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Annex 4: Working documents

- **WD01: Estimated mixing proportions. Eastern/Western Baltic Cod 2020 w. additional genetics, cut-off score 0.98**
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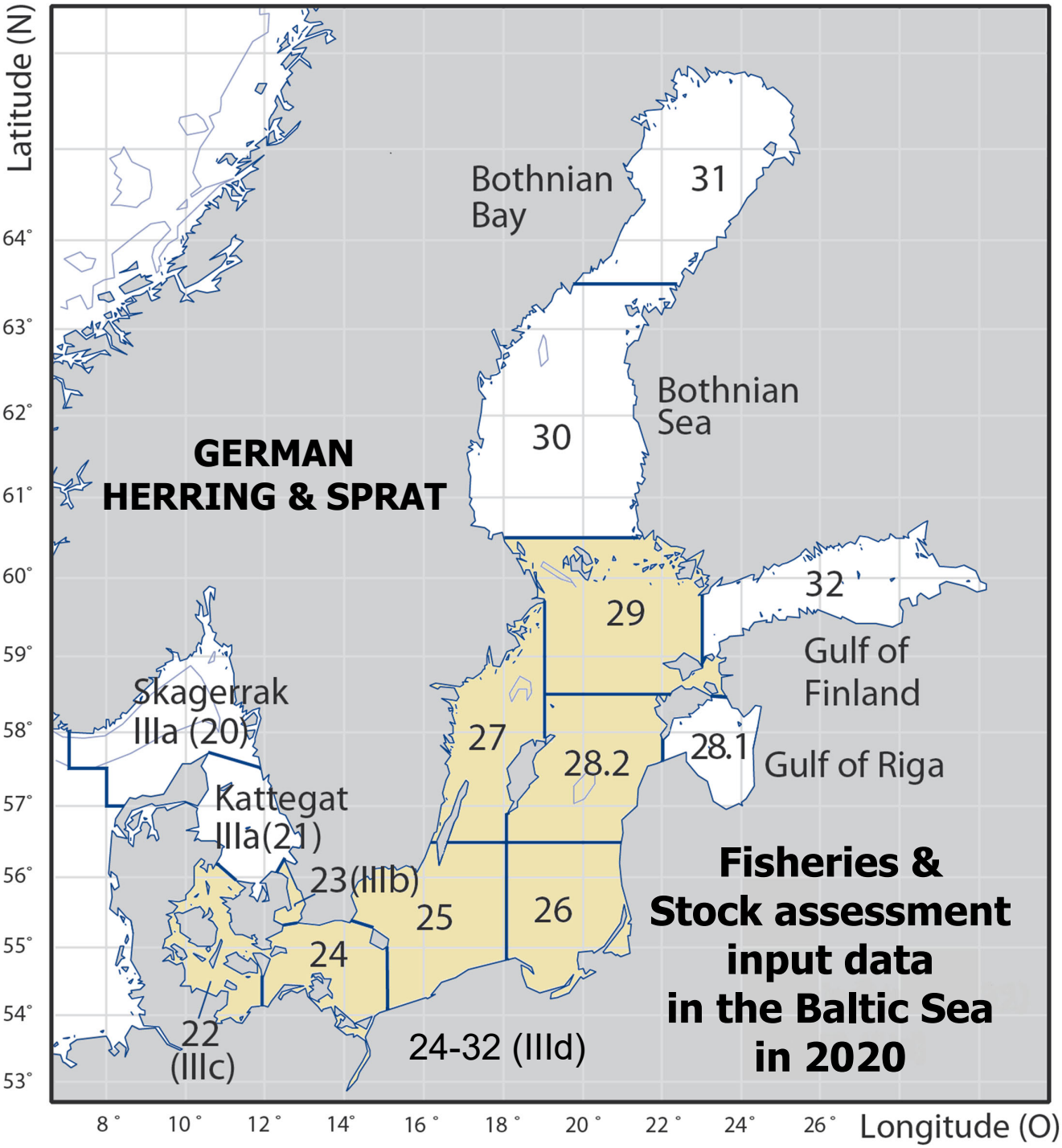
- **WD02: German herring & sprat fisheries and assessment data in the Baltic Sea in 2020.**
  T. Gröhsler, 21 pp.



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1 HERRING

1.1 Fisheries

In 2019 the total German herring landings from the Western Baltic Sea in **Subdivisions (SD) 22 and 24** amounted to 2,069 t, which represents a decrease of 63 % compared to the landings in 2019 (5,571 t). This decrease was caused by a decrease of the TAC/quota (German quota for SDs 22 and 24 in 2019: 1,738 t + quota-transfer of 451 t = 2,189 t). The German quota in 2020 was used by 95 % (2019: 97 %, 2018: 94 %). The fishing activities in one of the main fishing areas, the Greifswald Bay (SD 24), started already at the beginning of February. The main German fishery stopped their activities at the end of April.
Only a small part of the total German landings was taken **in Subdivisions 25-29** (2020: 833 t, 2019: 1,752 t). The total quota of 928 t (German quota of 895 t + quota transfer of 33 t) was finally used by 90 % (2019: 99.7 %). All landings in this area were taken by the trawl fishery and then mostly landed in foreign ports (2020: 96 %, 2019: 95 %).

The landings (t) by quarter and Subdivision (SD) including information about the landings in foreign ports are shown in the table below:

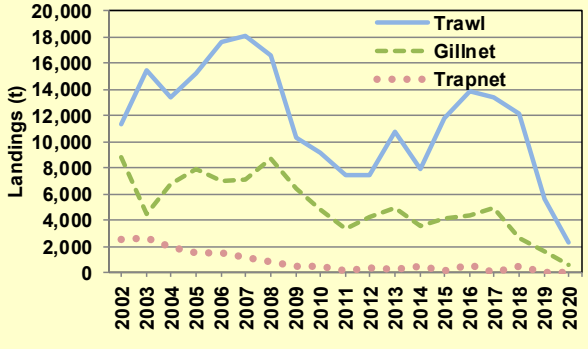
Quarter	SD 22	SD 24	SD 25	SD 26	SD 27	SD 28.2	SD 29	(1) Total SD 25-29	% (1)/(2)	(2) Total SD 22-29	% (2)
I	6.457	1,521.042	267.943	55.000	-	121.698	51.615	496.256	24.5%	**2,023.755**	69.7%
	0.004	-	262.760	55.000	-	96.385	51.615	465.760	100.0%	465.764	58.0%
II	2.723	43.645	118.161	-	-	-	-	118.161	71.8%	**164.529**	5.7%
	-	-	118.061	-	-	-	-	118.061	100.0%	118.061	14.7%
III	0.215	0.440	-	-	-	-	-	0.000		**0.655**	0.0%
	-	-	-	-	-	-	-	0.000		0.000	0.0%
IV	4.745	489.518	1.639	-	-	56.893	160.399	218.931	30.7%	**713.194**	24.6%
	-	-	1.639	-	-	56.893	160.399	218.931	100.0%	218.931	27.3%
Total	**14.140**	**2,054.645**	**387.743**	**55.000**	**0.000**	**178.591**	**212.014**	**833.348**	**28.7%**	**2,902.133**	**100.0%**
	0.004	0.000	382.460	55.000	0.000	153.278	212.014	802.752	100.0%	802.756	100.0%

= Fraction of total landings (t) in foreign ports	96.3%	27.7%
	2020/2019:	**2020/2019:**
= Fraction of total landings (t)	47.6%	39.6%
= Fraction of total landings (t) in foreign ports	48.3%	48.2%

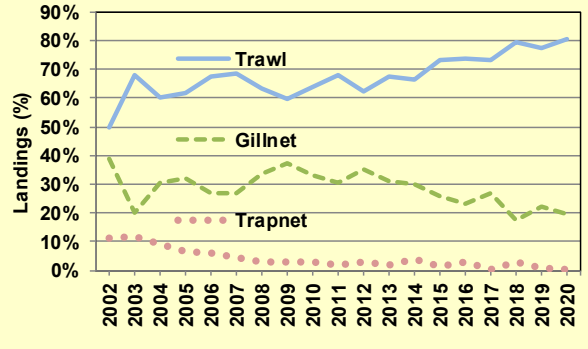
The main fishing season was during spring time as in former years. As in 2019 about 85 % of all herring (SDs 22-29) were caught between January and April. The majority of the German herring landings were taken in Subdivision 24 (2020: 71 %, 2019: 75 %). The German herring fishery in the Baltic Sea is conducted with gillnets, trapnets and trawls. Almost all landings in the area of the Central Baltic Sea are taken by the trawl fishery.

Until 2000 the dominant part of herring was caught in the passive fishery by gillnets and trapnets. Since 2001 the activities in the trawl fishery increased. The total amount of herring, which was caught by trawls in SDs 22-29, reached 80 % in 2020 (2019: 77 %). The significant change in fishing pattern was caused by the perspective of a new fish factory on the Island of Rügen, which finally started the production in autumn 2003. This factory can process up to 50,000 t fish per year.

