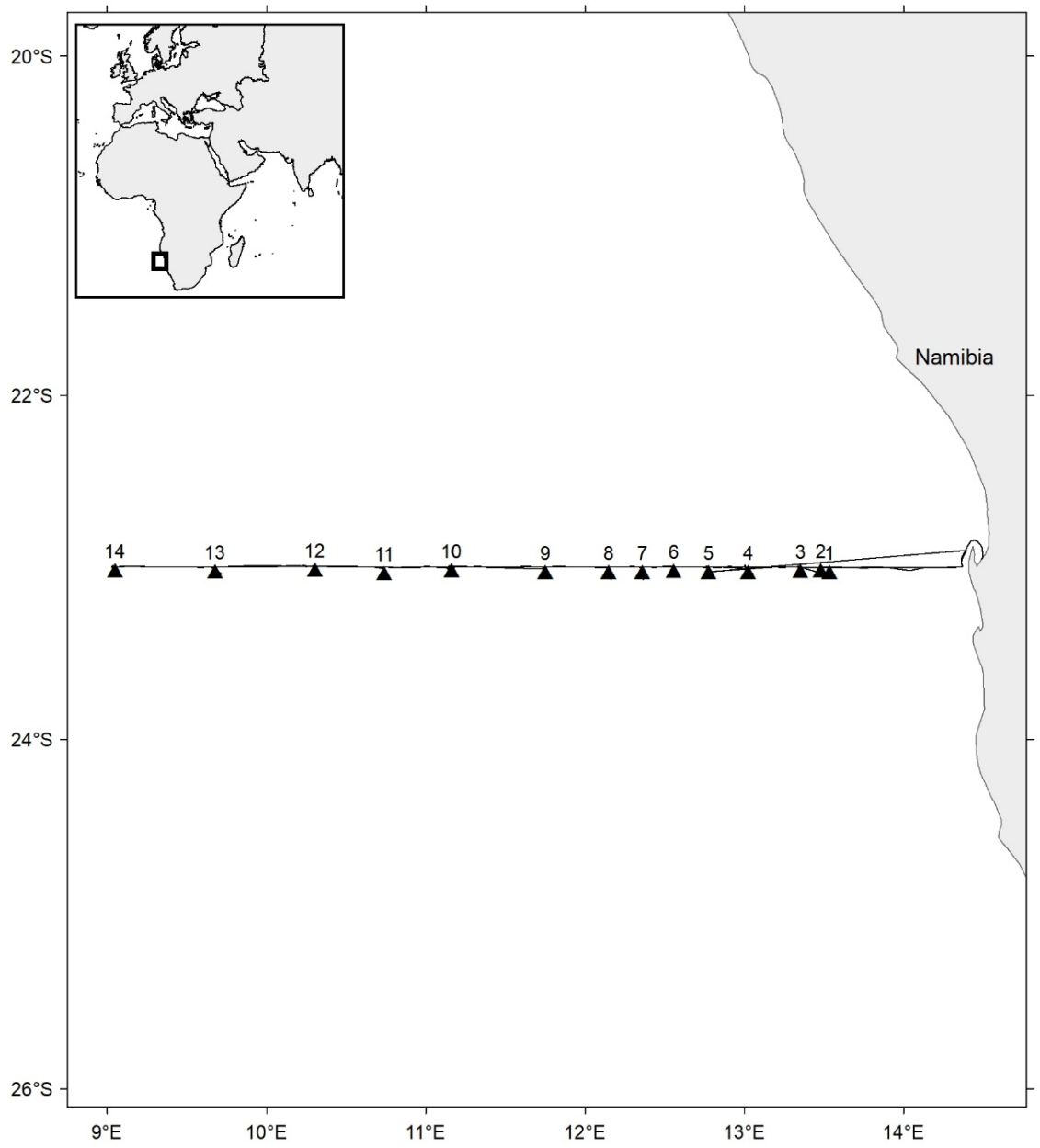
Fig. 160



Cruise no 2019404 "Dr. Fridtjof Nansen" (Chart I)
30 April–7 May 2019

z CTD st.no 337-369

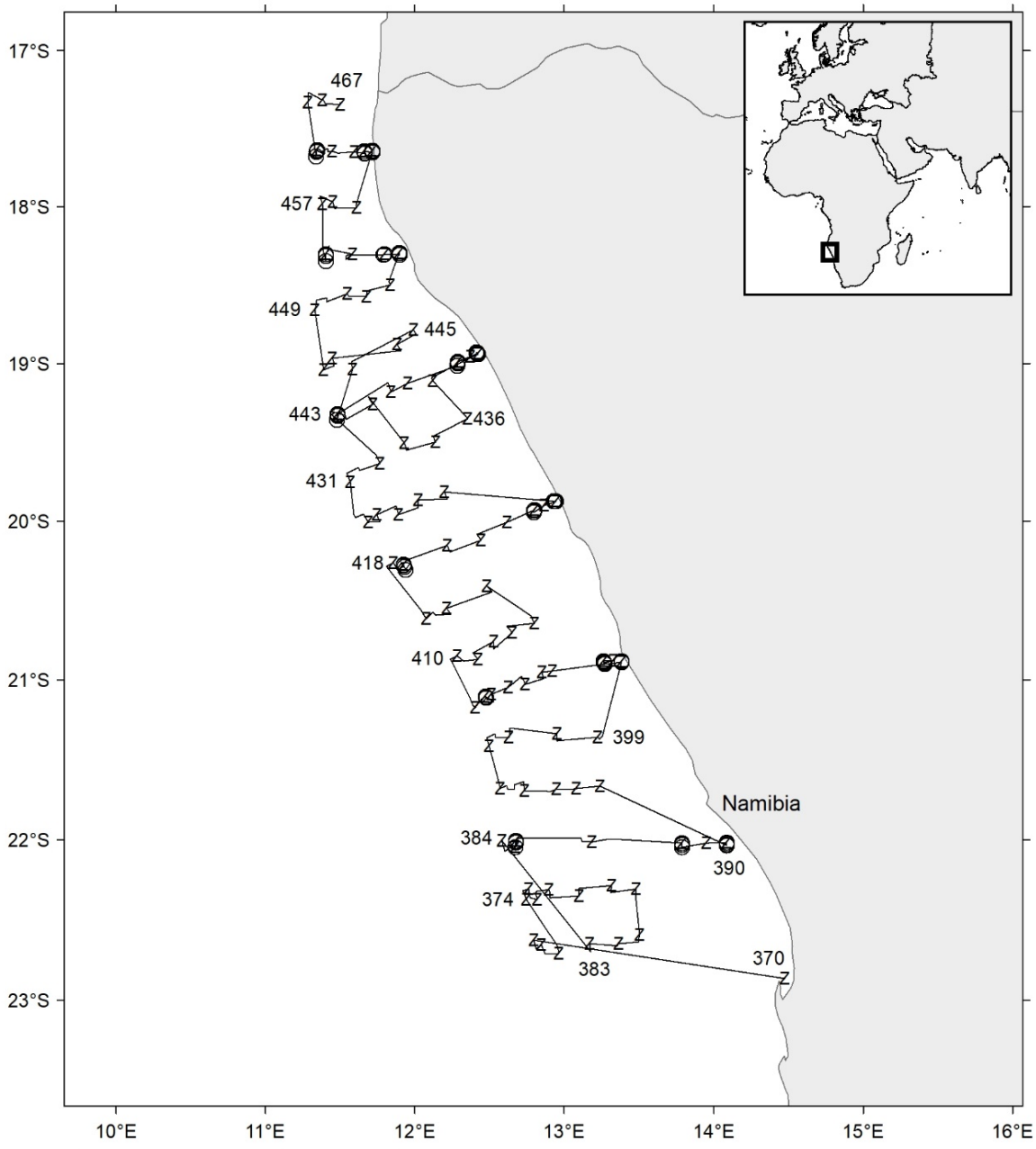
Fig. 161



Cruise no 2019404 "Dr. Fridtjof Nansen" (Chart II)
30 April–7 May 2019

▲ Pelagic trawl st.no 1-14

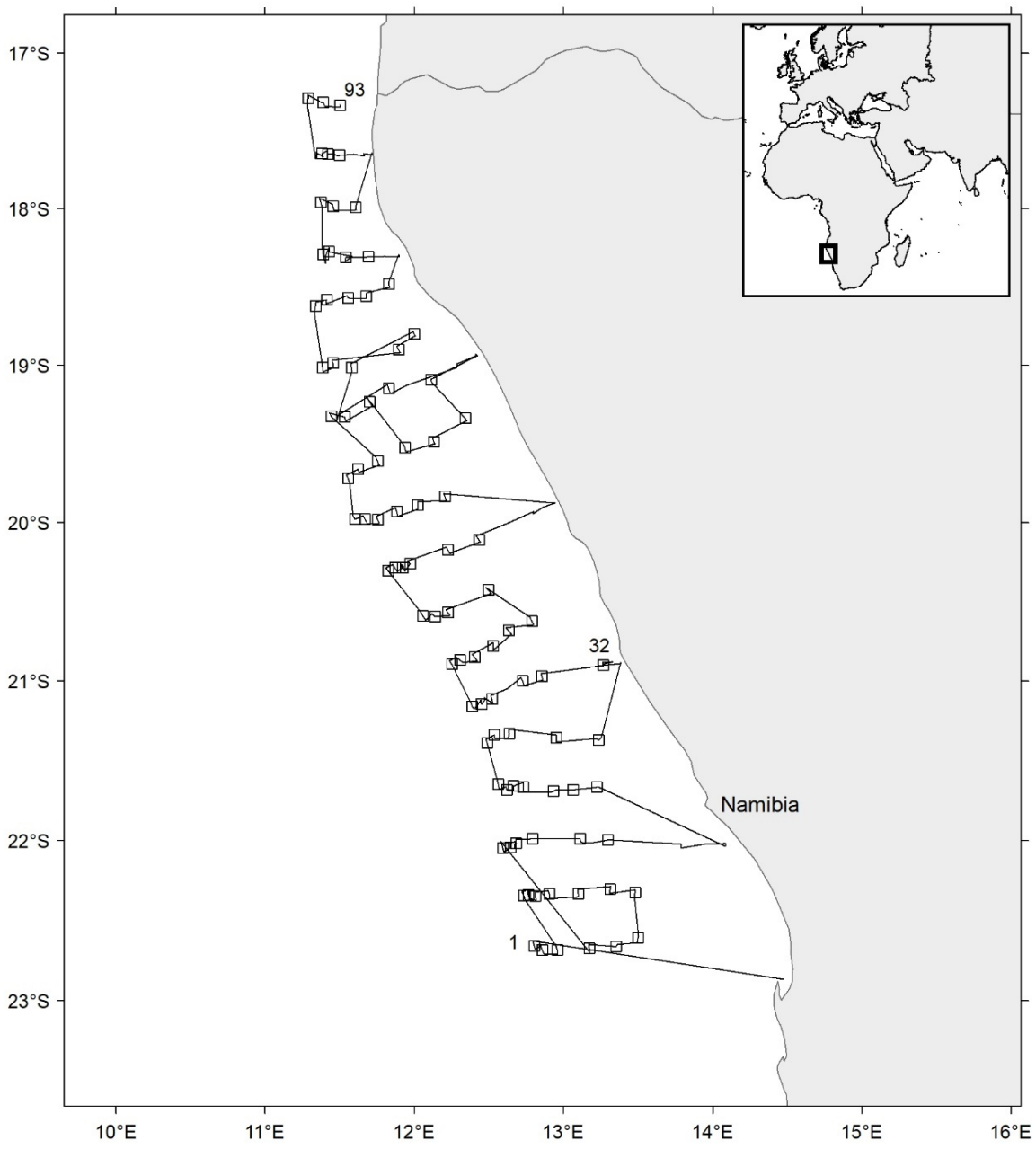
Fig. 162



Cruise no 2019405 "Dr. Fridtjof Nansen" (Chart I)
11–26 May 2019

z Ctd st.no 370-467
○ Plankton st. (several gears)

