



**Australian Government**

**Australian Fisheries Management Authority**

# **Australian Fisheries Management Authority Electronic Monitoring Program**

**Program Overview June 2020**



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# Executive Summary

The AFMA e-monitoring program uses video and sensor data to independently validate fishing operations and fisheries' logbook information. This program provides verifiable and near real time fisheries data, which can be incorporated into fisheries management decisions and be used as a tool to monitor compliance.

The program has wide coverage across Commonwealth fisheries. AFMA has implemented e-monitoring in:

- the Eastern Tuna and Billfish Fishery (ETBF) – see [E-Monitoring \(Eastern Tuna and Billfish Fishery\) Direction 2015 No. 2](#)
- the Western Tuna and Billfish Fishery (WTBF) – see [E-Monitoring \(Western Tuna and Billfish Fishery\) Direction 2015](#)
- the midwater trawl sector of the Small Pelagic Fishery (SPF) – see [Fisheries Management \(E-monitoring Small Pelagic Fishery\) Direction 2020](#).
- the Gillnet Hook and Trap (GHAT) sector of the Southern and Eastern Scalefish and Shark Fishery (SESSF) – see [E-Monitoring \(Southern and Eastern Scalefish and Shark Fishery\) Direction 2015](#).

This is in accordance with the Fisheries Management Act 1991, which allows the use of electronic monitoring (e-monitoring).

The data obtained from each fishing trip will assist in collecting reliable information on the:

- total catch and discards for all commercial species and bycatch
- total fishery interactions with protected species
- catch per unit effort for the fishery.

## *Requirement for the installation of e-monitoring on boats*

Not all fishing boats are fitted with e-monitoring. Boats are required to operate an e-monitoring system based on the specific requirements of the fishery that they participate in.

## *Costs*

In line with the AFMA Cost Recovery Implementation Statement the e-monitoring activity is cost recovered from industry. The e-monitoring administration of the program is cost recovered at 50% industry and 50% Government due to the additional system establishment costs involved.

## *Vessel operator responsibilities*

Operators who are required to participate in the program have some ongoing responsibilities. Broadly, these include facilitating the exchange of data drives, monitoring the and reporting on the health of the system, and completing Daily Fishing Logs and Catch Disposal Records as required in management arrangements for the fishery.

## *Misreporting and breaches*

E-monitoring focuses primarily on fishing activities, including verification of logbook and E-log data and bycatch handling. Where misreporting or behaviour that contravenes Australian or International law is observed, it will be reported to AFMA Compliance for assessment and response.

# 1 Introduction

The purpose of this document is to provide an overview of the e-monitoring program. This document details the policies and procedures governing the e-monitoring program. It describes the operational components of the e-monitoring program and it informs concession holders, boat masters and crew of their obligations for the use and maintenance of e-monitoring systems.

## 2 Electronic Monitoring

### 2.1 System Description

E-monitoring is a system of sensors and video cameras capable of monitoring and recording fishing activities which can be reviewed later to verify logbook data. Although specific configuration varies with gear and individual boat layouts, an electronic monitoring system typically includes several key components:

- Digital video cameras
- a hydraulic gear sensor
- a rotation sensor
- a GPS receiver
- a satellite communications system
- a control centre.

The control centre runs data collection software, which manages the e-monitoring system and stores relevant fishing activity data. The data is stored on a removable data drive for later review.

### 2.2 Benefits

Benefits of e-monitoring include:

- improved management arrangements:
  - E-monitoring will allow AFMA to introduce individual accountability. This means management responses can be targeted to individual boats rather than broad measures that affect the whole fleet.
  - E-monitoring will result in more efficient and cost effective management measures. E-monitoring will allow operators to demonstrate they are using efficient and sustainable practices (e.g. safe release of sharks) that may be more effective than specific controls on gear.
  - E-monitoring will reduce requirements to carry observers and have boats surveyed for extra crew.
- increased accuracy of data – Continual feedback on logbook reporting through e-monitoring will lead to higher quality self-reported logbook data. Improved quality data will lead to better fisheries management decisions.

- scalable –e-monitoring programs are easily and cost-effectively scalable (to both decrease or increase monitoring within a fishery and include additional fisheries).
- community acceptability – E-monitoring will assist industry to demonstrate to the community they are operating sustainably and assist in achieving third party certification (e.g. Marine Stewardship Council ).
- improved compliance - E-monitoring will result in better compliance with existing AFMA rules and improved reporting. Good operators will be able to demonstrate they run low risk operations.
- reduced work place health and safety risks to AFMA and industry – having fewer observers at sea will reduce the risk to AFMA and industry.

## 3 Program Management

This section describes the overarching aspects of the program, including objectives and outcomes. It will provide the basis for defining the operational features of the program.

### 3.1 Program Objectives, Outcomes and Requirements

#### 3.1.1 Objective

To provide both efficient and cost-effective data collection and a monitoring tool for fisheries management, which will assist AFMA in meeting legislative objectives.

#### 3.1.2 Outcome

The AFMA e-monitoring program will use video and sensor data to independently validate fisheries' logbook information, leading to improved data, which can be:

- incorporated into fisheries management decisions.
- used to verify compliance with regulations.

#### 3.1.3 Requirements

AFMA requires that E-monitoring systems must:

- be installed on:
  - ETBF and WTBF boats operating 30 shots or more
  - GHAT boats (gillnet and automatic line) operating for 50 days<sup>1</sup> or more
  - GHAT boats (manually baited longline) operating for 100 days or more
  - SPF boats (midwater trawlers) operating for any period.

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<sup>1</sup> Fishing days are defined as any calendar day that you have deployed or hauled fishing gear.

- identify when a boat engages in fishing activity, including:
  - identification of the boat
  - the location of fishing activity
  - the date and time of fishing activity
  - the species being caught
  - the quantity, both retained and discarded of each species
  - the type of fishing gear used.

