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Peru



INSTITUTO DEL MAR DEL PERU
IMARPE



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Ministerio
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PRODUCE

**South Pacific Regional Fisheries Management Organisation
7th Meeting of the Scientific Committee
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Peru National Report N° 1

**REPORT ON THE FISHING ACTIVITIES OF THE
PERUVIAN FLEET IN THE AREA OF
APPLICATION OF THE CONVENTION ON THE
CONSERVATION AND MANAGEMENT OF
HIGH SEAS FISHERY RESOURCES IN THE
SOUTH PACIFIC OCEAN,
PERIOD JANUARY 2018 – JUNE 2019**

by

IMARPE - PRODUCE

2019

SUMMARY

As of June 2019, there are 99 Peruvian vessels authorized and registered in the Commission record of vessels authorized to fish within the SPRFMO Convention area. In 2014, up to 5 Peruvian purse seine/traulers caught 2 556.9 t of *Trachurus murphyi* and 1 190.0 t of *Dosidicus gigas* in the SPRFMO Convention area. This fleet of Peruvian larger multipurpose purse seine/rawl vessels has now been reduced to only 2 vessels, and no Peruvian vessel has fished for *Trachurus murphyi* in the SPRFMO Convention area since 2015. A total of 1 122.3 t of *Scomber japonicus* were caught by 5 Peruvian purse seiners in 2016. While 2 Peruvian scientific research vessels caught a total of 1.6 t of *Dosidicus gigas* in 2015 and one of them caught 1.0 t in 2018. Details of all these catches have been reported in previous annual reports to the SPRFMO Scientific Committee. In addition, a variable number of small artisanal jigger vessels, not registered in the Commission record of vessels authorized to fish in the SPRFMO Convention area, has been reported to have occasionally fished for *Dosidicus gigas* in the SPRFMO Convention between 2014 and 2018. The fishing activities of the large Peruvian artisanal fishing fleet, comprising around 17 920 small vessels with maximum hold capacity of 32.6 m³ and maximum length of 15 m, are recorded through a port interview and sampling programme for scientific research purposes implemented as part IMARPE's fishery monitoring system. IMARPE records indicate that a small fraction of these small artisanal vessels that usually fish in coastal areas, within the 200 nm distance from the coast, have occasionally extended their hand-jigging fishing activities beyond the 200 nm from the coast, entering into the SPRFMO Convention area. Where, according to IMARPE estimates, a maximum of 557 small artisanal vessels may have caught an estimated total of 6 904 t of *Dosidicus gigas* between 2014 and 2018. The available details of these catches are provided in this report. No fishing activities by Peruvian vessels in the SPRFMO Convention area have been reported for the first semester of 2019.

TABLE OF CONTENT

SUMMARY.....	2
TABLE OF CONTENT.....	2
1. DESCRIPTION OF THE FISHERIES	3
1.1. Fleet composition.....	3
1.2. Catch and fishing activities.....	5
1.2.1. Jack mackerel.....	5
1.2.2. Jumbo flying squid	6
1.2.3. Chub mackerel	8
1.3. Jack mackerel catch entitlements and transfers.....	8
2. CATCH, EFFORT AND CPUE SUMMARIES	9
2.1. Catch trends in the Jack mackerel fishery.....	9
2.2. Fishing effort trends in the Jack mackerel fishery	9
2.3. Catch, fishing effort and CPUE trends in the jumbo flying squid fishery.....	10
3. DATA COLLECTION AND RESEARCH ACTIVITIES	11
3.1. Scientific research surveys (jumbo flying squid)	12
4. BIOLOGICAL INFORMATION	13
5. ECOSYSTEM APPROACH CONSIDERATIONS	13
6. ONBOARD OBSERVER PROGRAM	13
7. REFERENCES	13

1. DESCRIPTION OF THE FISHERIES

1.1. Fleet composition

As of June 2019, the Peruvian fleet authorized and registered in the Commission record of vessels authorized to fish within the area of application of the Convention on the Conservation and Management of High Seas Fishery Resources in the South Pacific Ocean (SPRFMO Convention area) added up to 99 vessels, including: 93 purse seiners with an average hold capacity of 504 m³, 1 trawler/freezer with a hold capacity of 2 399 m³, 2 multipurpose vessels (purse seine/trawler) with an average hold capacity of 2 030 m³, 1 support tanker with a hold capacity of 10 339 m³ and 2 scientific fishery research vessels with no (0 m³) hold capacity (Table 1).

Table 1. Peruvian vessels registered and authorized to fish within the SPRFMO Convention area (as of 30 June 2019)

Number of vessels	Types of fishing vessels	Total hold capacity (m ³)	Average hold capacity (m ³)
93	Purse seine	46 894	504
1	Trawl/freezer	2 399	2 399
2	Purse seine/trawl	4 061	2 030
1	Tanker	10 339	10 339
2	Scientific fishery research	0	0

In accordance with the provisions in CMM 05-2016 and CMM 05-2019, during the period from January 2018 to June 2019, the SPRFMO was informed of fourteen (14) changes in Peru's authorizations to Peruvian flagged vessels to fish within the SPRFMO Convention area. These included the cancellation of the authorization of the following 6 vessels with registration numbers as indicated within brackets: GERMCS (CO-38384-PM), LIAFJORD (CO-38046-PM), PACIFIC VOYAGUER (CO-41331-PM), SHERIFF (CO-41532-PM), ENTERPRISE (CO-37808-PM) and PACIFIC CHAMPION (CO-33547-PM); and, the authorization and registration of the following 8 commercial fishing vessels with registration numbers as indicated within brackets: ALORCA (CO-28749-MM), ETEN DIEZ (HO-38087-PM), HUACHO CINCO (IO-38109-PM), ILENA 1 (CO-28571-PM), COSTA DEL SOL (CO-15311-PM), LIGRUNN (CO-52127-PM) and the scientific research vessels R/V HUMBOLDT (CO-04348-EM) and R/V JOSE OLAYA BALANDRA (CO-17706-EM).

A general overview of the number, type and size of the Peruvian flagged vessels that have participated in fishing activities in the SPRFMO Convention area, with an indication of their hold capacity and total catch by year, between January 2014 and June 2019 is provided in Table 2. This includes a variable number of relatively small artisanal jigger vessels not included in Table 1, which are not registered in the Commission record of vessels authorized to fish in the SPRFMO Convention area, but have been reported to have fished occasionally in the SPRFMO Convention area through the port interviews and sampling programme for scientific research purposes implemented by the Peruvian Institute of Marine Research (IMARPE, Instituto del Mar del Perú) as part of its fishery monitoring system (Yamashiro *et al.* 2018).

