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Oversikt over tokt og oseanografiske stasjoner tatt i 2015

Report on cruises and oceanographic stations 2015

By Karen E. Gjertsen

HAVFORSKNINGSINSTITUTTET
INSTITUTE OF MARINE RESEARCH

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Photo: Magnar Mjanger

Bergen, April 2016

HAVFORSKNINGSINSTITUTTET
INSTITUTE OF MARINE RESEARCH

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PROSJEKTRAPPORT

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Sammendrag (norsk):Rapporten gir en oversikt over tokt i 2015 i regi av Havforskningsinstituttet og Universitetet i Bergen med ”G. O. Sars”, ”Johan Hjort”, ”Håkon Mosby”, ”G. M. Dannevig” samt innleide fartøyer. En kort beskrivelse av toktet samt kurs- og stasjonskart – hovedsakelig CTD, plankton og trålstasjoner er vist. Tabeller viser når de faste snittene er tatt, og antall observasjoner pr. måned for de faste stasjonene. Toktene er innrapporterte til Det internasjonale råd for havforskning (ICES) i skjemaet ”Cruise Summary Report”: http://www.seadatanet.org/Metadata/CSR. Data fra toktene er tilgjengelig fra Norsk marint datasenter ved Havforskningsinstituttet. Kartene kan internt lastes ned fra instituttets intranettside/bildearkiv: http://hinnsiden.imr.no/ressurser/bilder/bildearkiv. Kart i Mercator projeksjon.

Summary (English): The report gives an overview of cruises in 2015, by the Institute of Marine Research and University of Bergen, on board research vessels "G. O. Sars", "Johan Hjort", ”Håkon Mosby” "G. M. Dannevig" and some 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: http://hinnsiden.imr.no/ressurser/bilder/bildearkiv. Charts in Mercator projection.

Emneord (norsk):	**Subject heading (English):**
1. Kurskart	**1.** Cruise track chart
2. Stasjonskart	**2.** Station chart
3. Toktmetadata	**3.** Cruise metadata

1 Cruises 2015

1.1 G. O. Sars (Ship code no 10)

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2015101	12 Jan	10 Feb	IBTS Q1 This survey combines the IBTS Q1 bottom trawl survey and the Utsira W hydrographic section (hydrography, chemistry, plankton, fish eggs and larvae).	North Sea	1	145	1	84	27-29	
2015102	13 Feb	15 Feb	The marine geological survey is a training course for students within marine geology and marine geophysics.	Norwegian fjords	146	146	-	-	30	
2015103	16 Feb	24 Feb	Installation of ROV of LARS (NORMAR)	Norwegian fjords	-	-	-	-	31	
2015104	01 Mar	10 Mar	The maine objective of the cruise was to develop and test instruments and trawl gears for sustainable trawl fishing.	Norwegian Coast and Barents Sea	147	148	85	105	32	
2015105	-	-	-	-	-	-	-	-	-	Canceled
2015106	23 Mar	08 Apr	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	149	173	107	119	33-34	
2015107	10 Apr	26 Apr	The cruise was conducted as part of the Norwegian Research Council funded project SNACS, Subpolar Atlantic Climate States. This project focus on North Atlantic Subpolar gyre dynamics and carbon cycling in the Holocene, present and future. The sampling program was designed to enable carbon budget calculations, mapping of sea water chemistry in various water masses, and coring at water sampling sites allowing for a direct comparison between sedimentary records and water chemistry, in particular focusing on stable carbon isotopes, °13C.	North Atlantic Ocean	174	209	-	-	35	
2015108	28 Apr	03 Jun	Part of the International Ecosystem Survey of the Nordic Seas (IESNS) where the objectives are: (1) to measure the abundance of Norwegian spring-spawning herring and blue whiting using acoustics, (2) collect data on zoo- and phytoplankton, (3) measure the hydrographical conditions.	Norwegian Sea,	210	290	120	189	36-37	

1.1 G. O. Sars (Cont.)

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2015109	05 Jun	18 Jun	Mareano. Sea bottom mapping with video-filming and sampling of benthic fauna and sediments at selected stations in the Barents Sea (south-east in the North European Zone, NEZ). With the main aim off mapping benthic fauna, bio-diversity, habitat types, geological terrain-parameters and chemical pollution.	Barents Sea	291	307	-	-	38-40	
2015110	22 Jun	28 Jun	The main objective of the cruise is to establish a good correlation between a trawl catch and area density of mackerel within a defined survey area. Another objective is to optimize rigging and towing procedures to obtain consistent and comparable catch rates when conducting a standarized trawl haul with the Multpelt 832 pelagic survey trawl.	North Sea	308	310	190	206	41	
2015111	30 Jun	17 Jul	New ROV – testing. Geo biological research of Mohnsryggen.	Norwegian Sea	311	314	-	-	42	
2015112	19 Jul	15 Aug	The main objective of cruise was to retrieve sediments from the western part of the Norwegian sea to document changes in ocean circulation and sea ice cover at times of abrupt changes.	Iceland Sea, Norwegian Sea, Greenland Sea, Irminger Sea	315	339	-	-	43-44	
2015113	18 Aug	07 Sep	Mareano. Sea bottom mapping with video-filming and sampling of benthic fauna and sediments at selected stations. With the main aim off mapping benthic fauna, bio-diversity, habitat types, geological terrain-parameters and chemical pollution.	Norwegian Sea	340	360	-	-	45-47	
2015114	11 Sep	27 Sep	Ecosystem coverage of plankton, fish, benthos, sea mammals, sea birds, and observation of garbage. Sampling of material for stable isotopes, radioactivity, mikroplast.	Barents Sea	361	410	207	288	48-50	
2015115	29 Sep	16 Oct	Bottom trawl survey for deep sea resources. Bottom trawl stations primarily for biomass estimation of Greenland halibut), along with registrations on beaked redfish and other deep-sea fish species.	Norwegian Sea, Barents Sea	-	-	289	400	51	
2015116	20 Oct	05 Nov	Development of methods for more accurate measurements of school size with fishery sonar before purse seining.	North Sea	411	419	401	403	52-53	

1.1 G. O. Sars (Cont.)

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2015117	08 Nov	21 Nov	Macro– and mesozooplankton abundance estimation with macroplankton trawls, mocness and the towed underwater vehicle MESSOR. Macroplankton trawl development and technology. Multisampler and trawl testing.	Norwegian fjords: Korsfjorden and Bjørnefjorden	420	424	404	453	54-55	
2015118	24 Nov	30 Nov	Training cruise in BIO 240 – Fisheries Ecology. Hydroacoustic surveying for biomass estimation of pelagic and demersal fish.	North Sea	425	447	454	462	56-57	

1.2 Johan Hjort (Ship code no 12)

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2015201	12 Jan	25 Jan	The objectives of this cruise was to investigate the abundance zooplankton and phytoplankton as well as measuring the water physics and collecting water samples for chemical analyses using a CTD probe, on three of our standard sections: Svinøya - NW, Fugløya-Bjørnøya and Vardø-North. The same investigation in Vesterålen, the LoVe-prosject. On station M and 5 stations on the section Fugløya- Bjørnøya and in Vesterålen, we have done sampling for "Ocean Acidification Monitoring".	Barents Sea, Norwegian Sea	01	66	01	01	58	
2015202	28 Jan	12 Mar	Annual combined acoustic and bottom trawl survey in the Barents Sea in winter to: map the distribution and estimate acoustic and bottom trawl abundances indices, length, weight and maturity at age of cod, haddock and redfish. - map the general hydrographic regime by using a CTD-sonde to monitor the temperature and at about every second-third fixed bottom trawl stations (for about every 40 NM) - stomach sampling of cod, and genetic sampling of haddock. - sampling of cod and haddock for NIFES and CEFAS.	Barents Sea	67	145	02	222	59-60	
2015203	20 Mar	04 Apr	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 part of a time series.	Norwegian Sea/coast Lofoten and Vesterålen	146	267	223	261	61-63	

1.2 Johan Hjort (Cont.)

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2015204	09 Apr	05 May	This cruise is part of the IMR monitoring project «Climate and plankton in the North Sea and Skagerrak«. The cruise has been conducted each spring (April/May) since 2006 with the aim to provide one large coverage of the northern North Sea and Skagerrak each year. The cruise will provide horizontal and vertical distributions of physical oceanographic parameters , chemistry, phytoplankton and zooplankton in the northern North Sea, Skagerrak and Kattegat.	Skagerrak, North Sea, Kattegat, Norwegian Sea	268	475	-	-	64-65	
2015205	14May	24 May	The objective of this cruise was to investigate the abundance of zooplankton and phytoplankton, as well as measuring the water physics and collecting water samples for chemical analyses using a CTD probe on 3 of our standard sections.	Norwegian Sea, Barents Sea	476	542	-	-	66	
2015206	27May	06 Jun	This cruise is part of the IMR strategic program «Trophic interactions in the Barents Sea - steps towards an Integrated Ecosystem Assessment (TIBIA) ». The cruise will provide horizontal and vertical distributions of physical oceanographic parameters , chemistry, phytoplankton and zooplankton in the western Barents Sea. The cruise will also provide spatial distributions of fish and benthos. Sampling of stomach and isotops from zooplankton, fish and benthos are important part of the survey.	Barents Sea	543	553	262	291	67-69	
2015207	-	-								Canceled
2015208	25 Jun	31 Jul	Part 1 : Herring acoustic survey, saithe acoustic survey, IBTS Q3 survey. Part 2 : IBTS Q3 survey, exploratory tows for IBTS along northern shelf edge, saithe acoustic survey. Partl 3 : Sampling standard secyions (Utsira W – Start Point) for physical oceanographic parameters (CTD casts, nutrients and chlorphyll) and phyto- and zooplankton, and fish eggs and larvae in the northern North Sea.	North Sea	554	705	296	452	70-72	

1.2 Johan Hjort (Cont.)

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2015209	02 Aug	12 Aug	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 Norwegian Sea and Barents Sea. Sampling were made on4 standard sections and station M. The cruise programme included sampling for physical-chemical oceanographic parameters (CTD casts, nutrients and chlorophyll) and phytoplankton and zooplankton with plankton net and the mocness. In the North Sea, sampling were also made for fish larvae.	Norwegian Sea Barents Sea	706	763	-	-	73	
2015210	13 Aug	29 Sep	Map the distribution and estimate acoustic abundances of capelin, herring, polar cod and blue whiting. Map the distribution and estimate bottom trawl abundances indices of cod, haddock and redfish. Map the distribution and calculate pelagic trawl abundance indices of the main 0-group species. Map the distribution and abundance of phytoplankton and zooplankton by net hauls at super stations. Environmental samples (salinity, temperature, oxygen, nutrients and plankton) at super stations and along the Vardø N section. Stomach sampling of cod, capelin and polar cod. Benthos investigations from by-catch in the bottom trawl. Biological sampling for the TIBIA project. Sampling of water, fish and sediments for analysis of contamination.Sea mammal and seabird observations along the cruise tracks.	Barents Sea	764	925	453	705	74-75	
2015211	07 Oct	05 Nov	Annual combined acoustic and bottom trawl survey along the Norwegian coast north of 62˚ N. Map the distribution and estimate acoustic abundances indices, length, weight and maturity at age of cod, saithe and haddock Map the general hydrographical regime by using a CTD-sonde to monitor the temperature and salinity at one at bottom trawl stations and/or at fixed intervals (about 30 NM). Genetic sampling of haddock, sampling of haddock for analysis of contamination (NIFES).	Norwegian Coast	926	984	706	797	76-77	

1.2 Johan Hjort (Cont.)

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2015212	09 Nov	13 Nov	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. Sampling was undertaken on the following standard transect: Utsira-Start Point. In addition a series of samplings were undertaken on the return leg from Start Point to Bergen. The cruise programme included sampling for physical-chemical oceanographic parameters (CTD casts, nutrients and chlorphyll) and phytoplankton and zooplankton with plankton net and the mocness. Larger plankton nets were used to sample the fish larvae.	North Sea,	985	1020	-	-	78	
2015213	14 Nov	26 Nov	Monitoring of physical, chemical and biological parameters on standard sections.	Norwegian Sea, Greenland- and Barents Sea	1021	1088	798	798	79-80	

1.3 Håkon Mosby (Ship code no 1)

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2015601	13 Jan	03 Feb	Annual shrimp survey.	North Sea, Skagerrak	01	88	01	92	81-82	
2015602	-	-			-	-	-	-	-	Canceled
2015603	-	-			-	-	-	-	-	Canceled
2015604	-	-			-	-	-	-	-	Canceled
2015626	08 Mar	24 Mar	Monitoring of physical, chemical and biological parameters, on standard sections (Svinøy, Station M, Gimsøy, Bjørnøya-Fugløya).	Norwegian Sea Barents Sea	89	136	-	-	83	
2015605	07Apr	20 Apr	Estimate the distribution and abundance of herring larvae on the Norwegian shelf from Bergen to Tromsø. Additional environmental sampling of hydrography, nutrients, chlorophyll and zooplankton.	Norwegian Sea	137	254	-	-	84-85	
2015606	22 Apr	25 Apr	The cruise objectives were to occupy the monitoring section Fugløya-Bjørnøya in the Barents Sea. On the sections CTD observations and nutrients and plankton were sampled. Current meter moorings and bottom mounted ADCPs at the Fugløya Bjørnøya section were recovered and current meter moorings deployed.	Barents Sea	255	274	-	-	86-87	
2015607	28 Apr	01 May	Recovery of wavescan NACO-buoy.	Norwegian Sea	275	276	-	-	88	
2015608	-	-			-	-	-	-	-	Canceled
2015609	26 May	29 May	Deployment of the polar buoy and oseanographic mooring. CTD with water samples at 12 levels for ct, at and salinity analyzing.		277	277	-	-	89	

Håkon Mosby (cont.)

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2015610	01 Jun	06 Jun	A scientific cruise to investigate the physical processes of air-sea interaction, particularly turbulence generated by breaking surface waves. In this cruise, 5 bottom-anchored mooring systems are deployed to measure the currents, turbulence, temperature and salinity in the water column until November 2015.	North Sea	278	279	-	-	90	
2015611	08 Jun	16 Jun	The goal of this cruise was to investigate the interactions of oil drilling operations and deep water sponge populations. The information generated with this cruise will increase our understanding of these interactions and improve our management advice.	Norwegian fjords	280	280	-	-	91	
2015612	18 Jun	01 Jul	The objective of the cruise is to investigate the origins of the overflow water from the Iceland Sea and the inflow of low salinity water from the Iceland Sea to the Norwegian Sea.	Iceland Sea, Norwegian Sea	281	298	-	-	92	
2015613	-	-			-	-	-	-	-	Canceled
2015614	13 Jul	15 Jul	Marine Inventory of the deepest fjord in the world	Norwegian fjords	299	303	-	-	93-94	
2015615	20 Jul	30 Jul	Monitoring of sponge and coral.	Norwegian Sea	304	355	-	-	95	
2015616	03 Aug	06 Aug	The objective of the cruise is to investigate the fjord coast interchange.	Barents Sea Porsangerfjord	356	457	-	-	96	
2015617	12 Aug	21 Aug	A physical oceanography cruise for ocean mixing processes studies north of Svalbard. In summer 2014 an array of 3 moorings were deployed near the ice edge. The primary aim of the present cruise was to recover these moorings. Additionally process studies of mixing in relation to wind and tide forcing were conducted west and north of Spitsbergen.	Arctic Ocean Fram Strait	458	518	-	-	97	

Håkon Mosby (cont.)

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2015618	24 Aug	04 Sep	Student cruise for the course AGF-214 Polar Ocean Climate at the University Center in Svalbard.	Fjords and west coast of Spitsbergen	519	680	-	-	98-99	
2015620	14 Sep	23 Sep	Field course in marine methods for master students.	Norwegian Sea	681	691	93	119	100-102	
2015619	24 Sep	27 Sep	Recovery of ADCP current meter mooring. Recovery and re-deployment of standard RCM-mooring. Deployment of standard RCM-mooring. Recovery of RCM-mooring in Bjørnefjorden	Norwegian Sea Norwegian fjord	692	695	-	-	103	
2015621	01 Oct	28 Oct	Distribution and acoustic abundance of cod, saithe and haddock. Environmental stations in main fjords..	Norwegian coast	696	756	137	225	104-106	
2015623	28 Oct	03 Nov	Recovering of 5 bottom-anchored mooring systems that were deployed to measure the currents, turbulence, temperature and salinity in the water column from June 2015 until November 2015.	North Sea	-	-	-	-	107	
2015622	12 Nov	13 Nov	The purpose of the cruise was to introduce the students in our « Physics of the Atmosphere and Ocean » GEOF105, to oceanographic and atmospheric field work.	Norwegian fjords: Sørfjorden and Osterfjorden	757	776	-	-	108	
2015624	16 Nov	20 Nov	Video documentation in Sognefjorden.	Sognefjorden	777	785	-	-	109-110	
2015625	03 Dec	16 Dec	Acoustic survey for sprat and herring . Distribution of plankton. Samples of sprat, herring and plankton for genetic analysis.	Norwegian fjords: Nordfjord, Sognefjorden and Hardangerfjorden	786	839	226	272	111-112	

1.4 G.M. Dannevig (Ship code no 16)

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD NO		PAGE OF CHART	COMMENT
	Start	End			Start	End		
2015301/ 302/303	14 Jan	21 Jan	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, Norwegian coast of Skagerrak	1	35	113	
2015304/ 305/306	01 Feb	08 Feb	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, Norwegian coast of Skagerrak	36	68	114	
2015307/ 308	05 Mar	09 Mar	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, Norwegian coast of Skagerrak	69	86	115	
2015309	13 Mar	25 Mar	Mapping distribution area of coastel cod.	Sogn og Fjordane	87	87	116	
2015310/ 311	13 Apr	18 Apr	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, Norwegian coast of Skagerrak	88	105	117	
2015313	05 May	12 May	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, Norwegian coast of Skagerrak	106	128	118	
2015314/ 315/316	12 Jun	21 Jun	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, Norwegian coast of Skagerrak	129	167	119	
2015317/ 318/319	02 Jul	09 Jul	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, Norwegian coast of Skagerrak	168	206	120	

G.M. Dannevig (cont.)

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD NO		PAGE OF CHART	COMMENT
	Start	End			Start	End		
2015320/ 321	11 Aug	26 Aug	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, Norwegian coast of Skagerrak	207	247	121	
2015322	17 Aug	26 Aug	Monitoring lobster/MPA.	Skagerrak, Norwegian coast of Skagerrak	248	252	122	
2015323/ 324	13 Sep	16 Sep	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. Oceanografic field studies.	Skagerrak, Norwegian coast of Skagerrak	253	270	123	
2015325	17 Sep	18 Sep	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. Oceanografic field studies.	Skagerrak, Norwegian coast of Skagerrak	271	276	124	
2015326	19 Sep	02 Oct	Beach seine studies.	Skagerrak, Norwegian coast of Skagerrak	277	347	125	
2015327/ 328/329	03 Oct	11 Oct	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, Norwegian coast of Skagerrak	348	357	126	
2015330/ 331/332	10 Nov	15 Nov	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, Norwegian coast of Skagerrak	358	385	127	
2015333	16 Nov	06 Dec	Resurce studies in coastel cod.	Skagerrak, Norwegian coast of Skagerrak	386	388	128	
2015334/ 335	07 Dec	12 Dec	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, Norwegian coast of Skagerrak	389	408	129	

1.5 Selected cruises carried out by fishing vessels hired by IMR

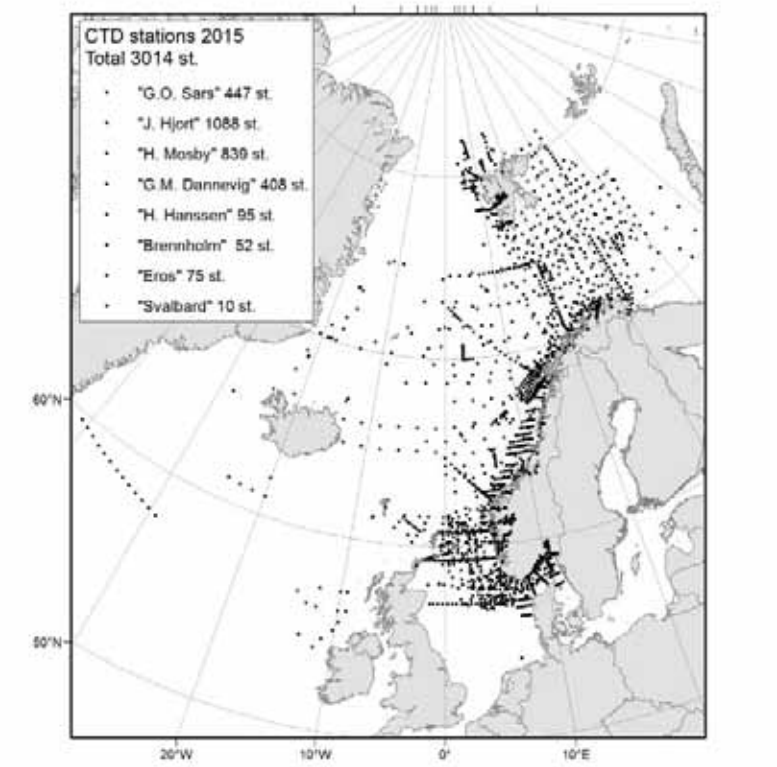
CRUISE NO	PERIOD OF CRUISES		VESSEL	PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End				Start	End	Start	End		
2015841	19 Jan	16 Feb	H. Hanssen	The survey forms parts of the joint Norwegian-Russian Ground fish survey conducted annually in February-March. It is a combined trawl survey, and acoustic survey.	Barents Sea	01	58	01	131	130-131	
2015843	17 Aug	07 Sep	H.Hanssen	Baseline investigations of the marine ecosystem from plankton to mammals in the region north of Svalbard (SI_ARCTIC project). Monitoring of the ecosystem as part of the joint Norwegian-Russian ecosystem survey in the Barents Sea. Investigations included physical and chemical oceanography, phyto- and zooplankton, fish, benthos, marine mammals and sea birds.	Barents Sea	59	95	132	209	132-134	
2015815	08 Jun	14 Jun	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, coastal area	-	-	-	-	135	
2015814	21 Aug	04 Sep	Johan Ruud	Stock assessment of red king crab in the quota regulated area. Starting in Porsangerfjorden, going to Varangerfjorden in the east, then going west to Tanafjorden and Laksefjorden.	Barents Sea, coastal area	-	-	-	-	136	
2015837	25 Apr	15 May	Eros	Measuring the abundance, distribution and age composition of sandeel.	North Sea	01	30	01	47	137-138	
2015831	01 Jul	28 Jul	Eros	Systematic and standarized surface trawling targeting NEA mackerel, Norwegian spring-spawning herring and salmon. Systematic sampling of zooplankton and hydrography.	Norwegian Sea	01	47	01	54	139-140	
2015834	14 Sep	17 Sep	Eros	Collection of acoustic data from fisheries sonar for biomass estimation of individual mackerel schools. Monitoring of school and net during comercial fishing operations. Purse seine catch of individual mackerel schools for comparison with sonar estimates.	Norwegian Sea	-	-	-	-	141	

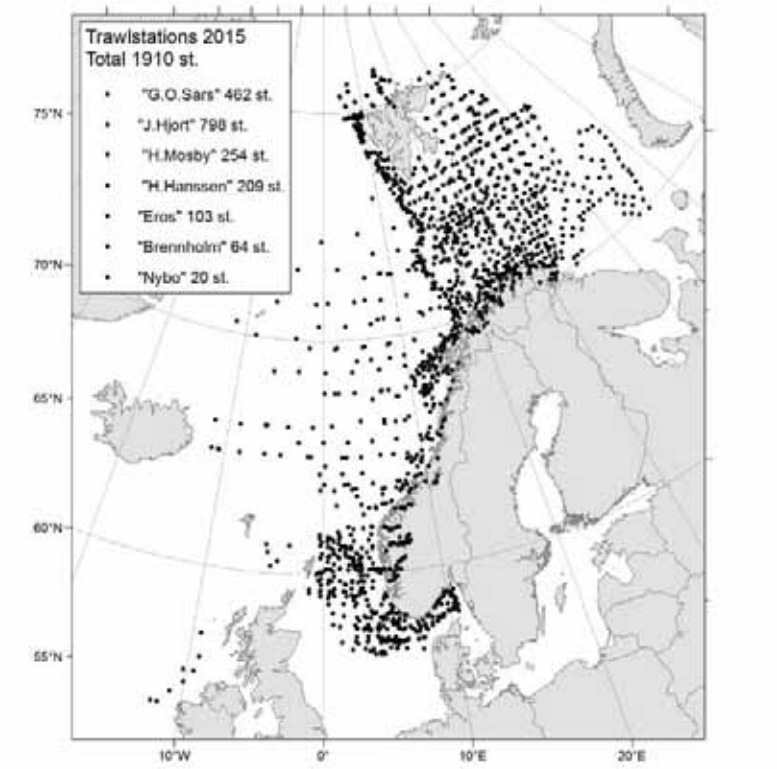
1.5 Selected cruises carried out by fishing vessels hired by IMR (cont.)

CRUISE NO	PERIOD OF CRUISES		VESSEL	PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End				Start	End	Start	End		
2015809	19 Oct	02 Nov	Eros	Collection of acoustic data from fisheries sonar for biomass estimation of individual mackerel schools • Monitoring of school and net during comercial fishing operations • Purse seine catch of individual mackerel schools for comparison with sonar estimates • Test of lights and GPS signals from floatline	Offshore region between Ålesund and Trondheim. UK waters off Shetland and Orkneys islands.	-	-	-	-	-	No chart
2015832	26 Jun	28 Jul	Brennholm	Ecosystem cruise with abundance estimation and biological sampling of Northeast Atlantic (NEA) mackerel, Norwegian spring-spawning (NSS) herring and North Sea herring.	North Sea Barents Sea Norwegian Sea	01	52	01	57	142-143	Trawl st.1-7 1.part and st.1-57 2.part
2015802	18Jan	28 Mar	Different fishingboats	Biological sampling of commercial demersal catches at landing sites along the coast of Northern Norway for fish stock assessment purpose.	Norwegian coast	-	-	-	-		No chart
2015833	02 Feb	17 Feb	Nybo	Monitor the distribution of the spawning stock of Norwegian spring spawning herring and estimate the biomass acoustic. Biological samples were taken in areas of high acoustich recordings.	Norwegian coast	-	-	01	20	144	
2015844	02 Feb	17 Feb	Inger Hildur	Collection of acoustic data from fisheries sonar for biomass estimation of herring.	Norwegian coast	-	-	-	-		No chart
2015845	02 Feb	17 Feb	Ligrunn	Collection of acoustic data from fisheries sonar for biomass estimation of herring.	Norwegian coast	-	-	-	-		No chart
2015005	17 Sep	20 Sep	Svalbard	Plankton survey.	Norwegian coast	1	10	-	-	145	

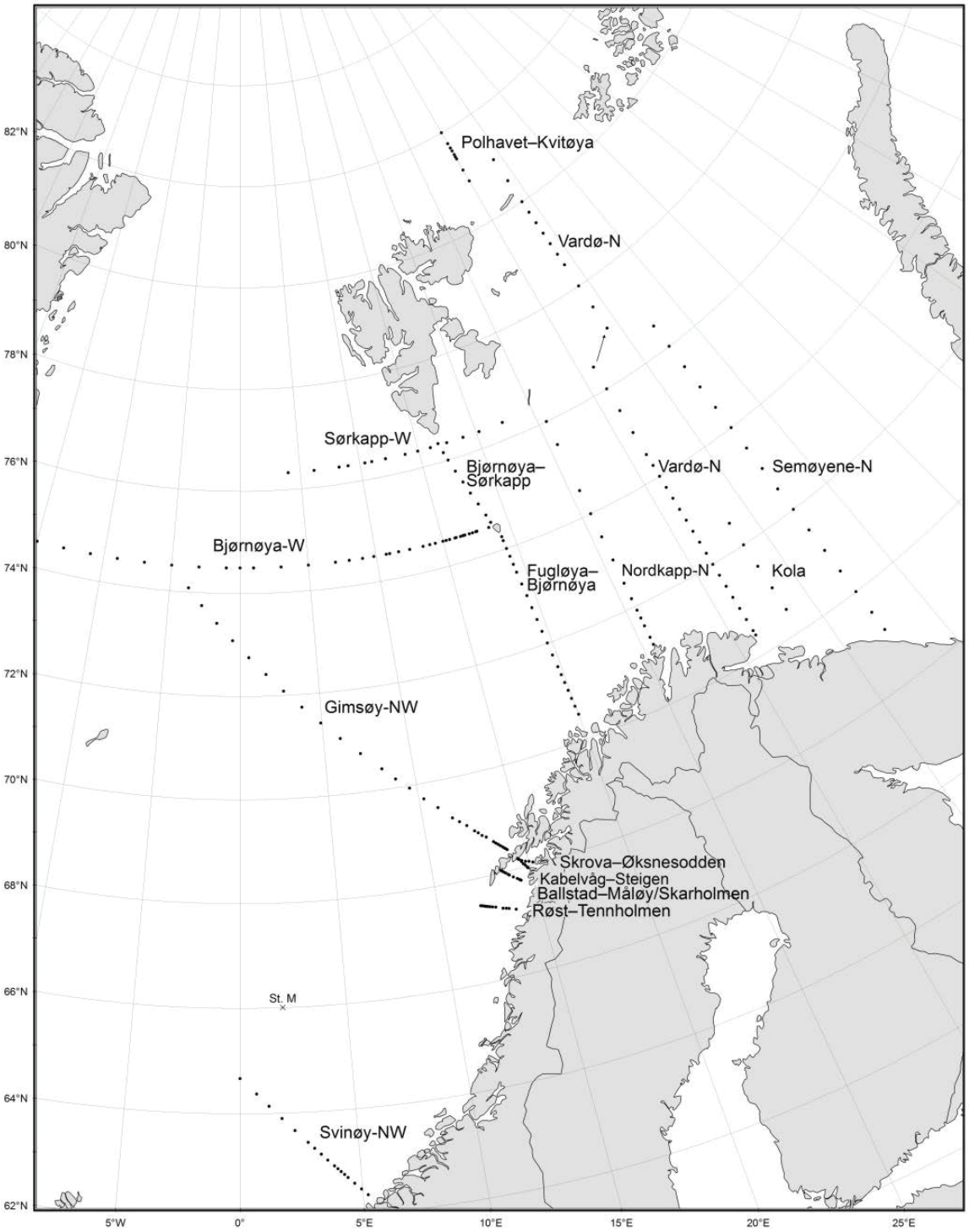
2 Charts – overview

2.1 CTD and trawlstations 2015

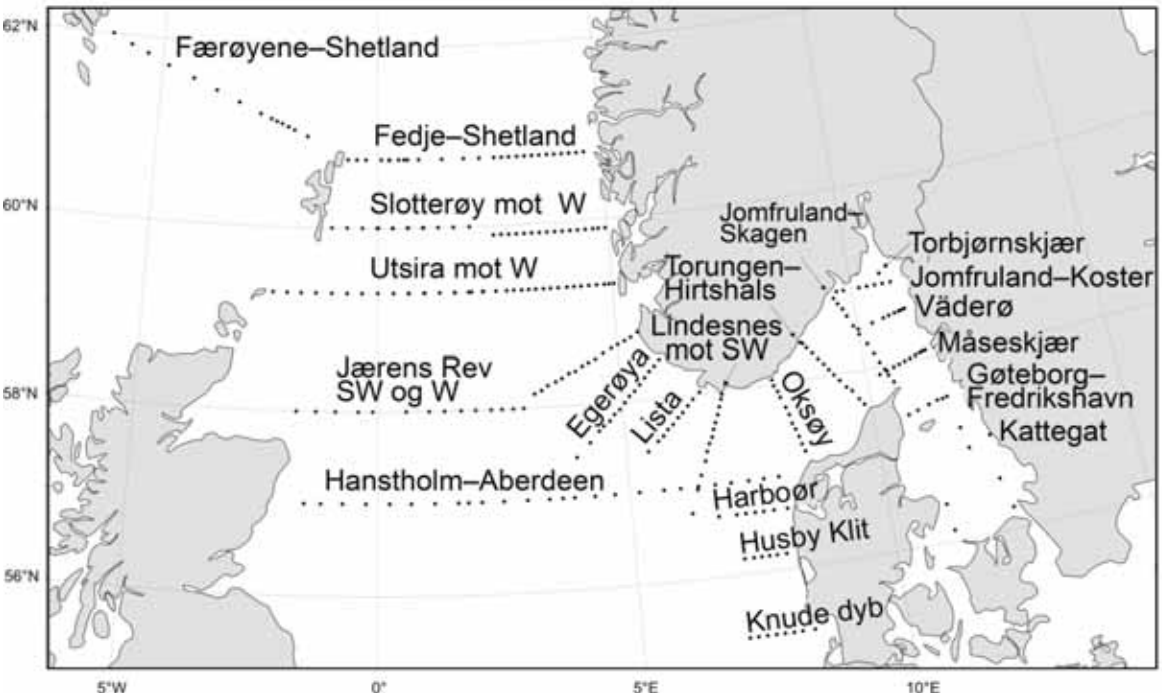




2.2 Oceanographic sections

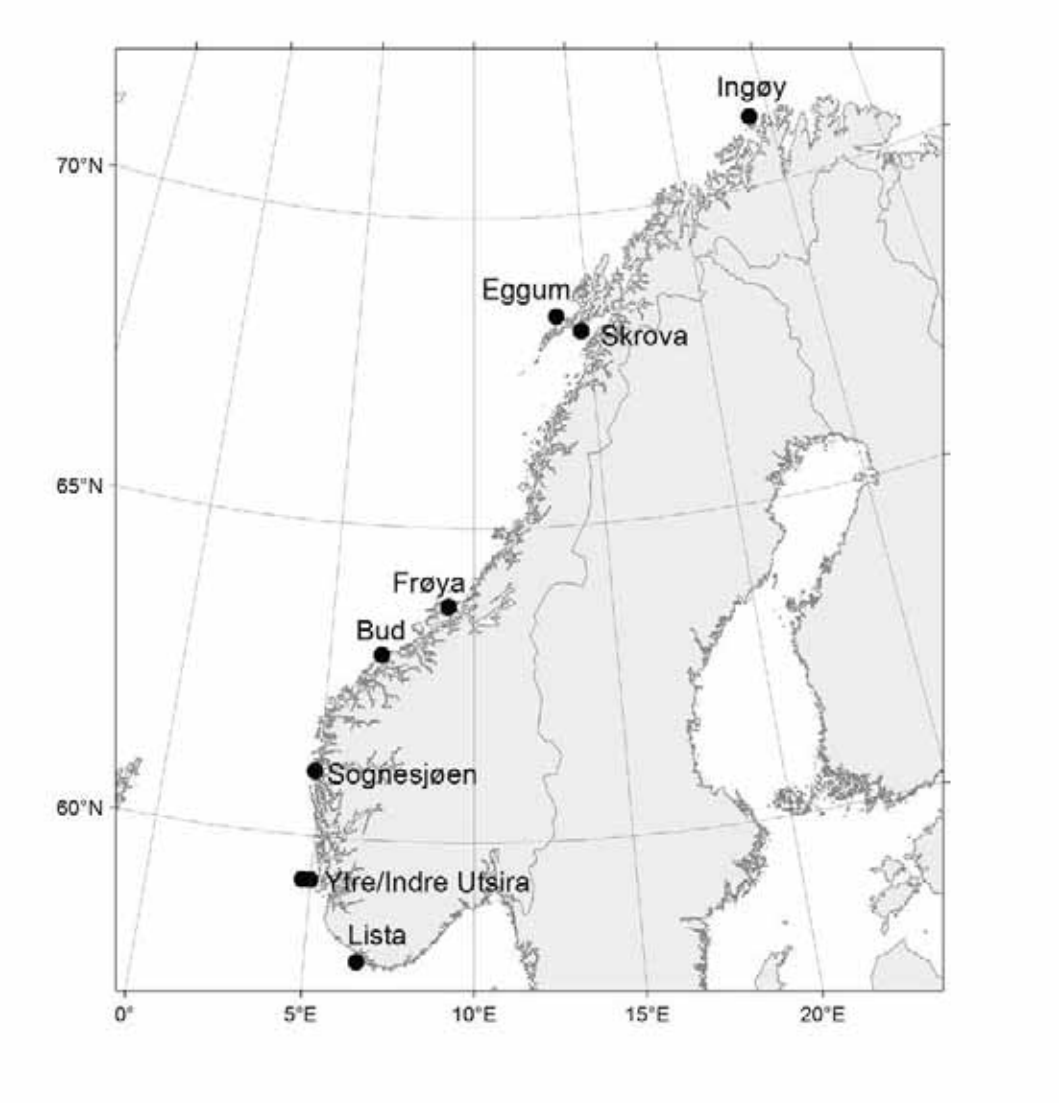


Norwegian Sea and Barents Sea



North Sea, Skagerrak and Kattegat

2.3 Fixed oceanographic stations



3 Tables – Observations in 2015

3.1 Oceanographic sections 2015 (Cruise no)

Area	Oceanogr. sec.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
North Sea	Fedje–Shetland				2015204								
	Slotterøy-West												
	Utsira-West	2015101			2015204							2015212	
	Jærens Rev-SW and W				2015204								
	Egerøya-SW												
	Lista-SW												
	Lindesnes-SSW												
	Hanstholm–Aberdeen				2015204								
	Harboør				2015204								
	Hysby Klit				2015204								
	Knude-Dyb												
Skagerrak and Kattegat	Torungen–Hirtshals	2015303	2015304	2015307	2015204 2015311		2015316	2015317	2015320	2015323	2015328	2015330	2015335
	Oksøy–Hanstholm												
	Jomfruland–Skagen												
	Jomfruland–Koster				2015204								
	Torbjørnskjær												
	Väderø				2015204								
	Måseskjær				2015204								
	Gøteborg–Fredrikshavn				2015204								
	Kattegat												

Area	Oceanogr. sec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
The Norwegian Sea and Vestfjorden	Svinøy-North/West	2015201		2015626	2015108				2015209			2015213	
	Gimsøy-North/West			2015626		2015205			2015209			2015213	
	Bjørnøya-West					2015205			2015209			2015213	
	Sørkapp-West												
	Færøyene–Shetland												
	Skrova–Øksnesodden												
	Kabelvåg–Steigen			2015203									
	Ballstad–Måløy/Skarholmen			2015203									
	Røst–Tennholmen			2015203									
The Barents Sea	Fugløya–Bjørnøya	2015201		2015626	2015606	2015205			2015209			2015213	
	Vardø-North	2015201	2015202							2015210			
	Semøyene-North												
	Bjørnøya–Sørkapp												
	Nordkapp-North												
	Polhavet–Kvitøya												
	Kola												

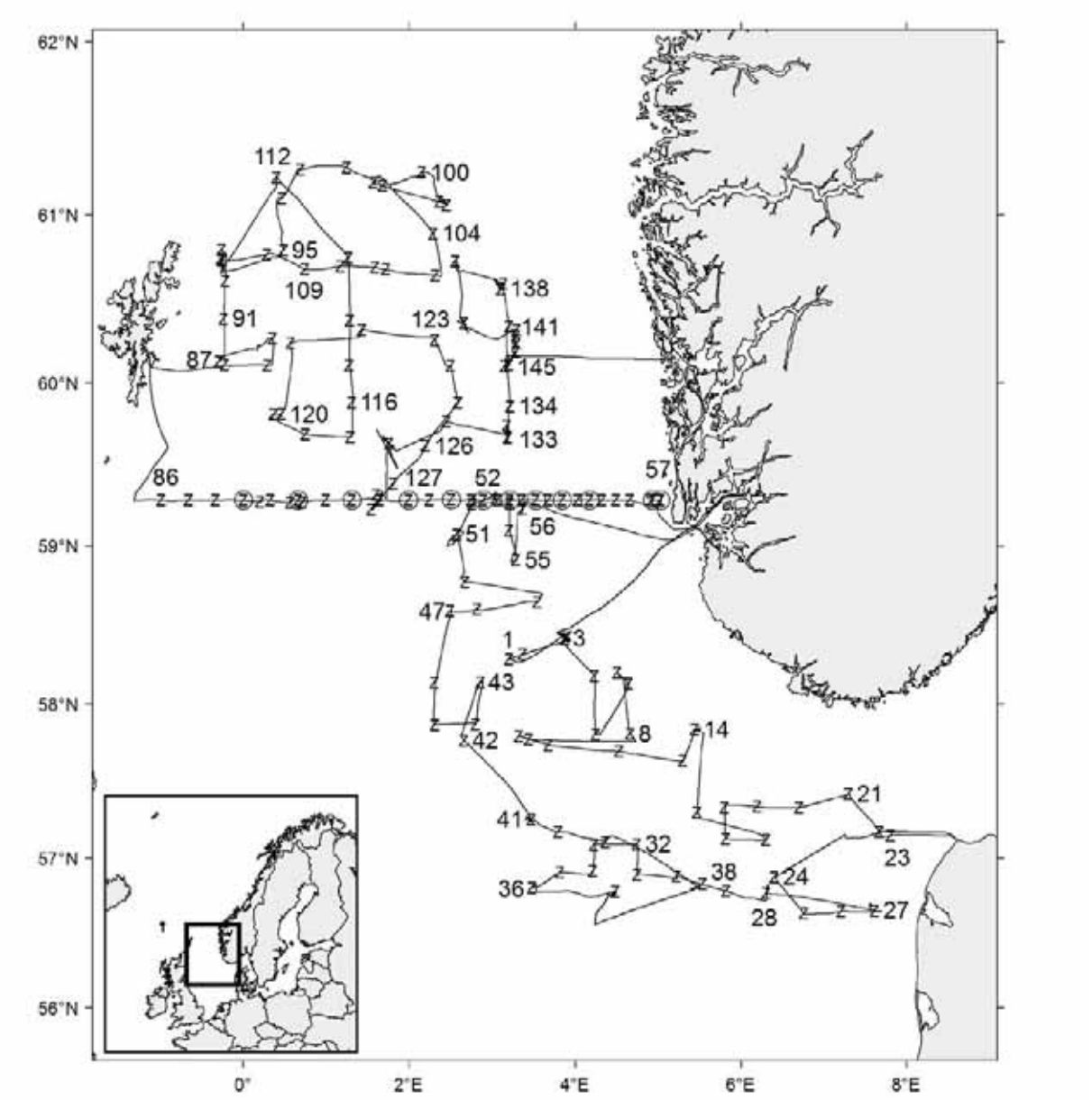
3.2 Fixed oceanographic stations 2015

(No of observations)

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	2	2	3	3	0	2	3	29
UTSIRA Y N59° 19′ E04° 44′	1	3	1	1	3	2	2	3	2	3	2	1	24
UTSIRA I N59° 19′ E04° 59′	1	3	1	1	3	2	2	3	1	3	2	1	23
SOGNESJØEN N61° 01′ E04° 50′	1	2	2	3	2	1	3	2	2	3	1	0	22
BUD N62° 56′ E06° 47′	0	0	2	0	1	0	0	1	1	0	0	0	5
SKROVA N68° 07′ E14° 39′	4	3	3	4	5	3	3	1	2	4	3	5	40
EGGUM N68° 23′ E13° 38′	0	1	2	2	2	3	2	3	3	2	1	3	24
INGØY N71° 08′ E24° 01′	3	0	2	2	4	1	2	0	2	5	2	2	25
Frøya N63° 44,6′ E09° 05,1′	0	1	1	2	0	0	2	0	1	0	2	1	10

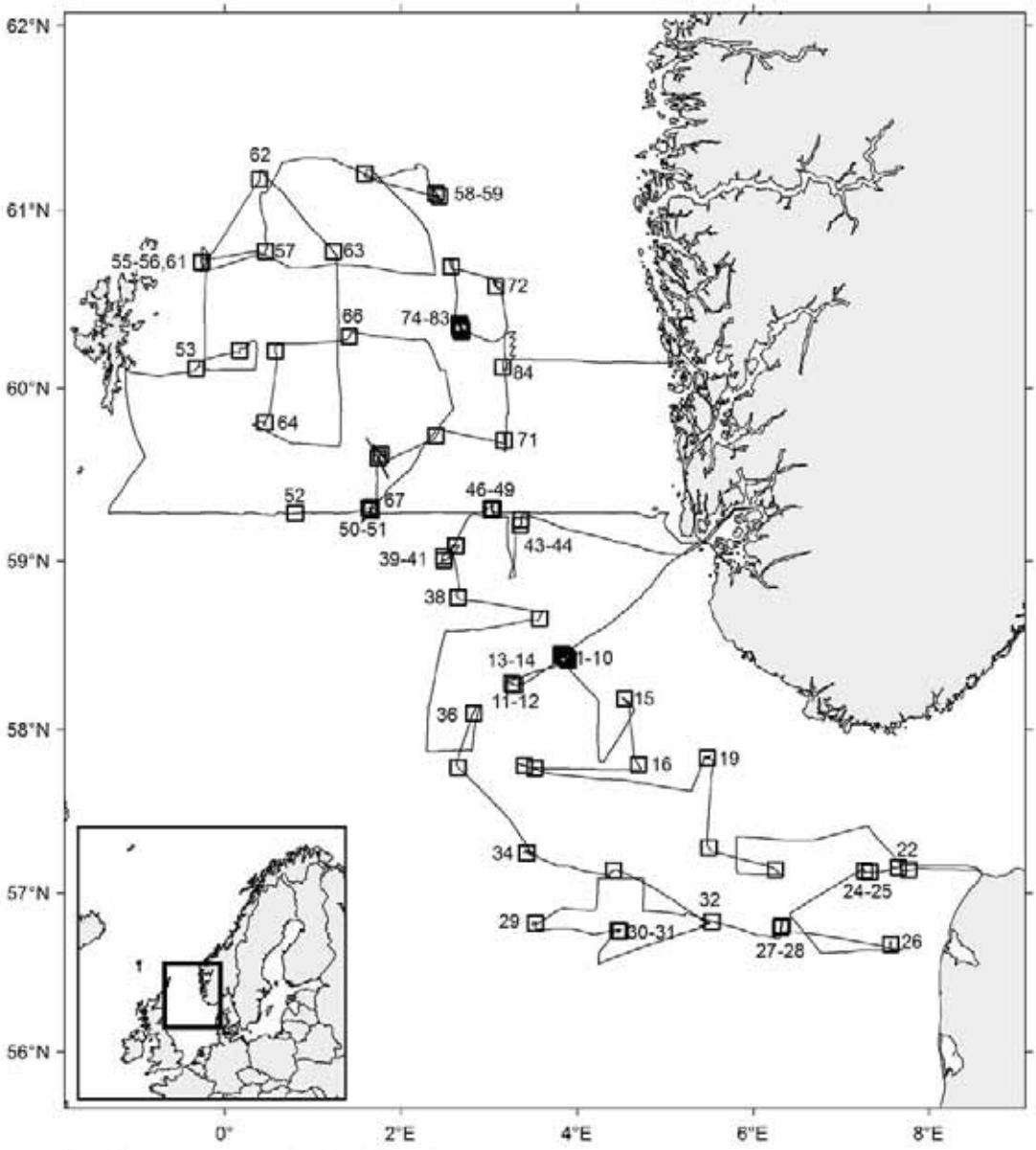
4 Charts for cruises 2015

4.1 G.O. Sars



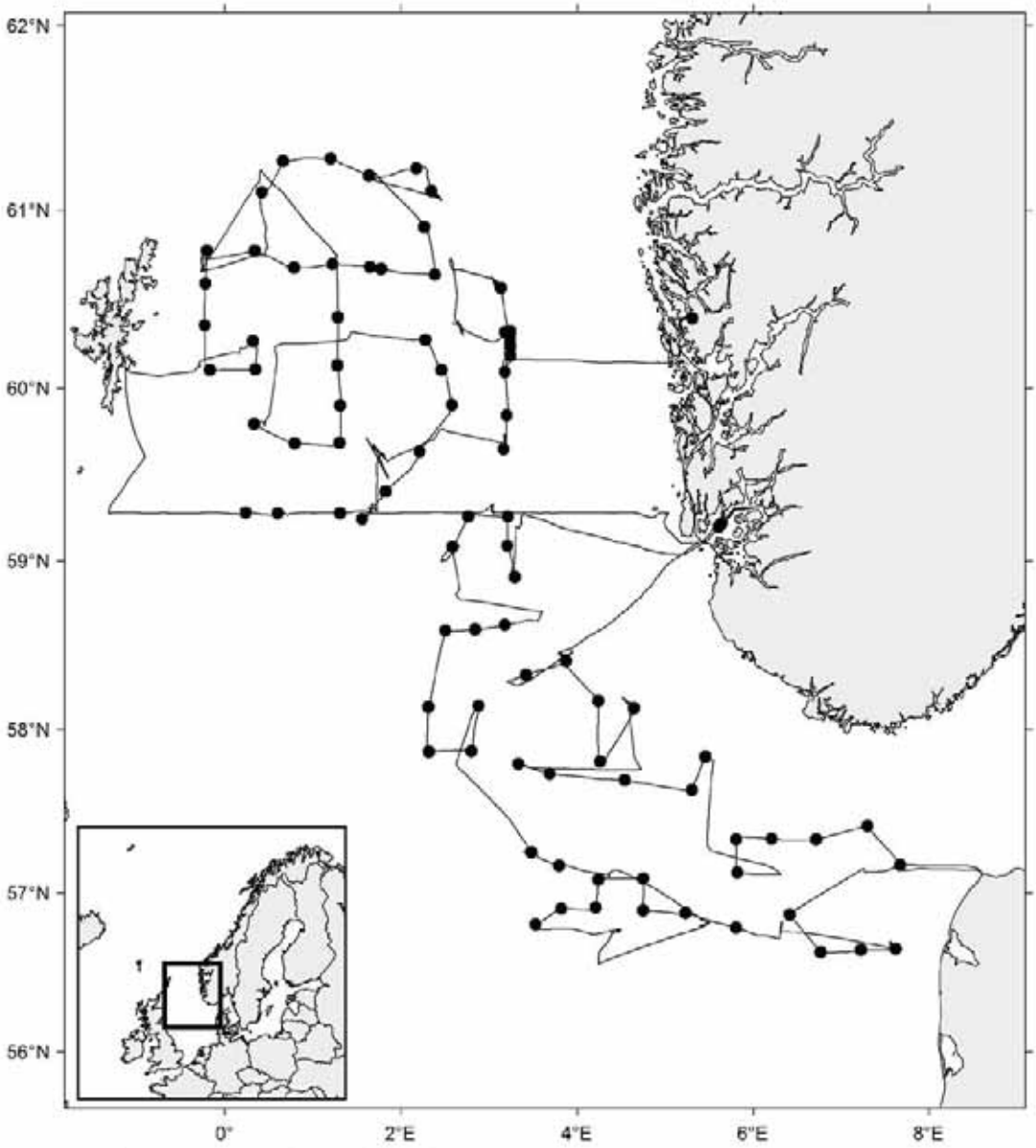
Cruise no 2015101 "G.O.Sars"
12 January–10 February 2015

z CTD st.no 1–145
○Plankton st. (WP-II-net)
Standard section Utsira W st.no 57–86



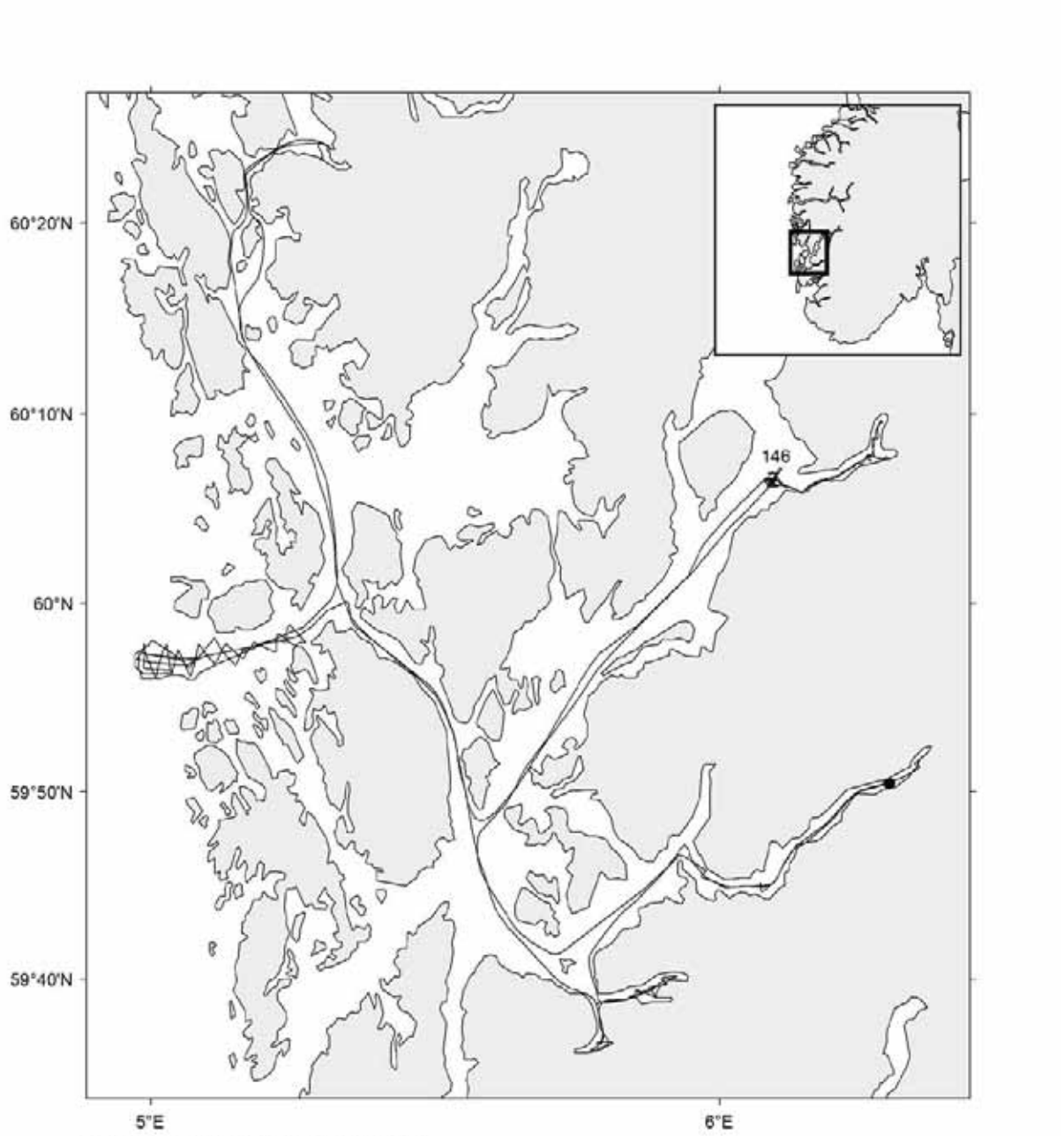
Cruise no 2015101 "G.O.Sars"
12 January–10 February 2015

□ Bottom trawl st.no 1–84



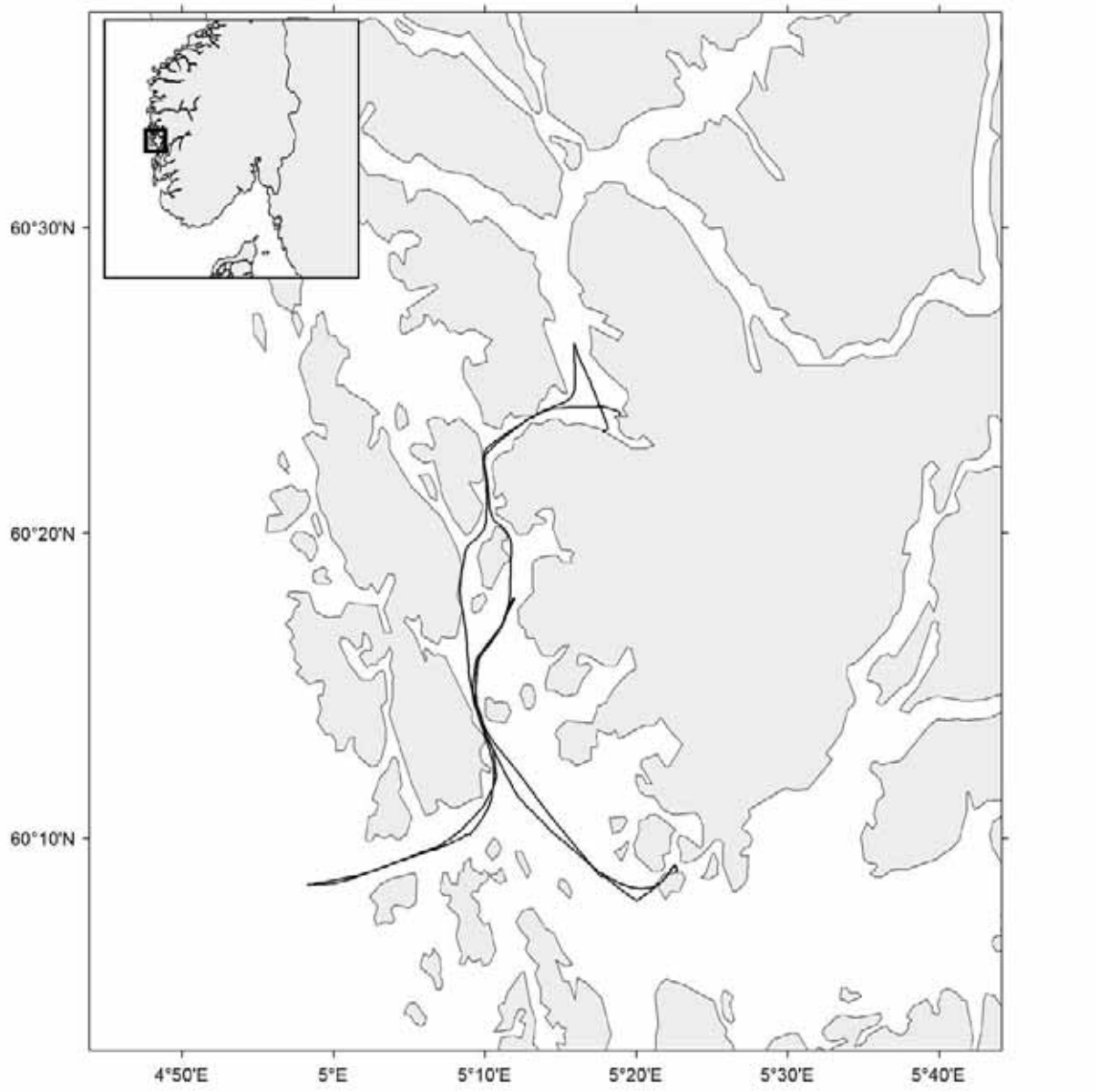
Cruise no 2015101 "G.O.Sars"
12 January–10 February 2015

