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SC6-JM03

PFA selfsampling report for SPRFMO, 2015-2018

Martin Pastoors, 30/07/2018

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Abstract

A description is presented of the fisheries carried out by vessels belonging to members of the Pelagic Freezer-trawler Association (PFA) within the SPRFMO area from 2015 to 2018. On the vessels, the PFA self-sampling programme has been carried out during all trips and for all hauls. The self-sampling programme delivers information on spatial and temporal evolution of the fishery, species and length compositions and ambient fishing conditions (temperature and depth). Catch distributions and length compositions by quarter and division are presented for jack mackerel, chub mackerel and southern rays bream.

1 Introduction

The Pelagic Freezer-trawler Association (PFA) is an association that has nine member companies that together operate 19 (in 2018) freezer trawlers in five 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 self-sampling programme in the SPRFMO area has been implemented on vessels from the Netherlands, Germany and Lithuania during the years 2015-2018. All trips by all PFA vessels fishing in the south Pacific will be monitored by self-sampling, also when there is a scientific observer on board for a certain trip.

The self-sampling programme 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 information needed for the SPRFMO Science Committee. The following 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.

For presentation to SFRFMO, all trips carried out in the Southern Pacific have been selected for the years 2015-2018. Because the year 2018 is still ongoing, the information for that year is not complete yet.

3 Sampling intensity and spatio-temporal coverage

Within the Southern Pacific, there have been 2 PFA vessels fishing in 2015, 1 PFA vessel in 2016 and 2 PFA vessels in 2017 and 1 PFA vessel in 2018. In most years, the vessels have been active from March/April to September. In 2018, the PFA vessel has been active from the start of the year. A summary of the trip properties is presented in table 3.a.

variable	2015	2016	2017	2018
nvessels	2	1	2	1
ntrips	9	4	10	5
ndays	178	95	277	130
nhauls	378	169	615	236
catch	27,868	10,284	29,652	10,235
nlen	7,381	6,845	20,829	4,692

Table 3.a: PFA selfsampling summary of the number of days, hauls, trips, vessels and fish measured by area and year

Haul positions

The overview of hauls is shown in figure 3.a.

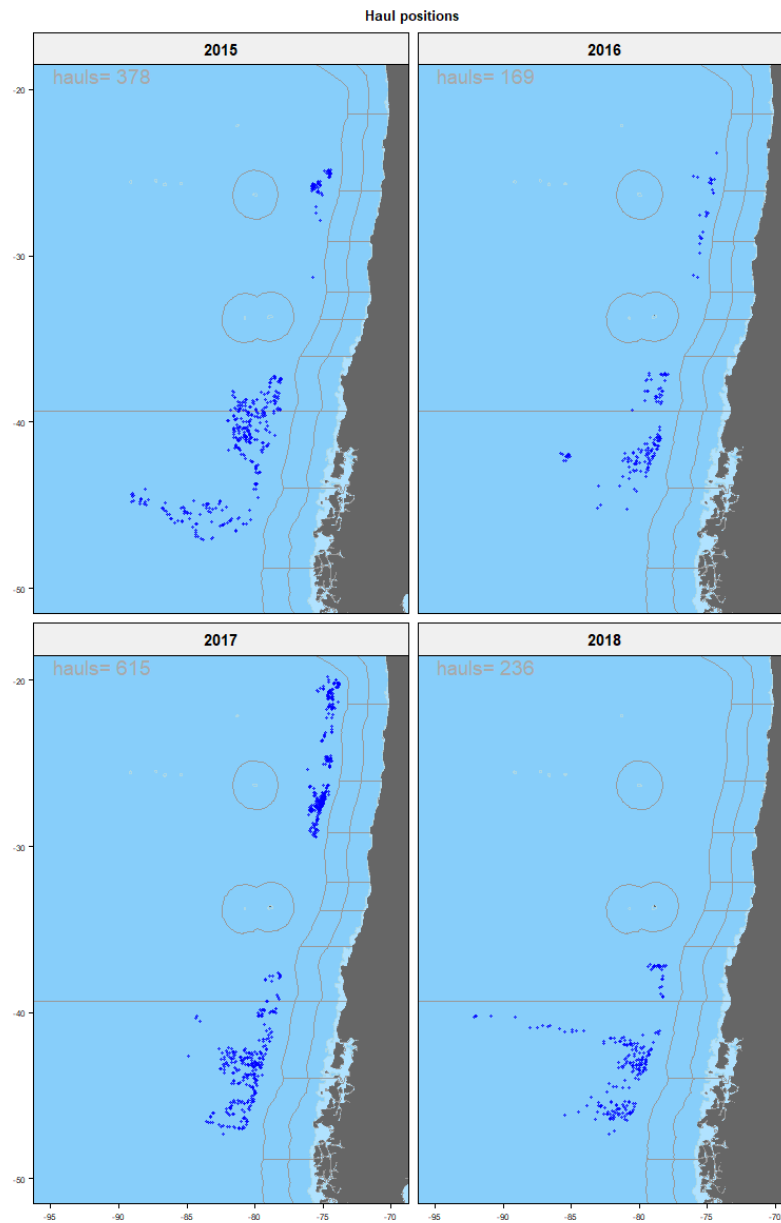


Figure 3.a: Overview of all hauls in PFA South Pacific fisheries, by year (2018 only up to 22/07/2018)

4 Catch information

Catches by species and year are shown in table 4.a (in tonnes).

species	scientific_name	english_name	2015	2016	2017	2018	total
cjm	Trachurus murphyi	Chilean jack mackerel	27,955	9,304	27,697	9,619	74,575
mas	Scomber japonicus	Chub mackerel	801	678	1,784	117	3,380
bru	Brama australis	Southern rays bream	139	23	84	289	535
uba	Cubiceps caeruleus	Blue fathead	47	145	85	207	484
slt	Allothenus fallai	Slender tuna	28	0	0	0	28
poa	Brama brama	Atlantic pomfret	0	6	0	0	6
TOTAL			28,970	10,156	29,650	10,232	79,008

Table 4.a: Self-sampled catch by species and year (2018 only up to 22/07/2018)

4.1 Jack mackerel (CJM, Trachurus murphyi)

A summary of the jack mackerel statistics in the self-sampling programme by year are shown in the text table below.

year	nvessels	ntrips	ndays	nhauls	catch	nlen
2015	2	9	167	336	26,852	7,381
2016	1	4	86	152	9,431	6,042
2017	2	10	263	549	27,652	19,631
2018	1	5	125	213	9,619	3,937
(all)	.	28	641	1,250	73,554	36,991

The distribution of the jack mackerel catches in the self-sampling programme by year and quarter are shown in figure 4.1.a.

