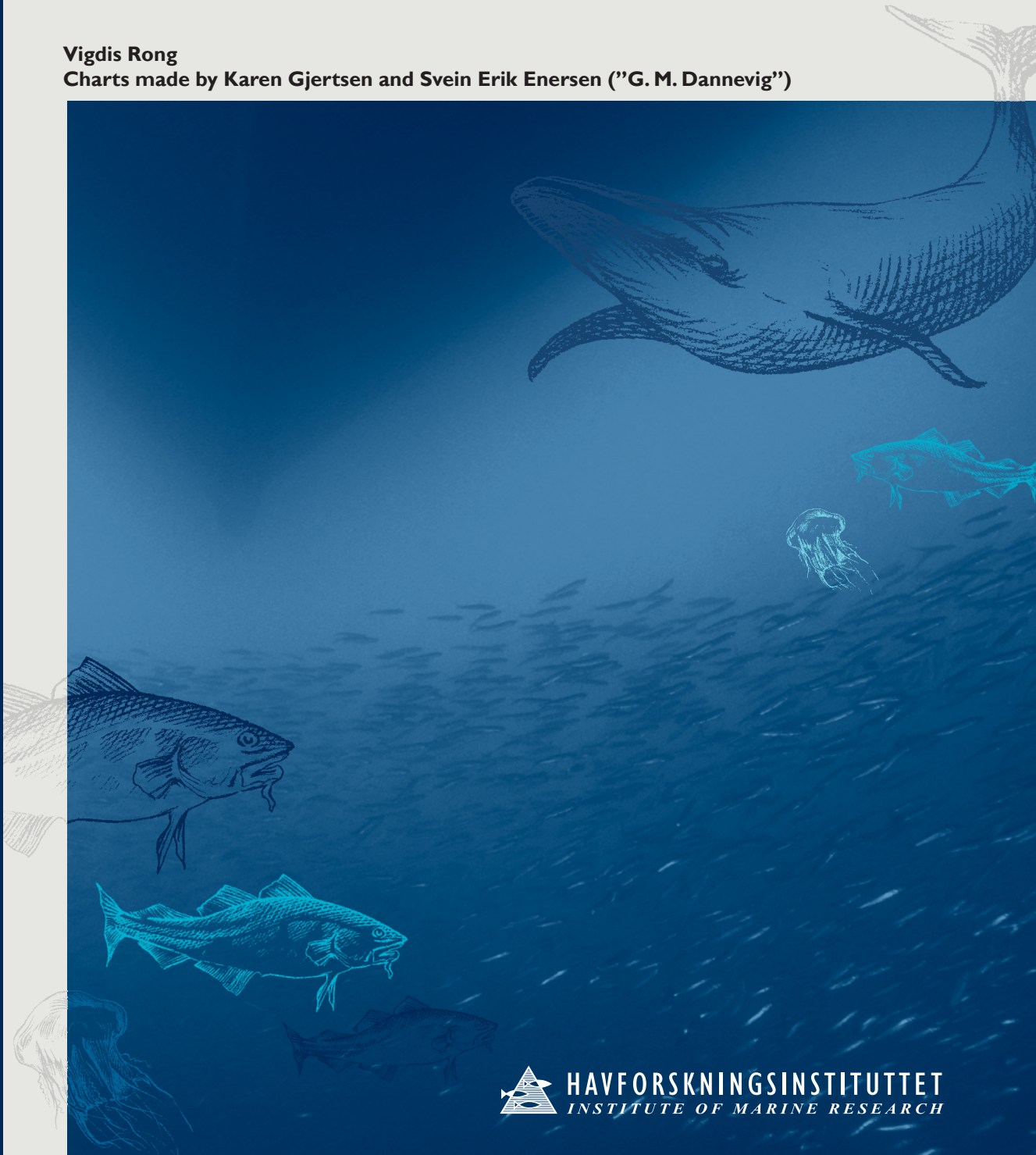


## Oversikt over tokt og faste oseanografiske stasjoner tatt i 2011

### *Report on cruises and fixed oceanographic data stations, 2011*

Vigdis Rong

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





# PROSJEKTRAPPORT



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<b>Forfatter(e):</b> Vigdís Rong. Charts made by Karen Gjertsen and Svein Erik Enersen ("G. M. Dannevig")		<b>Oppdragsgiver(e):</b>
<b>Sammendrag (norsk):</b> Rapporten gir en oversikt over tokt i regi av Havforskningsinstituttet og Universitetet i Bergen. Toktene er utført med forskningsfartøylene "G. O. Sars", "Johan Hjort", "Håkon Mosby", "G. M. Dannevig", "Jan Mayen" / "Helmer Hanssen" samt noen innleide fiskefartøyer i 2011. 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.		<b>Oppdragsgivers referanse:</b>
<b>Summary (English):</b> The report presents cruises carried out by the research vessels "G. O. Sars", "Johan Hjort", "Håkon Mosby", "G. M. Dannevig", "Jan Mayen" / "Helmer Hanssen" and some hired commercial fishing vessels on behalf of the Institute of Marine Research and the University of Bergen during 2011. 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.		<b>Dato:</b> 16.03.2012
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## 1 Cruises 2011

### 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		
2011101	30 Jan	01 Feb	Educational cruise (GEO-005). The aim is to demonstrate how the collection and processing of seismic data and sampling is done and to give participants experience of conducting such investigations and work practices on a research vessel.	Norwegian coast, Western Norway	1	3	-	-	26	
2011102	07 Feb	06 Mars	IBTS ( <i>International Bottom Trawl Survey</i> ). Coordinated by ICES and used for stock assessments. The IBTS involves all North Sea countries and collects data for hydrography, nutrients, plankton, herring, sprat larvae and fish. Process studies (2days) trawl calibration (1day). Oceanographic section: "Utsira-Start Point". Samples of contaminants in fish. Gill samples of saithe for genetic analysis.	North Sea, Skagerrak, Kattegat	4	78	1	49	26-28	
2011103	21 Mars	07 Apr	Acoustic trawl survey to produce indexes used in the assessment of the spawning stock of blue whiting west of the British Isles.	Atlantic ocean/ West of the British Isles	79	116	64	73	28-29	
2011104	11 Apr	14 Apr	Oceanographic section, Fugløya-Bjørnøya. Plankton sampling. Replacement of sea current moorings.	Barents Sea	117	136	-	-	29-30	
2011105	15 Apr	25 Apr	Mapping and sampling of benthos, environmental chemistry and seabed geology.	Coastal areas (outside Porsangerfjord and Sørøya)	137	141	-	-	30-32	
2011106	29 Apr	29 May	Distribution of Norwegian spring-spawning herring and blue whiting in the Norwegian Sea and southern Barents Sea to produce indexes used in the assessment. Hydrography and plankton survey. Seasonal variation and horizontal distribution of Calanus. Environment and predators impact on behavioral, development, growth and mortality in the stock. Use of quantitative sonar MS70 along with post processing systems LSSS and PROMUS on an operational cruise.	Norwegian Sea Barents Sea	142	210	74	115	32-33	
2011107	29 May	7 June	Process studies of Calanus.	Norwegian Sea	211	223	116	131	34	

**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		
2011108	10 June	22 June	Project ECO2 ( <i>Sub-seabed CO2 Storage: Impact on Marine Ecosystems</i> ). Make further research of Jan Mayen Hydrotermalfelt. This includes: 1) detailed mapping of the hydrothermal areas with AUV. 2) Biological and geological sampling of the hydrothermal fields using ROV. 3) Quantify the natural CO2 leakage from the field and examine the effect of acidification on the biological environment. 4) Perform a systematic search for new hydrothermal fields along the Mohn Ridge. Multi-disciplinary study of the Sleiþner area with the following purposes: 1) conduct detailed mapping and sub-bottom profiling of the seabed 2) identify areas with natural leakage 3) take samples of fluids and gases 4) implement microbiological sampling of sediments.	Iceland/Greenland seas	224	235	-	-	35	
2011109	24 June	19 July	Project ECO2 ( <i>Sub-seabed CO2 Storage: Impact on Marine Ecosystems</i> ).	Iceland/Greenland seas	236	249	-	-	35-36	
2011110	21 July	28 July	Mapping and sampling of benthos and seabed geology.	Lofoten	250	257	-	-	36	
2011111	01 Aug	18 Aug	Bottom trawling survey for deep-sea resources at depths between 400-1500 m in the continental slope between N 68 and N 80. Bottom trawl stations primarily for stock assessment of Greenland halibut as well as acoustic monitoring of redfish and other deep-sea species.	Norwegian Sea	-	-	-	-	-	Cancelled
2011112	20 Aug	15 Sep	Distribution and abundance estimation of capelin, polar cod, young herring and blue whiting, bottom fish and 0-group fish. Hydrographic and plankton observations. Environmental sampling observations. Whale observations.	Barents Sea	-	-	-	-	-	Cancelled Carried out by cruise no. 2011830
2011113	11 Sep	19 Oct	Mapping and sampling of benthos and seabed geology.	Lofoten	258	269	-	-	37	
2011114	21 Oct	02 Nov	Investigate biological resources on the shelf south of Jan Mayen.	Norwegian Sea	270	279	132	141	37-39	

**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		
2011115	27 Oct	09 Nov	Functional testing of a new semi-pelagic trawl with square mesh concept in the rear and longitudinal rope in the front part. Studying fish behavior during trawling. Develop CatcMeter for identification of trapping and active selection	Barents Sea	-	-	-	-	-	Cancelled Carried out by cruise no. 2011218
2011116	11 Nov	19 Nov	Environmental and plankton monitoring on the Gimsøy section.	Norwegian Sea	-	-	-	-	-	Cancelled Carried out by cruise no. 2011215
2011117	22 Nov	04 Dec	Trials of new broadband echo sounder. Calibration, TS measurements, SV measurements and parallel measurements with the EK60. Sampling of fish and zooplankton.	Norwegian coast, Western Norway	-	-	-	-	-	Cancelled Carried out by cruise no. 2011629

### 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		
2011201	13 Jan	27 Jan	Seawater (surface) samples for estimating radioactive contamination at two stations on the standard oceanographic sections Fugløya-Bjørnøya, Gimsøy and Svinøy. Seasonal variation in biology and environment in Calanus. Perform environmental and plankton surveys in the standard oceanographic sections Vardo-N, Fugløya-Bjørnøya and Svinøy.	Norwegian Sea Barents Sea	1	64	1	1	40	
2011202	03 Feb	14 Mars	Environmental and plankton surveys on the sections Bjørnøya-W, Vardø-N and Fugløya-Bjørnøya. Survey for estimating cod, haddock, Greenland halibut, redfish, capelin, shrimp abundance. Plankton surveys incisions Vardø-N and Fugløya-Bjørnøya. Fish samples for NIFES ( <i>National Institute of Nutrition and Seafood Research</i> ).	Barents Sea	65	163	2	155	41	
2011203	16 Mars	07 Apr	Abundance estimation 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. Perform environmental and plankton surveys in the Gimsøy section.	Norwegian coast: Lofoten/Vesterålen	164	271	156	174	42	
2011204	08 Apr	13 Apr	Measurement of physical variables (i.e. hydrography, current, turbulence, waves and wind) as well as pelagic plankton and fish eggs for the purpose of developing an improved wind model that can be used both for plankton and oil spill drift predictions.	Norwegian coast: Lofoten/Vesterålen	272	297	-	-	43	
2011205	15 Apr	19 Apr	Assessing Offshore Geohazards: A multidisciplinary site surveying sampling and comparison of shallow submarine landslides in coastal (Finneidfjord) and deepwater environments (off Lofoten) Northern Norway.	Norwegian coast: Nordland	-	-	-	-	44	No CTD
2011206	22 Apr	15 May	Acoustical measurements of sandeels in all known fields in the Norwegian part of North Sea as well as biological studies that support the new site-based management plan for sandeel. Oceanographic sections Hanstholm-Aberdeen and Start Point- Utsira (hydrography and plankton).	North Sea	298	385	175	201	44-45	



**Johan Hjort (cont.)**

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2011207	31 May	06 June	Mapping the distribution and the quantity of post-larvae of herring along the Norwegian coast in June and to study the existence of prey and predators in the same area and to study the larval mortality from May to June.	Norwegian coast	386	422	202	209	46-47	
2011208	11 June	15 June	Using a combination of satellite measurements and ship-based acoustics to detect and map the mesoscale phenomena and their interaction with marine life. Validation with oceanographic instrumentation and biological sampling.	Norwegian coast: Nordland	423	435	210	218	47-48	
2011209	16 June	21 June	Mapping the distribution and the quantity of post-larvae of herring along the Norwegian coast in May and to study the existence of prey and predators in the same area.	Norwegian coast	436	461	219	226	49-50	
2011210	28 June	25 July	Quality control of trawls. Combined IBTS ( <i>International Bottom Trawl Survey</i> ) and acoustic stock assessment survey for collecting data, respectively demersal fish, herring sprat and saithe. Oceanographic sections Hanstholm–Aberdeen and Utsira–Start Point. Data on hydrography, nutrients, plankton, herring and sprat larvae. Process studies examining life history dynamics of fish larvae. The cruise also includes surveys of the level of environmental toxins (from oil) in fish. Gill samples of saithe for genetic analysis.	North Sea	462	558	227	323	50-51	
2011211	26 July	16 Aug	Counting of whales with minke whales as target species. In 2011 the administrative area EW will be covered. That includes the eastern Norwegian Sea and areas off the Norwegian coast from 62° N to 28°E.	Norwegian Sea	-	-	-	-	52	No CTD
2011212	18 Aug	27 Aug	Conduct environmental and plankton surveys in the fixed sections Svingøy, Gimsøy and Fugløya–Bjørnøya. Examining the seasonal variation in biology and environment in the Calanus in the Svingøy section. Investigations on station Mike.	Norwegian Sea	559	604	324	326	52-53	

**Johan Hjort (cont.)**

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2011213	30 Aug	04 Oct	Samples of fish for analyses of eventual pollution from petroleum activities in the Barents Sea. Climate observations at the Sørkapp-W section. Long-term monitoring of benthic fauna distribution in the Barents Sea. Surface deposits of deep-water shrimp in the Barents Sea, measurement of biomass and population structure. Whale observations synoptic with abiotic and biotic factors in ecosystem analysis. Annual area coverage of zooplankton / phytoplankton. How zooplankton volumes relate to the amount of plankton-eating fish in the ecosystem, and also how environmental / ocean climate in the Barents Sea affects the amount and distribution of plankton in general. Acoustic abundance estimation of capelin and other pelagic fish species (polar cod, herring, blue whiting). Stock assessment of 0-group fish. Stock assessment of cod, haddock and other demersal species. Stomach samples of cod. Provide a regional coverage of ocean climate in the Barents Sea, including areas around Svalbard. Recover sea current rigs north of Svalbard.	Barents Sea	605	721	327	528	53-54	
2011214	06 Oct	28 Oct	Environmental and plankton survey on the Fugløya-Bjørnøya section. Distribution and acoustic stock assessments of cod, saithe and haddock, environmental stations on the main fjords, fish samples to NIFES and CEFAS. Distribution and acoustic abundance of cod, saithe and haddock environmental stations in main fjords.	Norwegian coast: Troms/Finmark	722	781	529	578	55	
2011218	29 Oct	07 Nov	Testing a new semi-pelagic trawls with quadratic mesh concept in the rear and longitudinal rope in the front part. Studying fish behavior during trawling. Develop CatcMeter for identifying catches and active selection.	North Sea	-	-	579	601	56	No CTD
2011216	10 Nov	16 Nov	Sampling of hydrography and plankton along the standard oceanographic sections in the North Sea.	North Sea	-	-	-	-	-	Cancelled. Carried out by cruise no. 2011628

**Johan Hjort (cont.)**

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2011215	12 Nov	19 Nov	Environmental and plankton surveys on the Svinøy and Gimsøy sections. Seasonal variation in biology and environment in Calanus.	Norwegian Sea	782	797	602	603	56-57	
2011217	20 Nov	06 Dec	Bottom trawling survey for deep-sea species at depths between 400–1500 m along the continental slope between N 68° and N 80°. Bottom trawl stations primarily for stock assessment of halibut, and acoustic monitoring of redfish and other deep-sea species.	Norwegian Sea	-	-	604	662	57	

### 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		
2011601	10 Jan	27 Jan	Sampling of hydrography and plankton along the regular oceanographic sections in the North Sea. Annual survey of the shrimp resource in the Norwegian trench and Skagerrak, with emphasis on biomass and recruitment. Registration of Norway lobster (number, weight, sex and stage). Registration of sea cucumber (number, weight, distribution). Annual resource survey of grenadier fish.	Skagerrak	1	109	1	101	58	
2011602	03 Feb	11 Feb	Educational survey. Exercises in planning, implementation and to report from an oceanographic cruise.	Norwegian coast: Western Norway	110	220	-	-	59	
2011627	21 Feb	07 Mars	Cruise to collect samples of spawning cod at selected location in Hordaland and Sogn og Fjordane. Recordings of escaped farmed cod including genetic analyzes on board. Areas near farms with genetically tagged cod are given priority.	Norwegian coast: Western Norway	*	*	-	-	59	*CTD taken with private sonde
2011604	03 Mars	05 Mars			-	-	-	-	-	Cancelled
2011603	07 Mars	13 Mars	Mapping the distribution, abundance and stock structure of the population of Norwegian spring-spawning herring in spawning areas south of 62N.	Norwegian coast: Western Norway	221	235	102	106	60	
2011605	15 Mars	27 Mars	Observations of environment, plankton and ocean acidification of Svinøy section. Development of operational climate buoy at 66°N 2°E for monitoring the Norwegian Atlantic Current. Svinøy section and station M. Test cruise NACO ( <i>North Atlantic Current Observatory</i> ).	Norwegian Sea	236	248	-	-	61	
2011606	31 Mars	20 Apr	Mapping of the distribution and abundance of herring larvae and other fish larvae on the shelf from Karmøy to Malangsrunden. Hydrography, nutrients, chlorophyll and zooplankton.	Norwegian coast:	249	401	107	111	61-62	
2011609	21 Apr	03 May			-	-	-	-	-	Hired
2011607	04 May	07 May	Recording, preparation and launching of the met-ocean-buoy 4 km outside Sletringen close to Frøya.	Norwegian Sea: Møre/Trøndelag	-	-	-	-	63	No CTD

**Håkon Mosby (cont.)**

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2011608	09 May	10 May	To follow the colonization and development of the enigmatic burrowing polychaete <i>Osedax</i> and associated fauna in decaying whalebones and bones of other large mammals and birds.	Norwegian coast: Western Norway	-	-	-	-	63	No CTD
2011610	12 May	24 May	Environmental and plankton surveys on the Svinøy section. Seasonal variation in biology and environment for Calanus. Heat loss from the ocean and changes in the water masses in the Lofoten Basin. Investigate on how the modified water spread in the Lofoten Basin and are exchanged with the water from other basins in the Nordic Seas.	Norwegian Sea	402	456	-	-	64-65	
2011611	26 May	31 May	To record suitable areas and test methods for monitoring of sponge and coral in light of changing environmental conditions such as climate change, acidification and human activities such as fishing and oil industry.	Norwegian coast: Lofoten/Vesterålen	457	465	-	-	65-66	
2011612	01 June	11 June	Environmental and plankton surveys at the sections Gimsøy (extended into the Greenland Sea), Bjørnøya-W and Fugløya-Bjørnøya.	Norwegian Sea, Barents Sea	466	533	-	-	66	
2011613	15 June	03 July	Participate in coordinated ICES mackerel egg surveys in the North Sea to measure egg production and spawning stock size.	North Sea	534	687	-	-	67-68	
2011614	03 July	13 July	Main objective is to evaluate biological responses of marine sponges exposed to organic effluent released from aquaculture and initiate the development of stress biomarkers (Microbiology and physiology). Evaluate the response of deep-water sponges exposed to particulate oil drilling discharges and initiate the development of new tools (biomarkers) for exposure based studies to link molecular and biological stress responses.	Norwegian coast: Western Norway	688	693	-	-	69-70	

**Håkon Mosby (cont.)**

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2011615	31 July	16 Aug	Seafloor seismic data, East Greenland. Seismic receivers will be deployed on land of another team. Determination of the earths crust in the transition zone land/sea to understand the large land uplift anomaly.	Iceland/Greenland seas	-	-	-	-	70	No CTD
2011616	18 Aug	31 Aug	Educational cruise in Isfjord and Van Mijen fjord. Students from all universities in Norway. Collection of reflection seismic data.	Svalbard	-	-	-	-	71	No CTD
2011617	02. Sep	13 Sep	Educational survey. Exercises in planning, implementation and to report from an oceanographic cruise. UNIS studies are field based and mission is mandatory.	Svalbard	694	943	-	-	71-72	
2011618	15 Sep	21 Sep	Recording of five current rigs in Van Mijenfjorden, study of mixing processes expose of two tomography rigs and CTD in the Fram Strait.	Svalbard	944	971	-	-	72	
2011619	28 Sep	03 Oct	Control of the current meter array in the Svinøy section for monitoring of the Norwegian Atlantic Current Deployment of the NACO-Buoy in position 62°49N, 4 ° 18E for real time monitoring of the NwAC. Deployment of the Polar Buoy in position 65 ° 50N, 2 ° 11E (Station M) for real time oceanic monitoring. Deployment of a current meter/CTD mooring in position 65 ° 50N, 2 ° 11E (Station M). CTD profiles.	Norwegian Sea Svinøy section, Station M	972	975	-	-	73	
2011620	06 Oct	07 Oct	Provide new students an introduction to oceanographic measurement techniques and interpretation of results.	Norwegian coast: Western Norway	976	987	-	-	73	
2011621	09 Oct	10 Oct	To follow the colonization and development of the burrowing polychaete Osedax and associated fauna in decaying whalebones and bones of other large mammals and birds.	Norwegian coast: Western Norway	-	-	-	-	74	No CTD
2011622	11 Oct	15 Oct	Course requirements for Master's students in Fisheries Biology and Management. Introduction to use of fisheries biology working methods and equipment. Oceanographic section Fedje–Shetland and beam trawl surveys at selected stations.	Norwegian coast: Western Norway	988	993	107	127	74-75	

**Håkon Mosby (cont.)**

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD ST		TRAWL ST		PAGE OF CHART	COMMENT
	Start	End			Start	End	Start	End		
2011623	16 Oct	22 Oct	Educational cruise.	Norwegian coast: Western Norway	994	1017	128	140 *	75-76	*Trawl st. no. 132 is missing
2011624	24 Oct	31 Oct	Recording, preparation and launching of the met-ocean buoy in Havsul area (north of Ålesund). Turbulence measurements near the buoy.	Norwegian coast: Western Norway	1018	1023	-	-	76	
2011625	01 Nov	05 Nov	Survey in Sognefjorden. Initiation of a long term investigation by the marine biodiversity research group. The project is intended to investigate and map the poorly known marine benthos diversity (fauna and macroalgae) of the fjord.	Norwegian coast: Western Norway	1024	1034	142	143	77	
2011626	07 Nov	09 Nov	Significance of local stocks of herring for the study and management of meta-populations. Seminar.	Norwegian coast: Western Norway	1035	1039	144	149	78	
2011628	11 Nov	17 Nov	Sampling of hydrography and plankton along the standard oceanographic sections in the North Sea.	North Sea	1040	1081	-	-	79	
2011629	21 Nov	03 Dec	Trials of new broadband echo sounder. Calibration, TS measurements, SV measurements and parallel measurements with the EK60. Sampling of fish and zooplankton.	Osterfjord, Sørffjord	1082	1092	150	159	79-80	
2011630	09 Dec	11 Dec	Re-Deployment of the NACO-Buoy in position 62°49N, 4°18E for real time monitoring of the Norwegian Atlantic Current.	Norwegian Sea	-	-	-	-	80	

**1.4 Jan Mayen / Helmer Hanssen** (New name from 17.06.2011) (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		
2011702	01 Feb	01 Mars	Mapping of cod, haddock, halibut, redfish, capelin and deepwater shrimp. Climate survey and plankton samples at the sections Vardø-N and Fugløya-Bjørnøya. Fish samples for NIFES.	Norwegian Sea Barents Sea	9	66	10	195	81	
2011717	09 Aug	24 Aug	Russian-Norwegian ecosystem survey in the Barents Sea and around Svalbard. Provide a regional coverage of ocean climate. Abundance of cod, haddock, capelin, Greenland halibut, 0-group fish, benthic and deep-sea shrimp. Measurement of biomass and population structure. Annual survey of zooplankton and phytoplankton.	Svalbard	326	386	178	310	82	
2011722	16 Oct	12 Nov	Investigation of radioactive contamination in sediments and fish in the sea water: Laksefjord (Finmark), Sognefjord (Sogn and Fjordane), Trondheimsfjord, Bindalsfjord (Sør-Trøndelag), Namsenfjord (Nord-Trøndelag), Vefsnfjord (Nordland). Quantitative acoustic measurements of cod and haddock. Environmental stations in main fjords. Fish samples for NIFES and CEFAS.	Norwegian coast	457	511	594	691	83-84	



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

CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD NO		PAGE OF CHART	COMMENT
	Start	End			Start	End		
2011301	08 Jan	14 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	32	86	
2011302	13 Feb	18 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	33	60	86	
2011303	22 Feb	08 Mar	Mapping distribution area of coastel cod.	Bergen - Florø	-	-	-	Cancelled
2011304	11 Mar	15 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	-	-	-	Cancelled
2011305	30 Mar	19 Apr	Environmental investigation in the eastern North Sea, the Skagerrak and Cattegat 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/ Cattegat	61	189	87	
2011306	11 May	27 May	Survey of young seithe.	Western Norway	-	-	-	
2011307	18 Jun	23 Jun	Hydrographic standard section "Torungen-Hirtshals", environmental investigation. Long-term environmental monitoring in the fjords along the Norwegian Skagerrak coast.	Skagerrak, Norwegian coast of Skagerrak	190	228	87	
2011308	02 Jul	03 Jul	Hydrographic standard section "Torungen-Hirtshals", environmental investigation. Long-term environmental monitoring in the fjords along the Norwegian Skagerrak coast.	Skagerrak, Norwegian coast of Skagerrak	229	246	88	
2011309/ 2011310	09 Aug	24 Aug	Monitoring lobster/MPA. 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	247	290	88	

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

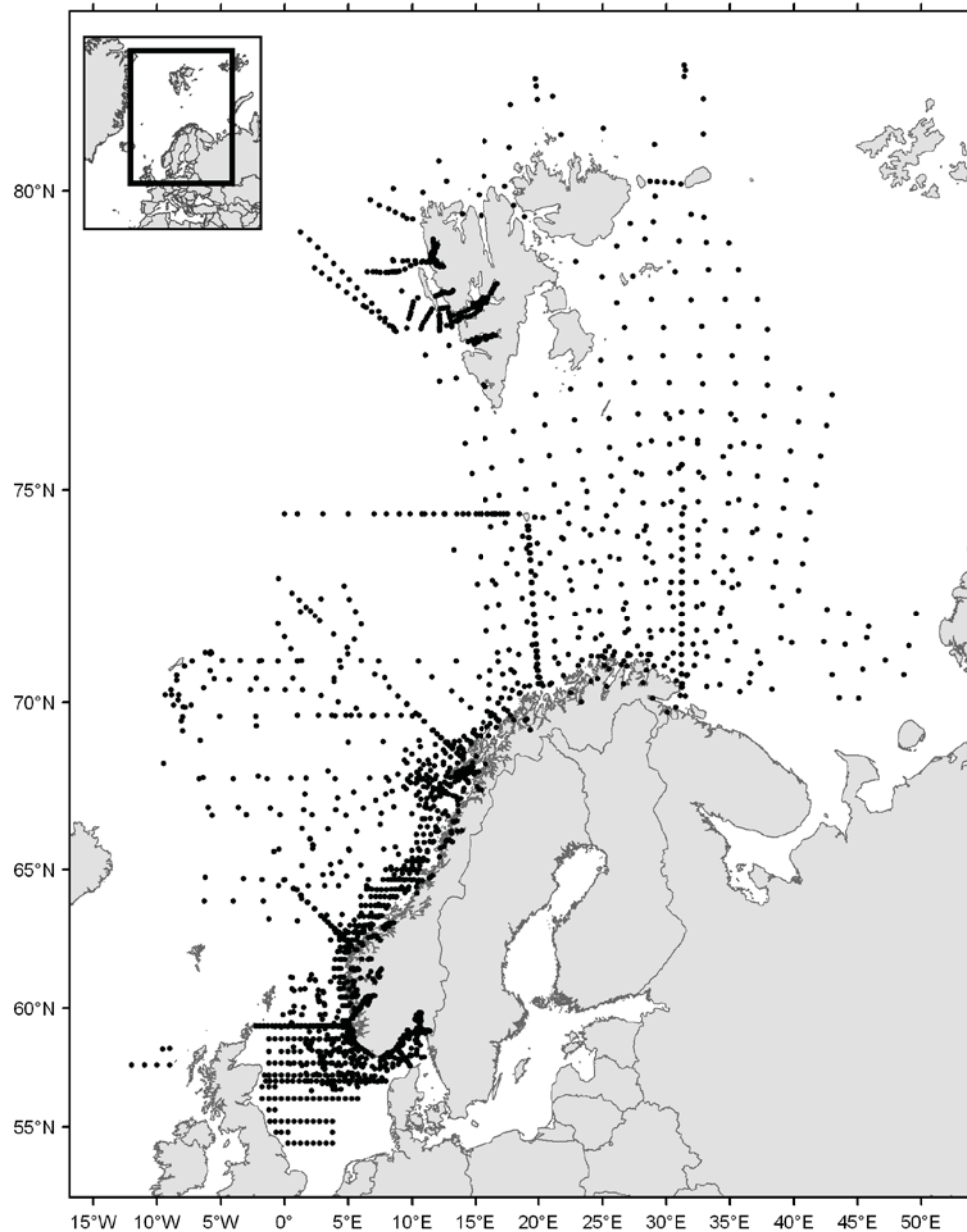
CRUISE NO	PERIOD OF CRUISES		PURPOSE	AREA	CTD NO		PAGE OF CHART	COMMENT
	Start	End			Start	End		
2011311	13 Sep	14 Sep	Hydrographic standard section "Torungen-Hirtshals", environmental investigation. Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast.	Skagerrak, Norwegian coast of Skagerrak	-	-	-	Cancelled
2011312	16 Sep	04 Oct	Long-term environmental monitoring on a near-shore station outside Arendal and in the fjords along the Norwegian Skagerrak coast. Beach seine studies.	Skagerrak, Norwegian coast of Skagerrak	291	349	89	
2011313	04 Oct	05 Oct	Long-term environmental monitoring on a near-shore station outside Arendal and on a station near Kristiansand (Topdalsfjorden).	Norwegian coast of Skagerrak	350	351	89	Torungen-Hirtshals section is cancelled
2011314/ 2011315	16 Nov	15 Dec	Contaminants in seafood. Fish community studies in marine protected area and mapping of coastal cod. Long-term environmental monitoring on a nearshore station outside Arendal and in the fjords along the Norwegian Skagerrak coast.	Skagerrak, Norwegian coast of Skagerrak	352	370	89	

**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		
2011826	18 July	10 Aug	Libas	Large scale ecosystem coverage in the Norwegian Sea with focus on mackerel distribution.	Norwegian Sea	1	61	1	61	90	St. no. 3 and 29 is missing
2011830	25 Aug	18 Sep	Christina E	Distribution and abundance estimation of capelin, polar cod, young herring and blue whiting, bottom fish and 0-group fish. Oceanographic observations using CTD. Plankton observations. Environmental observations. Whale observations.	Barents Sea	1	70	1	151	91	

## 2 Charts – overview

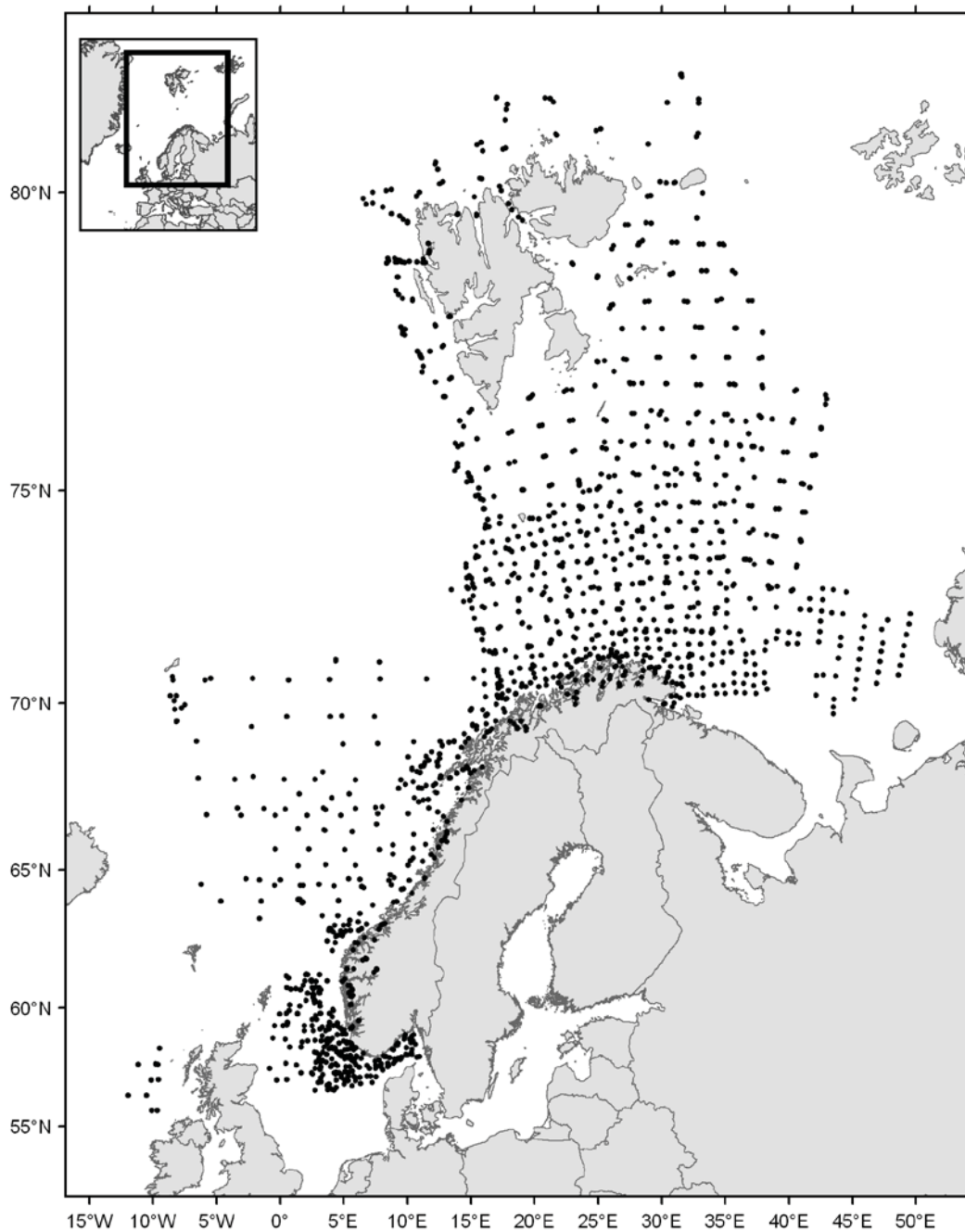
### 2.1 CTD stations 2011



• CTD stations

	<b>Ship</b>	<b>Stations</b>
<b>Research vessels</b>	G.O. Sars	279
	Johan Hjort	1092
	Håkon Mosby	803
	G. M. Dannevig	370
	Jan Mayen / New name from 17.06.2011: Helmer Hanssen	174
<b>Hired fishing vessels</b>	Christina E	61
	Libas	70
		<b>2849</b>

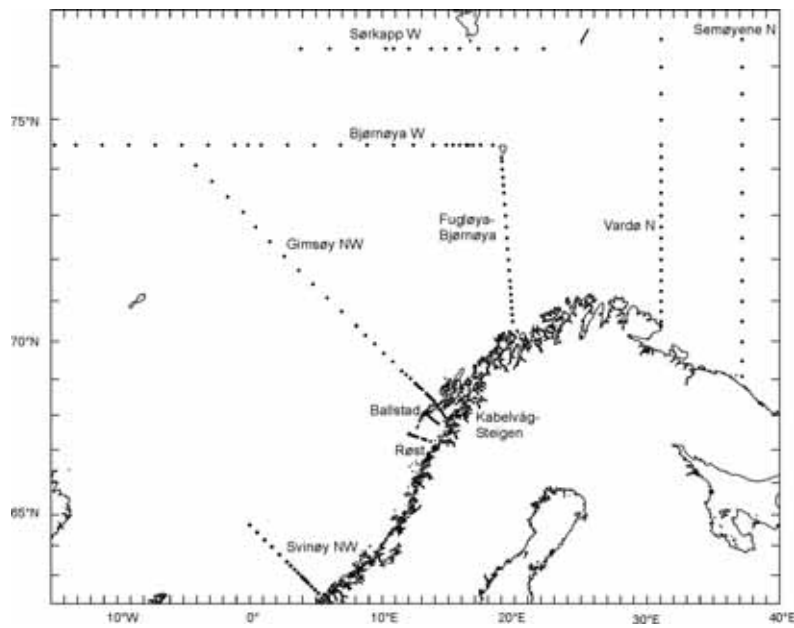
## 2.2 Trawl stations 2011



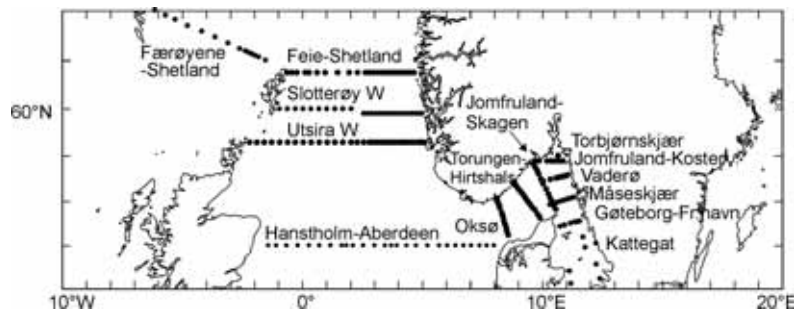
• Trawl stations

	Ship	Stations
<b>Research vessels</b>	G.O. Sars	141
	Johan Hjort	662
	Håkon Mosby	159
	Jan Mayen / New name from 17.06.2011: Helmer Hanssen	417
<b>Hired fishing vessels</b>	Christina E	61
	Libas	151
		<b>1591</b>

