

Progress of work and plan for 2023 of the Vessel Monitoring System (VMS) Working Group (WG)

PREPARED BY: IOTC SECRETARIAT¹, 26 JANUARY 2022

PURPOSE

To provide participants at the Working Party on the Implementation of Conservation and Management Measures (WPICMM) an update on the progress of work and plan of the Vessel Monitoring System (VMS) Working Group (WG).

BACKGROUND

The [CoC16](#) noted paper [IOTC-2019-WPICMM02-VMS Study](#), which provided options for strengthening the IOTC VMS and further noted paper [IOTC-2019-CoC16-05a](#), which summarised the work of the Steering Group, and subsequently recommended the formation of a VMS Working Group (VMSWG).

[IOTC-2019-CoC16-R](#) - Para 109) recommended the establishment of a VMS Working Group, chaired by Mr Stephen Ndegwa (Kenya), to progress the work associated with strengthening the IOTC VMS, as per the ToR in Appendix 8 of [IOTC-2019-CoC16-R](#). This was subsequently endorsed by S23 ([IOTC-2019-S23-RE_Rev1_FINAL](#)).

The VMS Working Group has held five meetings and one special session:

- 1st meeting – 19 May 2021, [IOTC-2022-VMSWG01-R](#)
- 2nd meeting – 17 September 2021, [IOTC-2022-VMSWG02-R](#),
- 3rd Meeting – 13 December 2021, [IOTC-2022-VMSWG03-R](#)
- 4th Meeting – 25 January 2022, [IOTC-2022-VMSWG04-R](#)
- [5th Meeting – 27 September 2022, IOTC-2022-VMSWG05-R](#)
- [Special Session of the VMSWG – 16 November 2022, IOTC-2022-VMSWGSS01-R](#)

A [sixth meeting of the VMS WG](#) is scheduled for 14 February 2022, prior to the WPICMM06.

The reports of the previous meetings of the VMS Working Group are available as resource documents through the above links.

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DISCUSSION

The Vessel Monitoring System (VMS) was established with the principal task of progressing the work to strengthen the IOTC VMS. The work plan of the VMS Working Group is guided by the responsibilities given in its ToRs. They are presented below with the status of the discussions on the IOTC Vessel Monitoring System (VMS) by the VMS Working Group.

VMS Objectives

VMSWG03 **AGREED** to the following objectives:

The objective of the VMS is to support the Commission in ensuring sustainable fisheries of the stocks covered by the organization. By providing accurate and reliable information on the location and activities of the vessels fishing those stocks the VMS will reinforce the Monitoring, Control and Surveillance mechanisms of the Commission and will:

- Improve monitoring, control and surveillance capabilities of CPCs to ensure compliance with the IOTC Conservation and Management Measures;
- Enhance the cooperation and coordination on monitoring, control and surveillance mechanisms in the IOTC Area between coastal, flag and inspecting CPCs;
- Increase transparency among CPCs and the IOTC Secretariat, and promote a level playing field on the control of fishing activities relating to IOTC regulated stocks;
- Prevent, detect and deter illegal, unreported and unregulated (IUU) fishing;
- Obtain accurate, reliable and easily usable positioning data to be used for scientific research and fisheries management.

Status

Concluded.

Preferred model for a future IOTC Commission VMS, including hosting options

VMSWG01 **NOTED** that while several parties prefer Option 3 Partially Centralised, some parties have a strong preference for Option 2 Shared Decentralised. A solution would be to allow parties to choose which system to apply, as long as reporting resulted in being near real time and tamper-proof.

VMSWG01 **CONCLUDED** that this flexibility comprises a hybrid option and **RECOMMENDED** this option be considered by the Compliance Committee.

