



South Pacific Regional Fisheries Management Organisation

1st Meeting of the Scientific Committee

La Jolla, United States of America, 21-27 October 2013

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Peru 2013 Annual Report (1) SPRFMO Area



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Peru National Report N° 1

PERU

**REPORT ON THE FISHING ACTIVITIES OF
THE PERUVIAN FLEET IN THE
AREA OF APPLICATION OF THE SOUTH
PACIFIC REGIONAL FISHERIES
MANAGEMENT ORGANISATION (SPRFMO)
DURING JANUARY 2012 – JULY 2013**

2013

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1. DESCRIPTION OF THE FISHERY

1.1 Area of operation and structure of the fleet

The fishing operations of the Peruvian fleet targeting on Jack mackerel (*Trachurus murphyi*) in the area of application of the Convention of the South Pacific Regional Fisheries Management Organisation (SPRFMO) were performed off Peru and Chile, from a distance of 200 nm and up to 1300 nm from the coast. These high seas fishing operations took place in a general area encompassed by 15°00'S and 41°44'2"S and 86°17'3"W and 101°28'1"W, in areas with a minimum sea surface temperature of 12.5°C and a maximum of 14.4°C with an average of 13.2°C, and minimum and maximum temperatures at the depth of the shoals (at 10 to 100 m) of 10.4°C and 13.5°C respectively.

The Peruvian fleet registered to participate in the Jack mackerel fisheries in the area of application of the SPRFMO is comprised by 92 fishing vessels, including 79 purse seiners with an average hold capacity of 491 m³, 7 trawlers with an average hold capacity of 3 897 m³ and 6 multipurpose (purse seine/trawler) with an average hold capacity of 1691 m³ (Table 1).

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

Number of vessels	Types of fishing gear	Total hold capacity (m ³)	Average hold 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 the trawlers and the multipurpose vessels (purse seine/trawlers) operated in 2012 and 2013 (Table 2). In 2012 there were in operation 6 vessels with a total of 170 fishing days and 153 tows, and in 2013 (as of July 2013) there was only 1 vessel in operation, with a total of 84 fishing days and 105 tows.

Table 2. Peruvian fleet that operated in the SPRFMO area during the period January 2012 – July 2013

Year	Number of vessels	Types of fishing gear	Total hold capacity (m ³)	Average hold capacity (m ³)	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

1.2 Annual catches and fishing areas

During 2012, the annual catch of Jack mackerel by the Peruvian fleet in the SPRFMO area showed a recovery with respect to 2011. In 2012 the total catch was 5290 tonnes, caught with six vessels operating during March-June and only one vessel between September-November 2012. It is noted that 43% of the total 2012 catch was obtained during the second part of the year by a single and one

of the largest vessels of the fleet that operated in 2012 (Table 3). This same vessel was the only one that has operated so far during 2013, catching 2670 tonnes of Jack mackerel during the first half of the year (from April to July 2013). These 2670 tonnes represent 88% of what was caught by a much larger fleet (6 vessels with a total hold capacity of 11001 m³) in the same period in 2012.

Table 3. Monthly catches of Jack mackerel reported by the Peruvian fleet operating in the SPRFMO area during 2012 and during January-July 2013

Year 2012 (January - December)										
Vessel Name	March	April	May	Junio	July	August	September	October	November	Total (t)
Pacific Champion	165		403	32						600
Pacific Conqueror	60	220								280
Pacific Hunter	85	380	305	47						817
Sheriff		357	145				680	566	1049	2796
Enterprise	28	183	220	21						452
Liafjord		210	135							345
Total 2012	338	1350	1208	100	0	0	680	566	1049	5290
Year 2013 (January -July)										
Vessel Name	March	April	May	Junio	July					Total (t)
Sheriff		42	1036	845	747					2670
Total 2013	0	42	1036	845	747					2670

2 CATCH, EFFORT AND CPUE IN THE JACK MACKEREL FISHERY

2.1 Species composition

Jack mackerel (*Trachurus murphyi*) was the main species caught by this fleet during the period January-July 2013. Jack mackerel represented 99.0% of the total, followed by mackerel (*Scomber japonicus*) with 0.72% and other species with 0.28% (Figure 1). These other species included pomfret (*Brama spp.*) with an accumulated total catch of 7030 kg, ocean sunfish (*Mola mola*) with 183 kg, giant squid (*Dosidicus gigas*) with 86 kg, swordfish (*Xiphias gladius*) with 40 kg, bonito (*Sarda chiliensis*) with 2 kg and others with 55 kg.

