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Table of contents

Summary

The European Union (EU) fishing fleet activity in 2016 in the South Pacific Regional Fisheries Management Organization (SPRFMO) area outside the Exclusive Economic Zone (EEZ) is presented in this report. The data on catches of jack mackerel by EU trawlers in 2017 cover the period from March to the end of June. Based on the data presented in the EU Report for the 4th Meeting of the Science Committee (Corten, 2016) the 2017 length distribution of jack mackerel indicated that the 2012 year-class continued to dominate in the 2017 fishing season

1 Introduction

This report is a continuation of a series of annual reports on the EU fishery in the SPRFMO area since 2008. The report only refers to the EU pelagic trawlers operating in the SPRFMO area.

The present report describes the activities of the EU pelagic trawlers from 1 January 2016 to 30 June 2017. The EU pelagic fleet in the South-Eastern Pacific in 2016 and 2017 consisted of two pelagic trawlers each year that were fishing for Chilean jack mackerel (*Trachurus murphyi*). In 2016 these were the freezer trawler "Maartje Theadora" (EU, Germany) that froze the fish in blocks for human consumption and the trawler "Janus" (EU, Poland) that landed the fresh (chilled) fish in Chilean ports

further processing onshore. In 2017 fishing activity were conducted by "Margiris" (EU, Lithuania)and “Annelies Ilena” (EU, the Netherlands), both being freezer trawlers.

At the time of writing this report (July 2017), both vessels were still active in the SPRFMO area. The data presented in this report for 2016 have been updated (as compared to the data presented in 2016 EU Report). The catch and effort data for 2017 refers to four months of fishing activity (March-June). In 2016 the biological data were collected by observer on board of “Janus” from May 15th till June 17th and onboard "Maartje Theadora" from June 18th till August 17th. In 2017 the biological data were collected so far for the period of March 15th – May 17th , when the observers were on board of "Margiris". Another round of observers in 2017 was planned for period from mid-July to second half of September. The data for 2017 will therefore be updated at a later stage when the full data for this year become available.

Data presented in this report are catch and effort data reported directly by the vessels, and the data collected by a scientific observer on board of the vessels.

In addition to the data collected by the scientific observer in 2016, length data on the catches were also collected by the crew of the "Maartje Theadora". This "self-sampling programme” had been tested already in 2015 (Corten, 2015), and it had been shown that length data collected by the crew were comparable to those collected by the observer. No self-sampling onboard "Janus", was in place, so here the observer data are the only source of information on the length composition of the catches. The length data for 2017, presented here, comes only from observers.

2 A short history of the EU pelagic fishery in the Pacific

The EU pelagic fleet in the south-eastern Pacific consists of pelagic trawlers that fish for jack mackerel (*Trachurus murphyi*) in the high seas outside the exclusive economic zones of Chile and Peru. The stock of jack mackerel occurs in the high seas mainly in April – November. During the rest of the year, the fish stay inside the 200 mile EEZ, and they are not accessible to the EU fleet. Consequently, the vessels then leave the SPRFMO area.

In the recent history, the first EU pelagic trawler arrived in the Pacific in 2005 and it conducted fishing operations for 3 months in the second half of the year. The next year, the same vessel returned and undertook fishing activities for the whole season (March – October). Following the positive results of this season, the number of vessels increased to six in the following three years (2007 – 2009). All these vessels belonged to the Pelagic Freezertrawler Association (PFA), a consortium of European Union pelagic ship owners based in the Netherlands. In addition to the PFA vessels, other EU vessels (Poland) fished in the area in 2009 - 2011 and again in 2016.

