

PFA self-sampling report 2015-2019

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Please cite as:

M.A. Pastoors and F.J. Quirijns (2020) **PFA self-sampling report 2015-2019**. PFA report 2020/02

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1 Introduction

The Pelagic Freezer-trawler Association (PFA) is an association that has nine member companies that together operate 18 (in 2018) freezer trawlers in six European countries (www.pelagicfish.eu).

In 2015, the PFA has initiated a self-sampling programme that expands the ongoing monitoring programmes on board of pelagic freezer-trawlers by the specialized crew of the vessels. The primary objective of that monitoring programme is to assess the quality of fish. The expansion in the self-sampling programme consists of recording of haul information, recording the species compositions per haul and regularly taking random length-samples from the catch. The self-sampling is carried out by the vessel quality managers on board of the vessels, who have a long experience in assessing the quality of fish, and by the skippers/officers with respect to the haul information. The scientific coordination of the self-sampling programme is carried out by Martin Pastoors (PFA chief science officer) with support of Floor Quirijns (contractor).

2 Overview of self-sampling methodology

The PFA self-sampling program has been incrementally implemented on freezer-trawler vessels from the Netherlands, UK, Germany, France, Poland and Lithuania during the years 2015-2018.

The self-sampling program is designed in such a way that it follows as closely as possible the working practices on board of the different vessels and that it delivers the biological and fisheries information needed for the relevant scientific bodies (e.g. ICES, SPRFMO, CECAF), certification bodies (e.g. MSC) and as a mechanism of feedback for the participating companies.

The following main elements can be distinguished in the self-sampling protocol:

- haul information (date, time, position, weather conditions, environmental conditions, gear attributed, estimated catch, optionally: species composition)
- batch information (total catch per batch=production unit, including variables like species, average size, average weight, fat content, gonads y/n and stomach fill)
- linking batch and haul information (essentially a key of how much of a batch is caught in which of the hauls)
- length information (length frequency measurements, either by batch or by haul)

The self-sampling information is collected using standardized Excel worksheets. Each participating vessel will send in the information collected during a trip by the end of the trip. The data will be checked and added to the database by Floor Quirijns and/or Martin Pastoors, who will also generate standardized trip reports (using RMarkdown) which will be sent back to the vessel within one or two days. The compiled data for all vessels is being used for specific purposes, e.g. reporting to expert groups, addressing specific fishery or biological questions and supporting detailed biological studies. The PFA publishes an annual report on the self-sampling programme.

Because the self-sampling programme has been under development over the years, different numbers of vessels have been participating in the programme over different years. Results should not be interpreted as a census of the PFA fleet, but rather as an indicator of relative distributions and samples of catch and catch compositions.

3 Results

3.1 Vessels, fisheries, trips and catch in all areas

An overview of all the self-sampling trips in 2015-2019 is shown in the table below. A strong expansion of self-sampling has taken place in terms of number of vessels, trips and total catch sampled between 2015 and 2019, covering 1.3610⁵ tonnes in 2015 up to 4.3910⁵ tonnes in 2019 and covering 8 vessels in 2015 up to 17 vessels in 2019.

year	nvessels	ntrips	ndays	nhauls	catch	nlength
2015	8	43	762	1,739	136,353	127,547
2016	11	98	1,539	4,067	302,860	179,883
2017	15	122	2,038	4,951	390,184	305,365
2018	16	161	2,542	6,050	478,289	347,782
2019	17	157	2,665	6,569	439,453	296,804
(all)		581	9,546	23,376	1,747,139	1,257,381

year	catch/trip	catch/day	catch/haul
2015	3,171	178	78
2016	3,090	196	74
2017	3,198	191	78
2018	2,970	188	79
2019	2,799	164	66
(all)	3,046	183	75

Table 3.1.1: PFA selfsampling summary of the number of days, hauls, trips, vessels, catch (tonnes), number of fish measured and average catch rates (ton/trip, ton/day, ton/haul) by year

Catch by species

Species compositions in self-sampled fisheries were either derived from species proportions per haul or from ‘batch’ information, where possible connected to the haul information. Table 3.1.3 summarizes the total catch of the top-10 species for all areas (shown in decreasing quantities).

species	englishname	scientificname	2015	2016	2017	2018	2019	all
her	herring	Clupea harengus	39,071	106,403	100,317	166,848	144,297	556,936
whb	blue whiting	Micromesistius poutassou	15,551	49,411	78,808	162,556	115,449	421,775
mac	mackerel	Scomber scombrus	26,923	35,663	65,129	59,719	56,211	243,645
hom	horse mackerel	Trachurus trachurus	10,647	25,350	22,511	30,706	43,337	132,552
pil	pilchard	Sardina pilchardus	1,348	35,587	25,768	20,629	28,866	112,199
cjm	jack mackerel	Trachurus murphyi	27,775	9,432	27,652	9,620	11,789	86,268
mas	chub mackerel	Scomber japonicus	823	6,358	5,863	2,164	10,541	25,748
arg	argentines	Argentina spp	2,673	2,079	2,596	4,161	5,057	16,567
spr	sprat	Sprattus sprattus	1,828	1,110	1,541	1,040	32	5,552
saa	sardinella (round)	Sardinella aurita	0	666	820	1,512	684	3,683
reb	beaked redfish	Sebastes mentella	0	0	659	862	687	2,208
boc	boarfish	Capros aper	275	354	333	169	354	1,485
hke	hake	Merluccius merluccius	398	305	126	276	208	1,313
poa	pomfret	Brama brama	0	28	24	1	1,008	1,060
ane	anchovy	Engraulis encrasicolus	300	541	99	44	3	987
oth	NA	NA	442	1,322	1,044	1,229	952	4,989
(all)	(all)	(all)	128,054	274,611	333,290	461,535	419,476	1,616,967

Table 3.1.2: Total catch (tonnes) by species in PFA self-sampled fisheries (all areas). Top 10 species

Summary of sampled trips by FAO area

An overview of self-sampling trips by large FAO area (North Atlantic 27, West-Africa 34 and South Pacific 87) is in the table below.

area	year	nvessels	ntrips	ndays	nhauls	catch	nlength
27	2015	7	34	584	1,360	107,380	120,083
27	2016	10	74	1,124	2,852	252,238	142,967
27	2017	14	98	1,511	3,475	328,819	203,855
27	2018	16	145	2,214	5,179	443,948	285,411
27	2019	16	137	2,076	4,779	378,976	211,459
27	(all)		488	7,509	17,645	1,511,361	963,775
34	2016	3	20	320	1,046	40,337	29,989
34	2017	4	14	250	861	31,712	80,681
34	2018	4	11	198	635	24,105	57,679
34	2019	4	17	504	1,628	48,362	77,665
34	(all)		62	1,272	4,170	144,516	246,014
87	2015	2	9	178	379	28,972	7,464
87	2016	1	4	95	169	10,284	6,927
87	2017	2	10	277	615	29,652	20,829
87	2018	1	5	130	236	10,234	4,692
87	2019	1	3	85	162	12,114	7,680
87	(all)		31	765	1,561	91,256	47,592
(all)	(all)		581	9,546	23,376	1,747,133	1,257,381
area	year	catchpertrip		catchperday		catchperhaul	
27	2015	3,158		183		78	
27	2016	3,408		224		88	
27	2017	3,355		217		94	
27	2018	3,061		200		85	
27	2019	2,766		182		79	
27	(all)	3,150		201		85	
34	2016	2,016		126		38	
34	2017	2,265		126		36	
34	2018	2,191		121		37	
34	2019	2,844		95		29	
34	(all)	2,329		117		35	
87	2015	3,219		162		76	
87	2016	2,571		108		60	
87	2017	2,965		107		48	
87	2018	2,046		78		43	
87	2019	4,038		142		74	
87	(all)	2,968		119		60	
(all)	(all)	2,850		148		62	

Table 3.1.3: PFA selfsampling summary of the number of days, hauls, trips, vessels, catch (tonnes), number of fish measured and average catch rates (ton/trip, ton/day, ton/haul) by year

Catch by species and large FAO area

The total catch in self-sampled fisheries for the top five species in each of the large FAO areas 27, 34 and 87,

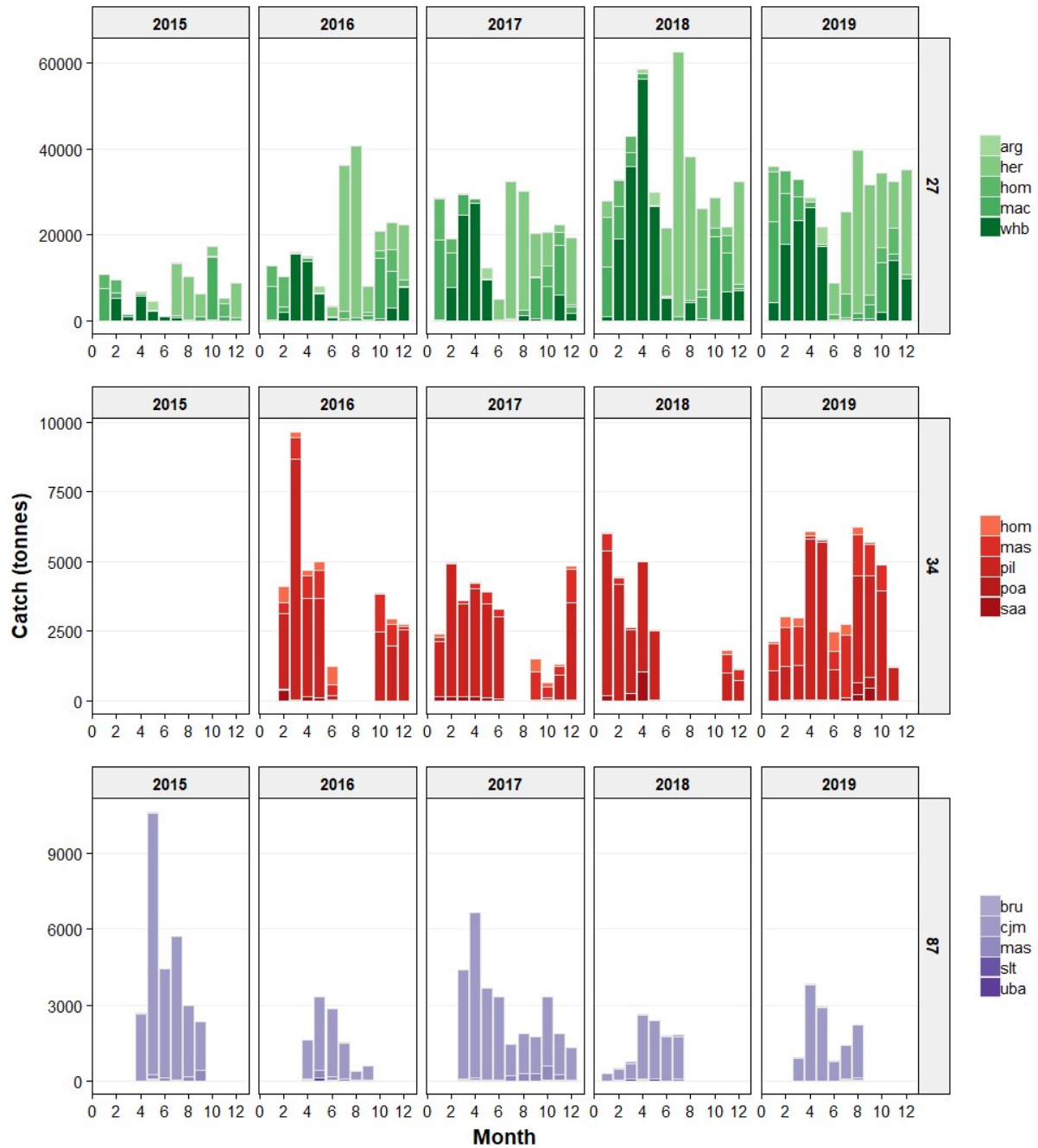


Figure 3.1.1: Total catch (tonnes) by month and species in PFA self-sampled fisheries, plotted by year and FAO area

3.2 Fisheries in the Northeast Atlantic (FAO area 27)

year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/trip	catch/day	catch/haul
2015	6	32	531	1,199	99,214	104,656	3,100	186	82
2016	9	69	1,022	2,440	229,060	121,176	3,319	224	93
2017	14	85	1,265	2,853	272,099	197,827	3,201	215	95
2018	16	136	2,022	4,692	427,200	300,586	3,141	211	91
2019	16	133	1,974	4,470	363,760	215,164	2,735	184	81
(all)	.	455	6,814	15,654	1,391,333	939,409	.	.	.

Table 3.2.1: Self-sampling summary in area 27 (Northeast Atlantic)

species	englishname	scientificname	2015	2016	2017	2018	2019	all
her	herring	Clupea harengus	39,071	106,403	100,317	166,848	144,297	556,936
whb	blue whiting	Micromesistius poutassou	15,551	49,411	78,808	162,556	115,449	421,775
mac	mackerel	Scomber scombrus	26,923	35,551	65,046	59,719	56,211	243,449
hom	horse mackerel	Trachurus trachurus	10,647	23,118	21,480	30,400	40,934	126,579
arg	argentines	Argentina spp	2,673	2,079	2,596	4,161	5,057	16,567
pil	pilchard	Sardina pilchardus	1,348	10,019	998	832	243	13,439
spr	sprat	Sprattus sprattus	1,828	1,110	1,541	1,040	32	5,552
reb	beaked redfish	Sebastes mentella	0	0	659	862	687	2,208
boc	boarfish	Capros aper	275	290	254	169	354	1,341
hke	hake	Merluccius merluccius	398	288	126	276	208	1,296
oth	NA	NA	499	792	276	338	288	2,193
(all)	(all)	(all)	99,214	229,061	272,099	427,201	363,761	1,391,336

Table 3.2.2: Catches by species in area 27 (Northeast Atlantic)

Sampled hauls by year and quarter

Overview of sampled hauls in the Northeast Atlantic.

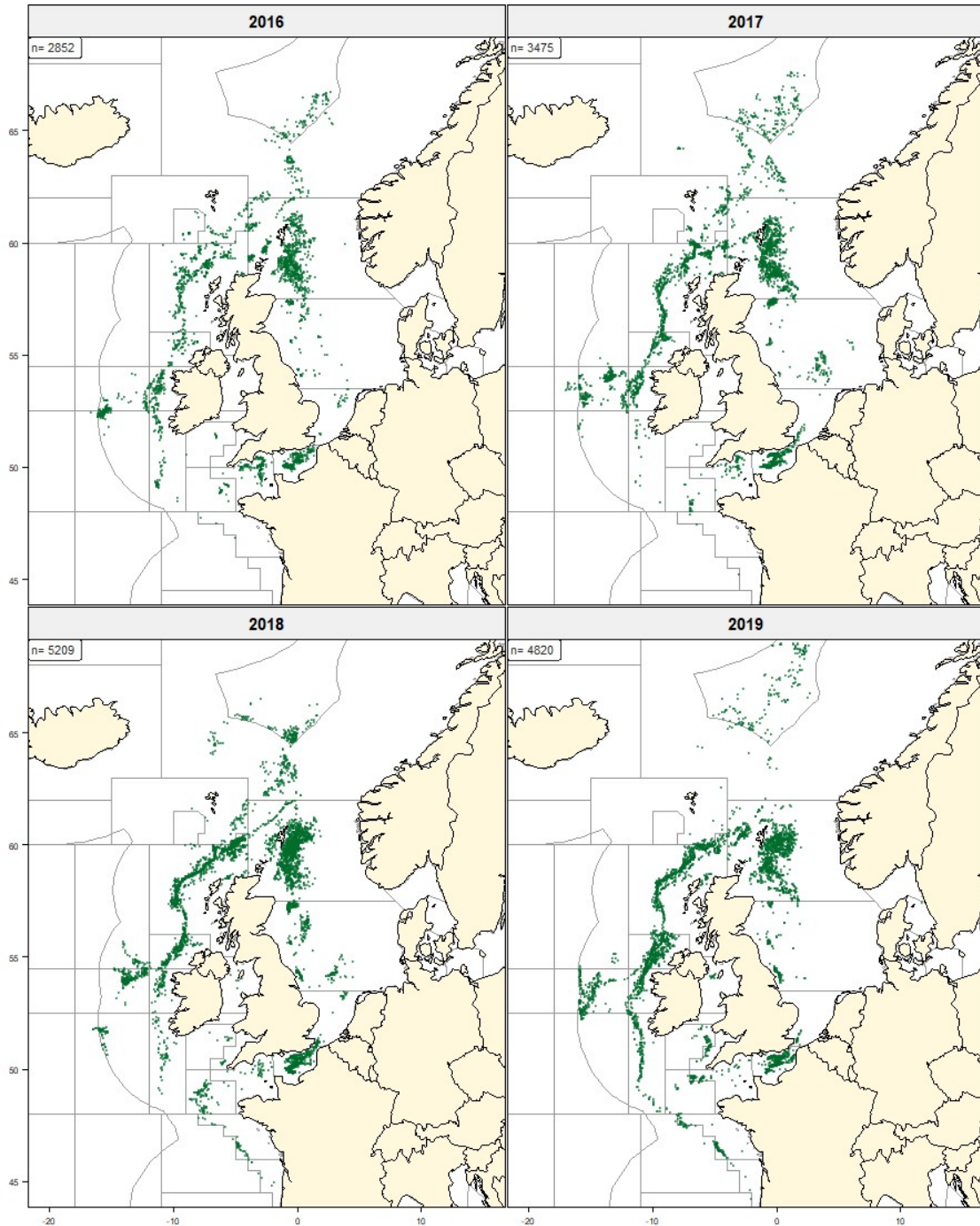


Figure 3.2.1: Number of hauls in PFA self-sampled fisheries in FAO area 27 (Northeast Atlantic) by year and quarter. n indicates the total number of hauls

Catches for the main target species

Summed catches (tonnes) of the main target species aggregated in rectangles of 2 x 1 degrees. The four main target species are the species with the highest overall catch.

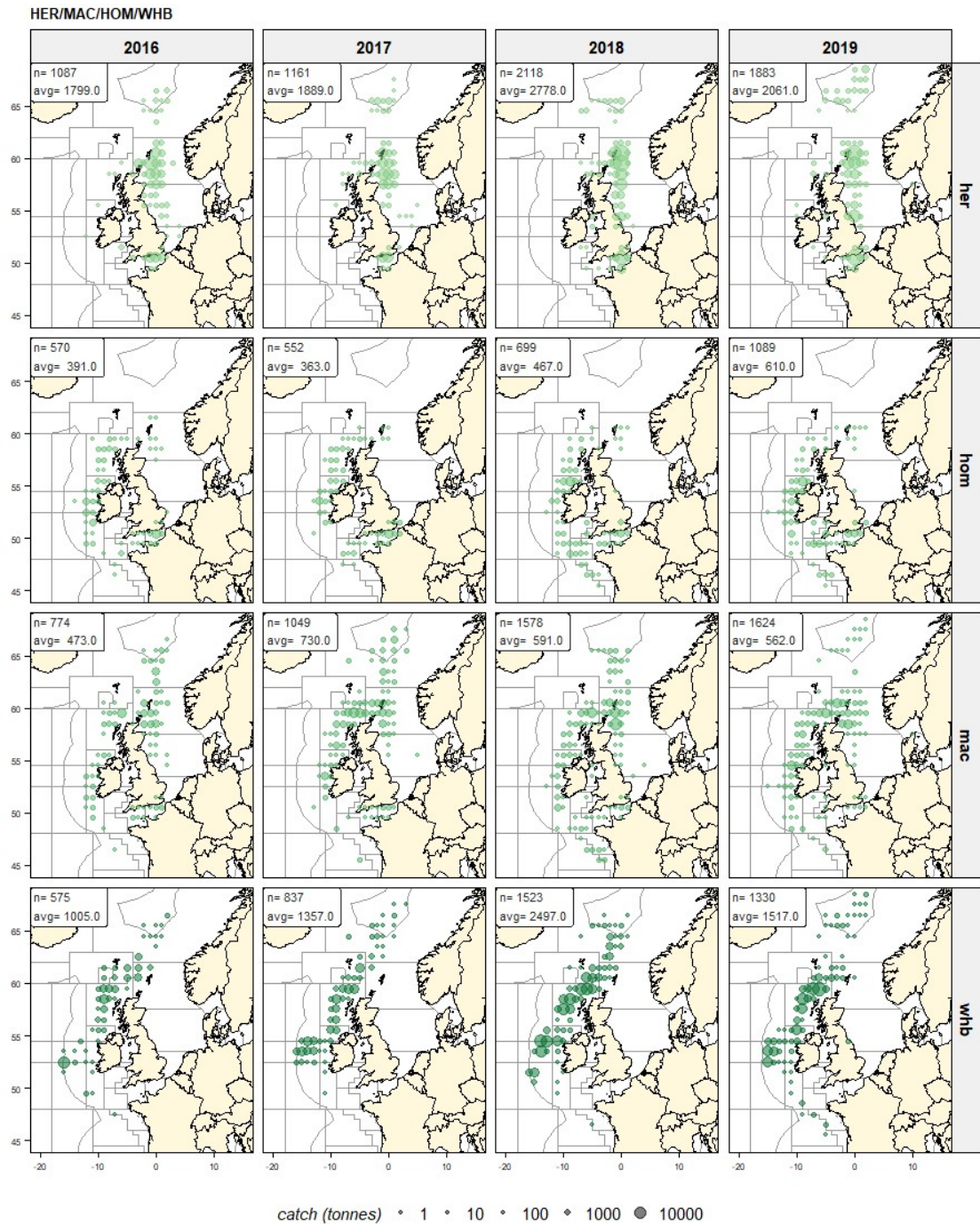


Figure 3.2.2: Catch (ton) of the main target species in PFA self-sampled fisheries in FAO area 27 (Northeast Atlantic)

Catch rates for the lesser target species

Summed catches (tonnes) of the lesser target species aggregated in rectangles of 2 x 1 degrees.

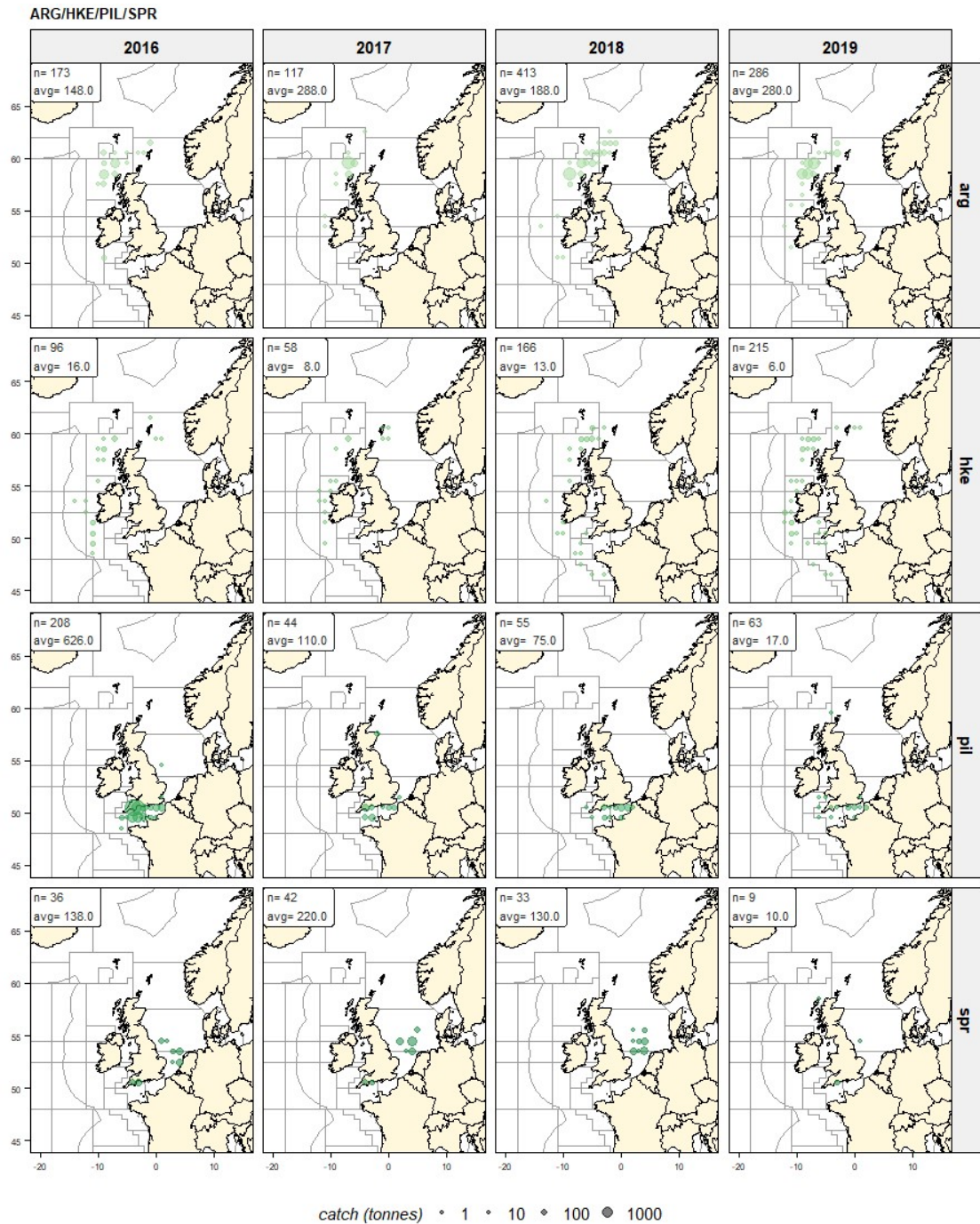


Figure 3.2.3: Catch (ton) of the lesser target species in PFA self-sampled fisheries in FAO area 27 (Northeast Atlantic)

Average surface temperature by quarter and by rectangle.

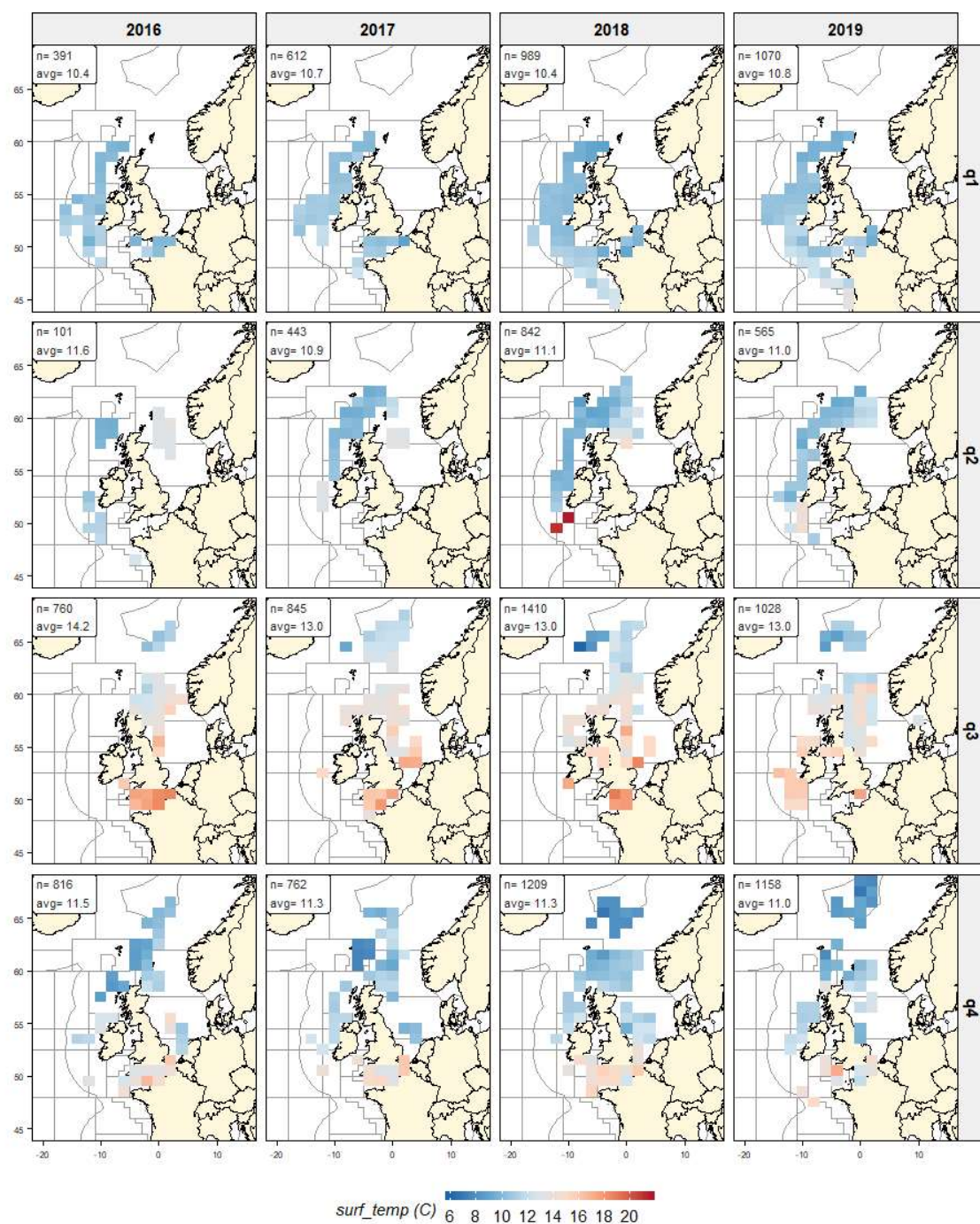


Figure 3.2.4: Mean surface temperature measured by PFA self-sampling fishing vessels in FAO area 27 (Northeast Atlantic)

Average fishing depth.