The up to 557 artisanal jigger vessels that are estimated to have fished in the SPRFMO Convention area in a given year as reported in Table 2 correspond to only part of a much larger artisanal fleet of about 17 920 small vessels that have a

maximum hold capacity of 32.6 m³, a maximum length of 15 m, and are authorized to fish for various types of fishery resources along the whole Peruvian coast. Out of these 17 920 vessels, it is estimated that about 4 622 use manual jiggers and fish regularly for jumbo flying squid, although some may also carry other types of gears and may eventually fish for other species (Castillo *et al.* 2018, Csirke *et al.* 2018). Usually these vessels exclusively fish within 200 nm from the coast but, as noted above, a small fraction of them have eventually ventured beyond the 200 nm.

Due to their small size and artisanal nature, these vessels are not required to keep an onboard logbook of their fishing operations and are not obliged to provide much details of their fishing activities to the fisheries authorities of the Ministry of Production (PRODUCE). However, an IMARPE Monitoring System (IMARSIS) includes a network of field observers covering 56 main landing sites along the whole Peruvian coast where, under a condition of confidentiality, interview fishermen at the time of landing and collect detailed information on the vessel's characteristics, trip duration, fishing areas, gears used, catch composition, etc. All this information is compiled by the IMARPE observers while interviewing the fishermen at the landing site in an "Artisanal Catch and Effort" form clearly marked "This information is for scientific research purposes and will be treated confidentially" (ref.: Annex 1 in Yamashiro *et al.* 2018).

These on-site observations may be supplemented with length frequency sampling of the catch at the time of landing and the more detailed information that is provided by a very limited number of (10-12 at present) on-board IMARPE observers. As part of this process, IMARPE produces a monthly estimate of total landing and landings by species for each landing site being monitored (Estrella and Guevara-Carrasco 1998), which can then be used to estimate national total landings by species and for a vast variety of other research purposes and fisheries management information purposes.

Table 2. Peruvian fleet that participated in fishing activities in the SPRFMO Convention area, by type of vessel and fishing gear, with indication of their total hold capacity and total catch, per year, for the period January 2014 - June 2019

Year	Number of vessels	Type of vessel and fishing gear	Total hold capacity (m ³)	Average hold capacity (m ³)	Total catch (t)
2014	5	Purse seine/rawl	10 230	2 046	3 746.9
	1	Cargo-factory	34 755	34 755	
	9 ⁺	Artisanal jigger ⁺	225 ⁺	25 ⁺	84.3 ⁺
2015	2	Scientific research jigger/rawl	0	0	1.6
	30 ⁺	Artisanal jigger ⁺	579 ⁺	19 ⁺	302.8 ⁺
2016	5	Purse seine	2 749	550	1 122.3
	98 ⁺	Artisanal jigger ⁺	2 213 ⁺	23 ⁺	999.3 ⁺
2017	1	Scientific research jigger/rawl	0	0	1.0
	557 ⁺	Artisanal jigger ⁺	10 185 ⁺	18 ⁺	5 066.0 ⁺
2018	44 ⁺	Artisanal jigger ⁺	776 ⁺	18 ⁺	287.9 ⁺
2019*	0	n/a	0	0	0

* January-June 2019 only

⁺ Preliminary estimates based on IMARPE port interviews & sampling programme for research purposes. Not official data. Subject to changes

The more than 4 600 Peruvian artisanal vessels equipped with manual jiggers usually fish for jumbo flying squid closer to the coast, within the 200 nm limit of the national jurisdictional waters, but, as indicated in Table 2 and shown below, some of these vessels have occasionally gone fishing beyond the 200 nm from the coast while following the jumbo flying squid concentrations, particularly during 2017.

1.2. Catch and fishing activities

Annual catches of Jack mackerel (*Trachurus murphyi*), jumbo flying squid (*Dosidicus gigas*) and chub mackerel (*Scomber japonicus*) by Peruvian vessels that participated in fishing activities in the SPRFMO Convention area between January 2014 and June 2019 are shown in Table 3.

The higher catches were those of a small fleet of larger (2 046 m³ average hold capacity) multipurpose purse seine/rawl vessels in 2014, followed by those of smaller (550 m³ average hold capacity) purse seine vessels in 2016 and even smaller (18 m³ average hold capacity) artisanal jigger vessels in 2017. Further details of these catches by species is provided below.

Table 3.- Catches by the Peruvian fleet that participated in fishing activities in the SPRFMO Convention area, by main species, in tonnes, per year, period January 2014 – June 2019

Year	Type of vessel and fishing gear	<i>Trachurus murphyi</i> (t)	<i>Dosidicus gigas</i> (t)	<i>Scomber japonicus</i> (t)	Others (t)	Total (t)
2014	Purse seine/rawl	2 556.9	1 190.0	0.0	0.0	3 746.9
	Artisanal jigger*	0.0	84.3*	0.0	0.0	84.3*
2015	Scientific research jigger/rawl	0.0	1.6	0.0	0.1	1.7
	Artisanal jigger*	0.0	302.8*	0.0	0.0	302.8*
2016	Purse seine	0.0	0.0	1 122.3	0.0	1 122.3
	Artisanal jigger*	0.0	999.3*	0.0	0.0	999.3*
2017	Scientific research jigger/rawl	0.0	1.0	0.0	0.0	1.0
	Artisanal jigger*	0.0	5 066.0*	0.0	0.0	5 066.0*
2018	Artisanal jigger*	0.0	287.9*	0.0	0.0	287.9*
2019*	n/a	0.0	0.0	0.0	0.0	0.0

* January-June 2019 only

* Preliminary estimates from IMARPE's port interviews & sampling programme for research purposes. Not official data. Subject to changes

1.2.1. Jack mackerel

After the annual catch of 2 556.9 t of Jack mackerel (*Trachurus murphyi*) reported by 5 Peruvian flagged multipurpose purse seine/rawl vessels in 2014, no vessel flagged to Peru has participated in the *Trachurus murphyi* fishery in the SPRFMO Convention area between 2015 and the first semester of 2019. Therefore, there are no *Trachurus murphyi* fishing activities and/or catch details to report for this most recent time period.

Figure 1 shows the annual catches of *Trachurus murphyi* by Peruvian vessels in the SPRFMO Convention area since 2009. A maximum annual catch of 40 516 t was reported in 2010 and no catches (0 t) in the SPRFMO Convention area have been reported between 2015 and 2019 (until June 2019). Further details of the 2014 catches and fishing activities were reported in SPRFMO document SC-03-10 (PRODUCE-IMARPE 2015).

