



Cruise report no: 29.08.2022, 03.10.2022-21.10.2022, Jnr. 22/12344

This cruise report, numbered **29.08.2022, 03.10.2022-21.10.2022, Jnr. 22/12344** is a part of the fulfilment of the conditions required to enter Norwegian zone with the chartered vessels F/V Rossö and F/V Svanen given by permit “22/12344”. The time series data collected during the cruise will be combined with data from IBTS Q3 and the Swedish coastal survey for a formal analysis. The findings will be reported to the Swedish Agency for Marine and Water Management in the autumn of 2023.

Participants

F/V Rossö with skipper Niklas Sterner and crew and from SLU Aqua: Baldvin Thorvaldsson, Lisa Sörman (2 – 6/10), Magnus Andersson (11 – 14/10) and Peter Johannessen (16 – 18/10).

F/V Svanen with skipper Stefan Larsson and crew, and from SLU Aqua: Jan-Erik Johansson and Anders Wernbo.

The scientist in charge, Patrik Börjesson, did not participate at sea.

Objectives

The survey is an initiative to supplement the data collection carried out in the international bottom trawl survey during the third quarter (IBTS Q3). By expanding the geographical area and sampling in the deeper parts of the Skagerrak, data on species that are not currently covered by IBTS will also be collected. The survey is a so-called fishermen survey, i.e. knowledge and experience within the commercial fishery is used in the design and implementation of the survey. The data collected will be analysed together with data from the IBTS Q3 and the Swedish coastal survey to generate distribution maps and biomass estimates for stock assessment and environmental evaluation at national and international level.

Itinerary

The chartered fishing vessels F/V Rossö (call sign SIGA) and F/V Svanen (call sign SMFH) departed from port on the evening of October 2, 2022, heading towards Skagen, Denmark. Once they arrived, they rigged the survey trawls and calibrated the door sensors. Between October 3 and October 6, F/V Rossö mostly fished in Danish waters, at depths ranging from 20 to 100 meters, while F/V Svanen fished at depths of 150 to 400 meters along the southern rim of the Norwegian trench. F/V Rossö reduced the duration of hauls to 30 minutes in areas with high haddock densities. During the second week, from October 10 to October

13, most of the fishing occurred in the eastern and northeastern Skagerrak. Due to adverse weather conditions, the survey was extended into the following week, with a few hauls on October 17 and 18. Figure 1 shows the distribution of trawl stations, while Table 1 presents additional haul information.

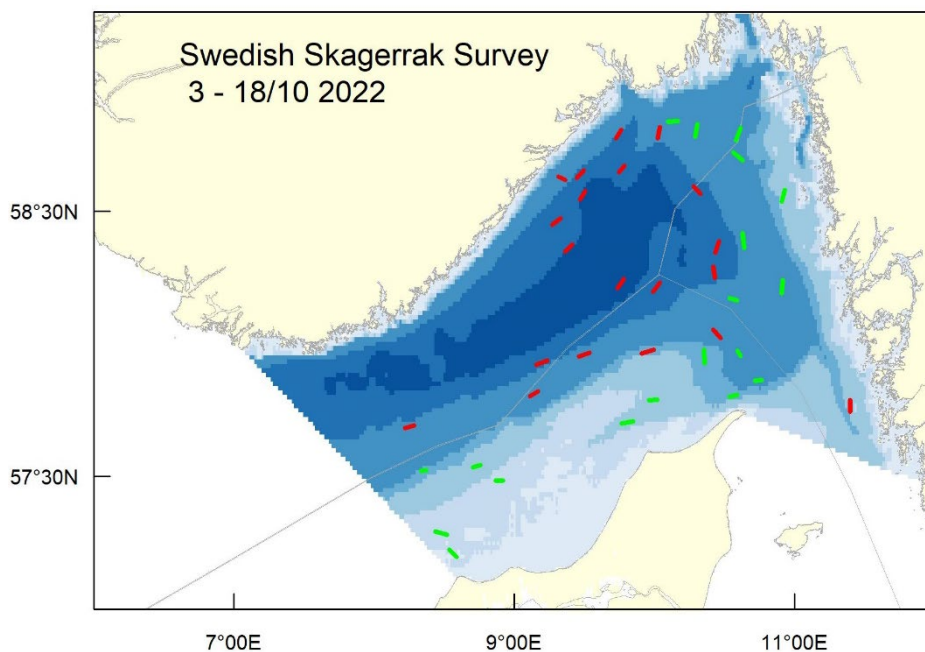


Figure 1. Map showing trawl stations in Skagerrak 2022 fished by F/V Rossö (green tracks) and F/V Svanen (red tracks).