### 2.3 Oceanographic sections

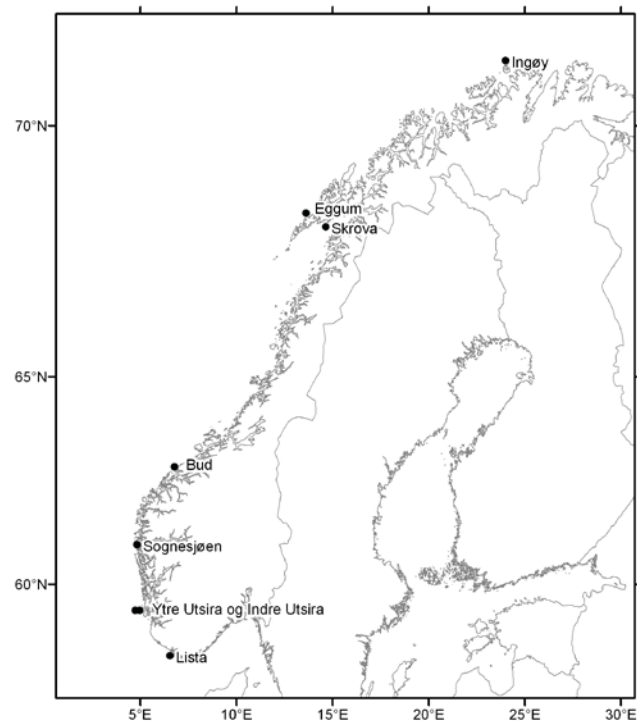


Norwegian Sea and Barents Sea



North Sea, Skagerrak and Kattegat

### 2.4 Fixed oceanographic stations



### 3 Tables – Observations in 2011

#### 3.1 Standard oceanographic sections 2011 (Cruise no./ship)

Area	Standard sections	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
North Sea, Skagerrak	Fedje–Shetland													
	Slotterøy–West													
	Utsira–West		2011102			2011206		2011210				2011628		
	Jærens Rev–SW and W													
	Egerøya–SW													
	Lista–SW													
	Lindesnes–SSW													
	Hanstholm–Aberdeen	2011601					2011206		2011210					
	Oksøy–Hanstholm				2011305									
	Torungen–Hirtshals	2011301	2011302	2011305	2011305	2011305	2011307	2011308	2011308	2011309			2011628	
	Jomfruland–Skagen				2011305									
	Jomfruland–Koster				2011305									
	Torbjørnskjær				2011305									
Väderø				2011305										
Måseskjær				2011305										
Gøteborg–Fredrikshavn				2011305										
Kattegat														

Area	Standard sections	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Vest- fjord	Røst-Tennholmen												
	Ballstad-Måløy/Skarholmen												
The Norwegian Sea	Svinøy-North/West	2011201		2011605		2011610			2011212			2011215	
	Gimsøy-North/West	2011201			2011203		2011612		2011212			2011215	
The Barents Sea	Bjørnøya-West			2011202			2011612						
	Sørkapp-West												
	Fugløya-Bjørnøya	2011201		2011202	2011104		2011612		2011212		2011214		
	Vardø-North	2011201		2011202							2011213		
	Semøyene-North												
	Bjørnøya-Sørkapp												
	Nordkapp-North												

### 3.2 Other oceanographic sections 2011 (Cruise no./ship)

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



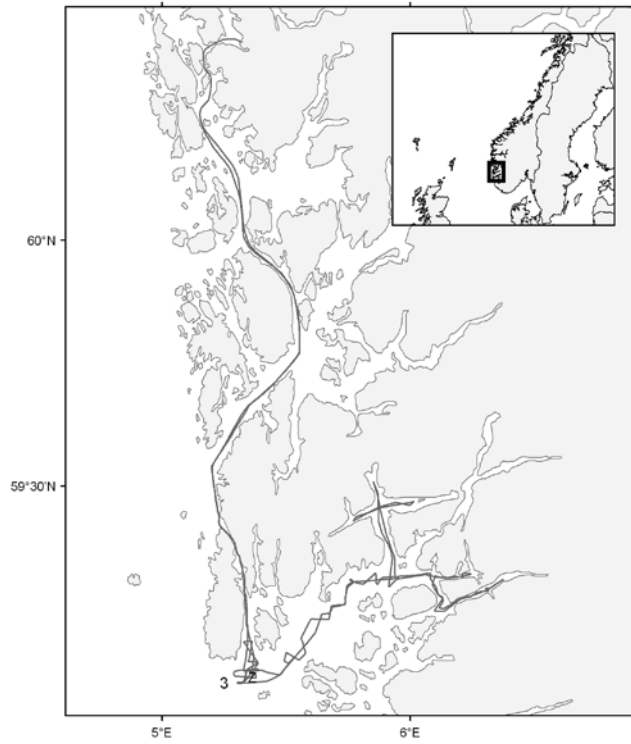
### 3.3 Fixed oceanographic stations 2011

(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	3	3	3	3	3	3	4	2	3	4	36
<b>UTSIRA Y</b> N59° 19' E04° 44'	1	0	1	2	0	1	1	2	1	0	1	0	10
<b>UTSIRA I</b> N59° 19' E04° 59'	1	0	1	2	0	1	1	2	1	0	1	0	10
<b>SOGNESJØEN</b> N61° 01' E04° 50'	1	1	1	2	2	2	1	2	2	1	1	0	16
<b>BUD</b> N62° 56' E06° 47'	0	1	0	1	1	1	0	1	0	1	1	0	7
<b>SKROVA</b> N68° 07' E14° 39'	1	0	1	3	5	2	5	5	3	4	4	4	37
<b>EGGUM</b> N68° 23' E13° 38'	2	2	2	2	3	3	2	2	3	1	3	2	27
<b>INGØY</b> N71° 08' E24° 01'	3	2	3	2	3	2	1	2	2	3	2	2	27

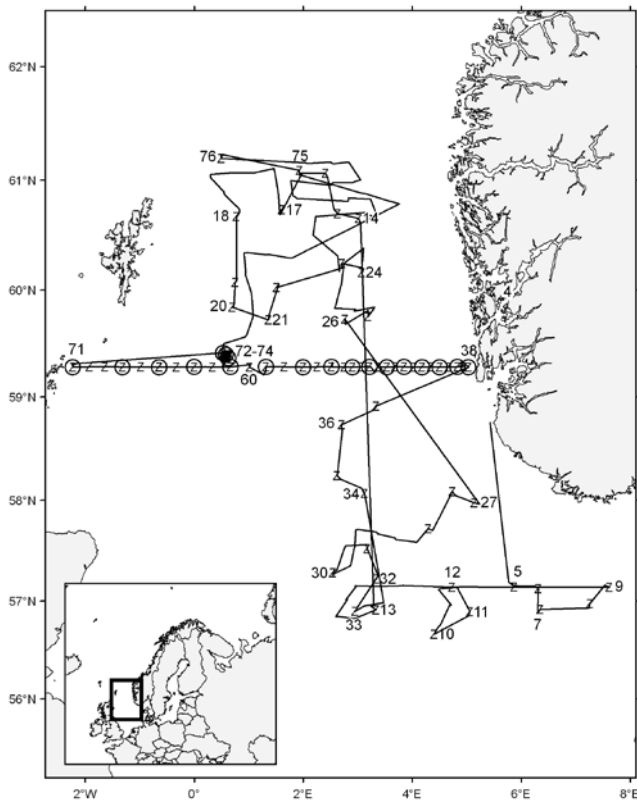
## 4 Charts for cruises 2011

### 4.1 G.O. Sars



Cruise no 2011101  
“G.O. Sars”  
30 Jan–1 Feb 2011

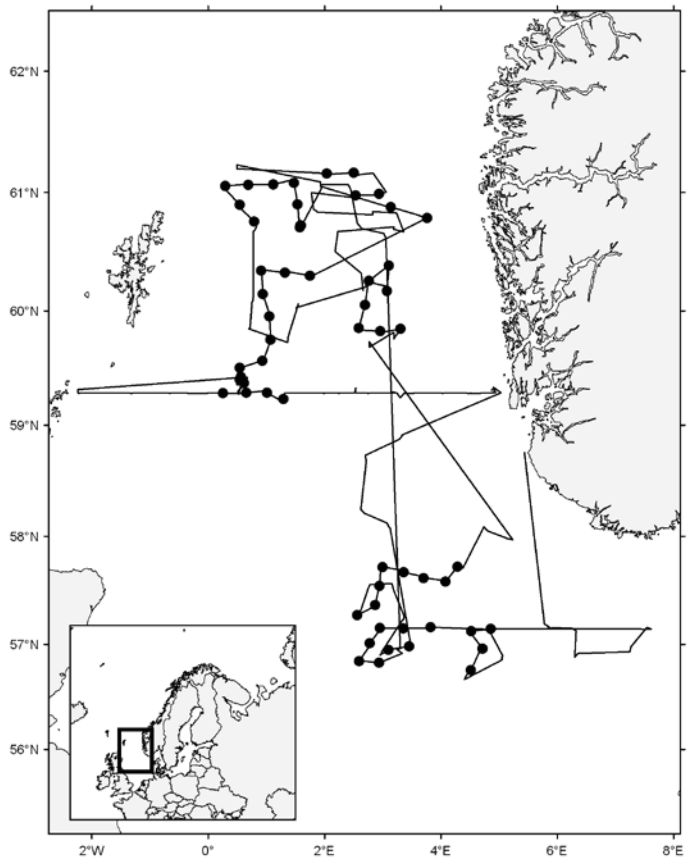
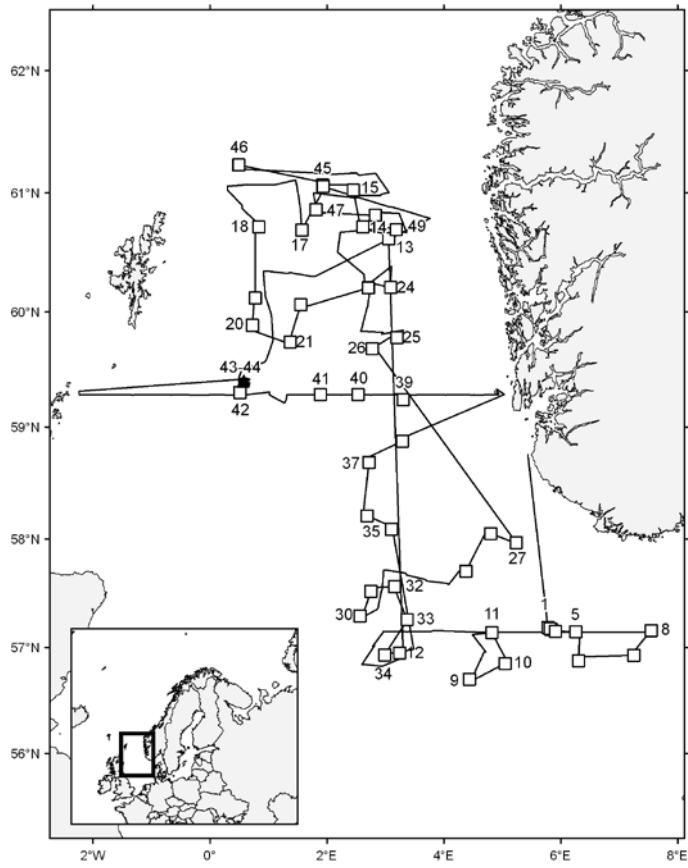
z CTD st.no 3

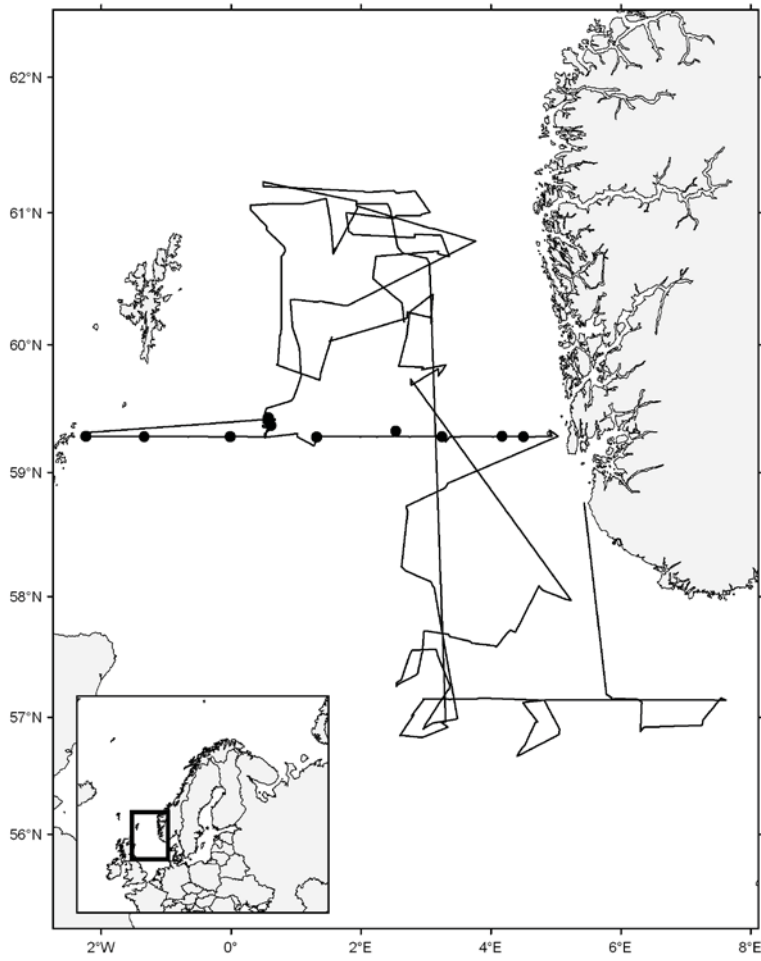


Cruise no 2011102  
“G.O. Sars”  
7 Feb–6 Mars 2011

z CTD st.no 4–76  
O Plankton st. (WP-II-net)

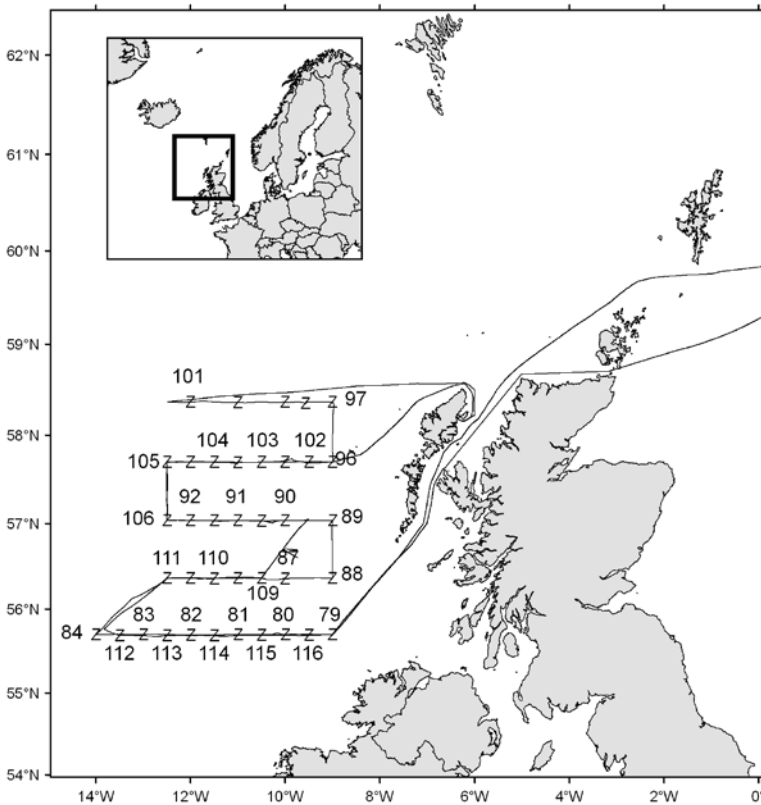
Standard section:  
Utsira-W st.no 38–71





Cruise no 2011102  
 "G.O. Sars"  
 7 Feb–6 Mars 2011

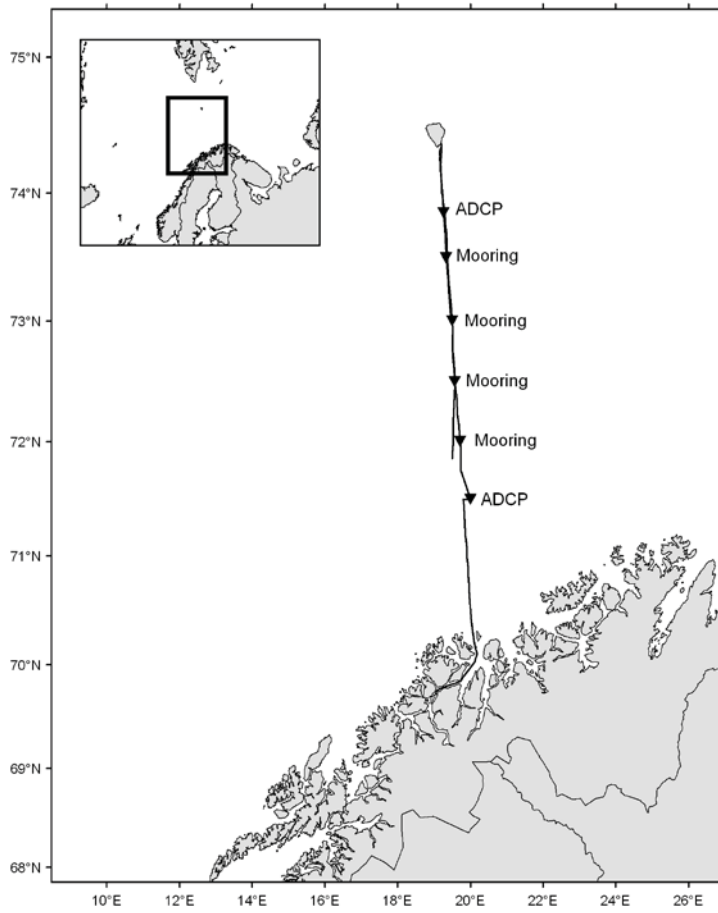
● Gulf III station



Cruise no 2011103  
 "G.O. Sars"  
 21 Mars–7 April 2011

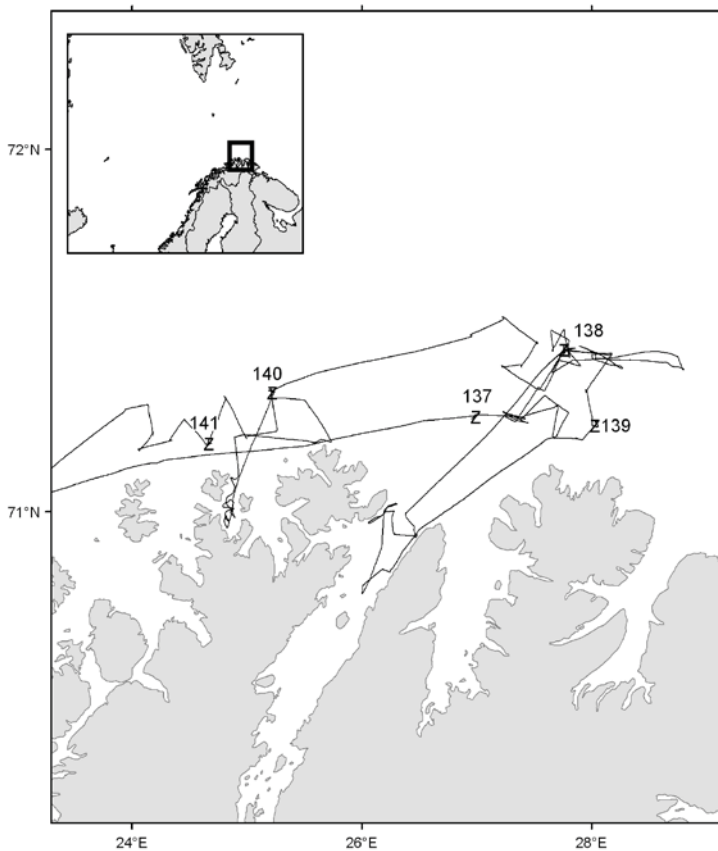
z CTD st.no 79–116





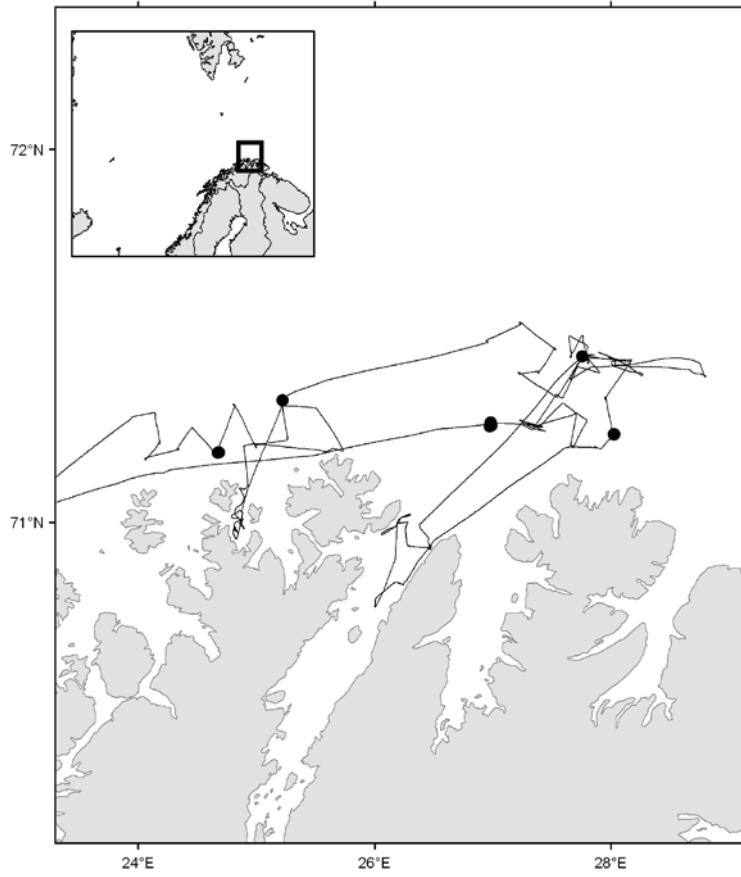
Cruise no 2011104  
 "G.O. Sars"  
 11–14 April 2011

▼ Recovered and deployed ADCP  
 and mooring



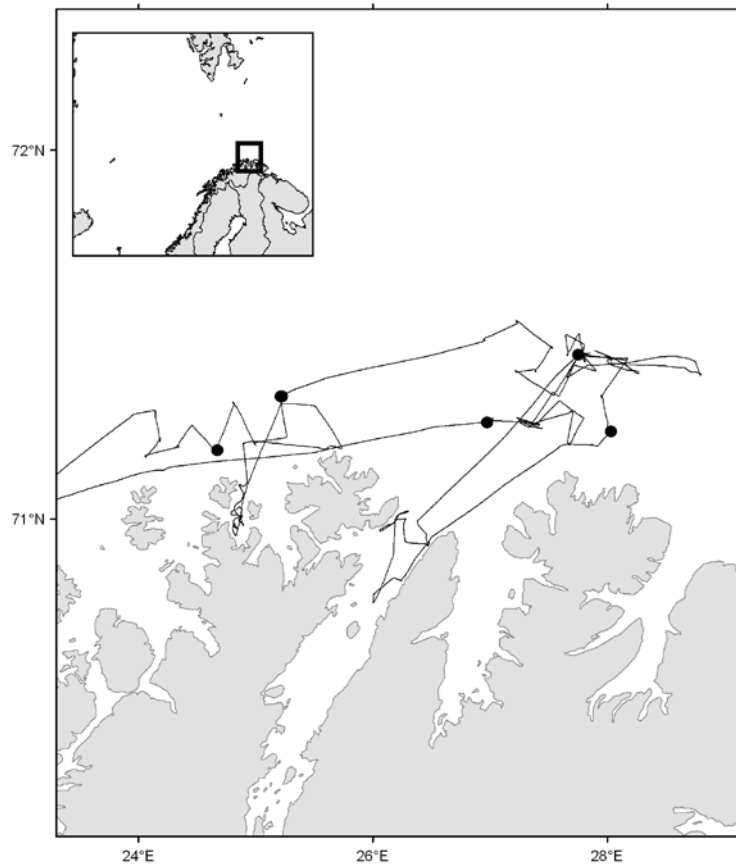
Cruise no 2011105  
 "G.O. Sars"  
 15–25 April 2011

z CTD st.no 137–141



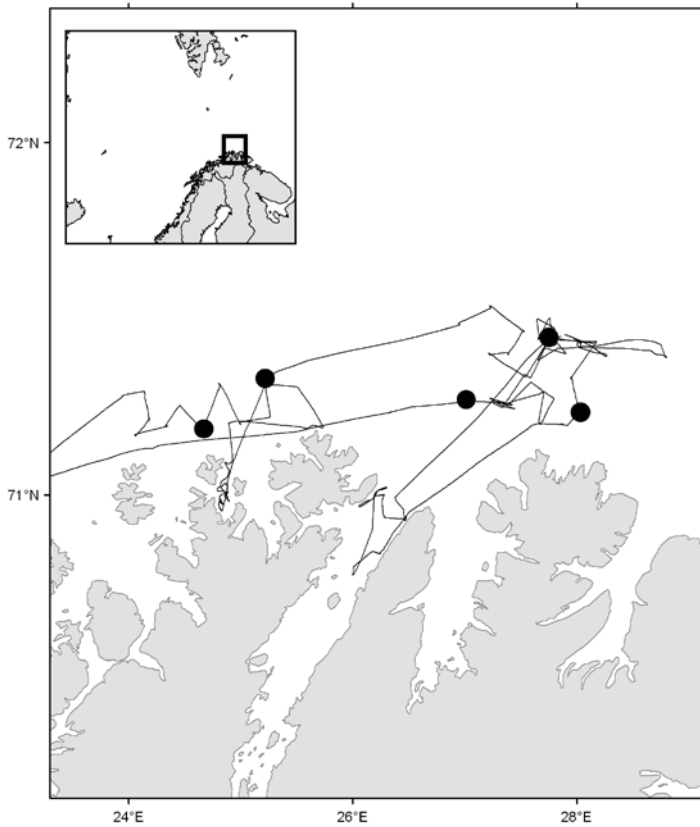
Cruise no 2011105  
 "G.O. Sars"  
 15–25 April 2011

● Grab stations



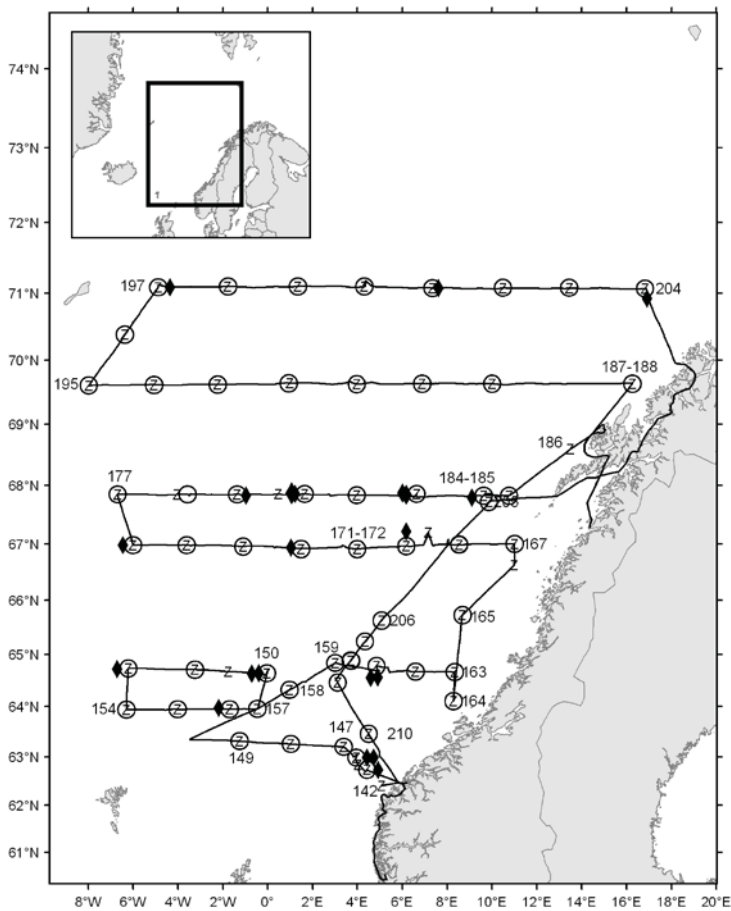
Cruise no 2011105  
 "G.O. Sars"  
 15–25 April 2011

● Beam trawl stations



Cruise no 2011105  
 "G.O. Sars"  
 15–25 April 2011

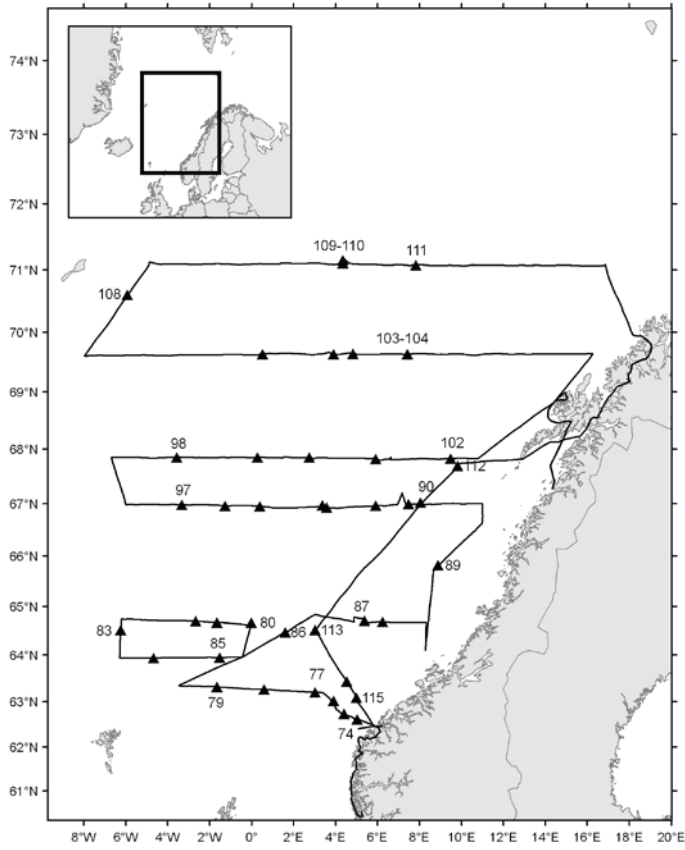
● Sledge stations



Cruise no 2011106  
 "G.O. Sars"  
 29 April–29 May 2011

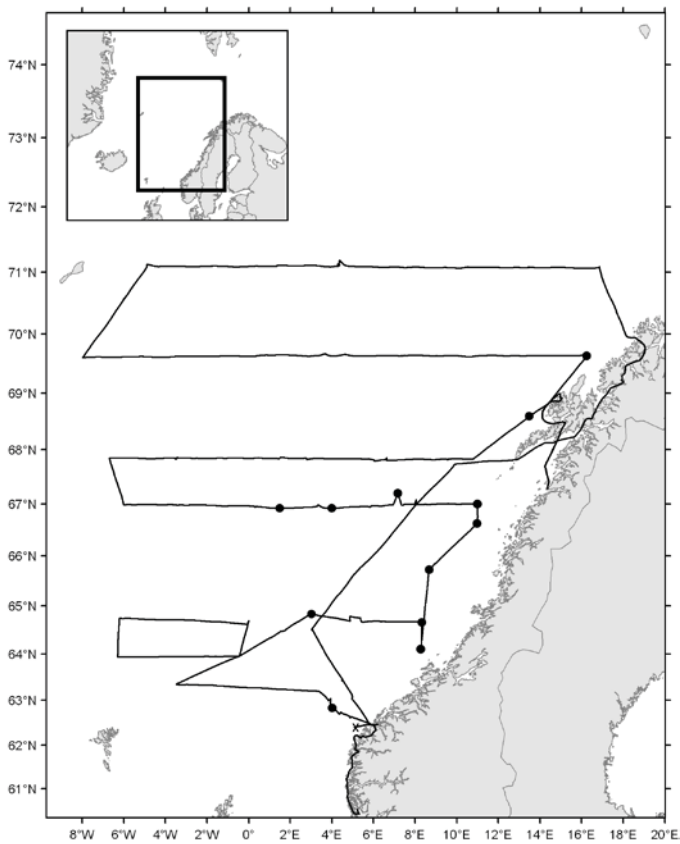
z CTD st.no 142–210  
 ○ Plankton st.  
 ◆ Plankton st. (Mocness)





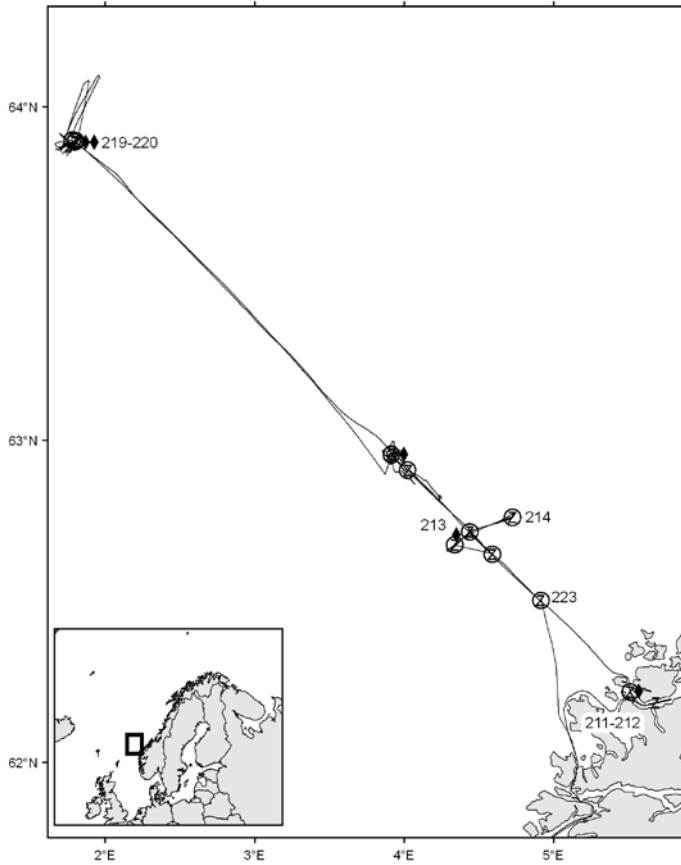
Cruise no 2011106  
 "G.O. Sars"  
 29 April–29 May 2011

▲ Pelagic trawl st.no 74–115



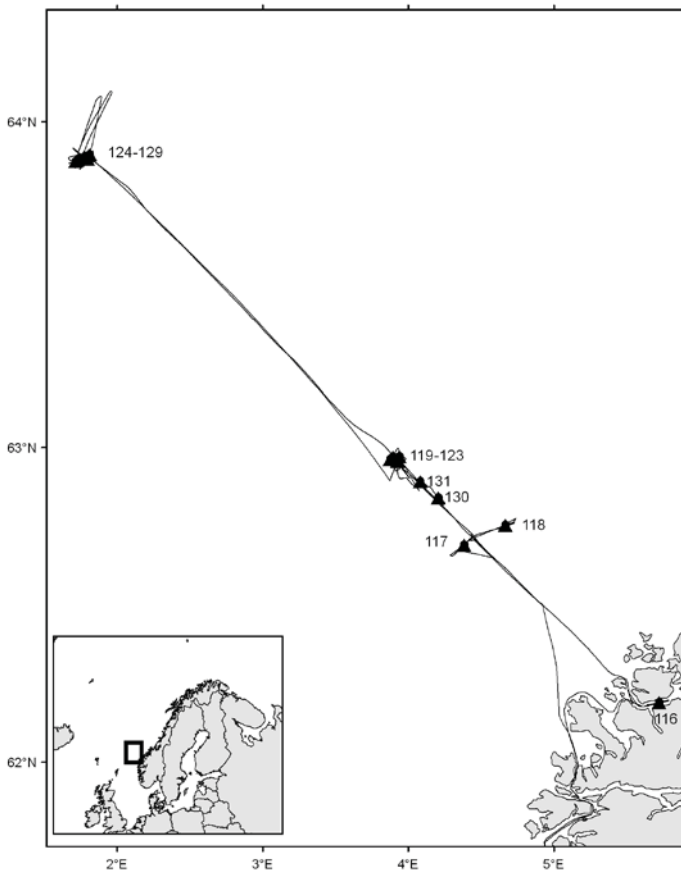
Cruise no 2011106  
 "G.O. Sars"  
 29 April–29 May 2011

● Grab stations  
 X Box core



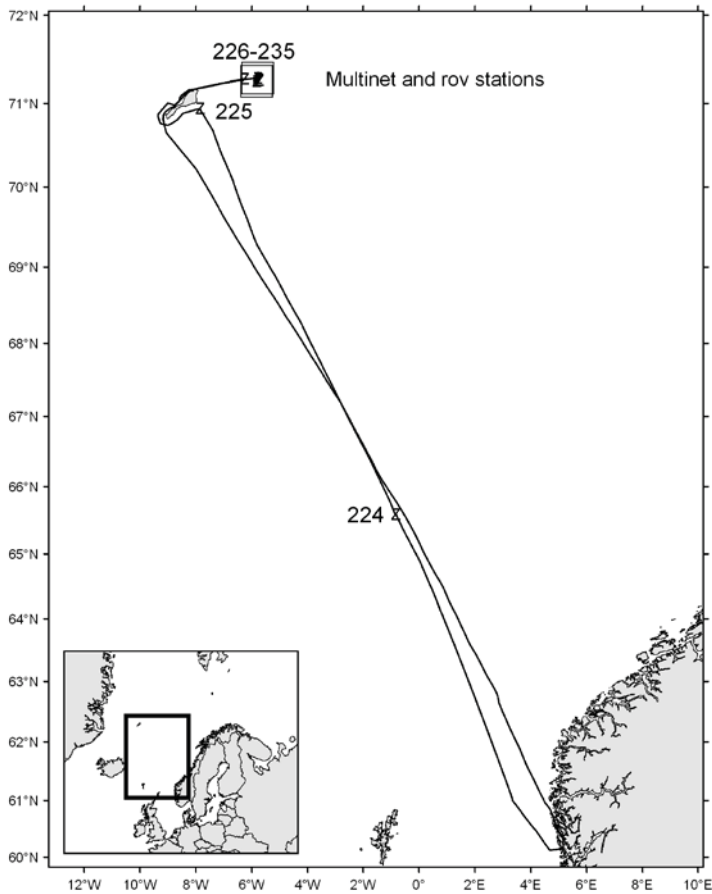
Cruise no 2011107  
 "G.O. Sars"  
 29 May–7 June 2011

z CTD st.no 211–223  
 ○ Plankton st. (WP-II-net)  
 ◆ Plankton st. (Mocness)