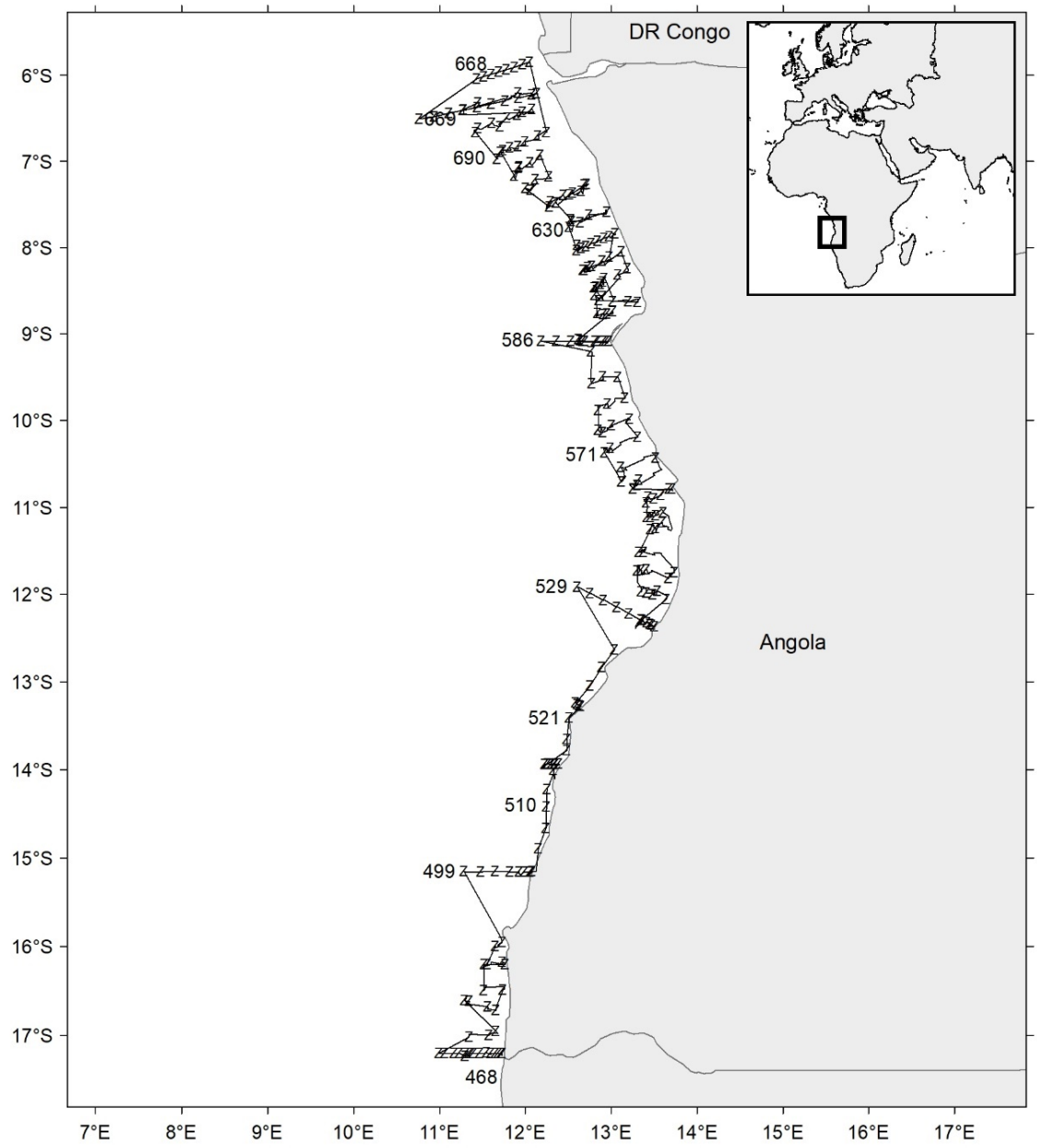
Fig. 163



Cruise no 2019405 "Dr. Fridtjof Nansen" (Chart II)
11–26 May 2019

□ Bottom trawl st.no. 1-93

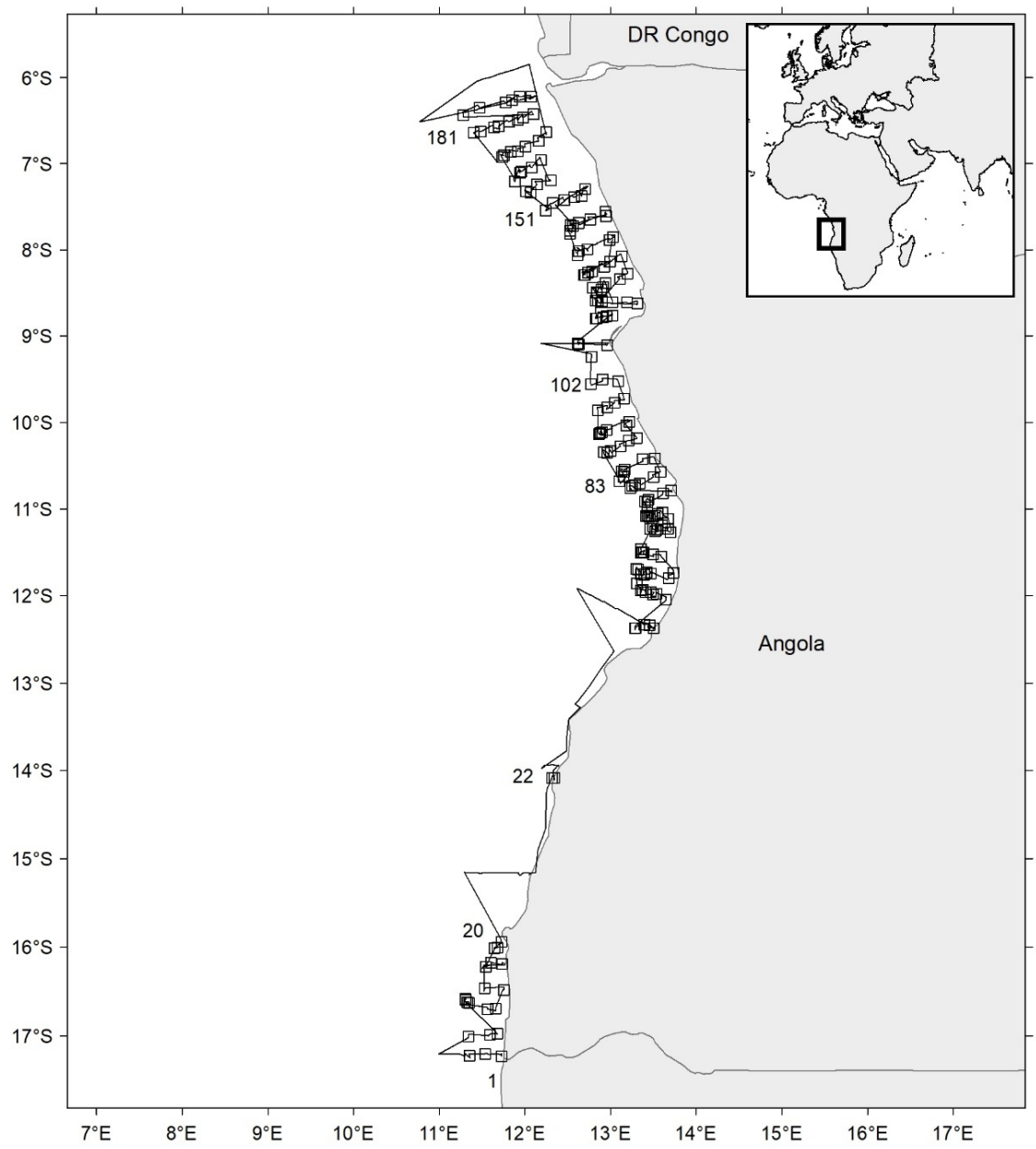
Fig. 164



Cruise no 2019406 "Dr. Fridtjof Nansen" (Chart I)
26 May–26 June 2019

z Ctd st.no 468-690

Fig. 165



Cruise no 2019406 "Dr. Fridtjof Nansen" (Chart II)
26 May–26 June 2019

□ Bottom trawl st. 1-181

Fig. 166

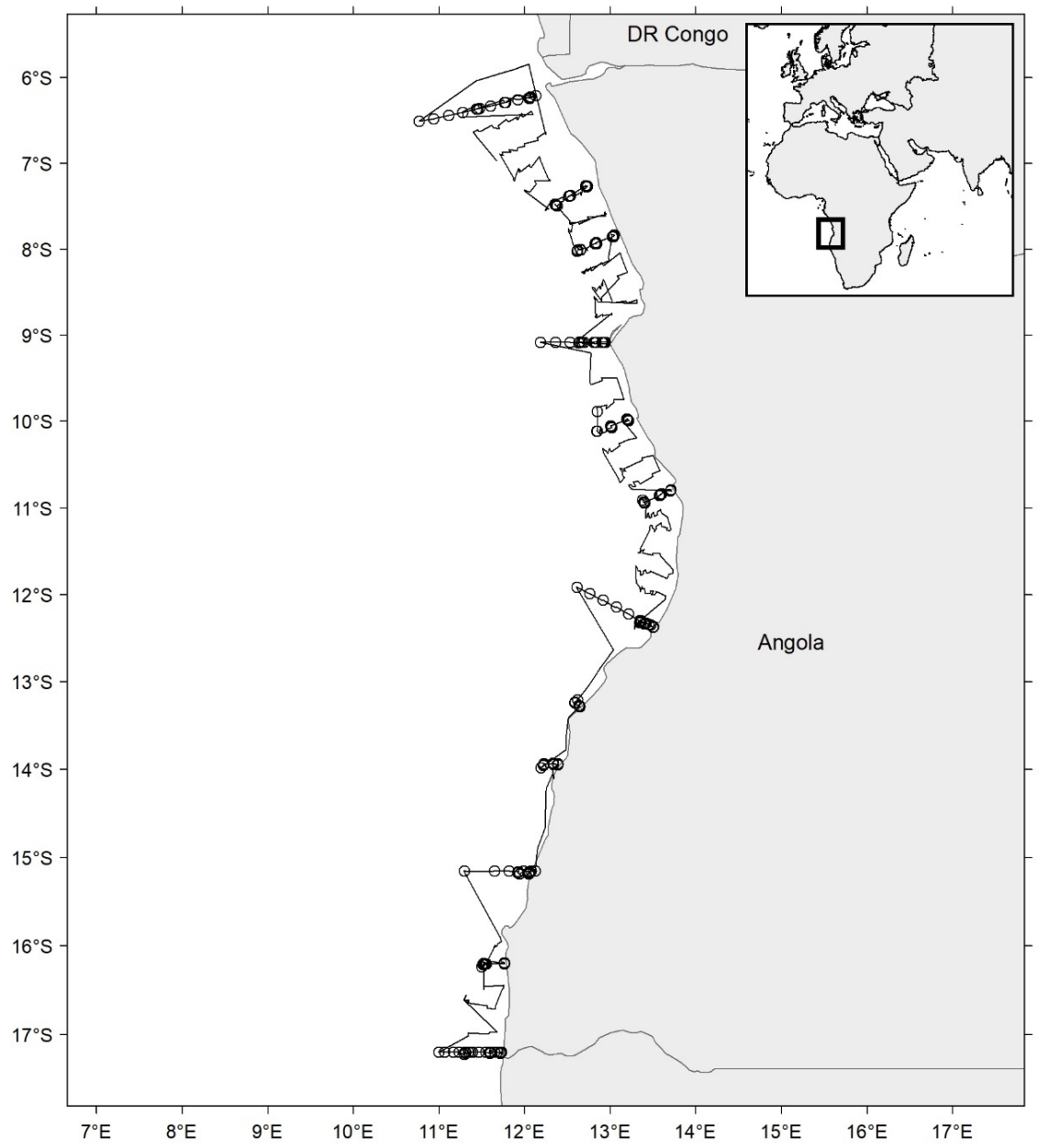
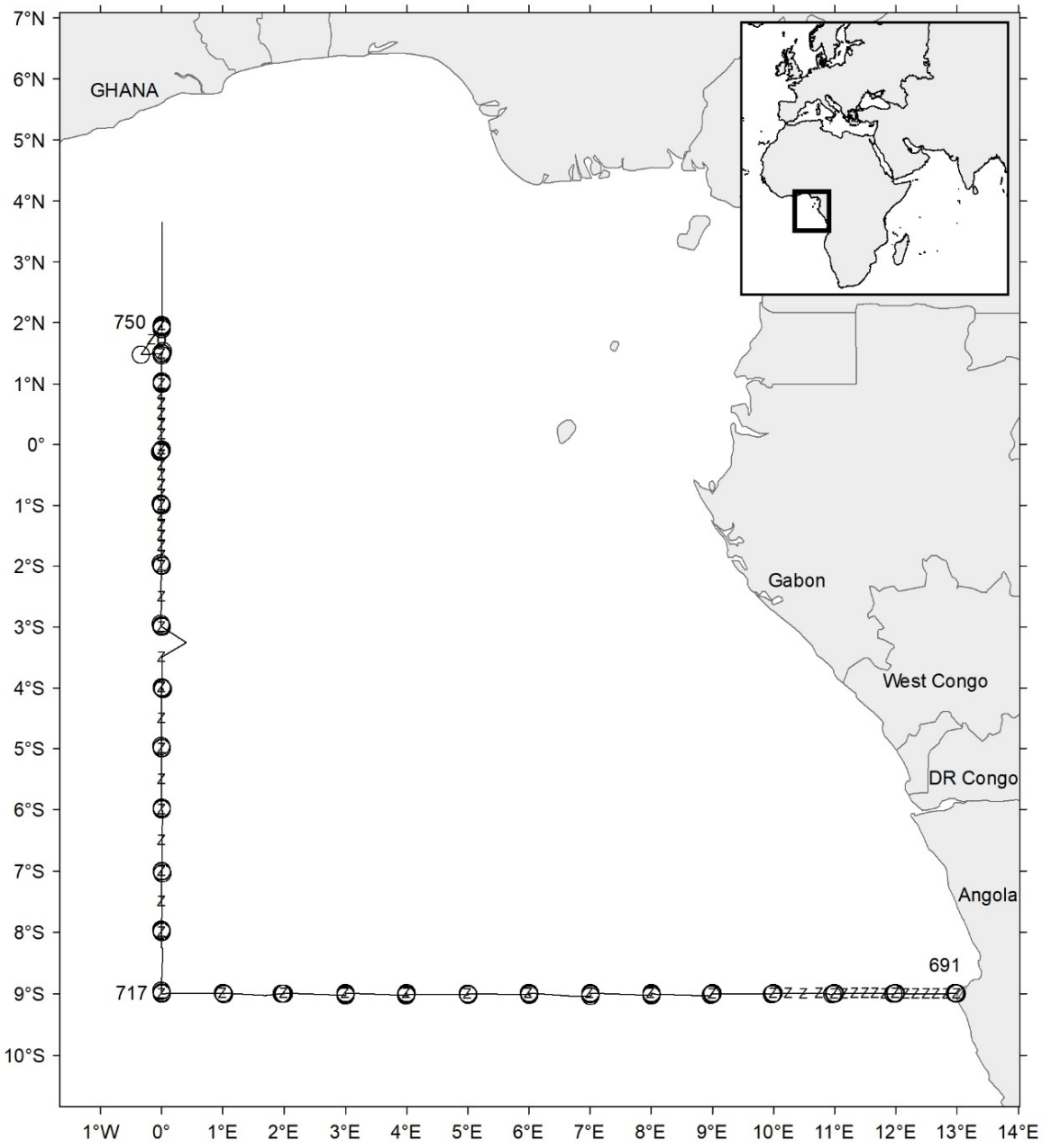

