



Cruise report no: 15.07.2021, 04.10.2021-22.10.2021, Jnr. 21/10669

The following cruise report no. **15.07.2021, 04.10.2021-22.10.2021, Jnr. 21/10669** is part of the fulfilment of the conditions to enter Norwegian zone with the research vessel F/V Rossö and F/V Svanen given by permit “20/8635”. Formal analysis of the time series will be presented in a separate document and presented to the ICES working group IBTSWG in 2022.

Participants

F/V Rossö with skipper Niklas Sterner and crew and from SLU Aqua: Anders Wernbo (3/10 – 14/10), Lisa Sörman (3/10 – 7/10) and Peter Johannessen (10/10 – 14/10).

F/V Svanen with skipper Stefan Larsson and crew, and from SLU Aqua: Jan-Erik Johansson and Magnus Andersson (3/10 – 14/10).

The scientific leader, Patrik Börjesson, did not participate at sea during the cruise.

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 and F/V Svanen left port on the evening 2021-10-03 for Skagen, Denmark where they rigged the survey trawls and calibrated the door sensors. From 2021-10-04 to 2021-10-07 F/V Rossö fished mostly in Danish waters at 20 – 100 m depth and F/V Svanen fished at 150 - 400 m depth along the southern rim of the Norwegian trench. F/V Rossö reduced haul duration to 30 minutes in areas with high densities of haddock to reduce catches. During the second week, most of the fishing took place in the eastern and the northeastern Skagerrak. Two calibration hauls were carried out by the end of the second week. The distribution of trawl stations are shown in Figure 1. Additional haul information is presented in Table 1.

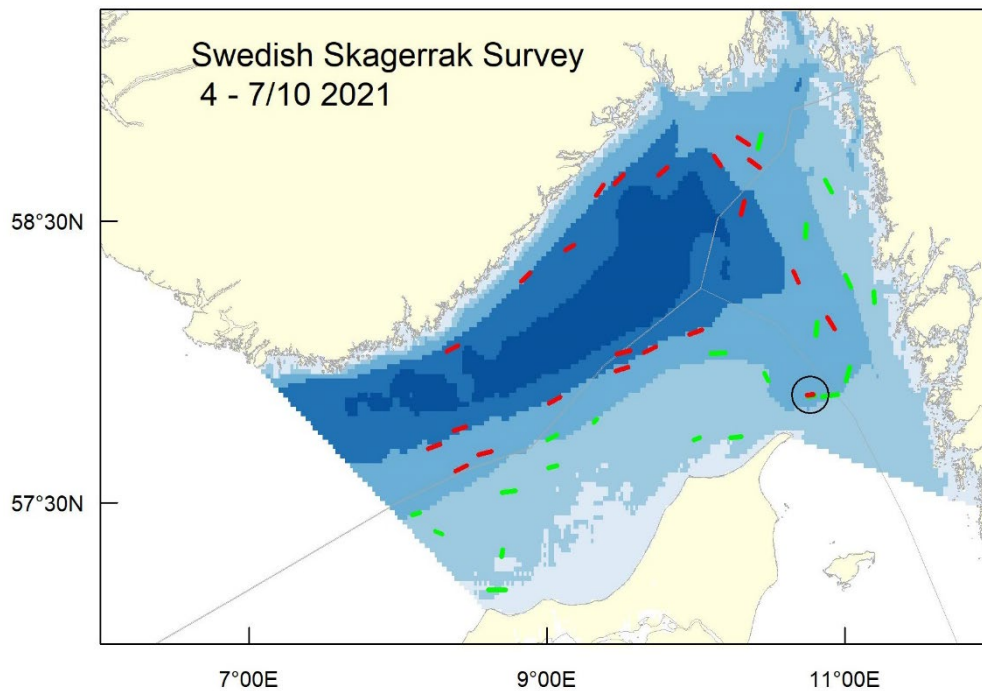


Figure 1. Map showing trawl stations in Skagerrak 2021 fished by F/V Rossö (green tracks) and F/V Svanen (red tracks). Location for the parallel hauls 2021-10-13 is marked with a ring.

