



**9<sup>th</sup> Meeting of the Compliance Committee (CC9) and 12<sup>th</sup> Meeting of the Parties (MoP12)**

*Ebene, Mauritius, 25–27 June 2025 and 30 June – 04 July 2025*

**MoP-12-33 / CC-09-08**

# Draft Terms of Reference (ToR) for the provision of a Vessel Monitoring System (VMS) for the Southern Indian Ocean Fisheries Agreement (SIOFA)

VMS WG Chairperson

<b>Meeting</b>	Compliance Committee ✓ Meeting of the Parties ✓
<b>Document type</b>	working paper ✓ information paper <input type="checkbox"/>
<b>Distribution</b>	Public ✓ Restricted <sup>1</sup> <input type="checkbox"/> Closed session document <sup>2</sup> <input type="checkbox"/>
<b>Abstract</b>	<p>At its fourth meeting, the SIOFA VMS Working Group (VMSWG04) tasked the Secretariat with drafting Terms of Reference (ToR) for a Software as a Service (SaaS)-based hosting solution, reflecting the working group's recommendation that SIOFA implement a SaaS approach to the deployment of the SIOFA VMS. This paper presents a draft of the ToR for procuring a SaaS-based VMS.</p> <p>The draft ToR specify that the SIOFA VMS should feature automated monitoring, a Geographic Information System (GIS) for vessel visualization, integration with standardized data formats (NAF and FLUX), and customizable user access controls. The ToR also defines key contractual requirements, including system uptime guarantees, security and data confidentiality provisions, and compliance with SIOFA policies, namely the SIOFA VMS SSPs and CMMs that relates to Data Standards and Data Confidentiality. The ToR requires phased implementation, including testing, training, and a six-month pilot phase, as well as ongoing maintenance and technical support for an initial 36-month period, with possible extensions.</p>

<sup>1</sup> Restricted documents may contain confidential information. Please do not distribute restricted documents in any form without the explicit permission of the SIOFA Secretariat and the data owner(s)/provider(s).

<sup>2</sup> Documents available only to members invited to closed sessions.



The draft ToR was considered by the 5<sup>th</sup> (VMSWG05) and the 6<sup>th</sup> (VMSWG06) meetings of the SIOFA VMS Working Group, and includes comments and proposed additions provided by CCPs after the conclusion of VMSWG06 (highlighted in track changes). These additions are as follows:

- requirement that the system should support machine-to-machine API for automatic transfer of data;
- configuration option for display of GPS coordinates (degree minute or decimal degree), bearing and bearing marks demarking vessel path and trails;
- option to generate reports, track maps summarising the status and activities of vessels with printing and screen capture options; and
- automatic entry and exit reports generated by the system are to be mandatory technical specifications, with minor amendments to this technical specification.

#### **Recommendations** (for proposals and working papers only)

- That CC09 and MoP12 **review** the draft ToR for the procurement of the SIOFA VMS resulting from VMSWG06 and **provide guidance** on the additions to the ToR proposed by CCPs after the conclusion of the SIOFA VMSWG06;
- That CC09 **recommend** and the MoP12 **adopt** the final version of the ToR; and
- That MoP12 **agrees** for the Secretariat to launch the procurement process of the SIOFA VMS on the basis of the approved ToR.



## Terms of Reference (ToR) for the provision of a Vessel Monitoring System (VMS) for the Southern Indian Ocean Fisheries Agreement (SIOFA)

**Project title: Establishment of a SIOFA Vessel Monitoring System**

**Project Code: SIOFA-VMS**

### 1) Invitation to Bid

The Southern Indian Ocean Fisheries Agreement (SIOFA) is inviting qualified international companies to submit bids for the provision of a Software as a Service (SaaS) based Vessel Monitoring System (VMS) to the SIOFA Secretariat. The bids should include proposals for a SaaS-based VMS that complies with all the mandatory requirements of these terms of reference.

Bids are to be submitted to the SIOFA Executive Secretary, Mr Thierry Clot, at [thierry.clot@siofa.org](mailto:thierry.clot@siofa.org) by 31 October 2025.