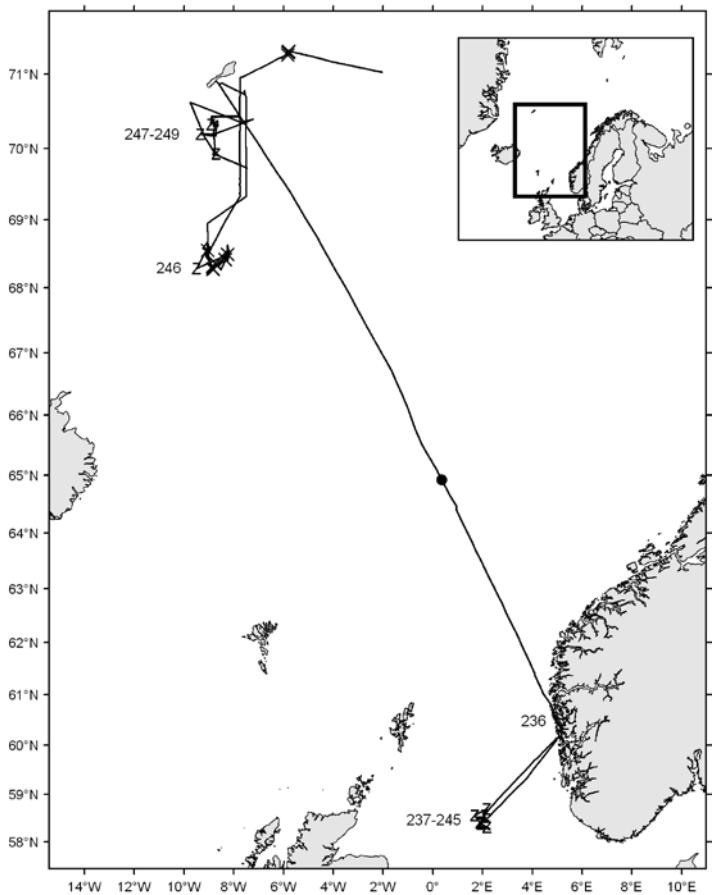
Cruise no 2011107  
 "G.O. Sars"  
 29 May–7 June 2011

▲ Pelagic trawl st.no 116–131



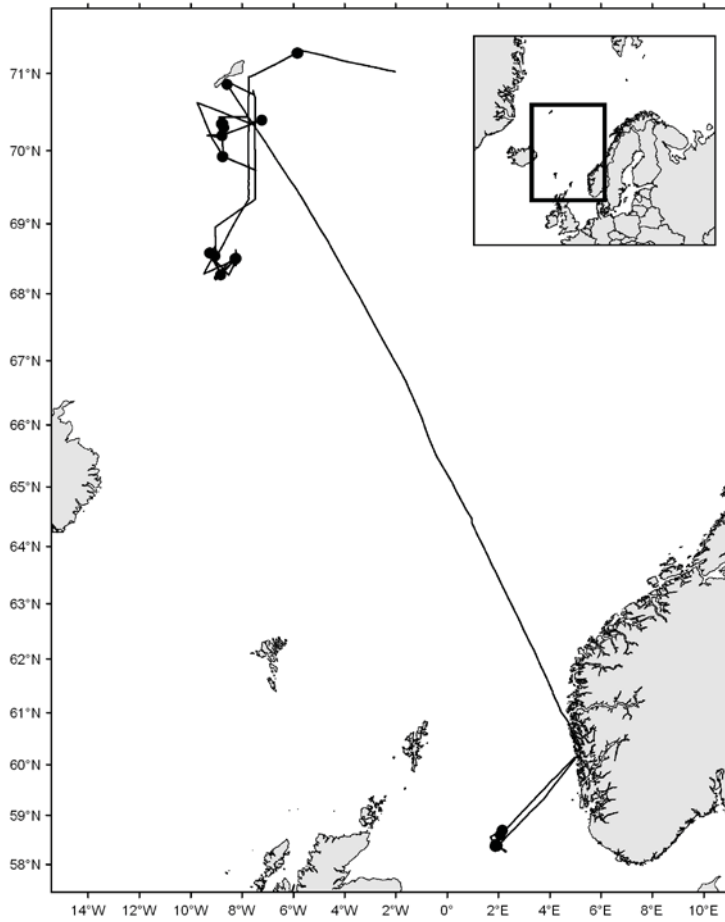
Cruise no 2011108  
 "G.O. Sars"  
 10–23 June 2011

z CTD st.no 224–235  
 2 Multinet stations  
 11 Rov stations



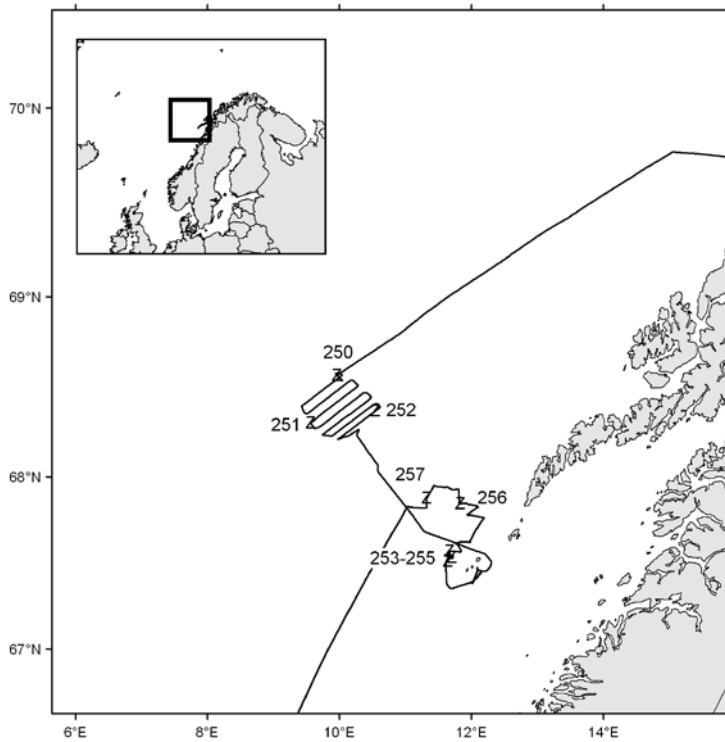
Cruise no 2011109  
 "G.O. Sars"  
 24 June–19 July 2011

z CTD st.no 236–249  
 ● Mik station  
 x Sledge stations



Cruise no 2011109  
 "G.O. Sars"  
 24 June–19 July 2011

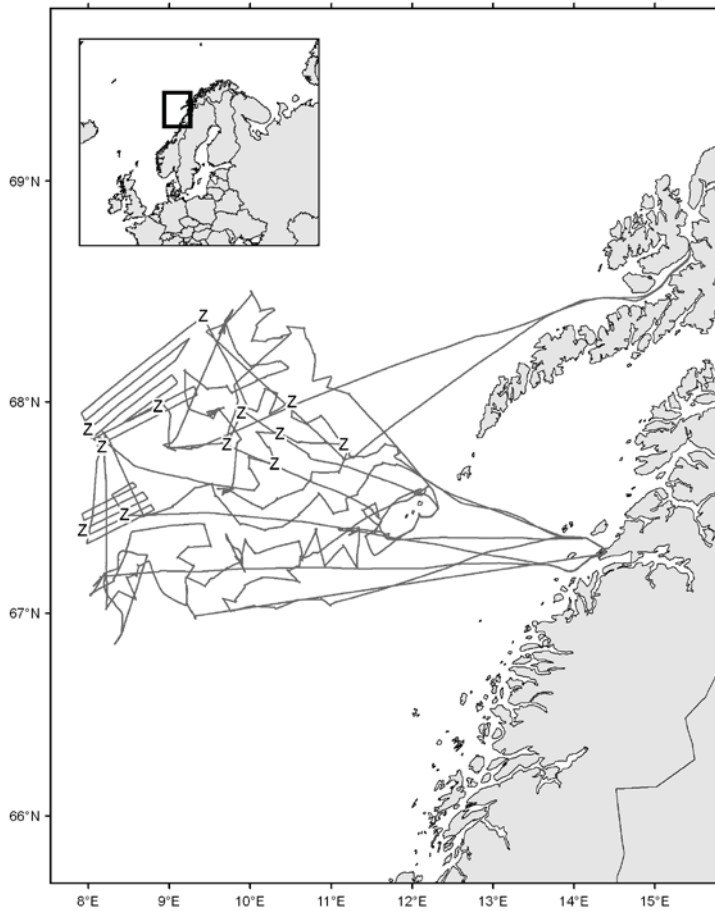
● Rov stations



Cruise no 2011110  
 "G.O. Sars"  
 21–28 July 2011

z CTD st.no 250–257

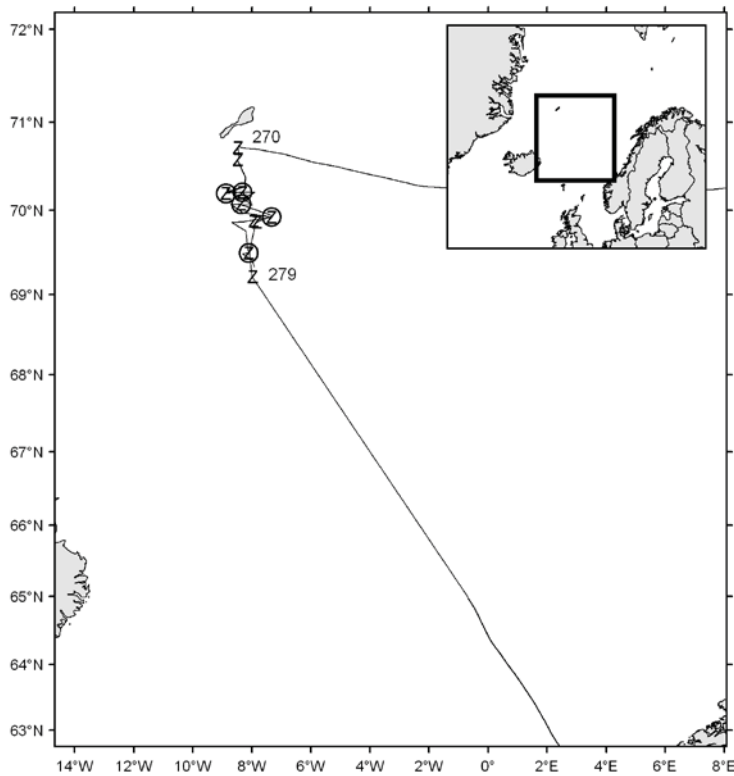
Video filming (16 stations VL 736–755) including 3 full stations (VL 736, 746, 752) where the video filming was made together with CTD and sampling of benthic fauna (using beam grab, boxcore, multi core, beamtrawl and RP-sledge)



Cruise no 2011113  
 "G.O. Sars"  
 11 Sep–19 Oct 2011

z CTD st.no 258–269

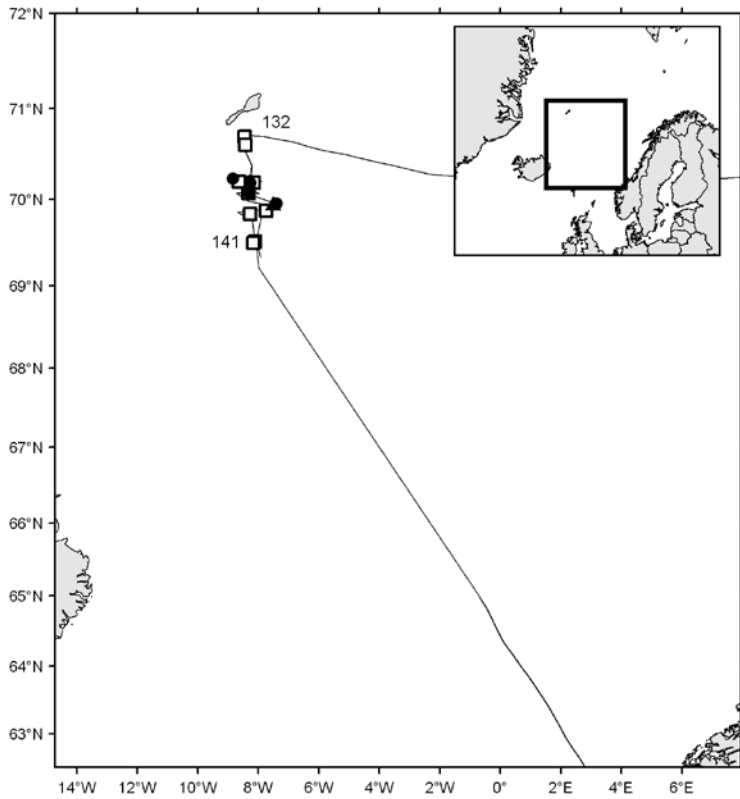
Video filming (146 stations), including 7 full stations where the video filming was made together with CTD and sampling of benthic fauna (using beam grab, boxcore, multi-core, beamtrawl and RP-sledge). In the western most area multibeam scanning of the seabed was made.



Cruise no 2011114  
 "G.O. Sars"  
 22 Oct–4 Nov 2011

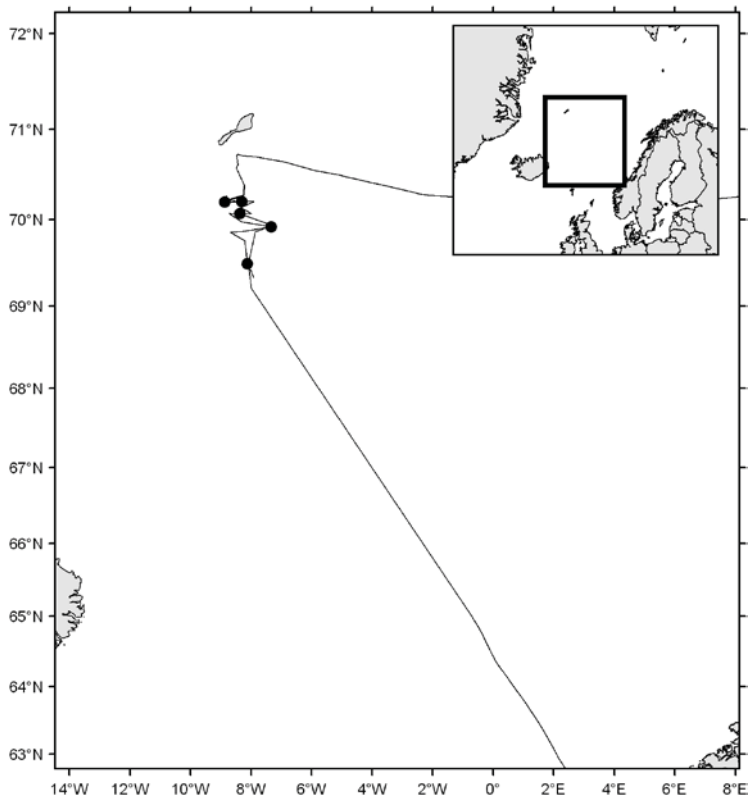
z CTD st.no 270–279

O Plankton st. (WP-II-net)



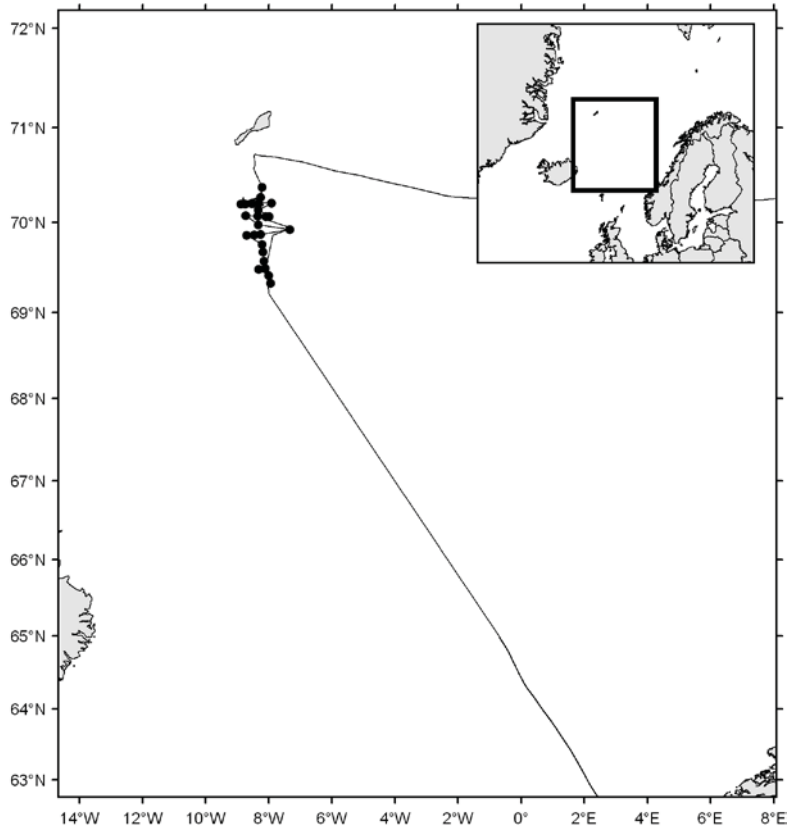
Cruise no 2011114  
 "G.O. Sars"  
 22 Oct–4 Nov 2011

Trawl st. no 132–141  
 □ Bottom trawl  
 ▲ Pelagic trawl  
 ● Beam trawl (st.no 398–401)



Cruise no 2011114  
 "G.O. Sars"  
 22 Oct–4 Nov 2011

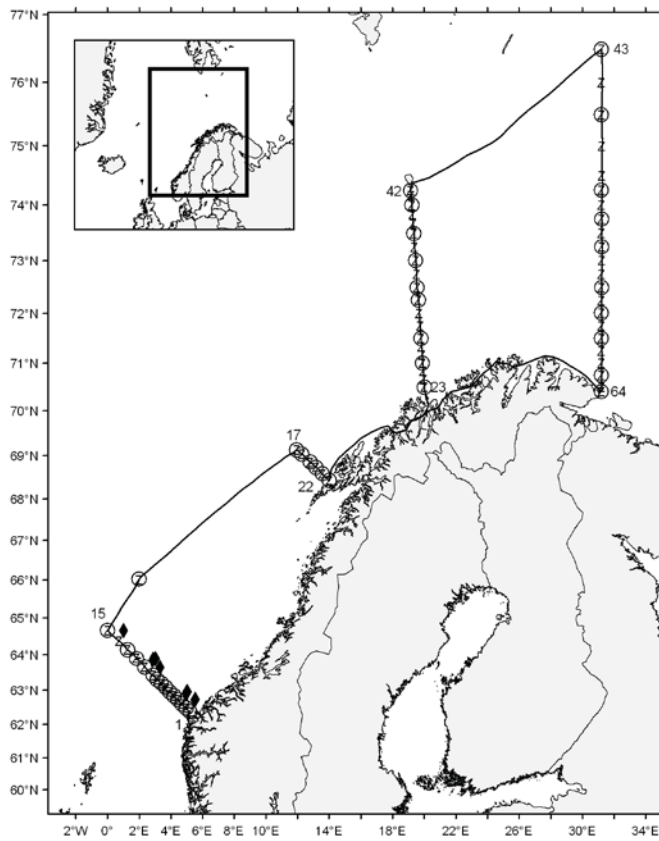
● Grab stations



Cruise no 2011114  
"G.O. Sars"  
22 Oct–4 Nov 2011

● Video-transect

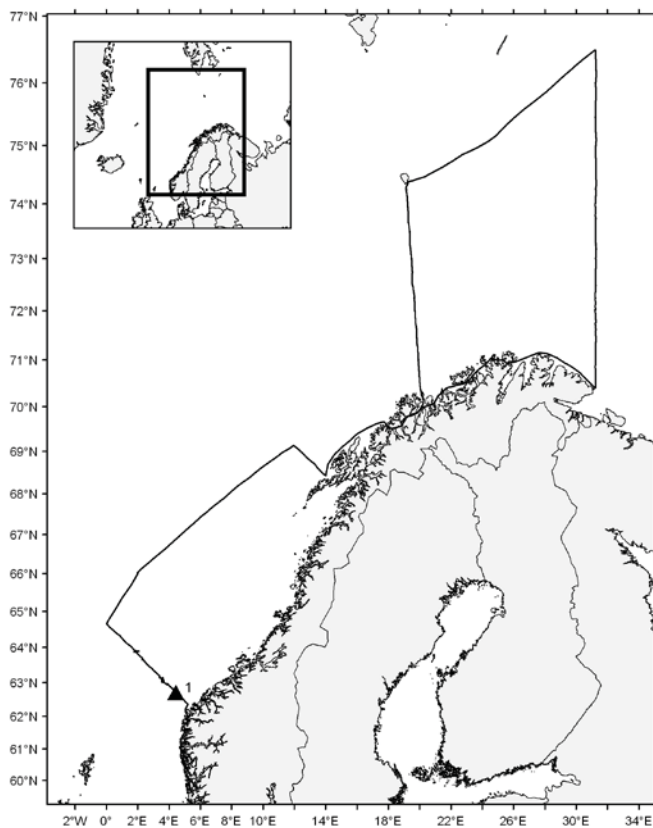
## 4.2 Johan Hjort



Cruise no 2011201  
"Johan Hjort"  
13–27 January 2011

z CTD st.no 1–64  
o Plankton st. (WP-II-net)  
◆ Plankton st. (Mocness st.)

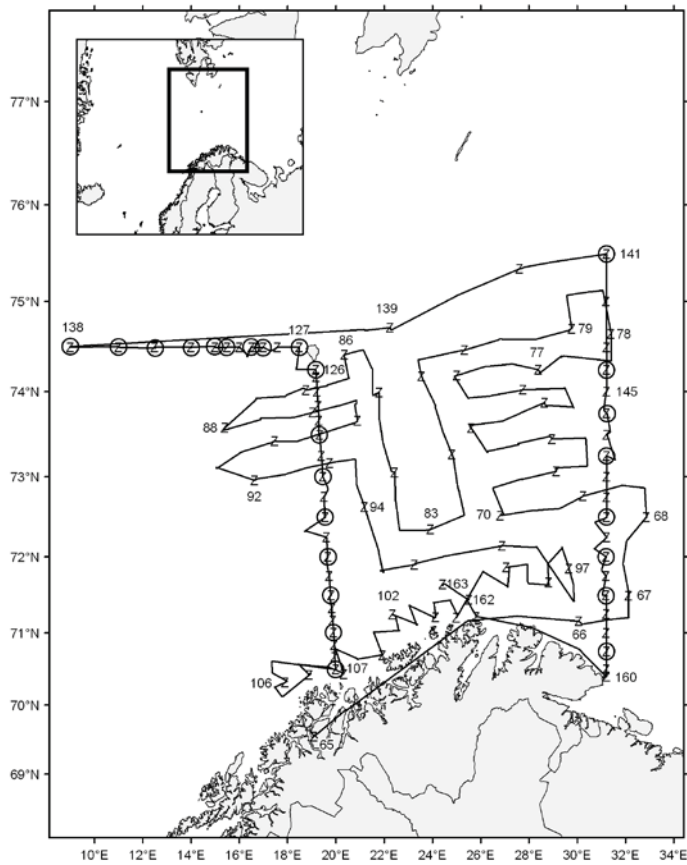
Standard sections:  
Svinøy-NW st.no 1–15  
Gimsøy-NW st.no 17–22  
Fugløya–Bjørnøya st.no 23–42  
Vardø-N st.no 43–64



Cruise no 2011201  
"Johan Hjort"  
13–27 January 2011

▲ Pelagic trawl st.no 1





Cruise no 2011202

“Johan Hjort”

3–14 Mars 2011

z CTD st.no 65–163

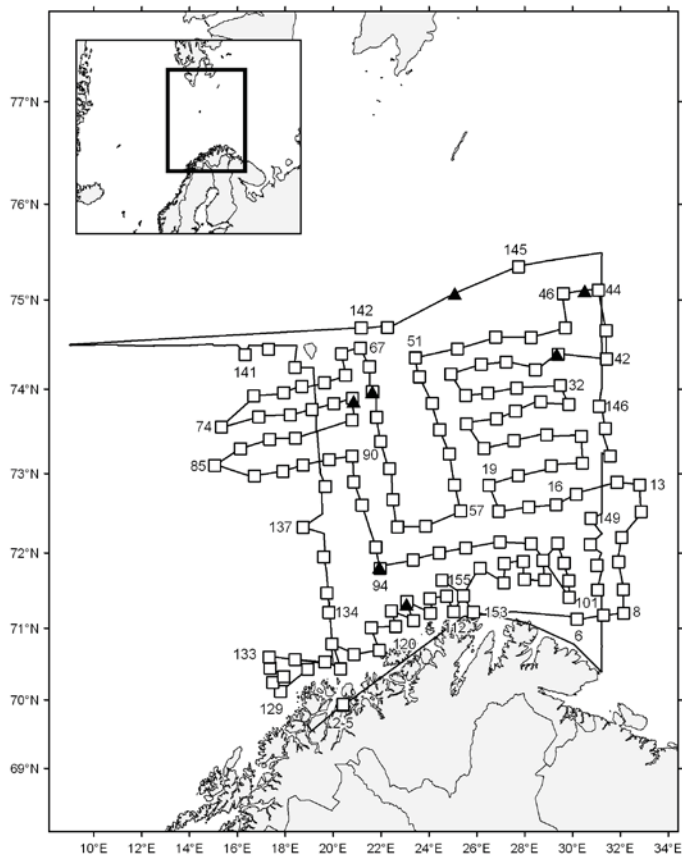
o Plankton st. (WP-II-net)

Standard sections:

Fugløya–Bjørnøya st.no 107–126

Bjørnøya–W st.no 127–138

Vardø–N st.no 141–160



Cruise no 2011202

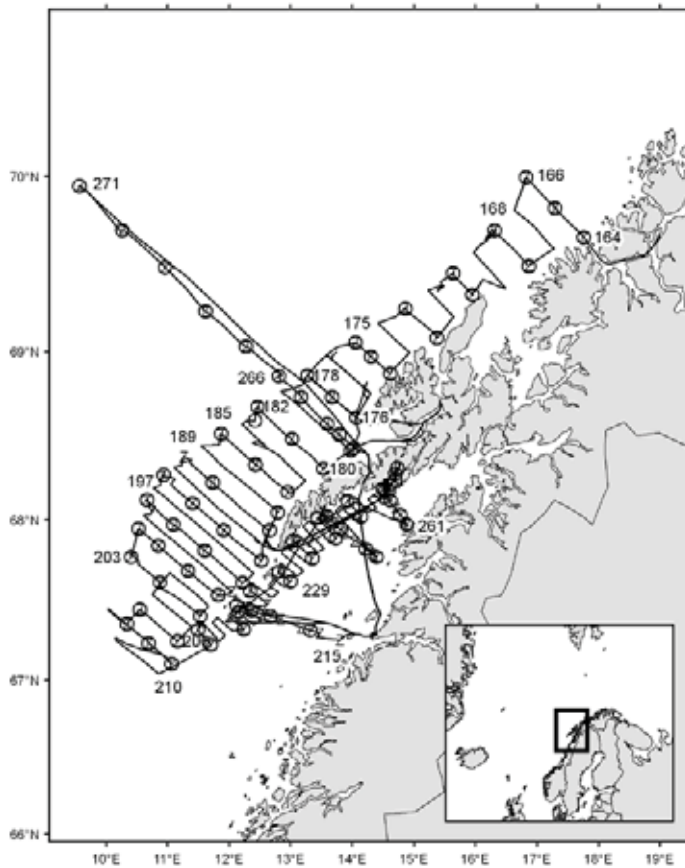
“Johan Hjort”

3–14 Mars 2011

Trawl st.no 2–155

□ Bottom trawl

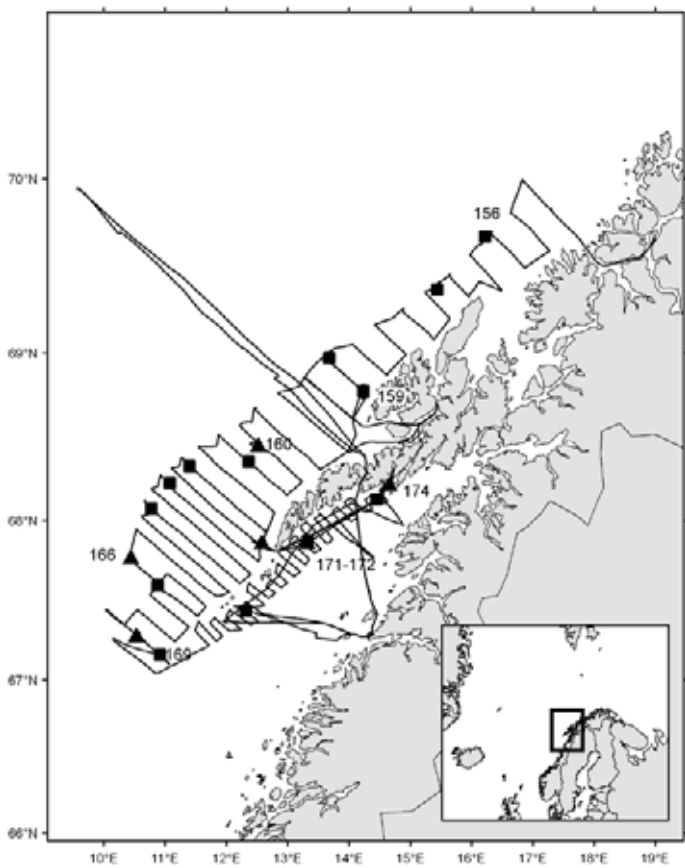
▲ Pelagic trawl



Cruise no 2011203  
 "Johan Hjort"  
 16 Mars–7 April 2011

z CTD st.no 164–271  
 o Egg/larvae and plankton st.  
 (WP-II-net and T-80)

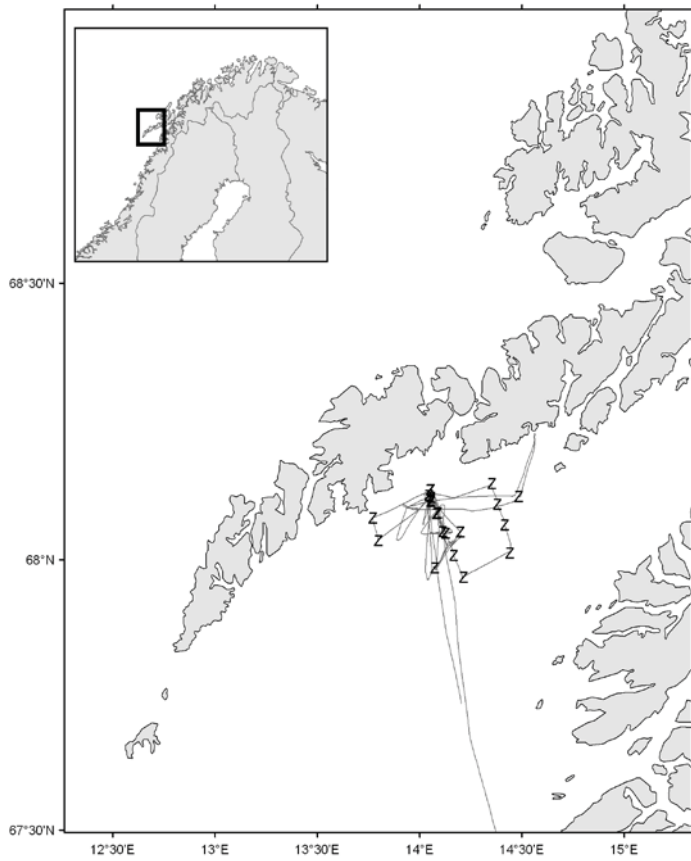
Standard section:  
 Gimsøy-NW st.no 262–271



Cruise no 2011203  
 "Johan Hjort"  
 16 Mars–7 April 2011

Trawl st.no 156–174

▲ Pelagic trawl  
 ■ Bottom trawl

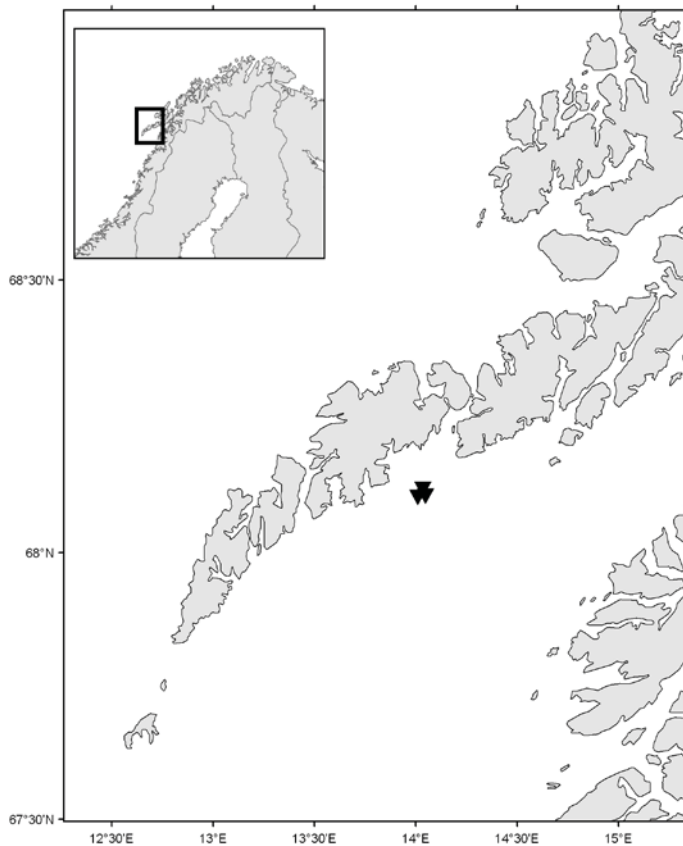


Cruise no 2011204  
 "Johan Hjort"  
 8–14 April 2011

z CTD st.no 272–297

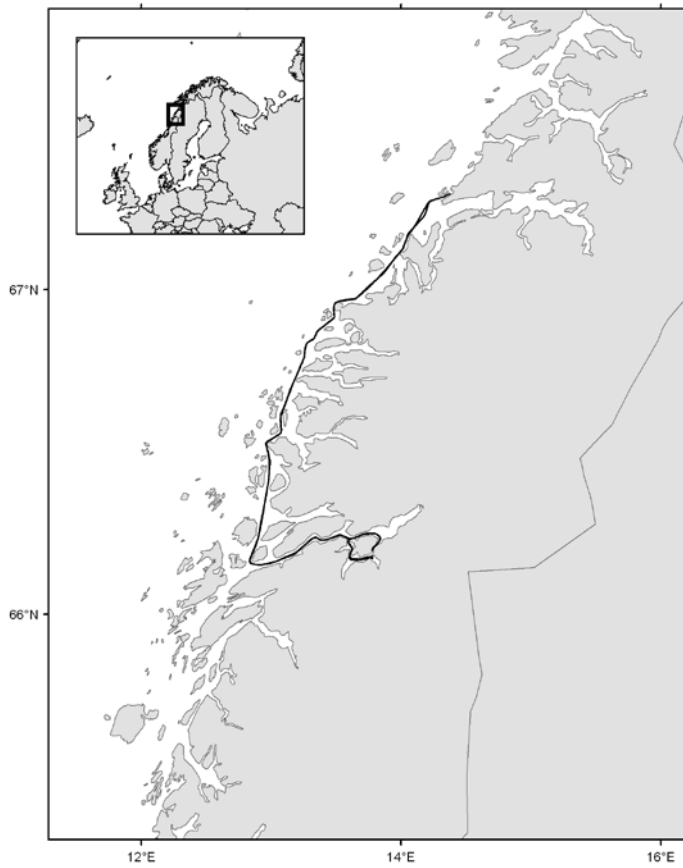
Plankton st. - WP-2/T80 vertical net hauls at ctd stations: 273, 274, 275, 280, 281, 287, 292, 294 and 295)

Pump samples at selected depths from 1 to 40 m depth at ctd stations: 272, 275, 276, 277, 283 and 285



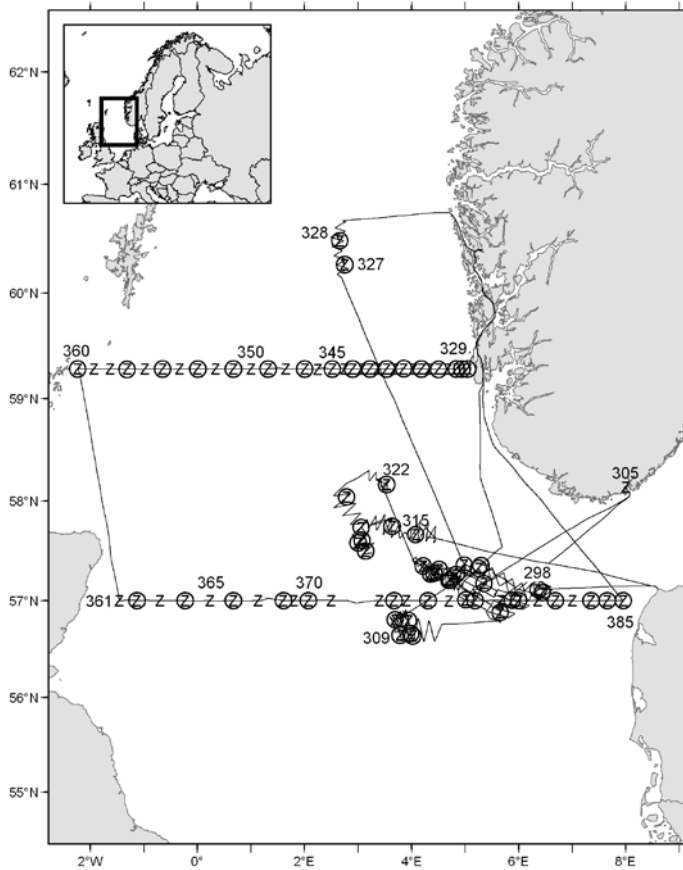
Cruise no 2011204  
 "Johan Hjort"  
 8–14 April 2011

- ▼ 2 ADCP profilers in 1 buoy at 5m and 70m depth
- ▼ 1 Wave rider buoy (surface)
- ▼ 1 Current/Turbulence probe at 5m depth in buoy