Achievements

During the cruise in 2021, 43 valid hauls were made in Danish (19 hauls including the two calibration hauls), Norwegian (15 hauls) and Swedish (9 hauls) waters. The total catch was 10.9 tonnes and included 48 fish species. The most common species, measured by occurrence, were witch flounder, cod and hake, but the largest catches by weight were haddock (2.0 t), greater silversmelt (1.7 t), spurdog (0.95 t) and roundnose grenadier (0.85 t). 0.82 tonnes of cod were caught during the cruise. (Table 2). The large catch of spurdog was mainly due to a single haul off the Swedish coast. Six additional species of elasmobranchs and as well as rabbit fish were caught during the cruise (Table 3).

Age and individual weights were collected for 693 specimens of cod and genetic samples were collected for cod (291 specimens), starry ray (47 specimen) and thornback ray (2 specimen). Besides the routine collection, individual data and DNA-samples from 77 specimens of hakes were collected on behalf of the Marine Institute in Bergen Norway.

Table 1. Station list for the Swedish Skagerrak Survey October 04 – October 13 2021.

Vessel	Date	HaulNo	Set position		Haul position		StatRect	Depth	Duration (min)	Speed (knt)	Door spread (m)
			Latitude	Longitude	Latitude	Longitude					
SIGA	4/10 2021	1	57°44.12N	10°18.13E	57°43.90N	10°13.95E	44G0	43	52	2.8	87.0
SIGA	4/10 2021	2	57°43.93N	10°1.37E	57°43.41N	9°59.16E	44G0	80	30	2.5	88.0
SIGA	4/10 2021	3	57°47.86N	9°20.07E	57°47.09N	9°18.90E	44F9	80	30	2.3	88.0
SIGA	5/10 2021	4	57°27.99N	8°08.57E	57°27.54N	8°05.72E	43F8	110	30	2.7	88.0
SIGA	5/10 2021	5	57°23.39N	8°17.61E	57°24.02N	8°15.01E	43F8	52	30	2.6	87.0
SIGA	5/10 2021	6	57°20.06N	8°42.10E	57°18.60N	8°41.69E	43F8	23	30	2.4	84.0
SIGA	5/10 2021	7	57°11.49N	8°36.35E	57°11.56N	8°43.18E	43F8	23	69	2.6	87.0
SIGA	6/10 2021	8	57°32.21N	8°41.89E	57°32.64N	8°47.30E	44F8	59	60	2.7	87.0
SIGA	6/10 2021	9	57°37.54N	9°00.70E	57°37.91N	9°04.07E	44F9	50	40	2.0	88.0
SIGA	6/10 2021	10	57°43.40N	9°00.20E	57°44.52N	9°03.95E	44F9	98	30	2.3	88.0
SIGA	7/10 2021	11	58°1.83N	10°06.17E	58°01.90N	10°11.78E	43G0	93	59	2.8	67.0
SIGA	7/10 2021	12	57°57.58N	10°27.71E	57°56.04N	10°29.13E	44G0	105	30	2.9	72.0
SIGA	11/10 2021	13	58°12.65N	11°12.03E	58°14.89N	11°11.67E	45G1	54	60	3.0	66.0
SIGA	11/10 2021	14	58°15.82N	11°02.54E	58°18.39N	11°00.23E	45G1	97	60	2.7	89.0
SIGA	12/10 2021	15	58°36.11N	10°54.73E	58°38.70N	10°52.21E	46G0	71	60	2.5	86.0
SIGA	12/10 2021	16	58°48.36N	10°26.27E	58°45.47N	10°25.09E	46G0	132	62	2.5	80.0
SIGA	12/10 2021	17	58°29.28N	10°44.38E	58°26.44N	10°44.30E	45G0	134	60	2.2	88.0
SIGA	13/10 2021	18	58°8.42N	10°48.84E	58°05.63N	10°48.32E	45G0	191	60	2.3	87.0
SIGA	13/10 2021	19	57°58.88N	11°01.96E	57°56.00N	11°00.49E	44G1	104	60	2.1	87.0
SIGA	13/10 2021	20	57°53.06N	10°57.10E	57°52.65N	10°51.01E	44G0	102	80	2.2	87.0
SIGA	13/10 2021	21*	57°52.88N	10°47.84E	57°52.65N	10°45.26E	44G0	119	30	2.7	65.0
SMFH	4/10 2021	1	58°02.09N	9°39.17E	58°03.16N	9°43.81E	45F9	271	60	2.8	94.0
SMFH	4/10 2021	2	58°01.68N	9°28.20E	58°02.34N	9°33.50E	45F9	388	60	2.7	97.0
SMFH	4/10 2021	3	57°58.05N	9°27.72E	57°58.89N	9°32.63E	44F9	214	60	2.8	83.0
SMFH	5/10 2021	4	57°51.24N	9°00.86E	57°52.55N	9°05.36E	44F9	245	60	2.8	87.0
SMFH	5/10 2021	5	57°40.33N	8°32.54E	57°41.00N	8°37.60E	44F8	170	60	2.8	80.0
SMFH	5/10 2021	6	57°36.84N	8°23.28E	57°38.01N	8°27.63E	44F8	163	60	2.8	77.0
SMFH	6/10 2021	7	57°41.57N	8°12.28E	57°42.47N	8°16.87E	44F8	304	60	2.8	86.0

