

3rd Meeting of the Scientific Committee

Port Vila, Vanuatu
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Peru's Annual report Part I: SPRFMO Area
Ministerio de la Producción



**South Pacific Regional Fisheries Management Organisation
3rd Meeting of the Scientific Committee
Port Vila, Vanuatu, 28 September - 03 October 2015**

Peru National Report N° 1

PERU

**REPORT ON THE FISHING ACTIVITIES OF THE
PERUVIAN FLEET IN THE AREA OF
APPLICATION OF THE CONVENTION OF THE
SOUTH PACIFIC REGIONAL FISHERIES
MANAGEMENT ORGANISATION (SPRFMO),
JANUARY 2013 – JULY 2015**

2015

SUMMARY

During 2013–2014 the Peruvian fleet that fished in the SPRFMO Convention area operated off Peru and Chile at distances from 201 nm to 1000 nm from the coast, in a general area encompassed by 14°00'S and 45°00'S and 79°40'W and 87°50'W. So far there has been no fishing activity of the Peruvian fleet in the Convention area during 2015 (till July 2015). Only 1 fishing vessel operated during 2013 catching a total of 2697 tonnes between April and July 2013. No catches were reported latter in the year. Jack mackerel (*Trachurus murphyi*) represented 99% (2670 tonnes) of this total, chub mackerel (*Scomber japonicus*) represented 0.7% and other species 0.3%. The fishing areas in 2013 were within the 38°S and 45°S with a general distribution within 220 and 480 miles from the coast. Up to 5 fishing vessels operated in the Convention area during 2014, accumulating a total catch of 3574. No catches were reported until mid June although some unfruitful attempts to search and trawl for Jack mackerel in a wide area off central-southern Chile were made between 10 March and 10 June 2014. During late June and July 2014 the fleet mainly targeted on jumbo squid (*Dosidicus gigas*) further north, between 14°S and 17°S off Peru. Their total catch was 1092 tonnes in the two months, of which 1087 tonnes (99%) were jumbo squid while the other species (1%) included lightfish (*Vinciguerria sp*) and bonito (*Sarda chiliensis*). From August to October 2014 the fleet moved back south to a fishing area between 26°S and 29°S at around 300 miles from the coast off central Chile. The total catch reported during this three-month period was 2482 tonnes, of which 2223 tonnes (almost 90%) were Jack mackerel, 256 tonnes (10%) chub mackerel and 4 tonnes of other species. Jack mackerel CPUE values during the second semester of 2014 were lower than those observed during the second semester of 2012 and the first semester of 2013, but similar to those observed during the first semester of 2012. The size frequency distribution of Jack mackerel caught between August and October 2014 ranged from 18 to 54 cm total length, with a main modal size at 30 cm and secondary modes at 21 and 37 cm. The size frequency distribution of jumbo squid caught between 24 June and 31 July 2014 ranged from 13 to 41 cm mantle length, with a main modal size at 21.7 cm for females and 21.3 for males. A variety of biological and fisheries data is collected by the Onboard Observer's Programme, which for the Peruvian fishing fleet had an almost 100% coverage during 2014, with an observer on each of the 5 Peruvian fishing vessels that operated in the Convention area.

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1. DESCRIPTION OF THE FISHERY

1.1 Area of operation and structure of the fleet

During 2013-2014 the Peruvian fleet that fished in the area of application of the Convention of the South Pacific Regional Fisheries Management Organisation (SPRFMO) operated off Peru and Chile at distances from 201 nm to 1000 nm from the coast, in a general area encompassed by 14°00'S and 45°00'S and 79°40'W and 87°48'W. This fleet mainly targeted on Jack mackerel (*Trachurus murphyi*) and operated in areas characterized by sea surface temperatures ranging from a minimum of 12.5°C and a maximum of 18.1°C, with an average of 15.2°C. So far there has been no fishing activity of the Peruvian fleet in the Convention area during 2015 (until July 2015).

The Peruvian fleet registered to participate in the Jack mackerel fisheries in the area of application of the Convention of the SPRFMO is comprised by 92 fishing vessels, including 79 purse seiners with an average holding capacity of 491 m³, 7 trawlers with an average holding capacity of 3897 m³ and 6 multipurpose vessels (purse seine/trawler) with an average holding capacity of 1691m³ (Table 1).

Table 1. Peruvian fleet registered to participate in the Jack mackerel fisheries in the SPRFMO Convention area

Number of vessels	Types of fishing gear	Total holding capacity (m ³)	Average holding capacity (m ³)
79	Purse seine	38 790	491
7	Trawl	27 280	3 897
6	Purse seine/trawl	10 147	1 691

Out of the 92 registered vessels, only 1 trawler and 5 multipurpose vessels (purse seine/trawler) operated during 2012, only 1 trawler operated during 2013 and 5 multipurpose vessels (purse seine/trawlers) operated during 2014 (Table 2). A sixth support non-fishing vessel joined temporarily the Peruvian fleet during 2014 following the reflagging and inclusion in the Peruvian Maritime Registry on 9 July 2014 of the 34755 m³ hold capacity cargo and fish processing factory vessel "Damanzaihao". No Peruvian vessel has operated so far in the SPRFMO Convention area during 2015 (information until July 2015).