Key dates of the invitation to bid:

Activity	Date
Call for bids issued:	1 August 2025
Deadline for any request for clarifications from potential bidders:	15 October 2025
Deadline for submission of bids and proposals:	31 October 2025
Examination and evaluation of bids	1-30 November 2025
Notification to successful bidder:	1 December 2025
Contract signing:	December 2025
Start of Services:	1 January 2026

### 2) Background

The Southern Indian Ocean Fisheries Agreement ([SIOFA](#)) is a Regional Fisheries Management Organization (RFMO) established following the adoption of its Agreement in 2006 and its entry into force in 2012. Its mandate is to ensure the long-term conservation and sustainable use of the fishery resources in the Agreement Area through cooperation among the Contracting Parties, cooperating Non-Contracting Parties and Participating Fishing Entities (collectively CCPs) and to promote the sustainable development of fisheries in the Agreement Area, taking into account the needs of developing States bordering the Agreement Area that are Contracting Parties to the Agreement, and in particular the least-developed among them and small island developing States. To date, the SIOFA is composed of 13 CCPs.<sup>1</sup>

There are currently 103 vessels on the SIOFA Record of Authorized Vessels (RAV) flagged to the 13 SIOFA CCPs, of which approximately 74 vessels are actively fishing in the Agreement Area. These active vessels spend around 10,000 days (between 232,000-239,000 hours) per year in the Agreement Area. Article 6(1)(h) of the Agreement requires SIOFA to develop rules and procedures for the monitoring, control and surveillance of fishing activities in order to ensure compliance with SIOFA

<sup>1</sup> 10 Contracting Parties, 2 Cooperating non-Contracting Parties, and 1 Participating Fishing Entity.



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conservation and management measures (CMM), including a system of verification incorporating vessel monitoring and observation of vessels operating in the SIOFA Agreement Area. While flag States are required to track and monitor their vessels' activities in the Agreement Area using a Vessel Monitoring System (VMS), SIOFA currently does not itself operate a VMS.

To address this, in 2023 SIOFA adopted CMM 16 (2023) on the SIOFA Vessel Monitoring System<sup>2</sup> setting out the framework of the SIOFA VMS covering all key aspects, including the scope of application, definitions, nature and specifications of the VMS, prevention of tampering and actions in case of suspected breach, use and release of VMS data requiring / not requiring the consent of CCPs, closed and interim protected areas, as well as data security and confidentiality. This framework was further complemented in 2024 by the adoption of Standards, Specifications, and Procedures (SSPs) for the SIOFA VMS which are available in Appendix 2.

[In July 2025, SIOFA decided that the SIOFA Secretariat should subscribe to a SaaS VMS to provide SIOFA with an operational VMS.]

### 3) Summary of Services

The SIOFA Secretariat is required to subscribe to an end-to-end SaaS VMS service to enable it and the CCPs to fulfil their obligations established under the Agreement, CMM 16 (2023) and other relevant conservation and management measures, also taking into consideration the requirements established by the SIOFA VMS SSPs. The service will include a test phase between the Secretariat and the CCPs before the entry into operation of the SIOFA VMS and the building of the Secretariat's capacity to operate and maintain the SIOFA VMS.

Procured services are expected to run for **36 months**, with the possibility of extension as determined by SIOFA. It will also include system maintenance and after-sales technical services required for the system's proper functioning, as determined by these terms of reference, including the technical specifications, and as agreed in a Service Contract.

### 4) General Description of Services

The desired system must provide a SaaS-deployed VMS to the SIOFA Secretariat on a subscription basis while respecting the technical specifications set out in these terms of reference, CMM 16 (2023), and the SIOFA VMS SSPs. The system must be capable of providing the following services, as laid down in more detail in the technical specifications in Appendix 1 and in accordance with SIOFA VMS SSPs in Appendix 2:

- Enable the SIOFA Secretariat to monitor in an automatic, continuous and cost-effective manner the movements and activity of fishing vessels operating in the Agreement Area to ensure compliance with SIOFA CMM. The deployment shall include the installation of the VMS solution, training of Secretariat staff, and provision of documents and user manuals in the working language of SIOFA (English).
- Include a GIS (Geographic Information System) component to visually display VMS data immediately after being received. The VMS must be able to determine a vessel's course (direction) and speed automatically and independently.

