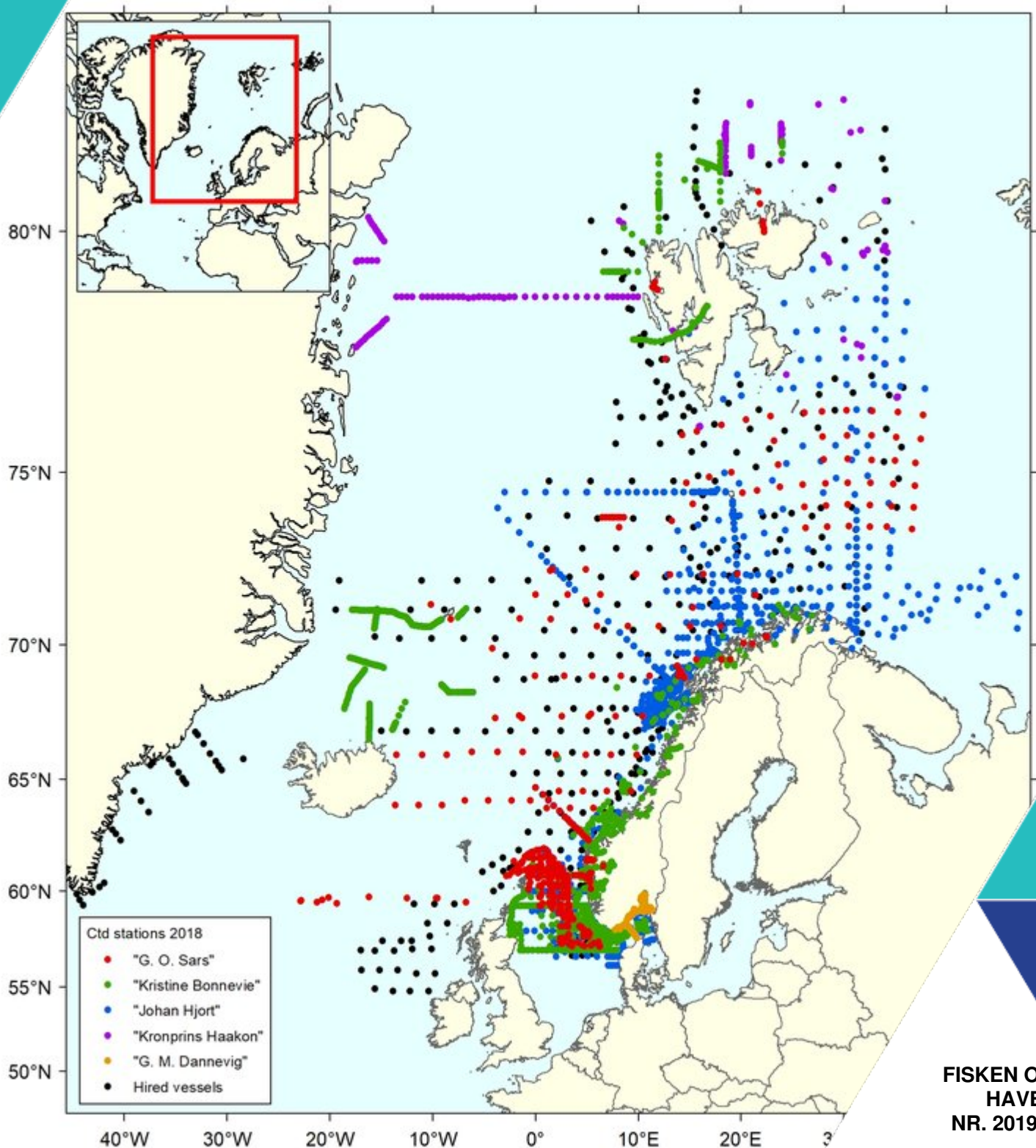




REPORT ON CRUISES AND DATA STATIONS 2018

Redaktør(er): Karen Gjertsen (Havforskningsinstituttet)



Tittel (norsk og engelsk):

Report on cruises and data stations 2018

Report on cruises and data stations 2018

Rapportserie: År - Nr.: Dato:

Fisken og havet 2019-1 30.04.2019

ISSN:1894-5031

Forfatter(e):

Karen Gjertsen (Havforskningsinstituttet)

Redaktør(er): Karen Gjertsen

(Havforskningsinstituttet)

Faggruppeleder(e): Helge Sagen (Norsk marint
datasenter (NMD)) Godkjent av:

Forskningsdirektør(er): Geir Huse

Distribusjon:

Åpen

Prosjektnr:

14417

Program:

Kystøkosystemer

Nordsjøen

Norskehavet

Barentshavet og Polhavet

Faggruppe(r):

Norsk marint datasenter (NMD)

Antall sider:

144

Sammendrag (norsk):

The report gives an overview of cruises in 2018, by the Institute of Marine Research and University of Bergen, on board our research vessels and 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":

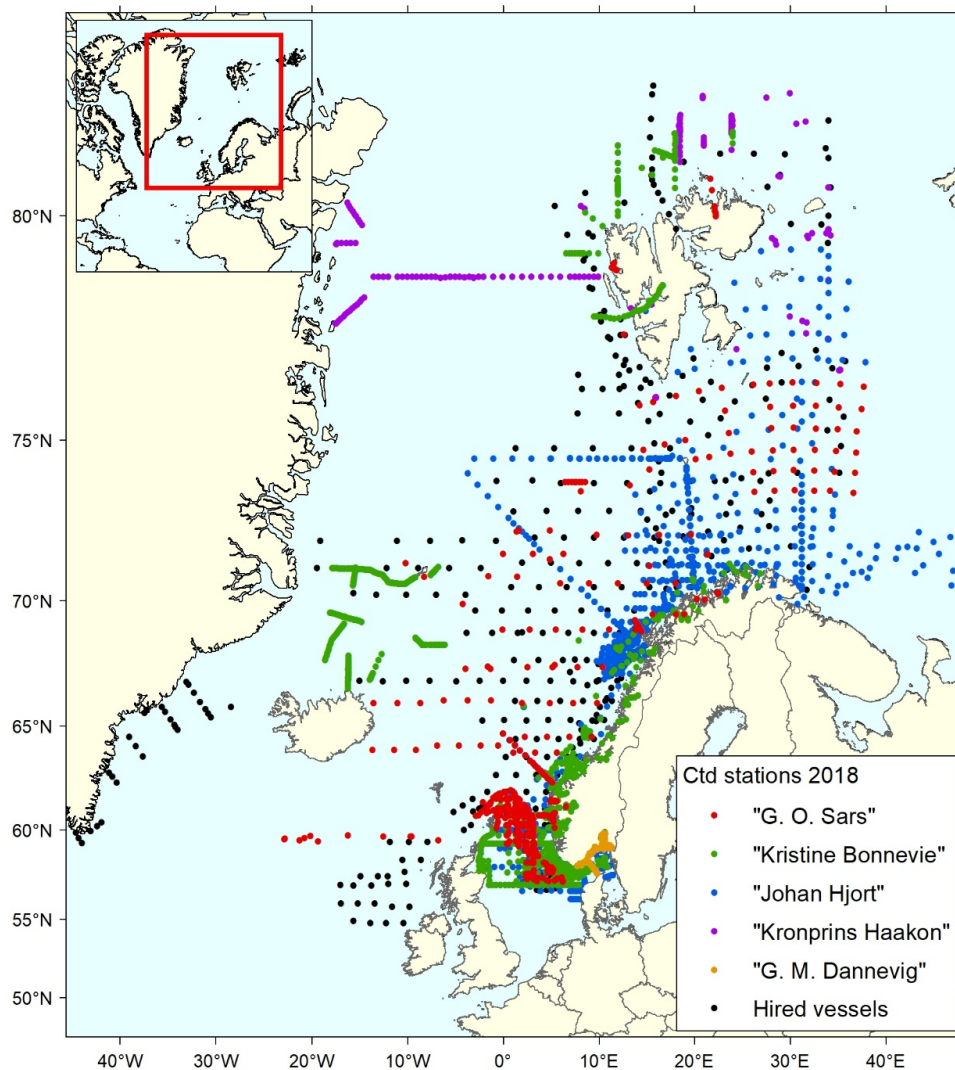
<http://www.seadatanet.org/Metadata/CSR>. Research data are available from the Norwegian Marine Data Centre at Institute of Marine Research. The charts can internally at IMR be downloaded from the Institute [Intranet/Archive](#). Charts are made by Karen E. Gjertsen. Sebastian Bosgraaf made charts for "G.M.Dannevig".

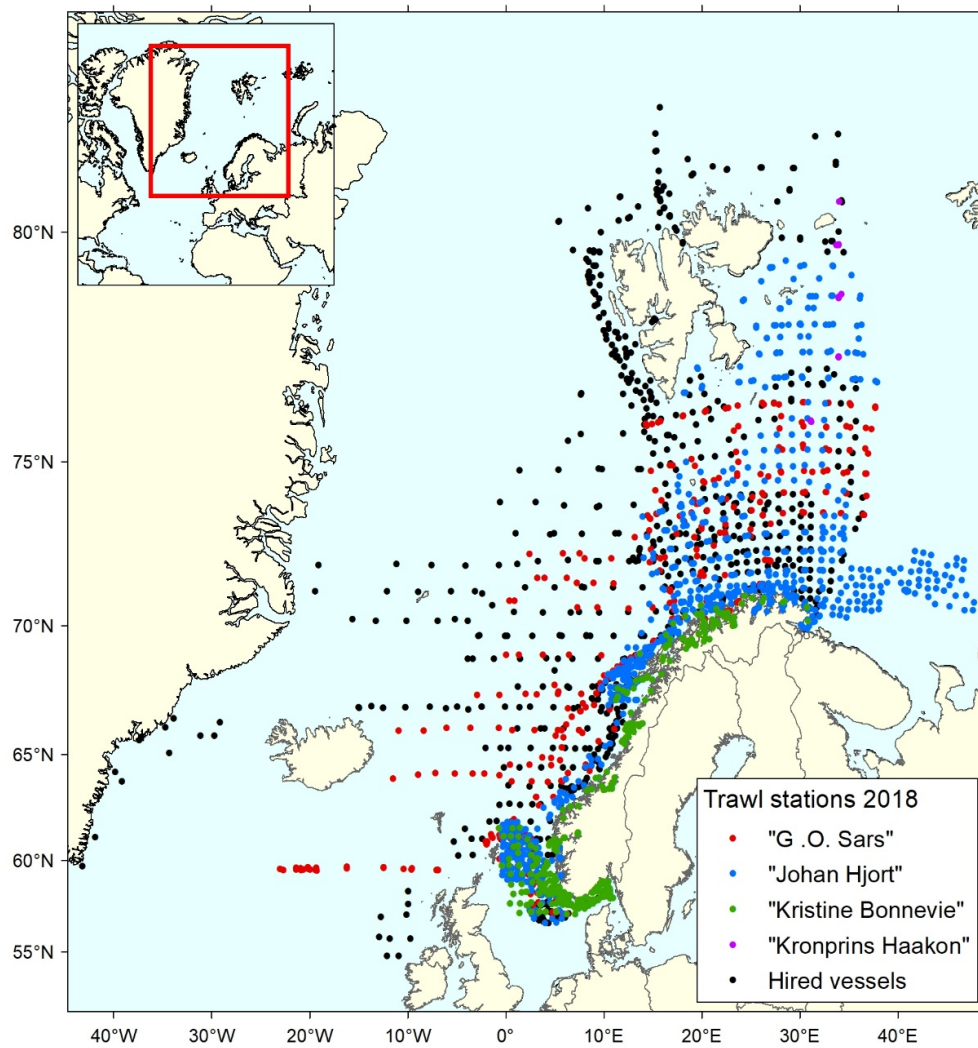
Innhold

1	Charts overview 2018 – CTD and trawl stations.	5
2	"G. O. Sars" - (Ship code no 10). Cruises 2018.	8
3	"G. O. Sars" – Charts for cruises 2018.	10
4	"Johan Hjort" - (Ship code no 12). Cruises 2018.	32
5	"Johan Hjort" – Charts for cruises 2018	34
6	"Kristine Bonnevie" - (Ship code no 03). Cruises 2018.	55
7	"Kristine Bonnevie" – Charts for cruises 2018	58
8	"Kronprins Haakon" - (Ship code no 59). Cruises 2018.	94
9	"Kronprins Haakon" – Charts for cruises 2018	96
10	"G. M. Dannevig" - (Ship code no 16). Cruises 2018.	105
11	"G. M. Dannevig" – Charts for cruises 2018.	107
12	Hired fishing vessels - Cruises 2018	120
13	Hired fishing vessels – Charts for cruises 2018.	126
14	"Dr. Fridtjof Nansen" - (Ship code no 14). Cruises 2018.	159
15	"Dr. Fridtjof Nansen" charts for cruises 2018	161
16	Map showing Oceanographic sections and Fixed oceanographic stations.	184
17	Oceanographic sections and fixed oceanographic stations – Observations in 2018.	185

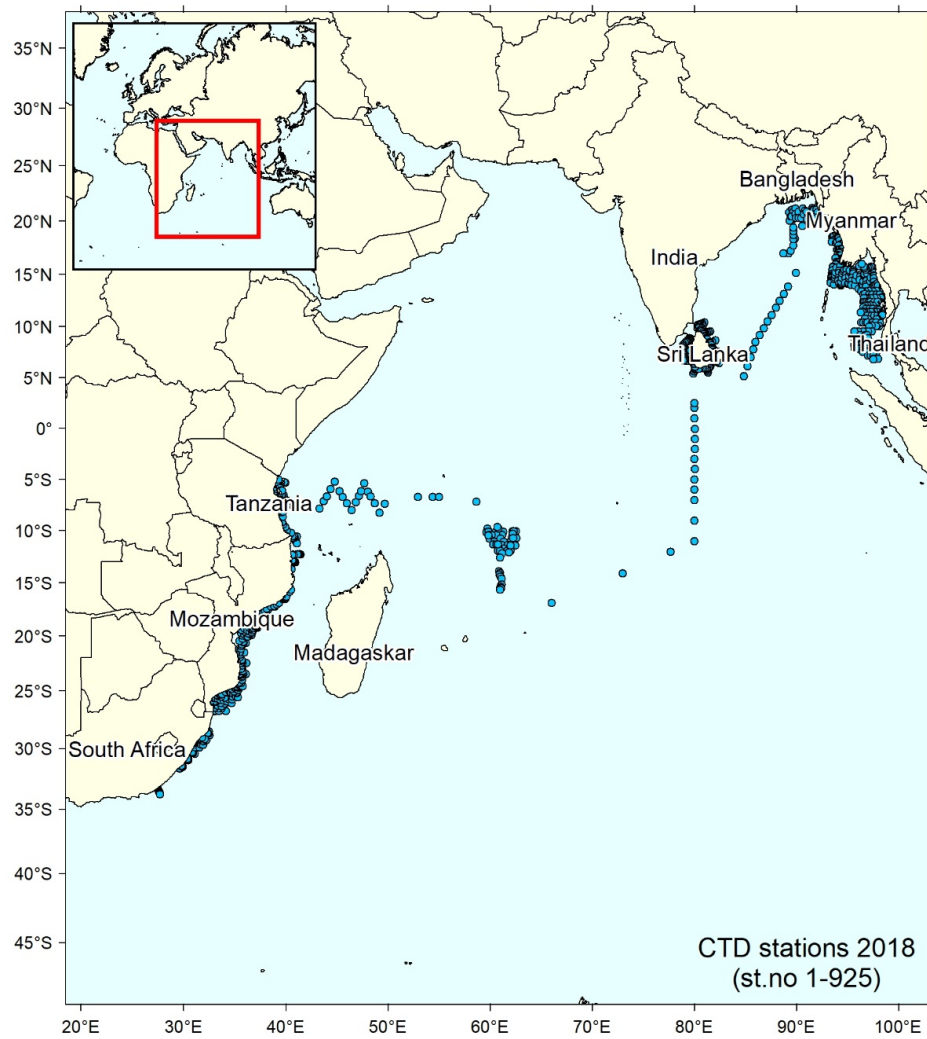
1 - Charts overview 2018 – CTD and trawl stations.

CTD and trawl stations 2018





Ctd stations 2018 “Dr. Fridtjof Nansen”

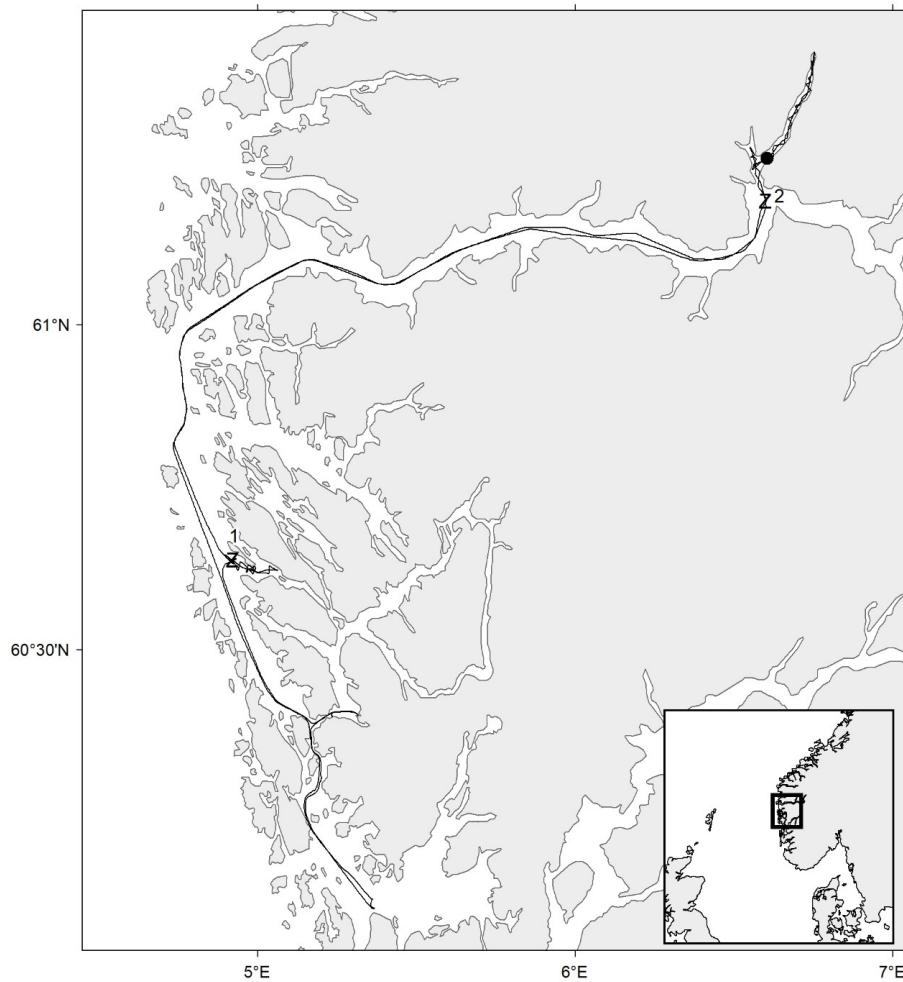


2 - "G. O. Sars" - (Ship code no 10). Cruises 2018.

Cruise no	Period	Purpose	Area	CTD st.no	Trawl st.no	Fig. no
2018101	1.1.-3.1.	The marine geological survey is a training course for students within marine geology and marine geophysics.	Norwegian fjords	1-2	-	1
2018102	4.2.-2.3.	IBTS Q1 bottom trawl survey.	North Sea	3-164	1-88	2-3
2018103	4.3.-19.3.	Spawning saithe acoustic survey. Objectives were to cover the northern North Sea shelf edge and West of Shetland during a joint acoustic survey with Germany. Collected standard acoustic data + broadband from transects, and collect biological information on target identification and species compositions. Tested use of GOV + rockhopper (14" bobbins).	North Sea	165-197	89-145	4-5
2018104	20.3.-14.4.	Combined acoustic and bottom trawl survey along the continental shelf from 62°N to 74°N. Main target fish species are Greenland halibut, redfish and silver smelt.	Continental shelf from 62° north to 74° north.	198-203	265-342	6-7
2018105	30.4.-2.5.	Provide acoustic estimates of abundance and distribution of pelagic species in the Norwegian Sea.	Norwegian Sea	205-273	343-400	8-9
2018106	6.5.-24.6	Biomass and diversity of the mesopelagic ecosystem.	North Atlantic Ocean	274-286	401-436	10
2018107	28.6.-26.6.	C-DEEPSEA 2018.	Norwegian Sea	287-294	-	11
2018108	28.7.-14.8.	SponGES - Deep-sea Sponge Grounds Ecosystems of the North Atlantic.	Norwegian Sea Barents Sea	295-318	-	12
2018109	18.8.-5.9.	Sea bottom mapping with video-filming and sampling of benthic fauna and sediments at selected stations in the Kongsfjord and Rijpfjord, Svalbard. 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 and sampling of sediments and organisms using a variety of sampling gears (video-rig, grab, box corer, multicorer, beam trawl and hyperbenthic sledge).	Barents Sea Svalbard area	319-332	-	13
2018110	7.9.-30.9.	Annual ecosystem survey to monitor the status and changes of the Barents Sea ecosystem to support scientific research and management advice.	Barents Sea	333-382	437-537	14-15
2018111	6.10.-20.10.	A) Training cruise in BIO 325 – Ocean Science: Applying Demersal Campelen 1800 trawl, Harstad-Pelagic trawl with Multisampler, MIK juvenile fish trawl, Maxi Multinet. B) Hydro acoustic surveying for biomass estimation of pelagic and demersal fish. C) Demonstration of VAMS (ROV and video) D) Custom light measurements	North Sea	383-428	-	16
2018112	24.10.-6.11.	The principal objective of this cruise was testing and development of gear for responsible fish harvesting.	Barents Sea	-	576-613	17

2018113	8.11.- 22.11.	1:Target strength measurements of herring in lateral aspect, wideband. 2: Collect sonar data on herring schools for biomass estimation with SU90 sonar and MS70 sonar for measuring acoustic extinction. 3: Trial of new instruments, Kajakdrone, WBAT, Tuna buoy with EK80. 4: Wideband calibration.	Norwegian Sea	429- 433	614- 616	18- 19
2018114	23.11.- 6.12.	Investigations of sampling trawls.	Barents Sea	-	617- 654	20
2018115	11.12.- 18.12.	International course in Acoustic Broadband Methods with 20 students, where 10 is from IMR/UIB.	Norwegian fjord	434- 435	655- 657	21

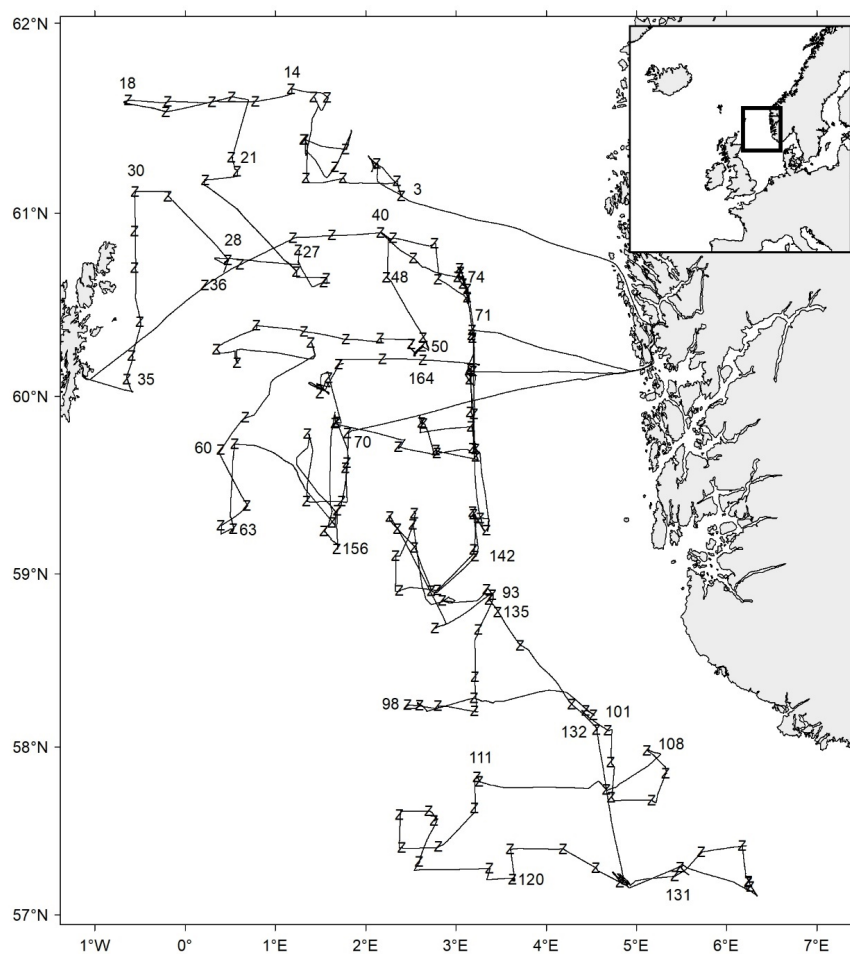
3 - "G. O. Sars" – Charts for cruises 2018.



Cruise no 2018101 "G.O. Sars"
1–3 February 2018

z CTD st.no 1-2
● Multicorer

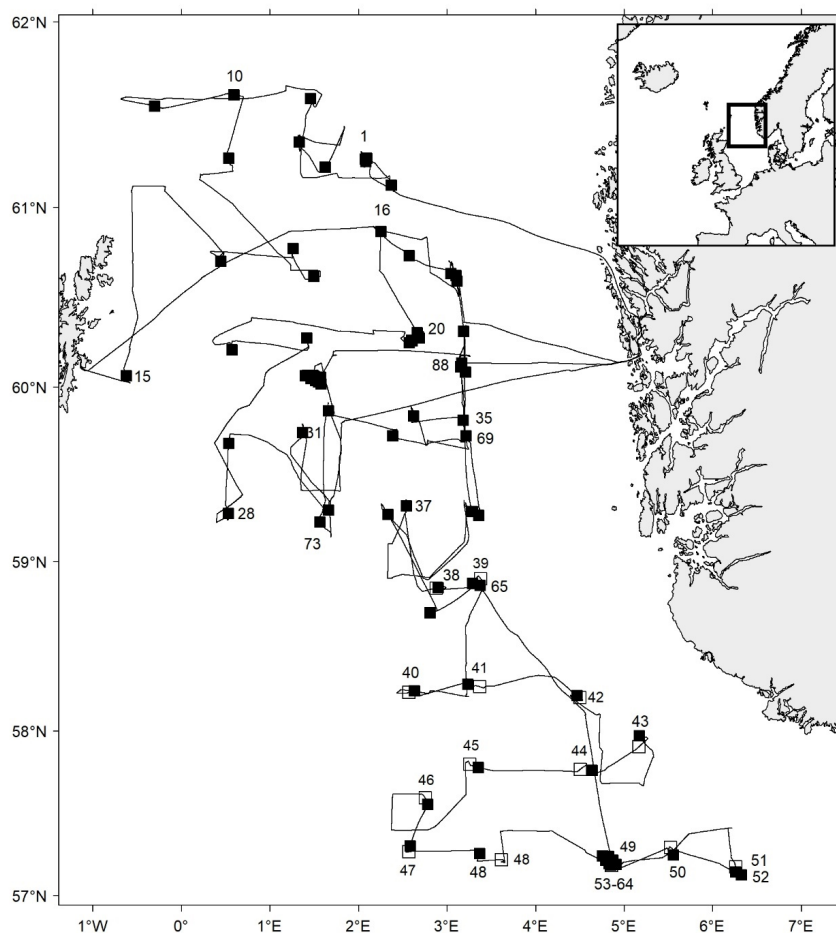
Fig. 1



Cruise no 2018102 "G. O. Sars" (Chart I)
4 February–2 March 2018

z CTD st.no 3-164

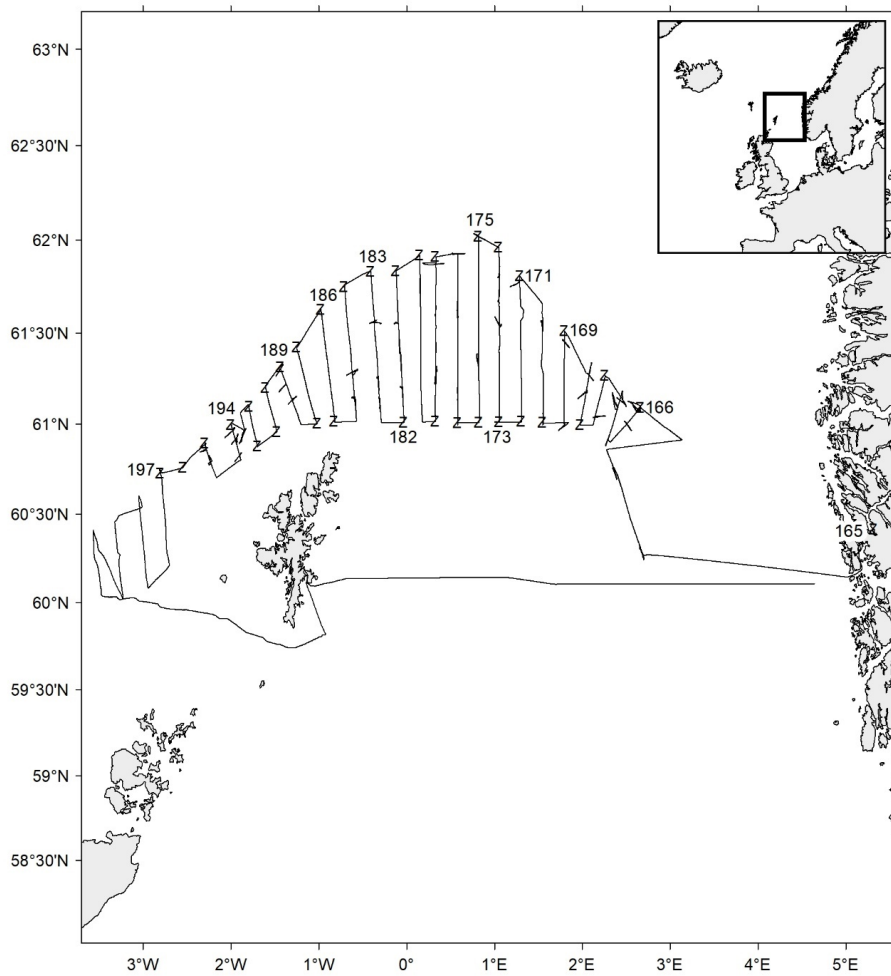
Fig. 2



Cruise no 2018102 "G. O. Sars" (Chart II)
4 February–2 March 2018

- Bottom trawl (GOV trawl) st.no 1-88
- Bottom trawl (Beam trawl) st.no 38-51

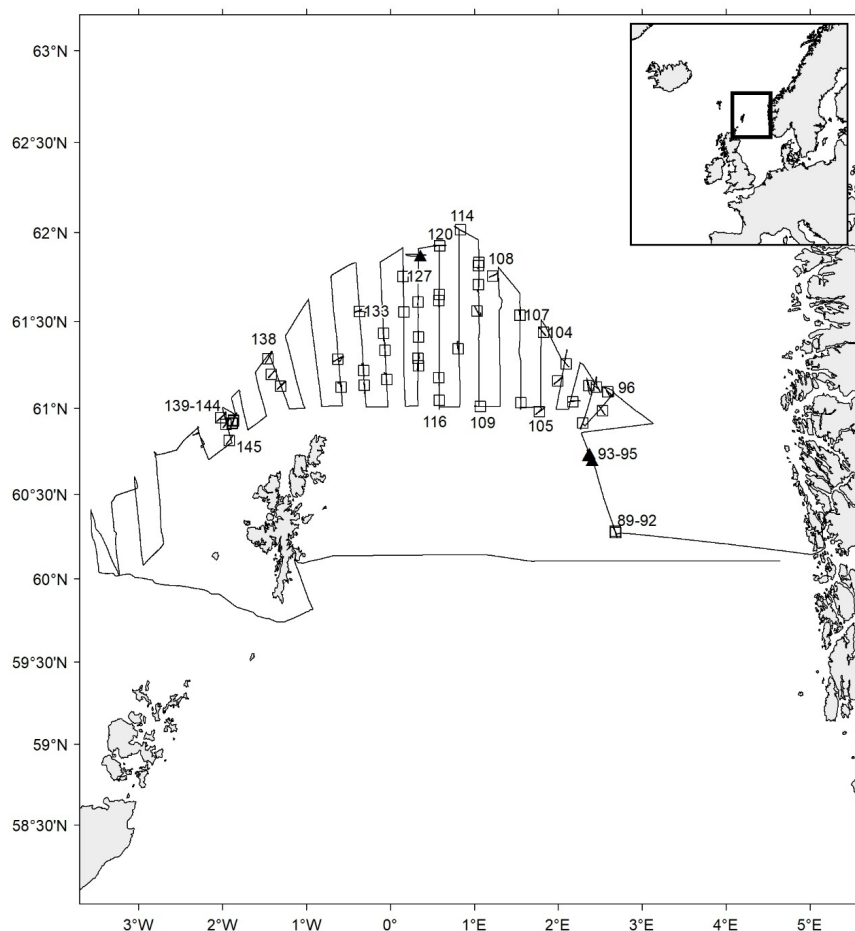
Fig. 3



Cruise no 2018103 "G. O. Sars" (Chart I)
4–19 March 2018

z CTD st.no 165-197

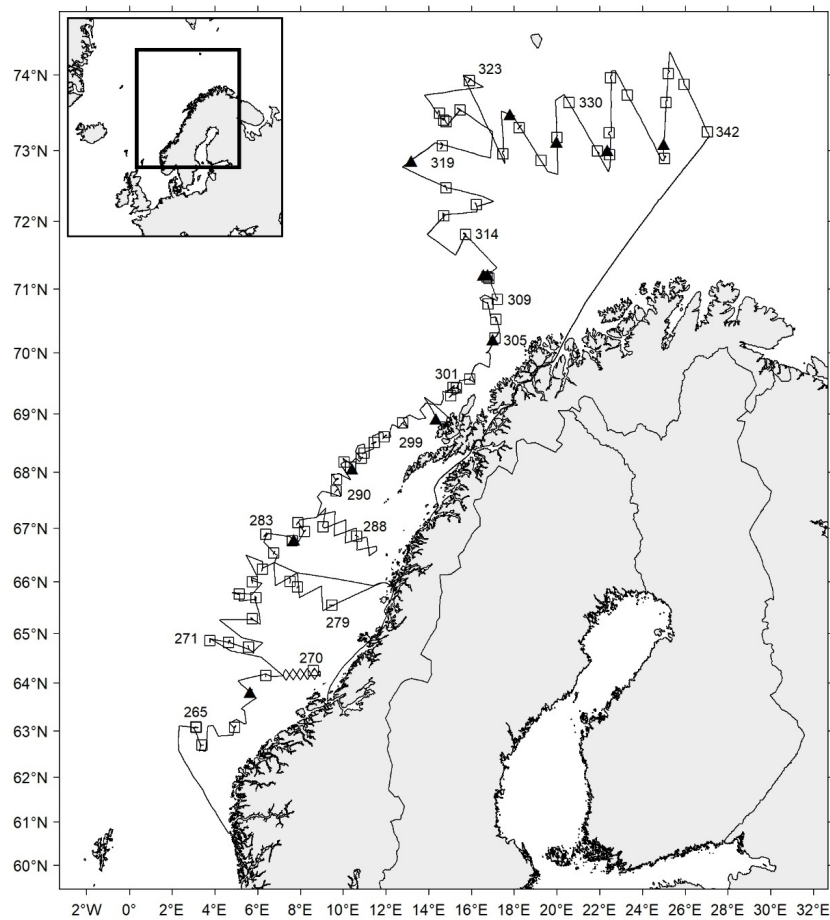
Fig. 4



Cruise no 2018103 "G. O. Sars" (Chart II)
4–19 March 2018

Trawl st.no 89-145
□ Bottom trawl
▲ Pelagic trawl

Fig. 5

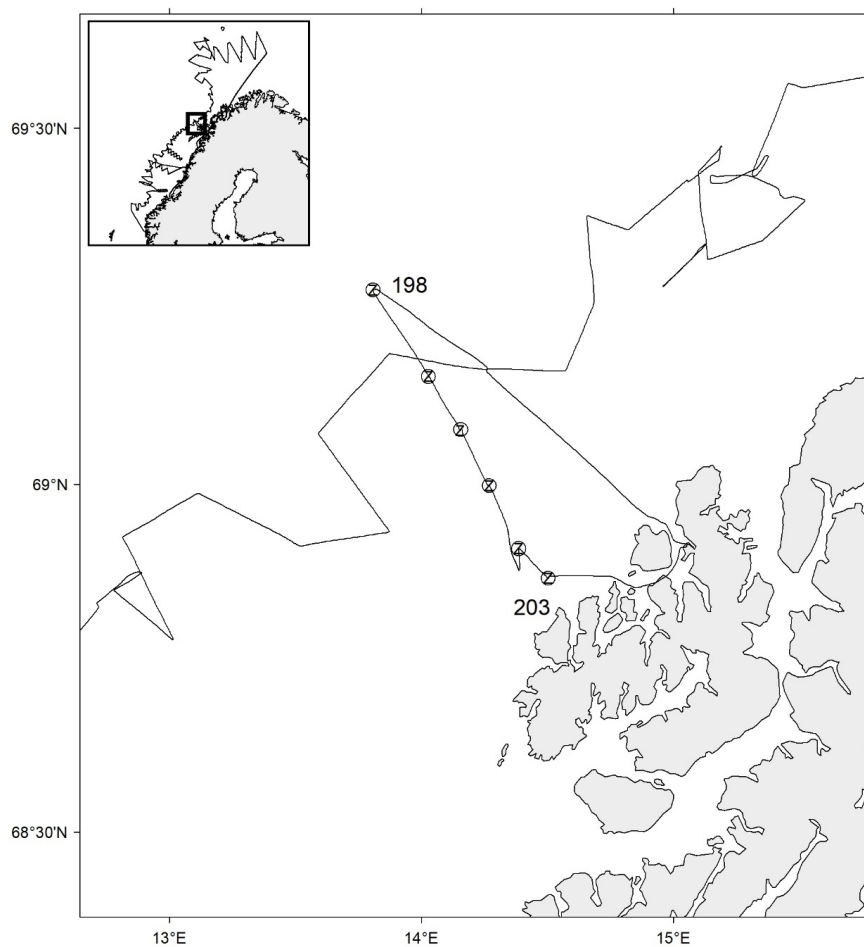


Cruise no 2018104 "G. O. Sars" (Chart I)
20 March–14 April 2018

Trawl st.no 265-342

- Bottom trawl
- ▲ Pelagic trawl

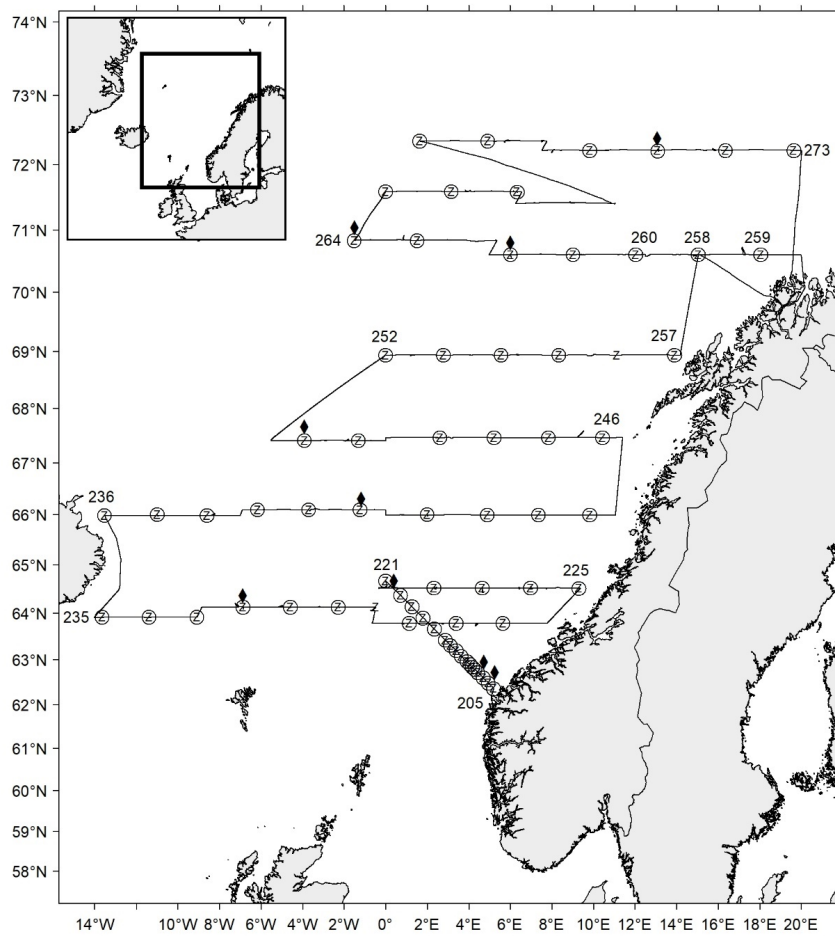
Fig. 6



Cruise no 2018104 "G. O. Sars" (Chart II)
20 March–14 April 2018

z CTD st.no 198-203
○ Plankton st. (WP-II-net)

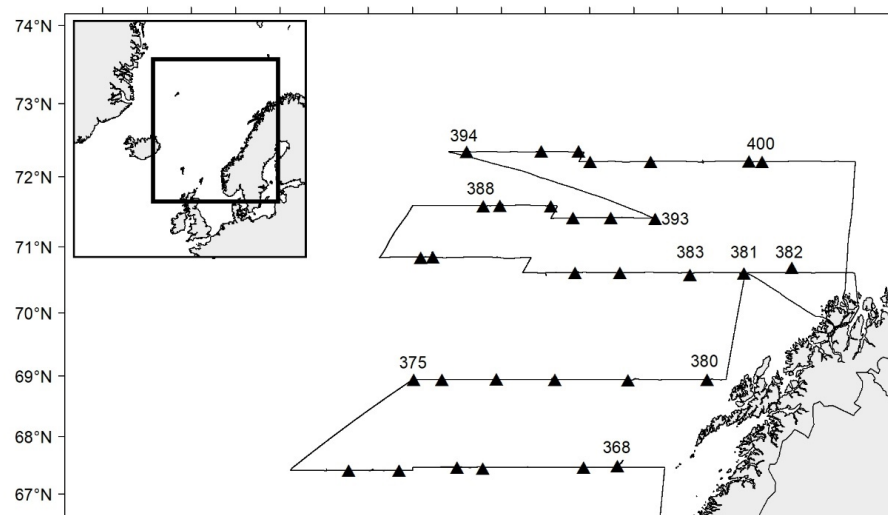
Fig. 7

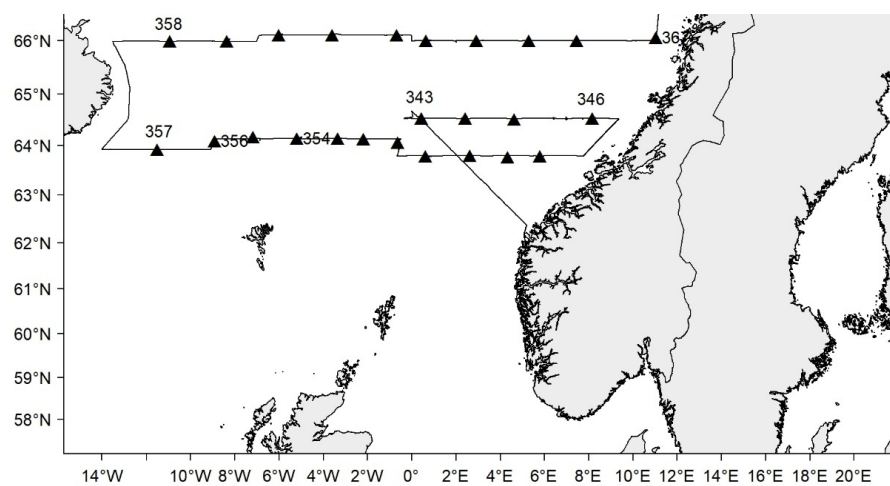


Cruise no 2018105 "G.O.Sars" (Chart I) Standard section
30 April–2 June 2018 Svinøy NW: st.no 205-221

z CTD st.no 205-273
○ Plankton st. (WP-II-net)
◆ Plankton st. (Mocness)

Fig. 8

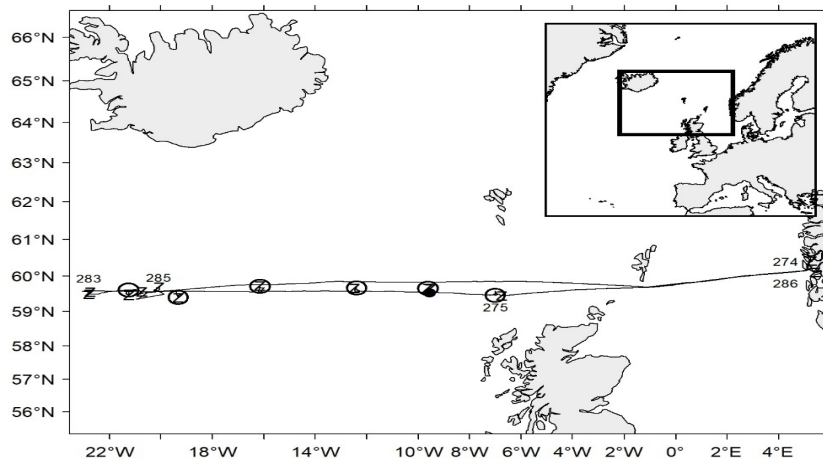




Cruise no 2018105 "G.O.Sars" (Chart II)
30 April–2 June 2018

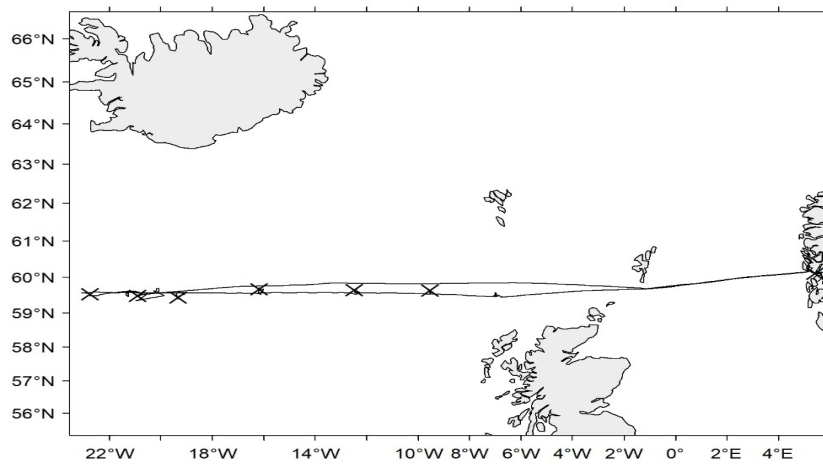
▲ Pelagic trawl st.no 343-400

Fig. 9

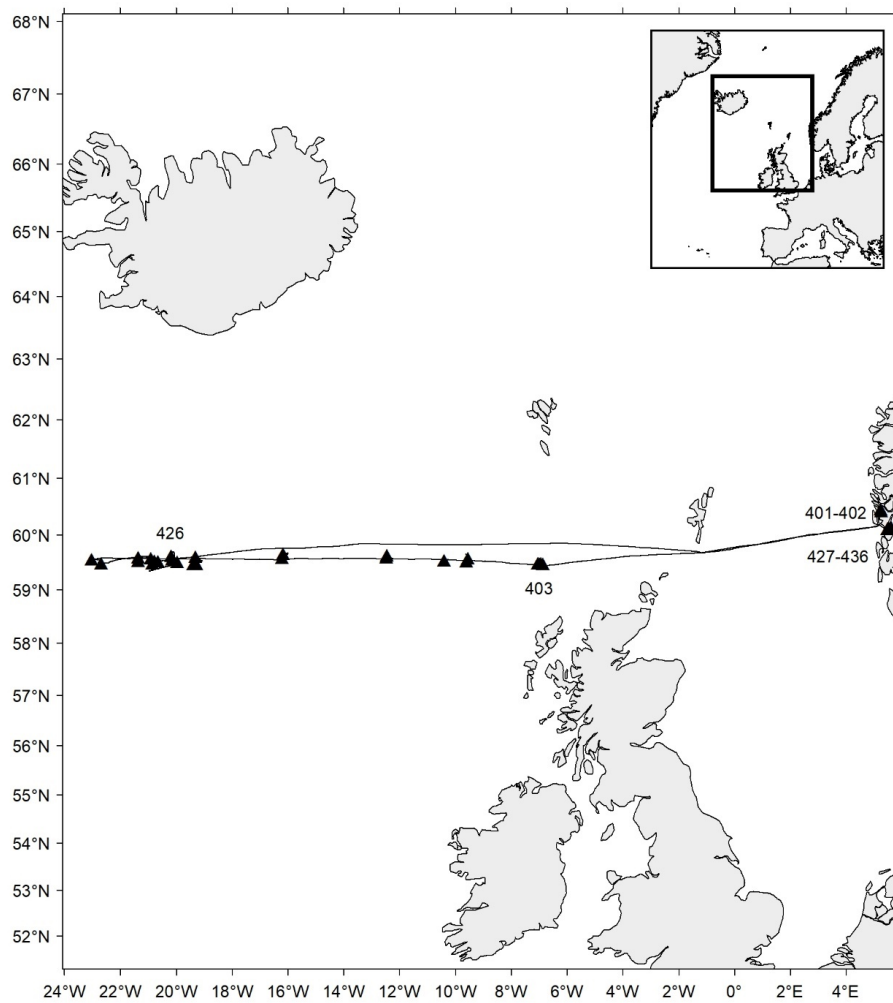


Cruise no 2018106 "G.O. Sars" (Chart I)
6–24 June 2018

z CTD st.no 274-286
● Plankton st. (WP-II-net)
○ Plankton st. (Mocness)



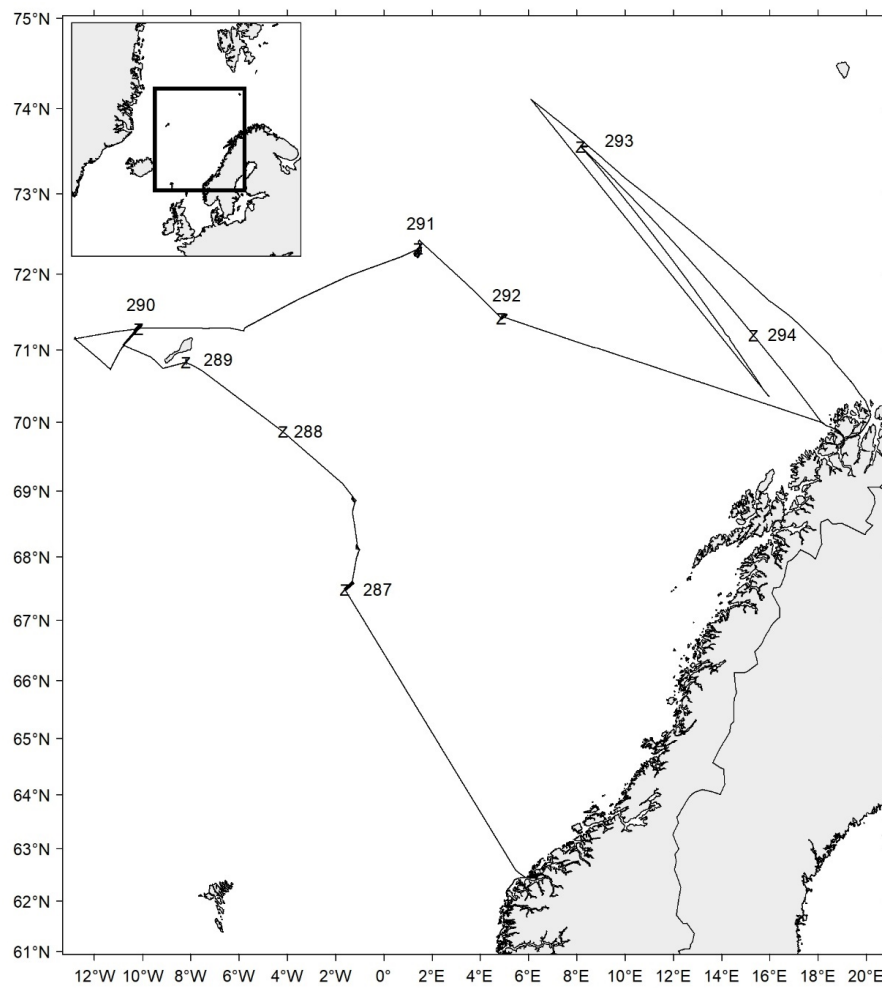
× Light measurement



Cruise no 2018106 "G.O. Sars" (Chart II)
6–24 June 2018

▲ Pelagic trawl st.no 401-436

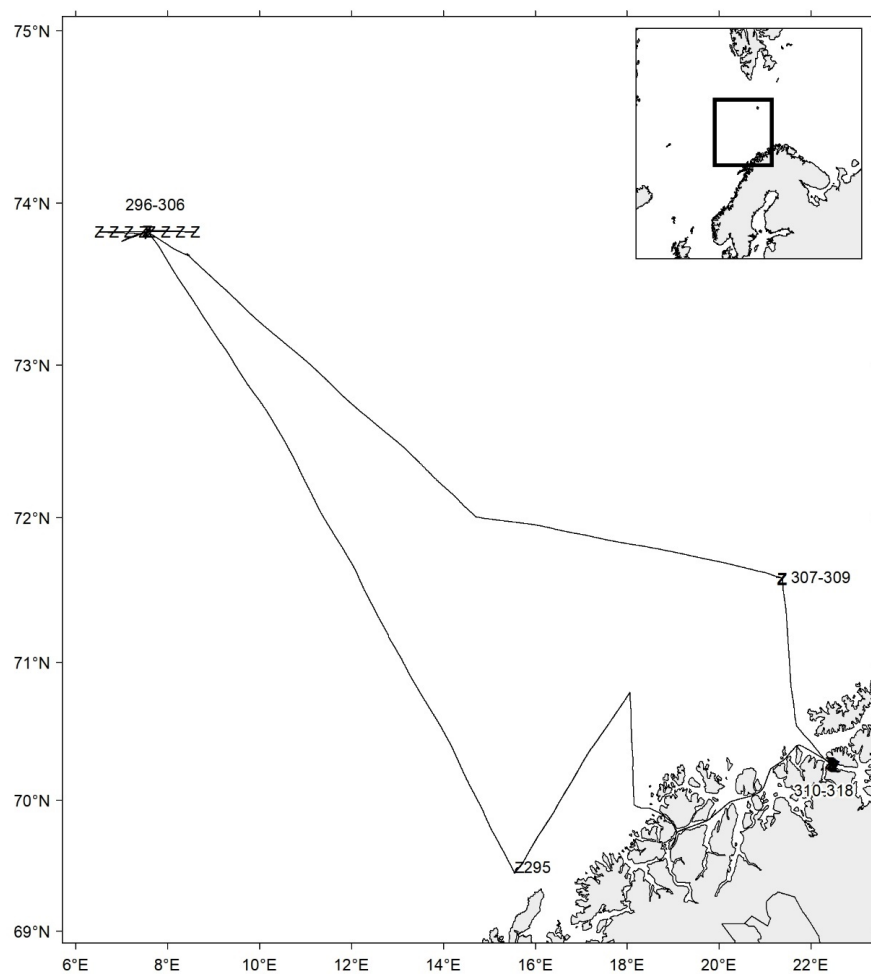
Fig. 10



Cruise no 2018107 "G.O. Sars"
28 June–26 July 2018

z CTD st.no 287-294

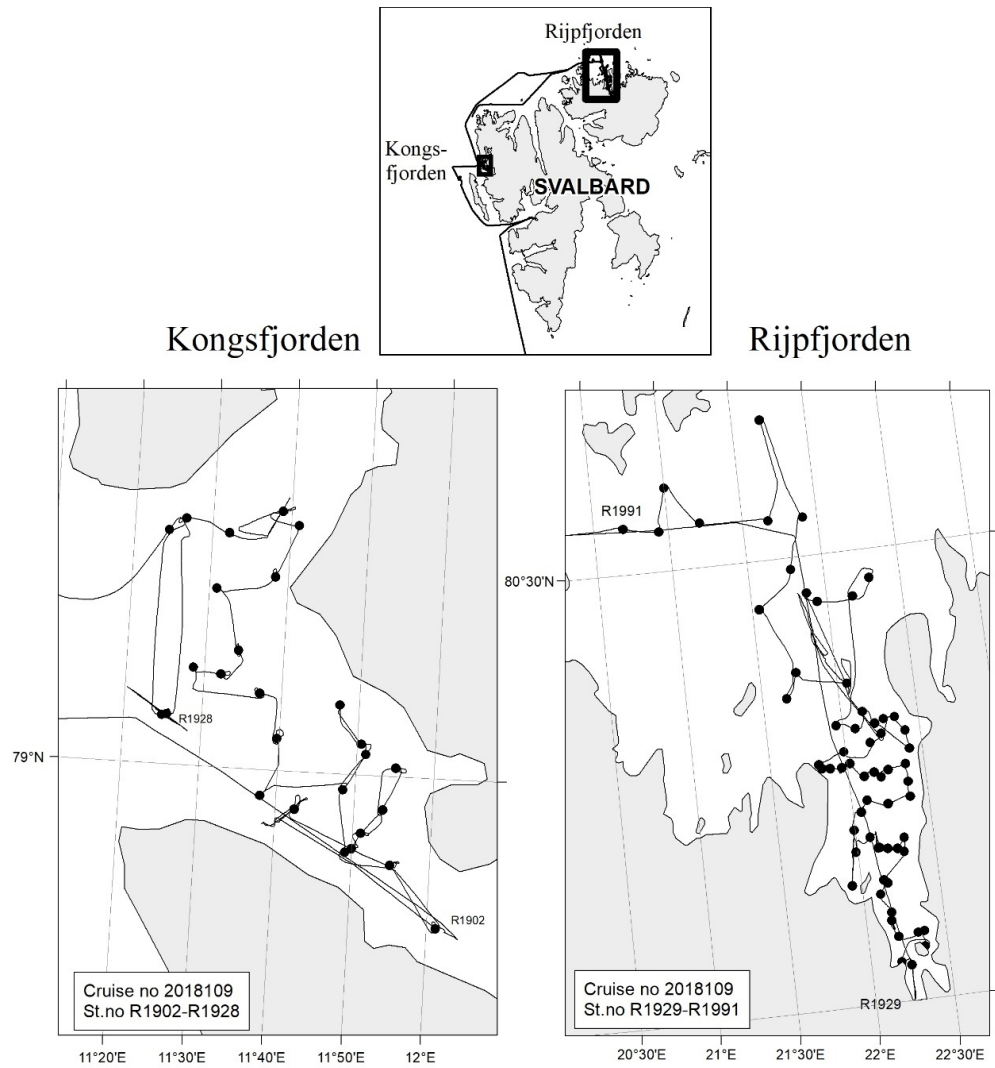
Fig. 11



Cruise no 2018108 "G.O. Sars"
28 July–14 August 2018

z CTD st.no 295-318

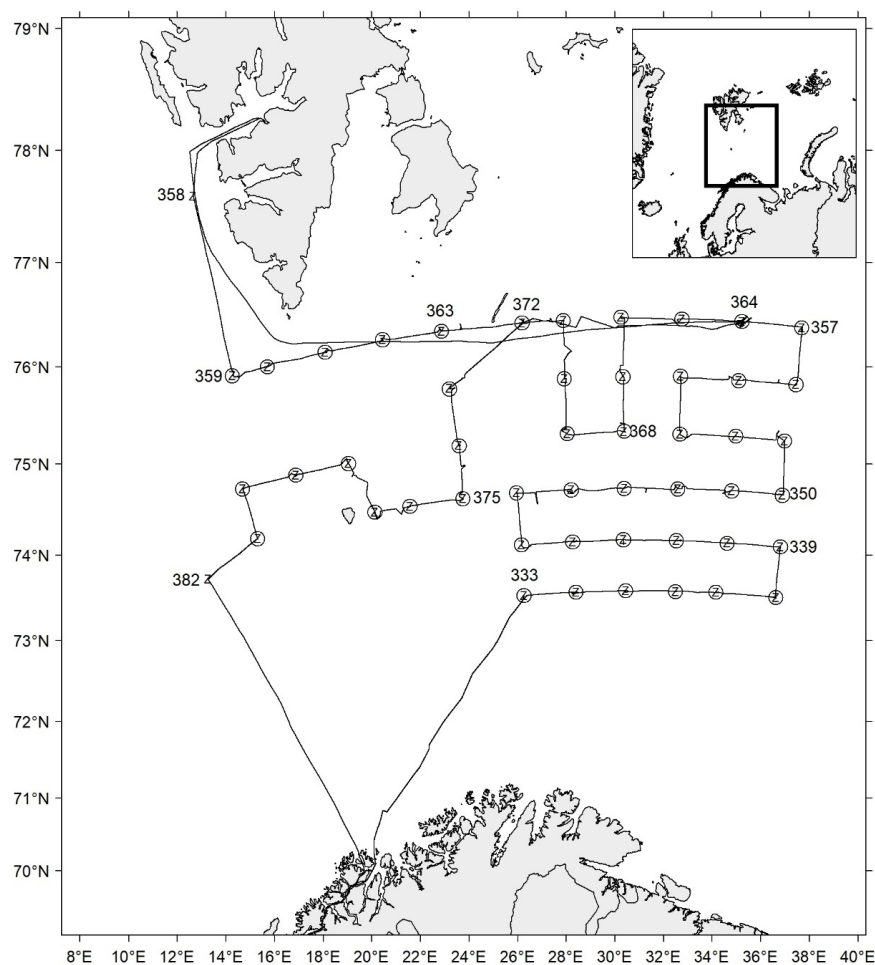
Fig. 12



Cruise no 2018109 "G.O. Sars"
18 August–5 September 2018

- Different stations: Ctd, grab, beam trawl, slede, boxcorer, multicorer and video stations.
CTD st.no 319-332

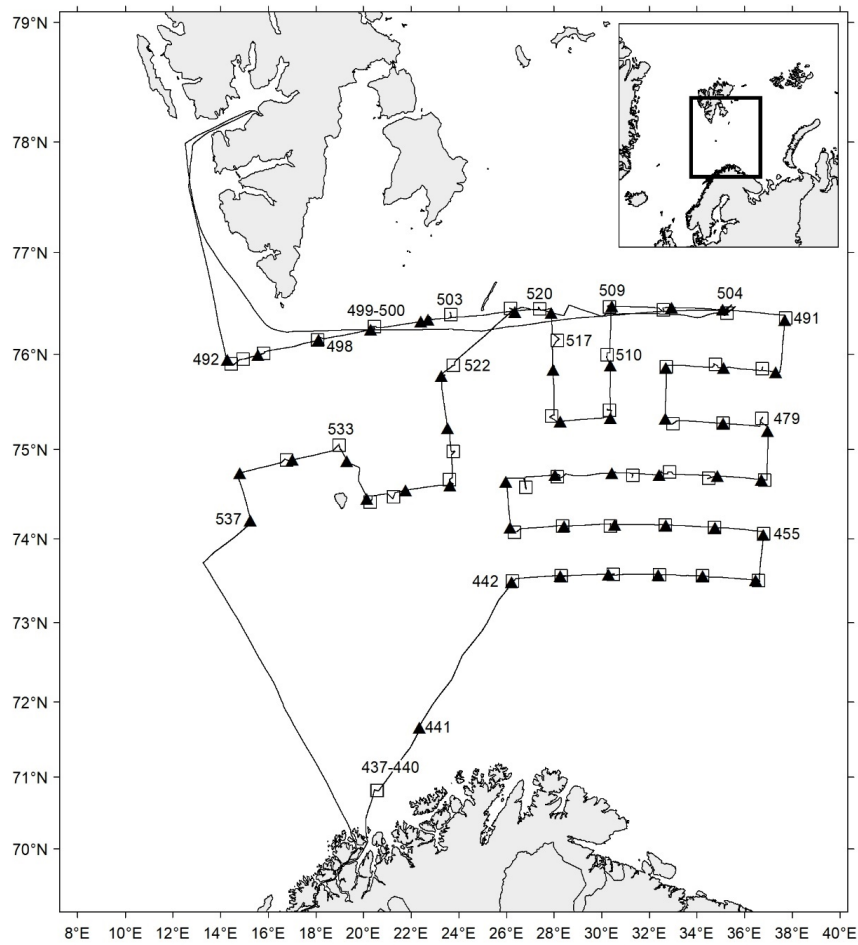
Fig. 13



Cruise no 2018110 "G. O. Sars" (Chart I)
7–30 September 2018

z CTD st.no 333-382
o Plankton st. (WP-II-net)

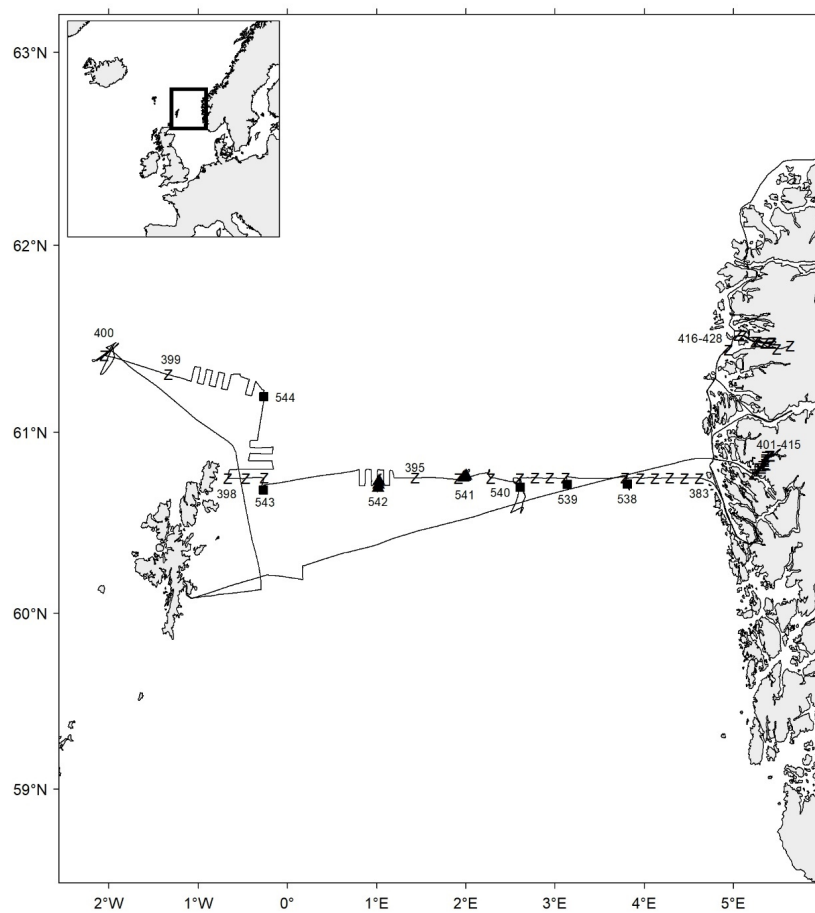
Fig. 14



Cruise no 2018110 "G. O. Sars" (Chart II)
7–30 September 2018

Trawl st.no 437-537
▲ Pelagic tr.
□ Bottom tr.