Table 2. Peruvian fleet that operated in the SPRFMO Convention area during the period January 2013 – July 2015

Year	Number of vessels	Types of fishing gear	Total holding capacity (m ³)	Average holding capacity (m ³)	Jack mackerel catch (t)
2012	1	Trawl	2 436	2 436	5 290
	5	Purse seine/trawl	8 667	1 733	
2013	1	Trawl	2 436	2 436	2 670
2014*	5	Purse seine/trawl	10 230	2 046	2 223
2015**	0	-	0	0	0

* The support cargo-factory vessel "Damanzaihao" with 34755 m³ hold capacity also joined the fleet during late 2014

** Preliminary information until July 2015

1.2 Annual catches and fishing areas

The annual catches of Jack mackerel (*T. murphyi*) by the Peruvian fleet in the SPRFMO Convention area shows a high variability with a general declining trend since the relatively high catches in 2010 (Figure 1). In 2012 the total catch was 5290 tonnes, 57% of this total was obtained between March and June by 6 fishing vessels while the remaining 43% was obtained between September and November by a single and one of the largest vessels that operated during 2012, the “Sheriff”. This same vessel was also the only one that operated during 2013, catching 2670 tonnes of Jack mackerel during the first half of the year, between April and July 2013, with no catches reported latter in the year (Table 3).

During the first half of 2014, from 10 March to 10 June 2014, there were up to 5 Peruvian fishing vessels involved in trawling and/or searching for commercial concentrations of Jack mackerel in the Convention area off central-southern Chile, but without success. Reports from observers on board indicate that no effective catches of Jack mackerel were made during this period, mostly due to a combination of low availability of Jack mackerel shoals and bad weather. Then these 5 vessels moved north, to waters beyond the 200 miles off Peru, where they temporarily targeted on jumbo squid (*Dosidicus gigas*) from mid June throughout July. During August-October 2014 the fleet moved back south, off central Chile where it captured 2223 tonnes of Jack mackerel.

The Peruvian catches of Jack mackerel made in the Convention area during 2013 were all made off the southern part of Chile early in the year, while during 2014 the catches of Jack mackerel were made off central Chile during the second half of the year.

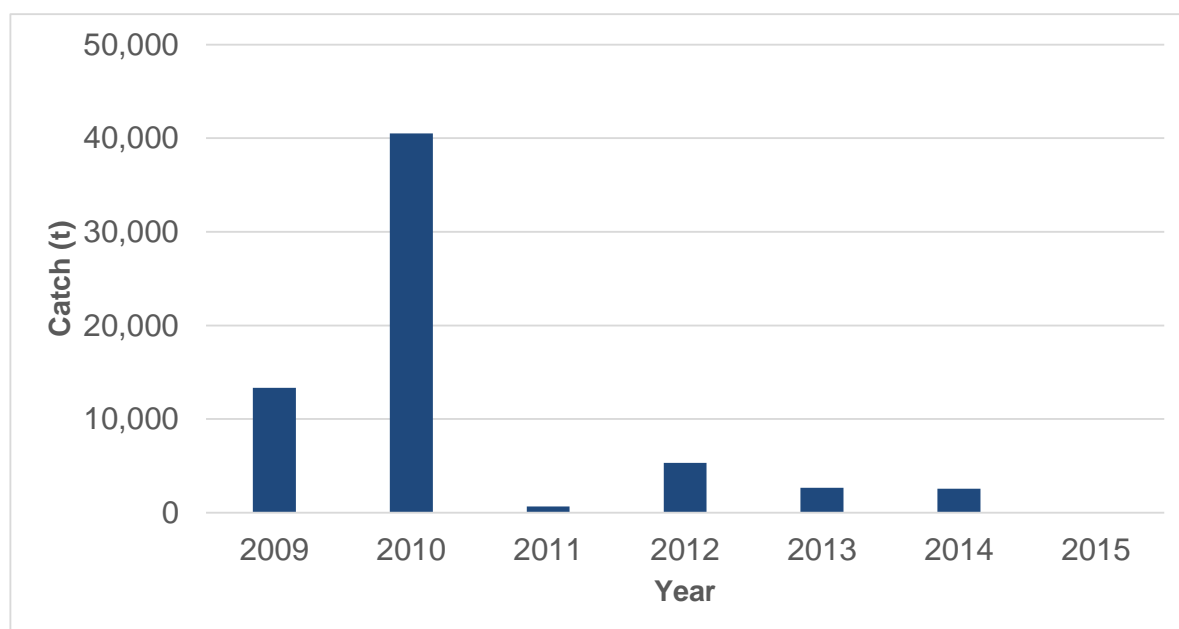


Figure 1. Annual Peruvian catches of Jack mackerel in the SPRFMO Convention area, years 2009 to 2015 (to July).

Table 3. Monthly catches of Jack mackerel reported by the Peruvian fleet operating in the SPRFMO Convention area, years 2013, 2014 and 2015 (till July)

Year 2013 (January - December)										
Vessel Name	March	April	May	Jun	July	August	September	October	November	Total (t)
Sheriff		42	1036	845	747					2670
Total 2013		42	1036	845	747					2670
Year 2014 (January - December)										
Vessel Name	March	April	May	Jun	July	August	September	October	November	Total (t)
Pacific Champion						129	411			541
Pacific Voyager						109	458	183		750
Pacific Hunter							16	1		17
Enterprise						132	540	138		810
Liafjord						12	93			105
Total 2014	0	0	0	0	0	383	1518	323	0	2223
Year 2015 (January - July)										
Vessel Name	March	April	May	Jun	July					Total (t)
										0
Total 2015		0	0	0	0					0

2. CATCH, EFFORT AND CPUE IN THE JACK MACKEREL FISHERY

2.1 Species composition

Jack mackerel (*T. murphyi*) was the main species caught by the only Peruvian vessel that operated in the SPRFMO Convention area between January and July 2013. The catch of Jack mackerel was 2670 tonnes, which represented 99.0% of the total (2697 tonnes), followed by chub mackerel (*Scomber japonicus*) with 0.72% and other species with 0.28%. No fishing activities and no catches were reported from August to December 2013.