Landings in Subdivisions 22-29 (t)				
Year/Gear	Trawl	Gillnet	Trapnet	Total
2002	11,317.813	8,783.392	2,559.662	22,660.867
2003	15,433.154	4,545.312	2,658.148	22,636.614
2004	13,429.394	6,796.747	2,016.542	22,242.683
2005	15,277.320	7,924.007	1,551.530	24,752.857
2006	17,604.485	6,959.530	1,539.467	26,103.482
2007	18,044.233	7,077.135	1,133.806	26,255.174
2008	16,640.802	8,760.611	789.005	26,190.418
2009	10,305.056	6,403.312	523.998	17,232.366
2010	9,216.880	4,804.818	452.182	14,473.880
2011	7,424.844	3,301.890	189.673	10,916.407
2012	7,491.038	4,252.694	322.308	12,066.040
2013	10,768.220	4,933.173	304.427	16,005.820
2014	7,959.719	3,562.980	449.724	11,972.423
2015	11,839.151	4,183.129	183.533	16,205.813
2016	13,834.307	4,362.550	569.558	18,766.415
2017	13,370.750	4,898.840	19.104	18,288.694
2018	12,136.988	2,663.317	455.174	15,255.479
2019	5,664.366	1,615.909	42.112	7,322.387
2020	2,329.441	571.981	0.711	2,902.133



Landings in Subdivisions 22-29 (% t)				
Year/Gear	Trawl	Gillnet	Trapnet	Total
2002	50%	39%	11%	100%
2003	68%	20%	12%	100%
2004	60%	31%	9%	100%
2005	62%	32%	6%	100%
2006	67%	27%	6%	100%
2007	69%	27%	4%	100%
2008	64%	33%	3%	100%
2009	60%	37%	3%	100%
2010	64%	33%	3%	100%
2011	68%	30%	2%	100%
2012	62%	35%	3%	100%
2013	67%	31%	2%	100%
2014	66%	30%	4%	100%
2015	73%	26%	1%	100%
2016	74%	23%	3%	100%
2017	73%	27%	0%	100%
2018	80%	17%	3%	100%
2019	77%	22%	1%	100%
2020	80%	20%	0%	100%



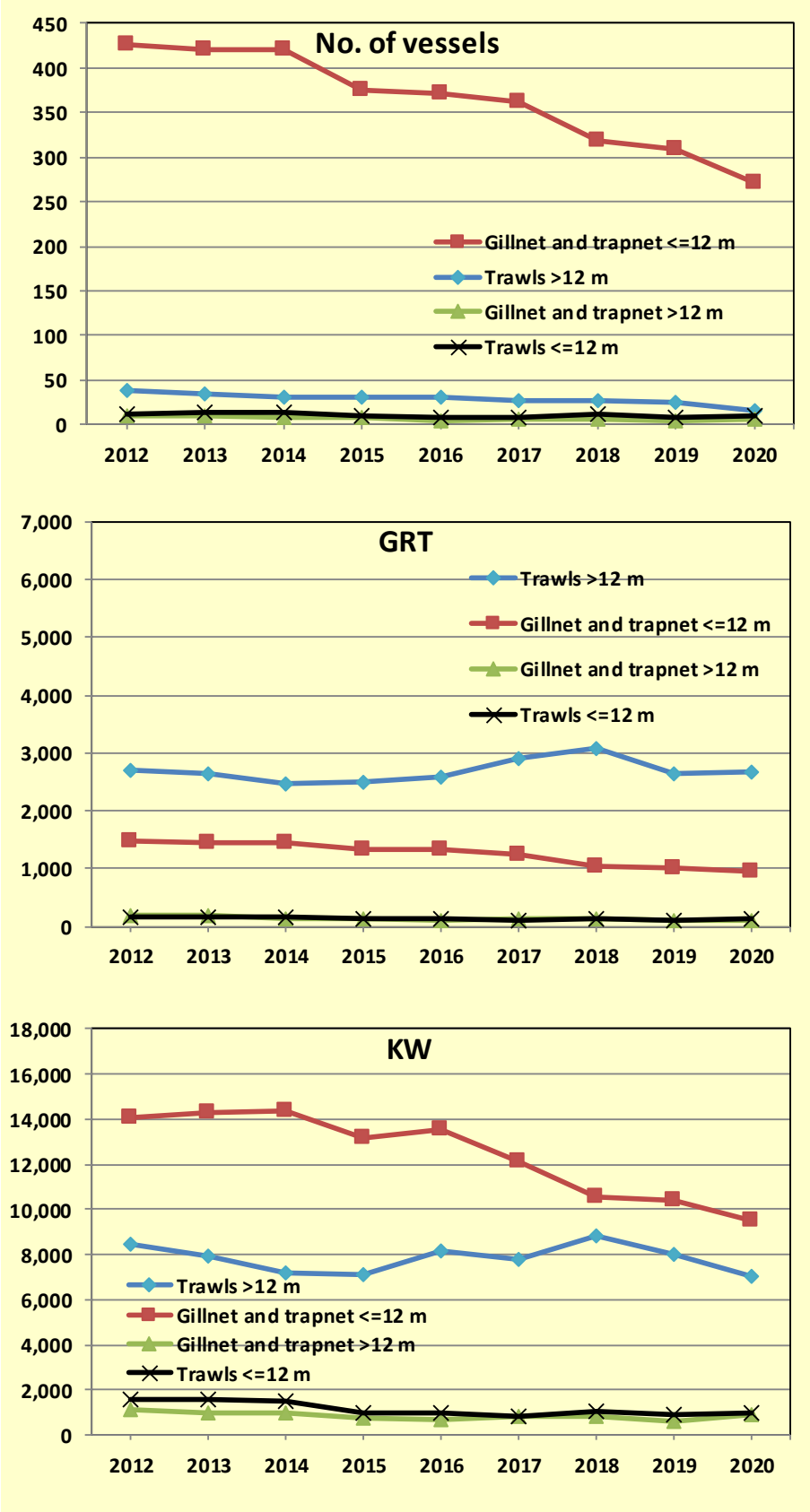
1.2 Fishing fleet

The herring fishing fleet in the Baltic Sea, where all catches are taken in a directed fishery, consists of a:

- coastal fleet with undecked vessels (rowing/motor boats <=12 m and engine power <=100 HP)
- cutter fleet with decked vessels and total lengths between 12 m and 40 m.

In the years from 2012 until 2020 the following types of fishing vessels carried out the herring fishery in the Baltic (only referring to vessels, which are contributing to the overall total landings per year with more than 20 %):

	Type of gear	Vessel length (m)	No. of vessels	GRT	kW
2012	Fixed gears	<=12	426	1,485	14,105
	(gillnet and trapnet)	>12	9	184	1,125
	Trawls	<=12	12	170	1,573
		>12	38	2,712	8,480
	TOTAL		**485**	**4,551**	**25,283**
2013	Fixed gears	<=12	421	1,459	14,289
	(gillnet and trapnet)	>12	9	186	1,005
	Trawls	<=12	14	173	1,557
		>12	35	2,638	7,960
	TOTAL		**479**	**4,456**	**24,811**
2014	Fixed gears	<=12	421	1,443	14,351
	(gillnet and trapnet)	>12	8	149	970
	Trawls	<=12	13	170	1,502
		>12	31	2,469	7,205
	TOTAL		**473**	**4,231**	**24,028**
2015	Fixed gears	<=12	375	1,341	13,163
	(gillnet and trapnet)	>12	7	133	802
	Trawls	<=12	9	122	991
		>12	31	2,503	7,148
	TOTAL		**422**	**4,099**	**22,104**
2016	Fixed gears	<=12	371	1,341	13,532
	(gillnet and trapnet)	>12	5	103	699
	Trawls	<=12	8	137	997
		>12	30	2,599	8,205
	TOTAL		**414**	**4,180**	**23,433**
2017	Fixed gears	<=12	362	1,237	12,158
	(gillnet and trapnet)	>12	6	148	874
	Trawls	<=12	8	113	872
		>12	27	2,910	7,816
	TOTAL		**403**	**2,910**	**21,720**
2018	Fixed gears	<=12	319	1,049	10,572
	(gillnet and trapnet)	>12	6	148	874
	Trawls	<=12	11	143	1,080
		>12	26	3,093	8,815
	TOTAL		**362**	**4,433**	**21,341**
2019	Fixed gears	<=12	309	1,008	10,374
	(gillnet and trapnet)	>12	4	100	598
	Trawls	<=12	8	114	897
		>12	25	2,655	8,025
	TOTAL		**346**	**3,877**	**19,894**
2020	Fixed gears	<=12	271	938	9,524
	(gillnet and trapnet)	>12	6	100	920
	Trawls	<=12	10	128	983
		>12	165	2,668	7,077
	TOTAL		**303**	**3,835**	**18,504**


No. of vessels
450
400
350
300
250
200
150
100
50
0
2012
2013
2014
2015
2016
2017
2018
2019
2020
Gillnet and trapnet <=12 m
Trawls >12 m
Gillnet and trapnet >12 m
Trawls <=12 m
GRT
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
2012
2013
2014
2015
2016
2017
2018
2019
2020
Trawls >12 m
Gillnet and trapnet <=12 m
Gillnet and trapnet >12 m
Trawls <=12 m
KW
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
2012
2013
2014
2015
2016
2017
2018
2019
2020
Trawls >12 m
Gillnet and trapnet <=12 m
Gillnet and trapnet >12 m
Trawls <=12 m

1.3 Species composition of landings

The catch composition from gillnet and trapnet consists of nearly 100 % of herring.