DR Congo
Angola
6°S
7°S
8°S
9°S
10°S
11°S
12°S
13°S
14°S
15°S
16°S
17°S
7°E
8°E
9°E
10°E
11°E
12°E
13°E
14°E
15°E
16°E
17°E
Cruise no 2019406 "Dr. Fridtjof Nansen" (Chart III)
26 May–26 June 2019
○ Plankton st. (several gears)

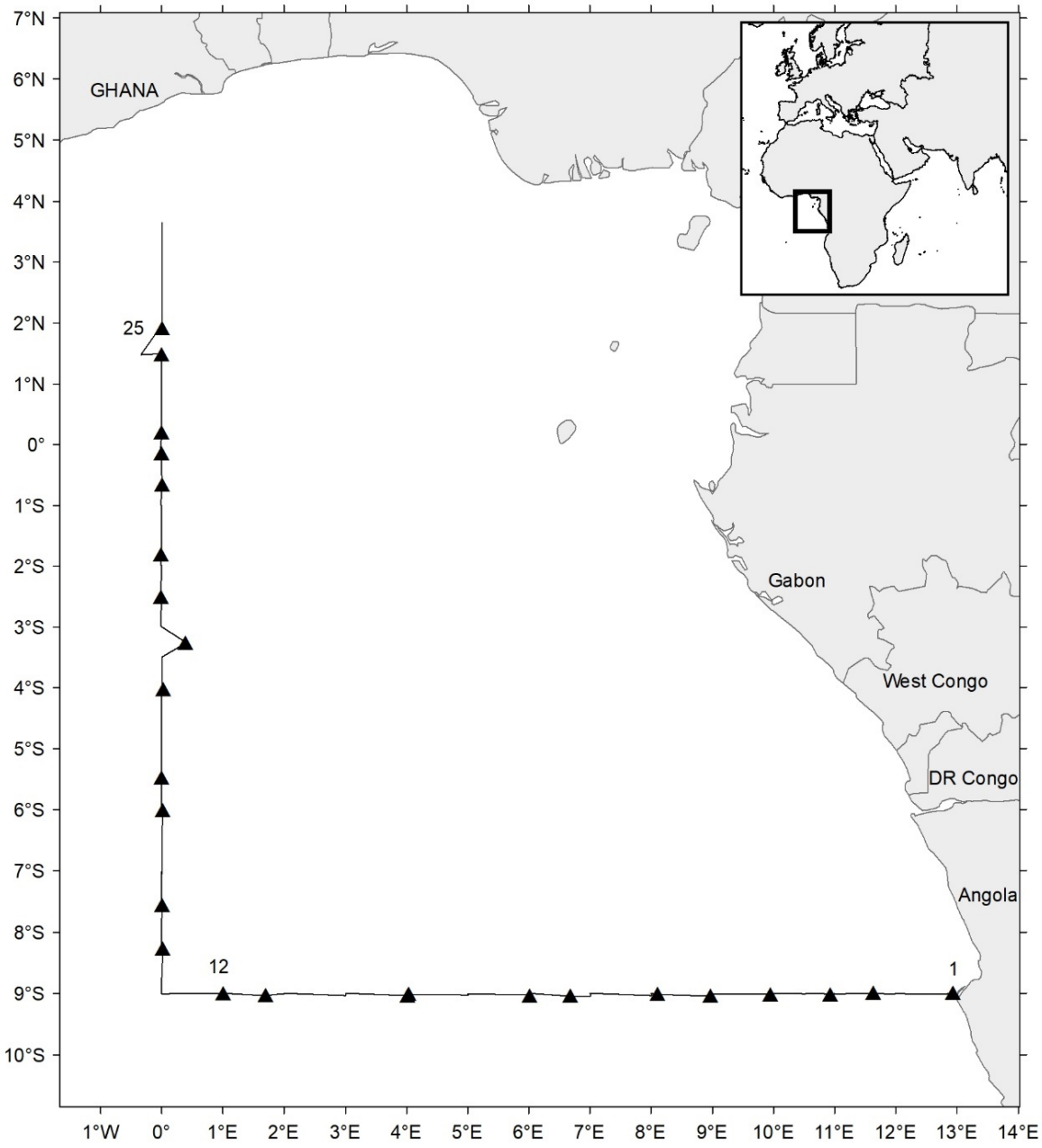
Fig. 167



Cruise no 2019407 "Dr. Fridtjof Nansen" (Chart I)
29 June–16 July 2019

z Ctd st.no 691-750
○ Plankton st. (several gears)