Fig. 15

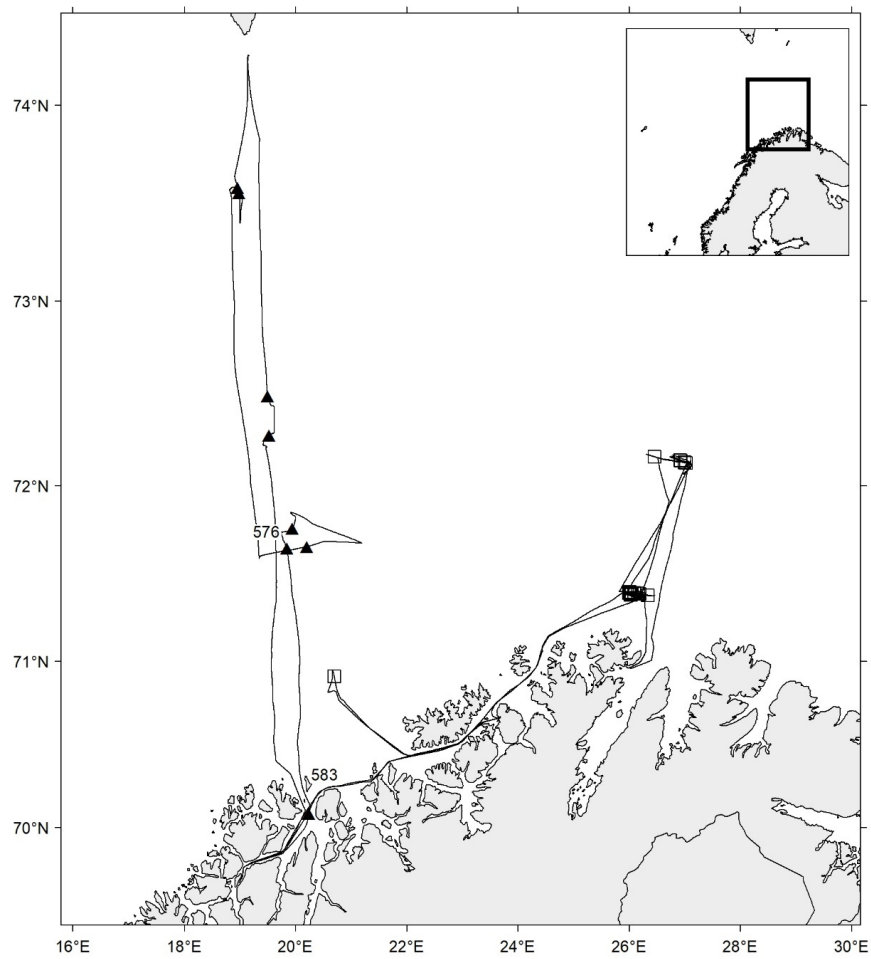


Cruise no 2018111 "G.O.Sars"
6–20 October 2018

z CTD st.no 383-428

□ Bottom trawl st.no 538-540, 543-544, 546 and 548

Fig. 16



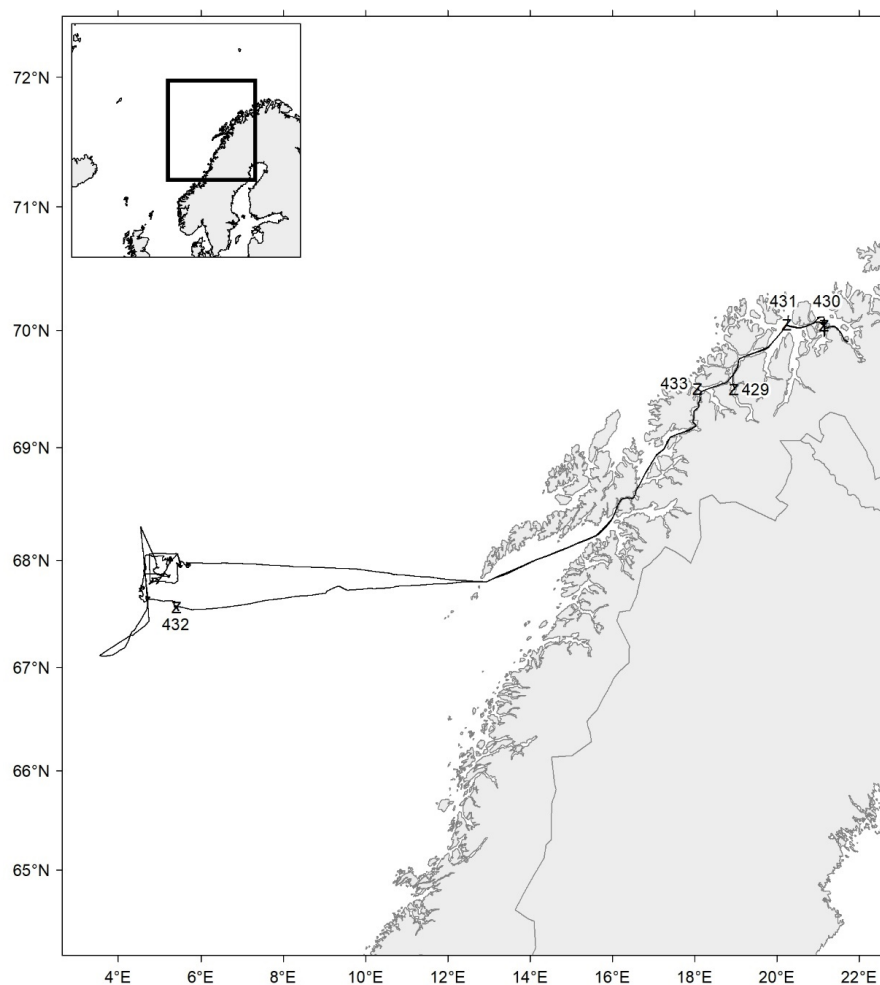
Cruise no 2018112 "G.O. Sars"
24 October–6 November 2018

Trawl st.no 576-613

▲ Pelagic tr.

□ Bottom tr.

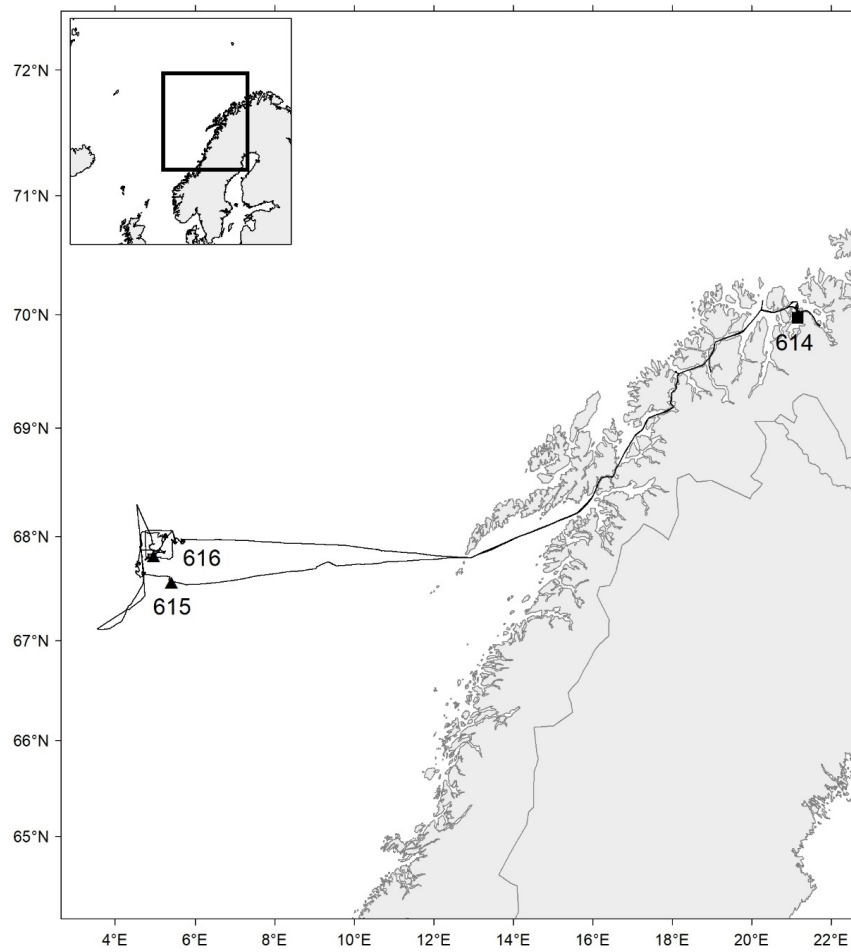
Fig. 17



Cruise no 2018113 "G.O. Sars" (Chart I)
8-22 November 2018

z CTD st.no 429-433

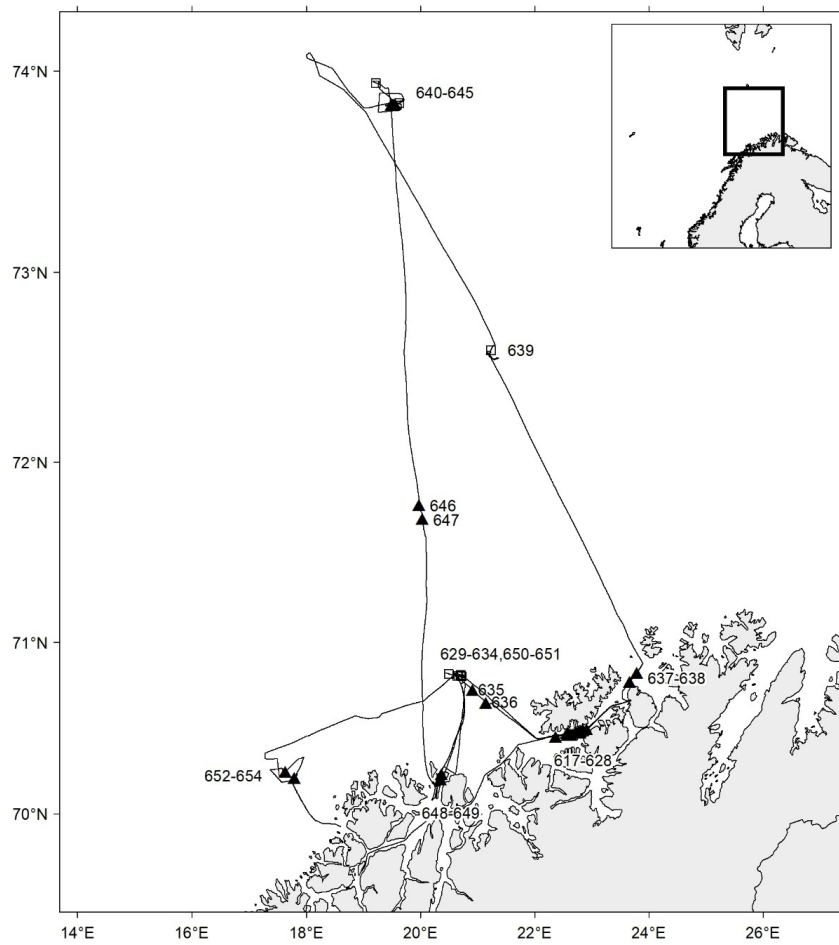
Fig. 18



Cruise no 2018113 "G.O. Sars" (Chart II)
8-22 November 2018

Trawl st.no 614-616
▲ Pelagic trawl
■ Bottom trawl

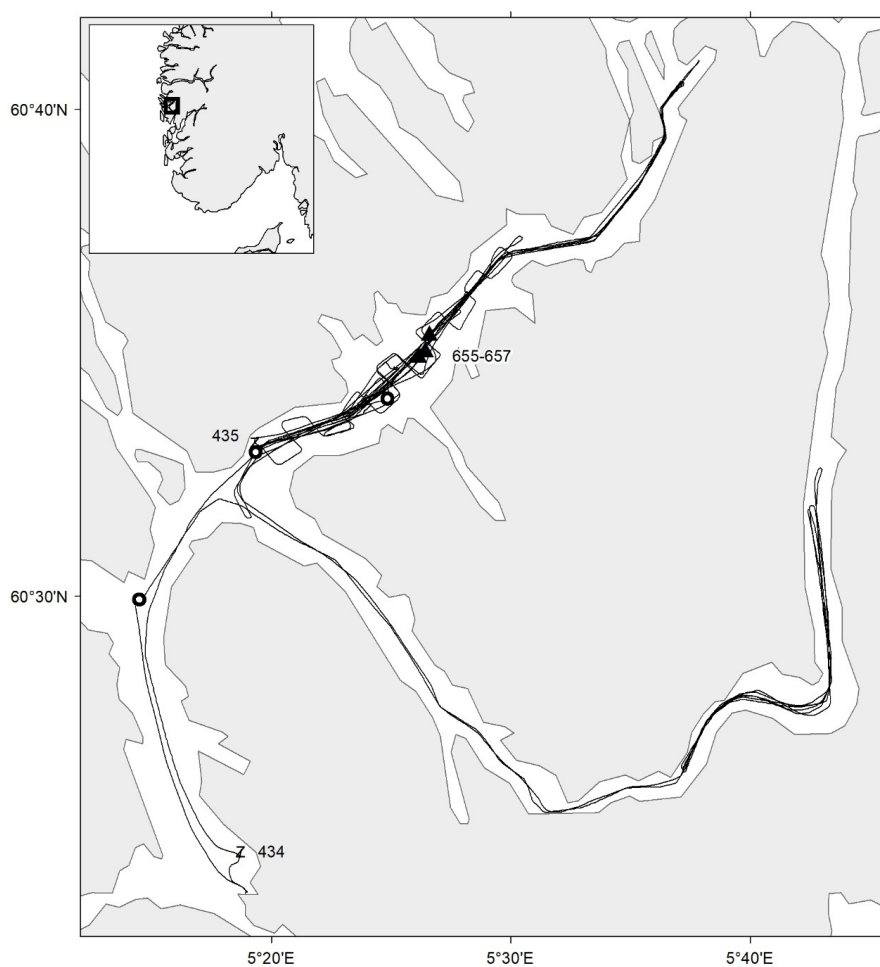
Fig. 19



Cruise no 2018114 "G.O.Sars"
23 November–6 December 2018

Trawl st.no 617-654
▲ Pelagic tr.
□ Bottom tr.

Fig. 20



Cruise no 2018115 "G.O. Sars"
11–18 December 2018

z CTD st.no 434-435

▲ Pelagic trawl st.no 655-657

● ROV st.

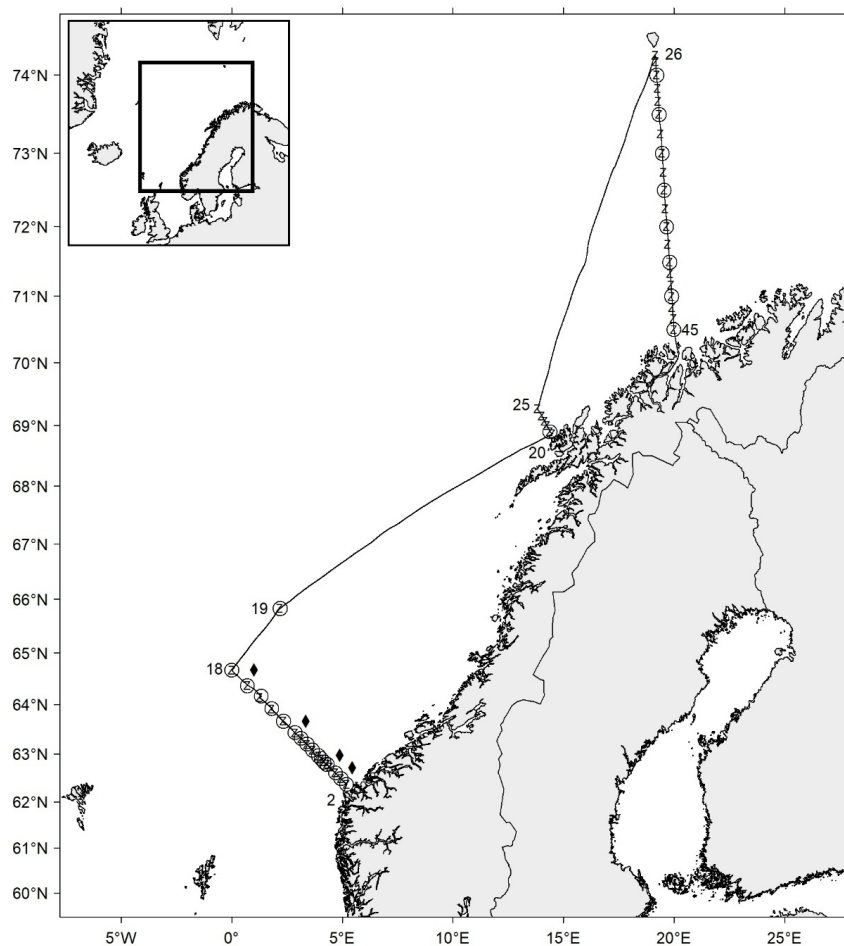
Fig. 21

4 - "Johan Hjort" - (Ship code no 12). Cruises 2018.

Cruise no	Period	Purpose	Area	CTD st.no	Trawl st.no	Fig. no
2018201	16.1.-25.1.	Objectives: To collect data and samples on pre-selected stations. To sample standard sections for physical oceanographic parameters (CTD casts, nutrients and chlorophyll) and zooplankton.	Barents Sea Norwegian Sea	2-45	-	22
2018202	28.1.-11.3.	Annual combined acoustic and bottom trawl survey.	Barents Sea	46-121	1-220	23-24
2018212	14.3.-20.3.	1. Collect diversified fauna for relocation study. 2. Deployment of fauna landers on a transect from an aquaculture farm. 3. CTD profiles of fjords.	Norwegian coast	122-130	-	25
2018203	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. The survey area is the shelf area from Malangsgrunnen south to Røsttunga and the shelf are of Vestfjorden connected to the Lofoten islands. Additional observations included the use of CTD and T80 net for sampling density and stage distribution of spawned eggs. The survey is a part of a time series.	Norwegian Sea	131-265	221-260	26-27
2018204	12.4.-10.5.	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 (IMR project "Monitoring of climate and plankton in the North Sea Skagerrak") as well as fish eggs and fish larvae (IMR project "Early life history dynamics of North Sea Fishes"). The cruise also includes monitoring of radioactive contamination (IMR project "Monitoring of radioactivity in Norwegian waters" IMR 14379-01).	Kattegat North Sea Skagerrak	266-518	-	28-29
2018205	21.5.-4.6.	The cruise objectives were to occupy the standard sections Fugløya-Bjørnøya, extended Bjørnøya west and extended Gimsøy section. ADCP moorings and bottom mounted ADCPs e recovered and -redeployed. Argo floats deployed.	Barents Sea Norwegian Sea	519-597	-	30-31
2018206	5.6.-25.6.	Studies on the post larval dynamics of NSS herring with the intention of understanding the mechanisms that determine year class strength.	Norwegian Sea Barents Sea	598-692	261-330	32-33
2018207	2.7.-29.7.	This survey combined the HERAS and NORACU surveys, which were acoustic surveys for North Sea herring and saithe. The survey took target and blind bottom and pelagic trawl tows for target registration and biological samples. Also included were CTD stations and profiles (CTD mounted on trawl) for temperature and salinity.	North Sea	693-742	331-476	34-35
2018208	10.8.-22.8.	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 parameters. Sampling were made on the following standard sections: Svinøy-NW, Gimsøy NW, Bjørnøya W and Fugløya-Bjørnøya, and station M.	Norwegian Sea Barents Sea	743-814	-	36

2018209	22.8.- 4.10.	The ecosystem survey in the Barents Sea has been conducted yearly in August/September since 2004. The aim of the ecosystem survey is to monitor the status and changes of the Barents Sea ecosystem to support scientific research and management advice. The task of the ecosystem survey: Sampling of physical oceanography, phytoplankton, zooplankton, fish, benthos, sea mammals, sea birds, and litter throughout the entire Barents Sea and around Svalbard. In addition, selected special scientific sampling and methodology research is conducted. The whole survey is a cooperation between Norwegian and Russian scientists. It is conducted with three Norwegian vessels in Norwegian waters and around Svalbard, and one Russian vessel in Russian waters.	Barents Sea	815- 924	477- 681	37- 38
2018210	5.10.- 13.11.	Annual combined acoustic and bottom trawl survey along the Norwegian coast north of 62° N.	Norwegian coast	925- 986	595- 723	39- 40
2018211	14.11.- 27.11.	The objective of the cruise was to collect data and samples on standard sections: Svinøy-NW, Gimsøy-NW, Bjørnøya-W and Fugløya-Bjørnøya and "Station M" and standard LoVe transect. Deployment Polar Buoy and Argo Buoy.	Norwegian Sea Barents Sea	987- 1054	-	41
2018213	2.12.- 11.12	Main objective was to test a newly developed macro zooplankton trawl and how this performed compared to the standard macro zooplankton trawl used by IMR for quantitative sampling of mesopelagic macro zooplankton and micronekton.	Norwegian coast	1055- 1057	724- 768	42

5 - "Johan Hjort" – Charts for cruises 2018



Cruise no 2018201 "Johan Hjort"
16–25 January 2018

z CTD st.no 2-45

○ Plankton st. (WP-II-net)

◆ Plankton st. (Mocness)

Standard sections:

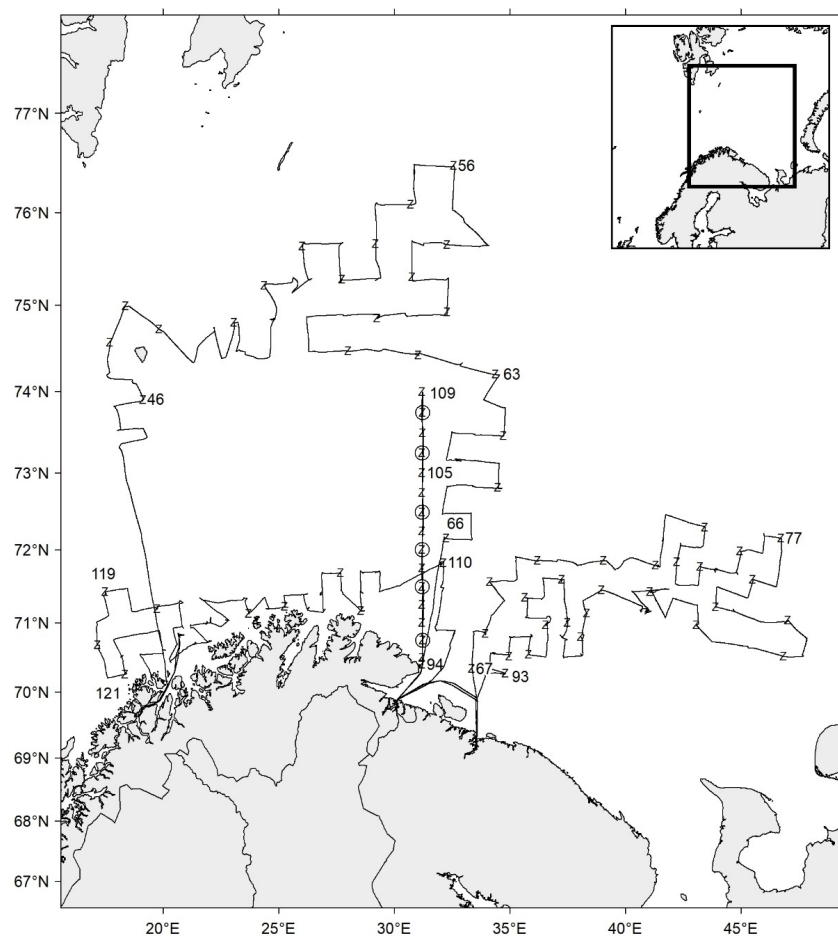
Svinøy NW st.no 2-18

Fugløya-Bjørnøya st.no 26 -45

"LoVe" st.no 20-25

St.M: st.no 19

Fig. 22

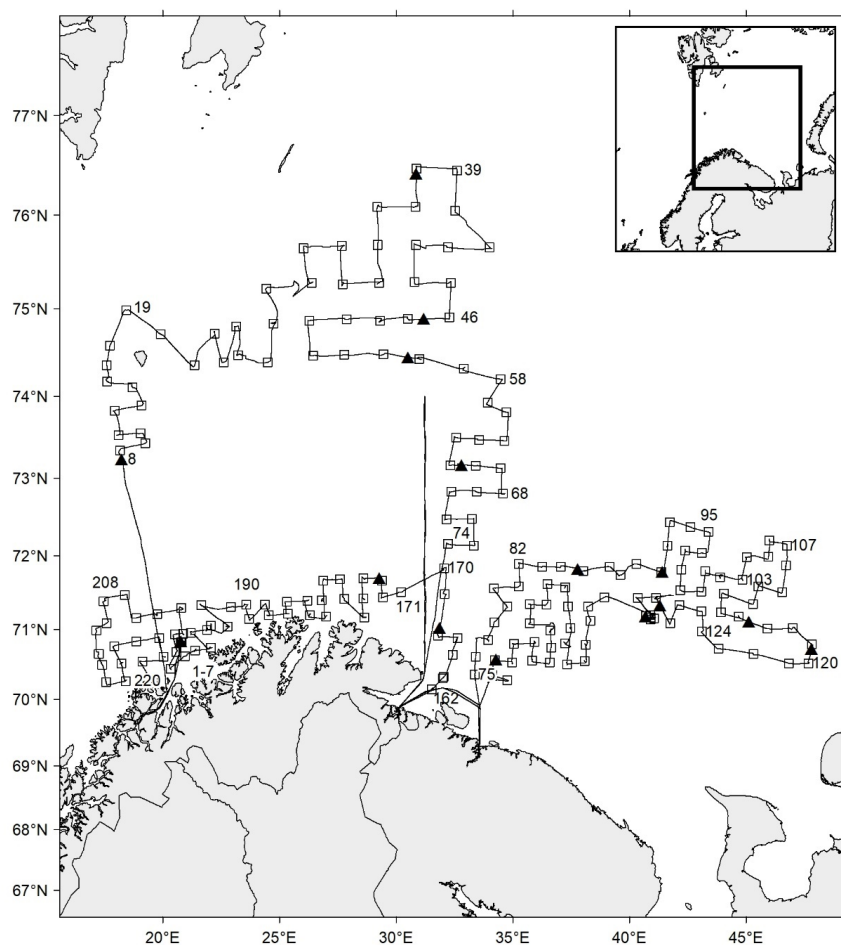


Cruise no 2018202 "Johan Hjørt" (Chart I)
28 January–11 March 2018

z CTD st.no 46-121
o Plankton st. (WP-II-net)

Standard section Vardø N: st.no 94-109

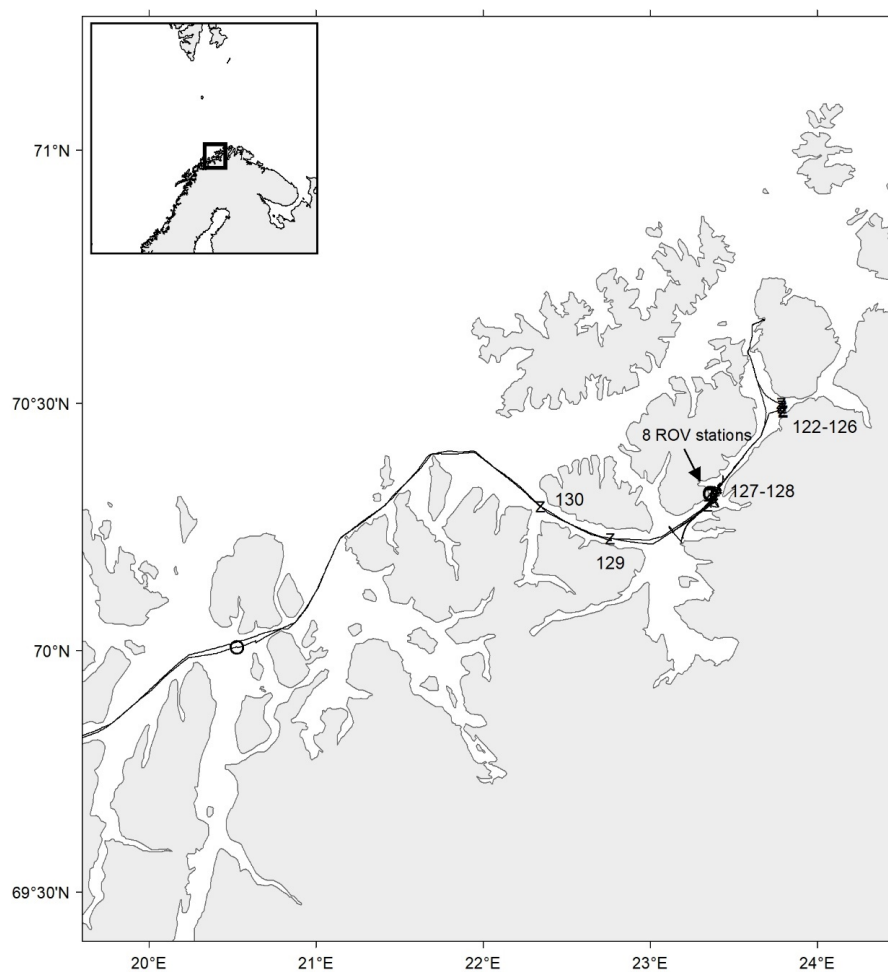
Fig. 23



Cruise no 2018202 "Johan Hjort" (Chart II)
28 January–11 March 2018

Trawl st.no 1-220
□ Bottom trawl
▲ Pelagic trawl

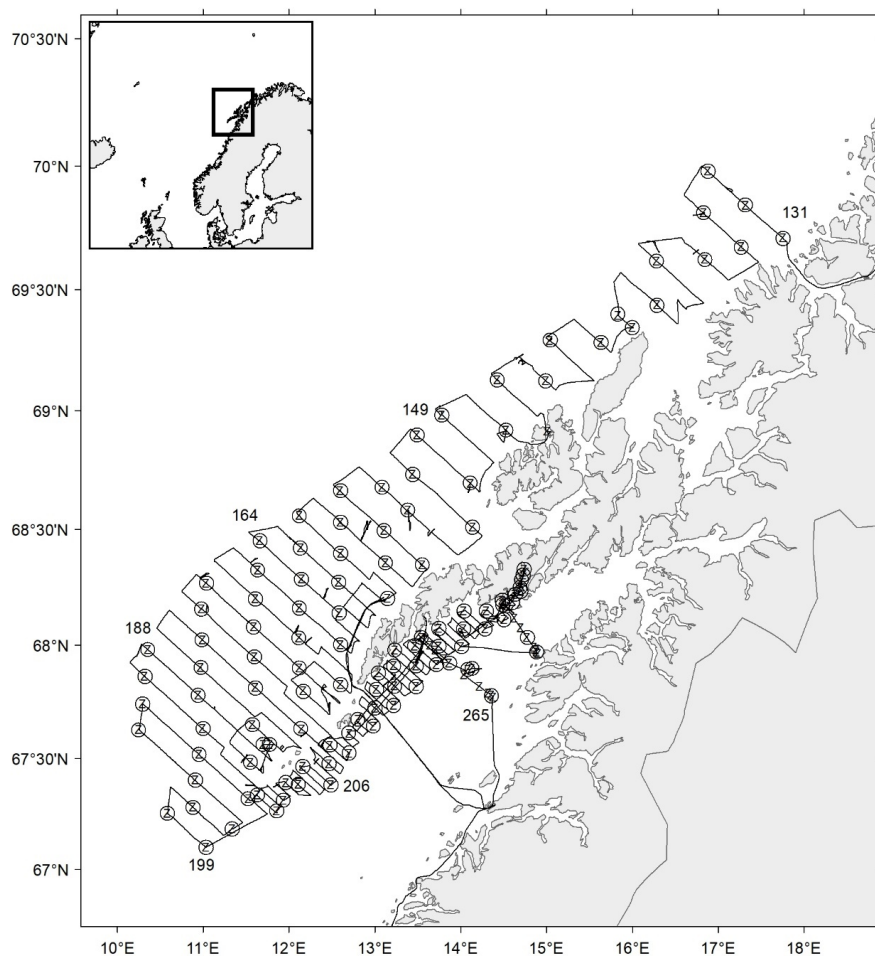
Fig. 24



Cruise no 2018212 "Johan Hjort"
14–20 March 2018

z CTD st.no 122-130
○ ROV stations

Fig. 25



Cruise no 2018203 "Johan Hjørt" (Chart I) Standard sections:
22 March–9 April 2018 Ballstad–Måløy/Skarholmen
Kabelvåg–Steigen

z CTD st.no 131-265
○ Egg st. (WP-II-net)

Fig. 26

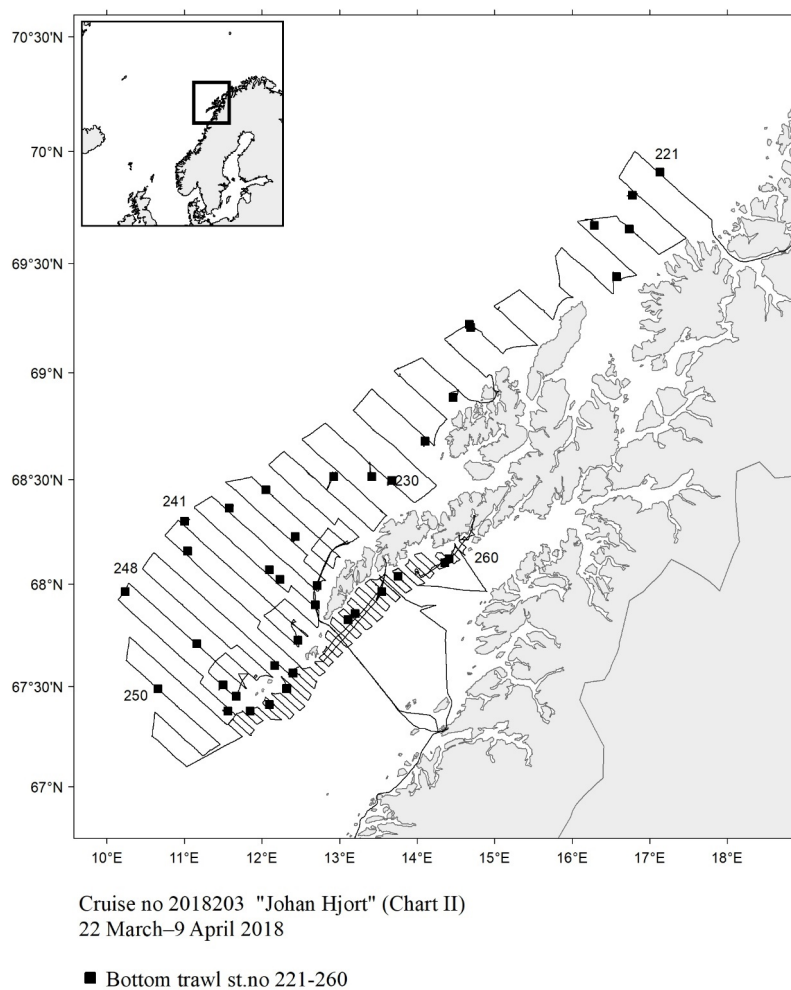


Fig. 27

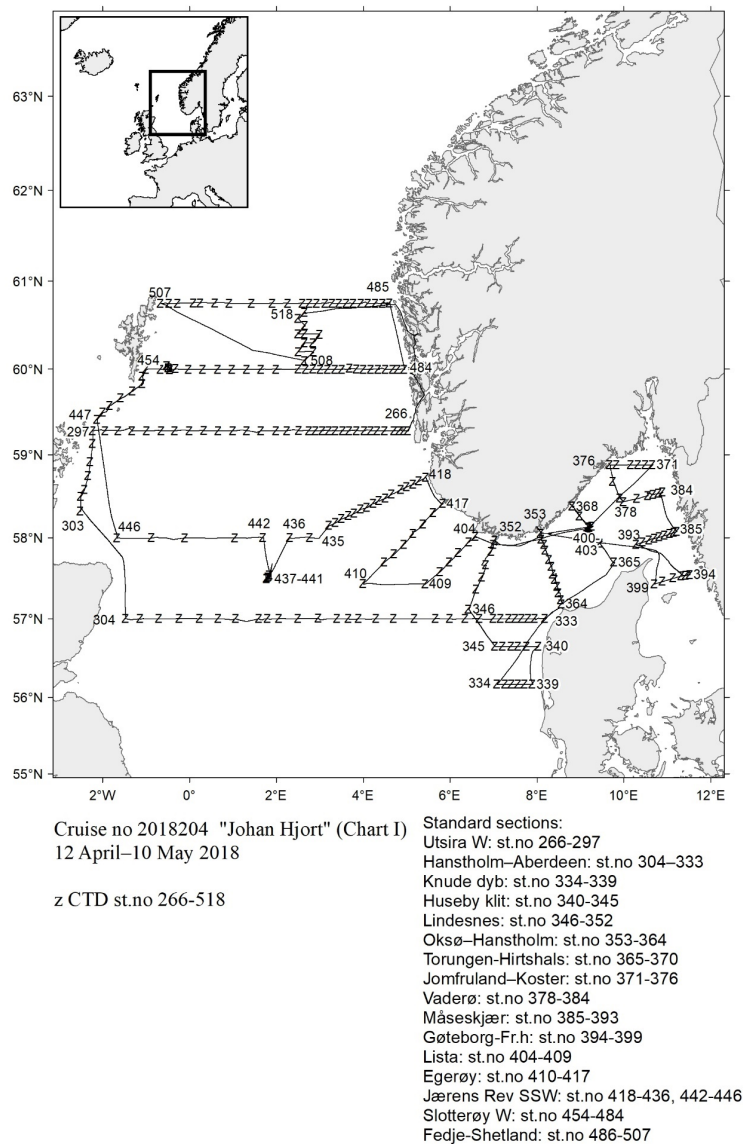
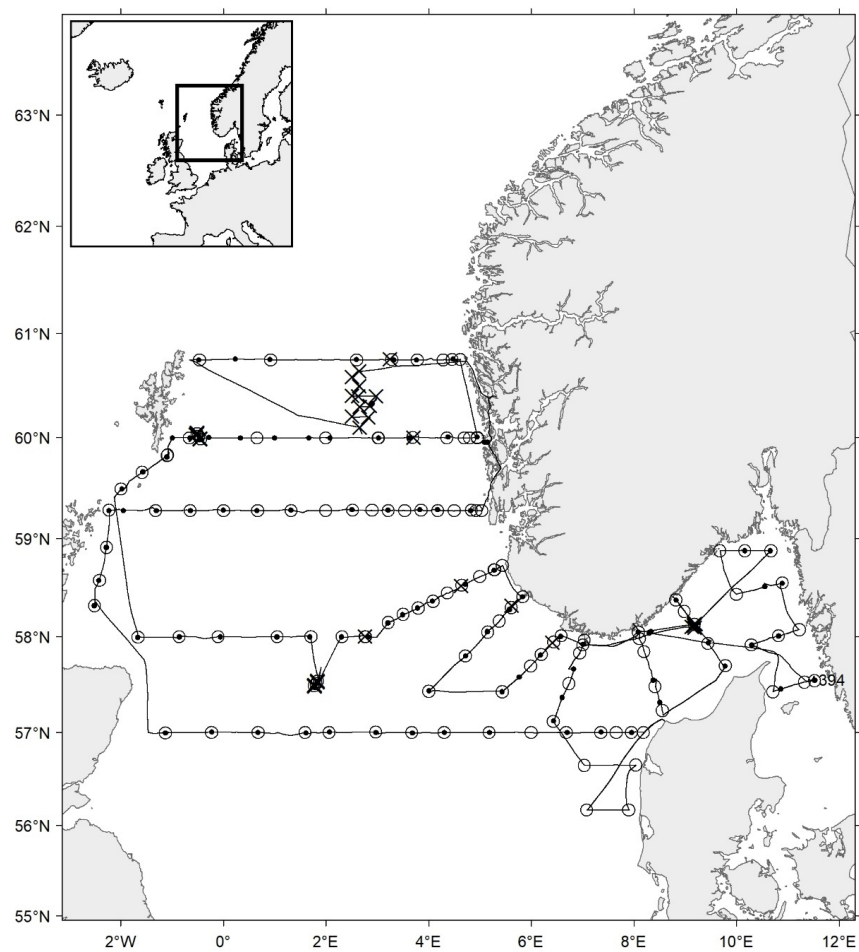


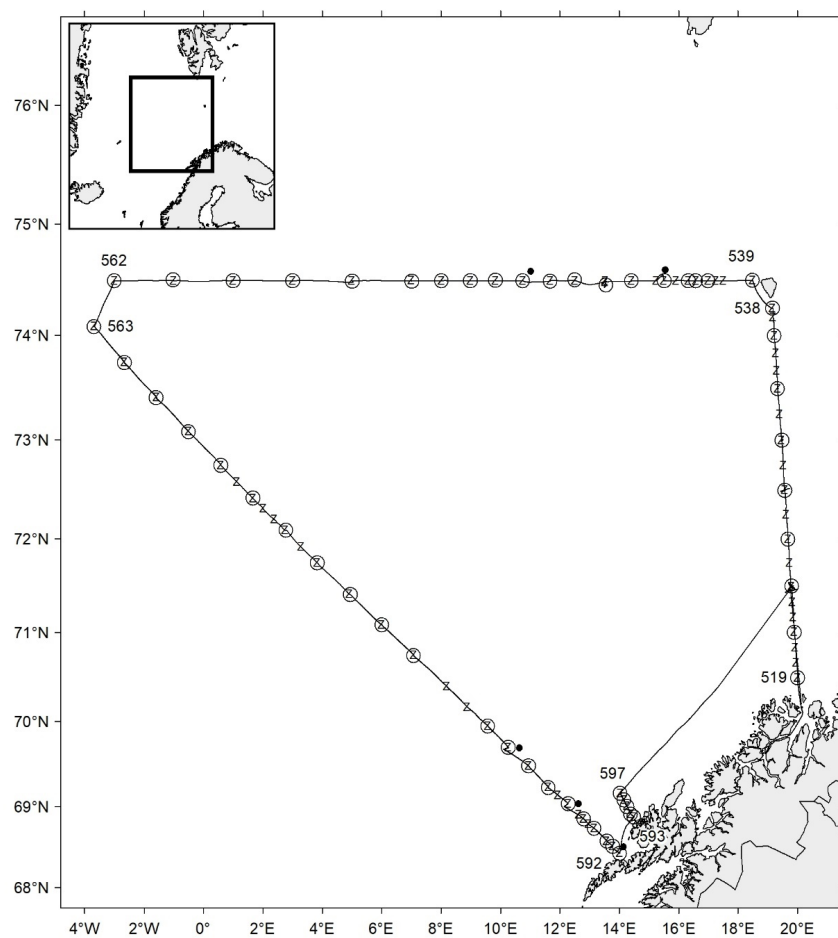
Fig. 28



Cruise no 2018204 "Johan Hjort" (Chart II)
12 April–10 May 2018

- WP-II-net
- Multinet
- × Gulf II

Fig. 29

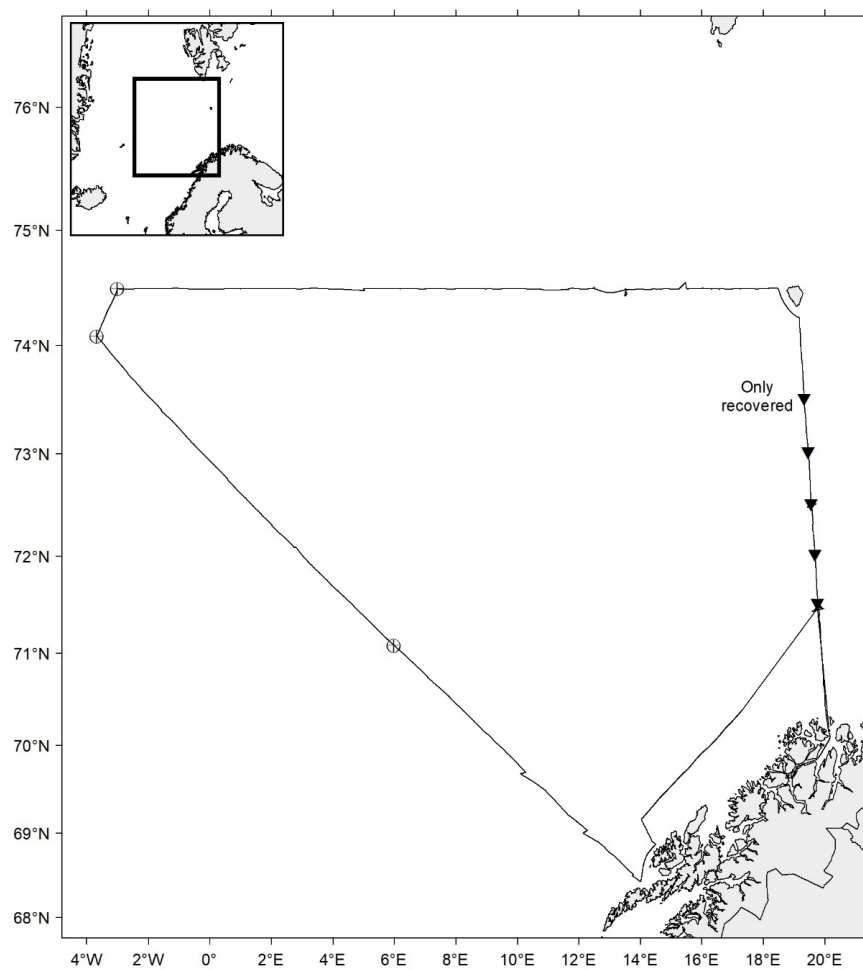


Cruise no 2018205 "Johan Hjord" (Chart I)
21 May–4 June 2018

z CTD st.no 519-597
○ Plankton st. (WP-II-net)
● Plankton st. (Multinet)

Standard sections:
Fugløya–Bjørnøya st.no 519-538
Bjørnøya–W st.no 539-562
Gimsøy NW st.no 563-592

Fig. 30

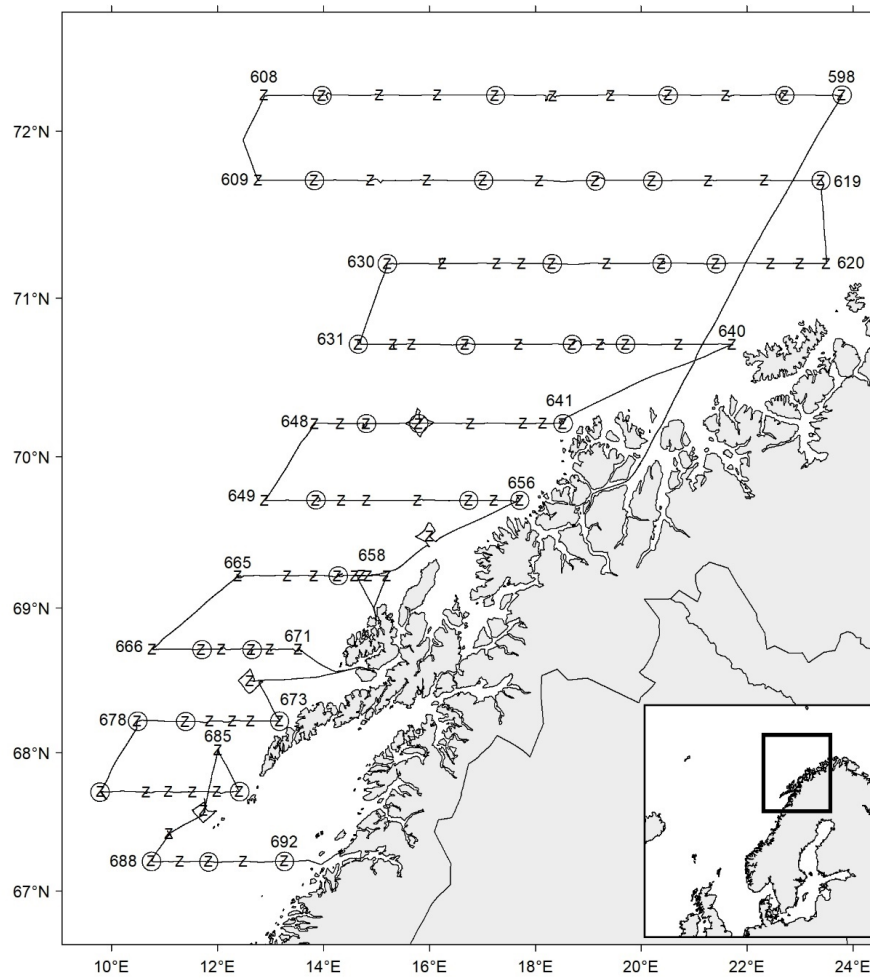


Cruise no 2018205 "Johan Hjort" (Chart II)
21 May–4 June 2018

⊗ Argo profiling drifter deployed.

▼ Vertical profiling current meter, bottom mounted – recovered and redeployed.