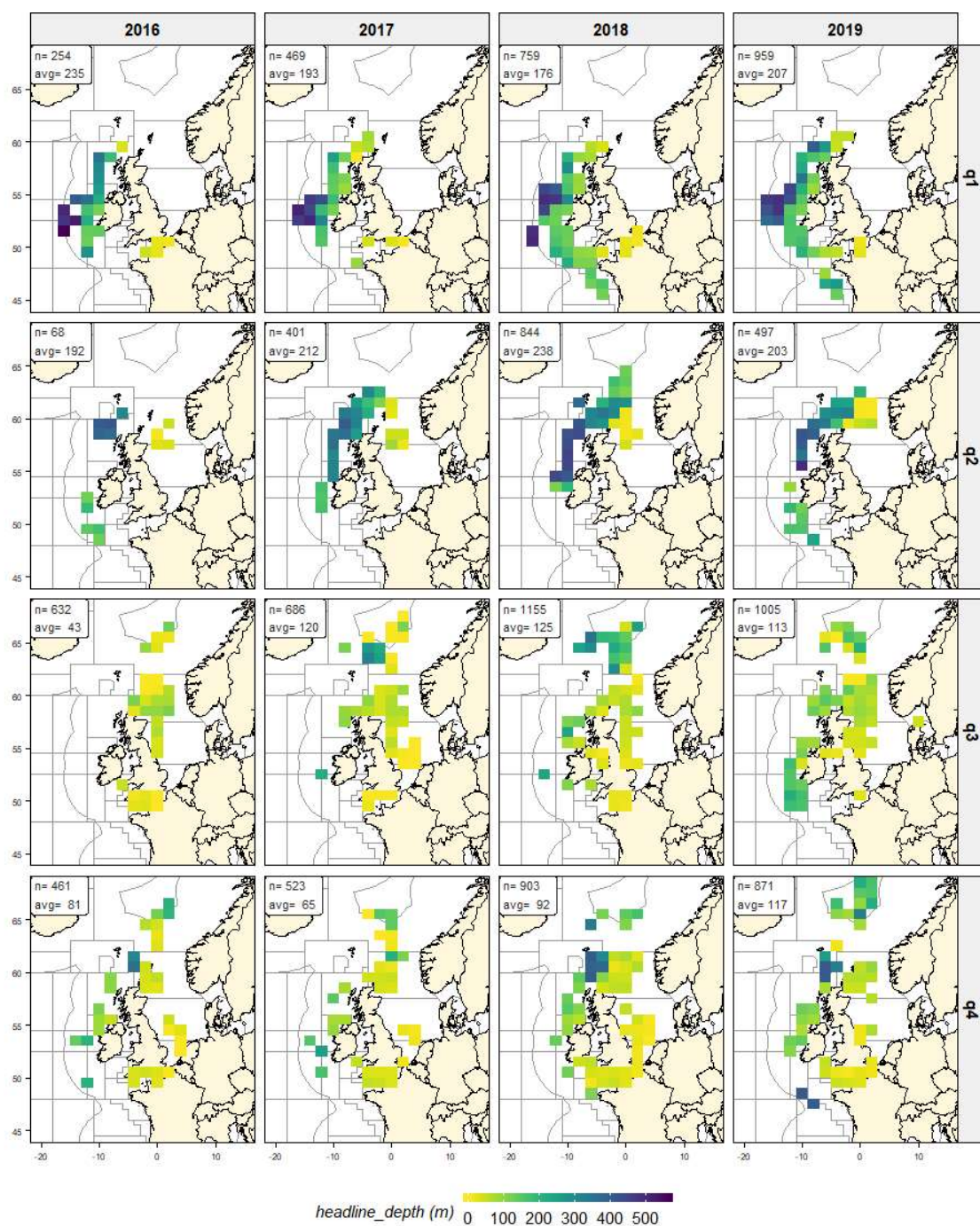


Figure 3.2.5: Mean fishing depth (m) in PFA self-sampled fisheries in FAO area 27 (Northeast Atlantic)

Average wind force

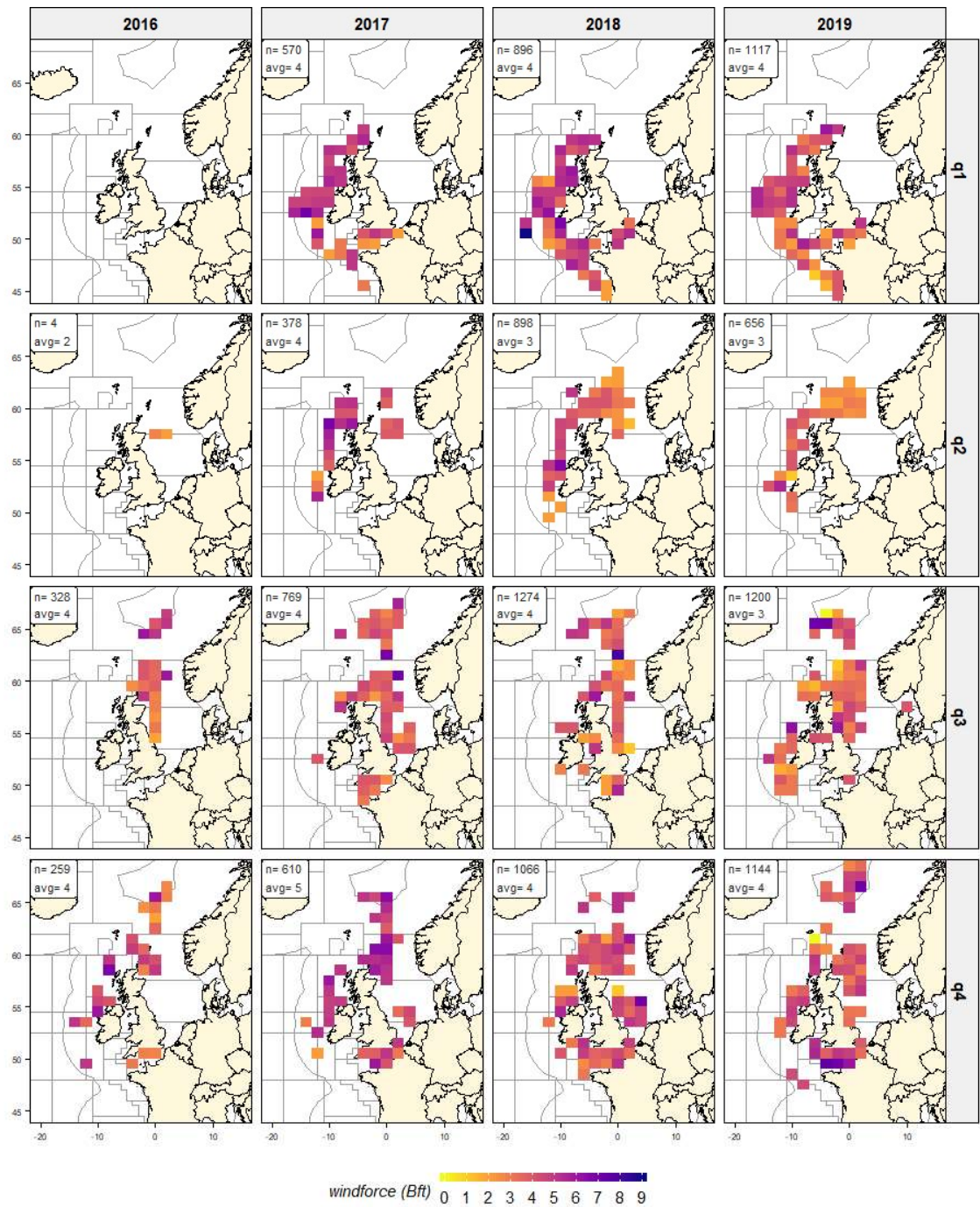


Figure 3.2.6: Mean wind force (bft) in PFA self-sampled fisheries in FAO area 27 (Northeast Atlantic)

3.3 Fisheries in the Western Africa (FAO area 34)

year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/trip	catch/day	catch/haul
2016	3	18	280	871	35,266	29,989	1,959	125	40
2017	4	14	244	813	31,538	80,705	2,252	129	38
2018	4	11	195	599	24,099	57,679	2,190	123	40
2019	4	15	459	1,383	43,600	75,014	2,906	94	31
(all)	.	58	1,178	3,666	134,503	243,387	.	.	.

Table 3.3.1: Self-sampling summary in area 34 (West Africa)

species	englishname	scientificname	2016	2017	2018	2019	all
pil	pilchard	Sardina pilchardus	25,568	24,770	19,797	28,623	98,759
mas	chub mackerel	Scomber japonicus	5,684	4,027	2,046	10,418	22,175
hom	horse mackerel	Trachurus trachurus	2,232	1,032	306	2,403	5,973
saa	sardinella (round)	Sardinella aurita	666	820	1,512	684	3,683
poa	pomfret	Brama brama	21	24	1	1,008	1,054
lht	largehead hairtail	Trichiurus lepturus	364	0	0	4	368
bon	bonito	Sarda sarda	73	122	24	136	355
fri	frigate tuna	Auxis thazard	63	29	226	11	329
blt	bullet tuna	Auxis rochei	17	121	16	67	221
jax	horse mackerels	Trachurus spp	0	181	30	0	211
oth	NA	NA	577	412	142	245	1,376
(all)	(all)	(all)	35,266	31,539	24,099	43,601	134,506

Table 3.3.2: Catches by species in area 34 (West Africa)

Sampled hauls by year and quarter

Number of sampled hauls in the west African waters, aggregated in rectangles of 0.5 x 0.5 degrees.

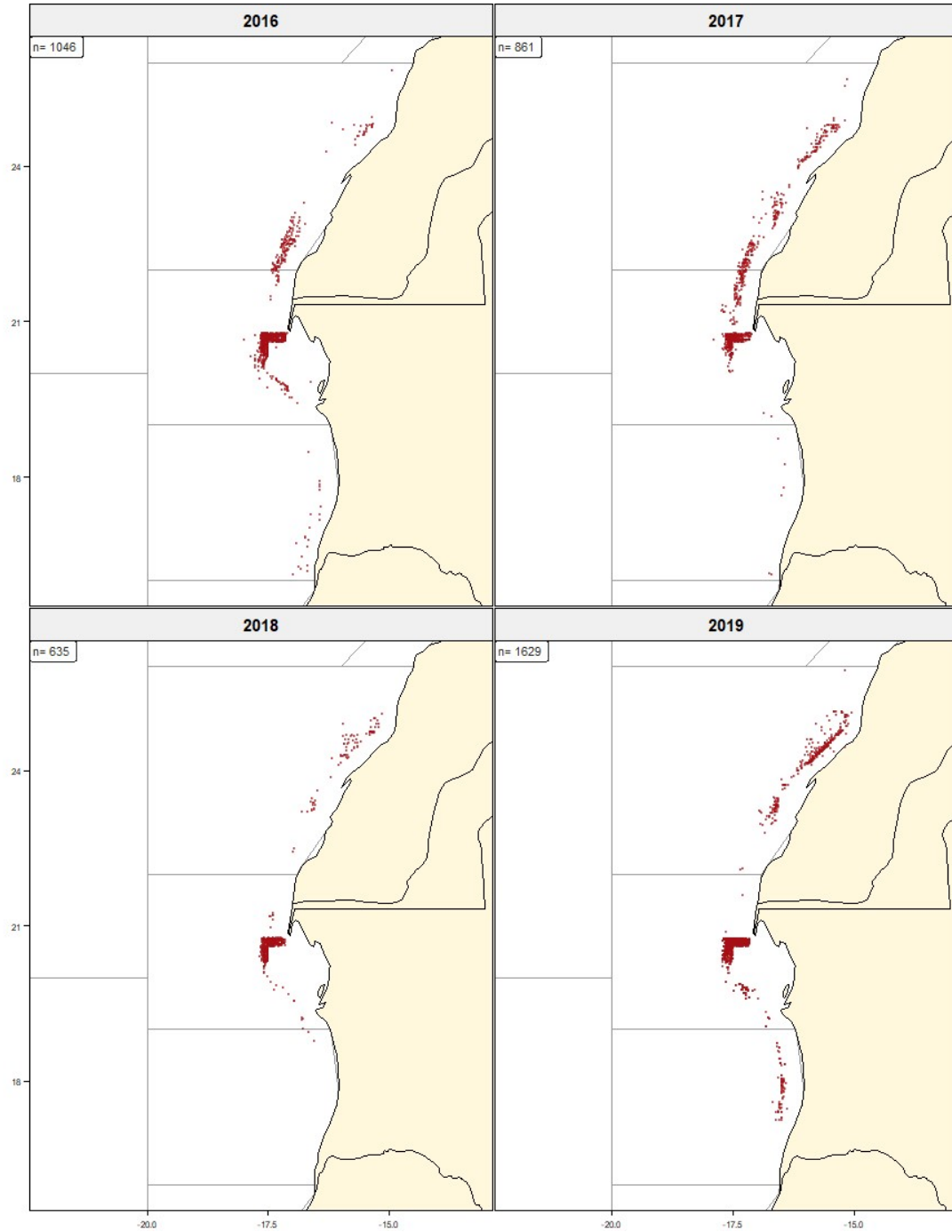


Figure 3.3.1: Number of hauls in PFA self-sampled fisheries in FAO area 34 (west African waters) by year and quarter. *n* indicates the total number of hauls

Catch for the main target species

The summed catches of the main target species aggregated in rectangles of 0.5 x 0.5 degrees.

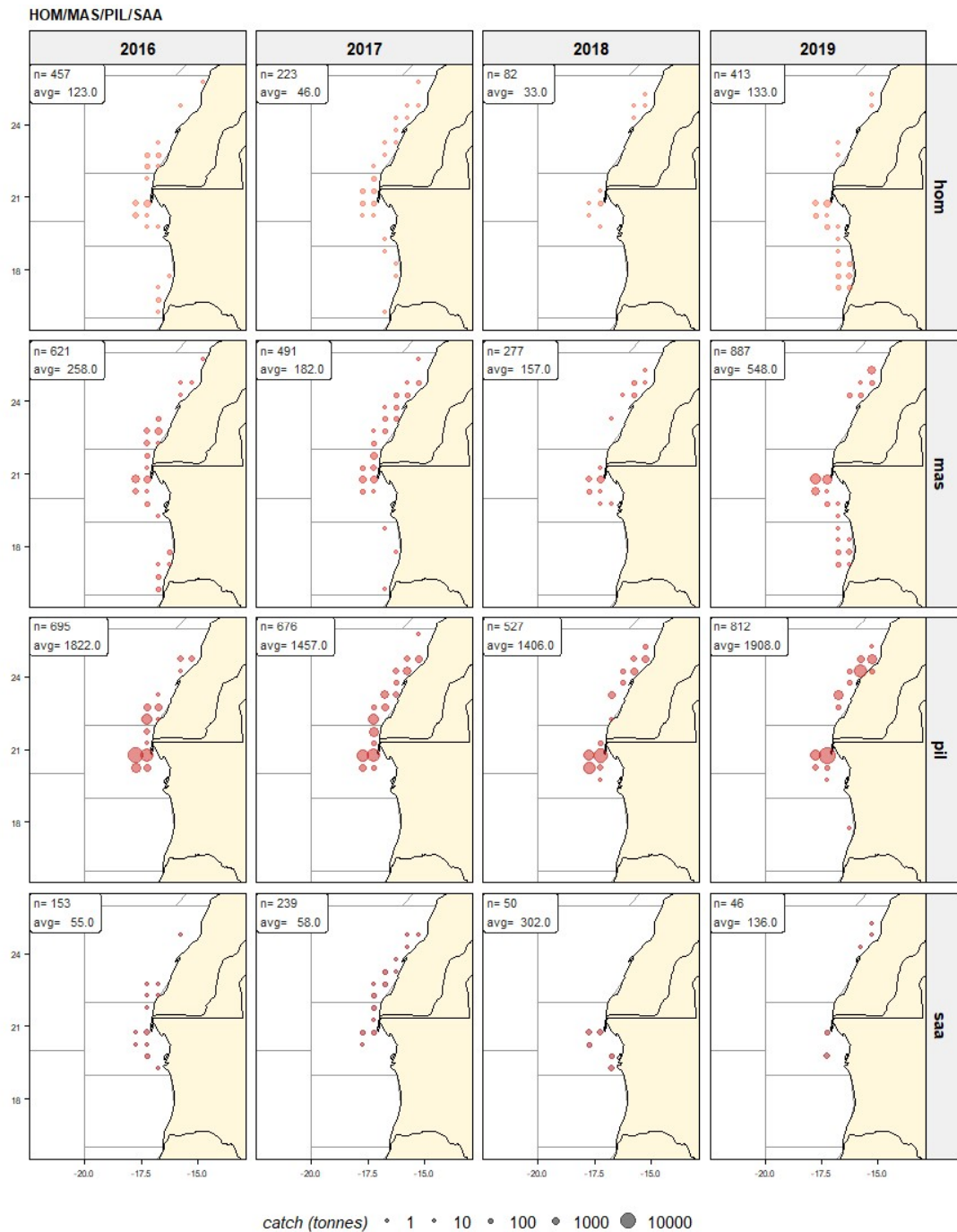


Figure 3.3.2: Catch (ton) of the main target species in PFA self-sampled fisheries in FAO area 34 (west African waters)

Average surface temperature by quarter and by rectangle.

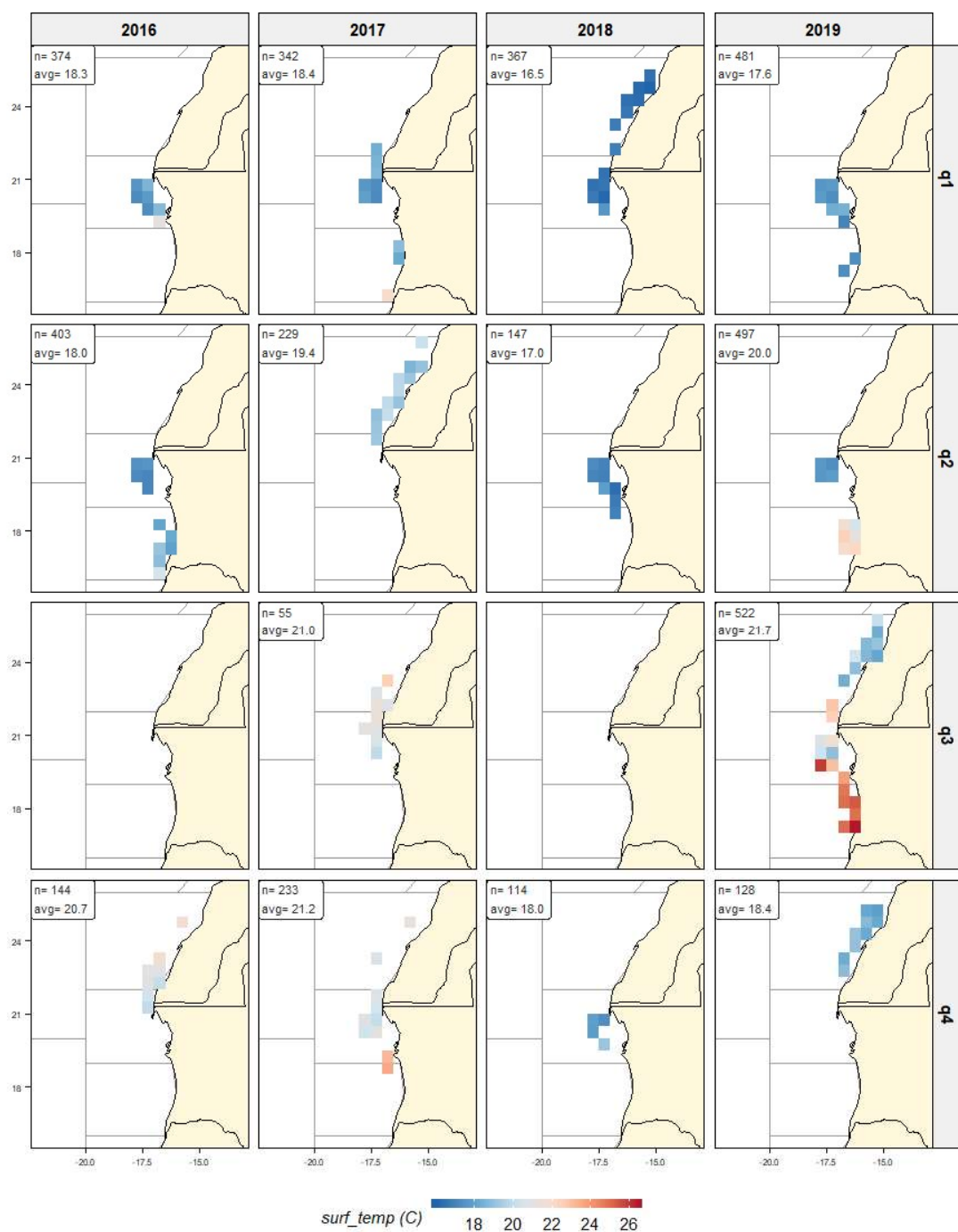


Figure 3.3.3: Mean surface temperature measured by PFA self-sampling fishing vessels in FAO area 34 (west African waters)

Average fishing depth.

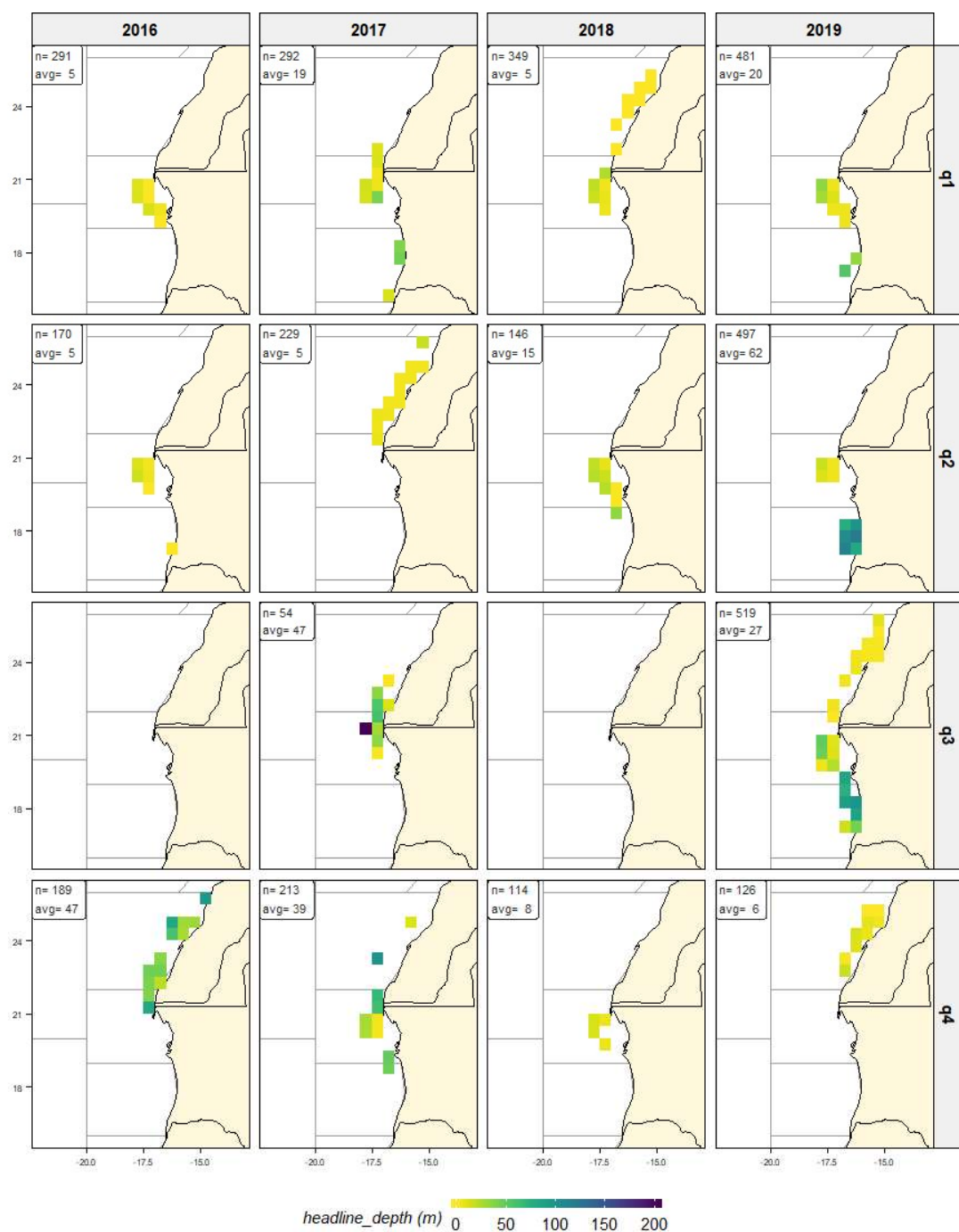


Figure 3.3.4: Mean fishing depth (m) in PFA self-sampled fisheries in FAO area 34 (west African waters)

Average wind force

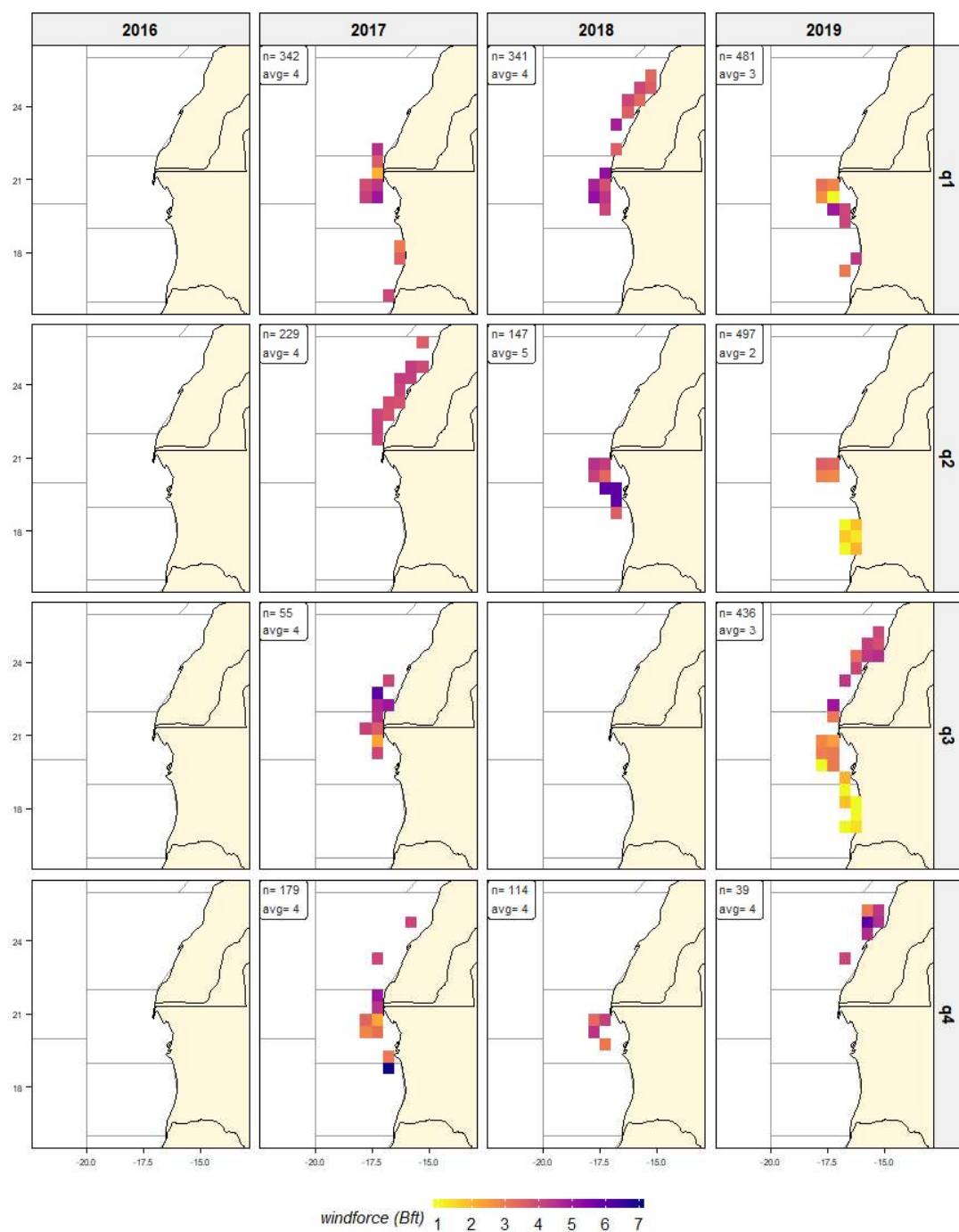


Figure 3.3.5: Mean wind force (bft) in PFA self-sampled fisheries in FAO area 34 (west African waters)

3.4 Fisheries in the Southern Pacific (FAO area 87)

year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/trip	catch/day	catch/haul
2015	2	9	169	341	28,840	7,299	3,204	170	84
2016	1	4	87	153	10,284	6,927	2,571	118	67
2017	2	10	263	549	29,652	20,829	2,965	112	54
2018	1	5	126	216	10,234	4,692	2,046	81	47
2019	1	3	85	154	12,114	7,680	4,038	142	78
(all)	.	31	730	1,413	91,124	47,427	.	.	.

Table 3.4.1: Self-sampling summary in area 87 (South Pacific)

species	englishname	scientificname	2015	2016	2017	2018	2019	all
cjm	jack mackerel	Trachurus murphyi	27,775	9,432	27,652	9,620	11,789	86,268
mas	chub mackerel	Scomber japonicus	823	674	1,837	117	123	3,573
bru	rays bream	Brama australis	152	24	83	290	128	677
uba	blue fathead	Cubiceps caeruleus	55	146	80	208	38	527
slt	slender tuna	Allothunnus fallai	36	0	0	0	0	36
bpq	NA	Brama japonica	0	0	0	0	32	32
poa	pomfret	Brama brama	0	6	0	0	0	6
bep	NA	Sarda chiliensis	0	0	0	0	2	2
ytic	yellowtail amberjack	Seriola lalandi	0	2	0	0	0	2
skj	skipjack tuna	Katsuwonus pelamis	0	0	0	0	2	2
oth	NA	NA	0	0	0	0	1	1
(all)	(all)	(all)	28,840	10,284	29,652	10,235	12,115	91,126

Table 3.4.2: Catches by species in area 87 (South Pacific)

Sampled hauls by year and quarter

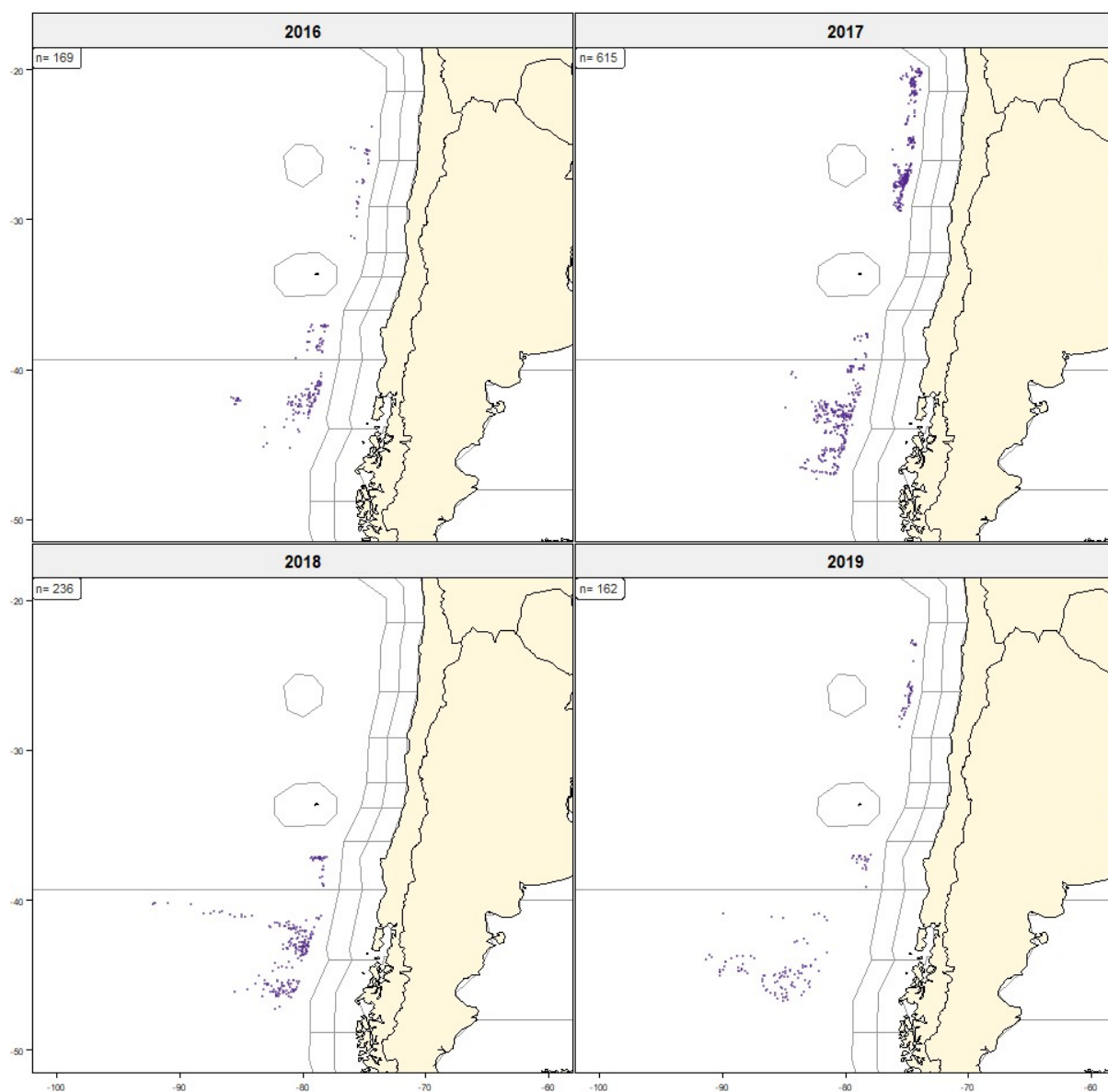


Figure 3.4.1: Number of hauls in PFA self-sampled fisheries in FAO area 87 (South Pacific) by year and quarter. *n* indicates the total number of hauls

Catches for the main target species

Summed catches (ton) of the main target species aggregated in rectangles of 2 x 2 degrees. The four main target species are the species with the highest overall catch.

