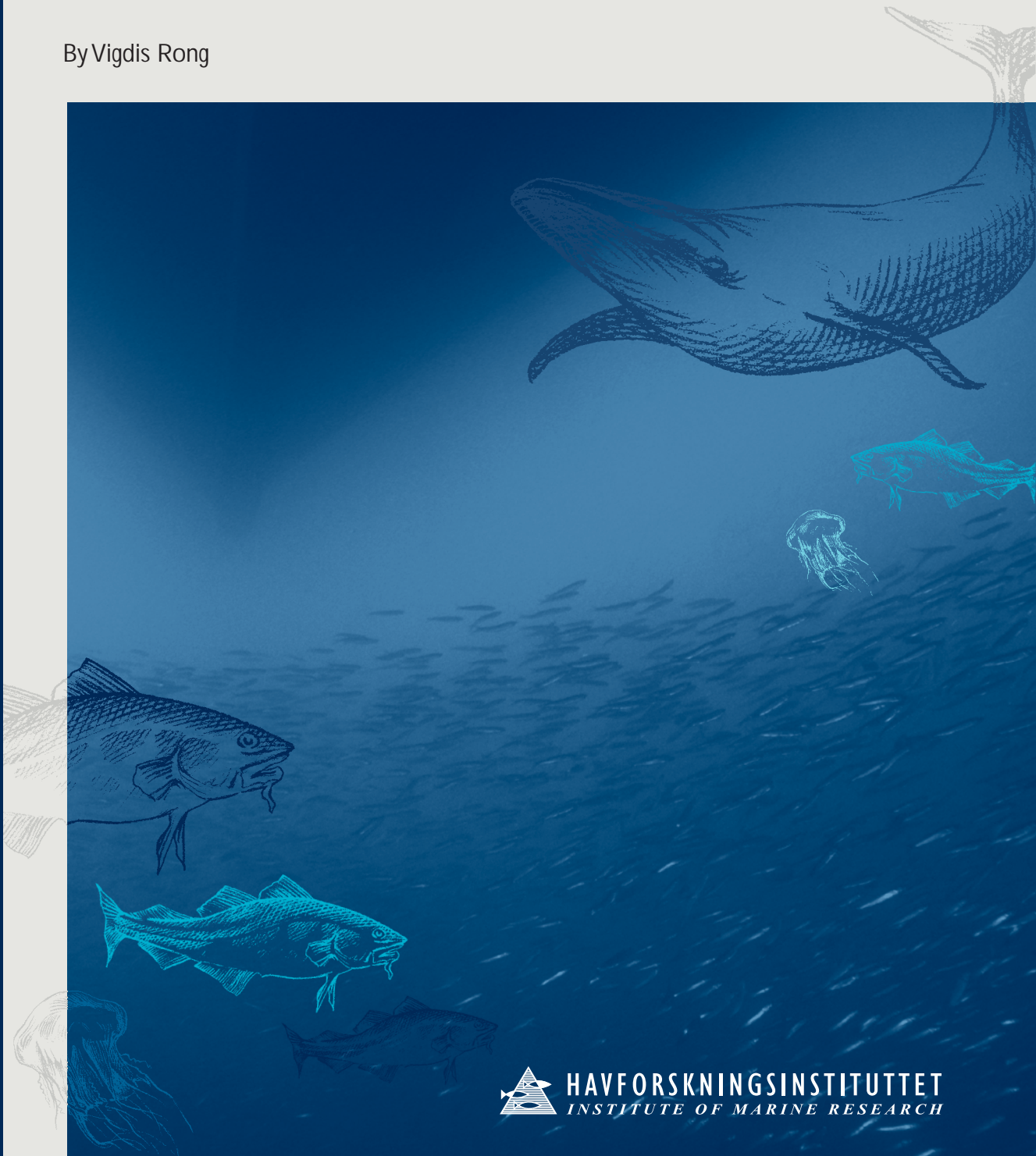


## Report on cruises and fixed oceanographic data stations, 2012

### *Oversikt over tokt og faste oseanografiske stasjoner tatt i 2012*

By Vigdis Rong





# Report on cruises and fixed oceanographic data stations 2012

By Vigdis Rong





# PROSJEKTRAPPORT



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*Report on cruises and fixed oceanographic data stations, 2012*

**Forfatter(e):**

Vigdis Rong. Charts made by Karen Gjertsen and Svein Erik Enersen ("G. M. Dannevig")

**Sammendrag (norsk):**

Rapporten gir en oversikt over tokt i regi av Havforskningsinstituttet og Universitetet i Bergen. Toktene er utført med forskningsfartøiene "G. O. Sars", "Johan Hjørt", "Håkon Mosby", "G. M. Dannevig", "Helmer Hanssen" samt noen innleide fiskefartøyer i 2012. Kartene viser hovedsakelig CTD- og trålstasjoner, men også planktonstasjoner. For de fleste toktene vises kurs- og stasjonskart samt oversikt over når de faste snittene er tatt. Antall observasjoner pr. måned for de faste stasjonene langs kysten er vist i egen tabell. Toktene er innrapporterte til Det internasjonale råd for havforskning (ICES) i skjemaet "Cruise Summary Report". Data fra toktene er tilgjengelig fra Norsk marint datasenter ved Havforskningsinstituttet.

**Summary (English):**

The report presents cruises carried out by the research vessels "G. O. Sars", "Johan Hjørt", "Håkon Mosby", "G. M. Dannevig", "Helmer Hanssen" and some hired commercial fishing vessels on behalf of the Institute of Marine Research and the University of Bergen during 2012. The charts mainly show CTD and trawl stations, but some charts also include plankton stations. Beside tracks and stations, standard sections observed are listed. A separate table lists the number of observations per month for the fixed stations along the Norwegian coast. The cruises are reported to the International Council for the Exploration of the Sea (ICES) in the "Cruise Summary Report". The data may be requested from the Norwegian Marine Data centre at the Institute of Marine Research.

**Emneord (norsk):**

1. Kurskart
2. Stasjonskart
3. Toktmetadata

**Subject heading (English):**

1. Cruise track chart
2. Station chart
3. Cruise metadata

  
Prosjektleder

  
Faggruppeleder

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## 1 Cruises 2012

### 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		
2012101	12 Feb	14 Feb	Educational cruise (GEO-003). Courses in practical and theoretical guidance on using marine geology and marine geophysical instruments and field methods (seismic and sampling).	Norwegian coast	1	1	-	-	26	
2012102	15 Feb	13 Mars	IBTS ( <i>International Bottom Trawl Survey</i> ). Coordinated by ICES and used for stock assessments. The cruise covers the area North Sea, Skagerrak and Katagat. The cruise is the basis for trawl indexes for several demersal fish species and index for herring larvae. It is additionally made an acoustic abundance index for the stock of North Sea saithe. Process studies, life history dynamics, fish larvae and trawl calibration. Hydrography and sampling of plankton along the hydrographic section Utsira-W.	North Sea, Skagerrak, Katagatt	2	70	1	43	26-27	
2012103	17 Mars	10 Apr	Main objective: To assess the state of commercial deep-sea fish stocks with a focus on redfish species, greater silver smelt and Greenland halibut. Secondary objectives: to monitor the condition of the deepwater ecosystem along the Norwegian continental slope. In addition, be carried out hydrographic measurements and plankton sampling along the Svinøy section.	Barents Sea	71	85	45	104	28	
2012104	11 Apr	18 Apr	Geological and geophysical investigations of sand waves and sand transport on the sea floor of the continental slope in the shelf edge area in southwestern Barents Sea. ( <a href="http://www.mareano.no">www.mareano.no</a> )	Barents Sea	-	-	-	-	29	No CTD
2012105	19 Apr	24 Apr	Environmental and plankton monitoring on the Fugløya–Bjørnøya section and the extended Bjørnøya–West section. Replacing measurement rigs on the Fugløya–Bjørnøya section.	Barents Sea	86	115	-	-	29	
2012106	27 Apr	22 May	Bottom survey of benthos and seabed geology. Contamination in seabed sediments.	Barents Sea	116	153	-	-	30-33	

**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		
2012107	24 May	06 June	1) Functional testing of maneuverable trawl doors. 2) Functional tests and Catch experiments with a semi-pelagic trawl concept. 3) Testing of an in situ camera surveillance system for trawl. 4) Deep-vision tests. 5) Species selection studies. 5) Catch limit.	Barents Sea	154	159	105	125	33-34	
2012108	07 June	30 June	The cruise will focus on the Quaternary deposits in northeastern parts of the North Sea and on the continental slope outside Mid-Norway. Unanswered questions are related to the withdrawal of the last great ice cap and the understanding of seep structures in the area. Carry out further investigations of a major leakage structure that we recently discovered north of the Sleiþner area where there is injected CO2 in the seabed.	Barents Sea	160	185	-	-	34-35	
2012118	01 July	21 July	The major aim of the scientific survey is to map the abundance and distribution of northeast Atlantic mackerel, by means of standardized pelagic trawling (0–50m depth) and hydro acoustic recordings from multibeam sonars and a multi frequency echosounder. We also aim to study abundance, spatial temporal distribution, aggregation and feeding ecology of Norwegian spring spawning herring, blue whiting and other pelagic species in relation to oceanographic conditions, prey communities and marine mammals. Sub goals include: Map concentration and distribution of non targeted species such as horse mackerel, Atlantic salmon and lumpsucker. Systematic marine mammal sightings for species identification, group size and behavior. Quantify migration speed and direction of traced herring and mackerel schools at different spatial scales on multibeam sonars (SH80 and SX 90) in the upper water masses (0–50 m). Ecological studies on predator prey interactions and avoidance behavior of pelagic fish, krill and marine mammals using acoustics, visual observations and sampling.	Norwegian Sea	186	232	126	181	35-36	



**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		
2012109	23 July	16 Aug	The purpose of the survey is in two parts: Part 1 will focus on search for new hydrothermal fields along the Arctic Mid-ocean ridge (Mohs and Knipovich), while Part 2 will focus on sampling the sedimentary succession along the Jan Mayen Ridge.	Norwegian Sea	233	258	-	-	36-37	
2012111	18 Aug	12 Sep	Monitoring plankton, nutrient chemistry and ocean climate including research related to climate change and its possible effects on the three Calanus species that live in the Barents Sea. New hydrographic section in the Arctic Ocean. Environmental and plankton surveys on the Fugløya-Bjørnøya section. Carry out an ecosystem survey according to specifications.	Barents Sea	259	337	182	345	37-38	
2012110	14 Sep	07 Oct	Bottom Survey of benthos and seabed geology and contamination in seabed sediments.	Barents Sea	338	401	-	-	39-41	
2012113	12 Oct	13 Oct	Demonstrate the use of oceanographic instrumentation.	Norwegian coast: Western Norway	402	413	-	-	42	
2012114	14 Oct	20 Oct	Educational cruise. Mandatory cruise for master students in fisheries biology	Norwegian coast	414	439	346	353	42-43	
2012115	21 Oct	26 Oct	Educational cruise. Mandatory course for master students in Marine Biology. Introduction to key field methods in marine biology.	Norwegian coast	440	446	354	372	43	
2012112	04 Nov	06 Nov	The objective is to evaluate the use of functional indicators (e.g. respiration) in the monitoring of vulnerable marine ecosystems. Further trials to assess the suitability of the no-invasive, cost-efficient eddy correlation technique will be made.	Norwegian Sea	447	456	390	390	44	
2012116	09 Nov	23 Nov	Development of methodology for more exact acoustic measurement of school size including calibration by purse seining. Testing of new equipment.	Norwegian coast: Western Norway	457	464	391	398	44-45	
2012117	24 Nov	07 Dec	Study the vertical distribution and buoyancy of Greenland Halibut eggs.	Norwegian coast: Lofoten/Vesterålen	465	493	399	419	45-46	

### 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		
2012201	10 Jan	25 Jan	Perform environment, plankton and ocean acidification research on station Mike, Svinøy transect and Fugløya-Bjørnøya transect. Deployment of rigs on the slope west of Tromsøflaket.	Barents Sea	-	-	-	-	-	Canselled
2012202	08 Feb	15 Mars	Stock assessment of demersal and pelagic fish. Cooperation with the research vessel "Helmer Hanssen" and a Russian vessel. Perform environmental and plankton surveys on the sections Vardø North, Bjørnøya West and Fugløya-Bjørnøya. Taking fish samples for NIFES ( <i>National Institute of Nutrition and Seafood Research</i> ).	Barents Sea	-	-	-	-	-	Canselled Carried out by cruise no. 2012841
2012203	16 Mars	08 Apr	Abundance estimation and age distribution of cod in the area from Vestfjord to Malangsrunden. Oceanographic sections in Vestfjord. Collect and quantify eggs from cod spawning at fixed oceanographic sections. Collect and determine the species of eggs in the same area, to identify spawning of redfish, greater silver smelt, haddock and pout. Finding the vertical distribution of eggs. Verify spawning concentrations.	Norwegian coast: Lofoten/Vesterålen	1	105	1	25	47	
2012204	27 Apr	30 Apr	Recover 3 sea current moorings placed on the continental slope of Tromsøflaket.	Barents Sea	106	116	-	-	48	
2012205	03 May	01 June	Distribution of Norwegian spring spawning herring and blue whiting in the Norwegian Sea and southern Barents Sea to calculate indexes for the stock assessment. Hydrography and plankton survey. Mapping the distribution of amphipods Themisto libellula in connection with the project Harvest II.	Norwegian Sea	117	199	26	75	49-50	
2012206	03 June	11 June	Deployment of rigs and drifters. Hydrographic measurements in East Iceland current, between Iceland and Jan Mayen.	Iceland/Greenland oceans	200	223	-	-	50-51	
2012207	25 June	23 July	Combined IBTS ( <i>International Bottom Trawl Survey</i> ) and acoustic survey for indexes of demersal fish, herring, sprat and saithe. Hydrography, nutrient, plankton, herring and sprat larvae at Utsira transect. Life history dynamics of fish larvae. Effects of use of chemicals and discharges from oil sect. Sampling of hydrography and plankton along the standard hydrographic section UtsiraWest in the North Sea.	North Sea	224	351	-	-	51-52	

**Johan Hjort (cont.)**

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2012208	01 Aug	14 Aug	Environmental monitoring on the Sørkapp-West section (3 CTD-stations). Environmental and plankton monitoring on Bjørnøya-West, Gimsøy and Svinøy sections.	Norwegian Sea	352	414	-	-	53	
2012209	14 Aug	30 Sep	Joint Norwegian-Russian ecosystem survey in the Barents Sea and around Svalbard. Provide a regional coverage of the ocean climate. Distribution of cod, haddock, capelin, Greenland halibut, 0-group fish, benthic and deepwater shrimp. Mapping the fish stocks and fishing communities. Measurement of biomass and stock structure. Acoustical measurement of fish. Annual area coverage of zooplankton and phytoplankton. ID photos of whale.	Barents Sea	415	569	300	548	53-55	
2012210	02 Oct	30 Oct	Distribution and acoustic abundance of cod, saithe and haddock. Fish samples for NIPES ( <i>National Institute of Nutrition and Seafood Research</i> ) and CEFAS ( <i>Centre for Environment, Fisheries and Aquaculture Science</i> ). Environmental and plankton survey on the Fugløya-Bjørnøya section.	Norwegian coast	570	649	550	632	56	
2012211	31 Oct	07 Nov	Environmental and plankton surveys on the Gimsøy and Svinøy sections.	Norwegian Sea	650	683	-	-	57	
2012212	07 Nov	14 Nov	Environmental and plankton investigations on the Bjørnøya-West section.	Norwegian Sea	684	696	-	-	57	
2012213	20 Nov	23 Nov	Extending investigations related to the project "Monitoring of climate and plankton in the North Sea and Skagerrak." Mapping environmental factors (hydrography, chemistry), plankton, fish eggs and fish larvae in the North Sea and Skagerrak after the spring bloom.	North Sea	697	728	-	-	58	

### 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		
2012601	09 Jan	24 Jan	Annual survey of the shrimp stock in the Norwegian trench and Skagerrak, with emphasis on biomass and recruitment. Registrations of Norway lobster and sea cucumber. Annual resource survey of grenadier fish. Investigation of cartilaginous fish with emphasis on spiny dogfish.	Skagerrak	1	23	1	65	59	
2012602	03 Feb	09 Feb	Educational cruise (GFI-003). Courses in planning, conducting and reporting an oceanographic cruise.	Norwegian coast: Western Norway	24	203	66	66	60	
2012603	13 Feb	14 Feb	The project has the objective to follow the colonization and development of the enigmatic, burrowing polychaete, <i>Osedax</i> and associated fauna in decaying whalebones and bones of large mammal.	Norwegian coast: Western Norway	-	-	-	-	60	No CTD
2012604	24 Feb	24 Feb	Educational cruise (GFI-001). Courses in the use of the oceanographic measuring equipment works.	Norwegian coast: Western Norway	204	205	-	-	61	
2012605	05 Mars	06 Mars	Recording, preparation and launching of met-ocean buoy in the Havsul area outside Harøya. Process studies of sea boundary layer using turbulence sonde and a buoy carrying turbulence sensors.	Norwegian coast: Møre/Trøndelag	206	209	-	-	62	
2012606	07 Mars	14 Mars	Service of meters and monitoring buoy on the Svinøy section. CTD, ADCP and CTD Towing are included.	Norwegian Sea	-	-	-	-	61	
2012626	15 Mars	16 Mars	Recording, preparation and launching of met-ocean buoy in the Havsul area outside Harøya. Process studies of sea boundary layer using turbulence sonde and a buoy whit turbulence sensors.		-	-	-	-	62	Continuation of work on cruise no. 2012605
2012607	20 Mars	20 Apr	Distribution, vertical distribution and density measurements of fish eggs off Møre with emphasis on saithe. Distribution and quantity of herring larvae and other fish larvae from Karmøy to Malangen, plankton. Distribution, vertical distribution and density measurements of fish eggs off Lofoten, Vesterålen, Troms with emphasis on haddock (pout).	Barents Sea	210	446	66	76	63-64	

**Håkon Mosby (cont.)**

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2012608	24 Apr	11 May	Extending investigations on the project "Monitoring of climate and plankton in the North Sea and Skagerrak." Mapping environmental factors (hydrography, chemistry), plankton, fish eggs and larvae in the North Sea / Skagerrak after the spring bloom.	North Sea	447	579	-	-	64-65	
2012609	18 May	25 May	Maintenance of an operational climate buoy on the station Mike. The buoy will be taken ashore for the main service.	Norwegian Sea	580	581	-	-	65	
2012610	26 May	14 June	Physical oceanography cruise to study dynamics and mixing of the Faroe Bank Channel overflow plume. Tasks include deployment of 6 long-term moorings, a survey of hydrography, currents and turbulence, glider deployments and process studies.	Atlantic ocean/ West of the British Isles	582	729	-	-	66	
2012611	04 July	10 July	Deployment of Polarbuoy.	Norwegian Sea	730	743	-	-	66	
2012612	11 July	17 July	Take basement samples from Sognefjorden for apatite, titanite and zircon fission track, (U-Th)/He and U-Pb dating along a vertical profile below sea level.	Norwegian coast: Western Norway	-	-	-	-	-	Cancelled
2012613	19 July	23 July	Collection of benthic invertebrates and fish.	Norwegian coast: Western Norway	744	753	-	-	67	
2012614	27 July	15 Aug	Collection of seafloor seismic data in the previously disputed area in the Barents Sea.	Barents Sea	-	-	-	-	68	No CTD
2012615	18 Aug	31 Aug	Educational cruise (GEO-001) in Isfjord and Van Mijenfjord. Collection of reflection seismic using large streams.	Barents Sea	-	-	-	-	68	No CTD
2012616	01 Sep	12 Sep	Educational cruise (GFI-004). The UNIS studies are field-based and the survey is mandatory. Courses in planning, conduct and report an oceanographic cruise.	Svalbard area	754	1021	-	-	69	
2012617	17 Sep	26 Sep	Study the heat loss from the ocean and changes in the water masses in the Lofoten Basin throughout the year. Furthermore be examined how the modified water masses disperse in Lofoten Basin and are exchanged with the other basins in the the Nordic Sea.	Norwegian Sea	1022	1030	-	-	70	
2012618	27 Sep	01 Oct	Service of meters and monitoring buoy on the Svinøy section. CTD, ADCP and a towed CTD will be included.	Norwegian Sea	-	-	-	-	70	

**Håkon Mosby (cont.)**

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2012619	02 Oct	10 Oct	The main objective is to evaluate the biological responses of marine sponges exposed to effluents released during oil drilling activities and to develop biomarkers for this exposure. Sponges will be collected for experiments on land.	Norwegian coast: Western Norway	-	-	-	-	71	
2012620	15 Oct	13 Nov	Distribution and acoustical measurements of cod, saithe and haddock. Fish samples for NIFES ( <i>National Institute of Nutrition and Seafood Research</i> ) and CEFAS ( <i>Centre for Environment, Fisheries and Aquaculture Science</i> ). Investigation of radioactive contamination in sediments, seawater and fish in Laksefjord, Trondheimsfjord (Bindalsfjord), Namsenfjord and Vefsnfjord. Virus samples of fish.	Norwegian coast	1031	1092	75	147	71-72	
2012621	15 Nov	20 Nov	A 5-days cruise to Sognefjorden to embark a long term initiative for the marine biodiversity research group.	Norwegian coast: Western Norway	1093	1110	148	149	72-73	
2012622	21 Nov	26 Nov	Collect samples from mine waste site in the Jøssingfjord to investigate the mobility of heavy metals and the impact on the marine biodiversity.	Norwegian coast: Western Norway	1111	1115	-	-	74	
2012623	28 Nov	30 Nov	Recording, preparation and launching of met-ocean buoy 4 km outside Sletringen near Frøya.	Norwegian coast: Møre/Trøndelag	1116	1120	-	-	74	
2012624	07 Dec	11 Dec		Norwegian coast: Western Norway	-	-	-	-	-	Canselled

#### 1.4 Helmer Hanssen (Ship code no 19)

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2012839	23 Jan	21 Feb	Measurement and mapping of cod, haddock, halibut, redfish and capelin. Climate change and plankton in the Vardø-N and Fugløya-Bjørnøya sections. Fish samples for NIFES ( <i>National Institute of Nutrition and Seafood Research</i> ).	Barents Sea	1	48	17	189	75	
2012844	06 Aug	17 Aug	Survey to map the transformation of the Atlantic Water into the Arctic in terms of hydrographic and chemical properties and plankton.	Arctic Ocean	580	619	-	-	76	
2012845	21 Aug	05 Sep	Abundance and distribution of capelin, cod and juvenile fish. Sea mammal and bird observation. Part of the Ecosystem survey in the Barents Sea.	Areas west, north and east of Svalbard	620	621	228	351	76	

**1.5 G.M. Dannevig** (Ship code no 16)

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		PAGE OF CHART	COMMENT
	Start	End			Start	End		
2012301	09 Jan	15 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	34	78	
2012302	05 Feb	11 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	35	63	78	
2012303	11 Mars	15 Mars	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	-	-	-	Cancelled
2012304	17 Mar	01 Apr	Mapping distribution area of coastal cod.	Rogaland	-	-	-	Cancelled
2012305	17 Apr	06 May	Environmental investigation in the eastern North Sea, the Skagerrak and Kattegat after the spring bloom. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast.	Eastern North Sea/ Skagerrak/ Kattegat	64	181	79	
2012306	10 May	08 June	Trawl survey for juvenile salmon	Western Norway	182	183	79	
2012307	11 June	15 June	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	184	222	80	
2012308	01 July	05 July	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	223	262	80	
2012311/ 2012312	14 Aug	27 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. Monitoring lobster/MPA.	Skagerrak, Norwegian coast of Skagerrak	263	300	81	



**G.M. Dannevig (cont.)**

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		PAGE OF CHART	COMMENT
	Start	End			Start	End		
2012313	13 Sep	14 Sep	Hydrographic standard section "Torungen-Hirtshals", environmental investigation. Long-term environmental monitoring on a near-shore station outside Arendal.	Skagerrak, Norwegian coast of Skagerrak	301	312	81	
2012309	15 Sep	04 Oct	Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast. Study of fish populations using beach seine.	Skagerrak, Norwegian coast of Skagerrak	313	376	82	
2012315	05 Oct	06 Oct	Hydrographic standard section "Torungen-Hirtshals", environmental investigation. Long-term environmental monitoring on a near-shore station outside Arendal. and on a station near Kristiansand (Topdalsfjorden).	Skagerrak, Norwegian coast of Skagerrak	377	389	82	
2012310	12 Nov	12 Dec	Contaminants in seafood – Greenland. Fish community studies in marine protected area and resource studies in coastal cod. 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	390	433	83	
2012314	13 Dec	14 Dec	Hydrographic standard section "Torungen-Hirtshals", environmental investigation. Long-term environmental monitoring on a near-shore station outside Arendal.	Skagerrak, Norwegian coast of Skagerrak	434	445	83	

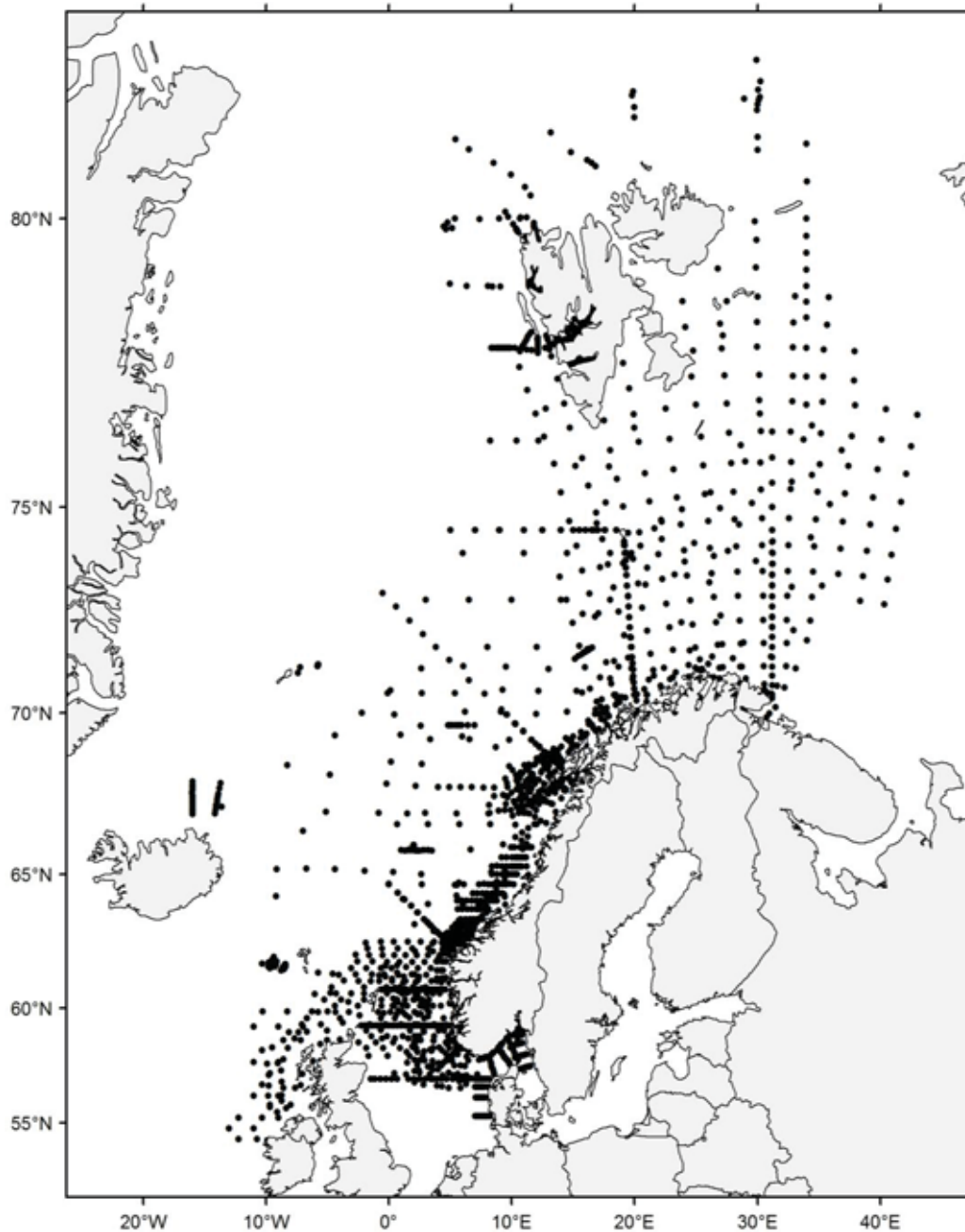
### 1.6 Selected cruises carried out by fishing vessels hired by IMR

CRUISE NO	PERIOD OF CRUISES		VESSEL	PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End				Start	End	Start	End		
2012841	20 Feb	15 Mars	Libas	In cooperation with R/V Helmer Hanssen and R/V Fritjof Nansen (PINRO) perform the 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 acoustic distribution and carry out biological sampling of capelin, herring, polar cod and blue whiting • map the general hydrographic regime by using a CTD-sonde to monitor the temperature and salinity at three standard transects and at about every third fixed bottom trawl stations (for about every 40 NM) • stomach, genetic and gonad sampling of cod, gonad sampling of haddock • sampling of plankton and nutrition at CTD-stations along two standard transects • sampling of capelin cod and shrimp for NIFES • sampling of cod or haddock for CEEFAS.	North-eastern Atlantic ocean	1	54	1	73	84	
2012810	14 Mars	04 Apr	Nordsysse1	The main purpose 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 2012. Two fixed-wing twin-engined aircrafts (stationed in Constable Pynt near Scoresbysound, East Greenland) were 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 (MS "Nordsysse1"), assisted in the reconnaissance flights, and subsequently flew visual transect surveys over the whelping patches. The helicopter was also used for other purposes (staging of pups, monitoring of ice	The northern part of the North Atlantic: Greenland Sea (West Ice)	-	-	-	-	85	

CRUISE NO	PERIOD OF CRUISES		VESSEL	PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End				Start	End	Start	End		
2012838	26 Mars	11 Apr	Brennholm	In addition to serve as base for the helicopter surveys, the vessel was also used to transport personnel into the whelping patches where some confirmation of the results from the aerial surveys were carried out and collection of biological samples were performed. Trawl acoustical survey to measure the spawning stock of blue whiting west of the British Isles. Joint cruise within ICES WGIPS ( <i>Working Group of International Pelagic Surveys</i> ).	North-eastern Atlantic ocean	1	29	1	18	85-86	
2012837	23 Apr	13 May	Brennholm	Acoustical abundance estimation of sandeels in all known fields in the Norwegian part of the North Sea. Biological studies on the effect of the new area-based management plan for sandeel. Cruise results will be included in an updated sandeel advice.	North Sea	29	33	20	53	86-87	SAIV CTD
2012506	7 May	26 May	Fangst	Acoustic distribution of young saithe.	Greenland Sea, Norwegian Sea, Barents Sea	-	-	-	-	88	
2012825	06 July	27 July	Brennholm	Mapping abundance and distribution of mackerel in the Norwegian Economic Zone. Study the ecology of mackerel, herring and blue whiting in the Norwegian Sea and adjacent waters. Relate the distribution and quantity of pelagic fish to the distribution of marine mammals (predators), zooplankton (prey) and oceanographic conditions.	North Sea	1	40	1	50	88-89	
2012842	01 Oct	19 Oct	Christina E	Mapping distribution and quantity of mackerel in Norwegian Economic Zone and EU waters in the North Sea. Relate mackerel migration, distribution and aggregations with the current oceanographic conditions.	Norwegian Sea, North Sea	1	74	1	39	89-90	
2012843	01 Oct	19 Oct	Brennholm	Mapping distribution and quantity of mackerel in Norwegian Economic Zone and EU waters. Relate mackerel migration, distribution and aggregations with the current oceanographic conditions.	North Sea	1	84	1	31	90-91	

## 2 Charts – overview

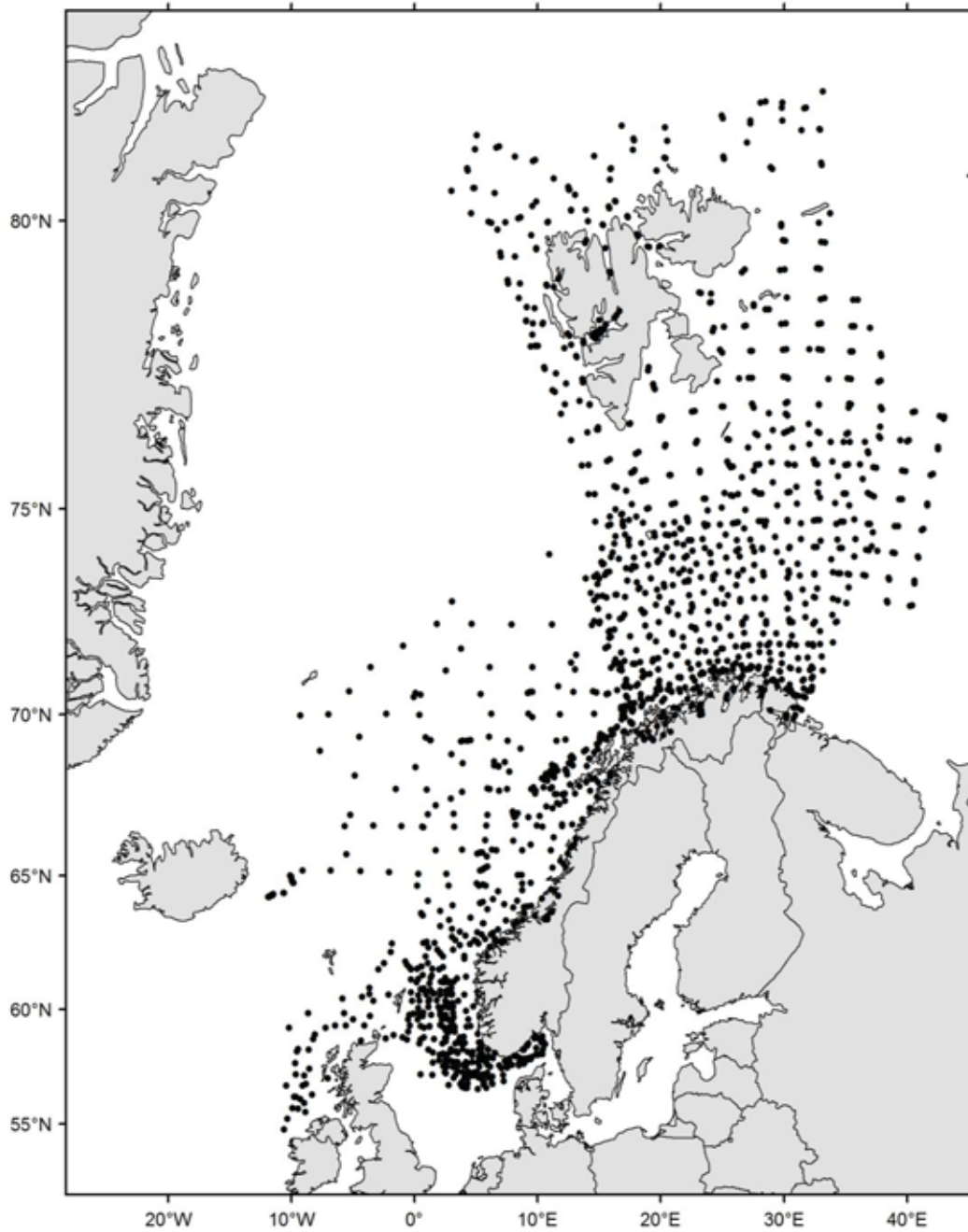
### 2.1 CTD stations 2012



• CTD stations

	Ship	Stations
<b>Research vessels</b>	G.O. Sars	493
	Johan Hjort	728
	Håkon Mosby	1.120
	Helmer Hanssen	90
	G. M. Dannevig	445
<b>Hired fishing vessels</b>	Brennholm	158
	Christina E	74
	Libas	54
		<b>3.162</b>