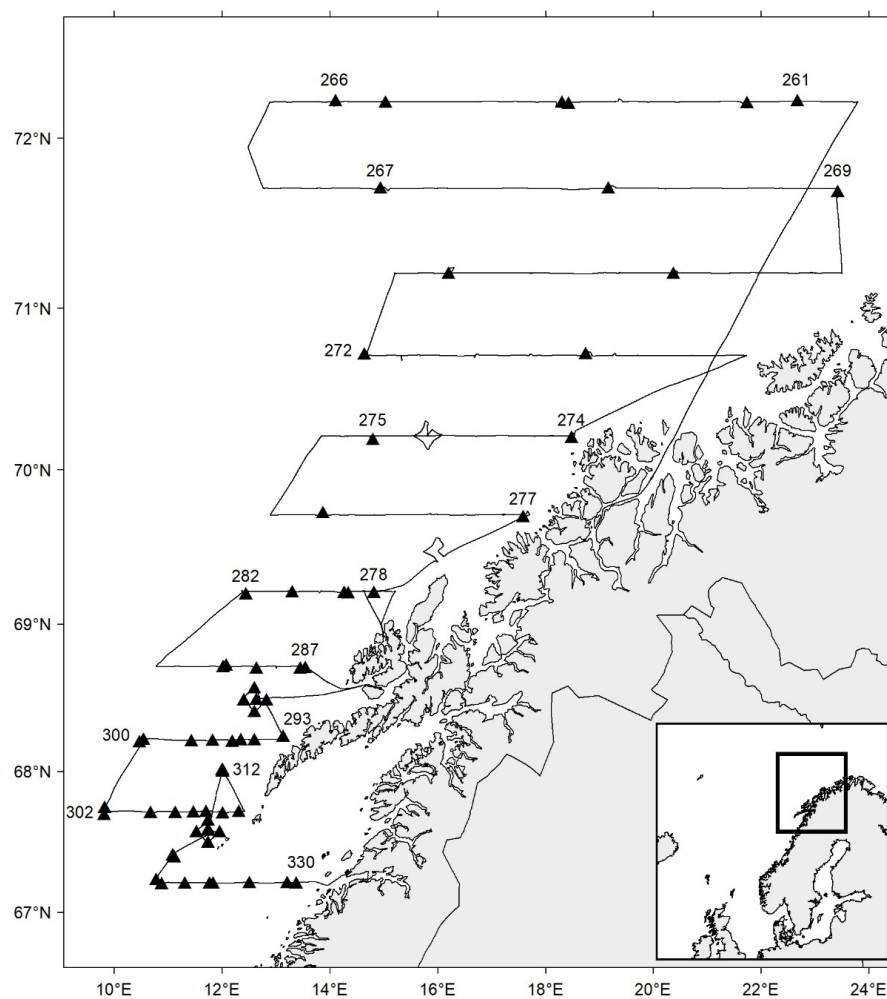
Fig. 31



Cruise no 2018206 "Johan Hjort" (Chart 1)
5–25 June 2018

z CTD st.no 598-692
○ Plankton st. (WP-II-net)

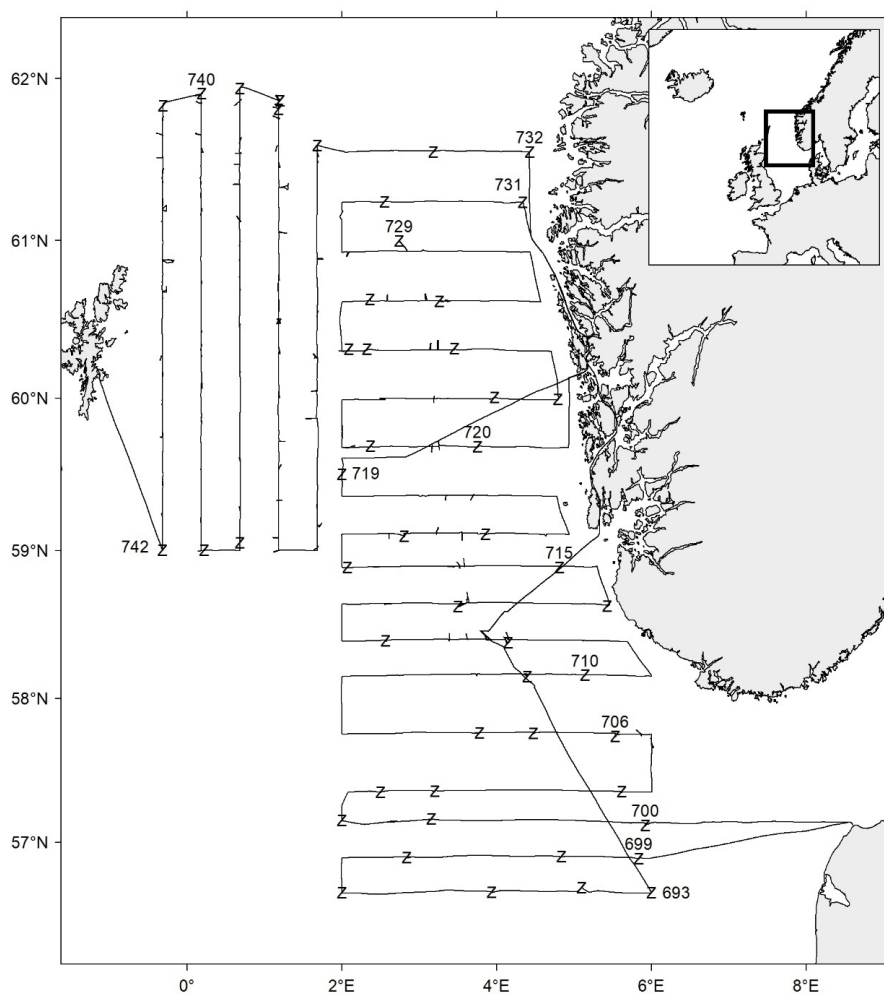
Fig. 32



Cruise no 2018206 "Johan Hjørt" (Chart II)
5–25 June 2018

▲ Pelagic trawl st.no 261-330

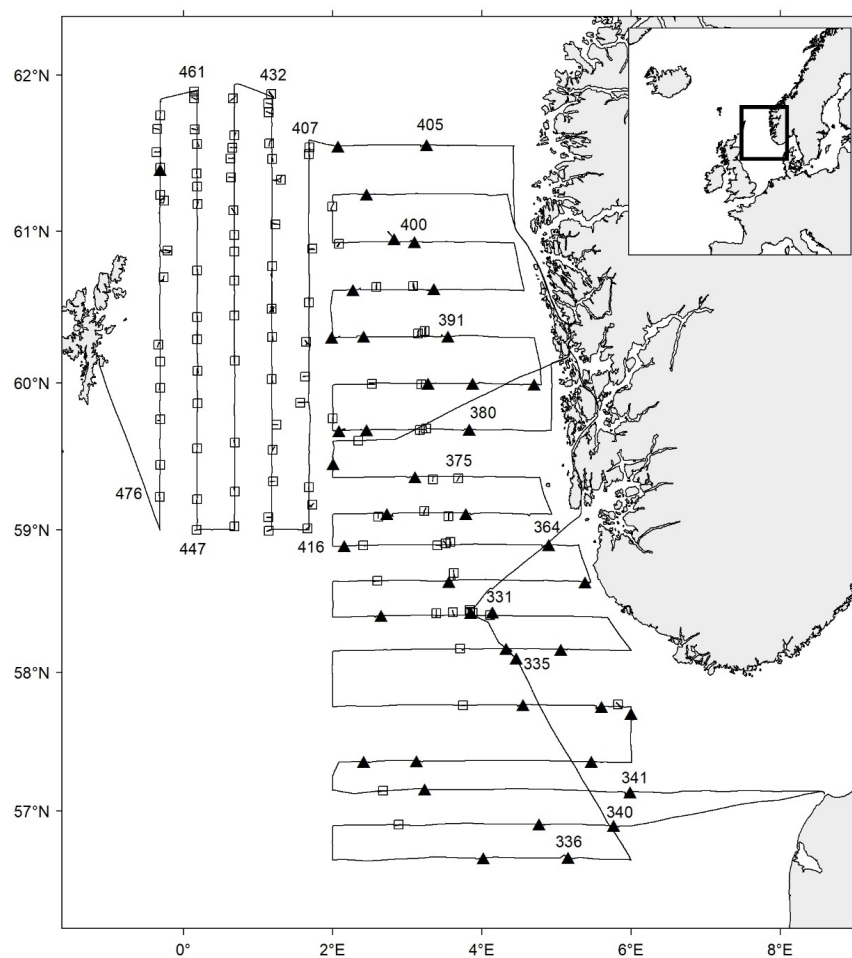
Fig. 33



Cruise no 2018207 "Johan Hjort" (Chart I)
2–29 July 2018

z CTD st.no 693-742

Fig. 34

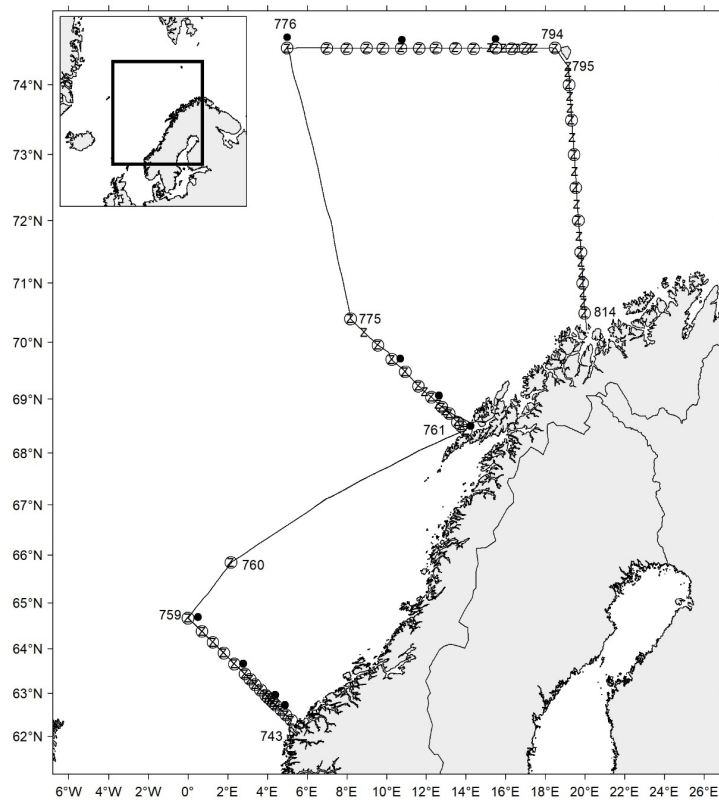


Cruise no 2018207 "Johan Hjort" (Chart II)
2–29 July 2018

Trawl st.no 331-476

- ▲ Pelagic tr.
- Bottom tr.

Fig. 35



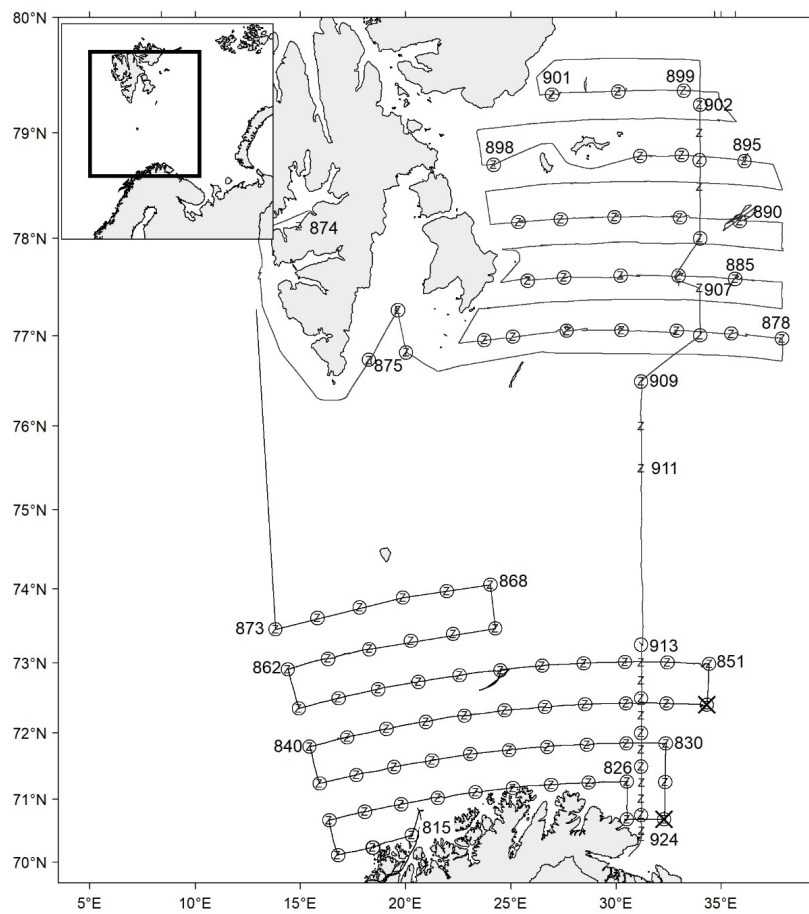
Cruise no 2018208 "Johan Hjort"
10–22 August 2018

z CTD st.no 743-814
○ Plankton st. (WP-II-net)
● Plankton st. (Multinet)

Standard sections:
Svinøy NW: st.no 743-459
Gimsøy NW: st.no 761-778
Bjørnøya W: st.no 776-794
Fugløya–Bjørnøya: st.no 795-814

St. M: st.no 760

Fig. 36

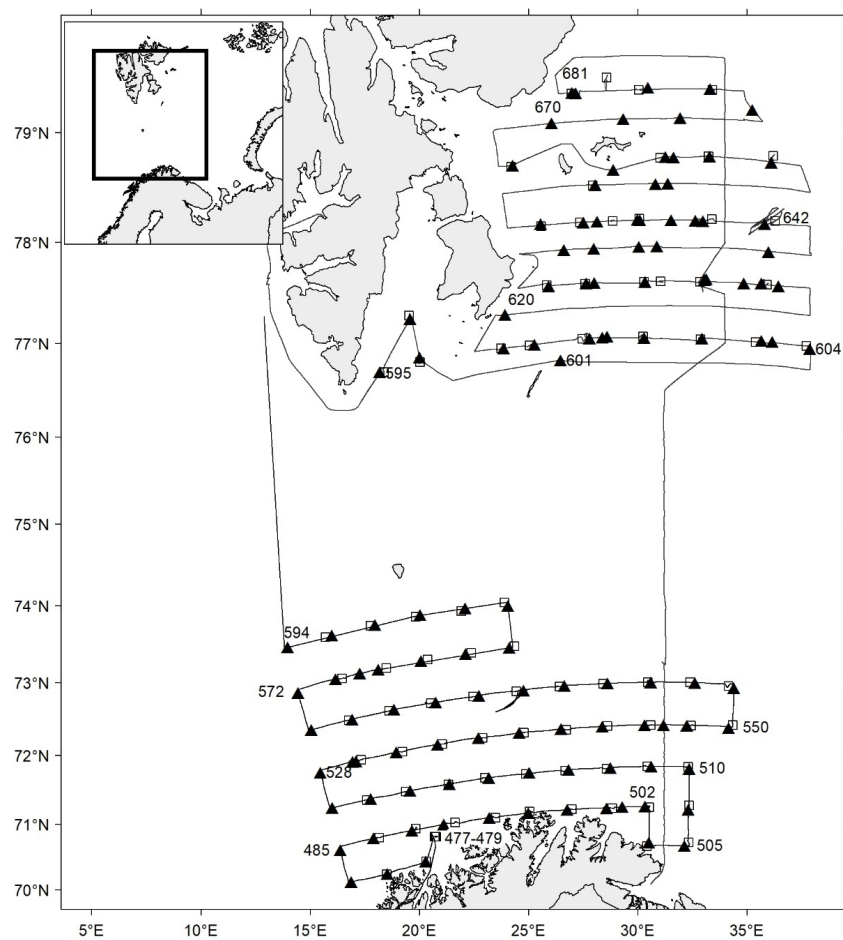


Cruise no 2018209 "Johan Hjørt" (Chart I)
22 August–4 October 2018

z CTD st.no 815-924
o Plankton st. (WP-II-net)
x Grab st.

Standard section Vardø N: st.no 902-924

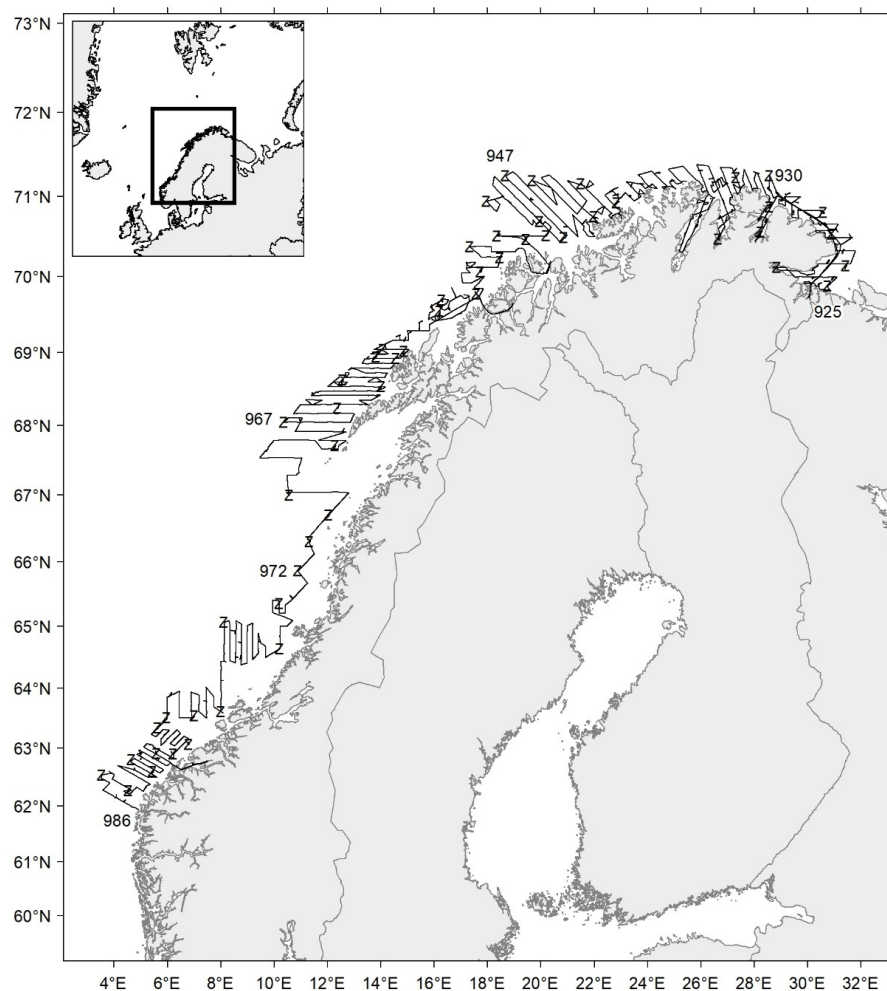
Fig. 37



Cruise no 2018209 "Johan Hjort" (Chart II)
22 August–4 October 2018

Trawl st.no 477-681
▲ Pelagic tr.
□ Bottom tr.

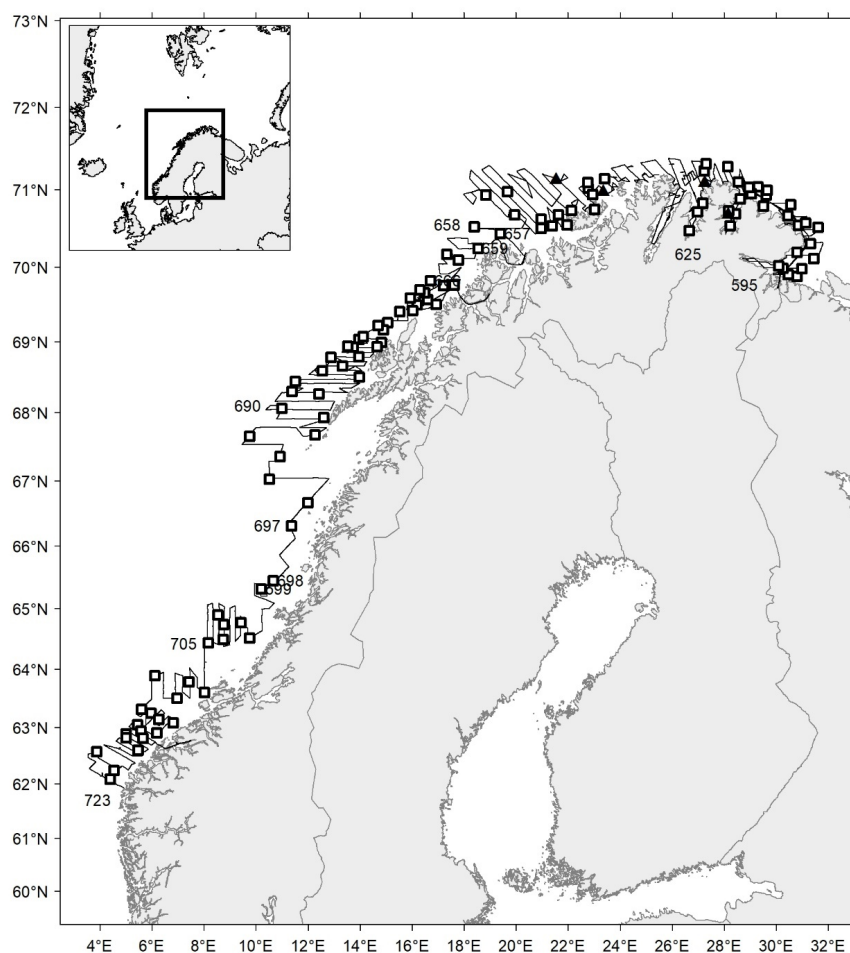
Fig. 38



Cruise no 2018210 "J. Hjort" (Chart I)
5 October–13 November 2018

z CTD st.no 925-986

Fig. 39



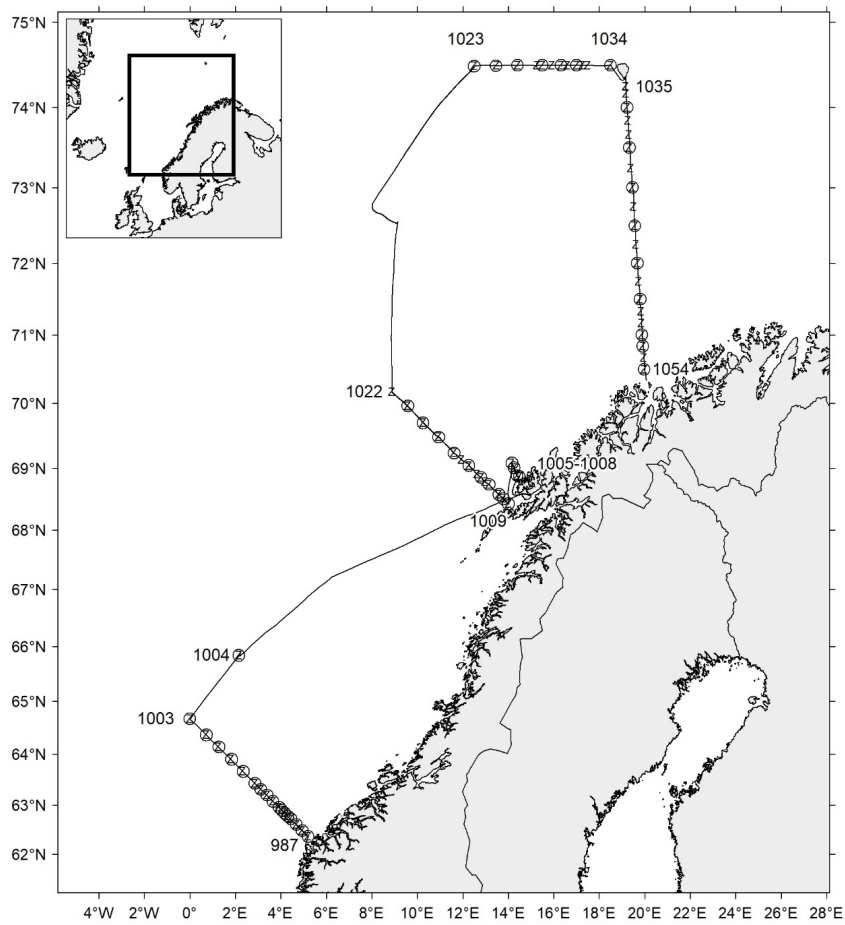
Cruise no 2018210 "J. Hjort" (Chart II)
5 October–13 November 2018

Trawl st.no 595-723

□ Bottom trawl

▲ Pelagic trawl

Fig. 40

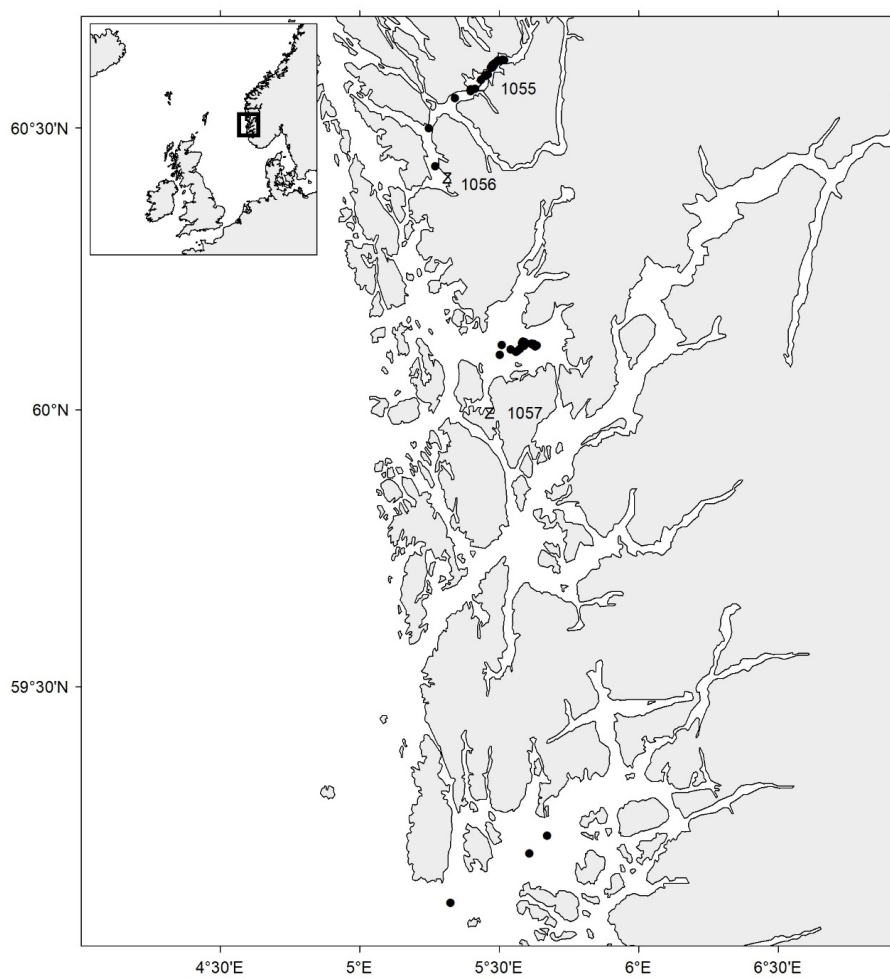


Cruise no 2018211 "Johan Hjort"
14–27 November 2018

z CTD st.no 987-1054
○ Plankton st. (WP-II-net)

Standard sections:
Svinøy NW: st.no 987-1003
Gimsøy NW: st.no 1009-1022
Bjørnøya W: st.no 1023-1034
Fugløy–Bjørnøya: st.no 1035-1054
LoVe transect: st.no 1005-1008
St. M. 1004

Fig. 41



Cruise no 2018213 "Johan Hjort"
2–11 December 2018

z CTD st.no 1055-1057
● Trawl st.no 724-768

Fig. 42

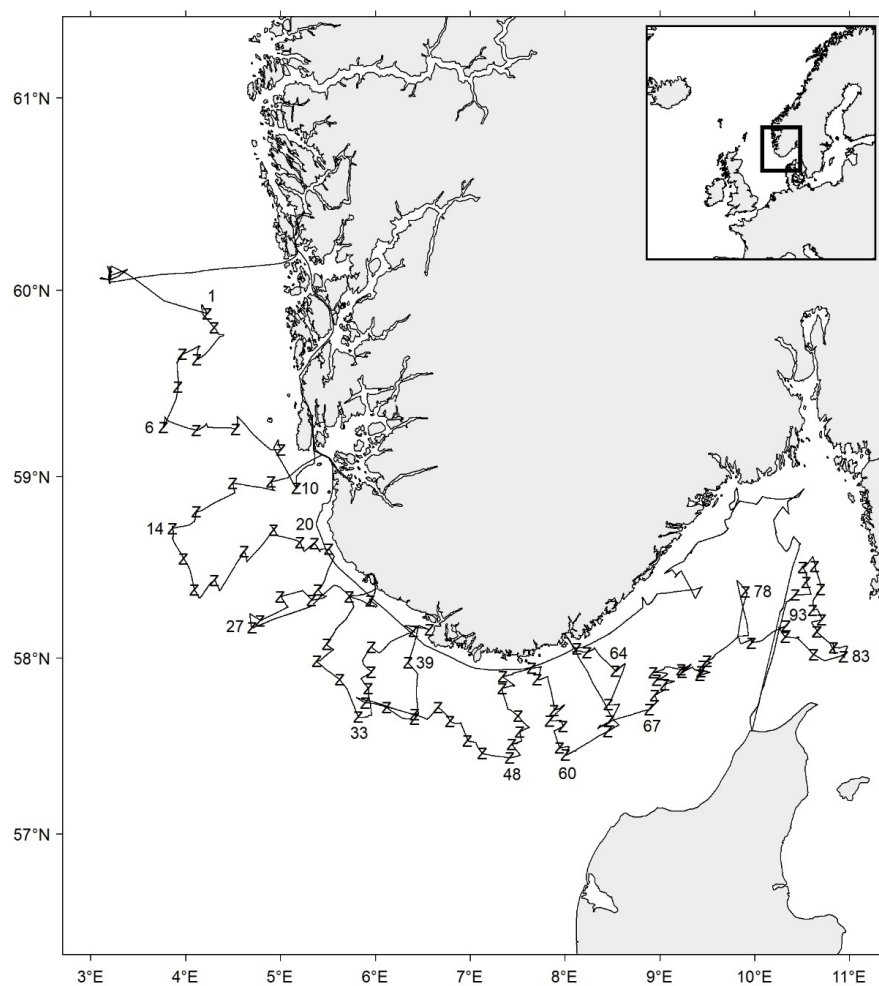
6 - "Kristine Bonnevie" - (Ship code no 03). Cruises 2018.

Cruise no	Period	Purpose	Area	CTD st.no	Trawl st.no	Fig. no
2018601	6.1-30.1.	Annual shrimp survey.	North Sea, Skagerrak	1-93	1-126	43-44
2018602	4.2.-9.2.	This is an educational cruise which is part of the course GEO337 (Fjord oceanography) given at GFI, UiB. The students are to be trained in the use of oceanographic equipment (CTD, moorings, turbulence measurements) and they will analyze and work with the data for a report related to the curriculum of the course. Moorings will be recovered in the period 1-4/3 2018.	Norwegian fjords	94-269	-	45
2018603	10.2-19.2.	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 parameters in the North Sea.	North Sea	270-306	-	46-47
2018604	-	Cancelled	-	-	-	-
2018605	18.3-21.3.	The cruise is part of the bachelor course GEO322 given at University of Bergen. The students are trained in the use of standard oceanographic equipment and in the planning of a scientific cruise. Moorings were deployed during cruise 2018602 2-9/2 2018 and recovered during this cruise.	West coast of Norway Bjørnafjorden	307-406	-	48
2018606	-	Cancelled	-	-	-	-
2018607	-	Cancelled	-	-	-	-
2018608	24.3-4.4.	Genetic sampling of spawning Northeast Atlantic saithe.	Northeast Atlantic Ocean	407-419	127-139	49-50
2018609	5.4.-18.4.	To obtain information on: 1. Diel vertical distribution of herring larvae. 2. Vertical distributions relative to physical structures. 3. Vertical distributions relative to potential prey sources. 4. Vertical distributions relative to potential predators. 5. Collect recently hatched larvae from spawning.	Norwegian Sea	420-526	515-517	51-53
2018610	19.4.-21.4.	Deploy current meter moorings in the Norwegian Coastal Current. Perform ship ADCP and hydrographic surveys.	Norwegian Sea	527-547	-	54
2018611	-	Cancelled	-	-	-	-
2018612	9.5.-19.5.	The purpose of the cruise was to collect fauna, construct and deploy benthic fauna landers in a gradient away from one fish farm in Møre to assess the long-term effects of effluents from salmon farming i open net-pens on long-lived and sensitive species, such as cold-water corals. Landers will be deployed for 1 year and will be retrieved after 1,5 years. Coral samples were also collected to assess the genetics of <i>Lophelia pertusa</i> at Aktivneset and to assess the importance of larvae recruitment from UK for the viability of the population of corals on the Norwegian shelf.	Norwegian Sea	548-866	-	55-56

2018613	20.5.- 23.5.	The purpose of the cruise was to collect fauna, construct and deploy benthic fauna landers in a gradient away from one fish farm in Hordaland to assess the long-term effects of effluents from salmon farming in open net-pens on long-lived and sensitive species, such as cold-water corals. Landers will be deployed for 1 year and will be retrieved after 1,5 years.	Norwegian Fjords	567- 571	-	57
2018614	25.5.- 15.6.	The cruise is a part of a research project with the objective to investigate water masses and ocean currents in the Greenland and Iceland Seas and the exchange between these basins. In order to reach this goal we use current meter and surface meteorological moorings, glider measurements, and detailed hydrographic and velocity surveys. On this cruise we recovered 6 current meter moorings and 2 meteorological buoys.	Greenland Sea Iceland Sea Norwegian Sea	572- 761	-	58- 59
2018615	-	Cancelled	-	-	-	-
2018626	16.6.- 19.6.	BURSE - Burial of kelp carbon in soft sediments.	Norwegian fjords	-	-	60
2018616	27.6.- 10.7.	The cruise is the first research cruise of the project the Nansen LEGACY. LEGACY is the Norwegian Arctic research community's joint effort to establish a holistic understanding of a changing marine Arctic climate and ecosystem. KB 2018616 is a physical oceanography cruise with objectives to conduct ocean mixing and water transformation process studies in the region west and north of Svalbard, with particular focus on the warm Atlantic boundary current.	Arctic Ocean	762- 881	-	61
2018617	16.7.- 15.8.	International Bottom Trawl Survey (IBTS) of the North Sea where the whole area is covered by a number of participating nations (Norway, England, Scotland, Germany, Sweden and Denmark). The survey provides biological data on fish and benthos. The cruise is coordinated by the ICES IBTSWG. The first part of the cruise includes sampling the hydrography, chemistry, zoo- and ichthyoplankton along the hydrographic transects, Utsira-W, Hantholm-Aberdeen and Fair Isle-Pentland plus a number of additional stations on the western and eastern side of the northern North Sea. The cruise also entails registering marine litter.	North Sea	882- 1037	518- 587	62- 64
2018618	-	Cancelled	-	-	-	-
2018620	17.8.- 20.8.	Training cruise for students	Norwegian fjord	1038- 1051	588- 600	65- 66
2018619	21.8.- 23.8.	Training cruise in BIO 102 – Organismal Biology.	Norwegian Sea	1052- 1056	601- 605	67
2018627	24.8.- 27.8.	Mandatory Field course for International IMBERSEA masters students.	Norwegian Sea	1057- 1068	606- 621	68- 69
2018621	28.8.- 30.8.	Training cruise in BIO 102 part 2 – Organismal Biology.	Norwegian Sea	1069- 1071	622- 626	70
2018622	26.9.- 30.9.	Recovery of current meter moorings and CTD/ADCP survey in the Norwegian Coastal Current off the coast of Møre. Recovery of sound source mooring in the Norwegian Sea.	Norwegian Sea	1072- 1084	-	71

2018623	1.10.- 8.11.	Annual survey for monitoring coastal fish stocks.	Barents Sea North Sea Norwegian Sea	1085- 1153	627- 731	72- 74
2018624	10.11.- 19.11.	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 parameters in the North Sea. Sampling was undertaken on the eastern end of following standard sections: Utsira-W, and Aberdeen-Hanstholm. In addition, samples were taken along the Lindesnes section and the eastern ends of the Jærens and Feie-Shetland section. All sections were terminated at the border between the UK and Norway. A series of samplings were also undertaken along the deep part of the Norwegian trench from opposite Hirtshals (Denmark) in the south east to Fedje (Norway) in the north.	North Sea	1154- 1227	-	75- 76
2018625	24.11.- 8.12.	Survey and map the distribution of herring, sprat and other fish acoustically in the fjords south of 62°N – Oslofjorden, Hardangerfjorden, Sognefjorden and Nordfjord were prioritized. Also survey the amount of zooplankton (food for sprat and herring) in the surveyed areas by plankton nets and take CTD and water samples.	Norwegian Coast	1233- 1272	732- 764	77- 78

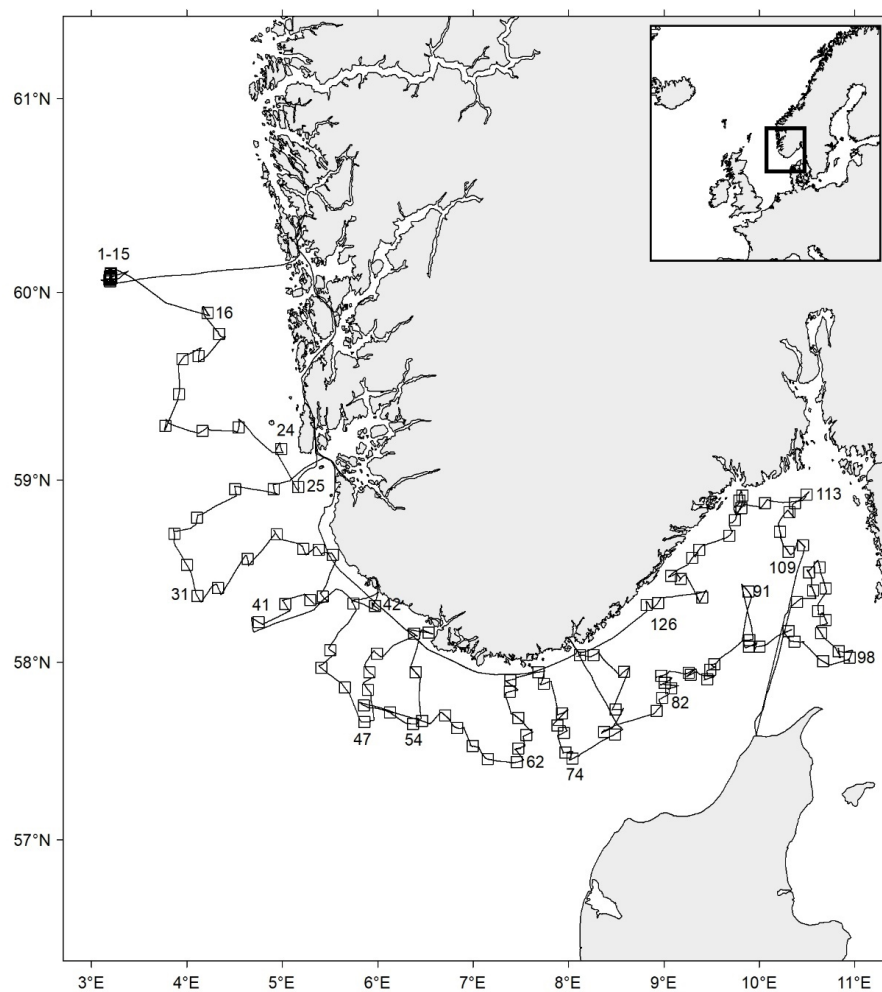
7 - "Kristine Bonnevie" – Charts for cruises 2018



Cruise no 2018601 "K. Bonnevie" (Chart I)
6–30 January 2018

z CTD st.no 1-93

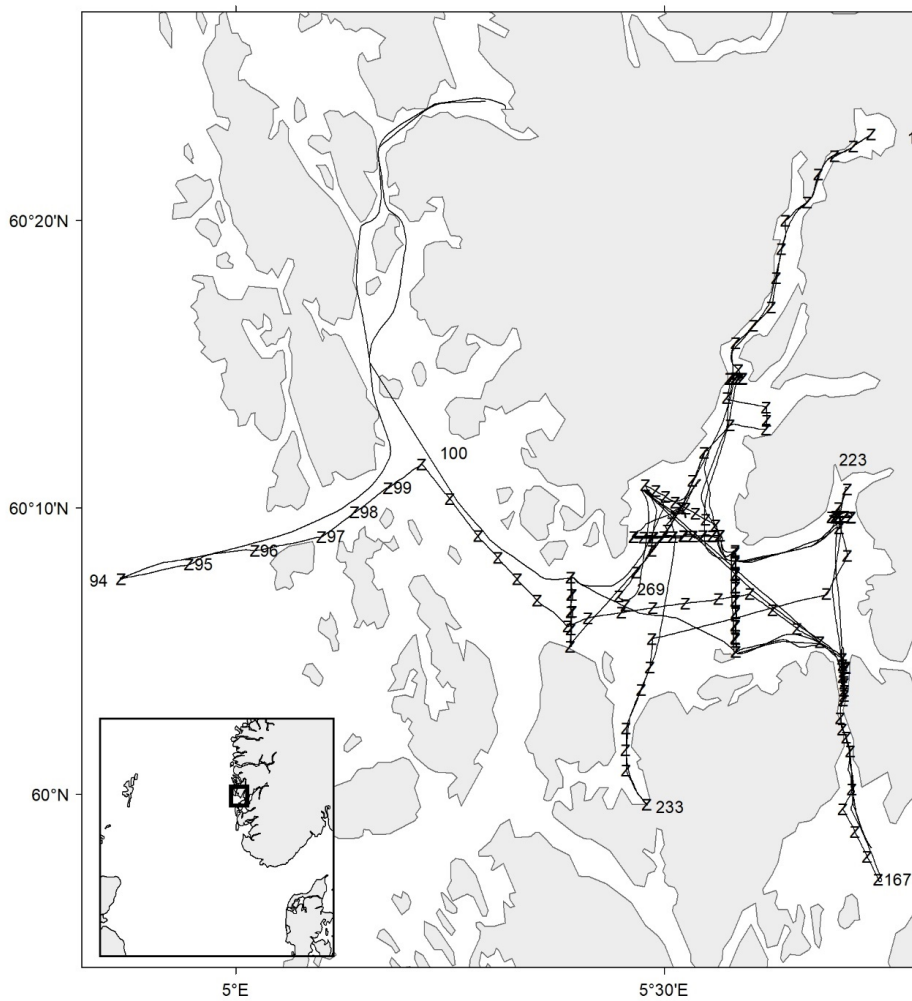
Fig. 43



Cruise no 2018601 "K. Bonnevie" (Chart II)
6–30 January 2018

□ Bottom trawl st.no 1-126

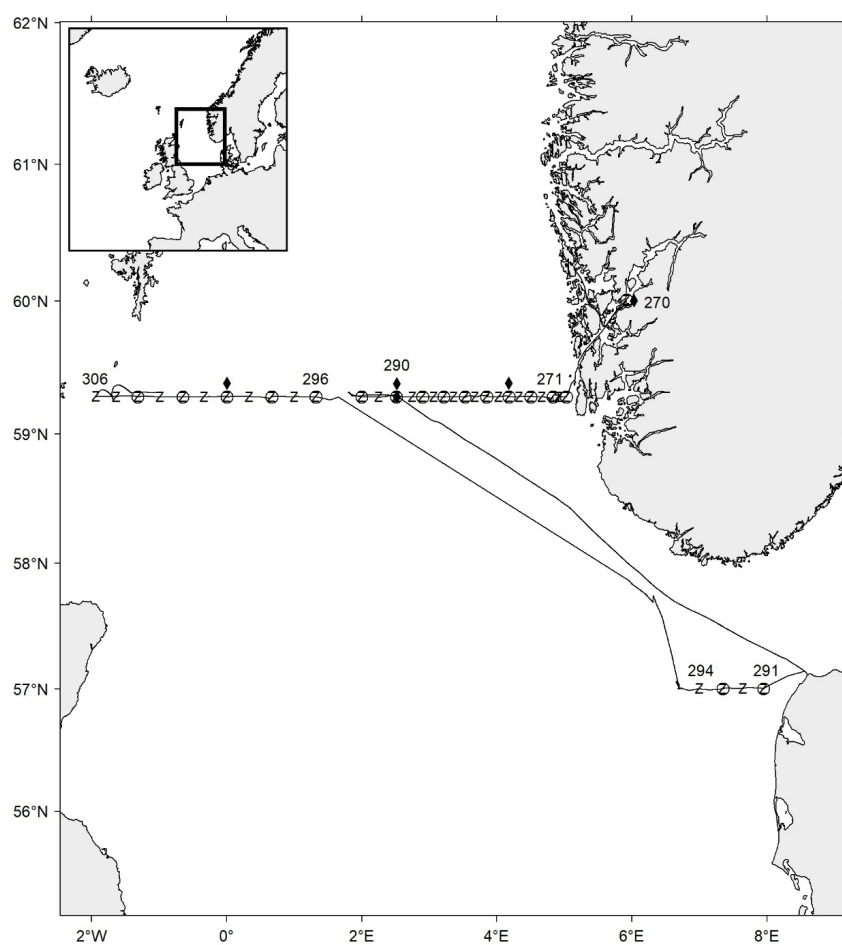
Fig. 44



Cruise no 2018602 "K. Bonnevie"
4–9 February 2018

z CTD st.no 94-269

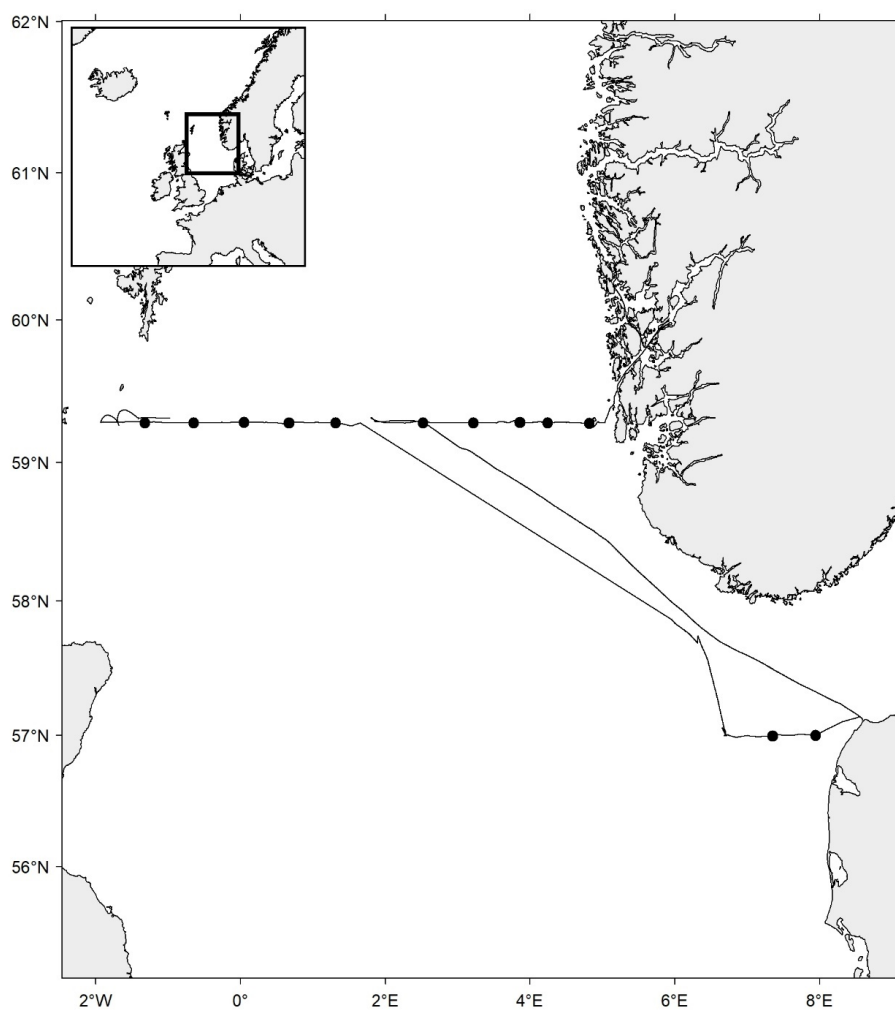
Fig. 45



Cruise no 2018603 "K. Bonnevie" (Chart I) Standard section:
10–19 February 2018 Utsira W: st.no 271-290, 296-306
(Early end due to engine failure)

z CTD st.no 270-306
o Plankton st. (WP-II-net)
♦ Plankton st. (Mocness)