## 3.2 Governance

The following agencies or entities have responsibilities from a management, planning, or operation perspective:

- Commonwealth Fisheries Association and peak industry associations in each fishery: Input to the ongoing implementation of e-monitoring in Commonwealth fisheries including support communications with the fishing industry
- AFMA –Fisheries Services: Program management and policy development, program implementation (operations)
- AFMA Fisheries Management: Management actions, fishery policy development, input into program design
- AFMA and Resource Assessment Groups: Data requirements, input into management and program design
- AFMA Compliance: Enforcement issues, input into program design, end user
- AAP: Designated contractor for delivery of equipment, maintenance and data services.

### 3.2.1 Industry Consultation

Consultation with the fishing industry on e-monitoring matters are led by AFMA fisheries managers and the AFMA e-monitoring program staff. This will include port visits and consultation with industry representatives, as well as using existing avenues of communication such as the Management Advisory Committee and Resource Assessment Group meetings.

### 3.2.2 Feedback Processes

AFMA are committed to providing feedback to concession holders, Management Advisory Committees (MACs) and Resource Advisory Groups (RAGs). This includes:

- program and technical updates
- feedback on the performance of their e-monitoring systems
- feedback on logbook catch reporting (as compared to e-monitoring).

## 3.3 Cost Recovery

Ongoing e-monitoring program costs are cost recovered from industry. This includes:

- Routine servicing of EM systems
- Non-warranty service repairs
- Routine costs for shipping data drives.

- Routine data review and processing.

AFMA is required to recover costs under the *Fisheries Management Act 1991*. The Act states AFMA is to:

‘collect, on behalf of the Commonwealth, a payment in the nature of a community return payable by persons exploiting a fisheries resource’; and to ‘achieve government targets in relation to the recovery of AFMA’s costs’.

In practice, these costs are recovered through levies.

AFMA recovers costs associated with fisheries management, in accordance with the 2017 Cost Recovery Implementation Statement (CRIS). The CRIS is consistent with the Australian Government Charging Framework and Australian Government Cost Recovery Guidelines. AFMA will continue to refine its CRIS model to ensure all of its activities are appropriately cost recovered.

### **3.3.1 E-Monitoring Equipment Support and Maintenance and Fee for Service**

It is expected that boats maintain the equipment with reasonable care. Replacement and repair of damaged equipment, and associated labour, outside of warranty are paid for by the whole industry included in the annual levy.

New installations, including equipment and labour are the responsibility of operators and is charged fee for service.

Modifications to EM systems as a result of boat layout changes initiated by operators are the responsibility of the operators and are charged fee for service.

### **3.3.2 Data Processing and Reporting**

Ongoing data processing costs will be recovered from industry by AFMA.

Data processing includes the cost of analysing video collected by EM systems, the analysing and identifying threatened and endangered species, and producing feedback reports.

## **3.4 Future Use of Electronic Monitoring**

AFMA expects to increase the use of e-monitoring into more Commonwealth Fisheries in the future. AFMA is of the view that effective electronic monitoring program can help the fishing industry demonstrate sustainability, support traceability schemes, increase profits, reduce illegal unreported and unregulated fishing and answer industry critics.

Future fishery programs will be developed and trialled in consultation with the various fishery stakeholder groups such as Management Advisory Committee and Resource Assessment Groups.

## 3.5 Defined Terms

### 3.5.1 Fishing Activity

A fishing trip under the Program will be defined as the period of time between leaving the port to commence fishing activity and returning to port.

*Shot:* A shot is when the fishing gear is deployed into the water (set) and retrieved (haul), whether or not a catch was made.

### 3.5.2 Catch Definitions

For the purposes of the e-monitoring program, definitions of catch will be as follows.

*Catch item:* Any catch item retained on fishing gear and handled by boat crew.

*Fate:* All catch that is released or discarded at-sea and not landed. For items released, the analyst will note following fates:

- Discarded (released): landed onto the boat but not retained
- Jerked free (released): jerked free without landing
- Cut free (released): cut free without landing
- Escaped (released): fish fell off or bitten off
- Tagged (released): tagged and returned alive.

*Life status:* Life status will only be used for animals that are released. These include dead or damaged, Alive and sluggish and Alive and vigorous.

*Retained:* All catch that is kept by the boat and landed. For e-monitoring, fish retained in view of the camera but subsequently discarded outside of the camera view will be considered to be retained catch.

## 4 Program Fisheries

### 4.1 Gillnet Hook and Trap Fishery (GHAT)

The GHAT fishery is a sector of the Southern and Eastern Scalefish and Shark Fishery (SESSF). This is a complex fishery that includes a range of target species with different species being associated with different gear.

**Gillnet** - The gillnet sector is the largest in the GHAT fishery by number of boats. This fishery uses demersal gillnets.

Target species: Gummy sharks.

Major by-product species: School shark, elephant fish and saw shark.

**Automatic longline** - These boats use automatic baiting machines that allow up to 15,000 hooks to be set per day in Commonwealth waters greater than 183m deep.  
 Target species: Pink ling and blue-eye trevalla.  
 Major by-product species: Ribaldo, ocean perch, gemfish and hapuka.

