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*Russian Federation*

**The Federal Agency for Fishery**

**Russian Federal Research Institute of Fisheries and Oceanography (VNIRO)**

**Atlantic Branch of VNIRO (AtlantNIRO)**

**National report of the Russian Federation  
to the 2022 SPRFMO Scientific Committee meeting**

**2023**

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## Summary

The report provides information on fishing activities of the Russian Federation in 2022 in the Convention Area of the South Pacific Regional Fisheries Management Organisation (SPRFMO) and data on the implementation of the Observer Programme on fishing vessels.

The jack mackerel (*Trachurus murphyi*) fishing was conducted by two Russian flagged trawlers and covered the period from April to December 2022. The total catch of biological resources was 47505 t, including 29443 t of jack mackerel and 18017 t of chub mackerel (*Scomber japonicus*).

Scientific observers were deployed on board vessels during the entire period of fishing and the scientific observer coverage in the fishery was 100%.

## Introduction

The present report refers to the activity of the two Russian flagged pelagic trawlers “Admiral Shabalin” (April - December 2022) and “Komandor” (September - December 2022) fishing for *Trachurus murphyi* and *Scomber japonicus* in the SPRFMO Convention Area.

Biological data were collected in 2022 by scientific observers during all period of fishing. Data presented in this report cover catch and effort data reported directly by the vessels and the data collected by scientific observers on board of the vessels.

# 1 Description of the Russian Federation Fisheries in the Pacific

## 1.1 Fishery in 1972-2022

Practically right after finding of the huge concentrations of jack mackerel in the South Pacific by the Russian researchers in the second half of 1970 – the first half of 1980, this species became the basic object for fishery in the area. Chub mackerel was also one of the main important species for fishery.

The development of fishery stimulated studying of biology and stock conditions of jack mackerel. Till the beginning of 1990 the main researches of oceanic jack mackerel were made by the Russian scientists. From 1955 till 1992 Russia executed 562 expeditions in the South Pacific.

The USSR fishing fleet worked actively in the South Pacific in 1979-1991. In the XXI century, prior to 2015, the Russian fishery was irregular. In 2015-2021, one Russian trawler was engaged in the jack mackerel fishery annually (with the exception of 2016). In 2022, two Russian trawlers participated in the jack mackerel fishery.

The information about the number vessels, which fished in the area is shown in Tables 1-2.

Table 1. Number of the fishing vessels in the South-East Pacific from 1977 till 2022

Year	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Number of vessels	?	?	0	0	0	0	?	81	75	92
Year	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Number of vessels	90	92	104	113	91	93	84	113	120	110
Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Number of vessels	43	3	4	3	?	0	0	0	0	0
Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Number of vessels	0	3	3	3	0	0	1	6	1	2
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Number of vessels	0	0	0	1	0	1	1	1	1	1
Year	2022									
Number of vessels	2									

Note: “?” means that the information is absent

Table 2. Number of the fishing vessels in the South-West Pacific from 1977 till 2022

Year	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Number of vessels	?	?	?	?	4	13	13	6	4	55
Year	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Number of vessels	?	1	12	20	42	?	?	?	?	?
Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Number of vessels	?	?	?	0	0	0	0	0	0	0
Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Number of vessels	0	0	0	0	0	0	0	0	0	0
Year	2017	2018	2019	2020	2021	2022				
Number of vessels	0	0	0	0	0	0				

Note: “?” means that the information is absent.

The Russian catches of jack mackerel and chub mackerel from 1972 to 2021 in the South-East Pacific and from 1977 to 1999 in the South-West Pacific are presented in the Tables 3-4 and Figures 1-4. There was no Russian fishing activity in the South-West Pacific from 2000 to 2021.

The largest catch of jack mackerel (1 122 297 t) was taken in the South-East Pacific in 1990, and in 1986 (146 200 t of jack mackerel) in the South-West Pacific (Fig. 1, 3). As concerns chub mackerel, the largest catches of this species were taken in 1990 (74 168 t) and in 1991 (828 t) in the South-East and in the South-West Pacific accordingly (Fig. 2, 4).

In recent years, the catches of chub mackerel have continuously increased. In 2022, the catch of chub mackerel increased by nearly 950 %, compared with 2021 (1904 to 18017 t), and when compared with 2020, this increase amounts to 4550 % (396 to 18017 t).

Table 3. Russian catch of jack mackerel and chub mackerel in the South-East Pacific in tons

Catch, t	Year									
	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Jack mackerel	5500	0	0	0	0	0	49220	532209	544970	771630
Chub mackerel	0	0	0	0	0	0	1773	5800	48300	41500
Catch, t	Year									
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Jack mackerel	735898	866500	1056600	837700	785000	818628	938288	1096292	1122297	591800
Chub mackerel	41878	4416	71952	38275	1920	3835	34805	28160	74168	18257
Catch, t	Year									
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Jack mackerel	32000	0	0	0	0	0	0	0	0	0
Chub mackerel	970	0	0	0	0	0	0	0	0	0
Catch, t	Year									
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Jack mackerel	0	7540	62300	7040	0	0	4800	9113	41315	8229
Chub mackerel	0	0	0	0	0	0	387	535		12
Catch, t	Year									
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Jack mackerel	0	0	0	2561	0	3188	4685	9423	5245	12151
Chub mackerel	0	0	0	463	0	37	52	44	396	1905
Catch, t	Year									
	2022									
Jack mackerel	29443									
Chub mackerel	18017									

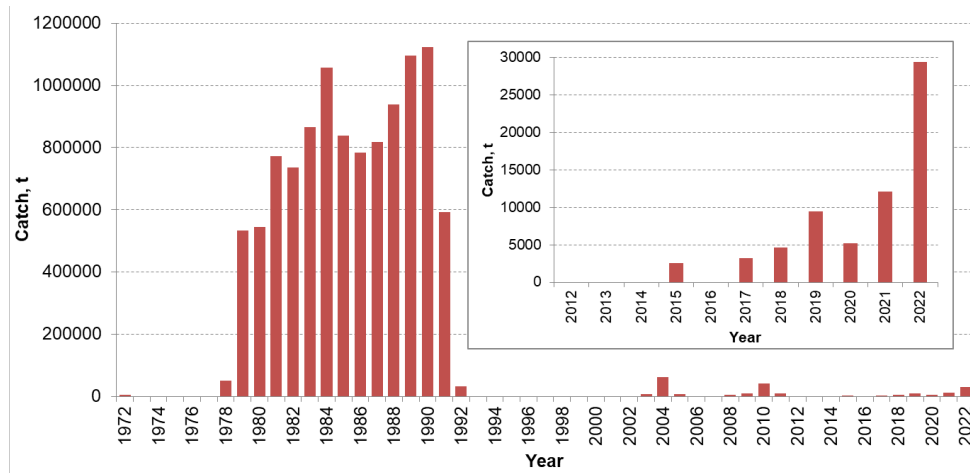


Figure 1. Russian catch of jack mackerel in the South-East Pacific

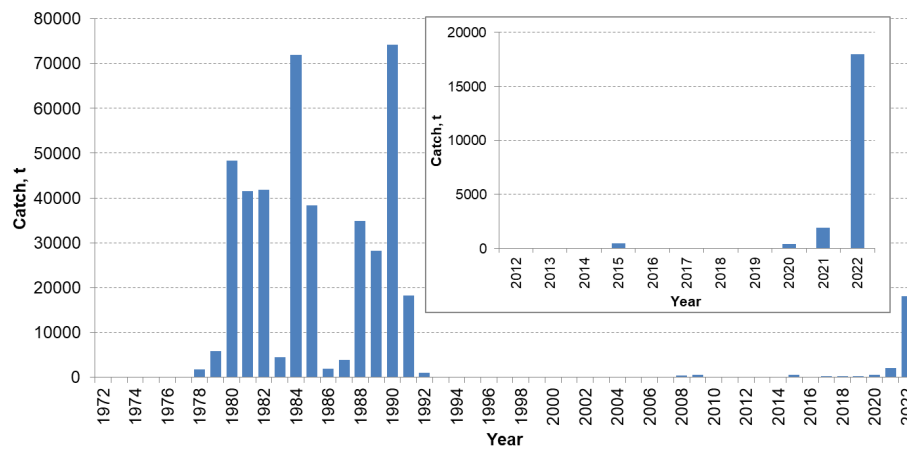


Figure 2. Russian catch of chub mackerel in the South-East Pacific

Table 4. Russian catch of jack mackerel and chub mackerel in the South-West Pacific in tons

Catch, t	Year									
	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
Jack mackerel	710	254	0	13	0	4953	10651	22300	133350	146200
Chub mackerel	0	0	0	0	0	0	0	0	50	0
Catch, t	Year									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Jack mackerel	107379	58997	57243	67618	127828	2892	4586	2008	1677	2280
Chub mackerel	50	200	700	100	828	?	326	204	75	0
Catch, t	Year									
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Jack mackerel	886	52	223	0	0	0	0	0	0	0
Chub mackerel	0	0	0	0	0	0	0	0	0	0
Catch, t	Year									
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Jack mackerel	0	0	0	0	0	0	0	0	0	0
Chub mackerel	0	0	0	0	0	0	0	0	0	0
Catch, t	Year									
	2017	2018	2019	2020	2021	2022				
Jack mackerel	0	0	0	0	0	0				
Chub mackerel	0	0	0	0	0	0				

Note: “?” means that the information is absent.