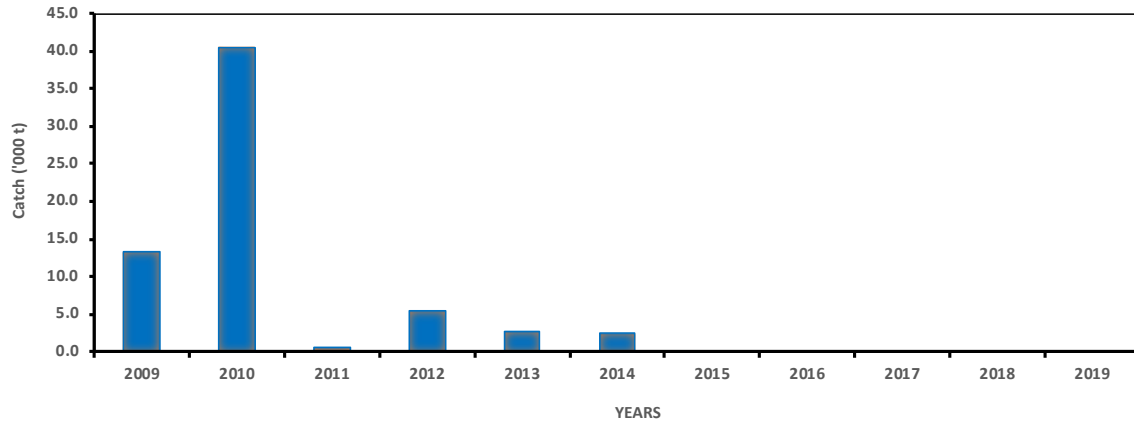


Figure 1.- Annual Peruvian catches of Jack mackerel (*Trachurus murphyi*) in the SPRFMO Convention area, years 2009 to 2019 (until June 2019)

1.2.2. Jumbo flying squid

As shown in Tables 2 and 3, occasional catches of jumbo flying squid (*Dosidicus gigas*) by Peruvian vessels in the SPRFMO Convention area have been officially reported and/or have been recorded through IMARPE's research interviews and sampling programmes, including those by the following types of vessels: 5 multipurpose purse seine/trawler vessels and an estimated 9 artisanal jigger vessels in 2014; 2 scientific research vessels and an estimated 30 artisanal jigger vessels in 2015; an estimated 98 artisanal jigger vessels in 2016; 1 scientific research vessel and an estimated 557 artisanal jigger vessels in 2017; and, an estimated 9 artisanal jigger vessels in 2018.

Figure 2 shows the estimated annual catch of jumbo flying squid (*Dosidicus gigas*) by Peruvian vessels in the SPRFMO Convention area since 2009. A first maximum annual catch of 1 274.3 t is estimated for 2014, mostly (1 190.0 t) caught by large multipurpose purse seine/trawl vessels and limited catches (84.3 t) by smaller artisanal jigger vessels. A more recent maximum of 5 067.0 t is estimated for 2017, mostly caught by a larger number of small artisanal jigger vessels (5 066.0 t), with a small catch (1.0 t) by a scientific research vessel. An estimated 287.9 t were caught by small artisanal jigger vessels in 2018. No catches (0 t) of jumbo flying squid in the SPRFMO Convention area have been reported during the first semester of 2019.

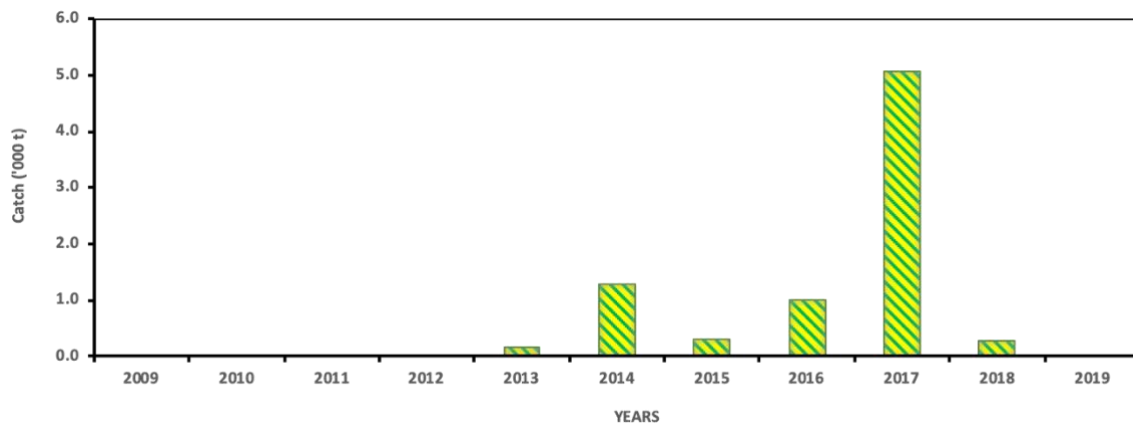


Figure 2.- Annual Peruvian catches of jumbo flying squid (*Dosidicus gigas*) in the SPRFMO Convention area, years 2009 to 2019 (until June 2019)

All the above-mentioned fishing operations and catches of *Dosidicus gigas* in the SPRFMO Convention area have been located in areas adjacent to the outer 200 nm limit of the Peruvian national jurisdictional waters, and after 2014 all these catches have been made as part of research or, mostly, artisanal fishing operations primarily focused on squid stocks within Peruvian waters. Which, occasionally, have been extended into the adjacent SPRFMO Convention area following squid concentrations of scientific or commercial interest.

No Peruvian catches of *Dosidicus gigas* in the SPRFMO Convention area have been reported for the first semester of 2019.