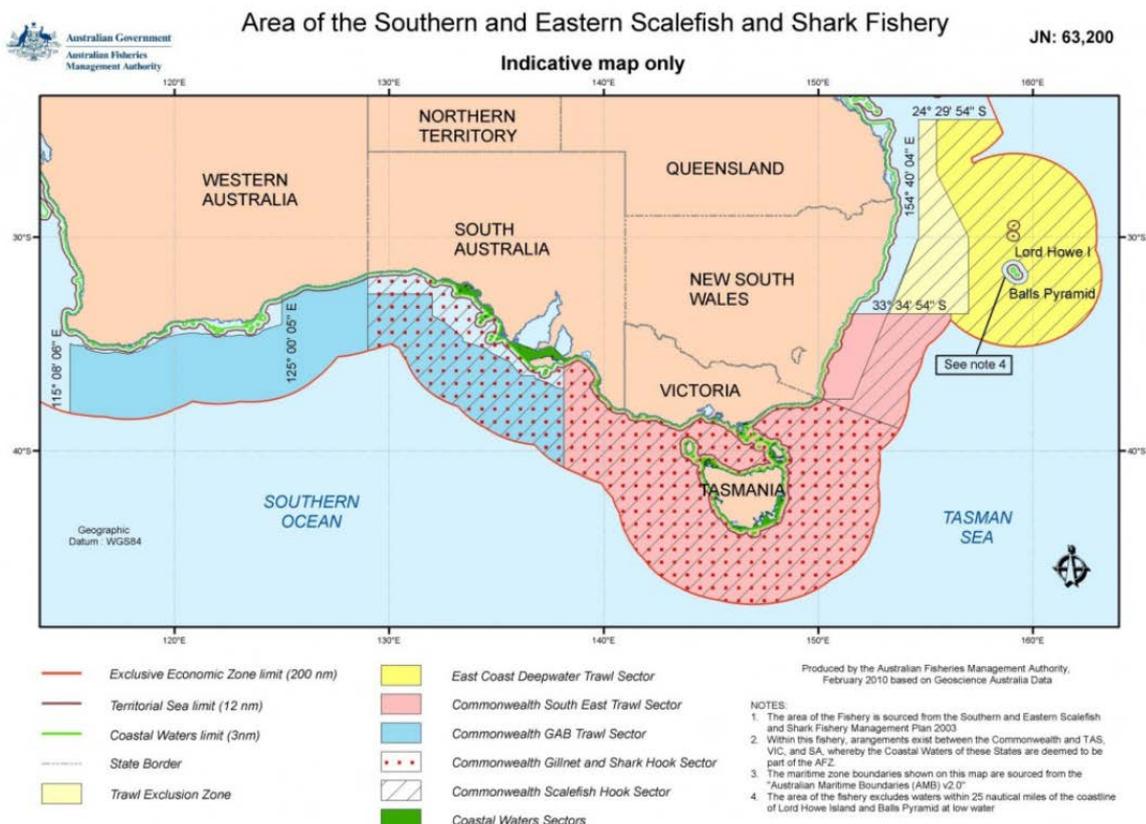
**Dropline** - Operators using droplines set a limited number of hooks in each shot. Many operators using droplines also fish with demersal longlines. Effort in the dropline sector is sporadic and relatively low on a fishery wide scale.  
 Target species: Blue-eye trevalla.  
 Major by-product species: Hapuka and bass groper.

**Manual Longline** – Manual (demersal) longline boats target both scalefish and shark depending on the type of concession that they hold. Operators permitted to target shark using hook methods must operate in waters less than 183m. Operators permitted to target scalefish using demersal set manual longlines do not have depth restrictions.  
 Target species: Gummy shark, pink ling and blue-eye trevalla.  
 Major by-product species: School shark, elephant fish and saw shark.

The effort in the fishery is composed of two major groups:

- Fishers who are active year round depending on the available quota
- Fishers who are active for a limited period – outside those times they might for example be engaged in state managed rock lobster fishing.

**Figure 1 Regions in which GHAT operates. See Commonwealth Gillnet and Shark Sector (red dots) and Commonwealth Scalefish Hook Sector (diagonal stripes).**



This fishery operates in the South and South East of the country. Landings occur in about 35 ports, the main ones being Lakes Entrance, San Remo, Robe, and Port Adelaide. Different sub-sectors within the fishery have their own unique geographic distributions, exclusion and trigger zones. For more reference maps please visit: <https://www.afma.gov.au/fisheries/southern-eastern-scalefish-shark-fishery>.

### 4.1.1 Monitoring Needs

The monitoring needs for the GHAT sector are to collect reliable information on the verification of total reported:

- catch and discards for all commercial species and bycatch
- fishery interactions with protected species (see below for details).

*There are different e-monitoring objectives for the different sub-sectors within the GHAT sector. The primary objectives of e-monitoring during:*

- *Shark gillnet and longline operations are to:*
  - identify and record any protected species interactions during the haul
  - determine the catch composition/piece count of fish being caught
  - record whether fish are retained or discarded.
- *Automatic longline operations are to:*
  - record any seabird interaction with the haul
  - verify whether offal is discharged during setting and record the deployment of mitigation devices (tori lines) on the set
  - record the deployment of seabird mitigation devices on set and haul
  - determine the catch composition/piece count of fish being caught
  - record whether fish are retained or discarded.

The required views of the cameras on board are:

- *Shark gillnet and longline operations:*
  - the area outboard of the roller, such that potential dropouts will be observed
  - a view of catch retrieval from the net or de-hooking area in the case of line fishing
  - a view of the deck where catch is being handled
- *Automatic longline operations:*
  - the area behind the boat such that the deployment of the tori line might be determined
  - the area outboard of the roller, such that there is a view of the brickle curtain and where the line exits the water
  - the de-hooking area
  - the processing area.

#### 4.1.1.1 Protected Species

There are a number of protected species of interest in the GHAT fisheries, which are outlined in detail below. The primary protected species of interest are Australian sea lions and dolphins when using gillnets and seabirds and gulper sharks when longlining.

*Australian Sea Lion* - There are permanent gillnet fishing closures in place around all known Australian sea lion (ASL) colonies. Larger areas, called ASL trigger zones, can be closed if the

number of ASL mortalities reaches the specified trigger. For full details refer to the [Australian Sea Lion Management Strategy \(2015\)](#).

*Dolphins* - AFMA has developed formal arrangements to minimise dolphin bycatch that are outlined in its [Gillnet Dolphin Mitigation Strategy \(2017\)](#). This strategy outlines zones where operators must have 100% monitoring in place and they incur escalating management responses for any dolphin bycatch. Any interaction with a dolphin must be recorded in the logbook and a dolphin bycatch evaluation report must be completed and sent to AFMA.

*Gulper Sharks* - Fisheries where gulper sharks are present are subject to increased monitoring, trigger limits, move-on provisions and mandatory handling practices designed to maximise post release survival. Finning of sharks and the disposing of trunks is illegal and accordingly the discarding of shark trunks or mutilated sharks is a monitoring requirement. Further information on the spatial closures and management measures can be found in the [Upper-Slope Dogfish Management Strategy \(2012\)](#).

