



## **Interim cruise report no: 09.06.2020, 28.09.2020-16.10.2020, Jnr. 20/8635**

The final analyses and results from the Swedish Skagerrak Survey 2020q4 are not yet available. The following interim report no. **09.06.2020, 28.09.2020-16.10.2020, Jnr. 20/8635** is part of the fulfillment of the conditions to enter Norwegian zone with the research vessel F/V Rossö and F/V Svanen given by permit “20/8635”. Final results are to be presented in the ICES working group IBTSWG in 2022.

### **Participants**

F/F Rossö with skipper Niklas Sterner and crew and from SLU Aqua: Roger Larson and Jan-Erik Johansson (28/9 – 7/10).

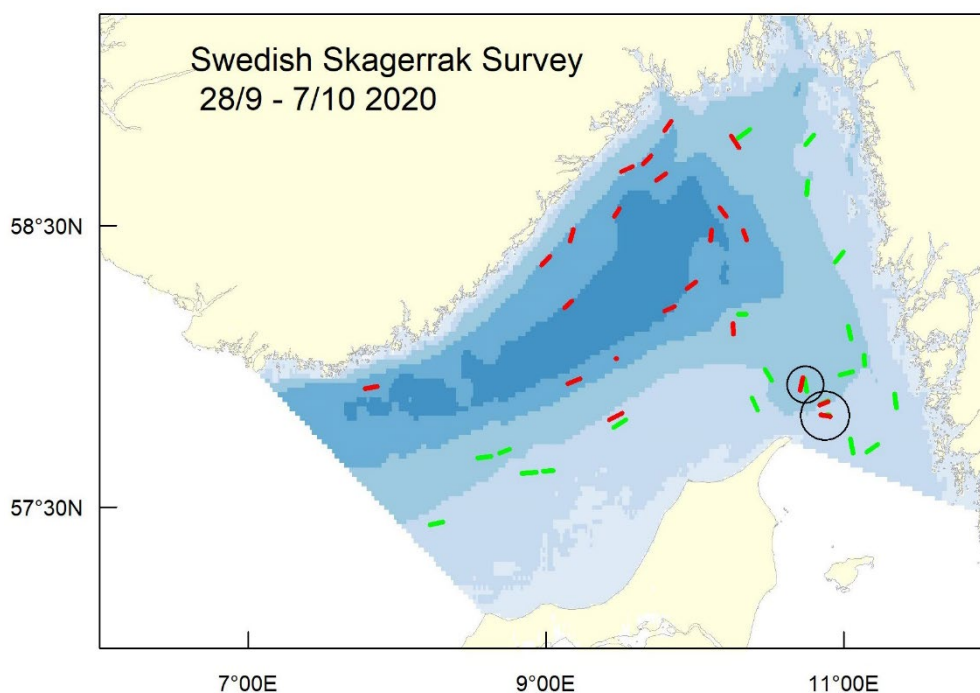
F/F Svanen with skipper Stefan Larsson and crew, and from SLU Aqua: Baldvin Thorvaldsson (appointed cruise leader, 28/9 – 7/10), Peter Johannessen (28/9 – 2/10) and Magnus Andersson (5/10-7/10). The scientific leader, Patrik Börjesson, did not participate at sea during the cruise.

### **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 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 in the evening 2020-09-27. From 2020-09-28 to 2020-09-30 F/V Rossö fished mostly in Danish waters at 100-250 m depth and F/V Svanen fished in Norwegian waters. By the end of the first week two parallel hauls were carried out northeast of Skagen on the way back to port. During the second week most of the fishing took place in the central and eastern Skagerrak. An additional parallel haul was carried out by the end of the week. The distribution of trawl stations are shown in Figure 1. Additional haul information are presented in Table 1.



**Figure 1.** Map showing trawl stations in Skagerrak 2020 fished by F/V Rossö (green tracks) and F/V Svanen (red tracks). The locations for parallel hauls 2020-10-01 and 2020-10-07 are marked with circles.