During the first part of 2014 (up to July 2014) the main species caught was jumbo squid (*D. gigas*) with an accumulated catch of 1087 tonnes, representing 99% of the total caught up to July. The total catch of other species was 5 tonnes (1%), and mainly included lightfish (*Vinciguerria sp*) and bonito (*Sarda chiliensis*). These catches were made in June and July 2014. No catches are reported for the earlier months of 2014, although the available reports indicate that some unfruitful attempts to search and trawl for Jack mackerel were made between 10 March and 10 June 2014. Then, from August to October 2014 the Peruvian fleet caught 2223 tonnes of Jack mackerel, which represented almost 90% of their total catch in those months. The other 10% was chub mackerel (*S. japonicus*), with negligible amounts (less than 0.1%) of other species (Table 4). No catches are reported so far for 2015.

Table 4. Species composition of catches reported by the Peruvian fleet operating in the SPRFMO Convention area during 2014 (preliminary figures)

Month/Spp.	Jack mackerel	Chub mackerel	Jumbo squid	Others	Total (t)
April	0	0	0	0	0
May	0	0	0	0	0
June	0	0	612	2	615
July	0	0	474	3	477
August	383	48	0	0	431
September	1518	171	0	1	1690
October	323	37	0	1	360
Total (t)	2223	256	1087	7	3574

2.2 Catch trends

The total monthly catches of Jack mackerel by the only Peruvian vessel that operated in the SPRFMO Convention area during the first part of 2013 (April-July 2013) were within similar levels to those obtained by the whole Peruvian fleet (6 vessels) during 2012 (Figure 2). No catches of Jack mackerel were made between August-December 2013 and January-July 2014 and only in August the Peruvian fleet started to catch Jack mackerel, with a maximum in September. The monthly catch of 1531 tonnes in September 2014 was the highest monthly catch of Jack mackerel in the last three years.

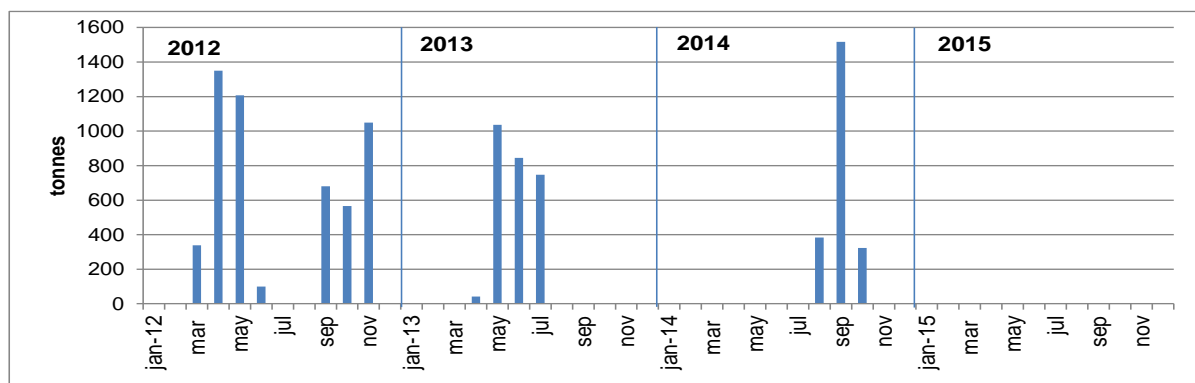


Figure 2. Jack mackerel monthly catch by the Peruvian fleet in the SPRFMO Convention area, 2012-2015 (till July)

2.3 Fishing effort trends

The fishing effort of the Peruvian fleet that participated in the Jack mackerel fishery in the SPRFMO area expressed in number of vessels and total holding capacity decreased from 6 vessels with a total holding capacity of 11103 m³ in 2012 to only 1 vessel with a total holding capacity of 2436 m³ in 2013, and increased to 5 vessels with a total holding capacity of 10230 m³ in 2014 (Table 2, Figure 3). So far (until July) there has been no fishing effort by the Peruvian fleet in the Convention area.

