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South Pacific Regional Fisheries Management Organisation

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National report of the European Union to the 2020 SPRFMO Scientific Committee meeting.

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Summary

This report presents the European Union (EU) fishing activity in 2019 in the South Pacific Regional Fisheries Management Organization (SPRFMO) Convention area and the observer program implementation in 2019. The data on catches of Jack mackerel (*Trachurus murphyi*) by one EU trawler in 2019 covers the period from March to August. Total catch in 2019 was just over 12,000 tonnes. There was no fishing activity of the EU fishing fleet targeting Trachurus murphyi in the SPRFMO Convention area in 2020.

A short section on the PFA self-sampling program has been included in the report, demonstrating the main results of the self-sampling activities that cover all trips by EU vessels in the area.

A comparison of the EU observer data on jack mackerel with the PFA self-sampling data has been submitted to the SPRFMO SC (SC8-JM03). This comparison demonstrated that there is close correspondence (in catch compositions and length compositions) between scientific observers and self-sampling for trips that were covered by both programs. However, there are clear differences in overall length compositions from using only the observer trips or using all the self-sampling trips. This is because the self-sampling trips cover all areas and seasons of the fishery while the observer trips may miss some areas or seasons. In the future, the self-sampling trips could be used to generate the length compositions to be used in the assessment of jack mackerel.

1 Introduction

The present report refers to the activity of the pelagic trawler "Annelies Ilena" (EU, Poland) from 29 march 2019 to 19 August 2019 fishing for *Trachurus murphyi* in the SPRFMO Convention area.

Biological data were collected in 2019 by scientific observers during two fishing trips from 29 March to 08 May and from 21 May to 21 June, respectively.

Data presented in this report cover catch and effort data reported directly by the vessels, the data collected by scientific observers on board of the vessels and the self-sampling data by the crew members.

2 Description of the EU Fisheries in the Pacific - overall summary

The first EU pelagic trawler arrived in the Pacific in 2005 and it conducted fishing operations for three months in the second half of the year. The following year, the same vessel returned and undertook fishing activities for the whole season from March to October. The number of EU vessels varied from 6 to 9 in the following four years (2007 – 2010). Since 2011, the number of EU vessels decreased as a result of declining catches in the high seas (Table 1).

Table 1. EU pelagic trawlers in the Pacific in 2005-2019

Year	EU Member States 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)
2018	Lithuania (1)
2019	Poland (1)
2020	No fishing

3 Catch, Effort and CPUE Summaries

3.1 Catch composition

The fishery by EU trawlers in the SPRFMO Convention area is targeting *Trachurus murphyi*. Other species make up only a small fraction of the total catch, as shown in Table 2.

Table 2.Total catch (tons) and species composition (%) of the EU fleet in 2009 – 2019. Based on landing data provided by the vessels owners.

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	29 652	93,3	6.2	0.3	0.3
2018	10 235	94.0	1.2	2.8	2.0
2019	12 114	97,3	1.0	1,1	0.6

The total catch in 2019 was slightly higher than in 2018, despite the fact that the number of fishing days in 2019 was 33% lower than in 2018.

As in the previous years, the species composition of the catch in 2019 was dominated by *Trachurus murphyi* – the target species. This species made up 97,3% of the total catch. *Brama australis* came in second with 1.1% and *Scomber japonicus* third with a share of 1.0%. The share of other species was negligible.

The monthly distribution of the catch in 2019 is presented in Figure 1, with the highest catch taken in the months of April and May and the peak catch took place in April (the same pattern as in 2018).