<sup>2</sup> Conservation and Management Measure 16 (2023) for the establishment of a SIOFA Vessel Monitoring System ([Vessel Monitoring System](#)).



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- Storing, processing, and dissemination of VMS data consistent with the provisions and data format of CMM 02(2023)<sup>3</sup> on Data Standards and CMM 03(2016) on Data Confidentiality.<sup>4</sup>
- Ability for the VMS solution to receive, store, process, and disseminate VMS data in North Atlantic Format (NAF) messages, described in Annex 1 of Appendix 2, using one of the following application layers (secured connection):
  - Hypertext Transfer Protocol Secure (HTTPS)
  - File Transfer Protocol (FTP) with Transport Layer Security (TLS) (FTPS)
  - Email.
- Availability, as part of the service, of a Fisheries Language for Universal Exchange (FLUX) node and ability to receive, store, process, and disseminate VMS data over FLUX, described in Annex 2 of Appendix 2.
- Ability to receive, store, process, and disseminate VMS data received directly from fishing vessels' Automatic Locator Communicator (ALC)<sup>5</sup>.
- A web interface for multiple users with customisable profiles and access privileges affecting both features and data made available, fully compliant with the Data Confidentiality and Security Provisions of the SIOFA VMS SSPs.
- A standard reporting system that allows user-defined queries of vessel movements and fishing activities, e.g. transshipments, entering a managed area. The queries should be possible for (but not limited to) a single vessel or groups of vessels (groups definable by users) and be definable by area, dates, trip length, flag state, fishing gear and alerts.
- Participation in and provision of necessary technical support during a testing phase with CCPs for a period of six (6) months.
- Ability to track user activities subject to security and confidentiality concerns, thus allowing the SIOFA Secretariat to run audit reports, as required by the SIOFA VMS SSPs.
- Features to import, manage and apply modifications to closed areas, fully compliant with the technical specifications provided in Appendix 1.
- Provision of necessary aftersales support services for the duration of the contract, including but not limited to system maintenance, fault finding and rectifications in Appendix 1.
- The option to manually input reports and messages. Such data should be stored and displayed in a manner that distinguishes them from VMS data received through automatic transmission, and it should be possible to add a reference to the archived source of the manually added information.

<sup>3</sup> Conservation and Management Measure 02 (2023) for the Collection, Reporting, Verification and Exchange of Data relating to fishing activities in the Agreement Area ([Data Standards](#))

<sup>4</sup> Conservation and Management Measure 03 (2016) for Data Confidentiality and Procedures for access and use of data ([Data Confidentiality](#))

<sup>5</sup> SIOFA may in the future adopt a list of approved ALCs to be used by vessels entered onto the SIOFA Record of Authorized Vessels (RAV), taking into account lists approved by existing regional and subregional VMS programs and by CCPs.

**Commented [u1]:** In order to ease transfer of data the system must support machine to machine API for automatic transfer of data. Such interfaces can be used for forwarding of positional messages



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- [Features to allow conditional alerts against incoming position reports.](#)
- [\[configuration option for display of GPS coordinates, bearing and bearing marks demarking vessel path and trails.](#)
- [option to generate reports, track maps summarising the status and activities of vessels with printing and screen capture options.\]](#)
- Inbuilt fleet register data covering any vessel whose VMS data is received by the system, with the possibility to integrate with existing and future SIOFA databases.
- Training of SIOFA Secretariat staff in the use of the VMS and relevant technical support to CCPs to enable the exchange of data with the SIOFA VMS (use and technical repairs).

Close cooperation with the SIOFA Secretariat during all phases of the VMS solution development, deployment and operations is expected.

#### 5) Required service availability

The SIOFA VMS must be operational 24/7 with 99% uptime minus any planned downtime, e.g. scheduled maintenance or deployment of new features. SIOFA must be informed of any planned downtime no less than five (5) days prior.