Starting from 2010, the number of PFA vessels was reduced as a result of declining catches. The number of EU vessels by year and by country is presented in Table 1.

year	EU countries and number of vessels
2005	Netherlands (1)
2006	Netherlands (1)
2007	Germany (3), Lithuania (1), Netherlands (2)
2008	Germany (3), Lithuania (1), Netherlands (2)
2009	Germany (3), Poland (3), Lithuania (1), Netherlands (2)
2010	Germany (3), Poland (3), Lithuania (1), Netherlands (1)
2011	Germany (1), Netherlands (1), Poland (1)
2012	no fishing
2013	Lithuania (1)
2014	Germany (1), Netherlands (1)
2015	Netherlands (1), Lithuania (1)
2016	Germany (1), Poland (1)
2017	Netherlands (1), Lithuania (1)

Table 1. EU pelagic trawlers in the Pacific in 2005 – 2017.

3 Catches, effort and CPUE of the EU fleet

3.1 Catches and catch composition

The fishery by EU vessels in the Pacific is targeting jack mackerel (*Trachrus murphyi*). Other species make up only a small fraction of the total catch, as is shown in Table 2.

year	total EU catch in tons	species composition in percentages			
		Trachurus murphyi	*Scomber japonicus*	*Brama australis*	other species
2009	91 336	95.3	4.3	0.4	0.0
2010	34 083	97.2	1.9	0.6	0.3
2011	1 810	98.3	0.2	1.3	0.2
2012	0				
2013	10 390	97.2	2.2	0.6	0.0
2014	21 431	95.7	3.5	0.3	0.5
2015	27 955	98.1	1.1	0.6	0.2
2016	12 828	91,9	6,3	0,3	1,5
2017*	16 323	97,7	1,5	0,8	0,0

- March-June 2017

Table 2. Total catch and species composition of the EU fleet in 2009 – 2017. Based on landing data provided by ship owners. Data for 2017 are provisional and based on estimated catch data.

The catch in 2016 decreased sharply compared to 2015. This decrease in catch was due to lower catch rates, and the fact that one of the two vessels landed the fresh (chilled) fish in a Chilean port. The steaming back and forth to the fishing grounds (outside the 200 nm) resulted in a loss of fishing time. The catches of jack mackerel, during the short period of 2017 (March-June), significantly exceeded catches from 2016. This increase in catches was due to 20% higher catch rates and, to a lesser extent, to more fishing effort applied in terms of fishing days.

As in the previous years, the species composition of the catch in 2016 was dominated by jack mackerel (*Trachurus murphyi*). This species made up 91,9% of the total catch. The chub mackerel (*Scomber japonicus*) came in as second with 6,3%, and the Pacific bream (*Brama australis*) as third with 0,3%. In 2017 (March-June) species composition of catches was dominated by jack mackerel (97,7%). Bycatch was very small and consisted mainly of chub mackerel (1,5%) and Pacific bream (0,8%). The share of other species was insignificant

The monthly development of catches in each of the years 2014 – 2017 is presented in Figure 1. The highest catches and CPUE in 2016 were taken in the month of May. In 2017 the peak catches were noticed in April connected with very high CPUE (mean 159 t/day). Based on the length distribution of jack mackerel it can be assumed that the catches consisted of adult fish, whereas juveniles were not recorded.