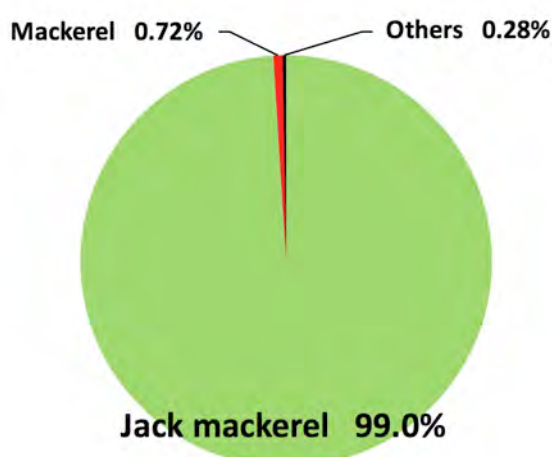


Figure 1. Species composition of the Peruvian catches in the SPRFMO area during January-July 2013

2.2 Catch trends

The total monthly catches of Jack mackerel in 2013 by the Peruvian fleet in the SPRFMO area have remained at similar levels to those observed in the second half of 2012 (Fig. 2), with an average monthly catch of 668 tonnes.

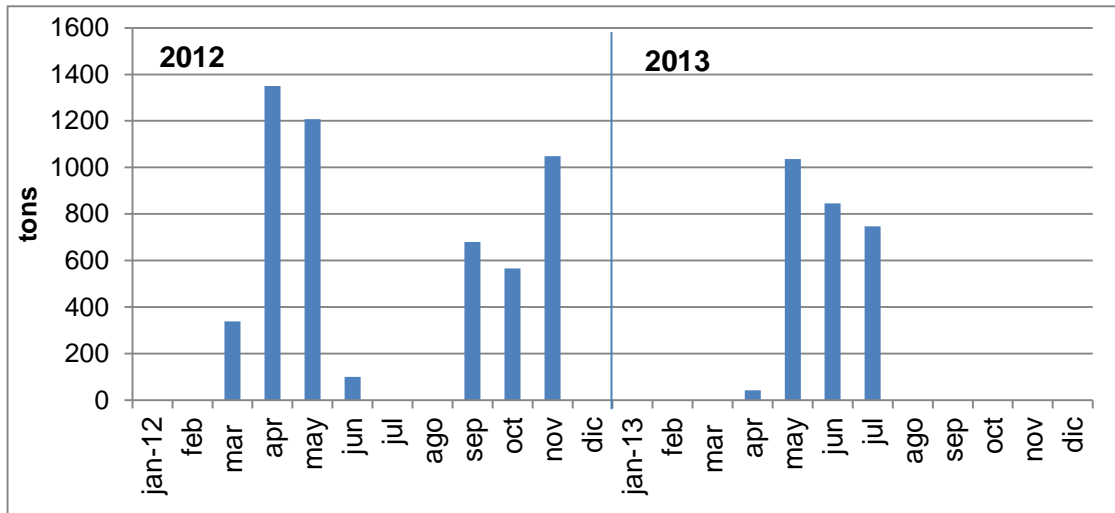


Figure 2. Jack mackerel catch by the Peruvian fleet in the SPRFMO area, January 2012 – July 2013

2.3 Fishing effort trends

The fishing effort in the Jack mackerel fishery expressed in number of vessels decreased from 6 vessels in the 2012 to only 1 in 2013 (Figure 3). The total and the average hold capacity of the fleet was 11103 m³ and 1850 m³ respectively in 2012 (6 vessels) and 2436 m³ in 2013 (only one vessels) (Table 2).