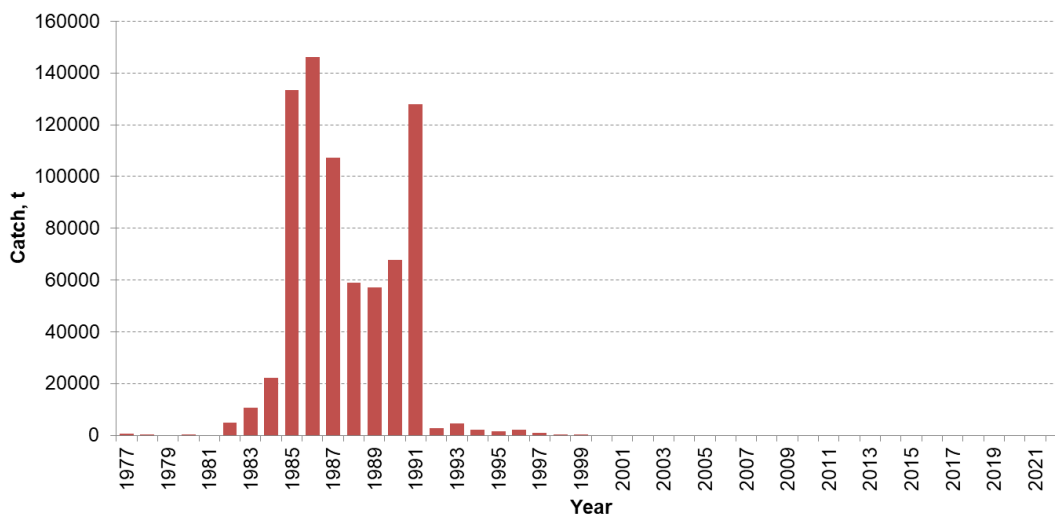


Figure 3. Russian catch of jack mackerel in the South-West Pacific

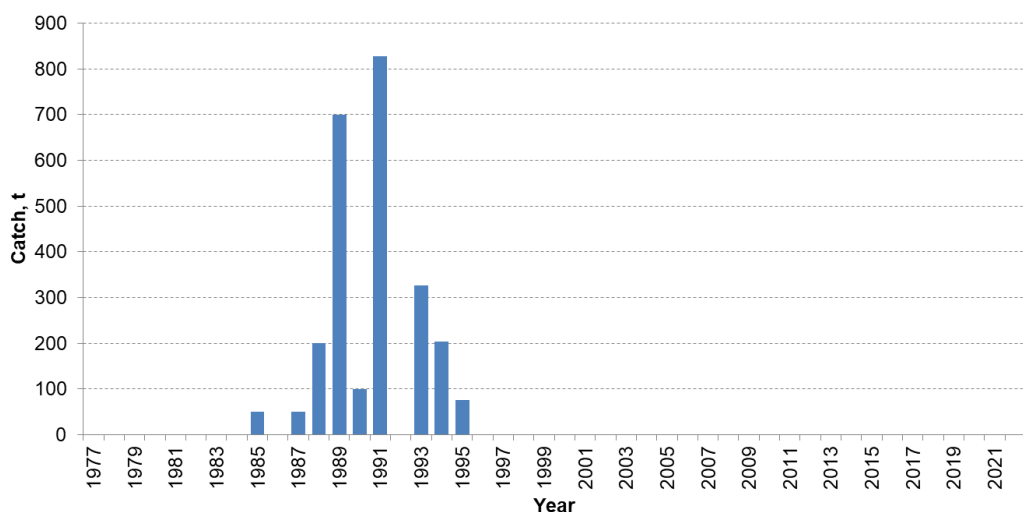


Figure 4. Russian catch of chub mackerel in the South-West Pacific

In 2015 and 2020-2022, Russian fishing vessels periodically performed midwater trawlings on seamounts of Nazca ridge and Sala-y-Gomez ridge catching jack mackerel and redbait; alfonsino occurred in bycatch (Table 5). In 2022, the trawler “Admiral Shabalin” surveyed submarine elevations but no commercial concentrations were found. One redbait catch of 45 t was taken.

Table 5. Russian catches of redbait (EMM; *Emmelichthys nitidus*) and alfonsinos (BYS; *Beryx splendens*) on seamounts of Nazca ridge and Sala-y-Gomez ridge

Catch, t	Year							
	2015	2016	2017	2018	2019	2020	2021	2022
Redbait	30	0	0	0	0	108	3555	45
Alfonsinos	0	0	0	0	0	9	1193	0



## 1.2 Fishery in 2015-2022

From 2015 to 2021, fishing in the SPRFMO area is carried out annually by one Russian large-capacity trawler, except for 2016, when there was no fishing (Tab. 6, 7 Fig. 5).

In 2022, two Russian trawlers “Admiral Shabalin” and “Komandor” operated in the high seas of the South-East Pacific. The total catch was 29443 t for jack mackerel, 18017 t for chub mackerel and 45 t for redbait in 217 fishing days (Tab. 6, 7, Fig. 6).

Table 6. Russian actively fishing vessels for 2015-2022

<b>Year</b>	<b>Name</b>	<b>GT</b>
2015	“Alexander Kosarev”	7765
2016	no	no
2017	“Alexander Kosarev”	7765
2018	“Maironis”	7765
2019	“Alexander Kosarev”	7765
2020	“Admiral Shabalin”	7731
2021	“Admiral Shabalin”	7731
2022	“Admiral Shabalin”	7731
	“Komandor”	8913

The vessels which were involved in this fishery used single midwater trawls. They operated in the area from 24°32'S to 37°31'S and from 74°24'W to 84°38'W in 2015, from 39°18' to 43°12'S and from 78°12' to 82°00'W in 2017. In 2018, the fishery was carried out in the water area between 38°30' - 44°10'S from 78°10' to 89°40'W. In 2019, the Russian trawler operated in the area from 43-48°S from the zone of Chile to 88°W from March to June, in the area between 37-38°S near the EEZ of Chile in July. In 2020-2021, the trawler operated in the area from the mainland zone of Chilean EEZ to the San Ambrosio Islands between 28-23°S as well as on seamounts of Nazca ridge and Sala-y-Gomez ridge. In 2022, the fishery localization has shifted even further north to the border of the Peruvian EEZ.