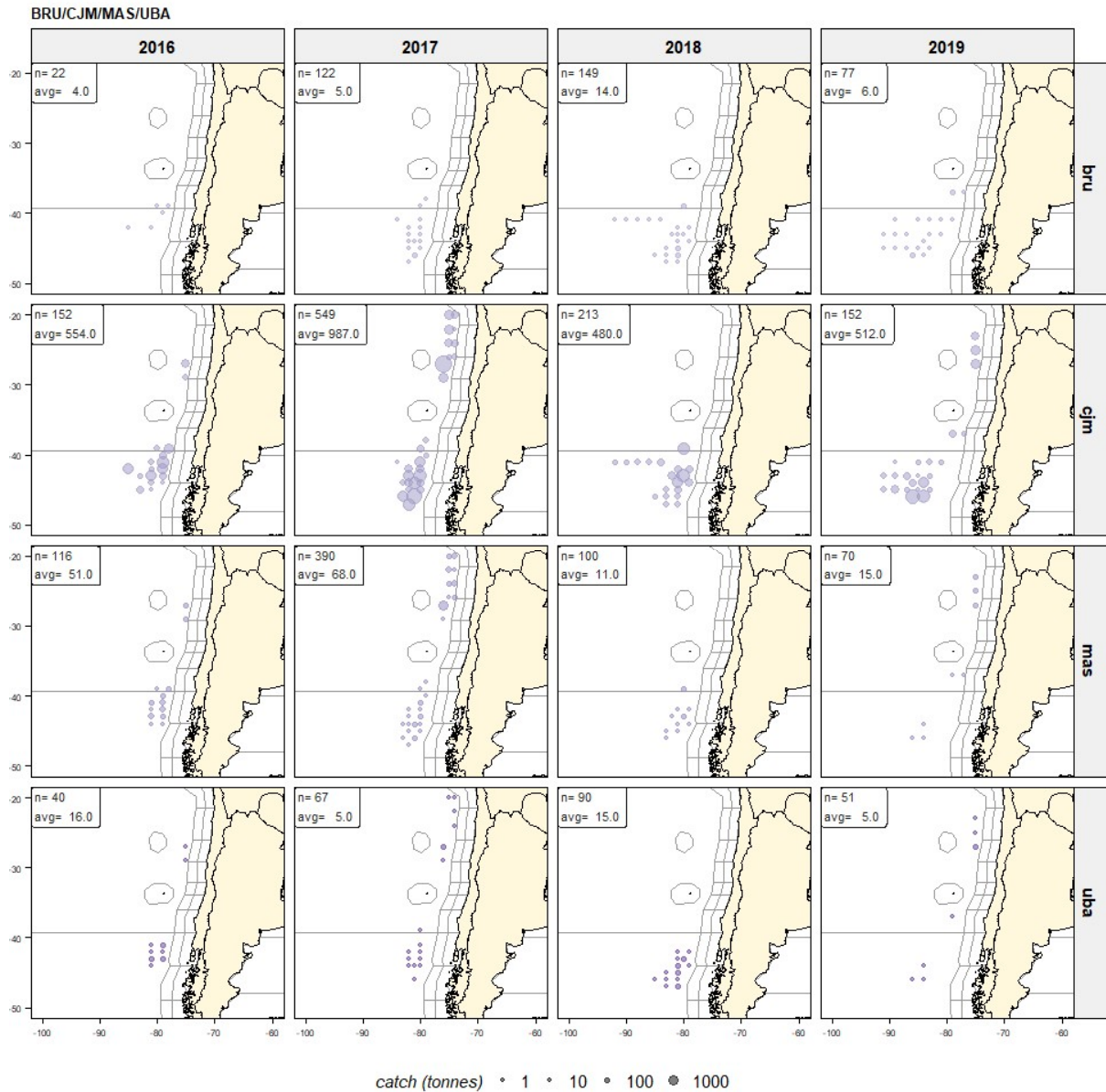


Figure 3.4.2: Catches (ton) of the main species in PFA self-sampled fisheries in FAO area 87 (South Pacific)

Average surface temperature by quarter and by rectangle.

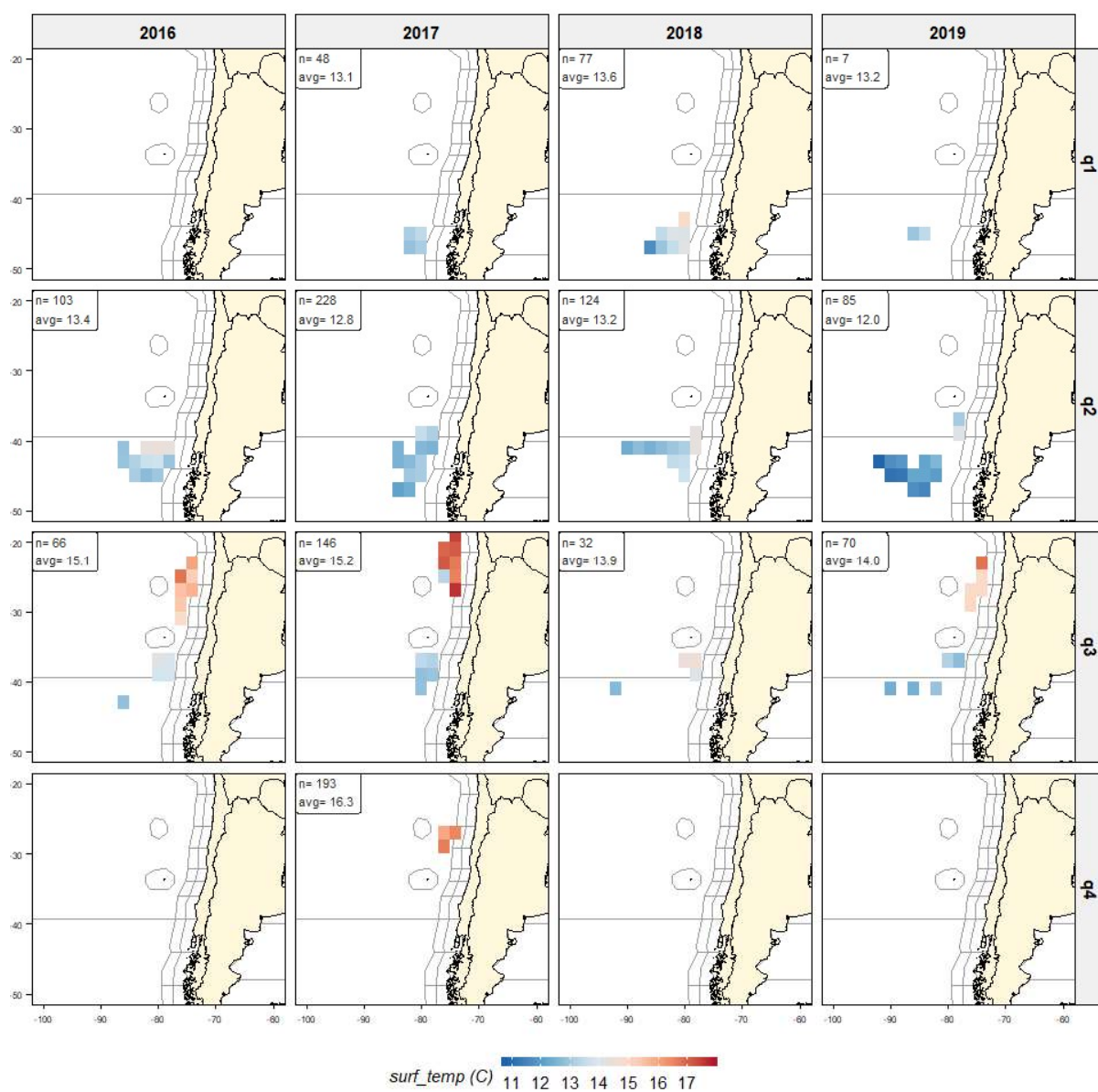


Figure 3.4.3: Mean surface temperature measured by PFA self-sampling fishing vessels in FAO area 87 (South Pacific)

Average fishing depth.

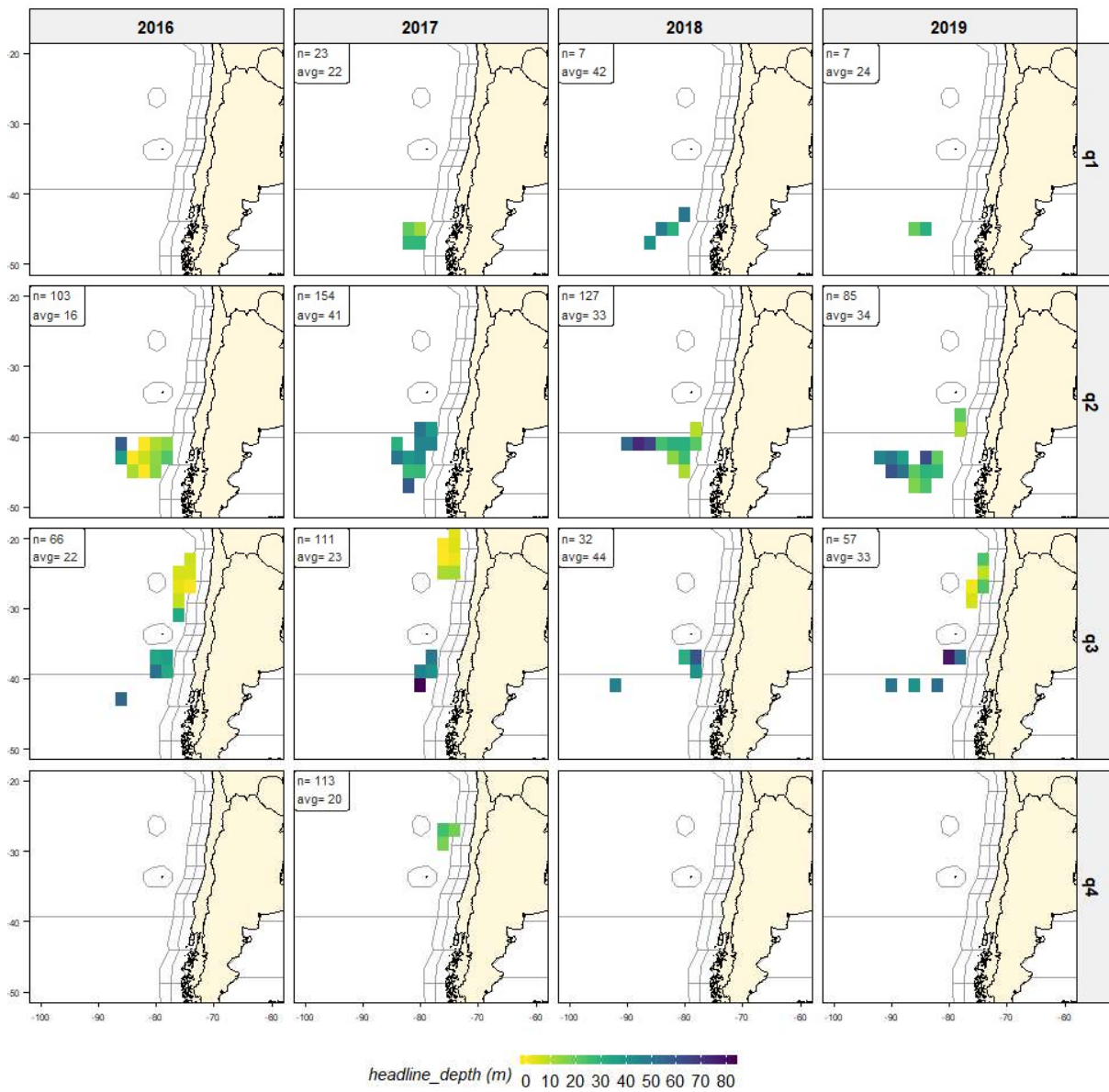


Figure 3.4.4: Mean fishing depth (m) in PFA self-sampled fisheries in FAO area 87 (South Pacific)

Average wind force

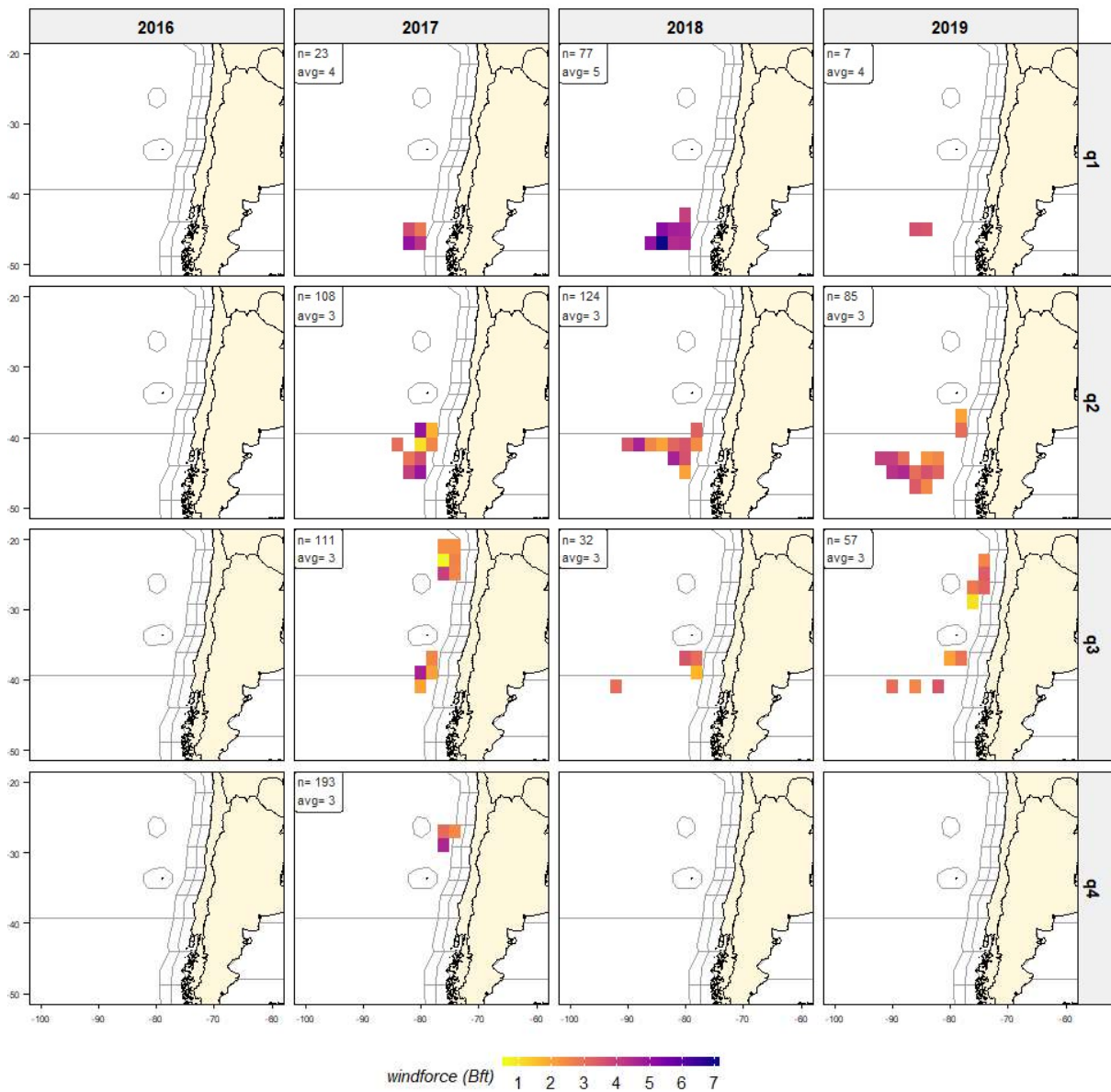


Figure 3.4.5: Mean wind force (bft) in PFA self-sampled fisheries in FAO area 87 (South Pacific)

4 Discussion and conclusions

This report mostly consists of the presentation of approach and generic results of the self-sampling program initiated by the PFA in 2015. The self-sampling program has clearly developed over the course of the 5 years and has achieved a substantial level of standardization and harmonization. In the design of the self-sampling program, the intention was to stay as close as possible to the standard operations that are carried out on board of the vessels during the different fisheries. That is why the biological measurements (e.g. mean weight, mean length, fat content etc) are taken from the routine sampling that is carried out on the vessels. What we added to the on-going activities was a standardization of the recording of haul information, a methodology to assess the species composition per haul and the measurement of the individual lengths of a subsample of fish (by haul or by production unit 'batch'). Thus, while the self-sampling program is requiring extra efforts on behalf of the crews of the participating vessels, we have tried to make that extra effort as small as possible.

Depending on the number of crew and the space available on the vessel, certain types of measurements can or cannot be carried out. That is why the program is essentially tuned to each vessel separately. And that is also the reason that the totals presented in this report can be somewhat different dependent on which variable is used. For example the estimate of total catch may be slightly different from the sum of the catch per species because not all vessels have supplied data on the species composition of every catch.

By the end of 2019, all vessels are participating in the PFA self-sampling program.

A comparison between self-sampling data and scientific observer data has been carried out during 2018 (Pastoors, M. A. et al, 2018). Over the years 2015-2017 the analysis has shown that around 35% of the catch has been covered by scientific observers and 8 trips were covered by both self-sampling and scientific observers. The overall number of length measurements between the self-sampling and observer trips is comparable, but self-sampling samples fewer fish per trip but more (all) trips while the observer program measures more fish but on fewer trips. Comparisons of the cumulative catch per trip show close correspondence between the two sampling programs, as does the species compositions. Length compositions per sampled trips and hauls were generally comparable. However, during three out of the eight trips, differences were observed in the overall length compositions. These were shown to derive from either problems in the sampling method employed by one of the scientific observers or by the lower number of measurements in the self-sampling program. A comparison of the overall length compositions by year derived from all self-sampled trips or derived from the raised observer trips, demonstrates that the self-sampling covers a wider part of the fishery (season, area) which explains some of the differences between the two

data sources. Thus self-sampling provides a substantial improvement in the coverage of the fishery and thereby a more realistic length composition to be used in the assessment of jack mackerel. The combination of self-sampling and observer trips allows for quality control of both programs while being able to assure a wide coverage of the fishing season.

The PFA self-sampling results are being used as source of information and as input to the stock assessments of many different science groups. In those cases, dedicated reports are generated for the specific groups with the focus on the key areas of interest for those groups. During 2019 dedicated self-sampling reports have been generated for the ICES groups HAWG, WGDEEP and WGWIDE, for the CECAF West Africa assessment group and for the SPRFMO Science Committee.

5 Acknowledgements

The skippers, officers and the quality managers of many of the PFA vessels are putting in a lot of effort to make the PFA the self-sampling work. Without their efforts, there would be no self-sampling.

6 Publications

Pastoors, M. A., A. T. M. Van Helmond, H. M. J. Van Overzee, I. Wojcek and S. Verver (2018). Comparison of PFA self-sampling with EU observer data, SPRFMO, SC6-JM04.

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Pastoors, M. A. (2019). PFA selfsampling report for WGDEEP 2018, PFA. 2019/06.

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7 More information

Please contact Martin Pastoors (mpastoors@pelagicfish.eu) if you would have any questions on the PFA self-sampling program or the specific results presented here.

8 Appendices by species and area

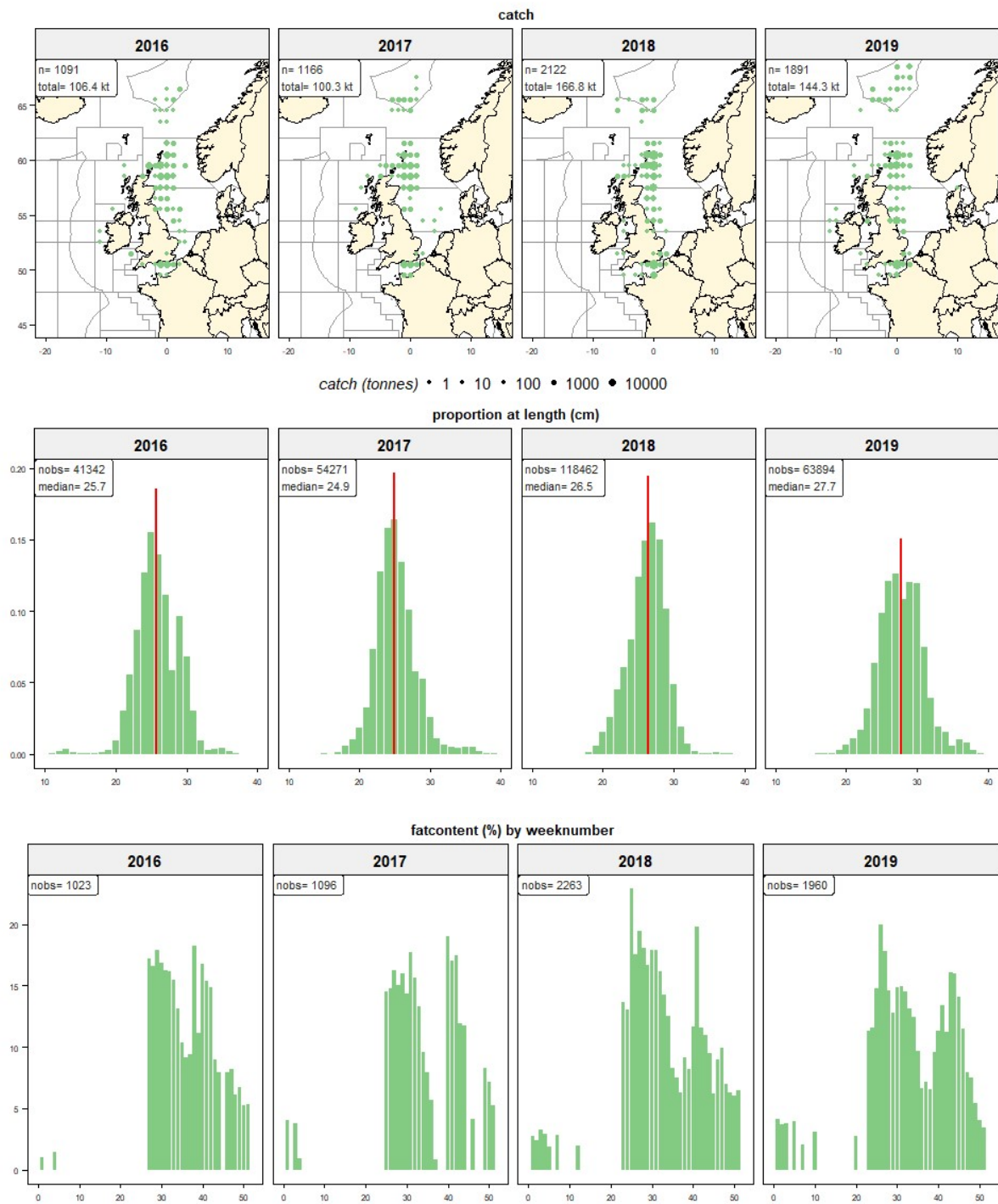
Herring (*Clupea harengus*) in FAO area 27 (Northeast Atlantic)

Self sampling summary for Herring in FAO area 27 (Northeast Atlantic)

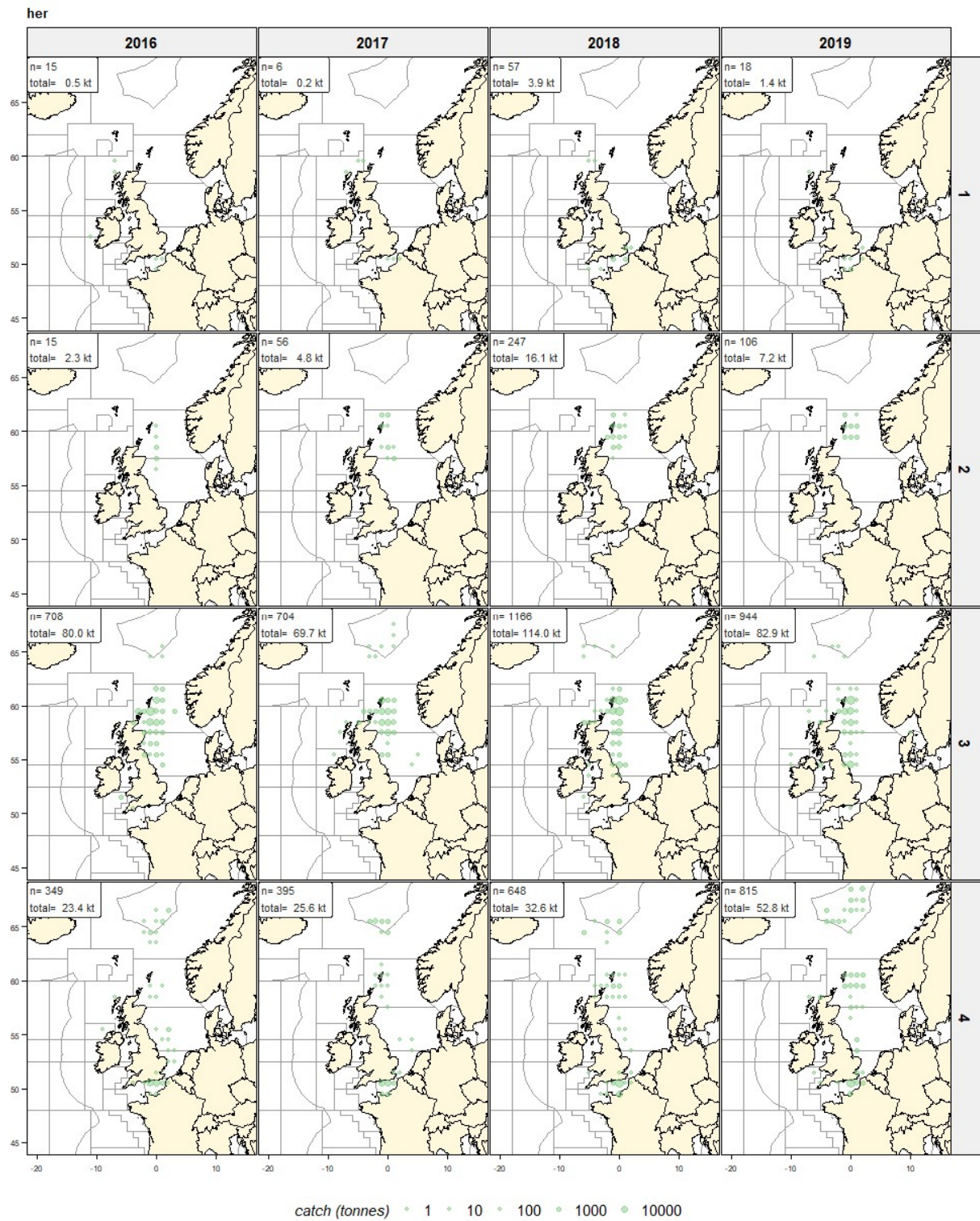
species	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
her	2015	5	20	199	483	39,071	39,162	196
her	2016	9	49	440	1,091	106,403	41,342	241
her	2017	12	52	466	1,166	100,316	54,271	215
her	2018	16	87	827	2,092	166,848	97,886	201
her	2019	14	75	744	1,890	144,296	63,894	193
her	(all)	.	283	2,676	6,722	556,934	296,555	.

species	division	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
her	27.2.a	2015	2	2	9	18	1,369	1,260	152
her	27.2.a	2016	6	7	40	85	3,362	1,206	84
her	27.2.a	2017	4	7	42	83	7,950	2,210	189
her	27.2.a	2018	4	5	37	68	5,277	514	142
her	27.2.a	2019	5	6	58	146	12,256	3,714	211
her	27.4.a	2015	5	13	106	259	22,523	22,088	212
her	27.4.a	2016	9	26	248	604	70,031	26,225	282
her	27.4.a	2017	11	28	262	636	59,415	35,551	226
her	27.4.a	2018	15	54	463	1,168	98,543	62,294	212
her	27.4.a	2019	11	41	380	922	71,859	28,784	189
her	27.4.b	2015	3	7	25	41	4,173	1,749	166
her	27.4.b	2016	9	19	53	108	11,873	1,952	224
her	27.4.b	2017	10	17	66	154	14,011	6,441	212
her	27.4.b	2018	12	22	144	297	31,427	14,593	218
her	27.4.b	2019	10	20	117	250	26,824	11,797	229
her	27.7.d	2015	4	6	44	130	8,920	10,354	202
her	27.7.d	2016	7	15	78	246	18,824	10,757	241
her	27.7.d	2017	9	12	79	260	17,128	8,581	216
her	27.7.d	2018	11	19	143	492	27,710	16,744	193
her	27.7.d	2019	12	21	156	508	29,963	13,655	192
her	other	2015	4	7	19	35	2,085	3,710	109
her	other	2016	7	12	29	48	2,311	1,201	79
her	other	2017	7	10	23	33	1,811	1,487	78
her	other	2018	8	18	48	67	3,889	3,741	81
her	other	2019	8	17	43	64	3,392	5,943	78
her	(all)	2015		35	203	483	39,070	39,161	
her	(all)	2016		79	448	1,091	106,401	41,341	
her	(all)	2017		74	472	1,166	100,315	54,270	
her	(all)	2018		118	835	2,092	166,846	97,886	
her	(all)	2019		105	754	1,890	144,294	63,893	
her	(all)	(all)		411	2,712	6,722	556,926	296,551	

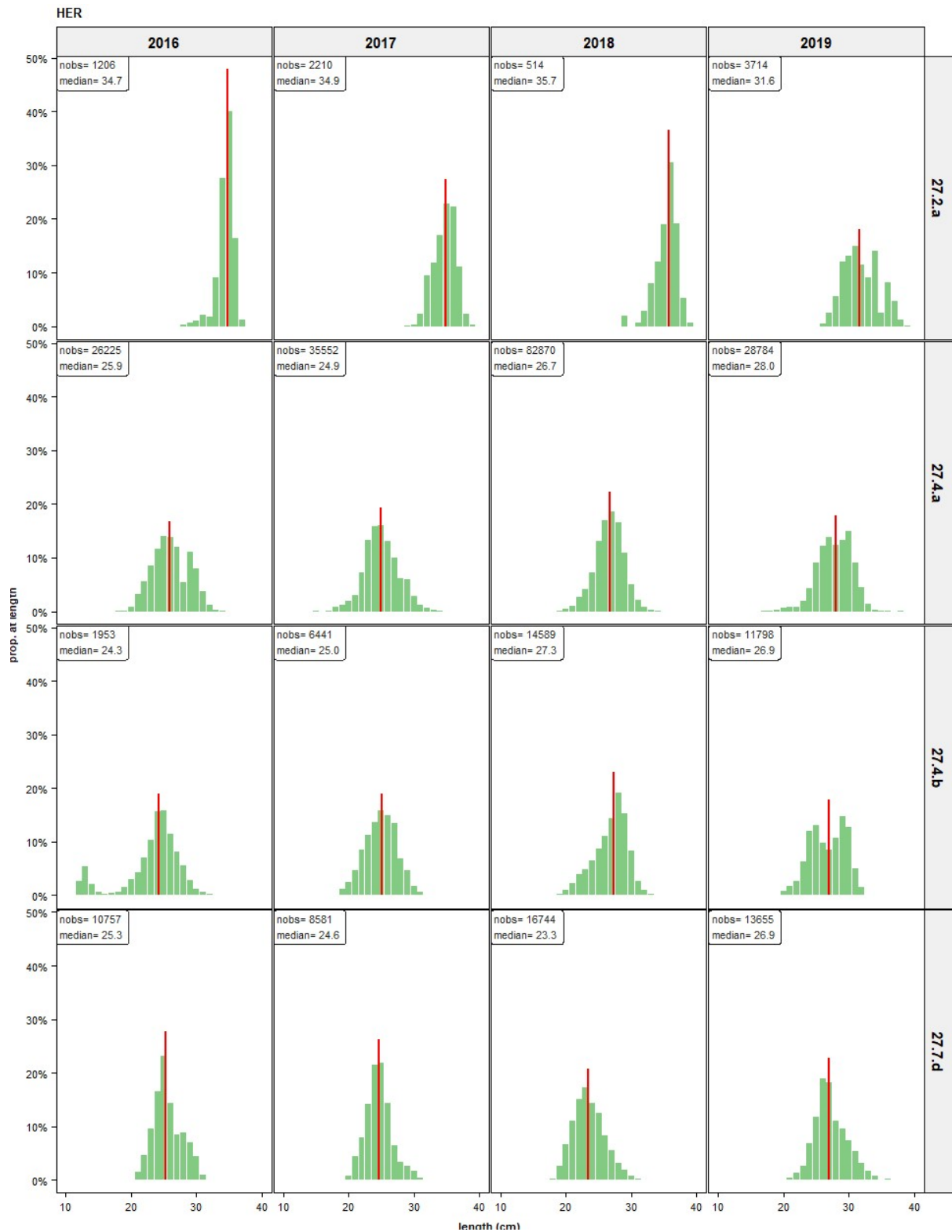
Overview of self-sampling data for Herring fisheries: catch by year, proportion at length, and average fat content by week.