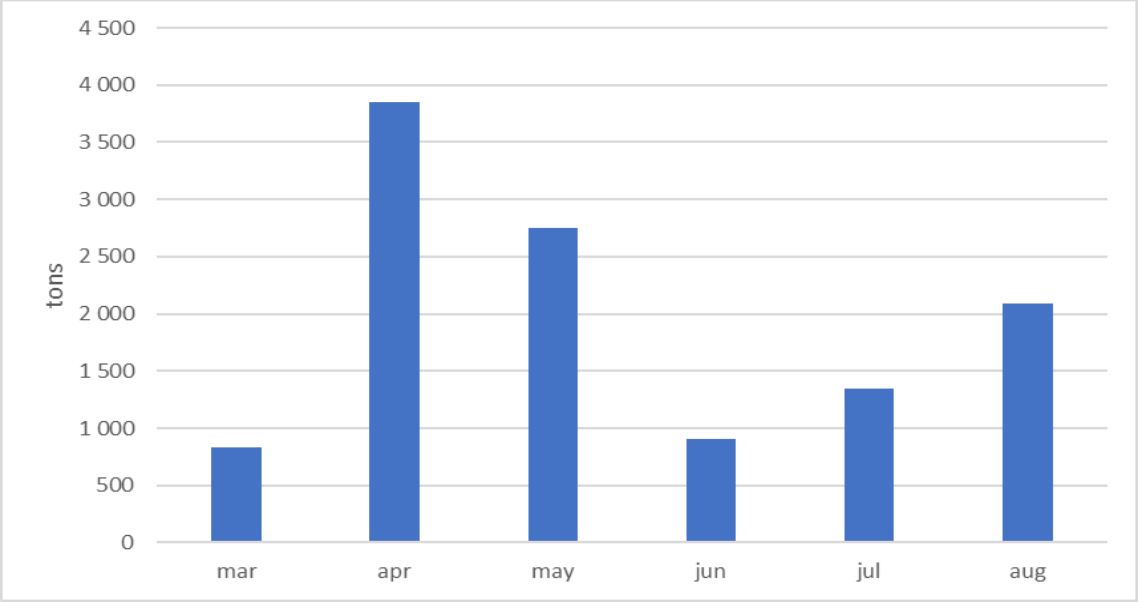

Figure 1.Monthly catch of Trachurus murphyi by EU vessels in 2019. Data based on catch reported by the vessel.

3.2 Effort and catch per unit of effort (CPUE)

The series of CPUE (in tons per day) for *Trachurus murphyi* presented in Table 3 is based on catch and effort of the EU fleet. The highest catch in 2019 was taken in April (over 3.8 th. tons) and corresponded to a CPUE of 214 t/day (Figure 2). The highest CPUE in 2019 was recorded in March (278 t/day). The main fishing activity took place in the southern fishing area, *i.e.* the waters south of the Juan Fernández Islands. In July and August the fishing activity took also place in the northern area.

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

Year	Number of fishing days	Catch *Trachurus murphyi* (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	11 470	100
2017	273	27652	101
2018	132	9 620	73
2019	88	11 789	134