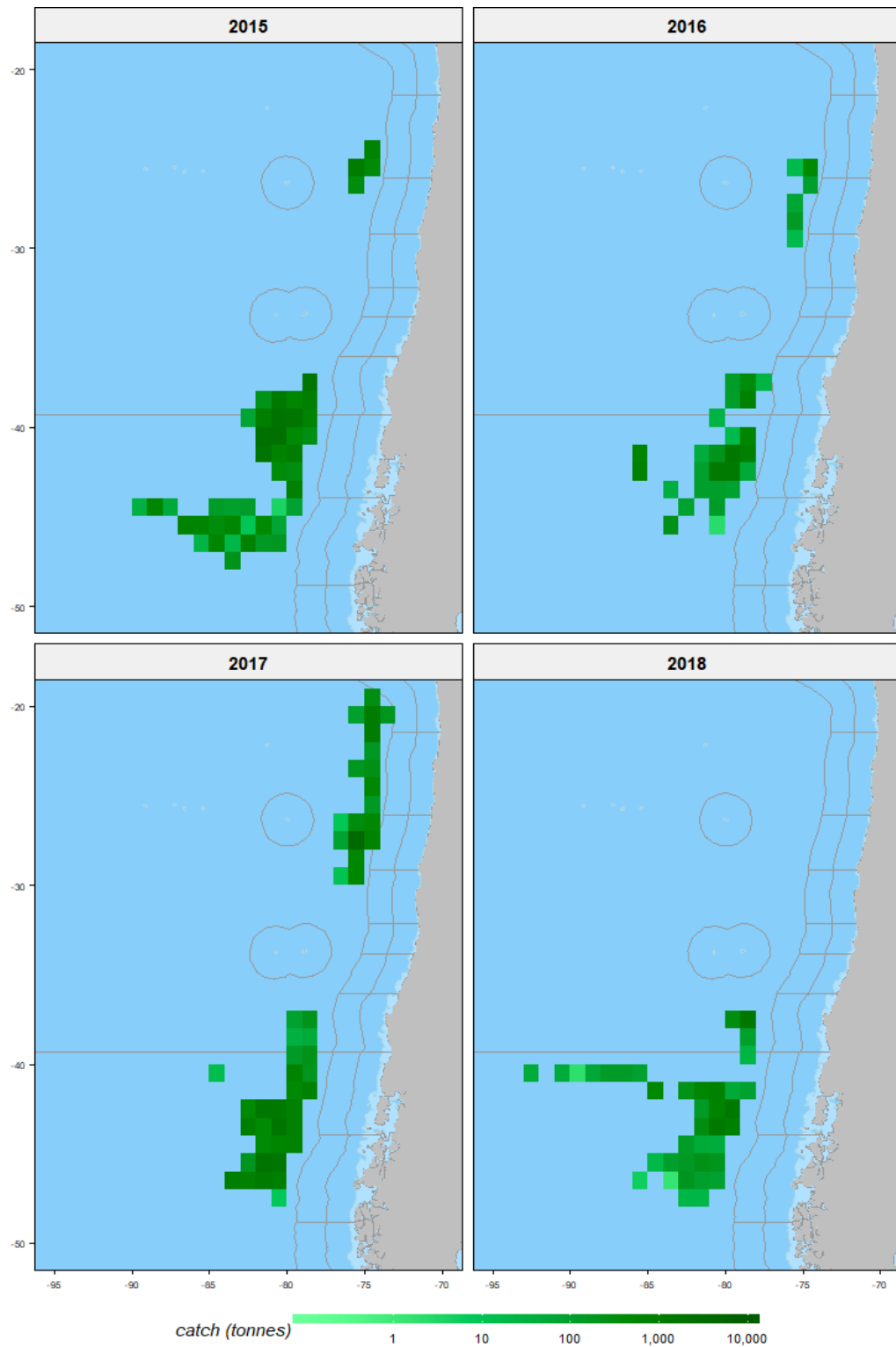


Figure 4.1.a: Jack mackerel. Overview of the catch (tonnes) by year and quarter (2018 only up to 22/07/2018).

Jack mackerel length frequencies by year

Relative length frequencies by year and quarter. Number of observations (length measurements) indicated by n. Mean length (fork length) indicated by L.

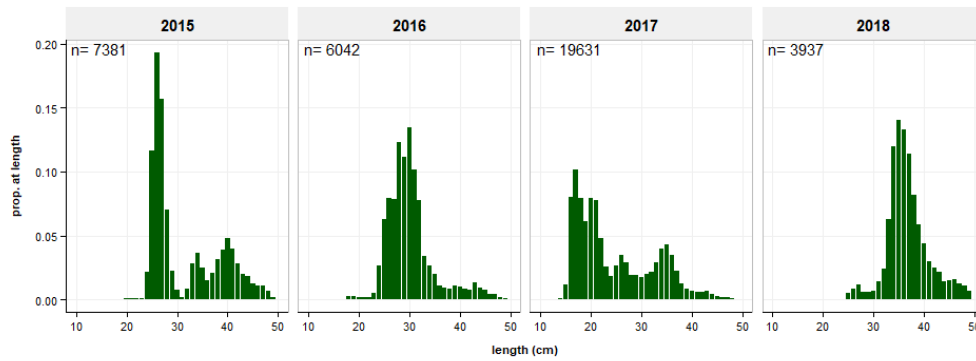


Figure 4.1.b: Jack mackerel. Relative length compositions by year (2018 only up to 22/07/2018)

Jack mackerel length frequencies by year and quarter

Relative length frequencies by year and quarter. Number of observations (length measurements) indicated by n. Mean length (fork length) indicated by L.

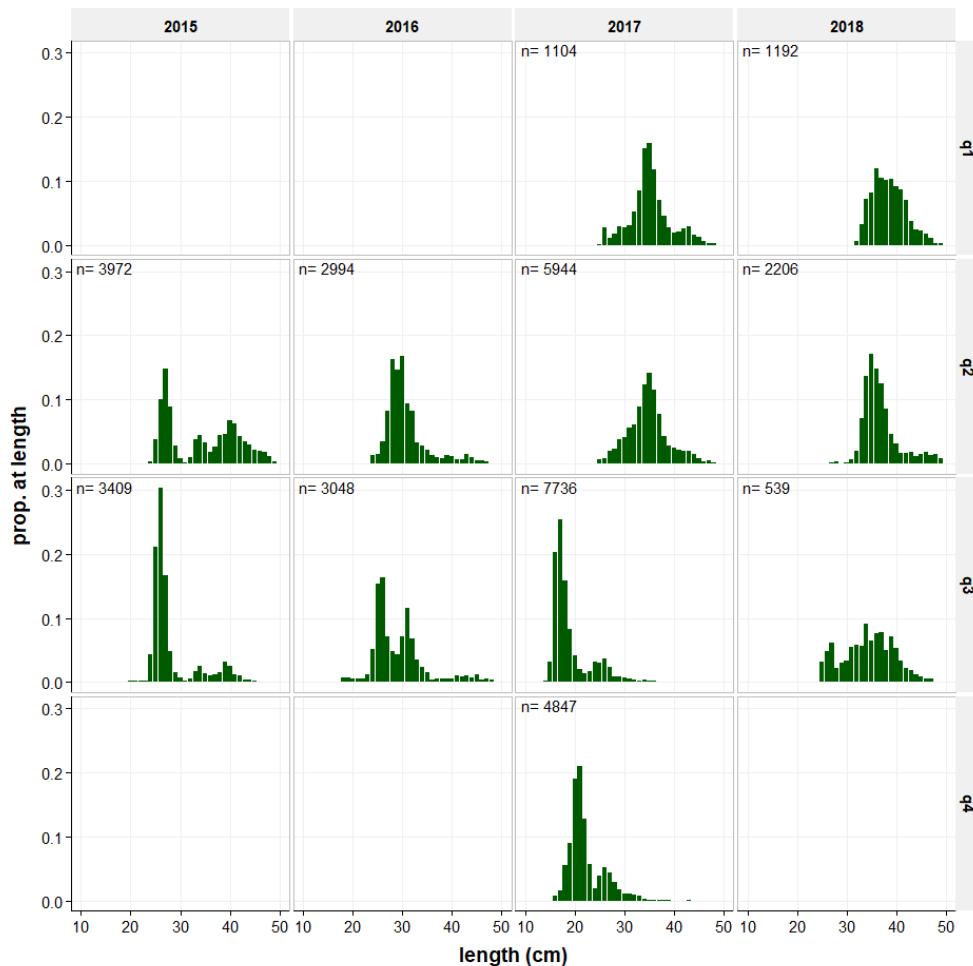


Figure 4.1.c: Jack mackerel. Relative length compositions by year and quarter (2018 only up to 22/07/2018)

Jack mackerel length frequencies by year and division

Relative length frequencies by year and division. Number of observations (length measurements) indicated by n. Mean length (fork length) indicated by L.

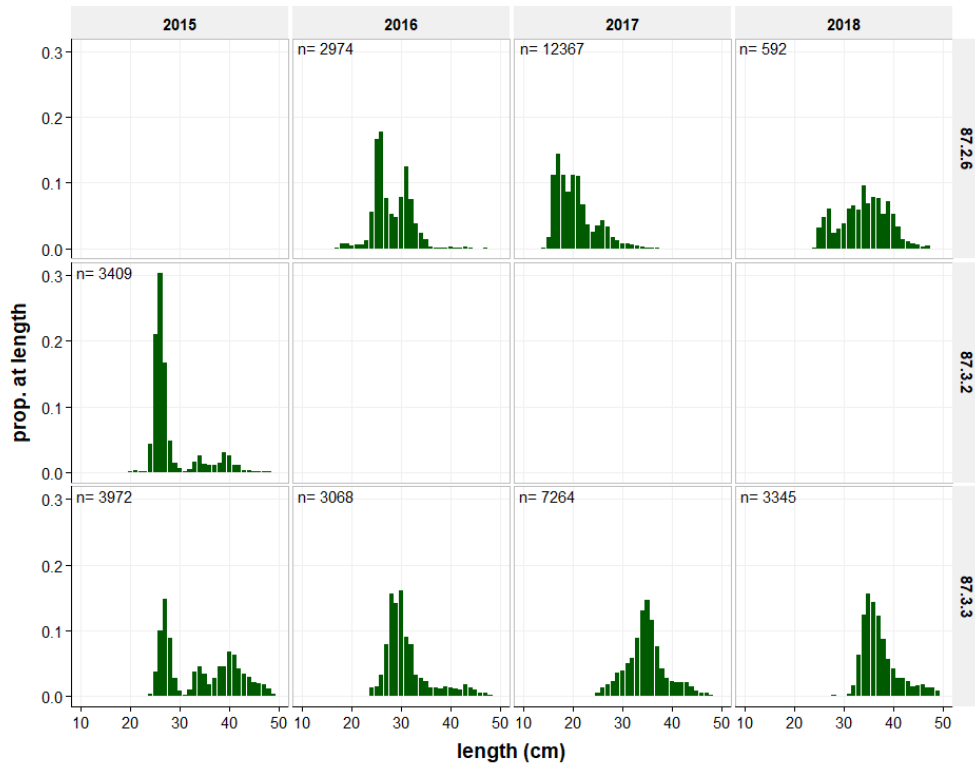


Figure 4.1.d: Jack mackerel. Relative length compositions by year and division (2018 only up to 22/07/2018)

