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The European Union Annual report

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Summary

Catches of jack mackerel by European Union (EU) trawlers in 2016 were considerably lower than in 2015. The year-class 2012, which had appeared in the catches already in 2015, was the main target of the fleet in 2016. However, judging from the catch rates, it was less abundant in 2016 than in the previous year. Last year it was already assumed that the high catches of juvenile jack mackerel outside the Chilean EEZ had been partly the result of an abnormal distribution of this year-class (due to the El Niño conditions), rather than of its absolute size. The poor results of the fishery in 2016 seem to confirm this hypothesis.

1 Introduction

This report is one in a series of annual reports on the EU fishery in the SPRFMO area (South Pacific Regional Fisheries Management Organization) 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 in 2015 and in the first 7 months of 2016. Preliminary data for 2015 were already presented in the annual report of 2015 (Corten, 2015).

The EU pelagic fleet in the south-eastern Pacific in 2015 and 2016 consisted of two pelagic trawlers that were fishing for Chilean jack mackerel (*Trachurus murphyi*). In 2016 these were the German freezer trawler "Maartje Theadora" that froze the fish in blocks for human consumption and the Polish trawler "Janus" that landed the fish for processing at a Chilean fish meal plant.

At the time of writing this report (August 2016), both vessels were still active in the SPRFMO area. Although the peak fishing season was already finished, the vessels were expected to take some more catches during the rest of the year. The data presented here for 2016 will therefore be updated at a later stage when the full data for 2016 become available.

Data presented here are catch and effort data reported directly by the vessels, and the data collected by a scientific observer on board of each vessel.

In addition to the data collected by the scientific observer, 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. On the Polish "Janus", no self sampling system was in place, so here the observer data are the only source of information on the length composition of the catches.

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*) outside the exclusive economic zones of Chile and Peru. The stock of jack mackerel occurs in international waters 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 return to Europe or West Africa.

In the recent history, the first EU pelagic trawler arrived in the Pacific in 2005 and it worked for 3 months in the second half of the year. The next year, the same vessel returned and worked 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 pelagic ship owners based in the Netherlands. In addition to the PFA vessels, Polish vessels worked 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 involved 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)

Table 1. EU pelagic trawlers in the Pacific in 2005 – 2016.

3 Catches, effort and CPUE of the EU fleet

3.1.1 Catches and catch composition

The fishery by EU vessels in the Pacific is aimed at jack mackerel (*Trachurus murphyi*). Other species make up only a small fraction (less than 0.3% on average) of the total catch, as is shown in Table 2.

year	total EU catch in tons	species composition in percentages			
		<i>Trachurus murphyi</i>	<i>Scomber japonicus</i>	<i>Brama australis</i>	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	3 224	92.5	5.7	1.1	0.7

Table 2. Total catches and species composition of the EU fleet in 2009 – 2016. Based on landing data provided by ship owners. Data for 2016 are provisional.

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 was landing the fish at a Chilean fishmeal plant. The steaming back and forth to the fishing grounds (outside the 200 nm) resulted in a loss of fishing time.

As in the previous two years, the species composition of the catch in 2016 was dominated by jack mackerel (*Trachurus murphyi*). This species made up 92.5% of the total catch. The chub mackerel (*Scomber japonicus*) came in as second with 5.7%, and the Pacific bream (*Brama australis*) as third with 1.1% (all figures are provisional as they are only based on part of the fishing season).

The monthly development of catches in each of the years 2014 – 2016 is presented in Figure 1. Contrary to 2015, the highest catches in 2016 were taken in the month of June. As mentioned in last year's report, the high catches in May 2015 were due to the presence of large numbers of juvenile fish in the southern area. The unusual distribution of juvenile fish was presumably due to the El Niño conditions that year, leading to a southward and westward displacement of the recruiting year-class. As it now turns out the high abundance of juveniles in 2016 was therefore not a sign of strong recruitment, but rather of an abnormal distribution of juveniles.