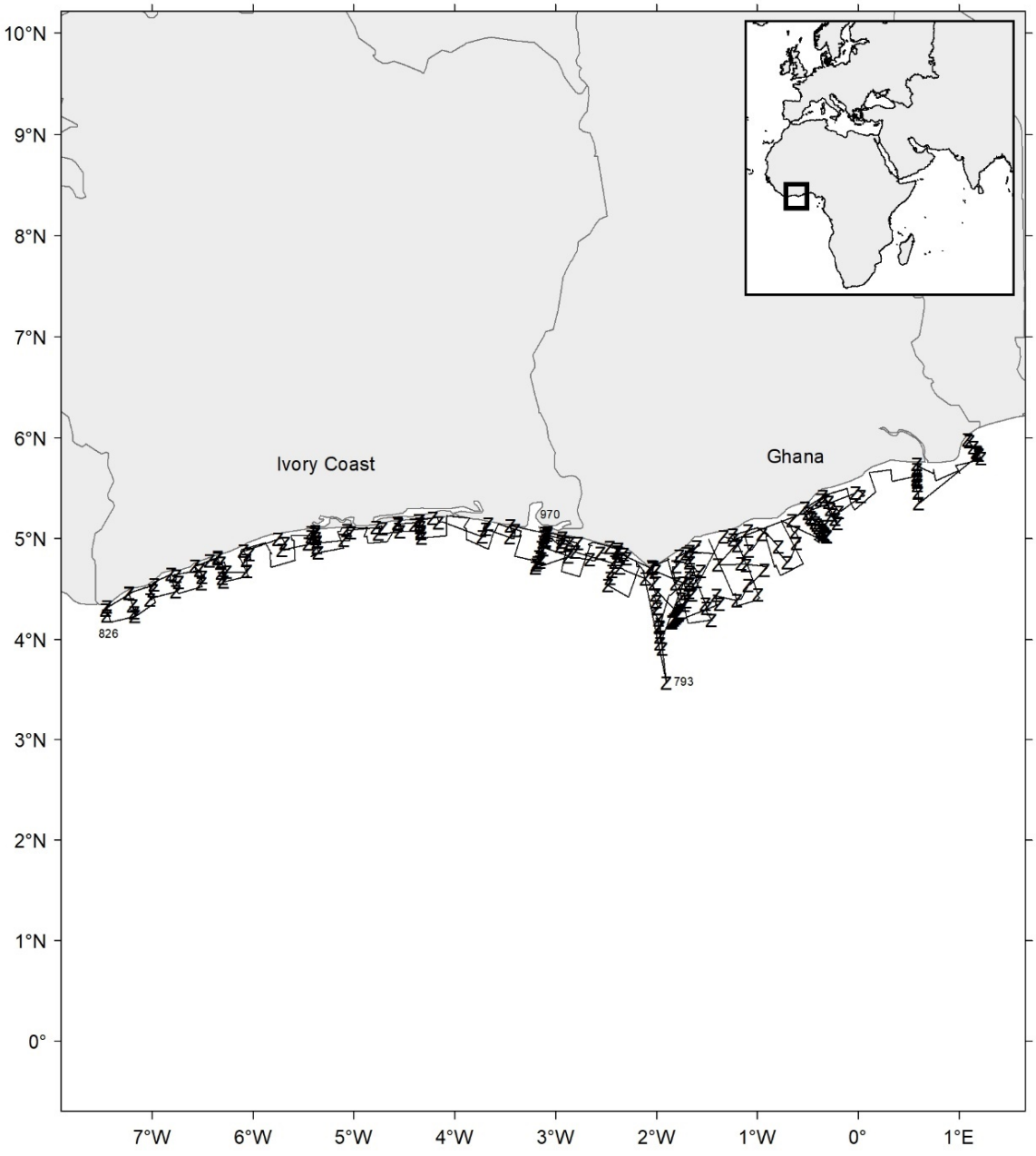
Fig. 168



Cruise no 2019407 "Dr. Fridtjof Nansen" (Chart II)
29 June–16 July 2019

▲Pelagic trawl st.no 1-25

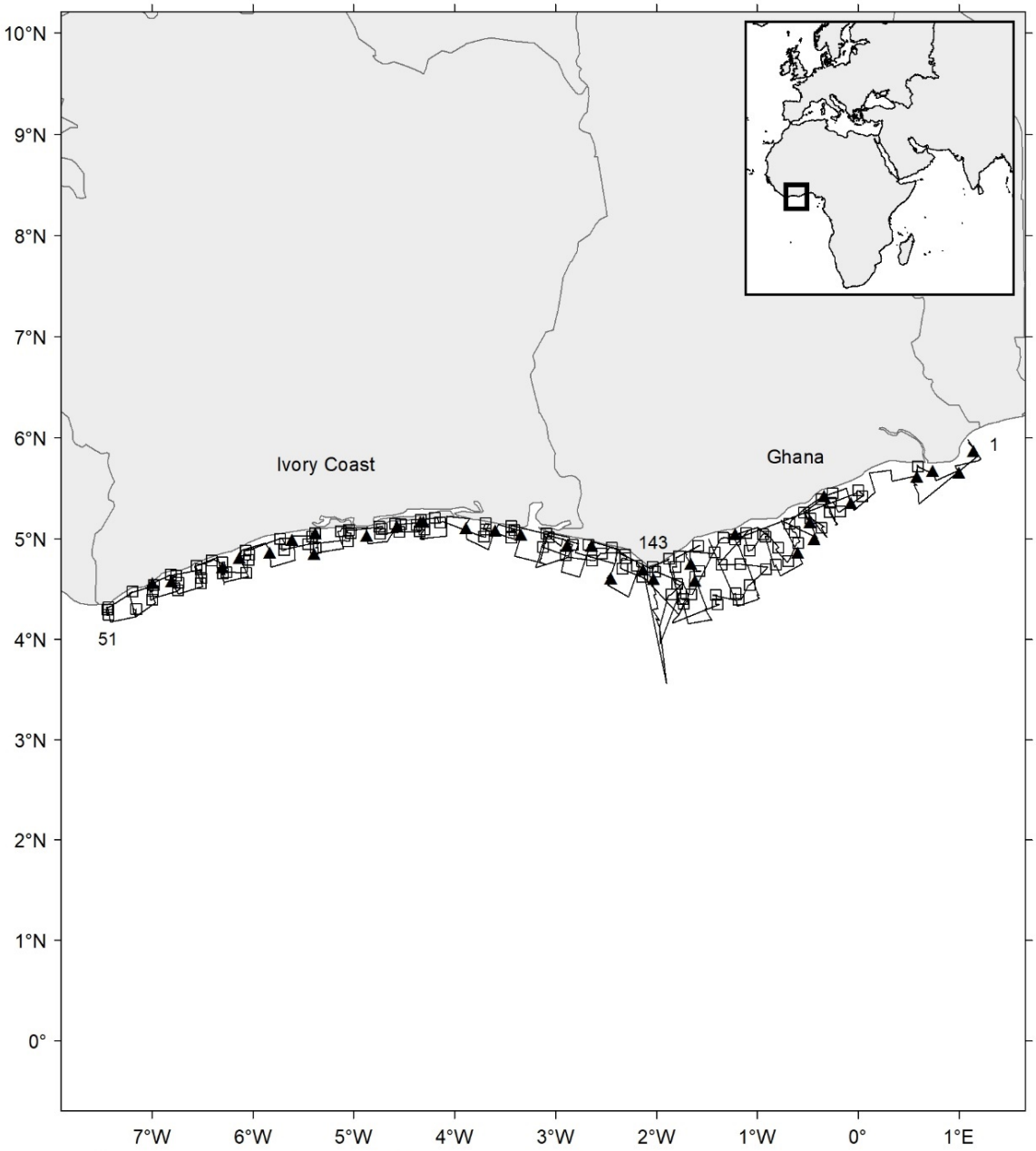
Fig. 169



Cruise no 2019408 "Dr. Fridtjof Nansen" (Chart I)
20 July–18 August 2019

z Ctd st.no 751-970

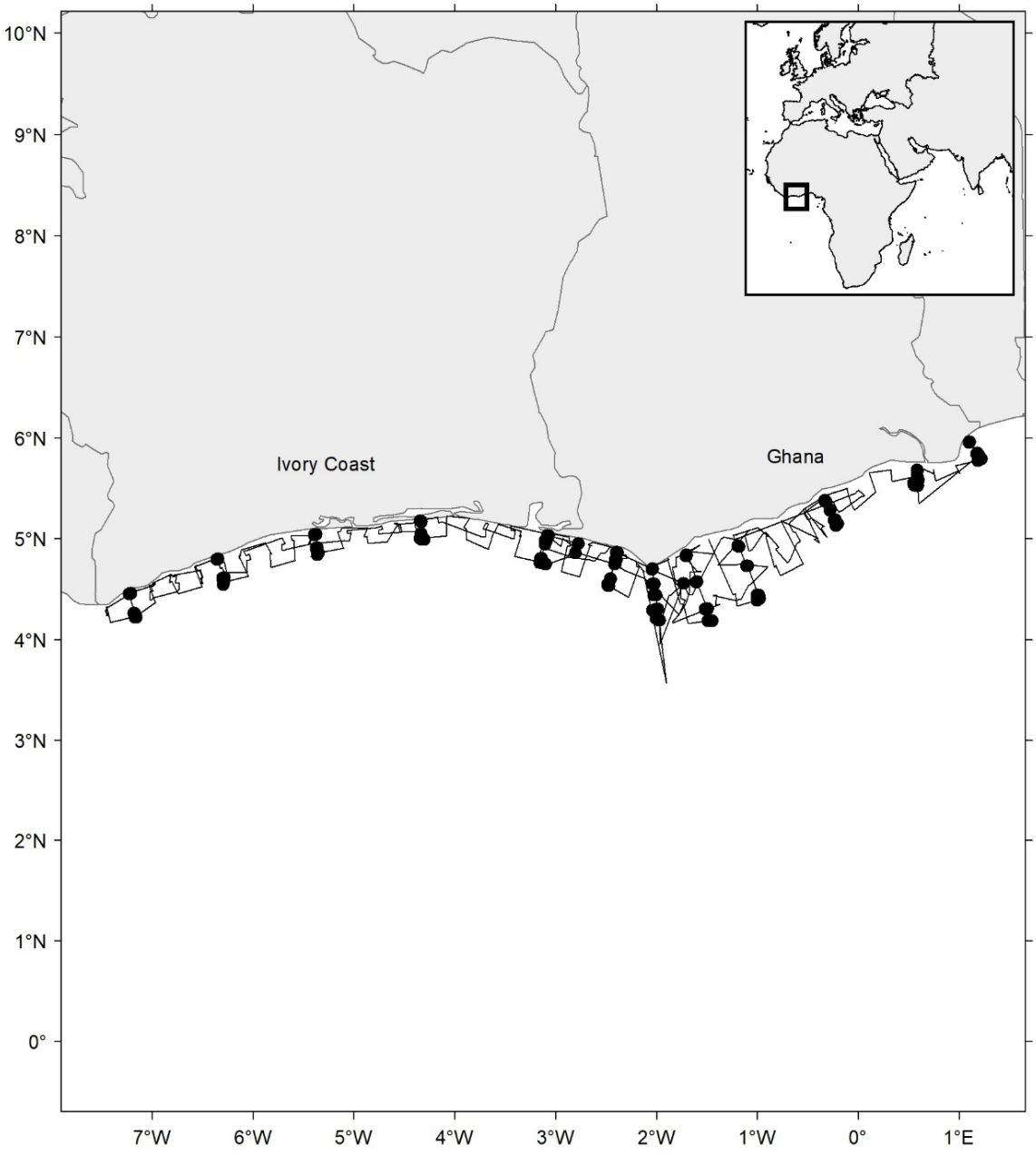
Fig. 170



Cruise no 2019408 "Dr. Fridtjof Nansen" (Chart II)
20 July–18 August 2019

Trawl st.no 1-143
▲ Pelagic trawl
□ Bottom trawl

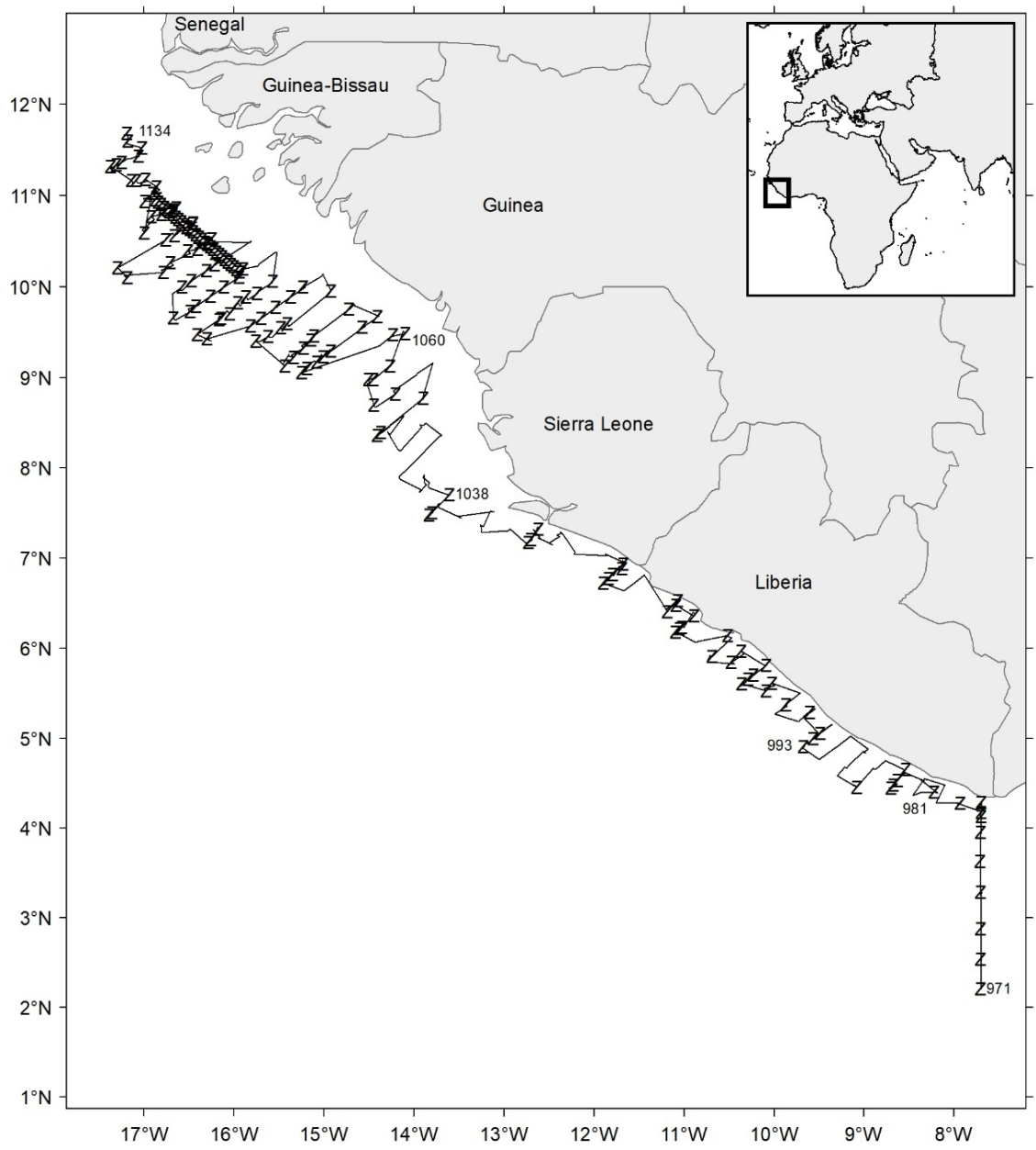
Fig. 171



Cruise no 2019408 "Dr. Fridtjof Nansen" (Chart III)
20 July–18 August 2019

● Plankton st. (several gears)