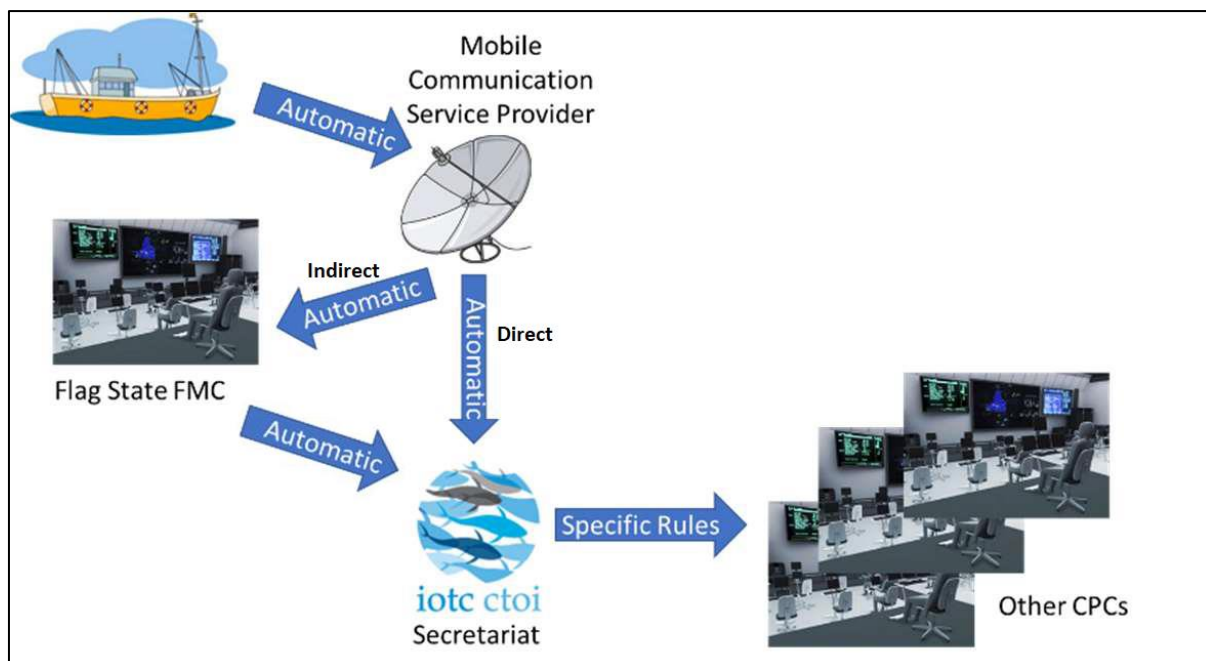


Figure 1. Adapted from *Options paper for strengthening the IOTC VMS, 2019*.

Figure 1, above, is a schematic representation of what the VMS Working Group had recommended for the Compliance Committee’s (CoC) consideration at its 18th Session in May/June 2021, but unfortunately the report was not adopted in time for the recommendation to be presented to the CoC18.

However, it can be concluded that this represents the **AGREED** option, at the level of the VMS Working Group.

Status
Concluded.

Scope and application of the VMS (e.g. vessel types and size, geographic scope)

VMSWG03 **AGREED** that the VMS should include all vessel types, including carrier, supply and support vessels.

VMSWG03 **AGREED** that non-CPC-flagged carrier vessels be requested to transmit VMS and if they fail to do so they can be excluded from the Record of Authorised Carrier Vessels.

VMSWG03 **AGREED** that all vessels above 12m length overall be the preferred option and included irrespective of whether they operate inside or outside the EEZ, and **FURTHER AGREED** that this may be achieved gradually by increasing VMS coverage from present requirements under Resolution 15/03, particularly for developing coastal States.

VMSWG03 **AGREED** that a buffer zone be set at 20nm from a coastal State’s EEZ or, as an alternative, reporting 24 hours prior to the entry to the EEZ

Status
Concluded.

Method for ensuring real time or near real time position reporting (e.g. direct, indirect or simultaneous polling)

VMSWG02 **NOTED** paper IOTC-2021-VMSWG02-03, prepared by Seychelles, assessing delays between vessels’ VMS reports and the receipt of same by the fisheries monitoring centre.

VMSWG02 **NOTED** that paper IOTC-2021-VMSWG02-03 deduced that the risk of delays of more than 10 minutes from the time the position is fixed by the VLD, to the time the coastal State receives the data, via the vessel’s flag State FMC, is minimal.