4.2 Chub mackerel (MAS, *Scomber japonicus*)

A summary of the chub mackerel statistics in the self-sampling programme by year are shown in the text table below.

year	nvessels	ntrips	ndays	nhauls	catch	nlen
2015	2	7	102	171	787	0
2016	1	4	67	116	673	562
2017	2	10	220	390	1,836	1,014
2018	1	5	67	101	117	109
(all)	.	26	456	778	3,413	1,685

The distribution of the chub mackerel catches in the self-sampling programme by year and quarter are shown in figure 4.2.a.

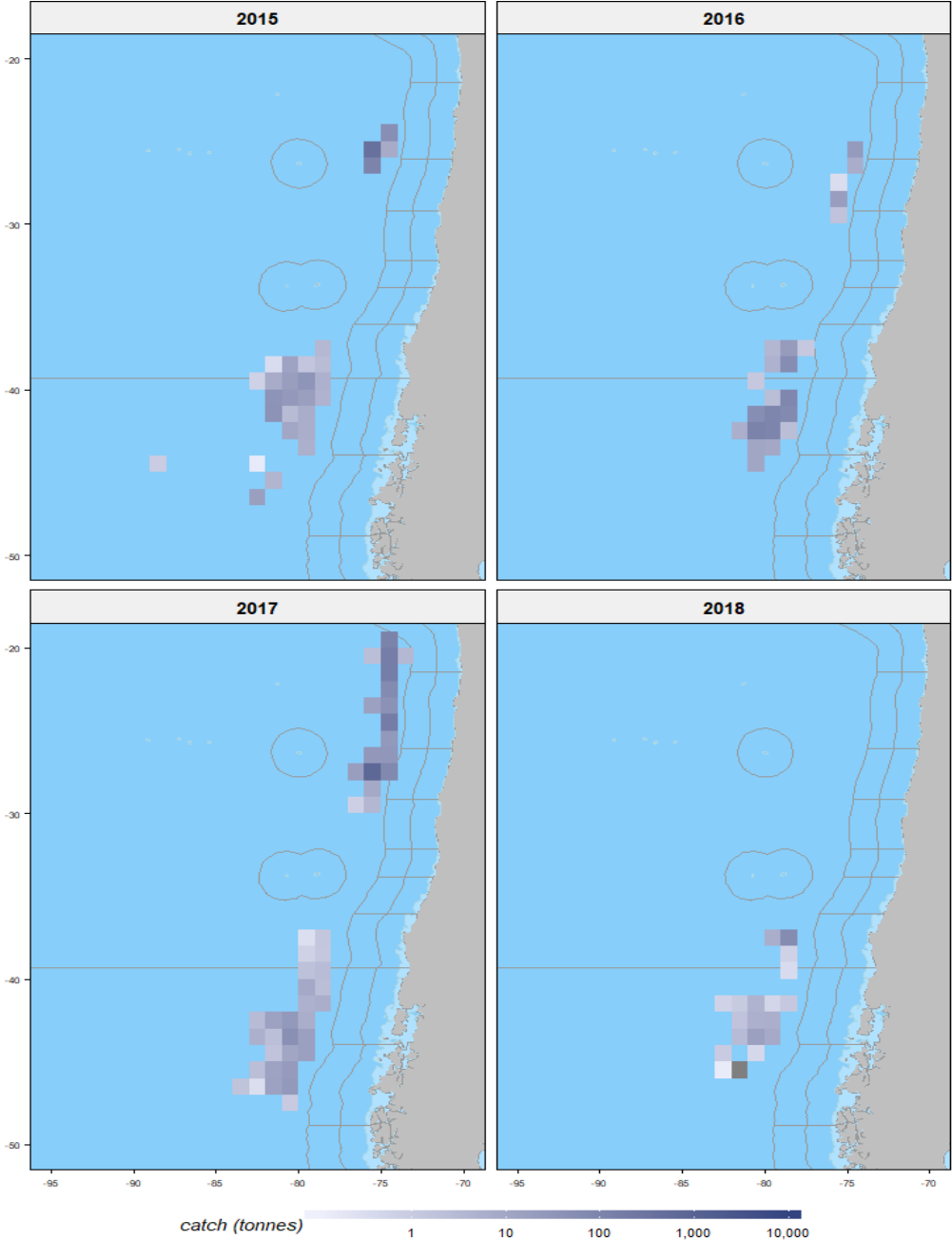


Figure 4.2.a: Chub mackerel. Overview of the catch (tonnes) by year and quarter (2018 only up to 22/07/2018)

Chub mackerel length frequencies by year

Relative length frequencies by year. Number of observations (length measurements) indicated by n. Mean length (fork length) indicated by L.

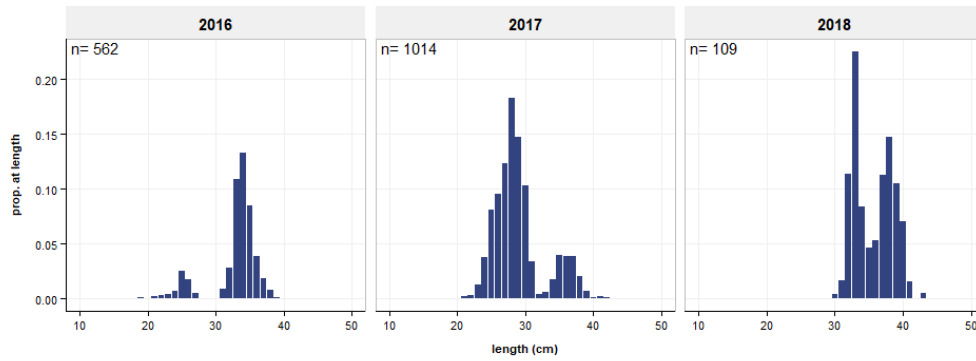


Figure 4.2.b: Chub mackerel. Relative length compositions by year (2018 only up to 22/07/2018)

Chub mackerel length frequencies by year and quarter

Relative length frequencies by year and quarter. Number of observations (length measurements) indicated by n. Mean length (fork length) indicated by L.

