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Ad Corten

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Ad Corten

Consultant to the Dutch Ministry of Economic Affairs

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1 Introduction

This report is one in a series of annual reports on the EU fishery in the south-eastern Pacific. The present report describes the activities of the EU fleet in 2013 and in the first months of 2014. Data for earlier years were presented in the annual report of 2013 (Corten 2013) and preceding years.

In last year's report, data were already presented on the activities of the EU fleet in the period May – July 2013. This year's report completes the data for 2013 by including information for the period August – November 2013. In this latter part of the season, the fishery shifted to more northern waters where the length composition of the target species (*Trachurus murphyi*) was quite different from the one in the southern area.

At the time of writing the current report, data for the EU fleet in 2014 were already available for the period May - July 2014. These data have been included and are compared with the data for the corresponding period in 2013.

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2 A short history of the EU fishery in the Pacific in recent years

The EU fleet in the south-eastern Pacific consists exclusively of large pelagic trawlers that operate only part of the year in the area. The main target species is the jack mackerel (*Trachurus murphyi*) that occurs both inside and outside the economic zones of Chile and Peru. The EU trawlers can fish only in the international waters outside the national economic zones. This means that the fleet can only catch the jack mackerel during the period when part of the stock occurs outside these zones, i.e. in the period April – November. The rest of the year the vessels move to Europe or to West Africa.

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, some Polish vessels worked in the area in 2009 - 2011.

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)

Table 1. EU pelagic trawlers in the Pacific in 2005 – 2014.

Over the period 2008-2011, there was a continuous decline of the catch per unit of effort (CPUE), leading to a complete stop of the fishery in 2012. In 2013 the fishery was resumed by one vessel, and in 2014 two vessels returned to the Pacific. Catches, however remained low, as will be described below.

3 Catches, effort and CPUE in the PFA fleet

3.1.1 Catches and catch composition

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

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year	total 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
2013	10 390	97.2	2.2	0.6	0.0

Table 2. Total catches and species composition of PFA fleet in 2009 – 2013. Based on landing data provided by ship owners.

The species composition of the catch in 2013 was comparable to that in previous years, with a strong dominance of jack mackerel (*Trachurus murphyi*). The chub mackerel (*Scomber japonicus*) came in as second, while the Pacific bream (*Brama australis*) that occupied the second place in 2011, was found in lower numbers in 2013.

The evolution of monthly catches over the period 2008 – 2013 is presented in Figure 1. From 2008 to 2011 catches declined steadily and there was a progressive shortening of the fishing season. After a year of no fishing in 2012, one vessel returned in 2013. Contrary to earlier years, this vessel continued to work until November. The prolonged duration of the fishing season was related to a shift of the fishery to more northern grounds (section 4.1).

In 2014 two vessels returned to the Pacific. Data for this season were available up until July. The return of PFA vessels to the Pacific in 2013 and 2014, despite the low catch rates, was partly related to reduced fishing opportunities for the PFA fleet in other parts of the world (Mauritania).

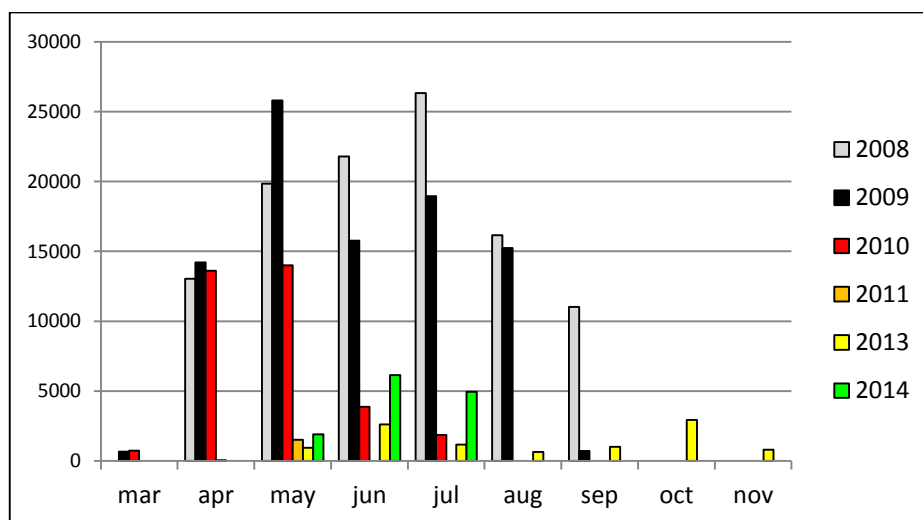


Figure 1. Monthly catches of jack mackerel by PFA vessels in 2008 - 2014. Data for 2014 were available only up till July. Data based on catches reported by the vessels.