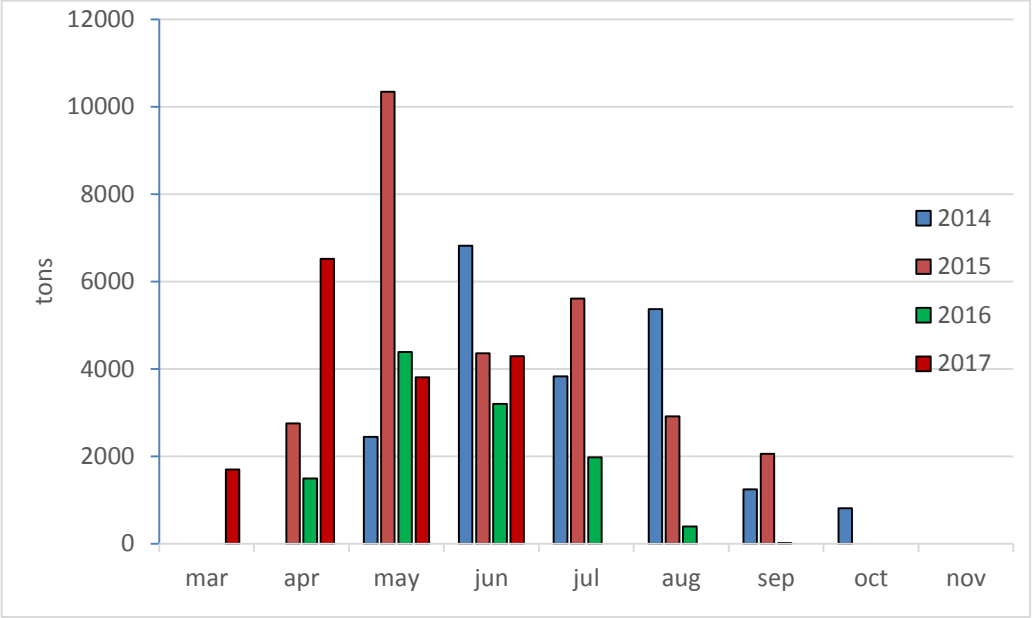

Figure 1. Monthly catches of jack mackerel by EU vessels in 2014 - 2017. Data for 2017 are provisional. Data based on catches reported by the vessels.

3.2 Effort and catch per unit of effort (CPUE)

The series of CPUE (in tons per day) for jack mackerel presented in Table 3 is based on catches of the PFA fleet except for 2016 when additional catches (EU, Poland) were also taken into consideration. PFA was the segment of the EU fleet that consistently participated in the fishery in the SPRFMO area (except for 2012). In certain years other EU vessel (one of the two Polish trawlers) also fished in the area.

Provisional data for 2017 indicate that the CPUE in that year was substantially higher than in 2016 although the fishing season is not over yet (Table 3).

year	number of fishing days	catch jack mackerel in tons	CPUE (tons per day)
2005	44	6 187	141
2006	109	33 766	310
2007	401	123 523	308
2008	423	108 174	256
2009	436	87 043	200
2010	274	33 129	121
2011	32	1 779	56
2012	0	0	0
2013	140	10 010	72
2014	231	20 510	89
2015	149	25 504	157
2016	115	11470	100
2017*	135	16323	121

*) to the June 30, 2017

Table 3. Catch and effort of the EU fleet. Fishing days based data provided by the vessels.

The monthly CPUE values (Figure 2) show that the values for all months in 2016 up until August were lower than in 2015.