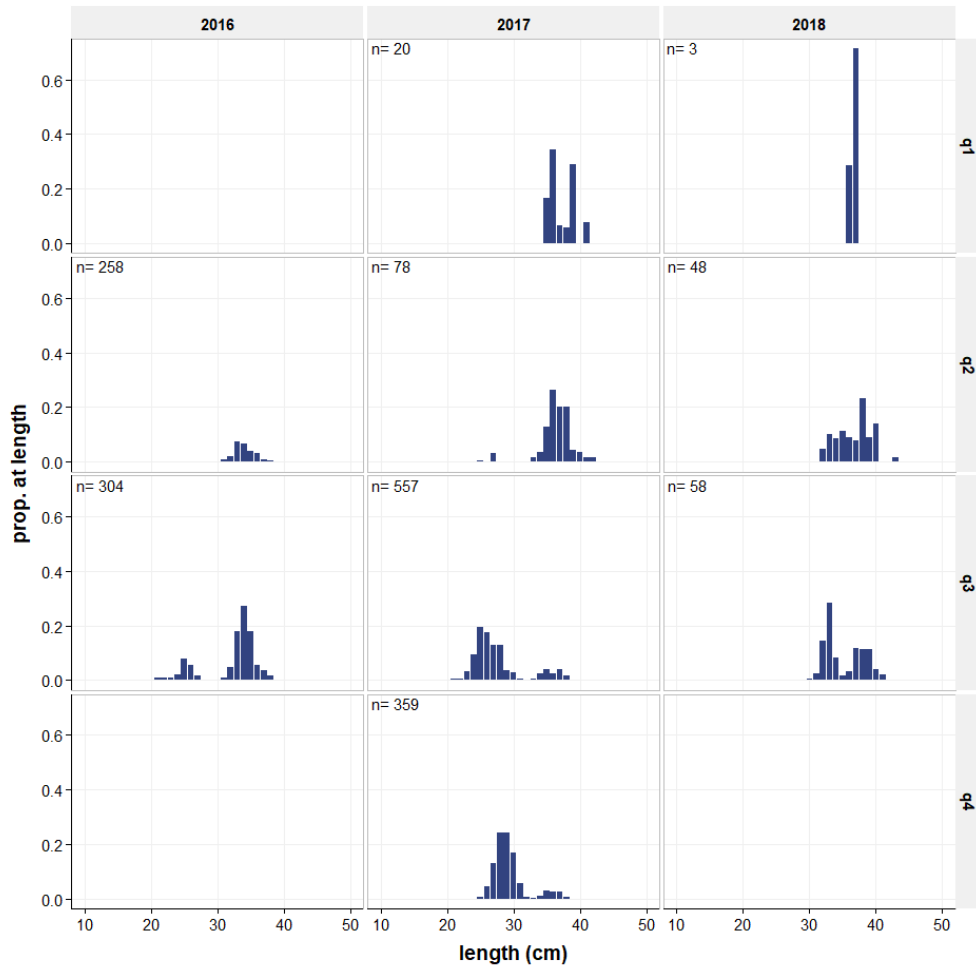


Figure 4.2.c: Chub mackerel. Relative length compositions by year and quarter (2018 only up to 22/07/2018)

Chub mackerel length frequencies by year and division

Relative length frequencies by year and division. Number of observations (length measurements) indicated by n. Mean length (fork length) indicated by L.

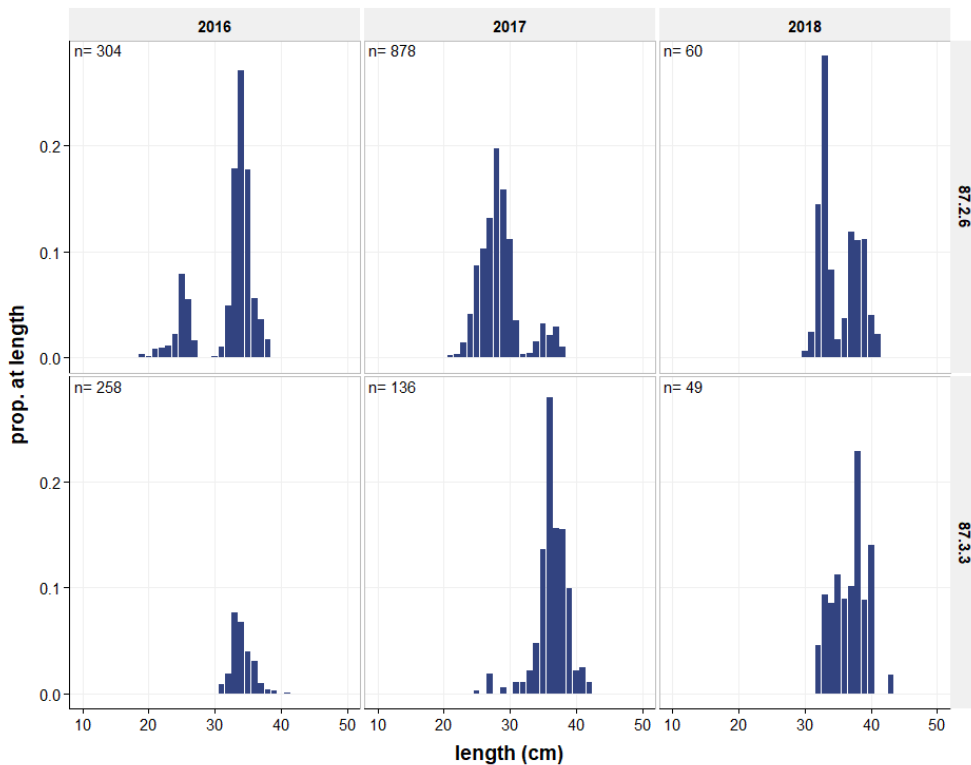


Figure 4.2.d: Chub mackerel. Relative length compositions by year and division (2018 only up to 22/07/2018)

4.3 Southern rays bream (BRU, *Brama australis*)

A summary of the southern rays bream statistics in the self-sampling programme by year are shown in the text table below.

year	nvessels	ntrips	ndays	nhauls	catch	nlen
2015	2	7	75	103	144	0
2016	1	2	18	22	24	25
2017	2	7	90	123	83	63
2018	1	5	114	149	289	267
(all)	.	21	297	397	540	355

The distribution of the Southern rays breem catches in the self-sampling programme by year and quarter are shown in figure 4.3.a.

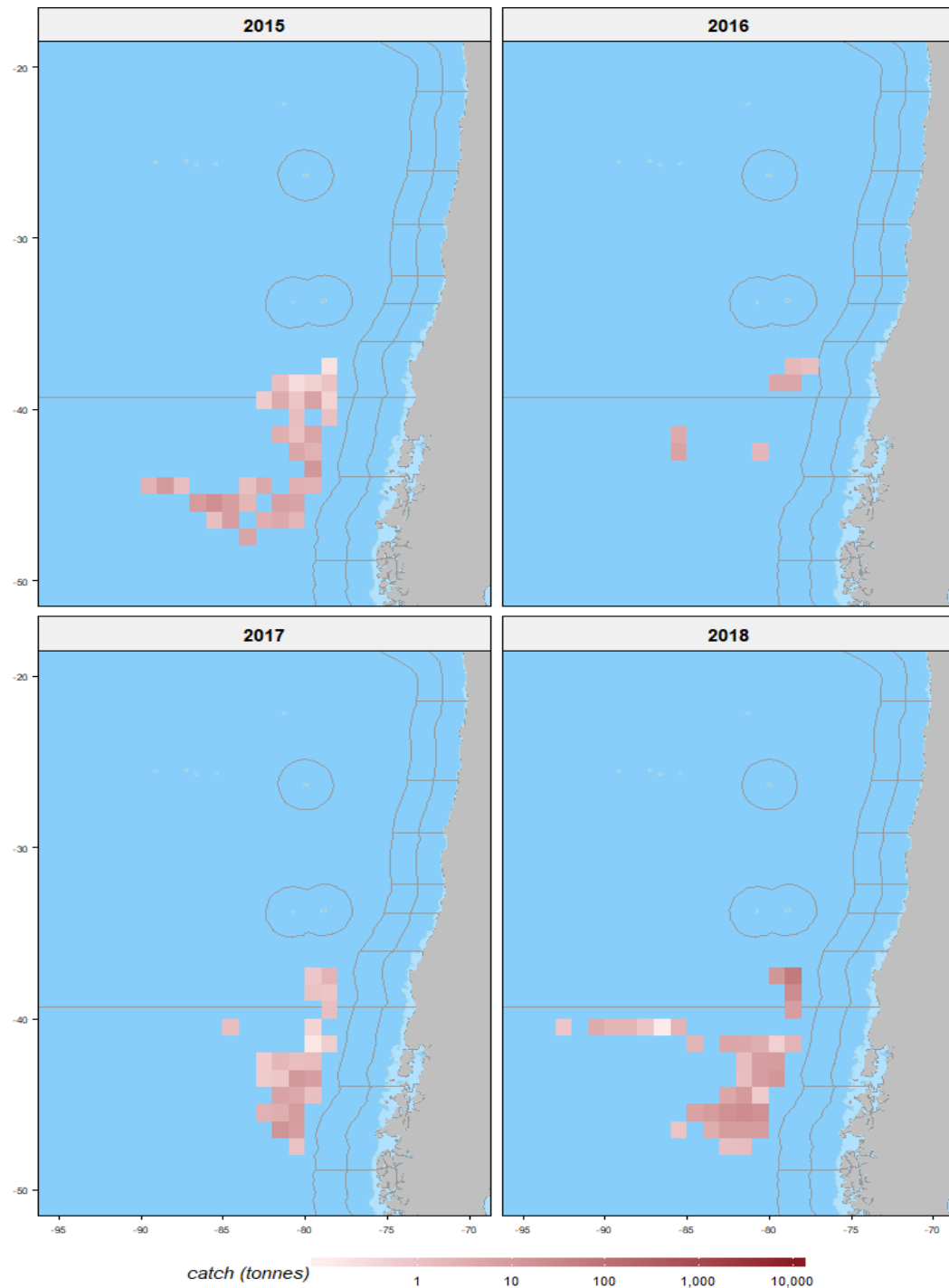


Figure 4.3.a: Southern rays breem. Overview of the catch (tonnes) by year and quarter 2018 only up to 22/07/2018)

Southern rays breem length frequencies by year

Relative length frequencies by year. Number of observations (length measurements) indicated by n. Mean length (fork length) indicated by L.