3.1.2 Effort and catch per unit of effort (CPUE)

The development of the annual CPUE for jack mackerel in the PFA fleet is presented in Table 3. The numbers show the decline in CPUE since the first year in which the fishery operated during the whole season (2006). In 2013 the CPUE was slightly higher than in 2011, but still very low in comparison to

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earlier years. Data for 2014 were available only for the months May – July. These have not been used to calculate an annual CPUE since the fishery was still in progress at the time of writing this report.

year	number of fishing days	catch jack mackerel PFA fleet in tons	catch per day in tons
2005	44	6187	141
2006	109	33766	310
2007	401	123523	308
2008	423	108174	256
2009	436	87043	200
2010	274	33129	121
2011	32	1779	56
2012	0	0	
2013	140	10010	72

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

Contrary to earlier years, the fishery in 2013 continued until November. The only PFA vessel that was active in the Pacific (Margiris) stayed there for a longer time than usual, despite the low CPUE (Figure 2). Starting from August, the vessel worked further to the north in an area where PFA vessels had not been fishing before (section 4.1).

For 2014, data are only available for the first three months of the season (May – July). In this period, the CPUE was slightly higher than in 2013 but still low in comparison to the earlier years of the series (Figure 2).

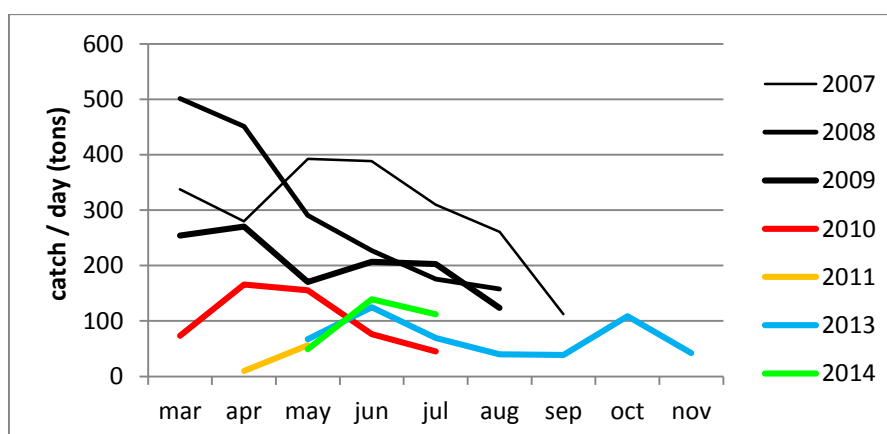


Figure 2. Monthly CPUE of jack mackerel in the PFA fleet for 2007 – 2014. Data for 2014 were available only for the months of May – July.

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4 Scientific data collection

Two independent programs of data collection were carried out in 2013 and 2014: the collection of haul-by-haul information directly from the vessels, and an observer program aimed at obtaining detailed biological information on catches and discards. Both programs were organized by the Dutch consultant agency CMR. Funding was provided by the Dutch ship owners association PFA.

The details of these programs are briefly presented below.

4.1 Tow-by-tow information

Trawlers were requested to provide fishing position, haul duration and catch composition for each haul. A simple spreadsheet was used to record the information at sea. The information requested in this spreadsheet corresponded to the data demands of the SPRFMO Data and Information Working Group.

The tow-by tow information from individual vessels provided a picture of the geographical distribution of the fishery. The results of the fishery in 2013 are presented in Figure 3a. During the first months of the season (May – July), the fishery was conducted in the southern area between 39° and 46°S. Contrary to the years up until 2011, the fishery did not shift westward in the course of the season as it did in previous years, but remained just outside the Chilean EEZ until the end of July. The vessel searched for a while further to the west, together with some non-EU vessels, but there were no signs of any fish west of 82°W. In August the vessel moved to the area north of the Juan Fernández Islands, where catches had been reported by Chinese vessels in the previous year. Here the vessel worked until November in the area between 26° and 31°S.

For 2014, data were available for the first months of the season (May – July). The distribution of the catches in these months was similar to 2013 (Figure 3b). The latest information from the vessels is that they moved to the northern area in August as they did last year. No catch positions were yet available for this month.