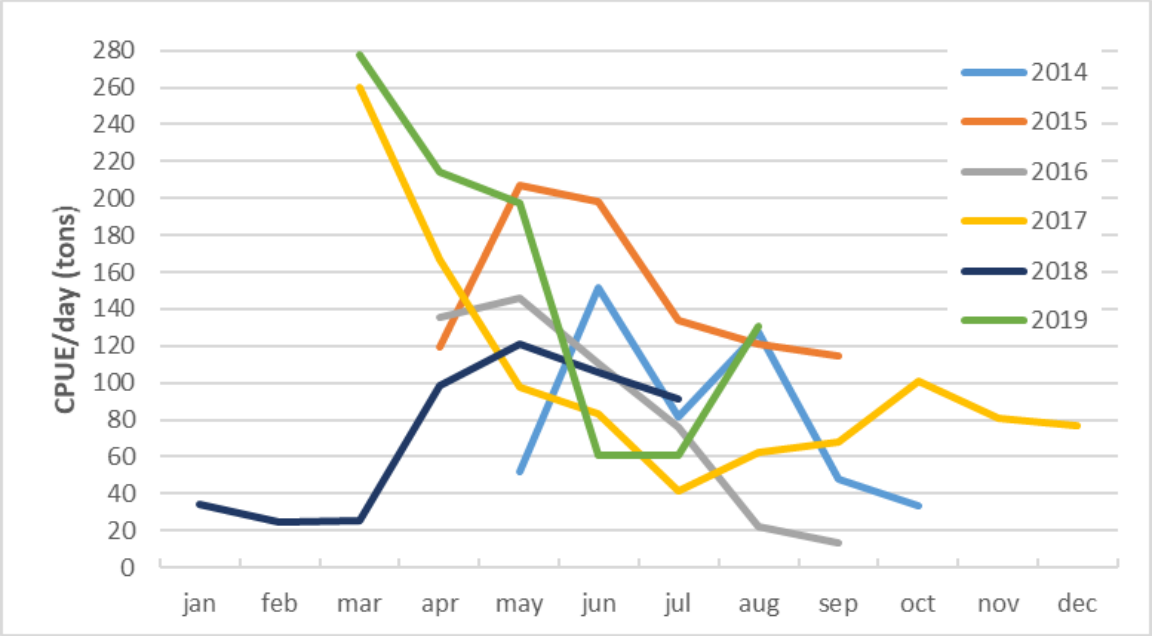

Figure 2. Monthly CPUE of Trachurus murphyi in the EU fleet for 2014 – 2019.

4 Fisheries Data Collection and Research Activities

Tow-by-tow data on catch and effort were collected directly by the vessel. The observers collected detailed biological information on catch and discards. 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 and otoliths for age reading were collected for *Trachurus murphyi*. In addition, discards and incidental by-catches of species of concern were monitored.
Otoliths of *Trachurus murphyi* collected in 2019 have been read by a specialist of the National Marine Fisheries Research Institute (Poland) and the information on age/length relationship were used to convert length distributions into age compositions of the catch. This information could be used subsequently by the Scientific Committee in their assessments.

Position, time and catch composition was provided for each haul. A simple spreadsheet was used to record the information at sea. The information requested in this spreadsheet corresponds to the data guidelines as set in the SPRFMO CMM on Data Standards.

The geographical distribution of the fishery in 2018 and 2019 are presented in Figure 3 and Figure 4.

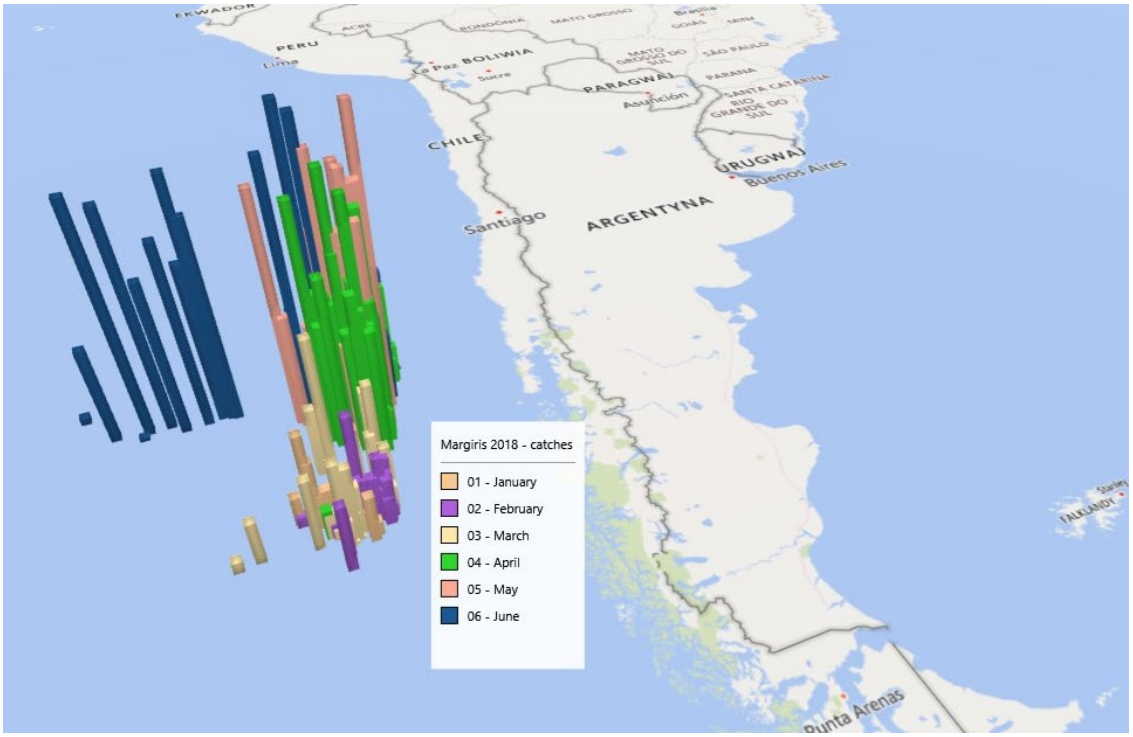

Figure 3. Catch distribution by month of the EU fleet in 2018 (January – June).