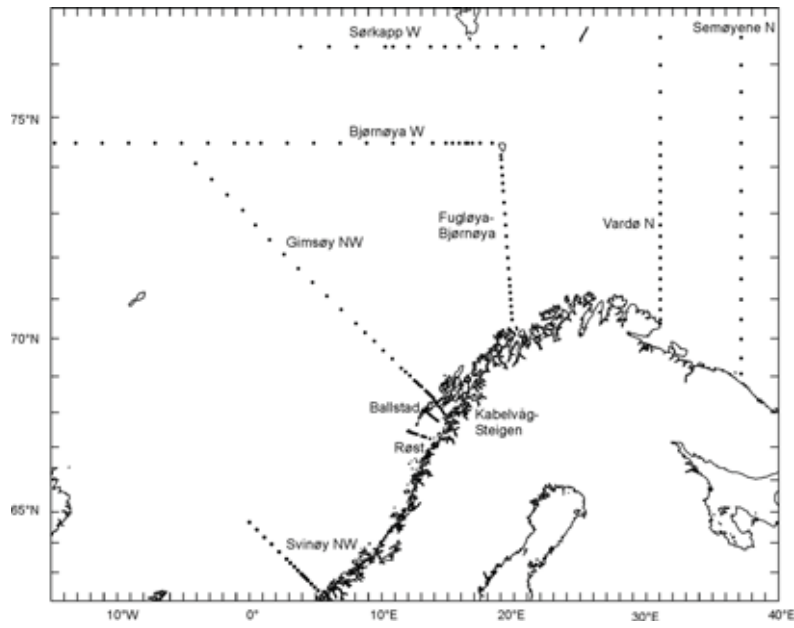
## 2.2 Trawl stations 2012



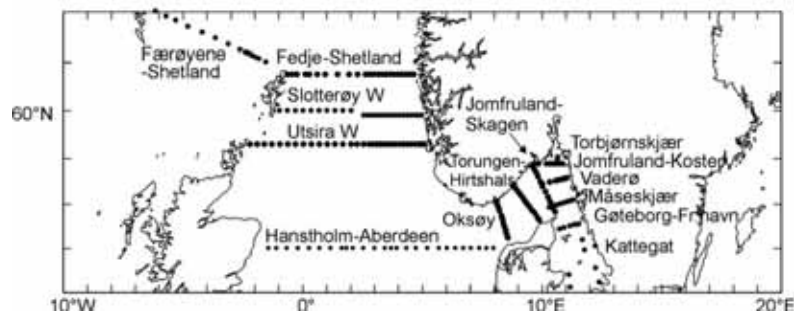
• Trawl stations

	<b>Ship</b>	<b>Stations</b>
<b>Research vessels</b>	G.O. Sars	401
	Johan Hjort	407
	Håkon Mosby	151
	Helmer Hanssen	297
<b>Hired fishing vessels</b>	Brennholm	133
	Christina E	39
	Libas	73
		<b>1.501</b>

### 2.3 Oceanographic sections



Norwegian Sea and Barents Sea



North Sea, Skagerrak and Kattegat

### 2.4 Fixed oceanographic stations



### 3 Tables – Observations in 2012

#### 3.1 Standard oceanographic sections 2012 (Cruise no/ship)

Area	Standard sections	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
North Sea, Skagerrak	Fedje–Shetland				2012608						2012114			
	Slotterøy–West													
	Utsira–West		2012102		2012608	2012608	2012207					2012213		
	Jærens Rev–SW and W					2012608								
	Egerøya–SW				2012608									
	Lista–SW													
	Lindesnes–SSW													
	Hanstholm–Aberdeen						2012608							
	Oksøy–Hanstholm													
	Torungen–Hirtshals	2012301	2012302		2012305	2012305	2012307	2012308	2012311	2012313	2012315			2012314
	Jomfruland–Skagen													
	Jomfruland–Koster													
	Torbjørnskjær													
	Väderø													
Måseskjær														
Gøteborg–Fredrikshavn														
Kattegat														

Area	Standard sections	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
West- fjord	Røst-Tennholmen			2012203									
	Ballstad-Måløy/Skarholmen			2012203									
The Norwegian Sea	Svinøy-North/West			2012103		2012205			2012208			2012211	
	Gimsøy-North/West			2012607		2012205			2012208			2012211	
The Barents Sea	Bjørnøya-West				2012105				2012208			2012212	
	Sørkapp-West								2012208				
	Fugløya-Bjørnøya		2012841		2012105				2012208		2012210		
	Vardø-North									2012209			
	Semøyene-North												
	Bjørnøya-Sørkapp												
	Nordkapp-North												

### 3.2 Other oceanographic sections 2012 (Cruise no/ship)

Sections	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Færøyene-Shetland												
Kabelvåg-Steigen			2012203									



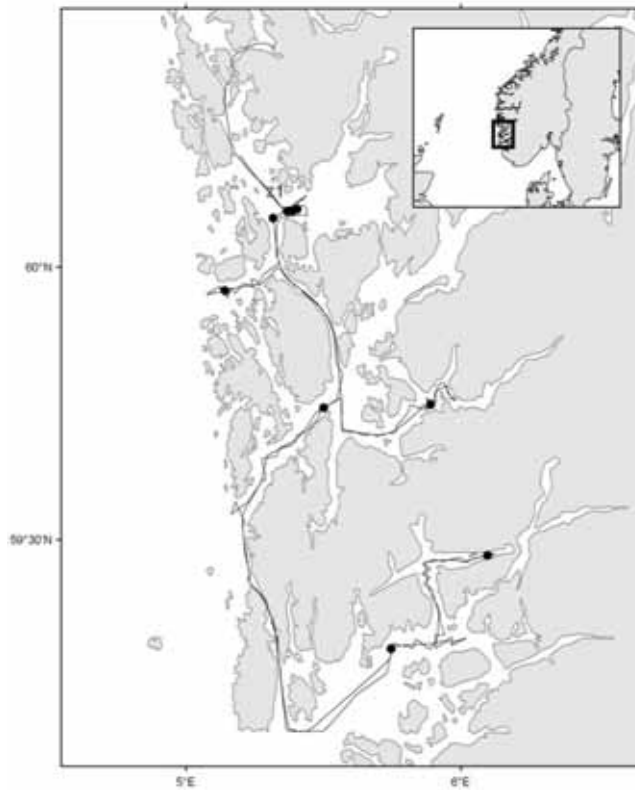
### 3.3 Fixed oceanographic stations 2012

(No of observations)

Fixed stations	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>LISTA</b> N58° 05,1' E06° 32,5'	2	3	4	2	4	3	3	3	2	3	2	3	34
<b>UTSIRA Y</b> N59° 19' E04° 44'	1	0	0	0	0	0	0	0	0	0	0	0	1
<b>UTSIRA I</b> N59° 19' E04° 59'	1	0	0	0	0	0	0	0	0	0	0	0	1
<b>SOGNESJØEN</b> N61° 01' E04° 50'	1	1	2	3	2	3	3	3	1	3	2	0	24
<b>BUD</b> N62° 56' E06° 47'	0	0	1	0	1	0	0	1	1	1	0	0	5
<b>SKROVA</b> N68° 07' E14° 39'	1	0	2	4	4	5	4	5	4	5	4	4	42
<b>EGGUM</b> N68° 23' E13° 38'	3	2	2	2	3	2	3	2	3	3	2	1	28
<b>INGØY</b> N71° 08' E24° 01'	3	2	0	0	2	1	1	2	2	3	3	0	19

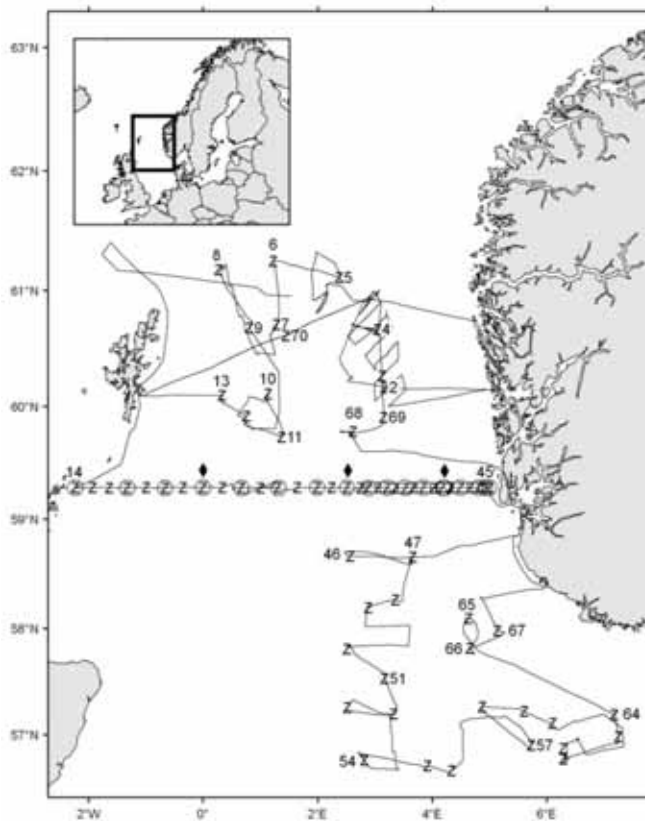
## 4 Charts for cruises 2012

### 4.1 G.O. Sars



Cruise no 2012101  
“G.O. Sars”  
12–14 Feb 2012

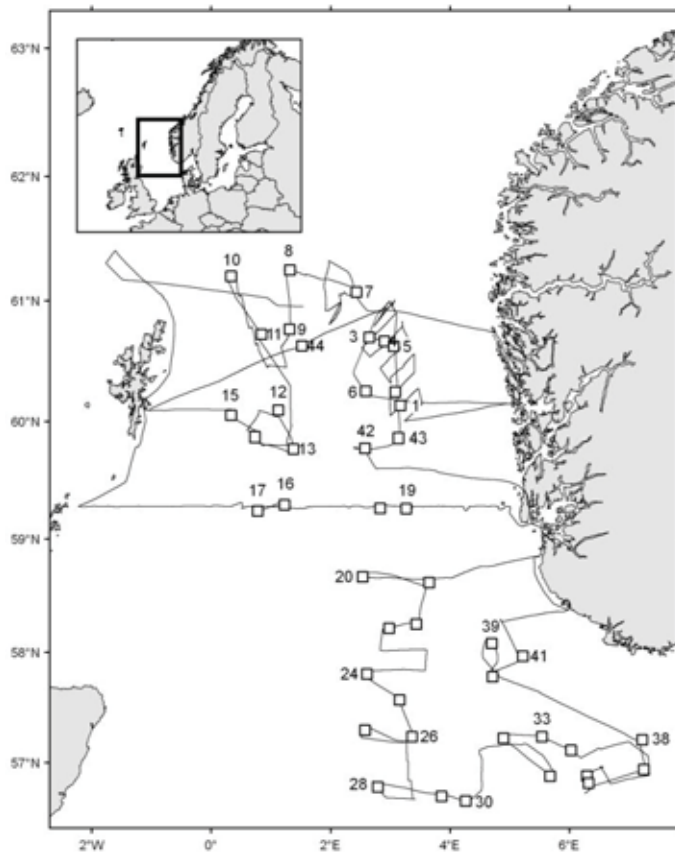
z CTD st.no 1  
● Gravity and box cores



Cruise no 2012102  
“G.O. Sars”  
15 Feb–13 Mars 2012

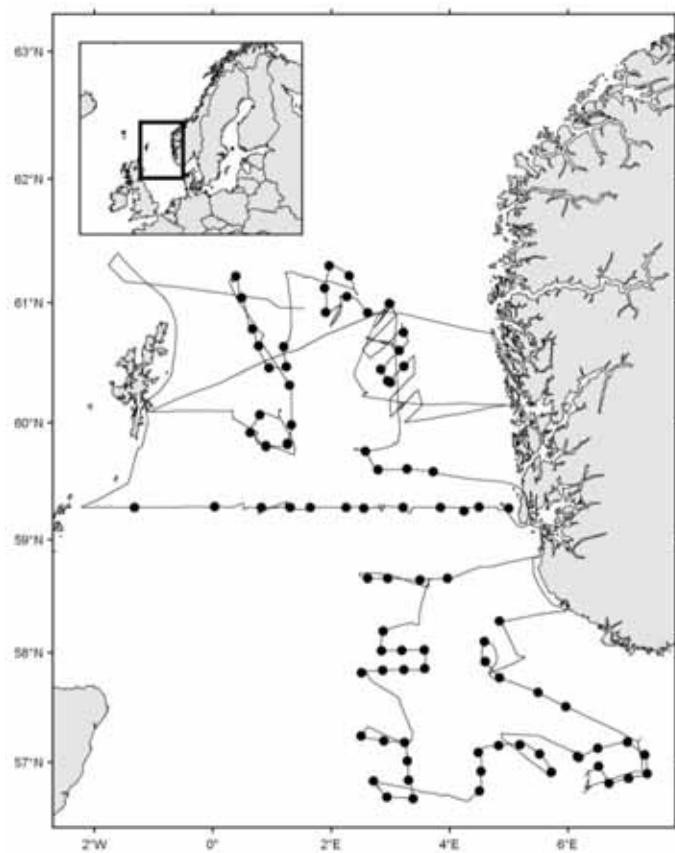
z CTD st.no 2–70  
○ Plankton st.  
◆ Plankton st.

Standard section:  
Utsira-W st.no 14–45



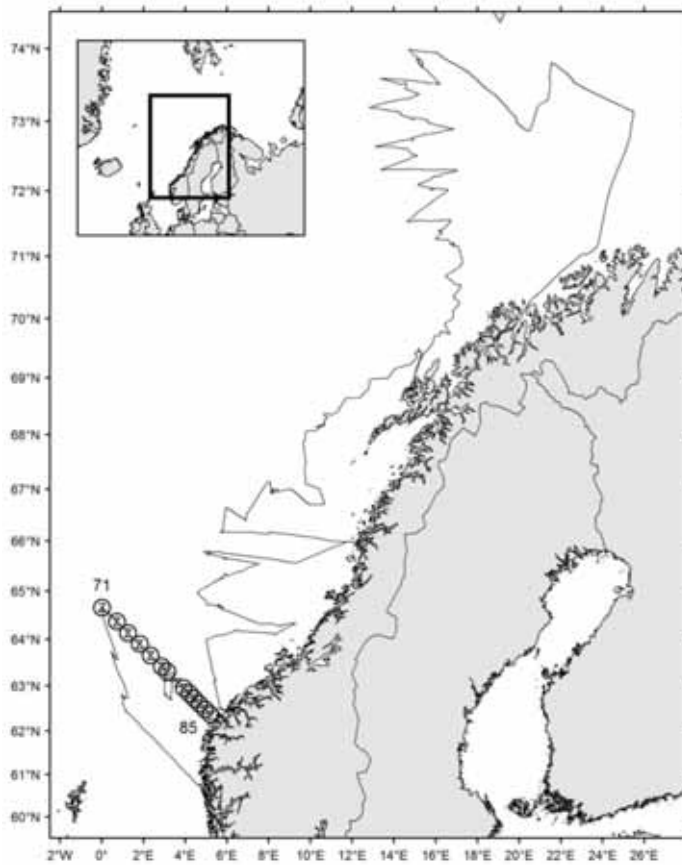
Cruise no 2012102  
 "G.O. Sars"  
 15 Feb–13 Mars 2012

□ Bottom trawl st.no 1–43



Cruise no 2012102  
 "G.O. Sars"  
 15 Feb–13 Mars 2012

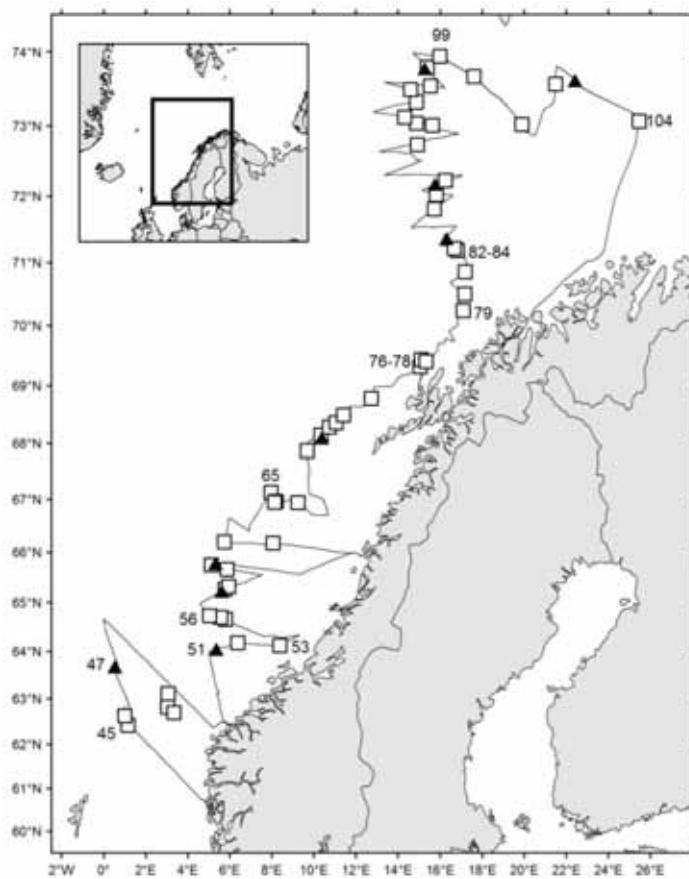
● Mik stations



Cruise no 2012103  
 “G.O. Sars”  
 17 Mars–10 April 2012

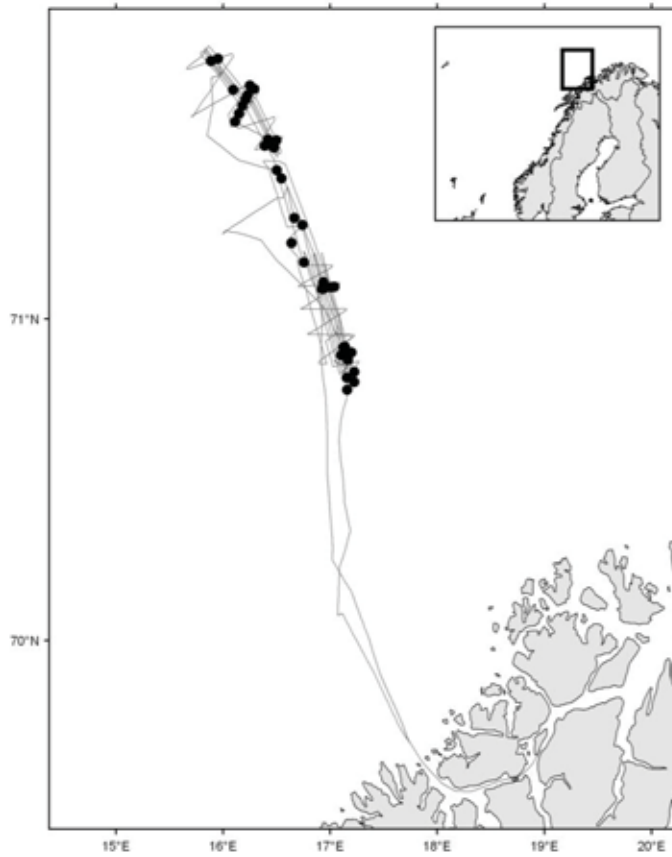
z CTD st.no 71–85  
 o Plankton st.

Standard section:  
 Svinøy-NW st.no 71–85



Cruise no 2012103  
 “G.O. Sars”  
 17 Mars–10 April 2012

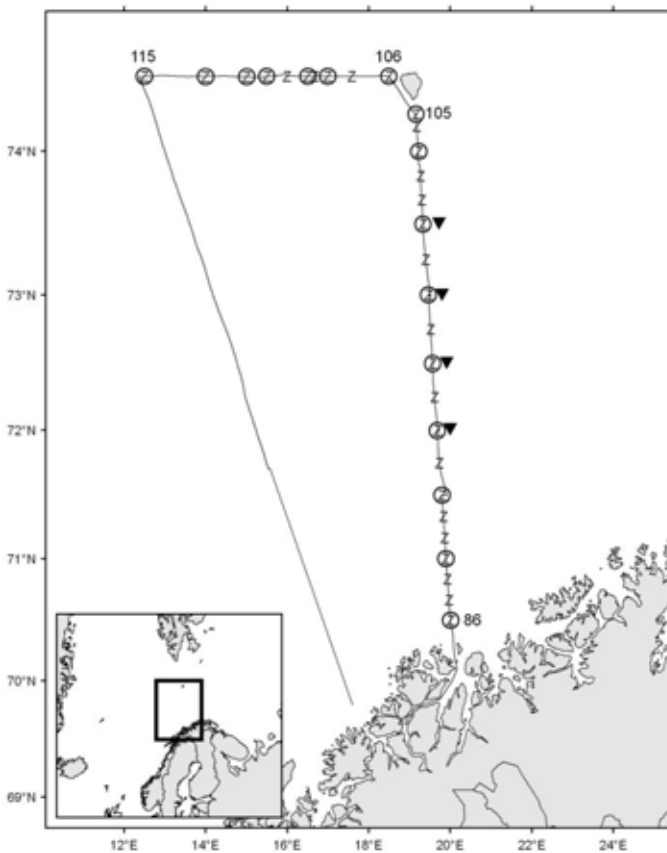
Trawl st.no 45–104  
 □ Bottom trawl  
 ▲ Pelagic trawl



Cruise no 2012104  
 “G.O. Sars”  
 11–18 April 2012

Sandwaves and sand transport  
 on the Barents Sea Continental  
 Margin

● Grab stations



Cruise no 2012105  
 “G.O. Sars”  
 19–24 April 2012

z CTD st.no 86–115

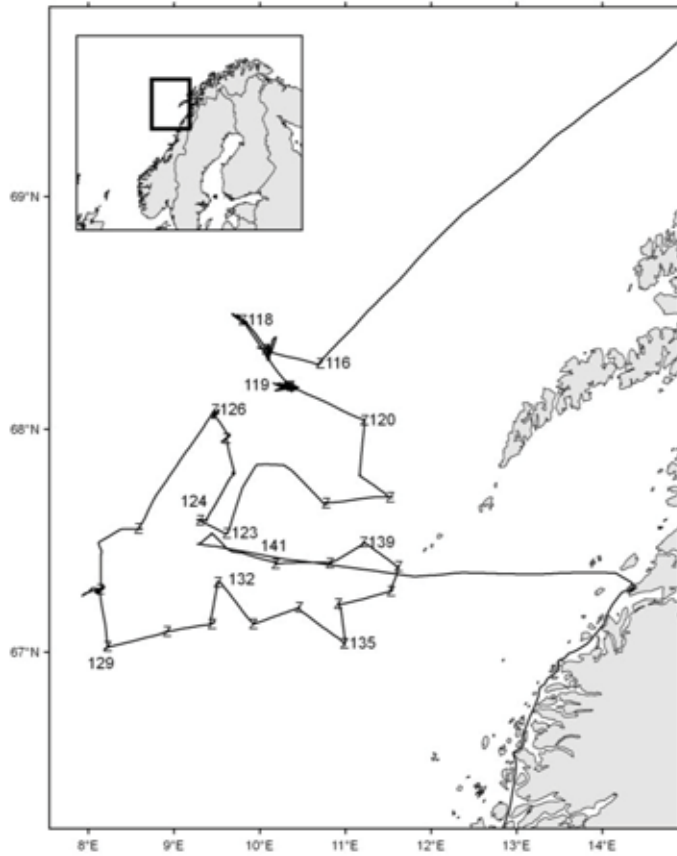
o Plankton st.

▼ Current meter deployed

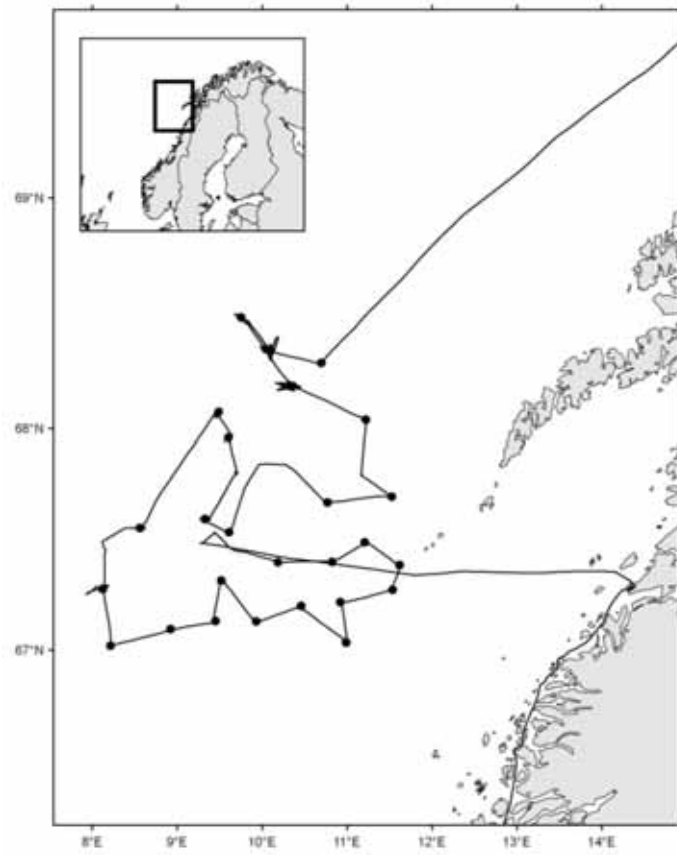
Standard sections:

Fugløya–Bjørnøya st.no 86–105

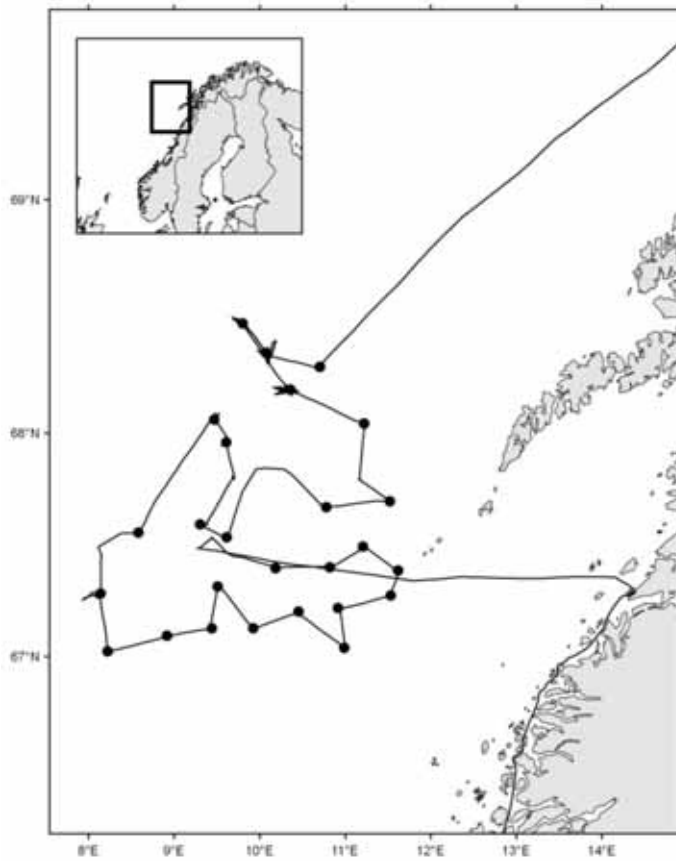
Bjørnøya–W st.no 106–115



Cruise no 2012106  
 “G.O. Sars”  
 27 April–22 May 2012  
  
 Part I 27 April–12 May  
 z CTD st.no 116–141



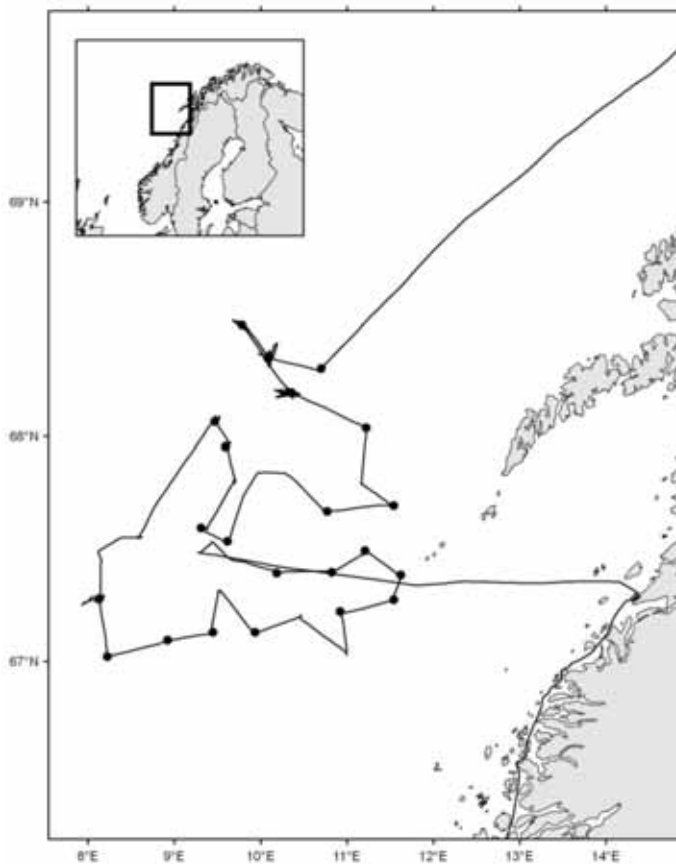
Cruise no 2012106  
 “G.O. Sars”  
 27 April–22 May 2012  
  
 Part I 27 April–12 May  
 ● Beam trawl



Cruise no 2012106  
 “G.O. Sars”  
 27 April–22 May 2012

Part I 27 April–12 May

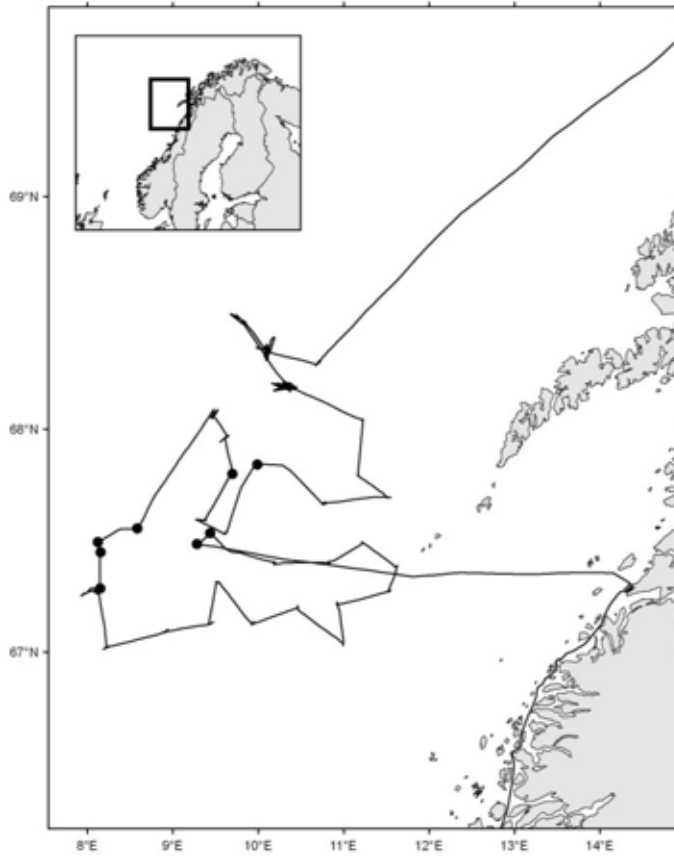
● Grab stations



Cruise no 2012106  
 “G.O. Sars”  
 27 April–22 May 2012

Part I 27 April–12 May

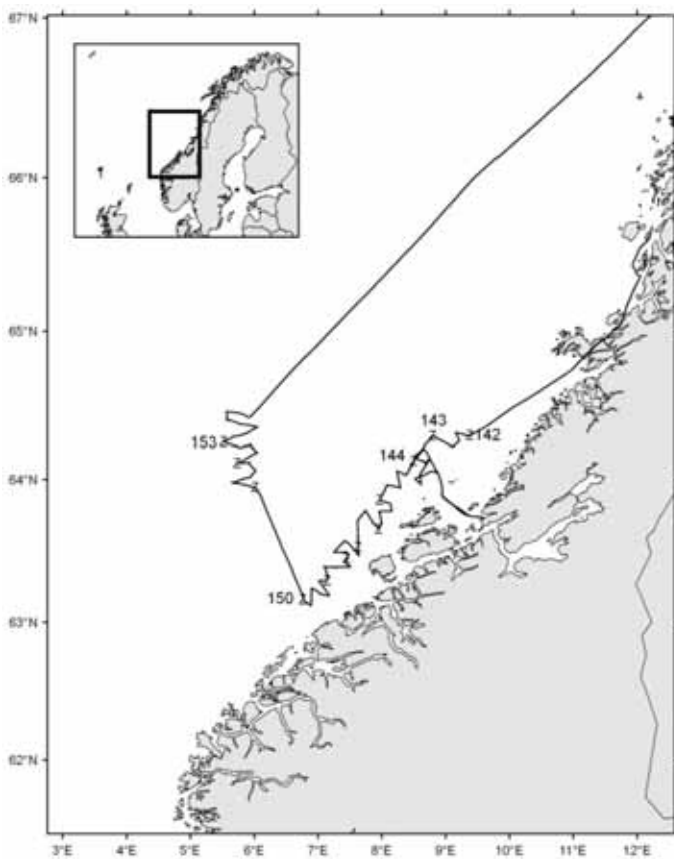
● Sledge stations



Cruise no 2012106  
 "G.O. Sars"  
 27 April–22 May 2012

Part I 27 April–12 May

● Video stations

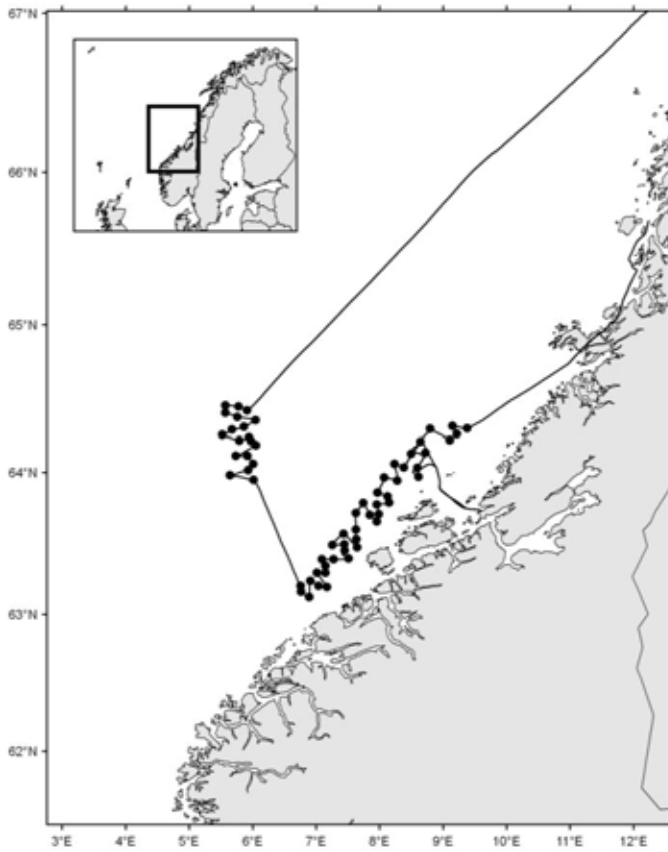


Cruise no 2012106  
 "G.O. Sars"  
 27 April–22 May 2012

Part II 12–22 May

z CTD st.no 142–153

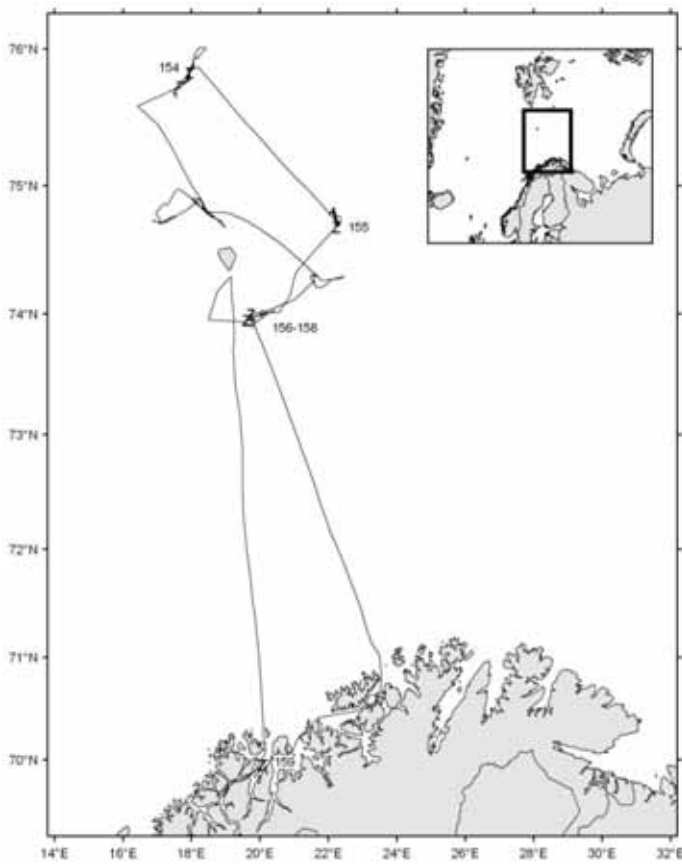




Cruise no 2012106  
 “G.O. Sars”  
 27 April–22 May 2012

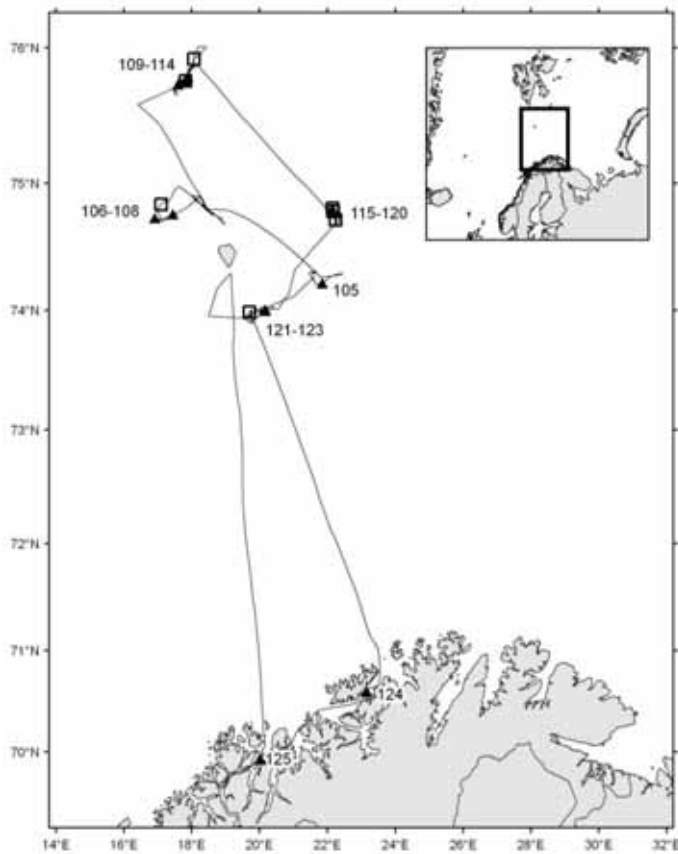
Part II 12–22 May

● Video stations



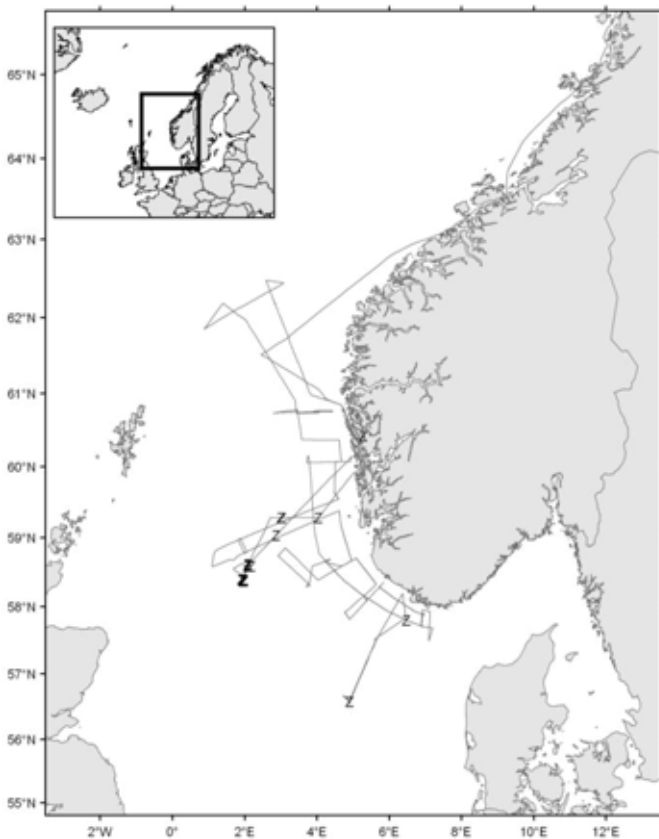
Cruise no 2012107  
 “G.O. Sars”  
 24 May–6 June 2012

z CTD st.no 154–159



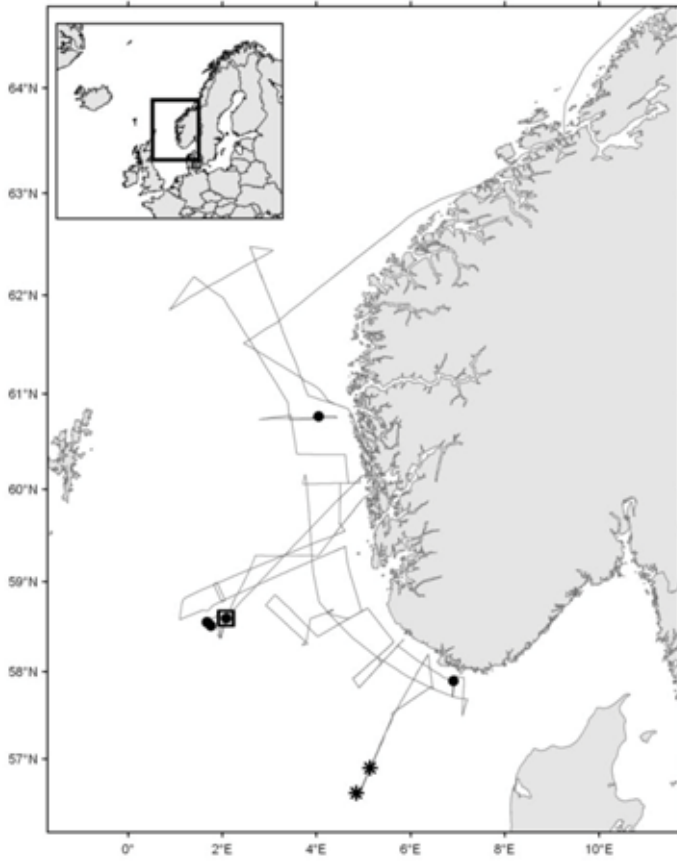
Cruise no 2012107  
 “G.O. Sars”  
 24 May–6 June 2012