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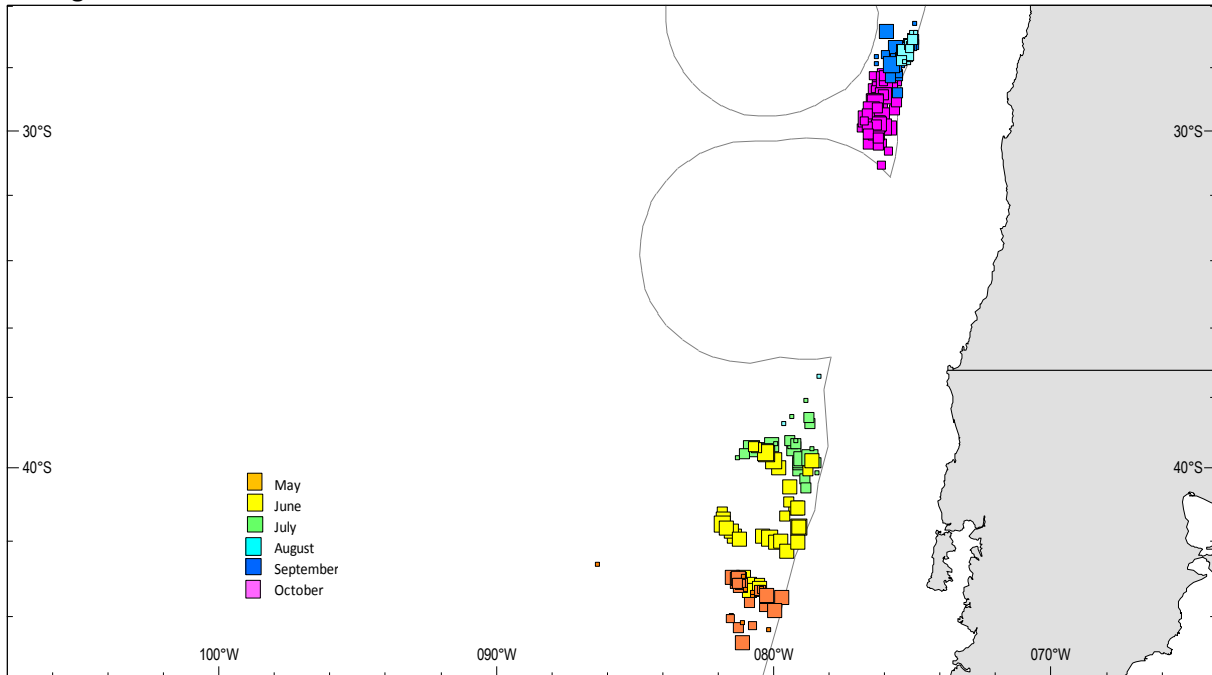


Figure 3a. Catch distribution by month of the PFA fleet in **2013**. Size of squares is proportional to catches. Positions may be inaccurate due to errors in data transmission and analysis.