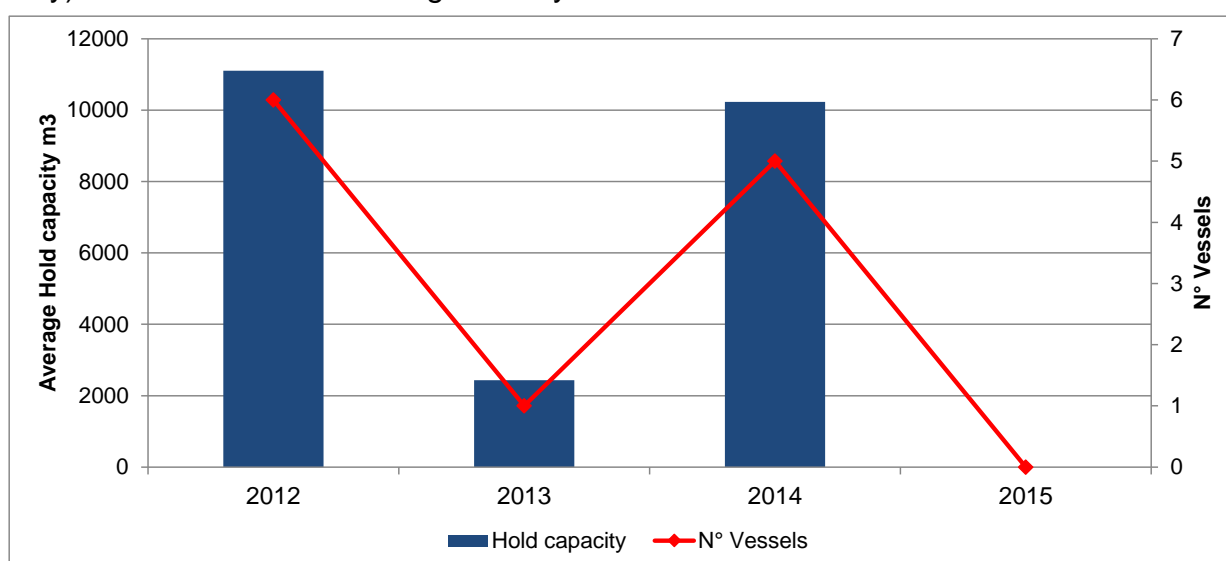


Figure 3. Number of vessels and total holding capacity of the Peruvian fleet that operated in the SPRFMO Convention area, by year 2012-2015

2.4 CPUE trends

Monthly CPUE indexes of the Peruvian fleet fishing for Jack mackerel in the SPRFMO area are expressed in catch/(tow x holding capacity), catch/(fishing days x holding capacity) and catch/(hours trawling x holding capacity). During the first half of 2012 there were 6 fishing vessels in operation with an average holding capacity of 1850 m³, during the second half of 2012 and the first part of 2013 there was only 1 fishing vessel with a holding capacity of 2436 m³ and during the first part of 2014 there were 5 fishing vessels in operation with an average holding capacity of 2046 m³. No Peruvian vessel has operated in the Convention area during the first part of 2015 (information until July 2015).

During 2013 the only vessel in operation (the “Sheriff”) made a total of 105 tows accumulating a total of 847.15 towsing-hours during 99 days. During 2014 the effective fishing effort directed to Jack mackerel by the 5 fishing vessels of the Peruvian fleet was reduced to approximately 60 tows totaling around 500 towsing-hours, all unsuccessful, in 90 days between 11 March and 10 June 2014. From approximately 15 June throughout the end of July 2014 this Peruvian fleet that has moved north mostly targeted on jumbo squid off Peru.

The resulting standardized CPUE values (Figures 4 and 5) show an initial upward trend, with higher values in the second half of 2012 and first half of 2013. These higher CPUE values in late 2012 and early 2013 are most likely related to the improved efficiency of the single larger vessel, the “Sheriff” with 2436 m³ holding capacity that was the only one that operated between September 2012 and July 2013. All CPUE values dropped to 0 between March and June 2014, since the limited fishing effort that was exerted resulted in no catches. There was a slight recovery in the CPUE between August and October 2014 to values similar to those observed during the first semester of 2012.

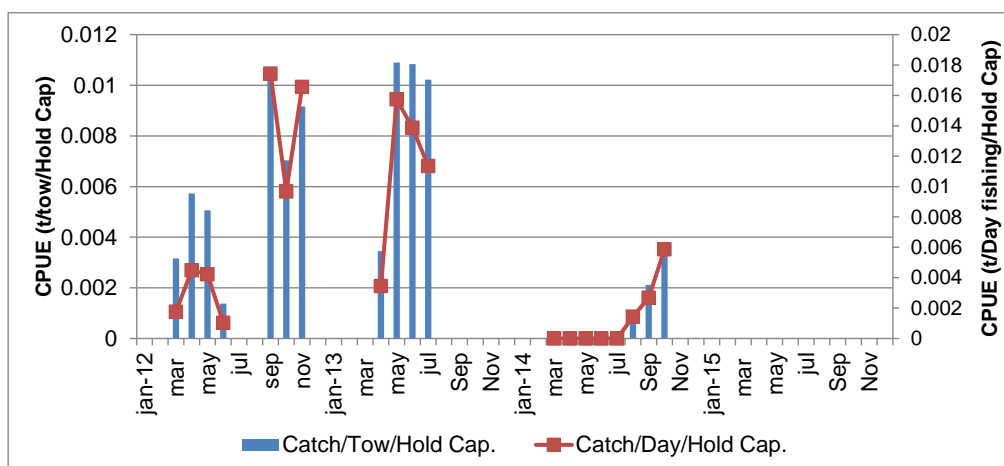


Figure 4. Monthly CPUE estimates of the Peruvian fleet targeting on Jack mackerel in the SPRFMO Convention area, in tonnes/tow/hold capacity and tonnes/fishing days/hold capacity, years 2012 to 2015

