



FFA MCS DATA ANALYSIS GUIDELINES

A GUIDE FOR MCS DATA ANALYSIS OFFICERS

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Forward

A range of regional fisheries management agreements negotiated in recent years have delivered significant economic benefits to Pacific Island Nations, reflecting favourably on the efforts of the parties involved, the strength of regional cooperation in sustainable stewardship of the fishery, and is in keeping with FFA's purpose of maximising economic and social benefits of fisheries for its members.

These achievements have been underpinned by an evolving suite of monitoring, control and surveillance (MCS) arrangements developed and implemented by FFA, including optimised use of new technologies – especially in the areas of vessel risk and monitoring – a capable observer programme, modernized surveillance assets (vessels and aircraft). This suite of MCS tools all serve to ensure that fisheries management agreements are properly enforced and support members to make sovereign decisions about their tuna resources.

Despite these developments IUU fishing still occurs in the Pacific. The 2016 IUU Quantification Report¹ estimated potential economic loss to FFA Members from IUU fishing of \$152.67m per year. This report identified that IUU fishing is dominated by licensed vessels and that additional analysis using greater use of analytical techniques would assist in identifying and addressing key IUU risks. FFA's Regional Monitoring, Control and Surveillance Strategy (RMCSS) 2018-2023 identifies developing MCS data analysis procedures to guide national MCS officers to identify, analyse and verify IUU fishing as critical to establishing appropriate administrative and compliance processes.

These Guidelines should be used by FFA members to assist MCS Officers in developing understanding the distinct elements that constitute Illegal, Unreported and Unregulated (IUU) fishing, the available data sources to inform the analysis of these elements of IUU fishing and the steps in analysing and verifying the alleged infringements before management decisions are made. The Guidelines also support proactive analysis for identify emerging issues, reflecting the commitment of FFA Members to improve compliance profiling and deter and eliminate IUU fishing activities in the Pacific.

¹ MRAG Asia Pacific (2016), Towards the Quantification of Illegal, Unreported and Unregulated (IUU) Fishing in the Pacific Islands Region.

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1. Purpose and Scope

The Monitoring Control and Surveillance (MCS) Data Analysis Guidelines (the guidelines) are a set of general guidelines developed to support and direct the analysis of a range of data and information used to:

- detect illegal, unreported, and unregulated (IUU) fishing activities;
- gauge the extent and severity of IUU activities to support effective enforcement actions;
- evaluate or ensure compliance with relevant legal obligations; and
- guide compliance and enforcement activity decision making.

The development of the guidelines delivers on the specific action in FFA's Regional Monitoring, Control and Surveillance Strategy (RMCSS) 2018-2023 for "The development of MCS data procedures to guide national MCS officers to identify, analyse and verify IUU fishing".

The approach taken to develop the guidelines has been informed and directed by the RMCSS. The RMCSS states that to ensure a targeted approach "these procedures should disaggregate IUU fishing into its three main components, then outline key steps to be taken to effectively identify, analyse and verify suspect activity". The RMCSS notes that this can be achieved through "developing distinct SOPs or other."

The guidelines are structured around the accepted description of IUU and the disaggregation of the component parts of IUU. The guidelines support both proactive and reactive data analysis and will assist MCS practitioners in identifying data and information to support this analysis.

The guidelines identify key documents that establish the particular activity as IUU, and key information sources to inform the data analysis. The guidelines then develop procedural guidelines for the analysis of the different types of IUU fishing activity. This is based on accepted definitions of IUU that have been applied to the Pacific context.

Critical handover points are not specified in the individual IUU data analysis guidance because these handover points will vary between administrations and may also differ depending on the circumstances of the alleged or suspected IUU activity and the required response (such as operational responses that may be national or regional). Data analysts should ensure that all available data that applies to circumstances of the alleged or suspected IUU activity is analysed and included in the report package before the report is submitted. Any other available information sources that may assist but were unable to be accessed should be noted for possible further action. Analysts are encouraged to seek support from regional (FFA, SPC and WCPFC) and sub-regional (PNA) agencies and share information with other Members wherever possible and appropriate.

The guidelines are intended to be a living document and will continue to be developed and updated as required. The guidelines may also be used by individual member countries to inform the development of national MCS data analysis guidelines that accommodate the specific administrative structure, including functions and responsibilities, available resources, and current data analysis capability.

There are two Regional Fisheries Management Organisations (RFMOs) with a mandate to manage and conserve marine resources in the waters around FFA Member States, the Western and Central Pacific Fisheries Commission (WCPFC) and the South Pacific Regional Fisheries Management Organisation (SPRFMO). WCPFC is responsible for the management and conservation of all highly migratory fish stocks that occur within the WCPFC Convention Area (WCPFC-CA) except sauries.

SPRFMO is responsible for the long-term conservation and sustainable use of non-highly migratory species within areas beyond national jurisdiction (ABNJ) within the South Pacific Ocean. The guidelines focus predominantly on the requirements of the WCPFC, due to highly migratory species being by far the most prevalent fisheries for FFA Members and the decisions of the WFPFC having application within members areas of national jurisdiction.

2. Key Terms

ABNJ – Areas beyond national jurisdiction

AIS – Automatic Identification System

ALC – Automatic Location Communicator (VMS Unit)

CA – Convention Area of the

CCM – WCPF Commission Cooperating Member

CMM – Conservation and management measure

CNM – WCPFC Cooperating Non-Member

CPUE – Catch Per Unit of Effort

WCPFC ED – Executive Director or WCPFC

EM – Electronic Monitoring

ER – Electronic Reporting

FAME – SPC Fisheries, Aquaculture and Marine Ecosystems Division

FFA – Forum Fisheries Agency

FFC – Forum Fisheries Commission

FIMS – PNA Fisheries Information Management System

FSM Arrangement – The Federated States of Micronesia Arrangement for Regional Fisheries Access

HMS – Highly Migratory Species

HMTC – Harmonised Minimum Terms and Conditions

HSBI – High Seas Boarding and Inspection

IMO Number – International Maritime Organization Ship Identification Number

IPOA-IUU – International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing

IRCS - International Radio Call Sign

ISMS – The FFA Information Security Management System Policy

IT – Information Technology

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IUU – Illegal, Unreported and Unregulated

MCS – Monitoring Control and Surveillance

MMSI – Marine Mobile Station Identification number

MTU – Mobile Transceiver Unit (VMS Unit)

NTIS – Niue Treaty Information System

NTSA – Niue Treaty Subsidiary Arrangement

OFP – SPC FAME Oceanic Fisheries Programme

PIRFO – Pacific Island Regional Fisheries Observer

PNA – Parties to the Nauru Agreement Concerning Cooperation in the Management of Fisheries of Common Interest

PNAO – Parties to the Nauru Agreement Office

QUADS – Quadrilateral Defence Coordination Group of Australia, New Zealand, France, and the USA

RFMO – Regional Fisheries Management Organisations

RFSC – FFA Regional Fisheries Surveillance Centre

RFV – WCPFC Record of Fishing Vessels

RIMF – Regional Information Management Framework

RMCSS – The FFA Regional Monitoring, Control and Surveillance Strategy

ROP – WCPFC Regional Observer Programme

RSP – Regional Surveillance Picture.

SAR – Synthetic Aperture Radar

SPC – The Pacific Community

SPRFMO – South Pacific Regional Fisheries Management Organisation

TUFMAN 2 – SPC's Tuna Fisheries Management System

US Tuna Treaty – The Treaty on Fisheries between the Governments of Certain Pacific Island States and the Government of the United States of America

UVI – Unique Vessel Identifier

VMS – Vessel Monitoring System

WCPFC – Western and Central Pacific Fisheries Commission

WCPF-CA – Western and Central Pacific Fisheries Convention Area

WCPFC CMS – WCPFC Compliance Monitoring Scheme

3. What is the Purpose of MCS Data Analysis?

MCS data analysis is a key component that can help to support, inform, direct and target MCS responses and enforcement action.

The accepted definition of MCS² is:

- Monitoring refers to the collection, measurement and analysis of fishing activity including, but not limited to, catch, species composition, fishing effort, bycatch, discards, and area of operation.
- Control involves the specification of the terms and conditions under which resources can be harvested, which are normally contained in fisheries legislation and other arrangements (national, sub-regional, regional).
- Surveillance involves the regulation and supervision of fishing activity to ensure that national legislation and terms, conditions of access and management measures are observed.

MCS data is any data or information that is obtained through, or that informs these MCS processes. MCS data includes but is not limited to:

- vessel catch and effort data (logbooks);
- vessel monitoring system (VMS) data;
- automatic identification system (AIS) data;
- aerial and surface surveillance contact data and reports;
- boarding and inspection reports;
- observer reports;
- bunkering and transshipment notifications and reports;
- fish transshipment monitoring reports;
- factory receipt information;
- catch documentation scheme information;
- satellite vessel detection reports;
- records of fishing vessels including vessel registration and licensing information; and
- other information including the publicly available information, that is used for MCS purposes.

MCS data analysis can be either proactive or reactive. Proactive analysis seeks to identify likely offending behaviour based on specific parameters, such as across fleets, fishing areas or fishing periods. Reactive analysis is undertaken where information of alleged offending is received, and analysis seeks to identify from the available data and information if alleged offending activity occurred, the scale of the activity and to support investigations and prosecutions if these occur.

Data analysis can also be conducted on historical MCS data to create vessel, operator or fleet profiles that include such things as mode of operation, reporting patterns, previous treatment of crew and observers. These profiles can be developed to support current investigations or to inform targeted surveillance operations (sea, air or port based).

² Fisheries monitoring: Management models, compliance and technical solutions; Meryl J. Williams and Violeta P. Corral. <http://www.fao.org/3/x3900e/x3900e03.htm>

4. The Description of IUU

The term IUU fishing is used to broadly describe fishing activities that contravene or disregard national, regional or international fisheries legal frameworks or to describe a lack of regulation or control in fisheries. The term covers a wide variety of fishing activities and reflects three distinct and separate components; illegal, unreported and unregulated. The 2001 FAO International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (IPOA-IUU) provides a description of these three components.

Illegal fishing refers to fishing activities:

- conducted by national or foreign vessels in waters under the jurisdiction of a State, without the permission of that State, or in contravention of its laws and regulations;
- conducted by vessels flying the flag of States that are parties to a relevant regional fisheries management organization but operate in contravention of the conservation and management measures adopted by that organization and by which the States are bound, or relevant provisions of the applicable international law; or
- in violation of national laws or international obligations, including those undertaken by cooperating States to a relevant regional fisheries management organization.

Unreported fishing refers to fishing activities:

- which have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations; or
- undertaken in the area of competence of a relevant regional fisheries management organization which have not been reported or have been misreported, in contravention of the reporting procedures of that organization.

Unregulated fishing refers to fishing activities:

- in the area of application of a relevant regional fisheries management organization that are conducted by vessels without nationality, or by those flying the flag of a State not party to that organization, or by a fishing entity, in a manner that is not consistent with or contravenes the conservation and management measures of that organization; or
- in areas or for fish stocks in relation to which there are no applicable conservation or management measures and where such fishing activities are conducted in a manner inconsistent with State responsibilities for the conservation of living marine resources under international law.

5. The Disaggregation of IUU

The IPOA-IUU’s broad description of IUU fishing provides a foundation to describe the specific IUU fishing activities that occur in the Western Central Pacific Fisheries Convention Area (WCPFC-CA). While there are three separate components to IUU fishing that can require the application of different MCS and enforcement measures, there is some overlap. Within the WCPFC-CA, fishing for tuna and tuna like species are managed through conservation and management measures (CMMs) adopted by the WCPFC and implemented through FFA Member States national law.

The disaggregated IUU description elements can be applied to the Pacific context to inform targeted MCS data analysis. Unregulated fishing, which relates to fishing in areas or for fish stocks in relation to which there are no applicable CMMs does not apply in the Pacific as all areas of the high seas in the region are under the mandate of the RFMO’s mentioned previously.

The application of these elements to the Pacific context, and specifically highly migratory fisheries in the WCPFC-CA, are included in table 1 below.

Table 1: Disaggregation of IUU applied to the Pacific Context

IUU Description Element	IUU Description Element Applied to the Pacific Context
Illegal fishing refers to fishing activities:	
(1) conducted by national or foreign vessels in waters under the jurisdiction of a State, without the permission of that State, or in contravention of its laws and regulations;	I. A national vessel of an FFA member undertaking fishing or related activities in that member State’s EEZ without a licence or authorisation. II. Vessels on the FFA Regional Register of Vessels in Good Standing undertaking fishing or related activities in a member State’s EEZ without a licence or authorisation. III. WCPFC authorised vessels undertaking fishing or related activities in FFA member EEZs for which they have no license or authorisation. ³
(2) conducted by vessels flying the flag of States that are parties to a relevant regional fisheries management organization but operate in contravention of the conservation and management measures adopted by that organization and by which the States are bound, or relevant provisions of the applicable international law; or	IV. Vessels on the WCPFC RFV undertaking fishing or related activities on the high seas that contravene any WCPFC CMM requirements.

³ This may also be considered unregulated, depending on the nature of the activities and the flag State authorisation and control in place.

<p>(3) in violation of national laws or international obligations, including those undertaken by cooperating States to a relevant regional fisheries management organization.</p>	<p>V. Any vessel authorised or licenced to operate in an FFA member waters contravening any of the relevant and established laws or regulations, including licence conditions.</p>
<p>Unreported fishing refers to fishing activities:</p>	
<p>(1) which have not been reported, or have been misreported, to the relevant national authority, in contravention of national laws and regulations; or</p>	<p>I. Vessels operating in a FFA member's EEZ and not reporting, or misreporting, data or information related to any fishing or related activity in violation of reporting requirements defined in national legislation.</p>
<p>(2) undertaken in the area of competence of a relevant regional fisheries management organization which have not been reported or have been misreported, in contravention of the reporting procedures of that organization.</p>	<p>II. Vessels operating on the High Seas in the WCPO and not reporting or misreporting data or information related to any fishing or related activity in violation reporting requirements defined in WCPFC CMM's.</p>
<p>Unregulated fishing refers to fishing activities:</p>	
<p>(1) in the area of application of a relevant regional fisheries management organization that are conducted by vessels without nationality, or by those flying the flag of a State not party to that organization, or by a fishing entity, in a manner that is not consistent with or contravenes the conservation and management measures of that organization.</p>	<p>I. Fishing for highly migratory species (HMS) within the WCPF-CA by vessels without nationality or that are neither on the WCPFC RFV nor fishing within waters under national jurisdiction</p> <p>II. Fishing within the WCPF-CA by vessels flagged to cooperating parties, but which are not on the WCPFC Record of Fishing Vessels and are therefore not authorised to fish on the high seas inside the WCPF-CA nor subject to the regulation imposed through this authorisation⁴.</p>

Each element of IUU as it applies in the Pacific has been further described in the following sections. These sections also identify the documents to inform the identification of the IUU element and the

⁴ This may in some circumstances be considered an illegal activity, but this can depend on the circumstances in which the activity occurs and the legislation and controls that are in place. However, it has been included as an unregulated activity as it can also be a way of vessels circumventing flag State regulation of activities as controls and regulation will often be administered through high seas fishing permits and authorisations.

data sources that can be analysed to confirm the IUU activity. Each section also contains specific data analysis guidance relevant to the IUU element and data sources.

In general, the steps outlined when analysing each IUU type are not fixed and may not be sequential. Analysts must make all efforts to ensure all available data sources and the data contained within these sources is accessed, analysed, and verified. FFA/ RFSC analysts can assist members with getting access to required data and undertaking the analysis where required.

Further detail on each of the referenced data sources are included in section 7 of the guidelines.

5.1 Illegal Fishing

Illegal fishing encompasses all activities that do not comply with relevant and established national, regional, or international rules, laws, or regulations. This means that it can encompass a very broad range of activities.

The individual illegal fishing description elements are discussed below along with the guidelines for the analysis of the different types of illegal fishing activity.

5.1.1 A national vessel of an FFA member undertaking fishing or related activities in that member State's EEZ without a licence or authorisation.

Key Documents

Document	Key Information
National Legislation	The definition of “fishing and related activities” and the establishment of the requirement that all vessels or fishers be licenced and/or have an authorisation to fish within the State’s waters.

Key Data Sources

Data Source	Application
National vessel register	Confirmation that the vessel is not registered.
National licence list	Confirmation that the vessel or associated entities do not hold a fishing licence.
Vessel positional data	Confirmation of the areas the vessel has operated, and indications of possible vessel activities carried out through vessel track analysis.
Catch and effort data	Confirmation of fishing or related activities.
Surveillance contact reports	Details of any sightings of the vessel, at sea inspections completed or activities observed through surveillance.

Inspection Records and Reports	Details of any inspections completed following the alleged trip. Records obtained onboard the vessel that verify the vessel fishing activities.
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Elements of the Illegal Activity

The main elements to this illegal fishing are that:

- The vessel was a national vessel of the State within which the fishing occurred; and
- The vessel conducted fishing or related activity; and
- The fishing or related activity occurred within the Member's EEZ; and
- The vessel or operator did not hold a current fishing licence at the time of the fishing activity.

Data Analysis Guidance

To support the MCS analysis it is important to understand the definition of fishing that is contained within the national legislation. The definition of fishing will generally be contained in the 'Interpretation' or 'Definitions' section of your primary national fisheries Act. Most national legislation will include a broad definition of fishing that includes many activities in support of fishing⁵. This means that a vessel may not need to have had fishing gear in the water to have undertaken fishing. Activities undertaken by the vessel need to be shown to have met the requirements of this definition.

The location of the alleged fishing or related activity is important also. For this particular activity to be illegal, the act needs to have occurred within Member's national waters (the Member's EEZ). Therefore, data or information needs to be secured that clearly shows the location of the activity or at the very least confirms that the vessel was within the Member's national waters at the time of the alleged fishing or related activity.

It is also important to establish that the vessel did not hold a fishing licence or authorisation at the time of the alleged fishing or related activity. Checks should be undertaken on the licence or authorisation register of the Member, including for applications that have been received but not approved at the time of the incident.

Analysis steps:

The specific steps followed will depend on the type of fishing activity undertaken and the evidence available to confirm the activity (from VMS, surveillance contacts, vessel sighting etc). The general analysis steps will be as follows:

- i. Analysts develop a clear understanding of the type of fishing or related activities that the vessel conducted.

⁵ This includes searching for fish, placing, searching or recovering a fish aggregating device (FAD) and any activity in support of fishing (including the use of aircraft for any searching activities).

- ii. Check with national maritime or relevant authority whether the vessel is registered and obtain full registration details.
- iii. Confirm that the vessel does not hold a valid fishing licence by checking the licence list held under licensing module under national IMS, FIMS, the licence list in RIMF or by accessing the physical files located with the licensing officer/licensing division.
- iv. If available, confirm VMS vessel positional data including the dates, areas the vessel operated and current location.
 - a. Analyse VMS reporting to identify possible fishing or related activities.
 - b. Analyse VMS to identify other vessels that were operating in the same areas as the vessel of interest that may be able to provide witness accounts of the vessel location and activity.
- v. If available, confirm VMS vessel If the vessel is still at sea, explore the potential to deploy the surveillance asset.
 - a. Brief the surveillance asset on the alleged vessel activities, current area of operation and any information requirements from the vessel if it is able to be intercepted and inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - b. Ensure contact reports from the surveillance asset are provided to the fisheries administration.
 - c. Analyse available surveillance contact reports for details of any sighting of the vessel or at sea inspections completed.
- vi. If the vessel is in port, deploy an inspection team to inspect the vessel.
 - a. Brief the inspection team on the alleged vessel activities, dates and locations of suspected fishing or related activity, the current location and any information requirements from the vessel when it is inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - b. Ensure inspection reports from the inspection team and items seized from the vessel are provided to the analyst.
 - c. Analyse available inspection records and reports for further data and information that verifies vessel activity at dates and times of interest.
- vii. Analyse any available observer data for vessel sightings to verify the alleged vessel activities.
 - a. An interview of the observer to obtain a statement may be required if the observer provides any information of evidential value.
- viii. Analyse vessel's catch and effort data (logsheets) and verify fishing and related activities alongside other available data (VMS, Inspection records and reports).
- ix. Bring all the information together and conduct analysis to develop a timeline of known and suspected vessel activities.
 - a. Make a determination on the alleged incident based on the outcome of the analysis.
- x. Prepare a brief with a summary of the analysis completed and the results of the analysis.
 - a. The brief should bring the information together and present the information in a clear and concise manner to ensure that it can be easily understood.
 - b. Comparative graphs and charts should be used where appropriate to compare data and information obtained.
- xi. FFA/ RFSC analysts can assist members in obtaining and analysing the necessary information that may not be available at national level. The dissemination will be completed in compliance with the data sharing rules and other data security requirements (see Section 8 for details on this).