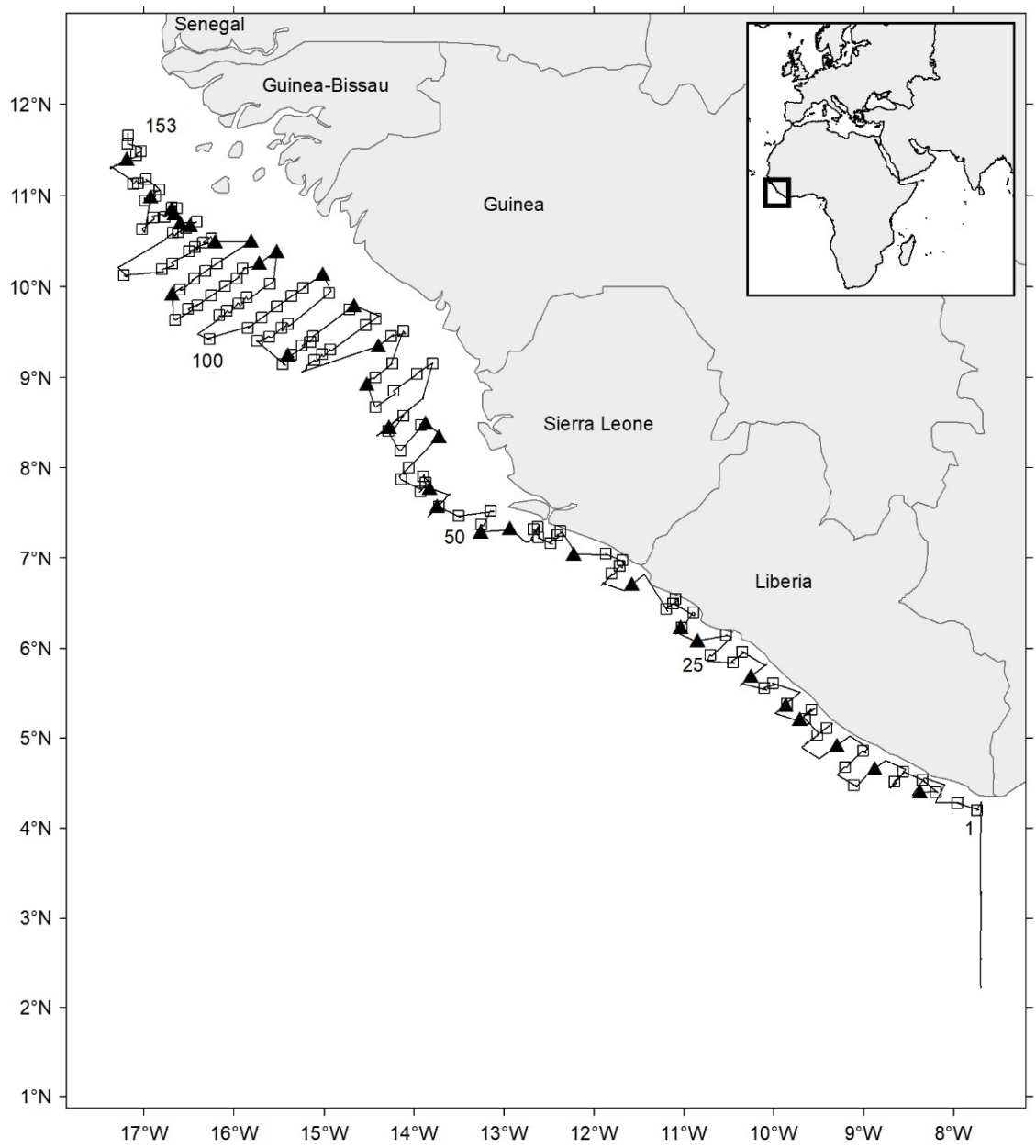
Fig. 172



Cruise no 2019409 "Dr. Fridtjof Nansen" (Chart I)
22 August–23 September 2019

z Ctd st.no 971-1134

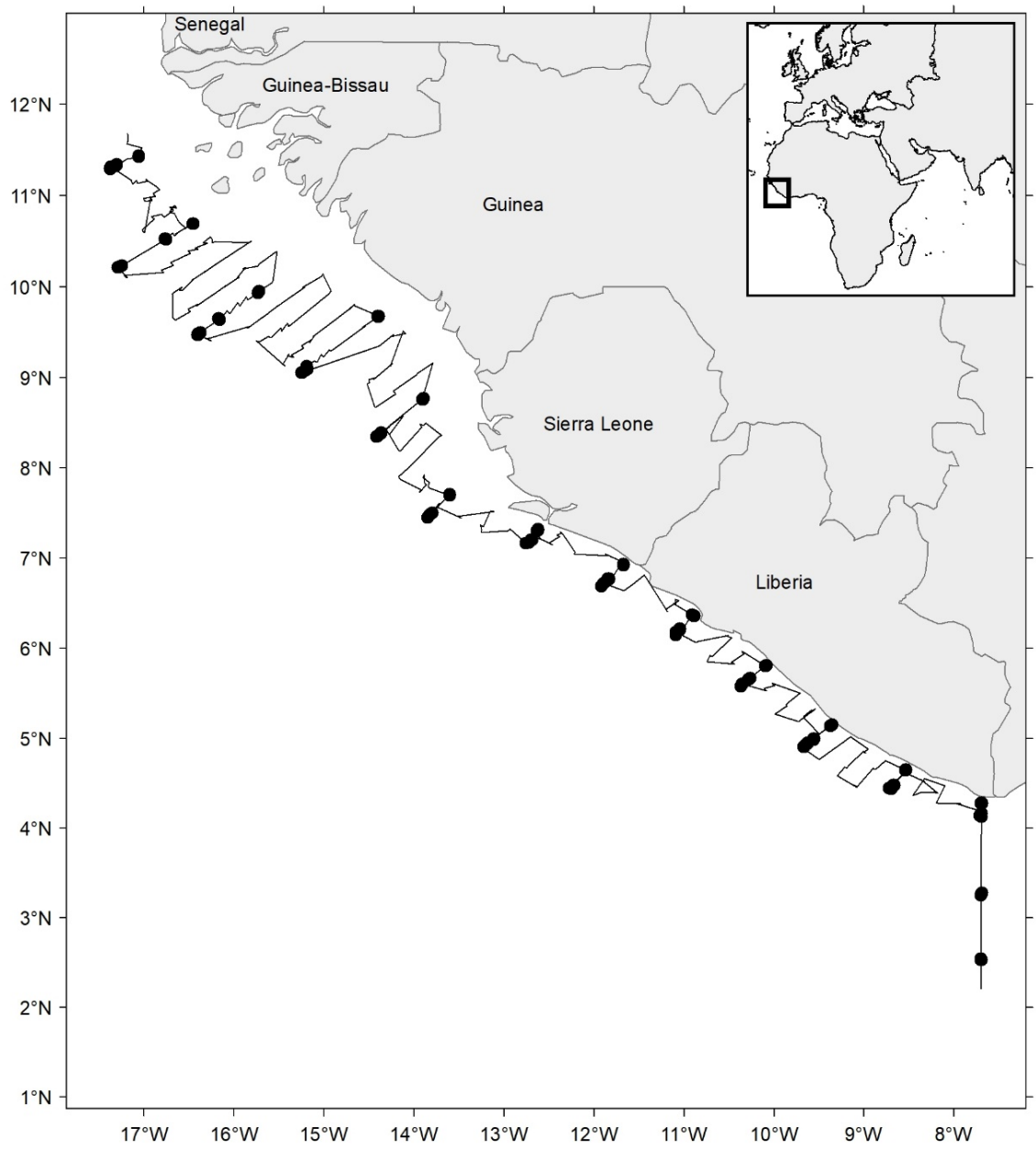
Fig.173



Cruise no 2019409 "Dr. Fridtjof Nansen" (Chart II)
22 August–23 September 2019

Trawl st.no 1-153
▲ Pelagic trawl
□ Bottom trawl

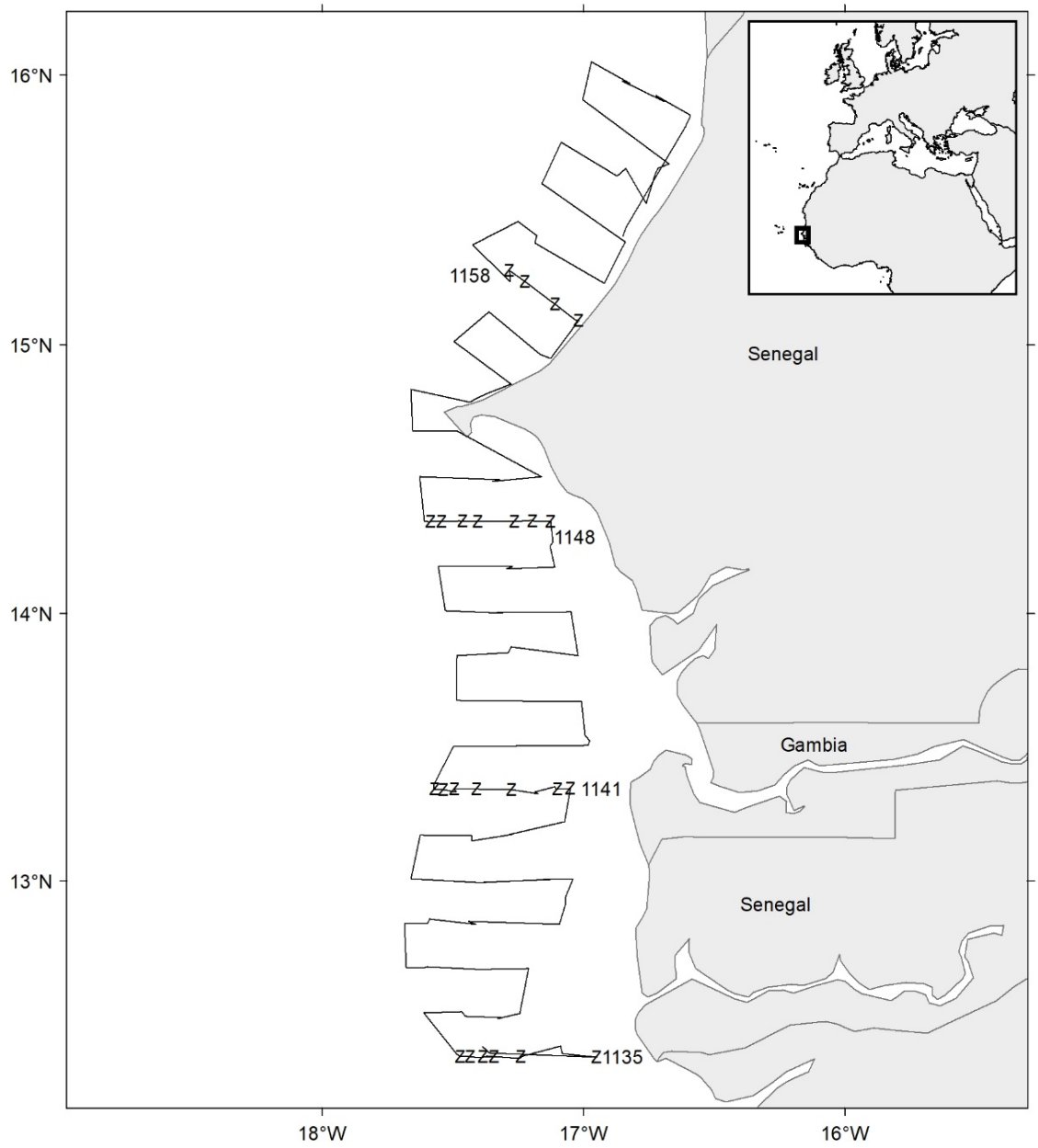
Fig. 174



Cruise no 2019409 "Dr. Fridtjof Nansen" (Chart III)
22 August–23 September 2019

●Plankton st. (several gears)