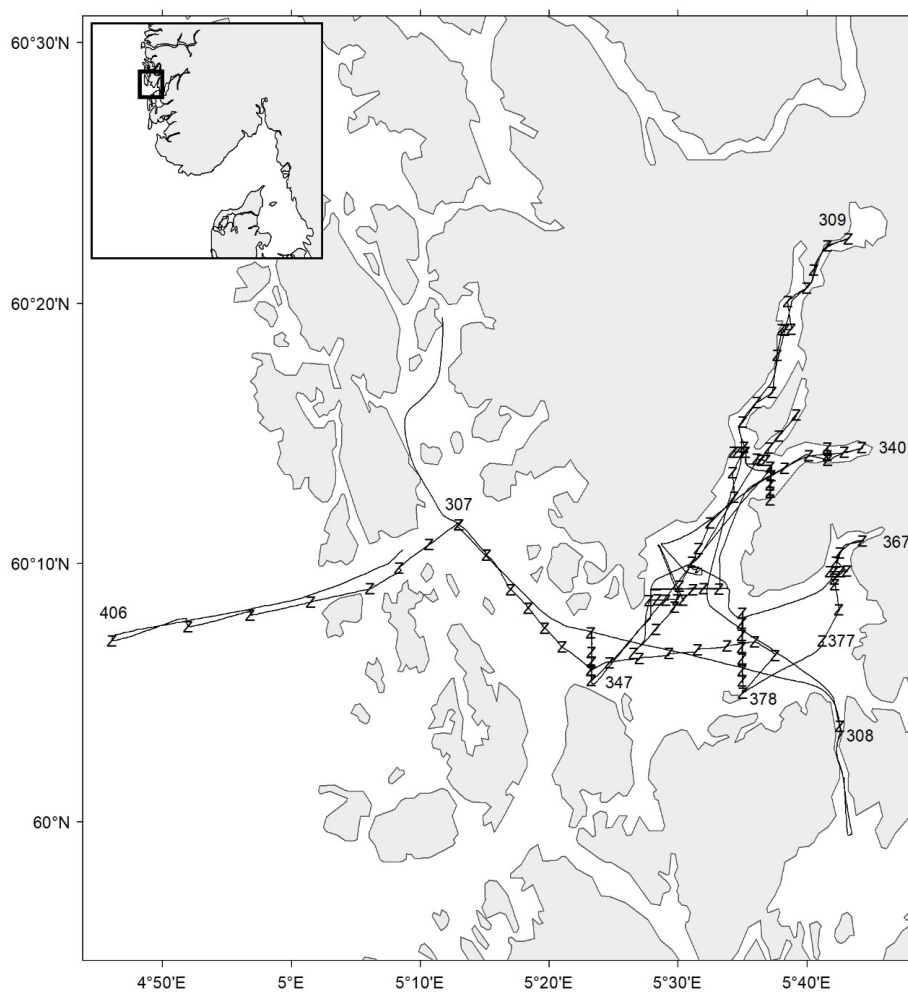
Fig. 46



Cruise no 2018603 "K. Bonnevie" (Chart II)
10–19 February 2018

● Mik station

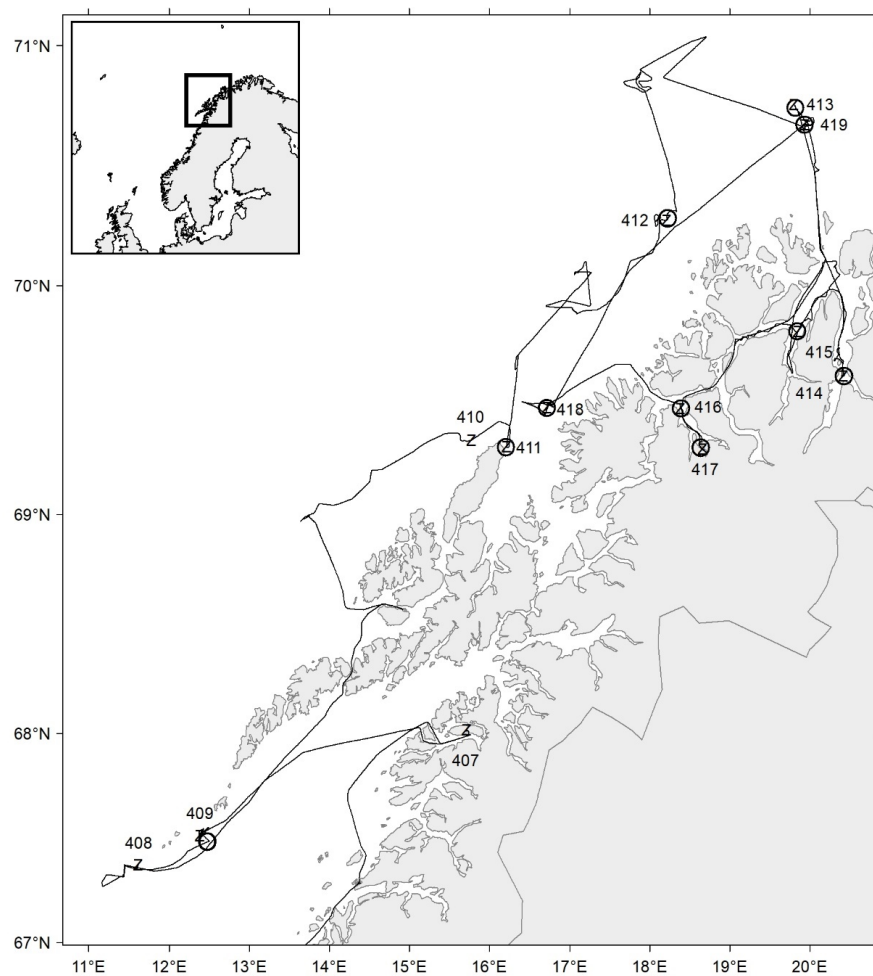
Fig. 47



Cruise no 2018605 "K. Bonnevie"
18–21 March 2018

z CTD st.no 307-406

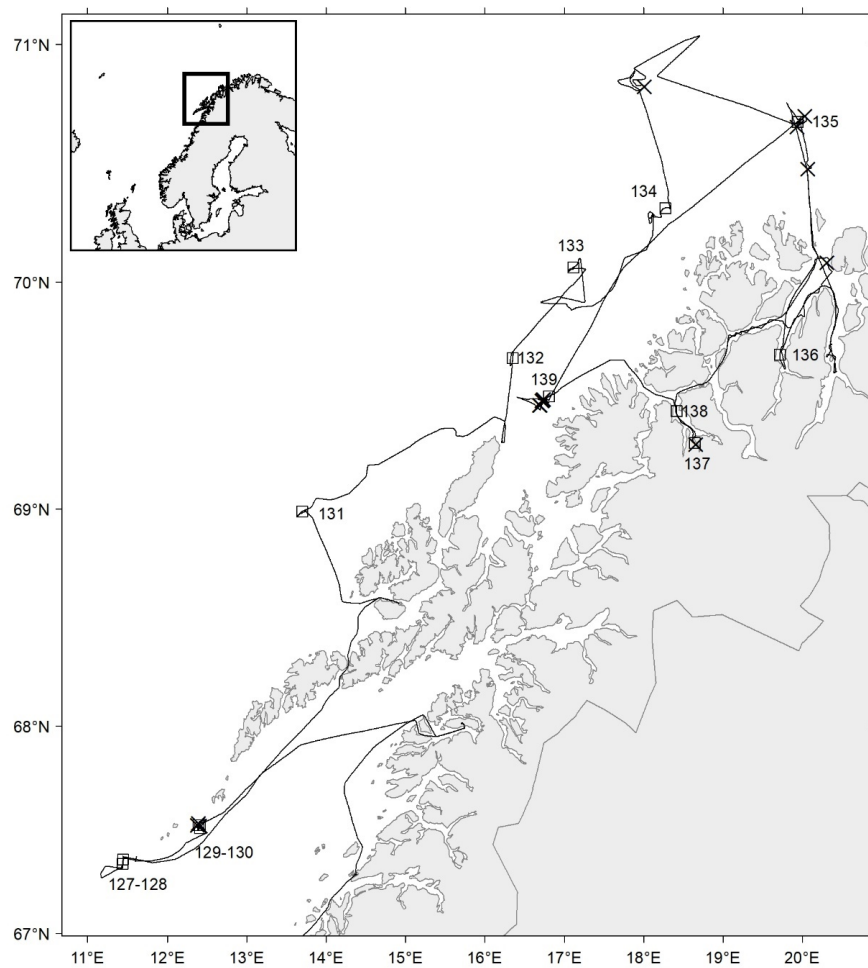
Fig. 48



Cruise no 2018608 "K. Bonnevie" (Chart I)
24 Mar–4 Apr 2018

z CTD st.no 407-419
○ Multinet

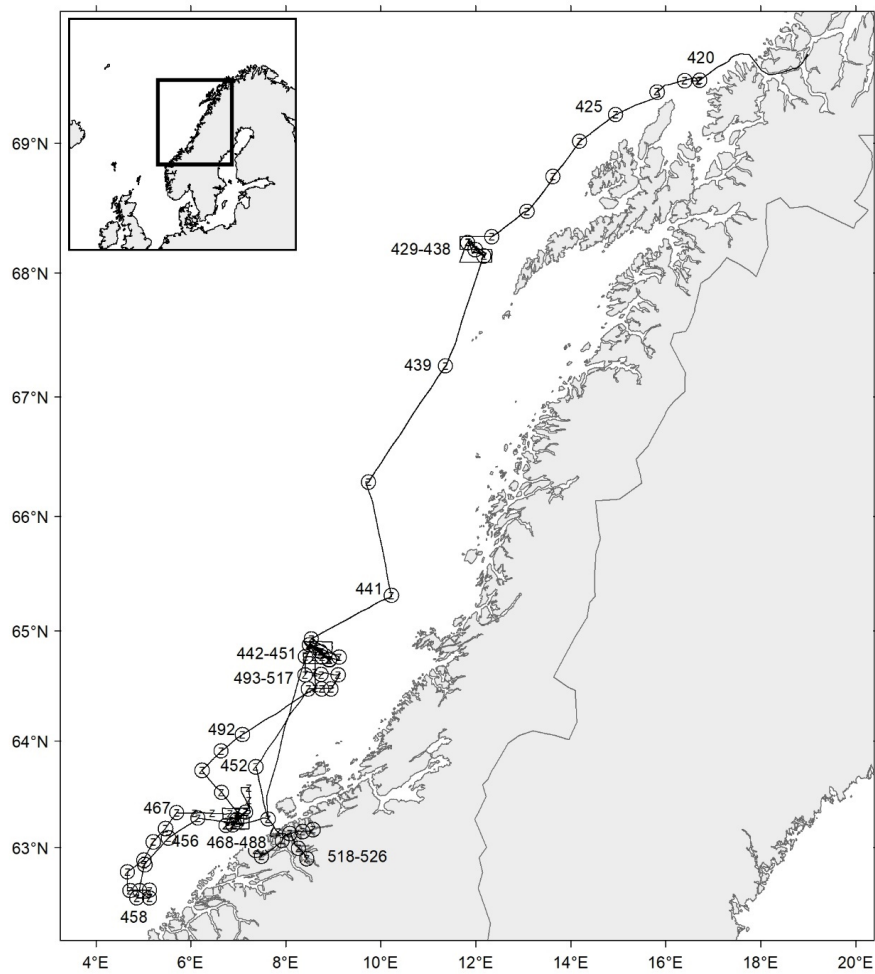
Fig. 49



Cruise no 2018608 "K. Bonnevie" (Chart II)
24 Mar–4 Apr 2018

■ Bottom trawl st.no 127-139
× Juksa

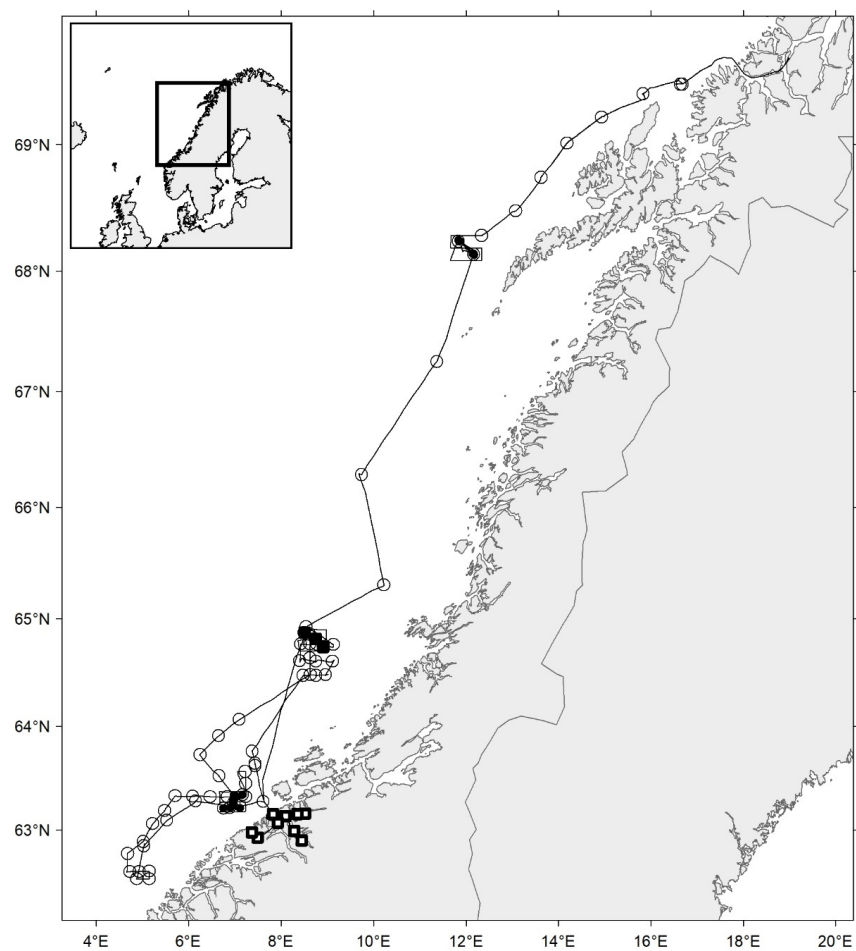
Fig. 50



Cruise no 2018609 "K. Bonnevie" (Chart I)
5–18 April 2018

z CTD st.no 420-526
○ WP-II-net

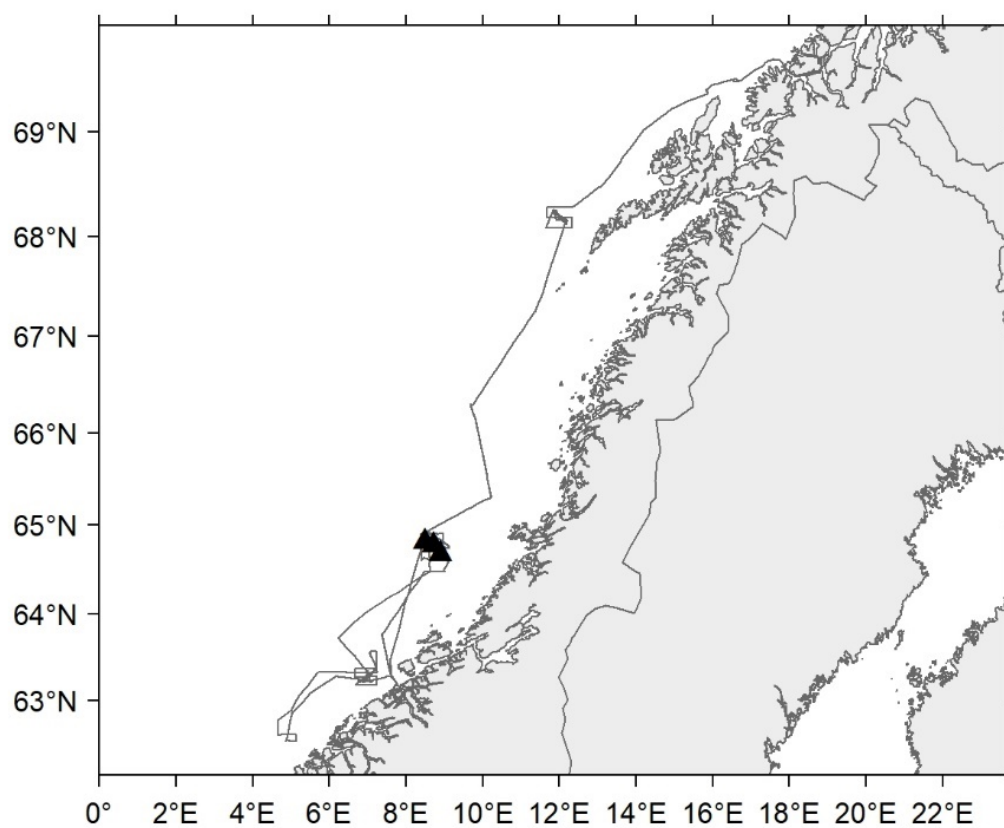
Fig. 51



Cruise no 2018609 "K. Bonnevie" (Chart II)
5–18 April 2018

- Gulf III stations
- MIK stations
- Multinet stations

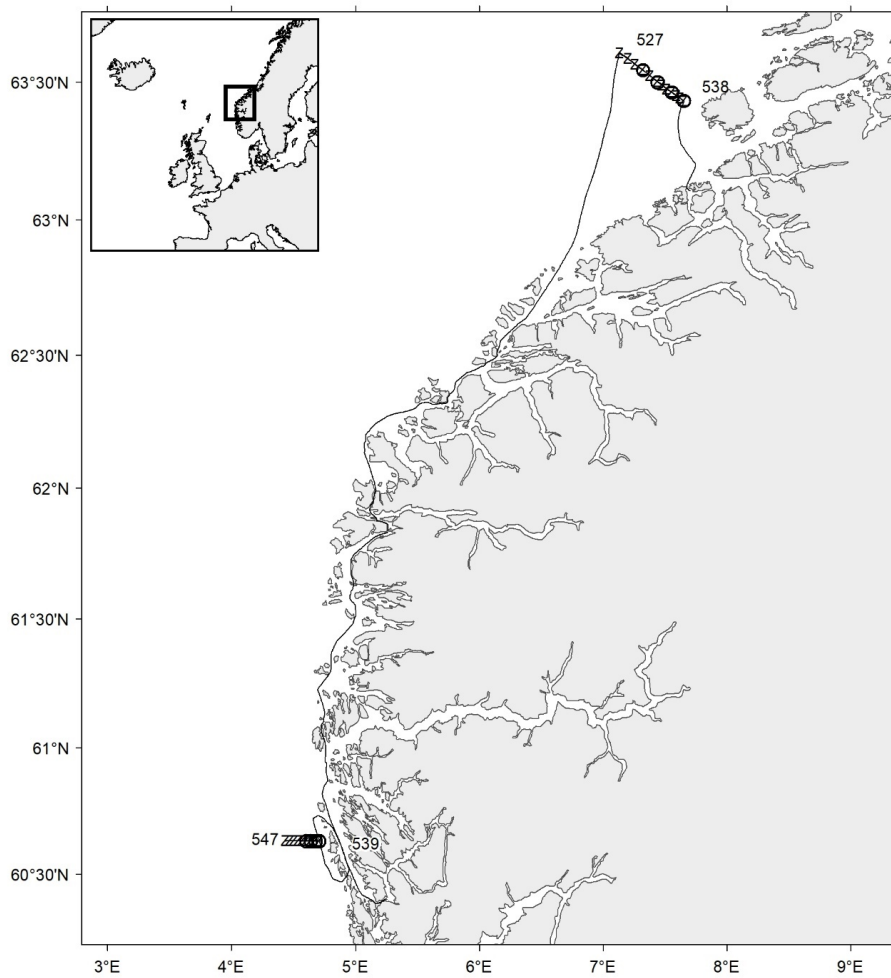
Fig. 52



Cruise no 2018609 "K. Bonnevie" (Chart III)
5–18 April 2018

▲ Pelagic trawl st.no 515-517

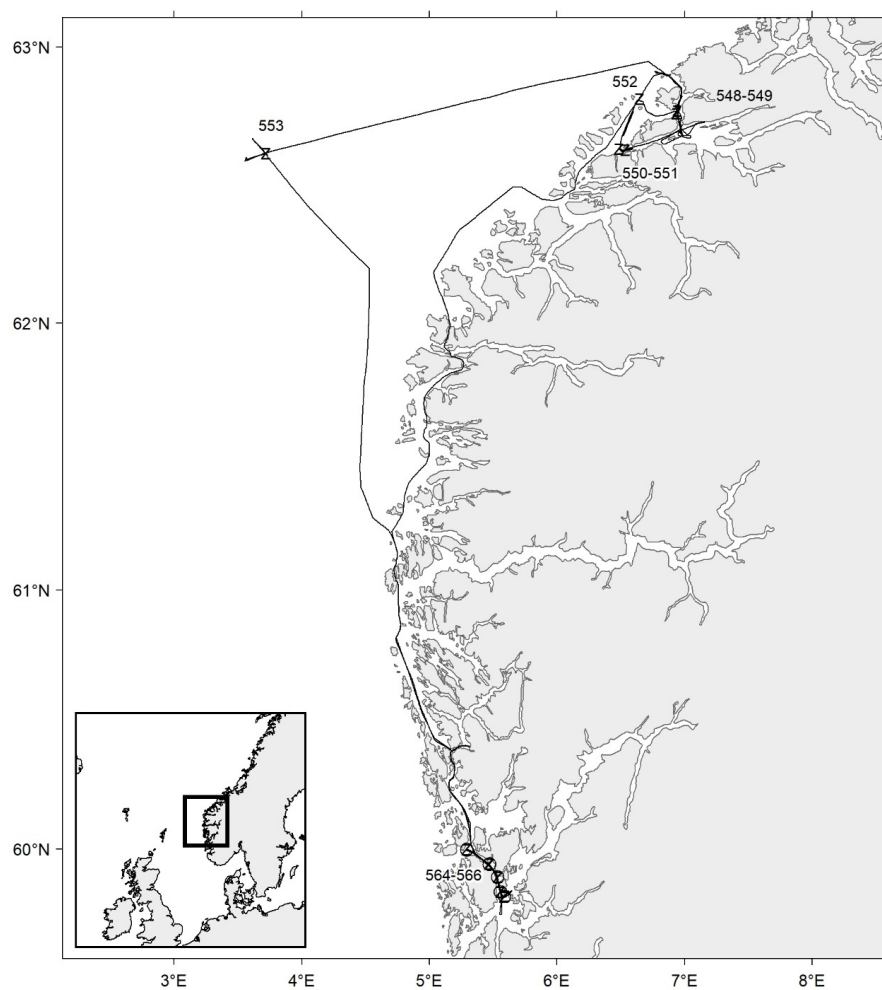
Fig. 53



Cruise no 2018610 "K. Bonnevie"
19–21 April 2018

z CTD st.no 527-547
○ Upward ADCP 250 kHz

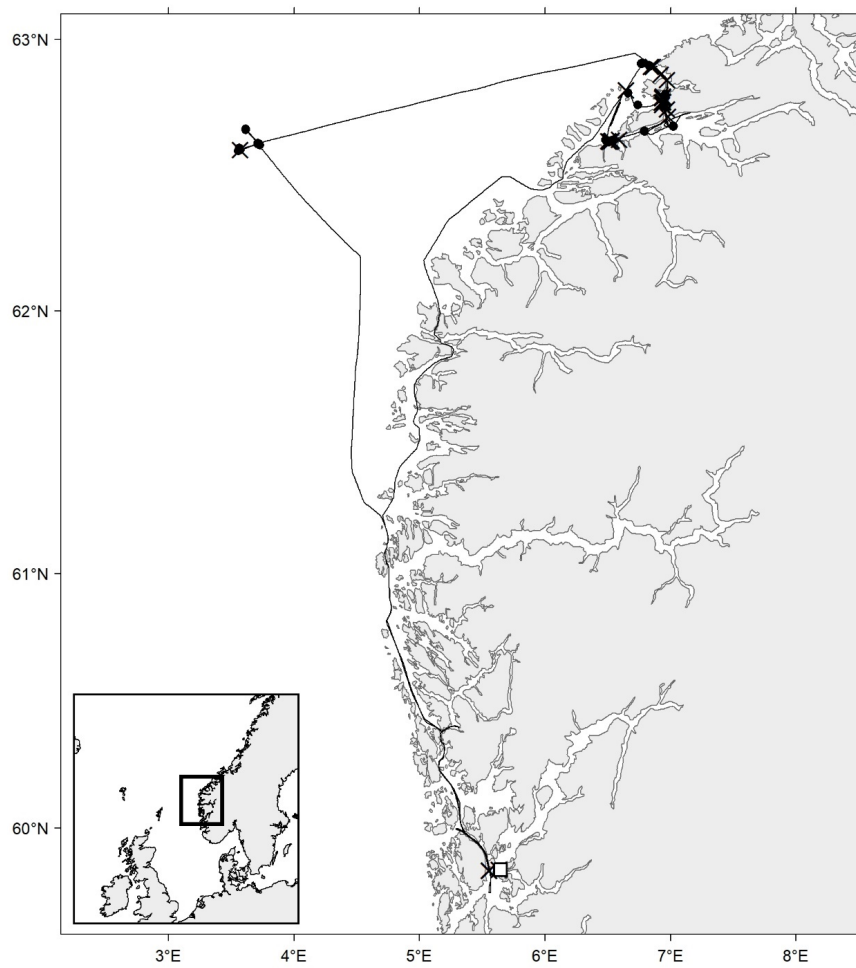
Fig. 54



Cruise no 2018612 "K. Bonnevie" (Chart I)
9–19 May 2018

z CTD st.no 548-566
○Plankton st. (WP-II-net)

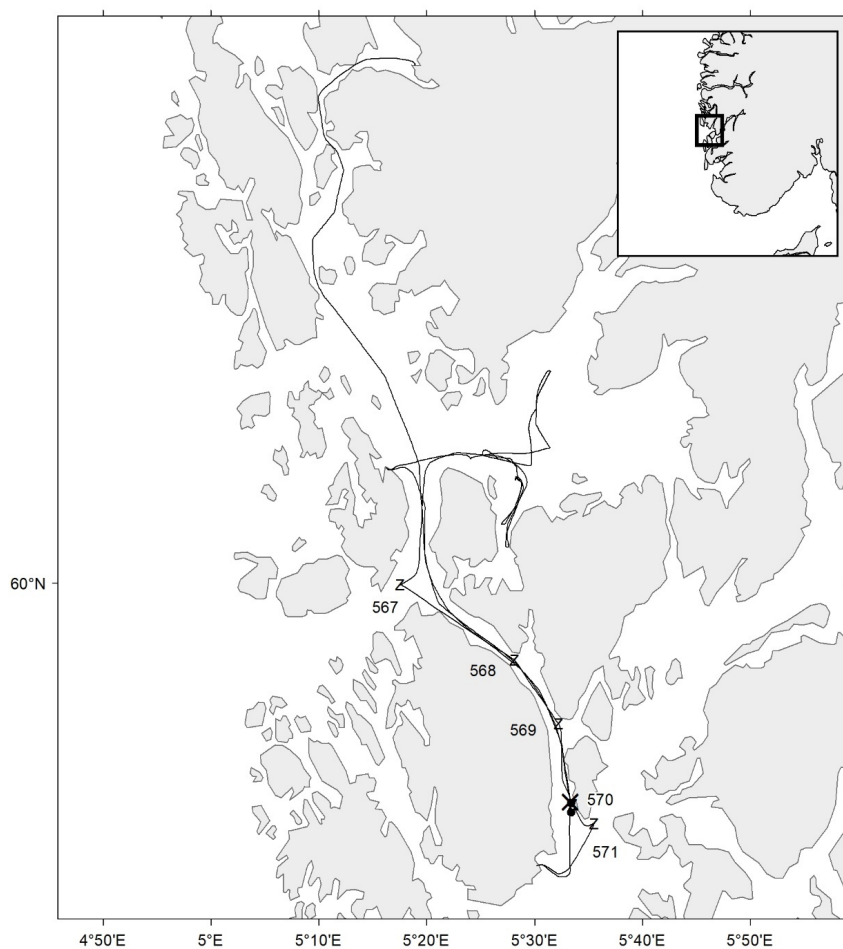
Fig. 55



Cruise no 2018612 "K. Bonnevie" (Chart II)
9–19 May 2018

- Grab stations
- × Rov stations
- Sledge station

Fig. 56



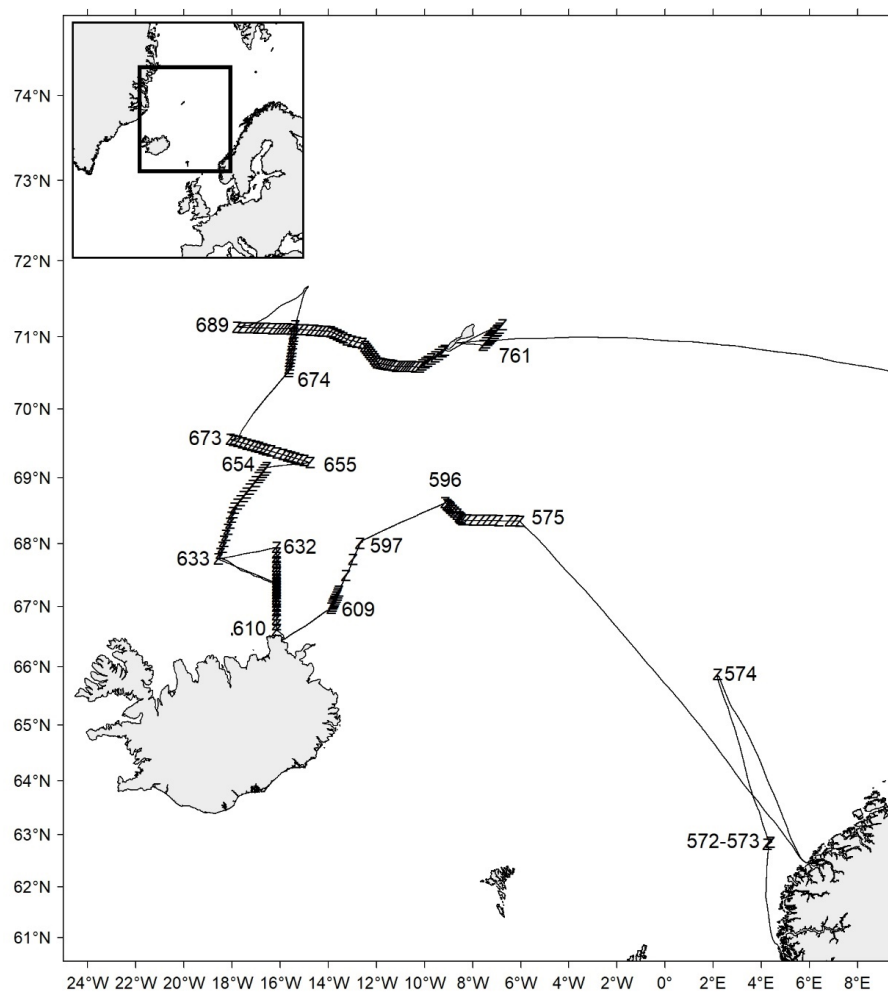
Cruise no 2018613 "K. Bonnevie"
20–23 May 2018

z CTD st.no 567-571

• Grab st.

× Rov st.

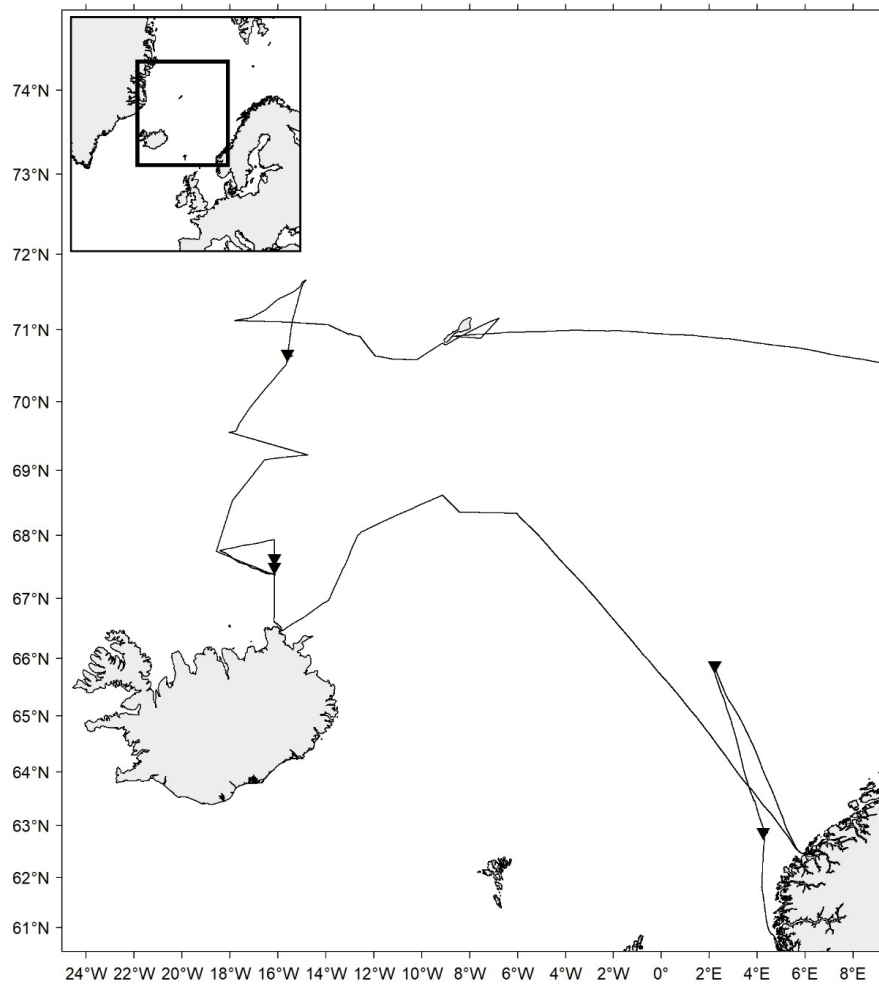
Fig. 57



Cruise no 2018614 "K. Bonnevie" (Chart I)
25 May–15 June 2018

z CTD st.no 572-761

Fig. 58



Cruise no 2018614 "K. Bonnevie" (Chart II)
25 May–15 June 2018

▼ Recovered moorings and buoys.

Fig. 59

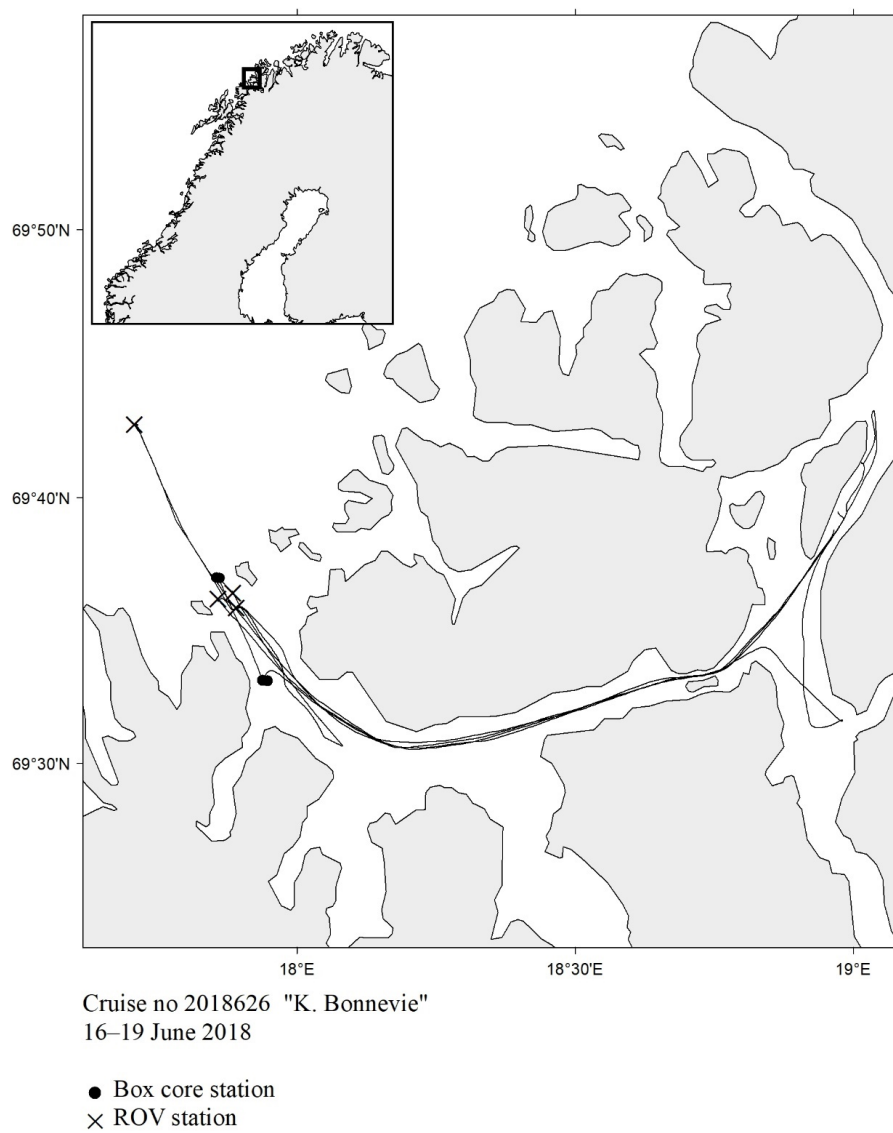
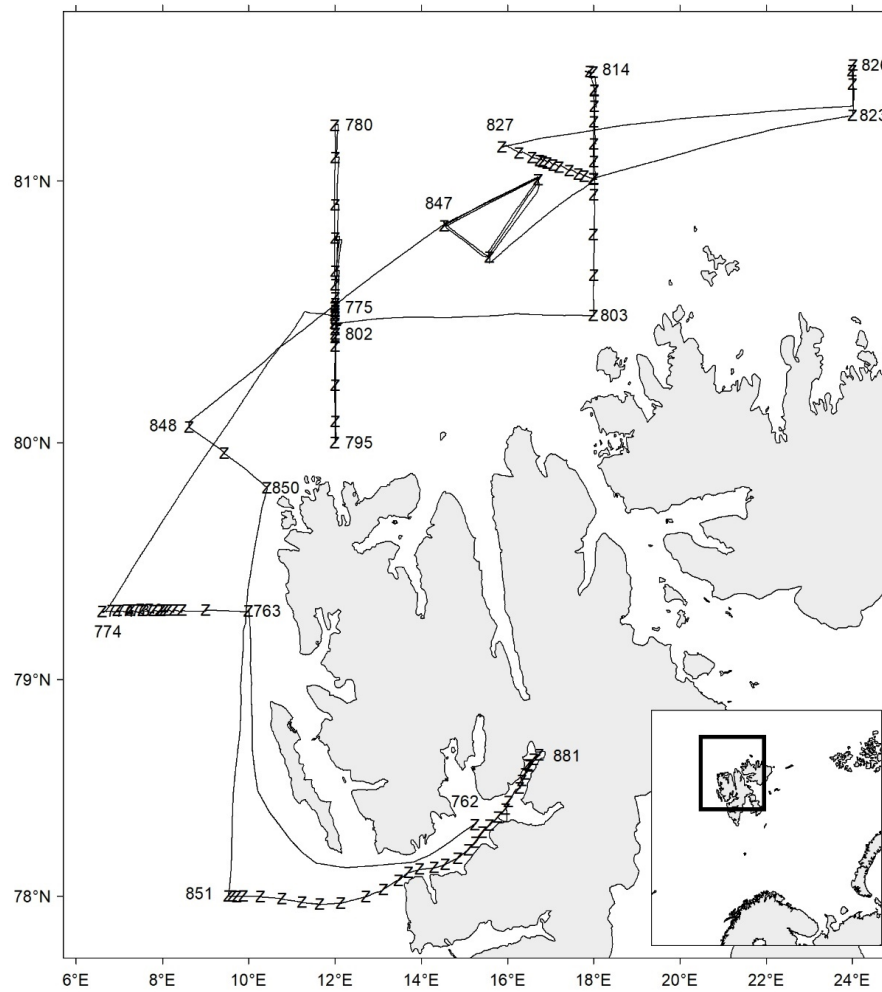


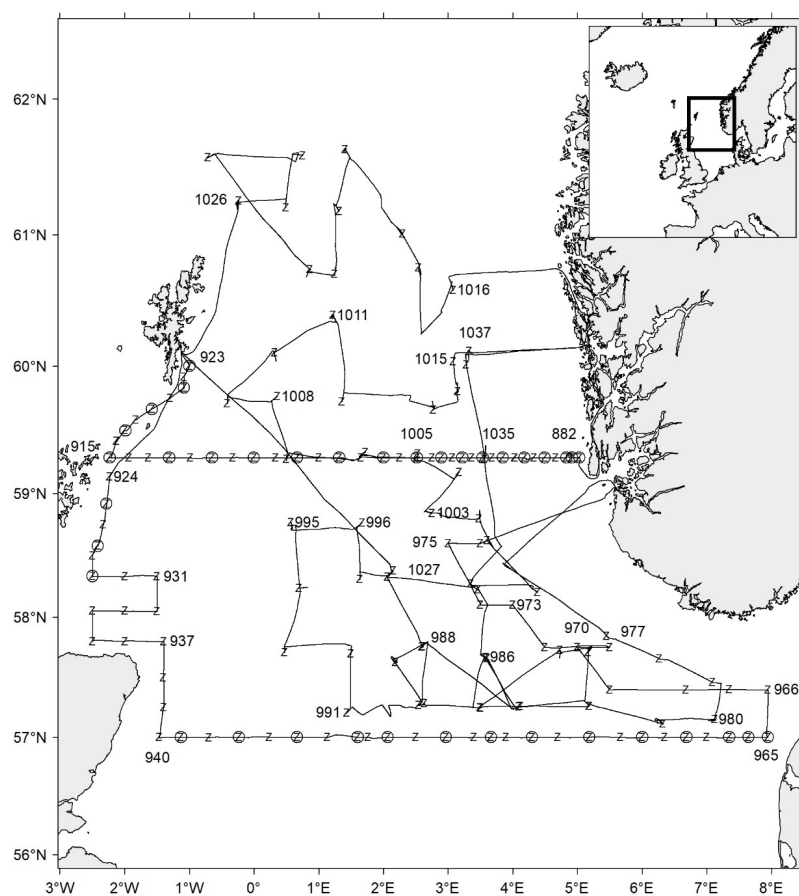
Fig. 60



Cruise no 2018616 "K. Bonnevie"
27 June–10 July 2018

z CTD st.no 762-881

Fig. 61

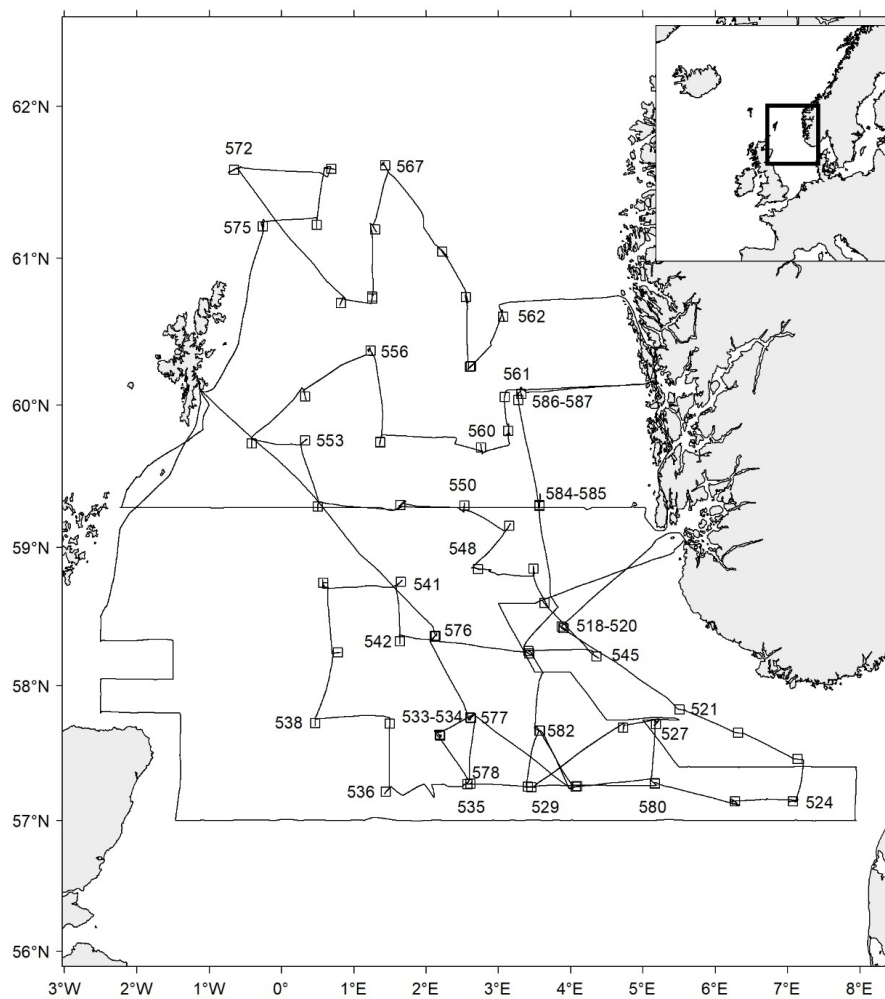


Cruise no 2018617 "K. Bonnevie" (Chart I)
16 July–15 August 2018

z CTD st.no 882-1037
○ Plankton st. (WP-II-net)

Standars sections:
Utsira W: st.no 882-915
Hanstholm-Aberdeen: st.no 940-965

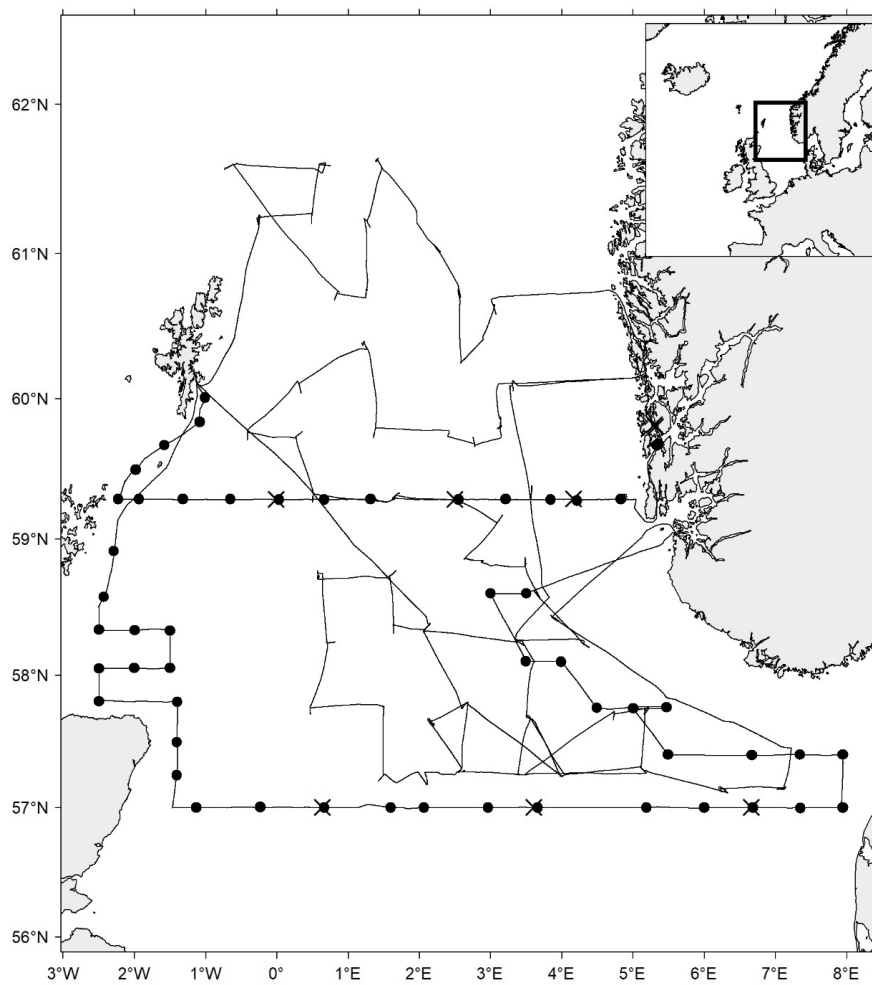
Fig. 62



Cruise no 2018617 "K. Bonnevie" (Chart II)
16 July–15 August 2018

□ Bottom trawl st.no 518-587

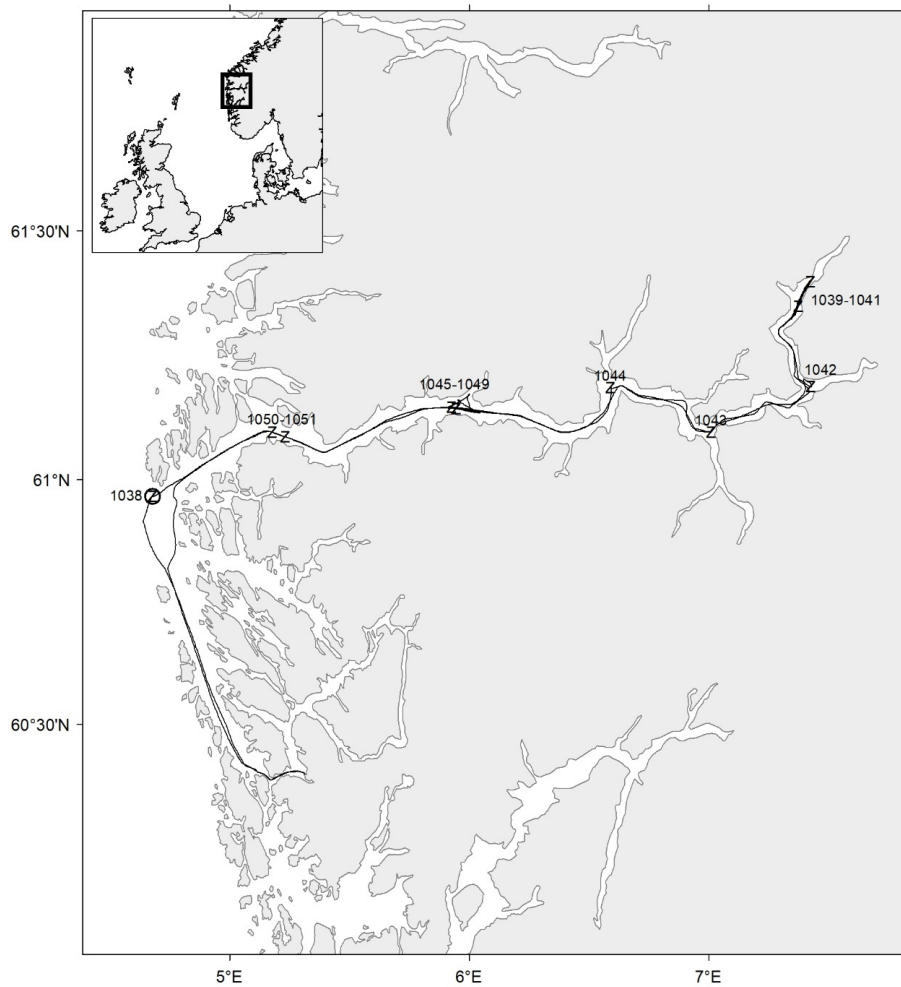
Fig. 63



Cruise no 2018617 "K. Bonnevie" (Chart III)
16 July–15 August 2018

- MIK stations
- × Multinet stations

Fig. 64

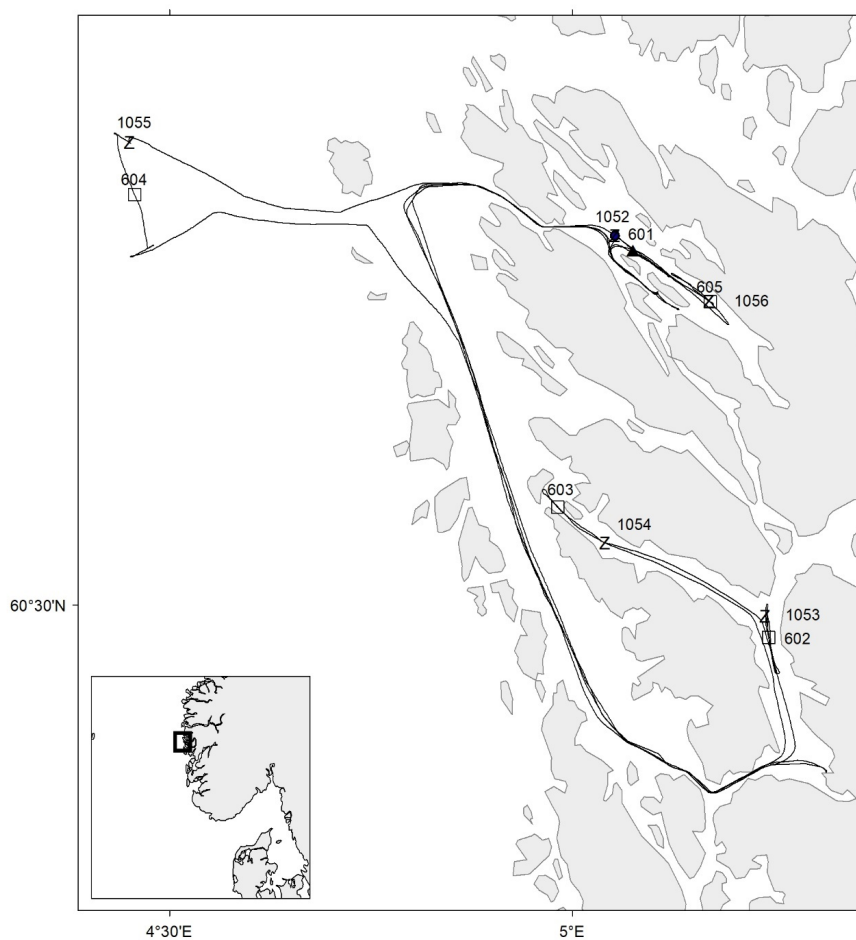


Cruise no 2018620 "K. Bonnevie" (Chart I)
17–20 August 2018

z CTD st.no 1038-1051
○ Grab st.

Fig. 65

Fig. 66



Cruise no 2018619 "K. Bonnevie"
21–23 August 2018

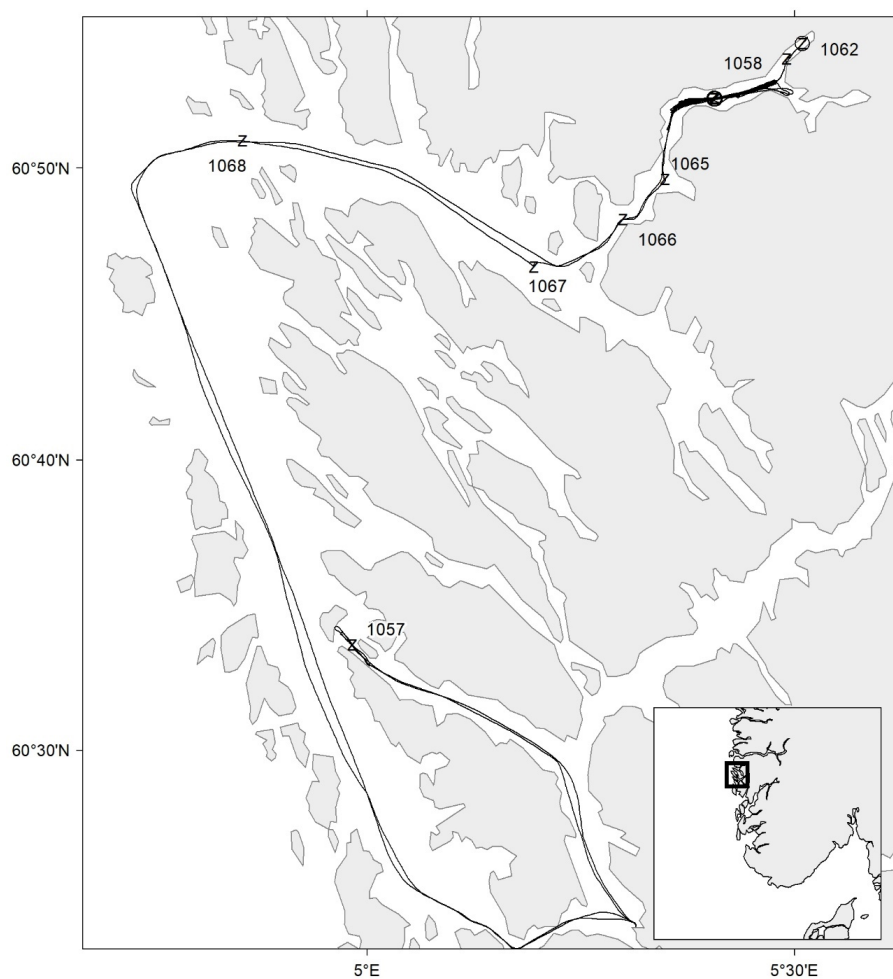
z CTD st.no 1052-1056

Trawl st.no 601-605

▲ Pelagic tr.

□ Bottom tr.

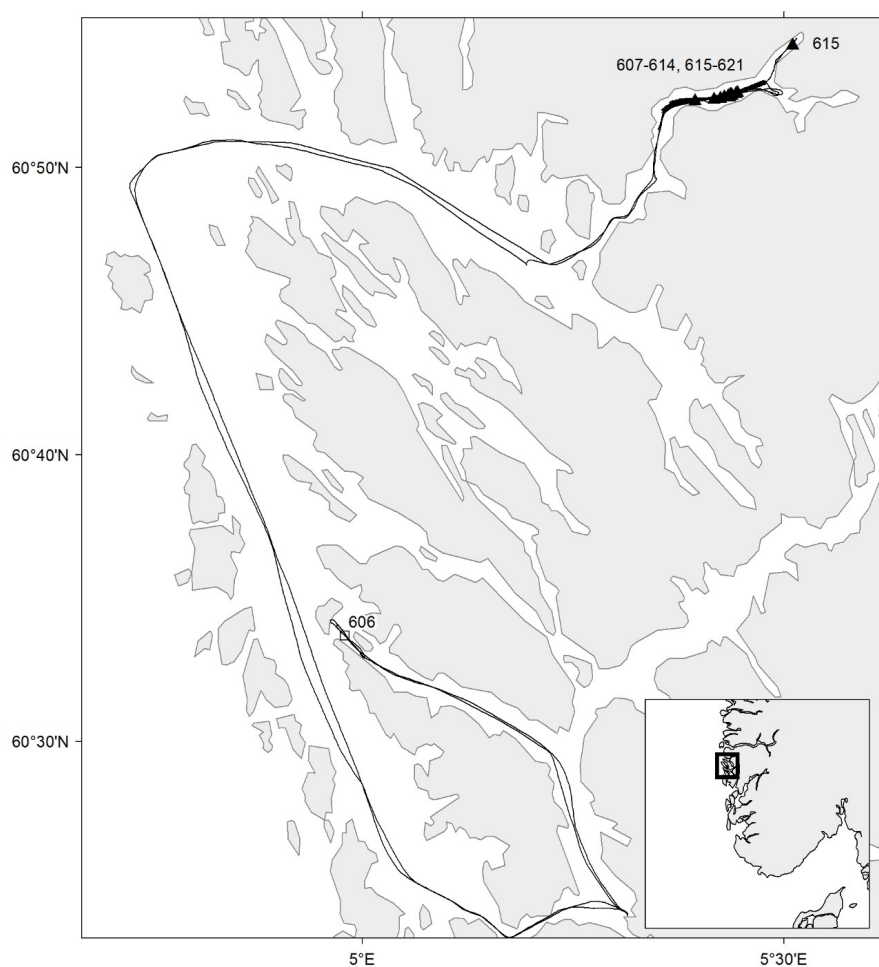
Fig. 67



Cruise no 2018627 "K. Bonnevie" (Chart I)
24–27 August 2018

z CTD st.no 1057-1068
o Plankton st. (WP-II-net)

Fig. 68



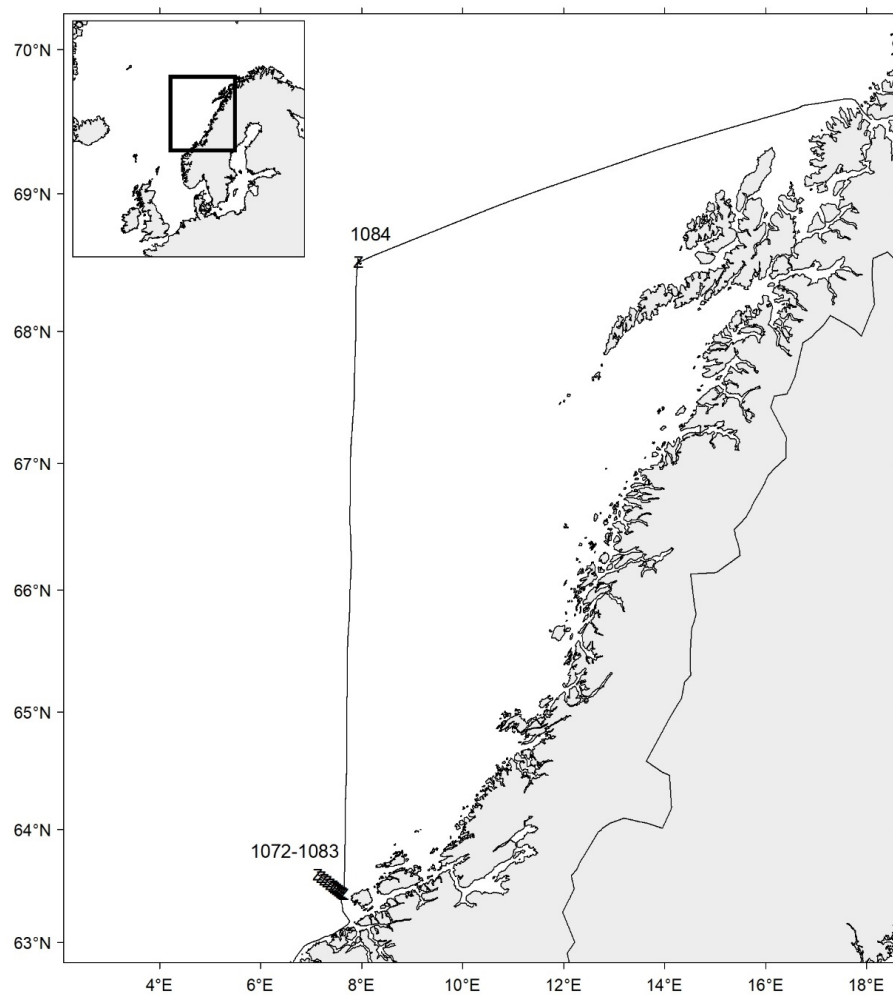
Cruise no 2018627 "K. Bonnevie" (Chart II)
24–27 August 2018

Trawl st.no 606-621

- ▲ Pelagic tr.
- Bottom tr.

Fig. 69

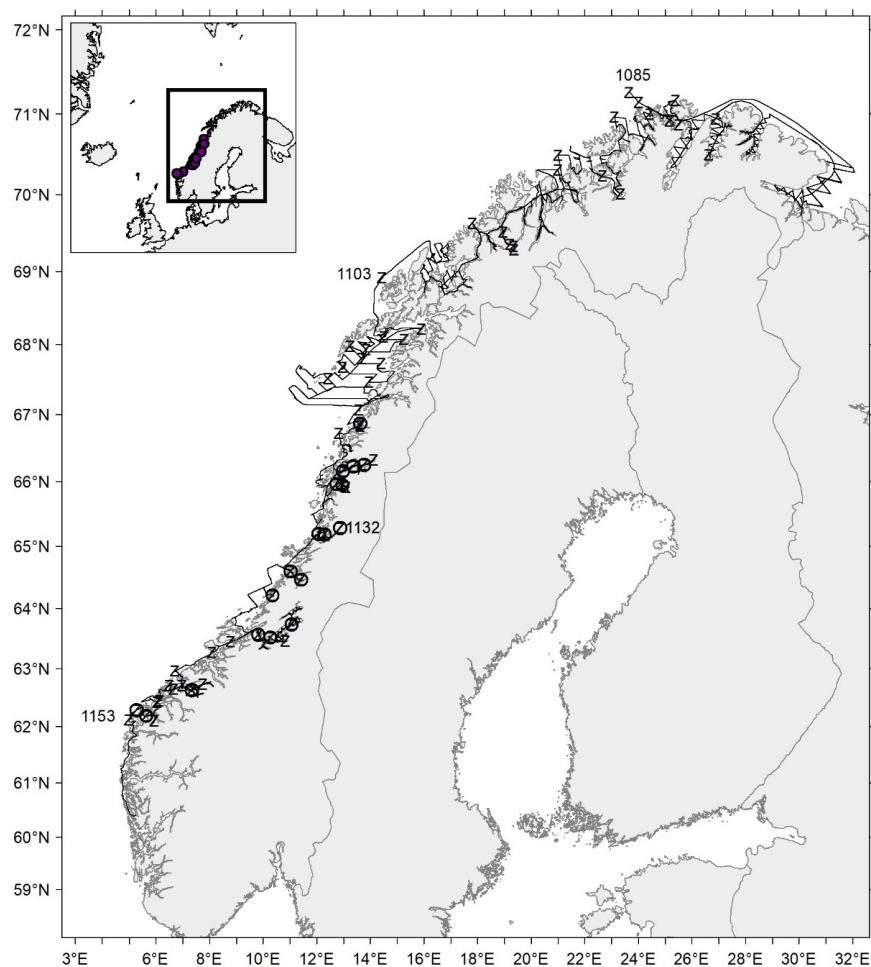
Fig. 70



Cruise no 2018622 "K. Bonnevie"
26–30 September 2018

z CTD st.no 1072-1084

Fig. 71

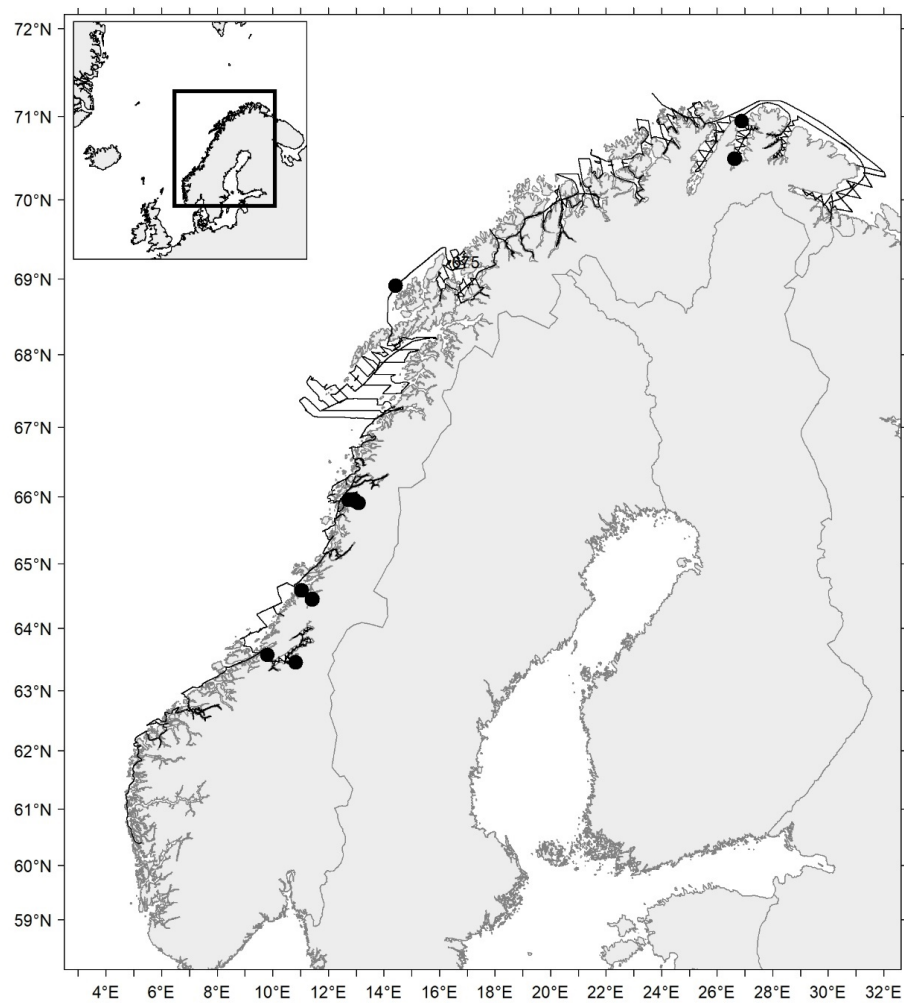


Cruise no 2018623 "K. Bonnevie" (Chart I)
1 October–8 November 2018

z CTD st.no 1085-1153
o Plankton st. (WP-II-net)

Fig. 72

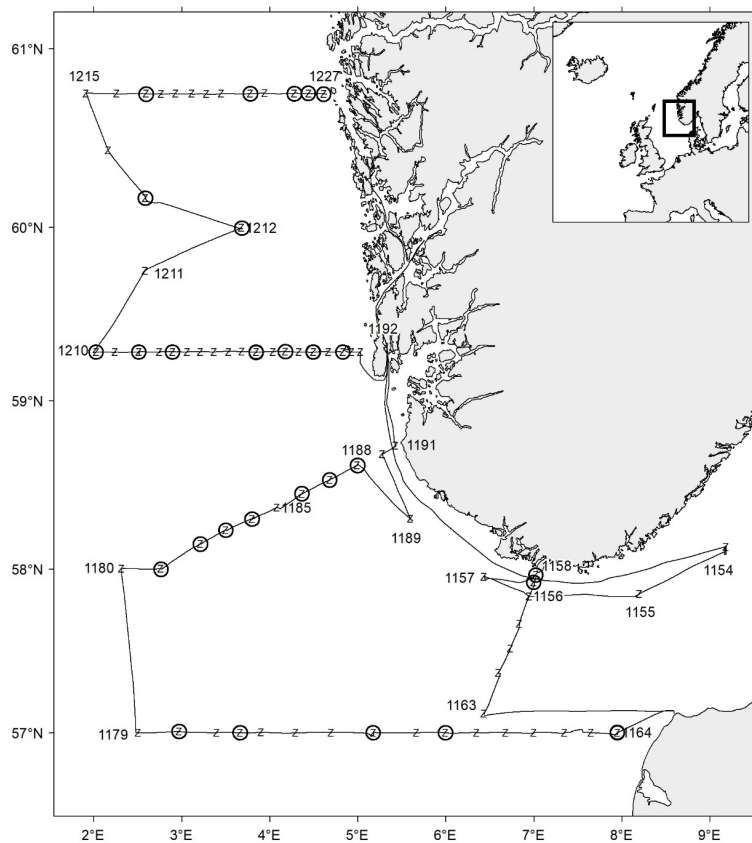
Fig. 73



Cruise no 2018623 "K. Bonnevie" (Chart III)
1 October–8 November 2018

● Grab st.