### Achievements

During the cruise in 2020, 44 valid hauls were made, of which 19 were located in the Norwegian part of the Skagerrak. The total catch was 11.2 tonnes and included 47 fish species. The most common species, measured by occurrence, were hake, cod and witch flounder, but the largest catches were greater silversmelt (2.3 t) and roundnose grenadier (1.9 t), followed by cod (1.6 t) (Table 2). Seven species of elasmobranchs were caught during the cruise (Table 3). Age and individual weights were collected for 868 specimens of cod, additional weights were collected for 1045 specimens from 21 other species. Genetic samples were collected from 0-group cod and starry ray.

**Table 1.** Station list for the Swedish Skagerrak Survey September 28 – October 7 2020.

Vessel	Date	HaulNo	Set position		Haul position		StatRect	Depth	Duration (min)	Speed (knt)	Door spread (m)
			Latitude	Longitude	Latitude	Longitude					
SMFH	28/09 2020	1	58°46.61N	10°17.79E	58°48.98N	10°14.72E	46G0	163	63	2.8	87
SMFH	28/09 2020	2	58°52.22N	9°50.47E	58°50.24N	9°47.77E	46F9	358	62	2.5	88
SMFH	28/09 2020	3	58°41.03N	9°48.26E	58°39.65N	9°44.52E	46F9	477	60	2.3	88
SMFH	29/09 2020	4	57°55.78N	7°51.96E	57°55.27N	7°46.99E	44F7	359	62	2.7	88
SMFH	29/09 2020	5	58°23.49N	9°1.47E	58°21.61N	8°58.19E	45F9	311	61	2.6	87
SMFH	29/09 2020	6	58°26.75N	9°9.80E	58°29.10N	9°11.06E	45F9	349	61	2.4	84
SMFH	30/09 2020	7	58°44.89N	9°42.20E	58°43.09N	9°39.23E	46F9	299	64	2.6	87
SMFH	30/09 2020	8	58°42.46N	9°34.76E	58°41.41N	9°30.31E	46F9	275	62	2.7	87
SMFH	30/09 2020	9	58°33.55N	9°29.59E	58°31.93N	9°27.44E	46F9	494	63	2.0	88
SMFH	30/09 2020	10	58°13.89N	9°10.38E	58°12.45N	9°7.52E	45F9	441	61	2.3	88
SMFH	1/10 2020	11	57°49.75N	10°50.84E	57°49.30N	10°54.45E	44G0	68	42	2.8	67
SMFH	1/10 2020	12	57°51.75N	10°50.47E	57°52.50N	10°53.76E	44G0	96	41	2.9	72
SMFH	5/10 2020	13	57°48.68N	9°25.61E	57°50.01N	9°30.59E	44F9	71	60	3.0	66
SMFH	5/10 2020	14	57°56.38N	9°8.75E	57°57.37N	9°13.56E	44F9	382	63	2.7	89
SMFH	5/10 2020	15	58°1.64N	9°28.14E	58°1.69N	9°28.32E	45F9	414	61	2.5	86
SMFH	6/10 2020	16	58°9.16N	10°15.26E	58°6.88N	10°15.64E	45G0	165	61	2.5	80
SMFH	6/10 2020	17	58°11.81N	9°47.90E	58°12.79N	9°51.74E	45F9	484	61	2.2	88
SMFH	6/10 2020	18	58°16.54N	9°56.79E	58°18.00N	10°0.36E	45F9	488	60	2.3	87
SMFH	6/10 2020	19	58°26.84N	10°6.38E	58°28.97N	10°6.64E	45G0	495	61	2.1	87
SMFH	7/10 2020	20	58°31.89N	10°12.67E	58°33.75N	10°10.15E	46G0	377	60	2.2	87
SMFH	7/10 2020	21	58°26.90N	10°20.79E	58°28.94N	10°19.53E	45G0	353	60	2.2	89
SMFH	7/10 2020	22	57°57.65N	10°43.56E	57°54.90N	10°42.42E	44G0	161	61	3.1	78
SIGA	28/09 2020	1	57°51.26N	11°21.10E	57°54.18N	11°20.61E	44G1	61	60	3.0	67
SIGA	28/09 2020	2	58°0.30N	11°8.48E	58°2.33N	11°8.23E	45G1	110	60	3.0	71
SIGA	28/09 2020	3	58°11.08N	10°20.58E	58°11.09N	10°17.48E	45G0	214	40	2.6	72
SIGA	29/09 2020	4	57°26.32N	8°13.20E	57°26.92N	8°18.44E	43F8	72	60	3.0	68
SIGA	29/09 2020	5	57°40.49N	8°32.36E	57°40.90N	8°37.80E	44F8	178	60	3.0	76
SIGA	29/09 2020	6	57°41.54N	8°41.17E	57°42.43N	8°45.25E	44F8	150	60	3.0	80

