

COST IMPLICATIONS FOR CPCS ON THE AGREED FUNDING MODEL FOR THE IOTC VMS

Date: 21 January 2022

Background

During the third meeting of the VMS Working Group (VMSWG03), different funding alternatives for a regional VMS in the IOTC area were discussed. To better understand the costs associated with its implementation, the IOTC Secretariat was requested to “prepare a table presenting overall cost implications for each CPC, resulting from different numbers of vessels covered (depending on size ranges) and reporting frequencies.” ([IOTC-2021-VMSWG03-R para 24](#))

Considerations

In the preparation of the aforementioned tables, the following considerations are given:

- i. This analysis includes all fishing vessels above 12m length overall as the preferred option, subdivided in the following three classes: 12m to 15m, 15m to 24m and greater than 24m.
- ii. VMS data reporting intervals considered are four-hourly transmissions, plus stepwise increases of two hours and one hour.
- iii. Total satellite airtime costs were allocated to each IOTC Member in the same proportion as their contributions to the IOTC budget, and based on the percentages due by each member to the overall budget in 2022. It should be noted that CNCPs and carrier vessels flagged to non-CPCs do not contribute to the IOTC budget, so their contributions to the VMS are not being factored into the calculation of costs.
- iv. Satellite airtime costs per vessel considered for this analysis refer to the basic VMS data report. The costs used for two-hourly and four-hourly transmissions were calculated as proportional fractions of the monthly rate presented in Table 1 for hourly transmissions.
- v. Given that the number of authorised vessels does not vary significantly over time (as per the analysis on the number of vessels presented in Annex I), the total number of vessels and the number of vessels by length class in 2021 are considered to be representative.
- vi. To calculate an average annual rate for satellite airtime costs per VMS unit, VMS service providers and monthly rates for hourly transmissions are presented in Table 1 below.¹

Table 1: Rate per unit for hourly transmissions from different VMS service providers (USD)

VMS Service provider	Monthly rate (USD)
CLS (Triton/Leo unit)	62.0
SATELLITE AIR TIME LTD	50.4
MAXAR	59.0
INMARSAT SOLUTION BV	65.0-80.0
Average cost per month	60.8
Annual average cost	730.2

¹ VMS airtime costs provided by the Seychelles FMC.

Results

Based upon and subject to the considerations presented above, Table 2 and Table 3 below describe the associated satellite airtime costs for each IOTC member, by length class and transmission rate.

Table 2: Calculation of the costs overall and by length class for hourly transmissions

	Number of vessels (2021)				USD (Transmission frequency 1h)			
	12m≥ <15m	15m≥ <24m	≥24m	Total	12m≥ <15m	15m≥ <24m	≥24m	Total
Australia	4	38	14	56	2,921	27,748	10,223	40,891
Bangladesh	0	0	0	0	0	0	0	0
China*	0	47	413	460	0	34,319	301,573	335,892
Comoros	0	0	0	0	0	0	0	0
Eritrea	0	0	0	0	0	0	0	0
European Union	9	13	107	129	6,572	9,493	78,131	94,196
France	9	12	35	56	6,572	8,762	25,557	40,891
India	0	0	4	4	0	0	2,921	2,921
Indonesia	0	153	398	551	0	111,721	290,620	402,340
Iran	2	813	495	1,310	1,460	593,653	361,449	956,562
Japan	0	0	196	196	0	0	143,119	143,119
Kenya	0	0	10	10	0	0	7,302	7,302
Korea	0	0	77	77	0	0	56,225	56,225
Madagascar	3	4	0	7	2,191	2,921	0	5,111
Malaysia	0	0	20	20	0	0	14,604	14,604
Maldives	115	410	403	928	83,973	299,382	294,271	677,626
Mauritius	0	0	4	4	0	0	2,921	2,921
Mozambique	0	23	1	24	0	16,795	730	17,525
Oman	0	8	2	10	0	5,842	1,460	7,302
Pakistan	0	0	0	0	0	0	0	0
Philippines	0	0	55	55	0	0	40,161	40,161
Seychelles	9	18	82	109	6,572	13,144	59,876	79,592
Somalia	0	0	0	0	0	0	0	0
South Africa	1	20	13	34	730	14,604	9,493	24,827
Sri Lanka	1,559	131	23	1,713	1,138,382	95,656	16,795	1,250,833
Sudan	0	0	0	0	0	0	0	0
Tanzania	0	0	1	1	0	0	730	730
Thailand	0	0	3	3	0	0	2,191	2,191
United Kingdom	0	0	1	1	0	0	730	730
Yemen	0	0	0	0	0	0	0	0
Total	1,711	1,738	2,842	6,291	1,249,372	1,269,088	2,075,228	4,593,688

*Aggregated figures of China and Taiwan, Province of China. Disaggregated figures are presented in Annex II.