Support services are expected to be available within the working hours of the SIOFA Secretariat<sup>6</sup>, with the following contractual responses and resolution times:

- Critical severity issues (Total Service outage or with severe performance impact) <= 4 hours resolution;
- Medium severity issues (Degraded performance, incidents yet affecting pivotal activities for the work plan of the SIOFA Secretariat and the CCPs: <= 20 hours resolution;
- Low severity issues (Minor bug fix/patch to intermittent issues, Questions, Info, How-to): <= 3 business days.

These resolution times are subject to negotiation with the chosen service provider.

#### 6) Duration

Procured services are expected to run for **36 months**, with the possibility of extension as determined by SIOFA.

#### 7) Schedule of Contract performance and deliverables

The bidder shall propose, with its submission, a schedule of contract performance in accordance with the services determined in these terms of reference. The schedule shall include, at a minimum, the following deliverables/outputs;

- Signing of Contract
- Training of Secretariat Staff
- Completion of Fabric Acceptance Test (FAT)
- Deployment of VMS System at SIOFA Secretariat
- Client Acceptance Test (CAT)

<sup>6</sup> 04:00hrs GMT-13:00hrs GMT, Monday to Friday, [excluding applicable statutory holidays](#).



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- Test phase of SIOFA VMS (about 6 months)
- Entry into Operation of the SIOFA VMS (to be determined by SIOFA)

## 8) Submission of Bids

Bids submitted should demonstrate compliance of their proposed solution with these terms of reference, including the mandatory technical specifications in Appendix 1 and the SIOFA VMS SSPs. Bidders should also demonstrate experience deploying VMS solutions in other RFMOs or similar settings.

Bids are to be submitted to the Executive Secretary, Mr Thierry Clot ([thierry.clot@siofa.org](mailto:thierry.clot@siofa.org)) containing the following items:

- i. Description of the proposed system, with clear indications of its compliance with these terms of reference and all technical specifications appended thereto;
- ii. Description of the development phase of the SIOFA VMS as applicable and its subsequent deployment at the SIOFA premises, with detailed timeframes for the completion of each phase;
- iii. Provision for acceptance tests to be performed off-premises before deployment and on-premises after deployment at the SIOFA Secretariat;
- iv. Provisions for user and maintenance manuals in the working language of the organization (English)
- v. Detailed training proposal for SIOFA staff in the use and essential maintenance and technical support of the SIOFA VMS;
- vi. **A financial offer for the services required, including itemised pricing for the services required, including all core and after-sales support specified in Appendix 1, in Euros and exclusive of taxes.** The itemised pricing should include third-party licenses (if any), e.g. database licenses, map layers, data extraction software etc. The financial offer should also include any other unforeseen expenses associated with the deployment and operation of the system, including maintenance and technical support of the system;

The deadline for submission of bids is 31 October 2025.

## 9) Evaluation Criteria for the Selection of Bidders

The bids received will be evaluated against these terms of reference. Failure to comply with any of the mandatory requirements may result in disqualification of the bid. The SIOFA Secretariat further reserves the right to consider and disqualify firms based on documented prior poor performance, including but not limited to poor quality of goods or services provided, late delivery and unsatisfactory performance. The contract will be awarded to the [most competitive] bid that complies with the technical specifications laid out in these terms of reference. Bids will only be considered if they contain adequate documentation to allow the Secretariat to assess them against the mandatory requirements of these terms of reference.

## 10) Contacts

Bidders may direct any questions and clarifications to the SIOFA Compliance Officer (Mr Johnny Louys, [johnny.louys@siofa.org](mailto:johnny.louys@siofa.org)).