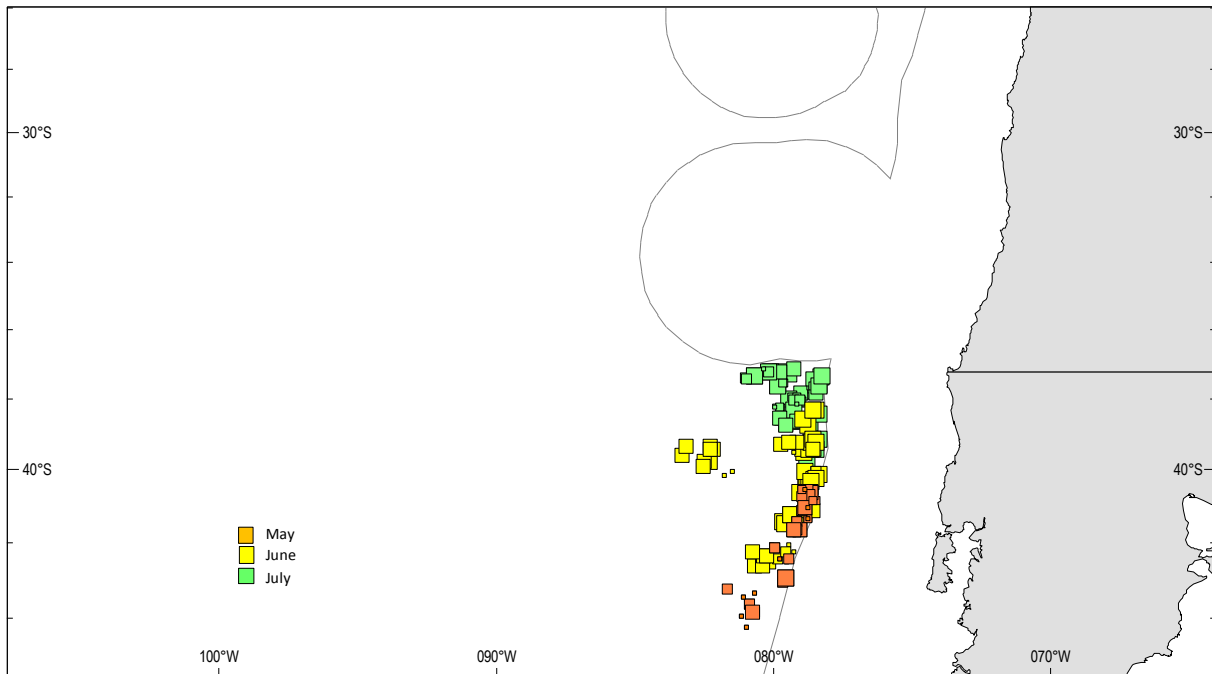


Figure 3b. Catch distribution by month of the PFA fleet in **2014** for the May - July. No data were available for later months at the time of writing this report.

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4.2 Observer data

In accordance with the recommendation of the SPRFMO Data and Information Working Group, the program in 2013 attempted to obtain at least 10% coverage of fishing days. One scientific observer worked on board the "Margiris" in April-May. After he left the ship on the 26th of May, the crew continued to take length measurements of jack mackerel.

In 2014 the observer programme was intensified, following the adoption by SPRFMO of Conservation and Management Measure CMM 2.04. In this measure it was recommended that member states in 2014 temporarily increased their observer coverage to at least 50%. In accordance with this recommendation, the PFA had one observer at sea during the first four months of the season in 2014.

year	period	schip	observer	days with observations
2013	7 April – 26 May	Margiris	Co de Klerk	16
2014	20 April – 30 May	Maartje Theadora	Tomasz Raczynski	23
	31 May – 19 August	Maartje Theadora	Co de Klerk	80

Table 4. Observer missions in 2013 and 2014

The observers 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 they monitored discards and incidental by-catches of large species.

In 2014, special attention was given to monitoring by-catches of birds, and the presence of birds around the vessels (see below)

4.3 Biological sampling of catches by the PFA fleet

Biological sampling was conducted on the main species taken in the fishery. These included *Trachurus murphyi*, *Scomber japonicus* and *Brama australis*. In this report, only length data for jack mackerel (*T. murphyi*) are presented. In addition, an inventory is presented of the bird data collected.

4.3.1 Sampling of jack mackerel

In 2013, the number of fish measured by the scientific observer (2727) was low, due to the limited time the observer spent on board and also the low catches of jack mackerel. After the observer left the ship in May, the crew measured another 1870 jack mackerel in June – August.

In 2014 the number of fish measured increased considerably as a result of the increased coverage by the scientific observer programme. In the first 3 months of the season, a total of 11120 jack mackerel was measured.

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year	number of jack mackerel measured
2008	28 250
2009	15 744
2010	10 540
2011	2 194
2013	2 727
2014	11 120*

Table 5. Number of jack mackerel measured by scientific observers. (*) numbers for 2014 up until July.

The length measurements in 2013 showed a pronounced difference between the period when the vessel worked in the southern area (May – July), and the subsequent months when the vessel fished further to the north (Figure 4). In the first period, the vessel caught large fish with the principal mode at 35 cm and a secondary mode at 43-44 cm. During the second period, the fish were smaller, with modal lengths at 29 and 22 cm.

In 2014, data for the period May – July (Figure 5) show a picture that is comparable to the data for the same period in 2013 (Figure 4). Also in 2014, the catches in the southern area consisted of larger fish, the principal mode of which had increased by 1 cm compared to 2013.

Figure 6 presents the series of annual length distributions for the entire period of the EU fishery in the Pacific (2007 – 2013). In last year's report (Corten 2013) length data for the last months of 2013 had not yet been included in this series. The addition of the remaining data for August – November changes the length distribution for the whole year 2013 considerably.