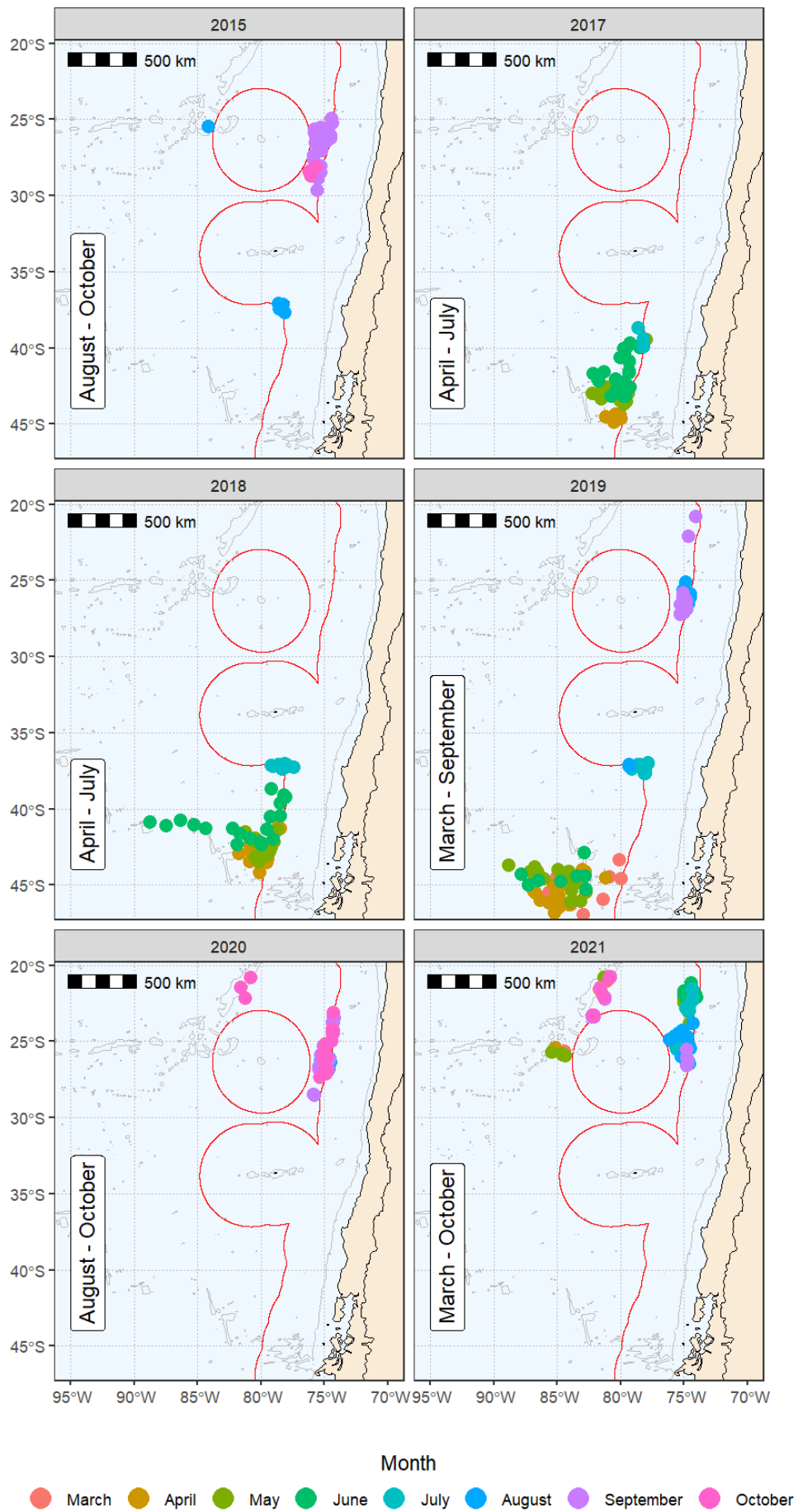


Figure 5. Positions of the Russian Federation fleet by month in 2015-2021

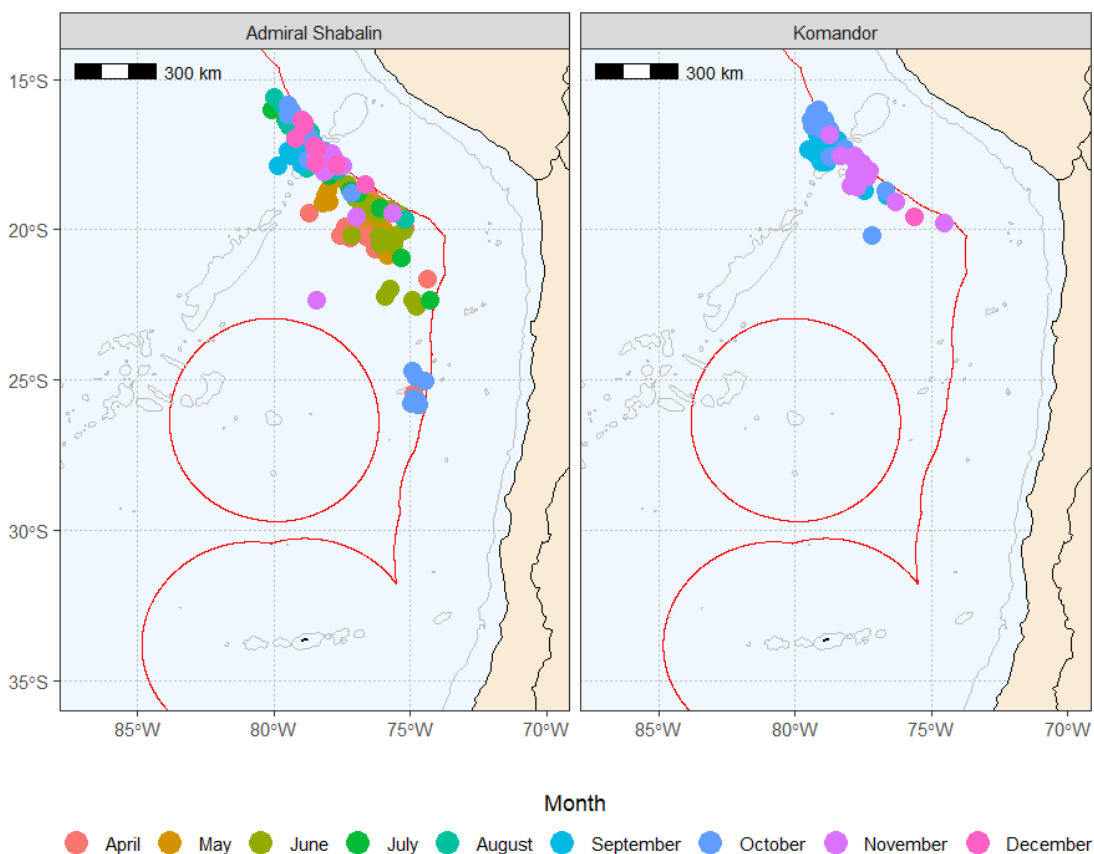


Figure 6. Positions of the Russian Federation fleet by month in 2022

Table 7. The information about fishery in the high seas of the South Pacific in 2015-2022

Year	Number of vessels	Number of tows	Number of fishing days
2015	1	89	38
2016	0	0	0
2017	1	76	52
2018	1	134	70
2019	1	211	102
2020	1	116	55
2021	1	297	132
2022	2	558	217

The Russian vessels operated in the area from August to October 2015, from April to July 2017-2018. In 2019, the Russian vessel began fishing in March and ended its activity in September. In 2020, the Russian vessel began fishing in August and ended its activity in October. In 2021, the Russian vessel began fishing in March and ended its activity in October. The main catch of jack mackerel and chub mackerel in 2015 was taken in September, in 2017 the main catch of jack mackerel and chub mackerel was taken in May as well as in 2018, in 2019 and 2020 main catch was taken in August (Fig. 7, 8). In 2022, the maximum catches were recorded in October and November, when two trawlers were involved in the fishery, while the maximum productivity of the fishery was recorded in June-July.