Table 1, continued

Vessel	Date	HaulNo	Set position		Haul position		StatRect	Depth	Duration (min)	Speed (knt)	Door spread (m)
			Latitude	Longitude	Latitude	Longitude					
SMFH	6/10 2021	8	57°45.38N	8°22.56E	57°46.19N	8°27.15E	44F8	407	60	2.7	92.0
SMFH	6/10 2021	9	58°03.41N	8°24.01E	58°02.25N	8°19.64E	45F8	364	60	2.8	91.0
SMFH	7/10 2021	10	58°05.92N	9°57.49E	58°06.79N	10°02.40E	45F9	197	60	2.8	79.0
SMFH	7/10 2021	11	58°09.46N	10°53.08E	58°07.08N	10°55.78E	45G0	142	60	2.8	78.0
SMFH	11/10 2021	12	58°41.71N	10°10.12E	58°43.80N	10°07.37E	46G0	266	60	2.8	93.0
SMFH	11/10 2021	13	58°41.40N	9°48.51E	58°39.78N	9°45.04E	46F9	472	60	2.6	87.0
SMFH	11/10 2021	14	58°39.81N	9°30.84E	58°37.85N	9°27.27E	46F9	298	60	2.7	85.0
SMFH	11/10 2021	15	58°37.62N	9°22.59E	58°35.45N	9°19.73E	46F9	251	60	2.8	89.0
SMFH	12/10 2021	16	58°24.84N	9°10.71E	58°23.82N	9°07.56E	45F9	376	60	2.7	90.0
SMFH	12/10 2021	17	58°18.94N	8°53.27E	58°17.20N	8°49.60E	45F8	294	60	2.7	88.0
SMFH	12/10 2021	18	58°31.39N	10°18.26E	58°34.18N	10°19.45E	46G0	303	60	2.6	88.0
SMFH	13/10 2021	19	58°46.18N	10°21.29E	58°47.75N	10°16.87E	46G0	152	60	2.8	84.0
SMFH	13/10 2021	20	58°43.00N	10°21.48E	58°41.38N	10°25.71E	46G0	157	60	2.8	83.0
SMFH	13/10 2021	21	58°19.25N	10°39.45E	58°16.90N	10°41.31E	45G0	203	60	2.7	86.0
SMFH	6/10 2021	8	57°45.38N	8°22.56E	57°46.19N	8°27.15E	44F8	407	60	2.7	92.0
SMFH	13/10 2021	22*	57°53.10N	10°47.25E	57°52.90N	10°44.95E	46G0	122	30	2.9	75.0

* Calibration haul. Only species composition and species weights measured.