Table 3: Calculation of costs overall and by length class for two-hourly and four-hourly transmissions

	USD (Transmission frequency 2h)				USD (Transmission frequency 4h)			
	12m≥ <15m	15m≥ <24m	≥24m	Total	12m≥ <15m	15m≥ <24m	≥24m	Total
Australia	1,460	13,874	5,111	20,446	730	6,937	2,556	10,223
Bangladesh	0	0	0	0	0	0	0	0
China*	0	17,160	150,786	167,946	0	8,580	75,393	83,973
Comoros	0	0	0	0	0	0	0	0
Eritrea	0	0	0	0	0	0	0	0
EU	3,286	4,746	39,066	47,098	1,643	2,373	19,533	23,549
France	3,286	4,381	12,779	20,446	1,643	2,191	6,389	10,223
India	0	0	1,460	1,460	0	0	730	730
Indonesia	0	55,860	145,310	201,170	0	27,930	72,655	100,585
Iran	730	296,826	180,725	478,281	365	148,413	90,362	239,141
Japan	0	0	71,560	71,560	0	0	35,780	35,780
Kenya	0	0	3,651	3,651	0	0	1,826	1,826
Korea	0	0	28,113	28,113	0	0	14,056	14,056
Madagascar	1,095	1,460	0	2,556	548	730	0	1,278
Malaysia	0	0	7,302	7,302	0	0	3,651	3,651
Maldives	41,987	149,691	147,135	338,813	20,993	74,846	73,568	169,406
Mauritius	0	0	1,460	1,460	0	0	730	730
Mozambique	0	8,397	365	8,762	0	4,199	183	4,381
Oman	0	2,921	730	3,651	0	1,460	365	1,826
Pakistan	0	0	0	0	0	0	0	0
Philippines	0	0	20,081	20,081	0	0	10,040	10,040
Seychelles	3,286	6,572	29,938	39,796	1,643	3,286	14,969	19,898
Somalia	0	0	0	0	0	0	0	0
South Africa	365	7,302	4,746	12,413	183	3,651	2,373	6,207
Sri Lanka	569,191	47,828	8,397	625,416	284,595	23,914	4,199	312,708
Sudan	0	0	0	0	0	0	0	0
Tanzania	0	0	365	365	0	0	183	183
Thailand	0	0	1,095	1,095	0	0	548	548
United Kingdom	0	0	365	365	0	0	183	183
Yemen	0	0	0	0	0	0	0	0
Total	624,686	634,544	1,037,614	2,296,844	312,343	317,272	518,807	1,148,422

*Aggregated figures of China and Taiwan, Province of China. Disaggregated figures are presented in Annex II.

The associated satellite airtime costs for CNCPs², by length class for an hourly transmission rate are presented in Table 4 below.

Table 4: Calculation of the costs overall and by length class of CNCPs for hourly transmissions

	Number of vessels (2021)				USD (Transmission frequency 1h)			
	12m≥ <15m	15m≥ <24m	≥24m	Total	12m≥ <15m	15m≥ <24m	≥24m	Total
Liberia	0	0	18	18	0	0	13,144	13,144

² CNCPs vary annually. In the Record of Authorised Carrier Vessels there are vessels flagged to non-CPCs, for instance Panama and Singapore.

Using the proportion each IOTC member finances the IOTC annual budget, the cost implications can be calculated as a function of the overall VMS transmission costs generated by length class and the annual average cost for the transmission rates selected, as shown in Table 5.