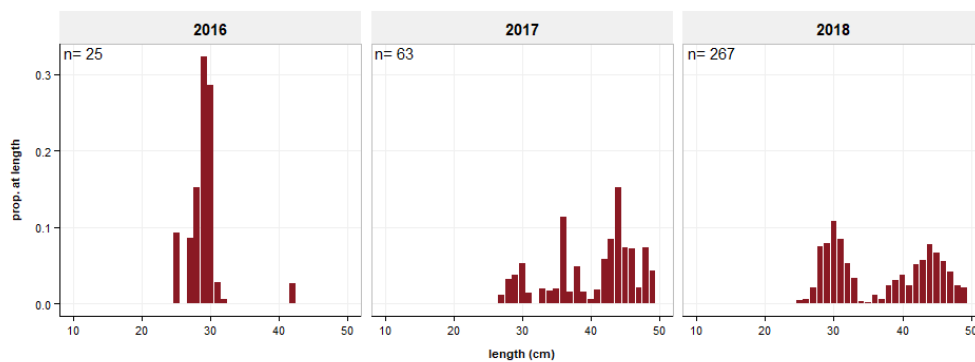


Figure 4.3.b: Southern rays bream. Relative length compositions by year (2018 only up to 22/07/2018)

Southern rays bream length frequencies by year and quarter

Relative length frequencies by year and quarter. Number of observations (length measurements) indicated by n. Mean length (fork length) indicated by L.

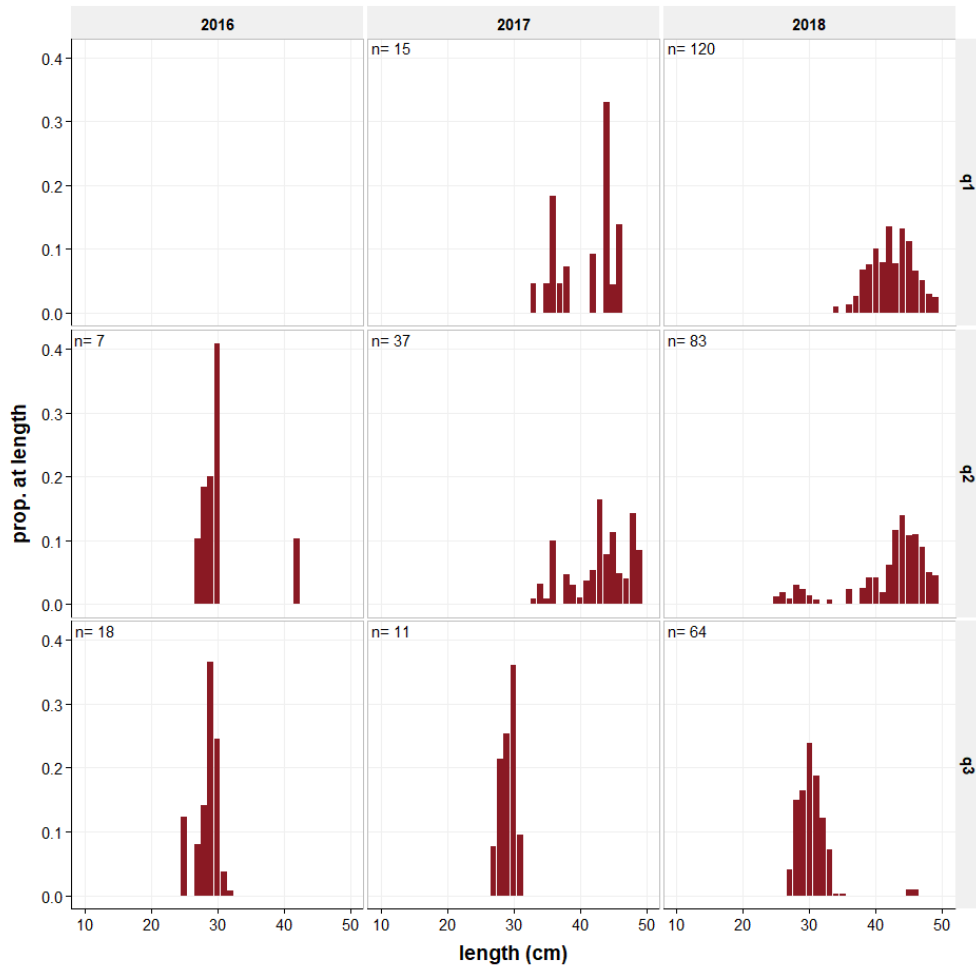


Figure 4.3.c: Southern rays bream. Relative length compositions by year and quarter (2018 only up to 22/07/2018)

Southern rays bream length frequencies by year and division

Relative length frequencies by year and division. Number of observations (length measurements) indicated by n. Mean length (fork length) indicated by L.

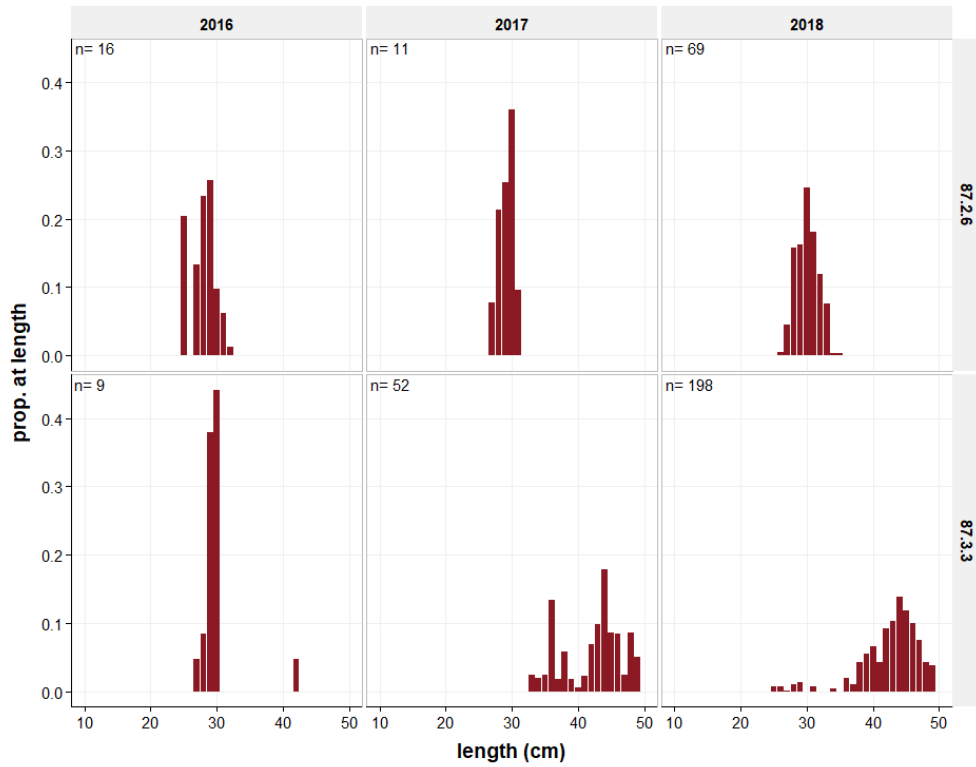


Figure 4.3.d: Southern rays bream. Relative length compositions by year and division (2018 only up to 22/07/2018)

5 Environmental conditions

Average temperature at fishing depth by quarter and by rectangle (1 degree longitude, 0.5 degree latitude) is shown in figure 5.a.