*Seabirds* – All longlining activities are covered by the seabird Threat Abatement Plan (seabird TAP). The seabird TAP includes a mandatory minimum monitoring target of 10 per cent of effort in the GHAT and escalating management responses if the bycatch rate of 1 seabird per 100,000 hooks is exceeded.

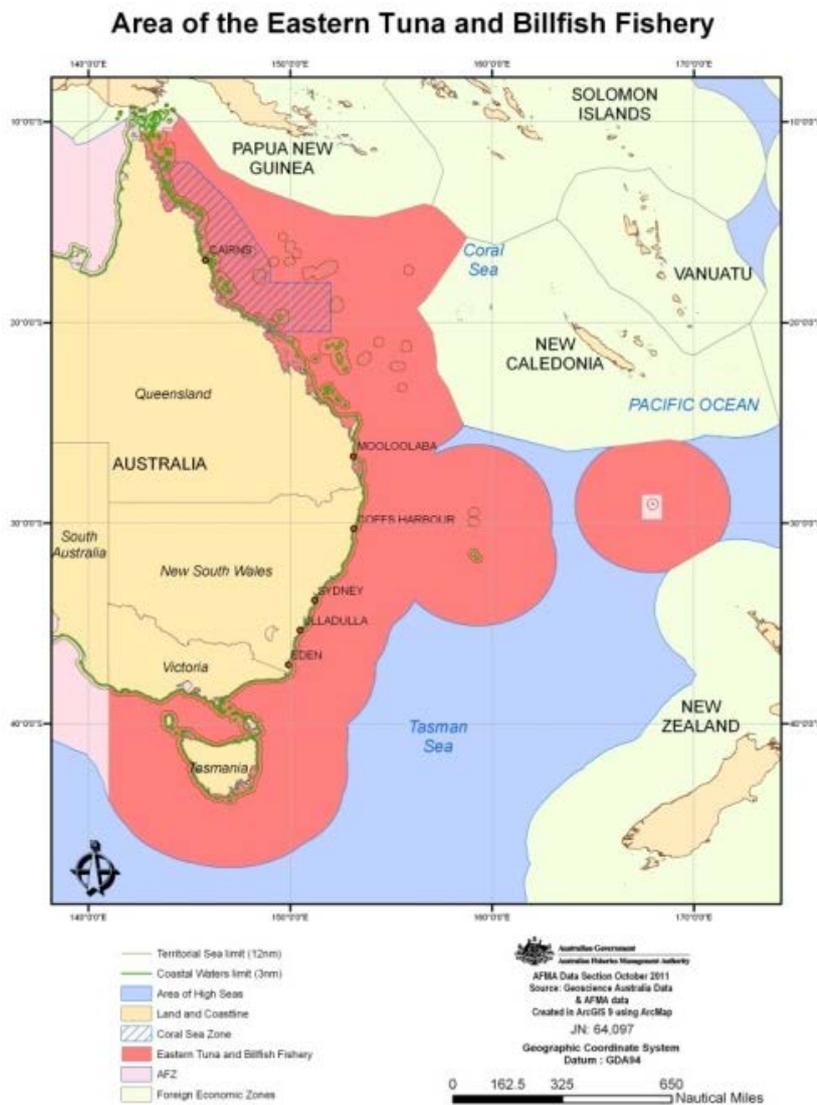
*Closures and Restrictions* - There are a number of bays and gulfs across Southern Australia that are closed to fishing to protect pupping grounds for the school shark and elephant shark nurseries. For further information on these closures visit the Primary Industries and Regions South Australia website.

## 4.2 Tuna and Billfish Fisheries (ETBF and WTBF)

The ETBF and WTBF operate throughout the Australian Fishing Zone (EEZ) including high seas areas of the Western Central Pacific Fisheries Commission (WCPFC) and the Indian Ocean Tuna Commission (IOTC).

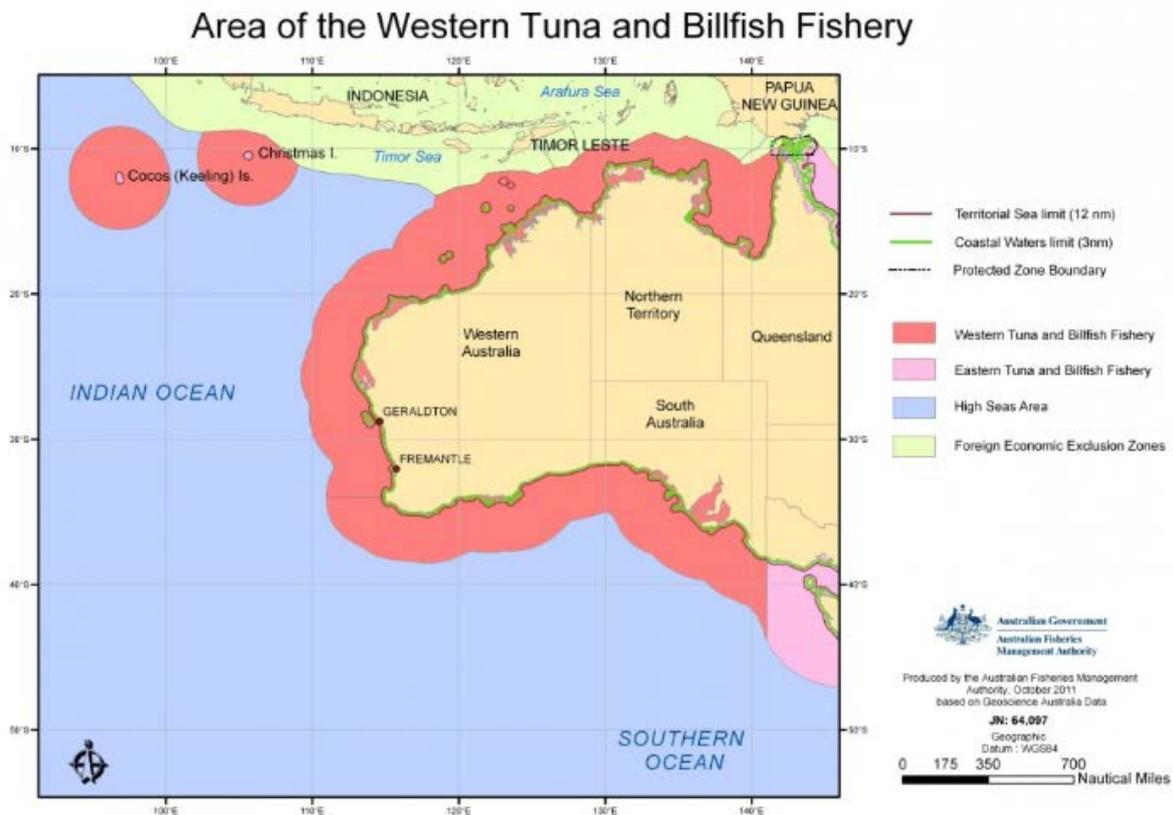
The five key target species in the ETBF are yellowfin tuna, bigeye tuna, albacore tuna, broadbill swordfish and striped marlin. Operators fishing in the ETBF also take southern bluefin tuna (SBT) along the New South Wales coast during the colder months, however, SBT is managed under the *Southern Bluefin Tuna Management Plan 2005*. Ray's bream, mahi mahi and escolar fishes are also important by-product species retained in the ETBF.

