

10th MEETING OF THE SCIENTIFIC COMMITTEE

26 to 30 September 2022, Seoul, Korea

SC10-SQ01_rev2

Squid information held by the Secretariat

Secretariat

10th MEETING OF THE SCIENTIFIC COMMITTEE

26 - 30 September 2022, Seoul, Korea

SC10–SQ01 rev21

Squid information held by the Secretariat

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 [SC9-SQ01_rev1](#), Squid information held by the Secretariat, presented to the 9th Scientific Committee meeting in 2021.

- 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 SC9 and COMM10

The SC recommended the collection of a joint dataset of catch (kg), effort (e.g., vessels, vessel days, hauls, hours) and (where available) mean weight by month and area from all Members. The joint data set could be used by different stock assessment models and was a necessary first step in progressing some stock assessment modelling for jumbo flying squid in the SPRFMO area ([SC9-Report](#)).

Using the full templates for biological and fishery data initially proposed in previous WG and SC meetings. The templates were proposed for different stock assessment models and did not constrain the data collection to that needed for one specific stock assessment model. The SC noted that some templates have been finalised and can be used for some assessment methods. The SC also recommended that any outstanding draft templates be agreed upon, aligned with stock assessment methods, and developed further prior to SC10 ([SC9-Report](#)).

That participants proceed to register obtained mtDNA (COI and ND2) sequences in a public nucleotide database (such as GenBank, <https://www.ncbi.nlm.nih.gov/genbank/>) with a minimum of information of the samples collected as shown in the template prepared during meeting and included as Annex 9 ([SC9-Report](#)).

That the mtDNA sequences obtained by participants be used to elaborate a unique report describing the genetic diversity of the species based on both genes that can be analysed in a workshop to be held in 2022 ([SC9-Report](#)).

The Commission requested SC10 to provide advice to COMM11 on the appropriate level of observer coverage in the Jumbo Flying Squid fishery ([COMM10-Report](#), para 71).

3. Annual Catch Data

The annual catch data for jumbo flying squid, beginning in 1990, is shown in Table 1. Updated figures are underlined for easy reference.

Where possible, catches from 2020 have been updated based on Annual Catches (rather than the estimates presented in SC9-SQ01_rev1). Catches from 2021 (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 1990).

Year ¹	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	
1990							0	1 605				3 465		7 441			142	12 653
1991			445				2 173	50				24 015		20 657			398	47 738
1992			9 400				49 313	1 874				43 022		12 695		1 698	1	118 003
1993			7 442				52 221	3 579				62 887		7 769		0		133 898
1994			205				81 507	2 698				69 664		42 838		0		196 912
1995							36 478	37				35 719		25 676		0		97 910
1996			2				557	644				12 896		8 138		0		22 237
1997							12 924	297				3 359		16 061		0		32 641
1998			5				0	0	0					547		0		552
1999			6				6	40				19 728		54 652		0		74 432
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	<u>212²</u>			323	2 048	437				434 261		18 349		<u>737 430</u>
2007		124 389		46 400	<u>121</u>		<u>14 059</u>		0	0				427 591		14 750		<u>627 310</u>
2008		145 171		79 064	<u>668</u>		<u>14 143</u>		5 971	804				533 414		31 161		<u>810 396</u>
2009		56 337		70 000			<u>27 271</u>		7 221	0				411 805		12 319		<u>584 953</u>
2010		200 428		142 000				498	7 764	6 742				369 822		29 206		756 460
2011		163 450	45	250 000			<u>9 977</u>		7 410					404 730		35 418		<u>871 030</u>
2012		144 956	9	261 000	<u>91</u>		<u>1 448</u>		8 310					497 462		14 177		<u>927 453</u>
2013		105 905	22	264 000	<u>2</u>		<u>0</u>		6 034					451 061		7 759		<u>834 783</u>
2014		176 569	0	332 523	18 140 ³		<u>0</u>		7 203					554 882	1 274	4 795		<u>1 095 386</u>
2015		143 716	0	323 636	1 500				4 263					513 492	304	10 072		<u>996 983</u>
2016		183 123	0	223 300		0.1			4 388		842			322 338	999	12 989		747 979
2017		155 389	0	296 100					3 460		289			290 933	5 068	7 338		758 577
2018		145 927	0	346 200					3 651					<u>362 200⁴</u>	288	3 848		<u>862 114</u>
2019		58 042	0	<u>305 670</u>	1 750				<u>5 578</u>					<u>526 900⁴</u>	0	2 085		<u>900 025</u>
2020		<u>55 006</u>	0	<u>358 000</u>	<u>230</u>				<u>1 003</u>					<u>441 800⁴</u>	0	<u>2 087</u>		<u>858 126</u>
2021 (est.)		<u>55 296</u>	<u>0</u>	<u>422 000</u>	<u>1 896</u>				<u>0</u>			<u>0</u>		<u>367 000⁴</u>	<u>0</u>	<u>665</u>		<u>846 857</u>

2021 figures are estimates from Annual Reports where available. Updated figures have been underlined.

¹ SC6 in 2018 agreed that 1990 is a suitable start year for historic squid data. The Secretariat holds catch data back to 1978.

² 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.

³ Ecuador provided some information in paper [SC-03-35](#) in 2015 with an update in [SC8-Doc29](#).

⁴ 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 2021, these figures 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 (from Annual Reports presented to Scientific Committee, where available).

Year	China	Korea	Panama	Peru	Chinese Taipei	Total
1990		6				6
1991		24				24
1992		33				33
1993		42				42
1994		49				49
1995		50				50
1996		48				48
1997		27				27
1998						0
1999		11				11
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 ⁵	98	11	391
2017	356	8	1 ⁵	558	13	936
2018	435	17		44	14	510
2019	503	15		0	10	528
2020	557	13			5	575
2021	<u>47662</u>	<u>0</u>	<u>0</u>	<u>0</u>	2	<u>4768</u>

⁵ These figures from fishing activity data rather than SC Annual Report.



Table 3: Total number of 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	<u>78 120</u>	<u>0</u>	<u>189</u>	<u>78 309</u>

Table 4 shows an estimate of the number of active 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 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 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, 5, and 6 have been determined from official submissions supplemented with information from submitted fishing activity and transshipment data.

Table 4: Estimated number of active 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	<u>476</u>	<u>0</u>	<u>0</u>	<u>0</u>	2	<u>478</u>

Table 5: Estimated total gross tonnage of active 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	Grand 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



Table 6: Estimated total engine power (kW) of active 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	Grand 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	<u>541 020</u>				<u>2 297</u>	<u>543 317</u>

Table 7 shows the data the Secretariat holds on active carrier vessels 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 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	Grand 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	<u>17</u>			<u>12</u>		<u>1</u>	<u>30</u>

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 2021.

As of 31 December 2020, China had authorised 671 vessels of one of these vessel types with a total gross tonnage of 634,650; Korea had authorised 30 vessels with a total gross tonnage of 23,911; and Chinese Taipei had authorised 45 vessels with a total gross tonnage of 45,499. The summary of squid vessels as of 31 December 2020 remains applicable, as the characteristics of the fleet composition on this date has been proposed as a level by which to constrain the capacity of the squid fishery.



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, from the SPRFMO Record of Vessels.

Year	China	Ecuador	Korea	Panama	Chinese Taipei
2014	350		33	1	7
2015	393		27		11
2016	407	1	19	2	13
2017	436		17		21
2018	525		14	1	43
2019	629		20		46
2020	671		30		45
2021	<u>674</u>		<u>28</u>		<u>46</u>