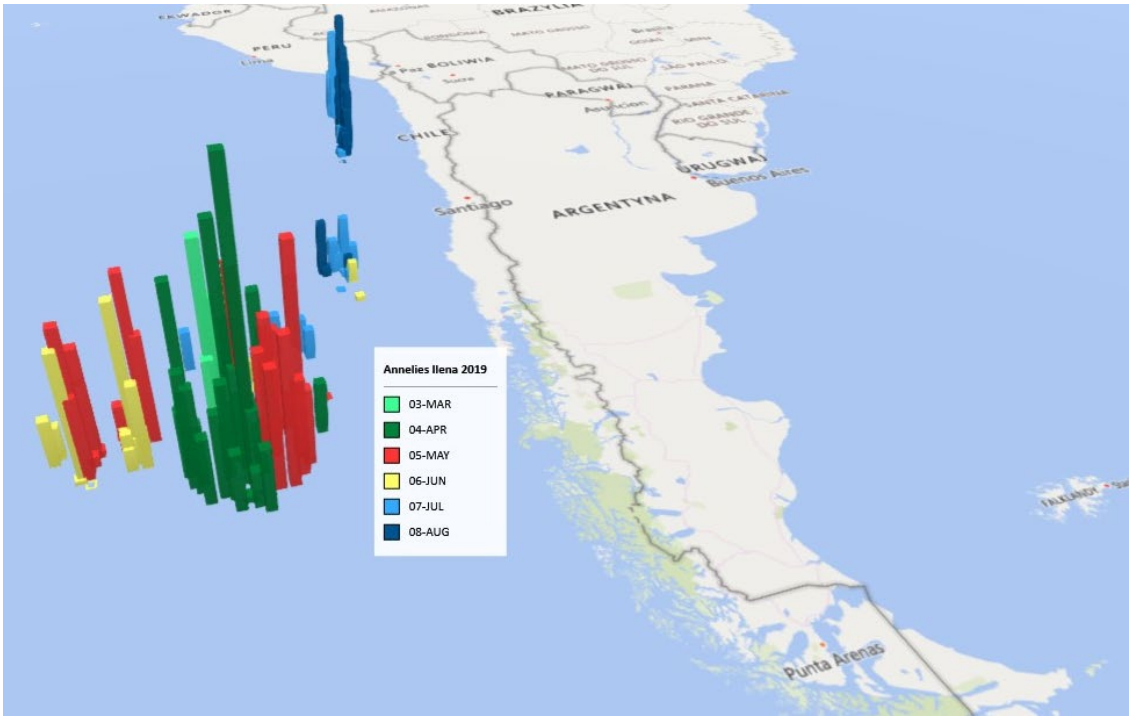

Figure 3. Catch distribution by month of the EU fleet in 2019 (March – August).

The fishing activities in 2019 were conducted close to the 200 Nm Chilean EEZ. During the period from March to July fishing took place in southern part of the fishing area, *i.e.* in the similar positions as in the same period of 2018. In July and August 2019 the fishing activity took also place in the northern area.

4.1 Observer data

Until 2016 the observer program was organized by the Dutch consultant agency Corten Marine Research (CMR). This agency had been responsible for observer missions on board EU (Dutch, German, Lithuanian and Polish) trawlers in the SPRFMO Convention area since 2007. The coordination of the observer program to collect data from the EU fishing fleet in the SPRFMO Convention area from 2017 was taken over by the National Marine Fisheries Research Institute, Poland (NMFRI).
As from 2015, the program is financed through the EU Data Collection Framework (DCF) and is based on the Multi-lateral agreement for biological data collection of pelagic fisheries in SPRFMO Convention area amongst the responsible institutions of the EU Member States concerned.

In the period 2014-2019, the total number of fishing days with observers on board was 394 (Table 4), which means that 40% of fishing days was observed.
In 2019, two fishing trips were covered by observers. The observer programme started on 25 March and continued till 24 June. The total number of fishing days in 2019 was 88, out of which 47 fishing days were observed (53%).