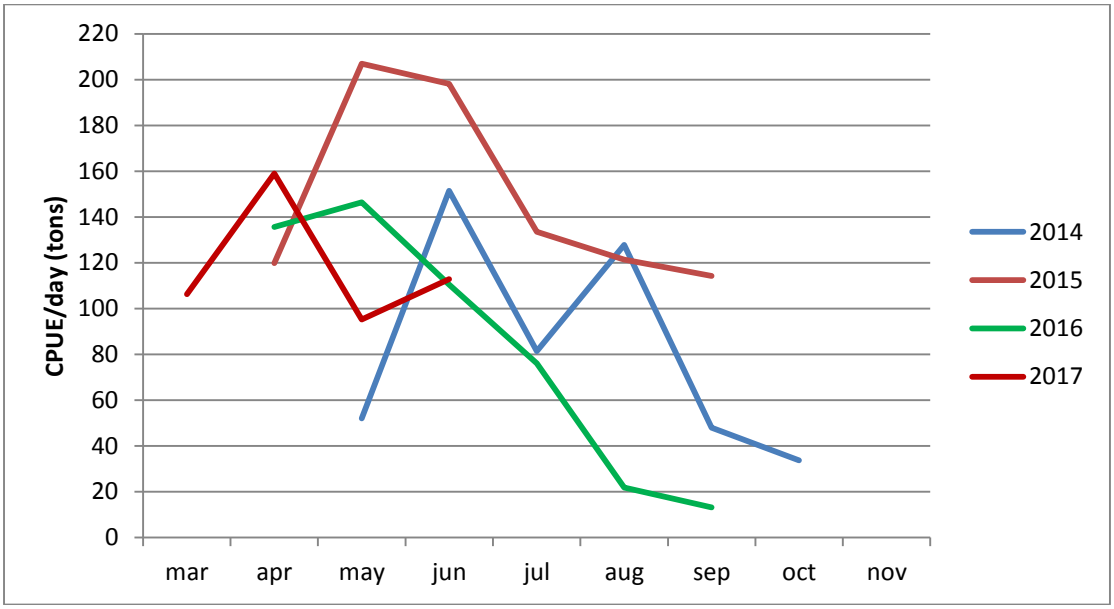

Figure 2. Monthly CPUE of jack mackerel in the EU fleet for 2014 – 2017. Data for 2017 are provisional.

4 Scientific data collection

As described below, several independent programs of data collection were carried out in 2015 and 2016. Tow-by-tow information on catch and effort were provided directly by the captains of vessels. An observer collected detailed biological information on catch and discards during the time when he was on board the vessels. This observer also collected information on birds around the vessels.

Furthermore, a self-sampling programme was conducted on board of the "Maartje Theadora" during its fishery in the Pacific in 2016. This programme, which was initiated in 2015, was coordinated by the pelagic freezer trawler association PFA (EU, the Netherlands).

The details of each program are presented below.

4.1 Tow-by-tow information

The trawlers were requested to provide position, time and catch composition for each haul. A simple spreadsheet was used to record the information at sea. The information requested in this spreadsheet corresponds to the data demands of the SPRFMO Data and Information Working Group (SPRFMO 2016).

The tow-by tow information from individual vessels provided a picture of the geographical distribution of the fishery. The results of the fishery in 2017 are compared to those in 2016 in Figures 3a and 3b.