4.3.2 Observations on birds

In 2013, no birds were observed in the catch. In 2014, special attention was given to the observation on birds, and a large amount of information was collected about the presence of birds around the vessels. A summary of the birds observed around one of the vessels in May 2014 is presented in Table 6. During the period May – July, not a single bird was observed in the catch.

English name	Latin name	Number of observations	Number sighted
Great Albatrosses	<i>Diomedea sp.</i>	16	108
Black-browed Albatross	<i>Thalassarche melanophrys</i>	17	2965
Salvin's Albatross	<i>Thalassarche salvini</i>	6	29
Grey-headed Albatross	<i>Thalassarche chrysostoma</i>	15	796
Buller's Albatross	<i>Thalassarche bulleri</i>	2	6
Giant Petrels	<i>Macronectes sp.</i>	11	34
Cape Petrel	<i>Daption capense</i>	12	171
White-chinned Petrel	<i>Procellaria aequinoctialis</i>	15	1258
Grey Petrel	<i>Procellaria cinerea</i>	3	3
Sooty Shearwater	<i>Puffinus griseus</i>	9	83
Wilson's Storm- petrel	<i>Oceanites oceanicus</i>	5	447
Blue Petrel and prions	<i>Pachyptila sp. or Halobaena sp.</i>	1	1
Total			5901

Table 6. Observations on birds around the "Maartje Theadora" in May 2014.

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In 2014 SPRFMO requested participating countries to spend considerable effort on collecting bird observations, but no clear instructions were given as to the protocol to be used, nor on the way the results should be reported. For specialized activities such as bird observation, it would be helpful if SPRFMO in future could propose a standard observation protocol, and guidelines as to how and where the collected data should be reported.

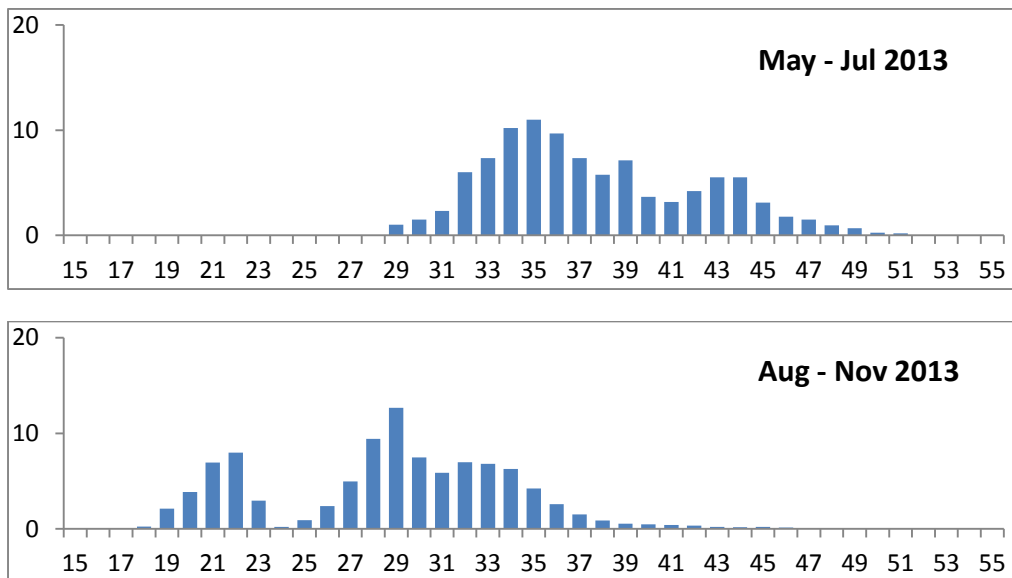


Figure 4. Length distributions (FL) of jack mackerel in 2013 during first and second part of season.

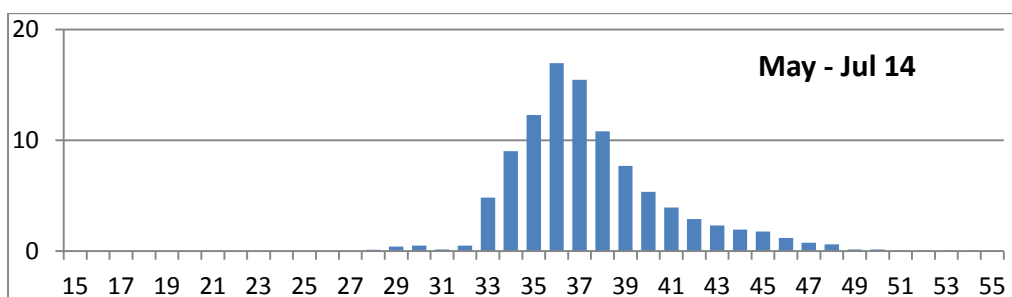


Figure 5. Length distributions (FL) of jack mackerel in 2014 during first part of season.