The details of the multipurpose purse seine/trawlers catch and fishing activities in 2014 were reported in SPRFMO document SC-03-10 (PRODUCE-IMARPE, 2015), and the details of the scientific research vessels catch and fishing activities in 2015 and 2017

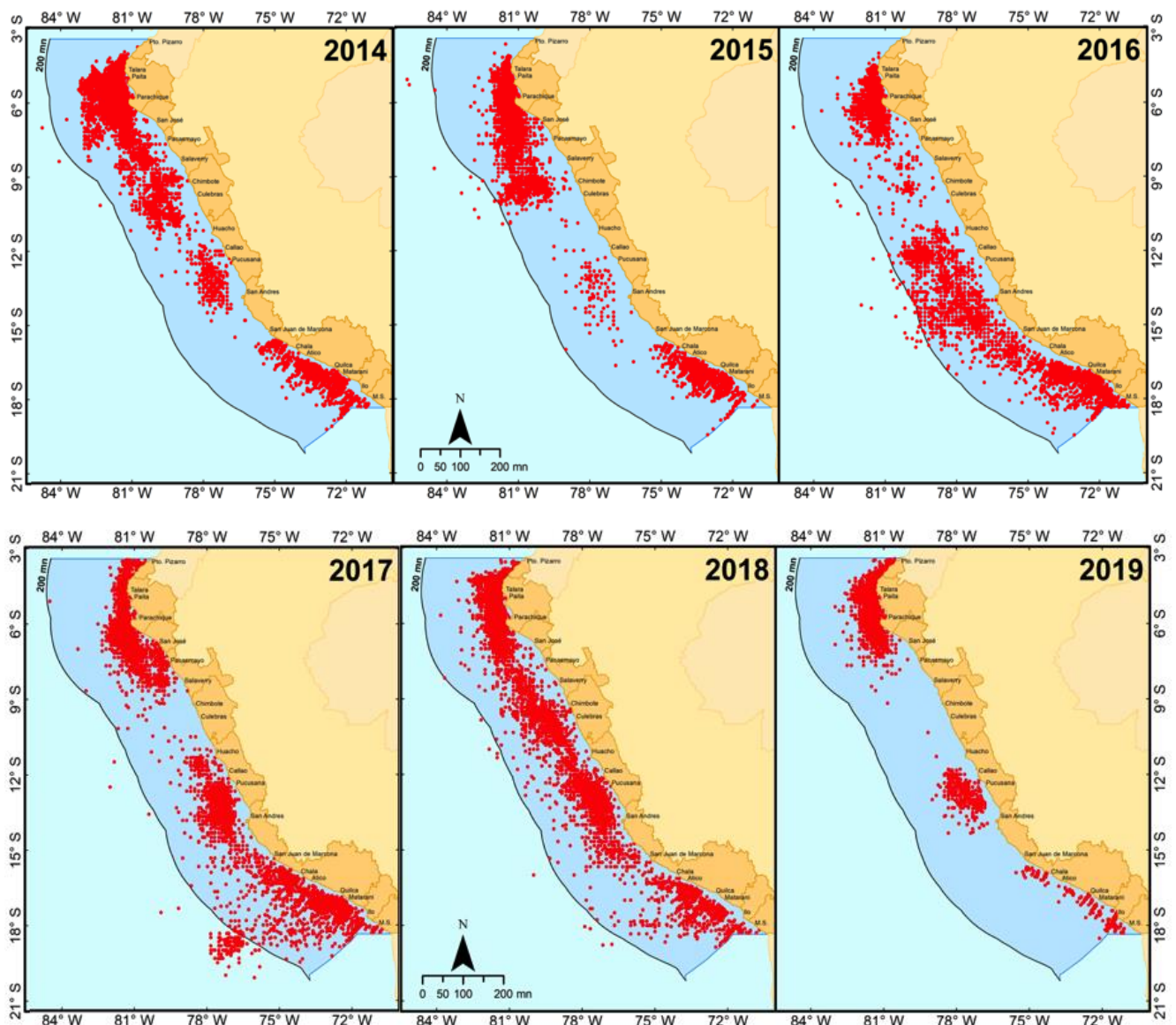


Figure 3.- Fishing grounds of the Peruvian artisanal jigger vessels that caught jumbo flying squid (*Dosidicus gigas*) between 2014 and 2019 (January-June 2019 only), as reported by IMARPE port interviews and sampling programme for research purposes

were reported in SPRFMO document SC6-Doc19 (IMARPE-PRODUCE 2018), as well as in IMARPE (2015, 2015a, 2018).

The fishing areas of the Peruvian artisanal jigging vessels that have been recorded by IMARPE observers as having been fishing for *Dosidicus gigas* in Peruvian jurisdictional waters and eventually fished in the adjacent high seas between 2014 and 2019 is shown in Figure 3. As can be seen, the largest number of fishing areas beyond 200 nm from the coast have been recorded off southern Peru in 2017.

All the *Dosidicus gigas* catches and fishing activities in the SPRFMO Convention area by Peruvian artisanal jigger vessels in 2014, 2015, 2016, 2017 and 2018 have been recorded through the port interviews and sampling programmes for research purposes carried out regularly by IMARPE.

This is not official data and may be subject to changes. Nevertheless, the available information on their catch, fishing effort, fishing areas, etc., is provided herewith for use for scientific purposes by the Scientific Committee.

Coordination is underway between IMARPE and PRODUCE to formalize these artisanal fishing records without compromising the criteria of confidentiality under which these records are provided to IMARPE field observers.

1.2.3. Chub mackerel

Figure 4 shows the annual catches of chub mackerel (*Scomber japonicus*) by Peruvian vessels in the SPRFMO Convention area since 2009 and, as also shown in Tables 2 and 3, the maximum annual catch of 1 122.3 t was reported by 5 Peruvian purse-seiners vessels during 2016. The details of these catches were provided in SPRFMO document SC5-Doc18 (PRODUCE-IMARPE 2017). No catches of *Scomber japonicus* in the SPRFMO Convention area have been reported by Peruvian vessels in 2017, 2018 and the first part of 2019.

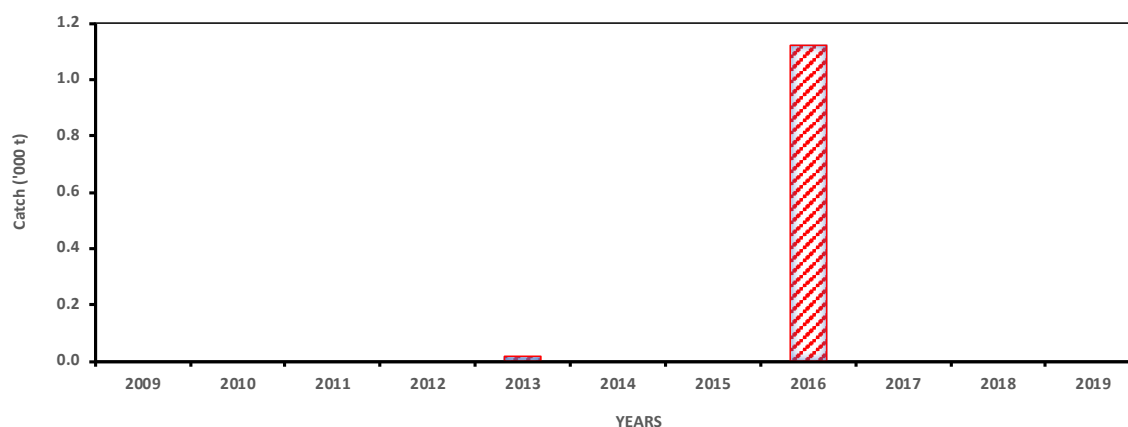


Figure 4.- Annual Peruvian catches of chub mackerel (*Scomber japonicus*) in the SPRFMO Convention area, years 2009 to 2019 (until June 2019)