• Mik stations



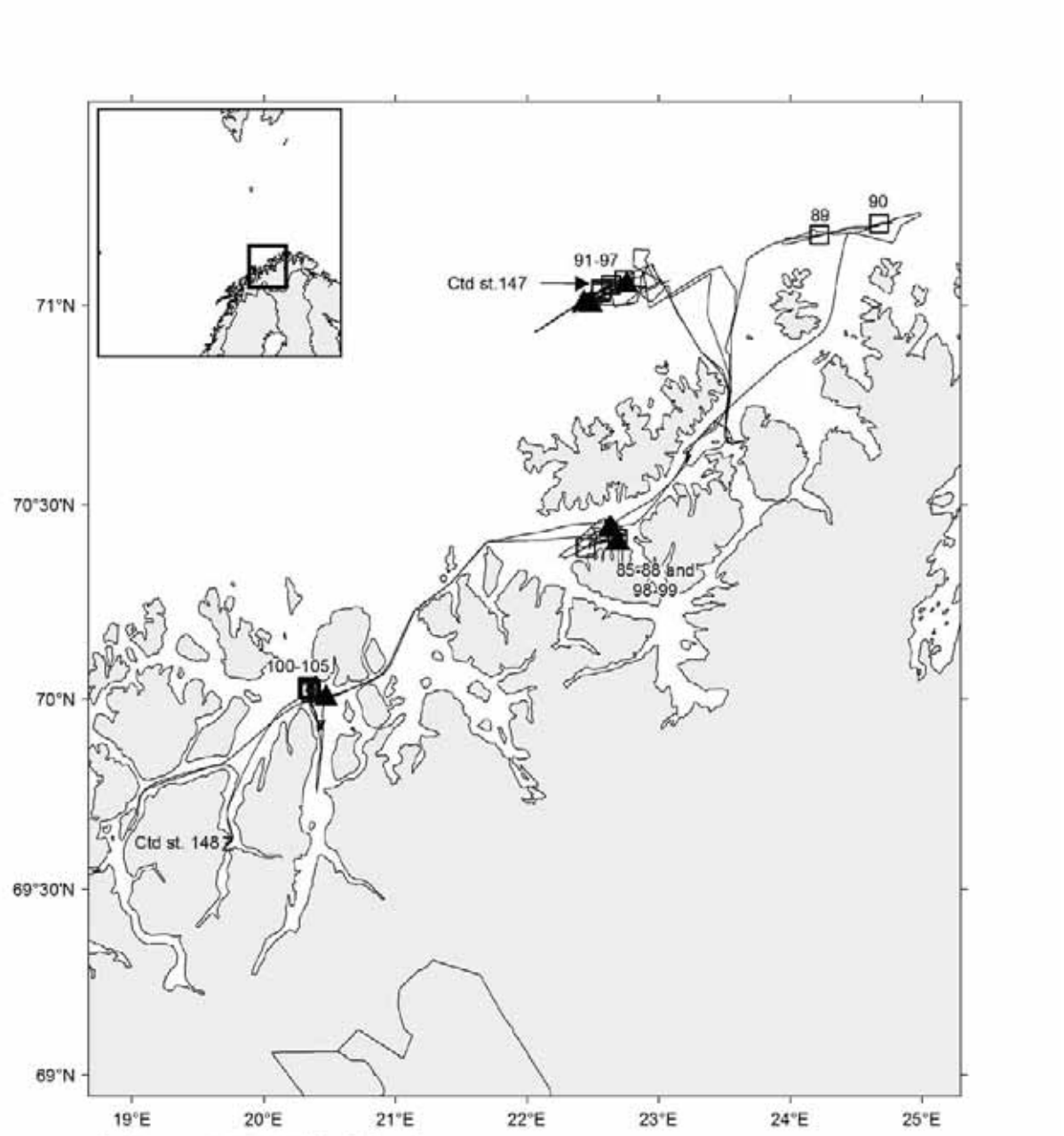
Cruise no 2015102 "G.O.Sars"
13–15 February 2015

z CTD st.no 146
● Gravirty- and box cores



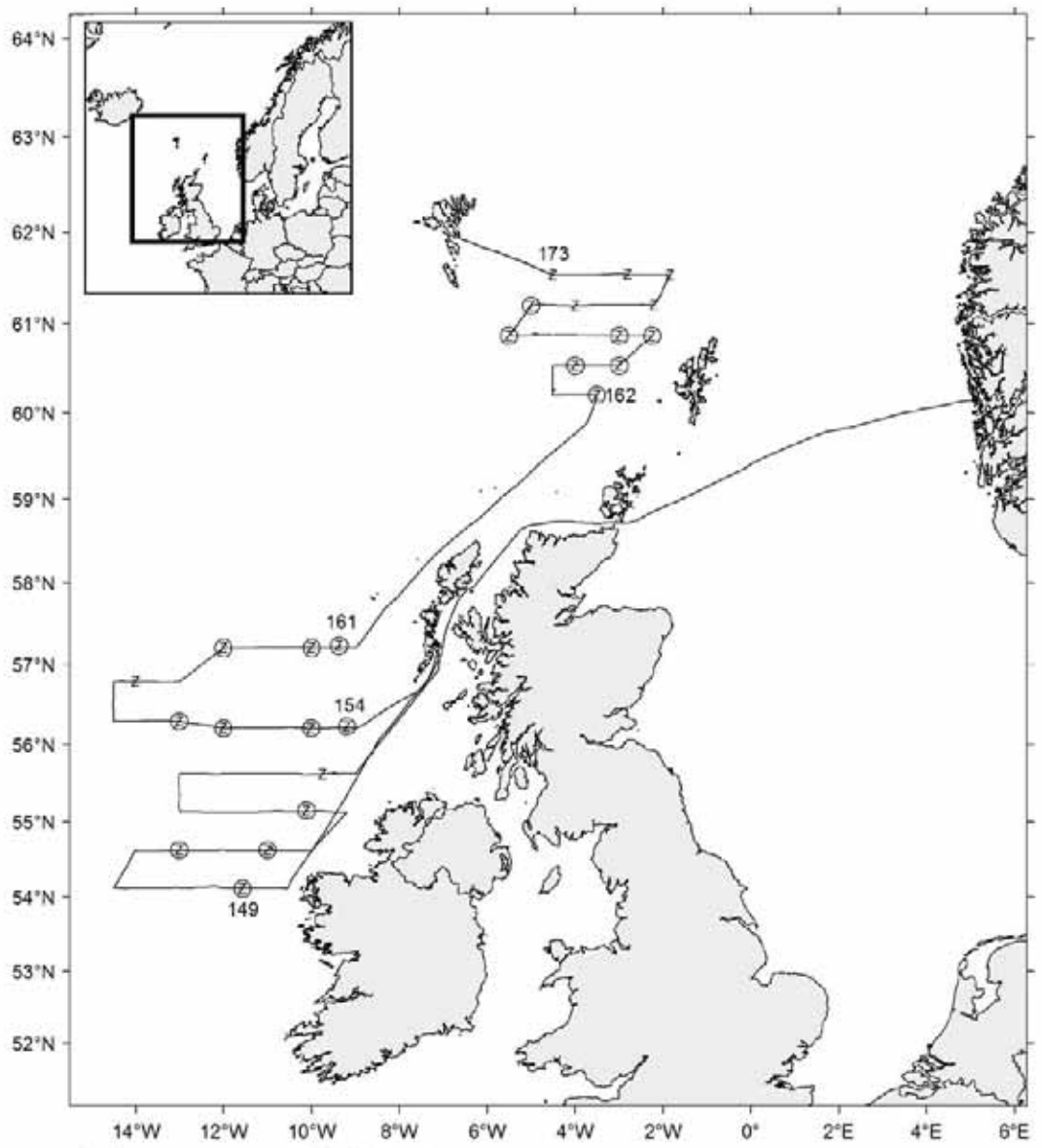
Cruise no 2015103 "G.O.Sars"
16–24 February 2015
—— Cruise track

Installation of ROV and LARS (NORMAR)



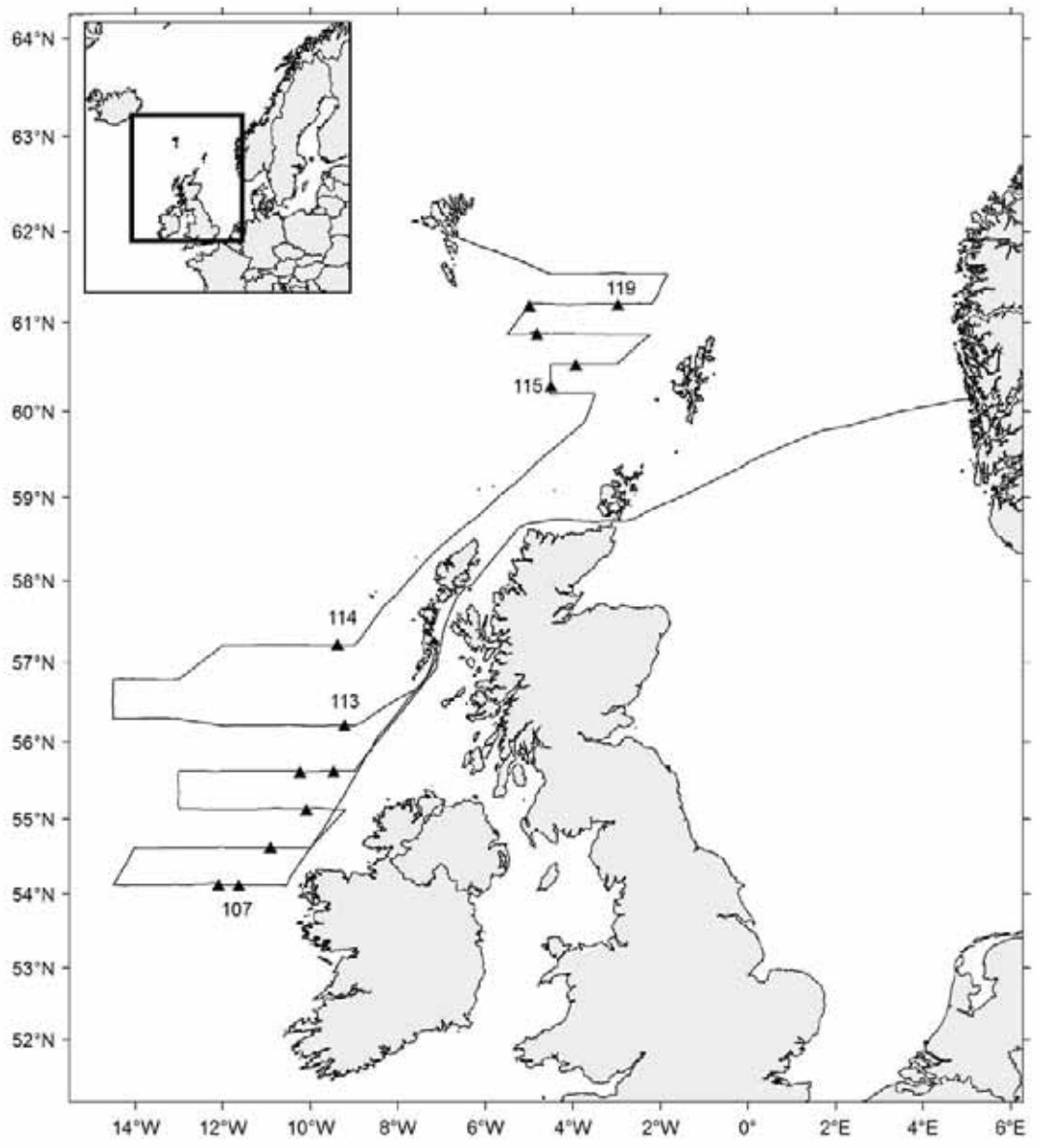
Cruise no 2015104 "G.O.Sars"
1–10 March 2015

z CTD st.no 147–148
Trawl st.no 85-105
▲ Pelagic trawl
□ Bottom trawl



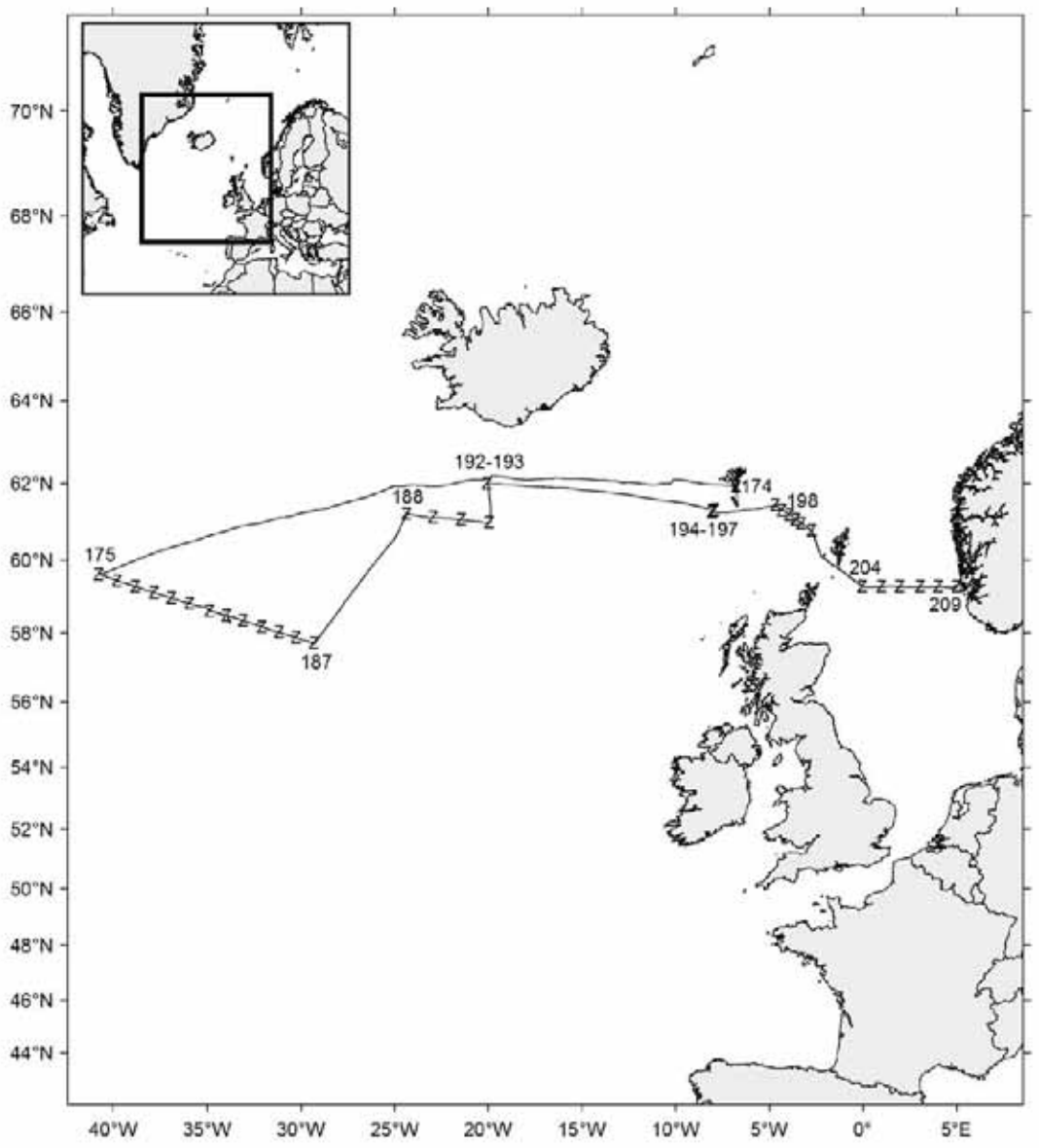
Cruise no 2015106 "G.O.Sars"
23 March–8 April 2015

z CTD st.no 149–173
○Egg and larvae st. (WP-II-net)



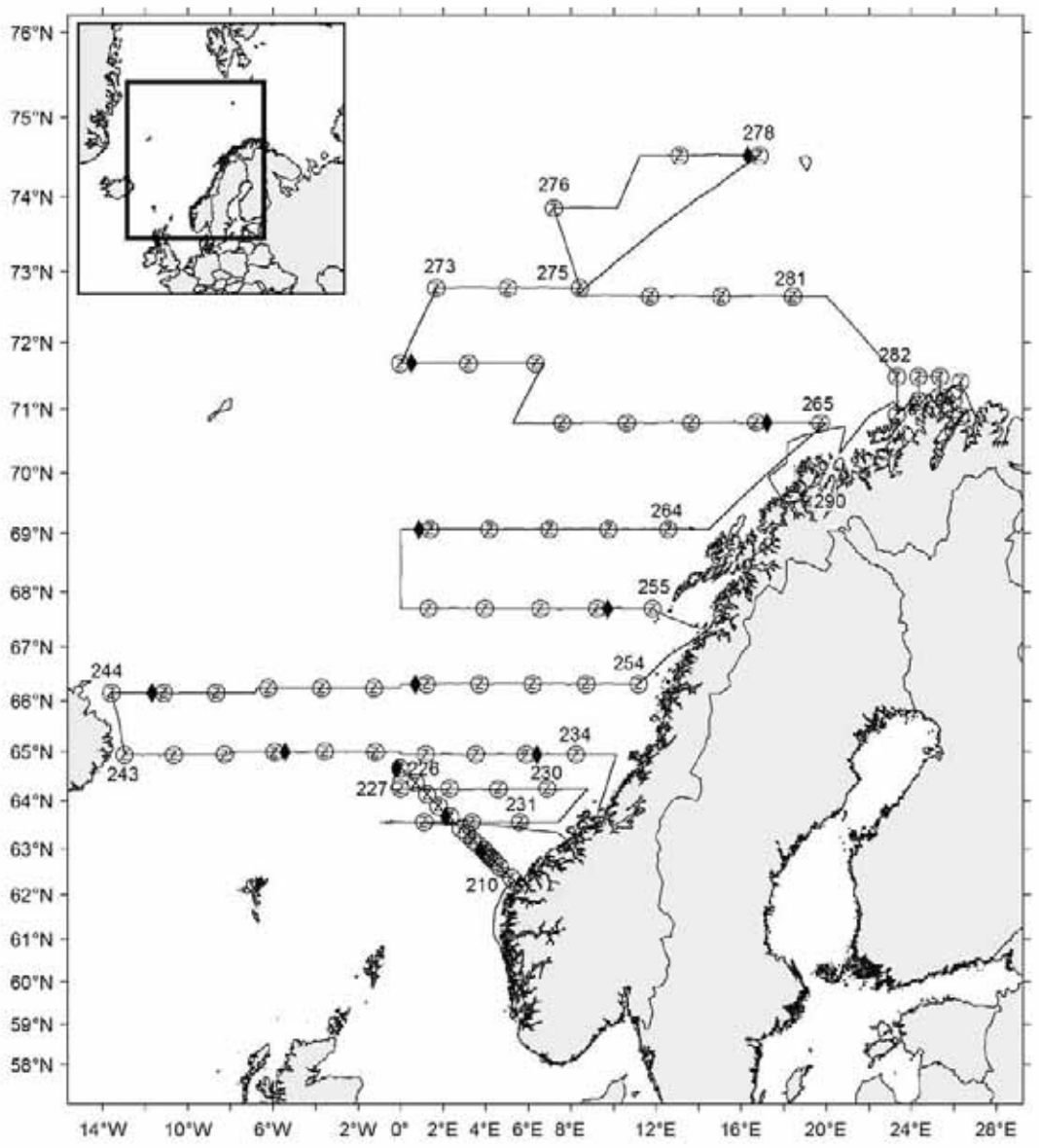
Cruise no 2015106 "G.O.Sars"
23 March–8 April 2015

▲ Pelagic trawl st.no 107–119



Cruise no 2015107 "G.O.Sars"
10–26 april 2015

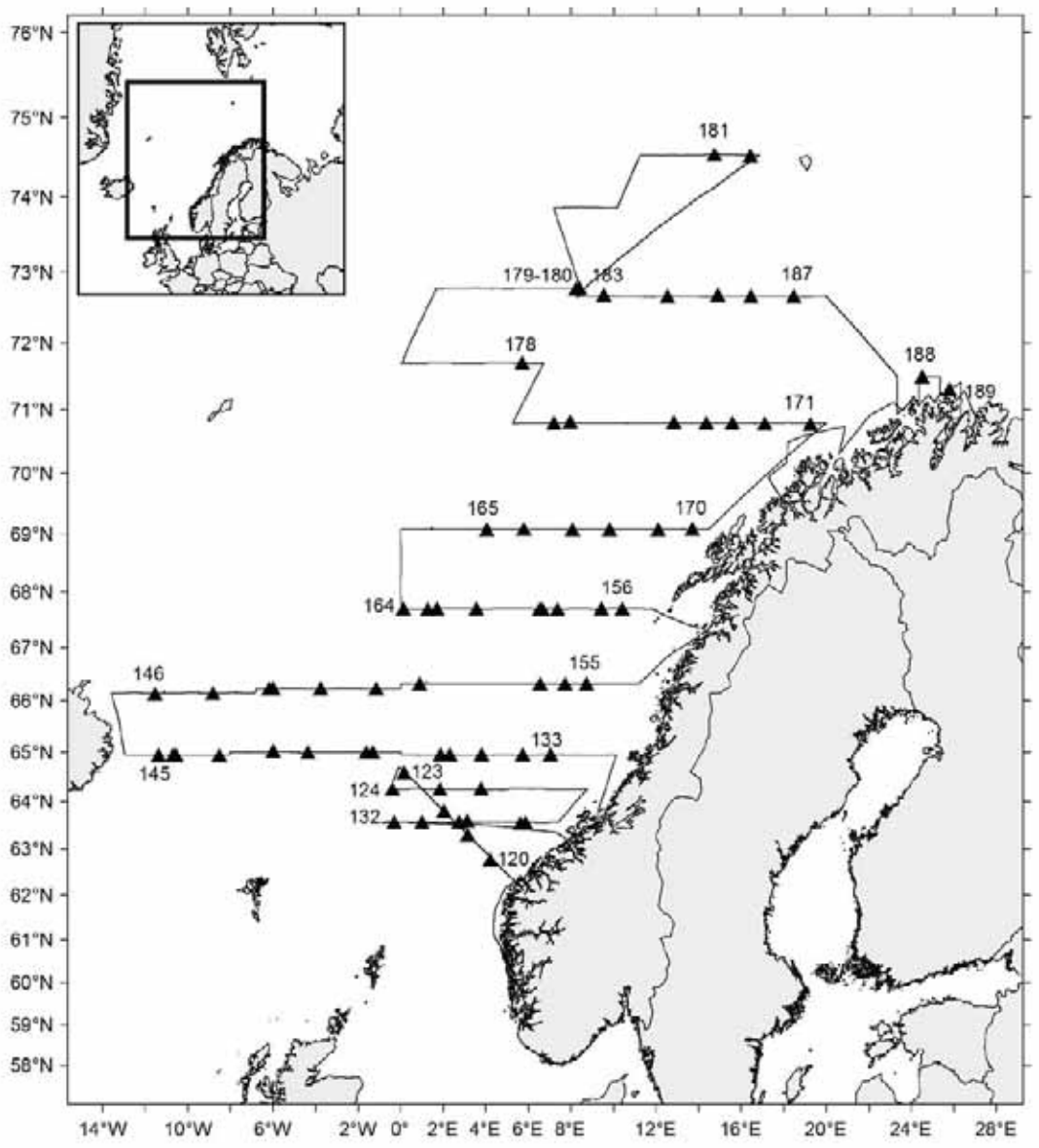
z CTD st.no 174–209



Cruise no 2015108 "G.O.Sars"
28 April–3 June 2015

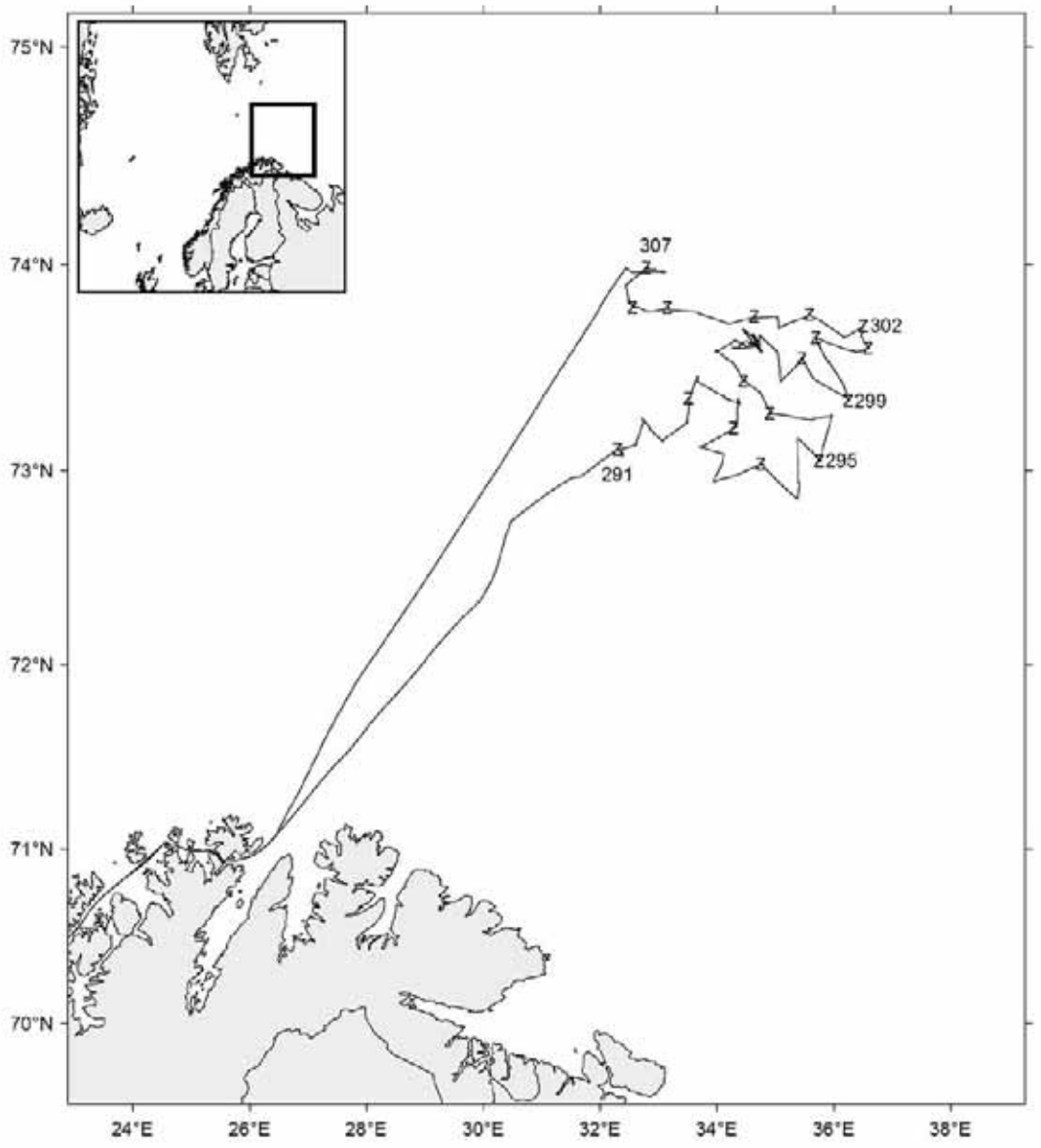
z CTD st.no 210-290
○ Plankton st. (WP-II-net)
♦ Plankton st. (Mocness)

Standard section Svinøy NW st.no 210-226



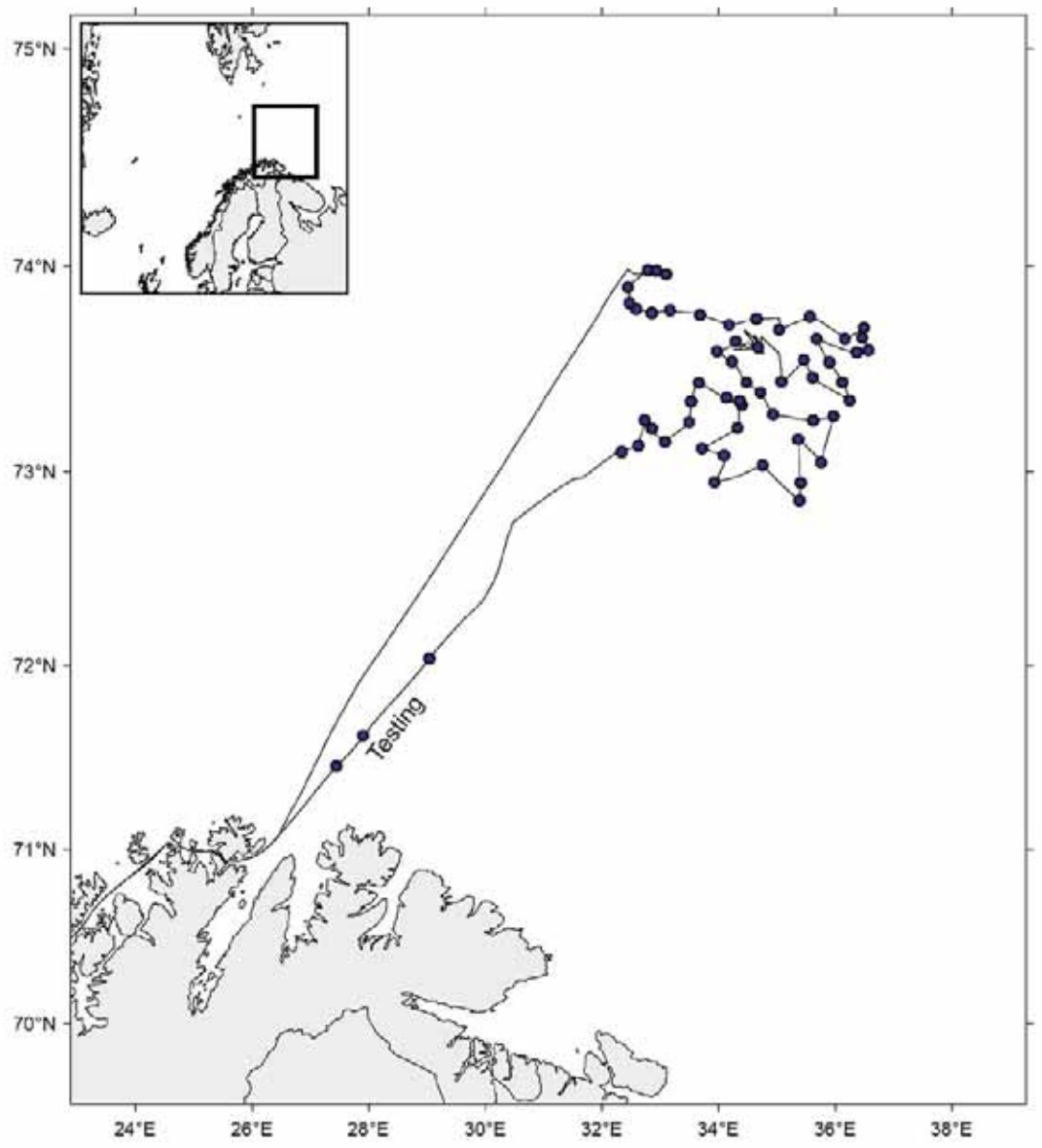
Cruise no 2015108 "G.O.Sars"
28 April–3 June 2015

▲ Pelagic trawl st.no 120-189



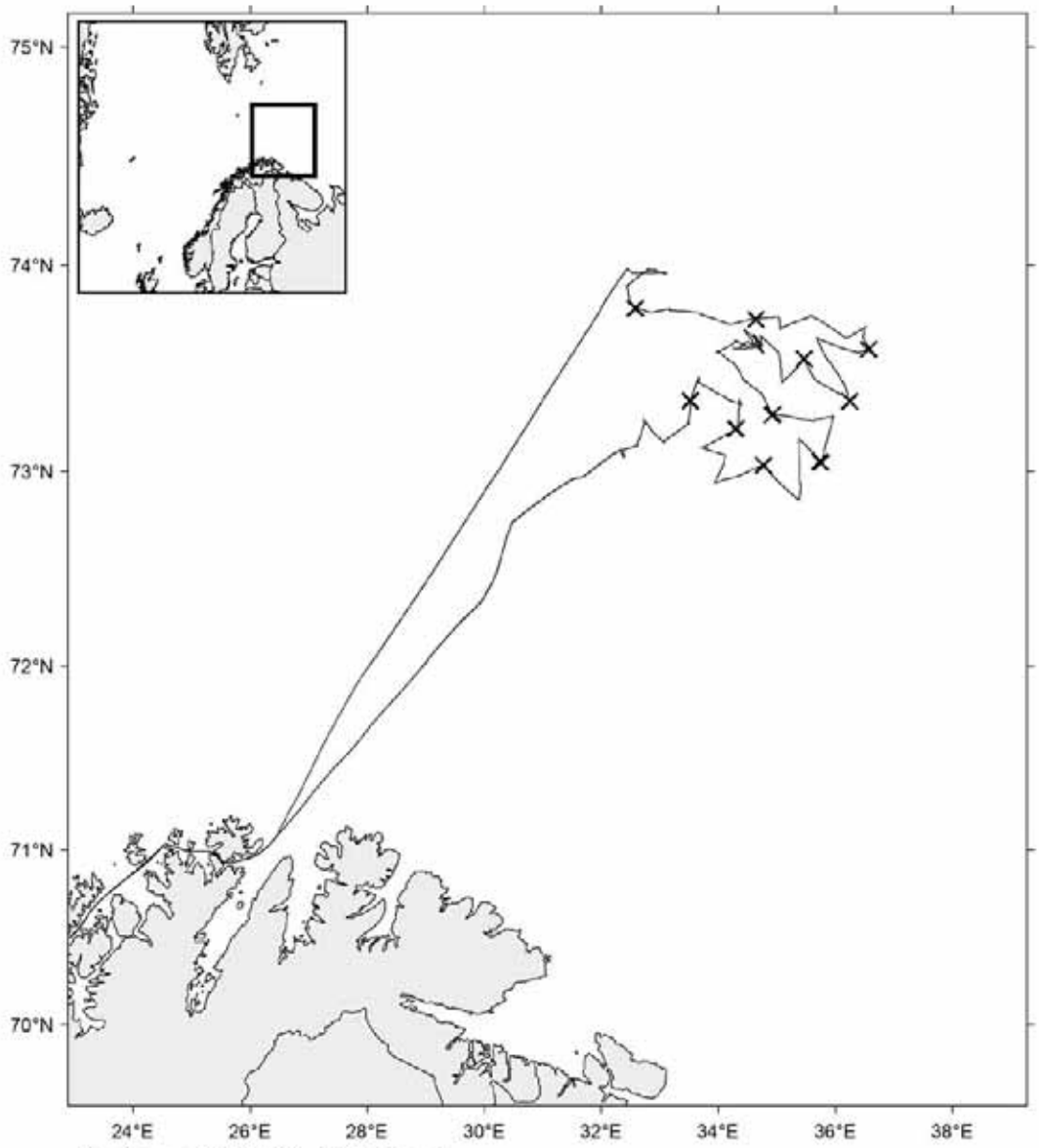
Cruise no 2015109 "G.O.Sars"
5–18 June 2015

z CTD st.no 291–307



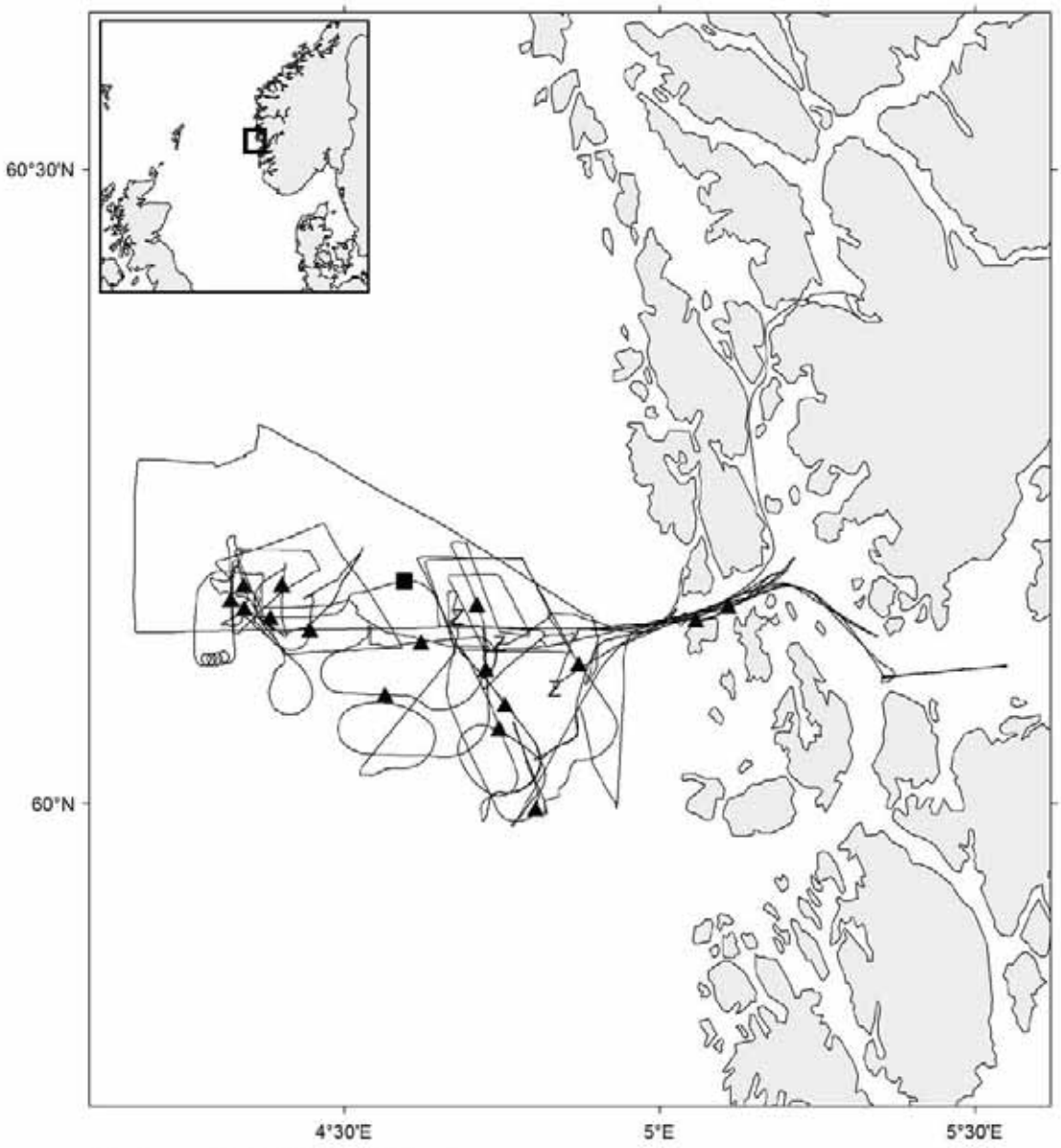
Cruise no 2015109 "G.O.Sars"
5–18 June 2015

● Video stations



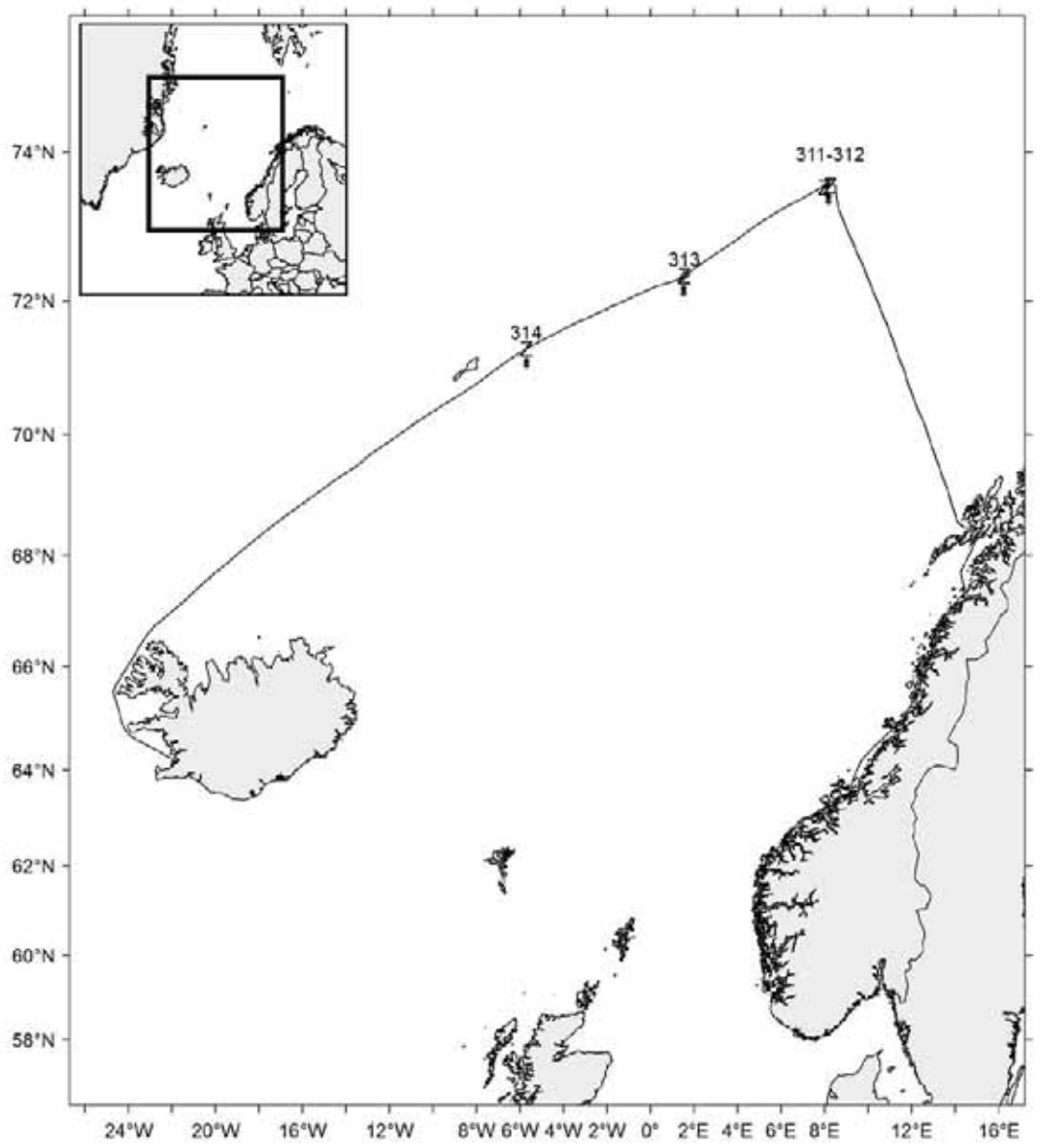
Cruise no 2015109 "G.O.Sars"
5–18 June 2015

× Full stations: Grab, sledge, beam trawl, boxcorer and Multicorer (on some st.)



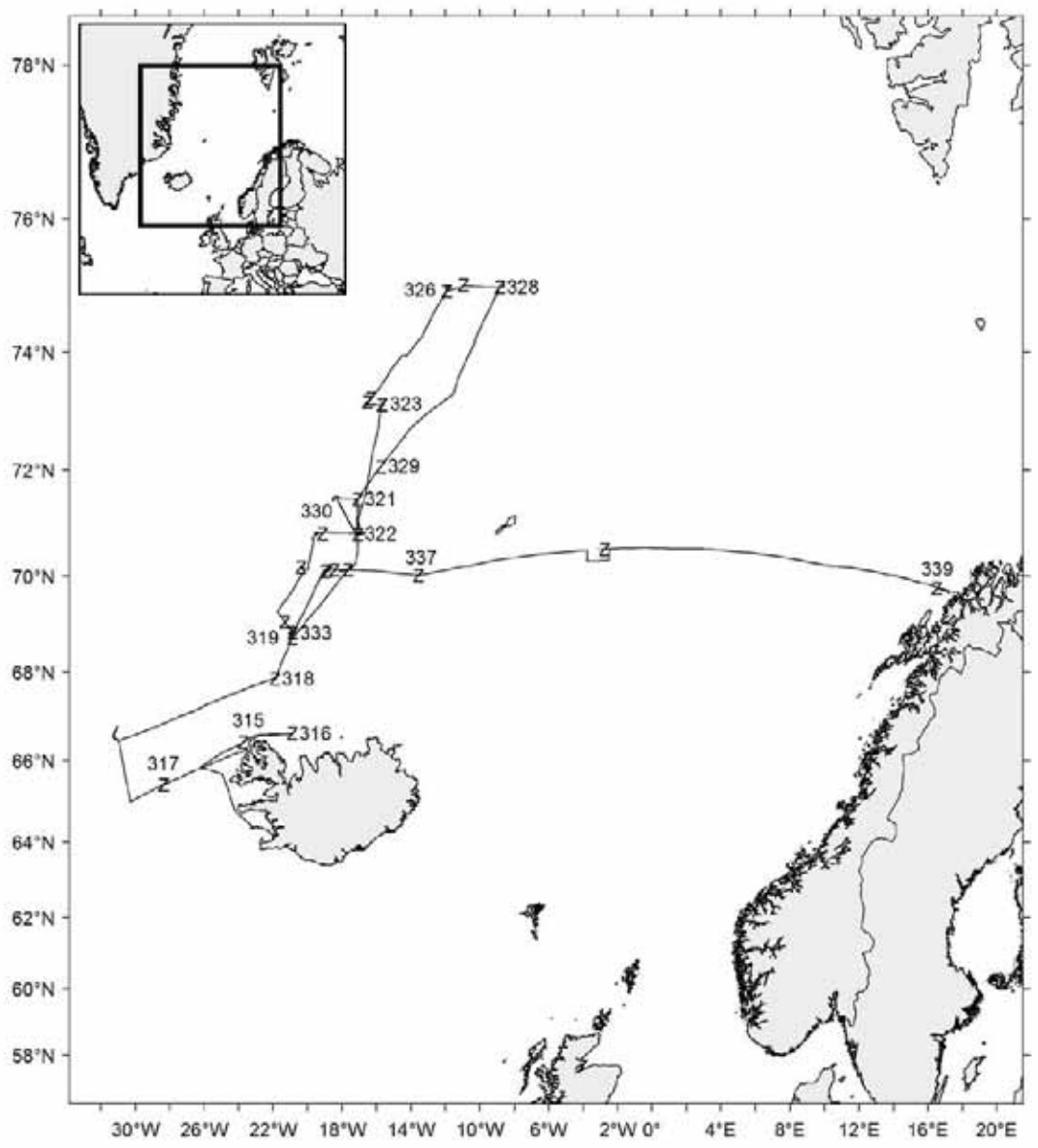
Cruise no 2015110 "G.O.Sars"
22–28 June 2015

z CTD st.no 308-310
▲ Pelagic trawl st.no 190-205
■ Bottom trawl st.no 206



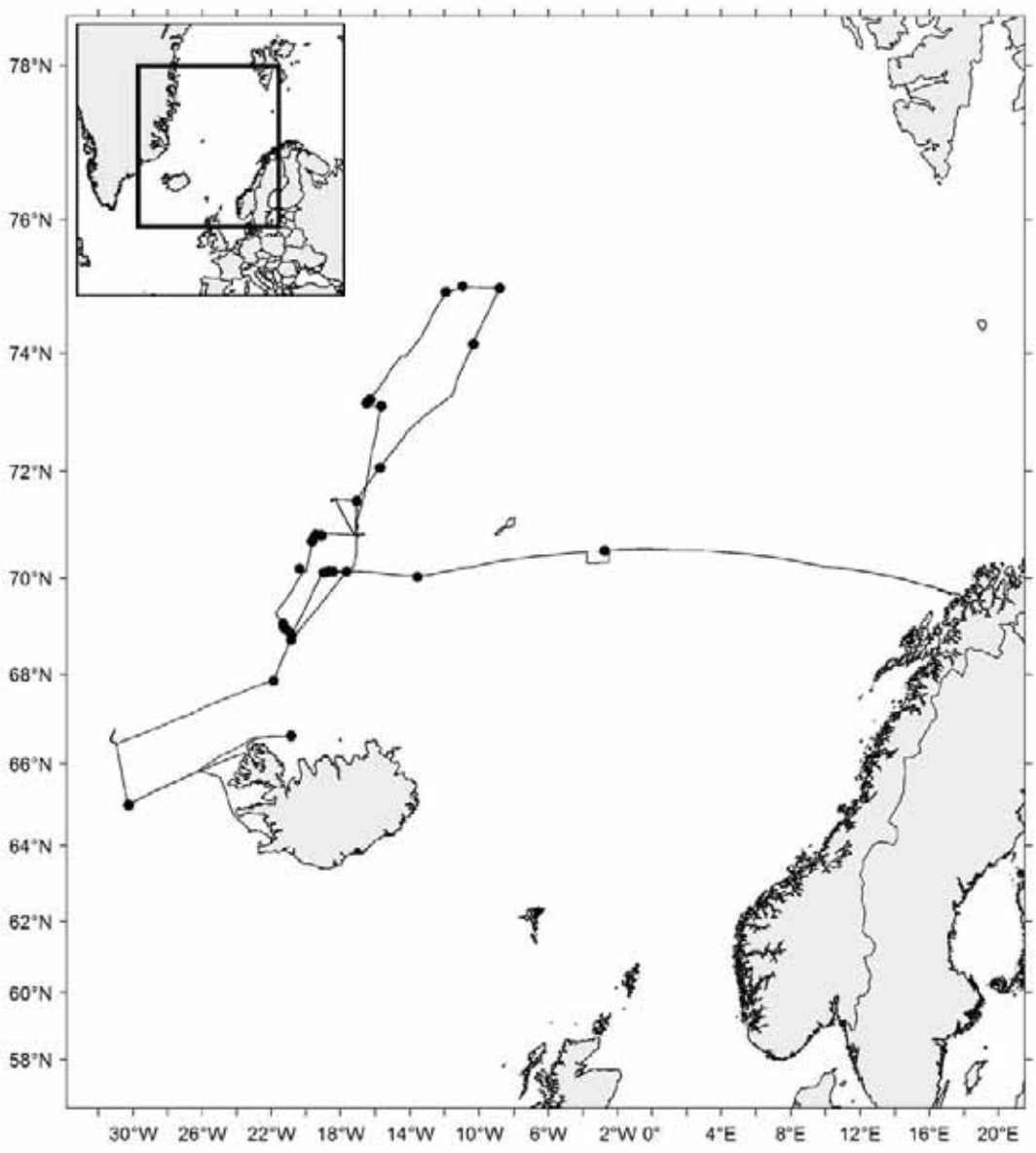
Cruise no 2015111 "G.O.Sars"
30 June–17 July 2015

z CTD st.no 311-314
● ROV stations



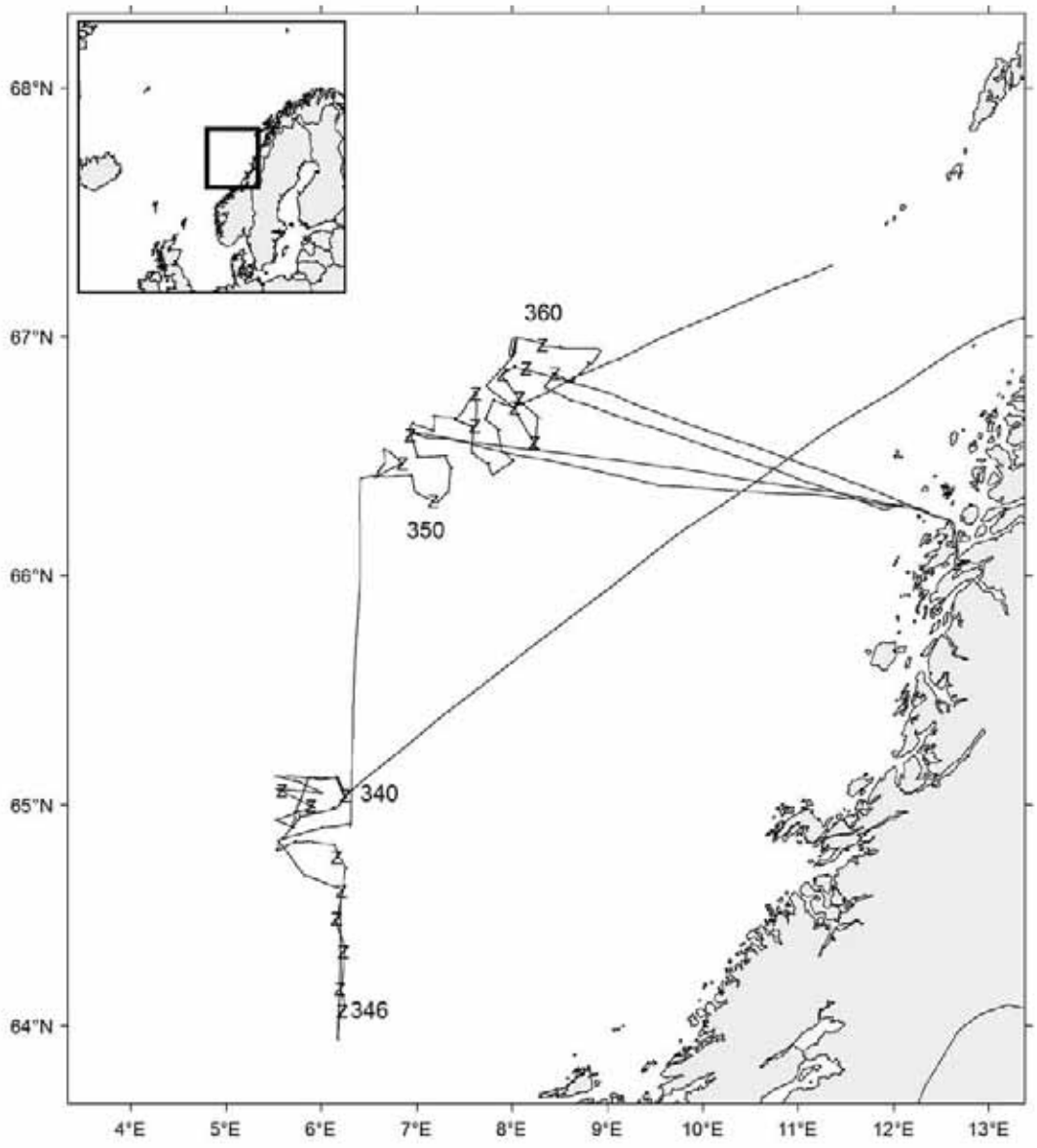
Cruise no 2015112 "G.O.Sars"
19 July–15 August 2015

z CTD st.no 315-339



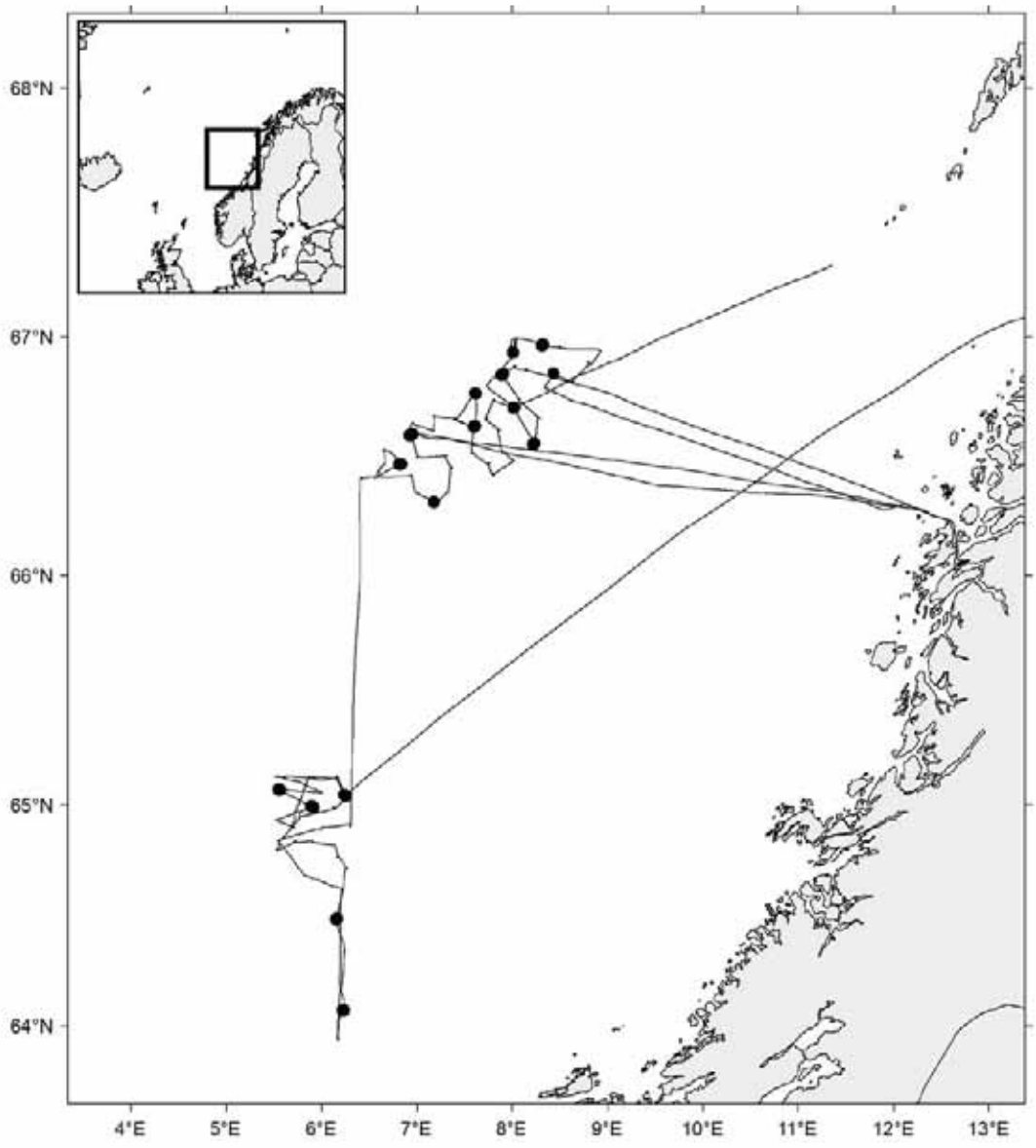
Cruise no 2015112 "G.O.Sars"
17 July–15 August 2015

● Video stations



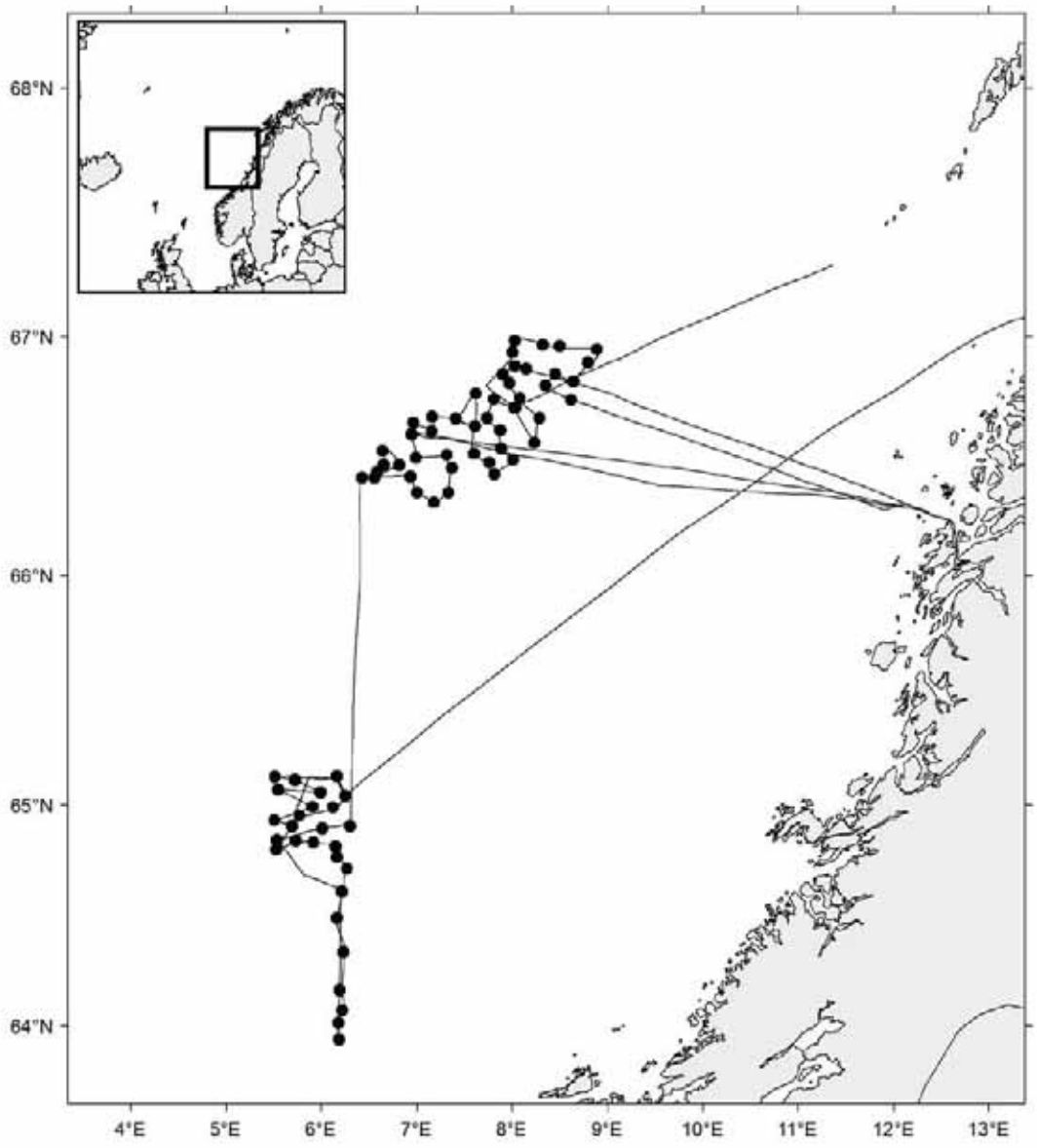
Cruise no 2015113 "G.O.Sars"
18 August–7 September 2015

z CTD st.no 340–360



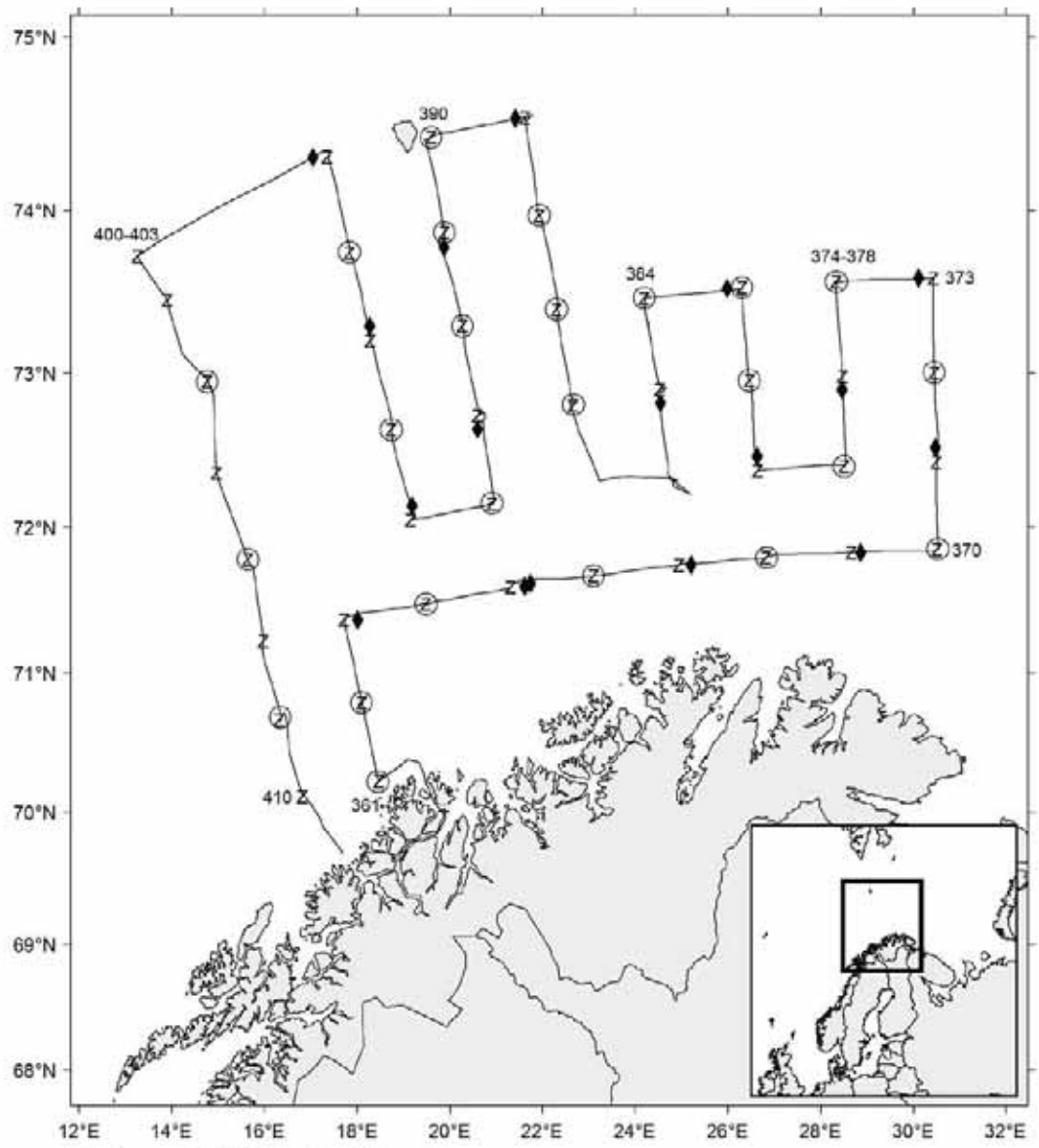
Cruise no 2015113 "G.O.Sars"
18 August–7 September 2015