**Table 1, continued**

Vessel	Date	HaulNo	Set position		Haul position		StatRect	Depth	Duration (min)	Speed (knt)	Door spread (m)
			Latitude	Longitude	Latitude	Longitude					
SIGA	29/09 2020	7	57°37.23N	8°50.30E	57°37.50N	8°56.10E	44F8	69	60	3.1	62
SIGA	29/09 2020	8	57°37.75N	8°58.90E	57°37.83N	9°2.80E	44F8	55	40	3.0	60
SIGA	30/09 2020	9	57°47.07N	9°27.22E	57°48.61N	9°32.13E	44F9	42	60	3.1	53
SIGA	30/09 2020	10	57°59.40N	10°28.41E	57°56.99N	10°30.94E	44G0	112	60	2.4	70
SIGA	30/09 2020	11	57°53.28N	10°23.12E	57°50.80N	10°25.35E	44G0	95	60	2.9	66
SIGA	1/10 2020	12	57°49.57N	10°51.15E	57°49.68N	10°54.00E	44G0	67	40	2.9	63
SIGA	1/10 2020	13	57°51.91N	10°50.55E	57°52.70N	10°53.60E	44G0	98	40	2.9	64
SIGA	5/10 2020	14	58°48.53N	10°17.24E	58°50.44N	10°22.11E	46G0	169	60	2.8	81
SIGA	5/10 2020	15	58°49.30N	10°47.94E	58°47.18N	10°44.59E	46G0	93	60	3.0	71
SIGA	5/10 2020	16	58°39.42N	10°45.49E	58°36.63N	10°45.16E	46G0	90	60	2.8	71
SIGA	6/10 2020	17	58°24.38N	10°59.88E	58°22.17N	10°56.59E	45G0	86	60	3.0	72
SIGA	6/10 2020	18	58°8.51N	11°1.89E	58°5.93N	11°2.94E	45G1	128	60	2.7	73
SIGA	6/10 2020	19	57°58.21N	10°58.60E	57°58.84N	11°3.50E	44G0	115	60	2.8	72
SIGA	7/10 2020	20	57°43.45N	11°13.70E	57°41.80N	11°9.37E	44G1	38	60	2.9	55
SIGA	7/10 2020	21	57°41.50N	11°3.75E	57°44.57N	11°2.59E	44G1	33	60	3.1	47
SIGA	7/10 2020	22	57°57.43N	10°44.25E	57°54.67N	10°45.02E	44G0	160	60	2.9	77

**Table 2.** Total catch in kg and in numbers of all fish species during the Skagerrak trawl survey in 2020, sorted by occurrence (elasmobranchs are presented separately in table 3).