The results from the species composition of German trawl catches, which were sampled in **Subdivision 24** of quarter 1 and 4 in 2020, are given below:

SD 24/Quarter I		Weight (kg)					Weight (%)			
	Sample No.	Herring	Sprat	Cod	Other	Total	Herring	Sprat	Cod	Other
January	1	58.0	0.0	0.0	0.0	58.1	99.9	0.1	0.0	0.0
	2									
	3									
	Mean	58.0	0.0	0.0	0.0	58.1	99.9	0.1	0.0	0.0
February	1	46.3	0.4	0.0	0.0	46.7	99.2	0.8	0.0	0.0
	2	59.7	0.0	0.0	0.0	59.7	99.9	0.1	0.0	0.0
	3									
	Mean	53.0	0.2	0.0	0.0	53.2	99.6	0.4	0.0	0.0
March	1									
	2	53.4	0.0	0.0	0.0	53.4	100.0	0.0	0.0	0.0
	3									
	Mean									
Q I	Mean	55.5	0.1	0.0	0.0	55.6	99.8	0.2	0.0	0.0

SD 24/Quarter IV		Weight (kg)					Weight (%)			
	Sample No.	Herring	Sprat	Cod	Other	Total	Herring	Sprat	Cod	Other
Octob.	1									
	2									
	3									
	Mean									
Novemb.	1	44.1	0.3	0.0	0.0	44.5	99.3	0.7	0.0	0.0
	2									
	3									
	Mean	44.1	0.3	0.0	0.0	44.5	99.3	0.7	0.0	0.0
Decemb.	1	42.3	0.6	0.0	0.3	43.3	97.7	1.5	0.0	0.8
	2	54.1	0.0	0.1	0.0	54.1	99.9	0.0	0.1	0.0
	3									
	Mean	48.2	0.3	0.0	0.2	48.7	98.8	0.7	0.1	0.4
Q IV	Mean	46.2	0.3	0.0	0.1	46.6	99.1	0.7	0.0	0.2

The officially reported total trawl landings of herring in Subdivision 24 (see 2.1) in combination with the detected mean species composition in the samples (see above) results in the following differences:

Subdiv.	Quarter	Trawl landings (t)	Mean Contribution of Herring (%)	Total Herring corrected (t)	Difference (t)
24	I	**1,027.217**	99.8	1,025.163	-2.054
	IV	**467.578**	99.1	463.370	-4.208

The officially reported trawl landings in Subdivision 24 (see 2.1) and the referring assessment input data (see 2.2 and 2.3) were as in last years not corrected since the results would only result in overall small changes of the official statistics (total trawl landings in Subdivision 22 and 24 of 1496 t – 6 t: -0.4 % difference).

1.4 Logbook registered discards/BMS landings

No BMS landings (new catch categories since 2015) of herring have been reported in the German herring fisheries in 2020 (no BMS landing have been reported since 2015). A total amount of logbook registered discards (new catch categories since 2015) of 32.437 t were recorded by the German fisherman (as predation by seals?) in the gillnet/trapnet fisheries in SDs 22/24 in 2020 (2019/SD 22/24 gillnet/trapnet fisheries: 21.882 t; 2018/SD 24/gillnet fisheries: 14.510 t). Neither discards nor logbook registered discards have been reported before 2018.

		Trapnet			Gillnet			Total		
		27.3.c.22	27.3.d.24	Total	27.3.c.22	27.3.d.24	Total	27.3.c.22	27.3.d.24	Total
Month	1	0.000	0.000	0.000	0.000	2.120	2.120	0.000	2.120	2.120
	2	0.000	0.000	0.000	0.005	7.615	7.620	0.005	7.615	7.620
	3	0.000	0.000	0.000	0.000	17.960	17.960	0.000	17.960	17.960
	4	0.000	0.000	0.000	0.000	2.947	2.947	0.000	2.947	2.947
	5	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	9	0.000	0.150	0.150	0.000	0.000	0.000	0.000	0.150	0.150
	10	0.000	0.150	0.150	0.000	0.000	0.000	0.000	0.150	0.150
	11	0.000	0.035	0.035	0.000	0.900	0.900	0.000	0.935	0.935
	12	0.000	0.000	0.000	0.000	0.555	0.555	0.000	0.555	0.555
Quarter	1	0.000	0.000	0.000	0.005	27.695	27.700	0.005	27.695	27.700
	2	0.000	0.000	0.000	0.000	2.947	2.947	0.000	2.947	2.947
	3	0.000	0.150	0.150	0.000	0.000	0.000	0.000	0.150	0.150
	4	0.000	0.185	0.185	0.000	1.455	1.455	0.000	1.640	1.640
Total		0.000	0.335	0.335	0.005	32.097	32.102	0.005	32.432	32.437

1.5 Central Baltic herring

In the western Baltic, the distribution areas of two stocks, the Western Baltic Spring Spawning herring (WBSSH) and the Central Baltic herring (CBH) overlap. German autumn acoustic survey (GERAS) results indicated in the recent years that in SD 24, which is part of the WBSSH management area, a considerable fraction of CBH is present and correspondingly erroneously allocated to WBSSH stock indices (ICES, 2013). Accordingly, a stock separation function (SF) based on growth parameters in 2005 to 2010 has been developed to quantify the proportion of CBH and WBSSH in the area (Gröhsler et al., 2013, Gröhsler et al., 2016). The estimates of the growth parameters based on baseline samples of WBSSH and CBH support the applicability of SF in 2011-2018 and 2020 (no update for 2019, due CBH occurring in baseline samples in SD 21 and SD 23, Oeberst et al., 2013, WD Oeberst et al., 2014, WD Oeberst et al., 2015; WD Oeberst et al., 2016; WD Oeberst et al., 2017; WD Gröhsler, T. and Schaber, M., 2018, WD Gröhsler, T. and Schaber, M., 2019, WD Gröhsler, T. and Schaber, M., 2021). SF (slightly modified by commercial samples) was employed in the years 2005-2016 to identify the fraction of Central Baltic Herring in German commercial herring landings from SD 22 and 24 (WD Gröhsler et al., 2013; ICES, 2018). These results and further results of the years 2017-2019 showed a rather low share of CBH in landings from all métiers but indicated that the actual degree of mixing might be underrepresented in commercial landings as German commercial fisheries target pre-spawning and spawning aggregations of WBSSH.

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1.7 Landings (tons) and sampling effort under COVID-19 conditions

The sampling in SDs 22-24 was carried out as usual without constraints caused by COVID-19. Independent of Covid-19, it was not possible - as in the years before - to get any samples from the area of SDs 25-29 since almost all herring (96 %) were landed in foreign ports.

1.7.1 Subdivisions 22 and 24

Gear	Quarter	SUBDIVISION 22				SUBDIVISION 24				TOTAL SUBDIVISIONS 22 & 24			
		Landings (tons)	No. samples	No. measured	No. aged	Landings (tons)	No. samples	No. measured	No. aged	Landings (tons)	No. samples	No. measured	No. aged
TRAWL	Q 1	0.131	0	0	0	1,027.217	7	2,958	746	1,027.348	7	2,958	746
	Q 2	0.302	0	0	0	0.830	0	0	0	1.132	0	0	0
	Q 3	0.000	-	-	-	0.000	-	-	-	0.000	-	-	-
	Q 4	0.035	0	0	0	467.578	3	1,132	353	467.613	3	1,132	353
	Total	0.468	0	0	0	1,495.625	10	4,090	1,099	1,496.093	10	4,090	1,099
GILLNET	Q 1	6.326	3	1,135	186	493.775	9	3,152	475	500.101	12	4,287	661
	Q 2	2.420	0	0	0	42.529	2	741	92	44.949	2	741	92
	Q 3	0.154	0	0	0	0.428	0	0	0	0.582	0	0	0
	Q 4	4.450	0	0	0	21.899	0	0	0	26.349	0	0	0
	Total	13.350	3	1,135	186	558.631	11	3,893	567	571.981	14	5,028	753
TRAPNET	Q 1*	0.000	-	-	-	0.050	1	378	106	0.050	-	-	-
	Q 2	0.001	1	864	84	0.286	0	0	0	0.287	1	864	84
	Q 3	0.061	0	0	0	0.012	2	389	123	0.073	2	389	123
	Q 4	0.260	0	0	0	0.041	0	0	0	0.301	0	0	0
	Total	0.322	1	864	84	0.389	3	767	229	0.711	3	1,253	207
TOTAL	Q 1	6.457	3	1,135	186	1,521.042	17	6,488	1,327	1,527.499	20	7,623	1,513
	Q 2	2.723	1	864	84	43.645	2	741	92	46.368	3	1,605	176
	Q 3	0.215	0	0	0	0.440	2	389	123	0.655	2	389	123
	Q 4	4.745	0	0	0	489.518	3	1,132	353	494.263	3	1,132	353
	Total	14.140	4	1,999	270	2,054.645	24	8,750	1,895	2,068.785	28	10,749	2,165

*Sampled data of trapnet SD 22 Q1 (without landings!) used for trapnet SD 24 Q1

1.7.2 Subdivisions 25-29

All herring in this area was caught by trawls.