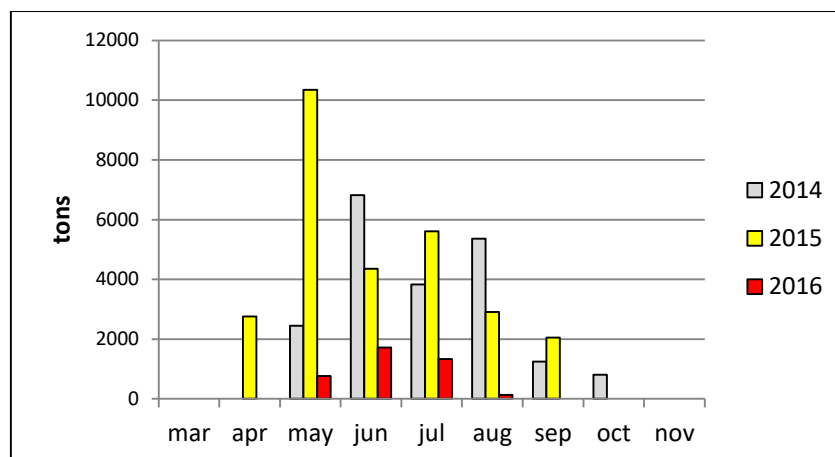


Figure 1. Monthly catches of jack mackerel by EU vessels in 2014 - 2016. Data for 2016 are provisional. Data based on catches reported by the vessels.

3.1.2 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 only on catches of the PFA fleet. This was the segment of the EU fleet that consistently participated in the fishery in the SPRFMO area (except for 2012). In certain years one of two Polish trawlers also worked in the area, but the relationship between their CPUE and that of the PFA trawlers has not yet been investigated. Therefore the Polish catches have not been taken into consideration in calculating the CPUE.

Provisional data for 2016 indicate that the CPUE in that year was substantially lower than in 2015.

year	number of fishing days	catch jack mackerel PFA fleet 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*	29	2 487	86

*) provisional

Table 3. Catch and effort in the PFA fleet. Fishing days based on trawl station lists 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.

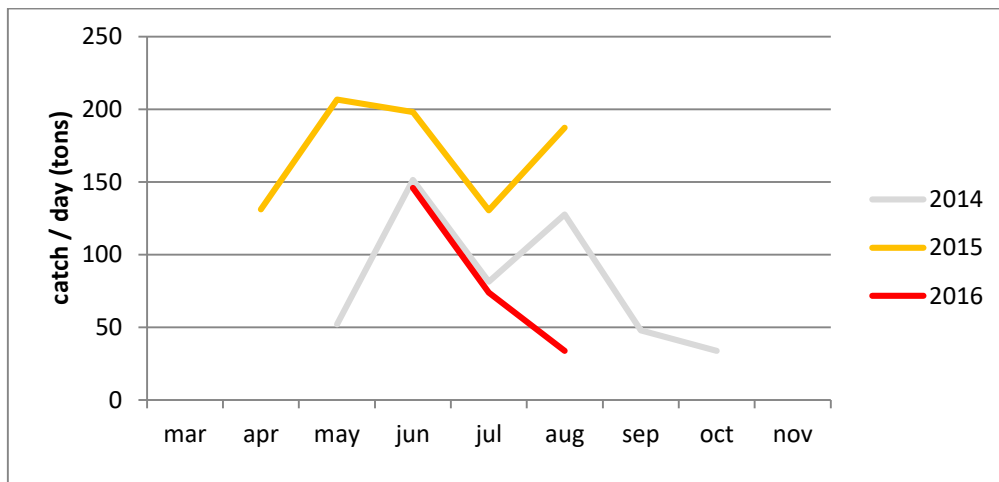


Figure 2. Monthly CPUE of jack mackerel in the PFA fleet for 2014 – 2016. Data for 2016 are provisional.

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 catches and effort were provided directly by the captains of vessels. An observer collected detailed biological information on catches 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 Dutch freezer trawler association PFA.

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 2016 are compared to those in 2015 in Figures 3a and 3b. For 2016, only the provisional results of the Maartje Theadora were available.