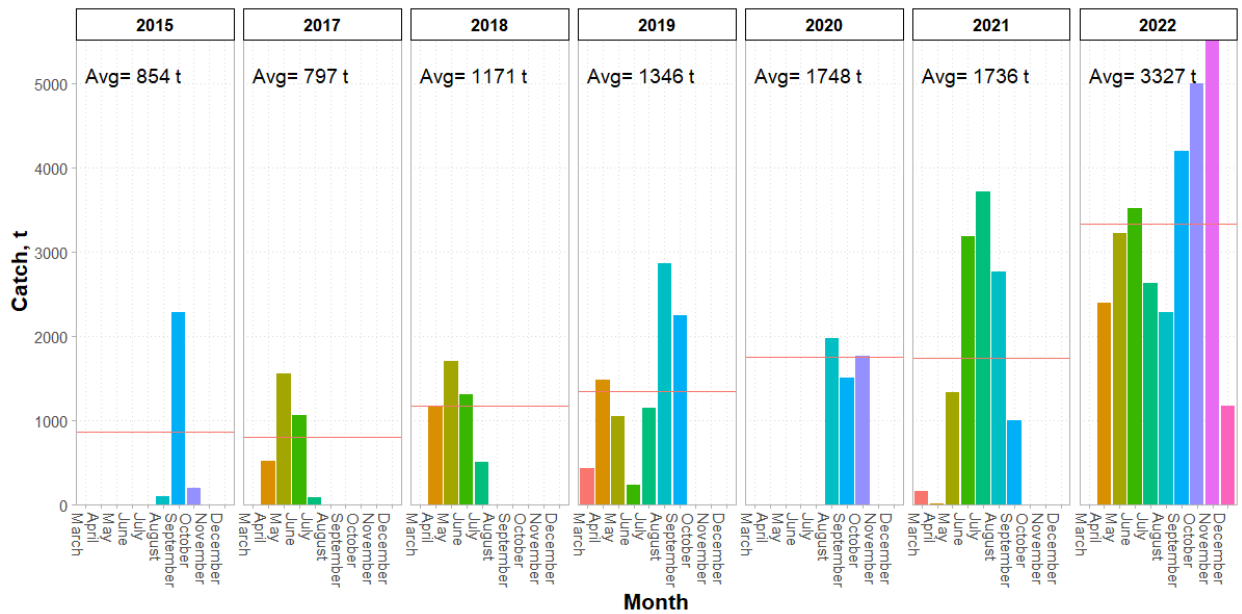


Figure 7. Monthly catches of jack mackerel by the Russian vessels in 2015-2022

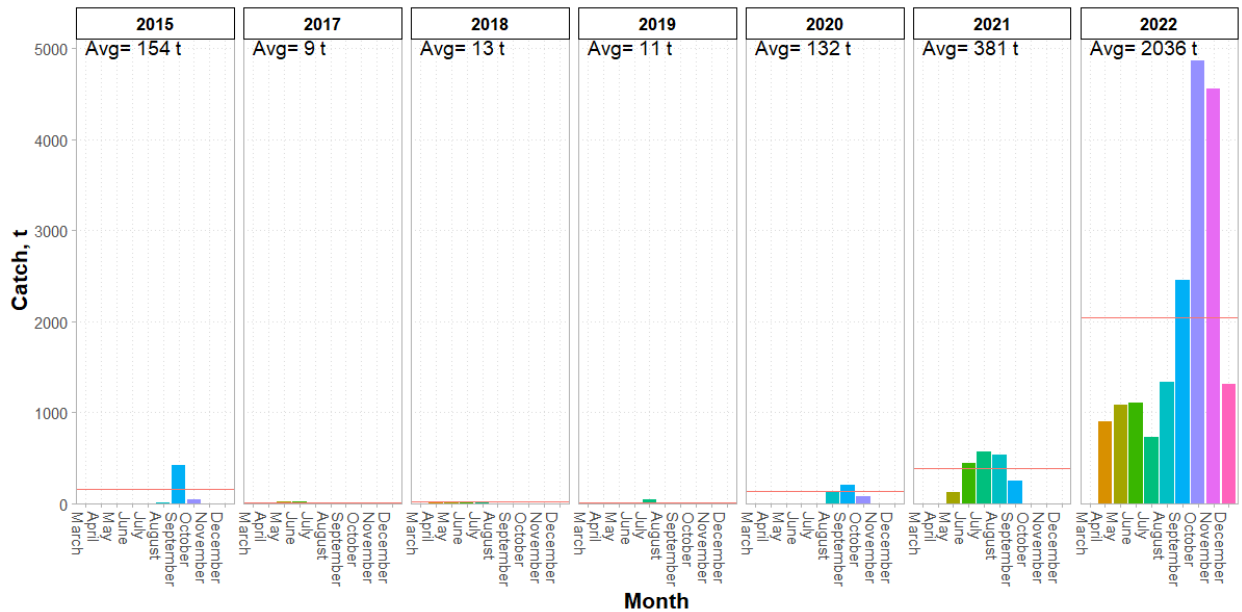


Figure 8. Monthly catches of chub mackerel by the Russian vessels in 2015-2022

### 1.3 Fishery overview in 2022

On April 1, the Russian trawler “Admiral Shabalin” of PJSC “Murmansk Trawl Fleet” started exploratory and fishing operations in the South Pacific outside the EEZs of coastal States (the SPRFMO Commission Regulatory Area). In September, another Russian large-capacity trawler “Komandor” of JSC “Akros” joined the fishery in this area.

On April 7, the trawler “Admiral Shabalin” found commercial concentrations of jack mackerel outside the EEZ of Peru in the area with average coordinates 18°20'S 77°15'W. A detection period of commercial concentrations of jack mackerel in the northern subarea in 2022

can be considered as early, during the Soviet fishing period, vessels worked here most often from June-July to October-November, in certain years, fishing started in May.

In the fishing season 2022, vessels worked predominately in waters outside the EEZ of Peru south of 16°S. The trawler “Admiral Shabalin” carried out fishing for a short time - from June 26 to July 1 and from 17 to 26 October, in more southerly positions between 21°30'-25°50'S 74°35'-76°W, including the waters between the continental EEZ of Chile and the fishing zone of the Islands of San Ambrosio. In general, the fishing conditions in all fishing areas were good. Short-term decline in the fishing conditions was noted only during periods of strengthening of the southeast trade wind. The vessels trawled in the nighttime in the surface layer of 0-20 m and in the daytime - in layers of 40-100 m. Catches of the Russian vessels ranged from 100 to 350 t per fishing day. According to scientific observers, the basis of the catches was formed by jack mackerel of 15-61 cm with modal classes of 22-28 cm. By-catch was mainly presented by chub mackerel with a length of 20-43 cm, individuals with a length of 28-34 cm predominated. In some cases, chub mackerel was the main species in catches. During the fishery, a gradual increase in the average size and weight characteristics of jack mackerel and chub mackerel was noted. From April to June, feeding immature jack mackerel was caught, in July-August, the maturation of the genital products was noted, in September, the mass spawning began.

From 25 to 28 November, the trawler “Admiral Shabalin” searched for concentrations of jack mackerel and redbait in the area on seamounts of Nazca ridge. No stable concentrations were found, echo records were sparse. The single trawling was carried out in the area with average coordinates 23°18'S, 82°08'W. The catch was 45 t of prespawning and spawning redbait with a length of 21-35 cm and an average weight of 350 g.

The average performance of the trawler “Admiral Shabalin” since the beginning of the fishery was 217.2 t, the trawler “Komandor” - 240.5 t per fishing day.

Thus, the characteristics of the fishing season 2022 were: shift of the fishing area to the north, early start of fishing, stable resource base of jack mackerel and chub mackerel, increase in the fishing productivity and the total catch of pelagic fish.

## **2 Catch, Effort and CPUE Summaries**

### **2.1 Catch composition**

In most cases the Russian vessels carried out the target fishery for jack mackerel in the Convention Area of the SPRFMO Commission in the pelagic zone over ocean depths, chub mackerel was the main species of bycatch, pacific pomfret and blue fathead were also occurred

in bycatch in small amounts. In 2021, redbait was a target species during the periods of fishing on seamounts of Nazca ridge (Table 8).

Table 8. Species composition (%) of the Russian pelagic trawlers in 2015-2022 based on landing data

Year	Jack Mackerel	Chub Mackerel	Pacific Pomfret	Blue Fathead	Redbait	Alfonsino
Pelagic zone over ocean depths						
2015	84.7	15.3				
2017	98.8	1.1				
2018	96.2	1.1	1.7	1		
2019	98.3	0.5	1.1	0.2		
2020	92.8	7.2				
2021	86.5	13.5				
2022	63.8	36.2				
Pelagic zone on seamounts of Nazca ridge						
2015					100	
2020	54.9	1.1			40.6	3.4
2021	6.1	1.2			69.5	23.3
2022					100	

Catch volume and species composition of monthly catches in 2022 is shown in Fig. 9.