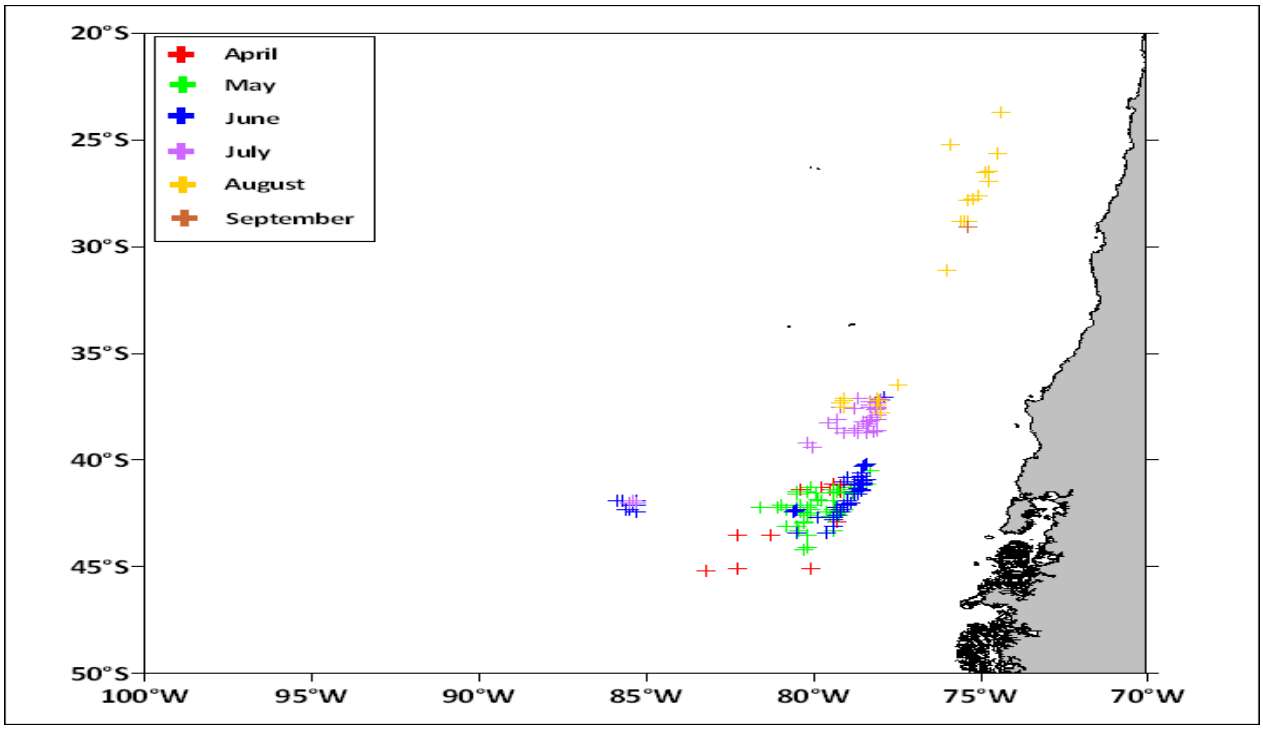

Figure 3a. Catch distribution by month of the EU fleet in **2016**.