Cruise no 2011205  
 "Johan Hjort"  
 15–19 April 2011

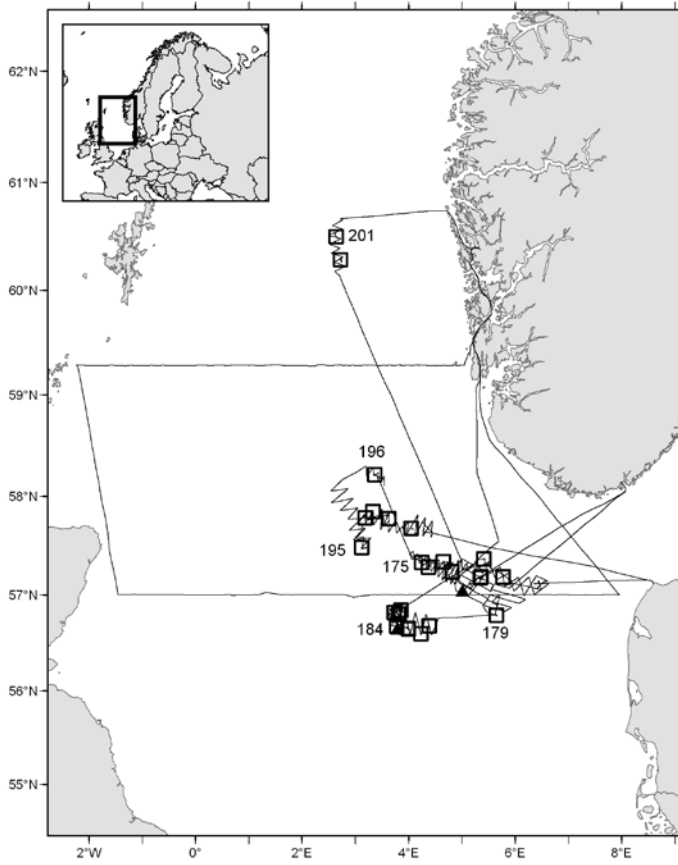
Cruise track



Cruise no 2011206  
 "Johan Hjort"  
 22 April–15 May 2011

Z CTD st.no 298–385  
 O Plankton st. (WP-II-net)

Standard sections:  
 Utsira-W st.no 329–360  
 Hanstholm–Aberdeen st.no 361–385

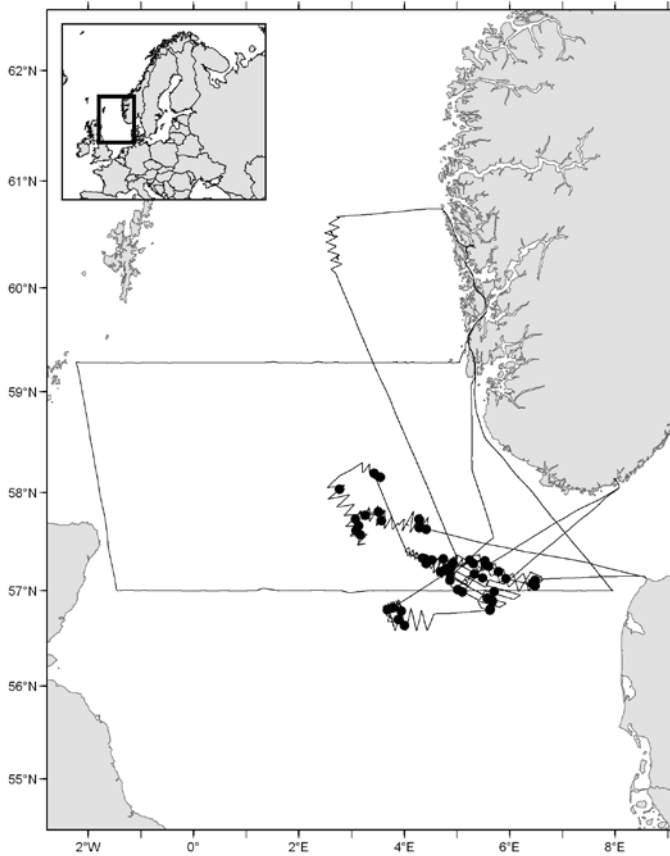


Cruise no 2011206  
 "Johan Hjort"  
 22 April–15 May 2011

Trawl st.no 175–201

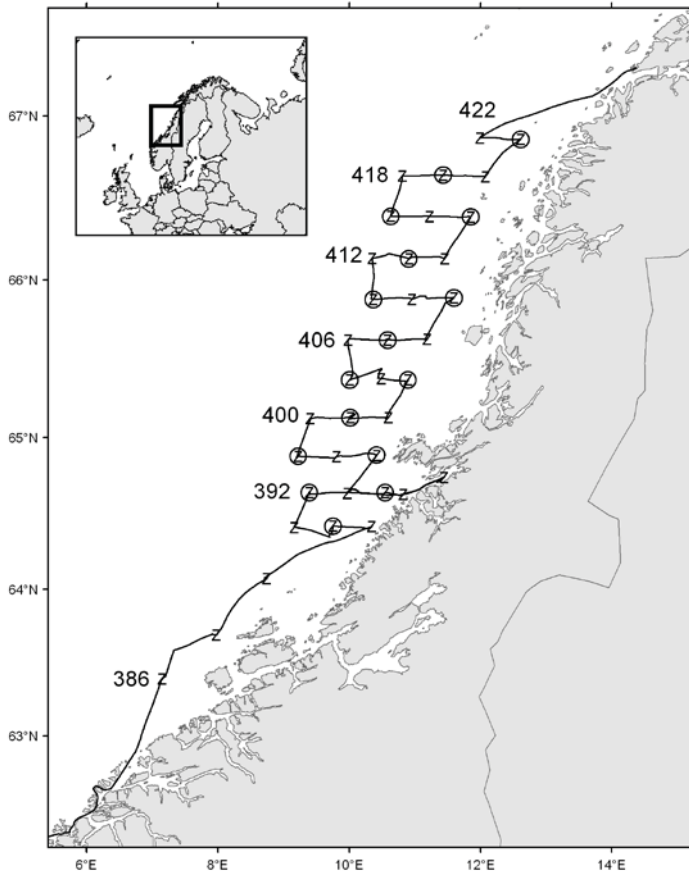
▲ Pelagic trawl

□ Bottom trawl



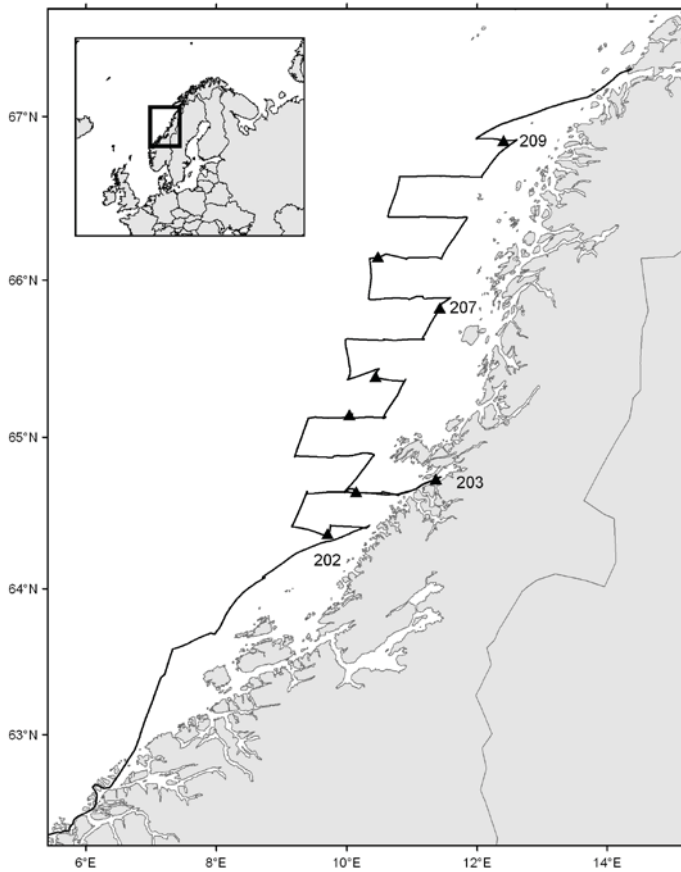
Cruise no 2011206  
 "Johan Hjort"  
 22 April–15 May 2011

● Sledge stations



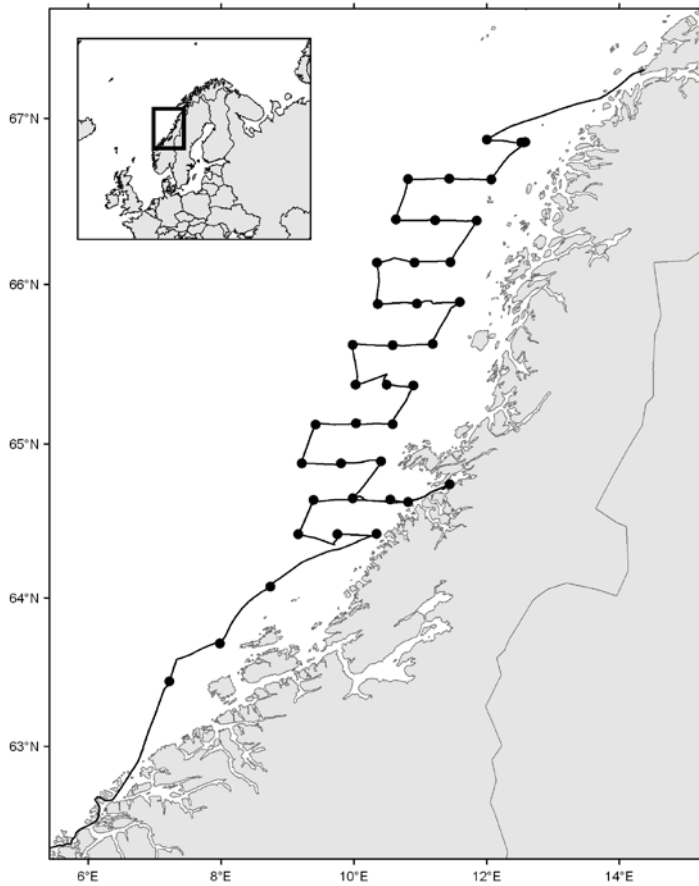
Cruise no 2011207  
 "Johan Hjort"  
 31 May–6 June 2011

z CTD st.no 386–422  
 O Plankton st. (WP-II-net)



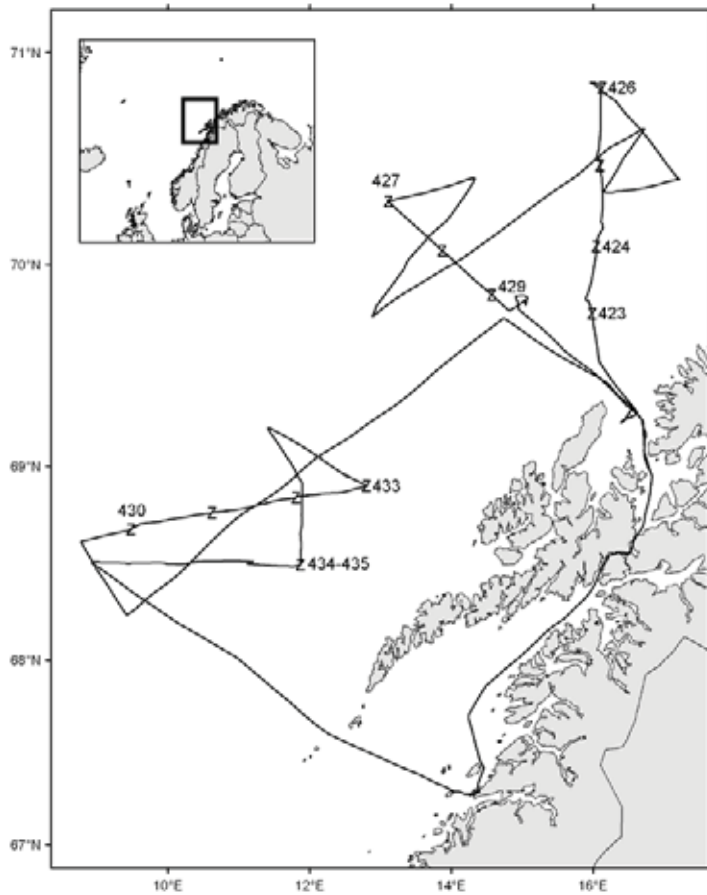
Cruise no 2011207  
 "Johan Hjort"  
 31 May–6 June 2011

▲ Pelagic trawl st.no 202–209



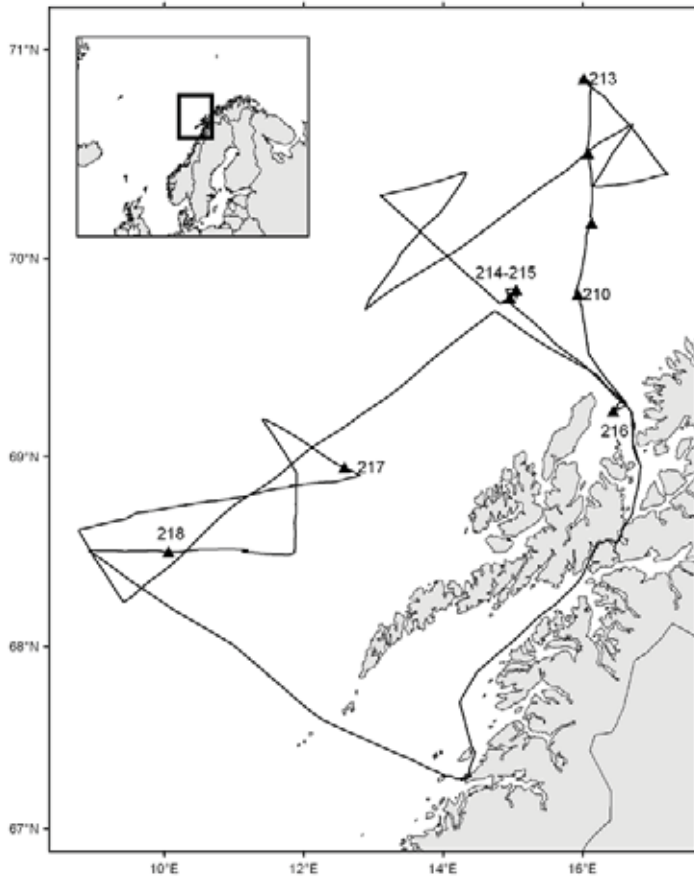
Cruise no 2011207  
 “Johan Hjort”  
 31 May–6 June 2011

● Mik stations



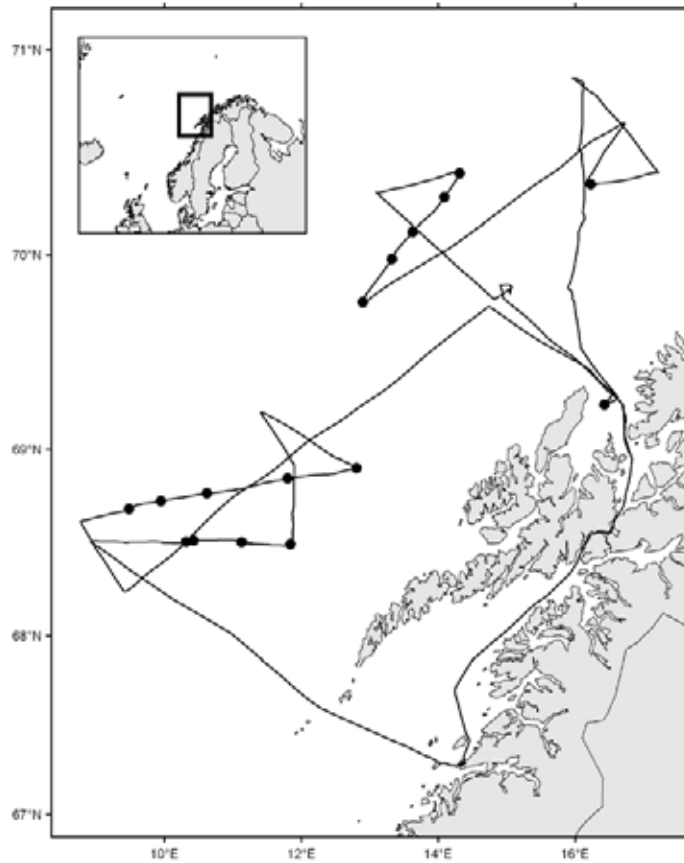
Cruise no 2011208  
 “Johan Hjort”  
 11–15 June 2011

z CTD st.no 423–435



Cruise no 2011208  
 "Johan Hjort"  
 11-15 June 2011

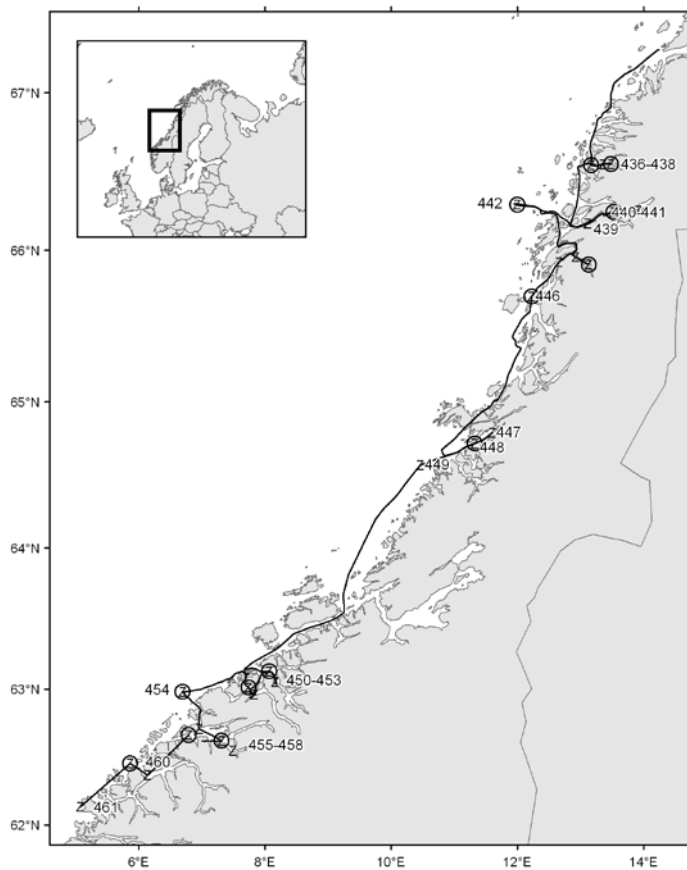
▲ Pelagic trawl st.no 210-218



Cruise no 2011208  
 "Johan Hjort"  
 11-15 June 2011

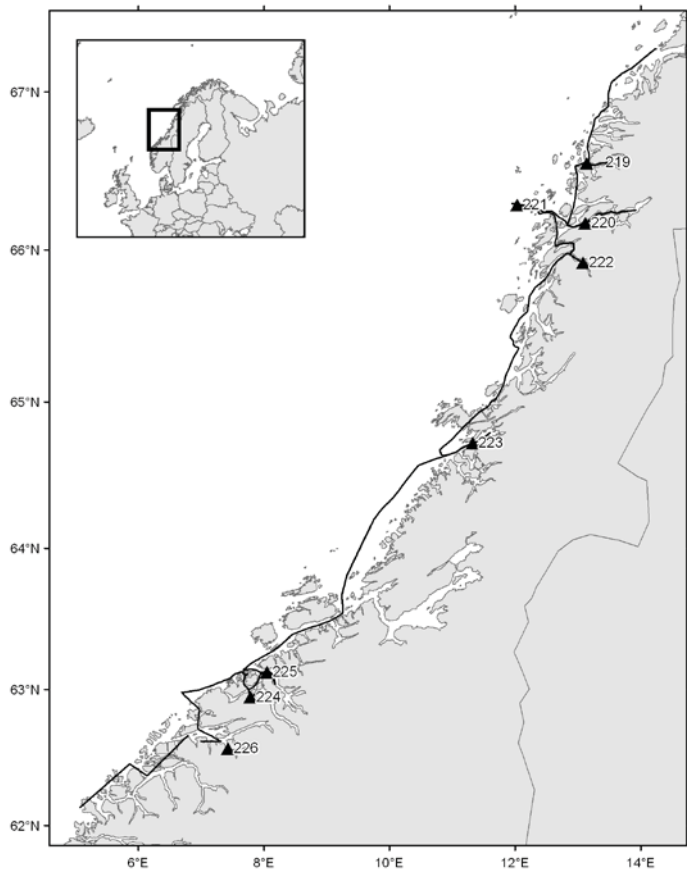
● Mik stations





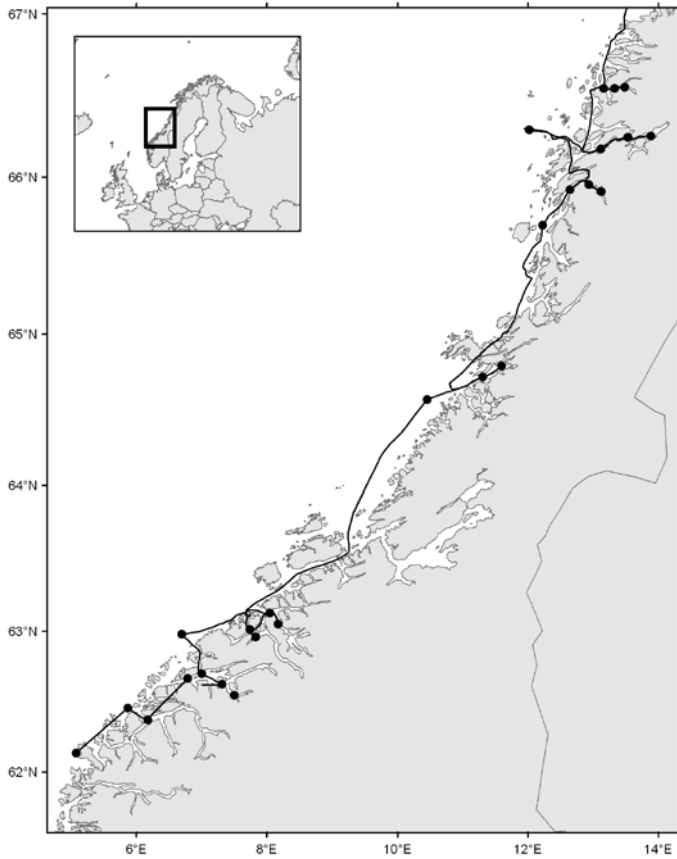
Cruise no 2011209  
 "Johan Hjort"  
 16–21 June 2011

z CTD st.no 436–461  
 o Plankton st. (WP-II-net)



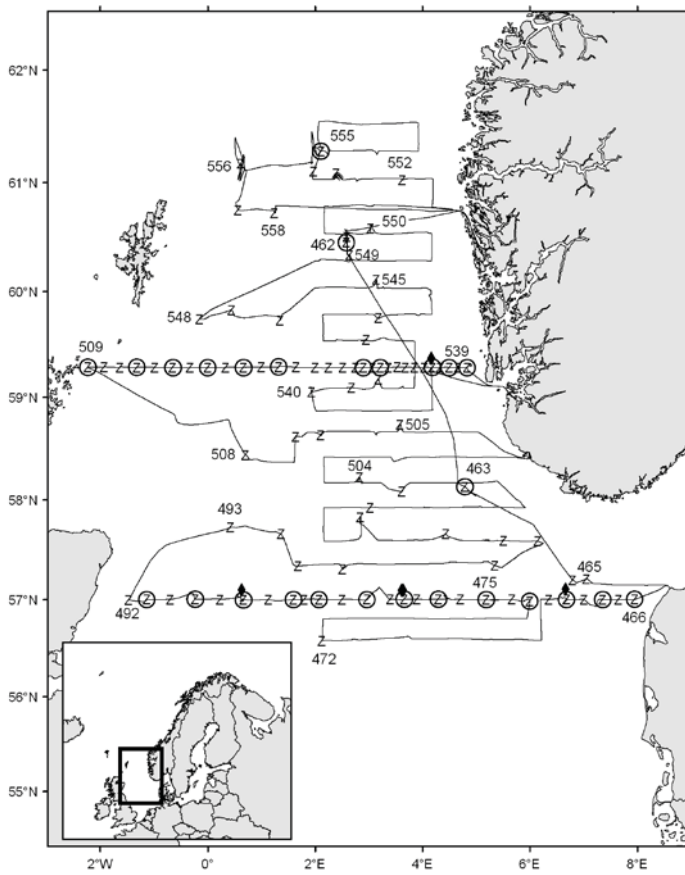
Cruise no 2011209  
 "Johan Hjort"  
 16–21 June 2011

▲ Pelagic trawl st.no 219–226



Cruise no 2011209  
 “Johan Hjort”  
 16–21 June 2011

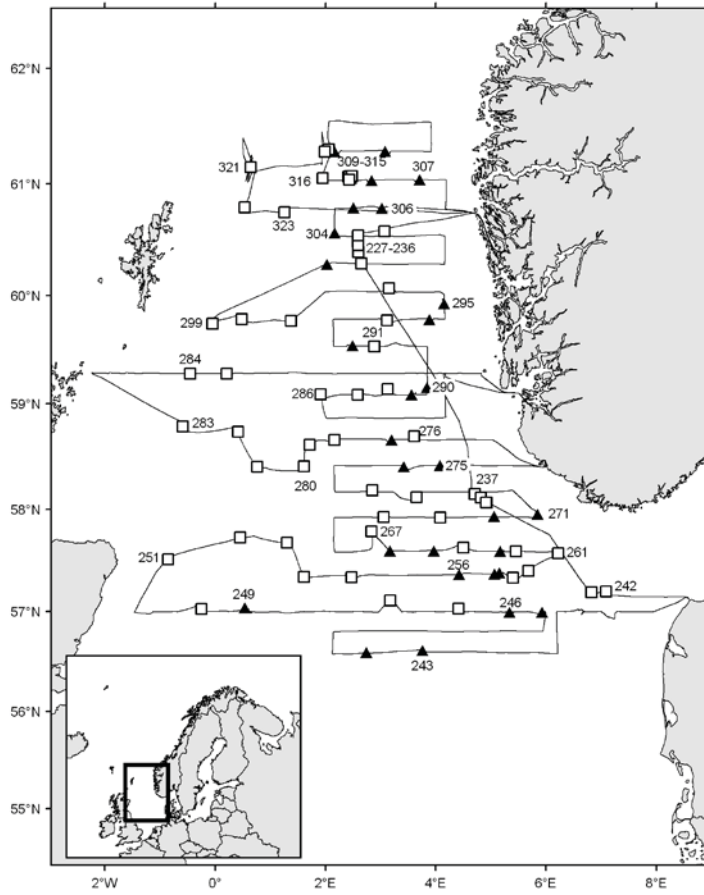
● Mik stations



Cruise no 2011210  
 “Johan Hjort”  
 28 June–25 July 2011

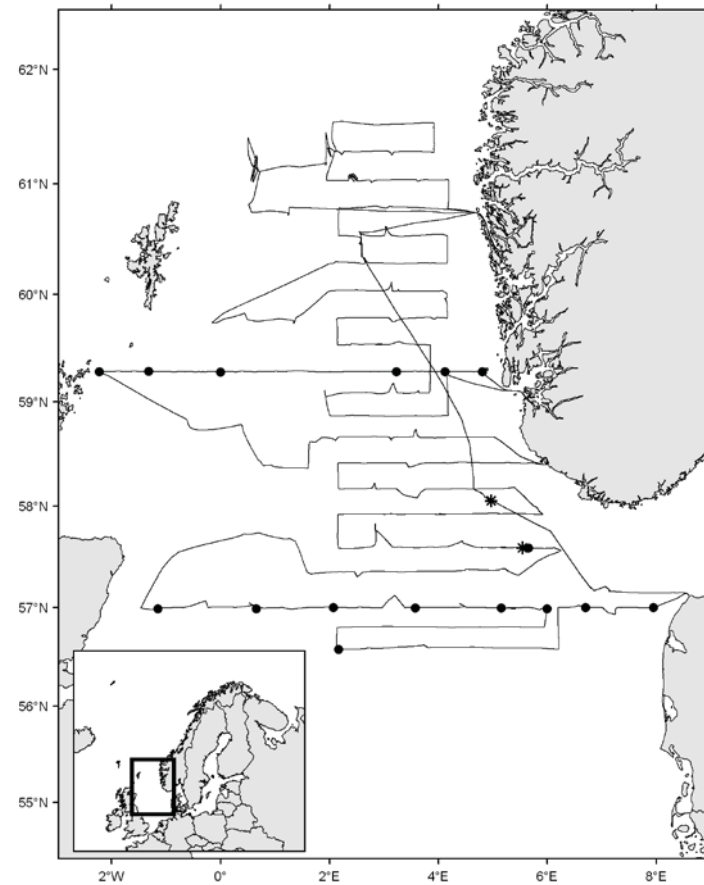
z CTD st.no 462–558  
 o Plankton st. (WP-II-net)  
 ◆ Plankton st. (Mocness)

Standard sections:  
 Utsira-W st.no 509–539  
 Hanstholm–Aberdeen st.no 466–471



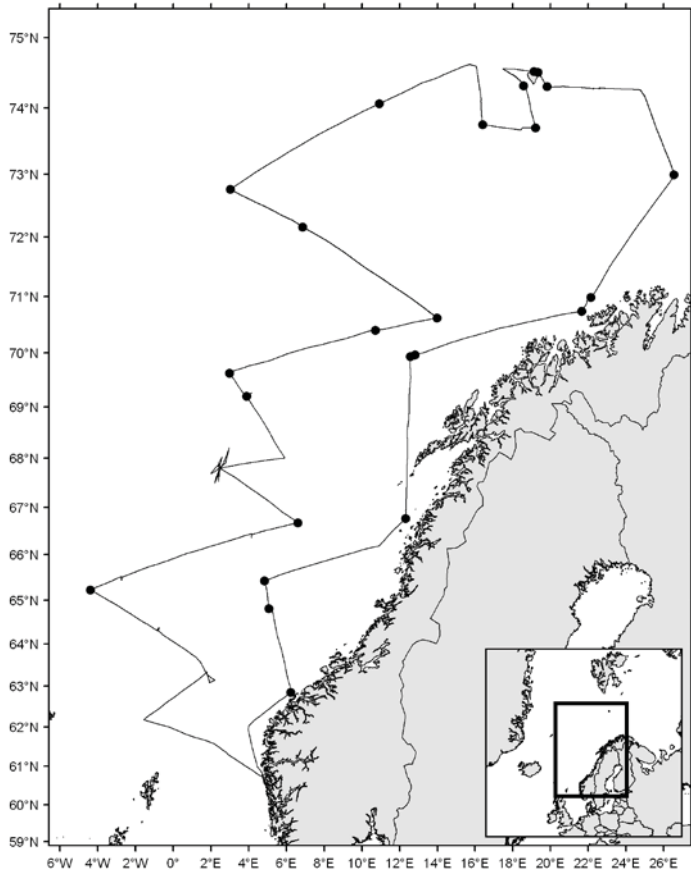
Cruise no 2011210  
 "Johan Hjort"  
 28 June–25 July 2011

Trawl st.no 227–323  
 □ Bottom trawl  
 ▲ Pelagic trawl



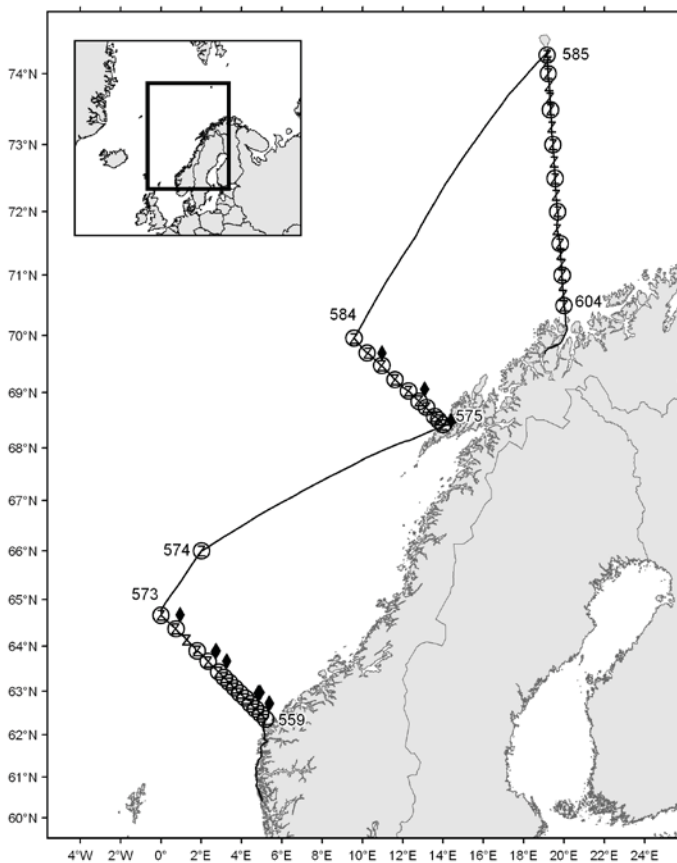
Cruise no 2011210  
 "Johan Hjort"  
 28 June–25 July 2011

● Mik station  
 \* Sledge station



Cruise no 2011211  
 "Johan Hjord"  
 26 July–17 August 2011

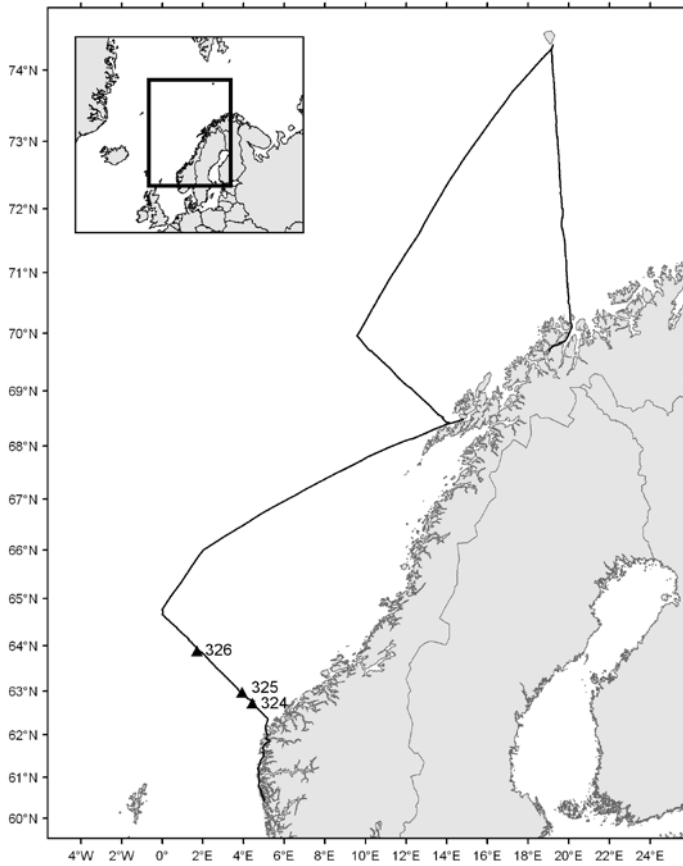
Cruise track  
 ● Waypoints



Cruise no 2011212  
 "Johan Hjord"  
 18–27 August 2011

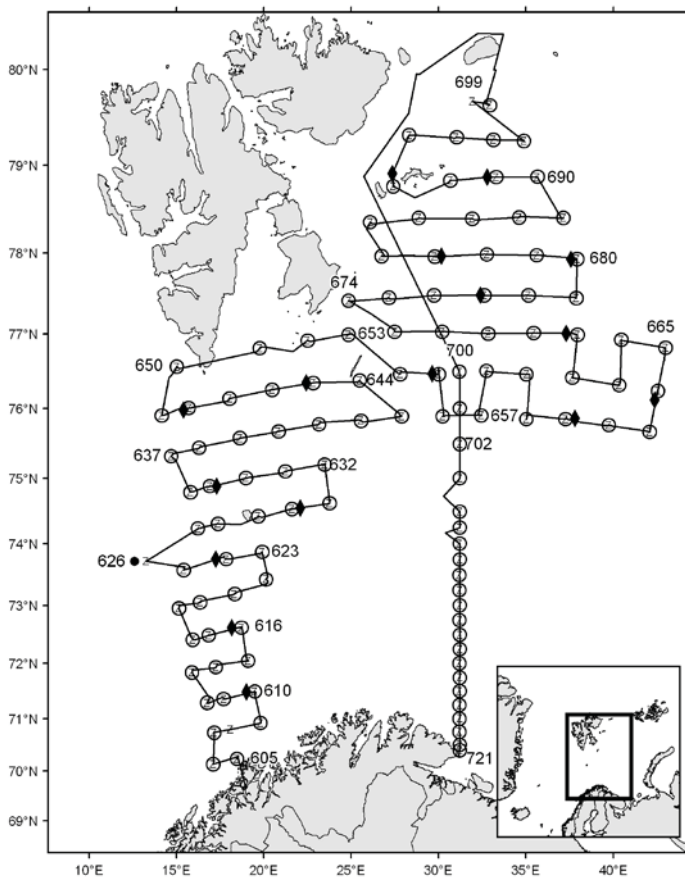
z CTD st.no 559–604  
 o Plankton st. (WP-II-net)  
 ◆ Plankton st. (Mocness)

Standard sections:  
 Svinøy-NW st.no 559–573  
 Gimsøy-NW st.no 575–584  
 Fugløya-Bjørnøya st.no 585–604



Cruise no 2011212  
 "Johan Hjort"  
 18–27 August 2011

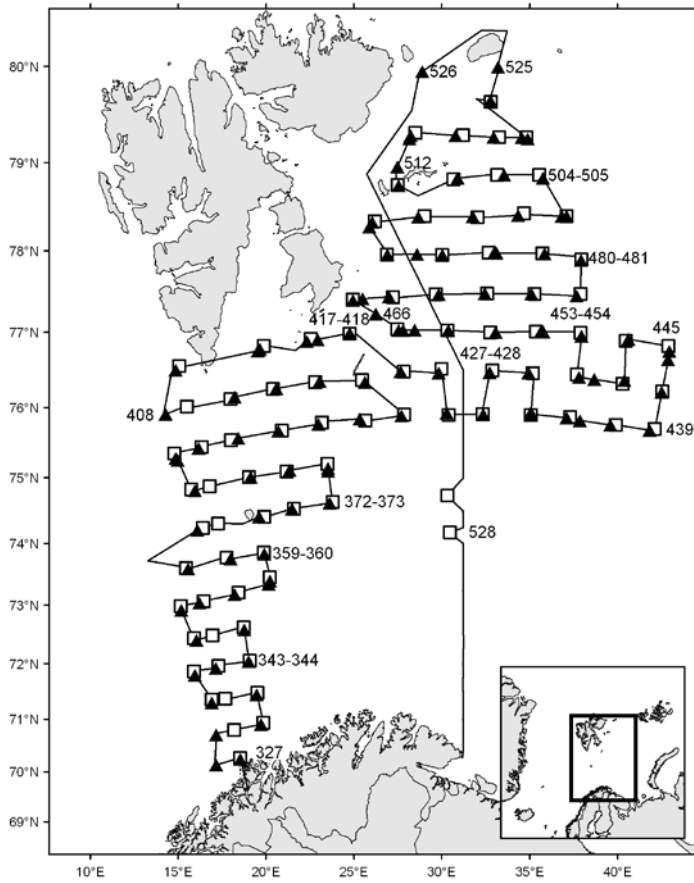
▲ Pelagic trawl st.no 324–326 (Krill trawl)