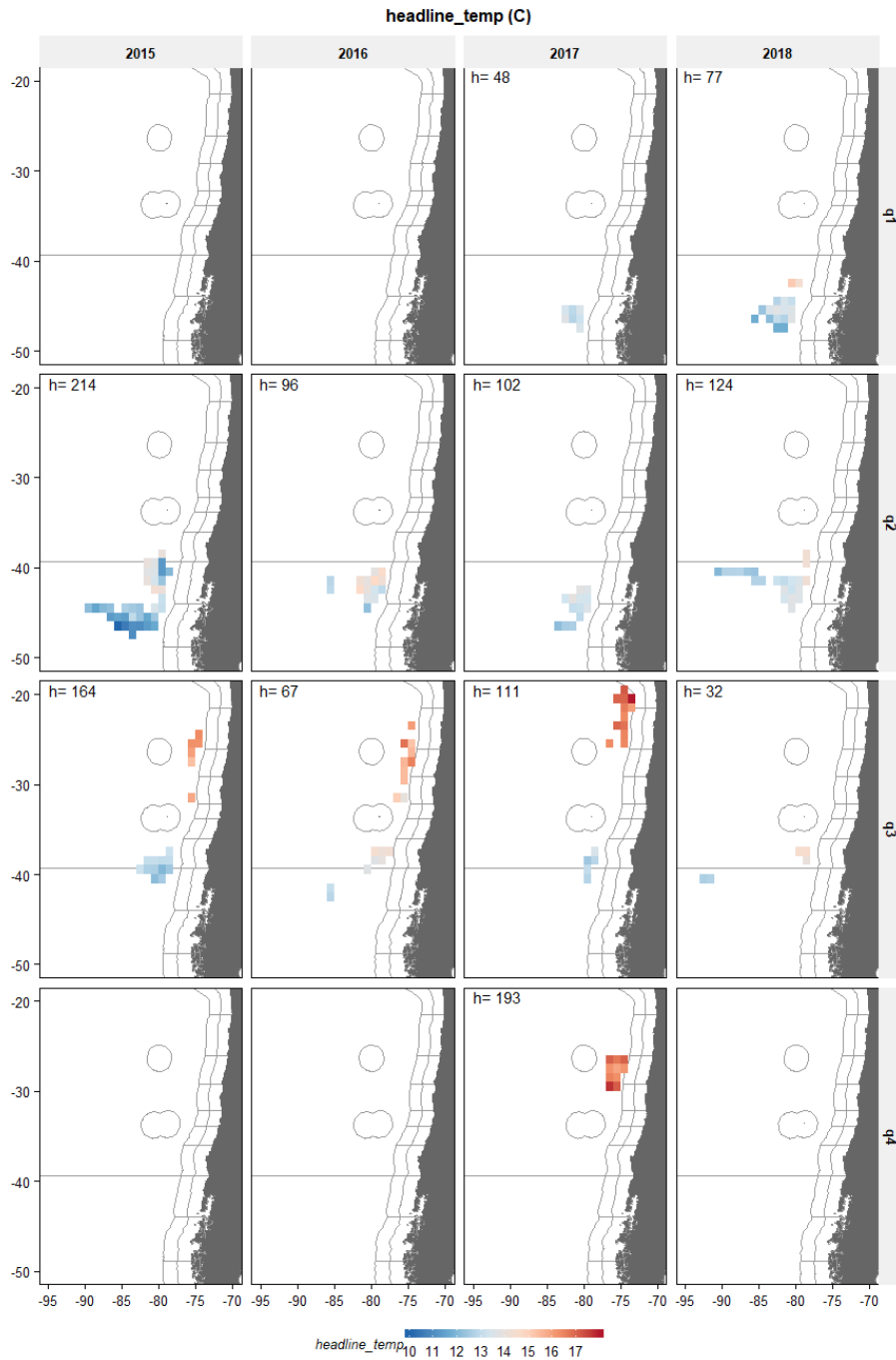


Figure 5a: Mean temperature at fishing depth (2018 only up to 22/07/2018)

Overview of mean fishing depth.

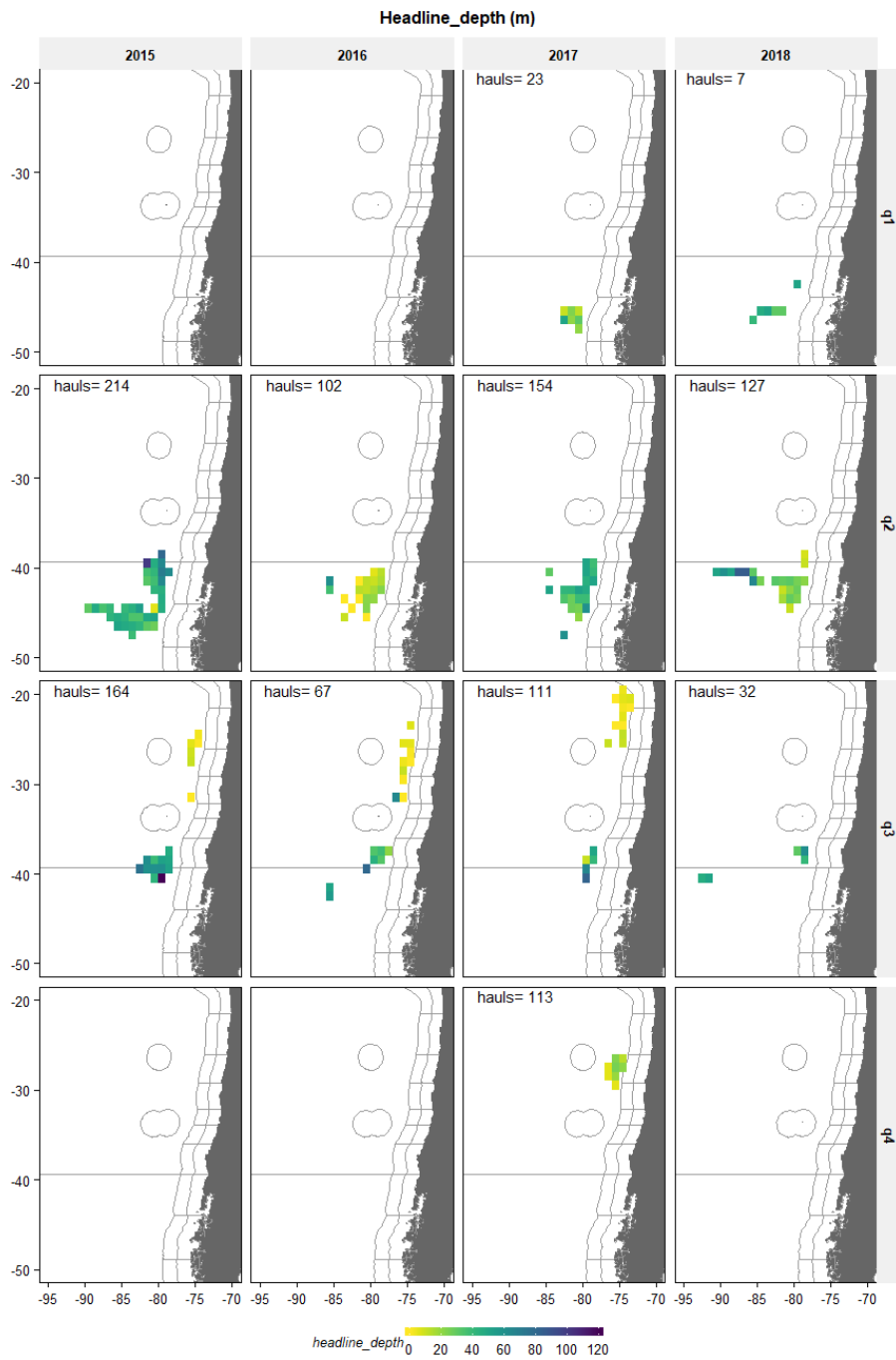


Figure 5b: Fishing depth (m) (2018 only up to 22/07/2018)

6 Discussion and conclusions

The PFA self-sampling programme in the SPRFMO area has been carried out for the third year in a row (2015-2018). The results are presented in terms of meta-information on the sampling (number of vessels, trips, days and length measurements per area and/or season), in terms of the spatio-temporal distribution of catches and the length compositions by area and/or season.

At the moment this report is produced (30/07/2018), the year 2018 is still underway. The latest trip that was included in the analysis ended on 22/07/2018. However, the fishery in 2018 is still continuing and therefore the results should not be taken as an indication the final catches for 2018.

Although the information presented in this report does show a considerable overlap with the national report presented by EU (SC5 DOC-13) - which is logical because the PFA fisheries constitute the bulk of the EU catches in the SPRFMO area in most years - it is considered that there is a benefit in presenting the information from the PFA self-sampling programme directly to the SPRFMO SC. The PFA self-sampling programme is intended to fully monitor the fishery during the entire period that the vessels are active in the SPRFMO area. This delivers spatially and temporally highly resolved information on length composition, catch rates and environmental characteristics. Because of the design of the programme, the information is available on a near to real-time scale, meaning that catch data of the current year can still be processed up to the start of the SC meeting. In addition, the programme has developed in such a way that all information is available in standardized formats and allows for easy mapping and geo-spatial analysis.