5.1.2 Vessels on the FFA Regional Register of Foreign Vessels and/or the WCPFC RFV undertaking fishing or related activities in a member State's EEZ without a licence or authorisation.

Key Documents

Document	Key Information
National Legislation	<ul style="list-style-type: none"> - The definition of “fishing and related activities” and the establishment of the requirement that all vessels or fishers be licenced and/or have an authorisation to fish within the State’s waters. - Requirements for vessels transiting the EEZ (e.g. gear stowage).

Key Data Sources

Data Source	Application
National vessel register	Confirmation that the vessel is not registered.
National licence list	Confirmation that the vessel or associated entities do not hold a fishing licence.
FFA Good Standing Register	Confirmation of the vessel details and that the vessel is entered on the regional register.
WCPFC Record of Fishing Vessels	Confirmation of the vessel details and the vessels flag State authorisation to fish in areas beyond national jurisdiction. Details of the vessel master.
Vessel positional data	Confirmation of the areas the vessel has operated, and indications of possible vessel activities carried out through vessel track analysis.
Catch and effort data	Confirmation of fishing or related activities.
Surveillance contact reports	Details of any sightings of the vessel, at sea inspections completed or activities observed through surveillance.
Inspection Records and Report	Details of any inspections completed following the alleged trip. Records obtained onboard the vessel that verify the vessel fishing activities.

Elements of the Illegal Activity

The main elements to this illegal fishing are that:

- The vessel conducted fishing or related activity; and
- The fishing or related activity occurred within a Member's EEZ; and
- The vessel was on FFA Good Standing, PNA Vessel Registry and/or the WCPFC RFV when the fishing occurred; and
- The vessel or operator did not hold a current fishing licence at the time of the fishing activity.

Data Analysis Guidance

To support the MCS analysis it is important to understand the definition of fishing that is contained within the national legislation. The definition of fishing will generally be contained in the 'Interpretation' or 'Definitions' section of your primary national fisheries Act. Most national legislation will include a broad definition of fishing that includes many activities in support of fishing⁶. This means that a vessel may not need to have had fishing gear in the water to have undertaken fishing. Activities undertaken by the vessel need to be shown to have met the requirements of this definition.

The location of the alleged fishing or related activity is important also. For this particular activity to be illegal, the act needs to have occurred within Member's national waters (the Member's EEZ). Therefore, data or information needs to be secured that clearly shows the location of the activity or, at the very least, confirms that the vessel was within the Member's national waters at the time of the alleged fishing or related activity.

It is also important to establish that the vessel did not hold a fishing licence or authorisation at the time of the alleged fishing or related activity. Checks should be undertaken on the licence or authorisation register of the Member, including for applications that have been received but not approved at the time of the incident.

In these circumstances the vessels have complied with regional requirements, (FFA Regional Register of Foreign Vessels, PNA Vessel Register and/or the WCPFC RFV) but has fished in an area it was not authorised to fish. These registers will therefore contain important information on the vessel, operator and authorisations held.

Analysis steps:

The specific steps followed will depend on the type of fishing activity undertaken, the evidence available to confirm the activity (from VMS, surveillance contacts, vessel sighting, observer reports etc) and the proximity of the detection to the time of the alleged activity. However, the general analysis steps will be as follows:

- i. Analysts develop a clear understanding of the type of fishing or related activities that the vessel conducted.
- ii. Check the FFA Regional Register of Foreign Vessels, PNA FIMS vessel tab (for PNA Members) and the WCPFC RFV and obtain full registration details and details of the flag State authorisation held.

⁶ This includes searching for fish, placing, searching, or recovering a fish aggregating device (FAD) and any activity in support of fishing (including the use of aircraft for any searching activities).

- iii. Confirm that the vessel does not hold a valid fishing licence by checking the licence list held under licensing module under national IMS, FIMS, the licence list in RIMF or by accessing the physical files located with the licensing officer/licensing division.
- iv. Examine the regional surveillance picture (RSP), or PNA FIMS Assets Tracker to confirm vessel details and current location. Continue to monitor the vessel location while undertaking the following analysis.
- v. If available, confirm VMS vessel positional data including the dates and areas the vessel operated illegally. If not available send a request to WCPFC for VMS positions for the vessel to be provided.
 - a. Analyse VMS reporting to identify possible fishing or related activities.
 - b. Analyse VMS to identify other vessels that were operating in the same areas as the vessel of interest that may be able to provide further witness accounts of the vessel location and activity.
- vi. Check and analyse surveillance contacts and vessel sightings for detections of the vessel.
- vii. Check NTIS for previous inspection records and identify usual ports the vessel uses.
- viii. If the vessel is still at sea in national waters, explore the potential to deploy a surveillance asset.
 - a. Brief the surveillance asset on the alleged vessel activities, current area of operation and any information requirements from the vessel if it is able to be intercepted and inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - b. Ensure contact reports from the surveillance asset are provided to the reporting fisheries administration.
 - c. Analyse available surveillance contact reports for details of any sighting of the vessel or at sea inspections completed.
- ix. If the vessel is still at sea in another FFA Member waters, explore the potential to deploy that Member's surveillance asset.
 - a. Liaise with FFA RFSC and the FFA Member to coordinate the asset deployment.
 - b. Brief the surveillance asset on the alleged vessel activities, current area of operation and any information requirements from the vessel if it is able to be intercepted and inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - c. Ensure contact reports from the surveillance asset are provided to the reporting fisheries administration.
 - d. Analyse available surveillance contact reports for details of any sighting of the vessel or at sea inspections completed.
- x. If the vessel is still at sea on the high seas, liaise with FFA RFSC to see if other surveillance assets are in the area.
 - a. Brief FFA RFSC on the alleged vessel activities, current area of operation and any information requirements from the vessel if it is able to be intercepted and inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - b. If no surveillance assets are available, notify the flag State of the alleged illegal activity.
 - i. Request that the vessel be required to return to port to allow for an inspection to be undertaken.
 - ii. Request that the flag State investigate the alleged illegal activity and take appropriate enforcement action.

- xi. If the vessel is in a national port, deploy an inspection team to inspect the vessel.
 - a. Brief the inspection team on the alleged vessel activities, dates and locations of suspected fishing or related activity, the current location and any information requirements from the vessel when it is inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - b. Ensure inspection reports from the inspection team and documents or information seized from the vessel are provided to the analyst.
 - c. Analyse available inspection records and reports for further data and information that verifies vessel activity at dates and times of interest.
- xii. If the vessel is in a port of another FFA Member, request that Member to deploy an inspection team to inspect the vessel on your behalf.
 - a. Brief the inspection team on the alleged vessel activities, dates and locations of suspected fishing or related activity, the current location and any information requirements from the vessel when it is inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - b. Ensure inspection reports from the inspection team and documents or information seized from the vessel are provided to the analyst.
 - c. Analyse available inspection records and reports for further data and information that verifies vessel activity at dates and times of interest.
- xiii. Analyse any available observer data.
 - a. If an observer was deployed on the vessel arrange for an interview of the observer to obtain a statement on the alleged illegal activities.
 - b. If an observer was not deployed on the vessel arrange for check other observer deployments for possible observer sightings to verify the alleged vessel activities.
- xiv. Analyse vessel's catch and effort data (logsheets) and verify fishing and related activities, including reported locations, alongside other available data (VMS, Inspection records and reports).
- xv. Bring all the information together and conduct analysis to develop a timeline of known and suspected vessel activities.
 - a. Make a determination on the alleged incident based on the outcome of the analysis.
- xvi. Prepare a brief with a summary of the analysis completed and the results of the analysis.
 - a. The brief should bring the information together and present the information in a clear and concise manner to ensure that it can be easily understood.
 - b. Comparative graphs, charts and tables should be used where appropriate to compare data and information obtained.
- xvii. FFA/ RFSC analysts can assist members in obtaining and analysing the necessary information that may not be available at national level. The dissemination will be completed in compliance with the data sharing rules and other data security requirements (see Section 8 for details on this).

5.1.3 Foreign flagged vessels not on any regional vessel register undertaking fishing or related activities in a FFA member EEZs for which they have no license or authorisation.

Key Documents

Document	Key Information
National Legislation	<ul style="list-style-type: none"> - The definition of “fishing and related activities” and the establishment of the requirement that all vessels or fishers be licenced and/or have an authorisation to fish within the State’s waters. - Requirements for vessels transiting the EEZ (e.g. gear stowage).

Key Data Sources

Data Source	Application
National vessel register	Confirmation that the vessel is not registered.
National licence list	Confirmation that the vessel or associated entities do not hold a fishing licence.
FFA Good Standing Register	Confirmation of the vessel details and that the vessel is entered on the regional register.
WCPFC Record of Fishing Vessels	Confirmation of the vessel details and the vessels flag State authorisation to fish in areas beyond national jurisdiction. Details of the vessel master.
Vessel positional data	Confirmation of the areas the vessel has operated, and indications of possible vessel activities carried out through vessel track analysis.
Catch and effort data	Confirmation of the fishing or related activities.
Surveillance contact reports	Details of any sightings of the vessel, at sea inspections completed or activities observed through surveillance.
Inspection Records and Report	Details of any inspections completed following the alleged trip. Records obtained onboard the vessel that verify the vessel fishing activities.

Elements of the Illegal Activity

The main elements to this illegal fishing are that:

- The vessel conducted fishing or related activity; and
- The fishing or related activity was within the Member’s EEZ; and
- The vessel was not on the FFA Good Standing and/or the WCPFC RFV when the fishing occurred; and
- The vessel or operator did not hold a current fishing licence at the time of the fishing activity.

Data Analysis Guidance

To support the MCS analysis it is important to understand the definition of fishing that is contained within the national legislation. The definition of fishing will generally be contained in the 'Interpretation' or 'Definitions' section of your primary national fisheries Act. Most national legislation will include a broad definition of fishing that includes many activities in support of fishing⁷. This means that a vessel may not need to have had fishing gear in the water to have undertaken fishing. Activities undertaken by the vessel need to be shown to have met the requirements of the fishing definition. The requirements for vessels transiting waters (such as having fishing gear stowed) should be identified also.

The location of the alleged fishing or related activity is important also. For this particular activity to be illegal, the act needs to have occurred within Member's national waters (the Member's EEZ). Therefore, data or information needs to be secured that clearly shows the location of the activity or, at the very least, confirms that the vessel was within the Member's national waters at the time of the alleged fishing or related activity.

It is also important to establish that the vessel did not hold a fishing licence or authorisation at the time of the alleged fishing or related activity. Checks should be undertaken on the licence or authorisation register of the Member, including for applications that have been received but not approved at the time of the incident.

In these circumstances the vessels are not on any regional registers so less details will be readily available on these vessels. The analyst may therefore need to search widely to confirm important vessel details and regional assistance should be sought as early as possible.

Analysis steps:

The specific steps followed will depend on the type of fishing activity undertaken, the evidence available to confirm the activity (from VMS, surveillance contacts, vessel sighting, observer reports etc) and the proximity of the detection to the time of the alleged activity. However, the general analysis steps will be as follows:

- i. Analysts develop a clear understanding of the type of fishing or related activities that the vessel allegedly conducted.
- ii. Confirm that the vessel does not occur on the FFA Regional Register of Foreign Vessels, PNA FIMS vessel tab (for PNA Members) and the WCPFC RFV.
- iii. Confirm that the vessel does not hold a valid fishing licence by checking the licence list held under licensing module under national IMS, FIMS, the licence list in RIMF or by accessing the physical files located with the licensing officer/licensing division.
- iv. Examine the regional surveillance picture (RSP) or PNA FIMS Asset Tracker to try and confirm vessel details and current location using AIS data. Continue to monitor the vessel location (if positions are available) while undertaking the following analysis.
- v. Check vessel IUU lists for possible matches on the vessel.
- vi. Consult publicly available vessel registers to try and confirm the vessel identity and flag.
- vii. Notify the FFA RFSC to flag as a VOI and commence a regionally coordinated response.
- viii. If AIS data is available, confirm AIS vessel positional data including the dates and areas the vessel operated illegally.

⁷ This includes searching for fish, placing, searching, or recovering a fish aggregating device (FAD) and any activity in support of fishing (including the use of aircraft for any searching activities).

- a. Analyse AIS reporting to identify possible fishing or related activities.
 - b. Analyse AIS to identify other vessels that were operating in the same areas as the vessel of interest that may be able to provide further witness accounts of the vessel location and activity.
- ix. Check and analyse surveillance contacts and vessel sightings for detections of the vessel.
- x. If the vessel is still at sea in national waters, explore the potential to deploy a surveillance asset.
 - a. Brief the surveillance asset on the alleged vessel activities, current area of operation and any information requirements from the vessel if it is able to be intercepted and inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - b. Ensure contact reports from the surveillance asset are provided to the reporting fisheries administration.
 - c. Analyse available surveillance contact reports for details of any sighting of the vessel or at sea inspections completed.
- xi. If the vessel is still at sea in another FFA Member waters, explore the potential to deploy that Member's surveillance asset.
 - a. Liaise with FFA RFSC and the FFA Member to coordinate the asset deployment.
 - b. Brief the surveillance asset on the alleged vessel activities, current area of operation and any information requirements from the vessel if it is able to be intercepted and inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - c. Ensure contact reports from the surveillance asset are provided to the reporting fisheries administration.
 - d. Analyse available surveillance contact reports for details of any sighting of the vessel or at sea inspections completed.
- xii. If the vessel is still at sea on the high seas or the location is unknown, liaise with FFA RFSC to confirm if other surveillance assets are in the area.
 - a. Provide a brief to the FFA RFSC on the alleged vessel activities, current area of operation and any information requirements from the vessel if it is able to be intercepted and inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - b. If no surveillance assets are available, notify the flag State (if known) of the alleged illegal activity.
 - i. Request that the vessel be required to return to port to allow for an inspection to be undertaken.
 - ii. Request that the flag State investigate the alleged illegal activity and take appropriate enforcement action.
- xiii. If the vessel is in a national port, deploy an inspection team to inspect the vessel.
 - a. Brief the inspection team on the alleged vessel activities, dates and locations of suspected fishing or related activity, the current location and any information requirements from the vessel when it is inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - b. Ensure inspection reports from the inspection team and documents or information seized from the vessel are provided to the analyst.
 - c. Analyse available inspection records and reports for further data and information that verifies vessel activity at dates and times of interest.

- xiv. If the vessel is in a port of another FFA Member, request that Member to deploy an inspection team to inspect the vessel on your behalf.
 - a. Brief the inspection team on the alleged vessel activities, dates and locations of suspected fishing or related activity, the current location and any information requirements from the vessel when it is inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - b. Ensure inspection reports from the inspection team and documents or information seized from the vessel are provided to the analyst.
 - c. Analyse available inspection records and reports for further data and information that verifies vessel activity at dates and times of interest.
- xv. Analyse any available observer data.
 - a. If an observer was deployed on the vessel, arrange for an interview of the observer to obtain a statement on the alleged illegal activities.
 - b. If an observer was not deployed on the vessel arrange for check other observer deployments for possible observer sightings to verify the alleged vessel activities.
- xvi. Analyse vessel's catch and effort data (logsheets) and verify fishing and related activities, including reported locations, alongside other available data (VMS, Inspection records and reports).
- xvii. Bring all the information together and conduct analysis to develop a timeline of known and suspected vessel activities.
 - a. Make a determination on the alleged incident based on the outcome of the analysis.
- xviii. Prepare a brief with a summary of the analysis completed and the results of the analysis.
 - a. The brief should bring the information together and present the information in a clear and concise manner to ensure that it can be easily understood.
 - b. Comparative graphs and charts should be used where appropriate to compare data and information obtained.
- xix. FFA/ RFSC analysts can assist members in obtaining and analysing the necessary information that may not be available at national level. The dissemination will be completed in compliance with the data sharing rules and other data security requirements (see Section 8 for details on this).

5.1.4 Vessels on the WCPFC RFV undertaking fishing or related activities on the high seas that contravene any WCPFC CMM requirements.

Key Documents

Document	Key Information
WCPFC CMM's	<p>The requirements that vessels need to comply with. The specific CMM will depend on the type of alleged illegal activity.</p> <p>Common issues could include:</p> <ul style="list-style-type: none"> • purse seine breaches of the FAD closure period • purse seine vessels setting on a cetacean

	<ul style="list-style-type: none"> • longline vessels failing to deploy bird mitigation devices • longline vessels discarding shark carcasses and retaining the fins (shark finning). • any vessel conducting a transshipment within the Eastern High Seas Pocket.
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Key Data Sources

Data Source	Application
WCPFC Record of Fishing Vessels	Confirmation of the vessel details and the vessels flag State authorisation to fish in areas beyond national jurisdiction. Details of the vessel master.
Vessel positional data	Confirmation of the areas the vessel has operated, and indications of possible vessel activities carried out through vessel track analysis.
Catch and effort data	Confirmation of the fishing or related activities.
Surveillance contact reports	Details of any sightings of the vessel, at sea inspections completed or activities observed through surveillance.
Inspection Records and Report	Details of any inspections completed following the alleged trip. Records obtained onboard the vessel that verify the vessel fishing activities.

Data Analysis Guidance

Elements of the Illegal Activity

The main elements to this illegal fishing are that:

- The vessel conducted fishing or related activity; and
- The fishing or related activity was on the High Seas within the WCPFC-CA; and
- The vessel or operator did not comply with a requirement/s of a WCPFC CMM/s.

Data Analysis Guidance

In these circumstances the vessels are legally allowed to fish in the WCPFC-CA, but they have not complied with the rules (CMM's) established by the WCFC. The MCS data analysis requirements for this illegal activity will depend on the type of illegal activity alleged (the CMM requirement that is breached). These can be many and varied and also differ between the different fishing methods employed in the WCPO.

The illegal acts may relate to the species caught, the way they are retained or discarded, the method of setting and retrieving gear, the objects that are fished on or the transshipment of catch in an area of the WCPFC-CA where this is prohibited. So, some illegal acts depend on the vessel location. Some apply to all areas in the WCPFC-CA but relate to the catch onboard or the catch that has been discarded. Some have no relation to catch either discarded or retained but depend on what, how or where gear is set. Each offence can have a unique and specific focus which is difficult to capture succinctly in these guidelines.

The location of the alleged activity will be important to all of these illegal acts as the CMM's apply only to the WCPFC-CA, and some only to specific areas of the WCPFC-CA. Therefore, data or information needs to be secured that clearly shows the location of the activity or, at the very least, confirms that the vessel was within the WCPFC-CA or the specific area of the WCPFC-CA that the CMM applies to at the time of the alleged illegal fishing or related activity.

Analysis steps:

The specific steps followed will depend on the type of fishing or related activity undertaken, the evidence available to confirm the activity (from VMS, surveillance contacts, vessel sighting, observer reports etc) and the proximity of the detection to the time of the alleged activity. However, the general analysis steps will be as follows:

- i. Analysts develop a clear understanding of the type of fishing or related activities that the vessel allegedly conducted and the CMM requirement that is alleged to have been breached. The CMM's can be accessed through this link <https://www.wcpfc.int/conservation-and-management-measures>.
- ii. Check the WCPFC RFV and obtain full registration details and details of the flag State authorisation held. The FFA Regional Register of Foreign Vessels and PNA FIMS vessel tab (for PNA Members) should also be searched to obtain additional vessel information and confirm VMS reporting (FFA VMS or WCPFC).
- iii. Examine the Regional Surveillance Picture (RSP) to confirm vessel details and current location. Continue to monitor the vessel location while undertaking the following analysis.
- iv. If available, confirm VMS vessel positional data including the dates and areas the vessel operated illegally. If the specific dates of the alleged illegal activity are not known, then the VMS data for the entire trip/s should be obtained.
- v. If VMS data is not available through FFA VMS, then send a request to WCPFC for VMS positions for the vessel to be provided for the period of the alleged offending.
 - a. Analyse VMS reporting to identify possible fishing or related activities.
 - b. Analyse VMS to identify other vessels that were operating in the same areas as the vessel of interest that may be able to provide further witness accounts of the vessel location and activity.
- vi. Check and analyse surveillance contacts and vessel sightings for detections of the vessel.
- vii. Check NTIS for previous inspection records and identify usual ports the vessel uses through this resource and through VMS analysis.
- viii. If the alleged illegal activity was identified through an at sea inspection in national waters or an in-port inspection, then check if the vessel has also breached national laws.