Gear	Quarter	SUBDIVISION 25				SUBDIVISION 26				SUBDIVISION 27			
		Landings (tons)	No. samples	No. measured	No. aged	Landings (tons)	No. samples	No. measured	No. aged	Landings (tons)	No. samples	No. measured	No. aged
TRAWL	Q 1	267.943	0	0	0	55.000	0	0	0	0.000	-	-	-
	Q 2	118.161	0	0	0	0.000	-	-	-	0.000	-	-	-
	Q 3	0.000	-	-	-	0.000	-	-	-	0.000	-	-	-
	Q 4	1.639	0	0	0	0.000	-	-	-	0.000	-	-	-
	Total	387.743	0	0	0	55.000	0	0	0	0.000	0	0	0

Gear	Quarter	SUBDIVISION 28.2				SUBDIVISION 29				SUBDIVISION 25-29			
		Landings (tons)	No. samples	No. measured	No. aged	Landings (tons)	No. samples	No. measured	No. aged	Landings (tons)	No. samples	No. measured	No. aged
TRAWL	Q 1	121.698	0	0	0	51.615	0	0	0	**496.256**	**0**	**0**	**0**
	Q 2	0.000	-	-	-	0.000	-	-	-	**118.161**	**0**	**0**	**0**
	Q 3	0.000	-	-	-	0.000	-	-	-	**0.000**	**0**	**0**	**0**
	Q 4	56.893	0	0	0	160.399	0	0	0	**218.931**	**0**	**0**	**0**
	Total	178.591	0	0	0	212.014	0	0	0	**833.348**	**0**	**0**	**0**

1.8 Catch in numbers (millions)

1.8.1 Subdivisions 22 and 24

		SUBDIVISION 22				SUBDIVISION 24				SUBDIVISIONS 22+24			
	W-rings	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
TRAWL	0				0.0000				0.020				0.020
	1	0.0000	0.0000		0.0000	0.011	0.000		0.243	0.011	0.000		0.243
	2	0.0000	0.0001		0.0001	0.188	0.000		0.711	0.188	0.000		0.711
	3	0.0002	0.0004		0.0001	1.445	0.001		0.765	1.445	0.002		0.765
	4	0.0002	0.0003		0.0000	1.180	0.001		0.537	1.180	0.001		0.537
	5	0.0003	0.0006		0.0001	2.190	0.002		0.710	2.190	0.002		0.710
	6	0.0001	0.0002		0.0000	0.844	0.001		0.329	0.844	0.001		0.329
	7	0.0002	0.0005		0.0000	1.604	0.001		0.365	1.604	0.002		0.365
	8+	0.0000	0.0001		0.0000	0.387	0.000		0.086	0.387	0.000		0.087
	Sum	0.0010	0.0023		0.0003	7.848	0.006		3.766	7.849	0.009		3.766
GILLNET	W-rings	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	0												
	1												
	2												
	3	0.000				0.006				0.006			
	4	0.002	0.000	0.000	0.001	0.057	0.007	0.000	0.004	0.059	0.007	0.000	0.004
	5	0.005	0.002	0.000	0.003	0.712	0.029	0.000	0.015	0.717	0.030	0.000	0.018
	6	0.006	0.003	0.000	0.006	0.584	0.053	0.001	0.027	0.591	0.056	0.001	0.033
	7	0.014	0.007	0.000	0.013	1.011	0.124	0.001	0.064	1.025	0.131	0.002	0.077
	8+	0.009	0.002	0.000	0.004	0.428	0.041	0.000	0.021	0.437	0.043	0.001	0.025
	Sum	0.037	0.014	0.001	0.027	2.799	0.253	0.003	0.131	2.835	0.268	0.003	0.157
TRAPNET	W-rings	Q1	Q2	Q3	Q4	*Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	0												
	1			0.000	0.0000			0.00000	0.0000			0.0000	0.0000
	2		0.00000	0.000	0.0001	0.0000	0.000	0.00000	0.0000	0.0000	0.0001	0.0000	0.0001
	3		0.00001	0.000	0.0001	0.0001	0.001	0.00000	0.0000	0.0001	0.0007	0.0000	0.0001
	4		0.00001	0.000	0.0001	0.0001	0.000	0.00001	0.0000	0.0001	0.0003	0.0000	0.0001
	5			0.000	0.0005	0.0002	0.001	0.00002	0.0001	0.0002	0.0011	0.0001	0.0006
	6			0.000	0.0004	0.0000	0.000	0.00002	0.0001	0.0000	0.0003	0.0001	0.0005
	7			0.000	0.0003	0.0000	0.000	0.00002	0.0001	0.0000	0.0000	0.0001	0.0004
	8+			0.000	0.0001	0.0000	0.000	0.00000	0.0000	0.0000	0.0002	0.0000	0.0001
	Sum		0.000	0.000	0.0015	0.0005	0.003	0.00007	0.0002	0.0005	0.0027	0.0004	0.0018
TOTAL	W-rings	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	0				0.000				0.020				0.020
	1	0.000	0.000	0.0000	0.0000	0.011	0.000	0.0000	0.243	0.011	0.000	0.0000	0.243
	2	0.000	0.000	0.0000	0.0001	0.188	0.000	0.0000	0.711	0.188	0.000	0.0000	0.711
	3	0.001	0.000	0.0000	0.0001	1.451	0.002	0.0000	0.765	1.451	0.002	0.0000	0.765
	4	0.002	0.001	0.0001	0.0009	1.237	0.008	0.0001	0.540	1.239	0.009	0.0001	0.541
	5	0.006	0.002	0.0002	0.0035	2.902	0.031	0.0003	0.725	2.907	0.034	0.0005	0.728
	6	0.006	0.003	0.0003	0.0060	1.428	0.054	0.0006	0.356	1.434	0.057	0.0008	0.362
	7	0.014	0.008	0.0005	0.0133	2.615	0.125	0.0013	0.429	2.630	0.133	0.0018	0.442
	8+	0.009	0.002	0.0002	0.0044	0.815	0.041	0.0004	0.108	0.824	0.044	0.0006	0.112
	Sum	0.038	0.017	0.0013	0.0283	10.647	0.262	0.0026	3.897	10.685	0.279	0.0039	3.925

REPLACEMENT OF MISSING SAMPLES:

SUBDIVISION 22					SUBDIVISION 24				
Missing		Replacement by			Missing		Replacement by		
Gear	Quart.	Area	Gear	Quart.	Gear	Quart.	Area	Gear	Quart.
Trawl	1, 2	24	Trawl	1	Trawl	2	24	Trawl	1
Trawl	4	24	Trawl	4	Gillnet	3, 4	24	Gillnet	2
Gillnet	2, 3, 4	24	Gillnet	2	Trapnet	2	24 (22)	Trapnet	1
Trapnet	3, 4	24	Trapnet	3	Trapnet	4	24	Trapnet	3

*sampled data of trapnet SD 22 Q1 (without landings!) finally used for trapnet SD 24 Q1

1.8.2 Subdivisions 25-29

No sampling.