Cruise no 2011213  
 "Johan Hjort"  
 30 Aug–4 Oct 2011

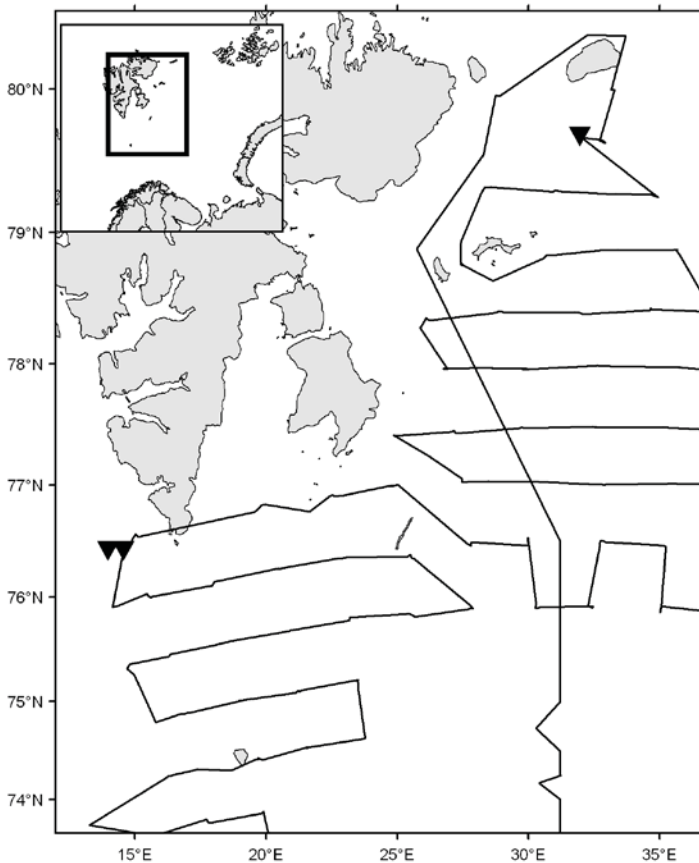
z CTD st.no 605–721  
 o Plankton st. (WP-II)  
 ◆ Plankton st. (Mocness)  
 ● Grab station

Standard sections:  
 Vardø-N st.no 700–721



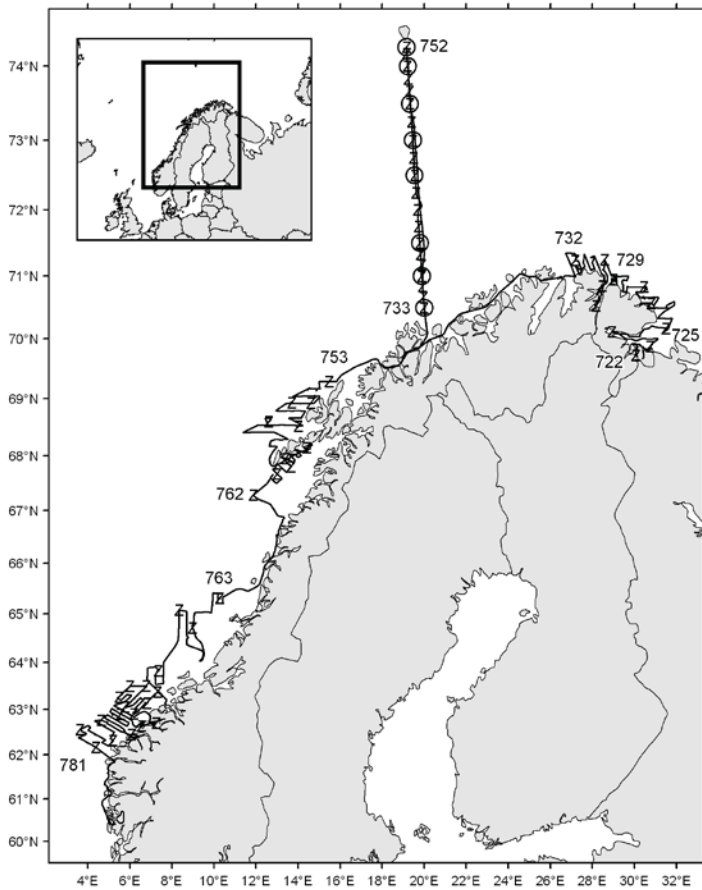
Cruise no 2011213  
 "Johan Hjort"  
 30 Aug-4 Oct 2011

Trawl st.no 327-528  
 □ Bottom trawl  
 ▲ Pelagic and krill trawl



Cruise no 2011213  
 "Johan Hjort"  
 30 Aug-4 Oct 2011

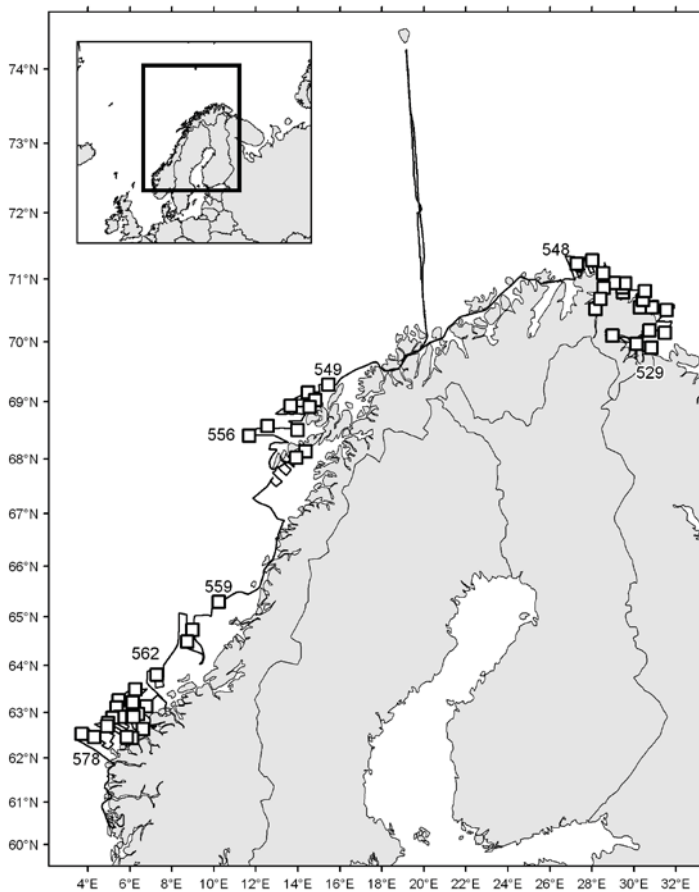
▼ Current meters and profiling  
 Current meters on rig recovered



Cruise no 2011214  
 "Johan Hjort"  
 6–28 October 2011

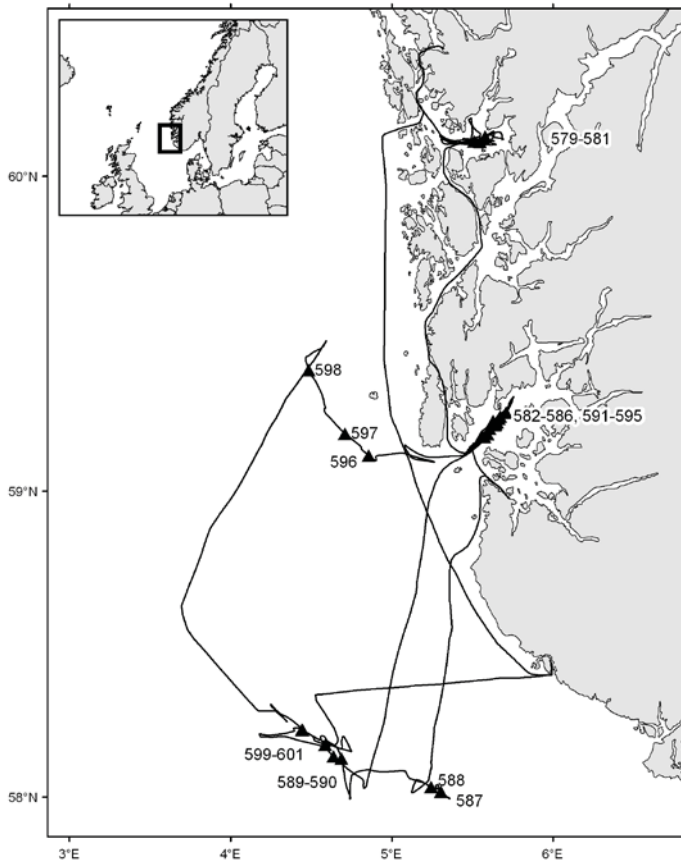
z CTD st.no 722–781  
 o Plankton st. (WP-II)

Standard section:  
 Fugløya–Bjørnøya st.no 733–752



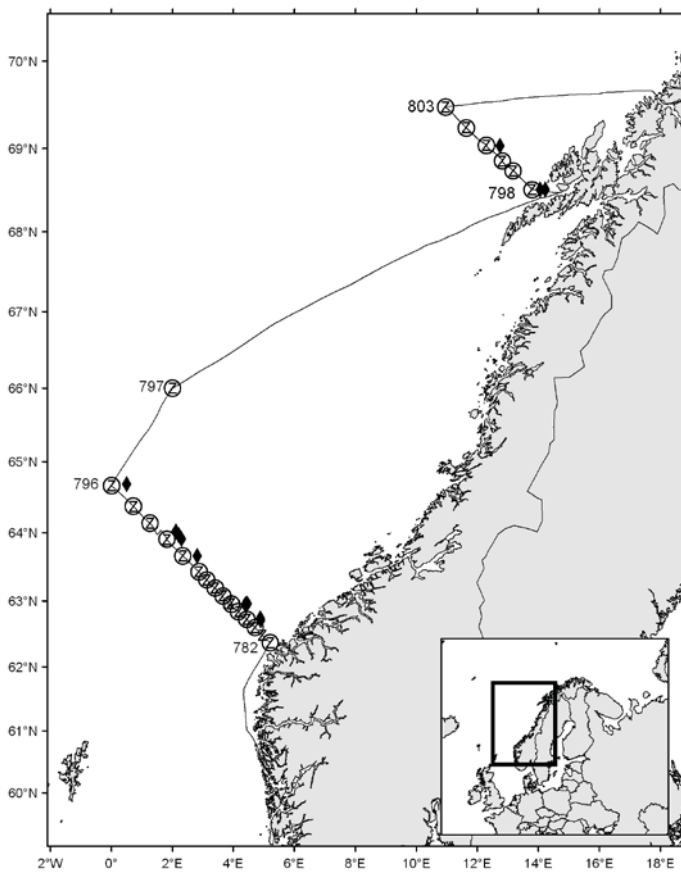
Cruise no 2011214  
 "Johan Hjort"  
 6–28 October 2011

□ Bottom trawl st.no 529–578



Cruise no 2011218  
 "Johan Hjort"  
 29 Oct–7 Nov 2011

▲ Pelagic trawl st. no 579–601

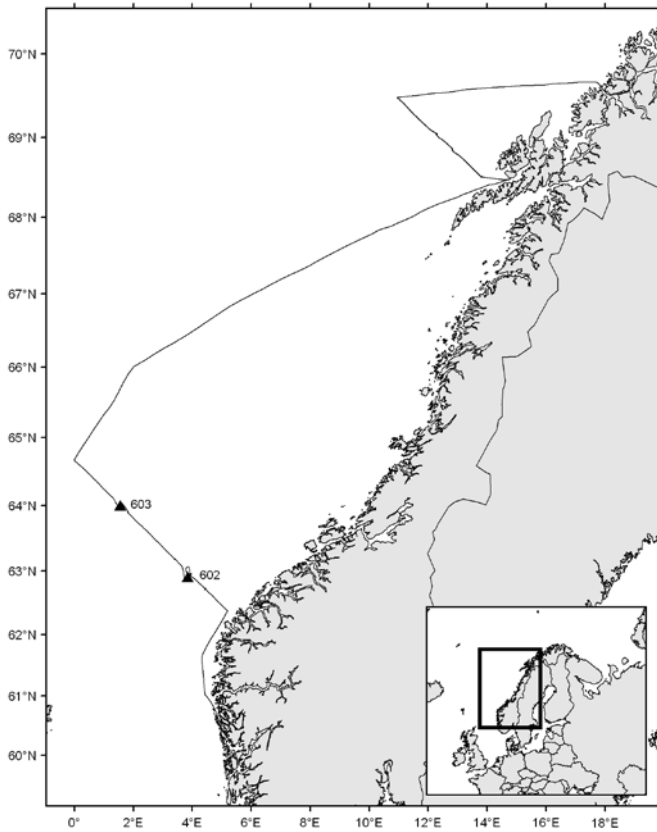


Cruise no 2011215  
 "Johan Hjort"  
 12–19 November 2011

z CTD st.no 782–803  
 o Plankton st. (WP-II)  
 ◆ Plankton st. (Mocness)

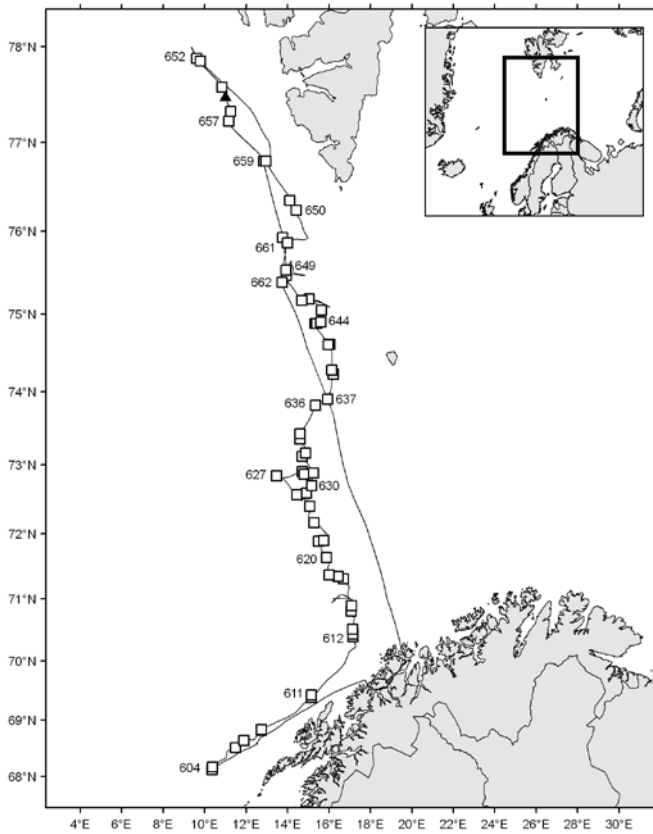
Standard section:  
 Svinøy-NW st.no 782–796  
 Gimsøy-NW (partly) st.no 798–803





Cruise no 2011215  
 “Johan Hjort”  
 12–19 November 2011

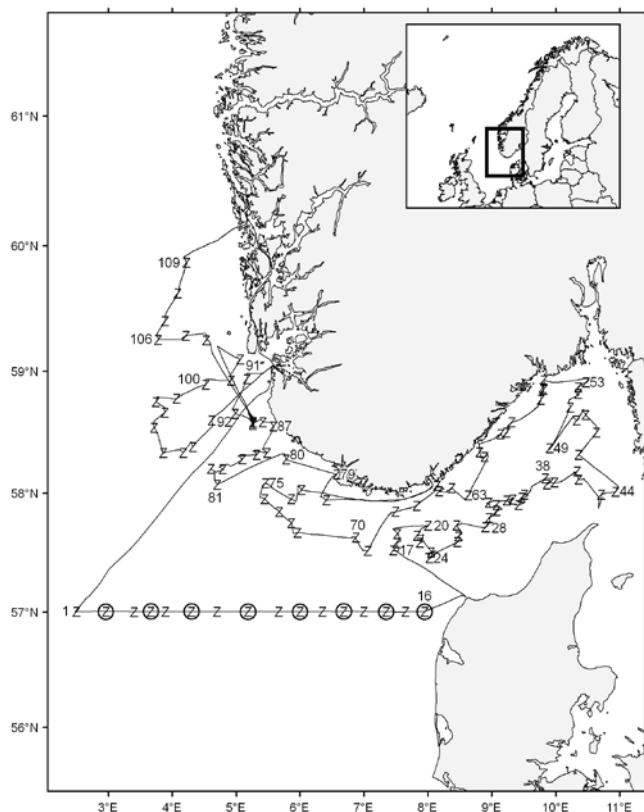
▲ Pelagic trawl st.no 602–603



Cruise no 2011217  
 “Johan Hjort”  
 20 Nov–6 Dec 2011

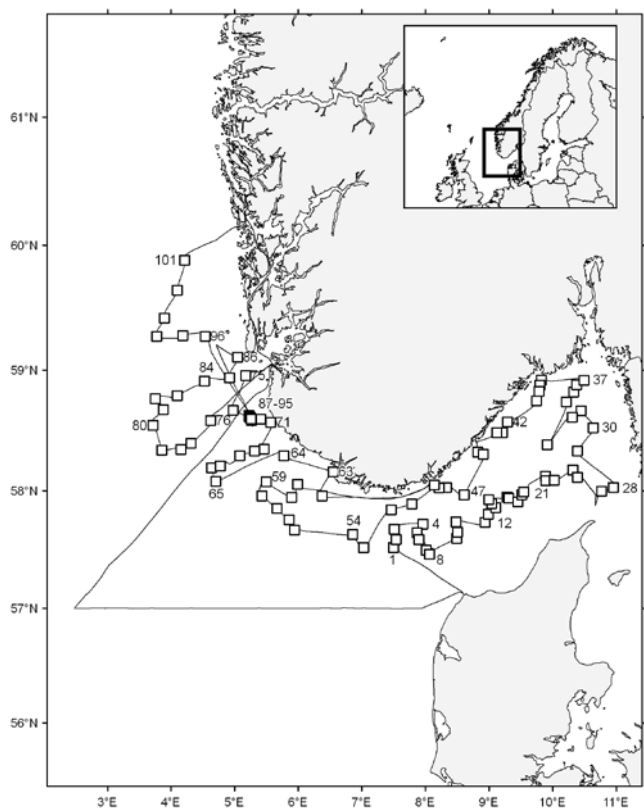
Trawl st.no 604–662  
 □ Bottom trawl st.  
 ▲ Pelagic trawl st. no 655  
 Trawl mounted CTD

### 4.3 Håkon Mosby



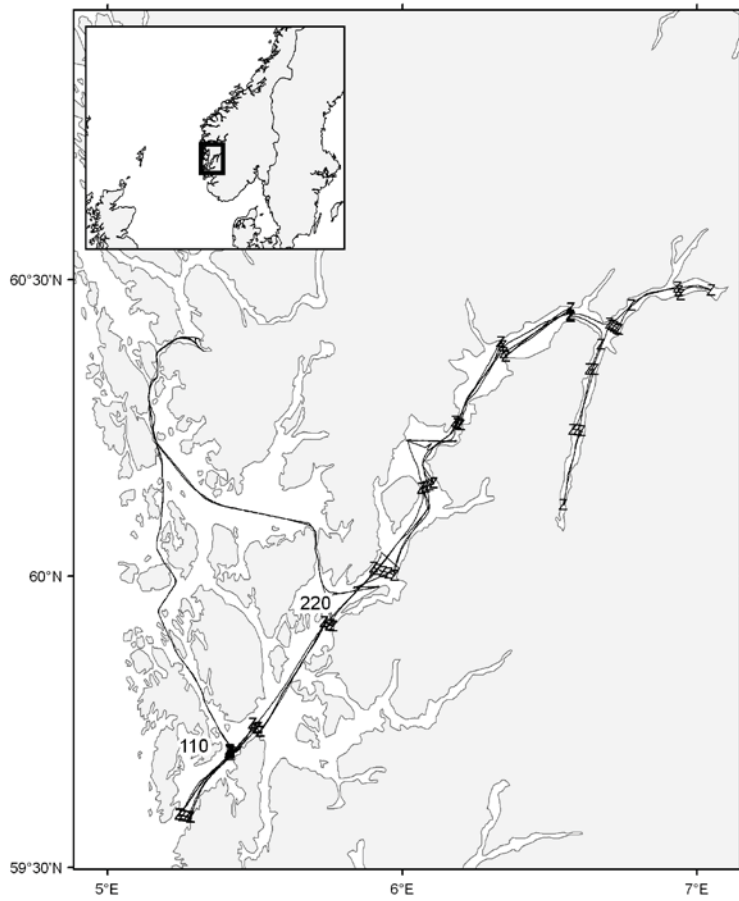
Cruise no 2011601  
 "Håkon Mosby"  
 10–30 January 2011

z CTD st.no 1–109  
 o Plankton st. (WP-II-net)  
 Standard section:  
 Hanstholm–Aberdeen (partly) st.no 1–16



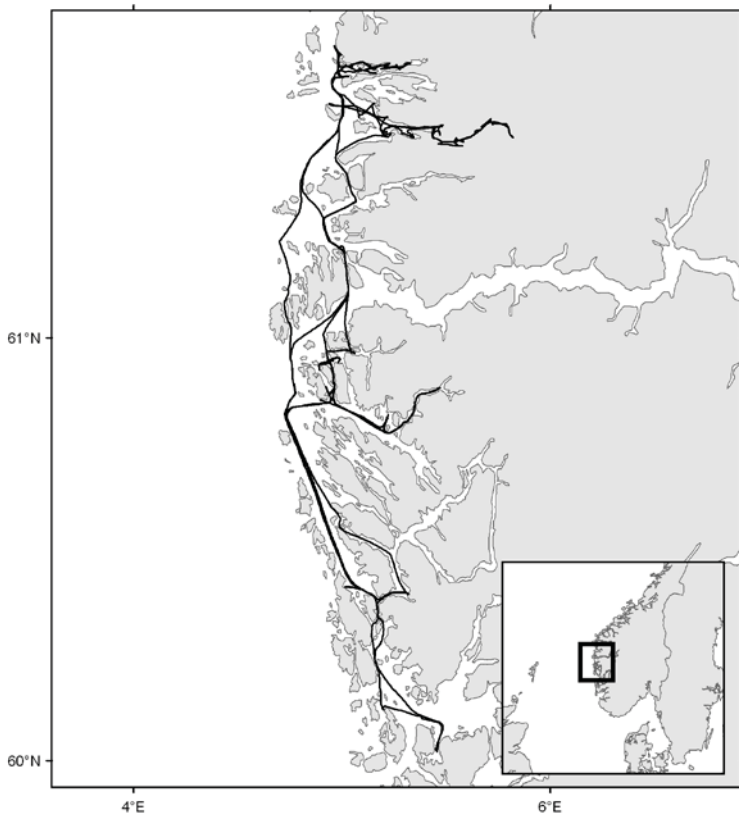
Cruise no 2011601  
 "Håkon Mosby"  
 10–30 January 2011

□ Bottom trawl st.no 1–101



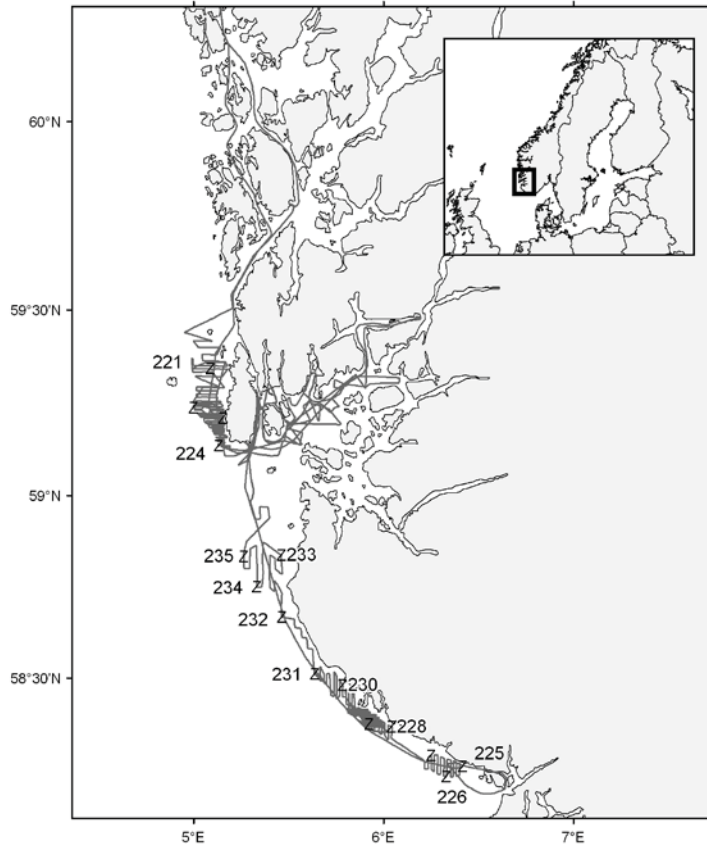
Cruise no 2011602  
 "Håkon Mosby"  
 3–12 February 2011

z CTD st.no 110–220



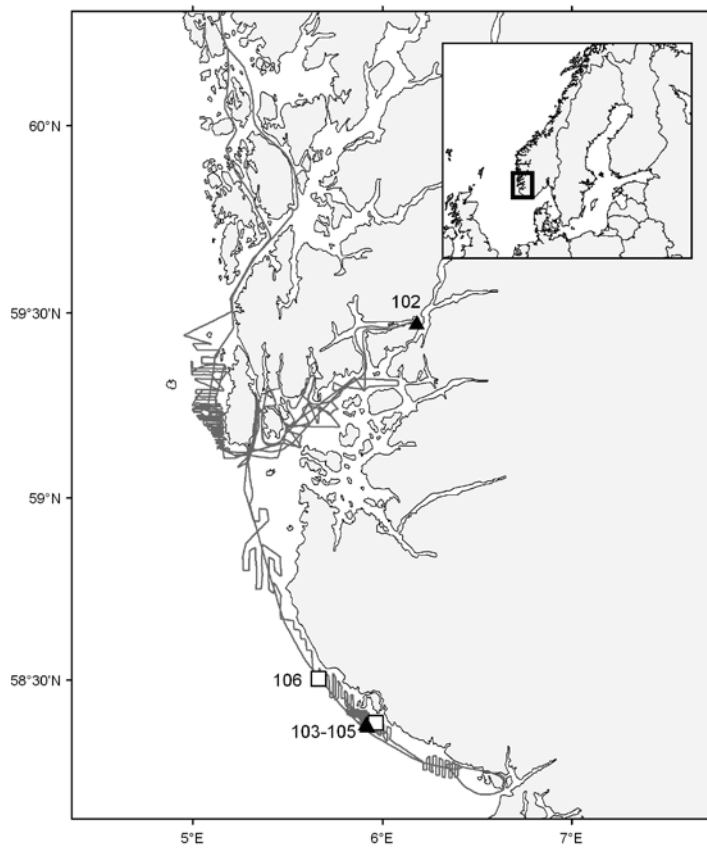
Cruise no 2011627  
 "Håkon Mosby"  
 21 Feb–7 Mars 2011

Cruise track  
 Studies of interactions between  
 farmed and wild cod



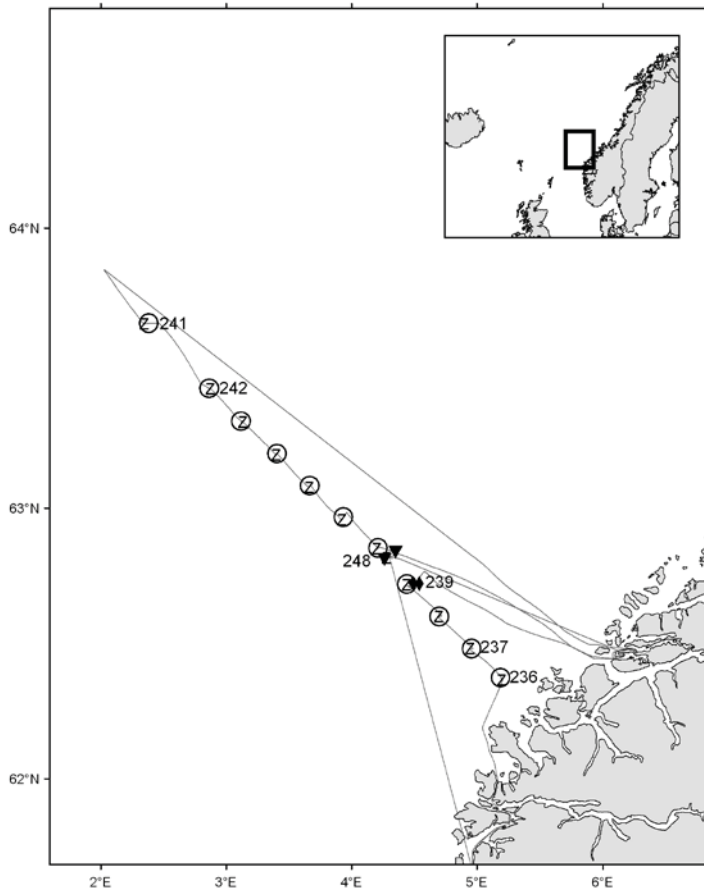
Cruise no 2011603  
 “Håkon Mosby”  
 7–13 Mars 2011

z CTD st.no 221–235



Cruise no 2011603  
 “Håkon Mosby”  
 7–13 Mars 2011

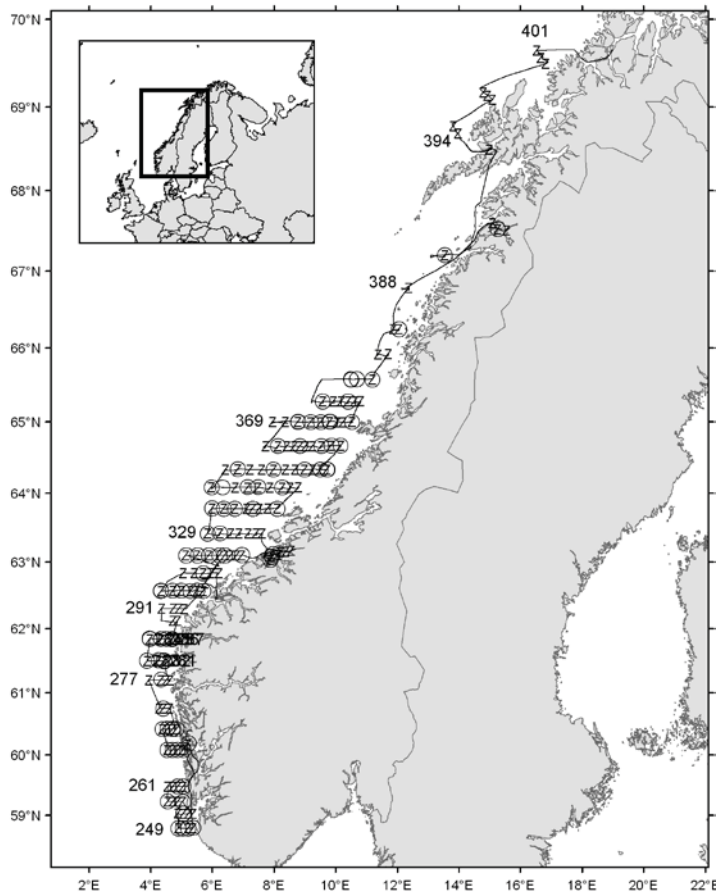
Trawl st.no 102–106  
 □ Bottom trawl  
 ▲ Pelagic trawl



Cruise no 2011605  
 “Håkon Mosby”  
 15–27 Mars 2011

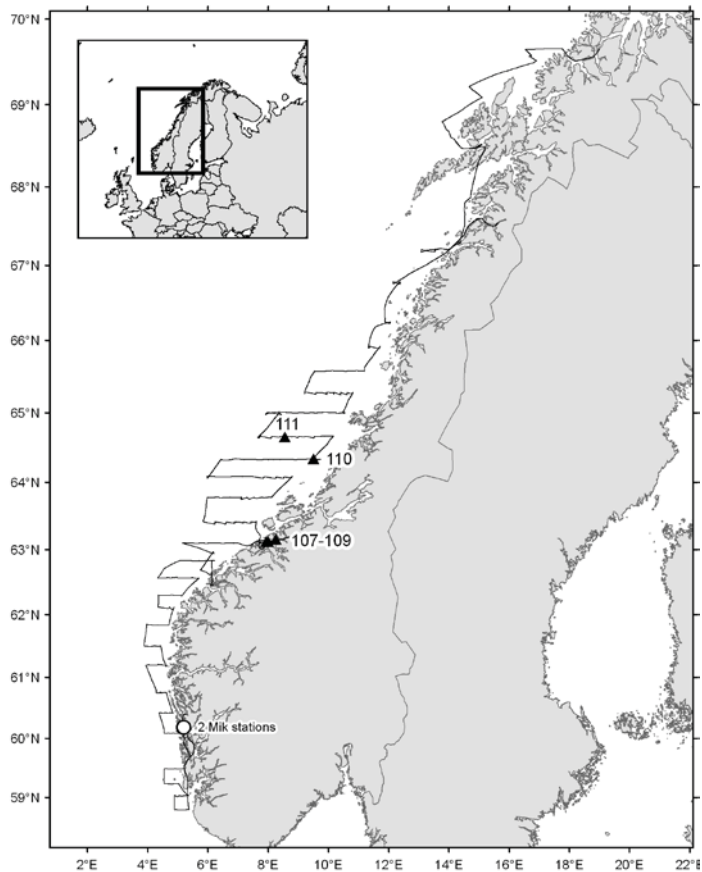
- z CTD st.no 236–248
- o Plankton st. (WP-II-net)
- ◆ Plankton st. (Mocness)
- ▼ Deployment and recovery  
 of current meter moorings

Standard section:  
 Svinøy-NW st.no 236–248



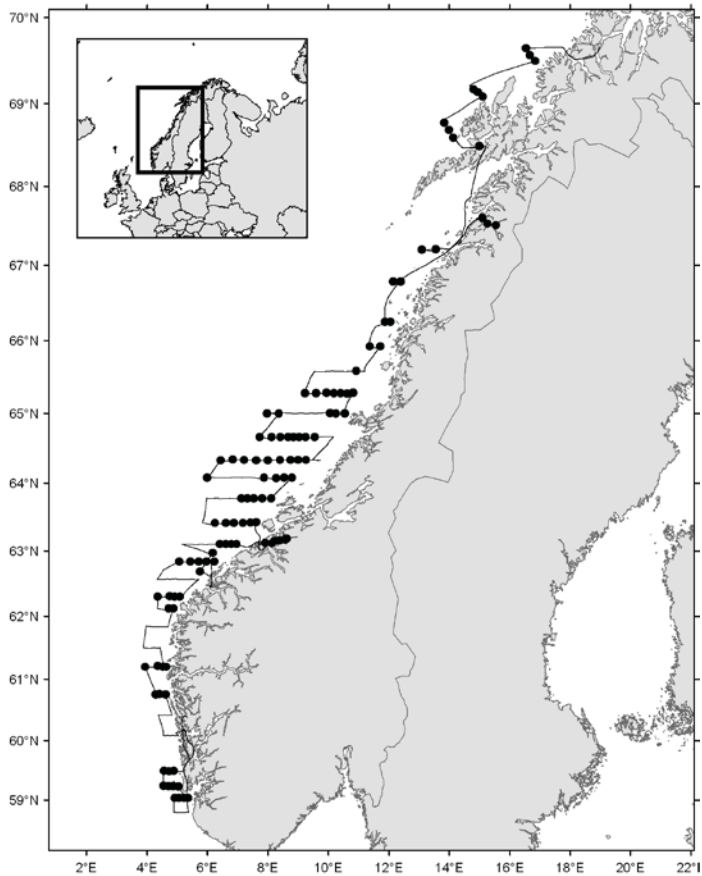
Cruise no 2011606  
 “Håkon Mosby”  
 31 Mars–20 April 2011

- z CTD st.no 249–401
- o Zooplankton st. and T-80 st.  
 Herring larvae



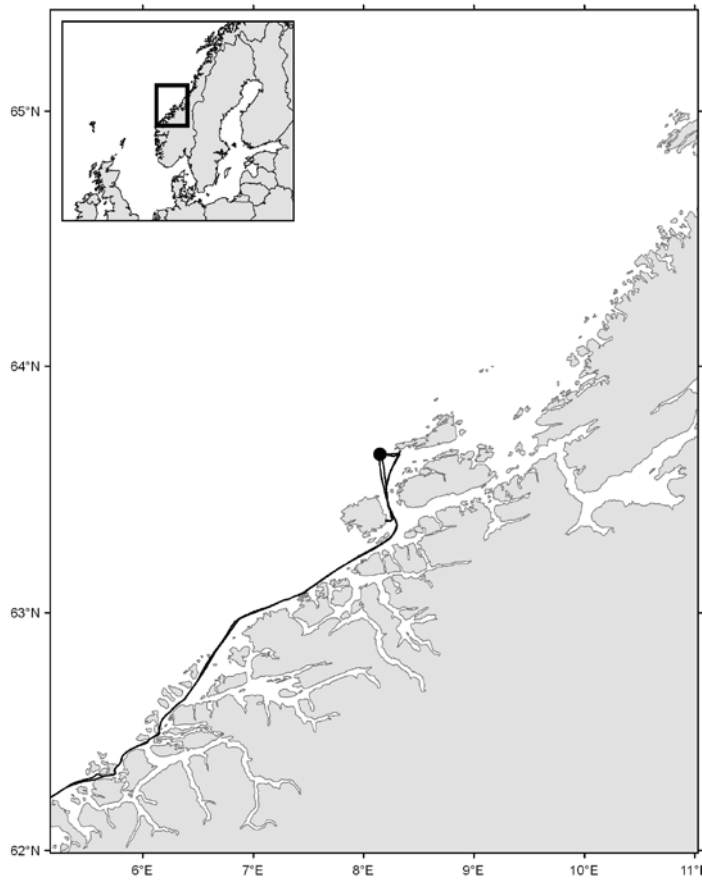
Cruise no 2011606  
 “Håkon Mosby”  
 31 Mars–20 April 2011

- ▲ Pelagic trawl st.no 107–111
- Mik stations



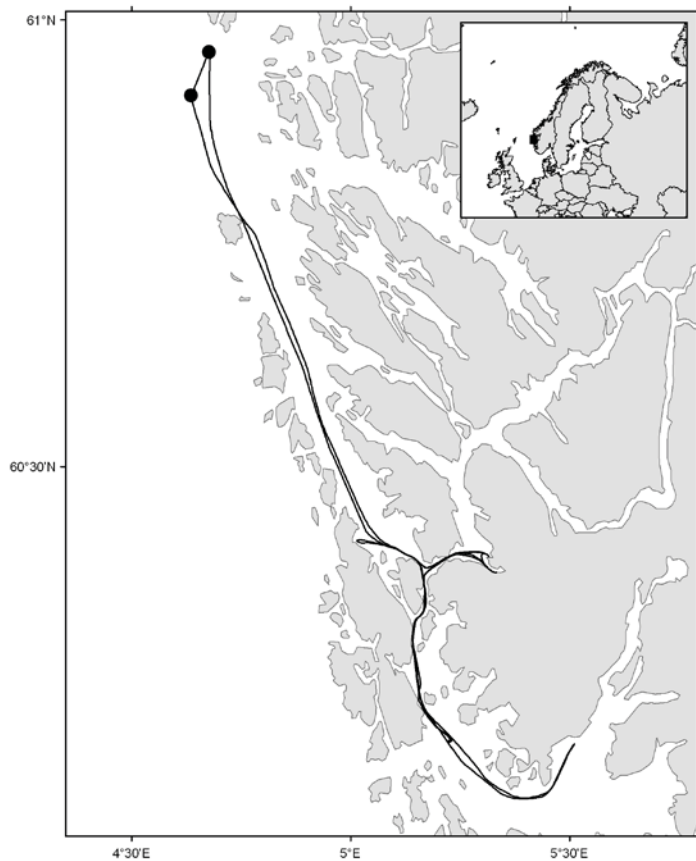
Cruise no 2011606  
 “Håkon Mosby”  
 31 Mars–20 April 2011

- Gulf III stations (Egg/larvae)



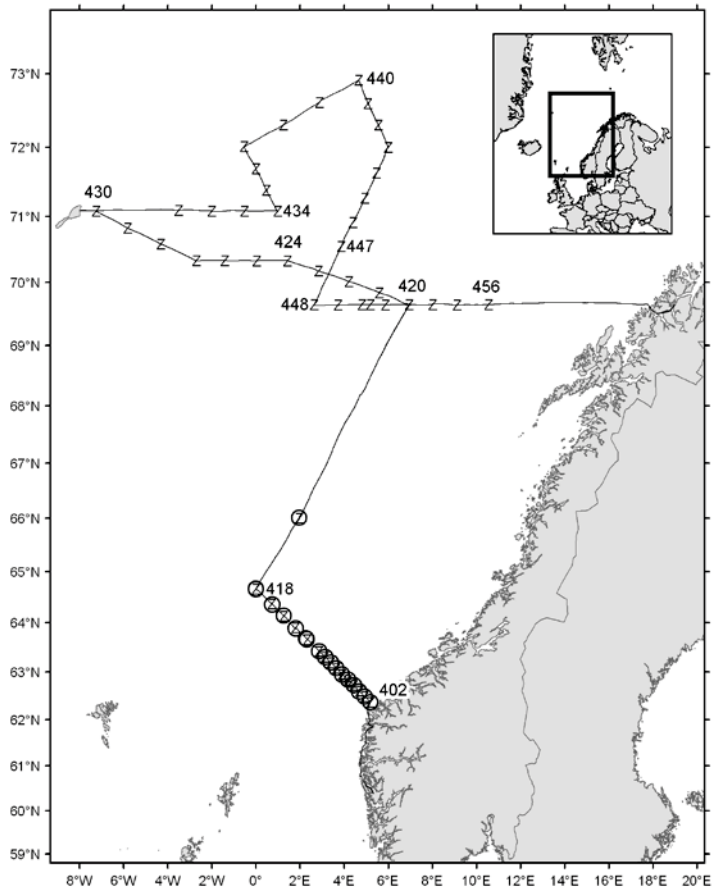
Cruise no 2011607  
 “Håkon Mosby”  
 4–7 May 2011

- Recover, service and re-deploy a met-ocean surface buoy equipped with a mooring line with oceanographic sensors and a mast with atmospheric sensors.