- ix. If an inspection has been completed on the vessel, then ensure that all applicable records or information onboard the vessel have been uplifted from the vessel (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - a. Ensure inspection reports from the inspection team and documents or information seized from the vessel are provided to the analyst.
 - b. Analyse available inspection records and reports for further data and information that verifies vessel activity at dates and times of interest.
- x. Analyse any available observer data.
 - a. If an observer was deployed on the vessel, arrange for an interview of the observer to obtain a statement on the alleged illegal activities.
 - b. If an observer was not deployed on the vessel arrange for check other observer deployments for possible observer sightings to verify the alleged vessel activities.
- xi. Analyse vessel's catch and effort data (logsheets) and verify fishing and related activities, including reported locations, alongside other available data (VMS, Inspection records and reports).
- xii. Bring all the information together and conduct analysis to develop a timeline of known and suspected vessel activities.
 - a. Make a determination on the alleged incident based on the outcome of the analysis.
- xiii. Prepare a brief with a summary of the analysis completed and the results of the analysis.
 - a. The brief should bring the information together and present the information in a clear and concise manner to ensure that it can be easily understood.
 - b. Comparative graphs, charts and tables should be used where appropriate to compare data and information obtained.
- xiv. Notify the flag State of the alleged illegal activity.
 - a. If the vessel has not breached national laws of the FFA Member, then request that the flag State investigate the alleged illegal activity and take appropriate enforcement action.
 - b. Notify WCPFC of the alleged illegal activities.
- xv. FFA/ RFSC analysts can assist members in obtaining and analysing the necessary information that may not be available at national level. The dissemination will be completed in compliance with the data sharing rules and other data security requirements (see Section 8 for details on this).

5.1.5 Any vessel authorised or licenced to operate in an FFA member waters contravening any of the relevant and established laws or regulations, including licence conditions.

Key Documents

Document	Key Information
National Legislation	– The establishment of vessel licence conditions, any closed areas, prohibited species or fishing methods or any other requirements for fishing vessels.

Vessel Licence, including licensing Conditions	<ul style="list-style-type: none"> - The licence and any restrictions or limitations imposed upon the licence. The specific licence conditions that are imposed on the vessel and its operation.
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Key Data Sources

Data Source	Application
National vessel register	If the vessel is a local vessel, confirmation that the vessel is on the national register and of the vessel details.
National licence list	Confirmation that the vessel or associated entities hold a fishing licence.
FFA Good Standing Register	If the vessel is a foreign flagged vessel, confirmation of the vessel details and that the vessel is entered on the regional register.
WCPFC Record of Fishing Vessels	If the vessel is a foreign flagged vessel, confirmation of the vessel details and the vessels flag State authorisation to fish in areas beyond national jurisdiction. Details of the vessel master.
Vessel positional data	Confirmation of the areas the vessel has operated, and indications of possible vessel activities carried out through vessel track analysis.
Observer Information	Observer accounts of the fishing activities undertaken and the potential illegal activities.
Catch and effort data	Confirmation of fishing or related activities.
Surveillance contact reports	Details of any sightings of the vessel, at sea inspections completed or activities observed through surveillance.
Inspection Records and Report	Details of any inspections completed following the alleged trip. Records obtained onboard the vessel that verify the vessel fishing activities. Details of actual unload or transhipment quantities.
Bunkering and Transhipment Reporting	Records of bunkering and transhipment activities completed, including vessels interacted with and quantities of fish transhipped.
Vessel Port Entry Requests	Details of catch onboard and catch areas for comparison to catch effort and observer catch records. Details of arrival in port and planned unload.
Catch Certification	Details of catch to be exported that can be used for comparison with catch effort and observer catch records.

Elements of the Illegal Activity

The main elements to this illegal fishing or related activity are that:

- The vessel was licenced or authorised to conduct fish or related activity in the FFA Member's waters; or
- The vessel was flagged to an FFA Member and authorised to operate in the area where the activity occurred; and
- The vessel or operator did not comply with the requirements of an established national law or regulation while in an FFA Member's waters.

Data Analysis Guidance

In these circumstances the vessels are legally allowed to fish in the Member's waters, but they have not complied with the rules established through the national legislation. The MCS data analysis requirements for this illegal activity will depend on the type of illegal activity alleged (the specific requirement that is breached). These can be many and varied and also differ between the different fishing methods employed in the WCPO and the different national jurisdictions.

The illegal acts may relate to the species caught, the way they are retained or discarded, the method of setting and retrieving gear, the objects that are fished on or fishing in an area where this is prohibited (closed areas). So, some illegal acts depend on the vessel location. Some apply to all areas within FFA Member's waters but relate to the catch onboard or the catch that has been discarded. Some have no relation to catch either discarded or retained but depend on what, how or where gear is set. Some may relate to a vessel not having their gear correctly stowed when transiting a Member's EEZ. Each offence can have a unique and specific focus which is difficult to capture succinctly in these guidelines.

The location of the alleged activity will be important to all of these illegal acts. For this particular activity to be illegal, the act needs to have occurred within Member's national waters (the Member's EEZ). Therefore, data or information needs to be secured that clearly shows the location of the activity or, at the very least, confirms that the vessel was within the Member's national waters at the time of the alleged fishing or related activity.

Analysis steps:

The specific steps followed will depend on the type of fishing or related activity undertaken, the evidence available to confirm the activity (from VMS, surveillance contacts, vessel sighting, observer reports etc) and the proximity of the detection to the time of the alleged activity. However, the general analysis steps will be as follows:

- i. Analysts develop a clear understanding of the type of fishing or related activities that the vessel allegedly conducted and the legislative requirement that is alleged to have been breached. This should include the licence conditions that apply to the vessel.
- ii. For flagged vessels, check with national maritime or relevant authority whether the vessel is registered and obtain full registration details.
- iii. For foreign flagged vessels, check the FFA Regional Register of Foreign Vessels, PNA FIMS vessel tab (for PNA Members) and the WCPFC RFV and obtain full registration details and details of the flag State authorisation held.

- iv. Confirm that the vessel does hold a valid fishing licence by checking the licence list held under licensing module under national IMS, FIMS, the licence list in RIMF or by accessing the physical files located with the licensing officer/licensing division. A copy of the vessel licence or licence/authorisation conditions should also be obtained.
- v. If the activity undertaken by the vessel is prohibited by the licence/authorisation conditions, then identify the specific licence condition where this is detailed.
- vi. Examine the regional surveillance picture (RSP) or PNA FIMS Asset Tracker to confirm vessel details and current location. Continue to monitor the vessel location while undertaking the following analysis.
- vii. Confirm VMS vessel positional data including the dates, areas the vessel operated and current location.
 - a. Analyse VMS reporting to identify possible fishing or related activities.
 - b. Analyse VMS to identify other vessels that were operating in the same areas as the vessel of interest that may be able to provide witness accounts of the vessel activity.
- viii. If the vessel is still at sea, explore the potential to deploy the surveillance asset.
 - a. Brief the surveillance asset on the alleged vessel activities, current area of operation and any information requirements from the vessel if it is able to be intercepted and inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - b. Ensure contact reports from the surveillance asset are provided to the reporting fisheries administration.
 - c. Analyse available surveillance contact reports for details of any sighting of the vessel or at sea inspections completed.
- ix. If the vessel is in port, deploy an inspection team to inspect the vessel.
 - a. Brief the inspection team on the alleged vessel activities, dates and locations of suspected fishing or related activity, the current location and any information requirements from the vessel when it is inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - b. Ensure inspection reports from the inspection team and documents or information seized from the vessel are provided to the analyst.
 - c. Analyse available inspection records and reports for further data and information that verifies vessel activity at dates and times of interest.
- x. If the vessel is still at sea or in port in another FFA Member waters, explore the potential to deploy that Member's surveillance asset or request an inspection be undertaken.
 - a. Liaise with FFA RFSC and the FFA Member to coordinate the asset or inspection team deployment.
 - b. Brief the surveillance asset or inspection team on the alleged vessel activities, current area of operation and any information requirements from the vessel if it is able to be intercepted and inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - c. Ensure contact reports from the surveillance asset or inspection reports from the inspection team are provided to the reporting fisheries administration.
 - d. Analyse available surveillance contact reports and/or inspection reports for details of any sighting of the vessel or inspections completed.
- xi. If the vessel is still at sea on the high seas or another Members waters, liaise with FFA RFSC to confirm if other surveillance assets are in the area.
 - a. Provide a brief to the FFA RFSC on the alleged vessel activities, current area of operation and any information requirements from the vessel if it is able to be

- intercepted and inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
- b. If no surveillance assets are available, notify the flag State (if known) of the alleged illegal activity.
 - i. Request that the vessel be required to return to port to allow for an inspection to be undertaken.
 - ii. Request that the flag State investigate the alleged illegal activity and take appropriate enforcement action.
 - xii. Analyse any available observer data for vessel sightings to verify the alleged vessel activities.
 - a. If an observer was deployed on the vessel, arrange for an interview of the observer to obtain a statement on the alleged illegal activities.
 - b. If an observer was not deployed on the vessel arrange for check other observer deployments for possible observer sightings to verify the alleged vessel activities.
 - xiii. Analyse vessel's catch and effort data (logsheets) and verify fishing and related activities alongside other available data (VMS, Inspection records and reports).
 - xiv. Bring all the information together and conduct analysis to develop a timeline of known and suspected vessel activities.
 - a. Make a determination on the alleged incident based on the outcome of the analysis.
 - xv. If the vessel was unable to be apprehended, notify the flag State of the alleged illegal activity.
 - a. Request that the flag State investigate the alleged illegal activity and take appropriate enforcement action; or
 - b. Request that the vessel be required to return to port to allow for an inspection to be undertaken.
 - xvi. Prepare a brief with a summary of the analysis completed and the results of the analysis.
 - a. The brief should bring the information together and present the information in a clear and concise manner to ensure that it can be easily understood.
 - b. Comparative graphs and charts should be used where appropriate to compare data and information obtained.
 - xvii. FFA/ RFSC analysts can assist members in obtaining and analysing the necessary information that may not be available at national level. The dissemination will be completed in compliance with the data sharing rules and other data security requirements (see Section 8 for details on this).

5.2 Unreported Fishing

Unreported fishing specifically relates to the failure to accurately report or record fishing activities as required by national, sub-regional or regional requirements. This can include, among other things, misreporting or failing to report:

- fishing events (gear sets) including misreporting set details e.g. FAD/Free school/MSC or float length, number of hooks per basket;
- species caught or discarded (both target and bycatch species);
- failing to accurately report quantities of fish caught (both target and bycatch species);
- the non-reporting of protected species captured;

- failing to report or misreporting bunker or transhipments undertaken;
- misreporting the locations at which fishing or related activities occurred; and
- failing to report port entry or zone entry or exit.

The individual unreported fishing description elements are discussed below along with the guidelines for the analysis of the different types of unreported fishing activity.

5.2.1 Vessels authorised and operating in a FFA member’s waters and not reporting, or misreporting, data or information related to any fishing or related activity in violation of reporting requirements defined in national legislation.

Key Documents

Document	Key Information
National Legislation	The establishment of the requirements for vessel activity reporting when operating within that State’s waters. This can be related to fishing catch and effort reporting, transhipment and bunkering notification and reporting, port and EEZ entry and exit reporting requirements and reporting requirements established for any other fishing or related activity.
Vessel Licence, including licensing Conditions	<ul style="list-style-type: none"> – The licence and any restrictions or limitations imposed upon the licence. – The specific licence conditions that are imposed on the vessel and its operation.

Primary Data Sources

Catch and effort data	Confirmation of the reported fishing or related activities.
Observer Information	Observer accounts of the fishing activities undertaken and the potential misreported activities.
Bunkering and Transhipment Reporting	Records of bunkering and transhipment activities reported as completed, including vessels interacted with and quantities of fish transhipped.
Vessel Port Entry Requests	Details of catch onboard and catch areas for comparison to catch effort and observer catch records. Details of arrival in port and planned unload.
Vessel Zone Entry and Exit Reports	Details of vessel movements into and out of member EEZ’s along with records of catch onboard.
Vessel Weekly Reports	Details of vessel catch onboard and location.

Other Key Data Sources

Data Source	Application
National vessel register	If the vessel is a local vessel, confirmation that the vessel is on the national register and of the vessel details.
National licence list	Confirmation that the vessel or associated entities hold a fishing licence.
FFA Good Standing Register	If the vessel is a foreign flagged vessel, confirmation of the vessel details and that the vessel is entered on the regional register.
Vessel Positional Data	Confirmation of the areas the vessel has operated, and indications of possible vessel activities carried out through vessel track analysis.
Surveillance contact reports	Details of any sightings of the vessel, at sea inspections completed or activities observed through surveillance.
Inspection Records and Report	Details of any inspections completed following the alleged trip. Records obtained onboard the vessel that verify the vessel fishing activities. Details of actual unload or transshipment quantities.
Catch Certification	Details of catch to be exported that can be used for comparison with catch effort and observer catch records.

The main elements to this unreported fishing are that:

- The vessel conducted fishing or related activity; and
- The fishing or related activity occurred within the Member's EEZ; and
- The operator or master (or their representative) was required to complete and/or submit a report or notification associated with a fishing or related activity; and
 - They did not complete or submit the report;
 - or
 - They completed or submitted a report that contained omissions or misreported required information.

Data Analysis Guidance

Unreported offences include both failing to report and submitting the required reporting with omissions or false particulars (misreporting).

There are a number of reporting requirements that vessels must comply with when fishing in FFA Member's waters. These include completing daily catch and effort reporting (see Section 7.6), zone entry and exit reports (see Section 7.11.2), vessel weekly reports (see Section 7.11.3), bunkering and transshipment notifications and reports (see Section 7.10) port entry notifications and requests (see Section 7.11.1) and catch certification reporting requirements (see Section 7.12).

Each of the reporting requirements contains a number of different required data fields that may be misreported or omitted by vessels undertaking unreported fishing activities. Therefore, as well as the report in its entirety, each individual data field represents an opportunity for 'unreported' fishing activities.

The specific reports or notifications that are required to be submitted are the key evidence to support data analysis of unreported fishing and related activities. These principal records need to be analysed and evaluated against other records, witness accounts or physical evidence to demonstrate the misreporting or unreported activities. This other evidence can include vessel records (see Section 7.8.1), observer reports (see Section 7.5), surveillance contact reports (see Section 7.7), inspection reports (see Section 7.8) and vessel positional data, such as VMS (see Section 7.4).

Analysis steps:

The specific steps followed will depend on the type of unreported fishing or related activity, the reporting requirement that it relates to and how this is captured and submitted (electronically through an IMS, e-mail submission or through physical forms), the other records or evidence available to confirm the unreported activity (from such other things as vessel records, observer reports, surveillance contacts, inspection reports, physical evidence or vessel positional data) and the proximity of the detection to the time of the alleged unreported activity. However, the general analysis steps will be as follows:

- i. Analysts develop a clear understanding of the type of fishing or related activities and the reporting requirements that the issue is alleged to breach.
- ii. For national vessels, check with national maritime or relevant authority whether the vessel is registered and obtain full registration details.
- iii. For foreign flagged vessels, check the FFA Regional Register of Foreign Vessels, PNA FIMS vessel tab (for PNA Members) and the WCPFC RFV and obtain full registration details and details of the flag State authorisation held.
- iv. Confirm that the vessel does hold a valid fishing licence by checking the licence list held under licensing module under national IMS, FIMS, the licence list in RIMF or by accessing the physical files located with the licensing officer/licensing division. A copy of the vessel licence or licence/authorisation conditions should also be obtained.
- v. If the reporting requirement is specified in the licence/authorisation conditions, then identify the specific reporting licence condition that the issue relates to.
- vi. Identify the specific primary document that the misreported or unreported particulars relate to.
 - a. This may include daily catch and effort reporting (see Section 7.6), zone entry and exit reports (see Section 7.11.2), vessel weekly reports (see Section 7.11.3), bunkering and transshipments notifications and reports (see Section 7.10) port entry notifications and requests (see Section 7.11.1) and catch certification reporting requirements (see Section 7.12) or other national reporting requirements.
 - b. If this issue relates to a failure to report, then there may be no primary document to refer to. It will be required to prove that an activity occurred that had an associated reporting requirement and that the vessel did not submit the report as required.
- vii. Identify the other evidence that is available to verify the unreported activity. This may include:

- a. Documentary records, such as vessel records (see Section 7.8.1), observer reports (see Section 7.5), surveillance contact reports (see Section 7.7), inspection reports (see Section 7.8) and vessel positional data, such as VMS and AIS (see Section 7.4), records and data held by processing factories and canneries (see Section 7.12). These may be electronically stored or in physical forms.
 - b. Other physical evidence, such as vessel catch onboard, landed catch or factory records of catch received, or fishing gear found onboard the vessel⁸.
 - c. Statements and witness accounts.
- viii. FFA/ RFSC analysts can assist members in obtaining and analysing the necessary information that may not be available at national level. The dissemination will be completed in compliance with the data sharing rules and other data security requirements (see Section 8 for details on this).
 - ix. Bring all the information together and conduct analysis to develop a timeline of known and suspected vessel activities.
 - a. This should compare reported and actual activities and details from all applicable sources.
 - b. Make a determination on the alleged unreported activity based on the outcome of the analysis conducted.
 - x. Prepare a brief with a summary of the analysis completed and the results of the analysis.
 - a. The brief should bring the information together and present the information in a clear and concise manner to ensure that it can be easily understood.
 - b. Comparative graphs, charts and tables should be used where appropriate to compare data and information obtained.

5.2.2 Vessels authorised and operating on the High Seas in the WCPO and not reporting or misreporting data or information related to any fishing or related activity in violation reporting requirements defined in WCPFC CMM's.

Key Documents

Document	Key Information
WCPFC CMM 2013-05	<ul style="list-style-type: none"> – Conservation and Management Measure on Daily Catch and Effort Reporting – Specifies the daily catch and effort reporting requirements.
WCPFC CMM 2009-06	<ul style="list-style-type: none"> – Conservation and Management Measure on the Regulation of Transshipment. – Specifies the transshipment reporting requirements.

Other Relevant Documents

⁸ This fishing gear may be different to what the vessel has reported in their catch and effort reporting (e.g. number of hooks or floats for longline vessels).

Document	Key Information
WCPFC CMM 2009-02	<ul style="list-style-type: none"> - Conservation and Management Measure on the Application of High Seas Fad Closures and Catch Retention. - Requirement that purse seine vessel operators report to the WCPFC Executive Director (ED) any discard within 48 hours of the event.
WCPFC CMM 2011-03	<ul style="list-style-type: none"> - Conservation and Management Measure for Protection of Cetaceans from Purse Seine Fishing Operations - Reporting the unintentional encircling of a cetacean in the purse seine net.
WCPFC CMM 2012-04	<ul style="list-style-type: none"> - Conservation and Management Measure for Protection of Whale Sharks from Purse Seine Fishing Operations - Reporting the unintentional encircling of a whale shark in the purse seine net.
WCPFC CMM 2018-04	<ul style="list-style-type: none"> - Conservation and Management of Sea Turtles - Recording all incidents involving sea turtles during fishing operations and report such incidents to the appropriate authorities of the flag State.

Primary Data Sources

Catch and effort data	Confirmation of the reported fishing or related activities.
Observer Information	Observer accounts of the fishing activities undertaken and the potential misreported activities.
Bunkering and Transshipment Reporting	Records of bunkering and transshipment activities reported as completed, including vessels interacted with and quantities of fish transhipped.
Vessel Port Entry Requests	Details of catch onboard and catch areas for comparison to catch effort and observer catch records. Details of arrival in port and planned unload.

Data Source	Application
WCPFC Record of Fishing Vessels	Confirmation of the vessel details and the vessels flag State authorisation to fish in areas beyond national jurisdiction. Details of the vessel master.
Vessel positional data	Confirmation of the areas the vessel has operated, and indications of possible vessel activities carried out through vessel track analysis.

Surveillance contact reports	Details of any sightings of the vessel, at sea inspections completed or activities observed through surveillance.
Inspection Records and Report	Details of any inspections completed following the alleged trip. Records obtained onboard the vessel that verify the vessel fishing activities. Details of actual unload or transshipment quantities.
Catch Certification	Details of catch to be exported that can be used for comparison with catch effort and observer catch records.