Figure 2 Regions in which EBTF operates (red area).



The ETBF extends through much of the eastern coast of Australia, with major ports including Cairns, Mooloolaba, Coffs Harbour, Ulladulla and various other New South Wales southern coast ports. The WTBF includes the waters off South Australia, Western Australia and the Northern Territory. Landings predominantly occur in Fremantle, Western Australia.

Figure 3 Regions in which WBTF operates (red area).



These fisheries primarily consist of pelagic longline gear, however, other gears include trolling, polling or hand-lining.

The major monitoring needs for the tuna and billfish fisheries are to:

- Verify total catch and discards for all commercial species and bycatch as reported in logbooks
- verify total fishery interactions with protected species as well as bycatch handling practices and seabird mitigation (tori line deployment)

Key concerns in the ETBF include:

*Protected Species* - Interactions with protected species such as seabirds, turtles and some shark species is a key concern for pelagic tuna fisheries. There is a need to ensure that mitigation procedures are followed to minimize interactions. There is also a need to determine spatially based capture rates for seabirds to comply with reporting requirements of the Threat Abatement Plan.

*Catch Handling* - Finning of sharks and the disposing of trunks is illegal and accordingly the discarding of shark trunks or mutilated sharks is a monitoring requirement. Similarly, there are concerns related to discarding of tuna and billfish species which is permitted but must be recorded in logbooks.

*Catch Per Unit Effort* – CPUE is a key tool to monitor stock status and is used to drive the harvest strategy. Catch and fishing effort (hooks) information provided in logbooks and catch disposal records is the primary source but additional information recorded on logbooks such as fishing gear

and method information (e.g. hooks, bait type, set time, light sticks) and fishing areas and times are also used to standardise CPUE.

The primary objectives of e-monitoring during pelagic longline operations are to:

- detect seabird interaction on the haul
- detect the deployment of mitigation devices (tori lines) on the set
- determine catch composition/piece count of fish being caught.

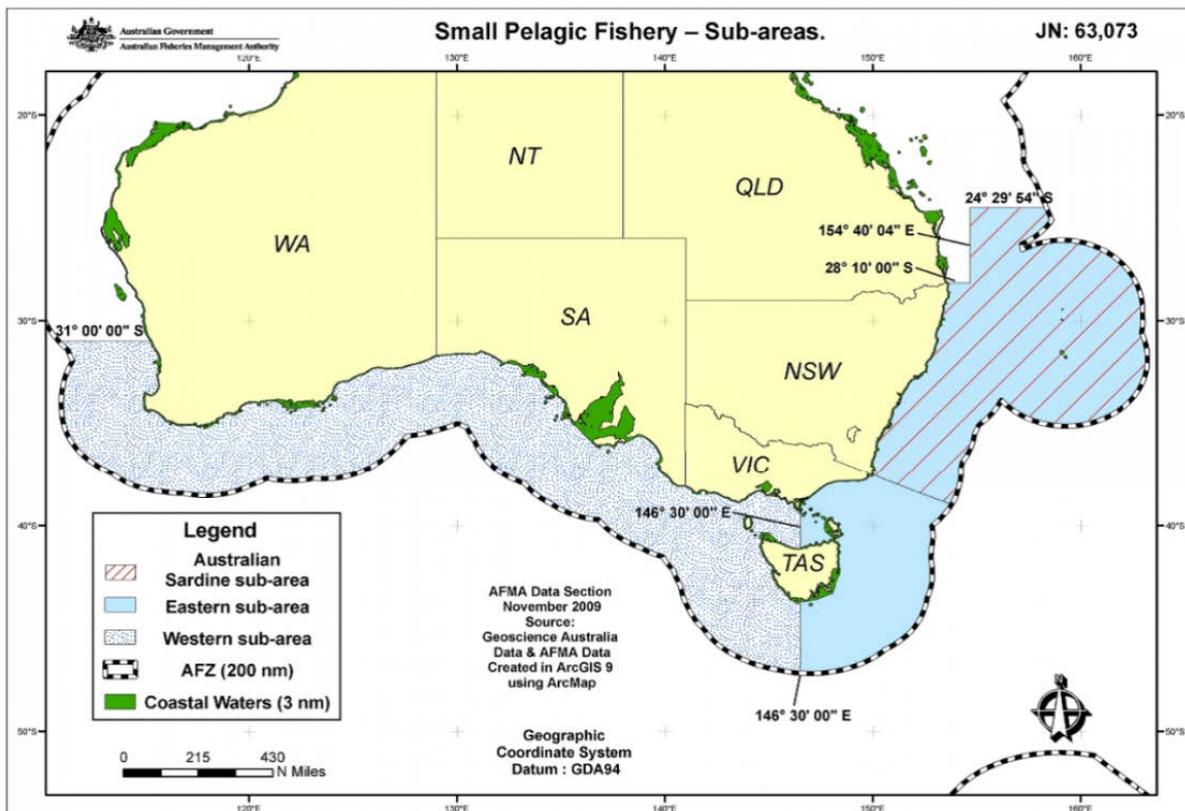
The number of cameras that will be needed on each boat will vary, depending on the configuration of each boat. The required camera views are of:

- the area behind the boat such that the deployment of the tori line might be determined
- the area outboard of the hauling stations
- the processing area.