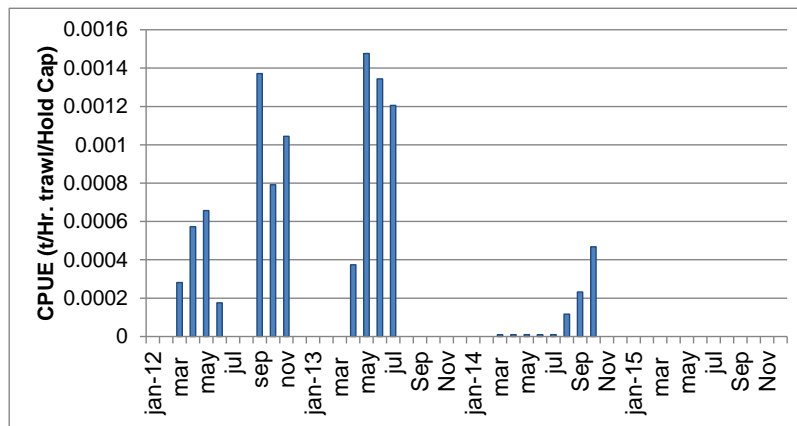


Figure 5. Monthly CPUE estimates of the Peruvian fleet targeting on Jack mackerel in the SPRFMO Convention area, in tonnes/hours trawling x holding capacity, years 2012 to 2015

3. BIOLOGICAL INFORMATION

3.1 Geographical distribution and of Jack mackerel catches during 2013

During the first half of 2013, the fishing areas of the Peruvian fleet targeting on Jack mackerel in the SPRFMO Convention area were within the 38°S and 45°S (Figure 6), with a general distribution slightly closer to the coast than during the same period in 2012. This Peruvian fleet conducted no fishing operations during the second part (August-December) of 2013.

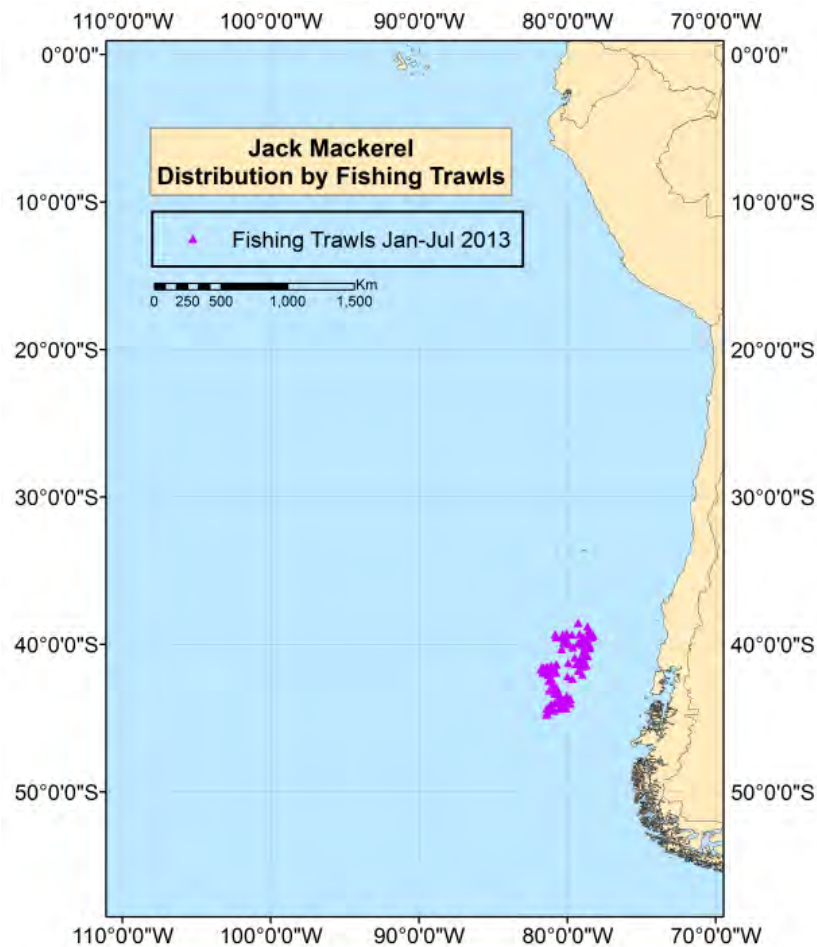


Figure 6. Distribution of the fishing trawls of the Peruvian fleet targeting on Jack mackerel in the SPRFMO Convention area during January-July 2013

3.2 Geographical distribution of Jack mackerel catches during 2014

No catches of Jack mackerel were made by the Peruvian fleet in the SPRFMO Convention area during the first part of 2014 even if some fishing effort was exerted. During the period 10 March-10 June 2014 the Peruvian fleet surveyed part of the Convention area off central-southern Chile, within the 34°S and 43°S, where it made approximately 50 trawls attempting to catch Jack mackerel but had no positive results (Figure 7, round symbols). Between 10 and 15 June 2014 this fleet moved north and during the remaining of June throughout July 2014 targeted on jumbo squid in the SPRFMO Convention area off Peru, between 14°S and 17°S (Figure 7, triangles), reporting a total catch of 1087 tonnes of jumbo squid.