The main elements to this unreported fishing or related activities are that:

- The vessel conducted fishing or related activity; and
- The fishing or related activity occurred within the WCPFC-CA; and
- The operator or master (or their representative) was required to complete and/or submit a report or notification associated with a fishing or related activity; and
 - They did not complete or submit the report;
 - or
 - They completed or submitted a report that contained omissions or misreported required information.

Data Analysis Guidance

Unreported offences include both failing to report and submitting the required reporting with omissions or false particulars (misreporting).

The reporting requirements for vessels operating in the WCPFC-CA include:

- Daily catch and effort reporting requirements (CMM 2013-05);
- Transshipment notices and reporting requirements (CMM 2009-06);
- Discard reporting requirements for purse seine vessels (CMM 2009-02);
- Reporting the unintentional encircling of a cetacean in the purse seine net (CMM 2011-03);
- Reporting the unintentional encircling of a whale shark in the purse seine net CMM 2012-04; and
- Reporting all incidents involving sea turtles during fishing operations (CMM 2018-04).

Each of these reporting requirements include different elements that need to be reported for each activity. As an example, a transshipment declaration has eleven different reporting requirements. So, within a transshipment declaration, there are at least eleven different data elements that may be misreported or omitted.

The specific reports or notifications that are required to be submitted are the key evidence to support data analysis for unreported fishing and related activities within the WCPFC-CA. These reporting obligations during regular operations, generally require submission of data or information to the WCPFC ED, or to the flag State. Therefore, other State's may not become aware of these specific issues unless they are conducting high seas boarding and inspection or the vessels in question are landing or transshipping fish in their ports. However, some specific reports submitted to

the WCPFC can be requested for the purposes of fisheries monitoring, control or surveillance (see Section 8.1.1 for further details).

These principal records need to be analysed and evaluated against other records, witness accounts or physical evidence to demonstrate the misreporting or unreported activities. This other evidence can include vessel records (see Section 7.8.1), observer reports (see Section 7.5), surveillance contact reports (see Section 7.7), inspection reports (see Section 7.8) and vessel positional data, such as VMS (see Section 7.4).

Analysis steps:

The specific steps followed will depend on the type of unreported fishing or related activity, the reporting requirement that it relates to and how this is captured and submitted (electronically through an IMS, e-mail submission or through physical forms), the other records or evidence available to confirm the unreported activity (from such other things as vessel records, observer reports, surveillance contacts, inspection reports, physical evidence or vessel positional data) and the proximity of the detection to the time of the alleged unreported activity. However, the general analysis steps will be as follows:

- i. Analysts develop a clear understanding of the type of fishing or related activities and the WCPFC reporting requirements that the issue is alleged to breach.
- ii. Check the FFA Regional Register of Foreign Vessels, PNA FIMS vessel tab (for PNA Members) and the WCPFC RFV and obtain full registration details and details of the flag State authorisation held.
- iii. Confirm that the vessel does hold a valid flag State authorisation to conduct fishing and related activities in the WCPFC-CA.
- iv. Identify the specific primary document that the misreported or unreported particulars relate to.
 - a. This may include daily catch and effort reporting Daily catch and effort reporting requirements, transshipment notices and reporting, discard reporting requirements for purse seine vessels or reporting interactions with species of special interest.
 - b. If this issue relates to a failure to report, then there may be no primary document to refer to. It will be required to prove that an activity occurred that had an associated reporting requirement and that the vessel did not submit the report as required.
- v. Identify all the other evidence that is available to verify the unreported activity. This may include:
 - a. Documentary records, such as vessel records (see Section 7.8.1), observer reports (see Section 7.5), surveillance contact reports (see Section 7.7), inspection reports (see Section 7.8) and vessel positional data, such as VMS and AIS (see Section 7.4), records and data held by processing factories and canneries (see Section 7.12). These may be electronically stored or in physical forms.
 - b. Other physical evidence, such as vessel catch onboard, landed catch or factory records of catch received, or fishing gear found on-board the vessel⁹.
 - c. Statements and witness accounts.
- vi. FFA/ RFSC analysts can assist members in obtaining and analysing the necessary information that may not be available at national level. The dissemination will be

⁹ This fishing gear may be different to what the vessel has reported in their catch and effort reporting (e.g. number of hooks or floats for longline vessels).

- completed in compliance with the data sharing rules and other data security requirements (see Section 8 for details on this).
- vii. As an example, if a WCPFC authorised vessel is suspected of failing to provide a pre-transshipment notice or a WCPFC transshipment declaration, steps may include:
 - a. Confirm vessel details, including vessel details and authorisations.
 - b. Conduct additional analysis if required, using open-source vessel registries to verify vessel name, International Radio Call sign (IRCS), flag state, unique vessel identification number, vessel owners and other relevant information linked to the vessel.
 - c. Ensure that the vessel didn't change names and was reporting under a different name or previous names.
 - d. Request the WCPFC pre-transshipment notices and WCPFC transshipment declarations from WCPFC. Ensure your request to WCPFC specifies sufficient parameters (such as time period, areas of vessels) to ensure that it is focussed but is not too focussed to possibly miss the vessel and transshipment of interest.
 - e. Analyse the information contained within any records received from WCPFC.
 - f. Request, and analyse WCPFC VMS and AIS tracks for the vessels involved, and other vessels of interest in the area. This includes examining vessel tracks, dates and times, vessel proximity and suspected activities.
 - viii. Bring all the information together and conduct analysis to develop a timeline of known and suspected vessel activities.
 - a. This should compare reported and actual activities and details from all applicable sources.
 - b. Make a determination on the alleged unreported activity based on the outcome of the analysis conducted.
 - ix. Unless the unreported activity is a violation of your national laws, then the issue will need to be notified to the flag State for further investigation.
 - a. Prepare a brief with a summary of the analysis completed and the results of the analysis.
 - b. The brief should bring the information together and present the information in a clear and concise manner to ensure that it can be easily understood.
 - c. Comparative graphs and charts should be used where appropriate to compare data and information obtained.
 - d. This should be provided to the flag State and the WCPFC ED as soon as possible after the unreported activity has been established.

5.3 Unregulated Fishing

Unregulated fishing relates to vessels that are subject to minimal or no control or oversight, primarily by flag States. This can be due to vessels being without nationality, fishing in areas that are not regulated or fishing in areas in which their flag States are not a party to the RFMO that governs fishing in that area.

Unregulated fishing, which relates to fishing in areas or for fish stocks in relation to which there are no applicable CMMs does not apply in the Pacific as all areas of the high seas in the region are under

the mandate of the RFMO's. Therefore, this element of unregulated fishing is not considered in the guidance below.

The remaining individual unregulated fishing description elements are discussed below, along with the procedural guidelines for the analysis of the different types of unregulated fishing activity.

5.3.1 Fishing for highly migratory species (HMS) within the WCPFC-CA by vessels without nationality or that are neither on the WCPFC RFV nor fishing within waters under national jurisdiction.

Key Documents

Document	Key Information
Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean	Article 32 Non-parties to this Convention (1) Each member of the Commission shall take measures consistent with this Convention, the Agreement and international law to deter the activities of vessels flying the flags of non-parties to this Convention which undermine the effectiveness of conservation and management measures adopted by the Commission.
WCPFC CMM 2018-06	<ul style="list-style-type: none"> – Conservation and Management Measure for WCPFC Record of Fishing Vessels and Authorisation to Fish. – Requires that CCM's take necessary measures to ensure that fishing for highly migratory fish stocks in the Convention Area is conducted only by vessels flying the flag of a member of the Commission.
WCPFC CMM 2019-07	<ul style="list-style-type: none"> – Conservation and Management Measure to Establish a List of Vessels Presumed to have Carried Out Illegal, Unreported and Unregulated Fishing Activities in the WCPO. – Identifies fishing within the WCPFC-CA by vessels without nationality or that are neither on the WCPFC RFV nor fishing within waters under national jurisdiction as situations where IUU may be presumed.

Key Data Sources

Data Source	Application
WCPFC Record of Fishing Vessels	Confirmation that the vessel has not been authorised by a flag State to fish in the WCPFC-CA for HMS Species.
Open Vessel Registers	Confirmation of the vessel details and the vessels flag State.
Vessel positional data	Confirmation of the areas the vessel has operated, and indications of possible vessel activities carried out through vessel track analysis.

Surveillance contact reports	Details of any sightings of the vessel, at sea inspections completed or activities observed through surveillance.
Inspection Records and Report	Details of any inspections completed following the alleged trip. Records obtained onboard the vessel that verify the vessel fishing activities.
Vessel IUU Lists	Details of any possible IUU listing in other RFMO's or areas.

The main elements to this illegal fishing are that:

- The vessel conducted fishing or related activity; and
 - The fishing or related activity was within the WCPFC-CA; and
 - The vessel was not on the WCPFC RFV when the fishing occurred; and
 - The vessel was not fishing within waters under national jurisdiction;
- or
- The vessel is without nationality.

Data Analysis Guidance

This form of unregulated fishing is a serious IUU issue. It involves vessels that are not subject to the control or oversight that is required from WCPFC CCM's.

The key piece of information for this type of issue is the WCPFC RFV. All vessels fishing for tuna and tuna-like species in areas beyond national jurisdiction within the WCPFC-CA are required to be on the WCPFC RFV.

It is also vital that the act of fishing or fishing related activities are demonstrated. These vessels are not subject to the same controls as WCPFC authorised vessels, such as VMS and observer coverage. So MCS data analysis will focus on surveillance contact reports (see Section 7.7), vessel positional data (see Section 7.4.2 for the discussion on AIS as these vessels will not be on WCPFC VMS), vessel inspections (see Section 7.8) the records maintained onboard the vessel (see Section 7.8.1) and the catch and fishing gear found onboard the vessel.

It is important that there is a strong focus on establishing the flag State for the vessel. Communication should be established with former flag States to establish changes of flags, confirm the dates for these changes and establish the current State of vessel registration (where this exists).

Any vessel suspected of undertaking fishing or related activities should ideally be inspected and detained wherever possible. Therefore, monitoring the vessel and supporting targeted surveillance asset deployment will be a key focus area for the analyst. Communication and coordination with other FFA Members, the FFA Secretariat and WCPFC will also be vital.

Analysis steps:

The specific steps followed will depend on how the alleged unregulated fishing or related activity is identified and what evidence is available to the analyst to confirm the alleged activity (from VMS, surveillance contacts, vessel sighting). It will also be impacted by the proximity of the detection to the time of the alleged activity. However, the general analysis steps will be as follows:

- i. Analysts develop a clear understanding of the type of fishing or related activities that the vessel allegedly conducted.
- ii. Confirm that the vessel does not occur on the WCPFC RFV. Ensure the vessel has not changed names or flags and is now reporting under a different name or flag to that shown on the RFV.
- iii. Examine the regional surveillance picture (RSP) to try and confirm vessel details and current location using AIS data. Continue to monitor the vessel location (if positions are available) while undertaking the following analysis.
- iv. Check vessel IUU lists for possible matches on the vessel.
- v. Consult publicly available vessel registers to try and confirm the vessel identity and flag.
- vi. Notify the FFA RFSC to flag as a VOI and commence a regionally coordinated response.
- vii. If AIS data is available, confirm AIS vessel positional data including the dates and areas the vessel operated illegally.
 - a. Analyse AIS reporting to identify possible fishing or related activities.
 - b. Analyse AIS to identify other vessels that were operating in the same areas as the vessel of interest that may be able to provide further witness accounts of the vessel location and activity.
- viii. Check and analyse surveillance contacts and vessel sightings for detections of the vessel.
- ix. If the vessel is still at sea in national waters, explore the potential to deploy a surveillance asset.
 - a. Brief the surveillance asset on the alleged vessel activities, current area of operation and any information requirements from the vessel if it is able to be intercepted and inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - b. Ensure contact reports from the surveillance asset are provided to the reporting fisheries administration.
 - c. Analyse available surveillance contact reports for details of any sighting of the vessel or at sea inspections completed.
- x. If the vessel is still at sea in another FFA Member waters, explore the potential to deploy that Member's surveillance asset.
 - a. Liaise with FFA RFSC and the FFA Member to coordinate the asset deployment.
 - b. Brief the surveillance asset on the alleged vessel activities, current area of operation and any information requirements from the vessel if it is able to be intercepted and inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - c. Ensure contact reports from the surveillance asset are provided to the reporting fisheries administration.
 - d. Analyse available surveillance contact reports for details of any sighting of the vessel or at sea inspections completed.
- xi. If the vessel is still at sea on the high seas or the location is unknown, liaise with FFA RFSC to confirm if other surveillance assets are in the area.
 - a. Provide a brief to the FFA RFSC on the alleged vessel activities, current area of operation and any information requirements from the vessel if it is able to be intercepted and inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - b. If no surveillance assets are available, notify the flag State (if known) of the alleged illegal activity.

- i. Request that the vessel be required to return to port to allow for an inspection to be undertaken.
 - ii. Request that the flag State investigate the alleged illegal activity and take appropriate enforcement action.
 - iii. Notify WCPFC of the vessel and the alleged activity and encourage CCM vessels to notify vessel sightings.
- xii. If the vessel is in a national port, deploy an inspection team to inspect the vessel.
 - a. Brief the inspection team on the alleged vessel activities, dates and locations of suspected fishing or related activity, the current location and any information requirements from the vessel when it is inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - b. Ensure inspection reports from the inspection team and documents or information seized from the vessel are provided to the analyst.
 - c. Analyse available inspection records and reports for further data and information that verifies vessel activity at dates and times of interest.
- xiii. If the vessel is in a port of another FFA Member, request that Member to deploy an inspection team to inspect the vessel on your behalf.
 - a. Brief the inspection team on the alleged vessel activities, dates and locations of suspected fishing or related activity, the current location and any information requirements from the vessel when it is inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - b. Ensure inspection reports from the inspection team and documents or information seized from the vessel are provided to the analyst.
 - c. Analyse available inspection records and reports for further data and information that verifies vessel activity at dates and times of interest.
- xiv. Bring all the information together and conduct analysis to develop a timeline of known and suspected vessel activities.
 - a. Make a determination on the alleged incident based on the outcome of the analysis.
 - b. FFA/ RFSC analysts can assist members in obtaining and analysing the necessary information that may not be available at national level. The dissemination will be completed in compliance with the data sharing rules and other data security requirements (see Section 8 for details on this).
- xv. Prepare a brief with a summary of the analysis completed and the results of the analysis.
 - a. The brief should bring the information together and present the information in a clear and concise manner to ensure that it can be easily understood.
 - b. Comparative graphs and charts should be used where appropriate to compare data and information obtained.

5.3.2 Fishing within the WCPF-CA by vessels flagged to cooperating parties, but which are not on the WCPFC Record of Fishing Vessels and are therefore not authorised to fish on the high seas inside the WCPF-CA nor subject to the regulation imposed through this authorisation.

Key Documents

Document	Key Information
Convention on the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean	Article 24 Flag State Duties (1) No member of the Commission shall allow any fishing vessel entitled to fly its flag to be used for fishing for highly migratory fish stocks in the Convention Area beyond areas of national jurisdiction unless it has been authorized to do so by the appropriate authority or authorities of that member.
WCPFC CMM 2018-06	<ul style="list-style-type: none"> - Conservation and Management Measure for WCPFC Record of Fishing Vessels and Authorisation to Fish. - Requires that CCM's shall authorise its vessels to fish in the Convention Area, consistent with article 24 of the Convention, and provide information on authorised vessels to the WCPFC ED.
WCPFC CMM 2019-07	<ul style="list-style-type: none"> - Conservation and Management Measure to Establish a List of Vessels Presumed to have Carried Out Illegal, Unreported and Unregulated Fishing Activities in the WCPO. - Identifies fishing within the WCPFC-CA by vessels without nationality or that are neither on the WCPFC RFV nor fishing within waters under national jurisdiction as situations where IUU may be presumed.

Key Data Sources

Data Source	Application
WCPFC Record of Fishing Vessels	Confirmation that the vessel has not been authorised by the flag State to fish in the WCPFC-CA for HMS Species.
Open Vessel Registers	Confirmation of the vessel details and the vessels flag State.
Vessel positional data	Confirmation of the areas the vessel has operated, and indications of possible vessel activities carried out through vessel track analysis.
Surveillance contact reports	Details of any sightings of the vessel, at sea inspections completed or activities observed through surveillance.
Inspection Records and Report	Details of any inspections completed following the alleged unregulated activities. Records obtained onboard the vessel that verify the vessel fishing activities.
Vessel IUU Lists	Details of any possible IUU listing in other RFMO's or areas.

The main elements to this illegal fishing are that:

- The vessel conducted fishing or related activity; and
- The fishing or related activity was within the WCPFC-CA; and

- The vessel was flagged to a WCPFC CMM and
- The vessel was not on the WCPFC RFV when the fishing occurred.

Data Analysis Guidance

This may in some circumstances be considered an illegal activity as the flag State as a WCPFC CCM should have national controls and legislation in place to prevent this from occurring. However, this can depend on the circumstances in which the activity occurs and the legislation and controls that are in place. Therefore, this has been included as an unregulated activity as it can also be used as a way for vessels to circumvent flag State regulation of activities. This is because controls and regulation will often be administered through high seas fishing permits and authorisations, which in these circumstances the vessel will not have.

With a likely confirmed flag State in these circumstances, liaison with the flag State will be vital in resolving these issues. Communication with the flag State should be undertaken as early as possible once the details of the alleged vessel activities are established and vessel details confirmed. The flag State CCM should be encouraged to take effective action against the identified vessel and action should be progressed within WCPFC wherever possible.

Analysis steps:

The specific steps followed will depend on how the alleged unregulated fishing or related activity is identified and what evidence is available to the analyst to confirm the alleged activity (from VMS, surveillance contacts, vessel sightings etc). It will also be impacted by the proximity of the detection to the time of the alleged activity. However, the general analysis steps will be as follows:

- i. Analysts develop a clear understanding of the type of fishing or related activities that the vessel allegedly conducted.
- ii. Confirm that the vessel does not occur on the WCPFC RFV. Ensure the vessel has not changed names or flags and is now reporting under a different name or flag to that shown on the RFV.
- iii. Examine the regional surveillance picture (RSP) to try and confirm vessel details and current location using AIS data. Continue to monitor the vessel location (if positions are available) while undertaking the following analysis.
- iv. Check vessel IUU lists for possible matches on the vessel.
- v. Consult publicly available vessel registers to try and confirm the vessel identity and flag.
- vi. Notify the FFA RFSC to flag as a VOI and commence a regionally coordinated response.
- vii. If AIS data is available, confirm AIS vessel positional data including the dates and areas the vessel operated illegally.
 - a. Analyse AIS reporting to identify possible fishing or related activities.
 - b. Analyse AIS to identify other vessels that were operating in the same areas as the vessel of interest that may be able to provide further witness accounts of the vessel location and activity.
- viii. Check and analyse surveillance contacts and vessel sightings for detections of the vessel.
- ix. Notify the flag State CCM.
 - a. The key focus is to clarify the registration and authorisation status of the vessel.

- x. If the vessel is still at sea in national waters, explore the potential to deploy a surveillance asset.
 - a. Brief the surveillance asset on the alleged vessel activities, current area of operation and any information requirements from the vessel if it is able to be intercepted and inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - b. Ensure contact reports from the surveillance asset are provided to the reporting fisheries administration.
 - c. Analyse available surveillance contact reports for details of any sighting of the vessel or at sea inspections completed.
- xi. If the vessel is still at sea in another FFA Member waters, explore the potential to deploy that Member's surveillance asset.
 - a. Liaise with FFA RFSC and the FFA Member to coordinate the asset deployment.
 - b. Brief the surveillance asset on the alleged vessel activities, current area of operation and any information requirements from the vessel if it is able to be intercepted and inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - c. Ensure contact reports from the surveillance asset are provided to the reporting fisheries administration.
 - d. Analyse available surveillance contact reports for details of any sighting of the vessel or at sea inspections completed.
- xii. If the vessel is still at sea on the high seas or the location is unknown, liaise with FFA RFSC to confirm if other surveillance assets are in the area.
 - a. Provide a brief to the FFA RFSC on the alleged vessel activities, current area of operation and any information requirements from the vessel if it is able to be intercepted and inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - b. If no surveillance assets are available, notify the flag State (if known) of the alleged illegal activity
 - i. Request that the vessel be required to return to port to allow for an inspection to be undertaken.
 - ii. Request that the flag State investigate the alleged illegal activity and take appropriate enforcement action.
- xiii. If the vessel is in a national port, deploy an inspection team to inspect the vessel.
 - a. Brief the inspection team on the alleged vessel activities, dates and locations of suspected fishing or related activity, the current location and any information requirements from the vessel when it is inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).
 - b. Ensure inspection reports from the inspection team and documents or information seized from the vessel are provided to the analyst.
 - c. Analyse available inspection records and reports for further data and information that verifies vessel activity at dates and times of interest.
- xiv. If the vessel is in a port of another FFA Member, request that Member to deploy an inspection team to inspect the vessel on your behalf.
 - a. Brief the inspection team on the alleged vessel activities, dates and locations of suspected fishing or related activity, the current location and any information requirements from the vessel when it is inspected (see Section 7.8.1 for some examples of vessel records that may document vessel activities).