The deadline for any request for clarifications is 15 October 2025



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Accord relatif aux Pêches dans le Sud de l'Océan Indien

## 11) Additional information to bidders

1. All bids must be received in English and in a format compatible with Microsoft Office (e.g. Microsoft word, excel) and/or Adobe Reader (e.g. .pdf files).
2. All bids must identify a designated Contact Point (including a name, phone number and email address).
3. SIOFA is not obliged to accept any bids that do not meet these submission requirements.
4. Bidders should identify in their bid any information which should be protected as confidential information under any contract between the bidder and SIOFA, including the reason for its confidentiality. If the bidder fails to identify any information in the bid, SIOFA will consider that the respondent has no information which should be protected as confidential under the contract. SIOFA reserves the right, at its discretion, to refuse the request to treat information as confidential. In this case, SIOFA will notify the respondent in writing.
5. Bidders must disclose in their bid any potential or actual conflict of interest in the course of delivering this service and must specify how the bidder proposes to address this conflict of interest. This will not automatically exclude the bidder from consideration; however, SIOFA reserves the right to consider the potential or actual conflict in relation to the bid before the final decision is made.
6. Bids received by email after the deadline of 31 October 2025 will be neither considered nor acknowledged by SIOFA.
7. If a bidder wishes to revise or modify any aspect of its submitted bid, revisions must be in writing from the Contact Point, clearly identified and accompanied by a clear statement from the respondent about the action that the bidder wishes SIOFA to take with the original submission. All revisions must be submitted before the deadline for the submission of bids. If a revision is received after the deadline, the revision will be disregarded.
8. The successful bidder can expect to be notified by 1 December 2025.

## 12) Disclaimer

1. Bidders are responsible for ensuring that:
  - a. They have examined these terms of reference, and the requirements specified within.
  - b. They have examined any information made available to bidders for the purpose of their bid, including the relevant conservation and management measures referred to by these terms of reference.
  - c. The bid submitted is complete, accurate and realistic in terms of its delivery and cost.
2. Bidders are responsible for all costs incurred in the preparation and lodgement of any bids; and in respect of any discussions, negotiations, enquiries or any work undertaken by them after the bid has been submitted. SIOFA is not liable for any costs or compensation in relation to these matters, regardless of whether SIOFA terminates, varies or suspends the invitation to bid process; or takes any other option under this invitation to bid.
3. SIOFA will not accept responsibility for any misunderstanding arising from the failure of a respondent to comply with the requirements set out in these terms of reference or arising from any ambiguity, discrepancy, inconsistency, error or omission contained in a bid.
4. Nothing in these terms of reference or any bid submitted by a bidder gives rise to contractual obligations between SIOFA and the bidder.
5. Any bid submitted becomes the property of SIOFA for the purpose of the bidding process and will be made available for use by SIOFA and its CCPs for any purpose connected with the bidding process.
6. SIOFA reserves the right to enter into negotiations or discussions with one or more bidders.

### 43) Appendix 1 - Detailed Technical Specifications

General Specifications		
1.	The system shall be web-based, hosted, configured and maintained by the service provider with remote secured access and consulted by multiple users through an Internet connection and various login (user/password) combinations. The system shall allow users to access VMS data, including VMS position reports and vessel details. No on-site hardware, except computers connected to the Internet, or network configuration, shall be required to access it. Similarly, no specific software shall be required to access and consult the system except for modern web browsers.	Mandatory
2.	The system shall be deployed as a “software-as-a-service” (SaaS). The provider shall undertake the deployment, configuration, and maintenance of the system and all its components, including databases and data storage.	Mandatory
3.	The system must provide for procedures for services failure and technical issue resolution including timeframes and escalation processes.	Mandatory
4.	The system shall allow for scalability, thus enabling the allocation of additional resources as required by SIOFA, based on the potential future needs of the organisation. The bid shall include reasonably detailed specifications describing the kind of hosting setup supporting the software-as-a-service.	Mandatory
5.	The system in its entirety shall comply with all relevant CMMs governing the use and treatment of VMS Data including CMM 02 (2023) on Data Standards, CMM 03 (2016) on Data Confidentiality, and CMM 16 (2023) on VMS.	Mandatory
6.	The system must be highly fault tolerant and be supported by back-up and redundancy systems and processes.	Mandatory
7.	The system must be supported by a comprehensive backup and disaster recovery plan that ensure no VMS data is lost in the event of a system failure, or where services are no longer required.	Mandatory
8.	The system must receive and store VMS data from at least 200 vessels: <ul style="list-style-type: none"> <li>• in data formats specified in NAF and UN/Flux, as described in Annex 1 and Annex 2 of the SIOFA VMS SSPs, respectively.</li> <li>• Using the application layers specified in the SIOFA SSPs (i.e. HTTPS, FTPS, and Email).</li> <li>• Directly from ALCs transmitted in their respective proprietary formats.</li> <li>• <a href="#">[From FMC of CCPs transmitted in their respective proprietary formats ]</a></li> </ul> The service must be flexible to support modification to these standards on the potential future needs of SIOFA.	Mandatory
9.	The system must process and store for each VMS position report, at minimum, the following data <ol style="list-style-type: none"> <li>i. the fishing vessel’s unique vessel identifier (UVI);</li> <li>ii. the current geographical position (latitude and longitude) of the vessel;</li> <li>iii. the date and time (UTC) of the fixing of the position of the vessel;</li> <li>iv. the vessel’s speed; and</li> <li>v. the vessel’s course.</li> </ol>	Mandatory