Cruise no 2011608  
 “Håkon Mosby”  
 9–10 May 2011

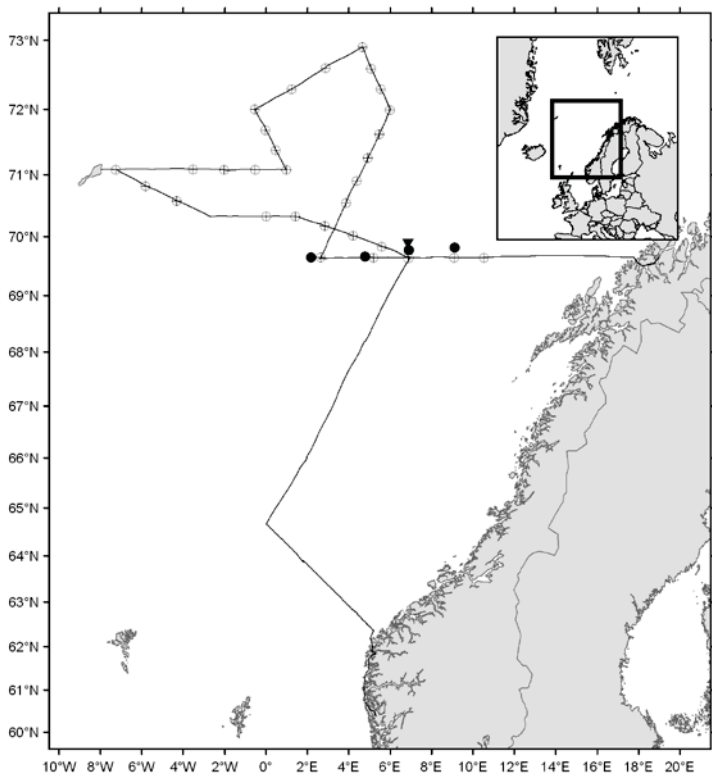
- Sledge stations



Cruise no 2011610  
 "Håkon Mosby"  
 12-24 May 2011

z CTD st.no 402-456  
 o Plankton st. (WP-II-net)

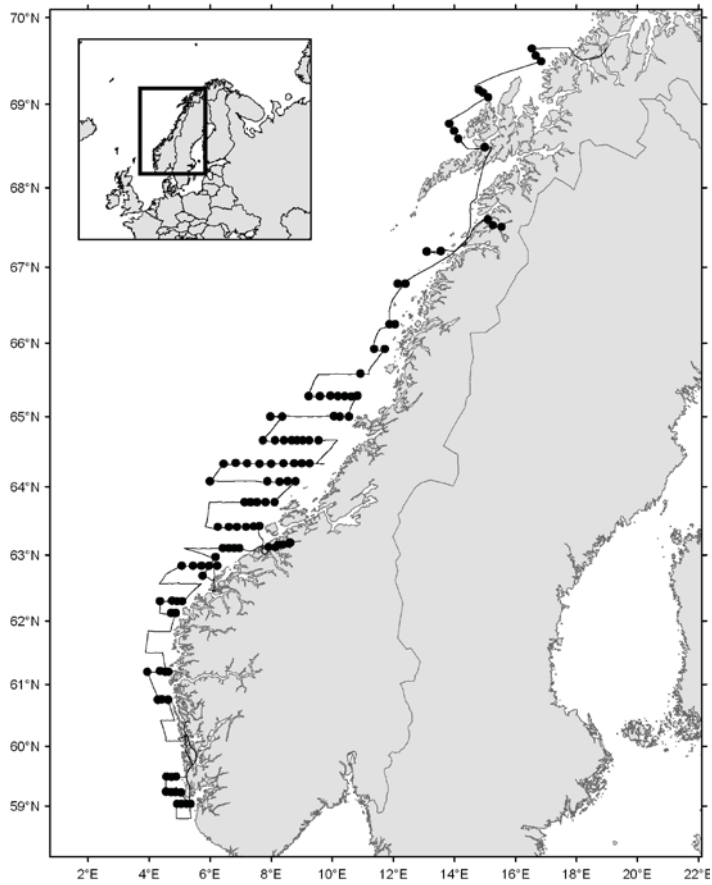
Standard section:  
 Svinøy-NW st.no 402-418



Cruise no 2011610  
 "Håkon Mosby"  
 12-24 May 2011

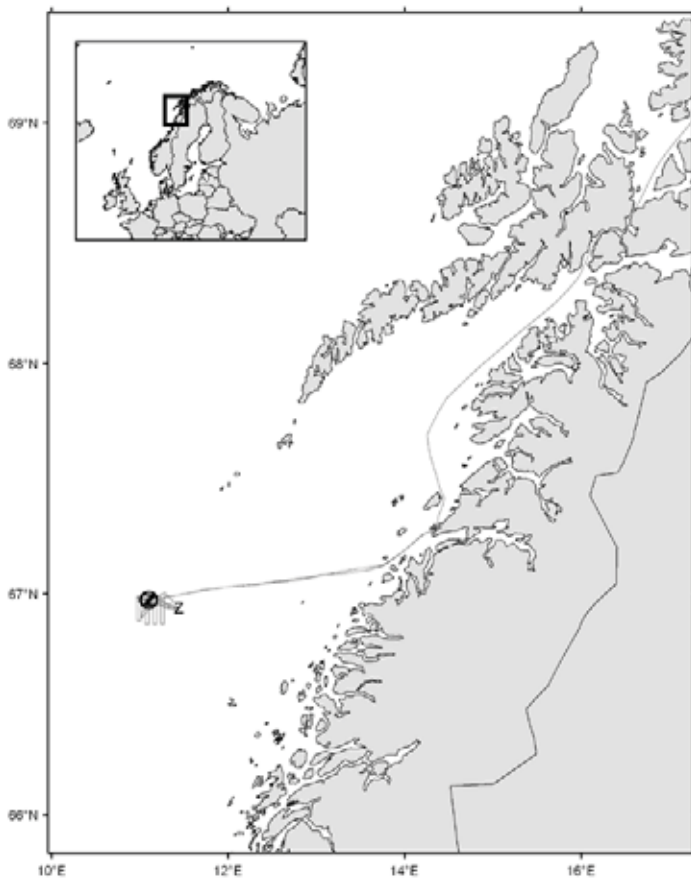
- ⊕ RAFOS floats, ocean current velocity
- PIES-LB2 Bottom mounted pressure
- ▼ LB-CTD1: CTD and current meter mooring





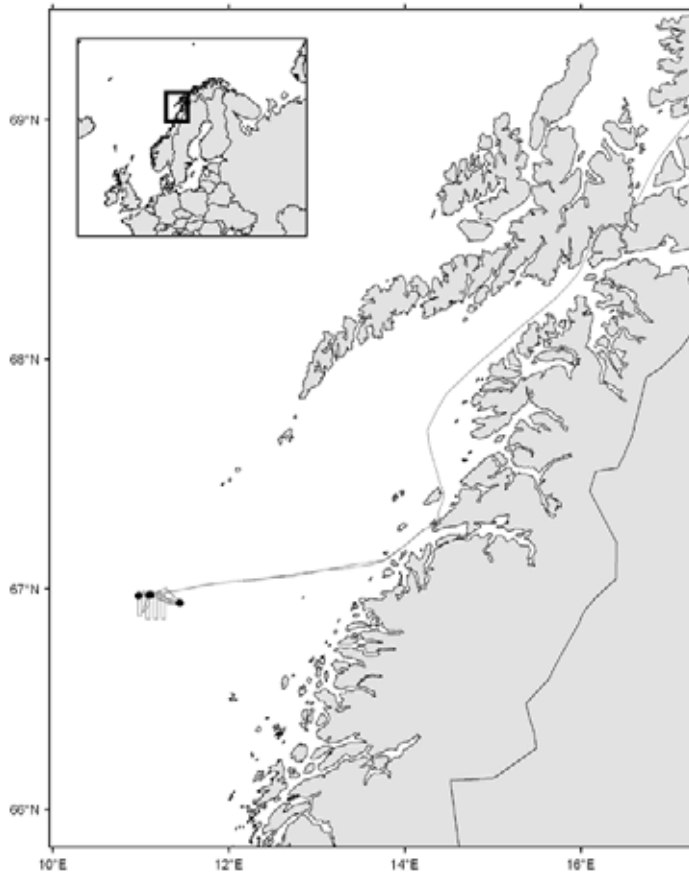
Cruise no 2011610  
 “Håkon Mosby”  
 12–24 May 2011

- Gulf III stations (Egg/larvae)



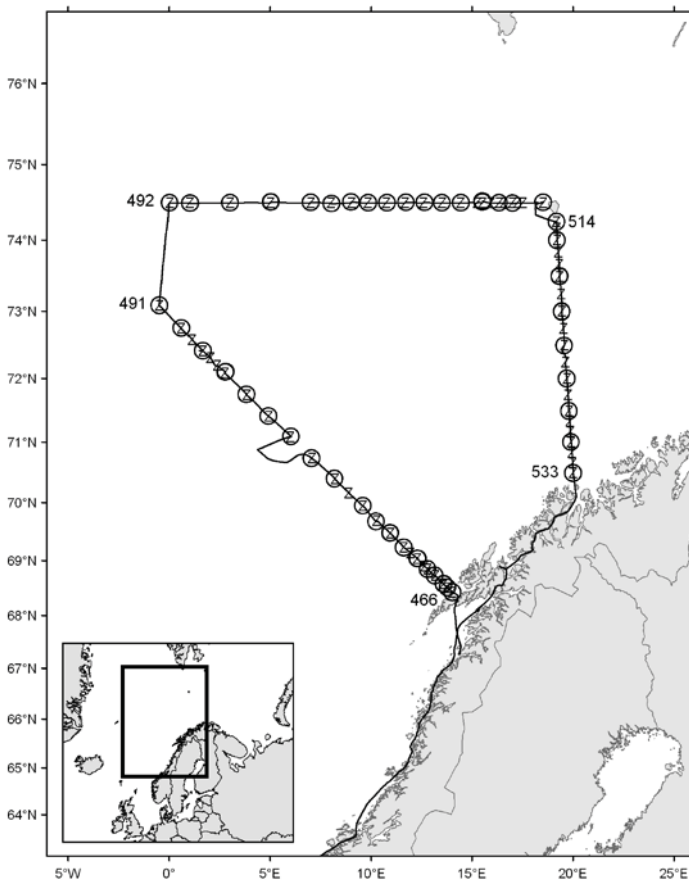
Cruise no 2011611  
 “Håkon Mosby”  
 26–31 May 2011

- z CTD st.no 457–465
- o Plankton st. (WP-II-net)



Cruise no 2011611  
 “Håkon Mosby”  
 26–31 May 2011

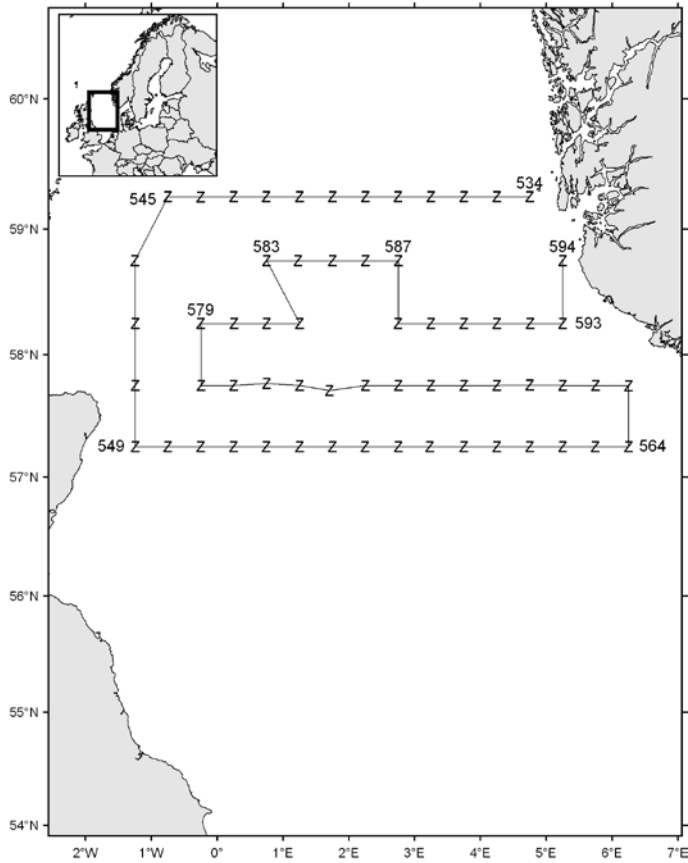
● Rov stations



Cruise no 2011612  
 “Håkon Mosby”  
 1–11 June 2011

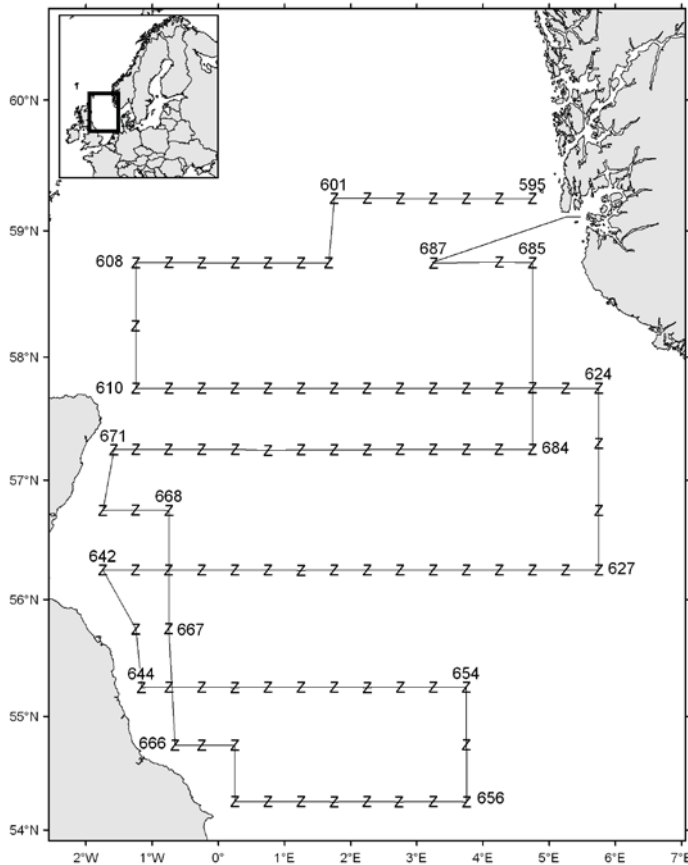
z CTD st.no 466–533  
 o Plankton st. (WP-II-net)

Standard sections:  
 Gimsøy-NW st.no 466–491  
 Bjørnøya-W st.no 492–513  
 Fugløya-Bjørnøya st.no 514–533



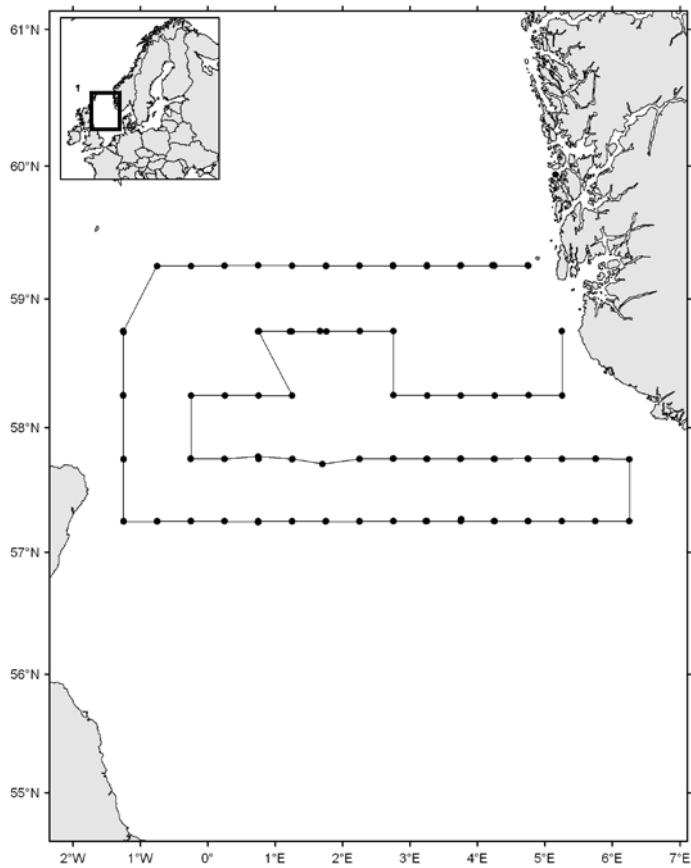
Cruise no 2011613  
 “Håkon Mosby”  
 15 June–3 July 2011

Part 1 15–21 June  
 z CTD st.no 534–594



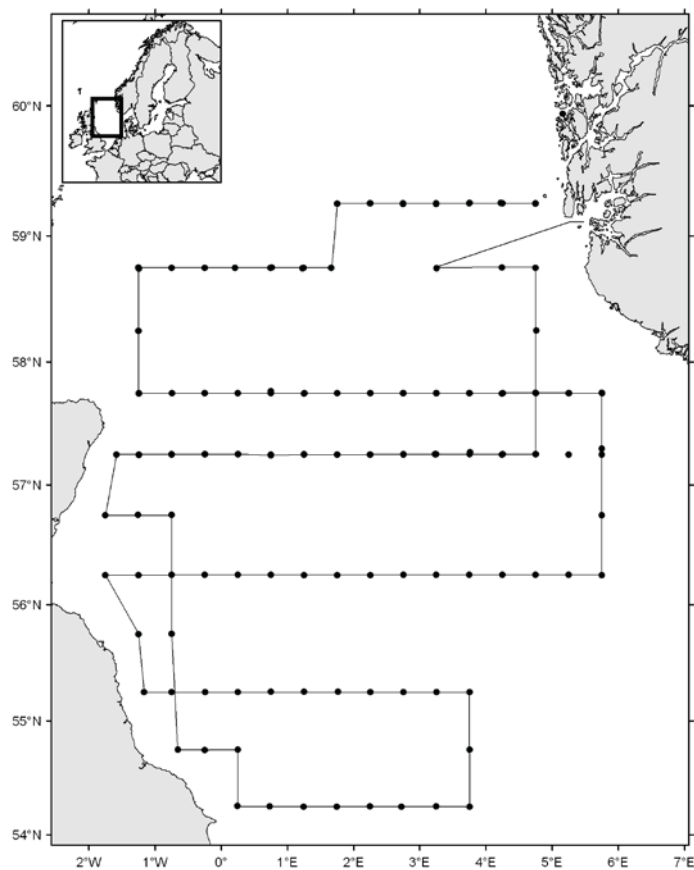
Cruise no 2011613  
 “Håkon Mosby”  
 15 June–3 July 2011

Part 2 22 June–3 July 2011  
 z CTD st.no 595–687



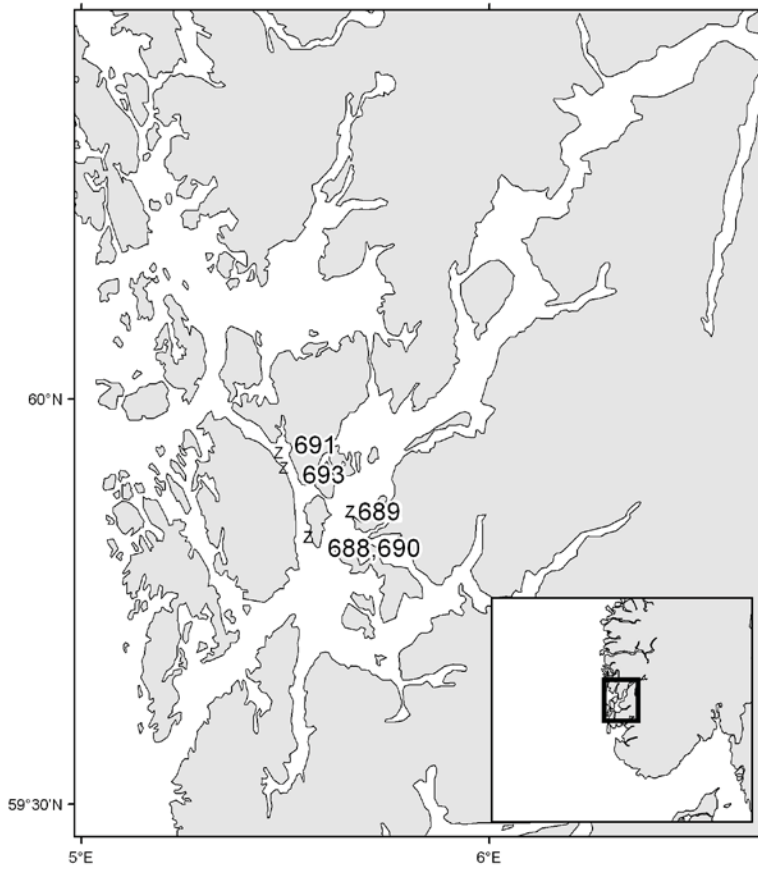
Cruise no 2011613  
 "Håkon Mosby"  
 15 June–3 July 2011

Part 1 15–21 June  
 ● Gulf III stations



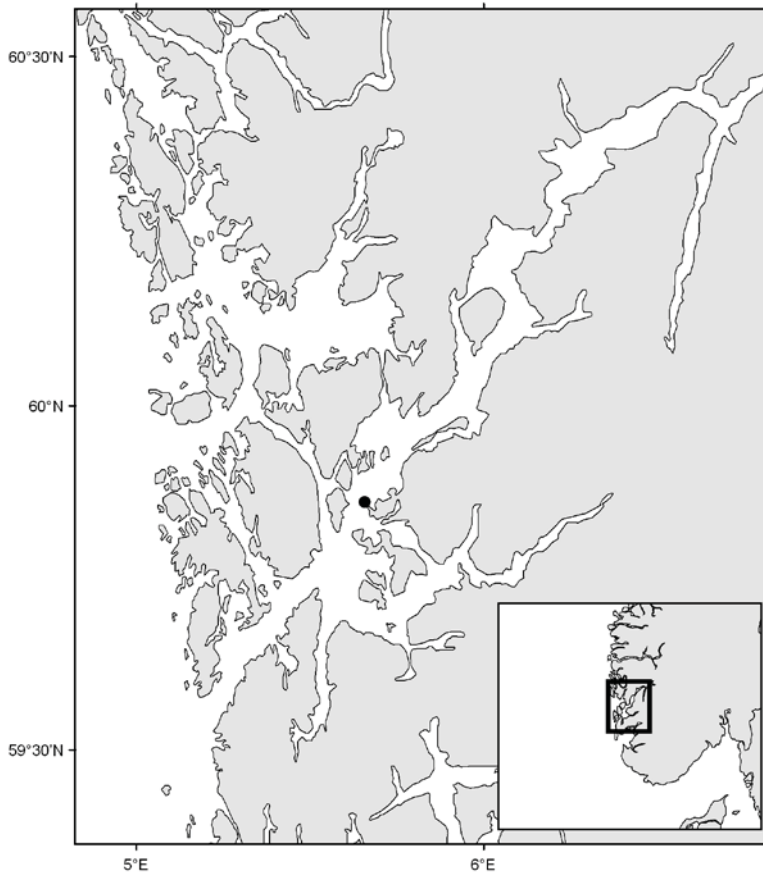
Cruise no 2011613  
 "Håkon Mosby"  
 15 June–3 July 2011

Part 2 22 June–3 July 2011  
 ● Gulf III stations



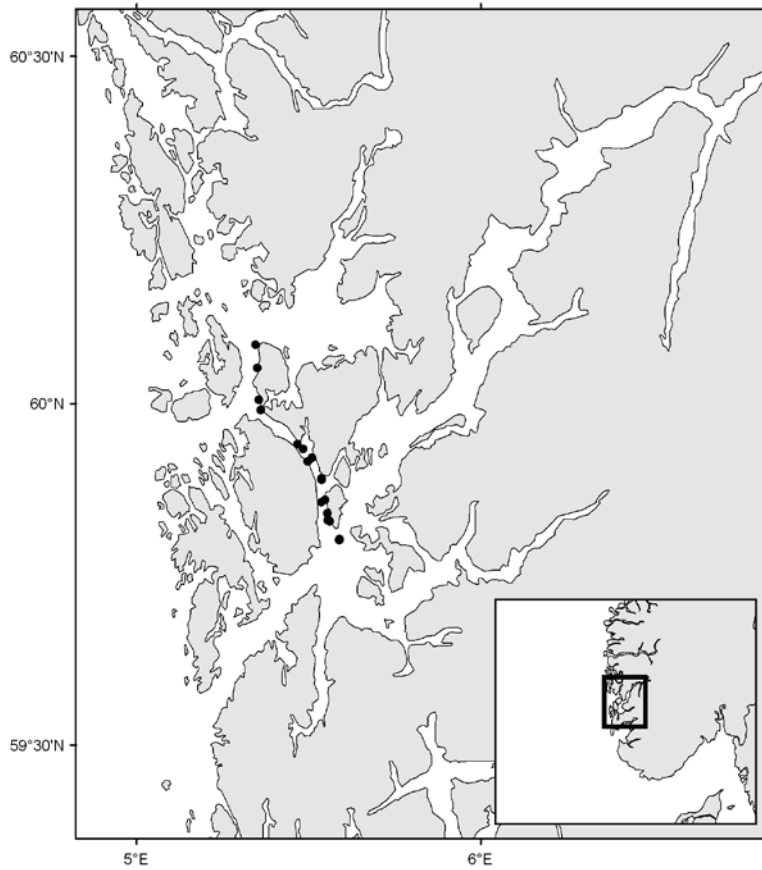
Cruise no 2011614  
 "Håkon Mosby"  
 3–13 July 2011

z CTD st.no 688–693



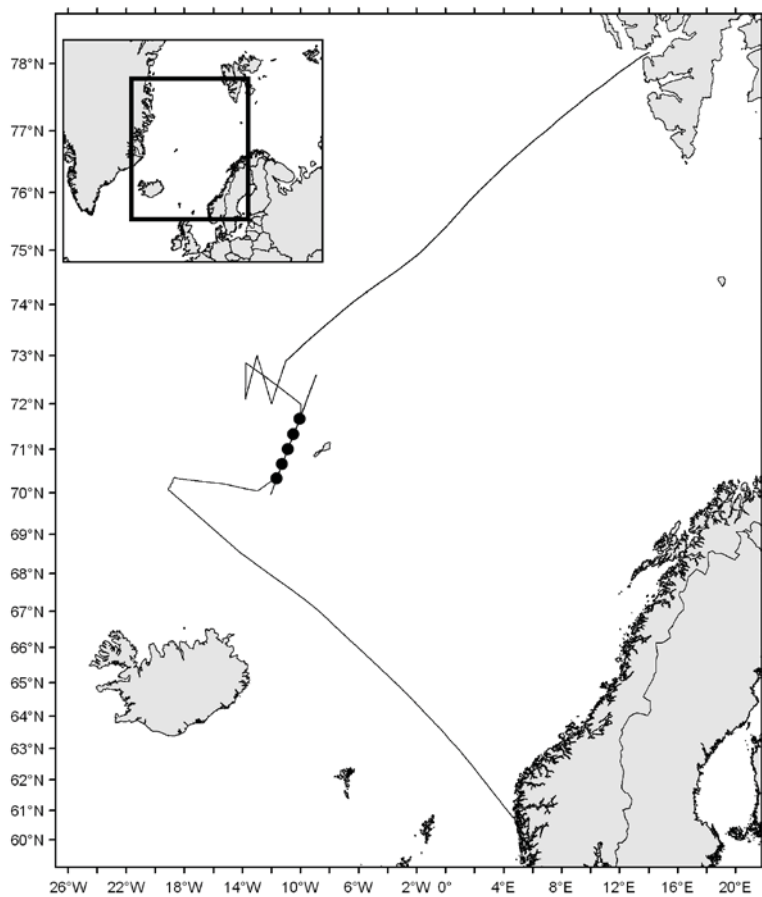
Cruise no 2011614  
 "Håkon Mosby"  
 3–13 July 2011

● 5 grab stations



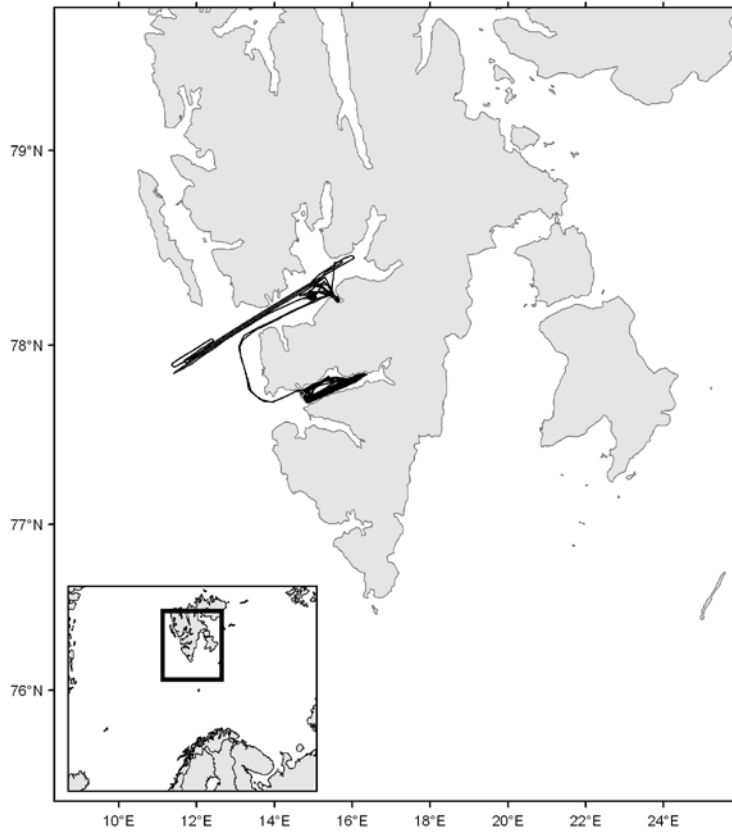
Cruise no 2011614  
 “Håkon Mosby”  
 3–13 July 2011

● Roving stations



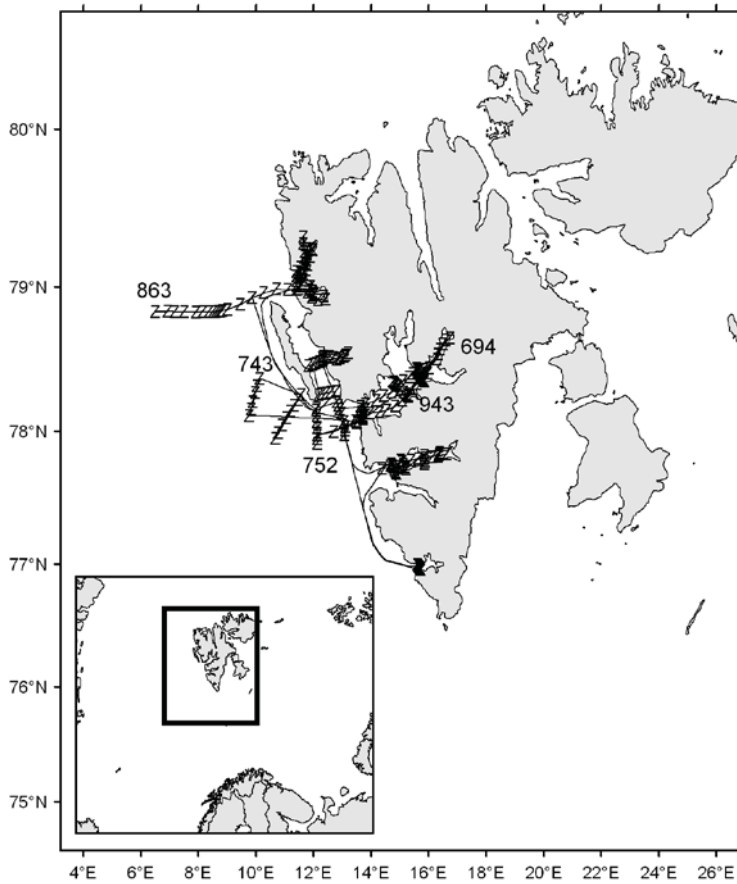
Cruise no 2011615  
 “Håkon Mosby”  
 31 July–16 August 2011

● Ocean bottom seismometer (OBS)



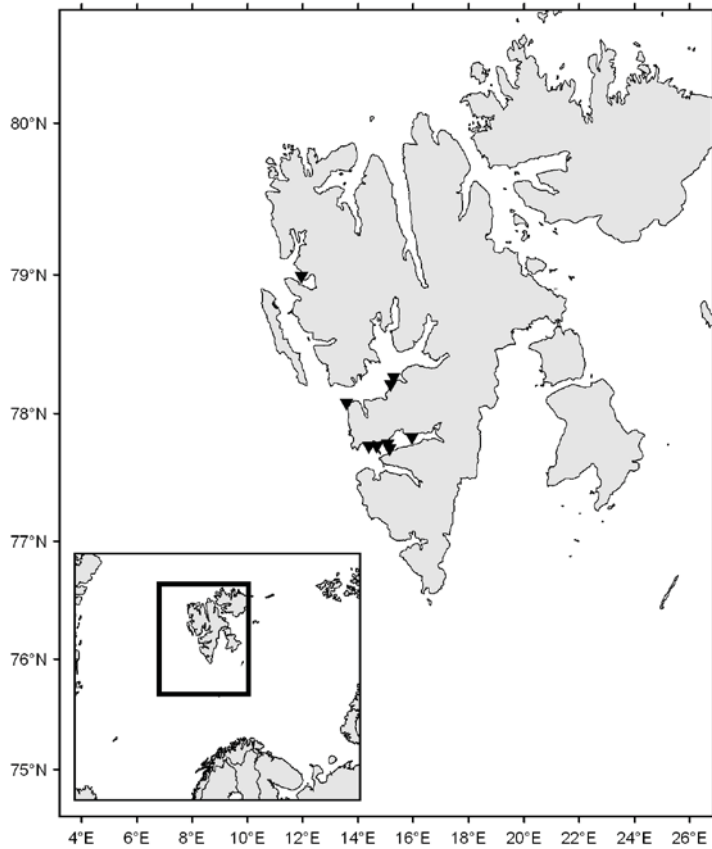
Cruise no 2011616  
 "Håkon Mosby"  
 18-31 August 2011