- b. Ensure inspection reports from the inspection team and documents or information seized from the vessel are provided to the analyst.
 - c. Analyse available inspection records and reports for further data and information that verifies vessel activity at dates and times of interest.
- xv. Bring all the information together and conduct analysis to develop a timeline of known and suspected vessel activities.
 - a. Make a determination on the alleged incident based on the outcome of the analysis.
 - b. FFA/ RFSC analysts can assist members in obtaining and analysing the necessary information that may not be available at national level. The dissemination will be completed in compliance with the data sharing rules and other data security requirements (see Section 8 for details on this).
- xvi. Prepare a brief with a summary of the analysis completed and the results of the analysis.
 - a. The brief should bring the information together and present the information in a clear and concise manner to ensure that it can be easily understood.
 - b. Comparative graphs and charts should be used where appropriate to compare data and information obtained.
 - c. Information that can be released within the brief should be made available to the flag State and WCPFC.

6. Key Agencies

6.1 The Forum Fisheries Agency

The Pacific Island Forum Fisheries Agency (FFA) is an intergovernmental agency established to facilitate regional co-operation and coordination and help member countries sustainably manage their fishery resources that fall within their 200-mile Exclusive Economic Zones (EEZs). FFA has 17 Pacific Island member countries and territories - Australia, Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu.

FFA is an advisory body providing expertise, technical assistance, and other support to its members to sustainably manage their fisheries resources, specifically highly migratory species. FFA's vision is achieving the highest levels of social and economic benefits through the sustainable use of our offshore fisheries resources.

The services provided by FFA split across the following three functional areas:

- Fisheries management – providing policy and legal frameworks for the sustainable management of tuna
- Fisheries development – developing the capacity of members to sustainably harvest, process and market tuna to create livelihoods
- Fisheries operations – supporting monitoring, control and surveillance of fisheries as well as treaty administration, information technology and vessel registration and monitoring.

FFA is also a regional MCS entity for members and coordinates the Regional Fisheries Surveillance Centre (RFSC). The RFSC provides holistic regional vessel monitoring and supports the planning and coordination of regional and sub-regional MCS responses to detect and deter IUU fishing activities. The Information Technology (IT) team within Fisheries Operations also manage and develop MCS databases and tools that are available through the Regional Information Management Framework (RIMF) and support and maintain the Regional Surveillance Picture (RSP). In addition to this FFA also manages the regional VMS and operates WCPFC VMS under contract.

6.2 The Pacific Community

The Pacific Community (SPC) is the principal scientific and technical organisation in the Pacific region that works across more than 20 sectors, including fisheries.

SPC has 26 member countries and territories, American Samoa, Australia, Cook Islands, Federated States of Micronesia, Fiji, France, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, New Zealand, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Pitcairn Islands, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, United States of America, Vanuatu and Wallis and Futuna.

Fisheries services and technical advice are delivered through the Fisheries, Aquaculture and Marine Ecosystems Division, which is composed of two programmes – the Oceanic Fisheries Programme (OFP) and the Coastal Fisheries Programme. OFP is the Pacific Community's regional centre for tuna fisheries research, fishery monitoring, stock assessment and data management.

The OFP Data Management Section undertakes the role of data managers for WCPFC and also provides data services to FFA and PNA in support of their work at the regional, subregional and national levels. This includes the provision of database query systems to facilitate the extraction of summarised information and the provision of ad hoc summaries of scientific fisheries data. The Data Management section manages TUFMAN 2, an integrated cloud-based web database developed to enable Pacific Island Countries to manage their Tuna data. TUFMAN 2 provides members with secure data entry, data management, data quality control for the different types of data supported, including, among others, logsheet, unloading and port-sampling data.

6.3 Parties to the Nauru Agreement

The Parties to the Nauru Agreement (PNA) is a sub-regional fisheries management organisation that supports collaboration, develops common fishery management plans and increases the parties participation in tropical tuna fisheries in the Western and Central Pacific Ocean. The parties include Federated States of Micronesia (FSM), Kiribati, Marshall Islands, Nauru, Palau, Papua New Guinea (PNG), Solomon Islands and Tuvalu.

The PNA operates the very successful Vessel Day Scheme (VDS) which sets an overall Total Allowable Effort (TAE) limit on the number of days fishing vessels can be licensed to fish in PNA Exclusive Economic Zones (EEZs) per year. Each of the Parties, along with Tokelau who were allowed to join the VDS in 2012, is then allocated a share of the TAE for fishing in its EEZ which may also be traded between members.

The Parties to the Nauru Agreement (PNA) Office was established in 2010 to implement PNA decisions and develop the VDS initiatives. The PNAO manages the Fisheries Information Management System (FIMS) which was specifically designed to manage the PNA fishery and support the administration of the VDS. FIMS provides near real-time access to information for vessels fishing in the VDS including vessel positional data, catch effort data and observer information.

6.4 WCPFC

The Western and Central Pacific Fisheries Commission (WCPFC) is a Regional Fisheries Management Organisation (RFMO) established for the conservation and management of highly migratory fish stocks in the Western and Central Pacific Ocean (WCPO). WCPFC was established by the Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPF Convention) which entered into force on 19 June 2004.

The WCPFC Convention seeks to address problems in the management of high seas fisheries resulting from unregulated fishing, over-capitalization, excessive fleet capacity, vessel re-flagging to escape controls, insufficiently selective gear, unreliable databases and insufficient multilateral cooperation in respect to conservation and management of highly migratory fish stocks.

WCPFC Member States include Australia, China, Canada, Cook Islands, European Union, Federated States of Micronesia, Fiji, France, Indonesia, Japan, Kiribati, Republic of Korea, Republic of Marshall Islands, Nauru, New Zealand, Niue, Palau, Papua New Guinea, Philippines, Samoa, Solomon Islands, Chinese Taipei, Tonga, Tuvalu, United States of America, Vanuatu. There are also seven participating territories; American Samoa, Commonwealth of the Northern Mariana Islands, French Polynesia, Guam, New Caledonia, Tokelau, Wallis and Futuna and eight cooperating non-members; Curacao, Ecuador, El Salvador, Nicaragua, Panama, Liberia, Thailand, Vietnam.

The WCPFC holds and manages both public domain data and non-public domain data. The release of this information is governed by the Rules and Procedures for the Protection, Access to, and Dissemination of Data Compiled by the Commission (the Data Rules) and the Non-Public Domain Data Rules¹⁰. Further information is included on these policies in Section 8 Data Security.

¹⁰ Rules and Procedures for the Protection, Access to, and Dissemination of High Seas Non-Public Domain Data and Information Compiled by the Commission for the Purpose of Monitoring, Control or Surveillance (MCS) Activities and the Access to and Dissemination of High Seas VMS Data for Scientific Purposes.

7. MCS Data Sources

There are many different data and information sources that can be used to support MCS data analysis. MCS Data sources are any location, system, register, activity, or reports where data is or can be collected to support MCS programs and activities. This includes the systems from which the information is stored, processed, or can be accessed for MCS purposes, including analysis. MCS data sources include those accessed, managed and supported at the national, sub-regional, regional and international levels.

MCS data sources can be both open source (openly available to all) or restricted. Data should be managed according to the restrictions that apply to access, use and dissemination of that information. MCS data analysts should consider all possible information sources to support analysis.

There may be some slight differences between members in the systems through which they access specific MCS data. However, the development and implementation of regional standards around data capture (such as standardised catch and effort data forms) means that there is also a lot of consistency between individual members in the types of MCS data available. The largest differences between members tends to relate to whether the member has the information electronically available or through paper-based systems and if it is electronically captured and stored how accessible this information is (from cloud-based and locally housed spreadsheets).

These main MCS data sources are described in the following sections.

7.1 Information Management Systems

The term Information Management System (IMS) refers to the software used to support and facilitate the storage, organization and retrieval of fisheries information. This can vary substantially between countries and functions and can be web-based or locally housed and includes complex databases, spreadsheets and other simple data capture and management methods.

7.1.1 National IMS

Most FFA member countries operate and maintain some form of national IMS system which compliments the information that is available and supported regionally and sub-regionally. National IMS vary from country to country, depending on the national requirements and preferred systems used to capture and store fisheries data and information. As well as electronic data, some information may also be available in hard copy and paper files at the national level.

National IMS capture and store national level data collected through national programs, such as vessel registration, licensing, VMS, observer and catch and effort data. This information is then available to be accessed by national officers, including MCS Analysts, to inform and support their work.

Where data is required from other FFA Members to support analysis being undertaken, the analyst should contact the MCS officers of that FFA Member. In making the request, the analyst should allow for the different formats that data may be held in at the national level and understand that data entry and clean up may be required to get the data in to the required format to meet their needs.

7.1.2 Sub-Regional

At the sub-regional level, PNA operate the FIMS system (<https://pna.fimsportal.com/html/login.php>), a centralised platform available across the membership, which integrates fisheries management, compliance and marketing data to support the operation of the PNA VDS. The system is owned by the parties and is supported through the PNA Office in Majuro.

FIMS supports the online registration of vessels, the identification of fishing and non-fishing days, monitoring cumulative fishing day used, tracks trades of fishing days among PNA parties, stores vessel and observer catch data and supports the tracking and management of fish aggregating devices (FADS). Although the system is used across the PNA membership, national level data is secured and only available to the party that it relates to or as provided for in any data sharing agreements.

Officers conducting analysis on vessels operating under sub-regional arrangements are able to seek support through the PNA office. For example, an analyst conducting analysis on observer data on vessels operating under PNA VDS arrangements can request the PNA Observer Agency to access observer data on their behalf.

The current standard modules available through FIMS include:

- Vessels and vessel trips
- Clients
- Compliance (compliance case file management)
- Observer and observer trips
- Reports

7.1.3 Regional Information Management Tools

7.1.3.1 FFA

The FFA RIMF (<https://rimf2.ffa.int/>) is an integrated portal that can be used to collect, store and manage data from national, sub-regional and regional activities to support operational activities. It is designed to be a comprehensive information management environment that will provide access to a number of databases, systems, tools and services within a single access point.

The RIMF is a cloud-based, modular system and is offered to FFA Members at no cost under their country service level agreements. All FFA member countries have access to the RIMF, but the modules that are available will vary depending on the country.

Fisheries and MCS data collected by members, surveillance partners and stakeholders, including SPC, are held within the RIMF. FFA VMS, US Treaty Observer reports, licensing information and surveillance contact reports are some examples of the basic data managed within the RIMF by FFA.

Analysts conducting analysis on vessels operating under national, sub-regional and regional arrangements can also request FFA assistance to access certain MCS data held by FFA. FFA officers can also assist with interpreting and requesting additional data from members. Data is released to

analyst based on data sharing rules agreed to by members and in line with the FFA Information Security Management System (ISMS) Policy discussed in Section 8.

The current modules available through the RIMF include:

- Licensing
- MCS
- Niue Treaty Information System (<https://rimf2.ffa.int/ntis>)
- Observer Placement
- Vessel Boarding and Inspection
- Vessel Register
- VMS
- Violations and Prosecutions

7.1.3.2 SPC

TUFMAN II (<https://www.spc.int/ofp/tufman2/>) is the regional tuna fisheries database, that is primarily a data entry and data checking tool for tuna fishery data collected by member countries. TUFMAN II manages and/or incorporates data from the following sources:

- Logsheets
- Port sampling
- Unloadings
- Observer trips
- Packing lists (data on fish being shipped to another location)
- Vessel Activity Reports (counts of vessels leaving and entering the port)
- Vessel Position Reports (reports from boats at sea)
- VMS

TUFMAN II also receives data (automatically) from other sub-regional and regional systems, such as the PNA FIMS, the RIMF VMS data and the WCPFC Record of Fishing Vessels.

DORADO is a web-reporting tool <https://www.spc.int/ofp/webreport/app/index.html>

Dorado interfaces with TUFMAN II to produce a wide range of integrated reports (i.e. reports using a single source or a combination of data types) to facilitate access to tuna fisheries data by SPC member countries. This web-based reporting system currently features over 200 reports.

TUFMAN II and DORADO support mapping of fishery data for analysis, such as the mapping of the vessel track for a trip sourced from Logbook, observer and VMS on the same map.

7.2 Vessel License Lists

Vessel or fisher licensing or permitting is one of the most common and effective forms of regulation and control of fishing activity. A fishing licence or permit gives the holder (vessel, person, or entity) the right to operate in a particular fishery. The licence or permit also establishes the terms and conditions that the holder must abide by when operating in the fishery. Licences and permits are predominantly issued by national authorities, but there also exist Agreements that are implemented

at the sub-regional and regional level that authorise vessels to access and operate in particular fisheries and areas. The applicable licence and permit mechanisms are discussed in the following sections.

7.2.1 National

Each FFA member maintains a national licence register which contains all the vessels authorised to fish within their waters. FFA Members will be able to see the licensed vessels of other Members with whom data sharing arrangements are in place. The FFA members provide FFA with an updated licence and is held under licensing under RIMF and used to update the Regional Surveillance Picture.

Each member applies terms and conditions to vessel licences that regulate what a licensed vessel can and cannot do. The terms and conditions are based on the Harmonised Minimum Terms and Conditions (HMTC) that are supported by FFA and are adopted and amended by the Forum Fisheries Commission (FFC). The HMTC's are adopted as minimum standards of access and do not preclude any member from adopting more stringent standards.

7.2.2 Sub-regional agreements

Among FFA members, there is currently stronger coordination of authorisations and access agreements in the purse seine fishery than there exists for other methods. The predominant sub-regional grouping is the PNA, that establishes sub-regional agreement on terms and conditions for tuna purse seine fishing licenses. However, PNA has now also established the Longline VDS and is seeking similar coordination and consistency to realised increased returns to Parties from this fishery also.

Within the PNA, the key access arrangement between Parties is The Federated States of Micronesia Arrangement for Regional Fisheries Access (The FSM Arrangement). The FSM Arrangement was developed as a mechanism for domestic vessels of the PNA to access the fishing resources of other parties. The FSM Arrangement seeks to establish terms and conditions under which fishing vessels which provide long-term, sustainable and quantifiable economic benefits to the Parties may be granted preferential access to the exclusive economic and fisheries zones of the Parties. After being registered on the Register of Eligible Fishing Vessels established under the FSM Arrangement a vessel can be issued with a regional access licence which enables the vessel to fish in the Arrangement Area.

The FSM Arrangement was signed on the 30 Nov 1994 and came into force on the 23 Sep 1995. All PNA Parties are also signatories to the Arrangement and the Director of PNA is the Administrator of the Arrangement.

7.2.3 Regional agreements

The Treaty on Fisheries between the Governments of Certain Pacific Island States and the Government of the United States of America (the US Tuna Treaty) is a regional fisheries agreement that provides access to the exclusive economic zones of Pacific Island parties for United States tuna fishing vessels. This access is granted in exchange for access fees that are paid to Pacific Island countries, along with related United States development assistance. All FFA Members are parties to the US Tuna Treaty.

The Treaty was revised and updated in 2016 and now defines the number of fishing days in waters of the parties to the treaty that are exclusively available to fishing vessels from the United States. It also defines a mechanism for U.S. vessels to arrange for additional fishing access directly with the countries involved.

Under the US Tuna Treaty, the Government of the United States makes application for a licence for a US flagged purse seine fishing vessel to the FFA as the Administrator of the Treaty. Up to date lists of vessels authorised under the US Tuna Treaty can be obtained at any time from FFA.

7.3 Vessel Registers

All vessels that operate in areas beyond national jurisdiction are required to be registered on the national vessel register of the flag State. This provides the vessel with a nationality and the protection of the flag State Government, regardless of where it operates. It also places obligations on the flag State to authorise any fishing activity by the vessel beyond areas of national jurisdiction and to monitor vessel activity regardless of where this occurs.

If the fishing vessels authorised to operate in areas beyond national jurisdiction are operating in areas in the area of competence of an RFMO, then the flag State will also have to provide the details of all vessels authorised to fish in that area to that RFMO. The RFMO will then collate all flag State notifications and maintain a central record of all fishing vessels authorised to fish within the RFMO area.

In addition to this, most countries will have a separate fishing vessel register/s that are managed by the national agency responsible for fisheries. There are also vessel registers that are managed sub-regionally, regionally and internationally. Each applicable type of vessel register is described in the following sections.

7.3.1 National Vessel Registers

In addition to maintaining a national ship registry, most countries have separate fishing vessel register/s that are managed by the national agency responsible for fisheries. This will generally include the details of commercial fishing vessels flagged to that country that meet certain criteria, such as being over a certain length or weight or that operate in areas beyond national jurisdiction. But there may also be registration requirements for other vessels, such as foreign flagged vessels using national ports.

The information contained within the registry will depend on the purpose of the register and the types of vessels included in the register, such as the details of larger vessels will be more extensive than those retained for smaller domestic vessels. However, in all cases the national registers will include important information that is important to the process of identifying specific vessels and associated entities.

National vessel registers will include such information as:

- vessel name;
- call sign;
- country of registration;

- country of registration number;
- regional register number;
- name and address of the operator;
- name of the vessel master;
- vessel tonnage;
- capacity; and
- gear type

Any enquiries on vessels flagged by Members and authorised to fish within their EEZ should be made to the national fisheries agency of that Member.

7.3.2 Sub-Regional Vessel Registers

The PNA FIMS system contains a ‘vessels’ module that contains all the details of the vessels all vessel types authorised to operate in PNA waters, including vessels not reporting on PNA VMS. In addition to this the PNA office has previously made available a vessel register summary through their website at <http://www.pnatuna.com/vessel-register-summary>

For vessels operating under the sub-regional FSM Arrangement, PNA, as the administrator of the Arrangement (the Administrator is the PNA CEO) maintains a Register of Eligible Fishing Vessels (the FSM Arrangement Vessel Register). The FSM Arrangement Vessel Register contains the following information in respect of each vessel entered on the Register:

- a) the name of the vessel;
- b) international radio call sign;
- c) country of registration;
- d) regional registration number;
- e) name and address of owner or owners;
- f) name and address of operator (where different from the owner); and
- g) the name of the home Party of the vessel.

This information is available to parties to the Arrangement, or with whom data sharing arrangements are in place.

7.3.3 FFA Regional Vessel Register

FFA maintains a regional vessel register which contains the details of all vessels that are registered and in good standing on the FFA Regional Register of Foreign Fishing Vessels. This register is often also referred to as the Good Standing Register.

The regional registration requirements were strengthened by the Niue Treaty on Cooperation in Fisheries Surveillance and Law Enforcement in the South Pacific Region (the Niue Treaty). Article IV, paragraph 2 of the Niue Treaty requires that foreign fishing vessel have good standing on the regional register before they can be licensed for fishing in Member’s waters. Consequently, good standing on the FFA Regional Register of Foreign Fishing Vessels is a requirement of all Member’s domestic licensing requirements for foreign fishing vessels.

The consistent regional implementation of the FFA Vessel Register means that, in general, the register will contain the details of all fishing vessels that can legally fish in waters of a Member State to which they are not flagged. Therefore, vessels that are not contained on the register should not be fishing in an FFA Members waters, unless they are flagged to the Member.

The FFA Vessel Register procedures are intended to act as a basic entry level requirement into the region and FFA members may institute additional national requirements prior to issuing a license to fish. The FFA Vessel Register ensures that vessel operators provide a minimum set of registration elements, meet the FAO Standard Specifications for the marking and identification of fishing vessels and are reporting automatically and consistently to the FFA VMS.

Fishing vessels on FFA Good Standing can be found on <https://rimf2.ffa.int/public/goodstanding>

7.3.4 WCPFC Vessel Registers

The WCPFC Record of Fishing Vessels (WCPFC RFV) provides a list of all vessels authorised to fish in the Convention area. The entries included in the WCPFC RFV are an accumulation of national lists submitted by CCM's of fishing vessels entitled to fly its flag and authorised to fish in the Convention Area beyond its area of national jurisdiction.