● Fullstations:
Grab, Boxcorer, Multicorer, Beamtrawl,Sledge.
(As many as possible depending of sea floor quality)



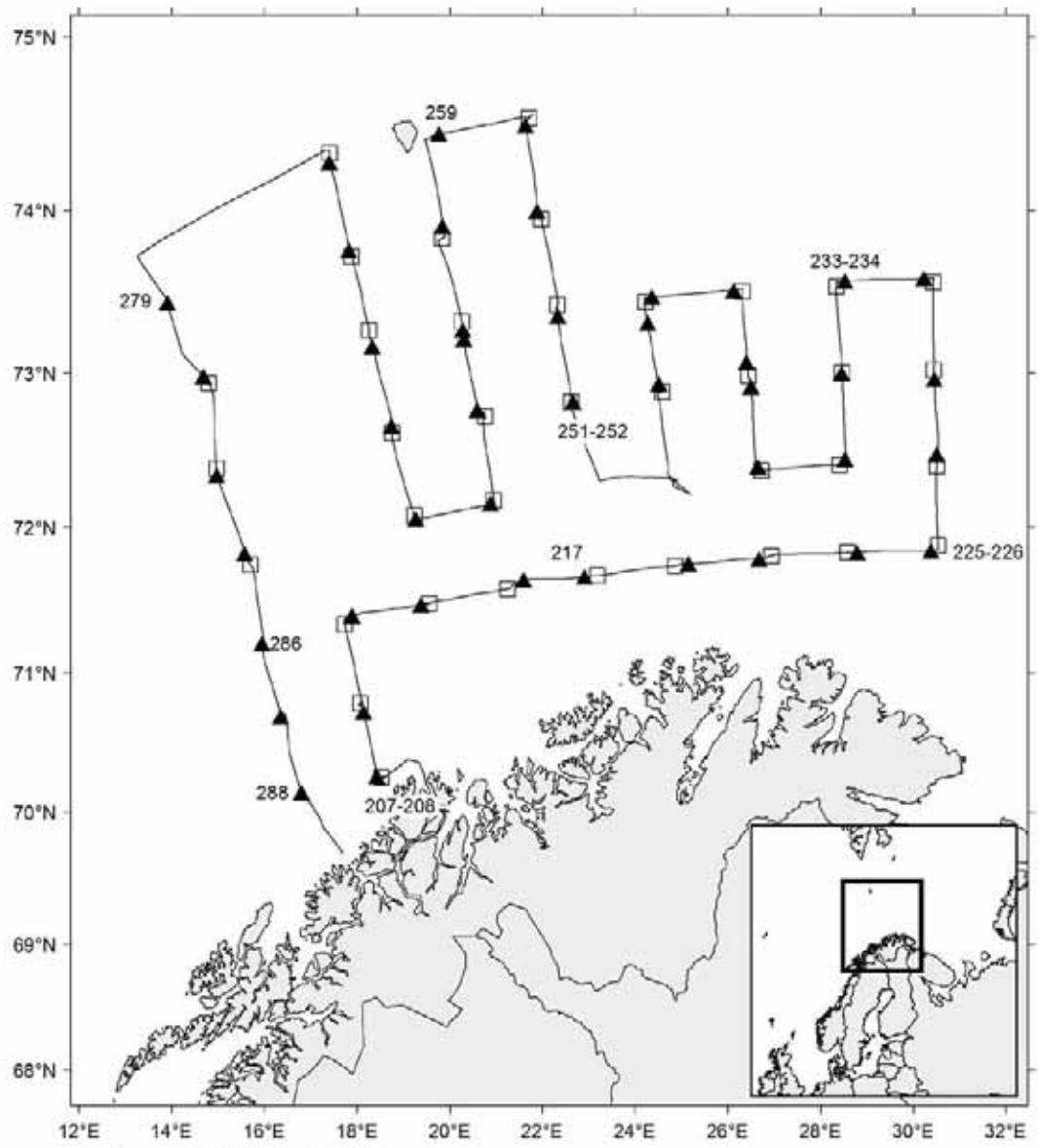
Cruise no 2015113 "G.O.Sars"
18 August–7 September 2015

● Video stations



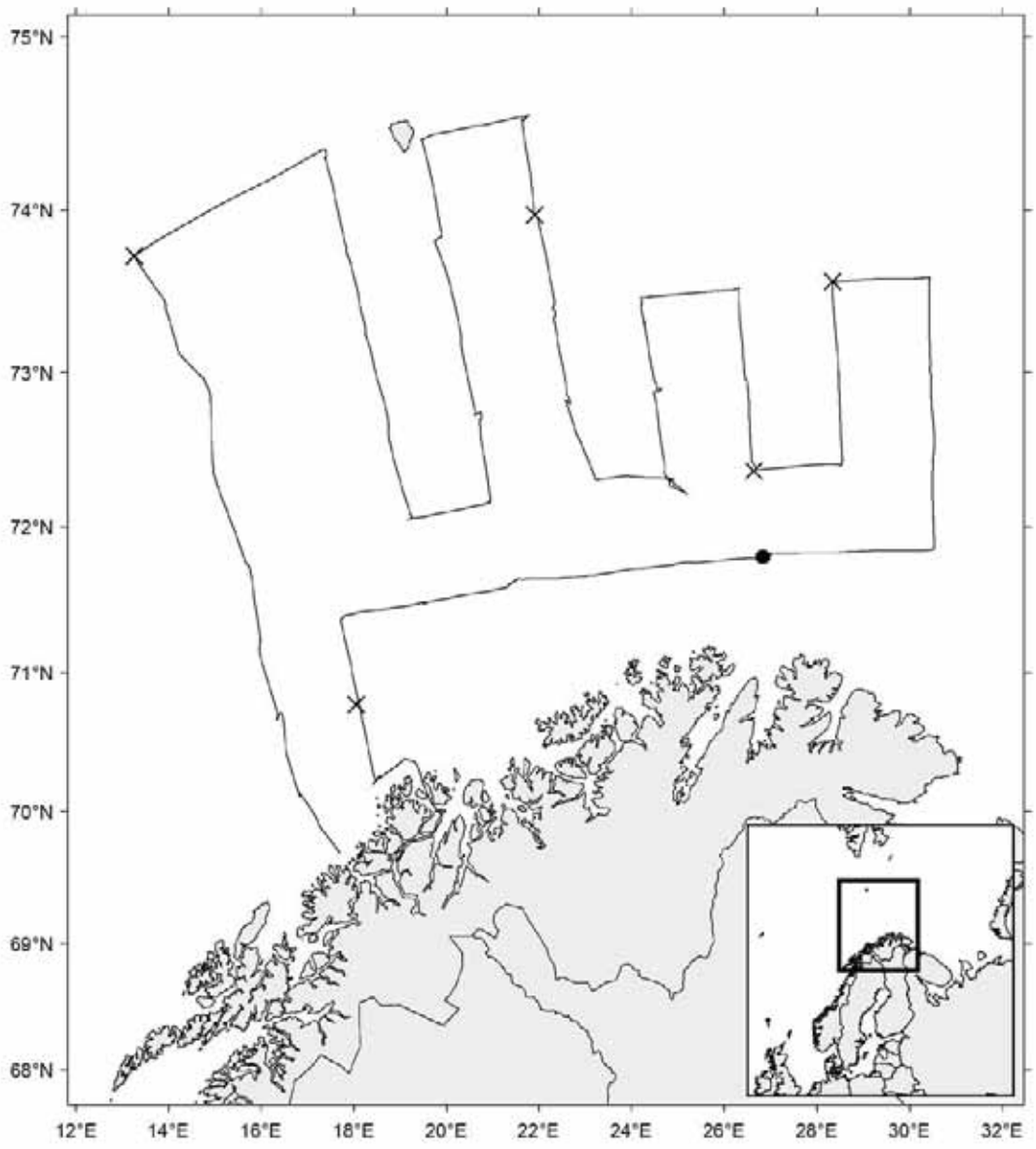
Cruise no 2015114 "G.O.Sars"
11–27 September 2015

z CTD st.no 361-410
○ Plankton st. (WP-II-net)
♦ Plankton st. (Mocness)



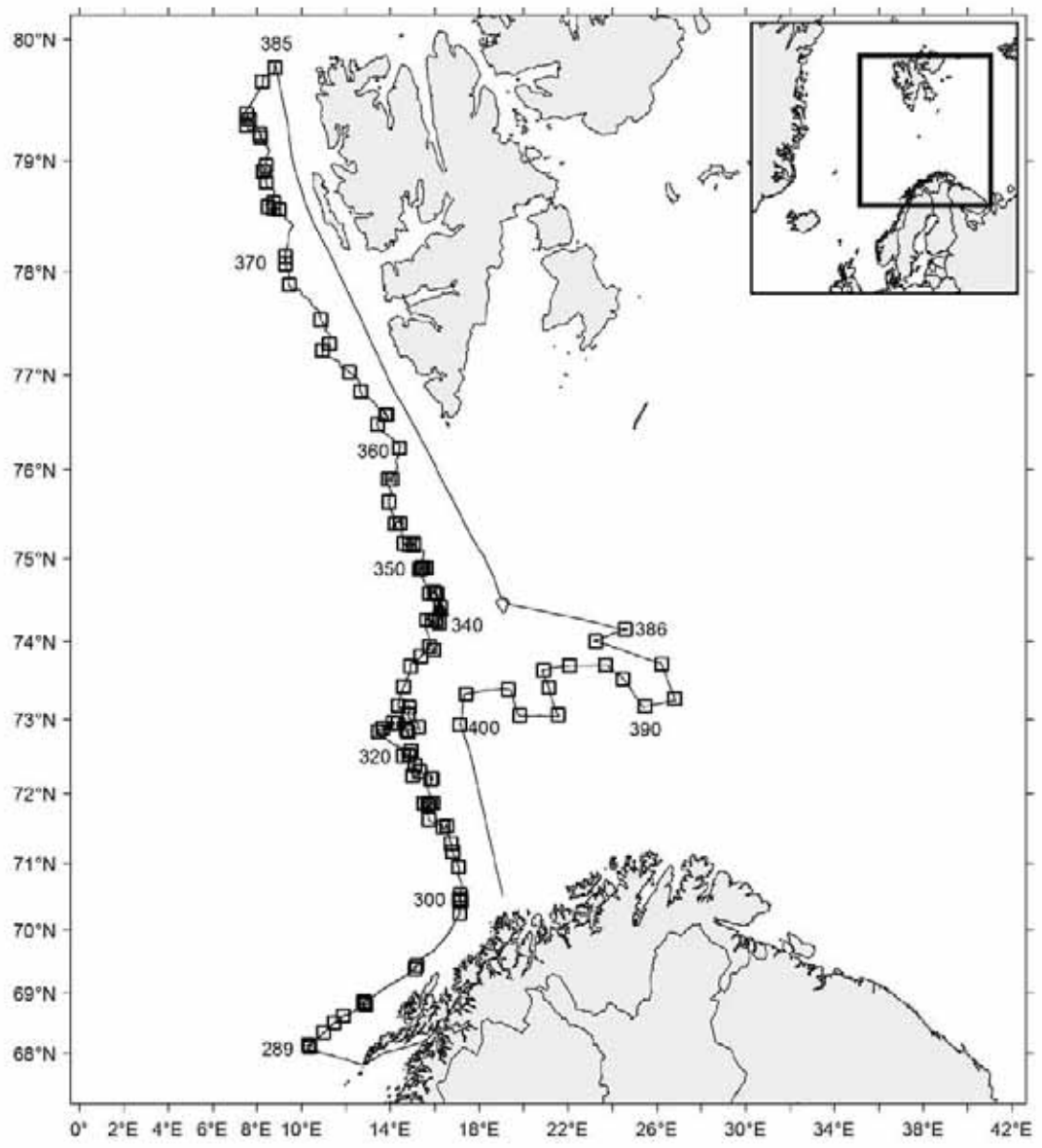
Cruise no 2015114 "G.O.Sars"
11–27 September 2015

Trawl st.no 207-288
▲ Pelagic trawl
□ Bottom trawl

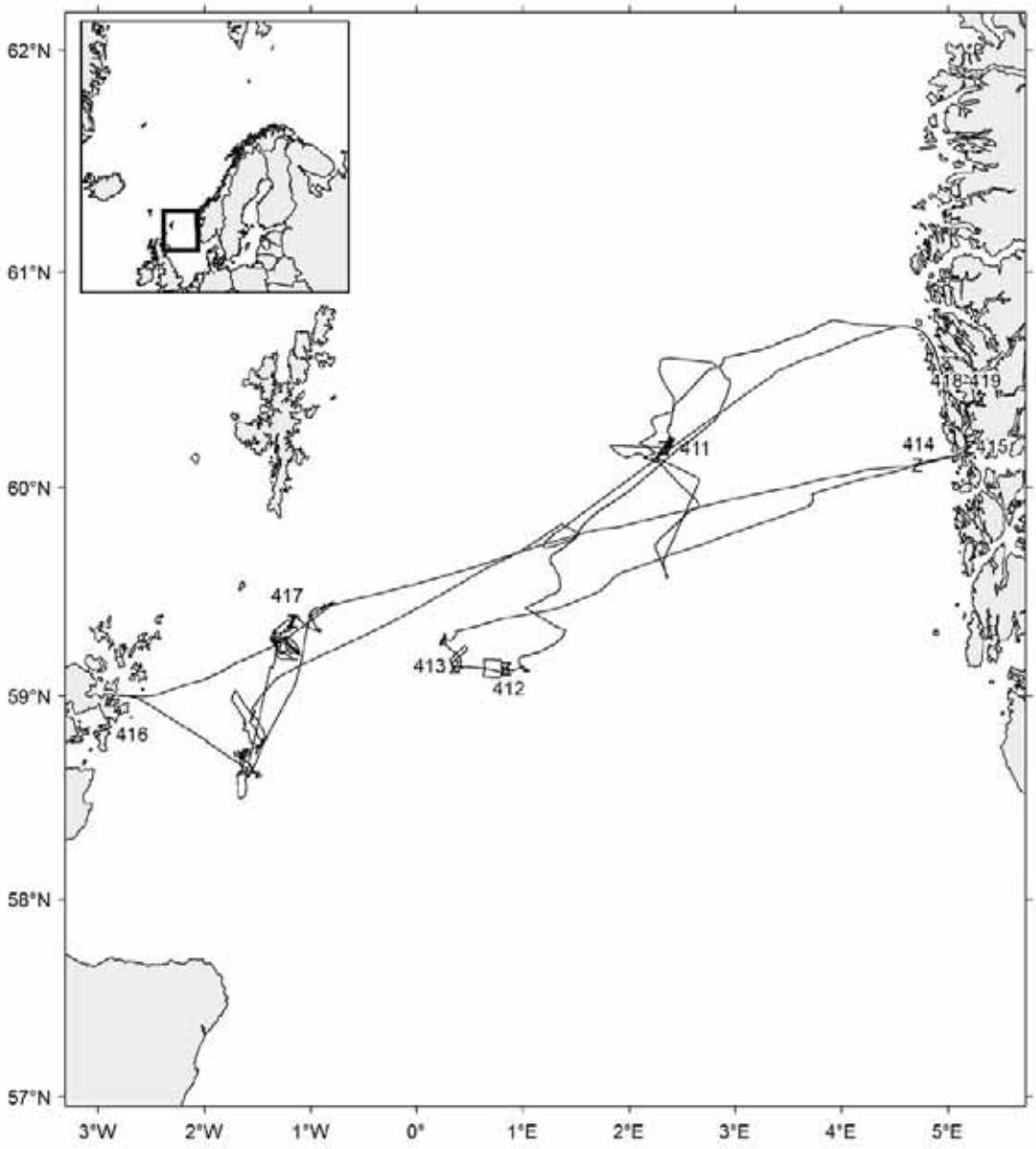


Cruise no 2015114 "G.O.Sars"
11–27 September 2015

● Grab station
× Box corer

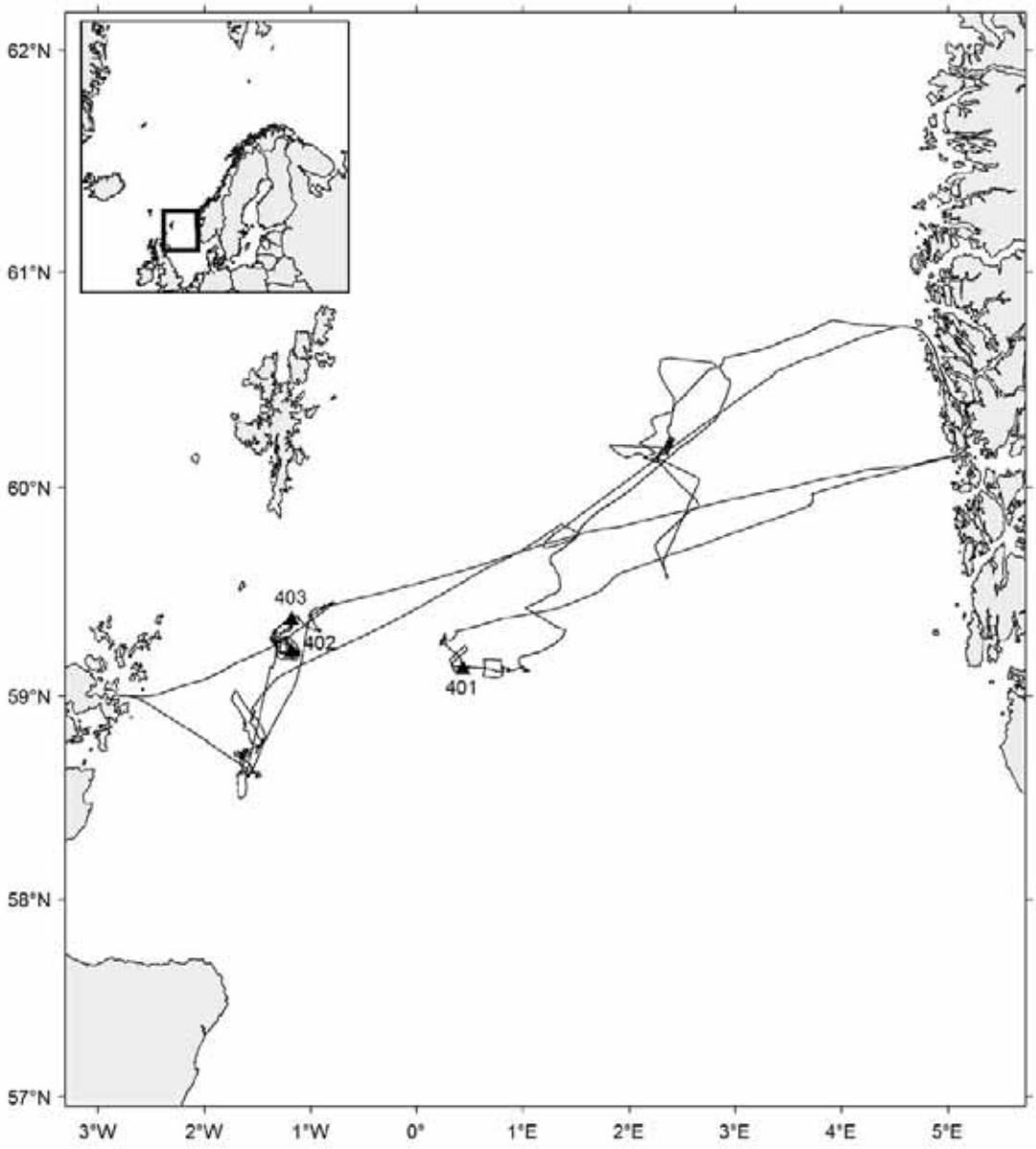


Cruise no 2015115 "G.O.Sars"
29 September–16 October 2015
Trawl st.no 289-400
□ Bottom trawl
▲ Pelagic trawl (st.no 341)



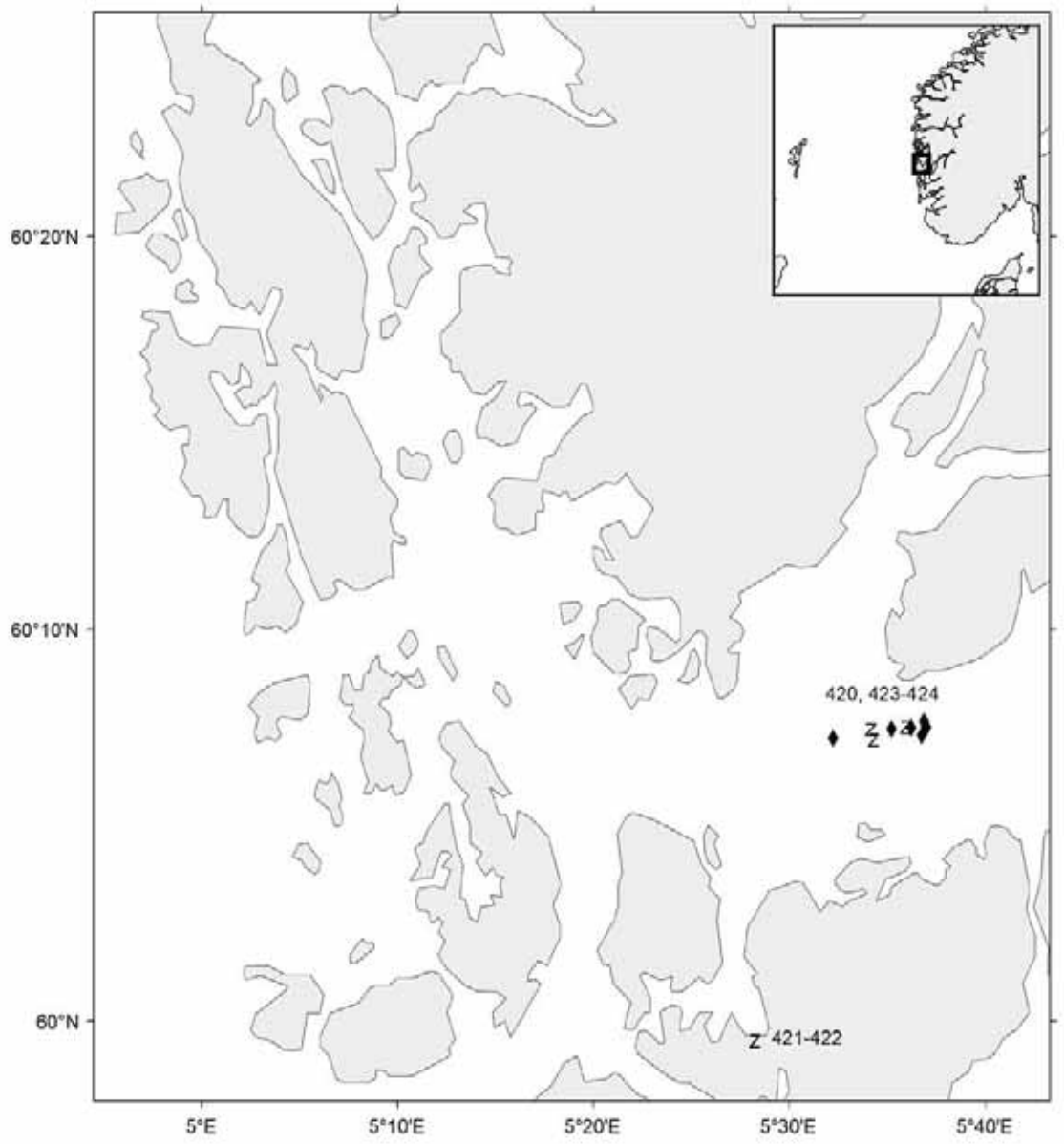
Cruise no 2015116 "G.O.Sars"
20 October–5 November 2015

z CTD st.no 411–419



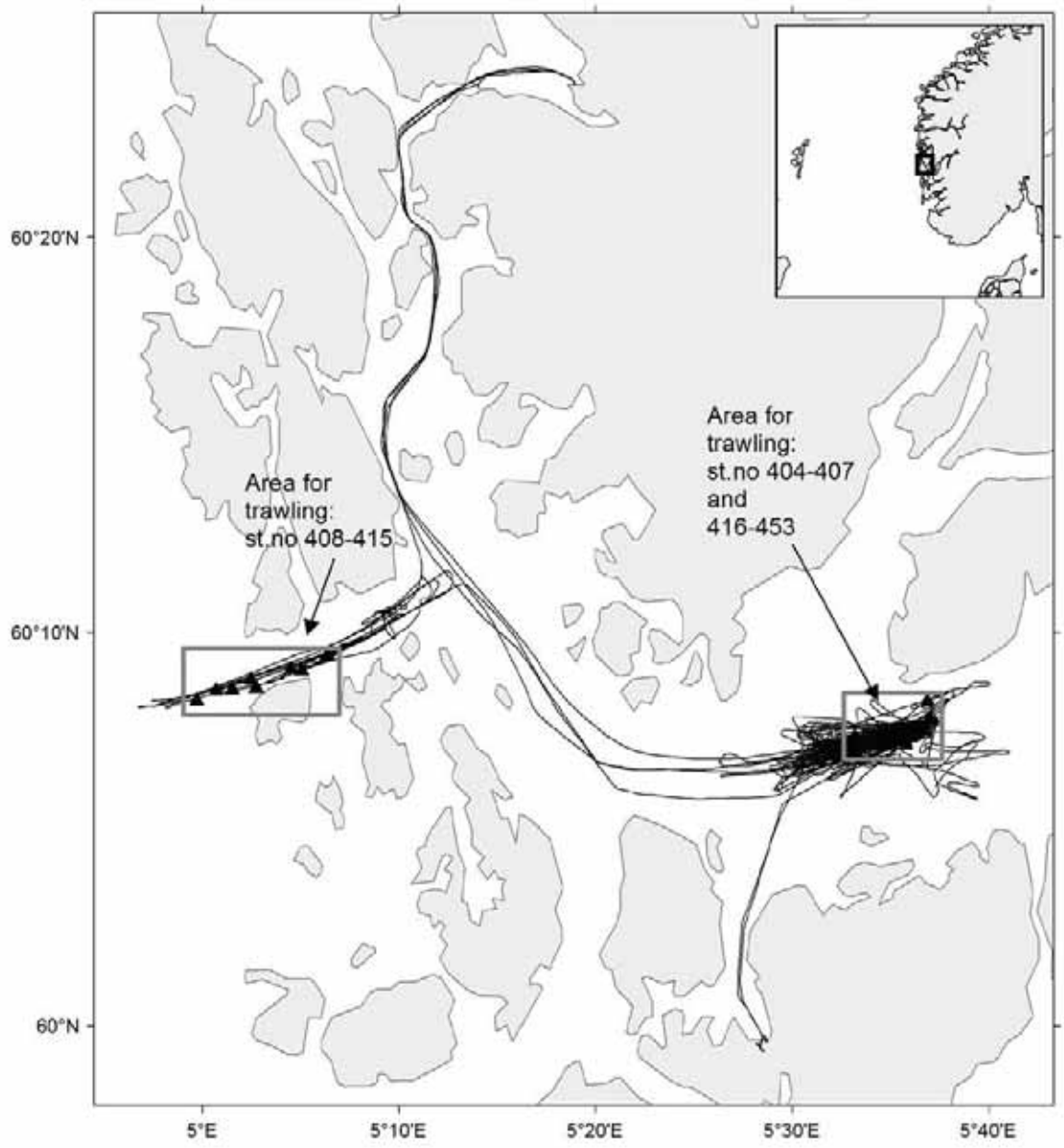
Cruise no 2015116 "G.O.Sars"
20 October–5 November 2015

▲Pelagic trawl st.no 401–403



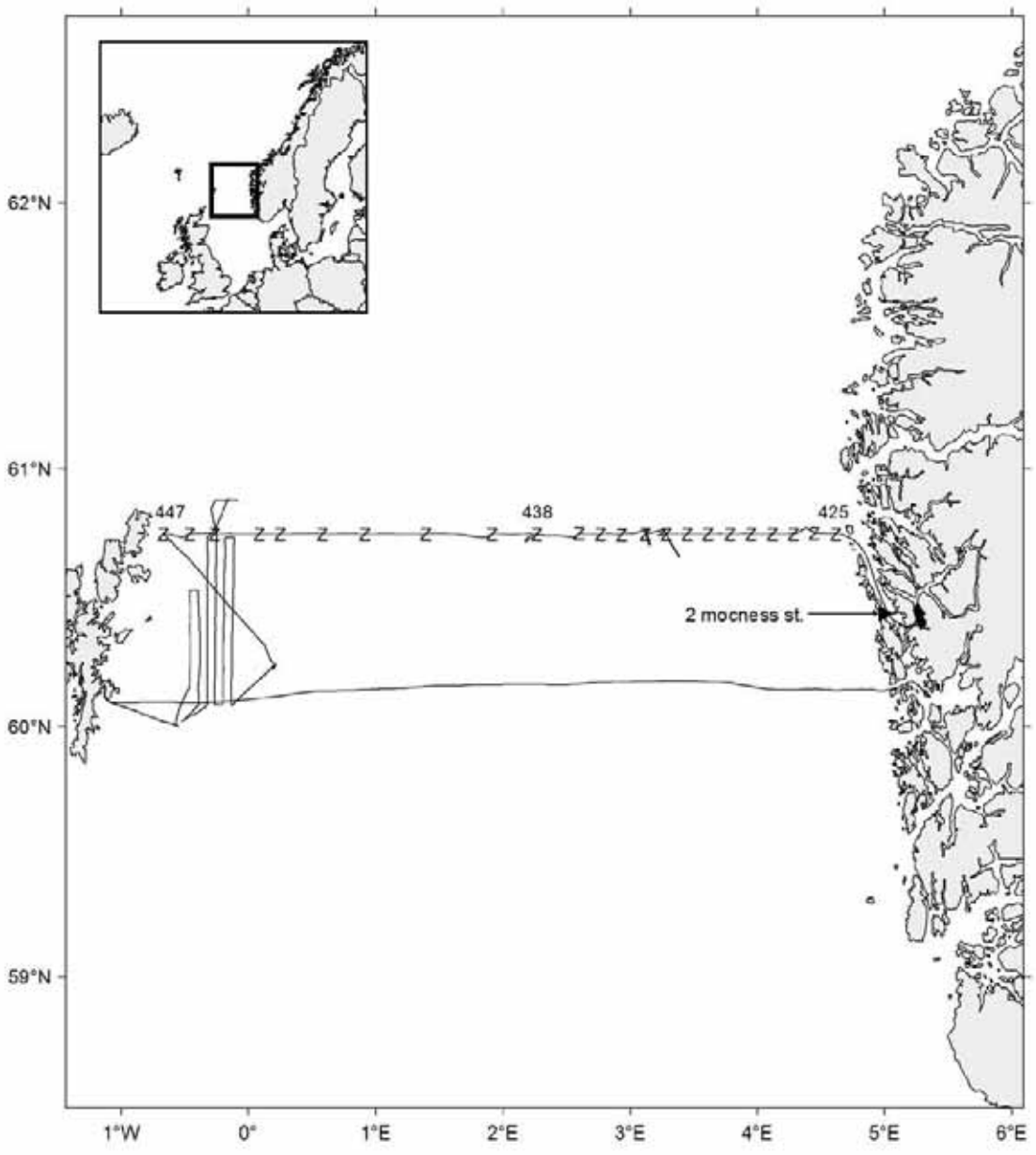
Cruise no 2015117 "G.O.Sars"
8–21 November 2015

z CTD st.no 420–424
♦ Plankton st. (Mocness)



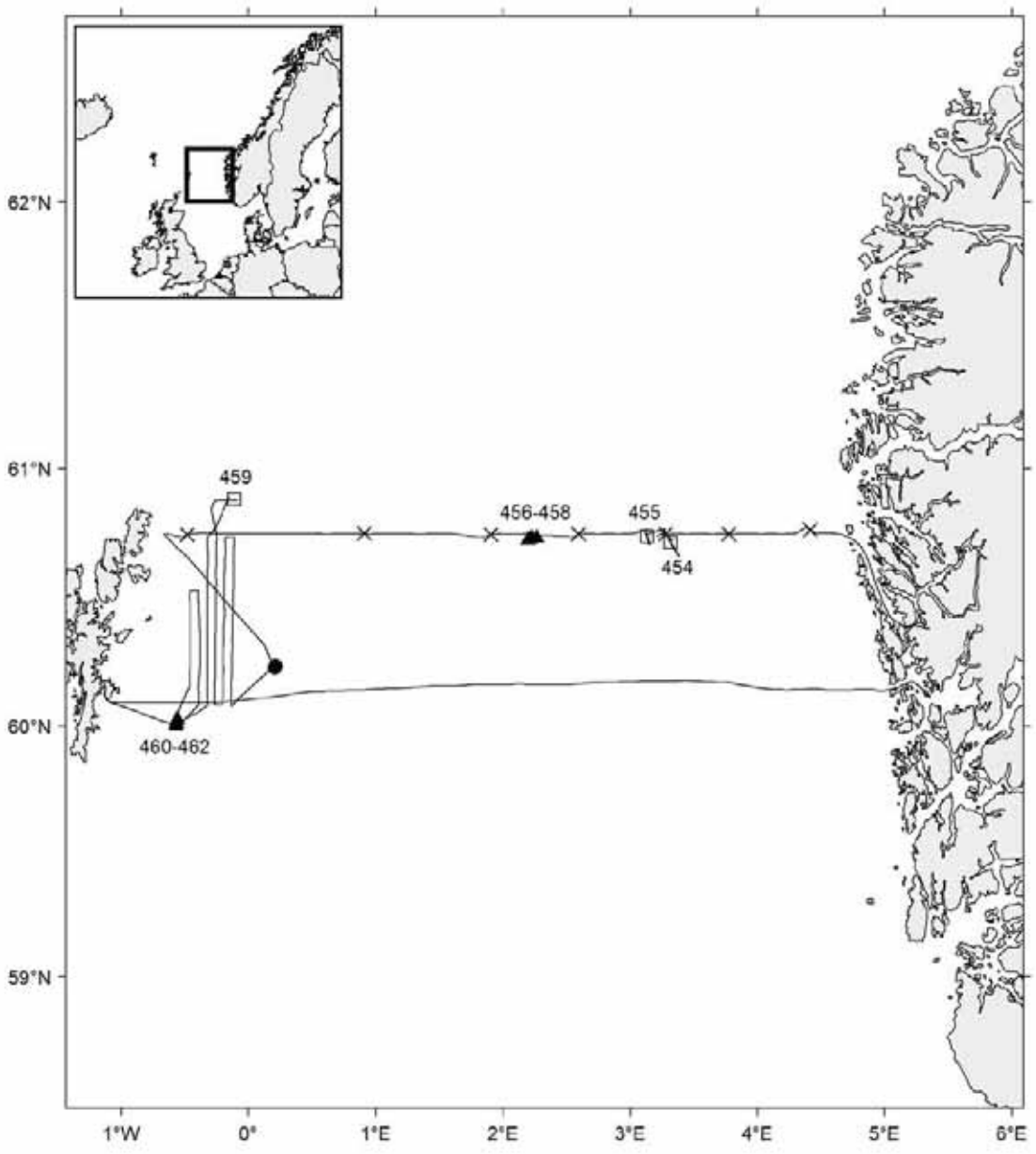
Cruise no 2015117 "G.O.Sars"
8–21 November 2015

—— Cruise track
Macroplankton trawl st. no 416-453
(Pelagic trawl st.no 404–453)



Cruise no 2015118 "G.O.Sars"
24–30 November 2015

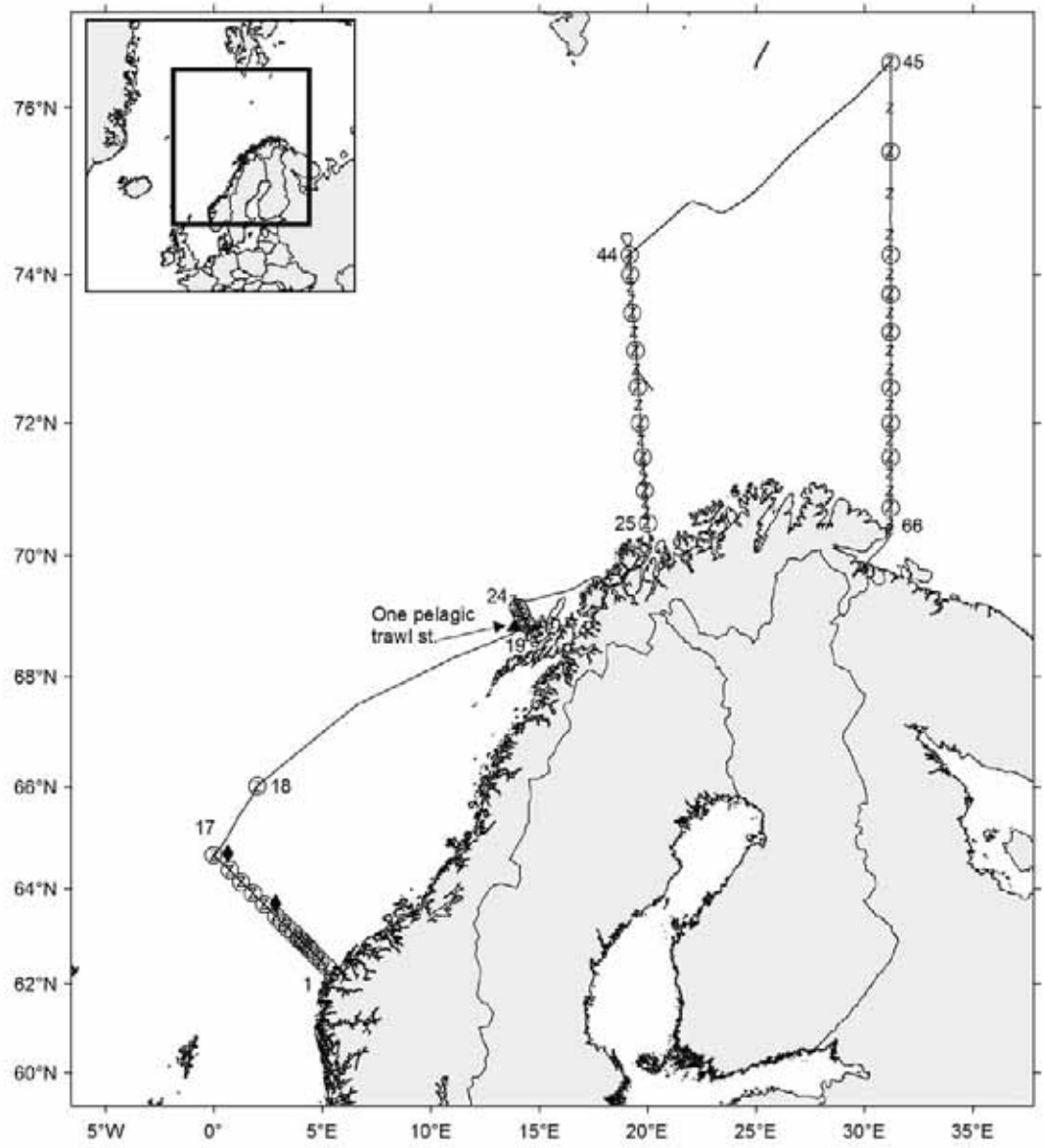
z CTD st.no 425–447
♦ Plankton st. (Mocness)



Cruise no 2015118 "G.O.Sars"
24–30 November 2015

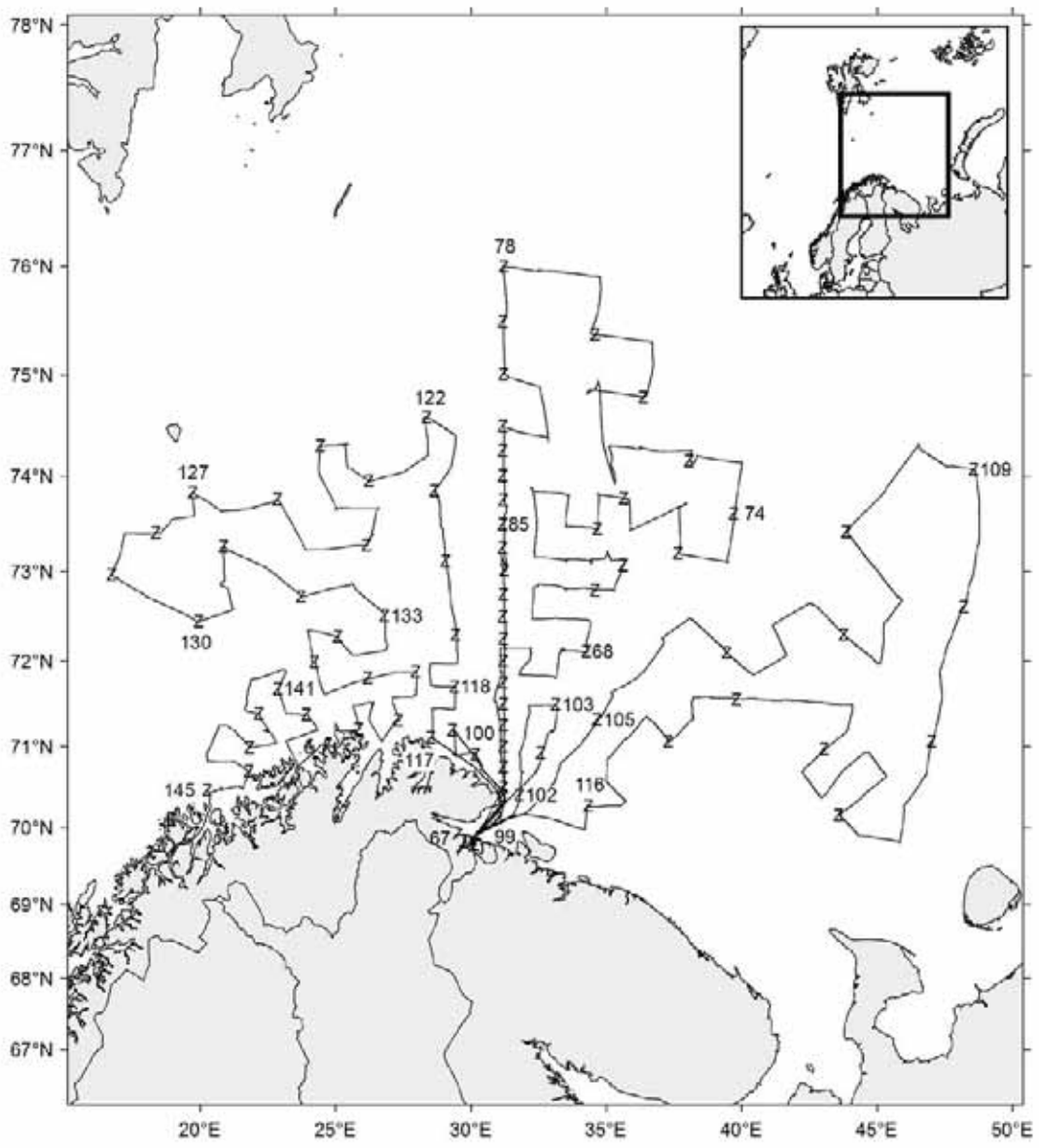
Trawl st.no 454–462
□ Bottom trawl
▲ Pelagic trawl
× Mik station
● Beam trawl

4.2 Johan Hjort



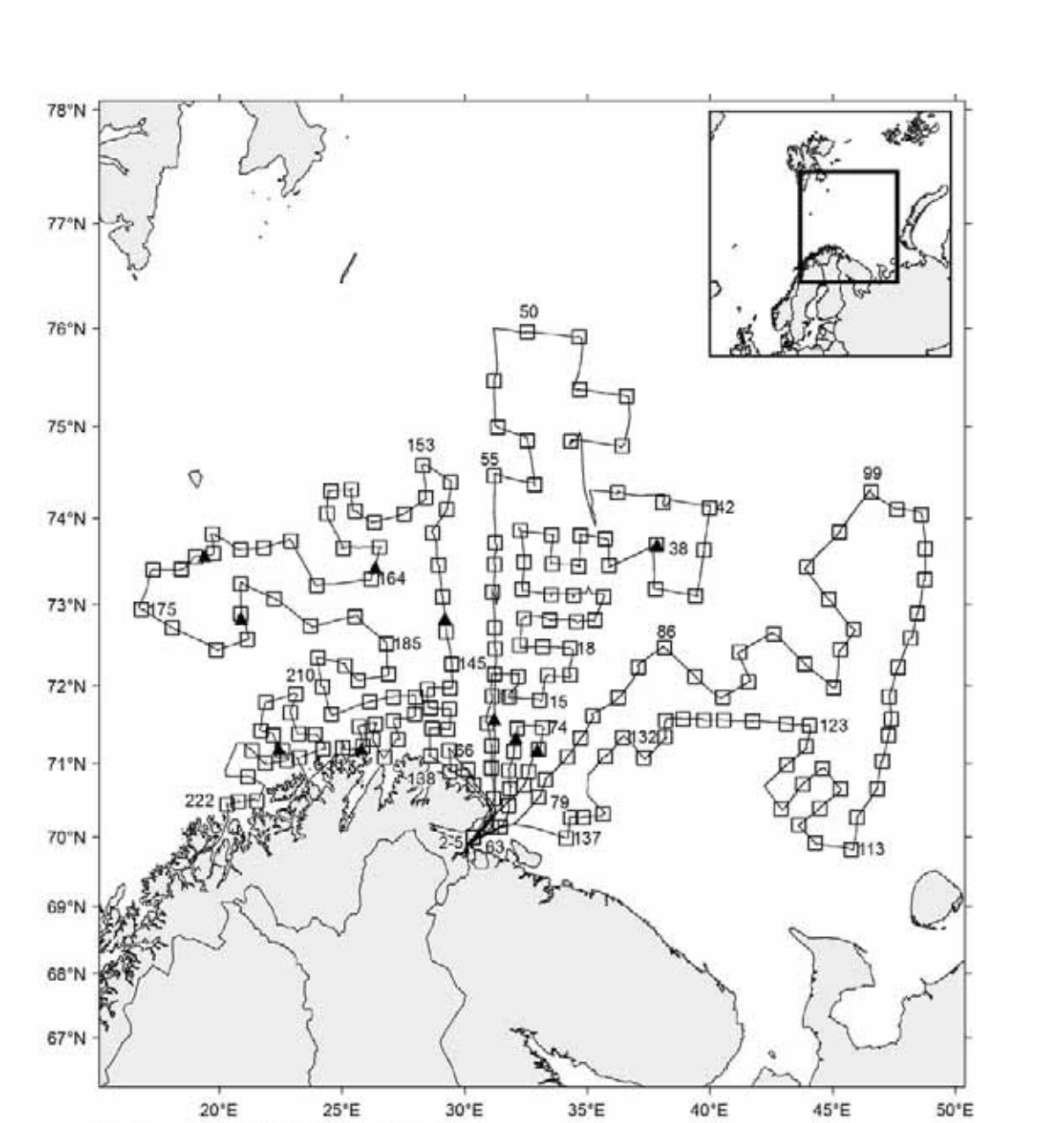
Cruise no 2015201 "Johan Hjort"
12–25 January 2015
z CTD st.no 1–66
○ Plankton st. (WP-II-net)
♦ Plankton st. (Mocness)
▲ Pelagic trawl st.no 1

Standard sections:
Svinøy-NW st.no 1–17
Fugløya–Bjørnøya st.no 25–44
Vardø N st.no 45–66
St. M st.no 18
Project LoVe st.no 19–24

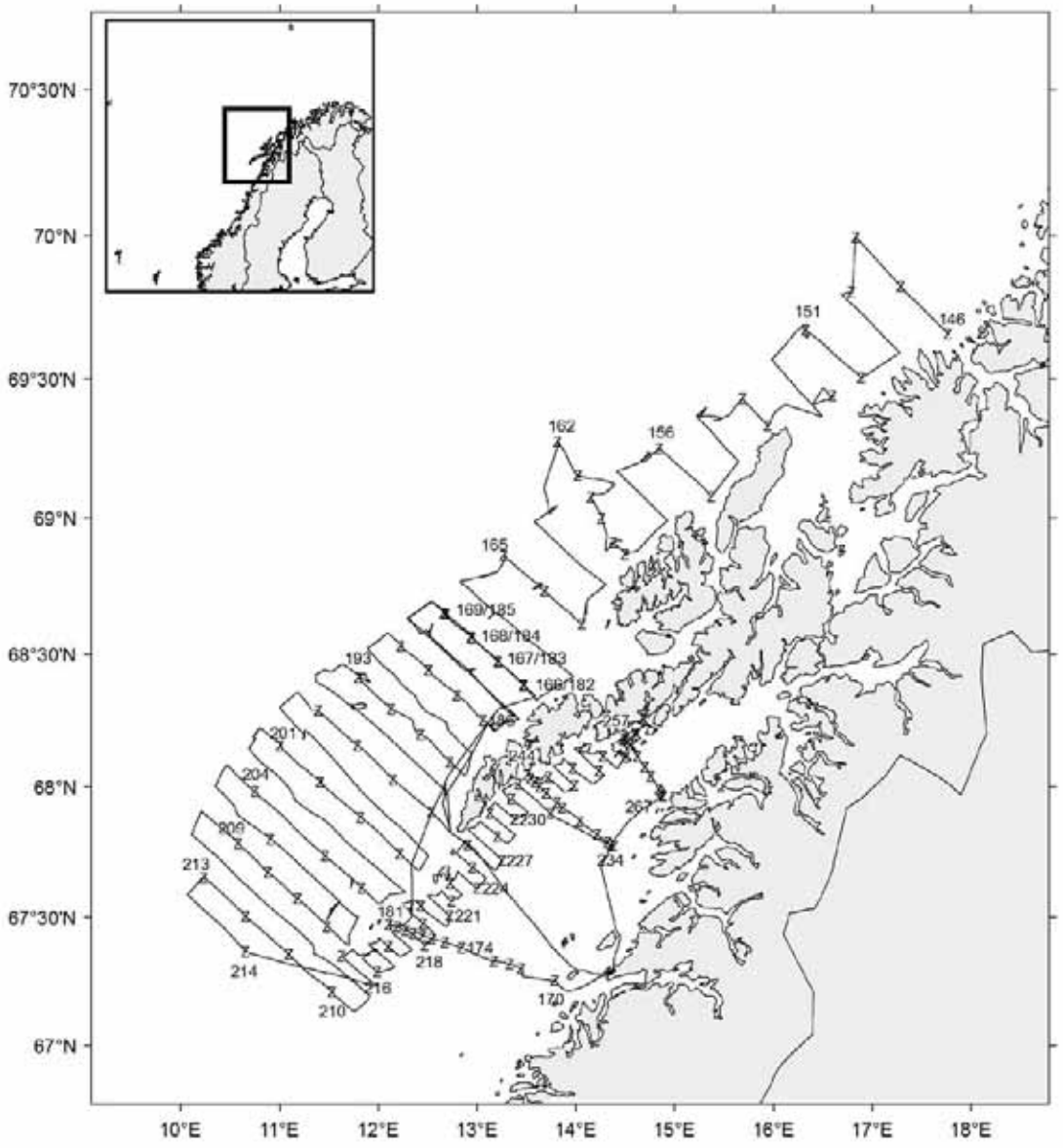


Cruise no 2015202 "Johan Hjort" Standard sections Vardø N: st.no 78–99
28 January–12 March 2015

z CTD st.no 67–145



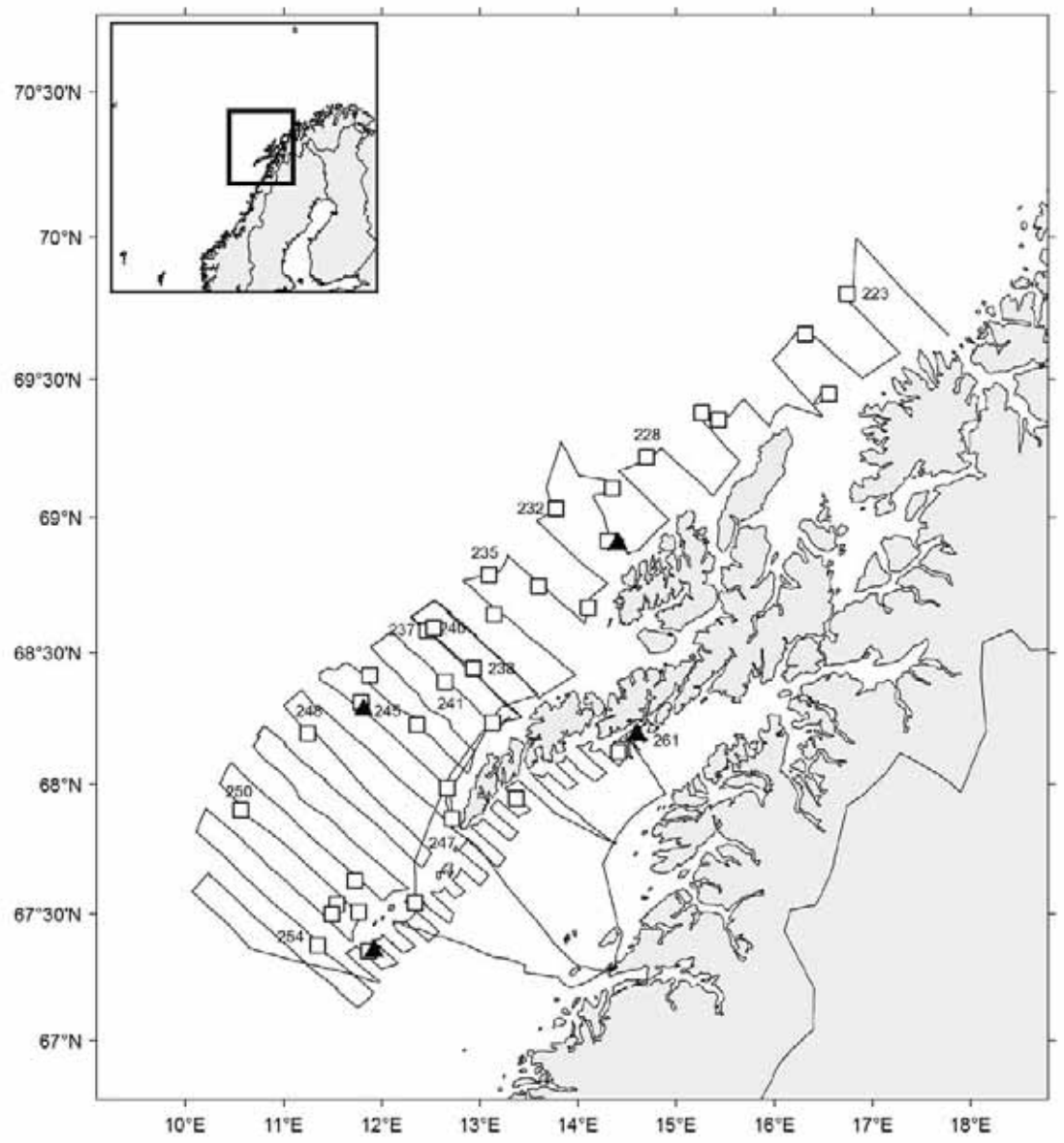
Cruise no 2015202 "Johan Hjort"
28 January–12 March 2015
Trawl st.no 2–222
□ Bottom trawl
▲ Pelagic trawl



Cruise no 2015203 "Johan Hjort"
20 March–4 April 2015

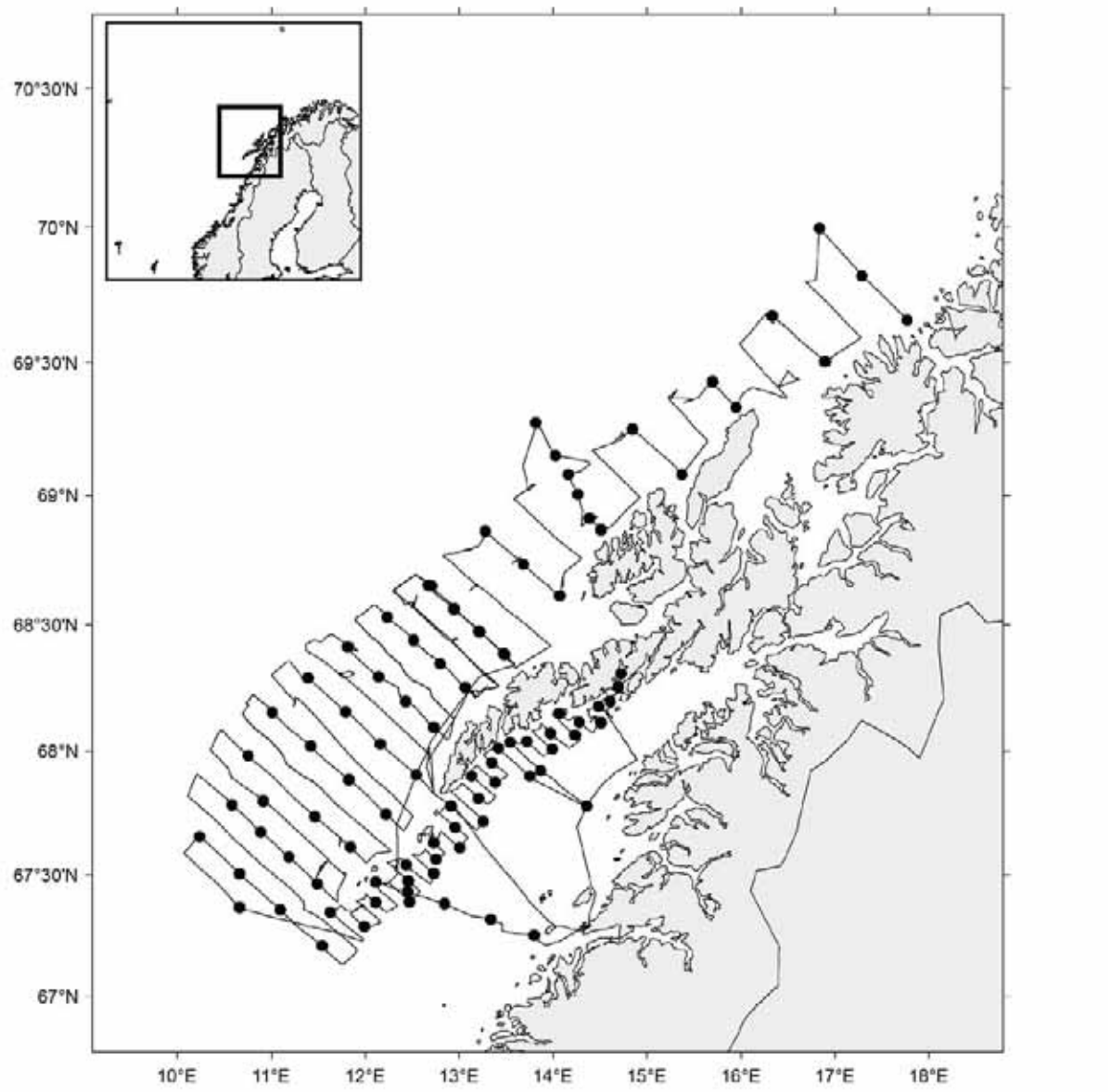
z CTD st.no 146–267

Standard sections:
Tennholmen–Røst st.no 170–181
Ballstad–Måløy/Skarholmen st.no 234–244
Kabelvåg–Steigen st.no 257–267