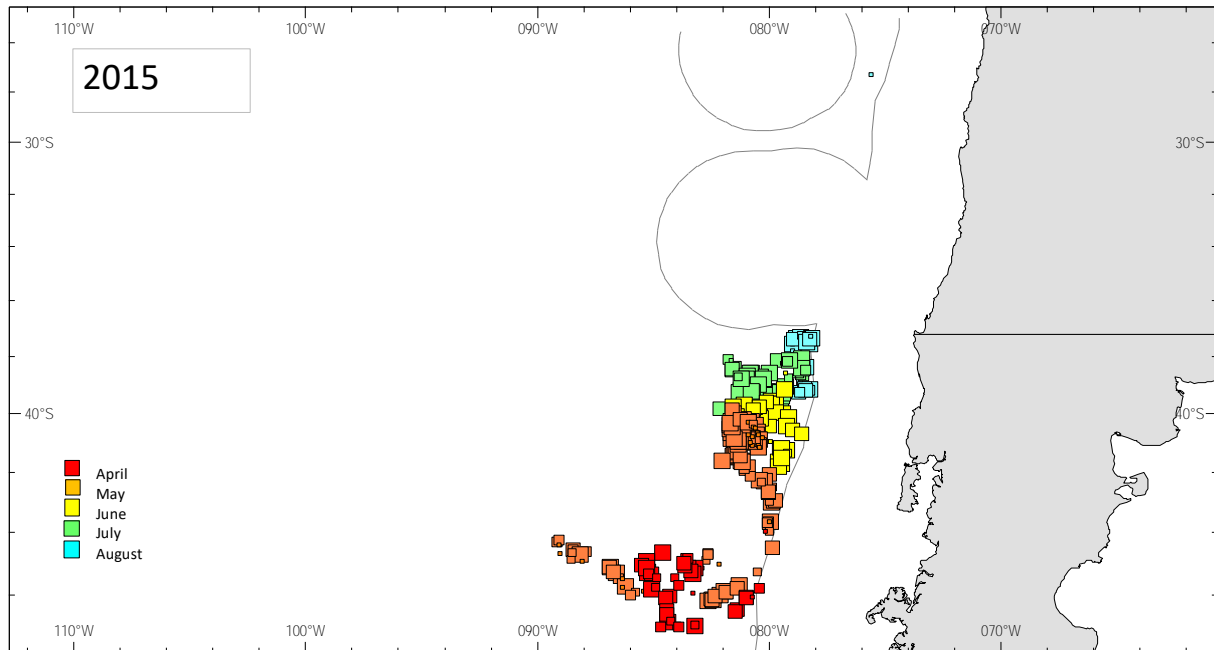


Figure 3a. Catch distribution by month of the PFA fleet in **2015**. Size of squares is proportional to catches.