VMSWG02 **NOTED** a presentation prepared by the EU that showed the model in use in the EU.

VMSWG02 **NOTED** that information goes first to the EU Commission’s central node for communication to third parties and **FURTHER NOTED** that the average time from the vessel to the final destination is between three and four minutes.

VMSWG02 **NOTED** that the delays presented by EU (which has a very high volume of messages) and Seychelles (that has VMS on vessels smaller than 24m) are comparable and not significant.

VMSWG02 **AGREED** that risk of tampering in the case of Option 2 Shared Decentralised is negligible.

Status
Concluded.

Develop possible funding models and options.

Of the RFMOs/RFBs directly consulted, most (and certainly all of the RFMOs) have chosen to fund their VMS through their normal budget. That is, CPCs contribute to the costs of the VMS through the general contributions’ formula, rather than through any special arrangement for flag CPCs etc. This is likely to be the most appropriate funding avenue for IOTC, at least in the short term.

VMSWG03 **RECALLED** the analysis and three options presented in section 4.3.4 of the Options Paper ([IOTC-2019-WPICMM02-VMS Study](#)), namely (1) a simple increase in Commission budget, proportional to CPCs contributions, (2) a greater proportion of additional funds from flag CPCs and (3) some form of cost recovery from vessels.

VMSWG03 **RECALLED** the table on p33 of the Options Paper ([IOTC-2019-WPICMM02-VMS Study](#)), which presents three different total cost scenarios and **NOTED** that costs increase in accordance with the total number of vessels covered and with the frequency of VMS data transmission.

VMSWG03 **AGREED** that a simple increase in the Commission budget (Option 1) to finance the VMS was preferred, since it was the most equitable and practical option.

VMSWG03 **AGREED** that the current four-hourly reporting interval be maintained as a starting point, with the possibility of stepwise increases.

VMSWG03 **REQUESTED** that the IOTC Secretariat prepare a table presenting overall cost implications for each CPC, resulting from different numbers of vessels covered (depending on size ranges) and reporting frequencies.

VMSWG03 **AGREED** that an analysis be carried out to determine the staffing, infrastructure, extra costs and data security that would be required.

VMSWG04 **NOTED** paper [IOTC-2022-VMSWG04-03](#) on the Cost Implications for CPCs on the Agreed Funding Model for the IOTC VMS.

VMSWG04 **NOTED** that these are the cost implications of direct reporting to the IOTC Secretariat, which is a maximum satellite airtime cost scenario.

VMSWG04 **NOTED** that the additional costs of indirect reporting would be borne by the flag State and **FURTHER NOTED** that costs would be lower with the indirect reporting.

VMSWG04 **NOTED** that those CPCs that already have VMS and Vessel Location Devices, would not necessarily have to install a VMS and new Vessel Location Devices and **FURTHER NOTED** that smaller vessels might not have VMS at present and would be more likely to have to buy a new Vessel Location Device.

VMSWG04 **NOTED** that where States are already receiving transmissions, greatly increased costs to the flag State would not be incurred and **FURTHER NOTED** that the costs of forwarding the information to the IOTC Secretariat would not necessarily be greatly in excess of that of their existing internet connections.

VMSWG04 **NOTED** that the incremental costs to flag States of forwarding information to the IOTC Secretariat can vary depending on the satellite communication provider and **FURTHER NOTED** that some systems would not charge extra for forwarding the position information to the IOTC Secretariat.

VMSWG04 **NOTED** that the present analysis was not asked to consider the costs of centralised software and its maintenance, which would be extra costs.

VMSWG04 **AGREED** that the cost estimates in their current limited form would not be forwarded to higher levels before an analysis on the general costs is carried out.

VMSWG04 **RECALLED** that VMSWG03 had agreed that an analysis be carried out to determine the staffing, infrastructure, extra costs and data security that would be required.

VMSWG04 **AGREED** that the IOTC Secretariat draft Terms of Reference to be circulated intersessionally.