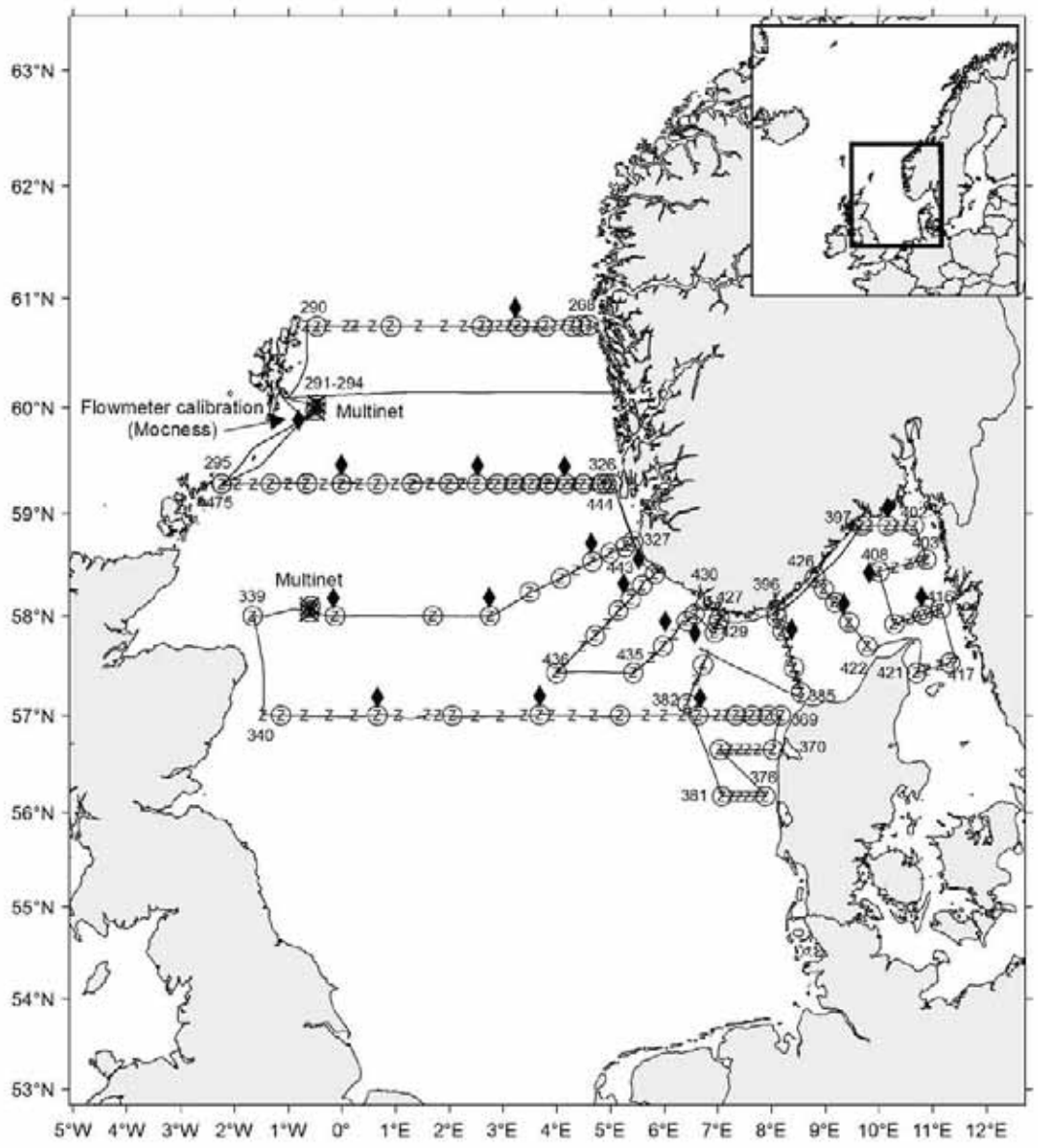
Cruise no 2015203 "Johan Hjort"
20 March–4 April 2015

Trawl st.no 223-261
▲ Pelagic trawl
□ Bottom trawl



Cruise no 2015203 "Johan Hjort"
20 March–4 April 2015

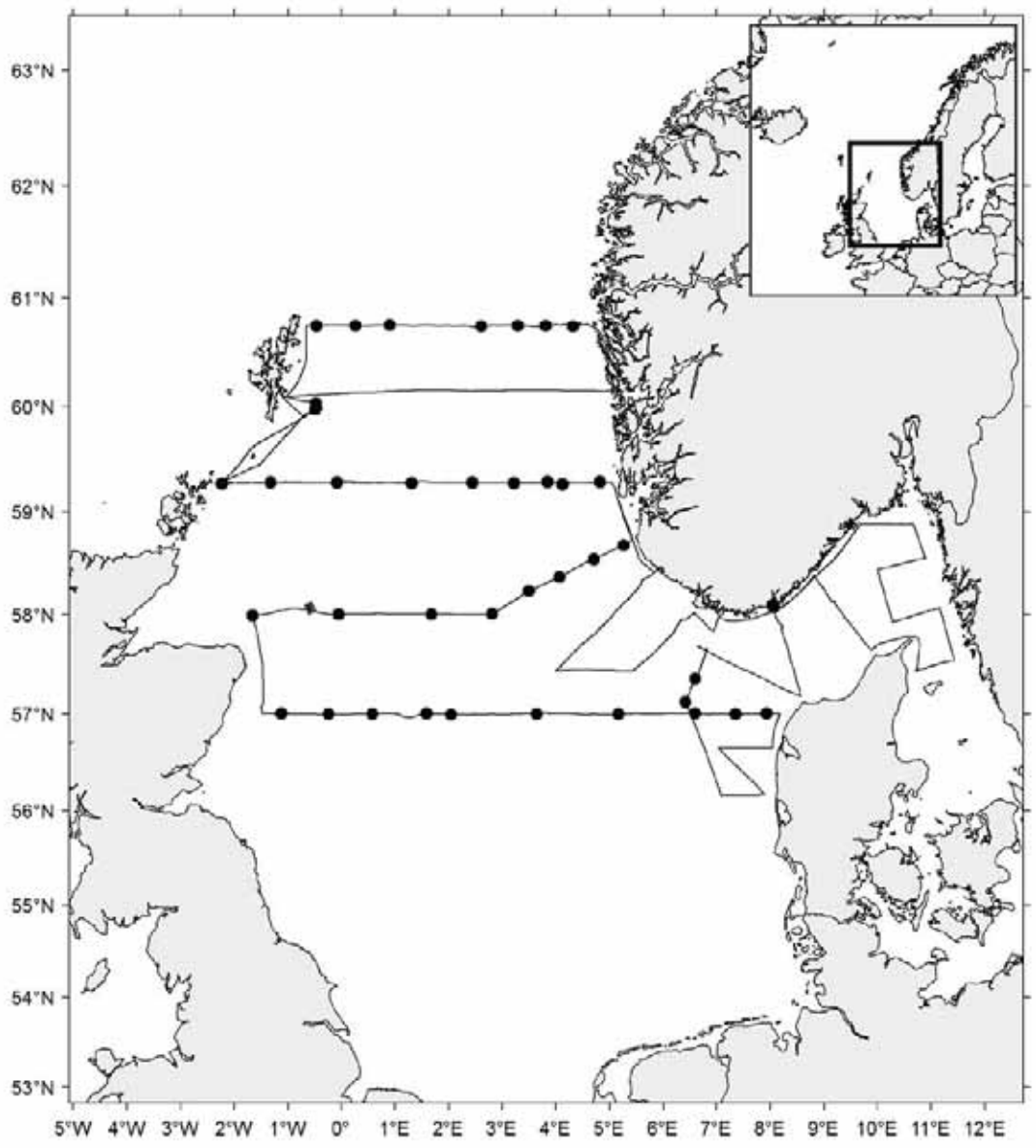
● Egg st. (WP-II-net)



Cruise no 2015204 "Johan Hjort"
9 April–5 May 2015

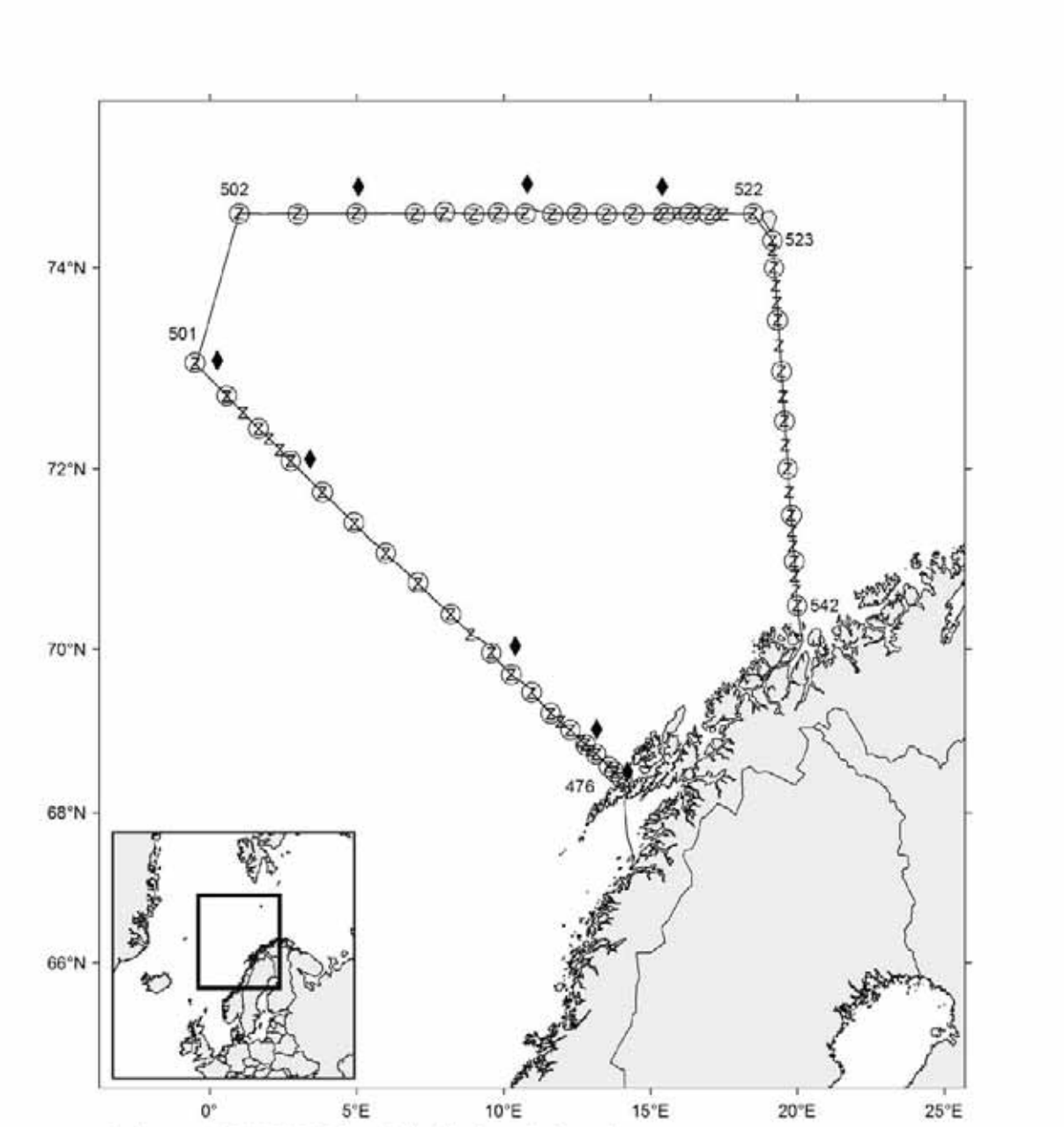
z CTD st.no 268-475
○ Plankton st. (WP-II-net)
♦ Plankton st. (Mocness)
× Multinet maxi (Plankton collector)

Standard sections:
Fedje–Shetland: st.no 268–290
Utsira W st.no: 295–368 and 444–475
Jærens Rev SW and W: st.no 327–339
Hanstholm–Aberdeen: st.no 340–369
Harboør: st.no370–375
Husby Klit: st.no 376–381
Oksøy: st.no 385–396
Jomfruland–Koster: st.no 397–402
Torungen–Hirtshals: st.no 422–426
Vaderø: st.no 403–408
Måseskjær: st.no 409–416
Gøteborg–Fredrikshavn: st.no 417-421



Cruise no 2015204 "Johan Hjort"
9 April–5 May 2015

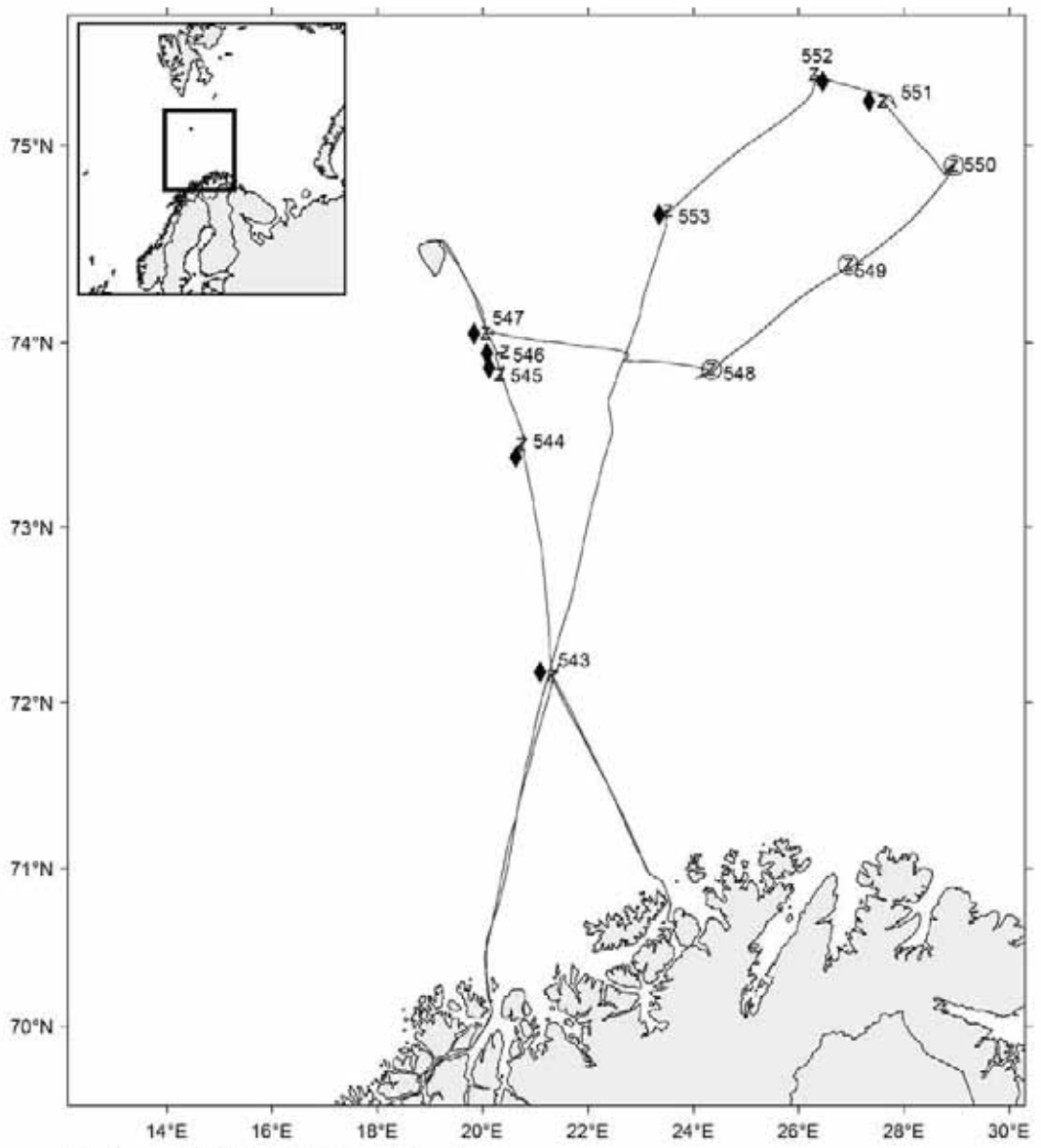
● Gulf III stations



Cruise no 2015205 "Johan Hjort"
14–24 May 2015

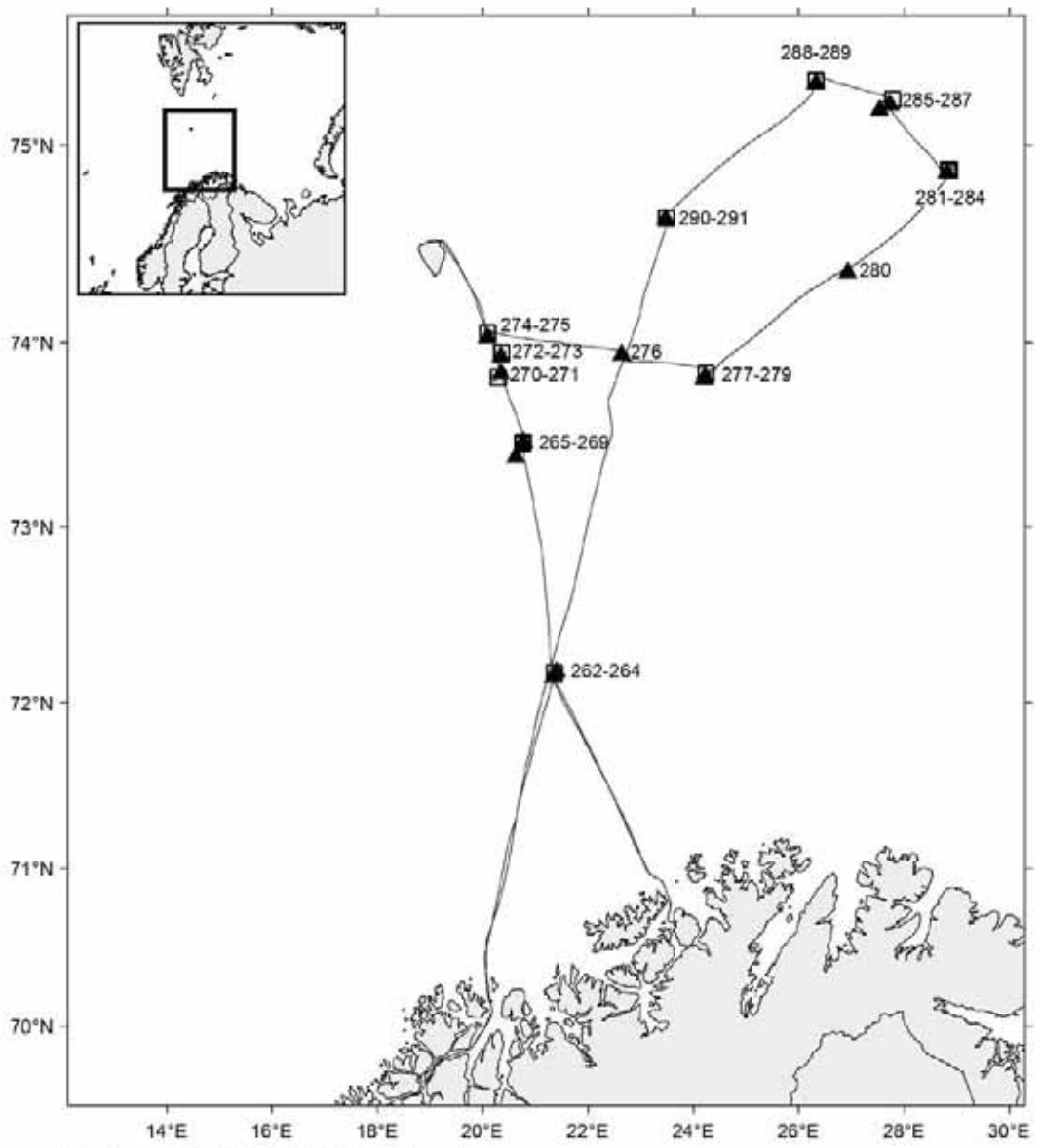
z CTD st.no 476–542
○ Plankton st. (WP-II-net)
♦ Plankton st. (Mocness)

Standard sections:
Gimsøy NW: st.no 476–501
Bjørnøya W: st.no 502–522
Fugløya–Bjørnøya: st.no 523–542



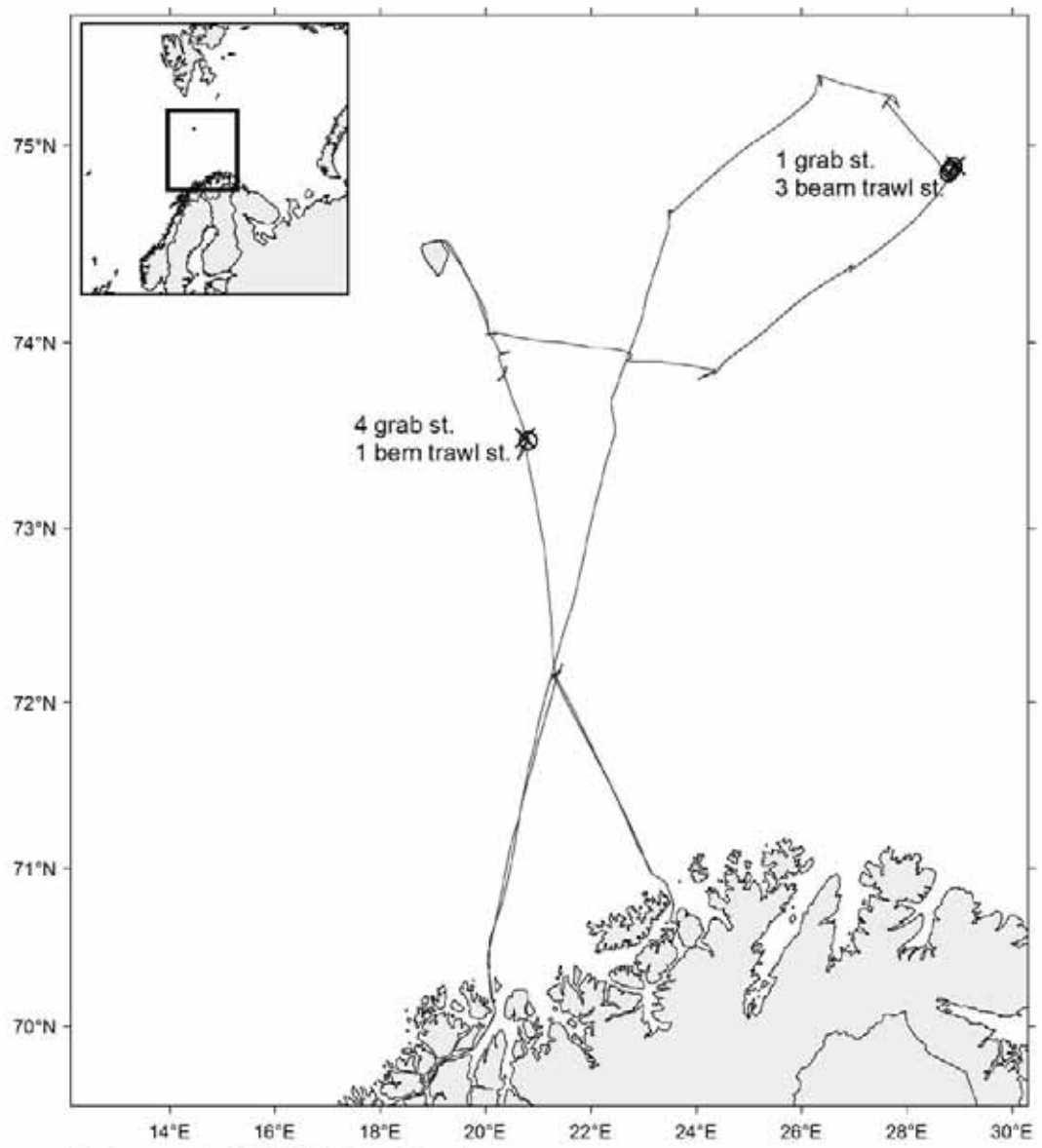
Cruise no 2015206 "Johan Hjort"
27 May–6 June 2015

z CTD st.no 543–553
○ Plankton st. (WP-II-net)
♦ Plankton st. (Mocness)



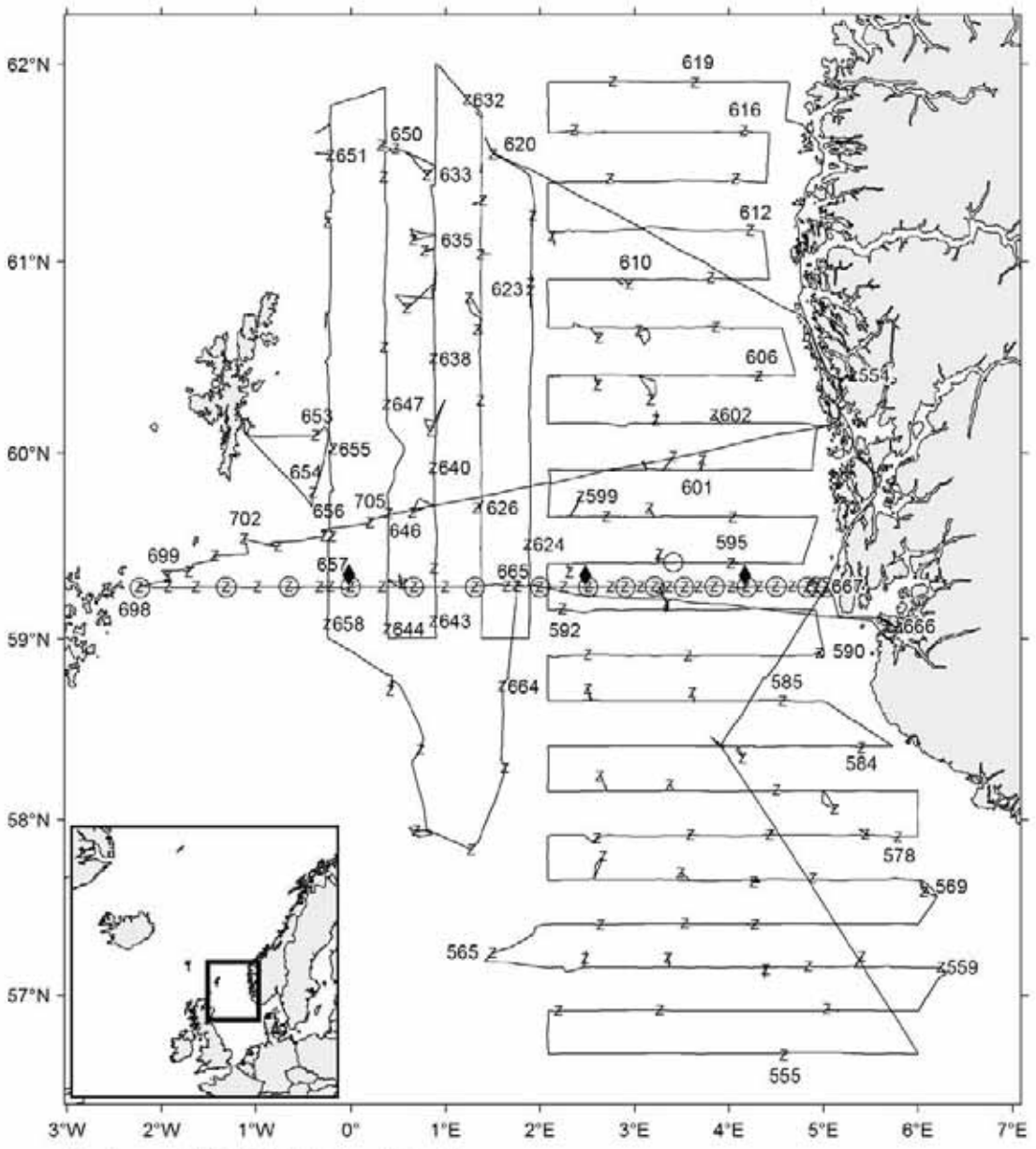
Cruise no 2015206 "Johan Hjort"
27 May–6 June 2015

Trawl st.no 262–291
▲ Pelagic trawl
□ Bottom trawl



Cruise no 2015206 "Johan Hjort"
27 May–6 June 2015

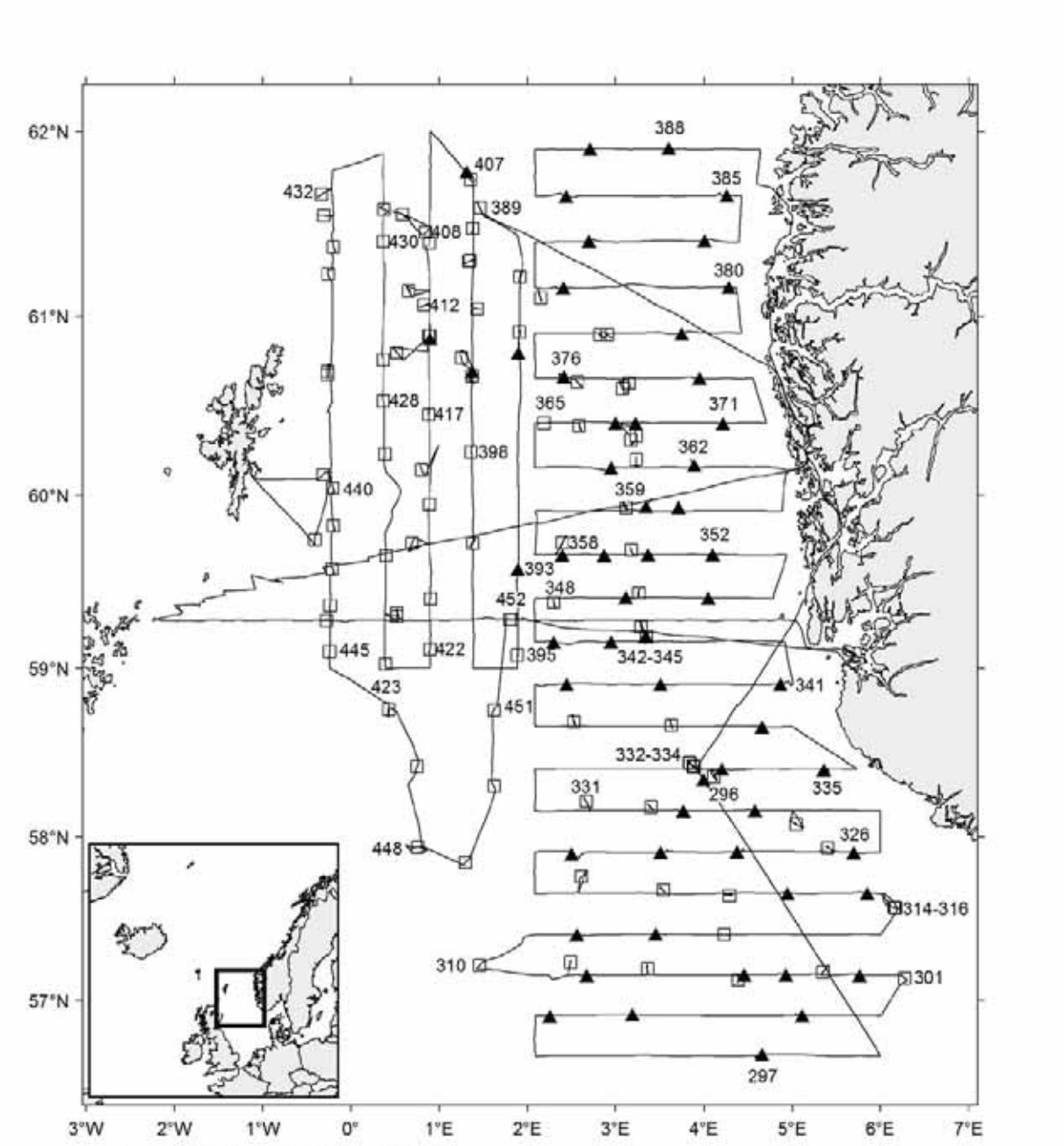
o Beam trawl st.
× Grab st.



Cruise no 2015208 "Johan Hjort"
25 June–31 July 2015

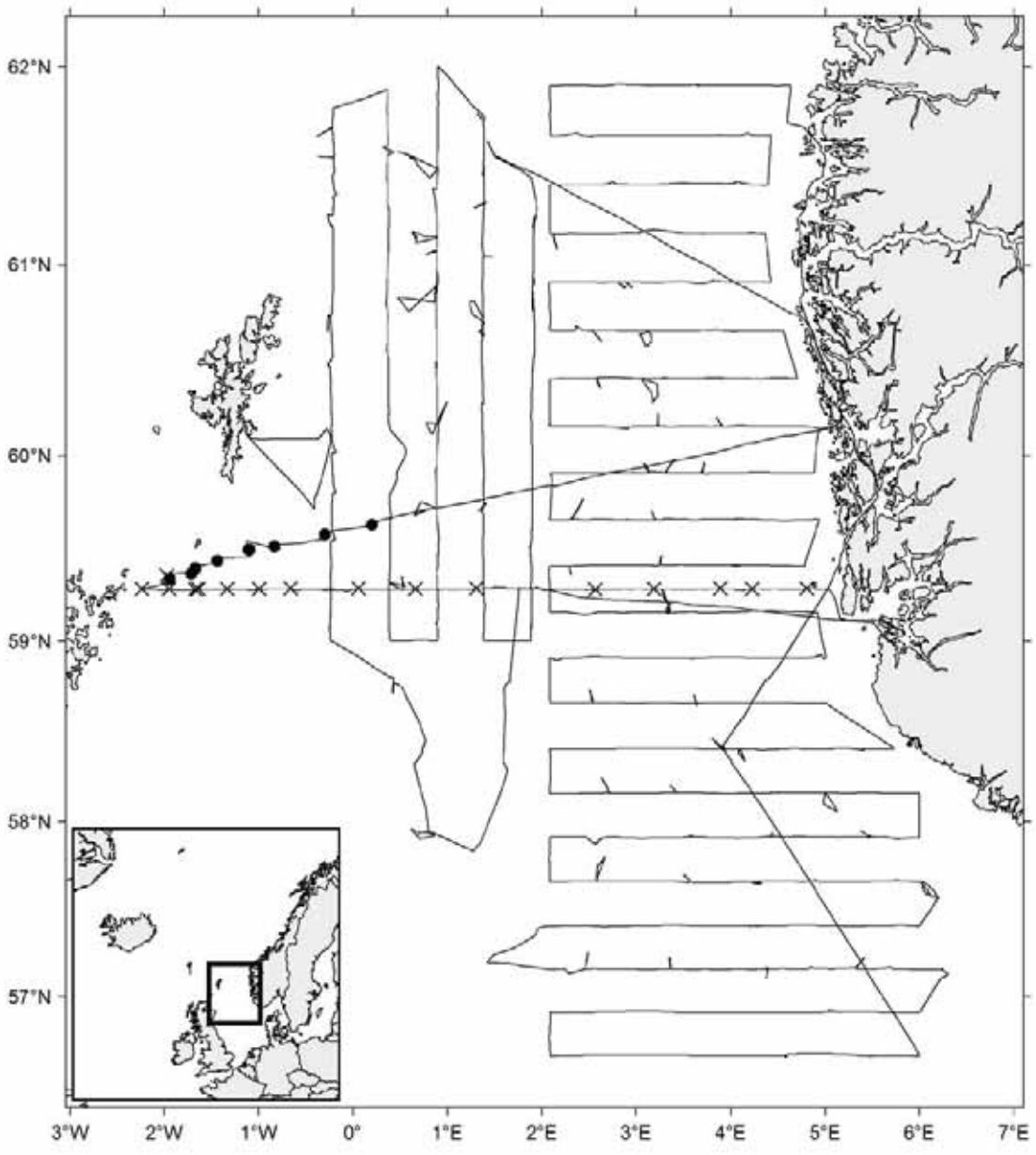
z CTD st.no 554-705
○ Plankton st. (WP-II-net)
♦ Plankton st. (Mocness)

Standard section Utsira W: st.no 667-698



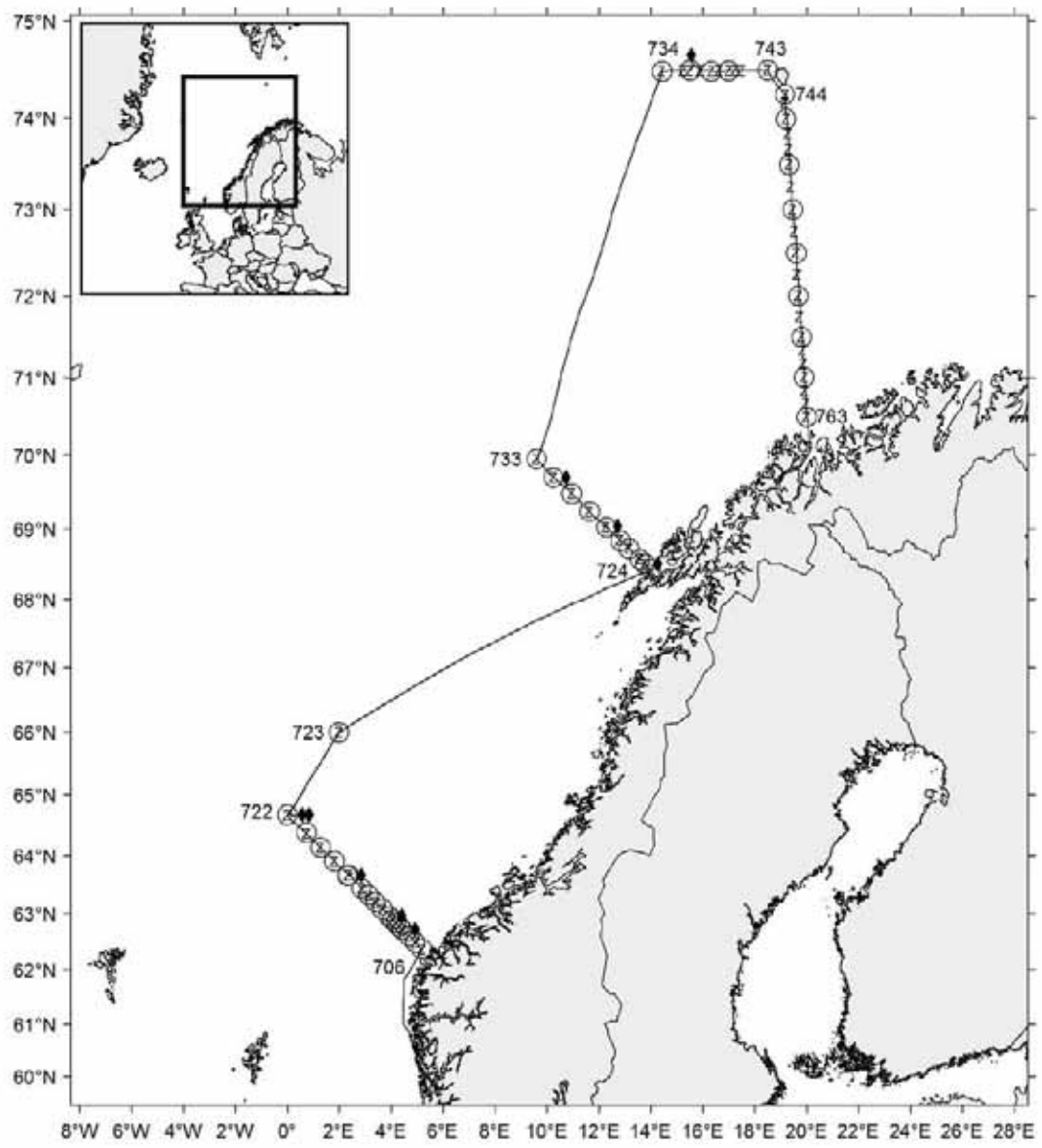
Cruise no 2015208 "Johan Hjort"
25 June–31 July 2015

Trawl st.no 296-452
□ Bottom trawl
▲ Pelagic trawl



Cruise no 2015208 "Johan Hjort"
25 June–31 July 2015

× MIK st.
● Multinet st.

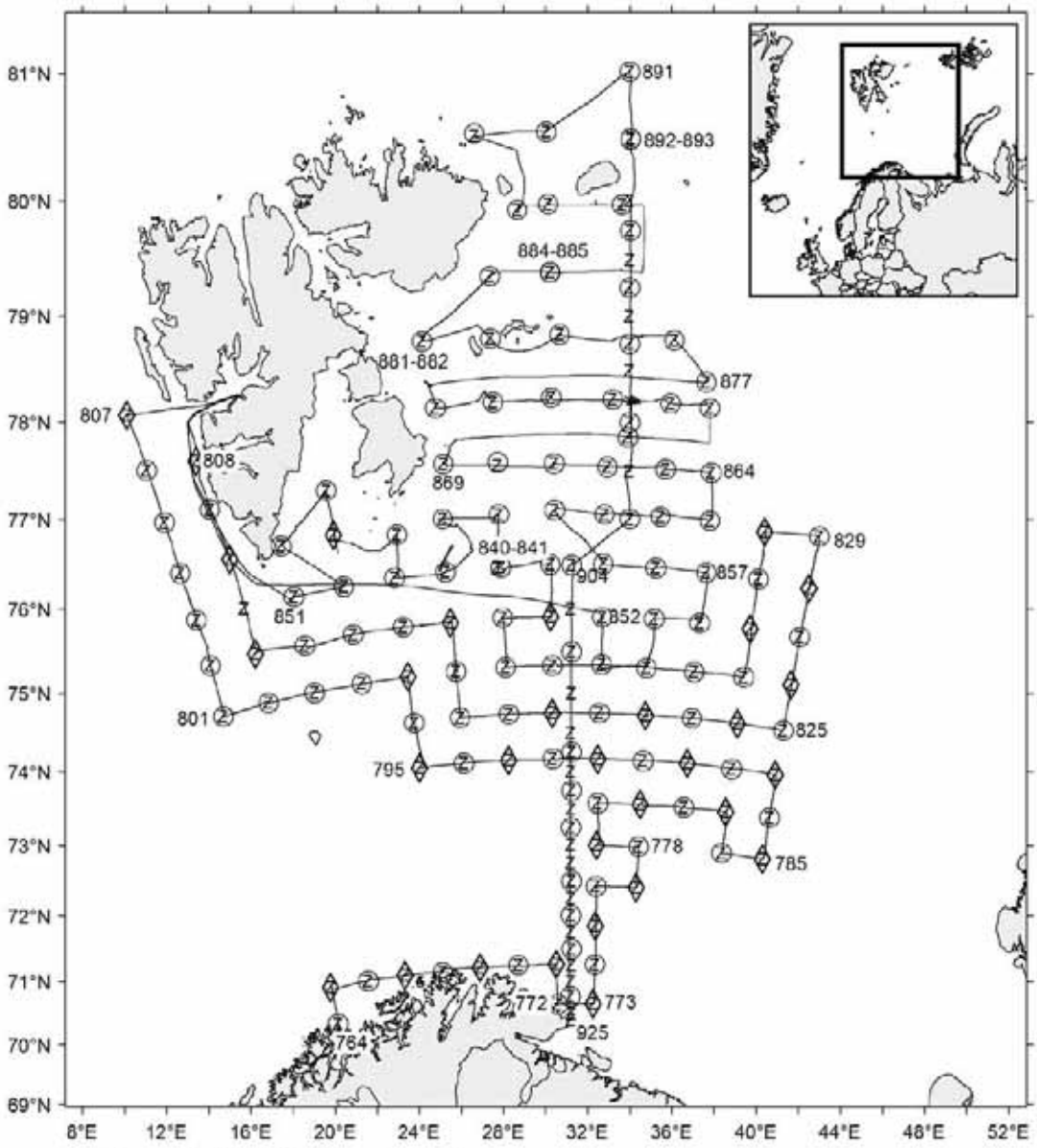


Cruise no 2015209 "Johan Hjort"
2–12 August 2015

z CTD st.no 706-763
○ Plankton st. (WP-II-net)
♦ Plankton st. (Mocness)

Standard sections:
Svinøy NW st.no 706-722
Gimsøy NW st.no 724-733
Bjørnøya W st.no 734-743
Fugløya–Bjørnøya st.no 744-763

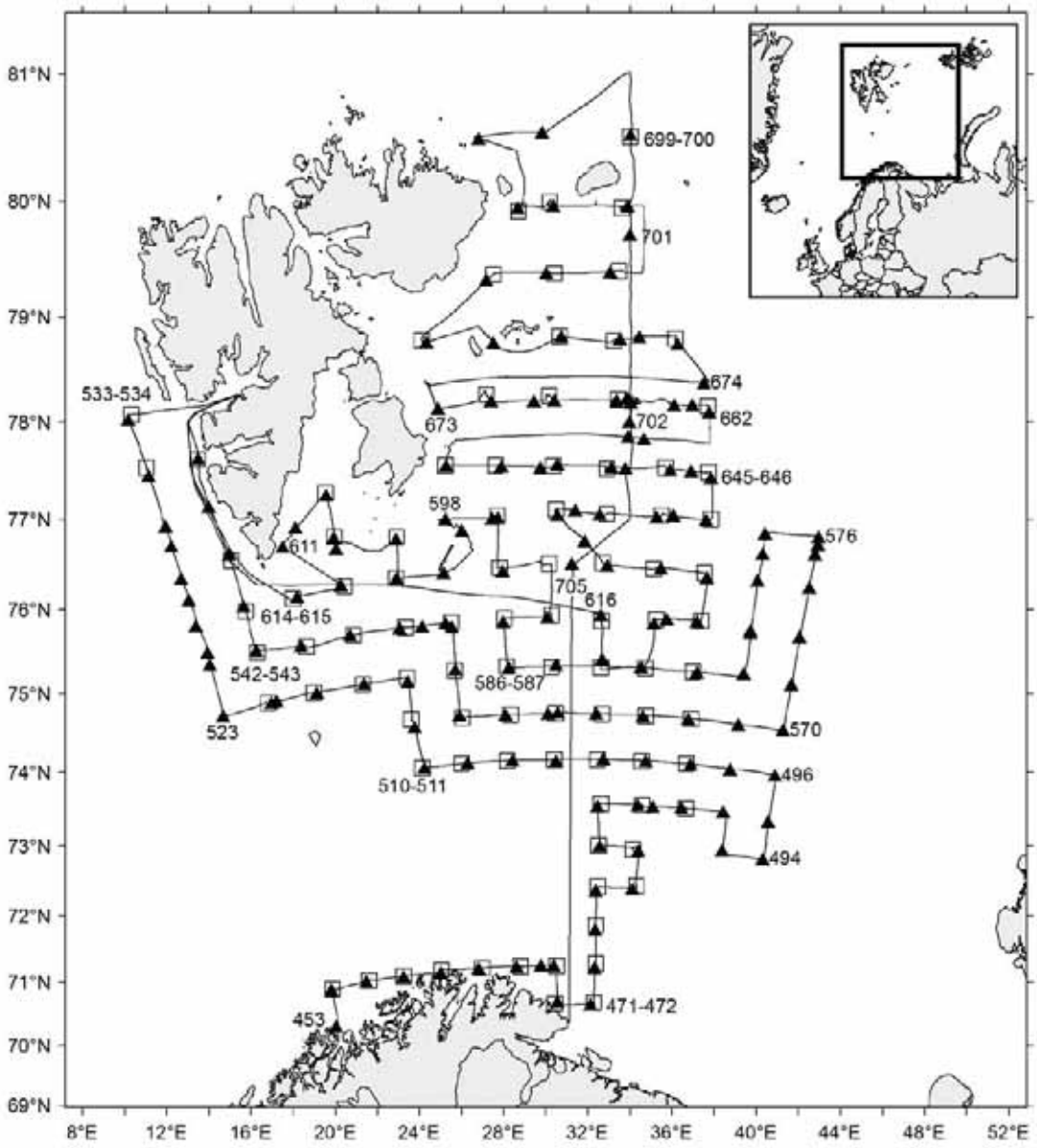
St.M st.no 723



Cruise no 2015210 "Johan Hjort"
13 August–29 September 2015

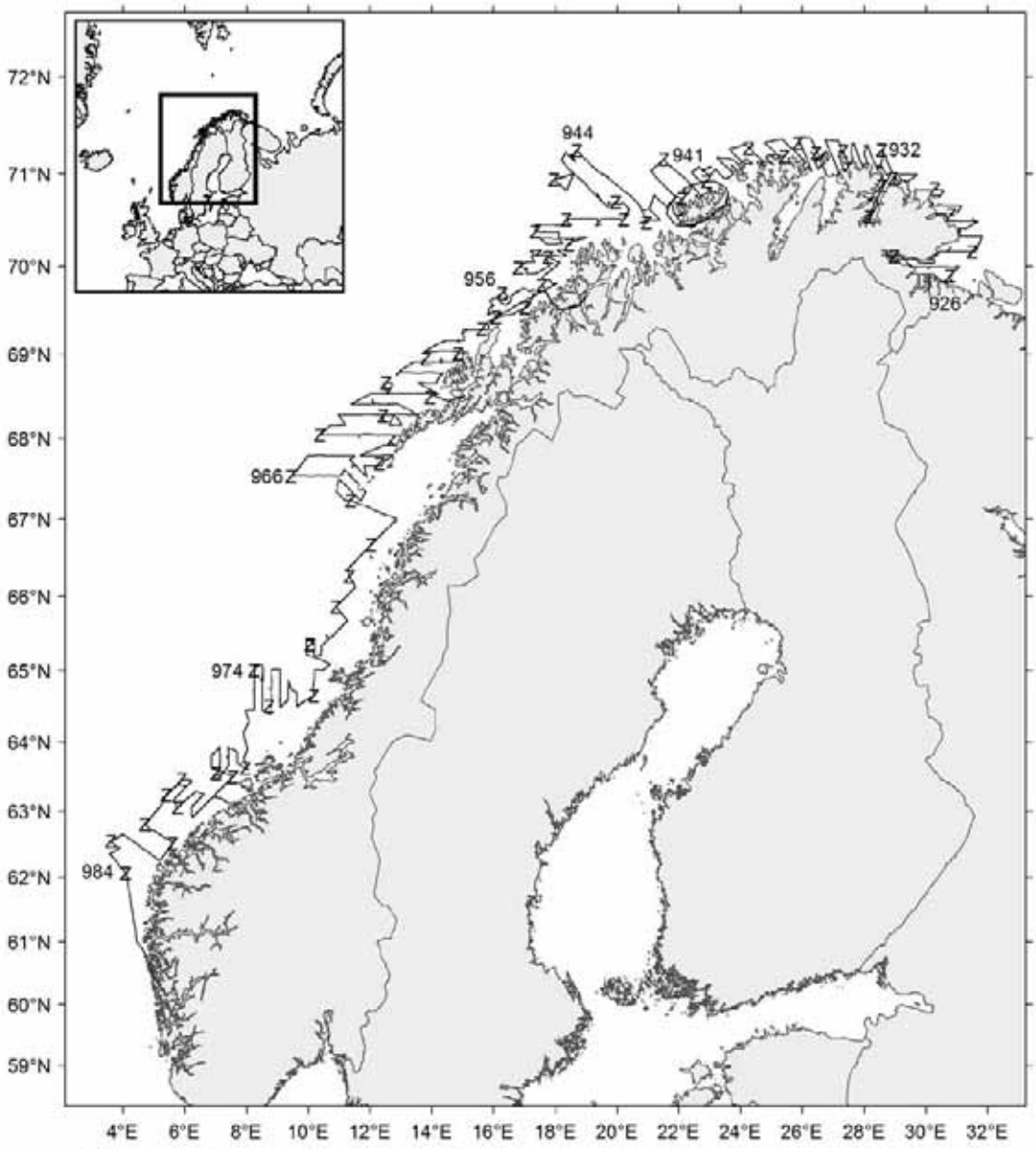
z CTD st.no 764–925
○ Plankton st. (WP-II-net)
◊ Plankton st. (Mocness)

Standard section Vardø N: st.no 891-925



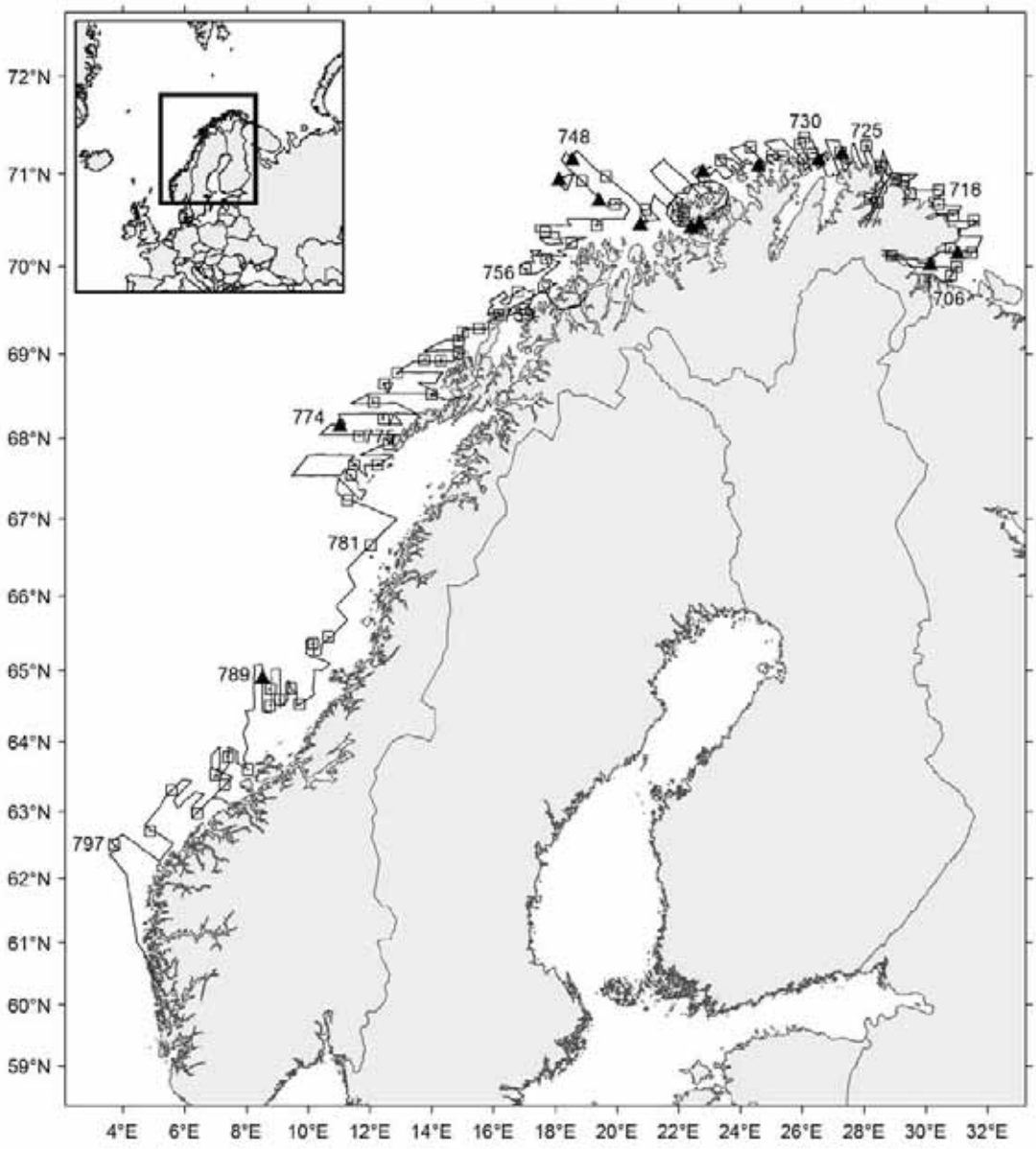
Cruise no 2015210 "Johan Hjort"
13 August–29 September 2015

Trawl st.no 453–705
▲ Pelagic trawl
□ Bottom trawl



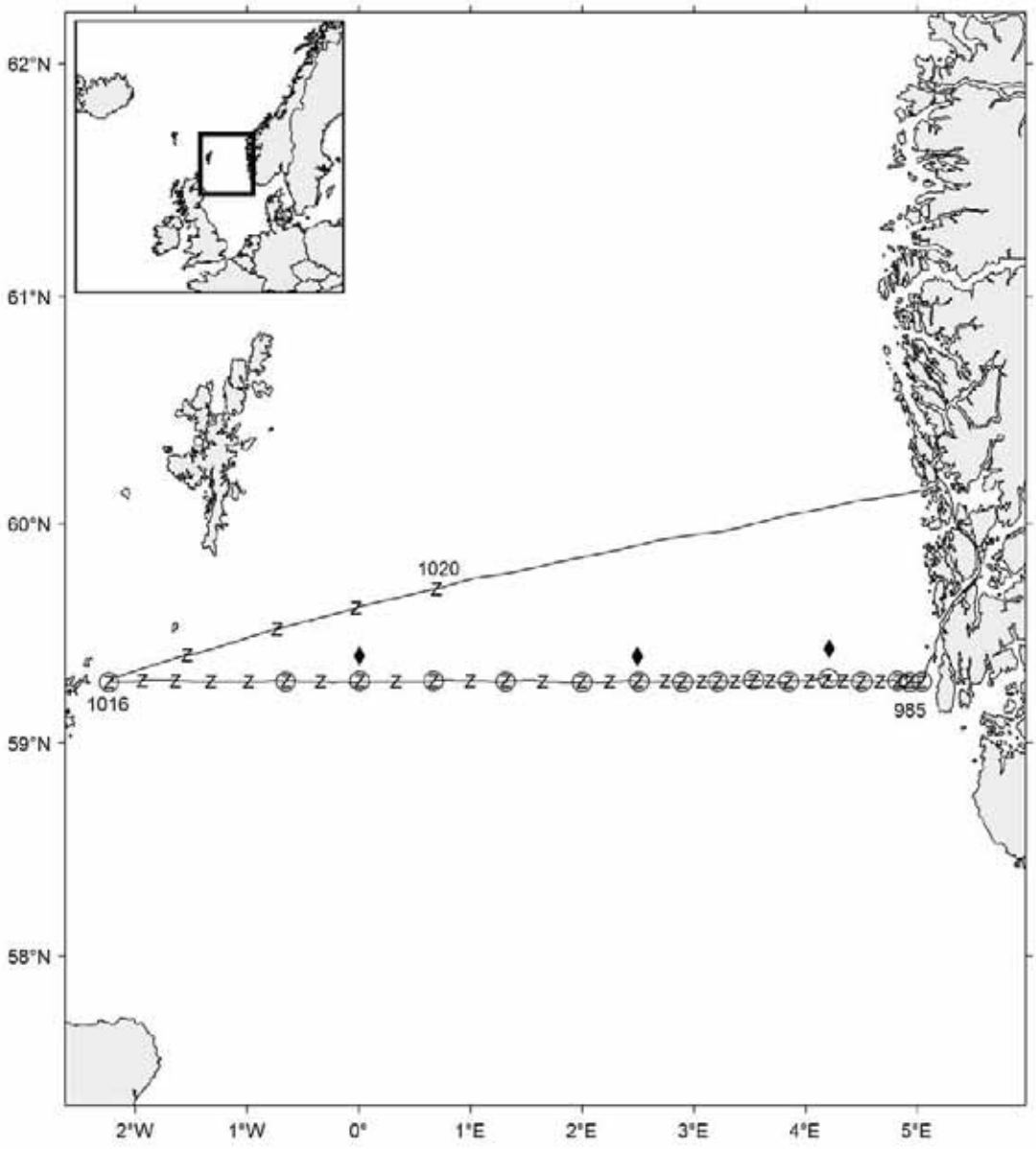
Cruise no 2015211 "Johan Hjort"
7 October–5 November 2015

z CTD st.no 926-984



Cruise no 2015211 "Johan Hjort"
7 October–5 November 2015

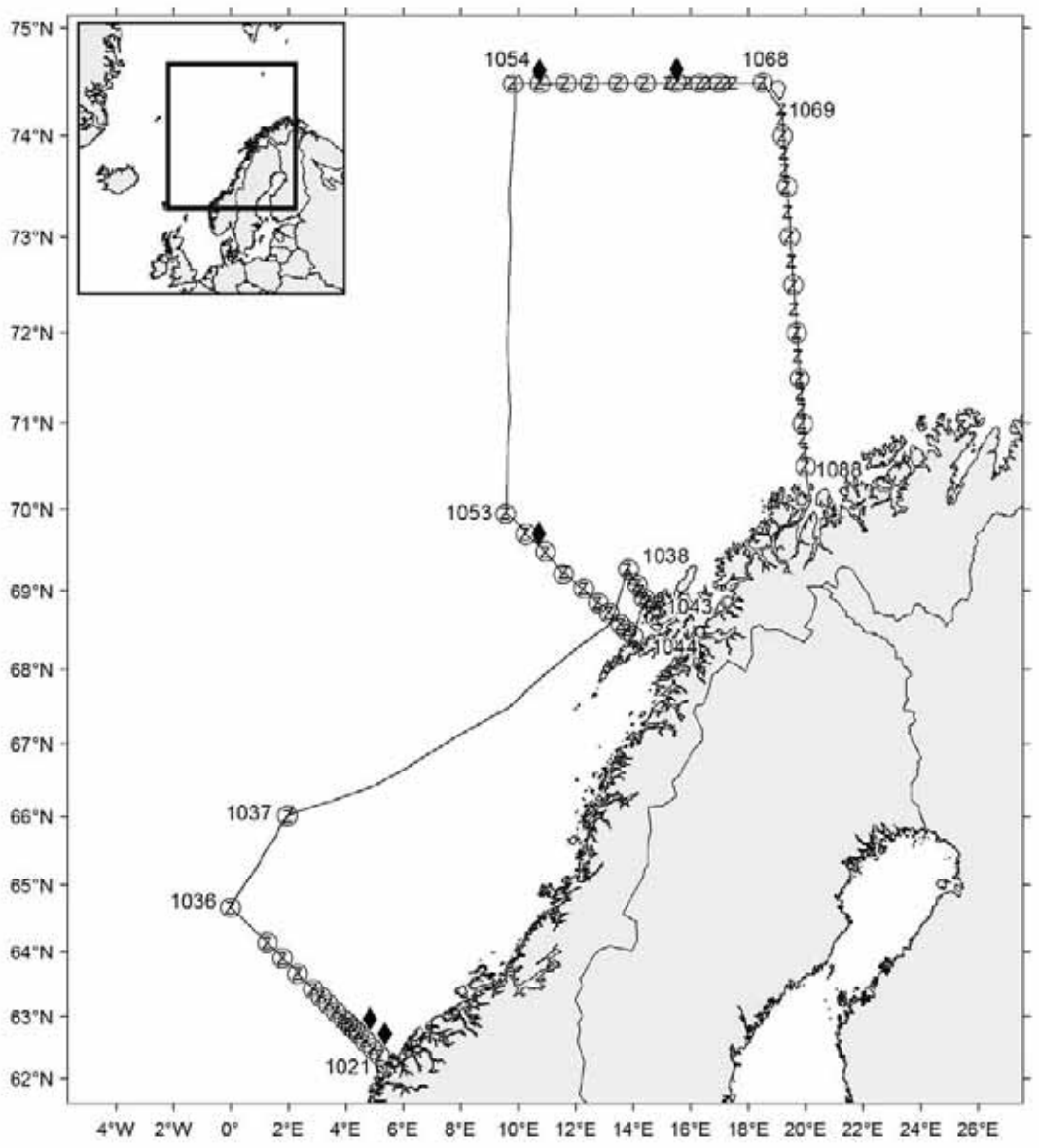
Trawl st.no 706-797
□ Bottom trawl
▲ Pelagic trawl