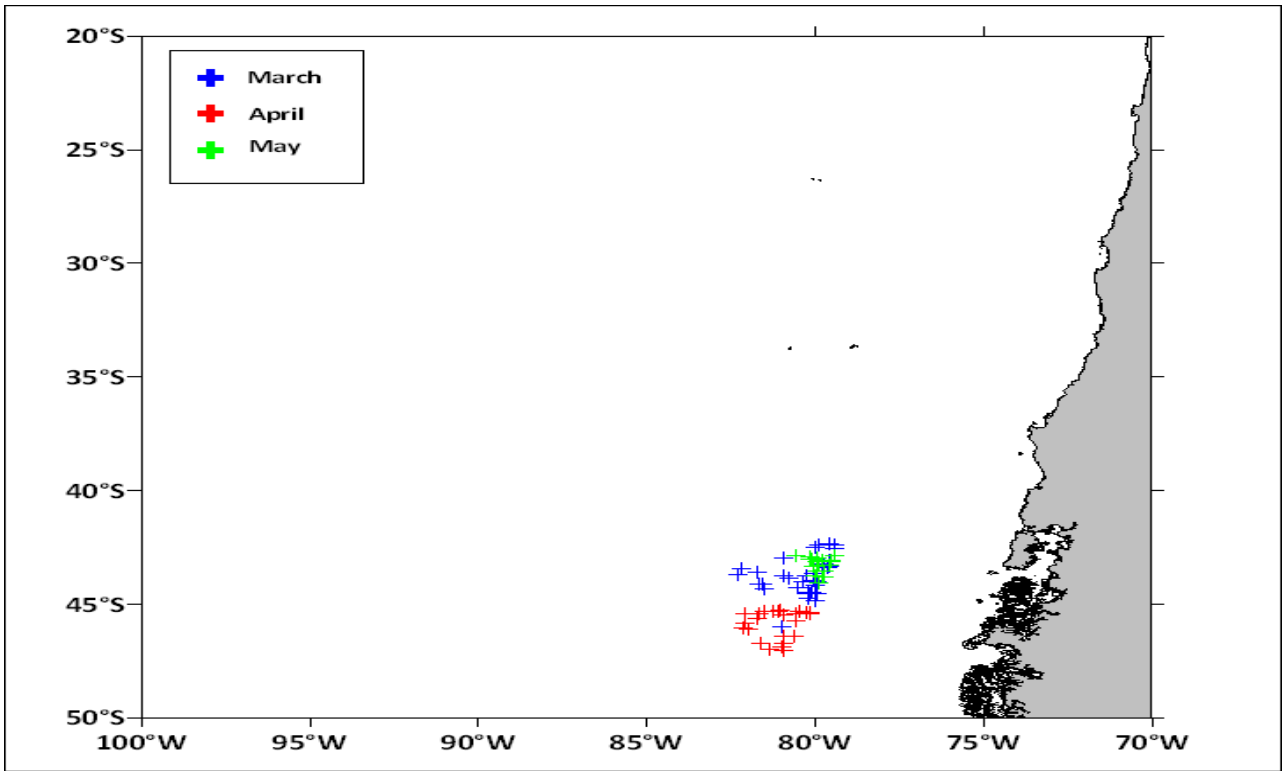

Figure 3b. Catch distribution by month of the EU fleet in **2017**. Figure based on provisional catch data.

The catches in 2016 were again distributed close along the 200 Nm fishing limit, except for some isolated catches in June west of 85° WL. These catches were taken by the "Maartje Theadora" during a short searching trip to the west. The catches in 2017 (March-June) took place in the similar positions as in the same period of 2016. The data comes from “Margiris” but the observers placed onboard “Margiris” reported that “Annelies Ilena” (EU, the Netherlands) fished in the same areas.

Catches reported for 2017 are substantially higher than in 2016. This increase was mainly due to the high CPUE in April 2017, but also to the higher number of fishing days.

According to the captains of the EU trawlers, the poor catches in 2016 were related to hydrographic conditions. Water temperatures outside the Chilean EEZ were abnormally high, whereas inside the EEZ low temperatures prevailed. The fish remained in the colder water and did not migrate outside the Chilean EEZ.

4.2 Observer data

In 2016 the start of the observer programme was hampered by the lack of available observers. It was only in May 2016 that an observer was sent to sea, and he started his work on the "Janus” (EU, Poland). In mid-June he switched to the "Maartje Theadora" and stayed on board until mid-August. Due to the deployment of only a single observer, the number of observer days (35) was much lower than in previous years.

year	period	EU vessel	observer	days with observations
2014	20 April – 30 May 31 May – 19 August	Maartje Theadora Maartje Theadora	Tomasz Raczynski Co de Klerk	23 80
2015	29 April - 13 July 13 June - 24 July	Annelies Ilena Margiris	Co de Klerk Tomasz Raczynski	60 28
2016	15 May - 17 June 18 June – 17 August	Janus Maartje Theadora	Tomasz Raczynski Tomasz Raczynski	14 23
2017	15 March – 17 May	Margiris	Tomasz Raczynski Łukasz Dziemian	35

Table 4. Observer missions in 2014 - 2017

The observers collected data on species and length composition of the main species observed in the catch (*Trachurus murphyi*, *Scomber japonicus* and *Brama australis)*. Biological characteristics such as sex and maturity stage, food composition, stomach fullness, fat content and otholiths for age reading were collected for *Trachurus murphyi*. In addition they monitored discards and incidental by-catches of large species.

As in the previous two years, the observers also monitored interactions of sea-birds with the vessel and fishing gear as well as the presence of birds around the vessels (see below).

4.3 Biological sampling of catches

In this report, only length data (fork length FL) for jack mackerel (*T. murphyi*) are presented.

4.3.1 Sampling of jack mackerel

In 2016 the observer program had a slow start due to problems with the availability of observers. It was only in mid-May that these problems were solved, and that an observer could board the "Janus" (EU, Poland). This observer changed in mid-June to the "Maartje Theadora" (EU, Germany), and stayed on board this vessel until mid-August. Additionally, a self-sampling programme was conducted on board "Maartje Theadora" during its fishery in the Pacific in 2016, with over 19 000 jack mackerel individuals measured. In 2017 two observers were placed onboard "Margiris" and over 8 000 jack mackerel individuals were measured (Table 5). It is planned to send an observer again to sea from mid-July to second half of September 2017.

year	number of jack mackerel measured
2008	28 250
2009	15 744
2010	10 540
2011	2 194
2013	2 727
2014	15 148
2015	17 563
2016	25341
2017*	8081

(*) from mid-March to mid-May, 2017

Table 5. Number of jack mackerel measured by scientific observers and self-sampling in 2016.

