

11th MEETING OF THE SCIENTIFIC COMMITTEE

11 to 16 September 2023, Panama City, Panama

SC11–SQ01_rev1

Squid information held by the Secretariat

(rev1, 08 September 2023)

Secretariat

1. Introduction

This paper identifies and describes jumbo flying squid datasets held by the SPRFMO Secretariat, including some simple measures of effort (number of vessels, gross tonnage, and engine power). It is an update to paper [SC10-SQ01_rev2](#), *Squid information held by the Secretariat*, presented to the 10th Scientific Committee meeting in 2022.

- Members are invited to check the catch and effort data contained in Tables 1 to 8 and liaise with the Secretariat in cases where Secretariat held data may not be correct.

2. Recommendations from SC10 and COMM11

The SC recommended ([SC10-Report](#), para 154) to develop a Jumbo Flying Squid Genetics and Connectivity Task Group to:

- a. Promote the samples (DNA or tissue) exchange to perform the population genetic analysis considering the three phenotype-sizes along the entire species distribution and taking into account a mantle length range of each phenotype size and sampling coordinates.
- b. Elaborate a single report on the description of genetic diversity based on mtDNA markers (ND2 and COI), integrating registered DNA sequences from all members.
- c. Share and discuss the detailed protocols of NGS techniques applied by members for SNPs identification, and try to implement techniques and standardize analysis criteria, using the sequenced genome of the species as a reference, if possible.
- d. Integrate the results of all members for a description of the population genetic variability based on SNPs.

With respect to Peru's alternative observer programme, the SC recommended that the programme was suitable and met the requirements for data collection obligations as detailed in paragraph 4 of CMM 16-2022 (Observer programme). This was later approved by the Commission ([COMM11-Report](#), paras 58-61), and CMM 16 was modified as a result (see Annex 4).

The SC recommended that the interim (i.e., until an assessment is accepted), the Commission monitor CPUE trends and constrain fishing effort as a precautionary approach in developing a CMM. The SC reconfirms the recommendations about the need for fishing effort limitations ([SC10-Report](#)). The Commission supported this recommendation and adopted an effort limit (in gross tonnage of vessels) in the squid fishery, subsequently modifying CMM 18 (see Table 1).

The Commission adopted a revision to CMM 12 (transhipments) which served to update and clarify some of the data reporting requirements ([COMM11-Report](#), paras 51-53).



3. Annual Catch Data

The annual catch data for jumbo flying squid, beginning in 2000, is shown in Table 1. Please refer to previous versions for more historical catch information (e.g., SC10-SQ01_rev2). Updated figures are underlined for easy reference.

Where possible, catches from 2021 have been updated based on Annual Catches (rather than the estimates presented in SC10-SQ01_rev2). Catches from 2022 (when present) are from 2022 Annual Reports.



Table 1: Annual catch weights (t) for jumbo flying squid (GIS) as submitted to the SPRFMO Secretariat (post 2000). Values greater than 1 have been rounded to the nearest whole number.