1.9 Mean weight in the catch (grams)

1.9.1 Subdivisions 22 and 24

		SUBDIVISION 22				SUBDIVISION 24				SUBDIVISIONS 22+24			
	W-rings	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
TRAWL	0				19.9				19.9				19.9
	1	17.1	17.1		45.6	17.1	17.1		45.6	17.1	17.1		45.6
	2	57.5	57.5		78.3	57.5	57.5		78.3	57.5	57.5		78.3
	3	85.1	85.1		111.1	85.1	85.1		111.1	85.1	85.1		111.1
	4	101.7	101.7		126.2	101.7	101.7		126.2	101.7	101.7		126.2
	5	139.4	139.4		160.6	139.4	139.4		160.6	139.4	139.4		160.6
	6	156.0	156.0		159.8	156.0	156.0		159.8	156.0	156.0		159.8
	7	168.5	168.5		178.4	168.5	168.5		178.4	168.5	168.5		178.4
	8+	171.4	171.4		185.7	171.4	171.4		185.7	171.4	171.4		185.7
	Sum	130.9	130.9		124.2	130.9	130.9		124.2	130.9	130.9		124.2
	W-rings	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
GILLNET	0												
	1												
	2												
	3	136.6				115.5				116.6			
	4	148.4	163.2	163.2	163.2	156.9	163.2	163.2	163.2	156.7	163.2	163.2	163.2
	5	156.6	158.0	158.0	158.0	169.0	158.0	158.0	158.0	168.9	158.0	158.0	158.0
	6	168.0	168.3	168.3	168.3	175.4	168.3	168.3	168.3	175.3	168.3	168.3	168.3
	7	174.2	167.7	167.7	167.7	180.7	167.7	167.7	167.7	180.6	167.7	167.7	167.7
	8+	184.7	174.8	174.8	174.8	183.7	174.8	174.8	174.8	183.7	174.8	174.8	174.8
	Sum	171.6	167.8	167.8	167.8	176.4	167.8	167.8	167.8	176.4	167.8	167.8	167.8
	W-rings	Q1	Q2	Q3	Q4	*Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
TRAPNET	0												
	1			65.8	65.8			65.8	65.8			65.8	65.8
	2		51.0	92.2	92.2	58.3	58.3	92.2	92.2	58.3	57.9	92.2	92.2
	3		64.9	70.5	70.5	72.9	72.9	70.5	70.5	72.9	72.9	70.5	70.5
	4		75.9	119.0	119.0	95.7	95.7	119.0	119.0	95.7	95.4	119.0	119.0
	5			177.8	177.8	122.4	122.4	177.8	177.8	122.4	122.4	177.8	177.8
	6			179.3	179.3	138.4	138.4	179.3	179.3	138.4	138.4	179.3	179.3
	7			194.6	194.6	156.8	156.8	194.6	194.6	156.8	156.8	194.6	194.6
	8+			196.6	196.6	162.5	162.5	196.6	196.6	162.5	162.5	196.6	196.6
	Sum		65.6	168.7	168.7	108.2	108.2	168.7	168.7	108.2	108.0	168.7	168.7
	W-rings	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
TOTAL	0				19.9				19.9				19.9
	1	17.1	17.1	65.8	56.6	17.1	17.1	65.8	45.6	17.1	17.1	65.8	45.6
	2	57.5	57.1	92.2	86.0	57.5	57.8	92.2	78.3	57.5	57.6	92.2	78.3
	3	118.6	84.8	70.5	89.5	85.2	80.5	70.5	111.1	85.2	81.3	70.5	111.1
	4	144.6	134.2	141.1	156.1	104.2	153.3	160.2	126.5	104.3	151.8	152.6	126.5
	5	155.7	152.7	168.5	160.9	146.6	155.8	159.5	160.5	146.6	155.6	163.3	160.5
	6	167.8	167.4	171.9	169.0	163.9	168.0	168.7	160.4	163.9	168.0	169.8	160.6
	7	174.1	167.8	171.6	168.4	173.2	167.7	168.0	176.8	173.2	167.7	169.1	176.6
	8+	184.6	174.6	176.8	175.1	177.9	174.7	175.0	183.5	177.9	174.7	175.5	183.2
	Sum	170.5	162.6	168.0	167.4	142.9	166.3	167.8	125.6	143.0	166.1	167.9	125.9

REPLACEMENT OF MISSING SAMPLES:

SUBDIVISION 22					SUBDIVISION 24				
Missing		Replacement by			Missing		Replacement by		
Gear	Quart.	Area	Gear	Quart.	Gear	Quart.	Area	Gear	Quart.
Trawl	1, 2	24	Trawl	1	Trawl	2	24	Trawl	1
Trawl	4	24	Trawl	4	Gillnet	3, 4	24	Gillnet	2
Gillnet	2, 3, 4	24	Gillnet	2	Trapnet	2	24 (22)	Trapnet	1
Trapnet	3, 4	24	Trapnet	3	Trapnet	4	24	Trapnet	3

*sampled data of trapnet SD 22 Q1 (without landings!) finally used for trapnet SD 24 Q1

1.9.2 Subdivisions 25 and 29

No sampling.

1.10 Mean length in the catch (cm)

1.10.1 Subdivisions 22 and 24

		SUBDIVISION 22				SUBDIVISION 24				SUBDIVISIONS 22+24			
	W-rings	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
TRAWL	0				14.7				14.7				14.7
	1	14.8	14.8		19.6	14.8	14.8		19.6	14.8	14.8		19.6
	2	20.5	20.5		22.7	20.5	20.5		22.7	20.5	20.5		22.7
	3	23.2	23.2		24.8	23.2	23.2		24.8	23.2	23.2		24.8
	4	24.4	24.4		25.7	24.4	24.4		25.7	24.4	24.4		25.7
	5	26.8	26.8		27.7	26.8	26.8		27.7	26.8	26.8		27.7
	6	27.7	27.7		27.6	27.7	27.7		27.6	27.7	27.7		27.6
	7	28.5	28.5		28.7	28.5	28.5		28.7	28.5	28.5		28.7
	8+	28.6	28.6		29.2	28.6	28.6		29.2	28.6	28.6		29.2
	Sum	26.1	26.1		25.4	26.1	26.1		25.4	26.1	26.1		25.4
	W-rings	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
GILLNET	0												
	1												
	2												
	3	26.0				25.1				25.1			
	4	26.7	27.6	27.6	27.6	27.2	27.6	27.6	27.6	27.2	27.6	27.6	27.6
	5	27.3	27.3	27.3	27.3	28.0	27.3	27.3	27.3	28.0	27.3	27.3	27.3
	6	28.0	28.0	28.0	28.0	28.5	28.0	28.0	28.0	28.5	28.0	28.0	28.0
	7	28.4	28.0	28.0	28.0	29.0	28.0	28.0	28.0	28.9	28.0	28.0	28.0
	8+	29.2	28.5	28.5	28.5	29.2	28.5	28.5	28.5	29.2	28.5	28.5	28.5
	Sum	28.3	28.0	28.0	28.0	28.6	28.0	28.0	28.0	28.6	28.0	28.0	28.0
	W-rings	Q1	Q2	Q3	Q4	*Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
TRAPNET	0												
	1			19.1	19.1			19.1	19.1			19.1	19.1
	2		19.5	24.2	24.2	20.0	20.0	24.2	24.2	20.0	20.0	24.2	24.2
	3		21.2	21.6	21.6	21.8	21.8	21.6	21.6	21.8	21.8	21.6	21.6
	4		22.5	24.2	24.2	24.1	24.1	24.2	24.2	24.1	24.0	24.2	24.2
	5			27.9	27.9	26.4	26.4	27.9	27.9	26.4	26.4	27.9	27.9
	6			28.2	28.2	27.5	27.5	28.2	28.2	27.5	27.5	28.2	28.2
	7			28.8	28.8	28.9	28.9	28.8	28.8	28.9	28.9	28.8	28.8
	8+			27.1	27.1	28.8	28.8	27.1	27.1	28.8	28.8	27.1	27.1
	Sum		21.3	27.3	27.3	25.0	25.0	27.3	27.3	25.0	24.9	27.3	27.3
	W-rings	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
TOTAL	0				14.7				14.7				14.7
	1	14.8	14.8	19.1	19.3	14.8	14.8	19.1	19.6	14.8	14.8	19.1	19.6
	2	20.5	20.4	24.2	23.5	20.5	20.3	24.2	22.7	20.5	20.4	24.2	22.7
	3	25.0	23.1	21.6	23.1	23.2	22.6	21.6	24.8	23.2	22.7	21.6	24.8
	4	26.6	26.1	25.9	27.1	24.6	27.1	27.4	25.7	24.6	27.0	26.8	25.7
	5	27.2	27.1	27.6	27.4	27.1	27.2	27.3	27.7	27.1	27.2	27.5	27.7
	6	28.0	28.0	28.1	28.0	28.0	28.0	28.0	27.6	28.0	28.0	28.0	27.6
	7	28.4	28.0	28.1	28.0	28.6	28.0	28.0	28.6	28.6	28.0	28.0	28.6
	8+	29.2	28.5	28.3	28.5	28.9	28.5	28.5	29.0	28.9	28.5	28.4	29.0
	Sum	28.2	27.7	27.8	27.9	26.8	27.9	28.0	25.5	26.8	27.9	27.9	25.5

REPLACEMENT OF MISSING SAMPLES:

SUBDIVISION 22					SUBDIVISION 24				
Missing		Replacement by			Missing		Replacement by		
Gear	Quart.	Area	Gear	Quart.	Gear	Quart.	Area	Gear	Quart.
Trawl	1, 2	24	Trawl	1	Trawl	2	24	Trawl	1
Trawl	4	24	Trawl	4	Gillnet	3, 4	24	Gillnet	2
Gillnet	2, 3, 4	24	Gillnet	2	Trapnet	2	24 (22)	Trapnet	1
Trapnet	3, 4	24	Trapnet	3	Trapnet	4	24	Trapnet	3

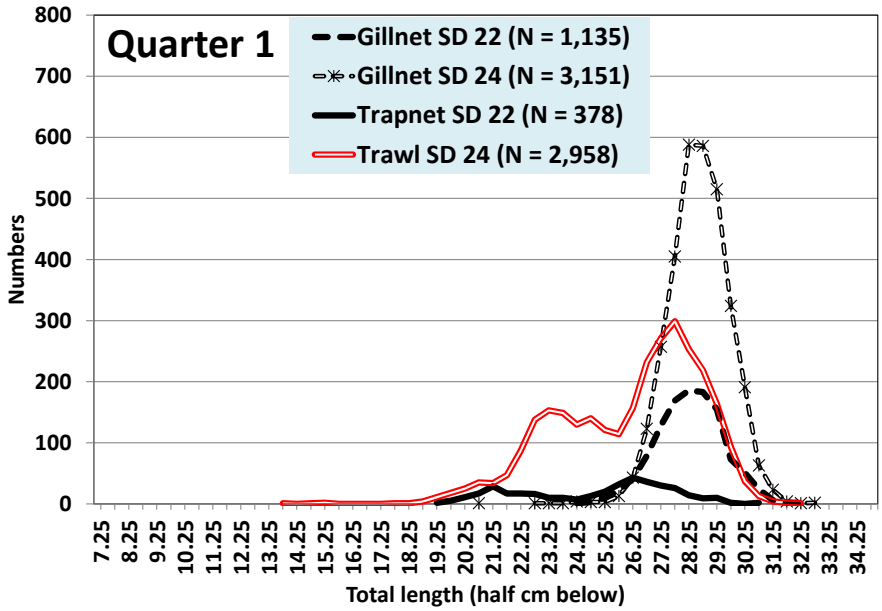
*sampled data of trapnet SD 22 Q1 (without landings!) finally used for trapnet SD 24 Q1

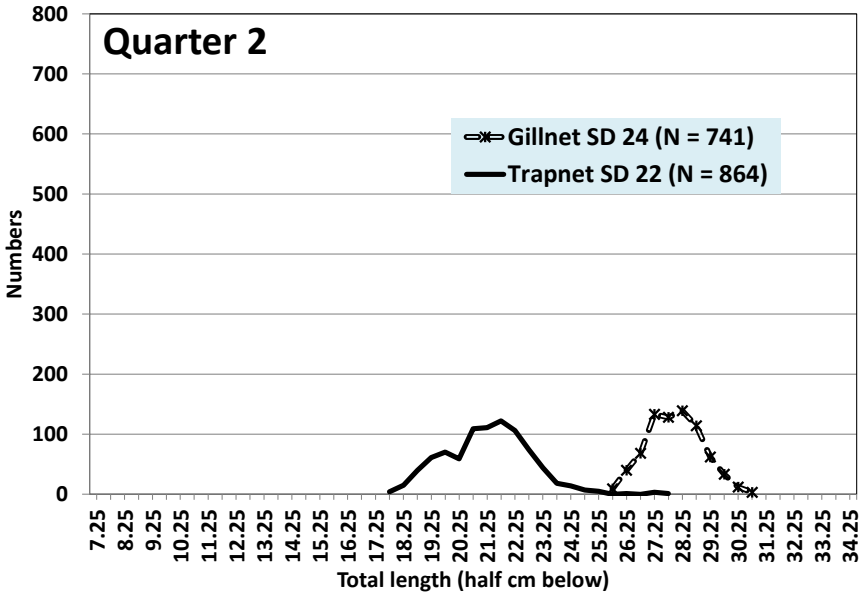
1.10.2 Subdivisions 25 and 29

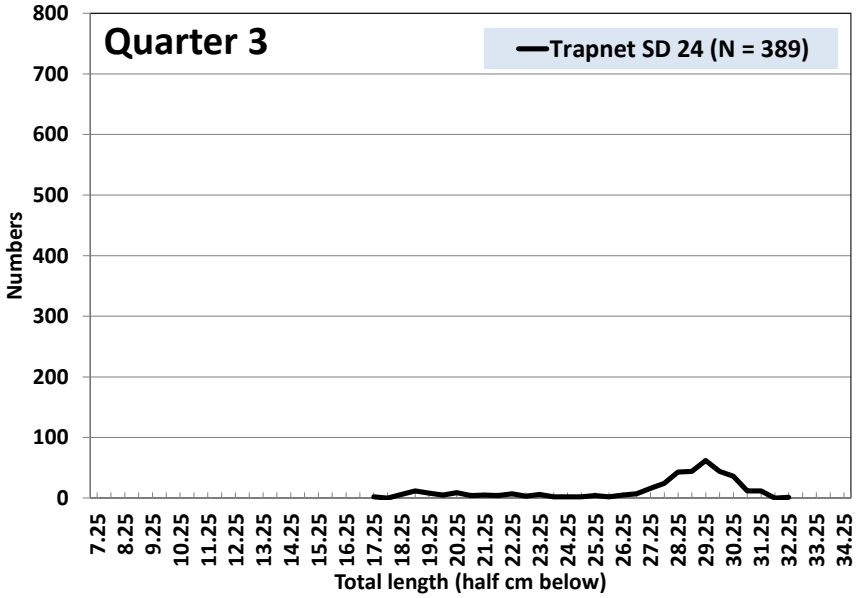
No sampling.

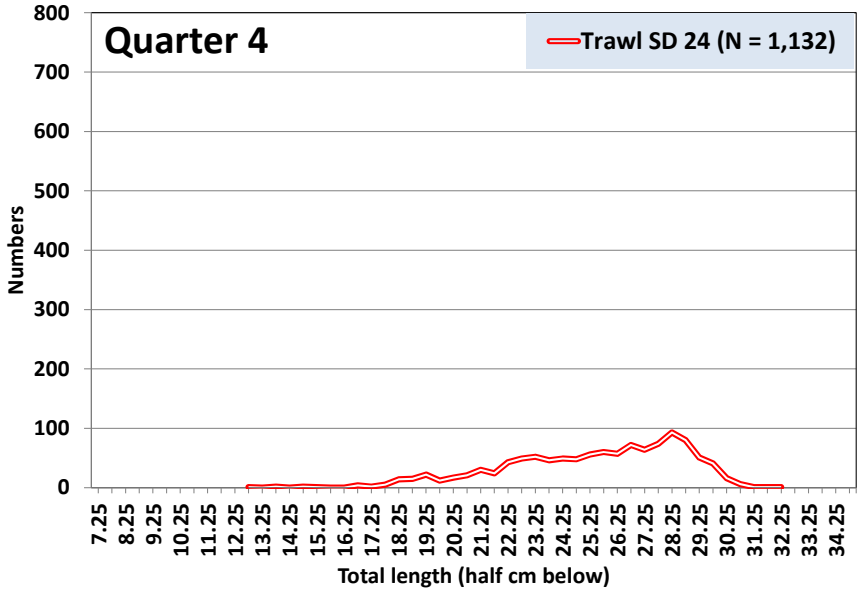
1.11 Sampled length distributions by Subdivision, quarter and type of gear

1.11.1 Subdivisions 22 and 24









1.11.2 Subdivisions 25 and 29

No sampling.

2 SPRAT

2.1 Fisheries

The provisional sprat **landings in Subdivisions 22-29 in 2020 reached** according to the
(a) share of the EU quota (2020: 13,133 t) and
(b) further transfer of quota (overall 3,851 t were transferred to other Baltic countries)

8,930 t,

which represents a final utilization of the overall 2020 quota of 9,282 t of 96 % (2019: 99 %).