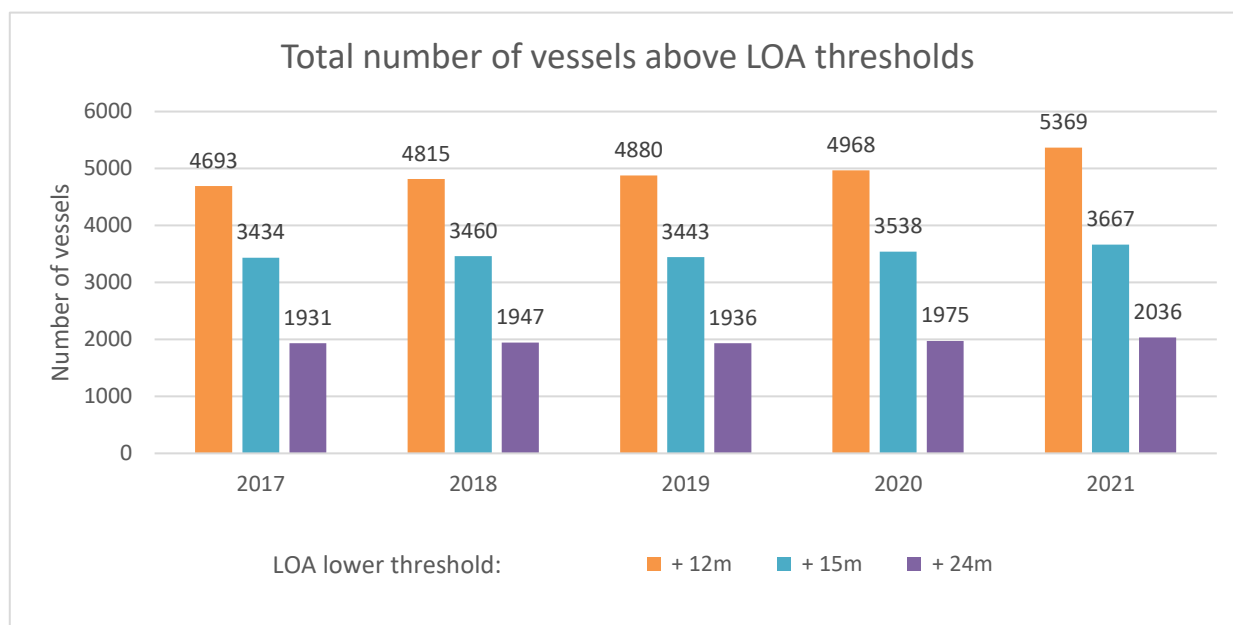
Table 5: Cost implications by IOTC member, transmission rate and length class lower threshold (USD)

	Cost transmission rate = 1h			Cost transmission rate = 2h			Cost transmission rate = 4h		
	+ 12m	+ 15m	+ 24m	+ 12m	+ 15m	+ 24m	+ 12m	+ 15m	+ 24m
Australia	194,235	141,408	87,747	97,118	70,704	43,874	48,559	35,352	21,937
Bangladesh	51,499	37,493	23,265	25,750	18,746	11,633	12,875	9,373	5,816
China*	113,540	82,660	51,292	56,770	41,330	25,646	28,385	20,665	12,823
Comoros	77,252	56,241	34,899	38,626	28,121	17,450	19,313	14,060	8,725
Eritrea	15,444	11,243	6,977	7,722	5,622	3,488	3,861	2,811	1,744
EU	968,437	705,045	437,498	484,218	352,523	218,749	242,109	176,261	109,374
France	159,428	116,067	72,022	79,714	58,034	36,011	39,857	29,017	18,006
India	174,084	126,737	78,644	87,042	63,369	39,322	43,521	31,684	19,661
Indonesia	299,809	218,269	135,441	149,905	109,134	67,720	74,952	54,567	33,860
Iran	228,732	166,522	103,331	114,366	83,261	51,666	57,183	41,631	25,833
Japan	219,034	159,462	98,950	109,517	79,731	49,475	54,758	39,866	24,738
Kenya	72,547	52,816	32,773	36,273	26,408	16,387	18,137	13,204	8,193
Korea	244,842	178,251	110,609	122,421	89,126	55,305	61,211	44,563	27,652
Madagascar	39,554	28,796	17,869	19,777	14,398	8,934	9,889	7,199	4,467
Malaysia	84,683	61,652	38,256	42,342	30,826	19,128	21,171	15,413	9,564
Maldives	154,995	112,840	70,020	77,498	56,420	35,010	38,749	28,210	17,505
Mauritius	192,563	140,191	86,992	96,282	70,095	43,496	48,141	35,048	21,748
Mozambique	38,644	28,133	17,457	19,322	14,067	8,729	9,661	7,033	4,364
Oman	214,537	156,188	96,919	107,269	78,094	48,459	53,634	39,047	24,230
Pakistan	112,038	81,567	50,614	56,019	40,783	25,307	28,010	20,392	12,654
Philippines	51,390	37,413	23,216	25,695	18,706	11,608	12,847	9,353	5,804
Seychelles	258,674	188,321	116,858	129,337	94,160	58,429	64,668	47,080	29,214
Somalia	15,313	11,148	6,918	7,656	5,574	3,459	3,828	2,787	1,729
South Africa	70,958	51,659	32,056	35,479	25,830	16,028	17,740	12,915	8,014
Sri Lanka	138,133	100,564	62,403	69,067	50,282	31,201	34,533	25,141	15,601
Sudan	15,332	11,162	6,926	7,666	5,581	3,463	3,833	2,791	1,732
Tanzania	76,659	55,809	34,631	38,329	27,905	17,316	19,165	13,952	8,658
Thailand	79,450	57,841	35,892	39,725	28,921	17,946	19,862	14,460	8,973
UK	179,816	130,911	81,233	89,908	65,455	40,617	44,954	32,728	20,308
Yemen	52,066	37,905	23,521	26,033	18,952	11,760	13,016	9,476	5,880
Total	4,593,688	3,344,316	2,075,228	2,296,844	1,672,158	1,037,614	1,148,422	836,079	518,807