A comparison between the PFA self-sampling program and the official EU observer program has been presented to the International Fisheries Observer and Monitoring Conference in Vigo. A further developed document based on these comparisons will be presented to the SC6 meeting in Puerto Varas, september 2018 (SC6-JM04).

A full report on the PFA self-sampling programme 2015-2017 is available at <https://www.pelagicfish.eu/01320/>.

7 Acknowledgements

The skippers, officers and the quality managers of the following vessels have invested a lot of time and effort in making the self-sampling in the Pacific work over the past years: KW174 Annelies Ilena, ROS171 Maartje Theadora and KL855 Margiris.

8 More information

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

Annex 1: haul information 2017 and 2018

See: *results/pfa fishingactivitytemplate 2017 2018.csv*

Annex 2: Jack mackerel length-frequencies by year, quarter and area

year	quarter	area	species	length	catchnumber	prop
2015	q2	87	cjm	18	1289	0
2015	q2	87	cjm	19	2578	0
2015	q2	87	cjm	22	1289	0
2015	q2	87	cjm	23	5863	0
2015	q2	87	cjm	24	120303	0
2015	q2	87	cjm	25	1315618	0.04
2015	q2	87	cjm	26	3528443	0.1
2015	q2	87	cjm	27	5212619	0.15
2015	q2	87	cjm	28	3118029	0.09
2015	q2	87	cjm	29	982714	0.03
2015	q2	87	cjm	30	284469	0.01
2015	q2	87	cjm	31	63967	0
2015	q2	87	cjm	32	372938	0.01
2015	q2	87	cjm	33	1317962	0.04
2015	q2	87	cjm	34	1589008	0.05
2015	q2	87	cjm	35	1188137	0.03
2015	q2	87	cjm	36	647088	0.02
2015	q2	87	cjm	37	967042	0.03
2015	q2	87	cjm	38	1582953	0.05
2015	q2	87	cjm	39	1604214	0.05
2015	q2	87	cjm	40	2368446	0.07
2015	q2	87	cjm	41	2200025	0.06
2015	q2	87	cjm	42	1512943	0.04
2015	q2	87	cjm	43	1204459	0.03
2015	q2	87	cjm	44	1043705	0.03
2015	q2	87	cjm	45	784662	0.02
2015	q2	87	cjm	46	690448	0.02
2015	q2	87	cjm	47	640154	0.02
2015	q2	87	cjm	48	405378	0.01
2015	q2	87	cjm	49	134301	0
2015	q2	87	cjm	50	108676	0
2015	q2	87	cjm	51	45365	0
2015	q2	87	cjm	52	83977	0
2015	q2	87	cjm	53	38666	0
2015	q3	87	cjm	18	5280	0
2015	q3	87	cjm	19	2640	0
2015	q3	87	cjm	20	50833	0
2015	q3	87	cjm	21	80423	0
2015	q3	87	cjm	22	54896	0
2015	q3	87	cjm	23	57579	0
2015	q3	87	cjm	24	1283215	0.04
2015	q3	87	cjm	25	6239652	0.21
2015	q3	87	cjm	26	9015274	0.3
2015	q3	87	cjm	27	4970077	0.17
2015	q3	87	cjm	28	1417736	0.05
2015	q3	87	cjm	29	456559	0.02
2015	q3	87	cjm	30	222684	0.01
2015	q3	87	cjm	31	54051	0
2015	q3	87	cjm	32	160921	0.01
2015	q3	87	cjm	33	500183	0.02
2015	q3	87	cjm	34	776593	0.03
2015	q3	87	cjm	35	409376	0.01
2015	q3	87	cjm	36	326092	0.01
2015	q3	87	cjm	37	362352	0.01
2015	q3	87	cjm	38	457336	0.02
2015	q3	87	cjm	39	933909	0.03
2015	q3	87	cjm	40	760695	0.03
2015	q3	87	cjm	41	362050	0.01
2015	q3	87	cjm	42	324137	0.01

2015	q3	87	cjm	43	114591	0
2015	q3	87	cjm	44	121279	0
2015	q3	87	cjm	45	50776	0
2015	q3	87	cjm	46	32971	0
2015	q3	87	cjm	47	43194	0
2015	q3	87	cjm	48	44601	0
2015	q3	87	cjm	50	7582	0
2016	q2	87	cjm	21	4815	0
2016	q2	87	cjm	23	15633	0
2016	q2	87	cjm	24	216692	0.01
2016	q2	87	cjm	25	249204	0.02
2016	q2	87	cjm	26	552659	0.03
2016	q2	87	cjm	27	1312090	0.08
2016	q2	87	cjm	28	2573646	0.16
2016	q2	87	cjm	29	2326609	0.15
2016	q2	87	cjm	30	2656685	0.17
2016	q2	87	cjm	31	1490086	0.09
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2016	q2	87	cjm	33	529220	0.03
2016	q2	87	cjm	34	446150	0.03
2016	q2	87	cjm	35	348763	0.02
2016	q2	87	cjm	36	219976	0.01
2016	q2	87	cjm	37	175838	0.01
2016	q2	87	cjm	38	146861	0.01
2016	q2	87	cjm	39	211809	0.01
2016	q2	87	cjm	40	188322	0.01
2016	q2	87	cjm	41	123474	0.01
2016	q2	87	cjm	42	113375	0.01
2016	q2	87	cjm	43	233069	0.01
2016	q2	87	cjm	44	168981	0.01
2016	q2	87	cjm	45	83391	0.01
2016	q2	87	cjm	46	73685	0
2016	q2	87	cjm	47	52541	0
2016	q2	87	cjm	48	12637	0
2016	q2	87	cjm	49	15724	0
2016	q2	87	cjm	50	1383	0
2016	q2	87	cjm	54	4568	0
2016	q3	87	cjm	17	12162	0
2016	q3	87	cjm	18	66110	0.01
2016	q3	87	cjm	19	56628	0.01
2016	q3	87	cjm	20	41026	0
2016	q3	87	cjm	21	46823	0.01
2016	q3	87	cjm	22	51094	0.01
2016	q3	87	cjm	23	99276	0.01
2016	q3	87	cjm	24	427124	0.05
2016	q3	87	cjm	25	1269553	0.15
2016	q3	87	cjm	26	1360104	0.16
2016	q3	87	cjm	27	590700	0.07
2016	q3	87	cjm	28	399084	0.05
2016	q3	87	cjm	29	364638	0.04
2016	q3	87	cjm	30	599690	0.07
2016	q3	87	cjm	31	958131	0.12
2016	q3	87	cjm	32	571624	0.07
2016	q3	87	cjm	33	293361	0.04
2016	q3	87	cjm	34	204372	0.02
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2016	q3	87	cjm	37	45824	0.01
2016	q3	87	cjm	38	49009	0.01
2016	q3	87	cjm	39	46030	0.01
2016	q3	87	cjm	40	53016	0.01
2016	q3	87	cjm	41	86223	0.01
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2016	q3	87	cjm	43	86322	0.01
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2016	q3	87	cjm	45	96086	0.01
2016	q3	87	cjm	46	28370	0