Trawl st.no 105–125  
 ▲ Pelagic trawl  
 □ Bottom trawl



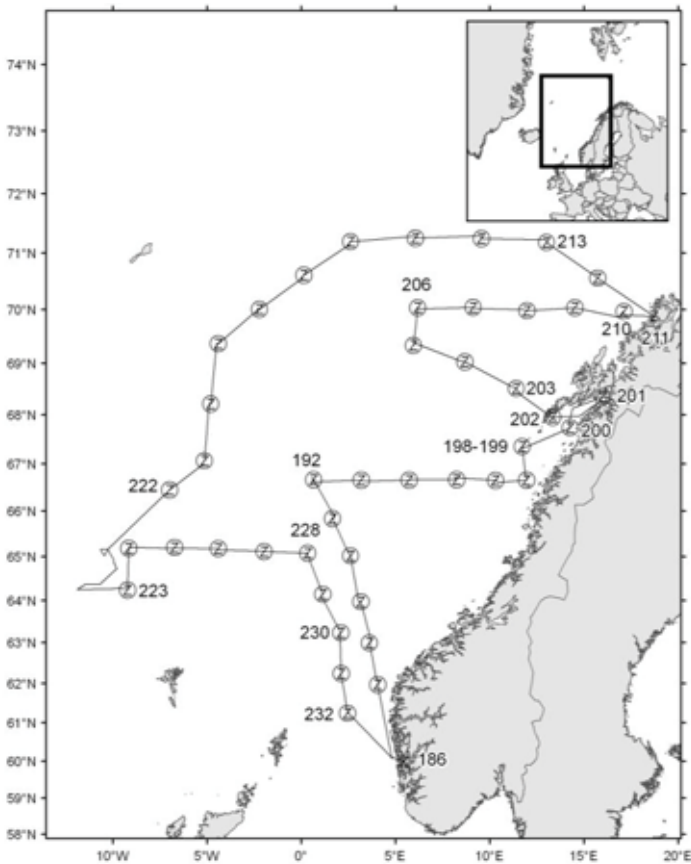
Cruise no 2012108  
 “G.O. Sars”  
 7–30 June 2012

z CTD st.no 160–185  
 In addition to ROV, box and multi cores also two calypso cores and several (>10) gravity cores were collected during the cruise period. The target area for these cores were mainly the Norwegian Channel.



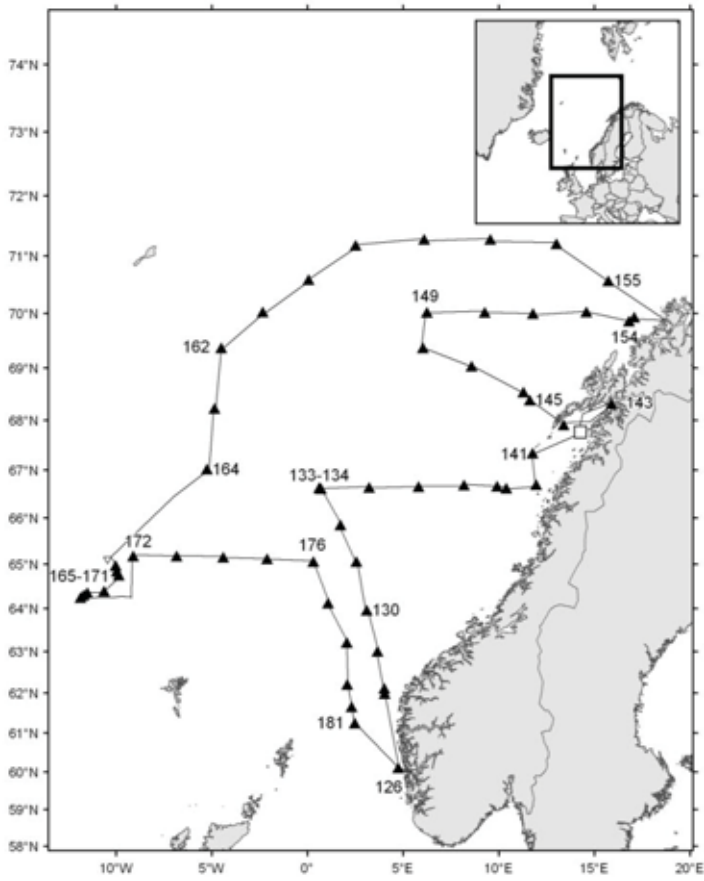
Cruise no 2012108  
 "G.O. Sars"  
 7–30 June 2012

- 15 ROV stations
- \* Box core stations
- Multi core stations



Cruise no 2012118  
 "G.O. Sars"  
 1–21 July 2012

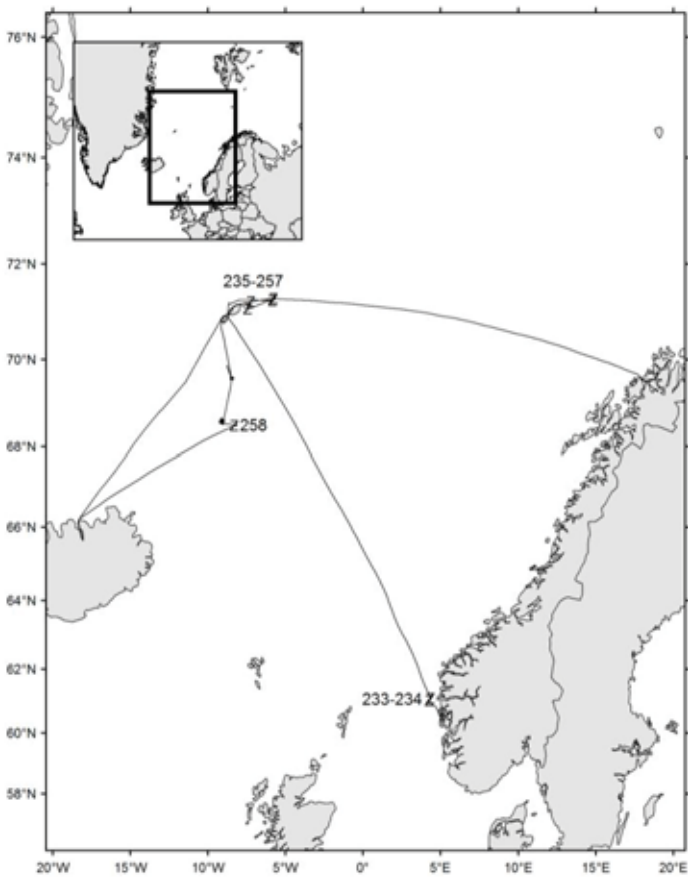
- z CTD st.no 186–232
- O Plankton st. (WP-II-net)



Cruise no 2012118  
 “G.O. Sars”  
 1–21 July 2012

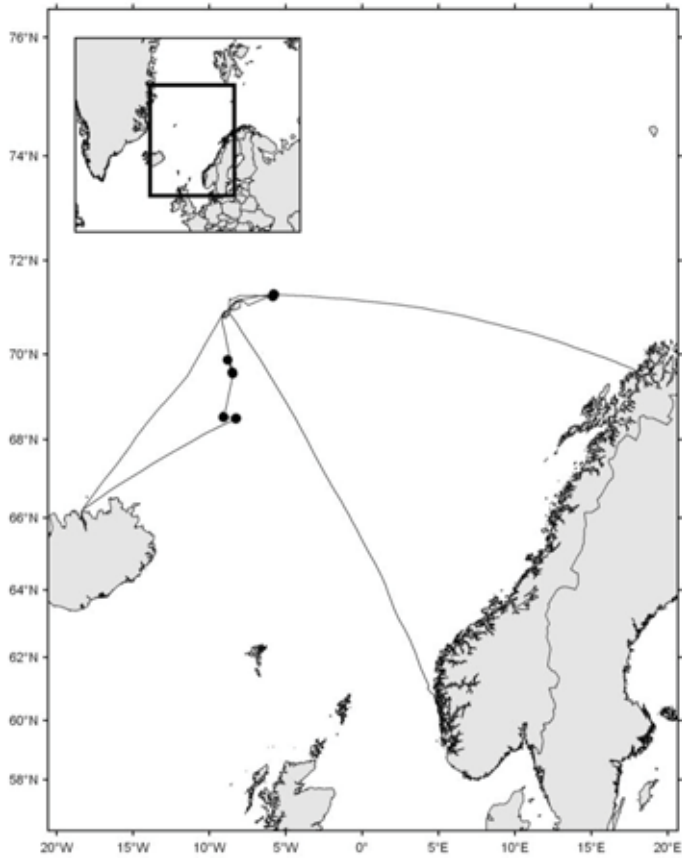
Trawl st.no 126–181

- ▲ Pelagic trawl
- Bottom trawl



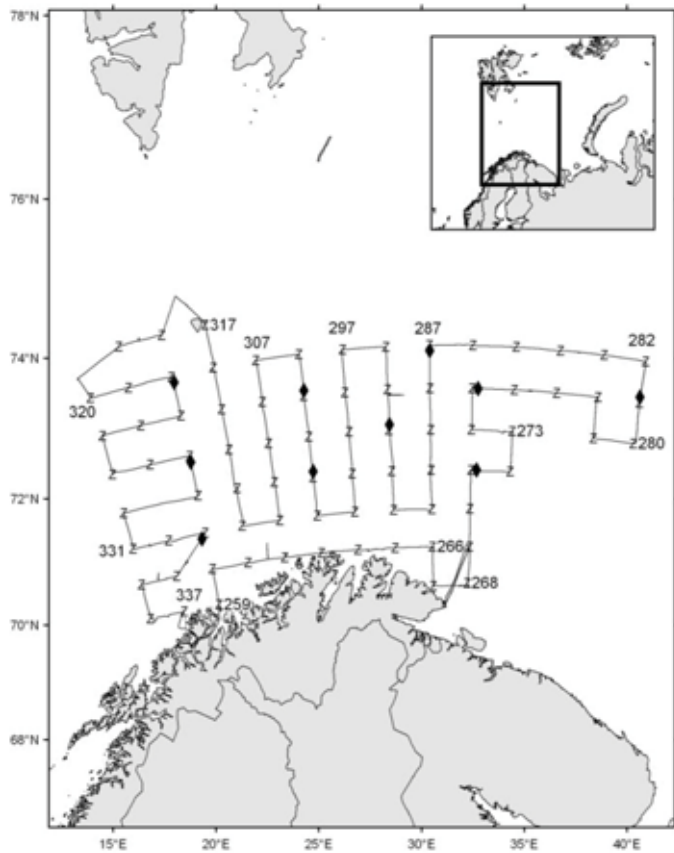
Cruise no 2012109  
 “G.O. Sars”  
 23 July–16 Aug 2012

z CTD st.no 233–258



Cruise no 2012109  
 "G.O. Sars"  
 23 July–16 Aug 2012

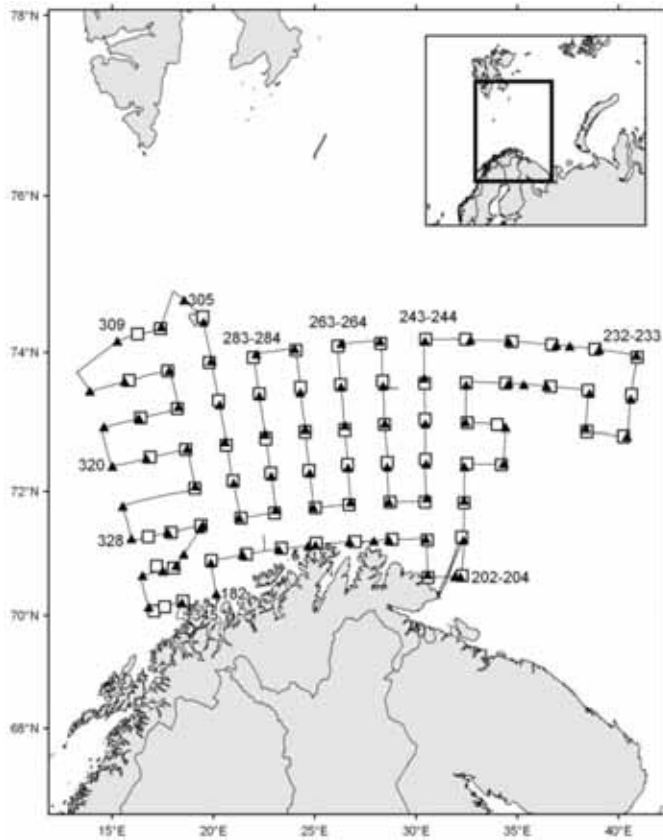
● ROV stations



Cruise no 2012111  
 "G.O. Sars"  
 18 Aug–12 Sep 2012

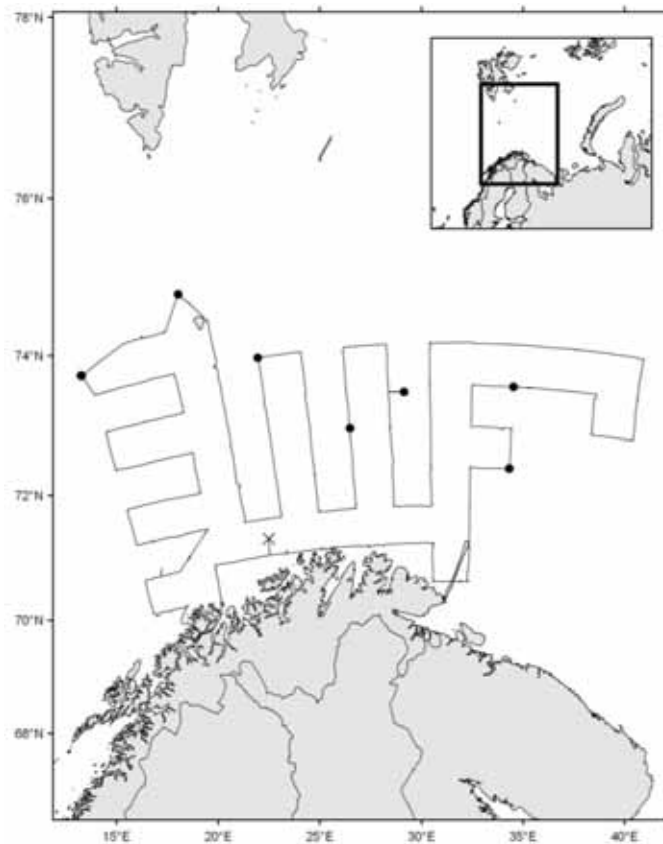
Z CTD st.no 259–337  
 Plankton st. (WP-II-net) at every CTD st.

◆ Mocness st.



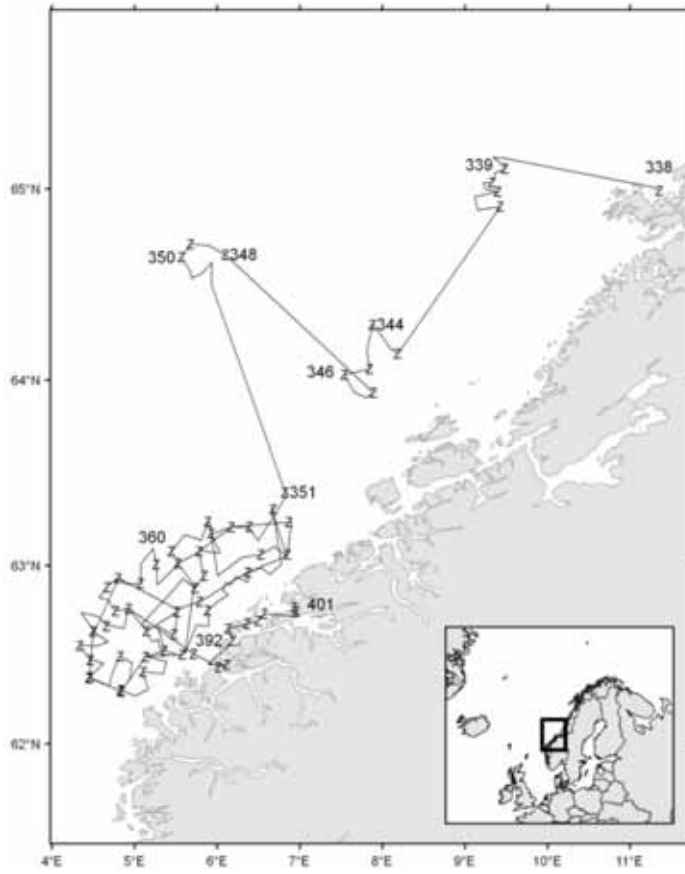
Cruise no 2012111  
 "G.O. Sars"  
 18 Aug–12 Sep 2012

Trawl st.no 182–345  
 ▲ Pelagic trawl  
 □ Bottom trawl



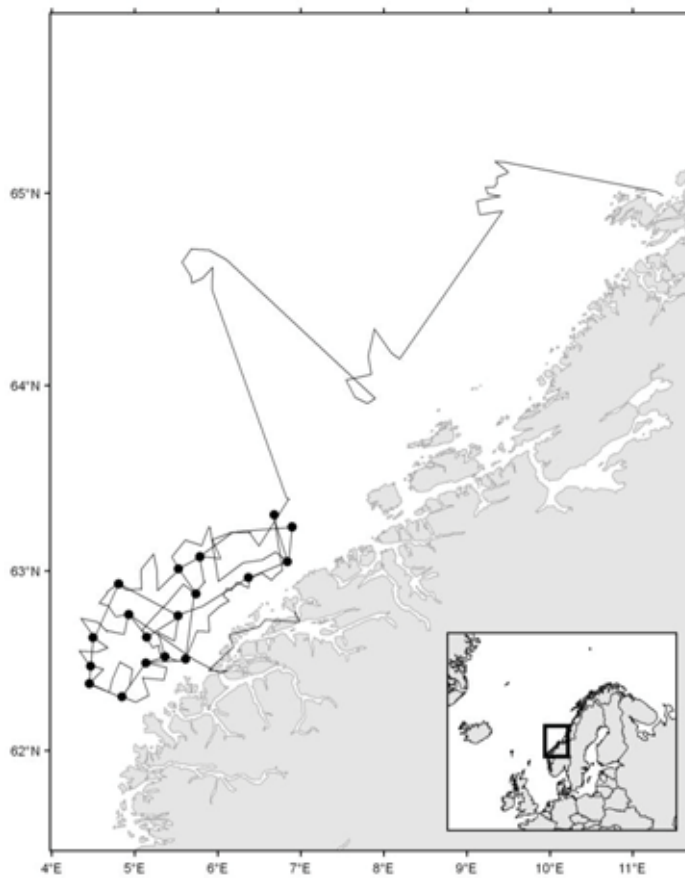
Cruise no 2012111  
 "G.O. Sars"  
 18 Aug–12 Sep 2012

● Grab stations  
 X ROV station



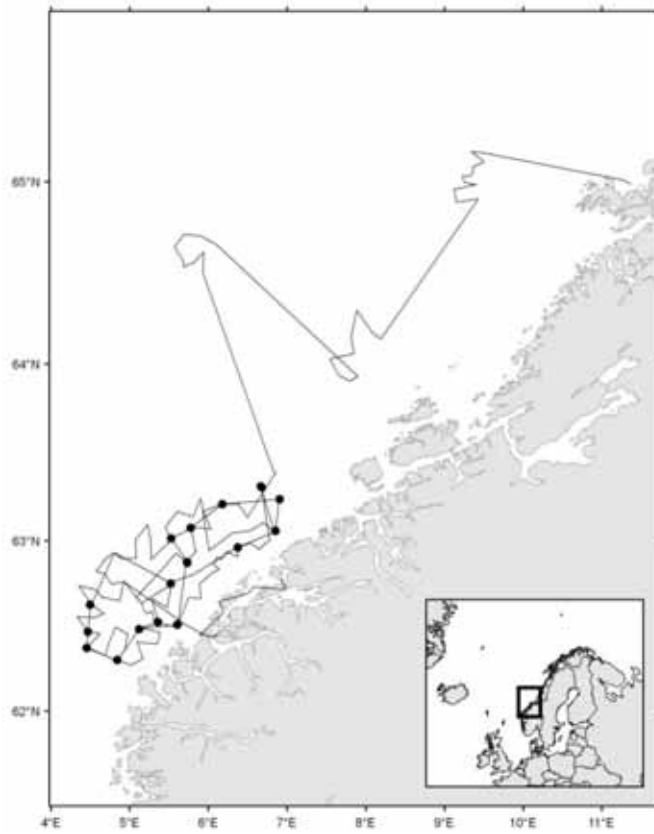
Cruise no 2012110  
 "G.O. Sars"  
 14 Sep–7 Oct 2012

z CTD st.no 338–401



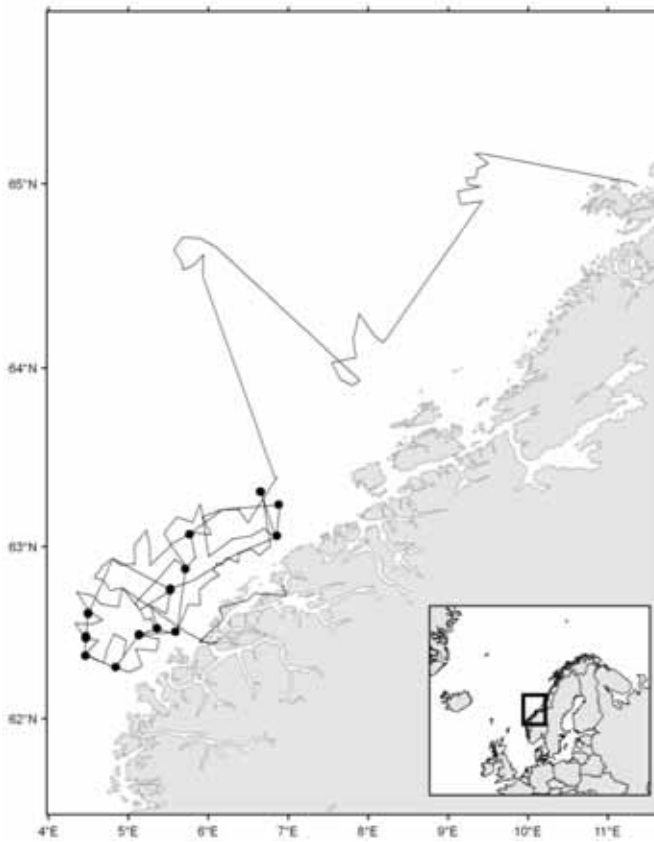
Cruise no 2012110  
 "G.O. Sars"  
 14 Sep–7 Oct 2012

● Grab station



Cruise no 2012110  
 "G.O. Sars"  
 14 Sep–7 Oct 2012

● Beam trawl



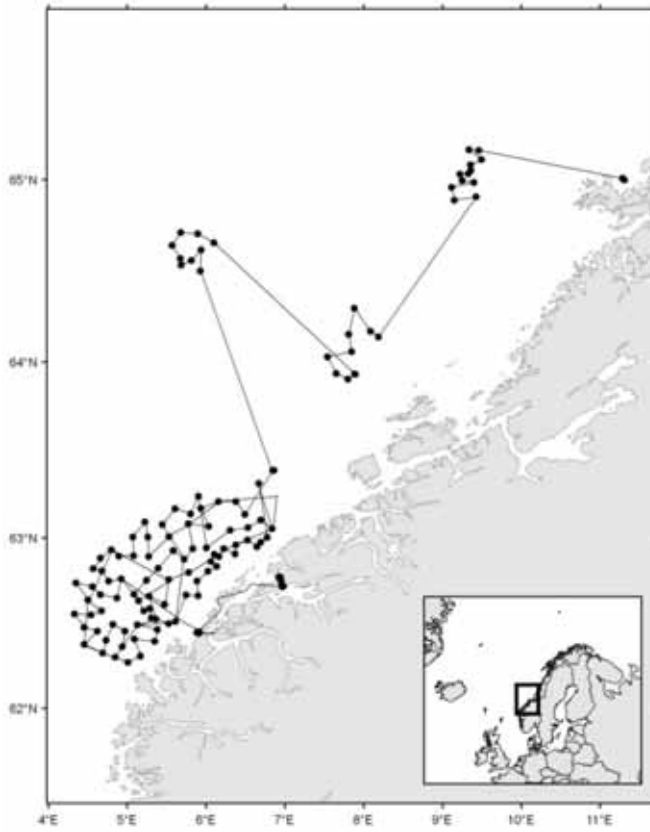
Cruise no 2012110  
 "G.O. Sars"  
 14 Sep–7 Oct 2012

● Sledge station



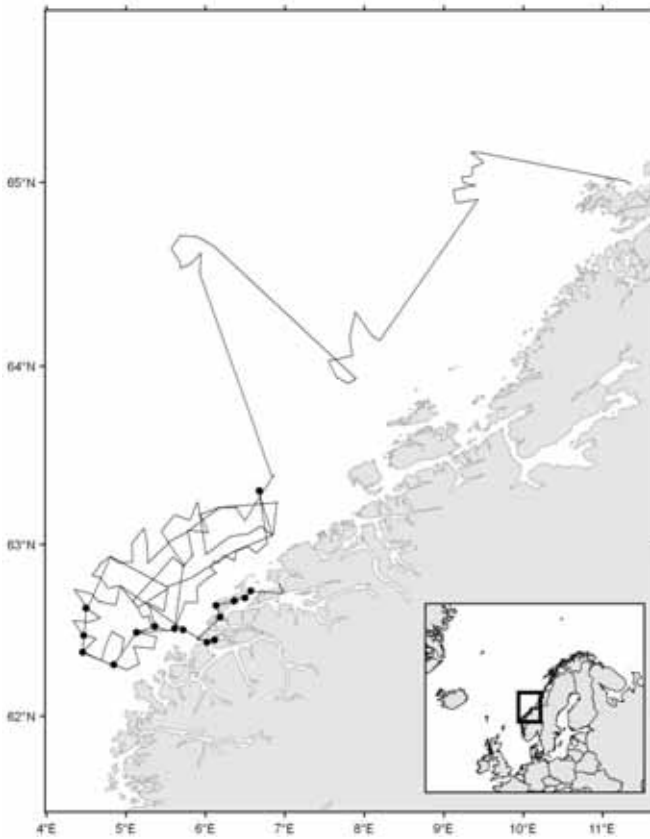
Cruise no 2012110  
"G.O. Sars"  
14 Sep–7 Oct 2012

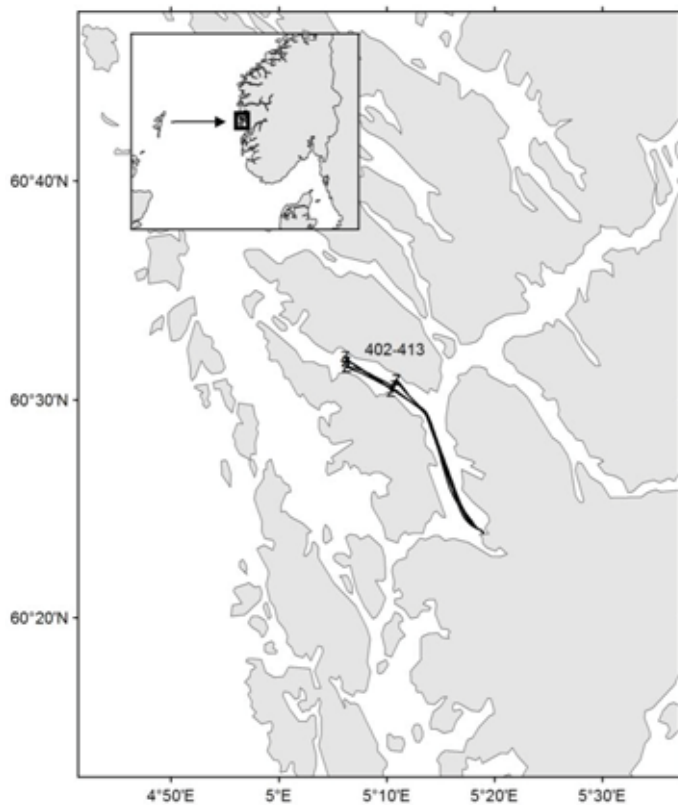
● Video station



Cruise no 2012110  
"G.O. Sars"  
14 Sep–7 Oct 2012

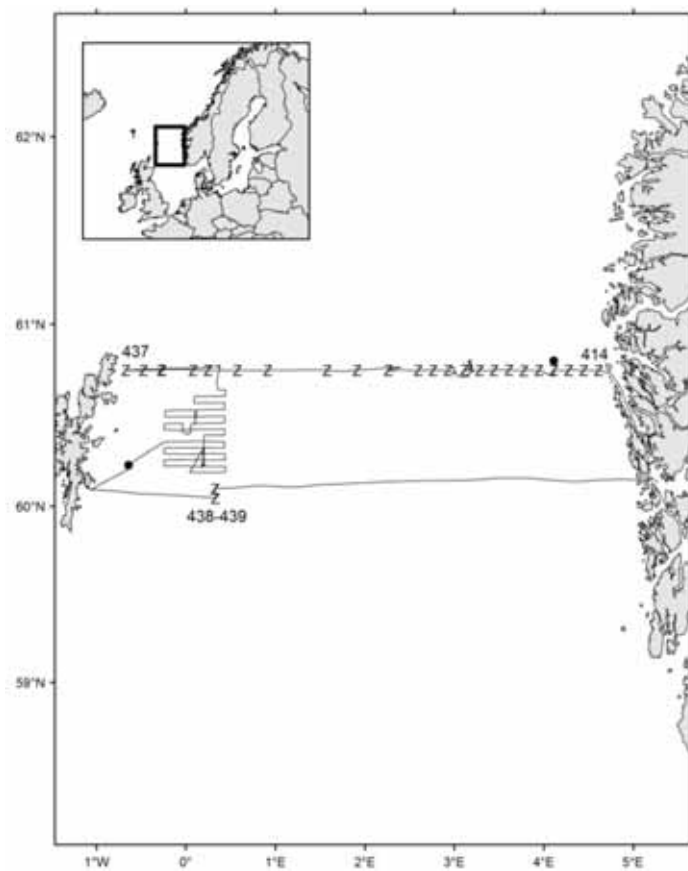
● ROV





Cruise no 2012113  
 “G.O. Sars”  
 12–13 October 2012

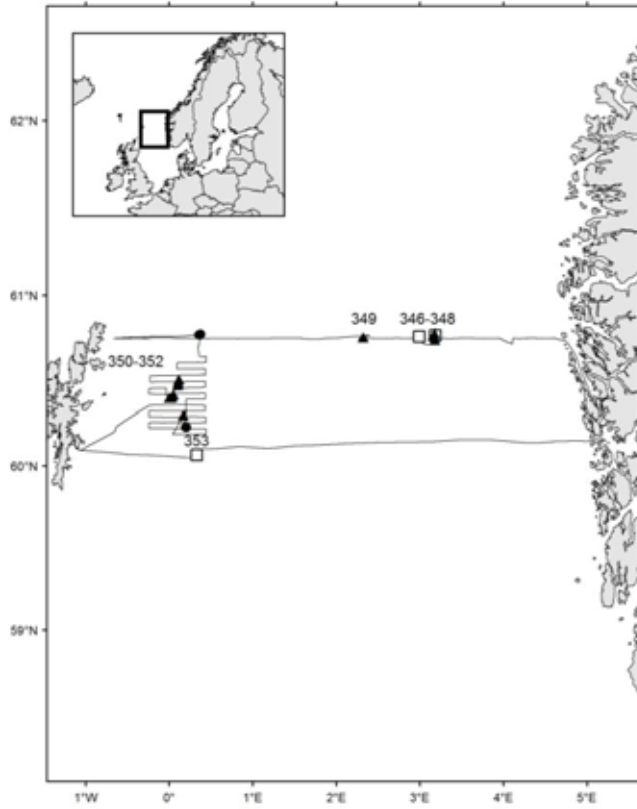
z CTD st.no 402–413



Cruise no 2012114  
 “G.O. Sars”  
 14–20 October 2012

z CTD st.no 414–439  
 ● Mik stations

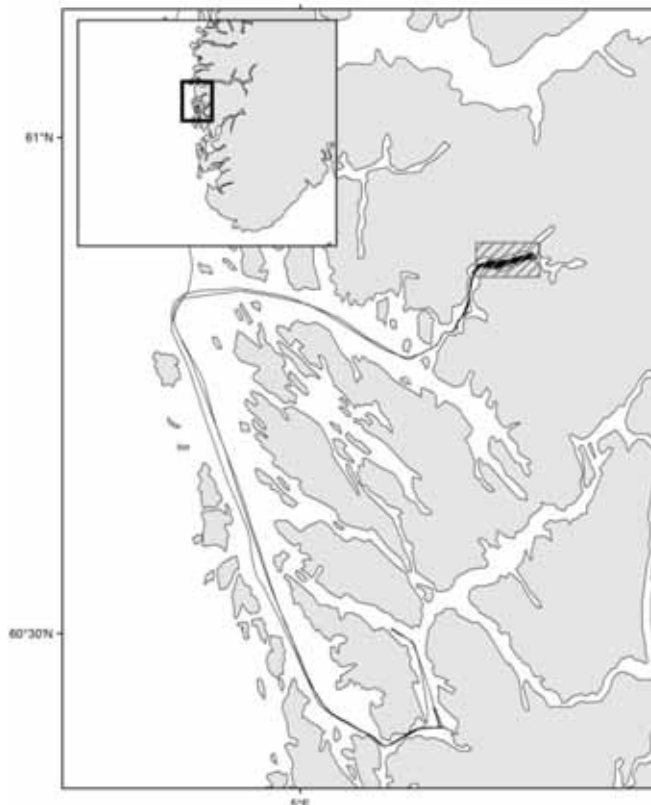
Standard section:  
 Fedje–Shetland st.no 414–437