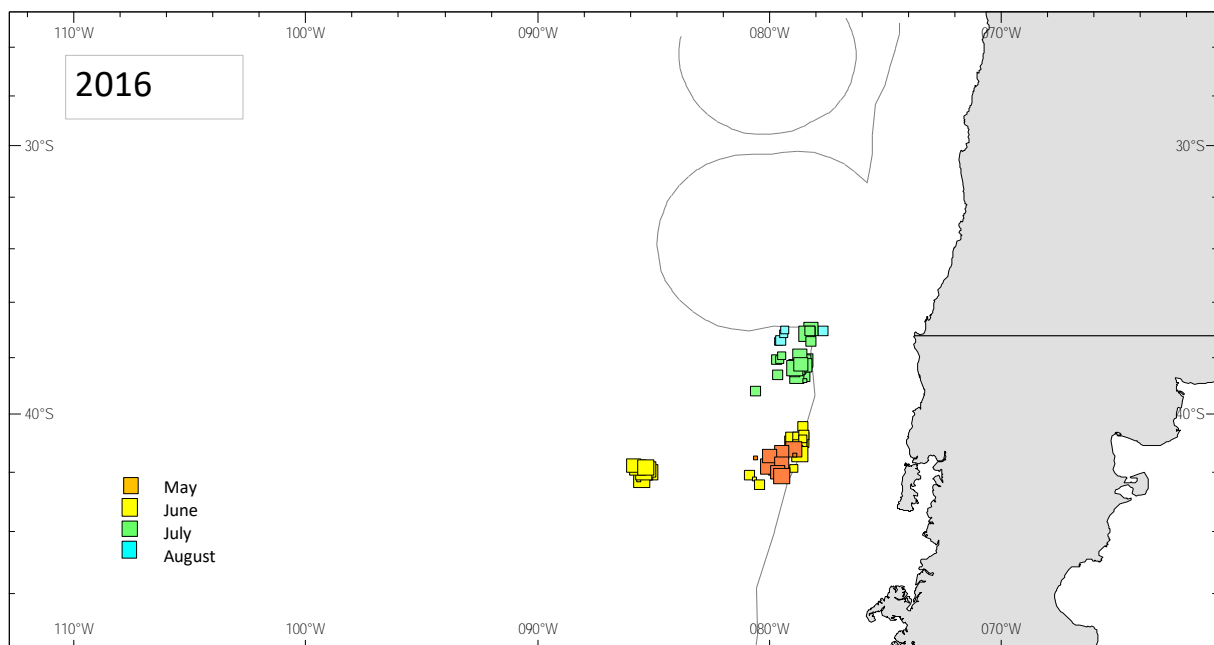


Figure 3b. Catch distribution by month of the Maartje Theadora in **2016**. Size of squares is proportional to catches. Figure based on provisional catch data.

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 "Janus" could not venture that far offshore because it was landing its catches at a fishmeal plant ashore.

Provisional catches reported for 2016 are substantially lower than in 2015. This may be partly due to the fact that not all information for both vessels was available at the time of writing this report. However, the main cause for the drop in reported catches was probably the scarcity of fish.

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 cold 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 that an observer was sent to sea, and he started his work on the Polish "Janus". In mid-June he switched to the "Maartje Theadora" and stayed on board until early August. Due to the deployment of only a single observer, the number of observer days (43) was much lower than in previous years.

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

Table 4. Observer missions in 2014 - 2016

The observer collected data on species composition of catches, length composition, and biological characteristics such as sex and maturity stage, food composition, stomach fullness and fat content. In addition he monitored discards and incidental by-catches of large species.

As in the previous two years, the observer also monitored by-catches of birds and the presence of birds around the vessels (see below).

4.3 Biological sampling of catches

Biological samples were taken from the main species taken in the fishery. These included *Trachurus murphyi*, *Scomber japonicus* and *Brama australis*. In this report, only length data (fork length FL) for jack mackerel (*T. murphyi*) are presented.

4.3.1 Sampling of jack mackerel

Details on the sampling in 2015 were already presented in the report to the 2015 meeting of the Scientific Committee (Corten, 2015).

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 Polish "Janus". This observer changed in mid-June to the German "Maartje Theadora", and stayed on board this vessel until mid August.

Due to the low number of observer days made in 2016, and also to the poor fishing (many days without catches), the number of fish measured was lower than in the two previous years (Table 5).

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	7 633

Table 5. Number of jack mackerel measured by scientific observers.

The length measurements in 2016 are compared with those of earlier years in Figure 4. In this figure, only data are presented for the southern fishing area, 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 and 2016.

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.