Table 4. Observer missions in 2014 - 2019

Year	Period	Vessel	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 June	Janus	Tomasz Raczynski	14
	18 June – 17 August	Maartje Theadora	Tomasz Raczynski	23
2017	15 March – 17 May	Margiris	Tomasz Raczynski	34
	05 April – 17 May	Margiris	Łukasz Dziemian	
	09 August – 20 September	Margiris	Tomasz Raczynski	32
2018	22 March – 02 May	Margiris	Tomasz Raczynski	26
	02 May – 13 June	Margiris	Kamil Kisielewski	27
	02 May – 13 June	Margiris	Piotr Pankowski	
2019	25 March – 13 May	Annelies Ilena	Łukasz Giedrojc	25
	13 May – 24 June	Annelies Ilena	Kamil Kisielewski	22

The observers collected data on species and length composition of the main species observed in the catch (*Trachurus murphyi*, *Brama australis, Cubiceps caeruleus* and *Scomber japonicus)*. Biological characteristics such as sex and maturity stage, stomach fullness and food composition as well as otholiths for age reading were collected for *Trachurus murphyi*. In addition, discards and incidental by-catch of species of concern were monitored.
As in the previous 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 Section 6).

4.1.1 Observer training

The observers employed by NMFRI in the program in 2019 had a wide experience in observer missions at sea:
Łukasz Giedrojć and Kamil Kisielewski are ichthyologists with a University degree who have worked as observers on board Polish vessels (pelagic and demersal trawlers, long-liners, gill-netters) in the Baltic Sea since 2011. They also worked as observers on board pelagic trawlers in the North and South-East Atlantic.
No special training activities were organized for the NMFRI observers in 2019 as no training needs were identified.
The NMFRI observers are very experienced - biological and fisheries data collection is their daily routine under the EU DCF and other fisheries monitoring projects executed by the Institute and they are regularly briefed. Before each deployment of the observer on the vessel operating in the SPRFMO Convention area, observers are briefed on the updated Conservation and Management Measures applicable to the *Trachurus murphyi* fisheries in the SPRFMO area and as regards observer's obligations with respect to the methods and scope of the data to be collected.

At NMFRI an internal policy is in force regarding qualifications and safety requirements of the scientific observers.

According to this policy, a two-stage observer training is applied:

- First - general maritime training confirming the ability to work at sea on board fishing vessels, resulting in obtaining relevant certificates in accordance with national rules and the requirements of the STCW Convention - Seaman's Book, Deck Hand Certificate, Basic Safety Training Certificate (incl. Personal Survival Techniques, Fire Prevention and Fire Fighting, Elementary First Aid, Personal Safety). This training lasts one week. Each observer working at sea must at all time be in possession of all valid basic maritime certificates (which must be renewed each 5 years), including specific Marine Health Certificate.

- Second - practical training on observer's work, both in the lab and in the field and at sea (including species identification, otoliths/scales collection and reading, maturity determination, data recording etc.). Each newly employed observer is working under the supervision of Institute's Data Collection Coordinator and, when working in lab or at sea, is trained under direct supervision of an experienced observer. This training last minimum 3 weeks.

No additional special training is planned, unless new requirements regarding EU observer program are identified.

4.1.2 Program design and coverage

The observer program was designed to meet the requirements of the paragraph 22 of the SPRFMO CMM 01-2018[1], *i.e.* to ensure a minimum of 10% scientific observer coverage of trips for trawlers flying the EU flag and to ensure that such observers collect and report data as described in the SPRFMO CMM 02-2018[2] (Data Standards) respectively.

Year	Fishing		Observed		Coverage	
	Trips	Days	Trips	Days	Trips	Days
2017	10	273	3	66	30%	24%
2018	6	132	2	53	33%	40%
2019	3	88	2	47	66%	53%

In 2019 only one EU vessel was engaged in fishery for *Trachurus murphyi* in the SPRFMO area – f/v 'Annelies Ilena' (EU, Poland). Scientific observers were placed on board this vessel during her first and second fishing trips (March-June) out of total of three fishing trips.

5 Biological Sampling and Length/Age Composition

In 2019 two observers in two fishing trips were placed on board of f/v "Annelies Ilena" and 5152 individuals of *Trachurus murphyi* were measured (Table 5) and otoliths from 251 fish were collected for age reading.
Samples for length measurements were collected from 54 hauls out of total of 90 hauls in observed trips. For biological data collection (including sampling for age) for *Trachurus murphyi* the aim was to have even representation for all length classes recorded (minimum 5 fish per length class per trip). In the biological samples collected in 2019 the number of length classes was 22.