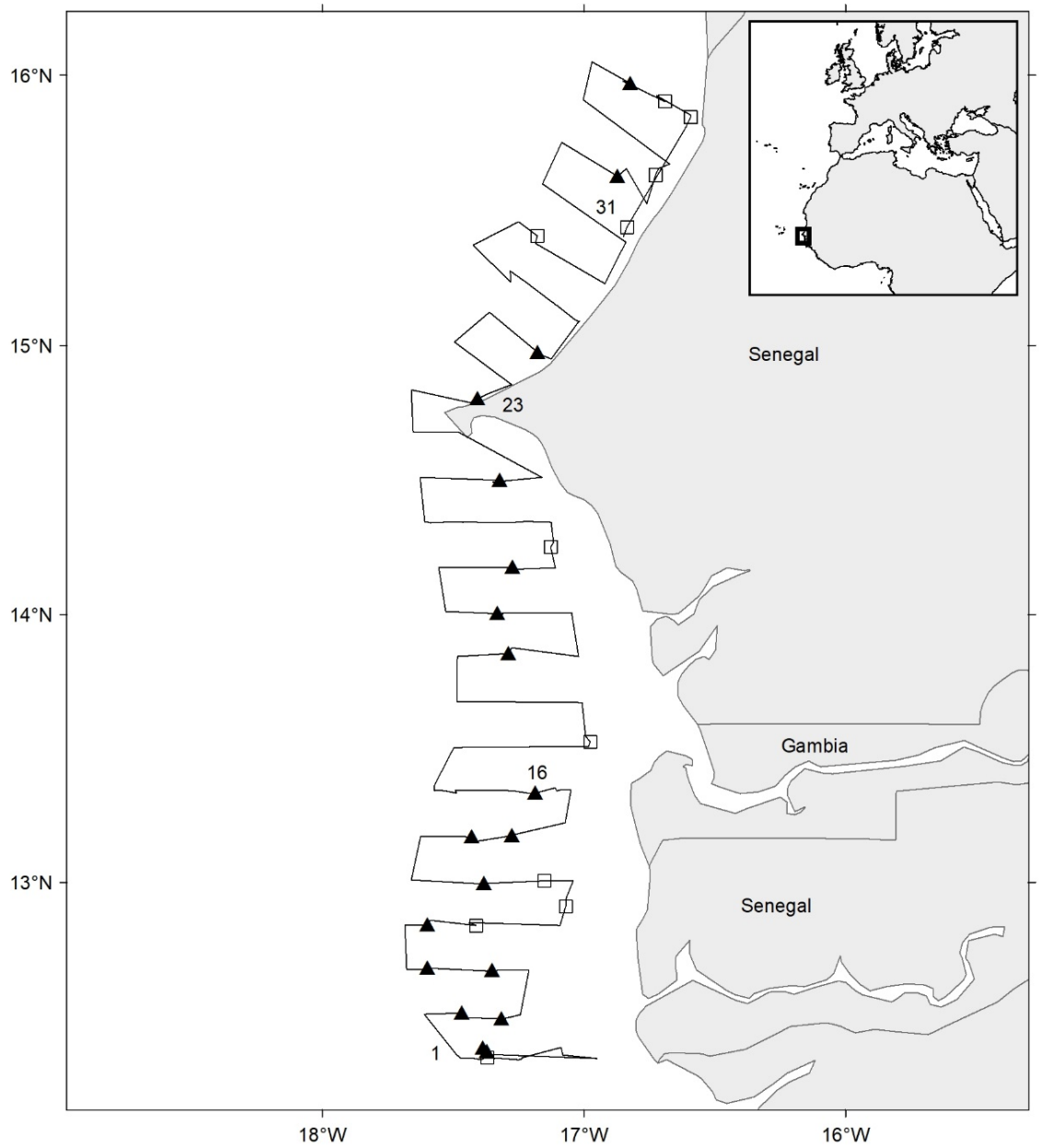
Fig. 175



Cruise no 2019411 "Dr. Fridtjof Nansen" (Chart I)
26 September–7 October 2019

z Ctd st.no 1135-1158

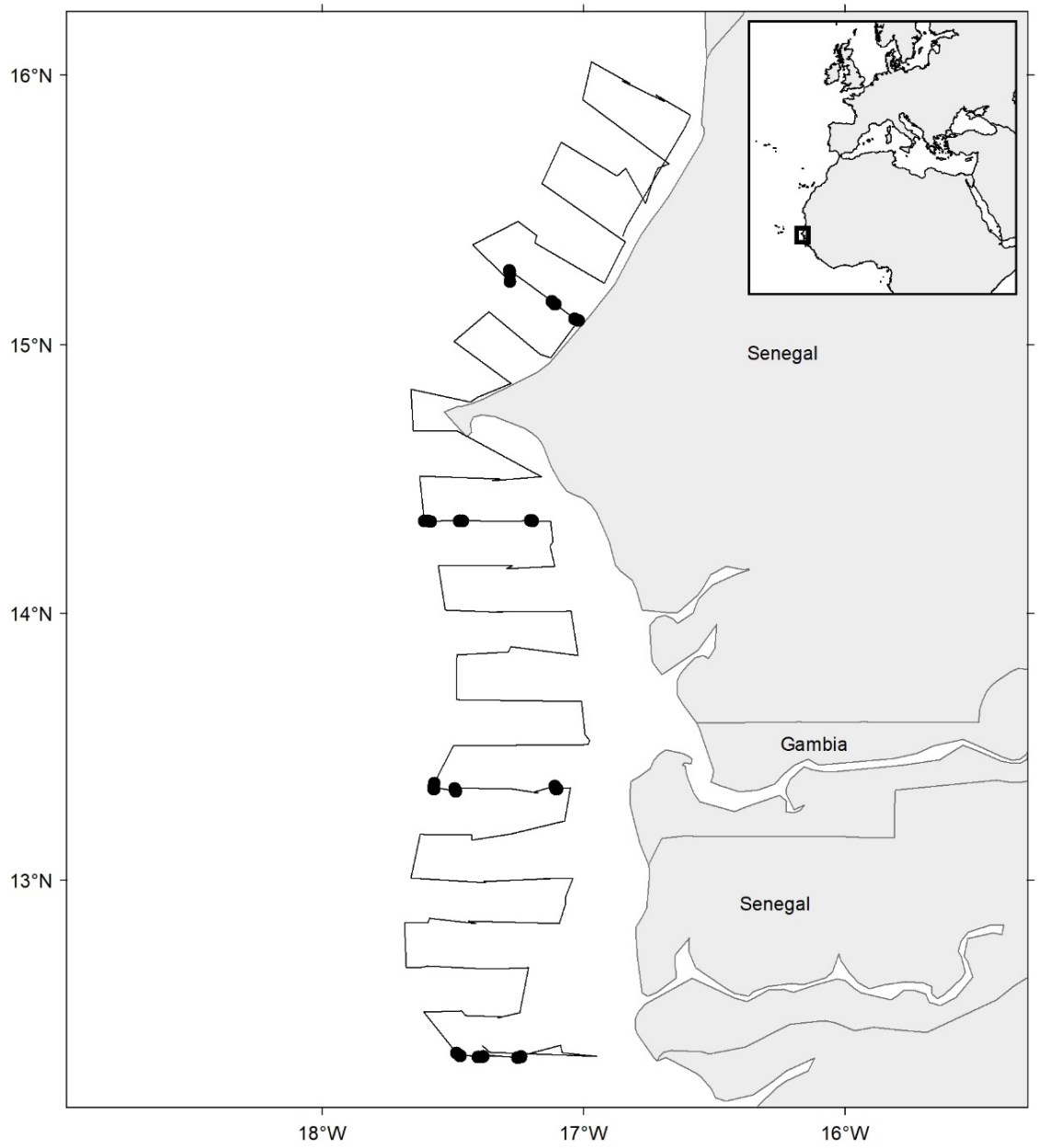
Fig. 176



Cruise no 2019411 "Dr. Fridtjof Nansen" (Chart II)
26 September–7 October 2019

Trawl st.no 1-31
▲ Pelagic trawl
□ Bottom trawl

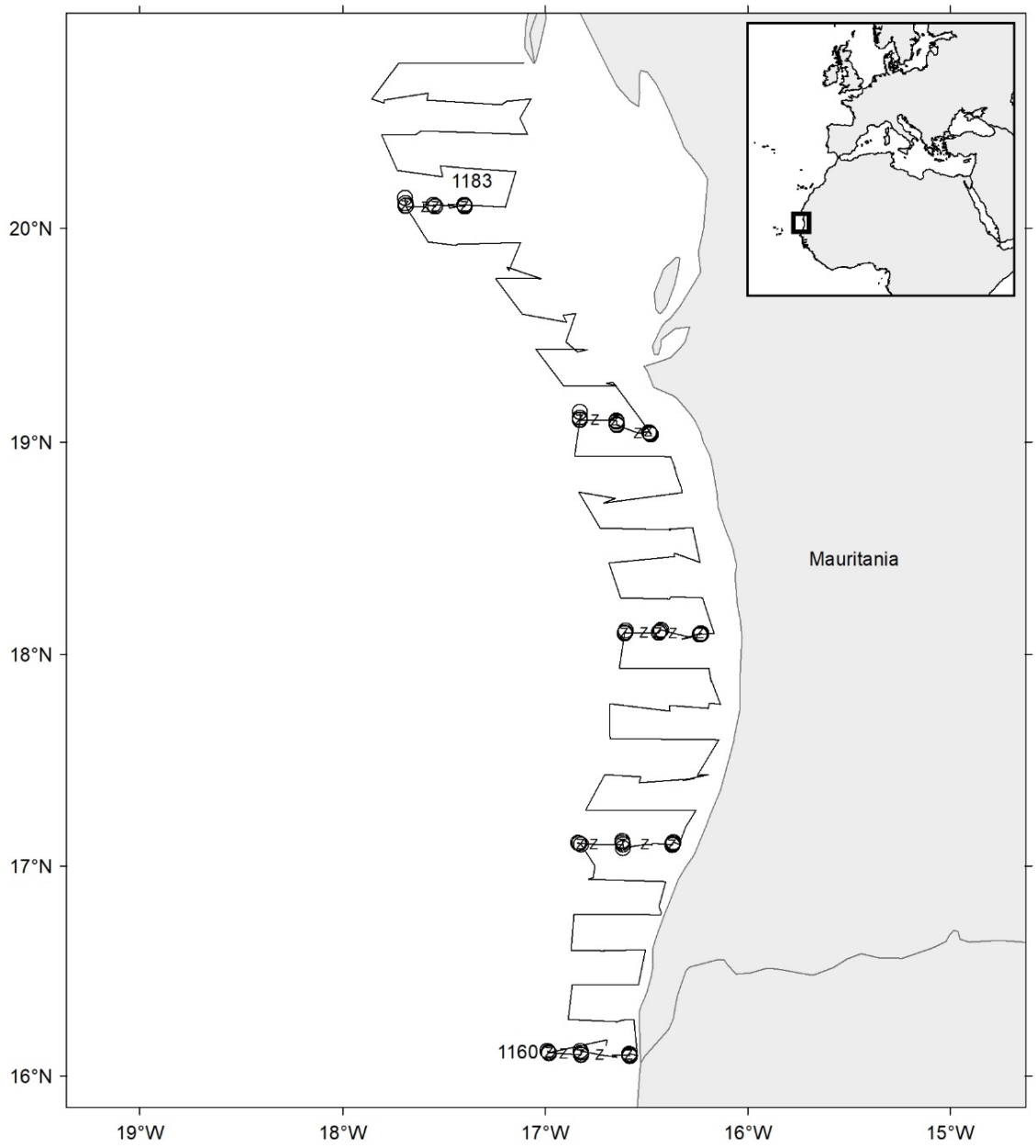
Fig. 177



Cruise no 2019411 "Dr. Fridtjof Nansen" (Chart III)
26 September–7 October 2019

● Plankton st. (several gears)

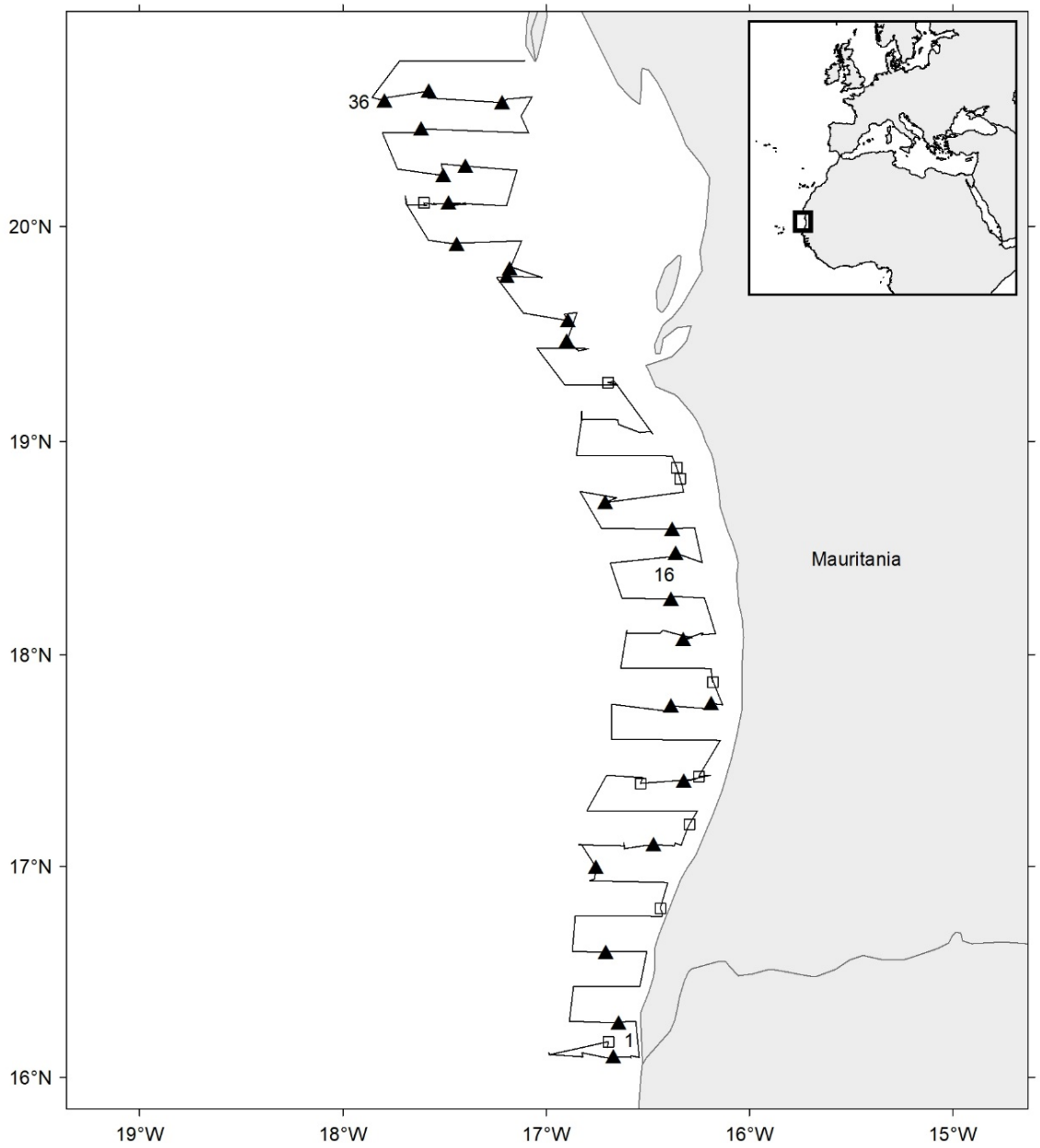
Fig. 178



Cruise no 2019412 "Dr. Fridtjof Nansen" (Chart I)
7–20 October 2019

z Ctd st.no 1160-1183
○ Plankton st. (several gears)