*Aggregated figures of China and Taiwan, Province of China, based on disaggregated fleet figures presented in Annex II.

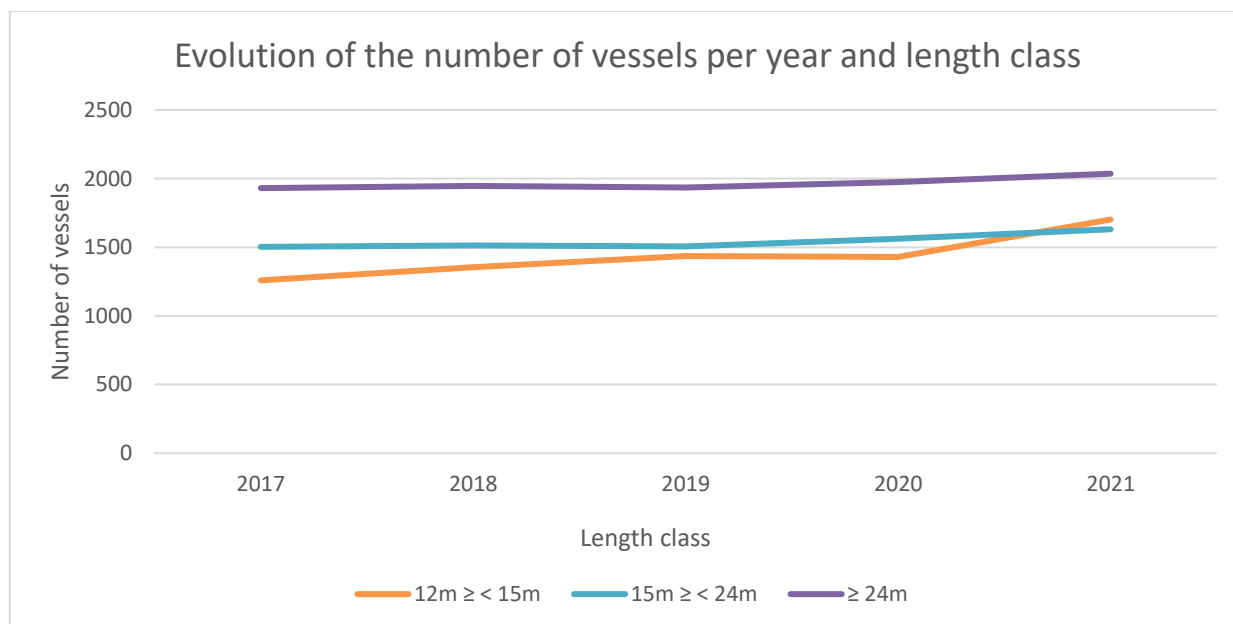
Annex I: Vessel numbers

Since the number of authorised vessels is dynamic and varies over time, to determine which might be a valid reference point for our calculations, an analysis of the Record of Authorised Vessels over time was conducted. Specifically, this analysis shows the trends over time of the total number of vessels and vessels by length segment that have been authorised to operate within the IOTC area over the last five years.



Graph 1: Total number of vessels above three given length overall lower thresholds

As can be noted in Graph 1 above and in Graph 2 below, the total number of vessels authorised to operate within the IOTC area increases smoothly with little variation in terms of length classes.



Graph 2: Evolution of the number of vessels per year and length overall class

Consequently, the strong likelihood is that the total number of authorised vessels may increase slightly in the short term, without major variations in the number of vessels per length segment. Based on this, the total number of vessels and length distribution in 2021 appears to be a representative number of vessels for calculating satellite airtime costs.

Annex II: Relationship between the fleets of China and Taiwan, Province of China

Table: Relationship between the fleets of China and Taiwan, Province of China

Flag entity	+ 12m	+ 15m	+ 24m	Total	%
China	0	0	105	105	24
Taiwan, Province of China	0	47	286	333	76