Herring catch by year and quarter



Herring length by division



Mackerel (*Scomber scombrus*) in FAO area 27 (Northeast Atlantic)

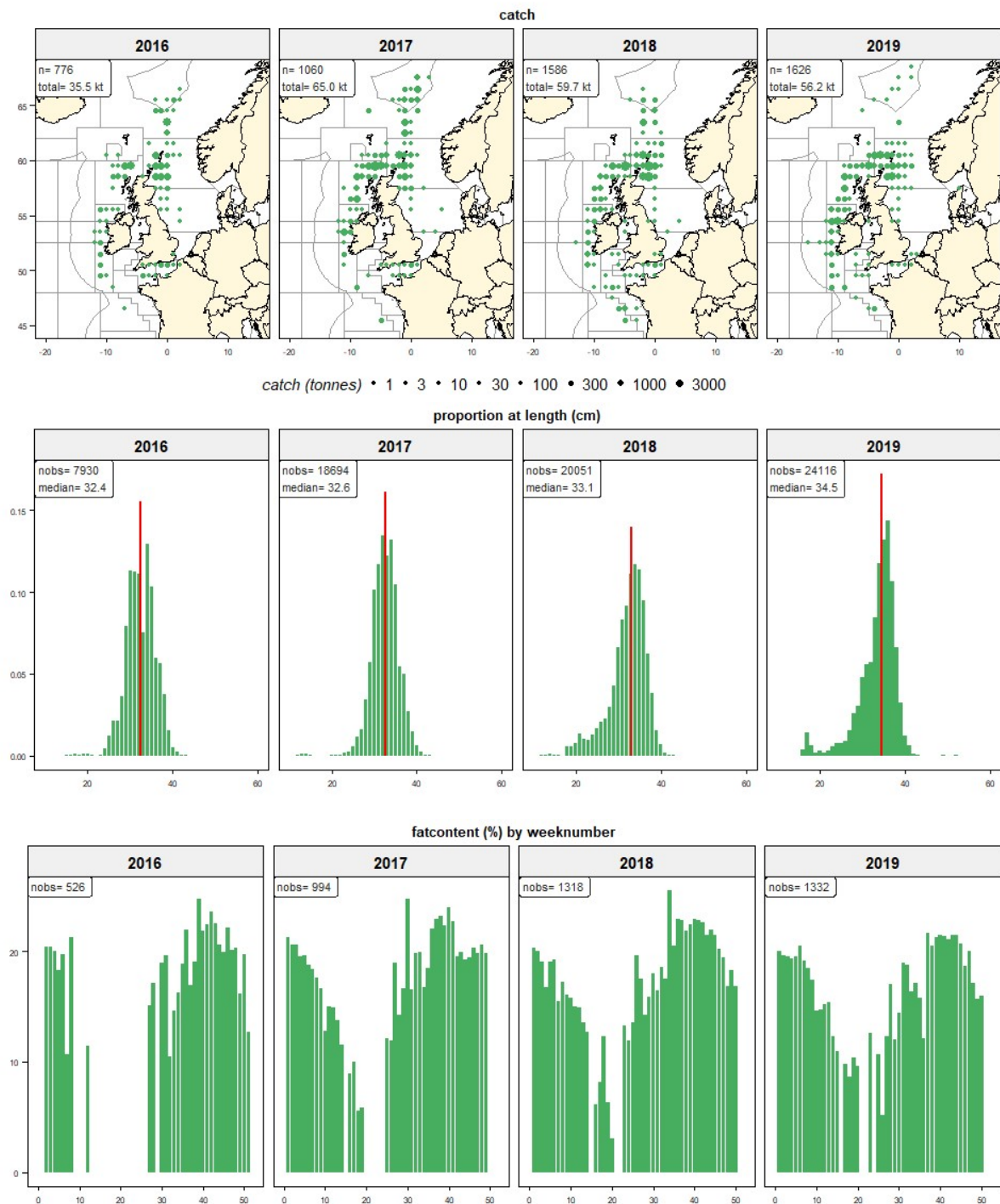
Self sampling summary for Mackerel in FAO area 27 (Northeast Atlantic)

species	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
mac	2015	6	28	282	564	26,922	11,617	95
mac	2016	9	62	440	776	35,550	7,930	80
mac	2017	12	73	589	1,069	65,045	18,694	110
mac	2018	16	104	917	1,583	59,718	19,795	65
mac	2019	15	110	929	1,627	56,210	23,580	60
mac	(all)	.	377	3,157	5,619	243,445	81,616	.

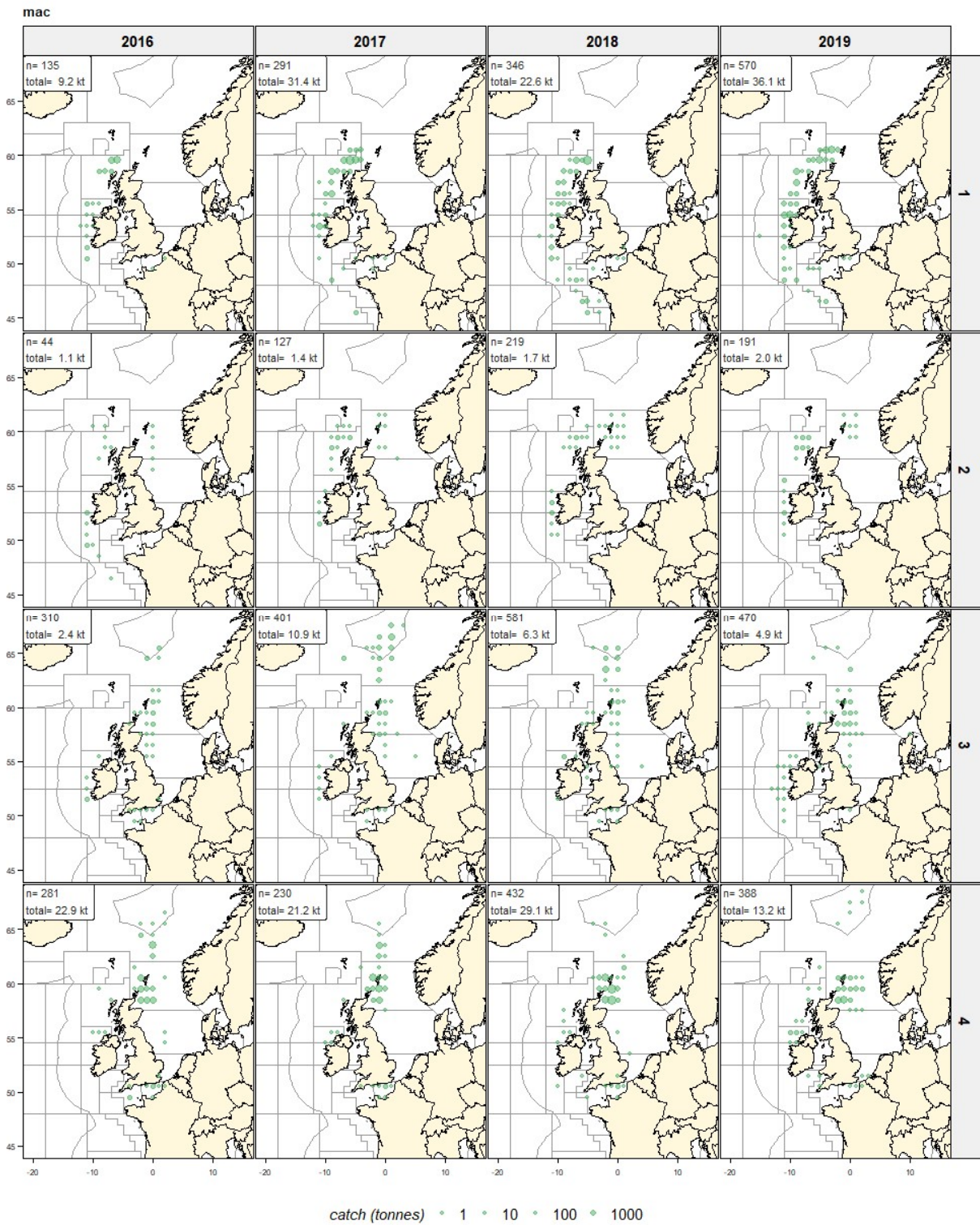
species	division	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
mac	27.2.a	2015	3	3	18	35	2,040	1,561	113
mac	27.2.a	2016	6	7	48	98	7,441	2,611	155
mac	27.2.a	2017	6	9	83	166	13,019	1,948	156
mac	27.2.a	2018	5	7	40	67	4,831	209	120
mac	27.2.a	2019	4	4	26	45	205	291	7
mac	27.4.a	2015	5	13	101	215	14,611	6,081	144
mac	27.4.a	2016	9	26	190	323	16,521	1,988	86
mac	27.4.a	2017	10	30	201	384	18,311	8,808	91
mac	27.4.a	2018	15	54	382	693	29,914	8,684	78
mac	27.4.a	2019	14	47	343	622	25,312	8,256	73
mac	27.4.b	2015	2	4	17	30	123	32	7
mac	27.4.b	2016	6	11	29	53	250	7	8
mac	27.4.b	2017	8	10	34	63	459	324	13
mac	27.4.b	2018	7	13	71	121	209	319	2
mac	27.4.b	2019	8	13	51	78	85	217	1
mac	27.6.a	2015	4	8	45	84	7,936	2,607	176
mac	27.6.a	2016	7	16	58	96	8,692	2,647	149
mac	27.6.a	2017	11	27	159	267	28,288	6,657	177
mac	27.6.a	2018	16	34	247	401	18,029	8,660	72
mac	27.6.a	2019	15	42	309	520	21,306	8,444	68
mac	27.7.b	2015	2	4	19	34	810	158	42
mac	27.7.b	2016	5	7	35	68	185	125	5
mac	27.7.b	2017	6	9	51	98	3,639	335	71
mac	27.7.b	2018	6	9	34	52	1,116	37	32
mac	27.7.b	2019	12	22	73	124	5,389	2,492	73
mac	27.7.d	2015	4	7	22	31	68	228	3
mac	27.7.d	2016	7	16	46	81	759	416	16
mac	27.7.d	2017	7	15	34	49	375	123	11
mac	27.7.d	2018	10	16	74	147	489	590	6
mac	27.7.d	2019	10	17	46	67	158	812	3
mac	27.7.j	2015	4	7	33	69	763	821	23
mac	27.7.j	2016	3	6	20	29	1,413	122	70
mac	27.7.j	2017	4	5	7	12	496	170	70
mac	27.7.j	2018	8	11	27	39	2,661	314	98
mac	27.7.j	2019	8	11	47	89	2,356	1,514	50
mac	27.8.a	2015	1	1	2	3	0	0	0
mac	27.8.a	2016	1	1	1	1	33	0	33
mac	27.8.a	2018	3	3	18	21	1,509	428	83
mac	27.8.a	2019	3	3	12	16	887	779	73
mac	other	2015	5	9	35	63	567	128	16
mac	other	2016	4	8	19	27	252	13	13
mac	other	2017	5	14	22	30	454	328	20
mac	other	2018	7	17	33	42	956	554	28
mac	other	2019	9	17	43	66	508	775	11
mac	(all)	2015		56	292	564	26,918	11,616	
mac	(all)	2016		98	446	776	35,546	7,929	
mac	(all)	2017		119	591	1,069	65,041	18,693	

mac	(all)	2018	164	926	1,583	59,714	19,795
mac	(all)	2019	176	950	1,627	56,206	23,580
mac	(all)	(all)	613	3,205	5,619	243,425	81,613

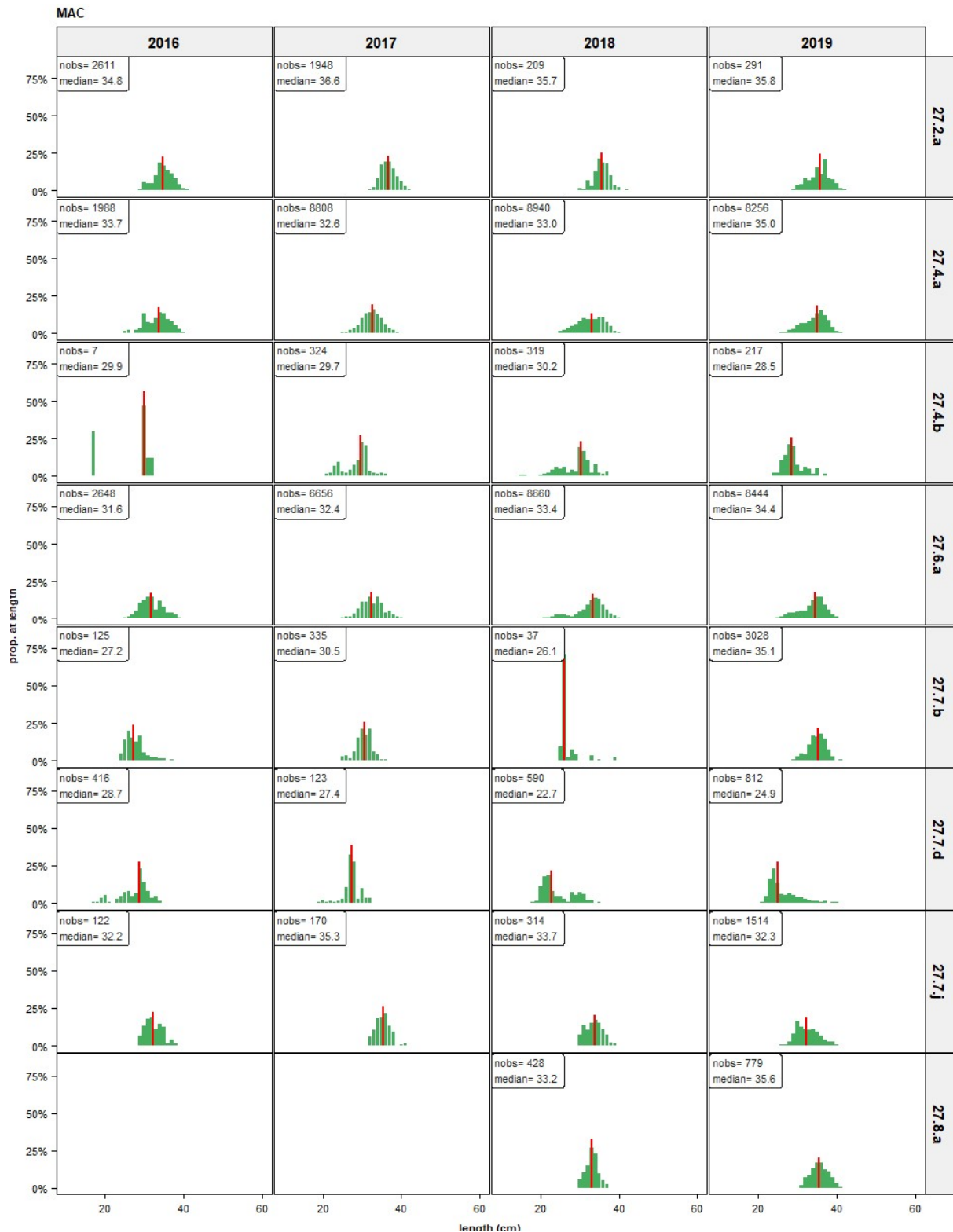
Overview of self-sampling data for Mackerel fisheries: catch by year, proportion at length, and average fat content by week.



Mackerel catch by year and quarter



Mackerel length by division



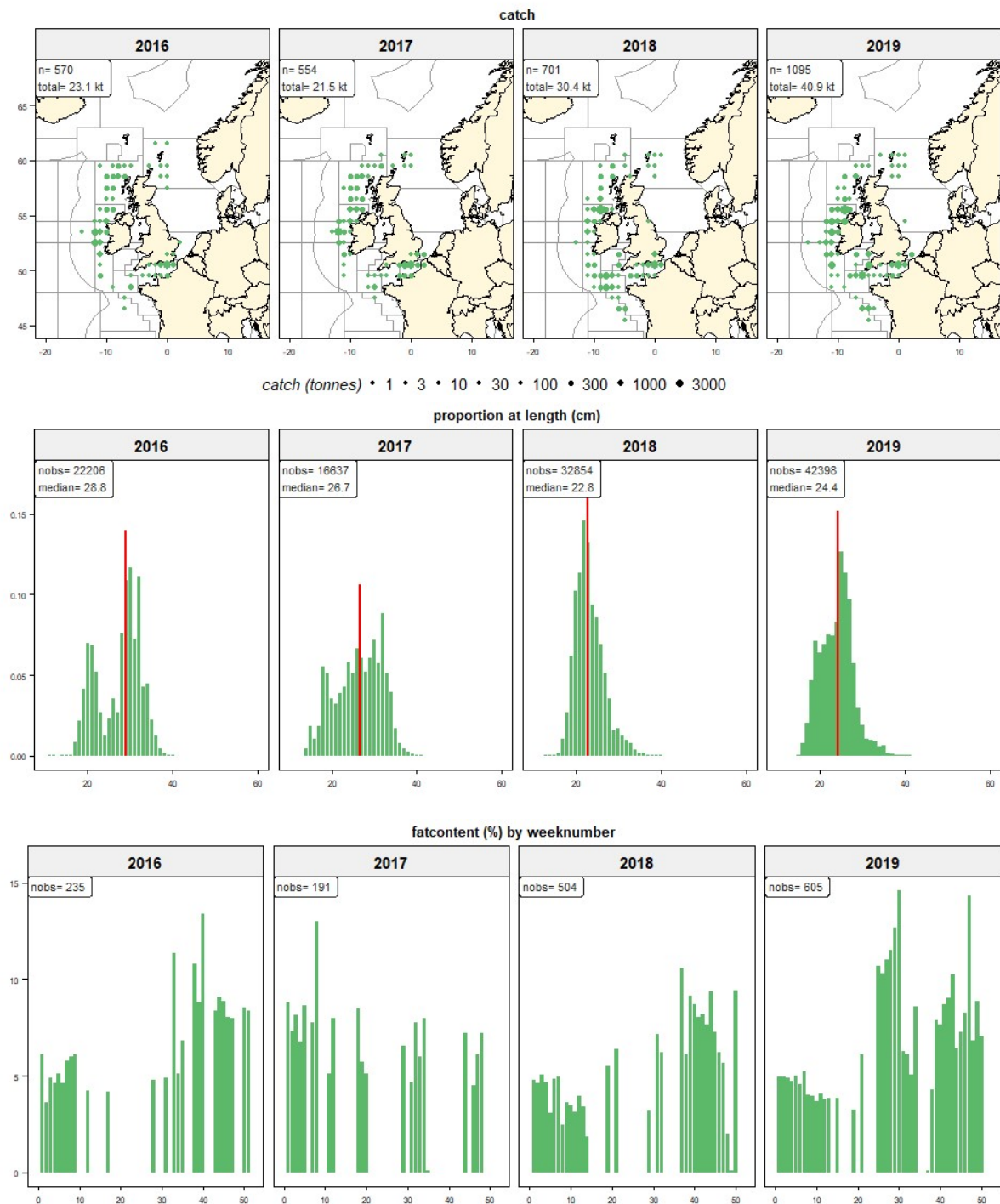
Horse mackerel (*Trachurus trachurus*) in FAO area 27 (Northeast Atlantic)

Self sampling summary for Horse mackerel in FAO area 27 (Northeast Atlantic)

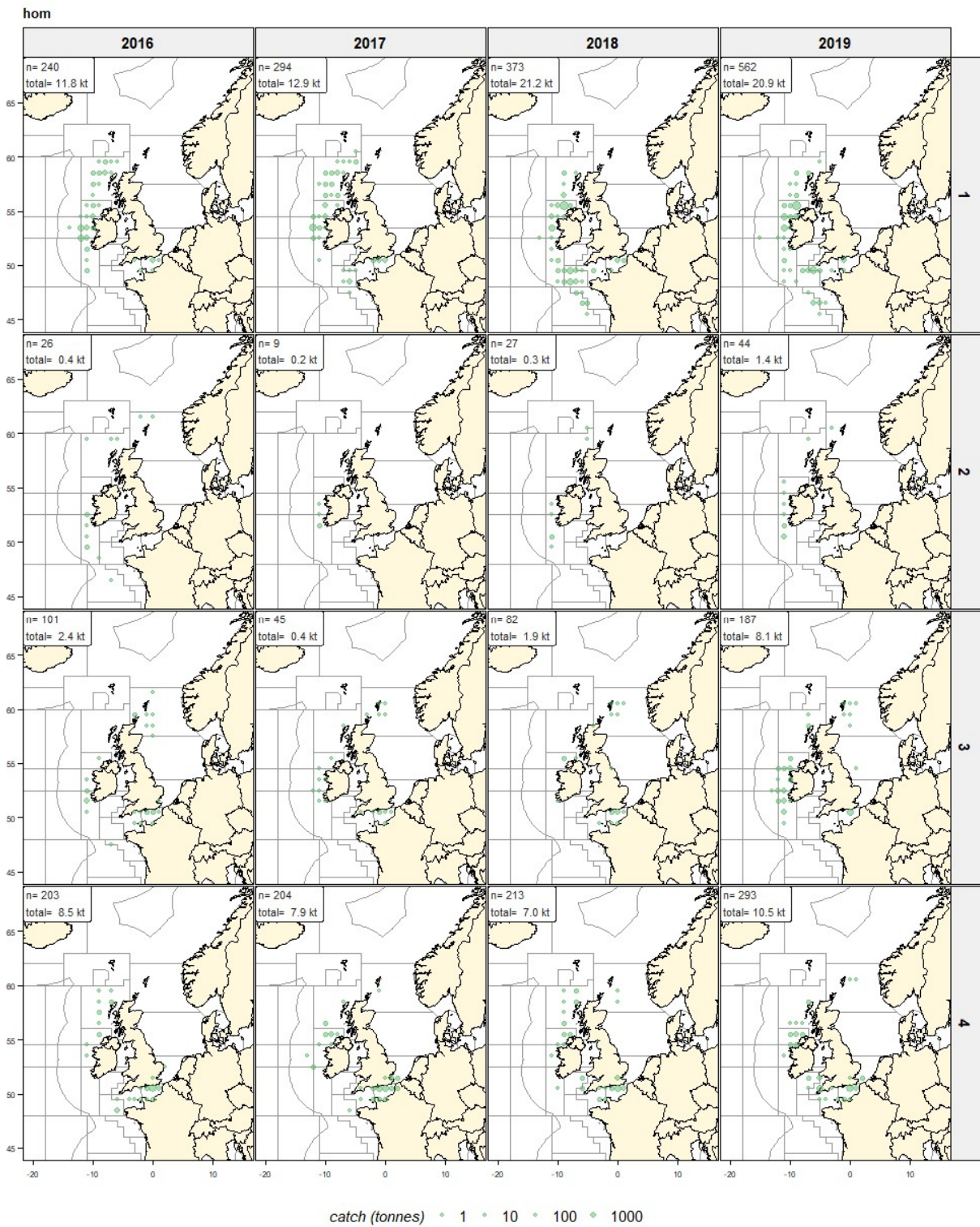
species	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
hom	2015	6	21	174	326	10,646	14,373	61
hom	2016	9	48	339	609	23,118	22,206	68
hom	2017	12	46	300	557	21,479	16,637	71
hom	2018	15	53	400	702	30,399	32,854	75
hom	2019	16	75	606	1,096	40,934	40,814	67
hom	(all)	.	243	1,819	3,290	126,576	126,884	.

species	division	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
hom	27.6.a	2015	3	6	39	66	2,745	2,934	70
hom	27.6.a	2016	6	17	94	154	4,753	4,983	50
hom	27.6.a	2017	10	15	84	161	5,343	6,735	63
hom	27.6.a	2018	14	24	126	236	12,052	12,064	95
hom	27.6.a	2019	14	30	213	384	13,852	9,432	65
hom	27.7.b	2015	4	6	27	48	1,482	927	54
hom	27.7.b	2016	5	8	47	92	4,312	3,390	91
hom	27.7.b	2017	6	12	57	104	4,728	4,861	82
hom	27.7.b	2018	9	11	39	60	2,250	1,663	57
hom	27.7.b	2019	12	25	79	130	4,268	4,593	54
hom	27.7.d	2015	4	6	38	61	2,063	3,864	54
hom	27.7.d	2016	6	18	82	140	7,237	6,399	88
hom	27.7.d	2017	8	21	88	164	7,377	2,746	83
hom	27.7.d	2018	8	19	90	178	6,328	9,204	70
hom	27.7.d	2019	9	19	88	158	7,127	8,946	80
hom	27.7.e	2015	5	7	12	17	335	258	27
hom	27.7.e	2016	5	10	19	23	217	80	11
hom	27.7.e	2017	3	6	8	13	368	14	46
hom	27.7.e	2018	4	5	13	18	394	0	30
hom	27.7.e	2019	7	11	33	65	3,883	6,858	117
hom	27.7.h	2016	1	1	9	17	1,297	5,043	144
hom	27.7.h	2017	2	5	18	30	1,329	0	73
hom	27.7.h	2018	9	13	51	90	6,328	7,804	124
hom	27.7.h	2019	6	6	13	21	983	2,702	75
hom	27.7.j	2015	4	6	35	79	3,081	5,640	88
hom	27.7.j	2016	4	8	29	55	3,091	761	106
hom	27.7.j	2017	3	6	9	15	162	463	18
hom	27.7.j	2018	7	10	31	46	813	519	26
hom	27.7.j	2019	10	14	58	110	5,076	2,853	87
hom	27.8.a	2015	1	1	3	10	313	0	104
hom	27.8.a	2016	2	2	2	2	7	0	3
hom	27.8.a	2017	1	1	1	1	30	0	30
hom	27.8.a	2018	3	3	19	25	670	0	35
hom	27.8.a	2019	5	9	40	64	1,533	341	38
hom	other	2015	6	12	29	45	623	747	21
hom	other	2016	8	16	70	126	2,200	1,548	31
hom	other	2017	8	18	47	69	2,139	1,817	45
hom	other	2018	6	10	36	49	1,560	1,599	43
hom	other	2019	13	28	101	164	4,209	5,088	41
hom	(all)	2015		44	183	326	10,642	14,370	
hom	(all)	2016		80	352	609	23,114	22,204	
hom	(all)	2017		84	312	557	21,476	16,636	
hom	(all)	2018		95	405	702	30,395	32,853	
hom	(all)	2019		142	625	1,096	40,931	40,813	
hom	(all)	(all)		445	1,877	3,290	126,558	126,876	

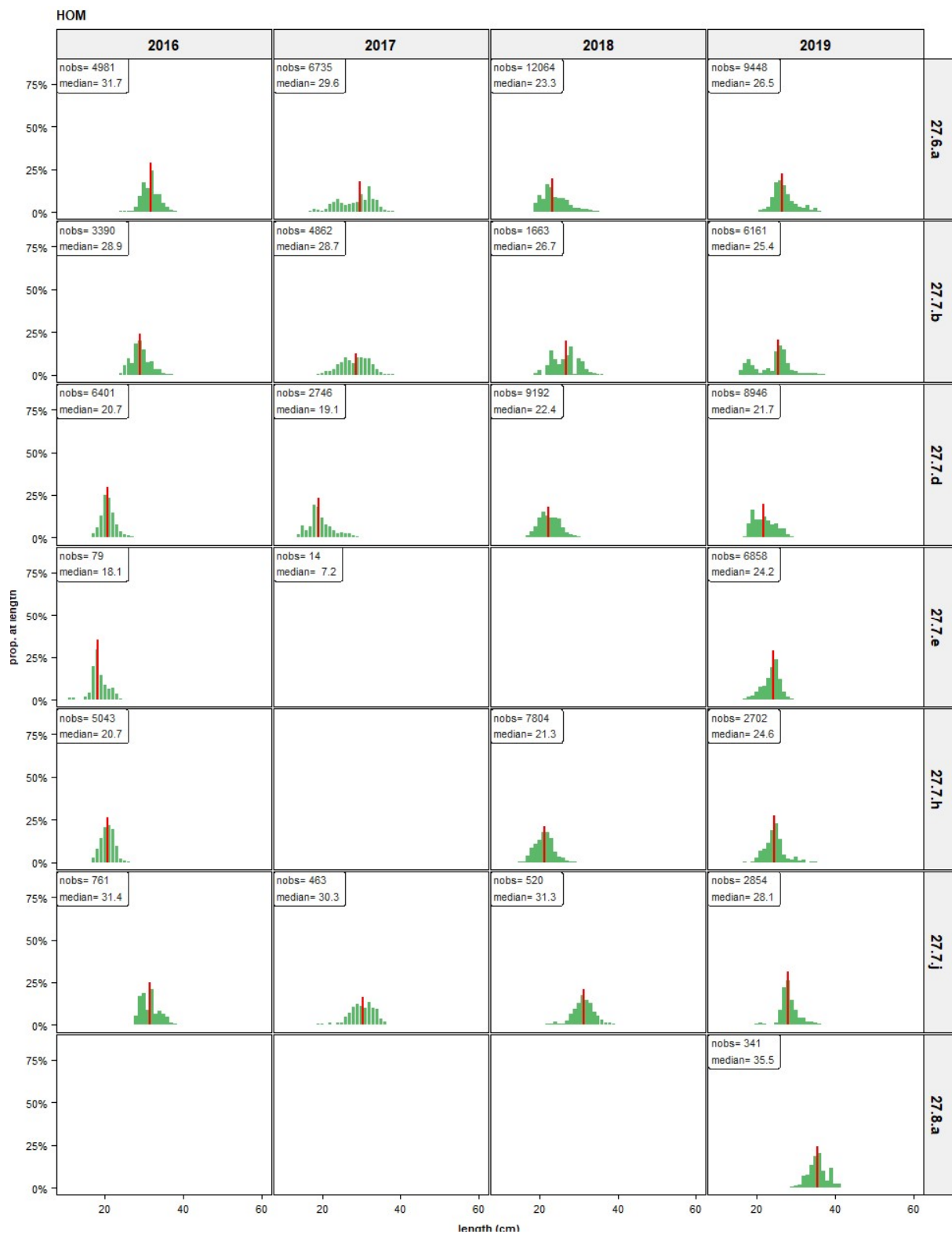
Overview of self-sampling data for Horse mackerel fisheries: catch by year, proportion at length, and average fat content by week.