1.3. Jack mackerel catch entitlements and transfers

As per CMM 01-2018, the 2018 Peruvian catch entitlement for Jack mackerel (*Trachurus murphyi*) to be caught within the SPRFMO Convention area was 11 684 t. In accordance with paragraph 9 of CMM 01-2018, a total catch entitlement of 4 200 t was transferred to Chile on 28 August 2018 (accepted on 30 August 2018). As per

CMM 01-2019, the Peruvian catch entitlement for 2019 is 11 988 t. As of 30 June 2019, no transfer has been made against this 2019 Peruvian catch entitlement.

2. CATCH, EFFORT AND CPUE SUMMARIES

2.1. Catch trends in the Jack mackerel fishery

Figure 5 shows the monthly trend in catches of Jack mackerel by the Peruvian fleet in the SPRFMO Convention area since 2012. As noted, no catches of Jack mackerel have been made by Peru in the SPRFMO Convention area since 2015, until June 2019.

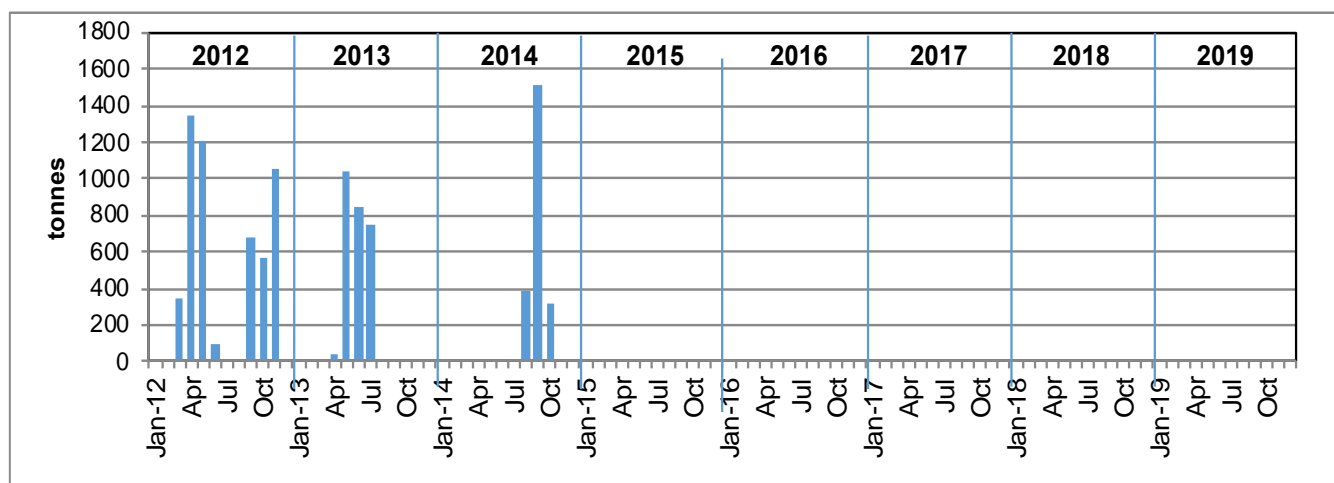


Figure 5.- Jack mackerel (*Trachurus murphyi*) monthly catches by the Peruvian fleet in the SPRFMO Convention area, 2012 – 2019 (until June 2019)

2.2. Fishing effort trends in the Jack mackerel fishery

Figure 6 shows the trend of the fishing effort directed to Jack mackerel by the Peruvian fleet that operated in the SPRFMO Convention area since 2012. The number of vessels and hold capacity has been highly variable, with 6 vessels in 2012, 1 vessel in 2013, 5 vessels in 2014 and 0 vessels (no fishing effort exerted) in 2015, 2016, 2017, 2018 and the first six months 2019.

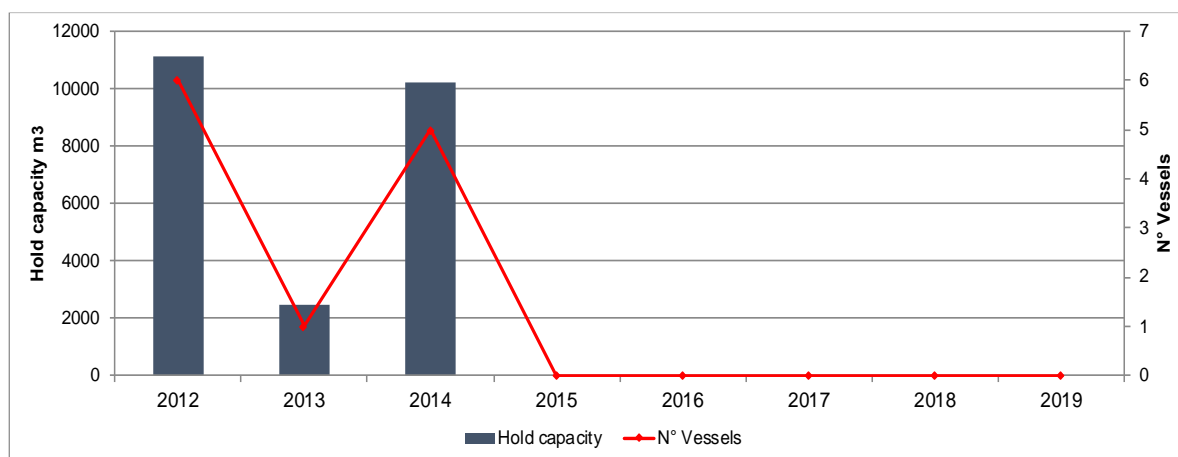


Figure 6.- Total hold capacity and number of vessels in the Peruvian fleet that operated in the Jack mackerel (*Trachurus murphyi*) fishery in the SPRFMO area, by year 2012-2019 (until June 2019)

2.3. Catch, fishing effort and CPUE trends in the jumbo flying squid fishery

Figure 7 shows the monthly trend in catches of jumbo flying squid by Peruvian artisanal jigger vessels in the SPRFMO Convention area since 2012. The highest estimated monthly catch in this area was 3 123 t by 325 artisanal vessels in November 2017 (total 5 066 t for the whole year). Monthly catches are highly variable and in all cases are the result of the occasional extension beyond the 200 nm limit of Peruvian national jurisdictional waters of regular commercial fishing activities by local artisanal jigger vessels, which mostly fish within Peruvian jurisdictional waters and only in exceptional circumstances have extend their fishing activities into the adjacent high seas.