### 4.3 Small Pelagic Fishery

The SPF extends from the Queensland/New South Wales border, typically outside 3 nautical miles, around southern Australia for a line at latitude 31° south (near Lancelin, north of Perth).

Figure 4: Regions in which the SPF operates



Species in the SPF are targeted using purse seine and mid-water trawl methods. The target species in the SPF are:

- Australian sardine (*Sardinops sagax*)
- Blue mackerel (*Scomber australasicus*)

- Jack mackerel (*Trachurus declivis*, *T. murphyi*)
- Redbait (*Emmelichthys nitidus*)

Key concerns in the SPF include:

*Protected Species* – Interactions with protected species such as seabirds and large marine mammals is a key concern for the Small Pelagic Fishery. There is a need to ensure that mitigation procedures are followed to minimise interactions.

The primary objectives of e-monitoring during Small Pelagic Fishery operations are to:

- detect seabird interaction on the haul
- detect the deployment of mitigation devices on the set
- determine catch of marine mammal and large bycatch items.

Camera angles:

- Cameras should capture all fishing activities and catch handling.

## 4.4 Boat Qualification, E-Monitoring Coverage Percentages and Audit Rates

### 4.4.1 Monitoring Coverage

Monitoring coverage refers to the proportion of effort in a sector or fishery that is to be covered by an operational e-monitoring system. The specified coverage can vary between fisheries and sectors depending on identified risks, data needs and cost efficiency.

For the ETBF, WTBF, GHAT and SPF mid-water trawl sector, AFMA's objective is to have a minimum of 90 per cent of fishing effort covered by e-monitoring.

In the gillnet sector of the GHAT, the Australian sea lion management zones are considered higher risk areas due to the higher probability of catching sea lions and dolphins. In these areas, 100 per cent of total fishing effort is covered by e-monitoring. All boats in this sector must have an operational e-monitoring system in order to fish.

### 4.4.2 Shot Selection and Audit Rates

The baseline audit rate for all fisheries is a minimum 10 per cent of shots per boat and a minimum of one shot per drive for each boat. In instances where drives span more than one month, the review will go up to minimum of 1 shot per month, rather 1 shot per drive.

The analysis will include analysis of full catch composition for each shot selected for review. Catch composition, discards and interaction with protected species on audited shots will be compared to logbook records with discrepancies flagged and reported to AFMA. A report summarising any discrepancies will also be provided to the fisher after each data drive has been audited. The logbook data that will be audited is outlined in Table 1.

**Table 1 Logbook data audited**

Catch composition	Protected species
Species ID and piece count reported	ID and number reported
Fate (retained/discarded)	
Life status (recorded by e-monitoring analyst only)	

Operators are required to report all protected species interactions. Any failure to report an interaction with a protected species may result in compliance action. In high risk areas for ASL 100% of footage is reviewed for these interactions.

## 4.5 Compliance Arrangements

### 4.5.1 Fishery Related Breaches

E-monitoring is used for quality assurance and fishers are still required to meet mandatory fishing obligations such as reporting and compliance with directions. Where significant misreporting and non-compliance is detected, these matters will be referred to the AFMA Compliance team for investigation.

Any intentional harm to protected species and/or bycatch species that are released will be noted and referred to compliance in line with AFMA's [Bycatch Handling and Treatment Guide 2016/17](#).

### 4.5.2 Non-Fishery Related Activities

The focus of e-monitoring is on fishing activities. However, if behaviour that contravenes Australian or International law is observed in the process of viewing footage, it will be referred to the AFMA Compliance team for investigation.

## 5 Operational Requirement

### 5.1 New Entrants to the Fisheries

New boat operators entering the ETBF, WTBF, GHAT and SPF fisheries must ensure that if they meet the boat qualifications requirements, they must organise installation of an e-monitoring system.

There can be maximum waiting time of up to 3 months on installations of e-monitoring systems. If operators require an e-monitoring system installed, they should contact the contractor (AAP) as soon as possible to schedule an installation. Contact details for AAP are listed at the top of this document.

The cost of purchasing and installing the Electronic monitoring equipment is covered by the operator.

## 5.2 Installation Preparation

In order to ensure that system installations are done as efficiently and cost-effectively as possible, there are a number of preparations that operators should perform on the boat prior to the installation. Operators should contact the contractor (AAP) for preparation guidelines.

Please note that the contractor (AAP) will not perform any direct work on hydraulics or electrical systems. The operator should ensure that any interfaces with the boat hydraulic or electrical systems are completed by qualified personnel. Any costs incurred through this process are to be covered by the operator. The operator will be responsible for making any arrangements for these tasks.

Installation includes running of cables to connect camera and sensor to the control box in the wheelhouse. Pass through and use of other conduits for cable runs will be required. Though every effort will be made to use existing ones, some modifications may be required. Any such work will be done with the approval of the vessel.

In order to ensure camera coverage of all fishing activity as per the program objectives for data collection, the fabrication and installation of mounting booms or brackets may be required. If required, these are the responsibility of the vessel.

### 5.2.1 System Installation

An e-monitoring system is determined as installed once:

- the technician confirms that all required system components have been installed
- The vessel and technician sign the vessel installation summary report. In consultation with the vessel, this confirms that all required system components have been installed, meet the program requirements, and are operating correctly.
- an initial function test is performed and passed
- a health statement message from the vessel is received and viewed by AFMA

A Radio Frequency interference declaration is received from the vessel operator to AAP and AFMA.