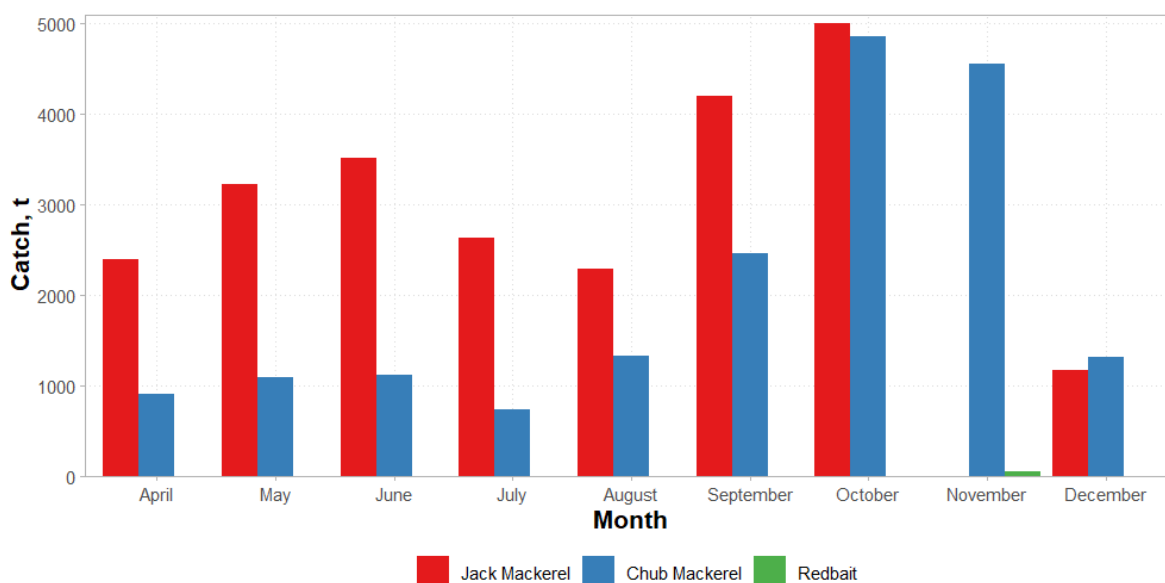


Figure 9. Monthly catch of main species in 2022

## 2.2 Effort and catch per unit of effort (CPUE)

Development of catches and efforts in fishing for jack mackerel and chub mackerel by the Russian vessels in 2022 is presented in the Table 9.

Table 9. Catches and CPUE for jack mackerel and chub mackerel fishery in the SPRFMO area by month in 2022

Month	Catch, t		Catch per hour (CPUE), t	
	Jack mackerel	Chub mackerel	Jack mackerel	Chub mackerel
<b>2022</b>				
April	2366.6	891.8	10.1	3.8
May	3127.4	1051.9	12.5	4.2
June	3437.9	1097.8	20	6.4
July	2518.6	737.6	19.5	5.7
August	2276.9	1285.5	13.8	7.8
September	4179.8	2357.9	10.1	5.7
October	4925.4	4802.8	8.5	8.3
November	5459.4	4514.7	11	9.1
December	1150.7	1276.8	9	10
<b>2022*</b>	<b>29443.2</b>	<b>18016.9</b>	<b>12.7</b>	<b>6.8</b>

\* - Total for catch, average for CPUE

The CPUE of jack mackerel and chub mackerel in 2015-2022 are shown in Figures 10 and 11.

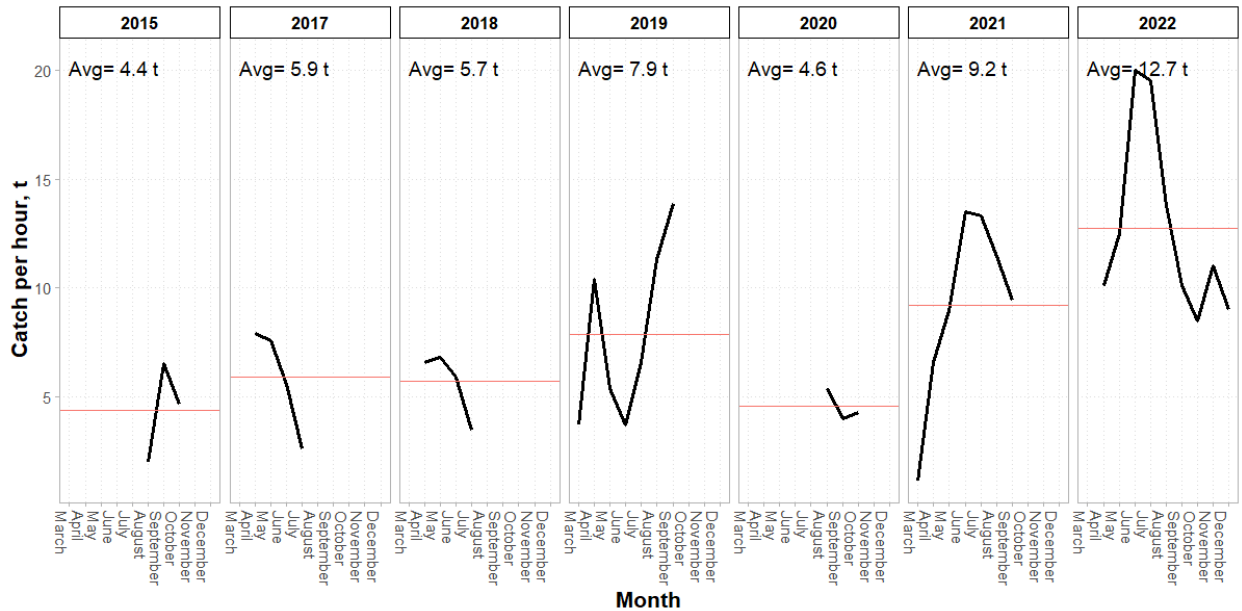


Figure 10. CPUE of jack mackerel in 2015- 2022

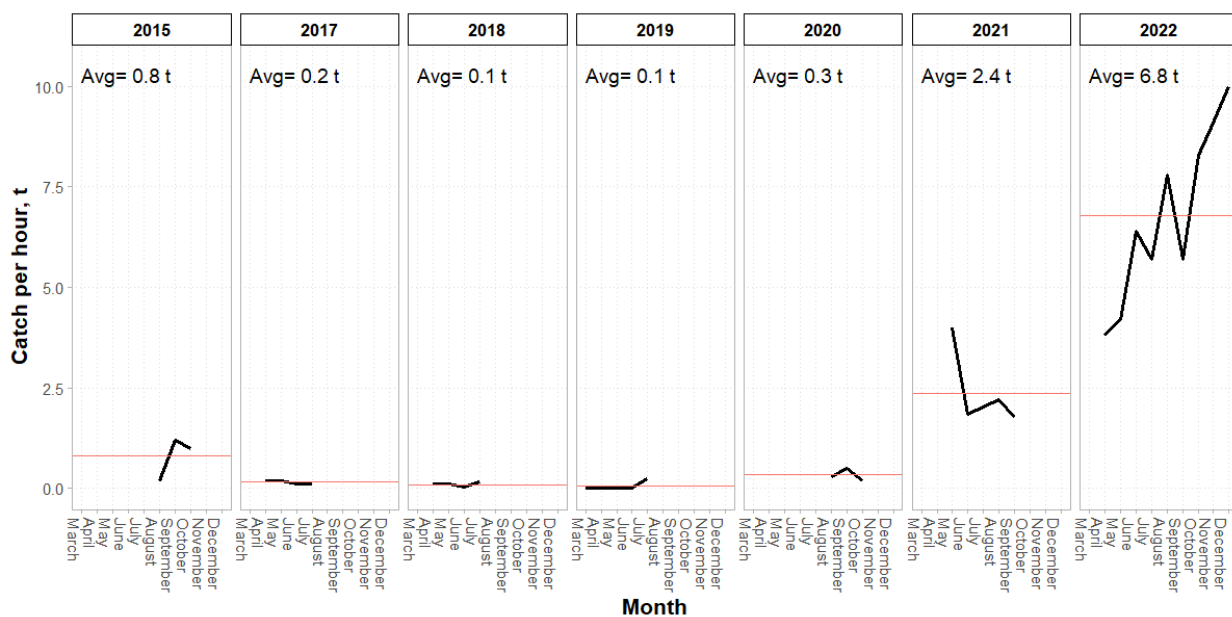


Figure 11. CPUE of chub mackerel in 2015- 2022

Development of catches and efforts in fishing for redbait and alfonsinos by the Russian vessels is presented in Table 10.

Table 10. The average monthly catch and CPUE of alfonsinos and redbait by the Russian vessels in the Southeast Pacific in 2015-2021

Month	Catch, t		Catch per hour (CPUE), t	
	Redbait	Alfonsino	Redbait	Alfonsino
<b>2015</b>				
August	30.0		30.0	
<b>2015*</b>	<b>30.0</b>		<b>30.0</b>	
<b>2020</b>				
October	108.0	9.0	1.6	9.0
<b>2020*</b>	<b>108.0</b>	<b>9.0</b>	<b>1.6</b>	<b>9.0</b>
<b>2021</b>				
March	1306.9	895.5	7.7	5.4
May	1090.7	88.6	7.5	3.5
September	742.1		5.5	
October	415.0	208.7	3.2	4.5
<b>2021*</b>	<b>3555.0</b>	<b>1193.0</b>	<b>5.9</b>	<b>4.5</b>
<b>2022</b>				
November	45		6.4	
<b>2022*</b>	<b>45</b>		<b>6.4</b>	

\* - Total for catch, average for CPUE



### 3 Fisheries data collection and research activities

#### 3.1 Collection of haul-by-haul information from the captains

Each trawler provided the detailed information for each individual haul. That information contained data about the vessel and the trawl; tow start and end date and time; tow start and end position; height and width net opening; gear and bottom depth; intended target species and the catch data. The size of the individual catches was estimated.