Cruise track



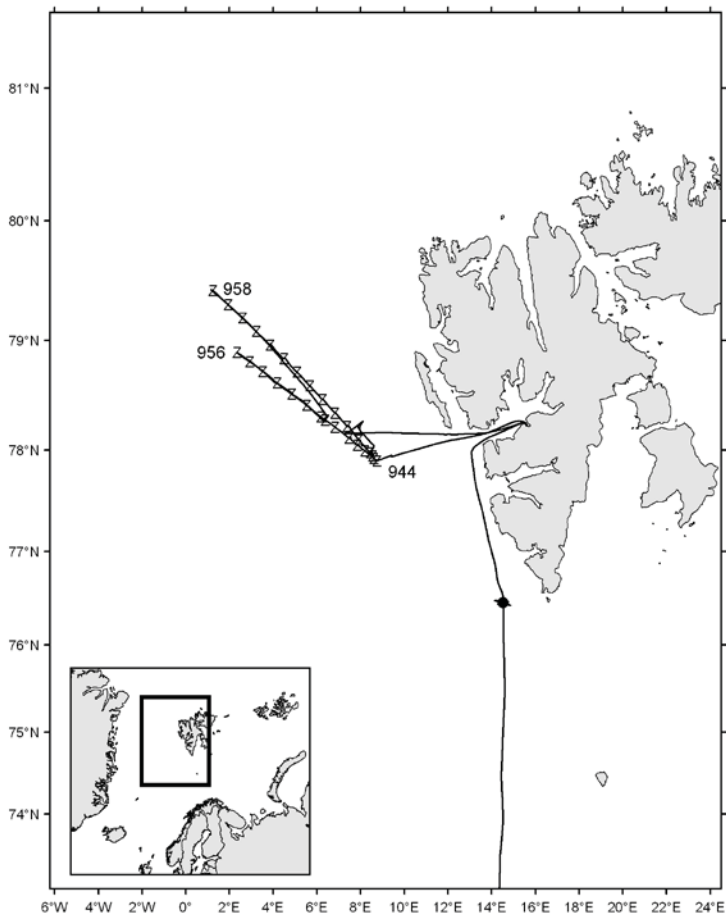
Cruise no 2011617  
 "Håkon Mosby"  
 2-13 September 2011

z CTD st.no 694-943



Cruise no 2011617  
 “Håkon Mosby”  
 2–13 September 2011

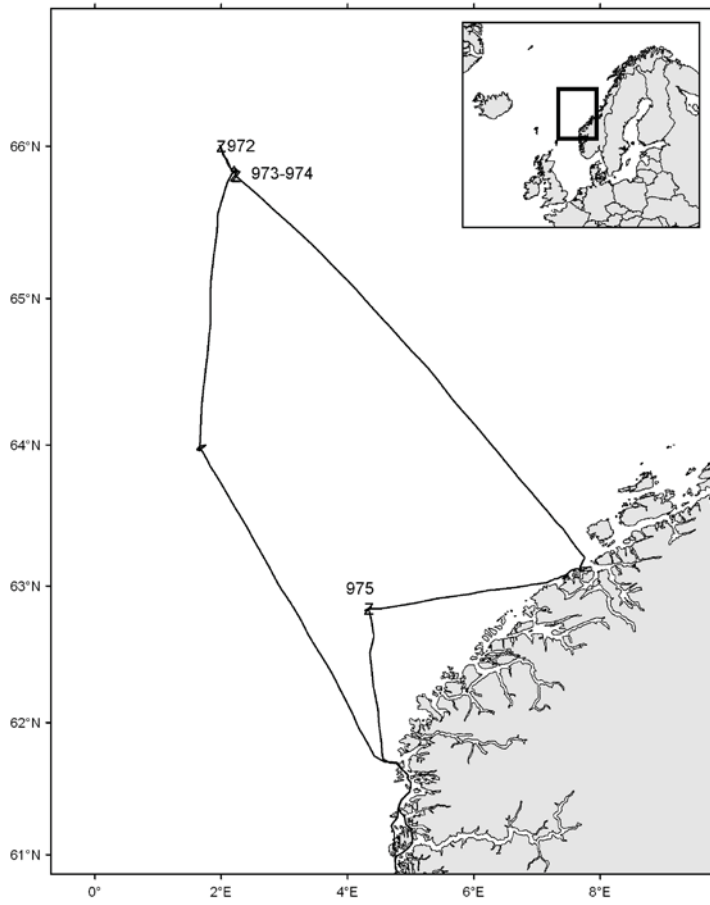
▼ Current meter moorings



Cruise no 2011618  
 “Håkon Mosby”  
 15–21 September 2011

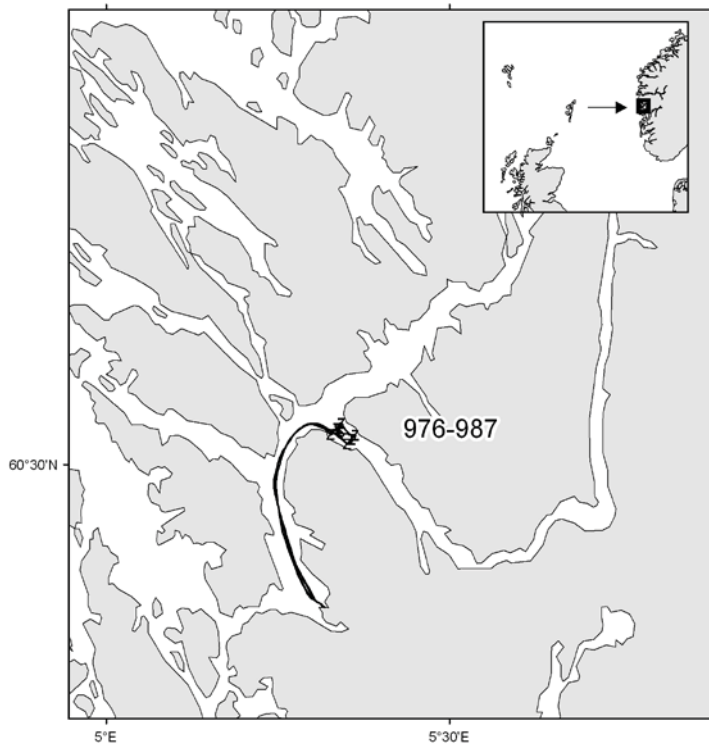
z CTD st.no 944–971  
 ● ROV station





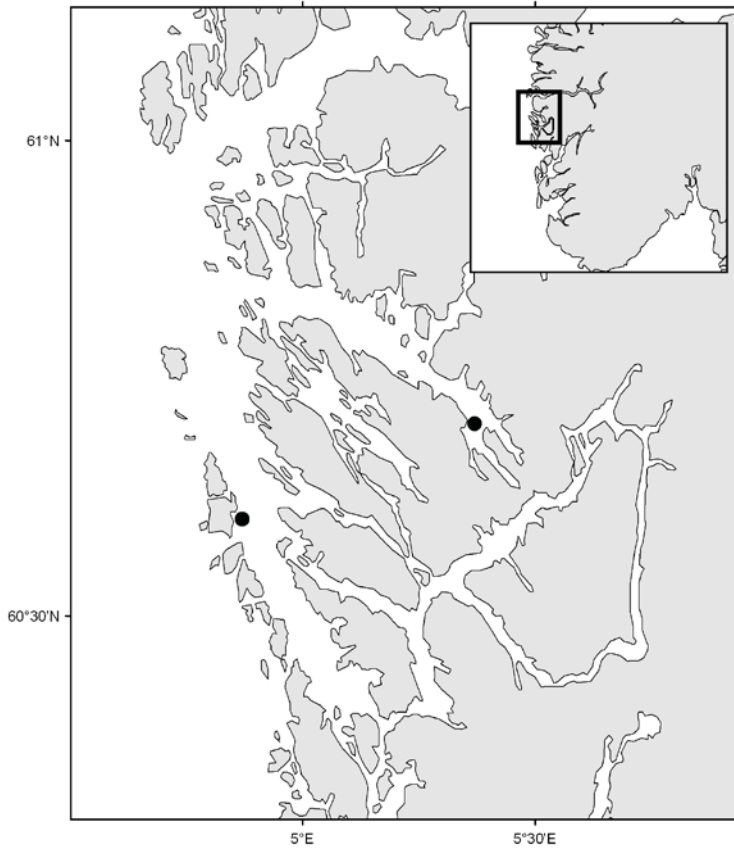
Cruise no 2011619  
 "Håkon Mosby"  
 28 Sep–5 Oct 2011

z CTD st.no 972–975



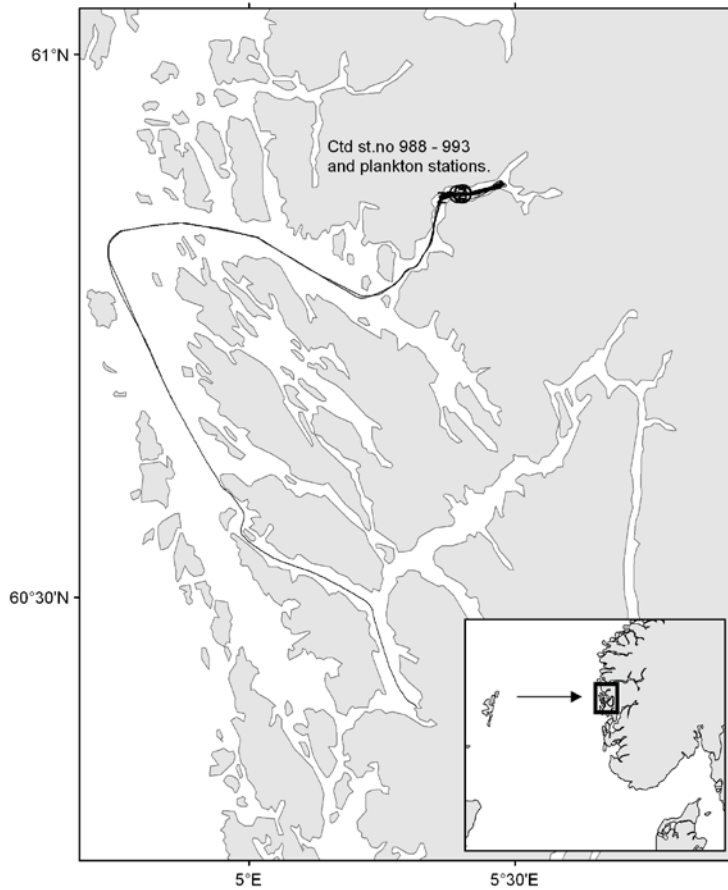
Cruise no 2011620  
 "Håkon Mosby"  
 6–7 October 2011

z CTD st.no 976–987



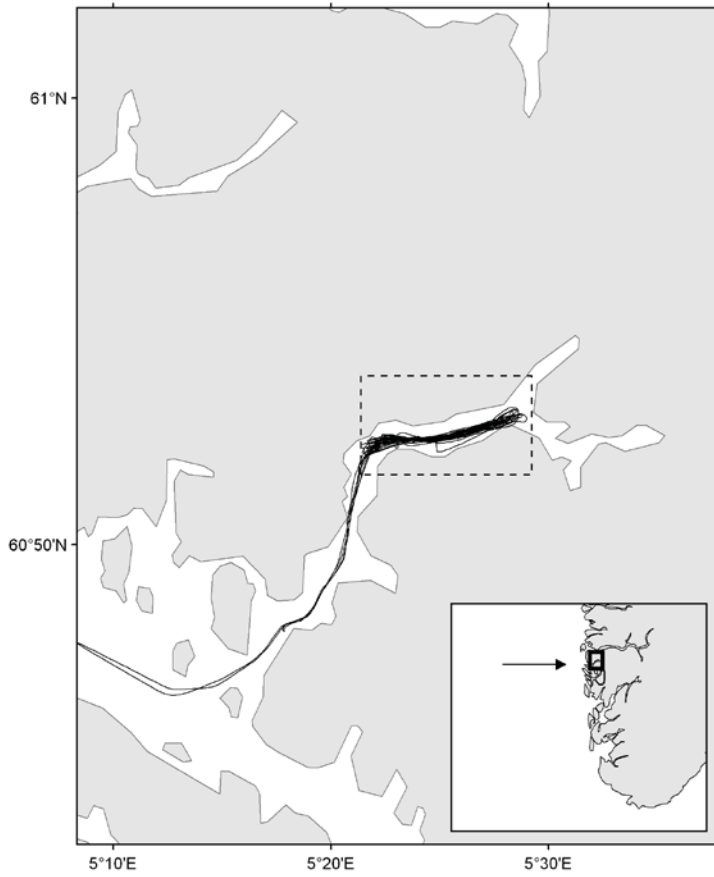
Cruise no 2011621  
 “Håkon Mosby”  
 9–10 October 2011

● ROV station



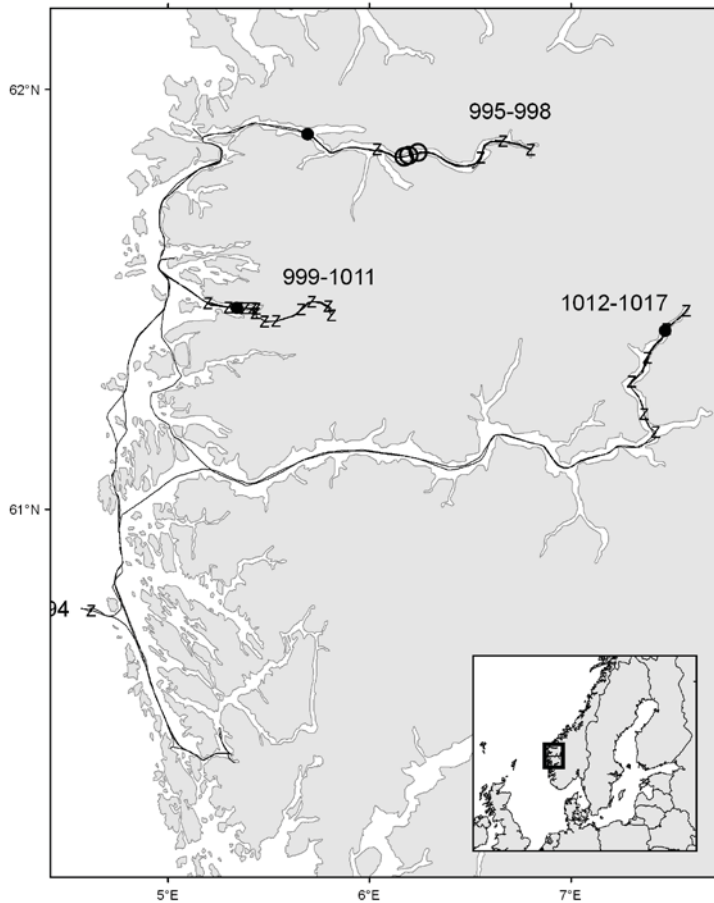
Cruise no 2011622  
 “Håkon Mosby”  
 11–15 October 2011

z CTD st.no 988–993  
 o Multinet (plankton st.)



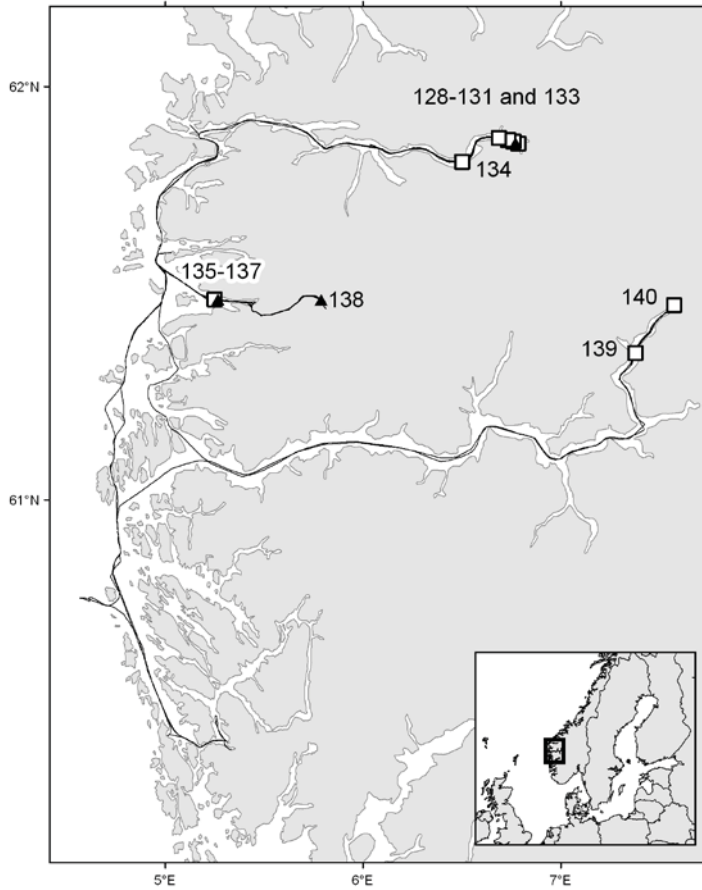
Cruise no 2011622  
 “Håkon Mosby”  
 11–15 October 2011

Area for bottom and pelagic trawl  
 (including multisampler) st.no  
 107–127



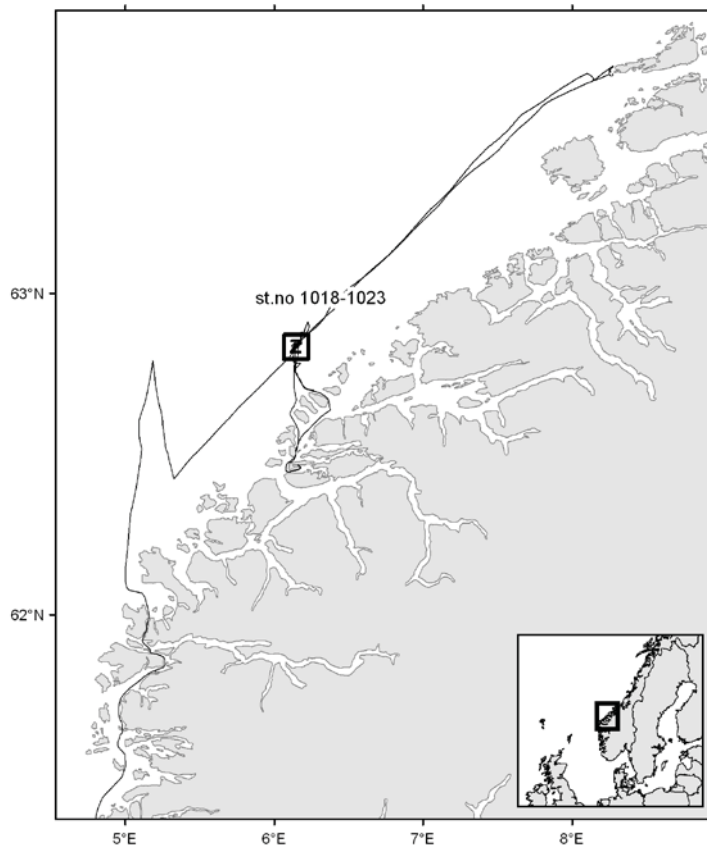
Cruise no 2011623  
 “Håkon Mosby”  
 16–22 October 2011

z CTD st.no 994–1017  
 ● Multisampler  
 ○ MIK stations



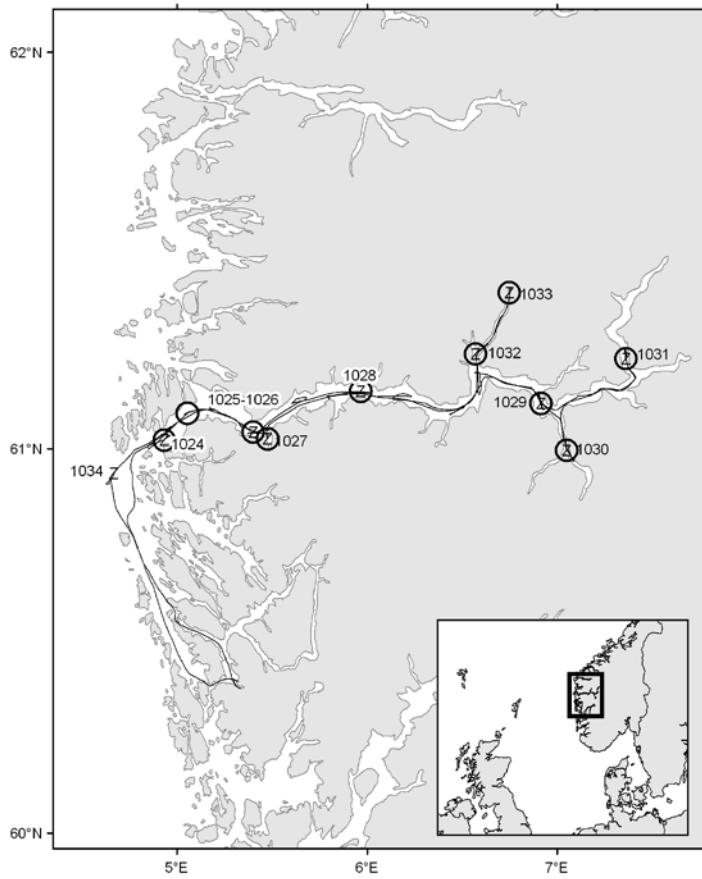
Cruise no 2011623  
 “Håkon Mosby”  
 16–22 October 2011

Trawl st.no 128–140 (132 is missing)  
 ▲ Pelagic trawl  
 □ Bottom trawl



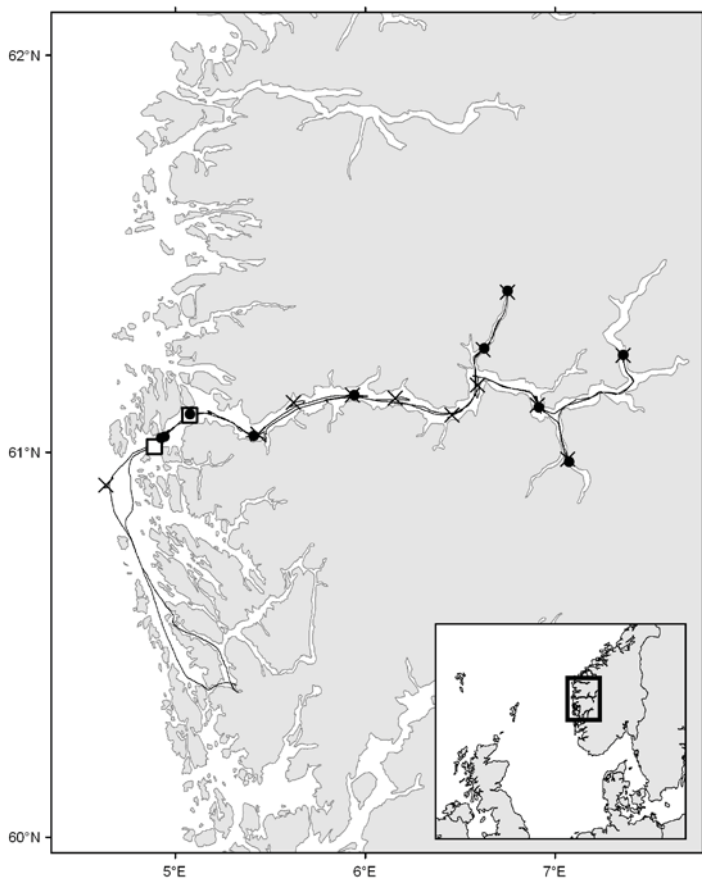
Cruise no 2011624  
 “Håkon Mosby”  
 24–31 October 2011

z CTD st.no 1018–1023  
 □ Area for deployment of a Fugro/  
 Oceanor Wavescan buoy and  
 Deployment of mooring lines



Cruise no 2011625  
 "Håkon Mosby"  
 1-5 November 2011

z CTD st.no 1024-1034  
 o Grab station

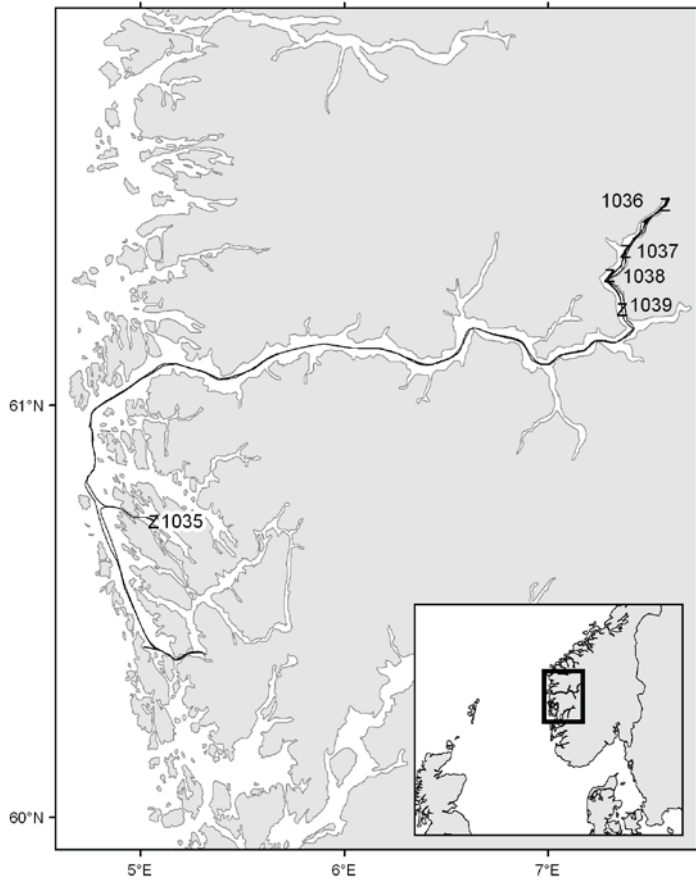


Cruise no 2011625  
 "Håkon Mosby"  
 1-5 November 2011

□ Bottom trawl st.no 142-143  
 ● Sledge station  
 x Agassis

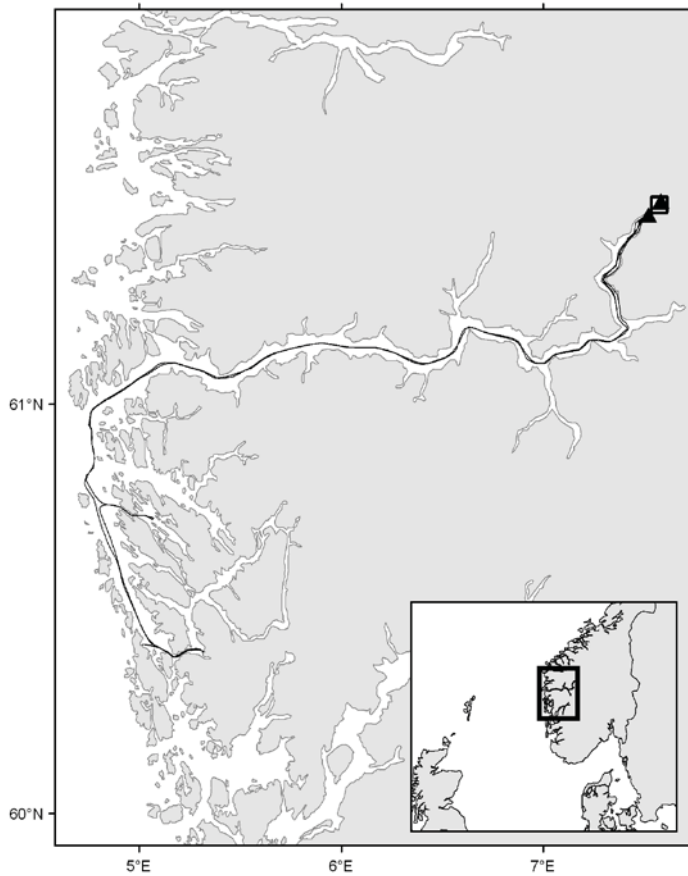
Cruise no 2011626  
"Håkon Mosby"  
7-9 November 2011

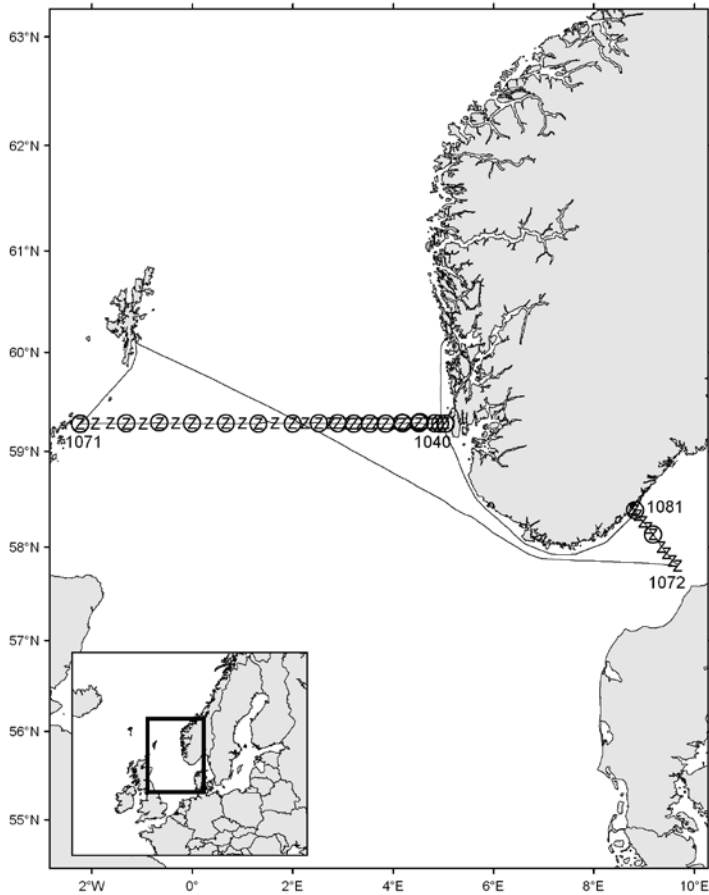
z CTD st.no 1035-1039



Cruise no 2011626  
"Håkon Mosby"  
7-9 November 2011

Trawl st.no 144-149  
□ Bottom trawl (2 st.)  
▲ Pelagic trawl (4 st.)

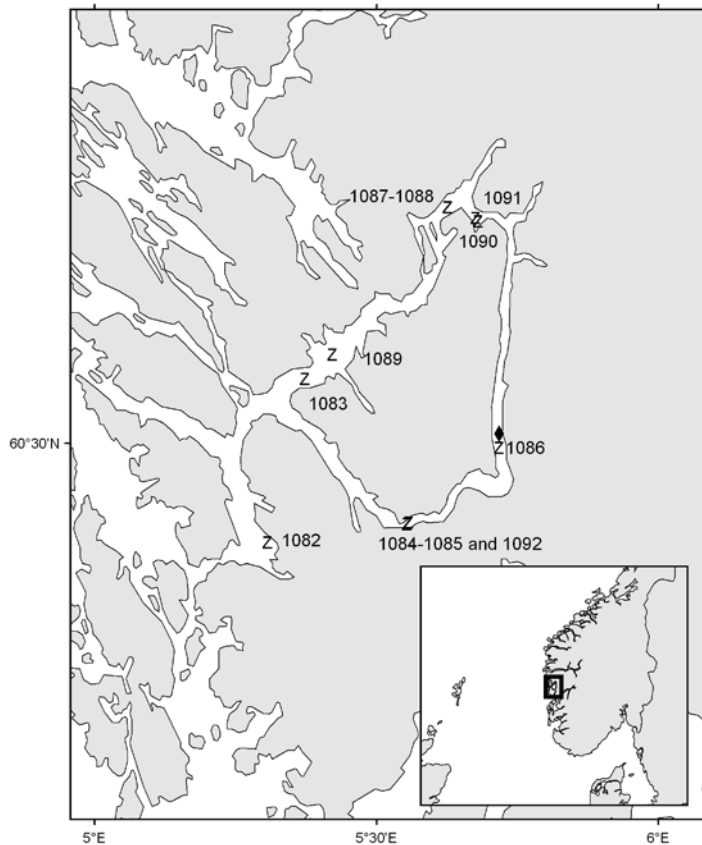




Cruise no 2011628  
 “Håkon Mosby”  
 11–17 November 2011

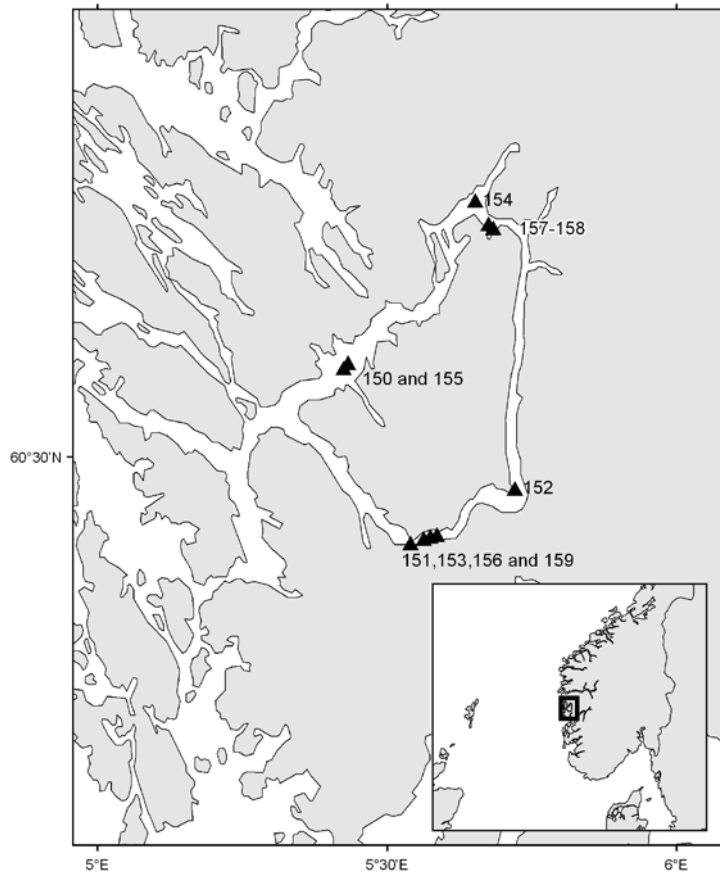
z CTD st.no 1040–1081  
 o Plankton st. (WP-II and WP-III net)

Standard section:  
 Utsira-W st.no 1040–1071  
 Torungen–Hirtshals st.no 1072–1081



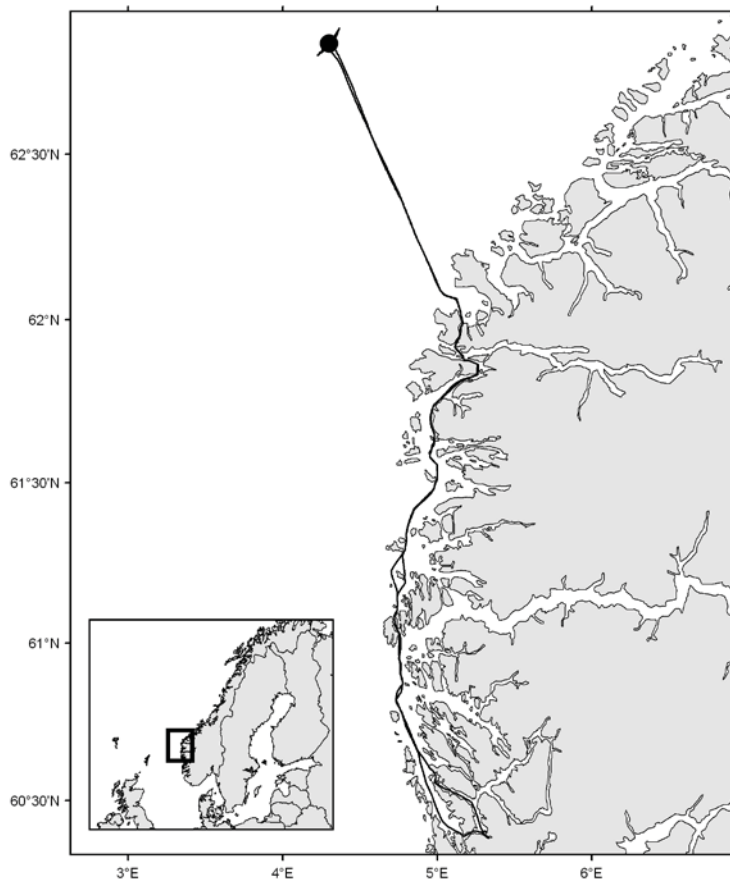
Cruise no 2011629  
 “Håkon Mosby”  
 21 Nov–3 Dec 2011

z CTD st.no 1082–1092  
 ♦ MOCNESS station



Cruise no 2011629  
 “Håkon Mosby”  
 21 Nov–3 Dec 2011

▲ Pelagic trawl st.no 150–159

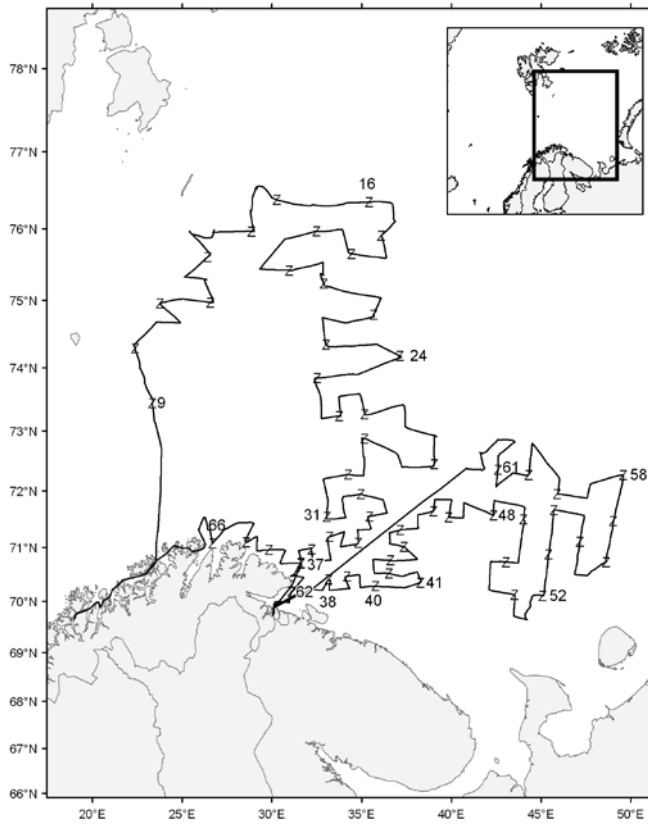


Cruise no 2011630  
 “Håkon Mosby”  
 9–11 December 2011

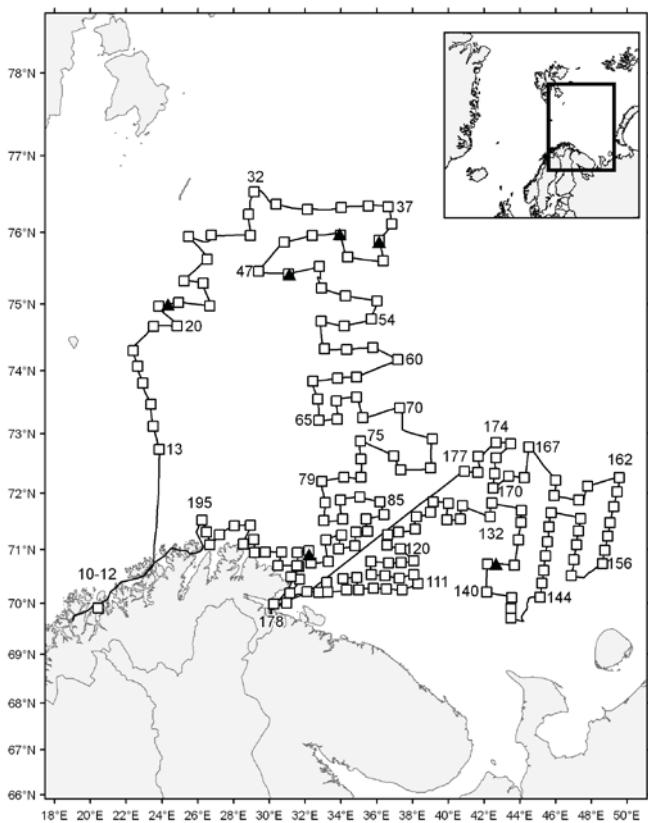
● Deployment of the NACO-Buoy  
 for real time monitoring