Cruise no 2012114  
 “G.O. Sars”  
 14–20 October 2012

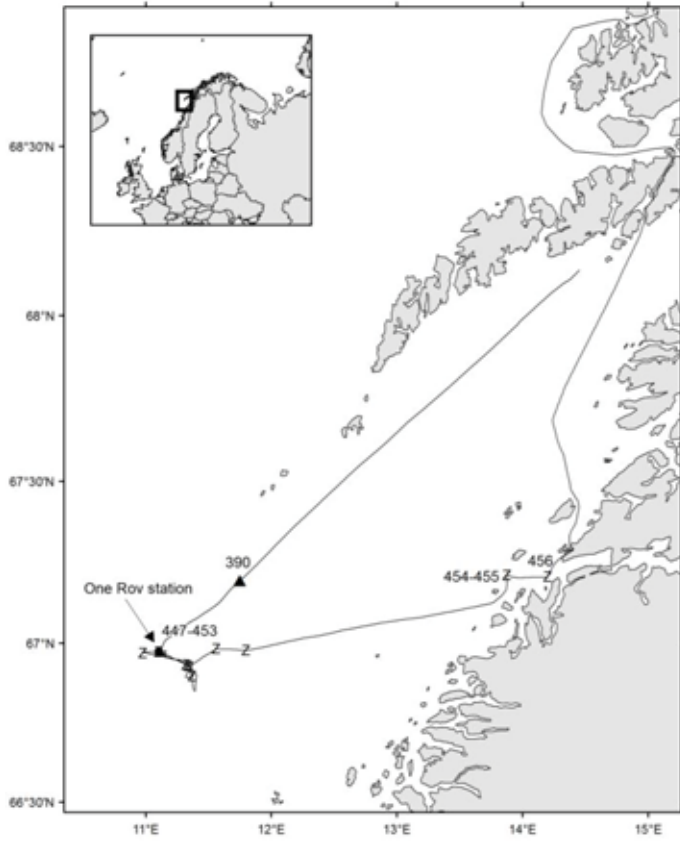
Trawl st.no 346–353

- ▲ Pelagic trawl
- Bottom trawl
- Beam trawl



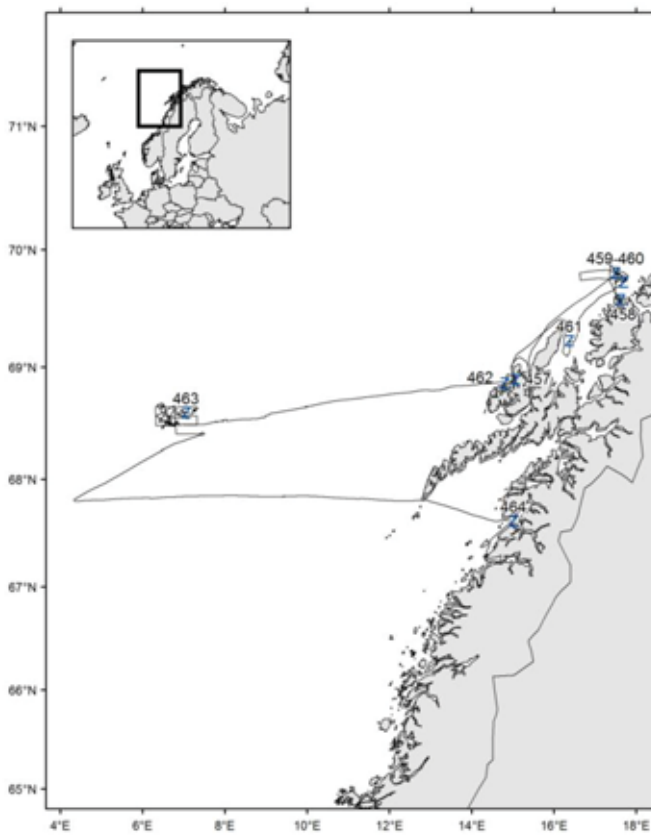
Cruise no 2012115  
 “G.O. Sars”  
 21–26 October 2012

- ▨ Area for field course
- CTD st.no 440–446
- Trawl st.no 354–372



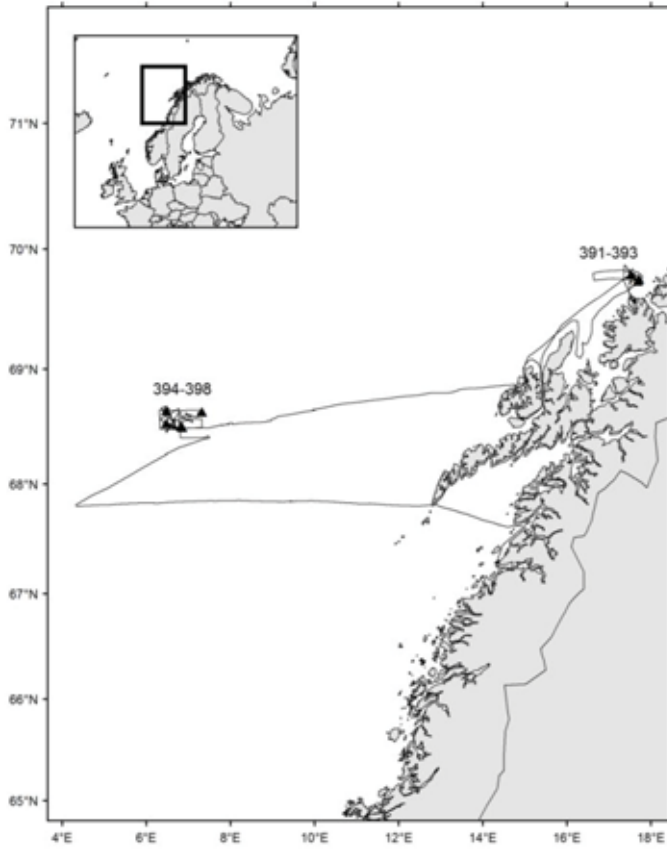
Cruise no 2012112  
 "G.O. Sars"  
 4–6 November 2012

z CTD st.no 447–456  
 ▲ Pelagic trawl st.no 390



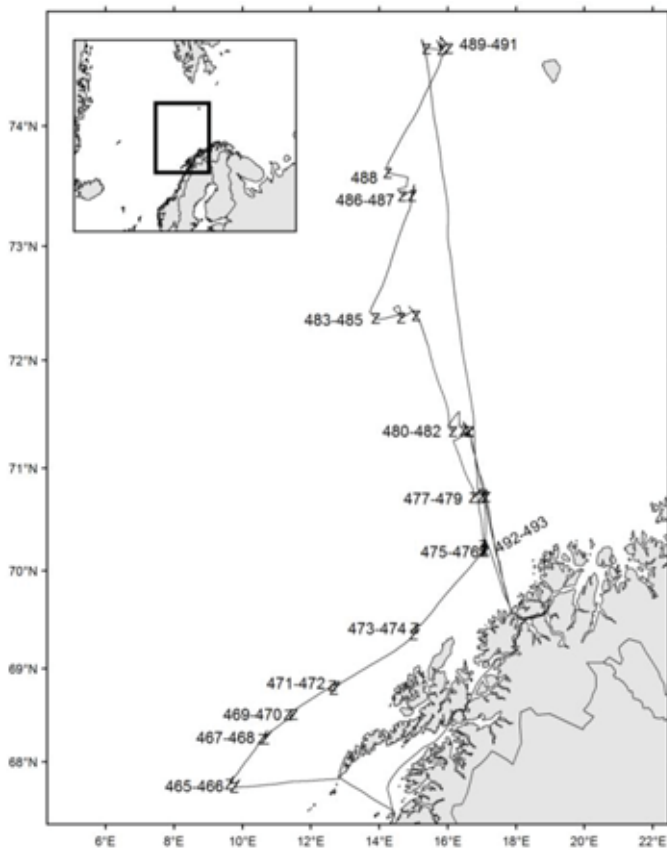
Cruise no 2012116  
 "G.O. Sars"  
 9–23 November 2012

CTD st.no 457–464



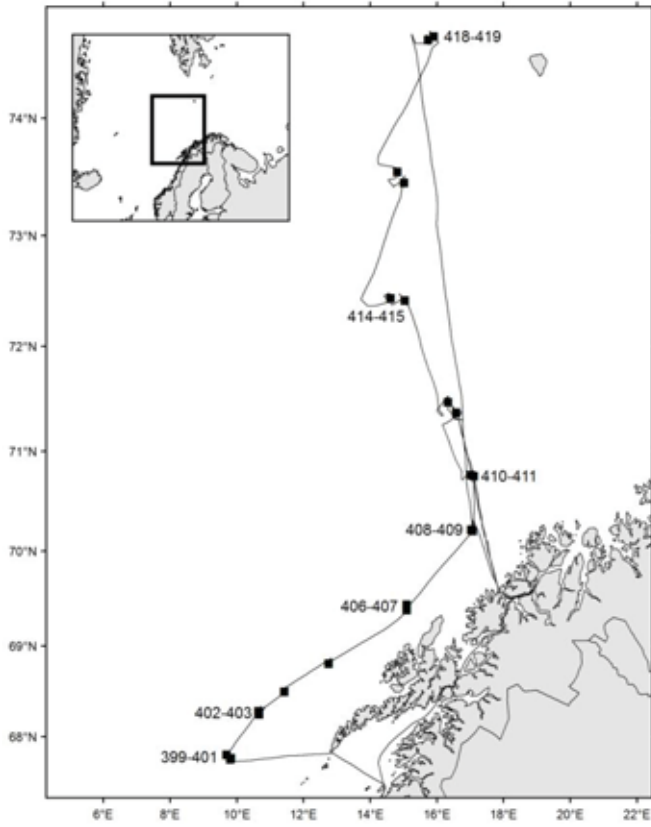
Cruise no 2012116  
 “G.O. Sars”  
 9–23 November 2012

▲ Pelagic trawl st.no 391–398



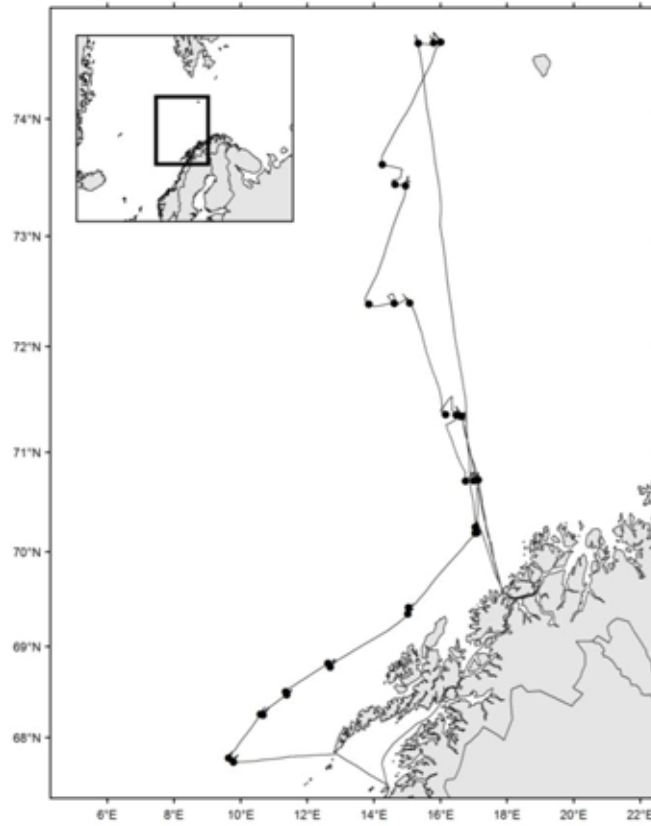
Cruise no 2012117  
 “G.O. Sars”  
 24 Nov–7 Dec 2012

z CTD st.no 465–493



Cruise no 2012117  
 "G.O. Sars"  
 24 Nov–7 Dec 2012

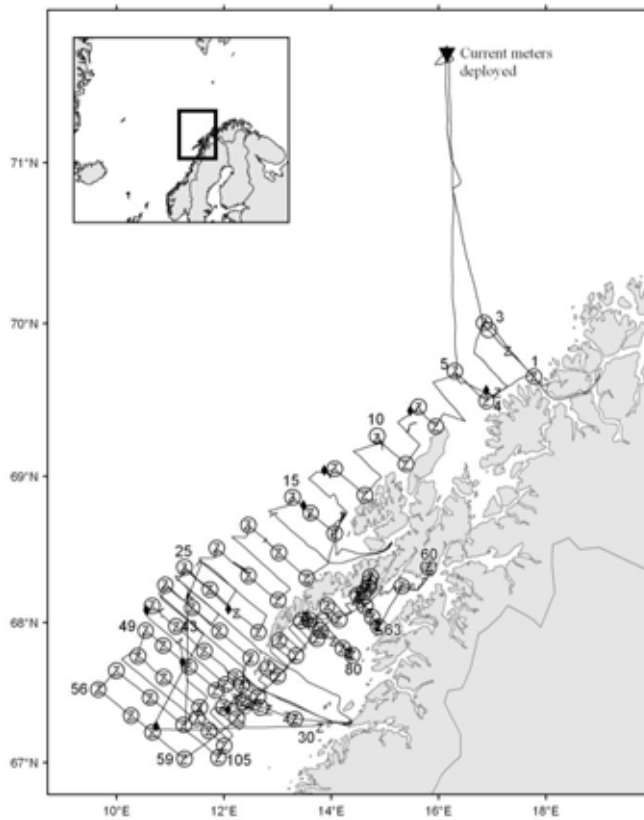
■ Bottom trawl st.no 399–419



Cruise no 2012117  
 "G.O. Sars"  
 24 Nov–7 Dec 2012

● Multinet

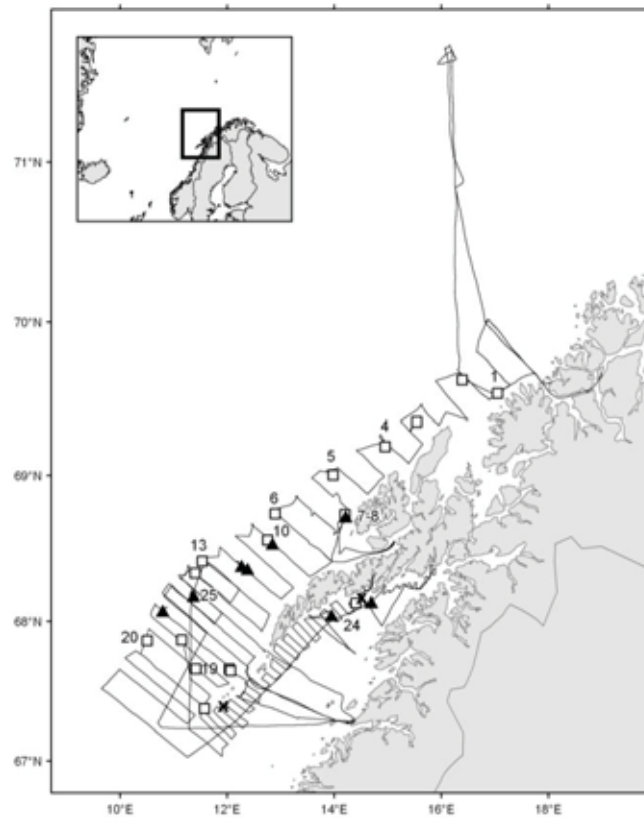
## 4.2 Johan Hjort



Cruise no 2012203  
 "Johan Hjort"  
 16 Mars–8 April 2012

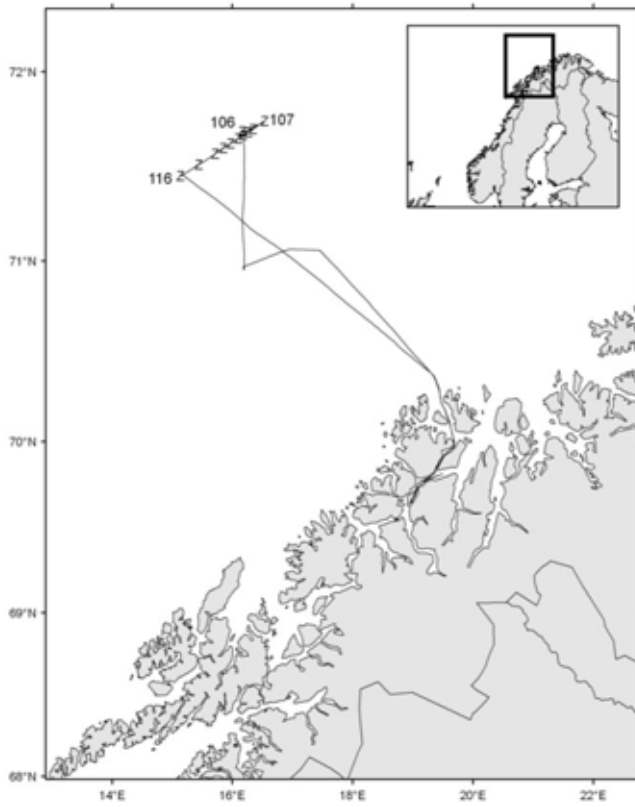
- z CTD st.no 1–105
- o Egg/larvae st. (WP-II-net)
- ◆ Egg/larvae st. (Mocness st.)

Standard sections:  
 Tennholmen–Røst st.no 32–40  
 Ballstad–Måløy/Skarholmen st.no 80–91  
 Kabelvåg–Steigen

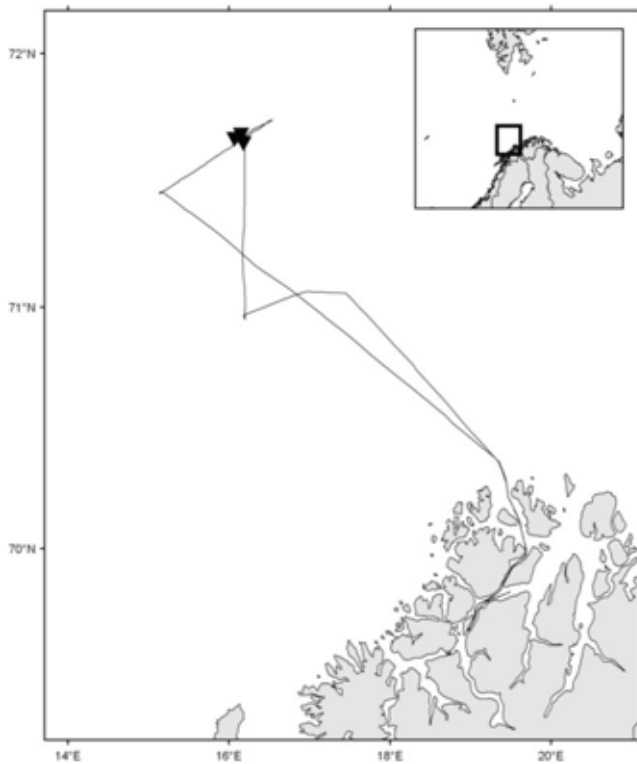


Cruise no 2012203  
 "Johan Hjort"  
 16 Mars–8 April 2012

- Trawl st.no 1–25
- Bottom trawl
- ▲ Pelagic trawl
- x Handlines

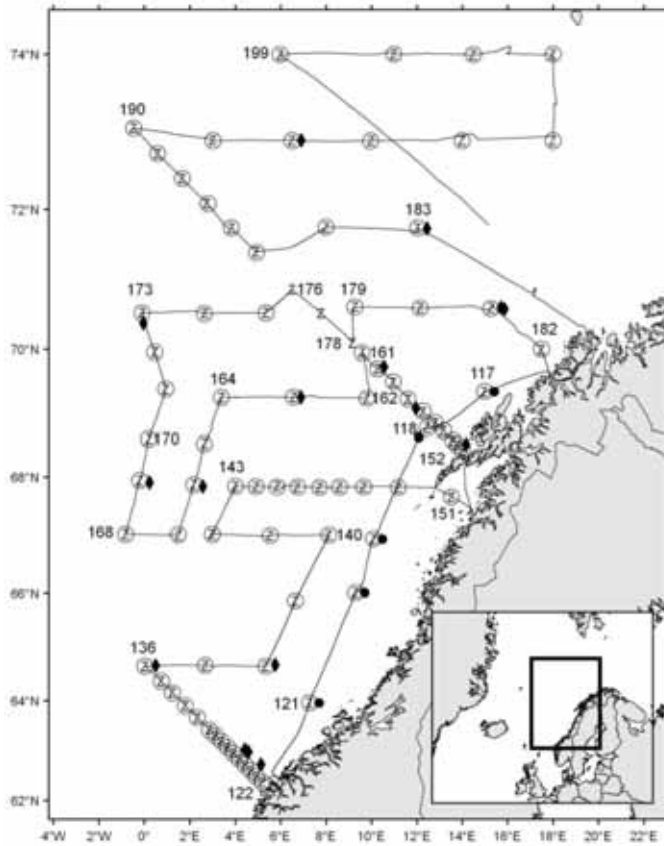


Cruise no 2012204  
 “Johan Hjort”  
 27–30 April 2012  
 z CTD st.no 106–116



Cruise no 2012204  
 “Johan Hjort”  
 27–30 April 2012  
 ▼ Two moorings recovered,  
 one mooring not covered

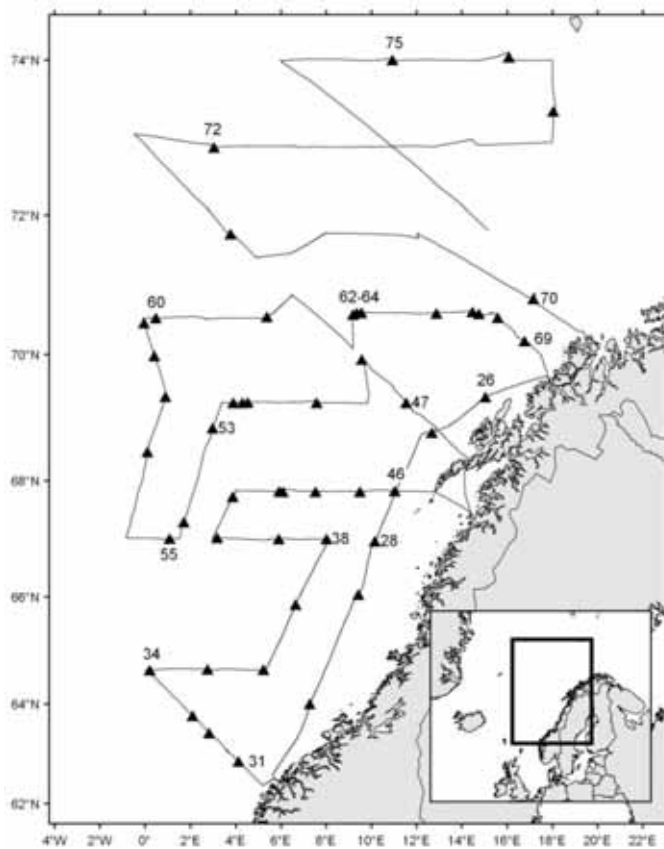




Cruise no 2012205  
 “Johan Hjort”  
 3 May–1 June 2012

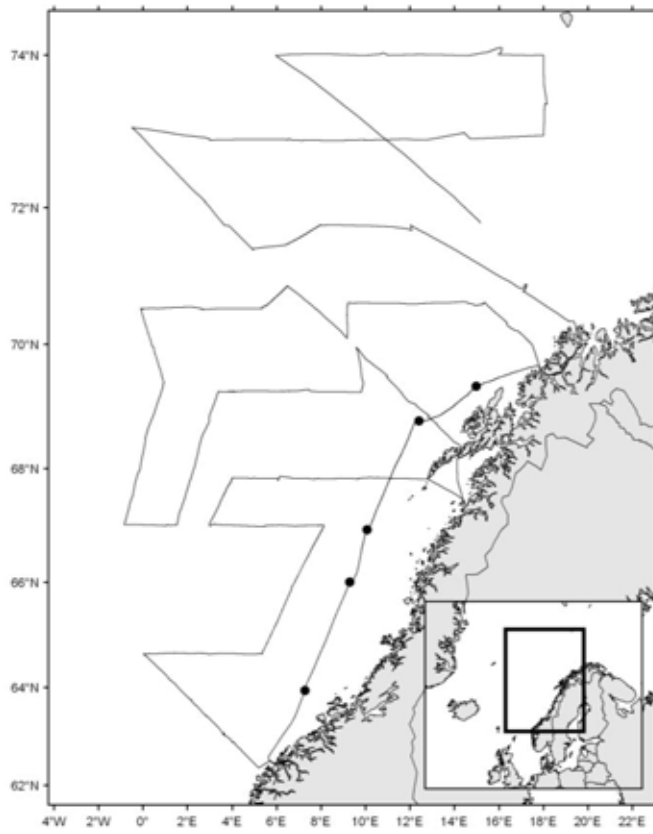
- z CTD st.no 117–199
- o Plankton st. (WP-II-net)
- ◆ Plankton st. (Mocness)
- Mik stations

Standard sections:  
 Svinøy-NW st.no 122–136  
 Gimsøy-NW st.no 152–161, 176–178



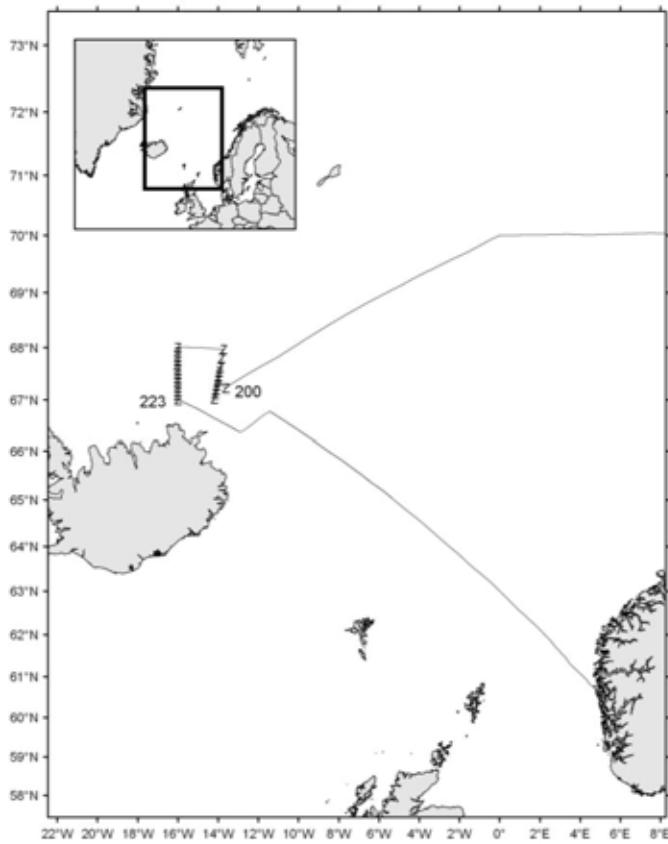
Cruise no 2012205  
 “Johan Hjort”  
 3 May–1 June 2012

- ▲ Pelagic trawl st.no 26–75



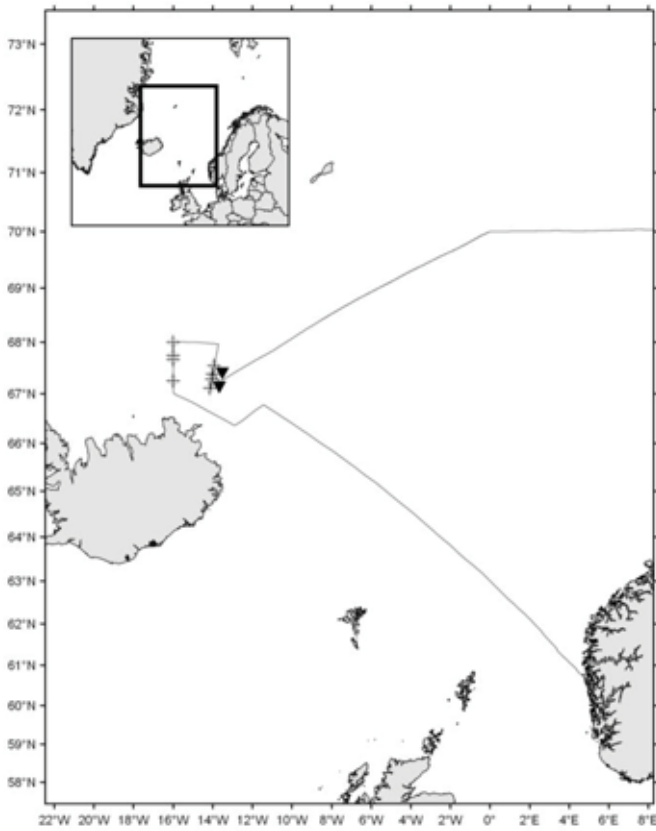
Cruise no 2012205  
 "Johan Hjort"  
 3 May–1 June 2012

- Mik stations



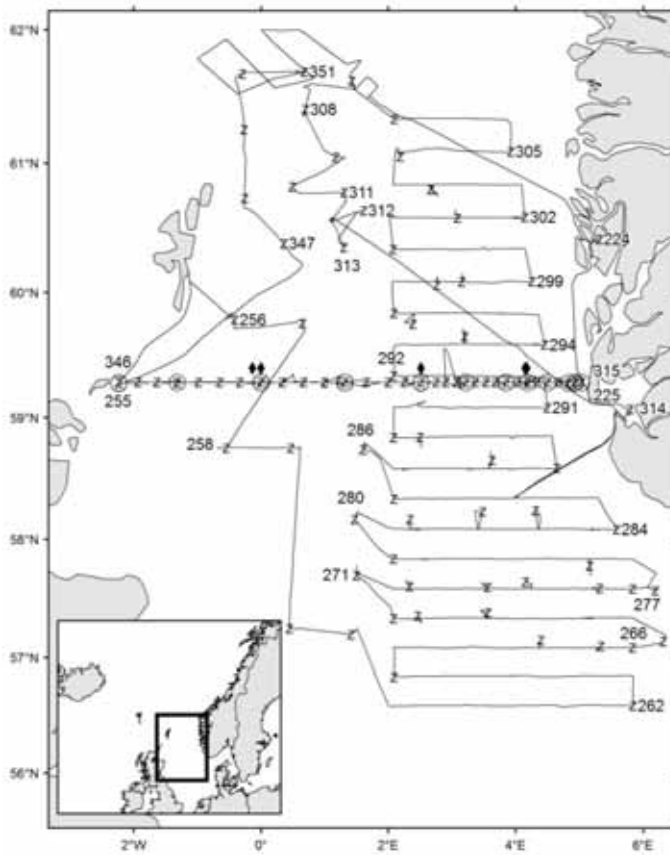
Cruise no 2012206  
 "Johan Hjort"  
 3–11 June 2012

z CTD st.no 200–223



Cruise no 2012206  
 "Johan Hjort"  
 3–11 June 2012

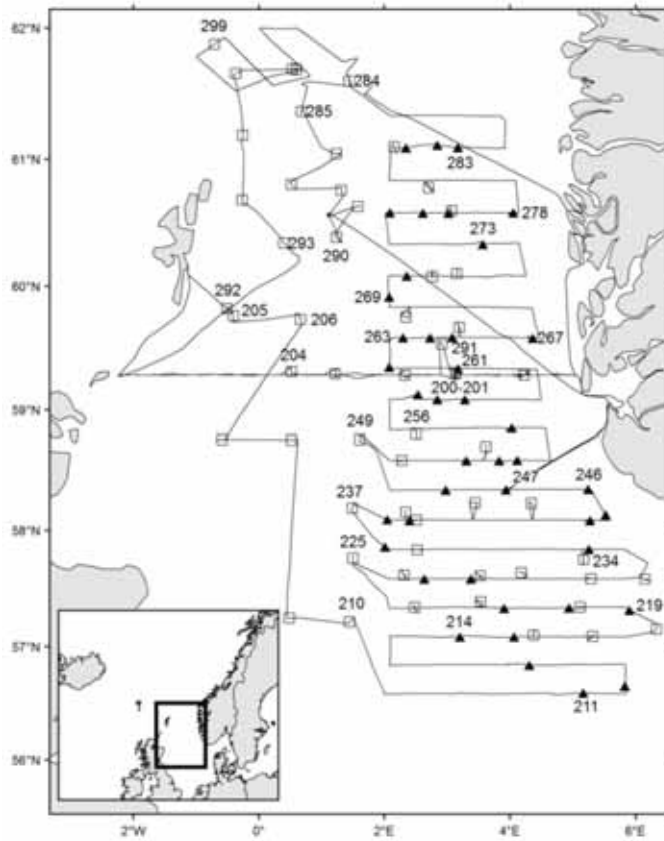
▼ Deployment of current moorings  
 + Drifters deployed



Cruise no 2012207  
 "Johan Hjort"  
 25 June–23 July 2012

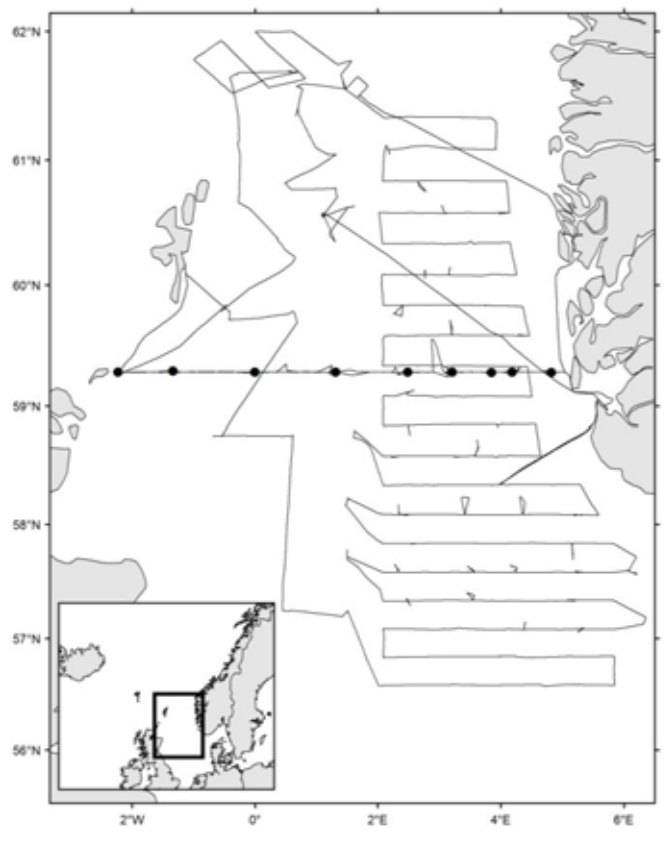
z CTD st.no 224–351  
 o Plankton st. (WP-II-net)  
 ◆ Moored st.