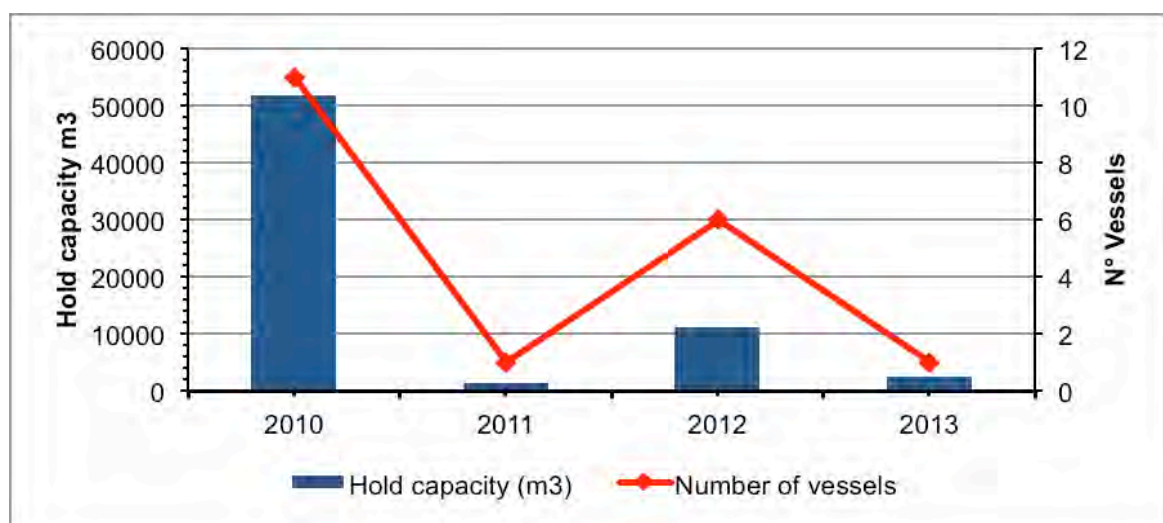


Figure 3. Number of vessels and average hold capacity of the Peruvian fleet in the SPRFMO area, by year 2010–2013

2.4 CPUE trends

CPUE indexes of the Jack mackerel Peruvian fleet fishing in the SPRFMO area expressed in catch/(tow x hold capacity) and catch/(fishing days x hold capacity) already take into account the 32% increase in the average hold capacity from 2012 to 2013. In the first half of 2012 there were six vessels with an average hold capacity of 1850 m³, and in the second half of 2012 and the first part of 2013 there was only one vessel with 2436 m³. These standardized CPUE values (Fig. 4) show an upward trend, with higher values in the second half of 2012 and first half of 2013.