Fishing vessels not registered on the WCPFC RFV are not permitted to operate in Member's EEZ unless they are national vessel of that Member.

WCPFC CMM 2018-06 requires flag State authorisations for vessels to operate in areas beyond national jurisdiction to include:

- a) the specific areas, species and time periods for which the authorization is valid;
- b) permitted activities by the vessel;
- c) a prohibition of fishing, retention on board, transshipment or landing by the vessel in areas under the national jurisdiction of another State except pursuant to any license, permit or authorization that may be required by such other State;
- d) the requirement that the vessel keep on board the flag State authorisation or certified copy thereof; any license, permit or authorization, authorization, or certified copy thereof, issued by a coastal State, as well as a valid certificate of vessel registration; and
- e) any other specific conditions to give effect to the provisions of the Convention and conservation and management measures adopted pursuant to it.

This information is critical to identifying the conditions of the flag State authorisation.

The WCPFC RFV also contains a number of important data fields to support effective vessel and fleet identification including:

- a) name of the fishing vessel, registration number, WCPFC Identification Number (WIN), previous names (if known) and port of registry;
- b) name and address of the owner or owners
- c) name and nationality of the master;
- d) previous flag (if any);

- e) International Radio Call sign
- f) vessel communication types and numbers (Inmarsat A, B and C numbers and satellite telephone number);
- g) colour photograph of the vessel;
- h) where and when the vessel was built;
- i) type of vessel;
- j) normal crew complement;
- k) type of fishing method or methods;
- l) length (specify type and metric);
- m) moulded depth (specify metric);
- n) beam (specify metric);
- o) gross registered tonnage (GRT) or gross tonnage (GT);
- p) power of main engine or engines (specify metric);
- q) carrying capacity, including freezer type, capacity and number, fish hold capacity and capacity of freezer chambers (specify metric);
- r) the form and number of the authorization granted by the flag State including any
- s) specific areas, species and time periods for which it is valid; and
- t) International Maritime Organization (IMO) number or Lloyd's Register (LR) number, if issued.

The WCPFC is therefore a very important resource and is foundational for any analysis related to ensuring vessels have complied or are complying with WCPFC CMMs and flag State requirements.

The WCPFC RFV is publicly available through the WCPFC website at <https://www.wcpfc.int/record-fishing-vessel-database>.

7.3.5 Global Vessel Register

The 'Global Record of Fishing Vessels, Refrigerated Transport Vessels and Supply Vessels' has been created under the Global Record Programme and is intended to enhance global transparency and traceability in the fisheries sector by providing a single access point for information on vessels used for fishing and fishing-related activities. The primary purpose of the global register is to provide a tool to combat Illegal, Unreported and Unregulated (IUU) fishing and fishing related activities.

The global register relies on flag States to support the initiative by gathering and sharing data on their fishing fleets through the global register. Vessels on the global register are given a unique vessel identifier (UVI), which stays with the vessel for its entire life, regardless of any name, flag or other vessel detail changes. The global register currently uses International Maritime Organization Ship Identification Numbers (IMO Numbers) as the UVI for registered vessels.

The Global Record Information System was launched in 2018 (<http://www.fao.org/global-record/tool/extended-search/en/>) and currently has 10,977 vessels, of which 274 are authorised to operate in the WCPO. Because of this, the application of the global register is limited in the Pacific, however it will become a more important tool as more flag States commit to sharing their fishing fleet details.

7.3.6 Open Source Vessel Registers and Tracking

There are now a number of open websites available that offer information such as IUU lists, basic vessel details, latest vessel positions and current voyage details.

There are a number of websites now offering a mixture of open source and paid services to obtain vessel details, latest vessel positions and current voyage details. The information made publicly available will often be limited, with more detailed tracking and location information provided for paid subscriptions. Some of the main websites offering these services include:

- <https://www.marinetraffic.com/en/ais/home/centerx:-162.7/centery:1.9/zoom:3>
- <https://www.myshiptracking.com/>
- <http://www.vesseltracking.net/>
- <https://www.vesseltracker.com/>
- <https://www.fleetmon.com/>
- <https://maritime.ihs.com/>

The value of these websites will depend on availability of accurate vessel identity information and whether the vessel has its automatic identification system (AIS) turned on and reporting accurately. However, these sites can often be a useful reference for gathering information on vessels and their current and historical activities. Information publicly available through these websites can include:

- vessel details
- flag State
- international Radio Call signs (IRCS)
- Marine Mobile Station Identification numbers (MMSI)
- Unique Vessel Identification (UVI) number
- Vessel length and breadth
- previous names
- ownership and companies linked to the vessel
- vessel IUU records
- current voyage
- latest vessel position

Data accessed through these open sources can be used to verify and confirm data obtained from other restricted or closed sources, particularly vessel and associated entity identity information. For unknown vessels, identification information should be sourced, and cross checked, through as many sources as possible to confirm vessel details and history. However, information obtained through some information sources may not be admissible in any subsequent judicial proceedings, and these details should be confirmed through other sources (such as physical evidence onboard the vessel) wherever possible.

7.4 Vessel Positional Data

Vessel positional data refers to the data that can be used to provide an understanding of a vessels temporal (time) and spatial (space) movements. This means that the data enables analysts to understand where a vessel was at a particular time through vessel polling at specified intervals. The

main type of vessel positional data available is obtained through vessel monitoring systems (VMS), but AIS data is being used more commonly now to supplement VMS data.

Vessel positional data alone does not provide an understanding of confirmed vessel activities. However, when vessel positional data is considered and analysed, it may provide an indication of vessel activity. When positions are considered together, the analysis may highlight details that are consistent with, or inconsistent with, fishing activity. As an example, vessel positions can give an indication of vessel speed¹¹ through measuring the distance between positions and the time between polls. This vessel speed may indicate a vessel speed too fast for fishing, so we can say that it is unlikely that the vessel was undertaking, or a vessel speed consistent with setting or retrieving fishing gear so it is possible that the vessel was fishing.

7.4.1 Vessel Monitoring Systems

A fishing vessel monitoring system (VMS) is a cost-effective satellite surveillance system used to support the monitoring, control and surveillance (MCS) of fishing vessels. The process of VMS involves a mobile transceiver unit (MTU) or automatic location communicator (ALC) onboard a vessel sending data to the VMS system. This data is sent at specified intervals (often called vessel polling) and includes at least the following information:

- The unique identifier for the MTU/ALC;
- The vessel position obtained from a satellite-based positioning system; and
- The date and time of the vessel position.

VMS is a fundamental obligation established in modern international fisheries law and policy. VMS is required by the UN Fish Stocks Agreement to be implemented by flag States on vessels fishing beyond areas of national jurisdiction.¹²

VMS provides a fishery management agency, *flag state* and *vessel owners* with accurate and timely information about the identity, location, direction, speed and possible activity of regulated fishing vessels at particular times depending on the reporting requirements.¹³ Therefore a vessel monitoring system (VMS) is a satellite surveillance system that can be effectively used to obtain temporal and geographic data on vessels and, with analysis, can provide indications of possible fishing activities.

VMS data is limited in terms of what IUU activities it can identify. It is most effective for analysis to support the identification of spatial (such as fishing in closed areas) or temporal (fishing during a closed period) IUU activities, but it is less effective in identifying other IUU activities. VMS data can be used to develop heat maps showing spatial and temporal variations in vessel fishing activities

¹¹ This is limited by the speed being worked out on a point to point basis, however vessels often do not travel in a straight line, which means speeds worked out on a point to point basis may also be misleading, depending on the frequency of the polling.

¹² Agreement for The Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks

¹³ <http://www.fao.org/fishery/vms/en>

across fleets which can be an effective planning tool for conducting intelligence led aerial and surface surveillance patrols.

In the WCPO, VMS may be implemented at the national, sub-regional and/or regional levels. The level at which the VMS operates only reflects the system that receives the data and who the information is accessible to. These different levels of VMS are described in the following sections.

7.4.1.1 Regional

At the regional level, WCPFC CMM 2014-02 (and the preceding VMS CMM's this replaced) established a Commission VMS that applies to "all fishing vessels that fish for highly migratory fish stocks on the high seas within the Convention Area". The polling frequency requirements for WCPFC VMS are every hour, except for purse seine vessels during the FAD closure period, when polling is increased to every 30 minutes.

The WCPFC VMS is managed on behalf of WCPFC by FFA under a service level agreement. All FFA Members receive positions for all flagged vessels. They are also entitled to access to WCPFC VMS data for all vessels in waters under their national jurisdiction and in all adjacent waters within a 100nm from the outer limits of waters under their national jurisdiction (the 100nm buffer zone). FFA as an approved MCS entity for FFA Members also receives all of this VMS data at the Regional Fisheries Surveillance Centre (RFSC).

FFA members implement VMS that is hosted centrally through the FFA Secretariat. All vessel registered on the FFA Register of Foreign Fishing Vessels are required to install an FFA Type Approved ALC/MTU on board in accordance with the manufacturers' guidelines and ensure that it is switched on reporting normally, consistently and automatically to the FFA VMS.

FFA Members have access to VMS data for their flagged vessels and all vessels operating in waters under their jurisdiction. There are data sharing agreements in place across most of the membership, which can help to facilitate FFA Members access to VMS data across the region.

FFA maintains a Regional Surveillance Picture (RSP) that tracks all vessels operating on VMS at any one time across all Members waters. All vessels are also issued with a compliance index rating depending on their current and previous activities. The extent of the vessel data that a Member can see on the RSP will depend on the data sharing agreements in place.

7.4.1.2 Sub-Regional

PNA FIMS contains a VMS module where PNA Members can access VMS data for vessels operating across the PNA waters. PNA members signed off a joint multilateral MOU and agreed to share all data for Port to Port monitoring with the purpose of catch certification¹⁴. Therefore, PNA members will be able to access and view VMS data for all PNA authorised vessels within FIMS, subject to the conditions of data sharing agreements.

7.4.1.3 National

¹⁴ https://www.ffa.int/system/files/Regional%20MCS%20Evaluation%20Report_new_0.pdf

Vessels operating in FFA members EEZ are required to carry on-board, maintain and operate a VMS in accordance with national and regional standards.

National VMS Officers are experts in analysing any VMS data and in a better position to assist MCS Analysts. Analyst to seek further assistance from sub-regional and regional VMS Officers.

VMS provides national fishery management agencies, flag state and vessel owners with accurate and timely information about the identity, location, direction, speed and activity of regulated fishing vessels at particular times depending on the reporting requirements.

7.4.2 Automatic Identification System (AIS)

The automatic identification system (AIS) is an automatic tracking system used primarily for collision avoidance on ships and by vessel traffic services.¹⁵ This tracking service provided by the International Maritime Organisation (IMO) has developed into another useful source for tracking vessels movements. The biggest benefit of the AIS is the polling rate frequency with positions transmitted no more than 3 minutes apart.¹⁶ Because of the more frequent polling occurrence, AIS can be more effective than VMS at identifying likely fishing events because of the more detailed tracks that can be produced from AIS data.

Since 1 July 2015, FFA member countries have required that foreign fishing vessels be outfitted with AIS as a condition to be placed in Good Standing on the FFA Vessel Register.¹⁷

AIS data can complement existing VMS data and can also be a useful backup reporting system when regulated vessel monitoring systems fail. AIS is very useful when searching for or targeting IUU vessels not reporting on regulated monitoring systems.

One of the biggest limitations of AIS data is that the transponder can be turned off to enable the vessel to “go dark”. Similarly, AIS data can be lost in busy marine traffic areas or where there is weak satellite reception.

Where it is available, AIS data is incorporated into the RSP by FFA.

7.4.3 FFA Regional Surveillance Picture

As part of their regional surveillance function, the FFA RFSC provides Members with the Regional Surveillance Picture (RSP). With the RSP, the RFSC assigns each vessel for which it has VMS visibility a Compliance Index (CI) rating.¹⁸ The CI is a number between 0 to -5 and is based on the vessel's

¹⁵ https://en.wikipedia.org/wiki/Automatic_identification_system

¹⁶ The polling rate varies depending on the transponder type and movement status of the vessel. Polling at 3 minutes applies to vessels anchored, moored (Class A transponder) stopped or sailing up to 2 knots (Class B transponder) and the polling rate frequency increases beyond these points.

¹⁷ Guide To Application For Registration And Good Standing On The FFA Vessel Register
https://www.ffa.int/system/files/REG19_Guide%20for%20Registration%20and%20Good%20Standing_Attachment%201-v1.pdf

¹⁸ This includes all vessels on the FFA Register and vessels on the WCPFC RFV operating within the WCPO as well as vessels visible using the AIS.

assessed compliance status. Vessels rated 0 are deemed to be a very low risk of undertaking IUU activity. Vessels rated -4 or -5 are at very high risk of undertaking IUU activity or have been involved in confirmed or suspected IUU activity. The CI is linked to, and references, the FFA RIMF that contains a range of fisheries information that is designed to assist national MCS officers in assessing the relative level of compliance of all vessels on the FFA RSP.

All FFA members have access to the FFA RSP covering both their respective EEZ's and the high seas that are visible to them. As an approved MCS entity across the membership, the FFA Secretariat sees fishing activities in all EEZs and High Seas areas with no restriction on the viewing area. Member countries see all vessels within the High Seas areas & High Seas pockets within the buffer zone outside of their own EEZ. They see their flag vessels in all areas and licensed vessels in all areas during the validity of the fishing license.

The three information sources (FFA VMS, WCPFC VMS and AIS) can be used to track all vessels fishing and transiting in its respective zone using 'Google Track', with vessels colour coded to identify individual vessel non-compliance risks, scored against the CI.

7.5 Observer Programmes

Fisheries observer programmes involve the observation of, and reporting on, activities that occur onboard the vessel and catches that are taken through fishing activities¹⁹. Observer programmes can either use human observers that are placed on vessels for the duration of a fishing trip and/or they may also use electronic monitoring equipment (cameras and sensors) placed strategically on the fishing vessels to enable the monitoring of vessel fishing and related activities.

Observer programmes generally have two goals. The first goal is the collection of scientific information to support the management of the fishery. This can include the monitoring of catches, collecting weight and length measurements, undertaking sex studies and the gathering of otoliths.²⁰ The second goal is the monitoring of vessel compliance with relevant laws, regulations and obligations. The observer, and the observer programme staff, have no enforcement powers, so any non-compliance identified is noted and will be required to be referred to authorised officers for investigation. This generally occurs following the debriefing process. In this respect observer programmes can be considered the eyes and ears of MCS practitioners on-board fishing vessels. It is this information that observers record that can best inform MCS data analysis.

Observers can also be deployed proactively on vessels to gather information on targeted vessels that are assessed as higher risk of non-compliance or where non-compliance with any laws or regulations is suspected or alleged.

Because of the cost of data transmission, footage and information from electronic monitoring is generally only available after the completion of the trip when the vessel enters port and the footage can be removed or downloaded from the vessel. Any footage collected by electronic monitoring also

¹⁹ There may also be sampling undertaken on vessel catch as part of their monitoring activities.

²⁰ FAO Observer Program Operations Manual <http://www.fao.org/3/S8480E/S8480E02.htm>

needs to be analysed and interpreted by “dry-observers”²¹ so may not be available to analysts immediately upon landing.

Reporting by human observers may be available in real time, where electronic reporting facilities are available to the observer. SPC have developed an eObs application to support the electronic capture of observer data and this is available to Members. If paper forms are used by the observer programme, the data and reporting will only be available after the completion of the trip, when the observers are debriefed following disembarking the vessel. The information from human observers will be available electronically once it has been data entered into TUFMAN. This may not be completed until several weeks after the completion of the trip.

The observer reporting includes the completion of a Gen – 3 report on which the observer notes any possible vessel non-compliance with rules, regulations, or obligations. The GEN – 3 form records issues identified by the observer in the following categories:

- Observer rights/social behaviour
- National regulations
- WCPFC CMMs
- Logsheet recording – position and catch
- Species of special interest
- Pollution
- Sea safety

A description of issues identified should be included within the GEN – 3 form and further details on the incidents or activities will also be contained within the observer journal or workbook. Observers also complete a vessel and aircraft sighting report as part of their workbook, which records all vessels and aircraft sighted during the trip.

Observer deployment can also have an impact on the operation of a vessel and therefore a comparison of observed and non-observed trips can identify possible IUU activities. This is because vessels are generally more likely to concentrate on complying with CMM’s when their fishing activities are being observed. Key differences may include higher quantities of by-catch being reported on observed trips, increases in catch per unit of effort (CPUE)²² on non-observed trips and less catches or interactions with species of special interest on non-observed trips. Therefore, a comparison of observed and non-observed trips can help identify target vessels for further investigation and analysis.

There are national, sub-regional and regional observer programmes that operate in the Pacific and each of these is discussed briefly below.

²¹ Data from electronic monitoring will require an experienced observer or someone with relevant experience to interpret the data and information collected. These people are often referred to as “dry-observers”.

²² CPUE refers to the amount of catch taken per set.

7.5.1 Regional Observer Programmes

WCPFC CMM 2018-05²³ establishes the WCPFC Regional Observer Programme (ROP) and specifies that it applies to:

- i. vessels fishing exclusively on the high seas in the Convention Area;
- ii. vessels fishing on the high seas and in waters under the jurisdiction of one or more coastal States; and
- iii. vessels fishing in the waters under the national jurisdiction of two or more coastal States.

Each CCM is responsible for placing observers to meet the level of observer coverage specified by WCPFC. This currently sits at 100% observer coverage on purse seine vessels and 5% coverage on all vessels using other methods that the regional observer programme requirements apply to.

It is sometimes difficult to have timely access to some of the observer data for observers deployed under the ROP. This is due to the regional activities of these vessels²⁴ and the format in which the data is recorded and collected (this is most often paper based). Observer data collected in a Member's waters ends up in the country of nationality of the observer and is then entered in to TUFMAN or sent to SPC for data entry. This can result in some delay between the observed trip and a Member having access to the data for observed activities in their waters.

FFA members who have signed and ratified the Niue Treaty Subsidiary Arrangement (NTSA) will have access to NTSA's members' observer data for MCS purposes through the Niue Treaty Information System (NTIS). The NTIS system will link to TUFMAN 2 to retrieve the observer data required by the requesting member.

Analysts requiring further specific information from an observed trip should contact the observer programme under which the observer is employed. The contact details for National Observer Coordinators operating under the ROP are contained on the WCPFC website at <https://www.wcpfc.int/wcpfc-national-observer-coordinator-cmm-2018-05-para-13>.

In 2013 FFA developed draft Observer Data Analysis Guidelines that are intended to be used by certified Pacific Island Regional Fisheries Observer (PIRFO) debriefers to support their analysis of observer data to identify possible non-compliance issues. These guidelines follow the same format as the observer GEN – 3 forms to assist debriefers in gathering the required information from the data and information recorded by observers to support MCS responses. This guideline can be provided to debriefers to help to support their understanding of MCS data requirements.

²³ CMM 2018-05 replaced CMM 2007-01.

²⁴ This can often involve multiple States, where an observer of one nationality may be deployed on a vessel of a different nationality which fishes in the waters of several different States.

7.5.2 Sub-regional Observer Programmes

Article 17 of the FSM Arrangement requires that the Parties establish an observer programme “for the purposes of implementing and achieving the objectives” of the Arrangement. PNA has had an observer on board every one of their licenced purse seine fishing vessels in PNA waters since 2010.

The PNAO outsources the management of their regional observer programme to MRAG Asia Pacific. PNA observers operate under the PNAO.

Analysts working in PNA Parties can access PNA observer information through FIMS, with real time observer reporting often being available through this system.

FFA members who are not PNA parties will not have access to FIMS and will not be able to access the observer data as easily. Direct communications with PNA parties or the PNAO may grant them access to the observer data required.

7.5.3 National Observer Programmes

FFA Member States have established and maintain national Observer programs in accordance with regional and national standards for scientific and MCS data collection. National observer programmes provide observer services for flagged vessels that are fishing exclusively in waters under national jurisdiction and will be tasked to meet national monitoring and data collection requirements. Each national programme will be recording possible non-compliance with national laws and regulations however the specific data requirements and processes may vary between members.

For national or bilateral observer data, concerned members are required to establish dialogue with other members and have arrangements in place to have access to the required observer data. For data under sub-regional and regional programs, concerned members are required to liaise with relevant agencies and service providers to have access to observer data.