Standard section:  
 Utsira-W st.no 225–255 and 315–346



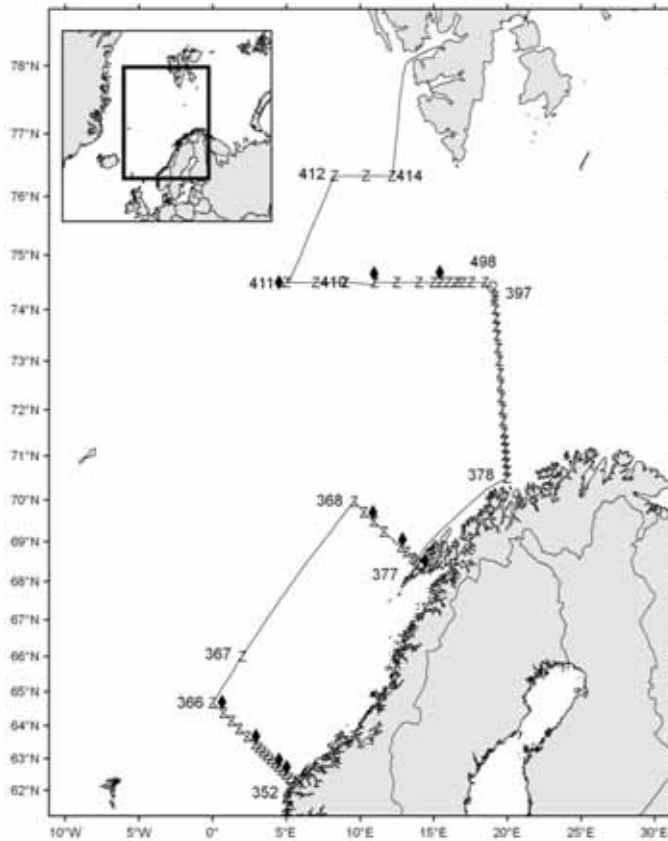
Cruise no 2012207  
 “Johan Hjort”  
 25 June–23 July 2012

- ▲ Pelagic trawl
- Bottom trawl



Cruise no 2012207  
 “Johan Hjort”  
 25 June–23 July 2012

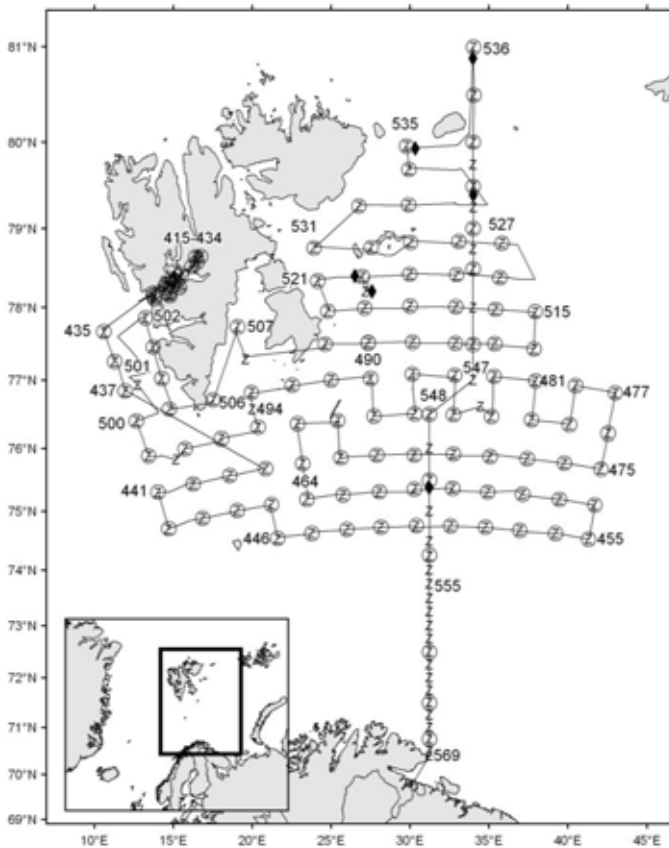
- Mik stations



Cruise no 2012208  
 “Johan Hjort”  
 1–14 August 2012

Z CTD st.no 352–414  
 Plankton st. (WP-II-net) at every CTD st.  
 ♦ Mocness st. (plankton st.)

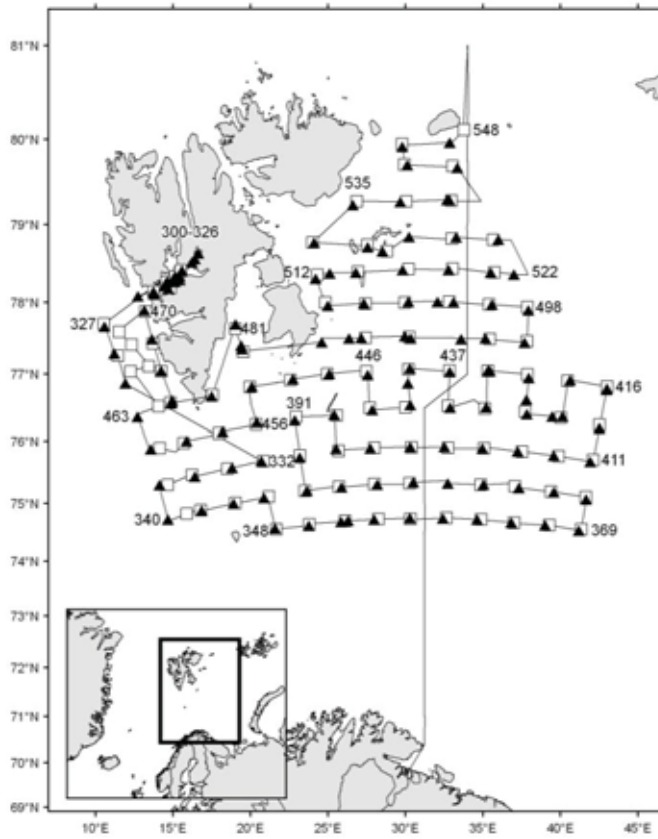
Standard sections:  
 Svinøy-NW st.no 352–366  
 Gimsøy-NW st.no 368–377  
 Fugløya–Bjørnøya st.no 378–397  
 Bjørnøya-W st.no 398–411  
 Sørkapp-W st.no 412–414



Cruise no 2012209  
 “Johan Hjort”  
 14 Aug–30 Sep 2012

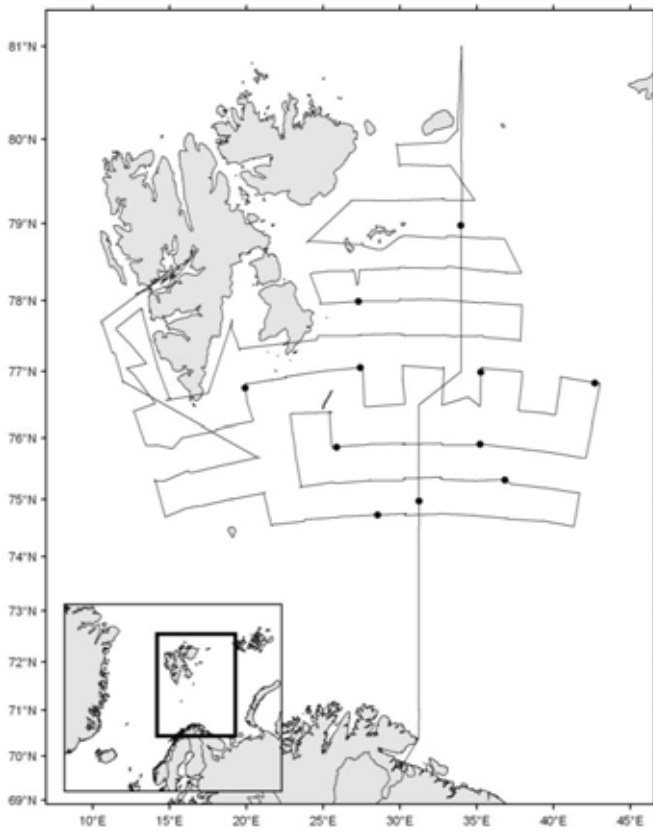
z CTD st.no 415–569  
 o Plankton st. (WP-II-net)  
 ♦ Mocness st. (plankton st.)

Standard section:  
 Vardø-N st.no 548–569



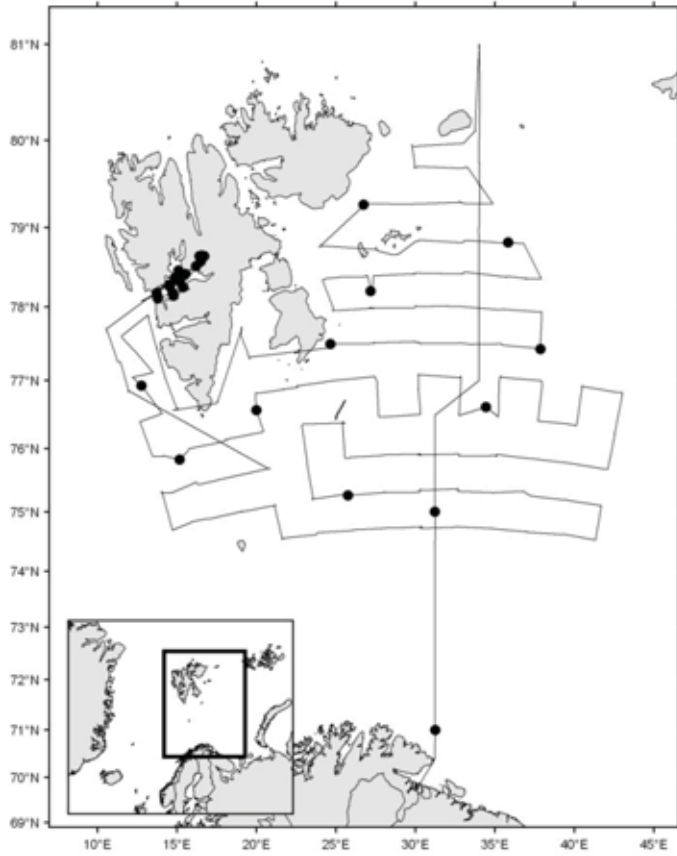
Cruise no 2012209  
 "Johan Hjort"  
 14 Aug–30 Sep 2012

Trawl st.no 300–548  
 ▲ Pelagic trawl  
 □ Bottom trawl



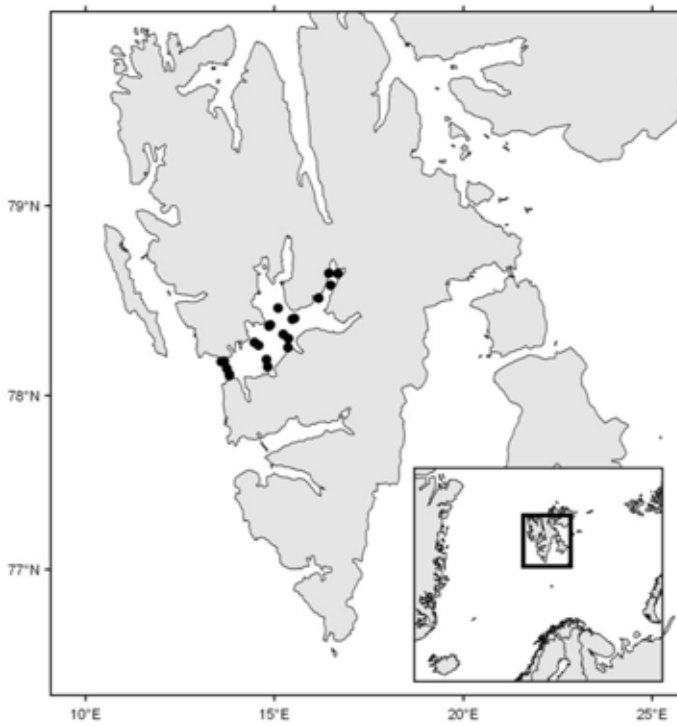
Cruise no 2012209  
 "Johan Hjort"  
 14 Aug–30 Sep 2012

● Krill trawl



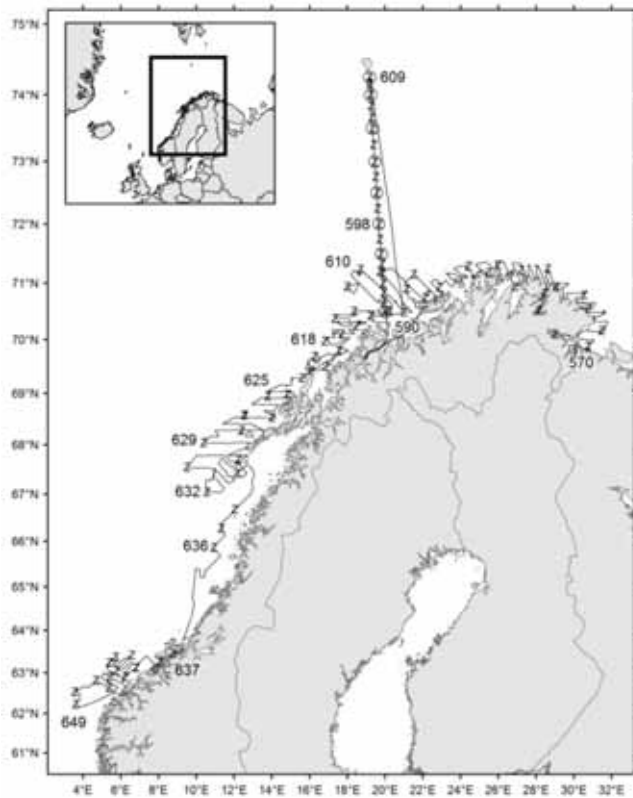
Cruise no 2012209  
 “Johan Hjort”  
 14 Aug–30 Sep 2012

- Grab station



Cruise no 2012209  
 “Johan Hjort”  
 14 Aug–30 Sep 2012

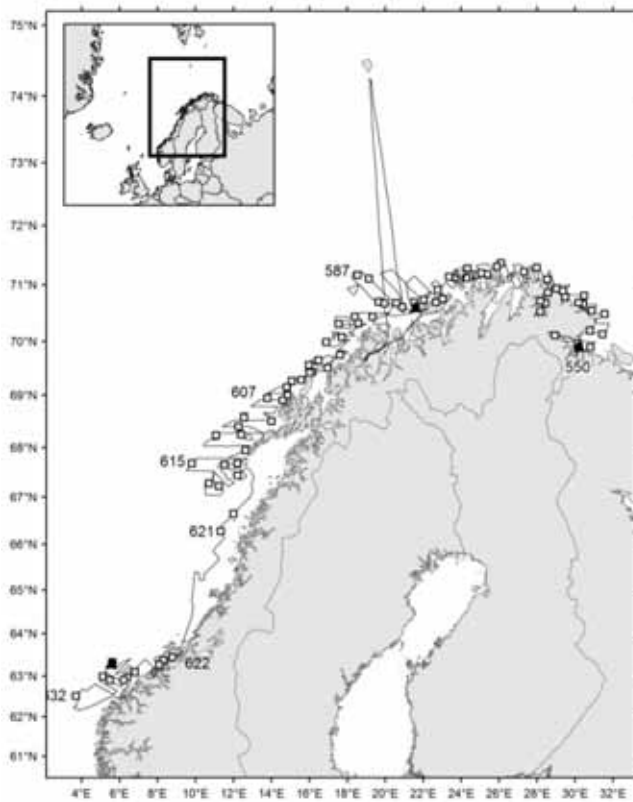
- Beam trawl (taken at first part)



Cruise no 2012210  
 "Johan Hjort"  
 2–30 October 2012

z CTD st.no 570–649  
 o Plankton st.

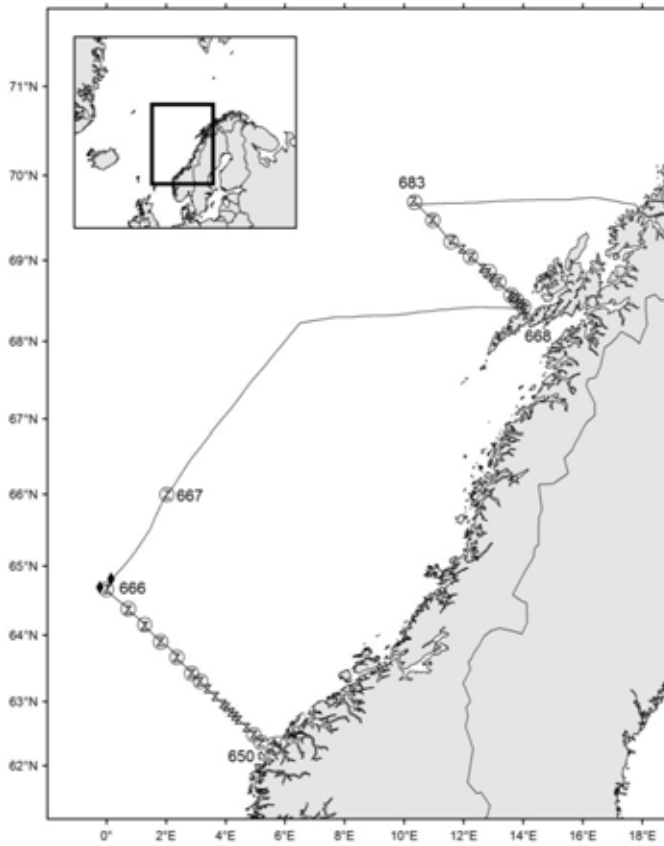
Standard section:  
 Fugløya–Bjørnøya st.no 590–609



Cruise no 2012210  
 "Johan Hjort"  
 2–30 October 2012

Trawl st.no 550–632  
 ▲ Pelagic trawl  
 □ Bottom trawl

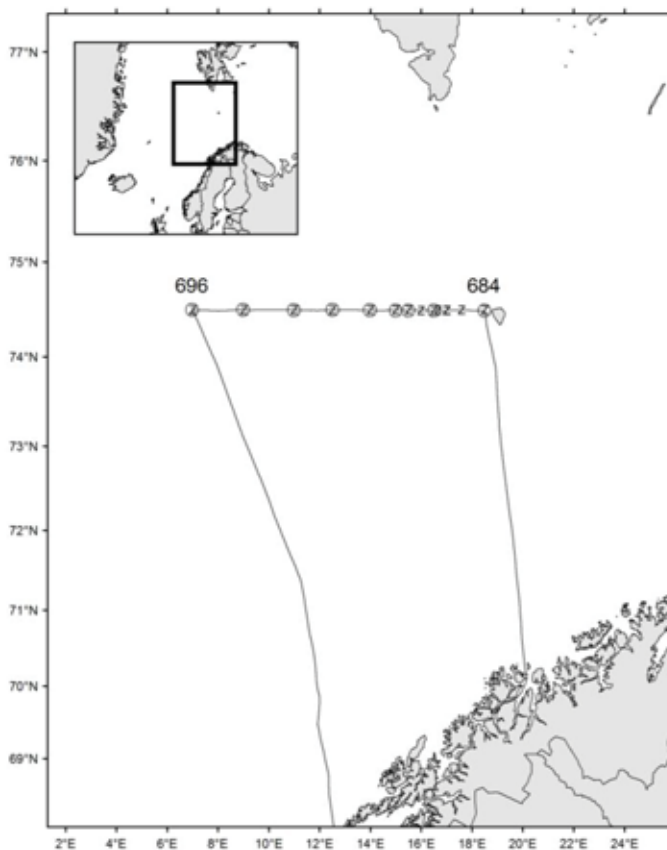




Cruise no 2012211  
 "Johan Hjort"  
 31 Oct–7 Nov 2012

z CTD st.no 650–683  
 o Plankton st. (WP-II-net)  
 ◆ Mocness st. (plankton st.)

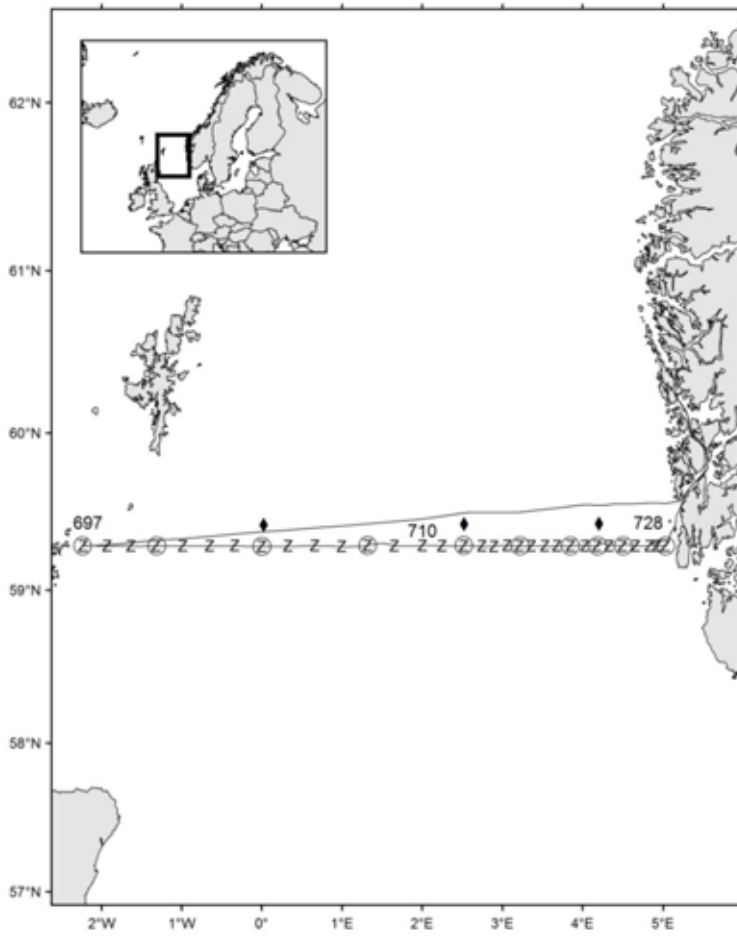
Standard section:  
 Svinøy-NW st.no 650–666  
 Gimsøy-NW st.no 668–683



Cruise no 2012212  
 "Johan Hjort"  
 7–14 November 2012

z CTD st.no 684–696  
 o Plankton st. (WP-II-net)

Standard section:  
 Bjørnøya-W st.no 684–696

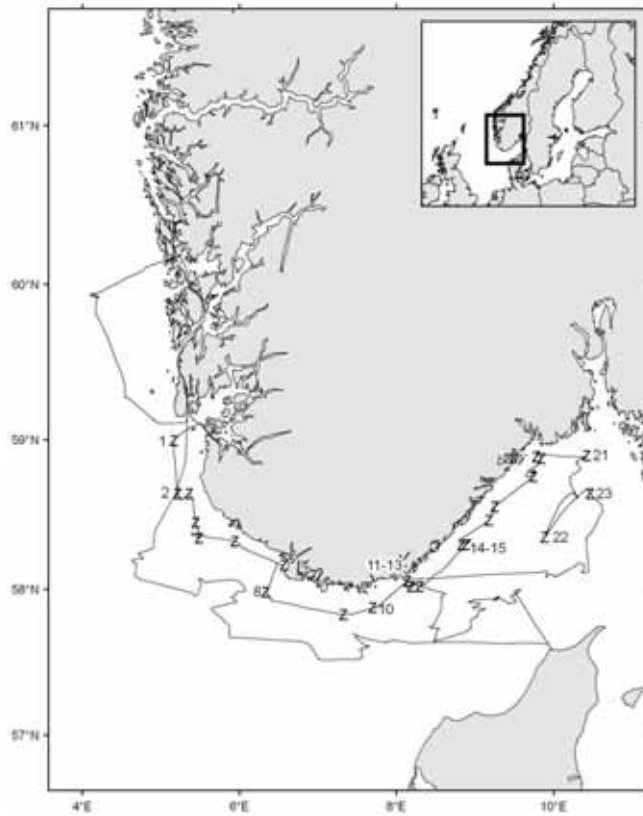


Cruise no 2012213  
 "Johan Hjort"  
 20–23 November 2012

z CTD st.no 697–728  
 o Plankton st. (WP-II-net)  
 ◆ Plankton st. (Mocness)

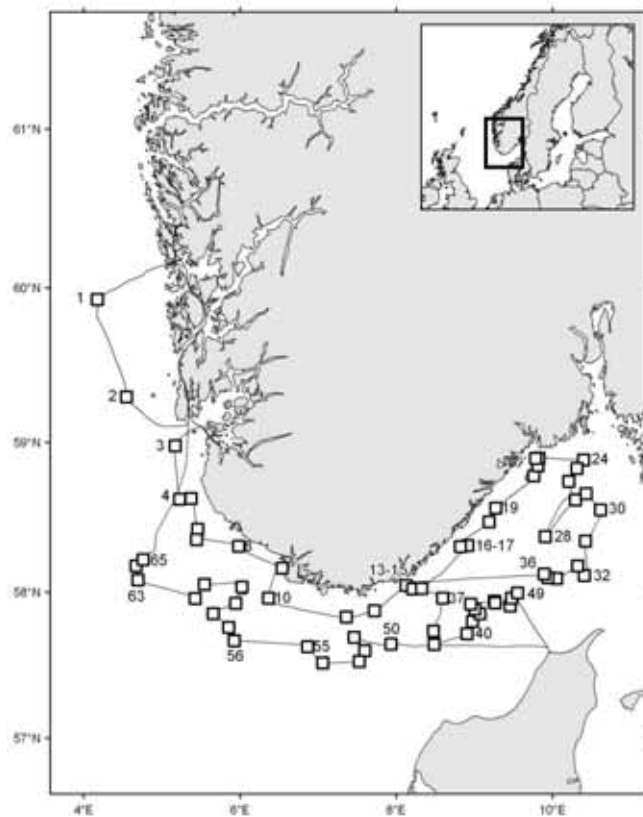
Standard section:  
 Utsira-W st.no 697–728

### 4.3 Håkon Mosby



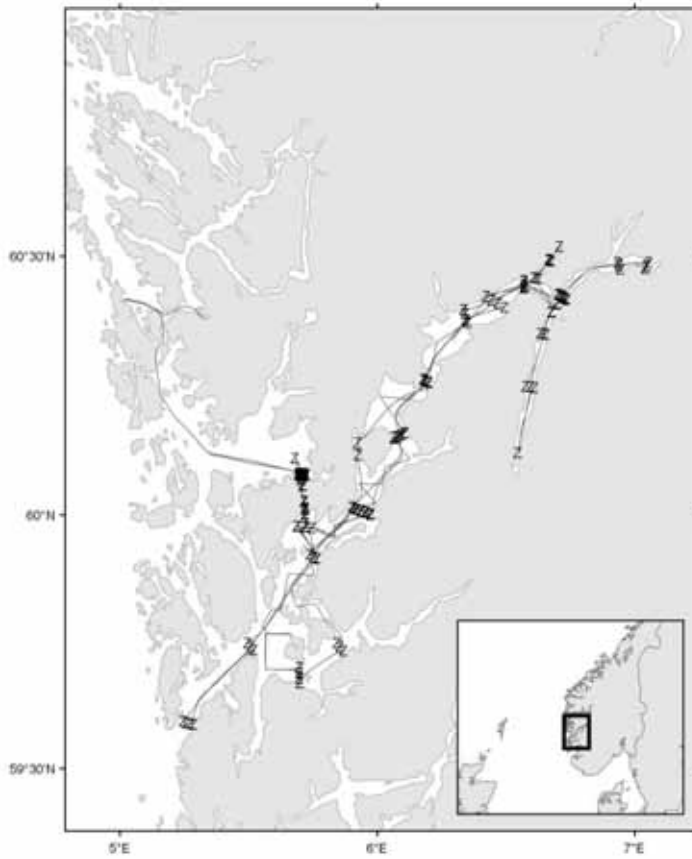
Cruise no 2012601  
“Håkon Mosby”  
9–24 January 2012

z CTD st.no 1–23



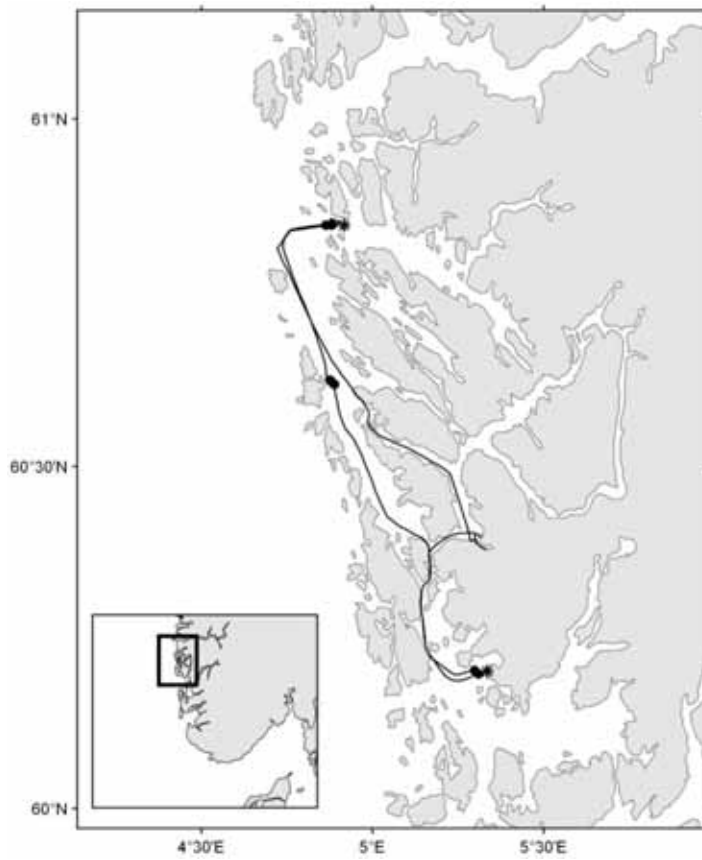
Cruise no 2012601  
“Håkon Mosby”  
9–24 January 2012

□ Bottom trawl st.no 1–65



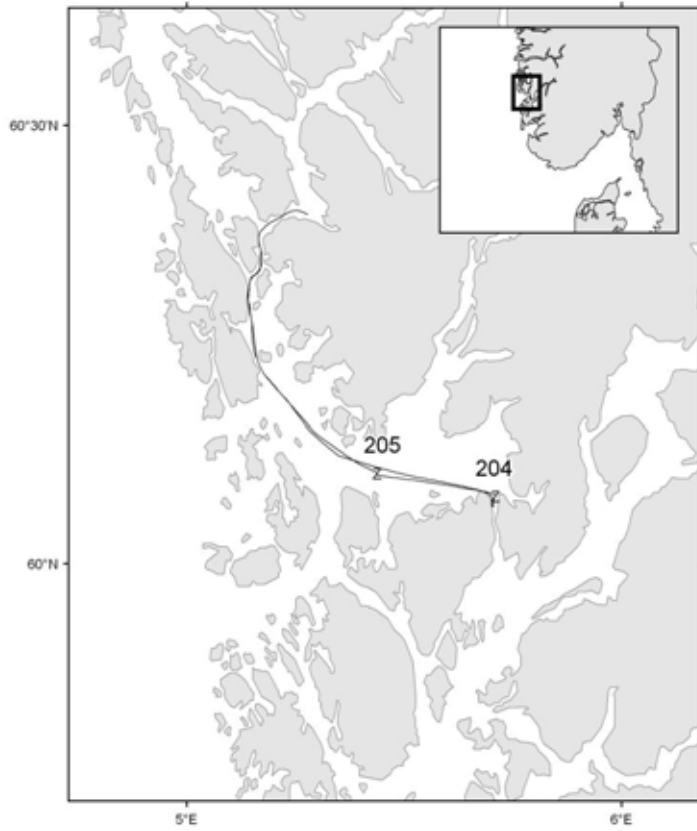
Cruise no 2012602  
 “Håkon Mosby”  
 3–9 February 2012

- z CTD st.no 24–203
- Bottom trawl st.no 66



Cruise no 2012603  
 “Håkon Mosby”  
 13–14 February 2012

- Sledge stations
- \* ROV stations



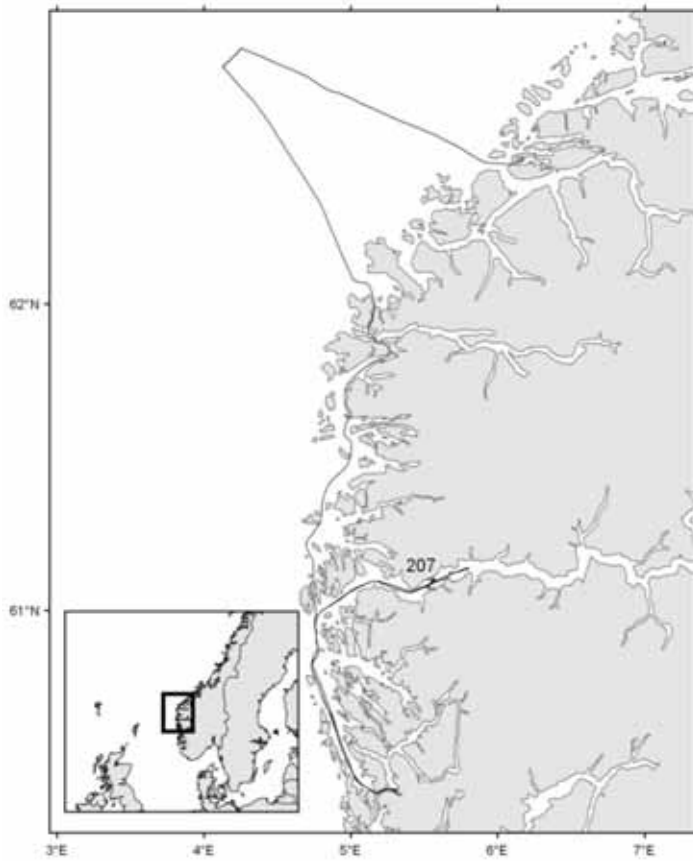
Cruise no 2012604  
 “Håkon Mosby”  
 24 February 2012

z CTD st.no 204–205



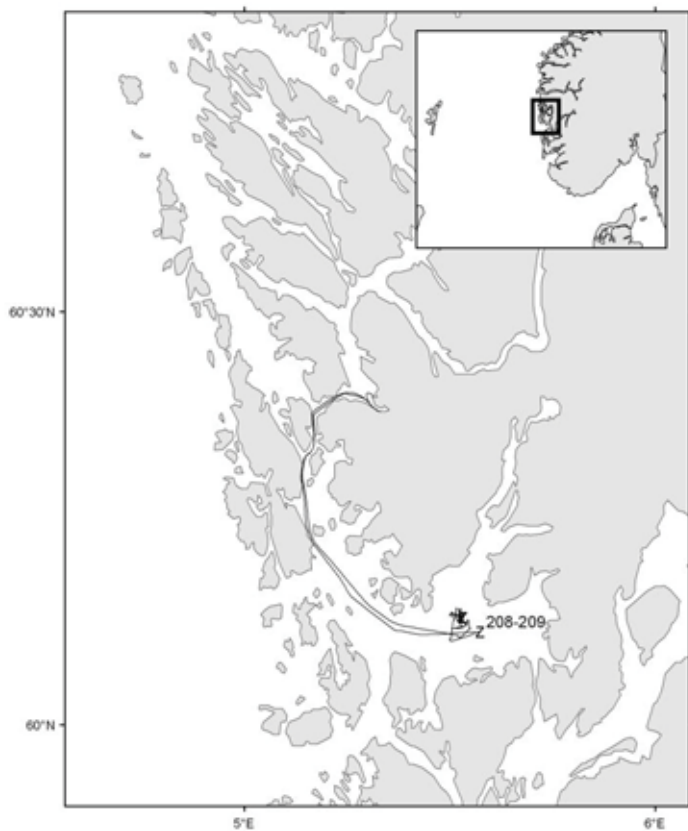
Cruise no 2012605  
 “Håkon Mosby”  
 5–6 Mars 2012

z CTD st.no 206  
 Recovery a bottom-anchored  
 mooring line



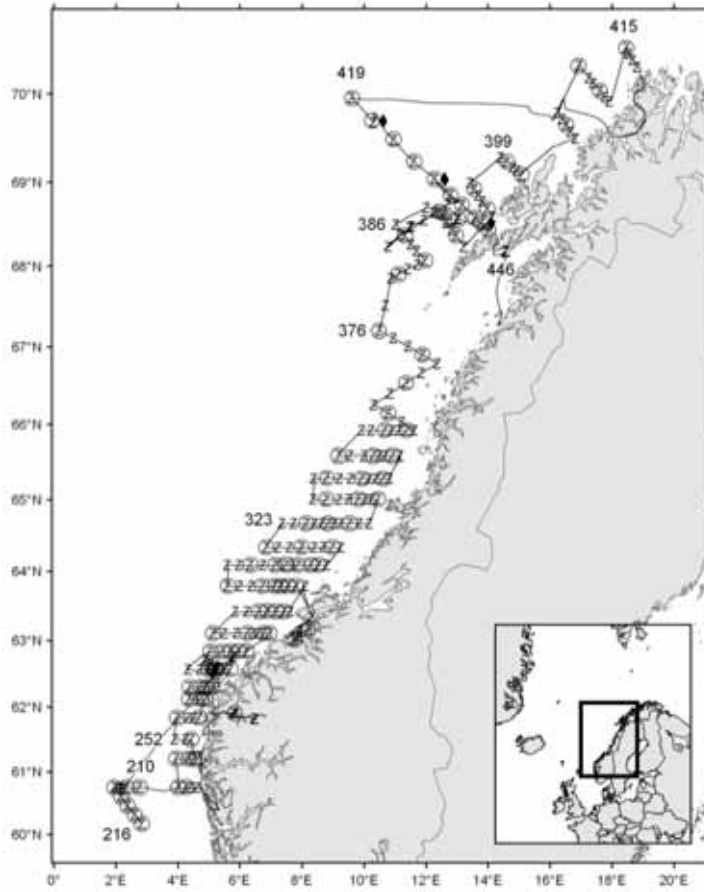
Cruise no 2012606  
 “Håkon Mosby”  
 7–14 Mars 2012

z CTD st.no 207  
 Serve the current meter array in the  
 Svinøy section.  
 Test of iROBOT seagliders in  
 Sognefjorden.