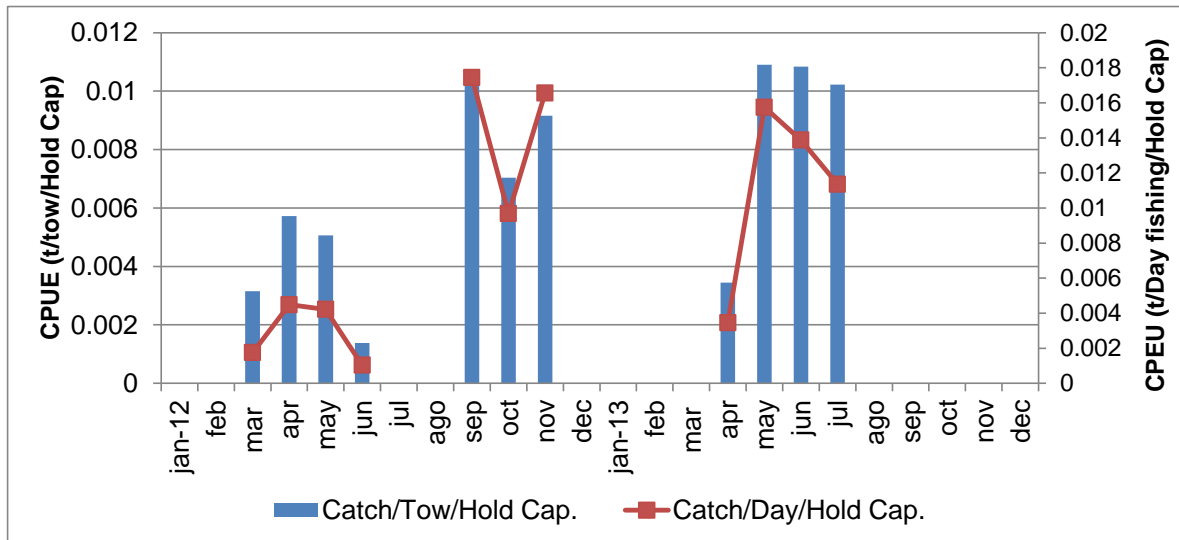


Figure 4. Monthly CPUE estimates of the Peruvian Jack mackerel fleet in the SPRFMO area, in tonnes/tow and tonnes/fishing day, from January 2012 to July 2013

Also the CPUE in catch/(hours trawling time x hold capacity) shown in Figure 5 suggest that there is a slight recovery (in CPUE) in 2013 compared to what was observed in 2012.

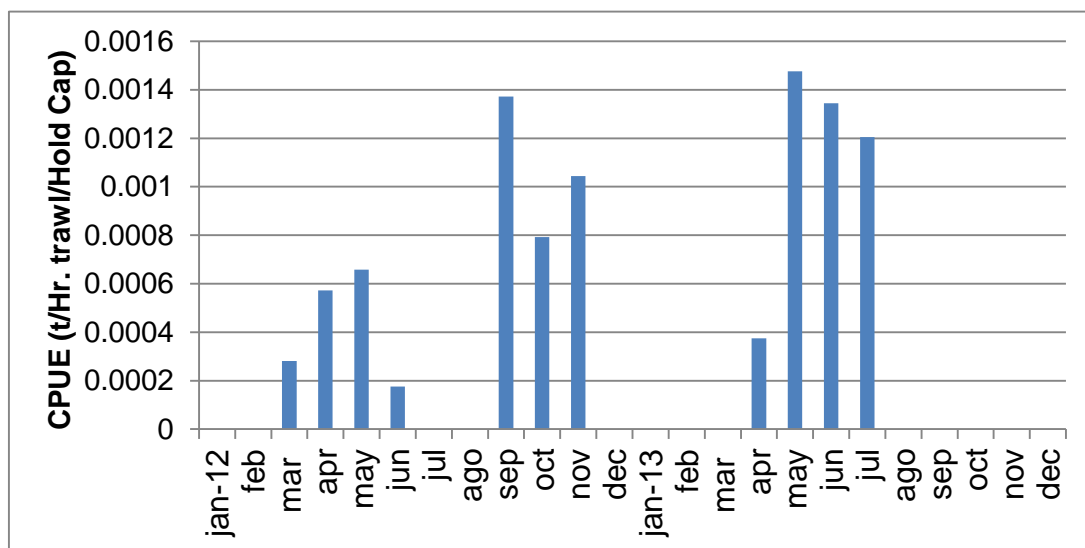


Figure 5. Monthly CPUE estimates of the Peruvian Jack mackerel fleet in the SPRFMO area, in tonnes/hours trawling, from January 2012 to July 2013

3 BIOLOGICAL INFORMATION

3.1 Changes in the distribution and concentration of Jack mackerel during 2012

In 2012 there was an increase in the availability of Jack mackerel, a situation that was reflected in a northward shift of the fishing areas. During the first half of the year the fishing sites were located between the 040°S and 048°S, while in the second half of the year the fishing grounds were located further north between 018°S and 030°S, and somehow closer to the coast (Figure 6).