#### 3.2 Data collection by observers at sea

In accordance with the SPRFMO CMM 01-2021, this program attempted to obtain a minimum of 10% scientific observer coverage for fishing trips or fishing days for trawlers flying the Russian flag and to ensure that such observers collect and report data as described in the SPRFMO CMM 02-2021 (Data Standards) respectively. For this purpose, observers were onboard of the Russian vessel during the fishing in 2015-2022 (Tables 11-12).

Table 11. Observer missions in 2015 – 2022

Year	Period	Vessel	Observer	Days with observations
2015	17 August – 07 October	“Alexander Kosarev”	Zaycev Leonid	37
2017	21 April – 04 July	“Alexander Kosarev”	Malyshko Alexander	51
2018	10 April – 29 July	“Maironis”	Golub Alexander	70
2019	29 April – 20 September	“Alexander Kosarev”	Remeslo Alexander	102
2020	12 August – 24 October	“Admiral Shabalin”	Dubishchuk Maxim	55
2021	09 March – 27 October	“Admiral Shabalin”	Dyushkov Nikolai	132
2022	05 March – 27 September	“Admiral Shabalin”	Linnikov Ruslan	113
2022	25 September – 03 January	“Admiral Shabalin”	Chirin Dmitry	49
2022	01 September – 08 December	“Komandor”	Dubishchuk Maxim	55

Table 12. Observer program design and coverage

Year	Vessel	Fishing		Observed		Coverage, %	
		Trips	Days	Trips	Days	Trips	Days
2015	“Alexander Kosarev”	3	37	3	37	100	100
2017	“Alexander Kosarev”	3	51	4	51	100	100
2018	“Maironis”	4	70	4	70	100	100
2019	“Alexander Kosarev”	6	102	6	102	100	100
2020	“Admiral Shabalin”	3	55	3	55	100	100
2021	“Admiral Shabalin”	6	132	6	132	100	100
2022	“Admiral Shabalin”	17	162	17	162	100	100
2022	“Komandor”	6	55	6	55	100	100

### **3.3 Observer program**

Since 2015, the Atlantic branch of VNIRO (AtlantNIRO) has trained observers and deployed them in the Convention Area of the SPRFMO Commission.

All observers recruited into the program, are employees of the AtlantNIRO; they are mainly ichthyologists with a university education who have great work experience on board the research and fishing vessels in expeditionary conditions.

Prior to the deployment of any observer on board the vessel operated in the Convention Area of the SPRFMO Commission, observers are additionally instructed in updating Conservation and Management Measures for *Trachurus murphyi* in the Convention area as well as observer's duties regarding the methods and amount of data collected.

The AtlantNIRO has internal regulations regarding the requirements for the qualification and safety of scientific observers. All observers being deployed on board the fishing vessels, receive maritime training at specialized national training centers with appropriate certifications in accordance with national regulations and requirements of the STCW Convention: sailor's book, individual medical record, certificate of basic training in ship security and counter-terrorism, basic safety training certificate (including personal survival techniques, fire fighting and fire prevention, elementary first aid, personal safety). Each at-sea observer should always have all valid basic maritime certificates that must be renewed every five years.

In 2021, the Atlantic Branch of VNIRO (AtlantNIRO) held advanced courses on training of international observers for the work on board the Russian trawlers in the SPRFMO Regulatory Area in the form of videoconferencing. In 2022, no training courses for observers were held.

## **4 Biological Sampling and Length/Age Composition**

Biological sampling from mid-water trawl catch has been carried out to obtain the biological and length data on jack mackerel, chub mackerel and other species (Table 13).

Table 13. Biological data collected by scientific observers during 2015-2022

Species	Measured	Biological data	Age samples
<b>2015</b>			
Jack Mackerel	22942	1750	424
Chub Mackerel	8930	900	290
Redbait	222	50	-
<b>2017</b>			
Jack Mackerel	14803	2100	600
Chub Mackerel	1112	800	-
<b>2018</b>			
Jack Mackerel	17952	2700	723
Chub Mackerel	1525	500	315
<b>2019</b>			
Jack Mackerel	25135	4250	1571
Chub Mackerel	6525	950	243
Pacific pomfret	2563	-	-
Blue fathead	1978	-	-
<b>2020</b>			
Jack Mackerel	18289	2850	529
Chub Mackerel	17754	1800	150
Redbait	649	50	-
Alfonsino	1445	200	78
<b>2021</b>			
Jack Mackerel	22522	2388	779
Chub Mackerel	18816	2101	700
Redbait	12408	1751	527
Alfonsino	5373	791	351
<b>2022</b>			
Jack Mackerel	53 906	8 147	2 345
Chub Mackerel	46 710	5 417	1 162
Pacific bonito	1 338	347	48
Redbait	229	50	-
Blue fathead	519	38	-
Giant flying squid	214	189	-

The Figure 12 presents the length composition of jack mackerel for 2015-2022. The Figure 13 presents the length composition of chub mackerel for 2015-2022.

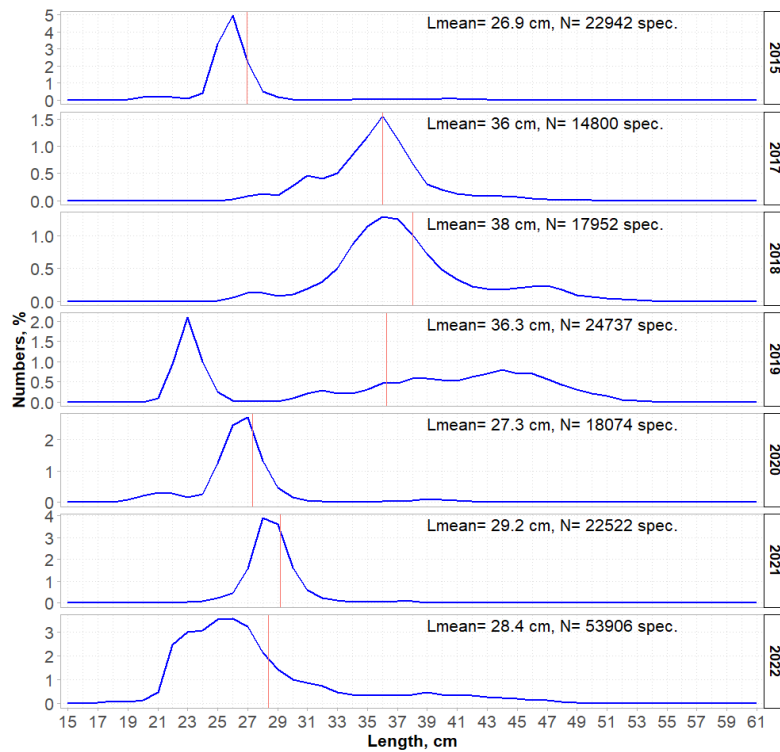


Figure 12. Length composition of jack mackerel in the South Pacific in 2015-2022

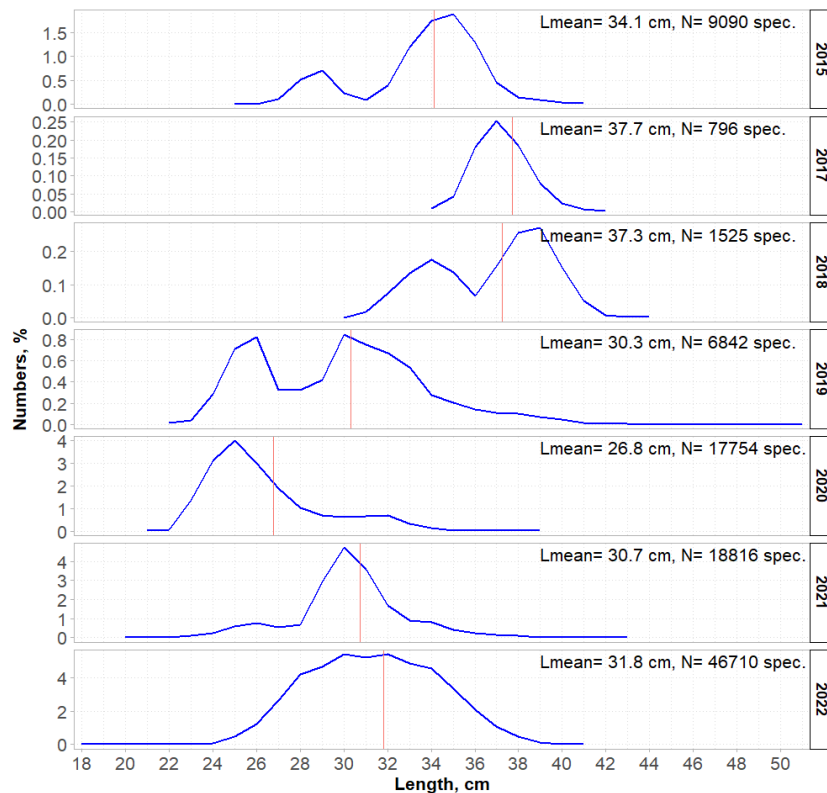


Figure 13. Length composition of chub mackerel in the South Pacific in 2015-2022

Length composition of jack mackerel catches in 2022 by month is shown in Fig. 14.