Horse mackerel catch by year and quarter



Horse mackerel length by division



Blue whiting (*Micromesistius poutassou*) in FAO area 27 (Northeast Atlantic)

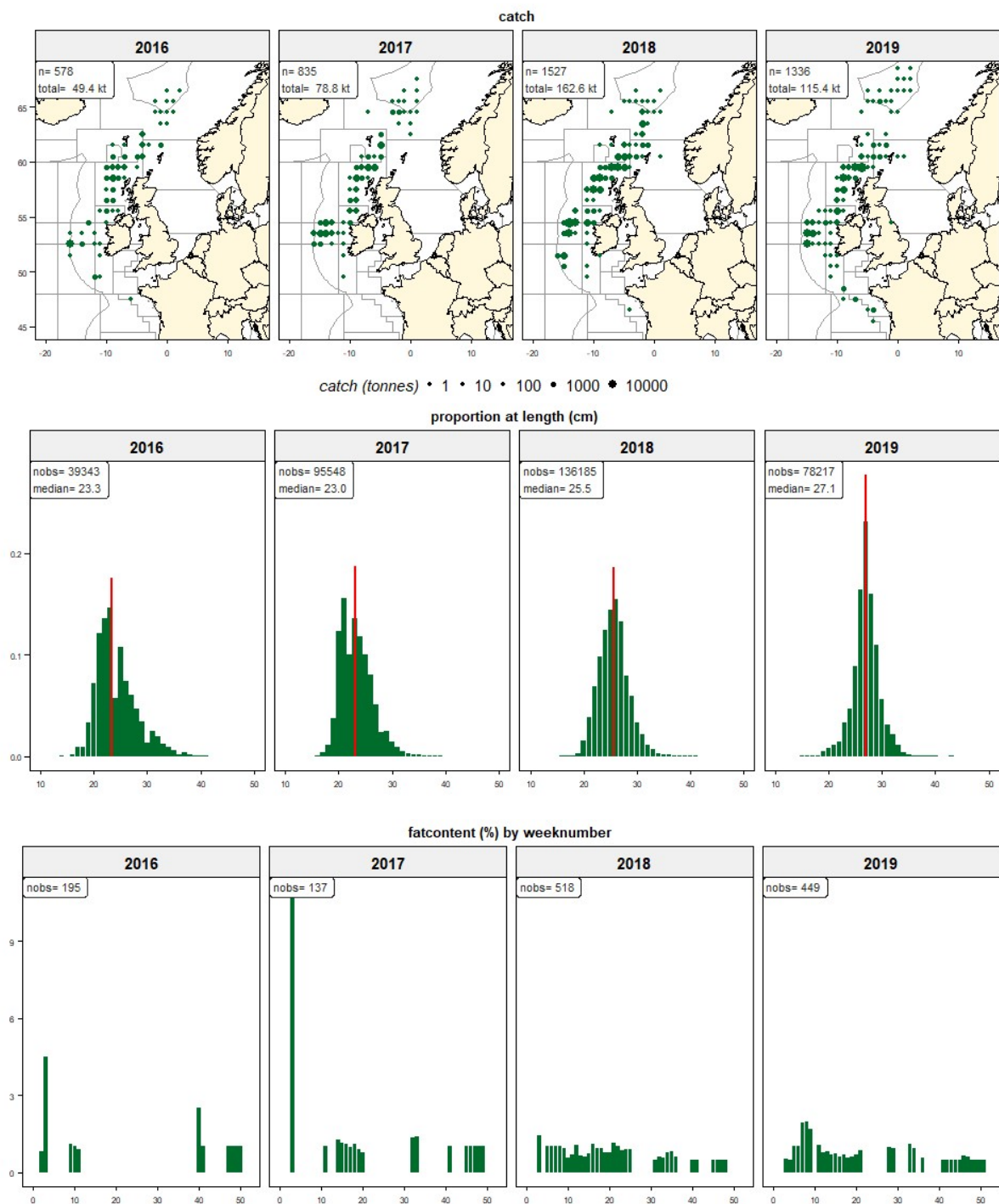
Self sampling summary for Blue whiting in FAO area 27 (Northeast Atlantic)

species	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
whb	2015	5	18	154	313	15,550	28,461	100
whb	2016	9	24	260	598	49,411	39,343	190
whb	2017	8	34	390	845	78,807	95,548	202
whb	2018	15	49	613	1,527	162,555	136,185	265
whb	2019	15	55	594	1,336	115,448	73,161	194
whb	(all)	.	180	2,011	4,619	421,771	372,698	.

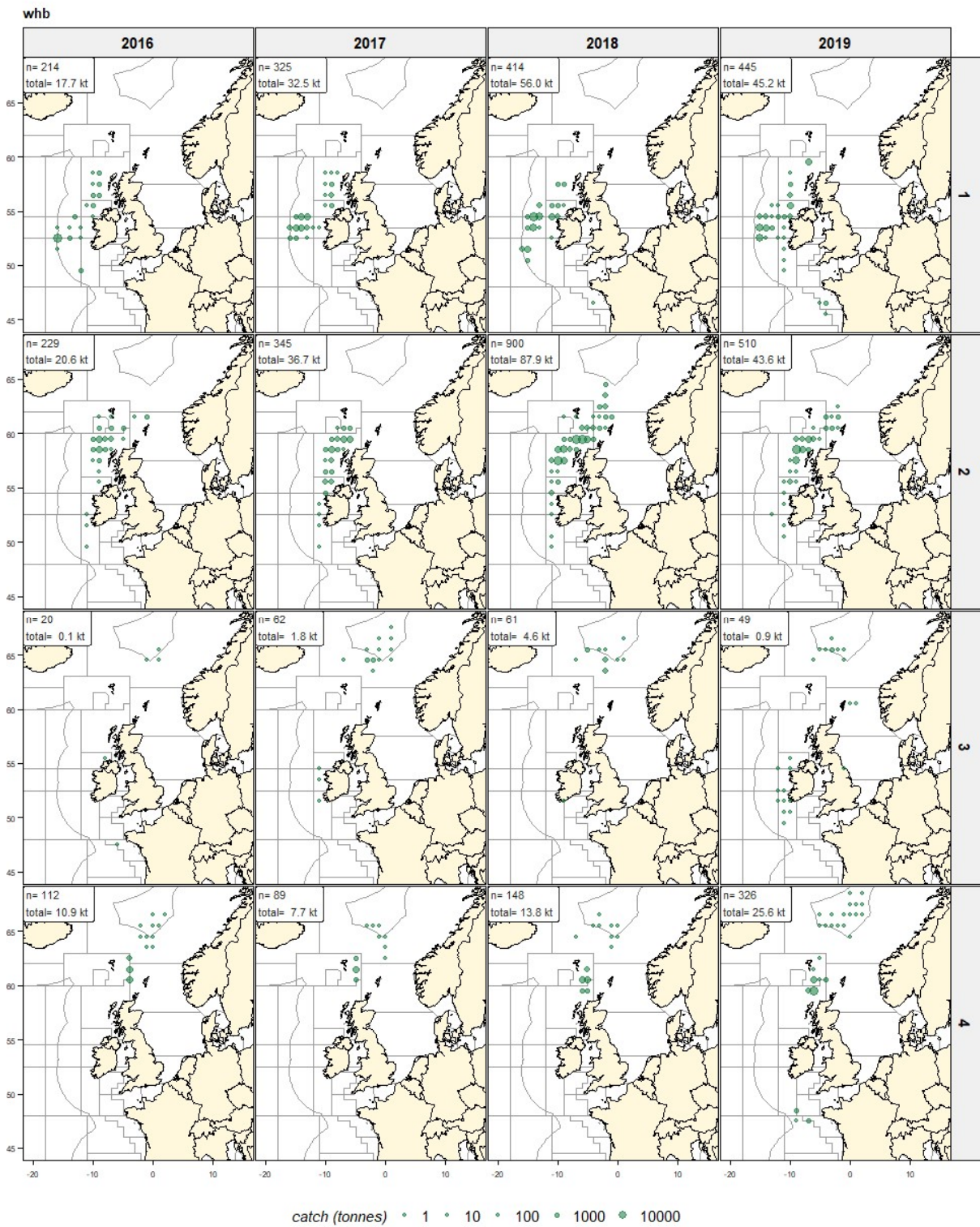
species	division	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
whb	27.2.a	2015	3	3	11	20	96	573	8
whb	27.2.a	2016	6	6	32	62	2,345	1,369	73
whb	27.2.a	2017	5	9	56	92	2,587	14,338	46
whb	27.2.a	2018	6	8	91	160	12,037	18,516	132
whb	27.2.a	2019	5	8	68	137	1,417	1,773	20
whb	27.4.a	2015	1	1	6	6	1	0	0
whb	27.4.a	2016	4	5	35	73	7,791	6,614	222
whb	27.4.a	2017	2	2	6	8	727	2,348	121
whb	27.4.a	2018	9	10	27	55	2,946	6,170	109
whb	27.4.a	2019	6	7	27	48	2,100	4,740	77
whb	27.5.b	2015	2	3	20	28	1,872	7,287	93
whb	27.5.b	2016	3	4	29	57	5,577	4,685	192
whb	27.5.b	2017	5	6	40	64	7,959	12,359	198
whb	27.5.b	2018	5	7	52	82	7,927	5,204	152
whb	27.5.b	2019	4	8	26	34	3,872	2,328	148
whb	27.6.a	2015	3	7	56	129	7,380	9,384	131
whb	27.6.a	2016	4	11	93	210	20,327	13,397	218
whb	27.6.a	2017	7	16	163	378	39,084	45,845	239
whb	27.6.a	2018	12	29	341	861	91,745	77,907	269
whb	27.6.a	2019	14	34	311	726	75,558	42,859	242
whb	27.6.b	2017	1	1	2	2	158	0	79
whb	27.6.b	2018	6	6	22	49	7,682	3,211	349
whb	27.6.b	2019	3	3	6	10	604	138	100
whb	27.7.b	2015	2	4	9	12	115	0	12
whb	27.7.b	2016	3	3	14	21	27	0	1
whb	27.7.b	2017	5	6	31	57	51	86	1
whb	27.7.b	2018	3	3	6	11	1,941	531	323
whb	27.7.b	2019	10	11	17	29	814	1,768	47
whb	27.7.c	2015	2	4	13	22	888	0	68
whb	27.7.c	2016	4	8	37	66	5,471	6,283	147
whb	27.7.c	2017	6	10	97	231	28,229	19,476	291
whb	27.7.c	2018	6	9	77	235	30,504	21,392	396
whb	27.7.c	2019	11	17	100	247	26,587	14,222	265
whb	27.7.k	2015	3	3	24	56	4,972	11,216	207
whb	27.7.k	2016	3	3	29	77	7,488	6,993	258
whb	27.7.k	2017	0	0	0	0	0	954	0
whb	27.7.k	2018	3	3	20	59	7,645	3,077	382
whb	27.7.k	2019	4	4	11	17	2,036	401	185
whb	other	2015	4	8	25	40	222	0	8
whb	other	2016	5	6	15	32	382	0	25
whb	other	2017	3	3	8	13	8	139	1
whb	other	2018	5	6	12	15	124	174	10
whb	other	2019	10	13	57	88	2,458	4,932	43
whb	(all)	2015		33	164	313	15,546	28,460	
whb	(all)	2016		46	284	598	49,408	39,341	
whb	(all)	2017		53	403	845	78,803	95,545	
whb	(all)	2018		81	648	1,527	162,551	136,182	

whb	(all)	2019	105	623	1,336	115,446	73,161
whb	(all)	(all)	318	2,122	4,619	421,754	372,689

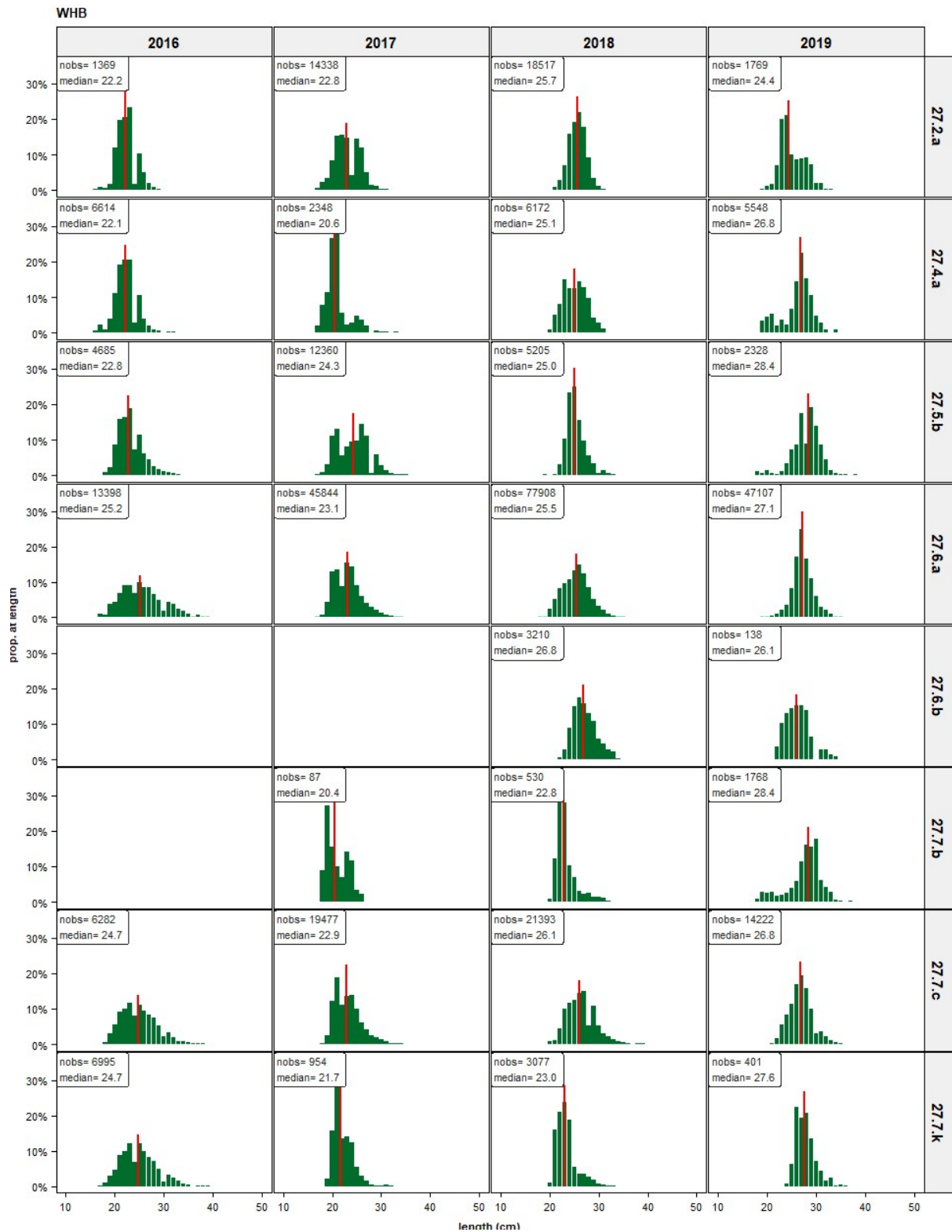
Overview of self-sampling data for Blue whiting fisheries: catch by year, proportion at length, and average fat content by week.



Blue whiting catch by year and quarter



Blue whiting length by division



Argentines/Silversmelt (*Argentina spp*) in FAO area 27 (Northeast Atlantic)

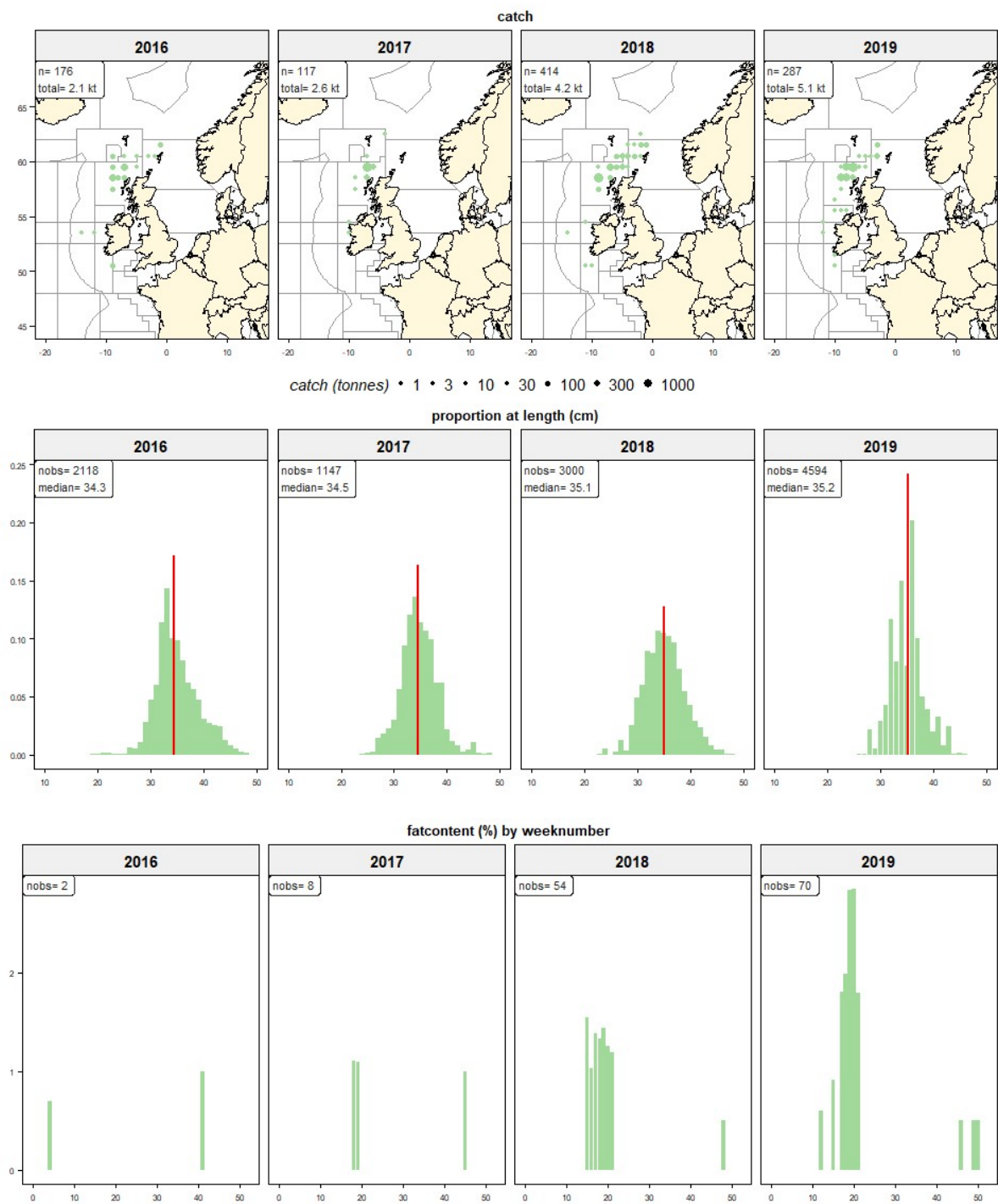
Argentines/Silver smelt (*Argentina spp.*) in FAO area 27 (Northeast Atlantic)

Self sampling summary for Argentines/Silver smelt in FAO area 27 (Northeast Atlantic) (both Greater argentine *Argentina silus* and Lesser argentine *Argentina sphyraena*).

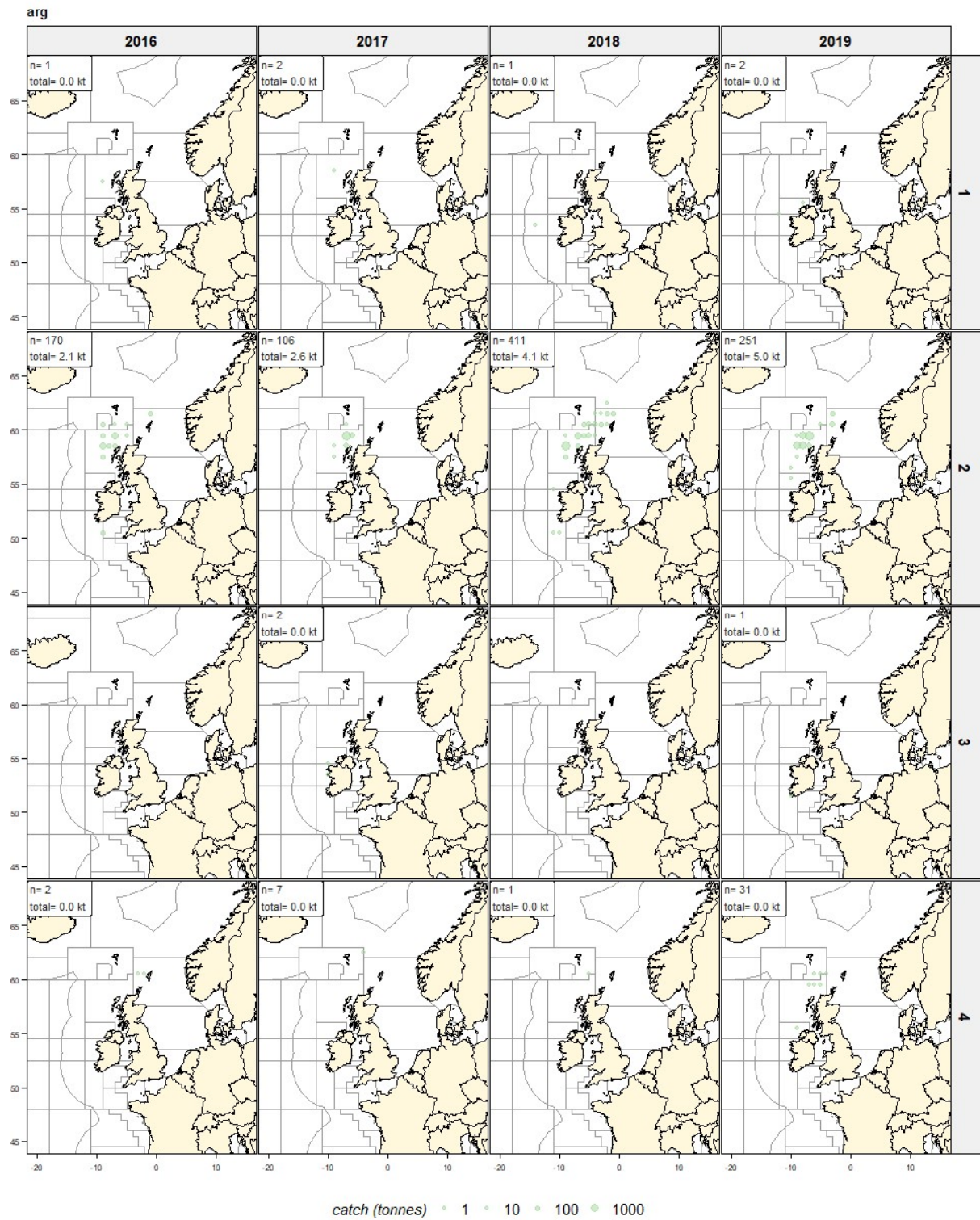
species	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
arg	2015	3	5	52	112	2,673	5,892	51
arg	2016	5	8	61	122	2,079	2,118	34
arg	2017	5	8	68	117	2,596	1,147	38
arg	2018	12	18	171	369	4,160	3,000	24
arg	2019	12	22	125	227	5,057	4,354	40
arg	(all)	.	61	477	947	16,565	16,511	.

species	division	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
arg	27.4.a	2016	4	4	10	20	157	362	15
arg	27.4.a	2018	7	7	23	44	250	601	10
arg	27.4.a	2019	3	3	14	27	393	645	28
arg	27.5.b	2015	2	3	12	16	199	637	16
arg	27.5.b	2016	2	2	8	14	138	119	17
arg	27.5.b	2017	3	3	3	3	18	3	6
arg	27.5.b	2018	2	2	2	2	4	6	2
arg	27.5.b	2019	2	3	3	3	5	4	1
arg	27.6.a	2015	3	4	42	94	2,470	5,254	58
arg	27.6.a	2016	2	5	43	84	1,728	1,635	40
arg	27.6.a	2017	5	6	58	106	2,566	1,133	44
arg	27.6.a	2018	10	15	145	314	3,888	2,390	26
arg	27.6.a	2019	12	20	108	193	4,654	3,482	43
arg	other	2015	1	2	2	2	2	0	1
arg	other	2016	2	2	3	4	55	0	18
arg	other	2017	2	2	7	8	10	11	1
arg	other	2018	3	4	8	9	17	3	2
arg	other	2019	2	2	3	4	4	222	1
arg	(all)	2015		9	56	112	2,671	5,891	
arg	(all)	2016		13	64	122	2,078	2,116	
arg	(all)	2017		11	68	117	2,594	1,147	
arg	(all)	2018		28	178	369	4,159	3,000	
arg	(all)	2019		28	128	227	5,056	4,353	
arg	(all)	(all)		89	494	947	16,558	16,507	

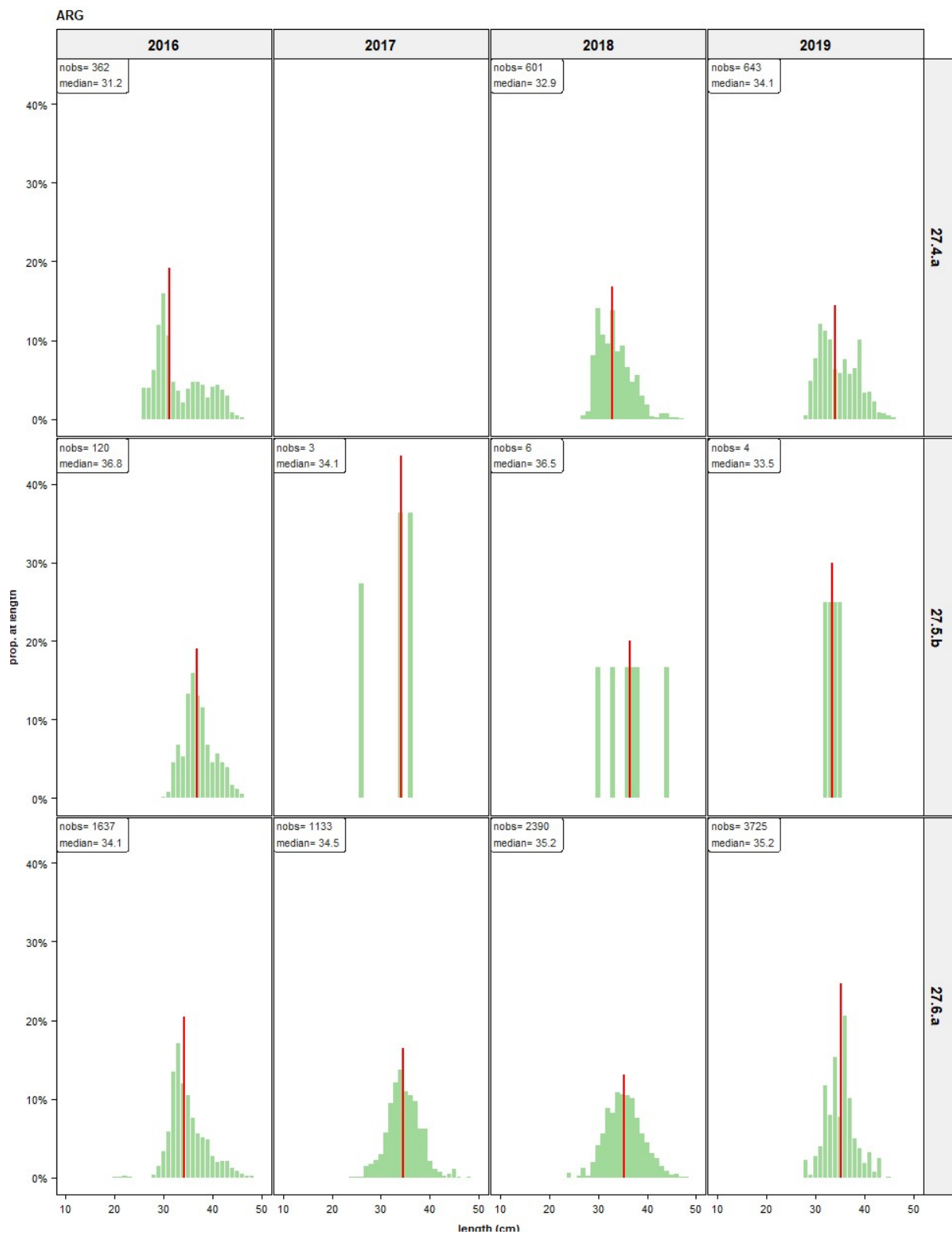
Overview of self-sampling data for Argentines/Silver smelt fisheries: catch by year, proportion at length, and average fat content by week.