Achievements

During the 2022 cruise, 39 out of the 40 planned hauls were completed in Danish (16 hauls), Norwegian (13 hauls) and Swedish (10 hauls) waters. One station in Danish waters was not sampled due to a real-time closure (RTCDNK2235). The total catch was 9.8 tonnes and included 39 different fish species. The most common species, measured by occurrence, were witch flounder, cod and haddock which were found in 34 and 28 out of 39 hauls, respectively. The largest catches by weight were haddock (2.4 t), roundnose grenadier (1.5 t), and greater silversmelt (1.2 t). 0.94 tonnes of cod were caught during the cruise. (Table 2). Eight species of elasmobranchs, including rabbit fish, were caught during the cruise, with the most common being starry ray, velvet belly and rabbit fish. The catch of spurdog was smaller than the previous year, but still significant (Table 3).

Age and individual weights were recorded for 600 cod specimens, and genetic samples were collected from 287 cod specimens, 45 starry ray specimens, and two thornback rays. In addition to the routine collection, a small sample of otoliths for age reading from roundnose grenadier (15 specimens) and greater silver smelt (22 specimens) was collected for training purposes.

Table 1. Station list for the Swedish Skagerrak Survey October 03 – October 18 2022.

Vessel	Date	HaulNo	Set position		Haul position		StatRect	Depth	Duration (min)	Speed (knt)	Door spread (m)
			Latitude	Longitude	Latitude	Longitude					
SIGA	3/10 2022	1	57°42.54N	9°50.89E	57°42.07N	9°45.95E	44F9	63	57	2.8	73.0
SIGA	3/10 2022	2	57°29.14N	8°55.13E	57°29.11N	8°51.98E	43F8	26	39	2.8	70.0
SIGA	3/10 2022	3	57°32.55N	8°45.38E	57°32.14N	8°42.32E	44F8	61	30	2.8	67.0
SIGA	3/10 2022	4	57°31.48N	8°22.37E	57°31.32N	8°20.15E	44F8	100	30	2.4	71.0
SIGA	4/10 2022	5	57°16.91N	8°31.24E	57°17.62N	8°26.32E	43F8	26	60	2.8	63.0
SIGA	4/10 2022	6	57°13.58N	8°32.29E	57°11.87N	8°35.43E	43F8	25	54	3.0	62.0
SIGA	4/10 2022	7	57°47.24N	9°57.61E	57°47.42N	10°1.20E	44F9	50	40	2.8	65.0
SIGA	5/10 2022	8	57°48.05N	10°32.32E	57°48.43N	10°35.45E	44G0	98	30	3.0	74.0
SIGA	5/10 2022	9	57°51.71N	10°43.06E	57°51.78N	10°45.90E	44G0	111	30	3.1	76.0
SIGA	12/10 2022	10	58°50.14N	10°5.80E	58°50.33N	10°9.98E	46G0	200	50	2.5	80.0
SIGA	12/10 2022	11	58°46.81N	10°17.54E	58°49.66N	10°18.50E	46G0	153	60	2.9	81.0
SIGA	12/10 2022	12	58°48.72N	10°37.00E	58°46.00N	10°35.00E	46G0	105	60	2.9	75.0
SIGA	12/10 2022	13	58°43.20N	10°33.86E	58°41.50N	10°37.87E	46G0	104	60	2.8	69.0
SIGA	13/10 2022	14	58°34.71N	10°55.76E	58°32.13N	10°54.49E	46G0	67	60	2.7	66.0
SIGA	13/10 2022	15	58°24.99N	10°37.87E	58°21.74N	10°38.39E	45G0	222	60	2.2	80.0
SIGA	13/10 2022	16	58°10.31N	10°32.26E	58°9.85N	10°35.28E	45G0	227	40	2.8	76.0
SIGA	17/10 2022	17	57°57.21N	10°36.98E	57°58.40N	10°35.57E	44G0	140	30	2.9	81.0
SIGA	17/10 2022	18	57°58.69N	10°21.35E	57°55.69N	10°21.51E	44G0	89	60	3.1	70.0
SIGA	18/10 2022	19	58°11.44N	10°54.52E	58°14.37N	10°55.07E	45G0	138	60	3.1	79.0
SMFH	3/10 2022	1	58°1.35N	10°28.33E	58°3.17N	10°25.27E	45G0	117	60	2.7	76.0
SMFH	3/10 2022	2	58°11.75N	9°59.47E	58°13.81N	10°2.44E	45F9	383	60	2.7	83.0
SMFH	3/10 2022	3	57°57.15N	9°27.65E	57°57.91N	9°32.10E	44F9	187	60	2.8	88.0
SMFH	4/10 2022	4	57°40.94N	8°13.29E	57°41.61N	8°17.02E	44F8	276	60	2.8	86.0
SMFH	4/10 2022	5	57°48.23N	9°6.84E	57°49.25N	9°10.05E	44F9	133	40	2.9	72.0
SMFH	4/10 2022	6	57°55.28N	9°9.47E	57°56.18N	9°14.21E	44F9	310	60	2.7	85.0
SMFH	4/10 2022	7	57°57.80N	9°54.54E	57°58.68N	9°59.59E	44F9	80	60	2.9	64.0
SMFH	5/10 2022	8	57°47.28N	11°23.80E	57°44.75N	11°23.77E	44G1	57	60	2.8	63.0
SMFH	11/10 2022	9	58°37.08N	9°21.87E	58°37.77N	9°19.04E	46F9	259	60	2.4	88.0