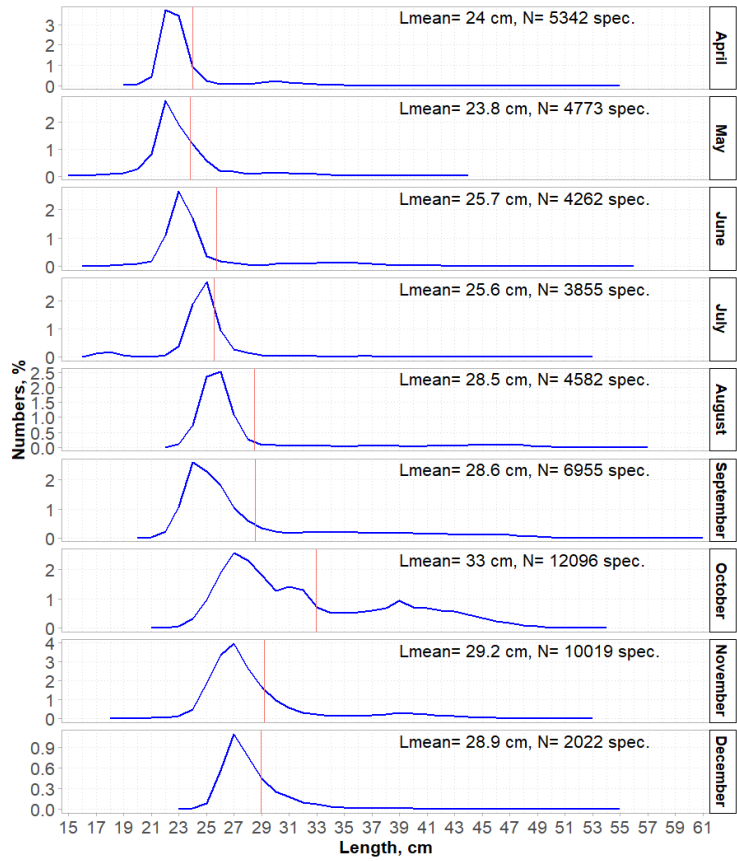


Figure 14. Length composition of jack mackerel in 2022 by month

Length composition of chub mackerel catches in 2022 by month is shown in Fig. 15.

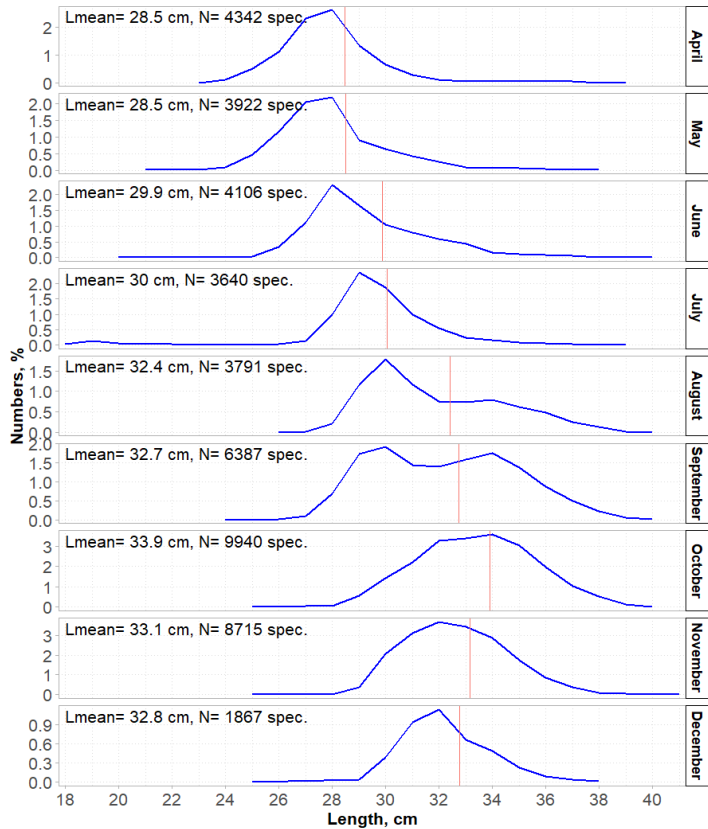


Figure 15. Length composition of chub mackerel in 2022 by month

Age-frequency distribution of jack mackerel in the Russian trawler catches in 2022 is shown in Fig. 16.

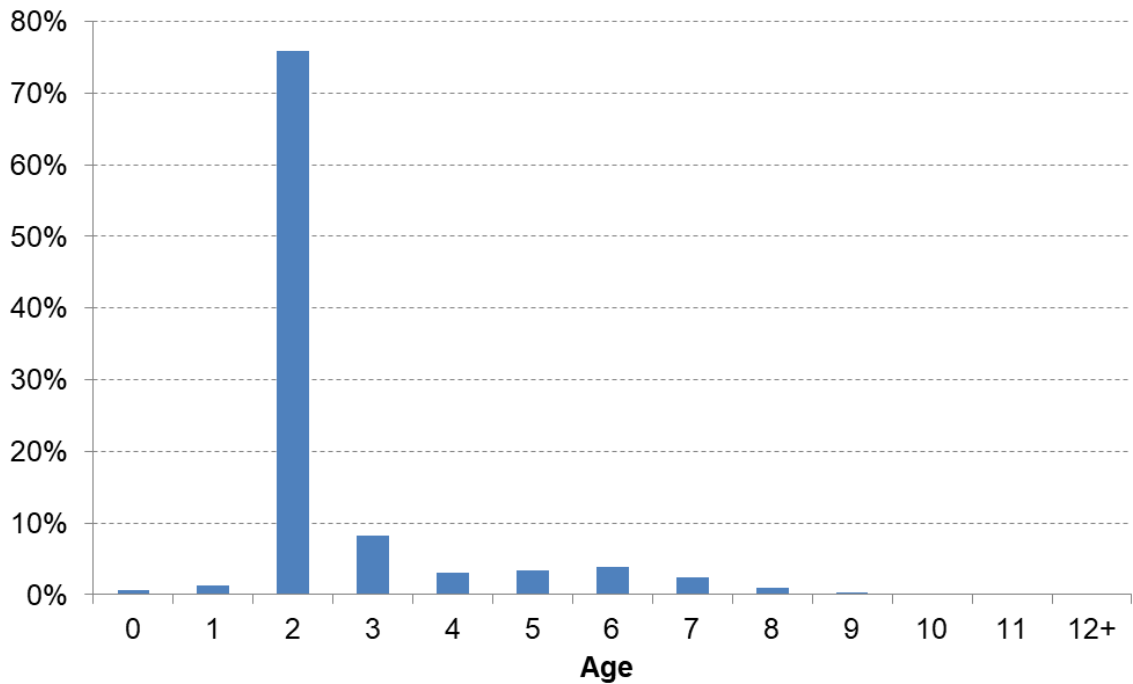


Figure 16. Age-frequency distribution of *Trachurus murphyi* in 2022

## 5 Ecosystem approach considerations

### 5.1 Seabird mitigation measures

A bird baffler consisting of side booms with dropper lines was deployed on board the vessels in accordance with CMM 09-2017 (Figures 17-18). Stern booms were not deployed, because at the time of the vessel manoeuvring trawl warps deviated up to 80° relative to the stern during fishing for concentrations.