Fig. 74



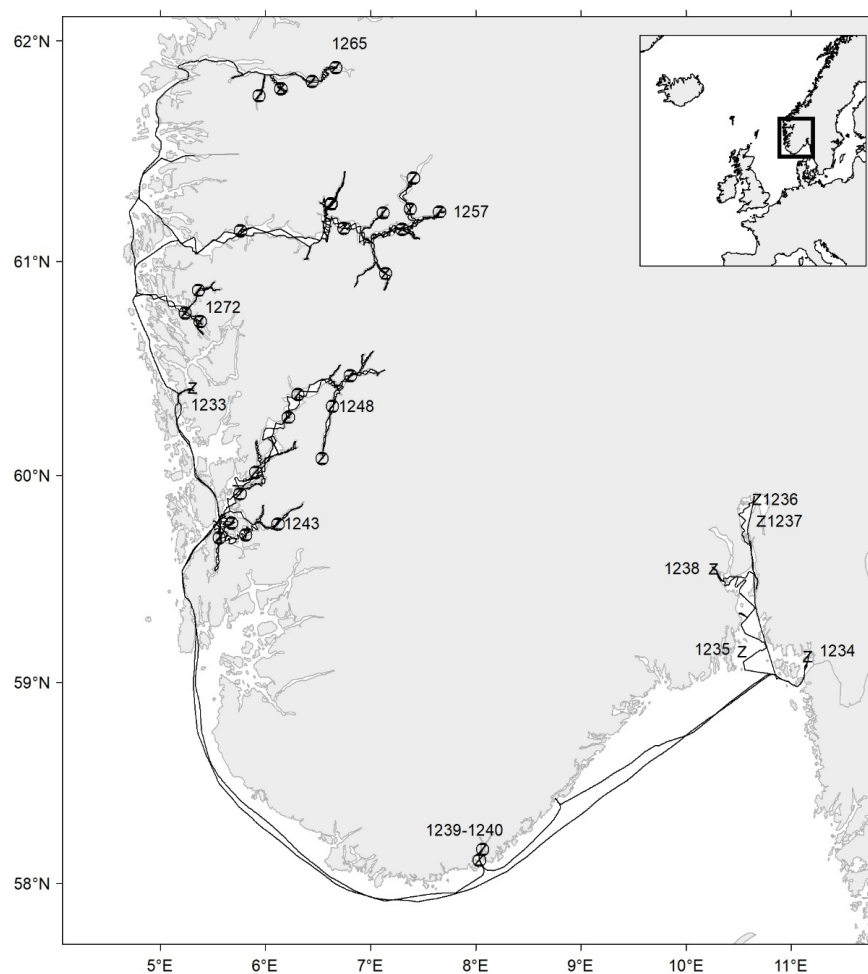
Cruise no 2018624 "K. Bonnevie" (Chart I)
10–19 November 2018

z CTD st.no 1154-1227
○ Plankton st. (WP-II-net)

Standard sections:
Lindesnes SSW,
Hanstholm–Aberdeen
Jærens Rev
Utsira W
Fedje–Shetland

Fig. 75

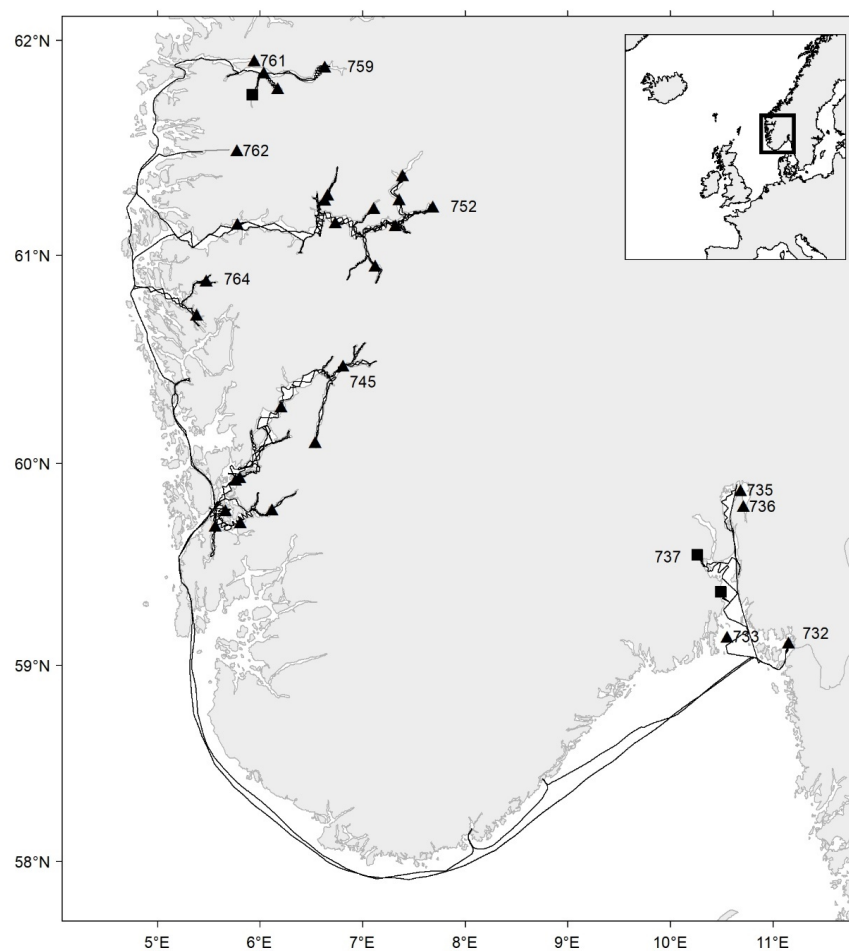
Fig. 76



Cruise no 2018625 "K. Bonnevie" (Chart I)
24 Nov– 8 Dec 2018

z CTD st.no 1233-1272
o Plankton st. (WP-II-net)

Fig. 77



Cruise no 2018625 "K. Bonnevie" (Chart II)
24 Nov– 8 Dec 2018

Trawl st.no 732-764
▲ Pelagic tr.
■ Bottom tr.

Fig. 78

8 - "Kronprins Haakon" - (Ship code no 59). Cruises 2018.

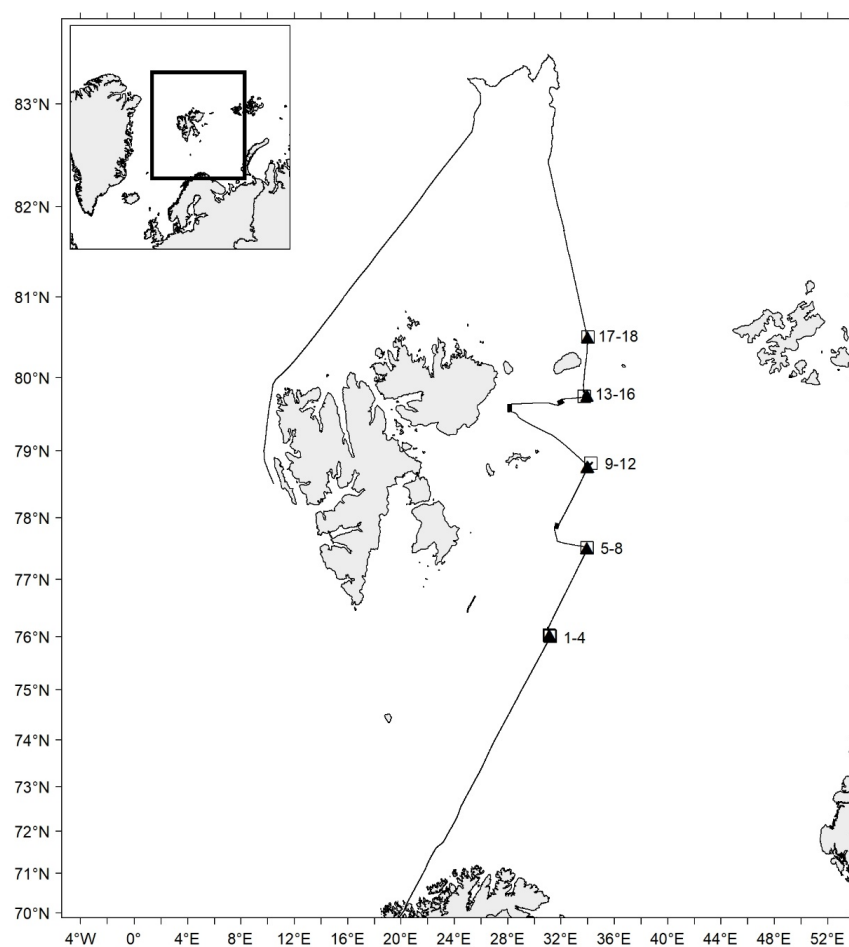
Cruise no	Period	Purpose	Area	CTD st.no	Trawl st.no	Fig. no
20186701	-	Cancelled	-	-	-	-
20186702	-	Cancelled	-	-	-	-
2018704	-	Cancelled	-	-	-	-
2018715	16.7.- 19.7.	Calibration of 6 EK80 in drop keel and 6 EK80 in arctic tanks, two fisheries sonars, the SU90 and SH90 systems, including the ME70 multibeam echo sounder and MS70 multibeam sonar. Noise measurements under different vessel speeds on all systems.	Norwegian coast	-	-	-
2018706	-	-	-	-	-	-
2018713	23.7.- 26.7.	Test. Plankton, oceanography, benthos.	Norwegian coast	-	-	-
2018707	6.8.- 23.8.	AeN Joint Cruise 1_2 is the first joint cruise in the Nansen LEGACY project. Main focus was on comparing the state of the physical, chemical and biological conditions in the southern and northern parts of the Barents Sea and the adjacent Nansen Basin. Given this is the first research cruise on the vessel, the cruise also focuses on testing gear and equipment, and establishing routines for gear deployments, collaboration, data management and storing.	Arctic Ocean Barents Sea	1-21	1-18	79-80
208708	25.8.- 11.9	Annual Fram Strait cruise August-September 2018.	Fram Strait between the Nordic Seas and the Arctic Ocean	22-93	-	81
2018709	12.9.- 24.9.	The objective was to identify and quantify the processes that are important for the heat budget of a control volume north of Svalbard. The cruise will also contribute to a PhD study (UIB) that aims to further develop, and test advanced technology.	Shelf and slope north of Spitsbergen.	94-161	-	82-83

20186710	26.9.- 20.10.	This cruise is part of the Nansen Legacy project and the research focus 1 (RF1) "Natural drivers", subtask T1-3.1. RF1 aims to improve our understanding of the physical climate system in the Barents Sea and adjacent Arctic Basin. Subtask T1-3.1 will investigate the natural variability and ranges of sea ice cover and Atlantic Water through flow in the Barents Sea. The Barents Sea and Arctic climates in general comprise a strong component of natural variability. For any attempt to project and predict future changes in this environment, it is important to understand the range of this variability, its evolution over time, and its responsiveness to external drivers. The paleoclimate records provide this strongly needed insight and will enable assessment of the changes associated with prior intervals where sea ice cover was less and temperatures were higher than those experienced in the recent past were when instrumental and observational records were obtained.	Barents Sea	162- 180	-	84- 86
2018711	22..10.- 2.11	Collection of geodata for studies of geological development and gas emissions.	Barents Sea Svalbard area	181- 198	-	87
2018712	-	Cancelled	-	-	-	-

9 - "Kronprins Haakon" – Charts for cruises 2018

Fig. 79

Fig. 80

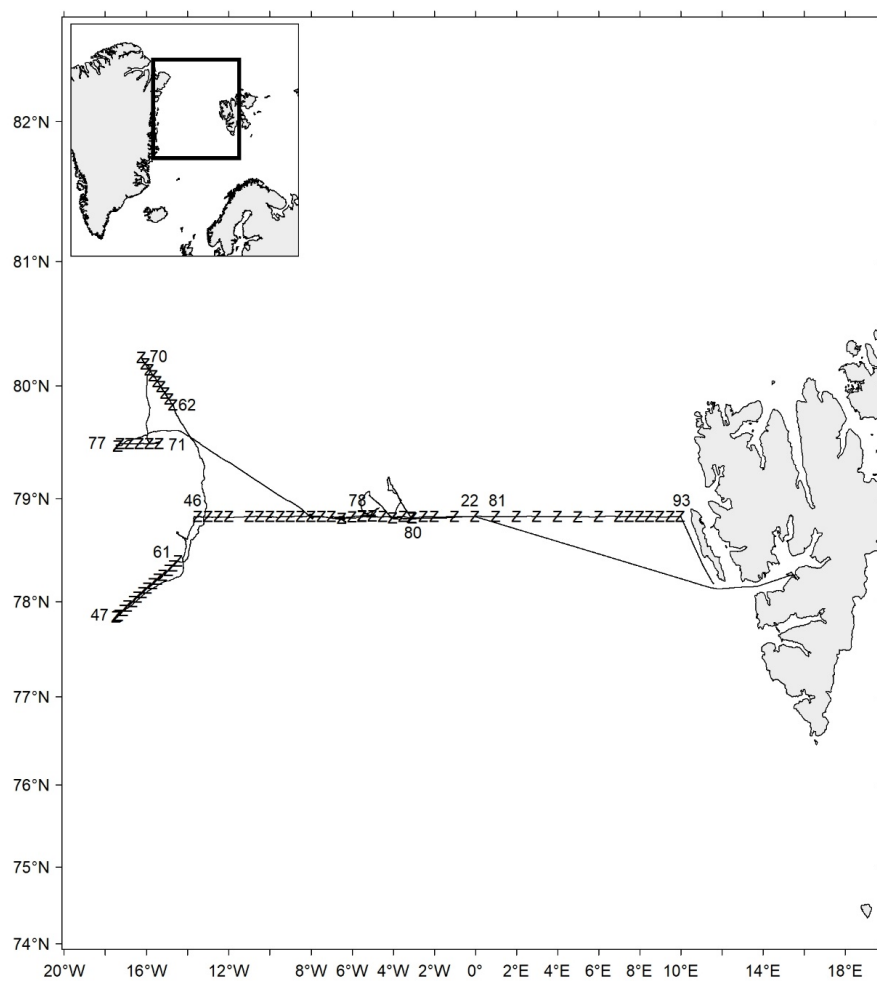


Cruise no 2018707 "Kronprins Haakon" (Chart II)
6–23 August 2018

Trawl st.no 1-18

▲ Pelagic tr.

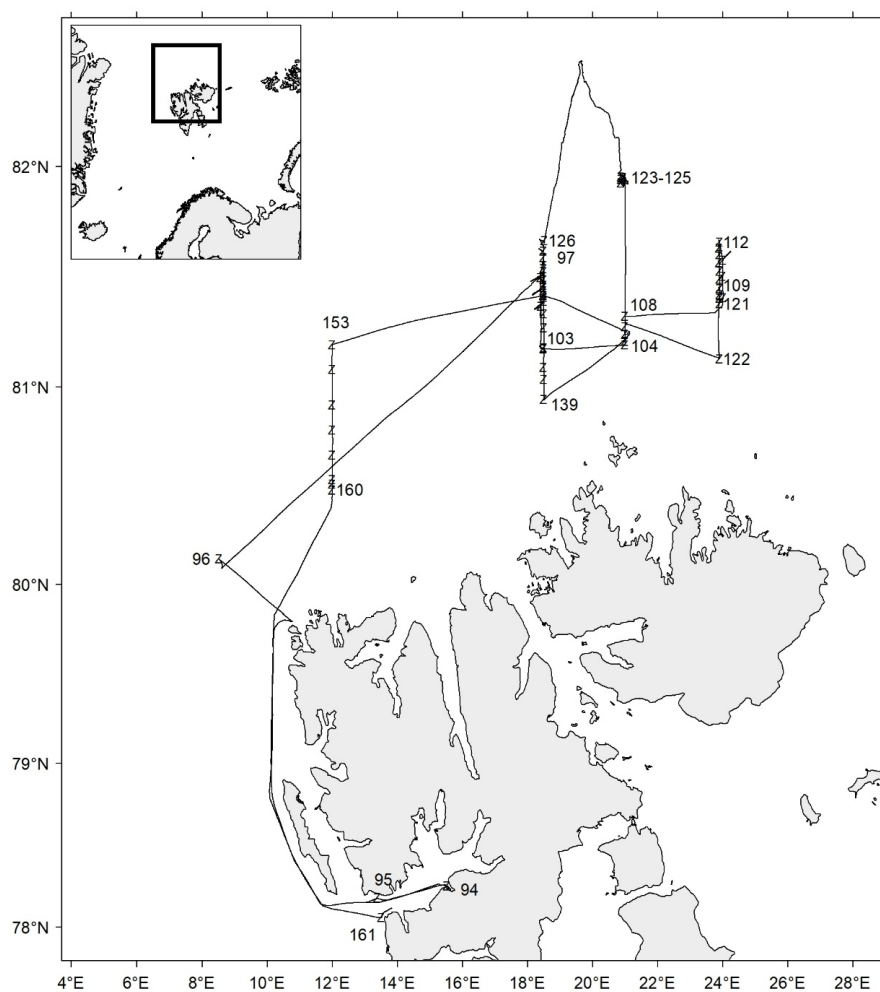
□ Bottom tr.



Cruise no 2018708 "Kronprins Haakon"
25 August–11 September 2018

z CTD st.no 22-93

Fig. 81



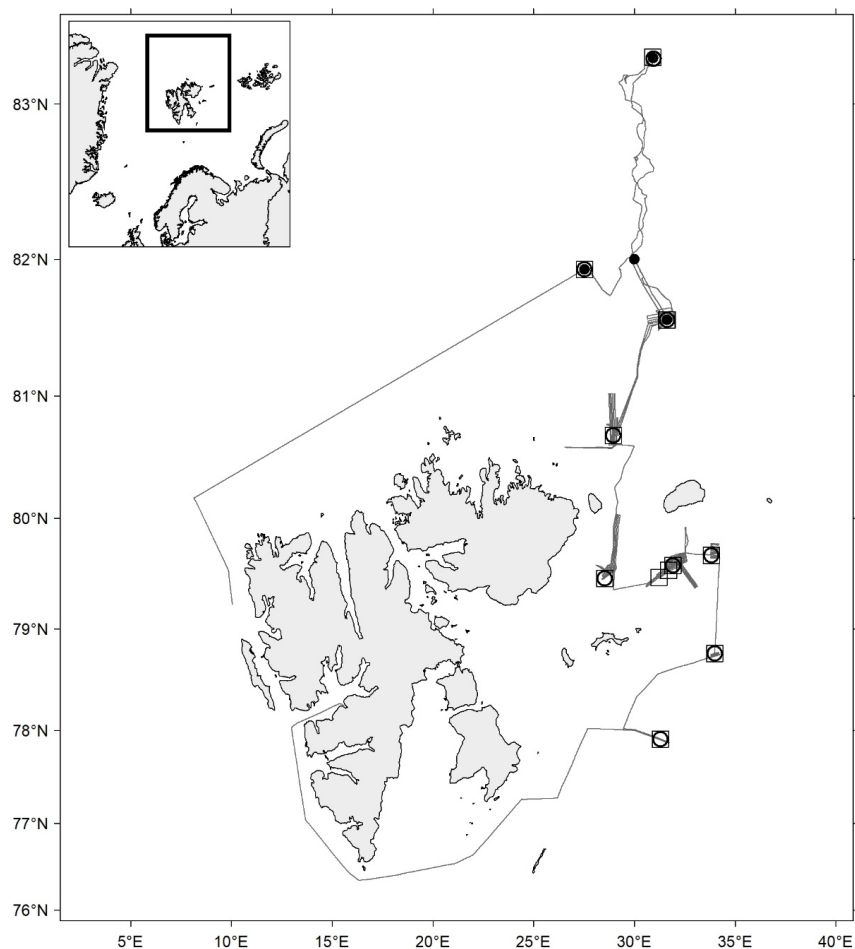
Cruise no 2018709 "Kronprins Haakon" (Chart I)
12–24 September 2018

z CTD st.no 94-161

Fig. 82

Fig. 83

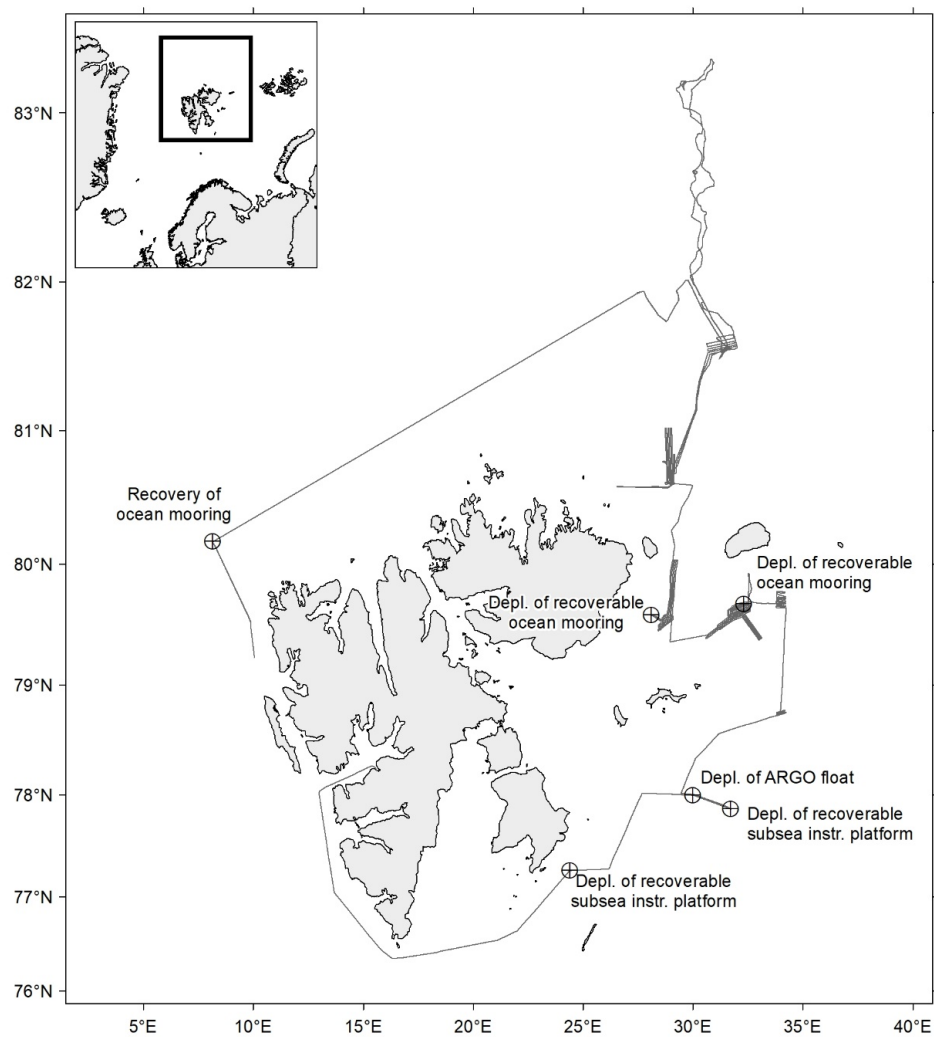
Fig. 84



Cruise no 2018710 "Kronprins Haakon" (Chart II)
26 September–20 October 2018

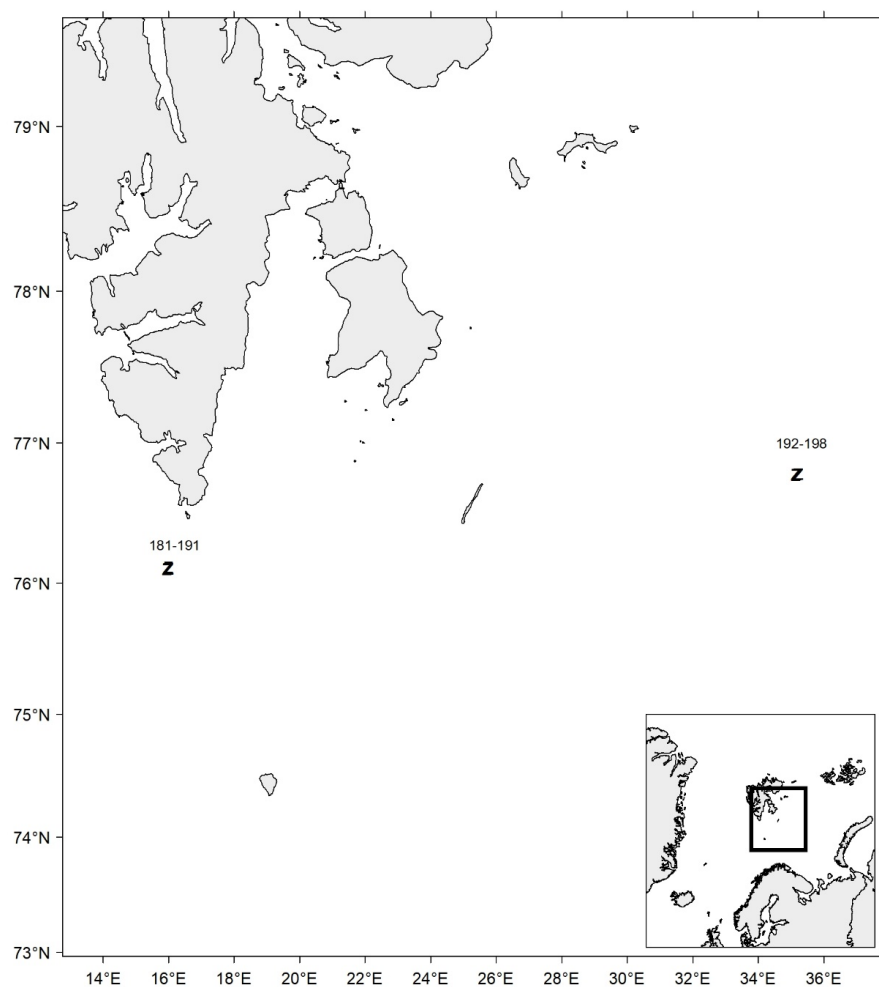
- Multinet st.
- Multicorer st.
- Gravity corer st.

Fig. 85



Cruise no 2018710 "Kronprins Haakon" (Chart III)
26 September–20 October 2018

Fig. 86



Cruise no 2018711 "Kronprins Haakon"
22 October–2 November 2018

z CTD st.no 181-198

Fig. 87

10 - "G. M. Dannevig" - (Ship code no 16). Cruises 2018.

Cruise no	Period	Purpose	Area	CTD st.no	Fig. no
2018301	15.1.-21.1.	Hydrographic standard section "Torungen-Hirtshals" environmental investigation. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast.	Skagerrak	1-36	88
2018302	1.2.-7.2.	Hydrographic standard section "Torungen-Hirtshals" environmental investigation. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast.	Skagerrak	37-73	89
2018303	2.3.-5.3.	Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast.	Skagerrak	74-84	90
2018304	6.3.-14.3.	Cruise to map eggs from other species than costal cod.	Skagerrak	85	91
2018306	21.4.-26.4.	Hydrographic standard section "Torungen-Hirtshals" environmental investigation. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast.	Skagerrak	86-108	92
2018307	19.5.-22.5.	Hydrographic standard section "Torungen-Hirtshals" environmental investigation. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast.	Skagerrak	109-130	93
2018309	14.6.-22.6.	Hydrographic standard section "Torungen-Hirtshals" environmental investigation. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast.	Skagerrak	131-169	94
2018310	7.7.-12.7.	Hydrographic standard section "Torungen-Hirtshals" environmental investigation. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast.	Skagerrak	170-206	95
2018311	11.8.-15.8.	Hydrographic standard section "Torungen-Hirtshals" environmental investigation. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast.	Skagerrak	207-245	96
2018316	15.9.-5.10.	Beach seine studies to measure recruitment of coastal fish-species. Hydrographic standard section "Torungen-Hirtshals" environmental investigation.	Skagerrak	246-322	97
2018317	6.10.-8.10.	Hydrographic standard section "Torungen-Hirtshals" environmental investigation. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast.	Skagerrak	323-334	98
2018318	13.11.-18.11.	Hydrographic standard section "Torungen-Hirtshals" environmental investigation. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast.	Skagerrak	335-373	99
2018320	5.12.-10.12.	Hydrographic standard section "Torungen-Hirtshals" environmental investigation. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast.	Skagerrak	374-399	100

11 - "G. M. Dannevig" – Charts for cruises 2018.

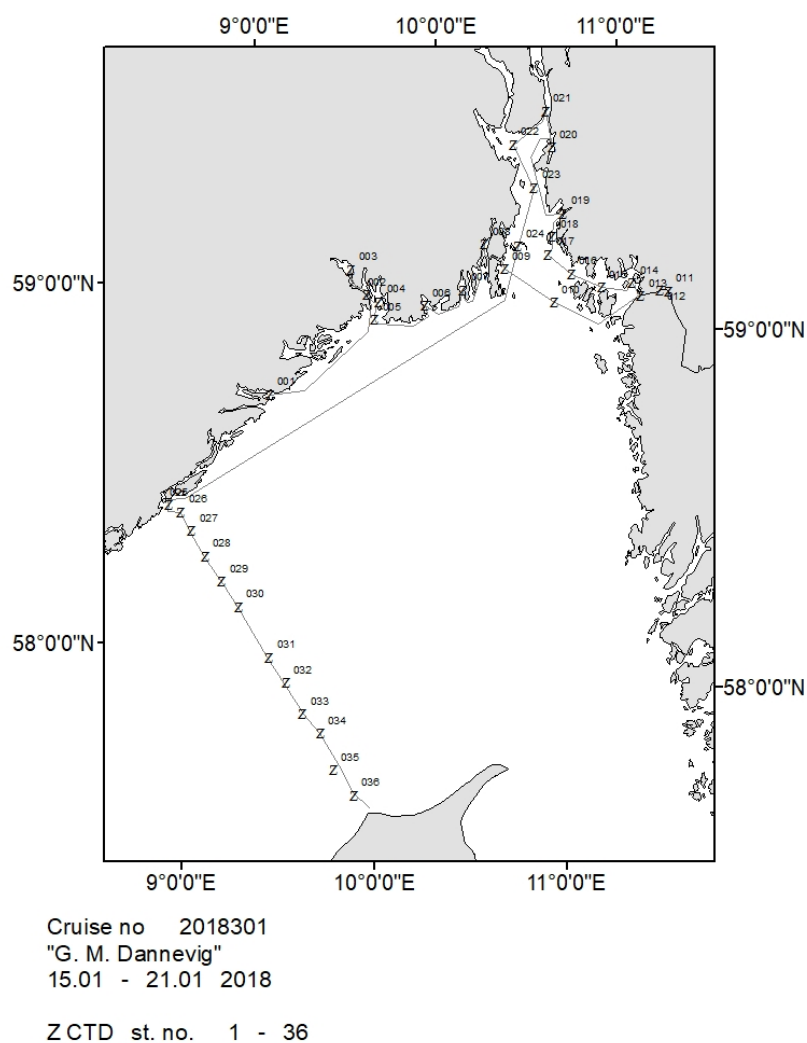


Fig. 88

Fig. 89

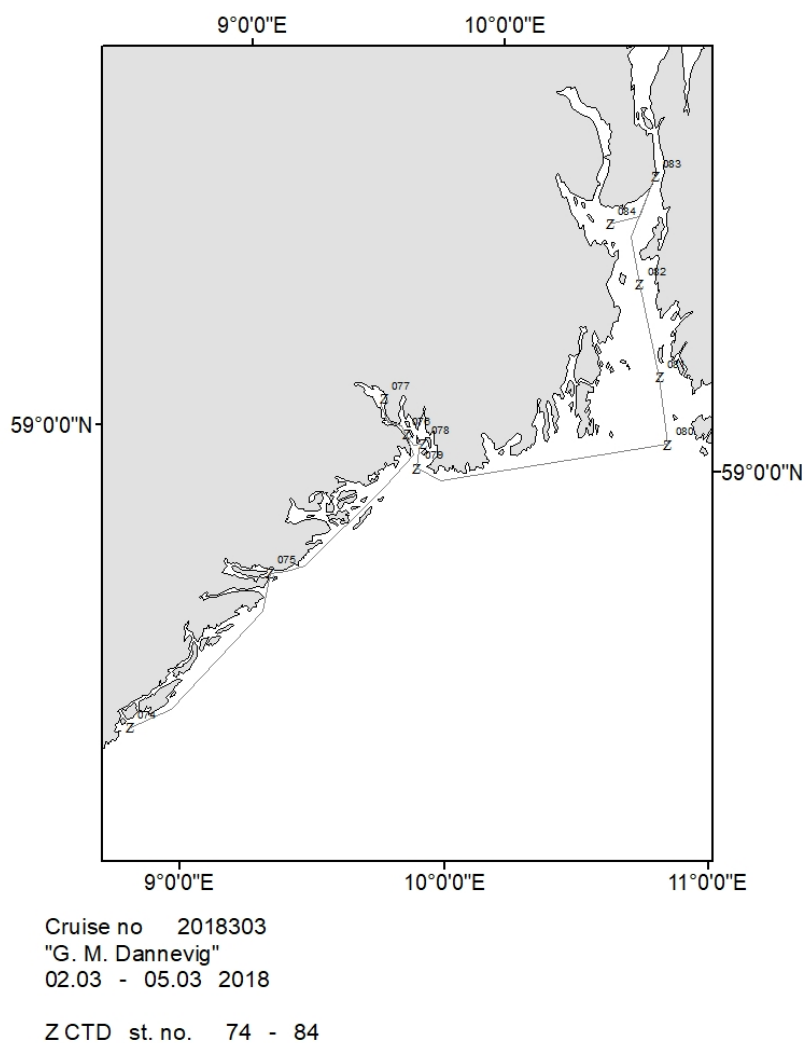


Fig. 90

Fig. 91

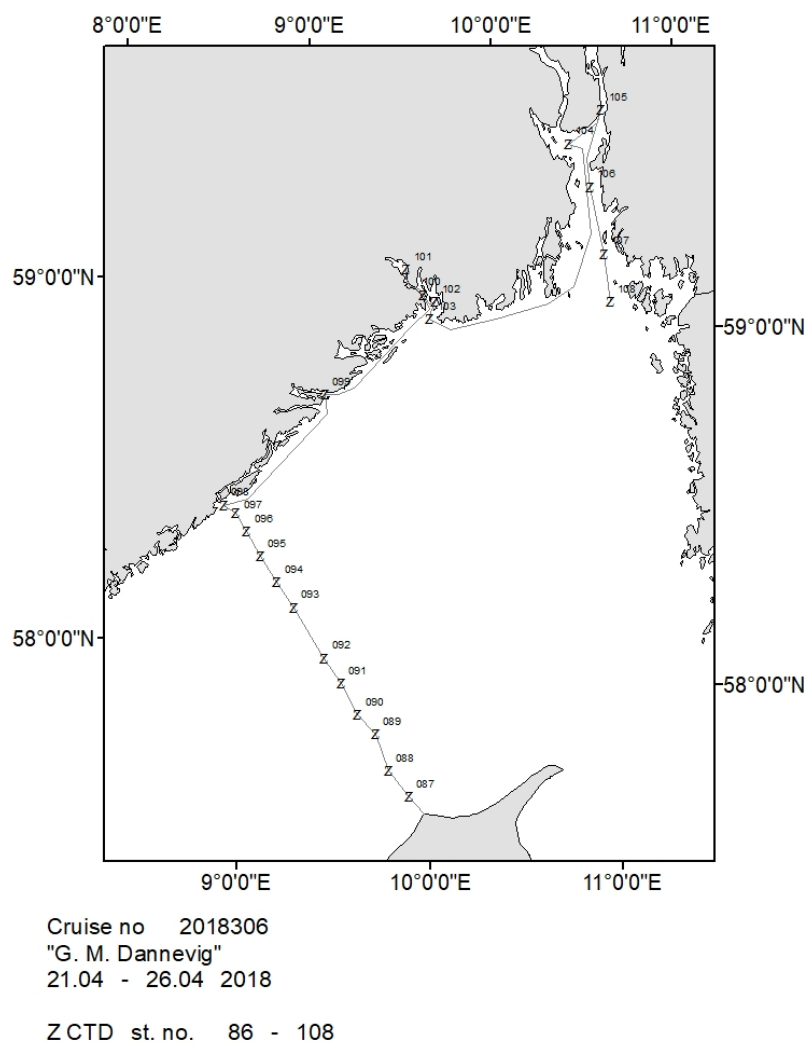


Fig. 92

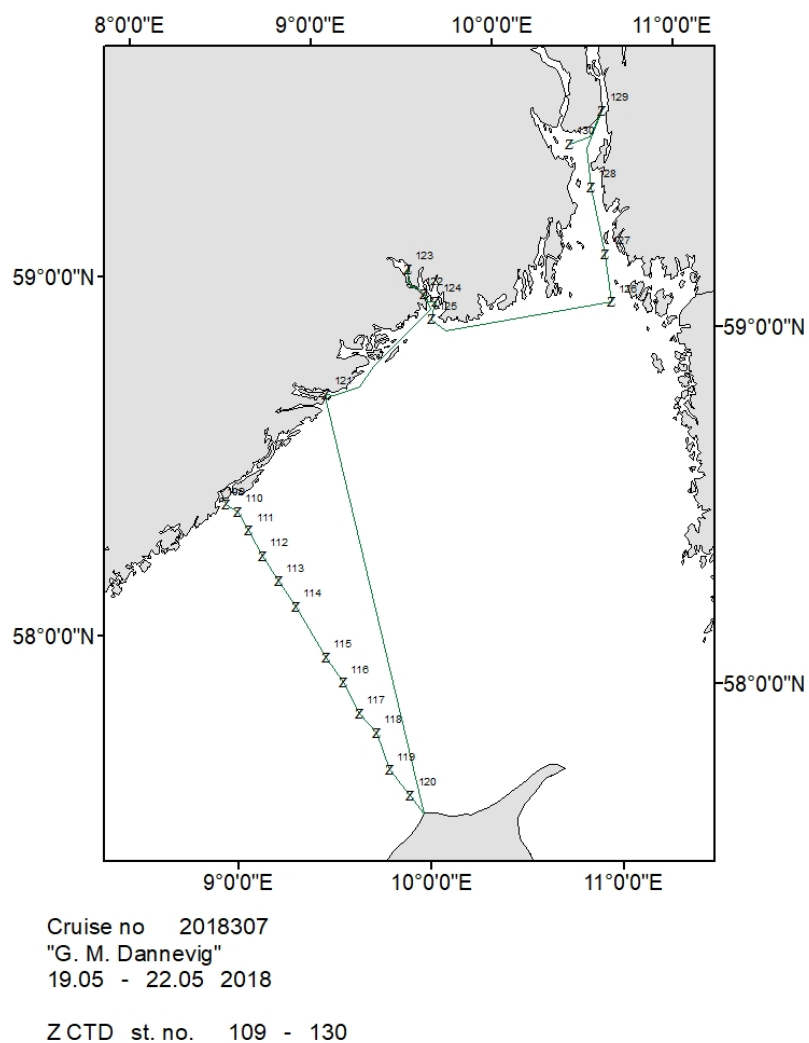


Fig. 93

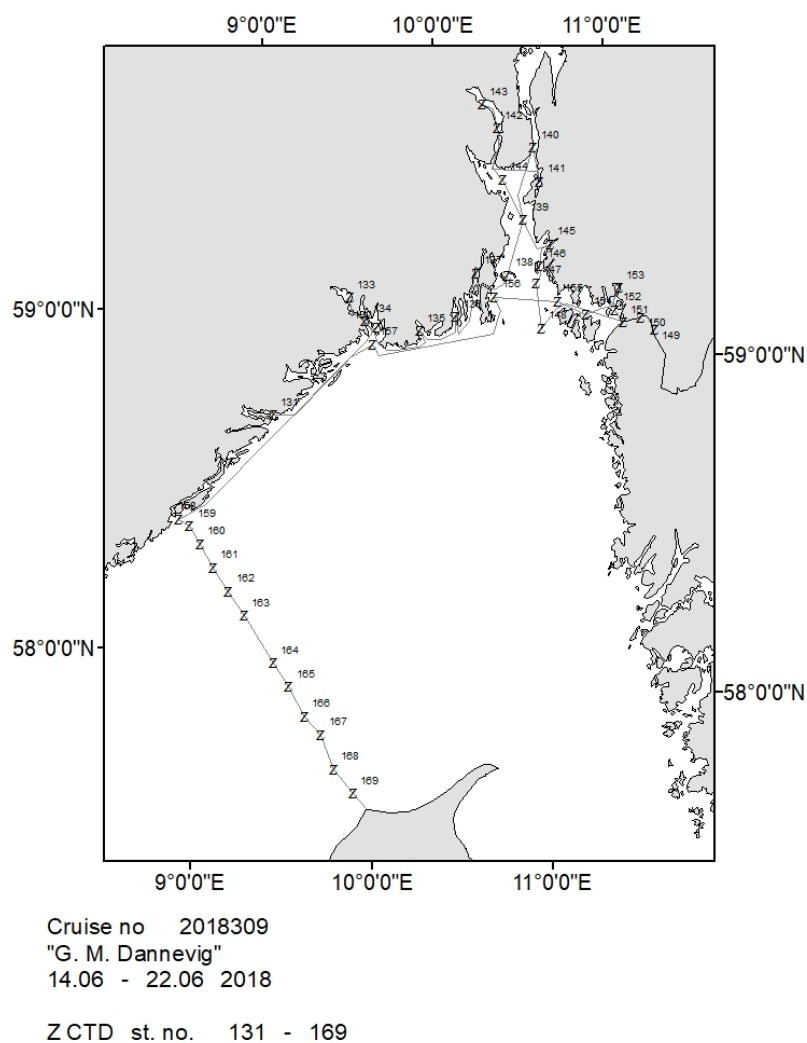


Fig. 94

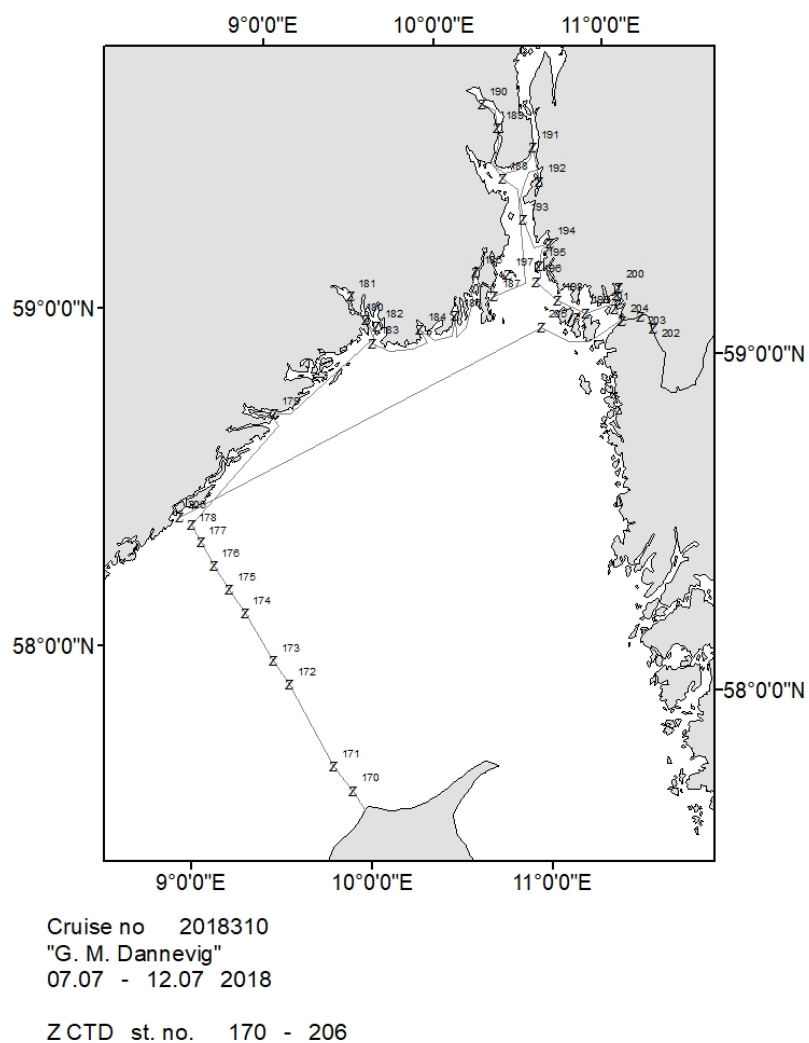


Fig. 95

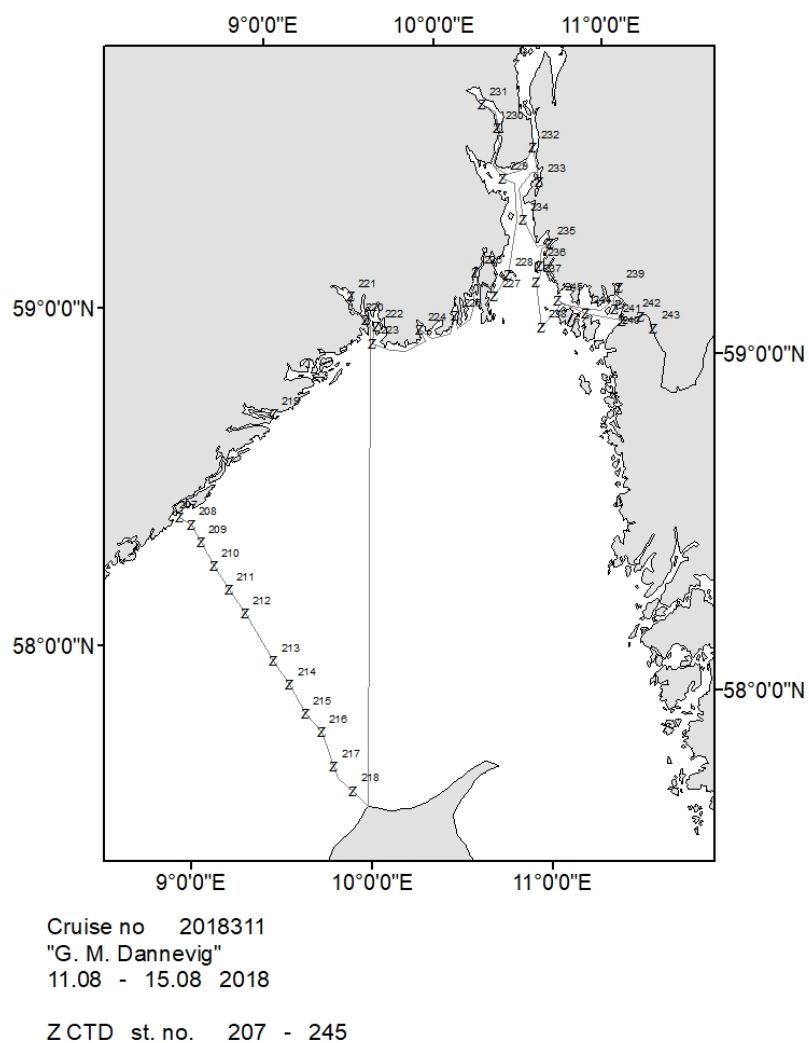


Fig. 96

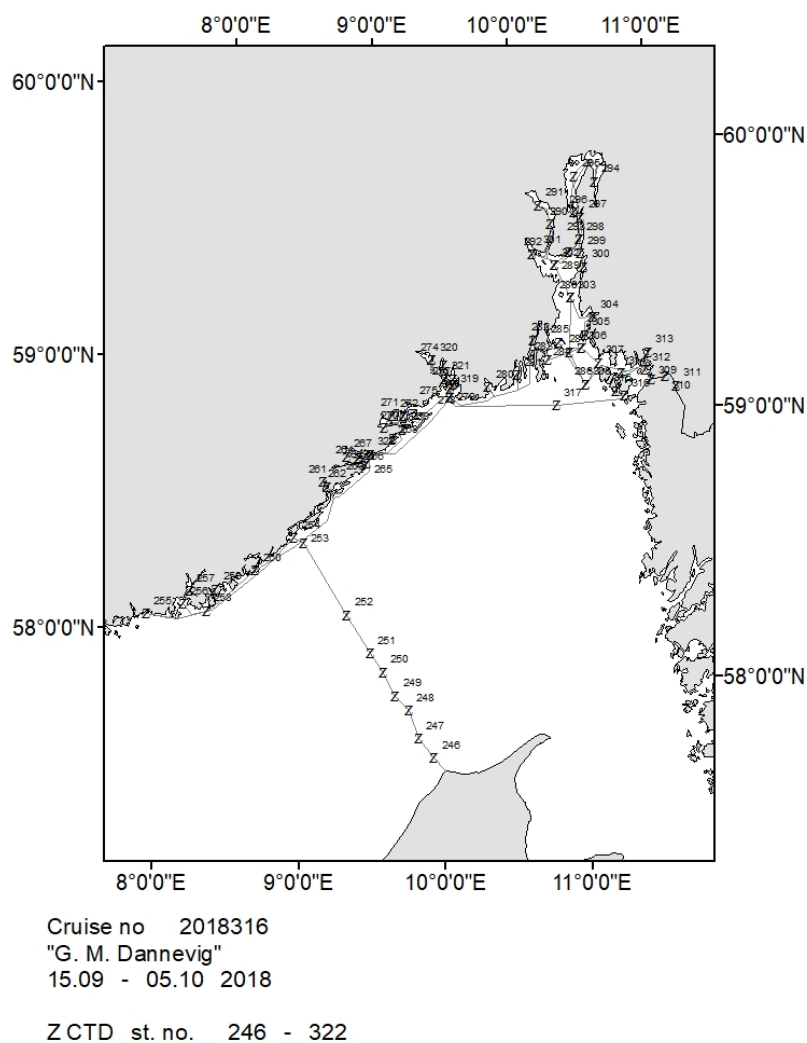


Fig. 97

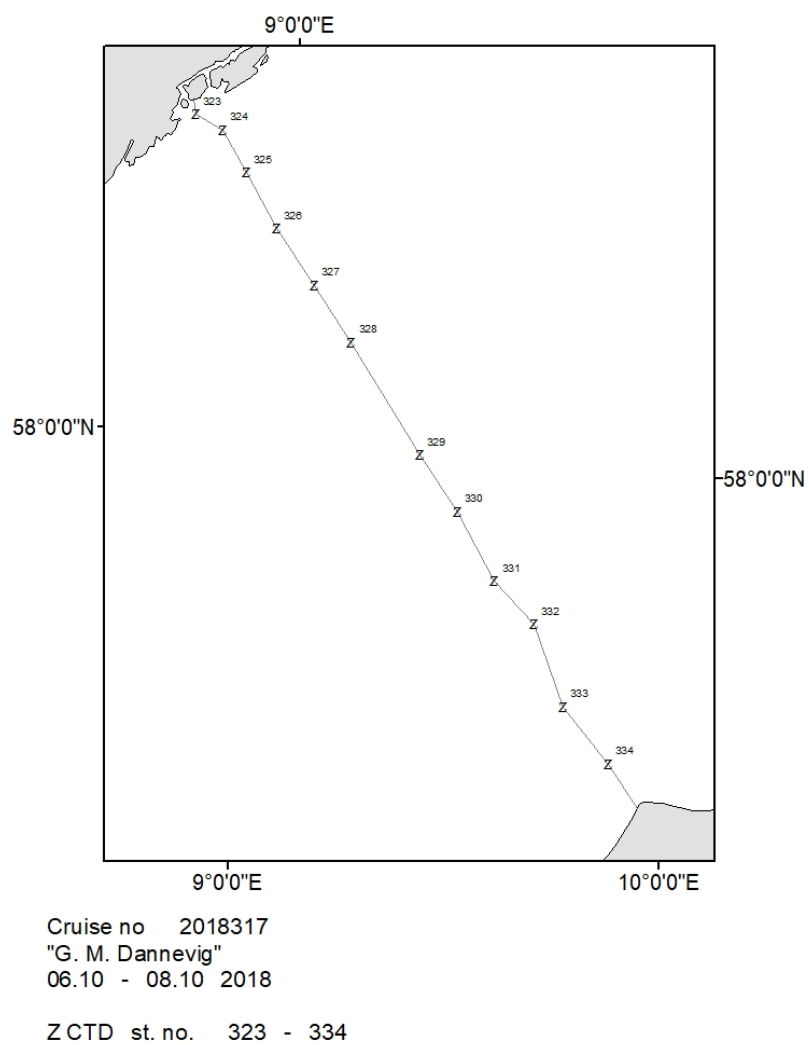


Fig. 98

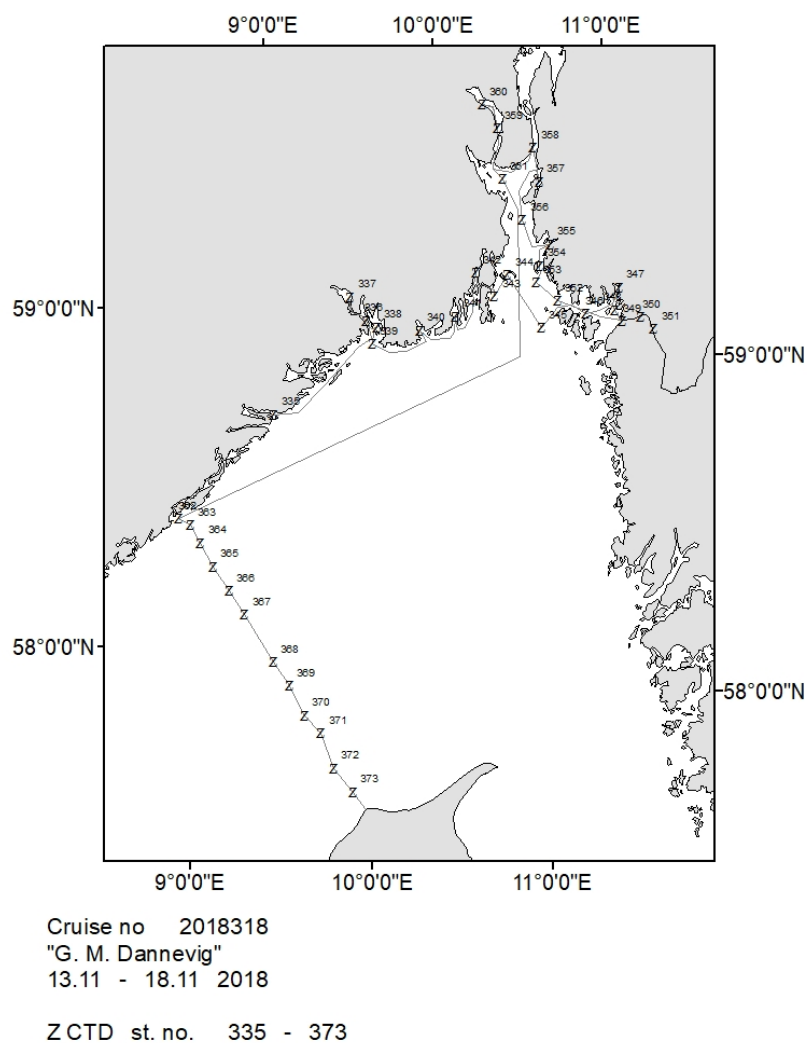


Fig. 99

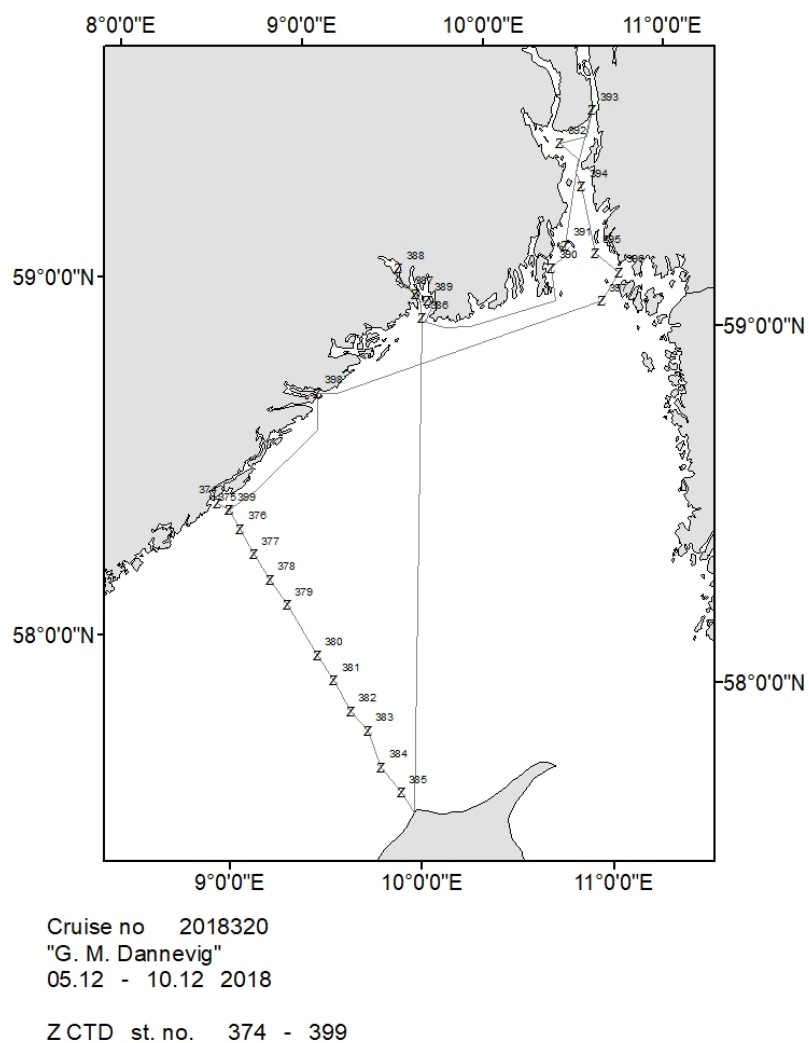


Fig. 100

12 - Hired fishing vessels - Cruises 2018

Cruise no	Period	Vessel	Purpose	Area	CTD st.no	Trawl st.no	Fig. no
2018836	20.1.-27.2.	«Helmer Hanssen»	The survey with Helmer Hanssen forms parts of the joint Norwegian-Russian ground fish survey conducted annually in January-March. It is a combined trawl survey (calculating stock size indices of groundfish using swept-area estimation technique), and acoustic survey, calculating stock size indices using acoustics. Two Norwegian research vessels and one Russian research vessel participate.	Barents Sea, western and central parts.	1-66	1-240	101-102
2018838	14.9.-2.10.	«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. West and north of Svalbard	67-112	241-333	103-104
2018809	28.5.-1.6.	«Johan Ruud»	Study the efficiency of the agassiz trawl used in the stock assessment of the red king crab in the quota regulated area in Finnmark.	Barents Sea	-	-	105
2018808	18.6.-24.6.	«Johan Ruud»	Study the spreading area for red king crab in West Finnmark, Norway. This is the area for a free fishing for red king crab and the further spreading is monitored.	Barents Sea	-	-	106
2018810	20.8.-31.8.	«Johan Ruud»	Yearly monitoring the red king crab stock in the fjords in the quota regulated area in eastern Finnmark, Norway. The survey covered the fjords Varangerfjorden, Tanafjorden, Laksefjorden and Porsangerfjorden.	Barents Sea	-	-	107
2018811	10.9.-21.9.	«Johan Ruud»	Stock assessment study for red king crab in East Finnmark, Norway. This is the quota regulated area for red king crab.	Barents Sea	-	-	108
2018830	13.2.-25.2.	«Eros»	Collection of acoustic data from fisheries sonar for biomass estimation of herring √ 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	1-28	1-21	109
2018813	5.3.-15.3.3.	«Eros»	Collection of acoustic data from fisheries sonar for biomass estimation of individual capelin schools √ Monitoring of school and net during commercial fishing operations √ Purse seine catch of individual capelin schools for comparison with sonar estimates √ Video and oxygen measurements during purse sining	Norwegian Sea	-	-	110