2016	q3	87	cjm	47	41902	0.01
2016	q3	87	cjm	48	36745	0
2016	q3	87	cjm	49	1020	0
2016	q3	87	cjm	50	9936	0
2016	q3	87	cjm	51	4603	0
2016	q3	87	cjm	52	4603	0
2016	q3	87	cjm	53	1362	0
2017	q1	87	cjm	25	12405	0
2017	q1	87	cjm	26	194776	0.03
2017	q1	87	cjm	27	77679	0.01
2017	q1	87	cjm	28	125673	0.02
2017	q1	87	cjm	29	207491	0.03
2017	q1	87	cjm	30	200600	0.03
2017	q1	87	cjm	31	225780	0.03
2017	q1	87	cjm	32	372175	0.05
2017	q1	87	cjm	33	599169	0.08
2017	q1	87	cjm	34	1068429	0.15
2017	q1	87	cjm	35	1121049	0.16
2017	q1	87	cjm	36	838708	0.12
2017	q1	87	cjm	37	498401	0.07
2017	q1	87	cjm	38	322532	0.05
2017	q1	87	cjm	39	196639	0.03
2017	q1	87	cjm	40	144229	0.02
2017	q1	87	cjm	41	150928	0.02
2017	q1	87	cjm	42	189287	0.03
2017	q1	87	cjm	43	205822	0.03
2017	q1	87	cjm	44	117214	0.02
2017	q1	87	cjm	45	87811	0.01
2017	q1	87	cjm	46	50845	0.01
2017	q1	87	cjm	47	28761	0
2017	q1	87	cjm	48	20523	0
2017	q1	87	cjm	50	6227	0
2017	q2	87	cjm	24	12049	0
2017	q2	87	cjm	25	178196	0.01
2017	q2	87	cjm	26	220491	0.01
2017	q2	87	cjm	27	492093	0.02
2017	q2	87	cjm	28	574259	0.02
2017	q2	87	cjm	29	897904	0.04
2017	q2	87	cjm	30	974693	0.04
2017	q2	87	cjm	31	1355908	0.06
2017	q2	87	cjm	32	1448718	0.06
2017	q2	87	cjm	33	2146600	0.09
2017	q2	87	cjm	34	2936749	0.12
2017	q2	87	cjm	35	3388972	0.14
2017	q2	87	cjm	36	2759883	0.12
2017	q2	87	cjm	37	1864067	0.08
2017	q2	87	cjm	38	1018263	0.04
2017	q2	87	cjm	39	695185	0.03
2017	q2	87	cjm	40	586187	0.02
2017	q2	87	cjm	41	503387	0.02
2017	q2	87	cjm	42	483725	0.02
2017	q2	87	cjm	43	462651	0.02
2017	q2	87	cjm	44	350287	0.01
2017	q2	87	cjm	45	195753	0.01
2017	q2	87	cjm	46	107742	0
2017	q2	87	cjm	47	129961	0.01
2017	q2	87	cjm	48	41181	0
2017	q2	87	cjm	49	20492	0
2017	q2	87	cjm	50	15175	0
2017	q2	87	cjm	51	11716	0
2017	q2	87	cjm	54	8033	0
2017	q3	87	cjm	12	7347	0
2017	q3	87	cjm	14	124911	0
2017	q3	87	cjm	15	1307782	0.03
2017	q3	87	cjm	16	8383071	0.2
2017	q3	87	cjm	17	10503226	0.25
2017	q3	87	cjm	18	6545359	0.16

2017	q3	87	cjm	19	3406617	0.08
2017	q3	87	cjm	20	1751431	0.04
2017	q3	87	cjm	21	842276	0.02
2017	q3	87	cjm	22	581299	0.01
2017	q3	87	cjm	23	724940	0.02
2017	q3	87	cjm	24	1288977	0.03
2017	q3	87	cjm	25	1277210	0.03
2017	q3	87	cjm	26	1512204	0.04
2017	q3	87	cjm	27	969161	0.02
2017	q3	87	cjm	28	366599	0.01
2017	q3	87	cjm	29	367197	0.01
2017	q3	87	cjm	30	3e+05	0.01
2017	q3	87	cjm	31	204253	0
2017	q3	87	cjm	32	171552	0
2017	q3	87	cjm	33	119161	0
2017	q3	87	cjm	34	183396	0
2017	q3	87	cjm	35	129048	0
2017	q3	87	cjm	36	124837	0
2017	q3	87	cjm	37	45338	0
2017	q3	87	cjm	38	20623	0
2017	q3	87	cjm	39	19195	0
2017	q3	87	cjm	40	16765	0
2017	q3	87	cjm	41	28275	0
2017	q3	87	cjm	42	558	0
2017	q3	87	cjm	43	209	0
2017	q3	87	cjm	45	4529	0
2017	q3	87	cjm	46	2582	0
2017	q3	87	cjm	48	4529	0
2017	q4	87	cjm	16	265024	0.01
2017	q4	87	cjm	17	556269	0.02
2017	q4	87	cjm	18	2025179	0.06
2017	q4	87	cjm	19	3255823	0.09
2017	q4	87	cjm	20	6863698	0.19
2017	q4	87	cjm	21	7601907	0.21
2017	q4	87	cjm	22	4623856	0.13
2017	q4	87	cjm	23	2040367	0.06
2017	q4	87	cjm	24	697345	0.02
2017	q4	87	cjm	25	1380479	0.04
2017	q4	87	cjm	26	1862426	0.05
2017	q4	87	cjm	27	1573269	0.04
2017	q4	87	cjm	28	1050564	0.03
2017	q4	87	cjm	29	617590	0.02
2017	q4	87	cjm	30	391875	0.01
2017	q4	87	cjm	31	411939	0.01
2017	q4	87	cjm	32	341376	0.01
2017	q4	87	cjm	33	264453	0.01
2017	q4	87	cjm	34	126779	0
2017	q4	87	cjm	35	55596	0
2017	q4	87	cjm	36	55006	0
2017	q4	87	cjm	37	55276	0
2017	q4	87	cjm	38	16379	0
2017	q4	87	cjm	39	15446	0
2017	q4	87	cjm	40	2054	0
2017	q4	87	cjm	43	21356	0
2017	q4	87	cjm	46	5910	0
2018	q1	87	cjm	32	13456	0.01
2018	q1	87	cjm	33	66261	0.03
2018	q1	87	cjm	34	145945	0.07
2018	q1	87	cjm	35	165464	0.08
2018	q1	87	cjm	36	244335	0.12
2018	q1	87	cjm	37	214256	0.11
2018	q1	87	cjm	38	206510	0.1
2018	q1	87	cjm	39	209716	0.1
2018	q1	87	cjm	40	188393	0.09
2018	q1	87	cjm	41	177714	0.09
2018	q1	87	cjm	42	142710	0.07
2018	q1	87	cjm	43	78039	0.04

2018	q1	87	cjm	44	51650	0.03
2018	q1	87	cjm	45	48000	0.02
2018	q1	87	cjm	46	35602	0.02
2018	q1	87	cjm	47	23881	0.01
2018	q1	87	cjm	48	6948	0
2018	q1	87	cjm	49	6936	0
2018	q1	87	cjm	50	1287	0
2018	q1	87	cjm	51	2278	0
2018	q2	87	cjm	27	16529	0
2018	q2	87	cjm	28	30311	0
2018	q2	87	cjm	29	6833	0
2018	q2	87	cjm	30	19828	0
2018	q2	87	cjm	31	71039	0.01
2018	q2	87	cjm	32	199350	0.02
2018	q2	87	cjm	33	710428	0.07
2018	q2	87	cjm	34	1379183	0.14
2018	q2	87	cjm	35	1725563	0.17
2018	q2	87	cjm	36	1500740	0.15
2018	q2	87	cjm	37	1256935	0.12
2018	q2	87	cjm	38	858804	0.09
2018	q2	87	cjm	39	473015	0.05
2018	q2	87	cjm	40	321800	0.03
2018	q2	87	cjm	41	168593	0.02
2018	q2	87	cjm	42	171485	0.02
2018	q2	87	cjm	43	188379	0.02
2018	q2	87	cjm	44	123622	0.01
2018	q2	87	cjm	45	146120	0.01
2018	q2	87	cjm	46	181768	0.02
2018	q2	87	cjm	47	140504	0.01
2018	q2	87	cjm	48	145571	0.01
2018	q2	87	cjm	49	93566	0.01
2018	q2	87	cjm	50	76749	0.01
2018	q2	87	cjm	51	57029	0.01
2018	q2	87	cjm	52	19559	0
2018	q3	87	cjm	24	2589	0
2018	q3	87	cjm	25	79650	0.03
2018	q3	87	cjm	26	119217	0.05
2018	q3	87	cjm	27	154058	0.06
2018	q3	87	cjm	28	55178	0.02
2018	q3	87	cjm	29	76922	0.03
2018	q3	87	cjm	30	82964	0.03
2018	q3	87	cjm	31	136128	0.06
2018	q3	87	cjm	32	143787	0.06
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2018	q3	87	cjm	34	223565	0.09
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2018	q3	87	cjm	36	189489	0.08
2018	q3	87	cjm	37	192536	0.08
2018	q3	87	cjm	38	125023	0.05
2018	q3	87	cjm	39	176935	0.07
2018	q3	87	cjm	40	133321	0.05
2018	q3	87	cjm	41	83570	0.03
2018	q3	87	cjm	42	54369	0.02
2018	q3	87	cjm	43	48472	0.02
2018	q3	87	cjm	44	29761	0.01
2018	q3	87	cjm	45	23732	0.01
2018	q3	87	cjm	46	12409	0.01
2018	q3	87	cjm	47	12873	0.01
2018	q3	87	cjm	48	3135	0
2018	q3	87	cjm	49	3135	0
2018	q3	87	cjm	50	5035	0
2018	q3	87	cjm	52	5035	0