VMSWG04 **NOTED** that if the IOTC Secretariat cannot find extra budgetary funds for this study from existing sources, a proposal would have to go to the Standing Committee on Administration and Finance and the Commission.

The VMSWG05 (Para. 20) **NOTED** paper [IOTC-2022-VMSWG05-02](#) on the Terms of Reference to determine extra costs related to infrastructure, staffing, and data security required for the IOTC Vessel Monitoring System.

The VMSWG05 (Para. 21) **WELCOMED** the announcement that Australia will fund the study.

The VMSWG05 (Para. 22) **AGREED** to make the following change to the section Report guidelines of the Terms of Reference: a. considering the analysis of existing VMS in tuna RFMOs was covered by the previous

consultant report ([IOTC-2019-WPICMM02-VMS Study](#)), the new study must take into account reports and other materials already available to the IOTC on this subject,

The VMSWG05 (Para. 23) NOTED that some of the CPCs with the largest fleets are not attending this meeting, and that it would be important for them to understand the cost implications associated with an IOTC regional VMS.

The VMSWG05 (Para. 24) AGREED to defer the revision of the Terms of Reference ([Appendix 3](#)) to another VMSWG meeting, after the special session of the VMSWG of 16 November 2022.

Status
Ongoing. Further discussions to take place at the February 2023 meeting.

Consider improvements that can be made to Resolution 15/03.

VMSWG01 **AGREED** that changes to the Resolution should be decided at the Commission level not at the VMSWG.

VMSWG03 **NOTED** the proposed amendments in Attachment 2 in the Options Paper ([IOTC-2019-WPICMM02-VMS Study](#)), and **FURTHER NOTED** the proposals presented to VMSWG03 in the Proposed Draft VMS Objectives ([IOTC-2021VMSWG03-02](#)).

VMSWG03 **RECALLED** that any amendments to Resolution 15/03 should be submitted to the Commission by a CPC or co-sponsored by CPCs participating in the VMSWG.

VMSWG03 **AGREED** that scope in terms of vessel size would be decided at higher levels, based on proposed revisions in paragraphs 2 and 2bis of [Error! Reference source not found, of the meeting report.](#)

VMSWG03 **REQUESTED** the Secretariat to circulate a revised version of proposed amendment to Resolution 15/03 for consideration by the Members of the VMSWG.

VMSWG04 **RECALLED** Appendix 3 of the [IOTC-2021-VMSWG03 R](#) with the proposed revisions to Resolution 15/03.

VMSWG04 **AGREED** regarding new para 1 to include reference to the IOTC Agreement and to compliance with Conservation and Management Measures.

VMSWG04 **AGREED** to delete ex para 1 and **FURTHER AGREED** regarding para 2 (ex para 2) that VMS should cover all vessels of 12 metres in length overall and above, and listed in the IOTC Record of Authorised Vessels.

VMSWG04 **AGREED** regarding para 3 (ex para 2) to reduce the three-year period for full implementation of VMS to two years and **FURTHER AGREED** that after this date, vessels not equipped with VMS shall not be authorized to fish for tuna and tuna like species managed by the IOTC.

VMSWG04 **RECALLED** that Seychelles had agreed to provide clarification and what is meant by the term “antenna is blocked” and provide a proposal on the role of the IOTC Secretariat with respect to the handling of VMS data received, and **AGREED** Seychelles prepare guidelines for the registration, implementation and operation of VMS referred to in para 4 (ex para 4).

VMSWG04 **AGREED** that the IOTC Secretariat circulate the proposal on the role of the IOTC Secretariat and the guidelines for the registration, implementation and operation of VMS intersessionally for consideration at the next meeting of the VMSWG.

VMSWG04 **AGREED** regarding para 7 (ex para 7) in principle to a frequency of two hours, but in view of cost implications it would be subject to further discussion and **FURTHER AGREED** to add reference to the information being provided directly to the IOTC Secretariat or through the FMC.

VMSWG04 **AGREED** regarding subpara 9d (ex para 8) that the implementation of the provision on providing automated reports when the antenna is blocked be subject to a transition period.