Observer data collected through national observer programmes may be entered into sub-regional or regional systems or may be housed in national IMS.

7.6 Catch and Effort Data

Accurate catch and effort reporting is a central element of effective fisheries management. This provides key data that is used by fisheries scientists to assess fishery abundance and provide advice on stock levels that can inform management decisions. It is therefore one of the most important records maintained by a fishing vessel.

WCPFC CMM 2013-05 requires each CCM to ensure that the master of each vessel flying its flag in the Convention Area shall complete an accurate written or electronic log of every day that it spends at sea. The CMM specifies minimum information requirements and SPC have developed regional

logsheets to meet these requirements which are available at <https://oceanfish.spc.int/en/data-collection/241-data-collection-forms>. The SPC logsheet forms are used extensively by FFA Members.

Fishing vessels licensed to operate in FFA members EEZ are required to maintain daily vessel log and submit to authorities under which they operate at the end of each fishing trip. The HMTC's include a requirement that licensed vessels complete in English daily reports of all catch in the prescribed form and this requirement is implemented in all national licence conditions. The HMTC's also specify that the operator has to provide to the licensing member or its representative on the prescribed form a preliminary report within 14 days of the completion of a trip and a final report within 45 days of the completion of a trip.

Vessel logsheets include information about the vessel and operator, target species, set location, set date and time, specifics of the gear used, species caught, catch retained and catch discarded. All logsheets are then signed by the vessel master as an accurate record. All of this catch and effort data contained on vessel logsheets is entered in to, and accessible through, TUFMAN 2.

The catch and effort data is most commonly reported on paper forms, however there is increasing electronic reporting being completed by vessels in the Pacific, especially on purse seine vessels. Electronic reporting (ER) refers to the completion and submission of vessel catch, effort and other required reporting through electronic systems. The benefits of vessels completing electronic reports are numerous and include near real-time access to vessel data and information, increased potential for automated verification of vessel reports and decreased data entry demands. ER is being implemented, to varying degrees, by FFA Members, but most extensively within the PNA purse seine fishery.

Vessel catch and effort data is a central data set for most MCS data analysis and can be analysed alongside other data such as landing data, dock receipts, factory receipts and records, observer data, transshipment reporting and VMS data amongst other things. Current and historical data analysis on vessel's catch can be undertaken to identify possible offending or to assess trends and patterns in vessel fishing activities to inform targeted MCS activities.

SPC, as the tuna data managers for the WCPO, can support members in accessing and analysing catch and effort data. This can be through the SPC supported tools such as TUFMAN 2 and Dorado, or through the generation of tailored reports based on members requirements.

7.7 Surveillance Contact Reports

Fisheries surveillance contacts reports are records of fishing vessel locations and activities that have been noted in any surveillance activity. This can include aerial surveillance and satellite surveillance sightings, surface surveillance sightings, hails²⁵ and at sea inspections. Some surveillance contacts may be remotely sensed and reported (such as through vessel or aircraft radar) where others are physically sighted and reported and may, with surface surveillance assets, be inspected. Whilst not always providing extensive information, vessel sightings and contacts can provide important

²⁵ A hail is a radio contact with a vessel.

information for analysis. This will usually include at the least the time and date, the vessel activity and vessel location, which can then be analysed and compared with other records.

7.7.1 National Surveillance Contacts

Surveillance contact reports collected by FFA Members under national MCS programs are stored in the national IMS of the Member. Analysts are able to correlate the contact reports with vessel licensing information held under the national IMS and compare the information with logsheets and other reporting completed by the vessel.

Where these surveillance contacts are gathered as part of sub-regional and regional operations the data may also be shared with the RFSC as part of FFA's regional MCS coordination role. The sharing of national data is at the discretion of the member country.

The surveillance contact reports received are stored under TUFMAN MCS module within the RIMF. The data is held as a backup to national IMS storage and to support MCS response planning, analysis and coordination. Analysts conducting checks and verification can revert back to FFA for current and historical analysis of the contacts when there is a need.

7.7.2 QUADS Surveillance Contacts

The Quadrilateral Defence Coordination Group (QUADS) includes the Defence agencies of Australia, New Zealand, France and the USA. QUADS undertake surveillance activities in support of FFA Members. This can include aerial surveillance and surface patrols with both often involving officers from the FFA Member/s being supported. The records of contacts identified during these surveillance activities are provided to FFA Member/s being supported, but the format of these records will vary depending on the type of surveillance activity and the QUADS member providing the surveillance asset.

QUADS surveillance activities will be undertaken and planned with the support of the RFSC. The RFSC, as the coordination centre for all QUAD Operations, receives all surveillance contact reports from QUADS surveillance activities. The RFSC stores these contacts within the 'Contacts' portal under the MCS module in RIMF.

All contacts received are analysed to identify any potential IUU activities. All vessels included in contact reports then have their compliance index rating reviewed and updated based on the analysis and assessment of RFSC officers. Potential IUU contacts detected in the analysis process are sent to the appropriate members with all supporting documents, including surveillance photographs of the vessels. Members then further investigate and take appropriate action at the national level.

The surveillance contact reports are received in different formats, the most common being over the horizon report (OTH) gold. These reports contain basic surveillance information, including:

- basic vessel details;
- date, time, speed, course and heading of vessel;
- activity at time of sighting; and

- latitude and longitude

Other information, including photographs and boarding reports, are sent in to the RFSC as attachments. Some Quad members prepare potential IUU briefs and send these briefs in as PDF files with all supporting documents attached. The manner and format in which the reports sent by QUADS and received by RFSC varies between the type of surveillance activity and the QUADS member providing the surveillance asset.

7.7.3 High Seas Boarding and Inspection (HSBI) Reports

WCPFC CMM 2006-08 establishes the WCPFC boarding and inspection procedures. High Seas boarding and inspections may be undertaken for the purpose of ensuring compliance with the provisions of the Convention and WCPFC CMMs.

The procedures provide guidance for the prioritisation of boarding and inspections as follows:

- a) fishing vessels that are not on the WCPFC Record of Fishing Vessels and are flagged to Members of the Commission;
- b) fishing vessels reasonably believed to engage or to have been engaged in any activity in contravention of the Convention or any conservation and management measure adopted thereunder;
- c) fishing vessels whose flag Member does not dispatch patrol vessels to the area of application to monitor its own fishing vessels;
- d) fishing vessels without observers on board;
- e) large-scale tuna fishing vessels;
- f) fishing vessels with a known history of violating conservation and management measures adopted by international agreement or any country's national laws and regulations.

Members' surveillance vessels need to be authorised by the national authority and registered by the Commission as an authorised inspection vessel. WCPFC assesses the registration information provided by CCMs and registers the vessel only once the ED is satisfied that they meet the requirements specified in the CMM. The register of authorised inspection vessels can be found at <https://www.wcpfc.int/register-inspection-vessels>.

Prior to commencing the boarding and inspection the inspecting CCM shall initiate notice of the boarding and inspection to the authorities of the fishing vessel. The inspecting CCM is also required to provide a full report on the boarding and inspection to the authorities of the fishing vessel and WCPFC within three days of completing the inspection.

Where non-compliance is identified, the flag State of the fishing vessel has an obligation to investigate and, if the evidence warrants, take enforcement action against the fishing vessel in question. They are also required to notify the inspecting CCM and the Commission of the action taken. The flag State may also authorise the inspecting CCM to complete an investigation of the possible violation and notify the Commission of this.

Where flagged vessels are inspected and non-compliance is identified, analysts should refer to the inspection report and evidence provided by the inspecting CCM. The analyst should continue to liaise with the inspecting CCM during the process of assessing any alleged non-compliance.

Where an inspecting CCM has identified alleged non-compliance, the analyst should ensure that the reporting requirements are met, and all information provided to the flag State in a format that is easily understood. The inspecting CCM should continue to liaise with the flag State to ensure a successful outcome is achieved.

7.7.4 Satellite Imagery

Satellite imagery has been used to support fisheries surveillance for several years, usually on a trial basis, and is still being developed as an effective surveillance tool. Satellite imagery can provide a remote surveillance capability to support and direct MCS activities but has not been widely applied due to operational limitations and high costs.

Satellite images can be used to detect vessel presence and activity and are therefore useful to direct surveillance activities. To support vessel identification, satellite images need to be taken at a high resolution and given the costs of images, this means the use of the technology is limited to very small areas. To confirm vessel identity, satellite images must be compared with other data sources such as vessel positional data (AIS and VMS). Therefore, the use of satellite imagery is best used in defined and small areas and circumstances, such as small areas that are closed to fishing. Specific surveillance areas also need to be defined prior to the satellite passing over the area of interest, which means it can lack the flexibility to respond to emerging issues that other surveillance tools can provide. Image acquisition and analysis requires time, and this can limit its utility in operational settings. Targeted satellite surveillance can also be costly to undertake, and any issues identified still need to be responded to by surface assets or through in port inspections (if the vessel returns to port). This currently puts satellite surveillance beyond the means of most FFA Member States.

There two main forms of satellite platforms used are Synthetic Aperture Radar (SAR) and optical satellites. The data sets produced by both are increasingly being integrated but each platform is briefly described below.

7.7.4.1 Synthetic Aperture Radar

A Synthetic Aperture Radar (SAR) is a mostly airborne or space borne side looking radar system which utilises the flight path of the platform to simulate an extremely large antenna or aperture electronically, and that generates high-resolution remote sensing imagery.²⁶ One of the key benefits of SAR satellites is that they may be used at night or with a thick cloud cover over the area of interest because they work on returned radar pulses rather than obtaining an optical image.

The limitation of the pulse radar systems is that SAR provides a radar silhouette, rather than a clear optical image, so identifying specific vessels or their activities can be extremely difficult. Therefore, SAR data will most often need to be reconciled with vessel positional data to identify possible fishing vessels of interest who may not be reporting on VMS. SAR has been trialled in the Pacific by FFA and

²⁶ www.radartutorial.eu/20.airborne/ab07.en.html

can provide a useful dataset that can be referenced against VMS reporting to identify potential unregulated or unlicensed fishing vessels.

7.7.4.2 Optical Satellite

Optical satellites obtain an optical image of an area over which the satellite passes which, depending on the focus area and possible resolution, can provide positive indications of vessel identification and vessel activities. Because the satellites produce optical images, they are more operationally limited and are usually not effective at night or in areas of high cloud cover.

7.8 Inspection Records and Reports

Vessel inspections are one of the most important MCS activities that are undertaken to ensure fishing vessels comply with laws, regulations and obligations. The reason that inspections are so important is that they are the only opportunity for inspectors to board the vessel and examine the vessel, gear, catch and records maintained on the vessel. Consequently, inspections provide some of the most important data and information to inform our MCS responses.

There are increased hazards when completing inspections on vessels at sea as opposed to in-port. However, at sea inspections also provide a unique opportunity to inspect the vessel, fishing gear, vessel records and catch, while the vessel is still operating and when an inspection may not be anticipated. Because the vessels are usually operating during the time at-sea inspections are completed, these inspections can also be more challenging, and inspectors may face more time pressure than they would when conducting in-port inspections.

All inspections should be recorded on an inspection form to assist the inspector in completing and verifying all the required aspects of the inspection. This form may be electronic or a physical record, however an electronic record of all vessel inspections should be kept. Notes taken by inspectors during previous inspections of the vessel are one of the most underused pieces of information to inform vessel inspections. Inspectors should be encouraged to record on inspection forms where possible offending may be occurring on the vessel, whenever they are on the vessel. This information should be used to target subsequent inspections.

The FFA Fisheries Boarding and Inspection Guidelines include pre and post boarding templates that can assist FFA Members in capturing information needed to assist boarding preparation and recording inspection results. The MCS Data Analysis Guidelines can inform analysis that can complement and further inform the pre-boarding checks to ensure that informed and targeted boarding and inspections are completed.

Records of inspections are able to be recorded electronically within the RIMF Vessel Boarding and Inspection module and also within the FIMS database for PNA members. Port inspection reports and boarding reports can also be made available to other members through the NTIS, subject to current data sharing arrangements.

The IPOA–IUU recommends that Port States should capture the following types of information during inspections:

- the flag State of the vessel and identification details;

- name, nationality, and qualifications of the master and the fishing master;
- fishing gear;
- catch on board, including origin, species, form, and quantity;
- where appropriate, other information required by relevant regional fisheries management organizations or other international agreements; and
- total landed and transhipped catch

These information groupings cover the main types of information that should be captured during vessel inspections. The information that should be captured during an inspection are further elaborated in the FFA Fisheries Boarding and Inspection Guidelines including recommended templates to capture data and information obtained before and during the inspection.

7.8.1 Vessel Logbooks and other Vessel Records

When completing an inspection of a fishing vessel there are a number of records that are found onboard the vessel that can be very useful for verifying the legality of the catch onboard. Some of these records are listed below, along with an explanation of the information contained in the record and the value that they can provide to an MCS analyst.

7.8.1.1 Bridge Logbook/Deck Logbook

Bridge/deck logbooks record the important events related to the management and navigation of the vessel. The logbook will be found on the bridge of the vessel but may take different forms from vessel to vessel. However, it will record the same core information, such as regular vessel positions, vessel course and speed, sea state, weather conditions, watch routines, arrival and departure dates and times, any incidents of note and vessel activities.

This record is a requirement of most maritime authorities. This logbook can be used to compare recorded details with the fishing logsheets, and transshipment reports completed by the vessel or any other legally required reports, such as zone entry and exit or daily reporting.

7.8.1.2 Freezer Records

Records are maintained onboard vessels that have freezing capacity to monitor the temperature of the freezers taken at intervals during the vessel's operation. This is to ensure the quality and food safety of fish stored in the freezers onboard the vessels.

Increases in temperature can be indicative of the freezers being opened or additional fish being placed in the freezer. This therefore can be a useful record to compare with fishing logsheets and transshipment reports.

7.8.1.3 Engine Logbook

The engine logbook will be completed by the Chief Engineer on larger vessels, or possibly by one of the crew on smaller vessels, where a specialist engineer may not be embarked. The specific requirements for completing engine logbooks will be defined in the flag State maritime law, however the requirements usually specifically apply only to larger vessels or vessels undertaking voyages beyond areas of national jurisdiction. Any records of engine performance may also be noted in other logbooks kept on the bridge on smaller vessels.

The purpose of the engine logbook is to record the performance of the vessel engine and machinery, including any faults and maintenance completed. It may record vessel speed at specific intervals, engine loads and fuel and oil levels. Where independent engine logbooks are maintained they can be compared with other vessel and fishing records to help identify possible vessel activities.

7.8.1.4 Independent Catch Records

Many fishermen complete records of catch and fishing activity independent of the fishing logsheets. This information may be used to inform the logsheet completion or may be maintained as a personal record of catch and productivity of different fishing practices or approaches. This information could be recorded anywhere from the master's personal diary to books kept on the bridge or on individual scraps of paper.

In addition to this, any records maintained for trade or certification purposes may also contain fishing and catch information. Any of these records can be used to compare with fishing logsheets and transshipment reports.

7.8.1.5 Crew Lists and Crew Documentation

In 2019, the HMTC's were updated to include crew labour and employment conditions making the vessel operator responsible for the health, welfare and safety of the Crew while on board the vessel. The HMTC's formalise the requirement for the operator to provide crew with a safe work environment and includes provisions requiring, among other things, that:

- written contracts are in place;
- health protection for crew in the case of sickness, injury or death; and
- that crews are treated with fairness and dignity;

When implemented at the national level, this means that any mistreatment of crew is a breach of licensing conditions. Vessels should also maintain some form of medical log which should outline medical emergencies and what aid, or assistance was provided. On smaller vessels this may be maintained in the deck/bridge logbook rather than as a separate record.

Crew records and documentation should be verified to ensure that the crew members are not being changed without the required provisions in place and that crew safety and wellbeing is maintained.

7.8.1.6 Vessel Communications

The format for vessel communications may vary depending on the forms of communication available onboard the vessel (such as e-mail or radio only). However, vessels should maintain a radio log for all radio communications. Of particular interest is any records of catch reporting back to the vessel operators or vessel agent.

These records can be used to compare recorded details with the fishing logsheets, and transshipment reports completed by the vessel or any other legally required reports, such as zone entry and exit or daily reporting.

7.9 Vessel IUU Lists

The WCPFC maintains an IUU vessel list which is updated annually after the Commission meeting. The WCPFC IUU vessel list is available at <https://www.wcpfc.int/wcpfc-iuu-vessel-list>. Each RFMO also maintains their own IUU vessel list. The WCPFC IUU vessel list link also contains links to the IUU vessel lists for the following other RFMO's:

- CCAMLR – Commission for the Conservation of Antarctic Marine Living Resources
- CCSBT – Commission for the Conservation of Southern Bluefin Tuna
- IATTC – Inter-American Tropical Tuna Commission
- ICCAT – International Commission for the Conservation of Atlantic Tunas
- IOTC – Indian Ocean Tuna Commission
- NPAFC – North Pacific Anadromous Fish Commission
- NPFC – North Pacific Fisheries Commission
- RPOA-IUU – Regional Plan of Action to Promote Responsible Fishing Practices including Combating Illegal, Unreported and Unregulated Fishing
- SPRFMO – South Pacific Regional Fisheries Management Organisation

However all of the IUU listed vessels from these RFMO's, along with additional RFMO's and international organisations, have been brought together in one list which is available through <https://www.iuu-vessels.org/Home/Search>. This provides an effective a single access point for checking all IUU or vessel of interest (VOI) lists from the following sources:

- CCAMLR
- IATTC
- ICCAT
- IOTC
- NAFO – Northwest Atlantic Fisheries Organization
- NEAFC – North East Atlantic Fisheries Commission
- SEAFO – South East Atlantic Fisheries Organisation
- WCPFC
- SPRFMO
- INTERPOL (Purple Notices)
- GFCM – General Fisheries Commission for the Mediterranean
- NPFC
- SIOFA – Southern Indian Ocean Fisheries Agreement

These lists contain the vessel name, flag, other identification information, vessel owner and the reason for the IUU listing. When using these IUU vessel lists, the analyst needs to remember that the locations of these IUU vessels is usually unknown and there are often only limited identifying details available for the listed vessels. This can make reconciling these lists against particular vessels of interest difficult where vessel details have been changed.

7.10 Bunkering and Transshipment Reporting

WCPFC CMM 2009-06 bans all transshipment of fish at sea on all purse seiners, except small purse seine boats flagged to Papua New Guinea and Philippines that:

- Have a fish hold capacity of 600 mt or less; and
- operate in tandem with freezer carrier boat/s to freeze the catch or if operating closer to base with ice carrier boat/s to store the fish.

For longline vessels the CMM prohibits transshipment on the high seas, except where a CCM has determined that it is impracticable for certain vessels to operate without being able to tranship on the high seas and have advised the Commission of such. This authorisation to tranship on the high seas from the flag State is noted on the vessels record on the WCPFC RFV.

The reporting requirements for any transshipments on the high seas apply to both the offloading and receiving vessels and include:

- Sending a transshipment notification to the ED at least 36 hours prior to each transshipment; and
- Sending a transshipment declaration to the ED within 15 days of the completion of each transshipment.

Any transshipment undertaken due to force majeure or serious mechanical breakdown needs to be notified to the ED within 12 hours of the completion of the transshipment and a transshipment declaration provided to the ED within 15 days of completion of the transshipment.

There is also a requirement for 100% observer coverage to be deployed on the receiving vessel for purse seine caught fish or frozen longline caught fish. The observers are required to confirm, to the extent possible, that the transhipped quantities of fish are consistent with other information available to the observer.

There are currently no WCPFC reporting requirements related to bunkering activities.

Bunkering and transshipment activities should only be conducted between vessels on the WCPFC RFV

The information contained within transshipment declarations and reporting can be verified against other data sources, such as logsheets, VMS reporting, observer reports and daily reporting among other things.

In addition to this, FFA have developed an automated bunkering and transshipment alert system. This alert system sends an internal notification within the RFSC that likely bunkering, or transshipment activities are taking place, or have taken place. The alert is based on vessel proximity, when vessels on the RSP come close to each other for a sustained period. This notification is examined by an FFA analyst who will assess if a likely bunkering or transshipment activity occurred. FFA Members can request information from FFA that is obtained through the automated bunkering and transshipment alert system for any vessels of interest.