Swedish name	English name	Scientific name	Occurrence (no. hauls)	Total number	Total weight (kg)	No. of individual weights
Kummel	Hake	<i>Merluccius merluccius</i>	31	242	167.796	2
Torsk	Cod	<i>Gadus morhua</i>	30	4424	1578.519	868
Rödtunga	Witch	<i>Glyptocephalus cynoglossus</i>	28	563	123.441	
Lerskädda	Long rough dab	<i>Hippoglossoides platessoides</i>	27	1755	130.024	
Vitling	Whiting	<i>Merlangius merlangus</i>	27	1537	257.077	
Kolja	Haddock	<i>Melanogrammus aeglefinus</i>	25	3077	985.652	
Rödspätta	Plaice	<i>Pleuronectes platessa</i>	25	820	212.995	
Gråsej	Saithe	<i>Pollachius virens</i>	25	260	263.985	1
Långa	Ling	<i>Molva molva</i>	24	58	84.464	18
Taggmakrill	Horse mackerel	<i>Trachurus trachurus</i>	23	1094	370.487	
Vitlinglyra	Norway pout	<i>Trisopterus esmarkii</i>	23	611	12.165	
Marulk	Monkfish	<i>Lophius piscatorius</i>	22	38	208.732	14
Bergtunga	Lemon sole	<i>Microstomus kitt</i>	19	824	119.864	
Sill	Herring	<i>Clupea harengus</i>	18	94	10.065	
Guldlox	Greater silversmelt	<i>Argentina silus</i>	17	8264	2253.486	164
Blåvitling	Blue whiting	<i>Micromesistius poutassou</i>	17	284	66.518	64
Makrill	Mackerel	<i>Scomber scombrus</i>	17	107	37.528	
Sandskädda	Dab	<i>Limanda limanda</i>	14	3191	344.162	
Skoläst	Roundnose grenadier	<i>Coryphaenoides rupestris</i>	11	5365	1925.643	142
Fjällbrosme	Greater forkbeard	<i>Phycis blennoides</i>	11	26	20.783	23
Birkelånga	Blue ling	<i>Molva dypterygia</i>	9	13	26.307	13
Knot	Grey gurnard	<i>Eutrigla gurnardus</i>	8	23	3.396	
Nordlig silvertorsk	Silvery pout	<i>Gadiculus argenteus</i>	6	10	0.244	6
Fyrtömmad skärlånga	Fourbearded rockling	<i>Enchelyopus cimbrius</i>	5	6	0.872	1
Glyskolja	Poor cod	<i>Trisopterus minutus</i>	5	5	0.310	
Skrubbskädda	Flounder	<i>Platichthys flesus</i>	3	5	0.960	

Table 2, continued

Swedish name	English name	Scientific name	Occurrence (no. hauls)	Total number	Total weight (kg)	No. of individual weights
Bleka	Pollack	<i>Pollachius pollachius</i>	3	6	9.464	
Skarpsill	Sprat	<i>Sprattus sprattus</i>	3	196	1.902	
Lubb	Tusk	<i>Brosme brosme</i>	2	4	41.000	4
Randig sjökock	Dragonet	<i>Callionymus lyra</i>	2	2	0.129	
Slätvar	Brill	<i>Scophthalmus rhombus</i>	2	7	4.420	
Större kungsfisk	Redfish	<i>Sebastes norvegicus</i>	2	6	3.712	6
Blåkäft	Blue mouth	<i>Helicolenus dactylopterus</i>	1	1	0.055	1
Hällefundra	Halibut	<i>Hippoglossus hippoglossus</i>	1	1	6.200	1
Spetslångebarn	Snake blenny	<i>Lumpenus lampretaeformis</i>	1	1	0.016	
Ålbrosme	Vahl's Eelpout	<i>Lycodes gracilis</i>	1	2	0.028	
Laxsill	Pearlside	<i>Maurollicus muelleri</i>	1	710	182.500	
Rötsimpa	Bull rout	<i>Myoxocephalus scorpius</i>	1	1	0.048	
Större kantnål	Great pipefish	<i>Syngnathus acus</i>	1	1	0.018	

Table 3. Total catch in kg and in numbers of elasmobranch species caught during the Skagerrak trawl survey in 2020, sorted by occurrence.

Swedish name	English name	Scientific name	Occurrence (no. hauls)	Total number	Total weight (kg)	No. of individual weights
Klorocka	Starry ray	<i>Amblyraja radiata</i>	27	445	207.914	154
Havsmus	Rabbit fish	<i>Chimaera monstrosa</i>	23	1202	815.905	220
Blåkäxa	Velvet belly	<i>Etmopterus spinax</i>	21	438	136.662	122
Vitrocka	Sailray	<i>Rajella lintea</i>	16	80	305.499	58
Pigghaj	Spurdog / spiny dogfish	<i>Squalus acanthias</i>	9	699	223.463	1
Rundrocka	Round skate	<i>Rajella fyllae</i>	7	33	10.290	30
Småfläckig rödhaj	Lesser spur dogfish	<i>Scyliorhinus canicula</i>	1	1	0.481	