VMSWG04 **AGREED** that new para 10 subpara b) on polling be subject to further discussion since it is a new requirement and **FURTHER AGREED** its implementation might be subject to a transition period.

VMSWG04 **AGREED** regarding para 12 (ex para 10) that vessels not already subject to Resolution 15/03 be included and that manual reporting be allowed for a maximum of two years, subject to further discussion.

VMSWG04 **AGREED** that para 13 (ex para 11) be qualified to refer to new para 3 on the delayed implementation.

VMSWG04 **AGREED** regarding para 14 (ex para 12) that the IOTC Secretariat prepare a report every year on the performance and operations of the VMS prior to the Commission meeting and present it to the Compliance Committee.

VMSWG04 **AGREED** regarding Annex 1 para B that CPCs shall require the elements indicated.

VMSWG04 **AGREED** regarding Annex 1 para C that (i) flag States' consultation of port States on switching off when the vessel is in port and (ii) the period of being switched off, particularly for smaller vessels, both be subject to further discussion.

VMSWG04 **AGREED** regarding Annex 1 para D that there be an upper limit to the period of malfunction and **FURTHER AGREED** that the duration would be subject to further discussion.

VMSWG04 **AGREED** that consideration be given to those aspects of Annex 1 relating to malfunction (para E, para F and para G) be made into a separate annex.

VMSWG04 **AGREED** to the revisions made in [Appendix 3](#), subject to further discussion in the next meeting of the VMSWG on those elements in square brackets and where indicated in the points above.

VMSWG04 **AGREED** that it should aim to finalise a proposal on a revised Resolution 15/03 in 2023.

VMSWG04 **NOTED** that in view of the substantive discussion required on the use of VMS data, it is premature to present a revised proposal for Resolution 15/03 to the Commission and consequently no discussion was held on its presentation or co-sponsorship.

VMSWG04 **NOTED** that a progress report will be required for the next WPICMM and Compliance Committee meetings and **AGREED** that the IOTC Secretariat prepare the progress report with the elements agreed so far for presentation to the Compliance Committee and to the Commission.

The VMSWG05 (Para. 29) **NOTED** paper [IOTC-2022-VMSWG05-04](#) on Australia's proposed revision to Resolution 15/03, on top of the work previously carried out by the Working Group to amend the measure.

The VMSWG05 (Para. 30) **AGREED** to defer discussions on the revisions of the Terms of Reference to determine extra costs related to infrastructure, staffing, and data security and the proposed amendments to Resolution 15/03 until after the special session of the VMSWG of 16 November 2022.

The VMSWG05 (Para. 31) **RECALLED** that the scope was agreed at the VMSWG04 meeting (Paragraph 20: VMSWG04 **AGREED** to delete ex para 1 and **FURTHER AGREED** regarding para 2 (ex para 2) that VMS should cover all vessels of 12 metres in length overall and above, and listed in the IOTC Record of Authorised Vessels).

The VMSWG05 (Para. 32) **NOTED** the VMS should cover all vessels of 12 metres in length overall and above, and **FURTHER NOTED** that the Resolution pertaining to the IOTC Record of Authorised Vessels will be required to be amended to extend its scope.

The VMSWG05 (Para. 33) **AGREED** to make the following modification to the proposed revision of Resolution 15/03 (Appendix 4):

- a. paragraph 5 b): to reduce the position error from 500 to 50 meters,
- b. paragraph 5 c): to delete the brackets on the speed and direction of the vessel,
- c. paragraph 7: to include after 2 hours "when the vessels are operating in the IOTC Area of competence",
- d. paragraph 9 d): to replace the word "block" by "obstructed" and to provide for a transition period to implement [in xx years] of paragraph 9,
- e. paragraph 10: to provide for a transition period to implement [in xx years].

The VMSWG05 (Para. 34) **NOTED** the need to include relevant edits and comments from the legal scrubbing into the proposed amended Resolution 15/03.