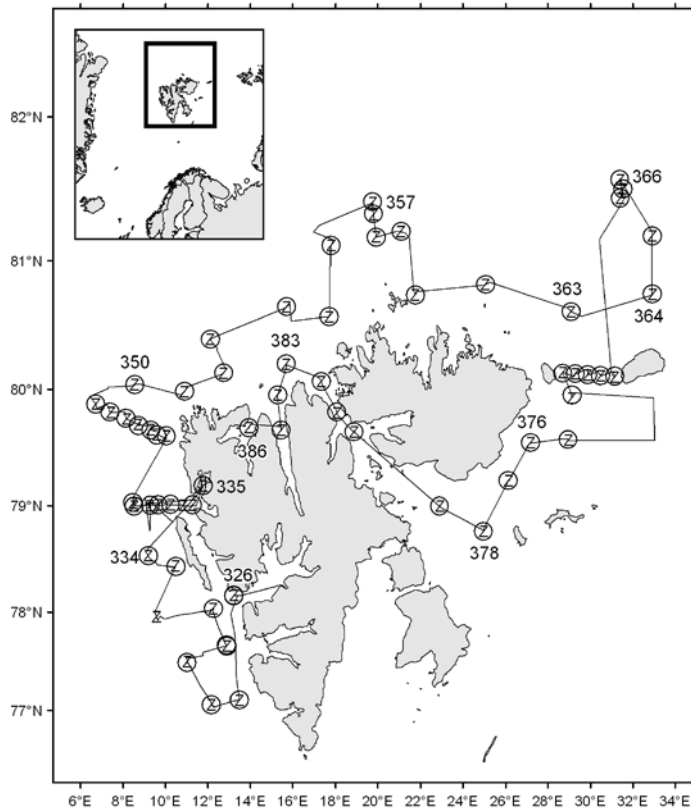
#### 4.4 Jan Mayen / Helmer Hanssen



Cruise no 2011702  
 "Jan Mayen"  
 1 Feb–1 Mar 2011  
 z CTD st.no 9–66

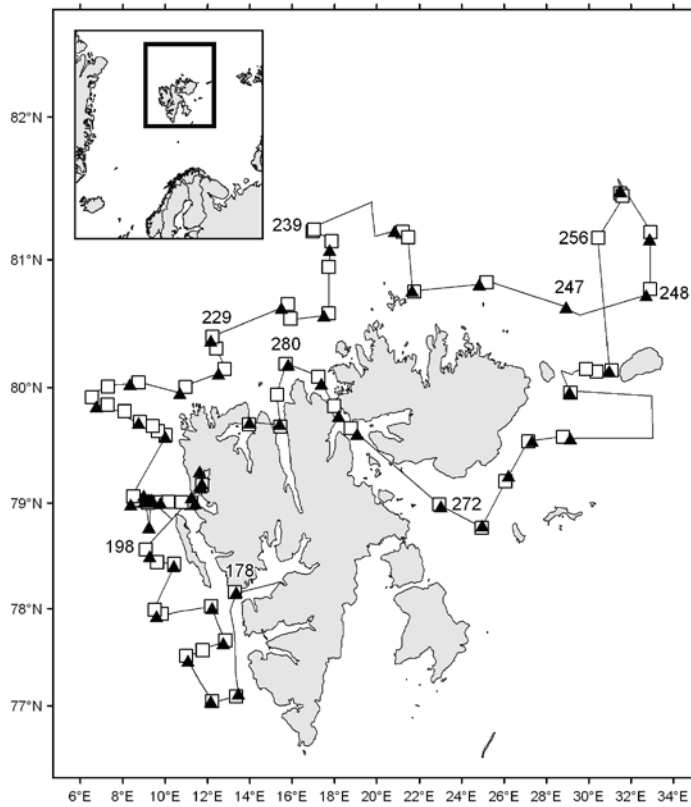


Cruise no 2011702  
 "Jan Mayen"  
 1 Feb–1 Mar 2011  
 Trawl st.no 10–195  
 □ Bottom trawl  
 ▲ Pelagic trawl



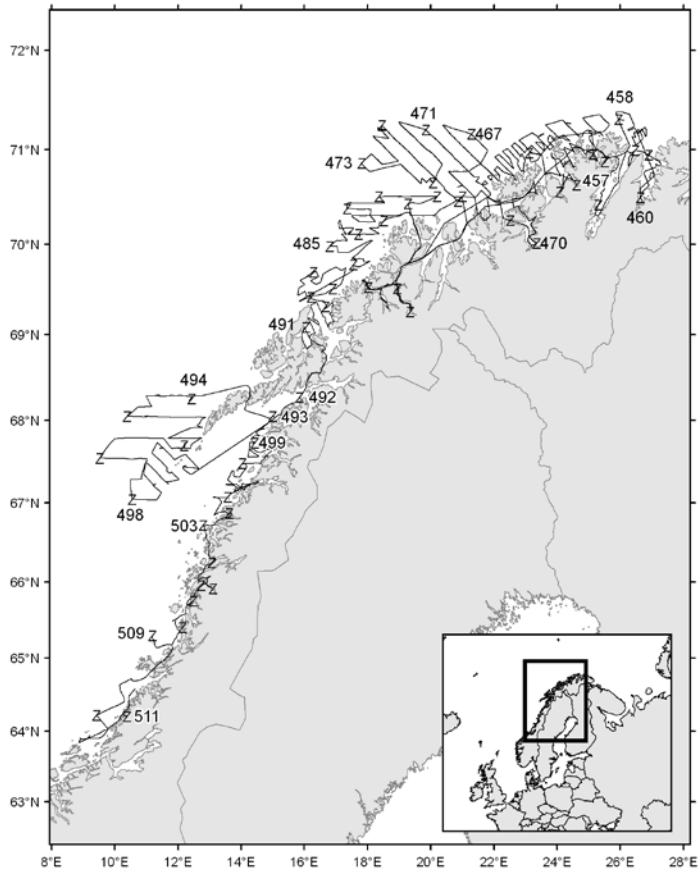
Cruise no 2011717  
 “Helmer Hanssen”  
 9–24 August 2011

z CTD st.no 326–386  
 o Plankton station



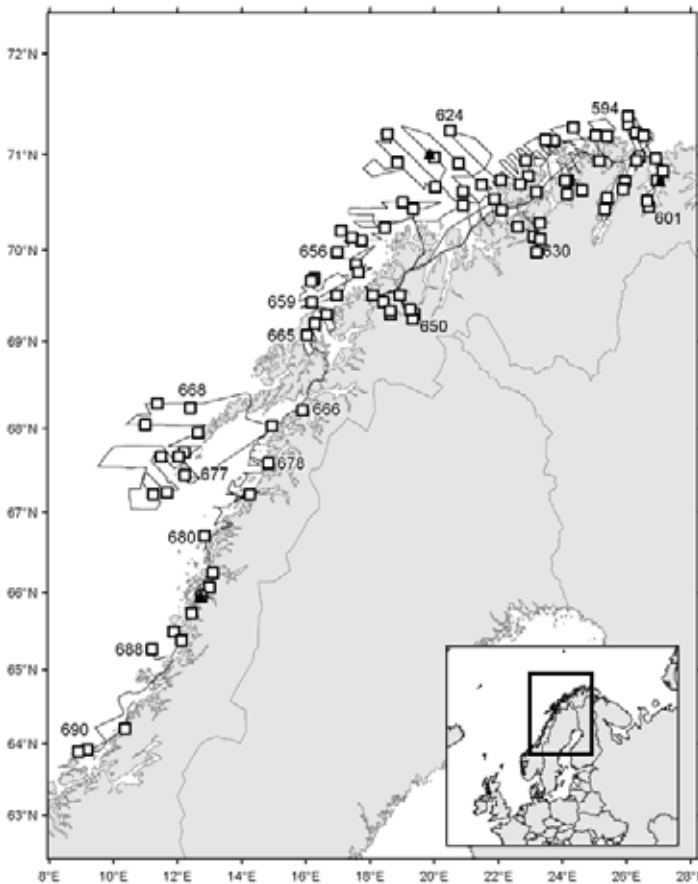
Cruise no 2011717  
 “Helmer Hanssen”  
 9–24 August 2011

Trawl st.no 178–310  
 □ Bottom trawl  
 ▲ Pelagic trawl



Cruise no 2011722  
 “Helmer Hanssen”  
 16 Oct–12 Nov 2011

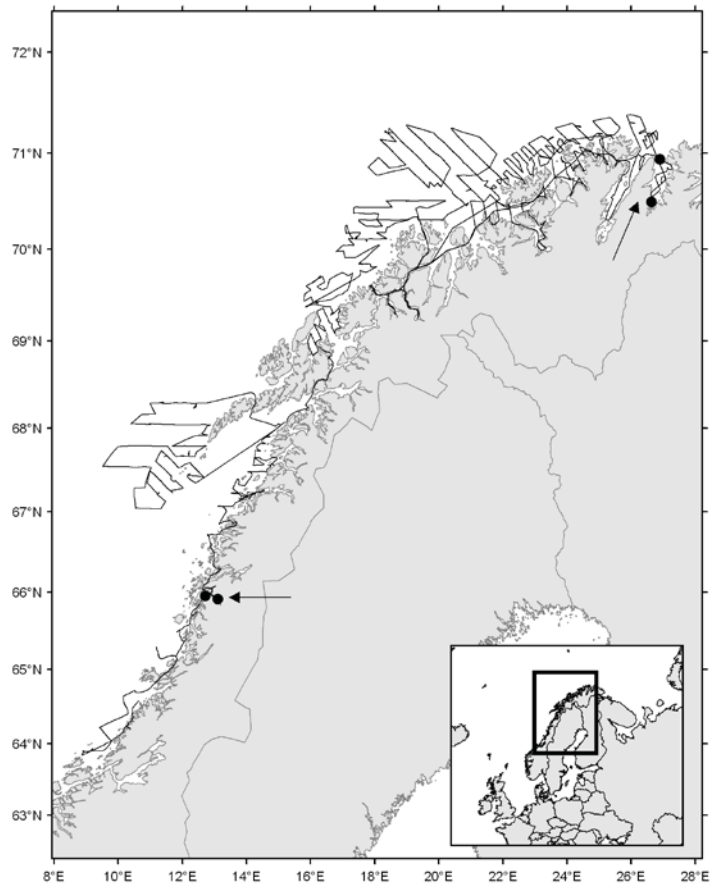
z CTD st.no 457–511



Cruise no 2011722  
 “Helmer Hanssen”  
 16 Oct–12 Nov 2011

Trawl st.no 594–691

- Bottom trawl
- ▲ Pelagic trawl

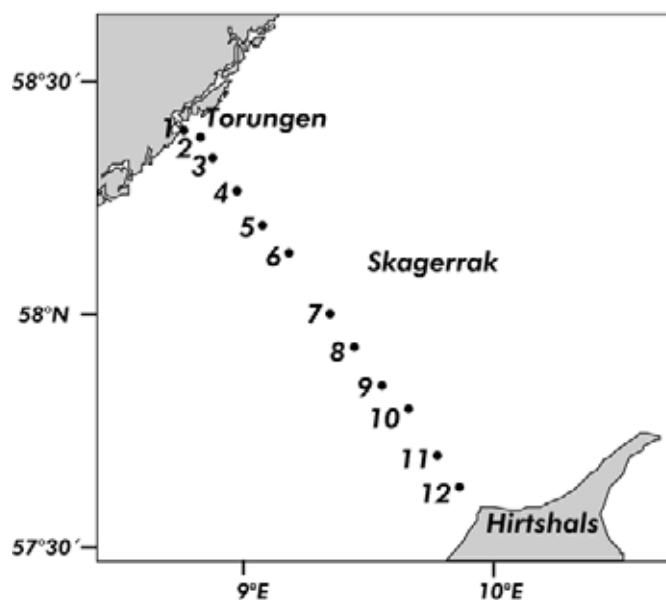


Cruise no 2011722  
"Helmer Hanssen"  
16 Oct–12 Nov 2011

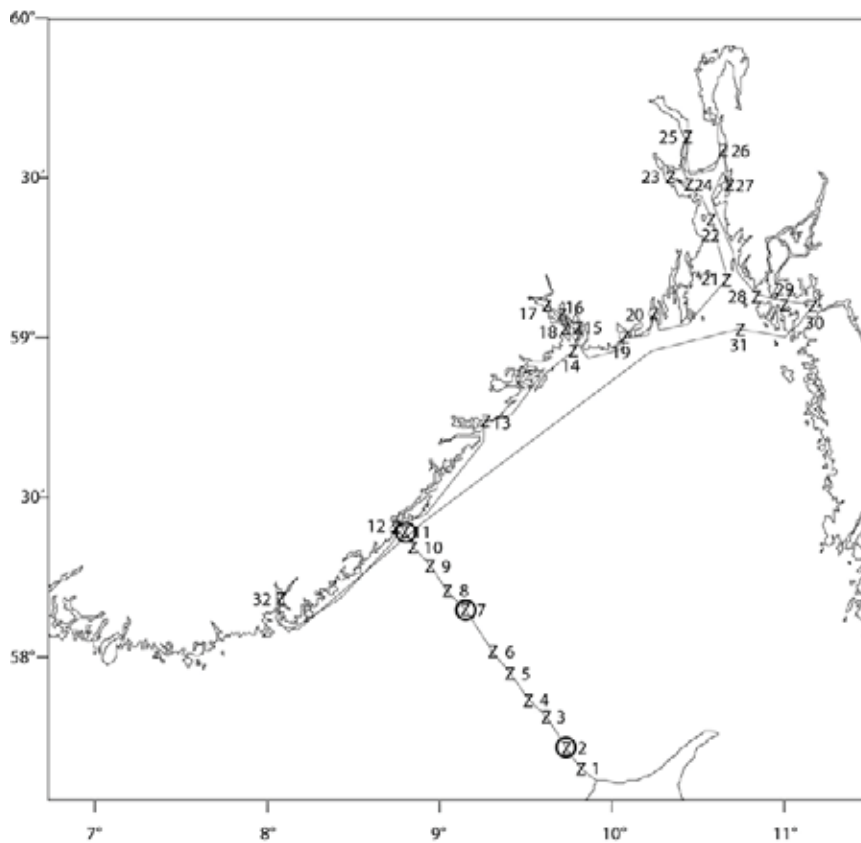
● 4 Grab stations

#### 4.5 G.M. Dannevig

#### Standard section Torungen–Hirtshals 2011

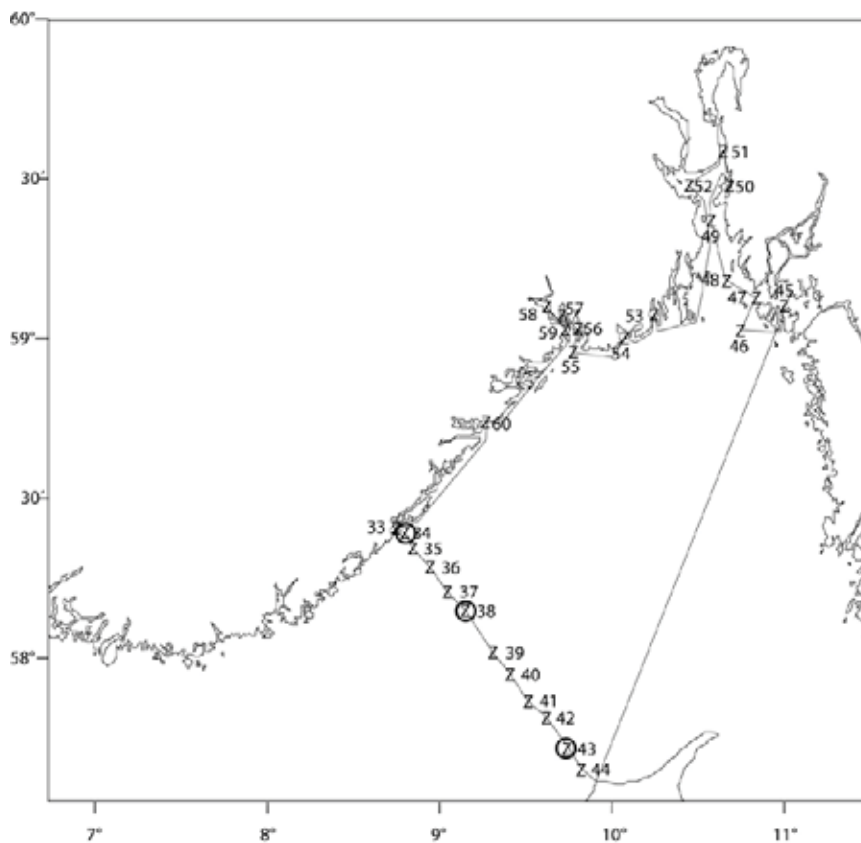


Month	Cruise no	CTD st. no	Comment
January	2011301	1 - 12	
February	2011302	33 - 44	
March	2011305	61 - 72	
April	2011305	177 - 188	
May	-	-	
June	2011307	190 - 201	
July	2011308	229 - 240	
August	2011309	247 - 258	
September	2011311	-	Cancelled
October	2011313	-	Cancelled
November	-	-	
December	-	-	



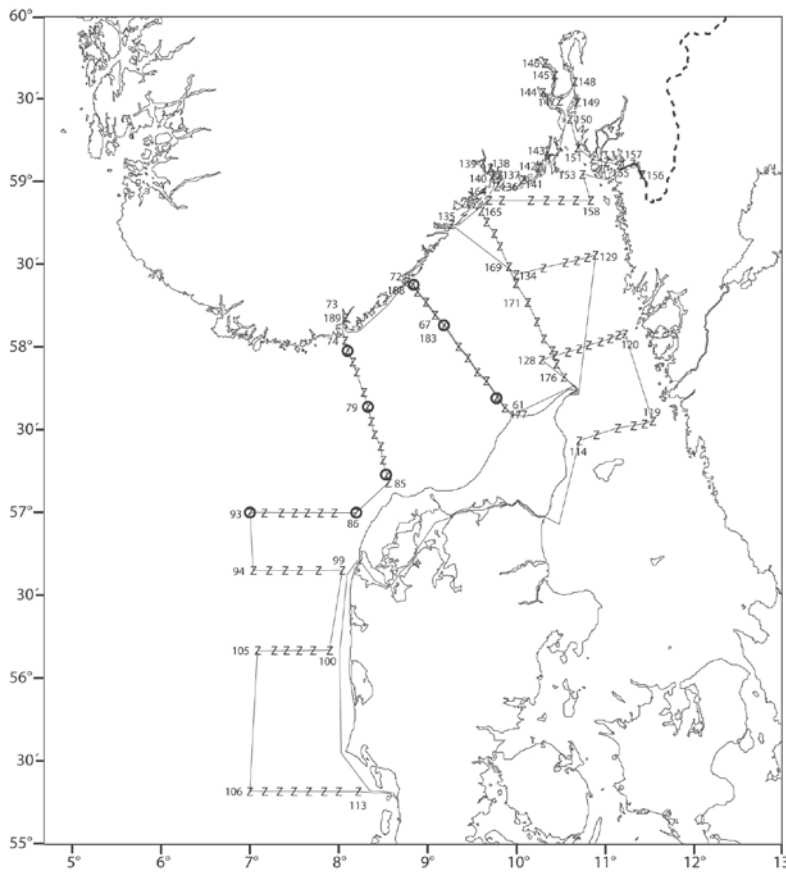
Cruise no 2011301  
 “G.M. Dannevig”  
 8–14 Jan 2011

z CTD st.no 1–32  
 o Plankton st. (WP-II-net)



Cruise no 2011302  
 “G.M. Dannevig”  
 13–18 Feb 2011

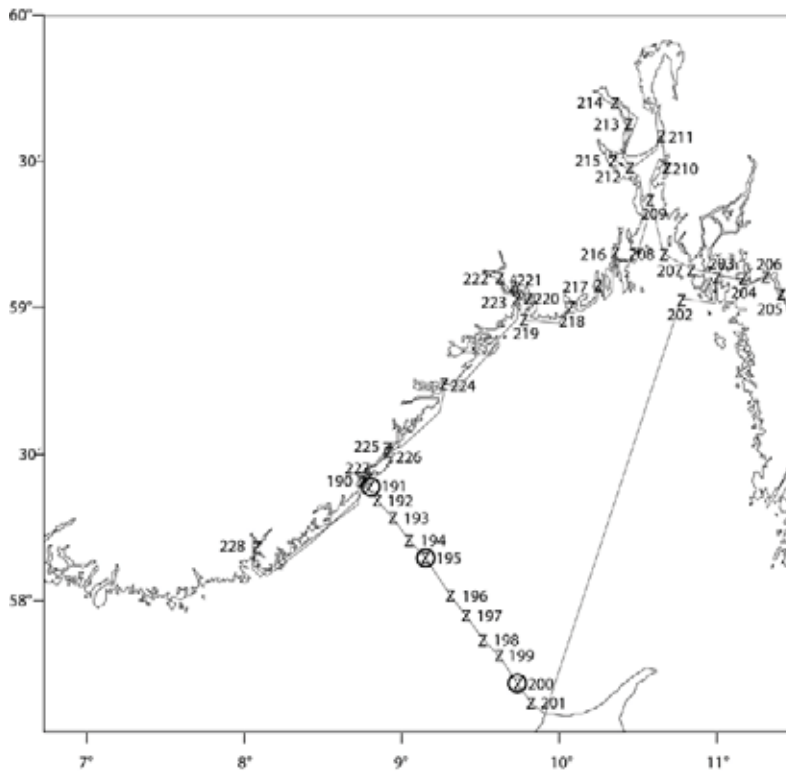
z CTD st.no 33–60  
 o Plankton st. (WP-II-net)



Cruise no 2011305  
 “G.M. Dannevig”  
 30 Mars–19 Apr 2011

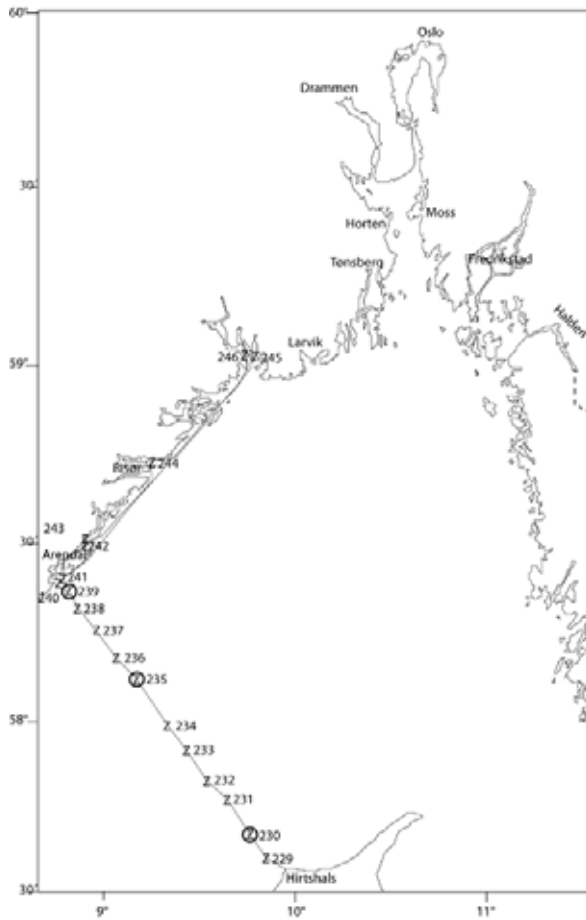
z CTD st.no 61–189  
 o Plankton st. (WP-II-net)

Standard sections:  
 Oksøy–Hanstholm st.no 74–85  
 Torungen–Hirtshals st.no 61–72,  
 177–188  
 Jomfruland–Skagen st.no 165–176  
 Jomfruland–Koster st.no 158–164  
 Torbjørnskjær st.no 153  
 Väderø st.no 129–134  
 Måseskjær st.no 120–128  
 Gøteborg–Fredrikshavn st.no 114–119



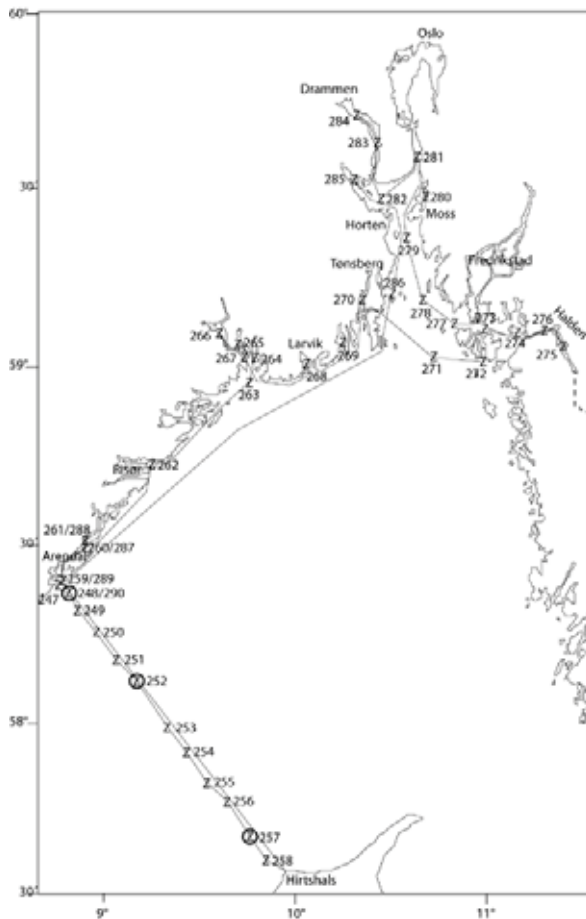
Cruise no 2011307  
 “G.M. Dannevig”  
 18–23 June 2011

z CTD st.no 190–228  
 o Plankton st. (WP-II-net)



Cruise no 2011308  
 "G.M. Dannevig"  
 2–3 July 2011

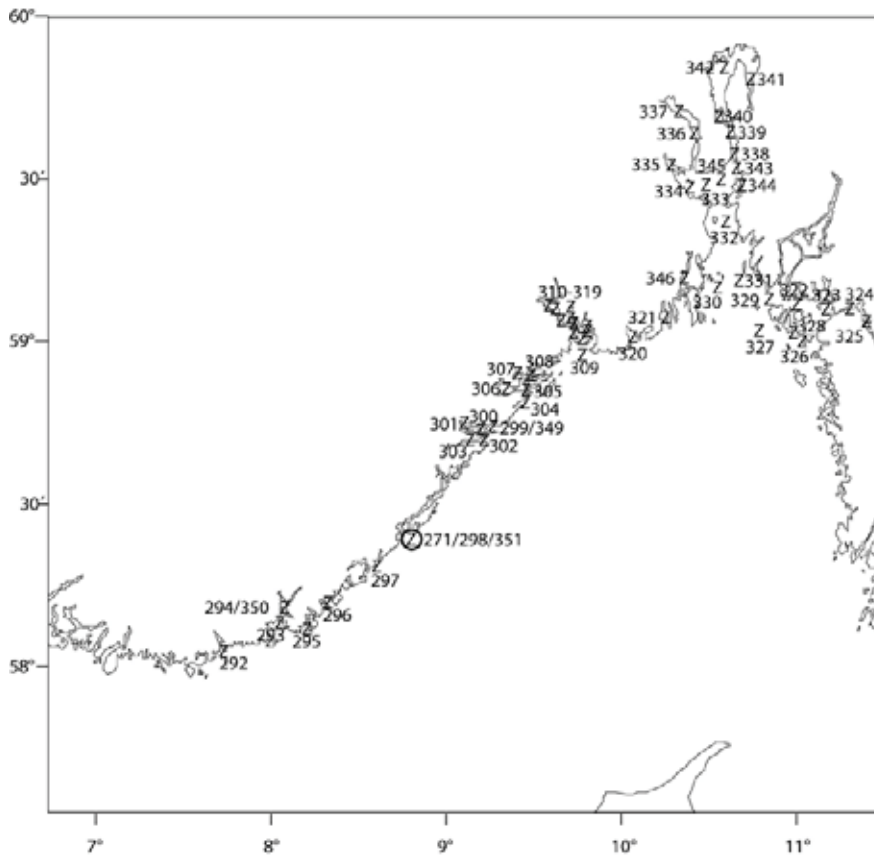
z CTD st.no 229–246  
 o Plankton st. (WP-II-net)



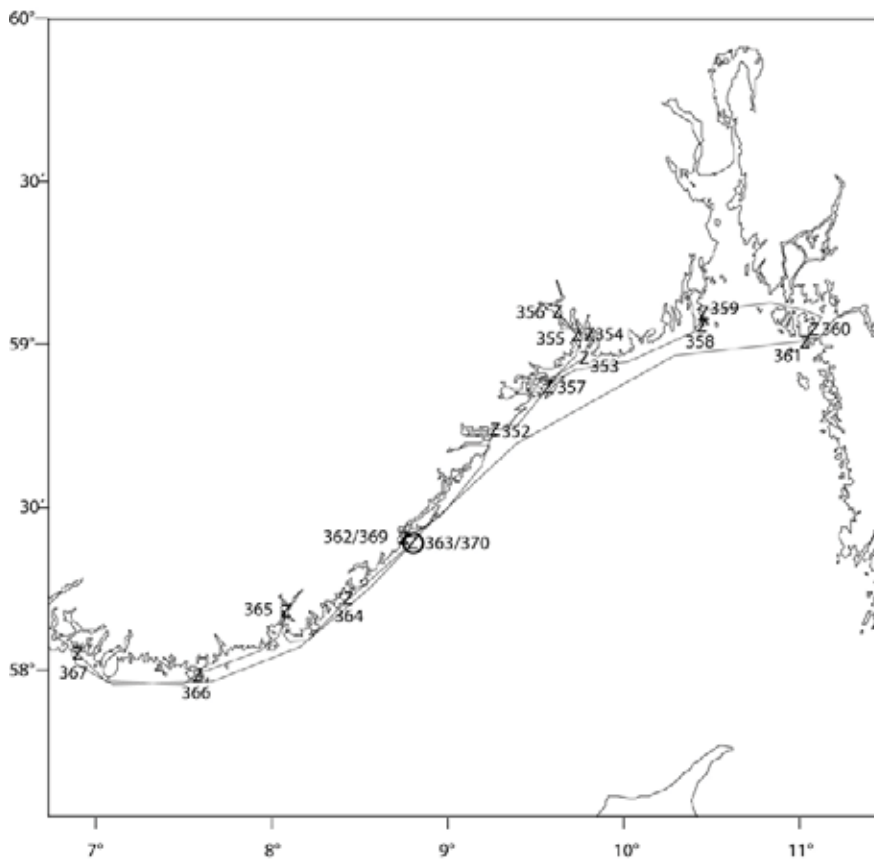
Cruise no 2011309 / 310  
 "G.M. Dannevig"  
 9–24 August 2011

z CTD st.no 247–290  
 o Plankton st. (WP-II-net)



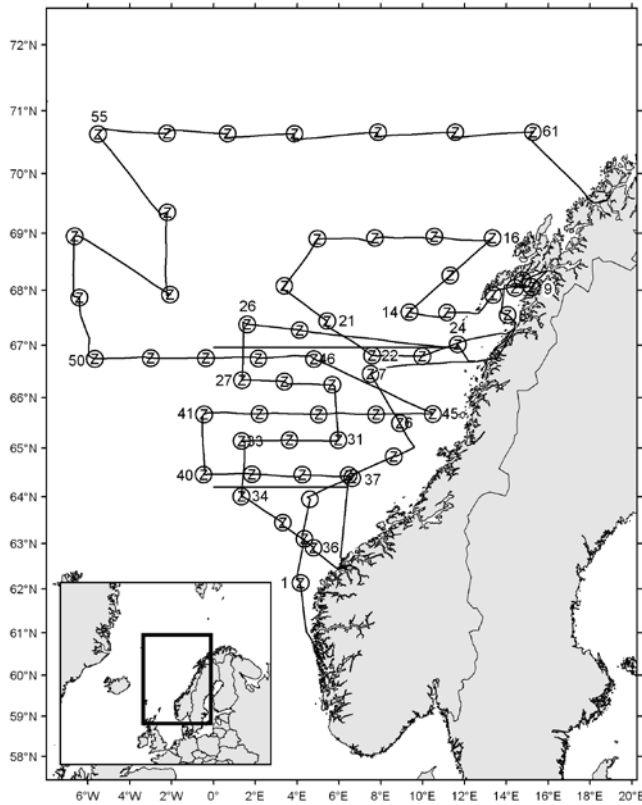


Cruise no 2011312 / 313  
 “G.M. Dannevig”  
 16 Sep–5 Oct 2011  
 z CTD st.no 291–351



Cruise no 2011314 / 315  
 “G.M. Dannevig”  
 16 Nov–15 Dec 2011  
 z CTD st.no 352–370  
 o Plankton st. (WP-II-net)

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

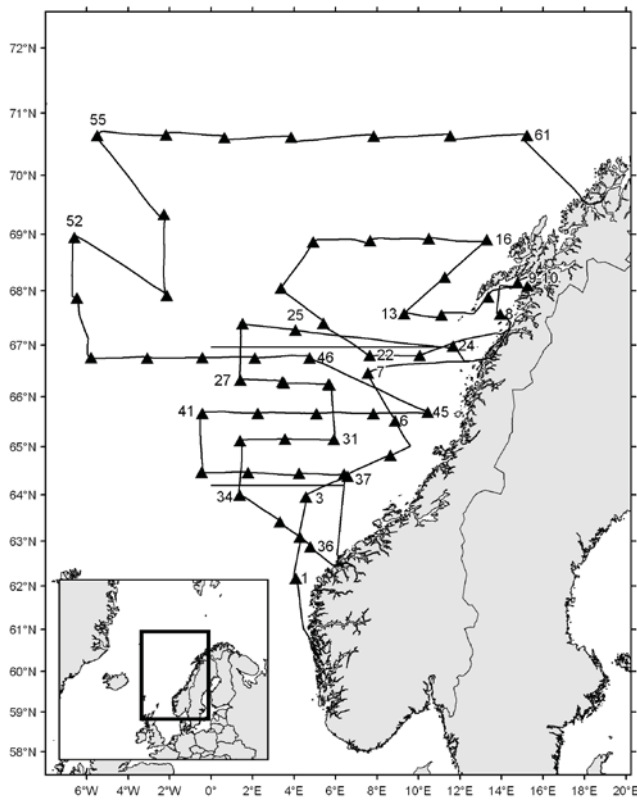


Cruise no 2011826

“Libas”

18 July–10 August 2011

z CTD st.no 1–61 (st. 3 and 29 is missing)  
o Plankton st.

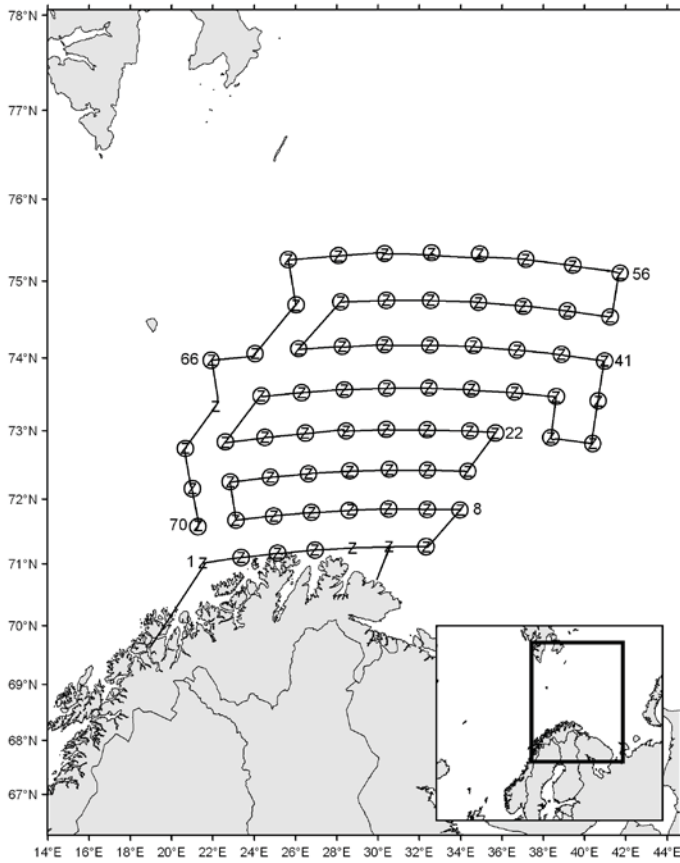


Cruise no 2011826

“Libas”

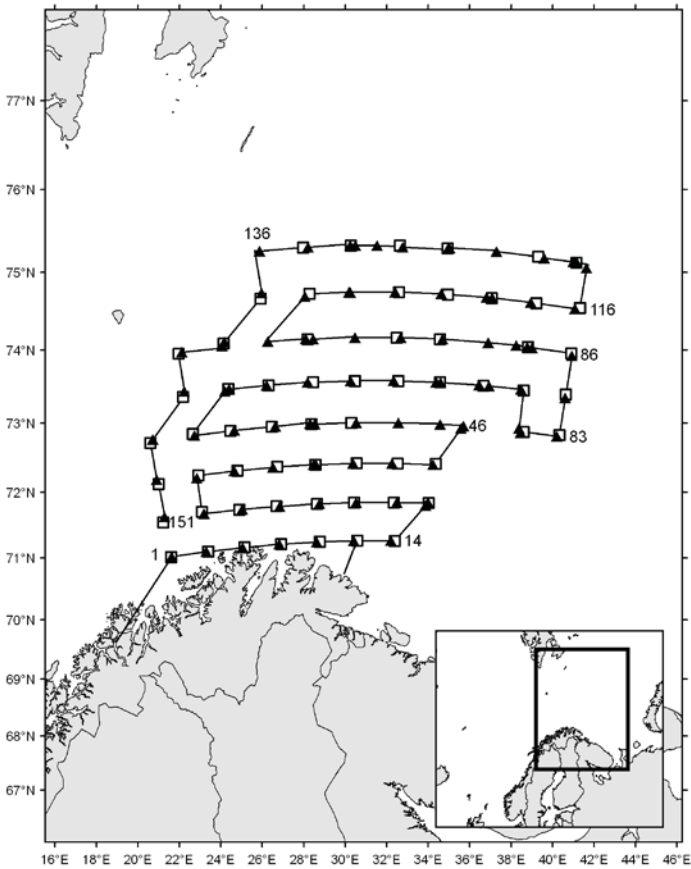
18 July–10 August 2011

▲ Pelagic trawl st.no 1–61



Cruise no 2011830  
 "Christina E"  
 25 Aug–18 Sep 2011

z CTD st.no 1–70  
 o Plankton st.



Cruise no 2011830  
 "Christina E"  
 25 Aug–18 Sep 2011

Trawl st.no 1–151  
 Δ Pelagic trawl  
 □ Bottom trawl





Retur: Havforskningsinstituttet, Postboks 1870 Nordnes, NO-5817 Bergen



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