As in previous years most sprat was

- landed in foreign ports (2020: 87 %; 2019: 89 %9,
- caught in the first quarter (2020: 54 %, 2019: 62 %),
- caught in Subdivisions 25-29 (2020: 99.8 %, 2019: 97 %)

The landings (t) by quarter and Subdivision including information about the landings in foreign ports are shown in the table below:

Quarter	SD 22	SD 24	SD 25	SD 26	SD 27	SD 28	SD 29	(1) Total SD 25-29	% (1)/(2)	(2) Total SD 22-29	% (2)
I	0.050	5.327	2,449.598	373.029	0.000	1,409.549	543.278	4,775.454	99.9%	4,780.831	53.5%
	0.000	0.000	2,388.066	373.029	0.000	389.984	543.278	3,694.357	100.0%	3,694.357	47.4%
II	0.990	11.111	2,535.198	0.000	0.000	0.000	0.000	2,535.198	99.5%	2,547.299	28.5%
	0.000	11.111	2,481.996	-	-	-	-	2,481.996	99.6%	2,493.107	32.0%
III	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-
IV	-	2.017	64.248	0.000	0.000	814.987	720.244	1,599.479	99.9%	1,601.496	17.9%
	-	0.000	64.248	0.000	0.000	814.987	720.244	1,599.479	100.0%	1,599.479	20.5%
Total	**1.040**	**18.455**	**5,049.044**	**373.029**	**-**	**2,224.536**	**1,263.522**	**8,910.131**	**99.8%**	**8,929.626**	100.0%
	-	-	4,934.310	373.029	-	1,204.971	1,263.522	7,775.832	99.9%	7,786.943	87.2%
								2020/2019		**2020/2019**	
			Fraction of total landings (t) in foreign ports					**62.9%**		**61.0%**	
								59.7%		59.8%	
								Proportion landed in foreign ports in 2020:		**87.2%**	

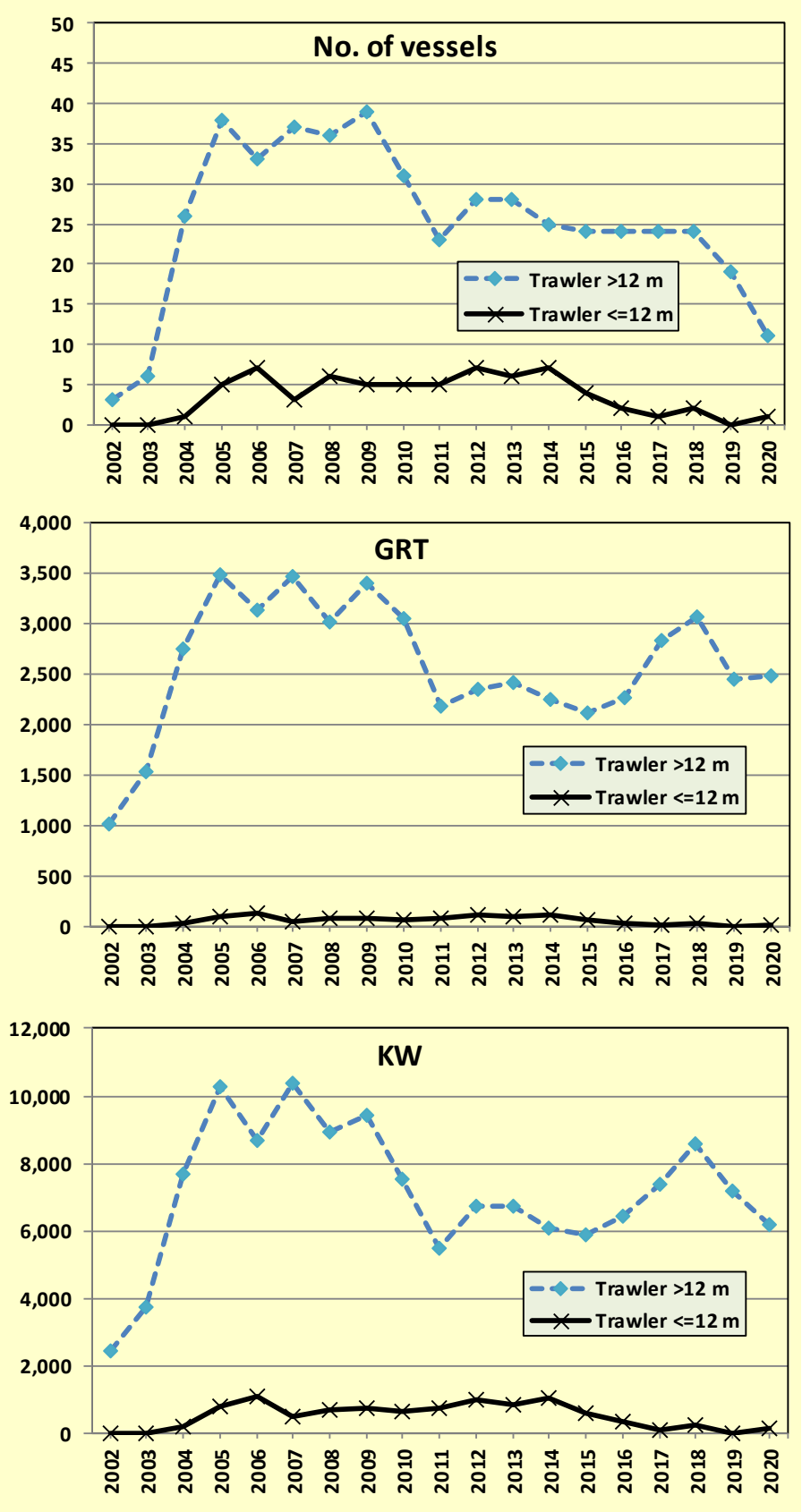
2.2 Fishing fleet

The German fishing fleet in the Baltic Sea consists of only one fleet where all catches for sprat are taken in a directed trawl fishery:

- cutter fleet of total length <= 12 m,
- cutter fleet of total length > 12 m.

In the years 2002 – 2020 the following type of fishing vessels were available to carry out the sprat fishery in the Baltic Sea (only referring to vessels, which are contributing to the overall total landings per year with more than 20 %):

Year	Vessel length (m)	No. of vessels	GRT	kW
2002	<=12	0	0	0
	>12	3	1,009	2,434
2003	<=12	0	0	0
	>12	6	1,531	3,716
2004	<=12	1	24	220
	>12	26	2,750	7,682
2005	<=12	5	93	798
	>12	38	3,479	10,289
2006	<=12	7	123	1,090
	>12	33	3,134	8,685
2007	<=12	3	43	492
	>12	37	3,454	10,396
2008	<=12	6	72	679
	>12	36	3,014	8,913
2009	<=12	5	79	761
	>12	39	3,389	9,438
2010	<=12	5	69	664
	>12	31	3,041	7,525
2011	<=12	5	74	756
	>12	23	2,174	5,494
2012	<=12	7	107	1.007
	>12	28	2.345	6.727
2013	<=12	6	94	868
	>12	28	2,411	6,728
2014	<=12	7	112	1,019
	>12	25	2,241	6,070
2015	<=12	4	69	596
	>12	24	2,119	5,892
2016	<=12	2	37	345
	>12	24	2,254	6,424
2017	<=12	1	17	100
	>12	24	2,821	7,396
2018	<=12	2	32	246
	>12	24	3,052	8,560
2019	<=12	0	0	0
	>12	19	2,445	7,179
2020	<=12	1	16	143
	>12	11	2,476	6,166


No. of vessels
Trawler >12 m
Trawler <=12 m
GRT
Trawler >12 m
Trawler <=12 m
KW
Trawler >12 m
Trawler <=12 m
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020

2.3 Species composition of landings

The results from the species composition of German trawl catches, which were sampled in **Subdivision 26 of quarter 1** in 2020, are given below:

SD 26/Quarter I		Weight (kg)					Weight (%)			
	Sample No.	Sprat	Herring	Cod	Other	Total	Sprat	Herring	Cod	Other
January										
	Mean									
February										
	Mean									
March	1	2.2	0.0	0.0	0.0	2.2	100.0	0.0	0.0	0.0
	Mean	2.2	0.0	0.0	0.0	2.2	100.0	0.0	0.0	0.0
Q I	Mean	2.2	0.0	0.0	0.0	2.2	100.0	0.0	0.0	0.0

The results from the species composition of German trawl catches, which were sampled in **Subdivision 28 of quarter 1** in 2020 are given below:

SD 28/Quarter I		Weight (kg)					Weight (%)			
	Sample No.	Sprat	Herring	Cod	Other	Total	Sprat	Herring	Cod	Other
January	1	8.9	0.1	0.0	0.0	9.1	98.7	1.1	0.0	0.1
	Mean	8.9	0.1	0.0	0.0	9.1	98.7	1.1	0.0	0.1
February										
	Mean									
March										
	Mean									
Q I	Mean	8.9	0.1	0.0	0.0	9.1	98.7	1.1	0.0	0.1

The results from the species composition of German trawl catches, which were sampled in **Subdivision 29 of quarter 1** in 2020, are given below:

SD 29/Quartal 1		Weight (kg)					Weight (%)			
	Sample No.	Sprat	Herring	Cod	Other	Total	Sprat	Herring	Cod	Other
January										
	Mean									
February	1	3.1	2.1	0.0	0.0	5.2	59.2	40.8	0.0	0.0
	Mean	3.1	2.1	0.0	0.0	5.2	59.2	40.8	0.0	0.0
March										
	Mean									
Q I	Mean	3.1	2.1	0.0	0.0	5.2	59.2	40.8	0.0	0.0