Table 5. Number of Trachurus murphyi measured by scientific observers during 2008-2019.

Year	Number of *Trachurus murphyi* measured
2008	28 250
2009	15 744
2010	10 540
2011	2 194
2013	2 727

[1] Conservation and Management Measure for *Trachurus murphyi*
[2] Conservation and Management Measure on Standards for the Collection, Reporting, Verification and Exchange of Data

2014	15 148
2015	17 563
2016	25341
2017	13843
2018	7465
2019	5152

The length of *Trachurus murphyi* fished in 2019 was in the range of 32 to 53 cm, with the peak at the length classes 44-45 cm. The length measurements in 2019 are compared with those in previous years in Figure 5.

Age for *Trachurus murphyi* sampled in 2019 is presented in Figure 6.

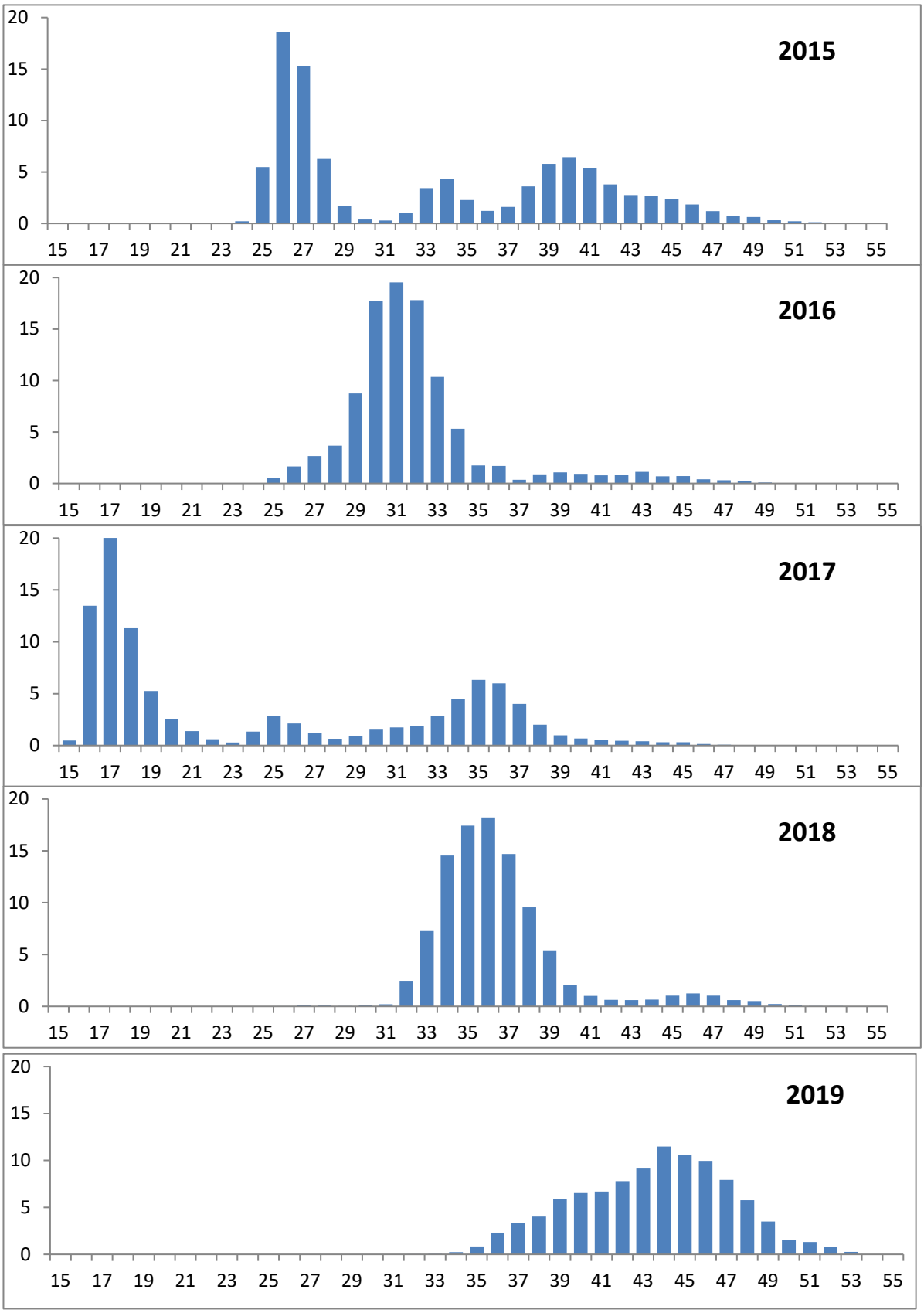

Figure 4. Percentage length composition of Trachurus murphyi in EU catch in 2015 – 2019.

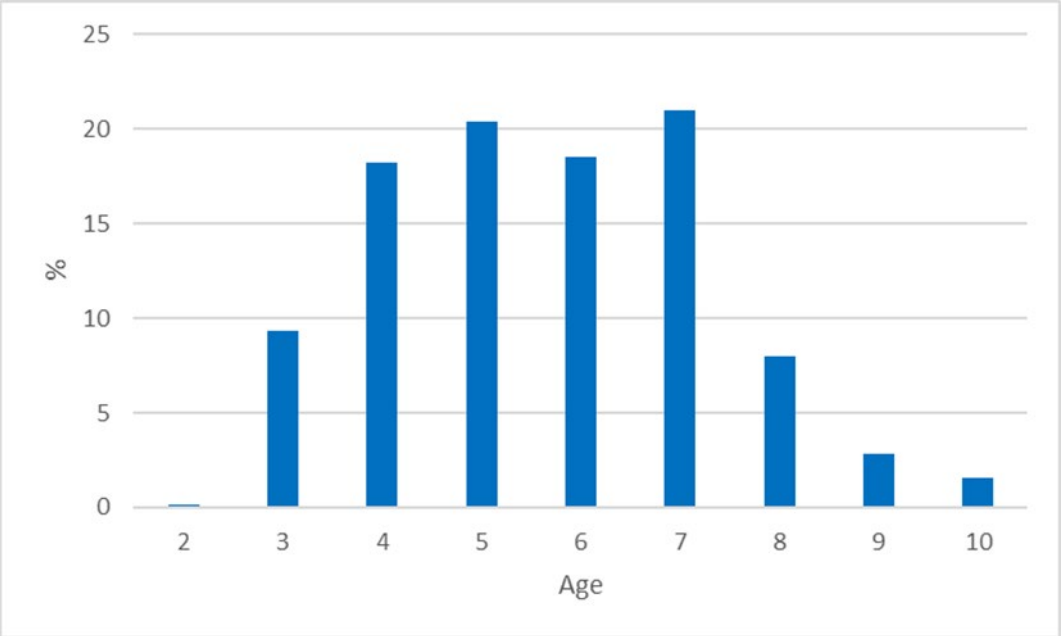

Figure 5. Age-frequency distribution of Trachurus murphyi in EU catch in 2019 .

6 Ecosystem approach considerations

The observations of seabirds in the net and around the vessel, initiated in 2014 at the request of SPRFMO, continued in 2015 - 2019. No by-catch or encounters with seabirds were observed.
More detailed results of the seabird observations in 2016 presented in a separate document to the SC meeting in 2016 (Raczynski, 2016) indicated that pelagic trawlers do not inflict a significant observed mortality on seabirds.

7 PFA self-sampling data

Since 2015 a full self-sampling program has been initiated on all EU fishing vessels belonging to members of the Pelagic Freezer-trawler association (PFA) and fishing in the SPRFMO Convention area, which is being reported directly to the SPRFMO Science Committee (Pastoors 2019). The self-sampling program covers all trips and all hauls of the vessels that are active in the area and thereby delivers information on spatial and temporal evolution of the fishery, species and length compositions and ambient fishing conditions (temperature and depth). As such, it can be viewed as quantitative and qualitative information that could be used subsequently by the Scientific Committee in their assessments, in addition of the observer data presented above.
The relative length compositions by year were estimated from raised catch numbers at length (raised by haul, figure 7). The relative length compositions show some deviations from the length compositions derived from the observer trips (figure 5) due to more areas and seasons being covered in the self-sampling activities. A separate analysis comparing the observer trips and the self-sampling trips has been submitted to the SPRFMO SC8 (SC9-JM03).