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## General Specifications

10.	The system shall support the manual import of VMS data and record the manual import in the metadata. It shall identify data imported manually, distinguishing them from data received automatically.	Mandatory
11.	The system shall include the due features to import (either routinely or on-demand on a case-by-case-basis) additional datasets relevant to its role including but not limited to: <ul style="list-style-type: none"> <li>i. Mandatory information of vessels entered onto the SIOFA Record of Authorised Vessels (RAV);</li> <li>ii. Shape Files relating to the Agreement Area, SIOFA sub-areas, Areas with specific management measures and Interim Protected Areas (IPAs).</li> </ul> Data formats envisaged for this purpose may vary according to the type of dataset.	Mandatory
12.	In addition to the data formats enlisted so far, the system shall be ready to handle emerging needs through additional means for receiving and sending data, as may be determined by SIOFA.	Highly desirable
13.	The system shall grant eligible user profiles the ability to export all database information pertaining VMS data and relevant ancillary information in CSV, TXT, or Excel format. Such operation shall accept parameters to narrow-down the export for specific time frames, vessel groups, flag States or defined regions.	Mandatory
14.	The system must support the establishment of vessel groups or vessel lists by defining criteria relating to vessels.	Mandatory

## Data Confidentiality and Security Provisions

15.	The system shall have the following access control features: <ul style="list-style-type: none"> <li>i. Stringent password and authentication system (three-factor authentication preferred), attributed to each designated user. The user shall only have access to functions and data that they are designated to have access to;</li> <li>ii. The system shall automatically record all events for analysis and detection of potential security breaches;</li> <li>iii. Time-based access control: Access to the system can be specified in terms of times-of-day and days of the week that each user is allowed to log into the system;</li> <li>iv. Terminal access control: the system shall specify for each workstation which user(s) are allowed to access it <a href="#">[through selected IPps]</a>.</li> </ul>	Mandatory
16.	The system shall have the following security measures: <ul style="list-style-type: none"> <li>i. System Access Control: the system shall be able to withstand break-in attempts from unauthorised persons.</li> <li>ii. Authenticity and data access control: the system shall be able to limit access of users only to the data necessary for them to carry out their tasks via a flexible user identification and password authentication mechanism.</li> <li>iii. Communication Security: VMS position reports shall be securely communicated.</li> </ul>	Mandatory



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 Accord relatif aux Pêches dans le Sud de l'Océan Indien

## Data Confidentiality and Security Provisions

	iv. Data Security: All VMS data received by the Secretariat shall be securely stored for a predetermined time and shall not be tampered with. The system must prohibit the modification of VMS data that are received automatically from FMCs or directly from vessels or received manually.	
17.	The data centre used to host the services must have effective controls for VMS data receipt, storage and dissemination including: <ul style="list-style-type: none"> <li>• physical security;</li> <li>• personnel security;</li> <li>• communications security;</li> <li>• product security;</li> <li>• access control; and</li> <li>• network security.</li> </ul>	Mandatory
18.	The service provider shall retain all VMS data for the duration of the service contract period, including any extensions thereof.	Mandatory
19.	In case the service contract is terminated for any reason, the provider shall provide SIOFA with a copy of the full historical datasets and ancillary information collected through the system in accordance with the formats and standards specified by SIOFA at the time of the termination of the contract.	Mandatory
20.	The Service provider shall not retain any data collected through the system <del>XXX</del> [beyond three (3)] months after the termination of the contract. The deletion of data shall be confirmed in writing by the service provider <del>XXX</del> months after the termination of the contract [no later than 3 months after the termination of the contract], and the satisfactory hand over of data referred to in points 19 and 20.	Mandatory