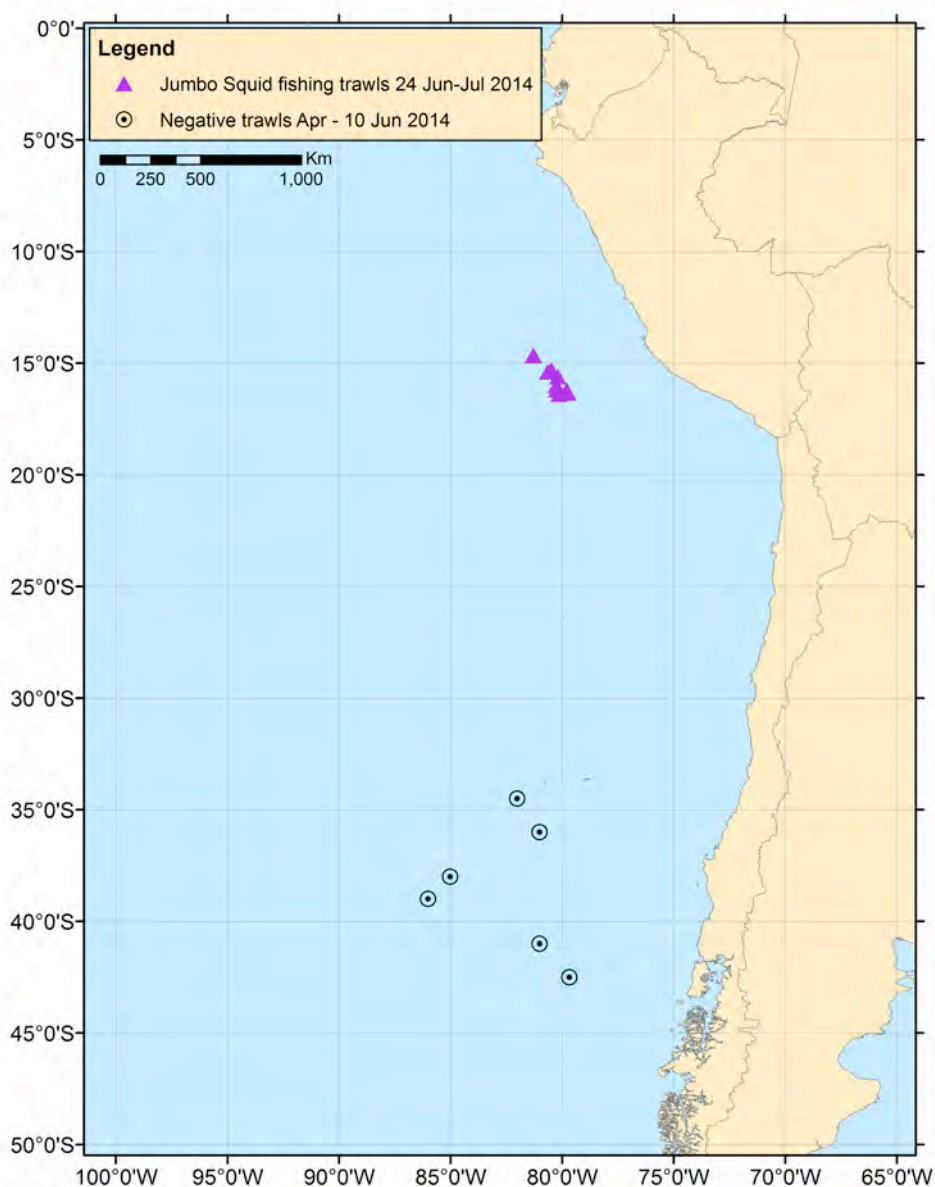


Figure 7. Distribution of the fishing trawls of the Peruvian fleet targeting on Jack mackerel and on jumbo squid in the SPRFMO Convention area during January-July 2014

From August to October the fleet moved back south and targeted on Jack mackerel off central Chile. All catches of Jack mackerel in this period were made in a localized area between 26°S and 29°S around 300 miles from the coast (Figure 8).