Table 2. Total catch in kg and in numbers of all fish species during the Skagerrak trawl survey in 2021, 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>	35	992	140.481	77 / 77
Torsk	Cod	<i>Gadus morhua</i>	30	1536	823.843	693 / 291
Kummel	Hake	<i>Merluccius merluccius</i>	28	390	223.984	
Vitlinglyra	Norway pout	<i>Trisopterus esmarkii</i>	26	444	15.608	
Kolja	Haddock	<i>Melanogrammus aeglefinus</i>	25	6073	1956.083	
Gråsej	Saithe	<i>Pollachius virens</i>	25	1219	1101.759	
Lerskädda	Long rough dab	<i>Hippoglossoides platessoides</i>	24	1588	140.424	
Makrill	Mackerel	<i>Scomber scombrus</i>	24	230	67.703	
Vitling	Whiting	<i>Merlangius merlangus</i>	22	2387	589.514	
Bergtunga	Lemon sole	<i>Microstomus kitt</i>	21	1707	214.978	
Rödspätta	Plaice	<i>Pleuronectes platessa</i>	20	1961	284.368	
Marulk	Monkfish	<i>Lophius piscatorius</i>	19	25	104.047	
Blåvitling / kolmule	Blue whiting	<i>Micromesistius poutassou</i>	18	284	59.426	
Långa	Ling	<i>Molva molva</i>	17	28	30.216	
Taggmakrill	Horse mackerel	<i>Trachurus trachurus</i>	17	257	94.244	
Sandskädda	Dab	<i>Limanda limanda</i>	16	7124	772.522	
Guldax	Greater silversmelt	<i>Argentina silus</i>	14	5780	1656.150	
Fjällbrosme	Greater forkbeard	<i>Phycis blennoides</i>	12	22	9.207	
Sill / strömming	Herring	<i>Clupea harengus</i>	10	25	3.643	
Knot / knorrhane	Grey gurnard	<i>Eutrigla gurnardus</i>	10	320	43.946	
Fyrtömmad skärlånga	Fourbearded rockling	<i>Enchelyopus cimbrius</i>	8	13	1.778	
Skoläst	Round-nose grenadier	<i>Coryphaenoides rupestris</i>	7	2414	851.069	
Blåkäft	Blue mouth	<i>Helicolenus dactylopterus</i>	7	20	2.130	
Nordlig silvertorsk	Silvery pout	<i>Gadiculus argenteus</i>	6	12	0.182	
Birkelånga / blålånga	Blue ling	<i>Molva dypterygia</i>	5	9	14.209	
Äkta tunga	Sole	<i>Solea solea</i>	5	12	3.380	

Table 2 continued

Swedish name	English name	Scientific name	Frequency of occurrence	Total number	Total weight (kg)	No. of individual weights
Bleka / lyrtorsk	Pollack	<i>Pollachius pollachius</i>	4	10	17.187	
Slätvar	Brill	<i>Scophthalmus rhombus</i>	4	10	6.660	
Glyskolja	Poor cod	<i>Trisopterus minutus</i>	4	5	0.322	
Sanktpersfisk	John dory	<i>Zeus faber</i>	3	3	1.296	
Silverfisk	Silver smelt	<i>Argentina sphyraena</i>	2	3	0.040	
Randig sjöcock	Dragonet	<i>Callionymus lyra</i>	2	4	0.139	
Sjurygg (stenbit och kvabbso)	Lumpfish	<i>Cyclopterus lumpus</i>	2	2	4.405	
Rötsimpa	Bull rout	<i>Myoxocephalus scorpius</i>	2	6	1.182	
Piggvar	Turbot	<i>Scophthalmus maximus</i>	2	2	1.189	
Skäggsimpa	Pogge	<i>Agonus cataphractus</i>	1	1	0.020	
Lubb	Tusk	<i>Brosme brosme</i>	1	1	11.000	
Fenknot	Tub gurnard	<i>Chelidonichthys lucerna</i>	1	2	0.560	
Skrubbskädda	Flounder	<i>Platichthys flesus</i>	1	1	0.333	
Fjärsing	Greater weever	<i>Trachinus draco</i>	1	4	1.045	

Table 3. Total catch in kg and in numbers of elasmobranch species caught during the Skagerrak trawl survey in 2021, 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>	27	158	91.448	43 / 43
Blåkäxa	Velvet belly	<i>Etmopterus spinax</i>	22	368	122.283	
Havsmus	Rabbit fish	<i>Chimaera monstrosa</i>	16	802	381.476	
Pigghaj	Spurdog / spiny dogfish	<i>Squalus acanthias</i>	12	772	949.972	
Vitrocka	Sailray	<i>Rajella lintea</i>	10	12	56.812	
Rundrocka	Round skate	<i>Rajella fyllae</i>	4	8	2.256	
Hågäl	Black-mouthed dogfish	<i>Galeus melastomus</i>	1	2	1.450	
Knaggrocka	Thornback ray	<i>Raja clavata</i>	1	12	48.505	2 / 2