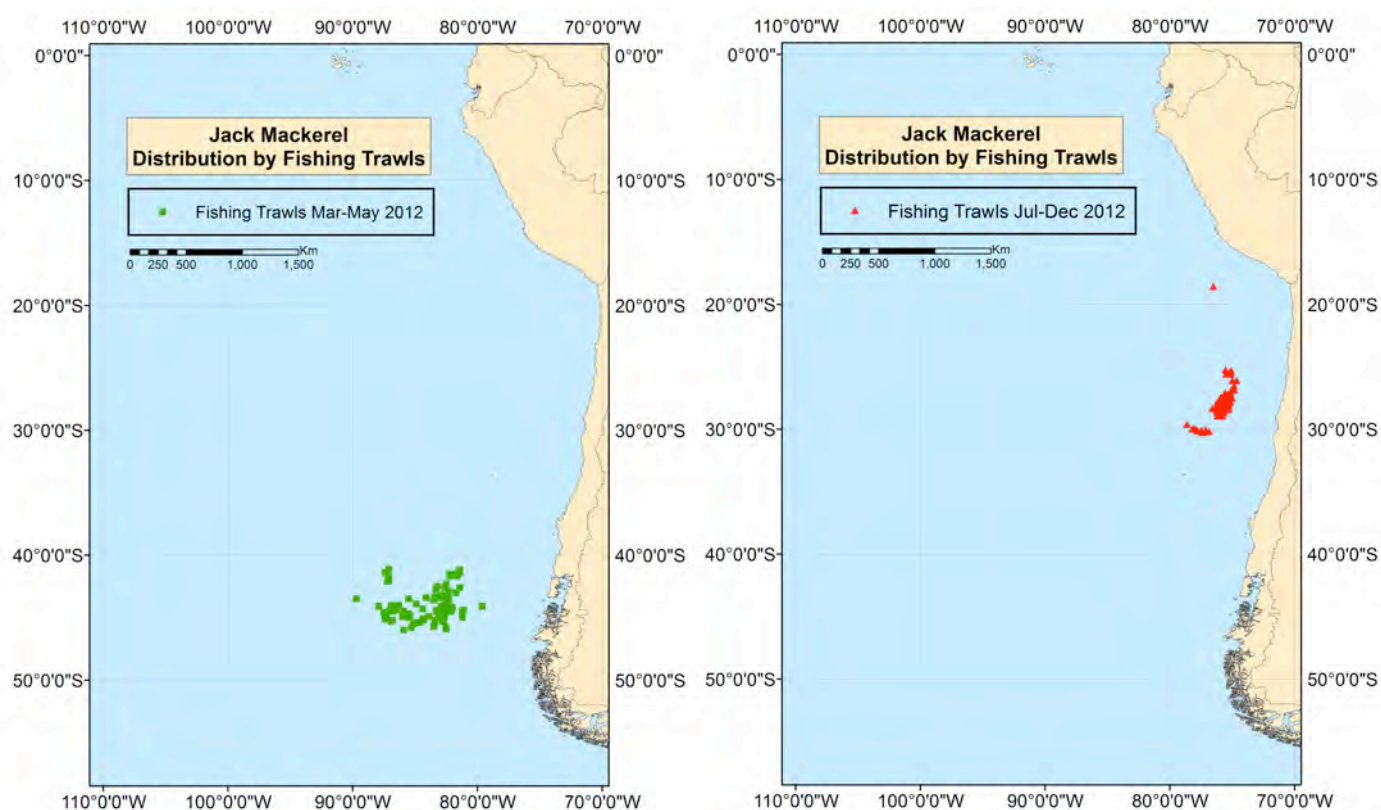


Figure 6. Distribution of the Jack mackerel fishing trawls of the Peruvian fleet in the SPRFMO area during 2012, in January-June (left map, green squares) and July-December (right map, red triangles)

3.2 Advances on the distribution and concentration of Jack mackerel during 2013

During the first half of 2013, the Jack mackerel fishing areas were within the 038°S and 045° S (Figure 7), with general distribution slightly closer to the coast than during the same period in 2012.