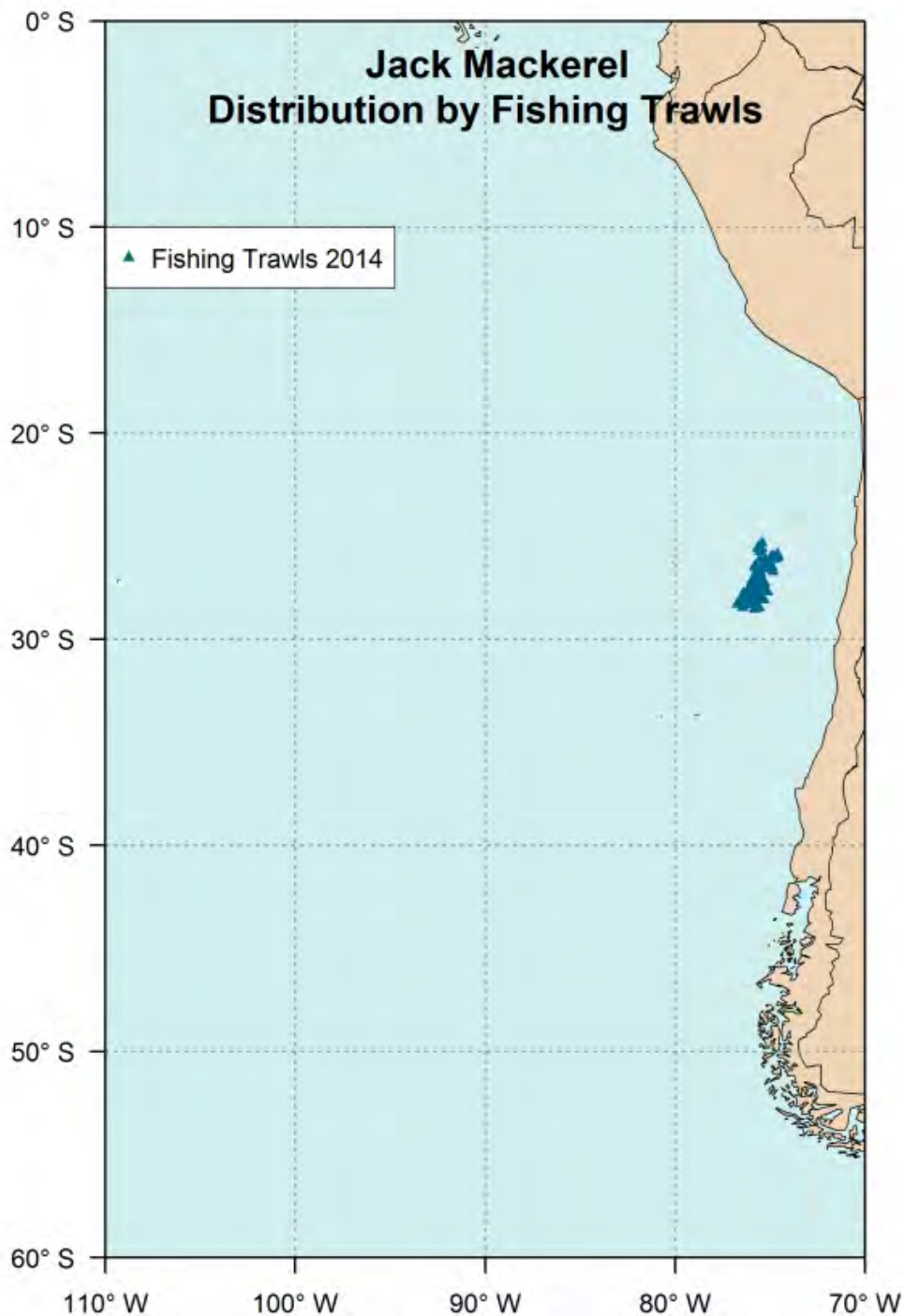


Figure 8. Distribution of the fishing trawls of the Peruvian fleet targeting on Jack mackerel in the SPRFMO Convention area during August-October 2014

3.3 Jack mackerel length frequency distribution in the catches during 2014

The size frequency distribution of Jack mackerel (*T. murphyi*) caught by the Peruvian fleet between August and October 2014 ranged from 18 to 54 cm in total length, with a main modal size of 30 cm and secondary modes in 21 and 37 cm (Figure 9).

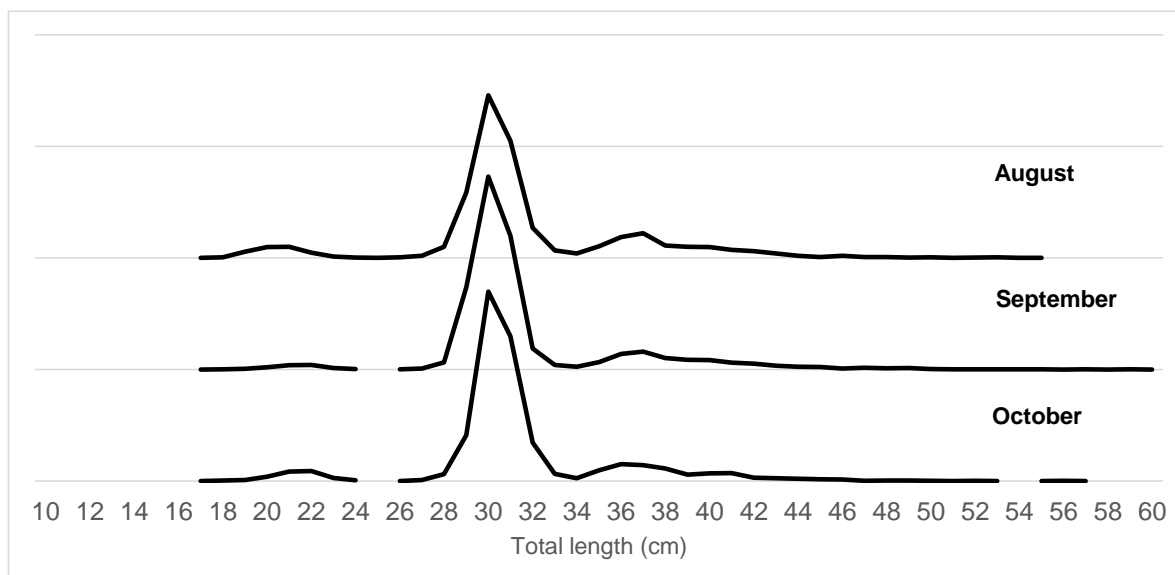


Figure 9. Length frequency distribution of Jack mackerel caught by the Peruvian fleet in the SPRFMO Convention area, from August to October 2014

3.4 Chub mackerel length frequency distribution in the catches during 2014

The size frequency distribution of chub mackerel (*S. japonicus*) caught during August-October 2014 ranged from 20 to 42 cm in fork length, with main modal size of 33 cm and secondary modes at 26 and 37 cm (Figure 10)