Cruise no 2012626  
 “Håkon Mosby”  
 15–16 Mars 2012

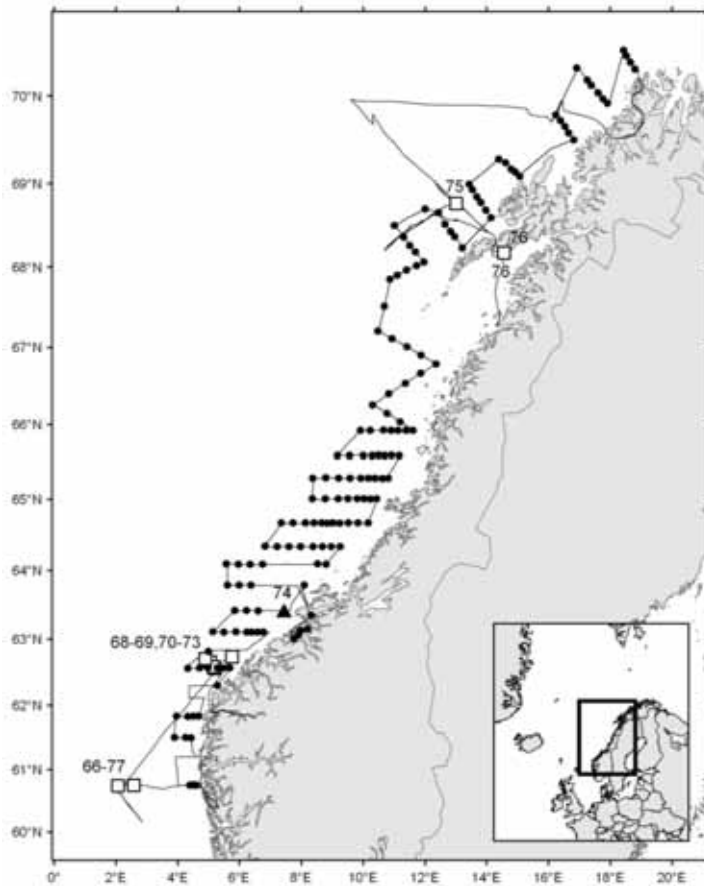
z CTD st.no 208–209  
 A physical oceanography cruise with the  
 main task to test two Slocum Webb gliders



Cruise no 2012607  
 “Håkon Mosby”  
 20 Mars–20 April 2012

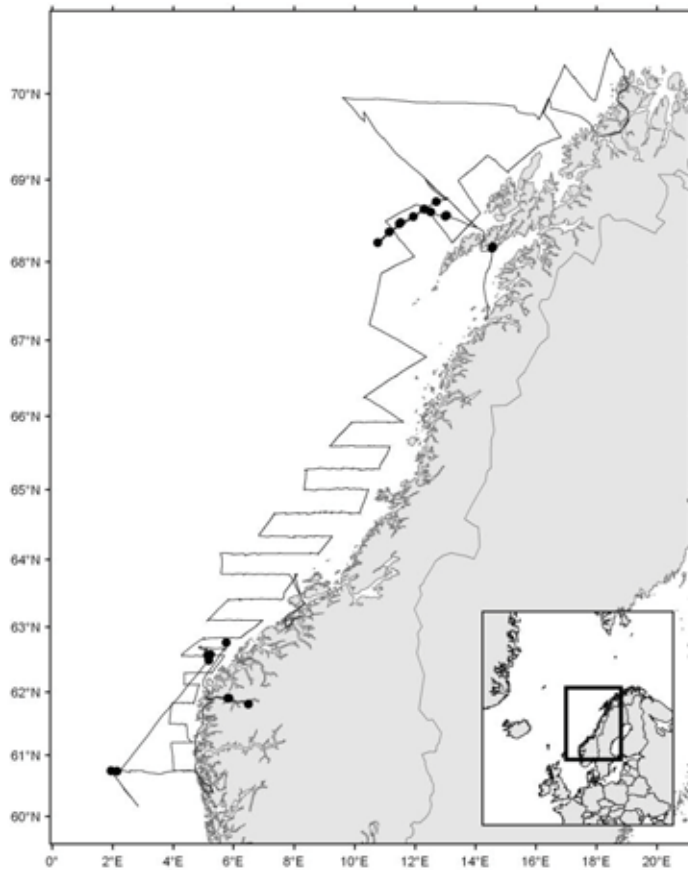
- z CTD st.no 210–446
- o Egg and larvae st. (WP-II-net)
- ◆ Egg and larvae st. (Mocness st.)

Standard section:  
 Gimsøy-W st.no 419–429



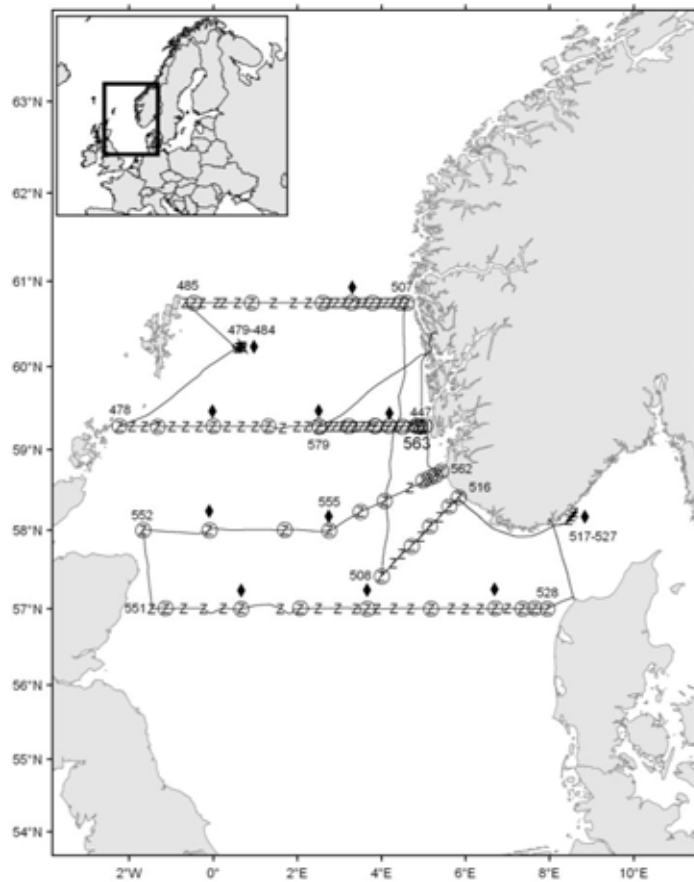
Cruise no 2012607  
 “Håkon Mosby”  
 20 Mars–20 April 2012

- Gulf III st. (Egg and larvae st.)
- Trawl st.no 66–76
- ▲ Pelagic trawl
- Bottom trawl



Cruise no 2012607  
 “Håkon Mosby”  
 20 Mars–20 April 2012

- Multinet

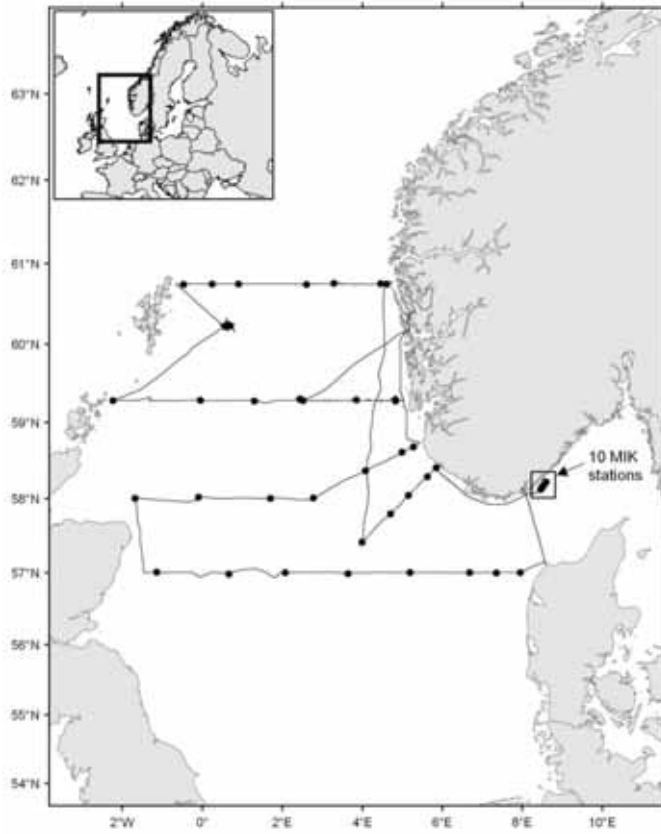


Cruise no 2012608  
 “Håkon Mosby”  
 24 April–11 May 2012

- z CTD st.no 447–579
- o Plankton st. (WP-II-net)
- ◆ Plankton st. (Mocness st.)

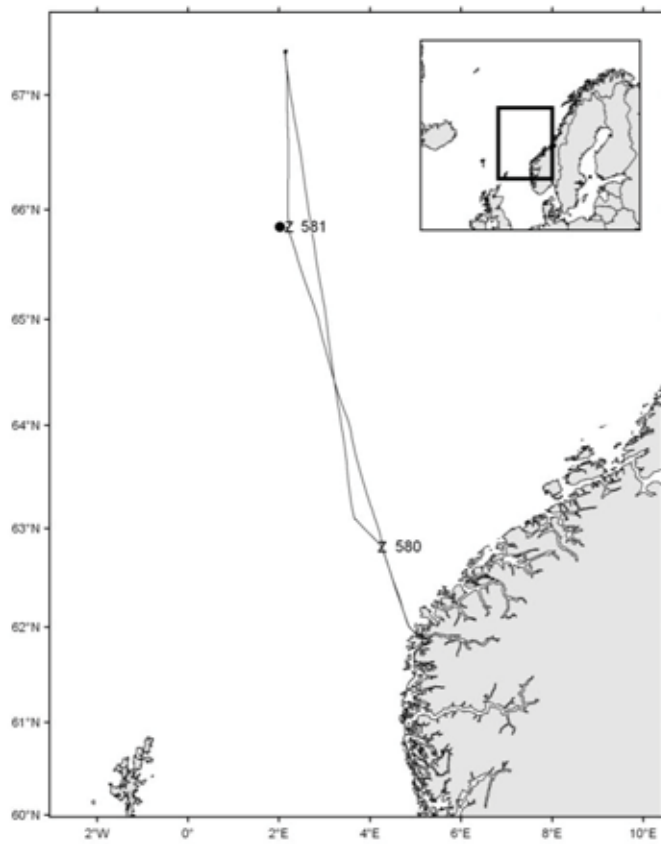
Standard sections:  
 Utsira-W st.no 447–478  
 Fedje–Shetland st.no 485–507  
 Egerøyat SW st.no 508–516  
 Hanstholm–Aberdeen st.no 528–551  
 Jærens Rev SW/W st.no 552–562  
 Utsira-W (half the transect) st.no 563–579





Cruise no 2012608  
 “Håkon Mosby”  
 24 April–11 May 2012

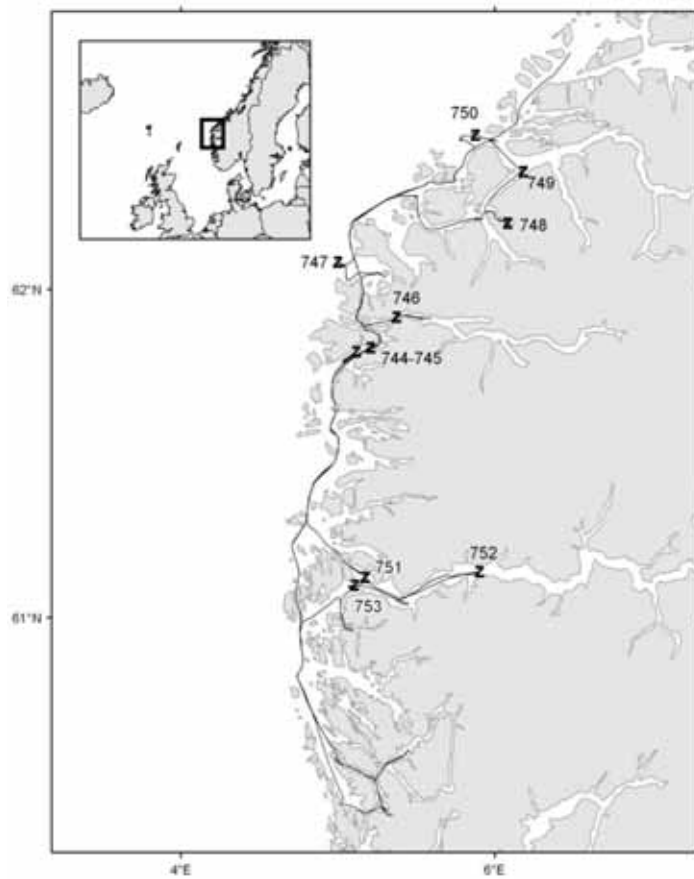
- Gulf III stations
- Area for 10 Mik stations



Cruise no 2012609  
 “Håkon Mosby”  
 18–25 May 2012

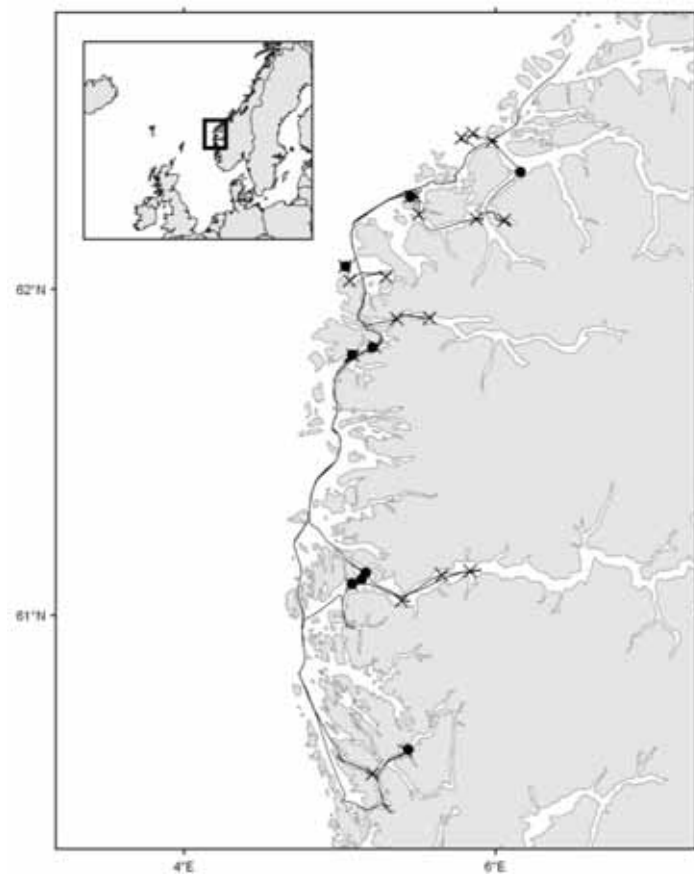
- z CTD st.no 580–581
- Polarbuoy recovered





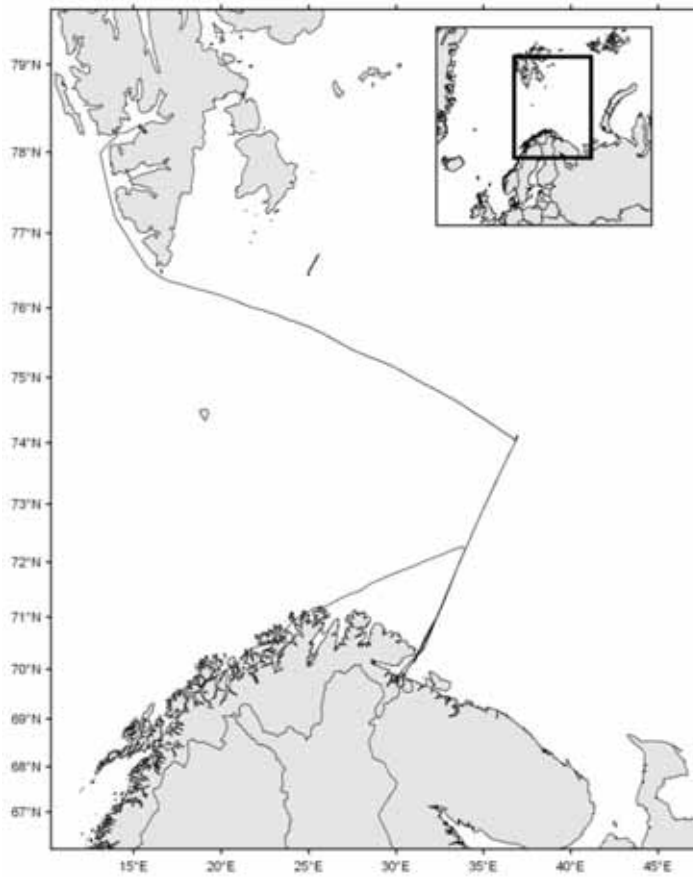
Cruise no 2012613  
 "Håkon Mosby"  
 19–23 July 2012

z CTD st.no 744–753



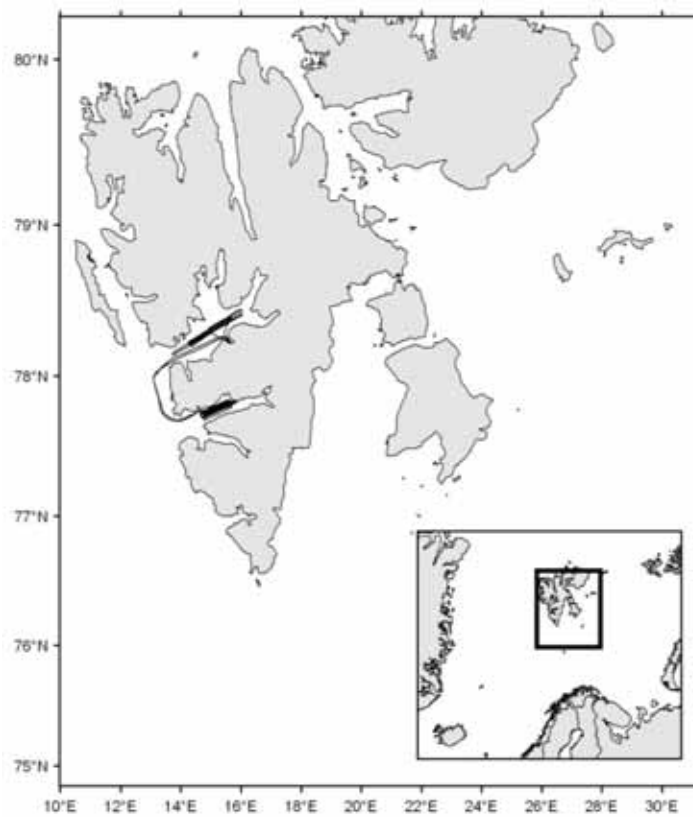
Cruise no 2012613  
 "Håkon Mosby"  
 19–23 July 2012

● Sledge stations  
 x Agaddiz trawl



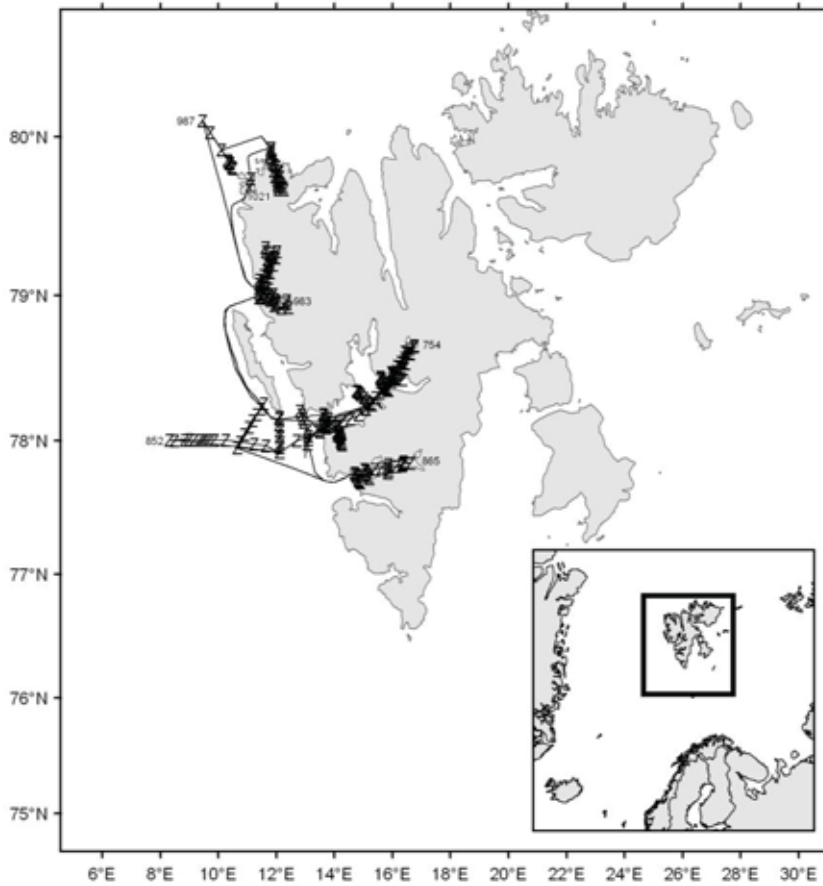
Cruise no 2012614  
 “Håkon Mosby”  
 27 July–15 Aug 2012

Cruise track  
 Acquire ocean bottom  
 seismometer data



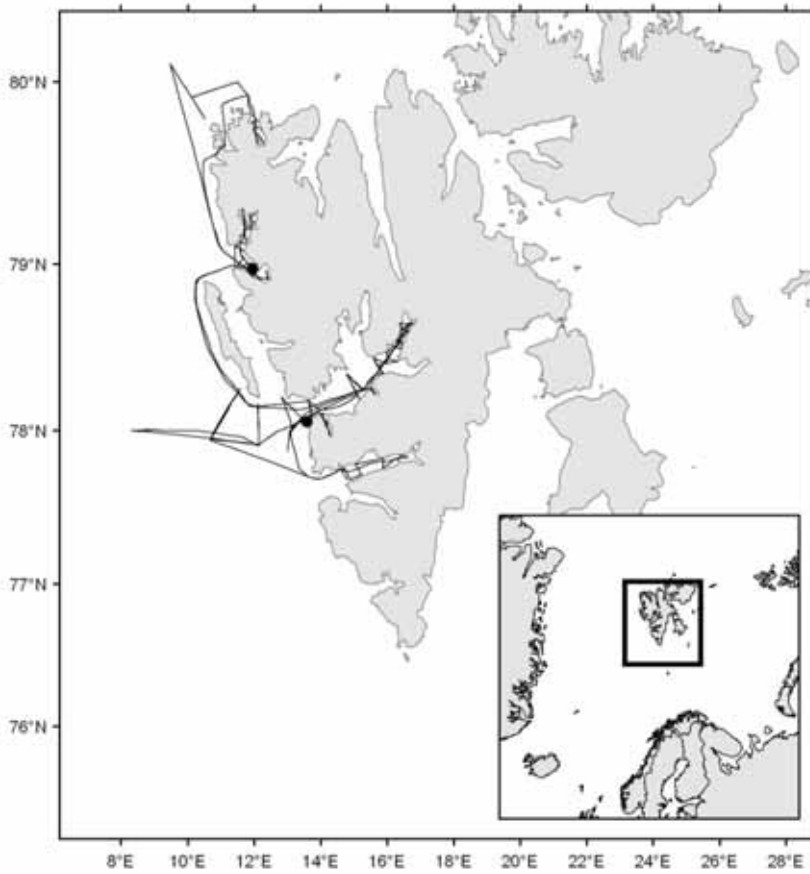
Cruise no 2012615  
 “Håkon Mosby”  
 18–31 August 2012

Cruise track  
 Collection of multi-channel  
 seismic data



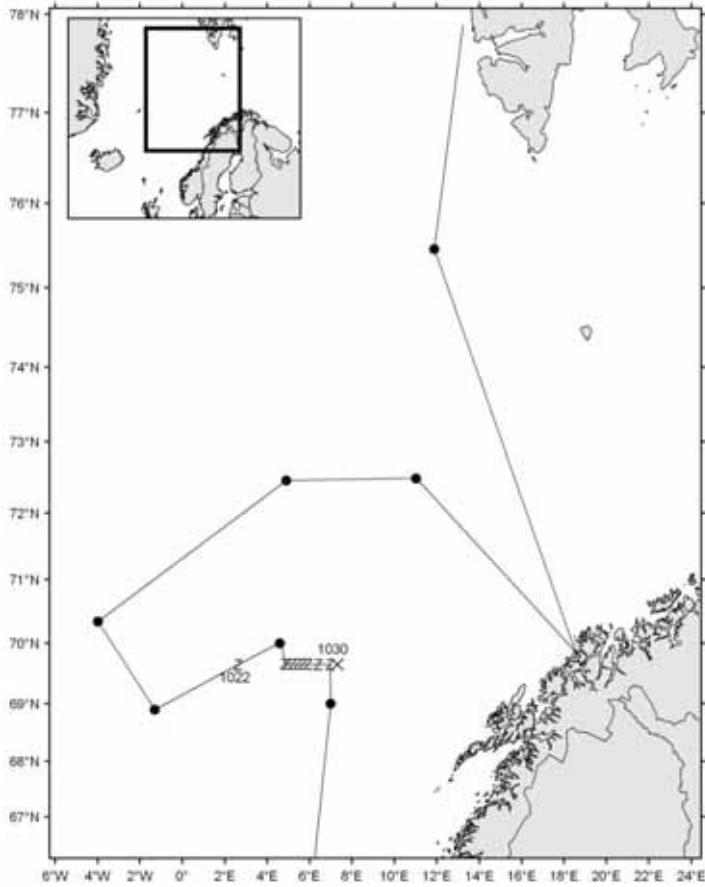
Cruise no 2012616  
 “Håkon Mosby”  
 1–12 September 2012

z CTD st.no 754–1021



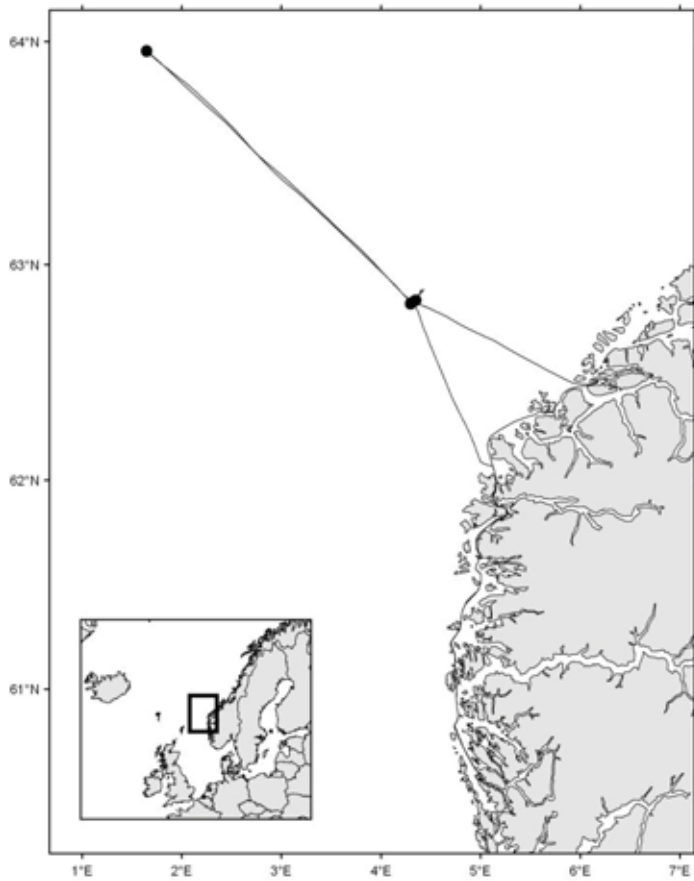
Cruise no 2012616  
 “Håkon Mosby”  
 1–12 September 2012

- Current meter mooring recovered and deployed



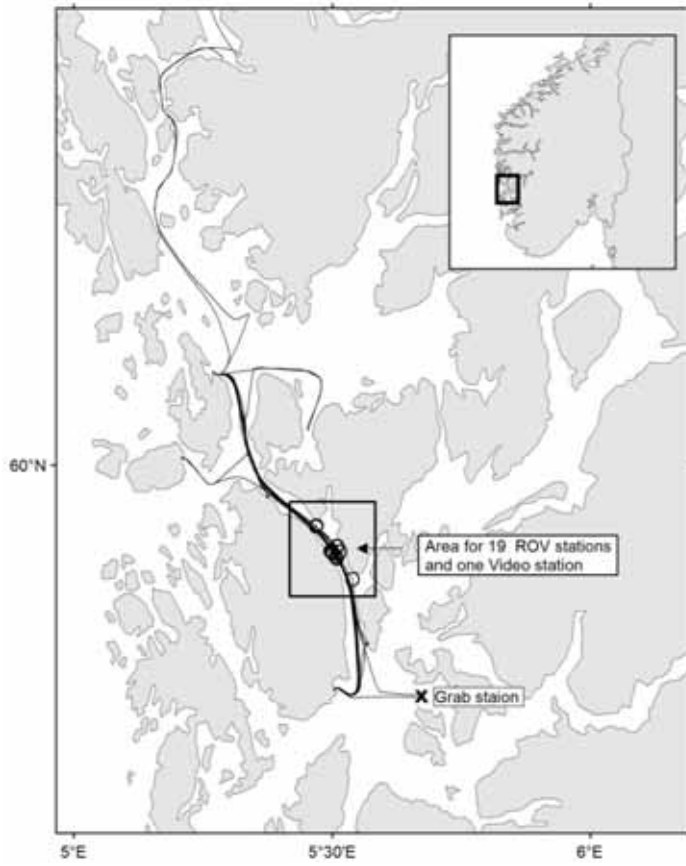
Cruise no 2012617  
 “Håkon Mosby”  
 17–26 September 2012

- z CTD st.no 1022–1030
- RAFOS sound source moorings recovered
- x CTD/current meter mooring recovered



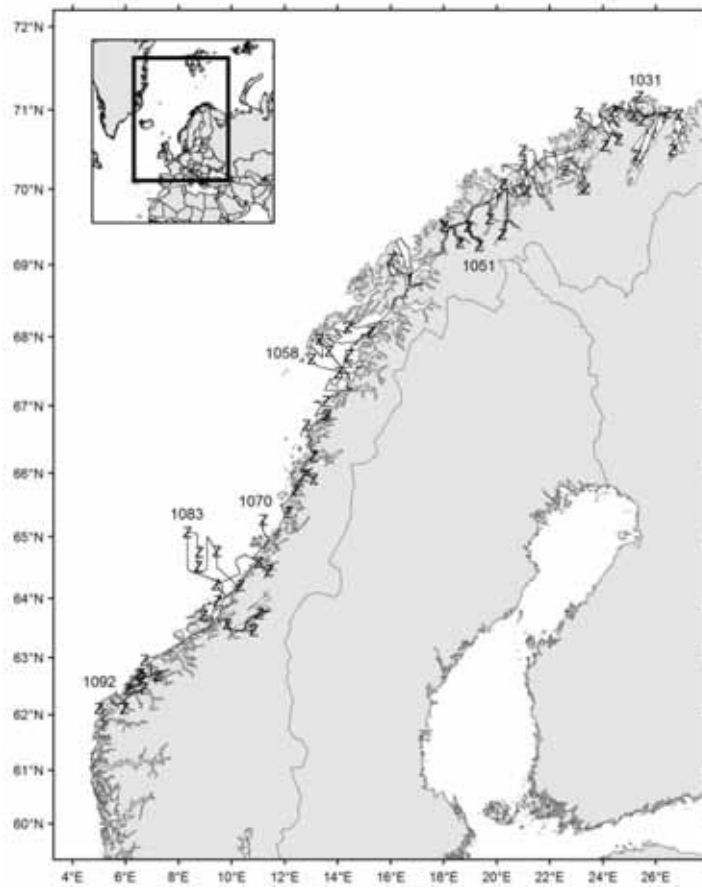
Cruise no 2012618  
 “Håkon Mosby”  
 27 Sep–1 Oct 2012

- Recovery and redeployment of mooring. WavescanBuoy and ADCP



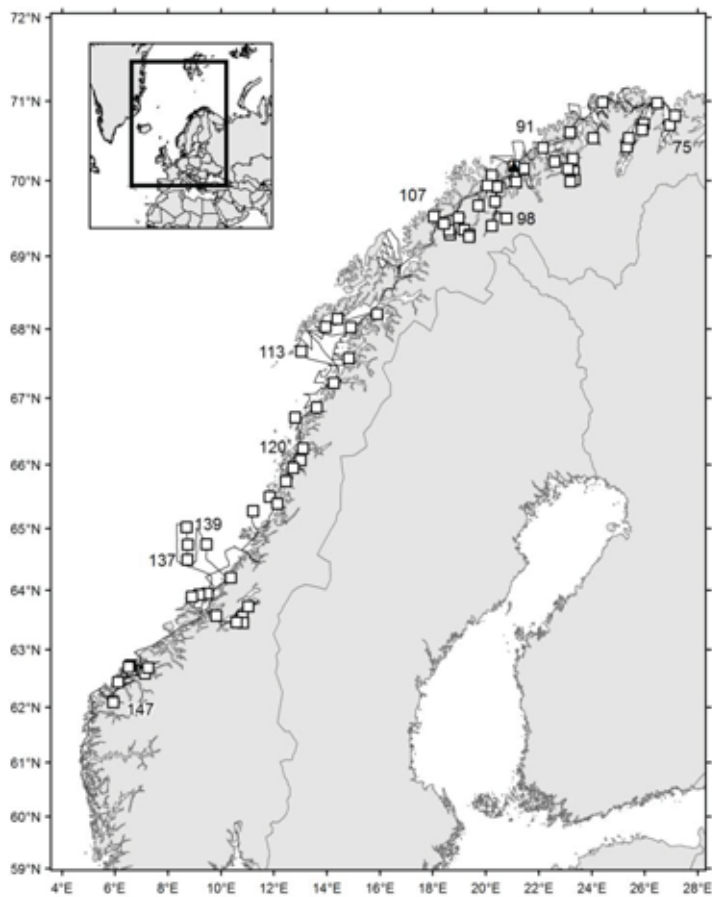
Cruise no 2012619  
 "Håkon Mosby"  
 2–10 October 2012

ROV, video and grab stations



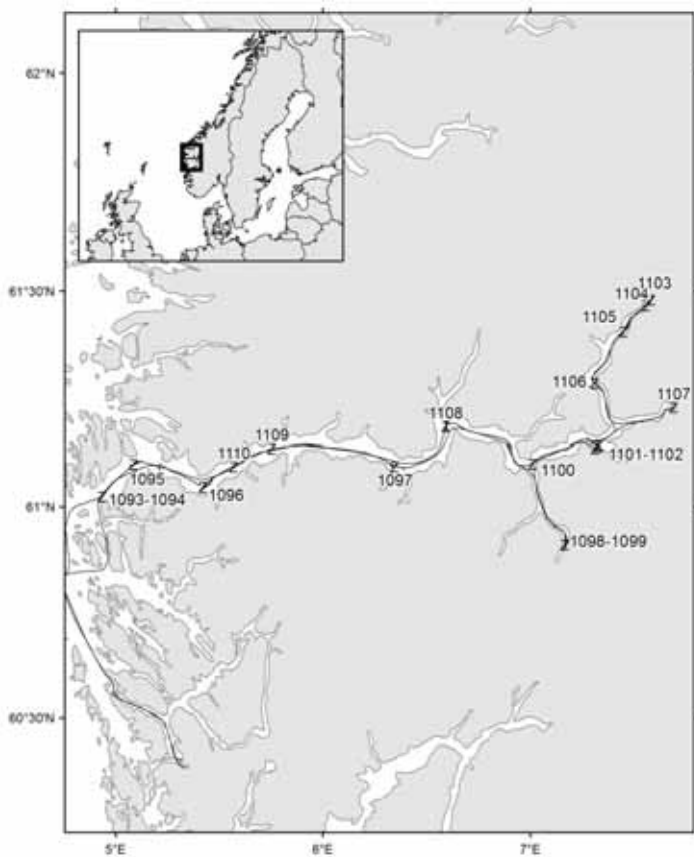
Cruise no 2012620  
 "Håkon Mosby"  
 15 Oct–13 Nov 2012

z CTD st.no 1031–1092



Cruise no 2012620  
 “Håkon Mosby”  
 15 Oct–13 Nov 2012

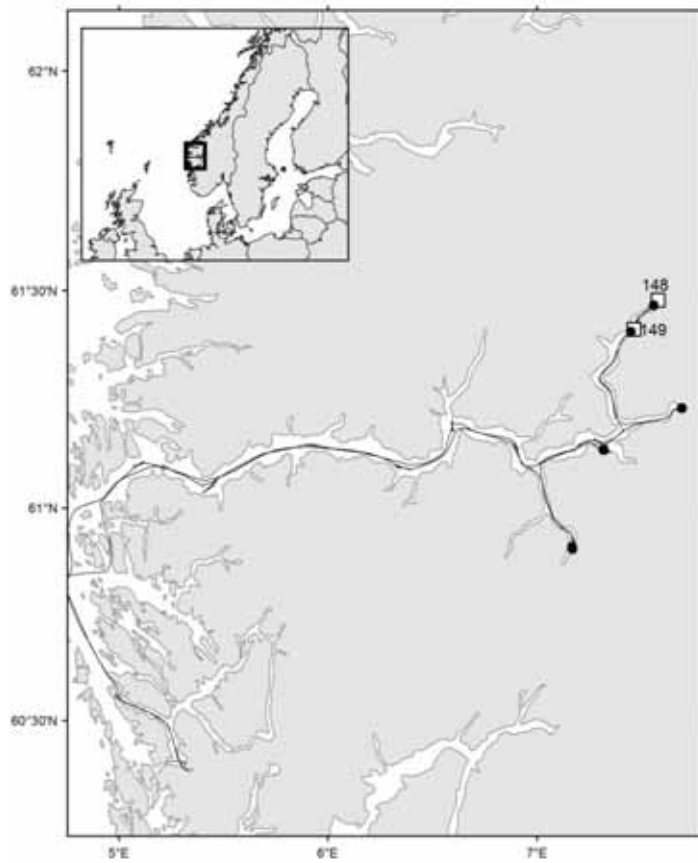
Trawl st.no 75–147  
 ▲ Pelagic trawl  
 □ Bottom trawl