Argentines/Silver smelt catch by year and quarter



Argentines/Silver smelt length by division



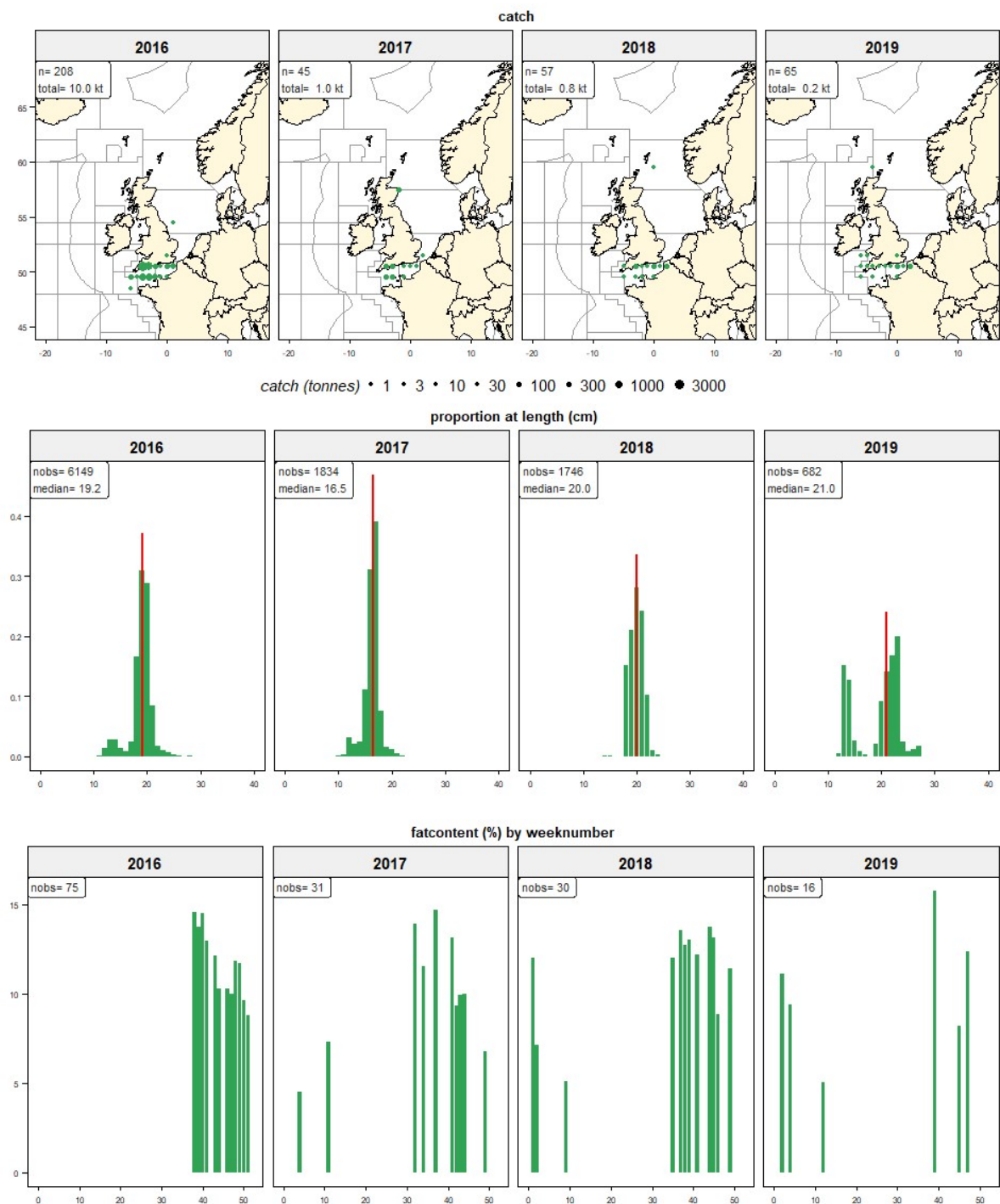
Pilchard/sardines (*Sardina pilchardus*) in FAO area 27 (Northeast Atlantic)

Self sampling summary for Pilchard/sardines in FAO area 27 (Northeast Atlantic)

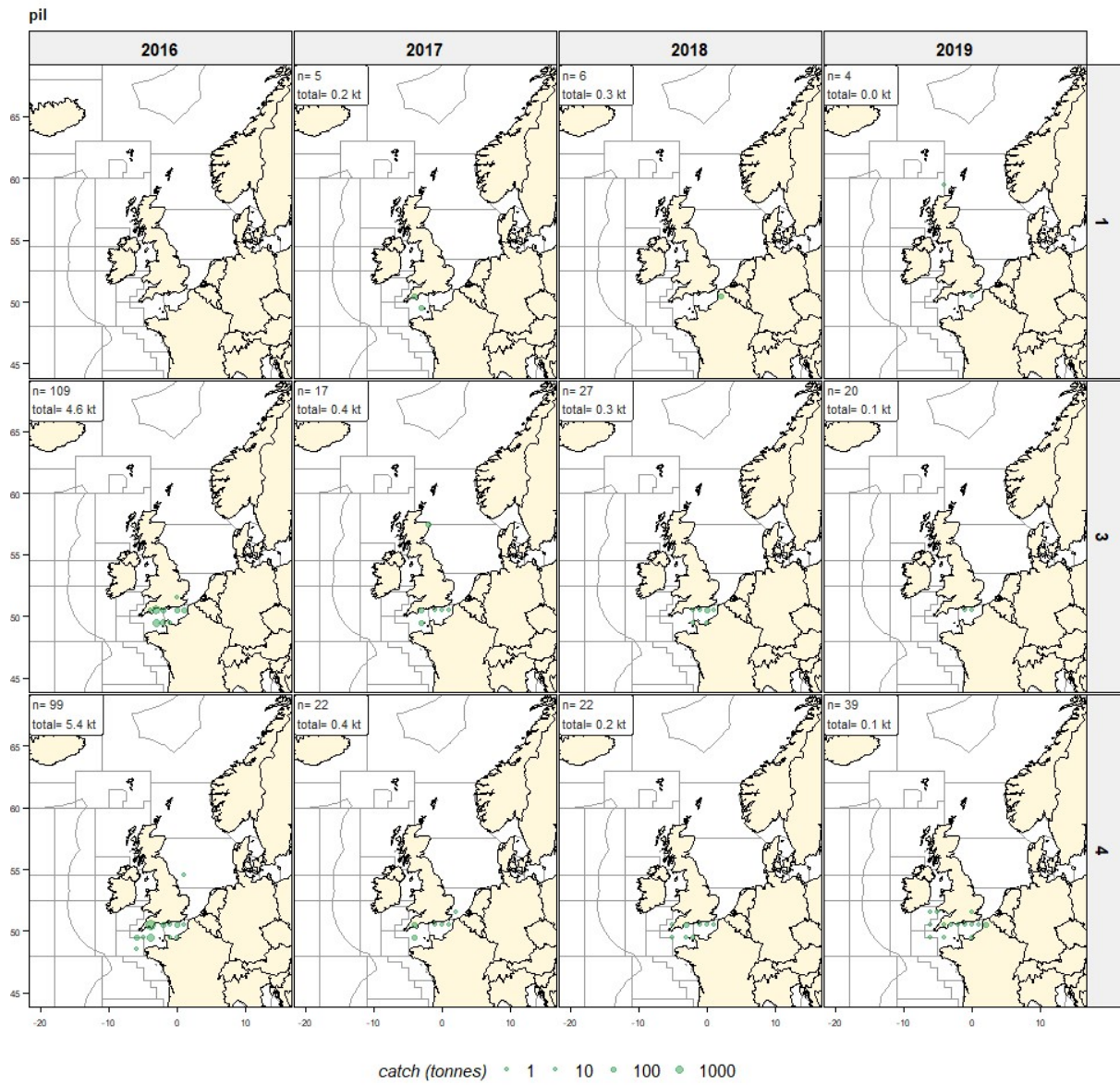
species	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
pil	2015	4	7	28	51	1,348	3,170	48
pil	2016	6	16	91	208	10,018	6,149	110
pil	2017	6	17	34	48	997	1,834	29
pil	2018	8	13	40	57	831	1,746	20
pil	2019	10	14	47	66	242	682	5
pil	(all)	.	67	240	430	13,436	13,581	.

species	division	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
pil	27.4.b	2016	1	1	1	1	0	1	0
pil	27.4.b	2017	1	1	1	1	139	0	139
pil	27.7.d	2015	3	4	8	8	139	267	17
pil	27.7.d	2016	6	9	30	43	632	1,544	21
pil	27.7.d	2017	5	9	12	14	75	263	6
pil	27.7.d	2018	6	9	27	41	693	1,491	25
pil	27.7.d	2019	8	10	31	44	215	136	6
pil	27.7.e	2015	4	5	17	39	1,183	2,903	69
pil	27.7.e	2016	6	11	56	153	9,302	4,209	166
pil	27.7.e	2017	4	9	17	29	781	1,325	45
pil	27.7.e	2018	4	6	11	14	133	81	12
pil	27.7.e	2019	4	4	6	7	10	446	1
pil	27.7.h	2015	1	1	2	3	26	0	13
pil	27.7.h	2016	2	2	6	10	83	394	13
pil	other	2015	1	1	1	1	0	0	0
pil	other	2016	1	1	1	1	0	0	0
pil	other	2017	1	2	4	4	1	246	0
pil	other	2018	1	2	2	2	4	174	2
pil	other	2019	5	6	12	15	17	100	1
pil	(all)	2015		11	28	51	1,348	3,170	
pil	(all)	2016		24	94	208	10,017	6,148	
pil	(all)	2017		21	34	48	996	1,834	
pil	(all)	2018		17	40	57	830	1,746	
pil	(all)	2019		20	49	66	242	682	
pil	(all)	(all)		93	245	430	13,433	13,580	

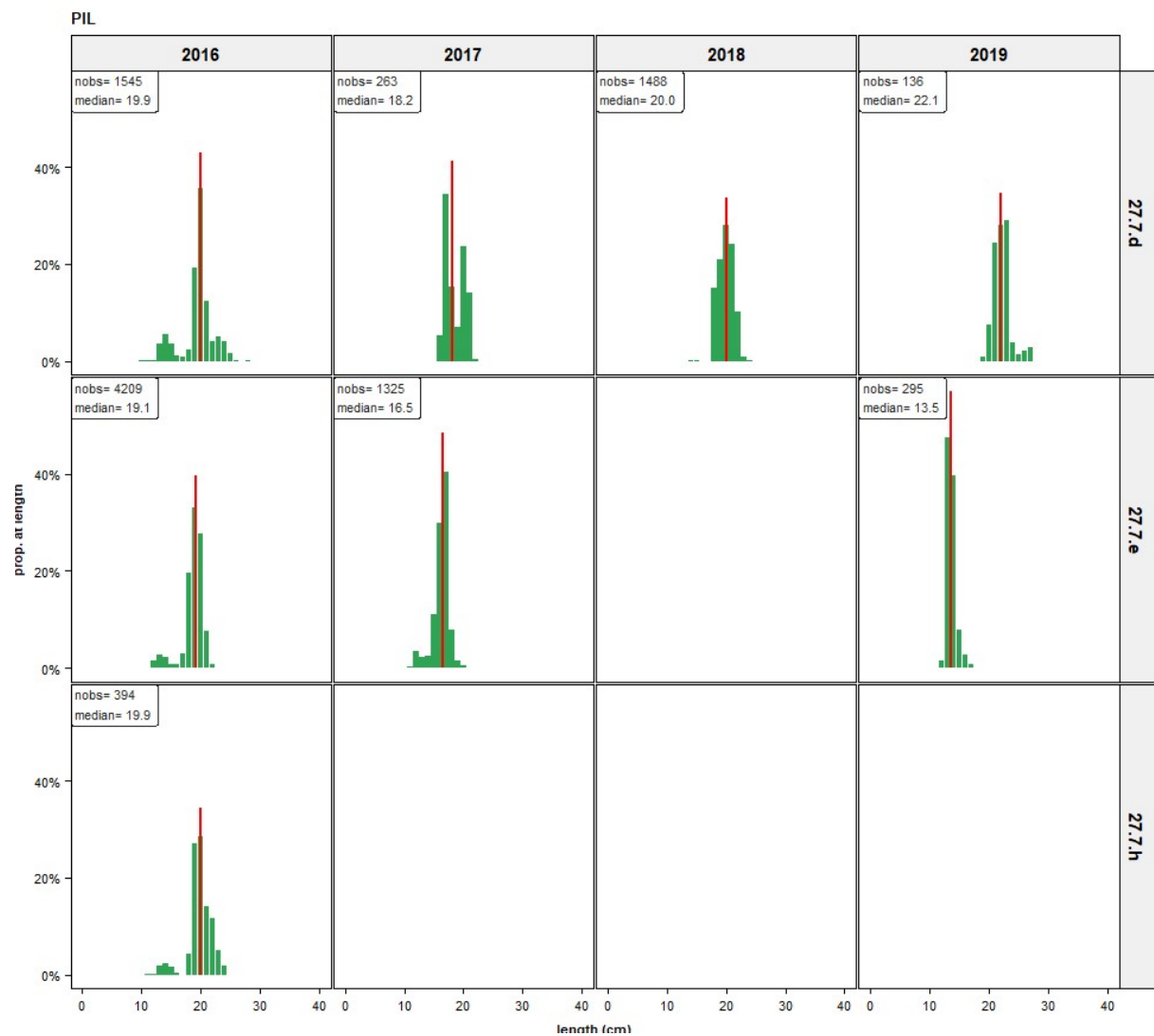
Overview of self-sampling data for Pilchard/sardines fisheries: catch by year, proportion at length, and average fat content by week.



Pilchard/sardines catch by year and quarter



Pilchard/sardines length by division



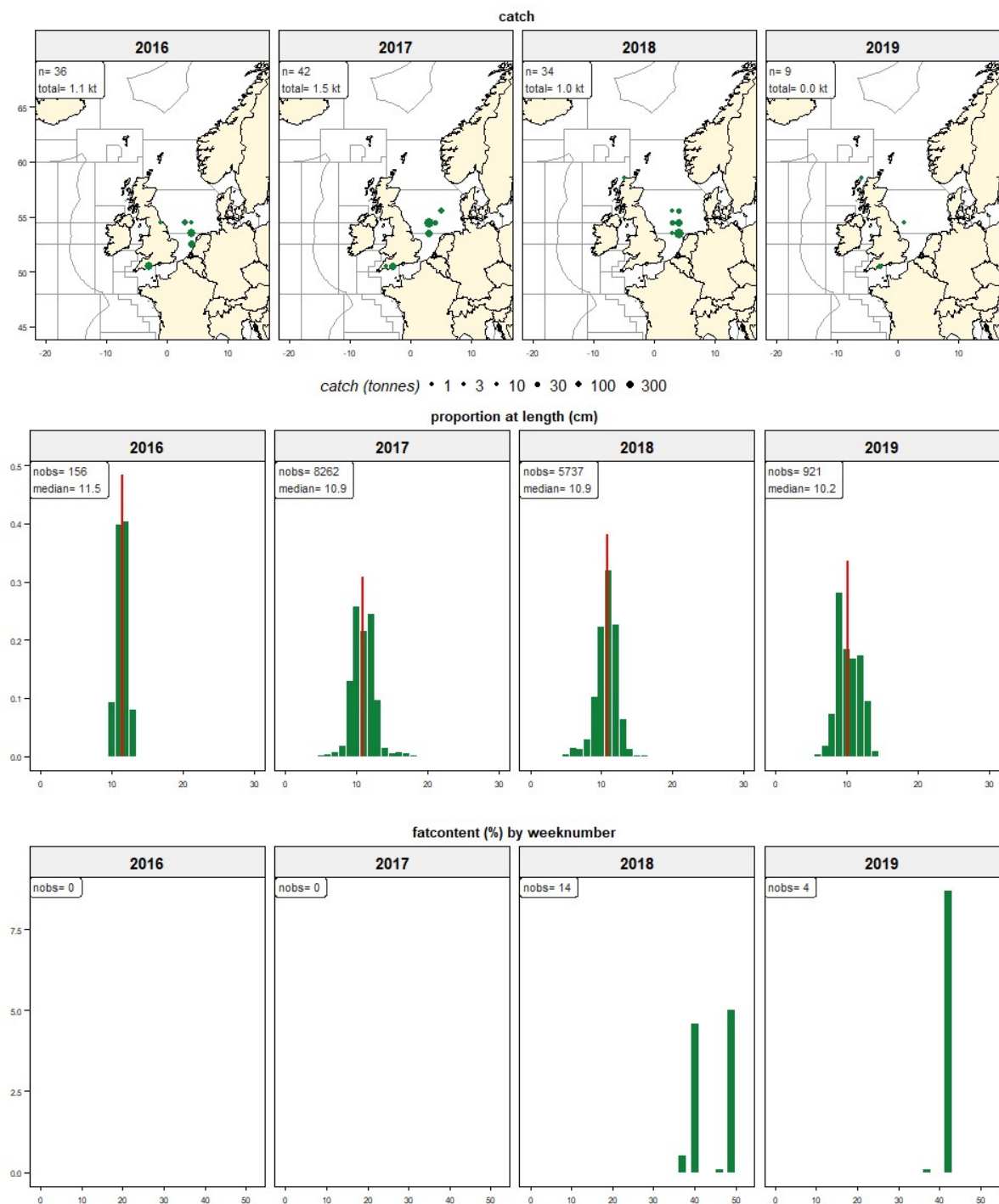
Sprat (*Sprattus sprattus*) in FAO area 27 (Northeast Atlantic)

Self sampling summary for Sprat in FAO area 27 (Northeast Atlantic)

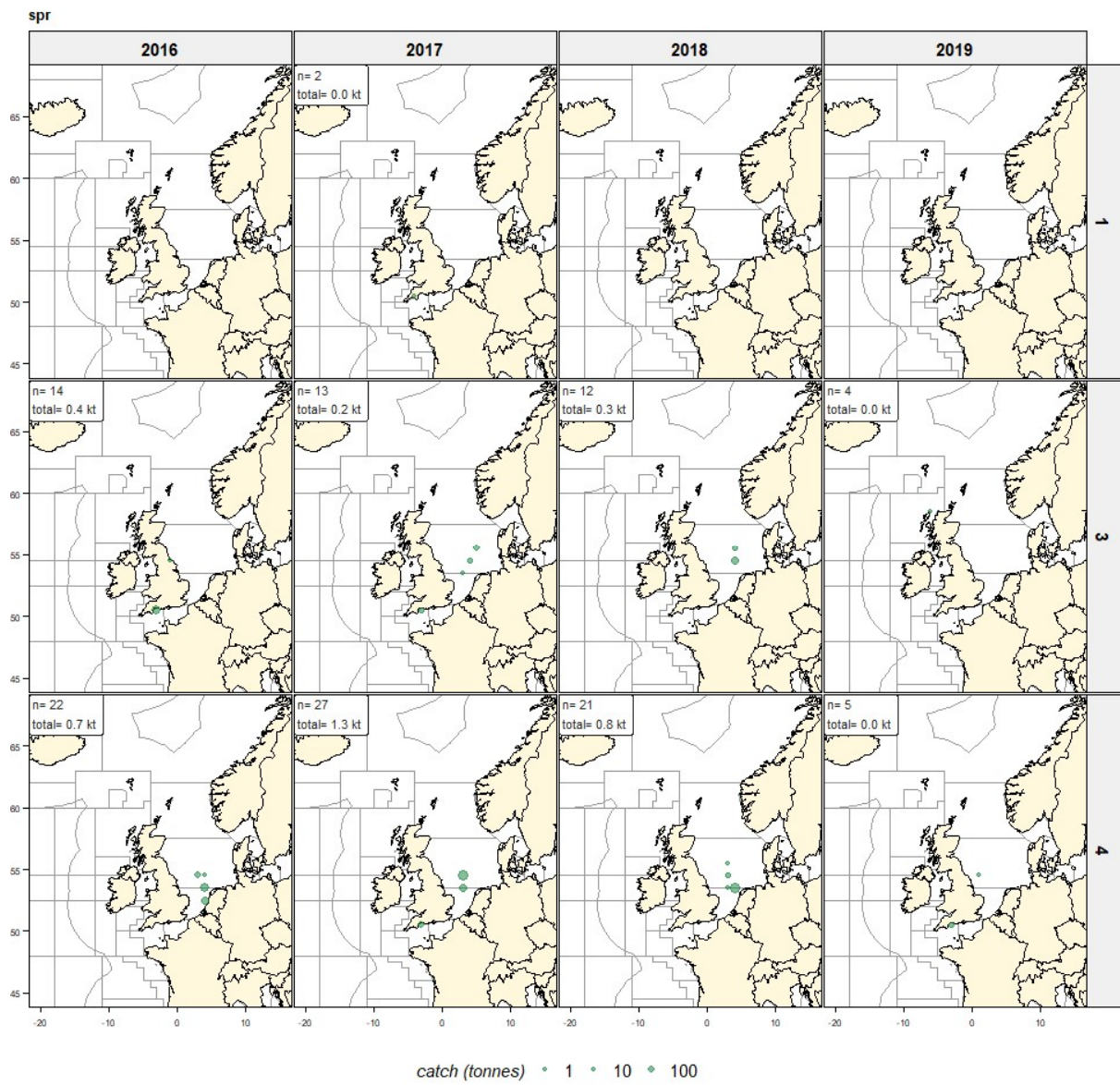
species	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
spr	2015	3	6	21	39	1,828	0	87
spr	2016	4	7	17	36	1,110	156	65
spr	2017	4	6	17	42	1,540	8,262	90
spr	2018	5	6	14	34	1,040	5,737	74
spr	2019	2	2	7	9	32	921	4
spr	(all)	.	27	76	160	5,550	15,076	.

species	division	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
spr	27.4.b	2015	2	3	8	15	690	0	86
spr	27.4.b	2016	3	4	4	5	118	156	29
spr	27.4.b	2017	3	4	12	32	1,333	7,830	111
spr	27.4.b	2018	3	3	9	19	295	4,783	32
spr	27.4.b	2019	1	1	1	1	6	157	6
spr	27.4.c	2015	2	2	9	17	757	0	84
spr	27.4.c	2016	3	3	8	18	602	0	75
spr	27.4.c	2017	0	0	0	0	0	432	0
spr	27.4.c	2018	2	2	4	14	744	954	186
spr	27.7.e	2015	2	2	4	7	380	0	95
spr	27.7.e	2016	2	2	6	13	388	0	64
spr	27.7.e	2017	3	3	5	10	206	0	41
spr	27.7.e	2019	1	1	2	4	25	273	12
spr	other	2018	1	1	1	1	0	0	0
spr	other	2019	1	1	4	4	0	491	0
spr	(all)	2015		7	21	39	1,827	0	
spr	(all)	2016		9	18	36	1,108	156	
spr	(all)	2017		7	17	42	1,539	8,262	
spr	(all)	2018		6	14	34	1,039	5,737	
spr	(all)	2019		3	7	9	31	921	
spr	(all)	(all)		32	77	160	5,544	15,076	

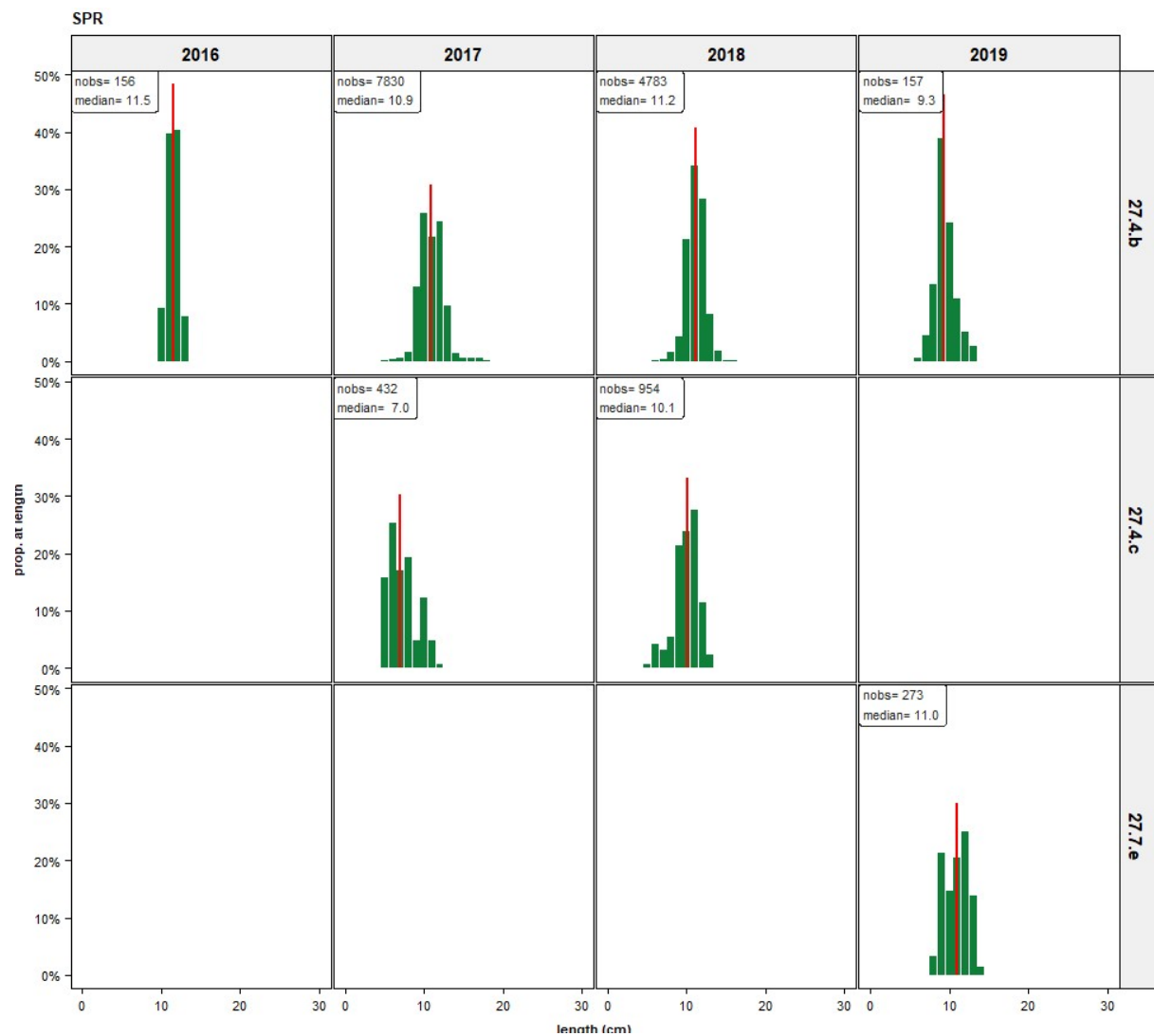
Overview of self-sampling data for Sprat fisheries: catch by year, proportion at length, and average fat content by week.



Sprat catch by year and quarter



Sprat length by division



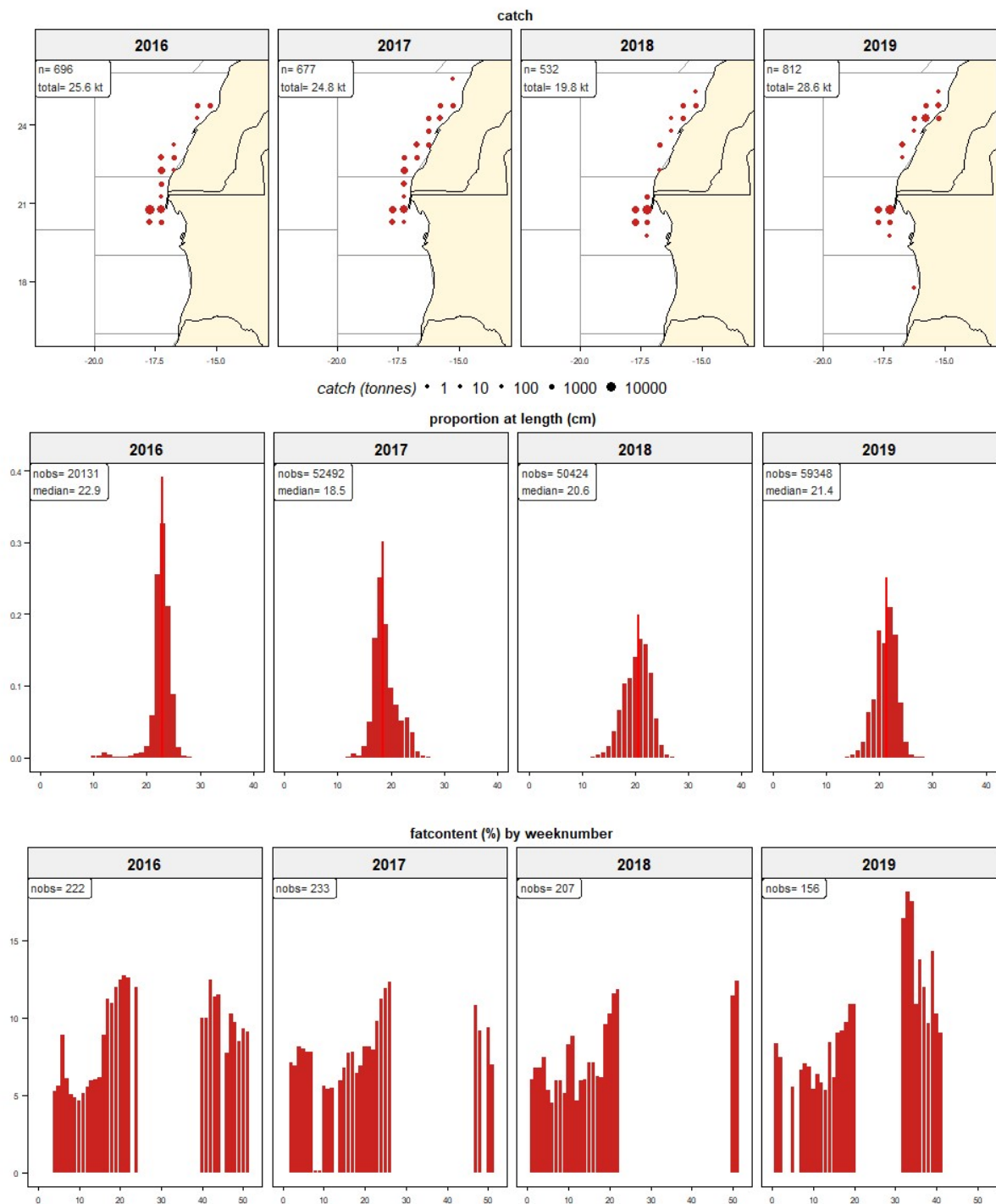
Pilchard/sardines (*Sardina pilchardus*) in FAO area 34 (Western Africa)

Self sampling summary for Pilchard/sardines in FAO area 34 (Western Africa)

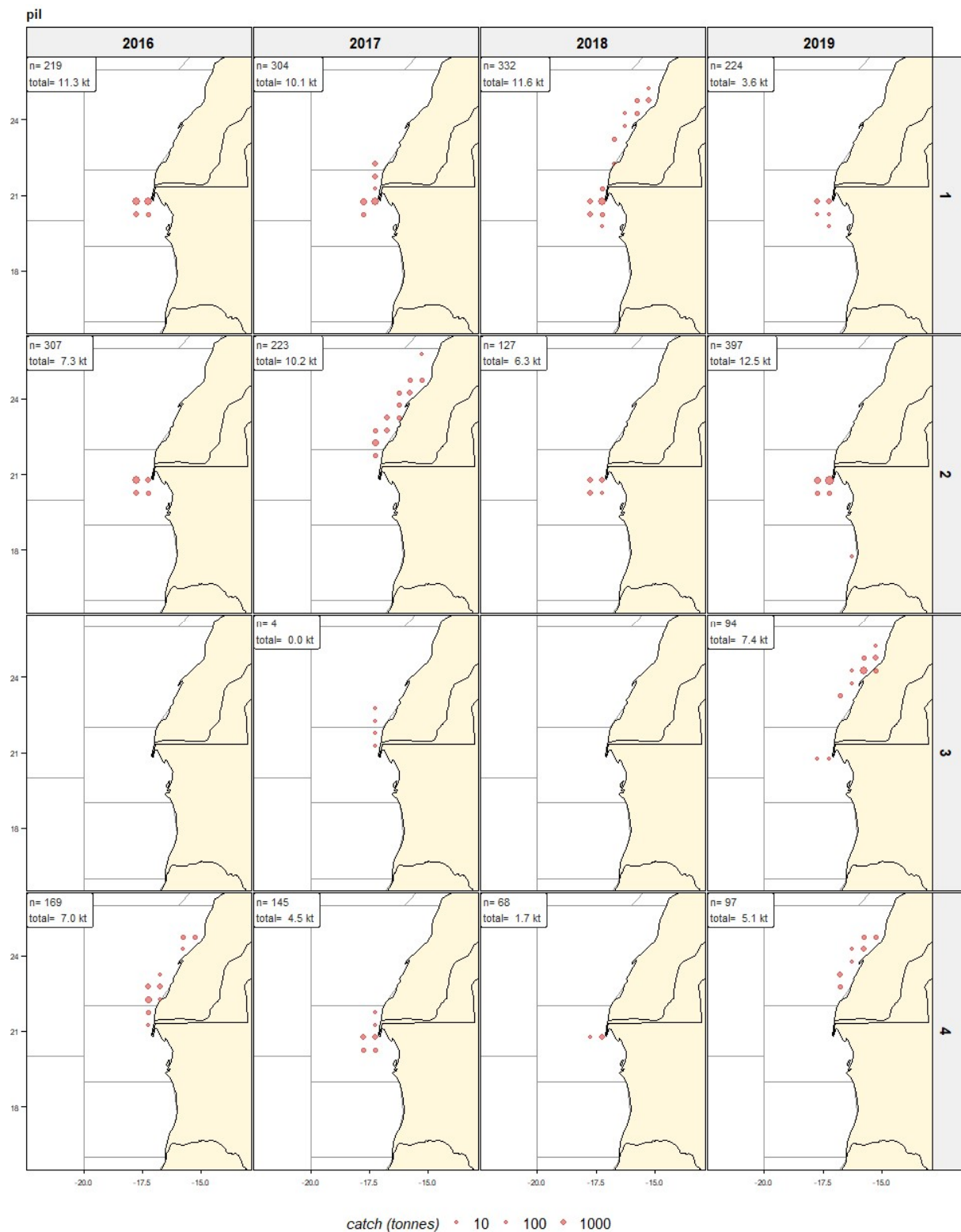
species	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
pil	2016	3	18	239	699	25,568	20,131	106
pil	2017	4	14	214	678	24,770	52,492	115
pil	2018	4	11	184	532	19,797	50,424	107
pil	2019	4	15	290	809	28,623	58,968	98
pil	(all)	.	58	927	2,718	98,758	182,015	.

species	division	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
pil	34.1.3	2016	3	18	239	698	25,568	20,131	106
pil	34.1.3	2017	4	14	214	678	24,770	52,492	115
pil	34.1.3	2018	4	11	184	532	19,797	50,424	107
pil	34.1.3	2019	4	15	289	808	28,622	58,968	99
pil	34.3.1	2016	1	1	1	1	0	0	0
pil	34.3.1	2019	1	1	1	1	1	0	1
pil	(all)	2016		19	240	699	25,568	20,131	
pil	(all)	2017		14	214	678	24,770	52,492	
pil	(all)	2018		11	184	532	19,797	50,424	
pil	(all)	2019		16	290	809	28,623	58,968	
pil	(all)	(all)		60	928	2,718	98,758	182,015	

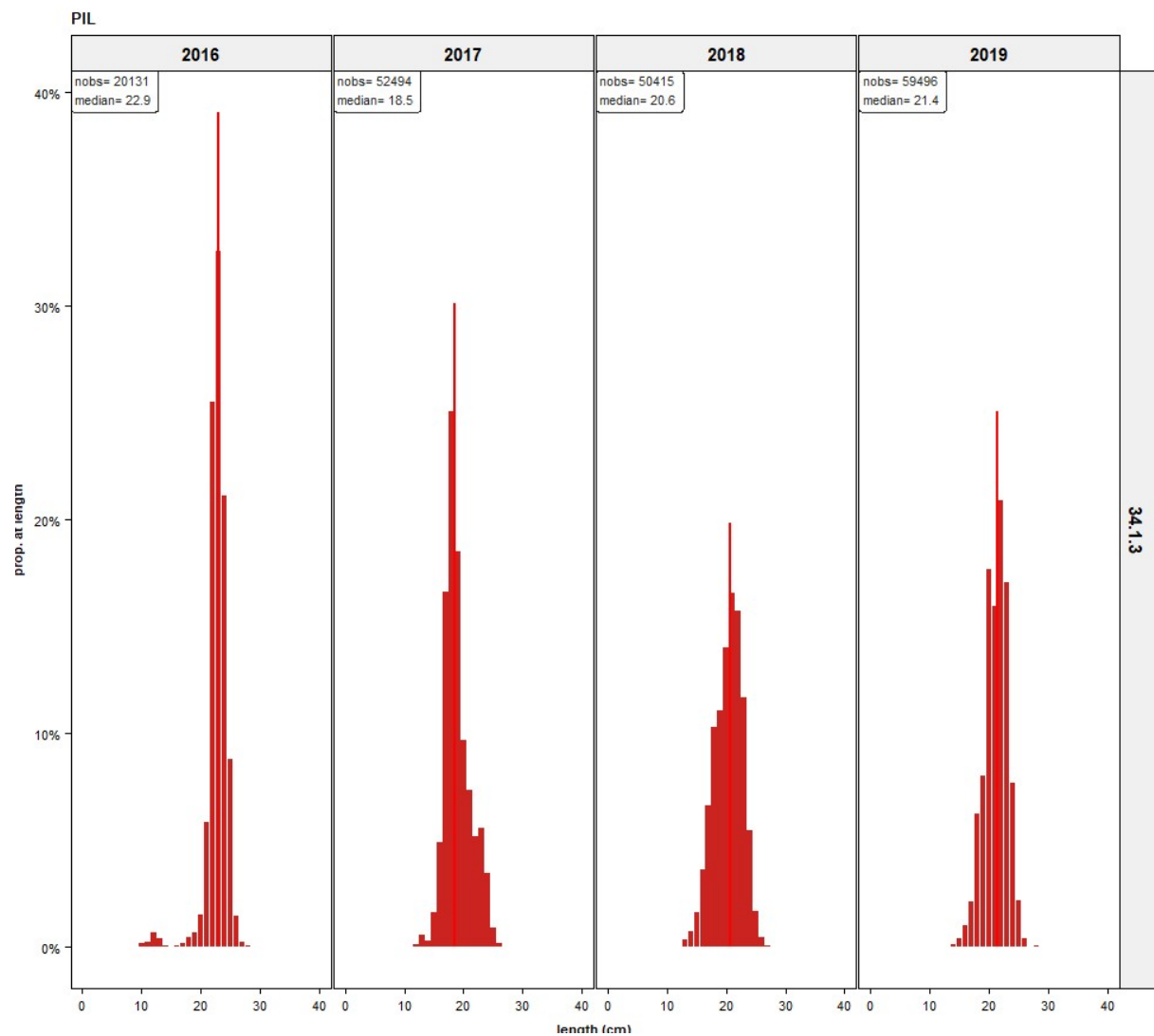
Overview of self-sampling data for Pilchard/sardines fisheries: catch by year, proportion at length, and average fat content by week.