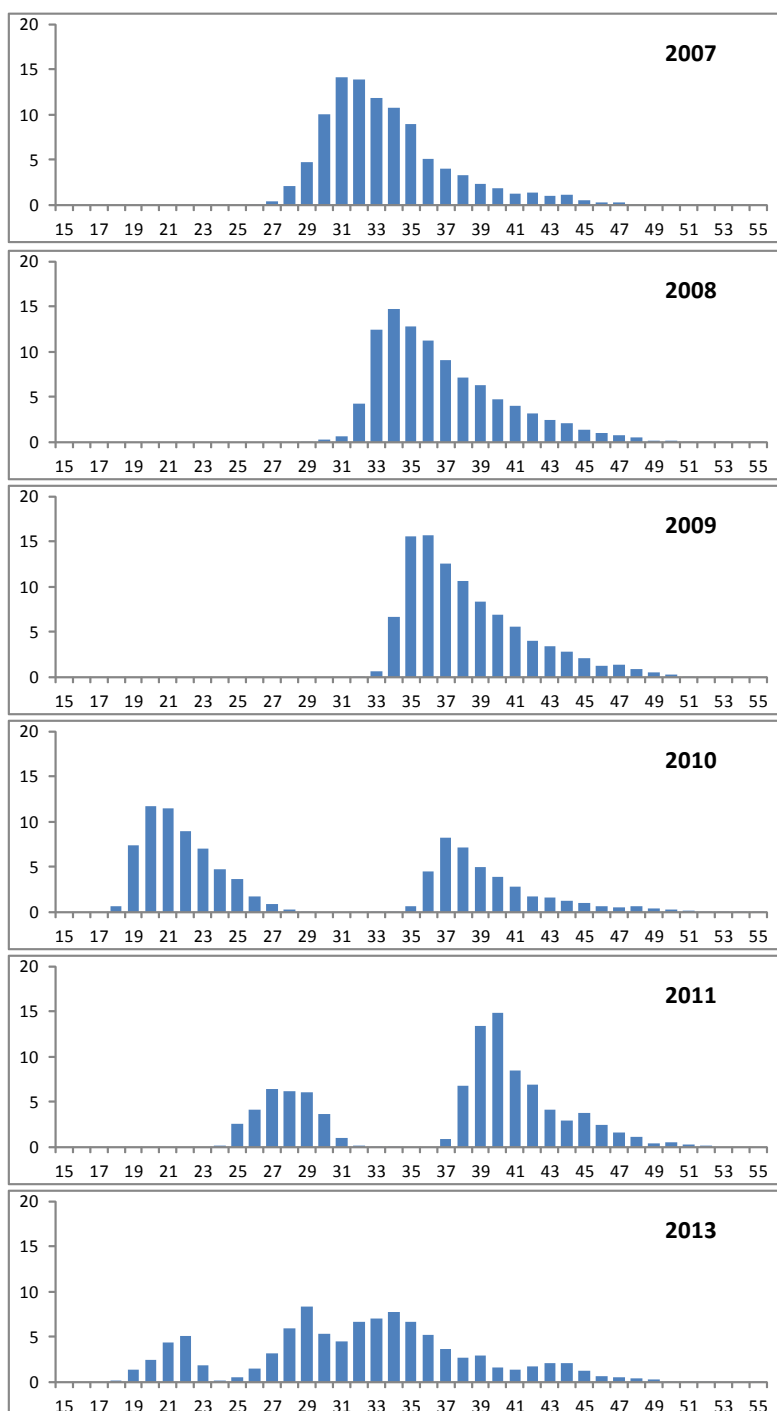


Figure 6. Percentage length composition of jack mackerel in PFA catches in 2007 – 2013. Length measured as in fork length.

References

Corten 2013. European Union 2013 Annual Report, First meeting of SPRFMO Scientific Committee, La Jolla, USA: 21-27 October 2013, Doc. SC-01-14.