During the months of May – June 2016, the "Janus" appeared to target very large jack mackerel of 41 - 47 cm fork length. At the same time, the "Maartje Theadora" fished on the recruiting age group which had a modal length of 31 cm. Starting from July, both vessels targeted this younger age group, and the length distributions of both vessels were identical (Figure 4).

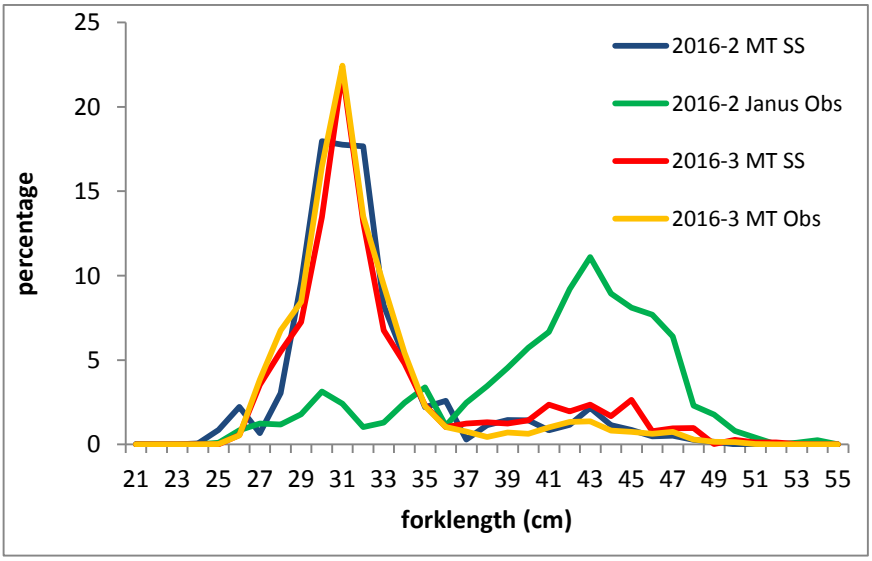

Figure 4. Length distributions EU fleet in 2016 per quarter. MT= Maartje Theadora, SS= self sampling, Obs= observer data

The length measurements in 2017 are compared with those of earlier years in Figure 5. In this figure, only data for the southern fishing area are presented, i.e. the waters south of the Juan Fernández Islands. This was the area where all the fishing took place in 2007 - 2011, and also in 2015-2017.

It is seen that the bulk of the catches in 2016 consisted of fish around 31 cm FL. This was the same year-class, presumably born in 2012, that was already observed in the catch in 2015. In 2016 the fishery concentrated on this year-class, presumably because the older fish were getting too scarce and difficult to follow when they started their offshore spawning migration in July. In 2017 the modal length of jack mackerel was 35-36 cm.