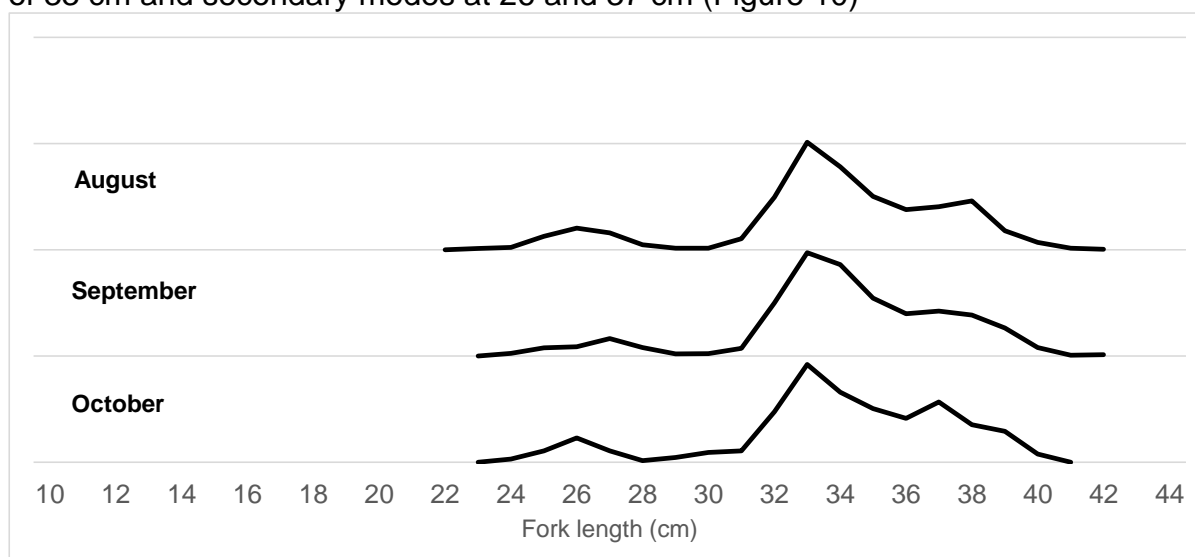


Figure 10. Length frequency distribution of chub mackerel caught by the Peruvian fleet in the SPRFMO Convention area, from August to October 2014

3.5 Jumbo squid length frequency distribution in the catches during 2014

The length frequency distribution of jumbo squid (*D. gigas*) caught by the Peruvian fleet in the SPRFMO Convention area during the period 24 June – 31 July 2014 ranged from 13 to 41 cm mantle length, with main modal size of 21.7 cm for females and 21.3 for males (Figure 11).

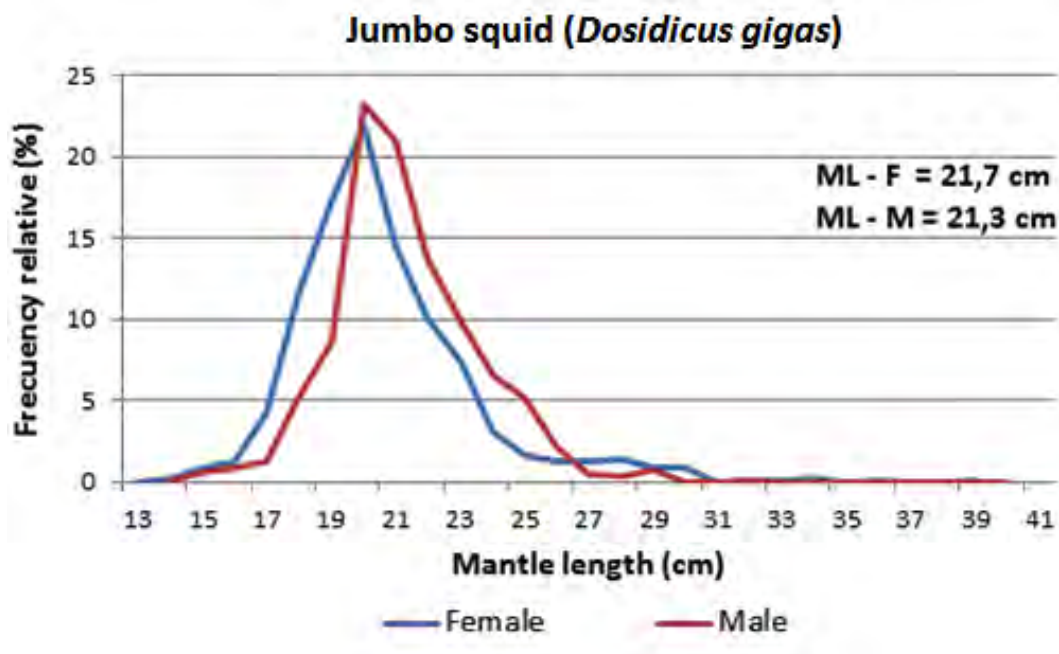


Figure 11. Length frequency distribution of the jumbo squid caught by the Peruvian fleet in the SPRFMO Convention area during 2014 (June-July 2014)

4. RESEARCH ACTIVITIES AND DATA COLLECTION (Observations onboard and sampling program)

The research activities in the SPRFMO Convention area are mostly based on the activities undertaken under the Onboard Observer's Program, which aims at monitoring the fishing fleet and obtaining biological information in their areas of operation. This programme has an almost full coverage of the Peruvian fishing fleet operating in the SPRFMO Convention area and during 2014 there has been an observer on each of the 5 Peruvian fishing vessels in the Convention area. The monitoring of the fleet provides reliable information on fishing effort, catch volumes, species composition of the catches, fishing areas, horizontal and vertical distribution of the target species, and sea surface temperature in the fishing area, in addition to the biological information obtained through an onboard sampling programme.

The sampling program is aimed at obtaining biological information of the species caught, including total length, total weight, gonad weight and sexual maturity, and to also obtain samples of ovaries, otoliths and stomachs to undertake further studies of spawning activity, growth and feeding. This is done using a stratified two-stage sampling, where 10 individuals are taken for each range of sizes.