Pilchard/sardines catch by year and quarter



Pilchard/sardines length by division



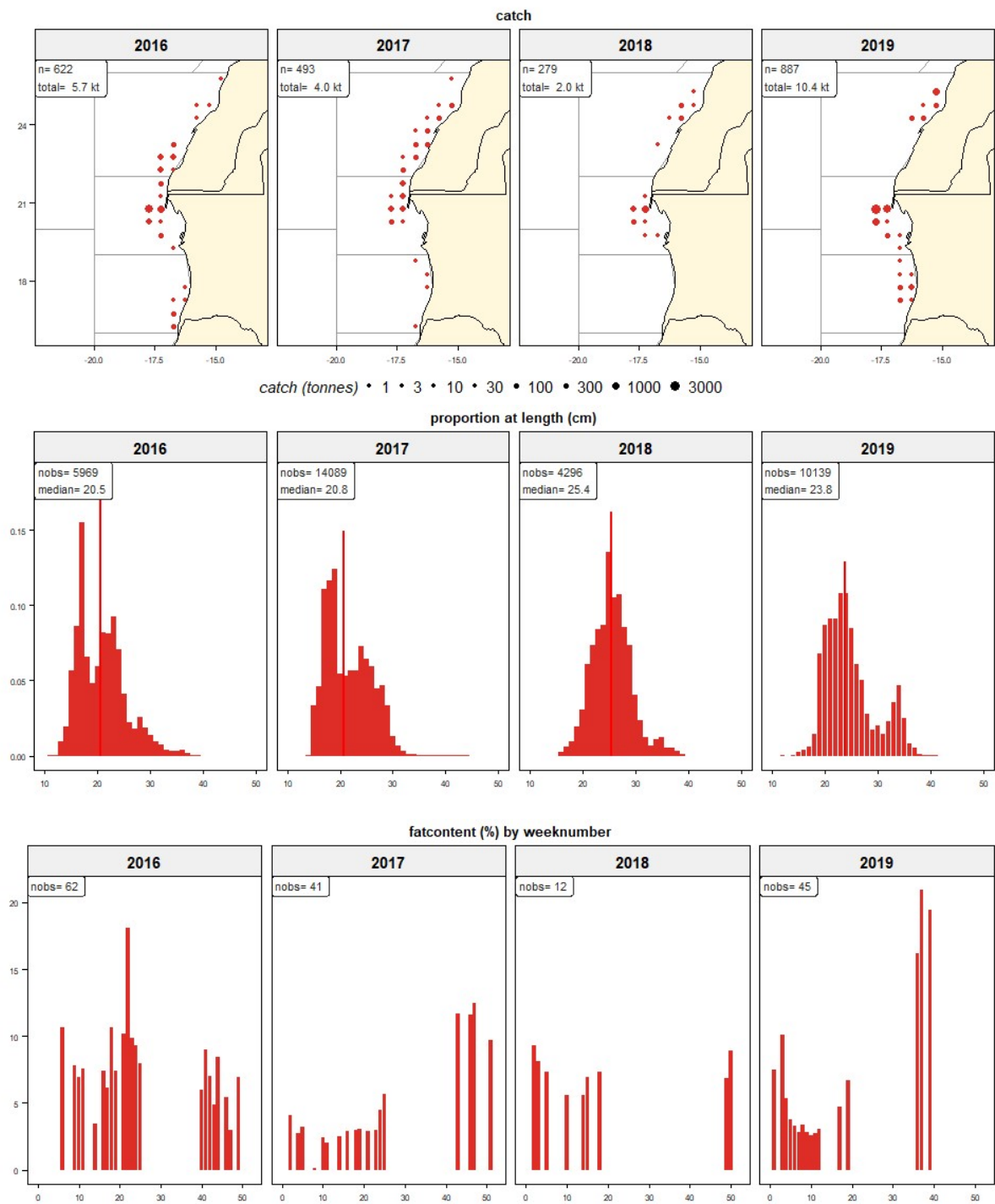
Chub mackerel (*Scomber japonicus*) in FAO area 34 (Western Africa)

Self sampling summary for Chub mackerel in FAO area 34 (Western Africa)

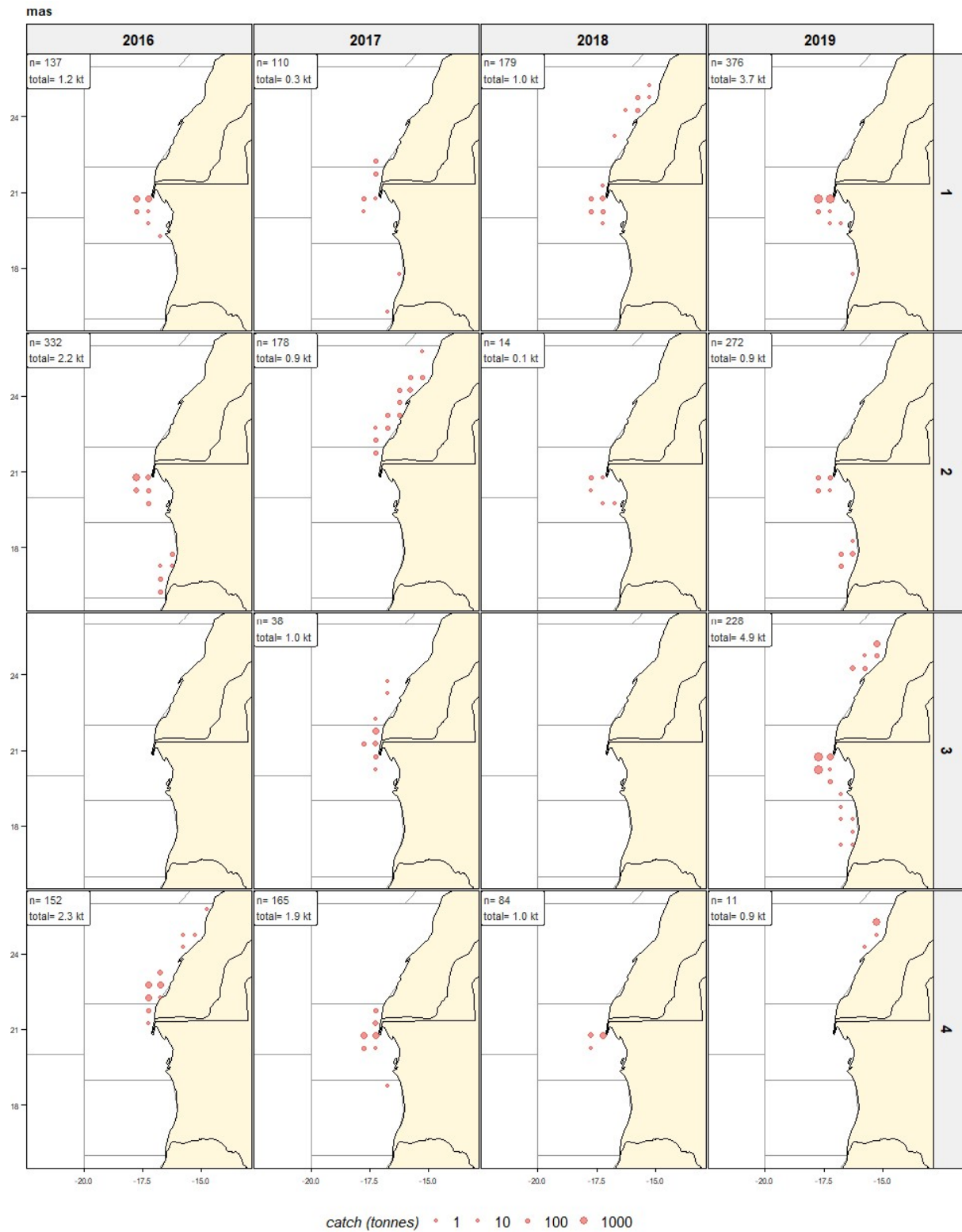
species	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
mas	2016	3	17	246	622	5,684	5,969	23
mas	2017	4	13	208	494	4,026	14,089	19
mas	2018	4	11	129	279	2,046	4,296	15
mas	2019	3	12	376	887	10,418	10,139	27
mas	(all)	.	53	959	2,282	22,174	34,493	.

species	division	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
mas	34.1.3	2016	3	17	240	610	5,470	5,969	22
mas	34.1.3	2017	4	13	205	489	4,021	13,961	19
mas	34.1.3	2018	4	11	129	279	2,046	4,296	15
mas	34.1.3	2019	3	12	355	841	9,714	9,979	27
mas	34.3.1	2016	2	2	7	12	213	0	30
mas	34.3.1	2017	2	3	4	5	5	128	1
mas	34.3.1	2019	2	2	21	46	703	160	33
mas	(all)	2016		19	247	622	5,683	5,969	
mas	(all)	2017		16	209	494	4,026	14,089	
mas	(all)	2018		11	129	279	2,046	4,296	
mas	(all)	2019		14	376	887	10,417	10,139	
mas	(all)	(all)		60	961	2,282	22,172	34,493	

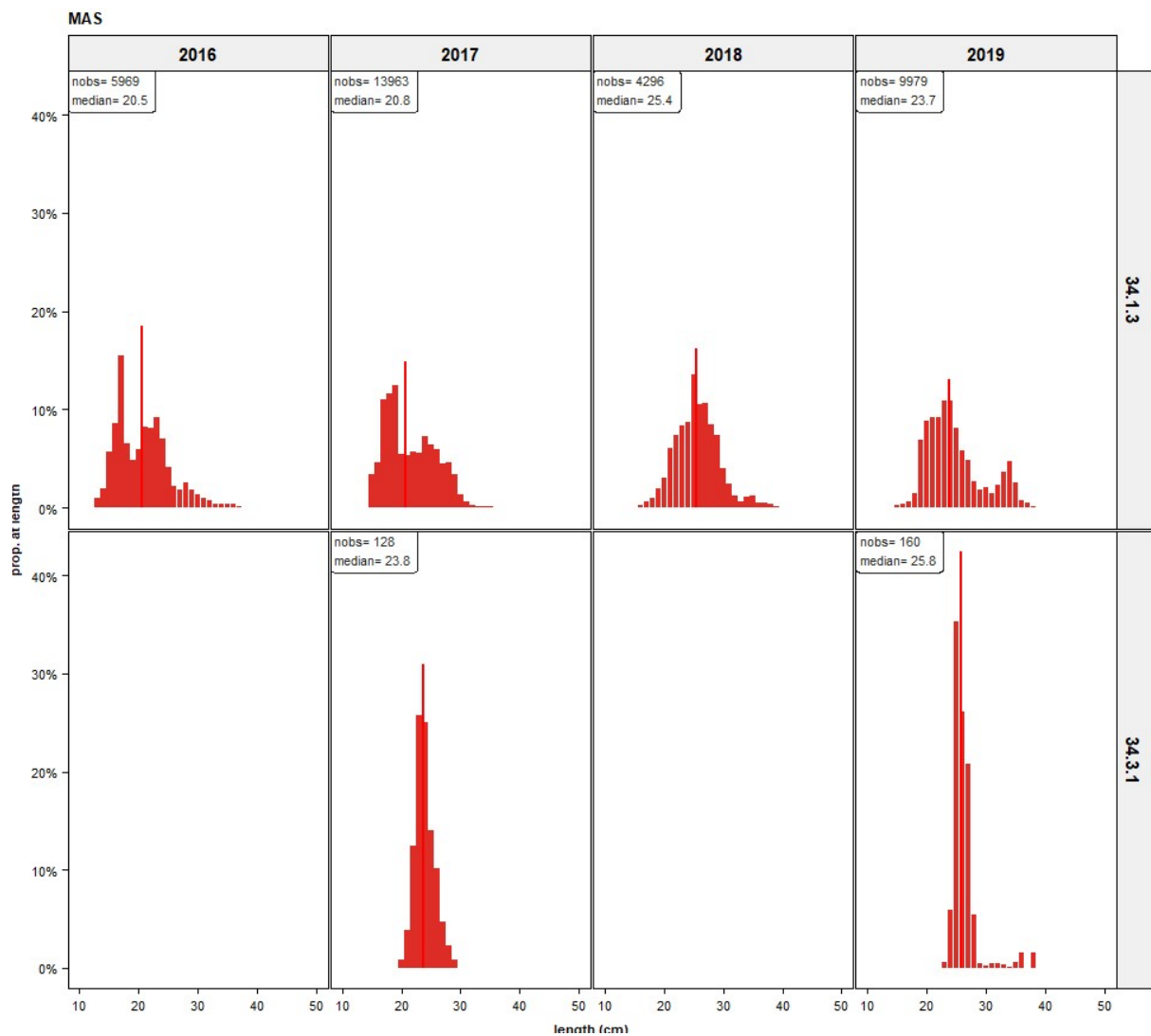
Overview of self-sampling data for Chub mackerel fisheries: catch by year, proportion at length, and average fat content by week.



Chub mackerel catch by year and quarter



Chub mackerel length by division



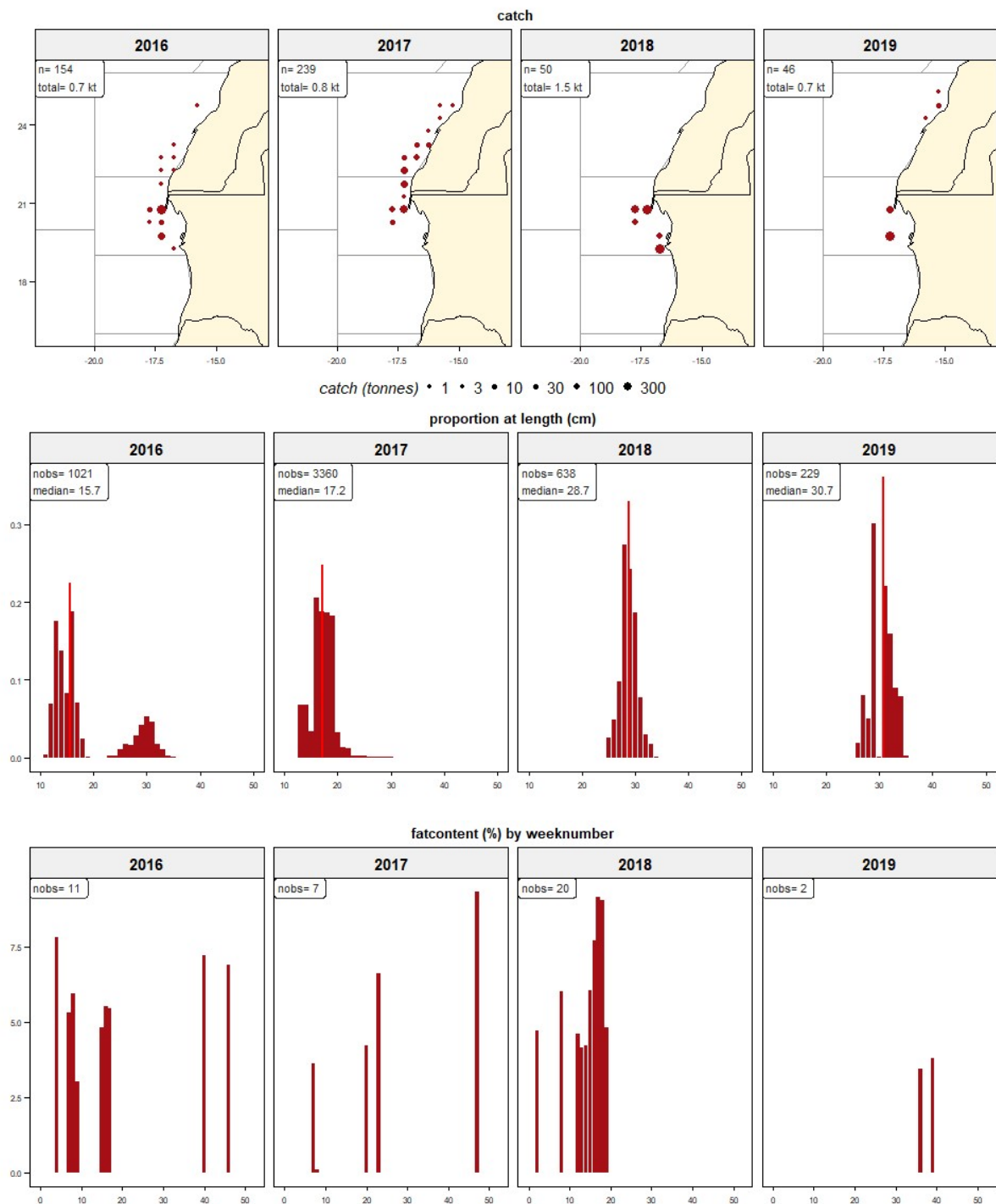
Round sardinella (*Sardinella aurita*) in FAO area 34 (Western Africa)

Self sampling summary for Round sardinella in FAO area 34 (Western Africa)

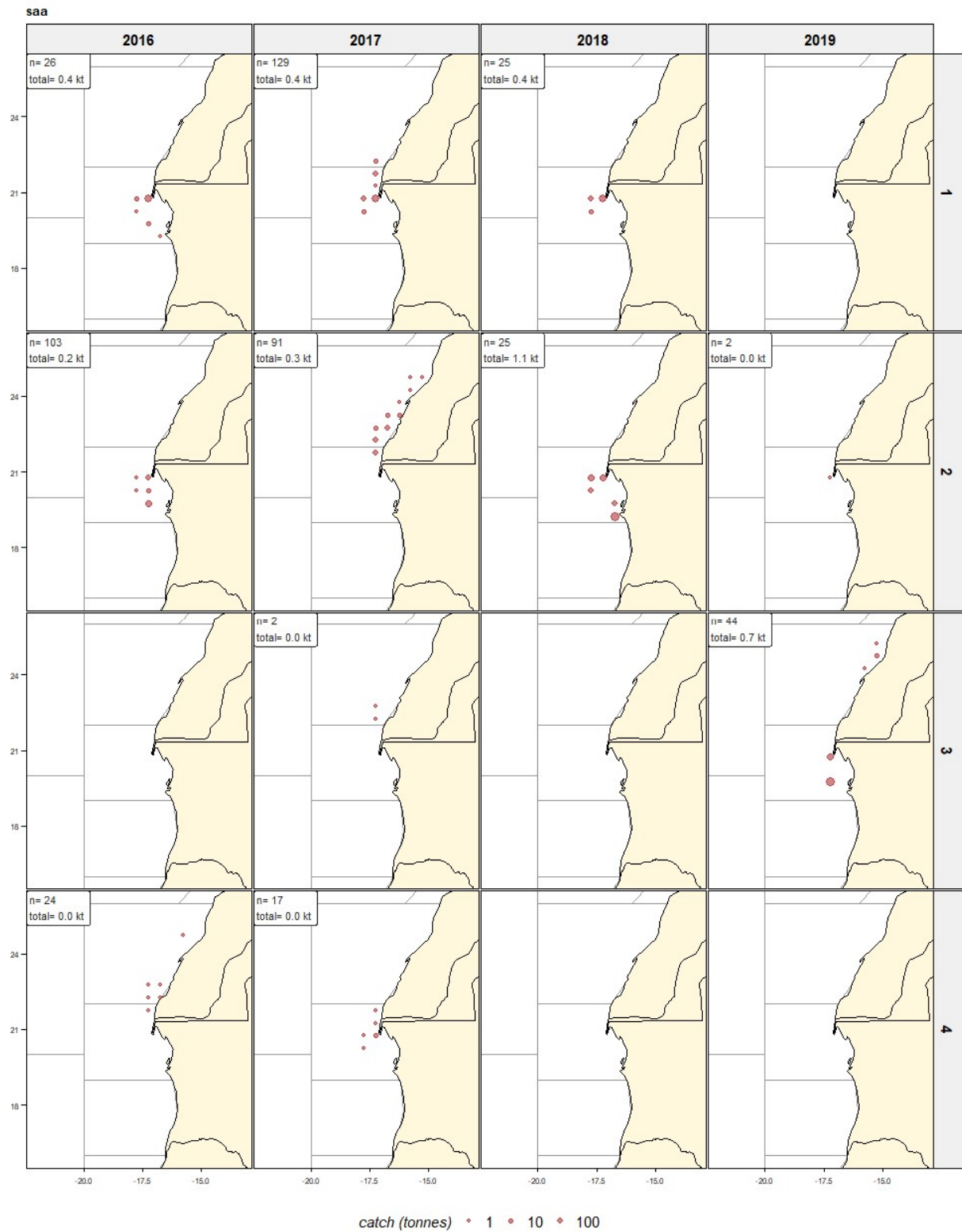
species	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
saa	2016	2	12	66	155	666	1,021	10
saa	2017	4	14	114	239	820	3,360	7
saa	2018	2	5	28	50	1,512	638	54
saa	2019	2	5	32	46	684	229	21
saa	(all)	.	36	240	490	3,682	5,248	.

species	division	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
saa	34.1.3	2016	2	12	66	154	666	1,021	10
saa	34.1.3	2017	4	14	114	239	820	3,360	7
saa	34.1.3	2018	2	5	28	49	1,431	597	51
saa	34.1.3	2019	2	5	32	46	684	229	21
saa	other	2016	1	1	1	1	0	0	0
saa	other	2018	1	1	1	1	80	41	80
saa	(all)	2016		13	67	155	666	1,021	
saa	(all)	2017		14	114	239	820	3,360	
saa	(all)	2018		6	29	50	1,511	638	
saa	(all)	2019		5	32	46	684	229	
saa	(all)	(all)		38	242	490	3,681	5,248	

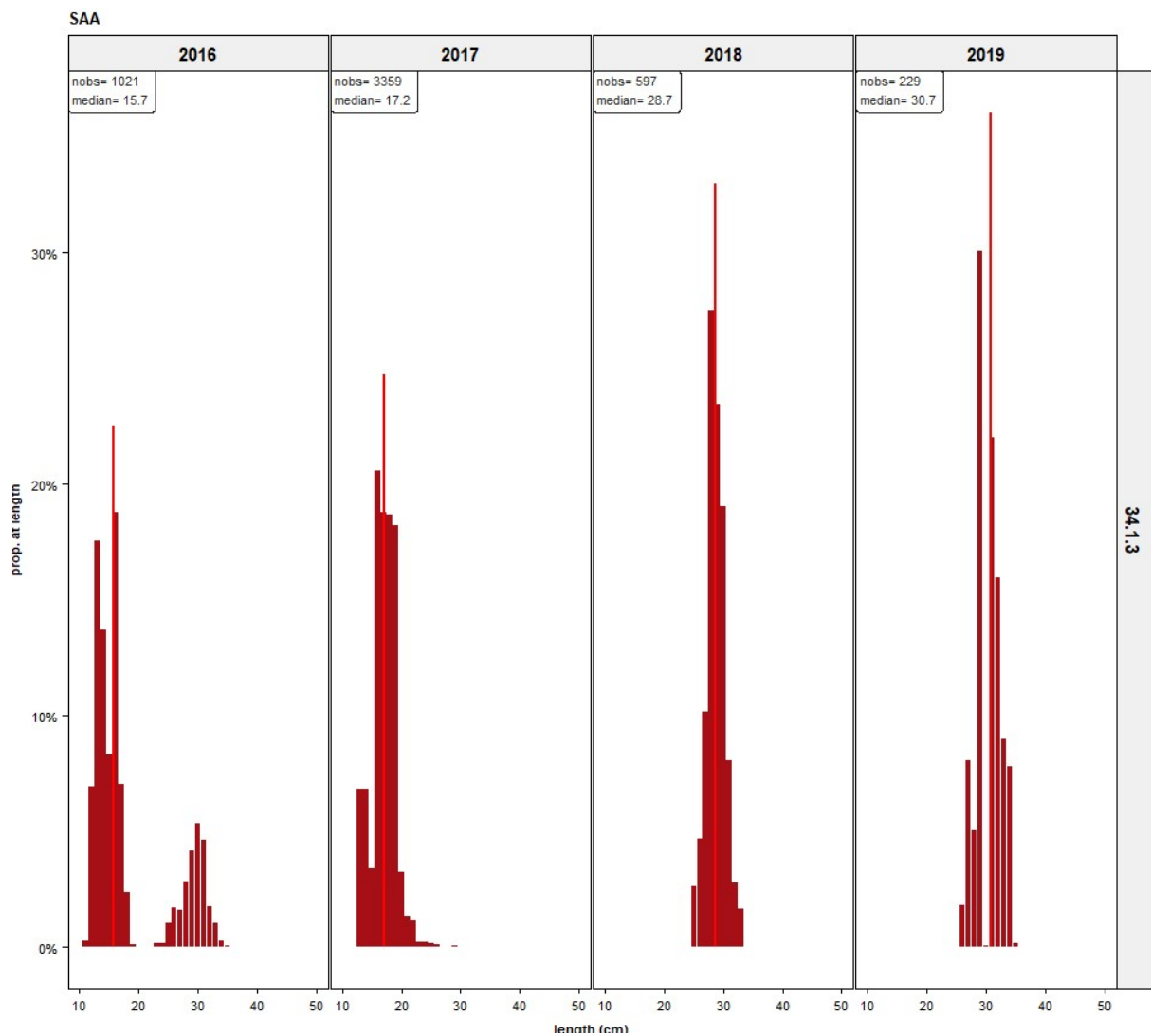
Overview of self-sampling data for Round sardinella fisheries: catch by year, proportion at length, and average fat content by week.