Cruise no 2015212 "Johan Hjort"
9–13 November 2015

z CTD st.no 985-1020
○ Plankton st. (WP-II-net)
♦ Plankton st. (Mocness)

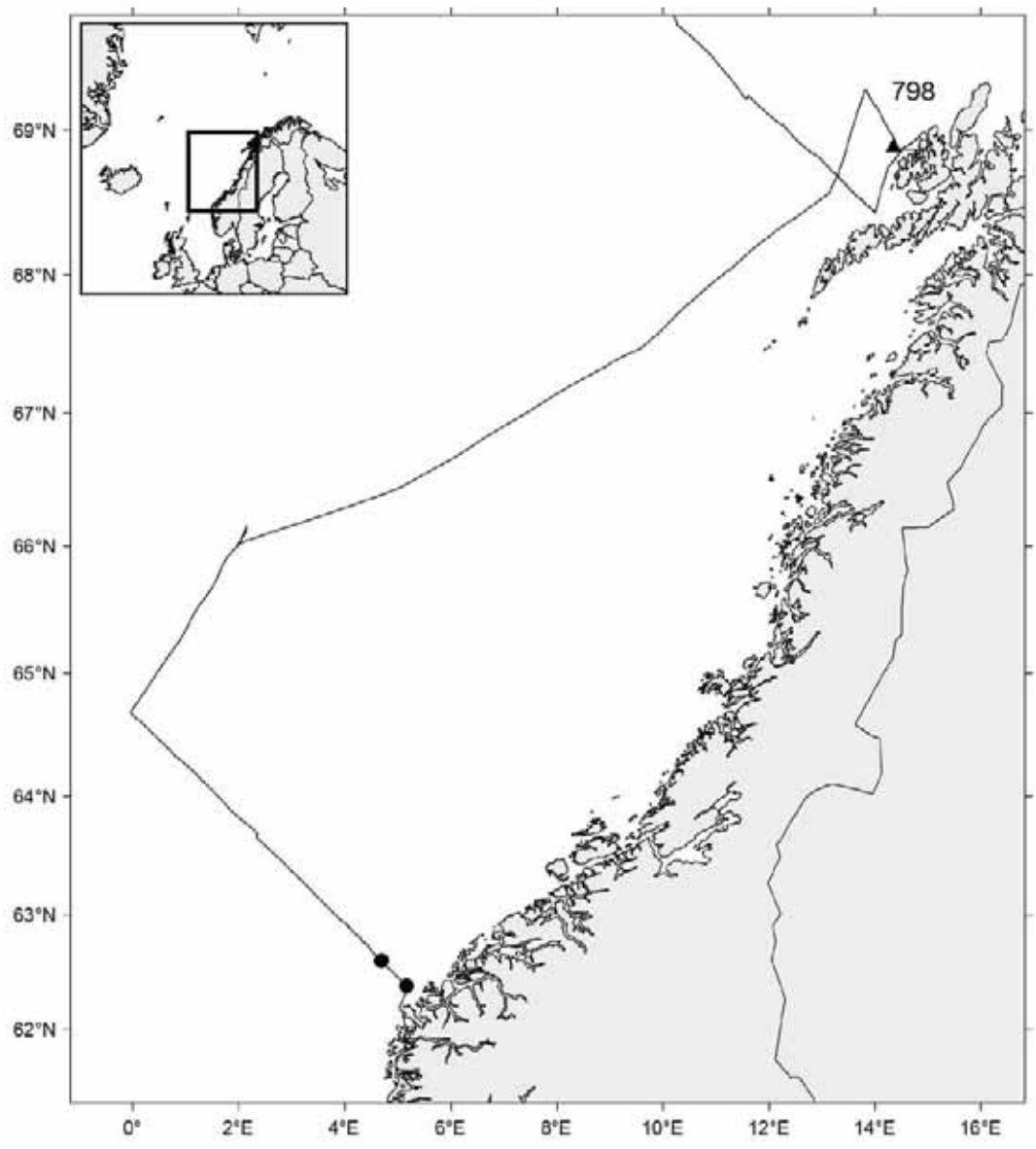
Standard section Utsira W st.no 985-1016



Cruise no 2015213 "Johan Hjort"
14–26 November 2015

z CTD st.no 1021–1088
○ Plankton st. (WP-II-net)
♦ Plankton st. (Mocness)

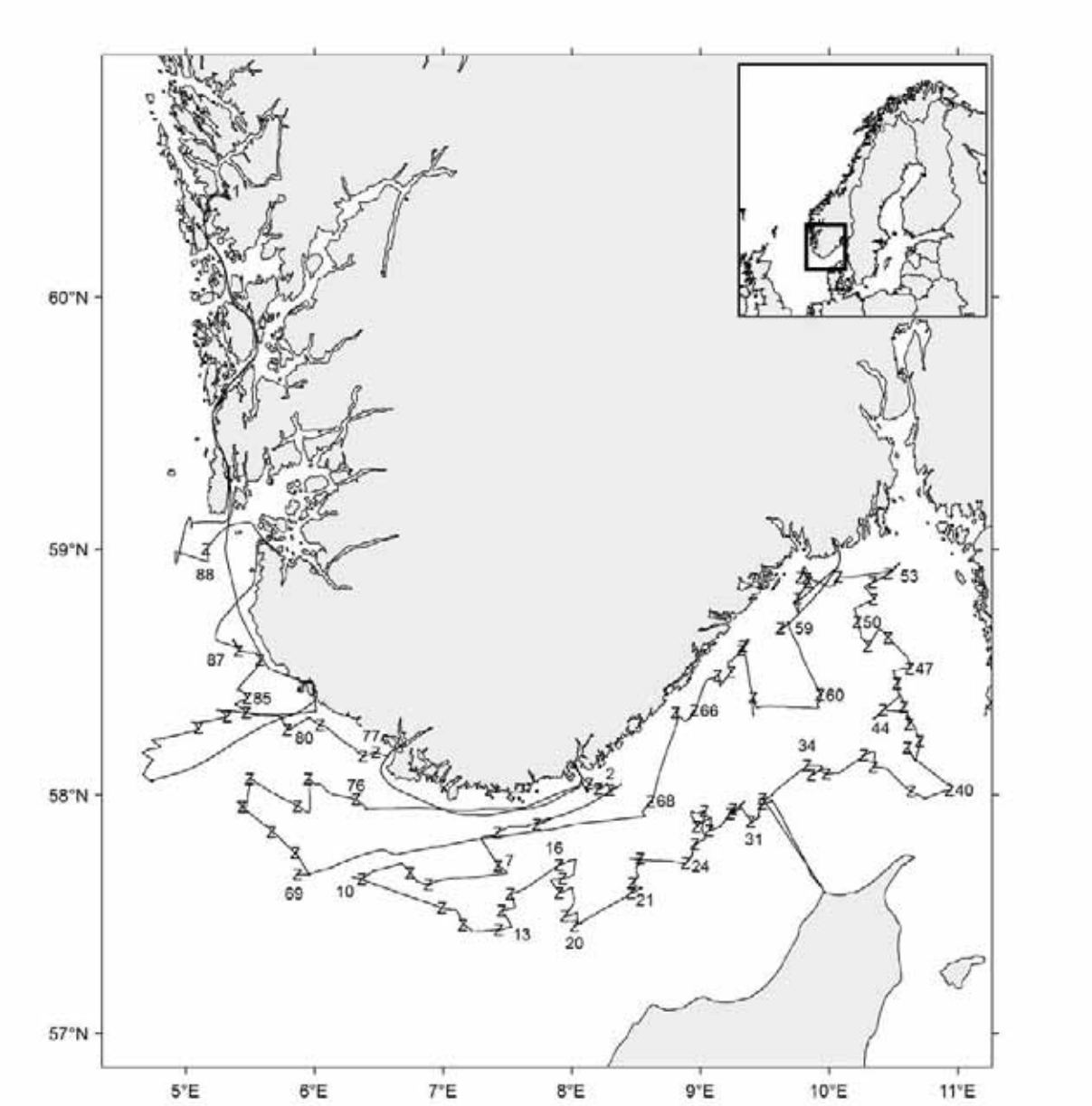
Standard sections:
Svinøy NW st.no 1021–1036
Gimsøy NW st.no 1044–1053
Bjørnøya W st.no 1054–1068
Fugløya–Bjørnøya st.no 1069–1088
Hola–Vesterålen st.no 1038–1043
St. M st.no 1037



Cruise no 2015213 "Johan Hjort"
14–26 November 2015

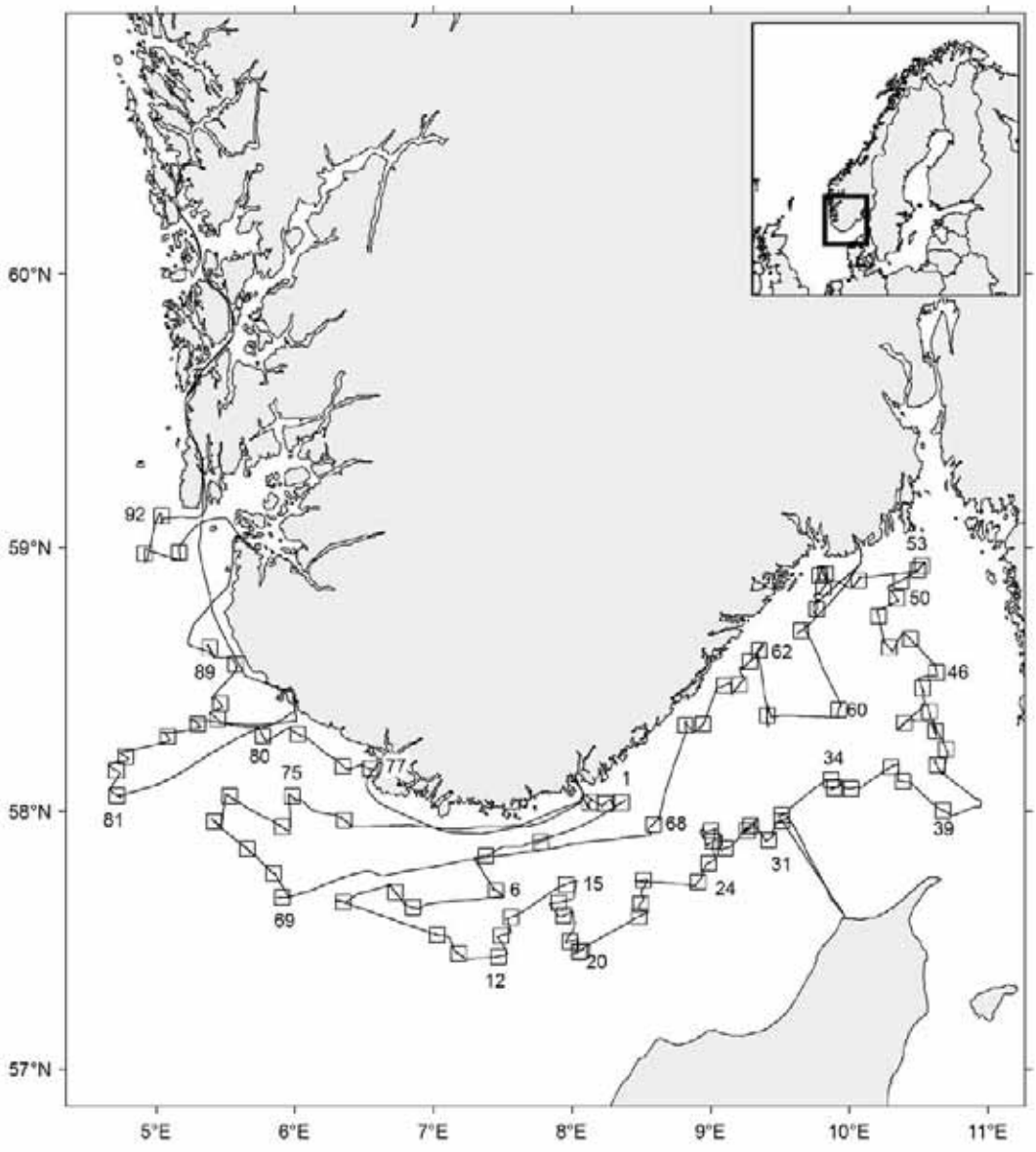
● Mik station
▲ Pelagic trawl station 798

4.3 Håkon Mosby



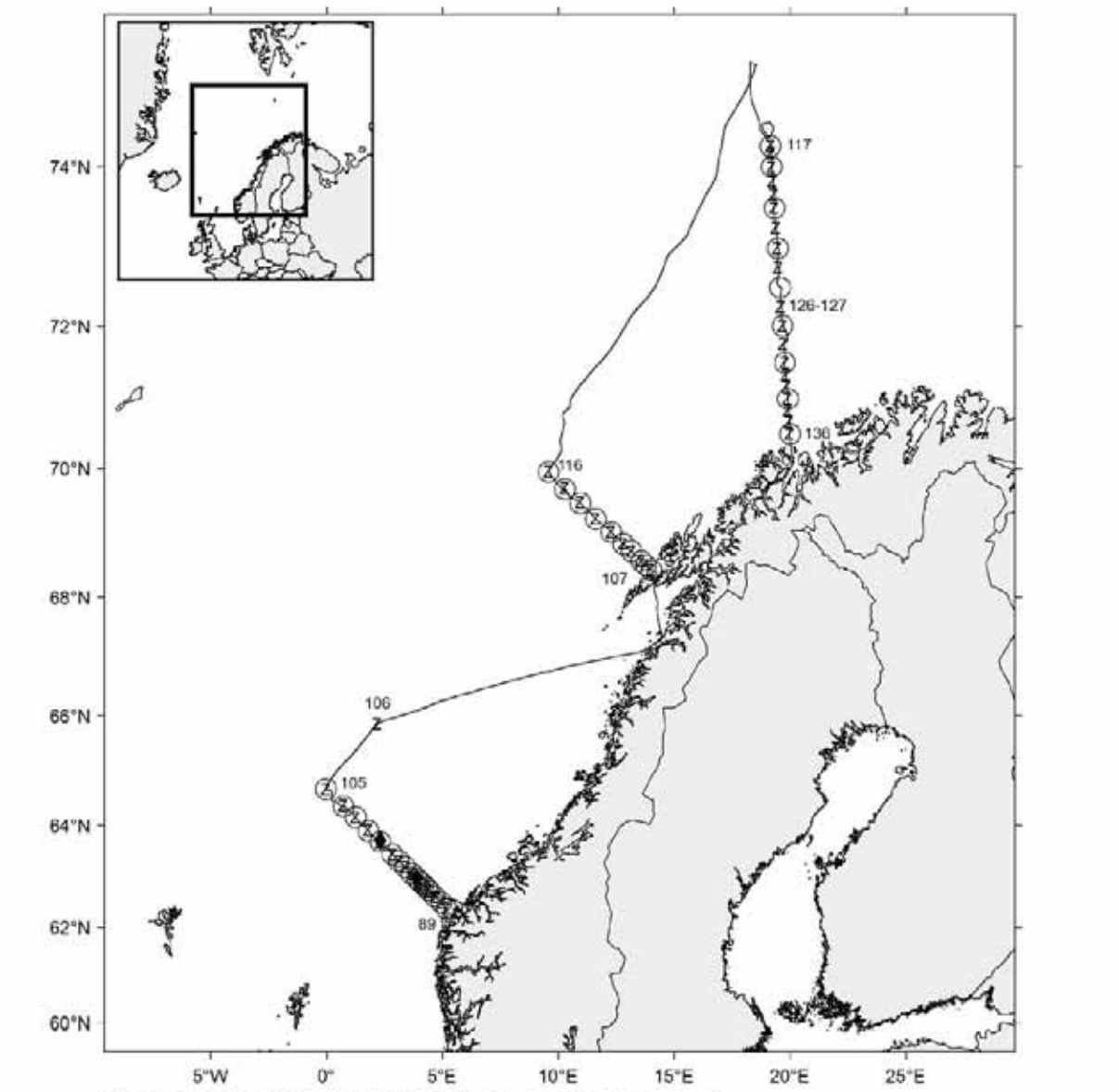
Cruise no 2015601 "Håkon Mosby"
13 January–3 February 2015

z CTD st.no 1–88



Cruise no 2015601 "Håkon Mosby"
13 January–3 February 2015

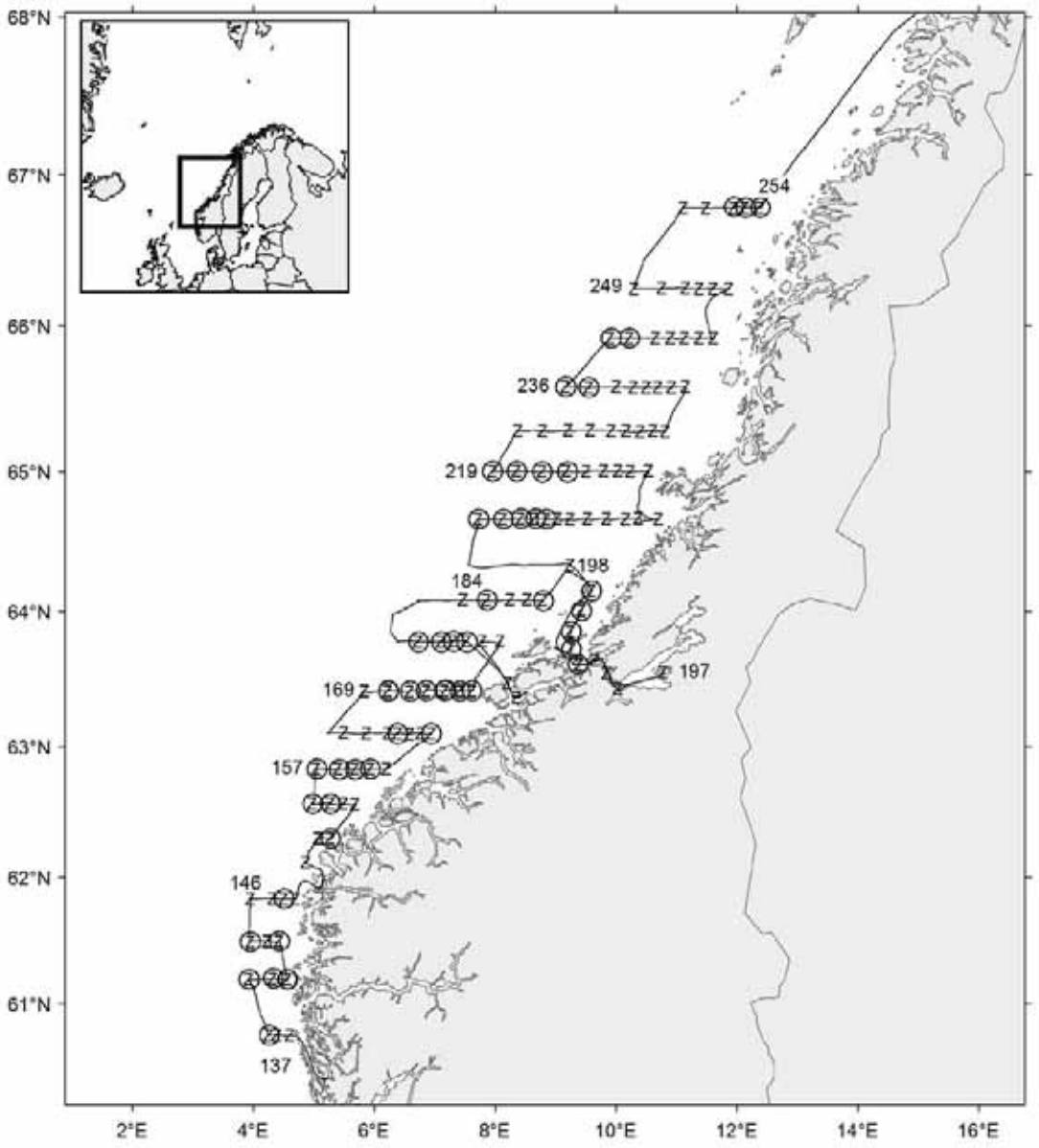
□ Bottom trawl st.no 1–92



Cruise no 2015626 "Håkon Mosby"
8–24 March 2015

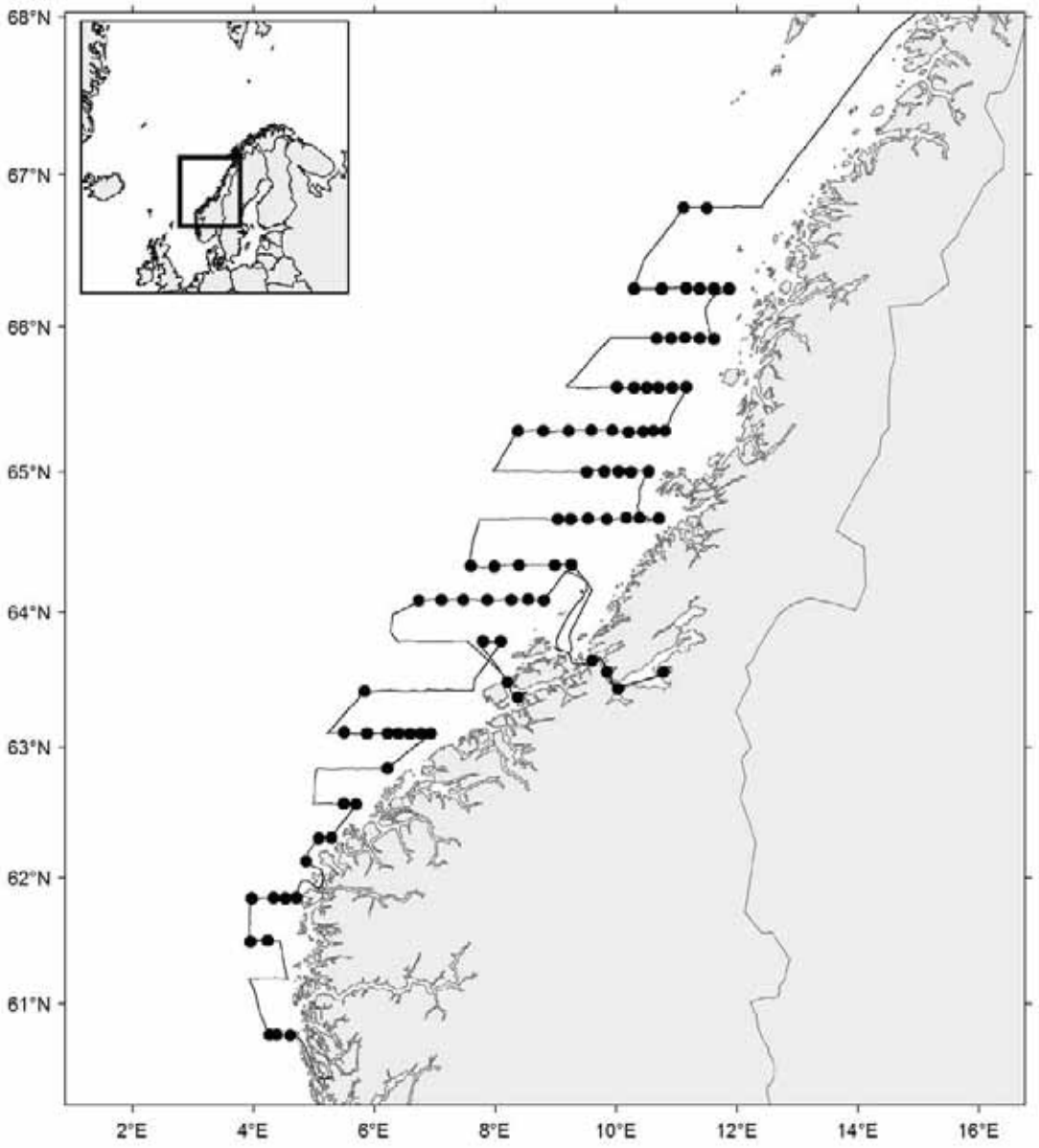
z CTD st.no 89-136
○ Plankton st. (WP-II-net)
♦ Plankton st. (Mocness)

Standard sections:
Svinøy-NW st.no 89–105
Gimsøy NW st.no 107–116
Fugløya–Bjørnøya st.no 117–136
St. M st.no 106



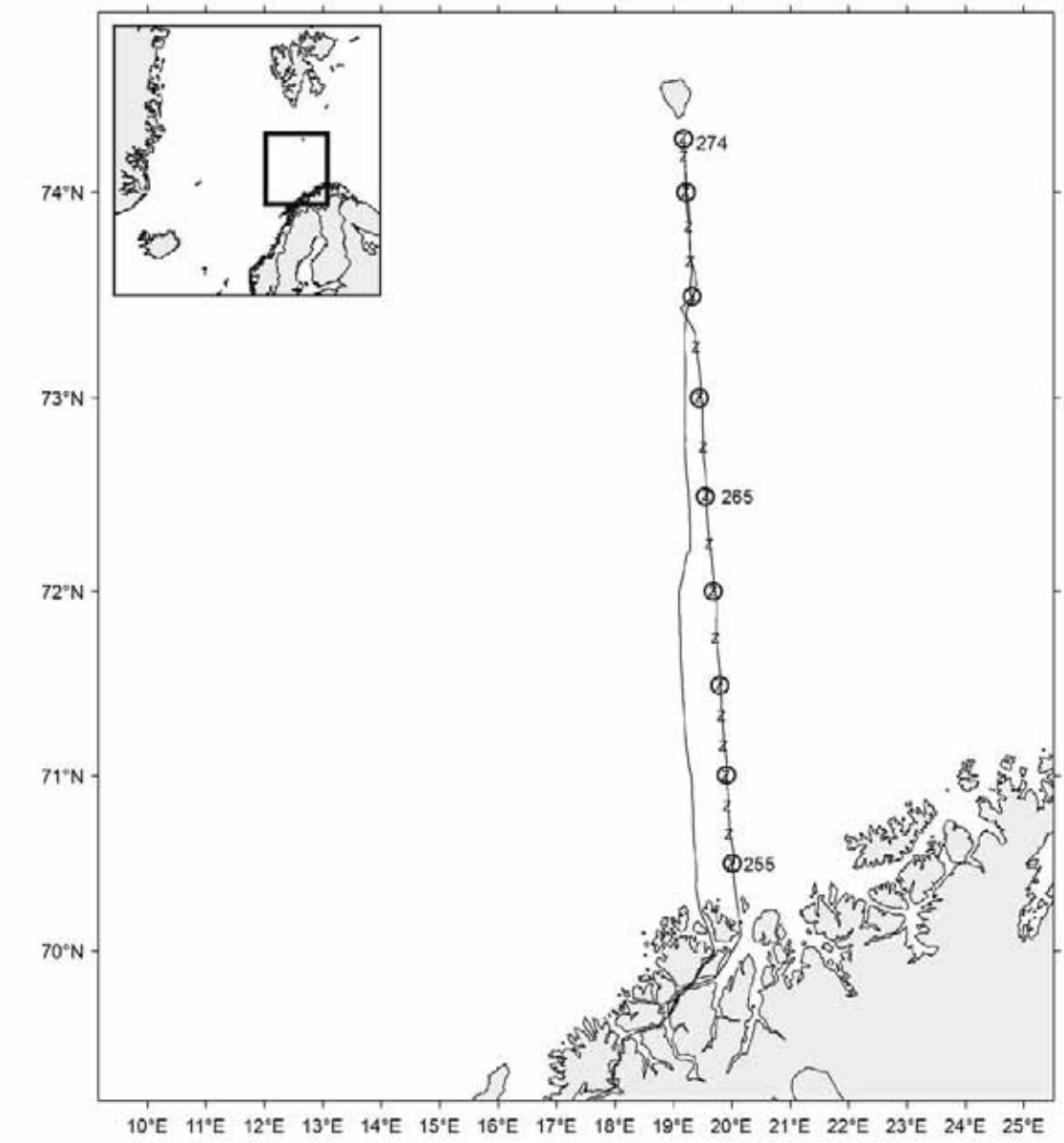
Cruise no 2015605 "Håkon Mosby"
7–20 April 2015

z CTD st.no 137–254
○ WP-II-net for zooplankton and T80 for herring larvae



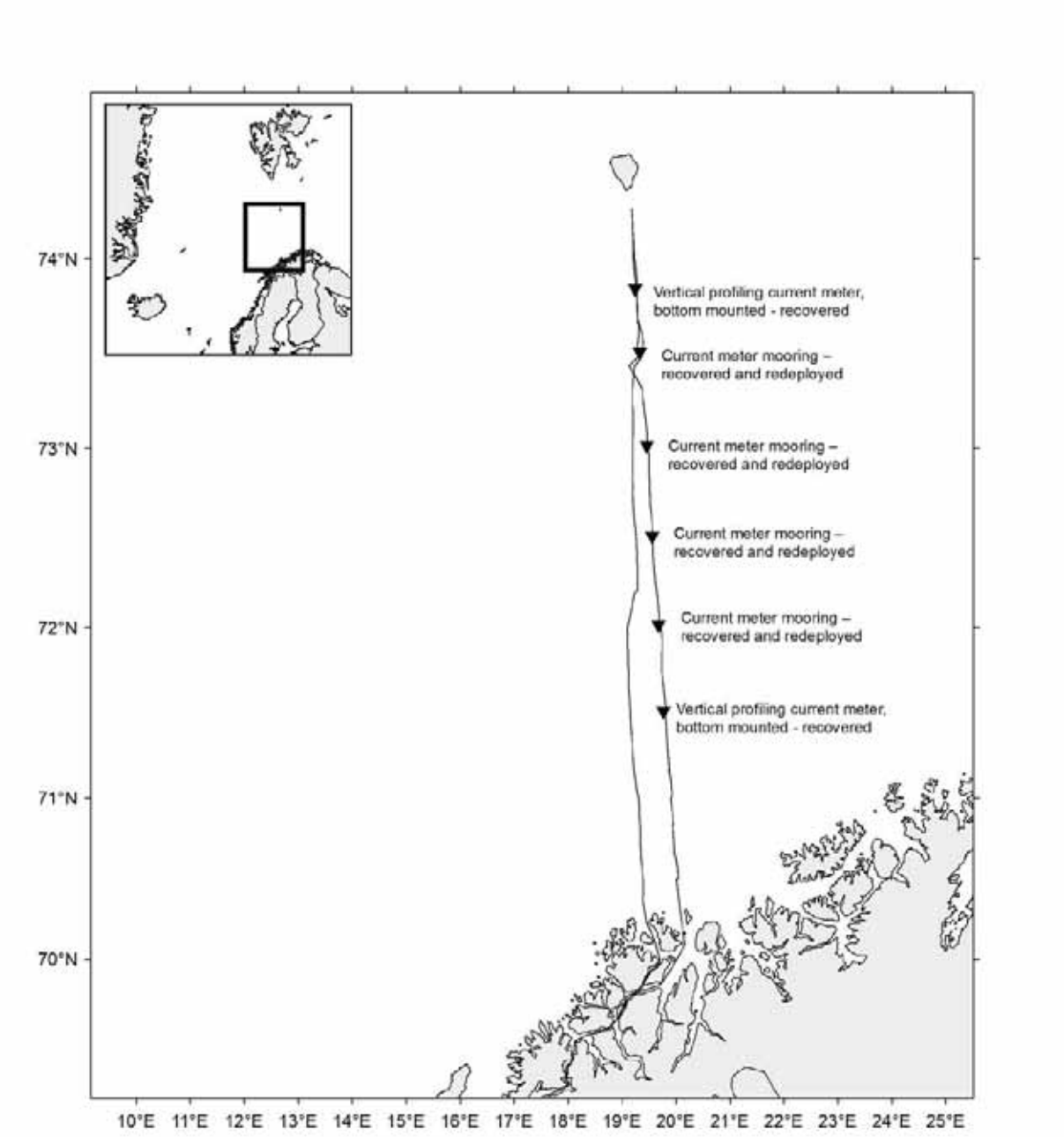
Cruise no 2015605 "Håkon Mosby"
7–20 April 2015

• Gulf III stations (herring larvae)



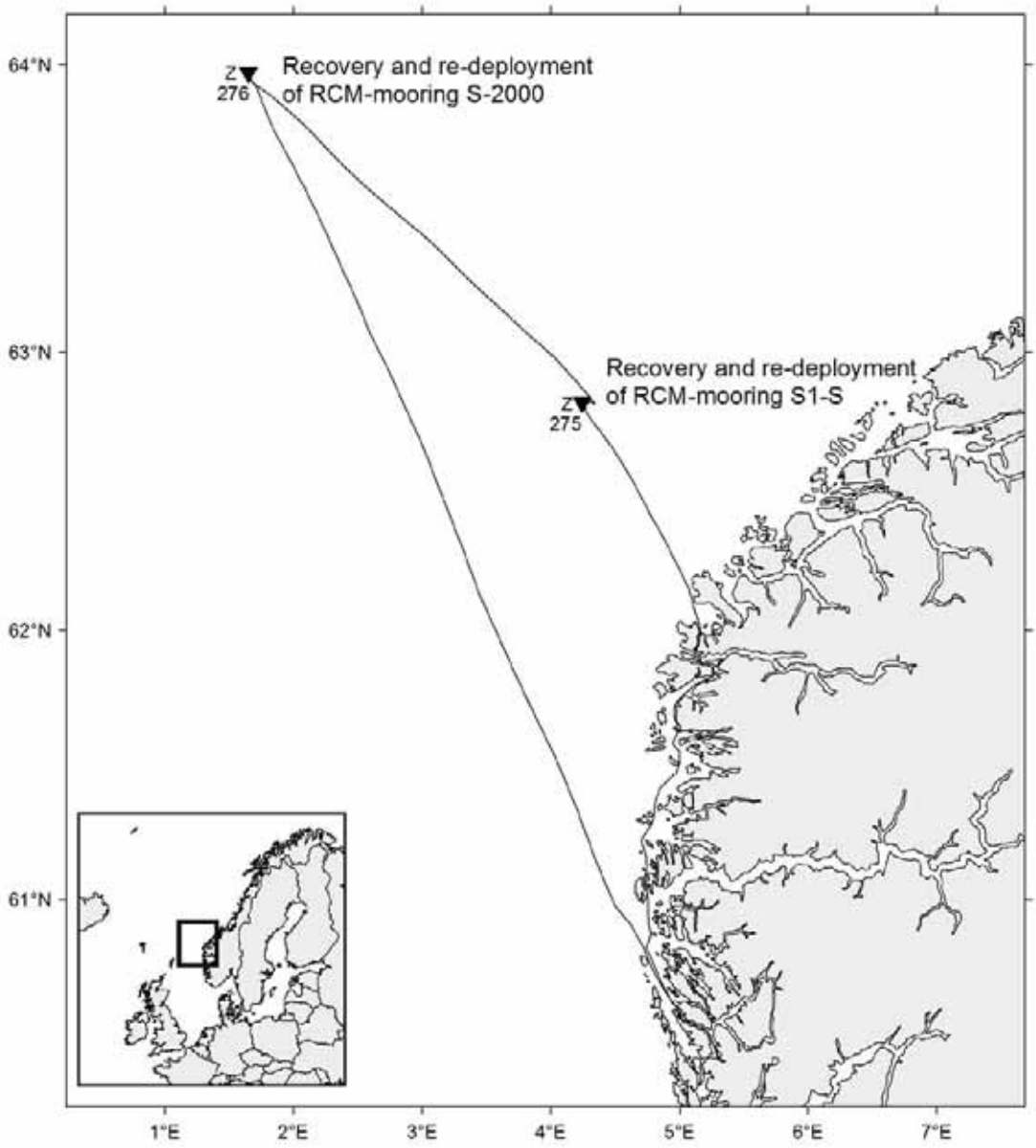
Cruise no 2015606 "Håkon Mosby"
22–25 April 2015
z CTD st.no 255-274
○Plankton st. (WP-II-net)

Standard section:
Fugløya–Bjørnøya st.no 255-274



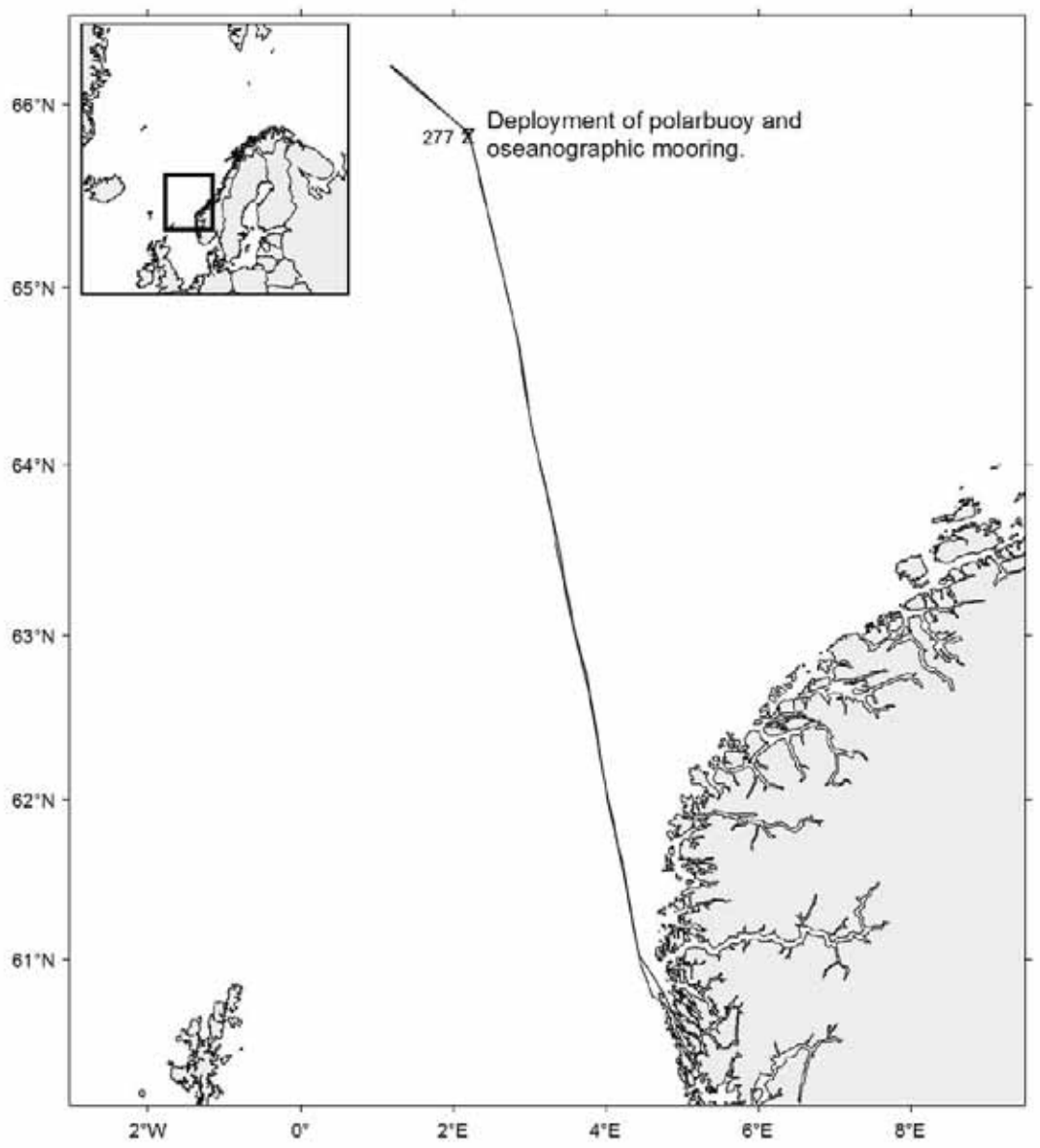
Cruise no 2015606 "Håkon Mosby"
22–25 April 2015

▼ Current meter and mooring



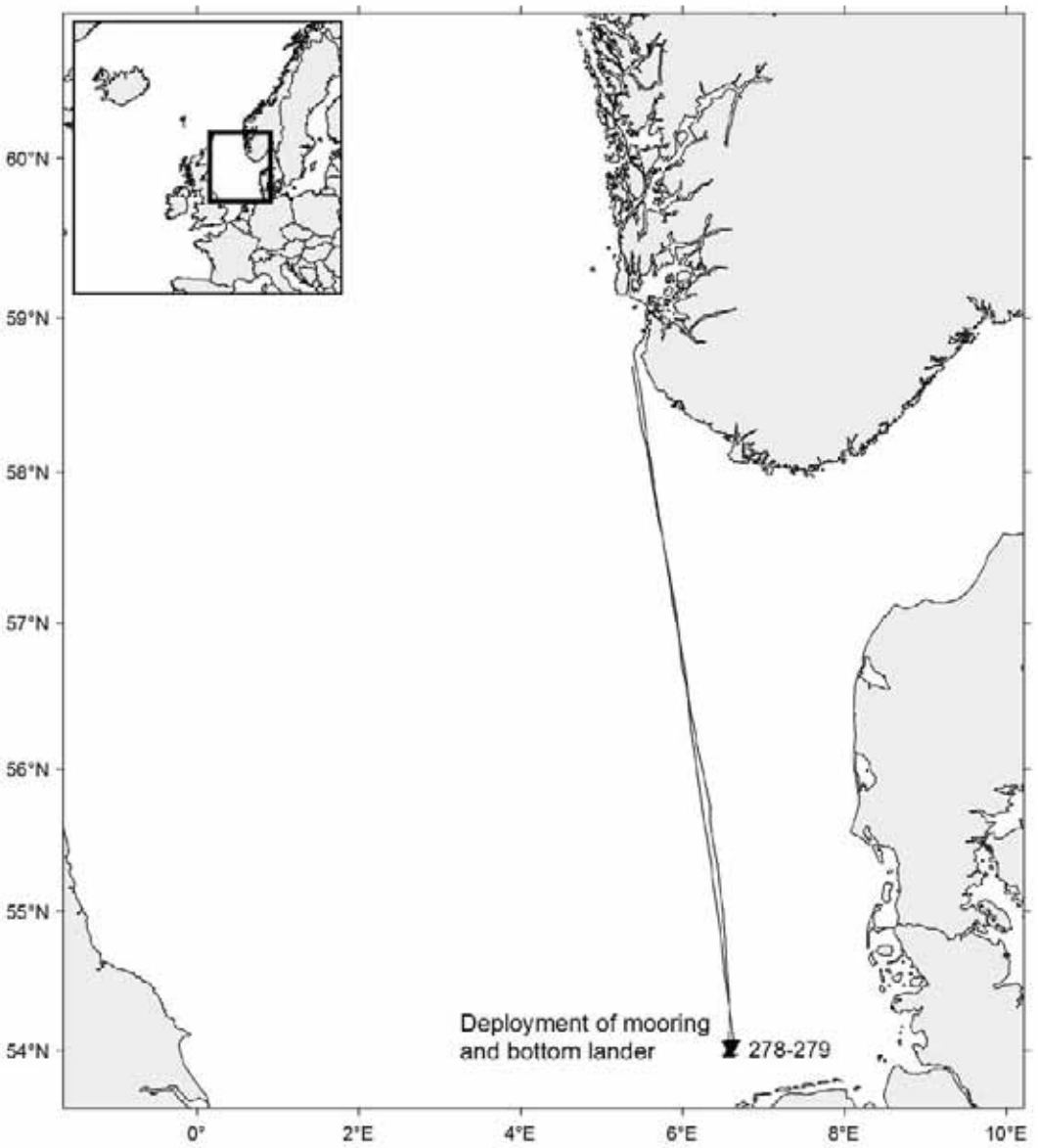
Cruise no 2015607 "Håkon Mosby"
28 April–1 May 2015

z CTD st.no 275-276
▼ Mooring



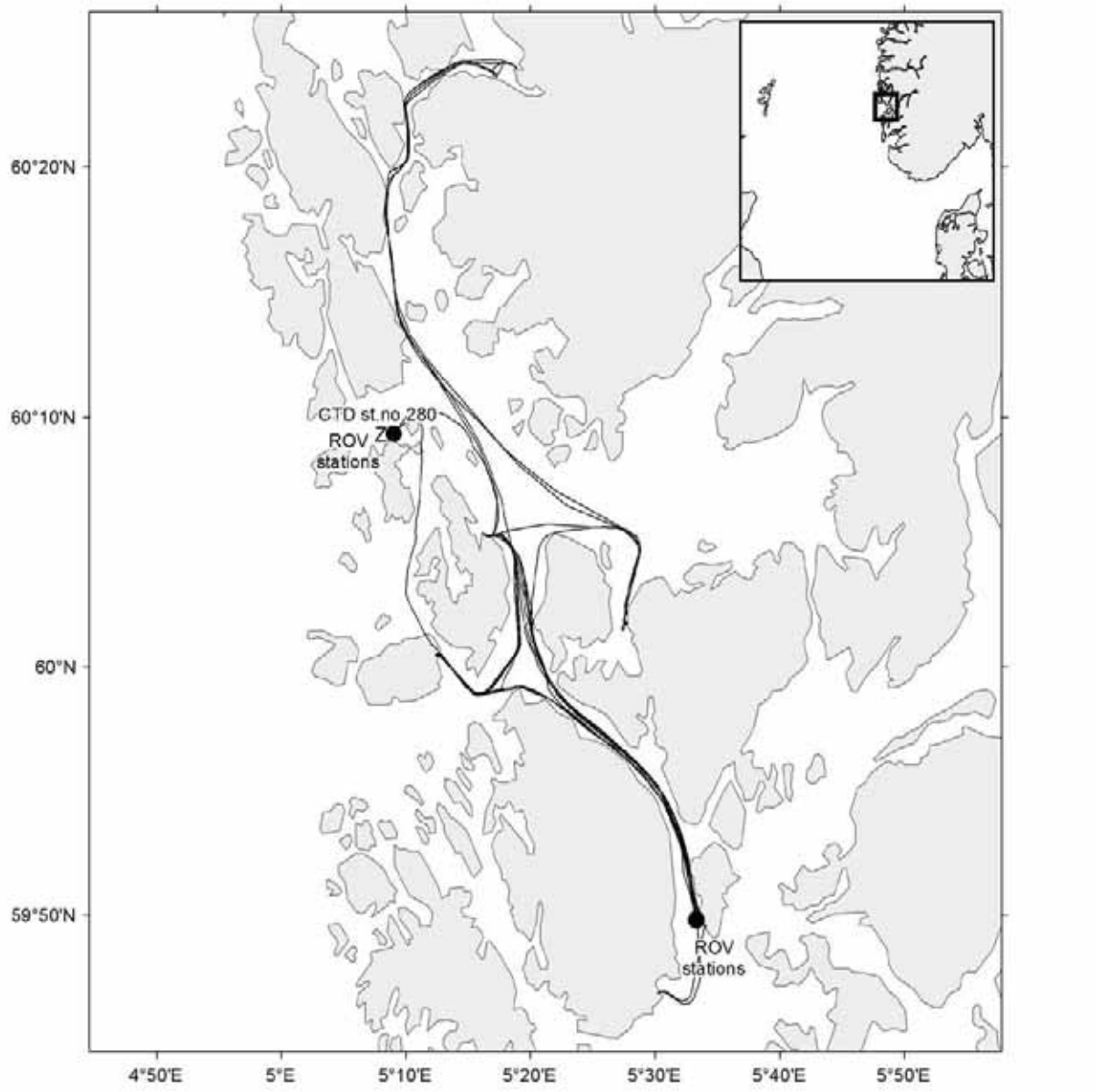
Cruise no 2015609 "Håkon Mosby"
26–29 May 2015

z CTD st.no 277



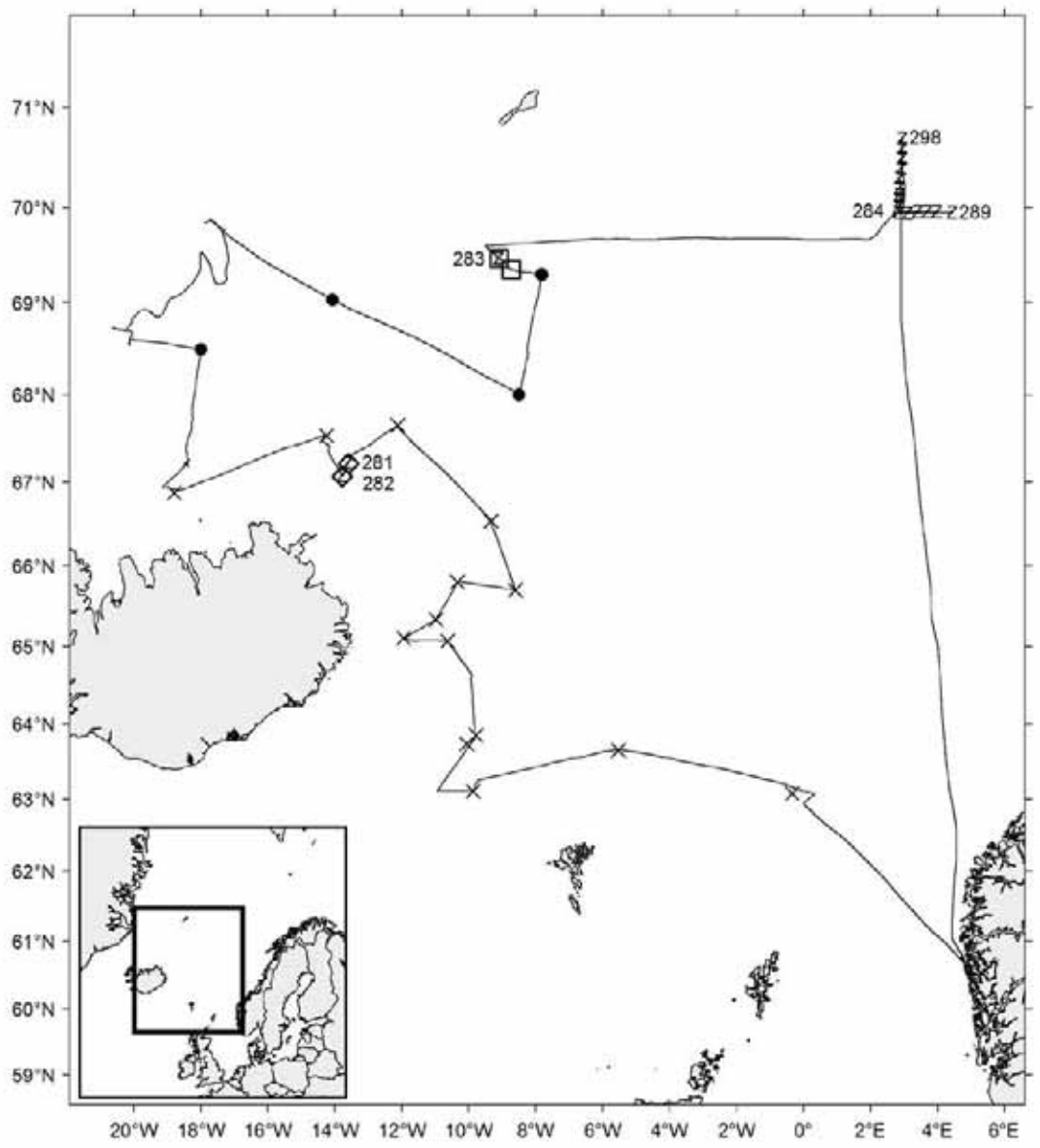
Cruise no 2015610 "Håkon Mosby"
1–6 June 2015

z CTD st.no 278–279
▼ Deployment of mooring
and bottom lander



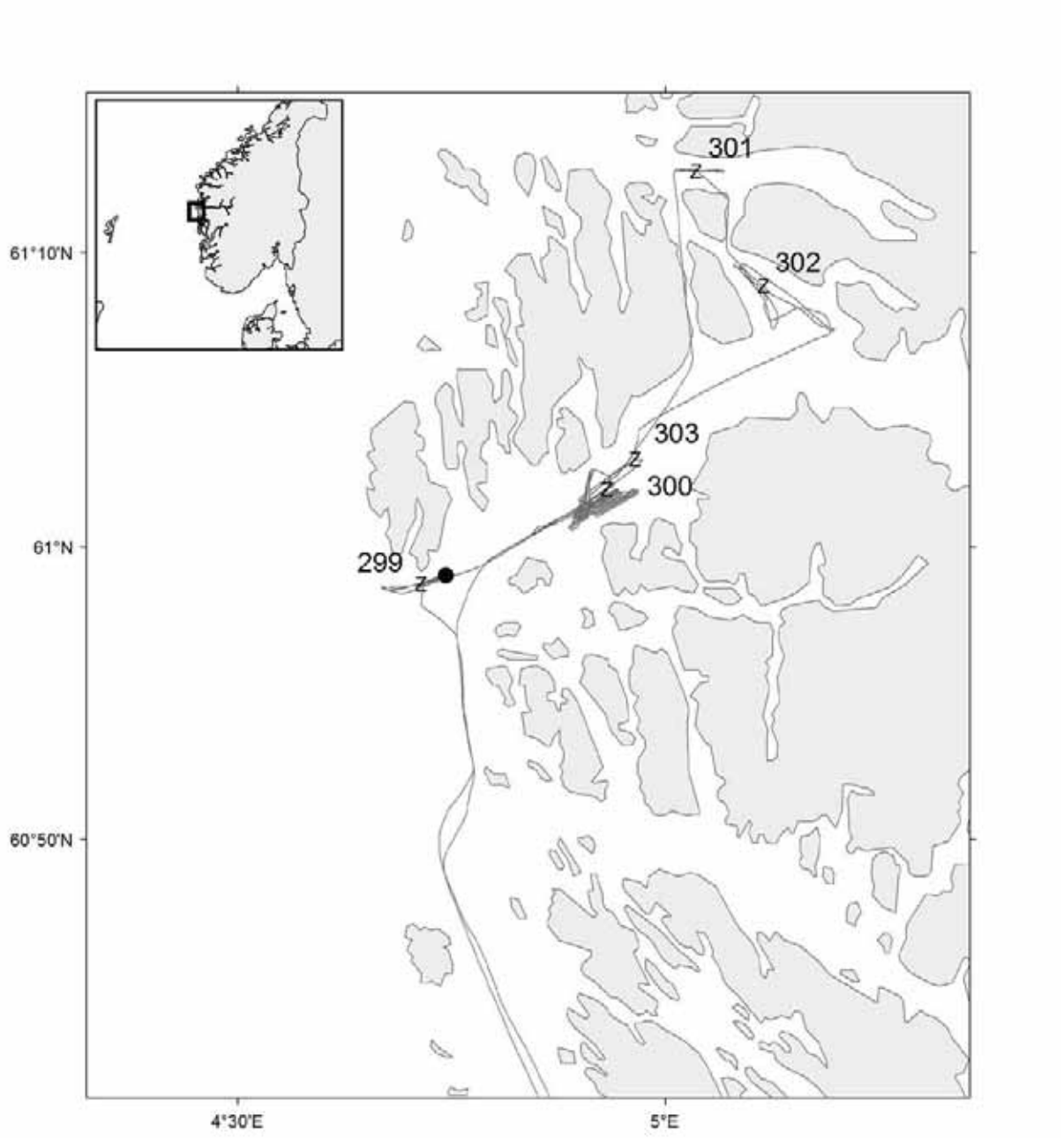
Cruise no 2015611 "Håkon Mosby"
8–16 June 2015

z CTD st.no 280
● Rov st.



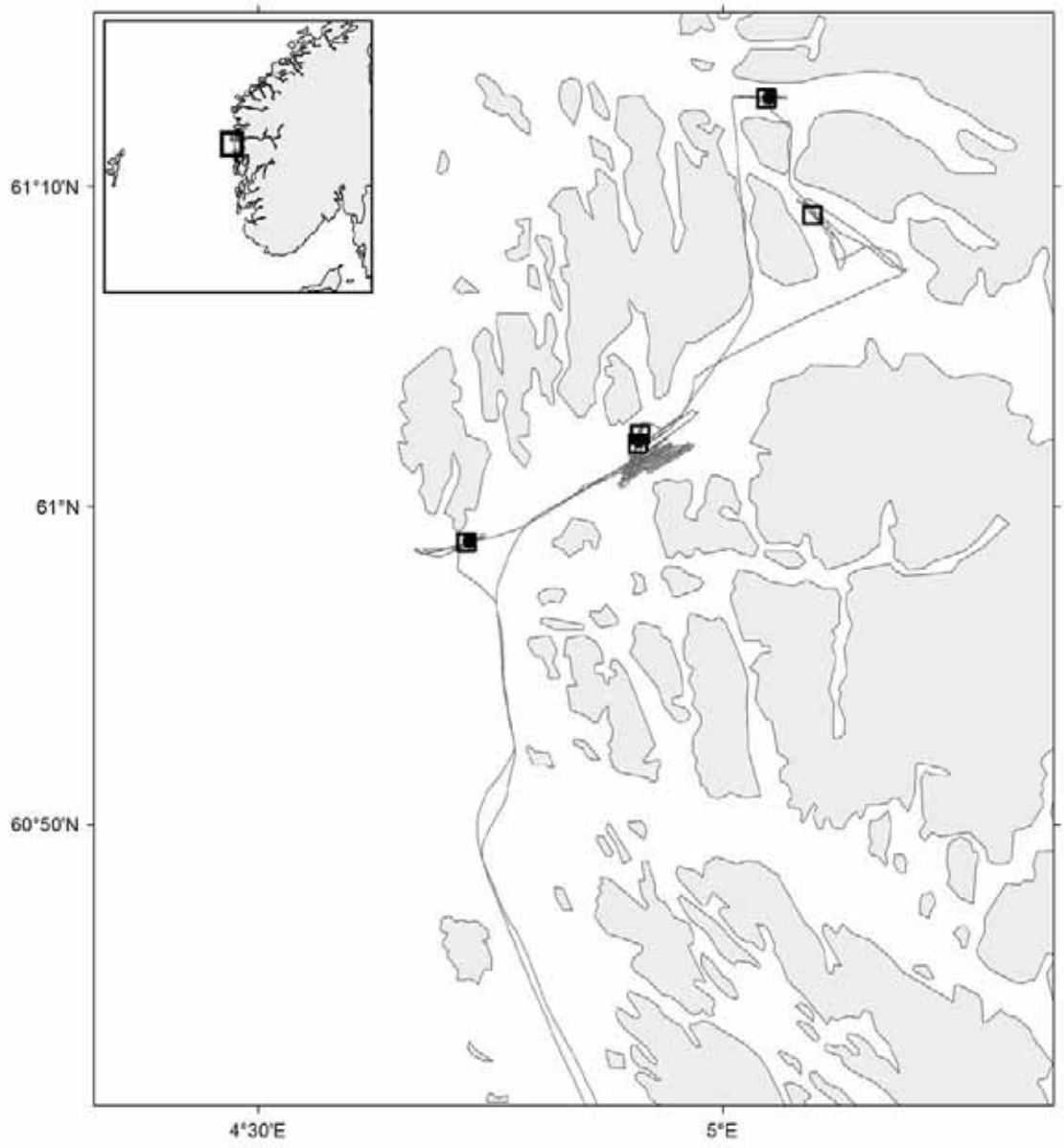
Cruise no 2015612 "Håkon Mosby"
18 June–1 July 2015

z CTD st.no 281-298
◇ Current meter (Aanderaa RCM-7) – deployed
□ ARGO float – deployed
× RAFOS – Neutrally buoyant, acoustically tracked subsurface drifter – recovered
● ICE-S2,S4,S5 and S7: RAFOS sound source mooring – recovered



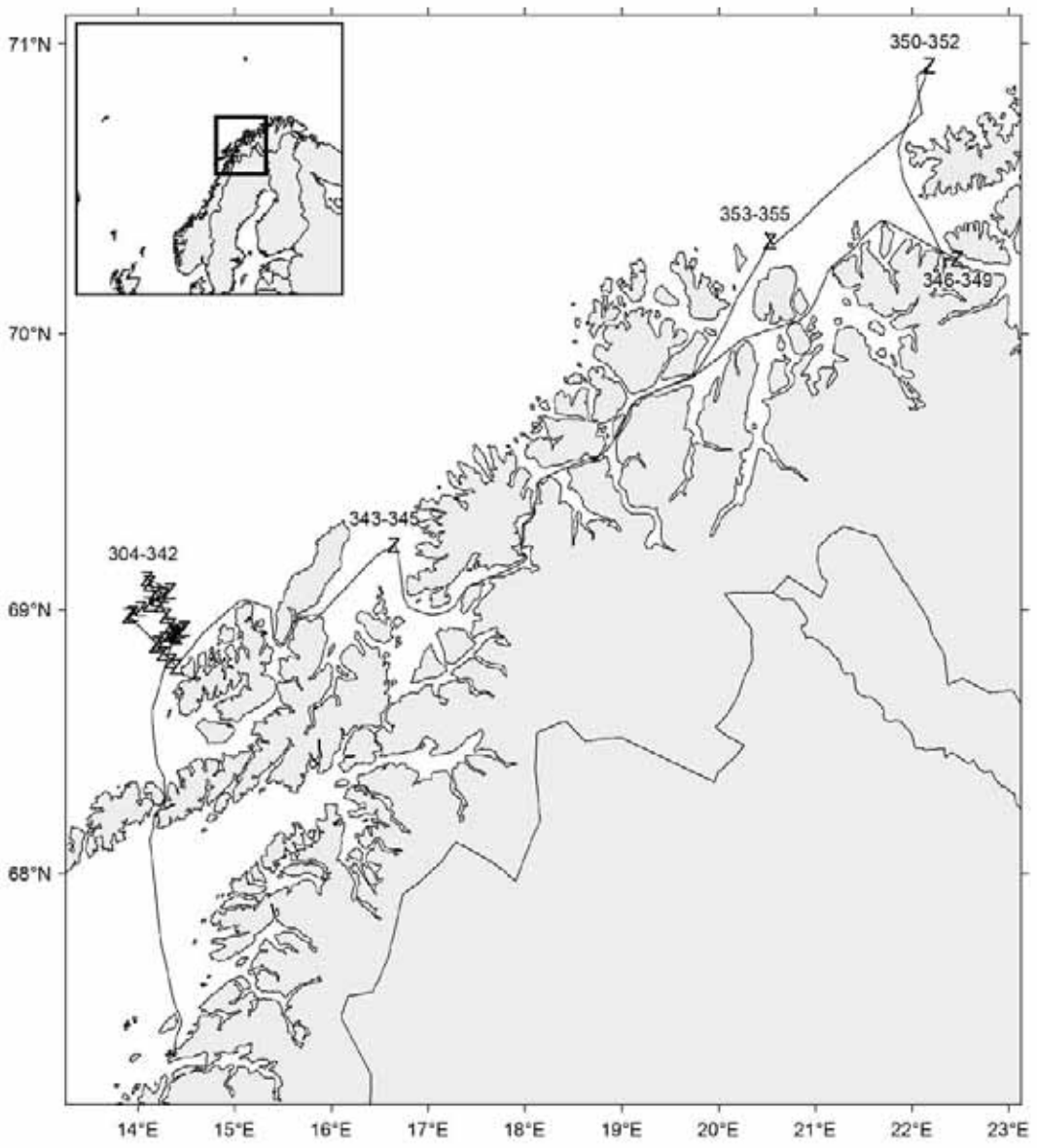
Cruise no 2015614 "Håkon Mosby"
13–15 July 2015

z CTD st.no 299-303
● Mik st.