## 5.3 System Operation

### 5.3.1 Function Tests

In order to ensure that the e-monitoring system is functioning properly, the system is equipped with a user-interactive diagnostic process called a Functionality Test. The test will identify any issues with the system. This test should be performed:

- after any data drives are exchanged
- prior to starting a new trip
- after any lengthy periods of inactivity greater than 14 days
- if there are any suspected issues with the system.

The e-monitoring system logs the results of the Functionality Test for further analysis if required. Regular use of the function test will ensure the e-monitoring system continues to operate effectively, minimising any down time for repairs.

Boat crew will be instructed about how to perform these tests. Detailed instructions have been distributed to boats and are included in the Archipelago Vessel Operators Guide.

If there are any cameras mounted on movable booms, these need to be deployed into their operational position for function tests and fishing operations. For night-time operations, deck lighting must be provided.

### 5.3.2 Maintenance

Operators are expected to maintain their e-monitoring system in good working order. This includes ensuring any technical issues or damage is reported. Cameras must be kept clean. Views of catch handling and gear deployment must be kept unobstructed and well-lit.

Vessels are responsible for some basic maintenance of the systems. This includes:

- keeping the cameras clean (from salt spray etc.);
- cleaning of rotation sensors (reflectors); and
- maintaining batteries in keyboards or mice.

For further detail on proper maintenance of the EM system, please refer to your 'Vessel User Guide'.

## 5.4 Data Drive Management

Data drives contain all of the sensor data (cruise track and sensor inputs) as well as the video imagery of fishing events. These drives need to be sent to AFMA's Canberra offices for processing in order to produce a final record of fishing activities and catch. Pre-addressed satchels are provided to operators to send data drives to AFMA, similar to the envelopes used to send logbooks in.

### 5.4.1 Data Drive Handling and Shipping

Boat crew will be instructed about how to perform the drive exchanges. Detailed instructions will also be distributed to boats and are included in the Archipelago Vessel Operators Guide.

Data drives need to be posted to AFMA's Canberra office on the first landing of every month. Pre-paid, addressed bags will be provided to boats for this purpose.

If there is no footage on the data drive it does not need to be sent to AFMA, but if there is any footage on the drive it needs to be returned to AFMA by the end of the month.

Operators also need to ensure that they replace the drive before the end of the month or when it is 80 percent full.

Blank drives will be returned to boats. Return addresses for data drives must be included on the Vessel Registration form provided to boats. As with other documents, these will be distributed to boats and are available through the contractor, Archipelago Asia Pacific (AAP).

## 5.5 Operational Requirements

### 5.5.1 System Interruptions

Where an e-monitoring unit is not fully operational the operator must contact AAP immediately and make all reasonable attempts to repair the system. Where the system cannot be immediately repaired the operator must take all reasonable steps to make the boat available for the e-monitoring unit to be repaired at the earliest time agreed with AAP.

**Table 2 functioning system matrix**

Status	Description	Action	Fishery
Non-functioning system	Any aspect of the EM system is preventing recording of video or sensor data during fishing activities.	Urgent action required, no fishing allowed. You must cease fishing in the SBT Zone or ASL Zone immediately or receive an exemption from AFMA to keep fishing. You must contact AFMA immediately to report issues and contact AAP to evaluate the issue/s and arrange a resolution.	GHAT ASL Zone, Tuna SBT Zone.
Non-functioning system	Any aspect of the EM system is preventing recording of video or sensor data during fishing activities.	Action required. You may finish your existing trip. You must contact AFMA at the earliest opportunity to report issues and contact AAP to evaluate the issues and arrange a resolution. You may not undertake a subsequent trip without repairing or receiving exemption approval by AFMA.	GHAT, Tuna Longline, SPF.
Fully functioning system	Control centre, cameras and sensors are recording data on HDDs, capturing all catch handling.	None required	GHAT, Tuna Longline, SPF

Table 2 provides a guide for actions when the EM system is not recording data according to program requirements.

The vessel must report any system malfunctions or related issues to AAP and AFMA at their earliest opportunity.

If a service visit is required, a time and location needs to be arranged with AAP and the vessel must allow for sufficient time to complete any necessary repairs.

In order for the system to be deemed fully functional after a service;

- all required work must be completed by the technician
- a function test is performed and passed
- a health statement message from the vessel is received and viewed by AFMA

If the issue is not fully resolved during the allotted time, the operator must schedule a follow up service and will require an exemption from AFMA prior to commencing fishing.

A boat may only commence a fishing trip without a fully functioning e-monitoring system where:

- the area to be fished is not in the Australian Sea Lion Management Zones, Southern Bluefin Tuna Zone or 100% monitoring zones specified in the Upper Slope Dogfish Strategy
- AAP and AFMA have been notified
- a time has been scheduled with AAP to repair the unit.
- AFMA have provided written exception.

In deciding whether to grant an exemption, AFMA will take into account whether a reasonable attempt has been made to have the system repaired. The operator must allow sufficient time for a technician to make the repair and give fair and reasonable access to the boat.

## 5.6 Technical Support

### 5.6.1 Communication

In cases where equipment maintenance or repairs are required contact the contractor (AAP). Contact details are given at the front of this document.

In cases where switch off exemptions are required contact fisheries managers.

### 5.6.2 Service Ports and Responses

AAP supports a number of service locations across the GHAT, ETBF, WTBF and SPF. Service support locations may be subject to change dependant on the need and cost of maintaining an accredited service technician. Where a vessel requires servicing outside the ports with an accredited technician, AFMA and AAP will consider availability of the technicians and travel costs. The following ports currently support accredited service technicians:

- Cairns, QLD
- Mooloolaba, QLD
- Ulladulla, NSW
- Lakes Entrance, VIC
- Foster, VIC
- Portland, VIC
- Devonport, TAS
- Adelaide, SA
- Port Lincoln, SA
- Fremantle, WA

## 6 Data Processing and Delivery

There are two different parts to processing e-monitoring data.