Round sardinella catch by year and quarter



Round sardinella length by division



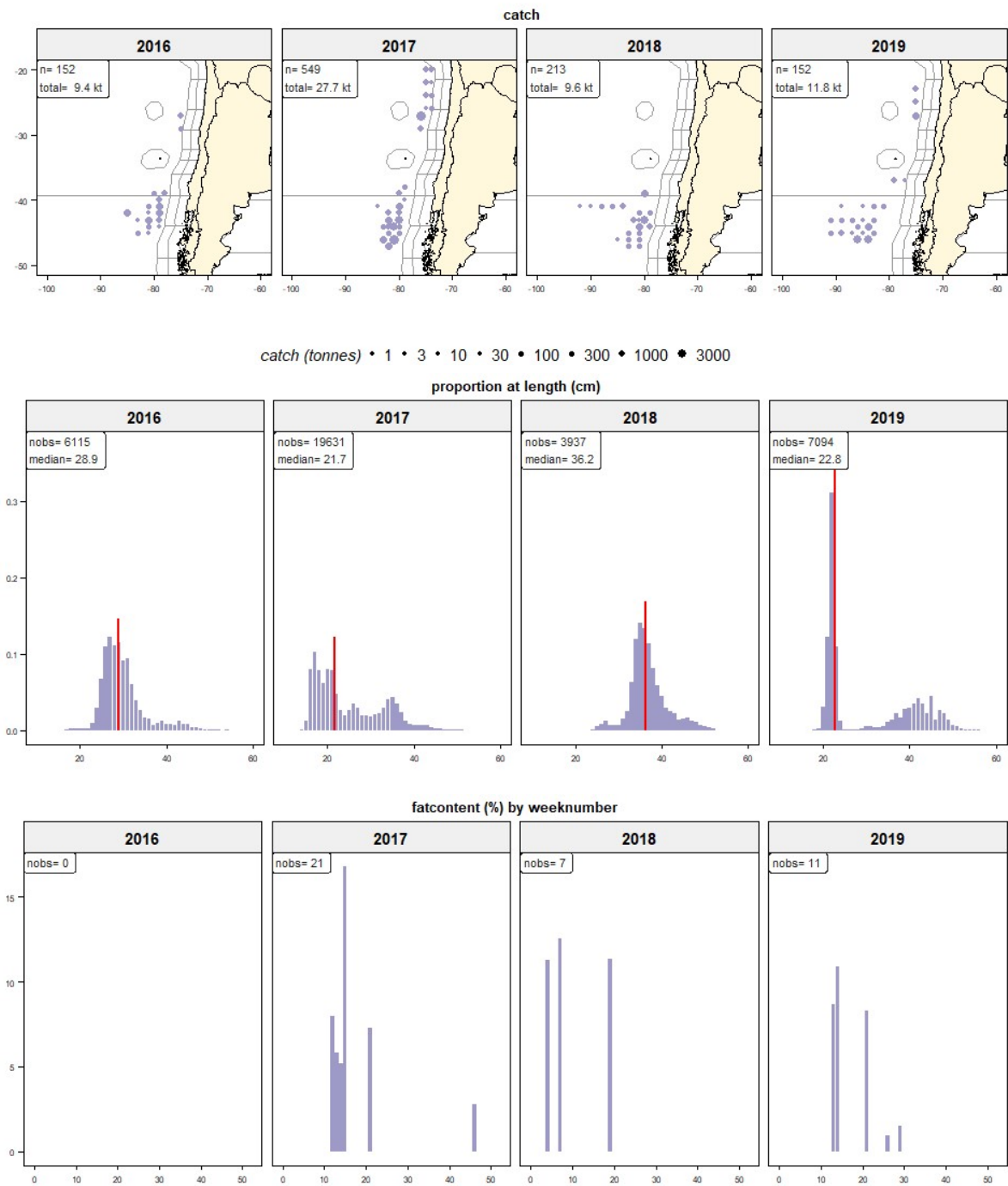
Jack mackerel (*Trachurus murphii*) in FAO area 87 (Southern Pacific)

Self sampling summary for Jack mackerel in FAO area 87 (Southern Pacific)

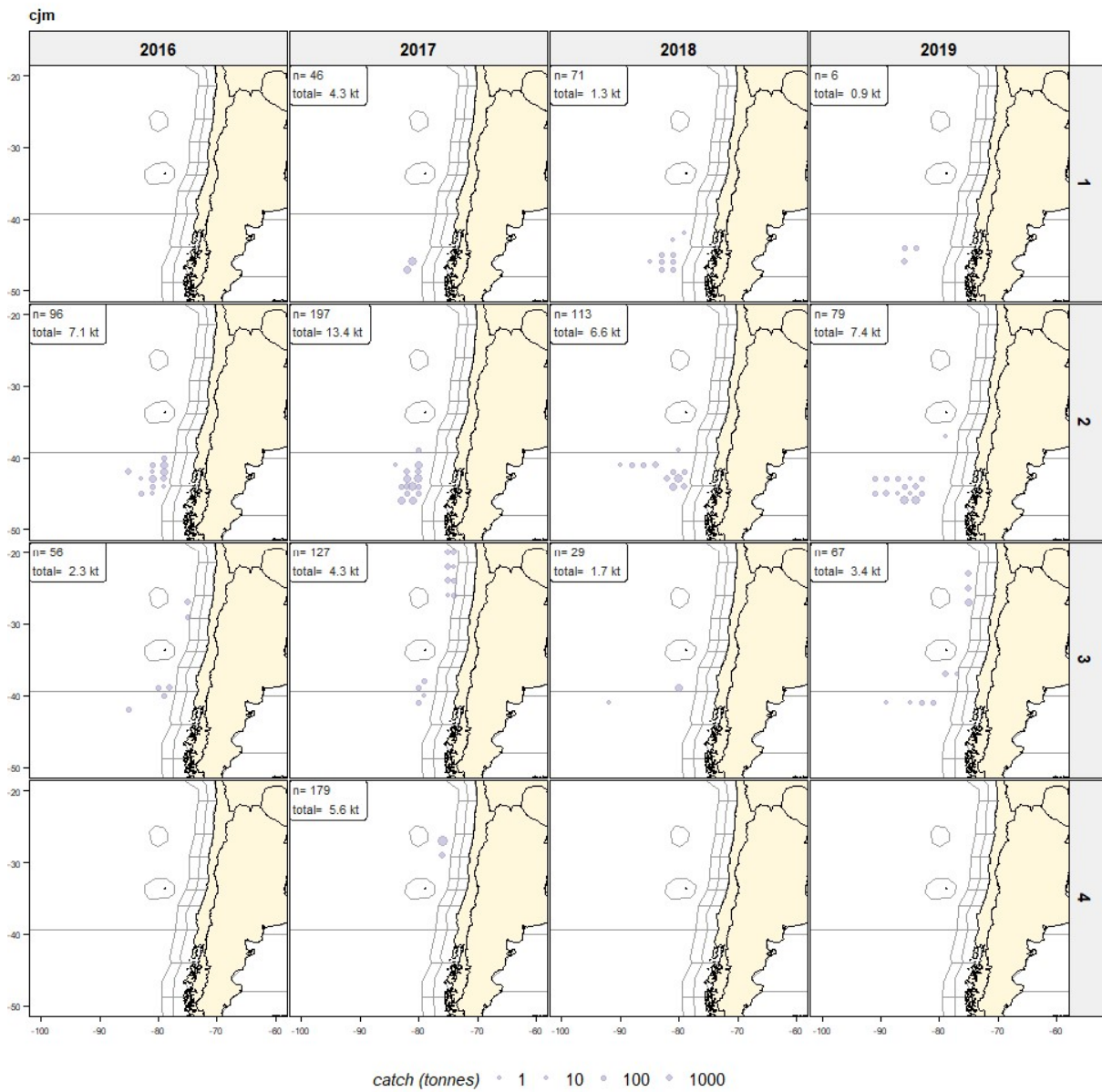
species	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
cjm	2015	2	9	167	337	27,775	7,299	166
cjm	2016	1	4	86	152	9,431	6,115	109
cjm	2017	2	10	263	549	27,652	19,631	105
cjm	2018	1	5	125	213	9,619	3,937	76
cjm	2019	1	3	83	152	11,789	7,094	142
cjm	(all)	.	31	724	1,403	86,266	44,076	.

species	division	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
cjm	87.2.6	2015	2	5	67	114	8,463	3,696	126
cjm	87.2.6	2016	1	3	34	54	2,053	2,974	60
cjm	87.2.6	2017	2	5	129	299	9,673	12,367	74
cjm	87.2.6	2018	1	1	19	32	1,705	592	89
cjm	87.2.6	2019	1	1	34	62	3,157	4,259	92
cjm	87.3.3	2015	2	8	107	223	19,311	3,603	180
cjm	87.3.3	2016	1	2	52	98	7,377	3,141	141
cjm	87.3.3	2017	2	7	134	250	17,978	7,264	134
cjm	87.3.3	2018	1	5	106	181	7,914	3,345	74
cjm	87.3.3	2019	1	3	49	90	8,631	2,835	176
cjm	(all)	2015		13	174	337	27,774	7,299	
cjm	(all)	2016		5	86	152	9,430	6,115	
cjm	(all)	2017		12	263	549	27,651	19,631	
cjm	(all)	2018		6	125	213	9,619	3,937	
cjm	(all)	2019		4	83	152	11,788	7,094	
cjm	(all)	(all)		40	731	1,403	86,262	44,076	

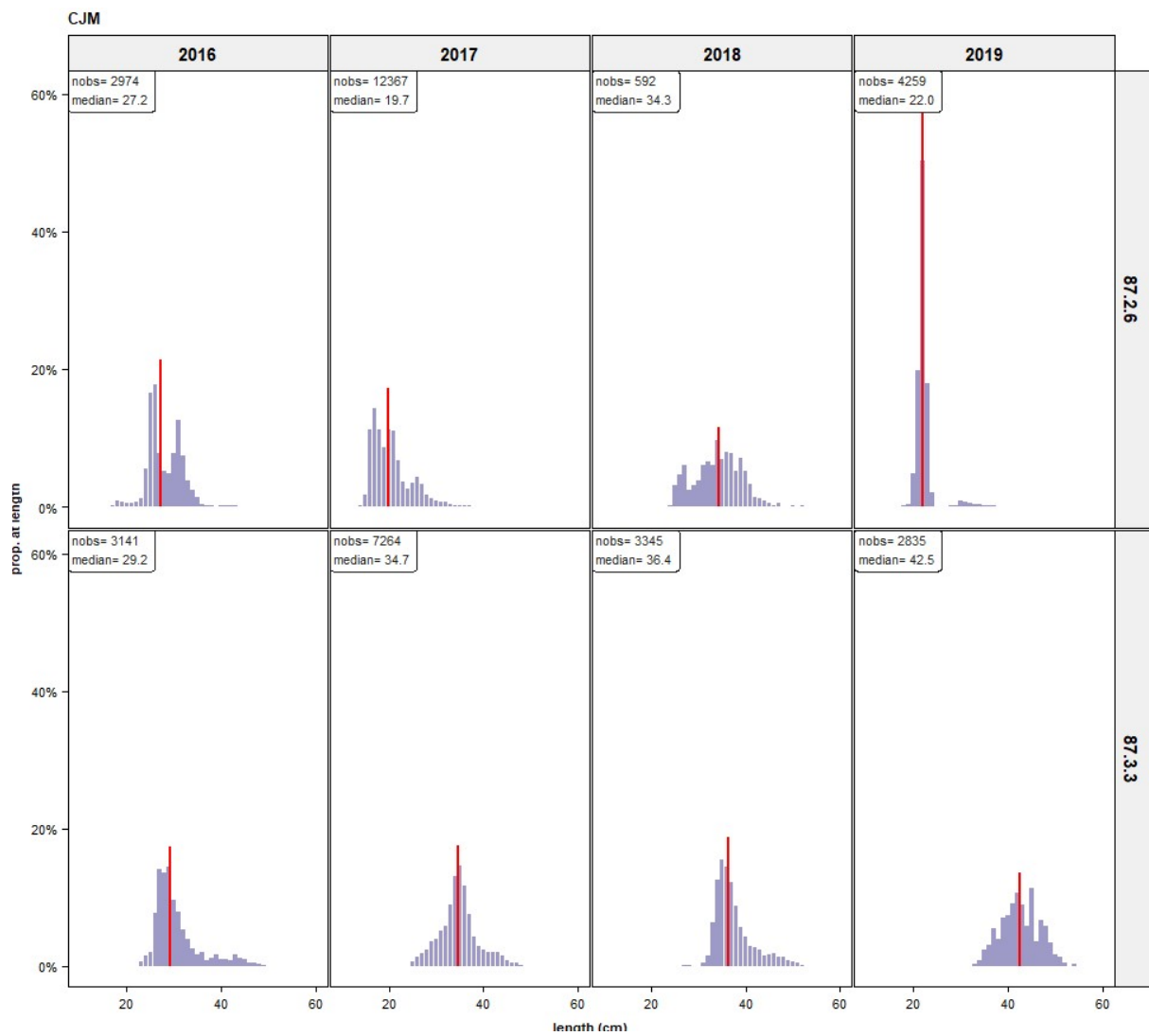
Overview of self-sampling data for Jack mackerel fisheries: catch by year, proportion at length, and average fat content by week.



Jack mackerel catch by year and quarter



Jack mackerel length by division



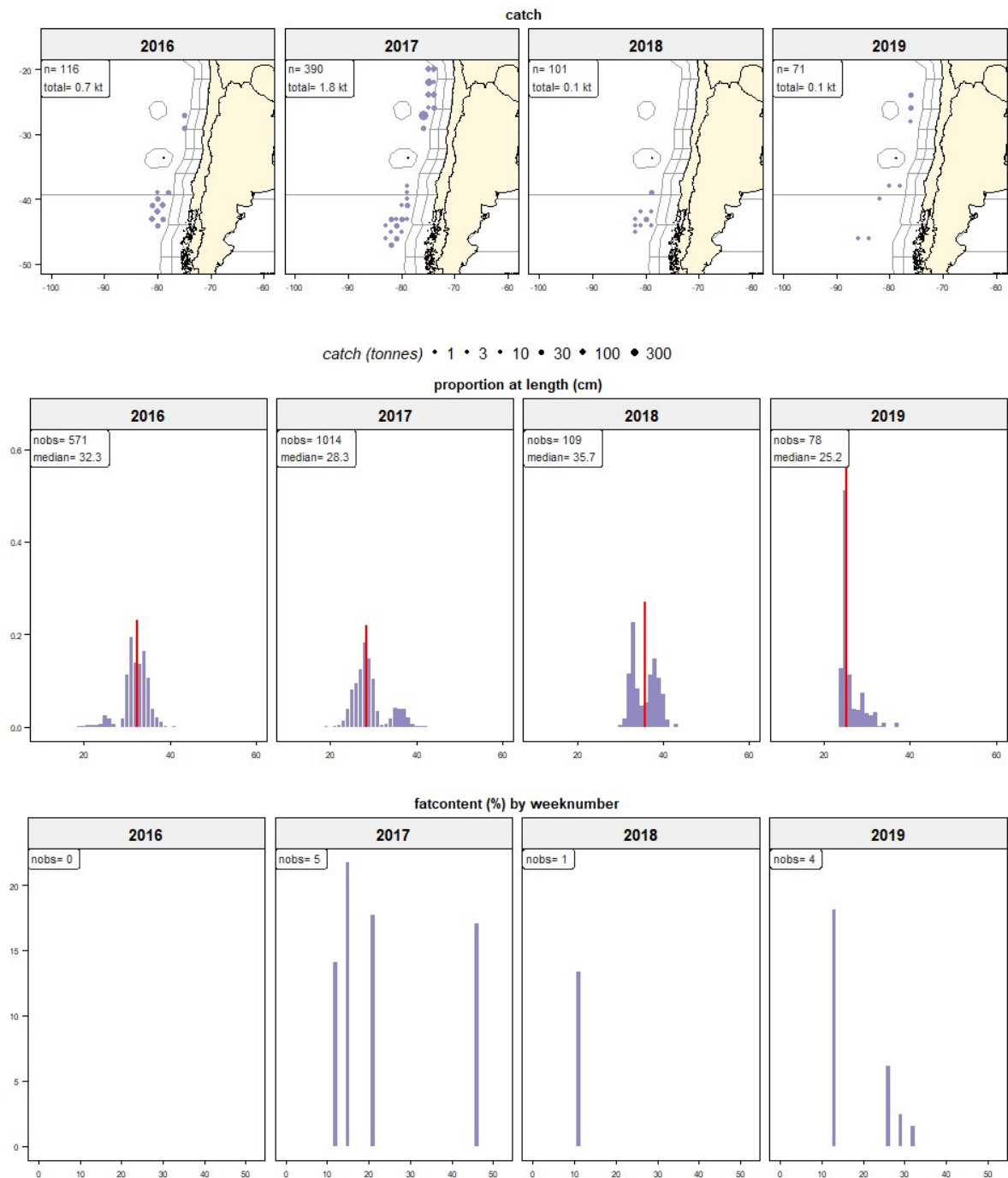
Chub mackerel (*Scomber japonicus*) in FAO area 87 (Southern Pacific)

Self sampling summary for Chub mackerel in FAO area 87 (Southern Pacific)

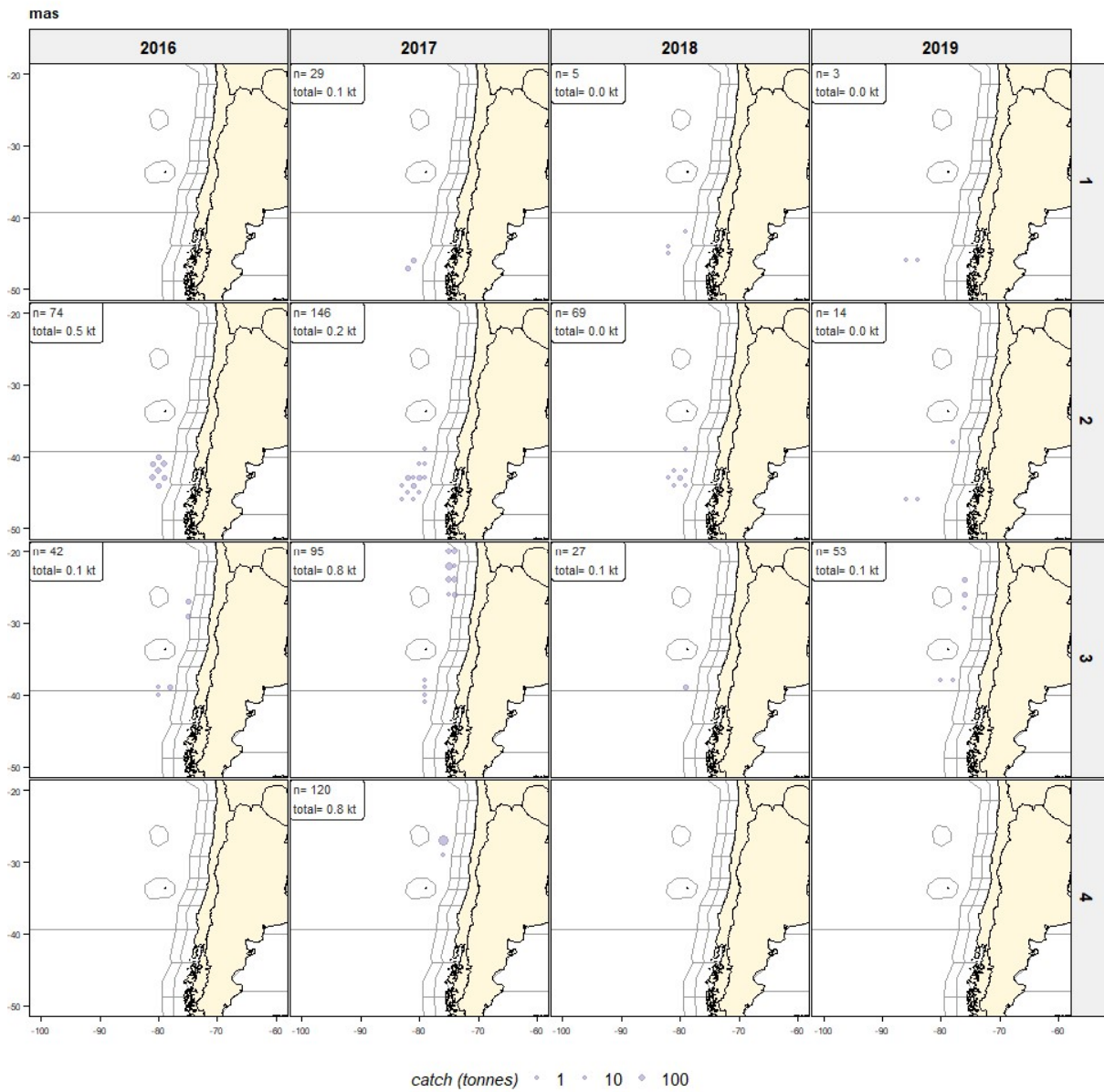
species	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
mas	2015	2	7	104	172	822	0	7
mas	2016	1	4	67	116	673	571	10
mas	2017	2	10	220	390	1,836	1,014	8
mas	2018	1	5	67	101	117	109	1
mas	2019	1	3	47	72	122	78	2
mas	(all)	.	29	505	851	3,570	1,772	.

species	division	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
mas	87.2.6	2015	2	5	49	75	566	0	11
mas	87.2.6	2016	1	3	28	42	136	304	4
mas	87.2.6	2017	2	5	106	209	1,586	878	14
mas	87.2.6	2018	1	1	18	30	68	60	3
mas	87.2.6	2019	1	1	31	55	119	78	3
mas	87.3.3	2015	2	6	57	97	255	0	4
mas	87.3.3	2016	1	2	39	74	536	267	13
mas	87.3.3	2017	2	7	114	181	249	136	2
mas	87.3.3	2018	1	4	49	71	48	49	0
mas	87.3.3	2019	1	3	16	17	3	0	0
mas	(all)	2015		11	106	172	821	0	
mas	(all)	2016		5	67	116	672	571	
mas	(all)	2017		12	220	390	1,835	1,014	
mas	(all)	2018		5	67	101	116	109	
mas	(all)	2019		4	47	72	122	78	
mas	(all)	(all)		37	507	851	3,566	1,772	

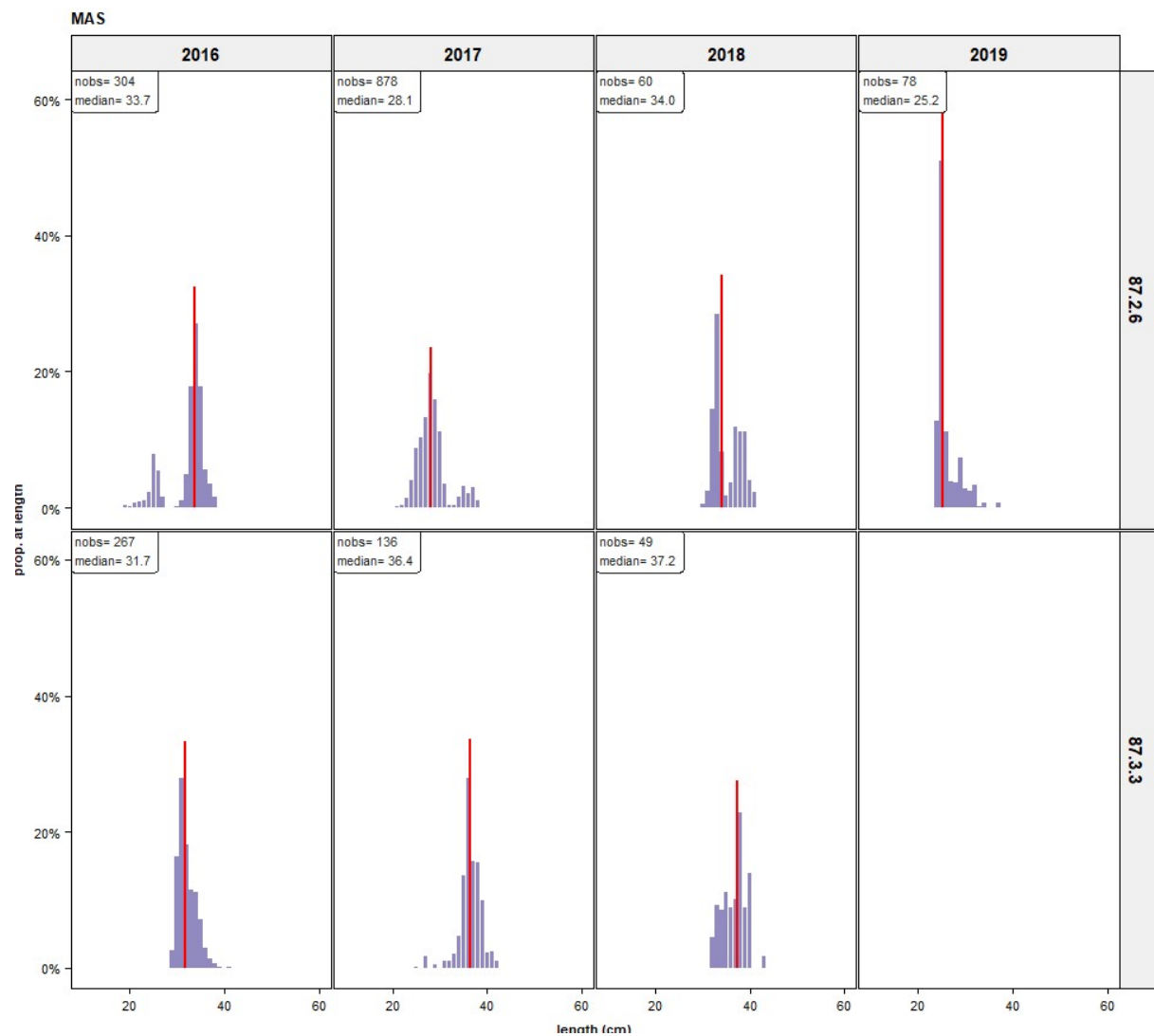
Overview of self-sampling data for Chub mackerel fisheries: catch by year, proportion at length, and average fat content by week.



Chub mackerel catch by year and quarter



Chub mackerel length by division



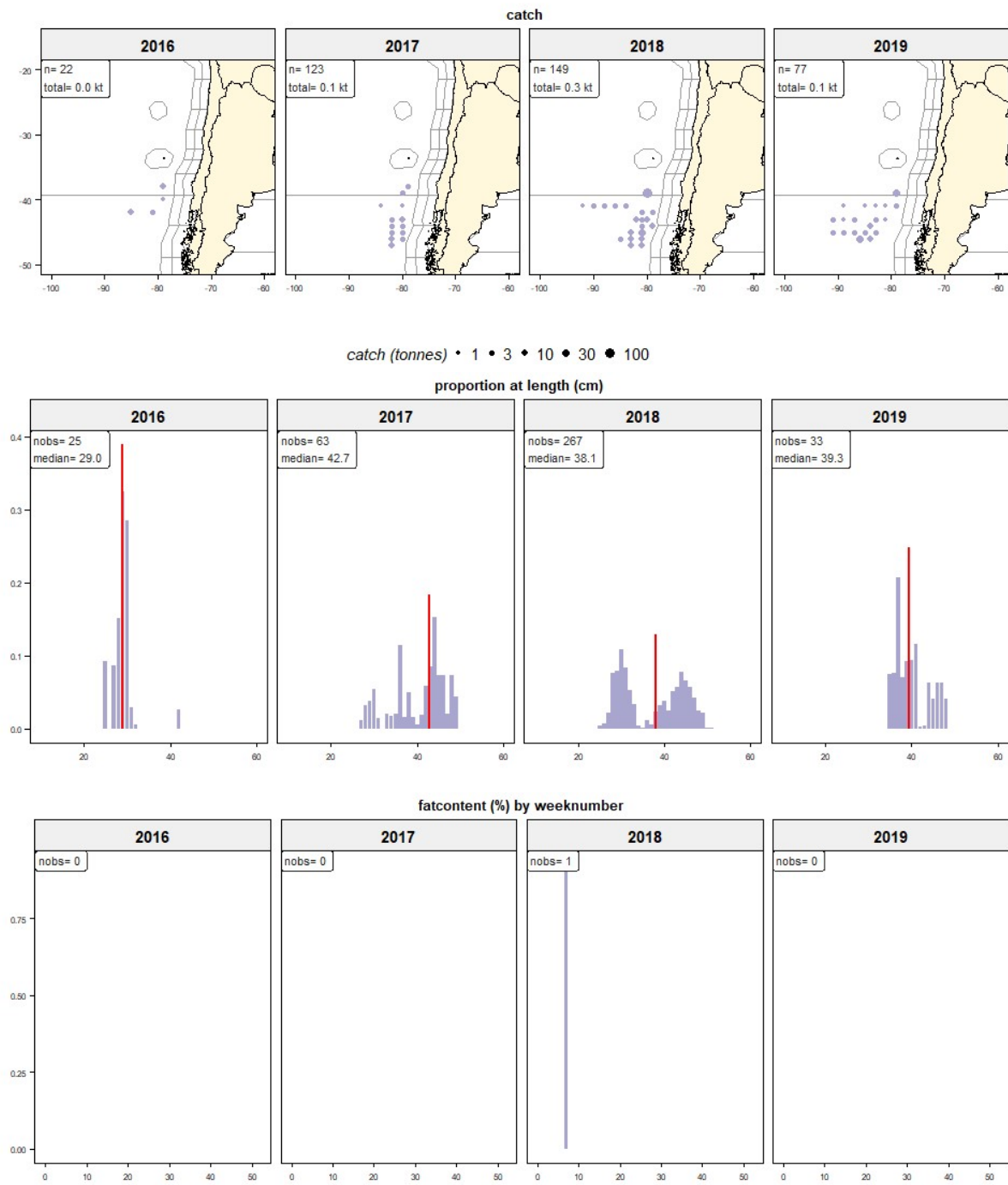
Southern rays breem (*Brama australis*) in FAO area 87 (Southern Pacific)

Self sampling summary for Southern rays breem in FAO area 87 (Southern Pacific)

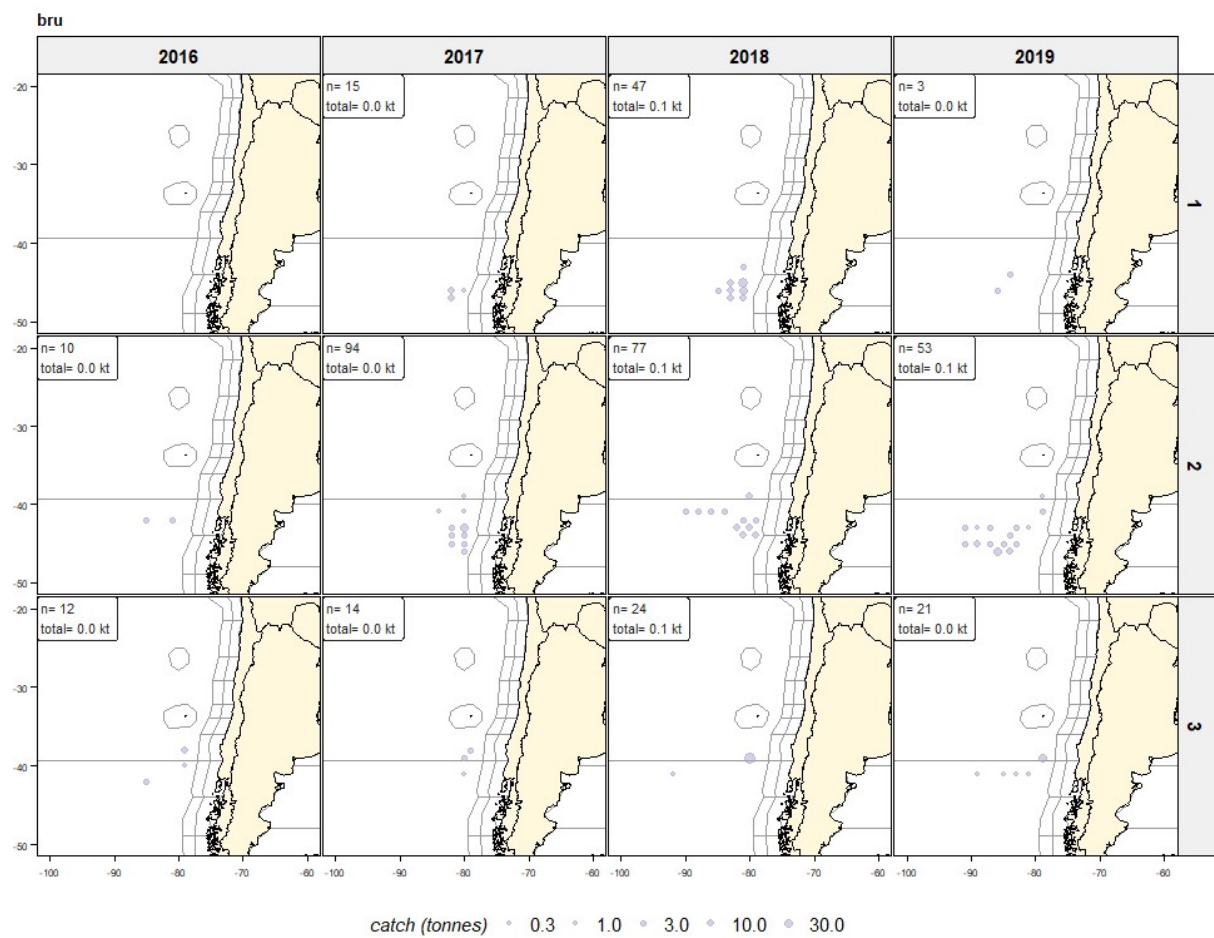
species	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
bru	2015	2	7	75	104	152	0	2
bru	2016	1	2	18	22	24	25	1
bru	2017	2	7	90	123	83	63	0
bru	2018	1	5	114	149	289	267	2
bru	2019	1	3	62	77	127	33	2
bru	(all)	.	24	359	475	675	388	.

species	division	year	nvessels	ntrips	ndays	nhauls	catch	nlength	catch/day
bru	87.2.6	2015	2	3	17	20	13	0	0
bru	87.2.6	2016	1	2	10	10	12	16	1
bru	87.2.6	2017	2	2	8	12	5	11	0
bru	87.2.6	2018	1	1	18	27	101	69	5
bru	87.2.6	2019	1	2	15	18	36	19	2
bru	87.3.3	2015	2	6	59	84	138	0	2
bru	87.3.3	2016	1	1	8	12	11	9	1
bru	87.3.3	2017	2	6	82	111	77	52	0
bru	87.3.3	2018	1	5	96	122	188	198	1
bru	87.3.3	2019	1	3	47	59	91	14	1
bru	(all)	2015		9	76	104	151	0	
bru	(all)	2016		3	18	22	23	25	
bru	(all)	2017		8	90	123	82	63	
bru	(all)	2018		6	114	149	289	267	
bru	(all)	2019		5	62	77	127	33	
bru	(all)	(all)		31	360	475	672	388	

Overview of self-sampling data for Southern rays bream fisheries: catch by year, proportion at length, and average fat content by week.



Southern rays bream catch by year and quarter



Southern rays breem length by division