## Monitoring, control and surveillance specifications

21.	<p>Mapping tools and data display</p> <p>The system shall have a module intended to show the location of vessels on a geographical map while providing features commonly required by operators of Fishing Monitoring Centres. An indicative list is provided as follows:</p> <p>i. Map-specific features:</p> <ul style="list-style-type: none"> <li>• zoom and drag-to-scale;</li> <li>• pan map to a location;</li> <li>• pan map with cursor;</li> <li>• automatic zoom and pan to a specific vessel;</li> <li>• display or select all vessels within a specific area;</li> <li>• map layer selector;</li> <li>• visual elements, such as text and graphics, grids, boundaries etc. shall be organized in separate layers so to allow the end user to show or hide them as appropriate;</li> <li>• geographically display track lines of vessels and groups of vessels superimposed on the background features by accurately marking each position report for a vessel and joining each subsequent position report for that vessel with a line;</li> <li>• upon click on a given vessel position, show a popup window including at least summary information such as:</li> </ul>	Highly Desirable
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## Monitoring, control and surveillance specifications

	<ul style="list-style-type: none"> <li>- vessel identification data (vessel name /UVI<sup>7</sup> flag)</li> <li>- last location along with related timestamp;</li> <li>- speed and heading;</li> <li>- type of transmission device (VMS model), data source (NAF/FLUX) or manual input of position reports).</li> </ul> <p>ii. Controls such as menus, dialog windows, checklists and other relevant user controls in order to allow the end user to filter or query available information as necessary. This shall also apply to available details of position reports such as the source of VMS data (FMC/ALC/Manual Input).</p> <p>iii. Load and display charts providing geographic coverage for the Agreement Area.</p> <p>iv. Display vector layers for themes and objects such as EEZ zone boundaries, closed areas, and IPAs.<sup>8</sup></p> <p>v. Base maps relying on OpenStreetMap or equivalent while also supporting the use of third-party vector charts (preferably C-MAP) including information relevant to the work of SIOFA, such as bathymetries.</p> <p>vi. Allow the creation of user-defined zones by either using visual tools on the map or performing data entry for relevant dimensions.</p> <p>vii. Allow mobile units or vessels to be selected by name, ID, type, or user-defined group(s).</p> <p>viii. select and display a vessel group or vessel list both for graphical and tabular consultation.</p> <p>ix. Display vessel tracks differently (e.g. colour/line style) according to speed thresholds selected by the end-user.</p> <p>x. Display vessel tracks differently (e.g. colour/line style) according to the source of VMS data or other information, such as the transmission means.</p> <p>xi. Allow current and historical position reports to be available for graphical and tabular consultation to authorized users, along with the possibility to replay vessel tracks on the map in chronological sequence.</p> <p>xii. Ability to define a geographical area as a circle by providing center and radius.</p> <p>xiii. Possibility to measure the distance between two selected points.</p> <p>xiv. Printing/exporting a selected portion of the map to a graphic file should be supported.</p>	
22.	A section of the user interface shall allow the user to consult fleet data covering any vessel whose position data is received by the system. For this purpose it is required that, for each vessel, overlapping register information originated from different sources are automatically merged into a single record, thus providing end users with complete and coherent information. To this end, the system shall consider any of the vessels' potential UVIs.	Highly Desirable
23.	<p>The system should allow eligible users to set up and customize alerts against incoming position reports in accordance with a set of conditions. Resulting alert events:</p> <ul style="list-style-type: none"> <li>i. Should be shown as items of a dynamic list, along with detailed information on the vessels involved in each alert, the conditions met, and a comprehensive history of previous alerts generated for a given vessel.</li> <li>ii. Shall be processed and shown in real-time.</li> <li>iii. Shall be graphically reflected on the VMS map interface by appropriately changing display attributes for the implied position report(s), such as using a different icon or colour to depict the concerned position report(s).</li> </ul>	Highly Desirable

<sup>7</sup> International Radio Call Sign (IRCS), the International Maritime Organization (IMO) Number or the ALC Unique Identifier.