Year	Chile			China	Ecuador	EU	Japan			Korea			Panama	Peru		Chinese Taipei		Ukraine	Total
	FAO 87 Area	EEZ-CHL	FAO 87 High Seas	High Seas	FAO87	High Seas	EEZ-other	FAO87	High Seas	EEZ-PER	High Seas	FAO87	High Seas	EEZ-PER	High Seas	FAO87	High Seas	FAO87	
2000			9				32 174	1 704		20 822				53 795		0			108 504
2001		3 476		17 770			71 069	1 132	5 797	0				71 834		0			171 078
2002		5 589		50 483			26 268	33 978	13 130	8 629				146 390		12 064			296 531
2003		15 191		81 000			22 549	4 510	1 681	3 041				153 727		23 009			304 708
2004		175 134		205 600			22 385	4 615	2 026	8 761				270 368		39 450			728 339
2005		296 953		86 000				1 633	2 519	0				291 140		15 976			694 221
2006		219 800		62 000	212 ¹			323	2 048	437				434 261		18 349			737 430
2007	124 389			46 400	121		14 059		0	0				427 591		14 750			627 310
2008	145 171			79 064	668		14 143		5 971	804				533 414		31 161			810 396
2009	56 337			70 000			27 271		7 221	0				411 805		12 319			584 953
2010	200 428			142 000				498	7 764	6 742				369 822		29 206			756 460
2011	163 450		45	250 000				9 977		7 410				404 730		35 418			871 030
2012	<u>144 965</u>		9	261 000	91			1 448		8 310				497 462		14 177			<u>927 462</u>
2013	<u>106 271</u>		22	264 000	2			0		6 034				451 061		7 759			<u>835 129</u>
2014	<u>176 602</u>		0	332 523	18 140			0		7 203				554 882	1 274	4 795			<u>1 095 419</u>
2015	<u>143 684</u>		0	323 636	1 500					4 263				513 492	304	10 072			<u>996 951</u>
2016	<u>180 914</u>		0	223 300		0.1				4 388		842		322 338	999	12 989			<u>745 770</u>
2017	<u>152 537</u>		0	296 100						3 460		289		290 933	5 068	7 338			<u>755 735</u>
2018	<u>144 646</u>		0	346 200						3 651				<u>362 200</u> ²	288	3 848			860 833
2019	<u>58 071</u>		0	305 670	1 750				<u>5 577</u>					<u>526 900</u> ²	0	2 085			<u>900 053</u>
2020	<u>55 006</u>		0	358 000	230				<u>1 003</u>					<u>492 400</u> ²	0	2 087			<u>908 726</u>
2021	<u>53 569</u>		0	422 000	<u>1 897</u>				0					<u>517 700</u> ²	0	665			<u>995 831</u>
2022 (est.)	97 687			509 000 514 500	5 907				0					457 100 ²	0	0			1 069 694 1 075 194

2022 figures are estimates from Annual Reports where available. Updated figures have been underlined.

¹ SC8 in 2020 agreed that the Japan and Ecuador catch figures prior to 2014 using the information contained in the FAO database where other information is not available.

² These figures are from the Peru PRODUCE datasheet <http://ogeiee.produce.gob.pe/index.php/informacion-sectorial/pesca/auicultura>



4. Vessels

Table 2 shows the number of vessels that fished in the squid fishery in the SPRFMO area by flag State and Year as determined from the Annual Reports presented at the SC. Table 3 shows the number of fishing days from Annual Reports where available. For 2022, the figures in Tables 4-8 have been derived from a combination of the active vessel submissions by Members and CNCPs, fishing activity data, and the SPRFMO Record of Vessels. These figures will be updated based on Annual Report submissions.

Table 2: Number of active vessels by flag and year in the SPRFMO Area, participating in the squid fishery (from Annual Reports presented to Scientific Committee, where available).

Year	China	Korea	Panama	Peru	Chinese Taipei	Total
2000		14				14
2001	22	7				29
2002	43	17				60
2003	74	5				79
2004	119	8				127
2005	93	2				95
2006	43	1				44
2007	37				13	50
2008	50	1			13	64
2009	54	1			13	68
2010	104	1			20	125
2011	172	1			21	194
2012	254	6			14	274
2013	205	6			9	220
2014	264	6		14	5	289
2015	252	2		32	9	295
2016	276	4	2 ³	98	11	391
2017	356	8	1 ⁵	558	13	936
2018	435	17		44	14	510
2019	503	15			10	528
2020	557	13			5	575
2021	476				2	478
2022	462 ⁴					462 ⁴

³ These figures from fishing activity data rather than SC Annual Report.



Table 3: Total number of squid fishing days by flag and year from Annual Reports presented to Scientific Committee.

Year	China	Korea	Chinese Taipei	Total
2014		397	474	871
2015	60 116	151	616	60 883
2016	62 258	409	1 880	64 547
2017	75 655	456	1 228	77 339
2018	85 862	1 003	1 396	88 261
2019	111 343	1 037	611	112 991
2020	119 306	212	817	120 335
2021	78 120		189	78 309
2022	<u>95 390</u> 96 246			<u>95 390</u> 96 246

Table 4 shows an estimate of the number of active squid fishing vessels by flag-state and year based on Secretariat records and Table 5 shows an estimate of the total gross tonnage by flag-state and year, for vessel participating in the squid fishery, based on the gross tonnage in the SPRFMO Record of Vessels for active fishing vessels. Table 6 shows an estimate of the total engine power of squid vessels, by flag-state and year based on the engine power (kW) in the SPRFMO Record of Vessels for active fishing vessels. Data for Tables 4-6 have been determined from official submissions supplemented with information from submitted fishing activity and transshipment data.