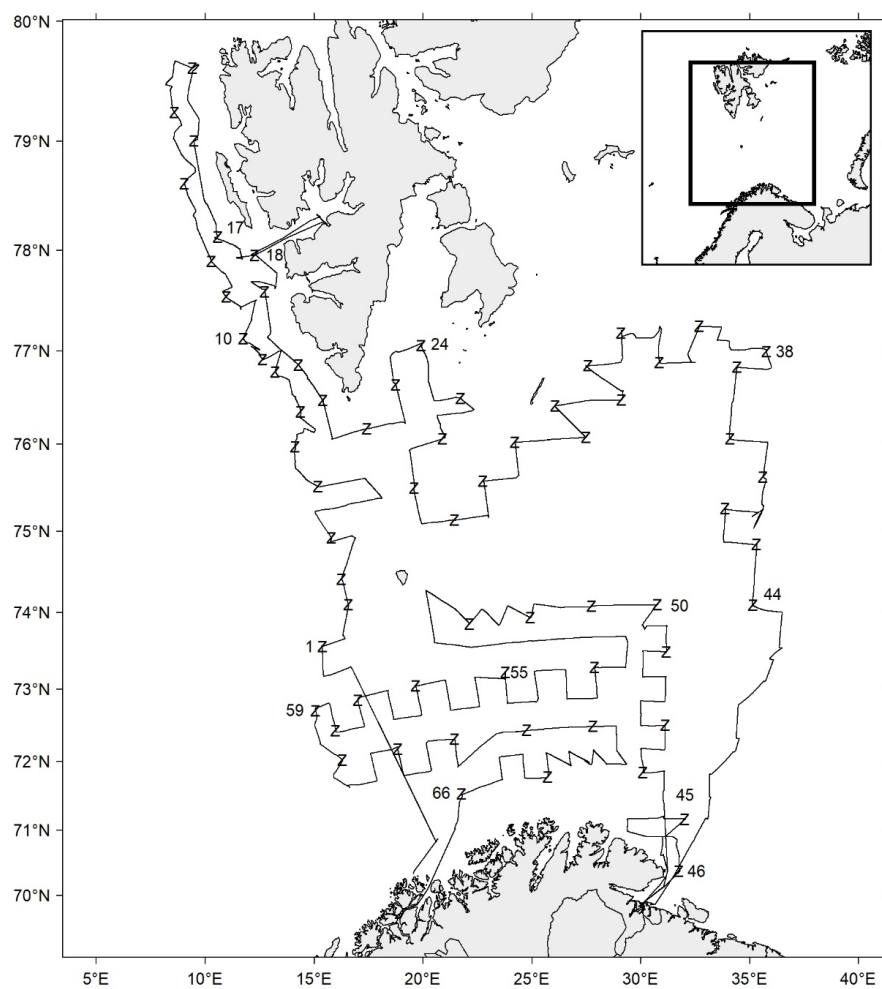
2018823	24.4.- 14.5.	«Eros»	Measuring the abundance, distribution and age composition of sandeel ∇ Dredge sampling for burrowed sandeels ∇ Bottom trawls ∇ Pelagic trawls ∇ Echo sounder sampling ∇ Zooplankton sampling ∇ Mapping of hydrographical conditions	North Sea	29- 63	23-56	111- 112
2018821	12.6.- 19.6.	«Eros»	Develop and test optic and acoustic instruments and methods for monitoring fish behaviour and catch composition during purse seine fishing.	North Sea	-	-	113
2018812	30.9.- 15.10.	«Eros»	Collection of acoustic data from fisheries sonar for biomass estimation of individual mackerel schools.	Norwegian Sea	-	-	114
2018807	4.9.- 27.9.	«Eros»	Capelin.	West of Island	101- 128	1-12	115
2018829	13.2.- 25.2.	«Kings Bay»	Abundance estimation of Norwegian spring spawning herring. This survey was carried out with three vessels, also participating was "Eros" and "Vendla".	Norwegian Coast	-	1-25	116
2018819	20.3.- 5.4.	«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.	Northwest of the British Isles	1-29	25-35	117- 118
2018843	5.4.- 12.4.	«Kings Bay»	Survey of potentially human pathogenic and/or quality reducing parasites and microbiota in blue whiting intended for human consumption.	NE Atlantic Greater Rockall Bank	-	-	-
2018847	29.5.- 2.6.	«Kings Bay»	Survey of potentially human pathogenic and/or quality reducing parasites and microbiota in North Sea herring intended for human consumption. Parasite life-cycle studies by investigating abundance of actual parasites in zooplankton samples.	NE Atlantic Viking Bank	-	-	-
2018826	2.6.- 6.8.	«Kings Bay»	Primary objectives: Large-scale mapping and abundance estimation of Northeast Atlantic (NEA) mackerel, Norwegian Spring-Spawning (NSS) herring and Atlantic blue whiting. Swept area trawling for mackerel and acoustic recordings and trawling for NSS herring and blue whiting. Secondary objectives: Mapping distribution of Atlantic salmon, lumpfish and other pelagic species. Sampling of zooplankton and water temperature/salinity profiles. Opportunistic marine mammals observations along the transects and survey lines.	Barents Sea, Greenland Sea, Iceland Sea, Norwegian Sea	30- 96	36- 126	119
2018849	26.9.- 30.9.	«Kings Bay»	Survey of potentially human pathogenic and/or quality reducing parasites and microbiota in Atlantic mackerel intended for human consumption. Additionally, fish were examined for the presence of certain ectoparasites on the gills which may serve as biological tag to track the actual mackerel's migration route.	NE Atlantic	-	-	-
2018850	14.10.- 17.10.	«Kings Bay»	Survey of parasites in Atlantic mackerel with special emphasis on the occurrence and development of the so-called soft flesh-condition in mackerel induced by the myxozoan parasite <i>Kudoa thyrsites</i> .	NW North Sea	-	-	-

2018851	9.11.- 14.11.	«Kings Bay»	Survey of parasites in Norwegian Spring Spawning Herring with special emphasis on the epidemiology of anisakid nematodes.	Norwegian Sea	-	-	-
2018852	14.11.- 17.11.	«Kings Bay»	Survey of parasites in Norwegian Spring Spawning Herring with special emphasis on the epidemiology of anisakid nematodes.	Norwegian Sea	-	-	-
2018831	13.2.- 24.2.	«Vendla»	Acoustic survey to monitor the spawning stock of Norwegian spring spawning herring on its spawning migration.	Norwegian Sea	1-7	1-20	120
2018837	25.6.- 1.7.	«Vendla»	Improving the quality of the pelagic trawl survey for Northeast Atlantic mackerel	Norwegian Sea	-	-	-
2018827	4.7.- 6.8.	«Vendla»	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-spawning herring and blue whiting using acoustics, (2) collect data on zooplankton, (3) measure the hydrographical conditions (4) Marine mammal observations.	Norwegian Sea	9-82	41-150	121-122
2018816	14.3.- 27.3.	«Svalbard»	The main purpose of the cruise was to obtain data necessary for estimation of the abundance of harp seals and hooded seals, of the Greenland Sea stocks. The methodological approach implied conduction of aerial surveys of harp and hooded seal pups in the Greenland Sea pack-ice during the whelping period in 2018. One fixed-wing twin-engined aircraft (stationed in Akureyri, Iceland) was used for reconnaissance flights and photographic surveys along transects over the whelping patches once they have been located and identified. A helicopter, stationed on and operated from the vessel (KV «Svalbard»), assisted in the reconnaissance flights, and subsequently flew visual transect surveys over the whelping patches. The helicopter was also used for other purposes (stageing of pups, monitoring of ice drift). In addition to serve as base for the helicopter surveys, the vessel was also used to transport personell into the whelping patches where some ground-truthing of the aerial surveys and collection of biological samples were performed.	Greenland Sea North Atlantic Ocean	-	-	123
2018842	3.4.- 15.4.	«Lance»	The objectives of this cruise were to investigate the physical environment, abundance zooplankton and phytoplankton as well as collecting water samples for chemical analyses using a CTD probe, on our standard sections in the Norwegian Sea and Barents Sea.	Barents Sea Norwegian Sea	1-48	-	124
2018814	3.4.- 15.4.	«Kågtind II»	CRISP – trawl testing.	Barents Sea	-	1-30	125

2018817	11.4.- 16.5.	«Ottar»	It is established a long-term data set of reproductive data for the Harp Seal population in the Barents Sea. 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. The methodological approach was to collect jaws, ovaries and body measurements of female harp seals. The sampled seals were animals that were part of the commercial catch of the sealing vessel MS "Ottar".	Barents Sea	-	-	126
2018822	29.4.- 16.5.	«Tempo»	Experiments to reduce bycatches of juvenile fish and small fish in the shrimp fisheries, by using artificial light. A 6 meter netting section was installed in front of a conventional Nordmøre grid, illuminated with dive lights of various wavelengths to stimulate escape behaviour of fish. Two trawls were towed simultaneously, one with a conventional grid, the other with the experimental grid.	Skagerrak	-	1-26	127
2018828	9.5.- 10.6.	«Fiskebas»	Tagging with RFID technology and biological sampling of mackerel in the spawning areas west of Ireland and Scotland.	Northeast Atlantic Ocean	-	-	128
2018805	15.6.- 6.7.	«Prowess»	The aim of the cruise was to study the spreading of the snow crab in the Svalbard Fishery Protection Zone by using a hired fishery vessel and snow crab traps.	Barents Sea	-	-	129
2018846	23.6.- 6.7.	"Silje Kristina	To improve size selectivity in the shrimp fisheries, a regular shrimp trawl of conventional length, was compared to a trawl with a shorter trawl belly towing both trawls simultaneously. For comparing size-related size selection, samples of shrimp and small fish were measured for size distribution and total catch weight recorded.,	Skagerrak	-	1-17	130
018833	26.6.- 20.8.	"Acc Mosby"	The objective of the cruise is to collect sightings information for estimating abundance of whales, especially minke whales, as part of a long-term survey program to cover the Northeast Atlantic over the years 2014-2019.	North Sea Norwegian Sea	-	-	131
2018834	31.8.- 13.9.	"Acc Mosby"	The objectives of this cruise is to instrument whales with satellite tags which can map their habitat use, collect biopsy samples of whales to study their population structure and photo identification pictures of whales to study their long-term movement patterns and biology. The focus has been on the humpback whales.	Barents Sea	-	-	132

2018820	17.9.- 12.10	"Cristina E"	- Develop and test optical and acoustic instruments and methods for monitoring fish behaviour and catch composition during purse seine fishing. - Investigate the effect of catch handling on fish welfare and thereby. i) survival/vitality potential of unwanted catches released from the seine, and ii) the vitality and quality of retained catches.	Norwegian Sea and North Sea	-	-	133
2018006	30.9.- 30.10.	"Katla"	Compare the unfished shrimp stocks in the two fjords Porsanger and Tana in North-Norway. Collect data on all demersal fish stocks	North Norwegian fjords	-	-	-

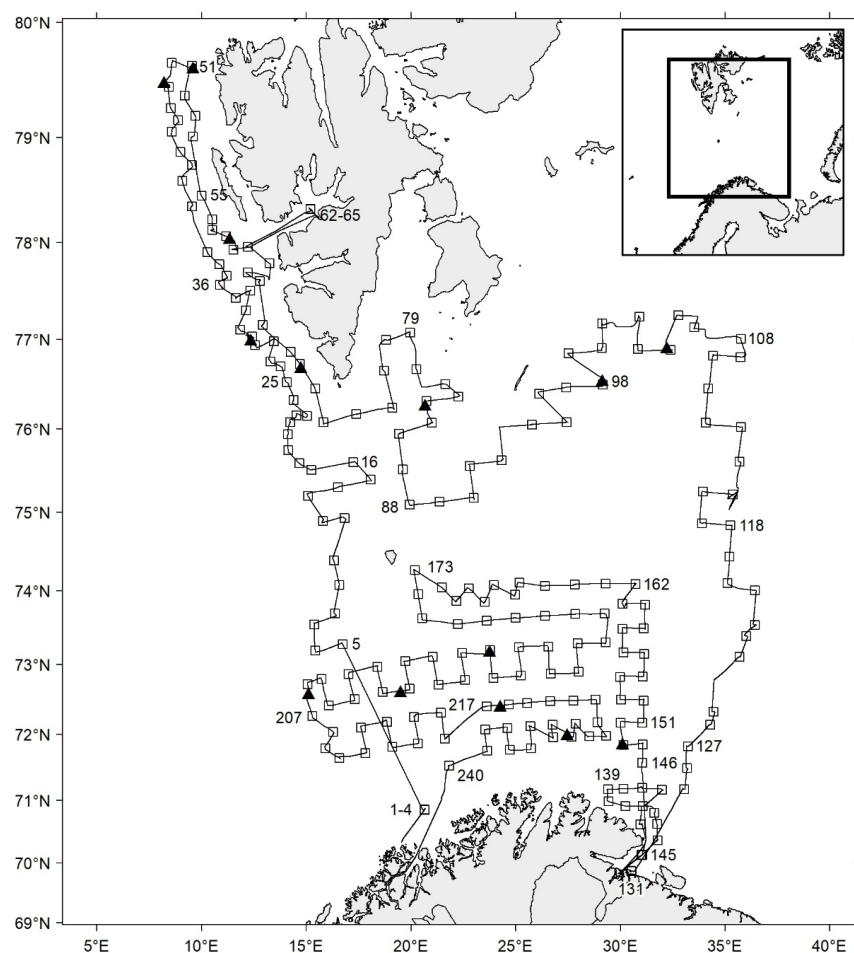
13 - Hired fishing vessels – Charts for cruises 2018.



Cruise no 2018836 "H. Hanssen" (Chart I)
20 Jan–27 Feb 2018

z CTD st.no 1-66

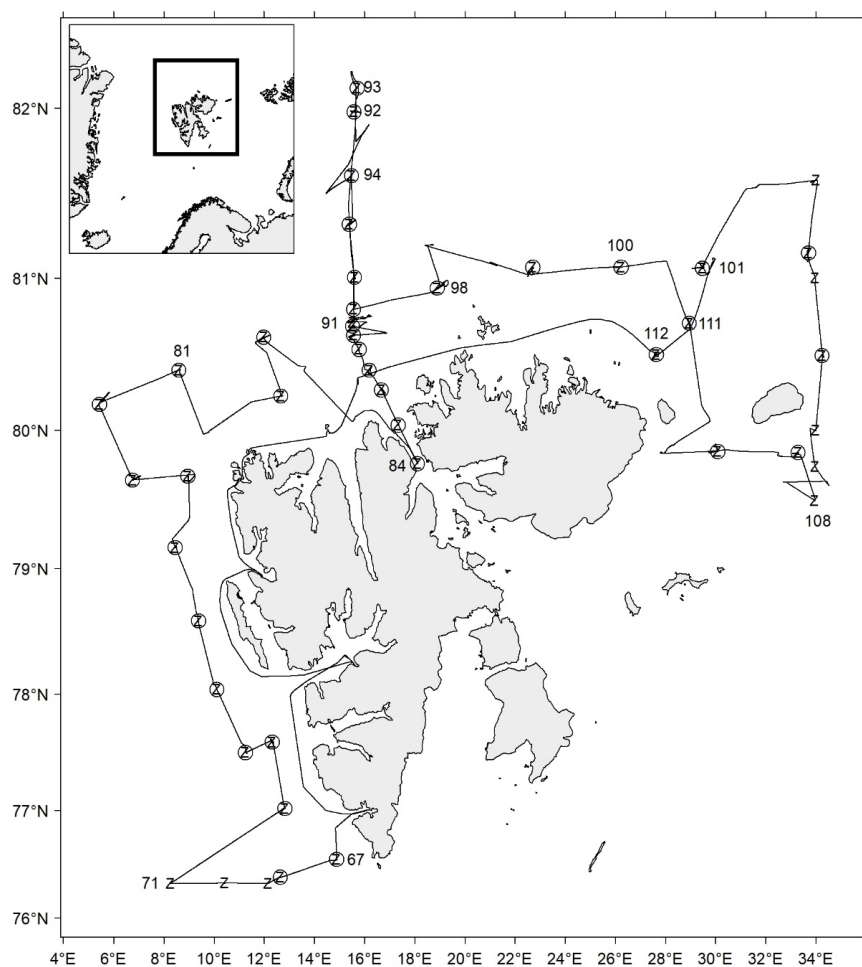
Fig. 101



Cruise no 2018836 "H. Hanssen" (Chart II)
20 Jan–27 Feb 2018

Trawl st.no 1-240
□ Bottom trawl
▲ Pelagic trawl

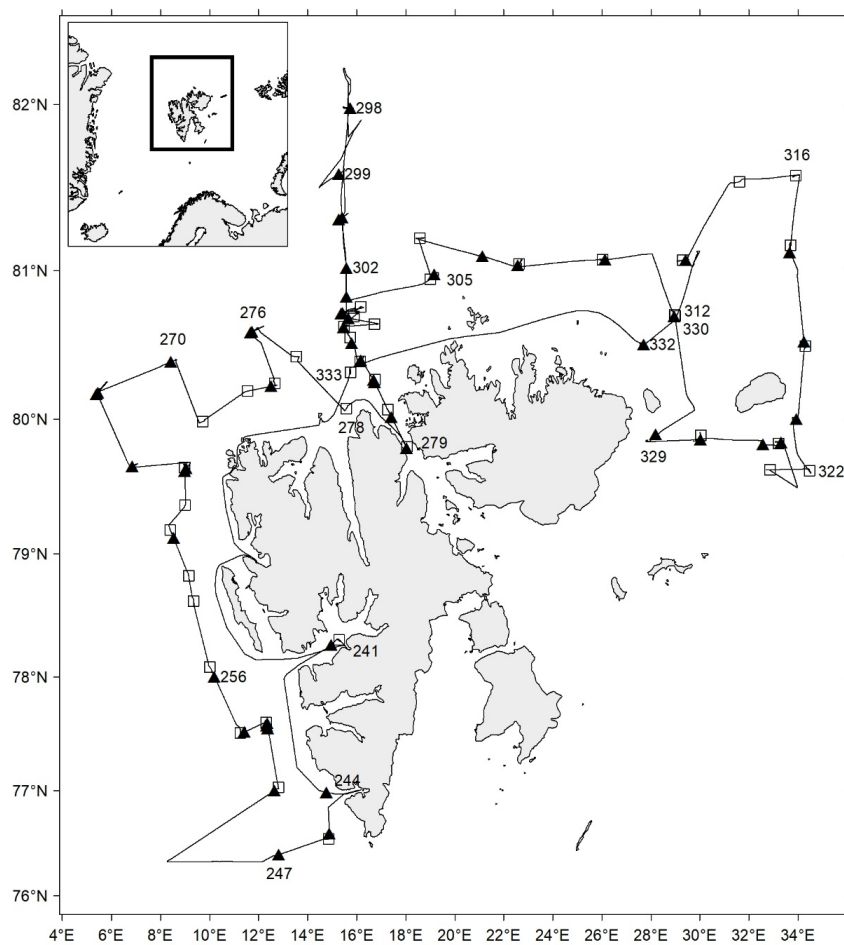
Fig. 102



Cruise no 2018838 "Helmer Hanssen" (Chart I)
14 September–2 October 2018

z CTD st.no 67-112
o Plankton st. (WP-II-net)

Fig. 103



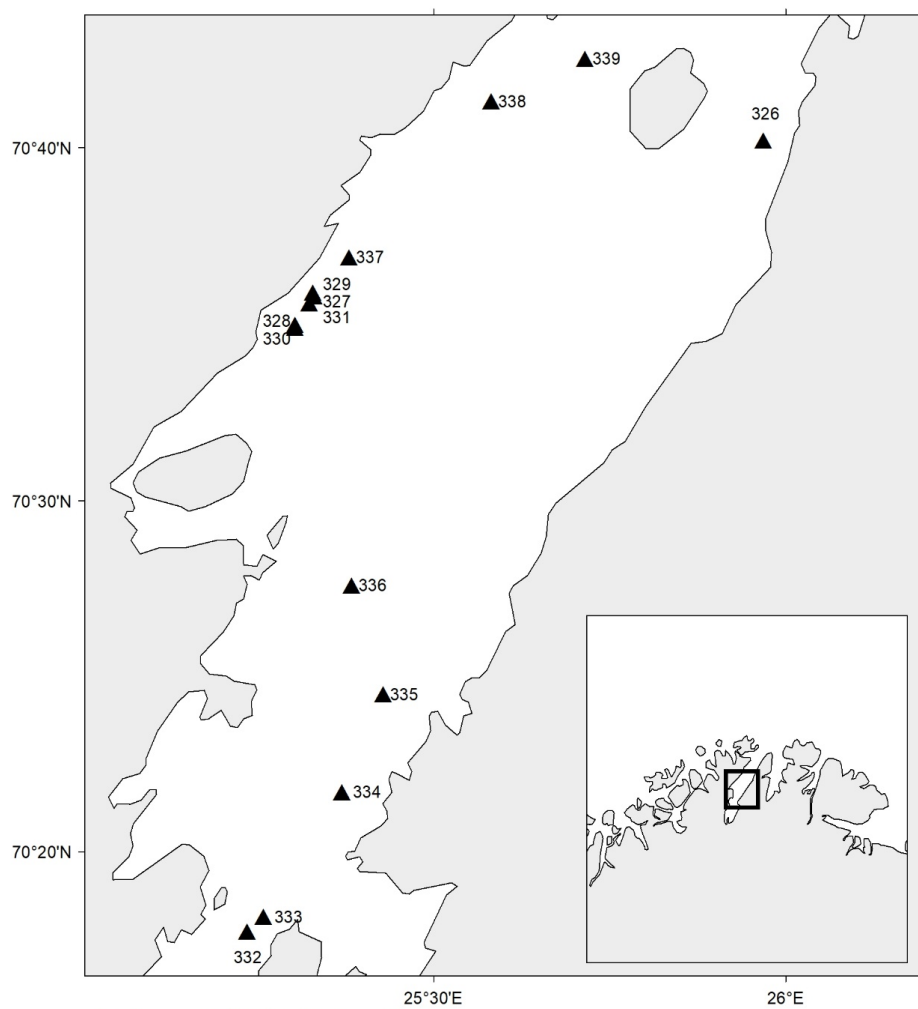
Cruise no 2018838 "Helmer Hanssen" (Chart II)
14 September–2 October 2018

Trawl st.no 241-333

▲ Pelagic tr.

□ Bottom tr.

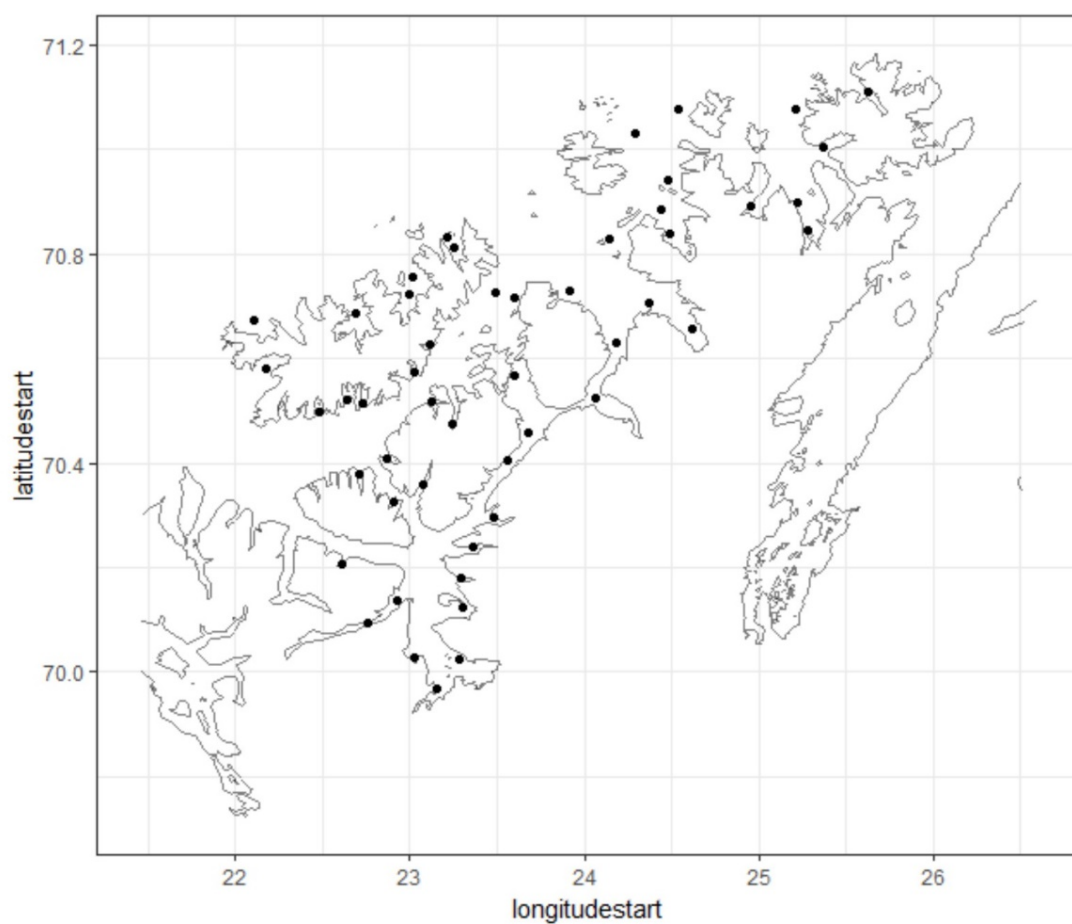
Fig. 104



Cruise no 2018809 "J. Ruud"
28 May–1 June 2018

▲ Agassiz trawl st.no 326-339

Fig. 105



2018808 «Johan Ruud»
18–24 June 2018

- Trap hauls

Fig. 106

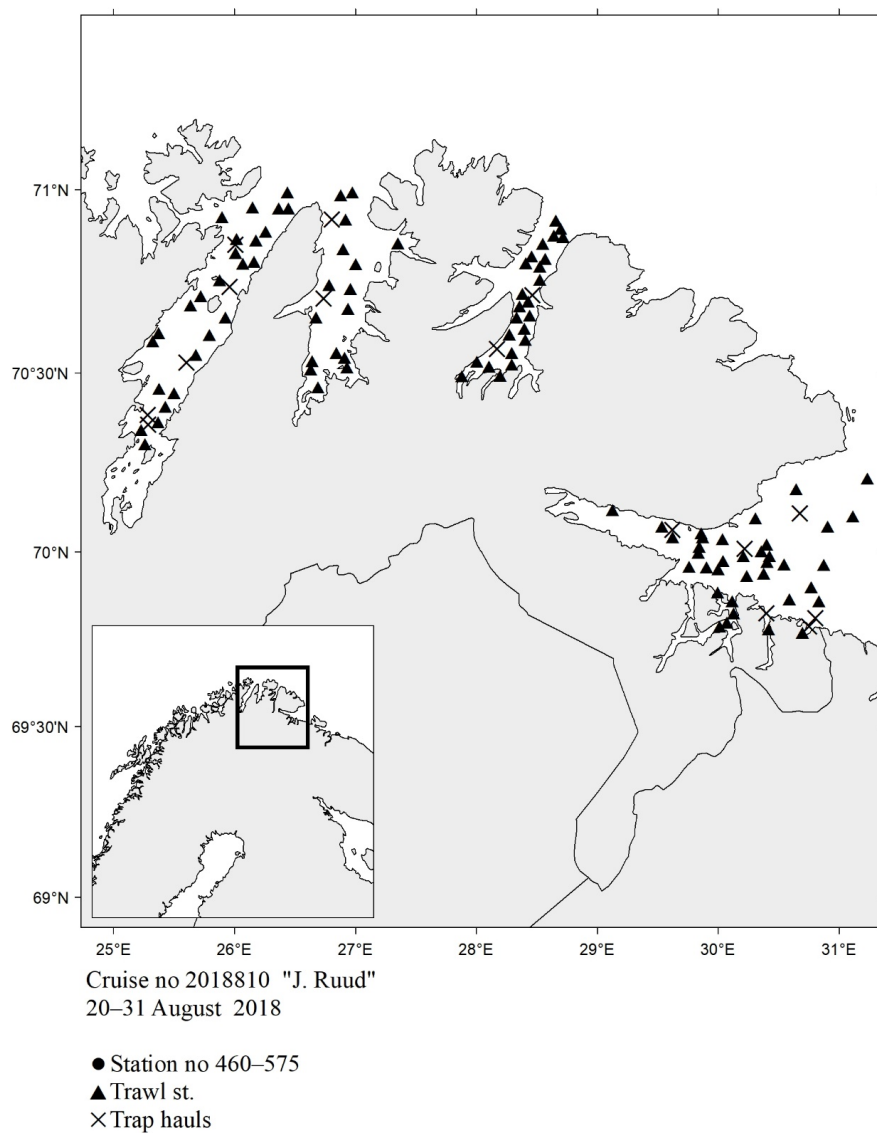
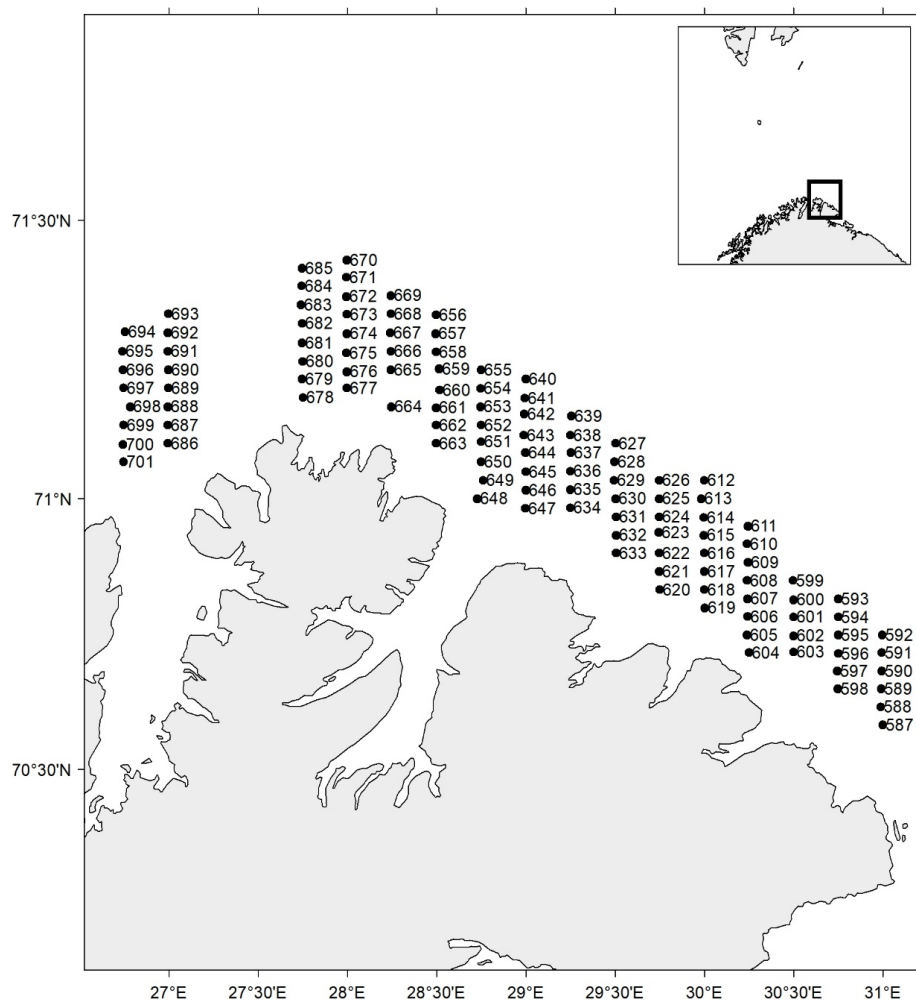


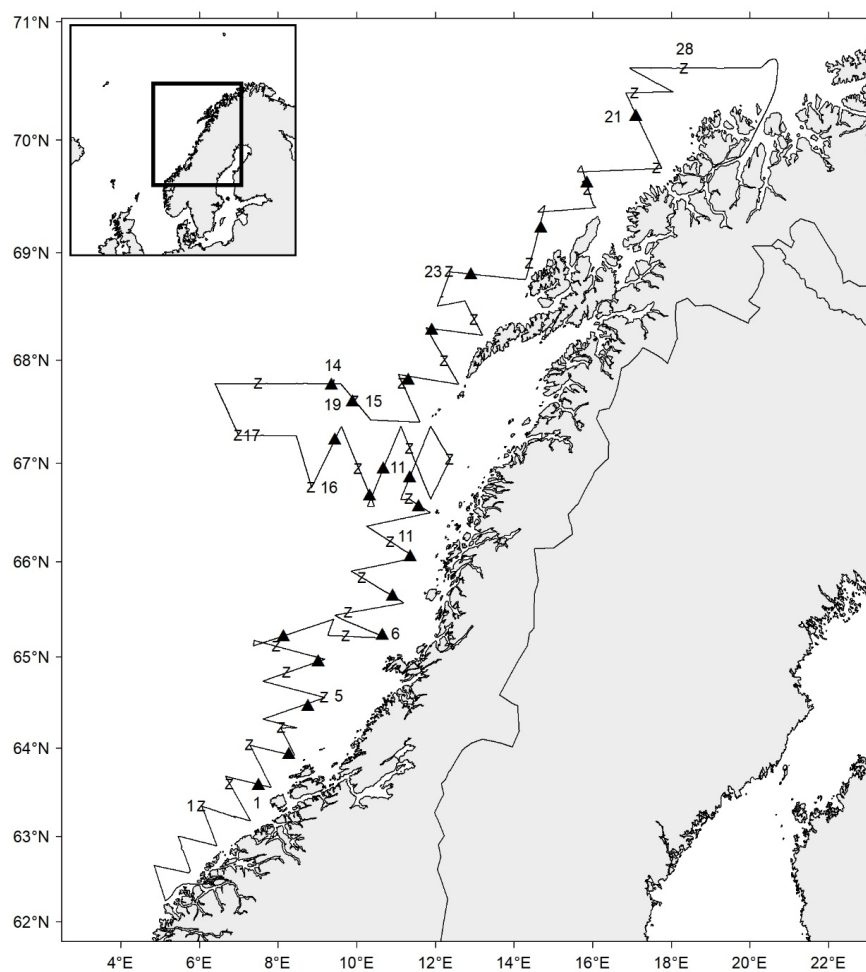
Fig. 107



Cruise no 2018811 "Johan Ruud"
10–21 September 2018

● Trap hauls - st.no 587-701

Fig. 108



Cruise no 2018830 "Eros"
13–25 February 2018

z CTD st.no 1-28

▲ Pelagic trawl st.no 1-21

Fig. 109

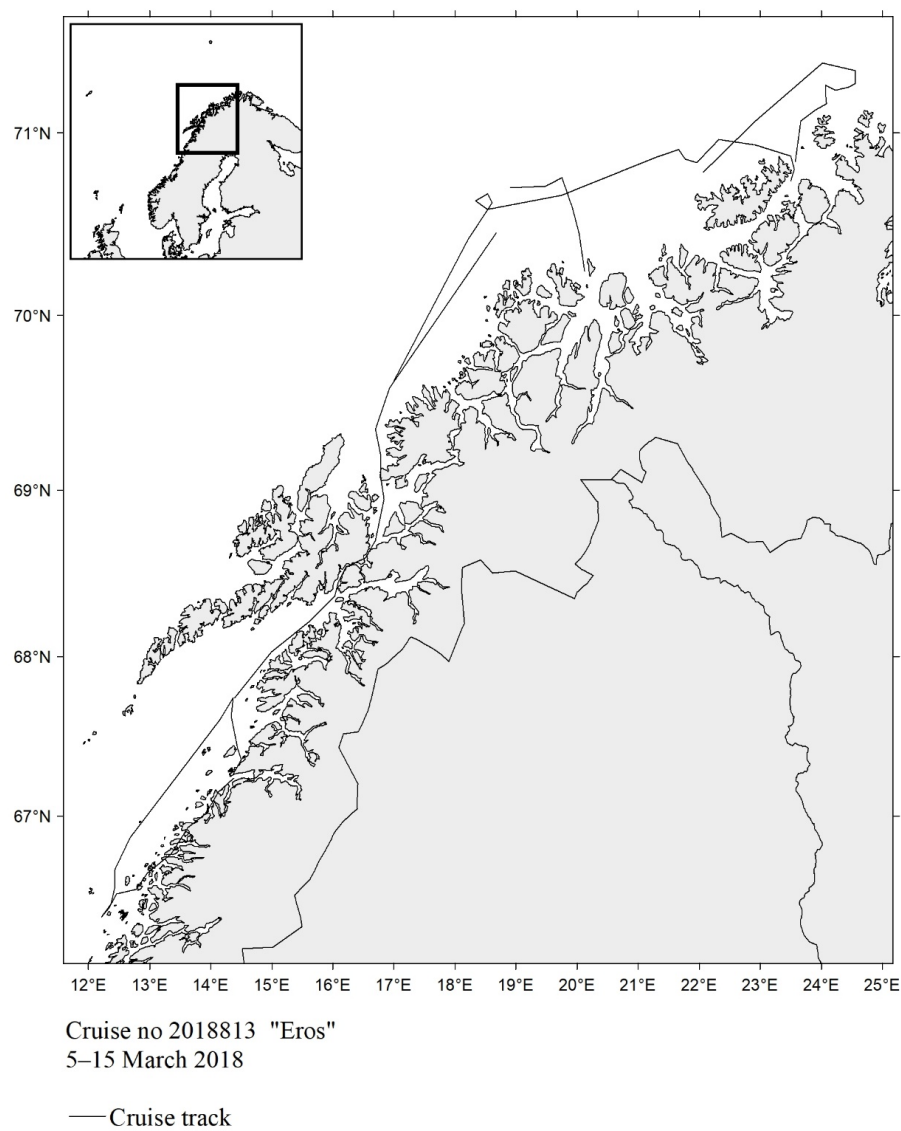
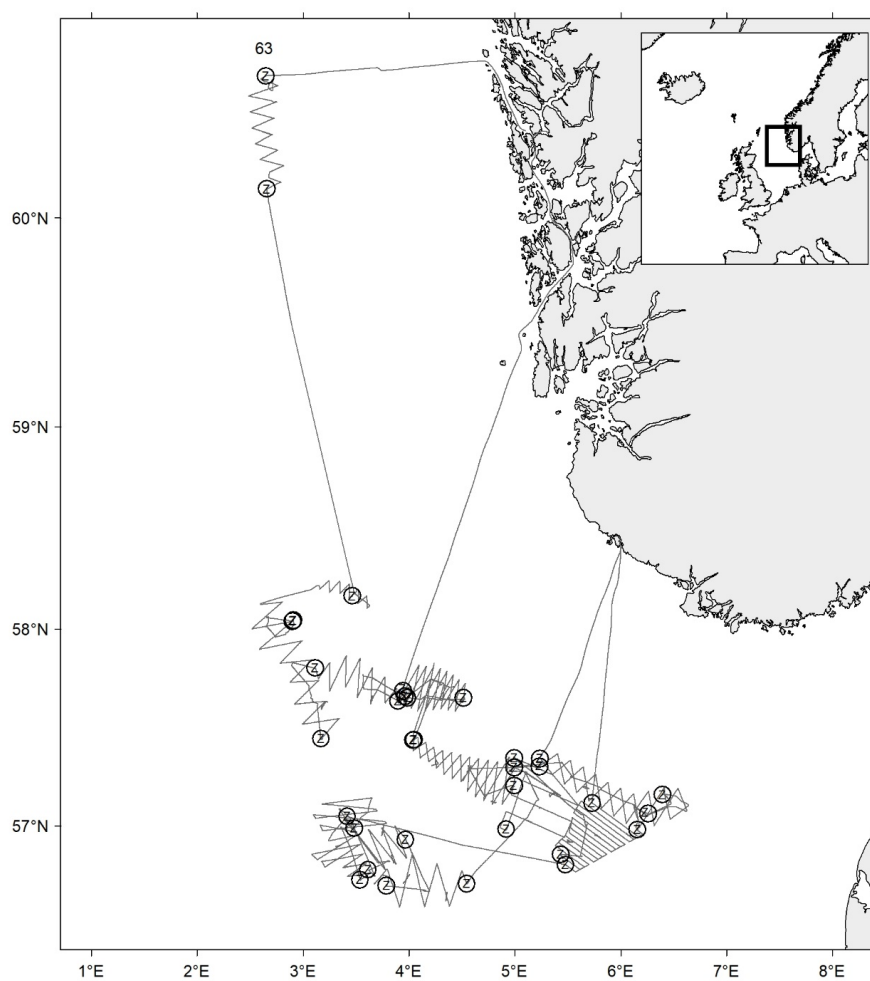


Fig. 110



2018823 "Eros" (Chart I)
24 April–14 May 2018

z CTD st.no 29-63
○ Plankton st. (WP-II-net)

Fig. 111

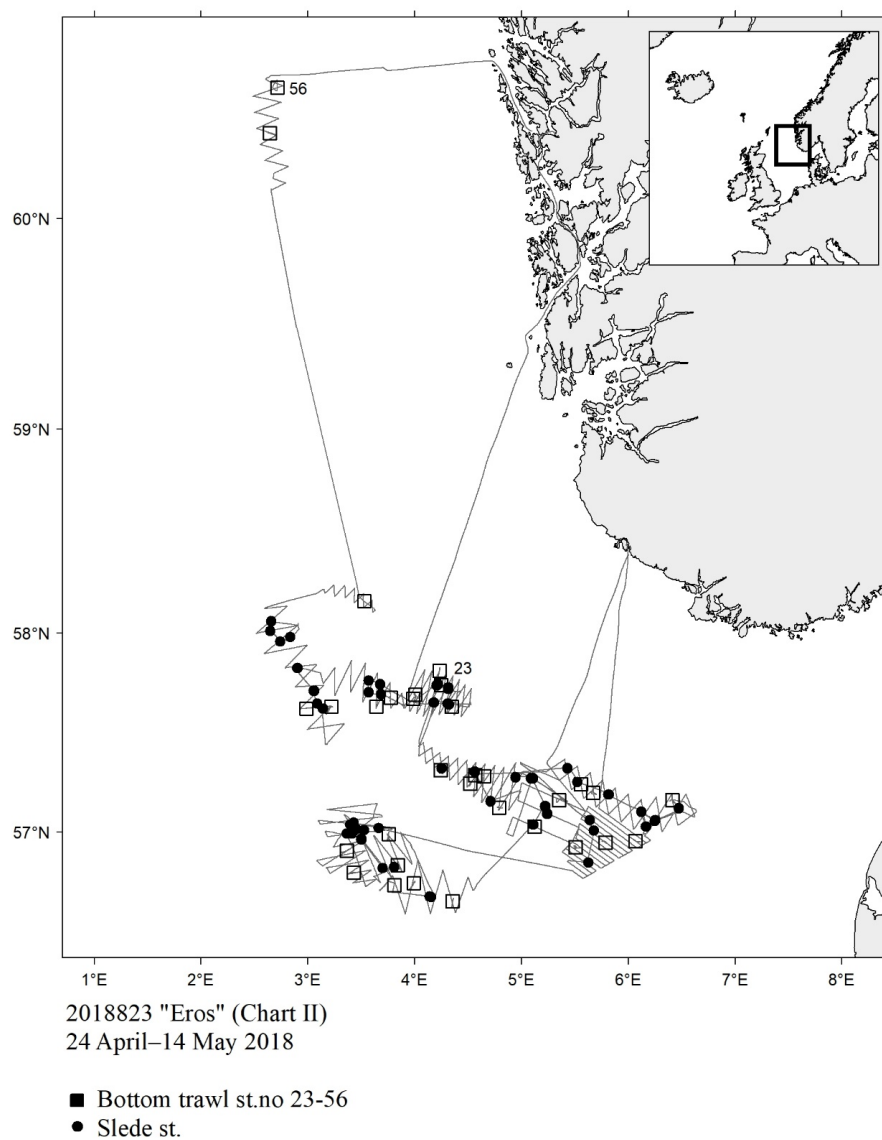
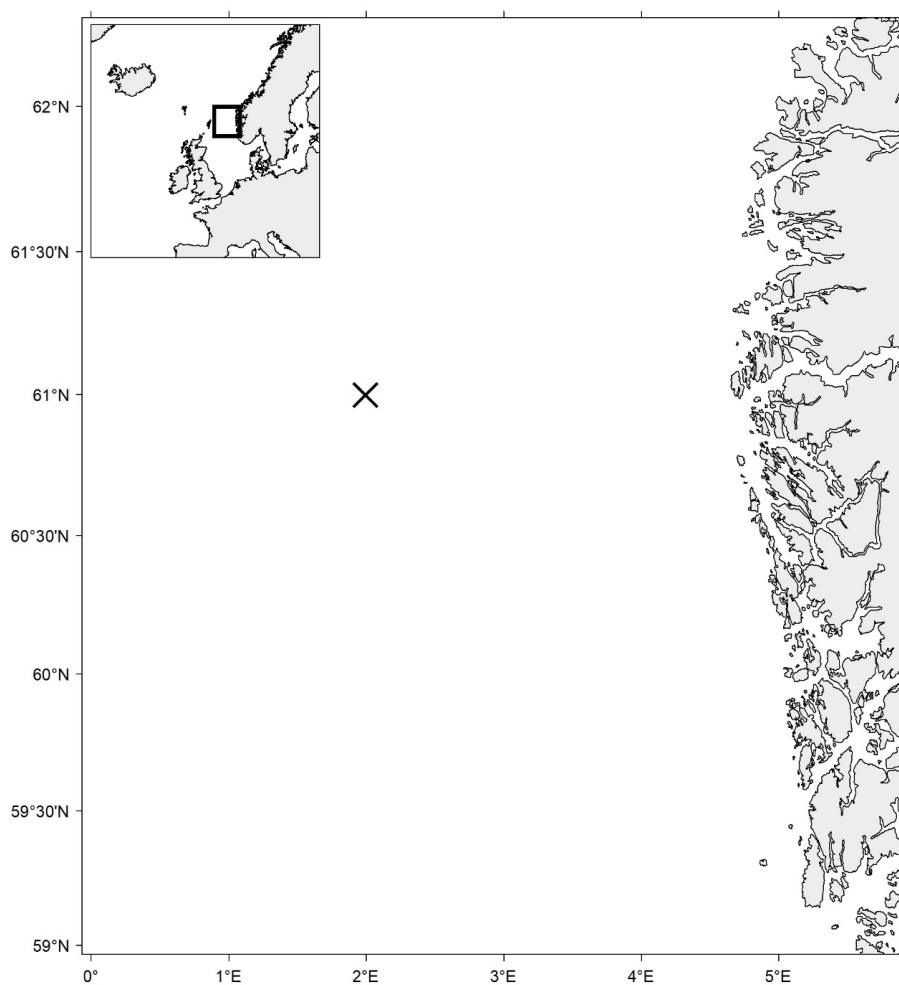


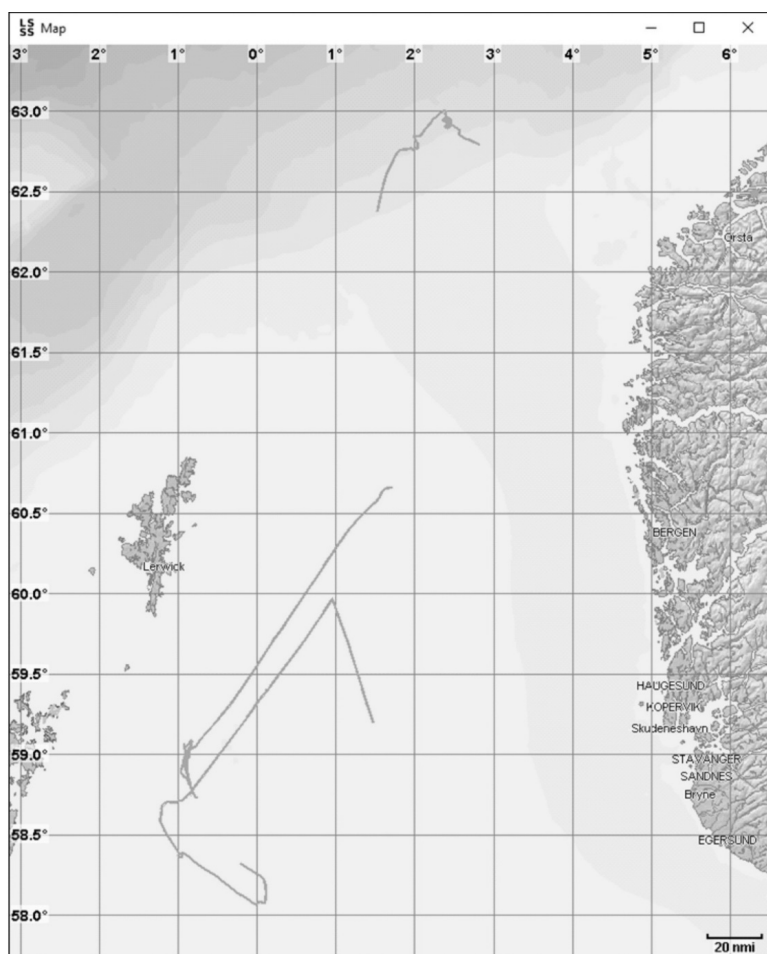
Fig. 112



Cruise no 2018821 "Eros"
12–19 June 2018

- Echosounder was deployed using a flying drone.
Instrument probe deployed in the purse seine in every catch.

Fig. 113



Cruise no 201812 "Eros"
30 September–15 October 2018

School biomass estimates using fisheries sonars.

Fig. 114

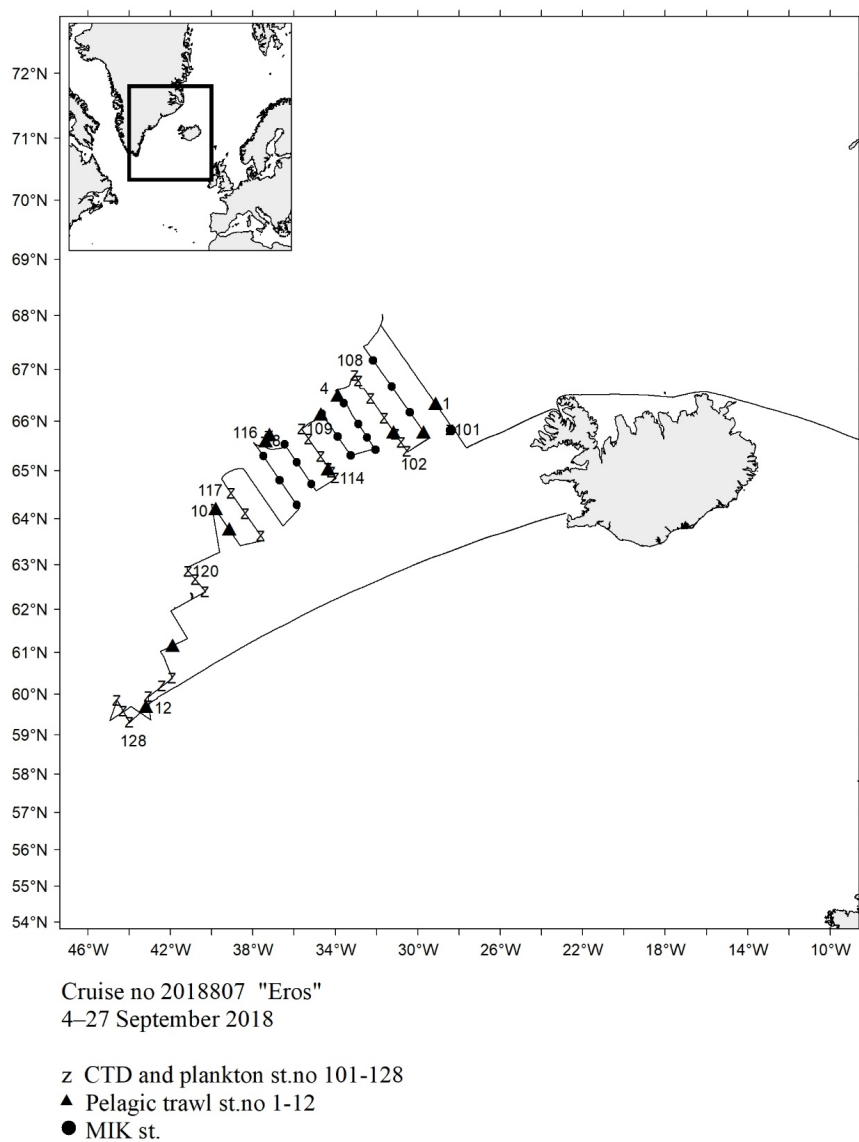
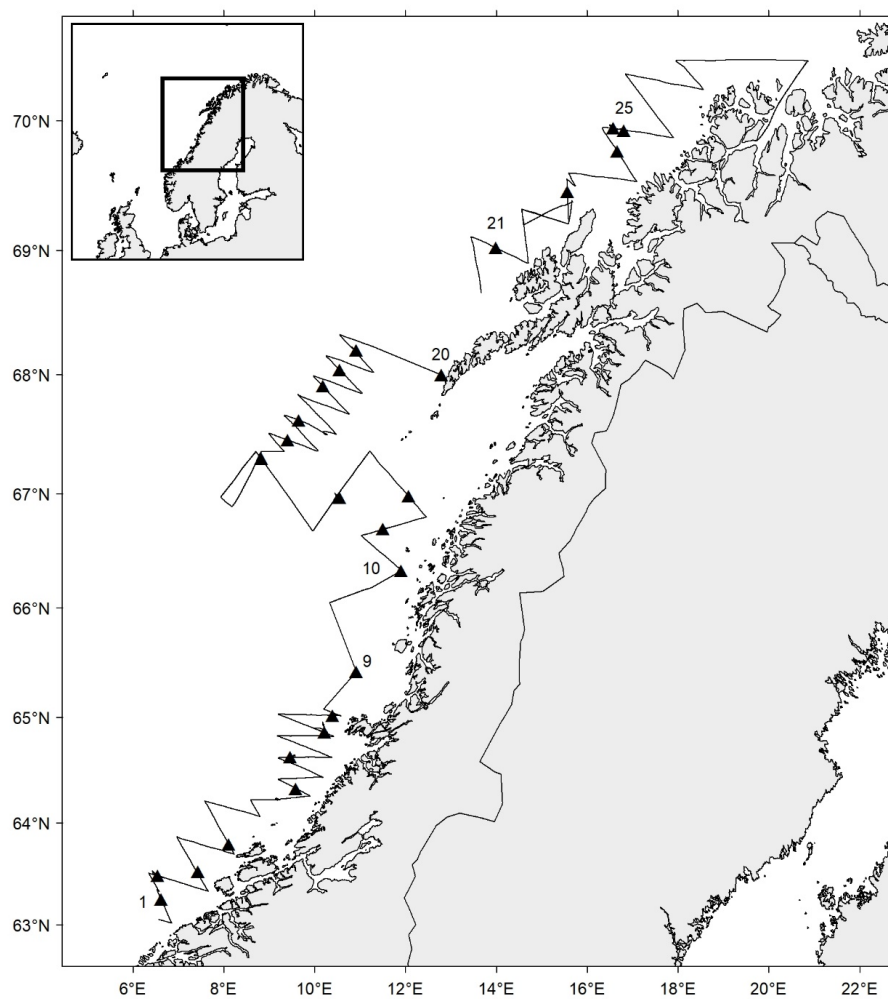


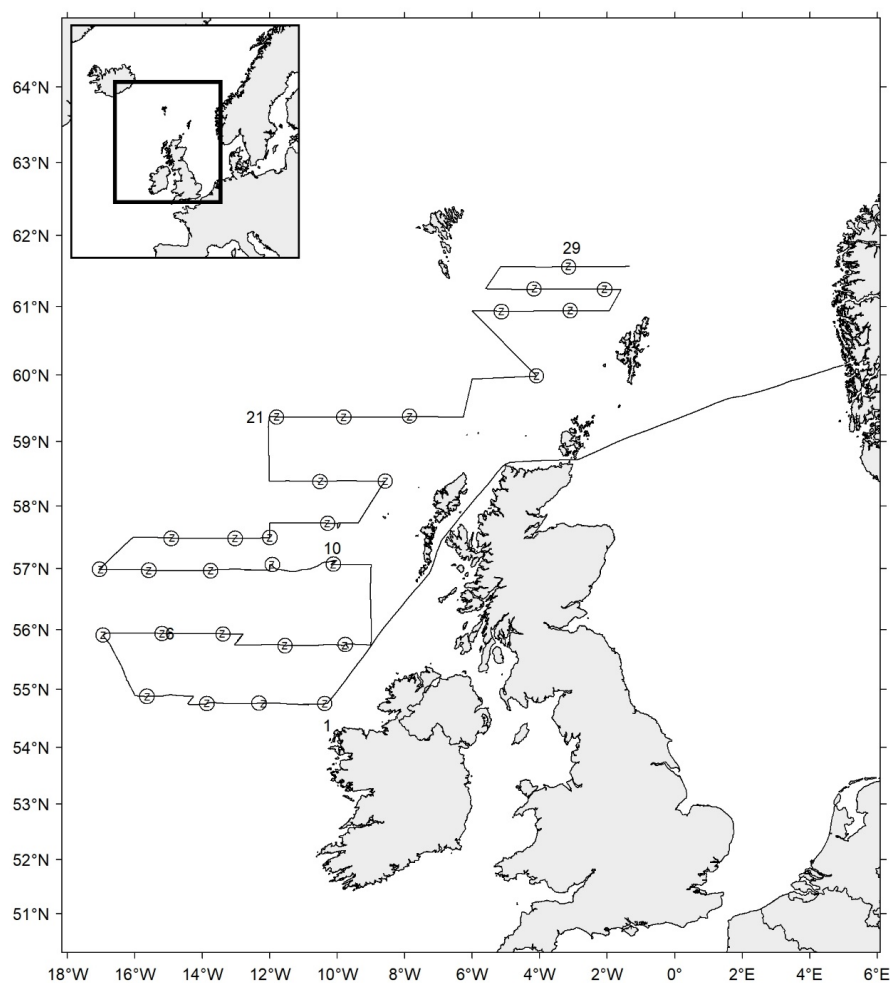
Fig. 115



2018829 "Kings Bay"
13–25 February 2018

▲ Pelagic trawl st.no 1-25

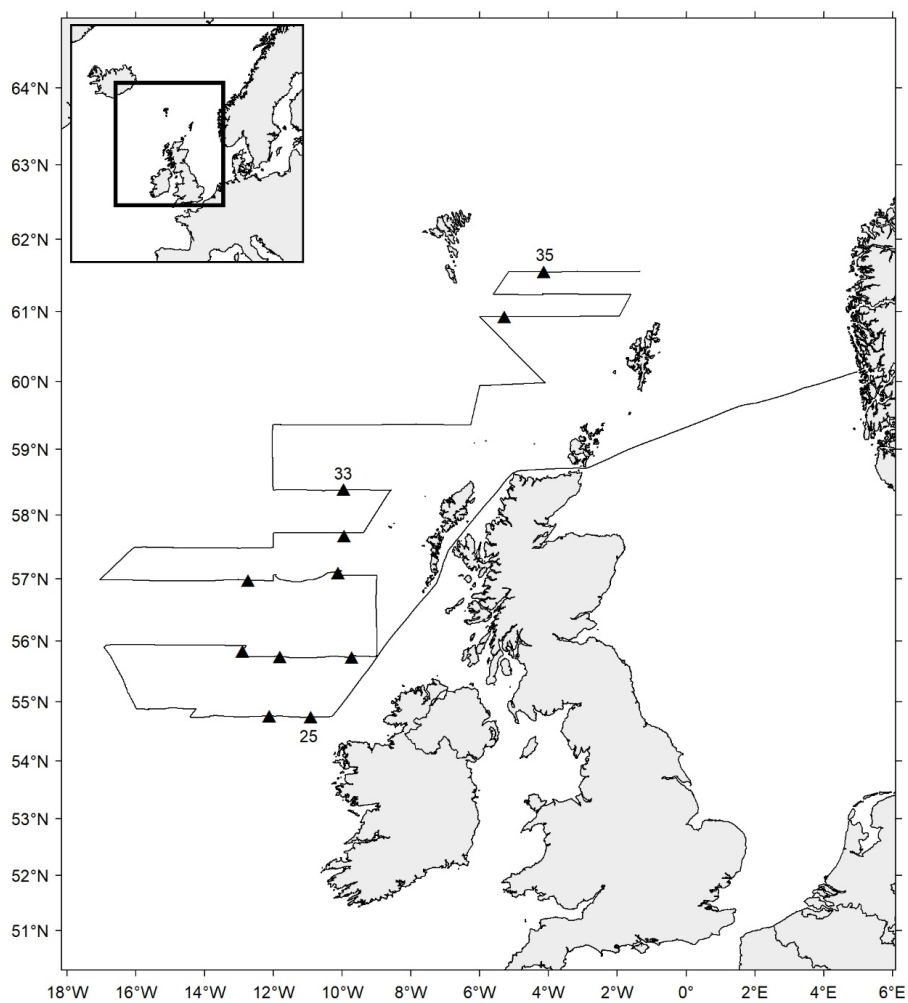
Fig. 116



Cruise no 2018819 "Kings Bay" (Chart I)
20 March–5 April 2018

z CTD st.no 1-29
o Plankton st. (WP-II-net)