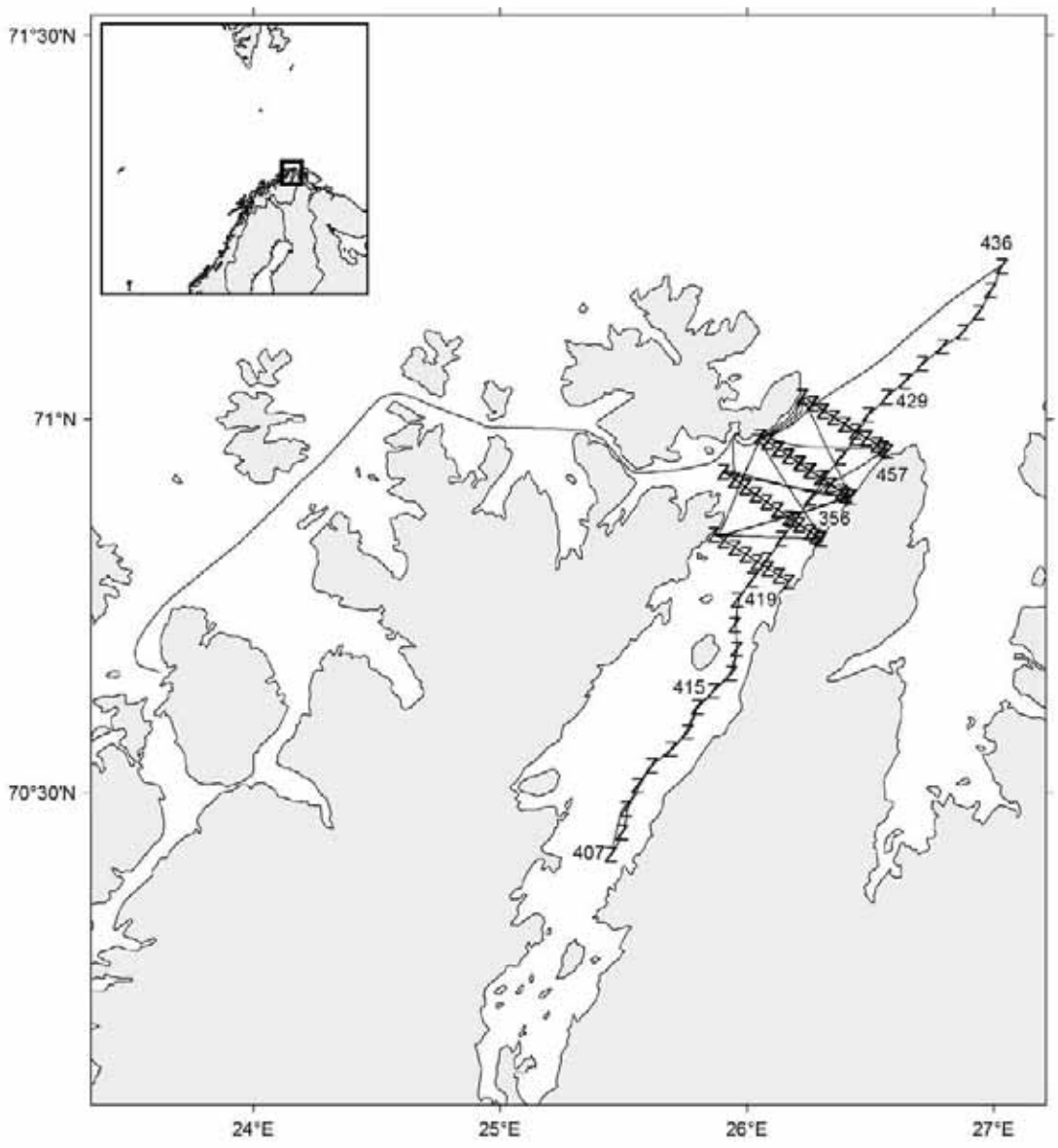
Cruise no 2015614 "Håkon Mosby"
13–15 July 2015

● Sledge st.
□ Agassis tr



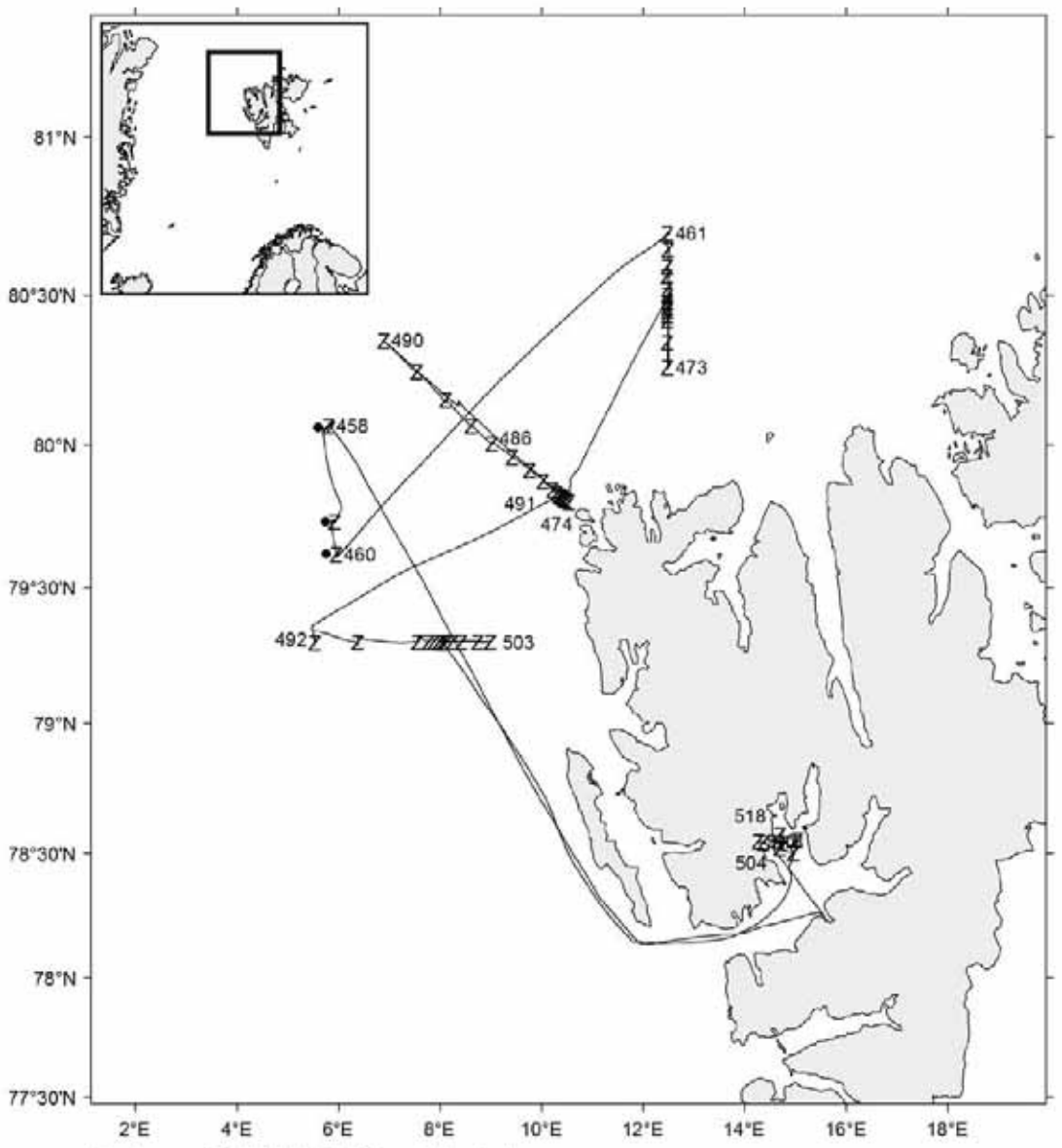
Cruise no 2015615 "Håkon Mosby"
20–28 July 2015

z CTD st.no 304-355



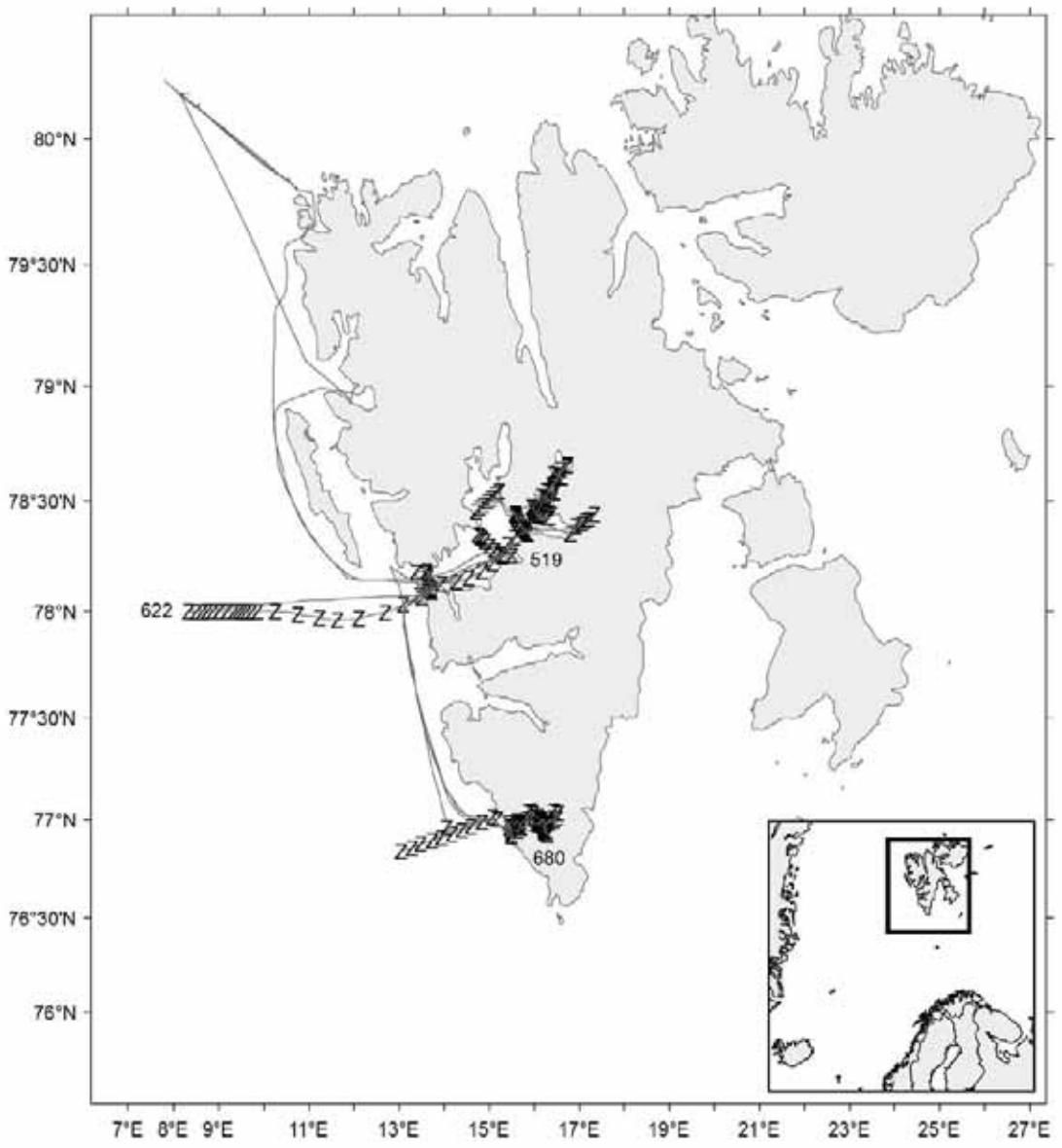
Cruise no 2015616 "Håkon Mosby"
3–6 August 2015

z CTD st.no 356-457



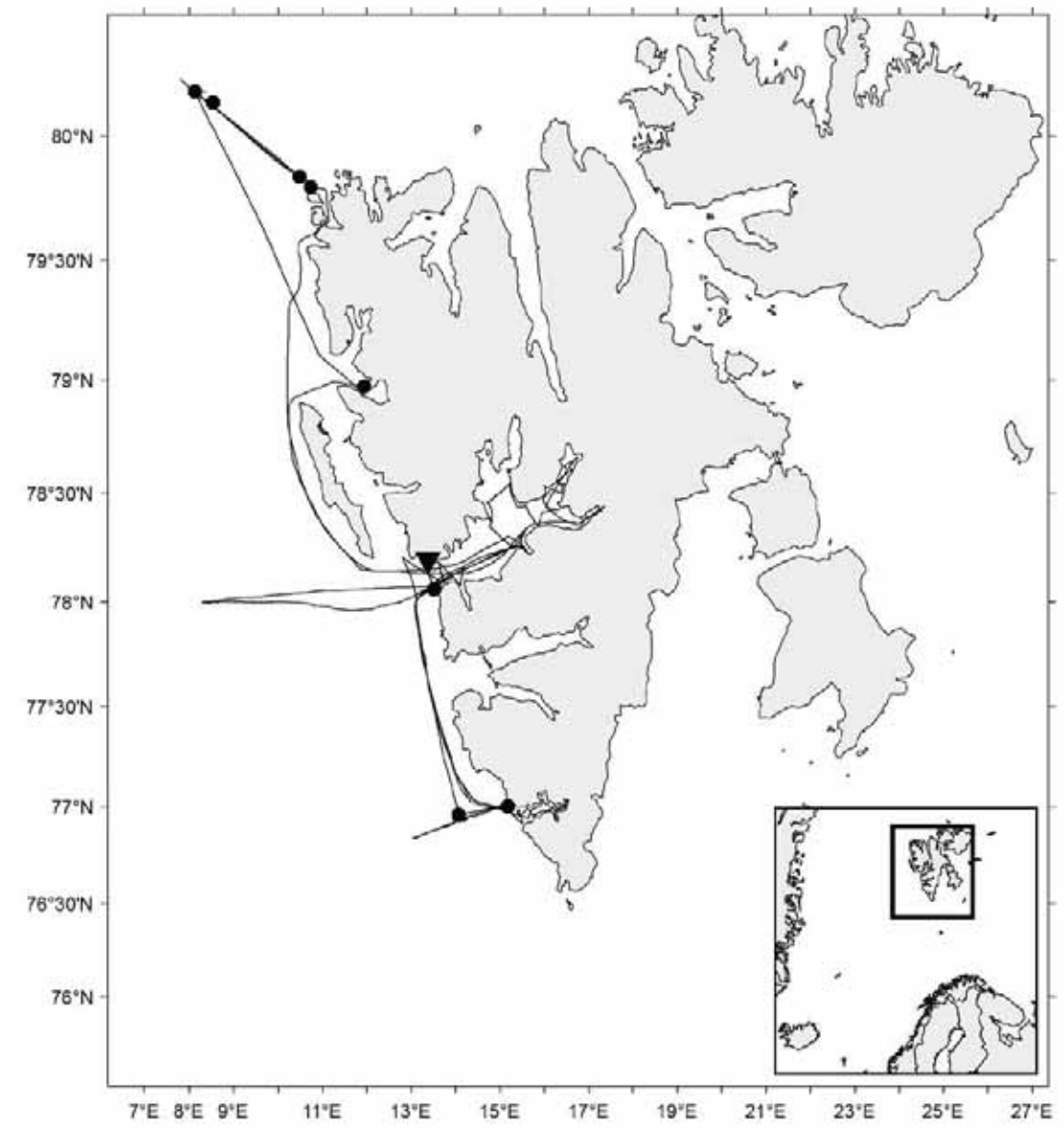
Cruise no 2015617 "Håkon Mosby"
12–21 August 2015

z CTD st.no 458–518
● Moorings recovered



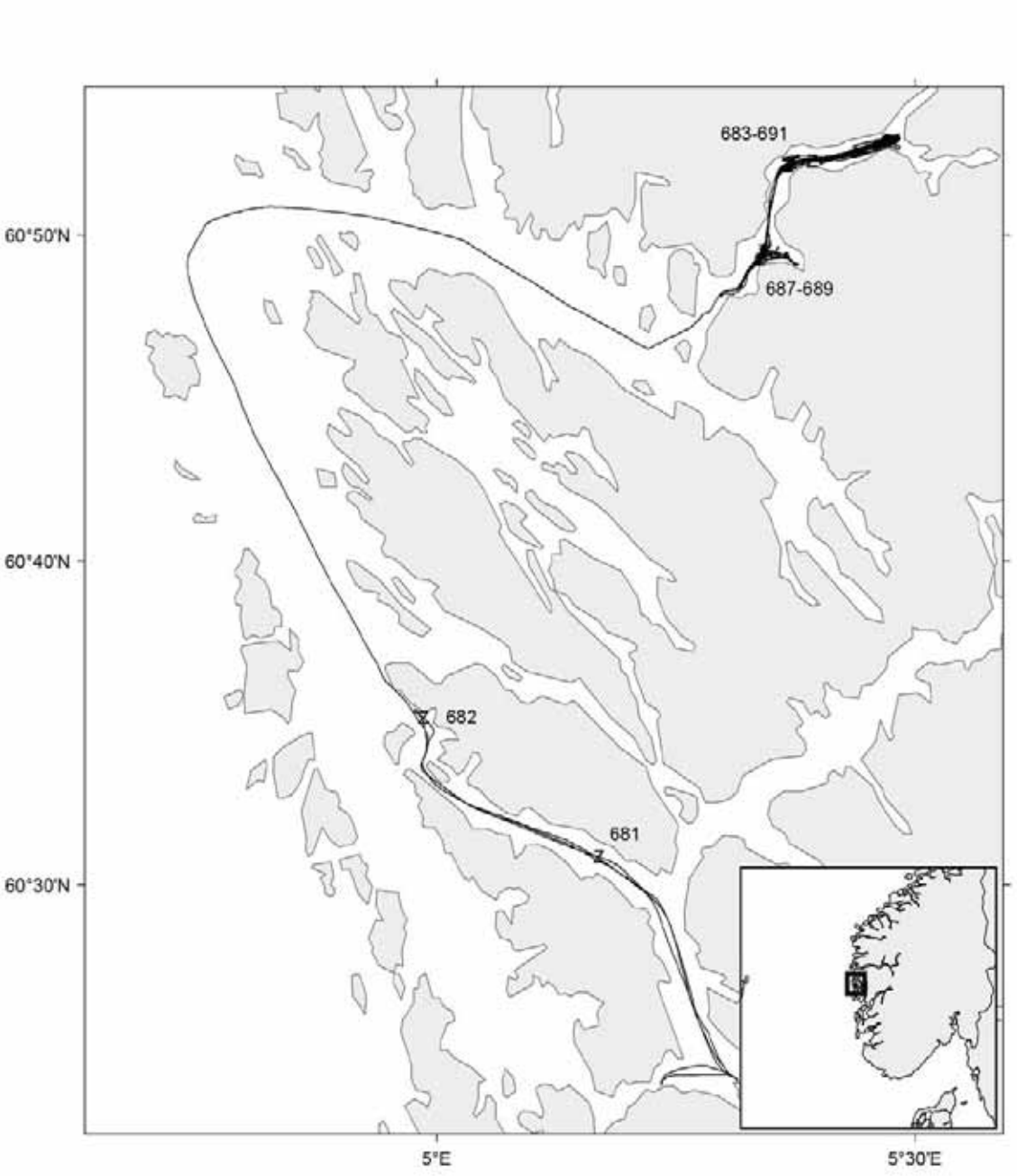
Cruise no 2015618 "Håkon Mosby"
24 August–4 September 2015

z CTD st.no 519–680



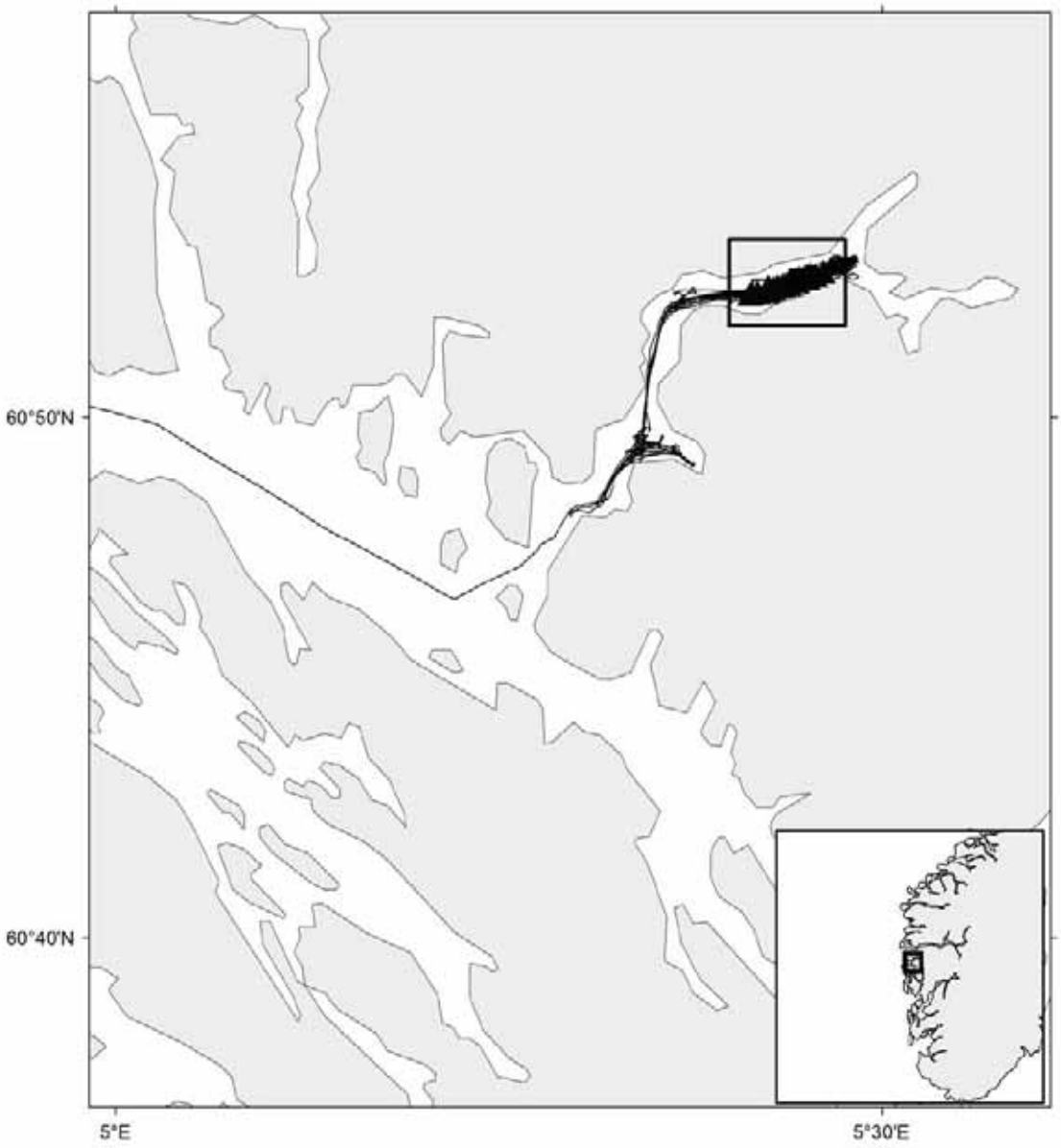
Cruise no 2015618 "Håkon Mosby"
24 August–4 September 2015

● Moorings recovered
▼ Mooring deployed



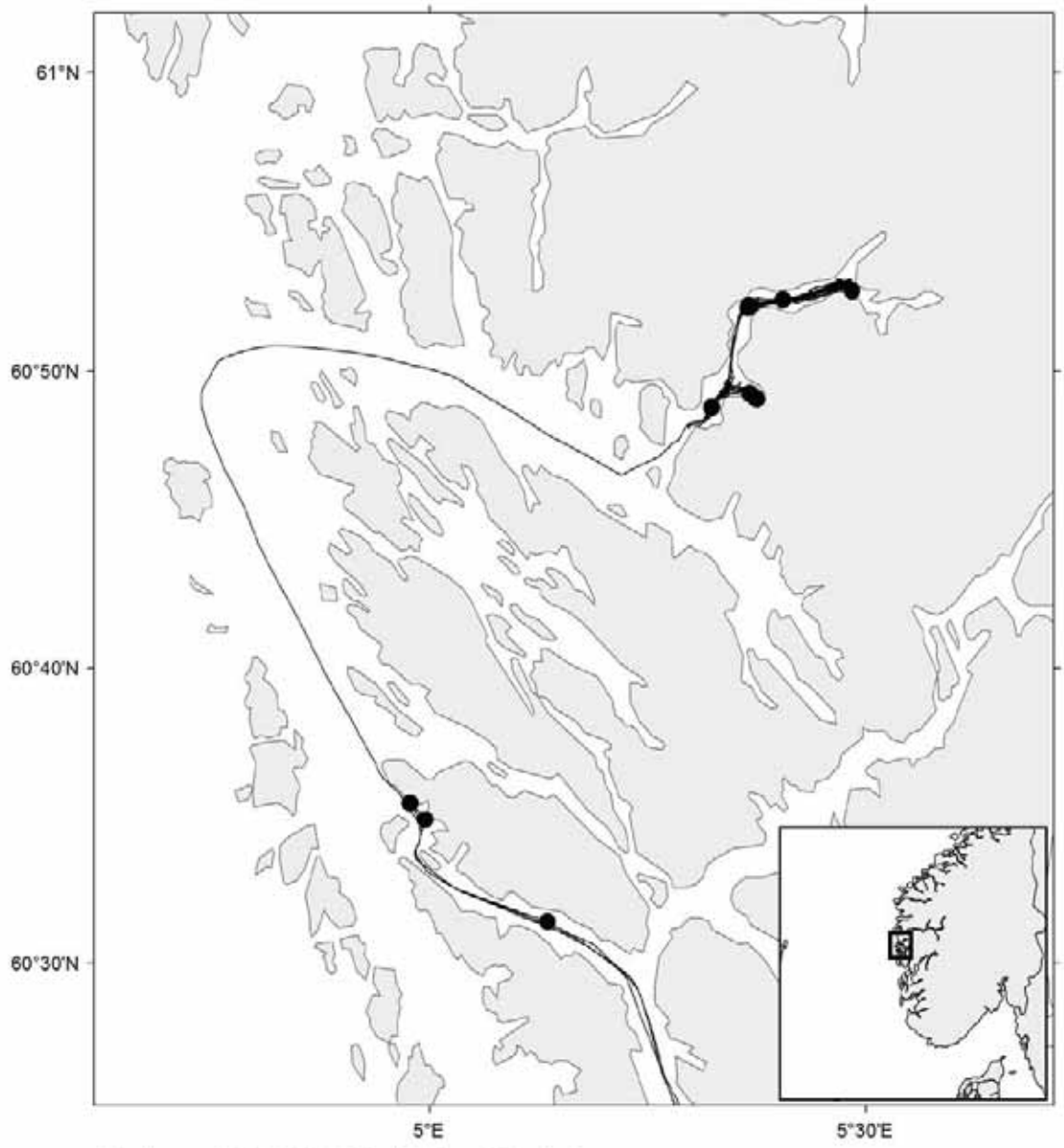
Cruise no 20152015620 "Håkon Mosby"
14–23 September 2015

z CTD st.no 681-691



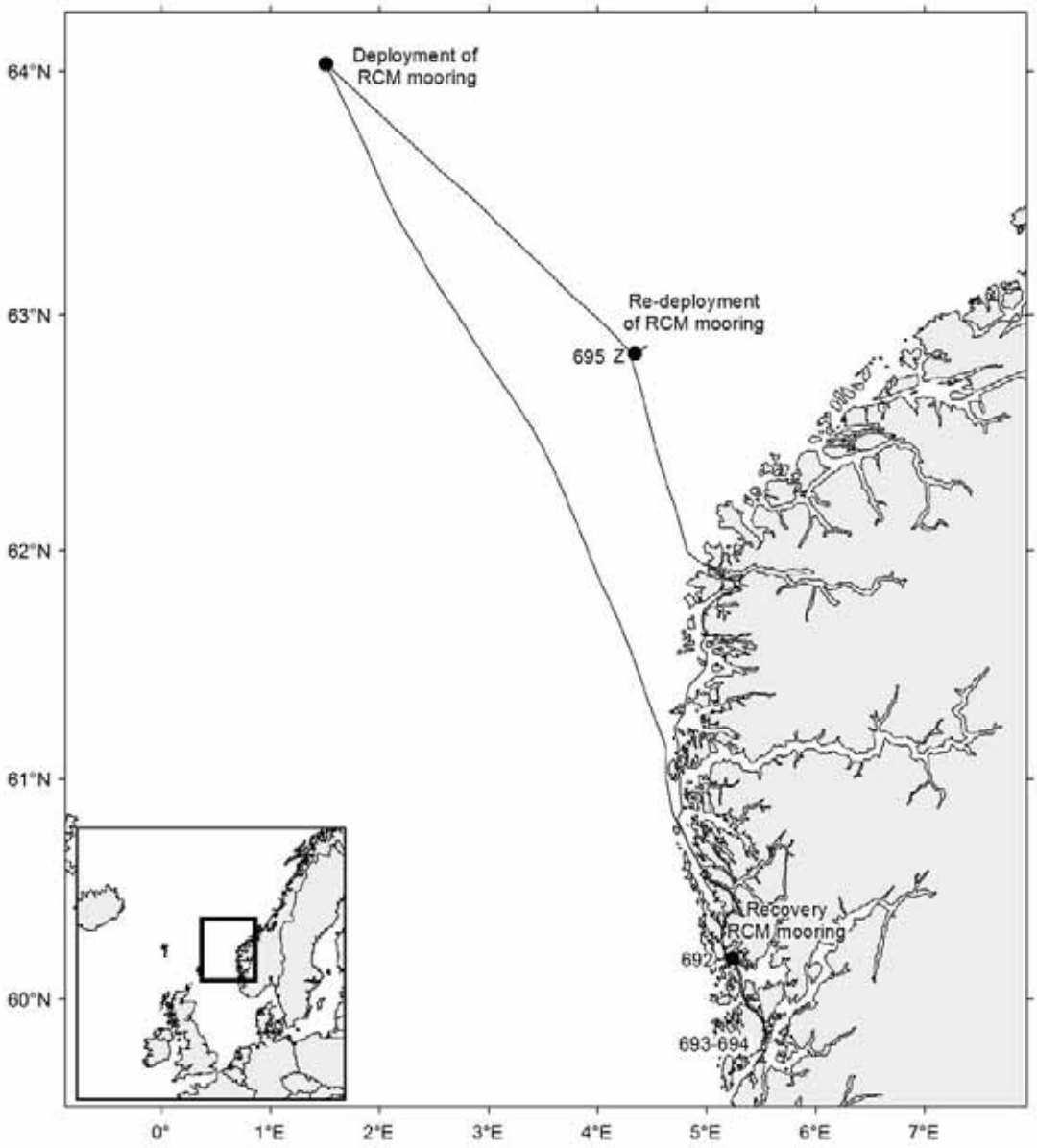
Cruise no 2015620 "Håkon Mosby"
14–23 September 2015

Area for pelagic and bottom trawl st.no 93-119



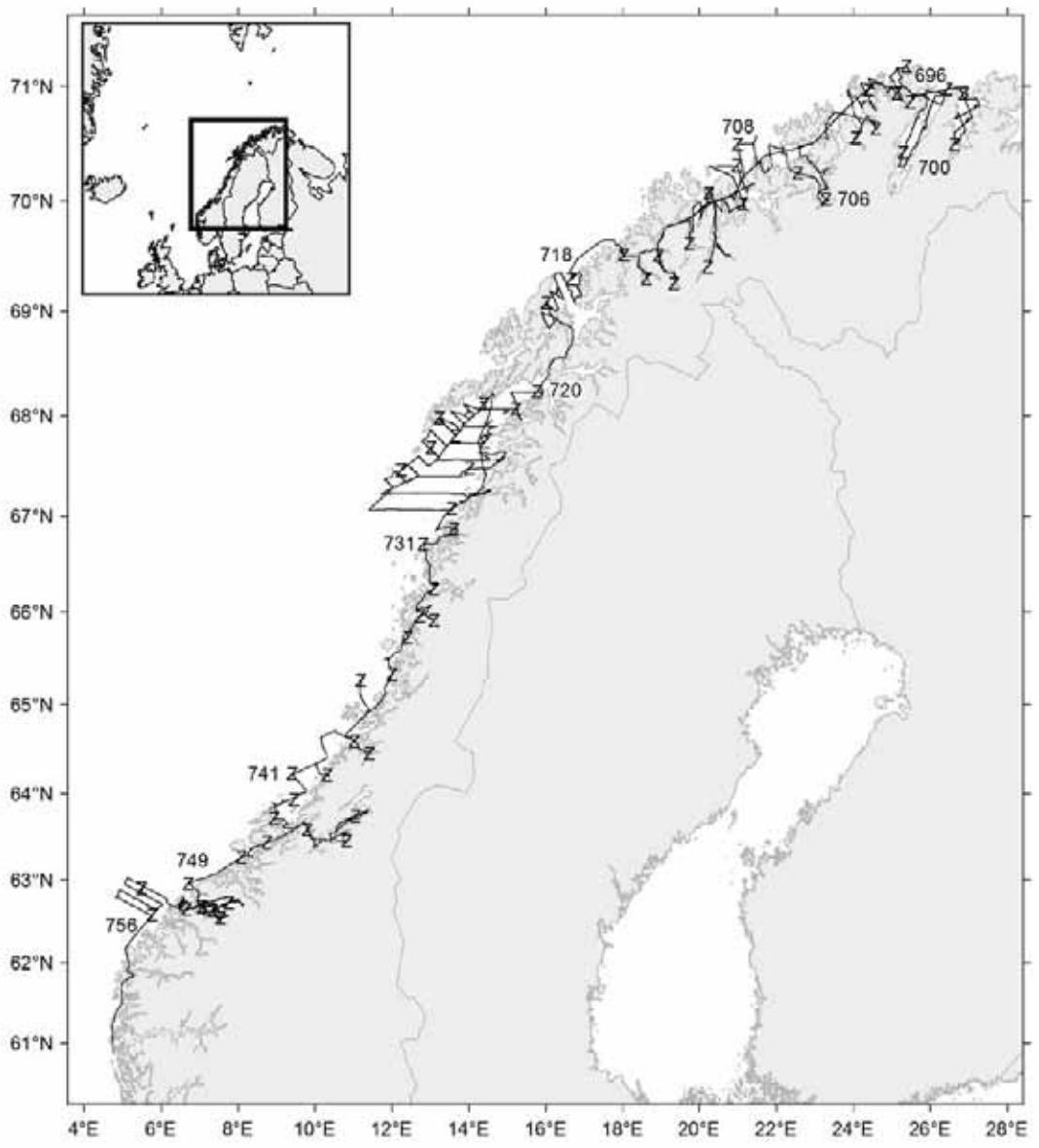
Cruise no 20152015620 "Håkon Mosby"
14–23 September 2015

● Mik, multinet, sledge and agassisis stations



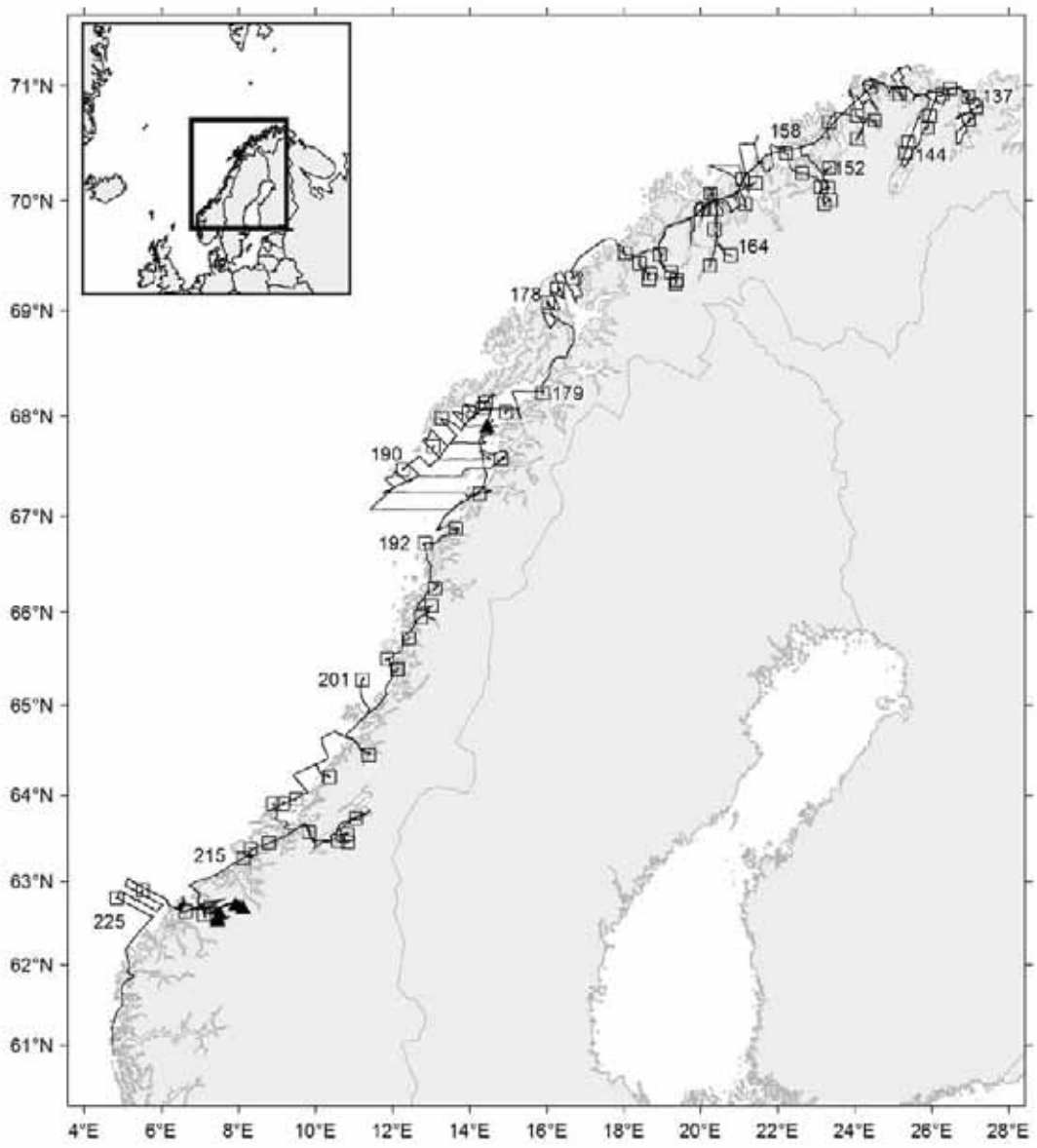
Cruise no 2015619 "Håkon Mosby"
24–27 September 2015

z CTD st.no 692–695
● Moorings



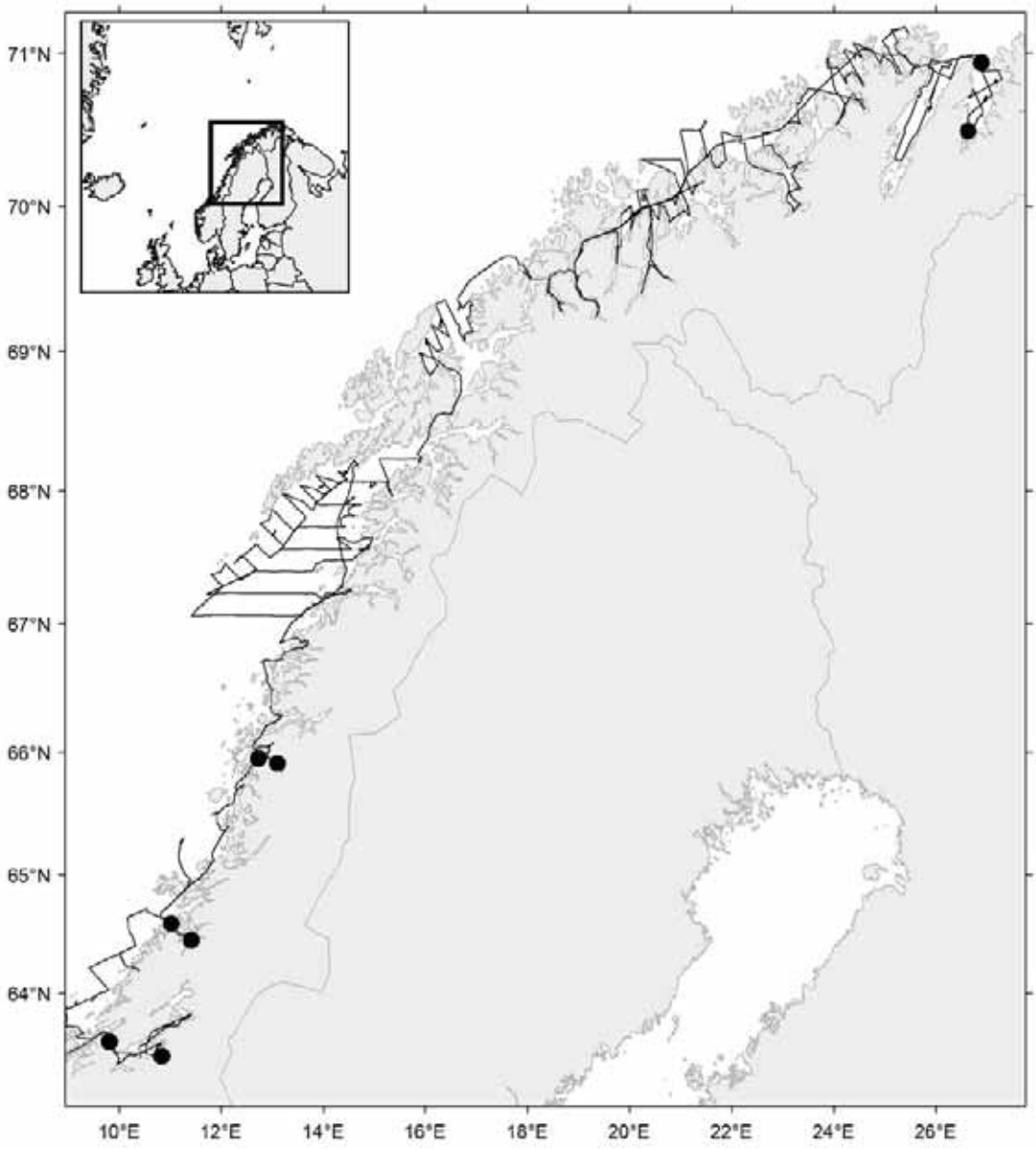
Cruise no 2015621 "Håkon Mosby"
1–28 October 2015

z CTD st.no 696-756



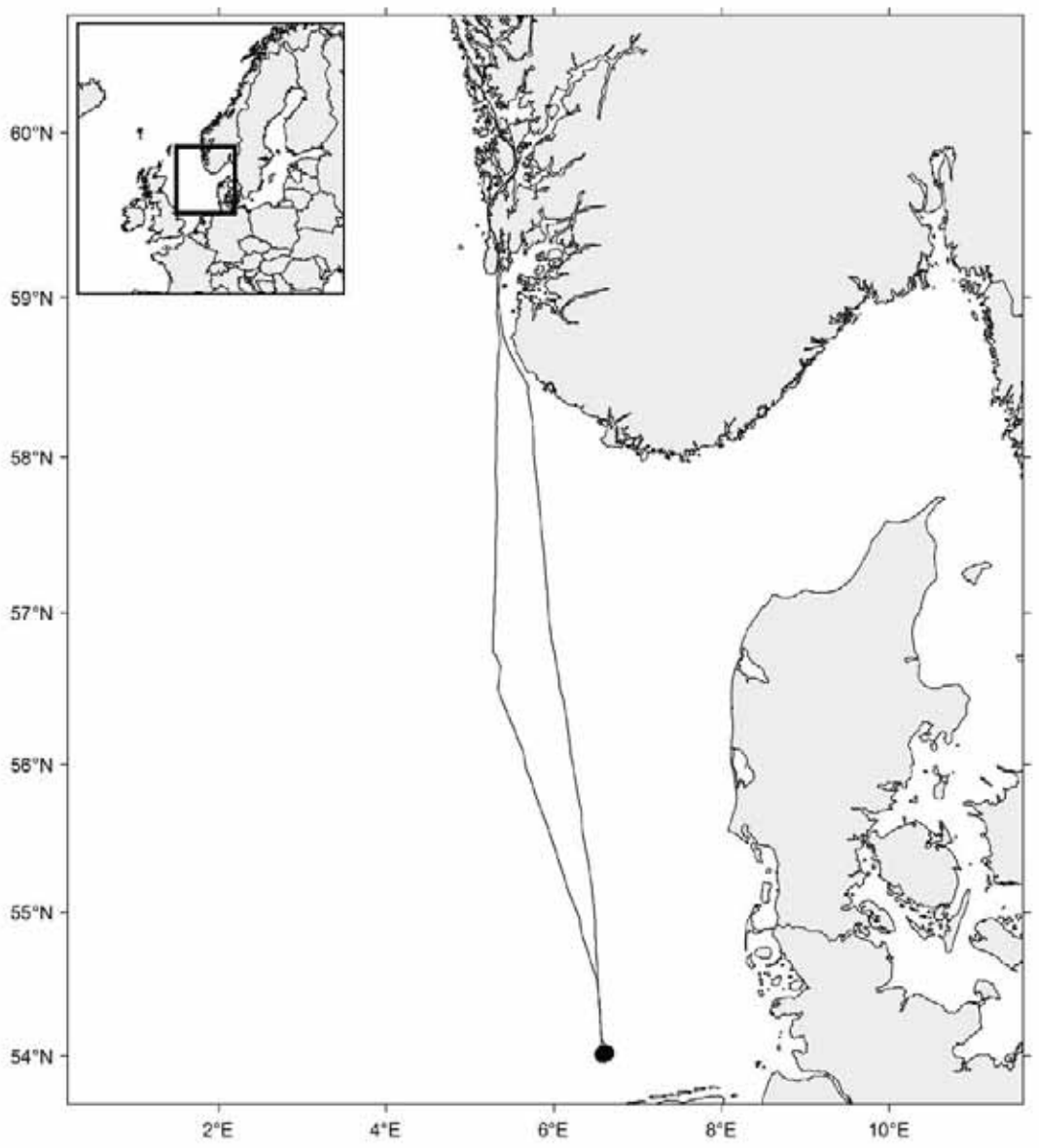
Cruise no 2015621 "Håkon Mosby"
1–28 October 2015

Trawl st.no 137–225
▫ Bottom trawl
▲ Pelagic trawl



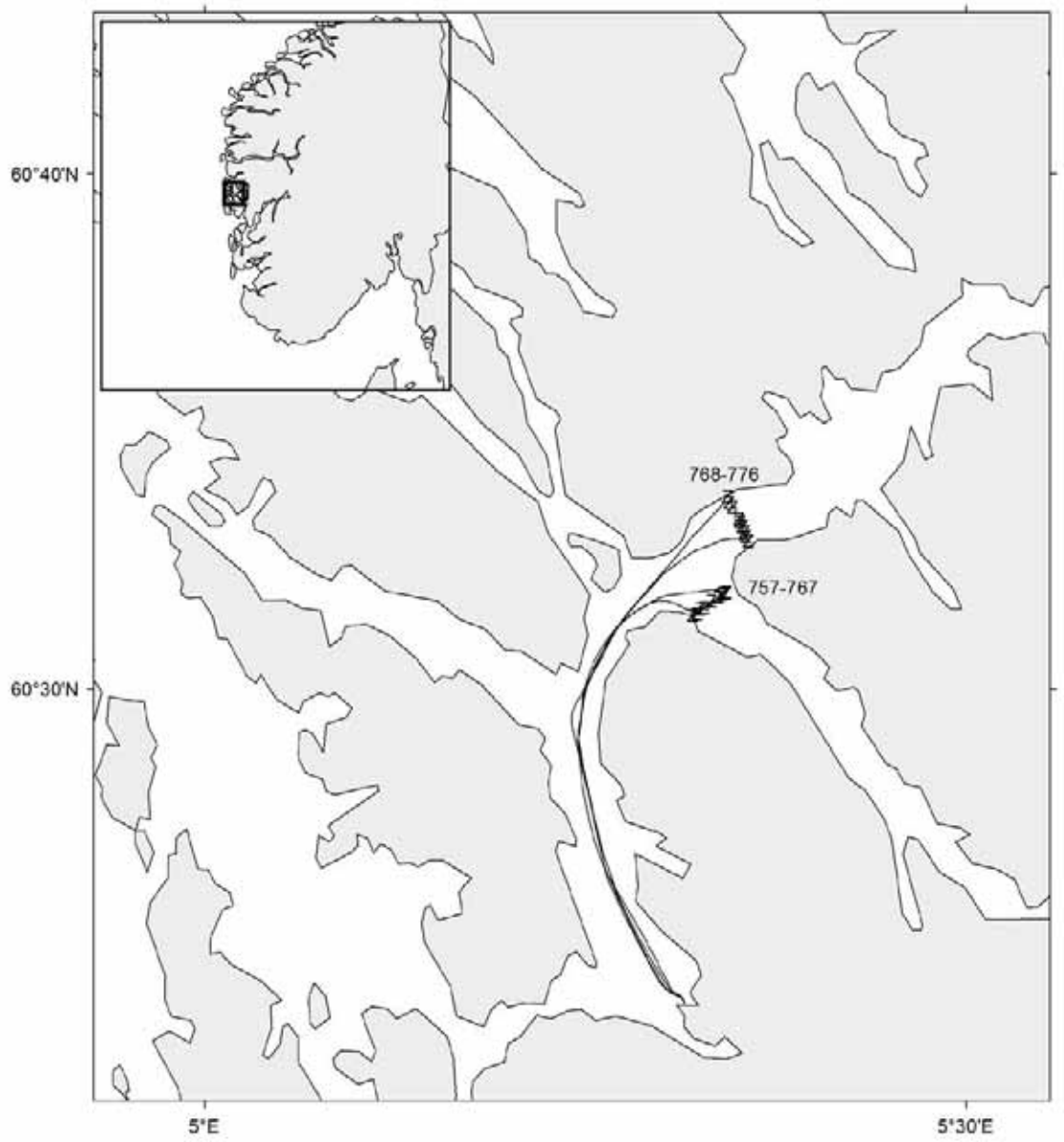
Cruise no 2015621 "Håkon Mosby"
1–28 October 2015

● Grab stations



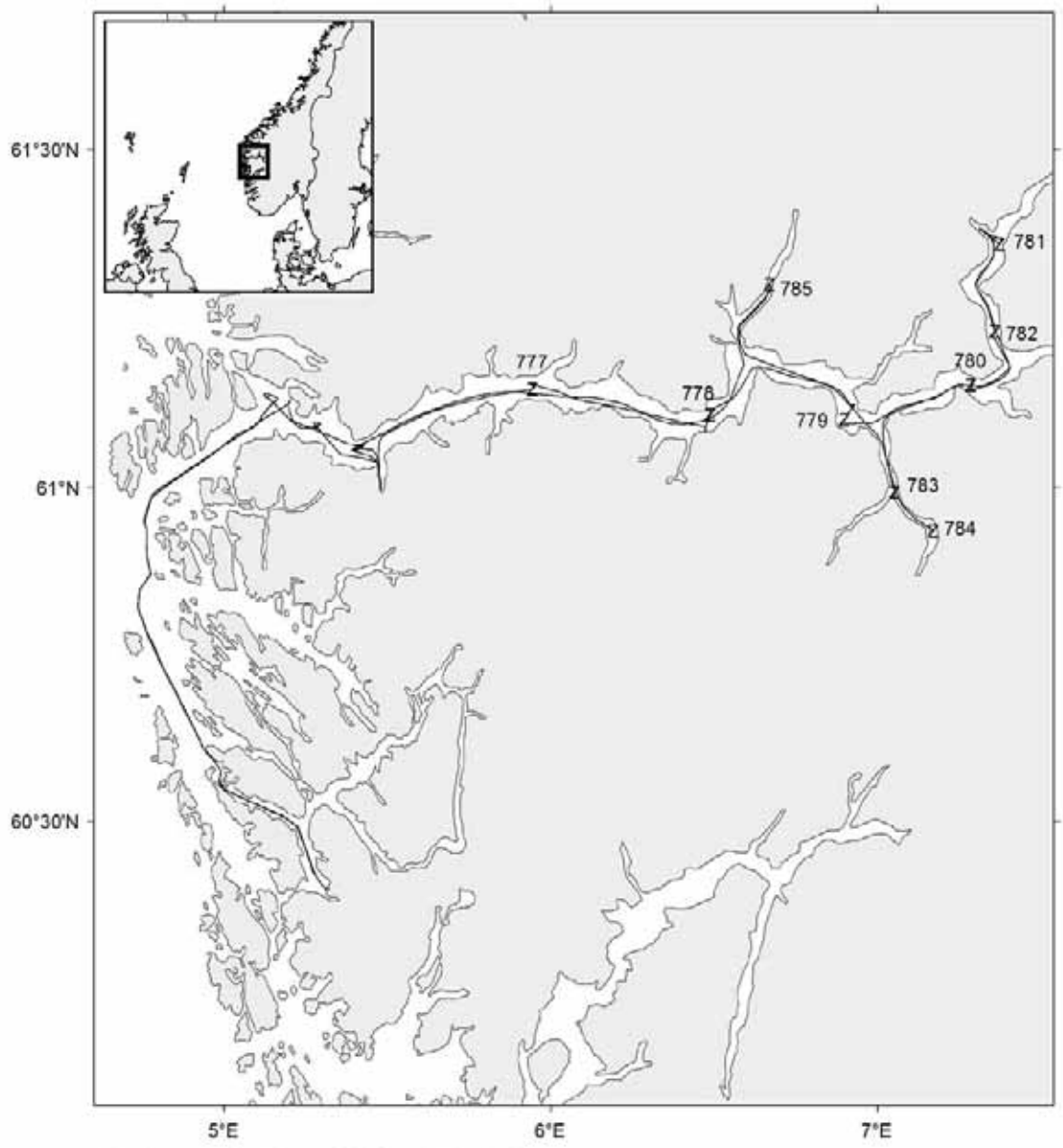
Cruise no 2015623 "Håkon Mosby"
28 October–3 November 2015

● Recovered moorings
(recovering of 5 bottom-anchored mooring systems)