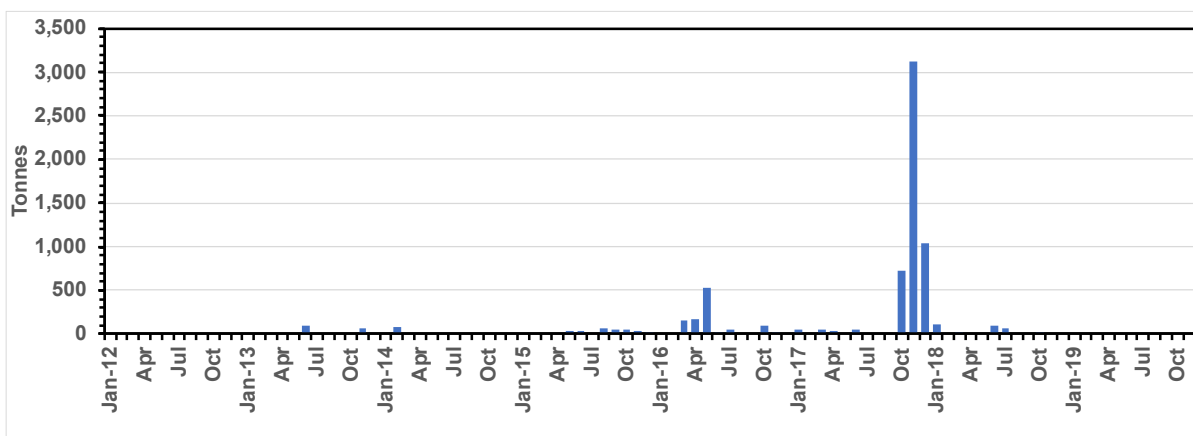


Figure 7.- Estimated jumbo flying squid (*Dosidicus gigas*) monthly catches by Peruvian artisanal jigger vessels in the SPRFMO Convention area, 2012 – 2019 (until June 2019)

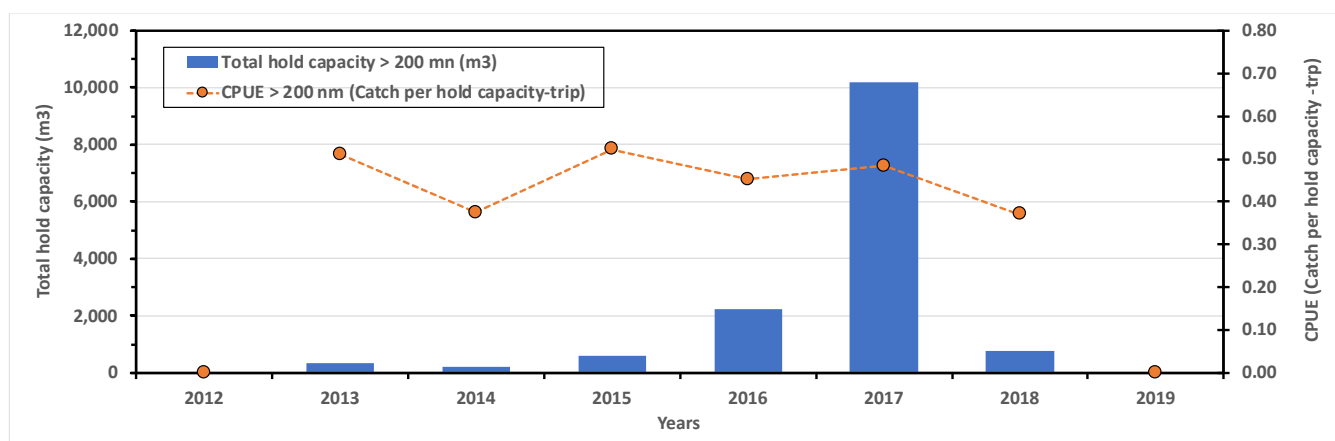


Figure 8.- Estimated total hold capacity and CPUE (catch/hold capacity-fishing days) of Peruvian artisanal jigger vessels fishing for jumbo flying squid (*Dosidicus gigas*) in the SPRFMO area, by year 2012-2019 (until June 2019)

Figure 8 shows the trends in CPUE and total fishing effort directed to jumbo flying squid by Peruvian artisanal jigger vessels within the SPRFMO Convention area since 2012. While the total fishing effort has been low and highly variable, with an estimated maximum of 10 185 m³ of hold capacity accumulated by an estimated 557 artisanal vessels in 573 trips in 2017, the CPUE (in t caught per m³ of hold capacity per trip) has been less variable, ranging from a minimum of 0.371 t/m³-trip in 2018 and a maximum of 0.523 t/m³-trip in 2015.