Table 1, continued

Vessel	Date	HaulNo	Set position		Haul position		StatRect	Depth	Duration (min)	Speed (kn)	Door spread (m)
			Latitude	Longitude	Latitude	Longitude					
SMFH	11/10 2022	10	58°39.09N	9°29.80E	58°37.50N	9°26.98E	46F9	320	60	2.2	111.0
SMFH	11/10 2022	11	58°34.48N	9°30.47E	58°32.58N	9°28.21E	46F9	474	60	2.2	88.7
SMFH	11/10 2022	12	58°40.20N	9°47.08E	58°38.78N	9°44.95E	46F9	474	50	2.2	88.7
SMFH	12/10 2022	13	58°28.35N	9°19.86E	58°26.95N	9°16.41E	45F9	401	60	2.3	113.0
SMFH	12/10 2022	14	58°22.39N	9°24.83E	58°20.88N	9°21.74E	45F9	525	60	2.2	88.7
SMFH	12/10 2022	15	58°14.63N	9°46.85E	58°12.57N	9°44.26E	45F9	335	60	2.4	87.5
SMFH	13/10 2022	16	58°48.32N	9°45.91E	58°46.49N	9°43.52E	46F9	342	60	2.3	113.0
SMFH	13/10 2022	17	58°46.50N	10°1.38E	58°48.87N	10°2.45E	46G0	222	60	2.5	86.0
SMFH	13/10 2022	18	58°35.56N	10°16.89E	58°33.92N	10°19.80E	46G0	286	60	2.5	104.0
SMFH	17/10 2022	19	58°15.00N	10°26.00E	58°17.44N	10°25.16E	45G0	337	60	2.5	91.0
SMFH	17/10 2022	20	58°20.59N	10°26.15E	58°23.07N	10°27.69E	45G0	302	60	2.6	88.0

Table 2. Total catch in kg and in numbers of all fish species during the Skagerrak trawl survey in 2022, sorted by occurrence (elasmobranchs are presented separately in table 3).