Status**Ongoing.** Further discussions to take place at the February 2023 meeting.**Develop rules and procedures for the sharing, use and protection of VMS data.**

Establish an expertise-based intersessional working group to develop rules and procedures for the sharing, use and protection of VMS data. (Referenced from *Options paper for strengthening the IOTC VMS, 2019*)

VMSWG04 **RECALLED** that Seychelles had agreed to provide clarification and what is meant by the term “antenna is blocked” and provide a proposal on the role of the IOTC Secretariat with respect to the handling of VMS data received, and **AGREED** Seychelles prepare guidelines for the registration, implementation and operation of VMS referred to in para 4 (ex para 4).

The VMSWG05 (Para. 11) NOTED presentation by the Seychelles ([IOTC-2022-VMSWG05-03](#)), on the role of IOTC Secretariat with respect to the handling of VMS data.

The VMSWG05 (Para. 12) NOTED two possible monitoring scenarios:

- a. Scenario 1, where active monitoring is conducted by CPCs and the IOTC Secretariat only monitors compliance with VMS Resolution. This scenario does not fully meet the objectives of the IOTC VMS.
- b. Scenario 2, where the IOTC Secretariat actively monitors compliance with the VMS Resolution and other IOTC Conservation and Management Measures. This scenario ensures the objectives of the IOTC VMS are met fully, but the cost implications are higher than Scenario 1.

The VMSWG05 (Para. 16) **RECALLED** [Resolution 12/02 on Data confidentiality policy and procedures](#), and **AGREED** that VMS data protection requirements could be included in the Resolution 12/02 or within the VMS Resolution itself.

The VMSWG05 (Para. 17) **AGREED** to a phased approach, starting by Scenario 1 and **FURTHER AGREED** that the gradual shift to Scenario 2 could be considered at a later stage.

The VMSWG05 (Para. 18) **AGREED** that rules to share VMS data for use for science purposes should be conditional to the consent of the flag State.

The VMSWG05 (Para. 19) NOTED the requirements of [Resolution 22/02 on Establishing a Programme for Transshipment by Large-Scale Fishing Vessels](#) for carrier vessels authorised for transshipment to install and operate a Vessel Monitoring System (VMS).

Status**Ongoing.** Further discussions to take place at the February 2023 meeting.**Technical cooperation between the Secretariats of the General Fisheries Commission for the Mediterranean and the IOTC on vessel monitoring system.**

The VMSWG05 (Para. 27) NOTED the possibility of capitalizing on the work conducted by the GFCM to expedite the preparatory phase and procurement process for an IOTC regional VMS and **FURTHER NOTED** the potential use of the same service provider or partition of the system to host the IOTC regional VMS.

The VMSWG05 (Para. 28) **AGREED** to convene a special session of the VMSWG on 16 November 2022, with the aim of inviting the GFCM to present to the working group the GFCM experience and lessons learnt

The VMSWGSS01 (Para. 9) NOTED that setting up a system such as the GFCM’s pilot VMS, including pooled tools, such as electronic recording systems, port State measures and sensors, would not be too complicated, and **FURTHER NOTED** that the time required for setting up different tools was approximately one week.

The VMSWGSS01 (Para. 10) NOTED that the costs of introducing new tools were not necessarily excessive since core information and data structures are practically the same, but there may be more follow up required downstream.

The VMSWGSS01 (Para. 11) NOTED that if a hybrid system were introduced, it could cater for those CPCs with a fisheries monitoring centre and for those without.

The VMSWGSS01 (Para. 12) NOTED that where a fisheries monitoring centre is in place inclusion of MCS tools can provide benefits with very few additional costs.

The VMSWGSS01 (Para. 13) NOTED that where a fisheries monitoring centre is not in place, a hybrid system can provide surrogate fisheries monitoring centre services.

The VMSWGSS01 (Para. 14) NOTED that in the first instance VMS could be introduced in accordance with existing resolutions and FURTHER NOTED that other resolutions including other requirements, such as the use of gear sensors, could be added later.

The VMSWGSS01 (Para. 15) NOTED that GFCM pilot scenarios included vessels down to a size limit of 10 m length overall and FURTHER NOTED the benefits of new technological advances on operating costs, transponders and satellite connectivity.