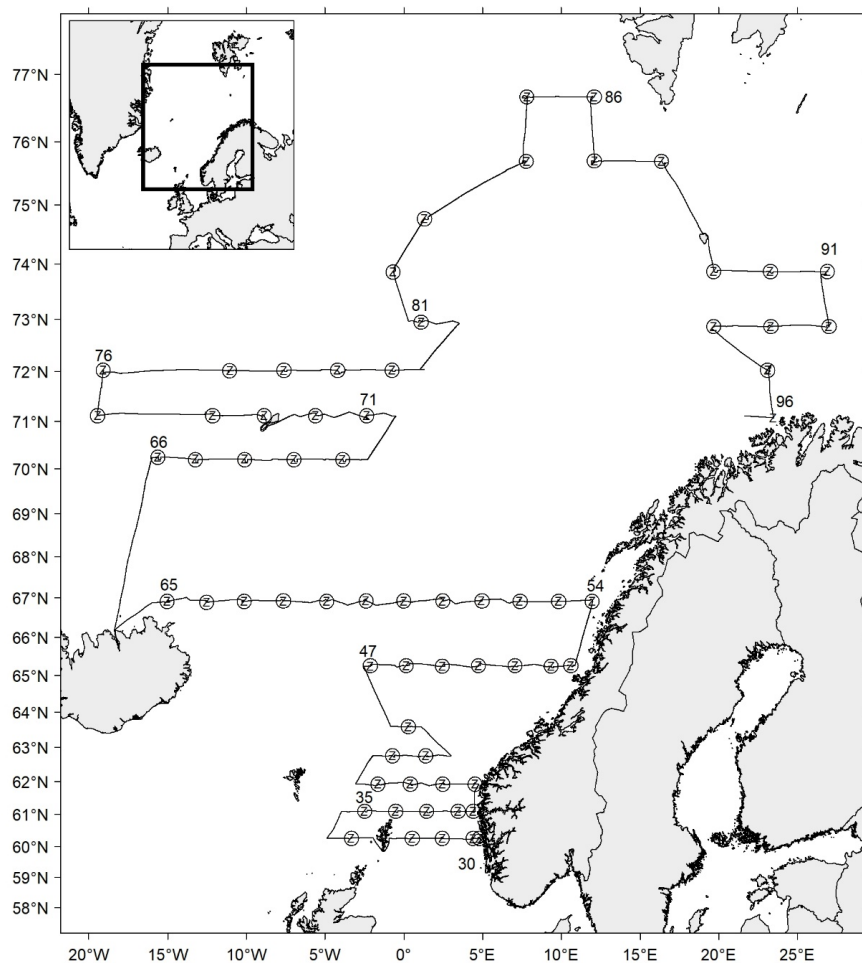
Fig. 117



Cruise no 2018819 "Kings Bay" (Chart II)
20 March–5 April 2018

▲ Pelagic trawl st.no 25-35

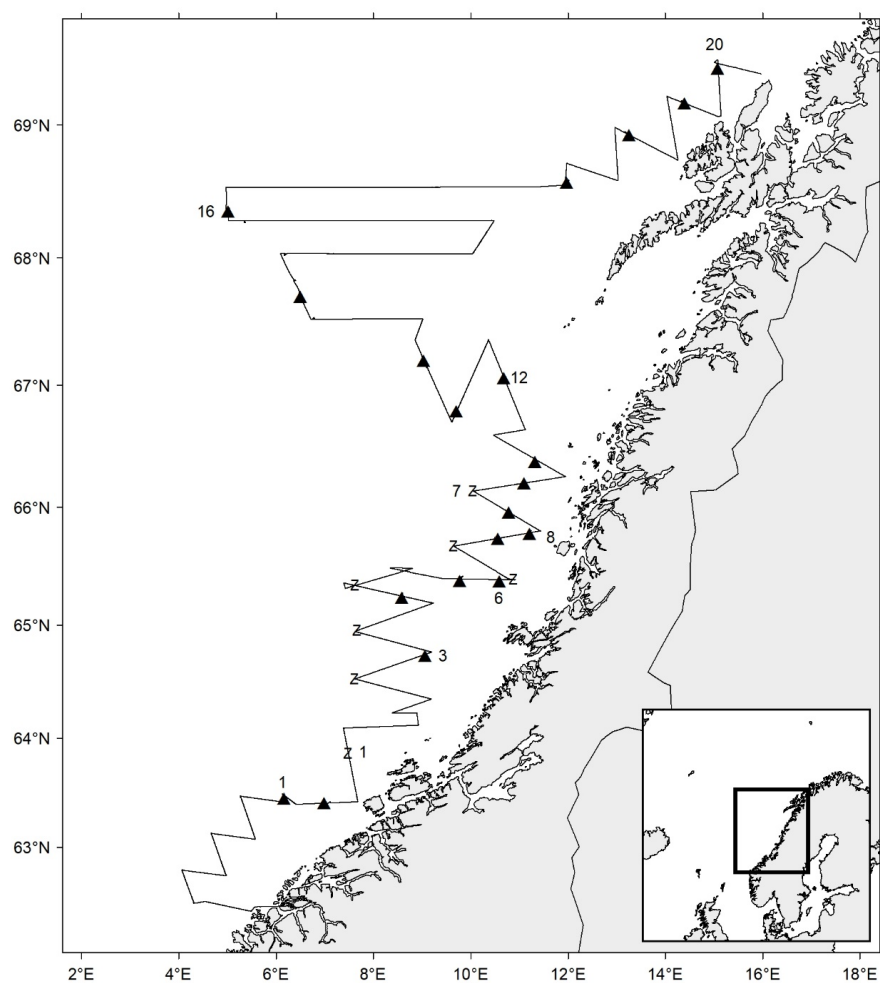
Fig. 118



Cruise no 2018826 "Kings Bay" (Chart I)
2 July–6 August 2018

z CTD st.no 30-96
○ Plankton st. (WP-II-net)

Fig. 119

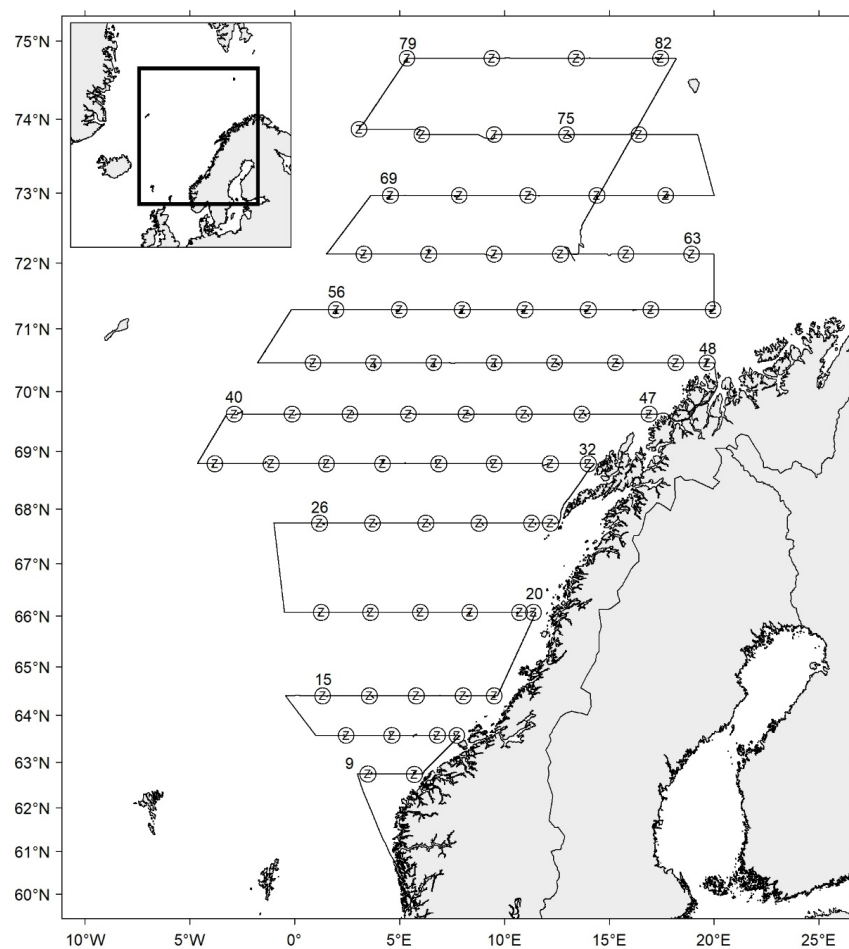


Cruise no 2018831 "Vendla"
13–24 February 2018

z CTD st.no 1-7

▲ Pelagic trawl st.no 1-20

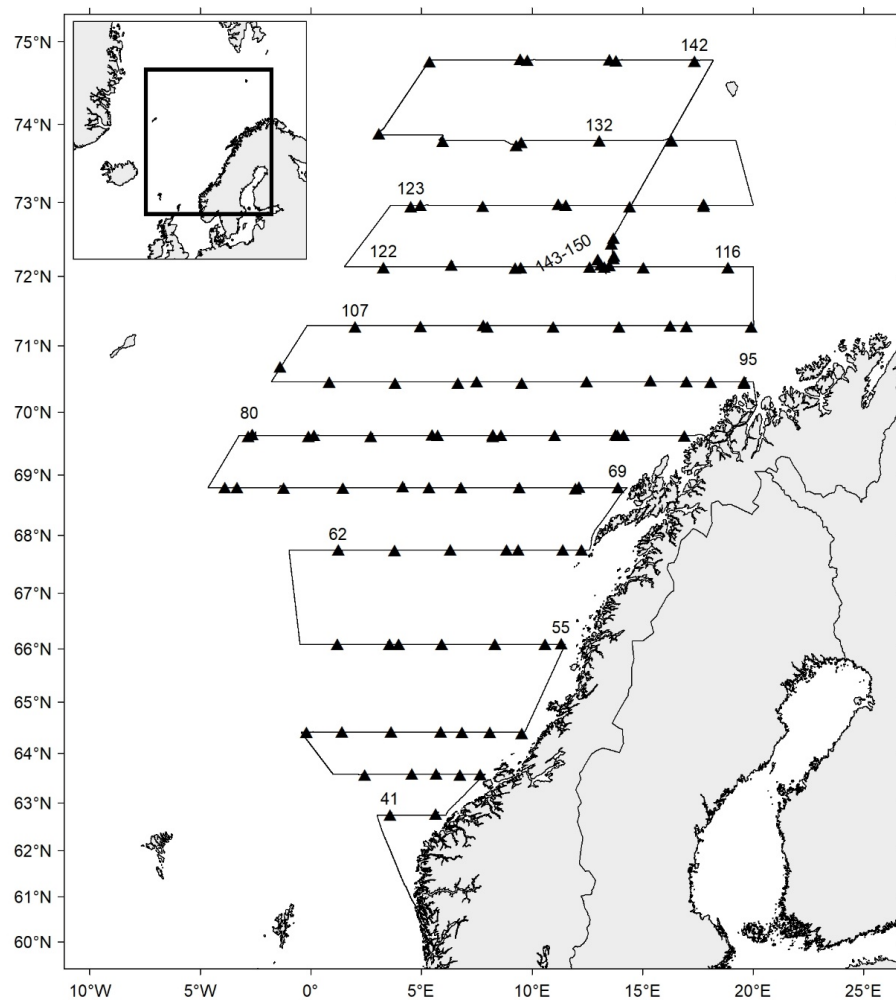
Fig. 120



Cruise no 2018827 "Vendla" (Chart 1)
4 July–6 August 2018

z CTD st.no 9-82
○ Plankton st. (WP-II-net)

Fig. 121



Cruise no 2018827 "Vendla" (Chart II)
4 July–6 August 2018

▲ Pelagic trawl st.no 41-150

Fig. 122

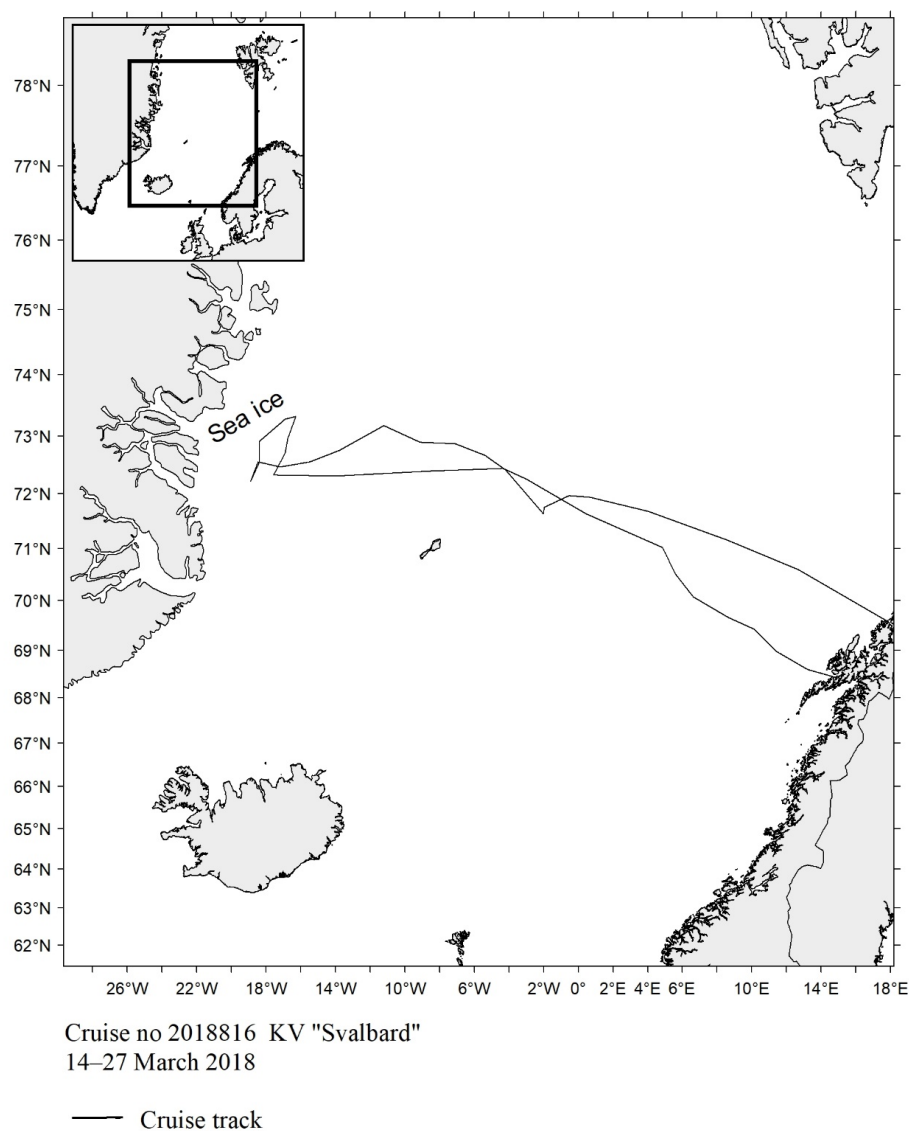
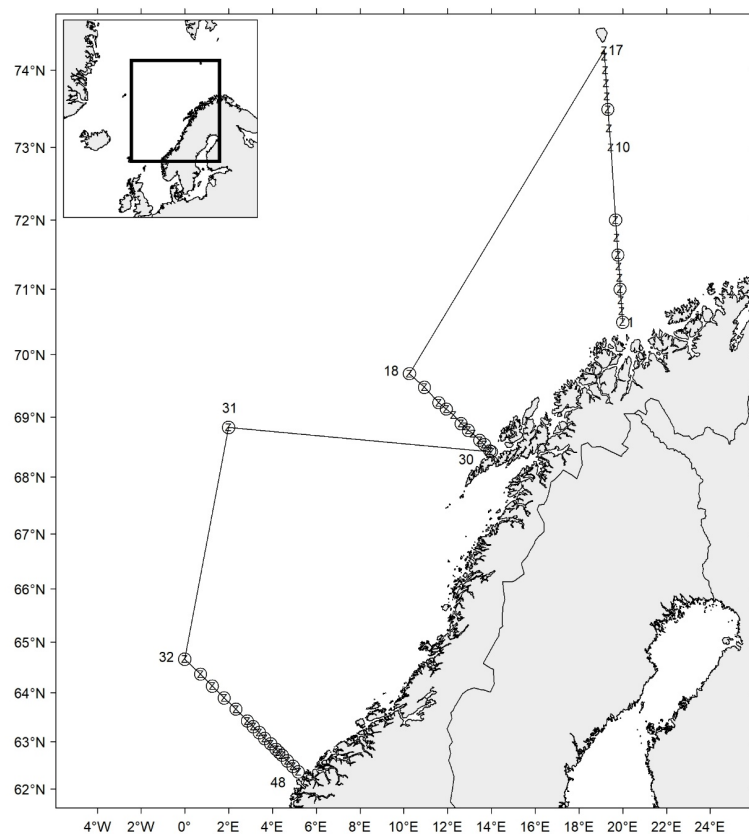


Fig. 123



Cruise no 2018842 "Lance"
3–15 April 2018

z CTD st.no 1-48
○Plankton st. (WP-II-net)

Standard sections:
Fugløya–Bjørnøya st.no 1-17
Gimsøy NW st.no 18-30
Svinøy NW st.no 32-48

St. M st.no 31

Fig. 124

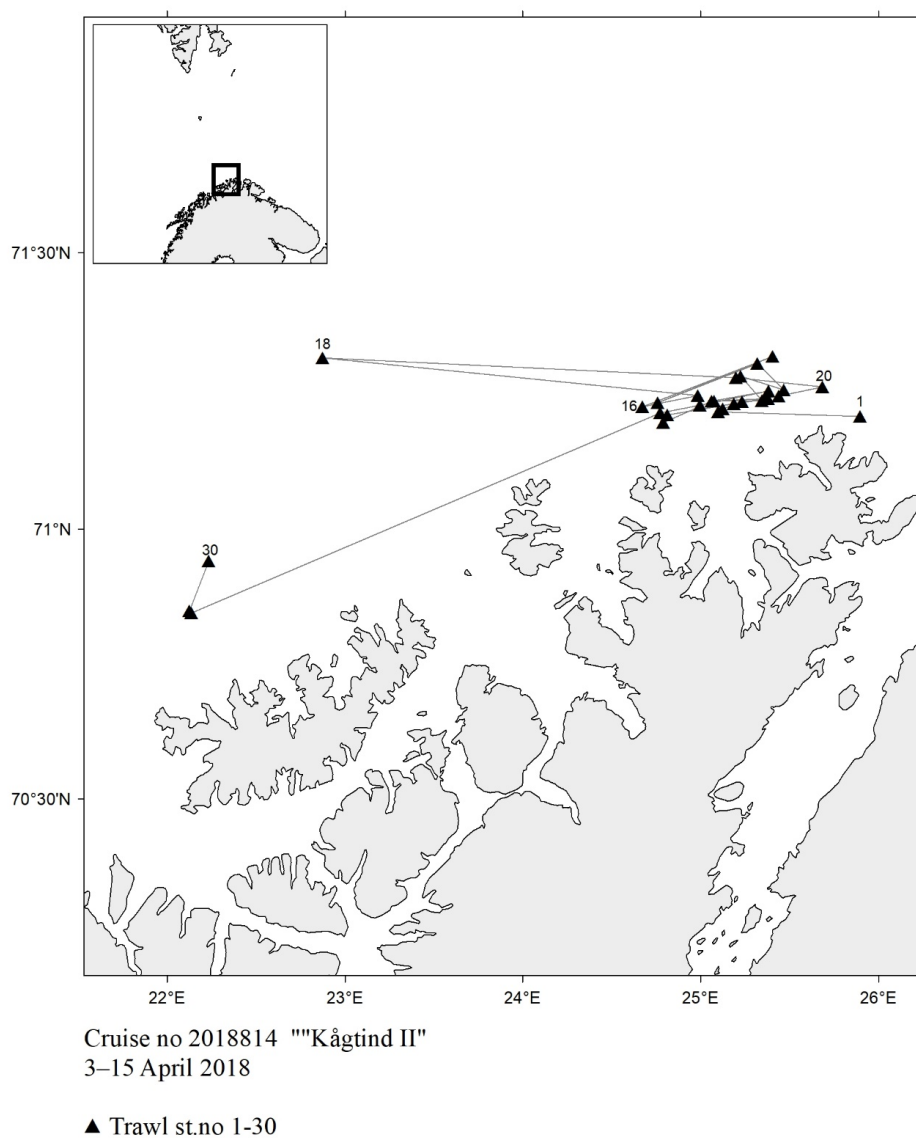


Fig. 125

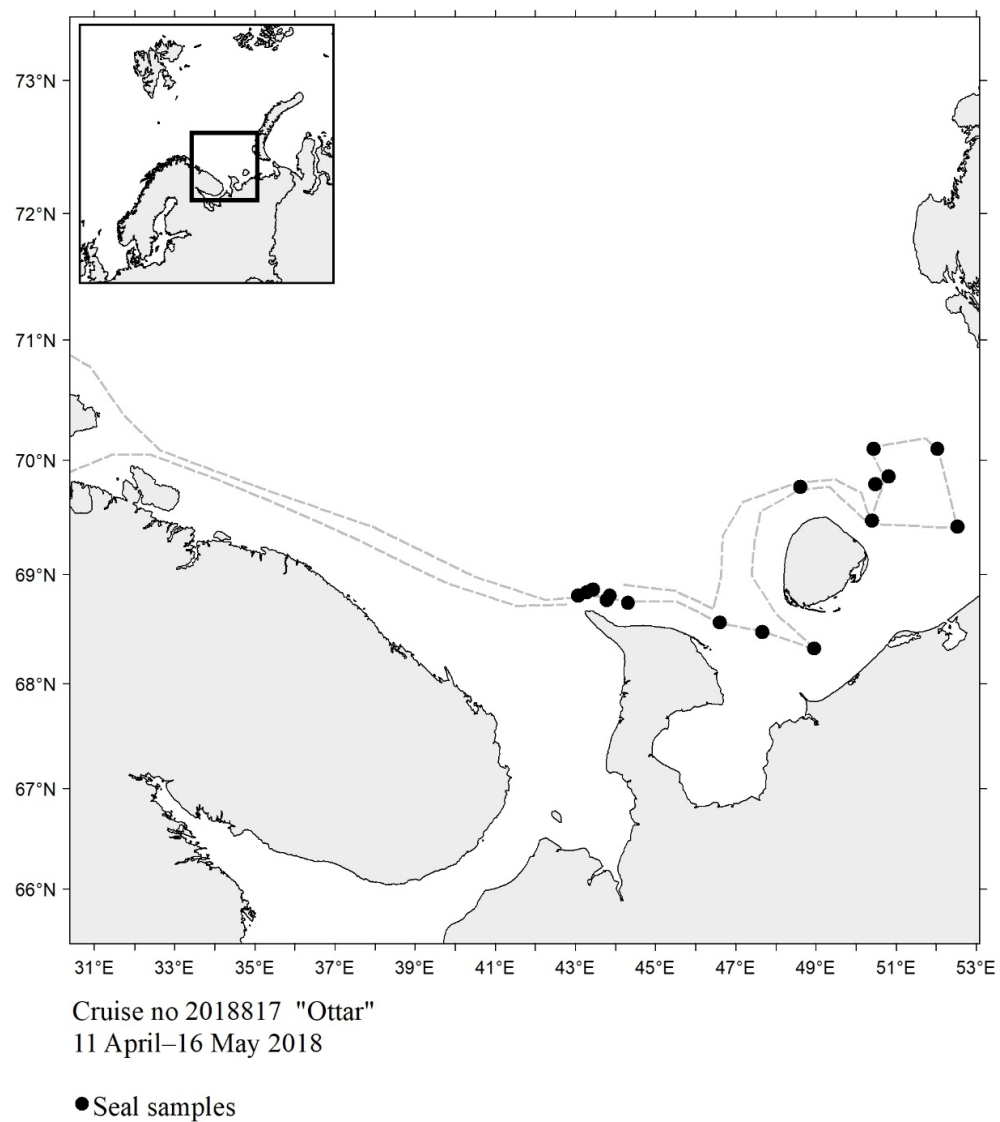


Fig. 126

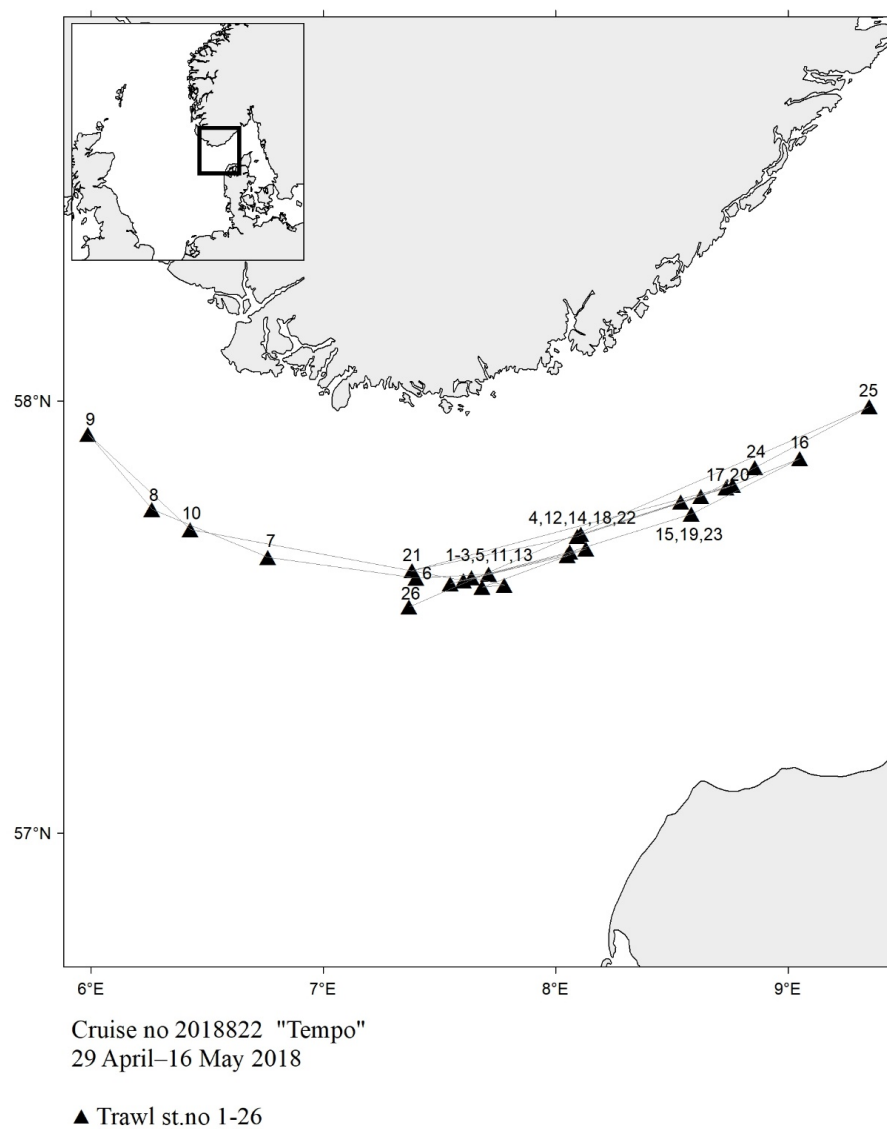
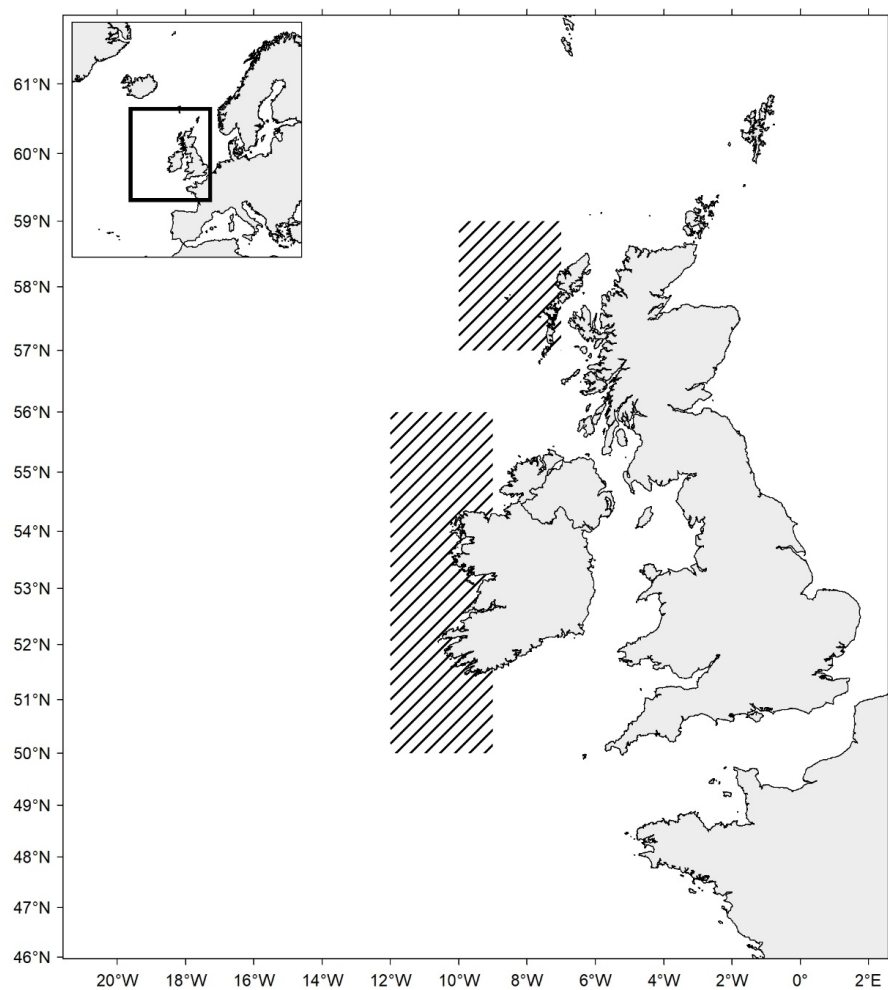


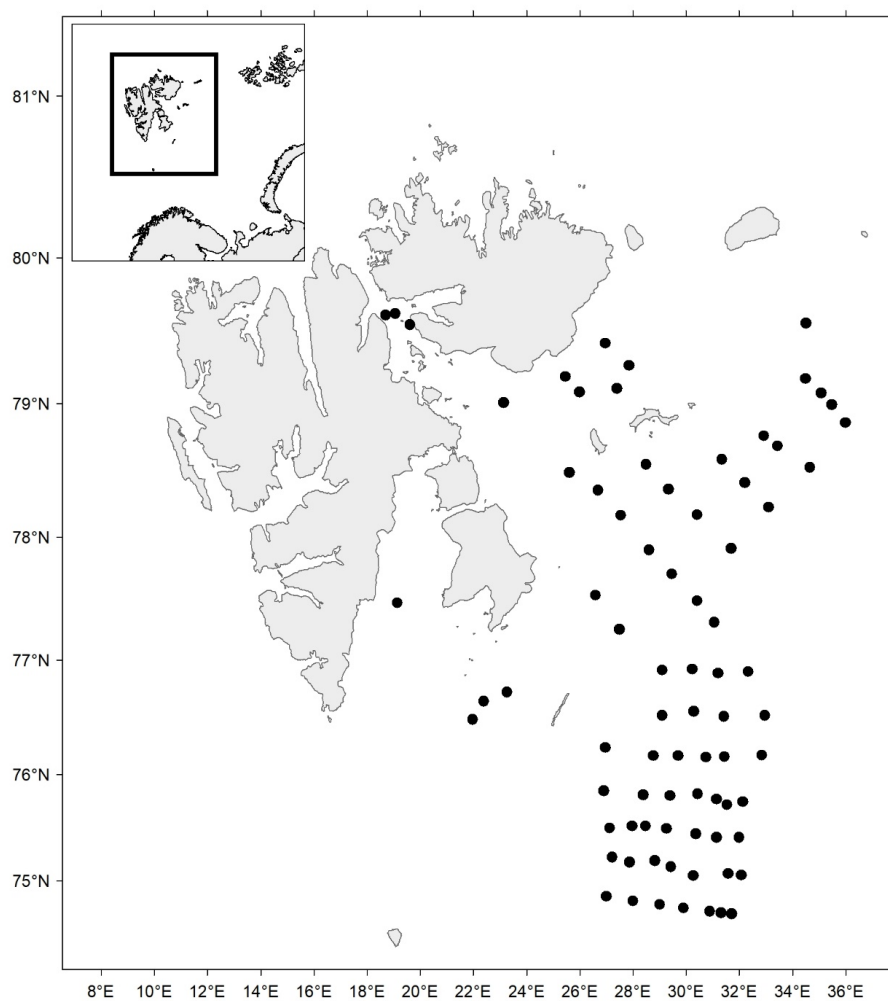
Fig. 127



Cruise no 2018828 "Fiskebas"
9 May–10 June 2018

Tagging of mackerel in the spawning areas west of Ireland and Scotland.

Fig. 128



Cruise no 2018805 "Prowess"
15 June–6 July 2018

● Snow crab traps

Fig. 129

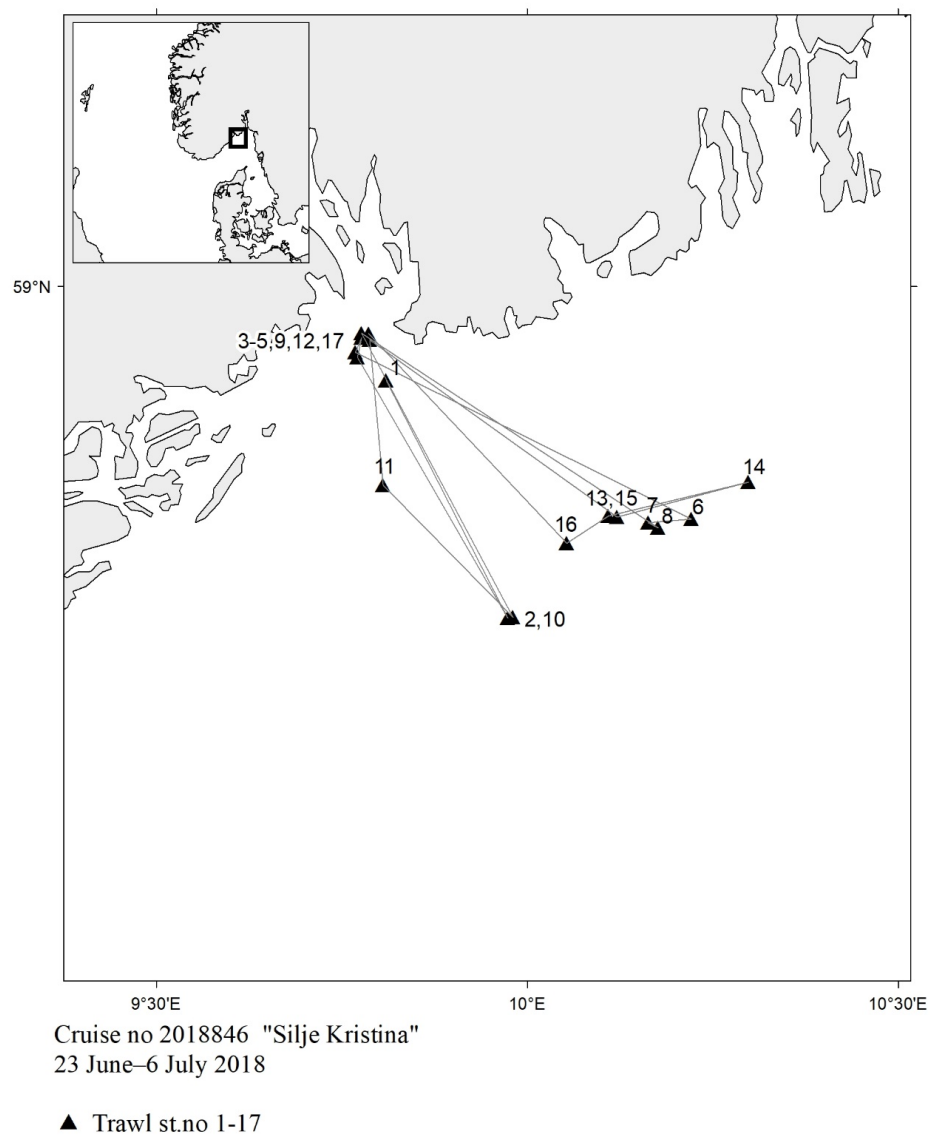
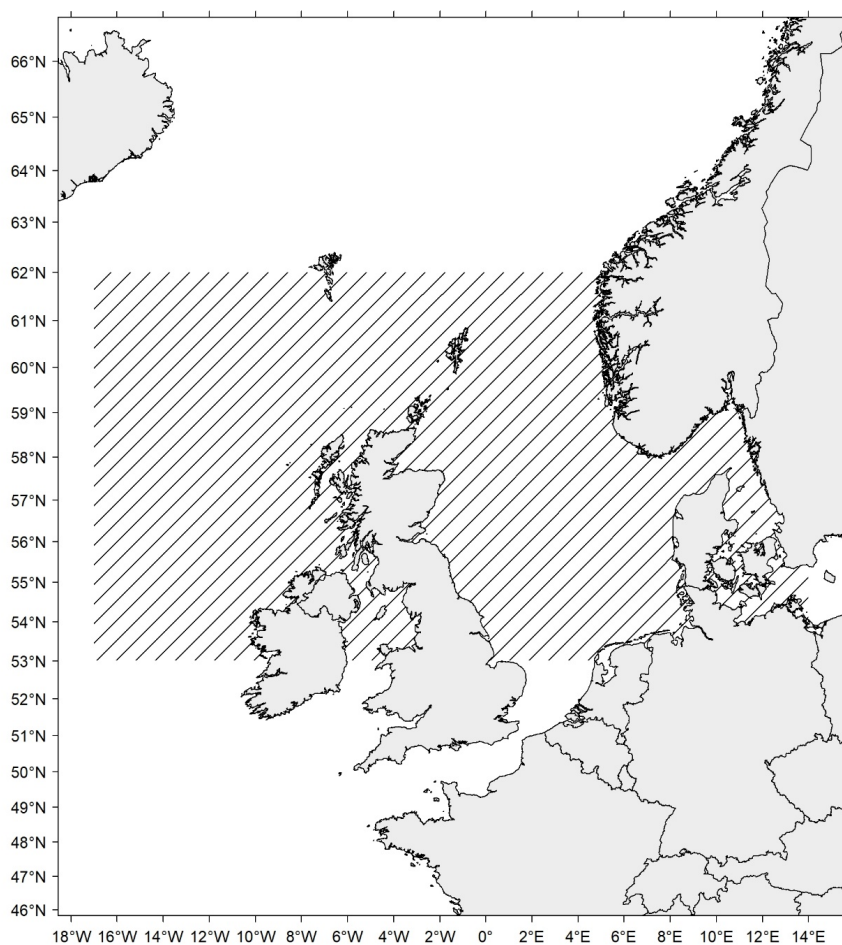


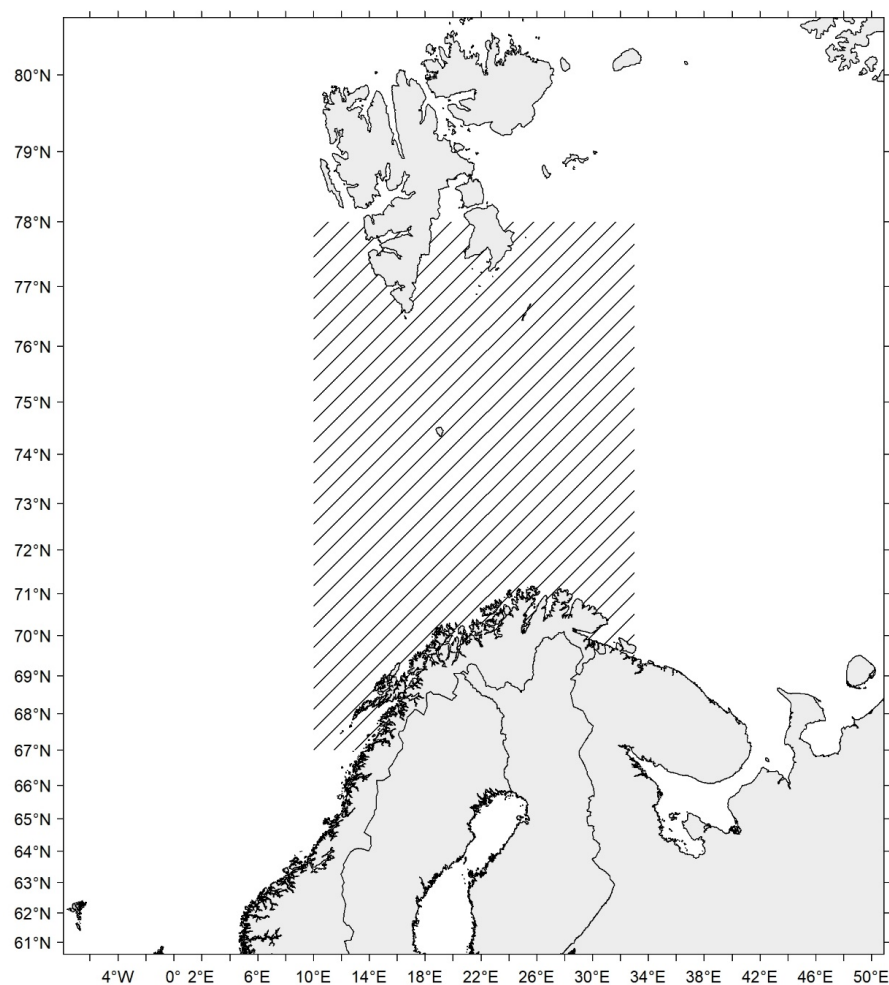
Fig. 130



Cruise no 2018833 "Acc Mosby"
26 June–20 August 2018

The objective of the cruise is to collect sightings information for estimating abundance of whales, especially minke whales, as part of a long-term survey program to cover the Northeast Atlantic over the years 2014-2019.

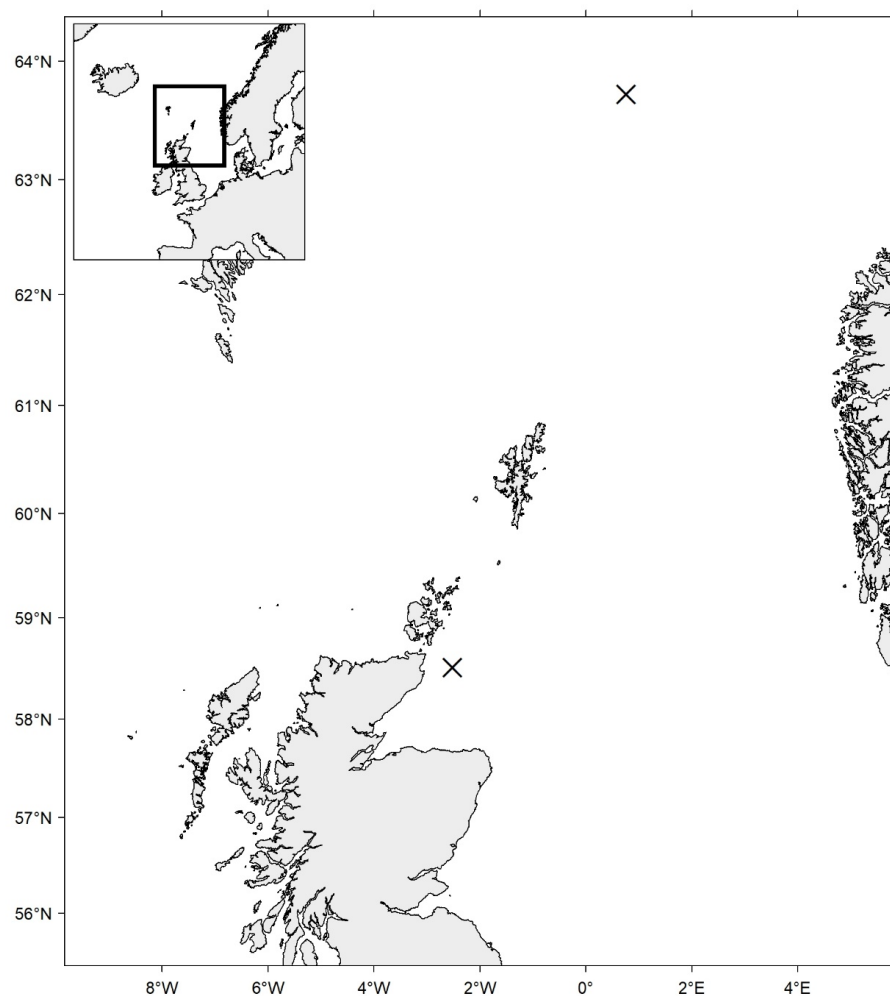
Fig. 131



Cruise no 2018834 "Acc Mosby"
31 August–13 September 2018

Whale tagging survey

Fig. 132



Cruise no 2018820 "Cristina E"
17 September–12 October 2018

× Catch monitoring probes in the purse seine

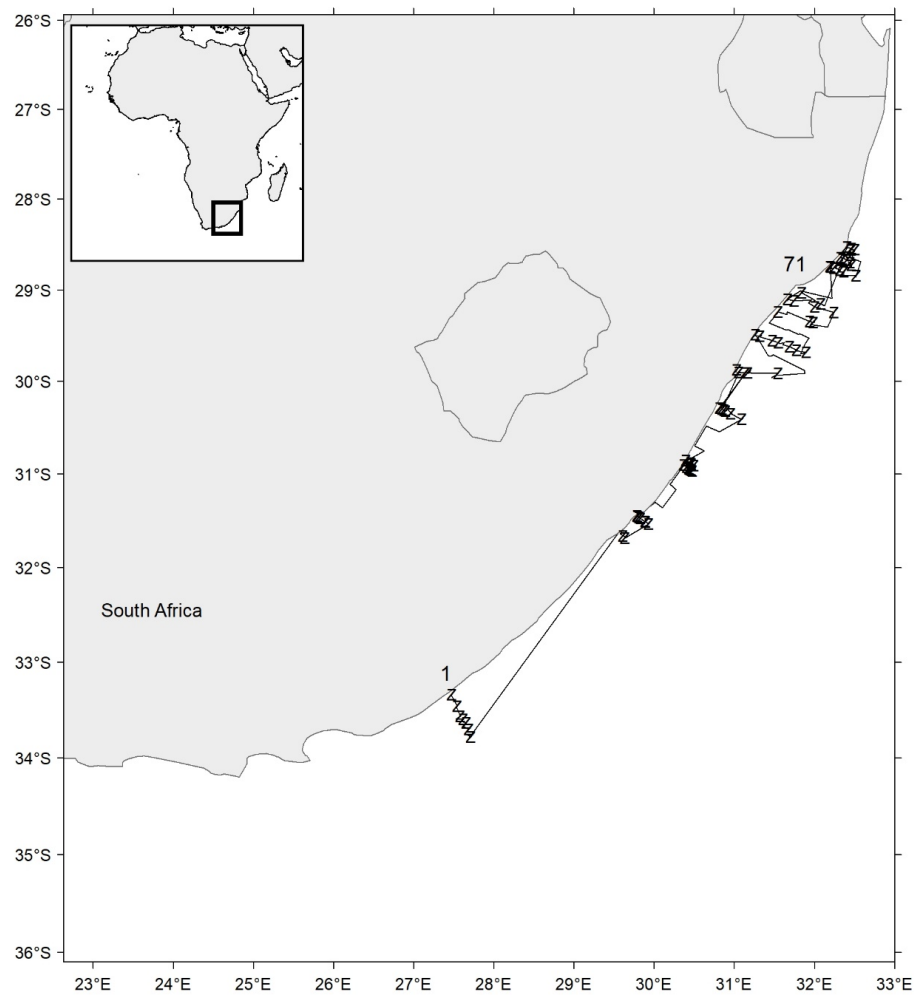
Fig. 133

14 - "Dr. Fridtjof Nansen" - (Ship code no 14). Cruises 2018.

Cruise no	Period	Purpose	Area	CTD st.no	Trawl st.no	Fig. no
2018401	20.1.-21.2.	Collect data that can provide information about the marine ecosystem (fish, plankton, water chemistry, currents, nutrients, whales and epibenthos).	North Atlantic Ocean	1-71	1-22	134-135
2018402	12.2.-19.3.	Collect data that can provide information about the marine ecosystem (fish, plankton, water chemistry, currents, nutrients, whales and epibenthos).	Indian Ocean	72-263	1-143	136-137
2018403	20.3.-4.4.	The cruise aimed to collect samples and information about the biodiversity and benthic habitats in 4 areas on the Northern coast of Mozambique. Samples for analysis of the levels of pollution in the sediments were collected. The samples will be analysed according to the OSPAR guidelines for monitoring the petroleum industry. Multi beam Eco-sounders will be used to fill gaps in our available bathymetric maps of this area. Hydrographic measurements and water sampling took place along the sailing route. Plankton, fish larvae and micro plastics were collected along the sailing tracks by use of a ship mounted Cufes pump that delivers 1,7 m2 from 2 meters depth. The chemical and biological baseline studies will be the basis for future environmental monitoring of the petroleum industry in this area.	Northern coast of Mozambique. From Pemba up to the border of Tanzania.	264-300	144-153	138-139
2018404	6.4.-18.4.	Collect data that can provide information about the marine ecosystem (fish, plankton, water chemistry, currents, nutrients, whales and epibenthos).	Indian Ocean	301-366	1-37	140-141
2018405	20.4.-2.5.	Collect data that can provide information about the marine ecosystem (fish, plankton, water chemistry, currents, nutrients, whales and epibenthos).	Indian Ocean	367-389	1-16	142-143
2018406	4.5.-2.6.	Habitat studies of the Mascarene bank. Investigation of geomorphology, physical and chemical oceanography and the ecosystems of the Saya de Malha and Nazareth Banks in the Western Indian Ocean. The cruise started in Victoria and ended in Port Louis, with detailed studies in the two bank areas.	Indian Ocean	390-444	1-18	144-145
2018407	7.6.-21.6.	Investigation of mesopelagic fish distribution, water chemistry, currents, plankton and microplastic along two transects between Mauritius and Sri Lanka in International waters. First transect eastwards from Port Louis to 11°S, 80°E, and second transect from 11°S, 80°E northwards to Colombo.	Indian Ocean	445-460	1-8	146-147
2018408	24.6.-15.7.	Establish a baseline survey of the marine ecosystem of the coast of Sri Lanka.	Indian Ocean of Bay of Bengal	461-597	1-85	148-149
2018409	19.7.-31.7	Map the concentration of mesopelagic fish and environmental conditions in the Bay of Bengal.	Indian Ocean of Bay of Bengal	598-615		150
2018410	2.8.-17.8.	Map the concentration of mesopelagic fish and environmental conditions in the Bay of Bengal.	Indian Ocean of Bay of Bengal	616-653	1-42	151-152

2018411	24.8.- 29.9.	Study the egg and larvae concentration and distribution along the coast of Myanmar.	Indian Ocean Bay of Bengal	655- 871	1-55	153- 154
2018412	1.10.- 15.10.	Map the deepsea resources in the Andaman sea.	Andaman Sea	872- 925	1-55	155- 156
2018413	18.10.- 8.11.	Underway survey.	Indian Ocean	-	-	-

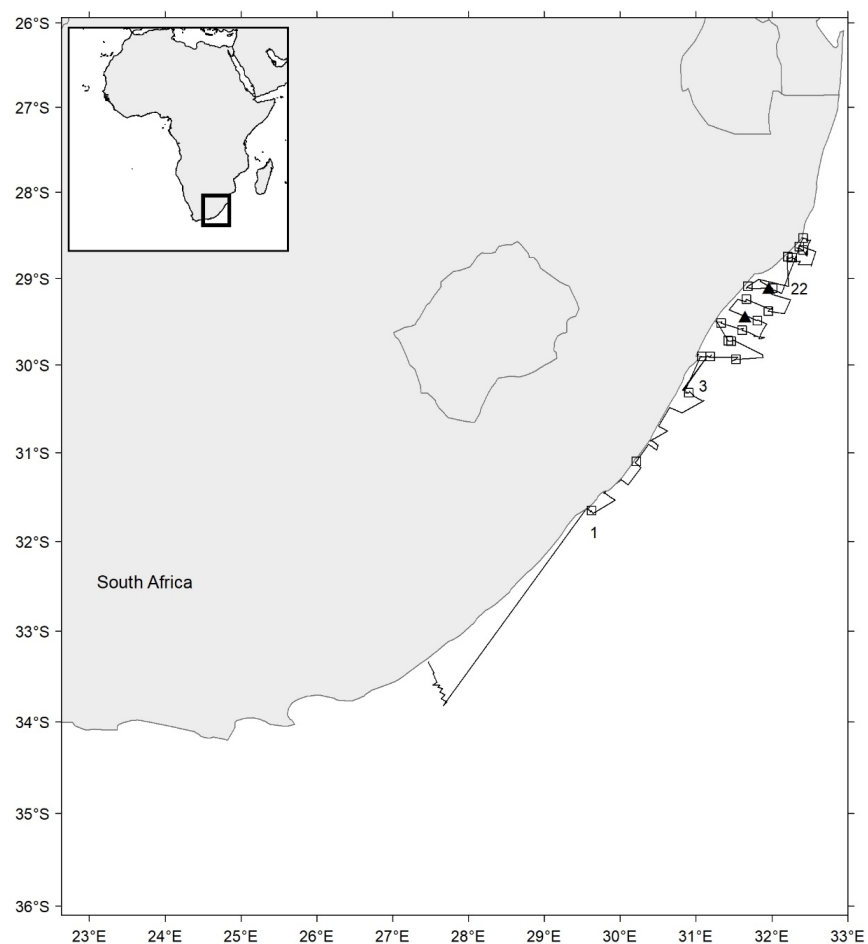
15 - "Dr. Fridtjof Nansen" charts for cruises 2018



Cruise no 2018401 "Dr. Fridtjof Nansen" (Chart 1)
20 Jan-10 Feb 2018

z CTD and plankton (several gears) st.no 1-71

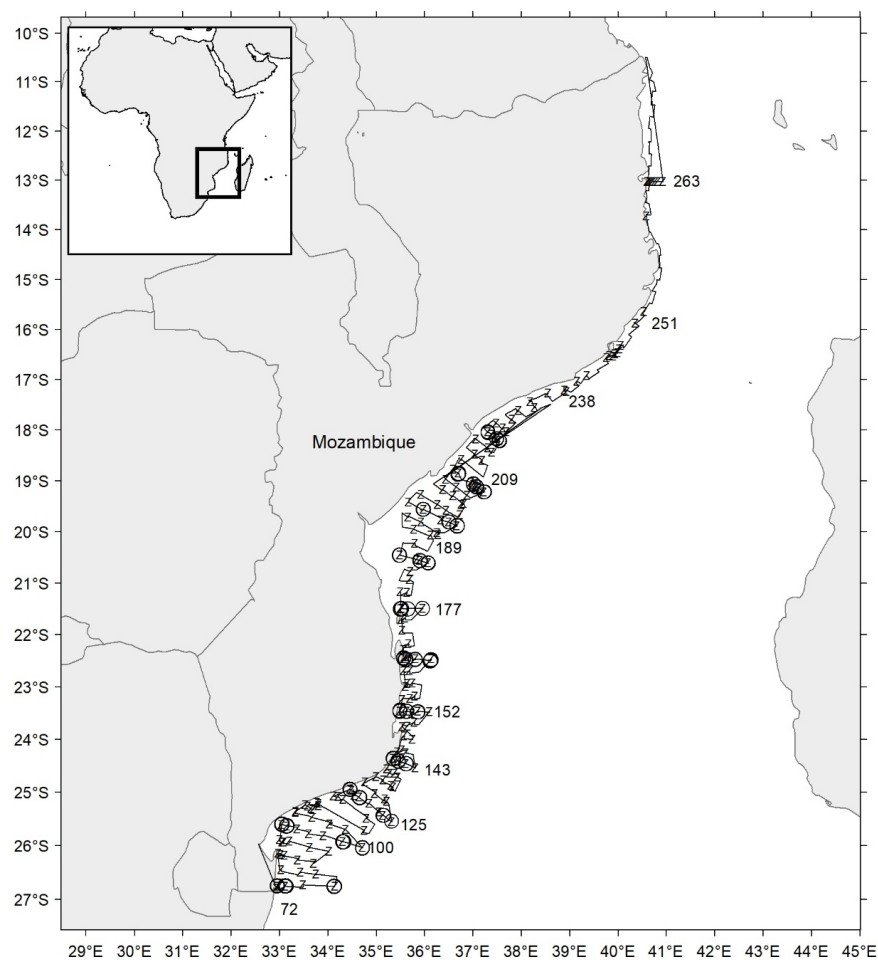
Fig. 134



Cruise no 2018401 "Dr. Fridtjof Nansen" (Chart II)
20 Jan-10 Feb 2018

Trawl st.no 1-22
▲ Pelagic trawl
□ Bottom trawl

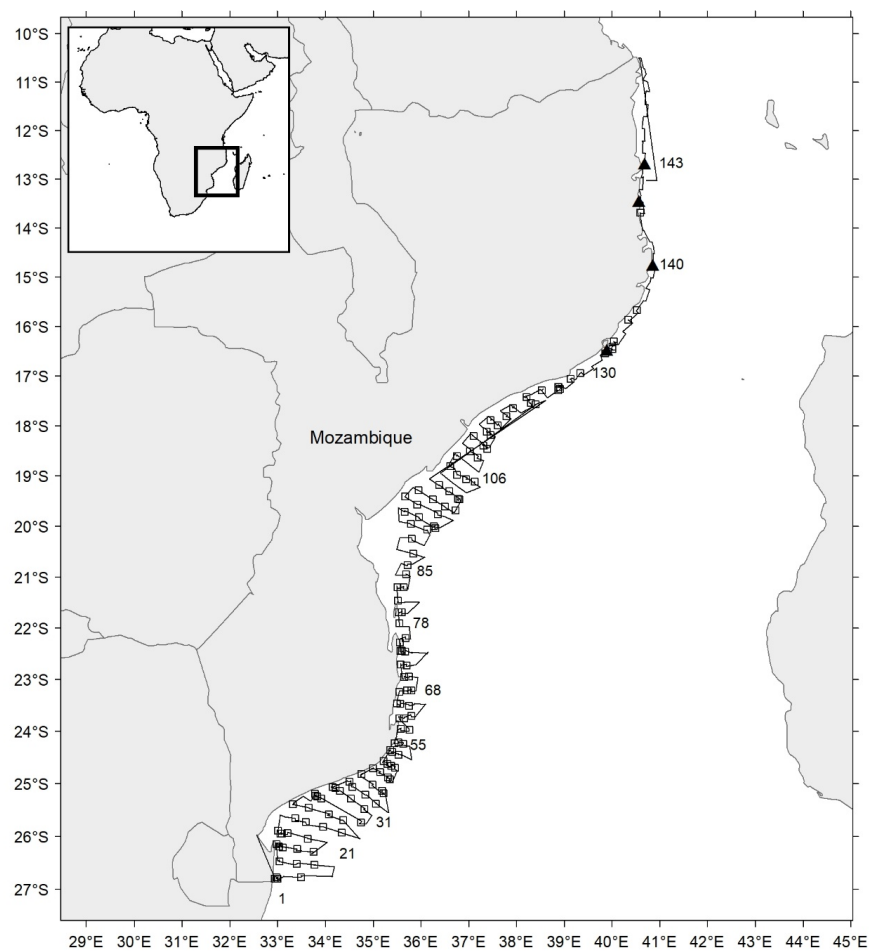
Fig. 135



Cruise no 2018402 "Dr. Fridtjof Nansen" (Chart 1)
12 February–18 March 2018

z CTD st.no 72-263
○ Plankton st. (several gears)