Table 4: Estimated number of active squid fishing vessels by flag and year in the SPRFMO area based on Secretariat records of active vessels (not including carrier vessels).

Year	China	Korea	Panama	Peru	Chinese Taipei	Total
2014	260	5			5	270
2015	246	2			9	257
2016	279	4	2		11	296
2017	365	8	1		13	387
2018	437	17			14	468
2019	483	17			10	510
2020	569	13			5	587
2021	476				2	478
2022	473				1	474



Table 5: Estimated total gross tonnage of active squid vessels by flag and year in the SPRFMO area based on Secretariat data of active vessels (not including carrier vessels) and gross tonnage from the Record of Vessels.

Year	China	Korea	Panama	Peru	Chinese Taipei	Total
2014	176 856	3 769		Unknown	4 295	184 920
2015	168 516	898		Unknown	7 902	177 316
2016	196 464	2 655	434	Unknown	9 625	209 178
2017	282 930	5 812	288	Unknown	12 282	303 312
2018	368 923	14 031		Unknown	12 871	395 825
2019	402 734	14 031			8 893	425 658
2020	504 917	10 169			4 444	519 530
2021	401 007				1 714	402 721
2022	397 927				845	398 772

Table 6: Estimated total engine power (kW) of active squid vessels by flag and year in the SPRFMO area based on Secretariat data of active vessels (not including carrier vessels) and engine power from the Record of Vessels.

Year	China	Korea	Panama	Peru	Chinese Taipei	Total
2014	221 179	6 634		Unknown	5 920	233 733
2015	222 746	2 352		Unknown	11 176	236 274
2016	256 603	5 311	1202	Unknown	13 203	276 319
2017	373 616	9 611	597	Unknown	18 182	402 006
2018	481 285	20 859		Unknown	18 661	520 805
2019	541 284	21 006			11 780	574 070
2020	685 089	16 228			6 228	707 545
2021	541 020				2 297	543 317
2022	538 743				1 103	539 846

Table 7 shows the data the Secretariat holds on active carrier vessels, participating in the squid fishery, by flag-state and year. Note that CMM 12 (Transshipment) entered into force 28 February 2016 and before this information on activity by carrier vessels may be incomplete.

Table 7: Estimated number of active carrier vessels, participating in the squid fishery, by flag and year in the SPRFMO area, based on Secretariat data of active vessels (carrier vessels).

Year	China	Curaçao	Liberia	Panama	Russian Federation	Chinese Taipei	Total
2014	3						3
2015	6						6
2016	8		1	5		2	16
2017	9		2	8	1	1	21
2018	14		5	6	1	1	27
2019	11	1	4	8		1	25
2020	18		2	22		1	43
2021	17			12		1	30
2022	27		3	20			50



Table 8 shows the number of authorised vessels identified as part of the squid jigging fishery, with vessel type 07.1.0 (Liners – Handliners), 07.3.0 (Liners – Pole and Line vessels) 07.3.1 (Liners – Pole and line vessels – Japanese Type) or 07.9.0 (Liners – Liners nei) as of 31 December of each year from 2014 to 2022.

Table 8: Total number of authorised vessels of types 07.1.0, 07.3.0, 07.3.1, 07.9.0 by flag and year as of 31 December of the respective years, from the SPRFMO Record of Vessels

Year	Chile	China	Ecuador	Korea	Panama	Peru	Chinese Taipei	Total
2014		350		33	1		7	391
2015		393		27			11	421
2016		407	1	19	2		13	442
2017		436		17			21	474
2018		525		14	1		43	583
2019		629		20			46	695
2020		671		30			45	746
2021		674		28			46	748
2022	1	653		26		6	41	727

In 2023, the Commission adopted an effort limit for the high seas jumbo flying squid fishery. Table 9 details the effort constraints, by Member, adopted in CMM 18-2023.

Table 9: Jumbo flying squid fishery effort limits by number and gross tonnage of vessels, by Member, as referred to in paragraph 3 of CMM 18-2023.

Member	Vessel Limit Number	Total Gross Tonnage (GT)
China	671	644,820
Korea	50	45,773
Chinese Taipei	45	45,499
Total	766	736,092