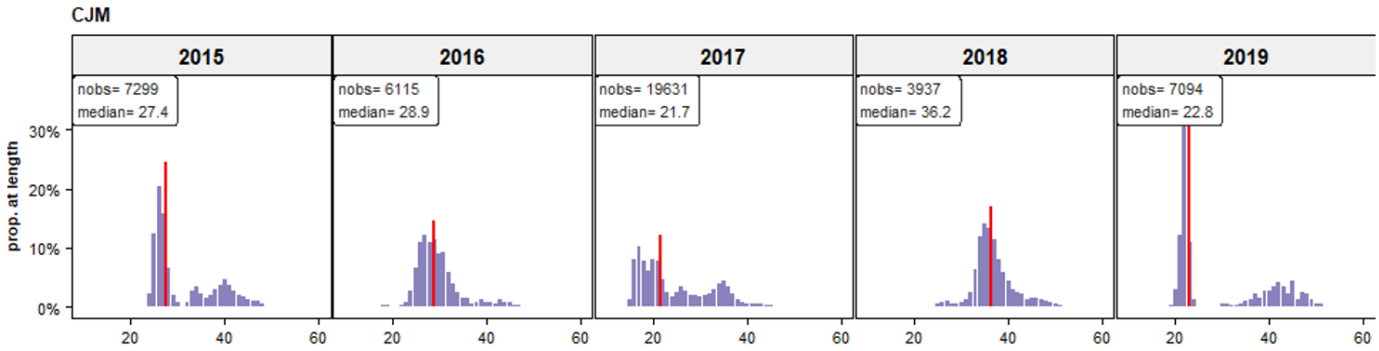

Figure 6. Relative length distributions of Trachurus murphyi in the PFA self-sampling program 2016-2019. Nobs indicates the number of length measurements while median indicates the median length (cm)

8 General information on European Union (EU) observer activity in 2019

The fishing in 2019 was conducted by f/v "Annelies Ilena" (EU, Poland), (type of vessel: TTF) close to the 200 Nm Chilean EEZ. During the observers' presence on board (March-June) fishing took place in the southern part of the fishing area, *i.e.* in the similar positions as in the same period of 2018.
Basic information on fishing and observers activity in 2019 (March – June) are provided in Table 6 and Table 7.

Table 6. Basic information the first observer mission in 2019.

Name of Observer	Lukasz Giedrojc	
Vessel	f/v "Annelies Ilena", GDY-151	
Start mission on board of vessel	Date: 2019-MAR-25	Time: UTC – 15:00 Local time – 11:00
End mission on board of vessel	Date: 2019-MAY-13	Time: UTC – 21:00 Local time – 17:00
No. of days on vessel	50	
No. of fishing days	26	
No. of days with observations	25	
Total no. of hauls	53	
No. of hauls observed	39	
Total catch (tons)	6620	
Total catch of *Trachurus murphyi* (tons)	6570	
No. of hauls sampled (length frequency)	34	
No. of *Trachurus murphyi* measured	3216	
No. of *Trachurus murphyi* biological samples	160	
No. of otoliths	160	
No. of other species measured	42	

Table 7. Basic information the second observer mission in 2019.

Name of Observer	Kamil Kisielewski	
Vessel	f/v "Annelies Ilena", GDY-151	
Start mission on board of vessel	Date: 2019-MAY-13	Time: UTC – 20:00 Local time – 17:00
End mission on board of vessel	Date: 2019-JUN-24	Time: UTC – 21:00 Local time – 17:00
No. of days on vessel	43	

No. of fishing days	23
No. of days with observations	22
Total no. of hauls	37
No. of hauls observed	28
Total catch (tons)	1842
Total catch of *Trachurus murphyi* (tons)	1796
No. of hauls sampled (length frequency)	20
No. of *Trachurus murphyi* measured	1936
No. of *Trachurus murphyi* biological samples	91
No. of otoliths	182
No. of other species measured	241

9 Information on European Union (EU) observer activity in 2020

There was no fishing activity of the EU fishing fleet targeting *Trachurus murphyi* in the SPRFMO Convention area in 2020.

10 References

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