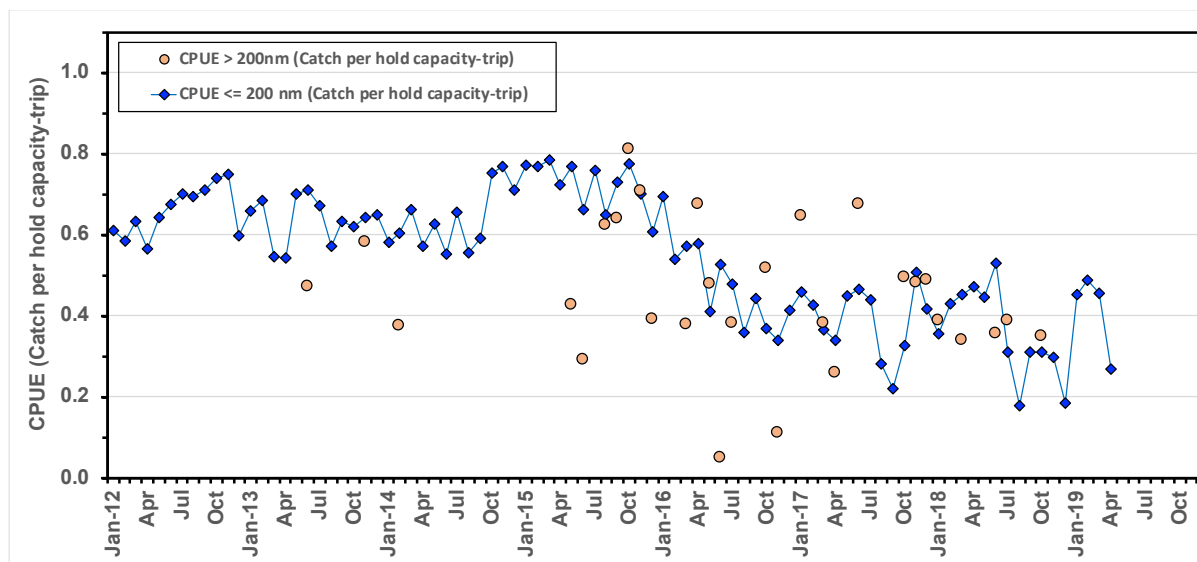


Figure 9.- Estimated monthly Catch by Unit of Effort (CPUE) in t per hold capacity-trip of the Peruvian artisanal fleet fishing jumbo flying squid (*Dosidicus gigas*) within and beyond the 200 nm distance from the Peruvian coast, between January 2012 and April 2019

For comparison purposes, Figure 9 shows the estimated monthly CPUE of *Dosidicus gigas* by the Peruvian artisanal fleet both, beyond and within the Peruvian 200 nm jurisdictional waters from January 2012 to April 2019. As can be noted, the CPUE of this fleet tends to be higher within the 200 nm limit than in the adjacent high seas, except for a few months in 2015 (October), 2016 (April and September), 2017 (January, June and October) and 2018 (July and October). It might be worth mentioning that the estimated fishing effort, in total hold capacity is, on average, two to three hundred times larger within the 200 nm than beyond.

3. DATA COLLECTION AND RESEARCH ACTIVITIES

The Peruvian data collection and research activities aiming at monitoring the fishing fleet and obtaining biological information from their catches and areas of operation in relation to species that are caught, or may be caught, in the SPRFMO Convention area, relies on various complementary sources, depending on the type of fishery and fishing vessels involved, as follows:

- (a) In the high seas multipurpose purse seine/rawl fishery specifically targeting Jack mackerel in the SPRFMO Convention area. The movements and landings of these vessels are monitored through a Satellite Tracking System (SISESAT) operated and monitored by PRODUCE, with a 100% coverage of this fleet. IMARPE in coordination with PRODUCE also implemented an onboard observer programme that recorded fishing operations details and took onboard catch samples, fully in line with the SPRFMO requirements. Until 2014 this onboard observer programme had a 100% coverage for of the Peruvian fleet fishing for Jack mackerel in the SPRFMO Convention area. No Peruvian vessel have been set to fish for Jack mackerel in the SPRFMO Convention area since 2015. Therefore, the Peruvian SPRFMO Onboard Observer Program is on hold until regular fishing activities in the SPRFMO Convention area resumes;
- (b) In the industrial pelagic purse seine fishery, with vessels larger than 36.2 m³ hold capacity, typically fishing for *Engraulis ringens* for direct or indirect human

consumption and/or *Trachurus murphyi*, *Scomber japonicus* and/or *Sardinops sagax* for direct human consumption in Peruvian jurisdictional waters, which in exceptional circumstances may have extend their fishing activities into the adjacent SPRFMO Convention area. The movements and landings of these vessels are also monitored through the SISESAT operated and monitored by PRODUCE, with a 100% coverage of the fleet. There is also an onboard logbook system with details of each vessel activities filled on board by the skipper. A copy of this logbook is handed over after each trip to PRODUCE representatives and then to IMARPE. This information covers 100% of the landings. This is supplemented with an onboard species composition and length-frequency distribution self-sampling scheme, coordinated with IMARPE, having an 80% coverage of landings. In addition. There is also an IMARPE onboard observer programme taking samples of the catch and more detailed fisheries data, covering between 5 and 10% of the fleet fishing for *Engraulis ringens* for indirect human consumption, and a field observer programme at the landing sites sampling around 30% of the landings;

- (c) In the artisanal fishery, with vessels having a maximum hold capacity of 32.6 m³ fishing with various types of gear for a variety of fishery resources for direct human consumption (including *Engraulis ringens*, *Trachurus murphyi*, *Scomber japonicus*, *Sardinops sagax*, *Dosidicus gigas*, *Coryphaena hippurus* and many other species) in Peruvian jurisdictional waters, part of which have been found to eventually extend their fishing operations into the adjacent high seas, in the SPRFMO Convention area. These vessels are not required to fill or handover a logbook of their operations but there is an IMARPE monitoring system that includes a network of field observers in the main landing sites covering around 50-80% of the landings, that interview fishermen at the time of landing and collect detailed information on the vessels characteristics, trip duration, fishing areas, gears used, catch composition, etc., and sample for biometric data around 10-40% of the landings. This is combined with an IMARPE onboard observer programme covering around 0.2-0.3% of the artisanal jigger vessels, collecting more detailed fisheries data and samples at sea;
- (d) During scientific research surveys carried out by scientific research vessels which, eventually, may be supported by the use of fishing vessels devoted purely to research purposes, regularly surveying portions of the Peruvian national jurisdictional waters and in some circumstances may extend their areas of research into the adjacent high seas, within the SPRFMO Convention area. There is a 100% coverage of all fishing activities and sampling of catches;
- (e) All commercial fishing activities. There are the official landing statistics collected and provided by PRODUCE, based on the SISESAT reports and the reports of fish inspectors at landing sites, fish processing and distribution centers, markets, etc., having a 100% coverage of what is landed.

3.1. Scientific research surveys (jumbo flying squid)

Limited research activities on jumbo flying squid (*Dosidicus gigas*) have been conducted in the recent past by IMARPE in part of the SPRFMO Convention area in a relatively small area adjacent to the southern part of the Peruvian jurisdictional waters. These activities took place during three cruises or scientific research surveys, that were conducted two of IMARPE scientific research vessels in 2015 and one in 2017. Cruise 1501-02 was conducted in January-February 2015 with the R/V HUMBOLDT, Cruise 1511-12 was conducted in November-December 2015 with the

R/V JOSE OLAYA BALANDRA and Cruise 1711-12 was conducted in November-December 2017 with the R/V HUMBOLDT. The catches made in the SPRFMO Convention area during these three scientific research surveys are shown in Tables 2 and 3 above, while further details of the observations made during these three surveys were reported in SPRFMO document SC6-Doc19 (IMARPE-PRODUCE 2018) as well as in IMARPE (2015, 2015a, 2018).