Figure 17. Birds baffler used on fishing vessel “Admiral Shabalin” in 2022



Figure 18. Birds baffler used on fishing vessel “Komandor” in 2022

## 5.2 Observed interactions with other species of concern

In accordance with the Conservation and Management Measure for minimizing bycatch of seabirds in the SPRFMO Convention Area (CMM 09-2017), special attention was paid to observing the vessel interaction with seabirds which causes bycatch and mortality of seabirds caught in fishing gears. In addition, daily observations of the number of seabirds around the vessel were carried out. In 2022, 19 species of seabirds that belong to 6 families: albatrosses

(*Diomedidae*), larids (*Laridae*), storm petrels (*Oceanitidae*), shearwaters (*Procellariidae*), skuas (*Stercorariidae*) and sulids (*Sulidae*) were recorded and identified in the high seas of South Pacific ocean (table 14).

Table 14. Species composition and frequency of occurrence (%) of seabirds in the SPRFMO Convention Area in 2022

Species	Month									
	IV	V	VI	VII	VIII	IX	X	XI	XII	
<i>DIOMEDEIDAE</i>										
<i>Diomedea epomophora</i>						0.02				
<i>Diomedea exulans</i>		0.8								
<i>Thalassarche bulleri</i>			0.2	0.9	0.5	2.3	1.5			
<i>Thalassarche chrysostoma</i>						1.1	9.9	21.1	3.9	
<i>Thalassarche melanophris</i>		8.4	28.8	22.7	7.1	5.0	1.5	7.7		
<i>LARIDAE</i>										
<i>Larus dominicanus</i>							0.1			
<i>Larus furcatus</i>		0.1			1.8	0.2	1.0	0.6		
<i>Larus maculipennis</i>								0.1		
<i>Xema sabini</i>								0.9	1.3	
<i>OCEANITIDAE</i>										
<i>Oceanites oceanicus</i>	2.7	35.9	43.7	20.8	3.8	0.7	18.5	31.9		
<i>Oceanodroma markhami</i>								11.3	10.4	
<i>PROCELLARIIDAE</i>										
<i>Daption capense</i>				0.1	0.1					
<i>Procellaria aequinoctialis</i>		3.3	11.1	35.6	77.9	82.6	25.8	3.1		
<i>Pterodroma spp.</i>	21.3	10.0	7.2	10.9	1.0	0.8	5.7	1.8	16.9	
<i>Puffinus creatopus</i>						0.7	13.8	3.9		
<i>STERCORARIIDAE</i>										
<i>Stercorarius pomarinus</i>								0.6		
<i>Catharacta antarctica</i>						0.1	2.1	0.1	0	
<i>SULIDAE</i>										
<i>Sula dactylatra</i>	76	41.3	9.0	8.7	7.8	6.1	20.0	16.9	64.9	
<i>Sula leucogaster</i>									2.6	
<b>Total numbers, spec.</b>	<b>183</b>	<b>788</b>	<b>1210</b>	<b>1617</b>	<b>3249</b>	<b>12356</b>	<b>3076</b>	<b>3528</b>	<b>77</b>	
<b>Number of observations</b>	<b>70</b>	<b>58</b>	<b>44</b>	<b>45</b>	<b>39</b>	<b>63</b>	<b>52</b>	<b>44</b>	<b>5</b>	

According to observations during the trip, there was no record of any case of catching seabirds, reptiles (turtles) in trawl or their mortality during fishing operations. Three specimens of porbeagle sharks from the List of other species of concern (CMM 02-2021 Annex 14) were recorded in pelagic trawl catches (Table 15).



Table 15. Summary of species of concern from Russian pelagic catches in 2022

№	Date	Position		FAO code	Scientific name	Number of specimens
1	08.11.2022	17°55' S	75°44' W	POR	<i>Lamna nasus</i>	2
2	24.11.2022	17°27' S	75°22' W	POR	<i>Lamna nasus</i>	1

During the fishing period, several episodes of incidental catches of marine mammals by trawl nets were recorded (Table 16).

Table 16. Summary of incidental catches of marine mammals from Russian pelagic catches in 2022

№	Date	Position		FAO code	Scientific name	Number of specimens
1	02.06.2022	19°21' S	76°29' W	SEF	<i>Arctocephalus australis</i>	1
2	09.06.2022	18°43' S	77°15' W	SEF	<i>Arctocephalus australis</i>	1
3	13.08.2022	16°36' S	79°24' W	PIW	<i>Globicephala melaena</i>	1
4	12.09.2022	16°47' S	78°53' W	DBO	<i>Tursiops truncatus</i>	1
5	12.09.2022	16°47' S	78°53' W	PIW	<i>Globicephala melaena</i>	1
6	14.10.2022	16°20' S	78°55' W	SJF	<i>Arctocephalus philippii</i>	1

In 2022, all the specimens caught were dead, the average incidental by-catch of marine mammals (ratio of the number of animals caught to the total number of trawls) was 0,01%.

### 5.3 Discards of bycatch

During the fishing period, fish discards (jack mackerel and chub mackerel) were not recorded, all the fish were processed and frozen. Insignificant amounts of non-target fish species caught were discarded (Table 17).

Table 17. Summary of bycatch species from Russian pelagic catches in 2022

№	Scientific name	Species Code	Frequency, %
1	<i>Alopias vulpinus</i>	ALV	0.6
2	<i>Sarda chiliensis</i>	BEP	26.0
3	<i>Thunnus obesus</i>	BET	0.7
4	<i>Auxis rochei</i>	BLT	4.3
5	<i>Brama australis</i>	BRU	0.6
6	<i>Prionace glauca</i>	BSH	5.4
7	<i>Beryx splendens</i>	BYS	0.1
8	<i>Coryphaena equiselis</i>	CFW	0.7
9	<i>Sardinops sagax</i>	CHP	1.0
10	<i>Coryphaena hippurus</i>	DOL	1.2
11	<i>Desmodema polystictum</i>	DSM	2.8

12	<i>Auxis thazard</i>	FRI	0.7
13	<i>Gempylus serpens</i>	GES	0.3
14	<i>Dosidicus gigas</i>	GIS	20.1
15	<i>Lampris spp</i>	LAP	1.0
16	<i>Lepidocybium flavobrunneum</i>	LEC	1.9
17	<i>Mola mola</i>	MOX	1.6
18	<i>Naucrates ductor</i>	NAU	0.3
19	<i>Ruvettus pretiosus</i>	OIL	0.3
20	<i>Dasyatis violacea</i>	PLS	0.3
21	<i>Lamna nasus</i>	POR	0.3
22	<i>Pseudocarcharias kamoharai</i>	PSK	0.1
23	<i>Rexea antefurcata</i>	RXA	0.1
24	<i>Katsuwonus pelamis</i>	SKJ	0.3
25	<i>Isurus oxyrinchus</i>	SMA	4.5
26	<i>Thyrsites atun</i>	SNK	0.4
27	<i>Sphyrna zygaena</i>	SPZ	0.1
28	<i>Loligo spp</i>	SQC	0.1
29	<i>Xiphias gladius</i>	SWO	5.5
30	<i>Tetragonurus cuvieri</i>	TGV	0.3
31	<i>Cubiceps caeruleus</i>	UBA	15.1
32	<i>Cubiceps baxteri</i>	UBB	0.7
33	<i>Engraulis ringens</i>	VET	0.3
34	<i>Nomeidae</i>	VTX	1.2
35	<i>Seriola lalandi</i>	YTC	0.1
36	<i>Zu cristatus</i>	ZUC	0.1

The most commonly-encountered species were bonito (*Sarda chiliensis*) - in 26% of trawls, jumbo flying squid (*Dosidicus gigas*) - in 20% and blue fathead (*Cubiceps caeruleus*) - 15,1%. All other species were periodically recorded in catches in small numbers.

#### 5.4 Fishing Gear and Marine Plastic Pollution

According to the CMM 17-2022, work with plastic wastes on vessels was carried out under the provisions of the MARPOL Convention.

During the fishing period 2022, there was one case of fishing gear loss. On October 31 at 15:42 UTC (16°31'5 S, 78°51'6 W), in the course of the hauling trawl “Orion”, the trawl bag broke, and 54 m of fishing gear was lost. Measures to retrieve lost gear were not taken, since the trawl bag contained a significant amount of fish and it sank immediately after the break. The depth of the site in this area was 4100 m. The reason for breaking down was supposedly the wear of the fishing gear. In accordance with the CMM-17-2022, a notification of lost fishing gear was sent to the Secretariat in the prescribed form («CMM17-ALDFG-Notification»).