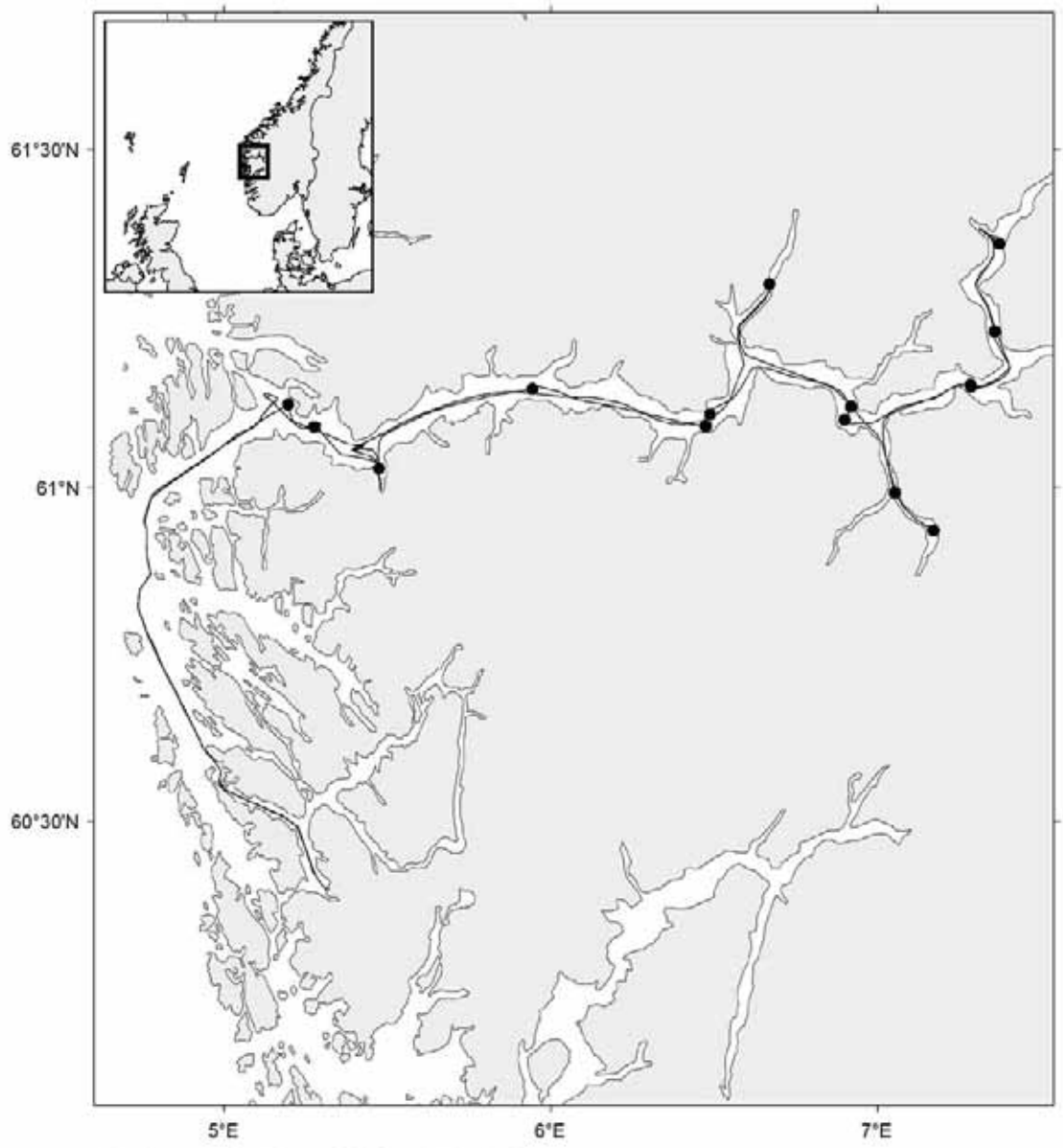
Cruise no 2015622 "Håkon Mosby"
12–13 November 2015

z CTD st.no 757-776



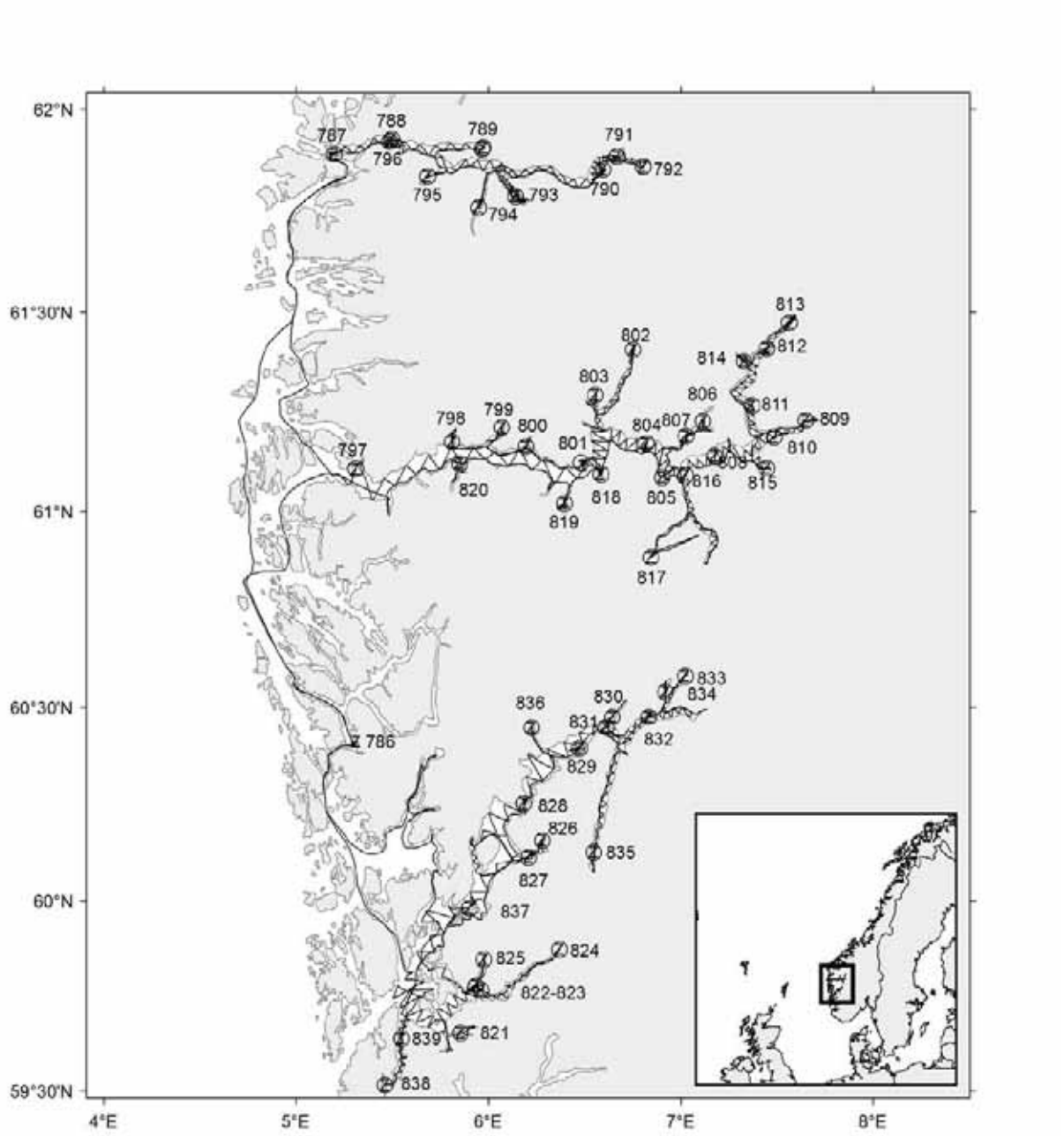
Cruise no 2015624 "Håkon Mosby"
16–20 November 2015

z CTD st.no 777–785



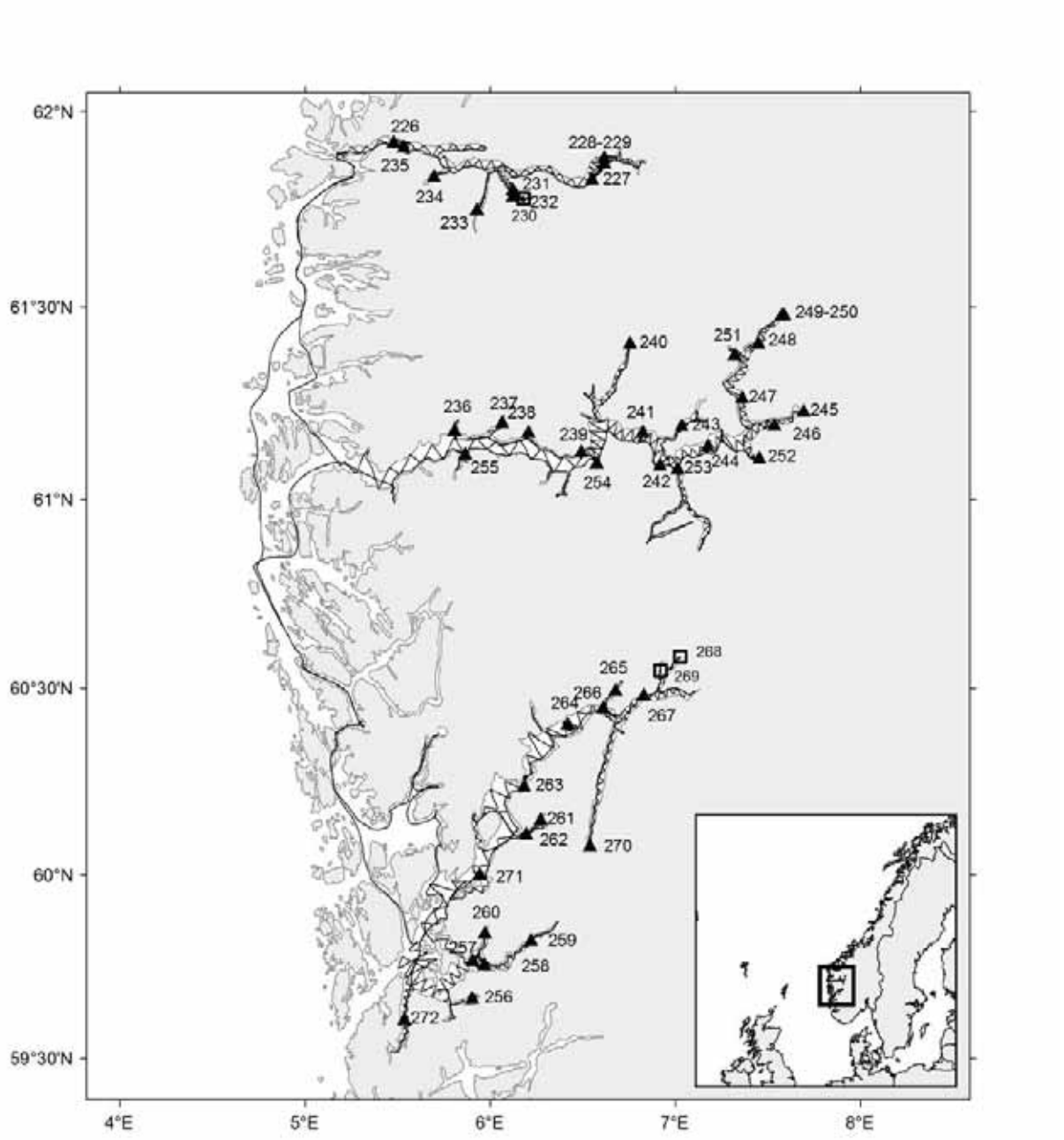
Cruise no 2015624 "Håkon Mosby"
16–20 November 2015

● Video stations



Cruise no 2015625 "Håkon Mosby"
3–16 December 2015

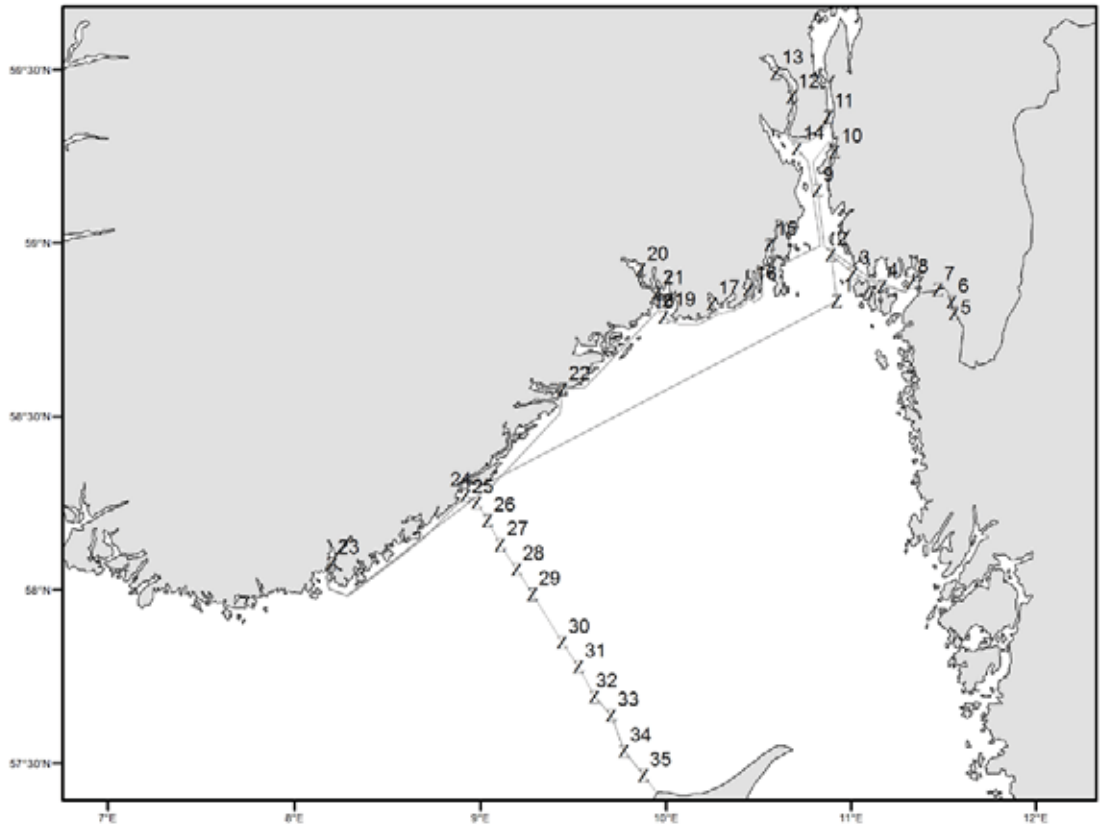
z CTD st.no 786-839
○ Plankton st. (WP-II-net)



Cruise no 2015625 "Håkon Mosby"
3–16 December 2015

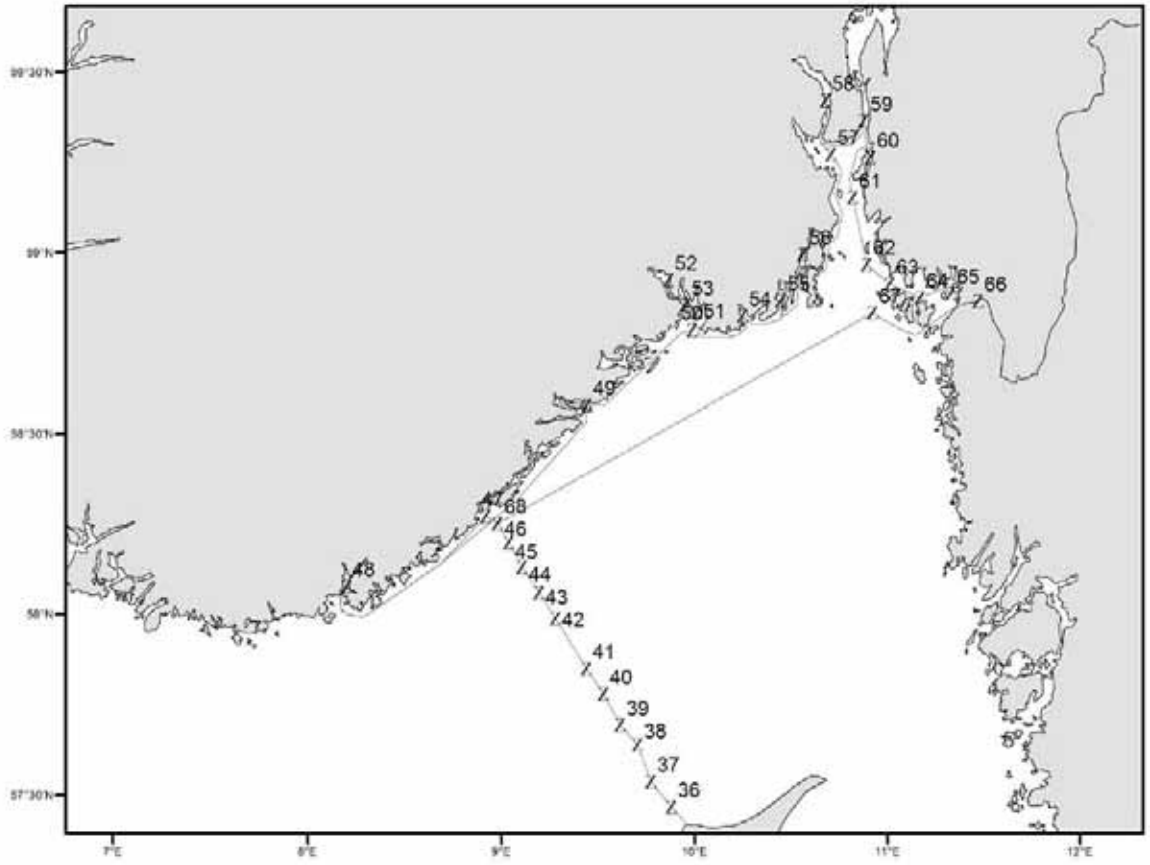
Trawl st.no 226–272
□ Bottom tawl
▲ Pelagic trawl

4.4 G.M. Dannevig



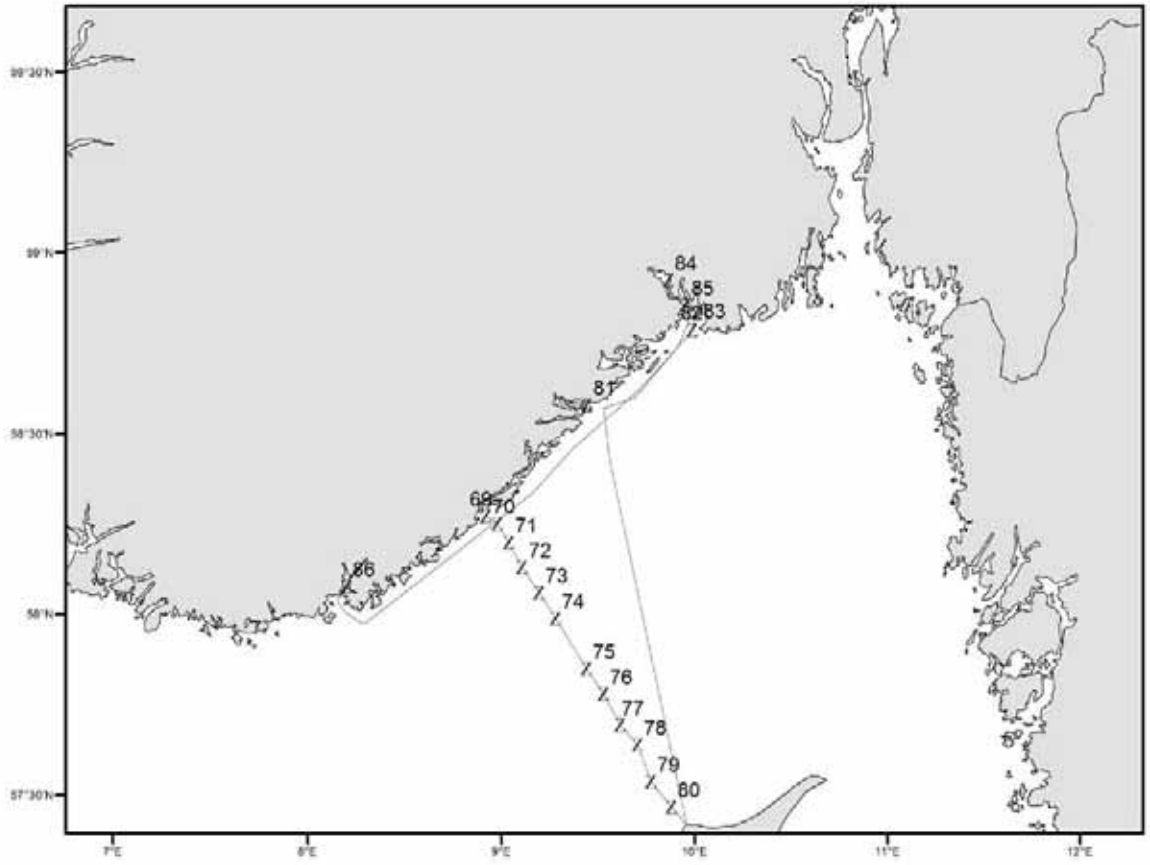
Cruise no 2015301/302/303
"G. M. Dannevig"
14 - 21 January 2015

Z CTD st.no 1 - 35



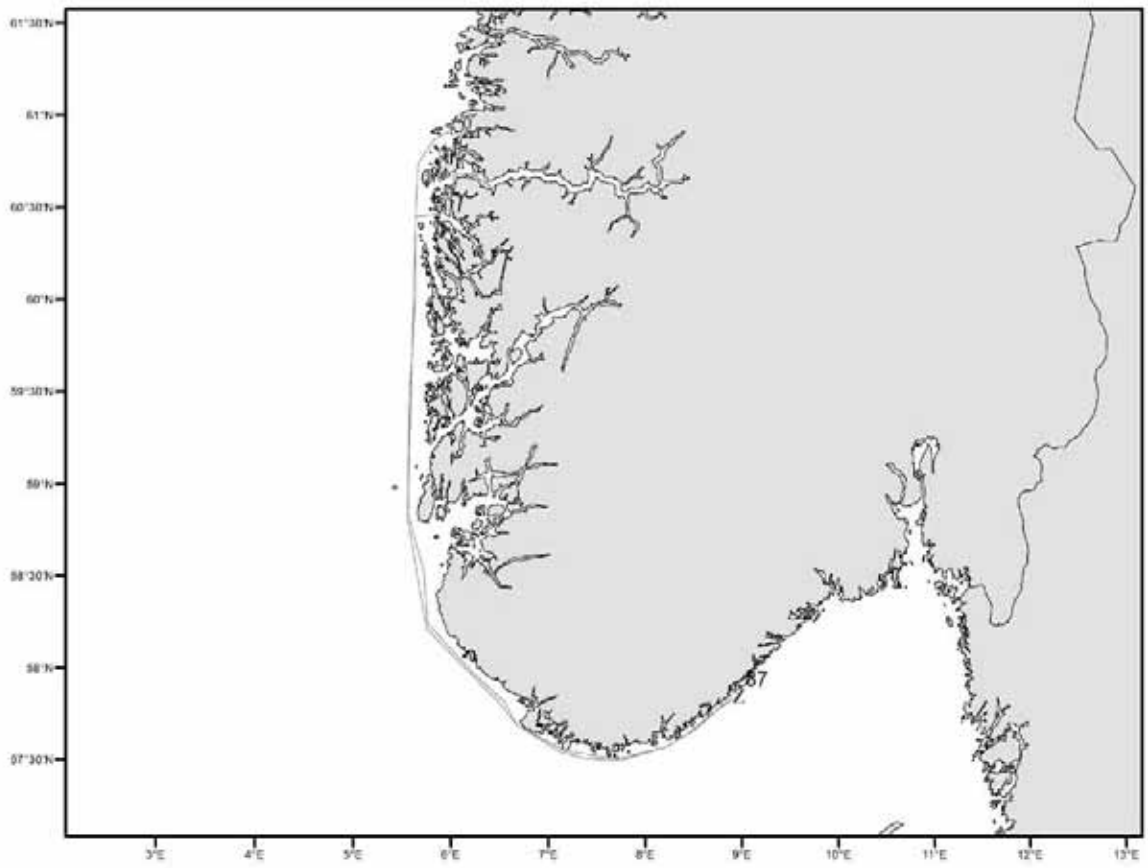
Cruise no 2015304/305/306
"G. M. Dannevig"
1 - 8 February 2015

Z CTD st.no 36 - 68



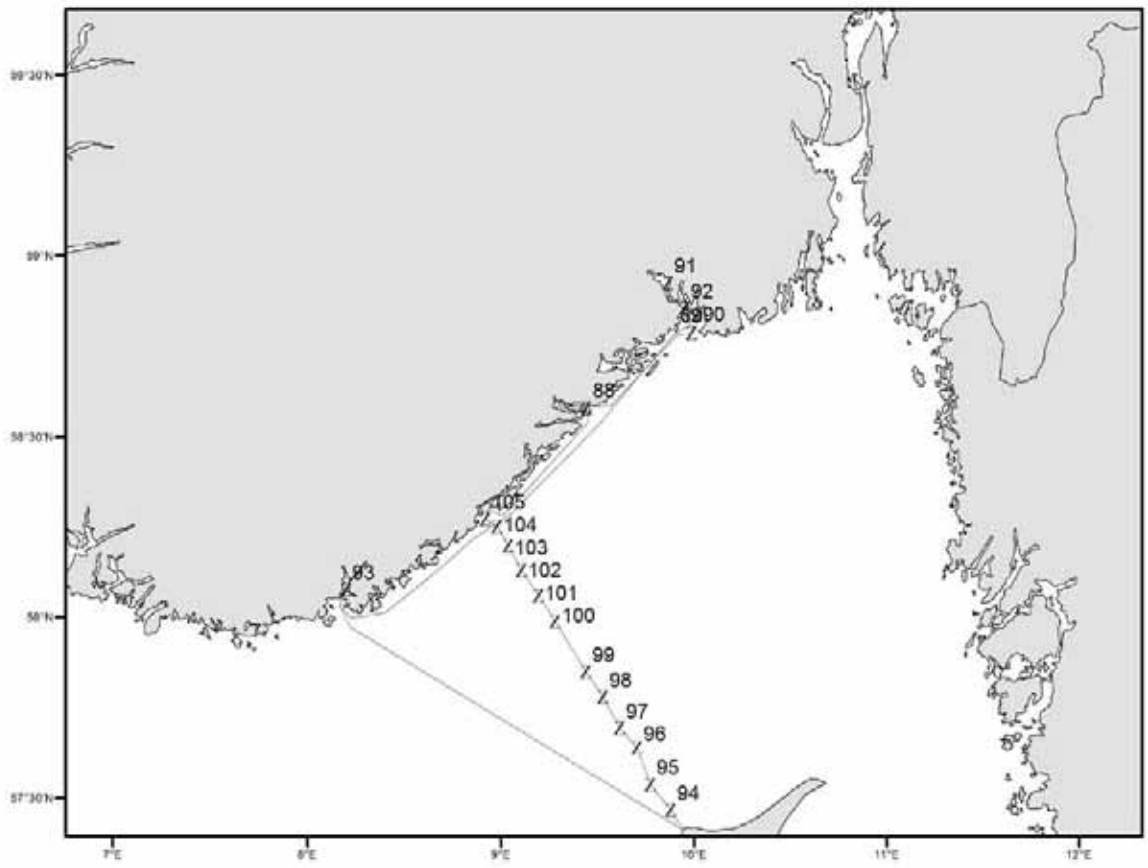
Cruise no 2015307/308
"G. M. Dannevig"
5 - 9 March 2015

Z CTD st.no 69 - 86



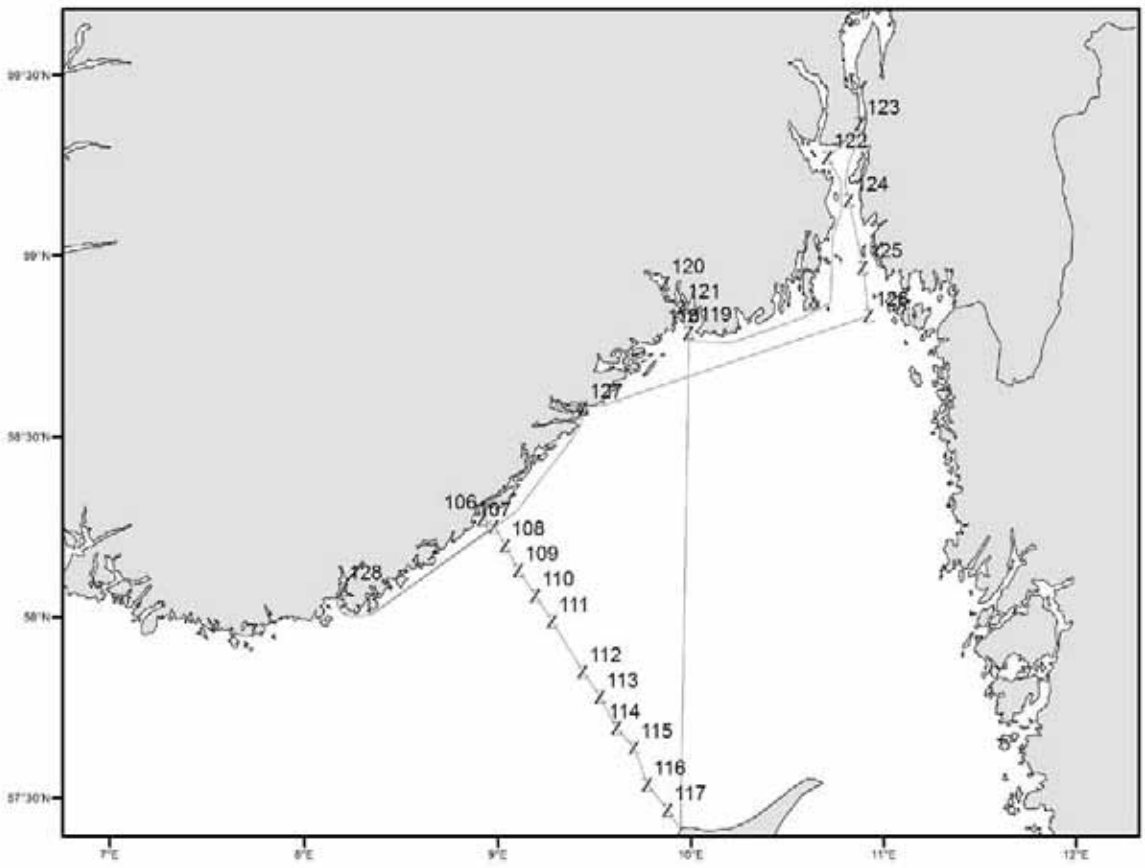
Cruise no 2015309
"G. M. Dannevig"
13 - 25 March 2015

Z CTD st.no 87



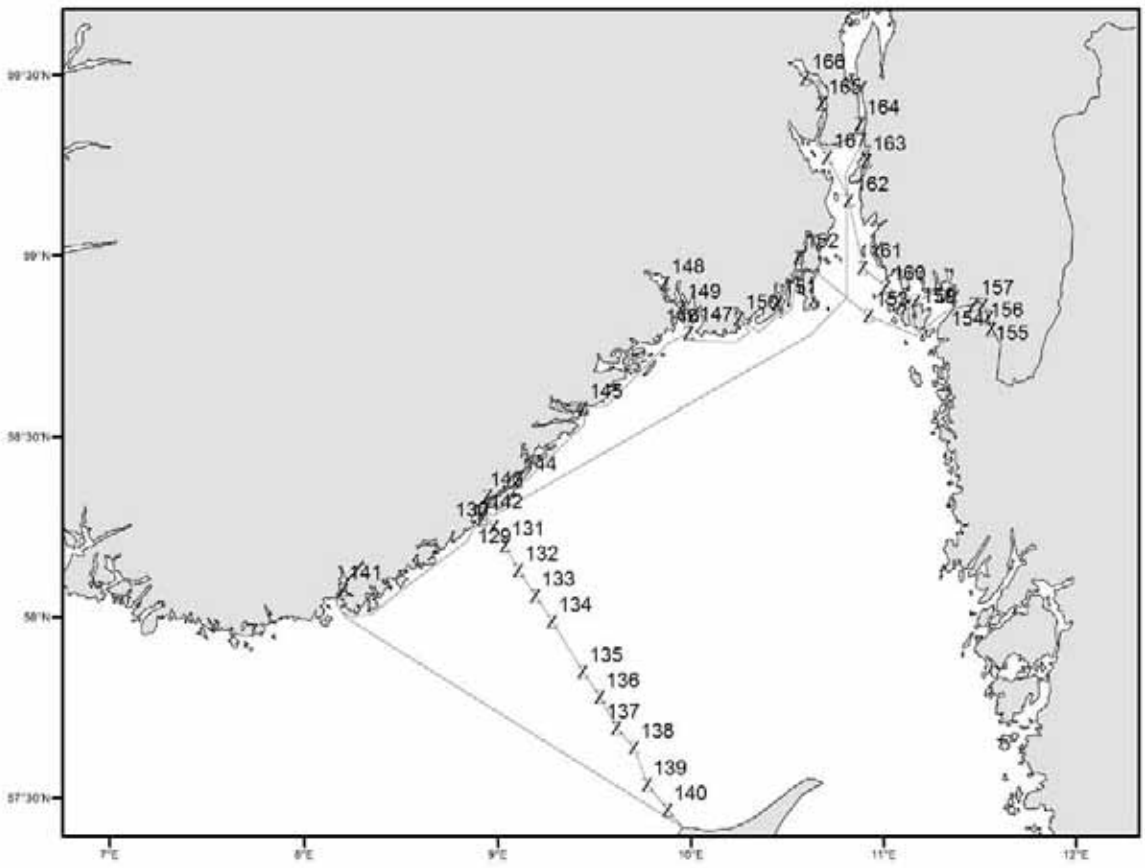
Cruise no 2015310/311
"G. M. Dannevig"
13 - 18 April 2015

Z CTD st.no 88 - 105



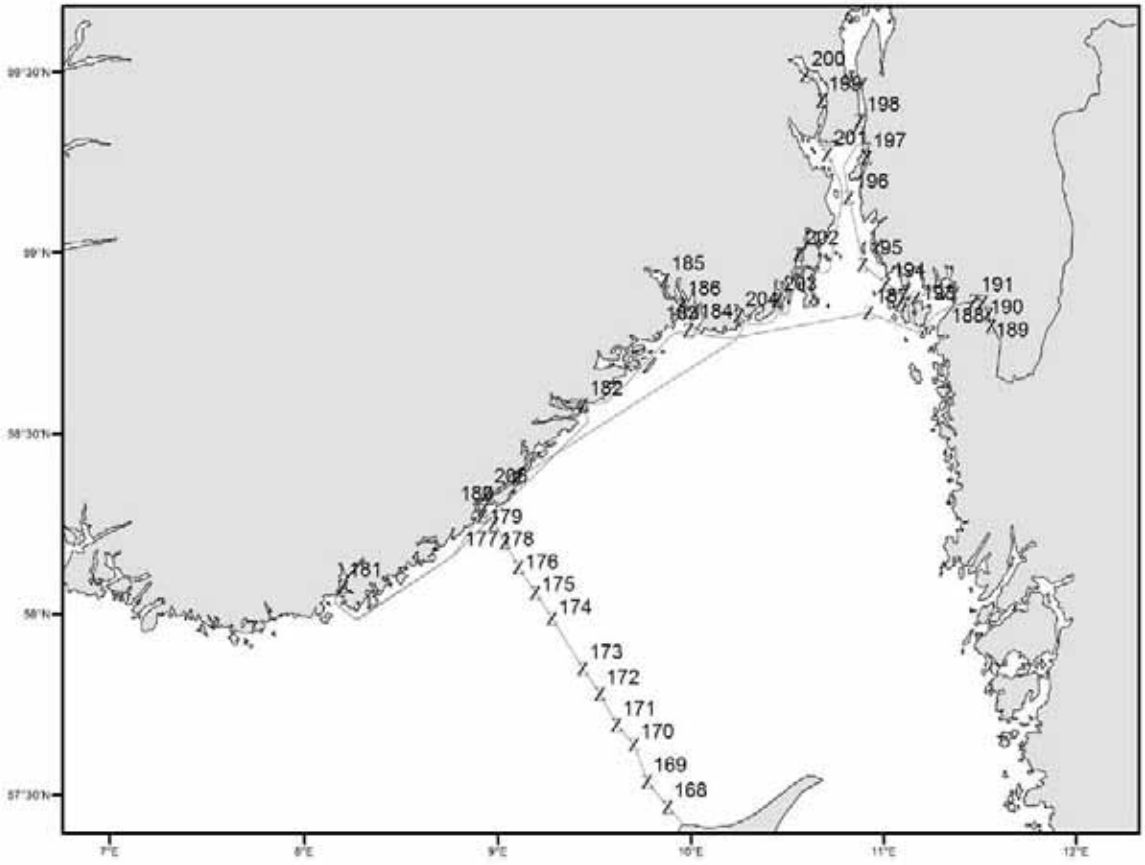
Cruise no 2015313
"G. M. Dannevig"
5 - 12 May 2015

Z CTD st.no 106 - 128



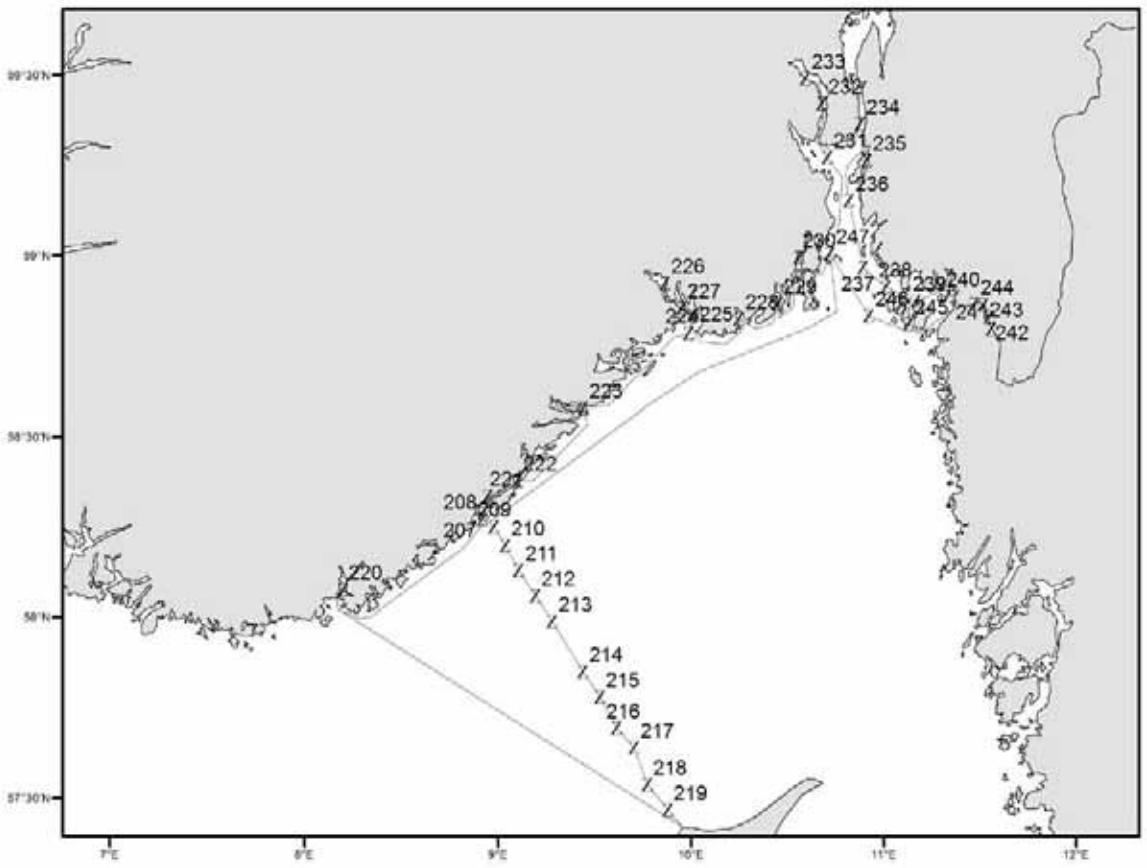
Cruise no 2015314/315/316
"G. M. Dannevig"
12 - 21 June 2015

Z CTD st.no 129 - 167



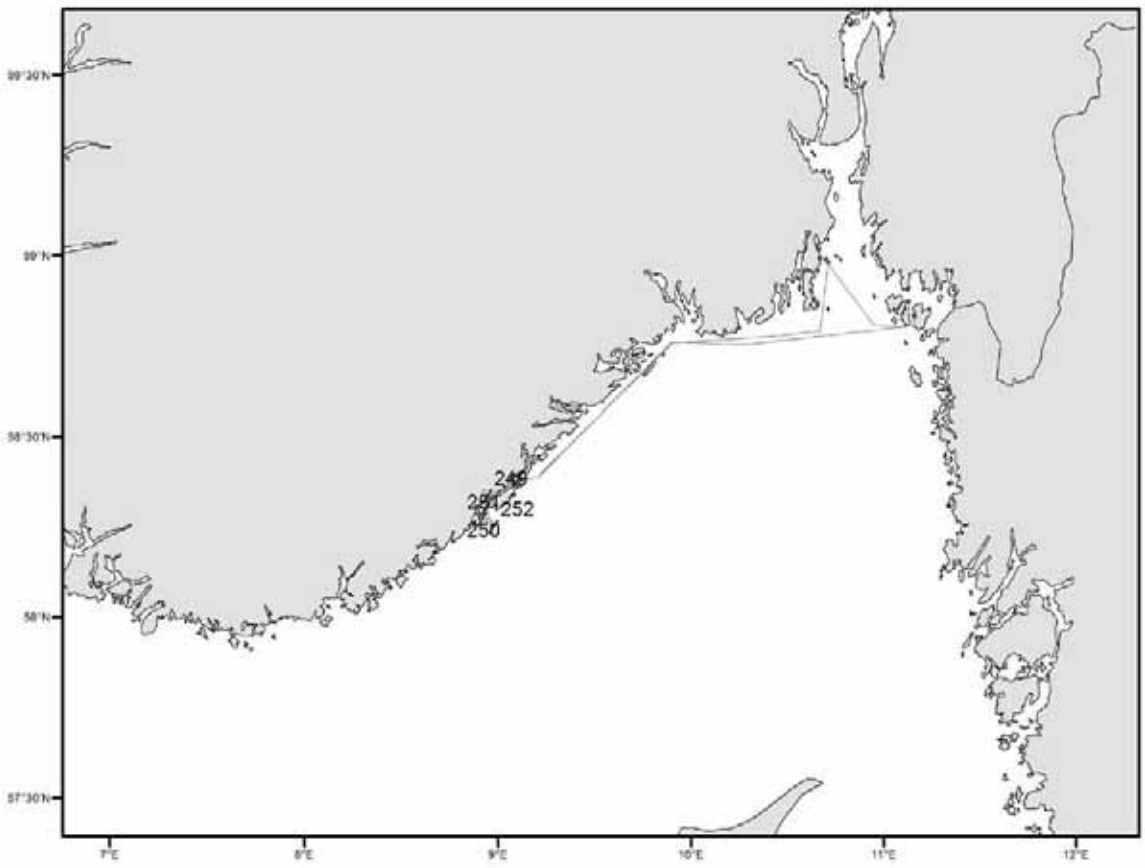
Cruise no 2015317/318/319
"G. M. Dannevig"
2 - 9 July 2015

Z CTD st.no 168 - 206



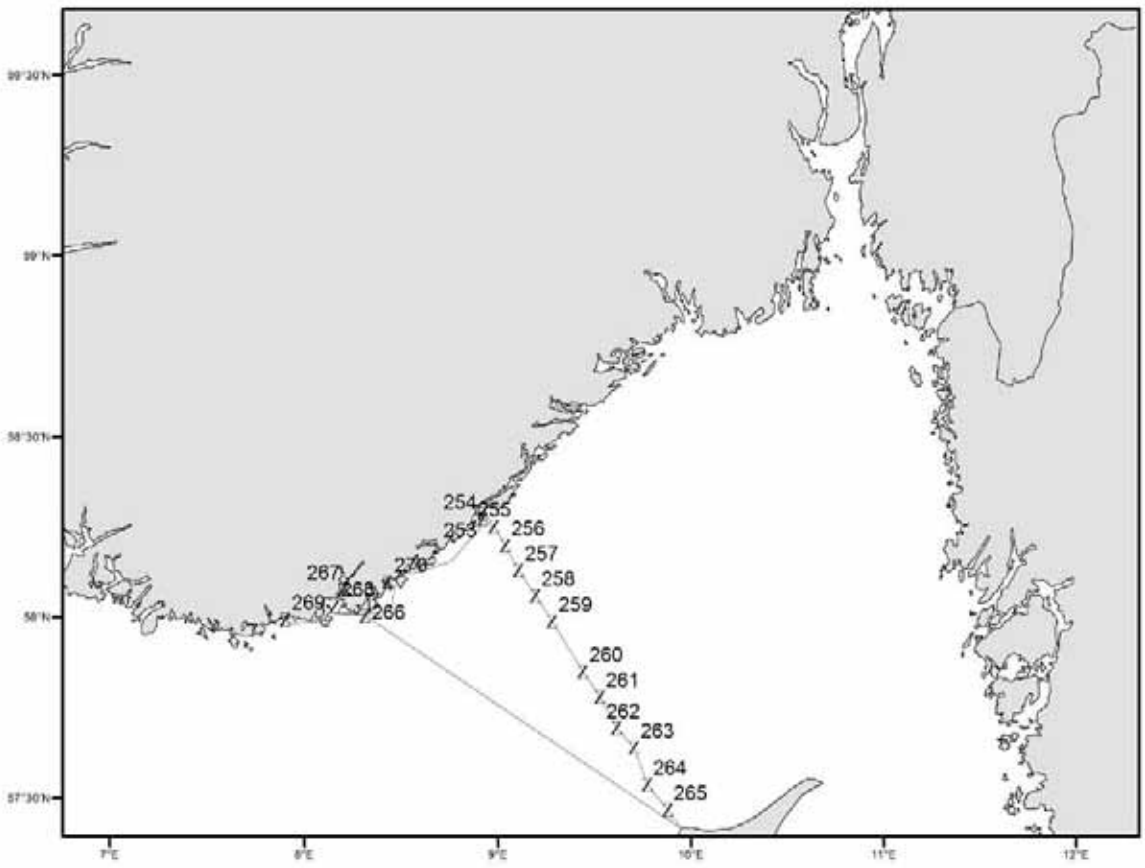
Cruise no 2015320/321
"G. M. Dannevig"
11 - 16 August 2015

Z CTD st.no 207 - 247



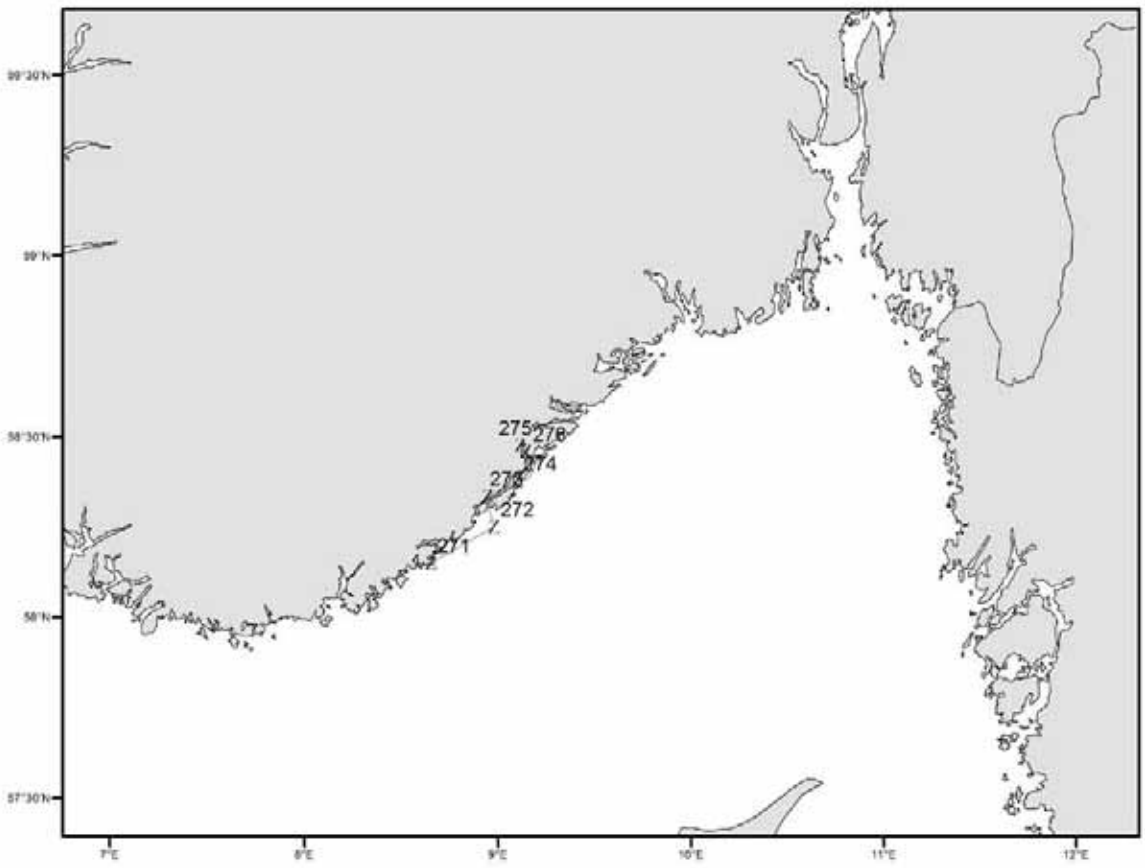
Cruise no 2015322
"G. M. Dannevig"
17 - 26 August 2015

Z CTD st.no 248 - 252



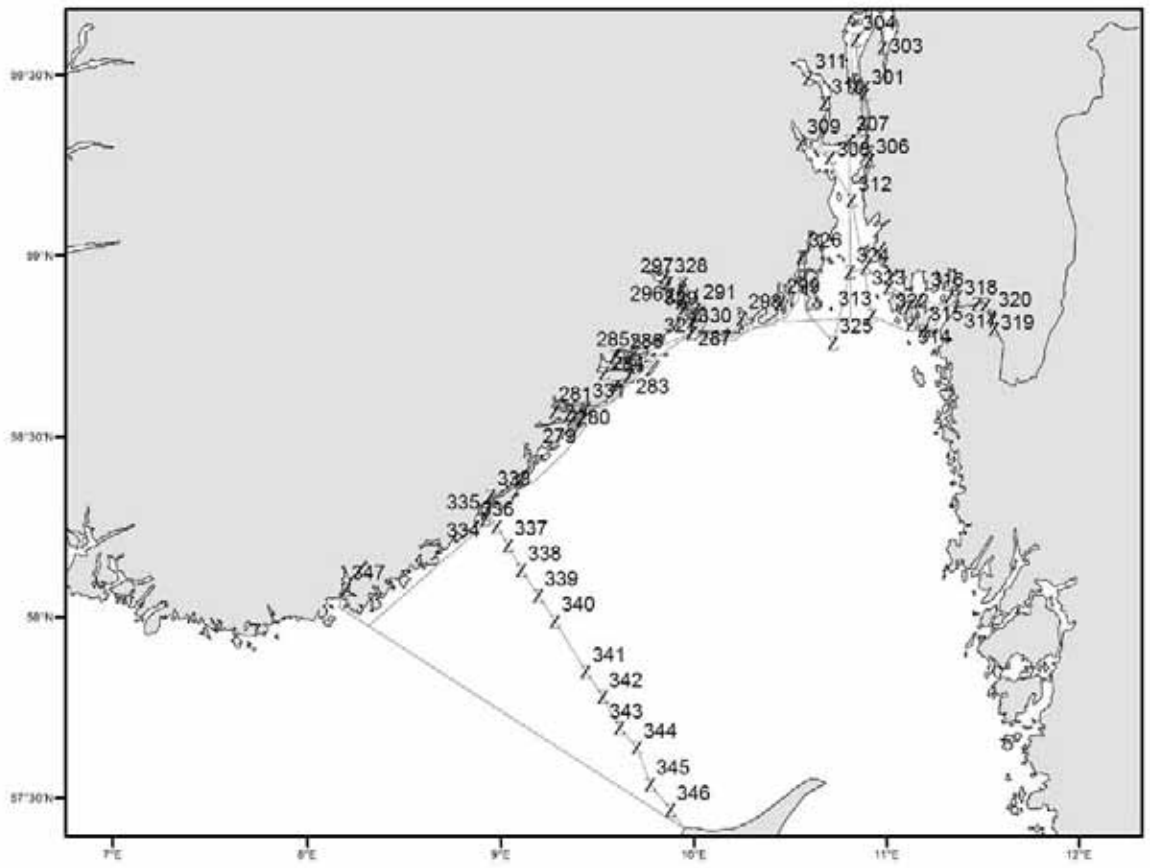
Cruise no 2015323/324
"G. M. Dannevig"
13 - 16 September 2015

Z CTD st.no 253 - 270



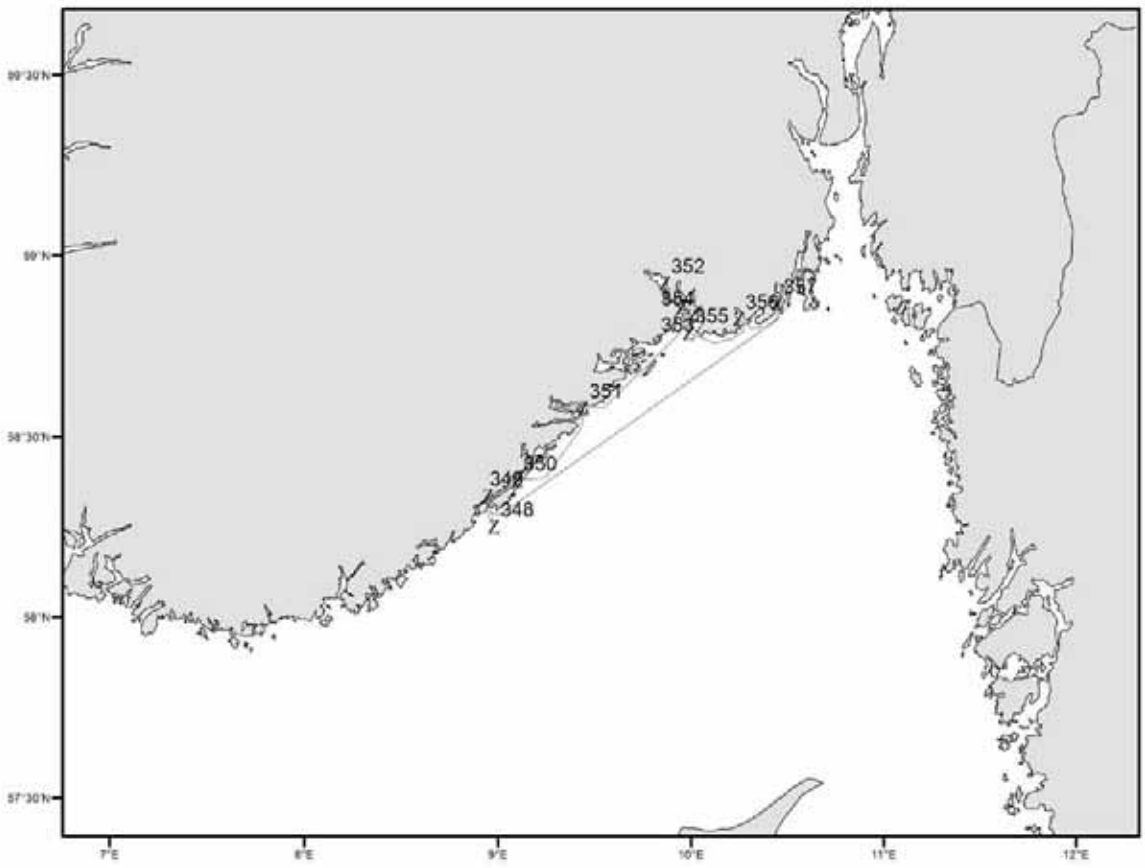
Cruise no 2015325
"G. M. Dannevig"
17 - 18 September 2015

Z CTD st.no 271 - 276



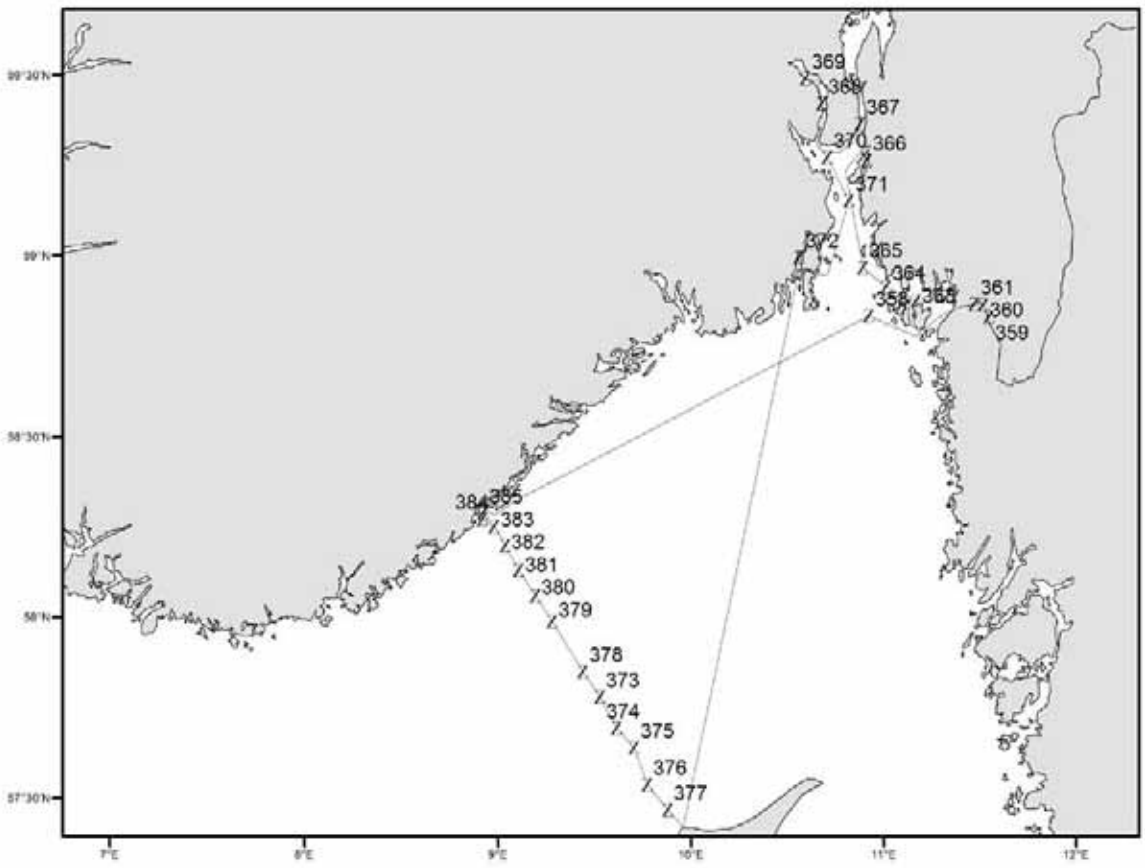
Cruise no 2015326
"G. M. Dannevig"
19 September - 2 October 2015

Z CTD st.no 277 - 347



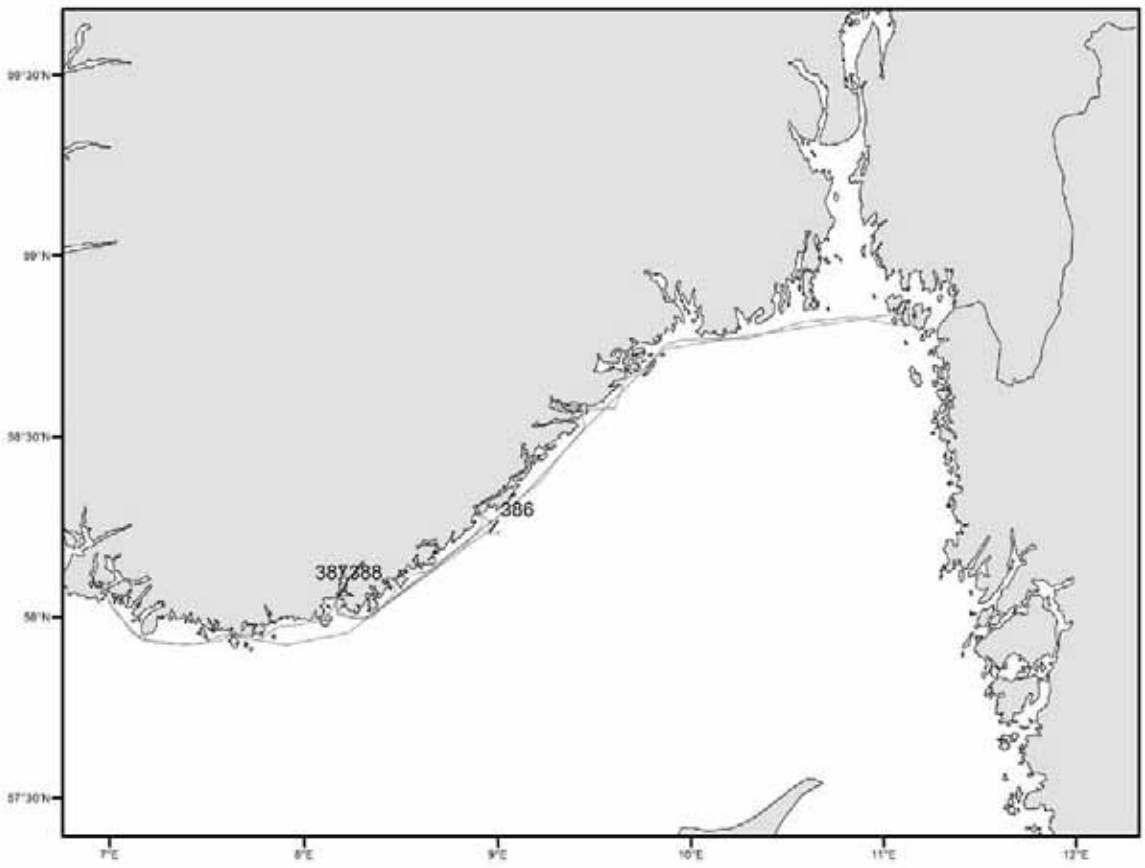
Cruise no 2015327/328/329
"G. M. Dannevig"
3 - 11 October 2015

Z CTD st.no 348 - 357



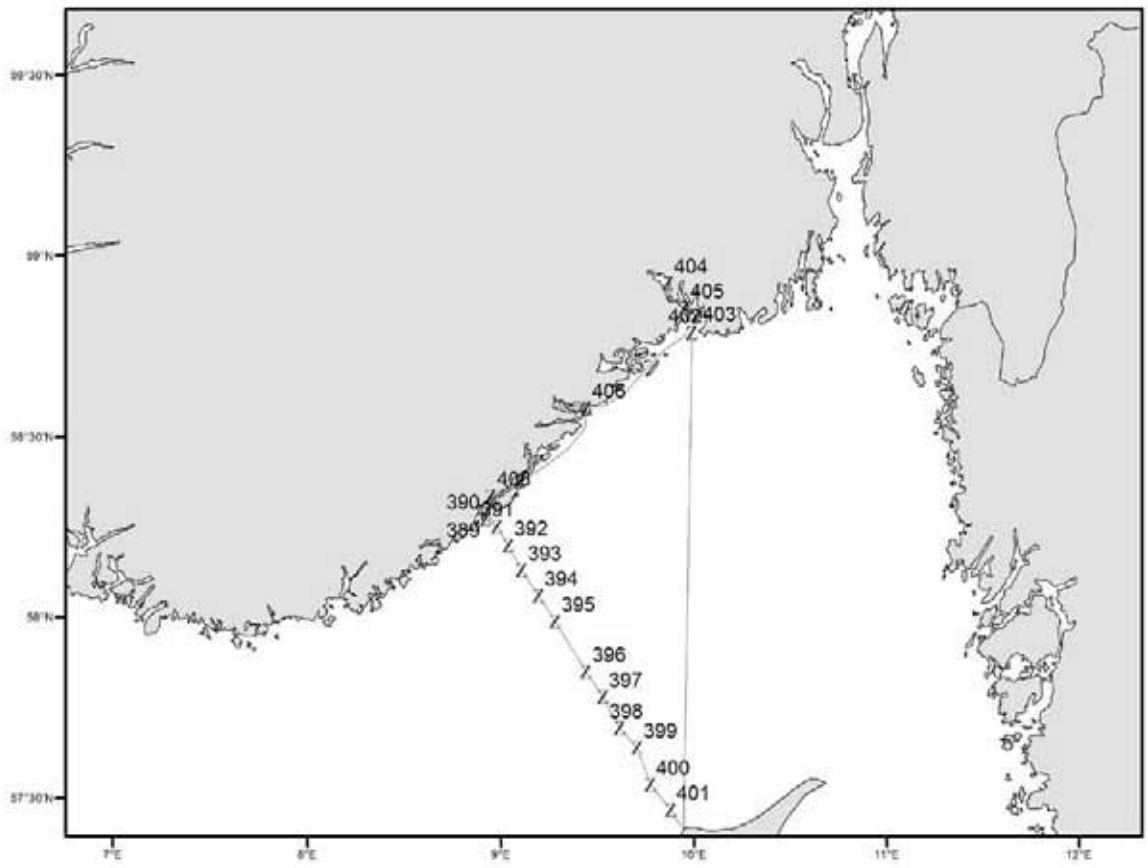
Cruise no 2015330/331/332
"G. M. Dannevig"
10 - 15 November 2015