The results from the species composition of German trawl catches, which were sampled in **Subdivision 25 of quarter 2** in 2020, are given below:

SD 25/Quarter II		Weight (kg)					Weight (%)			
	Sample No.	Sprat	Herring	Cod	Other	Total	Sprat	Herring	Cod	Other
April	1	8.1	0.0	0.0	0.0	8.1	100.0	0.0	0.0	0.0
	Mean	8.1	0.0	0.0	0.0	8.1	100.0	0.0	0.0	0.0
May										
	Mean									
June										
	Mean									
Q II	Mean	8.1	0.0	0.0	0.0	8.1	100.0	0.0	0.0	0.0

The officially reported total trawl landings of sprat in Subdivisions 25-29 (see 2.1) in combination with the noticed mean species composition in the samples (see above) would result in the following differences:

Subdiv.	Quarter	Trawl landings (t)	Mean Contribution of Sprat (%)	Total Sprat corrected (t)	Difference (t)
26	I	373	100.0	373	0
28	I	1,410	98.7	1,391	18
29	I	543	59.2	322	222
25	II	2,535	100.0	2,535	0

The overall difference amounted to -240 t, which would represent a change of the total landing value for Germany in 2020 of -3 % [total landings in SD 22-29 in 2020 of 8,930 t - 240 t ->8,690 t, 2019: -3 %, 2018: -12 %, 2017: -4 %, 2016: -11 %, 2015: -14 %; 2014: -7 %, 2013: -6 %]. The officially reported trawl landings (see 2.1) and the referring assessment input data (see 2.5 and 2.6) were not corrected these small differences in 2020. However, an implementation error of about at least 3-14 % regarding the total landing figure for Germany could be explored during the next benchmark process.

2.4 Logbook registered discards/BMS landings

No logbook registered discards or BMS landings (both new catch categories since 2015) of sprat have been reported in the German fisheries in 2020 (almost no BMS landing have been reported in 2015 - 2018 and no discards/logbook registered discards have been reported before 2019).

2.5 Landings (tons) and sampling effort under Covid-19 conditions

Most of the sprat was landed in foreign ports in 2020 (87%) as in the years before (2019: 89 %, 2018: 90 %). As in the years before, it was then tried to get as many samples as possible in 2020. In contrast to the years before, where most of the landings were sampled (2019: 90 %, 2018: 93 %), it was in 2020 only possible to sample 55 % of the total landings (4,868 t out of 8,930 t). It is not clear whether the willingness of the fishermen to collect any sample was reduced due to COVID-19 or whether the reduced quota in 2020 (2020/2019 = -37 %, incl. transfer of quota: from 14,818 t (2019) to 9,282 t (2020) followed by reduced landings in 2020 (2020: 8,930 t, 2019; 14,645 t) lead to this reduction in sampling intensity.

Gear	Quarter	SUBDIVISION 22[1]				SUBDIVISION 24[2]				SUBDIVISION 25[3]			
		Landings (tons)	No. samples	No. measured	No. aged	Landings (tons)	No.* samples	No. measured	No. aged	Landings (tons)	No. samples	No. measured	No. aged
TRAWL	Q 1	0.050	0	0	0	5.327	2	117	89	2,449.598	0	0	0
	Q 2	0.990	0	0	0	11.111	0	0	0	2,535.198	1	226	42
	Q 3	0.000	-	-	-	0.000	-	-	-	0.000	-	-	-
	Q 4	0.000	-	-	-	2.017	2	85	56	64.248	0	0	0
	Total	1.040	0	0	0	18.455	4	202	145	5,049.044	1	226	42

* as by-catch in the herring trawl fishery

Gear	Quarter	SUBDIVISION 26[3]				SUBDIVISION 27[3]				SUBDIVISION 28[3]			
		Landings (tons)	No. samples	No. measured	No. aged	Landings (tons)	No. samples	No. measured	No. aged	Landings (tons)	No. samples	No. measured	No. aged
TRAWL	Q 1	373.029	1	287	53	0.000	-	-	-	1,409.549	1	346	54
	Q 2	0.000	-	-	-	0.000	-	-	-	0.000	-	-	-
	Q 3	0.000	-	-	-	0.000	-	-	-	0.000	-	-	-
	Q 4	0.000	-	-	-	0.000	-	-	-	814.987	0	0	0
	Total	373.029	1	287	53	0.000	0	0	0	2,224.536	1	346	54

Gear	Quarter	SUBDIVISION 29[3]				SUBDIVISIONS 22-29[4]			
		Landings (tons)	No. samples	No. measured	No. aged	Landings (tons)	No. samples	No. measured	No. aged
TRAWL	Q 1	543.278	1	375	53	4,780.831	5	1,125	249
	Q 2	0.000	-	-	-	2,547.299	1	226	42
	Q 3	0.000	-	-	-	0.000	0	0	0
	Q 4	720.244	0	0	0	1,601.496	2	85	56
	Total	1,263.522	1	375	53	8,929.626	8	1,436	347

Fraction of landings in foreign ports:

[1]SD 22: 0 %
[2]SD 24: 0 %
[3]SD 25-29: 7,776 t (87 %)
[4]SD 22-29: 7,787 t (87 %)

2.6 Catch in numbers (millions)

		SUBDIVISION 22				SUBDIVISION 24				SUBDIVISION 25				SUBDIVISION 26			
	Age	Q1	Q2	Q3	Q4	*Q1	Q2	Q3	*Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
TRAWL	0								0.029								
	1					0.588			0.083		5.743			15.516			
	2					0.086			0.035		68.226			6.645			
	3					0.019			0.030		87.292			14.336			
	4					0.065			0.002		50.538			5.970			
	5										31.931			4.925			
	6										15.850			1.012			
	7																
	8+																
	Sum					0.758			0.179		259.580			48.404			

		SUBDIVISION 27				SUBDIVISION 28				SUBDIVISION 29				SUBDIVISIONS 22-29			
	Age	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
TRAWL	0																0.029
	1					79.795				72.666				168.565	5.743		0.083
	2					35.592				4.144				46.467	68.226		0.035
	3					37.084				13.568				65.008	87.292		0.030
	4					20.322				2.782				29.139	50.538		0.002
	5					25.833				8.232				38.989	31.931		
	6									5.053				6.065	15.850		
	7																
	8+																
	Sum					198.626				106.445				354.233	259.580		0.179

*as by-catch in the herring trawl fishery

2.7 Mean weight in the catch (grams)

		SUBDIVISION 22				SUBDIVISION 24				SUBDIVISION 25				SUBDIVISION 26			
	Age	Q1	Q2	Q3	Q4	*Q1	Q2	Q3	*Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
TRAWL	0								5.7								
	1					5.4			12.1		3.2			3.4			
	2					11.0			12.5		8.9			8.6			
	3					14.7			12.7		9.9			9.5			
	4					14.4			17.0		10.0			9.8			
	5										10.8			11.3			
	6										12.7			13.0			
	7																
	8+																
	Sum					7.0			11.3		9.8			7.7			

		SUBDIVISION 27				SUBDIVISION 28				SUBDIVISION 29				SUBDIVISIONS 22-29			
	Age	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
TRAWL	0																5.7
	1					3.0				2.9				3.0	3.2		12.1
	2					9.0				8.0				8.8	8.9		12.5
	3					9.5				9.3				9.4	9.9		12.7
	4					10.6				11.3				10.5	10.0		17.0
	5					11.0				10.7				11.0	10.8		
	6									10.3				10.8	12.7		
	7																
	8+																
	Sum					7.1				5.1				6.6	9.8		11.3

*as by-catch in the herring trawl fishery

2.8 Mean length in the catch (cm)

	SUBDIVISION 22				SUBDIVISION 24				SUBDIVISION 25				SUBDIVISION26			
Age	Q1	Q2	Q3	Q4	*Q1	Q2	Q3	*Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
0								9.9								
1					9.3			12.2		8.8			8.4			
2					11.8			12.4		11.4			11.0			
3					13.3			12.4		11.8			11.4			
4					13.1			14.8		11.9			11.5			
5										12.1			12.2			
6										12.8			12.8			
7																
8+																
Sum					10.0			11.9		11.8			10.5			

	SUBDIVISION 27				SUBDIVISION 28				SUBDIVISION 29				SUBDIVISIONS 22-29			
Age	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
0																9.9
1					8.0				7.9				8.0	8.8		12.2
2					10.9				10.6				10.9	11.4		12.4
3					11.1				11.2				11.2	11.8		12.4
4					11.7				12.1				11.7	11.9		14.8
5					11.9				11.8				11.9	12.1		
6									11.6				11.8	12.8		
7																
8+																
Sum					10.0				9.0				9.8	11.8		11.9

*as by-catch in the herring trawl fishery

2.9 Sampled length distributions of sprat by Subdivision and quarter