7.11 Other Vessel Reports and Requests

The HMTC's require that the Master of a licensed fishing vessel provide to the issuing authority information relating to the position of, catch and observer on board, the vessel as follows:

- i. each Wednesday;

- ii. within a reasonable time of entry into and departure from the fisheries waters as determined by the issuing authority; and
- iii. within a reasonable time prior to the estimated time of entry into any port of the issuing authority as determined by the issuing authority.
- iv. all fishing and support vessels must provide a port entry notice (including their authorization to fish, details of their fishing trip and quantities of fish on board) to the port authority and the national fisheries authority at least 24 hours before entering port.

The information contained in these reporting requirements can be verified against other legislated vessel reporting requirements, including fishing logsheets and VMS reporting among other things.

The specific details of these reporting requirements are included in the following sections. Different FFA Members may implement these reporting requirements differently within their national systems. These differences should be allowed for by the analyst.

7.11.1 Vessel Port Entry Requests

In addition to the HMTC's, the Port State Measures Framework developed by FFA and endorsed by FFC, includes the requirement for a vessel to submit an advance request for port entry. This advance request should be submitted to the port State and also the coastal State in recognition of the importance of risk-based port State measures. Permission to enter port or unload can be denied if IUU fishing is believed to have occurred.

The HMTCs require the operator to provide the licensing member port entry notice 24 hours prior to port entry. This needs to include the following information:

- i. report type (PENT);
- ii. date and time (GMT/UTC);
- iii. vessel name; or
- iv. international call sign or country (flag state) registration number, or licence number;
- v. position (to one minute of arc);
- vi. catch on board by weight by species;
- vii. estimated time of entry into port (GMT);
- viii. port name;
- ix. intended action; and
- x. observer name and nationality.

The Port State Measures Framework encourages FFA Members to require a request for port entry from vessels and that this should be submitted a sufficient time period prior to planned port entry and allows the port State to undertake an adequate risk assessment and plan responses accordingly.

Both the HMTC requirements and the Port State Measures Framework are implemented at the national level and specific implementation may vary depending on national requirements.

7.11.2 Vessel Zone Entry and Exit Reports

The HMTC's require the operator to provide the licensing member with a report within a reasonable time of entry into or departure from the zone of any licensing member. The report should contain the following information:

- i. report type (ZENT for entry and ZEXT for exit);
- ii. data and time (GMT/UTC);
- iii. vessel name; or
- iv. international call sign or country (flag state) registration number; or licence number;
- v. position (to one minute of arc);
- vi. catch on board by weight by species;
- vii. intended action; and
- viii. observer name and nationality.

This requirement in the HMTC's is implemented through national vessel licensing conditions, as appropriate to meet national needs.

7.11.3 Vessel Weekly Reports

Weekly Reports are required to be submitted to the licensing member each Wednesday and should contain the following information:

- i. report type (WEEK);
- ii. date and time (GMT/UTC);
- iii. vessel name; or
- iv. international call sign or country (flag state) registration number; or
- v. licence number;
- vi. position (to one minute of arc);
- vii. catch on board by weight by species;
- viii. intended action; and
- ix. observer name and nationality.

The requirement in the HMTC's is implemented through national vessel licensing conditions, as appropriate to meet national needs.

7.12 Catch Certification Information

Catch certification or catch documentation schemes (CDS) involve certifying a catch, generally at the point of landing, by verifying its origin, weight and species composition as well as whether it was taken in accordance with the conservation management measures in force. This certification then accompanies the fish as it progresses through the supply chain. After the point of landing, trade documents are generally used to track the trade of the certified catch. The intent of these documents is to prohibit the entry of any IUU fish or fish product into the supply chain.

Traceability requirements, through various forms of catch certificates and CDS are expanding globally. These schemes primarily seek to combat IUU but may also fulfil other objectives, such as product value adding.

Whilst there are some similarities, different catch certification and CDS that have been implemented have different minimum data requirements and different parties responsible for the issuance, submission, validation and verification of catch certificates. In general, minimum requirements may include:

- document number/ID;
- issuing, submitting, validating/verifying authority details;
- fishing vessel name;
- fishing vessel flag;
- fishing vessel master details;
- fishing vessel operator details;
- catch composition (species);
- quantity of catch (weight);
- area of fishing;
- fishing time period;
- fishing authorisation/licencing details;
- fishing authorisation/licencing issuing authority details;
- exporter details;
- importer details;
- validation by the competent authority;
- trade certification;
- exporter details;
- importer details; and
- transportation details.

The two main catch certificates that impact catches in the WCPO are the EU catch certification scheme and the United States (US) Seafood Import Monitoring Program (SIMP).

The European Union (EU) catch certification scheme is specified in Council Regulation (EC) No 1005/2008 of 29 September 2008 establishing a Community system to prevent, deter and eliminate IUU fishing. The EU catch certification scheme requires that all fish and fishery products imported into the EU are accompanied by catch certificates. Information on the import documents are provided by the operators responsible for activities of fishing vessels, processing and export facilities as appropriate. The competent authority of the flag State must then validate the information contained on the import documents and certifying that the products were caught in compliance with national, regional and international fishing laws and CMMs.²⁷

The United States (US) SIMP establishes reporting and recordkeeping requirements for imports of certain seafood products that have been identified vulnerable to IUU fishing and/or seafood fraud. These species include Dolphinfish (Mahi Mahi), Sharks, Swordfish and Albacore Tuna, Bigeye Tuna, Skipjack Tunas, Yellowfin Tunas and Bluefin Tuna. SIMP is a risk-based traceability program that

²⁷ <https://eu.oceana.org/sites/default/files/cds-study-web.pdf>

requires importers to provide and record data from the point of harvest to the point of entry to the US. This data allows the relevant fish and fish products to be traced from the point of entry into the US back to the point of harvest or production and provides verification that the fish were caught in a manner consistent with relevant legal obligations.

SIMP does not have a dedicated CDS, it requires importers to collect information for imports and enter this information electronically to the International Trade Documentation System (ITDS). This information must be provided at the time of, or in some cases, before, importation and includes vessel details, fishing licences, areas of operation and date and place of landing.

Both the EU catch certification scheme and the US SIMP require the capture and provision of information to support the certification of catch or imports as legal. In the Pacific, currently only Papua New Guinea operates a national CDS, but there are other regional, sub-regional and national initiatives being scoped and developed.

The information captured in CDS and catch certificates can be verified through comparison with other vessel reporting and records completed, and records and data held by other entities in the supply chain, such as processing factories and canneries. The information captured can also be monitored as the product travels through the supply chain to ensure that the certified quantities do not change.

7.13 Other Reports

There are many other information and data sources that are accumulated for non-MCS purposes, such as broader fisheries management or fisheries science functions and reporting by interest groups to highlight emerging issues. Because of the focus of these resources and the nature of the information contained in them²⁸, they are most able to support the proactive profiling of vessels, fleets and industry. Effective use of these resources and the information and data they contain can assist in identifying possible IUU vessels and activities as part of a risk-based approach to MCS.

Some of these resources are briefly discussed in the following sections, along with an explanation of the uses of these resources.

7.13.1 WCPFC Annual Reporting

The required annual reporting by CCM's to the WCPFC is divided in to two parts. The first part, Annual Report Part I, contains the information on fisheries, research and statistics. The second part, Annual Report Part II, contains CCMs' compliance with the obligations arising under the WCPFC Convention and CMMs and provides the basis for the assessment completed as part of the WCPFC Compliance Monitoring Scheme (CMS).

Because the Part II reporting identifies non-compliance by CCM's (and CCM vessels) with CMM requirements, its value to MCS data analysis is self-evident. To support CCMs, the WCPFC maintain an online compliance case file system as a secure, searchable system to store, manage and make available information to assist CCMs with tracking alleged violations by their flagged vessels. This

²⁸ The information in these sources is generally aggregated or broad scale, rather than related to specific operators or vessels.

therefore is an important resource for MCS data analysts, and it is important that this system is kept updated by FFA Members.

The Annual Report Part I, contains both annual fisheries information and research and statistics. The annual fisheries information should include the information included in table x below.

Essential Information	Time Period
Annual catch and effort by primary species and gear in the WCPFC Convention Area	Previous calendar year (x-1) and previous 4 years (x-2 to x-5)
Number of vessels by gear type and size (fleet structure)	Previous calendar year (x-1) and previous 4 years (x-2 to x-5)
Fishing patterns (catch by time/area)	Previous year; comparisons with earlier years IV
Estimated total catches of non-target, associated and dependent species (if available)	Previous calendar year; other years if available

The WCPFC guidance also notes useful information that can be included in the Annual Report Part I, which should include the information included in table x below.

Useful Information
Developments/trends in the fishery (changes in fishing patterns, fleet operations, target species, level of transshipment, etc.)
Associated socioeconomic factors (which may influence or explain the above trends)
Disposal of catch (fresh/frozen/other)/market destination (export/domestic)
Onshore developments (processing plants, support facilities, etc.)
Future prospects of the fishery (long term viability, expansion/contraction, etc.)

The research and statistics included in the Annual Report Part 1 should include the information included in table x below.

Research and Statistics
Summary of observer and port sampling programmes (scientific data)
Research activities (tunas, other species, species of special interest, oceanographic influences, etc.)
Statistical data collection systems in use (describe)
Data coverage of catch, effort and size data for all species

Aggregated catch information, fishing patterns and fishing trend data can be used by data analysts to identify anomalies or outliers, or vessels that are not catching or reporting with what the national fleet are. Catches composition from individual vessels can be compared to total catches for similar vessels to identify irregularities. This is not to say that all outliers and anomalies are the result of IUU activities, but this can be a strong indication of some non-compliant activities.

Developments/trends in the fishery and associated socioeconomic factors which may influence or explain the trends can help identify sections of the fleet, and areas of operation, where increased pressure may be being applied to vessel operations. This may include vessels undertaking longer fishing trips to catch the same amount of fish or price decreases in particular species. The identification of these pressure areas can indicate where there may be increased incentives for vessels to undertake IUU activities.

7.13.2 Third Party Information

There are a number of non-Governmental Organisations (NGO's) and Civil Society Organisations (CSO's) that have an interest in the impacts of fishing activities in the WCPO.

At the 2019 WCPFC Commission meeting, the attending organisations included²⁹:

- Worldwide Fund for Nature (WWF)
- Pew Charitable Trust
- Sustainable Fisheries Partnership
- The Ocean Foundation,
- Conservation International
- Agreement for the Conservation of Albatross and Petrels (ACAP)

²⁹ Sourced from

https://www.wcpfc.int/system/files/Final%20WCPFC16%20Summary%20Report%20as%20at%202%20Apr%202020_opt.pdf

- Marine Stewardship Council (MSC)
- International Environmental Law Project (IELP)
- The World Bank
- Seafood Legacy

There were also a number of attending industry organisations, including:

- World Tuna Purse Seine Organisation (WTPO)
- Pacific Islands Tuna Industry Association (PITIA)
- International Pole and Line Foundation (IPNLF)
- American Tunaboat Association (ATA)

Many of these organisations, and other NGO's/CSO's fund and produce reports and information on key fisheries issues. These reports and resources can be used by MCS data analysts to compliment other information sources and inform data analysis undertaken.

7.13.3 Intelligence Reports

Information and intelligence reports are routinely produced by international, regional and national fisheries and crime prevention agencies. The agencies involved may include, among others, Interpol (the International Criminal Police Organisation), Oceania Customs Organisation, Pacific Fusion Centre and QUADS surveillance partners. These information and intelligence reports will generally be received, and disseminated to Members by, the RFSC. The RFSC also produces their own information reports based on the analysis they have been undertaken and these reports are disseminated to Members and key stakeholders as required.

In addition to this, information and intelligence reports may be generated by national fisheries administrations. These should be documented and shared wherever possible and built upon to increase the appreciation and understanding of regional risks and emerging issues.

These reports may also inform targeted information collection and ongoing analysis to identify and direct MCS responses towards emerging IUU risks.

8. Data Security

The data and information that is used by MCS data analysts will often be classified, with rules defined around the use and dissemination of the information. Analysts should always understand and comply with the data security requirements that apply to the information being analysed. These rules may be established through national information security requirements or regional policies and rules.

The two primary sets of data security rules and procedures that apply to fisheries administrations in the region are the WCPFC data rules and the FFA Information Security Management System policy. Both of these policies and the primary rules they apply that impact data access and dissemination are briefly described in the following sections.

8.1.1 WCPFC Data Rules

The WCPFC has developed two primary policies that define rules and procedures that apply to data and information held by the Commission. These policies are:

- Rules and Procedures for the Protection, Access to, and Dissemination of Data Compiled by the Commission (the Data Rules); and
- Rules and Procedures for Protection Access to and Dissemination of High Seas Non-Public Domain Data and Information Compiled by the Commission for the Purpose of MCS Activities and Access to and Dissemination of High Seas VMS Data for Scientific Purposes (the Non-Public Domain Data Rules).

The WCPFC Data Rules define Public Domain Data and Non-Public Domain data and establishes rules around the use and dissemination of these two types of information. The Data Rules define Public Domain Data as data that does not “reveal the individual activities of any vessel, company or person and shall not contain private information”. It goes on to identify Public Domain Data as the following types of data:

- 1) annual catch estimates stratified by gear, flag and species for the WCPFC Statistical Area;
- 2) annual catch estimates stratified by gear, flag, species, and waters under the jurisdiction of CCMs and the high seas in the WCPFC Statistical Area;
- 3) the annual numbers of vessels active in the WCPFC Statistical Area stratified by gear type and flag;
- 4) catch and effort data aggregated by gear type, flag, year/month and, for longline, 5° latitude and 5° longitude, and, for surface gear types, 1° latitude and 1° longitude – and made up of observations from a minimum of three vessels;
- 5) biological data (if adequate time has passed to allow the scientists that organised for the collection of such data to publish a paper analysing it);
- 6) tagging data;
- 7) the WCPFC Record of Fishing Vessels;
- 8) [information on vessel and gear attributes compiled from other sources];
- 9) any vessel record established for the purpose of the Commission’s VMS;
- 10) oceanographic and meteorological data;
- 11) [social data]; and

12) Part 1 of the Annual Report to the Commission by CCMs

All data not listed above is considered non-public domain data. CCM's have access to non-public domain data for vessels flying their flag or vessels fishing in their waters, unloading in their ports or transshipping fish within their waters. Under the non-public domain data rules, CCMS may also access specific non-public domain data related to high seas boarding and inspections, high seas VMS data and transshipment notices and declarations in certain circumstances³⁰.

CCMs are responsible for ensuring the confidentiality and security of the Non-Public Domain data according to its risk classification and in a manner consistent with security standards established by the Commission for the WCPFC Secretariat. Any use of non-public domain data should comply with these rules and standards.

The WCPFC Data Rules and the Non-Public Domain Data Rules can be accessed through the following links:

- <https://www.wcpfc.int/doc/data-02/rules-and-procedures-protection-access-and-dissemination-data-compiled-commission>
- <https://www.wcpfc.int/doc/commission-09/rules-and-procedures-protection-access-and-dissemination-high-seas-non-public>

8.1.2 FFA Information Security Management System Policy v2.1

The FFA Information Security Management System (ISMS) policy seeks to establish a framework for the protection of the organisation's information assets to, among other things, enable secure information sharing. The policy seeks to support the FFA management intent to protect information from a loss of:

- Confidentiality – information is accessible only to authorised individuals;
- Integrity – safeguarding the accuracy and completeness of information and processing methods; and
- Availability – authorised users have access to relevant information when required.

The latest ISMS policy is available at <https://www.ffa.int/system/files/FFA-ISMS-Policy-Version-2.1.pdf>. The policy defines information security classification guidelines that establish rules around when information of different classifications should be used, how it should be shared and gives examples of the different information types.

To support the use of the information security classification guidelines, the ISMS requires data owners and data users apply the following procedures and rules:

- Data may only be accessed if the Data Owner providing the data to FFA Data Resources authorises its release. In the case where there is no owner, data will be accessed according to the rules applicable to the confidentiality classification of such data.
- Data Owners can selectively authorise access to and use of the data they own. This can be reflected in two ways. Owners may:

³⁰ See paragraphs 17, 18, 19, 22, 29, 30, 31, and 32 of the Non-Public Domain Data Rules for the specific circumstances where this data may be made available.

- authorise certain data types, but not other data types; or
 - give authorisation for access to certain Data Users but not to other users.
- Data Users cannot disseminate information they are authorised to access to another party unless such party is also an authorised user of the same data by the data owner.
- If the classification for a particular data type cannot be easily and readily determined, then either a higher level should be assigned, or the data type should be broken into two or more data types for which classification can be readily assigned.
- Information for dissemination will be labelled with the correct Classification code, usually by including “[Classification Code] - [Colour]” in unambiguous text in the header and footer of the document. In the event that information needs to be shared more widely than indicated by the original designation, the request must be referred back to the Data Owner.
- Where information for dissemination also includes protected data from another source (such as WCPFC non-public domain information), it shall be assigned a suitably high classification to ensure that information is not disseminated to users that do not have access to it through other means.

The classification guidelines are included below.

Table 1: Information Security Classification Guidelines

When should it be used?	Classification	How Should it be shared?	E.g. Information / Data Types (regardless of how it is provided or how authorisation to share is given by the data owner)
When information cannot be effectively acted upon by additional parties, and could lead to impacts on a member's privacy, reputation, or operations if misused.	Classified High - RED	<p>Recipient may not share the information, unless specific authorisation is granted by the data owner in accordance with the rules above.</p> <p>Internet exchanges will use at a minimum Hypertext Transfer Protocol Secure (HTTPS), with individual user accounts for web based portals or email exchange</p> <p>The Secretariat will continue to actively test and trial additional protection and encryption mechanisms for RED and YELLOW information or data such as third party and/or two-factor authentication and additional protocols such as HSTS HTTP.</p>	<p>Operational level catch and effort data</p> <p>Access Agreements</p> <p>MCS compliance analysis and profiling for deriving risk levels of:</p> <ul style="list-style-type: none"> ○ Persons of interest ○ Vessels compliance risk² <p>Financial information, access agreements and other data specific to the administration of a specific fund or fishery at the national level.</p> <p>Name and address details of observers.</p>
When information requires collaborative and cooperative support to be effectively acted upon, but carries risk to privacy, reputation, or operations, if shared outside of FFA.	Classified Medium - YELLOW	<p>May be shared with participating members and Surveillance Provider where dissemination of information needs to be tightly controlled.</p> <p>Internet exchanges will use at a minimum Hypertext Transfer Protocol Secure (HTTPS).</p>	<p>MCS Compliance index for:</p> <ul style="list-style-type: none"> ○ persons of interest ○ vessels of interest (the Google earth surveillance picture) <p>Real time or historic location, activities and movement of fishing vessels including VMS data and the Regional</p>

² The RFSC assigns each vessel listed on the FFA Record of Good Standing within the RIMF a compliance index. The underlying analysis used to assign an index draws on classified and open source material. The first pass analysis focuses on:

- Negative Correlations between data holdings of VMS, Observers, and Vessel Reporting Requirements;
- Geographical location of the vessel in, or within, close proximity of an EEZ in which it does not hold a fishing license;
- At-sea and in-port Inspection reports;
- Aerial surveillance information; and
- Monitoring RFMO IUU lists

			<p>Surveillance Picture</p> <p>FFA RFV – all details</p> <p>Individual observer reports or unaggregated observer data.</p> <p>Planning documents for Regional Surveillance Operations where the official is from an FFA Member country or a Surveillance Provider participating in the operation.</p> <p>Commercially sensitive information such as financial accounts, cost benefit analyses of development proposals, and due diligence assessments of specific entities.</p> <p>Current licence lists</p>
When information is useful for the awareness of all FFA members.	Classified Low - GREEN	<p>May be shared with FFA members but is not to be shared in public forums.</p> <p>May be shared with FFC Observers but only after specific review and decision by the Director-General or Deputy Director-General</p>	<p>FFC and subcommittee papers and briefings e.g. Management Options W/S, MCS WG, FFA Pre-WCPFC meetings.</p> <p>Catch and Effort, including observer data which has the following resolution:</p> <ul style="list-style-type: none"> * Longline 5"x5"/month and all flags combined * Purse seine 1"x1"/month and all flags combined <p>Historic licence lists</p>
	Unclassified Open - WHITE	Public domain data – information may be shared freely, may be made freely available, and is subject to standard copyright law.	<p>WCPFC Vessel Register</p> <p>RFV vessel details – name, flag, call sign, FFA ID</p> <p>Specific details on all fully adjudicated prosecutions, violations and settlements relating to fishing vessels that are a matter of public record.</p>