<sup>8</sup> To be made available by the SIOFA Secretariat during the configuration phase of the SIOFA VMS.



# SIOFA | APSOI

Southern Indian Ocean Fisheries Agreement  
*Accord relatif aux Pêches dans le Sud de l'Océan Indien*

## Monitoring, control and surveillance specifications

	<p>iv. Shall include among available parameters:</p> <ul style="list-style-type: none"> <li>Spatial and temporal conditions (e.g. crossing closed areas at specific fishing season end and within a speed range compatible with fishing activity);</li> <li>Specific vessel identifiers (e.g. Authorized vessel or vessel with expired authorization);</li> <li>Transmission anomalies such as unexpected delays in transmission reports;</li> </ul> <p>v. Shall allow the automated submission of notifications via email to relevant recipients.</p>	
<u>24.</u>	<u>[The system shall automatically identify and transmit notifications when a vessel is entering/exiting] the Agreement Area, a closed area, a managed area,<sup>9</sup> or Interim Protected Area designated under CMM 01(2024) on Interim Management of Bottom Fishing, including any such future areas designated by the Meeting of the Parties.]</u>	Mandatory
<u>24-2</u>	The system shall provide a section including functions to generate thematic reports based on query parameters chosen by the end user (e.g. time frame, vessel or group of vessels, flag state). Factory settings applied to the reporting engine must include a set of predefined reports aimed at providing diagnostic, control and statistical reports for scientific purposes. Report outputs must be shown on the screen and made available for download as an Excel or CSV document.	Mandatory

**Commented [汪佳蓉2]:** Suggest separate this item as a mandatory requirement and add "exiting" to complete the process.

## Core and Aftersale Services

<u>25-26</u>	The system shall be deployed, configured, and customized according to the terms of reference, these technical specifications and the SIOFA SSPs, and available to the SIOFA for the entire duration of the service contract.	Mandatory
<u>26-27</u>	The system must be subject to a Fabric Acceptance Test (FAT) undertaken by the service provider.	Mandatory
<u>27-28</u>	The system must be subject to a Client Acceptance Test (CAT) undertaken by the service provider at the SIOFA Secretariat premises.	Mandatory
<u>28-29</u>	The system setup shall entail that the provider undertakes the necessary tasks to import all relevant datasets required to deliver the features outlined by the terms of reference and these technical specifications.	Mandatory
<u>29-30</u>	The provider shall establish technical contacts with the relevant VMS Points of Contact to establish UN/FLUX and NAF-based data exchange based on the specifications of the SIOFA SSPs. The work shall be undertaken to ensure the functioning of this feature for the whole duration of the contract.	Mandatory
<u>30-31</u>	The service provider shall configure the system to receive direct transmissions from ALCs installed on fishing vessels on the SIOFA RAV.	Mandatory
<u>31-32</u>	The service provider shall provide complete technical material, including manuals and guides, to SIOFA in English, including any updates as needed.	Mandatory

<sup>9</sup> Subarea 2 (CMM 12 on Sharks), Del Cano Rise Area and Williams Ridge (CMM 15 on Management of Demersal Stocks), and any such future areas designated by the Meeting of the Parties.



# SIOFA | APSOI

Southern Indian Ocean Fisheries Agreement  
*Accord relatif aux Pêches dans le Sud de l'Océan Indien*

32,33	The provider is expected to deliver technical support services during the SIOFA Secretariat's office hours for the entire duration of the contract, including via phone and email or a dedicated online helpdesk.	Mandatory
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**44) APPENDIX 2 – SIOFA VMS SSPs**