Cruise no 2012621  
 “Håkon Mosby”  
 15–20 November 2012

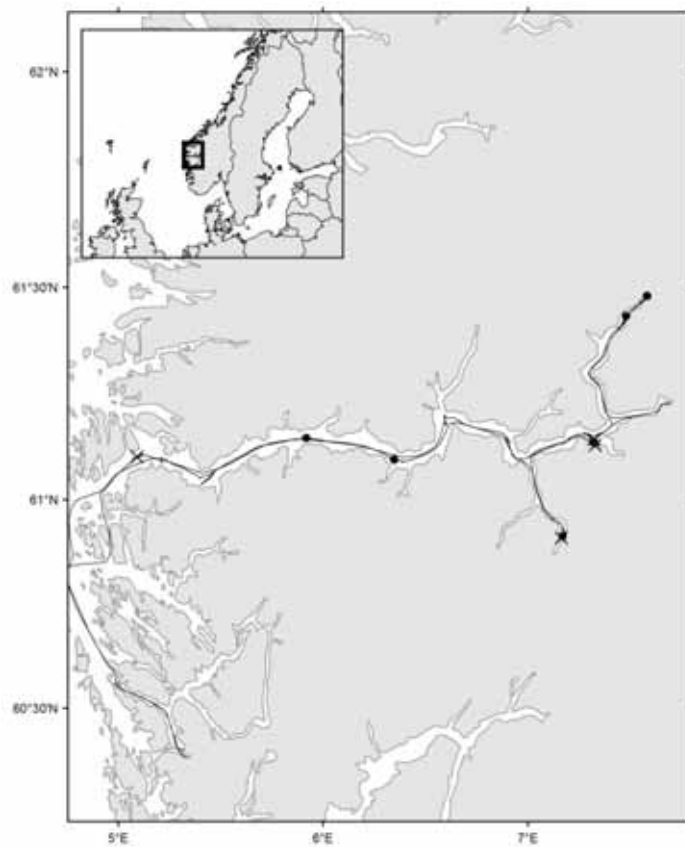
z CTD st.no 1093–1110





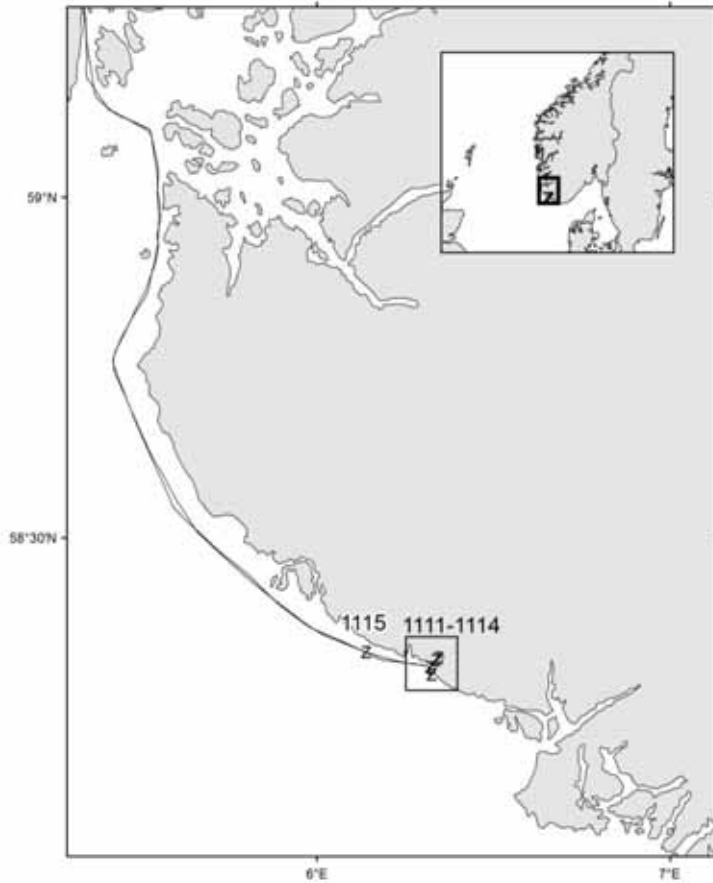
Cruise no 2012621  
 "Håkon Mosby"  
 15–20 November 2012

- Bottom trawl st.no 148–149
- Grab station



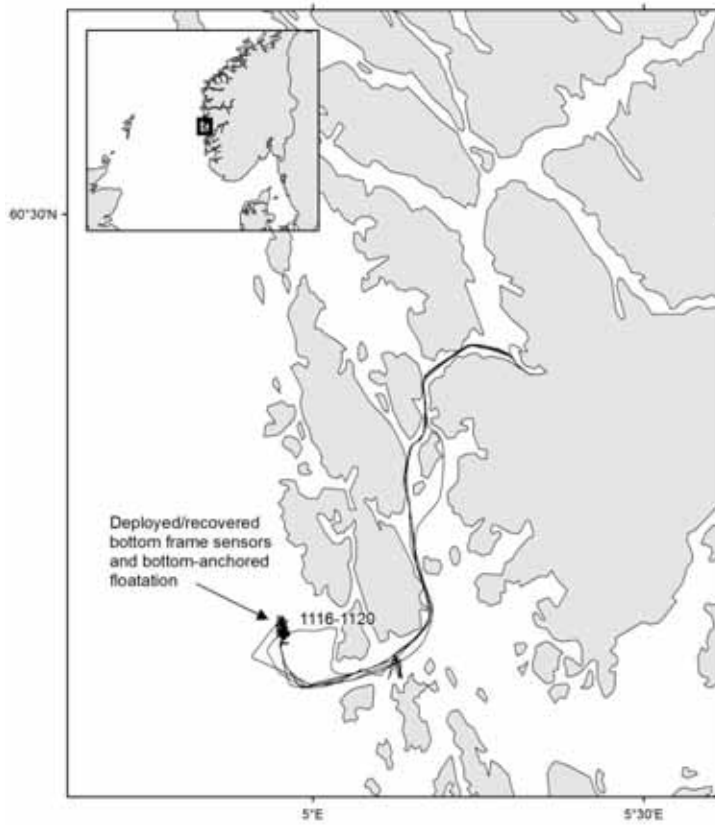
Cruise no 2012621  
 "Håkon Mosby"  
 15–20 November 2012

- x Agassis st.
- Sledge st.



Cruise no 2012622  
 “Håkon Mosby”  
 21–26 November 2012

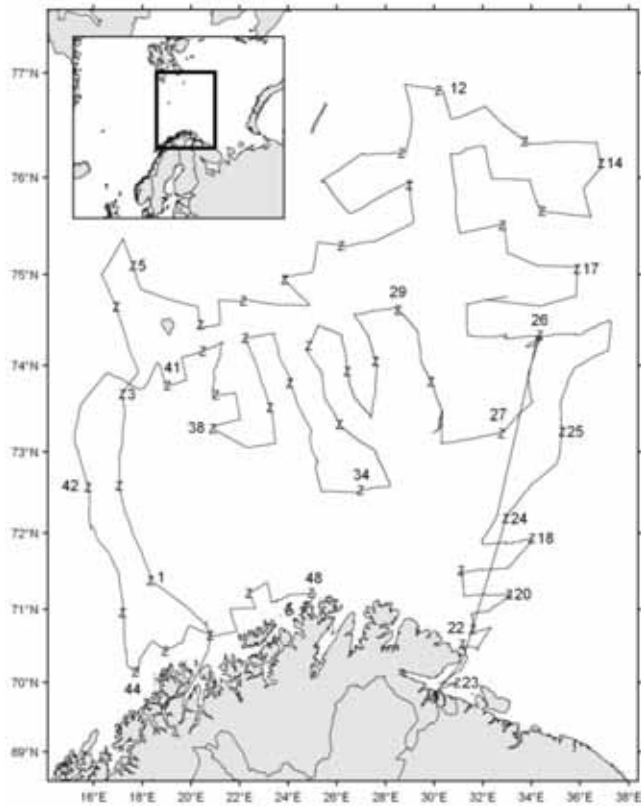
z CTD st.no 1111–1115  
 □ Area for box core and fotostations



Cruise no 2012623  
 “Håkon Mosby”  
 28–30 November 2012

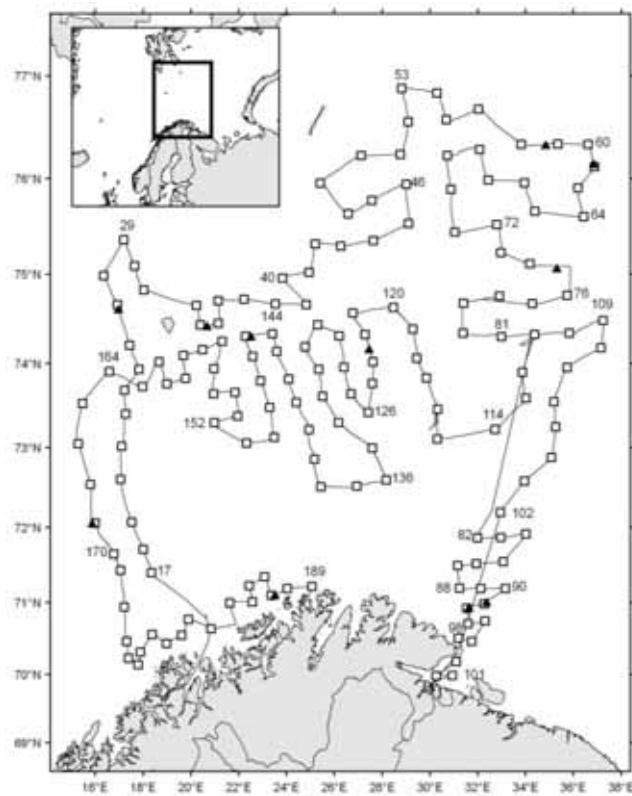
z CTD st.no 1116–1120

#### 4.4 Helmer Hanssen



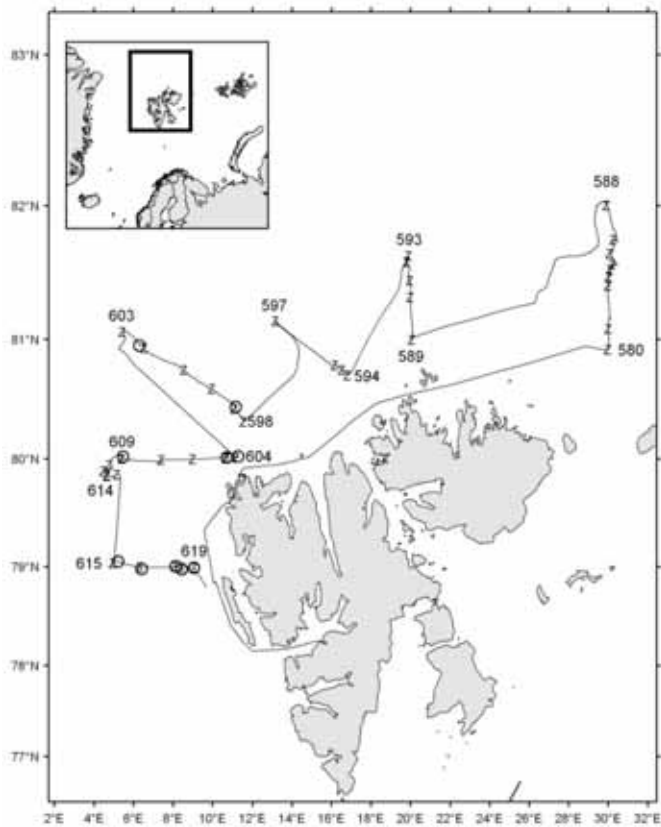
Cruise no 2012839  
"Helmer Hanssen"  
23 Jan–21 Feb 2012

z CTD st.no 1–48



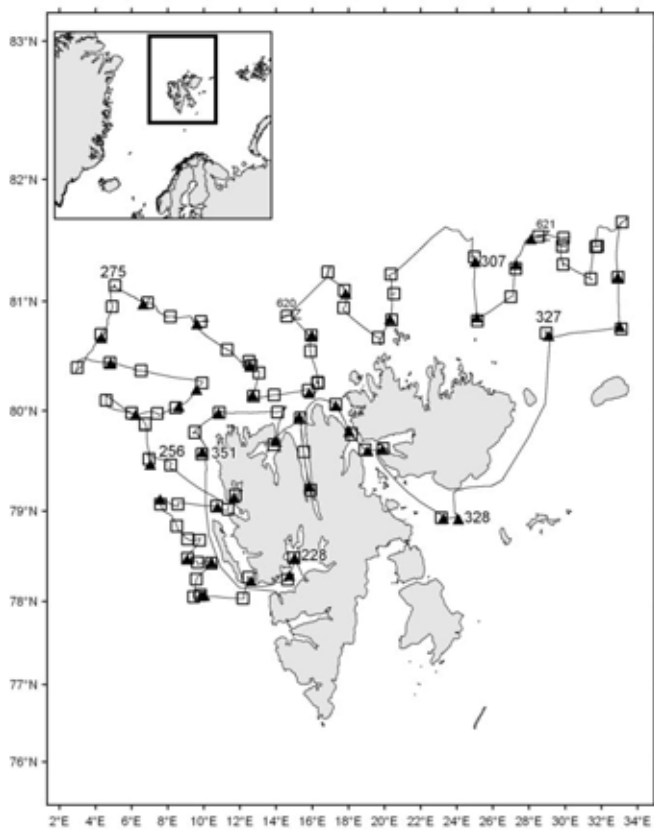
Cruise no 2012839  
"Helmer Hanssen"  
23 Jan–21 Feb 2012

Trawl st.no 17–189



Cruise no 2012844  
 “Helmer Hanssen”  
 6–17 August 2012

- z CTD st.no 580–619
- Plankton st. (WP-II-net) at every ctd st.
- o MIK stations 16–25

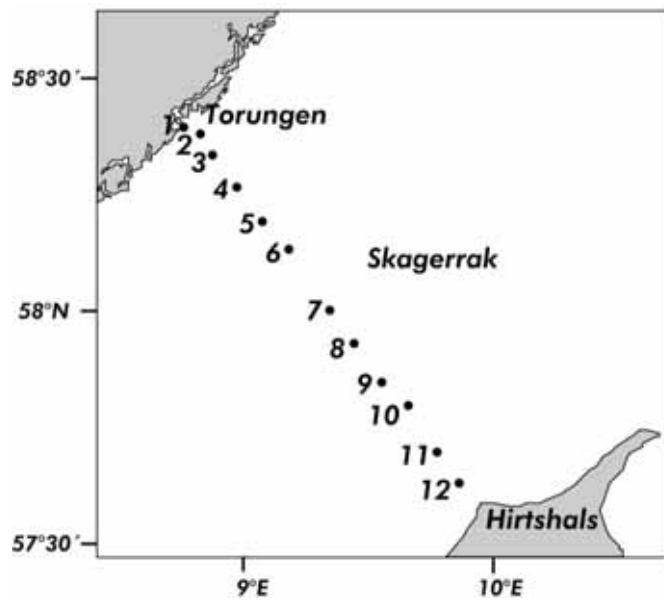


Cruise no 2012845  
 “Helmer Hanssen”  
 21 Aug–5 Sep 2012

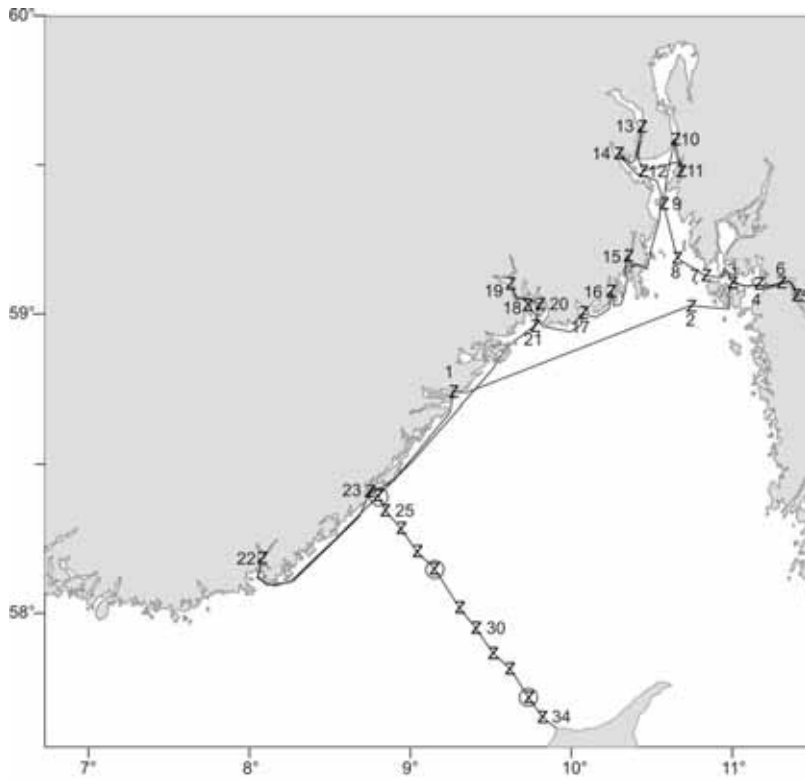
- z CTD st.no 620–621
- Trawl st.no 228–351
- ▲ Pelagic trawl
- Bottom trawl

## 4.5 G.M. Dannevig

### Standard section Torungen–Hirtshals 2012



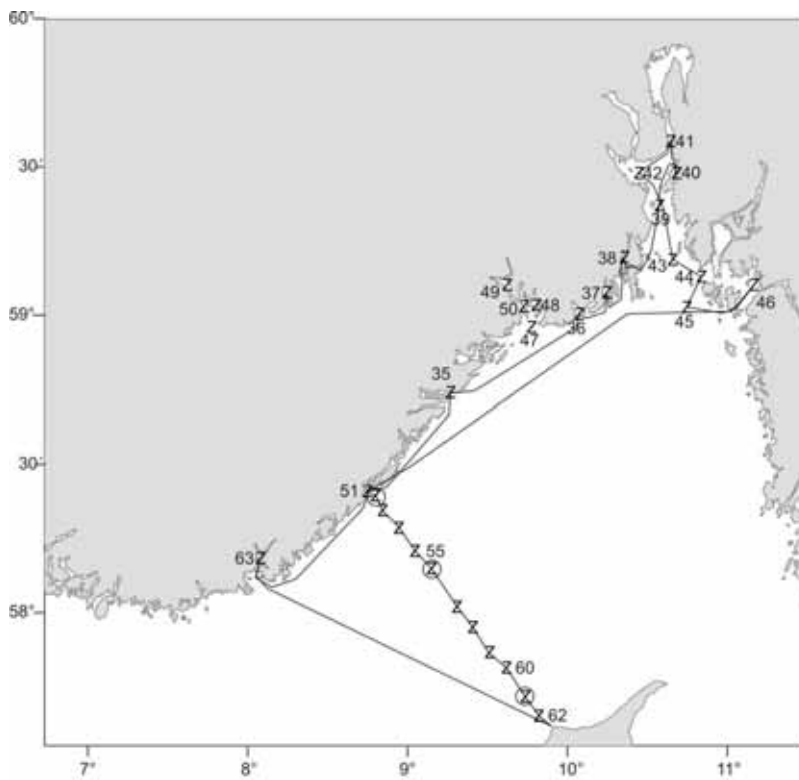
Month	Cruise no	CTD st. no	Comment
January	2012301	23 - 34	
February	2012302	51 - 62	
March	2012303	-	Cancelled
April	2012305	67 - 78	
May	2012305	170 - 181	
June	2012307	211 - 222	
July	2012308	223 - 234	
August	2012311	263 - 274	
September	2012313	301 - 312	
October	2012315	377 - 388	
November	-	-	
December	2012314	434 - 445	



Cruise no 2012301  
 “G.M. Dannevig”  
 9–15 January 2012

z CTD st.no 1–34  
 o Plankton st. (WP-II-net)

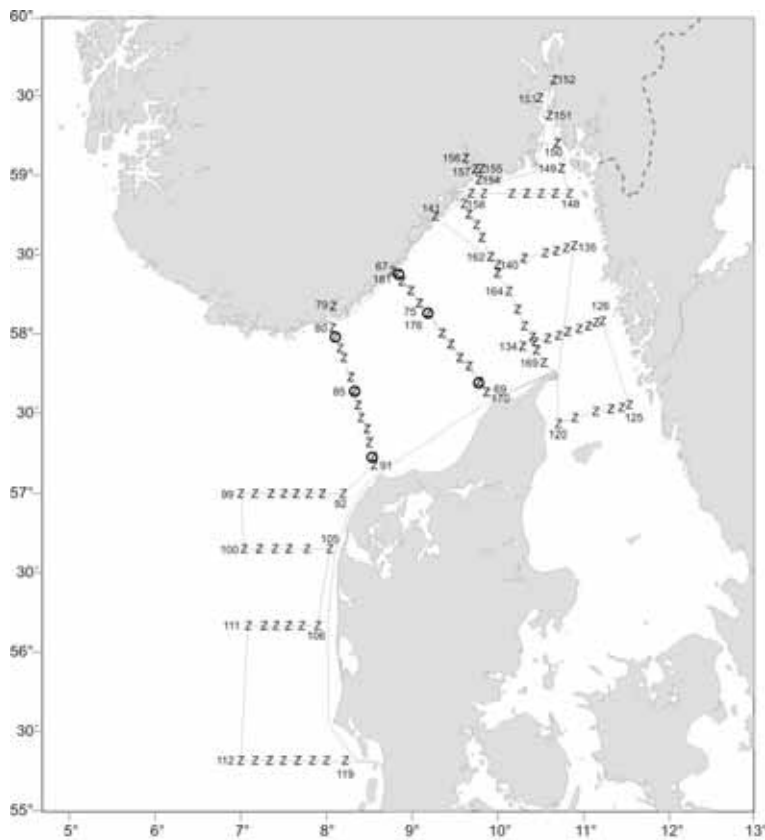
Standard section:  
 Torungen–Hirtshals st.no 23–34



Cruise no 2012302  
 “G.M. Dannevig”  
 5–11 February 2012

z CTD st.no 35–62  
 o Plankton st. (WP-II-net)

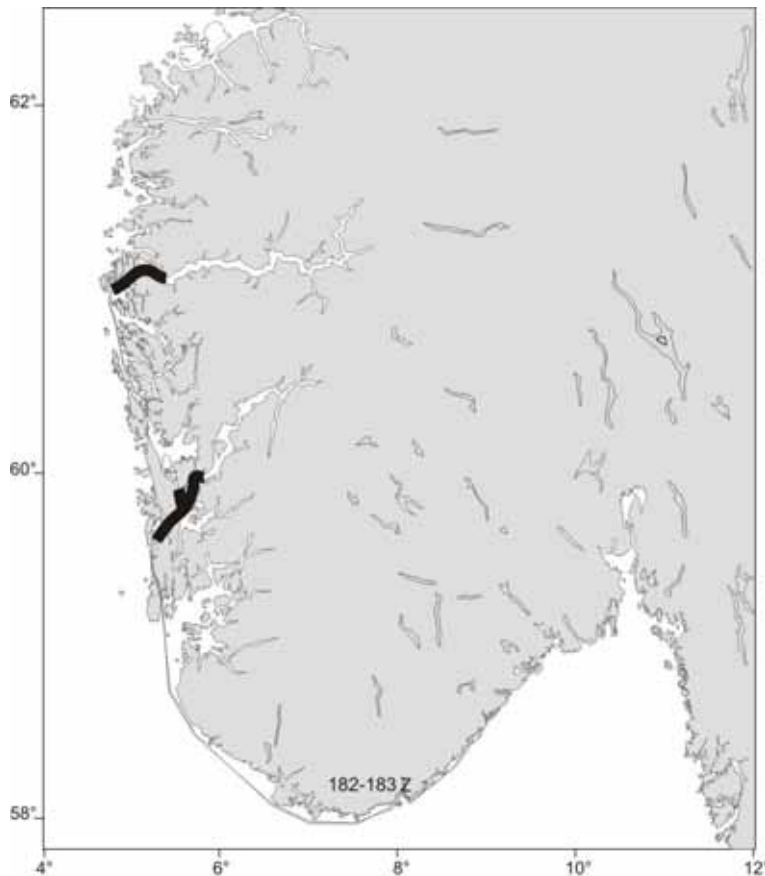
Standard section:  
 Torungen–Hirtshals st.no 51–62



Cruise no 2012305  
 “G.M. Dannevig”  
 17 April–6 May 2012

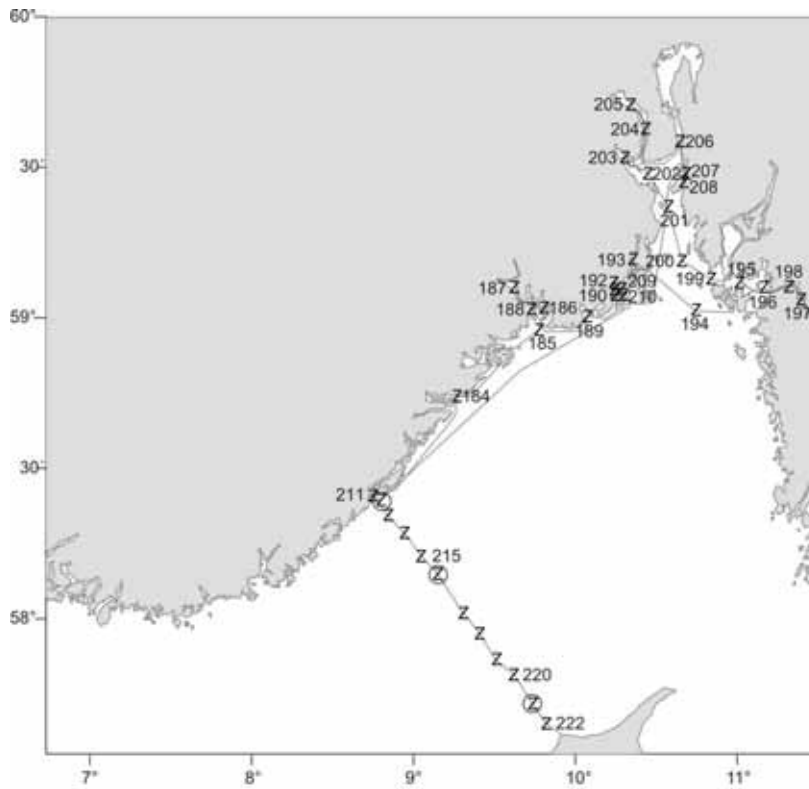
z CTD st.no 64–181  
 o Plankton st. (WP-II-net)

Standard section:  
 Oksøy–Hanstholm st.no 80–91  
 Torungen–Hirtshals st.no 67–78, 170–181  
 Jomfruland–Skagen st.no 158–169  
 Jomfruland–Koster st.no 142–148  
 Torbjørnskjær st.no 149  
 Väderø st.no 135–140  
 Måseskjær st.no 126–134  
 Gøteborg–Fredrikshavn st.no 120–125



Cruise no 2012306  
 “G.M. Dannevig”  
 10 May–8 June 2012

z CTD st.no 182–183



Cruise no 2012307

“G.M. Dannevig”

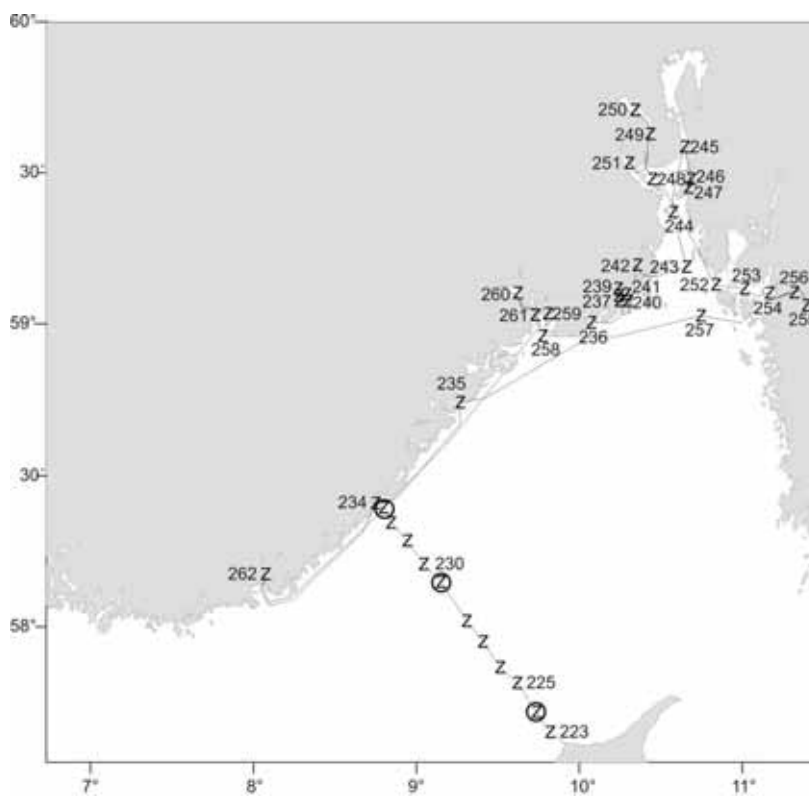
11–15 June 2012

z CTD st.no 184–222

o Plankton st. (WP-II-net)

Standard section:

Torungen–Hirtshals st.no 211–222



Cruise no 2012308

“G.M. Dannevig”

1–5 July 2012

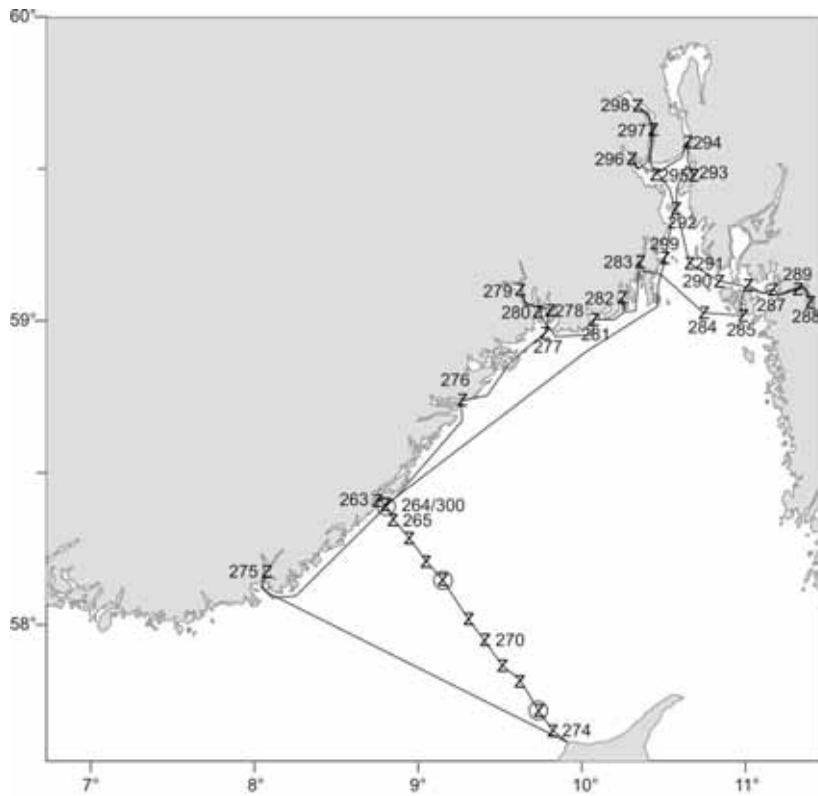
z CTD st.no 223–262

o Plankton st. (WP-II-net)

Standard section:

Torungen–Hirtshals st.no 223–234

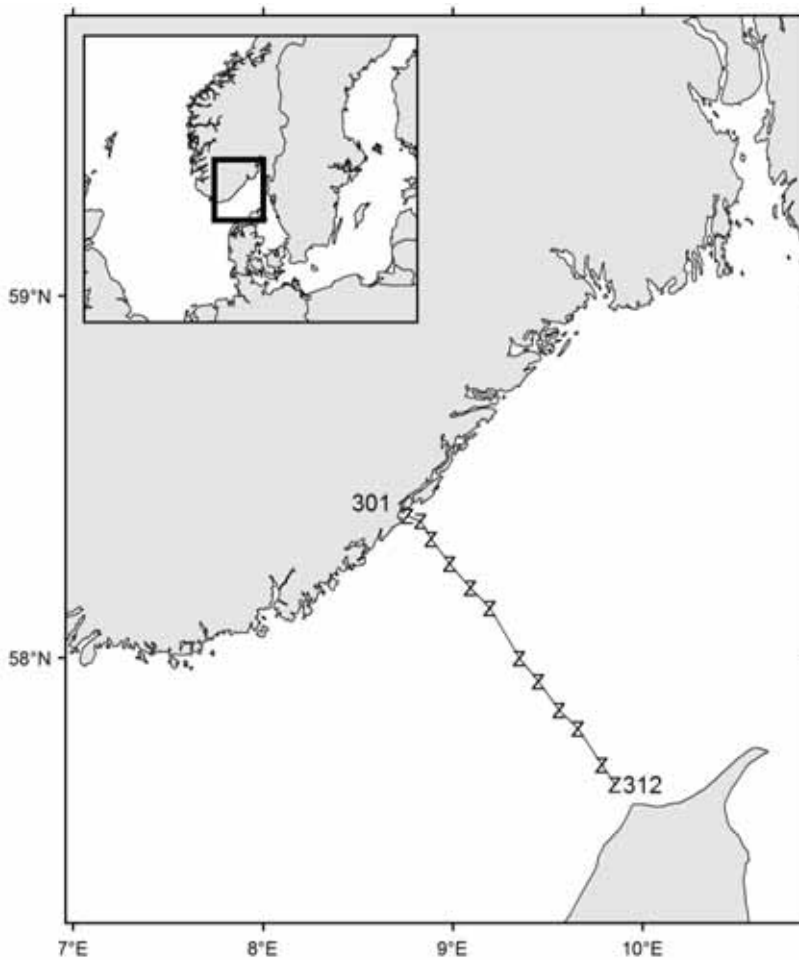




Cruise no 2012312  
 “G.M. Dannevig”  
 14–27 August 2012

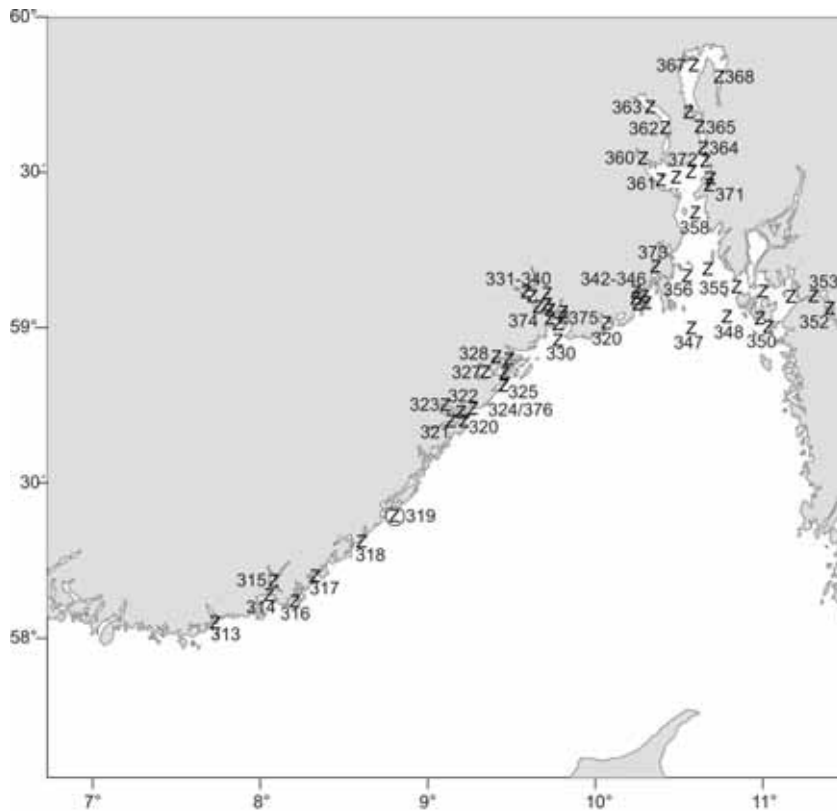
z CTD st.no 263–300  
 o Plankton st. (WP-II-net)