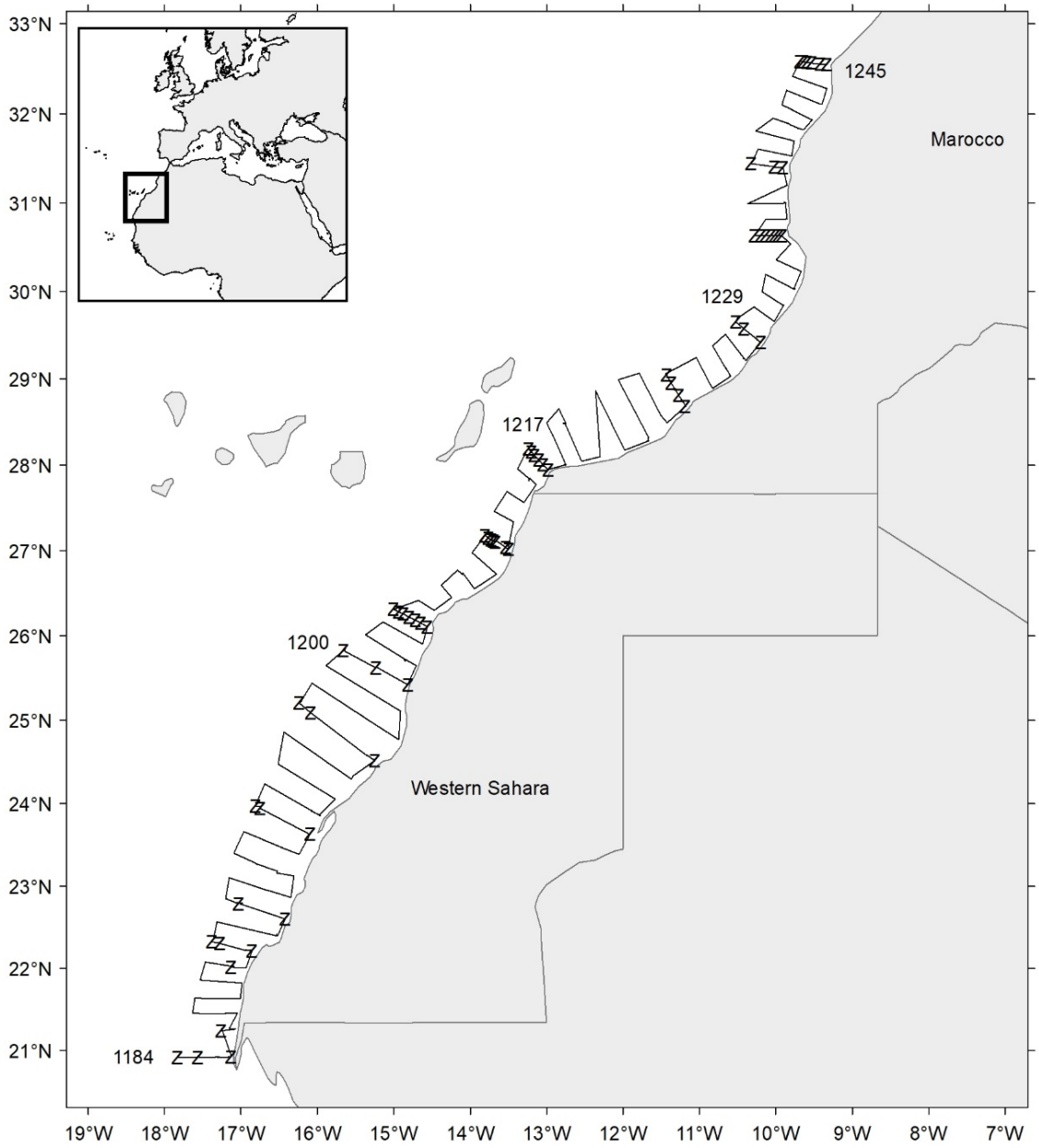
Fig. 179



Cruise no 2019412 "Dr. Fridtjof Nansen" (Chart II)
7–20 October 2019

Trawl st.no 1-36
▲ Pelagic trawl
□ Bottom trawl

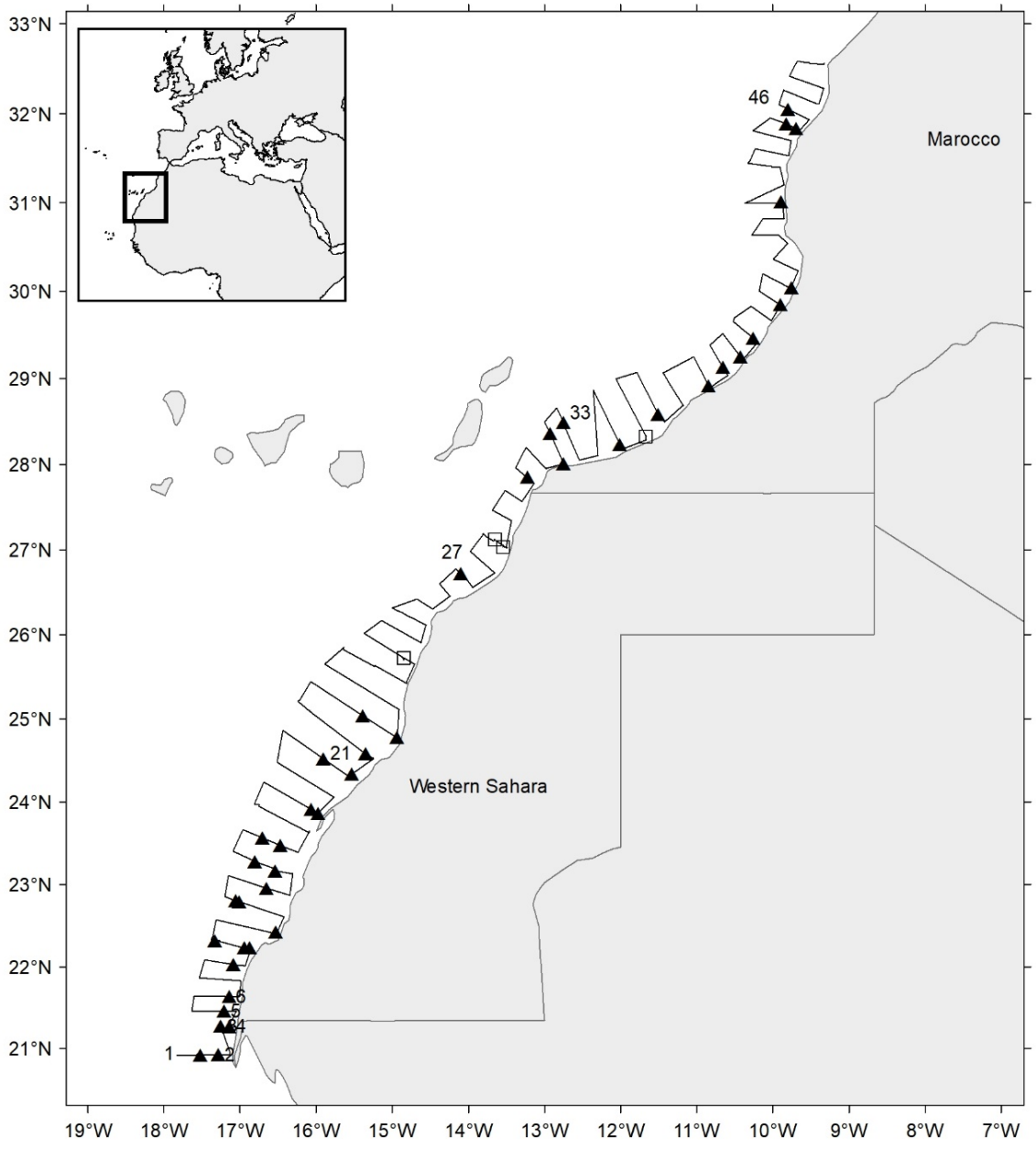
Fig. 180



Cruise no 2019413 "Dr. Fridtjof Nansen" (Chart I)
30 October–18 November 2019

z Ctd st.no1184-1245

Fig.181



Cruise no 2019413 "Dr. Fridtjof Nansen" (Chart II)
30 October–18 November 2019

Trawl st.no 1-46
▲ Pelagic trawl
□ Bottom trawl

Fig.182

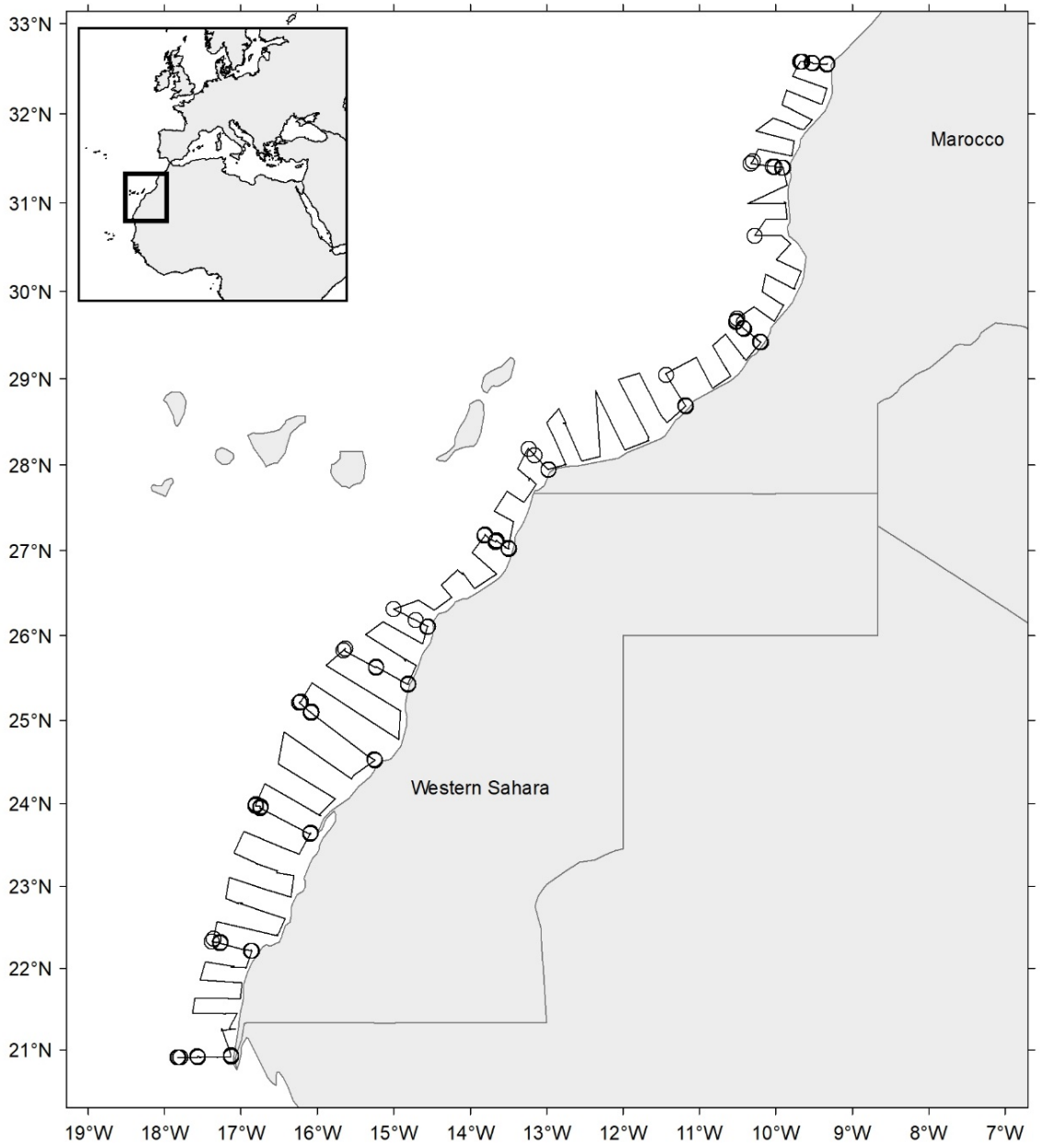
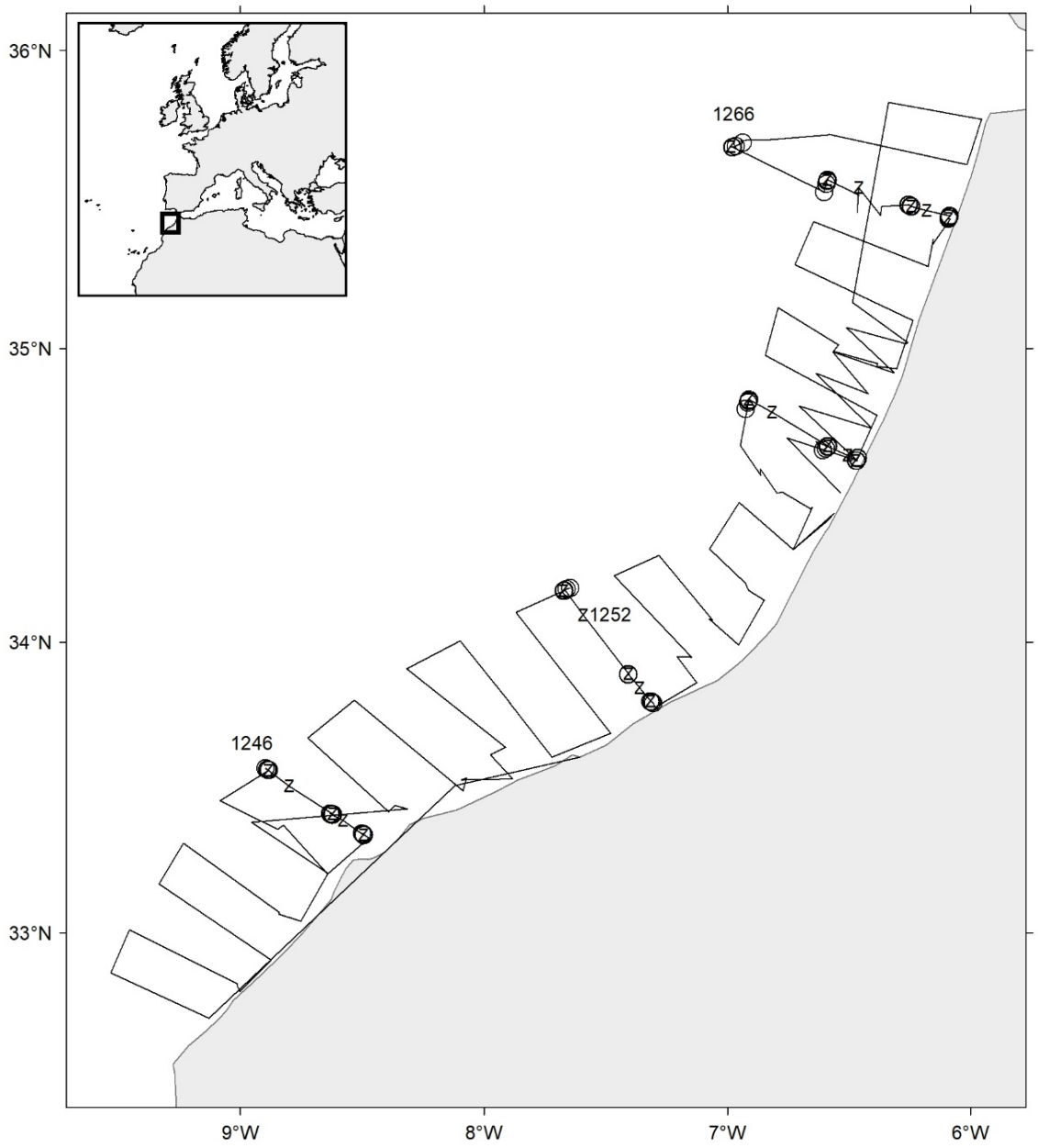