4. BIOLOGICAL INFORMATION

No fishing activities for *Trachurus murphyi* in the SPRFMO Convention area have been reported by Peruvian vessels during 2018 and the first half of 2019. Therefore, no biological information from fishing for Jack mackerel in the Convention area is available for this period. Biological information on the 2014 catches of *Trachurus murphyi* in 2014 were reported in SPRFMO document SC-03-10 (PRODUCE-IMARPE 2015).

Biological information on catches of *Scomber japonicus* made in the SPRFMO Convention area in 2016 were provided in SPRFMO document SC5-Doc18 (PRODUCE-IMARPE 2017).

Biological information on catches of *Dosidicus gigas* made during the scientific research surveys in 2015 and 2017 were provided with SPRFMO document SC6-Doc19 (IMARPE-PRODUCE 2018), as well as in IMARPE (2015, 2015a, 2018).

No scientific research survey including parts of the SPRFMO Convention area have been conducted by Peru in 2018 and the first semester of 2019.

Length/frequency data of the *Dosidicus gigas* caught by the artisanal jigger fleet that fished in the SPRFMO Convention area during 2014-2018 is not available at present. Some information may be available at a later stage once information from the interviews and catch samples taken at the landing sites by the IMARPE field observers and the few onboard observers is georeferenced and processed for further analyses.

5. ECOSYSTEM APPROACH CONSIDERATIONS

There are no seabird mitigations measures, seabird interaction observations, or ALFG (abandoned, lost, discarded or retrieved fishing gear) to report for the period 2018-2019.

6. ONBOARD OBSERVER PROGRAM

Peruvian fishing fleets fishing for *Trachurus murphyi* have not been operating in the Convention area since 2015 and there is no Peruvian fleet purposely fishing in the SPRFMO Convention area with vessels of a proper size to carry observers onboard. Therefore, the Peruvian SPRFMO Onboard Observer Program is on hold until regular fishing activities in the SPRFMO Convention area resumes. While it was operational (until 2014) the Peruvian observer programme on board the multipurpose seine/trawler fleet fishing for Jack mackerel in the SPRFMO Convention area was set to achieve 100% coverage of this fleet, and it is expected that it will continue to do so when this type of high seas fishery resumes.

7. REFERENCES

Castillo, G., J. Fernández, A. Medina & R. Guevara-Carrasco. 2018. Tercera encuesta estructural de la pesquería artesanal en el litoral peruano. Resultados generales // Third structural survey of the artisanal fishery in the Peruvian

- littoral. General results. Inf. Inst. Mar Peru. 45(3): 299-388
(<http://biblioimarpe.imarpe.gob.pe/handle/123456789/3300>)
- Csirke J, Argüelles J, Alegre A, Ayón P, Bouchon M, Castillo G, Castillo R, Cisneros R, Guevara-Carrasco R, Lau L, Mariátegui L, Salazar C, Tafur R, Torrejón J, & Yamashiro C. 2018. Biology, population structure and fishery of jumbo flying squid (*Dosidicus gigas*) in Peru. Bol Inst Mar Peru. 33(2): 302-364.
(<http://biblioimarpe.imarpe.gob.pe/handle/123456789/3239>)
- Estrella, C. & R. Guevara-Carrasco. 1998. Informe estadístico anual de los recursos hidrobiológicos de la pesca artesanal por especies, artes, caletas y meses durante 1996. Inf. Inst. Mar Perú No. 131: 215p
(<http://biblioimarpe.imarpe.gob.pe/handle/123456789/1471>)
- IMARPE. 2015. Crucero de investigación del calamar gigante, Cr. 1501-02, 20 enero al 09 febrero de 2015. BIC José Olaya Balandra - Zona Norte, BIC Humboldt-Zona Sur. Informe Ejecutivo, IMARPE, Callao: 54 p.
(<http://www.imarpe.pe/imarpe/archivos/informes/CruceroInvestigacionCalamarGigante.pdf>)
- IMARPE. 2015a (Unpublished). Informe Ejecutivo “Crucero de Investigación del Calamar gigante Cr. 1511-12” Memorandum N° AFIIMM-412-2015, con fecha 30.12.2015 del Área Funcional de Investigaciones de Invertebrados Marinos y Macroalgas.
- IMARPE. 2018. Informe Ejecutivo del Crucero de investigación del calamar gigante, Cr. 1711-12, 21 noviembre al 12 de diciembre de 2017, BIC “José Olaya Balandra”- Zona Norte, BIC “Humboldt” – Zona Sur. IMARPE, Callao, enero 2018: 40p
(http://www.imarpe.gob.pe/imarpe/archivos/informes/informe_calmar_gigante_nov_dic_2017.pdf)
- IMARPE-PRODUCE. 2018. 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 2017 – June 2018. Peru National Report N° 1 presented to the 6rd meeting of the Scientific Committee of the SPRFMO, Puerto Varas, Chile, 09-14 October 2018. SPRFMO document SC6-Doc19: 18p
(<http://www.sprfmo.int/assets/2018-SC6/Meeting-Documents/SC6-Doc19-Peru-Annual-Report-2018.pdf>)
- PRODUCE-IMARPE. 2015. 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. Peru National Report No 1 presented to the 3rd meeting of the Scientific Committee of the SPRFMO, Port Vila, Vanuatu, 28 September - 03 October 2015. SPRFMO document SC-03-10: 14p
(<http://www.sprfmo.int/assets/Meetings/Meetings-2013-plus/SC-Meetings/3rd-SC-Meeting-2015/Papers/SC-03-10-Peru-Annual-report-Part-I-SPRFMO-Area-a.pdf>)
- PRODUCE-IMARPE. 2017. 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 2016 – July 2017. Peru National Report No 1 presented to the 5th meeting of the Scientific Committee

of the SPRFMO, Shanghai, China, 23-28 September 2017. SPRFMO document SC5-Doc18: 7p (<http://www.sprfmo.int/assets/SC5-2017/SC5-Doc18-Perus-Annual-report-part-I-SPRFMO-Area.pdf>)

Yamashiro C, Mariátegui L, Tafur R, Castillo G, Argüelles J, Goicochea C, Alegre A, Sánchez J, Taipei A, Sanjinez M. 2018. Monitoring system for the jumbo flying squid fishery *Dosidicus gigas* in Peru. Bol Inst Mar Peru. 33(2): 222-252. (<http://biblioimarpe.imarpe.gob.pe/handle/123456789/3243>)