Standard section:  
 Torungen–Hirtshals st.no 263–274



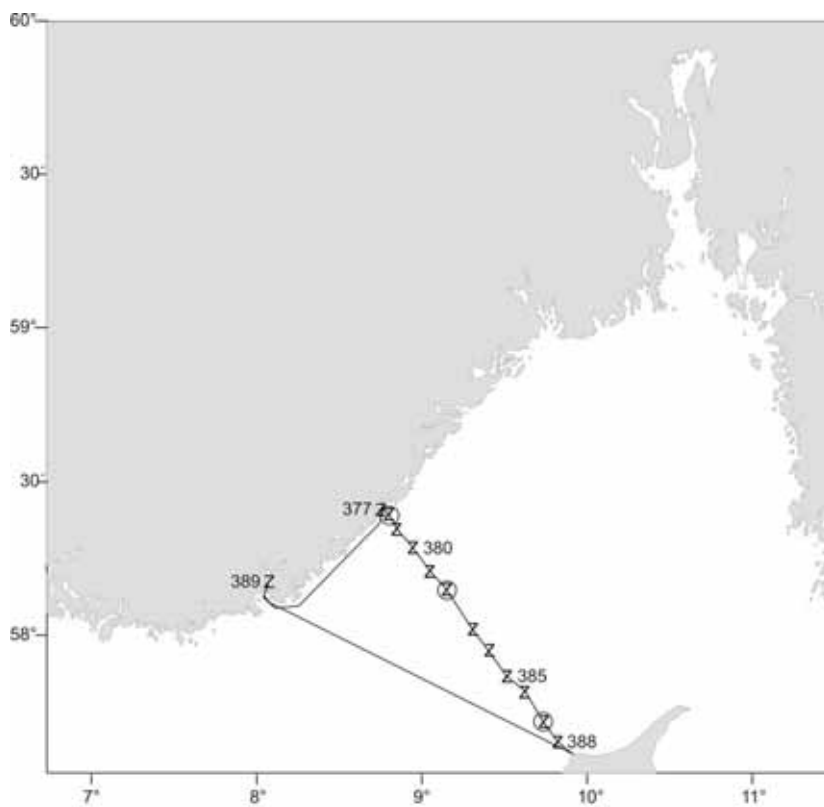
Cruise no 2012313  
 “G.M. Dannevig”  
 13–14 September 2012

z CTD st.no 301–312



Cruise no 2012309  
 “G.M. Dannevig”  
 15 Sep–4 Oct 2012

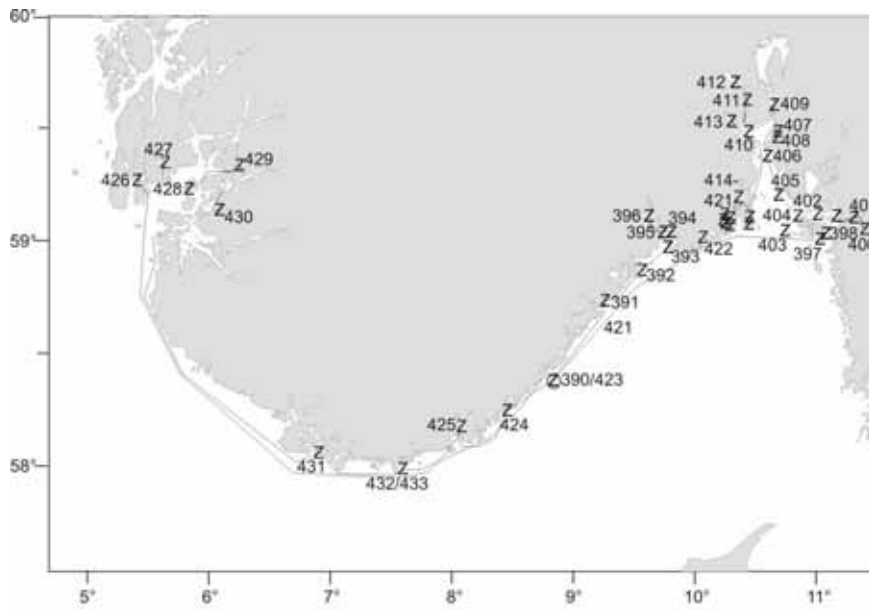
z CTD st.no 313–376  
 o Plankton st. (WP-II-net)



Cruise no 2012315  
 “G.M. Dannevig”  
 5–6 October 2012

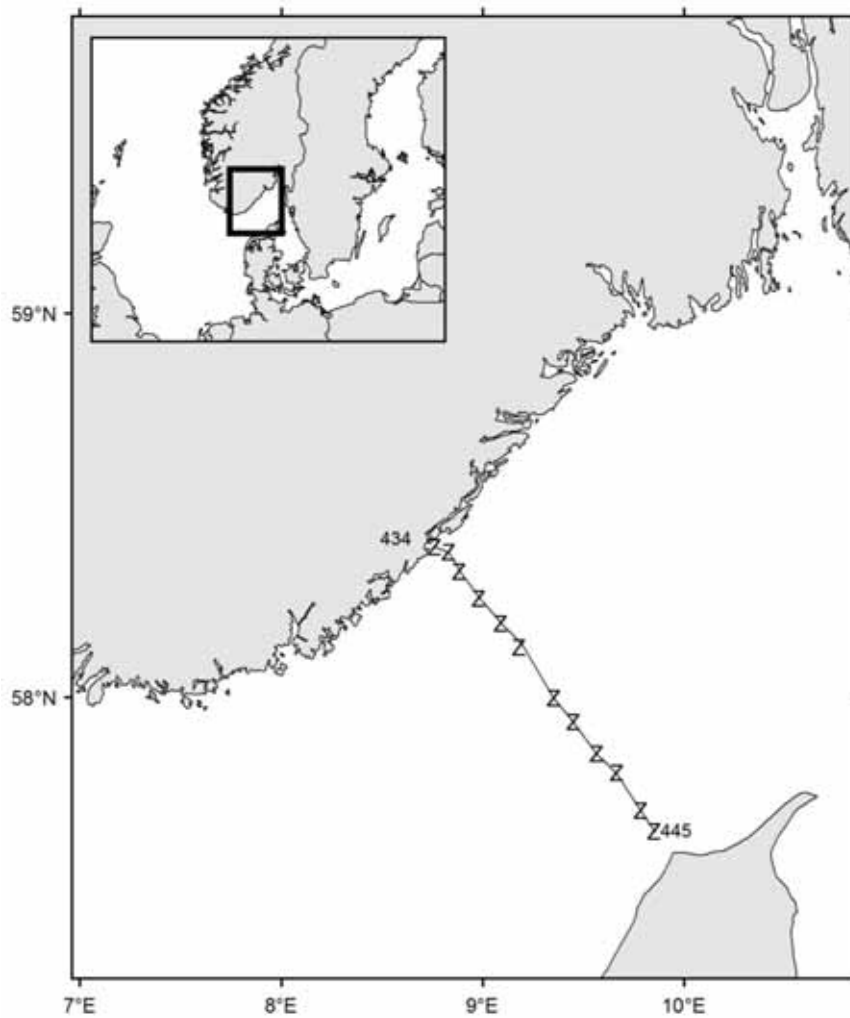
z CTD st.no 377–389  
 o Plankton st. (WP-II-net)

Standard section:  
 Torungen–Hirtshals st.no 377–388



Cruise no 2012310  
 “G.M. Dannevig”  
 12 Nov–12 Dec 2012

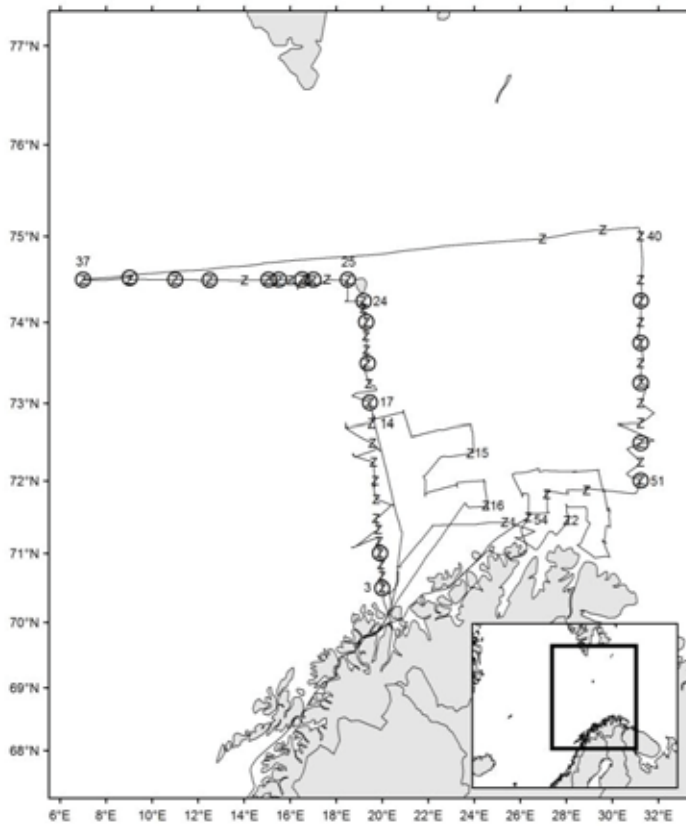
z CTD st.no 390–433  
 o Plankton st. (WP-II-net)



Cruise no 2012314  
 “G.M. Dannevig”  
 13–14 December 2012

z CTD st.no 434–445

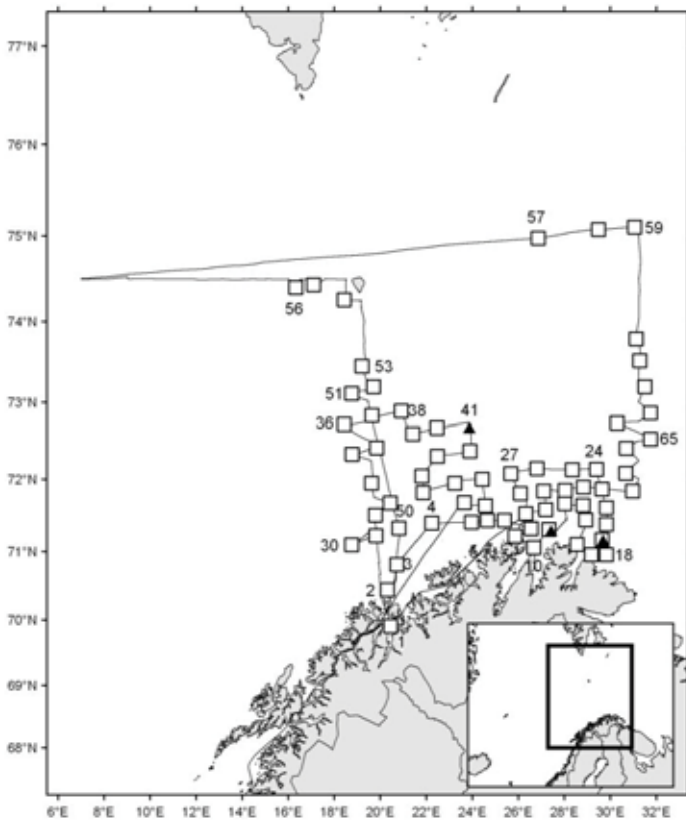
#### 4.6 Selected cruises carried out by fishing vessels hired by IMR



Cruise no 2012841  
 “Libas”  
 20 Feb–15 Mars 2012

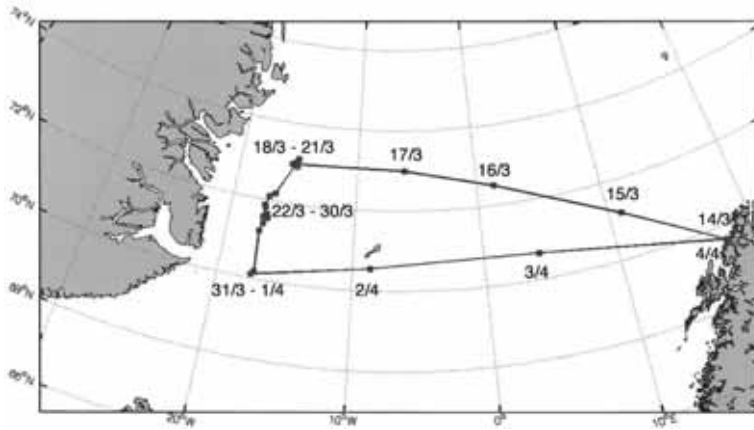
z CTD st.no 1–54  
 o Plankton st.

Standard sections:  
 Fugløya–Bjørnøya st.no 3–24  
 Bjørnøya–W st.no 25–37  
 Vardø–N (partly) st.no 40–51



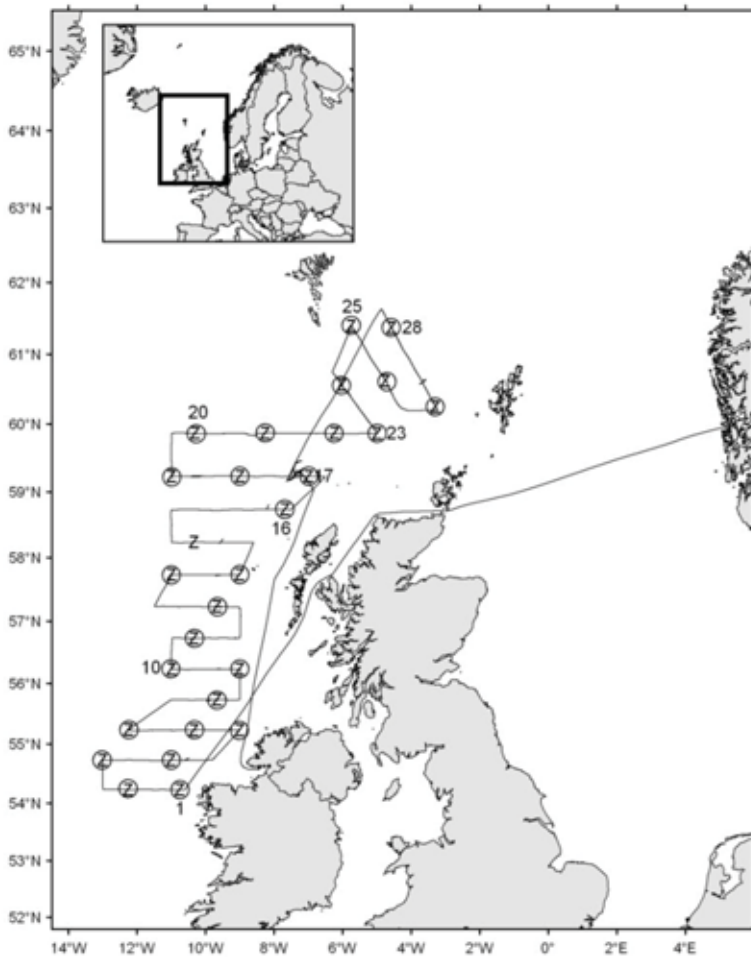
Cruise no 2012841  
 “Libas”  
 20 Feb–15 Mars 2012

Trawl st.no 1–73  
 ▲ Pelagic trawl  
 □ Bottom trawl



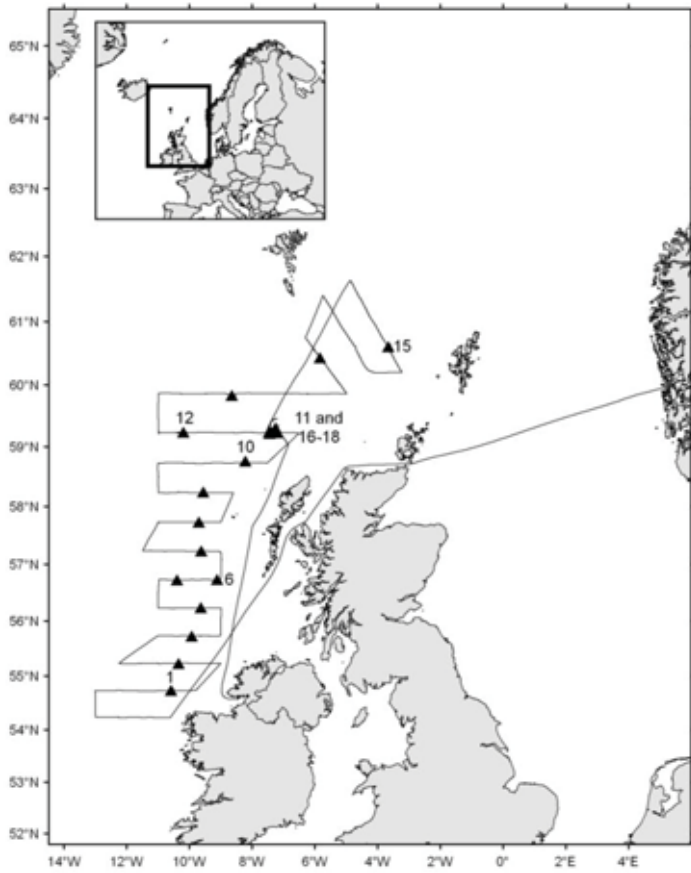
Cruise no 2012810  
 “Nordsysssel”  
 14 Mars–4 April 2012

Estimation of the abundance of seals



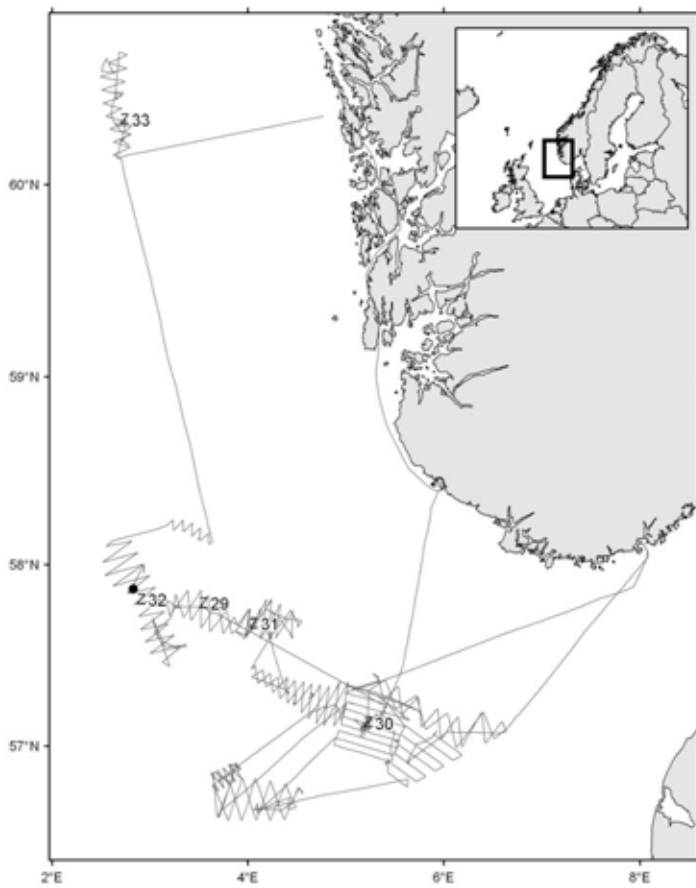
Cruise no 2012838  
 “Brennholm”  
 26 Mars–11 April 2012

z CTD and plankton (WP-II-net)  
 st.no 1–28



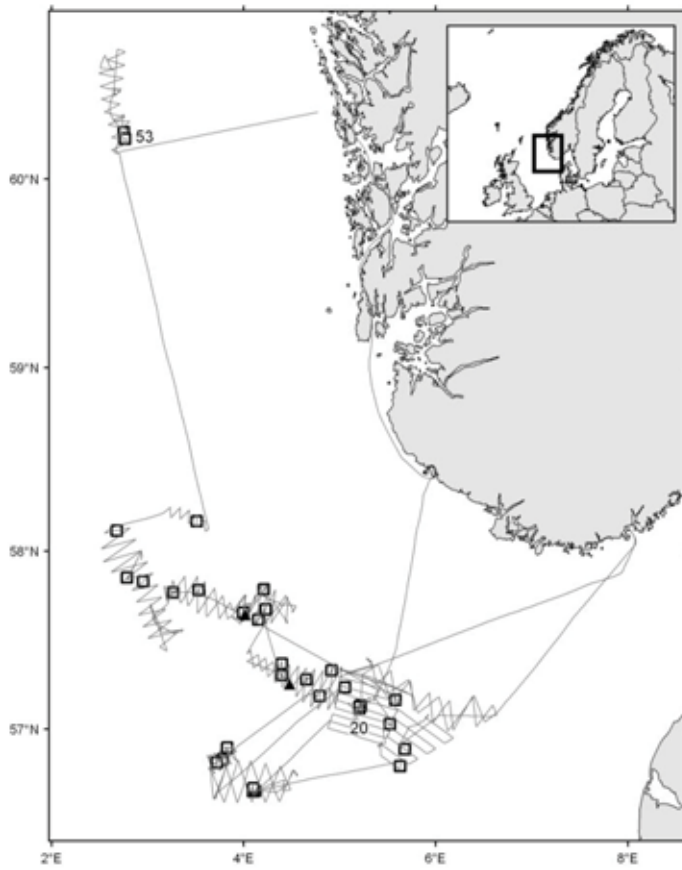
Cruise no 2012838  
 “Brennholm”  
 26 Mars–11 April 2012

▲ Pelagic trawl st.no 1–18



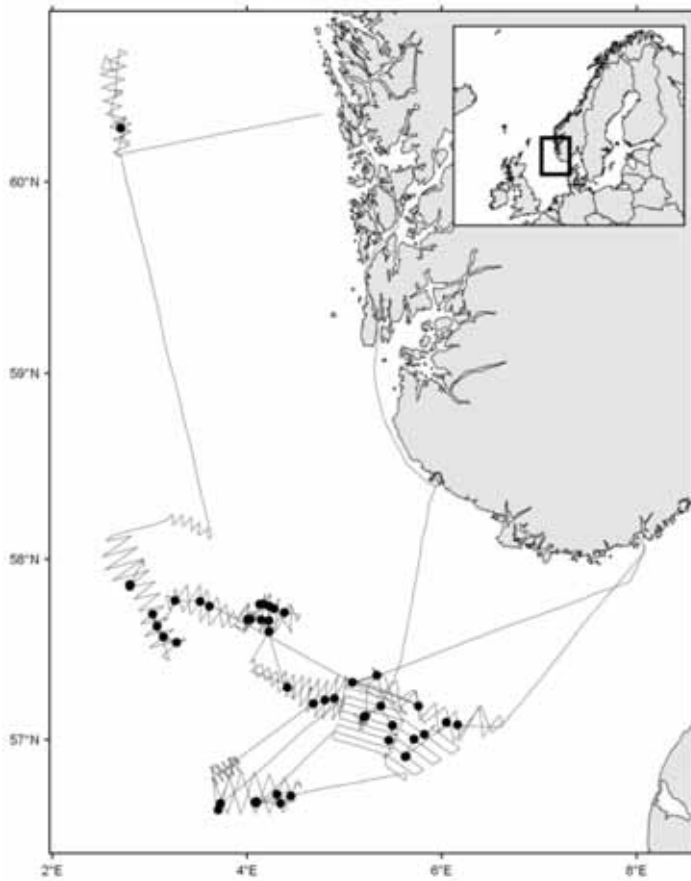
Cruise no 2012837  
 “Brennholm”  
 23 April–13 May 2012

z CTD st.no 29–33  
 ● Grab station



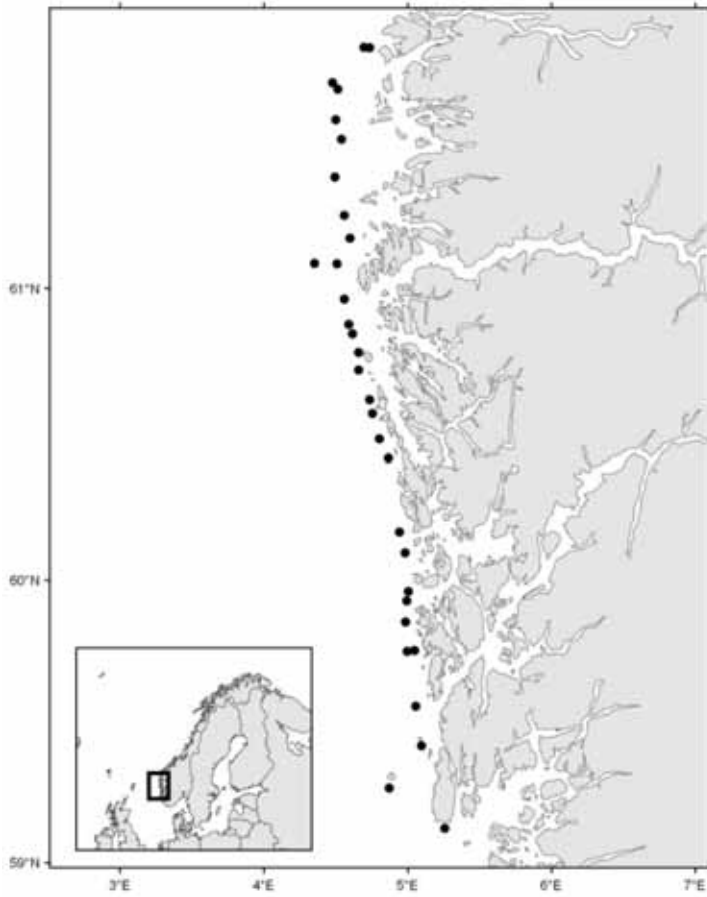
Cruise no 2012837  
 “Brennholm”  
 23 April–13 May 2012

Trawl st.no 20–53  
 ▲ Pelagic trawl  
 □ Bottom trawl



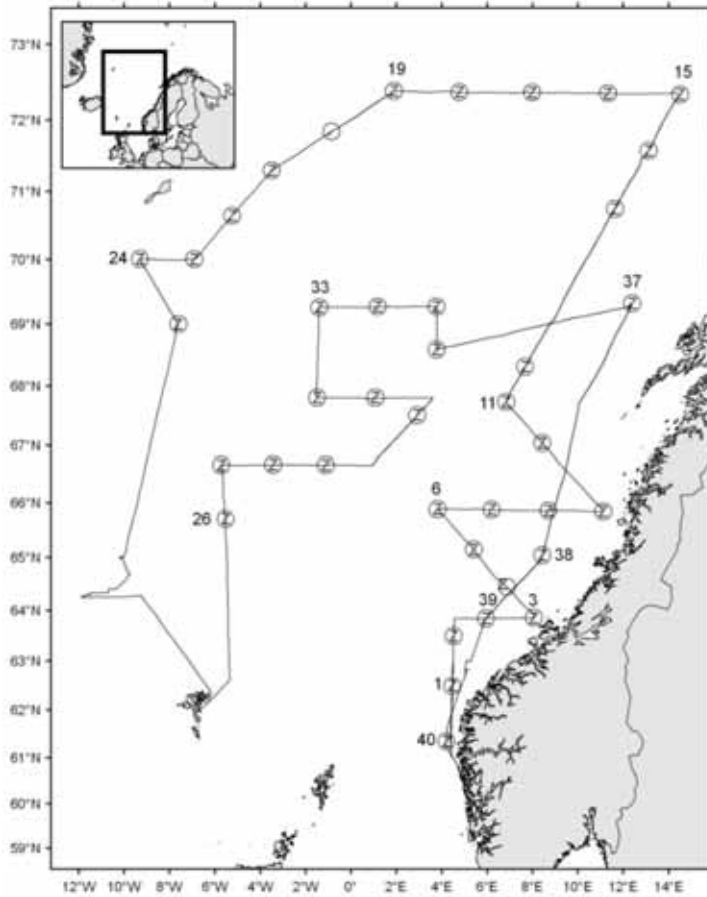
Cruise no 2012837  
 “Brennholm”  
 23 April–13 May 2012

● Sledge station



Cruise no 2012506  
 “Fangst”  
 7–26 May 2012

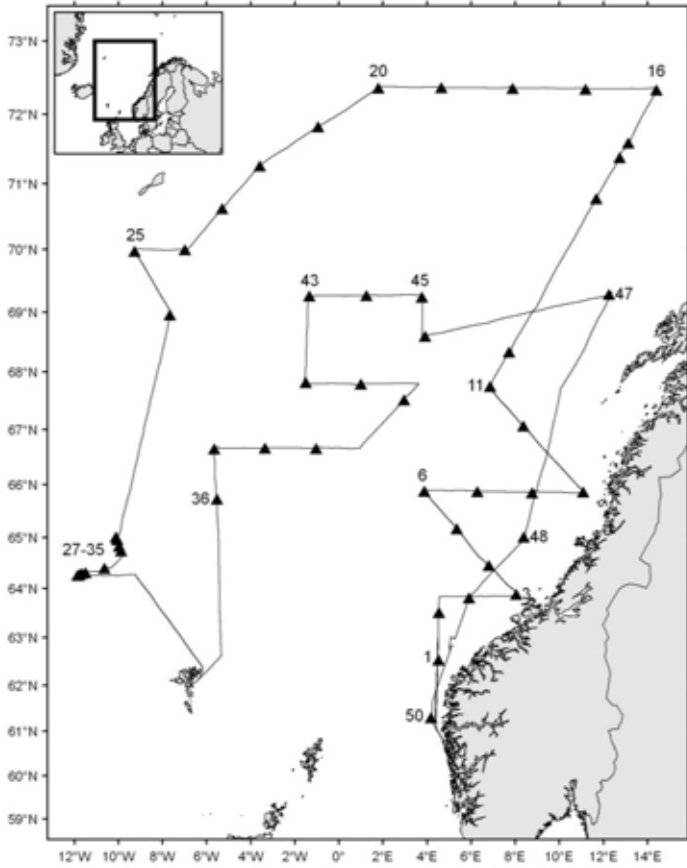
● Jigging machine



Cruise no 2012825  
 “Brennholm”  
 6–27 July 2012

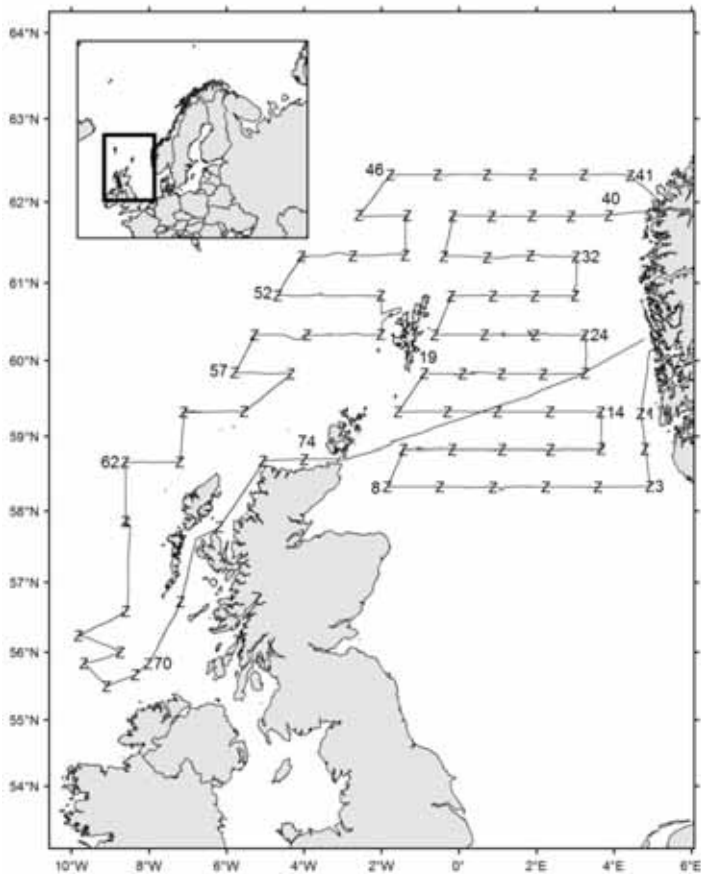
z CTD st.no 1–40  
 o Plankton st. (WP-II-net)





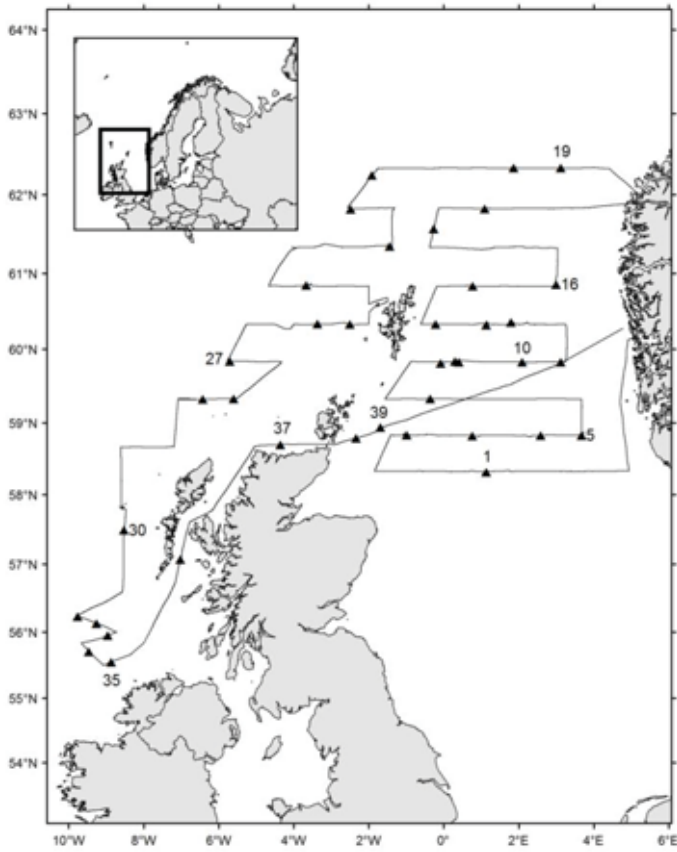
Cruise no 2012825  
 “Brennholm”  
 6–27 July 2012

▲ Pelagic trawl st.no 1–50



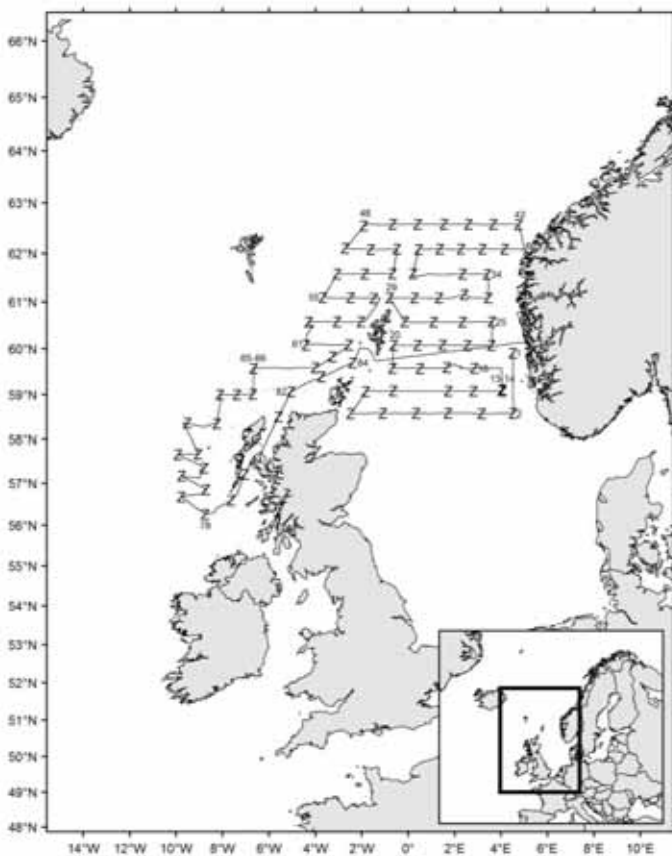
Cruise no 2012842  
 “Christina E”  
 1–19 October 2012

z CTD st.no 1–74



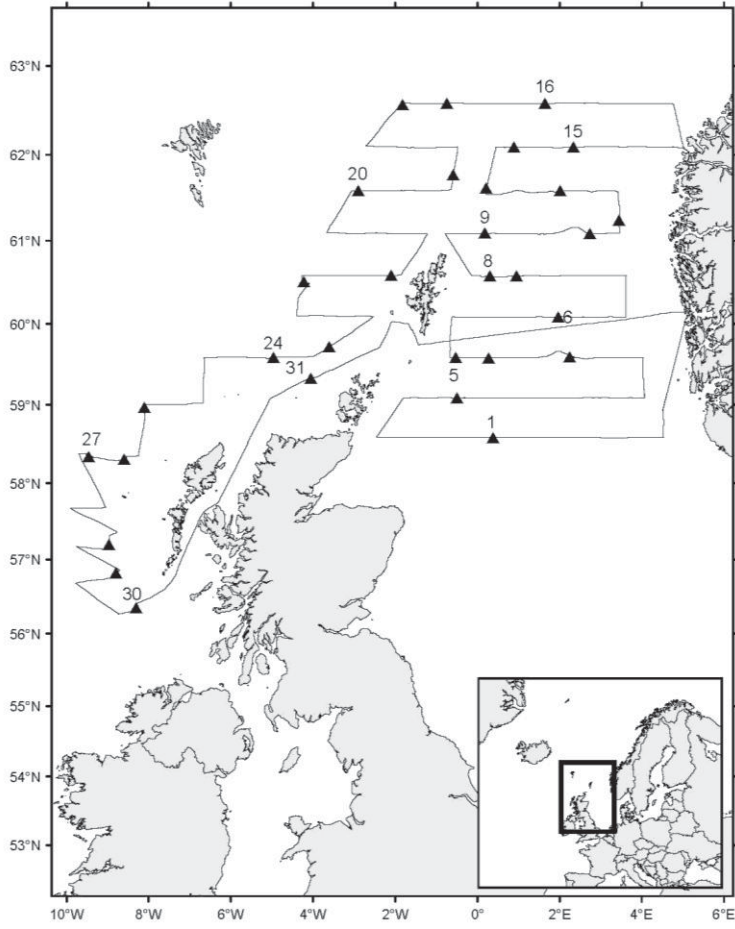
Cruise no 2012842  
 “Christina E”  
 1–19 October 2012

▲ Pelagic trawl st.no 1–39



Cruise no 2012843  
 “Brennholm”  
 1–19 October 2012

z CTD st.no 1–84



Cruise no 2012843  
"Brennholm"  
1–19 October 2012

▲ Pelagic trawl st.no 1–31





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