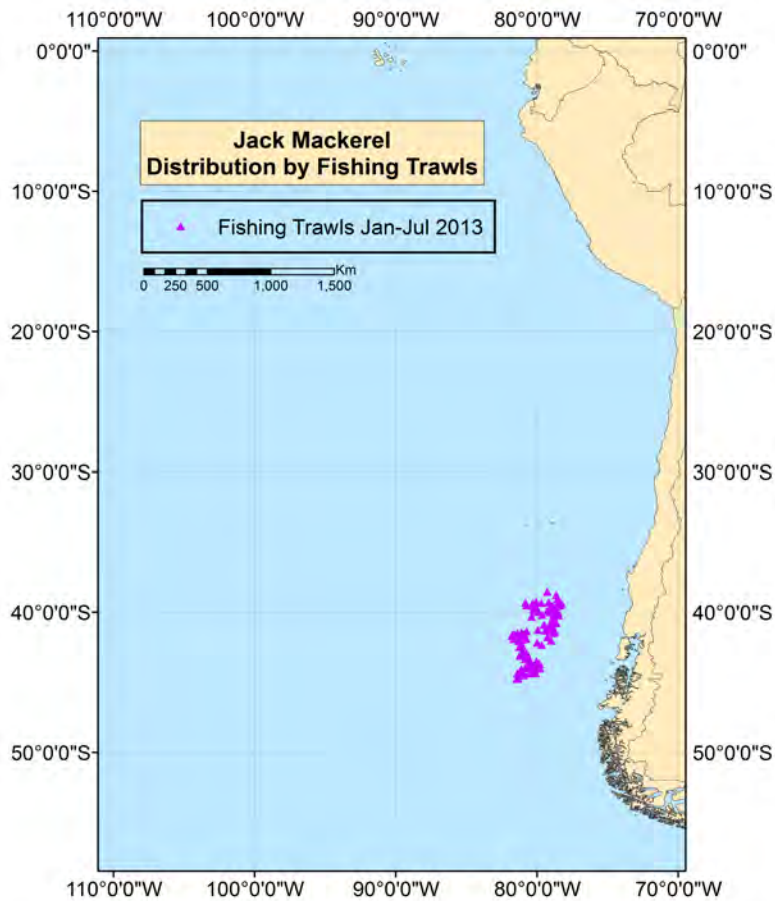


Figure 7. Distribution of the Jack mackerel fishing trawls of the Peruvian fleet in the SPRFMO area during January-July 2013

3.3 Vertical distribution of Jack mackerel shoals during 2013

Between April and July 2013 there was a deepening of the Jack mackerel shoals (and of the depth of catch), going from a more closer to the surface distribution above 40 m in April to a more deeper distribution reaching depths of 80-100 m by July 2013 (Figure 8)

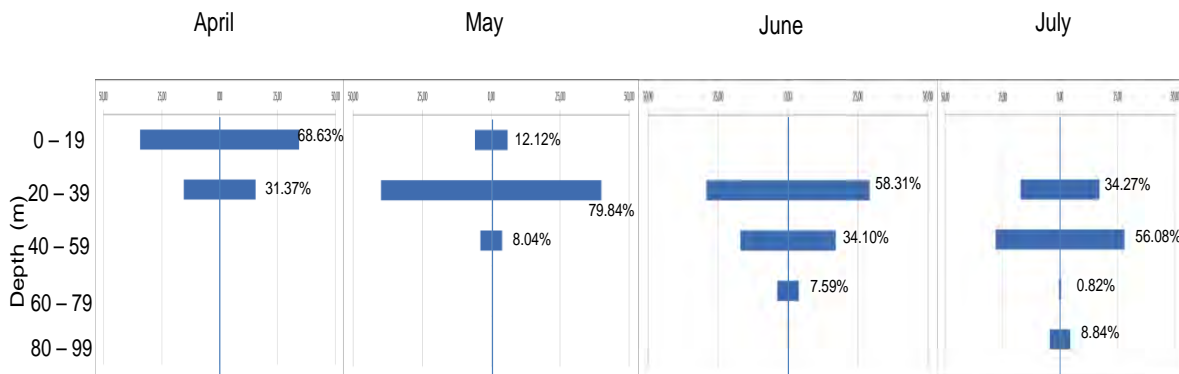


Figure 8. Observed vertical distribution of Jack mackerel shoals (depth of catch), by month, April-July 2013

3.4 Jack mackerel length frequency distribution in the catches during 2012 and 2013

The length frequency distribution of Jack mackerel caught by the Peruvian fleet in the SPRFMO area during the period January 2012 - July 2013 ranged from 20 to 60 cm total length, with a mostly bimodal distribution (Figure 9). During the first half of 2012 the fleet operated between 040° and 048°S and in their catches recorded a length frequency distribution composed entirely of adult specimens, over 38 cm total length and a modal in 45 cm.