Swedish name	English name	Scientific name	Frequency of occurrence	Total number	Total weight (kg)	No. of individual weights / DNA
Rödtunga	Witch	<i>Glyptocephalus cynoglossus</i>	34	587	104.181	
Torsk	Cod	<i>Gadus morhua</i>	28	2325	938.355	600 / 287
Kolja	Haddock	<i>Melanogrammus aeglefinus</i>	28	5347	2423.687	
Gråsej	Saithe	<i>Pollachius virens</i>	27	489	509.004	
Lerskädda	Long rough dab	<i>Hippoglossoides platessoides</i>	25	1198	104.327	
Vitlinglyra	Norway pout	<i>Trisopterus esmarkii</i>	25	284	6.844	
Marulk	Monkfish	<i>Lophius piscatorius</i>	23	38	168.408	
Vitling	Whiting	<i>Merlangius merlangus</i>	23	2435	792.560	
Kummel	Hake	<i>Merluccius merluccius</i>	23	140	119.789	
Bergtunga	Lemon sole	<i>Microstomus kitt</i>	19	402	60.276	
Rödspätta	Plaice	<i>Pleuronectes platessa</i>	19	712	124.160	
Blåvitling / kolmule	Blue whiting	<i>Micromesistius poutassou</i>	17	191	46.264	
Taggmakrill	Horse mackerel	<i>Trachurus trachurus</i>	16	496	150.658	
Guldflax	Greater silversmelt	<i>Argentina silus</i>	15	4486	1211.888	22 / na
Makrill	Mackerel	<i>Scomber scombrus</i>	15	225	79.119	
Knot / knorrhane	Grey gurnard	<i>Eutrigla gurnardus</i>	13	914	95.451	
Långa	Ling	<i>Molva molva</i>	13	42	74.849	
Sandskädda	Dab	<i>Limanda limanda</i>	11	746	90.040	
Fjällbrosme	Greater forkbeard	<i>Phycis blennoides</i>	11	22	17.096	
Sill / strömming	Herring	<i>Clupea harengus</i>	8	67	5.858	
Skoläst	Round-nose grenadier	<i>Coryphaenoides rupestris</i>	8	5867	1511.147	15 / na
Birkelånga / blåånga	Blue ling	<i>Molva dypterygia</i>	8	22	47.932	
Blåkäft	Blue mouth	<i>Helicolenus dactylopterus</i>	7	63	9.919	
Nordlig silvertorsk	Silvery pout	<i>Gadiculus argenteus</i>	4	8	0.159	
Piggvar	Turbot	<i>Scophthalmus maximus</i>	4	5	4.840	
Fenknot	Tub gurnard	<i>Chelidonichthys lucerna</i>	3	3	1.400	

Table 2 continued

Swedish name	English name	Scientific name	Frequency of occurrence	Total number	Total weight (kg)	No. of individual weights
Fyrtömmad skärlånga	Fourbearded rockling	<i>Enchelyopus cimbrius</i>	3	5	0.486	
Fjärsing	Greater weever	<i>Trachinus draco</i>	3	14	3.450	
Sjurygg	Lumpfish	<i>Cyclopterus lumpus</i>	2	2	7.304	
Bleka / lyrtorsk	Pollack	<i>Pollachius pollachius</i>	2	2	7.705	
Slätvar	Brill	<i>Scophthalmus rhombus</i>	2	6	2.135	
Större kungsfisk	Red fish	<i>Sebastes norvegicus</i>	2	30	13.302	
Silverfisk	Silver smelt	<i>Argentina sphyraena</i>	1	1	0.019	
Lubb	Tusk	<i>Brosme brosme</i>	1	1	10.200	
Randig sjökock	Dragonet	<i>Callionymus lyra</i>	1	1	0.045	
Hällefundra	Halibut	<i>Hippoglossus hippoglossus</i>	1	2	64.000	
Mindre kungsfisk	Redfish	<i>Sebastes viviparus</i>	1	1	0.184	
Skarpsill	Sprat	<i>Sprattus sprattus</i>	1	4	0.065	
Glyskolja	Poor cod	<i>Trisopterus minutus</i>	1	3	0.250	

Table 3. Total catch in kg and in numbers of elasmobranch species caught during the Skagerrak trawl survey in 2022, sorted by occurrence.

Swedish name	English name	Scientific name	Frequency of occurrence	Total number	Total weight (kg)	No. of individual weights
Klorocka	Starry ray	<i>Amblyraja radiata</i>	25	239	129.926	45 / 45
Blåkäxa	Velvet belly	<i>Etmopterus spinax</i>	22	530	173.084	
Havsmus	Rabbit fish	<i>Chimaera monstrosa</i>	18	454	299.989	
Vitrocka	Sailray	<i>Rajella lintea</i>	10	26	102.590	
Pigghaj	Spurdog / spiny dogfish	<i>Squalus acanthias</i>	7	140	231.344	
Rundrocka	Round skate	<i>Rajella fyllae</i>	5	14	4.663	
Hågäl	Black-mouthed dogfish	<i>Galeus melastomus</i>	1	3	2.241	
Knaggrocka	Roker	<i>Raja clavata</i>	1	8	33.839	2 / 2