Z CTD st.no 358 - 385



Cruise no 2015333
"G. M. Dannevig"
16 November - 6 December 2015

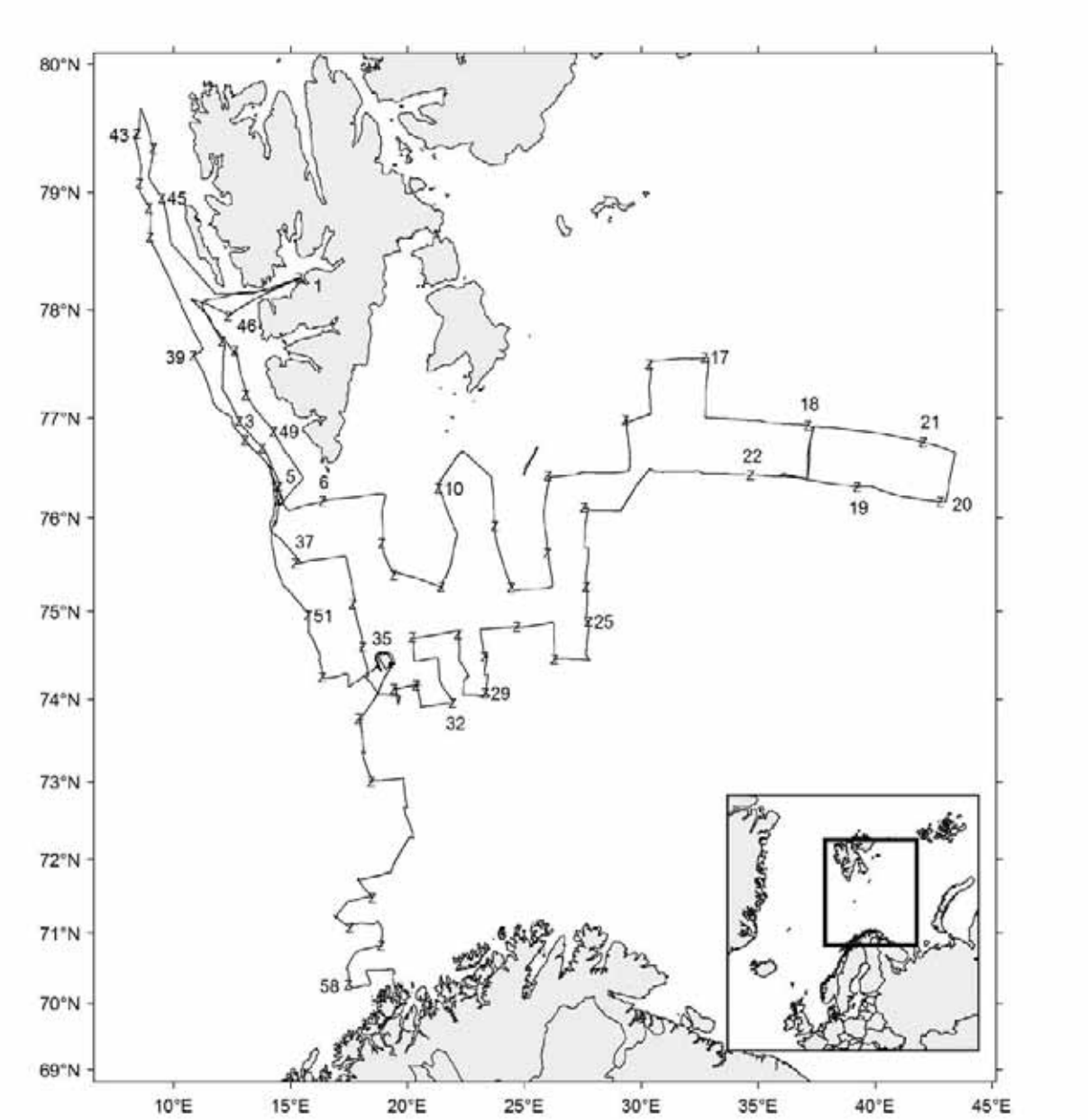
Z CTD st.no 386 - 388

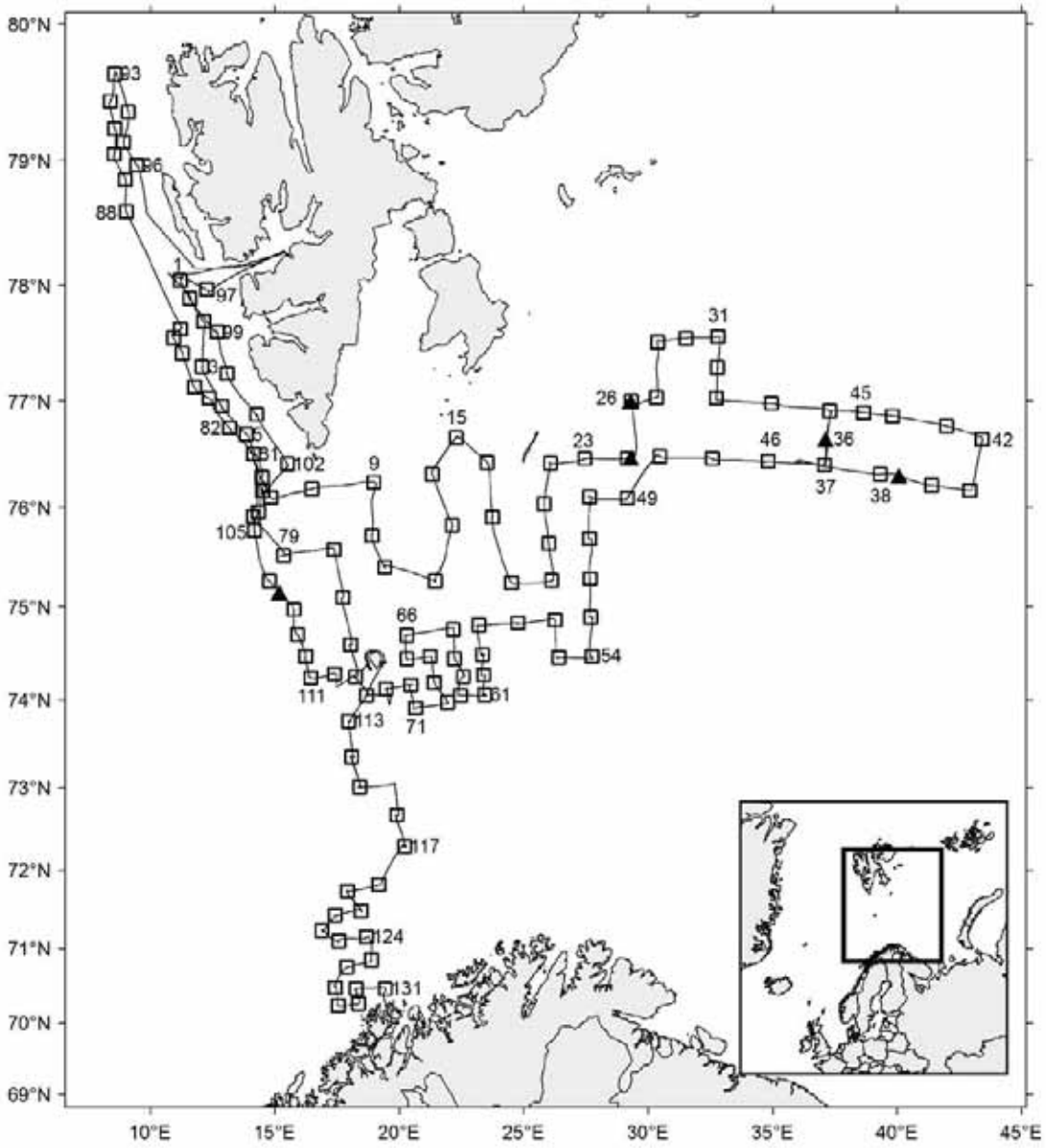


Cruise no 2015334/335
"G. M. Dannevig"
7 -12 December 2015

Z CTD st.no 389 - 408

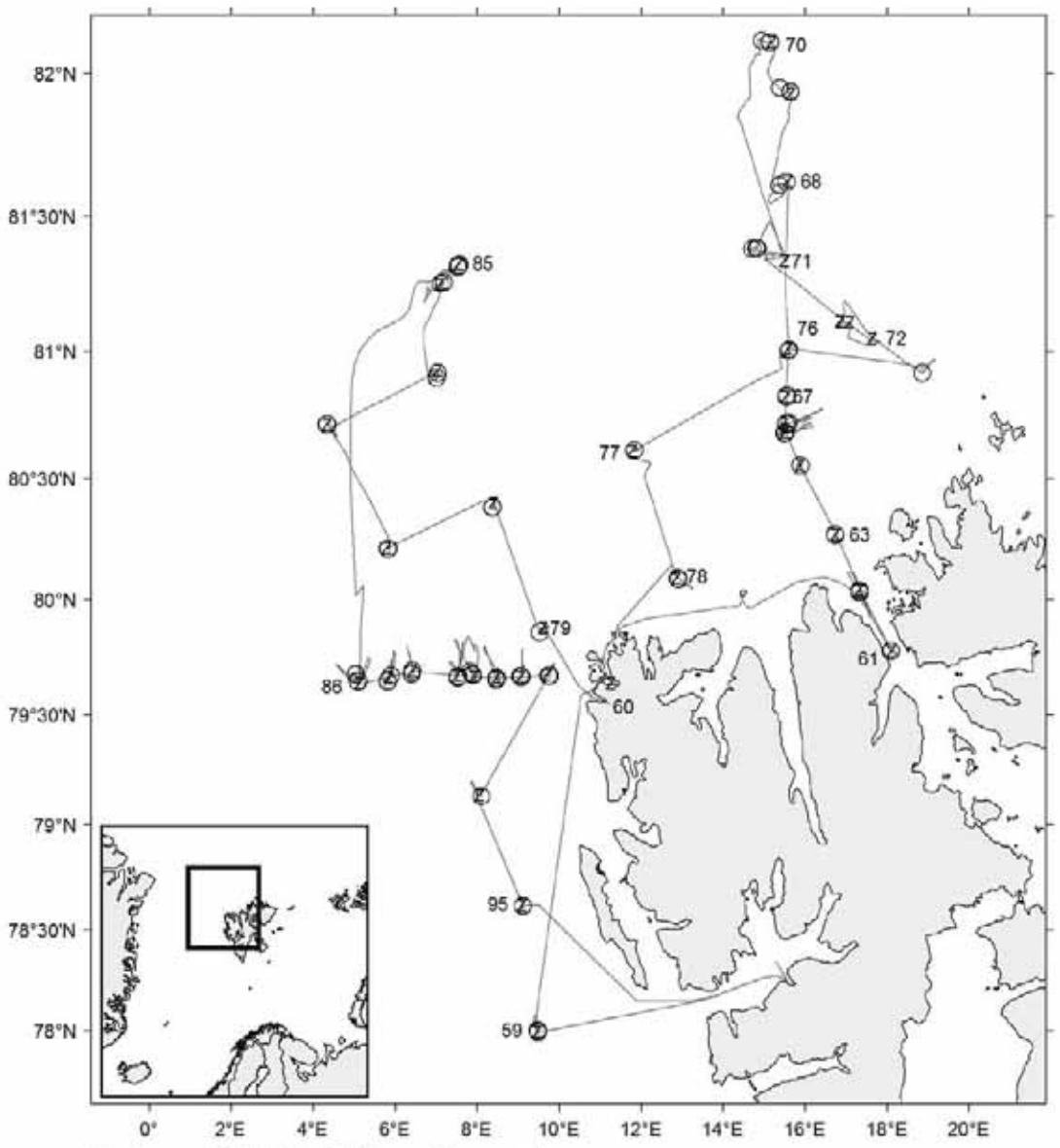
4.5 Selected cruises carried out by fishing vessels hired by IMR





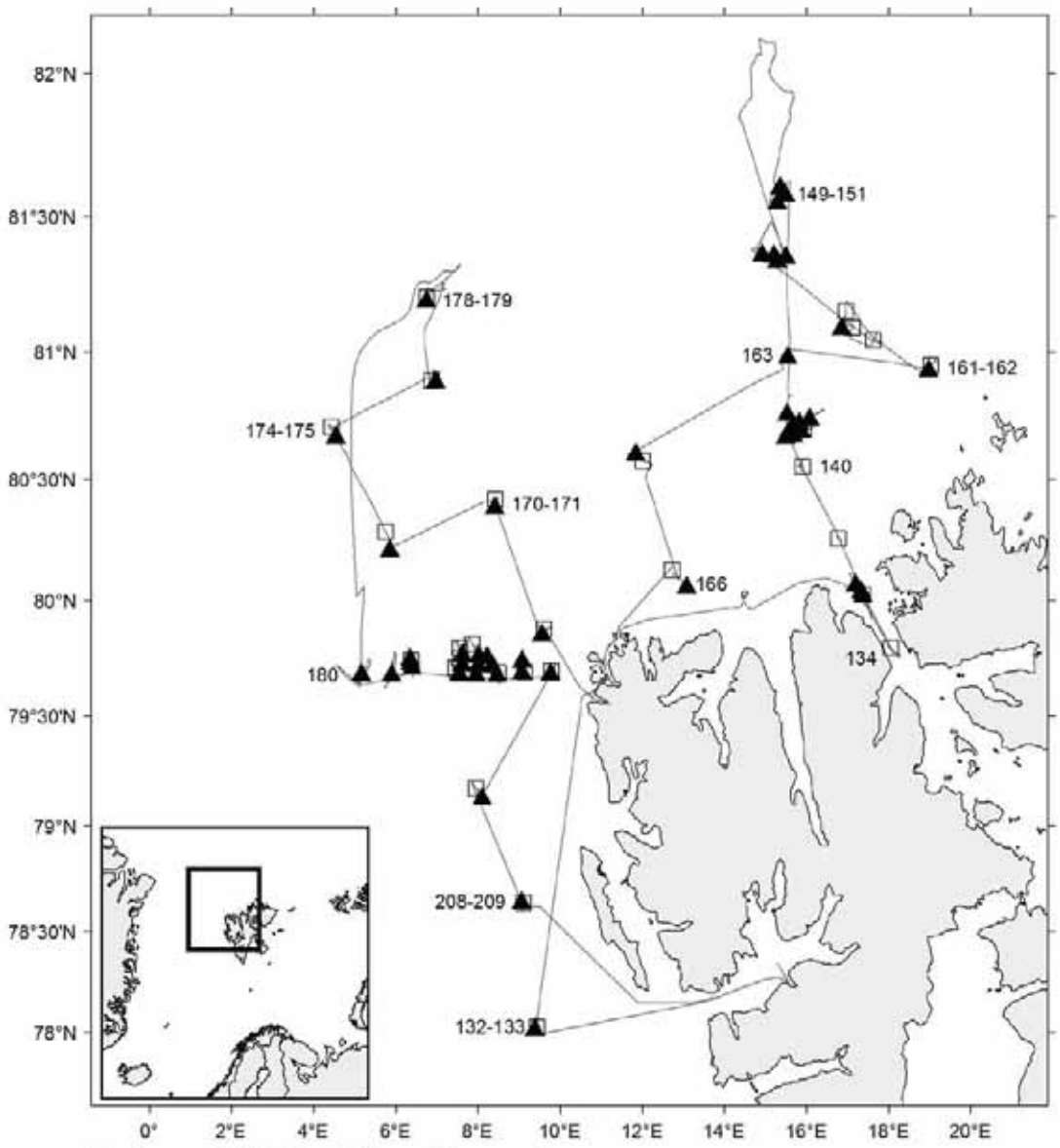
Cruise no 2015841 "Helmer Hanssen"
19 January–16 February 2015

Trawl st.no 1–131
□ Bottom trawl
▲ Pelagic trawl



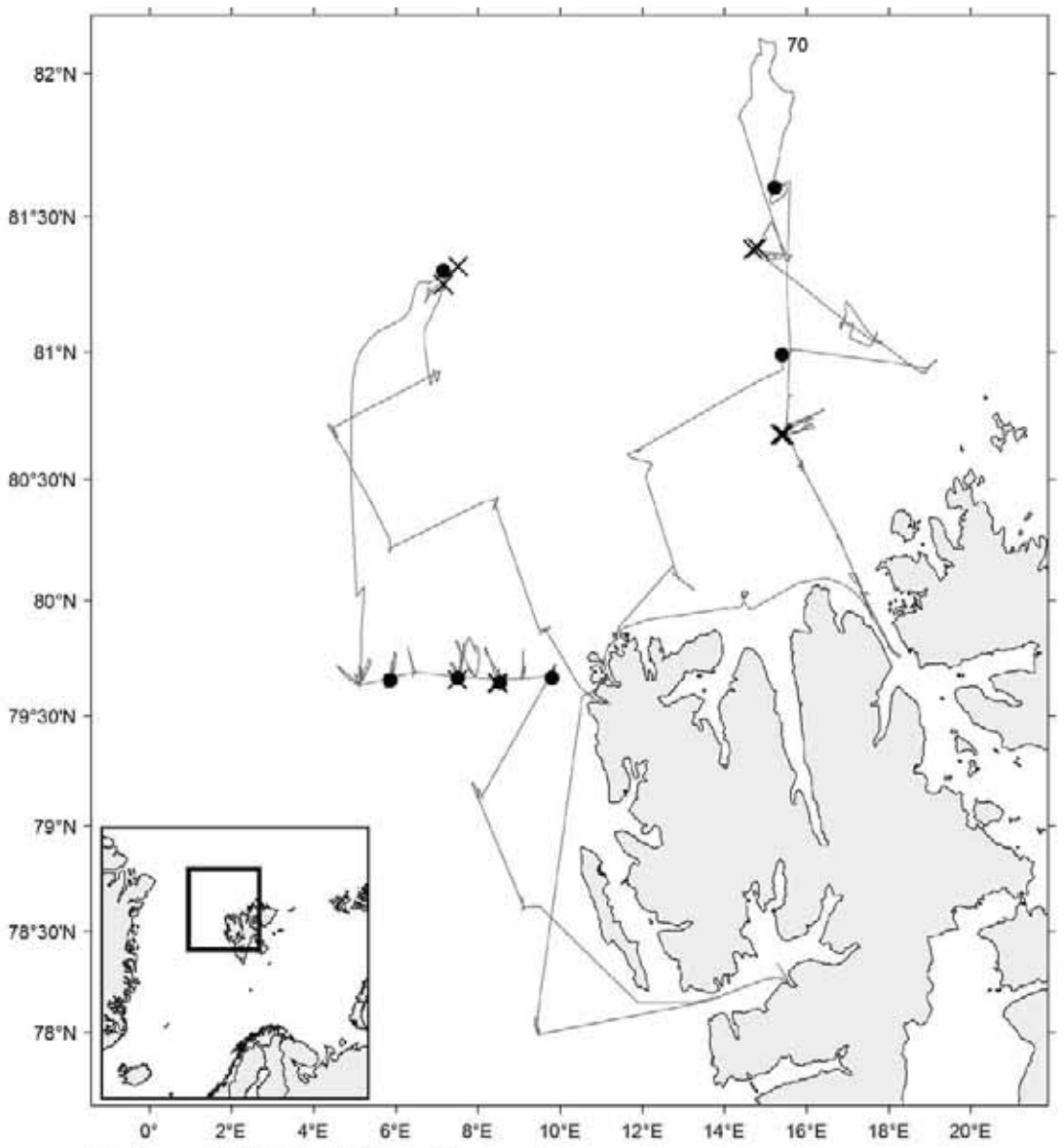
Cruise no 2015843 "Helmer Hanssen"
17 August–7 September 2015

z CTD st.no 59-95
○Plankton st. (WP-II-net)



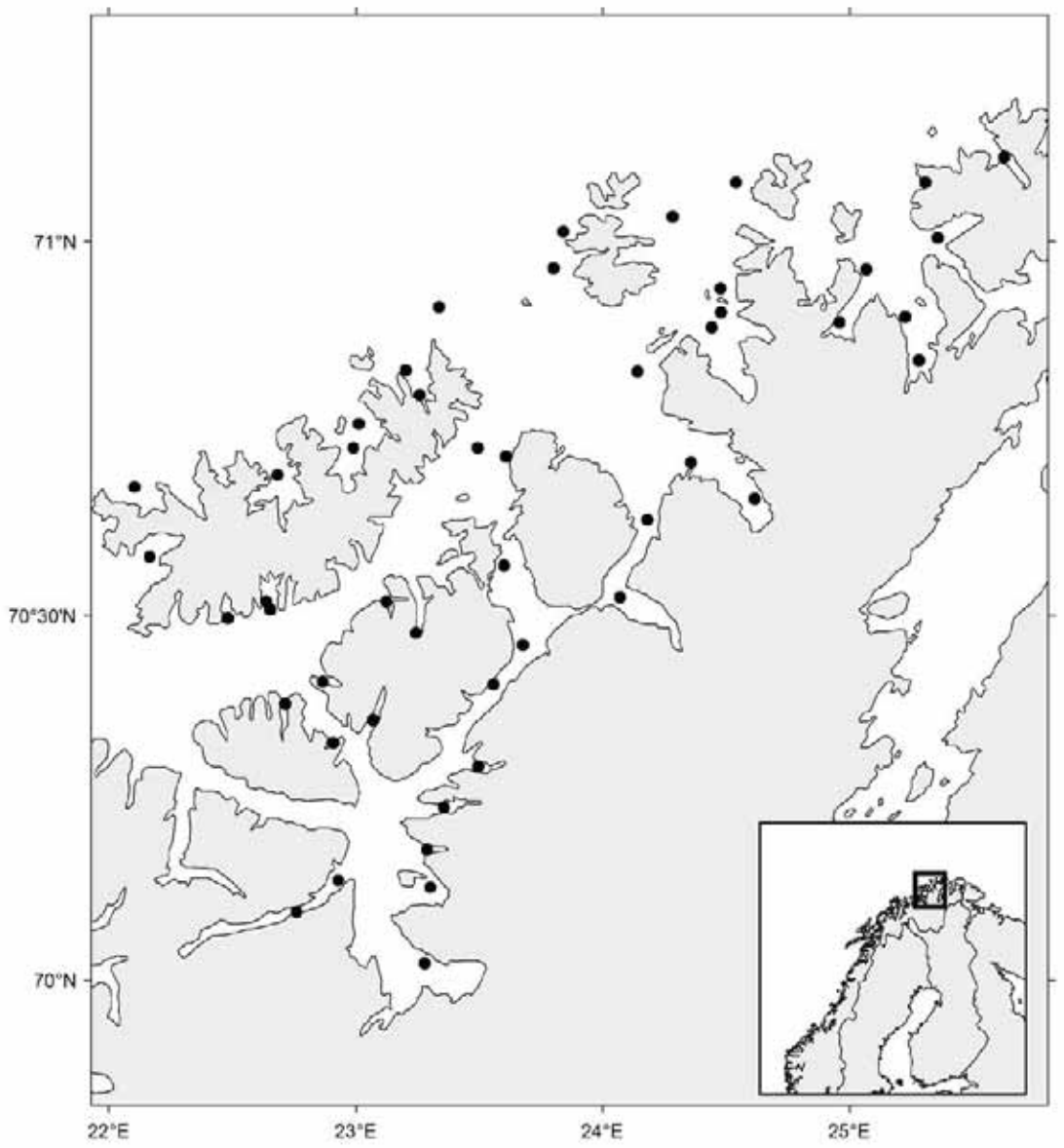
Cruise no 2015843 "Helmer Hanssen"
17 August–7 September 2015

Trawl st.no 132–209
▲ Pelagic trawl
□ Bottom trawl



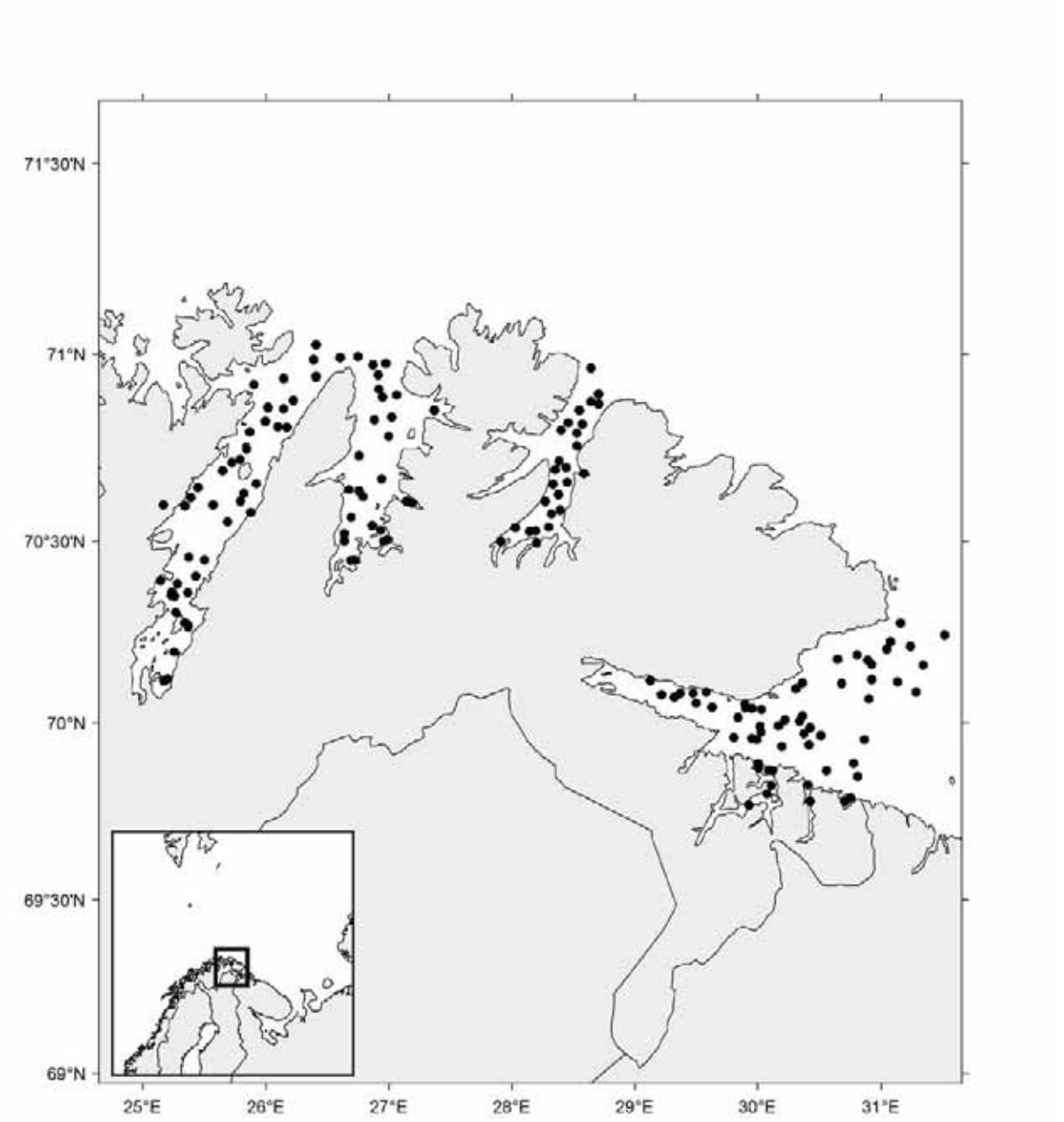
Cruise no 2015843 "Helmer Hanssen"
17 August–7 September 2015

×Grab st.
● Mik st.



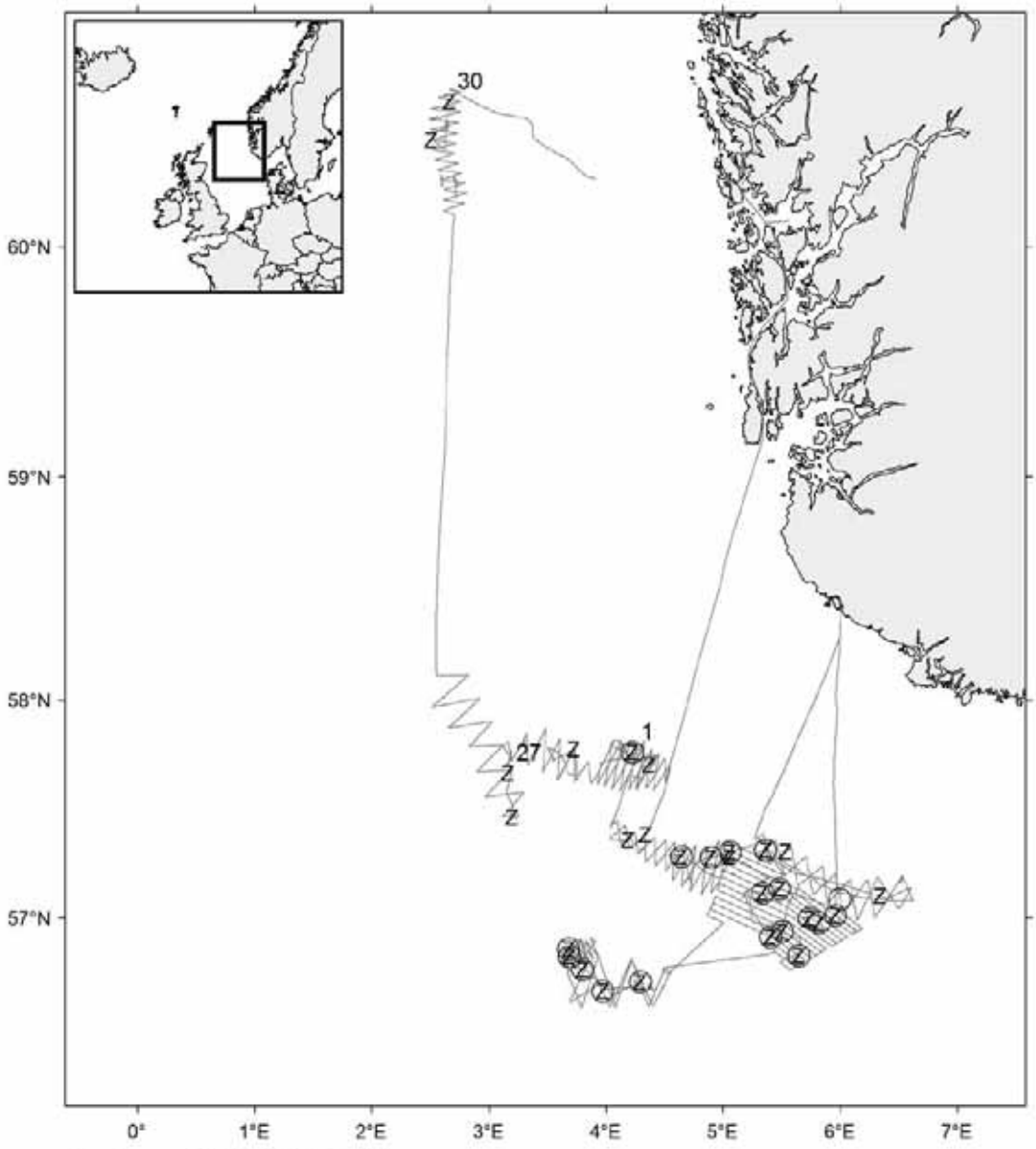
Cruise no 2015815 "Johan Ruud"
8–14 June 2015

● Crab pots stations



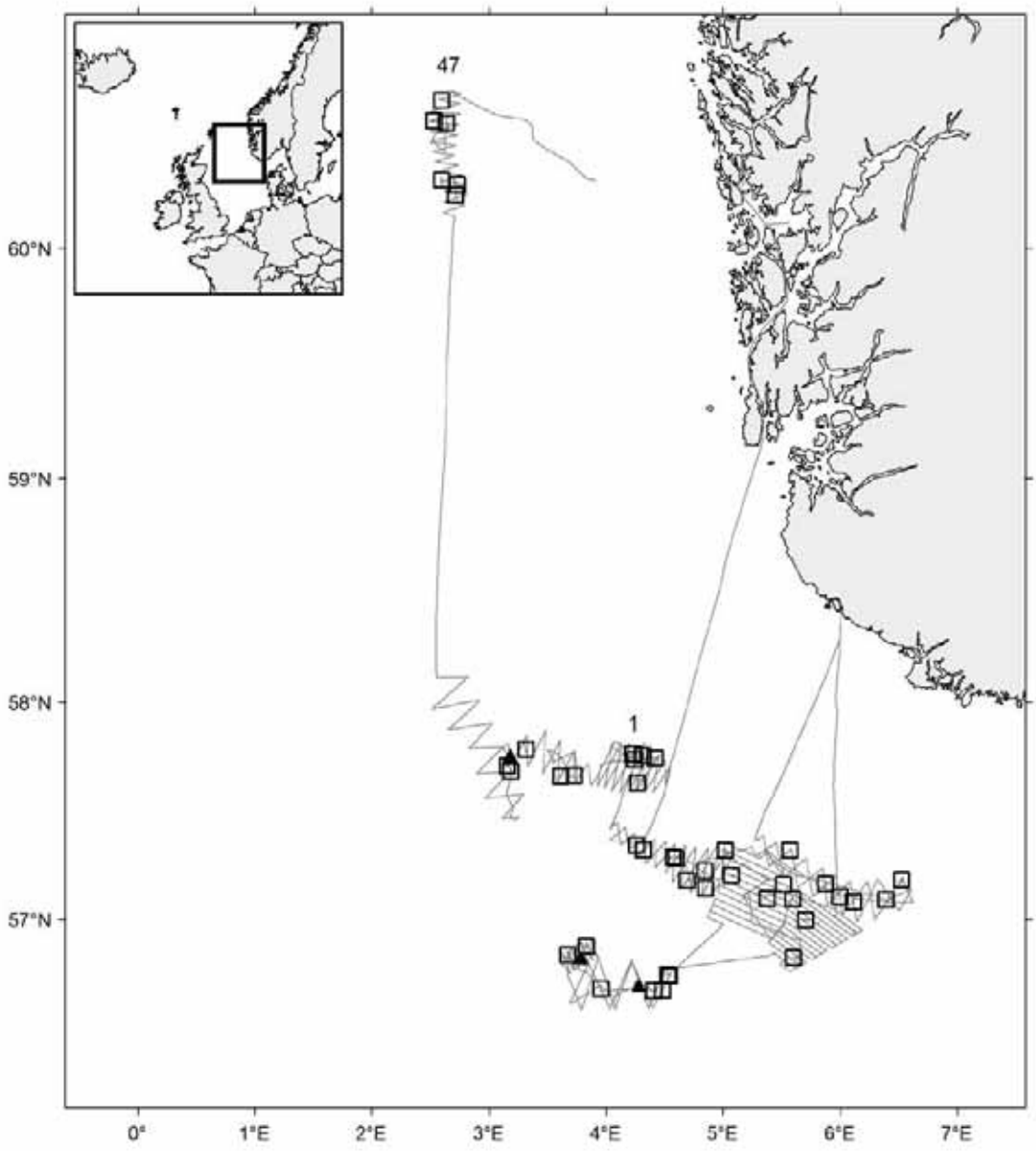
Cruise no 2015814 "Johan Ruud"
21 August–4 September 2015

● Crab pots stations



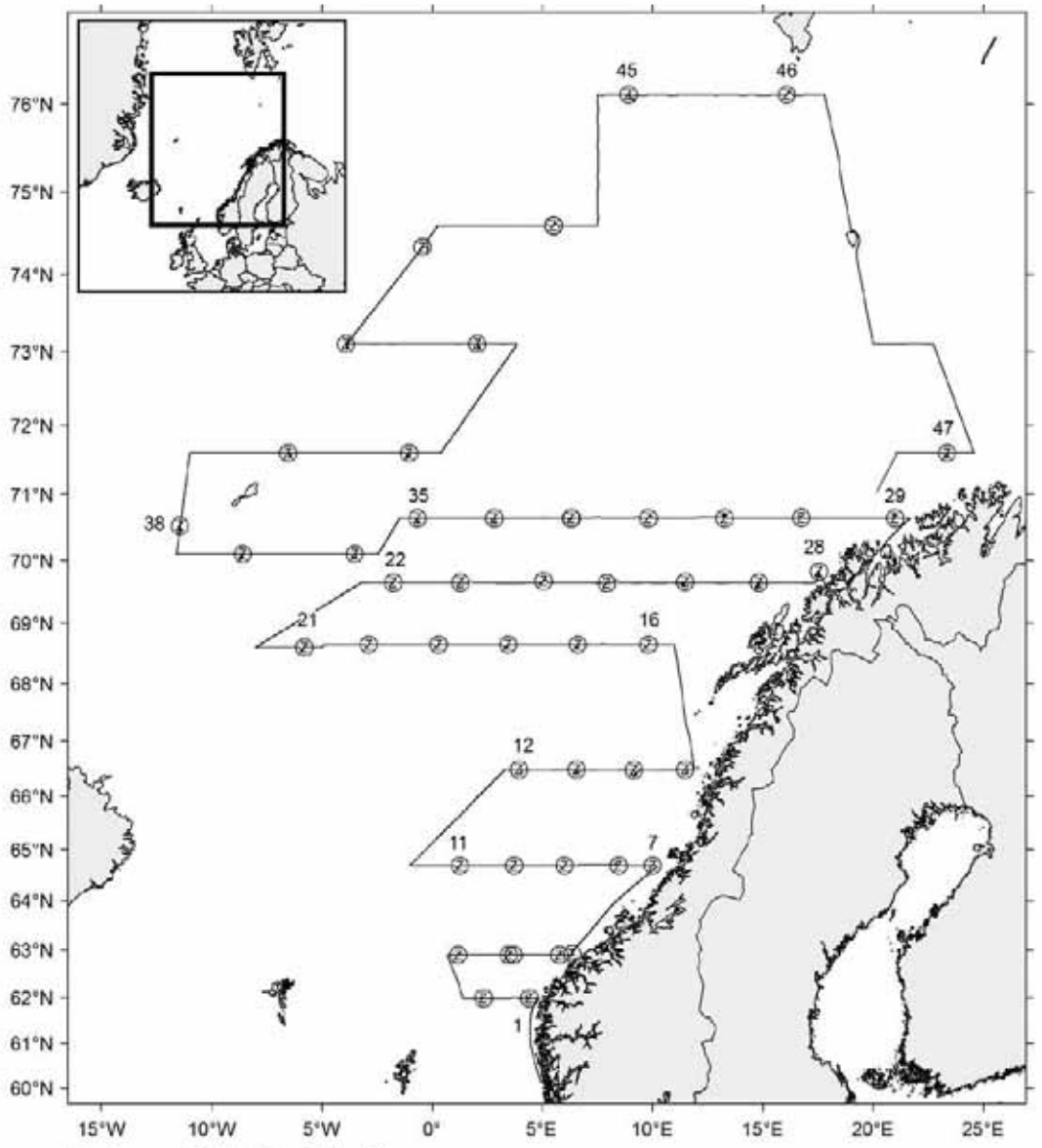
Cruise no 2015837 "Eros"
25 April–15 May 2015

z CTD st.no 1-30
○ Plankton st. (WP-II-net)



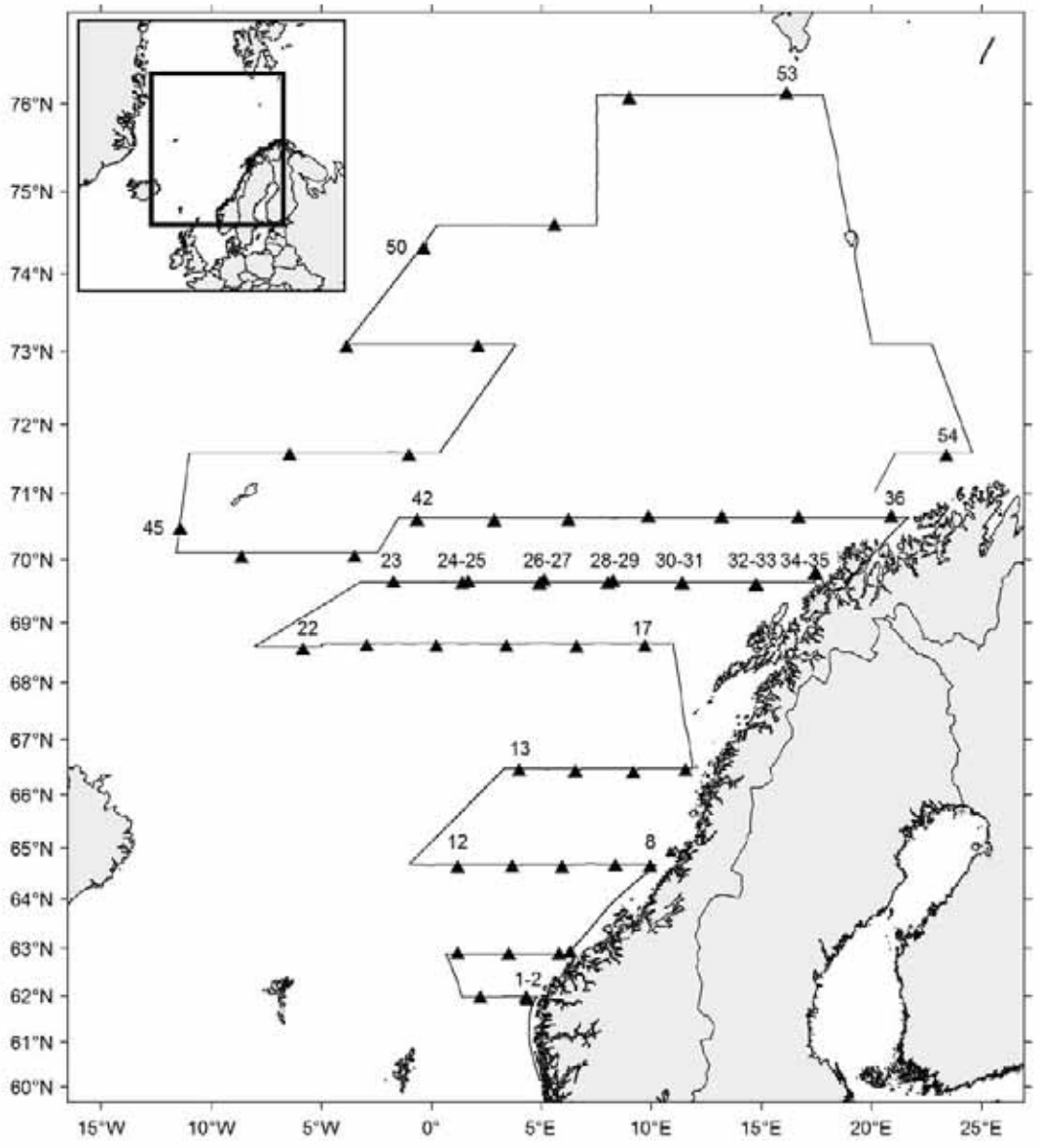
Cruise no 2015837 "Eros"
25 April–15 May 2015

Trawl st.no 1-47
□Bottom tr.
▲Pelagic tr. (st.no14,16 and 19)



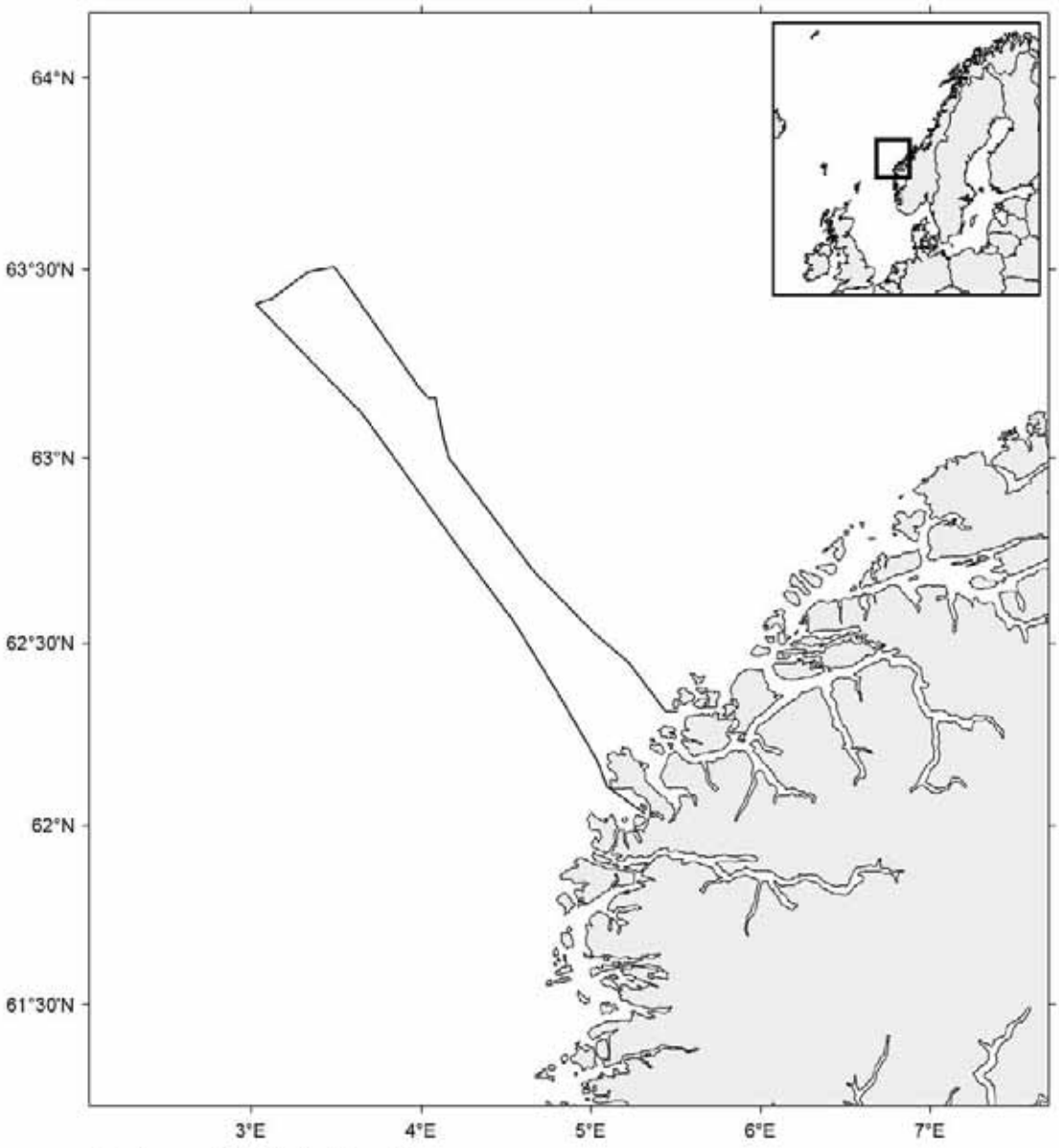
Cruise no 2015831 "Eros"
1–28 July 2015

z CTD st.no1–47
○ Plankton st. (WP-II-net)



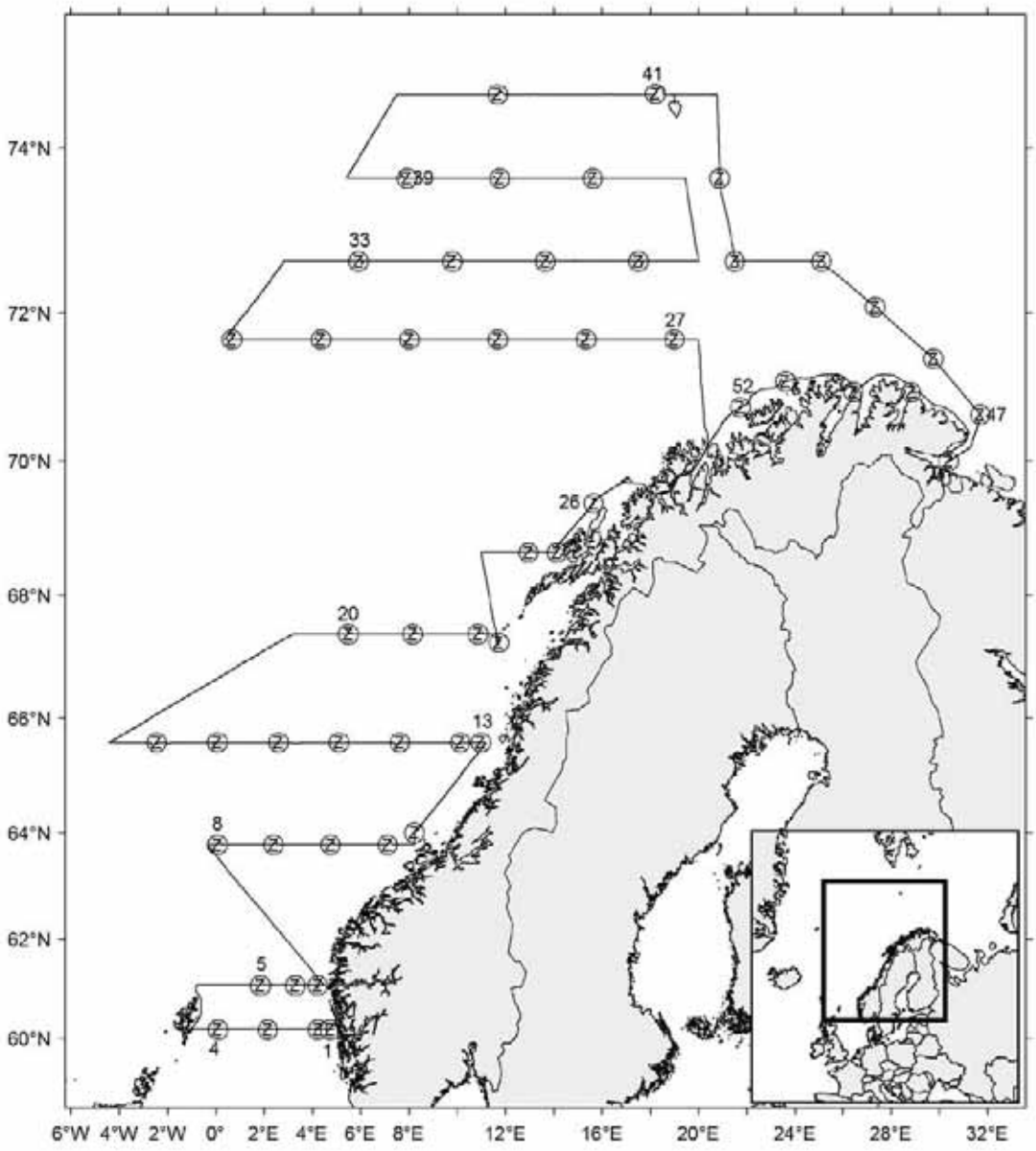
Cruise no 2015831 "Eros"
1–28 July 2015

▲ Pelagic trawl st.no 1–54



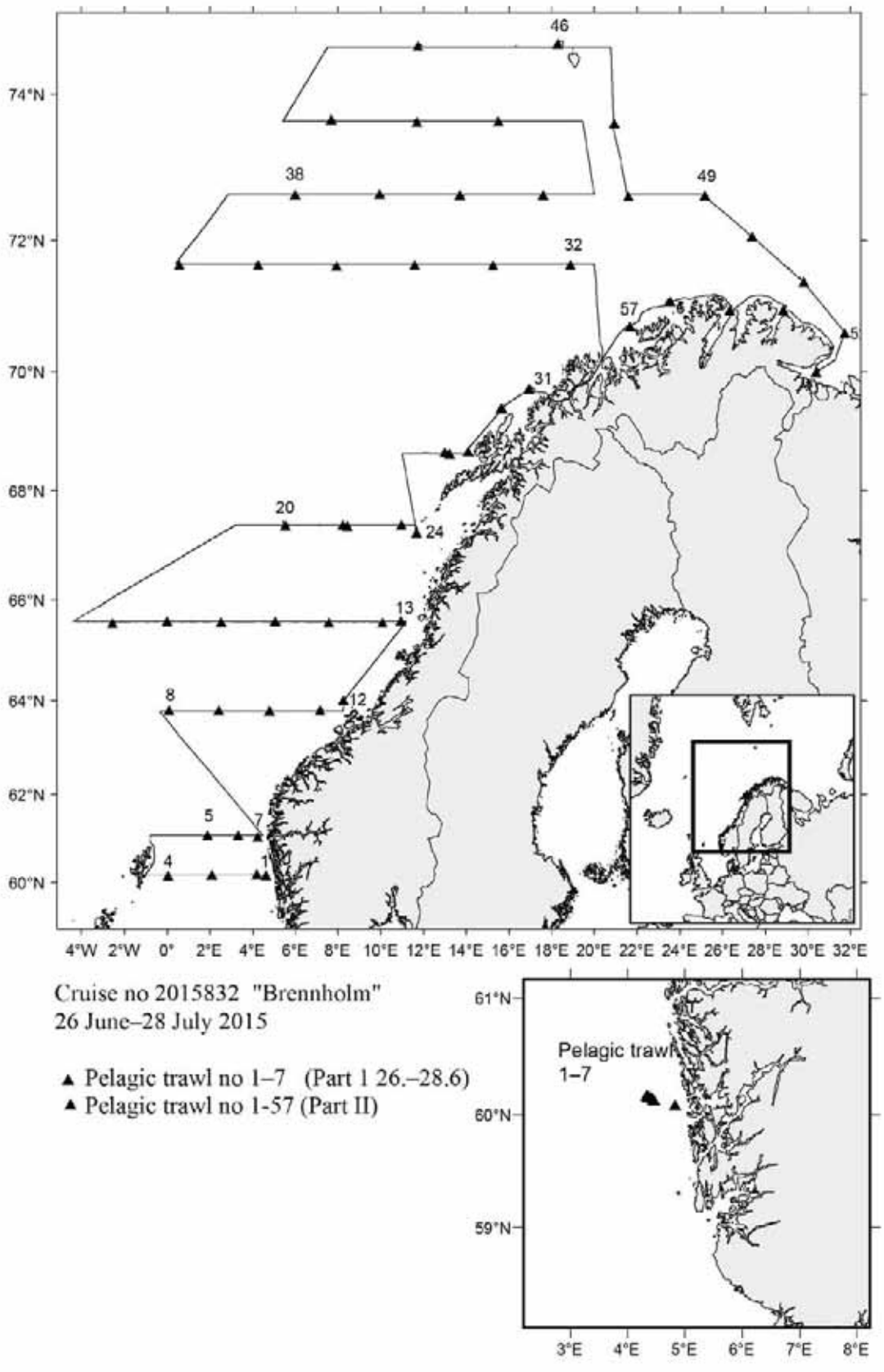
Cruise no 2015834 "Eros"
14–17 September 2015

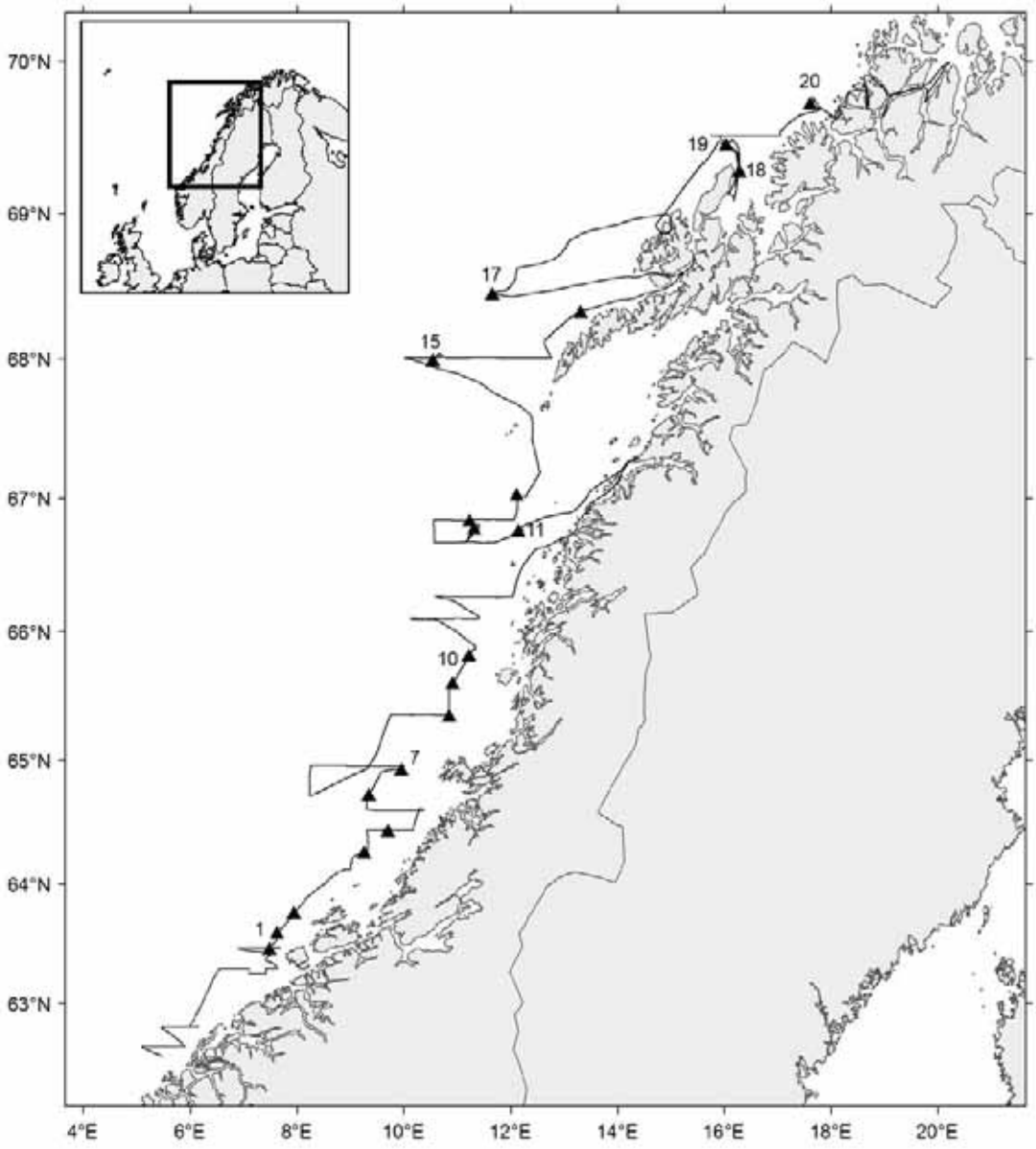
Continuous recording of echo sounder data EK60 from 0 to 300 m
Continuous recording of sonar data (SU90, SN90)
Purse seine sets for catching mackerel schools



Cruise no 2015832 "Brennholm"
26 June–28 July 2015

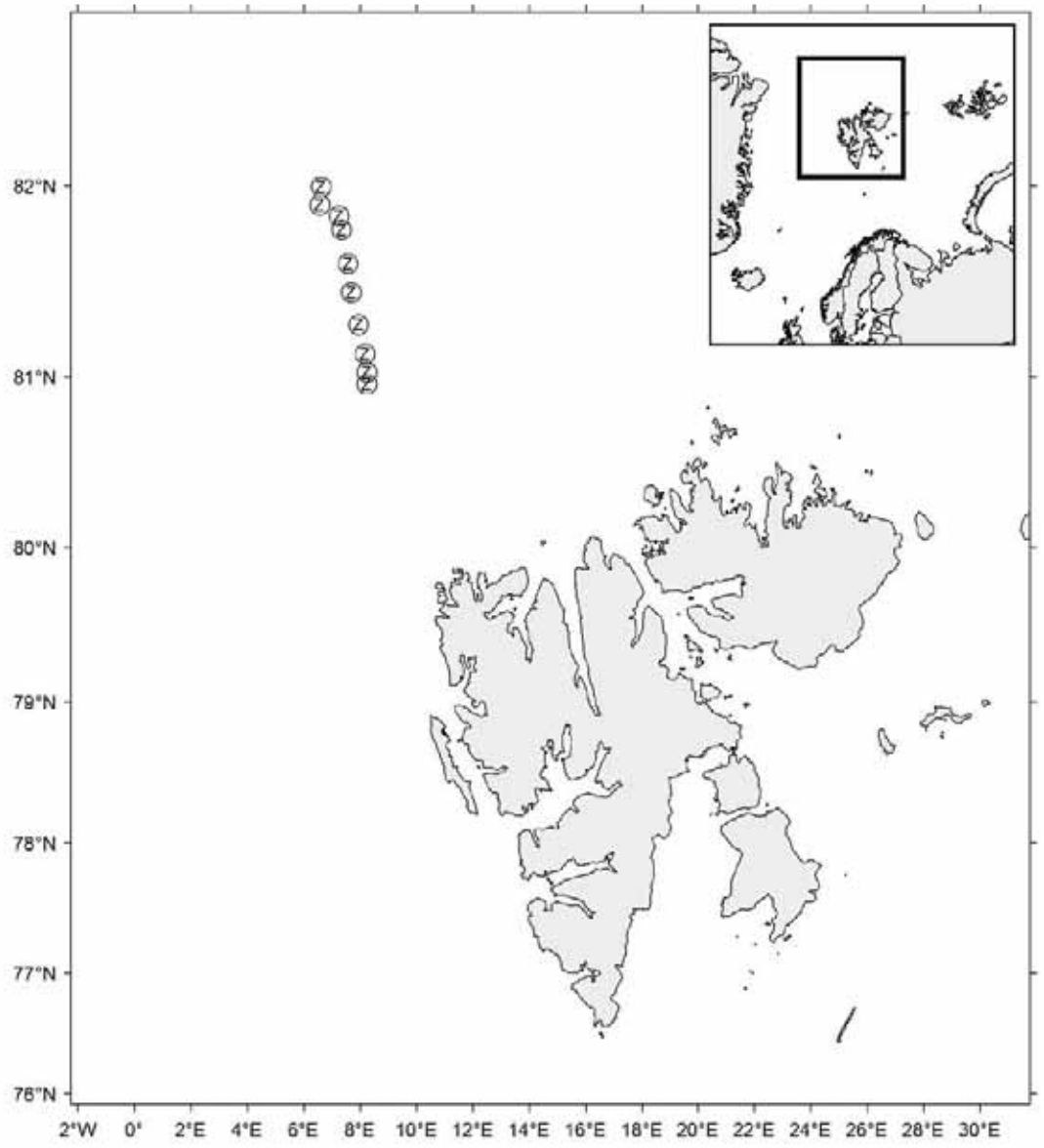
z CTD st.no 1–52
○ Plankton st. (WP-II-net)


46
74°N
38
49
72°N
32
57
6
5
70°N
31
68°N
20
24
66°N
13
64°N
8
12
62°N
5
7
4
1
60°N
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 30°E 32°E
Cruise no 2015832 "Brennholm"
26 June–28 July 2015
▲ Pelagic trawl no 1–7 (Part I 26.–28.6)
▲ Pelagic trawl no 1-57 (Part II)
61°N
Pelagic trawl
1–7
60°N
59°N
3°E 4°E 5°E 6°E 7°E 8°E



Cruise no 2015833 "Nybo"
2–17 February 2015

▲ Pelagic trawl st.no 1-20



Cruise no 2015005 KV"Svalbard"
17–20 September 2015

z CTD st.no 1-10
○ Plankton st. (WP-II-net)

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