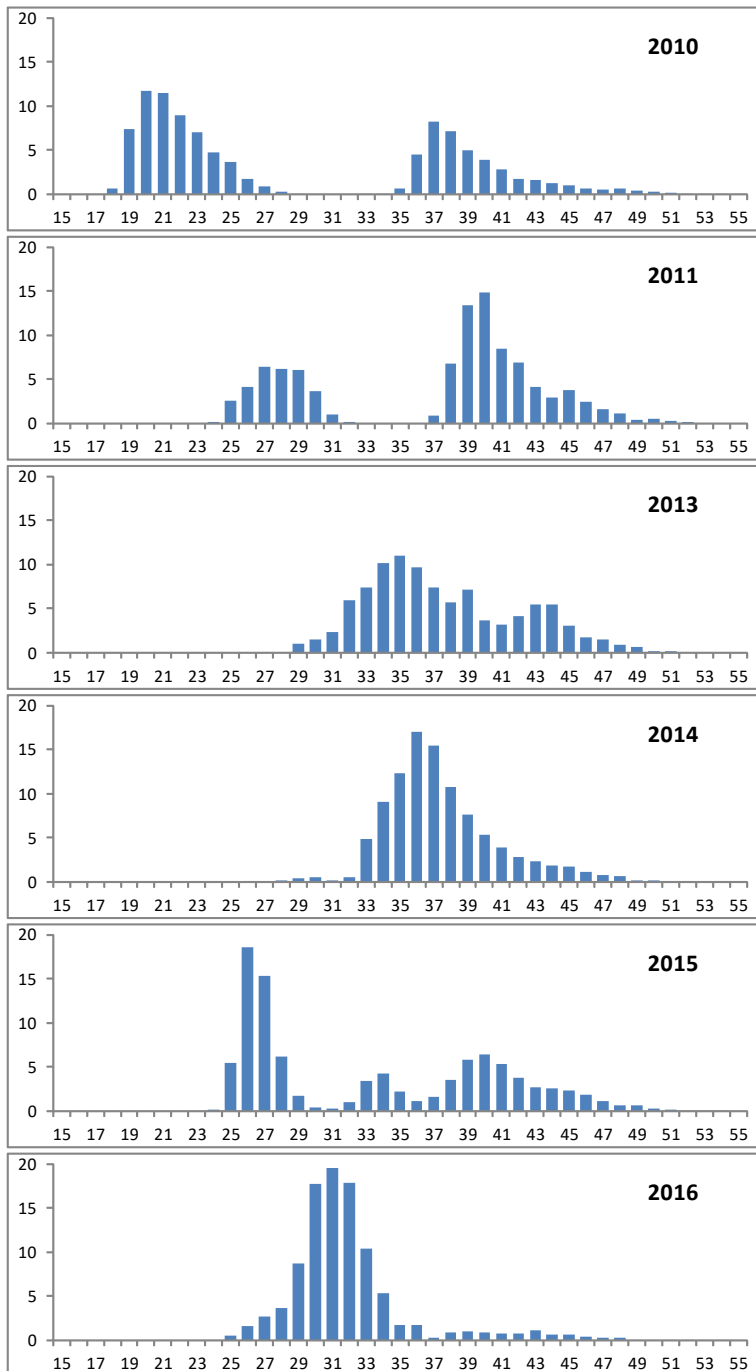


Figure 4. Percentage length composition of jack mackerel in PFA catches in 2010 – 2016 (excluding catches north of Juan Fernández Islands). Length measured in fork length.

4.3.2 Observations on seabirds and mitigation measures

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 in 2016. The number and duration of the observations in 2015 and 2016 is presented in Table 6.

year	vessel	Number of observations of birds around ship	Number of observation of bird collisions	duration of observation bird collision
2015	Annelies Ilena	46	0	0
	Margiris	22	16	7 hours 45 minutes
2016	Janus	10	0	0
	Maartje Theadora	27	8	3 hours 45 minutes

Table 6. Bird observations in 2015 and 2016.

In both years, both vessels were equipped with bird bafflers.

The amount of time available for observing bird collisions was limited, due to the other tasks of the observer on board (fish sampling). On the Janus in 2016, no observations on bird collisions could be made because of lack of a suitable observation post.

No birds were observed in the net in both years. In 2016, two collisions between birds and lines 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".

Results of the seabird observations in 2016 are presented in a separate document to this meeting (Raczynski and Corten, 2016). The main conclusion was that pelagic trawlers, in contrast to long liners, do not inflict a significant mortality on seabirds. Bird bafflers seem to introduce an extra risk for the birds and are probably counter-productive.

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