33°N
32°N
31°N
30°N
29°N
28°N
27°N
26°N
25°N
24°N
23°N
22°N
21°N
19°W
18°W
17°W
16°W
15°W
14°W
13°W
12°W
11°W
10°W
9°W
8°W
7°W
Marocco
Western Sahara
Cruise no 2019413 "Dr. Fridtjof Nansen" (Chart III)
30 October–18 November 2019
○ Plankton st. (several gears)

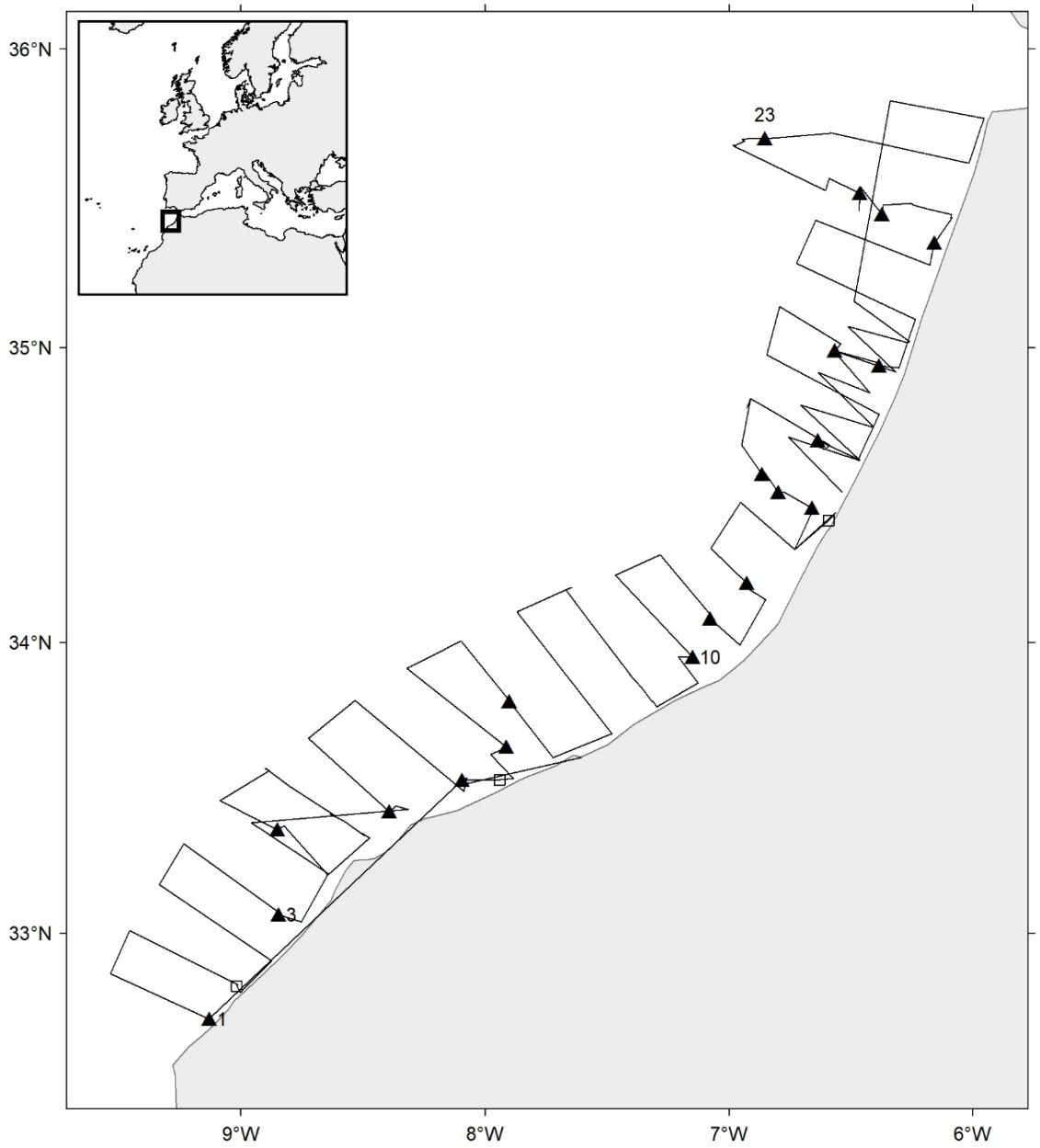
Fig183



Cruise no 2019414 "Dr. Fridtjof Nansen" (Chart I)
21 November–1 December 2019

z Ctd st.no 1246-1266
○ Plankton st. (several gears)

Fig184



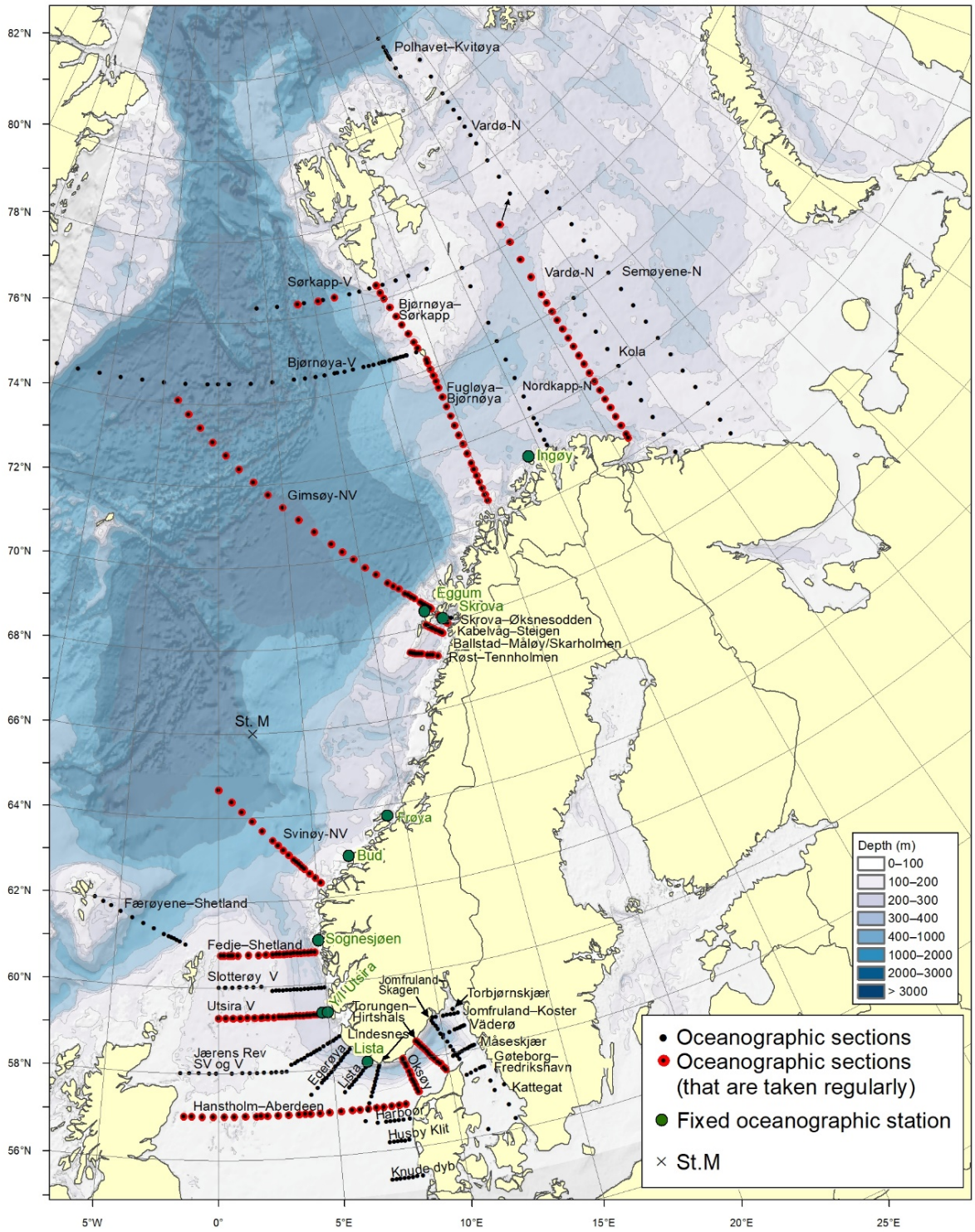
Cruise no 2019414 "Dr. Fridtjof Nansen" (Chart II)
21 November–1 December 2019

Trawl st.no 1-23
▲ Pelagic trawl
□ Bottom trawl

Fig. 185

16 - Oceanographic sections and Fixed oceanographic stations - map.

Oceanographic sections and Fixed oceanographic stations.



17 - Tables – Observations in 2019 – Oceanographic sections and fixed oceanographic stations.

Oceanographic sections 2019 (Cruise no)

Area	Oceanogr. sec.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oc
North Sea	Fedje–Shetland				2019204						
Slotterøy-West				2019204							
Utsira-West		2019603		2019204			2019622				2019
Jærens Rev-SW and W				2019204							
Egerøya-SW				2019204							
Lista-SW				2019204							
Lindesnes-SSW				2019204							
Hanstholm–Aberdeen		2019603		2019204			2019622				2019
Harboør											
Hysby Klit				2019204							
	Knude-Dyb				2019204						
Skagerrak and Kattegat	Torungen–Hirtshals	2019301	2019302	2019303	2019204 2019305	2019306	2019308	2019309	2019310	2019313	2019
Oksøy–Hanstholm				2019204							
Jomfruland–Skagen											
Jomfruland–Koster				2019204							
Torbjørnskjær											
Väderø				2019204							
Måseskjær				2019204							
Gøteborg–Fredrikshavn				2019204							
Kattegat											
Area	**Oceanogr. sec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oc**
The Norwegian Sea and Vestfjorden	Svinøy-North/West	2019201				2019205			2019208		
Gimsøy-North/West			2019606	2019609	2019205			2019208			2019
Bjørnøya-West			2019606					2019208			2019

Sørkapp-West											
Færøyene–Shetland											
Skrova–Øksnesodden											
Kabelvåg–Steigen			2019203								
Ballstad–Måløy/Skarholmen											
Røst–Tennholmen											
The Barents Sea	Fugløya–Bjørnøya	2019201		2019606		2019205			2019208		
Vardø-North		2019202								2019209	
Semøyene-North											
Bjørnøya–Sørkapp											
Nordkapp-North											
Polhavet–Kvitøya											
	Kola										

Fixed stations	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
LISTA N58 ° 05,1 ′ E06 ° 32,5 ′	1	3	3	4	3	3	3	3	3	3	3	2	34
UTSIRA Y N59 ° 19 ′ E04 ° 44 ′	2	x	2	3	2	3	3	3	2	2	2	1	25
UTSIRA I N59 ° 19 ′ E04 ° 59 ′	2	x	2	3	2	3	3	3	2	2	2	1	25
SOGNESJØEN N61 ° 01 ′ E04 ° 50 ′	x	2	2	2	2	1	x	1	3	2	2	1	18
BUD N62 ° 56 ′ E06 ° 47 ′	x	2	3	3	1	3	2	3	2	3	3	1	26
SKROVA N68 ° 07 ′ E14 ° 39 ′	4	4	2	5	5	2	3	4	3	3	5	3	43
EGGUM N68 ° 23 ′ E13 ° 38 ′	x	2	5	4	4	4	4	5	4	4	4	4	44
INGØY N71 ° 08 ′ E24 ° 01 ′	x	1	2	x	2	2	1	3	3	3	4	1	22
Frøya N63° 44,6 ′ E09° 05,1 ′	x	x	x	x	x	x	x	x	x	x	x	x	x

http://www.imr.no/forskning/forskningsdata/stasjoner/view?station=

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