During the second half of 2012 the fleet operated between 018° - 030°S and there was a different size structure, comprising both juveniles and adults, with modal sizes at 27 and 32 cm total length.

During the first half of 2013 the fleet moved back south and operated between 038° - 045°S, recording a bimodal size frequency distribution composed mainly by adults, with modal sizes in 36 and 48 cm total length maximum lengths of 59 cm total length.

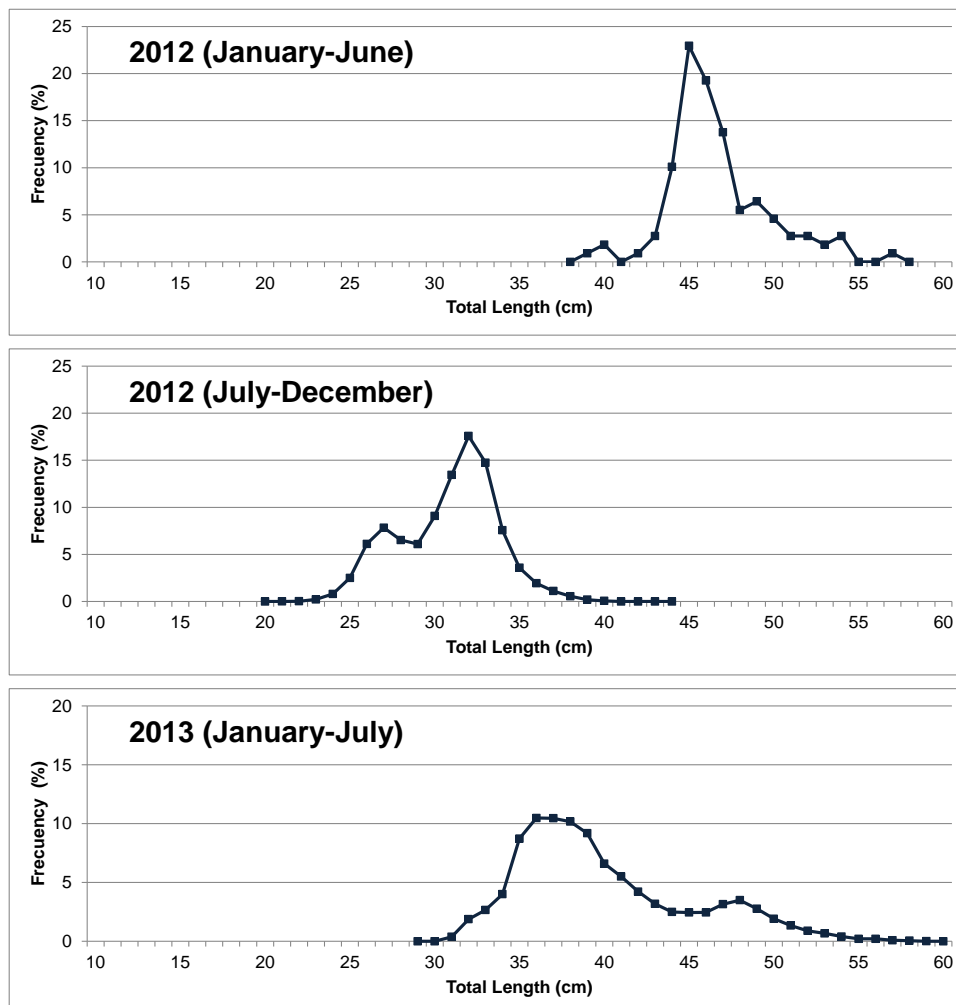


Figure 9. Length frequency distribution of the Jack mackerel caught by the Peruvian fleet in the SPRFMO area, from January 2012 to July 2013

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

The research activities in the SPRFMO 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. The monitoring of the fleet provides reliable information on fishing effort, catch volume, species composition of the catches, fishing areas, catch per unit effort indexes, horizontal and vertical distribution of the target species, length frequency and sexual maturity of the main species caught and sea surface temperature in the area.

The sampling program is aimed at obtaining biological information about length, total weight, gonad weight and sexual maturity of the main species caught 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.