(1) E-monitoring health statements are near real time reports of boat position, boat activity and e-monitoring system status. This data is monitored routinely, primarily to assist in e-monitoring program operational planning. This data informs:

- fleet activity
- the e-monitoring system data storage capacity of different boats
- the e-monitoring system operational status.

This information will be used to help:

- plan communications with boats
- arrange service trips when boats are in ports
- determine optimal strategies for planning field service activities.

(2) The second part of e-monitoring data processing occurs with the review of video and sensor data by an analyst.

### 6.1 Data Processing Requirements

In order to determine the fishing activity for any given trip, the sensor data (locations, gear activity) on all trips will be processed in order to determine:

- data set completeness
- presence of any time gaps (i.e. temporal breaks in the data set, indicating periods when the e-monitoring system was not operating)
- time and location of all fishing events
- whether fishing operations occurred in permitted areas.

#### 6.1.1 GHAT

Imagery will be randomly sampled to determine:

- compliance with seabird mitigation measures (automatic line only).
- an inventory of catch items by species, number and fate (i.e., retained or discarded), and life status for 10% of the fishing events.

In addition to the above, Gillnet boats with fishing operations within the South Australian sector will be subject to a 100% review of catch retrieval imagery for TEP species<sup>2</sup> (the 10% review for catch inventory shall count as part of this requirement i.e., there will be 90% review for TEP species).

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<sup>2</sup> For the purposes of this document TEP species means *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed species.

## 6.1.2 Tuna and Billfish Fisheries

Imagery will be randomly sampled to determine:

- compliance with seabird mitigation measures.
- the number of catch items by species and dispositions (i.e., retained or discarded).

This will be a random sample of 10% of the fishing events.

## 6.2 Data Delivery and Custodianship

The data drive must be sent by the operator to AFMA at the first landing of the month, or sooner if the e-monitoring data drive becomes 80% full.

The data drives that store the e-monitoring data are encrypted so that the data cannot be accessed until it reaches AFMA. At AFMA, an image of the data drive will be made and the data drive will be sent to AAP for analysis. There are procedures in place to safeguard the privacy and security of the collected data, for details see the “Privacy and Security” section below.

Once processed, all analysed data are securely uploaded to AFMA. AFMA will remain the custodian of the data at all times. AAP do not retain any video or data, unless authorised by AFMA.

## 6.3 Boat Reporting and Feedback

The contractor (AAP) will provide a report to fishers after each data drive has been analysed. This report will:

- Report on the quality of the footage and any issues that affect analysis of the video footage. This includes any issues that affect species identification, counts, released and discarded fish and adherence with handling requirements for measuring fish (where applicable).

Inform fishers of how closely their fishing log data compare to the data from the e-monitoring audit. This report will cover catch composition and protected species reporting.

## 6.4 Other Data Elements

Comparison of e-monitoring data to other fishery data, such as logbooks, is dependent on the timely submission of the other data. For example, shot-based release and discard comparisons will require Fishing Log Data to be complete and available.

### 6.4.1 Fishing Log

#### *Reporting and submission requirements*

All Daily Fishing Logbooks in the ETBF, WTBF, GHAT, and SPF fisheries are required to be completed for each shot whilst fishing. The completed log pages must be returned to AFMA within 3 business days of the completion of each trip.

## 6.4.2 Electronic Logbooks

### *Reporting and submission requirements*

If the operator is using e-logs, they will need to record and electronically submit the boat's activity on a daily basis, regardless of whether or not fishing takes place on that day. All logbook information must be recorded on a shot-by-shot basis and details for the last day of the trip must be recorded before the boat docks at the end of each trip.

## 6.4.3 Catch Disposal Records (CDR)

### *Reporting and submission requirements*

CDR records are generally required to be completed in the first part by the concession holder or their agent at unload before the fish are moved more than 50 metres from the boat. The Fish Receiver Permit holder must complete their part of the CDR immediately upon receipt of the fish and before the fish are placed with any other fish that are not part of the same consignment.

Both parts of the CDR or the electronically produced CDR's are required to be sent to AFMA within three business days of the unload date.

# 7 Privacy and Security

## 7.1 Privacy Safeguards

As with all government departments AFMA is required to comply with privacy and freedom of information laws. The *Freedom of Information Act 1982* (FOI Act) applies equally to data in written form or in visual form, such as video footage.

Various safeguards apply to the disclosure of personal or commercial information. For example, AFMA may prevent or limit this information (video or vessel operations) from being passed to others. Where personal information is not relevant to the purpose of the disclosure, the personal information can be obscured.

If a request is made under the FOI Act for access to e-monitoring footage, the footage may be exempt from disclosure on a number of grounds. These grounds include that the information has commercial value that could reasonably be expected to be destroyed or diminished if the information were disclosed, or where the footage contains personal information.

In that circumstance, AFMA would first consult with the person(s) who may be affected by the release. The affected person(s) would have review rights in the event that AFMA decided that the information should be released.

## 7.2 Data Encryption

E-monitoring footage will be encrypted at the time of recording. This data will only be able to be reviewed with the use of an encryption key. Encryption keys will be held by AFMA and AAP personnel only.

## 7.3 Data Release and Distribution

As with all information it collects, AFMA must be able to use and disclose e-monitoring data (including video footage) where this is necessary to carry out its functions under the *Fisheries Management Act 1991* and *Fisheries Administration Act 1991*.

This includes disclosure to other government agencies of data that relates to:

- possible breaches of the law
- the administration and management of fisheries and marine environments
- research or monitoring about marine fisheries or environments
- other laws which would potentially require AFMA to disclose data, such as the FOI Act, or by court order.

AFMA cannot lawfully disclose information unless authorised or required by law.

# 8 Program Performance Review

## 8.1 Ongoing Review and Evaluations

### 8.1.1 Program Objectives

AFMA and AAP will annually review performance against program objectives.

### 8.1.2 Financial Reviews

Financial performance, including cost recovery arrangements will be reviewed monthly with annual review through AFMA's existing budgetary process. This includes extensive consultation with fishers and industry representatives.