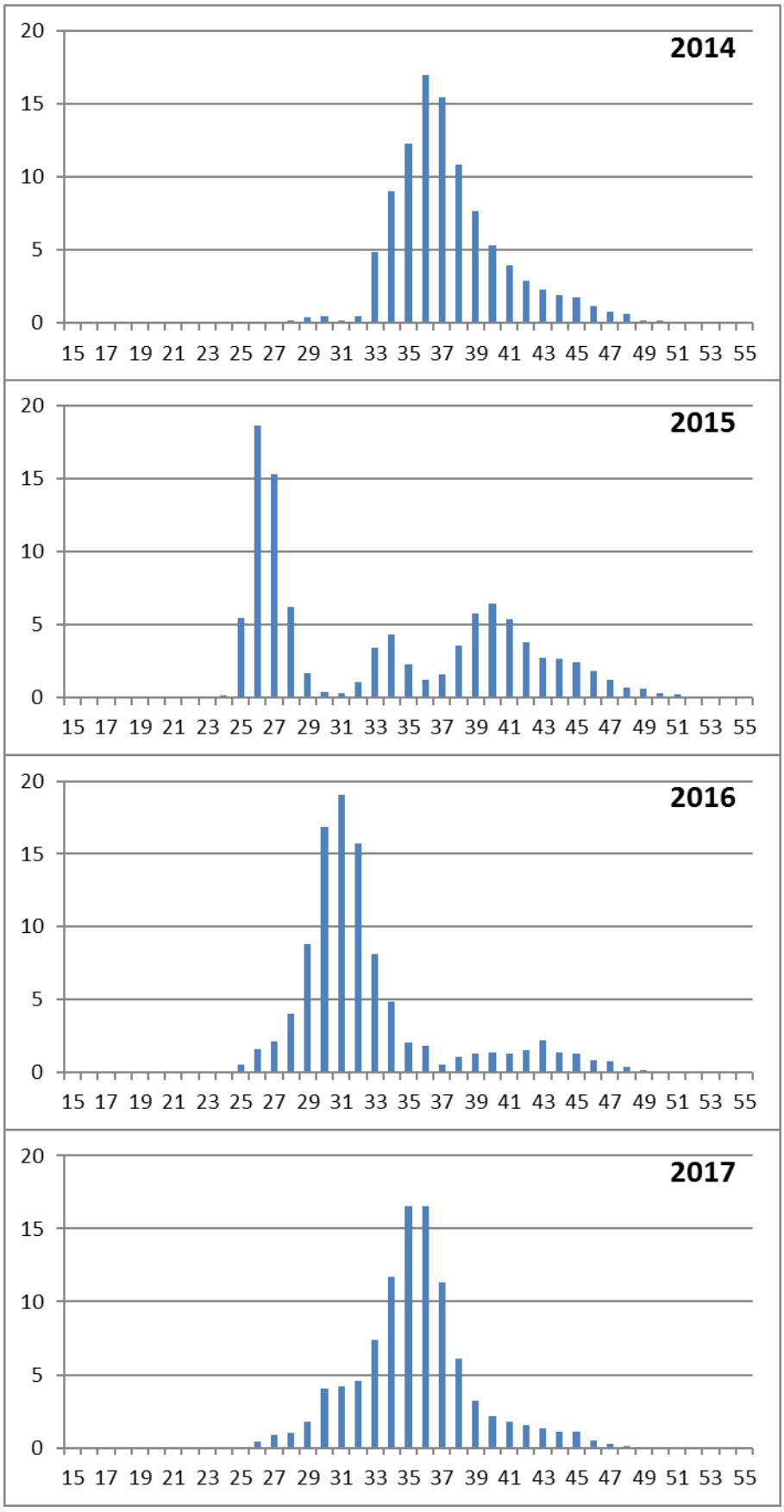

Figure 5. Percentage length composition of jack mackerel in EU catches in 2014 – 2017 (excluding catches north of Juan Fernández Islands). Length measured in fork length.

4.3.2 Observations on seabirds

The observations on seabirds in the net and around the vessel, initiated in 2014 at the request of SPRFMO (SPRFMO 2014), were continued in 2015 - 2017. No by-catches of birds in the catch were observed. In 2016, two collisions between birds and trawl warps were observed, one with a Black-browed Albatross and the other with a White-chinned Petrel. In both cases, the collision was classified as "light". In 2017 no killed sea birds were observed, but six “light” and one “heavy” contact were observed. In the latter case, the bird sat on the water after the collision, but it was not possible to see whether any damage had occurred to the bird.

Results of the seabird observations in 2016 were presented in a separate document to the SC meeting in 2016 (Raczynski, 2016). The main conclusion was that pelagic trawlers, in contrast to long liners, do not inflict a significant observed mortality on seabirds. Observation of seabirds interactions with vessel lead to the conclusion that the use of bird bafflers introduces an extra risk for the birds because they present an additional obstacle. Therefore, their application should be reconsidered. Other methods, such as bird scaring lines, seem more appropriate to protect seabirds.

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