The VMSWGSS01 (Para. 16) NOTED that technology is being developed to allow transmission using solar energy when a vessel does not have a power generator onboard.

The VMSWGSS01 (Para. 17) NOTED the candidate VMS solution would have to be assessed by relevant FAO divisions based on among others, FAO Admin Circular No. 2013/23 setting out the Organization's Policy on Confidentiality, a set of criteria designed to assess the risk of adopting cloud services, the Cloud Standards Customer Council Guide, procurement rules, and subsequent evaluation procedures and award of contract.

The VMSWGSS01 (Para. 18) NOTED information technology security provisions that include infrastructure protection, logical security, network protection, compliance commitments and security incident management procedures.

The VMSWGSS01 (Para. 19) NOTED that flexibility is key: new tracking tools must be accommodated on the VMS platform; integration with non-MCS systems is crucial for the sake of turning MCS data into actionable knowledge for fisheries management and scientific purposes and for buy-in of the VMS; and interoperability with data providers must allow for ancillary monitoring and control data other than VMS (AIS, satellite imagery).

The VMSWGSS01 (Para. 20) NOTED service provider-hosted or cloud-based solutions are ideal for ensuring scalability, avoiding excessive monetary commitment and preventing significant burdens on the Secretariat.

The VMSWGSS01 (Para. 21) NOTED information technology security standards and data access and confidentiality policies can be subject to significant changes requested by CPCs before and after the rollout of a VMS platform.

The VMSWGSS01 (Para. 22) NOTED since more information domains are included in MCS datasets, efforts must be made on a regular basis to ensure that VMS is able to accommodate different data exchange formats (hybrid scenario).

The VMSWGSS01 (Para. 23) NOTED the tentative roadmap, including:

- possible joint trials free of charge (sharing the GFCM system with IOTC on a trial basis, exchange of expertise and provision of technical support by GFCM Secretariat to IOTC Secretariat, MCS tests in select countries);
- assessing results;
- presenting outcomes to respective VMSWGs; and
- technical coordination between the two Secretariats.

The VMSWGSS01 (Para. 24) NOTED the usefulness of GFCM having passed through the different FAO requirements regarding cloud computing security, technical specifications, confidentiality and procurement.

The VMSWGSS01 (Para. 25) NOTED that privacy policies would be dependent on the different technologies.

The VMSWGSS01 (Para. 26) NOTED that GFCM already had joint trials with ICCAT and NEAFC.

The VMSWGSS01 (Para. 27) NOTED that the GFCM would draft a concept note on the nature of the potential joint trials between GFCM and IOTC and send this to the IOTC Secretariat at least 30 days in advance of the next ordinary meeting of the VMS Working Group.

The VMSWGSS01 (Para. 28) NOTED that some IOTC CPCs are still determining which VMS system might be appropriate for them nationally and WELCOMED further information on the new technologies presented and their costs to establish their utility against IUU fishing.

The VMSWGSS01 (Para. 29) NOTED that GFCM is still conducting its pilot project, so the real costs have yet to be determined and FURTHER NOTED that this would depend on the scale.

The VMSWGSS01 (Para. 30) NOTED that due to FAO’s policy on double financing, where both systems overlap technically the IOTC might not have to incur the costs that GFCM will have already incurred, and FURTHER NOTED potential economies of scale.

The VMSWGSS01 (Para. 31) NOTED that deliberations on the technical provisions and the roadmap would be made during the next ordinary meeting of the VMSWG.

Status
Ongoing. Further discussions to take place at the February 2023 meeting.

Develop mechanism for the smooth transition of the existing to the new system, if required.

Status
Outstanding. Consider at the February 2023 meeting.

RECOMMENDATION/s

That the WPICMM06:

- 1) **NOTE** paper IOTC–2023–WPICMM06–08 on the Progress of work and plan for 2023 of the Vessel Monitoring System (VMS) Working Group (WG).
- 2) **NOTE** the progress made by the VMS Working Group with respect to its terms of reference and with respect to the pilot project between IOTC and GFCM.