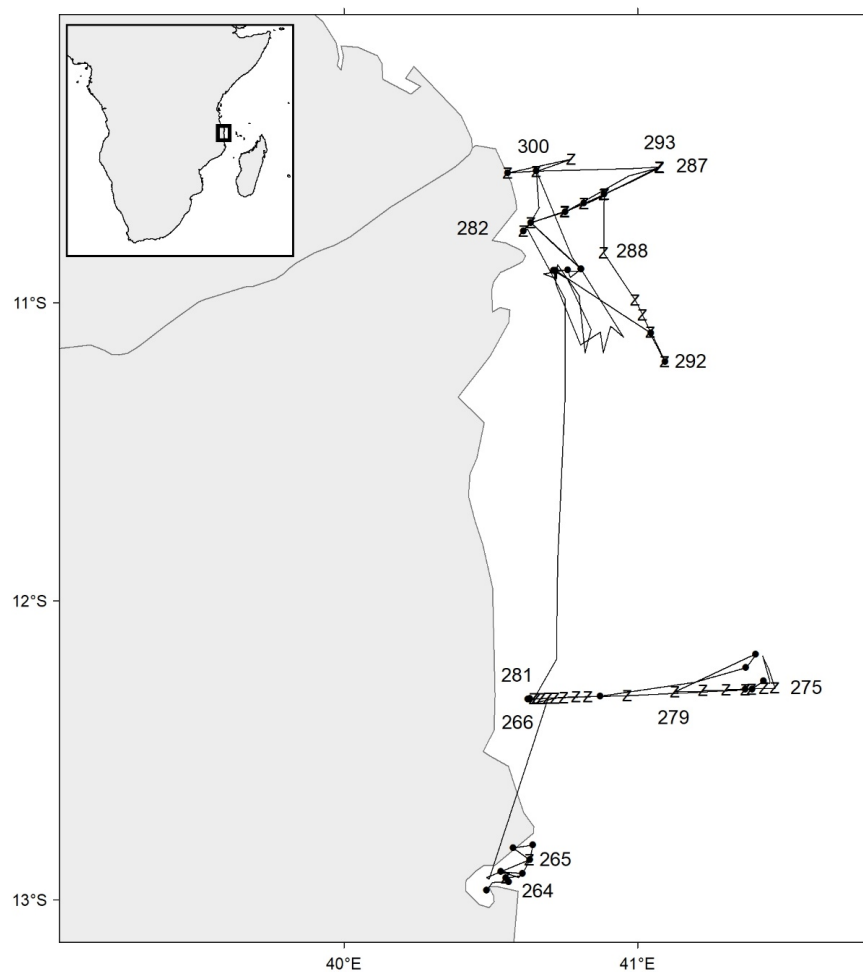
Fig. 136



Cruise no 2018402 "Dr. Fridtjof Nansen" (Chart II)
12 February-18 March 2018

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

Fig. 137

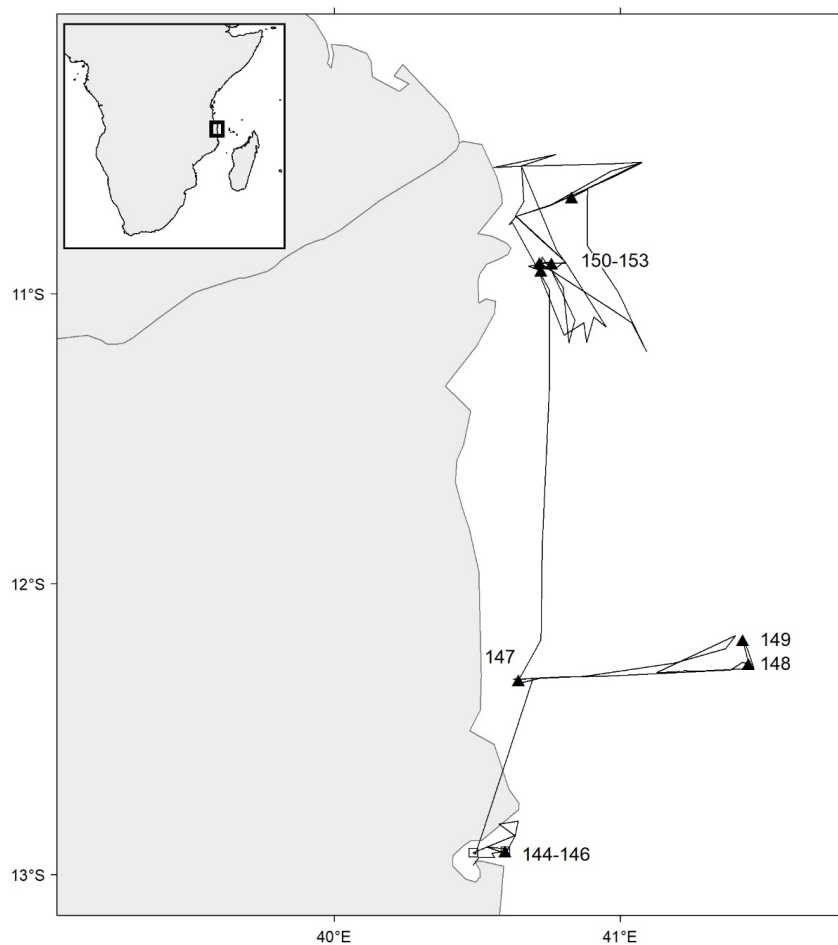


Cruise no 2018403 "Dr. Fridtjof Nansen" (Chart 1)
20 March–4 April 2018

z CTD st.no 264-300

● Vams st. (Video assisted multi sampler)

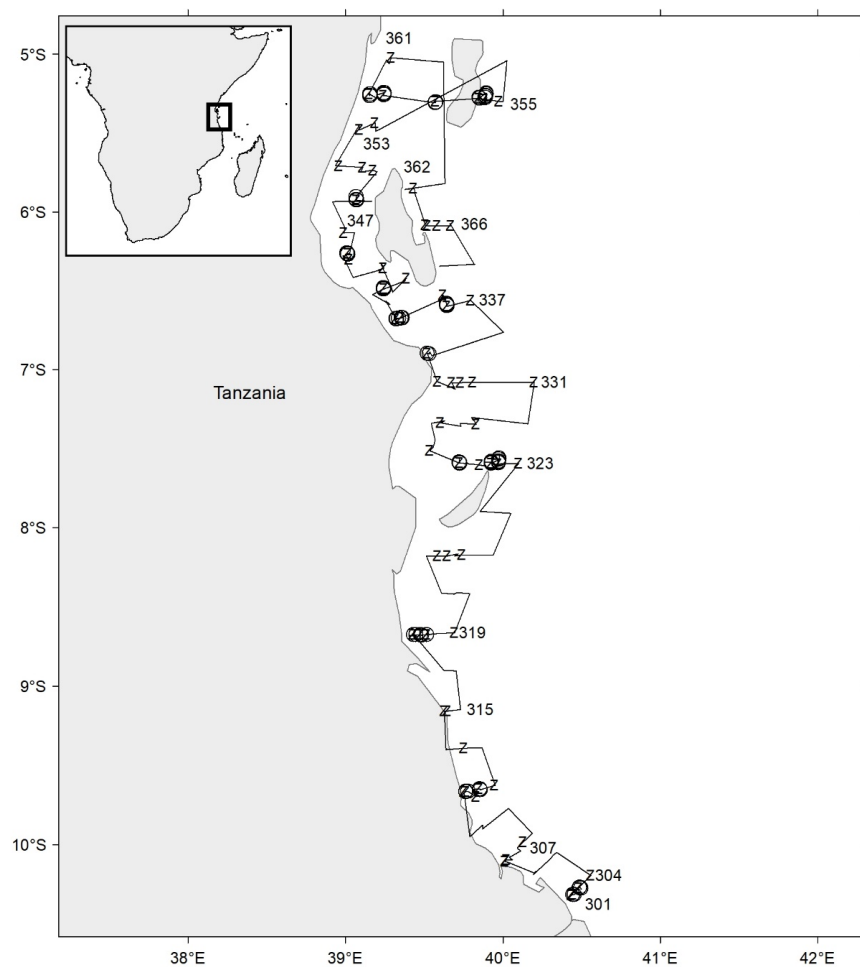
Fig. 138



Cruise no 2018403 "Dr. Fridtjof Nansen" (Chart II)
20 March–4 April 2018

Trawl st.no 144-153
□ Bottom trawl
▲ Pelagic trawl

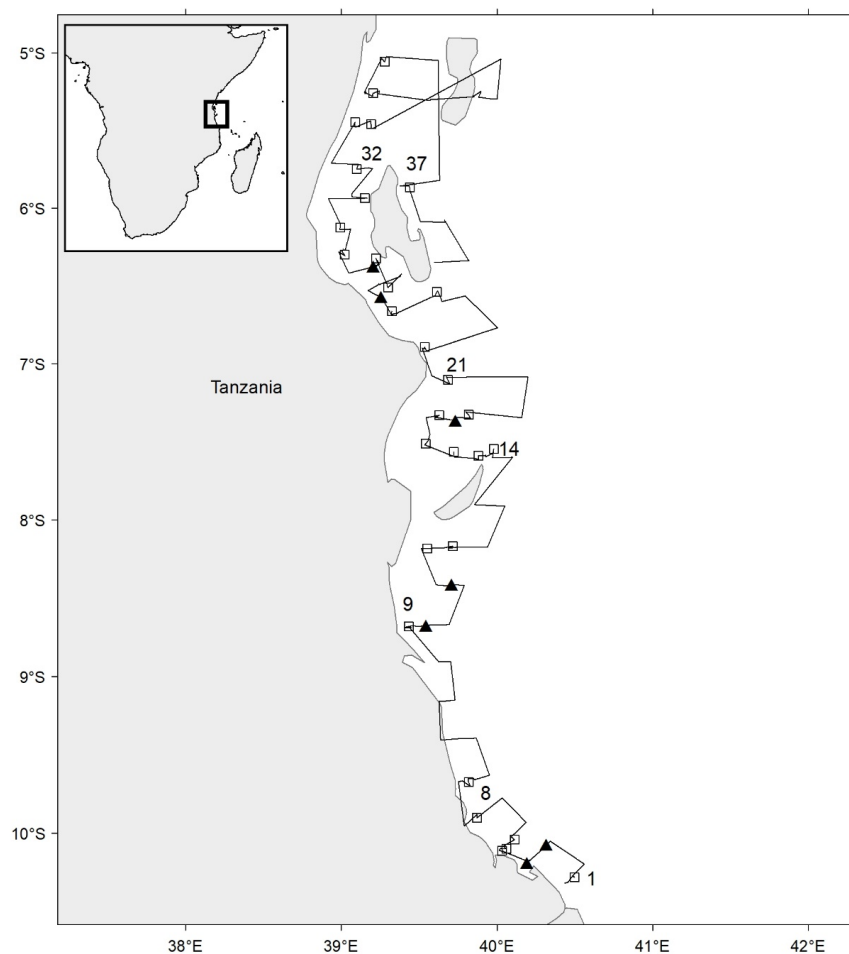
Fig. 139



Cruise no 2018404 "Dr. Fridtjof Nansen" (Chart 1)
6–18 April 2018

z CTD st.no 301-366
o Plankton st. (several gears)

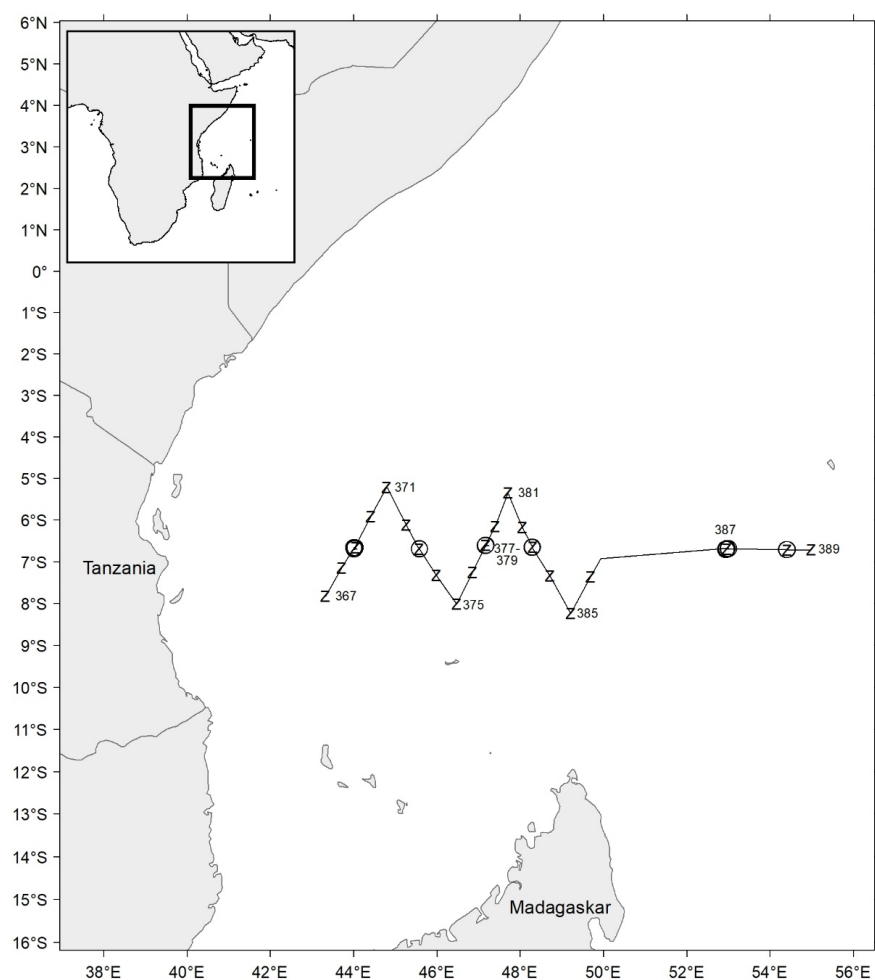
Fig. 140



Cruise no 2018404 "Dr. Fridtjof Nansen" (Chart II)
6-18 April 2018

Trawl st. no 1-37
□ Bottom trawl
▲ Pelagic trawl

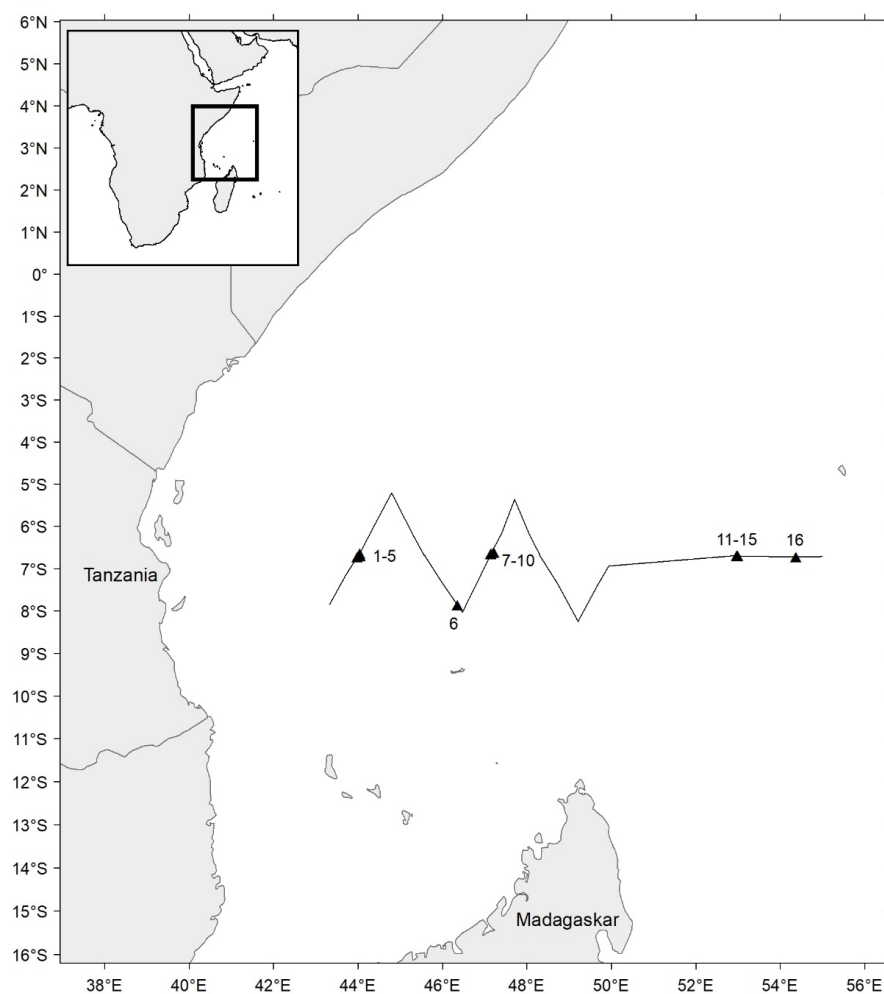
Fig. 141



Cruise no 2018405 "Dr. Fridtjof Nansen" (Chart 1)
20 April–2 May 2018

z CTD st.no 367-389
o Plankton st. (several gears)

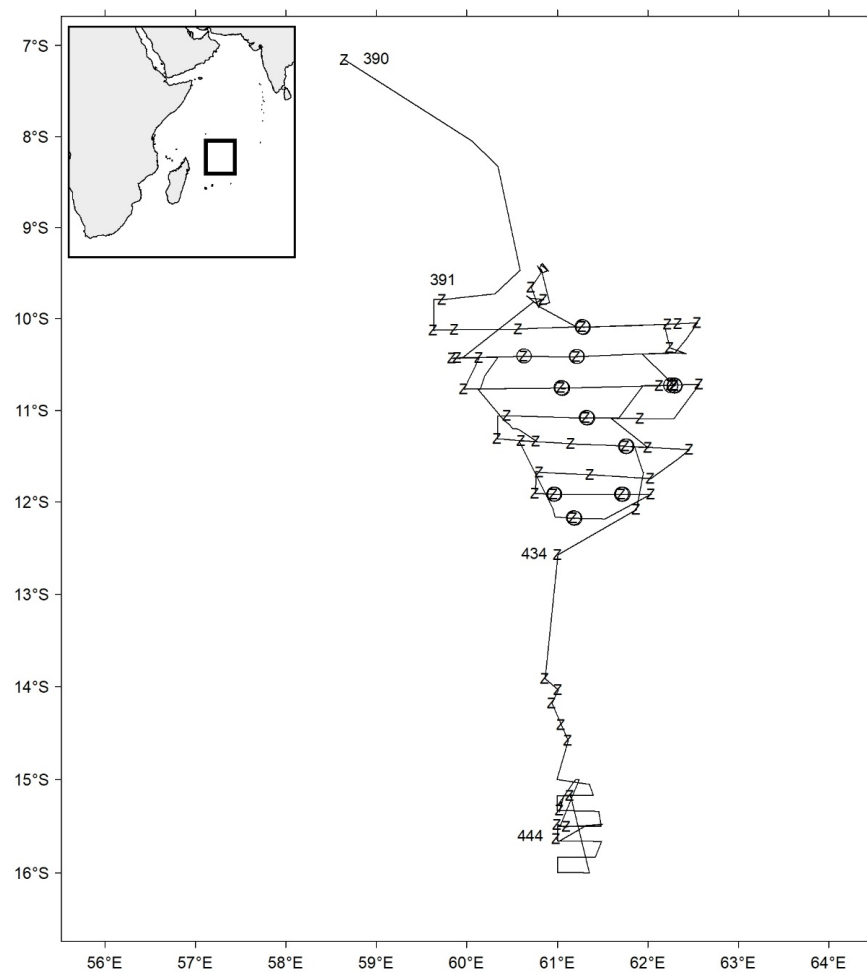
Fig. 142



Cruise no 2018405 "Dr. Fridtjof Nansen" (Chart II)
20 April–2 May 2018

▲ Pelagic trawl st.no 1-16

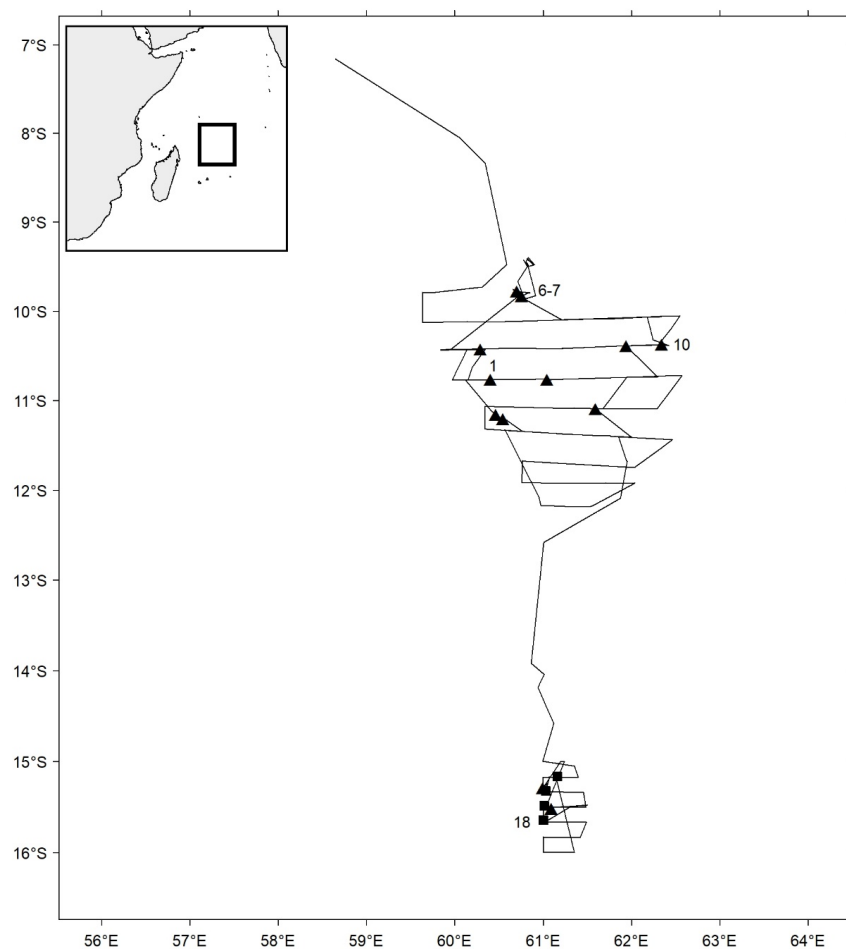
Fig. 143



Cruise no 2018406 "Dr. Fridtjof Nansen" (Chart I)
4 May–2 June 2018

z CTD st.no 390-444
○Plankton st. (Several gears)

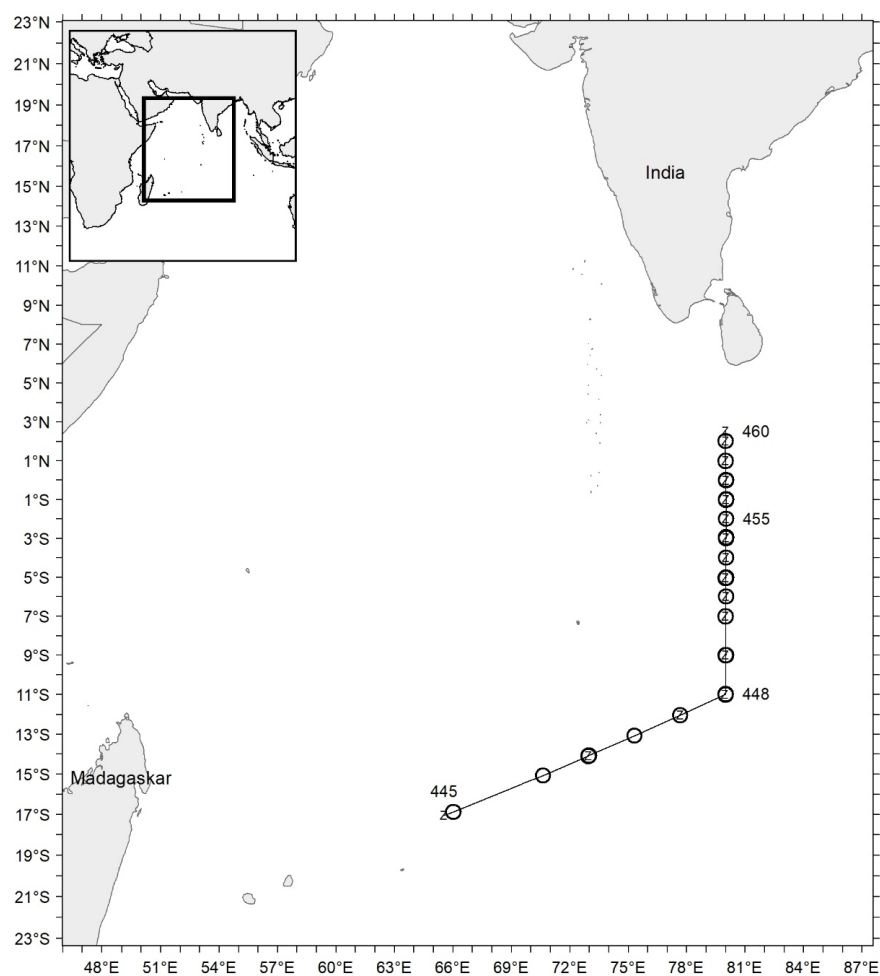
Fig. 144



Cruise no 2018406 "Dr. Fridtjof Nansen" (Chart II)
4 May–2 June 2018

Trawl st.no 1-18
 ■ Bottom tr.
 ▲ Pelagic tr.

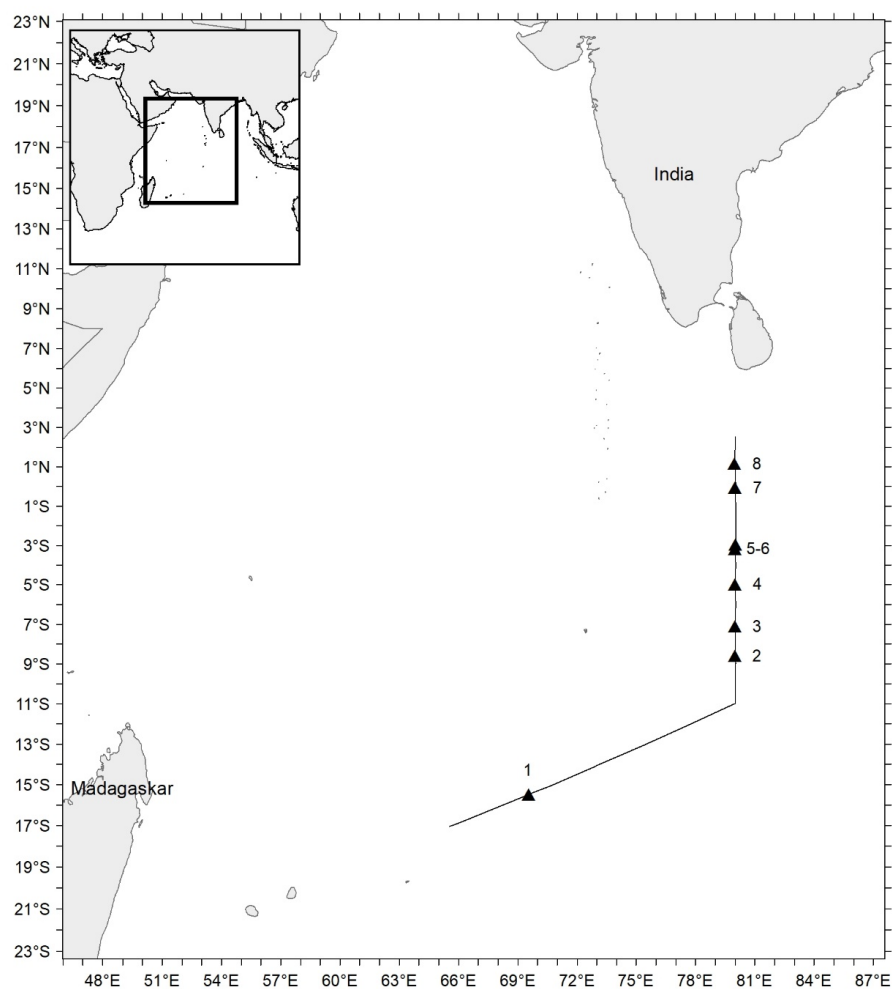
Fig. 145



Cruise no 2018407 "Dr. Fridtjof Nansen" (Chart I)
7-21 June 2018

z CTD st.no 445-460
○ Plankton st. (several gears)

Fig. 146



Cruise no 2018407 "Dr. Fridtjof Nansen" (Chart II)
7-21 June 2018

▲ Pelagic trawl st.no 1-8

Fig. 147

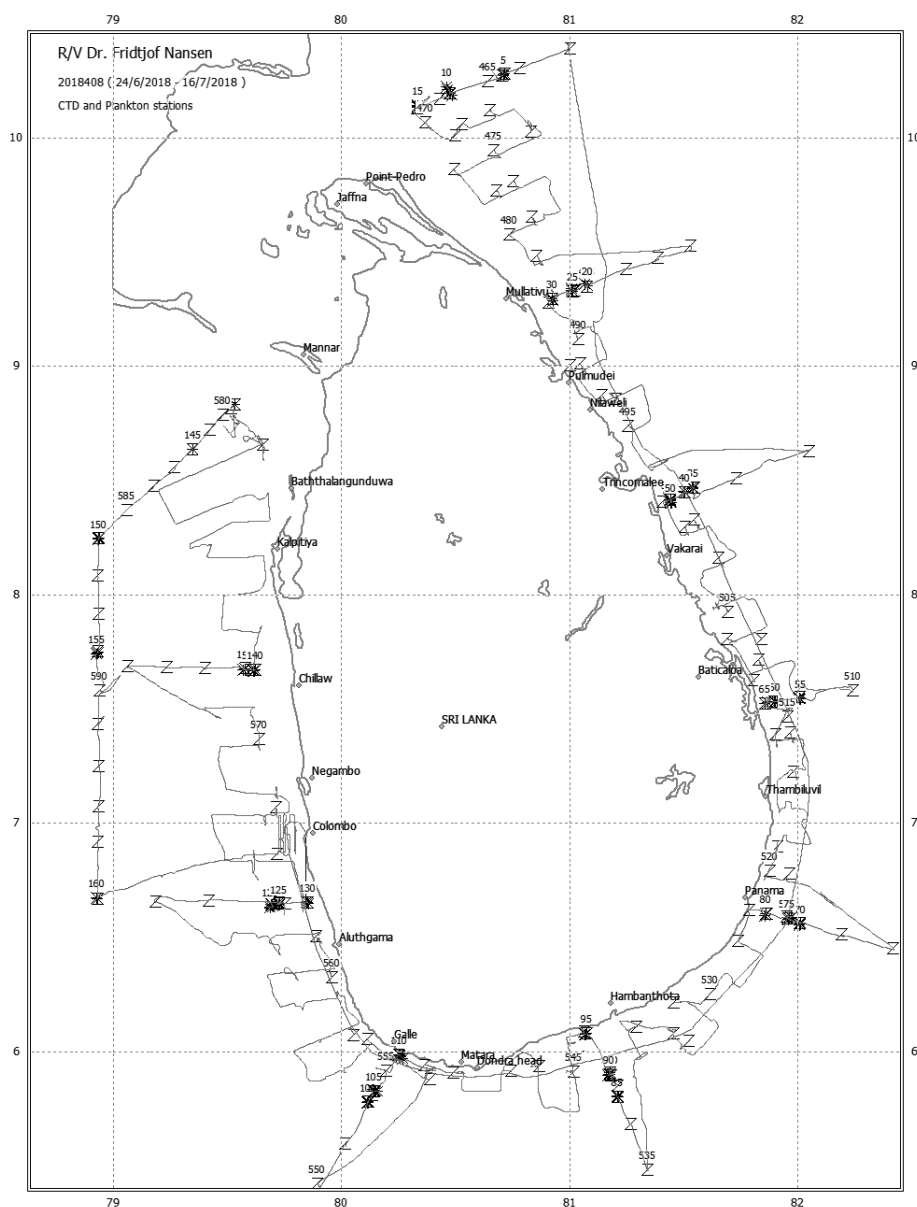


Fig. 148

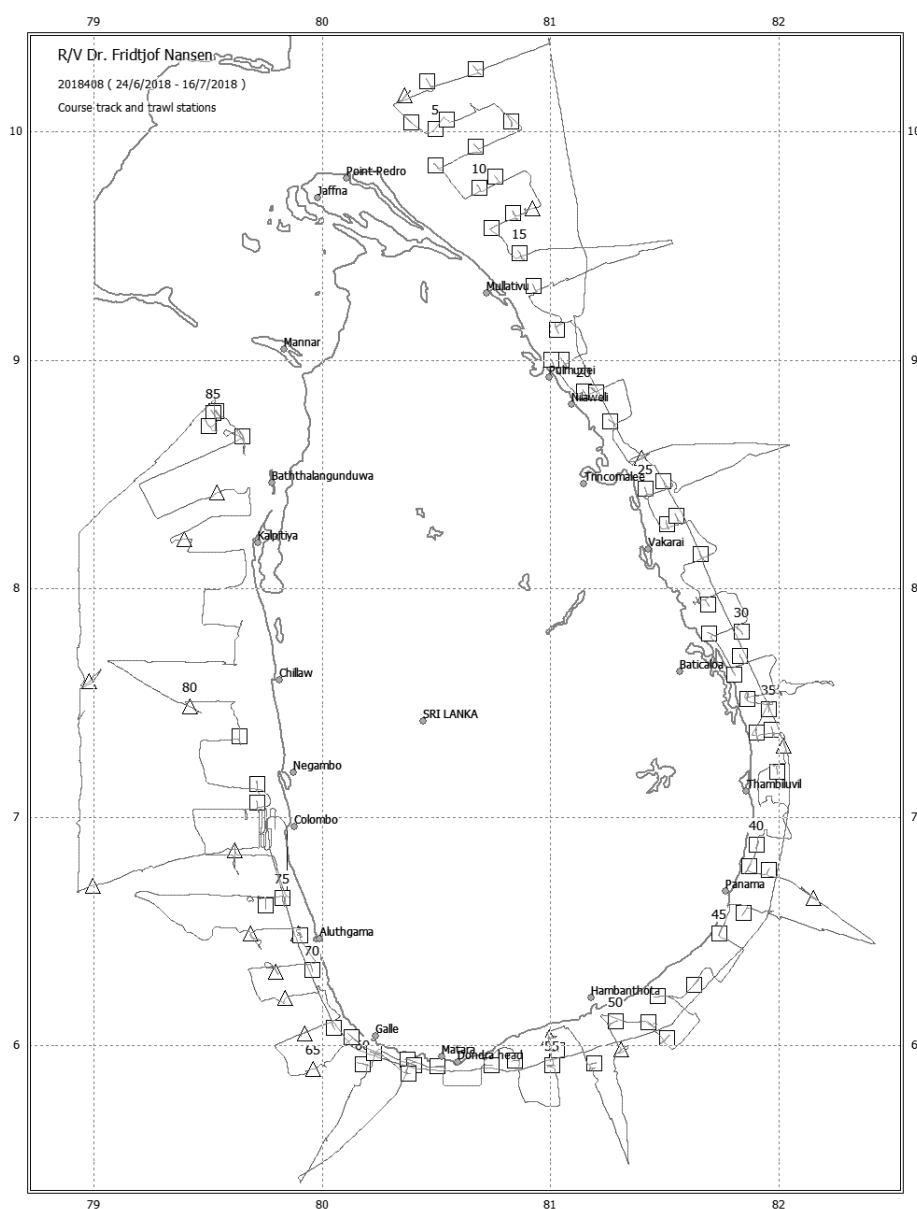
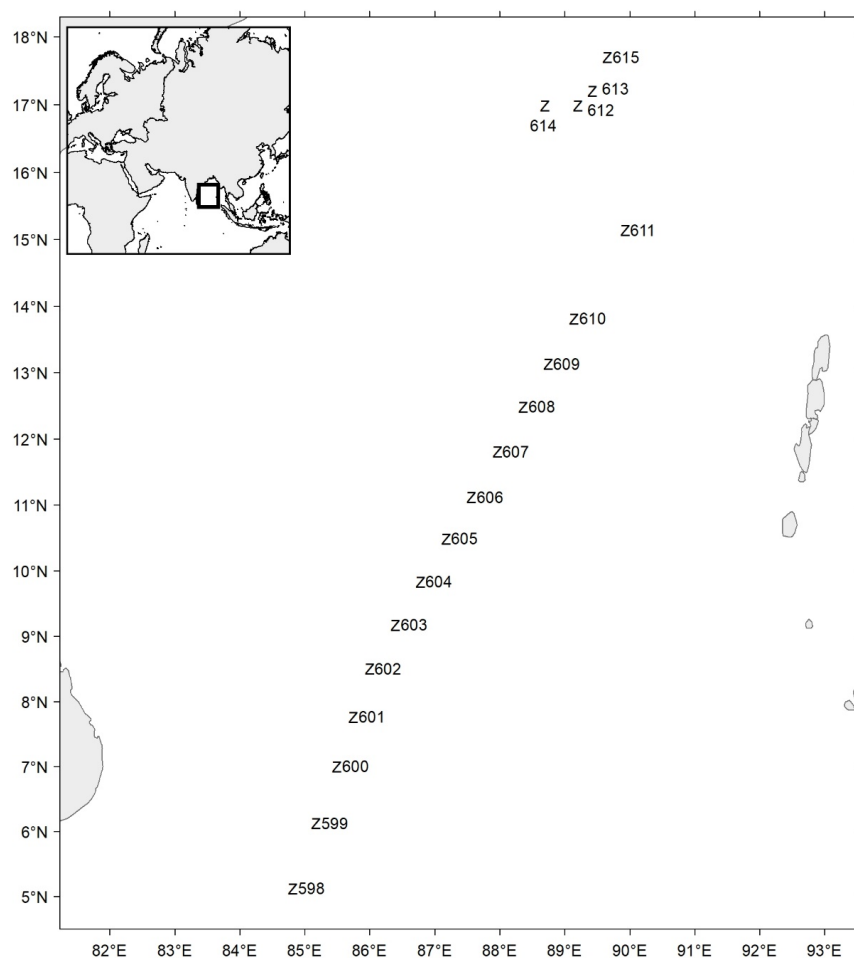


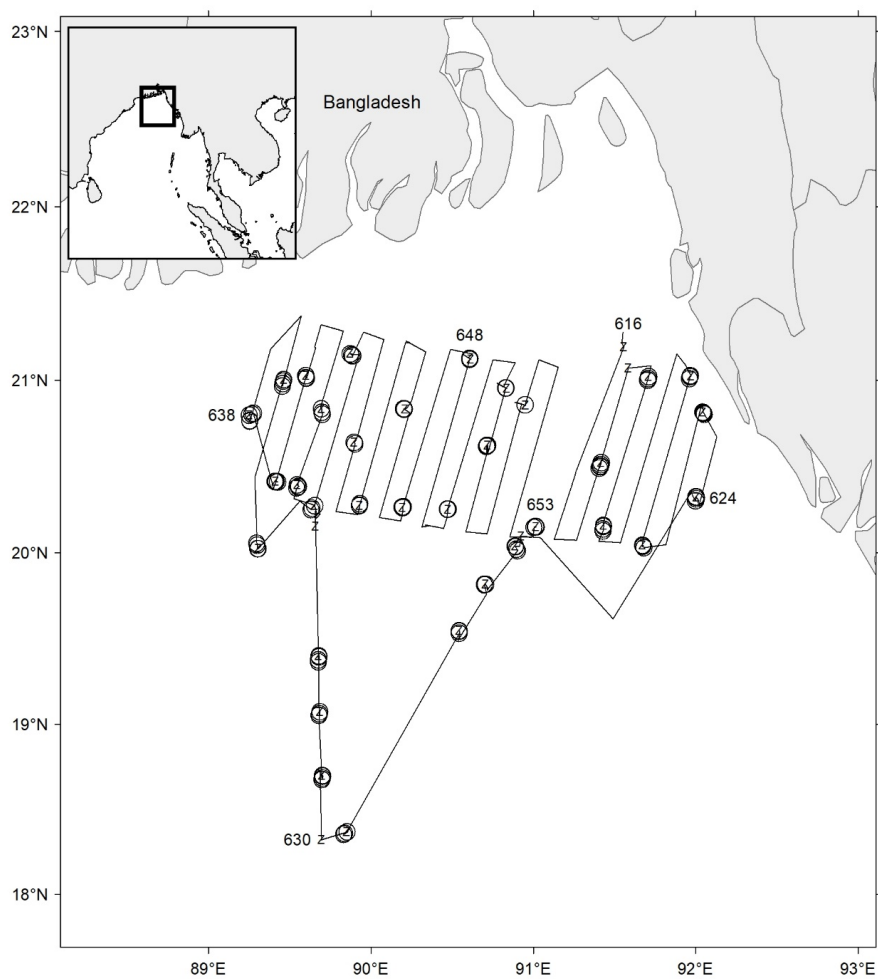
Fig. 149



Cruise no 2018409 "Dr. Fridtjof Nansen"
19–31 July 2018

z CTD st.no 598-615
Trawl stations and plankton st. (several gears) not shown

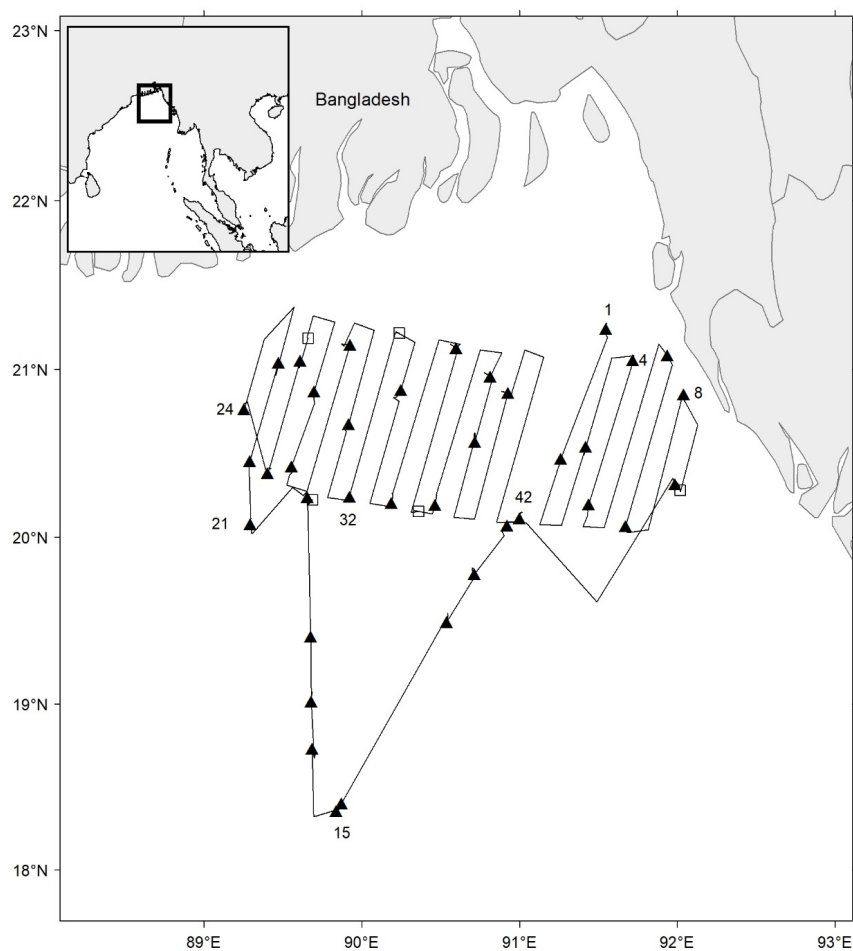
Fig. 150



Cruise no 2018410 "Dr. Fridtjof Nansen" (Chart I)
2-17 August 2018

z CTD st.no 616-653
○ Plankton st. (several gears)

Fig. 151



Cruise no 2018410 "Dr. Fridtjof Nansen" (Chart II)
2-17 August 2018

Trawl st.no 1-42
▲ Pelagic tr.
□ Bottom tr.

Fig. 152

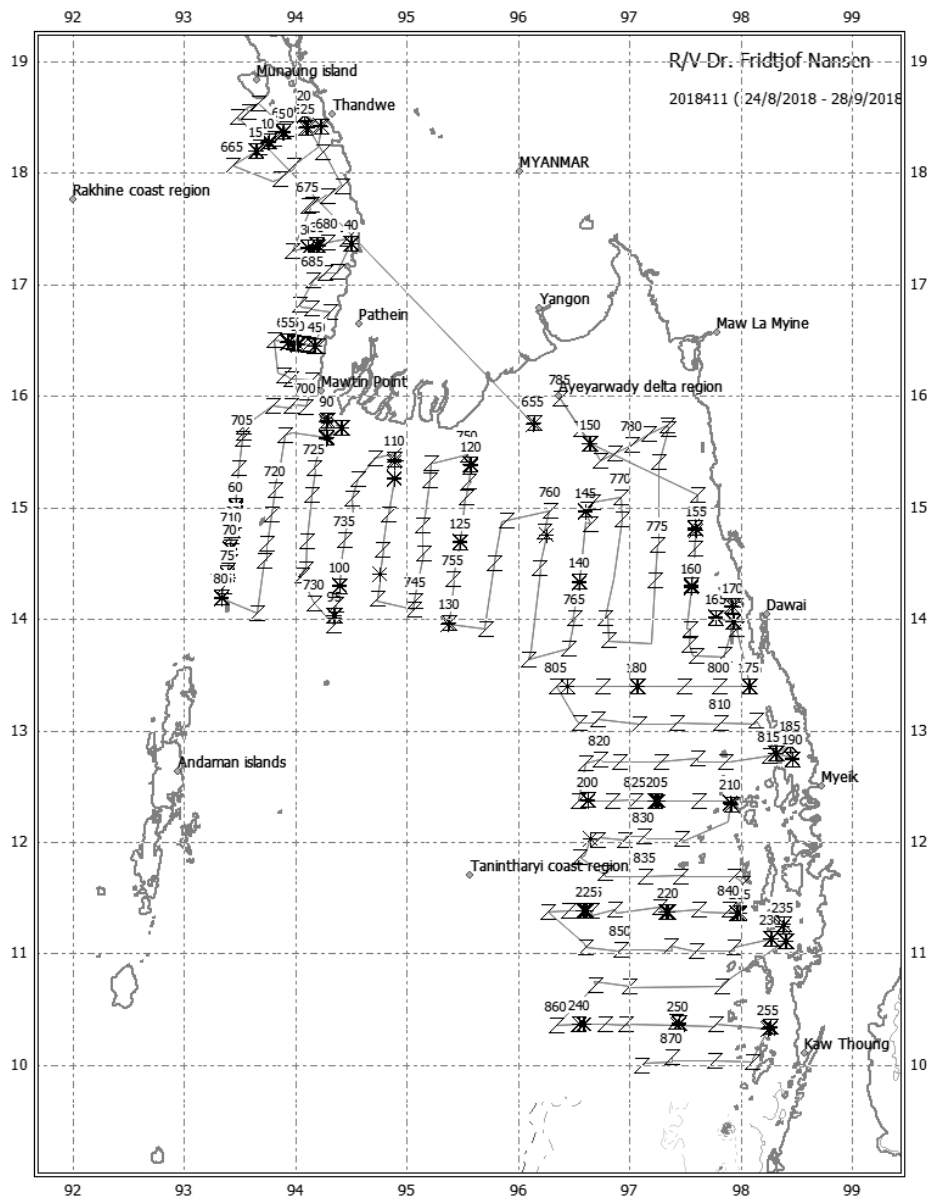


Fig. 153

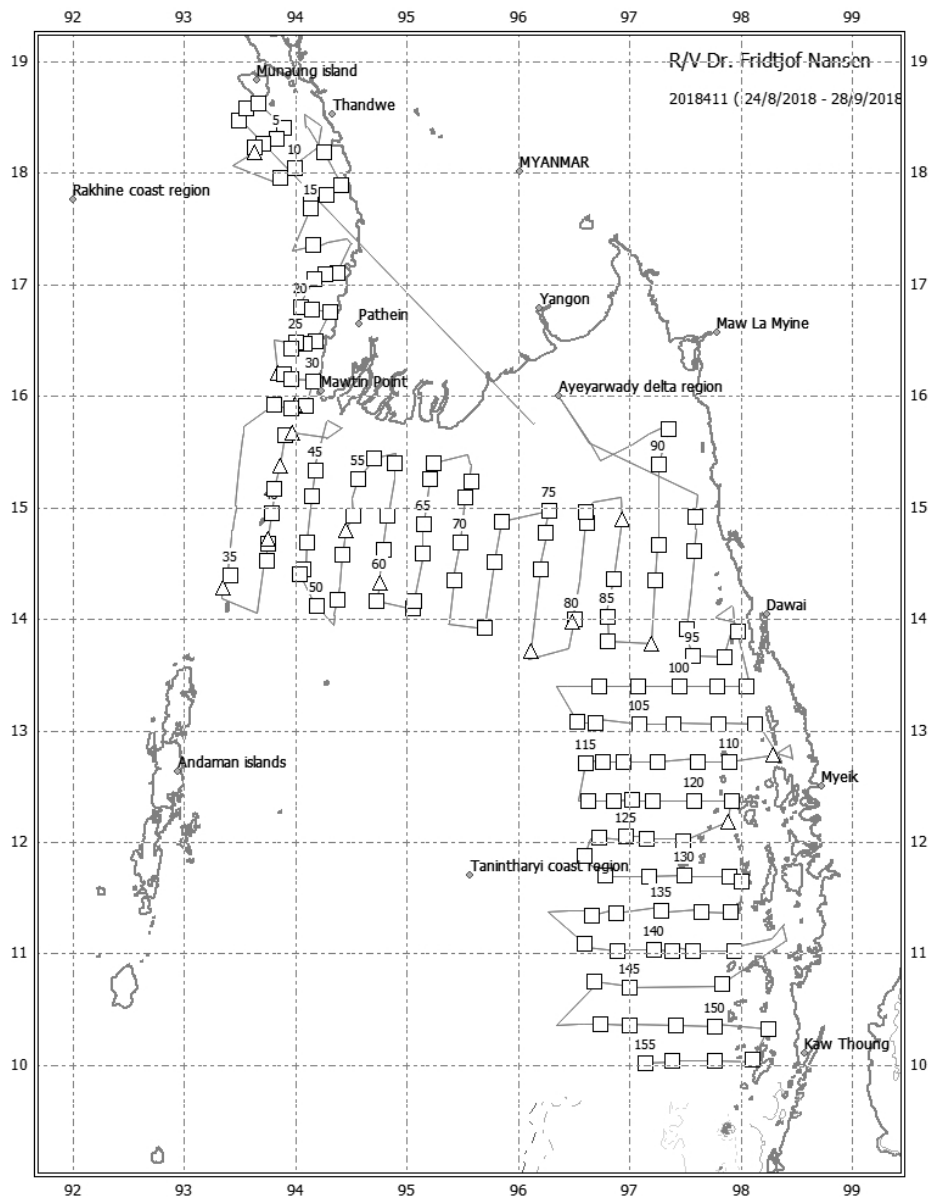
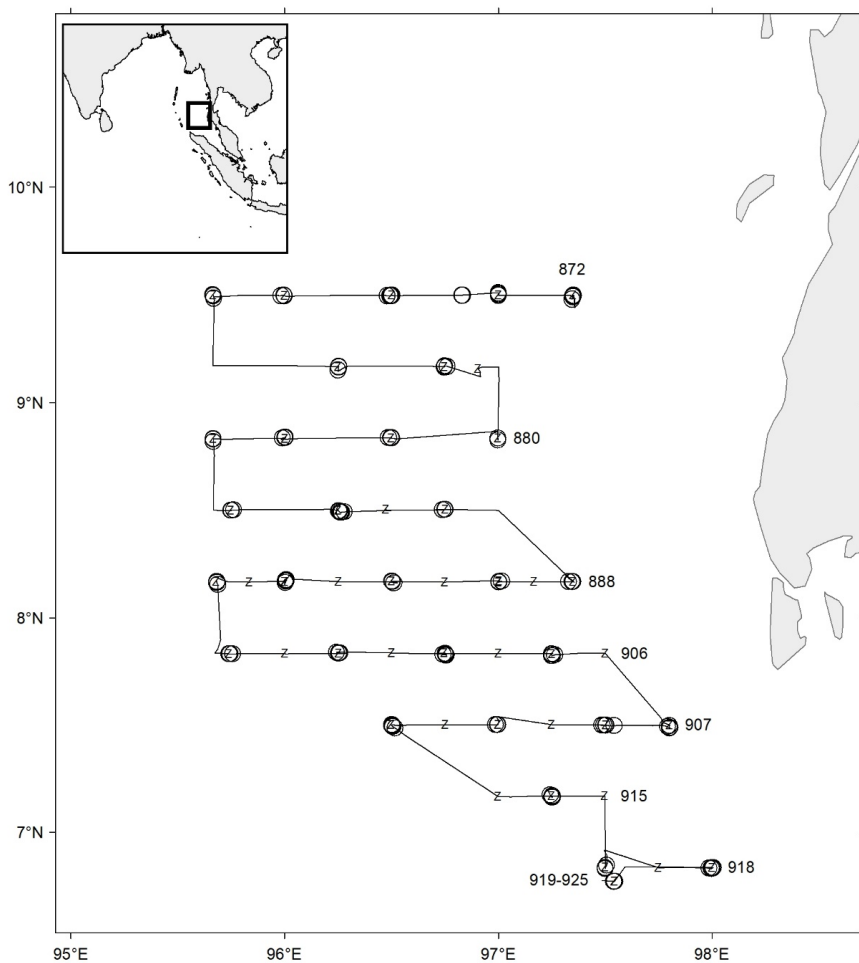


Fig. 154

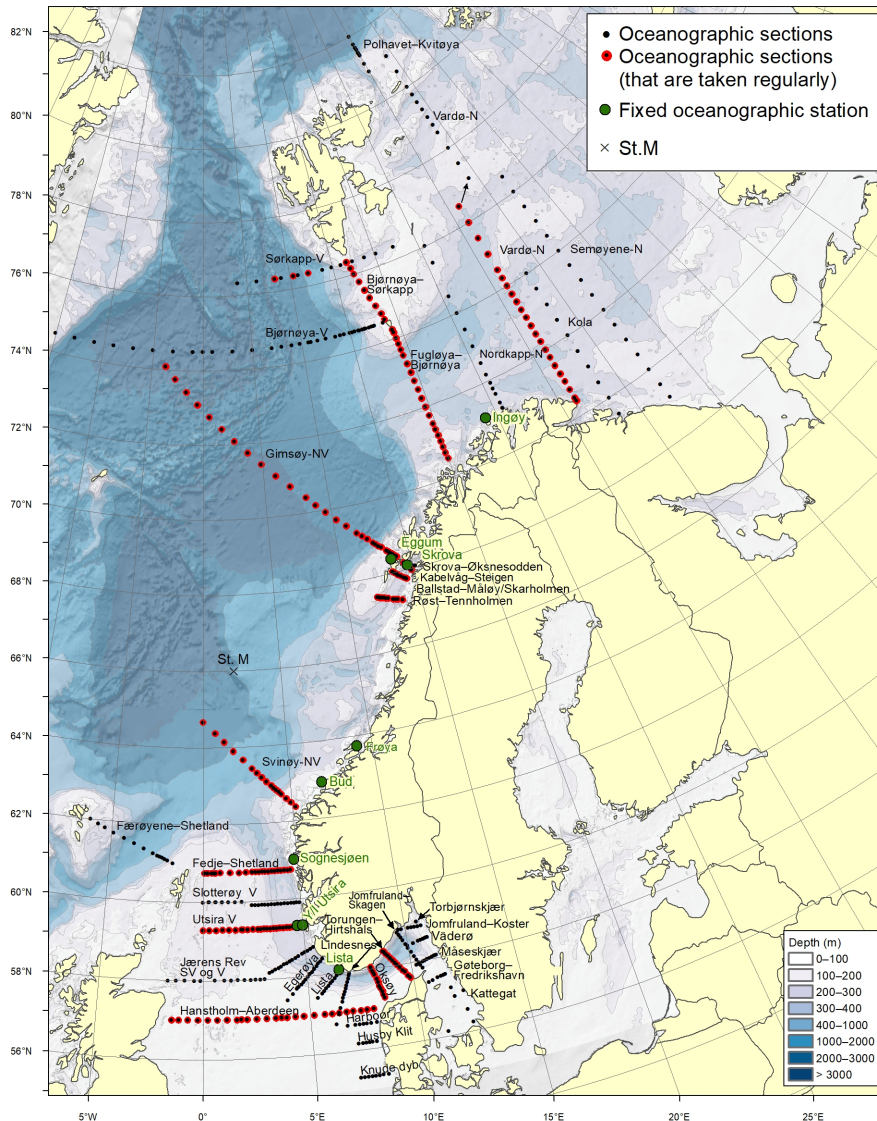


Cruise no 2018412 "Dr. Fridtjof Nansen" (Chart I)
1–15 October 2018

z CTD st.no 872-925
○ Plankton st. (several gears)

Fig. 155

16 - Map showing Oceanographic sections and Fixed oceanographic stations.



17 - Oceanographic sections and fixed oceanographic stations – Observations in 2018.

Oceanographic sections 2018 (Cruise no)

Area	Oceanogr. sec.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
North Sea	Fedje–Shetland					2018204			
	Slotterøy-West					2018204			
	Utsira-West		2018603		2018204		2018617		
	Jærens Rev-SW and W				2018204				
	Egerøya-SW				2018204				
	Lista-SW				2018204				
	Lindesnes-SSW				2018204				
	Hanstholm–Aberdeen				2018204		2018617		
	Harboør								
	Hysby Klit				2018204				
	Knude-Dyb				2018204				
Skagerrak and Kattegat	Torungen–Hirtshals	2018301	2018302	2018303	2018204 2018306	2018307	2018309	2018310	2018311
	Oksøy–Hanstholm				2018204				
	Jomfruland–Skagen								
	Jomfruland–Koster				2018204				
	Torbjørnshjær								
	Väderø				2018204				
	Måseskjær				2018204				
	Gøteborg–Fredrikshavn				2018204				
	Kattegat								
The Norwegian Sea and Vestfjorden	Svinøy-North/West	2018201			2018105 2018842				2018202
	Gimsøy-North/West				2018842		2018205		2018202
	Bjørnøya-West					2018205			2018202
	Sørkapp-West								
	Færøyene–Shetland								
	Skrova–Øksnesodden								
	Kabelvåg–Steigen					2018203			
	Ballstad–Måløy/Skarholmen					2018203			
	Røst–Tennholmen								
The Barents Sea	Fugløy–Bjørnøya	2018201			2018842	2018205			2018202
	Vardø-North		2018202						
	Semøyene-North								
	Bjørnøya–Sørkapp								

	Nordkapp-North								
	Polhavet-Kvitøya								
	Kola								

Fixed oceanographic stations 2018

Fixed stations	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
LISTA N58° 05,1' E06° 32,5'	-	2	3	3	3	3	3	3	3	3	3	1	30
UTSIRA Y N59° 19' E04° 44'	1	-	3	2	3	3	3	4	1	2	1	-	23
UTSIRA I N59° 19' E04° 59'	1	-	3	2	3	3	3	4	1	2	1	-	23
SOGNESJØEN N61° 01' E04° 50'	1	1	3	2	2	3	2	3	1	3	2	-	23
BUD N62° 56' E06° 47'	-	-	-	-	-	-	-	-	-	-	-	-	0
SKROVA N68° 07' E14° 39'	3	3	2	4	4	2	2	2	2	1	2	-	27
EGGUM N68° 23' E13° 38'	2	3	3	4	3	4	4	3	-	1	3	-	30
INGØY N71° 08' E24° 01'	2	1	-	3	3	3	3	-	2	3	-	-	20
Frøya N63° 44,6' E09° 05,1'	-	1	1	1	1	-	-	-	-	-	-	-	4



HAVFORSKNINGSINSTITUTTET

Postboks 1870 Nordnes
5817 Bergen
E-post: post@hi.no
www.hi.no